

**Habitat Conservation Plan for the
Morro shoulderband snail
Kroll Property (APN 074-022-041), 302/304 Madera Street
Los Osos, San Luis Obispo County, California**

Prepared for:

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Executive Summary

James and Sharon Kroll intend to apply for a permit pursuant to Section 10(a)(1)(B) of the Endangered Species Act of 1973 (16 United States Code 1531-1544, 87 Statute 884), as amended, from the U.S. Fish and Wildlife Service for the lawful, incidental take of the federally endangered Morro shoulderband snail (MSS; *Helminthoglypta walkeriana*). The taking would occur incidental to otherwise lawful activities that include the construction of a single-family home and barn, coastal dune scrub habitat restoration activities, and management of a San Luis Obispo County open space area on a 5.08-acre parcel located in the southwestern portion of the community of Los Osos in San Luis Obispo County, California. This Habitat Conservation Plan proposes to mitigate for unavoidable take of MSS through the successful enhancement, restoration, and preservation of 1.1 acres of degraded habitat. When completed, the habitat restoration will increase habitat value and function for the species.

The Krolls will apply for an incidental take permit and commit to implement and fund this Habitat Conservation Plan consistent with the terms and conditions of any issued incidental take permit. The requested permit term is 10 years.

This Habitat Conservation Plan summarizes the project and identifies the responsibilities of the Krolls as the applicants. The applicants' responsibilities include:

- a) Implementing measures to minimize take of MSS.
- b) Mitigating unavoidable take of MSS by recording a 1.1-acre conservation easement on the site and enhancement and restoration of coastal dune scrub habitat within this easement.

Section 1. Introduction and Background

1.1 Overview and Background

This Habitat Conservation Plan (HCP) has been prepared to address the take of Morro shoulderband snail (MSS; *Helminthoglypta walkeriana*), a federally endangered invertebrate species, likely to result from the construction and occupation of a single-family home and barn, recording and management of open space easements, and habitat restoration activities on the Kroll parcel located in the community of Los Osos, San Luis Obispo County, California. This HCP has been prepared pursuant to the requirements of Section 10(a) of the Federal Endangered Species Act of 1973, as amended (Act), and is intended to provide the basis for issuance of a Section 10(a)(1)(B) incidental take permit (ITP) to James and Sharon Kroll (hereafter, the applicants or permittees). The ITP would authorize take of MSS likely to result from the construction of the residence and implementation of the conservation strategy. Take would be in the form of harassment from capture and relocation, death of individuals present, or alteration of essential behaviors such as breeding, feeding, or sheltering.

This HCP provides an assessment of the existing habitat on the site relative to its value to MSS and evaluates the effects of the proposed development on this species. For the purposes of this HCP, the term “habitat” refers to all substrates that provide suitable conditions for MSS to find shelter. MSS can find shelter in veldt grass, debris piles, native vegetation, landscaping, etc. In this HCP, the term habitat is not restricted to central dune scrub vegetation. The HCP includes an on-site mitigation plan to mitigate species take associated with implementation of the proposed project.

1.2 Applicant/Permit Term

James and Sharon Kroll, husband and wife as joint tenants, will be the permittees on the ITP if issued. The requested permit term is 10 years, which would cover construction activities (expected to last 12 months) and subsequent habitat restoration, monitoring, and management activities following construction of the residence and barn.

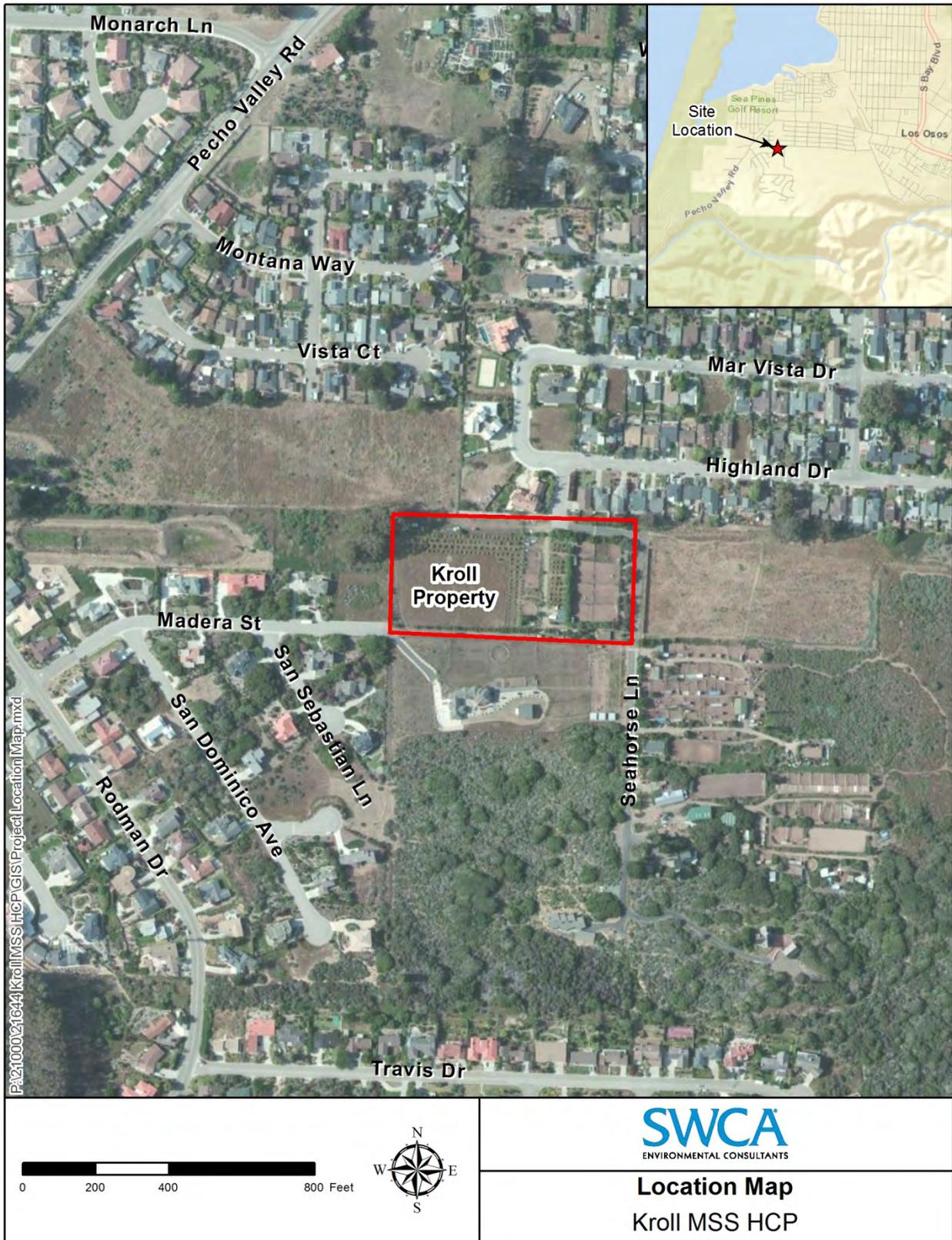
1.3 Plan Area/Covered Lands

The Kroll property is located between Seahorse Lane and Madera Street in the southwestern portion of Los Osos, an unincorporated community of San Luis Obispo County, California (refer to Figures 1 and 2). It is found on the Morro Bay South 7.5-minute U.S. Geological Survey quadrangle, in Township 30 S, Range 10 E, Section 24. The proposed development, HCP mitigation area, and County of San Luis Obispo (County) open space area are located on the western portion of the 5.08-acre parcel (Assessor’s Parcel Number 074-022-041). Therefore, the covered lands will encompass the western two-thirds of the parcel, which includes the residential development area, barn site, septic systems, Madera Street access, utilities corridor, County open space area, and the HCP easement area (refer to Figure 3). The eastern one-third of the parcel is used for boarding horses, which is a County permitted activity that pre-dates the listing of MSS and therefore is not subject to this HCP.

Figure 1. Project Vicinity Map



Figure 2. Project Location Map



1.4 Species to be Covered by Permit

The MSS is the only species requested to be covered by the ITP; as such, it is the only species addressed in the HCP. The MSS is federally listed as endangered; however, is not listed or otherwise protected by the State of California.

Species Survey Summary

Two separate survey efforts for MSS were conducted on the property by Tenera Environmental, Inc. (Appendix A). A single-visit 2003 habitat assessment survey found four live MSS and no empty shells, while a protocol-level survey conducted in 2007 found four live MSS and three empty shells. Three of the live MSS and two of the empty shells found in 2007 were located in the area proposed for restoration as mitigation in this HCP. The 2007 report recommended that, because the project could result in take of MSS, the project proponents should obtain an incidental take permit for the species through preparation of a Habitat Conservation Plan prior to construction.

SWCA conducted a site visit and reconnaissance survey on the parcel on October 15, 2013. In addition, SWCA conducted four protocol surveys in spring of 2014. Survey efforts focused on the veldt grass (*Ehrharta calycina*) at the proposed barn site and in the proposed residential development area, HCP easement, and County open space. No live MSS or empty shells were observed (refer to Appendix B).

1.5 Regulatory Framework

1.5.1 Federal Endangered Species Act

Section 9 of the Act and Federal regulation pursuant to Section 4(d) prohibit the take of endangered and threatened animal species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species by annoying them to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity.

Pursuant to Section 11(a) and (b) of the Act, any person who knowingly violates Section 9 of the Act or any permit, certificate, or regulation related to Section 9, may be subject to civil penalties of up to \$25,000 for each violation or criminal penalties up to \$50,000 and/or imprisonment of up to 1 year.

Individuals and State and local agencies proposing an action that is likely to result in the take of federally listed animal species are encouraged to apply for an ITP under Section 10(a)(1)(B) of the Act to be in compliance with the law. For MSS, these permits are issued by the Service when take is not the intention of an action but, rather, incidental to otherwise legal activities. An application for an ITP must be accompanied by a HCP.

Section 7(a)(2) of the Act requires Federal agencies to ensure that their actions, including issuing permits, do not jeopardize the continued existence of listed species or destroy or adversely modify listed species' critical habitat. "Jeopardize the continued existence of..." pursuant to 50 Code of Federal Regulations (CFR) 402.2, means to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species. Issuance of an ITP under Section 10(a)(1)(B) of the Act by the Service is a Federal action subject to this section of the Act. As a Federal agency issuing a discretionary permit, the Service is required to conduct an internal consultation to address these requirements.

1.5.2 The Section 10(a)(1)(B) Incidental Take Permit Process

The process for obtaining an ITP has three primary phases: (1) development of the HCP; (2) processing of the permit; and (3) post-issuance compliance. During development of the HCP, the project applicant(s) prepares a HCP that integrates the proposed project or activity with protection of listed species. Every HCP submitted in support of an ITP application must include the following information: (1) those impacts likely to result from the proposed taking of the species for which permit coverage is requested; (2) measures that will be implemented to monitor, minimize, and mitigate impacts; funding that will be made available to undertake such measures; and procedures to deal with unforeseen circumstances; (3) alternatives to the proposed action that would not result in take; and (4) any additional measures the Service may require as necessary or appropriate for purposes of the plan.

During the post-issuance phase, the permittees (and any other responsible entity) implements the HCP, and the Service monitors the permittees' compliance as well as the long-term progress and success of the HCP. The public is notified of permit issuance by means of the Federal Register. The HCP development phase concludes and the permit processing phase begins when a complete application package is submitted to the appropriate permit-issuing office. A complete application package typically consists of: (1) the HCP document; (2) an Implementing Agreement (IA), if applicable; (3) a permit application; and (4) a \$100 fee. The Service must also publish a Notice of Availability in the Federal Register to inform the public that they have received an application for an ITP and provide an opportunity for public review and comment. The Service also prepares an internal Section 7 Biological Opinion and a Findings document that evaluates the ITP application in the context of permit issuance criteria described below. Depending on the project scope, National Environmental Policy Act (NEPA) compliance can consist of an Environmental Action Statement, Environmental Assessment, or Environmental Impact Statement. An IA is required for HCPs unless the project qualifies to be processed as a low-effect HCP. An ITP is granted upon a determination by the Service that all requirements for permit issuance have been met. Statutory criteria for issuance of the permit specify that: (1) the taking will be incidental; (2) the impacts of incidental take will be minimized and mitigated to the maximum extent practicable; (3) the taking will not appreciably reduce the likelihood of survival and recovery of the species in the wild; (4) the applicant(s) will provide additional measures that the Service requires as being necessary or appropriate; and (5) the Service has received assurances, as may be required, that the HCP will be implemented.

During the post-issuance phase, the permittees (or any other responsible entity) is responsible for implementing the HCP and compliance with the terms and conditions of

the ITP. The Service monitors compliance with the HCP as well as its long-term progress and success.

1.5.3 National Environmental Policy Act

The purpose of NEPA is two-fold: to ensure that Federal agencies examine environmental impacts of their actions (in this case deciding whether to issue an ITP) and to utilize public participation. NEPA serves as an analytical tool on direct, indirect, and cumulative impacts of the proposed project alternatives to help the Service decide whether to issue an ITP (or Section 10(a)(1)(B) permit). Compliance with NEPA is required as part of ITP issuance.

1.5.4 National Historic Preservation Act

All Federal agencies are required to examine the cultural impacts of their actions (e.g., issuance of a permit). This may require consultation with the State Historic Preservation Office and appropriate American Indian tribes. All ITP applicants are required to submit a Request for Cultural Resources Compliance form to the Service. To complete compliance, the applicants may be required to contract for cultural resource surveys and possibly to develop and implement mitigation.

1.5.5 Other Relevant Laws and Regulations

California Environmental Quality Act

The California Environmental Quality Act (CEQA) is a statute that is considered to be analogous to NEPA as it also requires the completion of an environmental review for projects that may impact environmental resources. It requires lead public agencies to review the environmental impacts of proposed projects, prepare and review Environmental Impact Reports or Negative Declarations, and consider feasible alternatives and mitigation measures that would substantially reduce significant adverse environmental effects. It applies to a broad range of environmental resources including state and federally listed wildlife and plant species, as well as other species and natural plant communities that are considered to be locally sensitive.

The County is the lead agency responsible for conducting CEQA review and ensuring compliance for projects in the unincorporated community of Los Osos. As such, they will evaluate the Kroll's application and ensure compliance with CEQA. Impacts to MSS represent one aspect of a CEQA review; however, as with NEPA, the potential for impacts to other environmental resources is also reviewed as part of the CEQA compliance process.

California Coastal Act of 1976

A California voter initiative, Proposition 20 (i.e., the Coastal Zone Conservation Act), passed in 1972 and created the California Coastal Commission (Commission). It was later made permanent through the passage of the California Coastal Act of 1976. The Commission is a state environmental agency charged with ensuring that all development within California's coastal zone (CZ) is consistent with the provisions of the Coastal Act of 1976. Commission jurisdiction within the CZ is broad and applies to both private and public entities and addresses almost all types of development activities inclusive of division of land, changes in the intensity of use of state waters, and of public access to the waters. The regulatory role of the Commission is facilitated through their review of development projects and the issuance of Coastal Development Permits (CDP) that

typically include conditions of approval that, if met, will bring the development into compliance with the Coastal Act. In circumstances where a Local Coastal Program (LCP) has been prepared by a local agency and certified by the Commission, it is, in effect, the environmental review. In such cases, the issuance of a CDP is the responsibility of the local agency. The Commission retains ultimate oversight and responsibility for compliance through an appeal process. The CZ encompasses waters 3 miles seaward from the coastline and generally extends inland 1,000 yards from the mean high tide line, except in developed urban areas where the boundary is often less than 1,000 yards. In significant estuarine habitat and recreational areas, the CZ extends inland to the first major ridgeline, or 5 miles from the mean high tide line. By virtue of its proximity to the Morro Bay Estuary, the entire community of Los Osos, including the Kroll project site, lies within the CZ. One of the primary provisions of the Coastal Act is to preserve, protect, and enhance environmentally sensitive habitat areas (ESHA). Section 30107.5 of the Coastal Act defines an ESHA as "Any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments."

Section 2. Project Description / Activities Covered by Permit

2.1 Project Description

The proposed project includes the construction of a single-family residence, barn, two septic systems; improving the existing residential access; establishing, recording and restoring an easement area for MSS, and granting an open space easement to the County. These project components will be implemented on the western two-thirds of a 5.08-acre parcel. The eastern one-third of the parcel is currently used for equestrian purposes and is not included in the proposed project (refer to Figure 3). The following sections discuss the project elements.

2.1.1 Residential and Barn Development

The proposed residential building envelope is approximately 0.50-acres located along the southern parcel boundary. A residential access drive, turn-about driveway, approximately 2,656 square-feet (ft²) residence, approximately 300 ft² septic system (pit and tank), and landscaping would be constructed/installed within this 0.5 acre area. Per California Department of Forestry and Fire Protection (CAL FIRE) recommendation, the residence will be accessed from Madera Street (refer to Appendix D) and consist of an all-weather surface capable of accommodating emergency vehicles.

The proposed barn and associated septic system would be constructed in a 0.13-acre building envelope located approximately 60 feet from the northern parcel boundary and adjacent to the existing private road easement for Seahorse Lane. The barn would be approximately 2,550 ft² in size and its septic system would require an approximately 300-ft² disturbance area. The barn would be accessed from the existing Seahorse Lane.

Utilities would be supplied to the residence from existing services located at the property boundary on Madera Street. The new lines from the residence and barn would connect to the existing services and would be trenched in the access drive to the house. Electricity for the proposed barn would be supplied from the existing service on Highland Avenue and Seahorse Lane. A power pole is already in-place on the property near the barn site. Power lines would be trenched in the existing Seahorse Lane easement to the new barn. Water for the residence and barn is already available on the parcel and is supplied from waterlines originating at the Madera service and running under the existing Madera access drive. The applicant would connect to the existing lines and run new lines to the house and barn.

Construction activities are anticipated to occur over a 12-month period. If activities extend past 12 months, the Service will be contacted to determine if a permit extension is necessary.

2.1.2 Easements

Two separate easements would be established and recorded on the parcel. A 1.1-acre easement on the western portion of the parcel (hereafter, the HCP easement) and a 0.93-acre easement (hereafter, the County easement) in the central portion of the parcel

will be established and recorded with the County of San Luis Obispo (refer to Figure 4). The HCP easement area is further discussed in Section 5, Conservation Program.

The applicants have applied for a Minor Use Permit (MUP) from the County. As part of the MUP, the County required the applicant to grant 40 percent of the 5.08-acre parcel (2.03 acres) to the County as an open space easement. The County has agreed to accept the 1.1-acre HCP easement area and an additional 0.93-acre open space easement area to satisfy the 40 percent open space requirement (K. Brown 2013). The County easement will allow limited agricultural practices. Due to the different allowed uses in the two easement areas, each easement will be recorded and managed separately; however, activities to be conducted in both easements are covered activities in this HCP. These activities are discussed in Section 2.2, Covered Activities.

2.2 Activities Covered by Permit

Construction and ongoing uses of the residential and barn development, restoration and management of the HCP easement area, and allowed uses in the County open space easement include varying activities for which ITP coverage is being requested. The ITP will include MSS minimization measures associated with each of the project elements. Discussions of anticipated covered activities are provided under the specific project elements below.

2.2.1 Residential Development

Proposed residential development activities to be covered by the ITP include all of those activities necessary for the construction of the single-family residence, barn, septic systems, and improved residential access. Ongoing uses of the residential development such as structure and landscape maintenance would also be covered. Anticipated activities to be covered under the ITP include:

- *Installation of temporary fencing:* The permittees will install temporary fencing around the residential development building envelope to ensure construction activities do not encroach on the HCP easement area. Installation of the temporary fence will require limited disturbance to vegetation that may provide shelter to MSS.
- *Initial vegetation clearing and grading of the Madera Street access drive, residential building envelope, and barn site envelope:* The vegetation clearing and grading would include rough and finish grading for the Madera Street access drive, removal of vegetation, and excavating structural footings, foundations, and slabs for the residence and barn. All grading activities would be conducted with large equipment (backhoe, excavator, ditch witch, etc.) and hand tools (shovels, picks, etc.).
- *Materials staging for construction:* Once cleared, all areas will be available for the temporary placement of equipment, building supplies, landscaping materials, vehicles, and other items necessary for the construction of the project elements.
- *Septic system and utilities installation:* Activities associated with installation of the septic systems and utilities will include trenching for, and installation of, sewage conveyance pipes, gas lines, electrical conduit, and water lines.

Excavation and/or drilling for the septic tanks and septic pits will also be included.

- *Hardscape and foundations:* Forming and pouring the residential driveway (not inclusive of Madera Street access) and structural foundations will be included.
- *Structural framing and finish work:* This will include erecting the structural skeletons and installing all internal electrical, plumbing, heating, air conditioning, and other standard amenities.
- *Madera Street Access:* all trenching and grading associated with the Madera Street access will be included. This is inclusive of trenching for utilities that will follow the access, finish grading of the access, and installation of the access surface.
- *Landscape components:* Installation of the residential and barn landscape and associated irrigation systems will be included.

Ongoing uses of the residential development will also be covered under the ITP. Ongoing uses will include landscape maintenance, daily vehicular traffic, pet keeping (prohibited in the HCP area), structural and utility maintenance, and hazard abatement. Hazard abatement activities would be limited to those areas in the residential and barn building envelopes. Hazard abatement would not be performed in the HCP easement area.

2.2.2 HCP Easement Area

The HCP easement area will be established and maintained for the sole purpose of restoring native central dune scrub habitat for use by MSS. Habitat restoration will require limited take of MSS and its habitat within the easement area. The following activities and associated disturbances will be necessary to restore MSS habitat, therefore requested for coverage under the ITP:

- *Protective fencing:* Prior to site improvements, the permittees will install a permanent protective fence around the perimeter of the HCP easement area. If project timing does not allow for the permanent fence to be installed prior to implementation of the site improvements, the permittees will install a temporary fence around the HCP area to protect it from construction related disturbances. The temporary fence must be replaced with the permanent fence prior to the first restoration monitoring visit. Installation of the fence will require minor digging and temporary disturbance of vegetation.
- *Invasive species removal:* Removal of non-native plant species (primarily veldt grass) will be conducted by hand and mechanical methods. Hand removal will include removing veldt grass clumps with shovels, whereas, mechanical methods will utilize a small tractor with a grapple attachment to uproot the veldt grass and turnover the soil.
- *Avocado tree removal:* Avocado trees present in the HCP easement area will be removed. This will require digging and vehicle use in the area.

