
Nipomo Creek Watershed Management Plan



Prepared for

The Guadalupe-Nipomo Dunes Restoration Subcommittee

Prepared by

Central Coast Salmon Enhancement

The Land Conservancy of San Luis Obispo County

On Behalf of

The Nipomo Creek Watershed Forum

December 2005

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Executive Summary

A legal settlement was reached to resolve a case involving many years of slow discharge of diluent (an oil/kerosene mix) in the Guadalupe Nipomo Dunes which resulted in funds being allocated for restoring or replacing lost natural resources that had been damaged.

The Guadalupe-Nipomo Dunes Restoration Subcommittee, comprised of representatives from the Department of Fish and Game, Office of Spill Prevention and Response, and the State Coastal Conservancy, was established to facilitate identifying and funding projects that would restore or replace lost resources in the Guadalupe-Nipomo Dunes area.

The Land Conservancy of San Luis Obispo, in partnership with Central Coast Salmon Enhancement, secured a grant from the Restoration Subcommittee in 2002 to create the Nipomo Creek Watershed Program. Through a comprehensive community and landowner outreach program, the Nipomo Creek Watershed Program was developed to establish water quality and biological monitoring programs, pursue riparian restoration projects, and permanent protection of land areas containing important natural resources. This report represents the culmination of the tasks specified in the approved work plan. The following work products are integrated into this watershed management plan:

- Summary/Details of Nipomo Watershed Forum
- Summary of Volunteer Water Quality Monitoring
- Report on Riparian Habitat Assessment
- Existing Data on the Watershed (Watershed Characterization Report)
- Nipomo Creek Watershed Program Final Report of Concept Recommendations for Short-term Project Implementation

The original approved work plan included fisheries related assessment and monitoring tasks. Following start up of the project it was decided to modify the work plan to reduce fisheries related tasks. While there are fisheries issues within the watershed, there was a lack of sufficient perennial flow to support an extensive habitat assessment for salmonids in the Nipomo Creek Watershed. This report does, however, address historical accounts of salmonids in the watershed based on limited written records and anecdotal evidence.

Introduction and Background

Summary of Nipomo Creek Watershed Forum

In 1999 the Nipomo Creek Committee, a subcommittee of the Nipomo Community Advisory Council (NCAC), was established with a mission of educating and involving the community on issues of flood and erosion control, scenic protection, and habitat protection within the Nipomo Creek watershed. When the County of San Luis Obispo's Public Works Department developed the Drainage and Flood Control Study for the

Community of Nipomo in 2001, the Creek Committee was assigned by the NCAC to be the official liaison.

When the Land Conservancy of San Luis Obispo County (LC) and Central Coast Salmon Enhancement (CCSE) received the grant for the Nipomo Creek Watershed Program, the Creek Committee and the Nipomo Creek Watershed Forum Steering Committee combined efforts to provide public forums and education in the aftermath of the March 2001 urban area flooding in Nipomo.

The Nipomo Creek Watershed Forum Steering Committee began meeting in 2003 and continued during 2004 and 2005. The Steering Committee's work involved:

- Development of goals, objectives, and a group mission.
- Determination of watershed stakeholder sectors and establishing contact through outreach.
- Engaging stakeholders within the watershed and requesting their direct participation. If a stakeholder did not wish to participate, s/he was kept abreast of progress via mailed minutes.
- Development of the Table of Contents for the Plan.
- Planning and conducting community-wide meetings.
- Planning and conducting annual Creek Day Clean Up event.
- Periodic reports to the Nipomo Community Advisory Council.
- On-site meetings with landowners documenting watershed issues.
- Obtaining a multi-year permit for vegetation maintenance for flood control and erosion prevention.
- Collaborating with the Farm Bureau and UC Cooperative Extension to promote Water Quality Sh01i Courses for landowners.

- • Providing leadership for the NCAC's revision to the Nipomo Drainage and Flood Control Study.
- Monitoring water quality through volunteer efforts.
- Generating a list of projects that meet the mission.
- Identification of potential restoration sites and projects.
- Reviewing drafts of the Plan.

The participants in the group varied over time. Total attendance recorded on sign-in sheets for the Creek Committee meetings, Watershed Forum Steering Committee meetings, and community-wide forums totaled over 450. Public meetings included guest speakers, agency representatives, and watershed experts. The process yielded direct benefits by introducing residents and landowners to the watershed program. At least two landowners have agreed to develop projects on their properties. Longer-term benefits will be accrued as additional projects are completed from the prioritized project list.

The stakeholder driven process for the watershed was met with particular successes and challenges.

- The Nipomo Creek Committee response to the 2001 flood provided three years of public meetings, articles, and forums that helped to raise the community's awareness on watershed issues, paving the way for the Nipomo Creek Watershed Forum. The flooding issues brought large numbers of community members to the meetings in 2001 and 2002.
- In 2003 when the Forum began its meetings, the meetings drew smaller numbers, but comprised a core group of stakeholders looking at a wider range of watershed issues.
- The relatively small size of the watershed and the majority of land being held by a small group of landowners meant that landowner participation would be limited to a small group of voluntary participants (30.6% of the watershed is owned by one family and 72.6% of the watershed is owned by fourteen families). Almost every major landowner, farmer or rancher in the watershed is on record as having attended meetings over the three-year period.
- New water quality regulations rallied many landowners to take Farm Water Quality Short courses in 2003. The timing of the formation of the Forum and the new regulations established trust issues for some landowners that saw the Forum as an allied agency of the regulatory action.
- While flooding was a major concern for the community, and the reason some participants were involved, there were no impending regulatory implications

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Plan differs from the aforementioned in that this plan concentrates on surface waterways of the Nipomo Creek Watershed.

Why develop a management plan?

The Steering Committee considered methods of communicating community-wide land management concerns that address habitat, flooding, and agricultural viability. They decided that a written plan with specific recommended actions would best address accomplishing the watershed organization's mission. The Steering Committee determined that securing funding for projects that are part of a community wide stakeholder based plan may be more productive than seeking funds for individual projects. There is also the potential for securing permits for multiple projects as an efficiency tool and perhaps eventually seeking to pursue a stream-lined permit process whereby conservation practices are authorized by permitting agencies in advance through watershed-based permits, as has been accomplished in the Salinas and Morro Bay watersheds.

How and by whom will the plan be used?

It is envisioned that community advisory committees, homeowners, landowners, public agencies, and nonprofits that served allied purposes would use the plan. The Steering Committee determined that by identifying projects of the following nature and documenting the need for implementing the projects, the plan would help to achieve the watershed forum's mission.

Creek maintenance: Annual clearing of trash, debris and in-channel vegetation management would reduce flooding potential during the rainy season. Having an established protocol and volunteer group to plan and implement Annual Creek Clean-up Days is seen by the Steering Committee to be essential for success in this relatively low cost, high impact activity.

Sediment Control: Locating areas where erosion is contributing to an increased sediment load to the creek and finding low-tech and engineered solutions is seen as an important reason to develop and implement the plan. It also facilitates education within

the community about using accepted (and in some cases, permissible) practices and methods.

Collection of Data: In order to identify problems and projects to address the problems, the Steering Committee determined the need to conduct a preliminary assessment of current conditions within the watershed. The preliminary assessment includes a baseline hydrologic study, land use characterization, habitat evaluation, water quality data collection and analysis, and identification of soil types and bank stability. In addition, the committee decided to collect historical information from residents via a direct mail survey.



Figure 1: Main Stem of Nipomo Creek

Overview of the Watershed

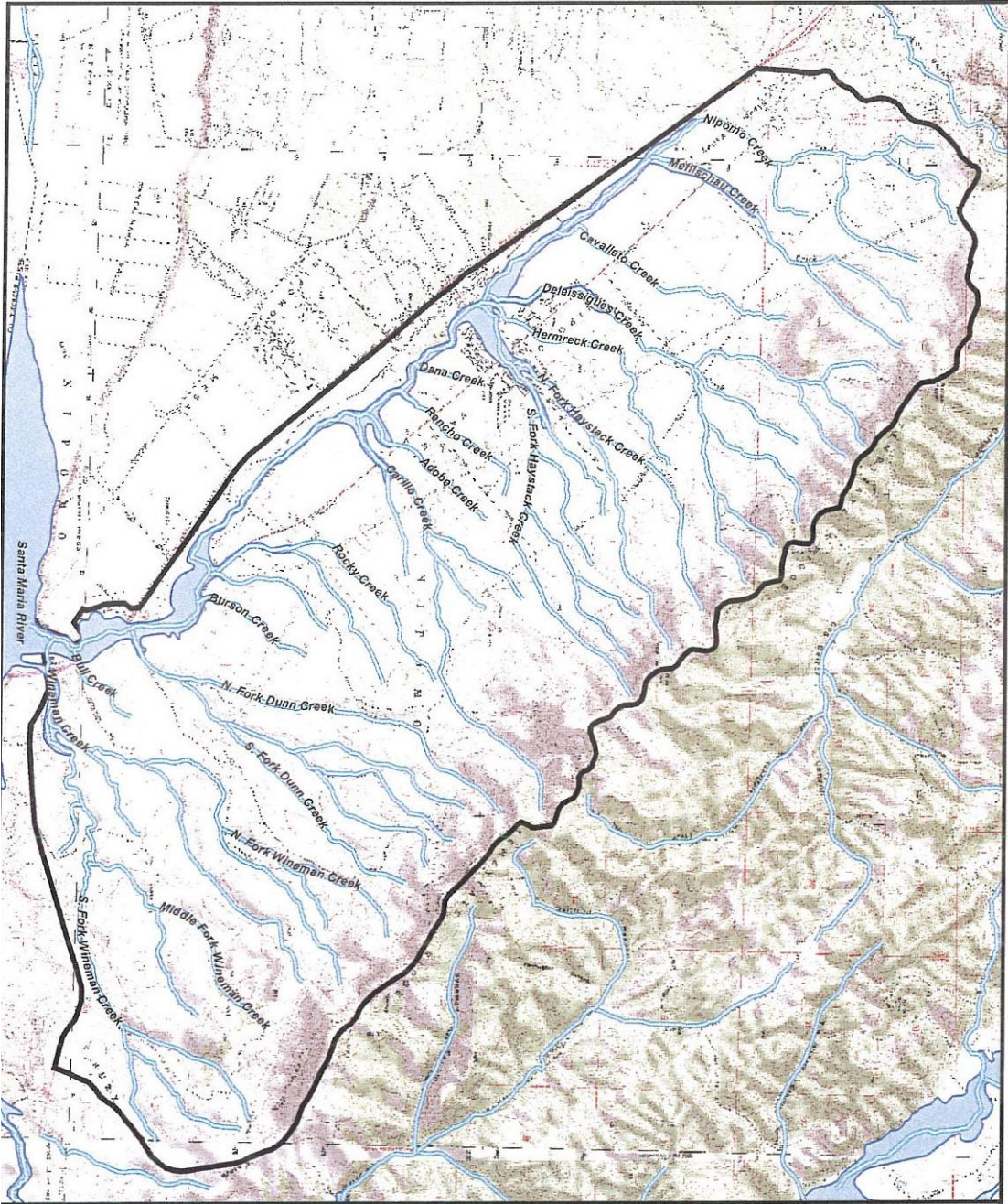
Nipomo Creek is located in southern San Luis Obispo County. Its headwaters are found in the Nipomo foothills, also known as the Temettate Ridge, which is a subset of the larger Coast Ranges which run most of the length of California. Nipomo Creek Watershed is a part of the larger Santa Maria/Sisquoc River watershed system. A map showing the regional context for Nipomo Creek watershed is found in Figure 2 on the following page.

The main stem of Nipomo Creek typically runs year-round. The tributaries that drain into Nipomo Creek, such as Deleissigues Creek, Mehlschau Creek, Haystack Creek and many other unnamed tributaries, run on a seasonal basis. The main stem of Nipomo Creek is approximately 10 miles long and generally runs from the northwest to the southeast. The entire watershed is 16,318 acres, or 25.5 square miles (based on the area of the digitized polygon shape of the watershed created for use in the Nipomo Creek Watershed Program's Geographic Information System). The watershed attains a maximum elevation of about 1,804 feet above mean sea level (msl). Mountain and foothill areas account for 61 percent of the surface area, and valley areas account for about 39 percent (DWR, 2002).

Nipomo Creek is a third-order stream, based on the classification system put forth in Ann Riley's *Restoring Streams in Cities: A Guide for Planners, Policymakers, and Citizens*, "A first-order stream channel has no tributaries; when two first-order streams join, they create a second-order stream, and so on" (1998).

There are fourteen (14) tributaries that show as blue lines on the United States Geologic Survey (USGS) map that flow into Nipomo Creek. Except for those mentioned above, most of these tributaries are unnamed on the USGS map. For the purpose of easy identification, names have been assigned to those tributaries based on either locally recognized names or by major landowners whose properties contain these tributaries. A map of the watershed and its associated tributaries is shown in Figure 3 on page 11.

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Nipomo Creek Watershed Delineation

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The upper reaches of the main stem and tributaries primarily collect water from steep grazing lands on the west side of Temettate Ridge. By the middle elevations, the stream channels become more defined and the land uses are mixture of avocado and citrus trees,



Figure 4: Overhead View of Nipomo Creek Watershed

greenhouses, and residential. The tributaries join the main stem in the lower elevation Nipomo Valley where land uses include irrigated and dry land farming, residential ,

commercial, and public facilities in and around Olde Towne Nipomo, and then more grazing and other agricultural uses before the creek passes the commercial and industrial areas found near the confluence with the Santa Maria River.

The neighborhood and commercial areas near Olde Towne Nipomo have been the subject of significant flooding events over the years where some of the major confluence areas in the middle of Nipomo Creek's course interface with development in and near Olde Towne Nipomo. Deep stream channels with occasionally eroded banks characterize the lower elevations of Nipomo Creek, but there are also several zones where broad, perennial wetlands and pools are located which host excellent wildlife habitat. Just upstream of the confluence with the Santa Maria River, the creek flows under Highway 101 to the west side and joins with an area which historically accommodated more wetlands, but has been significantly impacted by commercial and industrial development during more recent times. There are several substandard bridges and crossings in this area that are restricting flood flows. This confluence area might be described as "the cork at the bottom of the tub" due to its general inability to naturally accommodate and pass significant floodwaters.

History of Nipomo Creek

Pre-History

There is widespread evidence of prehistoric human occupation within the Nipomo Creek Watershed for at least the last nine thousand years, including evidence of Millingston Horizon and Oakgrove culture occupation. Recently, Paleo artifacts in conjunction with mega-fauna fossils have been identified and are being evaluated for evidence of very early human occupation in the area (Ardoin/Bishop, 2004). Nipomo Creek provided a year round source of fresh water, a mild climate, abundant game, and a proximity to a variety of plant and animal communities supporting a diversity of food and game throughout the year. Nipomo Creek and associated wetlands supported native fish including steelhead trout, water fowl, and a variety of mammals. Among these species surviving today are badger, rabbit, skunk, gray and ground squirrel, rattlesnake, fox, bobcat, mule deer, California quail, raccoon, and coyote. In addition, black bear and mountain lion can still be found in the surrounding hills to the east. Important native species to local prehistory and history that can no longer be found in the area are tule elk, pronghorn antelope, bighorn sheep, and grizzly bear. These were particularly important species to the local Native American, and later Spanish Colonial inhabitants (Wheeler, 2005).

The Nipomo Creek Watershed was occupied at the time of Spanish contact by speakers of the Obispeño dialect of the Chumash Language (Greenwood, 1978). The Chumash were a group of hunter-gatherer-fishers who attained an extraordinary level of social complexity given their means of subsistence. Today descendants of these groups continue to live in San Luis Obispo, Santa Barbara, and Ventura Counties as well as elsewhere in California. Numerous seasonal Chumash encampments and several permanent village sites are recorded within the Nipomo Creek Watershed.

Native American habitation in the general area has spanned at least 9,000 years and perhaps significantly longer (Fitzgerald 1997; Greenwood 1972; Gibson 1996). The most densely populated areas are usually located near littoral or riparian environments. This is due primarily to the fact that these areas offered the most abundant and diverse array of

lowered his arm seeming to indicate the rising hills then with a quick stamp of his foot he again exclaimed, "*Ni-po-mah.*" (Dana 1960:96-97; Norton 1968:32)

The Nipomo Creek Watershed was likely first visited by Mountain Men. James Ohio Pattie, who may have crossed this area in 1831, passed between the Mission La Purissima and San Luis Obispo vaccinating Indians at the Missions as he went (Pattie, 1831). The watershed is part of the original Rancho Nipomo, a Mexican Land Grant awarded to

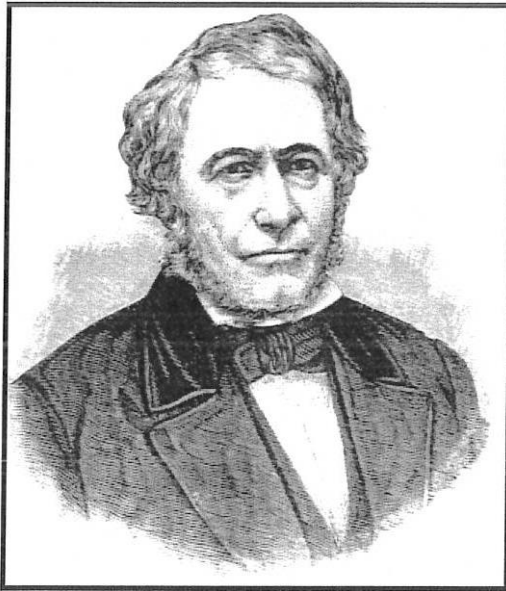


Figure 5: Portrait of Captain William Dana

Dana, on becoming a naturalized Mexican citizen, applied for the Grant in 1835. As one of the earliest grants obtained, Dana's 37,887.91 acre Rancho exhibited his profound good judgment in choosing one of the most productive areas in San Luis Obispo County (Angel, 1883). After having established businesses in both Oahu and Santa Barbara, Dana moved full time to Nipomo where he built a thirteen-room adobe as a residence for his large family. The Rancho was for many years a center of agriculture and industry for a hundred mile stretch along the El Camino Real, supplying Missions and neighboring ranchos with its products including soap, woven material, furniture, and agricultural implements (Norton, 1968). Dana's herds of cattle and sheep had free range of the Rancho. At the height of the rancho era, Dana's neighbor on Rancho Guadalupe reported 40,000 head of cattle (Dana, 1960).

The introduction of large numbers of domestic livestock had profound impacts on the flora and fauna of the Nipomo Creek Watershed. "The tendency for livestock is to concentrate in riparian areas and to disproportionately use the vegetation to the degree that riparian function and vegetation are compromised" (Del Curto, Porath, Parsons, Monison, 2005). Intensive grazing and the introduction of old world grasses and other exotic flora reduced the number and biodiversity of riparian and grassland native flora. Concentration very likely reduced terrestrial and aquatic habitat, created extensive erosion, reduced canopy cover, and increased downstream sedimentation. The livestock

Existing Conditions

Climate

The maritime climate of the Central Coast of California is cool and mild, and does not display much daily or seasonal temperature variation due to the moderating affect of the Pacific Ocean. The Nipomo Creek watershed is located just inland of the southern coast of San Luis Obispo County. The average maximum daily temperature is about 70 degrees Fahrenheit and average minimum daily temperature is about 48 degrees Fahrenheit. The annual precipitation ranges between 15 and 28 inches, which normally falls between November and March.

Geographic Boundaries

The Nipomo Creek watershed is located on the seaward side of the Santa Lucia Range. The Santa Lucia Range is one of the outermost ridges of the coast ranges of California. The Coast Ranges are a series of northwest trending parallel ridges extending from Santa Barbara County in the south to Humboldt County in the north. Together, the Coast Ranges constitute a nearly continuous ridge system. One of the subsets of the Coast Ranges is Temettate Ridge, which acts as the headwaters for the Nipomo Creek watershed from the east.

To the west of the Nipomo Creek watershed are the Nipomo Mesa and the Guadalupe-Nipomo Dunes. The Nipomo Mesa is a formation of stabilized sand dunes found behind the Guadalupe-Nipomo Dunes, which is one of the largest coastal dtme complexes in California (Hill, 2003).

Geologic Setting

The west-southwest facing slopes of the Temettate Ridge, the east-west aligned alluvial ephemeral tributaries, and main stem in the Nipomo Valley, comprise the Nipomo Creek Watershed. The bedrock of the watershed is typical of the Monterey and Franciscan formations of the California Coastal Range and is composed primarily of shale, chert, and other melange components (Chipping 1985). The zone of influence encompassed within the Nipomo Creek Watershed is encompassed within a geological melange bordering the

Watershed until catastrophic weather patterns began a sustained global warming pattern approximately 12,000 years ago. A significant deposition of Ice Age mega-fauna fossils have been found in the Nipomo Creek Watershed. These paleontological artifacts are unique natural resources within the watershed (Ardoin/Bishop, 2004, Cooper 1998).

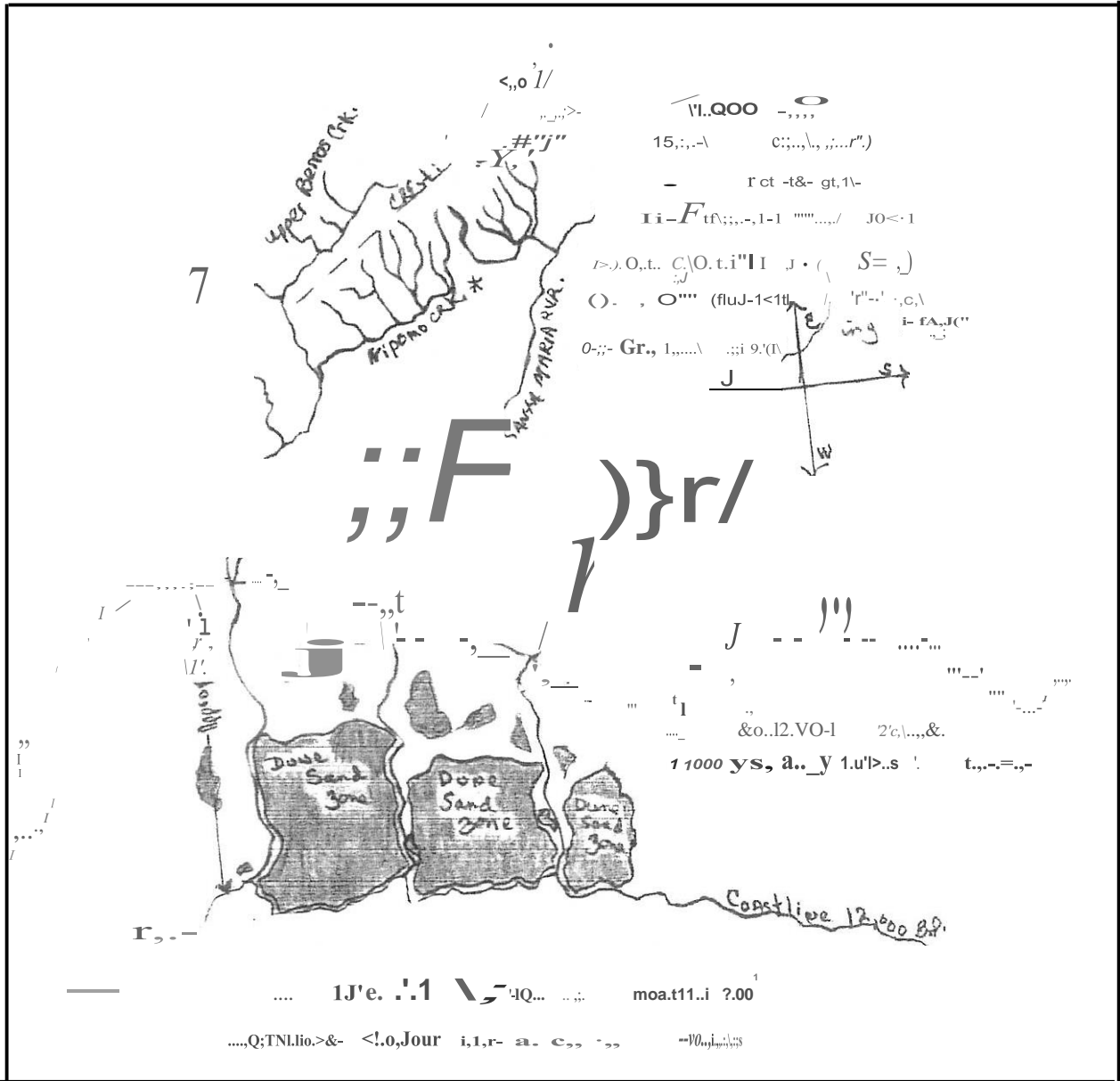


Figure 8: Nipomo Creek Watershed, 12,000 BP (Credit: Ra/pit Bis/top)

During the Quaternary period of the Holocene Epoch, 11,000-7,000 years ago, rapid melting of glaciers caused an approximate 300 feet elevation of sea levels. Shoreline dunes rapidly advanced inland during this rise in sea level and blocked the northward

outflow of Nipomo Creek. The blockage of the northerly flow of Nipomo Creek created shallow lake environments in the Nipomo Creek Watershed during this period. These lakes of Nipomo Creek broke through their confines across the stabilized dune lobe of the Nipomo Mesa creating a deep scar and forming what is now known as Black Lake Canyon. The scouring effect of the catastrophic movement of water also created the Dune Lakes.

