MOODY FLATS QUARRY PROJECT

Delineation of Waters of the United States

September 17, 2010

Prepared for:
Benchmark Resources, Inc.
4990 Hillsdale Circle, Suite 400
Eldorado Hills, CA 95762
Attn: Mr. Andrew White

Prepared by:
North State Resources, Inc.
5000 Bechelli Lane, Suite 203
Redding, CA 96002
(530) 222-5347
(530) 222-4958 *fax*

51127

North State Resources, Inc.

Table of Contents

Chapter 1. Summary 1

Chapter 2. Project Location 1
2.1 Acreage 1
2.2 Proximity to Major Highways and Streets 1
2.3 USGS Hydrologic Unit 2

Chapter 3. Environmental Setting 2
3.1 Current/Recent Land Use 2
3.2 Site Topography and Elevation 2
3.3 Climate 2
3.4 Hydrology/Hydrologic Features 5
3.5 Soil Map Units and Miscellaneous Land Types 5
3.6 Habitat types 6
3.6.1 Annual Grassland 6
3.6.2 Barren 6
3.6.3 Blue Oak Woodland 6
3.6.4 Blue Oak-Gray Pine 10
3.6.5 Fresh Emergent Wetland 11
3.6.6 Mixed Chaparral 11
3.6.7 Montane Hardwood-Conifer 11
3.6.8 Montane Hardwood 12
3.6.9 Ponderosa Pine 12
3.6.10 Valley Oak Woodland 12
3.6.11 Valley Foothill Riparian 12

Chapter 4. Methods 13
4.1 Field Delineation 13
4.2 Evaluation of Jurisdictional Features 14
4.3 Problem Soils 14

Chapter 5. Results 14
5.1 Characterization and Jurisdictional Determination of Delineated Wetland Features 15
5.1.1 Fresh Emergent Wetland 15
5.1.2 Fresh Emergent-Riparian Wetland 16
5.1.3 Intermittent Pool 16
5.1.4 Intermittent Swale 17
5.1.5 Riparian Wetland 17
5.1.6 Seep-Spring Wetland 18

5.1.7 Vegetated Ditch 18
5.2 Characterization and Jurisdictional Determination of Delineated "Other Water" Features 19
5.2.1 Ephemeral Stream 19
5.2.2 Intermittent Stream 20
5.2.3 Non-Vegetated Ditch 20
5.2.4 Seep-Spring-Other Waters 20

Chapter 6. Summary 21

Chapter 7. References 21

Figures

Figure 1. Project Location 3
Figure 2. Soil Map Units 7
Figure 3. Waters of the United States (7 Maps) ..... *pocket insert*

Tables

Table 1. Soil Map Units in the Study Area 9
Table 2. Acreage Summary of Waters of the United States 15
Table 3. Acreage Summary of Non-Jurisdictional Features 15

Appendices

Appendix A Routine Wetland Delineation Data Forms
Appendix B Representative Photographs
Appendix C Acreage Summary of Waters of the United States and Non-jurisdictional Features
Appendix D Significant Nexus Evaluation

Chapter 1. Summary

On behalf of Benchmark Resources, Inc., North State Resources, Inc. (NSR) conducted a delineation of waters of the United States occurring within the approximately 1,900-acre Moody Flats Quarry Project site (study area), owned by the 3-M Company. The study area is located near community of Mountain Gate north of the city of Redding, Shasta County, California. The study area is located west of Interstate 5 (I-5), south of Lake Shasta, and north of the City of Shasta Lake.

The field delineation was conducted during June and July of 2010. A total of 13.65 acres of waters of the United States were mapped in the study area. Waters of the United States occur as fresh emergent wetland (0.09 acre), fresh emergent-riparian wetland (0.22 acre), intermittent pool (0.001 acre), intermittent swale (0.57 acre), riparian wetland (2.40 acre), seep-spring wetland (0.24 acre), vegetated ditch (0.01 acre, 113 linear feet), ephemeral steam (0.55 acre, 19,568 linear feet), intermittent stream (9.57 acre, 114,118 linear feet), and seep-spring-other waters (0.003 acre, 73 linear feet).

Features that do not qualify as waters of the United States (non-jurisdictional) include ephemeral stream (0.01 acre, 306 linear feet), intermittent pool (0.07 acre), non-vegetated ditch (0.08 acre, 1,805 linear feet), seep-spring wetland (0.009 acre), and vegetated ditch (0.04 acre, 483 linear feet) totaling 0.21 acres.

This delineation of waters of the United States is subject to verification by the United States Army Corps of Engineers (Corps). NSR advises all parties to treat the information contained herein as preliminary until the Corps provides written verification of the boundaries of its jurisdiction.

Chapter 2. Project Location

The study area is located in Shasta County approximately 8 miles north of the city of Redding. It is located on the *Project City, California* and *Shasta Dam, California* U.S. Geological Survey (USGS) 7.5-minute topographic quadrangles in Township 33N, Range 4W, Sections 17-20, 30; Range 5W, Sections 13, 14, 23-25. The center of the study area is located at approximately UTM 10 0552898E, 4506065N (NAD27 datum). The location of the study area is shown in Figure 1.

2.1 Acreage

The study area encompasses a total of approximately 1,900 acres.

2.2 Proximity to Major Highways and Streets

Access to the study area is provided on the east and west sides of the study area. To access the study area from the east, travel north on I-5 to the Mountain Gate exit. Turn left, drive over the freeway,

and turn left at Wonderland Boulevard. Travel approximately 0.1 mile to a gated gravel drive on the right. The gates are locked; combinations to the gates are available from NSR.

To access the study area from the west, travel north on I-5 to Shasta Dam Boulevard. Drive west on Shasta Dam Boulevard approximately 0.9 mile to Shasta Park Drive. Turn right and proceed until Shasta Park Drive becomes Digger Bay Road at approximately 0.6 mile. Digger Bay Road continues through the far western portion of the study area. Pickard Street, at the intersection of Shasta Park Drive and Digger Bay Road, also provides access to a locked, gated entrance; however, the combination is not available for this lock. To access, drive down Picard Street until it dead-ends at the study area boundary.

2.3 USGS Hydrologic Unit

The study area is located in the *Sacramento-Lower Cow-Lower Clear* USGS Hydrologic Map Unit (Cataloging Unit Number 18020101).

Chapter 3. Environmental Setting

3.1 Current/Recent Land Use

The study area currently consists of open space. Historically, cattle ranged on the eastern side in the lower elevations of the study area. Based on the presence of a small fig orchard, a homestead may have occupied the area of Moody Flats. The Union Pacific Railroad bisects the southeast corner of the study area. Off-highway vehicle (OHV) use is prevalent throughout the property with many single-track dirt trails throughout most of the study area.

3.2 Site Topography and Elevation

Portions of the eastern study area are nearly level, rising to a ridge in the western third of the study area. The slopes are steep rising in elevation from approximately 880 feet to 2,041 in elevation at the highest point. Drainages flow southeasterly on the east side of the ridge. West of the ridge is generally mountainous and steep with drainages flowing southerly. Moody, Rancheria, and Salt creeks and other tributaries to Churn Creek originate in the study area.

3.3 Climate

Climate within the study area is as follows:

> **Type:** The study area is characterized by a Mediterranean climate with cool, wet winters and hot, dry summers.
>
> **Precipitation:** Precipitation in the study area primarily falls as rain. Average annual rainfall is approximately 63 inches (Western Regional Climate Center 2010).

Air Temperature: Air temperatures in the study area range between an average January high of 52 degrees Fahrenheit (ºF), and an average July high of 95 ºF. The year-round average high is approximately 72 ºF (Western Regional Climate Center 2010).

Growing Season: The growing season (i.e., 70 percent probability of air temperatures 28 ºF or higher) in the study area ranges between 145 and 263 days, and occurs between February and December. The soil temperature regime is thermic (Natural Resources Conservation Service 2010).

3.4 Hydrology/Hydrologic Features

Watersheds for Moody, Rancheria, Salt, and Churn creeks originate in or just outside of the study area. Smaller intermittent and ephemeral streams contribute to the hydrology of these larger streams. Seep-springs that generally originate at exposed bedrock occurring on the upper slopes and ridges also contribute to flows within the drainages. The drainages flow south and south easterly, and their hydrology is provided by ground water and sheet flow from adjacent slopes.

The topography gradient becomes nearly level in the eastern portion of the study area and intermittent swales become more predominant. Hydrology is provided by precipitation and sheetflow.

Moody, Rancheria, Salt, and Churn creeks are tributary to the Sacramento River, a traditional navigable water (TNW). Rancheria Creek flows to Moody Creek approximately 600 feet downstream of the study area. Moody Creek flows 3.3 river miles to Stillwater Creek and Stillwater Creek flows 15.75 river miles to the Sacramento River.

IS231 (IS 172, IS190, etc.) is a tributary to Salt Creek. This feature flows approximately 1.8 river miles southeast to Salt Creek. From this point Salt Creek conveys water 4 river miles to Churn Creek and Churn Creek flows approximately 14.3 river miles to the Sacramento River.

From the east side of the study area, Salt Creek flows south approximately 5.6 river miles to Churn Creek and Churn Creek flows approximately 14.3 river miles to the Sacramento River.

IS181 is also a tributary to Churn Creek. From the study area, IS181 flows approximately 2.8 river miles to Churn Creek. From this confluence, Churn Creek conveys water to the Sacramento River approximately 17.1 river miles.

3.5 Soil Map Units and Miscellaneous Land Types

Twenty one soil map units and/or miscellaneous land types occur in the study area. They are described in the *Soil Survey Shasta County Area, California* and *Shasta-Trinity National Forest Area, Parts of Humboldt, Siskiyou, Shasta, Tehama, and Trinity Counties, California* (Soil Survey Staff 2010). Soil map units occurring within the study area are shown in Figure 2 and are described in Table 1.

3.6 Habitat types

Habitat types within the study area were classified using a combination of descriptions provided in *A Guide to Wildlife Habitats of California* (Mayer and Laudenslayer 1988). The following eleven habitat types occur in the study area: annual grassland, barren, blue oak woodland, blue oak-gray pine, fresh emergent wetland, mixed chaparral, montane hardwood-conifer, montane hardwood, ponderosa pine, valley oak woodland, and valley-foothill riparian.

3.6.1 Annual Grassland

Annual grassland occurs in the eastern portion of the study area and in the Moody Flats area west of the railroad tracks. It is generally characterized by a dense herbaceous layer of annual grasses and forbs dominated by yellow star-thistle (*Centaurea solstitialis*-UPL[1]), slender wild oat (*Avena barbata*-UPL), rose clover (*Trifolium hirtum*-UPL), storksbill *(Erodium botrys*-UPL), winter vetch *(Vicia villosa*-UPL), medusahead *(Taeniatherum caput-medusae*-UPL), ripgut brome *(Bromus diandrus*-UPL), and soft chess *(B. hordeaceus*-FACU).

3.6.2 Barren

Barren habitat occurs in barren areas created by significant roads and fire lines, the railroad corridor, and rock outcrops. Roads and firelines mapped as barren predominantly occur in the western portion of the study area. The railroad corridor bisects the mid- to eastern portion of the study area and rock outcrops occur along the ridge in the west and northern portions of the study area. Barren habitat exhibits sparse to no vegetation. Re-colonization of vegetation in firelines is beginning to occur.

3.6.3 Blue Oak Woodland

Blue oak woodland occurs in the easternmost corner of the study area. It is characterized by a moderate overstory of blue oak (*Quercus douglasii*-UPL) with a dense herbaceous understory. Species occurring in the adjacent annual grassland also occur in blue oak woodland and include slender wild oat, rose clover, storks bill, winter vetch, ripgut brome, and soft chess.

1 Wetland indicator status for plant species is based on *National List of Plant Species That Occur in Wetlands: California (Region 0)* (Reed 1988) and includes the following categories:
Obligate Wetland (OBL) – Plants that occur almost always in wetlands
Facultative Wetland (FACW) – Plants that usually occur in wetlands, but also occur in non-wetlands (i.e., uplands)
Facultative (FAC) – Plants with a similar likelihood of occurring in both wetlands and uplands
Facultative Upland (FACU) – Plants that usually occur in uplands, but also occur in wetlands
Obligate Upland (UPL) – Plants that occur almost always in uplands
Need Information (NI) – Plants for which more information is needed prior to assigning an indicator status

Table 1. Soil Map Units in the Study Area

Map Unit Name Taxonomy	Map Unit Reference Code	Drainage Class	Depth to Restrictive Layer	Hydric Soils
Soil Survey Shasta County Area, California				
Anderson gravelly sandy loam Typic xerofluvents	Ad	Somewhat excessively drained	More than 80 inches	Yes, cobbly alluvial floodplain inclusions
Auburn loam, 0 to 8 percent slopes Ruptic-lithic xerochrepts	AnB	Well-drained	24 to 28 inches to lithic bedrock	No
Auburn very stony loam, 8 to 30 percent slopes Ruptic-lithic xerochrepts	ArD	Well-drained	More than 80 inches	No
Auburn clay loam 8 to 30 percent slopes, eroded Ruptic-lithic xerochrepts	AsD2	Well-drained	More than 80 inches	No
Auburn very stony clay loam, 30 to 50 percent slopes, eroded Ruptic-lithic xerochrepts	AtE2	Well-drained	27 to 31 inches to lithic bedrock	No
Auburn very rocky clay loam, 50-70 percent slopes, eroded Ruptic-lithic xerochrepts	AuF2	Well-drained	20 to 24 inches to lithic bedrock	No
Boomer gravelly loam, 0 to 15 percent slopes Ultic haploxeralfs	BkC	Well-drained	45 to 49 inches to paralithic bedrock	No
Boomer gravelly loam, 15 to 30 percent slopes Ultic haploxeralfs	BkD	Well-drained	45 to 49 inches to paralithic bedrock	No
Boomer gravelly loam, 30 to 50 percent slopes Ultic haploxeralfs	BkE	Well-drained	45 to 49 inches to paralithic bedrock	No
Boomer very stony loam, 50 to 70 percent slopes Ultic haploxeralfs	BlF	Well-drained	45 to 49 inches to paralithic bedrock	No
Boomer very stony clay loam, 30 to 50 percent slopes, severely eroded Ultic haploxeralfs	BoE3	Well-drained	45 to 49 inches to paralithic bedrock	No
Churn gravelly loam, 0 to 3 percent slopes Ultic haploxeralfs	CeA	Well-drained	More than 80 inches	Yes, in cobbly alluvial drainageways

Table 1. Soil Map Units in the Study Area

Map Unit Name Taxonomy	Map Unit Reference Code	Drainage Class	Depth to Restrictive Layer	Hydric Soils
Churn gravelly loam, deep, 0 to 3 percent slopes Ultic haploxeralfs	CfA	Well-drained	More than 80 inches	Yes, in cobbly alluvial drainageways
Goulding very stony loam, 10 to 30 percent slopes Lithic xerochrepts	GdD	Well-drained	16 to 20 inches to lithic bedrock	No
Goulding very rocky loam, 50 to 70 percent slopes, eroded Lithic xerochrepts	GeF2	Well-drained	16 to 20 inches to lithic bedrock	No
Perkins gravelly loam, 8 to 15 percent slopes Mollic haploxeralfs	PmC	Well-drained	More than 80 inches	No
Red Bluff loam, 0 to 3 percent slopes Ultic palexeralfs	RbA	Well-drained	More than 80 inches	Yes, Moda-unnamed depressions inclusions
Red Bluff loam, 3 to 8 percent slopes Ultic palexeralfs	RbB	Well-drained	More than 80 inches	Yes, Moda-unnamed depressions inclusions
Rockland	RxF	Excessively drained	0 to 10 inches to lithic bedrock	No
Shasta-Trinity National Forest Area, Parts of Humboldt, Siskiyou, Shasta, Tehama, and Trinity Counties, California				
Holland family-Holland family, deep complex, 40 to 60 percent slopes Ultic haploxeralfs	105	Well-drained	26 inches to paralithic bedrock/more than 80 inches	No
Rock outcrop-Goulding family complex, 40 to 80 percent slopes	259	Well-drained	15 inches to lithic bedrock	No

3.6.4 Blue Oak-Gray Pine

Blue oak-gray pine occurs mainly in the lower, moderately sloped portions of the study area. It occurs in the western portion of the study area in valleys generally along stream corridors. It also occurs over a ridge in the north-central portion of the study area. A dense to moderately dense overstory with a dense to moderately dense understory characterizes the blue oak-gray pine habitat. Several oak species are present in this habitat type and herbaceous cover varies from dense to sparse depending on the canopy closure. Dominant overstory species include blue oak, California black oak

(*Q. kelloggii*-UPL), valley oak (*Q. lobata*-FAC), interior live oak (*Q. wislizenii*-UPL), and gray pine (*Pinus sabiniana*-UPL). Oracle oak *(Quercus x morehus*-UPL), a hybrid of California black and interior live oak is also common in the overstory. Common shrubs observed in this habitat include white leaf manzanita (*Arctostaphylos viscida*-UPL), buck brush (*Ceanothus cuneatus*-UPL), poison oak (*Toxicodendron diversilobum*-UPL), coffee berry (*Rhamnus californica*-UPL), cascara (*R. purshiana*-UPL), snowdrop bush *(Styrax officinalis*-UPL), wild mock orange *(Philadelphus lewisii*-UPL), deer brush (*Ceanothus integerrimus*-UPL), and California buckeye (*Aesculus californica*-UPL). Common grasses and forbs observed in this vegetation habitat include pussy ears (*Calochortus tolmiei*-UPL), Pacific hounds tongue (*Cynoglossum grande*-UPL), slender wild oat, and soaproot (*Chlorogalum pomeridianum*-UPL). Lianas of Dutchman's pipe (*Aristolochia californica*-UPL) and chaparral clematis (*Clematis lasiantha*-UPL) shroud shrubs and often grow into the tree canopy.

3.6.5 Fresh Emergent Wetland

Fresh emergent wetlands are uncommon in the study area, but occur in the pond in the southern portion of the study area and in a small, excavated channel along the railroad tracks in the southeastern portion of the study area. Small intermittent pools in the annual grassland habitat also contain fresh emergent vegetation. Emergent wetland vegetation dominates these wetlands due to perennial or nearly perennial inundation. Common species include pale spike rush (*Eleocharis macrostachya*-OBL), broad-leaf cattail (*Typha latifolia*-OBL), pennyroyal (*Mentha pulegium*-OBL), and pondweed (*Potamogeton* sp. -OBL).

3.6.6 Mixed Chaparral

Mixed chaparral occurs throughout the study area and is typically characterized by dense shrub stands. Dominant species include whiteleaf manzanita, buckbrush, toyon (*Heteromeles arbutifolia*-UPL), California buckeye, Brewer's oak (*Quercus garryana* var. *breweri*-UPL), California bay (*Umbellularia californica*-UPL), interior live oak, Lemmon's ceanothus (*Ceanothus lemmonii*-UPL), birchleaf mountain mahogany (*Cercocarpus betuloides*-UPL), holly-leaf redberry (*Rhamnus ilicifolia*-UPL), yerba santa (*Eriodictyon californicum*-UPL), and poison oak. Few herbaceous plants occur in this habitat and include soaproot, goosegrass (*Gallium aparine*-UPL), and hedgehog dogtail (*Cynosurus echinatus*-UPL).

3.6.7 Montane Hardwood-Conifer

Montane hardwood-conifer occurs on the slopes throughout the main portion of the study area and is characterized by a dense hardwood canopy interspersed with conifers. The dominant hardwood is California black oak with interior and canyon live oak *(Q. chrysolepis*-UPL) associates. Individuals or stands of gray pine or ponderosa pine (*Pinus ponderosa*-UPL) occur in this habitat type. Understory species are generally dense and include whiteleaf manzanita, buck brush, interior live oak, canyon live oak, California buckeye, western redbud (*Cercis occidentalis*-UPL), and California bay. Forbs and grasses occur in a sparse to moderate herbaceous layer dominated by pussy ears, soaproot, hound's tongue, and slender wild oat.

3.6.8 Montane Hardwood

Montane hardwood occurs on the slopes in the northern and western portions of the study area and is characterized by a dense overstory of California black oak. The understory is often sparse due to a typically dense canopy. Associated species include canyon live oak, poison oak, soaproot, California buckeye, and California bay.

3.6.9 Ponderosa Pine

Ponderosa pine occurs primarily in the northwestern portion of the study area, although there are also small stands occurring toward the southern portion. Ponderosa pine is sparsely to moderately dispersed throughout with California black oak as a common hardwood associate. Dense stands of whiteleaf manzanita, buck brush, and Brewer's oak are also present in the understory. Understory plants are sparse and include soap root, poison oak, and narrow-leaved sword fern (*Polystichum imbricans*-UPL).

3.6.10 Valley Oak Woodland

Valley oak woodland is located in the nearly level, lower elevation areas in the eastern portion of the study area. It occurs between Moody and Rancheria creeks east and west of the railroad tracks. This habitat is characterized by a dense overstory dominated by valley oak. Blue, California black, and interior live oaks also occur intermittently. Moderate to dense patches of shrubs occur in the understory and include California buckeye, coffee berry, snowdrop bush, and western redbud. Lianas of California grape *(Vitis californica*-FACW) grow into the upper canopy. Forbs and herbs occur in dense patches where openings in the canopy occur. Dominant herbaceous species include hedgehog dogtail, torilis *(Torilis arvense*-UPL), and European hairgrass *(Aira caryophyllea*-UPL).

3.6.11 Valley Foothill Riparian

Valley foothill riparian occurs as thin stringers and large patches along most stream corridors in the study area. It also occurs around the southern edge of the pond in the southern portion of the study area. Valley foothill riparian associated with streams is characterized by a sparse overstory of Fremont cottonwood (*Populus fremontii*-FACW), big leaf maple *(Acer macrophyllum*-FAC), or white alder (*Alnus rhombifolia*-FACW), and a fairly dense mid-story and herbaceous layer. The mid-story is dominated by willows including arroyo willow (*Salix lasiolepis*-FACW), narrow-leafed willow (*S. exigua*-OBL), red willow (*S. laevigata*-OBL); western choke cherry (*Prunus virginiana*-FAC), and spice bush (*Calycanthus occidentalis*-FAC) are also present. Brambles of Himalayan blackberry (*Rubus discolor*-FACW) and California blackberry (*R. ursinus*-FACW) often engulf broader, low-gradient riparian areas. Lianas of California grape often grow into the canopy. Other species present include California buttonwillow (*Cephalanthus occidentalis*-OBL), American dogwood (*Cornus sericea*-FACW), California ash (*Fraxinus dipetala*-UPL), and mugwort (*Artemisia douglasiana*-FACW).

Chapter 4. Methods

4.1 Field Delineation

The on-site routine delineation of waters of the United States in the study area was based on field observations of positive indicators for hydrophytic vegetation, hydrology, and soils for wetlands; and on indicators of an ordinary high water mark (OHWM) for other waters of the United States. This methodology is consistent with the approach outlined in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (U.S. Army Corps of Engineers 2008), and Corps regulations. Taxonomic nomenclature for plant species is in accordance with *The Jepson Manual* (Hickman 1993). Wetland indicator status for plant species was confirmed using Reed (1988), and the "50/20 Rule" was applied to determine plant dominance (U.S. Army Corps of Engineers 2008). Presence of primary and secondary wetland hydrology indicators were documented for each wetland feature.

A soil pit was dug in each representative wetland feature. Soil pits were dug to a depth sufficient to document the presence or confirm the absence of hydric soil or hydrology indicators. Soils were examined in order to assess field indicators of hydric soils. Positive indicators of hydric soils were observed in the field in accordance with the criteria outlined in *Field Indicators of Hydric Soils in the United States* (Hurt and Vasilas 2006). Soil colors were determined using a Munsell® soil color chart. The hydric status of each soil map unit occurring in the study area was reviewed using the *Web Soil Survey* (Soil Survey Staff 2010). At least one set of data points was selected to best represent the wetland feature type and the adjacent uplands. Data points were also placed in suspect areas to confirm wetland or upland status.

"Other waters" are TNWs and their tributaries. Delineation of "other waters" was based on presence of an OHWM as defined in Corps regulations (33 CFR 328.3 and 33 CFR 328.4) and whether the feature qualified as tributary to waters of the United States. Physical characteristics of an OHWM include, but are not limited to, a natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, presence of litter and debris, leaf litter disturbed or washed away, scour, deposition, presence of bed and bank, and water staining. At least one set of paired data points was then selected to best represent the "other waters" and adjacent upland conditions for each "other waters" type.

Sixty one data points representing each feature type, the associated upland, and suspect areas were characterized and documented throughout the study area. Field observations were conducted June 15 through July 20, 2010. Routine wetland determination data forms are presented in Appendix A. Representative photographs of features delineated and data point locations are presented in Appendix B.

The boundaries of delineated features and data points were mapped using a Trimble Pathfinder Pro XH Global Positioning System (GPS) capable of sub-foot accuracy. Where the use of the GPS was not practicable, the features were delineated by hand onto ortho-rectified color aerial photographs.

4.2 Evaluation of Jurisdictional Features

Isolated, non-navigable, intrastate waters are not subject to federal jurisdiction based on guidance issued in response to the U.S. Supreme Court's decision in *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers* ("SWANCC decision") (Guzy and Anderson 2001). The U.S. Environmental Protection Agency (EPA) memorandum providing guidance to implement the U.S. Supreme Court's decision in *Rapanos v. United States* and *Carabell v. United States*, referred to as "Rapanos" (Grumbles and Woodley 2008), was considered in determining federal jurisdiction. Under this guidance, wetland features that are not adjacent to (i.e., bordering, contiguous, or neighboring) a TNW or abutting a relatively permanent water (RPW) are subject to a significant nexus evaluation. In these circumstances, the significant nexus evaluation is used by the Corps (and EPA) to determine whether a particular wetland or "other water" has a "significant nexus" to a TNW; and is therefore subject to regulation under the federal Clean Water Act, (i.e., waters of the United States). Please note that non- jurisdictional features may still fall under the jurisdiction of the Regional Water Quality Control Board and/or the California Department of Fish and Game.

Specifically, jurisdictional status was evaluated on a feature-by-feature basis as follows: if the feature did not have a hydrologic surface connection to a TNW (e.g., a seasonally inundated wetland that abuts an RPW, and the subject RPW conveys surface water to a TNW) or did not demonstrate a "significant nexus" to a TNW, it was not considered to meet the criteria for a water of the United States.

Approved Jurisdictional Determinations and Preliminary Jurisdictional Determinations are tools used by the Corps to help implement Section 404 of the Clean Water Act. In order to obtain an Approved Jurisdictional Determination, as required to determine a feature as non-jurisdictional, the Corps must conduct a significant nexus evaluation to assess the characteristics and functions of the aquatic features to determine if they significantly affect the chemical, physical, and biological integrity of downstream navigable waters. Alternatively, an applicant can request a Preliminary Jurisdictional Determination in which case the Corps will treat all features as jurisdictional waters of the United States for permitting purposes (Riley 2008).

4.3 Problem Soils

Sand and gravel bars are problem soils occurring in the study area. Sand and gravel bars occur in the floodplains of rivers and streams. The soils are course-textured and often lack hydric soil indicators because of deposition of new soil during seasonal or annual flood events, low iron or manganese, and low organic matter content. Riparian wetlands have developed on gravel and sand bars occurring along many of the intermittent streams in the study area.

Chapter 5. Results

The boundaries of waters of the United States as well as non-jurisdictional features in the study area are illustrated in Figure 3 and the acreage summary is presented in Appendix C. A total of 13.65 acres of waters of the United States and 0.21 acre of non-jurisdictional features were delineated. An

acreage summary of the features delineated and their jurisdictional status is presented in Tables 2 and 3.

Table 2. Acreage Summary of Waters of the United States

Waters of the United States	Total Acreage	Total Linear Feet
Wetlands		
Fresh Emergent Wetland	0.09	N/A
Fresh Emergent-Riparian Wetland	0.22	N/A
Intermittent Pool	0.001	N/A
Intermittent Swale	0.57	N/A
Riparian Wetland	2.40	N/A
Seep-Spring Wetland	0.24	N/A
Vegetated Ditch	0.01	113
Other Waters		
Ephemeral Stream	0.55	19,568
Intermittent Stream	9.57	114,118
Seep-Spring-Other Waters	0.003	73
Total Waters of the United States	**13.65**	**N/A**

Table 3. Acreage Summary of Non-Jurisdictional Features

Features	Total Acreage	Total Linear Feet
Ephemeral Stream	0.01	306
Intermittent Pool	0.07	N/A
Non-vegetated Ditch	0.08	1,805
Vegetated Ditch	0.04	483
Seep-Spring Wetland	0.01	N/A
Total Non-Jurisdictional Features	**0.21**	**N/A**

5.1 Characterization and Jurisdictional Determination of Delineated Wetland Features

5.1.1 Fresh Emergent Wetland

Fresh emergent wetland (FEW) occurs in the eastern portion (FEW1, 2, and 3) and in one location along the railroad tracks (FEW4) in the eastern portion of the study area. Fresh emergent wetlands occur in areas with long-duration inundation creating an environment for perennial hydrophytic plants. Fresh emergent wetlands occurring in the study area are generally man-made. FEW1 and 2 are excavated seep-springs in the headwaters of intermittent swales. FEW4 has formed between the

railroad and the dirt road where elevated culverts inhibit flow from the intermittent stream to the west. FEW3, however, is located in a convex position on the slope and hydrology is provided by groundwater.

Dominant plant species occurring in fresh emergent wetlands include twelfth rush (*Juncus uncialis*-OBL), green sheath sedge (*Carex feta*-OBL), and pale spike rush (*Eleocharis macrostachya*-OBL). Inundation was observed during the field visit on June 15, 2010. Additional wetland hydrology criteria include hydrogen sulfide odor, reduced iron, and a thin muck surface. Hydric soil criteria are met through the observation of surface water and saturation. Indicators of long-duration saturation include depleted matrix and a hydrogen sulfide odor.

Fresh emergent wetlands contribute to the flow of water in intermittent swales and intermittent streams that convey water to Rancheria Creek, a RPW, and ultimately to the Sacramento River, a TNW. Therefore, these features are federally jurisdictional.

5.1.2 Fresh Emergent-Riparian Wetland

Fresh Emergent-Riparian Wetland (FEW-RW) occurs in the in-stream constructed impoundment located in the tributary to Salt Creek in the southwestern portion of the study area. Wooded riparian areas have developed along the banks of the impoundment whereas, fresh emergent vegetation has established in the shallow perimeter of the impoundment. Dominant plant species along the banks of the impoundment include Goodding's black willow (*Salix gooddingii*-OBL), and narrow-leaved willow (*Salix exigua*-OBL). Fresh emergent species include pennyroyal (*Mentha pulegium*-OBL), pale spike rush, willow dock (*Rumex salicifolius*-OBL), water plantain (*Alisma plantago-aquatica*-OBL), and rabbitsfoot grass (*Polypogon monspeliensis*-FACW). Inundation was observed during the field visit on July 8, 2010. Additional wetland hydrology criteria include a hydrogen sulfide odor and sediment deposits. Hydric soil criteria are met through the observation of surface water and saturation. Indicators of long-duration saturation include a hydrogen sulfide odor.

FEW-RW1 is an in-stream constructed impoundment in IS110 that conveys water to Salt Creek, a RPW, and ultimately to the Sacramento River, a TNW. Therefore, these features are federally jurisdictional.

5.1.3 Intermittent Pool

Intermittent pools (IP) in the study area are created by OHV and 4x4 vehicle use. These are depressional features that are inundated for long enough duration to establish hydrophytic vegetation. Soil characteristics are difficult to determine due to repetitive disturbance by vehicles. Depending on the amount of disturbance, plant establishment varied from sparse to moderately dense. Dominant plant species in less disturbed pools include pennyroyal, smooth cat's ears (*Hypochaeris glabra*-UPL), perennial ryegrass (*Lolium perenne*-FAC), and coyote thistle (*Eryngium castrense*-FACW). In more frequently disturbed pools, dominant plant species include nutsedge (*Cyperus eragrostis*-FACW), rabbitsfoot grass, slender rush (*Juncus tenuis*-FACW), toad rush (*Juncus bufonius*-FACW), and hyssop loosestrife (*Lythrum hyssopifolia*-FACW). Hydrology is provided by frequent flooding and long-duration inundation indicated by sediment deposits, soil surface cracks, water-stained leaves, and oxidized rhizospheres. Vehicle disturbance may inhibit or mask hydric soil indicators;

however, inundation was observed through June 30, 2010 and development of dominant hydrophytic vegetation and hydrology indicators are evidence of long duration ponding.

IP1 is approximately 25 feet from a jurisdictional water feature and may overflow and sheet flow to IS12 to its southwest. Because there is a surface connection to a jurisdictional feature, IP1 is also federally jurisdictional.

NJIP1 through NJIP6 are isolated from waters of the United States. The pools range from 50 to 200 feet away from any jurisdictional features and do not drain or show any physical evidence of a surface connection to waters of the United States. Therefore, the intermittent pools were determined to be isolated and non-jurisdictional.

5.1.4 Intermittent Swale

Intermittent swales (ISW) generally occur in the eastern, gently sloped portion of the study area. Intermittent swales are vegetated, linear, drainage features that convey water to other jurisdictional features, generally intermittent streams. Depending on soil type and slope gradient, these features alternate with scoured, intermittent streams. Plants dominating these features include perennial ryegrass, coyote thistle, pennyroyal, seep monkey flower (*Mimulus guttatus*-OBL), Mediterranean barley (*Hordeum marinum* var. *gussoneanum*-FAC), and soft chess. Hydrology is provided by frequent flooding and long-duration inundation indicated by a biotic crust and oxidized rhizospheres. Hydric soil criteria are met through indicators of long duration ponding, including the observation of redox depressions.

Intermittent swales convey water to intermittent streams that flow to Rancheria Creek, a RPW and tributaries to the Sacramento River, a TNW. Therefore, intermittent swales in the study area are federally jurisdictional waters.

5.1.5 Riparian Wetland

Riparian wetlands (RW) occur adjacent to the larger intermittent streams occurring in the study area. The dominant hydrophytic plants on the east side of the study area include Fremont cottonwood, arroyo willow, California button willow, willow dock, meadow rue (*Thalictrum fendleri*-FACU), rabbitsfoot grass, pinnate-leaved lotus (*Lotus pinnatus*-OBL), seep monkey flower, spearmint (*Mentha spicata* var. *spicata*-OBL), Mexican tea (*Chenopodium ambrosioides*-FAC), sticky cinquefoil (*Potentilla glandulosa*-FAC), and California grape. Upland plants also occur at a lesser extent and include poison oak and California coffeeberry. The dominant hydrophytic plants on the west side of the study area include white alder (*Alnus rhombifolia*-FACW), spice bush (*Calycanthus occidentalis*-FAC), Indian rhubarb (*Darmera peltata*-OBL), Himalayan blackberry, and California grape.

