JURISDICTIONAL DELINEATION
FOR TTM 34760 IN THE
CITY OF CORONA,
RIVERSIDE COUNTY, CALIFORNIA

Prepared for:

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INFORMATION SUMMARY

Report Date:	July 31, 2009
Location:	Section 29, T7S, R2W
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This delineation is an update of a draft delineation prepared by Thomas Olsen Associates, Inc. (TOA, Inc) dated May7, 2007. This revision reflects changes made to the proposed Project (TTM34760) since that report was prepared. This revision was prepared by Mr. Michael Misenhelter who conducted the original delineation (including fieldwork) of May 2007. This report uses data collected during the March and April 2007 field delineation. The site was revisited by Mr. Misenhelter and Ms. Karen Kirtland on July 18, 2009 in order to examine current conditions.

A jurisdictional delineation of Tentative Tract 34760 in the City of Corona, California (Figures 1 & 2) was conducted to delineate any drainages within the proposed project area with potential to fall under the jurisdiction of the Army Corps of Engineers (Corps)/Regional Water Quality Control Board (RWQCB) and/or the California Department of Fish and Game (Department). Most of the Project occurs within an

active lemon and avocado orchard that has been in existence since about 1989. The topography of the orchard appears, mostly, to follow the original natural contours of the property. The orchard is artificially irrigated using a drip water system that has introduced much more water into the Project area than would be there naturally. Erosional features caused by excess irrigation runoff were not included in the delineation. Drainage "improvements" (ditches) for purposes of orchard maintenance that are located in the remnants of natural drainage features were delineated. Culverts and pipes are not included in the final tally of potentially jurisdictional waters.

The project proponent proposes to build a residential tract map consisting of 34 single family residences on approximately 49.6 acres of an approximately 65 acre property. Approximately 35 acres of the project site is currently used for growing avocados and lemons. The remaining 20 acres of the project site is vegetated with relatively dense chaparral with small openings of coastal sage scrub, annual grassland, and olive trees from an old orchard. A blue line stream crosses the western portion of the property. Impacts to this drainage will be avoided by leaving this 10 acre portion of the property as open space.

An examination of the site and Riverside County Flood Control Maps show the presence of six potentially jurisdictional drainages within the proposed project area. The blue line drainage was not delineated since it will not be directly impacted by the proposed project. Each drainage was examined for jurisdictional features: a readily identifiable Ordinary High Water Mark (OHWM), including water marks and drift lines, for Corps jurisdiction and an identifiable incised bed and bank for the Department of Fish and Game. Additionally, any riparian vegetation associated with the banks of jurisdictional drainages is included under the Department's jurisdiction. Drainages showing an OHWM must be connected to already identified Army Corps of Engineers jurisdictional waters downstream to fall under the jurisdiction of the Corps. The Army Corps of Engineers and the Regional Water Quality Control Board are granted jurisdiction over such drainages by the federal Clean Water Act. Waters typically must fall under the jurisdiction of the Corps in order to fall under the jurisdiction of the Regional Water Quality Control Board. The Department of Fish and Game is given jurisdiction by the state of California Department of Fish and Game regulations.

Drainages A through D cross through the active orchard while drainages E and F occur completely outside of the active orchard. Drainage E is a natural drainage and drainage F appears to be a remnant of the old olive orchard irrigation system. E and F drain into the blue line stream on the west side of the property. The blue line drainage eventually drains into a debris basin offsite to the northwest. Drainage A drains into this same debris basin via a cement lined ditch on the property adjacent to the northern property border. Drainages B and D drain into a debris basin offsite to the northeast. Drainage C converges with an off site drainage to the east and then into the debris basin to the northeast.

Drainage conditions within the orchard have been altered somewhat with the installation of pipes and roadside ditches which follow dirt access roads apparently built to follow the natural topography. Most of the orchard drainages are constrained by either p.v.c./plastic/cement pipes, ditches with dirt bottoms and corrugated metal sides, or all dirt ditches. Drainage D consists of a system of incised errosional features passing between the rows of trees in that portion of the grove and converging at the project border.

Water was only observed in drainages A, C, and D during the site visits. The source of this water appeared to be excessive runoff from the orchard irrigation system. Water was never observed flowing onto the property from upstream. The only drainages that showed evidence of past flow onto the site are

drainages B and C which are the only drainages with an offsite, upstream connection. The other drainages originate on site.

Vegetation associated with the drainages is largely upland grasses and forbs, chaparral, or orchard trees. Two drainages (Drainages A & C) contain small areas of willow (*Salix lasiolepis*) and mule fat (*Baccharis salicifolia*) vegetation. Drainage D passes off site in a small area vegetated with sparse cattails (*Typha* sp.), rabbit's foot grass (*Polypogon monspeliensis*), and willow herb (*Epilobium cilatum*).

It should be noted that normal conditions, as defined by the Army Corps of Engineers, do not exist within the orchard portion of the site. This portion of the site has been in agricultural use for approximately 20 years. Additionally, the region has been experiencing drought conditions for an extended period of time and rainfall amounts are at record low levels for the current rainfall season (2007). Conditions observed on site in 2009 are largely unchanged from those observed in 2007 except for an increase in the amount of weedy vegetation in Drainages A, B, and D near where those drainages leave the site resulting from excessive irrigation runoff.

As discussed above, the Corps and Regional Water Quality Control Board has jurisdiction over drainages that are tributary to Waters of the U.S. The purpose of this is to protect water quality under the Clean Water Act. The final determination as to whether any of the drainages fall under the jurisdiction of the Army Corps of Engineers is made by the Army Corps of Engineers. All of the drainages crossing the project site empty into detention basins. During high flood events, water from these basins connect with the City's storm-drain system, flowing either to the Santa Ana Regional Interceptor (reach IVB) which eventually empties into the ocean or the Temescal Wash at Lincoln Avenue. From Temescal Wash, flood waters would flow into the Prado Basin, which is part of the Santa Ana River, a water body under the Corps jurisdiction. However, under normal conditions, outflow from the Project site appears to go no further than the debris basins, if that far.

The California Department of Fish and Game (the Department) has State jurisdiction to protect drainages in order to protect wildlife habitat on and off site associated with those drainages. Because the drainage system drains into offsite debris basins that are maintained to be kept clear of vegetation there is little to no wildlife value to water draining off site. Under normal circumstances, any water draining off site would not leave the basins but would be allowed to percolate into the ground water. In years of extreme rainfall it is expected that runoff would fill the basins and be transported into the City storm-drain system (see previous paragraph). Under normal conditions, the vast majority of water on or leaving the site is the result of orchard irrigation runoff. Project impacts are most likely to impact the riparian vegetation on site with minimal impact off site. There is approximately one-tenth of an acre of willow and mule fat riparian vegetation onsite (In drainages A and C) and an additional two-tenths of an acre of willow woodland just offsite to the east in drainage C. Orchard irrigation runoff would be eliminated in drainages A, B, and D. Irrigation runoff in drainage C would continue under current Project plans because the orchard in that portion of the site would remain as Open Space and continue to be irrigated.

REGULATORY ENVIRONMENT

Regulations for protecting bodies of water including lakes, ponds, rivers, and streams (perennial and seasonal) are meant to protect water quality and wildlife resources. Federal protection of water quality is regulated under the Clean Water Act (Act) and the regulating agency is the US Army Corps of Engineers (Corps) through Section 404 of the Act. Local and state water quality regulation is through the Regional Water Quality Boards as provided under Sections 401 and 402 of the Act. The protection of wildlife habitat associated with streams and lakes is regulated by the California Department of Fish and Game through Section 1602 of the Fish and Game code.

Army Corps of Engineers

Pursuant to Section 404 of the Clean Water Act, the Corps regulates the discharge of dredged and/or fill material into waters of the United States. The term "waters of the United States" is defined in Corps regulations at 33 CFR Part 328.3(a) as:

> (1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters, which are subject to the ebb and flow of the tide;
>
> (2) All interstate waters including interstate wetlands;
>
> (3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation, or destruction of which could affect foreign commerce including any such waters:
>
> > (i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or
> >
> > (ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
> >
> > (iii) Which are used or could be used for industrial purpose by industries in interstate commerce...
>
> (4) All impoundments of waters otherwise defined as waters of the United States under the definition;
>
> (5) Tributaries of waters identified in paragraphs (a) (1)-(4) of this section;
>
> (6) The territorial seas;
>
> (7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) (1)-(6) of this section.

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 123.11 (m) which also meet the criteria of this definition) are not waters of the United States.

In the absence of wetlands, the limits of Corps jurisdiction in non-tidal waters, such as intermittent streams, extend to the ordinary high water mark (OHWM) which is defined at 33 CFR 328.3(e) as:

> ...that line on the shore established by the fluctuation of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

Pursuant to Article I, Section 8 of the U.S. Constitution, federal regulatory authority extends only to activities that affect interstate commerce. In the early 1980s the Corps interpreted the interstate commerce requirement in a manner that restricted Corps jurisdiction on isolated (intrastate) waters. On September 12, 1985, EPA asserted that Corps jurisdiction extended to isolated waters that are used or could be used by migratory birds or endangered species, and the definition of "waters of the United States" in Corps regulations was modified as quoted above from 33 CFR 328.3(a).

