United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
Carlsbad Fish and Wildlife Office
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Carlsbad, California 92008

In Reply Refer To:
FWS-MCBCP-14B0141-14F0214

MAR 26 2014

Ms. Theresa Morley, PE
NAVFAC SW, Central IPT
1220 Pacific Highway
San Diego, California 92132

Subject: Class II Consultation for the Chappo Basin Production Well Project, Marine Corps Base Camp Pendleton, San Diego County, California

Dear Ms. Morley:

We received your email dated December 11, 2013, requesting our concurrence on the proposed construction activities for the Chappo Basin Production Well Project (Production Well Project) on Marine Corps Base Camp Pendleton (MCBCP) as a Class II activity as defined in the *Biological Opinion for Programmatic Activities and Conservation Plans in Riparian and Estuarine/Beach Ecosystems on Marine Corps Base, Camp Pendleton* (Riparian BO; 1-6-95-F-02).

Class II project consultations are expedited (i.e., 30-day completion period), project-level consultations that are tiered to the original programmatic Riparian BO. Class II consultations generally apply additional, project-specific conservation measures beyond those described in the Riparian BO. Where necessary, Class II consultations may authorize additional take of federally listed species beyond that specified in the original Riparian BO. Class II actions either fall within defined habitat impact limits or otherwise conflict with standard programmatic conservation measures required in the Riparian BO. Based on the impact acreage alone, the project could be classified as a Class III activity, which would not require independent consultation. However, contrary to the standard seasonal avoidance requirement specified within the Riparian BO, the project will be implemented during the breeding season for the federally endangered least Bell's vireo (*Vireo bellii pusillus*, vireo), southwestern willow flycatcher (*Empidonax traillii extimus*, flycatcher), and arroyo toad (*Anaxyrus californicus*, arroyo toad). Therefore, the U.S. Marine Corps (Marine Corps) has determined that the proposed action is a Class II project and has requested consultation in accordance with section 7 of the Endangered Species Act of 1973 (Act), as amended (16 U.S.C. 1531 *et seq.*).

This biological opinion is based on information provided in the *Final Record of Decision for 22/23 Area Groundwater, Marine Corps Base Camp Pendleton* (ROD), received on December 11, 2013, and correspondence, notes, and information compiled during the course of

our consultation with the Marine Corps on the Production Well Project. This information and other references cited in this biological opinion constitute the best available scientific information on the status and biology of the species considered. The complete file for this consultation is maintained at the Carlsbad Fish and Wildlife Office (CFWO).

During consultation, we determined that with the proposed avoidance and minimization measures, the project is not likely to adversely affect the flycatcher. The Marine Corps has incorporated the following species-specific avoidance measures [Conservation Measures (CM)] into the proposed Production Well Project in support of this determination:

CM-1 No direct impacts to occupied flycatcher breeding habitat will occur in association with the Production Well Project.

CM-2 The biological monitor described in CM-4 of the biological opinion will be an experienced flycatcher biologist (i.e., will be a trained ornithologist with at least 40 hours of independent flycatcher observation).

Effects on the Southwestern Willow Flycatcher

The Production Well Project is located within the Santa Margarita River and will result in no direct impacts to occupied flycatcher habitat. There are four flycatcher territories within 500 feet of the project site; two are located outside of the project footprint but within 250 feet of the project corridor. These four pairs represent 40 percent of the total breeding locations on MCBCP in 2013, and the MCBCP population of flycatchers represents the most significant population of flycatchers within the Coastal California Recovery Unit for flycatcher (Service 2002).

Noise and vibrations associated with the use of heavy equipment during construction have the potential to disrupt feeding, breeding, and sheltering behaviors of flycatchers within 500 feet of the project site. However, the flycatchers with territories immediately adjacent to Marine Corps Air Station (MCAS) Camp Pendleton are already exposed to relatively high levels of noise and vibration associated with the daily operation of the air station. Additionally, the flycatcher territories are located on the opposite side of the levee wall from where the proposed project will be located. We anticipate that the levee wall will act as a barrier to noise and vibration, and because flycatchers on the station are already exposed to high levels of noise, we do not anticipate construction noise and vibration to substantially disrupt essential flycatcher behaviors such as breeding, feeding, and sheltering. Therefore, we anticipate that these effects will be insignificant (i.e., unable to be meaningfully detected, measured, or evaluated).

CONSULTATION HISTORY

On December 11, 2013, we received your email requesting that project-related effects to the flycatcher, vireo, and arroyo toad be addressed as a Class II consultation as described in the Riparian BO. This email included the determination that the project is not likely to adversely

affect federally listed species. However, after additional coordination, the Marine Corps and our agency, the U.S. Fish and Wildlife Service (Service), collectively determined that the final project design would adversely affect vireo and arroyo toad. Between December 2013 and March 2014, we met and corresponded regularly to discuss project details and appropriate measures to avoid and minimize impacts to species. As a result of this coordination, a draft of the "Description of the Proposed Action" section of the biological opinion was provided to the Marine Corps for review and comment on March 10, 2014. Marine Corps comments were received on March 11, 2014, and have been addressed and incorporated into this final biological opinion as appropriate.

DESCRIPTION OF THE PROPOSED ACTION

The proposed Production Well Project is located within MCAS Camp Pendleton and MCBCP and involves drilling a new drinking water production well to replace a well contaminated with chlorinated solvents and construction and installation of associated distribution pipeline and utility (electrical and communication) lines to connect the new well to an existing production well (Well 23001) and pump station.

The new production well will be drilled within MCAS Camp Pendleton, adjacent to the perimeter road, about 500 feet northeast of the refueling pad. The well construction will include drilling and development of a 155 foot deep production well. The well installation area will also include the staging area for the project. Drilling is estimated to take about 10 consecutive 24-hour days, and the development portion will take about 7 consecutive 24-hour days. Nighttime lighting will be required during these 17 days. Pump testing will occur after drilling and development is completed. Pump testing will require extraction of up to 5 million gallons over about 5 days of well water being pumped, carried along a temporary conveyance pipeline, and discharged into the Santa Margarita River. This effluent pipeline will have multiple discharge points to avoid erosion within the riverbed. After drilling and development is completed, a concrete foundation will be laid, and an instrumentation building (pump house) will be installed containing the well pump, gauges, and electrical controls associated with controlling the well head and associated pipelines. A discharge outlet for routine pump house maintenance will also be constructed about 150 feet northeast of the pump house.