RW47 occurring along IS205 is dominated by herbaceous species. Because this riparian area is nearly level, the water table provided by the stream hydrates a broad area. Dominate plants include white-tipped clover (*Trifolium variegatum*-FACW), slender rush, pinnate-leaved lotus, nutsedge, checker mallow (*Sidalcea hirsuta*-OBL), perennial ryegrass, and iris-leaved juncus (*Juncus xiphioides*-OBL).

For all riparian wetlands, hydrology is provided by frequent flooding and long-duration inundation indicated by water marks, sediment deposits, and drift deposits. The soils are problematic in that these features occur on a sand/cobble bars within and adjacent to intermittent streams in the study area. However, the pit dug for RW47 emitted hydrogen sulfide odor supporting both wetland hydrology and hydric soils.

Riparian wetlands occur within and adjacent to intermittent streams that convey water to Moody, Rancheria, Salt, or Churn creeks, each of which are RPWs and tributaries to the Sacramento River, a TNW. Therefore, riparian wetlands in the study area are federally jurisdictional waters.

5.1.6 Seep-Spring Wetland

Seep-spring wetlands (SSW) occur throughout the study area but vary in plant composition between the east and west portions of the study area. A spring is a point where ground water flows out of the ground when an aquifer meets the grounds surface. The eastern seep-spring wetlands occur typically along exposed bedrock outcrops in the headwaters of intermittent streams. Dominate plant species in seep-spring wetlands on the east side of the study area include seep monkey flower, white brodiaea (*Triteleia hyacinthina*-FACW), and Perennial ryegrass. Hydrology indicators of long duration saturation include water marks and sediment deposits. Hydric soil indicators are problematic because in most cases water seeps directly from the bedrock and typical hydric soil characters cannot develop. Where soil overlays the bedrock, the hydrogen sulfide hydric soil indicator has developed.

The western seep-spring wetlands are generally seeps that have been developed by excavation for road-cuts or in one case, the specific development of a spring (SSW28). These seep-spring wetlands are dominated by arroyo willow, chain fern (*Woodwardia fimbriata*-FACW), spice bush, slender rush, and Himalayan blackberry. Hydrology is provided by frequent flooding and long-duration inundation indicated by a biotic crust and a hydrogen sulfide odor. Hydric soil criteria are met through indicators of long duration ponding including the observation of hydrogen sulfide odor, loamy mucky material, loamy gleyed matrix, and depleted matrix.

Seep-spring wetlands are tributary to intermittent streams that flow to Moody, Rancheria, Salt, or Churn creeks, each of which are RPWs and tributaries to the Sacramento River, a TNW. Therefore, seep-spring wetlands in the study area are federally jurisdictional waters.

NJSSW1 was created by the development of a landing. From the cut in the slope, water seeps across the landing towards two arroyo willows at the eastern edge of the landing. The arroyo willows appear to respire the seepage because there is no indication that water seeps beyond the arroyo willows. This feature is approximately 150 feet from waters of the United States, and the topography does not indicate that this feature would flow to a jurisdictional feature during a high precipitation event. Therefore, NJSSW1 was determined to be isolated and non-jurisdictional.

5.1.7 Vegetated Ditch

Vegetated ditches occurring in the study area are ditches that have been excavated to drain adjacent uplands, roads, or railways. Because these features gradients are so slight, pooling and/or saturation occur in each of the ditches allowing hydrophytic vegetation to colonize. Dominant plant species include pale spikerush, Perennial ryegrass, Mediterranean barley, hyssop loosestrife, rabbitsfoot

grass, and pennyroyal. Wetland hydrology criteria are met through the observation of surface water on June 17, 2010, and oxidized rhizospheres indicating long-duration inundation. Hydric soil criteria are met through the observation of surface water, biotic crust, and redox depression indicating long duration saturation.

VD1 and 2 intercepts flow from an intermittent stream north of the feature. Although this feature was excavated to drain a road, it intercepts flow from a water of the United States and conveys the flows to waters of the United States. Therefore, VD 1 and 2 are subject to federal jurisdiction.

NJVD1 and NJVD2 are determined to be federally non-jurisdictional based on the Rapanos guidance provided by the EPA and the Corps. In accordance with this guidance, federal agencies will not assert jurisdiction over "ditches (including roadside ditches) excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water"(Grumbles and Woodley 2007). Although hydrophytic vegetation is present, these features have been excavated wholly in uplands and drain the adjacent uplands and roadways during precipitation events. Therefore, NJVD1 and NJVD2 are not subject to federal jurisdiction. A significant nexus evaluation for this feature is included in Appendix D.

5.2 Characterization and Jurisdictional Determination of Delineated "Other Water" Features

5.2.1 Ephemeral Stream

Ephemeral streams (ES) occur infrequently in the study area and are found where seep-spring wetlands do not contribute to the hydrology of the watershed. These features exhibit indicators of scour and deposition, minor drift lines, and sediment deposits, but lack indication of a ground water component. Hydrology is provided by sheet flow during precipitation events. The poorly defined hydrology indicators, close proximity to the headwaters, and the small size of the ephemeral streams indicate short duration flow and the lack of a groundwater component. Jurisdictional boundaries were established at the OHWM.

Most ephemeral streams in the study area flow into an intermittent stream which conveys water ultimately to the Sacramento River, a TNW. Therefore, these streams are federally jurisdictional.

However, ES2 and 3 has been altered by the construction of a building pad. A ditch was built along the perimeter of the pad to intercept water from this drainage, but a breach in the berm has allowed water to flow out and dissipate onto the pad. Due to the short duration of flow and the lack of velocity, water either percolates into the pad or evaporates. The pad is approximately 200 feet from a jurisdictional feature. Additionally, ES1 is a small ephemeral stream that has no surface connection to a jurisdictional water. Scour and deposition ends approximately 350 feet from the nearest jurisdictional feature.

Because there is no surface connection and they are 200 to 350 feet from a jurisdictional feature, these features are not subject to federal jurisdiction.

5.2.2 Intermittent Stream

Intermittent streams (IS) occur throughout the study area in both steep and low gradient drainages. Intermittent streams are characterized as bed and bank features that exhibit indicators of scour, deposition, watermarks, and drift lines. Intermittent streams flow seasonally, but are fed by a groundwater component in addition to precipitation and sheet flow from adjacent slopes, extending the duration of flow. Intermittent streams in the study area are highly variable in size, gradient, substrate, and duration of flow. The size of streams range from 1 to 15 feet and gradients can range from 1 to 30 percent slope. Substrates are generally dominated by gravel and cobble, but in the upper portions of the drainage often transition to bedrock.

Generally, most intermittent streams dry-up in early summer. However, Moody (IS133 etc.), Rancheria (IS88 etc.), Salt (IS218, etc.), and IS181 are all moderate- to long-duration intermittent streams with flows extending well into the summer. Extended flows often support adjacent riparian wetlands and in reaches with lower gradients support herbaceous hydrophytic vegetation including seep monkey flower and pinnate-leaved lotus within the OHWM. Jurisdictional boundaries were established at the OHWM.

Depending on the drainage, intermittent streams convey water to Moody, Rancheria, Salt, or Churn creeks, each of which are RPWs and tributaries to the Sacramento River, a TNW. Therefore, intermittent streams in the study area are federally jurisdictional waters.

5.2.3 Non-Vegetated Ditch

Non-vegetated ditches (NVD) occur along the roadways and railroad tracks in the study areas. These features have been excavated solely to drain uplands. Boundaries were established at the OHWM as indicated by sediment and drift deposits.

All non-vegetated ditches were determined to be non- jurisdictional based on the Rapanos guidance provided by the EPA and the Corps. In accordance with this guidance, federal agencies will not assert jurisdiction over “ditches (including roadside ditches) excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water”(Grumbles and Woodley 2007).

These features have been excavated solely as a function of draining the roadway or railroad. Additionally, these features are characterized as having low volume, infrequent and short duration flow. Therefore, these features are not subject to federal jurisdiction.

5.2.4 Seep-Spring-Other Waters

One seep-spring-other waters (SSOW) feature occurs in the Moody Creek drainage. Water originates from one location in the drainage. The gradient is steep and the substrate is bedrock providing for increased water velocity and precluding the establishment of hydrophytic plants. Evidence of hydrology is provided by indicators including watermarks, sediment deposits, and drift deposits. This feature flows into Moody Creek. Jurisdictional boundaries were established at the OHWM.

Because this feature conveys water to Moody Creek, a RPW, and tributary to the Sacramento River, a TNW, it is federally jurisdictional.

Chapter 6. Summary

Waters of the United States delineated within the study area occupy a total of 13.65 acres and include fresh emergent wetland (0.09 acre), fresh emergent-riparian wetland (0.22 acre), intermittent pool (0.001 acre), intermittent swale (0.57 acre), riparian wetland (2.4 acre), seep-spring wetland (0.24 acre), vegetated ditch (0.01 acre, 113 linear feet), ephemeral steam (0.55 acre, 19,568 linear feet), intermittent stream (9.57 acre, 114,118 linear feet), and seep-spring-other waters (0.003 acres, 73 linear feet).

A total of 0.21 acre of non-jurisdictional waters were delineated within the study area including ephemeral stream (0.01 acre, 306 linear feet), intermittent pool (0.07 acre), non-vegetated ditch (0.08 acre, 1,805 linear feet), seep-spring wetland (0.009 acre), and vegetated ditch (0.04 acre, 483 linear feet).

Jurisdictional delineations for the delineated features are based on current conditions, (i.e., normal circumstances). Potential jurisdictional delineations were made in accordance with EPA and Corps guidance developed from the outcomes of SWANCC and Rapanos. Features determined to not meet criteria for waters of the United States are subject to verification by the Corps. NSR advises all interested parties to treat the information contained herein as preliminary pending written verification of jurisdictional boundaries by the Corps.

Chapter 7. References

Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. U.S. Army Engineer Waterways Experiment Station. Report No. Y-87-1.

Grumbles, B. H., and J. P. Woodley, Jr., Clean Water Act jurisdiction following the U. S. Supreme Court's decision in Rapanos v. United States & Carabell v. United States. June 5, 2007.

———. 2008. Clean Water Act jurisdiction following the U. S. Supreme Court's decision in Rapanos v. United States & Carabell v. United States. Environmental Protection Agency and Department of the Army. December 2, 2008.

Guzy, G. S., and R. M. Anderson. 2001. Memorandum: Supreme Court ruling concerning CWA jurisdiction of isolated waters: U.S. Environmental Protection Agency and Army Corps of Engineers.

Hickman, J. C. 1993. The Jepson manual: higher plants of California. Berkeley: University of California Press.

Hurt, G. W., and L. M. Vasilas, eds. 2006. Field indicators of hydric soils in the United States. Version 6.0 ed: USDA, NRCS in cooperation with the National Technical Committee for Hydric Soils.

Mayer, K. E., and W. F. Laudenslayer, Jr., eds. 1988. A guide to wildlife habitats of California. Sacramento: California Department of Forestry and Fire Protection.

Natural Resources Conservation Service. 2010. Climate Analysis for Wetlands by County.

Reed, J., P. B. 1988. National list of plant species that occur in wetlands: California (Region 0). U.S. Fish and Wildlife Service. Report No. 88.

Riley, D. T. 2008. Regulatory guidance letter: jurisdictional determinations. Report No. No. 08-02. June 26.

Soil Survey Staff, N. R. C. S. 2010. Web Soil Survey. http://websoilsurvey.nrcs.usda.gov/ (cited July 29, 2010).

U.S. Army Corps of Engineers. 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region: U. S. Army Corps of Engineers Engineer Research and Development Center.

Western Regional Climate Center. 2010. Shasta Dam, California (048135). Period of record monthly climate summary, period of record: 7/ 1/1948 to 12/31/2005. http://www.wrcc.dri.edu/summary/climsmnca.html (cited May 6 2010).

Appendix A

Routine Wetland Delineation Data Forms

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: Annual grassland
Wetland Type: Int. Swale

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/15/10
Applicant/Owner: 3-M Company State: CA Data Point: 1
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope %: <1
Subregion (LRR): C Soil Map Unit Name: Clear gravelly loam 0-3% Slopes
Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? Y Hydric soil? Y Wetland hydrology? Y Is sampled area a wetland? Y Other waters? N

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters X Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

N/A

Remarks

[illegible] SW to [illegible] FACW [illegible]

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover: ____			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover: ____			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Lolium perenne	35	Y	FAC
2. Centaurea solstitialis	10	N	FACU
3. Medicago polymorpha	20	Y	DBL
4. Lythrum hyssopifolia	5	N	FACW
5. Hordeum marinum gussoneanum	10	N	FAC
6. Plantago erecta	5	N	UBL
7. Eleocharis macrostachya	5	N	OBL
8. Bromus hordeaceus	10	N	FACU
50%= 50 20%= 20 Total Cover: 100			

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= ____ 20%= ____ Total Cover: ____			

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust 5

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 2 (A)
Total number of dominant species across all strata: 2 (B)
Percent of dominant species that are OBL, FACW, or FAC: 100 (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species	____	x 1 = ____
FACW Species	____	x 2 = ____
FAC Species	____	x 3 = ____
FACU Species	____	x 4 = ____
UPL Species	____	x 5 = ____
Column Totals	____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators
X Dominance Test is >50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? yes

Data Point 1

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR4/4	70	5YR4/6	30	RM	M	gravelly loam	
6-12	7.5YR4/6	95	10YR4/4	5	PL	M	gravelly loam w/ manganese concentrations	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (AG) (LRR C)
- ____ 1 cm Muck (A9) (LRR D)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1)
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- X Redox Depressions (F8)
- ____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ____ 1 cm Muck (A9) (LRR C)
- ____ 2 cm Muck (A10) (LRR B)
- ____ Reduced Vetric (F18)
- ____ Red Parent Materials (TF2)
- ____ Vegetated Sand/Gravel Bars
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Soil Survey

Restrictive Layer (if present): Type: N/A Depth (Inches) >80 in Hydric Soil? Y

Remarks Sufficient hydric soil indicators

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1) (Nonriverine)
- ____ Sediment Deposits (B2) (Nonriverine)
- ____ Surface Soil Cracks (B6)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Salt Crust (B11)
- X Biotic Crust (B12)
- ____ Aquatic Invertebrates (B13)
- ____ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- ____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ____ Water Marks (B1) (Riverine)
- ____ Sediment Deposits (B2) (Riverine)
- ____ Drift Deposits (B3) (Riverine)
- ____ Drainage Patterns (B10)
- ____ Dry-Season Water Table (C2)
- ____ Thin Muck Surface (C7)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Shallow Aquitard (D3)
- ____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) / Wetland Hydrology? Yes X No ____
Water Table Present? Yes ____ No X Depth (inches) /
Saturation Present? Yes ____ No X Depth (inches) / (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks Sufficient hydrology

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: Annual grassland
Wetland Type: Upland

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/15/10
Applicant/Owner: 3-M Company State: CA Data Point: 2
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Convex Slope %: <1
Subregion (LRR): C Soil Map Unit Name: Chum gravelly loam, 0-3%
Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? N Hydric soil? Y Wetland hydrology? N Is sampled area a wetland? N Other waters? N

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____ N/A
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____ N/A
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks Upland pair to #1

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Taeniatherum caput-medusae	50	Y	UPL
2. Bromus japonicus	50	Y	FACU
3.			
4.			
5.			
6.			
7.			
8.			
50%= ____ 20%= ____ Total Cover:			

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= ____ 20%= ____ Total Cover:			

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust ____

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 0 (A)
Total number of dominant species across all strata: 2 (B)
Percent of dominant species that are OBL, FACW, or FAC: 0 (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species	____	x 1 = ____
FACW Species	____	x 2 = ____
FAC Species	____	x 3 = ____
FACU Species	____	x 4 = ____
UPL Species	____	x 5 = ____
Column Totals	____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators
____ Dominance Test is >50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? NO

Data Point 2

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR4/4	95	10YR4/6	5	RM	PL	Loam	
4-12	7.5YR4/6	95	7.5YR4/4	5	C	M	Loam/gravelly	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (AG) (LRR C)
____ 1 cm Muck (A9) (LRR D)
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1)
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Loamy Mucky Mineral (F1)
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
X Redox Depressions (F8)
____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]
____ 1 cm Muck (A9) (LRR C)
____ 2 cm Muck (A10) (LRR B)
____ Reduced Vertic (F18)
____ Red Parent Materials (TF2)
____ Vegetated Sand/Gravel Bars
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: Soil Survey N/A Depth (inches) <80" Hydric Soil? yes

Remarks

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

____ Surface Water (A1)
____ High Water Table (A2)
____ Saturation (A3)
____ Water Marks (B1) (Nonriverine)
____ Sediment Deposits (B2) (Nonriverine)
____ Surface Soil Cracks (B6)
____ Inundation Visible on Aerial Imagery (B7)
____ Water-Stained Leaves (B9)
____ Salt Crust (B11)
____ Biotic Crust (B12)
____ Aquatic Invertebrates (B13)
____ Hydrogen Sulfide Odor (C1)
____ Oxidized Rhizospheres (C3)
____ Presence of Reduced Iron (C4)
____ Recent Iron Reduction in Plowed Soils (C6)
____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)
____ Water Marks (B1) (Riverine)
____ Sediment Deposits (B2) (Riverine)
____ Drift Deposits (B3) (Riverine)
____ Drainage Patterns (B10)
____ Dry-Season Water Table (C2)
____ Thin Muck Surface (C7)
____ Crayfish Burrows (C8)
____ Saturation Visible on Aerial Imagery (C9)
____ Shallow Aquitard (D3)
____ FAC-Neutral Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) ____ Wetland Hydrology? Yes ____ No X
Water Table Present? Yes ____ No X Depth (inches) ____
Saturation Present? Yes ____ No X Depth (inches) ____ (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks No hydrology indicators

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: Blue Oak Woodland
Wetland Type: Upland

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/15/17
Applicant/Owner: 3-M Company State: CA Data Point: 3
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Convex Slope %: <1
Subregion (LRR): C Soil Map Unit Name: Cluney gravelly loam, 0-3%
Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? N Hydric soil? N Wetland hydrology? N Is sampled area a wetland? N Other waters? N

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____ N/A
Explain:

Evaluation of features designated "Other Waters of the United States"

N/A

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks Upland prior to #4

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus douglasii	50	Y	UPL
2.			
3.			
4.			

50%= 25 20%= 10 Total Cover: 50

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			

50%= ____ 20%= ____ Total Cover: ____

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Centaurea solstitialis	20	Y	UPL
2. Elymus elymoides	40	Y	UPL
3. Taeniatherum caput-medusae	10	N	UPL
4. Lolium perenne	20	Y	FAC
5. Bromus diandrus	5	N	FACU
6. Perideridia pringlei	5	N	UPL
7. Avena fatua	5	N	UPL
8. Trifolium hirtum	5	N	UPL

50%= ____ 20%= ____ Total Cover: 100

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			

50%= ____ 20%= ____ Total Cover: ____

% Bare Ground in Herb Stratum 0 **% Cover of Biotic Crust** 0

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 1 (A)
Total number of dominant species across all strata: 4 (B)
Percent of dominant species that are OBL, FACW, or FAC: 25 (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species	____	x 1 = ____
FACW Species	____	x 2 = ____
FAC Species	____	x 3 = ____
FACU Species	____	x 4 = ____
UPL Species	____	x 5 = ____
Column Totals	____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators
____ Dominance Test is >50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? NO

Data Point 3

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	7.5YR 2/4	100	/	/	/	/	Gravelly loam	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (AG) (LRR C)
____ 1 cm Muck (A9) (LRR D)
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1)
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Loamy Mucky Mineral (F1)
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]
____ 1 cm Muck (A9) (LRR C)
____ 2 cm Muck (A10) (LRR B)
____ Reduced Vertic (F18)
____ Red Parent Materials (TF2)
____ Vegetated Sand/Gravel Bars
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Soil Survey

Restrictive Layer (if present): Type: N/A Depth (inches) >80" Hydric Soil? N

Remarks No indicators

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

____ Surface Water (A1)
____ High Water Table (A2)
____ Saturation (A3)
____ Water Marks (B1) (Nonriverine)
____ Sediment Deposits (B2) (Nonriverine)
____ Surface Soil Cracks (B6)
____ Inundation Visible on Aerial Imagery (B7)
____ Water-Stained Leaves (B9)
____ Salt Crust (B11)
____ Biotic Crust (B12)
____ Aquatic Invertebrates (B13)
____ Hydrogen Sulfide Odor (C1)
____ Oxidized Rhizospheres (C3)
____ Presence of Reduced Iron (C4)
____ Recent Iron Reduction in Plowed Soils (C6)
____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)
____ Water Marks (B1) (Riverine)
____ Sediment Deposits (B2) (Riverine)
____ Drift Deposits (B3) (Riverine)
____ Drainage Patterns (B10)
____ Dry-Season Water Table (C2)
____ Thin Muck Surface (C7)
____ Crayfish Burrows (C8)
____ Saturation Visible on Aerial Imagery (C9)
____ Shallow Aquitard (D3)
____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) / Wetland Hydrology? Yes ____ No X
Water Table Present? Yes ____ No X Depth (inches) /
Saturation Present? Yes ____ No X Depth (inches) / (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks No indicators

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: Blue oak woodland
Wetland Type: Intl. Stream

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/15/10
Applicant/Owner: 3-M Company State: CA Data Point: 4
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.) drainage Local relief (concave, convex, none) Concave Slope % 2
Subregion (LRR) C Soil Map Unit Name: Chuam gravelly loam 0-3% slopes
Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? N Hydric soil? N Wetland hydrology? Y Is sampled area a wetland? N Other waters? Y

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters X Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank X Scour X Ordinary High Water Mark Mapped X
Feature Designation: Perennial ____ Intermittent X Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage X Artificial Drainage ____ Navigable Water ____

Remarks Intl. Stream Dry on 6/15/10

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3. No veg			
4. Scoured channel			
50%= ____ 20%= ____ Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
50%= ____ 20%= ____ Total Cover:			

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= ____ 20%= ____ Total Cover:			

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust ____

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: ____ (A)
Total number of dominant species across all strata: ____ (B)
Percent of dominant species that are OBL, FACW, or FAC: ____ (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species	____	x 1 = ____
FACW Species	____	x 2 = ____
FAC Species	____	x 3 = ____
FACU Species	____	x 4 = ____
UPL Species	____	x 5 = ____
Column Totals	____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators
____ Dominance Test is >50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? N/A

Data Point 4

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
			No pit - Scoured channel					

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (AG) (LRR C)
____ 1 cm Muck (A9) (LRR D)
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1)
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Loamy Mucky Mineral (F1)
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]
____ 1 cm Muck (A9) (LRR C)
____ 2 cm Muck (A10) (LRR B)
____ Reduced Vetric (F18)
____ Red Parent Materials (TF2)
____ Vegetated Sand/Gravel Bars
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: N/A Depth (inches) >80" Hydric Soil? N/A
Soil Survey

Remarks No pit scoured channel

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

____ Surface Water (A1)
____ High Water Table (A2)
____ Saturation (A3)
____ Water Marks (B1) (Nonriverine)
____ Sediment Deposits (B2) (Nonriverine)
____ Surface Soil Cracks (B6)
____ Inundation Visible on Aerial Imagery (B7)
____ Water-Stained Leaves (B9)
____ Salt Crust (B11)
____ Biotic Crust (B12)
____ Aquatic Invertebrates (B13)
____ Hydrogen Sulfide Odor (C1)
____ Oxidized Rhizospheres (C3)
____ Presence of Reduced Iron (C4)
____ Recent Iron Reduction in Plowed Soils (C6)
____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)
X Water Marks (B1) (Riverine)
X Sediment Deposits (B2) (Riverine)
X Drift Deposits (B3) (Riverine)
____ Drainage Patterns (B10)
____ Dry-Season Water Table (C2)
____ Thin Muck Surface (C7)
____ Crayfish Burrows (C8)
____ Saturation Visible on Aerial Imagery (C9)
____ Shallow Aquitard (D3)
____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) ____ Wetland Hydrology? Yes X No ____
Water Table Present? Yes ____ No X Depth (inches) ____
Saturation Present? Yes ____ No X Depth (inches) ____ (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: Annual grassland
Wetland Type: Suspect area

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/15/10
Applicant/Owner: 3-M Company State: CA Data Point: 5
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Convex/level Slope %: <2
Subregion (LRR): C Soil Map Unit Name: Red Bluff loam, 3-8% Slopes
Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? ____ Hydric soil? Y Wetland hydrology? N Is sampled area a wetland? N Other waters? N

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) N/A
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____ N/A

Remarks Suspect area because of buttonwillow; no hydrology or other hydrophytic plants; a water table may be present at a depth greater than 12" + buttonwillows inundated in @ greater than 12". Herbs are wetland species

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1. Cephalanthus occidentalis	50	Y	OBL
2.			
3.			
4.			
50%= 25 20%= 10 Total Cover:	50		

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Taeniatherum caput-medusae	25	Y	UPL
2. Vulpia microstachys	10	N	FACU
3. Bromus hordeaceus	10	N	FACU
4. Cichorium intybus	10	N	UPL
5. Bromus japonicum	5	N	UPL
6.			
7.			
8.			
50%= 30 20%= 12 Total Cover:	60		

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= ____ 20%= ____ Total Cover:			

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust ____

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 1 (A)
Total number of dominant species across all strata: 2 (B)
Percent of dominant species that are OBL, FACW, or FAC: 50 (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species	50	x 1 = 50
FACW Species	0	x 2 = 0
FAC Species	0	x 3 = 0
FACU Species	20	x 4 = 80
UPL Species	40	x 5 = 200
Column Totals	110 (A)	330 (B)

Prevalence Index = B/A = 3

Hydrophytic Vegetation Indicators
____ Dominance Test is >50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? N

Data Point 5

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-18	7.5YR 4/4	95	N/A - dark concentrations	5	C	M	Loam	concentrations present throughout

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (AG) (LRR C)
- ____ 1 cm Muck (A9) (LRR D)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1)
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- X Redox Depressions (F8)
- ____ Vernal Pools (F9)

Soil Survey

Indicators for Problematic Hydric Soils[3]
- ____ 1 cm Muck (A9) (LRR C)
- ____ 2 cm Muck (A10) (LRR B)
- ____ Reduced Vertic (F18)
- ____ Red Parent Materials (TF2)
- ____ Vegetated Sand/Gravel Bars
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: N/A Depth (inches) >80" Hydric Soil? Y

Remarks Soil began to increase in moisture @ 18 inches but not saturated

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)
- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1) (Nonriverine)
- ____ Sediment Deposits (B2) (Nonriverine)
- ____ Surface Soil Cracks (B6)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Salt Crust (B11)
- ____ Biotic Crust (B12)
- ____ Aquatic Invertebrates (B13)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- ____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)
- ____ Water Marks (B1) (Riverine)
- ____ Sediment Deposits (B2) (Riverine)
- ____ Drift Deposits (B3) (Riverine)
- ____ Drainage Patterns (B10)
- ____ Dry-Season Water Table (C2)
- ____ Thin Muck Surface (C7)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Shallow Aquitard (D3)
- ____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) ____ Wetland Hydrology? Yes ____ No X
Water Table Present? Yes ____ No X Depth (inches) ____
Saturation Present? Yes ____ No X Depth (inches) ____ (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks No indicators of hydrology

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: Blue Oak - Foothill Pine
Wetland Type: Int. Swale

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/15/10
Applicant/Owner: 3-M Company State: CA Data Point: 6
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): Concave Slope %: <2
Subregion (LRR): C Soil Map Unit Name: Red Bluff loam, 3-8% slopes
Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? Y Hydric soil? Y Wetland hydrology? Y Is sampled area a wetland? Y Other waters? N

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters X Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____ N/A
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks Intermittent swale that transitions to Int. Stream then alternates between swale & stream. Predominantly scoured areas were mapped as stream; predominantly vegetated areas were mapped as swale

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Lolium perenne	40	Y	FAC
2. Brizo minor	5	N	FACW
3. Mentha pulegium	10	N	OBL
4. Plantago lanceolata	10	N	FAC
5. Eryngium castrense	5	N	FACW
6. Polypogon monspeliensis	5	N	FACW
7. Ranunculus muricatus	5	N	FACW
8. Lythrum hyssopifolium	10	N	FACW
50%= 45 20%= 18 Total Cover:	90		

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= ____ 20%= ____ Total Cover:			

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust ____

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 1 (A)
Total number of dominant species across all strata: 1 (B)
Percent of dominant species that are OBL, FACW, or FAC: 100 (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species	____	x 1 = ____
FACW Species	____	x 2 = ____
FAC Species	____	x 3 = ____
FACU Species	____	x 4 = ____
UPL Species	____	x 5 = ____
Column Totals	____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators
X Dominance Test is >50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? yes

Data Point 6

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 4/4	90	10YR 4/6	10	D	PL	gravelly loam	
10-12	10YR 4/2	80	10YR 5/6	20	RM	M	gravelly loam w/ concretions	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (AG) (LRR C)
- ____ 1 cm Muck (A9) (LRR D)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1)
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- X Redox Depressions (F8)
- ____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]
- ____ 1 cm Muck (A9) (LRR C)
- ____ 2 cm Muck (A10) (LRR B)
- ____ Reduced Vetric (F18)
- ____ Red Parent Materials (TF2)
- ____ Vegetated Sand/Gravel Bars
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: Soil Survey N/A Depth (inches) >80" Hydric Soil? Y

Remarks Sufficient soils

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)
- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- X Water Marks (B1) (Nonriverine)
- X Sediment Deposits (B2) (Nonriverine)
- ____ Surface Soil Cracks (B6)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Salt Crust (B11)
- ____ Biotic Crust (B12)
- ____ Aquatic Invertebrates (B13)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- ____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)
- ____ Water Marks (B1) (Riverine)
- ____ Sediment Deposits (B2) (Riverine)
- X Drift Deposits (B3) (Riverine)
- ____ Drainage Patterns (B10)
- ____ Dry-Season Water Table (C2)
- ____ Thin Muck Surface (C7)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Shallow Aquitard (D3)
- ____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) ____
Water Table Present? Yes ____ No X Depth (inches) ____
Saturation Present? Yes ____ No X Depth (inches) ____ (includes capillary fringe)
Wetland Hydrology? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: Blue oak - gray pine
Wetland Type: Int. Stream

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/15/10
Applicant/Owner: 3-M Company State: CA Data Point: 7
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): Concave Slope %: 2
Subregion (LRR): C Soil Map Unit Name: Red Bluff Loam 3-8% Slopes
Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? Y Hydric soil? N Wetland hydrology? Y Is sampled area a wetland? N Other waters? Y

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters X Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank X Scour X Ordinary High Water Mark Mapped X
Feature Designation: Perennial ____ Intermittent X Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage X Artificial Drainage ____ Navigable Water ____

Remarks Int stream w/ variable amounts of hydrophytic veg on stream; where veg dominates transition to swale

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover: ____			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover: ____			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Mentha pulegium	30	Y	OBL
2. Hypochaeris glabra	20	Y	UPL
3.			
4.			
5.			
6.			
7.			
8.			
50%= 25 20%= ____ Total Cover: 50			

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= ____ 20%= ____ Total Cover: ____			

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust ____

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 2 (A)
Total number of dominant species across all strata: 2 (B)
Percent of dominant species that are OBL, FACW, or FAC: 100 (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:
OBL Species	____	x 1 = ____
FACW Species	____	x 2 = ____
FAC Species	____	x 3 = ____
FACU Species	____	x 4 = ____
UPL Species	____	x 5 = ____
Column Totals	____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators
X Dominance Test is >50%
X Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? yes

Data Point 7

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
								Scoured Channel - no pit

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (AG) (LRR C)
____ 1 cm Muck (A9) (LRR D)
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1)
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Loamy Mucky Mineral (F1)
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]
____ 1 cm Muck (A9) (LRR C)
____ 2 cm Muck (A10) (LRR B)
____ Reduced Vetric (F18)
____ Red Parent Materials (TF2)
____ Vegetated Sand/Gravel Bars
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: N/A Depth (Inches) >80" Hydric Soil? N/A (Soil Survey)

Remarks Scoured Channel - no pit

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

____ Surface Water (A1)
____ High Water Table (A2)
____ Saturation (A3)
____ Water Marks (B1) (Nonriverine)
____ Sediment Deposits (B2) (Nonriverine)
____ Surface Soil Cracks (B6)
____ Inundation Visible on Aerial Imagery (B7)
____ Water-Stained Leaves (B9)
____ Salt Crust (B11)
____ Biotic Crust (B12)
____ Aquatic Invertebrates (B13)
____ Hydrogen Sulfide Odor (C1)
____ Oxidized Rhizospheres (C3)
____ Presence of Reduced Iron (C4)
____ Recent Iron Reduction in Plowed Soils (C6)
____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)
____ Water Marks (B1) (Riverine)
X Sediment Deposits (B2) (Riverine)
X Drift Deposits (B3) (Riverine)
____ Drainage Patterns (B10)
____ Dry-Season Water Table (C2)
____ Thin Muck Surface (C7)
____ Crayfish Burrows (C8)
____ Saturation Visible on Aerial Imagery (C9)
____ Shallow Aquitard (D3)
____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) ____ Wetland Hydrology? Yes X No ____
Water Table Present? Yes ____ No X Depth (inches) ____
Saturation Present? Yes ____ No X Depth (inches) ____ (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: Blue Oak, gray pine
Wetland Type: Upland

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/15/10
Applicant/Owner: 3-M Company State: CA Data Point: 8
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Convex Slope %: <2
Subregion (LRR): C Soil Map Unit Name: Red Bluff loam 3-8% slopes
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? Yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? N Hydric soil? Y Wetland hydrology? Y Is sampled area a wetland? N Other waters? N

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____ N/A
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____ N/A

Remarks Upland pair to #6+7

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Antinoseritum avenaceum	75	Y	UPL
2. Vulpia myuros	10	N	UPL
3. Cichorium intybus	5	N	UPL
4. Plantago lanceolata	10	N	FAC
5.			
6.			
7.			
8.			
50%= 50 20%= 20 Total Cover:	100		

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= ____ 20%= ____ Total Cover:			