- *Container plant installation:* Installation of container plants will be implemented by hand with shovels.
- *Irrigation installation:* Depending on the progress of the restoration plantings, the permittees may install a temporary above-ground irrigation system. Existing irrigation materials used for the avocado trees may be used for habitat restoration purposes. Once plants are well established (estimated to be within 3 years), the system may be removed. Installation and removal of the irrigation may require minor digging, placement of irrigation lines, and periodic system maintenance.
- *Habitat restoration monitoring:* A Service-approved biologist will monitor the progress of the restoration activities and presence of MSS within the HCP easement area. This will require conducting MSS surveys on an annual basis and evaluating the success of the restoration efforts. Success of the restoration efforts will be evaluated using vegetation transects. Data collection will require walking through the HCP area.
- *General maintenance:* General maintenance activities will be conducted by the permittees and expected to include, but not be limited to, trash and debris removal, installation or removal of gopher baskets, installing replacement plantings, supplemental watering, fence repairs, etc. These activities may require walking through the HCP easement area with a wheelbarrow, digging, dragging hose or irrigation lines, etc.

2.2.3 Open Space Easement Area

The County open space easement area will allow limited agricultural activities that could result in the take of MSS. Therefore, the following activities are requested to be covered under the ITP:

- *Installation of avocado or citrus trees:* Orchard trees would be installed by hand or mechanical auger digging. This will require vehicle and/or small tractor access to the site, auguring planting holes, and installing the avocado plants and associated gopher protection cages.
- *Orchard watering:* Orchard trees will be watered via above ground irrigation lines and/or hand watered with a hose. This may require placement of irrigation lines, periodic system maintenance, and dragging a hose through the area.
- *Periodic mowing:* During the ITP term, the orchard plantings will be small and provide minimal shade to reduce growth of veldt grass and other weed species. During this time, the area will likely be mowed or weed-whacked in the late spring or early summer months. Mowing would be conducted with a small all-terrain vehicle with a mower attachment and/or hand-held weed-whackers. Once the orchard trees mature, their canopy would reduce the growth of weed species and the frequency of mowing may be reduced.
- *Orchard pruning:* The orchard trees would be pruned on an as-needed basis. Tree pruning would require the use of small equipment and orchard ladders.

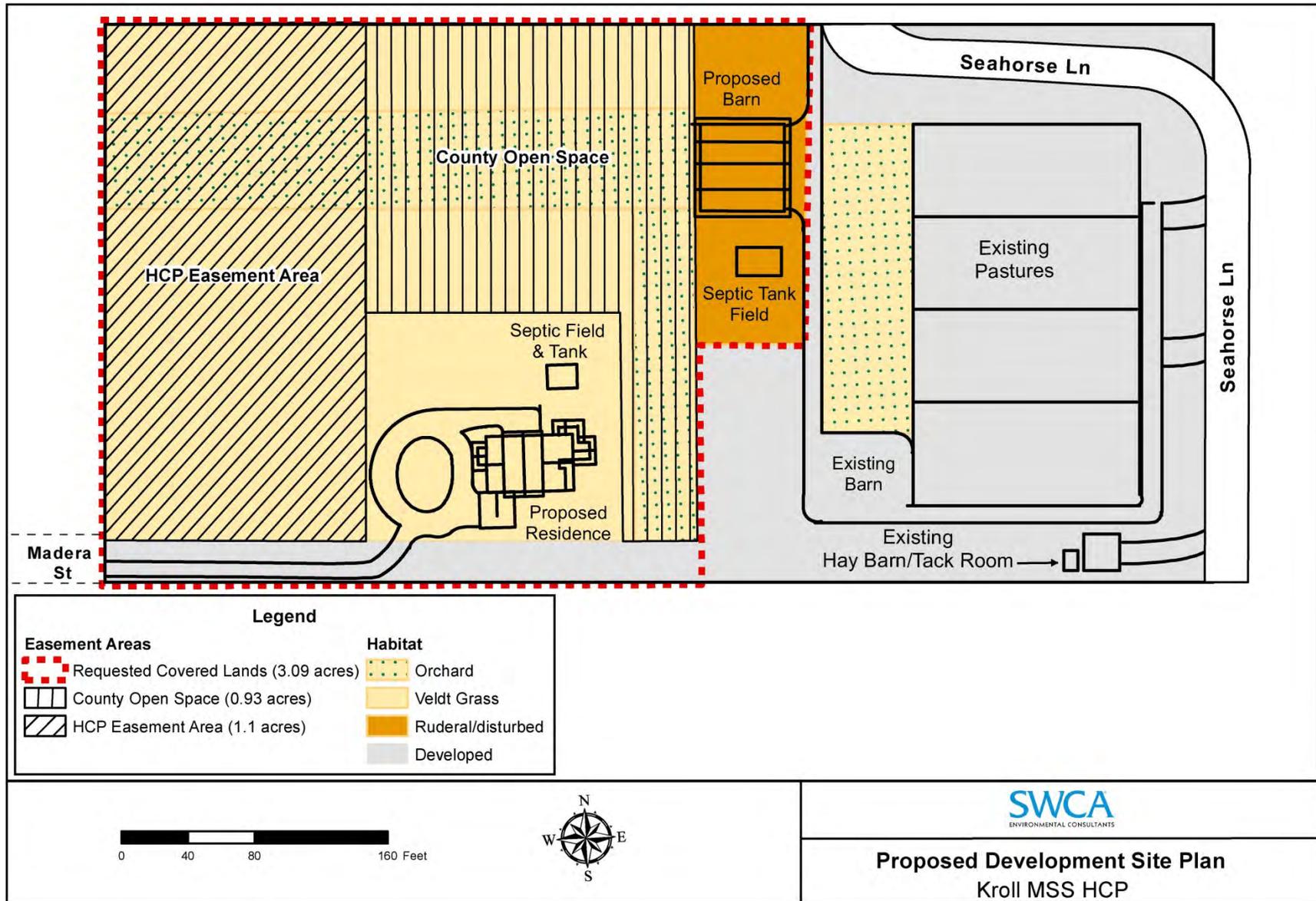
- *Small equipment operation:* Operating small all-terrain vehicles and/or a standard size truck, or a small tractor maybe necessary when hauling trees, cages, tree poles, fertilizer, pruning debris, or other materials to or from the orchard.

2.2.4 MSS Minimization Measures

Given the history of MSS occupation of the parcel, the above activities are considered likely to result in take of MSS. The following measures will be implemented to minimize take in the form of injury or harm and would be made non-discretionary conditions of the ITP and the County's MUP:

- *Surveys, capture, and moving of MSS:* Prior to any activity that could result in take of MSS (e.g., vegetation removal, site preparation, grading, construction activities, etc.), a Service-approved biologist will conduct surveys to identify live individuals, in all life stages that may be present. Surveys will likely involve some disturbance to vegetation, capture and handling of individual snails, and relocation of snails out of harm's way into suitable habitat. Detailed discussions of the MSS capture and relocation efforts to be covered under the ITP are provided in Section 5.2.2, Measures to Minimize Impacts.
- *Protective fencing:* Prior to any ground disturbing activities or delivery and staging of materials, the building envelopes and HCP easement area will be fenced to clearly delineate the work areas and protect the HCP easement area. Installation of the fence will require minor digging and vegetation trampling.

Figure 3. Proposed Site Plan



Section 3. Environmental Setting / Covered Species

3.1 Environmental Setting

The 5.08-acre site has been historically used for agricultural production, with potatoes and sugar peas farmed from the 1950s through the 1980s, and use as horse pasture beginning in the 1990s. Vegetation on the site currently consists of a mixture of orchard plantings, pastures dominated by veldt grass, and ornamental plantings associated with current horse-related uses. A dirt driveway lined with cypress trees extends along the southern property boundary from Madera Street. The northern property boundary abuts a developed residential parcel. Several mature California sage (*Artemisia californica*) are present along the northern property line.

The western portion of the site consists of fallow pasture dominated by veldt grass. Several rows of avocado trees are planted along the northwestern portion of the parcel. The avocado trees have been abandoned to facilitate the establishment of this HCP; therefore, the trees are stunted and in poor condition. The pasture areas contain scattered occurrences of native plant species, including California croton (*Croton californicus*), deerweed (*Acmispon glaber* [*Lotus scoparius*]) and dune lupine (*Lupinus chamissonis*). The native shrubs present are mature but surrounded by tall and relatively dense veldt grass.

3.1.1 Climate

In the plan area, summer temperatures range from 50 degrees Fahrenheit (°F) to 70°F, with an average of 58°F. Winter temperatures range from 52°F to 55°F, with an average of 53°F. Annual precipitation is approximately 17 inches per year. All precipitation falls as rain. The rainy season is typically from October to March, with the majority of the rainfall typically occurring between January and March.

3.1.2 Topography/Geology

Elevations onsite range from approximately 180 to 200 feet. The site slopes slightly (less than 10%) to the northwest and soils are, like most of the Los Osos area, Baywood fine sand. The Baywood soil series consists of deep, somewhat excessively drained soils that formed in old sand dunes near the coast.

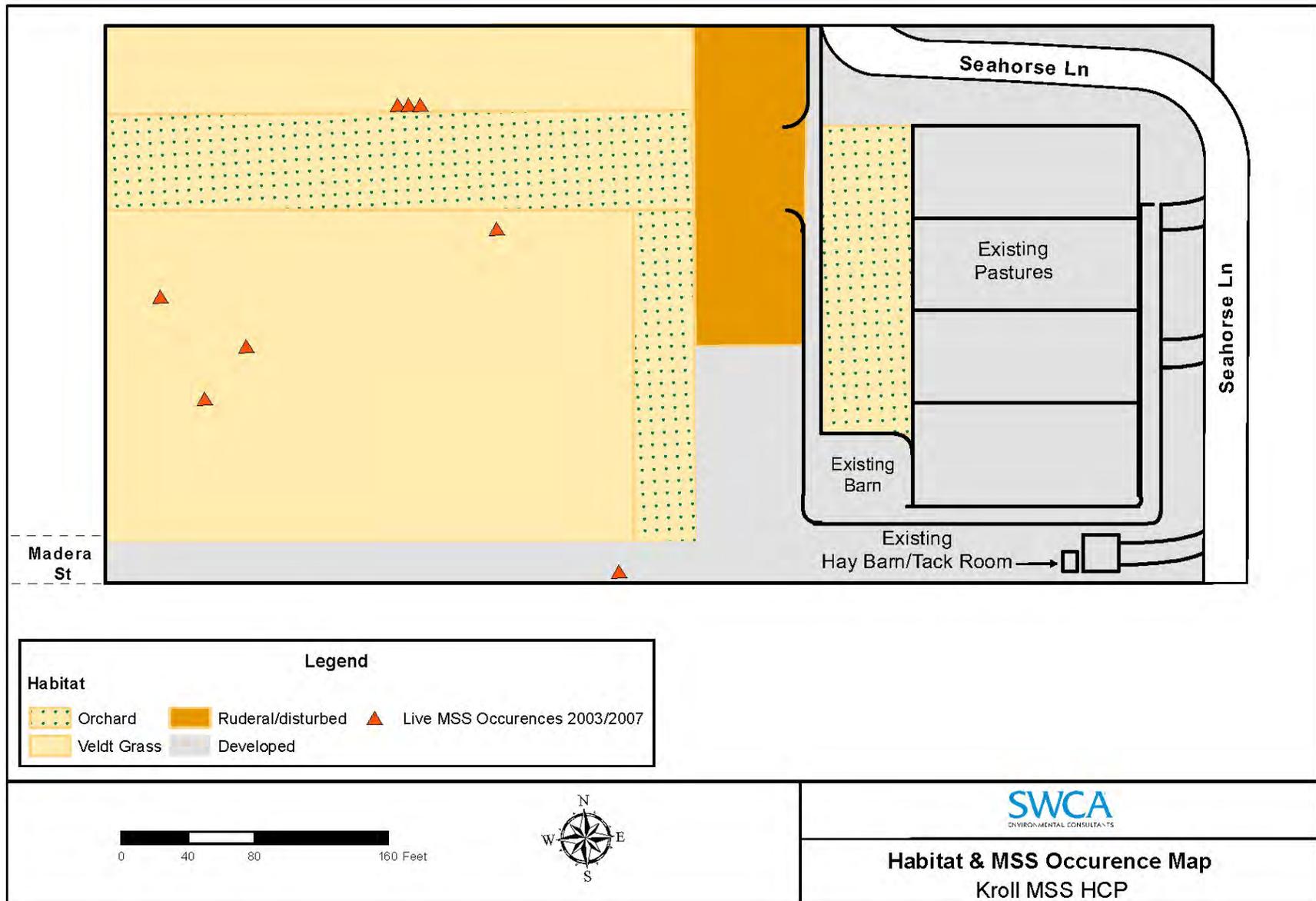
3.1.3 Hydrology/Streams, Rivers, Drainages

The plan area is within the Los Osos Creek watershed. No rivers or drainages are present on the project site, nor does the project site lie within a flood zone.

3.1.4 Existing and Surrounding Land Uses

The project site is zoned as Residential Suburban and bounded by residential development to the south, a mix of agricultural and residential uses to the north, horse boarding facilities to the east, and an undeveloped parcel containing eucalyptus trees and coastal scrub habitat to the west. The eastern half of the property is currently used for horse-related activities, and contains associated facilities and structures, including corrals, barns, and storage sheds (refer to Figure 3). Citrus and avocado plantings are present in the northern and eastern portions of the site.

Figure 4. Habitat and Morro Shoulderband Occurrence Map



3.2 Covered Species

3.2.1 Morro shoulderband snail (*Helminthoglypta walkeriana*)

Status, Distribution, and Trends

The MSS is a native gastropod endemic to the Los Osos, Baywood Park, and southern Morro Bay region of coastal central San Luis Obispo County, California. The MSS was federally listed as endangered on December 15, 1994 (Service 1994), and a recovery plan for the species and four plants from western San Luis Obispo County was completed in September 1998 (Service 1998). A 5-year status review for the MSS was completed in 2006 (Service 2006).

On February 7, 2001, the Service designated 2,566 acres of critical habitat for MSS. The acreage occurs in three distinct units, each unit representing a core population of MSS and considered essential for maintenance of the species' geographic distribution and genetic variability. The primary constituent elements of critical habitat for the MSS are those physical and biological features essential to the conservation of the species and include the following: sand or sandy soils needed for reproduction, a slope not greater than 10% to facilitate movement of individuals, and the presence of native coastal dune scrub vegetation.

The MSS is restricted to areas of sandy soils in the town of Los Osos and near Morro Bay in San Luis Obispo County. In 1985, Roth found that the geographic limits of this species generally coincided with the limits of stabilized, vegetated, dune habitats located east, southeast, and south of Morro Bay. The current known range is slightly expanded and covers approximately 7,700 acres, extending from Morro Strand State Beach in northern Morro Bay southward to Montaña de Oro State Park and inland to at least Los Osos Creek in eastern Los Osos (Service 2006). Since its listing, more surveys have been conducted, and information on the distribution and abundance of this species is increasing. However, the increase in number of known populations may be attributed to the increase in surveys. These data are not sufficient to determine a population trend. MSS populations may be increasing, or are at least stable and or increasing and not decreasing (Service 2006).

At the time of listing, identified threats included habitat loss or degradation, competition from non-native snail species, off-highway vehicle activity, and use of pesticides. The threats identified in the listing rule have diminished; however, loss and degradation of habitat continues to constitute a threat to the species. Dehydration is a major threat to all terrestrial mollusks and, therefore, a major threat to the MSS is exposure that results from partial or complete removal of protective, sheltering vegetation. As with other species of *Helminthoglypta*, MSS are likely subject to predation by small mammals and snakes (van der Laan 1980; Huntzinger et al. 2008). MSS may suffer physiological stress or even death if their epiphragm (a seal of dried mucus in the aperture of the shell) is broken or they are exposed to otherwise desiccating conditions during aestivation. However, recent evidence indicates that individuals can survive being relocated while in aestivation, provided they are relocated to areas with substantial shelter (SWCA 2014).

Habitat Characteristics/Use

In its native habitat on Baywood fine sandy soils, the MSS is typically found in the accumulated leaf litter and the undersides of lower branches of shrub species of coastal

dune scrub. Common plant species with which MSS have been associated include mock heather (*Ericameria ericoides*), seaside golden yarrow (*Eriophyllum staechadifolium*), deerweed, dune lupine, and dune almond (*Prunus fasciculata* var. *punctata*). Typically, shrubs that support MSS exhibit dense, low growth with ample contact with the ground. MSS are also commonly found in non-native iceplant species and the non-native perennial veldt grass. Recent survey data indicates that MSS are opportunistic and will utilize almost anything that provides structure and protection. Surveys have found MSS associated with old tires, wood and brush piles, deadwood, trash and debris, building foundations, fence boards, and other protected areas, sometimes with little or no coastal scrub habitat present nearby (SWCA 2014).

Active MSS are typically observed when increased moisture availability facilitates their ability to find food, disperse, and mate. In the dry season, MSS, like other terrestrial snail species, aestivate in accumulated litter, and attached to the branches of shrubs and other structural materials as described above. As with other snails in the genus *Helminthoglypta*, this species aestivates by producing an epiphragm to reduce water loss during the dry season.

Occurrence within the Project

Two surveys for MSS were conducted on the property by Tenera Environmental—one in 2003 and one in 2007 (refer to Appendix A). The 2003 survey consisted of one protocol survey following a rainfall event, and found four live MSS along the northern and southern property fence lines, and no empty shells. The 2007 survey consisted of five visits under protocol conditions, and found four live MSS and three empty shells, all in disturbed areas dominated by veldt grass. Four of the live MSS and two of the empty shells found during the surveys were located in the area proposed as mitigation under this HCP.

SWCA conducted a site visit and reconnaissance survey on the parcel on October 15, 2013 (SWCA 2014; refer to Appendix B). At that time, the eastern third of the parcel was still being utilized for equestrian boarding and orchard. The western portion of the parcel has been left fallow since 2008. Following the 2007 surveys, mowing and other uses of the western portion of property ceased, thus allowing the veldt grass and few native shrubs to grow and provide MSS shelter in the HCP easement area. To augment the species survey data, SWCA conducted four additional surveys in select areas among the ruderal habitat at the proposed barn site, in the veldt grass at the house site, in the HCP area, and at locations along the parcel fence lines. The October 15, 2013, survey was conducted in non-protocol conditions. Additional surveys conducted on February 3, 6, and 28, 2014, and April 1, 2014, were performed during protocol conditions. No live MSS or empty shells were observed during the 2013 and 2014 surveys. With exception to the lack of mowing in the western portion, the conditions on the parcel are similar to those reported in 2007. Based on the recent surveys and site evaluation, it is likely that MSS numbers on the parcel are still low.

Section 4. **Biological Impacts / Take Assessment**

4.1 Direct and Indirect Impacts

Construction, maintenance, and occupation of a single-family residence could result in direct and indirect impacts to up to 0.63 acre of degraded non-native grassland, ornamental plants, and ruderal plant species. The likelihood for take in association with the covered activities is low but not discountable. Most direct impacts would occur during vegetation removal and grading in the building envelopes. Direct impacts could occur while conducting habitat restoration activities in the HCP mitigation area and orchard maintenance/harvesting activities in the open space area. Indirect impacts are expected to occur overtime as a result of the overall change in land use and human presence on the parcel. Indirect impacts may involve the introduction of pets or new weed species on the parcel.

Direct impacts of the project will include:

- Permanent loss of 0.63 acre of non-native grassland and ruderal habitats occupied by MSS.
- Take in the form of capture of MSS that are found in the impact areas during capture and relocation of individuals out of harm's way.
- Take in the form of injury or mortality to those MSS in the disturbance areas that are overlooked during the pre-disturbance capture and relocation efforts.

Indirect impacts of the project may include:

- Inadvertent trampling or displacement of MSS by domestic pets on the parcel.
- Mortality of MSS that are inadvertently drowned when irrigating the orchard in the County open space area.
- Mortality of MSS that may be inadvertently crushed by orchard maintenance/harvesting activities.
- Changes in habitat conditions in the County open space area and areas immediately adjacent to the new structures that may result from inadvertent introduction of new weed species.

4.2 Anticipated Take of Morro Shoulderband Snail

Take of MSS anticipated to result from implementation of those actions necessary to implement the proposed project (covered activities as identified in Section 2.2) is considered to be insignificant in terms of the species' overall survival and recovery. The actual number of animals subject to incidental take is expected to be very low (and predominantly in the form of harassment), as few individuals have been observed in the degraded habitat on-site. The

project site is not located in designated critical habitat or an area that is considered important to its recovery. The potential for take to occur will be greatly reduced through implementation of the minimization measures discussed in Table 1. These measures include pre-construction surveys and relocation of MSS from development areas, installation of protective fencing, worker training, and periodic monitoring during grading and other construction activities that could affect MSS. For these reasons, the level of take of MSS that would result from implementation of the residential project is considered to be negligible.

4.3 Effects on Critical Habitat

The Kroll parcel is not located within critical habitat designated for MSS on February 7, 2001 (Service 2001). For this reason, project implementation will not result in modification or destruction of critical habitat.

4.4 Cumulative Impacts

In contrast with the analysis of cumulative impacts under Section 7, Section 10 of the Act and HCPs analyze cumulative impacts as incremental impacts of the action on the environment when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. The geographic area for analysis should be defined by the manifestation of direct or indirect impacts as a result of covered activities. Cumulative impacts under Section 10 of the Act can result from individually minor but collectively significant actions taking place over a period of time.

Land use surrounding the project site includes residential housing, fallow agricultural fields, horse boarding facilities, and a storm water basin. Ongoing or recently permitted residential developments in the area include the Highlands development, Tarver parcel, Kellaway parcel, and the Longworth parcel. The Highlands Development is immediately north of the site and includes several half acre parcels that were developed for residential uses. The Tarver parcel and the Kroll parcel are separated by the existing Madera Street access to the Kroll site and an existing equestrian trail. The presence of the access and trail limits but does not prohibit MSS from traveling between the Kroll and Tarver parcels. The Kroll, Highlands development, Tarver, and Kellaway parcels are neighboring with limited barriers between them. Due to the close proximity of these parcels, adverse effects of the Highlands, Tarver, Kellaway, and Kroll residential projects include the loss of MSS habitat in the area. Due to the geographic separation (Madera Street access and equestrian trail) of the Kroll parcel from the Tarver and Kellaway parcels, habitat restoration activities proposed on the Kroll parcel are not expected to significantly contribute to the benefit of MSS on the Tarver and Kellaway parcels. However, the Kroll's restoration activities could contribute to the benefit of MSS located on the remaining habitat areas at the Highlands Development and the Los Osos Community Services District (LOCSO) storm water basin. The Longworth parcel immediately to the west of the Kroll parcel is currently undeveloped, but has obtained an ITP for MSS. The Longworth HCP will consist of an in-lieu fee process instead of on-site mitigation.

The Kroll parcel and the proposed Kroll HCP area are directly adjacent to the LOCSO Madera Street storm water basin. The stormwater basin supports disturbed native and non-native MSS habitat and eucalyptus trees that are not considered suitable MSS Habitat. The LOCSO has no intention of developing the stormwater basin; however, they are pursuing the removal of the eucalyptus trees (Faulkner 2013). Removal of the eucalyptus trees could provide an opportunity for adjacent MSS habitat to expand into the tree removal area. The presence of the

MSS habitat in the storm water basin coupled with the proposed Kroll HCP mitigation area would provide a net increase of MSS habitat in the immediate area.