The distribution pipeline and utility lines will be installed underground from the new well point, along the perimeter road for about 3,552 feet and will then run southwest and parallel to Vandergrift Boulevard for an additional 1,600 feet where it will be tied into an existing pipeline. The pipeline and utility lines will be installed adjacent to the existing roadway and levee through trenching. Vegetation clearing within a corridor up to 30 feet wide will occur along the entire footprint to accommodate trenching and construction of the pipeline. Well drilling, development, and pipeline construction is estimated to occur over about a 130-day period.

The Marine Corps will incorporate the following conservation measures into the project to avoid and minimize adverse effects to vireo and arroyo toad:

General Measures:

CM-3 The project work areas will be limited to the sites specified in the project description. Access to the project site will use existing roads. Parking, driving, lay-down, stockpiling, and vehicle and equipment storage will be limited to previously compacted and developed areas and the designated staging area. No off-road vehicle use will be permitted beyond the project site and designated access routes. Disturbances to the adjacent native vegetation will be minimized.

CM-4 A biologist/s[1] (biological monitor/s) familiar with the listed species potentially affected by the project will be responsible for overseeing construction to ensure compliance with the conservation measures and for preventing unanticipated impacts to federally listed species. The biological monitor will be on site during vegetation removal, pre-project flagging, installation of exclusionary fencing, and other construction activities with the potential to impact federally listed species.

CM-5 At least 7 days before project initiation, the project boundary, including temporary features such as staging areas and pipeline corridor, will be clearly marked with flagging, fencing, or signposts. All project-related activities will occur within the project boundary.

CM-6 A Storm Water Pollution Prevention Plan will be prepared and will incorporate Best Management Practices (BMPs), such as silt fences, silt basins, and gravel bags, or other measures to control erosion and prevent the release of sediment and contaminants that could be harmful to federally listed species.

CM-7 To ensure fire does not commence due to project activities, construction trucks will carry water and shovels or fire extinguishers in the field. Shields, protective mats, or other fire prevention equipment will be used during grinding and welding, and vehicles will not be driven and parked in areas where catalytic converters could ignite dry vegetation. No smoking or disposal of cigarette butts will take place within vegetated areas.

CM-8 Night work is anticipated for this project. Any night lighting will be shielded and directed away from sensitive areas to the greatest extent possible to avoid disturbance to federally listed species.

CM-9 A contractor education program will be conducted by the biological monitor with oversight by Naval Facilities Engineering Command – Southwest Division

[1] The arroyo toad biologist will have at least 30 hours of documented experience with location and observation of arroyo toads, and a minimum of 20 hours of field experience involving capture or handling of arroyo toads. The vireo biologist must be a trained ornithologist with at least 40 hours of independent vireo observation. If appropriately qualified, a single person may act as the arroyo toad, vireo, and/or flycatcher biologist.

(NAVFAC) personnel. It will be conducted during all project phases and will cover the potential presence of federally listed species; the requirements and boundaries of the project; the importance of complying with avoidance, minimization, and compensation measures; and problem reporting and resolution methods.

CM-10 All trash will be disposed of properly. Following project completion, all equipment and waste will be removed from the site, and the soil will be re-contoured prior to habitat restoration.

CM-11 Nonnative plants, including noxious weeds (as listed by the California Invasive Plant Council), will be prevented from establishing in temporarily disturbed areas, either by hand-weeding or selective application of herbicide.

Measures for Arroyo Toads

CM-12 The biological monitor will visit the work site periodically throughout the duration of the project to ensure that all specified measures are being employed to avoid incidental disturbance of riparian habitat and arroyo toads. The biological monitor will be empowered to halt work activity to avoid impacts to arroyo toads, if necessary. The biological monitor will contact NAVFAC personnel immediately to discuss any unanticipated impacts to arroyo toads and recommend actions to avoid these impacts; as needed, NAVFAC personnel will discuss appropriate measures with the Service to avoid further impacts to arroyo toads at the site.

CM-13 Temporary silt fencing will be installed around the perimeter of all project areas to prevent foraging arroyo toads from accessing these areas.

CM-13.A The silt fencing will be installed at least 14 days prior to construction to allow enough time for arroyo toad surveys to be completed during optimal weather conditions.

CM-13.B Such fencing will consist of woven nylon netting approximately 3 feet in height attached to wooden stakes. This will prevent movement of arroyo toads into the project footprint.

CM-13.C Before installing the fencing, a narrow trench approximately 6 inches deep will be excavated and the fence buried to prevent burrowing beneath the fence. If trenching is not possible, the bottom lip of the fence will have sand bags laid against it to hold it in place and deter arroyo toads from burrowing under the fence.

CM-13.D All fencing materials (i.e., mesh, stakes) will be removed following construction.

CM-13.E The access point into work areas will consist of 36-inch high flexible barricades constructed from reinforced rubber belting that will be installed and integrated into the exclusionary fencing to allow ingress and egress into the laydown area. Installation will be accomplished by securing the flexible rubber barricade into a trench with concrete reinforcement for stability. The barricade will extend a minimum of 12 inches above grade, and crushed rock will be placed on both sides of the rubber belting to ensure arroyo toads do not burrow into the soils surrounding the barricade.

CM-14 After exclusionary fencing has been installed, but prior to initiation of construction activities, at least 3 nighttime surveys for arroyo toads will be conducted within the fenced area by the biological monitor. These surveys will be conducted during appropriate climatic conditions and during the appropriate hours (i.e., evenings, nights, and mornings) to maximize the likelihood of encountering arroyo toads. If climatic conditions are not highly suitable for arroyo toad activity (no natural rainfall), arroyo toad habitat in the project footprint may be watered to encourage aestivating arroyo toads to surface. All arroyo toads found within the project area will be captured and translocated by the biological monitor to the nearest suitable riparian habitat. Upon completion of these surveys and prior to initiation of construction activities, the biological monitor will report the capture and release locations of all arroyo toads found and relocated during these initial surveys to NAVFAC and the Service.