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust ____

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 0 (A)
Total number of dominant species across all strata: 1 (B)
Percent of dominant species that are OBL, FACW, or FAC: 0 (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species	____	x 1 = ____
FACW Species	____	x 2 = ____
FAC Species	____	x 3 = ____
FACU Species	____	x 4 = ____
UPL Species	____	x 5 = ____
Column Totals	____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators
____ Dominance Test is >50%
____ Prevalence Index is ≤3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? No

Data Point 8

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR4/3	70	10YR4/6	30	D	PL/RC	gravelly loam	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (AG) (LRR C)
- ____ 1 cm Muck (A9) (LRR D)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1)
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- X Redox Depressions (F8)
- ____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]
- ____ 1 cm Muck (A9) (LRR C)
- ____ 2 cm Muck (A10) (LRR B)
- ____ Reduced Vetric (F18)
- ____ Red Parent Materials (TF2)
- ____ Vegetated Sand/Gravel Bars
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: N/A Depth (Inches) 80" Hydric Soil? Y
Soil Survey

Remarks Sufficient Soils

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)
- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1) (Nonriverine)
- ____ Sediment Deposits (B2) (Nonriverine)
- ____ Surface Soil Cracks (B6)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Salt Crust (B11)
- ____ Biotic Crust (B12)
- ____ Aquatic Invertebrates (B13)
- ____ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- ____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)
- ____ Water Marks (B1) (Riverine)
- ____ Sediment Deposits (B2) (Riverine)
- ____ Drift Deposits (B3) (Riverine)
- ____ Drainage Patterns (B10)
- ____ Dry-Season Water Table (C2)
- ____ Thin Muck Surface (C7)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Shallow Aquitard (D3)
- ____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) ____ Wetland Hydrology? Yes X No ____
Water Table Present? Yes ____ No X Depth (inches) ____
Saturation Present? Yes ____ No X Depth (inches) ____ (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks Sufficient hydrology

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: Blue Oak Grassline
Wetland Type: Freshwater Emergent Wetland

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/16/10
Applicant/Owner: 3-M Company State: CA Data Point: 9
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): concave Slope %: 2
Subregion (LRR): C Soil Map Unit Name: Red Bluff loam - 3-8% Slopes
Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? Y Hydric soil? Y Wetland hydrology? Y Is sampled area a wetland? Y Other waters? N

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters X Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____
Explain:

Evaluation of features designated "Other Waters of the United States"

N/A

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks Excavated pools w/ hydrology provided by seep/spring

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Juncus uncialis	75	Y	OBL
2. Carex lita	5	N	OBL
3. Eleocharis macrostachya	10	N	OBL
4.			
5.			
6.			
7.			
8.			
50%= 45 20%= 18 Total Cover:	90		

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= ____ 20%= ____ Total Cover:			

% Bare Ground in Herb Stratum ____ **% Cover of Biotic Crust** ____

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 1 (A)
Total number of dominant species across all strata: 1 (B)
Percent of dominant species that are OBL, FACW, or FAC: 100 (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species	____	x 1 = ____
FACW Species	____	x 2 = ____
FAC Species	____	x 3 = ____
FACU Species	____	x 4 = ____
UPL Species	____	x 5 = ____
Column Totals	____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators
4 Dominance Test is >50%
1 Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? yes

Data Point 9

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR4/1	90	10YR4/6	10	D	M	gravelly loam	
4-12	10YR4/1	30	10YR4/6	30	D	M	dense layer of concretions & soft rocks	
____	____	____	____	____	____	____	____	____
____	____	____	____	____	____	____	____	____

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- X Hydrogen Sulfide (A4)
- ____ Stratified Layers (AG) (LRR C)
- ____ 1 cm Muck (A9) (LRR D)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1)
- ____ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]
- ____ 1 cm Muck (A9) (LRR C)
- ____ 2 cm Muck (A10) (LRR B)
- ____ Reduced Vertic (F18)
- ____ Red Parent Materials (TF2)
- ____ Vegetated Sand/Gravel Bars
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: N/A Depth (inches) >80" Hydric Soil? Y
Remarks

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)
- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ____ Water Marks (B1) (Nonriverine)
- ____ Sediment Deposits (B2) (Nonriverine)
- ____ Surface Soil Cracks (B6)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Salt Crust (B11)
- ____ Biotic Crust (B12)
- ____ Aquatic Invertebrates (B13)
- X Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres (C3)
- X Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- ____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)
- ____ Water Marks (B1) (Riverine)
- ____ Sediment Deposits (B2) (Riverine)
- ____ Drift Deposits (B3) (Riverine)
- ____ Drainage Patterns (B10)
- ____ Dry-Season Water Table (C2)
- X Thin Muck Surface (C7)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Shallow Aquitard (D3)
- ____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes X No ____ Depth (inches) 2-3' max Wetland Hydrology? Yes X No ____
Water Table Present? Yes X No ____ Depth (inches) Surface
Saturation Present? Yes X No ____ Depth (inches) Surface (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks Tadpoles present

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: Blue Oak Grassland
Wetland Type: Upland

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/16/10
Applicant/Owner: 3-M Company State: CA Data Point: 10
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Convex Slope %: <2
Subregion (LRR): C Soil Map Unit Name: Red Bluff Loam 3-8% Slopes
Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? N Hydric soil? Y Wetland hydrology? N Is sampled area a wetland? N Other waters? N

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____ N/A
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____ N/A
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks Upland pair to #9

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			

50%= ____ 20%= ____ Total Cover: ____

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1. Rhamnus perishiana	20	Y	NI-FAC
2.			
3.			
4.			

50%= 10 20%= 4 Total Cover: 20

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Centaurea calcitrapa	10	N	UPL
2. Bromus diandrus	55	Y	UPL
3. Avena barbata	20	Y	UPL
4. Trifolium hirtum	5	N	UPL
5. Plantago lanceolata	5	N	FAC
6. Lolus perenne	5	N	UPL
7.			
8.			

50%= 50 20%= 20 Total Cover: 100

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			

50%= ____ 20%= ____ Total Cover: ____

% Bare Ground in Herb Stratum ✓ % Cover of Biotic Crust ✓

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 1 (A)
Total number of dominant species across all strata: 2 (B)
Percent of dominant species that are OBL, FACW, or FAC: 50 (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species	0	x 1 = ____
FACW Species	0	x 2 = ____
FAC Species	25	x 3 = 75
FACU Species	0	x 4 = ____
UPL Species	100	x 5 = 500
Column Totals	120 (A)	575 (B)

Prevalence Index = B/A = 4.8

Hydrophytic Vegetation Indicators
N Dominance Test is >50%
N Prevalence Index is ≤ 3.0[1]
✓ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? No

Data Point 10

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR4/4	100					gravelly loam	
4-8	10YR4/4	80	10YR6/1	20	D	M	gravelly clay loam	
8-12	10YR5/4	90	10YR4/6	10	RM	M	clay	concretions present

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (AG) (LRR C)
- ____ 1 cm Muck (A9) (LRR D)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1)
- ____ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]

- ____ 1 cm Muck (A9) (LRR C)
- ____ 2 cm Muck (A10) (LRR B)
- ____ Reduced Vetric (F18)
- ____ Red Parent Materials (TF2)
- ____ Vegetated Sand/Gravel Bars
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: N/A Depth (Inches) >80% Hydric Soil? yes
Soil Survey

Remarks Sufficient Soils

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1) (Nonriverine)
- ____ Sediment Deposits (B2) (Nonriverine)
- ____ Surface Soil Cracks (B6)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Salt Crust (B11)
- ____ Biotic Crust (B12)
- ____ Aquatic Invertebrates (B13)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- ____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ____ Water Marks (B1) (Riverine)
- ____ Sediment Deposits (B2) (Riverine)
- ____ Drift Deposits (B3) (Riverine)
- ____ Drainage Patterns (B10)
- ____ Dry-Season Water Table (C2)
- ____ Thin Muck Surface (C7)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Shallow Aquitard (D3)
- ____ FAC-Neutral Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) ✓ Wetland Hydrology? Yes ____ No X
Water Table Present? Yes ____ No X Depth (inches) ✓
Saturation Present? Yes ____ No X Depth (inches) ✓ (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks No hydrology indicators

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: Blue oak-grass/pine
Wetland Type: Non-Vegetated Ditch

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/16/10
Applicant/Owner: 3-M Company State: CA Data Point: 11
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): Concave Slope %: 5
Subregion (LRR): C Soil Map Unit Name: Perkins gravelly loam 8-15% slope
Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? N Hydric soil? N Wetland hydrology? Y Is sampled area a wetland? N Other waters? Y

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters X Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank X Scour X Ordinary High Water Mark Mapped X
Feature Designation: Perennial ____ Intermittent ____ Ephemeral X Blue-line on USGS Quad ____
Natural Drainage ____ Artificial Drainage X Navigable Water ____

Remarks Non-Vegetated ditch - Non-jurisdictional because it is created on uplands to drain uplands

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3. No veg scoured channel			
4.			
50%= ____ 20%= ____ Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
50%= ____ 20%= ____ Total Cover:			

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= ____ 20%= ____ Total Cover:			

% Bare Ground in Herb Stratum ____ **% Cover of Biotic Crust** ____

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: ____ (A)
Total number of dominant species across all strata: ____ (B)
Percent of dominant species that are OBL, FACW, or FAC: ____ (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species	____	x 1 = ____
FACW Species	____	x 2 = ____
FAC Species	____	x 3 = ____
FACU Species	____	x 4 = ____
UPL Species	____	x 5 = ____
Column Totals	____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators
____ Dominance Test is >50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? N/A

Data Point 11

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

No pit scoured channel

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (AG) (LRR C)
____ 1 cm Muck (A9) (LRR D)
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1)
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Loamy Mucky Mineral (F1)
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]
____ 1 cm Muck (A9) (LRR C)
____ 2 cm Muck (A10) (LRR B)
____ Reduced Vetric (F18)
____ Red Parent Materials (TF2)
____ Vegetated Sand/Gravel Bars
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: N/A Depth (inches) >80" Hydric Soil? N/A
Soil Survey

Remarks No pit - scoured channel

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)
____ Surface Water (A1)
____ High Water Table (A2)
____ Saturation (A3)
____ Water Marks (B1) (Nonriverine)
____ Sediment Deposits (B2) (Nonriverine)
____ Surface Soil Cracks (B6)
____ Inundation Visible on Aerial Imagery (B7)
____ Water-Stained Leaves (B9)
____ Salt Crust (B11)
____ Biotic Crust (B12)
____ Aquatic Invertebrates (B13)
____ Hydrogen Sulfide Odor (C1)
____ Oxidized Rhizospheres (C3)
____ Presence of Reduced Iron (C4)
____ Recent Iron Reduction in Plowed Soils (C6)
____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)
____ Water Marks (B1) (Riverine)
X Sediment Deposits (B2) (Riverine)
X Drift Deposits (B3) (Riverine)
____ Drainage Patterns (B10)
____ Dry-Season Water Table (C2)
____ Thin Muck Surface (C7)
____ Crayfish Burrows (C8)
____ Saturation Visible on Aerial Imagery (C9)
____ Shallow Aquitard (D3)
____ FAC-Netural Test (D5)

Field Observations
Surface Water Present? Yes ____ No X Depth (inches) ____
Water Table Present? Yes ____ No X Depth (inches) ____
Saturation Present? Yes ____ No X Depth (inches) ____ (includes capillary fringe)
Wetland Hydrology? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks Sufficient hydrology

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: Blue oak - gray pine
Wetland Type: Upland

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/16/10
Applicant/Owner: 3-M Company State: CA Data Point: 12
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Convex Slope %: 5
Subregion (LRR): C Soil Map Unit Name: Perkins gravelly loam 8-15%
Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? N Hydric soil? N Wetland hydrology? N Is sampled area a wetland? N Other waters? N

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____ N/A
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____ N/A
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks

Upland point # 11

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus wislizenii	40	Y	UPL
2.			
3.			
4.			

50%= 20 20%= 8 Total Cover: 40

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1. Q wislizenii	70	Y	UPL
2. Cercocarpus ravenatus	10	N	UPL
3. Arctostaphylos viscida	20	Y	UPL
4.			

50%= 50 20%= 20 Total Cover: 100

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Hypericum perforatum	1	Y	UPL
2. Galium boloandense	1	Y	UPL
3.			
4.			
5.			
6.			
7.			
8.			

50%= 1 20%= 0.4 Total Cover: 2

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			

50%= ____ 20%= ____ Total Cover: ____

% Bare Ground in Herb Stratum 98 % Cover of Biotic Crust ✓

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 1 (A)
Total number of dominant species across all strata: 5 (B)
Percent of dominant species that are OBL, FACW, or FAC: 0 (AB)

Prevalence Index Worksheet

Total % Cover of:	Multiply by:
OBL Species ____	x 1 = ____
FACW Species ____	x 2 = ____
FAC Species ____	x 3 = ____
FACU Species ____	x 4 = ____
UPL Species ____	x 5 = ____
Column Totals ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators
____ Dominance Test is >50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? NO

Data Point 12

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	5YR4/6	100	✓	✓	✓	✓	gravelly loam	
compact dirt pavement								

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (AG) (LRR C)
____ 1 cm Muck (A9) (LRR D)
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1)
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Loamy Mucky Mineral (F1)
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]
____ 1 cm Muck (A9) (LRR C)
____ 2 cm Muck (A10) (LRR B)
____ Reduced Vertic (F18)
____ Red Parent Materials (TF2)
____ Vegetated Sand/Gravel Bars
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: N/A Depth (Inches) >80" Hydric Soil? NO
Soil Survey

Remarks

No indicators

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

____ Surface Water (A1)
____ High Water Table (A2)
____ Saturation (A3)
____ Water Marks (B1) (Nonriverine)
____ Sediment Deposits (B2) (Nonriverine)
____ Surface Soil Cracks (B6)
____ Inundation Visible on Aerial Imagery (B7)
____ Water-Stained Leaves (B9)
____ Salt Crust (B11)
____ Biotic Crust (B12)
____ Aquatic Invertebrates (B13)
____ Hydrogen Sulfide Odor (C1)
____ Oxidized Rhizospheres (C3)
____ Presence of Reduced Iron (C4)
____ Recent Iron Reduction in Plowed Soils (C6)
____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)
____ Water Marks (B1) (Riverine)
____ Sediment Deposits (B2) (Riverine)
____ Drift Deposits (B3) (Riverine)
____ Drainage Patterns (B10)
____ Dry-Season Water Table (C2)
____ Thin Muck Surface (C7)
____ Crayfish Burrows (C8)
____ Saturation Visible on Aerial Imagery (C9)
____ Shallow Aquitard (D3)
____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) ✓ Wetland Hydrology? Yes ____ No X
Water Table Present? Yes ____ No X Depth (inches) ✓
Saturation Present? Yes ____ No X Depth (inches) ✓ (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks

No indicators

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: MHC
Wetland Type: Ephemeral stream

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 7/20/10
Applicant/Owner: 3-M Company State: CA Data Point: 13
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.) Local relief (concave, convex, none) Concave Slope % 20
Subregion (LRR) C Soil Map Unit Name: Boomer gravelly loam 30-50% Slopes
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? Yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? N Hydric soil? N Wetland hydrology? Y Is sampled area a wetland? N Other waters? Y

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters X Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank X Scour X Ordinary High Water Mark Mapped X
Feature Designation: Perennial ____ Intermittent ____ Ephemeral X Blue-line on USGS Quad ____
Natural Drainage X Artificial Drainage X Navigable Water ____

Remarks

Ephemeral drainage has been [illegible] to, receives D/S from Pegger Bay Road.

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3. No pit			
4. Scoured channel			
50%= ____ 20%= ____ Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
50%= ____ 20%= ____ Total Cover:			

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= ____ 20%= ____ Total Cover:			

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust ____

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: ____ (A)
Total number of dominant species across all strata: ____ (B)
Percent of dominant species that are OBL, FACW, or FAC: ____ (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species	x 1 =	
FACW Species	x 2 =	
FAC Species	x 3 =	
FACU Species	x 4 =	
UPL Species	x 5 =	
Column Totals	(A)	(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators
____ Dominance Test is >50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? N/A

Data Point 13

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
								No pit scoured channel

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (AG) (LRR C)
- ____ 1 cm Muck (A9) (LRR D)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1)
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]

- ____ 1 cm Muck (A9) (LRR C)
- ____ 2 cm Muck (A10) (LRR B)
- ____ Reduced Vetric (F18)
- ____ Red Parent Materials (TF2)
- ____ Vegetated Sand/Gravel Bars
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: Soil Survey Depth (inches) 45-48" Hydric Soil? No

Remarks

N/A

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1) (Nonriverine)
- ____ Sediment Deposits (B2) (Nonriverine)
- ____ Surface Soil Cracks (B6)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Salt Crust (B11)
- ____ Biotic Crust (B12)
- ____ Aquatic Invertebrates (B13)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- ____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ____ Water Marks (B1) (Riverine)
- X Sediment Deposits (B2) (Riverine)
- X Drift Deposits (B3) (Riverine)
- ____ Drainage Patterns (B10)
- ____ Dry-Season Water Table (C2)
- ____ Thin Muck Surface (C7)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Shallow Aquitard (D3)
- ____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) ____ Wetland Hydrology? Yes X No ____
Water Table Present? Yes ____ No X Depth (inches) ____
Saturation Present? Yes ____ No X Depth (inches) ____ (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: Blue Oak - Gray Pine
Wetland Type: Suspect Area

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 7/8/10
Applicant/Owner: 3-M Company State: CA Data Point: 14
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): concave Slope %: 30
Subregion (LRR): C Soil Map Unit Name: Auburn very stony clay loam 30-50%
Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? N Hydric soil? N Wetland hydrology? N Is sampled area a wetland? N Other waters? N

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____ N/A
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____ N/a
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks

Draw; but no evidence of recent deposition or lateral bank cleaves present to suggest movement.

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover: ____			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1. Heteromeles arbutifolia	5	Y	UPL
2. Rhamnus californica	2	Y	UPL
3. Toxicodendron diversilobum	2	Y	UPL
4.			
50%= 3.5 20%= 1.4 Total Cover: 7			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Avena fatua	1	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
50%= 0.5 20%= 0.2 Total Cover: 1			

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= ____ 20%= ____ Total Cover: ____			

% Bare Ground in Herb Stratum 90 % Cover of Biotic Crust ____
Litter

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 0 (A)
Total number of dominant species across all strata: 4 (B)
Percent of dominant species that are OBL, FACW, or FAC: 0 (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species	____	x 1 = ____
FACW Species	____	x 2 = ____
FAC Species	____	x 3 = ____
FACU Species	____	x 4 = ____
UPL Species	____	x 5 = ____
Column Totals	____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators
____ Dominance Test is >50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? No

Data Point 14

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
			No pit - cobble/boulder					

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (AG) (LRR C)
- ____ 1 cm Muck (A9) (LRR D)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1)
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]

- ____ 1 cm Muck (A9) (LRR C)
- ____ 2 cm Muck (A10) (LRR B)
- ____ Reduced Vetric (F18)
- ____ Red Parent Materials (TF2)
- ____ Vegetated Sand/Gravel Bars
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: Lithic bedrock Depth (Inches) 27-31" Hydric Soil? No
Soil Survey

Remarks

No indicators

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1) (Nonriverine)
- ____ Sediment Deposits (B2) (Nonriverine)
- ____ Surface Soil Cracks (B6)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Salt Crust (B11)
- ____ Biotic Crust (B12)
- ____ Aquatic Invertebrates (B13)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- ____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ____ Water Marks (B1) (Riverine)
- ____ Sediment Deposits (B2) (Riverine)
- ____ Drift Deposits (B3) (Riverine)
- ____ Drainage Patterns (B10)
- ____ Dry-Season Water Table (C2)
- ____ Thin Muck Surface (C7)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Shallow Aquitard (D3)
- ____ FAC-Neutral Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) ____ Wetland Hydrology? Yes ____ No X
Water Table Present? Yes ____ No X Depth (inches) ____
Saturation Present? Yes ____ No X Depth (inches) ____ (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks

No indicators

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: Blue oak-grass zone
Wetland Type: Suspect area

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/17/10
Applicant/Owner: 3-M Company State: CA Data Point: 15
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): convex Slope %: <1
Subregion (LRR): C Soil Map Unit Name: Red Bluff loam 3-8% slopes
Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? N Hydric soil? N Wetland hydrology? N Is sampled area a wetland? N Other waters? N

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____ N/A
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____ N/A
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks Suspect area - slight draw w/ culvert; no indication of culvert has caused flood ponding but there is a depression above culvert. No indication of flow or saturation. No bed & bank or scour & deposition above headcut.

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover: ____			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover: ____			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Lolium perenne ssp. multiflorum	25	Y	UPL
2. Trifolium hirtum	60	Y	UPL
3. Avena fatua	5	N	UPL
4. Taeniatherum caput-medusae	5	N	UPL
5. Bromus hordeaceus	5	N	FACU
6.			
7.			
8.			
50%= 50 20%= 20 Total Cover: 100			

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= ____ 20%= ____ Total Cover: ____			

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust ____

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 0 (A)
Total number of dominant species across all strata: 2 (B)
Percent of dominant species that are OBL, FACW, or FAC: 0 (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species	____	x 1 = ____
FACW Species	____	x 2 = ____
FAC Species	____	x 3 = ____
FACU Species	____	x 4 = ____
UPL Species	____	x 5 = ____
Column Totals	____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators
____ Dominance Test is >50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? No

Data Point 15

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	5YR 4/4	100	/	/	/	/	Gravelly loam	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (AG) (LRR C)
____ 1 cm Muck (A9) (LRR D)
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1)
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Loamy Mucky Mineral (F1)
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]
____ 1 cm Muck (A9) (LRR C)
____ 2 cm Muck (A10) (LRR B)
____ Reduced Vetric (F18)
____ Red Parent Materials (TF2)
____ Vegetated Sand/Gravel Bars
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: N/A Depth (inches) >80" Hydric Soil? N
Soil Survey

Remarks
No hydric soil indicators

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)
____ Surface Water (A1)
____ High Water Table (A2)
____ Saturation (A3)
____ Water Marks (B1) (Nonriverine)
____ Sediment Deposits (B2) (Nonriverine)
____ Surface Soil Cracks (B6)
____ Inundation Visible on Aerial Imagery (B7)
____ Water-Stained Leaves (B9)
____ Salt Crust (B11)
____ Biotic Crust (B12)
____ Aquatic Invertebrates (B13)
____ Hydrogen Sulfide Odor (C1)
____ Oxidized Rhizospheres (C3)
____ Presence of Reduced Iron (C4)
____ Recent Iron Reduction in Plowed Soils (C6)
____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)
____ Water Marks (B1) (Riverine)
____ Sediment Deposits (B2) (Riverine)
____ Drift Deposits (B3) (Riverine)
____ Drainage Patterns (B10)
____ Dry-Season Water Table (C2)
____ Thin Muck Surface (C7)
____ Crayfish Burrows (C8)
____ Saturation Visible on Aerial Imagery (C9)
____ Shallow Aquitard (D3)
____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) ✓ Wetland Hydrology? Yes ____ No X
Water Table Present? Yes ____ No X Depth (inches) ✓
Saturation Present? Yes ____ No X Depth (inches) ✓ (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks No indication of flow

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: Blue oak-grassline
Wetland Type: Intl. Stream

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/17/10
Applicant/Owner: 3-M Company State: CA Data Point: 1b
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): Concave Slope %: 1
Subregion (LRR): C Soil Map Unit Name: Anderson gravelly sandy loam
Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? N Hydric soil? N Wetland hydrology? Y Is sampled area a wetland? N Other waters? Y

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters X Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank X Scour X Ordinary High Water Mark Mapped X
Feature Designation: Perennial ____ Intermittent X Ephemeral ____ Blue-line on USGS Quad X
Natural Drainage X Artificial Drainage ____ Navigable Water ____

Remarks Rancheria Creek - 5-8' wide on average

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover: ____			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover: ____			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Perideridia kellogii	2	Y	FACW
2. Lotus purshianus	5	Y	OBL
3.			
4.			
5.			
6.			
7.			
8.			
50%= 3.5 20%= 1.4 Total Cover: 7			

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= ____ 20%= ____ Total Cover: ____			

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust ____

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 2 (A)
Total number of dominant species across all strata: 2 (B)
Percent of dominant species that are OBL, FACW, or FAC: 100 (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species	____	x 1 = ____
FACW Species	____	x 2 = ____
FAC Species	____	x 3 = ____
FACU Species	____	x 4 = ____
UPL Species	____	x 5 = ____
Column Totals	____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators
Y Dominance Test is >50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? yes
w/in Drainage

Data Point 1b

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
								No pit - Samored channel

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (AG) (LRR C)
- ____ 1 cm Muck (A9) (LRR D)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1)
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]

- ____ 1 cm Muck (A9) (LRR C)
- ____ 2 cm Muck (A10) (LRR B)
- ____ Reduced Vetric (F18)
- ____ Red Parent Materials (TF2)
- ____ Vegetated Sand/Gravel Bars
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: Soil Sampling N/A Depth (inches) >80" Hydric Soil? N/A

Remarks

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ____ Water Marks (B1) (Nonriverine)
- ____ Sediment Deposits (B2) (Nonriverine)
- ____ Surface Soil Cracks (B6)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Salt Crust (B11)
- ____ Biotic Crust (B12)
- ____ Aquatic Invertebrates (B13)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- ____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- X Water Marks (B1) (Riverine)
- X Sediment Deposits (B2) (Riverine)
- X Drift Deposits (B3) (Riverine)
- ____ Drainage Patterns (B10)
- ____ Dry-Season Water Table (C2)
- ____ Thin Muck Surface (C7)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Shallow Aquitard (D3)
- ____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes X No ____ Depth (inches) 4" Wetland Hydrology? Yes X No ____
Water Table Present? Yes X No ____ Depth (inches) Surface
Saturation Present? Yes X No ____ Depth (inches) Surface (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: Blue oak-gray pine
Wetland Type: Upland

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/17/10
Applicant/Owner: 3-M Company State: CA Data Point: 17
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Convex Slope %: <2
Subregion (LRR): C Soil Map Unit Name: Anderson gravelly sandy loam
Are climatic/hydrologic conditions on the site typical for this time of year? Y/N (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? Y/N
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? N Hydric soil? N Wetland hydrology? Y Is sampled area a wetland? N Other waters? N

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____ N/A
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____ N/A
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks

Upland point to #16

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus douglasii	20	Y	UPL
2. Pinus sabiniana	10	Y	UPL
3. Quercus wislizenii	10	Y	UPL
4.			

50%= 20 20%= 8 Total Cover: 40

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1. Toxicodendron diversilobum	5	N	UPL
2. Cercis occidentalis	10	Y	UPL
3. Rhamnus purshiana	10	Y	NI (FACU)
4. Rhamnus californica	10	Y	UPL

50%= 17.5 20%= 7 Total Cover: 35

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Cynosurus echinatus	50	Y	UPL
2. Trifolium hirtum	25	Y	UPL
3. Briza maxima	10	N	UPL
4. Lolium perenne	10	N	FAC
5. Carduus pycnocephalus	5	N	UPL
6.			
7.			
8.			

50%= ____ 20%= ____ Total Cover: ____

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			

50%= ____ 20%= ____ Total Cover: ____

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust ____

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 1 (A)
Total number of dominant species across all strata: 8 (B)
Percent of dominant species that are OBL, FACW, or FAC: 12.5 (AB)

Prevalence Index Worksheet

Total % Cover of:	Multiply by
OBL Species ____	x 1 = ____
FACW Species ____	x 2 = ____
FAC Species ____	x 3 = ____
FACU Species ____	x 4 = ____
UPL Species ____	x 5 = ____
Column Totals ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators
N Dominance Test is >50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? No

Data Point 17

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	7.5YR 4/4	100	/	/	/	/	gravelly loam	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (AG) (LRR C)
- ____ 1 cm Muck (A9) (LRR D)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1)
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]
- ____ 1 cm Muck (A9) (LRR C)
- ____ 2 cm Muck (A10) (LRR B)
- ____ Reduced Vetric (F18)
- ____ Red Parent Materials (TF2)
- ____ Vegetated Sand/Gravel Bars
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: Soil Survey N/A Depth (inches) >80" Hydric Soil? No

Remarks

No hydric soils

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)
- ____ Surface Water (A1)
- ____ High Water Table (A2)
- X Saturation (A3)
- ____ Water Marks (B1) (Nonriverine)
- ____ Sediment Deposits (B2) (Nonriverine)
- ____ Surface Soil Cracks (B6)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Salt Crust (B11)
- ____ Biotic Crust (B12)
- ____ Aquatic Invertebrates (B13)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- ____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)
- ____ Water Marks (B1) (Riverine)
- ____ Sediment Deposits (B2) (Riverine)
- ____ Drift Deposits (B3) (Riverine)
- ____ Drainage Patterns (B10)
- ____ Dry-Season Water Table (C2)
- ____ Thin Muck Surface (C7)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Shallow Aquitard (D3)
- ____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) — Wetland Hydrology? Yes X No ____
Water Table Present? Yes ____ No X Depth (inches) —
Saturation Present? Yes X No ____ Depth (inches) 10 in (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: Blue oak-gray pine
Wetland Type: Suspect area

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/17/10
Applicant/Owner: 3-M Company State: CA Data Point: 18
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): Concave Slope %: 2%
Subregion (LRR): C Soil Map Unit Name: Red Bluff loam 3-8% slopes
Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? N Hydric soil? Y Wetland hydrology? Y Is sampled area a wetland? N Other waters? N

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____ Pond creates no flow
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____ N/A
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks No wetland; No defined bank; ~10' show evidence of flow then fans out. Leaves are pushed, but no bed & bank are evident. No evidence of flow upstream. Mud puddle in road but does not flow into stream or road. No wetland

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus wislizenii	80	Y	UPL
2.			
3.			
4.			

50%= 40 20%= 16 Total Cover: 80

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1. Toxicodendron diversilobum	20	Y	UPL
2. Rhamnus californica	40	Y	UPL
3.			
4.			

50%= 30 20%= 12 Total Cover: 60

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Torilis arvensis	3	Y	UPL
2. Rhoeosciadus scilicuii	3	Y	UPL
3. Elymus glaucus	2	Y	UPL
4.			
5.			
6.			
7.			
8.			