On January 9, 2001, the Supreme Court of the United States issued a ruling on Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers, et al. (SWANCC). In this case the Court was asked whether use of an isolated, intrastate pond by migratory birds is a sufficient interstate commerce connection to bring the pond into federal jurisdiction of Section 404 of the Clean Water Act. The Court found that the Clean Water Act provided no clear or specific intent that such waters should be included under Section 404. Without actually ruling on the migratory bird issue, the Court implied that such “isolated” bodies of water were not covered under the authority of the Corps as long as they were not adjacent to waters of the United States. Isolated waters typically include wetlands, vernal pools, seasonal swales, prairie potholes, playa lakes and sinks, desert washes and drainages, and constructed features which collect water such as abandoned mines, pits, and construction basins as long as they are not adjacent to jurisdictional waters. Adjacent waters must have a clear surface or subsurface hydrological connection for such bodies to be considered jurisdictional.

Wetlands

The term "wetlands" (a subset of "waters of the United States") is defined at 33 CFR 328.3(b) as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal conditions do support, a prevalence of vegetation typically adapted for life in saturated soil conditions."

In 1987 the Corps published a manual to guide its field personnel in determining jurisdictional wetland boundaries. The methodology set forth in the 1987 Wetland Delineation Manual generally requires that, in order to be considered a wetland, the vegetation, soils, and hydrology of an area exhibit at least minimal hydric characteristics. While the manual provides great detail in methodology and allows for varying special conditions, a wetland should normally meet each of the following three criteria:

> 1) more than 50 percent of the dominant plant species at the site must be typical of wetlands (i.e., rated as facultative or wetter in the National List of Plant Species that Occur in Wetlands);
>
> 2) soils must exhibit physical and/or chemical characteristics indicative of permanent or periodic saturation (e.g., a gleyed color, or mottles with a matrix of low chroma indicating a relatively consistent fluctuation between aerobic and anaerobic conditions); and

> 3) hydrologic characteristics must indicate that the ground is saturated to within 12 inches of the surface for at least five percent of the growing season during a normal rainfall year.

In order for a site to meet the federal definition of a wetland, it must meet all three of the above conditions. Exceptions are made for "problem" areas and "atypical" situations.

Corps Permitting

Three types of Clean Water Act section 404 permits are available: individual permits, letters of permission, and general permits. Individual permits are the most complex and time consuming of the three to acquire. Letters of Permission, which are not often used, are similar to individual permits but are not quite as time consuming. General permits are the easiest to acquire but they are only available for projects with limited impacts to jurisdictional waters and under specific conditions. Nationwide permits (NWP) are a type of general permit. There are currently 44 nationwide permits. Most nationwide permits have an upper impact limit of 0.5 acres or 300 linear feet. Impacts that exceed these limits do not qualify for a nationwide permit. The local Corps District offices sometimes establish regional conditions for the use of nationwide permits.

Regional Water Quality Control Board

At the State level, the State Water Resources Control Board administers permits under Sections 401 and 402 of the federal Clean Water Act. This authority is provided under the Porter Cologne Water Quality Control Act under Section 401, every applicant for a federal permit for an activity which may result in a discharge into a water body must obtain state certification that the proposed activity will not violate state and federal water quality standards. This permit may be waived after Board review of project design and best management practices. A Section 402 permit is required for some projects in accordance with the National Pollution Discharge Elimination System (NPDES) when storm water discharge into a water of the US (or water of the state) is a concern.

Subsequent to the SWANCC decision described above, the Chief Counsel for the State Water Resources Control Board issued a memorandum that addressed the effects of the SWANCC decision on the Section 401 Water Quality Certification Program." The memorandum states:

> California's right and duty to evaluate certification requests under section 401 is pendant to (or dependent upon) a valid application for a section 404 permit from the Corps, or another application for a federal license or permit. Thus if the Corps determines that the water body in question is not subject to regulation under the Corps' 404 program, for instance, no application for 401 certification will be required...
>
> The SWANCC decision does not affect the Porter Cologne authorities to regulate discharges to isolated, non-navigable waters of the states ....
>
> Water Code section 13260 requires "any person discharging waste, or proposing to discharge waste, within any region that could affect the waters of the state to file a report of discharge (an application for waste discharge requirements). " (Water Code § 13260(a)(1) (emphasis added).) The term "waters of the state " is defined as "any surface water or groundwater, including saline waters, within the boundaries of the state. " (Water Code § 13050(e).) The U.S. Supreme Court's ruling in SWANCC has no bearing

> on the Porter-Cologne definition. While all waters of the United States that are within the borders of California are also waters of the state, the converse is not true-waters of the United States is a subset of waters of the state. Thus, since Porter-Cologne was enacted California always had and retains authority to regulate discharges of waste into any waters of the state, regardless of whether the Corps has concurrent jurisdiction under section 404. The fact that often Regional Boards opted to regulate discharges to, e.g., vernal pools, through the 401 program in lieu of or in addition to issuing waste discharge requirements (WDRs) (or waivers thereof) does not preclude the regions from issuing WDRs (or waivers of WDRs) in the absence of a request for 401 certification ....

Thus, discharge of waste material into waters of the State that do not fall under the jurisdiction of the Corps pursuant to Section 404 of the Clean Water Act, may require authorization through application for waste discharge requirements (WDRs) or through waiver of WDRs.

California Department of Fish and Game

Fish and Game Code section 1602 requires any person, state or local governmental agency, or public utility to notify the Department before beginning any activity that will do one or more of the following:

> 1) substantially obstruct or divert the natural flow of a river, stream, or lake;
>
> 2) substantially change or use any material from the bed, channel, or bank of a river, stream, or lake; or
>
> 3) deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into a river, stream, or lake.

Fish and Game Code section 1602 applies to all perennial, intermittent, and ephemeral rivers, streams, and lakes in the state. The Department also takes jurisdiction over unvegetated drainage ditches. The Department recommends that you notify if you are not certain that your proposed activity requires notification.

The Department of Fish and Game's jurisdiction is typically considered to include that portion of the streambed that lies within the visible bed and bank. If no bed and bank is visible, then CDFG has no jurisdiction. The Department's jurisdiction also extends to the edge of the drip line of all plants associated with the bed and bank. Water features such as vernal pools and other seasonal swales, where the defined bed and bank are absent and the feature is not contiguous or closely adjacent to other jurisdictional features, are generally not asserted to fall within state jurisdiction. The state generally does not assert jurisdiction over man-made water bodies unless they are located where such natural features were previously located or where they are contiguous with existing or prior natural jurisdictional features.

METHODS AND PERSONNEL

Site visits were made on March 28, March 30, April 4, April 6, April 9, and April 16, 2007 in order to delineate the drainages on ste. The delineation was conducted by Michael Misenhelter. The results of the draft biological assessment of the Project site (Misenhelter, May 25, 2009), online aerial

photographs, USGS 7.5' topographic quad map (Corona South, California), and County Flood Control Maps were reviewed prior to and during the field delineation and during report preparation.

A review of the *Soil Survey of Western Riverside Area, California* was conducted to determine types of surface soils mapped for the site and vicinity (Knecht 1971). Plant community designations are based on Holland (1986). Plant names follow Hickman (1993) and Roberts (2005) when available.

The delineation conducted was a "routine" delineation and did not include the collection of samples for later analysis. The delineation was conducted by measuring the width and length of all drainages on site according to Corps and Department procedures. Drainage width measurements were made at points along the length of the drainage where the width was judged to have significantly changed from the prior measured width. The width was measured between the "ordinary high water marks" for the Corps and between the "bed and bank" for the Department. For all intents and purposes, these two measurements were the same for most of the delineation due to the lack of Department vegetation along most of the drainages. Department width differed from Corps width where a mule fat shrubs or willow trees overlapped the banks of the drainages.

Some length measurements were taken using ArcView GIS software where vegetation was too dense to access the drainage and directly measure it on site. The heads of drainages A and E in particular were not accessible due to the density of chaparral vegetation at their upper reaches. The location of the head point was estimated based on topography shown on County Flood Control Maps. The width of the Ordinary High Water Mark (OHWM) and bed and bank (B & B) in these cases was based on the width measured where the shrub density became too thick to continue up the drainage.

SITE DESCRIPTION

The site is located on the northeastern corner of the Santa Ana Mountains on the border between the City of Corona and the Cleveland National Forest. Elevation on site ranges from 1,250 and 1,600 feet above mean sea level with a slopes ranging from fairly gentle to very steep. As mentioned earlier, the project site is a composed of an avocado/lemon orchard (approximately 35 acres) and native scrub vegetation (approximately 20 acres) dominated by chaparral species. The orchard is restricted to the northeastern portion of the property and is bordered to the northwest, southwest, and southeast by chaparral on- and off-site. A narrow drainage basin separates the orchard from a residential tract to the northeast.

Within the orchard, the canopy is dominated by a dense grove of avocado and lemon trees. The understory is dominated by a thick layer of leaf litter from the trees. Open areas, mostly along the sides of the dirt access roads, is typically vegetated with upland species of annual grasses (*Bromus catharticus, Bromus madritensis rubens*, *Bromus hordaceus*, *Bromus diandrus*, *Festuca myuros*, and *Hordeum murale*) and forbs (*Sonchus asper, S. oleraceous*, *Malva parviflora*, *Chenopodium* sp., *Conyza canadensis, Galium aparine*, *Melilotus indica*, and *Hirschfeldia incana*). An occasional tamarisk (*Tamarix* sp.) and/or tree tobacco (*Nicotiana glauca*) sapling also occurs on site. Wetter areas typically include scarlet pimpernel (*Anagallis arvensis*) and rabbit's foot grass. One area (in Drainage D) that has been inundated by irrigation water was vegetated with a few cat tails (*Typha* sp.) and willow herb (*Epilobium cilatum*).