CM-15 After the initiation of construction, the biological monitor will be present each morning before construction activities begin and during removal of excavation unit covers and soil stockpile or equipment tarps. The biological monitor will check the integrity of the arroyo toad fence and locate and remove any arroyo toads that may have entered the area.

CM-16 To the greatest extent possible, access to project construction sites will occur via preexisting access routes. Project-related vehicle travel will be limited to daylight hours, as arroyo toad movement across roadways occurs primarily during nighttime hours.

CM-17 Ingress and egress of construction equipment and personnel will be kept to a minimum and will use a single access point to the site where possible.

CM-18 Dirt/sand piles left overnight will be covered with tarps or plastic with the edges sealed with sandbags, bricks, or boards to prevent arroyo toads from burrowing into the dirt. Holes or trenches will be covered with material such as plywood or solid metal plates with the edges sealed with sandbags, bricks, or boards to prevent arroyo toads from falling into holes or trenches. All holes and trenches within potential arroyo toad habitat will be inspected each morning by the biological monitor.

CM-19 The biological monitor will be present at the end of the day to ensure that the excavations are properly covered to prevent arroyo toads from entering any open pits and to check the integrity of the arroyo toad fence. The biological monitor will be on call and available as needed at other times in the event that an arroyo toad is encountered during the activities. The biological monitor will be present on site full-time for the 3 days following any measurable rainfall event (i.e., 0.05 inch or greater) or other appropriate climatic conditions (e.g., high relative humidity and moderate temperatures) that are likely to elicit above-ground arroyo toad movement.

CM-20 The project site will be kept as clean as possible to avoid attracting arroyo toad predators or insects (prey). All food-related trash will be placed in sealed bins or removed from the site regularly.

CM-21 Water truck spraying will be conducted in a manner that does not attract arroyo toads into the project activity areas. For example, over-spraying will be avoided and spraying near occupied habitat will occur only when arroyo toad exclusion fence has been installed.

CM-22 If arroyo toads are found within the project area during pre-project surveys or during project activities, they will be captured and translocated by the biological monitor to the closest area of suitable habitat. The date, time of capture, specific location of capture (using Geographic Positioning Systems), approximate size, age, and health of the individual will be recorded. Immediately following removal and translocation, the biological monitor will notify NAVFAC personnel. Within 2 weeks of the translocation, NAVFAC will provide the Service with the above information.

CM-23 The production well test effluent disposal line will be aligned to discharge waters over multiple points to avoid erosion within the Santa Margarita River. The biological monitor will conduct surveys downstream of the release points to ensure that these locations are not positioned in a manner that would result in the effluent flows impacting downstream arroyo toad breeding pools, egg masses, or larva.

CM-24 All temporary and permanent impacts to riparian (arroyo toad breeding habitat) habitat will be offset according to measures described in the Riparian BO (i.e., temporarily impacted riparian habitat will be restored, and permanent impacts to riparian habitat will be offset by removing nonnative invasive riparian species and restoring native riparian vegetation on MCBCP at a ratio of 2 acres restored for each acre impacted).

Measures for Vireo

CM-25 To the maximum extent possible, construction and other project-related activities (e.g., vegetation clearing) that occur within 500 feet of occupied vireo habitat will take place outside the vireo breeding season (March 15 to August 31).

CM-26 If avoiding the vireo breeding season at specific locations is not possible, then the following additional measures will be employed:

CM-26.A The biological monitor will conduct pre-construction surveys for vireo and their nests in and within 500 feet of the construction footprint.

CM-26.B If an active vireo nest (nest containing eggs, empty nest or partial nest with vireos actively exhibiting breeding behaviors) occurs within 500 feet of the proposed construction area, the biological monitor will report the nest to NAVFAC and the Service. The biological monitor will use the distance to the project limits and local topography to determine if construction activities are likely to directly damage a nest or significantly disturb nesting activities.

CM-26.C Where damage or disturbance of any vireo nest(s) is likely, the Marine Corps will implement further measures to avoid the likelihood of nest destruction or disturbance, including temporarily halting clearing activities until the nest fails or until at least 10 days after young fledge from the nest, with construction activities directed to other areas further than 250 feet from the active nest(s).

CM-26.D Where mutually agreed to by NAVFAC and the Service, straw bale walls or other types of barriers may be constructed along the project perimeter to block visibility and sound from the adjacent construction, thereby reducing potential disturbance to active vireo nests. Also, signage will be installed to deter people from entering any area with an active vireo nest.

CM-27 A biological monitor will monitor nest progress, construction activity, and protective fencing to minimize potential construction-related disturbance and will submit a weekly nest status report to NAVFAC. A post-construction report will be submitted to the Service summarizing the weekly nest status report and outcomes within 6 months of project completion.

CM-28 All temporary and permanent impacts to riparian habitat (vireo breeding habitat) will be offset according to measures described in the Riparian BO (i.e., temporarily impacted riparian habitat will be restored, and permanent impacts to riparian habitat

will be offset by removing nonnative invasive riparian species and restoring native riparian vegetation on MCBCP at a ratio of 2 acres restored for each acre impacted).

Action Area

According to 50 CFR § 402.02 pursuant to section 7 of the Act, the "action area" means all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action. Subsequent analyses of the environmental baseline, effects of the action, and levels of incidental take are based upon the action area. For this project, we have defined the action area to include the footprint of the Production Well Project and the surrounding habitat within about 500 feet, which may be exposed to project-related effects such as increased noise, light, and dust levels and human activity during project activities.

STATUS OF THE SPECIES

The status of the arroyo toad and vireo have been described in recovery plans and completed 5-year reviews for each of these species (Service 1998, 1999, 2006, 2009). Please refer to these documents for detailed information on the life history requirements of these species, threats to the species, and conservation needs of the species. For convenience, we have included a brief a summary of the status and distribution of these species rangewide and on MCBCP.