Due to the ongoing development of the area, the cumulative effect of the Kroll residential development when coupled with the Highlands, Tarver, Kellaway, and Longworth developments is a net loss of MSS habitat in the area. However, by situating the Kroll HCP easement area so that it connects with existing habitat on the LOCSD property to the west, the cumulative impacts of this project on the persistence of MSS in the area are expected to be beneficial.

4.5 Anticipated Effects of the Taking

The incidental take of the MSS that is anticipated to result from implementation of those actions necessary for the proposed project is considered to be insignificant in terms of the species' overall survival. The actual number of animals subject to incidental take is expected to be low (and predominantly in the form of capture/relocation) and the project site is not located within any of the three critical habitat units or four conservation planning areas for the species. For these reasons, the level of take of the MSS that would result from the Kroll project is considered negligible.

Section 5. Conservation Program

5.1 Biological Goals and Objectives

Section 10(a)(2)(A) of the Act requires that an HCP specify the measures that the permittees will take to minimize and mitigate to the maximum extent practicable the impacts of the taking of any federally listed animal species as a result of activities addressed by the plan.

As part of the “Five Point” Policy adopted by the Service in 2000, HCPs must establish biological goals and objectives (65 *Federal Register* 35242, June 1, 2000). The purpose of the biological goals is to ensure that the operating conservation program in the HCP is consistent with the conservation and recovery goals established for the species. The goals are also intended to provide to the applicant an understanding of why these actions are necessary. These goals are developed based upon the species’ biology, threats to the species, the potential effects of the covered activities, and the scope of the HCP.

The biological goals and objectives of this HCP are as follows:

Goal 1: To minimize take of MSS within the project site.

Objective 1.1: Survey for, capture, and move MSS from impact areas by performing surveys prior to any activity that could result in take.

Goal 2: Mitigate for unavoidable take

Objective 2.1: Record a 1.1-acre conservation easement on the site with the County that will protect MSS habitat in perpetuity and be contiguous with adjacent preserved habitat.

Objective 2.2: Restore native habitat on the 1.1-acre HCP easement area through removal of exotic species, including veldt grass and avocado trees, and planting and seeding of native plants.

Objective 2.3: Maintain the HCP easement area through regular invasive plant species removal efforts.

5.2 Avoidance, Minimization, and Mitigation Measures

As part of an application for an ITP, HCPs must contain measures to minimize and mitigate the effects of take that is being requested in the permit. Any mitigation program included in an HCP should be based on sound biological rationale. It should then also be practicable and commensurate with the effects of the taking. The Service encourages applicants to develop minimization and mitigation measures that will contribute to the recovery of the covered species.

In accordance with these guidelines and the requirements of the Act, the Conservation Program of this HCP is intended to achieve its biological goals and objectives and to ensure that the effects of the covered activities on the MSS are minimized and mitigated to the maximum extent practicable and contribute to the species’ recovery.

5.2.1 Measures to Avoid Impacts

Design of Impact Areas

The proposed development has been designed to avoid impacts to MSS to the extent possible by keeping development within disturbed areas with limited MSS occurrences. The areas proposed for the residential and barn structures include non-native grassland and bare areas that provide limited shelter opportunities for MSS.

Protective Fencing

Before any grading or materials delivery occurs at the project site, the construction areas will be fenced to establish the limits of construction activities. This fencing will consist of temporary orange construction fencing.

During or immediately following construction, a permanent fence will be installed along the boundary between the HCP easement area and the development area. This fence will be constructed from wood or other durable material, and will provide a clear boundary barrier between the easement area and the residential portion of the property.

Pre-construction surveys for MSS will be conducted prior to installation of the fence.

Sediment and Erosion Control

All sediment and erosion control measures established for the project shall direct stormwater flows away from the HCP easement area.

5.2.2 Measures to Minimize Impacts

Surveys for and Capture and Moving of Morro Shoulderband Snails

To reduce the potential for take of MSS in the form of injury or direct mortality, a Service-approved biologist will survey any area where take may occur for individuals that may be present. Any identified individuals, in all life stages, will be captured and moved out of harm's way. All efforts will be made to locate and move live snails of all life stages as well as empty shells of the species.

All living native snails, in all life stages, that are identified will be captured and moved to suitable areas in a location approved by the Service prior to the initiation of pre-activity surveys. Since the appended Habitat Restoration Plan is designed to retain MSS shelter in the HCP easement area throughout the restoration process, the easement area will be considered for approval as a relocation site. The Morro Dunes Ecological Reserve may also be considered. The size, age-class, location of capture, and release site location will be recorded for each individual MSS moved from the affected work area. Empty shells will be noted on a map, counted, and classified by size and age. These shells will be placed within the HCP easement area. The biologist will document those activities associated with all surveys and a report(s) will be submitted to the Service in accordance with the reporting section to follow.

Surveys will be conducted within 1 week prior to commencement of vegetation removal and initial ground disturbance activities. If precipitation or heavy fog conditions occur in the timeframe between the survey completion and removal of habitat, the Service-approved biologist will resurvey the area to ensure MSS did not move into the site. If pre-construction surveys occur during the summer months (April through October), when MSS are typically aestivating, one intensive survey conducted by Service-approved

biologist(s) prior to construction should be sufficient to relocate MSS from the development areas. The survey process will involve moving and searching under all vegetation, and all anthropogenic artifacts present (e.g., woodpiles, debris, etc.), and may result in destruction or uprooting of vegetation. If pre-construction surveys occur during the rainy season (November through March) multiple surveys prior to initial disturbance may be needed to identify all MSS present in a work area.

The intent of the pre-construction survey(s) is to capture and move all MSS observed during an intensive search of the development area. However, previous experience has shown that due to the small size and cryptic nature of the species, some individuals can be missed during even the most thorough effort, and may then become visible during ground disturbance. To address this possibility, a Service-approved biologist will be present during all grading and grubbing activities to capture and move any additional MSS discovered.

If major construction activities that have the potential to affect MSS or their habitat, such as grading or cement pouring, occur during the rainy season, daily surveys will be conducted at the beginning of each work day to check for and remove any MSS that may have entered the construction area.

Permittees, Contractor and Employee Training/Education

A Service-approved biologist with demonstrable knowledge and experience with MSS and its habitat will conduct a pre-construction environmental awareness training session for all construction personnel involved in site disturbance. The training is intended to inform the permittees, construction crews, field supervisors, and equipment operators about the status and presence of the species, grading and construction-activity restrictions, and those minimization measures specified in the HCP.

The permittees will be living on-site and maintaining the property. They undoubtedly will observe native shoulderband snails during their daily activities. To promote native species education and stewardship, the Service-approved biologist will train the permittees to identify and properly relocate native shoulderband snails. The training will provide the permittees with sufficient knowledge to properly relocate native snails they observed when a Service-approved biologist is not present. The intent of the training is to promote landowner stewardship for native species. Training the permittees will not negate the need for the Service-approved biologist to conduct necessary pre-disturbance MSS surveys and monitoring included in this HCP.

5.2.3 Measures to Mitigate Unavoidable Impacts

The 1.1-acre HCP easement area (refer to Figures 3 and 4) is that area intended to provide mitigation for unavoidable take of MSS. The applicants will conserve and manage the 1.1-acre HCP easement for the sole purpose of MSS habitat. This area will be restored to a dominant cover of native coastal dune scrub plant species following removal of non-native grasses and orchard plantings. The HCP easement will be recorded under an agreement with the County as approved by the Service.

HCP Easement

The permittees proposes to set aside 1.1 acres of the site as an HCP easement to be recorded with the County (refer to Figure 3). This easement will restrict allowable uses to habitat restoration and species conservation activities only. Future development,

agricultural uses, or other habitat conversions will be prohibited. The HCP easement perimeters will be fenced to restrict unauthorized entrance and activity. This fence will be constructed from wood or other durable material, and will provide a clear barrier between the HCP easement area and the residential and open space portions of the property. The fence is intended to restrict access by people and pets, and reduce the potential for inadvertent impacts to MSS and habitat from adjacent residential uses.

Coastal Dune Scrub Habitat Restoration

The 1.1-acre HCP easement will be restored by the permittees to provide native habitat conditions for MSS. Habitat restoration will be implemented through removal of non-native plants, planting and seeding with native species, and regular maintenance. The goal of the habitat restoration effort will be to return the HCP easement area to predominantly native coastal scrub habitat conditions. A detailed restoration and monitoring plan is included as Appendix E. The restoration plan has been designed to retain MSS shelter in the HCP area during restoration activities. All planting, monitoring, and management activities in the HCP easement area will be conducted in accordance with the restoration plan.

Section 1276.01 of the Fire Safe Regulations requires all parcels 1 acre and larger to provide a minimum 30 to 100 foot defensible space around buildings and accessory buildings. The proposed residence will be located 75 feet from the conservation easement boundary. Therefore, vegetation clearing for fire safety in the HCP restoration area will not be necessary and, therefore, is not a requested covered activity. .

Table 1. Summary of minimization measures and corresponding biological goals and objectives based on the level of impacts resulting from covered activities.

| Covered Activity | Form of Take | Expected Level of Take | Minimization Measures | Biological Goals and Objectives Met |
|--|--|---|---|--|
| MSS surveys, capture, and moving | Capture , injury, or mortality of MSS | All disturbance areas would be surveyed for MSS prior to disturbance. Identified MSS would be captured and moved to suitable habitat within the easement area | During permitted activities, MSS surveys, capture, and moving of individuals will be performed by a Service-approved biologist in possession of a valid 10(a)(1)(A) permit for MSS. | Minimize take of MSS within the covered lands and during implementation of covered activities. |
| Monitoring by Service-approved biologist during vegetation removal and grading | Capture, injury or mortality of MSS | Expected to be very few; only individuals that were not identified and removed during pre-construction surveys | MSS surveys, relocation, contractor and worker education and monitoring, conducted by Service-approved biologist. Protective fencing installation. | Minimize take of MSS within the development area |
| Residential development construction and County easement maintenance | Capture, injury, or mortality of MSS that may move into construction and maintenance areas | Expected to be few; only individuals found during daily pre-construction surveys conducted for work performed in the rainy season. | MSS surveys and relocation; protective fencing; contractor and worker education, monitoring | Minimize take of MSS within the development area |
| Habitat restoration and maintenance activities | Capture, injury, or mortality of MSS | Expected to be minor, occurring primarily during initial exotic species removal and planting efforts. Expected to decrease as native species cover increases | Habitat restoration activities will be performed by the permittees, with assistance from a Service-approved biologist as needed | Restore, preserve, and maintain native coastal dune scrub habitat for MSS in the HCP easement area |

5.3 Monitoring

Monitoring tracks compliance with the terms and conditions of the HCP and ITP. There are three types of monitoring: (1) compliance monitoring to track the permit holder's compliance with the requirements specified in the HCP and permit; (2) effects monitoring to track the impacts of the covered activities on the covered species; and (3) effectiveness monitoring to track the progress of the conservation strategy in meeting the HCP's biological goals and objectives (includes species surveys, reproductive success, etc.). Monitoring provides information for making adaptive management decisions.

Any potential habitat degradation or other threats to MSS will be identified during construction compliance and effects monitoring by the approved biologist, and during effectiveness monitoring conducted by the permittees during the permit period. Suitable measures to remediate identified habitat degradation or potential threats will be implemented with concurrence from the Service.

5.3.1 Compliance Monitoring

Upon issuance of a permit, the permittees will retain a Service-approved MSS biologist to conduct compliance monitoring during construction of the project. This monitoring biologist will ensure that the required minimization measures, such as protective fencing and environmental training, are implemented. Results of the compliance monitoring will be reported in the first annual report for the project.

5.3.2 Effects Monitoring

To quantify the amount of incidental take resulting from project implementation, the Service-approved biologist will document the number and age class of individual MSS that were captured and moved, as well as any MSS injured or killed during implementation of the minimization measures or any aspect of project implementation. This information will be included in the first annual report for the project.

5.3.3 Effectiveness Monitoring

The HCP easement area will be monitored four times in the first year, three times a year for years 2 through 4, and then annually in years 4 through 10. The Service-approved biologist will monitor, evaluate, and report the progress of the compensatory mitigation site to determine the success of the mitigation efforts. The monitoring program will document the success or failure of the restoration plantings, presence of veldt grass in the restoration areas, and general ITP compliance. The monitoring will include three types of monitoring visits, Qualitative Assessments; Annual Quantitative Assessments; and General ITP Compliance. Qualitative Assessments will occur in Years 1 through 4; Quantitative Assessments will occur annually in Years 1 through 7; General Permit Compliance Assessments will occur throughout the permit term. Site monitoring and success criteria are discussed in the restoration plan. Effectiveness monitoring results will be reported annually.

5.4 Performance and Success Criteria

The overall goal of this HCP is to restore and preserve habitat suitable for occupation by MSS within the HCP easement area. Performance criteria for each objective stated in Section 5.2 are as follows:

Objective 1.1: The Service-approved biologist will survey for and remove MSS from all areas subject to disturbance by covered activities. This will be accomplished by performing surveys prior to and, if necessary, during covered activities, and moving all identified MSS (in all life stages) to suitable habitat within the easement area or other area as approved by the Service. In addition, the Service-approved biologist will train the permittees how to identify, capture, and relocate shoulderband snails so that the permittees can relocate any native shoulderband snails in the event that an individual is observed while the Service-approved biologist is not present.

Performance criteria:

- A qualified biologist holding a valid 10(a)(1)(A) permit for MSS will conduct pre-disturbance surveys for, capture of, and moving of MSS. Upon completion of all necessary surveys, this biologist will submit a report to the Service detailing survey methods; number, age class, and location of MSS found; number of MSS moved; relocation site; and any injury or mortality of MSS observed, including its cause.
- If the permittees observe and relocate a shoulderband snail while the Service-approved biologist is absent, the permittees will document the capture and relocation site and the number of snails observed. The permittees will inform the Service-approved biologist of the observation. The Service-approved biologist will include the information in the annual report.

Objective 2.1: Dedicate a 1.1-acre HCP conservation easement to the County, which will protect MSS and its habitat in perpetuity.

Performance criteria:

- Once recorded, the permittees will supply a copy of the easement agreement with the County to the Service. The first annual report will document the execution of the easement agreement.

Objective 2.2: Restore native coastal dune scrub habitat on the 1.1-acre HCP easement area through removal of exotic species, particularly veldt grass, and planting and seeding of native plants.

Performance criteria:

- Percent survival of restoration plantings and percent cover of veldt grass within the 1.1-acre HCP easement area will be monitored throughout the 7-year restoration project (refer to Appendix E).

- A minimum of 75% of all plantings must be surviving throughout the 7-year habitat restoration project.

Objective 2.3: Maintain the habitat value of the easement area in perpetuity through regular weed control efforts pursuant to this HCP.

Performance criteria:

- The habitat restoration activities must result in a 10% annual decline in veldt grass cover during the restoration activities. At the end of the final year (year 7), veldt grass cover may not exceed 30% of the HCP easement area.

5.5 Adaptive Management Strategy

For some HCPs, the adaptive management strategy will be an integral part of an operating conservation program that addresses the uncertainty in the conservation of a species covered by an HCP. Adaptive management should identify and address the uncertainty, incorporating a range of previously agreed-upon alternatives for addressing those uncertainties, integrating a monitoring program that detects the necessary information, and incorporating a feedback loop that links implementation and monitoring to a decision-making process that result in appropriate changes in management. Adaptive management should help the permittees achieve the biological goals and objectives of the HCP.

Adaptive management will be used if success criteria prove insufficient to achieve the biological goals or objectives set forth in this HCP or if success criteria require more than is necessary to achieve the biological goals and/or objectives. If it becomes apparent that the restoration efforts will not attain the final success criteria, the Service-approved biologist will assess the reasons for failure, and will work with the Service to determine an acceptable solution. If the site trends indicate that the success criteria will eventually be met but in a longer timeframe than anticipated, maintenance and monitoring will continue until the criteria have been satisfied. If replanting is determined to be necessary, the replanted areas will be monitored and maintained until the Service-approved biologist determines the new plantings to be self-sustaining, or for a period agreeable to the Service. The Service must be notified of any proposed contingency plantings. If site failure occurs, the permittees will work with the Service to determine an appropriate in lieu fee for the mitigation or to identify an alternative mitigation site. No alternative locations for contingency compensatory mitigation are identified at this time.

Potential alternative actions to conduct on-site may include changes in restoration techniques, access controls, and non-native species removal techniques that have been used successfully at other similar sites in the vicinity of the project site.

5.6 Reporting

Project implementation and annual monitoring reports will be submitted to the Service during the 10-year ITP period.

Project implementation reports will be prepared by the approved biologist during the construction phase of the project. These reports will include:

1. Purpose of the monitoring.
2. Summary of project activities accomplished since the previous visit.

3. Summary of current and upcoming project activities.
4. Discussion of any issues or problems noted, and the steps taken to address the issue.
5. Recommendations and a tentative schedule for the next visit.

Annual monitoring reports will be submitted by the approved biologist each year of the 10-year permit term. Annual Reports to the Service will include:

1. Brief summary or list of project activities accomplished during the reporting year (e.g., development/construction activities, restoration efforts, and other covered activities).
2. Project impacts (e.g., acres graded, number of buildings constructed, etc.).
3. Description of any take of MSS that occurred (including form, cause, and amount of take; location; time of day; weather conditions, and deposition of dead or injured individuals).
4. Brief description of conservation strategy implemented.
5. Monitoring results (compliance, effects, and effectiveness monitoring) and survey information (if applicable).
6. Description of any circumstances that made adaptive management necessary, how changes were implemented, and a brief summary of the actions taken.
7. Description of any changed or unforeseen circumstances that occurred and how they were dealt with.
8. Funding expenditures, balance, and accrual.
9. Description of any minor or major amendments.

Section 6. Plan Implementation

6.1 *Changed Circumstances*

6.1.1 Summary of Circumstances

Section 10 regulations [(69 *Federal Register* 71723, December 10, 2004 as codified in 50 CFR, Sections 17.22(b)(2) and 17.32(b)(2))] require that an HCP specify the procedures to be used for dealing with changed and unforeseen circumstances that may arise during the implementation of the HCP. In addition, the HCP No Surprises Rule [50 CFR 17.22 (b)(5) and 17.32 (b)(5)] describes the obligations of the permittees and the Service. The purpose of the No Surprises Rule is to provide assurance to the non-Federal landowners participating in habitat conservation planning under the Act that no additional land restrictions or financial compensation will be required for species adequately covered by a properly implemented HCP, in light of unforeseen circumstances, without the consent of the permittees.

Changed circumstances are defined in 50 CFR 17.3 as changes in circumstances affecting a species or geographic area covered by an HCP that can reasonably be anticipated by plan developers and the Service and for which contingency plans can be prepared (e.g., the new listing of species, a fire, or other natural catastrophic event in areas prone to such events). If additional conservation and mitigation measures are deemed necessary to respond to changed circumstances and these additional measures were already provided for in the plan's operating conservation program (e.g., the conservation management activities or mitigation measures expressly agreed to in the HCP or IA), then the permittees will implement those measures as specified in the plan. However, if additional conservation management and mitigation measures are deemed necessary to respond to changed circumstances and such measures were not provided for in the plan's operating conservation program, the Service will not require these additional measures absent the consent of the permittees, provided that the HCP is being "properly implemented" (properly implemented means the commitments and the provisions of the HCP and the IA have been or are fully implemented).

Three changed circumstances have been identified for the Kroll HCP: (1) presence of a newly listed species, (2) a newly discovered listed species, and (3) wildfires.

6.1.2 Newly listed species

If a new species that is not covered by the HCP but that may be affected by activities covered by the HCP is listed under the Act during the term of the Section 10(a)(1)(B) permit, the Section 10 permit will be reevaluated by the Service and the HCP covered activities may be modified, as necessary, to insure that the activities covered under the HCP are not likely to jeopardize or result in the take of the newly listed species or adverse modification of any newly designated critical habitat. The Permittees shall implement the modifications to the HCP covered activities identified by the Service as necessary to avoid the likelihood of jeopardy to or take of the newly listed species or adverse modification of newly designated critical habitat. The permittees shall continue to implement such modifications until such time as the permittees has applied for and the Service has approved an amendment of the Section 10(a)(1)(B) permit, in

accordance with applicable statutory and regulatory requirements, to cover the newly listed species or until the Service notifies the applicant in writing that the modifications to the HCP covered activities are no longer required to avoid the likelihood of jeopardy of the newly listed species or adverse modification of newly designated critical habitat.

Newly Discovered Previously Listed Species

In the event that one or more other already listed species is discovered at the project site during the term of the permit, the permittees will cease project activities that are likely to result in take and work with the Service to develop a permit amendment to address said species. For this particular project, it is extremely unlikely that any other listed species will be discovered at the project site due to the small size and location of the parcel and limited habitat area.

6.1.3 Wildfires

Wildfires are common occurrences in central California, and are part of the natural ecology of native scrub habitats. Wildfires within the permit boundaries would be expected to remove vegetation necessary to the life cycle of MSS as well as to directly injure or kill individual MSS. Scrub habitat is adapted to this type of disturbance, and early successional plants quickly grow in burned areas. Burns can also open habitat for invasive, non-native weedy species, which can invade and overtake the burned area. If a wildfire occurs in the project area during the course of the permit, the permittees will contact the Service to determine appropriate measures, which may include revegetation efforts to reestablish native vegetative cover if such a procedure is deemed beneficial.

6.2 Unforeseen Circumstances

Unforeseen circumstances are defined in 50 CFR 17.3 as changes in circumstances that affect a species or geographic area covered by the HCP that could not reasonably be anticipated by plan developers and the Service at the time of the HCP's negotiation and development and that result in a substantial and adverse change in status of the covered species. The purpose of the No Surprises Rule is to provide assurances to non-Federal landowners participating in habitat conservation planning under the Act that no additional land restrictions or financial compensation will be required for species adequately covered by a properly implemented HCP, in light of unforeseen circumstances, without the consent of the permittees.

In case of an unforeseen event, the permittees shall immediately notify the Service staff that have functioned as the principal contacts for the proposed action. In determining whether such an event constitutes an unforeseen circumstance, the Service shall consider, but not be limited to, the following factors: size of the current range of the affected species; percentage of range adversely affected by the HCP; percentage of range conserved by the HCP; ecological significance of that portion of the range affected by the HCP; level of knowledge about the affected species and the degree of specificity of the species' conservation program under the HCP; and whether failure to adopt additional conservation measures would appreciably reduce the likelihood of survival and recovery of the affected species in the wild.

If the Service determines that additional conservation and mitigation measures are necessary to respond to the unforeseen circumstances where the HCP is being properly implemented, the additional measures required of the permittees must be as close as possible to the terms of the original HCP and must be limited to modifications within any conserved habitat area or to adjustments within lands or waters that are already set-aside in the HCP's operating

conservation program. Additional conservation and mitigation measures shall involve the commitment of additional land or financial compensation or restrictions on the use of land or other natural resources otherwise available for development or use under original terms of the HCP only with the consent of the permittees.