The chaparral dominated portions of the site are vegetated with sugar bush (*Rhus ovata*), toyon (*Heteromeles arbutifolia*), bush monkeyflower (*Mimulus aurantiacus*), bush penstemon (*Keckiella*

antirrhinoides), and scrub oak (*Quercus berberidifolia*). Coastal sage scrub elements could be found in the more open areas and include California sagebrush (*Artemisia californica*) and black sage (*Salvia mellifera*).

Mule fat (*Baccharis salicifolia*): a tall, often dense growing shrub which is often (but not always) found in drainages; arroyo willow (*Salix lasiolepis*): a tree typically found only in wet places or places with a near permanent source of underground water; coast live oak (*Quercus agrifolia*): a species found in drainages, plains, and hillsides; and olive trees (*Olea europea*): a non-native species typically planted as an ornamental and/or fruit tree also occur on site though mostly outside of the orchard.

The project area is mapped by Knecht (USDA 1971, *Soil Survey of Western Riverside Area*) as being dominated by rough broken land (RuF) everywhere except for along the blueline stream which is mapped as Garretson gravelly very fine sandy loam (GdC). Rough broken land is characterized as being composed of alluvial materials that are the remnants of old alluvial fans and terraces that have been dissected by drainages. The materials making up this land type are mostly acidic rocks like granite and mica-schist. Garretson soils are well-drained soils of alluvial fans and composed mostly of metasedimentary materials. Soils observed on site appeared to be dominated by a sandy loam.

RESULTS

DRAINAGE A

Drainage A begins on site within the chaparral vegetation of the southwestern portion of the site, travels in a northerly direction along a dirt access road through the orchard, and passes off site into a narrow drainage basin along the northern property border (Figure 4). A side drainage (Drainage A-1) conveying runoff from the orchard joins Drainage A about half way across the orchard.

The total length of Drainage A, (including pipelines) is 1,067.2 feet. Drain A-1 (including pipelines) has a total length of 350.4 feet. The first 464 feet of Drainage A is located within chaparral vegetation. Much of this length is unaccessible due to dense vegetation and steep hillsides. The final 84 feet of this portion of this drainage is dominated by mule fat and a large arroyo willow. At the edge of the orchard, the drainage emptys into two 12 inch diameter plastic pipes. These pipes continue underground for 278.2 feet where they empty into a man made drainage consisting of a dirt bottom and vertical sides of corrugated metal on the west side of a dirt access road. This metal sided drainage is vegetated by annual grasses and forbs: mostly grass species of *Bromus* and *Polypogon* interspersed with the common forb cheese weed (*Malva parviflora*) growing in places through a thick layer of leaf litter from the avocado trees. The metal-sided drainage ends after 278 feet and is replaced with a complete dirt drainage ditch for 47 feet to the edge of the property where it empties onto a cement access road to the drainage basin. A small trickle of flowing water was present in the drainage at this point.

The total length of Drainage A-1 is 350.4 feet. It begins as a short 16 foot dirt drainage ditch along the side of a dirt access road about 100 vertical feet above Drainage A. It enters a 12 inch diameter plastic pipe and conveyed down hill for a distance of 138.4 feet to the edge of another dirt access road along which it travels 41 feet to another 12 inch plastic pipe for 19 feet into another dirt drainage ditch for 111 feet on the east side of the same access road that Drainage A follows. Drainage A-1 then travels through a 12 inch diameter pipe for another25 feet while crossing under the access road before converging with

Drainage A. Vegetation in the road side ditches along Drainage A-1 is composed of annual grasses and forbs as for Drainage A.

Riparian vegetation in this drainage included 0.029 acres (1,263.24 square feet) of mule fat and 0.046 acres (2,003.76 square feet) of willow.

DRAINAGE B

Drainage B begins offsite in chaparral vegetation of the Cleveland National Forest (Figure 5). It enters the site in a small dirt drainage ditch along the northwest side of an orchard access road. It travels through leaf litter and annual grasses and forbs for 94 feet before disappearing into a 12 inch diameter plastic pipe with no obvious exit point in the drainage. The exit has apparently been blocked with dirt and overgrown with annual grasses. No OHWM or B&B could be found within the drainage for another 223 feet at which point a small incised drainage could be easily made out in the grass on the northwest side of the access road. This drainage continues for 95 feet to a point where it is joined by Drainage B-1 from the other side of the access road. Drainage A continues for another 41 feet before entering a 20.5 foot long 12 inch diameter plastic pipe under an access road. This pipe empties into a narrow, long grassy area that is watered with sprinklers. No OHWM or B&B can be found for another 387.4 feet at which point a narrow incised drainage of approximately 67 feet in length can be made out. After this, no incision can be seen for another 28 feet before another narrow incised area 30 feet in length can be observed. This incised drainage disappears 3 feet short of the property line. From the property border there is a wide grassy area about 55.5 feet in length before the edge of an area of rip-rap on the edge of the City debris basin.

Vegetation along Drainage B is dominated by annual grasses and forbs similar to those along Drainage A and A-1. However, the ground is flatter in this drainage and the grasses are spread out in a dense carpet several feet wide.

Drainage B-1 is 178 feet in length. It consists of a 142 foot drainage ditch on the southeast side of the Drainage B access road and a 36 foot 12 inch diameter pipe where it crosses under the road and converges with Drainage B. Vegetation along Drainage B-1 is absent due to the thick layer of leaf litter filling the drainage.

DRAINAGE C

Drainage C enters the site under a dirt access road through three 12 inch diameter pipes (each 39 feet long) from a small stand of mule fat on the edge of the Cleveland National Forest at the southern edge of the property (Figure 6). These pipes empty into a narrow drainage (551.7 feet long) crossing through the center of a stand of lemon trees before entering a small flat area (41 feet long) on the west side of the access road on the east side of the orchard. The drainage passes through three more 12 inch plastic pipes (each 39 feet long) under the road before exiting at the eastern property border. Off site, the drainage continues down a steep slope for 79 feet to a flat area vegetated with a moderately dense stand of young arroyo willows with an understory of dense leaf litter.

Drainage C-1 is a side drainage that feeds irrigation runoff into Drainage C from the south. It consists of an approximately 18 inch wide 128 foot strip of corrugated metal (slightly bent up at the sides). It is held in place by rebar and narrow metal pipes hammered into the ground at strategic points along its length.

Riparian vegetation in this drainage included 0.019 acres (827.64 square feet) of mule fat where the drainage enters the property.

DRAINAGE D

Drainage D begins with an area of road runoff near the main northeastern entrance to the property. Water collects on the east side of the road between a row of lemon trees in an incised drainage and flows north into a man-made dirt ditch that cuts east across several rows of trees and then north again along another row of trees to the property border for a total length of 548 feet (Figure 7). Also exiting the site at this point is a drainage that brings together runoff from three incised drainages between four adjacent rows of orchard trees. Drainage D-1 is 411 feet in length and is located next to one of the orchard water pumps. This pump leaks into the drainage when it is running (pers. comm. Manuel Valencia). Drainage D-2 is located one row over and is 51 feet in length. Drainage D-3 is located between Drainage D-2 and D. It is 165 feet in length. Vegetation associated with these drainages consists of scattered annual grasses and forbs described earlier. A patch of rabbit's foot grass was growing in D-1 next to the water pump.

This is the third and last drainage in which water was observed during the delineation. The water was limited to the very end of the drainage at the property fence line. An area of approximately 0.012 acres on the project side of the fence was inundated and muddy. Water continues off site where the ground also appeared to be inundated. During two of the delineation visits, water was observed coming from micro-sprinklers along the length of one of the nearby rows of lemon trees. Water from the sprinklers was going directly into the inundated area. This area is at the bottom of the orchard and apparently water continues to come out of this line for some undetermined amount of time after the irrigation water is turned off. As a result, the ground here is inundated with water. Two plant species typically associated with wet places were observed growing in the mud. Willow herb and cat tails were observed in the wettest places, scarlet pimpernel (*Anagallis arvensis*) was observed growing in area of damp soil and various annual grasses were observed in the drier areas further from the water. Rabbit's foot grass was found at the damper end of the continuum of the distribution of grasses starting from the most wet to driest soils.

An examination of the wet portion of the drainage was conducted to determine if it met the qualifications to be classified as a wetland as directed in the 1987 Army Corps of Engineers Wetland Delineation Manual. This method requires the site to meet three parameters to be classified as a wetland. The dominant vegetation present must be hydrophytic; wetland hydrology must be present; and the soils must be hydric.

Within the inundated areas, the dominant plants were willow herb and cattails with scarlet pimpernel in the less damp areas. Rabbit's foot grass is classified as a facultative wetland plus plant. On the 1996 National Wetland Plant List for California willow herb is classified as a facultative wetland plant, cat tails are obligates, and scarlet pimpernel is facultative neutral. The actual vegetated area covered is very small with cat tails covering less than 5% of the area, willow herb less than 10%, scarlet pimpernel less than 10%, and rabbit's foot grass less than 10%. The low percentage of vegetation cover is likely a result of ongoing orchard maintenance. Vegetation on the other side of the property line is much denser with a nearly 90% ground cover dominated by rabbit's foot grass and other annual grasses and less than 20% cover of cat tails.

In order for wetland hydrology to be present, the area must receive an adequate amount of moisture under natural conditions to support hydrophytic vegetation. In this case, it appears that the vast majority of water comes from orchard irrigation. Both from nearby micro-sprinklers that continue to emit water after sprinklers are turned off and from a leaky water pump just upstream. Similar wet conditions were not seen at any of the other drainages on site. Drainage A has a small amount of seepage at the property line and vegetation consisting of annual grasses and forbs.