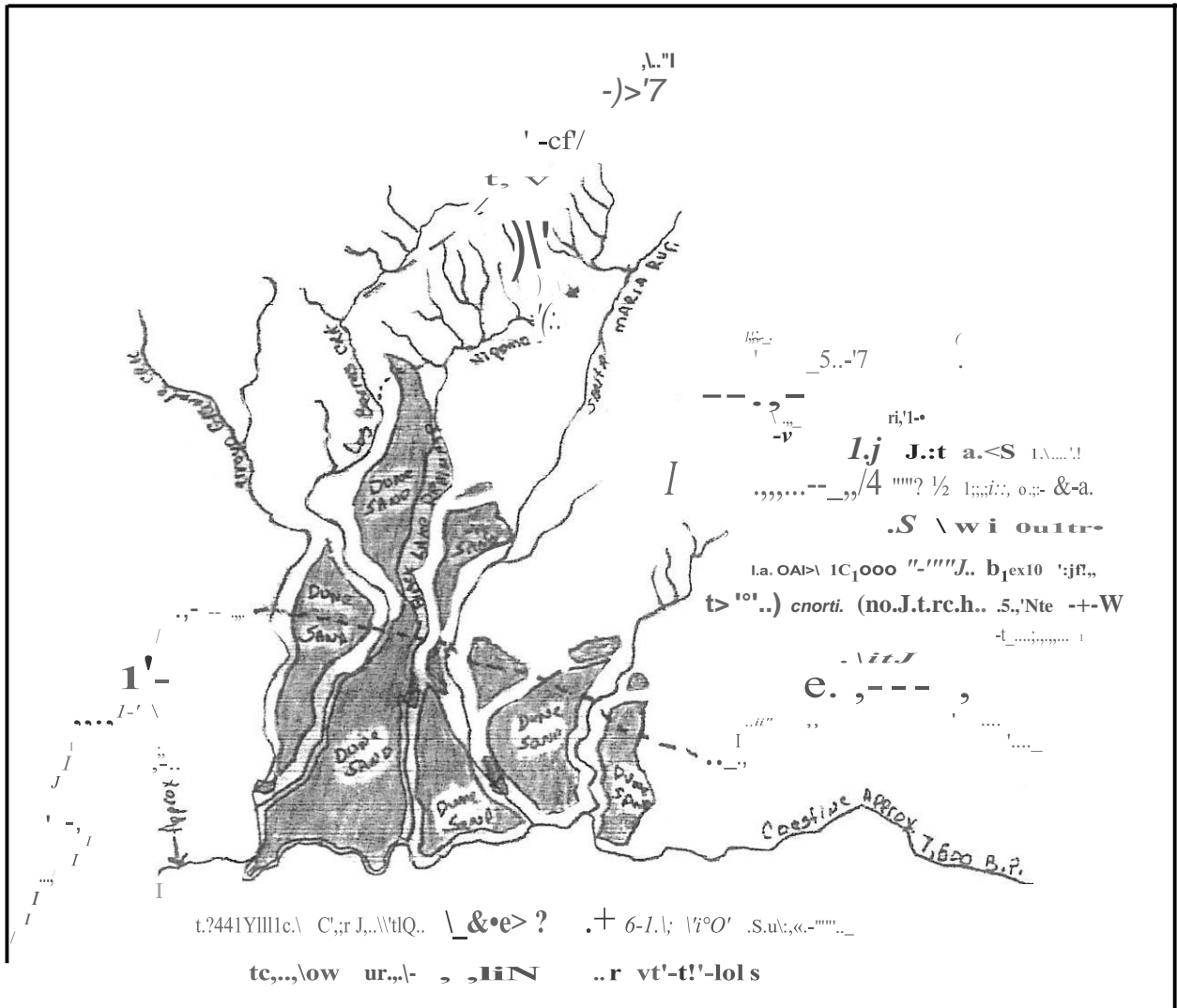


Figure 9: Nipomo Creek Watershed, 7,500 BP (Credit: Ralph Bishop)

Further encroachment of wind driven sand eventually blocked this direct seaward exit of Nipomo Creek. The subsequent build up of water in Nipomo valley found its weakest point to exit through a southern route. At this point, Nipomo Creek became a tributary of the Santa Maria River Watershed (Ardoin/Bishop 2004).

Today, the Nipomo Mesa, a large stabilized sand dune overlying an elevated Pleistocene terrace, is located to the immediate west of the main stem of Nipomo Creek and defines the westerly edge of the Nipomo Creek Watershed (Spanne, 1981). The interface of the adobe and sandy soils is a unique geological feature, and defines certain hydrological characteristics within the Nipomo Creek Watershed.

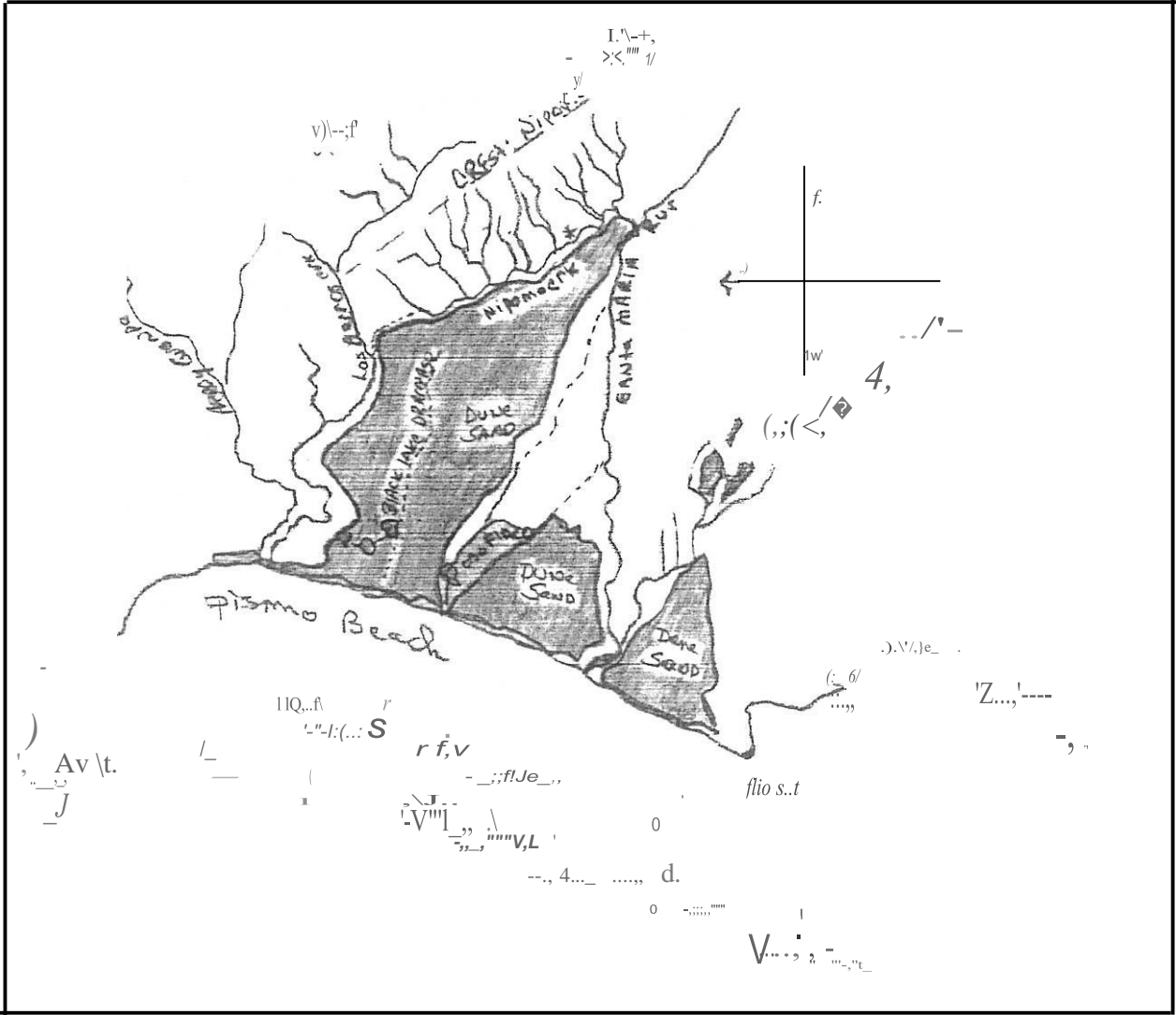


Figure 10: Nipomo Creek Watershed, Present Day (Credit: Ralph Bishop)

Soil Types

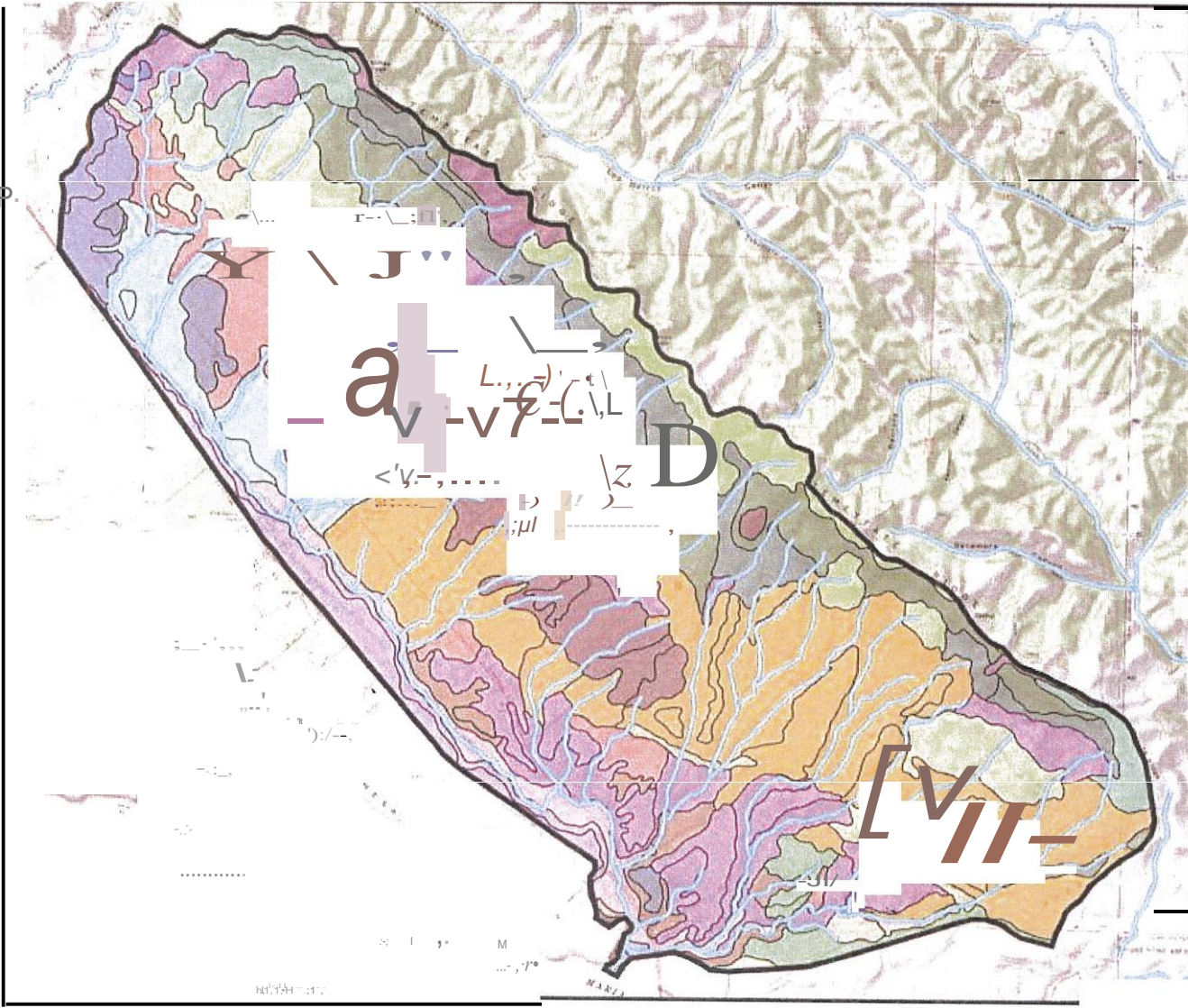
Examining local soil conditions is relevant to creeks in terms of bank stability, vegetation coverage, sedimentation transfer, and water absorption ability and its relationship with flooding. For example, in the stream reach demarcation section of this report, upper Nipomo Creek is described as having very little riparian vegetation and tree canopy coverage until a particular point where suddenly there is an abundance of vegetation and trees. When looking at the soils map of the watershed, there is a soil type conversion that occurs at the same place and may offer some explanation for this phenomenon.

As another example, there are a number of different soils in the watershed that are described below as having rapid surface runoff and high susceptibility towards water erosion. However, upon inspection of the soils location, there does not appear to be a direct correlation with the location of the actual erosion sites. This suggests that erosion in the Nipomo Creek Watershed might be more a function of land management practices than of particular soil characteristics.

Much of the upper watershed is comprised of heavy clay soils. These soils tend to have a good capacity for holding water, as they are known to shrink and swell between dry and wet times of the year. At the same time, during extremely wet times of the year, the clay soils will reach their maximum holding capacity, and will then begin to contribute significantly to stream flows during rain events. Thus, while the clay soils can hold a great deal of water, they do reach a point where they cannot hold water any longer, leading to compounded flooding problems downstream.

There are 24 different soil types found in the Nipomo Creek watershed, according to the United State Department of Agriculture Soil Conservation Service's *Soil Survey of San Luis Obispo, Coastal Part* (1984). A map showing the different soil types and their locations within the watershed follows on the next page. A complete list of the watershed's soil types and characteristics is found in Appendix I.

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**Nipomo Creek Watershed
 Soils Survey and Delineation**

Map Key:

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Map 3 of 5

Hydrology

Nipomo Creek meanders through the Nipomo Valley parallel to and east of Highway 101. About a mile before the Santa Maria River confluence, it flows westerly and crosses Highway 101. Precipitation falling on the western side of the Temettate Ridge accumulates in numerous small tributaries that carry runoff to the main stem of Nipomo Creek. The creek is unaged. An estimate of average annual base period runoff is 800-925 acre-feet (DWR, 2002).

A unique hydrological feature of the tributaries in Olde Towne Nipomo is that they are relatively similar in length and therefore during heavy rain events, floodwaters from each tributary tend to converge in the urban area at the same time.

Stream Reaches

For ease of reference, the various creeks that comprise the watershed were divided up into a standardized set of stream reaches in order to further evaluate and classify different sections of the watershed. The stream reaches consist of strictly demarcated lengths of the main stem and tributaries that share similar natural resources conditions or separate obvious breaks in the landscape. Each reach has then been qualitatively described in terms of its course, vegetation coverage, tree canopy, channel, bank conditions, and any other special concerns. These descriptions are based on field inspections, helicopter reconnaissance, and review of aerial photography. A map of the stream reach demarcations is found on the following page. The qualitative descriptions and a few photos of the reaches are found following the map. While reading the descriptions, it is useful to simultaneously refer to the map and photos.

Nipomo Creek Main Stem

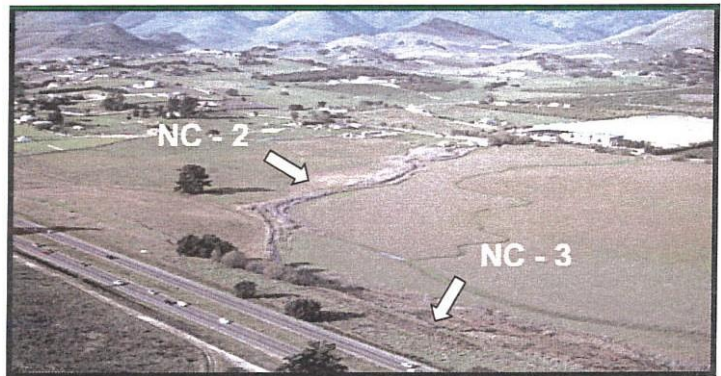
NC - 1: This reach is the uppermost section of the main stem. It begins in an area dominated by new, rural-estate subdivisions with lots ranging between 5 and 15 acres.



The topography is gently rolling. There is little to no riparian vegetation along this reach, with small willows representing what does exist. This reach primarily has the appearance of a swale. At the downstream terminus

of this reach, the creek has been straightened in order to accommodate a large greenhouse complex. This particular area is significantly degraded and features some rock fill.

NC - 2 to NC - 3: These reaches are in the lowlands of Nipomo Valley, which are predominately in agricultural use. These reaches have little riparian vegetation and have the appearance of a minor swale.



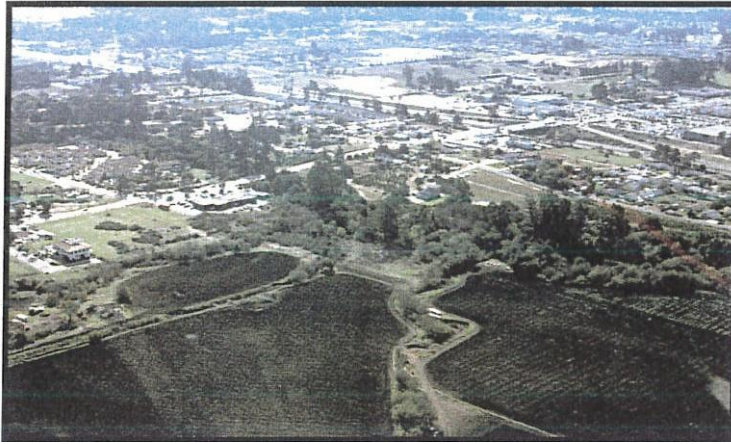
There are a few nice oaks and some smaller willows.



NC - 4 to NC - 5: These reaches contain healthy a

d abundant vegetation comprised of a mature tree canopy and understory associates. Non-native invasive vegetation also exists. Stream channels are shallow with sloped banks at some points and are deep with steep, eroded banks at other points.

NC - 6: This reach continues with the mature tree canopy and under story associates.



Non-native invasive vegetation also exists. This reach is host to three important confluence areas immediately upstream of the Old Towne Nipomo area. Stream channels are shallow with sloped banks at some points and are deep with steep,

eroded banks at other points. There are frequent debris dams present due to the proliferation of willows.

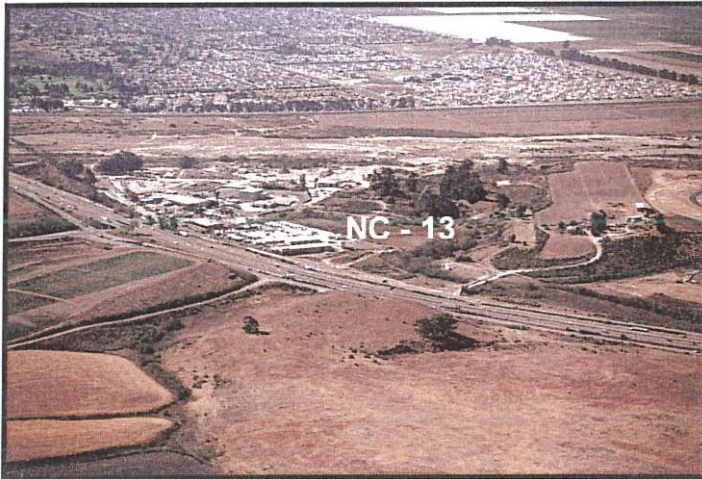
NC - 7 to NC - 8: These reaches contain mature tree canopy and under story associates. Non-native invasive vegetation also exists. Stream channels are shallow with sloped banks at some points and are deeply incised with steep, eroded banks at other points. The latter sections contain little riparian vegetation.

NC - 9 to NC - 11: In these reaches the creek widens out and flows into broad perennial wetlands and pools in several locations. These wetlands provide excellent wildlife

habitat, but are threatened by sedimentation transfer from upstream locations. Outside of the wetlands areas, there is little riparian vegetation and the channels are often deeply incised.



NC - 12 and NC- 13: These reaches also historically contained wetlands, but they are currently in a somewhat degraded state. There are several substandard bridges and



"Arizona" style crossings. The channels are mostly deeply incised with eroding banks. There is some riparian vegetation in places, but it is primarily absent. NC - 13 passes through various commercial and industrial developments.

Mehlschau Creek

MC - 1: The upper reach of Mehlschau Creek features two forks. The left-hand fork (when looking at the map) is located in a deep gully and offers mature canopy cover and stable stream banks. The right-hand fork is located on the other side of a small knob from the left-hand fork. It does not have much in the way of riparian vegetation and is a very minor tributary. The channel has the appearance of a swale. This reach demarcation ends just after the two forks meet.

MC- 2: This reach does not offer much in the way of native vegetation. There are some sparse, intermittent willows in the upper half of this reach. There is also a retention pond that has been built into the creek channel. At the lower half of this reach, the creek



travels through orchards where there is no vegetation at all. Near the end of the reach, at Thompson Road, there is a series of concrete steps that stretch across the entire stream channel. It appears that their purpose is for gradient control.

MC - 3: This reach has no riparian vegetation, except for a small stand of mixed trees adjacent to a residence at its beginning. The channel has the appearance of a swale.

Cavaletto Creek

CVC - 1: This reach offers some sparse riparian vegetation. The channel is primarily incised with steep banks. Towards the end of the reach the channel widens and the banks

here are more sloped.

CVC - 2: The creek is very minor here and has the appearance of a swale. There is no vegetation at all.