6.3 Amendments

6.3.1 Minor Amendments

Minor amendments are changes that do not affect the scope of the HCP's impact and conservation strategy, change amount of take, add new species, or change significantly the boundaries of the HCP. Examples of minor amendments include correction of spelling errors or minor corrections in boundary descriptions. The minor amendment process is accomplished through an exchange of letters between the permittees and the appropriate Service Field Office.

6.3.2 Major Amendments

Major amendments to the HCP and permit are changes that do affect the scope of the HCP and conservation strategy, increase the amount of take, add new species, and change significantly the boundaries of the HCP. Major amendments often require amendments to the Service's decision documents, including the NEPA document, biological opinion, and findings and recommendations document. Major amendments will often require additional public review and comment.

6.3.3 Suspension/Revocation

The Service may suspend or revoke their respective permits if the permittees fails to implement the HCP in accordance with the terms and conditions of the permits or if suspension or revocation is otherwise required by law. Suspension or revocation of the Section 10(a)(1)(B) permit, in whole or in part, by the Service shall be in accordance with 50 CFR 13.27-29, 17.32 (b)(8).

6.3.4 Permit Renewal

Permit renewal may be necessary if all facets of the project are not completed within the designated time, including construction activities and restoration efforts.

Upon expiration, the Section 10(a)(1)(B) permit may be renewed without the issuance of a new permit, provided that the permit is renewable, and that biological circumstances and other pertinent factors affecting covered species are not significantly different than those described in the original HCP. To renew the permit, the applicant shall submit to the Service, in writing:

- a request to renew the permit, including reference to the original permit number;
- certification that all statements and information provided in the original HCP and permit application, together with any approved HCP amendments, are still true and correct, and inclusion of a list of changes;
- a description of any take that has occurred under the existing permit; and,

- a description of any portions of the project still to be completed, if applicable, or what activities under the original permit the renewal is intended to cover.

If the Service concurs with the information provided in the request, it shall renew the permit consistent with permit renewal procedures required by Federal regulation (50 CFR 13.22). If the permittee files a renewal request and the request is on file with the issuing Service office at least 30 days prior to the permit's expiration, the permit shall remain valid while the renewal is being processed, provided the existing permit is renewable. However, the permittee may not take listed species beyond the quantity authorized by the original permit. If the permittee fails to file a renewal request within 30 days prior to permit expiration, the permit shall become invalid upon expiration. The permittee must have complied with all annual reporting requirements to qualify for a permit renewal.

6.3.5 Permit Transfer

The ITP would need to be transferred if property covered under this HCP is sold or transferred, or if the permittee is not able to oversee the completion of the requirements of the ITP.

In the event of a sale or transfer of ownership of the property during the life of the permit, the following will be submitted to the Service by the new owner(s): a new permit application, permit fee, and written documentation providing assurances pursuant to 50 CFR 13.25(b)(2) that the new owner will provide sufficient funding for the HCP and will implement the relevant terms and conditions of the permit, including any outstanding minimization and mitigation. The new owner(s) will commit to all requirements regarding the take authorization and mitigation obligations of this HCP unless otherwise specified in writing and agreed to in advance by the Service.

Section 7. Funding

7.1 Costs of HCP Implementation

The costs of HCP implementation presented below have been estimated based on previous experience in MSS survey, relocation, and habitat restoration efforts in the Los Osos area. Table 2 provides estimated costs for all aspects of the conservation strategy and monitoring and reporting effort, based on use of an approved biologist to perform preconstruction survey and construction monitoring tasks. Easement area restoration and maintenance, and annual monitoring and reporting will be performed by the permittees. An amount to cover any unforeseen circumstances is also included in the estimate to ensure that any such instances will be addressed.

Table 2. Estimated Funding Costs

| Item/Activity (Implemented by) | Unit Cost | One-Time Cost | Re-occurring Costs | Total |
|--|------------------|--------------------------|-------------------------------|-----------------|
| Protective Fencing (Permittees) | | | | |
| 250 linear feet of Temporary fencing materials | \$4.50/lf | \$450 | n/a | \$1,125 |
| 260 linear feet of Permanent fencing materials and installation | \$1,400 | \$1,400 | \$500 | \$1,900 |
| <i>Subtotal</i> | | | | \$3,025 |
| MSS Surveys, Construction and Restoration Monitoring (12 months) (Approved biologist) | | | | |
| Pre-construction survey of development and HCP areas | \$90/hour | \$360 | up to 6 events | \$2,160 |
| Worker Awareness Training | \$90/hour | \$90 | up to 4 events | \$360 |
| Construction monitoring as needed during 12-month construction period | \$90/hour | \$180 | up to 12 visits | \$2,160 |
| Restoration monitoring | \$90/hour | \$360 | up to 16 visits | \$5,760 |
| <i>Subtotal</i> | | | | \$10,440 |
| Easement Area Restoration and Maintenance (10 years) (Permittees) | | | | |
| Weed removal, planting, seed collection and spreading, trash removal | \$45/hour | \$225 | up to 33 visits | \$7,425 |
| One-gallon (or tree band) container plants | \$4.50/plant | \$3,240 | n/a | \$3,240 |
| Irrigation Supplies (PVC pipe and fittings) | 0.20/lf | \$3,068 | n/a | \$3,068 |
| <i>Subtotal</i> | | | | \$13,733 |

| Item/Activity (Implemented by) | Unit Cost | One-Time Cost | Re-occurring Costs | Total |
|---|------------------|--------------------------|-------------------------------|-----------------|
| Annual Monitoring and Reporting (Approved Biologist) | | | | |
| Construction Monitoring Reporting | \$90/hour | \$90 | Up to 12 reports | \$1,080 |
| Annual Monitoring and Reporting (Years 1-9) | \$90/hour | \$360 | Up to 9 reports | \$3,240 |
| Final Monitoring Report (Year 10) | \$90/hour | \$850 | n/a | \$850 |
| <i>Subtotal</i> | | | | <i>\$5,170</i> |
| Changed Circumstances (Permittees) | | | | |
| Contingency for Remedial Actions | \$1,000 | | n/a | \$1,000 |
| <i>Subtotal</i> | | | | <i>\$1,000</i> |
| TOTAL COST | | | | \$33,368 |

7.2 Funding Source

James and Sharon Kroll, as the permittees, will be responsible for the full cost of implementing the minimization and mitigation measures as described in Section 7.1, Table 2, as well as those changed circumstances described in Section 6.2 above. The permittees understand that failure to provide adequate funding and consequent failure to implement the terms of this HCP and the ITP in full could result in temporary permit suspension or permit revocation.

Section 8. Alternatives

8.1 Summary

Section 10(a)(2)(A)(iii) of the Endangered Species Act of 1973, as amended, [and 50 CFR 17.22(b)(1)(iii) and 17.32(b)(1)(iii)] requires that alternatives to the taking of species be considered and reasons why such alternatives are not implemented be discussed. Three alternatives to the proposed project were considered. These alternatives are: the No Action Alternative, the Alternate Design Alternative, and the Proposed Action. A discussion of each alternative is provided below.

8.2 No Action Alternative

The No Action Alternative means that an HCP would not be prepared and no ITP would be issued. Site development would not occur and MSS and its habitat within the project area would not be impacted.

Under this alternative, 1.1 acres of coastal dune scrub habitat would not be restored and conserved in perpetuity for MSS. Since the property is privately owned, there are ongoing economic considerations associated with retaining the property including, but not limited to, payment of associated taxes. Because of economic considerations, and because this HCP results in a net benefit for the covered species, the No Action Alternative has been rejected.

8.3 Alternate Design Alternative

Under this alternative the project would be re-designed and include minimization measures to reduce take. The original project designs included construction of a guest/caretaker house on the site. This feature has been removed from the project description, and will not be included in project building permit applications. Reducing the proposed development further would not significantly reduce impacts to MSS or native habitat.

8.4 Proposed Action

Under the Proposed Action alternative, the residential development would occur as described in Section 2, resulting in the permanent loss of 0.73 acres of non-native annual grassland that provides habitat for MSS. For this reason, the proposed project requires the preparation of an HCP to support the issuance of an ITP. The HCP and terms and conditions likely to be made part of ITP issuance would assure that the take of MSS is minimized and unavoidable take is mitigated.

Section 9. References

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Appendix A: **Tenera Morro Shoulderband Snail
Survey Reports (2003 and 2007)**

Kroll Property

**Morro Shoulderband Snail
(*Helminthoglypta walkeriana*)
Survey Report**

April 21, 2003

Submitted to:

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1970 Aspen
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Prepared and Submitted by:



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Introduction

Jim and Sharon Kroll retained TENERA Environmental to conduct a Morro shoulderband snail (*Helminthoglypta walkeriana*) protocol survey of their property in Los Osos, California. This report presents the results of the recently completed survey effort and has been prepared in accordance with USFWS survey guidelines to provide site-specific information regarding the presence of the species.

Site Location/Description

The proposed project site is located in western San Luis Obispo County, California, within the unincorporated town of Los Osos (Figure 1). The site is situated in the southwestern region of the town at 304 Madera Street (APN 075-022-041). The project site can be accessed from a gate at the eastern end of Madera Street or from Seahorse Lane, a block south of the west end of Highland Drive (Figure 2). The project site is located within the range of the Morro shoulderband snail (MSS) but is not situated within any of the areas (units) designated as critical habitat for the species (USFWS 2001).

The project site is approximately five acres (+/-) in size and rectangular in shape (689 feet by 332 feet). It is located on the northern exposure of the moderately sloping, sandy foothills that overlook the community of Los Osos and the Morro Bay Estuary. The grade of the parcel is approximately 10 percent, with the northern boundary situated at an elevation of 154 feet and the southern boundary at 188 feet. Soils on the site consist of well-drained sandy loam described on the county soils survey as Baywood fine sand (9 to 15 percent slopes).

The property has been developed as an equine facility with accommodations for up to 15 horses. A sand road extends along the southern fence line of the property between access points off Madera Street and Seahorse Lane. Areas cleared for parking and storage adjoin the sand road near the southeast corner of the property. Much of the eastern half of the parcel is developed and includes horse stalls and paddocks, a small horse ring, a hay barn, tack shed, and a tool shed. Vegetation around the horse paddocks consists of non-native trees and shrubs, and ornamentals that have been planted to enhance the landscape. In recent years a number of trees have been planted on the western half of the property including approximately 100 avocado trees, several dozen lemon trees, and numerous Monterey cypress and *Myoporum (Myoporum carsonii)*. The avocado trees have been planted in three rows located on the northwestern quarter of the property. The remainder of the western half of the property is used as horse pasture.

The site is best characterized as ruderal habitat and has been cleared of native vegetation (e.g., live oak, manzanita, coastal scrub) for three decades or more. The parcel sustained agricultural use (i.e., cultivation of sugar peas) during the 1970s and 1980s. In 1990 the property and three surrounding parcels were leased as pastureland for horses. Vegetation on the property was burned in the mid-1990s during a brush fire that swept through the



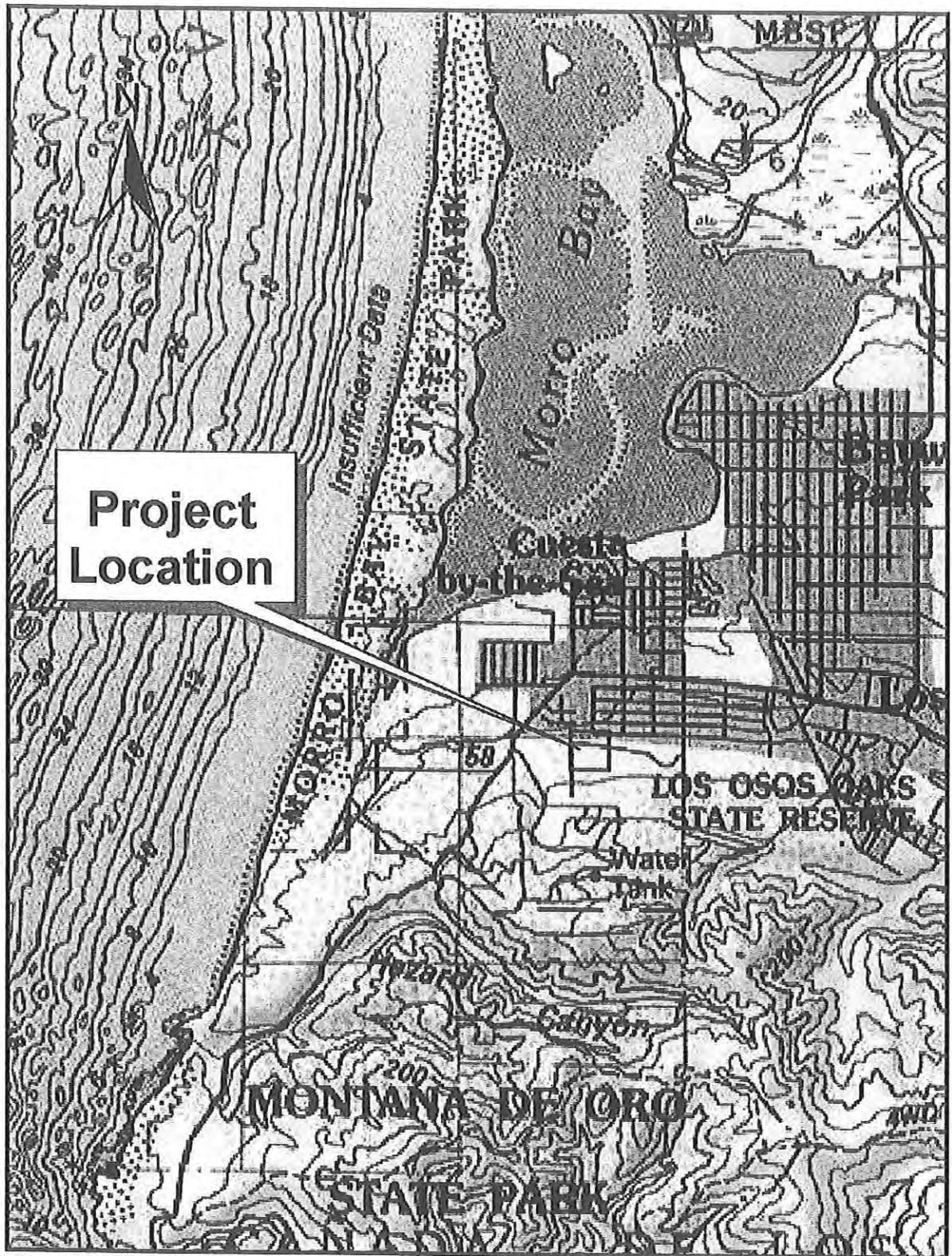


Figure 1. Regional location of project site.

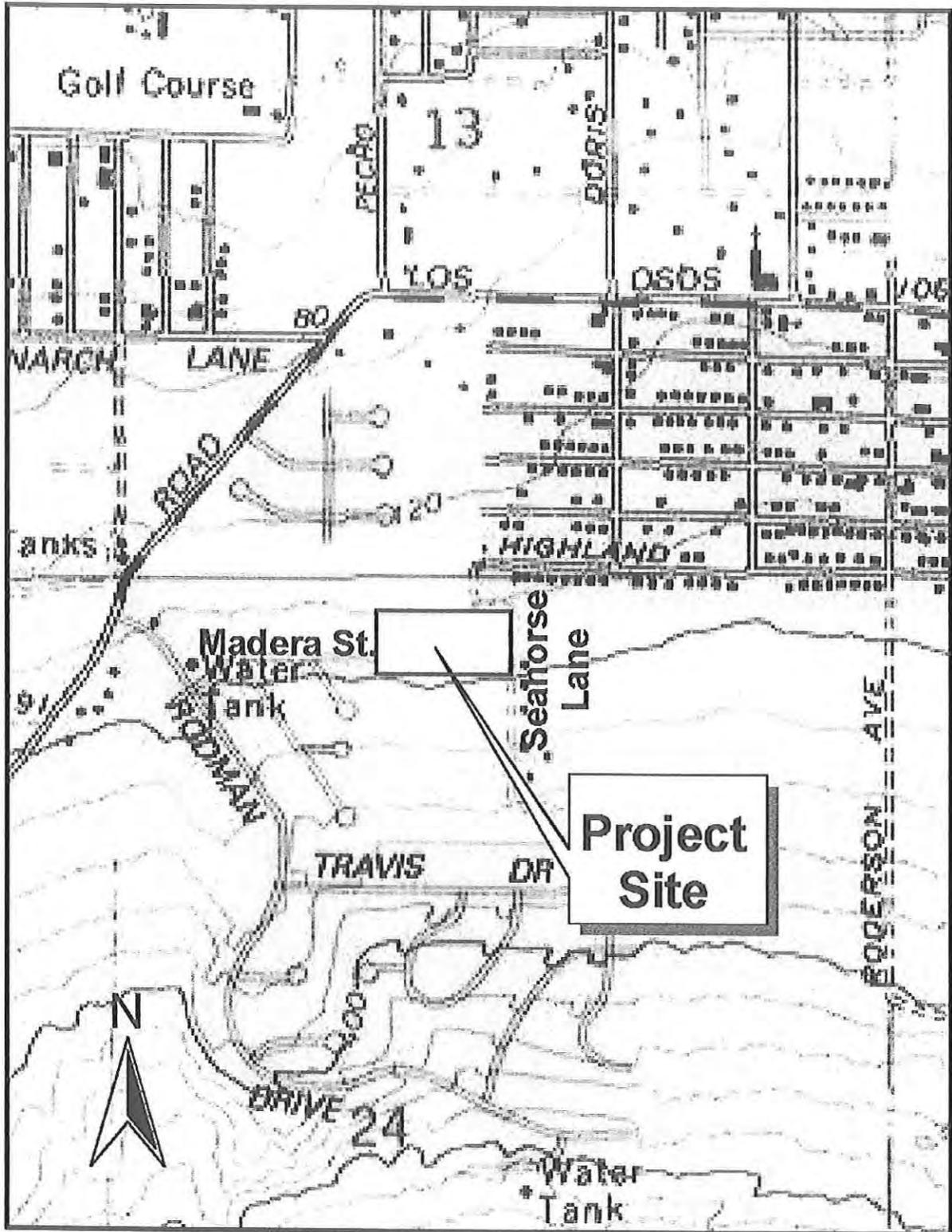


Figure 2. Detailed view of project site location.

area. Currently, habitat on the site and is dominated by veldt grass (*Ehrharta calycina*), planted trees, shrubs such as *Myoporum*, and a variety of ornamental plant species. The coastal scrub community on the site was represented by six California sage (*Artemisia californica*) shrubs growing along the northwestern fence line, a single *Artemisia* shrub growing along the fence at the southwestern corner of the lot, and a single *Artemisia* shrub growing near the northeast corner of the property, a few feet off Seahorse Lane.

Coastal scrub habitat and coast live oak/manzanita woodland dominate the undeveloped areas of the hillside above the Kroll property, however, most of the land immediately adjacent to the parcel has been developed or is currently under development. The Kroll property is bounded to the east by Seahorse Lane and three equine boarding facilities that front on the east side of road. These include the Lambert Stables (5 acres), the Sea Horse Ranch Boarding Stables (5 acres), and the Rancho Montana del Mar Boarding Stables (5 acres). A 10-foot wide trail located on the neighboring Tarver property adjoins the southern boundary of the Kroll property. The trail serves as a pedestrian and horse thoroughfare between Seahorse Lane and Madera Street. The construction of a 3,796 square foot single-family residence with attached garage and an 864 square foot barn is currently under way on the Tarver property. Additionally, clearing and grading has recently been completed for the site of a four home development (possibly eight after sewer installation) on 4.3 acres of the Goedenhaus property situated along the northern boundary of the project site. A residential development of approximately 32 single-family homes is planned for nine acres of cleared agricultural land on the Anastasi property adjoining to the northwestern corner of the Kroll property. A vacant lot supporting coastal scrub habitat and eucalyptus trees is situated immediately to the west of the Kroll property.

Project Description

The proposed project involves the construction of three separate structures including a 2,656 square foot residence, a 1,185 square foot caretaker's quarters, and a 2,600 square foot barn (Figure 3). The site proposed for the main residence is situated approximately 140 feet inside the southwestern corner of the parcel and would be accessed from Madera Street. The existing sand road on the property that extends between Madera Street and Seahorse Lane would be modified and improved with red rock to serve as a driveway for the main residence. The remainder of the sand road would provide access to the caretaker's quarters, barn, and the existing horse boarding facility on the east side of the property. The site proposed for the caretaker's quarters and barn are situated approximately 350 feet inside the western property boundary and would be located 120 feet and 220 feet, respectively, from the southern property line. Other proposed site amenities include the installation of a well and septic systems (2) for each residence. No disturbance of the horse boarding facility that occupies the eastern quarter of the property is proposed. The remainder of the project site will continue to be used as pastureland and an avocado/citrus orchard.

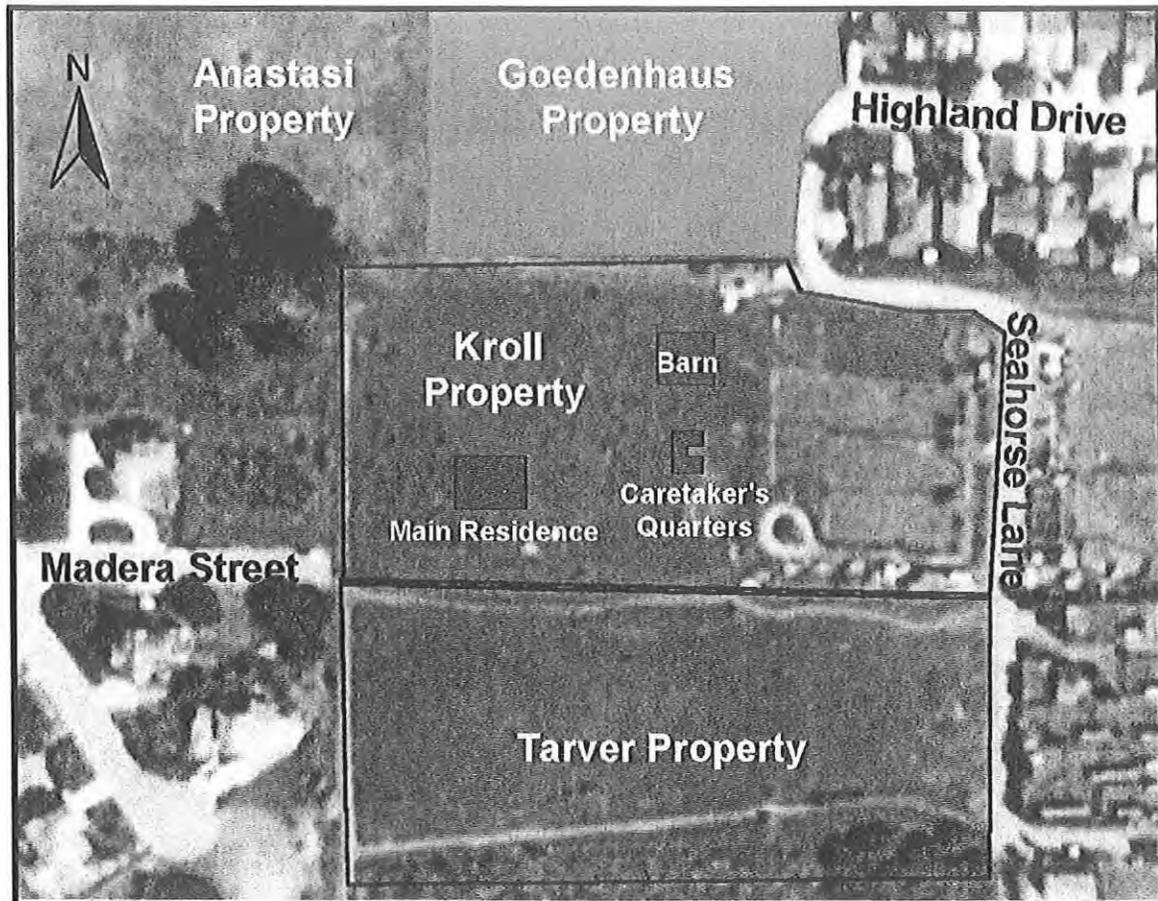


Figure 3. View of Project site and surrounding property showing approximate size and location of proposed structures.