The soils mapped for the site are classified as "rough broken lands" by Knecht in the USDA study of the soils of Western Riverside County. These lands are described as composed of alluvial materials that are the remnants of old alluvial fans and terraces that have been dissected by drainages. This soil is not classified as a hydric soil in the Western Riverside Area in the National Hydric Soils list of 2005. Soils examined on site appeared to be a sandy loam. Core samples taken within and adjacent to the wet area were consistent with this observation. The damp samples had a hue of 2.5Y, a value of 3/, and a chroma of /2. The samples showed no sign of gleying, mottleing, or oxidation. Soil texture was grainy.

DRAINAGE E

Drainage E is located entirely within the chaparral portion of the project site and drains into the blueline stream west of the project boundary (Figure 8). The drainage begins in the hills next to the drainage in dense chaparral vegetation for approximately 71 feet before entering a less densely vegetated area for 230.2 feet before reaching the access road running along the western border of the proposed project. Drainage E-1 similarly runs through a densely vegetated area for approximately 48.6 feet and through a less densely vegetated area for 76.5 feet before going through another densely vegetated area for 25.5 feet. The main drainage (Drainage E) runs along an asphalt driveway to a home next the project area and appears to have been artificially widened at some time in the past. The drainage ends at an 18 inch diameter cement pipe under the access road. The upper end of the pipe could not be located and is apparently buried in dirt and leaf litter. The lower end, where it empties into the blue line stream, was visible and dirt could be seen filling the far end of the pipe.

Vegetation along Drainages E and E-1 is dominated by sugar bush, toyon, olive trees, mule fat, , California sagebrush, black sage, and tree tobacco.

DRAINAGE F

Drainage F is also located on the west side of the project site (Figure 9). Like Drainage E, it runs under the western access road (through a 4 inch diameter 20 foot long pipe) into the blue line stream on the west side of the property. The drainage itself is a straight 98 foot long run down the side of a hill along a row of old olive trees. It appears to be a remnant of the old olive orchard irrigation system. It has a canopy of olive trees with an understory of leaf litter and scattered annual grasses and forbs.

CONCLUSION and RECOMMENDATIONS

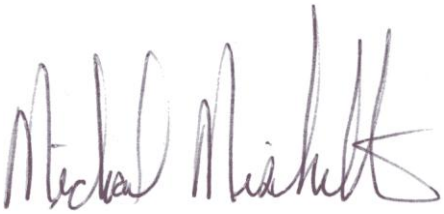
Any drainages impacted by a proposed project must be examined to determine if they fall under the jurisdiction of the Army Corps of Engineers, Regional Water Quality Control Board, and the California Department of Fish and Game. Corps/Water Board and Department jurisdiction is dependent on the presence of defined indicators of water flow either through the presence of water marks/drift lines and/or an incised bed and bank. Under most circumstances, Corps and Department indicators are the same for drainages. Department jurisdiction is usually greater than Corps jurisdiction where riparian vegetation occurs along the banks of the drainage. Corps and Department jurisdiction does not cover pipes though Department jurisdiction can cover man-made features such as stock ponds.

The Project site consists of several drainages crossing an irrigated lemon and avocado orchard. The site is criss-crossed by erosional features resulting from orchard irrigation runoff. This delineation concentrated only on such features that occur within historic natural drainages as depicted on Riverside County Flood Control maps (Figure 3).

All of the drainages on site drain into offsite debris basins adjacent to the Project site. The debris basins contain any normal flow from the Project site preventing them from continuing into City storm-drains. There is no significant nexus to Corps jurisdictional bodies such as the Santa Ana River. In our professional opinion, none of the drainages come under the jurisdiction of the Corps.

It is also our professional opinion that none of the drainages within the Project footprint fall under the jurisdiction of the Department of Fish and Game due to a lack of consistently discernible bed and banks.

Please contact me if you have any questions regarding this report.