Deleissigues Creek

DLC - 1: This reach represents three smaller forks. The left and right-hand forks (when looking at the map) are further divided into smaller yet sub-forks. The middle fork does not have any sub-forks. The left-hand forks drain the side of steep hillsides. Riparian vegetation is intermittent, but the stream banks are in relatively good condition. The middle fork has very little vegetation. The right-hand fork has some intermittent vegetation in its upper sections before passing through orchards, where all native vegetation is absent. This reach ends at the confluence area of the three main forks where there is abundant riparian vegetation and tree canopy.

DLC-2: Near the beginning of this reach the creek passes underneath Mehlschau Road. Immediately at the downstream side of the bridge the creek is forced to make a ninety-



degree turn. At this location there is a massive erosion problem with the left bank (when looking downstream) being approximately twenty feet high. The right hand bank is filled with riprap. There is no vegetation as the ground cover has been entirely graded for agricultural purposes. After this

section, the creek continues through orchards where there is no vegetation. The final

section of this reach offers intermittent riparian vegetation and limited tree canopy before its end at Thompson Road.

DLC- 3: This reach is one of the more problematic in the entire watershed.

Immediately after crossing under Thompson Road, the creek interfaces with residential



development. Several inadequate flooding solutions have been tried here. The creek then continues for a short, undisturbed period where some intermittent riparian vegetation is present before it again passes by residential development.

There is a sharp bend in the creek that is immediately followed by an even sharper bend that forms a horseshoe shape. This area appears to have been one of the causes of flooding damage suffered by the aforementioned residences in March 2001. The creek continues to flow adjacent to these residences for a stretch before turning right towards the confluence with Nipomo Creek. There is both native and exotic vegetation present and intermittent tree canopy, including some nice oaks. The confluence zone offers rich vegetation and tree coverage. There are frequent debris dams located here due to the thick willows that are present.

Hermreck Creek

HMC - 1: This reach starts out either flowing through, or adjacent to, orchards and other agriculture. There is little or no vegetation in this area. After this, the creek flows through a graded agriculture field and features some intermittent vegetation. The channel is incised and often has steep, eroded banks. Following this, the creek travels through a new residential subdivision of approximately 100 homes. Currently, the first phases of construction have been completed. Where the creek flows through, the banks have been fenced off under an Army Corp permit condition to avoid sedimentation filling while construction is under way. The channel has been widened and the banks have been

graded back. There is a drainage weir installed at the end of this section right before the creek crosses under Thompson Road. Continuing downstream, the creek flows through



an underground culvert beneath residential development for two city blocks. Upon seeing daylight, the final section of this reach offers little riparian vegetation until right at the confluence area with

Nipomo Creek, where there is dense native and non-native vegetation and tree canopy cover. Debris dams tend to accumulate here due to the proliferation of willows in this area. The stream banks are severely eroded in several locations.

North Fork Haystack Creek

NHC - 1: This reach is comprised of two sub-forks. Both sub-forks drain the steep hillsides of Temettate Ridge. The left-hand fork (when looking at the map) flows through orchards until it reaches Foothill Road. There is no vegetation present in this section. After Foothill Road, there is intermittent vegetation and the channel is primarily incised up to the confluence with the right-hand fork. The right-hand fork features much more consistent riparian vegetation and tree canopy coverage than the left-hand fork does, and its channel and banks are in good condition.

NHC - 2: After the above described confluence zone, the vegetation and canopy coverage remains dense for a stretch before reaching more orchards where there is little or no vegetation. The stream banks and channels range from good condition to fair condition. Beyond this, the creek flows through residential and commercial development located in the Olde Towne Nipomo area. In this stretch the vegetation is intermittent and dominated by non-natives. The banks are often eroded and the channel is incised. Many



residents have attempted makeshift erosion and flood control efforts over the years in order to protect their properties. This reach should be considered a problem spot, although the multiple small lot ownership pattern of this

urbanized area would make comprehensive restoration efforts difficult to permit and implement.

South Fork Haystack Creek

SHC - 1: This reach is comprised of four sub-forks. Above Foothill Road all four feature intermittent vegetation and occasional tree coverage. At this point the forks could primarily be described as swales. Below Foothill Road the far left-hand and middle left-hand forks (when looking at the map) continue with the same characteristics. The far right-hand and middle right-hand forks contain more frequent vegetation and tree canopy coverage and feature nicely sloped banks. Where the far right-hand fork crosses Rancho Road there is a huge erosion sump on the downstream side that might have been caused when the culvert had become clogged and the water flowed over the road during a flooding event. The clogged culvert has been cleared, but the erosion sump remains.

SHC - 2: This reach is the area between where the above described sub-forks of South Haystack Creek have converged down to where the confluence with North Fork Haystack Creek is located. The reach briefly traverses a farm field where there is intermittent vegetation and tree canopy coverage before entering into the residential Olde Towne Nipomo area. The commentary for residential section of NHC - 2 applies to this reach, as well.

Haystack Creek Main Stem

HC- 3: As with SHC -2, the commentary for the residential section of NHC - 2 also applies to most of this reach. One of the more significant erosion problem areas is located near the corner of Mallagh and Tefft Streets at the Men's Club where a culvert exit is misdirected towards the side of the stream bank. As the creek approaches the confluence area with Nipomo Creek, the vegetation and tree canopy coverage becomes much thicker. There is a high percentage of non-native species present. Debris dams tend to accumulate here due to the proliferation of willows.

Dana Creek

DAC - 1: This short tributary features consistent riparian vegetation and some willow coverage. There is no other tree canopy coverage to speak of. The channels are moderately incised and the banks are somewhat steep and at times eroded.

Rancho Creek

RAC - 1: This reach begins in an orchard where there is no vegetation or tree coverage.



After this it cross under Thompson Road and featured some intermittent riparian vegetation and willow coverage until illegal grubbing activities were undertaken in the fall of 2004. An enforcement case ensued thereafter.

Adobe Creek

AC - 1: This reach features begins with robust riparian vegetation and willow coverage. There are a few nice oak trees. After is crosses under Thompson Road, it is devoid of

Middle Fork Wineman Creek

MWC - 1: This reach starts at the base of some very attractive rock outcroppings. It also features two forks. The left-hand fork (when looking at the map) begins with consistent riparian vegetation and tree canopy coverage and a shallow channel with sloped banks. Further down, however, the coverage ceases and the channel becomes more incised. The right-hand fork is similar to this in its entirety.

South Fork Wineman Creek

SWC - **1:** The South Fork of Wineman Creek is comprised of three sub-forks. Beginning at the side of the base of the same rock outcroppings described with MWC - 1, all three sub-forks feature generally good riparian vegetation and tree canopy coverage, with some intermittent blank spots along the way. The conditions of the stream channels and banks range from good to fair.

SWC - **2:** This reach features the primary creek channel, with a smaller swale joining it at about its halfway mark. The primary section has intermittent vegetation and tree coverage. The channel tends to be somewhat incised, leaving steeply sloped banks.

Wineman Creek

WC - **3:** This final reach collects the north fork, middle fork, and south fork of Wineman Creek. Surprisingly, it appears as a relatively minor section of creek. There are a few



trees and some riparian vegetation present. This reach is primarily incised to a depth of about two feet. The channel is about three feet across and the banks are vertical. There are several dirt roads crossing over the creek.

Nipomo Creek Flood Insurance Study Peak Discharge

The Federal Emergency Management Agency (FEMA) publishes information that is used to determine flood insurance rates for homeowners. The peak discharge flow is the

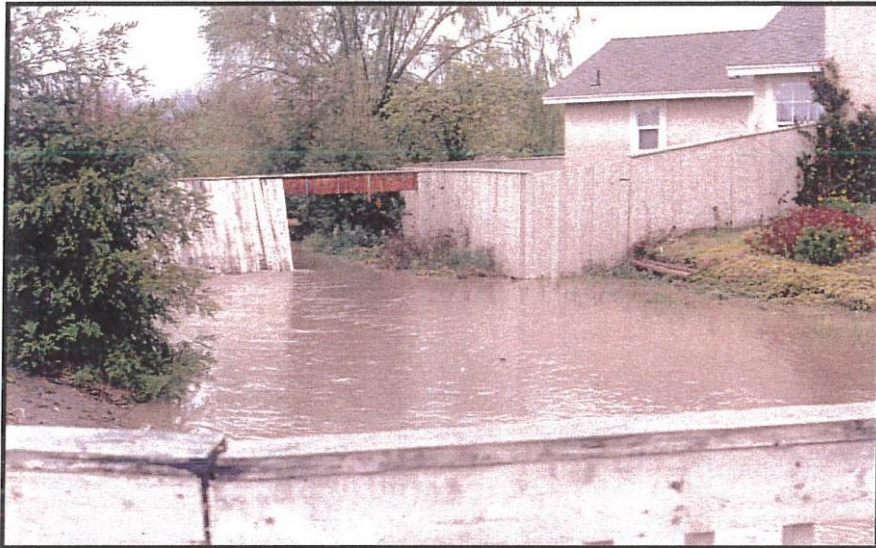


Figure 13: Flooding in Olde Towne Nipomo on Mallagh Street

passing in the creek. As the watershed develops and there is an increase in impervious surfaces, peak discharge per storm event is predicted to increase as the system becomes "flashier;" bank erosion typically increases, incising the creek channel, and groundwater recharge is reduced.

volume of water expected to flow at each of the depicted storm events. For example, every ten years at Tefft Street, on average, there is expected to be 1,290 cubic feet per second

FEMA Peak Discharge Flows:

Nipomo Creek	Area (sq.mi.)	Peak Discharge (cfs)			
		10-Year	50-year	100-year	500-year
At Tefft Rd	10.5	1290	4100	5900	12800
At confluence with Santa Maria River	19.3	1740	5600	8000	17400

Riparian Cover

Aerial photos were used to depict riparian conditions of each tributary. Each reach was measured in linear meters and linear feet, riparian cover for each reach was measured in meters and feet, and percent cover was calculated for each reach. In addition, riparian cover and associated agricultural land use were characterized and measured in linear feet and cover in feet, and percent cover for each was estimated.

Nipomo Creek Watershed Riparian Cover:

Creek Name	Linear meters	linear feet	riparian cover (m)	riparian cover (ft)	% cover
Nipomo Mainstem	18641	61515.3	8282	27330.6	44.4
Mehlscau	5338	17615.4	1718	5669.4	32.2
Cavaletto	3239	10688.7	295	973.5	9.1
Deleissigues	14452	47691.6	4973	16410.9	34.4
N Fork Haystack	6785	22390.5	2867	9461.1	42.3
S. Fork Haystack	11732	38715.6	3020	9966	25.7
Hermrick	3502	11556.6	300	990	8.6
Dana	642	2118.6	130	429	20.2
Rancho	1857	6128.1	237	782.1	12.8
Carillo	9840	32472	4315	14239.5	43.9
Adobe	1416	4672.8	300	990	21.2
Rocky	7223	23835.9	3032	10005.6	42.0
N ForkDunn	5211	17196.3	2475	8167.5	47.5
S. Fork Dunn	11313	37332.9	6693	22086.9	59.2
Burson	1567	5171.1	464	1531.2	29.6
N Fork Wineman	13439	44348.7	5952	19641.6	44.3
Middle Fork Wineman	4696	15496.8	1930	6369	41.1
S Fork Wineman	10696	35296.8	3733	12318.9	34.9
Bull	1173	3870.9	700	2310	59.7
Total	132762	438114.6	51416	169672.8	38.7
Miles		82.97625		32.135	38.7
Total watershed area	18459 acres				

Riparian Cover by Land Use:

	linear ft	cover (ft)	% cover
lower row crop/development	196892.4	68912.34	35
middle orchard	88209	31755.24	36
upper rangeland	153013.2	68855.94	45

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As development proceeds, it is recommended that creek set-backs be adhered to in order to protect infrastructure and associated activities such as agriculture. The wider the riparian set back corridor, the more protection is offered for human habitation. In addition, flood plain areas with riparian cover function to filter floodwaters allowing for sediment to be caught before entering the main channel. In this way, the riparian flood plain protects the main channel's water quality.

In the aftermath of hurricanes in the southeast, one might wonder how the events are applicable in our smaller watersheds. It is intrinsic to any watershed for vegetation to function as the flood sink and act to absorb storm surges and peak flows. Therefore, guarding flood plains with enforceable codes and ordinances is a cost saving measure when considering long term flood protection in any sized watershed.

Water Quantity

Historical precipitation information is available for the Nipomo Valley from 1921 to 2000 from station Nipomo 2NW (DWR, 2002). The long-term mean precipitation for Nipomo Valley is 16.29 inches. See Appendix II for DWR discussion of precipitation data for Nipomo 2NW.

There has been much inspection of groundwater resources during the past eight-year-long groundwater litigation between the Santa Maria Valley Water Conservation District and the City of Santa Maria, and is summarized in the Relationship to Existing Plans section of this plan. Groundwater resources are pertinent to the Nipomo Creek Watershed for its capacity to recharge the groundwater aquifer, and groundwater extractions can have an impact on surface flow and is a predictor of riparian habitat health along the creek.

Stream infiltration from Nipomo Creek and tributary surface flow is one of several sources of groundwater recharge in the valley. Groundwater is also recharged via deep percolation of direct precipitation, deep percolation of applied water and septic tank effluent, and subsurface inflows from Temettate Ridge (DWR, 2002).

Land Ownership

In order to assess land ownership patterns in the watershed, assessor's parcel pages for the entire watershed were purchased from the county assessor's office. Although an assessor's parcel page does not always represent an exact property boundary survey and assessor's parcels are not necessarily legal lots, these records were deemed to be sufficient enough to get an idea of where property boundaries are located. Each page was carefully digitized into separate polygons for each parcel using Geographic Information Systems software. While doing this, each new polygon was also assigned the appropriate Assessor's Parcel Number in the data table. Once this task was complete, the assessor's records were purchased, which include the owner's name and address, land values, improvement values, and homeowner's exemptions. This data was then, in turn, linked to the APN-based data structure prepared while mapping the parcel boundaries. The end product is that land parcels in the watershed are now in digital format so that they can be overlaid on top of aerial photos or digital topographic maps, and each parcel can also be readily queried for ownership information. Parcels located within the Nipomo Urban Reserve Line were not included in this process because these residential sized parcels are generally too small to yield any appreciable conservation value.

With a digitized parcel database now available, it is possible to quickly determine some of the important land ownership patterns ¹. Examples of relevant land ownership patterns are as follows:

- Total number of parcels digitized: 402
- Range of parcel sizes: 0.21 to 718.48 acres
- Mean parcel size: 42.35 acres
- Parcels in private ownership: 99.4%
- 102 owners claim homeowner's exemptions
- 220 parcels have improved values

- 24% of the parcels have been owned since before 1960²
43% of the parcels have been owned since before 1980
- 30.6% of the watershed is owned by one family
- 72.6% of the watershed is owned by fourteen families

This information indicates that the majority of the watershed is in the private ownership of a few families whom have owned their land for a long period of time. There are many parcels that have only changed hands once or twice since they were first platted.

Parcel sizes tend to be fairly large, although there is wide range of sizes. About half the parcels are improved in some way, and about 25% are owner-occupied. In addition, there is a large lot, estate-style subdivision in the northern portion of the watershed, and several antiquated subdivisions in the middle and southern portions.

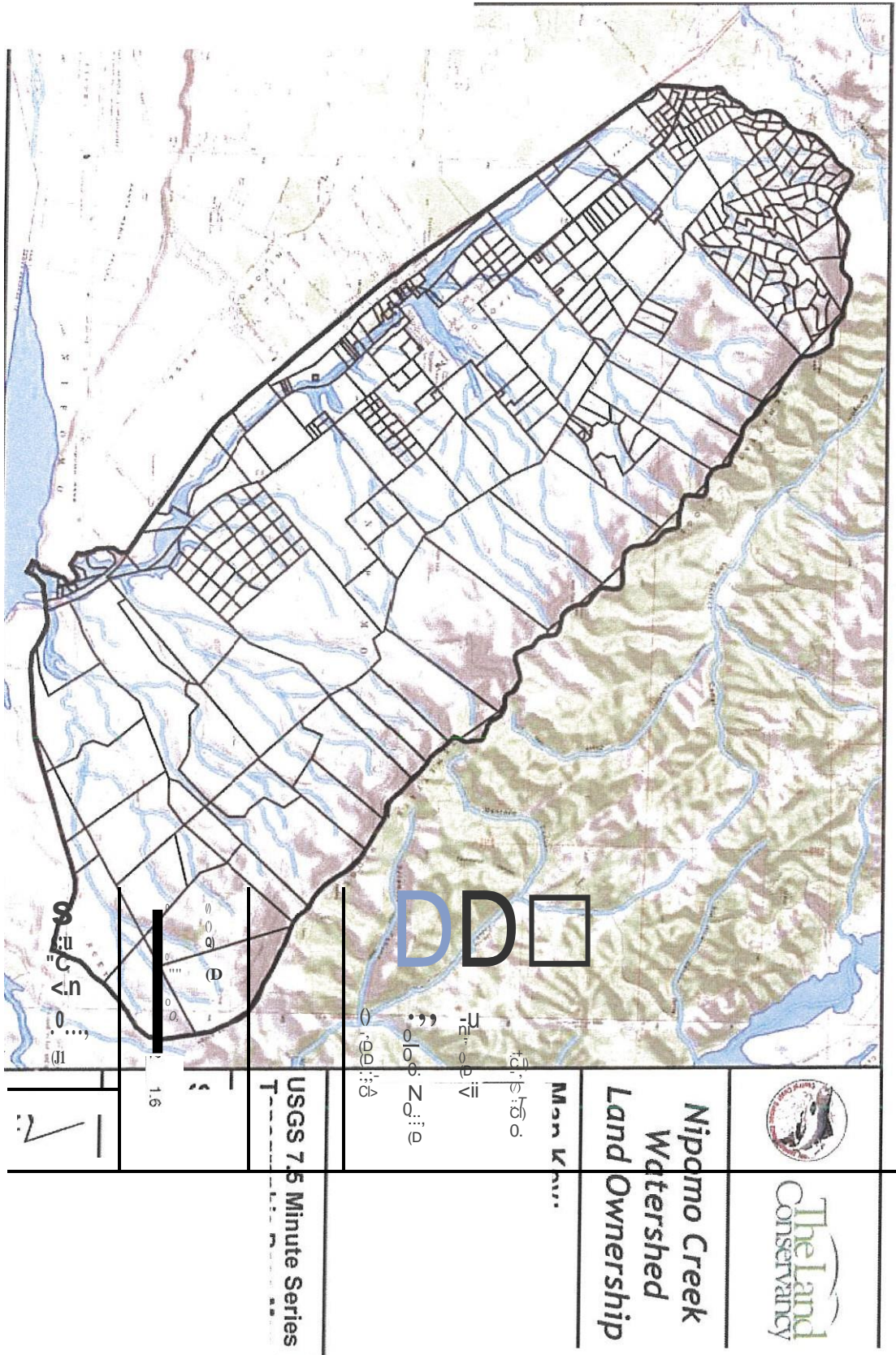
These antiquated subdivisions may become problematic in the future as pressure for rural residential development continues. A recent effort to secure a General Plan Amendment to enable the residential development of the antiquated subdivision known as the "Tri W Enterprises" site near the south side of Olde Towne Nipomo was denied at the Board of Supervisors level. The Pogue Brothers subdivision in the lower watershed would also be similarly difficult to develop due to the lack of access from a public road; but nonetheless, these parcels include many underlying legal lots which if developed would greatly impact the character and functionality of the watershed.

A map showing the parcels in the watershed is found on the next page. Following that is a copy of a map of H.C. Ward's resubdivision of the original Rancho Nipomo in 1878. This map is of great interest insofar as it also shows streams as they appeared at that time, as well as important historical sites, such as the location of the Dana Adobe. When comparing the modern parcel configuration with that of 1878, it is clear that many of the parcels in the watershed remain unchanged since that time.

¹ As a matter of policy, the Land Conservancy does not include landowner's names in reports such as this one until they have stepped forward and said that they are willing to participate or are interested in participating in the program.

The assessor's records appear to begin in 1953. However, many of these ownerships are likely to be older.

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Biology

One of the goals of the Nipomo Creek Watershed Program was to establish on going biological monitoring programs of riparian and adjacent corridors. To that end, riparian habitat assessments were conducted on selected properties where access permission was granted. In addition, several previously conducted surveys' species lists are provided in an effort to compile as many independent assessments as possible to inform long term monitoring (See species lists in Appendix III).

Riparian Habitat Assessments

Dana Adobe

Vegetation sampling for the portion of Nipomo Creek running through the Dana Adobe property was performed in winter 2004 and spring 2005. It was determined through these sampling efforts that a dense woody canopy covering the stream channel characterizes the vegetation in the Dana Adobe riparian corridor. The canopy growth is dominated by native shrubs and trees, including Arroyo Willow (*Salix lasiolepis*), Box Elder (*Acer negundo*), and Coast Live Oak (*Quercus agrifolia*). The woody overstory abruptly ends at the edge of the stream bank, where it is replaced with a grassland habitat dominated by non-native annual grasses and forbs. It is at the ecotone between these two community types that the majority of invasive species are found. Small populations of Poison Hemlock (*Conium maculatum*), Veldt Grass (*Ehrharta calycina*), and Italian Thistle (*Carduus pycnocephalus*) are located adjacent to waterways. In addition, there are founder populations of Periwinkle (*Vinca major*) and German Ivy (*Senecio mikanioides*) growing along the stream banks at the northern most boundary of the property. Invasive weeds at the Dana Adobe property appear to be founder populations that are feasible to manage if action is taken immediately. If no action is taken, they will quickly travel down the waterway and have profound affects on the native vegetation.

The stream channel is well defined with an average width of 20 feet and average bank height of 15 feet. A canopy of native plants shades approximately 95% of the stream channel. The heavy rains of 2005 have had severe impacts on the channel dynamics for

the portion of Nipomo Creek flowing through the Dana Adobe property. First, the fence at the north-most-end of the property blew out and traveled downstream. The fence, along with hundreds of pounds of debris, accumulated in two locations along the creek.

The debris, which includes plant material, old appliances, and trash, is being held in place by dense thickets of willows. This build-up of debris is impeding water flow and will undoubtedly result in bank erosion in these locations. Five exotic catfish were found in shallow pools upstream of the debris dam, and as the water filtered through the debris, the catfish were left behind to die. The heavy water flow from 2005 also contributed to the destruction and uprooting of many plant species in the riparian corridor.

Flowing water was found in the channel during winter and spring, however, the flow was not continuous and the water levels were low. Thus, it is doubtful that this portion of the creek can sustain any migratory fish populations. Crayfish, bullfrogs, and catfish were found living in the deepest waters, it is unknown if these populations will be able to survive through the drought seasons. The persistence of water in portions of the creek sustains a handful of native fresh water marsh species, including Cat Tail (*Typha* sp.), Fresh Water Parsley (*Oenanthe sarmentosa*), and Spiny Juncus (*Juncus acutus*).

The Dana Adobe riparian corridor is an ideal site for a restoration project for two reasons. First, the Dana Adobe property has relatively small fowl populations of invaders, but these populations would be easy to remove given their small size. In addition, the Dana Adobe riparian corridor has a number of established plant communities found both within and adjacent to the waterway. For example, the areas with standing water have remnants of freshwater marsh plant populations. In addition, the northern boundary of the property has relatively pristine Coast Live Oak woodland with a fair amount of juvenile oak recruitment.