Methodology

Snail surveys were conducted in accordance with the guidelines outlined in *Interim Survey Guidelines for the Morro Shoulderband Snail (*Helminthoglypta walkeriana*)* (USFWS 1997). Dr. Tom Richards (USFWS Permit #FWS-VFO-7) from the California Polytechnic State University in San Luis Obispo conducted the survey effort with the assistance of TENERA biologist Dan Dugan (CDFG Permit 801029-04). Surveys of the property entailed visual searches of vegetation and objects that might provide suitable habitat or microhabitat for Morro shoulderband snails (MSS). These areas generally included the grass, soil, and leaf litter around the base of scrub vegetation, fences, logs, bark, and wood/metal debris. Objects that were not embedded were carefully turned to inspect the area beneath. All objects that were turned were subsequently returned to their original position/orientation. All live MSS, empty shells, and shell fragments found during surveys were identified, measured, and recorded. Other snail species encountered

were noted on the survey data sheet. A copy of the survey data sheet is presented in Appendix A. Representative photographs of the site are shown in Appendix B.

Weather conditions were documented at the beginning of and for the 24-hour period preceding each survey. The rainfall summary for the project area was compiled from information reported on Accuweather.com. Measurements of air temperature and wind speed were collected at the beginning of each survey using a Skymate SM-18 hand-held wind meter.

Survey Results

Summary

The initial survey of the Kroll property was conducted on March 4, 2003 between the hours of 1110 and 1300. Weather during the survey was 58° F and sunny with the wind blowing 5 to 10 mph out of the northwest. A rainfall total of 0.35 inches was reported for the Los Osos area during the 24 hours preceding the survey; the rainfall occurred during the afternoon and evening hours of March 3, 2003. The ground and vegetation were sufficiently wet at the beginning of the survey but were drying rapidly in the sun and wind. The most recent rainfall reported prior to the survey was on February 27th, five days before the survey effort.

The survey effort for the site was 1.8 person hours per hectare. Two snail species were encountered on the property including four live Morro shoulderband snails and numerous European brown garden snails (*Helix aspersa*). The sizes (greatest diameter) of the live MSS encountered were 15.6 mm, 16.7 mm, 17.3 mm, and 23.8 mm. The three smaller MSS were located in a small patch of German ivy (*Senecio mikanioides*) growing around a fence post along southern fence line (35°18'27.3" N; 120° 51'04.0" W). The German ivy was growing out of a wood chip and horse manure mulch that had been piled up in a small berm along the fence line to minimize runoff and erosion across the property. The larger snail was found in leaf litter at the base of an isolated *Myoporum* shrub that was growing along a fence line inside of the northern property boundary (35°18'30.2" N; 120°51'05.5" W). No other live MSS or MSS shells were located. It was determined that additional surveys of the Kroll property would not be necessary to adequately assess the distribution of snails on the site. This decision was based on the limited amount of potential habitat/cover observed near the proposed construction areas.

Possible Threats Observed

No threats to MSS are anticipated during grading or construction of the proposed project. Following completion of the project there is the potential that periodic weed abatement activities along the perimeter fence line and around fence posts could impact snails that may have migrated into the area. The use of pesticides such as snail and slug bait is cited as a potential threat to MSS (USFWS 2001). Such pesticides have not been used on the site and are not likely to be used in the future. Other potential threats to MSS on the site



include competition for resources with the non-native European brown garden snail, and potential impacts from vehicles, foot traffic, and livestock.

Discussion

Potential MSS habitat on the Kroll property consists almost exclusively of cover provided by non-native, ornamental, or invasive vegetation that is located along fence lines around the perimeter of the parcel. Survey results suggest that patches of suitable habitat are widely spaced along sections of the perimeter fence and are somewhat isolated. Pasture areas comprise much of the western two-thirds of the parcel and are subject to continual direct sun during daylight hours. These areas are vegetated with veldt grass, an invasive species reported to degrade MSS habitat (USFWS 2001). Veldt grass in the pastures is mowed regularly as required for weed abatement and is also subject to regular grazing by horses. Grazing in pasture areas is currently managed to preserve a relatively contiguous groundcover. This expanse of regularly cropped veldt grass is consistently sunny and dry and did not appear to provide suitable microhabitat for MSS.

The sites proposed for the main residence, caretaker's quarters, and barn are located in the veldt grass pasture areas. The permanent loss of 6,441 square feet of pasture is estimated as a result of the construction of the three proposed structures. Some additional loss of pastureland will occur as a result of road modification and improvement. Habitat disturbance during construction would entail minor grading/excavation in pasture areas and would not result in the disturbance of any known snail locations. Plans for the project show that there is a minimum distance of 120 feet between all known snail locations and the nearest proposed structure. Additionally, construction of structures will not occur within 35 feet of a perimeter fence. Some road improvement activities and excavation (for utility hook-up) would occur near the southwest corner of the property, however, known snail locations on the site would not be disturbed by these actions. The eastern one-third of the property will remain in use as a horse boarding facility and will not be otherwise disturbed.

The proposed site layout combined with the patchy distribution of potentially suitable MSS habitat along the perimeter fence suggests that construction of the project is not likely to result in the take of Morro shoulderband snails or impacts to suitable habitat for the species. However, to ensure that no impacts to snails occur during construction, the Krolls are amenable to implementing a number of protection measures. These include:

- Scheduling ground disturbance activities during the late summer months when snail activity is minimal.
- Retaining a qualified biologist to conduct a pre-activity survey of construction areas and nearby perimeter fencing no more than 24 hours prior to the initiation of work.



- Clearly marking known snail locations with construction tape and ensuring that staged equipment and stored materials remain a minimum of 20 feet from the marked areas.

The potential for take of MSS following project completion appears to be low because of the ruderal character of the site, the absence of native MSS habitat (coastal scrub/maritime chaparral), and the patchy distribution of suitable non-native vegetative cover. However, the potential take of MSS following construction has been identified as an issue on land (Tarver property) adjoining the southern boundary of the Kroll property. Three of the four MSS encountered during the survey were found in a small patch of German ivy along the boundary of the two parcels. Although no native habitat, and little suitable cover, is currently present near the sites of any of the proposed structures, live snails were encountered during the survey, and their future movement into, or occupation of, areas where they would be vulnerable to “take” cannot be predicted or prevented. Because of this potential for incidental impacts to Morro shoulderband snails, it is recommended that provisions be made to accommodate for “take” of the species.



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<http://ventura.fws.gov/SurveyProt/morrosnail.htm>



Appendix A

Survey Sheets

MORRO SHOULDER BAND SNAIL FIELD SURVEY FORM

PROJECT: Kroll property DATE: 3/4/03 SURVEY NUMBER: 1

TEMPERATURE: 58°F START TIME: 1110 END TIME: 1300

WEATHER DURING SURVEY: Partly sunny → sunny WIND: 5-10 mph

AMOUNT OF MOST RECENT PRECIPITATION: _____ DATE: 3/3/03 PM 3/4/03 AM

SURVEYOR(S) Dr. Tom Richards SURVEY EFFORT: _____
Dan Dugan (person-hours/hectare)

SPECIES _____
 LOCATION _____

LIVE SHELL
 HABITAT _____

SPECIES H. walkeriwa 16.7mm
 LOCATION 35 18 27.3
120 51 04.0

LIVE SHELL
 HABITAT Fence line in garden July

SPECIES H. walkeriwa 17.3mm
 LOCATION _____

LIVE SHELL
 HABITAT Fence line in garden July

SPECIES H. walkeriwa 18.6mm
 LOCATION _____

LIVE SHELL
 HABITAT Fence line in garden July

SPECIES H. walkeriwa 23.8mm
 LOCATION 35 18 30.2
120 51 05.5

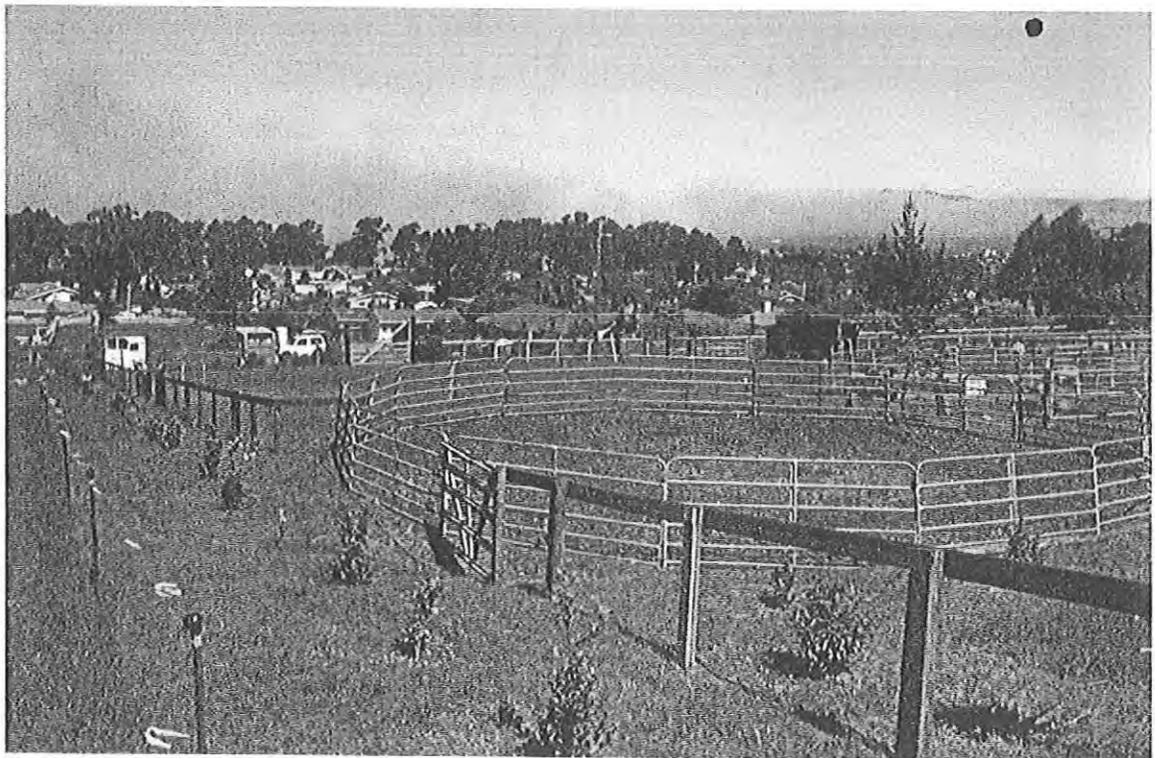
LIVE SHELL
 HABITAT Fence line in Myoporum

Notes:

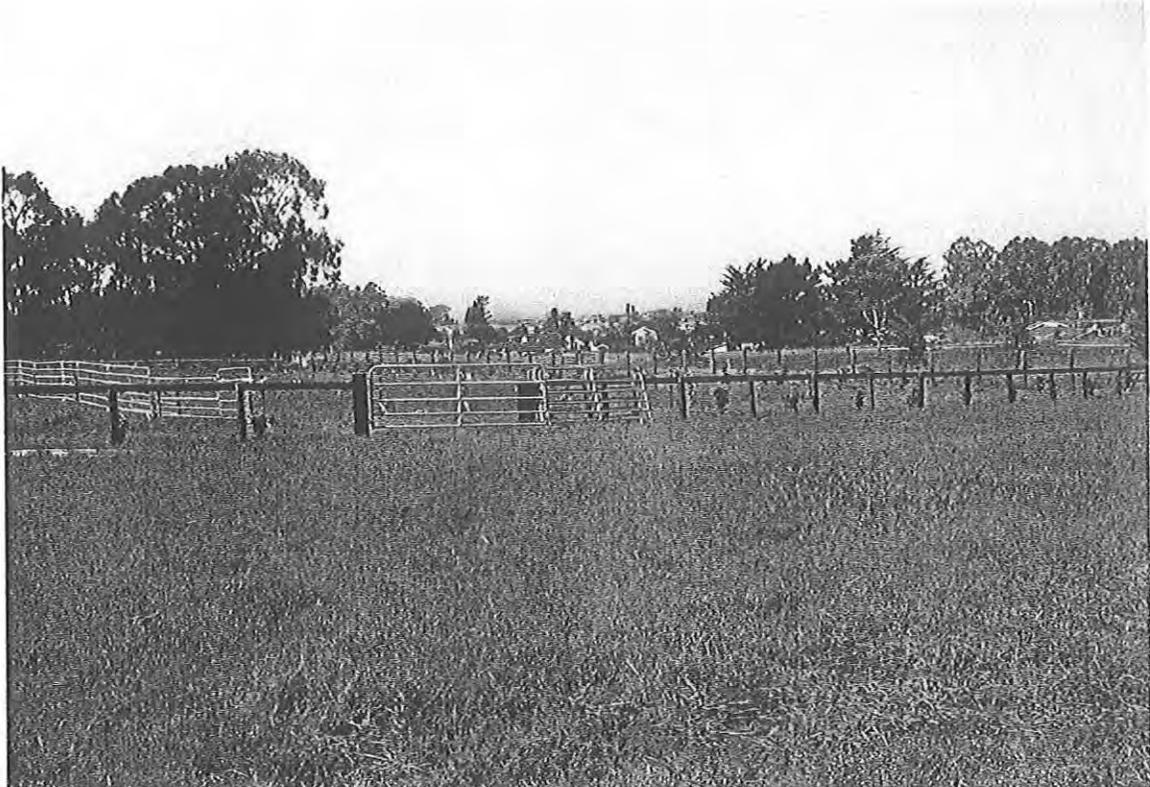
Appendix B
Kroll Property
Photographs



B-1. View of pasture area where main residence will be sited.



B-2. View showing horse ring and site of guest quarters and barn (middle and upper left).



B-3. Proposed site of guest quarters (foreground).



B-4. View of sand road along southern boundary of property (facing east).



B-5. View of western property boundary from southwest corner (facing north).



B-6. View of *Artemisia* shrubs along northern property boundary.

Kroll Property

Morro Shoulderband Snail (*Helminthoglypta walkeriana*) Survey Report



October 12, 2007

Submitted to:

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1970 Aspen
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Prepared and Submitted by:



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Introduction

TENERA Environmental has prepared the following report presenting the results of a protocol level Morro shoulderband snail (*Helminthoglypta walkeriana*) survey conducted on private property in Los Osos, California owned by Jim and Sharon Kroll. The objective of the protocol survey was to determine if the Morro shoulderband snail (MSS) or potentially suitable habitat for the species is present on the property. This report is intended to provide the applicant, U.S. Fish and Wildlife Service (USFWS), and county planners with current site-specific information about the Morro shoulderband snail. Information presented in the report was compiled from site surveys conducted in 2003 and 2007 by Tenera biologist Dan Dugan (USFWS Permit #TE 067992-0).

Site Location

The proposed project site is located in western San Luis Obispo County, California, in the southwestern region of the unincorporated town of Los Osos (Figure 1). The site is shown in the north-central part of Section 24 in Township 30S and Range 10E on the Morro Bay South, Calif. 7.5 minute USGS quadrangle map. Located at the eastern end of Madera Street, the street address of the parcel (APN 075-022-041) is 302/304 Madera Street. The parcel can be accessed from a gate at the eastern end of Madera Street or from several locations along Seahorse Lane (Figure 2). The site is located within the range of the Morro shoulderband snail but is not situated within any of the areas (units) designated as critical habitat for the species (USFWS, 2001).

Site Description

The project site is 5.09 acres in size and rectangular in shape (669 feet by 332 feet) and is located on the northern exposure of the moderately sloping, sandy foothills that overlook the community of Los Osos and the Morro Bay Estuary. Soils on the site consist of well-drained sandy loam described on the county soils survey as Baywood fine sand (9 to 15 percent slopes) and drainage across the property is generally from south to north. The grade of the parcel is approximately 10 percent, with an elevation of 188 feet along the southern boundary and 154 feet along the northern property boundary.

The property is zoned for Residential Suburban (RS) use and is currently used as a private equine boarding stable and avocado/citrus orchard. The eastern 2.3 acres of the property (approximately 45 percent of the parcel) sustains relatively intensive use as an equine facility, which includes horse stalls and paddocks, a small horse ring, a hay barn, and various small outbuildings. Horse density on the parcel is subject to the provisions of Section 23.08.46 of the county code (Coastal Zone Land Use). Vegetation around the horse paddocks consists of various non-native trees, shrubs, and ornamentals that have been planted for landscaping. The avocado orchard occupies approximately 0.5 acres near the northern property boundary and currently includes about 100 trees planted in four rows.

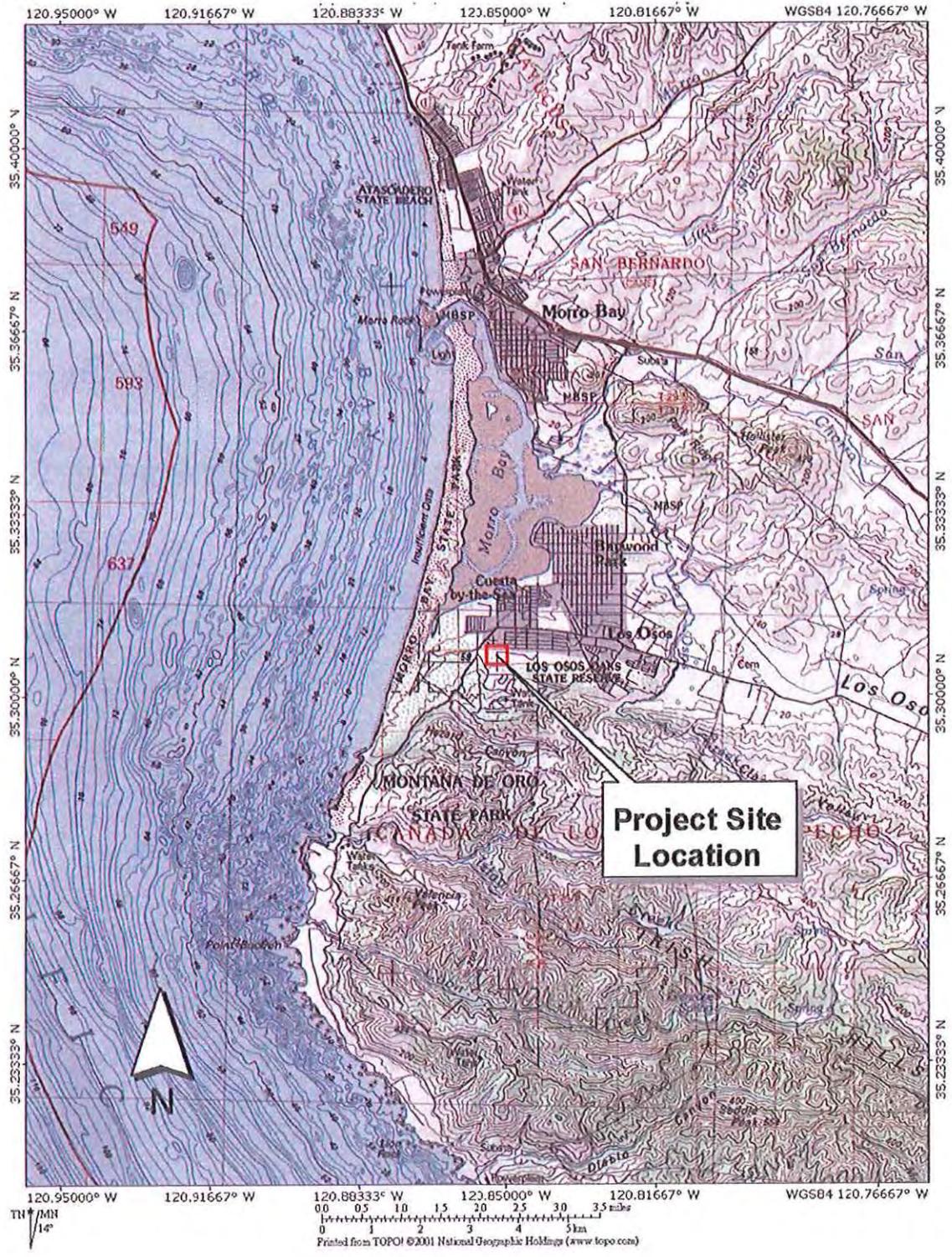


Figure 1. Regional view of the location of the project site.