Michael D. Misenhelter
Principal Author

Attachments: maps and photos

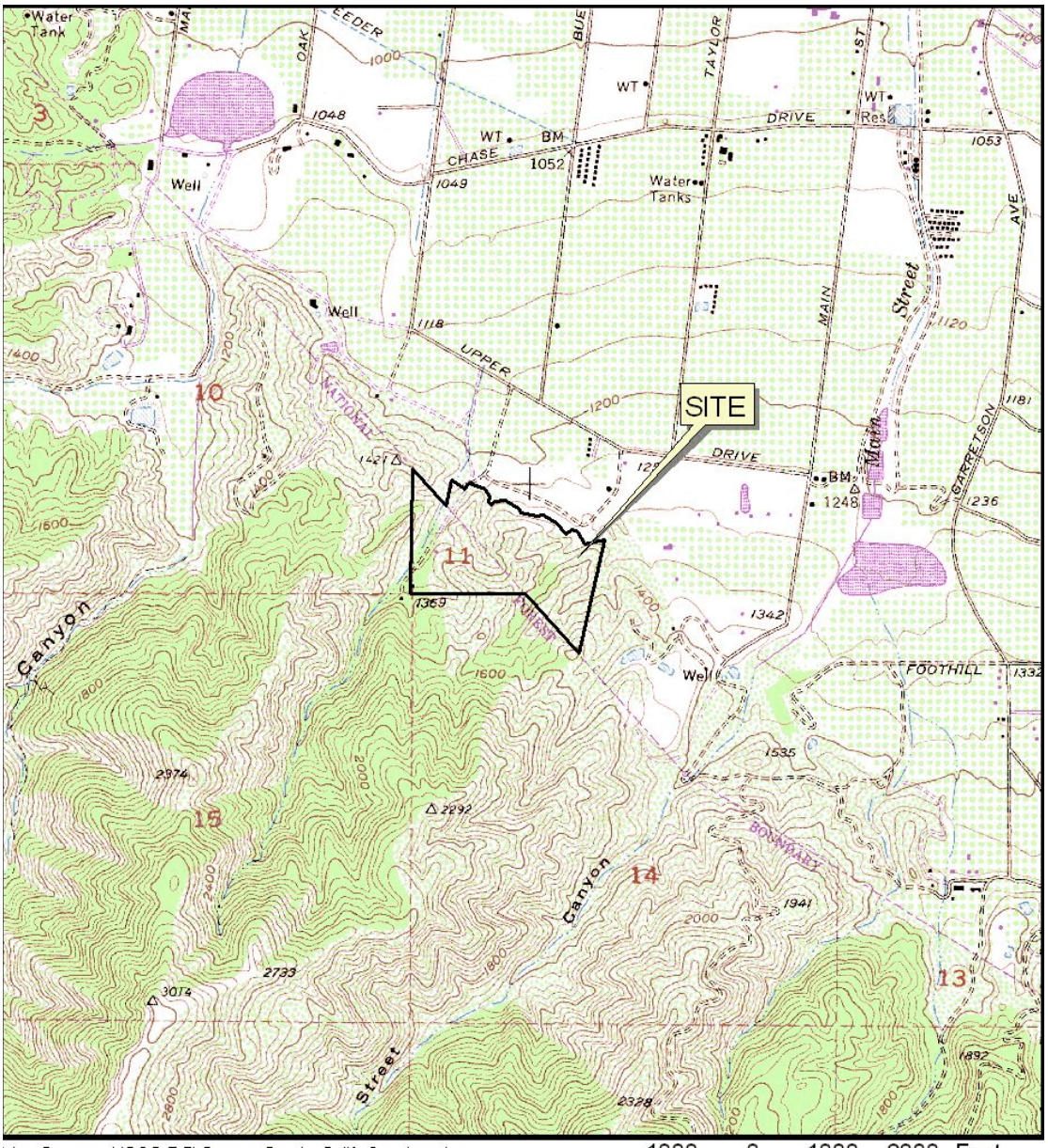


Figure 1. Site Location

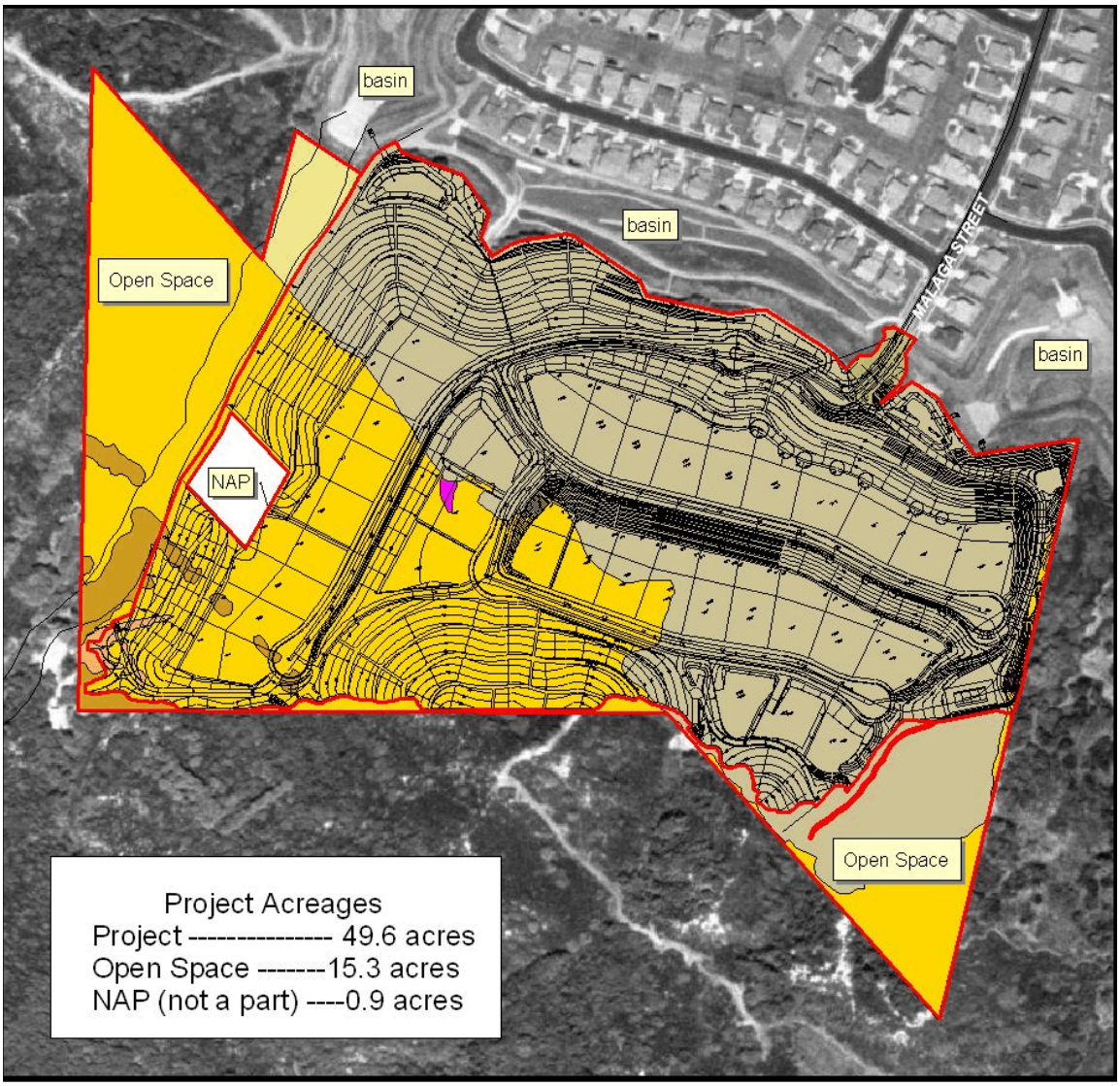
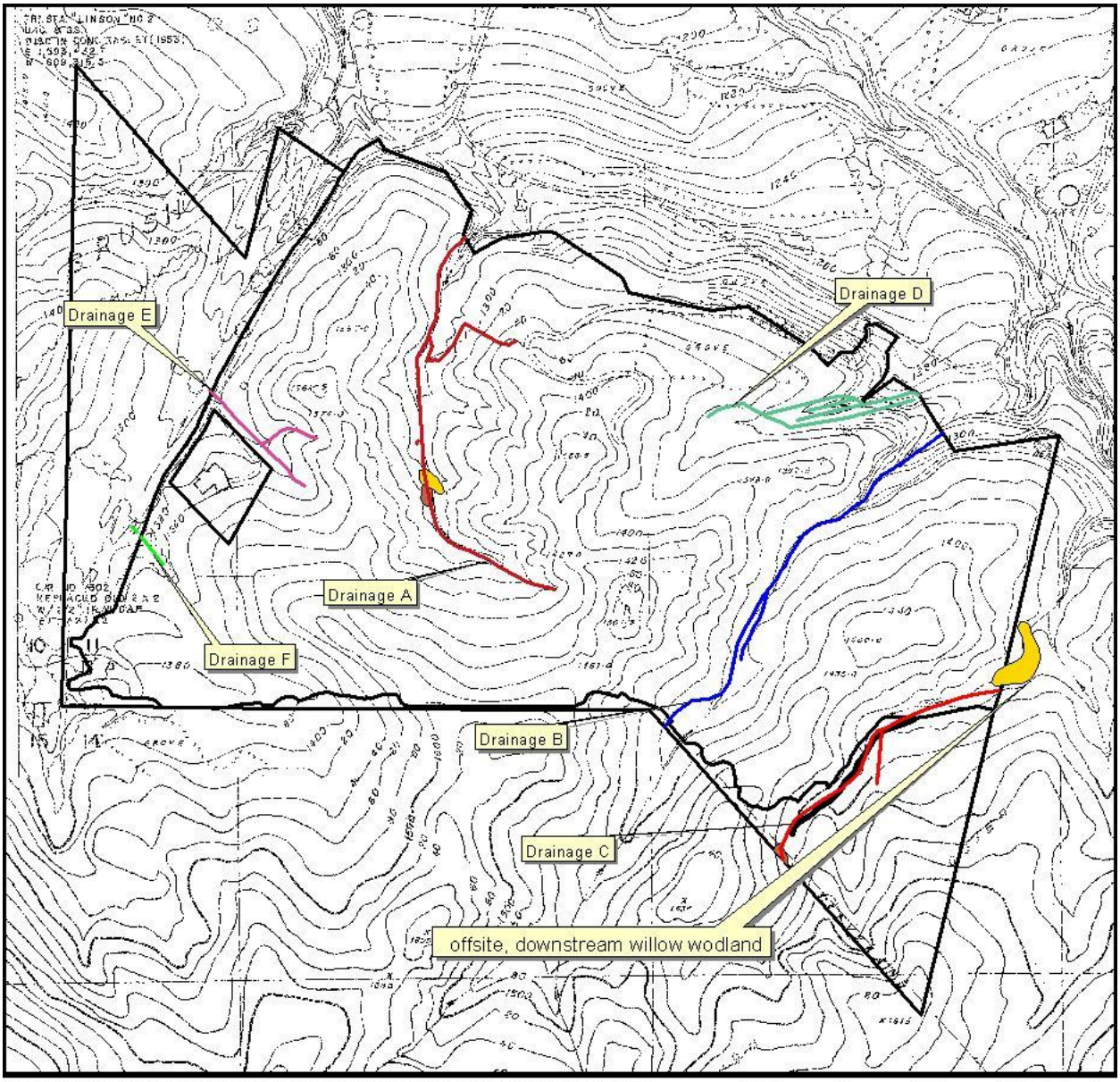


Figure 2. Proposed Project and Habitat Map



Base Map: Riverside County Flood Control and Water Conservation District
T4S, R7W, Section 11 (1972) & Section 14 (1956)

200 0 200 400 Feet

1:5000

N
W E
S

Drain A
Drain B
Drain C
Drain D
Drain E
Drain F
mule fat
willow
Property Border (including proposed open space areas)