Adobe Plaza

The Adobe Plaza site was surveyed in winter 2004 and spring 2005. The Adobe Plaza property, owned by the Land Conservancy and known as the Olde Towne Nipomo Creekside Preserve, has a large-scale restoration project currently underway. The bluffs adjacent to the riparian corridor have been planted with coastal scrub, chaparral, and

riparian species (not included in survey). Re-vegetation efforts have not yet extended into the riparian zone. The riparian corridor is dominated by Coast Live Oak (*Quercus agrifolia*) and Arroyo Willow (*Salix lasiolepis*). The under story growing along the stream banks is dominated by two invasive species: Periwinkle (*Vinca major*) and German Ivy (*Senecio mikanioides*). Removal of these two exotic species is critical to successful revegetation of the stream banks. The populations of Periwinkle and Ivy were sprayed in 2004, at the time of the winter 2004 survey the majority of the plants were dead. In spring 2005, all populations of invasives were burgeoning. Weed removal efforts at this location will need to be continued frequently throughout many seasons, and possibly many years.

The stream channel at Adobe Plaza is approximately 20 feet wide and 25 feet high. Standing water appears to be seasonal because no water was found during the winter 2004 survey. The stream banks in many parts of the corridor are extremely eroded.

Many locations along the banks have exposed soil (no under story) and exposed tree roots. Efforts to stabilize the stream banks and redirect water flow have begun in the stream channel. Bio-logs are currently being used to divert water flow. In the future, efforts need to be



Figure 16: Bank Stabilization Efforts at Adobe Plaza

Focused on removing non-native species and replanting with aggressive, fast growing natives to stabilize stream banks-and reduce erosion.

Lower Creek Wetland Property

Vegetation sampling on this property was performed in Spring 2005. From a distance, vegetative zonation can be seen at this site. When standing along the road, the riparian corridor is distinct in the distance. Adjacent to the riparian corridor is a freshwater marsh

habitat dominated by Cat Tail (*Typha* sp.), Sedges (*Scirpus* sp.), and Rushes (*Juncus* sp.). Non-native grasses and forbs dominate the remaining portion of the land closest to the speedway parking lot. This area appears to be a fallow field, which has had much disturbance in the past.

The riparian corridor runs directly adjacent to the Nipomo Creek stream channel. The water level at this site is so high that no stream banks are apparent. Above the water line the ground slopes up mildly, and ultimately plateaus. It is on this mild slope that the riparian vegetation is found. The riparian vegetation is dominated by willows, and provides the stream with approximately 70% shading. The water in the stream channel is not flowing, rather it appears that it pools in this area year round. It is questionable whether the formation of this pond is a natural phenomenon. While surveying this site the surveyor spoke with a nearby resident who indicated that historically there was no pooling of water at this location, and consequently there was no flooding of the adjacent lands (i.e. no freshwater marsh community). He suggested that the creek channel downstream has been drastically modified, with water being diverted and parts of the stream being back filled. Whether this anecdotal evidence holds any weight warrants further investigation.

Radiating out from the riparian corridor is a freshwater marsh community. Within the freshwater marsh community there are two zones. The first is closest to the riparian corridor and is characterized by having soil that is completely saturated with water. The water level in this "wet" zone is approximately one foot high. The vegetation is dominated by Cat Tail (*Typha* sp.), Sedges (*Scirpus* sp.), and Rushes (*Juncus* sp.). In addition, this area is able to support a unique assemblage of water loving birds (a Night Heron was seen hunting). The second zone consists of mesic soil with very little standing water. Surprisingly, this area was lacking many of the native species expected to be seen growing along the drier parts of a freshwater marsh. There were a few isolated populations of native Rushes and Sedges, but the majority of the mesic zone was dominated by non-native grasses and forbs (primarily *Polypogon monspeliensis*, *Lolium multiflorum*, and *Rumex* sp.).

Fisheries Considerations

The Southern California Steelhead Trout was listed as endangered by NOAA Fisheries on August 18, 1997. It is listed as a threatened species in the South Central Coast ESU. The demarcation between the southern and central coast ESU is the Santa Maria River.

Steelhead are an anadromous form of rainbow trout that reproduce in freshwater, but spend much of their life cycle in the ocean, where increased prey density provides a greater growth rate and size.

The position of the watershed in a regional context, as a subwatershed of the Santa Maria River, suggests that Steelhead once existed in the main stem of Nipomo Creek. Due to lack of perennial flow in the Santa Maria River with the installation of Twitchell Dam, the remaining flow from the Sisquoc River (a tributary to the Santa Maria River) does not currently support a steelhead run within the lower Santa Maria River Watershed. The RWQCB CCAMP program, discussed below, indicates that Nipomo Creek's water temperatures are no longer sufficient to harbor cold-water fish species. The NCSD's Sphere of Influence Final Environmental Impact Report does however list Steelhead trout (*Oncorhynchus mykiss*) as being found in the Nipomo area (May, 2004) as does the Bjorn EIR for the Asphalt Plant (August, 2005). Historical information suggests that the Santa Maria River supported a steelhead run in the early 1900s. Currently, there is no evidence suggesting this species has been present for several decades. However, it is assumed this species has the potential to occur within Nipomo Creek (Bjorn EIR, 2004). There are also anecdotal accounts of Steelhead presence in the watershed from long-time residents of the watershed as depicted in the history section above.

Water Quality

Surface water quality in Nipomo Creek was monitored through a volunteer monitoring program as part of the Nipomo Creek Watershed Program during 2004. In addition, water quality has been tracked by the Regional Water Quality Control Board's monitoring program called the Central Coast Ambient Monitoring Program (CCAMP) during 2000-2001. Results of water monitoring are compiled in Appendix IV.

Beneficial uses for surface water are divided into twenty (20) standard categories (RWQCB, 1994). Nipomo Creek no longer supports the water contact recreation beneficial use and non-contact water recreation beneficial use. In addition, the aquatic life beneficial use is currently listed as threatened.

Status of Nipomo Creek Water Quality

Nipomo Creek is currently listed as an impaired body of water by the Central Coast Regional Water Quality Control Board (RWQCB) for fecal coliform with a start date of March 10, 2004. The listing resulted from water quality sampling conducted during the 2000-2001 sampling rotation and led to the board's requirement of a TMDL, described below. The monitoring listing identification is 819 and the project identification is 596.

Total Maximum Daily Load (TMDL) is the amount of a particular material that a waterway can absorb on a regular basis and still remain safe for the beneficial uses designated for that water body. Section 303 of the Clean Water Act requires development of a TMDL for threatened or impaired waters. The designation as threatened or impaired (commonly referred to as the "303(d) list") identifies the pollutant or stressor causing the threatened or impaired condition of each water body. A TMDL must be developed for each stressor or pollutant for each water body threatened or impaired. The Clean Water Act requires that TMDLs be incorporated into the state's water quality management plan (which consists of Regional Board Basin Plans). Potier Cologne Water Quality Control Act, in turn, requires that Basin Plans have a program of implementation to achieve water quality objectives (Watershed Management Initiative, Central Coast RWQCB, January, 2002).

Nipomo Creek is proposed on the current draft 303(d) list of impaired water bodies list. The recommendation is to retain Nipomo Creek on the list for fecal coliform. The Santa Maria River is listed for several constituents including ammonia, chlorpyrifos, DDT, Dieldrin and Endrin. By proactively protecting this tributary, the water quality of surface flow entering the larger system, will in turn be protected. Based on the CCAMP monitoring, additional constituents of concern include:

- Ammonia as N (single sample indicates cause for concern)
- Chlorophyll a (single sample indicates cause for concern)
- Fecal coliform (not supporting some beneficial uses)
- Total coliform (not supporting some beneficial uses)
- Dissolved oxygen (partially supporting beneficial uses)
- Oxygen Saturation (not supporting some beneficial uses)
- pH (a single sample indicates cause for concern)

Volunteer Water Quality Monitoring

Volunteer water quality monitoring sites were chosen along the wetted sections of the watershed given that most of the tributaries within the watershed are seasonal drainages and do not contain perennial flow. Approximately 90% of the watershed is on private property. Sites were chosen that were legally accessible at road crossing or where landowner access was granted, and to maintain consistency with the RWQCB's monitoring protocol.

Typical monthly water monitoring locations (flow dependent):

1. Upper main stem Nipomo Creek @ Thompson Rd

This site will most likely be sampled only during storm events. Surface flow is not apparent at this site but sampling at this location will give data from ranching and orchard operations immediately upstream of the site. The very upper portion of the watershed looks to be very small as three

parts per million (ppm). Nitrate levels above 40 ppm are considered unsafe for drinking water.

Phosphorus is a nutrient that acts as a fertilizer for aquatic plants. When nutrient levels are high, excessive plant and algae growth creates water quality problems. Phosphorus occurs in natural waters in the form of phosphates (P₄). Over half the phosphates in lakes, streams and rivers come from detergents. Phosphate levels higher than 0.003 ppm contribute to increased plant growth.

pH is the measurement of hydrogen ions in a water sample. The pH scale ranges from 0 to 14. Water samples with a pH value below 7 are considered acidic, above 7 are basic, and 7.0 is considered neutral. A pH range of 6.5 to 8.2 is optimal for most organisms. Rapidly growing algae and vegetation remove carbon dioxide (CO₂) from the water during photosynthesis. This can result in a significant increase in pH.

Turbidity is the measurement of the relative clarity of the water. Suspended colloidal matter such as silt, clay, organic and inorganic matter, and microscopic organisms causes turbid water. Turbidity should not be confused with color, since darkly colored water can still be clear and not turbid. Turbid water may be the result of soil erosion, urban run-off, algal blooms, and bottom sediment disturbances, which can be caused by abundant bottom feeders. Temperature is very important to water quality.

Temperature affects the amount of dissolved oxygen in the water, the rate of photosynthesis by aquatic plants, and the sensitivity of organisms to toxic wastes, parasites and disease. Thermal pollution, the discharge of heated water from industrial operations, for example, can cause temperature changes that threaten the balance of aquatic systems.

Dissolved Oxygen levels below 3 ppm are stressful to most aquatic organisms. Dissolved Oxygen levels below 2 or 1 ppm will not support fish. Levels of 5 to 6 ppm are usually required for growth and activity.

Demographics

According to the 2000 census the Nipomo area is home to 12,626 residents with 4,146 dwelling units. The NCSD now serves approximately 10,000 residents compared to an estimated 5,700 in 1990. Over the last 20 years, Nipomo's population has increased by approximately 7,379 people or 140%. This equates to an estimated 7% per year rate of population increase over the 20-year period. From 1980 to 1990, the community of Nipomo increased by 1,862, a 35.5% increase, an average growth rate of 3.55% per year. In the 1990's, Nipomo's population increased by 5,517 residents, a 10 year growth rate of 77.6%. The annual population growth rate for that last decade was an average of 7.8% (Sphere of Influence Update, Municipal Service Review, SLO Local Agency Formation Commission, 2004; http://www.slolafco.com/SOI_Updates.html).

A detailed review of demographics of the area and projections for the future are included in the population section of the Sphere of Influence BIR, as well as in the Growth Management Ordinance BIR. For the purposes of this report, it is critical to stress that as population grows, water resources must be integrally managed to ensure maximum recharge to the ground water while reducing flood impacts to Nipomo Creek.

Benefits to Landowners and Community

As landowners, community members, agencies and organizations discussed the issues and existing conditions within the watershed, they have gained new perspectives about other stakeholders' needs and the resources the community depends upon. With the assistance of the information in the plan, landowners will be able to implement projects that benefit not only their own property but benefit the environment as well. Projects, such as bank stabilization, ensure the landowner will retain his/her "property" while protecting habitat by reducing excess sediment inputs to the stream. Tools provided in this plan will facilitate project design, permitting and planning.

In addition to project design and implementation information, financial support will be developed using this plan as a basis for grant applications. Landowners will be able seek funding to complete projects defined in this plan. Funding opportunities are available for on the ground projects, installation of management practices and for landowners interested in easements to achieve specific objectives. It is advisable for all landowners to direct questions about permitted land use practices to agencies prior to initiating activities that could impact natural resources.



Recommended Projects

The following set of projects has been developed based on landowner and steering committee input, projects previously identified by the Land Conservancy of San Luis Obispo County in the two primary documents produced as part of the Nipomo Creek Watershed Program (*Watershed Characterization Report* and *Nipomo Creek Watershed Program Final Report of Concept Recommendations For Short-Term Project Implementation*), the Nipomo Community Drainage and Flood Control Study and previous documents produced by the Nipomo Creek Committee.

Nipomo Creek Watershed Program Final Report of Concept Recommendations for Short-Term Project Implementation

The Land Conservancy is proposing five projects that have arisen out of the landowner outreach process and are the primary projects for subsequent funding requests from the Restoration Subcommittee. Each project is summarized here. The proposed projects address Guadalupe Settlement Funding Criteria based on a biological and water quality nexus between the Nipomo Creek Watershed and the Guadalupe-Nipomo Dunes.

The Nipomo Creek watershed is linked hydrologically to the Guadalupe-Nipomo Dunes as a tributary system of the Santa Maria River watershed providing surface flow and, geologically as a source of alluvial material for the dunes ecosystem. In addition, both watersheds share the same groundwater basin.

The majority of the recommended projects are water quality improvement projects which serve to benefit surface flow particularly regarding sedimentation reduction. A more detailed narrative of water quality improvements accompanies the project descriptions.

In addition, the majority of the projects provide habitat continuity despite the impact of fragmentation of habitat between the dunes system and the Nipomo Creek watershed. Nipomo Creek is believed to be a migration corridor for wildlife species moving within the region and coastal habitat to the west. These migration corridors are especially critical through areas where human activities (i.e., urban development, agricultural development, etc.) would otherwise prohibit or impair the movement of species between habitat areas (Bjorn EIR, 2004).

Riparian Restoration Project

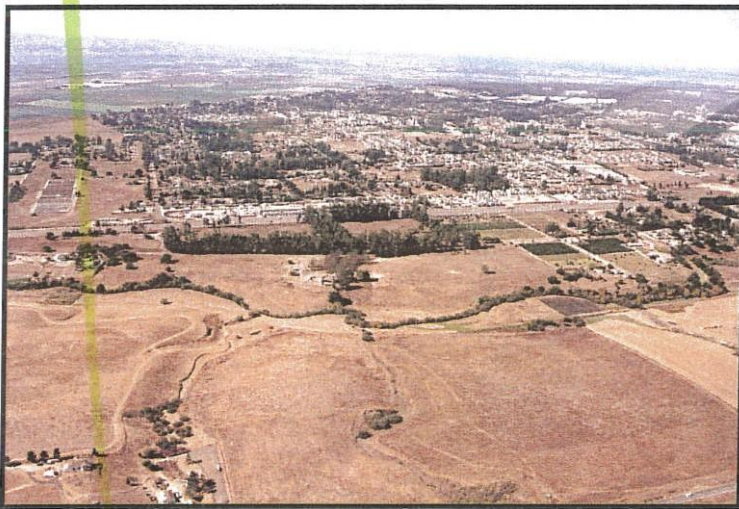
The purpose of this project is to restore a portion of the main stem of Nipomo Creek where two large eucalyptus trees have fallen into the stream channel, thereby disrupting the hydrological function of the stretch and causing significant erosion problems, both at the site and downstream. The project site is particularly important because it is in the immediate vicinity of several confluence areas with tributaries to Nipomo Creek, and is located just upstream from the Olde Towne Nipomo area where significant flooding has occurred over the years. There is also a historically important, natural, artesian spring that has been impacted by the hydrological changes that have occurred as a result of the two trees that have fallen into the channel. The work proposed to be performed includes the removal of both fallen trees followed by the stabilization and re-planting of the impacted stream banks. This project will reduce bank erosion and improve surface flow water quality.

Invasive Species Removal Project

The purpose of this project is to implement an invasive species removal regime on a property where significant infestations of periwinkle (*Vinca minor*) have overtaken the native riparian vegetation. Large portions of the project site are periwinkle monoculture, providing very little ecological benefit to the project vicinity. The entire riparian corridor on the property will be protected by a permanent conservation easement. In addition, as part of the easement, the landowner has agreed to provide limited public access for hiking and nature watching as an extension of the trail which currently exists along the creek on the Dana Adobe property (see separate discussion of this property in the ensuing pages of this report). The conservation easement on this property would protect an approximately ¼ mile length of Nipomo Creek. The total size of the easement would be approximately three acres (1,320 feet long by 100 feet wide). The conservation easement associated with this project and the acquisition of the Dana Adobe property, taken together, would represent the permanent protection of nearly one contiguous mile of the main stem of Nipomo Creek.

The /Jana Adobe Cultural Landscape and Riparian Restoration Project

This project centers around the fee simple acquisition of the 40 acre property that immediately surrounds the historic Dana Adobe, located on South Oak Glen Road. The Laud Conservancy has recently entered into an informal partnership with the non-profit Dana Adobe Nipomo Amigos (DANA) whom also desires to acquire the property in order to protect the extremely important historical resources and cultural landscape associated with the Dana Adobe structure itself. Although the Dana Adobe and the ¼ acre parcel it sits on today had been owned by the San Luis Obispo County Historical Society since 1954 until it was recently deeded from the Historical Society to DANA, the surrounding 40-acre landscape for which the adobe was originally sited remains in private ownership.



In addition to its unparalleled historical resources, this property also includes nearly ¾ of a mile of Nipomo Creek, as well as the confluence area of Nipomo Creek with two seasonal tributaries. As such, the property represents one of the longest intact stretches of

Figure 17: The Dana Adobe Cultural Landscape

Nipomo Creek in a single ownership in the entire watershed. For the most part, the riparian resources located on the property are in excellent condition, exhibiting a good mix of native species and a healthy canopy cover. There are, however, a few areas where restoration activities would be desirable. The proposed restoration includes the stabilization and revegetation of two separate sections of eroded stream bank that are now vertical from top to bottom, as well as the removal of an old, junked car that lies within the stream channel and is causing undesirable hydrological changes in that area leading to further erosion problems. This project will reduce bank erosion and improve surface flow water quality.

The long-term vision for the property is to create a "living history park" in which members of the public will have the opportunity to interpret the unique cultural and natural history that is germane to this property in a restored and easily accessible environment. This includes DANA's goal of completing the restoration of the adobe itself and the construction of other historically contextual visitor serving amenities, including a visitor center museum in which a long-time Nipomo resident's collection of local geological and paleontological artifacts can be displayed, and a natural, outdoor amphitheater where community events can take place. For the Land Conservancy's part, the long-term goal is to re-establish a stable and healthy riparian system on the property, and also to provide hikes where the interpretation of the natural history of Nipomo Creek that this property affords can occur. There are already informal walking paths established on the property. Further, part of this *de facto*, informal trail system is the right-of-way of the former Pacific Coast Railroad alignment, which is immediately adjacent to the subject property running along its east side. Prior to the Pacific Coast Railroad, this same alignment was also a portion of the El Camino Real.

Stock Pond Restoration Project

The purpose of this project is to implement the restoration of a registered stock-watering pond located on a 530-acre property located in the middle of the watershed. The owners' family originally installed the stock pond in the 1950s for stock watering purposes in support of their cow and calf ranching operation on the property. There is an appropriate right to hold three acre-feet of water in the pond, the capacity for which it was originally designed. Over the years, however, the pond has silted up to the point that it is no longer functional. This is due in part to increasing sedimentation transfer from upstream, and in part due to general neglect stemming from the owners' fear of dredging the pond without fully understanding the complexities of environmental regulation relative to ponds such as theirs. With the long-term build up of sediment in the pond, it no longer holds water, as it should; rather, any flow from the stream above it flows into the basin and immediately exits out the overflow drainage. The overflow drainage was never intended to handle significant levels of stream flow velocity. The result of this has been erosion of the overflow drainage area and a significant erosion blow out of a stream bank approximately twenty yards downstream. The restoration of the stock pond will

provide for the control of the erosion
groundwater re-charge, and assistance
long-term. This project will reduce ere

Wetland Restoration Project

The purpose of this project is to perma:
lower Nipomo Creek Watershed, as we
occur in that area. The property is cunl
due to the wetland and reoccurring flood
little economically viable use of the pro'.
is one area at the rear of the property tha
exists.

The concept for the project design is similar to mat which was implemented by the
Coastal San Luis Resource Conservation District in the late 1990's at Chorro Flats near

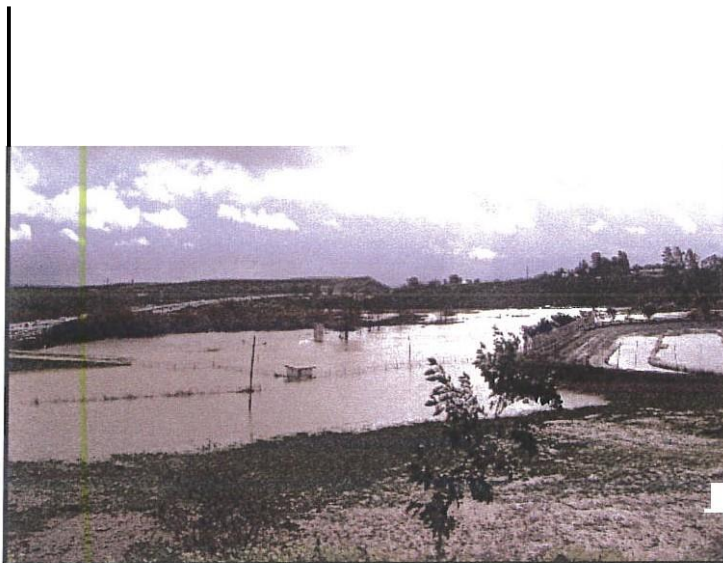


Figure 18: Recent Flooding at the Site

the Morro Bay Estuary. In
this project, a small berm was
constructed to the height of
about two feet, running along
the outside of the flood plain
area. Everything on the creek
side of the berm is managed
for wetland habitat and
sediment capture, while the
land on the outside of the
berm is used for agriculture.

Because the berm has greatly reduced flooding over the entire property, the use of the
agriculture land is now viable all year, except in extremely wet times.

The Land Conservancy proposes conducting a wetland delineation in accordance with the
Army Corps of Engineers' established protocol. A qualified heavy equipment contractor
would construct the berm to the outside of the delineation line in accordance with an
engineer's specifications. All of the land within the wetland delineation area will be

placed under a permanent conservation easement donated by the landowner; the benefit to them being the ability to engage in farming on the outside of the belt, and perhaps more importantly, allowing them to drive to the remainder of the property where they plan to construct a residence in the future. The Land Conservancy would then endeavor to plant a variety of wetland vegetation in the established wetland area, including willows, rushes, reeds, and cattails. The overall goals of the project are to increase wetland habitat for birds and aquatic wildlife, increase the property's ability to capture and filter sediment, and to contribute to agricultural viability in the area by addressing the ongoing flooding that occurs at this site. This project has also generated interest by the adjacent landowner whose property is also subject to flooding.