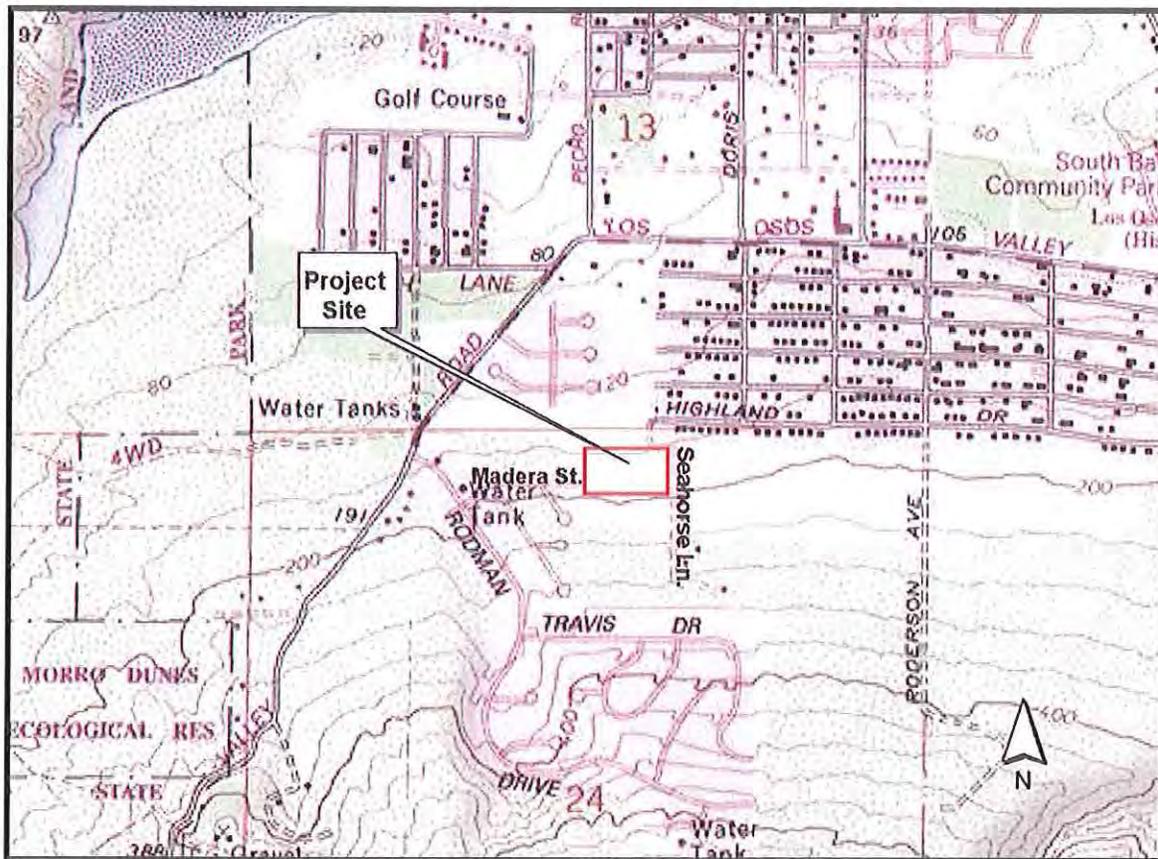


Figure 2. Topographic view of project site location.

An additional 50 +/- trees (approximately 30 avocado and 20 citrus) planted in three rows along the western border of the equine facility occupy a 0.16-acre strip of the parcel. Additional citrus trees are planted around the small lunging ring and on a 0.12-acre plot (~24 citrus trees) adjacent to the horse paddocks on the eastern half of the site. Two fenced pastures totaling 1.5 acres occupy the central part of the western half of the property and a 25-foot wide sand drive lined with Monterey cypress trees is present along the southern property boundary. The drive occupies approximately 0.22 acres of the western half of the site. A 50-foot wide, 0.42 acre strip of land used in a limited capacity for storage is present along the northern border of the property.

The site is best characterized as ruderal habitat and is reported by the current owner to have sustained periods of agricultural use dating back to the early 1950s when it was used for cultivation of potatoes (Kroll, Pers. comm., 2007). During the 1970s and 1980s sugar peas were farmed on the parcel and in 1990 the property and three surrounding parcels were leased as pastureland for horses. At the time of the Morro shoulderband snail listing in 1994 the site supported a mixture of coastal scrub and grassland habitat. The equine boarding facility was established on the property following the purchase by the Krolls in December 1994 and by 1998 the facility occupied the eastern one-quarter of the property. A brush fire is reported to have swept across much of the property in mid-1996 (Kroll, Pers. comm., 2007); however, aerial photographs show that by 1998 a mixed coastal scrub-grassland plant community had reestablished on approximately three-fourths of the parcel (see Site Photographs- Appendix B).

Currently, habitat on the site is dominated by veldt grass (*Ehrharta calycina*) grassland, avocado/citrus trees, other introduced trees (Monterey cypress [*Cupressus macrocarpa*]) and shrubs, and a variety of ornamental plant species. The coastal scrub plant community on the site has gradually been replaced by non-native trees and grasses and is currently represented by several California sagebrush (*Artemisia californica*) shrubs growing along the northwestern fence line, a single *Artemisia* shrub growing along the fence at the southwestern corner of the lot, and scattered deerweed (*Lotus scoparius*), California croton (*Croton californicus*), owl's clover (*Castilleja* sp.), and Horkelia (*Horkelia cuneata* sp.) plants.

The proposed project site situated in a developing region of southern Los Osos, between the Cabrillo Estates Tract (Tract 1342) and an established neighborhood along Highland Drive (Figure 3). A vacant lot supporting coastal scrub habitat and eucalyptus trees borders the Kroll property to the west and maritime chaparral habitat dominates the undeveloped areas of the hillside approximately 300 feet above the property. However, the remainder of the land immediately adjacent to the parcel has been developed for Residential-Suburban uses. Seahorse Lane and three five-acre equine boarding facilities, the Lambert stables, Moreno stables, and Breen stables, bound the Kroll property to the east. A 10-foot wide trail located on the neighboring Tarver property extends along the southern boundary of the Kroll parcel and serves as an equestrian thoroughfare between Seahorse Lane and Madera Street. The construction of a 3,796 square foot single-family residence with attached garage, 864 square foot barn, and horse stalls and paddocks have been completed on the Tarver property within the past few years. Additionally, a four home development is currently nearing completion on the Goedenhaus property (4.3 acres) located along the northern boundary of the Kroll parcel, with four additional homes planned for the site upon completion of the community sewer project. A residential development of approximately 40 single-family homes is planned for nine acres of cleared agricultural land on the Anastasi property, which adjoins the northwestern corner of the Kroll property.

Project Description

The proposed project involves the construction of three separate structures including a 2,656 square foot residence, a 1,185 square foot caretaker's quarters, and a 2,600 square foot barn. The main residence will be a multi-story structure with a building footprint of 1,875 square feet. The site proposed for the main residence is situated within veldt grass grassland habitat in the central pasture, approximately 220 feet from the southwestern corner of the parcel and 25 feet inside the southern property line. The residence would be accessed from Madera Street and a section of the existing sand drive would be modified and improved with red rock to serve as a driveway, turnaround, and driveway apron for the main residence. Site plans show that a section (0.10 acre) of the existing road (unimproved) along the southern property boundary that provides access from Madera Drive to the east side of the parcel would be abandoned and access to the secondary residence, barn, and the existing horse boarding facility would be through existing entrances off Seahorse Lane. Minus the abandoned road section, access roads (improved and unimproved), driveways, driveway aprons, and parking



Figure 3. 2003 aerial view of the Kroll parcel (outlined in red) showing surrounding land uses.

areas on the site (new and existing) will occupy approximately 0.35 acres. The site proposed for the secondary residence and barn are situated approximately 360 feet inside the western property boundary and would be located approximately 125 feet and 230 feet, respectively, from the southern property line in an area currently occupied by three recently installed (since the 2003 survey) pipe corrals/paddocks. The horse boarding facility that occupies the eastern half of the property will not be disturbed. Site infrastructure would include the installation of a new well for the site and septic systems for each residence (2 total) in adjacent pasture areas. County requirements specify that approximately 40 percent of the parcel (88,678 square feet) should remain as "open space". The proposed open space will occupy an L-shaped area with a narrow extension along the northern boundary to the northeast property corner that includes much of the western pasture, a portion of the central pasture, the northern four rows of the avocado orchard, and the 50-foot wide strip a land along the northern property boundary. A proposed site plan for the site is presented in Figure 4.

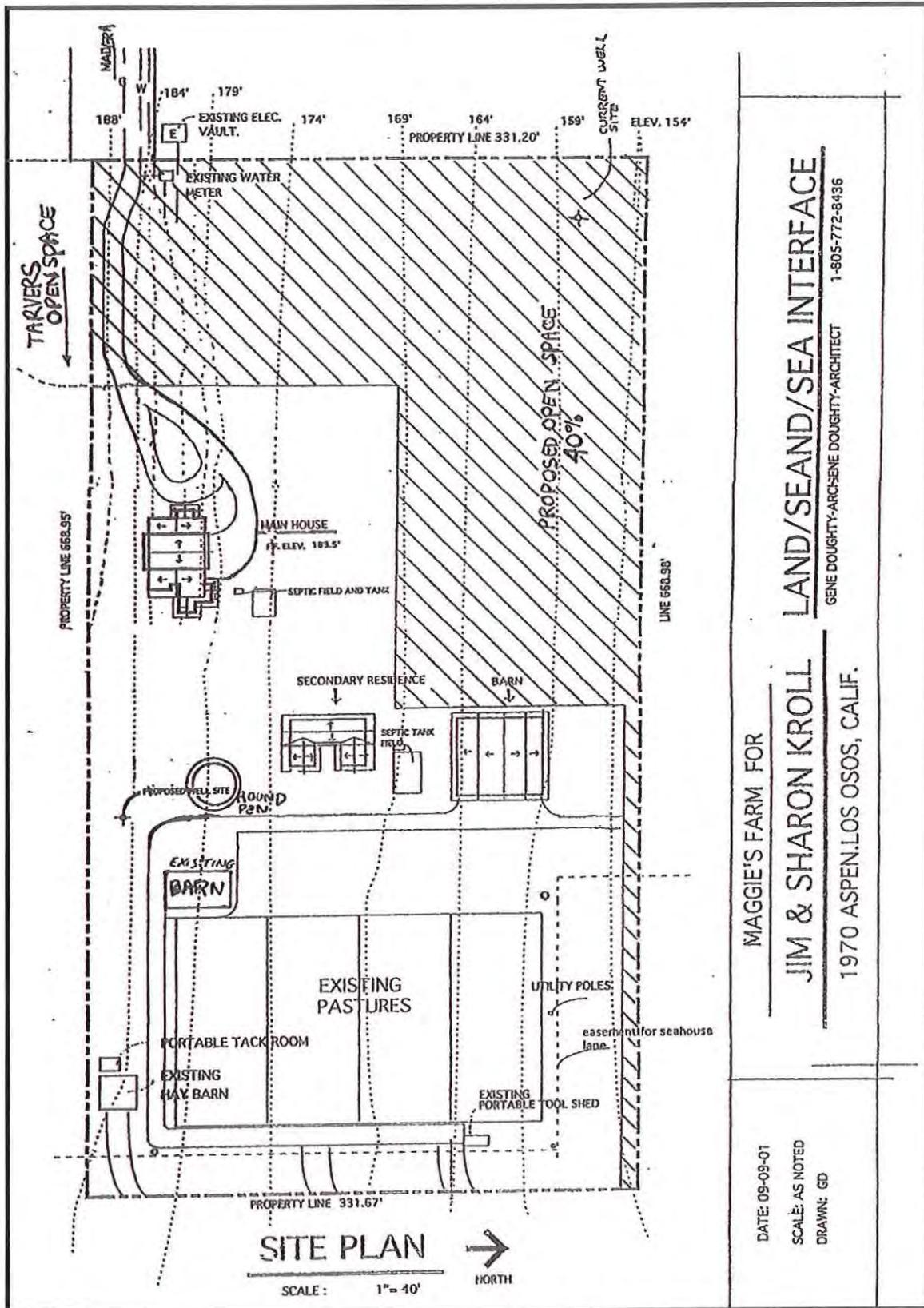


Figure 4. Proposed site plan for Kroll project (Source Jeff Edwards, 2007).

Species Account

Morro Shoulderband Snail (*Helminthoglypta walkeriana*)

The Morro shoulderband snail or banded dune snail (*Helminthoglypta walkeriana*) is a native gastropod found only in western San Luis Obispo County and was listed by the U.S. Fish and Wildlife Service as an endangered species on December 15, 1994 (USFWS, 1994). A recovery plan for the species titled Recovery Plan for the Morro shoulderband Snail and Four Plants from Western San Luis Obispo County, California was published on 26 September 1998 (USFWS, 1998). The plan delineates four Conservation Planning Areas within which conservation and habitat protection efforts will be focused to facilitate the recovery of the Morro shoulderband snail and preserve native habitat for numerous other listed and sensitive species. Critical habitat for the Morro shoulderband snail was proposed on 12 July 2000 (65 FR 42962) and designated pursuant to the Endangered Species Act (ESA) on February 7, 2001 (66 FR 9233) (USFWS, 2001). The designation included three separate Critical Habitat Units consisting of a total of 1,039 hectares (2,566 acres) of coastal dune and scrub habitat, and maritime chaparral located adjacent to Los Osos and the Morro Bay Estuary (USFWS, 2001). The five-year status review for the Morro shoulderband snail was issued on 11 September 2006 (USFWS, 2006).

The Morro shoulderband snail (MSS) belongs to the phylum Mollusca, class Gastropoda, subclass Pulmonata, order Stylommatophora, family Helminthoglyptidae, genus *Helminthoglypta*, subgenus *Charodotes*, species *walkeriana*. The taxa was initially assigned to the genus *Helix* by Hemphill (1911) but was reassigned to the genus *Helminthoglypta* by subsequent malacologists (Field, 1930; Pilsbry, 1939; Roth, 1985).

The Morro shoulderband snail is first described in Hemphill (1911) as *Helix walkeriana* from specimens collected from habitat in "San Luis Obispo, Cal." Hemphill also described a morphologic variety of the species, *Helix walkeriana* var. *morroensis*, from habitat in "San Luis Obispo County, Cal. among brush and rocks" (Hemphill, 1911). Type specimens of *H. walkeriana* that Hemphill archived in the California Academy of Sciences were labeled as collected "Near Morro, California" and type specimens of *H. w. var. morroensis* were labeled as collected "Near San Luis Obispo City" (Roth, 1984). Pilsbry (1939) regarded *Helix* var. *morroensis* and *Helminthoglypta walkeriana* as synonymous (Roth, 1985). *H. w. morroensis* was recognized by subsequent researchers (Wilcox, 1950; Roth, 1973) as a subspecies of *H. walkeriana* but was later redescribed by Roth (1985) as an "infrasubspecific" form of *Helminthoglypta walkeriana* not warranting separate or even subspecific status. At the time of listing *H. walkeriana* and *H. w. morroensis* (= *H. w. var. morroensis*) were classified as a single species under the taxonomic classification by Roth (1985). In 2004 the taxonomic classification of the Morro shoulderband snail was revised again based on research by Roth and Tupen (2004) and both forms were elevated to full species status.

The shell of the Morro shoulderband snail is described as umbilicated, globose, reddish brown to chestnut in color but thin and slightly translucent (Hemphill, 1911; Roth, 1985). The shell has five to six whorls and a single, narrow (2 to 2.5 mm) dark spiral band on

the "shoulder" with thin light yellowish margins above and below. Sculptural features of the shell include incised spiral grooves, spiral and transverse striae that give the surface a checkerboard appearance, and papillae at the intersections of some of the striae (USFWS, 1994). Adult shell dimensions range from 18 to 29 mm (0.7 to 1.1 in.) in diameter and from 14 to 25 mm (0.6 to 1.0 in.) in height (Roth, 1985).

Despite increased attention due to its status as a federal endangered species, relatively little is known about the demographics and ecology of the Morro shoulderband snail. The species is associated with sandy soils that support coastal dune, coastal dune scrub, and maritime chaparral plant communities in the Los Osos and Morro Bay region of Central California. Morro shoulderband snails typically inhabit dense, shrubby, or prostrate vegetation that has considerable contact with the ground so the early successional stages of these plant communities are thought to offer more favorable habitat than mature stands which may have branches that are too high off the ground to offer good cover. Within such habitat Morro shoulderband snails typically occupy shaded areas with accumulated plant litter or the undersides of low shrub branches. These areas provide a microclimate that moderates temperature and moisture loss, and provides refuge from the desiccating effects of wind. It has been suggested that vegetation on north-facing slopes is slightly more dense and shrubby than on south-facing slopes and therefore may support a substantially greater abundance of Morro shoulderband snails (Roth, 1985).

Annually, activity is greatest during the rainy season and individuals may be particularly active during the evening, night, and early morning hours. Morro shoulderband snails are presumed to enter a state of aestivation during prolonged dry periods and become active during rain, heavy fog, and dew. The feeding habits of the Morro shoulderband snail are not well studied, however the mouth parts (radula) of the species are consistent with other snail species that feed on decaying matter and micorhizae. Hill (1974) indicated that, although feeding on decaying plant matter occurs, the primary food source for Morro shoulderband snails was probably fungal mycelia that grows on decaying plant matter. Walgren reported that Morro shoulderband snails will eat live vegetable matter when presented in the lab (Walgren, 2003; USFWS, 2006).

Known plant associates of the Morro shoulderband snail include both native and non-native species. Typical native plant associates include dune ragwort (*Senecio blochmaniae*), California sandaster (*Lessingia filaginifolia*), mock heather (*Ericameria ericoides*), buckwheat (*Eriogonum parvifolium*), eriastrum (*Eriastrum densifolium*), silver lupine (*Lupinus chamissonis*), seaside woolly sunflower (*Eriophyllum staechadidfolium*), dune almond (*Prunus fasciculata punctata*), dudleya (*Dudleya* sp.), California croton (*Croton californicus*), black sage (*Salvia melifera*), California sagebrush (*Artemisia californica*), coyote brush (*Baccharis pilularis*), poison oak (*Toxicodendron diversilobum*), California poppy (*Eschscholtzia californica*), and deerweed (*Lotus scoparius*) (Roth, 1985; USFWS, 2003a; Roth and Tupen, 2004; Dugan, pers obs.). The most commonly reported non-native plant associates are veldt grass (*Ehrharta calycina*) and sea fig (*Carpobrotus* spp.) however Morro shoulderband snails have been found occupying other non-native invasive plants including Conicosia (*Conicosia pugioniformis*), hotentot fig (*Mesembryanthemum* spp.), pampas grass (*Cortaderia jubata*), German ivy (*Senecio*

mikanioides), fennel (*Foeniculum vulgare*), and Myoporum (*Myoporum laetum*) (Dugan, pers obs.). Live Morro shoulderband snails and vacant shells have also been found in a variety of ornamental plants such as rock rose (*Cistus* sp.), aloe (*Aloe* sp.), and lilies of the Nile (*Agapanthus africanus*).

At the time of the listing a description of threats to the Morro shoulderband snail included degradation of its habitat due to invasive, nonnative plant species (e.g., veldt grass), structural changes in its habitat resulting from the maturation of dune vegetation and recreational use (e.g., heavy off-road vehicle use), and the destruction of its habitat from increasing development (USFWS, 2001). Additional threats to the snail include fire and the small and isolated nature of the remaining snail populations (Roth, 1985; USFWS, 2001). The Morro shoulderband snail is vulnerable to mortality caused by snail bait, however the MSS is not reported to be harmful to gardens and is therefore not considered a garden pest (Wilcox, 1950 *in* Roth, 1985; Chambers, 1997 *in* USFWS, 2001). Natural sources of snail mortality include predation by rodents, alligator lizards, and beetles (Heagy, 1980 *in* Roth, 1985; Roth, 1985). Another factor that may contribute to mortality of individual Morro shoulderband snails and MSS eggs is seasonal drought and/or heat.

Methodology

Snail surveys were conducted in accordance with the guidelines outlined in *Survey Guidelines for the Morro Shoulderband Snail (Helminthoglypta walkeriana)* (USFWS, June 2003b). Surveys of the property entailed visual searches of vegetation and objects that might provide suitable refuge or microhabitat for Morro shoulderband snails. Objects that were not embedded were carefully turned to inspect the area beneath; turned objects were subsequently returned to their original position/orientation. Live snails, empty shells, and shell fragments found during surveys were positively identified and noted on the survey data sheet (Appendix A). Representative photographs of the site are shown in Appendix B. Measurements of air temperature and wind speed were collected at the beginning of each survey using a Skymate SM-18 hand-held wind meter and noted on the survey data sheet.

Survey Results

2003 Protocol Survey

A protocol survey effort of the Kroll property was initiated on March 4, 2003. During the first survey, four live Morro shoulderband snails were found on the property. Three of the live MSS were located in a small patch of German ivy growing around a fence post along the southern fence line. The fourth live MSS was found in leaf litter at the base of an isolated Myoporum shrub growing along a pasture fence line inside of the northern property boundary.

The 2003 protocol survey effort was discontinued following establishment of the presence of live Morro shoulderband snails on the parcel during the initial site visit (Table 1). A concurrence request was submitted to the USFWS for the project, however,

at the time it was recommended that an incidental take permit be obtained through the preparation of, or participation in, an approved Habitat Conservation Plan.

2007 Protocol Survey

The 2007 protocol survey effort for the Kroll property was conducted over a period of approximately six weeks from 21 March 2007 to 5 May 2007. The survey effort encompassed the western 3.6 acres (1.46 hectares) of the property, which included the areas proposed for construction and surrounding pastures and orchards. The survey effort of the site ranged from 1.4 to 1.6 person hours per hectare. A summary of the survey results and weather conditions during the protocol surveys is presented in Table 1.

Table 1. Summary of survey effort weather, and results- 2003 and 2007. (Search Area = 3.6 acres; 1.46 hectares).

| Survey Date | Survey Time and Effort | Weather During and Prior to Survey | Temperature | Results |
|---------------------|--|--|-------------|--|
| Survey 1 3/04/03 | Time: 1110 to 1300 Effort: 1.8 person hours/hectare | During: Partly sunny to sunny. Prior: 0.35 in. rain on 3/03/03. | 58° F | <i>H. walkeriana</i> : 4 live <i>H. aspersa</i> : present |
| Survey 1 3/21/07 | Time: 0955 to 1215 Effort: 1.6 person hours/hectare | During: Clear/sunny. Prior: 0.26 in. rain on 3/20/07. | 57° F | <i>H. walkeriana</i> : 2 live <i>H. aspersa</i> : present |
| Survey 2 3/27/07 | Time: 1330 to 1535 Effort: 1.4 person hours/hectare | During: Partly cloudy. Prior: 0.11 in. rain on 3/27/07 and 0.04 in. on 3/26/07 | 57° F | <i>H. walkeriana</i> : 2 live snails and 2 shells <i>H. aspersa</i> : present |
| Survey 3 4/20/07 | Time: 0955 to 1202 Effort: 1.4 person hours/hectare | During: Overcast to clearing. Prior: 0.5 in. rain on 4/20/07 and 0.08 in. on 4/19/07. | 54° F | <i>H. walkeriana</i> : 1 shell <i>H. aspersa</i> : present |
| Survey 4 4/22/07 | Time: 1020 to 1240 Effort: 1.6 person hours/hectare | During: Rain/overcast. Prior: 0.19 in. rain on 4/22/07 and 0.02 in. on 4/21/07. | 58° F | <i>H. aspersa</i> : present |
| Survey 5 5/04/07 | Time: 0915 to 1135 Effort: 1.6 person hours/hectare | During: Overcast/drizzle. Prior: 0.08 in. rain on 5/04/07 and 0.01 in. on 5/03/07. | 60° F | <i>H. aspersa</i> : present |

Two snail species were observed on the site during surveys, the native Morro shoulderband snail (*H. walkeriana*) and non-native European brown garden snail (*Helix aspersa*). A total of four live Morro shoulderband snails and three vacant shells were found on the property during the 2007 survey effort. Two of the live snails (17.3 mm and 6.0 mm greatest shell diameter) were found during the first site visit and two (20.7 mm and 12.5 mm greatest shell diameter) were found during the second visit. Three vacant Morro shoulderband snail shells were also found within the surveyed area. All of the live *H. walkeriana* and two of the three vacant shells were found in veldt grass grasslands within the proposed open space area. The third vacant *H. walkeriana*, found during the third survey, was located in grasses at the base a small Monterey cypress tree growing next to the lunging ring in the central portion of the parcel. The lunging ring is not within the proposed open space area. The shell was in "fresh" condition as specified in Roth, 1985. Figure 5 shows the location of the live snails and vacant shells found during the 2003 and 2007 protocol survey efforts relative to the approximate locations of the proposed structures and open space area.