50%= 4 20%= 1.6 Total Cover: 8

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			

50%= ____ 20%= ____ Total Cover: ____

% Bare Ground in Herb Stratum 92 **% Cover of Biotic Crust** ____

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 0 (A)
Total number of dominant species across all strata: 6 (B)
Percent of dominant species that are OBL, FACW, or FAC: 0 (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species		x 1 =
FACW Species		x 2 =
FAC Species		x 3 =
FACU Species		x 4 =
UPL Species		x 5 =
Column Totals	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators
____ Dominance Test is >50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? NO

Data Point 18

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	7.5YR 4/4	75	7.5YR 4/6	35	D	PL	gravelly loam	- Concretions
6+	Roots & rocks inhibit digging - indicators in upper 6"							

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (AG) (LRR C)
- ____ 1 cm Muck (A9) (LRR D)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1)
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- X Redox Depressions (F8)
- ____ Vernal Pools (F9)

Soil Survey

Indicators for Problematic Hydric Soils[3]
- ____ 1 cm Muck (A9) (LRR C)
- ____ 2 cm Muck (A10) (LRR B)
- ____ Reduced Vetric (F18)
- ____ Red Parent Materials (TF2)
- ____ Vegetated Sand/Gravel Bars
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: N/A Depth (Inches) >80" Hydric Soil? yes

Remarks

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)
- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1) (Nonriverine)
- ____ Sediment Deposits (B2) (Nonriverine)
- ____ Surface Soil Cracks (B6)
- ____ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ____ Salt Crust (B11)
- ____ Biotic Crust (B12)
- ____ Aquatic Invertebrates (B13)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- ____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)
- ____ Water Marks (B1) (Riverine)
- X Sediment Deposits (B2) (Riverine)
- X Drift Deposits (B3) (Riverine)
- ____ Drainage Patterns (B10)
- ____ Dry-Season Water Table (C2)
- ____ Thin Muck Surface (C7)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Shallow Aquitard (D3)
- ____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) ____ Wetland Hydrology? Yes X No ____
Water Table Present? Yes ____ No X Depth (inches) ____
Saturation Present? Yes ____ No X Depth (inches) ____ (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: Blue oak Grassland
Wetland Type: Riparian Wetland

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/17/10
Applicant/Owner: 3-M Company State: CA Data Point: 19
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope %: <1
Subregion (LRR): C Soil Map Unit Name: Cleveland gravelly loam deep, 0-3%
Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? Y Hydric soil? Y Wetland hydrology? Y Is sampled area a wetland? Y Other waters? N

USACE Jurisdiction

Adjacent to Waters X Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____
N/A

Remarks Riparian Wetland
Riparian is in a depression adjacent to creek in sand clay loam o. water table; drift line @ creek bank indicate the wetland is also flooded by the creek

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1. Rhamnus californica	10	N	UPL
2. Salix lasiolepis	20	Y	FACW
3. Toxicodendron diversilobum	25	Y	UPL
4. Quercus douglasii	5	N	UPL
50%= 30 20%= 12 Total Cover:	60		

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Rumex salicifolius	30	Y	OBL
2. Thalictrum fendleri	10	N	FACU
3. Hypericum perforatum	5	N	UPL
4. Potentilla glandulosa	10	N	FAC
5. Trifolium dubium	10	N	FACU
6. Polygonum monosperum	10	N	FACW
7.			
8.			
50%= 37.5 20%= 15 Total Cover:	75		

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1. Vitis californica	10	Y	FACW
2.			
50%= ____ 20%= ____ Total Cover:			

% Bare Ground in Herb Stratum / % Cover of Biotic Crust /

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 3 (A)
Total number of dominant species across all strata: 4 (B)
Percent of dominant species that are OBL, FACW, or FAC: 75 (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by	
OBL Species		x 1 =	
FACW Species		x 2 =	
FAC Species		x 3 =	
FACU Species		x 4 =	
UPL Species		x 5 =	
Column Totals	(A)		(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators
Y Dominance Test is >50%
/ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? yes

Data Point 19

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-8	7.5YR 2.5/2	100	/	/	/	/	loam	w/ sand deposits
8+ cobble								

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (AG) (LRR C)
- ____ 1 cm Muck (A9) (LRR D)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1)
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]

- ____ 1 cm Muck (A9) (LRR C)
- ____ 2 cm Muck (A10) (LRR B)
- ____ Reduced Vetric (F18)
- ____ Red Parent Materials (TF2)
- X Vegetated Sand/Gravel Bars
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: N/A Depth (inches) 780" Hydric Soil? yes
Soil Survey

Remarks Although upland plants are present, wetland plants are dominant. High water table provides hydrology but being in coarse, porous soil drains readily

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1) (Nonriverine)
- ____ Sediment Deposits (B2) (Nonriverine)
- ____ Surface Soil Cracks (B6)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Salt Crust (B11)
- ____ Biotic Crust (B12)
- ____ Aquatic Invertebrates (B13)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- ____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ____ Water Marks (B1) (Riverine)
- X Sediment Deposits (B2) (Riverine)
- X Drift Deposits (B3) (Riverine)
- ____ Drainage Patterns (B10)
- ____ Dry-Season Water Table (C2)
- ____ Thin Muck Surface (C7)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Shallow Aquitard (D3)
- ____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) / Wetland Hydrology? Yes X No ____
Water Table Present? Yes ____ No X Depth (inches) /
Saturation Present? Yes ____ No X Depth (inches) / (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks Sand deposits indicate deposition from stream flooding

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: Blue oak Grey pine
Wetland Type: Trib. Stream

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/17/10
Applicant/Owner: 3-M Company State: CA Data Point: 20
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): Concave Slope %: 2
Subregion (LRR): C Soil Map Unit Name: Cluver gravelly loam 0-3%
Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? Y Hydric soil? N/A Wetland hydrology? Y Is sampled area a wetland? N Other waters? Y

USACE Jurisdiction

Adjacent to Waters ___ Tributary to Waters X Isolated (with interstate commerce) ___ Isolated (non jurisdictional) ___
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank X Scour X Ordinary High Water Mark Mapped X
Feature Designation: Perennial ___ Intermittent X Ephemeral ___ Blue-line on USGS Quad X
Natural Drainage X Artificial Drainage ___ Navigable Water ___

Remarks Moody Creek

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50%= 20%= Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= 20%= Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Mimulus guttatus	10	Y	OBL
2. Juncus xiphioides	5	N	OBL
3. Rumex salicifolia	10	Y	OBL
4. Lotus pinnatus	10	Y	OBL
5.			
6. Remainder in scoured channel			
7.			
8.			
50%= 15 20%= 7 Total Cover: 35			

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= 20%= Total Cover:			

% Bare Ground in Herb Stratum ___ % Cover of Biotic Crust ___

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 3 (A)
Total number of dominant species across all strata: 3 (B)
Percent of dominant species that are OBL, FACW, or FAC: 100 (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species		x 1 =
FACW Species		x 2 =
FAC Species		x 3 =
FACU Species		x 4 =
UPL Species		x 5 =
Column Totals	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators
Y Dominance Test is >50%
___ Prevalence Index is ≤ 3.0[1]
___ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? yes
W/in OHWM

Data Point 20

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
				No pit scoured channel				

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (AG) (LRR C)
- ___ 1 cm Muck (A9) (LRR D)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]

- ___ 1 cm Muck (A9) (LRR C)
- ___ 2 cm Muck (A10) (LRR B)
- ___ Reduced Vetric (F18)
- ___ Red Parent Materials (TF2)
- ___ Vegetated Sand/Gravel Bars
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: N/A Depth (inches) 20" Hydric Soil? N/A
Soil Survey

Remarks
No pit - scoured channel

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (Nonriverine)
- ___ Sediment Deposits (B2) (Nonriverine)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- X Water Marks (B1) (Riverine)
- X Sediment Deposits (B2) (Riverine)
- X Drift Deposits (B3) (Riverine)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes X No ___ Depth (inches) 4" Wetland Hydrology? Yes X No ___
Water Table Present? Yes X No ___ Depth (inches) Surface
Saturation Present? Yes X No ___ Depth (inches) Surface (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: Blue Oak-Grass
Wetland Type: Upland

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/11/10
Applicant/Owner: 3-M Company State: CA Data Point: 21
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Convex Slope %: <2
Subregion (LRR): C Soil Map Unit Name: Clunn gravelly loam, deep, 0-3% Slopes
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? Yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? N Hydric soil? N Wetland hydrology? N Is sampled area a wetland? N Other waters? N

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____ N/A
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____ N/A
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks Upland pair to # 20+19

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Verbascum blattaria	5	N	FACU
2. Centaurea solstitialis	30	Y	UPL
3. Rumex salicifolius	10	N	OBL
4. Trifolium fucatum	30	Y	UPL
5. Torilis arvensis	5	N	UPL
6. Bromus diandrus	5	N	UPL
7. Lolium perenne	5	N	FAC
8. mustard unknown	10	N	unk
50%= ____ 20%= ____ Total Cover:	100		

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= ____ 20%= ____ Total Cover:			

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust ____

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 0 (A)
Total number of dominant species across all strata: 2 (B)
Percent of dominant species that are OBL, FACW, or FAC: 0 (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by	
OBL Species	____	x 1 =	____
FACW Species	____	x 2 =	____
FAC Species	____	x 3 =	____
FACU Species	____	x 4 =	____
UPL Species	____	x 5 =	____
Column Totals	____ (A)		____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators
____ Dominance Test is >50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? No

Data Point 21

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	7.5YR 4/3	100	✓	✓	✓	✓	gravelly loam	
6+ cobble								

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (AG) (LRR C)
____ 1 cm Muck (A9) (LRR D)
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1)
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Loamy Mucky Mineral (F1)
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]
____ 1 cm Muck (A9) (LRR C)
____ 2 cm Muck (A10) (LRR B)
____ Reduced Vetric (F18)
____ Red Parent Materials (TF2)
____ Vegetated Sand/Gravel Bars
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: Soil Survey N/A Depth (Inches) >80" Hydric Soil? No

Remarks No soil indicators

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)
____ Surface Water (A1)
____ High Water Table (A2)
____ Saturation (A3)
____ Water Marks (B1) (Nonriverine)
____ Sediment Deposits (B2) (Nonriverine)
____ Surface Soil Cracks (B6)
____ Inundation Visible on Aerial Imagery (B7)
____ Water-Stained Leaves (B9)
____ Salt Crust (B11)
____ Biotic Crust (B12)
____ Aquatic Invertebrates (B13)
____ Hydrogen Sulfide Odor (C1)
____ Oxidized Rhizospheres (C3)
____ Presence of Reduced Iron (C4)
____ Recent Iron Reduction in Plowed Soils (C6)
____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)
____ Water Marks (B1) (Riverine)
____ Sediment Deposits (B2) (Riverine)
____ Drift Deposits (B3) (Riverine)
____ Drainage Patterns (B10)
____ Dry-Season Water Table (C2)
____ Thin Muck Surface (C7)
____ Crayfish Burrows (C8)
____ Saturation Visible on Aerial Imagery (C9)
____ Shallow Aquitard (D3)
____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) ____ Wetland Hydrology? Yes ____ No X
Water Table Present? Yes ____ No X Depth (inches) ____
Saturation Present? Yes ____ No X Depth (inches) ____ (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks No hydrology indicators

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: Mixed hardwood conif
Wetland Type: Int. Pool

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/18/10
Applicant/Owner: 3-M Company State: CA Data Point: 22
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): concave Slope %: <1
Subregion (LRR): C Soil Map Unit Name: Auburn Clay loam 8-30% slopes
Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? Y Hydric soil? Y Wetland hydrology? Y Is sampled area a wetland? Y Other waters? N

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) X
Explain:

Evaluation of features designated "Other Waters of the United States"

N/A

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks Isolated intermittent pool formed by OHV riders. No outlet or connections to waters of U.S. ∴ non jurisdictional

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Mentha pulegium	60	Y	OBL
2. Plantago lanceolata	5	N	FAC
3. Hypochaeris glabra	20	Y	NI
4. Lolium perenne	10	N	FAC
5. Erigeron canadensis	10	N	FACU
6. Rumex crispus	5	N	FACW
7.			
8.			
50%= 55 20%= 22 Total Cover: 110			

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= ____ 20%= ____ Total Cover:			

% Bare Ground in Herb Stratum 5 **% Cover of Biotic Crust** 5

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 1 (A)
Total number of dominant species across all strata: 2 (B)
Percent of dominant species that are OBL, FACW, or FAC: 50 (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species	60	x 1 = 60
FACW Species	15	x 2 = 30
FAC Species	15	x 3 = 45
FACU Species	/	x 4 = /
UPL Species	20	x 5 = 100
Column Totals	110 (A)	235 (B)

Prevalence Index = B/A = 2.1

Hydrophytic Vegetation Indicators
U Dominance Test is >50%
Y Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? yes

Data Point 22

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-8	7.5YR 4/6	95	10YR 4/2	5	D	PL	gravelly loam	
8-12	7.5YR 4/6	85	10YR 4/2	15	D	PL	gravelly loam w/ concretions	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (AG) (LRR C)
- ____ 1 cm Muck (A9) (LRR D)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1)
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- xo Redox Depressions (F8)
- ____ Vernal Pools (F9) Soil Survey

Indicators for Problematic Hydric Soils[3]:

- ____ 1 cm Muck (A9) (LRR C)
- ____ 2 cm Muck (A10) (LRR B)
- ____ Reduced Vertic (F18)
- ____ Red Parent Materials (TF2)
- ____ Vegetated Sand/Gravel Bars
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: Lithic bedrock Depth (inches) 27-31 Hydric Soil? yes

Remarks Sufficient Soils

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1) (Nonriverine)
- X Sediment Deposits (B2) (Nonriverine)
- ____ Surface Soil Cracks (B6)
- ____ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ____ Salt Crust (B11)
- X Biotic Crust (B12)
- ____ Aquatic Invertebrates (B13)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- ____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ____ Water Marks (B1) (Riverine)
- ____ Sediment Deposits (B2) (Riverine)
- ____ Drift Deposits (B3) (Riverine)
- ____ Drainage Patterns (B10)
- ____ Dry-Season Water Table (C2)
- ____ Thin Muck Surface (C7)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Shallow Aquitard (D3)
- ____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) / Wetland Hydrology? Yes X No ____
Water Table Present? Yes ____ No X Depth (inches) /
Saturation Present? Yes ____ No X Depth (inches) / (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks Sufficient hydrology

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: Mixed hardwood conifer
Wetland Type: Upland

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/17/10
Applicant/Owner: 3-M Company State: CA Data Point: 23
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Convex Slope %: <1
Subregion (LRR): C Soil Map Unit Name: Auburn clay loam, 8-30% slopes
Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? N Hydric soil? N Wetland hydrology? N Is sampled area a wetland? N Other waters? N

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) N/A
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____ N/A
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks

Upland point to #22

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1. Toxicodendron diversilobum	10	Y	UPL
2. Rhamnus californica	20	Y	UPL
3.			
4.			
50%= 15 20%= 6 Total Cover: 30				

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Bromus minor	2	N	FACU
2. Anthoxanthum Aristatum	60	Y	UPL
3. Lactuca serriola	5	N	FACU
4. Cynosurus echinatus	10	N	UPL
5. Avena sp	5	N	UPL
6. Lolium perenne	2	N	FAC
7. Taeniatherum caput-medusae	5	N	UPL
8. Juncus tenuis	5	N	FACU
50%= 50 20%= 20 Total Cover: 100			

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= ____ 20%= ____ Total Cover: ____			

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust ____

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 0 (A)
Total number of dominant species across all strata: 3 (B)
Percent of dominant species that are OBL, FACW, or FAC: 0 (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species	____	x 1 = ____
FACW Species	____	x 2 = ____
FAC Species	____	x 3 = ____
FACU Species	____	x 4 = ____
UPL Species	____	x 5 = ____
Column Totals	____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators
____ Dominance Test is >50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? NO

Data Point 23

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	7.5YR 4/6	100	/	/	/	/	Sandy/gravelly loam	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (AG) (LRR C)
- ____ 1 cm Muck (A9) (LRR D)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1)
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]

- ____ 1 cm Muck (A9) (LRR C)
- ____ 2 cm Muck (A10) (LRR B)
- ____ Reduced Vetric (F18)
- ____ Red Parent Materials (TF2)
- ____ Vegetated Sand/Gravel Bars
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: Lithic bedrock Depth (inches) 27-31 Hydric Soil? NO
Soil Survey

Remarks

No indicators

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1) (Nonriverine)
- ____ Sediment Deposits (B2) (Nonriverine)
- ____ Surface Soil Cracks (B6)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Salt Crust (B11)
- ____ Biotic Crust (B12)
- ____ Aquatic Invertebrates (B13)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- ____ Other (Explain in Remarks)

Secondary indicators (2 or more required)

- ____ Water Marks (B1) (Riverine)
- ____ Sediment Deposits (B2) (Riverine)
- ____ Drift Deposits (B3) (Riverine)
- ____ Drainage Patterns (B10)
- ____ Dry-Season Water Table (C2)
- ____ Thin Muck Surface (C7)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Shallow Aquitard (D3)
- ____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) / Wetland Hydrology? Yes ____ No X
Water Table Present? Yes ____ No X Depth (inches) /
Saturation Present? Yes ____ No X Depth (inches) / (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks

No indicators

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: Blue oak-Gray pine
Wetland Type: Ephemeral stream

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/18/10
Applicant/Owner: 3-M Company State: CA Data Point: 24
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): Concave Slope %: 25
Subregion (LRR): C Soil Map Unit Name: Red Bluff loam, 3-8% slopes
Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? N Hydric soil? N Wetland hydrology? Y Is sampled area a wetland? N Other waters? Y

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters X Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank X Scour X Ordinary High Water Mark Mapped X
Feature Designation: Perennial ____ Intermittent ____ Ephemeral X Blue-line on USGS Quad ____
Natural Drainage X Artificial Drainage ____ Navigable Water ____

Remarks

Ephemeral drainage

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Bromus maximus	30	Y	UPL
2.			
3. Remainder Scoured			
4.			
5.			
6.			
7.			
8.			
50%= 15 20%= 6 Total Cover:	30		

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= ____ 20%= ____ Total Cover:			

% Bare Ground in Herb Stratum / % Cover of Biotic Crust /

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 0 (A)
Total number of dominant species across all strata: 1 (B)
Percent of dominant species that are OBL, FACW, or FAC: 0 (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species	____	x 1 = ____
FACW Species	____	x 2 = ____
FAC Species	____	x 3 = ____
FACU Species	____	x 4 = ____
UPL Species	____	x 5 = ____
Column Totals	____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators
____ Dominance Test is >50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? N

Data Point 24

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
			No pit - Scoured Channel					

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (AG) (LRR C)
- ____ 1 cm Muck (A9) (LRR D)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1)
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]

- ____ 1 cm Muck (A9) (LRR C)
- ____ 2 cm Muck (A10) (LRR B)
- ____ Reduced Vetric (F18)
- ____ Red Parent Materials (TF2)
- ____ Vegetated Sand/Gravel Bars
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: N/A Depth (inches) 280" Hydric Soil? N/A

Soil Survey

Remarks

N/A

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1) (Nonriverine)
- ____ Sediment Deposits (B2) (Nonriverine)
- ____ Surface Soil Cracks (B6)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Salt Crust (B11)
- ____ Biotic Crust (B12)
- ____ Aquatic Invertebrates (B13)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- ____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ____ Water Marks (B1) (Riverine)
- X Sediment Deposits (B2) (Riverine)
- X Drift Deposits (B3) (Riverine)
- ____ Drainage Patterns (B10)
- ____ Dry-Season Water Table (C2)
- ____ Thin Muck Surface (C7)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Shallow Aquitard (D3)
- ____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) / Wetland Hydrology? Yes X No ____
Water Table Present? Yes ____ No X Depth (inches) /
Saturation Present? Yes ____ No X Depth (inches) / (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: Blue oak Grassland
Wetland Type: Upland

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/18/10
Applicant/Owner: 3-M Company State: CA Data Point: 25
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Convex Slope %: 30
Subregion (LRR): C Soil Map Unit Name: Red Bluff Loam 3-8% slopes
Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? N Hydric soil? N Wetland hydrology? N Is sampled area a wetland? N Other waters? N

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____ N/A
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____ N/A
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks

Upland pair

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pinus sabiniana	20	Y	UPL
2. Quercus douglasii	10	Y	UPL
3.			
4.			

50%= 15 20%= 6 Total Cover: 30

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1. Arctostaphylos viscida	30	Y	UPL
2.			
3.			
4.			

50%= 15 20%= 6 Total Cover: 30

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Brizamaxima	70	Y	UPL
2. Avena fatua	5	N	UPL
3.			
4.			
5.			
6.			
7.			
8.			

50%= 37.5 20%= 15 Total Cover: 75

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			

50%= ____ 20%= ____ Total Cover: ____

% Bare Ground in Herb Stratum 25 % Cover of Biotic Crust /

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 0 (A)
Total number of dominant species across all strata: 4 (B)
Percent of dominant species that are OBL, FACW, or FAC: 0 (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species	____	x 1 = ____
FACW Species	____	x 2 = ____
FAC Species	____	x 3 = ____
FACU Species	____	x 4 = ____
UPL Species	____	x 5 = ____
Column Totals	____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators
____ Dominance Test is >50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? No

Data Point 25

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	7.5YR 4/4	100	/	/	/	/	gravelly loam	
6+	Shale/difficult digging							

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (AG) (LRR C)
____ 1 cm Muck (A9) (LRR D)
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1)
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Loamy Mucky Mineral (F1)
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]
____ 1 cm Muck (A9) (LRR C)
____ 2 cm Muck (A10) (LRR B)
____ Reduced Vertic (F18)
____ Red Parent Materials (TF2)
____ Vegetated Sand/Gravel Bars
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: N/A Depth (inches) >80" Hydric Soil? No
Soil Survey

Remarks

No indicators

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

____ Surface Water (A1)
____ High Water Table (A2)
____ Saturation (A3)
____ Water Marks (B1) (Nonriverine)
____ Sediment Deposits (B2) (Nonriverine)
____ Surface Soil Cracks (B6)
____ Inundation Visible on Aerial Imagery (B7)
____ Water-Stained Leaves (B9)
____ Salt Crust (B11)
____ Biotic Crust (B12)
____ Aquatic Invertebrates (B13)
____ Hydrogen Sulfide Odor (C1)
____ Oxidized Rhizospheres (C3)
____ Presence of Reduced Iron (C4)
____ Recent Iron Reduction in Plowed Soils (C6)
____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)
____ Water Marks (B1) (Riverine)
____ Sediment Deposits (B2) (Riverine)
____ Drift Deposits (B3) (Riverine)
____ Drainage Patterns (B10)
____ Dry-Season Water Table (C2)
____ Thin Muck Surface (C7)
____ Crayfish Burrows (C8)
____ Saturation Visible on Aerial Imagery (C9)
____ Shallow Aquitard (D3)
____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No / Depth (inches) ____ Wetland Hydrology? Yes ____ No /
Water Table Present? Yes ____ No / Depth (inches) ____
Saturation Present? Yes ____ No / Depth (inches) ____ (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks

No indicators

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: Blue oak-gray pine
Wetland Type: Vegetated ditch

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/22/10
Applicant/Owner: 3-M Company State: CA Data Point: 26
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): C Local relief (concave, convex, none): Concave Slope %: 2
Subregion (LRR): C Soil Map Unit Name: Perkins gravelly loam 8-15%
Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? Y Hydric soil? Y Wetland hydrology? Y Is sampled area a wetland? Y Other waters? N

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ ~~Isolated~~ (non jurisdictional) X
Explain: detention uplands to drainage uplands

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks

Vegetated detention areas. Non-vegetated detention as slope increases & scour precludes plant establishment. Non-jurisdictional because created in uplands to drain uplands adjacent to the RR tracks

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover: ____			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover: ____			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Eleocharis macrostachya	20	Y	OBL
2. Paspalum dilatatum	20	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
50%= 20 20%= 8 Total Cover: 40			

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= ____ 20%= ____ Total Cover: ____			

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust ____

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 2 (A)
Total number of dominant species across all strata: 2 (B)
Percent of dominant species that are OBL, FACW, or FAC: 100 (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species	____	x 1 = ____
FACW Species	____	x 2 = ____
FAC Species	____	x 3 = ____
FACU Species	____	x 4 = ____
UPL Species	____	x 5 = ____
Column Totals	____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators
yes Dominance Test is >50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? yes
Cover increases up stream

Data Point 26

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
			No pit - unvegetated					

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- X Hydrogen Sulfide (A4)
- ____ Stratified Layers (AG) (LRR C)
- ____ 1 cm Muck (A9) (LRR D)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1)
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]

- ____ 1 cm Muck (A9) (LRR C)
- ____ 2 cm Muck (A10) (LRR B)
- ____ Reduced Vetric (F18)
- ____ Red Parent Materials (TF2)
- ____ Vegetated Sand/Gravel Bars
- X Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: N/A Depth (Inches) >80" Hydric Soil? Y
Soil Survey

Remarks Long duration ponding during >5% of growing period
Sufficient hydric soils

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ____ Water Marks (B1) (Nonriverine)
- X Sediment Deposits (B2) (Nonriverine)
- ____ Surface Soil Cracks (B6)
- ____ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ____ Salt Crust (B11)
- X Biotic Crust (B12)
- ____ Aquatic Invertebrates (B13)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- X Other (Explain in Remarks) metamorphosing Cloons frogs

Secondary Indicators (2 or more required)

- ____ Water Marks (B1) (Riverine)
- ____ Sediment Deposits (B2) (Riverine)
- ____ Drift Deposits (B3) (Riverine)
- ____ Drainage Patterns (B10)
- ____ Dry-Season Water Table (C2)
- ____ Thin Muck Surface (C7)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Shallow Aquitard (D3)
- ____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes X No ____ Depth (inches) 4" Wetland Hydrology? Yes X No ____
Water Table Present? Yes X No ____ Depth (inches) Surface
Saturation Present? Yes X No ____ Depth (inches) Surface (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: Blue Oak Gray Pine
Wetland Type: Upland

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/18/10
Applicant/Owner: 3-M Company State: CA Data Point: 27
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Convex Slope %: 70
Subregion (LRR): C Soil Map Unit Name: Perkins gravelly loam 8-15% slopes
Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? N Hydric soil? N Wetland hydrology? N Is sampled area a wetland? N Other waters? N

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____ N/A
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____ N/A

Remarks Upland pine litter

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus wislizenii	30	Y	UPL
2. Pinus sabiniana	30	Y	UPL
3.			
4.			

50%= 30 20%= 12 Total Cover: 60

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1. Arctostaphylos viscida	10	Y	UPL
2.			
3.			
4.			

50%= 5 20%= 2 Total Cover: 10

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Grindelia camporum	5	Y	UPL
2. Vicia villosa	5	Y	UPL
3.			
4.			
5.			
6.			
7.			
8.			

50%= 5 20%= 2 Total Cover: 10

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			

50%= ____ 20%= ____ Total Cover: ____

% Bare Ground in Herb Stratum 90 % Cover of Biotic Crust ____
litter

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 0 (A)
Total number of dominant species across all strata: 5 (B)
Percent of dominant species that are OBL, FACW, or FAC: 0 (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species	____	x 1 = ____
FACW Species	____	x 2 = ____
FAC Species	____	x 3 = ____
FACU Species	____	x 4 = ____
UPL Species	____	x 5 = ____
Column Totals	____ (A)	____ (B)

Prevalance Index = B/A = ____

Hydrophytic Vegetation Indicators
____ Dominance Test is >50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? No

Data Point 27

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-5	5YR 4/4	100	/	/	/	/	gravelly loam	
5+ Rock								

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (AG) (LRR C)
____ 1 cm Muck (A9) (LRR D)
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1)
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Loamy Mucky Mineral (F1)
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]
____ 1 cm Muck (A9) (LRR C)
____ 2 cm Muck (A10) (LRR B)
____ Reduced Vetric (F18)
____ Red Parent Materials (TF2)
____ Vegetated Sand/Gravel Bars
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: N/A Depth (Inches) >80" Hydric Soil? No
Soil Survey

Remarks No indicators

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)
____ Surface Water (A1)
____ High Water Table (A2)
____ Saturation (A3)
____ Water Marks (B1) (Nonriverine)
____ Sediment Deposits (B2) (Nonriverine)
____ Surface Soil Cracks (B6)
____ Inundation Visible on Aerial Imagery (B7)
____ Water-Stained Leaves (B9)
____ Salt Crust (B11)
____ Biotic Crust (B12)
____ Aquatic Invertebrates (B13)
____ Hydrogen Sulfide Odor (C1)
____ Oxidized Rhizospheres (C3)
____ Presence of Reduced Iron (C4)
____ Recent Iron Reduction in Plowed Soils (C6)
____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)
____ Water Marks (B1) (Riverine)
____ Sediment Deposits (B2) (Riverine)
____ Drift Deposits (B3) (Riverine)
____ Drainage Patterns (B10)
____ Dry-Season Water Table (C2)
____ Thin Muck Surface (C7)
____ Crayfish Burrows (C8)
____ Saturation Visible on Aerial Imagery (C9)
____ Shallow Aquitard (D3)
____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No ✓ Depth (Inches) ____ Wetland Hydrology? Yes ____ No ✓
Water Table Present? Yes ____ No ✓ Depth (inches) ____
Saturation Present? Yes ____ No ✓ Depth (inches) ____ (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks No indicators

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: Blue oak-Grass/Pine
Wetland Type: Ephemeral Stream

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/25/10
Applicant/Owner: 3-M Company State: CA Data Point: 28
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): Concave Slope %: <1
Subregion (LRR): C Soil Map Unit Name: Perkins gravelly loam 2-15%
Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? N Hydric soil? N Wetland hydrology? Y Is sampled area a wetland? N Other waters? Y

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters X Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank X Scour X Ordinary High Water Mark Mapped X
Feature Designation: Perennial ____ Intermittent ____ Ephemeral X Blue-line on USGS Quad ____
Natural Drainage X Artificial Drainage ____ Navigable Water ____

Remarks Ephemeral Stream; Evidence of scour + deposition but debris dam does not indicate constant flow rather leaf/debris flow in high precip events only.

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3. No veg. scoured			
4. Channel			
50%= ____ 20%= ____ Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
50%= ____ 20%= ____ Total Cover:			

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= ____ 20%= ____ Total Cover:			

% Bare Ground in Herb Stratum ____ **% Cover of Biotic Crust** ____

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: ____ (A)
Total number of dominant species across all strata: ____ (B)
Percent of dominant species that are OBL, FACW, or FAC: ____ (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species	____	x 1 = ____
FACW Species	____	x 2 = ____
FAC Species	____	x 3 = ____
FACU Species	____	x 4 = ____
UPL Species	____	x 5 = ____
Column Totals	____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators
____ Dominance Test is >50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? N/A

Data Point 28

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
			No pit scoured channel					

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5) (LRR C)
- ____ 1 cm Muck (A9) (LRR D)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1)
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]

- ____ 1 cm Muck (A9) (LRR C)
- ____ 2 cm Muck (A10) (LRR B)
- ____ Reduced Vertic (F18)
- ____ Red Parent Materials (TF2)
- ____ Vegetated Sand/Gravel Bars
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Soil Survey

Restrictive Layer (if present): Type: N/A Depth (inches) >80" Hydric Soil? N/A

Remarks

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1) (Nonriverine)
- ____ Sediment Deposits (B2) (Nonriverine)
- ____ Surface Soil Cracks (B6)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Salt Crust (B11)
- ____ Biotic Crust (B12)
- ____ Aquatic Invertebrates (B13)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- ____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ____ Water Marks (B1) (Riverine)
- X Sediment Deposits (B2) (Riverine)
- X Drift Deposits (B3) (Riverine)
- ____ Drainage Patterns (B10)
- ____ Dry-Season Water Table (C2)
- ____ Thin Muck Surface (C7)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Shallow Aquitard (D3)
- ____ FAC-Neutral Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) ____ Wetland Hydrology? Yes X No ____
Water Table Present? Yes ____ No X Depth (inches) ____
Saturation Present? Yes ____ No X Depth (inches) ____ (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks Sufficient hydrology

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: Blue Oak - Grassland
Wetland Type: Intl. Stream

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/23/10
Applicant/Owner: 3-M Company State: CA Data Point: 29
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): concave Slope %: <1
Subregion (LRR): C Soil Map Unit Name: Perkins gravelly loam 8-15%
Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? N Hydric soil? N Wetland hydrology? Y Is sampled area a wetland? N Other waters? Y

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters X Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank X Scour X Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent X Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage X Artificial Drainage ____ Navigable Water ____

Remarks Intermittent stream transition - @ confluence of 2 ephemeral streams; increased size & presence of biotic crust indicates stream occurs longer during the growing season.

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2. No veg - Scoured Channel			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
50%= ____ 20%= ____ Total Cover:			

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= ____ 20%= ____ Total Cover:			

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust ____

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: ____ (A)
Total number of dominant species across all strata: ____ (B)
Percent of dominant species that are OBL, FACW, or FAC: ____ (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species	____ x 1 =	____
FACW Species	____ x 2 =	____
FAC Species	____ x 3 =	____
FACU Species	____ x 4 =	____
UPL Species	____ x 5 =	____
Column Totals	____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators
____ Dominance Test is >50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? N/A

Data Point 29

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
			No pit - Scoured channel					

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (AG) (LRR C)
- ____ 1 cm Muck (A9) (LRR D)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1)
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]

- ____ 1 cm Muck (A9) (LRR C)
- ____ 2 cm Muck (A10) (LRR B)
- ____ Reduced Vetric (F18)
- ____ Red Parent Materials (TF2)
- ____ Vegetated Sand/Gravel Bars
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: Soil Survey N/A Depth (inches) >80" Hydric Soil? N/A

Remarks

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1) (Nonriverine)
- ____ Sediment Deposits (B2) (Nonriverine)
- ____ Surface Soil Cracks (B6)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Salt Crust (B11)
- X Biotic Crust (B12)
- ____ Aquatic Invertebrates (B13)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- ____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ____ Water Marks (B1) (Riverine)
- X Sediment Deposits (B2) (Riverine)
- X Drift Deposits (B3) (Riverine)
- ____ Drainage Patterns (B10)
- ____ Dry-Season Water Table (C2)
- ____ Thin Muck Surface (C7)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Shallow Aquitard (D3)
- ____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) ____ Wetland Hydrology? Yes X No ____
Water Table Present? Yes ____ No X Depth (inches) ____
Saturation Present? Yes ____ No X Depth (inches) ____ (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks Bed + bank is more defined & biotic crust indicates stream occurs for longer duration.

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: Blue Oak - Ponderosa Pine
Wetland Type: Upland

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/23/10
Applicant/Owner: 3-M Company State: CA Data Point: 30
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): Concave Slope %: <1
Subregion (LRR): C Soil Map Unit Name: Perkins gravelly loam 8-15% Slopes
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? Yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? N Hydric soil? N Wetland hydrology? N Is sampled area a wetland? N Other waters? N

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____ N/A
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____ N/A
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks

Upland pair to # 28+29

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus wislizenii	35	Y	UPL
2. Pinus ponderosa	30	Y	UPL
3. Q. kelloggii	20	Y	UPL
4. Q. douglasii	5	N	UPL
50%= ____ 20%= ____ Total Cover:	90		

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1. Toxicodendron diversilobum	5	Y	UPL
2. Holodiscus discolor	5	Y	UPL
3. Q. wislizenii	5	Y	UPL
4. P. sabiniana	5	Y	UPL
50%= 10 20%= 4 Total Cover:	20		

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Cynosurus echinatus	5	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
50%= 2.5 20%= 1 Total Cover:	5		

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= ____ 20%= ____ Total Cover:			

% Bare Ground in Herb Stratum 95 % Cover of Biotic Crust ____
Litter

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 0 (A)
Total number of dominant species across all strata: 8 (B)
Percent of dominant species that are OBL, FACW, or FAC: 0 (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species	____	x 1 = ____
FACW Species	____	x 2 = ____
FAC Species	____	x 3 = ____
FACU Species	____	x 4 = ____
UPL Species	____	x 5 = ____
Column Totals	____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators
____ Dominance Test is >50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? No

Data Point 30

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5YR 4/1	100	/	/	/	/	gravelly loam	to Rock
Rock								

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (AG) (LRR C)
____ 1 cm Muck (A9) (LRR D)
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1)
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Loamy Mucky Mineral (F1)
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]
____ 1 cm Muck (A9) (LRR C)
____ 2 cm Muck (A10) (LRR B)
____ Reduced Vetric (F18)
____ Red Parent Materials (TF2)
____ Vegetated Sand/Gravel Bars
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Soil Survey

Restrictive Layer (if present): Type: N/A Depth (inches) 250" Hydric Soil? N

Remarks

No indicators

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)
____ Surface Water (A1)
____ High Water Table (A2)
____ Saturation (A3)
____ Water Marks (B1) (Nonriverine)
____ Sediment Deposits (B2) (Nonriverine)
____ Surface Soil Cracks (B6)
____ Inundation Visible on Aerial Imagery (B7)
____ Water-Stained Leaves (B9)
____ Salt Crust (B11)
____ Biotic Crust (B12)
____ Aquatic Invertebrates (B13)
____ Hydrogen Sulfide Odor (C1)
____ Oxidized Rhizospheres (C3)
____ Presence of Reduced Iron (C4)
____ Recent Iron Reduction in Plowed Soils (C6)
____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)
____ Water Marks (B1) (Riverine)
____ Sediment Deposits (B2) (Riverine)
____ Drift Deposits (B3) (Riverine)
____ Drainage Patterns (B10)
____ Dry-Season Water Table (C2)
____ Thin Muck Surface (C7)
____ Crayfish Burrows (C8)
____ Saturation Visible on Aerial Imagery (C9)
____ Shallow Aquitard (D3)
____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) / Wetland Hydrology? Yes ____ No X
Water Table Present? Yes ____ No X Depth (inches) /
Saturation Present? Yes ____ No X Depth (inches) / (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available.