Figure 3. Delineated Drainages

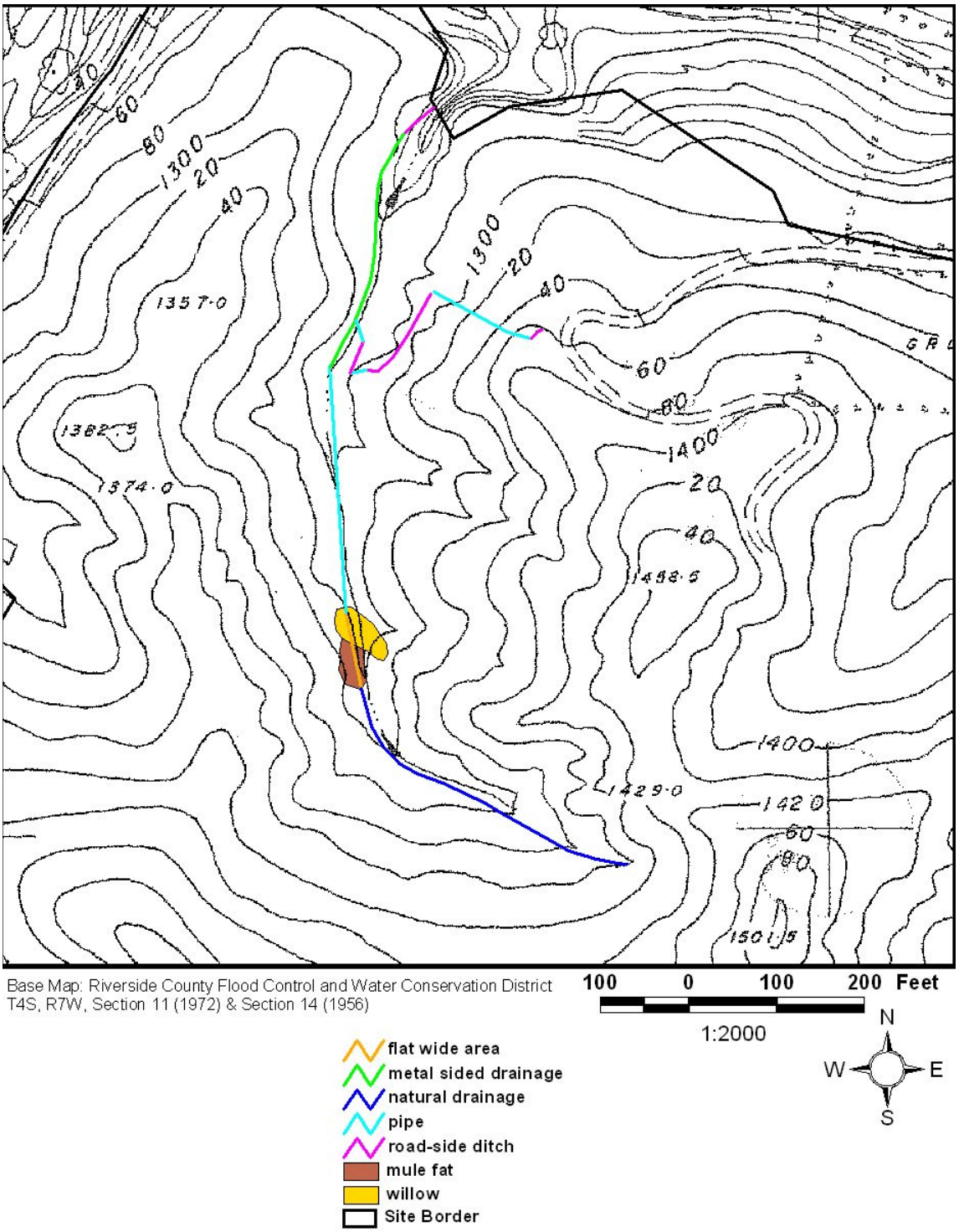


Figure 4. Drainage A

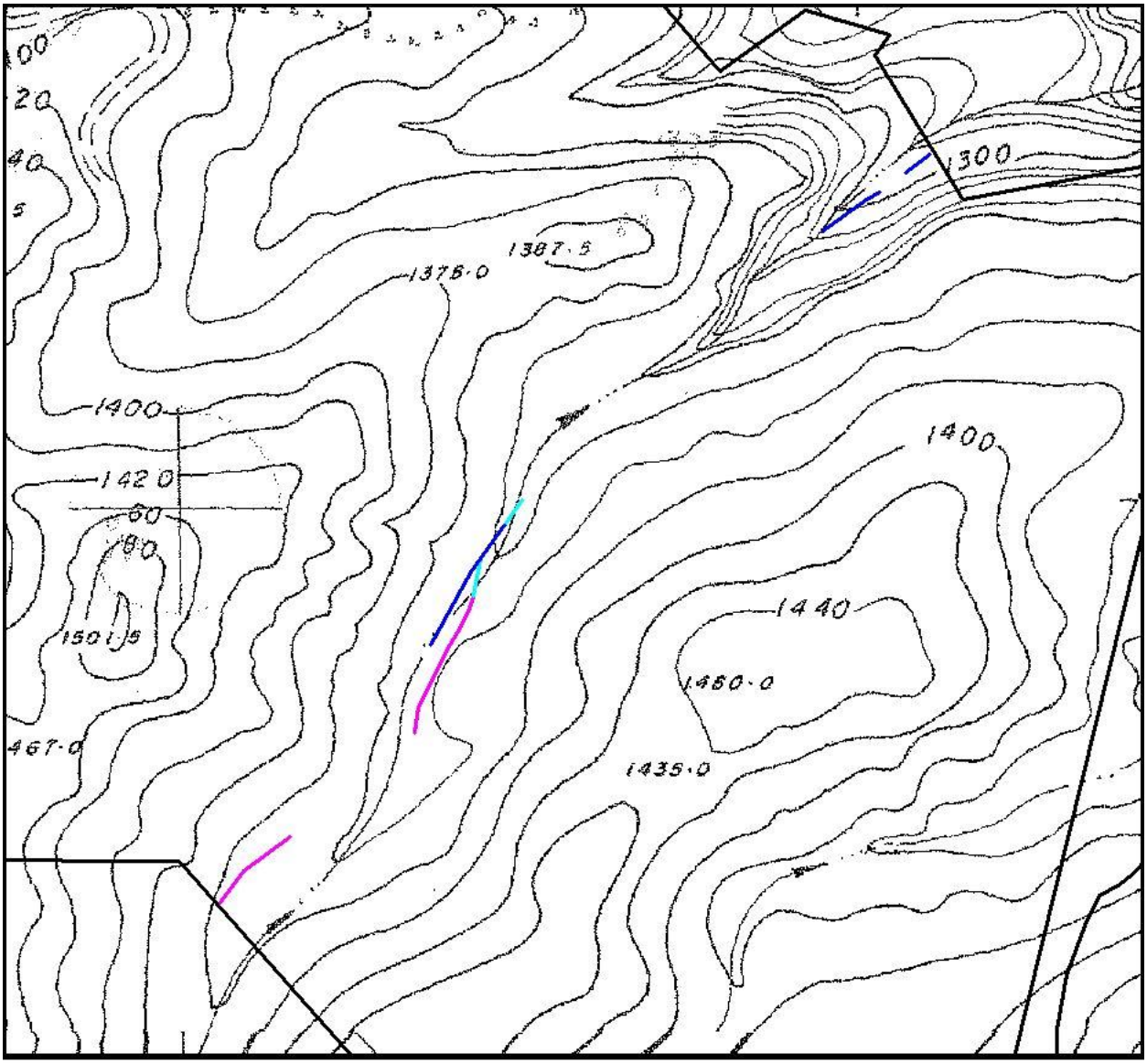


Figure 5. Drainage B

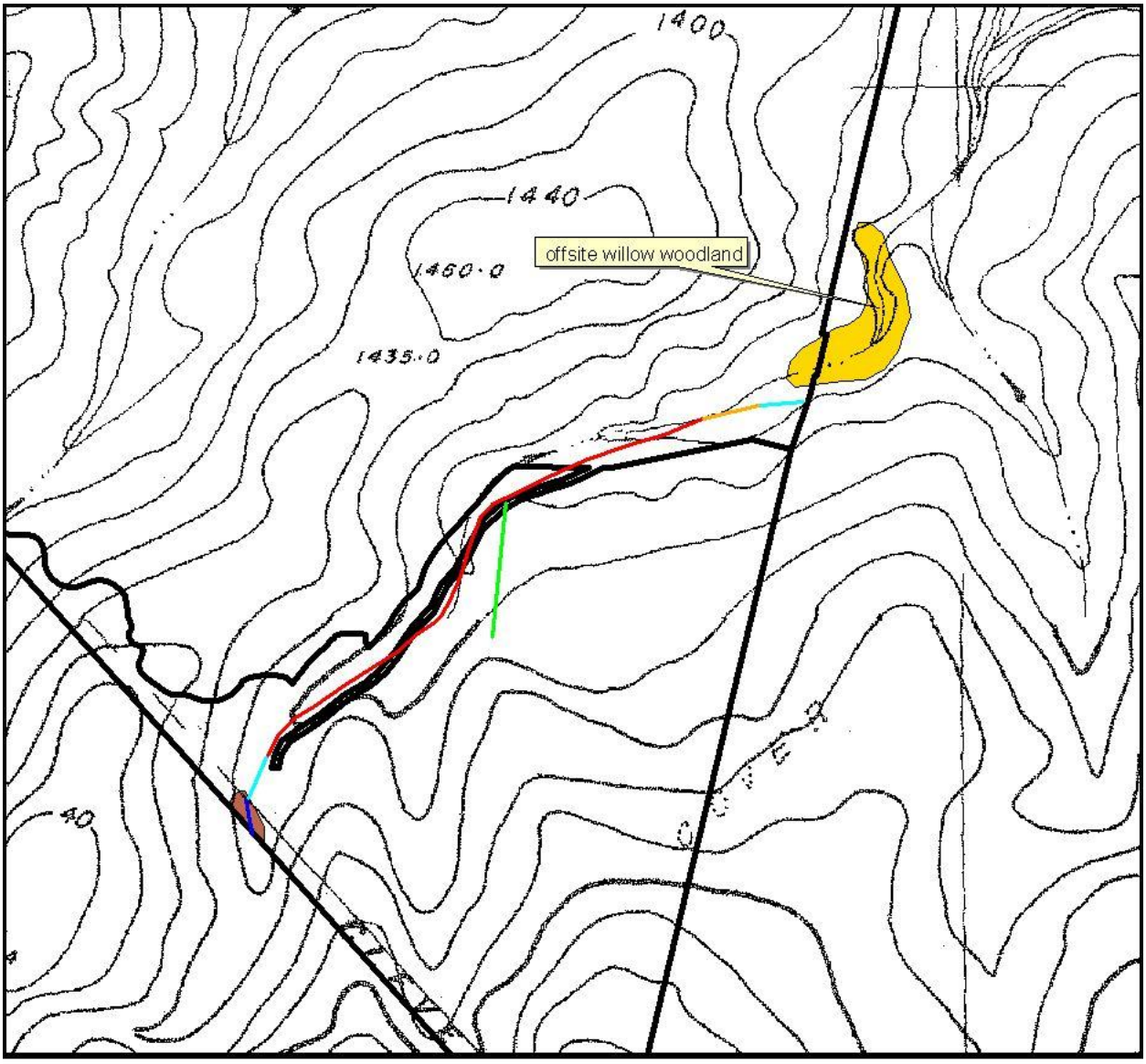
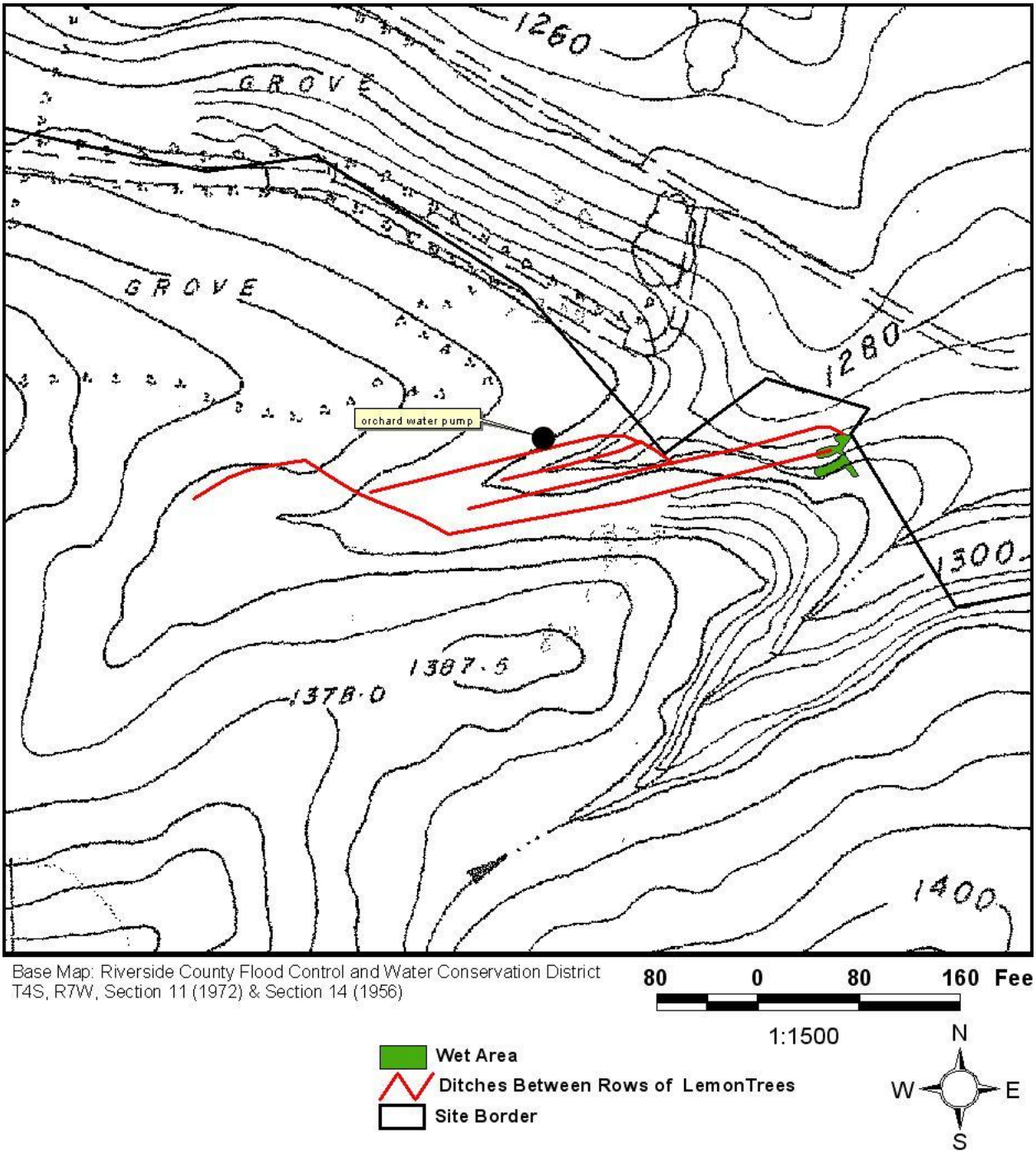