Arroyo Toad

An estimated 23 populations of arroyo toad are distributed from Monterey County south to Baja California, Mexico (Service 2009). These populations persist primarily in the headwaters of streams as small, isolated populations. MCBCP supports arroyo toad populations in the Santa Margarita, San Onofre, and San Mateo drainages. These populations are unique in that their breeding habitat extends to the coast, and they are robust populations that are geographically close to one another and connected by undeveloped open space (Service 1999). A review of the status of the arroyo toad (Service 2009) determined that management actions implemented since the original listing have led to an increase in the arroyo toad population; based on its improved status, the Service has recommended the arroyo toad be downlisted from endangered to threatened status.

Least Bell's Vireo

The vireo population in the United States has increased 10-fold since its listing in 1986, from 291 to 2,968 known territories (Service 2006). MCBCP supports one of the largest populations of breeding vireos within the species' range (Service 2006), with about 740 vireo territories detected on MCBCP and MCAS Camp Pendleton combined in 2013 (Lynn and Kus 2013a, Lynn and Kus 2013b).

In 1996, the Riparian BO estimated that about 8,200 acres of riparian habitat suitable for vireos existed on MCBCP. We do not have an updated estimate; however, due to ongoing habitat enhancement and creation activities associated with implementation of the Riparian BO, we believe that the amount and quality of riparian habitat on MCBCP likely exceeds the 8,200 acres existing in 1996.

ENVIRONMENTAL BASELINE

Regulations implementing the Act (50 CFR § 402.02) define the environmental baseline as the past and present impacts of all Federal, State, or private actions and other human activities in the action area. Also included in the environmental baseline are the anticipated impacts of all proposed Federal projects in the action area that have undergone section 7 consultation and the impacts of State and private actions which are contemporaneous with the consultation in progress.

The action area is within the 22 Area in the south central portion of MCBCP. Construction will occur on MCAS Camp Pendleton and outside of the air station on MCBCP within the Santa Margarita River. The action area contains wetland and riparian vegetation communities (mulefat scrub, riparian scrub, southern willow scrub, riparian woodland, and wetlands) open water, nonnative grasslands, disturbed areas, and developed areas. About a third of the pipeline corridor footprint within the air station is located within disturbed habitat where past or present physical disturbance is prevalent. These areas support disturbed nonnative grasslands adjacent to the paved roadway and are likely highly compacted soils only used by arroyo toads for foraging and dispersal; additionally, these disturbed areas do not provide breeding habitat for the vireo.

Arroyo Toad

For the purpose of this consultation, arroyo toad habitat is defined as riparian, grassland, coastal sage scrub, and woodland within 1,640 feet of the nearest arroyo toad breeding habitat. Arroyo toads have been documented as far as 0.7 mile from the nearest arroyo toad breeding habitat, but the majority of occurrences are within 1,640 feet (Holland and Sisk 2001). No project-specific surveys were conducted for the Production Well Project; however, arroyo toads occur within MCAS Camp Pendleton. For example, 1 arroyo toad was observed in 2013 during test well drilling associated with this project (J. Kidd, pers. comm. 2014).

The project is located within the Santa Margarita watershed, which contains known breeding habitat and upland habitats for foraging, burrowing, and dispersal. Arroyo toads potentially occur in all areas within the Production Well project footprint. We estimate that the Production Well Project will impact a total of 3.9 acres of arroyo toad-occupied habitat. The impact area includes 1.98 acres of riparian habitat and 1.92 acres of nonnative grasslands along existing roads. All of the impacts except 0.06 acre of riparian habitat around the well will be temporary.

Riparian habitat outside of the levee wall remains connected to the main floodplain and is likely to be occupied by arroyo toads at densities similar to those estimated for the Santa Margarita River floodplain in general. However, after the completion of the flood-control levee in 2001, riparian habitat within the perimeter of the levee was isolated from the main floodplain. Although these areas no longer support arroyo toad breeding pools due to impaired fluvial processes, riparian habitat within the air station can still support arroyo toad foraging and sheltering. The levee represents a significant barrier to normal arroyo toad movement, but some arroyo toads are likely to disperse over the levee and use the remaining riparian habitat on the air station for foraging, shelter, and aestivation. Therefore, we anticipate that habitat within the levees is occupied by arroyo toads, but at lower densities than habitat outside the levee. We have little information regarding the density of arroyo toads within the air station, but in our best professional judgment, the riparian habitat within the air station functions more like high quality upland habitat than intact breeding habitat. Therefore, we will use the density of arroyo toads in the upland environments near the Santa Margarita River provided by Holland and Sisk (2001) for estimating density of arroyo toads within the air station.

Between 1998 and 2000, Holland and Sisk (2001) used extensive pitfall trapping in an attempt to determine arroyo toad distribution in the upland and riparian environment on MCBCP, including trapping locations adjacent to Santa Margarita River. The density of arroyo toads in the upland environment near Santa Margarita River averaged 0.12 arroyo toads/acre per year. However, this trapping effort likely detected only a fraction of the arroyo toads present in the area sampled. The overall recapture rate of arroyo toads over the course of the study was about 17 percent, with the great majority of recaptures being toads captured earlier in the same year. Thus, if we assume that the study detected about 17 percent of the arroyo toads in the upland environment in a given year and that the density of toads in the action area is similar to the study site, the average density of arroyo toads within upland habitat is about 0.72 arroyo toads/acre.

About one-third of the 0.82 acre of pipeline corridor within the air station and the 1.1 acre section of the pipeline corridor located along Vandergrift Boulevard occur within the sloped road shoulder vegetated with nonnative grass. These more compacted soils are likely only used by toads for foraging and dispersal but still function as suitable upland habitat. Therefore, we calculated the density of arroyo toads based on impacts to the whole 30-foot wide corridor of riparian vegetation, staging area, and pump house (3.9 acres). Using this methodology, we estimate that on average, three arroyo toads are within the estimated impact area at any given point in time. However, because arroyo toads vary substantially in their distribution spatially and temporally, we conservatively estimate that there will be up to six individuals in the impact area when the project is implemented.

Least Bell's Vireo

For the purpose of this consultation, vireo-occupied habitat is defined as mulefat scrub, riparian scrub, southern willow scrub, and riparian woodlands that occur within 500 feet of any documented vireo location. Vireos with territories within and immediately adjacent to the

MCAS Camp Pendleton are exposed to relatively high levels of noise and vibration associated with the daily operation of the air station.

