United States Department of the Interior

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October 22, 2008
File Nos. 84320-2008-F-0113
and 84320-2008-I-0499

Memorandum

To: Regional Director, Region 8, Sacramento, California

From: Field Supervisor, Nevada Fish and Wildlife Office, Reno, Nevada

Subject: Final Biological Opinion on the Issuance of a Section 10(a)(1)(B) Incidental Take Permit to Coyote Springs Investment Development, LLC for a Multiple-Species Habitat Conservation Plan in Lincoln County, Nevada

This memorandum transmits the U.S. Fish and Wildlife Service's (Service) biological opinion (Attachment 1; Service File No. 84320-2008-F-0113) based on our review of the subject permit application and associated habitat conservation plan. The applicant, Coyote Springs Investment, LLC (CSI) is applying for an incidental take permit (Permit) for the Federally listed as threatened desert tortoise (*Gopherus agassizii*) (Mojave population), endangered Moapa dace (*Moapa coriacea*), and three unlisted species, Virgin River chub (*Gila seminuda*) (Muddy River population), banded Gila monster (*Heloderma suspectum cintum*), and western burrowing owl (*Athene cunicularia hypugaea*) that may become listed under the Endangered Species Act of 1973, as amended during the 40-year term of the Permit. In accordance with the "No Surprises" Policy (63 Federal Register 8859), the Service has also provided the attached Biological Opinion for the three unlisted species proposed to be covered that have been addressed in the CSI Multiple-Species Habitat Conservation Plan (MSHCP). The attached Biological Opinion does not rely on the regulatory definition of "destruction or adverse modification" of critical habitat at 50 CFR 402.02. Instead, the Service has relied upon the statutory provisions of the Act to complete the analysis in the attached Biological Opinion with respect to critical habitat.

The scope of the Permit is limited to activities that may directly or indirectly affect the listed and unlisted species proposed to be covered in the Permit (Covered Species) as a result of activities on the 21,454 acres of non-Federal lands in Lincoln County and 13,767 acres of lease lands in Clark and Lincoln counties. Covered Activities are otherwise lawful activities and occurring on non-Federal lands, including but not limited to residential and commercial development,

TAKE PRIDE IN AMERICA

recreation, utility infrastructure, water supply infrastructure and management, flood control structure development and maintenance, and resource management features.

In addition to the Service's issuance of a section 10(a)(1)(B) incidental take permit, this Biological Opinion includes and analyzes possible project effects to the desert tortoise and Moapa dace as a result of the U.S. Army Corps of Engineer's (Corps) proposed issuance of a Section 404 permit under the Clean Water Act of 1972, as amended, to fill waters of the U.S. (WOUS) within CSI's proposed development on 21,454 acres of non-Federal lands and 244 acres of Bureau of Land Management (BLM)-administered lands that would be disturbed by the construction of detention basins in Lincoln County. In addition, informal consultation is included in Attachment 2 (Service File No. 84320-2008-I-0499), and includes the effects: (1) to the Virgin River chub (Muddy River population) from the Service's proposed issuance of a section 10(1)(a)(B) incidental take permit; (2) to the Moapa dace from the Corps' proposed issuance of a Section 404 permit for the CSI development; and (3) to the desert tortoise and designated critical habitat from BLM's proposed reconfiguration of 7,548 acres of lands leased by CSI and 21,454 acres of CSI private lands in Lincoln County.

We have based this Biological Opinion and informal consultation on information included in the final CSI MSHCP (Entrix et al. 2008a), CSI Planned Development Project Environmental Impact Statement (EIS) (Entrix et al. 2008b), Addendum to the CSI MSHCP and EIS (Entrix et al. 2008c) CSI MSHCP Implementing Agreement, Biological Assessment (Corps 2008), and Section 404 permit application for the CSI development (Huffman-Broadway Group, Inc. 2007), and various other published agency and academic literature, correspondence between CSI and the Service, and correspondence among BLM, Corps, and the Service regarding this project. The complete administrative record for this consultation is on file at the Service's Nevada Fish and Wildlife Office in Las Vegas.