Remarks

No indicators

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: Blue Oak-Grassland
Wetland Type: Spring-Other waters

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/25/10
Applicant/Owner: 3-M Company State: CA Data Point: 31
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): Concave Slope %: 45
Subregion (LRR): C Soil Map Unit Name: Auberry very rocky clay loam 50-70% slopes
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? Yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? N Hydric soil? N Wetland hydrology? Y Is sampled area a wetland? N Other waters? Y

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters X Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank X Scour X Ordinary High Water Mark Mapped X
Feature Designation: Perennial ____ Intermittent X Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage X Artificial Drainage ____ Navigable Water ____

Remarks Spring- Other waters; It appears water originates @ location @ head of spring. Bedrock substrate

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3. No Veg			
4. Scoured channel			
50%= ____ 20%= ____ Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
50%= ____ 20%= ____ Total Cover:			

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= ____ 20%= ____ Total Cover:			

% Bare Ground in Herb Stratum ____ **% Cover of Biotic Crust** ____

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: ____ (A)
Total number of dominant species across all strata: ____ (B)
Percent of dominant species that are OBL, FACW, or FAC: ____ (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species	____	x 1 = ____
FACW Species	____	x 2 = ____
FAC Species	____	x 3 = ____
FACU Species	____	x 4 = ____
UPL Species	____	x 5 = ____
Column Totals	____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators
____ Dominance Test is >50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? N/A

Data Point 31

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
			No pit		Scoured channel			

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (AG) (LRR C)
____ 1 cm Muck (A9) (LRR D)
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1)
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Loamy Mucky Mineral (F1)
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]
____ 1 cm Muck (A9) (LRR C)
____ 2 cm Muck (A10) (LRR B)
____ Reduced Vetric (F18)
____ Red Parent Materials (TF2)
____ Vegetated Sand/Gravel Bars
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: Bedrock Depth (Inches) Surface Hydric Soil? N/A

Remarks

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

____ Surface Water (A1)
____ High Water Table (A2)
____ Saturation (A3)
____ Water Marks (B1) (Nonriverine)
____ Sediment Deposits (B2) (Nonriverine)
____ Surface Soil Cracks (B6)
____ Inundation Visible on Aerial Imagery (B7)
____ Water-Stained Leaves (B9)
____ Salt Crust (B11)
____ Biotic Crust (B12)
____ Aquatic Invertebrates (B13)
____ Hydrogen Sulfide Odor (C1)
____ Oxidized Rhizospheres (C3)
____ Presence of Reduced Iron (C4)
____ Recent Iron Reduction in Plowed Soils (C6)
____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)
X Water Marks (B1) (Riverine)
X Sediment Deposits (B2) (Riverine)
X Drift Deposits (B3) (Riverine)
____ Drainage Patterns (B10)
____ Dry-Season Water Table (C2)
____ Thin Muck Surface (C7)
____ Crayfish Burrows (C8)
____ Saturation Visible on Aerial Imagery (C9)
____ Shallow Aquitard (D3)
____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) ✓ Wetland Hydrology? Yes X No ____
Water Table Present? Yes ____ No X Depth (inches) ✓
Saturation Present? Yes ____ No X Depth (inches) ✓ (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: Blue Oak-Graypine
Wetland Type: Upland

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/25/10
Applicant/Owner: 3-M Company State: CA Data Point: 32
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Convex Slope %: 70
Subregion (LRR): C Soil Map Unit Name: Auburn very rocky clay loam, 50-70% Slopes eroded
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? Yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? N Hydric soil? N Wetland hydrology? N Is sampled area a wetland? N Other waters? N

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____ N/A
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____ N/A
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks Upland pair to #31

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Centaurea solstitialis	30	Y	UPL
2. Petrorhagia dubia	20	Y	UPL
3. Hypochaeris glabra	10	N	UPL
4. Taeniatherum caput-medusae	5	N	UPL
5. Epilobium lanatum	5	N	WPL
6. Avena fatua	5	N	UPL
7.			
8.			
50%= 37.5 20%= 15 Total Cover: 75			

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= ____ 20%= ____ Total Cover:			

% Bare Ground in Herb Stratum 25 % Cover of Biotic Crust ____
or moss

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 0 (A)
Total number of dominant species across all strata: 2 (B)
Percent of dominant species that are OBL, FACW, or FAC: 0 (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species	____	x 1 = ____
FACW Species	____	x 2 = ____
FAC Species	____	x 3 = ____
FACU Species	____	x 4 = ____
UPL Species	____	x 5 = ____
Column Totals	____ (A)	____ (B)

Prevalance Index = B/A = ____

Hydrophytic Vegetation Indicators
____ Dominance Test is >50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? No

Data Point 32

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/3	100	/	/	/	/	gravelly loam	→ Bedrock
Bedrock								

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (AG) (LRR C)
- ____ 1 cm Muck (A9) (LRR D)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1)
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]

- ____ 1 cm Muck (A9) (LRR C)
- ____ 2 cm Muck (A10) (LRR B)
- ____ Reduced Vetric (F18)
- ____ Red Parent Materials (TF2)
- ____ Vegetated Sand/Gravel Bars
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: Bedrock Depth (inches) 2 Hydric Soil? N

Remarks No indicators

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1) (Nonriverine)
- ____ Sediment Deposits (B2) (Nonriverine)
- ____ Surface Soil Cracks (B6)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Salt Crust (B11)
- ____ Biotic Crust (B12)
- ____ Aquatic Invertebrates (B13)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- ____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ____ Water Marks (B1) (Riverine)
- ____ Sediment Deposits (B2) (Riverine)
- ____ Drift Deposits (B3) (Riverine)
- ____ Drainage Patterns (B10)
- ____ Dry-Season Water Table (C2)
- ____ Thin Muck Surface (C7)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Shallow Aquitard (D3)
- ____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) / Wetland Hydrology? Yes ____ No X
Water Table Present? Yes ____ No X Depth (inches) /
Saturation Present? Yes ____ No X Depth (inches) / (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks No indicators

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: MHC
Wetland Type: Int Stream

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/28/10
Applicant/Owner: 3-M Company State: CA Data Point: 33
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): Concave Slope %: 60
Subregion (LRR): C Soil Map Unit Name: Auburn clay loam, 8-30% Slopes Eroded
Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? N Hydric soil? N Wetland hydrology? Y Is sampled area a wetland? N Other waters? Y

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters X Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank X Scour X Ordinary High Water Mark Mapped X
Feature Designation: Perennial ____ Intermittent X Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage X Artificial Drainage ____ Navigable Water ____

Remarks Intermittent Stream fed by springs

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3. No pit			
4. Ground Channel			
50%= ____ 20%= ____ Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
50%= ____ 20%= ____ Total Cover:			

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= ____ 20%= ____ Total Cover:			

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust ____

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: ____ (A)
Total number of dominant species across all strata: ____ (B)
Percent of dominant species that are OBL, FACW, or FAC: ____ (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species	____	x 1 = ____
FACW Species	____	x 2 = ____
FAC Species	____	x 3 = ____
FACU Species	____	x 4 = ____
UPL Species	____	x 5 = ____
Column Totals	____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators
____ Dominance Test is >50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? N/A

Data Point 33

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
			No pit					
			Ground Channel					

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (AG) (LRR C)
____ 1 cm Muck (A9) (LRR D)
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1)
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Loamy Mucky Mineral (F1)
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]
____ 1 cm Muck (A9) (LRR C)
____ 2 cm Muck (A10) (LRR B)
____ Reduced Vetric (F18)
____ Red Parent Materials (TF2)
____ Vegetated Sand/Gravel Bars
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: Bedrock Depth (inches): Surface Hydric Soil? N/A

Remarks

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

X Surface Water (A1)
X High Water Table (A2)
X Saturation (A3)
____ Water Marks (B1) (Nonriverine)
____ Sediment Deposits (B2) (Nonriverine)
____ Surface Soil Cracks (B6)
____ Inundation Visible on Aerial Imagery (B7)
____ Water-Stained Leaves (B9)
____ Salt Crust (B11)
____ Biotic Crust (B12)
____ Aquatic Invertebrates (B13)
____ Hydrogen Sulfide Odor (C1)
____ Oxidized Rhizospheres (C3)
____ Presence of Reduced Iron (C4)
____ Recent Iron Reduction in Plowed Soils (C6)
____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)
X Water Marks (B1) (Riverine)
X Sediment Deposits (B2) (Riverine)
X Drift Deposits (B3) (Riverine)
____ Drainage Patterns (B10)
____ Dry-Season Water Table (C2)
____ Thin Muck Surface (C7)
____ Crayfish Burrows (C8)
____ Saturation Visible on Aerial Imagery (C9)
____ Shallow Aquitard (D3)
____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes X No ____ Depth (inches): 1/2" Wetland Hydrology? Yes X No ____
Water Table Present? Yes X No ____ Depth (inches): Surface
Saturation Present? Yes X No ____ Depth (inches): Surface (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: HAC
Wetland Type: Spring

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/28/10
Applicant/Owner: 3-M Company State: CA Data Point: 34
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Concave Slope %: 70
Subregion (LRR): C Soil Map Unit Name: Auburn silt loam 8-35% Slopes eroded
Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? Y Hydric soil? Y Wetland hydrology? Y Is sampled area a wetland? Y Other waters? N

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters X Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____ N/A
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks

Spring - Bedrock

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Mimulus guttatus	20	Y	OBL
2. Trifolium hyacinthinum	20	Y	FACW
3. Juncus hirsutus	5	N	OBL
4. Hordeum Jubatum	15	Y	UPL
5. Eustrodium ventricosum	10	N	FACU
6.			
7.			
8.			
50%= 35 20%= 14 Total Cover: 70			

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= ____ 20%= ____ Total Cover:			

% Bare Ground in Herb Stratum 30 % Cover of Biotic Crust /

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 2 (A)
Total number of dominant species across all strata: 3 (B)
Percent of dominant species that are OBL, FACW, or FAC: 67% (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species	____	x 1 = ____
FACW Species	____	x 2 = ____
FAC Species	____	x 3 = ____
FACU Species	____	x 4 = ____
UPL Species	____	x 5 = ____
Column Totals	____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators
X Dominance Test is >50%
__ Prevalence Index is ≤ 3.0[1]
__ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
__ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? yes

Data Point 34

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
Bedrock								

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (AG) (LRR C)
- ____ 1 cm Muck (A9) (LRR D)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1)
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]

- ____ 1 cm Muck (A9) (LRR C)
- ____ 2 cm Muck (A10) (LRR B)
- ____ Reduced Vetric (F18)
- ____ Red Parent Materials (TF2)
- ____ Vegetated Sand/Gravel Bars
- X Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: Bedrock Depth (inches) Surface Hydric Soil? Y

Remarks Water seeps from bedrock

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- X Water Marks (B1) (Nonriverine)
- X Sediment Deposits (B2) (Nonriverine)
- ____ Surface Soil Cracks (B6)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Salt Crust (B11)
- ____ Biotic Crust (B12)
- ____ Aquatic Invertebrates (B13)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- ____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ____ Water Marks (B1) (Riverine)
- ____ Sediment Deposits (B2) (Riverine)
- ____ Drift Deposits (B3) (Riverine)
- ____ Drainage Patterns (B10)
- ____ Dry-Season Water Table (C2)
- ____ Thin Muck Surface (C7)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Shallow Aquitard (D3)
- ____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) / Wetland Hydrology? Yes X No ____
Water Table Present? Yes ____ No X Depth (inches) /
Saturation Present? Yes ____ No X Depth (inches) / (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: MHC
Wetland Type: Upland

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/22/10
Applicant/Owner: 3-M Company State: CA Data Point: 35
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): convex Slope %: 70
Subregion (LRR): C Soil Map Unit Name: Auburn clay loam 8-30% eroded
Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? N Hydric soil? N Wetland hydrology? N Is sampled area a wetland? N Other waters? N

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____ N/A
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____ N/A
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks Upland point to # 33+34

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1. Rhamnus California	10	Y	UPL
2.			
3.			
4.			
50%= 5 20%= 2 Total Cover: 10			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Vulpia myuros	40	Y	FACU
2. Perforphagia dubia	5	N	UPL
3. Centaurea solstitialis	10	N	UPL
4. Hypochaeris glabra	20	Y	UPL
5. Bromus madritensis	5	N	UPL
6.			
7.			
8.			
50%= 40 20%= 16 Total Cover: 80			

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= ____ 20%= ____ Total Cover:			

% Bare Ground in Herb Stratum 20 % Cover of Biotic Crust ____

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 0 (A)
Total number of dominant species across all strata: 3 (B)
Percent of dominant species that are OBL, FACW, or FAC: 0 (AB)

Prevalence Index Worksheet

Total % Cover of:	Multiply by:
OBL Species ____	x 1 = ____
FACW Species ____	x 2 = ____
FAC Species ____	x 3 = ____
FACU Species ____	x 4 = ____
UPL Species ____	x 5 = ____
Column Totals ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators
____ Dominance Test is >50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? No

Data Point 35

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 4/3	100	/	/	/	/	gravel	
Bedrock								

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (AG) (LRR C)
____ 1 cm Muck (A9) (LRR D)
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1)
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Loamy Mucky Mineral (F1)
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]
____ 1 cm Muck (A9) (LRR C)
____ 2 cm Muck (A10) (LRR B)
____ Reduced Vertic (F18)
____ Red Parent Materials (TF2)
____ Vegetated Sand/Gravel Bars
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: Bedrock Depth (inches) 1" Hydric Soil? No

Remarks No indicators

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

____ Surface Water (A1)
____ High Water Table (A2)
____ Saturation (A3)
____ Water Marks (B1) (Nonriverine)
____ Sediment Deposits (B2) (Nonriverine)
____ Surface Soil Cracks (B6)
____ Inundation Visible on Aerial Imagery (B7)
____ Water-Stained Leaves (B9)
____ Salt Crust (B11)
____ Biotic Crust (B12)
____ Aquatic Invertebrates (B13)
____ Hydrogen Sulfide Odor (C1)
____ Oxidized Rhizospheres (C3)
____ Presence of Reduced Iron (C4)
____ Recent Iron Reduction in Plowed Soils (C6)
____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)
____ Water Marks (B1) (Riverine)
____ Sediment Deposits (B2) (Riverine)
____ Drift Deposits (B3) (Riverine)
____ Drainage Patterns (B10)
____ Dry-Season Water Table (C2)
____ Thin Muck Surface (C7)
____ Crayfish Burrows (C8)
____ Saturation Visible on Aerial Imagery (C9)
____ Shallow Aquitard (D3)
____ FAC-Neutral Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) / Wetland Hydrology? Yes ____ No X
Water Table Present? Yes ____ No X Depth (inches) /
Saturation Present? Yes ____ No X Depth (inches) / (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks No indicators

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: Annual grassland
Wetland Type: Int. Swale - NJ Isolated
Suspected
Date: 6/30/10

Project/Site: Moody Flats Quarry Project City/County: Shasta
Applicant/Owner: 3-M Company State: CA Data Point: 36
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope %: <1
Subregion (LRR): C Soil Map Unit Name: Hubbard Loam, 0-8% Slopes
Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)
Are vegetation Y, soil Y, or hydrology N significantly disturbed? Are normal circumstances present? yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? N Hydric soil? N Wetland hydrology? Y Is sampled area a wetland? N Other waters? N

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) X
Explain:

Evaluation of features designated "Other Waters of the United States"

N/A

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks Intermittent pool excavated by off road vehicles. Isolated pool. Although few hydrophytic plants have established the pool is not dominated by hydrophytic veg. Upland plants have established concentrically w/

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Navarretia tagetina	5	N	UPL
2. Navarretia intertexta	2	N	OBL
3. Ribes gallica	15	Y	UPL
4. Pedicularis densiflora	5	N	OBL
5. Hypericum perforatum	5	N	UPL
6. Croton setigerus	3	N	UPL
7. Sanguisorba rubra	10	N	UPL
8. Deschampsia elongata	2	N	UPL
50%= 31 20%= 12.4 Total Cover: 62			

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1. Lotus purshianus	5	N	UPL
2. Scleranthus dimas	10	Y	FACU
50%= 31 20%= 12.4 Total Cover: 62			

% Bare Ground in Herb Stratum 40 % Cover of Biotic Crust ____

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 0 (A)
Total number of dominant species across all strata: 1 (B)
Percent of dominant species that are OBL, FACW, or FAC: UPL (AB)

Wetland plants dominating the entire area do not strongly indicate hydrophytic conditions for establishing a dominance of wetland species.

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species	7	x 1 = 7
FACW Species	—	x 2 = —
FAC Species	—	x 3 = —
FACU Species	10	x 4 = 40
UPL Species	45	x 5 = 225
Column Totals	62 (A)	272 (B)

Prevalence Index = B/A = 4.4

Hydrophytic Vegetation Indicators
N Dominance Test is >50%
N Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? No

Data Point 36

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	5YR 4/4	100	—	—	—	—	Sandy loam	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix. [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (AG) (LRR C)
- ____ 1 cm Muck (A9) (LRR D)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1)
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]

- ____ 1 cm Muck (A9) (LRR C)
- ____ 2 cm Muck (A10) (LRR B)
- ____ Reduced Vetric (F18)
- ____ Red Parent Materials (TF2)
- ____ Vegetated Sand/Gravel Bars
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: Lithic bedrock Depth (inches) 24-28" Hydric Soil? N
Soil Survey

Remarks No physical indicators; lack of hydrophytic veg does not support long duration ponding

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1) (Nonriverine)
- X Sediment Deposits (B2) (Nonriverine)
- X Surface Soil Cracks (B6)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Salt Crust (B11)
- ____ Biotic Crust (B12)
- ____ Aquatic Invertebrates (B13)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- ____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ____ Water Marks (B1) (Riverine)
- ____ Sediment Deposits (B2) (Riverine)
- ____ Drift Deposits (B3) (Riverine)
- ____ Drainage Patterns (B10)
- ____ Dry-Season Water Table (C2)
- ____ Thin Muck Surface (C7)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Shallow Aquitard (D3)
- ____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) ____ Wetland Hydrology? Yes X No ____
Water Table Present? Yes ____ No X Depth (inches) ____
Saturation Present? Yes ____ No X Depth (inches) ____ (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks Meets hydrology but lacks of soil indicators & hydrophytic veg does not support a wetland

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: Annual grassland
Wetland Type: Upland

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/3/10
Applicant/Owner: 3-M Company State: CA Data Point: 37
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Convex Slope %: 21
Subregion (LRR): C Soil Map Unit Name: Auburn loam, 0-8% slopes
Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? N Hydric soil? N Wetland hydrology? N Is sampled area a wetland? N Other waters? N

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ isolated (with interstate commerce) ____ isolated (non jurisdictional) ____ N/A
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____ N/A

Remarks Upland pair to #36

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Centaurea solstitialis	40	Y	UPL
2. Bromus hordeaceus	10	N	FACU
3. Gastridium ventricosum	10	N	FACU
4. Trifolium hirtum	20	N	UPL
5. Navarretia tagetina	5	N	UPL
6. Lotus purshianus	10	N	UPL
7. Taeniatherum caput-medusae	10	N	UPL
8. Navarretia intertexta	10	N	OBL
50%= ____ 20%= ____ Total Cover:			

Woody Vine Stratum (use scientific names)	% Cover	Species?	Status
1. Hypericum perforatum	5	N	UPL
2.			
50%= 60 20%= 24 Total Cover: 120			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 0 (A)
Total number of dominant species across all strata: 1 (B)
Percent of dominant species that are OBL, FACW, or FAC: 0 (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species	____	x 1 = ____
FACW Species	____	x 2 = ____
FAC Species	____	x 3 = ____
FACU Species	____	x 4 = ____
UPL Species	____	x 5 = ____
Column Totals	____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators
____ Dominance Test is >50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? NO

Data Point 37

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5YR 4/4	100	/	/	/	/	Sandy loam	
Difficult digging								

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (AG) (LRR C)
____ 1 cm Muck (A9) (LRR D)
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1)
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Loamy Mucky Mineral (F1)
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]
____ 1 cm Muck (A9) (LRR C)
____ 2 cm Muck (A10) (LRR B)
____ Reduced Vetric (F18)
____ Red Parent Materials (TF2)
____ Vegetated Sand/Gravel Bars
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: Lithic bedrock Depth (inches) 24-29 Hydric Soil? NO
Soil Survey

Remarks Pit difficult to dig, however dominated by upland plants & does not qualify as wetland.

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)
____ Surface Water (A1)
____ High Water Table (A2)
____ Saturation (A3)
____ Water Marks (B1) (Nonriverine)
____ Sediment Deposits (B2) (Nonriverine)
X Surface Soil Cracks (B6)
____ Inundation Visible on Aerial Imagery (B7)
____ Water-Stained Leaves (B9)
____ Salt Crust (B11)
____ Biotic Crust (B12)
____ Aquatic Invertebrates (B13)
____ Hydrogen Sulfide Odor (C1)
____ Oxidized Rhizospheres (C3)
____ Presence of Reduced Iron (C4)
____ Recent Iron Reduction in Plowed Soils (C6)
____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)
____ Water Marks (B1) (Riverine)
____ Sediment Deposits (B2) (Riverine)
____ Drift Deposits (B3) (Riverine)
____ Drainage Patterns (B10)
____ Dry-Season Water Table (C2)
____ Thin Muck Surface (C7)
____ Crayfish Burrows (C8)
____ Saturation Visible on Aerial Imagery (C9)
____ Shallow Aquitard (D3)
____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) / Wetland Hydrology? Yes X No ____
Water Table Present? Yes ____ No X Depth (inches) /
Saturation Present? Yes ____ No X Depth (inches) / (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: Blue Oak/grassland
Wetland Type: Riparian wetland

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/30/10
Applicant/Owner: 3-M Company State: CA Data Point: 38
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): Concave Slope %: 2
Subregion (LRR): C Soil Map Unit Name: Auburn very stony clay loam 30-50%
Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? Y Hydric soil? Y Wetland hydrology? Y Is sampled area a wetland? Y Other waters? N

USACE Jurisdiction

Adjacent to Waters X Tributary to Waters ___ Isolated (with interstate commerce) ___ Isolated (non jurisdictional) ___
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ___ Scour ___ Ordinary High Water Mark Mapped ___
Feature Designation: Perennial ___ Intermittent ___ Ephemeral ___ Blue-line on USGS Quad ___
Natural Drainage ___ Artificial Drainage ___ Navigable Water ___

N/A

Remarks

Riparian wetland - herbaceous adjacent to intermittent stream, Gradient levels + stream meandering broad area, floodplain/wetland

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50%= ___ 20%= ___ Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1. Salix laevigata	5	Y	FACW
2.			
3.			
4.			
50%= 2.5 20%= 1 Total Cover:	5		

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Trifolium variegatum	30	Y	FACW
2. Juncus tenuis	10	N	FACW
3. Lotus purshianus	25	Y	OBL
4. Bromus arvensis	10	N	FACU
5. Sidalcea hirsuta	5	N	OBL
6. Lolium perenne	20	N	FAC
7. Carex leto	5	N	OBL
8. Mimulus guttatus	5	N	OBL
50%= ___ 20%= ___ Total Cover:			

Woody Vine Stratum (use scientific names)	% Cover	Species?	Status
1. Toxicodendron diversilobum	10	N	OBL
2. Mentha pulegium	5	N	OBL
50%= 62.5 20%= 25 Total Cover:	15		

% Bare Ground in Herb Stratum ___ % Cover of Biotic Crust ___

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 2 (A)
Total number of dominant species across all strata: 2 (B)
Percent of dominant species that are OBL, FACW, or FAC: 100 (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species	___	x 1 = ___
FACW Species	___	x 2 = ___
FAC Species	___	x 3 = ___
FACU Species	___	x 4 = ___
UPL Species	___	x 5 = ___
Column Totals	___ (A)	___ (B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators
4 Dominance Test is >50%
1 Prevalence Index is ≤ 3.0[1]
___ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? yes

Data Point 38

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5YR 3/3	70	7.5YR 3/2	30	RM	M	Sandy loam	
4-12	7.5YR 3/3	50	7.5YR 3/2	50	RM	M		

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- X Hydrogen Sulfide (A4)
- ___ Stratified Layers (AG) (LRR C)
- ___ 1 cm Muck (A9) (LRR D)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]
- ___ 1 cm Muck (A9) (LRR C)
- ___ 2 cm Muck (A10) (LRR B)
- ___ Reduced Vetric (F18)
- ___ Red Parent Materials (TF2)
- ___ Vegetated Sand/Gravel Bars
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: Lithic bedrock Depth (Inches) 27-31 Hydric Soil? yes
Soil Survey

Remarks
Sufficient Soils

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)
- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1) (Nonriverine)
- ___ Sediment Deposits (B2) (Nonriverine)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- X Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)
- ___ Water Marks (B1) (Riverine)
- ___ Sediment Deposits (B2) (Riverine)
- ___ Drift Deposits (B3) (Riverine)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ___ No X Depth (inches) ___ Wetland Hydrology? Yes X No ___
Water Table Present? Yes X No ___ Depth (inches) 10"
Saturation Present? Yes X No ___ Depth (inches) 4" (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks
Sufficient hydrology

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: Blue Oak grass, pine
Wetland Type: Ind. Stream

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/20/10
Applicant/Owner: 3-M Company State: CA Data Point: 39
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): Concave Slope %: <2
Subregion (LRR): C Soil Map Unit Name: Auberry: Very stony clay loam 30-50% eroded
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? Yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? Y Hydric soil? Y Wetland hydrology? Y Is sampled area a wetland? N Other waters? Y

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters X Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank X Scour X Ordinary High Water Mark Mapped X
Feature Designation: Perennial ____ Intermittent X Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage X Artificial Drainage ____ Navigable Water ____

Remarks

Intermittent Stream w/ Lotus in stream
Slow moving int. stream allows for veg to establish w/ in its banks

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Lotus pinnatus	80	Y	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
50%= 40 20%= 16 Total Cover: 80			

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= ____ 20%= ____ Total Cover:			

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust 20

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 1 (A)
Total number of dominant species across all strata: 1 (B)
Percent of dominant species that are OBL, FACW, or FAC: 100 (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species	____	x 1 = ____
FACW Species	____	x 2 = ____
FAC Species	____	x 3 = ____
FACU Species	____	x 4 = ____
UPL Species	____	x 5 = ____
Column Totals	____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators
Y Dominance Test is >50%
Y Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? Yes
W/in Ottwm

Data Point 39

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
	No pit	Scoured channel						

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (AG) (LRR C)
____ 1 cm Muck (A9) (LRR D)
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1)
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Loamy Mucky Mineral (F1)
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]
____ 1 cm Muck (A9) (LRR C)
____ 2 cm Muck (A10) (LRR B)
____ Reduced Vetric (F18)
____ Red Parent Materials (TF2)
____ Vegetated Sand/Gravel Bars
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: Lithic bedrock Depth (Inches) 27-31" Hydric Soil? N/A
Soil Survey

Remarks

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

X Surface Water (A1)
X High Water Table (A2)
X Saturation (A3)
____ Water Marks (B1) (Nonriverine)
____ Sediment Deposits (B2) (Nonriverine)
____ Surface Soil Cracks (B6)
____ Inundation Visible on Aerial Imagery (B7)
____ Water-Stained Leaves (B9)
____ Salt Crust (B11)
____ Biotic Crust (B12)
____ Aquatic Invertebrates (B13)
____ Hydrogen Sulfide Odor (C1)
____ Oxidized Rhizospheres (C3)
____ Presence of Reduced Iron (C4)
____ Recent Iron Reduction in Plowed Soils (C6)
____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)
____ Water Marks (B1) (Riverine)
X Sediment Deposits (B2) (Riverine)
X Drift Deposits (B3) (Riverine)
____ Drainage Patterns (B10)
____ Dry-Season Water Table (C2)
____ Thin Muck Surface (C7)
____ Crayfish Burrows (C8)
____ Saturation Visible on Aerial Imagery (C9)
____ Shallow Aquitard (D3)
____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes X No ____ Depth (inches) 1" Wetland Hydrology? Yes X No ____
Water Table Present? Yes X No ____ Depth (inches) Surface
Saturation Present? Yes X No ____ Depth (inches) Surface (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: Blue oak woodland
Wetland Type: Upland

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 10/30/10
Applicant/Owner: 3-M Company State: CA Data Point: 40
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Convex Slope %: <1
Subregion (LRR): C Soil Map Unit Name: Auberson Very stony clay loam 30-50% slopes eroded
Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? N Hydric soil? Y Wetland hydrology? Y Is sampled area a wetland? N Other waters? N

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non-jurisdictional) ____ N/A
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____ N/A
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks Upland pair to #38 + 39

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus douglasii	20	Y	UPL
2.			
3.			
4.			
50%= 10 20%= 4 Total Cover: 20			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1. Arctostaphylos viscida	10	Y	UPL
2.			
3.			
4.			
50%= 5 20%= 2 Total Cover: 10			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Bromus madritensis	75	Y	UPL
2. Trifolium hirtum	5	N	FACU
3. Trifolium variegatum	10	N	FACU
4.			
5.			
6.			
7.			
8.			
50%= 45 20%= 18 Total Cover: 90			

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= 20%= Total Cover:			

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust 0

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 0 (A)
Total number of dominant species across all strata: 3 (B)
Percent of dominant species that are OBL, FACW, or FAC: 0 (AB)

Prevalence Index Worksheet

Total % Cover of:	Multiply by
OBL Species ____	x 1 = ____
FACW Species ____	x 2 = ____
FAC Species ____	x 3 = ____
FACU Species ____	x 4 = ____
UPL Species ____	x 5 = ____
Column Totals ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators
____ Dominance Test is >50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? No

Data Point 40

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	7.5YR 3/3	80	10YR 3/2	20	RM	M	sandy loam	some organic mulch
2-12	7.5YR 3/3	100					sandy loam	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (AG) (LRR C)
- ____ 1 cm Muck (A9) (LRR D)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1)
- ____ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]

- ____ 1 cm Muck (A9) (LRR C)
- ____ 2 cm Muck (A10) (LRR B)
- ____ Reduced Vetric (F18)
- ____ Red Parent Materials (TF2)
- ____ Vegetated Sand/Gravel Bars
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: lithic bedrock Depth (inches) 27-31" Hydric Soil? yes
Soil Survey

Remarks

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- X Saturation (A3)
- ____ Water Marks (B1) (Nonriverine)
- ____ Sediment Deposits (B2) (Nonriverine)
- ____ Surface Soil Cracks (B6)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Salt Crust (B11)
- ____ Biotic Crust (B12)
- ____ Aquatic Invertebrates (B13)
- ____ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- ____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ____ Water Marks (B1) (Riverine)
- ____ Sediment Deposits (B2) (Riverine)
- ____ Drift Deposits (B3) (Riverine)
- ____ Drainage Patterns (B10)
- ____ Dry-Season Water Table (C2)
- ____ Thin Muck Surface (C7)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Shallow Aquitard (D3)
- ____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) 0 Wetland Hydrology? Yes X No ____
Water Table Present? Yes ____ No X Depth (inches) 0
Saturation Present? Yes X No ____ Depth (inches) 10" (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: Blue oak woodland
Wetland Type: Seep-Spring

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/30/10
Applicant/Owner: 3-M Company State: CA Data Point: 41
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Slope/drainage Local relief (concave, convex, none): Convex Slope %: 21
Subregion (LRR): C Soil Map Unit Name: Auburn very stony clay loam
Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? Y Hydric soil? Y Wetland hydrology? Y Is sampled area a wetland? Y Other waters? N

USACE Jurisdiction

Adjacent to Waters X Tributary to Waters X Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____ N/A
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks Seep-Spring; Bedrock underlayment at 4"

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Mimulus guttatus	73	Y	OBL
2. Lolium perenne	20	Y	FAC
3. Sidalcea hirsuta	2	N	OBL
4. Lotus pinnatus	5	N	OBL
5.			
6.			
7.			
8.			
50%= 50 20%= 20 Total Cover: 100			

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= ____ 20%= ____ Total Cover:			

% Bare Ground in Herb Stratum ____ **% Cover of Biotic Crust** ____

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 2 (A)
Total number of dominant species across all strata: 2 (B)
Percent of dominant species that are OBL, FACW, or FAC: 100 (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:
OBL Species	____	x 1 = ____
FACW Species	____	x 2 = ____
FAC Species	____	x 3 = ____
FACU Species	____	x 4 = ____
UPL Species	____	x 5 = ____
Column Totals	____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators
✓ Dominance Test is >50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? yes

Data Point 41

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5YR 3/3	100	/	/	/	/	Sandy Loam	
4+	Bedrock							

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- X Hydrogen Sulfide (A4)
- ____ Stratified Layers (AG) (LRR C)
- ____ 1 cm Muck (A9) (LRR D)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1)
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]

- ____ 1 cm Muck (A9) (LRR C)
- ____ 2 cm Muck (A10) (LRR B)
- ____ Reduced Vertic (F18)
- ____ Red Parent Materials (TF2)
- ____ Vegetated Sand/Gravel Bars
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: Bedrock Depth (inches) 4 Hydric Soil? yes

Remarks

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- X Saturation (A3)
- ____ Water Marks (B1) (Nonriverine)
- ____ Sediment Deposits (B2) (Nonriverine)
- ____ Surface Soil Cracks (B6)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Salt Crust (B11)
- ____ Biotic Crust (B12)
- ____ Aquatic Invertebrates (B13)
- X Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- ____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ____ Water Marks (B1) (Riverine)
- ____ Sediment Deposits (B2) (Riverine)
- ____ Drift Deposits (B3) (Riverine)
- ____ Drainage Patterns (B10)
- ____ Dry-Season Water Table (C2)
- ____ Thin Muck Surface (C7)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Shallow Aquitard (D3)
- ____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) ____ Wetland Hydrology? Yes X No ____
Water Table Present? Yes ____ No X Depth (inches) ____
Saturation Present? Yes X No ____ Depth (inches) Surface (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: Blue oak grassland
Wetland Type: upland

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 6/30/10
Applicant/Owner: 3-M Company State: CA Data Point: 42
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): convex Slope %: 5
Subregion (LRR): C Soil Map Unit Name: Auburn very stony clay loam 30-50% eroded
Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? N Hydric soil? N Wetland hydrology? Y Is sampled area a wetland? N Other waters? N

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) N/A
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____
N/A

Remarks

Upland pair to #41

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus douglasii	5	Y	FACU
2. Q. lobata	10	Y	FAC
3. Pinus sabiniana	5	Y	UPL
4.			
50%= 10 20%= 4 Total Cover: 20			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1. Toxicodendron diversilobum	5	Y	UPL
2. Rhamnus californica	5	Y	UPL
3.			
4.			
50%= 5 20%= 2 Total Cover: 10			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Mentha spicata	20	Y	OBL
2. Aristolochia sp	20	Y	UPL
3. Lolium multiflorum	10	N	UPL
4. Plantago lanceolata	10	N	FACU
5. Centranthus ruber	35	Y	UPL
6. Trifolium variegatum	5	N	FACU
7. Carex feta	2	N	OBL
8.			
50%= 50 20%= 20 Total Cover: 100			

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1. Vitis californica	5	Y	FACU
2.			
50%= 2.5 20%= 1 Total Cover: 5			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 2 (A)
Total number of dominant species across all strata: 8 (B)
Percent of dominant species that are OBL, FACW, or FAC: 25 (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species		x 1 =
FACW Species		x 2 =
FAC Species		x 3 =
FACU Species		x 4 =
UPL Species		x 5 =
Column Totals	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators
____ Dominance Test is >50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? No

Data Point 42

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	7.5YR 3/3	100					Sandy loam	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (AG) (LRR C)
- ____ 1 cm Muck (A9) (LRR D)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1)
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]

- ____ 1 cm Muck (A9) (LRR C)
- ____ 2 cm Muck (A10) (LRR B)
- ____ Reduced Vetric (F18)
- ____ Red Parent Materials (TF2)
- ____ Vegetated Sand/Gravel Bars
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Soil Survey

Restrictive Layer (if present): Type: Lithic bedrock Depth (inches) 27-31" Hydric Soil? N

Remarks

No indicators

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1) (Nonriverine)
- ____ Sediment Deposits (B2) (Nonriverine)
- ____ Surface Soil Cracks (B6)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Salt Crust (B11)
- ____ Biotic Crust (B12)
- ____ Aquatic Invertebrates (B13)
- ____ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- ____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ____ Water Marks (B1) (Riverine)
- ____ Sediment Deposits (B2) (Riverine)
- ____ Drift Deposits (B3) (Riverine)
- ____ Drainage Patterns (B10)
- ____ Dry-Season Water Table (C2)
- ____ Thin Muck Surface (C7)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Shallow Aquitard (D3)
- ____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) 0 Wetland Hydrology? Yes X No ____
Water Table Present? Yes ____ No X Depth (inches) 0
Saturation Present? Yes ____ No X Depth (inches) 0 (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: Blue oak-gray pine
Wetland Type: Inter. Foot - PS

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 7/8/10
Applicant/Owner: 3-M Company State: CA Data Point: 43
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope %: <1
Subregion (LRR): C Soil Map Unit Name: Churn gravelly loam, deep, 0-3%
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no, explain in remarks.)
Are vegetation Y, soil Y, or hydrology N significantly disturbed? Are normal circumstances present? yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? Y Hydric soil? Y Wetland hydrology? Y Is sampled area a wetland? Y Other waters? N

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) X
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____ N/A

Remarks

Road mud puddle is inundated for long duration & has developed hydrophytic veg. Pool formed by OHV + all terrain vehicles

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Cynosurus echinatus	2	N	FACU
2. Dichanthelium lanuginosum	1	N	FACW
3. Tonsella tenuis	1	N	FACU
4. Juncus bufonius	15	Y	FACW
5. Lythrum hyssopifolia	1	N	FACW
6.			
7.			
8.			
50%= 10 20%= 4 Total Cover: 20			

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= ____ 20%= ____ Total Cover:			

% Bare Ground in Herb Stratum 90 % Cover of Biotic Crust 0

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 1 (A)
Total number of dominant species across all strata: 1 (B)
Percent of dominant species that are OBL, FACW, or FAC: 100 (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by	
OBL Species	____	x 1 =	____
FACW Species	____	x 2 =	____
FAC Species	____	x 3 =	____
FACU Species	____	x 4 =	____
UPL Species	____	x 5 =	____
Column Totals	____ (A)		____ (B)

Prevalance Index = B/A = ____

Hydrophytic Vegetation Indicators
Y Dominance Test is >50%
Y Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? Yes

Data Point 43

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/4	100	/	/	/	/	silt loam	Oxidized rhizospheres
4-8	5YR 4/6	100	/	/	/	/	gravelly loam	
8+	compacted soil							

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (AG) (LRR C)
____ 1 cm Muck (A9) (LRR D)
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1)
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Loamy Mucky Mineral (F1)
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]
____ 1 cm Muck (A9) (LRR C)
____ 2 cm Muck (A10) (LRR B)
____ Reduced Vetric (F18)
____ Red Parent Materials (TF2)
____ Vegetated Sand/Gravel Bars
X Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: N/A Depth (Inches) >80" Hydric Soil? Y
Soil Survey

Remarks Presence of crack soil + hydrophytic plants indicate long duration ponding. Vehicle disturbance may inhibit or mask development of hydric soil characteristics.