Drainage Projects

The Nipomo Drainage and Flood Control Study was conducted for the Community of Nipomo following heavy rainfalls in March, 2001. A report was prepared under the direction of the County of San Luis Obispo Public Works Department, released in February 2004, and summarized below. The Nipomo Community Advisory Council (NCAC) then led a public input process to solicit comments on the report. In addition, during 2004, an NCAC task force prioritized projects recommended in the study and generated additional project ideas, depicted in the table on the following page. The study does not include the entire Nipomo Creek watershed, but focuses on Olde Towne and the Mesa. Much of Olde Towne is located within a 100-year flood hazard zone. These areas have been identified by FEMA as subject to flooding during a 100-year rainfall event. The lower lying areas near the creek and tributary channels may also be subject to flooding from more frequent rainfall events due to inadequate local drainage facilities to convey urban runoff from homes and streets to the creeks. The major flooding problems in Olde Towne result from flood flows breaking out of one of the five creeks flowing through the urban areas of Olde Towne. A majority of the culvert crossings in Olde Towne do not meet the current minimum County standard. The culverts within Olde Towne are generally not sufficient to pass the 10-year flow rate without surcharge, although some can pass higher return period storms with surcharge. The culverts and

crossings along Haystack Creek, with exception of the newly installed arch at the Tefft Street crossing, are generally insufficient to carry the 10-year flow, when the minimum standard requires sufficient capacity to pass the 25-year flow. If the channels and culverts were designed per the County's standards for Major and Secondary waterways, then the threat and frequency of flooding from large storms would be reduced because the facilities would have sufficient capacity to convey the peak storms. Maintenance of existing drainage structures is lacking in Olde Towne. The creek channels, culvert crossings, and roadside ditches need restorative and periodic annual vegetation management and sediment removal. Conducting necessary maintenance on creeks in Olde Towne is complicated not only by the regulatory permit approval process, but also by the location of most creeks within private property. The County was not granted a drainage easement on any of the creeks in Olde Towne and therefore cannot perform routine maintenance or channel clearing on any reach of creek outside of public right-of-way.

The proposed projects for Olde Towne are typically culvert replacement projects to raise the design standard of most street crossings and conform to the County's current standards for minor, secondary and major waterways. The community can also pursue projects that provide 100-year level of flood protection and could potentially remap the FEMA flood hazard zone, removing homes and businesses from the 100-year floodplain. The proposed Deleissigues Creek vegetative management and sediment removal project and the proposed detention basins could potentially impact jurisdictional waters and sensitive species habitat. Mitigation would likely be required by the resource agencies to offset any impacts to habitat.

The potential for habitat impacts presents permitting challenges and increases the level of complexity that must be addressed during the environmental documentation and permitting phase, and with the appropriate design features and mitigation, these impacts can be reduced to a less than significant level. Constant communication with the resource agencies during the design and permitting phase will be necessary to ensure that their concerns are addressed and that appropriate features required by the permits are designed into the project. Just as important as the structural improvements, the community should form a drainage facility maintenance department. Routine

watershed, which would, in turn allow decision-makers to make better informed decisions about development policy and projects. As the impervious surface area in the Nipomo Creek Watershed increases with increased upstream development, it is increasingly important to link planning functions with drainage needs to be able to handle increased peak flows during storm events.

Funds to implement drainage projects could be attained by leveraging development mitigation monies and directing them to prioritized projects depicted above.

Nipomo Drainage and Flood Control Study:

Location	Project Description	Project Type	Estimated Cost	Proposed by
Deleissigues Creek	Vegetation Management	Vegetation Management	\$387,000	County of SLO
Tributary 1 (100 year protection)	Install new culverts	Roadway Crossings in Public Right of Way to Meet County Standards	\$171,000	County of SLO
Tributary 1 (100 year protection)	Install new culverts	Roadway Crossings in Public Right of Way to Meet County Standards	\$253,000	County of SLO
Hermrick Creek (100 year protection)	Install new culverts	Roadway Crossings in Public Right of Way to Meet County Standards	\$108,000	County of SLO
Henmick Creek (100 year protection)	Install new culverts	Roadway Crossings in Public Right of Way to Meet County Standards	\$412,000	County of SLO
Haystack Creek	Install New Arch Culverts	County Standard Improvements and Erosion Protection	\$1,746,000	County of SLO
Haystack Creek	Install Detention Facility	Optional Storm Detention Facilities	\$2,267,000	County of SLO
Knotts Street Concrete Ditch	Remove and Replace Ditch with Storm Drain	Knotts Street Roadway Hazard Improvement	\$669,000	County of SLO
Men's Club - Mallagh Street	Culvert Repair/Extension with redirection and bank stabilization	Re-engineering, sediment removal and re-vegetation	Unknown	NCAC Task Force
Deleissigues Creek at Mallagh & Eve Streets to Sea Street		Sediment removal, re-vegetation and bank stabilization	Unknown	NCAC Task Force

Haystack Creeks; north and south (priority) fork	License agreement to create detention basin (same as County project without purchasing the property)	Lower cost	Unknown	NCAC Task Force
Fairview Track	Improve detention basin maintenance	Stabilization of sediment	Unknown	NCAC Task Force
Deleissigues Creek up stream of Thompson Ave	Detention basin		Unknown	NCAC Task Force
Deleissigues Creek down stream of Thompson Ave near undeveloped area between High School and Day Street	Development requirements that require element to slow water; bioswell, widened channel, vegetation		Unknown	NCAC Task Force

Low Impact Development Projects

There is a growing cadre of development professionals and officials nation-wide who are integrating Low Impact Development (LID) into new infrastructure and redevelopment projects. LID principles are a set of technologies based on ideas/concepts that can potentially recreate pre-development hydrologic regimes of watersheds and thereby reduce impacts to soils, water and natural systems integrity as the community experiences growth. LID ideas were originally instituted to meet resource protection regulations, but in the past fifteen years LID has become economically efficient for both new development projects and redevelopment retrofits. Specifically, LID design features and practices distributed throughout urban development can:

- Disconnect impervious surfaces
- Mimic natural hydrologic processes
- Reduce runoff rates and volumes
- Reduce pollutant loads

The Nipomo Creek Watershed would be an ideal locale to pilot LID for the County of San Luis Obispo. It is therefore recommended that funding be sought to work with a developer to institute these practices as a way to initiate their more wide-spread use throughout the region.

Continuation of the Nipomo Creek Watershed Program

The initiation of the Nipomo Creek Watershed Program is an important step in involving the community in long-term watershed management and enhancement activities. It is that much more important to keep the momentum going by continuing the program through implementation measures. The implementation of the Nipomo Creek Watershed Program could take several paths. The following recommendations assume the NCSDF will not be the lead agency for implementing the Drainage and Flood Control Study, and that the organizations that have thus far been involved are potential partners, pending funding availability.

1. Implementation by the Land Conservancy of projects within its Final Report of Concept Recommendations for Short-Term Project Implementation after acceptance of this document by the Restoration Subcommittee utilizing funds from the Guadalupe Oil Settlement Fund. Unused funds from the cycle, which funded the Nipomo Creek Watershed Program, could be circulated back into these implementation projects. Unused funds could be retained in a restricted account for a long-term vegetation maintenance program.
2. The Coastal San Luis Resource Conservation District (RCD) could partner with the Land Conservancy to implement erosion control measures outside the NCSDF boundary line that could benefit NCSDF residents in Old Towne. Pending funding, this is a typical way the RCD would engage in soil and water conservation.
3. Central Coast Salmon Enhancement could partner with the Land Conservancy to implement additional projects within this plan beyond the concepts proposed in the Land Conservancy's Final Report of Concept Recommendations for Short-Term Project Implementation.

A Coordinated Resource Management Planning (CRMP) group can work as a tool to establish cooperation among landowners, government agencies, and other interested individuals and groups to address the dilemma of managing areas with multiple use ownership, conflicting management objectives and requirements, conflicting land use demands, and off site impacts. CRMP integrates and coordinates resource uses to accomplish specific goals (Cover Up Story, 1994). The CRMP process is centered on

three core tenets; consensus decision-making, local control, and voluntary implementation.

Exotics Species Removal

Identified sites could be prioritized and a program established to coordinate with the county weed management area (WMA) program to treat and eradicate exotics.

Bridge Replacement Over Nipomo Creek

Funds to widen the Highway 101 Bridge over the Santa Maria River have recently been allocated. It may be advisable to pursue widening the bridge over Nipomo Creek at the same time to alleviate the potential for flooding. The current configuration of the bridge has, in the past, been a bottleneck. Floodwater backs up behind the bridge and in March 2001, water flowed over the freeway, resulting in a road closure for public safety.

Floodplain Enhancement Inventory

Inventorying potential sites for floodplain enhancement and seeking participation from willing landowners would serve to increase the watershed's natural capacity to hold sediment, keeping it from entering waterways, which would preserve water conveyance capacity. Once an inventory is complete, an acquisition/conservation easement plan could be undertaken to include incentives to landowners to participate. Laying back and re-vegetating banks, allowing for greater volumes of water to be carried and slowing the velocity along banks, reduces erosion potential as sediment can be deposited on the enhanced floodplain.

Road Inventory

The road system throughout the watershed could be inventoried to identify areas where sediment is entering the creek in order to modify structures or initiate best management practices (BMPs) to reduce inputs. This would lead to reduced sedimentation to the system that could, in turn, preserve water conveyance capacity in the creek bed.

Policy Planning and Education

Ordinances Which Benefit Watershed Health

The Land Conservancy could continue to work with local jurisdictions to generate concepts for local ordinances, researching currently applicable ordinances, regulations, resolutions and institutional incentives to protect and restore watershed health, particularly regarding sediment generation and control. Potential activities include:

- Partner with other countywide organizations to formulate a countywide ordinance for watershed restoration projects by private landowners.
- Evaluate current standards for sediment generation and control.
- Work with the California State Association of Counties to provide information on the model county ordinance proposed by the Task Force to Remove Barriers to Restoration.
- Investigate methods of incorporating channel evolution time frames into urban planning models so that a riparian channel is given an opportunity to reach a stable urban condition within the context of current land use planning principles.

Permit Streamlining for Restoration Projects

As the Land Conservancy works to fund and implement projects, it would be useful to examine streamlined permit programs in adjacent watersheds and help to facilitate and institute such a program in this watershed with as many regulators as possible. At this writing, Sustainable Conservation, a state-wide nonprofit organization, is working with the local Resource Conservation Districts to establish a water quality stream-lined permitting program for southern San Luis Obispo and northern Santa Barbara Counties which would include the Nipomo Creek Watershed.

In addition, it would be useful to investigate the California EPA's and the California's Resources Agency's Strategic Watershed Plan which is exploring options for permit assistance centers, regional pilots for coordinated technical review and permitting of

Relationship to other existing plans

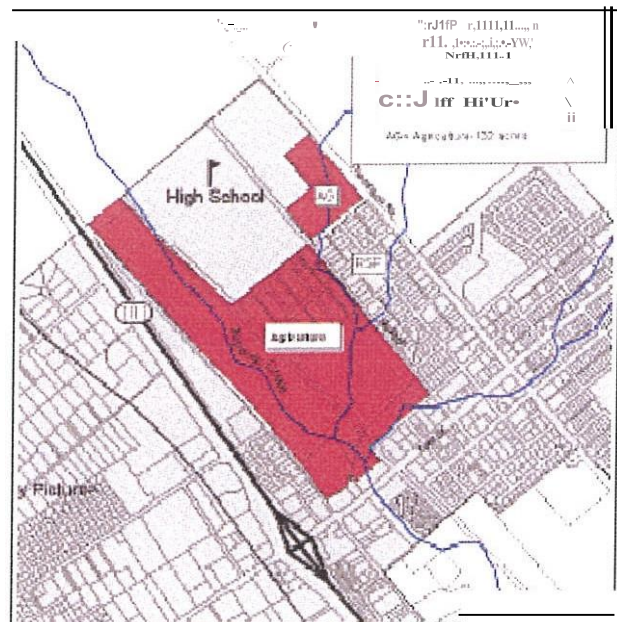
The Sphere of Influence (SOI) Update for the Nipomo Community Services District

The Sphere of Influence (SOI) Update for the Nipomo Community Services District was adopted on May 20, 2004. The document and its Environmental Impact Report provide very detailed information on all areas being considered for inclusion in the district as well as impacts and mitigation for inclusion. Of relevance to this report, the SOI depicts three areas for consideration for eventual inclusion within the district, study areas 2, 3 and 4. All have main stem Nipomo Creek as a component. The following is excerpted from the SOI Update.

Study Area 2 - This area is located to the north of Olde Towne and on the east side of Highway 101 and is broken into a large and a small area. The total acreage for both areas is a total of 132 acres the zoning is Agriculture. The new Nipomo High School is located to the northeast; Olde Towne of Nipomo is to the south and east. The larger of

the two properties is currently being farmed and it is considered to be prime agricultural land. The area is also prone to flooding during storms and is mapped by FEMA as in a flood hazard zone. The Nipomo Creek is located adjacent to Highway 101 on the southwest side of the property. The property has significant environmental constraints that would need to be addressed in the development and review process if a project is to be considered for this site. This area is

nearly surrounded by development and is an island panhandle within Nipomo. The future use would be determined through either a comprehensive update of the South County Area Plan or a Land Use Ordinance Amendment submitted by the property

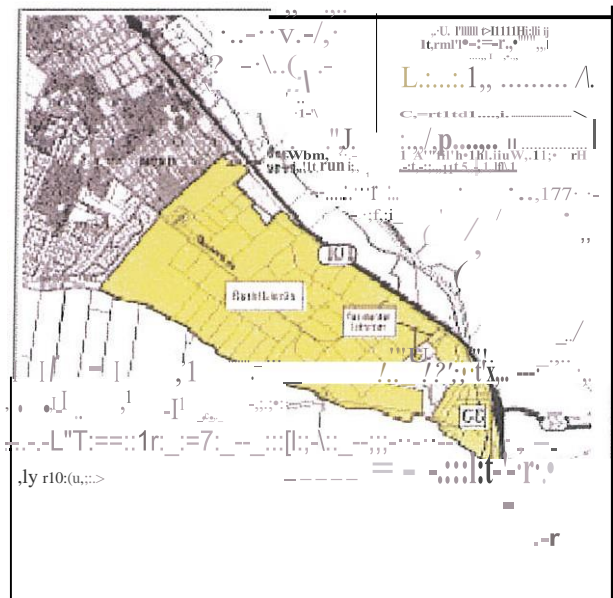


agreement approved in 1972 between the District and the San Luis Obispo County Historical Society. The SCAP recommends that a Specific Plan be completed to identify the appropriate civic-related functions and related private uses that would be associated with a government center. The Knotts Street area, on the east side of Highway 101 and the south side of town, is the subject of special development standards in the SCAP, including the requirement of a detailed hydro-geologic analysis for projects proposed Chapter 2 Sphere of Influence Update in the area. As this area develops it will eventually need the services of the District and is within the URL, with the small exception of the government center site designated in the South County Area Plan. The Nipomo Hills annexation proposal has also been submitted for processing and includes a limited Residential Single Family area on the southeast of town.

Area 3 also resides in the main stem's floodplain and contains two tributary confluences, Adobe and Carillo Creeks. As for area 2, it would be useful to consider floodplain conservation as future development in this area occurs as well, considering easements to preserve agricultural and open-space elements of the area. The presence of the Dana Adobe in this area suggests the need to extend the protected land around the Adobe as far up and down stream as possible.

Study Area 4 -This area is located to the south of the current District boundary and north of the Santa Maria Valley.

The area to the south of Southland Street is zoned Rural Lands and a portion of it is currently used for growing strawberries, using impounded water. The total area is approximately 1,522 acres. The South County Area Plan (SCAP) calls for a Specific Plan to be prepared for the site just south and adjacent to Southland Street. The



- The extent and nature of the grading is appropriate for the proposed use and will not create site disturbance greater than required for that use.
- The grading will not result in erosion, stream sedimentation, or other adverse off-site effects or hazards.
- The grading will not create substantial long-term adverse effects visible from off-site.

Grading projects requiring land use approval are required to submit grading plans according to Section 22.52.070 (Inland) of the County Land Use Ordinances. Engineered grading plans are required for projects involving disturbance of 5,000 or more cubic yards of material, located on twenty percent slopes or greater, or located in a designated Geologic Study Area or Flood Hazard combining designation. Projects sited within the 100-year flood zone must have specific design considerations to ensure the structure is adequately protected as defined in Section 22.14.60 (Inland).

Grading must follow the standards provided in the Uniform Building Code (section 3309) and the following standards:

- Areas of cut and fill are to be limited to the minimal amount necessary.
- Grading for a building site is prohibited on slopes of 30% or greater.
- Contours are to be blended with the natural terrain.
- Grading may not alter watercourses except as permitted through the Department of Fish and Game and various watercourse protection methods shall be followed.
- Areas where natural vegetation has been removed must be replanted by various approved methods.

Section 22.52.080 of the Ordinance states that standards for the control of drainage and drainage facilities are designed to minimize harmful effects of storm water runoff and resulting inundation and erosion on proposed projects, and to protect neighboring and downstream properties from drainage problems resulting from new development. Future applicants for building permits would be required by this ordinance to develop a drainage plan for their project. The plan would include finished contours of the project, the

- Erosion and sedimentation control devices such as absorbing structures or devices to reduce the velocity of runoff;
- Final erosion control measures including mechanical or vegetative measures.

Section 22.52.090 requires submittal of an Erosion and Sedimentation Control plan unless all of the following site characteristics exist:

- Site has a maximum slope less than 10 percent in the area to be graded;
- Site is not located within geologically unstable areas;
- Site is located on soils rated as having a low erosion hazard by the National Resource Conservation Service;
- Site is located more than 300 feet from the top bank of any blue line watercourse or water feature;
- The grading will not cause organic or earthen materials from logging, construction or other land disturbance activities to be carried into a swale, drainage way, watercourse, or onto adjacent properties by rainfall or runoff; and
- All grading activities and site disturbance activities will occur after April 15 and before October 15 and will create minimal site disturbance from combined activities.

In addition to the requirements above, several specific areas of the County require submittal of a drainage plan due to soil conditions, existing problems, and general area concerns. Most of Nipomo would be required to submit a drainage plan regardless of site conditions.

Urban Water Management Plan

The District has recently (01-14-04) adopted an Urban Water Management Plan that provides for better overall management of the water resources and includes enhanced water conservation measures. At this writing the Final Urban Water Management Plan has not been reviewed by the State Department of Water Resources but is available on

the web (www.nipomocsd.com). The district is also staffing a position that will be responsible for regulatory compliance and water conservation implementation.

Santa Maria Groundwater Litigation

NCSD has entered into a settlement regarding the Santa Maria Groundwater Litigation that will likely have long-term implications on groundwater use for the district. It is unclear exactly how Nipomo Creek Watershed will be impacted as a result of the settlement agreements. The June 30, 2005 court stipulation identifies a Nipomo Mesa Management Area, one of three Management Areas. The Management Areas will be legally bound to specific programs intended to preserve the Santa Maria groundwater basin's integrity.

South County Area Plan

The South County Area Plan points to several key permit requirements related to drainage, proximity to Nipomo Creek and agricultural preservation.

1. Nipomo Lowland Areas - Drainage Plan Requirement. All land use permit applications for new structures or additions to the ground floor of existing structures shall require drainage plan approval in compliance with Chapter 22.52 if the project is located within the area shown on Figure 112-44, unless the county engineer determines that the individual project site is not subject to or will not create drainage problems.
2. Creek Preservation - Nipomo Creek. Retain Nipomo Creek in an open condition within fifty feet of the floodway and incorporate it into site development with landscaping that is compatible with riparian habitat (as recommended by the Department of Fish and Game) as well as compatible with county drainage requirements. All other development, including pedestrian seating and pathways, must be at least fifty feet away from the floodway for Nipomo Creek. Within the central business district (CBD), this provision shall remain in effect until such

Regulatory Setting/ Agency Jurisdiction

The Nipomo Creek Watershed lies within many local, state and federal governmental jurisdictions. In order to work effectively to restore the watershed, it is important to understand the regulations and jurisdictions. The following gives a brief overview of these organizations. Contact names, addresses and phone numbers for these agencies are found at the end of the report.

Federal Regulatory Agencies

United States Army Corps of Engineers (ACOE)

The Nipomo Creek Watershed lies in the Los Angeles District of the South Pacific Division. The local office is located in Ventura, CA. The Congress of the United States has assigned the U.S. Army Corps of Engineers the responsibility for regulation and construction and other works in the waters of the United States. The Corps is charged with protecting our nation's harbors and navigation channels from destruction and encroachment, and with restoring and maintaining environmental quality. This is accomplished by regulating activities in three areas:

1. Discharge of fill or dredged materials in coastal and inland waters and wetlands;
2. Construction and dredging in navigable waters of the United States;
3. Transport of dredged materials for dumping into ocean waters.

The principal regulatory mechanisms of the Army Corps that relate to watershed enhancement are the Clean Water Act, Section 404(b)(1) Guideline; Marine Protection; Research and Sanctuaries Act; Endangered Species Act; National Historic Preservation Act; Coastal Zone Management Act; National Environmental Protection Act; and others as they relate to the regulatory actions of the District.

United States Fish and Wildlife Service (USFWS)

The U.S. Fish and Wildlife Service is the principal federal agency for conserving, protecting, and enhancing fish, wildlife, plants, and their habitats for the continuing

benefit of the public. The Service enforces federal wildlife protection laws such as the Endangered Species Act, and works in consultation with the Army Corps to ensure that permitted projects protect fish and wildlife. When protected species are involved, the Service prepares "Biological Opinions" on the project to assess the potential impacts and restrict potentially harmful activities.

The Nipomo Creek Watershed lies in the Service's Pacific Region (Region #1). This region headquarters is located in Portland, OR and the region contains the states of Washington, Oregon, California, Idaho, Nevada, Hawaii, and the Pacific Islands.

NOAA Fisheries formally known as National Marine Fisheries Service (NMFS)

NOAA Fisheries is a division of the National Oceanic and Atmospheric Administration (NOAA). The NOAA Fisheries strategic plan contains three goals: rebuilding and maintaining sustainable fisheries, promoting the recovery of protected species, and protecting and maintaining the health of coastal marine habitats. The Nipomo Creek watershed is in the Southwest Region (California, Hawaii, and the Pacific Trust Territories) with headquarters, located in Long Beach, California. The region is responsible for managing fisheries in the Pacific Islands for lobster, ground fish, swordfish, and precious coral; off the coast of California for salmon, ground fish, and anchovies; and or conducting enforcement, marine mammal and habitat programs to protect fishes, marine mammals and endangered species within the region.

Enforcement activities are carried out in cooperation with other State and Federal agencies in the Southwest Region to ensure compliance with various federal regulations relating to stewardship of fishery and protected species resources. For example, NOAA Fisheries works locally with the Army Corps permitting process by providing "Biological Opinions" on proposed projects. These opinions describe potential impacts to protected species and contain restrictions that assure protection of these species during project implementation.

Resource Agencies/Non-Regulatory

Within the watershed there are numerous agencies and organizations conducting activities, many of which serve as a resource for landowners. Listed below are some of these organizations along with their general scope of work.

Federal Non-Regulatory Agencies

Natural Resources Conservation Service (NRCS)

The Natural Resources Conservation Service (NRCS) provides leadership in a partnership effort to help people conserve, maintain, and improve our natural resources and environment. The Programs Deputy Area mission in NRCS is to manage natural resource conservation programs. These programs provide environmental, societal, financial, and technical benefits that include both on-site benefits and off-site benefits. Program benefits include many, but are not limited to, many of the following aspects:

- Sustaining and improving agricultural productivity.
- Cleaner, safer, and more dependable water supplies.
- Reduced damages caused by floods and other natural disasters.
- Enhanced natural resource bases that support continuing economic development, recreation, and other purposes.

Grants and technical support are available to landowners interested in improving the environment with projects on their property.

State Non-Regulatory Agencies

California Coastal Conservancy

The California Coastal Conservancy, established in 1976, is a state agency that uses entrepreneurial techniques to purchase, protect, restore, and enhance coastal resources, and to provide access to the shore. We work in partnership with local governments, other public agencies, nonprofit organizations, and private landowners.