No project-specific vireo protocol surveys were conducted for the Production Well Project; vireo presence was determined using data from basewide vireo surveys, which have been conducted annually on MCBCP and MCAS Camp Pendleton since 1996 in accordance with the Riparian BO. For the purpose of this analysis, we used survey data from 2013 basewide surveys. We estimate that there are 1.98 acres of vireo-occupied habitat in the estimated impact area of the Production Well footprint. Project activities will include permanent impacts to 0.06 acre and temporary impacts to 1.92 acres of vireo-occupied habitat.

To estimate the number of vireo territories that overlap with the Production Well footprint, we used GIS to map each of the vireo territory locations documented in 2013. We estimated the area of each vireo territory to be about 1.9 acres, which is the average of the vireo territory size reported in the vireo recovery plan (Table 1 in Service 1998), and then counted the number of estimated territories that overlap with vireo habitat in the Production Well Project footprint.

The resulting map presents 25 vireo territories located within 500 feet of the project footprint. However, 15 of these territories are located outside of the levee wall and will not experience habitat loss as a result of the proposed project. Inside the levee, 10 vireo territories are located within 500 feet of the project footprint, 6 of which overlap with the area of impact.

EFFECTS OF THE ACTION

Effects of the action refer to the direct and indirect effects of an action on the species, together with the effects of other activities that are interrelated and interdependent with that action, which will be added to the environmental baseline. Interrelated actions are those that are part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration. Indirect effects are those that are caused by the proposed action, are later in time, and still reasonably certain to occur.

Arroyo Toad

Direct Effects

Habitat Loss and Construction-Related Death and Injury

Any arroyo toads in the project footprint at the beginning of project construction are likely to be killed or injured as a result of being crushed during earth-disturbing activities, such as trenching, grading, placement of project fencing, and use of heavy equipment. Based on the analysis provided in the “Environmental Baseline” section of this biological opinion, we estimate that about six arroyo toads are present within the area that will be impacted by the Production Well

Project (i.e., 3.9 acres). However, as described below, we anticipate that avoidance and minimization measures will reduce the number of arroyo toads that are killed or injured such that construction activities will not result in an appreciable reduction in the number, reproduction, or distribution of the arroyo toad in the action area or rangewide.

Access to the site will be via existing access routes, and project-related vehicle travel will be limited to daylight hours to minimize the potential for unanticipated impacts to arroyo toads and their habitat. Arroyo toads found in the project footprint by the biological monitor will be captured and released into the nearest suitable habitat along the Santa Margarita River. It is possible that all of the individuals in the project footprint (up to six based on our estimate) will be moved out of harm's way, but some individuals may escape detection and be killed or injured by construction activities.

During relocation efforts, arroyo toads may be killed, injured, or stressed if they become entangled or trapped within exclusionary fencing and during capture and relocation. However, these activities will be conducted by individuals familiar with arroyo toad biology and ecology. Therefore, based on our best professional judgment, we anticipate that very few, if any, arroyo toads (i.e., no more than one) will be killed or injured during capture and relocation efforts.

We assume that all arroyo toads remaining in the impact area will be killed or injured, but because so few arroyo toads are anticipated to remain inside the area of impact after the relocation efforts and those that do remain will be aestivating, we anticipate that few, if any (i.e., no more than one), will be observed killed or injured during project monitoring.

Test Water Release

Up to 5 million gallons of potable water will be released into the Santa Margarita River over the course of 5 days. Changes in water depth and flow rates could result in construction-related impact to breeding habitat, egg masses, and larvae of the arroyo toad. Increased flows could scour fine sands from breeding pools decreasing habitat quality, increase erosion and sedimentation, and could dislodge egg masses and larva from suitable shallow pool habitat. As described in the "Conservation Measures" section of this biological opinion, the biological monitor will survey downstream reaches of the Santa Margarita River and approve the effluent water release points prior to well water testing beginning. With the biological monitor surveying downstream ahead of time and confirming that effluent outfall locations are not positioned to occur directly upstream of breeding pools, we anticipate that test water release activities will avoid impacting arroyo toad egg masses and larvae.

Habitat Restoration

Potential effects to arroyo toad associated with restoration of riparian vegetation are addressed programmatically by the Riparian BO.

Indirect Effects

Erosion and Water Quality

Changes to water quality in adjacent arroyo toad breeding habitat could result in construction-related sedimentation and pollution. Changes in sedimentation dynamics can reduce the suitability of arroyo toad habitat. Siltation can asphyxiate eggs and larvae (Service 1999). Changes to the water quality (temperature and chemical composition) can lead to reduced oxygen uptake, reduced feeding, and a general decline in species health, which can lead to disease, decreased growth and reproduction, or death.

To minimize the potential for water quality impacts to the Santa Margarita River from the proposed project, measures will be implemented to prevent construction-related siltation and runoff from entering the Santa Margarita River. Temporary erosion control measures such as silt fencing, sand bags, and straw matting will be installed during all phases of construction activities. These BMPs will avoid and minimize soil erosion, sedimentation, run-off pollutants, and material and waste management, reducing potential for degradation of the adjacent breeding habitat. With the proposed measures in place, we anticipate that effects to erosion and water quality will be reduced to the point where they are insignificant.

Lighting and Noise

Increased ambient noise and lighting levels can increase predation risks and disrupt normal behaviors of arroyo toads in adjacent breeding, foraging, burrowing, and dispersal habitat (Longcore and Rich 2004). Construction activities within arroyo toad-occupied habitat will occur at night for up to 17 consecutive nights. Temporary night time lighting will be shielded and directed away from adjacent natural areas. Therefore, potential effects to arroyo toads resulting from light are likely to be insignificant.

Effect on Recovery

The primary goal described in the arroyo toad recovery plan (Service 1999) is the protection of existing populations; a secondary goal includes the restoration and management of habitat. The project will impact a small amount of habitat and number of arroyo toads. However, the project-related impacts will be minimized, and unavoidable impacts will be offset through habitat restoration. Most of the project-related impacts to arroyo toad habitat will be temporary. Because arroyo toads are not dependent on mature vegetation in either the riparian or upland environment, the affected habitat will immediately be available to these animals once the project is completed, and we expect temporarily impacted areas to be re-occupied shortly following project completion. Based on the small number of arroyo toads affected, the project is not anticipated to increase the risk of extirpation for any of the affected populations on MCBCP.