Hydrology

Inundation observed through 6/30/10

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

____ Surface Water (A1)
____ High Water Table (A2)
____ Saturation (A3)
____ Water Marks (B1) (Nonriverine)
X Sediment Deposits (B2) (Nonriverine)
X Surface Soil Cracks (B6)
____ Inundation Visible on Aerial Imagery (B7)
X Water-Stained Leaves (B9)
____ Salt Crust (B11)
____ Biotic Crust (B12)
____ Aquatic Invertebrates (B13)
____ Hydrogen Sulfide Odor (C1)
X Oxidized Rhizospheres (C3)
____ Presence of Reduced Iron (C4)
____ Recent Iron Reduction in Plowed Soils (C6)
____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)
____ Water Marks (B1) (Riverine)
____ Sediment Deposits (B2) (Riverine)
____ Drift Deposits (B3) (Riverine)
____ Drainage Patterns (B10)
____ Dry-Season Water Table (C2)
____ Thin Muck Surface (C7)
____ Crayfish Burrows (C8)
____ Saturation Visible on Aerial Imagery (C9)
____ Shallow Aquitard (D3)
____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) / Wetland Hydrology? Yes X No ____
Water Table Present? Yes ____ No X Depth (inches) /
Saturation Present? Yes ____ No X Depth (inches) / (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: Blue oak woodland
Wetland Type: Upland

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 7/8/10
Applicant/Owner: 3-M Company State: CA Data Point: 44
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Convex Slope %: 2
Subregion (LRR): C Soil Map Unit Name: Cluney gravelly loam, deep 0-3% SG095
Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? N Hydric soil? N Wetland hydrology? N Is sampled area a wetland? N Other waters? N

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____ N/A
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____ N/A
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks Upland pair to #43

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Anthoxanthum odoratum	45	Y	UPL
2. Lotus purshianus	20	Y	UPL
3. Plantago lanceolata	5	N	FACW
4. Geranium dissectum	10	N	UPL
5. Briza maxima	5	N	UPL
6. Trifolium hirtum	10	N	UPL
7. Bromus madritensis	5	N	UPL
8.			
50%= 50 20%= 20 Total Cover:	100		

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= ____ 20%= ____ Total Cover:			

% Bare Ground in Herb Stratum 1 % Cover of Biotic Crust 1

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 0 (A)
Total number of dominant species across all strata: 2 (B)
Percent of dominant species that are OBL, FACW, or FAC: 0 (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species	____	x 1 = ____
FACW Species	____	x 2 = ____
FAC Species	____	x 3 = ____
FACU Species	____	x 4 = ____
UPL Species	____	x 5 = ____
Column Totals	____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators
____ Dominance Test is >50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? NO

Data Point 44

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5YR 4/4	100	/	/	/	/	gravelly loam	
4+ Concrete (essentially) compacted soils								

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (AG) (LRR C)
____ 1 cm Muck (A9) (LRR D)
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1)
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Loamy Mucky Mineral (F1)
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]
____ 1 cm Muck (A9) (LRR C)
____ 2 cm Muck (A10) (LRR B)
____ Reduced Vetric (F18)
____ Red Parent Materials (TF2)
____ Vegetated Sand/Gravel Bars
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: Soil Survey N/A Depth (Inches) >80" Hydric Soil? NO

Remarks No indicators

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)
____ Surface Water (A1)
____ High Water Table (A2)
____ Saturation (A3)
____ Water Marks (B1) (Nonriverine)
____ Sediment Deposits (B2) (Nonriverine)
____ Surface Soil Cracks (B6)
____ Inundation Visible on Aerial Imagery (B7)
____ Water-Stained Leaves (B9)
____ Salt Crust (B11)
____ Biotic Crust (B12)
____ Aquatic Invertebrates (B13)
____ Hydrogen Sulfide Odor (C1)
____ Oxidized Rhizospheres (C3)
____ Presence of Reduced Iron (C4)
____ Recent Iron Reduction in Plowed Soils (C6)
____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)
____ Water Marks (B1) (Riverine)
____ Sediment Deposits (B2) (Riverine)
____ Drift Deposits (B3) (Riverine)
____ Drainage Patterns (B10)
____ Dry-Season Water Table (C2)
____ Thin Muck Surface (C7)
____ Crayfish Burrows (C8)
____ Saturation Visible on Aerial Imagery (C9)
____ Shallow Aquitard (D3)
____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) / Wetland Hydrology? Yes ____ No X
Water Table Present? Yes ____ No X Depth (inches) /
Saturation Present? Yes ____ No X Depth (inches) / (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks No indicators

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: Blue Oak - Gray Pine
Wetland Type: Riparian Wetland

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 7/8/10
Applicant/Owner: 3-M Company State: CA Data Point: 45
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): Concave Slope %: <2
Subregion (LRR): C Soil Map Unit Name: Auburn Loam, 0-8% Slopes
Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? Y Hydric soil? Y Wetland hydrology? Y Is sampled area a wetland? Y Other waters? N

USACE Jurisdiction

Adjacent to Waters X Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____
Explain:

Evaluation of features designated "Other Waters of the United States"

N/A

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks Riparian Wetland adjacent to Moody Creek

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus fremontii	5	Y	FACW
2.			
3.			
4.			

50%= 2.5 20%= 1 Total Cover: 5

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1. Cephalanthus occidentalis	90	Y	OBL
2. Salix lasiolepis	10	N	FACW
3.			
4.			

50%= 50 20%= 20 Total Cover: 100

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Mimulus guttatus	45	Y	OBL
2. Mentha spicata	20	Y	OBL
3. Chenopodium ambrosioides	20	Y	FAC
4. Cyperus eglandulosus	5	N	UPL
5. Juncus phaeocephalus	10	N	OBL
6.			
7.			
8.			

50%= 50 20%= 20 Total Cover: 100

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			

50%= ____ 20%= ____ Total Cover: ____

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust ____

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 5 (A)
Total number of dominant species across all strata: 5 (B)
Percent of dominant species that are OBL, FACW, or FAC: 100 (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by	
OBL Species		x 1 =	
FACW Species		x 2 =	
FAC Species		x 3 =	
FACU Species		x 4 =	
UPL Species		x 5 =	
Column Totals	(A)		(B)

Prevalance Index = B/A =

Hydrophytic Vegetation Indicators
✓ Dominance Test is >50%
✓ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? yes

Data Point 45

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
			No Pits - Vegetated gravel bar					

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (AG) (LRR C)
- ____ 1 cm Muck (A9) (LRR D)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1)
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]

- ____ 1 cm Muck (A9) (LRR C)
- ____ 2 cm Muck (A10) (LRR B)
- ____ Reduced Vetric (F18)
- ____ Red Parent Materials (TF2)
- X Vegetated Sand/Gravel Bars
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: Lithic bedrock Depth (Inches) 24-28 Hydric Soil? yes
Soil Survey

Remarks Vegetation has formed on gravel/cobble bar along Moody Creek. Drift lines indicate frequent flooding

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- X Saturation (A3)
- ____ Water Marks (B1) (Nonriverine)
- ____ Sediment Deposits (B2) (Nonriverine)
- ____ Surface Soil Cracks (B6)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Salt Crust (B11)
- ____ Biotic Crust (B12)
- ____ Aquatic Invertebrates (B13)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- ____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ____ Water Marks (B1) (Riverine)
- X Sediment Deposits (B2) (Riverine)
- X Drift Deposits (B3) (Riverine)
- ____ Drainage Patterns (B10)
- ____ Dry-Season Water Table (C2)
- ____ Thin Muck Surface (C7)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Shallow Aquitard (D3)
- ____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) ____ Wetland Hydrology? Yes X No ____
Water Table Present? Yes ____ No X Depth (inches) ____
Saturation Present? Yes X No ____ Depth (inches) Surface (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: Blue Oak woodland
Wetland Type: [illegible]

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 7/8/10
Applicant/Owner: 3-M Company State: CA Data Point: 46
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): Concave Slope %: 2-2
Subregion (LRR): C Soil Map Unit Name: Auburn loam 0-8% slopes
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? Yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? Y Hydric soil? N/A Wetland hydrology? Y Is sampled area a wetland? N Other waters? Y

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters X Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank X Scour X Ordinary High Water Mark Mapped X
Feature Designation: Perennial ____ Intermittent X Ephemeral ____ Blue-line on USGS Quad X
Natural Drainage X Artificial Drainage ____ Navigable Water ____

Remarks Ant stream w/ herbaceous [illegible]

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Mimulus guttatus	60	Y	OBL
2. Lotus purshianus	30	Y	OBL
3.			
4.			
5.			
6.			
7.			
8.			
50%= ____ 20%= ____ Total Cover:	90		

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= ____ 20%= ____ Total Cover:			

% Bare Ground in Herb Stratum ____ **% Cover of Biotic Crust** ____

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 2 (A)
Total number of dominant species across all strata: 2 (B)
Percent of dominant species that are OBL, FACW, or FAC: 100 (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:
OBL Species	____	x 1 = ____
FACW Species	____	x 2 = ____
FAC Species	____	x 3 = ____
FACU Species	____	x 4 = ____
UPL Species	____	x 5 = ____
Column Totals	____ (A)	____ (B)

Prevalance Index = B/A = ____

Hydrophytic Vegetation Indicators
Y Dominance Test is >50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? Yes

Data Point 46

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks

No pit - Scoured channel

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (AG) (LRR C)
- ____ 1 cm Muck (A9) (LRR D)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1)
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]

- ____ 1 cm Muck (A9) (LRR C)
- ____ 2 cm Muck (A10) (LRR B)
- ____ Reduced Vetric (F18)
- ____ Red Parent Materials (TF2)
- ____ Vegetated Sand/Gravel Bars
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Soil Survey

Restrictive Layer (if present): Type: Lithic bedrock Depth (Inches) 24-28 Hydric Soil? N/A

Remarks

No pit

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ____ Water Marks (B1) (Nonriverine)
- ____ Sediment Deposits (B2) (Nonriverine)
- ____ Surface Soil Cracks (B6)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Salt Crust (B11)
- ____ Biotic Crust (B12)
- ____ Aquatic Invertebrates (B13)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- ____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- X Water Marks (B1) (Riverine)
- X Sediment Deposits (B2) (Riverine)
- X Drift Deposits (B3) (Riverine)
- ____ Drainage Patterns (B10)
- ____ Dry-Season Water Table (C2)
- ____ Thin Muck Surface (C7)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Shallow Aquitard (D3)
- ____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes X No ____ Depth (inches) 2in Wetland Hydrology? Yes X No ____
Water Table Present? Yes X No ____ Depth (inches) Surface
Saturation Present? Yes X No ____ Depth (inches) Surface (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: Blue Oak grassland
Wetland Type: Upland

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 7/8/10
Applicant/Owner: 3-M Company State: CA Data Point: 47
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Convex Slope %: <2
Subregion (LRR): C Soil Map Unit Name: Auberry loam 0-8% slopes
Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? N Hydric soil? N Wetland hydrology? N Is sampled area a wetland? N Other waters? N

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____ N/A
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____ N/A
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks

Upland pair to #45 & 46

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus douglasii	50	Y	UPL
2.			
3.			
4.			
50%= 25 20%= 10 Total Cover:	50		

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1. Toxicodendron diversilobum	10	Y	UPL
2.			
3.			
4.			
50%= 5 20%= 2 Total Cover:	10		

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Mentha arvensis	10	N	OBL
2. Thalictrum fendleri	10	N	FACU
3. Bromus diandrus	60	Y	UPL
4. Toxicodendron	10	N	UPL
5. Cynosurus echinatus	10	N	UPL
6.			
7.			
8.			
50%= 50 20%= 20 Total Cover:	100		

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= 20%= Total Cover:			

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust ____

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 0 (A)
Total number of dominant species across all strata: 3 (B)
Percent of dominant species that are OBL, FACW, or FAC: 0 (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species	____	x 1 = ____
FACW Species	____	x 2 = ____
FAC Species	____	x 3 = ____
FACU Species	____	x 4 = ____
UPL Species	____	x 5 = ____
Column Totals	____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators
____ Dominance Test is >50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? NO

Data Point 47

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	7.5YR 3/3	100	✓	✓	✓	✓	gravelly loam	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (AG) (LRR C)
____ 1 cm Muck (A9) (LRR D)
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1)
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Loamy Mucky Mineral (F1)
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]
____ 1 cm Muck (A9) (LRR C)
____ 2 cm Muck (A10) (LRR B)
____ Reduced Vetric (F18)
____ Red Parent Materials (TF2)
____ Vegetated Sand/Gravel Bars
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: Lithic bedrock Depth (Inches) 24-28" Hydric Soil? NO
Soil Survey

Remarks

No indicators

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)
____ Surface Water (A1)
____ High Water Table (A2)
____ Saturation (A3)
____ Water Marks (B1) (Nonriverine)
____ Sediment Deposits (B2) (Nonriverine)
____ Surface Soil Cracks (B6)
____ Inundation Visible on Aerial Imagery (B7)
____ Water-Stained Leaves (B9)
____ Salt Crust (B11)
____ Biotic Crust (B12)
____ Aquatic Invertebrates (B13)
____ Hydrogen Sulfide Odor (C1)
____ Oxidized Rhizospheres (C3)
____ Presence of Reduced Iron (C4)
____ Recent Iron Reduction in Plowed Soils (C6)
____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)
____ Water Marks (B1) (Riverine)
____ Sediment Deposits (B2) (Riverine)
____ Drift Deposits (B3) (Riverine)
____ Drainage Patterns (B10)
____ Dry-Season Water Table (C2)
____ Thin Muck Surface (C7)
____ Crayfish Burrows (C8)
____ Saturation Visible on Aerial Imagery (C9)
____ Shallow Aquitard (D3)
____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) ✓ Wetland Hydrology? Yes ____ No X
Water Table Present? Yes ____ No X Depth (inches) ✓
Saturation Present? Yes ____ No X Depth (inches) ✓ (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks

No indicators

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: Mixed Hardwood Conifer
Wetland Type: Fen/Riparian

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 7/8/10
Applicant/Owner: 3-M Company State: CA Data Point: 48
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Constructed Impoundment Local relief (concave, convex, none): Concave Slope %: <1
Subregion (LRR): C Soil Map Unit Name: Auburn very stony clay loam 30-50% Slopes exceeded
Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? Y Hydric soil? Y Wetland hydrology? Y Is sampled area a wetland? Y Other waters? N

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters X Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____ N/P
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks Fresh emergent/Riparian Wetland - In Channel Constructed impoundment.

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix gooddingii	10	Y	OBL
2.			
3.			
4.			
50%= 5 20%= 2 Total Cover: 10			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1. Salix exigua	10	Y	OBL
2.			
3.			
4.			
50%= 5 20%= 2 Total Cover: 10			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Mimulus guttatus	20	Y	OBL
2. Bleachstalks marcostachys	30	Y	OBL
3. Rumex salicifolius	5	N	OBL
4. Alisma gramineum	5	N	OBL
5. Polygonum hydropiperoides	20	Y	FACW
6.			
7.			
8.			
50%= 40 20%= 16 Total Cover: 80			

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= 20%= Total Cover:			

% Bare Ground in Herb Stratum 20 % Cover of Biotic Crust 0
Open water 25

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 5 (A)
Total number of dominant species across all strata: 5 (B)
Percent of dominant species that are OBL, FACW, or FAC: 100 (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species		x 1 =
FACW Species		x 2 =
FAC Species		x 3 =
FACU Species		x 4 =
UPL Species		x 5 =
Column Totals	(A)	(B)

Prevalance Index = B/A =

Hydrophytic Vegetation Indicators
yes Dominance Test is >50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? yes

Data Point 48

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/3	100	/	/	/	/	silty loam	
6-14	7.5YR 4/3	100	/	/	/	/	gravelly loam	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- X Hydrogen Sulfide (A4)
- ____ Stratified Layers (AG) (LRR C)
- ____ 1 cm Muck (A9) (LRR D)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1)
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]

- ____ 1 cm Muck (A9) (LRR C)
- ____ 2 cm Muck (A10) (LRR B)
- ____ Reduced Vetric (F18)
- ____ Red Parent Materials (TF2)
- ____ Vegetated Sand/Gravel Bars
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: Lithic bedrock Depth (Inches) 27-31" Hydric Soil? Y
Soil Survey

Remarks

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- X Saturation (A3)
- ____ Water Marks (B1) (Nonriverine)
- X Sediment Deposits (B2) (Nonriverine)
- ____ Surface Soil Cracks (B6)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Salt Crust (B11)
- ____ Biotic Crust (B12)
- ____ Aquatic Invertebrates (B13)
- X Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- ____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ____ Water Marks (B1) (Riverine)
- ____ Sediment Deposits (B2) (Riverine)
- ____ Drift Deposits (B3) (Riverine)
- ____ Drainage Patterns (B10)
- ____ Dry-Season Water Table (C2)
- ____ Thin Muck Surface (C7)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Shallow Aquitard (D3)
- ____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) / Wetland Hydrology? Yes X No ____
Water Table Present? Yes ____ No X Depth (inches) /
Saturation Present? Yes X No ____ Depth (inches) 12 (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks Pond depth 0-45 feet

North State Resources, Inc

Wetland Determination Data Form - Arid West Region

Habitat Type: Mixed hardwood/con
Wetland Type: Upland

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 7/8/10
Applicant/Owner: 3-M Company State: CA Data Point: 49
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Convex Slope %: 25
Subregion (LRR): C Soil Map Unit Name: Auburn very stony silt loam 30-50% slopes eroded
Are climatic/hydrologic conditions on the site typical for this time of year? Y (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? Yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? N Hydric soil? N Wetland hydrology? N Is sampled area a wetland? N Other waters? N

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) N/A
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____ N/A
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks Upland pair to #48

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus chrysolepis	60	Y	UPL
2.			
3.			
4.			
50%= 30 20%= 12 Total Cover: 60			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1. Heteromeles arbutifolia	5	Y	UPL
2. Cercis occidentalis	10	Y	UPL
3.			
4.			
50%= 7.5 20%= 3 Total Cover: 15			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Cyperus eragrostis	10	Y	FACW
2. Potentilla glandosa	10	Y	FAC
3. Elymus glaucus	10	Y	FACU
4.			
5.			
6.			
7.			
8.			
50%= 15 20%= 6 Total Cover: 30			

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= 20%= Total Cover:			

% Bare Ground in Herb Stratum 70 % Cover of Biotic Crust ____
Litter

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 2 (A)
Total number of dominant species across all strata: 6 (B)
Percent of dominant species that are OBL, FACW, or FAC: 33% (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species	____	x 1 = ____
FACW Species	____	x 2 = ____
FAC Species	____	x 3 = ____
FACU Species	____	x 4 = ____
UPL Species	____	x 5 = ____
Column Totals	____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators
____ Dominance Test is >50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? No

Data Point 49

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	7.5YR 4/4	100	/	/	/	/	gravelly sandy loam	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (AG) (LRR C)
____ 1 cm Muck (A9) (LRR D)
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1)
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Loamy Mucky Mineral (F1)
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]
____ 1 cm Muck (A9) (LRR C)
____ 2 cm Muck (A10) (LRR B)
____ Reduced Vetric (F18)
____ Red Parent Materials (TF2)
____ Vegetated Sand/Gravel Bars
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: Lithic bedrock Depth (Inches) 27-31 Hydric Soil? No
Soil Survey

Remarks No indicators

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)
____ Surface Water (A1)
____ High Water Table (A2)
____ Saturation (A3)
____ Water Marks (B1) (Nonriverine)
____ Sediment Deposits (B2) (Nonriverine)
____ Surface Soil Cracks (B6)
____ Inundation Visible on Aerial Imagery (B7)
____ Water-Stained Leaves (B9)
____ Salt Crust (B11)
____ Biotic Crust (B12)
____ Aquatic Invertebrates (B13)
____ Hydrogen Sulfide Odor (C1)
____ Oxidized Rhizospheres (C3)
____ Presence of Reduced Iron (C4)
____ Recent Iron Reduction in Plowed Soils (C6)
____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)
____ Water Marks (B1) (Riverine)
____ Sediment Deposits (B2) (Riverine)
____ Drift Deposits (B3) (Riverine)
____ Drainage Patterns (B10)
____ Dry-Season Water Table (C2)
____ Thin Muck Surface (C7)
____ Crayfish Burrows (C8)
____ Saturation Visible on Aerial Imagery (C9)
____ Shallow Aquitard (D3)
____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) / Wetland Hydrology? Yes ____ No X
Water Table Present? Yes ____ No Y Depth (inches) /
Saturation Present? Yes ____ No X Depth (inches) / (includes capillary fringe)

Describe Recorded Data (stream gauges, monitoring well, aerial photos, and previous inspections), if available:

Remarks No indicators

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: MHC
Wetland Type: Ephemeral Stream

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: NST 7/8/10
Applicant/Owner: 3-M Company State: CA Data Point: 50
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): Concave Slope %: 30
Subregion (LRR): C Soil Map Unit Name: Auburn very stony clay loam 30-50% eroded
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? Yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? N Hydric soil? N Wetland hydrology? Y Is sampled area a wetland? N Other waters? Y - NJ

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) X
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank X Scour X Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral X Blue-line on USGS Quad ____
Natural Drainage X Artificial Drainage X Navigable Water ____

Remarks

Ephemeral drainage flows on level pad prior to drifting w/ stream ~ 200 feet; channeled into excavated ditch that has breached & water spills onto pad

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3. No veg scoured channel			
4.			
5.			
6.			
7.			
8.			
50%= ____ 20%= ____ Total Cover:			

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= ____ 20%= ____ Total Cover:			

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust ____

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: ____ (A)
Total number of dominant species across all strata: ____ (B)
Percent of dominant species that are OBL, FACW, or FAC: ____ (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species	____	x 1 = ____
FACW Species	____	x 2 = ____
FAC Species	____	x 3 = ____
FACU Species	____	x 4 = ____
UPL Species	____	x 5 = ____
Column Totals	____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators
____ Dominance Test is >50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? N/A

Data Point 50

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
				No pit - Scoured channel				

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (AG) (LRR C)
- ____ 1 cm Muck (A9) (LRR D)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1)
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]

- ____ 1 cm Muck (A9) (LRR C)
- ____ 2 cm Muck (A10) (LRR B)
- ____ Reduced Vetric (F18)
- ____ Red Parent Materials (TF2)
- ____ Vegetated Sand/Gravel Bars
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: Lithic Depth (inches) 27-31" Hydric Soil? N/A
Soil Survey
Bed rock

Remarks

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1) (Nonriverine)
- ____ Sediment Deposits (B2) (Nonriverine)
- ____ Surface Soil Cracks (B6)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Salt Crust (B11)
- ____ Biotic Crust (B12)
- ____ Aquatic Invertebrates (B13)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- ____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ____ Water Marks (B1) (Riverine)
- X Sediment Deposits (B2) (Riverine)
- X Drift Deposits (B3) (Riverine)
- ____ Drainage Patterns (B10)
- ____ Dry-Season Water Table (C2)
- ____ Thin Muck Surface (C7)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Shallow Aquitard (D3)
- ____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) ____ Wetland Hydrology? Yes X No ____
Water Table Present? Yes ____ No X Depth (inches) ____
Saturation Present? Yes ____ No X Depth (inches) ____ (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: MHC
Wetland Type: Upland

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 7/8/10
Applicant/Owner: 3-M Company State: CA Data Point: 51
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.) _____ Local relief (concave, convex, none) Convex Slope % 40
Subregion (LRR) C Soil Map Unit Name: Arikaree Variegated Clay Loam 30-75% Slopes eroded
Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? N Hydric soil? N Wetland hydrology? N Is sampled area a wetland? N Other waters? N

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____ N/A
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____ N/A
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks

Upland point to ES # 50

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1. Ceanothus cuneatus	20	Y	UPL
2. Arctostaphylos viscida	20	Y	UPL
3.			
4.			
50%= 20 20%= 8 Total Cover: 40			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Calyptridium multiglandulosum	20	Y	UPL
2. Eriogonum fasciculatum	20	Y	UPL
3.			
4.			
5.			
6.			
7.			
8.			
50%= 15 20%= 6 Total Cover: 30			

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= ____ 20%= ____ Total Cover:			

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust ____

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 4 (A)
Total number of dominant species across all strata: 4 (B)
Percent of dominant species that are OBL, FACW, or FAC: 0 (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species	____	x 1 = ____
FACW Species	____	x 2 = ____
FAC Species	____	x 3 = ____
FACU Species	____	x 4 = ____
UPL Species	____	x 5 = ____
Column Totals	____ (A)	____ (B)

Prevalance Index = B/A = ____

Hydrophytic Vegetation Indicators
____ Dominance Test is >50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present

Hydrophytic Vegetation? No

Data Point 51

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
		No pit bedrock						

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (AG) (LRR C)
____ 1 cm Muck (A9) (LRR D)
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1)
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Loamy Mucky Mineral (F1)
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]
____ 1 cm Muck (A9) (LRR C)
____ 2 cm Muck (A10) (LRR B)
____ Reduced Vetric (F18)
____ Red Parent Materials (TF2)
____ Vegetated Sand/Gravel Bars
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: Bedrock Depth (inches) Surface Hydric Soil? N/A

Remarks

No indicators

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

____ Surface Water (A1)
____ High Water Table (A2)
____ Saturation (A3)
____ Water Marks (B1) (Nonriverine)
____ Sediment Deposits (B2) (Nonriverine)
____ Surface Soil Cracks (B6)
____ Inundation Visible on Aerial Imagery (B7)
____ Water-Stained Leaves (B9)
____ Salt Crust (B11)
____ Biotic Crust (B12)
____ Aquatic Invertebrates (B13)
____ Hydrogen Sulfide Odor (C1)
____ Oxidized Rhizospheres (C3)
____ Presence of Reduced Iron (C4)
____ Recent Iron Reduction in Plowed Soils (C6)
____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)
____ Water Marks (B1) (Riverine)
____ Sediment Deposits (B2) (Riverine)
____ Drift Deposits (B3) (Riverine)
____ Drainage Patterns (B10)
____ Dry-Season Water Table (C2)
____ Thin Muck Surface (C7)
____ Crayfish Burrows (C8)
____ Saturation Visible on Aerial Imagery (C9)
____ Shallow Aquitard (D3)
____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) ____ Wetland Hydrology? Yes ____ No X
Water Table Present? Yes ____ No X Depth (inches) ____
Saturation Present? Yes ____ No X Depth (inches) ____ (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks

No indicators - No pit - Bedrock

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: Blue Oak-Grassland
Wetland Type: Vegetated Ditch

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 7/14/10
Applicant/Owner: 3-M Company State: CA Data Point: S2
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Ditch Local relief (concave, convex, none): Concave Slope %: 21
Subregion (LRR): C Soil Map Unit Name: Auburn Loam 0-8% Slopes
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? Yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? Y Hydric soil? ____ Wetland hydrology? Y Is sampled area a wetland? ____ Other waters? ____

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters X Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____ N/A
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks Vegetated Ditch that intercepts water from Trib Stream N of feature

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover: ____			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover: ____			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Lythrum hyssopifolium	20	Y	FACW
2. Polygonum monospeliense	20	Y	FACW
3. Bolboschoenus maritimus	5	N	FACW
4. Rumex crispus	5	N	FACW
5. Plantago lanceolata	5	N	FAC
6. Juncus tenuis	5	N	FACW
7.			
8.			
50%= 30 20%= 12 Total Cover: 60			

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= ____ 20%= ____ Total Cover: ____			

% Bare Ground in Herb Stratum 30 **% Cover of Biotic Crust** 10%

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 2 (A)
Total number of dominant species across all strata: 2 (B)
Percent of dominant species that are OBL, FACW, or FAC: 100 (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species	____	x 1 = ____
FACW Species	____	x 2 = ____
FAC Species	____	x 3 = ____
FACU Species	____	x 4 = ____
UPL Species	____	x 5 = ____
Column Totals	____ (A)	____ (B)

Prevalance Index = B/A = ____

Hydrophytic Vegetation Indicators
Yes Dominance Test is >50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? Yes

Data Point S2

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5YR 4/4	80	7.5YR 4/2	20	RM	M	Loam	
4-10	7.5YR 4/4	100						

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (AG) (LRR C)
- ____ 1 cm Muck (A9) (LRR D)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1)
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]

- ____ 1 cm Muck (A9) (LRR C)
- ____ 2 cm Muck (A10) (LRR B)
- ____ Reduced Vetric (F18)
- ____ Red Parent Materials (TF2)
- ____ Vegetated Sand/Gravel Bars
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: Lithic bedrock Depth (inches) 24-28 Hydric Soil? Yes

Remarks Soils are starting to change. Presence of biotic crust & hydrophytic veg indicate long duration ponding

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1) (Nonriverine)
- ____ Sediment Deposits (B2) (Nonriverine)
- ____ Surface Soil Cracks (B6)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Salt Crust (B11)
- X Biotic Crust (B12)
- ____ Aquatic Invertebrates (B13)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- ____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ____ Water Marks (B1) (Riverine)
- ____ Sediment Deposits (B2) (Riverine)
- ____ Drift Deposits (B3) (Riverine)
- ____ Drainage Patterns (B10)
- ____ Dry-Season Water Table (C2)
- ____ Thin Muck Surface (C7)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Shallow Aquitard (D3)
- ____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) ____ Wetland Hydrology? Yes X No ____
Water Table Present? Yes ____ No X Depth (inches) ____
Saturation Present? Yes ____ No X Depth (inches) ____ (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: Blue oak grassland
Wetland Type: Upland

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 7/14/10
Applicant/Owner: 3-M Company State: CA Data Point: 53
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Convex Slope %: 2
Subregion (LRR): C Soil Map Unit Name: Auburn loam 0-8% slope
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? Yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? N Hydric soil? N Wetland hydrology? N Is sampled area a wetland? N Other waters? N

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____ N/A
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____ N/A
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks

Upland pair to #52

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Lotus purshianus	30	Y	UPL
2. Taeniatherum caput-medusae	30	Y	UPL
3. Bromus madritensis	5	N	FACU
4. Hypochaeris glabra	5	N	UPL
5. Plantago lanceolata	5	N	FAC
6. Rumex crispus	5	N	FACW
7. Toxicodendron diversilobum	10	N	UPL
8. Centaurium muhlenbergii	5	N	FACW
50%= 40 20%= 20 Total Cover:	105	Y	FACU

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= ____ 20%= ____ Total Cover:			