Conclusion

This document represents the accumulated efforts of the community to articulate their concerns about the Nipomo Creek watershed and an attempt at a comprehensive review of what has transpired in the last decade regarding creek and watershed conservation activities. As this report is circulated, and as short-term projects are implemented, it is hoped these successes will bring additional interest in creek enhancement by additional landowners. We are already seeing the fruit of our labor ripen as adjoining landowners to the proposed slate of project proponents contact our offices wishing to participate. We hope that the recommended projects will serve as a blue print for the community for the future of the watershed.

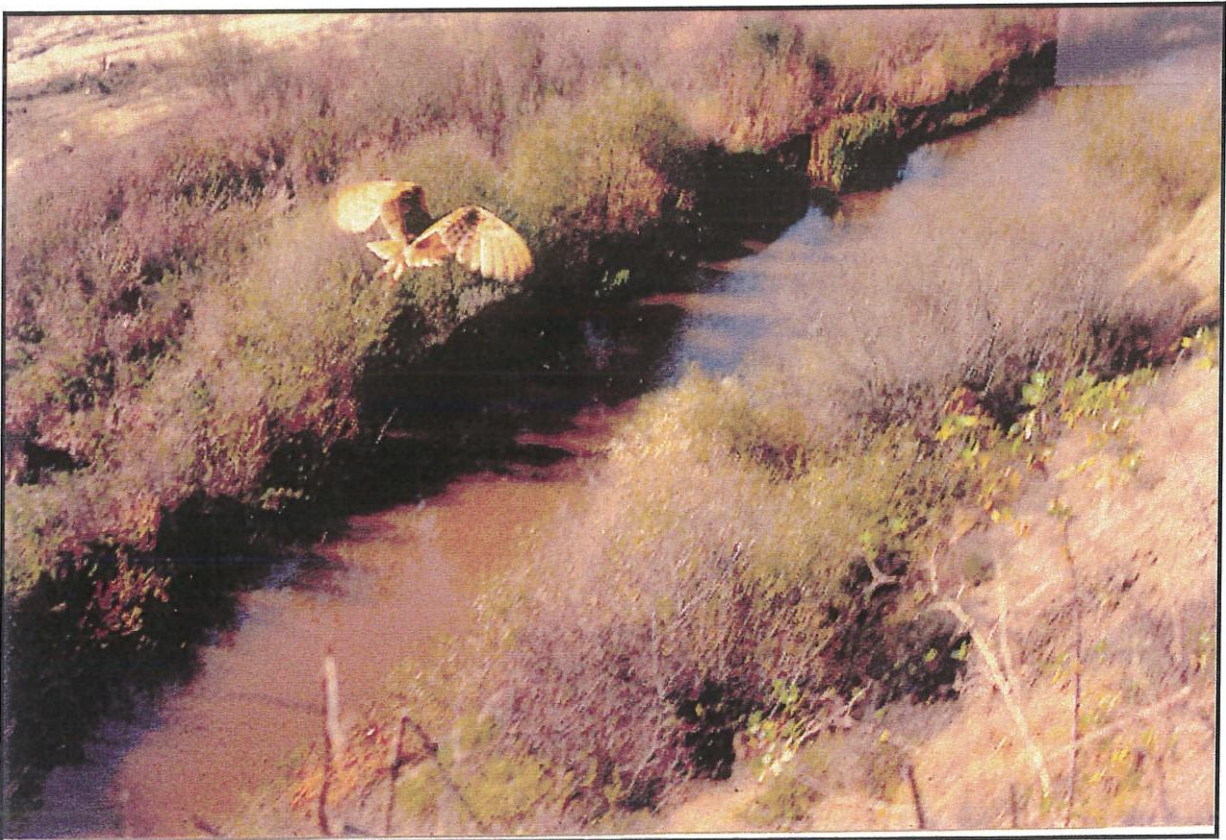


Figure 19: A Small Eared Owl Foraging in the Lower Watershed

Resources

The following listing include documents landowners and managers will find helpful when planning or implementing watershed projects. In addition is a contact list of agencies and organizations named in this document.

Suggested Documents

[The Cover Up Story. A Soil Resource Management Guide for Central Coast Counties.](#)

This publication is packed with easily accessible measures to reduce and prevent soil erosion. It includes sections on construction site and short-term erosion control measures, long-term erosion control measures, road construction and management, and agricultural conservation measures. Contact the UC Cooperative Extension Office.

[Water Acquisition Handbook. A Guide to Acquiring Water for the Environment in California.](#) This handbook is designed to assist conservation organizations, and other interested parties, with the steps required to purchase water in California for the purpose of improving environmental conditions for fish and wildlife, and improving water quality for human populations. See www.water.tpl.org/cal for more information.

[Urban Subwatershed Restoration Manual Series.](#) This 11-part manual produced and distributed by the Center for Watershed Protection provides extensive information and background on techniques to restore small urban watersheds. See www.cwp.org for more information.

[A Primer on Stream and River Protection for the Regulator and Program Manager.](#) A great translation of the complicated field of river science into some generalizations that the relative novice to river science can apply to regulatory and program management issues. By Ann Riley.

[Creek Care Manual.](#) Santa Barbara County, CEC (Bob Thiel) Agency

Contact Information

Federal Agencies	
United States Army Corps of Engineers (ACOE)	2151 Alessandro Drive #255, Ventura, CA 93001 http://www.usace.army.mil/ Lisa Mangione, 641-3753 and email
United States Fish and Wildlife Service (USFWS)	Santa Barbara/Ventura/LA Division 2493 P01iola Road, Suite B Ventura, CA 93003 http://pacific.fws.gov/ecoservices/
NOAA Fisheries (formally known as National Marine Fisheries Service (NMFS))	NOAA Fisheries 501 W. Ocean Blvd., Suite 4200 Long Beach, CA 90802-4213 http://www.nmfs.noaa.gov/ Anthony Spina 562-980-4045 Anthony.Spina@NOAA.Gov
United States Environmental Protection Agency (EPA)	United States Environmental Protection Agency 75 Hawthorne St. San Francisco, CA 94105 http://www.epa.gov/
Natural Resources Conservation Service (NRCS)	Santa Maria Field Office http://www.mcs.usda.gov/programs/

State Agencies	
California Department of Fish and Game (CDFG)	<p>California Department of Fish and Game Central Coast Region P.O. Box 47 Yountville, CA 94599 http://www-1.dfg.ca.gov/ Margaret Paul-Basin Planner 650-413-1501 nproper@dfg.ca.gov John Kleinfelter 831-649-2885 jkleinfelter@dfg.ca.gov Mike Hill-District Biologist 805-489-7355 mhill@dfg.ca.gov</p>
Regional Water Quality Control Board (RWQCB)	<p>Regional Water Quality Control Board Central Coast Region 895 Aerovista Place, Suite 101 San Luis Obispo, CA 93401</p> <p>www.swrcb.ca.gov/rwqcb3 http://www.swrcb.ca.gov/rwqcb3/AGWaivers/documents/Railch Info.pdf Allison Jones 542-4646 ajones@waterboards.ca.gov</p>
Department of Water Resources	<p>Department of Water Resources 1416 Ninth Street POB 942836 Sacramento, CA 94236 http://www.water.ca.gov/</p>
California Coastal Conservancy	<p>1330 Broadway, 11th Floor, Oakland, CA 94612. www.scc.ca.gov</p> <p>Tim Duff tduff@scc.ca.gov</p>
California Conservation Corps	<p>Los Padres Service District 549-3561 http://www.ccc.ca.gov/ccweb/DISTRICT/LOSPAD/LOSPAD.htm</p>
University of California Cooperative Extension Service	<p>Farm Water Quality Planning Program Julie Fallon 788-2321 http://waterquality.ucanr.org</p>

Local Agencies	
County of San Luis Obispo	County Government Center, Room 370 San Luis Obispo, CA 93408 http://www.co.slo.ca.us/
County of San Luis Obispo Agricultural Commissioner's Office	Michael Isensee Agricultural Resource Specialist San Luis Obispo County Department of Agriculture 2156 Siena Way, Suite A San Luis Obispo, CA 93401 805.781.5753 805.781.1035 (fax) misensee@co.slo.ca.us
Coastal San Luis Resource Conservation District	CSLRCD 545 Main Street #B-1, Mono Bay, CA 93442 http://www.coastalrcd.org/ Julie Thomas 772-4391 jthomas@coastalrcd.org
Nipomo Community Services District	148 S. Wilson Street, Nipomo, CA 93444 PO Box 326, Nipomo, CA 93444 805-929-1133 Michael LeBrun, gm@nipomocsd.com
Nipomo Community Advisory Committee	PO Box 1165 Nipomo, CA 93444 805-929-1576 ,vwv.ml2ornocac.org
San Luis Obispo County Farm Bureau	Joy Fitzhugh 543-3654 www.slofarmbureau.org iov@slofarmbureau.org-
Central Coast Vineyard Team	http://vineyai-dteam.org/
Central Coast Salmon Enhancement	Comlie O'Henley, Executive Director Stephnie Wald, Project Manager PO Box 277 Avila Beach CA 93424 805-473-8221 www.centralcoastsalmon.com
Land Conservancy of San Luis Obispo County	Brian Stark, Executive Director Bob Hill, Conservation Director PO Box 12206 San Luis Obispo CA 93406 805-544-9096 www.special-places.org

Acknowledgements

The following people have contributed to the preparation and completion of this plan:

Bob Hill, Land Conservancy of San Luis Obispo County

Herb Kandel, Land Conservancy Nipomo Chapter/ Nipomo Creek Committee

Connie O'Henley, Central Coast Salmon Enhancement

Stephnie Wald, Central Coast Salmon Enhancement

Freddy Otte, formerly with Central Coast Salmon Enhancement

Jono Wilson, formerly with Central Coast Salmon Enhancement

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Peg Miller, Landowner and Business Owner

Liz and Dean Wineman, Landowners

Mark Ferguson, Resident

Lupe Esquivel, Ranch Manager

Daniel Diaz, Resident

Bill Denneen, Resident

Dan Woodson, Nipomo Community Advisory Council

Delores Dana, Landowner

Brett Wilkison, Land Conservancy of San Luis Obispo County

Bob Hill, Land Conservancy of San Luis Obispo County

Connie O'Henley, Central Coast Salmon Enhancement

Special thanks:

Geology Section written by Herb Kandel and Ralph Bishop.

Original Prehistory Section compiled by Ethan and Betsy Bertrand, adapted and with additions by Herb Kandel and Tom Wheeler

History Section written by Betsy Bertrand, adapted and with additions by Herb Kandel.

Special Guest Speakers and project supporters of Nipomo Creek Committee and Nipomo Creek Watershed Forum deserving thanks:

Jack Varian, Rancher V- 6 Ranch for Sustainable ranching, our very first speaker!

Gene Melschau and Royce Speuller for The History of Agriculture in the Nipomo Watershed

Malcom McEwen from Coastal RCD for Creek projects on agricultural land and funding sources

Geologist Ralph Bishop for Geology of Nipomo Creek Watershed.

Lisa Mangione, Permitting Officer, Army Corps of Engineers for ACE permitting process and regulatory issues.

Mike Hill, Department of Fish and Game for F & G permits and regulatory issues

Scott Phillips, Regional Water Quality Control Board for water quality standards and enforcement

Mike LeBrun formerly with the Regional Water Quality Control Board for long term conservation planning

Ray Belknap, former Executive Director of the Land Conservancy of SLO County for Conservation Easements.

Katcho Achadjian, Supervisor, 4th district for establishing Creek Committee of the NCAC, a volunteer at creek days in 2002, 2003, 2004

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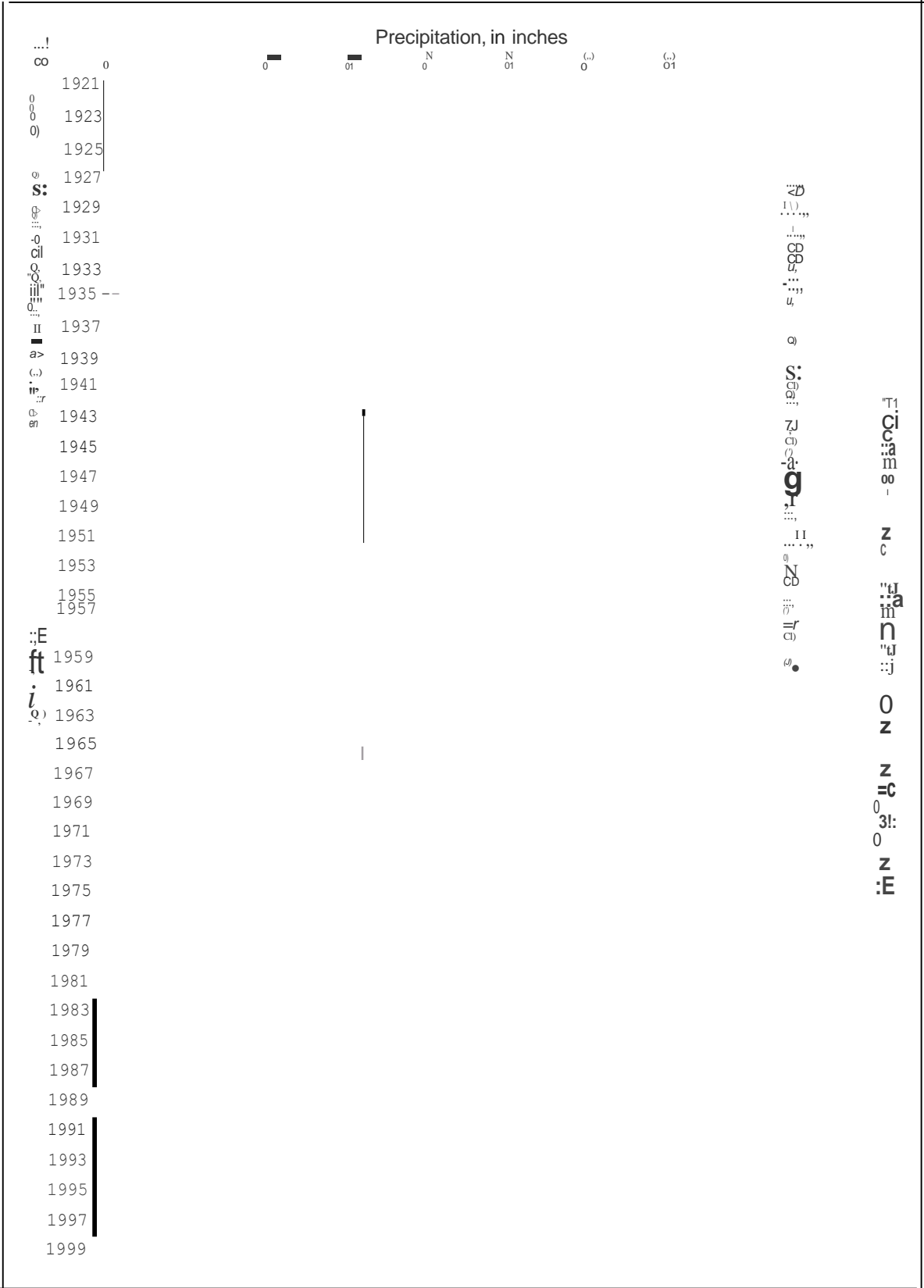
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- Nacimiento Silty Clay Loam - Permeability is moderately slow, and the available water capacity is low or moderate. Surface runoff is rapid, and the hazard of water erosion is high.
- Oceano Sand - Permeability of this soil is rapid, and the available water capacity is low. Surface runoff is medium or rapid, and the hazard of water erosion is moderate or high.
- Santa Lucia Shaly Clay Loam - Permeability of this soil is very slow, and the available water capacity is low or very low. Surface runoff is rapid, and the hazard of water erosion is high.
- Santa Lucia Very Shaly Clay Loam - Permeability of this soil is moderate, and the available water capacity is low or very low. Surface runoff is rapid, and the hazard of water erosion is moderate or high.
- Suey Silt Loam - Permeability of this soil is moderate, and the available water capacity is high. Surface runoff is slow or medium, and the hazard of water erosion is slight or moderate.
- Tierra Sandy Loam - Permeability of this soil is very slow, and the available water capacity is low or moderate. Surface runoff is slow or medium, and the hazard of water erosion is slight or moderate.
- Xererts-Xerolls-Urban Complex - The Xererts of this complex are Cropley or Diablo soils. The Xerolls are mainly Concepcion, Los Osos, Marimel, and Salinas soils.
- Xerorthents, escarpment - When the soil surface is bare, runoff is rapid, and the hazard of water erosion is high. Some areas of deep gullies.
- Zaca Clay - Permeability of this soil is slow, and the available water capacity is high. Surface runoff is medium, and the hazard of water erosion is moderate.



Dana Adobe

Native Species

Acer negundo (Box elder)
Artemisia californica (California sage brush)
Artemisia douglasiana (Mugwort)
Baccharis pilularis (Coyote brush)
Baccharis salicifolia (Mule fat)
Camissonia sp. (Sun cup)
Heterotheca grandiflora (Telegraph weed)
Juglans californica (California black walnut)
Juncus acutus (Spiny rush)
Juncus balticus (Baltic Rush)
Juncus phaeocephalus (Brown headed creeping rush)
Mentha spicata (Spearmint)
Oenanthe sarmentosa (Freshwater parsley)
Quercus agrifolia (Coast live oak)
Salix laevigata (Red willow)
Salix lasiolepis (Arroyo willow)
Scirpus microcarpus (Panicked bulrush)
Solanum douglasii (White flowered nightshade)
Toxicodendron diversilobum (Poison oak)
Typha latifolia (Cat tail)
Urtica dioica (Stinging nettle)
Verbena lasiostachys (Verbena)

Exotic species

Anagallis arvensis (Scarlet pimpernel)
Avenafatua (Wild oat)
Brassica nigra (Black mustard)
Bromus diandrus (Ripgut brome)
Carduus pycnocephalus (Italian thistle)
Centaurea calcitrapa (Purple star thistle)
Conium maculatum (Poison hemlock)
Cynara cardunculus (Artichoke thistle)
Ehrharta calycina (Veldt grass)
Erodium botrys (Long beaked filaree)
Euphorbia lathyris (Moleplant)
Euphorbia peplis (Purple Spurge)
Foeniculum vulgare (Fennel)
Geranium dissectum (Cutleaf geranium)
Hirscfeldia incana (Mediterranean mustard)
Hordeum murinum (Foxtail barley)
Lactuca serriola (Prickly lettuce)
Marrubium vulgare (Horehound)
Medicago polymorpha (Bur clover)
Melilotus alba (Sweet clover)
Phalaris aquatica (Bulbous canary grass)

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) *Baccharis pilularis* (Coyote brush)
) *Baccharis salicifolia* (Mule fat)
) *Juncus phaeocephalus* (Brown Headed Creeping Rush)
) *Rubus ursinus* (Blackberry)
) *Salix exigua* (Sandbar willow)
) *Salix laevigata* (Red willow)
) *Salix lasiolepis* (Arroyo willow)
) *Sci,pus microcarpus* (Panicked bulrnsh)
) *Scirpus pungens?* (Common three square)
) *Sparganium eurycarpum* (Narrow leaf bur weed)
) *Typha latifolia* (Cat tail)
) *Urtica dioica* (Stinging nettle)
) *Verbena lasiostachys* (Common verbena)

Exotic species

Avena barbata (Slender wild oats)
Avenafatua (Wild oats)
Bromus diandrus (Ripgut brome)
Carduus pycnocephalus (Italian thistle)
Cmpobrotus edulis (Ice plant)
Conium maculatum (Poison hemlock)
Cynodon dactylon (Bermuda grass)
Cyperus eragrostis(Vmbrella sedge)
Ehrharta calycina (Veldt grass)
Floating fern
Foeniculum vulgare (Fennel)
Geranium dissectum (Cutleaf geranium)
Lolium multiflorum (Wild rye)
Medicago polymorpha (Bur clover)
Melilotus indica (Sweet clover)
Phalaris aquatica (Bulbous canary grass)
Picris echioides (Bristly ox tongue)
Plantago major (Common plantain)
Polypogon monspeliensis (Rabbit's foot grass)
Raphnus sativa (Wild radish)
Rumex acetosella (Common sheep sorrel)
Rumex conglomeratus (Clustered dock)
Rumex crispus (Curly dock)
Sonchus asper (Sow thistle)
Veronica anagallis-aquatica (Veronica)
Xanthium spinosum (Cocklebur)

M_____ fG 80t

BOTANICAL SURVEY
UNOCAL PIPELINE RENEWAL
NIPOMO CREEK

RENEWAL OF 12 INCH SANTA MARIA OIL PIPELINE
BETWEEN SANTA MARIA AND SUMMIT PUMP STATIONS
ORCUTT DISTRICT
ACROSS A PORTION OF LOTS 22 AND 23 OF RANCHO NIPOMO
WITHIN THE OLD PACIFIC COAST RAILROAD RIGHT OF WAY
PROJECTED SECTION 7, T11N, R34W

by

Lynne Dee Oyler MS, Field Ecologist
4280 Buena Vista Drive
Paso Robles, CA 93446
(805) 238-3493

Report submitted to
Mr. Frank Lee Nichols, Land surveyor
Northern California Division, Pipelines
UNOCAL corporation
P.O. Box 661
San Luis Obispo, CA 93406
(805) 543-2379 ext. 252

August 1991

Table 1. Plant List, continued

<i>Erodium botrys</i>	*	cranesbill filaree
<i>Erodium cicutarium</i>	*	red-stem filaree
<i>Eschscholzia californica</i>		California poppy
<i>Foeniculum vulgare</i>	*	fennel
<i>Gnaphalium bicolor</i>		everlasting
<i>Heterotheca grandiflora</i>	*	telegraph weed
<i>Hordeum murinum</i>	*	foxtail
<i>Hypochoeris radicata</i>	*	hairy cat's ear
<i>Juncus dubious</i>		rush
<i>Juncus leseurii</i>		rush
<i>Lactuca serriola</i>	*	prickly lettuce
<i>Lithrum hyssopifolia</i>		loosestrife
<i>Lolium multiflorum</i>	*	ryegrass
<i>Lotus humistratus</i>		lotus
<i>Lotus junceus</i>		lotus
<i>Luzula campestris</i>		wood-rush
<i>Madia gracilis</i>	*	tarweed
<i>Malva nicaensis</i>	*	cheeseweed
<i>Melilotus officinalis</i>	*	sweet clover
<i>Nasturtium officinale</i>		water cress
<i>Opuntia</i> sp. [domestic, undetermined]		cactus
<i>Phalaris aquatica</i>	*	Harding grass
<i>Picris echioides</i>	*	prickly ox-tongue
<i>Plantago lanceolata</i>	*	plantain
<i>Plantago major</i>	*	plantain
<i>Polygonum arenastrum</i>	*	knotweed
<i>Polypogon interruptus</i>	*	polypogon
<i>Polypogon monspeliensis</i>	*	rabbit-foot grass
<i>Polypogon semiverticillatus</i> *		polypogon
<i>Raphanus sativa</i> [pink and yellow varieties) *		wild raddish
<i>Rumex angiocarpus</i>		sheep sorrel
<i>Rumex conglomeratus</i>		dock
<i>Rumex crispus</i>		curly dock
<i>Salsola kali</i>	*	Russian thistle
<i>Scirpus olneyi</i>		rush
<i>Sida hederacea</i>		mallow
<i>Silene gallica</i>	*	windmill pink
<i>Silybum marianum</i>	*	milk thistle
<i>Sisymbrium irio</i>	*	London-rocket
<i>Sisymbrium officinale</i>	*	hedge mustard
<i>Sonchus oleraceus</i>	*	sow thistle
<i>Sorghum halepense</i>	*	Johnson grass
<i>Spergularia media</i>	*	sand spurry
<i>Stellaria media</i>	*	chickweed
<i>Trifolium fucatum</i>	*	clover
<i>Typha angustifolia</i>		cat-tail
<i>Urtica holoserica</i>		stinging nettle
<i>Urtica urins</i>	*	nettle