The Marine Corps will offset permanent impacts to arroyo toad habitat through restoration of breeding habitat, which will help sustain the robust populations of arroyo toads on MCBCP in support of recovery for this species. Therefore, with the implementation of the proposed conservation measures we conclude that the Production Well Project is consistent with the recovery strategy for arroyo toads described in the arroyo toad recovery plan (Service 1999).

Least Bell's Vireo

Direct Effects

Habitat Loss

About 0.06 acre of vireo-occupied habitat will be permanently removed, and about 1.92 acres of vireo-occupied habitat will be temporarily removed by the Production Well Project. Removal of riparian vegetation will occur outside of the vireo nesting season to the maximum extent feasible. If the breeding season cannot be avoided, then focused surveys will be conducted in vireo habitat prior to the clearing of riparian vegetation, and measures will be implemented to avoid impacts to nests and young or substantial disturbance of breeding vireo pairs. Therefore, we do not expect that vireo adults, eggs, or nestlings will be killed or injured during project-related activities, including habitat removal. To minimize impacts to vireo habitat, project activities including vegetation clearing, excavations, and siting of the staging area will be confined to the project footprint. The biological monitor will remain on site during all project-related activities in vireo habitat to monitor project activities and ensure proper implementation of avoidance, minimization, and compensation measures outlined in this biological opinion.

Although we do not expect vireos to be killed or injured or their nests to be destroyed during construction, vireo pairs usually return to the same breeding territory each year (Rourke and Kus 2007), and removal of a substantial portion of a vireo pair's territory will force the pair to expand their existing territory or establish a new territory. Vireos are distributed throughout much of the suitable habitat on MCBCP (Rourke and Kus 2007); therefore, it is likely that displaced vireos will be forced to compete with resident vireos when attempting to expand an existing territory or establish a new territory. If displaced birds cannot find suitable habitat to forage and shelter in, we anticipate they will be more vulnerable to predation and otherwise may die or be injured. Vireos that successfully establish territories in adjacent habitat are expected to experience reduced productivity (e.g., delayed initiation or prevention of nest building, fewer nesting attempts per season, and/or overall reduction in reproductive output) due to reduced availability of foraging and breeding habitat and increased territorial interactions.

As described in the "Environmental Baseline" section of this biological opinion, we estimate that there are a total of six vireo territories that overlap with the area of impact. To estimate how many vireo territories will be substantially impacted by the project, we calculated the amount of vireo habitat in each vireo territory that overlaps with the Production Well Project footprint (including both permanent and temporary impacts). We have little information regarding the

effect of different amounts of habitat removal on vireo survival and reproductive output, so we used our best professional judgment to estimate that the loss of more than 20 percent of vireo habitat within a territory will substantially increase the risk of mortality or interfere with vireo breeding activity, whereas loss of less than 20 percent of a territory may force a vireo pair to adjust its territory boundaries slightly or result in a limited increase in territorial interactions with neighboring pairs, but will not result in a substantial increase in mortality or reproductive output (i.e., effects would not rise to the level of "take").

Using this approach, we estimate that five of the vireo pairs may experience a small amount of habitat loss due to the Production Well Project, but less than the 20 percent loss estimated to cause a significant disruption of their breeding, feeding, or sheltering activities; we determined that one vireo territory will lose 20 percent of its habitat and will likely be displaced and experience increased mortality and/or loss of reproduction, resulting in a temporary reduction in vireo numbers and reproduction in the action area.

Impacts to one pair of vireo represents a small portion (less than 0.14 percent) of the estimated 740 vireo territories on MCBCP and MCAS Camp Pendleton as of 2013 (Lynn and Kus 2013a, Lynn and Kus 2013b). Similarly, the 1.98 acres of riparian vegetation that will be impacted represent a fraction of the available vireo habitat on MCBCP.

Most of the project-related impacts (1.92 of the 1.98 acres of impacts to vireo habitat) will be temporary, and temporarily impacted habitat will be restored in place following completion of the project. Permanent impacts to 0.06 acre of vireo habitat will be offset consistent with the Riparian BO (i.e., native riparian vegetation will be restored on MCBCP outside of the project footprint). Temporarily impacted riparian vegetation will be restored and be capable of supporting vireo in about 2 to 7 years, depending on the conditions of the habitat prior to initiating restoration. As a result, the project will have a minor temporary impact on vireo numbers and reproduction, but over time, there will be no net loss of habitat and no long-term impact on the number of vireo supported on MCBCP. Thus, we do not expect these impacts to result in an appreciable reduction in the numbers, reproduction, or distribution of the species in the action area or rangewide.

Habitat Restoration

Potential effects to vireo associated with restoration of riparian vegetation are addressed programmatically by the Riparian BO.

Indirect Effects

Noise, Vibration, and Lighting

Noise and vibrations associated with the use of heavy equipment during construction have the potential to disrupt vireo behaviors in adjacent habitat. While vireos often continue to occupy

areas subject to noise levels above 60 dBA, studies have documented significantly reduced reproductive success (Marine Corps 1995) and delayed reproduction (BonTerra Consulting 2000) due to noise impacts. Vireos with territories within and immediately adjacent to MCAS Camp Pendleton are already exposed to relatively high levels of noise and vibration associated with the daily operation of the air station, so individuals in the action area are likely to be more tolerant of construction-related noise than vireos in less actively used areas. Nonetheless, construction activities will avoid the breeding season to the maximum extent feasible. If the breeding season cannot be avoided, no construction activities will occur within the buffer established by the biological monitor for active vireo nests, and straw bale walls may be constructed along the project perimeter to further block visibility from the adjacent construction, thereby reducing potential disturbance to active vireo nests. With the exception of drilling activities at the new production well site, no night work and lighting is anticipated for this project.