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust 0

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 0 (A)
Total number of dominant species across all strata: 3 (B)
Percent of dominant species that are OBL, FACW, or FAC: 0 (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species	____	x 1 = ____
FACW Species	____	x 2 = ____
FAC Species	____	x 3 = ____
FACU Species	____	x 4 = ____
UPL Species	____	x 5 = ____
Column Totals	____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators
____ Dominance Test is >50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? N

Data Point 53

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	7.5YR 4/4	100	✓	✓	✓	✓	Loam	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs unless otherwise noted)

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (AG) (LRR C)
____ 1 cm Muck (A9) (LRR D)
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1)
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Loamy Mucky Mineral (F1)
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]
____ 1 cm Muck (A9) (LRR C)
____ 2 cm Muck (A10) (LRR B)
____ Reduced Vetric (F18)
____ Red Parent Materials (TF2)
____ Vegetated Sand/Gravel Bars
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: Lithic bedrock (Soil Survey) Depth (inches) 24-28" Hydric Soil? No

Remarks

No indicators

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

____ Surface Water (A1)
____ High Water Table (A2)
____ Saturation (A3)
____ Water Marks (B1) (Nonriverine)
____ Sediment Deposits (B2) (Nonriverine)
____ Surface Soil Cracks (B6)
____ Inundation Visible on Aerial Imagery (B7)
____ Water-Stained Leaves (B9)
____ Salt Crust (B11)
____ Biotic Crust (B12)
____ Aquatic Invertebrates (B13)
____ Hydrogen Sulfide Odor (C1)
____ Oxidized Rhizospheres (C3)
____ Presence of Reduced Iron (C4)
____ Recent Iron Reduction in Plowed Soils (C6)
____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)
____ Water Marks (B1) (Riverine)
____ Sediment Deposits (B2) (Riverine)
____ Drift Deposits (B3) (Riverine)
____ Drainage Patterns (B10)
____ Dry-Season Water Table (C2)
____ Thin Muck Surface (C7)
____ Crayfish Burrows (C8)
____ Saturation Visible on Aerial Imagery (C9)
____ Shallow Aquitard (D3)
____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) ✓ Wetland Hydrology? Yes ____ No X
Water Table Present? Yes ____ No X Depth (inches) ✓
Saturation Present? Yes ____ No X Depth (inches) ✓ (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks No indicators

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: Blue Oak-Gray Pine
Wetland Type: Depressional

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 7/14/10
Applicant/Owner: 3-M Company State: CA Data Point: 54
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Convex Slope %: 22
Subregion (LRR): C Soil Map Unit Name: Auburn Loam 0-8% slopes
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? Yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? Y Hydric soil? ____ Wetland hydrology? ____ Is sampled area a wetland? ____ Other waters? ____

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) N/A
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____ N/A
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks Swaped area hydrophytic veg but no hydrology or soil indicators wetland

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Pinla minor	50	Y	FACW
2. Centaurium muhlenbergii	35	Y	FACW
3. Tonnorthicum capel-medusae	5	N	UPL
4. Avena fatua	5	N	UPL
5. Bromus mandarinus	5	N	FACU
6.			
7.			
8.			
50%= 50 20%= 20 Total Cover: 100			

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= ____ 20%= ____ Total Cover:			

% Bare Ground in Herb Stratum 0 **% Cover of Biotic Crust** 0

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 2 (A)
Total number of dominant species across all strata: 2 (B)
Percent of dominant species that are OBL, FACW, or FAC: 100 (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species	____	x 1 = ____
FACW Species	____	x 2 = ____
FAC Species	____	x 3 = ____
FACU Species	____	x 4 = ____
UPL Species	____	x 5 = ____
Column Totals	____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators
- X Dominance Test is >50%
- X Prevalence Index is ≤ 3.0[1]
- ____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? Yes

Data Point 54

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	7.5YR 4/4	100	—	—	—	—	Loam	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (AG) (LRR C)
- ____ 1 cm Muck (A9) (LRR D)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1)
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]

- ____ 1 cm Muck (A9) (LRR C)
- ____ 2 cm Muck (A10) (LRR B)
- ____ Reduced Vetric (F18)
- ____ Red Parent Materials (TF2)
- ____ Vegetated Sand/Gravel Bars
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: Lithic bedrock Depth (Inches) 24-28" Hydric Soil? No
Soil Survey

Remarks No indicators

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1) (Nonriverine)
- ____ Sediment Deposits (B2) (Nonriverine)
- ____ Surface Soil Cracks (B6)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Salt Crust (B11)
- ____ Biotic Crust (B12)
- ____ Aquatic Invertebrates (B13)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- ____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ____ Water Marks (B1) (Riverine)
- ____ Sediment Deposits (B2) (Riverine)
- ____ Drift Deposits (B3) (Riverine)
- ____ Drainage Patterns (B10)
- ____ Dry-Season Water Table (C2)
- ____ Thin Muck Surface (C7)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Shallow Aquitard (D3)
- ____ FAC-Neutral Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) — Wetland Hydrology? Yes ____ No X
Water Table Present? Yes ____ No X Depth (inches) —
Saturation Present? Yes ____ No X Depth (inches) — (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks No indicators

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: Montane hardwood con
Wetland Type: Seep/Spring

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 7/14/10
Applicant/Owner: 3-M Company State: CA Data Point: 55
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Roadcut Local relief (concave, convex, none): Concave Slope %: 10
Subregion (LRR): C Soil Map Unit Name: Boomer very stony loam 50-70%
Are climatic/hydrologic conditions on the site typical for this time of year? Y/N (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? Y/N
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? Y Hydric soil? Y Wetland hydrology? Y Is sampled area a wetland? Y Other waters? N

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters X Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____ N/A
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks

Seep/Spring in road cut

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1. Salix lasiolepis	90	Y	FACW
2.			
3.			
4.			
50%= 45 20%= 18 Total Cover:	90		

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Juncus effusus	5	N	FACW
2. Woodwardia fimbriata	10	Y	FACW
3. Calycanthus occidentalis	20	Y	FAC
4. Mimulus cardinalis	5	N	OBL
5.			
6.			
7.			
8.			
50%= 20 20%= 8 Total Cover:	40		

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1. Rubus discolor	40	Y	FACW
2.			
50%= 20 20%= 8 Total Cover:	40		

% Bare Ground in Herb Stratum / % Cover of Biotic Crust /

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 4 (A)
Total number of dominant species across all strata: 4 (B)
Percent of dominant species that are OBL, FACW, or FAC: 100 (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species	____	x 1 = ____
FACW Species	____	x 2 = ____
FAC Species	____	x 3 = ____
FACU Species	____	x 4 = ____
UPL Species	____	x 5 = ____
Column Totals	____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators
Y Dominance Test is >50%
Y Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? Yes

Data Point 55

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	Gley 3/10Y	100	/	/	/	/	mucky silt	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- X Hydrogen Sulfide (A4)
- ____ Stratified Layers (AG) (LRR C)
- ____ 1 cm Muck (A9) (LRR D)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- X Loamy Mucky Mineral (F1)
- X Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]

- ____ 1 cm Muck (A9) (LRR C)
- ____ 2 cm Muck (A10) (LRR B)
- ____ Reduced Vetric (F18)
- ____ Red Parent Materials (TF2)
- ____ Vegetated Sand/Gravel Bars
- ____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: Soil Survey Para lithic bedrock Depth (inches) 45-49" Hydric Soil? Y

Remarks

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ____ Water Marks (B1) (Nonriverine)
- ____ Sediment Deposits (B2) (Nonriverine)
- ____ Surface Soil Cracks (B6)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Salt Crust (B11)
- ____ Biotic Crust (B12)
- ____ Aquatic Invertebrates (B13)
- X Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- ____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ____ Water Marks (B1) (Riverine)
- ____ Sediment Deposits (B2) (Riverine)
- ____ Drift Deposits (B3) (Riverine)
- ____ Drainage Patterns (B10)
- ____ Dry-Season Water Table (C2)
- ____ Thin Muck Surface (C7)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Shallow Aquitard (D3)
- ____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes X No ____ Depth (inches) 1" Wetland Hydrology? Yes X No ____
Water Table Present? Yes X No ____ Depth (inches) Surface
Saturation Present? Yes X No ____ Depth (inches) Surface (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks

North State Resources, Inc

Wetland Determination Data Form - Arid West Region

Habitat Type: Montane hardwood Con
Wetland Type: Upland

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 7/14/10
Applicant/Owner: 3-M Company State: CA Data Point: 56
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Convex Slope %: 85
Subregion (LRR): C Soil Map Unit Name: Boomer Very Stony loam 50-70% slopes
Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? N Hydric soil? N Wetland hydrology? N Is sampled area a wetland? N Other waters? N

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____ N/A
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____ N/A
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks Upland pair to #55

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pinus ponderosa	30	Y	FACU
2. Quercus wislizeni	30	Y	UPL
3.			
4.			

50%= ____ 20%= ____ Total Cover: ____

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1. Arctostaphylos viscida	10	Y	UPL
2.			
3.			
4.			

50%= ____ 20%= ____ Total Cover: ____

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Pteridium aquilinum var. pubescens	20	Y	FACU
2. Symphoricarpos albus	10	Y	UPL
3.			
4.			
5.			
6.			
7.			
8.			

50%= 15 20%= 6 Total Cover: 30

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1. Rubus discolor	50	Y	FACU
2.			

50%= 25 20%= 10 Total Cover: 50

% Bare Ground in Herb Stratum ____ **% Cover of Biotic Crust** ____

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 1 (A)
Total number of dominant species across all strata: 6 (B)
Percent of dominant species that are OBL, FACW, or FAC: 17% (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species	____	x 1 = ____
FACW Species	____	x 2 = ____
FAC Species	____	x 3 = ____
FACU Species	____	x 4 = ____
UPL Species	____	x 5 = ____
Column Totals	____ (A)	____ (B)

Prevalance Index = B/A = ____

Hydrophytic Vegetation Indicators
____ Dominance Test is >50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? NO

Data Point 56

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-8	7.5YR 4/4	100	✓	✓	✓	✓	loam	
Bedrock - in roadcut								

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (AG) (LRR C)
____ 1 cm Muck (A9) (LRR D)
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1)
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Loamy Mucky Mineral (F1)
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]
____ 1 cm Muck (A9) (LRR C)
____ 2 cm Muck (A10) (LRR B)
____ Reduced Vetric (F18)
____ Red Parent Materials (TF2)
____ Vegetated Sand/Gravel Bars
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Soil Survey

Restrictive Layer (if present): Type: Paralithic bedrock Depth (inches) 45-49" Hydric Soil? NO

Remarks No indicators

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

____ Surface Water (A1)
____ High Water Table (A2)
____ Saturation (A3)
____ Water Marks (B1) (Nonriverine)
____ Sediment Deposits (B2) (Nonriverine)
____ Surface Soil Cracks (B6)
____ Inundation Visible on Aerial Imagery (B7)
____ Water-Stained Leaves (B9)
____ Salt Crust (B11)
____ Biotic Crust (B12)
____ Aquatic Invertebrates (B13)
____ Hydrogen Sulfide Odor (C1)
____ Oxidized Rhizospheres (C3)
____ Presence of Reduced Iron (C4)
____ Recent Iron Reduction in Plowed Soils (C6)
____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)
____ Water Marks (B1) (Riverine)
____ Sediment Deposits (B2) (Riverine)
____ Drift Deposits (B3) (Riverine)
____ Drainage Patterns (B10)
____ Dry-Season Water Table (C2)
____ Thin Muck Surface (C7)
____ Crayfish Burrows (C8)
____ Saturation Visible on Aerial Imagery (C9)
____ Shallow Aquitard (D3)
____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No ✓ Depth (inches) ✓ Wetland Hydrology? Yes ____ No ✓
Water Table Present? Yes ____ No ✓ Depth (inches) ✓
Saturation Present? Yes ____ No ✓ Depth (inches) ✓ (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks No indicators

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: Ponderosa
Wetland Type: Seep Spring - NJ

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 7/20/10
Applicant/Owner: 3-M Company State: CA Data Point: 57
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): convex Slope %: 10
Subregion (LRR): C Soil Map Unit Name: Boomer Very Stony Loam 50-70%
Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? Y Hydric soil? Y Wetland hydrology? Y Is sampled area a wetland? Y Other waters? N

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) X
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____
N/A

Remarks

Seep spring created by landing. Water accepts & moves down slope from the cut to 2 culverts which receive all water from the seep - no connection to jurisdictional water

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____	Total Cover:		

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1. Salix lasiolepis	10	Y	FACW
2.			
3.			
4.			
50%= 5 20%= 2	Total Cover: 10		

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Juncus tenuis	60	Y	FACW
2. J. effusus	1	N	FACW
3. Lotus purshianus	4	N	UPL
4.			
5.			
6.			
7.			
8.			
50%= 32.5 20%= 13	Total Cover: 65		

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= ____ 20%= ____	Total Cover:		

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust 25

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 2 (A)
Total number of dominant species across all strata: 2 (B)
Percent of dominant species that are OBL, FACW, or FAC: 100 (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species	____	x 1 = ____
FACW Species	____	x 2 = ____
FAC Species	____	x 3 = ____
FACU Species	____	x 4 = ____
UPL Species	____	x 5 = ____
Column Totals	____ (A)	____ (B)

Prevalance Index = B/A = ____

Hydrophytic Vegetation Indicators
____ Dominance Test is >50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? yes

Data Point 57

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	2.5YR4/6	50	10YR 5/4	50	RM	M	Clay loam	Concretions present
6-12	10YR5/4	50	Gley 6/10Y	50	RM	M	Clay loam	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs unless otherwise noted)

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (AG) (LRR C)
____ 1 cm Muck (A9) (LRR D)
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1)
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Loamy Mucky Mineral (F1)
____ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]
____ 1 cm Muck (A9) (LRR C)
____ 2 cm Muck (A10) (LRR B)
____ Reduced Vetric (F18)
____ Red Parent Materials (TF2)
____ Vegetated Sand/Gravel Bars
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: Paralithic Bedrock Depth (inches) 45-49 Hydric Soil? yes
Soil Survey

Remarks

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

____ Surface Water (A1)
____ High Water Table (A2)
____ Saturation (A3)
____ Water Marks (B1) (Nonriverine)
____ Sediment Deposits (B2) (Nonriverine)
____ Surface Soil Cracks (B6)
____ Inundation Visible on Aerial Imagery (B7)
____ Water-Stained Leaves (B9)
____ Salt Crust (B11)
X Biotic Crust (B12)
____ Aquatic Invertebrates (B13)
____ Hydrogen Sulfide Odor (C1)
____ Oxidized Rhizospheres (C3)
____ Presence of Reduced Iron (C4)
____ Recent Iron Reduction in Plowed Soils (C6)
____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)
____ Water Marks (B1) (Riverine)
____ Sediment Deposits (B2) (Riverine)
____ Drift Deposits (B3) (Riverine)
____ Drainage Patterns (B10)
____ Dry-Season Water Table (C2)
____ Thin Muck Surface (C7)
____ Crayfish Burrows (C8)
____ Saturation Visible on Aerial Imagery (C9)
____ Shallow Aquitard (D3)
____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) ____ Wetland Hydrology? Yes X No ____
Water Table Present? Yes ____ No X Depth (inches) ____
Saturation Present? Yes ____ No X Depth (inches) ____ (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: Ponderosa
Wetland Type: Upland

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 7/20/10
Applicant/Owner: 3-M Company State: CA Data Point: 58
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Convex Slope %: 10
Subregion (LRR): C Soil Map Unit Name: Bonnieview Very Stony Loam 50-70%
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? Yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? N Hydric soil? N Wetland hydrology? N Is sampled area a wetland? N Other waters? N

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____ N/A
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____ N/A
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks Upland point #57

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover: ____			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1. Pinus ponderosa	40	Y	FACU
2.			
3.			
4.			
50%= 20 20%= 8 Total Cover: 40			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Juncus tenuis	25	Y	FACW
2. Vulpia myuros	10	Y	FACU
3. Lotus purshianus	3	N	UPL
4. Hypericum perforatum	2	N	UPL
5. Bromus madritensis	10	Y	UPL
6.			
7.			
8.			
50%= 25 20%= 10 Total Cover: 50			

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= ____ 20%= ____ Total Cover: ____			

% Bare Ground in Herb Stratum 75 % Cover of Biotic Crust ____

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 1 (A)
Total number of dominant species across all strata: 4 (B)
Percent of dominant species that are OBL, FACW, or FAC: 25 (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species	____	x 1 = ____
FACW Species	____	x 2 = ____
FAC Species	____	x 3 = ____
FACU Species	____	x 4 = ____
UPL Species	____	x 5 = ____
Column Totals	____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators
____ Dominance Test is >50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? NO

Data Point 58

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 5/4	100	—	—	—	—	sandy loam	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (AG) (LRR C)
____ 1 cm Muck (A9) (LRR D)
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1)
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Loamy Mucky Mineral (F1)
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]
____ 1 cm Muck (A9) (LRR C)
____ 2 cm Muck (A10) (LRR B)
____ Reduced Vetric (F18)
____ Red Parent Materials (TF2)
____ Vegetated Sand/Gravel Bars
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: Soil Survey Bedrock Depth (inches) 45-99" Hydric Soil? NO

Remarks No indicators

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)

____ Surface Water (A1)
____ High Water Table (A2)
____ Saturation (A3)
____ Water Marks (B1) (Nonriverine)
____ Sediment Deposits (B2) (Nonriverine)
____ Surface Soil Cracks (B6)
____ Inundation Visible on Aerial Imagery (B7)
____ Water-Stained Leaves (B9)
____ Salt Crust (B11)
____ Biotic Crust (B12)
____ Aquatic Invertebrates (B13)
____ Hydrogen Sulfide Odor (C1)
____ Oxidized Rhizospheres (C3)
____ Presence of Reduced Iron (C4)
____ Recent Iron Reduction in Plowed Soils (C6)
____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)
____ Water Marks (B1) (Riverine)
____ Sediment Deposits (B2) (Riverine)
____ Drift Deposits (B3) (Riverine)
____ Drainage Patterns (B10)
____ Dry-Season Water Table (C2)
____ Thin Muck Surface (C7)
____ Crayfish Burrows (C8)
____ Saturation Visible on Aerial Imagery (C9)
____ Shallow Aquitard (D3)
____ FAC-Neutral Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) ____ Wetland Hydrology? Yes ____ No X
Water Table Present? Yes ____ No X Depth (inches) ____
Saturation Present? Yes ____ No X Depth (inches) ____ (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks No indicators

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: Montane hardwood-con
Wetland Type: Int. Stream

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 7/20/10
Applicant/Owner: 3-M Company State: CA Data Point: 59
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): Concave Slope %: 3
Subregion (LRR): C Soil Map Unit Name: Cosmer gravelly loam, 15-30%
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? Yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? N Hydric soil? N Wetland hydrology? Y Is sampled area a wetland? N Other waters? Y

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters X Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank X Scour X Ordinary High Water Mark Mapped X
Feature Designation: Perennial ____ Intermittent X Ephemeral ____ Blue-line on USGS Quad X
Natural Drainage X Artificial Drainage ____ Navigable Water ____

Remarks

Intl Stream - tub to Churn Ck 3'

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
50%= ____ 20%= ____ Total Cover:			

Herb Stratum (use scientific names)	% Cover	Species?	Status
1.			
2. No veg - Scoured			
3. channel			
4.			
5.			
6.			
7.			
8.			
50%= ____ 20%= ____ Total Cover:			

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1.			
2.			
50%= ____ 20%= ____ Total Cover:			

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust ____

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: ____ (A)
Total number of dominant species across all strata: ____ (B)
Percent of dominant species that are OBL, FACW, or FAC: ____ (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species	____	x 1 = ____
FACW Species	____	x 2 = ____
FAC Species	____	x 3 = ____
FACU Species	____	x 4 = ____
UPL Species	____	x 5 = ____
Column Totals	____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators
____ Dominance Test is >50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? N/A

Data Point 59

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
								No pit - Scoured channel

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (AG) (LRR C)
____ 1 cm Muck (A9) (LRR D)
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1)
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Loamy Mucky Mineral (F1)
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]
____ 1 cm Muck (A9) (LRR C)
____ 2 cm Muck (A10) (LRR B)
____ Reduced Vetric (F18)
____ Red Parent Materials (TF2)
____ Vegetated Sand/Gravel Bars
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: parallel rock Depth (inches) 45-48" Hydric Soil? N/A

Remarks

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)
X Surface Water (A1)
X High Water Table (A2)
X Saturation (A3)
____ Water Marks (B1) (Nonriverine)
____ Sediment Deposits (B2) (Nonriverine)
____ Surface Soil Cracks (B6)
____ Inundation Visible on Aerial Imagery (B7)
____ Water-Stained Leaves (B9)
____ Salt Crust (B11)
____ Biotic Crust (B12)
____ Aquatic Invertebrates (B13)
____ Hydrogen Sulfide Odor (C1)
____ Oxidized Rhizospheres (C3)
____ Presence of Reduced Iron (C4)
____ Recent Iron Reduction in Plowed Soils (C6)
____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)
X Water Marks (B1) (Riverine)
X Sediment Deposits (B2) (Riverine)
X Drift Deposits (B3) (Riverine)
____ Drainage Patterns (B10)
____ Dry-Season Water Table (C2)
____ Thin Muck Surface (C7)
____ Crayfish Burrows (C8)
____ Saturation Visible on Aerial Imagery (C9)
____ Shallow Aquitard (D3)
____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes X No ____ Depth (inches) 3" Wetland Hydrology? Yes X No ____
Water Table Present? Yes X No ____ Depth (inches) surface
Saturation Present? Yes X No ____ Depth (inches) Surface (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: PAHC
Wetland Type: Riparian wetland

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 7/20/10
Applicant/Owner: 3-M Company State: CA Data Point: 60
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): Concave Slope %: 3
Subregion (LRR): C Soil Map Unit Name: Boomer gravelly loam 15-30% slopes
Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? Y Hydric soil? Y Wetland hydrology? Y Is sampled area a wetland? Y Other waters? N

USACE Jurisdiction

Adjacent to Waters X Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) ____
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____ N/A
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____

Remarks Riparian wetland adjacent to Intl Stream

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1. Alnus rhombifolia	30	Y	FACW
2.			
3.			
4.			

50%= 15 20%= 6 Total Cover: 30

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1. Calycanthus occidentalis	20	Y	FAC
2.			
3.			
4.			

50%= 10 20%= 4 Total Cover: 20

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Dermera portata	10	Y	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			

50%= 5 20%= 2 Total Cover: 10

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1. Rubus discolor	80	Y	FACW
2. Vitis californica	20	Y	FACW

50%= 50 20%= 20 Total Cover: 100

% Bare Ground in Herb Stratum / % Cover of Biotic Crust /

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 5 (A)
Total number of dominant species across all strata: 5 (B)
Percent of dominant species that are OBL, FACW, or FAC: 100 (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species		x 1 =
FACW Species		x 2 =
FAC Species		x 3 =
FACU Species		x 4 =
UPL Species		x 5 =
Column Totals	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators
____ Dominance Test is >50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? yes

Data Point 60

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
								No pit - cobble streambank

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (AG) (LRR C)
____ 1 cm Muck (A9) (LRR D)
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1)
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Loamy Mucky Mineral (F1)
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]
____ 1 cm Muck (A9) (LRR C)
____ 2 cm Muck (A10) (LRR B)
____ Reduced Vetric (F18)
____ Red Parent Materials (TF2)
X Vegetated Sand/Gravel Bars
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Soil Survey

Restrictive Layer (if present): Type: paralithic Depth (inches) 45-49 Hydric Soil? N

Remarks Vegetation noted in banks of stream. Drift deposits indicate frequent flooding

Hydrology

Wetland Indicators

Primary Indicators (Any one indicator is sufficient)
____ Surface Water (A1)
____ High Water Table (A2)
____ Saturation (A3)
____ Water Marks (B1) (Nonriverine)
____ Sediment Deposits (B2) (Nonriverine)
____ Surface Soil Cracks (B6)
____ Inundation Visible on Aerial Imagery (B7)
____ Water-Stained Leaves (B9)
____ Salt Crust (B11)
____ Biotic Crust (B12)
____ Aquatic Invertebrates (B13)
____ Hydrogen Sulfide Odor (C1)
____ Oxidized Rhizospheres (C3)
____ Presence of Reduced Iron (C4)
____ Recent Iron Reduction in Plowed Soils (C6)
____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)
____ Water Marks (B1) (Riverine)
X Sediment Deposits (B2) (Riverine)
X Drift Deposits (B3) (Riverine)
____ Drainage Patterns (B10)
____ Dry-Season Water Table (C2)
____ Thin Muck Surface (C7)
____ Crayfish Burrows (C8)
____ Saturation Visible on Aerial Imagery (C9)
____ Shallow Aquitard (D3)
____ FAC-Neutral Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) / Wetland Hydrology? Yes X No ____
Water Table Present? Yes ____ No X Depth (inches) /
Saturation Present? Yes ____ No X Depth (inches) / (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks Drift deposits indicate frequent flooding

North State Resources, Inc.

Wetland Determination Data Form - Arid West Region

Habitat Type: MHC
Wetland Type: Upland

Project/Site: Moody Flats Quarry Project City/County: Shasta Date: 7/20/10
Applicant/Owner: 3-M Company State: CA Data Point: 61
Investigator(s): Heather Kelly
Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Convex Slope %: 45
Subregion (LRR): C Soil Map Unit Name: Boomer Gravelly Loam, 30-50%
Are climatic/hydrologic conditions on the site typical for this time of year? yes (If no, explain in remarks.)
Are vegetation N, soil N, or hydrology N significantly disturbed? Are normal circumstances present? yes
Are vegetation N, soil N, or hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings (Attach site map showing sampling point locations, transects, important features, etc.)

Hydrophytic vegetation? N Hydric soil? N Wetland hydrology? N Is sampled area a wetland? N Other waters? N

USACE Jurisdiction

Adjacent to Waters ____ Tributary to Waters ____ Isolated (with interstate commerce) ____ Isolated (non jurisdictional) N/A
Explain:

Evaluation of features designated "Other Waters of the United States"

Indicators: Defined bed and bank ____ Scour ____ Ordinary High Water Mark Mapped ____
Feature Designation: Perennial ____ Intermittent ____ Ephemeral ____ Blue-line on USGS Quad ____
Natural Drainage ____ Artificial Drainage ____ Navigable Water ____ N/A

Remarks Upland pour point to ± 59+60

Vegetation

Tree Stratum (use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus wislizenii	80	Y	UPL
2. Q. kellogii	10	N	UPL
3.			
4.			
50%= 45 20%= 18 Total Cover:	90		

Sapling/Shrub Stratum (use scientific names)	% Cover	Species?	Status
1. Heteromeles arbutifolia	60	Y	UPL
2. Toxicodendron diversilobum	10	N	UPL
3. Symphoricarpos alba	10	N	UPL
4. Ceanothus cuneatus	10	N	FAC
50%= 45 20%= 18 Total Cover:	90		

Herb Stratum (use scientific names)	% Cover	Species?	Status
1. Arctostaphylos californica	5	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
50%= 2.5 20%= 1 Total Cover:	5		

Woody/Vine Stratum (use scientific names)	% Cover	Species?	Status
1. Rubus discolor	30	Y	FACW
2.			
50%= 15 20%= 6 Total Cover:	30		

% Bare Ground in Herb Stratum 80 % Cover of Biotic Crust ____
Litter

Dominance Test Worksheet
Number of dominant species that are OBL, FACW, or FAC: 1 (A)
Total number of dominant species across all strata: 4 (B)
Percent of dominant species that are OBL, FACW, or FAC: 25 (AB)

Prevalence Index Worksheet

Total % Cover of:		Multiply by
OBL Species	____	x 1 = ____
FACW Species	____	x 2 = ____
FAC Species	____	x 3 = ____
FACU Species	____	x 4 = ____
UPL Species	____	x 5 = ____
Column Totals	____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators
N Dominance Test is >50%
____ Prevalence Index is ≤ 3.0[1]
____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation? NO

Data Point 61

Soils

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	7.5YR 3/4	100	/	/	/	/	gravelly loam	

[1]Types: C = Concentration D = Depletion RM = Reduced Matrix [2]Location: PL = Pore Lining RC = Root Channel M = Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (A3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (AG) (LRR C)
____ 1 cm Muck (A9) (LRR D)
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1)
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Loamy Mucky Mineral (F1)
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]
____ 1 cm Muck (A9) (LRR C)
____ 2 cm Muck (A10) (LRR B)
____ Reduced Vetric (F18)
____ Red Parent Materials (TF2)
____ Vegetated Sand/Gravel Bars
____ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: paralithic bedrock Depth (inches) 45-49" Hydric Soil? NO
Soil Survey

Remarks No indicators

Hydrology

Wetland Indicators

Primary indicators (Any one indicator is sufficient)

____ Surface Water (A1)
____ High Water Table (A2)
____ Saturation (A3)
____ Water Marks (B1) (Nonriverine)
____ Sediment Deposits (B2) (Nonriverine)
____ Surface Soil Cracks (B6)
____ Inundation Visible on Aerial Imagery (B7)
____ Water-Stained Leaves (B9)
____ Salt Crust (B11)
____ Biotic Crust (B12)
____ Aquatic Invertebrates (B13)
____ Hydrogen Sulfide Odor (C1)
____ Oxidized Rhizospheres (C3)
____ Presence of Reduced Iron (C4)
____ Recent Iron Reduction in Plowed Soils (C6)
____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)
____ Water Marks (B1) (Riverine)
____ Sediment Deposits (B2) (Riverine)
____ Drift Deposits (B3) (Riverine)
____ Drainage Patterns (B10)
____ Dry-Season Water Table (C2)
____ Thin Muck Surface (C7)
____ Crayfish Burrows (C8)
____ Saturation Visible on Aerial Imagery (C9)
____ Shallow Aquitard (D3)
____ FAC-Netural Test (D5)

Field Observations

Surface Water Present? Yes ____ No X Depth (inches) ____ Wetland Hydrology? Yes ____ No X
Water Table Present? Yes ____ No X Depth (inches) ____
Saturation Present? Yes ____ No X Depth (inches) ____ (includes capillary fringe)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, and previous inspections), if available:

Remarks No indicators

Appendix B

Representative Photographs

Moody Flats Quarry Project
Delineation of Waters of the United States

North State Resources, Inc.
Photographs Taken June 15, through July 20, 2010

Photograph 1. Intermittent Swale. Linear swale features are prevalent in the eastern, more level areas of the study area. Data points (DP) 1 and 2 document this feature and the adjacent upland, respectively.

Photograph 2. Intermittent Stream. Typical of smaller intermittent streams occurring in the study area. DP 3 documents the upland and DP 4 documents the stream.

Photograph 3. Suspect area. The presence of California button willow (*Cephalanthus occidentalis*) drew attention to this area as possibly a wetland. Further investigation, documented by DP 5, concluded that it is not a wetland.

Photograph 4. Intermittent swale/intermittent stream. Portions of the drainages alternate between vegetated swales and scoured intermittent streams. DP's 6, 7, and 8 document each of the features and the upland, respectively.

Photograph 5. Fresh emergent wetland. Fresh emergent wetlands occurred in excavated areas. Water sources include intermittent swales and intermittent streams. DP 9 and 10 document the feature and the adjacent upland.

Photograph 6. Non-vegetated ditch. Drainage ditches occur along the railroad tracks and roads occurring in the study area. Generally, these features are non-jurisdictional because they were created in uplands to drain uplands; however, interception of a jurisdictional feature results in jurisdiction of ditches. DP 11 documents this ditch as non-jurisdictional.

Photograph 7. Ephemeral stream. Interception of flow from the roadway to the east has increase the volume of water in this ephemeral stream resulting in greater erosional quality. DP 13 documents this feature.

Photograph 8. Suspect area. Because of its physical drainage character, this area was suspect. Further investigation found no evidence of scour and deposition or development of a bed and bank. DP 14 documents this area as upland.

Photograph 9. Suspect area because of culvert; however DP 15 documents this area as upland. Drainage does not contain evidence of scour and deposition to qualify it as a jurisdictional feature.

Photograph 10. Intermittent stream. Rancheria Creek running through the study area is an intermittent stream. DP 16 and 17 document this feature and the adjacent upland.

Photograph 11. Suspect area. Topography indicated that a feature may occur; however, further inspection determined that there was no scour and deposition to qualify the area as a feature. DP 18 documents this area as upland.

Photograph 12. Intermittent stream/riparian wetland. Moody Creek is an intermittent stream with bordering riparian wetlands along portions of the reach occurring in the study area. DP 19, 20, and 21 document the intermittent stream, riparian wetland and upland, respectively.

Photograph 13. Intermittent pool. OHV and 4x4 vehicles have created this feature. Wetland vegetation, soils, and hydrology are present; however, this feature is isolated qualifying it as non-jurisdictional. DPs 22 and 23 document this feature and the respective upland.

Photograph 14. Ephemeral stream. Typical ephemeral stream located in the study area. This feature and the adjacent upland is documented by DPs 24 and 25.

Photograph 15. Vegetated ditch. Ditch occurring adjacent to the railroad tracks collects water from adjacent uplands. The low gradient does not allow water to run-off creating a favorable environment for the development of hydrophytic vegetation. Because this feature was created in uplands to drain uplands, it is non-jurisdictional. DPs 26 and 27 document this feature and the adjacent upland.

Photograph 16. Intermittent stream. This intermittent stream starts at the confluence of two ephemeral streams. The channel becomes more defined and the presence of a biotic crust indicates this stream flows for a longer duration. DP 29 documents this feature.

Photograph 17. Ephemeral Stream. Ephemeral stream flowing into IS30. Another example of more defined ephemeral streams in the study area. This stream shows evidence of flow, but a lack of leaf movement throughout the channel indicates that it only flows for short duration and at low volume. DP 28 documents this feature.

Photograph 18. Seep-spring-other waters. This spring originates at the base of the tree located at the top of the photograph. DP 31 and 32 document this feature and the adjacent upland, respectively.

Photograph 19. Seep-spring wetland, intermittent stream. In this location the intermittent stream flows over the rock outcrop. Along crevices in the rock, several seep-springs originate and support hydrophytic plants. DPs 33, 34, and 35 document these features and the respective upland.

Photograph 20. Suspect feature. Few hydrophytic plants have established concurrently with upland plants that dominate the feature indicating that this area does not stay inundated for a long enough duration to establish a dominance of hydrophytic vegetation. Therefore, this feature is non-jurisdictional. DPs 36 and 37 document this area as upland.