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Preliminary
Botanical Survey

of the

Dana Adobe Site & Vicinity

Nipomo, San Luis Obispo County, California

Prepared by

Linda Allen, M.S.

and

Michael Curto

650-A South Ninth St
Grover Beach, California
93433-2734

November 2000

Appendix 1. Plants of the Dana Adobe Site & Vicinity

SAND = Uplands with sandy soil; CLAY= Uplands with sandy soil;

RIP = Riparian corridor along Nipomo Creek; SEEP = Hillside Seep in clay soil southeast of Adobe

A = Abundant; C = Common; D = near Dana Adobe structure; F = Frequent; I = Individual plant; L = Localized patch

FAMILY	COMMON NAME	SCIENTIFIC NAME	SAND	CLAY	RIP.	SEEP
Native Trees						
Aceraceae	Box-Elder	<i>Acer negundo</i> L. var. <i>californicum</i> (T. & G.) Sarg.			I	
Fagaceae	Coast Live Oak	<i>Quercus agrifolia</i> Nee	0	0		
Platanaceae	California Sycamore	<i>Platanus racemosa</i> Nutt.		D		
Salicaceae	Red Willow	<i>Salix laevigata</i> Bebb			C	
Salicaceae	Arroyo Willow	<i>Salix lasiolepis</i> Benth.			C	
Native Shrubs						
Adoxaceae	Elderberry	<i>Sambucus mexicana</i> C. Presl ex DC.			I	
Anacardiaceae	Poison-Oak	<i>Toxicodendron diversilobum</i> (T. & G.) E. Greene	C		0	
Compositae	California Sagebrush	<i>Artemisia californica</i> Less.	C			
Compositae	Coyote Bush	<i>Baccharis pilularis</i> DC.		0		
Compositae	Coast Goldenbush	<i>Isocoma menziesii</i> (Hook. & Arn.) G. Nesom	C			
Compositae	California-Aster	<i>Lessingia filaginifolia</i> (Hook. & Arn.) M.A. Lane	0			
Fabaceae	Silver Bush Lupine	<i>Lupinus chamissonis</i> Eschsch.	C			
Native Perennial Forbs						
Compositae	Western Ragweed	<i>Ambrosia psilostachya</i> DC.		C		
Compositae	Mugwort	<i>Artemisia douglasiana</i> Besser			C	
Compositae	Tarragon	<i>Artemisia dracunculoides</i> L.			C	
Compositae	Telegraph Weed	<i>Heterotheca grandiflora</i> Nutt.			C	
Cruciferae	Water Cress	<i>Rorippa nasturtium-aquaticum</i> (L.) Hayek			F	
Convolvulaceae	Morning-Glory	<i>Calystegia macrostegia</i> (E. Greene) Brummitt				0
Cucurbitaceae	Calabazilla	<i>Cucurbita foetidissima</i> Kuoth		D		
Euphorbiaceae	Croton	<i>Croton californicus</i> Muell. Arg.	C			
Polygonaceae	Long-Stemmed Buckwheat	<i>Eriogonum elongatum</i> Benth.	F			
Scrophulariaceae	Seep Monkeyflower	<i>Mimulus guttatus</i> Fischer ex DC.			0	
Native Annual Forbs						
Boraginaceae	Fiddleneck	<i>Amsinckia</i> sp.	0			
Boraginaceae	Cleveland Cryptantha	<i>Cryptantha clevelandii</i> E. Greene	C	L		L
Cruciferae	Lacepod	<i>Thysanocarpus curvipes</i> Hook.	F			
Fabaceae	Miniature Lupine	<i>Lupinus bicolor</i> Lindley	C			
Fabaceae	Sky Lupine	<i>Lupinus nanus</i> Douglas ex Beath.	F			
Fabaceae	Nuttall Lupine	<i>Lupinus inmcatus</i> Nutt ex Hook & Arn	F			
Hydrophyllaceae	Douglas Phacelia	<i>Phacelia douglasii</i> (Beath.) Torrey.	F			
Hydrophyllaceae	Tansy Phacelia	<i>Phacelia tanacetifolia</i> Benth.	0			
Onagraceae	San Luis Obispo Suncup	<i>Camissonia campestris</i> (E. Greene) Raven ssp. <i>obispoensis</i> Raven	F			
Polemoniaceae	Ball-Head Gilia	<i>Gilia capitata</i> Sims	C			
Polygonaceae	Willow Weed	<i>Polygonum lapathifolium</i> L.		C		

Appendix 1. Plants of the Dana Adobe Site & Vicinity

SAND = Uplands with sandy soil; CLAY = Uplands with sandy soil;

RJP = Riparian corridor along Nipomo Creek; SEEP = Hillside Seep in clay soil southeast of Adobe

A = Abundant; C = Common; D = near Dana Adobe structure; F = Frequent; I = Individual plant; L = Localized patch

FAMILY	COMMON NAME	SCIENTIFIC NAME	SAND	CLAY	RIP	SEEP
Native Annual Forbs (continued)						
Portulacaceae	Red Maids	<i>Calandrinia ciliata</i> (Ruiz Lopez & Pavon) DC.	C	F		
Portulacaceae	Miner's Lettuce	<i>Claytonia perfoliata</i> Willd.				F
Scrophulariaceae	Purple Owl's-Clover	<i>Castilleja exserta</i> (A. A. Heller) Chuang & Heckard		0		
Urticaceae	Western Nettle	<i>Hesperocnide tenella</i> Torrey	F			
Native Perennial Monocot Herbs						
Iridaceae	Blue-Eyed Grass	<i>Sisyrinchium bellum</i> L Watson		0		
Themidaceae	Goldenstar	<i>Bloomeria crocea</i> (Torrey) CoY.		0		
Typhaceae	Broadleaved Cattail	<i>Typha latifolia</i> L.			L	
Native Rushes & Sedges						
Juncaceae	Baltic Rush	<i>Juncus balticus</i> Willd.			0	L
Juncaceae	Brownheaded Rush	<i>Juncus phaeocephalus</i> Engelm.				L
Juncaceae	Toadrush	<i>Juncus bufonius</i> L.				C
Cyperaceae	Umbrella Sedge	<i>Cyperos eragrostis</i> Lam.			0	0
Cyperaceae	Spikerush	<i>Eleocharis montevidensis</i> Kunth			0	
Cyperaceae	Small-Fruited Bulrush	<i>Scirpus microcarpus</i> Presl			0	
Native Perennial Grasses						
Gramineae	Saltgrass	<i>Distichlis spicata</i> (L.) E. Greene				C
Gramineae	Creeping Wild Rye	<i>Leymus triticoides</i> (Buckley) Pilger		C		
Gramineae	Purple Needlegrass	<i>Massella pulchra</i> (A. Hitchc.) Bark.-w.		L		

Appendix I. Plants of the Dana Adobe Site & Vicinity

SAND = Uplands with sandy soil; CLAY = Uplands with sandy soil;

RIP = Riparian corridor along Nipomo Creek; SEEP = Hillside Seep in clay soil southeast of Adobe

A = Abundant; C = Common; D = near Dana Adobe structure; F = Frequent; I = Individual plant; L = Localized patch

IFAMILY	/coMMON NAME	SCIENTIFIC NAME	SAND	CLAY	RIP	SEEF I
Alien Perennial Monocot Herbs						
Araceae	Calla Lily	<i>Zantedeschia aethiopica</i> (L.) Sprengel			I	
Cannaceae	Canna Lily	<i>Canna indica</i> L.			I	
Alien Perennial Grasses						
Gram.ineae	Bermuda Grass	<i>Cynodon dactylon</i> (L.) Pers.			0	
Gramineae	Veldt Grass	<i>Ehrharra calycina</i> Smith	C			
Gramineae	... Perennial Ryegrass	<i>Lolium perenne</i> L.		C		C
Gramineae	.. Harding Grass	<i>Phalaris aquatica</i> L.			C	
Gramineae	Water Bent	<i>Polypogon viridis</i> (Gouan) Breistroffer			C	
Alien Annual Grasses						
Gramineae	Slender Wild Oat	<i>Avena barbata</i> Link		0		0
Gramineae	Cultivated Oat	<i>Avena sativa</i> L.		C		
Gramineae	Ripgut	<i>Bromus diandrus</i> Roth		C		C
Gramineae	Soft Chess	<i>Bromus hordeaceus</i> L.	C	C		C
Gramineae	Poverty Brome	<i>Bromus sterilis</i> L.	C	C		
Gramineae	Mediterranean Barley	<i>Hordeum marinum</i> Hudson		C		C
Gramineae	WaU Barley	<i>Hordeum murinum</i> L.		C		
Gramineae	Cultivated Barley	<i>Hordeum vulgare</i> L.		0		
Gramineae	ftalian Ryegrass	<i>Lolium multi/lorum</i> Lam.	C	C	C	C
Gramineae	Rabbitfoot Grass	<i>Polypogon monspeliensis</i> (L.) Desf.			C	
Gramineae	Brome Fescue	<i>Vulpia bromoides</i> (L.) S.F. Gray		C		C
Gramineae	Rattail Fescue	<i>Vulpia myuros</i> (L.) KC. Grmel.u		C		C

**Vascular Plant Flora Observed at the
Biorn Asphalt Plant Site,
San Luis Obispo County, California**

<i>ActJr negundo</i> var. <i>callfomicum</i>	Box elder	T	FACW	Aceraceae
<i>Amb(l)isia acanihicarpa</i>	Annual bursage	BH		Asteraceaa
<i>Artemisia douglasiana</i>	Mugwort	PH	FAC+	Asteraceae
<i>Astragalus</i> sp.	Locoweed	PH		Fabaceae
<i>Baccharis pilularis</i> [8.p. var. <i>consaguinea</i>]	Coyote brush	S		Asteraceae
<i>Baccharis salicifolia</i>	Mule fat	S	FACW	Asteraceae
<i>Bromus diandrus</i> *	Ripgut grass	AG		Poaceae
<i>Bromus /1ordeaceus</i> *	Soft brome	AG	FACU-	Poaceae
<i>Bromus madritensis</i> ssp. <i>rubens</i> *	Red brome	AG		Poaceae
<i>Centaurea solstitialis</i> "	Yellow starthlstle	AH		Asteraceae
<i>Conium macu/atum</i> *	Poison hemlock	BH	FAC	Apiaceae
<i>Conyza canadensis</i>	Horseweed	AH	FAG	Asteraceae
<i>Crotoo californicus</i>	California croton	PH		Euphorbiaceae
<i>Cupressus macrocarpa</i> **	Monterey cypress	T		Cupressaceae
<i>Cynodon dacty/on</i> *	Bermuda grass	PG	FACU	Poaceae
<i>Cylisus scoparius</i> *	Scotch broom	S		Fabaceae
<i>Datura wrightii</i>	Jimsonweed	AH		Sofanaceae
<i>Ehrharta calycina</i> *	Veldt grass	PG		Poaceae
<i>Ericameria ericoides</i>	Mock heather	PH		Asteraceae
<i>Eucalyptus g/obulus</i> *	Blue gum	T		Myrtaceae
<i>Euphorbia esula</i> *	Leafy spurge	PH		Euphorbiaceae
<i>FotJnicU/um vulgare</i> *	Sweet fennel	PH	FACU-	Apiaceae
<i>Gnaphalium californicum</i>	California everlasting	BH		Asteraceae
<i>Gnaphalium canescens</i> ssp. <i>beneolens</i>	Cudweed	BH	FACU-	Asteraceae
<i>Helenium puberulum</i>	Sneezeweed	AH	FACW	Asteraceae
<i>Heterotheca grandiflora</i>	Telegraph weed	AH		Asteraceae
<i>Hirschfeldia incana</i> *	Summer mustard	BH	UPL	Brassicaceae
<i>Laius scoparius</i>	Deerweed	PH		Fabaceae
<i>Lycoris squamigera</i> *	Nekkid ladles	PH		Amarytildaceae
<i>Marrubium vulgare</i> *	Horehound	PH	FACU	Lamlaceae
<i>Melilotus Indica</i> *	Yellow starthistle	AH		Fabaceae
<i>Melilotus alba</i> "	White sweetclover	AH	FACU	Fabaceae
<i>Melilotus officinalis</i> *	Yellow sweetclover	AH	FACU	Fabaceae
<i>Nicotiana g/auca</i> *	Tree tobacco	T	FAC	Solanaceae
<i>Picris echioides</i> *	Bristly ox-tongue	AH	FAC	Asteraceae
<i>Pinus radiata</i> **	Monterey pine	T		Pinaceae
<i>Piptatherum miliaceum</i> *	Smilgrass	PG		Poaceae
<i>Ricinus communis</i> *	Castor bean	S	FACU-	Euphorbiaceae
<i>Rumex crispus</i> *	Curly dock	PH	FACW-	Polygonaceae
<i>Salix uxigua</i>	Narrow-leaved willow	S	FACW	Salicaceae
<i>Salix lasiolepis</i>	Arroyo willow	S	FACW	Salicaceae
<i>Senecio blochmaniae</i>	Bfochman-s ragwort	S		Asteraceae
<i>Tamarix ramosissima</i> *	Tamarisk	T	FAC	Tamaricaceae
<i>Vulpia myuros</i> var. <i>hirsuta</i> *	Foxtail fescue	AG	FACU*	Poaceae
<i>Xanthium strumarium</i>	Cocklebur	AH	FAC+	Asteraceae

Wildlife Species Observed or Expected within the Project Area

Family Common Name	Scientific Name	Protected Status	Habitat Use
INVERTEBRATES			
Monarch butterfly*	<i>Danaus plexippus</i>	SA	8/F
Crayfish*	<i>Cambarus spp.</i>		8/F
Brown garden snail*	<i>Helix aspersa</i>		8/F
FISHES			
Salmonidae			
Southern steelhead ESU	<i>Oncomynchus mykiss</i>	FT, CSC	8/F
Cyprinidae			
Speckled dace	<i>Rhinichthys osculus</i>		8/F
Gasterosteidae			
Threespine stickleback	<i>Gasterosteus aculea/us</i>		8/F
Cottidae			
Coastal prickly sculpin	<i>Coitus asper</i>		B/F
Poecillidae			
<u>Mosquitotish</u>	<i>Gambusia affinis</i>		8/F
AMPHIBIANS			
Plethodontidae			
Black-bellied slender salamander	<i>Batrachoseps nign'ventris</i>		8/F
Salamandridae			
California newt	<i>Taricha torosa</i>		8/F
Bufo			
California toad	<i>Bufo boreas ha/ophilus</i>		8/F
Hylidae			
Pacific treefrog	<i>Pseudacris regil/a</i>		B/F
Ranidae			
Bullfrog	<i>Rana catesbeiana</i>		B/F
Pelobatidae			
Western spadefoot	<i>Spea hammondii</i>		B/F
REPTILES			
Emydidae			
Southwestern pond turtle	<i>Clemmys mannorata pa/lida</i>	FSC,CSC	B/F
Iguanidae			
Western fence lizard*	<i>Sceloporos occidentalis</i>		8/F
Side-blotched lizard	<i>Uta stansburiana e/egans</i>		8/F
Anniellidae			
Silvery legless lizard	<i>Annie/la p. pu/chra</i>		8/F
Scincidae			
Western skink	<i>Eumeces skiltonianus</i>		B/F
Teiidae			
Western whiptail	<i>Cnemidophorus tigris</i>		B/F
Anguidae			
Southern alligator lizard	<i>Elgaria mu/ticarinatus</i>		B/F
Colubridae			
Striped racer	<i>Masticophis lateralis</i>		8/F
Pacific gopher snake	<i>Pituophis melanoleucus ca/enifer</i>		8/F
California kingsnake	<i>Lampropeltis gatufus californiae</i>		8/F
Common garter snake	<i>Thamnophis sirta/lis</i>		8/F

Wildlife Species Observed or Expected within the Project Area

Family Common Name	Scientific Name	Protected Status	Habitat Use
Night snake	<i>Hypsiglena torquata</i>	-	B/F
Terrestrial garter snake	<i>Thamnophis e/egsns</i>	-	8/F
Aquatic garter snake	<i>Thamnophis aqua/icus</i>	-	B/F
Viperidae			
Western rattlesnake	<i>Crotalus v/ridis</i>	-	B/F
BIRDS			
Anatidae			
Mallard	<i>Anas p/atythyndhos</i>	M	8/F
Ardeidae			
Great egret	<i>Ardea alba</i>	M	8/F
Black-crowned night heron	<i>Nyc/icornax nyc/icornax</i>	M	- 8/F
Great blue heron	<i>Ardes herodiss</i>	M	8/F
Snowy egret	<i>Egret/a thufa</i>	M	8/F
Cathartidae			
Turkey vulture*	<i>Cathartes aura</i>	M	8/F
Accipitridae			
White-tailed kite*	<i>Elanus laucurus</i>	M, FSC (nesting), FP	8/F
Northern harrier	<i>Circus cyaneus</i>	M, CSC (nesting)	F
Sharp-shinned hawk	<i>Accipiter striatus</i>	M, CSC (nesting)	F
Cooper's hawk	<i>Accipiter cooperii</i>	M, CSC (nesting)	B/F
Red-shouldered hawk*	<i>Buteo lineatus</i>	M	B/F
Red-tailed hawk'	<i>Buteo jamaicensis</i>	M	B/F
Falconidae			
American kestrel'	<i>Falco sparverius</i>	M	B/F
Phasianidae			
California quail'	<i>Callipep/a ca/ifomica</i>	M	B/F
Charadriidae			
Killdeer	<i>Charadrius vociferos</i>	M	8/F
Columbidae			
Rock dove*	<i>Co/umba livia</i>	-	B/F
Band-tailed pigeon	<i>Columbia fesciata</i>	M	B/F
Mourning dove*	<i>Zenaida macroura</i>	M	B/f
Tytonidae			
Barn owl'	<i>Tytoalba</i>	M	B/F
Strigidae			
Great horned owl'	<i>Bubo virginianus</i>	M	B/F
Caprimulgidae			
Common poorwill	<i>Phalaenoptilus nu/ta/li</i>	M	B/F
Trochilidae			
Anna's hummingbird*	<i>Calypte anna</i>	M	B/f
Costa's hummingbird	<i>Ca/lypte cos/ae</i>	M, FSC (nesting), CSC (nesting)	8/F
Black-chinned hummingbird	<i>Archilochus alexandri</i>	M	B/F
Allen's hummingbird	<i>Selasphorus sasin</i>	M, FSC (nesting)	8
Alcedinidae			
Belled kingfisher	<i>Cery/e a/cyon</i>	M	8/F
Picidae			
Nuttall's woodpecker*	<i>Pico/des nu/ta/lii</i>	M	8/F

Wildlife Species Observed or Expected within the Project Area

Family	Scientific Name	Protected Status	Habitat Use
Common Name			
Downy woodpecker	<i>Picoides pubescens</i>	M	8/F
Tyrannidae			
Western wood-pewee	<i>Con/opus sordidu/us</i>	M	8
Pacific-slope flycatcher	<i>Empidonex difficilis</i>	M	B
Black phoebe	<i>Sayomis nigricans</i>	M	8/F
Say's phoebe	<i>Sayomis saya</i>	M	F
Ash-throated flycatcher	<i>Myiarchus cinerascens</i>	M	B
Cassin's kingbird	<i>Tyrannus vociferans</i>	M	F
Hirundinidae			
Violet-green swallow	<i>Tachycineta thalassina</i>	M	B/F
Northern rough-winged swallow	<i>Stelgidopteryx serripennis</i>	M	B
Cliff swallow	<i>Hirundo pyrrhonota</i>	M	8
Barn swallow	<i>Hirundo ruslica</i>	M	B
Corvidae			
California scrub-jay	<i>Aphe/ocoma californica</i>	M	B/F
American crow	<i>Corvus brachyrhynchos</i>	M	B/F
Common raven	<i>Corvus corax</i>	M	B/F
Paridae			
Oak titmouse	<i>Baeo/ophus inomatus</i>	M	B/F
Chestnut-backed chickadee	<i>Poeche rufescens</i>		B/F
Aegithalidae			
Bushtit	<i>Psaltriparus minimus</i>	M	B/F
Troglodytidae			
Bewick's wren	<i>Thryomanes bewickii</i>	M	B/F
House wren	<i>Troglodytes aedon</i>	M	6/F
Muscicapidae			
Ruby-crowned kinglet	<i>Regulus calendula</i>	M	F
Blue-gray gnatcatcher	<i>Polioptila caerulea</i>	M	F
Swainson's thrush	<i>Catharus ustulatus</i>	M	B
Hermit thrush	<i>Catharus guttatus</i>	M	F
American robin	<i>Turdus migratorius</i>	M	8/F
Western bluebird	<i>Sialia mexicana</i>	M	F
Wrenlit	<i>Chamaee fasciata</i>	M	B/F
Mimidae			
Northern mockingbird	<i>Mimus polyglottos</i>	M	B/F
California thrasher	<i>Toxostoma redivivum</i>	M, FSC	BIF
Bombycillidae			
Cedar waxwing	<i>Bombycilla cedrorum</i>	M	F
Sturnidae			
European starling	<i>Stumusvulgaris</i>	-	B/F
Vireonidae			
Hutton's vireo	<i>Vireo huttoni</i>	M	B/F
Warbling vireo	<i>Vireo gilvus</i>	M	a
Parulidae			
Orange-crowned warbler	<i>Vermivore celare</i>	M	B/F
Yellow-rumped warbler	<i>Dendroica coronata</i>	M	F
Common yellowthroat	<i>Geothlypis trichas</i>	M	B/F

Wildlife Species Observed or Expected within the Project Area

Family Common Name	Scientific Name	Protected Status	Habitat Use
--			
Cardinalidae			
Black-headed grosbeak	<i>Pheucicus melanocephalus</i>	M	B
Blue grosbeak	<i>Guiraca caerulea</i>	M	B
Lazuli bunting	<i>Passerina amoena</i>	M	B/F
Emberizidae			
Spotted towhee	<i>Pipilo maculatus</i>	M	B/F
California towhee	<i>Pipilo crissalis</i>	M	B/F
White-crowned sparrow	<i>Zonotrichia leucophrys</i>	M	F
Lark sparrow	<i>Chondestes grammacus</i>	M, FSC (nesting)	B/F
Rufous-crowned sparrow	<i>Aimophila ruficeps</i>	M	8/F
Golden crowned sparrow	<i>Zonotrichia atricapilla</i>	M	F
Dark-eyed junco	<i>Junco hyemalis</i>	M	B/F
Icteridae			
Red-winged blackbird	<i>Agelaius phoeniceus</i>	M	8/F
Western meadowlark	<i>Sturnella neglecta</i>	M	8/F
Brewer's blackbird	<i>Euphagus cyanocephalus</i>	M	8/F
Brown-headed cowbird	<i>Molothrus ater</i>	M	B/F
Bullock's oriole	<i>Icterus bullockii</i>	M	B
Hooded oriole	<i>Icterus cucullatus</i>	M	B
Fringillidae			
Purple finch	<i>Carpodacus purpureus</i>	M	B/F
House finch	<i>Carpodacus mexicanus</i>	M	8/F
Lesser goldfinch	<i>Carduelis psaltria</i>	M	8/F
American goldfinch	<i>Carduelis tristis</i>	M	B/F
Passeridae			
House sparrow	<i>Passer domesticus</i>	-	8/F
MAMMALS			
Didelphidae			
Virginia opossum	<i>Didelphis virginiana</i>	-	B/F
Vespertilionidae			
California myotis	<i>Myotis californicus</i>	-	8/F
Big brown bat	<i>Eptesicus fuscus</i>	-	B/F
Red bat	<i>Lasiurus borealis</i>	-	8/F
Hoary bat	<i>Lasiurus cinereus</i>	-	8/F
Molossidae			
Pallid bat	<i>Antrozous pallidus</i>	CSC	8/F
Brazilian free-tailed bat	<i>Tadarida brasiliensis</i>	-	8/F
Leporidae			
Desert cottontail	<i>Sylvilagus audubonii</i>	-	8/F
Scluridae			
California ground squirrel	<i>Spermophilus beecheyi</i>	-	B/F
Western gray squirrel	<i>Sciurus griseus</i>	-	B/F
Geomyidae			
Botta-s pocket gopher	<i>Thomomys bottae</i>	-	8/F
Heteromyidae			
California pocket mouse	<i>Perognathus californicus</i>	CSC	B/F
Pacific kangaroo rat	<i>Dipodomys agilis</i>	-	B/F