If we can be of any further assistance, please contact me at (775) 861-6300 or Janet Bair in the Nevada Fish and Wildlife Office in Las Vegas at (702) 515-5230.

Robert D. Williams

Attachments

cc:
Coyote Springs Investment, LLC, Sparks, Nevada, (Attn: Terry Reynolds)
Field Manager, Caliente Field Office, Ely District Office, Bureau of Land Management, Caliente, Nevada
Deputy State Director, Nevada State Office, Bureau of Land Management, Reno, Nevada
Chief, St. George Regulatory Field Office, U.S. Corps of Engineers, St. George, Utah
Supervisory Biologist – Habitat, Nevada Department of Wildlife, Las Vegas, Nevada
Senior Resident Agent, Division of Law Enforcement, Fish and Wildlife Service, Boise, Idaho

Attachment 1

BIOLOGICAL OPINION

A. CONSULTATION HISTORY

On March 31, 2001, the U.S. Fish and Wildlife Service (Service), Bureau of Land Management (BLM), and Coyote Springs Investment, LLC (CSI) signed a Memorandum of Agreement (MOA) to establish the CSI Multiple-Species Conservation Habitat Plan (MSHCP) under section 10(a)(1)(B) of the Endangered Species Act of 1973, as amended (Act). In signing the MOA, CSI agreed to develop a mutually agreeable MSHCP for the desert tortoise and other Covered Species for activities occurring on private lands in Lincoln County. The MOA provides general guidance on development and implementation of the MSHCP. It also states that the Service and BLM will provide guidance to CSI and their consultants on the preparation of consolidated documents consistent with the National Environmental Policy Act and section 10 of the Act.

In October 2001, the Technical Steering Committee (TSC) convened for its first meeting to discuss the proposed CSI development. The TSC included representatives from the Service, Nevada Department of Wildlife (NDOW), BLM, Lincoln County Board of Commissioners, Clark County Department of Comprehensive Planning, Southern Nevada Water Authority (SNWA), U.S. Geological Survey (USGS) Water and Biological Resources Disciplines, Moapa Town Advisory Board, Red Rock Audubon Society, and the Sierra Club. The TSC held meetings from 2001 to 2003, and provided input on resource concerns and species that should be covered under the MSHCP, as well as appropriate conservation measures for Covered Species.

On April 19, 2005, the Service met with CSI to discuss development of the MSHCP and accompanying Environmental Impact Statement (EIS) for the section 10(a)(1)(B) incidental take permit. During the meeting, a framework for the MSHCP was established and a timeframe proposed to complete compliance with the Act, which is documented in the Service's letter to CSI dated May 20, 2005.

On September 12, 2006, the Service published a Notice of Intent to conduct public scoping and prepare a draft EIS for the CSI MSHCP. On November 2, 2006, the public scoping period was extended an additional 30 days to December 4, 2006.

On November 30, 2006, representatives from the Service, U.S. Army Corps of Engineer (Corps), Environmental Protection Agency (EPA), CSI and their project consultants participated in a conference call to discuss project purpose and need, and alternatives. During this conference call, the Corps accepted the role as cooperating agency to the EIS.

On February 8, 2007, the Service and CSI met to discuss proposed conservation measures including management of lease lands and the role of the science committee in the MSHCP.

On April 6, 2007, the Service sent a letter to the Corps confirming the Corps as the lead agency for consultation under Section 106 of the National Historic Preservation Act, and the Service as the lead agency for the EIS for the proposed CSI development.

On April 9, 2007, the BLM sent a letter to the Corps in which the BLM agreed to delegate certain responsibilities under Section 106 of the National Historic Preservation Act to the Corps as the lead agency, and continue to serve as a cooperating agency for the EIS for which the Service is the lead agency.