Photograph 21. Riparian wetland, intermittent stream. A low gradient and broad floodplain has allowed for the establishment of a riparian wetland dominated by herbaceous hydrophytic species. DPs 38, 39, and 40 document the riparian wetland, intermittent stream, and upland.

Photograph 22. Seep-spring wetland. Seep-spring wetland typical of lower elevation springs in the study area. A bedrock layer is present at approximately 4 inches. DPs 41 and 42 document this feature and the respective upland.

Photograph 23. Intermittent Pool. Some pools in the road have developed wetland characteristics; however these features are isolated and are non-jurisdictional. DPs 43 and 44 document this feature as non-jurisdictional.

Photograph 24. Riparian wetland. Riparian wetland adjacent to Moody Creek. Typical of riparian wetlands adjacent to many of the larger intermittent streams on the east side of the study area. DPs 45, 46 and 47 document the riparian wetland, intermittent stream and adjacent upland.

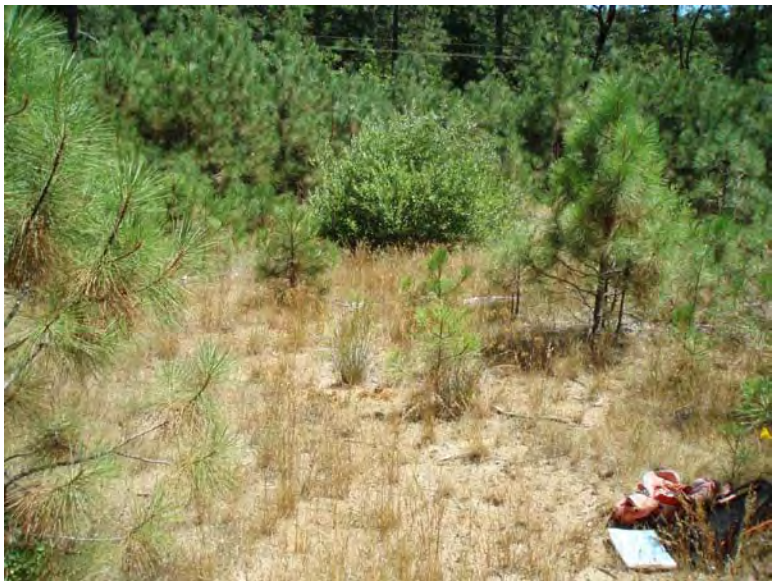
Photograph 25. Fresh emergent-riparian wetland. A complex of fresh emergent and riparian vegetation have developed in this constructed impoundment. DPs 48 and 49 document this feature and the adjacent upland.

Photograph 26. Ephemeral stream. Originally, this stream was channeled from this natural drainage around a building pad into another natural drainage that once conveyed water to IS110. However, a breach in the channel has diverted water onto the building pad where it dissipates or evaporates. There is no surface connection to a jurisdictional water, therefore, the feature is non-jurisdictional. DPs 50 and 51 document this feature and the adjacent upland, respectively.

Photograph 27. Vegetated ditch. This ditch was constructed to convey sheet flow from the road. Due to its low gradient, wetland characters have developed. This feature intercepts flow from an intermittent stream to the north and conveys water to a jurisdictional intermittent stream. Therefore, this feature is jurisdictional. DPs 52 and 53 document the feature and the adjacent upland.

Photograph 28. Suspect area. Hydrophytic vegetation is present, but the feature lacks hydric soil and hydrology indicators. DP 54 documents this area as upland.

Photograph 29. Seep-spring wetland. Seep-spring wetland along Digger Bay Road. The road cut has exposed an underlying seep-spring that is conveyed to an intermittent stream. DPs 55 and 56 document this feature and the adjacent upland.



Photograph 30. Seep-spring wetland. This feature has developed as the result of building a landing. Water seeps out of the cut in the slope and seeps across the landing. Two willows and the eastern edge of the landing respire this seepage. There is no indication of seepage downslope of the willows. This feature is isolated and non-jurisdictional. DPs 57 and 58 document this feature and the adjacent upland, respectively.

Photograph 31. Riparian wetland, intermittent stream. IS81 on the west side of the study area provides flow for long enough duration to establish riparian wetlands along most of its banks. Duration of flow may extend well into the summer and early fall. Riparian wetland plant composition varies greatly from those occurring along Moody and Rancheria Creeks. DPs 59, 60, and 61 document these features and the adjacent upland.

Appendix C

Acreage Summary of Waters of the United States and Non-Jurisdictional Features

Summary of Waters of the United States

Label	Name	Acres	Length (ft)
FEW 1	Fresh Emergent Wetland	0.020	--
FEW 2	Fresh Emergent Wetland	0.016	--
FEW 3	Fresh Emergent Wetland	0.014	--
FEW 4	Fresh Emergent Wetland	0.043	--
	Total	**0.09**	--
FEW/RW 1	Fresh Emergent Riparian Wetland	0.224	--
	Total	**0.22**	--
IP 1	Intermittent Pool	0.001	--
	Total	**0.001**	--
ISW 1	Intermittent Swale	0.005	--
ISW 2	Intermittent Swale	0.015	--
ISW 3	Intermittent Swale	0.003	--
ISW 4	Intermittent Swale	0.007	--
ISW 5	Intermittent Swale	0.001	--
ISW 6	Intermittent Swale	0.002	--
ISW 7	Intermittent Swale	0.026	--
ISW 8	Intermittent Swale	0.118	--
ISW 9	Intermittent Swale	0.009	--
ISW 10	Intermittent Swale	0.015	--
ISW 11	Intermittent Swale	0.001	--
ISW 12	Intermittent Swale	0.014	--
ISW 13	Intermittent Swale	0.003	--
ISW 14	Intermittent Swale	0.018	--
ISW 15	Intermittent Swale	0.011	--
ISW 16	Intermittent Swale	0.002	--
ISW 17	Intermittent Swale	0.004	--
ISW 18	Intermittent Swale	0.004	--
ISW 19	Intermittent Swale	0.003	--
ISW 20	Intermittent Swale	0.001	--
ISW 21	Intermittent Swale	0.112	--
ISW 22	Intermittent Swale	0.051	--
ISW 23	Intermittent Swale	0.003	--
ISW 24	Intermittent Swale	0.001	--
ISW 25	Intermittent Swale	0.007	--
ISW 26	Intermittent Swale	0.006	--
ISW 27	Intermittent Swale	0.012	--
ISW 28	Intermittent Swale	0.010	--
ISW 29	Intermittent Swale	0.009	--
ISW 30	Intermittent Swale	0.006	--
ISW 31	Intermittent Swale	0.016	--
ISW 32	Intermittent Swale	0.007	--
ISW 33	Intermittent Swale	0.050	--
ISW 34	Intermittent Swale	0.021	--
	Total	**0.57**	**N/A**

Label	Name	Acres	Length (ft)
RW 1	Riparian Wetland	0.008	--
RW 2	Riparian Wetland	0.059	--
RW 3	Riparian Wetland	0.032	--
RW 4	Riparian Wetland	0.026	--
RW 5	Riparian Wetland	0.070	--
RW 6	Riparian Wetland	0.034	--
RW 7	Riparian Wetland	0.040	--
RW 8	Riparian Wetland	0.015	--
RW 9	Riparian Wetland	0.046	--
RW 10	Riparian Wetland	0.161	--
RW 11	Riparian Wetland	0.010	--
RW 12	Riparian Wetland	0.025	--
RW 13	Riparian Wetland	0.280	--
RW 14	Riparian Wetland	0.056	--
RW 15	Riparian Wetland	0.036	--
RW 16	Riparian Wetland	0.043	--
RW 17	Riparian Wetland	0.081	--
RW 18	Riparian Wetland	0.014	--
RW 19	Riparian Wetland	0.017	--
RW 20	Riparian Wetland	0.053	--
RW 21	Riparian Wetland	0.014	--
RW 22	Riparian Wetland	0.015	--
RW 23	Riparian Wetland	0.077	--
RW 24	Riparian Wetland	0.038	--
RW 25	Riparian Wetland	0.046	--
RW 26	Riparian Wetland	0.012	--
RW 27	Riparian Wetland	0.026	--
RW 28	Riparian Wetland	0.010	--
RW 29	Riparian Wetland	0.049	--
RW 30	Riparian Wetland	0.100	--
RW 31	Riparian Wetland	0.016	--
RW 32	Riparian Wetland	0.018	--
RW 33	Riparian Wetland	0.013	--
RW 34	Riparian Wetland	0.010	--
RW 35	Riparian Wetland	0.042	--
RW 36	Riparian Wetland	0.007	--
RW 37	Riparian Wetland	0.580	--
RW 38	Riparian Wetland	0.008	--
RW 39	Riparian Wetland	0.009	--
RW 40	Riparian Wetland	0.012	--
RW 41	Riparian Wetland	0.010	--
RW 42	Riparian Wetland	0.015	--
RW 43	Riparian Wetland	0.018	--
RW 44	Riparian Wetland	0.017	--
RW 45	Riparian Wetland	0.048	--
RW 46	Riparian Wetland	0.031	--
RW 47	Riparian Wetland	0.053	--
	Total	**2.40**	**N/A**

Label	Name	Acres	Length (ft)
SSW 1	Seep-Spring Wetland	0.002	--
SSW 2	Seep-Spring Wetland	0.016	--
SSW 3	Seep-Spring Wetland	0.003	--
SSW 4	Seep-Spring Wetland	0.004	--
SSW 5	Seep-Spring Wetland	0.001	--
SSW 6	Seep-Spring Wetland	0.003	--
SSW 7	Seep-Spring Wetland	0.003	--
SSW 8	Seep-Spring Wetland	0.004	--
SSW 9	Seep-Spring Wetland	0.006	--
SSW 10	Seep-Spring Wetland	0.011	--
SSW 11	Seep-Spring Wetland	0.007	--
SSW 12	Seep-Spring Wetland	0.004	--
SSW 13	Seep-Spring Wetland	0.004	--
SSW 14	Seep-Spring Wetland	0.002	--
SSW 15	Seep-Spring Wetland	0.005	--
SSW 16	Seep-Spring Wetland	0.011	--
SSW 17	Seep-Spring Wetland	0.014	--
SSW 18	Seep-Spring Wetland	0.003	--
SSW 19	Seep-Spring Wetland	0.004	--
SSW 20	Seep-Spring Wetland	0.001	--
SSW 21	Seep-Spring Wetland	0.006	--
SSW 22	Seep-Spring Wetland	0.004	--
SSW 23	Seep-Spring Wetland	0.027	--
SSW 24	Seep-Spring Wetland	0.018	--
SSW 25	Seep-Spring Wetland	0.004	--
SSW 26	Seep-Spring Wetland	0.007	--
SSW 27	Seep-Spring Wetland	0.005	--
SSW 28	Seep-Spring Wetland	0.067	--
	Total	**0.24**	**N/A**

VD 1	Vegetated Ditch	0.002	17
VD 2	Vegetated Ditch	0.004	96
	Total	**0.01**	**113**

ES 1	Ephemeral Stream	0.001	47
ES 2	Ephemeral Stream	0.006	270
ES 3	Ephemeral Stream	0.006	94
ES 4	Ephemeral Stream	0.002	90
ES 5	Ephemeral Stream	0.0003	14
ES 6	Ephemeral Stream	0.002	93
ES 7	Ephemeral Stream	0.004	194
ES 8	Ephemeral Stream	0.006	260
ES 9	Ephemeral Stream	0.026	573
ES 10	Ephemeral Stream	0.015	212
ES 11	Ephemeral Stream	0.018	238
ES 12	Ephemeral Stream	0.003	143
ES 13	Ephemeral Stream	0.010	449
ES 14	Ephemeral Stream	0.001	59
ES 15	Ephemeral Stream	0.007	324
ES 16	Ephemeral Stream	0.004	196

Label	Name	Acres	Length (ft)
ES 17	Ephemeral Stream	0.001	52
ES 18	Ephemeral Stream	0.002	102
ES 19	Ephemeral Stream	0.001	58
ES 20	Ephemeral Stream	0.007	153
ES 21	Ephemeral Stream	0.003	57
ES 22	Ephemeral Stream	0.014	295
ES 23	Ephemeral Stream	0.009	204
ES 24	Ephemeral Stream	0.007	289
ES 25	Ephemeral Stream	0.003	151
ES 26	Ephemeral Stream	0.004	168
ES 27	Ephemeral Stream	0.016	175
ES 28	Ephemeral Stream	0.003	134
ES 29	Ephemeral Stream	0.002	95
ES 30	Ephemeral Stream	0.005	213
ES 31	Ephemeral Stream	0.007	158
ES 32	Ephemeral Stream	0.005	230
ES 33	Ephemeral Stream	0.005	237
ES 34	Ephemeral Stream	0.006	262
ES 35	Ephemeral Stream	0.020	265
ES 36	Ephemeral Stream	0.001	50
ES 37	Ephemeral Stream	0.002	103
ES 38	Ephemeral Stream	0.007	294
ES 39	Ephemeral Stream	0.002	87
ES 40	Ephemeral Stream	0.007	330
ES 41	Ephemeral Stream	0.009	383
ES 42	Ephemeral Stream	0.006	273
ES 43	Ephemeral Stream	0.009	388
ES 44	Ephemeral Stream	0.005	196
ES 45	Ephemeral Stream	0.007	301
ES 46	Ephemeral Stream	0.013	579
ES 47	Ephemeral Stream	0.007	303
ES 48	Ephemeral Stream	0.004	181
ES 49	Ephemeral Stream	0.010	441
ES 50	Ephemeral Stream	0.007	298
ES 51	Ephemeral Stream	0.001	64
ES 52	Ephemeral Stream	0.012	541
ES 53	Ephemeral Stream	0.012	282
ES 54	Ephemeral Stream	0.005	201
ES 55	Ephemeral Stream	0.003	76
ES 56	Ephemeral Stream	0.009	185
ES 57	Ephemeral Stream	0.010	429
ES 58	Ephemeral Stream	0.001	59
ES 59	Ephemeral Stream	0.009	526
ES 60	Ephemeral Stream	0.005	214
ES 61	Ephemeral Stream	0.002	93
ES 62	Ephemeral Stream	0.001	45
ES 63	Ephemeral Stream	0.008	378
ES 64	Ephemeral Stream	0.006	282

Label	Name	Acres	Length (ft)
ES 65	Ephemeral Stream	0.005	222
ES 66	Ephemeral Stream	0.016	687
ES 67	Ephemeral Stream	0.014	611
ES 68	Ephemeral Stream	0.008	365
ES 69	Ephemeral Stream	0.003	142
ES 70	Ephemeral Stream	0.002	98
ES 71	Ephemeral Stream	0.003	119
ES 72	Ephemeral Stream	0.003	149
ES 73	Ephemeral Stream	0.006	245
ES 74	Ephemeral Stream	0.005	196
ES 75	Ephemeral Stream	0.008	355
ES 76	Ephemeral Stream	0.003	131
ES 77	Ephemeral Stream	0.004	163
ES 78	Ephemeral Stream	0.008	338
ES 79	Ephemeral Stream	0.004	173
ES 80	Ephemeral Stream	0.002	76
ES 81	Ephemeral Stream	0.003	526
ES 82	Ephemeral Stream	0.006	256
ES 83	Ephemeral Stream	0.027	580
	Total	**0.55**	**19568**

IS 1	Intermittent Stream	0.039	426
IS 2	Intermittent Stream	0.019	213
IS 3	Intermittent Stream	0.006	65
IS 4	Intermittent Stream	0.001	48
IS 5	Intermittent Stream	0.002	24
IS 6	Intermittent Stream	0.009	111
IS 7	Intermittent Stream	0.056	300
IS 8	Intermittent Stream	0.024	275
IS 9	Intermittent Stream	0.003	41
IS 10	Intermittent Stream	0.022	246
IS 11	Intermittent Stream	0.037	535
IS 12	Intermittent Stream	0.013	279
IS 13	Intermittent Stream	0.001	55
IS 14	Intermittent Stream	0.015	168
IS 15	Intermittent Stream	0.009	152
IS 16	Intermittent Stream	0.041	273
IS 17	Intermittent Stream	0.013	135
IS 18	Intermittent Stream	0.020	306
IS 19	Intermittent Stream	0.027	273
IS 20	Intermittent Stream	0.043	234
IS 21	Intermittent Stream	0.186	813
IS 22	Intermittent Stream	0.020	860
IS 23	Intermittent Stream	0.030	132
IS 24	Intermittent Stream	0.054	496
IS 25	Intermittent Stream	0.002	195
IS 26	Intermittent Stream	0.030	360

Label	Name	Acres	Length (ft)
IS 27	Intermittent Stream	0.048	709
IS 28	Intermittent Stream	0.028	155
IS 29	Intermittent Stream	0.023	256
IS 30	Intermittent Stream	0.010	195
IS 31	Intermittent Stream	0.006	134
IS 32	Intermittent Stream	0.012	152
IS 33	Intermittent Stream	0.011	151
IS 34	Intermittent Stream	0.023	502
IS 35	Intermittent Stream	0.022	481
IS 36	Intermittent Stream	0.043	246
IS 37	Intermittent Stream	0.015	333
IS 38	Intermittent Stream	0.025	556
IS 39	Intermittent Stream	0.029	642
IS 40	Intermittent Stream	0.051	741
IS 41	Intermittent Stream	0.014	607
IS 42	Intermittent Stream	0.058	1269
IS 43	Intermittent Stream	0.020	296
IS 44	Intermittent Stream	0.026	381
IS 45	Intermittent Stream	0.094	330
IS 46	Intermittent Stream	0.028	647
IS 47	Intermittent Stream	0.031	684
IS 48	Intermittent Stream	0.010	109
IS 49	Intermittent Stream	0.046	1001
IS 50	Intermittent Stream	0.165	896
IS 51	Intermittent Stream	0.063	933
IS 52	Intermittent Stream	0.005	199
IS 53	Intermittent Stream	0.005	217
IS 54	Intermittent Stream	0.014	155
IS 55	Intermittent Stream	0.008	40
IS 56	Intermittent Stream	0.015	224
IS 57	Intermittent Stream	0.008	92
IS 58	Intermittent Stream	0.004	19
IS 59	Intermittent Stream	0.009	393
IS 60	Intermittent Stream	0.020	52
IS 61	Intermittent Stream	0.018	92
IS 62	Intermittent Stream	0.013	27
IS 63	Intermittent Stream	0.013	189
IS 64	Intermittent Stream	0.122	1812
IS 65	Intermittent Stream	0.024	590
IS 66	Intermittent Stream	0.028	121
IS 67	Intermittent Stream	0.006	90
IS 68	Intermittent Stream	0.014	83
IS 69	Intermittent Stream	0.002	68
IS 70	Intermittent Stream	0.017	183
IS 71	Intermittent Stream	0.083	1200
IS 72	Intermittent Stream	0.013	108
IS 73	Intermittent Stream	0.010	80

Label	Name	Acres	Length (ft)
IS 74	Intermittent Stream	0.001	15
IS 75	Intermittent Stream	0.046	249
IS 76	Intermittent Stream	0.011	48
IS 77	Intermittent Stream	0.014	101
IS 78	Intermittent Stream	0.012	81
IS 79	Intermittent Stream	0.130	1097
IS 80	Intermittent Stream	0.002	77
IS 81	Intermittent Stream	0.214	2446
IS 82	Intermittent Stream	0.011	76
IS 83	Intermittent Stream	0.015	186
IS 84	Intermittent Stream	0.031	272
IS 85	Intermittent Stream	0.006	93
IS 86	Intermittent Stream	0.012	538
IS 87	Intermittent Stream	0.008	161
IS 88	Intermittent Stream	0.557	2996
IS 89	Intermittent Stream	0.052	689
IS 90	Intermittent Stream	0.009	103
IS 91	Intermittent Stream	0.036	129
IS 92	Intermittent Stream	0.006	47
IS 93	Intermittent Stream	0.018	99
IS 94	Intermittent Stream	0.002	23
IS 95	Intermittent Stream	0.013	46
IS 96	Intermittent Stream	0.030	162
IS 97	Intermittent Stream	0.004	39
IS 98	Intermittent Stream	0.023	126
IS 99	Intermittent Stream	0.016	69
IS 100	Intermittent Stream	0.012	94
IS 101	Intermittent Stream	0.060	328
IS 102	Intermittent Stream	0.054	136
IS 103	Intermittent Stream	0.023	84
IS 104	Intermittent Stream	0.005	39
IS 105	Intermittent Stream	0.001	19
IS 106	Intermittent Stream	0.022	153
IS 107	Intermittent Stream	0.018	99
IS 108	Intermittent Stream	0.012	100
IS 109	Intermittent Stream	0.024	96
IS 110	Intermittent Stream	0.011	89
IS 111	Intermittent Stream	0.025	221
IS 112	Intermittent Stream	0.015	129
IS 113	Intermittent Stream	0.218	1514
IS 114	Intermittent Stream	0.006	312
IS 115	Intermittent Stream	0.144	1299
IS 116	Intermittent Stream	0.009	--
IS 117	Intermittent Stream	0.033	291
IS 118	Intermittent Stream	0.082	1195
IS 119	Intermittent Stream	0.008	--

Label	Name	Acres	Length (ft)
IS 120	Intermittent Stream	0.052	585
IS 121	Intermittent Stream	0.008	347
IS 122	Intermittent Stream	0.008	354
IS 123	Intermittent Stream	0.044	185
IS 124	Intermittent Stream	0.004	--
IS 125	Intermittent Stream	0.010	146
IS 126	Intermittent Stream	0.009	174
IS 127	Intermittent Stream	0.032	705
IS 128	Intermittent Stream	0.062	921
IS 129	Intermittent Stream	0.031	672
IS 130	Intermittent Stream	0.019	200
IS 131	Intermittent Stream	0.050	270
IS 132	Intermittent Stream	0.006	108
IS 133	Intermittent Stream	0.218	1187
IS 134	Intermittent Stream	0.016	351
IS 135	Intermittent Stream	0.037	820
IS 136	Intermittent Stream	0.014	300
IS 137	Intermittent Stream	0.226	1996
IS 138	Intermittent Stream	0.067	982
IS 139	Intermittent Stream	0.014	585
IS 140	Intermittent Stream	0.027	289
IS 141	Intermittent Stream	0.039	339
IS 142	Intermittent Stream	0.005	71
IS 143	Intermittent Stream	0.005	79
IS 144	Intermittent Stream	0.039	345
IS 145	Intermittent Stream	0.036	363
IS 146	Intermittent Stream	0.007	307
IS 147	Intermittent Stream	0.004	179
IS 148	Intermittent Stream	0.026	197
IS 149	Intermittent Stream	0.006	88
IS 150	Intermittent Stream	0.002	50
IS 151	Intermittent Stream	0.085	618
IS 152	Intermittent Stream	0.012	169
IS 153	Intermittent Stream	0.011	457
IS 154	Intermittent Stream	0.005	478
IS 156	Intermittent Stream	0.009	178
IS 157	Intermittent Stream	0.080	574
IS 158	Intermittent Stream	0.006	40
IS 159	Intermittent Stream	0.011	305
IS 160	Intermittent Stream	0.086	463
IS 161	Intermittent Stream	0.175	956
IS 162	Intermittent Stream	0.048	696
IS 163	Intermittent Stream	0.015	222
IS 164	Intermittent Stream	0.005	239
IS 165	Intermittent Stream	0.008	171
IS 166	Intermittent Stream	0.016	653

Label	Name	Acres	Length (ft)
IS 167	Intermittent Stream	0.001	15
IS 168	Intermittent Stream	0.003	114
IS 169	Intermittent Stream	0.021	233
IS 170	Intermittent Stream	0.025	552
IS 171	Intermittent Stream	0.009	137
IS 172	Intermittent Stream	0.055	396
IS 173	Intermittent Stream	0.010	214
IS 174	Intermittent Stream	0.025	535
IS 175	Intermittent Stream	0.031	336
IS 176	Intermittent Stream	0.054	789
IS 177	Intermittent Stream	0.006	65
IS 178	Intermittent Stream	0.002	50
IS 179	Intermittent Stream	0.016	216
IS 180	Intermittent Stream	0.006	137
IS 181	Intermittent Stream	0.007	--
IS 182	Intermittent Stream	0.011	242
IS 183	Intermittent Stream	0.049	288
IS 184	Intermittent Stream	0.004	86
IS 185	Intermittent Stream	0.123	531
IS 186	Intermittent Stream	0.045	323
IS 187	Intermittent Stream	0.471	2582
IS 188	Intermittent Stream	0.018	156
IS 189	Intermittent Stream	0.058	613
IS 190	Intermittent Stream	0.129	1143
IS 191	Intermittent Stream	0.005	67
IS 192	Intermittent Stream	0.015	164
IS 193	Intermittent Stream	0.059	1286
IS 194	Intermittent Stream	0.049	359
IS 195	Intermittent Stream	0.007	156
IS 196	Intermittent Stream	0.003	126
IS 197	Intermittent Stream	0.026	547
IS 198	Intermittent Stream	0.015	106
IS 199	Intermittent Stream	0.025	172
IS 200	Intermittent Stream	0.017	147
IS 201	Intermittent Stream	0.008	32
IS 202	Intermittent Stream	0.006	71
IS 203	Intermittent Stream	0.008	63
IS 204	Intermittent Stream	0.022	123
IS 205	Intermittent Stream	0.008	39
IS 206	Intermittent Stream	0.037	134
IS 207	Intermittent Stream	0.009	385
IS 208	Intermittent Stream	0.015	169
IS 209	Intermittent Stream	0.009	186
IS 210	Intermittent Stream	0.007	290
IS 211	Intermittent Stream	0.003	0
IS 212	Intermittent Stream	0.003	60
IS 213	Intermittent Stream	0.038	830

Label	Name	Acres	Length (ft)
IS 214	Intermittent Stream	0.057	1243
IS 215	Intermittent Stream	0.009	93
IS 216	Intermittent Stream	0.004	--
IS 217	Intermittent Stream	0.037	526
IS 218	Intermittent Stream	0.068	496
IS 219	Intermittent Stream	0.029	343
IS 220	Intermittent Stream	0.009	133
IS 221	Intermittent Stream	0.061	879
IS 222	Intermittent Stream	0.042	458
IS 223	Intermittent Stream	0.003	75
IS 224	Intermittent Stream	0.007	78
IS 225	Intermittent Stream	0.005	101
IS 226	Intermittent Stream	0.035	499
IS 227	Intermittent Stream	0.029	629
IS 228	Intermittent Stream	0.039	863
IS 229	Intermittent Stream	0.006	120
IS 230	Intermittent Stream	0.030	659
IS 231	Intermittent Stream	0.208	2262
IS 232	Intermittent Stream	0.071	1027
IS 233	Intermittent Stream	0.006	124
IS 234	Intermittent Stream	0.045	989
IS 235	Intermittent Stream	0.019	161
IS 236	Intermittent Stream	0.002	15
IS 237	Intermittent Stream	0.008	168
IS 238	Intermittent Stream	0.012	251
IS 239	Intermittent Stream	0.040	881
IS 240	Intermittent Stream	0.019	84
IS 241	Intermittent Stream	0.042	942
IS 242	Intermittent Stream	0.014	468
IS 243	Intermittent Stream	0.018	102
IS 244	Intermittent Stream	0.008	337
IS 245	Intermittent Stream	0.017	675
IS 246	Intermittent Stream	0.011	473
IS 247	Intermittent Stream	0.188	1017
IS 248	Intermittent Stream	0.004	166
IS 249	Intermittent Stream	0.016	347
IS 250	Intermittent Stream	0.019	270
IS 251	Intermittent Stream	0.026	1132
IS 252	Intermittent Stream	0.048	1046
IS 253	Intermittent Stream	0.008	368
IS 254	Intermittent Stream	0.014	305
IS 255	Intermittent Stream	0.033	480
IS 256	Intermittent Stream	0.002	102
IS 257	Intermittent Stream	0.007	298
IS 258	Intermittent Stream	0.007	161
IS 259	Intermittent Stream	0.050	542
IS 260	Intermittent Stream	0.021	931
IS 261	Intermittent Stream	0.012	236

Label	Name	Acres	Length (ft)
IS 262	Intermittent Stream	0.007	286
IS 263	Intermittent Stream	0.099	1074
IS 264	Intermittent Stream	0.018	390
IS 265	Intermittent Stream	0.006	271
IS 266	Intermittent Stream	0.019	415
IS 267	Intermittent Stream	0.029	627
IS 268	Intermittent Stream	0.062	1152
IS 269	Intermittent Stream	0.057	1246
IS 270	Intermittent Stream	0.026	168
IS 271	Intermittent Stream	0.007	155
IS 272	Intermittent Stream	0.004	157
IS 273	Intermittent Stream	0.023	504
IS 274	Intermittent Stream	0.014	302
IS 275	Intermittent Stream	0.052	1124
IS 276	Intermittent Stream	0.005	214
IS 277	Intermittent Stream	0.034	488
IS 278	Intermittent Stream	0.032	688
IS 279	Intermittent Stream	0.004	181
IS 280	Intermittent Stream	0.006	280
IS 281	Intermittent Stream	0.008	367
IS 282	Intermittent Stream	0.016	686
IS 283	Intermittent Stream	0.004	49
IS 284	Intermittent Stream	0.009	312
IS 285	Intermittent Stream	0.053	799
IS 286	Intermittent Stream	0.006	84
IS 287	Intermittent Stream	0.005	171
IS 288	Intermittent Stream	0.018	795
IS 289	Intermittent Stream	0.018	388
IS 290	Intermittent Stream	0.060	890
	Total	**9.57**	**114118**

SSOW 1	Seep-Spring Other Waters	0.003	73
	Total	**0.003**	**73**

	Total Waters	**13.654**	**137112**

Summary of Non-Jurisdictional Features

Label	Name	Acres	Length (ft)
NJIP 1	Intermittent Pool	0.004	--
NJIP 2	Intermittent Pool	0.008	--
NJIP 3	Intermittent Pool	0.025	--
NJIP 4	Intermittent Pool	0.004	--
NJIP 5	Intermittent Pool	0.016	--
NJIP 6	Intermittent Pool	0.018	--
	Total	**0.07**	**--**

NJSSW 1	Seep-Spring Wetland	0.009	--
	Total	**0.01**	**--**

NJVD 1	Vegetated Ditch	0.023	254
NJVD 2	Vegetated Ditch	0.018	229
	Total	**0.04**	**483**

NJES 1	Ephemeral Stream	0.002	85
NJES 2	Ephemeral Stream	0.006	135
NJES 3	Ephemeral Stream	0.002	86
	Total	**0.01**	**306**

NJNVD 1	Non-Vegetated Ditch	0.008	331
NJNVD 2	Non-Vegetated Ditch	0.026	391
NJNVD 3	Non-Vegetated Ditch	0.022	117
NJNVD 4	Non-Vegetated Ditch	0.012	501
NJNVD 5	Non-Vegetated Ditch	0.002	93
NJNVD 6	Non-Vegetated Ditch	0.003	154
NJNVD 7	Non-Vegetated Ditch	0.010	218
	Total	**0.08**	**1805**

	Total Non-Jurisdictional Features	**0.21**	**2594**

Appendix D

Significant Nexus Evaluation

Ephemeral Stream

SIGNIFICANT NEXUS CATEGORY	WATER RESOURCE VALUE	COMMENTS
Floodflow storage or conveyance	Minimal value	These features may periodically provide conveyance of waters shed from adjacent slopes.
Groundwater recharge and discharge	None	Features are ephemeral in nature and stop flowing when rain stops.
Wave and erosion attenuation	None	Not applicable to these features
Sediment capture	None	Not applicable to these features
Pollutant filtering	None	Not applicable to these features
Fish and shellfish production	None	Not applicable to these features
Waterfowl and shorebird habitat	None	Not applicable to these features
Biochemical cycling	None	Not applicable to these features

Intermittent Pools

SIGNIFICANT NEXUS CATEGORY	WATER RESOURCE VALUE	COMMENTS
Floodflow storage or conveyance	Minimal value	These features do not show evidence of water conveyance. The capacity of these pools is less than 0.1 acre and would not contribute significantly to flood storage.
Groundwater recharge and discharge	Minimal value	Localized recharge is minimal.
Wave and erosion attenuation	None	Not applicable to these features
Sediment capture	None	Not applicable to these features
Pollutant filtering	None	Not applicable to these features
Fish and shellfish production	None	Not applicable to these features
Waterfowl and shorebird habitat	None	Not applicable to these features
Biochemical cycling	None	Not applicable to these features

Non-Vegetated Ditch

SIGNIFICANT NEXUS CATEGORY	WATER RESOURCE VALUE	COMMENTS
Floodflow storage or conveyance	Minimal value	These features may periodically provide conveyance of waters shed from adjacent slopes.
Groundwater recharge and discharge	None	Features are ephemeral in nature and stop flowing when rain stops.
Wave and erosion attenuation	None	Not applicable to these features
Sediment capture	None	Not applicable to these features
Pollutant filtering	None	Not applicable to these features
Fish and shellfish production	None	Not applicable to these features
Waterfowl and shorebird habitat	None	Not applicable to these features
Biochemical cycling	None	Not applicable to these features

Vegetated Ditch

SIGNIFICANT NEXUS CATEGORY	WATER RESOURCE VALUE	COMMENTS
Floodflow storage or conveyance	Minimal value	These features may periodically provide conveyance of flood waters
Groundwater recharge and discharge	Minimal value	Localized recharge is minimal.
Wave and erosion attenuation	None	Not applicable to these features
Sediment capture	Minimal	Due to the slight gradient, this feature may accumulate sediment run off from the adjacent uplands.
Pollutant filtering	Minimal value	May have some value in filtering pollutants (e.g., road runoff) as it flows through the drainage, but features are too small to significantly contribute to pollutant filtering
Fish and shellfish production	None	Not applicable to these features
Waterfowl and shorebird habitat	None	Not applicable to these features
Biochemical cycling	None	Not applicable to these features

Seep-Spring Wetland

SIGNIFICANT NEXUS CATEGORY	WATER RESOURCE VALUE	COMMENTS
Floodflow storage or conveyance	None	Non applicable to this feature
Groundwater recharge and discharge	Minimal value	Localized recharge is minimal.
Wave and erosion attenuation	None	Not applicable to this feature
Sediment capture	Minimal	Due to the slight gradient, vegetation within this feature may accumulate sediment run off from the adjacent uplands.
Pollutant filtering	Minimal value	Not applicable in this feature
Fish and shellfish production	None	Not applicable in this feature
Waterfowl and shorebird habitat	None	Not applicable in this feature
Biochemical cycling	None	Not applicable in this feature