Figure 6. Drainage C



Wet area appeared to be a result of irrigation runoff. Location is at bottom of orchard and water continues to flow through the pipes (via gravity) after water has been turned off. Water leaks from pump when it is running.

Figure 7. Drainage D

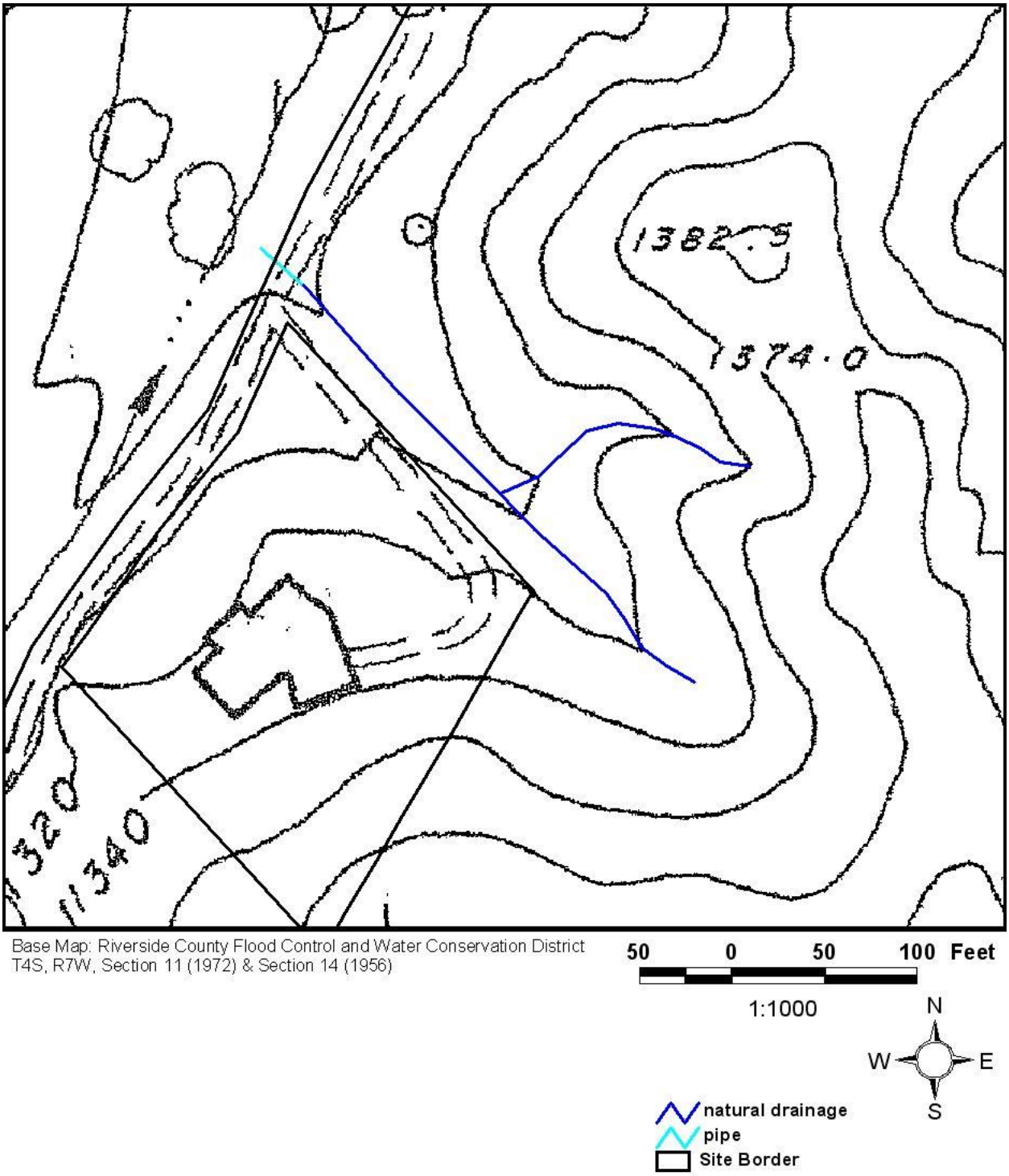


Figure 8. Drainage E

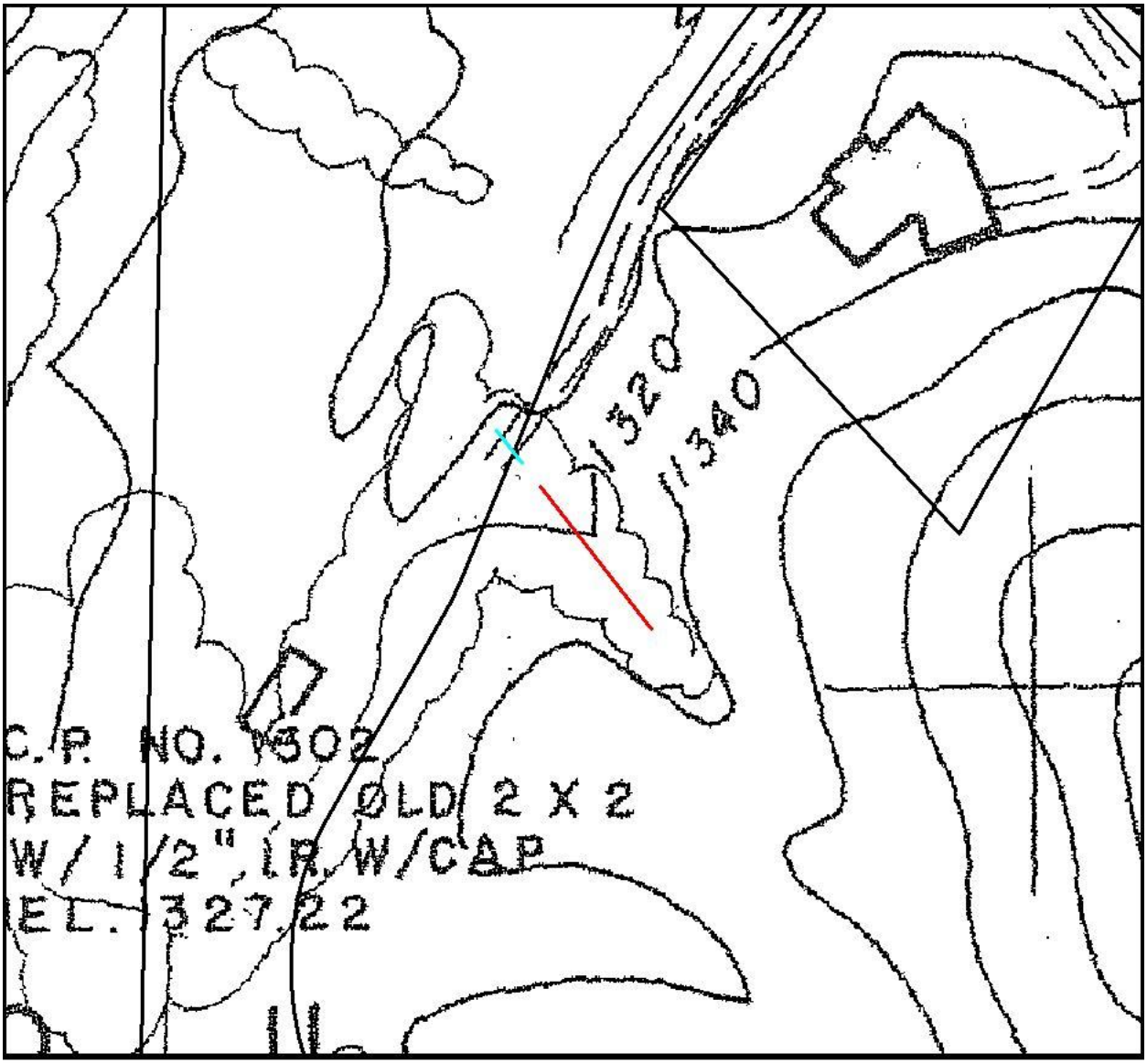


Figure 9. Drainage F

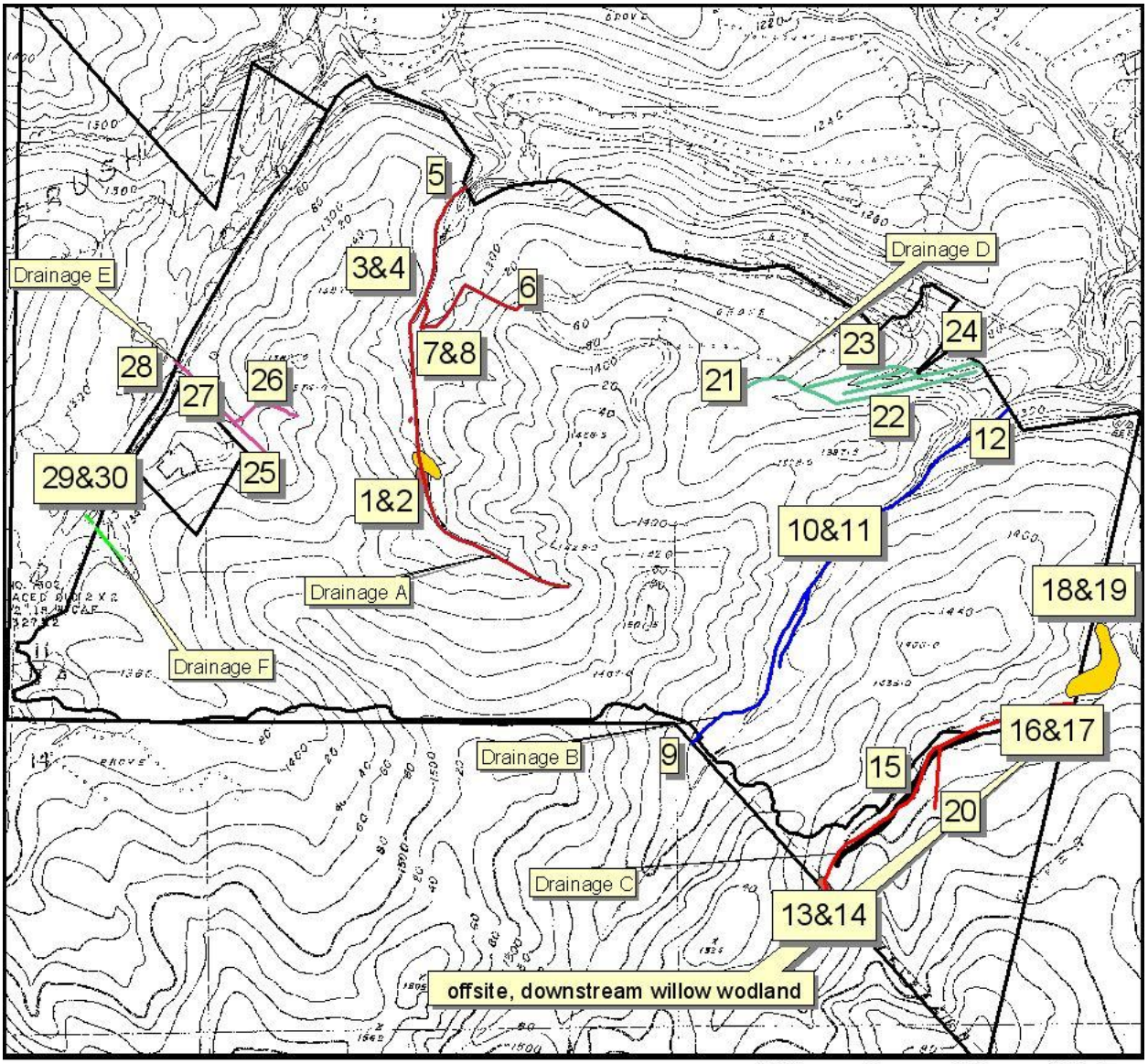


Figure 10. Photo Locations

Site Photos

Drain A (photo 1): Looking to the southeast from near the patch of mule fat towards the head of the drainage.

Drain A (photo 2): Looking north through the mule fat with the willow tree in the background.

Drain A (photo 3): Looking south at point where pipes from willow tree daylight. Willow tree can just be made out at the end of the road in the distance.

Drain A (photo 4): Looking north showing the metal corrugated sides of this part of the drainage and the high amount of leaf litter.

Drain A (photo 5): Location where Drain A leaves the site and enters cement lined channel to basin along north edge of subject property.

Drain A (photo 6): Head of side tributary to Drain A. Water runoff from road collected in pipe in foreground and piped down to lower road.

Drain A (photo 7): Pipe from previous photo empties into ditch along far side of this road, crosses the road, and empties into the pipe in the lower right corner of this photo.

Drain A (photo 8): Drain exits from pipe in lower right corner of the photo into this leaf-filled ditch which it follows into a pipe that connects it to the main line for Drain A on the other side of the road seen in the upper left corner of this photo.

Drain B (photo 9): Head of Drain A looking to the north from the property border. This drain enters a pipe further down the road (just before where it leaves the photo).

Drain B (photo 10): Looking south along the drainage from where it crosses under the access road (pipe partly exposed in the roadbed in the foreground). The tributary to this drainage connects about where the road bends in the distance. Conditions in the tributary are similar to those shown in photo8.

Drain B (photo 11): Looking north from just south of location of previous photo. Drainage passes through pipe under road into this grassy area before leaving the property.

Drain B (photo 12): End of Drain B showing an incised drainage in the foreground. The chain-link fence in the background is the property border with a drainage basin beyond that.

Drain C (photo 13): Drain C enters the property through a pipe under this road from the patch of mule fat on the right side of the photo. The white measuring tape on the road marks the approximate location of the pipe.

Drain C (photo 14): The pipe opening onto the property can be seen as the dark oval shape in the background of this photo taken looking to the south. The drainage passes through the center of a stand of lemon trees in a leaf and branch strewn path. The drainage passes through the lower left corner of the photo.