Drilling at the new production well site will occur during the vireo breeding season for up to 17 days, 24 hours per day, and will require nighttime lighting. Nighttime drilling lighting will be shielded so that light dispersal into adjacent native habitats is reduced. In addition to the disturbance from noise and vibration, artificial light can lead to increased predation, disorientation, and disruption of inter-specific interactions (Longcore and Rich 2004). Because of this, there is the potential for nighttime well drilling to significantly disturb nesting activities of the vireo pairs adjacent to the project site. We estimate that there are two vireo territories within 500 feet of the project footprint at this location. However, one of these territories is located on the opposite side of the levee wall about 200 feet from where the nighttime well drilling will be located and will be shielded from noise, vibration, and light. The vireo territory most likely to be affected by noise from the nighttime well drilling is the one that, based on our previous analysis, will already be substantially impacted by habitat removal and will likely be displaced and experience increased mortality and/or loss of reproduction. With the proposed conservation measures, we do not anticipate that the other vireo territories in the action area will be significantly affected by noise, vibration, and lighting.

Effect on Recovery

The primary goal described in the draft vireo recovery plan (Service 1998) is the protection of existing populations; a secondary goal includes the restoration of habitat to expand existing populations. The project will result in impacts to vireos and their habitat, but all temporarily impacted habitat will be restored, and permanent impacts will be offset through restoration elsewhere on MCBCP. Moreover, as indicated above, vireo numbers have increased since their original listing, and the growth of the vireo population on MCBCP has been a significant part of this overall population growth. Based on its improved status, the Service has recommended the vireo be downlisted from endangered to threatened status.

Because the vireos populations are robust on MCBCP, the affected populations can sustain the impacts, and vireos will re-populate the restored habitat; therefore, we anticipate no long-term change in the number of vireos or amount of their habitat supported on MCBCP as a result of the

Production Well Project. The proposed habitat restoration associated with the Production Well Project, along with ongoing conservation conducted consistent with the Riparian BO, will help sustain populations of vireo on MCBCP and support recovery of this species. Therefore, with the implementation of the proposed conservation measures, we believe that the Production Well Project is consistent with the recovery strategy for vireo described in the draft recovery plan (Service 1998).

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act. We are unaware of any non-Federal actions in the area of the proposed project that may affect the species considered in this biological opinion.

CONCLUSION

After reviewing the current status of the arroyo toad and vireo, environmental baseline for the action area, effects of the proposed action, and the cumulative effects, it is our biological opinion that the proposed Production Well Project is not likely to jeopardize the continued existence of the arroyo toad and vireo. We reached these conclusions by considering the following:

All Species

- Adverse effects to all federally listed species will be reduced by implementation of the general and species-specific avoidance and minimization measures identified in the "Description of the Proposed Action" section of this biological opinion.

Arroyo Toad

- The permanent loss of 0.06 acre of arroyo toad-occupied riparian habitat represents only a small amount of this type of habitat relative to the thousands of acres of occupied arroyo toad habitat on MCBCP and rangewide.

- The Production Well Project will impact up to six arroyo toads, but it is anticipated that most of these arroyo toads will be moved out of the project footprint and are not expected to be killed or injured by construction activities. We anticipate no more than one arroyo toad will be observed killed or injured during project monitoring and no more than one arroyo toad will be killed or injured during capture and relocation efforts. Despite the effects to arroyo toads in the project footprint, a much larger number of arroyo toads will remain outside the project footprint and will be able to recolonize most of the project footprint soon after completion of construction activities. Thus, overall impacts are not expected to result in an

appreciable reduction in the numbers, reproduction, or distribution of the species in the action area or rangewide.

- Impacts to arroyo toad-occupied riparian habitat will be offset according to the Riparian BO (i.e., removal of nonnative invasive riparian vegetation and restoration of 3.8 acres of temporarily impacted habitat), which will help sustain the robust populations of arroyo toads on MCBCP in support of recovery for this species.

Least Bell's Vireo

- The Production Well Project will permanently impact 0.06 acre of vireo habitat out of the thousands of acres of vireo habitat on MCBCP and MCAS Camp Pendleton and tens of thousands of acres of habitat rangewide.

- The Production Well Project will substantially impact one vireo territory, which represents about 0.14 percent of the estimated 740 vireo territories on MCBCP and MCAS Camp Pendleton as of 2013 (Lynn and Kus 2013a, Lynn and Kus 2013b) and less than 0.04 percent of the estimated 2,968 territories rangewide (Service 2006). Thus, overall impacts are not expected to result in an appreciable reduction in the numbers, reproduction, or distribution of the species in the action area or rangewide.

- Permanent and temporary impacts to vireo habitat will be offset consistent with the Riparian BO (i.e., through restoration of riparian vegetation elsewhere on MCBCP), which will help sustain vireo populations on MCBCP in support of recovery for this species.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct. Harm is further defined by us to include significant habitat modification or degradation that actually kills or injures a listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by us as an action that creates the likelihood of injury to a listed species by annoying it 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. Under the terms of section 7(b)(4) and 7(o)(2) of the Act, such incidental take is not considered a prohibited taking under the Act, provided that such taking is in compliance with this incidental take statement.

The measures described below are non-discretionary and must be implemented by the Marine Corps and its contractors, as appropriate, in order for the exemption in section 7(o)(2) to apply. The Marine Corps has a continuing duty to regulate the activity that is covered by this incidental

take statement. If the Marine Corps (1) fails to adhere to the terms and conditions of the incidental take statement through enforceable terms and/or (2) fails to retain oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse.

AMOUNT OR EXTENT OF TAKE

Arroyo Toad

The exact distribution and population size of arroyo toads is difficult to determine due to the dynamic conditions associated with their habitat and biology. However, as described in the environmental baseline, we estimate that up to six arroyo toads occur within the riparian habitats of the Production Well Project. We anticipate that all six toads will be subject to some form of take from the capture and relocation efforts or death or injury from relocation and construction activities. Because we will not be able to effectively monitor the remaining number of aestivating arroyo toads that are killed or injured, we have established estimated levels of take based on the amount of arroyo toad habitat impacted, the number of arroyo toads relocated, and the number of arroyo toads observed killed or injured during relocation and construction activities. If the amount or extent of exempted incidental take is exceeded, it will trigger reinitiation of consultation.