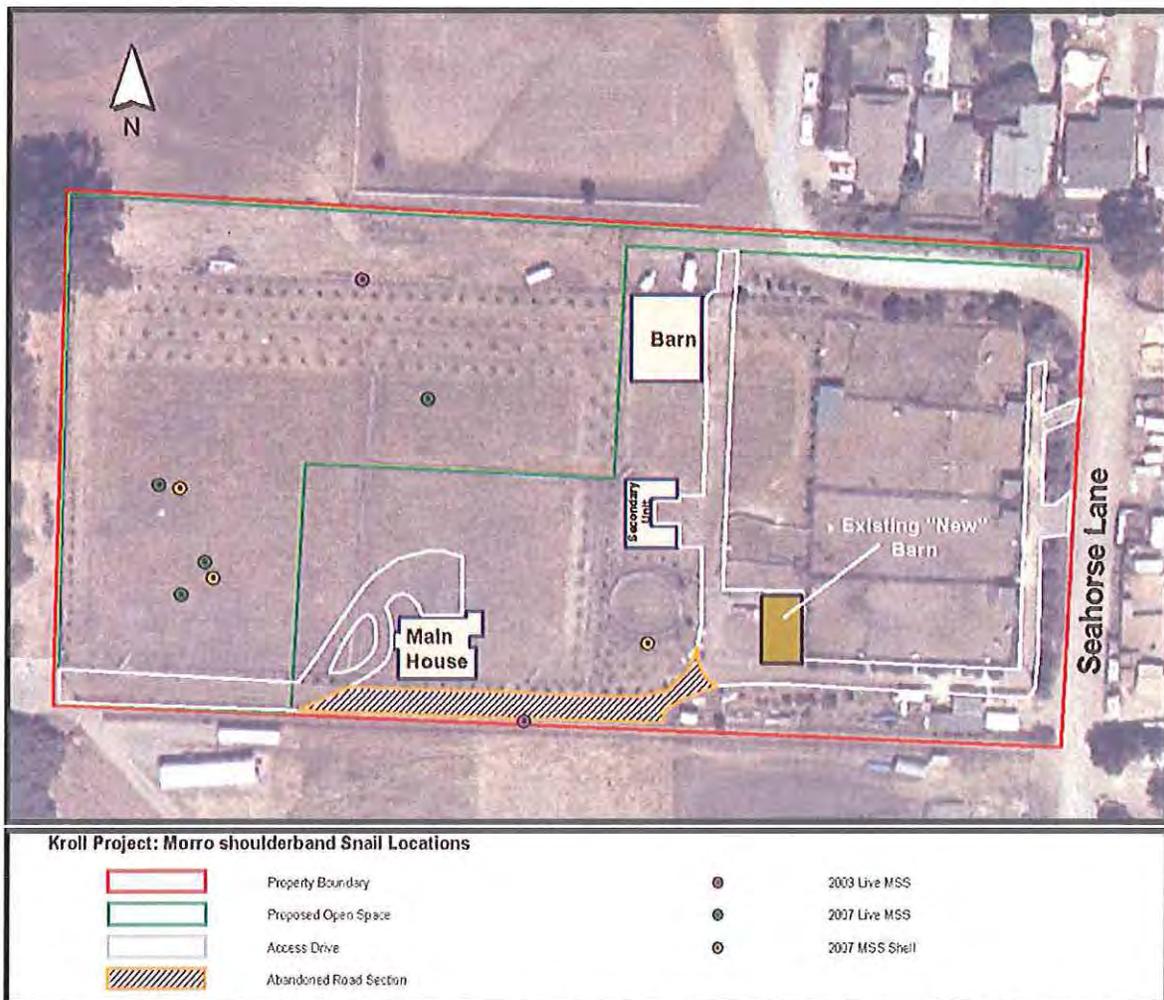


Figure 5. Aerial view of Kroll parcel showing MSS locations (2003 and 2007) in relation to proposed structures and open space area.

During the 2003 survey live *H. walkeriana* were located in patches of non-native vegetation (German ivy and Myoporum) along the northern pasture fence and southern perimeter fence. The Myoporum shrub along the northern pasture fence under which a 23.8 mm *H. walkeriana* was found (in leaf litter) during the 2003 survey was still present during the 2007 survey; however, leaf litter was largely absent from beneath the shrub due to recent site clean-up and the deposition of a manure berm. The patch of German ivy along the southern fence line (in which three live *H. walkeriana* were found) was no longer present during the 2007 survey.

Live *H. walkeriana* and vacant shells located on the parcel during the 2007 survey were found in non-native veldt grass grassland habitat in the central pasture areas. Prior to the 2003 survey the veldt grass in these pasture areas had been mowed/grazed short and appeared to offer relatively poor cover and microclimate conditions for Morro shoulderband snails. Veldt grass in the central pasture areas had not been mowed/grazed prior to the 2007 survey, however, strips (10 to 30 feet wide) along all perimeter fences, beneath all trees and shrubs, and within orchard areas and the footprint of the proposed main residence had been mowed, trimmed, and weeded/raked during the site clean up that preceded the survey. Pipe corrals had been installed since the 2003 survey in the proposed location of the guest quarters, associated septic field, and barn, and the use of the corrals by horses had eliminated most vegetation from the area. The proposed barn footprint includes the area between the pipe corrals and the northern perimeter fence, which is currently used for storage of vessels, vehicles, large timbers, and various maritime objects. Vegetation around and beneath the stored items had been trimmed short with a line trimmer prior to the survey.

Possible Threats Observed

A variety of threats to Morro shoulderband snails are inherent in ongoing activities on the project site. One of the primary threats to the species on the parcel is the conversion of coastal scrub and grassland habitat on the parcel to more intensive uses. From 1994 (the year the Morro shoulderband snail was listed) to 2007, seventy three percent of the parcel (3.7 acres) has been converted from potentially suitable MSS habitat to intensive uses associated with the equine boarding facility and commercial avocado/citrus culture (see Site Photographs- Appendix B). Additionally, various non-native trees and ornamental shrubs have been planted around the property perimeter for landscaping that degrade potential MSS habitat. Fire abatement mowing and trimming along fence lines is also a threat because it alters the composition and structure of the plant community and has a strong potential to result in injury or mortality to MSS inhabiting the site. The regular maintenance (weeding, mowing, raking, and deposition of manure) of the ground area around avocado and citrus trees on the property modifies/degrades potential shelter areas for snails and could also result in the take of Morro shoulderband snails.

Another possible threat to MSS on the site is the use (periodic or otherwise) of veldt grass grassland habitat as pasture areas by horses. Use of these areas for grazing may result in habitat degradation and/or mortality to Morro shoulderband snails from trampling. The installation and use of temporary pipe corrals in veldt grass grassland

habitat has had a more extreme effect on potential Morro shoulderband snail habitat than the periodic pasturing of horses. The use of recently installed pipe corrals has resulted in the elimination of vegetation that might provide suitable shelter for Morro shoulderband snails within the enclosures. Finally, the movement of stored vehicles, vessels, and other items within grassland areas on the property may result in injury or mortality to Morro shoulderband snails sheltering in the vicinity.

Discussion

The results of this survey establish the continued presence of Morro shoulderband snails on the Kroll parcel despite both past/current land uses and the current scarcity of native plant associates of the species. Survey results indicate that Morro shoulderband snails currently occupy veldt grass grassland habitat on the western half of the property. Veldt grass is an invasive species reported to degrade Morro shoulderband snail habitat (USFWS, 2001) however live snails were present in discrete areas within the veldt grass grassland where the density and structure of veldt grass bunches provided suitable cover and some degree of moisture persistence. It is not known whether *H. walkeriana* is a permanent resident of veldt grass grasslands on the parcel or whether the MSS encountered had migrated into the pastures from adjacent properties during wet conditions. However, moss observed in a number of locations beneath the veldt grass canopy in the pastures is indicative of a moist environment that, if left undisturbed by mowing/grazing, may provide suitable aestivation sites for Morro shoulderband snails during the summer months.

Although habitat on the parcel is currently degraded and generally of marginal value for *H. walkeriana*, the species is nonetheless present and therefore the proposed project has the potential to result in the "take" of Morro shoulderband snails. Section 9 of the ESA prohibits any activity that could result in the "take" of listed species such as *H. walkeriana*. The meaning of "take" is defined in Section 3(18) of the Endangered Species Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." USFWS regulations (50 CFR 17.3) define harm to include significant habitat modification or degradation which actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering.

Options for moving forward with the project include avoiding the take of *H. walkeriana* or obtaining an incidental take authorization from the U.S. Fish and Wildlife Service through an approved Habitat Conservation Plan (HCP). For non-federal projects and private development projects that do not require a federal permit, the preparation of an HCP is the only legal mechanism for undertaking a project or activities that will result in the take of a threatened or endangered species. Avoidance of take is sometimes possible by designing a project so that occupied habitat is not disturbed and protection measures are implemented that reduce the potential for take to negligible levels. In such cases the USFWS may be able to issue a determination of concurrence that the proposed project would not result in the take of Morro shoulderband snails. It should be noted that a concurrence determination does not allow "take" of Morro shoulderband snails to occur.

All of the live Morro shoulderband snails and two of the three vacant shells found during the 2007 protocol survey were located within the area of the parcel proposed as open space. Impacts to the open space area of the lot are not proposed during construction so take avoidance with regard to the live specimens found during the 2007 protocol survey appears to be a possibility. However, the vacant *H. walkeriana* shell found next to the lunging ring was outside the open space at a location where there are no currently proposed restrictions of activities/uses that might facilitate take avoidance in this area. Additionally, current agricultural activities on the property and the use of the proposed open space area for horses and avocado/citrus culture are not compatible with a strategy to protect habitat occupied by *H. walkeriana* or avoid the of take of the species.

Another problem with developing a take avoidance strategy for the project is that the accuracy of *H. walkeriana* distribution data for the site is likely to have been negatively affected by both fire abatement mowing and a general site clean up that were conducted immediately prior to the 2007 survey. These activities impacted potential habitat along all pasture perimeter fences and the south property fence, including both locations where Morro shoulderband snails were found during the 2003 survey. Additionally, a number of activities related to the production of avocados/citrus on the property and the operation of the equine boarding facility had occurred prior to the survey. These activities had a substantial negative impact on the presence of vegetation that might otherwise have provided shelter for Morro shoulderband snails and therefore may have adversely affected the distribution information for Morro shoulderband snails on the site.

Completion of the project will permanently convert an additional 0.5 +/- acres (21,780 square feet) of veldt grass grassland habitat to residential use and is likely to result in a general intensification of usage of surrounding areas on the western half of the parcel. A variety of Morro shoulderband snail protection measures can be implemented to reduce the potential for take during construction. However, the current uses of the parcel and the continued development/use of remaining grassland habitat for agricultural purposes are not compatible with a viable take avoidance strategy for Morro shoulderband snails. A concurrence determination by the USFWS is not likely to be issued unless the project could be conditioned so that the potential for take following construction was reduced to negligible levels. The avoidance of take would likely require a restriction of future uses the curtailment of many current activities, and a restoration component. Examples of current activities that could result in harm to Morro shoulderband snails are discussed in the *Possible Threats Observed* section of this report. If an acceptable avoidance strategy cannot be formulated then an incidental take permit in the form of an approved HCP may be required for project implementation. An HCP may also be required for disturbances related to site restoration activities.

Recommendations

The presence of the Morro shoulderband snail on the Kroll parcel was established in 2003 and the continuing presence of the species is confirmed by the results of the 2007 protocol survey efforts. Due to the potential presence of the Morro shoulderband snail within the area of disturbance, we recommend that the following take avoidance

measures be included as *Conditions of Approval* for San Luis Obispo County permits required for the project during construction:

- Grubbing/grading and subsequent construction activities shall occur during the dry season (June 1 through October 15) when Morro shoulderband snails are aestivating and unlikely to migrate into work areas.
- The applicant shall retain a qualified biologist to conduct a pre-activity survey of the project footprint no more than 24 hours prior to the initiation of site work. The biologist shall apprise the County and the USFWS of the results of the survey. The USFWS and County shall be contacted immediately if habitat on the site has been disturbed prior to the survey or if snails are located during the pre-activity survey. Site disturbance shall not be initiated until all MSS issues are resolved.
- Exclusion fencing shall be installed under the direction of a qualified biologist and prior to any site disturbance to ensure that areas occupied or potentially occupied by Morro shoulderband snails are not impacted. The exclusion fencing shall be left in place until all construction and landscaping activities have been completed.
- A qualified biologist shall monitor construction activities to ensure that Morro shoulderband snails have not migrated into the construction area during moist conditions such as heavy dew, fog, or rain. In the event that such conditions occur, the qualified biologist shall conduct a pre-activity survey of the construction site prior to the resumption of work. The USFWS shall be contacted immediately if snails are located in the construction area during daily pre-activity surveys. Construction shall not be resumed until all MSS issues are resolved.

These measures should be sufficient to ensure that no take of the species occurs during construction. However, based on the potential threats to the species from ongoing activities on the parcel, a strong potential for take remains following construction. Due to the history of agency consultation regarding the presence of the federally protected Morro shoulderband snail and the uses/activities that have occurred on the parcel, we recommend consultation with the U.S. Fish and Wildlife Service and County Planning Department to discuss options for moving forward with the project.

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Appendix A

Survey Data Forms

MORRO SHOULDER BAND SNAIL FIELD SURVEY FORM

PROJECT: Kroll DATE: 3/21/07 SURVEY NUMBER: 1
 TEMPERATURE: 57°F START TIME: 0955 END TIME: 1235
 WEATHER DURING SURVEY: Clear sunny WIND: < 5mph
 AMOUNT OF MOST RECENT PRECIPITATION: 0.26 in. DATE: 3/20/07
 SURVEYOR(S) D. Dugan SURVEY EFFORT: 1.6 ph/h
 (person-hours/hectare)

SPECIES H. walkeriiana LIVE SHELL
 LOCATION 35° 18.458' HABITAT veldt grass
120° 51.125'

SPECIES H. walkeriiana (6.0 mm) LIVE SHELL
 LOCATION 35° 18.485' HABITAT veldt grass
120° 51.081'

SPECIES _____ LIVE SHELL
 LOCATION _____ HABITAT _____

SPECIES _____ LIVE SHELL
 LOCATION _____ HABITAT _____

SPECIES _____ LIVE SHELL
 LOCATION _____ HABITAT _____

Notes: H. aspersa present to abundant in grassland, orchards, rocks

Habitat along fences mowed/trimmed short!
Locations where MSS found in 2003 altered.
Leaves absent from beneath Myoporum - horse manure bin recently installed around base of shrub.

MORRO SHOULDER BAND SNAIL FIELD SURVEY FORM

PROJECT: Kroll DATE: 3/27/07 SURVEY NUMBER: 2
 TEMPERATURE: 57°F START TIME: 1330 END TIME: 1615
 WEATHER DURING SURVEY: Partly cloudy- WIND: ~10 mph
 AMOUNT OF MOST RECENT PRECIPITATION: 0.11 in. DATE: 3/27/07
0.04 in. ON 3/26/07
 SURVEYOR(S) Dr. Dugan SURVEY EFFORT: 1.4^h/h
 (person-hours/hectare)

SPECIES H. walkeri (20.7mm) LIVE SHELL
35° 18.479'
 LOCATION 120° 51.116' HABITAT Veldt grass

SPECIES H. walkeri LIVE SHELL - broken
35° 18.478'
 LOCATION 120° 51.116' HABITAT Veldt grass

SPECIES H. walkeri (12.5mm) LIVE SHELL
35° 18.475'
 LOCATION 120° 51.112' HABITAT Veldt grass

SPECIES H. walkeri LIVE SHELL broken
35° 18.472'
 LOCATION 120° 51.113' HABITAT Veldt grass

SPECIES _____ LIVE SHELL
 LOCATION _____ HABITAT _____

Notes: H. aspersa present.

- Survey conditions marginal - too dry
- Footprint of main residence mowed since first survey.
- Citrus/Avocado orchard weeded since first survey
- Horse manure berm applied around a number of Avocado trees

MORRO SHOULDER BAND SNAIL FIELD SURVEY FORM

PROJECT: Kroll

DATE: 4/20/07 SURVEY NUMBER: 3

TEMPERATURE: 54°F

START TIME: 0955 END TIME: 1202

WEATHER DURING SURVEY: Overcast to clearing

WIND: 5-15 mph

AMOUNT OF MOST RECENT PRECIPITATION: 0.50 in.
0.08 in. on

DATE: 4/20/07
4/19/07

SURVEYOR(S) D. Dugan

SURVEY EFFORT: 1.4 ph/h
(person-hours/hectare)

SPECIES H. walkeriiana

LIVE SHELL

LOCATION 350 18.462'
120° 51.056'

HABITAT grass beneath cypress tree

SPECIES _____

LIVE SHELL

LOCATION _____

HABITAT _____

Notes: H. aspersa present

Central part of western pasture not surveyed because presence of MSS established

MORRO SHOULDER BAND SNAIL FIELD SURVEY FORM

PROJECT: Kroll DATE: 5/4/07 SURVEY NUMBER: 5
TEMPERATURE: 60°F START TIME: 0915 END TIME: 1135
WEATHER DURING SURVEY: overcast - drizzle WIND: _____
AMOUNT OF MOST RECENT PRECIPITATION: 0.08 in. DATE: 5-4-07
0.01 in. 5-3-07
SURVEYOR(S) D. Dugan SURVEY EFFORT: 1.6 ^{ph/h}
(person-hours/hectare)

SPECIES _____

LIVE

SHELL

LOCATION _____

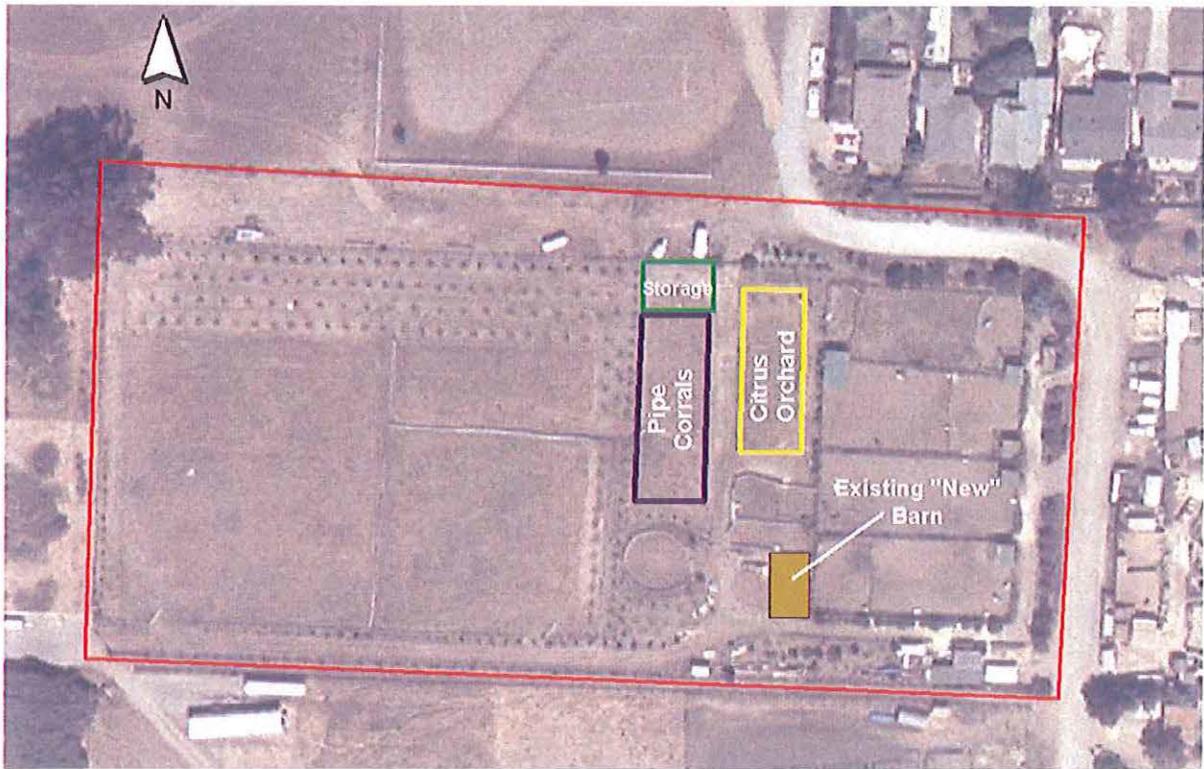
HABITAT _____

Notes: H. aspersa present
No MSS or shells found
Parts of western pasture not searched due to prior
establishment of MSS presence.

Appendix B
Site
Photographs



B-1. 1998 aerial photograph (Source- SLO County) showing extent of mixed coastal scrub-grassland habitat.



B-2. 2003 aerial photograph (Source SLO County) with polygons added to reflect the extent of current (2007) site development.



B-3. View of habitat in central pasture where main residence will be located.



B-4. View showing the site proposed for the secondary residence and barn.



B-5. View showing lunging ring (foreground) and proposed site of main residence (center).



B-6. View of habitat in central orchard area following weeding/maintenance.



B-7. View (facing east) of habitat in central/western pasture where three live MSS and two vacant shells were located during the 2007 protocol survey effort (in September 2007).



B-8. View of habitat in central pasture (open space) where a live Morro shoulderband snail was located (lower center).



B-9. View of habitat along the southern perimeter fence in 2007 where three live MSS were found during the 2003 protocol survey effort.



B-10. View showing Myoporum shrub along northern pasture perimeter fence in 2007 where a single live MSS was located during the 2003 protocol survey effort.



B-11. View along northern orchard fence following fire abatement mowing.



B-12. View of habitat along the southern pasture fence following fire abatement mowing.

Appendix B: **SWCA MSS Survey Update**

UPDATED MSS SURVEYS FOR THE KROLL HCP AT 302/304 MADERA STREET, LOS OSOS, CALIFORNIA (SWCA PROJECT NO. 21644)

September 16, 2014

INTRODUCTION

The following report has been prepared to augment the Kroll Morro Shoulderband Snail Habitat Conservation Plan (HCP) with updated Morro shoulderband snail (MSS; *Helminthoglypta walkeriana*) survey results. For detailed discussions on the project description, project history, and site conditions please refer to the HCP.