Drain C (photo 15): Pruned branches from the citrus trees have accumulated in the drainage as can be seen here. An incised drainage could be occasionally made out in the less dense areas along the course.

Drain C (photo 16): Drain C leaves the property through these pipes under the access road on the east side of the property.

Drain C (photo 17): Beyond the access road, the drain runs down hill through this debris into the adjoining property.

Drain C (photo 18): Off site, beyond the debris of the previous picture, the drainage enters this relatively flat area vegetated with a small patch of willow trees. No incised drainage was visible here.

Drain C (photo19): Groundwater surfaces in a flat area just beyond the off-site willow trees.

Drain C (photo20): The head of the tributary to Drain C. The tributary consists of a length of corrugated metal laid on the ground within the banks of an old drainage that collected road runoff.

Drain D (photo 21): The head of Drain D begins to the right of the lemon tree next to the road near the center of the photo.

Drain D (photo 22): This photo shows typical conditions along one of the drainage branches that make up Drain D as it passes between rows of lemon trees.

Drain D (photo 23): This photo shows the orchard water pump (left side of photo) and control valves (in the distance). The branch of Drain D nearest the main orchard access road can be seen passing between them. Water from the pump leaks into the drainage here.

Drain D (photo 24): Drainage D leaves the site at this fence separating the subject property from the drainage basin beyond. Runoff from orchard irrigation has formed a wet area here and just beyond the fence.

Drain E (photo 25): The head of Drain E begins in the brush to the upper left of this photo taken looking to the southeast. The round rock in the foreground marks the location where the drainage leaves the dense vegetation beyond.

Drain E (photo 26): This photo was taken looking to the northeast showing the dense vegetation through which the side tributary to Drain E passes.

Drain E (photo 27): Looking to the southeast along the length of the drainage showing typical conditions.

Drain E (photo 28): Looking northeast along the access road along the western edge of the project site. Drainage E passes under this road through a cement pipe from the bushes on the right side of the picture to those on the left side.

Drain F (photo 29): The point along the access road where Drain F leaves the site (at the white pvc pole). The drain comes downhill between a row of old olive trees (on the left side of the picture) and a shrub covered hill side (on the right side of the picture). The edge of the access road is just visible in the foreground.

Drain F (photo 30): The drainage continues off site on the west side of the road (lower right corner of the photo).