On June 20, 2007, the Service and CSI met to review the status of the MSHCP and discuss the Service's comments on the administrative drafts of the MSHCP and EIS. In June and July 2007, the Service submitted additional comments on the administrative draft CSI MSHCP and EIS to CSI.

On June 21, 2007, the Corps, Service, CSI, and project consultants met to discuss the proposed delineation of the waters of the U.S. (WOUS) and the Section 404 permit application under the Clean Water Act of 1972, as amended, for the proposed CSI development project in Lincoln County. A site visit was conducted on select WOUS located on the project site.

On July 16, 2007, updated administrative drafts of the CSI MSHCP and EIS were sent to the Service, Corps, BLM, and EPA for review and comment. On August 6, 2007, and August 13, 2007, comments on the administrative drafts of the CSI MSHCP and EIS were submitted to the Service and CSI by EPA and BLM, respectively.

From August through October 2007, subsequent drafts of the CSI MSHCP and EIS were reviewed by the Service. The draft Implementing Agreement (IA) was also reviewed by the Service and BLM. The agencies submitted comments to CSI, which were incorporated into the IA. The Service worked with CSI to incorporate comments and finalize the documents. The Notice of Availability of the draft CSI MSHCP, draft IA, and draft EIS was published in the Federal Register (FR) on November 2, 2007. The Notice of Availability also announced a 60-day comment period on the draft documents.

On January 7, 2008, the Service met with the Corps to set up coordination on the section 7 consultation under the Act for the Corps' proposed issuance of the Section 404 permit for the CSI development in Lincoln County. During the meeting, the Corps confirmed that CSI would be submitting one application for the Section 404 permit. Therefore, the Section 404 application covered the proposed detention basins in the BLM corridor west of U.S. Highway 93 (US 93) and the CSI development on private lands in Lincoln County.

On January 10, 2008, the Service and EPA participated in a conference call to discuss EPA's comments on the draft CSI MSHCP and draft EIS. The discussion focused on EPA's comments on the WOUS, groundwater, air, and biological resources.

On January 16, 2008, the Service and CSI and their project consultants met to review and discuss public comments received during the public comment period on the drafts of the CSI MSHCP,

EIS, and IA. From January through May 2008, the Service worked with CSI to address public comments and clarify, update, or edit the documents as appropriate.

On February 15, 2008, BLM, the Service, and CSI discussed BLM's public comments on the draft CSI MSHCP and draft EIS. During the conference call, BLM's Ely Field Office (now known as the Ely District Office) was confirmed to be the lead BLM office for this project and agreed to consolidate BLM's comments into one letter. BLM also agreed to include the proposed basins, located on a BLM right-of-way (ROW), west of US 93 in the section 7 consultation for the subject project.

On February 26, 2008, the Corps requested formal consultation on potential effects to the desert tortoise and the Moapa dace as a result of the proposed issuance of a Section 404 permit under the Clean Water Act to CSI (Corps file # SPK-2007-327-SG). We received the Corps' initiation letter and associated Biological Assessment on February 29, 2008.

On March 12, 2008, the Service met with the Corps, EPA, project applicant, and CSI's consultants to discuss issues related to the Section 404 permit application and EPA's concerns based on their letter to the Corps, dated February 28, 2008. The purpose of the meeting was to clarify potential project effects to WOUS and discuss proposed measures to avoid, minimize, and mitigate impacts to WOUS. At this meeting, CSI agreed to consider EPA's recommendations for minimizing impacts to WOUS.

On May 1, 2008, the Corps, EPA, and the Service met to further discuss EPA's concerns related to the Section 404 permit application for the proposed CSI development and the measures to avoid, minimize and mitigate impacts to WOUS. During the meeting, the Corps agreed to accept jurisdiction over the WOUS in the project area and to work to finalize the jurisdictional determination.

On June 6, 2008, the Service received a copy of the final EIS from CSI's project consultants. The EIS included an updated project description with revised estimates of impacts to WOUS, as well as updates and clarifications to conservation measures for impacts to WOUS.