Take of arroyo toad is exempted as follows:

IT-01 Harm to arroyo toads as a result of modification of up to 3.9 acres of occupied habitat within the Santa Margarita River watershed on MCBCP. The amount or extent of incidental take will be exceeded if more than 3.9 acres of arroyo toad habitat is impacted or if more than one arroyo toad is observed dead or injured within the construction footprint.

IT-02 Capture and release of up to six arroyo toads within the 3.9-acre impact area within the Santa Margarita River watershed on MCBCP. The amount or extent of incidental take will be exceeded if more than six arroyo toads are captured or observed within the boundaries of the exclusionary fencing.

IT-03 Accidental death or injury of one arroyo toad as a direct result of exclusionary fencing, capture, and release efforts. The amount or extent of incidental take will be exceeded if more than one arroyo toad is killed or injured as a direct result of these activities.

Least Bell's Vireo

The amount or extent of incidental take for vireo is based on the number of vireo pairs and the amount of occupied habitat impacted. If the amount or extent of incidental take is exceeded, it will trigger reinitiation of consultation.

Take of vireo is exempted as follows:

IT-01 Take in the form of harm of one vireo pairs due to the permanent removal of 0.06 acre of occupied vireo habitat and the temporary removal of 1.92 acres of occupied vireo habitat. The amount or extent of incidental take will be exceeded if more than 1.98 acres of riparian habitat is impacted or if more than 6 vireo territories are observed within the direct impact area of the proposed Production Well project during preconstruction surveys.

EFFECT OF TAKE

In the accompanying biological opinion, we determined that these levels of anticipated take are not likely to result in jeopardy to the arroyo toad and vireo.

REASONABLE AND PRUDENT MEASURES

The Marine Corps will implement conservation measures as part of the proposed action to minimize the incidental take of arroyo toad and vireo. Our evaluation of the proposed action is based on the assumption that the actions as set forth in the "Conservation Measures" section will be implemented. Any changes to the conservation measures proposed by the Marine Corps, or in the conditions under which project activities were evaluated, may constitute a modification of the proposed action. If this modification causes an effect to the arroyo toad or vireo that was not considered in the consultation, reinitiation of consultation pursuant to the implementing regulations of section 7(a)(2) of the Act (50 CFR § 402.16) may be warranted.

In addition to these conservation measures, the following reasonable and prudent measures are necessary to monitor and report the effects of the incidental take on arroyo toad and vireo:

1. The Marine Corps will monitor and report on compliance with the established amount or extent of incidental take for arroyo toad associated with the proposed action.

2. The Marine Corps will monitor and report on compliance with the established amount or extent of incidental take for vireo associated with the proposed action.

TERMS AND CONDITIONS

To be exempt from the prohibitions of section 9 of the Act, the Marine Corps must comply with the following terms and conditions which implement the reasonable and prudent measures, described above and outline reporting and monitoring requirements.

Arroyo Toad

TC-1.1 Prior to initiating ground disturbing activities, the Marine Corps will provide the results of the pre-construction arroyo toad surveys and capture/relocation efforts to the CFWO.

TC-1.2 Within 30 days of completing removal of riparian habitat, the Marine Corps will notify the CFWO that impacts to arroyo toad habitat (up to 3.9 acres) in the project footprint are complete. The purpose of this notification is to ensure that impacts to arroyo toad-occupied habitat from the Production Well project do not exceed the exempted amount or extent of take.

TC-1.3 Within 30 days of completing construction activities, the Marine Corps will notify the CFWO of any arroyo toads that were captured and translocated during construction activities. This notification will include the number of arroyo toads captured and translocated in association with the completed Production Well project. If the exempted amount or extent of take for capture and translocation of arroyo toads is reached (i.e., if a cumulative total of six arroyo toad is captured and translocated as a result of project activities), the Marine Corps will cease construction activities and notify the CFWO within 1 business day.

TC-1.4 If death or injury of any arroyo toads is observed in association with capture and translocation activities or construction activities, the Marine Corps will notify the CFWO within 1 business day and submit a written report describing the incident within 2 business days so that the activities resulting in take can be reviewed to determine if additional protective measures are required.

Least Bell's Vireo

TC-2.1 If avoiding the vireo breeding season at specific locations is not possible and the Marine Corps implements pre-construction surveys for vireo and their nests in and within 500 feet of the construction footprint, the results of these surveys will be submitted to the CFWO prior to initiation of vegetation clearing and project construction to demonstrate that the number and distribution of vireos has not changed from the baseline condition described in this biological opinion. The Marine Corps will conduct preconstruction surveys during the breeding season immediately prior to the initiation of vegetation clearing to demonstrate that the number and

distribution of vireos has not changed from the baseline condition described in this biological opinion, and submit the survey results to the CFWO prior to the initiation of vegetation clearing and project construction.

TC-2.2 The Marine Corps will notify the CFWO within 24 hours if the take exemption for vireo is exceeded.

TC-2.3 Within 30 days of completing removal of riparian habitat, the Marine Corps will notify the CFWO that impacts to vireo habitat (up to 1.98 acres) in the project footprint are complete. The purpose of this notification is to ensure that impacts to vireo-occupied habitat from the Production Well project do not exceed the exempted amount or extent of take.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. There are no conservation recommendations identified.

REINITIATION NOTICE

This concludes formal consultation on the Production Well project as outlined in materials submitted to us. As provided in 50 CFR §402.16 reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; and (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

With regard to (1) above, if preconstruction surveys demonstrate that the number and distribution of vireos within the direct impact area has changed from the baseline condition described in this biological opinion (i.e., increased above 6 territories), reinitiation of formal consultation will be warranted. The Service anticipates a short process to evaluate the impacts to additional vireo territories and to determine if these additional impacts remain consistent with those already evaluated in this biological opinion.

We appreciate your coordination on this project; in particular, we appreciate your efforts to avoid impacts to the southwestern willow flycatcher. If you have any questions regarding this consultation, please contact Katy Kughen at 760-431-9440, extension 201.

Sincerely,

for Scott A. Sobiech
Acting Field Supervisor

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PERSONAL COMMUNICATIONS

J. Kidd, Kidd BioInc, electronic mail to K. Mabb, NAVFAC; January, 21, 2014