METHODS

SWCA conducted an MSS Habitat Assessment survey in the project area during dry and warm conditions on October 15, 2013. Due to the presence of non-native MSS habitat in the project area and in response to U.S. Fish and Wildlife Service (Service) comments on the Draft HCP, it was determined that additional protocol surveys for MSS were warranted. The *Protocol Survey Guidelines for the Morro Shoulderband Snail* (Service 2003) requires that five protocol surveys be performed during rain or heavy fog conditions to establish the presence/absence of MSS. Since the presence of MSS in the project area was known, SWCA conducted four protocol surveys in 2014 during or immediately following rain events (refer to Table 1). SWCA Biologists Travis Belt and Barrett Holland conducted the surveys under the authorization of federal permit TE-824123-5.

All surveys were conducted on foot, utilized hand search methods, and were conducted over a 60- to 90-minute period. The proposed project area and immediately adjacent areas were thoroughly examined in order to identify live MSS, empty MSS shells, suitable MSS habitat, or other resources considered sensitive by USFWS.

RESULTS

Based on the site conditions and conditions of the neighboring parcels, the proposed project area and immediate surroundings support suitable non-native habitat for MSS. In addition, past survey efforts have documented live MSS in the project area and on the neighboring parcels. The one non-protocol survey and four protocol surveys conducted in 2013 and 2014 did not identify any live MSS in the project area. Table 1 below provides a summary of the survey results.

Table 1. 2013/2014 Survey Dates, Time, and Findings

| Survey # | Survey Date and Time | Rainfall Activity | Temp | Findings* | Biologist |
|-----------------|--|---|-------------|--|------------------|
| 1 | 10/15/13 3:30 p.m. to 5:00 p.m. | Habitat Assessment Survey conducted in dry, non-protocol conditions. | 73°F | MSS: none <i>Helix aspersa</i> : 2 shells | T. Belt |
| 2 | 2/03/14 11:30 a.m. to 12:30 p.m. | Showers during survey. Ground wet from approximately 1.18 inch of consistent rain in previous 24 hours. | 55°F | MSS: none <i>Helix aspersa</i> : 5 | B. Holland |
| 3 | 2/06/14 12:00 p.m. to 1:30 p.m. | Showers during survey. Ground wet from approximately 0.22 inch of consistent rain in previous 24 hours. | 63°F | MSS: none <i>Helix aspersa</i> : none | B. Holland |
| 4 | 2/28/14 10:45 a.m. to 11:30 a.m. | Ground wet from light rain during survey and 1.0 inch of precipitation in previous 36 hours. | 56°F | MSS: none <i>Helix aspersa</i> : 1 | B. Holland |
| 5 | 4/01/14 11:30 a.m. to 12:30 p.m. | Showers to clearing. Ground wet from 0.82 inch of rain in previous 48 hours. | 57°F | MSS: none <i>Helix aspersa</i> : 6 | B. Holland |

**Helix aspersa* = Common brown garden snail

Appendix C: **Photo Documentation**

**PHOTO 1:**

View of proposed development area, looking southeast. Note dense cover of veldt grass, and orchard plantings in background. Fence in foreground marks the proposed Conservation Easement eastern boundary line.

Picture taken on December 2, 2011.

**PHOTO 2:**

View of the eastern end of Madera Street, and a portion of the proposed driveway access route, looking west. Driveway would be placed as close to the southern fence/property line as possible.

Picture taken on December 2, 2011.

PHOTO DOCUMENTATION

**PHOTO 3:**

View of the proposed Conservation Easement area, looking north from the driveway access. Note dominant veldt grass cover, and avocado trees in the northern portion of the area. Large Eucalyptus tree in background is located on Los Osos CSD property.

Picture taken December 2, 2011.

**PHOTO 4:**

View of the proposed Conservation Easement area, looking south from the northern property line. Veldt grass and avocado plantings will be removed to allow establishment of coastal scrub habitat in the Easement area.

Picture taken December 2, 2011.

PHOTO DOCUMENTATION

Appendix D: **CAL FIRE Access Letter**



CAL FIRE
San Luis Obispo
County Fire Department

635 N. Santa Rosa • San Luis Obispo, CA 93405
Phone: 805-543-4244 • Fax: 805-543-4248
www.calfireslo.org



Robert Lewin, Fire Chief

January 25, 2012

Jim & Sharon Kroll
1970 Aspen St.
Los Osos, CA. 93402

Subject: Primary emergency access route for proposed residential development to be located at 302 Madera Street in Los Osos, CA.

Mr. Kroll,

As per your request, CAL FIRE/San Luis Obispo County Fire Department provides the following comments regarding your proposal to place residential development upon A.P.N. 074-022-041 within Los Osos, CA.

Given the proposed location of the residential development to be placed upon this parcel, the location of the nearest CAL FIRE/County Fire Station (#15-Bay View Heights Drive) and the distance from the nearest fire hydrant, this department finds that accessing the property via Madera Street is the safest, most efficient and most logical option.

If I may provide additional assistance or information relative to this matter, please do not hesitate to contact me at (805)543-4244, ext. 3425.

Sincerely,

Clinton I. Bullard
Fire Inspector

Appendix E: **HCP Easement
Habitat Restoration Plan**

KROLL MORRO SHOULDERBAND SNAIL HCP EASEMENT HABITAT RESTORATION PLAN

INTRODUCTION

This Morro shoulderband snail (MSS; *Helminthoglypta walkeriana*) Habitat Restoration Plan (Plan) is intended to supplement the Kroll MSS Habitat Conservation Plan (HCP). As such, this Plan must be appended to the HCP so that it can be reviewed and implemented under full accordance to the HCP and accompanying Incidental Take Permit (ITP). Please review the HCP for detailed discussions of the Kroll Residential Development Project, project related impacts, and associated mitigation measures.

The intent of this Plan is to provide Jim and Sharon Kroll (permittees) and the United States Fish and Wildlife Service (Service) with detailed guidance on the methods for implementing coastal dune scrub habitat restoration activities in the HCP easement area on the Kroll parcel (Assessor Parcel Number 074-022-041). This plan was developed with regards to Service requirements for habitat restoration to mitigate unavoidable impacts to MSS and their habitat.

COASTAL DUNE SCRUB RESTORATION METHODS

The 1.1-acre HCP easement area currently supports moderate to dense coverage of veldt grass (*Ehrharta calycina*), and sporadic occurrences of deerweed (*Acmispon glaber*) and dune lupine (*Lupinus chamissonis*). These conditions provide habitat for MSS that should be retained throughout the habitat restoration process. This Plan includes a phased approach to habitat restoration that will facilitate the retention of MSS habitat in the HCP easement area during restoration activities. The phased habitat restoration program will be conducted over a 7-year period, will involve exotic species removal and native species reintroduction into three restoration zones (refer to Figure 1), and will be monitored for the term of the ITP (10 years). Specific restoration methods and a restoration schedule are provided below.

MSS Minimization Measures

Pursuant to the HCP, the permittees must retain a Service-approved biologist to conduct the minimization measures described in the HCP and summarized below during the habitat restoration process. Please refer to the HCP for detailed discussions of the minimization measures.

- Prior to initial exotic species removal or other disturbance, the Service-approved biologist will conduct MSS capture and relocation efforts. All living snails, in all life stages, that are identified will be captured and moved to suitable areas in a location to be approved by the Service. Since this Plan is designed to retain MSS habitat in the HCP easement area throughout the restoration process, the easement area will be considered for approval as a relocation site.

To promote native species education and stewardship, the Service-approved biologist will train the permittees to identify and properly relocate native shoulderband snails. The training will provide the permittees with sufficient knowledge to properly relocate native snails they observed when a Service-approved biologist is not present. The intent of the training is to promote landowner stewardship for native species. Training the permittees will not negate the need for the Service-approved biologist to conduct necessary pre-disturbance MSS surveys and monitoring included in the HCP.

- The Service-approved biologist and the permittees will document the size, age-class, location of capture, and release site location for each individual MSS moved from the affected work area.

Exotic Species Removal

Exotic species removal will be conducted through mixed efforts utilizing mechanical methods and manual methods. Initial avocado tree and veldt grass removal will utilize a small tractor. The tractor will be used to uproot and completely remove all avocado trees in the HCP restoration area. Initial veldt grass removal will be performed with the tractor and grapple attachment. The grapple will be drug through the treatment area to uproot the veldt grass tussocks. The uprooted tussocks will be removed from the site and disposed of at a certified landfill. The operator will not uproot volunteer native shrubs in the treatment area. Veldt grass that is growing among native shrub species must be removed by hand.

The permittee will conduct standard maintenance activities in the restoration areas throughout the duration of the restoration program. Exotic species removal during the maintenance period will employ manual weed removal methods. Manual weed removal may include digging, hoeing, and hand pulling veldt grass and other weed species. The following guidelines must be followed during manual weed removal efforts:

- The permittee must relocate MSS observed during weed removal efforts to adjacent habitat in the HCP area.
- Removal of or damage to native vegetation during project implementation shall be avoided to the maximum extent possible.
- Pest plant debris will be disposed of offsite and will not be piled or composted on the project site, reducing the possibility of re-sprouting from seeds in the treatment area.

Restoration Plantings

The permittee will install the following species of restoration plantings in 1-gallon or tree-band containers: mock heather (*Ericameria ericoides*), dune lupine, dune buckwheat (*Erigonum parvifolium*), black sage (*Salvia mellifera*), and California sage (*Artemisia californica*). The container plants will be planted in a patchy mosaic that emulates natural patterns. The Permittees will plant a minimum of 240 container plants in each of the three restoration zones. The container plants will be purchased from a reputable local nursery.

Seed Purchase, Collection, and Broadcasting

In addition to the container plantings, the permittee will broadcast seed of the following native plant species in the restoration areas: mock heather, dune lupine, dune buckwheat, black sage, California sage, and deerweed. The seed will be broadcast in bare areas following exotic species removal efforts. Seed will be broadcast annually, in the fall, and in each of the active restoration zones (refer to Table 1). To minimize loss of seed by predation, the permittees will rake the broadcasted seed into the soil immediately following its application. The permittees may collect seed from mature plant specimens on their property or purchase seed from an established seed provider.

Container Plant Irrigation

Water will be supplied to the plantings during the initial establishment or until the Service-approved biologist determines that the plantings are self-sustaining. Supplemental water will be supplied during the dry season via an above ground irrigation system that feeds a hose. At the discretion of the Service-approved biologist, the irrigation may cease during the rainy season. Once the Service-approved biologist determines the plantings to be self-sustaining, the irrigation can cease permanently. All supplemental watering will be performed in a manner that ensures deep penetration of water to the soil around the plant rootball (not on plant foliage).

RESTORATION MONITORING PLAN

The Service-approved biologist will monitor, evaluate, and report the progress of the compensatory mitigation site to determine the success of the mitigation efforts. The monitoring program will document the success or failure of the restoration plantings and presence of veldt grass in the restoration areas. The monitoring will include three types of monitoring visits: Qualitative Assessments, Annual Quantitative Assessments, and General ITP Compliance. Qualitative Assessments will occur quarterly in Years 1 through 4, Quantitative Assessments will occur annually in Years 1 through 7, and General ITP Compliance Assessments will occur throughout the permit term.

Annual Performance Standards and Final Success Criteria

The habitat restoration program will be monitored and evaluated based on ecologically based performance standards and success criteria. The annual performance standards will provide a benchmark for the Service-approved biologist to use when assessing the habitat restoration activities in the HCP area. During each annual monitoring visit (assumed to be the December visit), the Service-approved biologist will implement the Quantitative Assessment described below. Based on the annual data, the following criteria must be satisfied for the program to be considered successful:

- **Planting Survival:** During each annual Quantitative Assessment, a minimum of 75% of the container plants must be surviving. For example, in Year 1, the permittees will install 240 container plants in Restoration Area 1. In Year 2, there must be at least 180 living native shrubs in Restoration Area 1 for the project to be considered on track for completion. This benchmark for percent survival will be applied to all three restoration areas throughout the program. If at any time the number of living shrubs in the restoration areas is below 75% of the planted materials, the permittees will replant the necessary number of plants to reach the 75% benchmark.
- **Veldt Grass Cover:** The annual goal for the project is a 10% reduction in veldt grass cover each year. At the end of Year 7, the 1.1-acre HCP easement area must have less than 30% cover of veldt grass.

Qualitative Assessments

Qualitative Assessments will be conducted quarterly and will include evaluations of planting vigor, damage, and exotic species competition, as well as photo documentation. These attributes will be evaluated to determine the need to adjust management actions such as increasing or decreasing supplemental water, enhancing gopher protection, and increasing weed abatement. Planting vigor will be evaluated as follows:

- 1 = excellent – vigorous healthy seedling (no necrotic or chlorotic leaves);
- 2 = good – seedling is healthy with limited signs of vigorous growth;
- 3 = adequate – seedling is healthy with no signs of vigorous growth and some necrosis or other damage present;
- 4 = poor – low vitality, or main stem dead but basal sprouts emerging; and,
- 5 = dead – no evidence of recovery.

On average, the plantings should maintain vigor ratings of 1 or 2 throughout the seasons. If the vigor rating for individuals or portions of the population falls below 2, adjustments in management actions may be necessary.

Quantitative Assessments

Quantitative Assessments will be conducted annually and will measure planting survivorship and percent cover of veldt grass. These attributes will be evaluated to ensure that a sufficient number of plantings are

surviving to achieve the target annual survival rate and that the restoration area does not exceed the threshold for veldt grass cover.

Percent survival will be obtained by counting the number of surviving plants observed and dividing the result by the number of plants installed. Volunteer plants will be counted if they are the same species as the planted vegetation. Native shrubs that colonize the mitigation area during the monitoring program will be counted towards the overall performance criteria for the restoration program. Consequently, this calculation method can result in a survival rate greater than 100%. A plant is considered “surviving” if at least half of the foliage (or stem if deciduous) is green and flexible.

Veldt grass removal will occur throughout the restoration program in a phased progression. To document the gradual decline of veldt grass cover in the HCP area, the Service-approved biologist will measure the percent cover of veldt grass in the HCP area each year. The success criterion for percent cover of exotic/invasive species will be based on the existing conditions (baseline) of the HCP area prior to planting and weeding efforts. Immediately prior to preparing a site for restoration, the Service-approved biologist will measure the percent cover of veldt grass in the HCP area. The observed percent cover of veldt grass will be used as the baseline for the following year. In each subsequent year, the Service-approved biologist will collect percent cover data utilizing the same method chosen for the baseline data collection. The Service-approved biologist will compare each year’s data with the prior year’s data to determine if the annual goal was achieved.

General Permit Compliance Assessments

Upon completion of Years 1 through 7, it is expected that the restoration effort will be complete and the plantings will be self-sustaining. At this time, the need for qualitative and quantitative evaluation of the restoration plantings will not be necessary. Beginning in Year 8 and continuing through Year 10, the Service-approved biologist will conduct one annual visit to document general compliance with the ITP. Topics of inspection will include presence and effectiveness of the permanent fence, sign of pet (equestrian, dog, etc.) damage, presence of landscape or agricultural plantings, vehicle parking, etc. in the HCP area. The Service-approved biologist will document any observations of unpermitted activities in the HCP area and recommend actions for correction.

Project Contingency

If it becomes apparent that the restoration efforts will not attain the final success criteria within the 7-year timeframe, the Service-approved biologist will assess the reasons for failure and will work with the Service to determine an acceptable solution. If the site trends indicate that the success criteria will eventually be met but in a longer timeframe than anticipated, maintenance and monitoring will continue until the criteria have been satisfied. If replanting is determined to be necessary, the replanted areas will be monitored and maintained until the Service-approved biologist determines the new plantings to be self-sustaining, or for a period agreeable to the Service. The Service must be notified of any proposed contingency plantings. If a total site failure is evident, the permittee and the Service will determine what alternative compensatory mitigation will be required. If site failure occurs, the permittees will work with the Service to determine an appropriate in lieu fee for the mitigation or identify an alternative mitigation site. No alternative locations for contingency compensatory mitigation are identified at this time.

HABITAT RESTORATION SCHEDULE

Table 1 provides an estimated schedule for the habitat restoration activities in the Kroll HCP area. The habitat restoration schedule is designed to facilitate the retention of MSS habitat/shelter on the site during the restoration process.

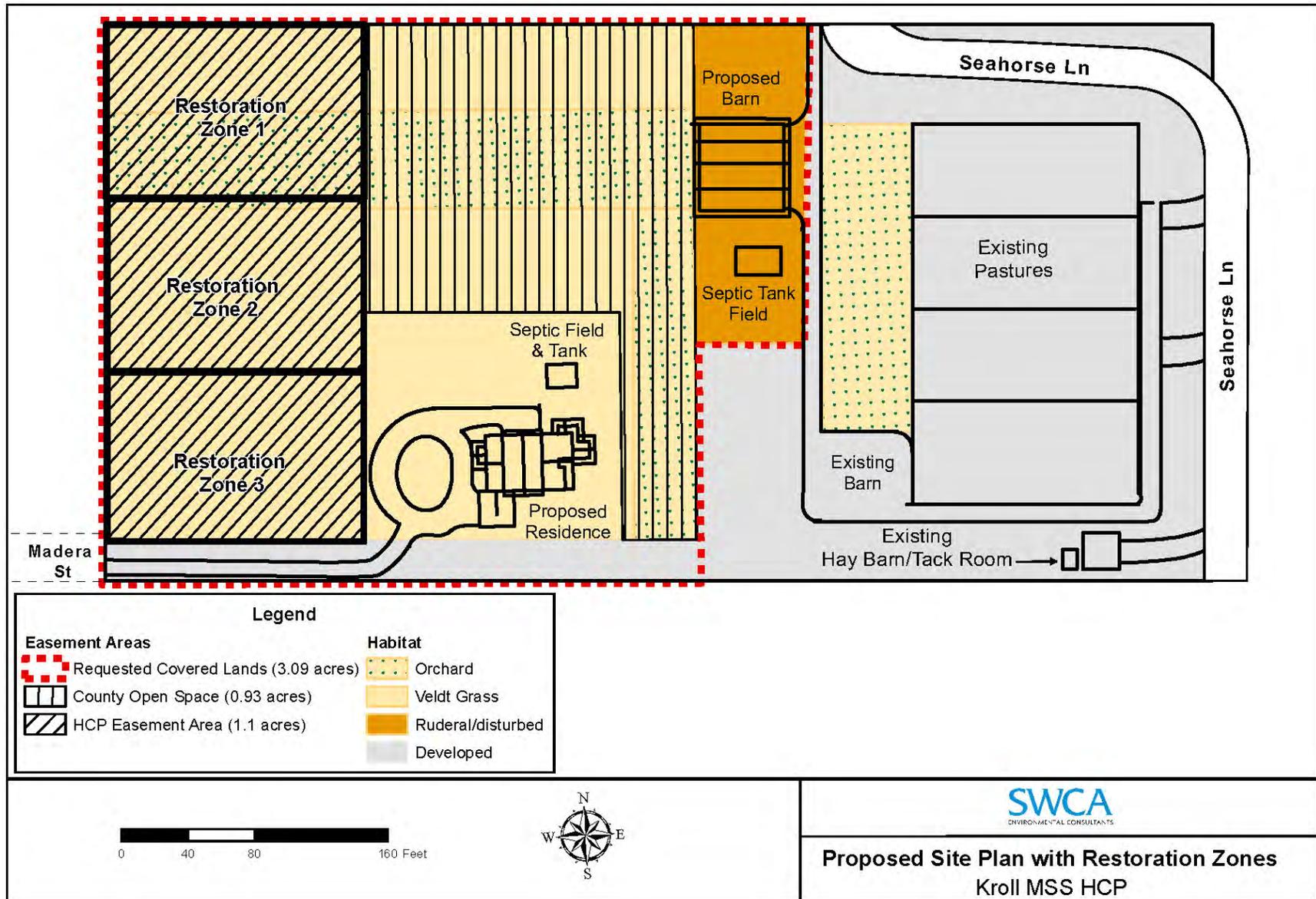
Table 1. Kroll MSS Habitat Restoration Schedule

| YEAR 1: | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
|---|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Approved biologist relocates MSS from Restoration Area 1 | | | | | | | | | | X | | |
| Permittees install permanent fencing along HCP area boundary | | | | | | | | | | | X | X |
| Permittees remove avocado trees and veldt grass from Restoration Area 1 | | | | | | | | | | X | | |
| Permittees install container plants in Restoration Area 1. | | | | | | | | | | | X | X |
| Approved biologist conducts qualitative monitoring (start date dependent on construction schedule) | | X | | | X | | | X | | | | |
| Approved biologist conducts quantitative monitoring (start date dependent on construction schedule) | | | | | | | | | | | | X |
| YEAR 2: | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
| Permittees conduct weed control in Restoration Area 1 | | X | X | | X | | | X | | | | |
| Approved biologist monitors vegetation and MSS in Restoration Area 1 | | | | | | | | | | X | | |
| Approved biologist relocates MSS from Restoration Area 2 | | | | | | | | | | X | | |
| Permittees remove veldt grass from Restoration Area 2 | | | | | | | | | | | X | X |
| Permittees install container plants in Restoration Area 2 | | | | | | | | | | | X | X |
| Approved biologist conducts qualitative monitoring | | | | X | | | | X | | | | |
| Approved biologist conducts quantitative monitoring | | | | | | | | | | | | X |
| YEAR 3: | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
| Permittees conduct weed control in Restoration Areas 1 and 2 | | X | X | | X | | | X | | | | |
| Approved biologist monitors vegetation and MSS in Restoration Areas 1 and 2 | | | | | | | | | | X | | |
| Approved biologist relocates MSS from Restoration Area 3 | | | | | | | | | | X | | |
| Permittees remove veldt grass from Restoration Area 3 | | | | | | | | | | | X | X |
| Permittees install container plants in Restoration Area 3. | | | | | | | | | | | X | X |
| Approved biologist conducts qualitative monitoring | | | | X | | | | X | | | | |
| Approved biologist conducts quantitative monitoring | | | | | | | | | | | | X |

Table 1. Kroll MSS Habitat Restoration Schedule

| YEAR 4: | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
|---|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Permittees conduct weed control in all Restoration Areas | | X | X | | X | | | X | | | | |
| Approved biologist conducts qualitative monitoring | | | | X | | | | X | | | | |
| Approved biologist conducts quantitative monitoring | | | | | | | | | | | | X |
| YEAR 5: | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
| Permittees conduct weed control in all restoration areas | | X | X | | X | | | X | | | | |
| Approved biologist conducts quantitative monitoring (as necessary) | | | | | | | | | | | | X |
| YEAR 6: | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
| Permittees conduct weed control in all restoration areas (as necessary) | | X | X | | X | | | X | | | | |
| Approved biologist conducts quantitative monitoring | | | | | | | | | | | | X |
| YEAR 7: | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
| Permittees conduct weed control in all restoration areas (as necessary) | | X | X | | X | | | X | | | | |
| Approved biologist conducts quantitative monitoring | | | | | | | | | | | | X |
| YEAR 8: | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
| Approved biologist monitors ITP Compliance | | | | | | | | | | | | X |
| YEAR 9: | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
| Approved biologist monitors ITP Compliance | | | | | | | | | | | | X |
| YEAR 10: | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
| Approved biologist monitors ITP Compliance | | | | | | | | | | | | X |

Figure 1. Restoration Plan



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