Wildlife Species Observed or Expected within the Project Area

Family Common Name	Scientific Name	Protected Status	Habitat Use
Cricetidae			
Western harvest mouse	<i>Reithrodontomys megalotis</i>		B/F
Deer mouse	<i>Peromyscus maniculatus</i>		B/F
Dusky-footed woodrat	<i>Neotoma fuscipes</i>		B/F
Arvicolidae			
California vole	<i>Microtus californicus</i>		B/F
Muridae			
House mouse	<i>Mus musculus</i>		B/F
Black rat	<i>Rattus rattus</i>		B/F
Canidae			
Coyote*	<i>Canis latrans</i>		B/F
Gray fox	<i>Urocyon cinereoargenteus</i>		BIF
Domestic dog*	<i>Canis familiaris</i>		B/F
Procyonidae			
Ringtail	<i>Bassariscus astutus</i>		B/F
Raccoon	<i>Procyon lotor</i>		BIF
Mustelidae			
Long-tailed weasel"	<i>Mustela frenata</i>		BIF
Striped skunk	<i>Mephitis mephitis</i>		B/F
Felidae			
Bobcat	<i>Lynx rufus</i>		BIF
Feral cat"	<i>Felis catus</i>		B/F
Cervidae			
Black-tail d deer*	<i>Odocoileus hemionus</i>		B/E

*observed during field surveys conducted by Nadre (includes animal scat, tracks, nests, and den sites)

Habitat Use	Protected Status	
B- Breeding	FE - Federal-listed Endangered Species	SE - State-listed Endangered Species
F- Foraging	FT - Federal-listed Threatened Species	ST - State-listed Threatened Species
	FSC - Federal Species of Concern	CP - Protected under California Fish and Game Code
	FPT - Federal-listed Candidate Species	CSC - California Species of Special Concern
		SA - California Special Animal
		M - Migratory Bird Treaty Act Species

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Waterbody Assessment

Beneficial Use



Municipal and Domestic Water Supply (1/90)

Agricultural Supply (5/281)

Industrial Process Supply

Industrial Service Supply

Groundwater Recharge

Water Contact Recreation (21/61)

Non-Contact Water Recreation (21/89)

Aquatic Life (18/155)

Wildlife Habitat

Cold Freshwater Habitat (17/100)

Warm Freshwater Habitat (17/100)

Migration of Aquatic Organisms

Spawning, Reproduction and/or Early Development

Biological Habitat of Special Significance

Rare, Threatened, or Endangered Species

Estuarine Habitat

Freshwater Replenishment

Navigation

Hydropower Generation

Commercial and Sport Fishing

Aquaculture (18/155)

Inland Saline Water Habitat

Shellfish Harvesting (20/27)

Marine Habitat (5/67)

Flood Protection


Wetland Habitat



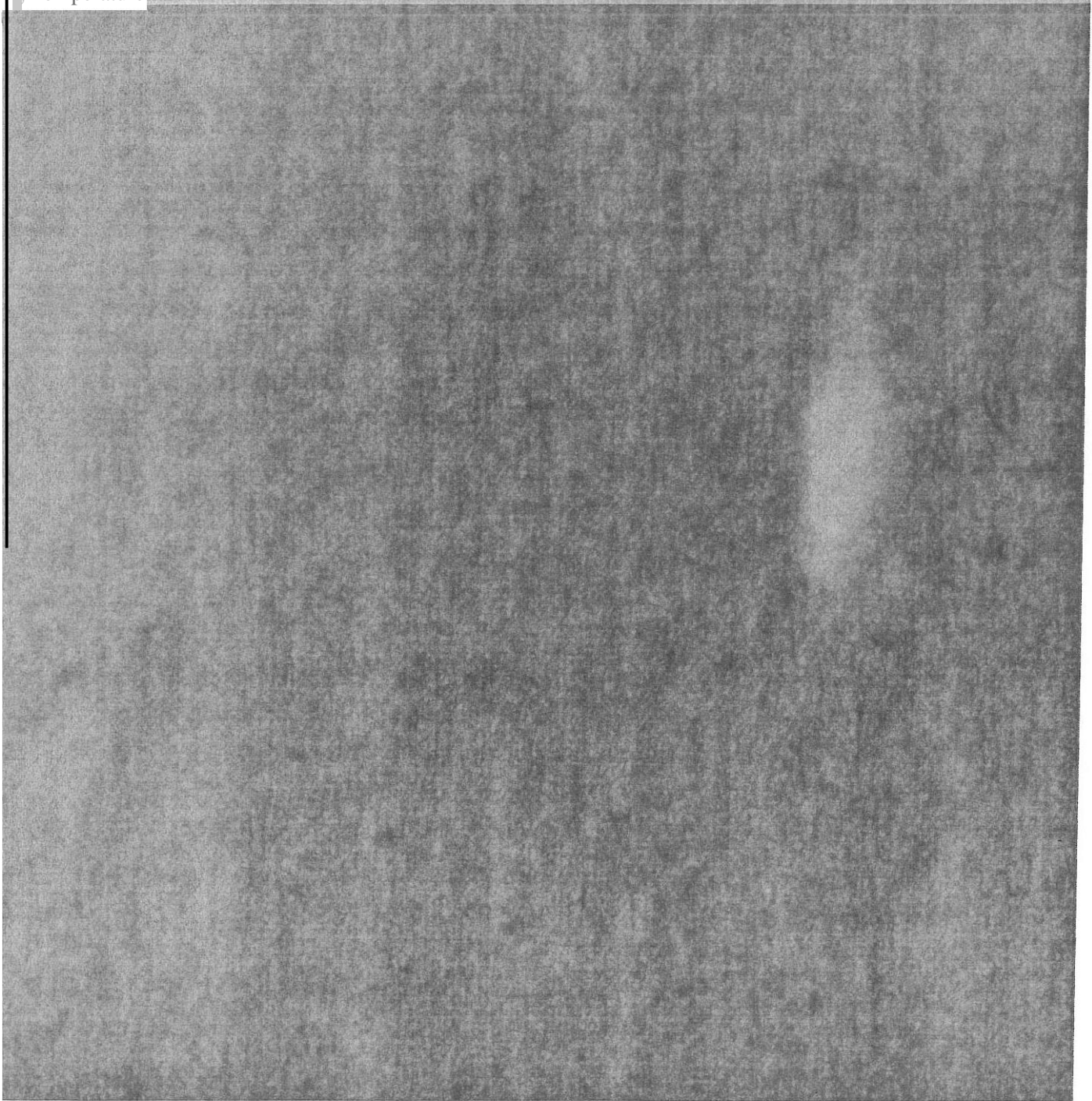
California State Water Resources Control Board
 Regional Water Quality Control Board
 San Joaquin Region
 Nipomo Creek
 Hydrologic Unit 312
 Waterbody Assessment

Anau: te	Max	Min	Mean	GeoMean	Samples	Hits	First	Last	Crit.	Ref.	CWA

% algal Cover, filamentous	90	1	38.7	17.5	15	0	1/1/2000	1/1/2001	
% algal Cover, periphyton	100	1	64	53	9	0	4/1/2000	1/1/2001	
Air Temperature	33	16	22.4	21.8	27	0	1/1/2000	1/1/2001	
Ammonia as N, Total	1.4	0.008	0.143	0.063	28	0	1/1/2000	3/1/2001	Calif Ocean 2.4 Plan Daily Miucim.um Basin Plan
Ammonia as N, Unionized	0.035	0	0.005	0.002	27	1	1/1/2000	3/1/2001	0.025 General Objective
Bank Plant Cover	100	75	97	96	25	0	1/1/2000	1/1/2001	
Bio-stimulatory Risk	0.91	0.181	0.685	0.67	28	0	1/1/2000	1/1/2001	
Boron, dissolved	0.153	0.07	0.133	0.132	20	0	1/1/2000	3/1/2001	Basin Plan 0.75 Agriculture (Irrigation)
Calcium	121	50	99	98	28	0	1/1/2000	3/1/2001	
Chloride	184	50	151	148	28	0	1/1/2000	3/1/2001	
Chlorophyll a	16	0.1	3.1	1.8	28	1	1/1/2000	3/1/2001	15 North Carolina DENR, 2002 - Objective in streams
Colifonn, Fecal	9000	10	2786	1078	27	20	1/1/2000	3/1/2001	400 Basin Plan Water Body Contact Recreation
Coliform, Total	80000	790	14640	6738	28	9	1/1/2000	3/1/2001	10000 Basin Plan Marine Water Contact Recreation
Conductivity(Us)	1830	750	1494	1474	33	0	1/1/2000	3/1/2001	3000 Basin Plan Severe Problems for Ag
Dissolved Solids, Fixed	1348	360	820	807	27	0	1/1/2000	3/1/2001	
Dissolved Solids, Total	1538	506	946	932	28	0	1/1/2000	3/1/2001	1920 Basin Plan Severe Problems

											for Ag
Dissolved Solids, volatile	240	42	155	139	28	0	1/1/2000	3/1/2001			
Hardness as CaCO3	625	242	525	513	28	0	1/1/2000	3/1/2001			
Magnesium	85	27.7	67.7	65.4	28	0	1/1/2000	3/1/2001			
Nitrate as N	6.3	0.043	4.803	4.65	28	0	1/1/2000	3/1/2001	10	Basin Plan Municipal and Domestic Supply	
Nitrate as NO3	28	0.2	21.4	20.7	28	0	1/1/2000	3/1/2001	45	Basin Plan Municipal and Domestic Supply	
Nitrite as N	0.066	0.005	0.041	0.036	28	0	1/1/2000	3/1/2001	1	EPA Primary Max. Contaminant Level	
Nitrogen, Total	8	0.6	6.088	6.012	18	0	4/1/2000	3/1/2001			
Nitrogen, Total Kjeldahl	2	0.25	0.896	0.82	28	0	1/1/2000	3/1/2001			
OrthoPhosphate asP	0.65	0.046	0.308	0.285	28	0	1/1/2000	3/1/2001			
OrthoPhosphate asPO4	1.97	0.14	0.934	0.863	28	0	1/1/2000	3/1/2001			
Oxygen, Dissolved	15.6	5.3	9.7	9.2	33	4	1/1/2000	3/1/2001	7	Basin Plan Cold Water Fish Habitat	
Oxygen, Saturation	163	55	104	97	33	12	1/1/2000	3/1/2001	85	Basin Plan General	
pH	8.33	7.37	8.016	8.013	34	1	1/1/2000	3/1/2001	6.5	Basin Plan Cold Water Fish Habitat	
Phosphate, total asP	2.23	0.02	0.792	0.63	16	0	1/1/2000	9/1/2000			
Phosphorus, total	0.61	0.09	0.444	0.43	12	0	4/1/2000	3/1/2001			
Salinity	0.9	0.39	0.825	0.822	31	0	1/1/2000	3/1/2001			
Sodium	164	60	122	117	28	0	1/1/2000	3/1/2001			
Sulfate	260	120	232	230	16	0	8/1/2000	3/1/2001			

Suspended Solids, Fixed	37	0.3	17.8	11.6	27	0	1/1/2000	3/1/2001
Suspended Solids, Total	50	2.5	24.9	21.6	28	0	1/1/2000	3/1/2001
Suspended Solids, Volatile	40	2.8	11.9	8.7	28	0	1/1/2000	3/1/2001
Turbidity(NTU)	65.2	0.4	20.4	15.2	28	0	1/1/2000	3/1/2001
Water Temperature	23.8	9.9	17.9	17.4	33	0	1/1/2000	3/1/2001



About the Summary Data Information

Analyte: *This* is the name of what is being measured.

Min: This term refers to the minimum value measured at the site or waterbody.

Mean: *This* term refers to the mean average at the site or waterbody.

Median: This term refers to the median value at the site or waterbody.

Geo: *This* term refers to the geometric mean average at the site or waterbody.

Samples: This term refers to the number of samples collected at the site or waterbody.

First: This term refers to the date of the first sample collected at the site or waterbody.



Last: This term refers to the date of the last sample collected at the site or waterbody.

Hits: This term refers to the number of times the water quality criteria was exceeded at the site or waterbody.

Crit: This term refers to the water quality criteria value used for screening purposes.

Ref: This term identifies the name of the water quality criteria being used for screening purposes.

Q: This is a 'report card' type Quality Rating

- =Appears to fully support Beneficial Uses
-  =A single sample indicates cause for concern
-  =Partially supporting Beneficial Uses
- =Not supporting some Beneficial Uses

Estimated acreage for each type of Crop

Conventional

Organic

Row Crops

Orchard

Vineyard

Nw.sety

Greenhouse

Other:!

Other:

Other:!

Estimated acreage for each type of Irrigation:

Acres

Drip

Sprinkler

furrow

Other:!

Other:!

Other:!

Total Irrigated Acres for this ranch

Estimated irrigated acreage generating each type of Discharge:

Acres

Tailwater discharges off site

Tailwater discharges to pond

Tile drain discharges off site

Tile drain discharges to pond

Stoml water discharge only

Other:!

Other:!

Other:!

Erosion Control

Erosion Control	Not applicable to operation	Practice in Place	Practice Planned within 3 Years	Definition / Menu of Practices
Practices are in place to manage sediment from upstream/upslope	●	r	r	Sediment Basin, Water and Sediment Control Basin, Diversion, Grassed Waterway, Lined Waterway, Open Channel, Structure for Water Control, Surface Drainage <i>Ditch</i> , Underground Outlet, Conservation Cover, Filter Strip, Tree/Shrub Establishment
Fields are designed to minimize erosion potential	r	r	r	Contour Fanning, Row Arrangement, Access Road, Contour Buffer Strip, Diversion, Land Smoothing
Bare fields are covered to reduce rainfall runoff potential	r	r	r	Conservation Crop Rotation, Cover Crops, Mulching, Residue Management, Contour Buffer Strip, Critical Area Planting
Irrigation water is managed to minimize erosion potential	r	r	r	Irrigation Water Management, Anionic Polyacrylamide (PAM), Deep Tillage, Soil Moisture Measurements, Irrigation Land Leveling
Potential for wind erosion is managed	r	r	r	Hedgerows, Herbaceous Wind barrier, Windbreak Shelterbelt Establishment, Conservation Crop Rotation, Cover Crop, Residue Management, Cross Wind Ridges, Surface Roughening, Access Road, Mulching
Roads are protected from concentrated flow of runoff	r	r	r	Access Road Cover Crop, Critical Area Planting, Mulching
Ditches and banks are protected from concentrated flow	r	r	r	Grassed Waterway, Lined Channel, Grade Stabilization Structure, Open Channel, Structure for Water Control, Diversion, Cut Bank Stabilization
Soil is protected in non-cropped areas	r	r	r	Mulching, Conservation Cover, Critical Area Planting, Filter strip, Hedgerow Planting, Range Planting, Tree/Shrub Establishment, Use Exclusion
Potential problem areas are regraded and protected	r	r	r	Cut Bank Stabilization, Landslide Treatment, Critical Area Planting, Grade Stabilization Structure, Structure for Water Control
Water is diverted to a stable outlet	r	r	r	Diversion, Grassed Waterway, Lined Waterway, Open Channel, Structure for Water Control, Subsurface Drain, Surface Drainage Ditch, Underground Outlet, Roof Runoff Management
Eroded sediment is detained or filtered before leaving the operation	r	r	r	Diversion, Lined Waterway, Open Channel, Structure for Water Control, Surface Drainage Ditch, Underground Outlet, Irrigation System Tailwater Recovery, Sediment Basin, Water and Sediment Control Basin, Conservation Cover, Filter Strip, Grassed Waterway
Other:	r	r	r	
Other:	r	r	r	
Number of acres that have all planned erosion control strategies in place				_____ acres
Number of acres that have some planned erosion control strategies in place				_____ acres
Number of acres where erosion control strategies are planned but not yet in place				_____ acres

Irrigation Management

Irrigation Management	Not applicable to operation	Practice in Place	Practice Planned within 3 Years	Definition/ Menu of Practices
Irrigation system efficiency is maximized	1	1	1	Irrigation Mobile Lab System Evaluation where available, Irrigation Water Management, Regular System Maintenance, Irrigator/Foreman Training, Anionic Polyacrylamide (<i>PAM</i>), Deep Tillage
Irrigation scheduling is optimized		1	1	Irrigation Scheduling (based on soil moisture monitoring and crop evapotranspiration (ET) demand), irrigation Applications adjusted for leaching fraction and system distribution uniformity, irrigation records maintained
Irrigation system design is optimized	1	1	1	Irrigation System Microirrigation, Irrigation System Sprinkler, Irrigation Water Management, Irrigation Land Leveling, Irrigation Water Conveyance Pipeline, Irrigation Regulation Reservoir, Irrigation System Tailwater Recovery, Subsurface Drain, Well Decommissioning
Furrow or flood irrigation distribution uniformity (DU) is maximized and maintained	1	1	1	Surge irrigation valves, Irrigation Field Ditch, Managed Furrow Lengths, Alternate Row Irrigation, Irrigation Canal or Lateral
Sprinkler and microsprinkler distribution uniformity (DU) is maximized and maintained	1	1	1	System Equipment Maintenance, System Pressure Maintenance, Appropriate and Uniform Nozzle Sizes, Microsprinkler Low Pressure Shut-off Valves, Low Wind Conditions during Applications, Herbaceous Wind Barrier, Windbreak/Shelterbelt
Drip irrigation distribution uniformity (DU) is maximized and maintained	1	1	1	System Equipment Maintenance, System Pressure Maintenance, Appropriate Tape/Emitter Application Rate, Pulse Irrigation
<u>Other:</u>	1	1	1	_____
Other:	1	1	1	_____
Number of acres that have all planned irrigation management strategies <i>in place</i>				_____ acres
Number of acres that have some planned irrigation management strategies <i>in place</i>				_____ acres
Number of acres where irrigation management strategies are planned but not yet <i>in place</i>				_____ acres

Pesticide Management

Pesticide Management	Not applicable to operation	Practice in Place	Practice Planned within 3 Years	Definition / Menu of Practices
Sire preparation and plant material promote crop health	1	1	1	Bedding, Inigation Land Leveling, irrigation Water Management, Resistant Varieties,Conservation Crop Rotation, Cover Crop
Pest and beneficial populations are monitored	1	1	1	UC IPM Pest Management Guidelines consulted, scouting for pest detection, pest records maintained
Cultural practices are used to reduce pest presstu-e	t	1	1	Sanitation, Dust Mitigation, Access Road, Mulching, Mechanical Weed Control, Physical or Environmental Pest Conu-ol, Pest Exclusion
Biological conu-ols are used where effective	1	1	1	
Efficient pest control decisions are made	1	1	1	UC IPM Pest Management Guidelines consulted, reduced-risk or selective pesticides used where effective, application decisions based on scouting data, pest thresholds and/or risk assessment models, pesticides selected for lower risk of nmoff or leaching where possible, hot spots selectively treated, pesticides applied at the lowest effective label rate
Pesticide handlers/applicators trained yearly	1	1	1	
Pesticide label instructions followed	1	1	1	
Application equipment calibrated	1	1	1	
Appropriate disposal methods used	1	1	1	
Pesticide storage facilities include concrete pads and curbs for containment of spills	1	1	1	Agrichemical Handling Facility
Production wells are on elevated impetvious bases upslope of pesticide storage and handling facilities	1	1	1	

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Pesticide Management	Not applicable to operation	Practice in Place	Practice Planned within 3 Years	Definition/ Menu of Practices
WeWlead protection consists of an impermeable pad, sump, or buffer area of 100' around the wellhead	-	r	r	
Containment basins lined to prevent pesticide leaching	-	-	r	
Mixing and loading is performed on sites with low runoff hazard, over 100' downslope of well	r-	r ₁	r	
Field layout is designed to minimize pesticide movement	r	r	r	In-igation Land Leveling, Land Smoothing, Contour Fanning, Row Arrangement
Fields are managed to reduce pesticide movement	r-	l-	r	Conservation Cover, Cover Crop, Vegetative Barrier, Mulching, Residue Management, Deep Tillage, In-igation Water Management, Contour Buffer Strip, Sediment Basin, Water and Sediment Control Basin, Irrigation System Tailwater Recovery, Conservation Cover, Filter Strip, Grassed Waterway onto Constructed Wetland
Other: _____	j	r	r	
Other: _____	r	r	r	
Number of acres that have all planned pesticide management strategies in place				_____ acres
Number of acres that have some planned pesticide management strategies in place				_____ acres
Number of acres where pesticide management strategies are planned but not yet in place				_____ acres

Nutrient Management

Practice
Planned
within 3
years

Definition / Menu of Practices

Nitrogen (N) and Phosphorus (P) crop requirements are known

r-

y-

r-

N and P sources for crop are known

r-

r

y-

Well/irrigation water monitored for N and P levels

r

r

r

Tissue analysis for crops with identified critical levels

y-

r

r-

Pre-sidedress nitrogen tests are used

r

r

r

Soil Nitrate Quick Test, Soil Testing

Nutrient budget used in determining fertilizer applications

r

y-

r

Fertilizer application timing is based on crop needs

y-

r

r-

Fertigation is used where appropriate

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Cover crops are used to increase soil fertility and reduce fertilizer applications

y-

r

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Cover Crop

Irrigation is managed to avoid loss below the root zone

r-

r-

r

Application equipment is calibrated regularly

r

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r

Fertilizer handlers and applicators are trained

r

!-

r

Nutrient Management	Not applicable to operation	Practice in Place	Practice Planned within 3 Years	Definition/ Menu of Practices
Precision placement is used to deliver nutrients efficiently	I~	I	I	
Fertilizer storage facilities include concrete pads and curbs for containment of spills	I	I	I	
Mixing and loading is performed on sites with low runoff hazard, over 100' downslope of well	I	I	I	
Septic systems are monitored and maintained	I	I	I	
Other:	I-	I-	I	
Other:	I	I	I	

Number of acres that have all planned nutrient management strategies in place _____ acres

Number of acres that have some planned nutrient management strategies in place _____ acres

Number of acres where nutrient management strategies are planned but not yet in place _____ acres

Certification: I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

 Print Name: _____
 Title: _____
 Signature) _____

Date: Month:!! Day:!! Year:!!