On June 10, 2008, the Service, the Corps, CSI and their consultants met at the CSI project site to review the proposed avoidance, minimization, and additional mitigation measures, in response to EPA's concerns, for impacts to WOUS. A site visit to select WOUS occurred following the meeting.

On June 19, 2008, the Service and BLM participated in a conference call to discuss additional language BLM proposed for the IA. Both agencies agreed to have their solicitors work together to review and approve of the new language.

As a follow up to the June 10, 2008, meeting, the Service, Corps, EPA, and CSI and their consultants met to further discuss delineation of WOUS and proposed buffer widths of WOUS on July 2, 2008. It was decided that buffer widths for the Pahranagat Wash would be increased to 200 feet on each side. In addition, buffer widths would increase for the Kane Springs Wash

and unnamed washes located in the southeast section of the CSI private lands in Lincoln County. Additional measures designed to minimize and provide long-term protection of WOUS were discussed and agreed to by the participants of this meeting are documented in the July 28, 2008, letter from Huffman-Broadway Group, Inc, on behalf of CSI, to EPA.

On July 11, 2008, EPA met with CSI to develop additional measures to avoid and protect WOUS on the project site. At this meeting, and through a series of follow-up discussions, EPA and CSI agreed to the location of preserved and restored WOUS and upland buffers which would be incorporated in the Corps Section 404 permit conditions for the proposed CSI development in Lincoln County. This meeting and EPA clarifications on the agreed upon additional measures are documented in a July 31, 2008, letter from EPA to CSI's consultant and the Addendum to the EIS and HCP (Entrix et al. 2008c).

On August 21, 2008, the Service, CSI, and SNWA met to discuss pending and future water right applications for the proposed CSI development in Lincoln County. It was agreed that CSI's pending water right applications would be covered as part of ongoing section 7 consultations for the SNWA Clark, Lincoln, and White Pine counties Groundwater Development (GWD) Project and the Lincoln County Water District (LCWD) Kane Springs Valley GWD Project. In addition, future CSI water right applications would likely involve additional Federal action associated with rights-of-way across Federal lands that would be required to develop and/or convey these future water supplies. Therefore, future CSI water rights, as approved by the State Engineer, would likely be subject to future consultations under section 7 of the Act.

On September 12, 2008, the Notice of Availability of the final CSI MSHCP, EIS, IA, and an addendum to the CSI MSHCP and EIS was published in the FR. The Notice of Availability also announced a 30-day comment period on the documents.

B. U.S. Fish and Wildlife Service Proposed Action

The Service proposes to issue a section 10(a)(1)(B) incidental take permit (Permit) to CSI, under the authority of section 10(a)(1)(B) and section 10(a)(2) of the Act for a term or period of 40 years. CSI is requesting coverage under the Permit for five species, including two federally listed species, the threatened desert tortoise (*Gopherus agassizii*) and endangered Moapa dace (*Moapa coriacea*); and three unlisted species, the Virgin River chub (*Gila seminuda*) (Muddy River population), banded Gila monster (*Heloderma suspectum cintum*), and western burrowing owl (*Athene cunicularia hypugaea*) (proposed Covered Species). The Permit would authorize the incidental take of Covered Species on 21,454 acres of non-Federal lands in southern Lincoln County. CSI plans to develop a new town on their private lands which would include residential, commercial, and industrial land uses. As part of the proposed conservation measures (see below), lease lands in Clark and Lincoln counties would be available for resource management activities.

CSI private lands are located approximately 56 miles northeast of Las Vegas and extend 9 miles north from the Lincoln County-Clark County line. The CSI private and lease lands in Lincoln County are located in portions of Township 11 South, Range 63 East and Township 12 South, Range 63 East (Mount Diablo Meridian (MDM)) (Figure 1). The lease lands in Clark County are located in Township 13 South, Range 63 East and in Township 13 South, Range 64 East (MDM). The land ownership surrounding the project area is primarily Federal lands managed by BLM and the Service.

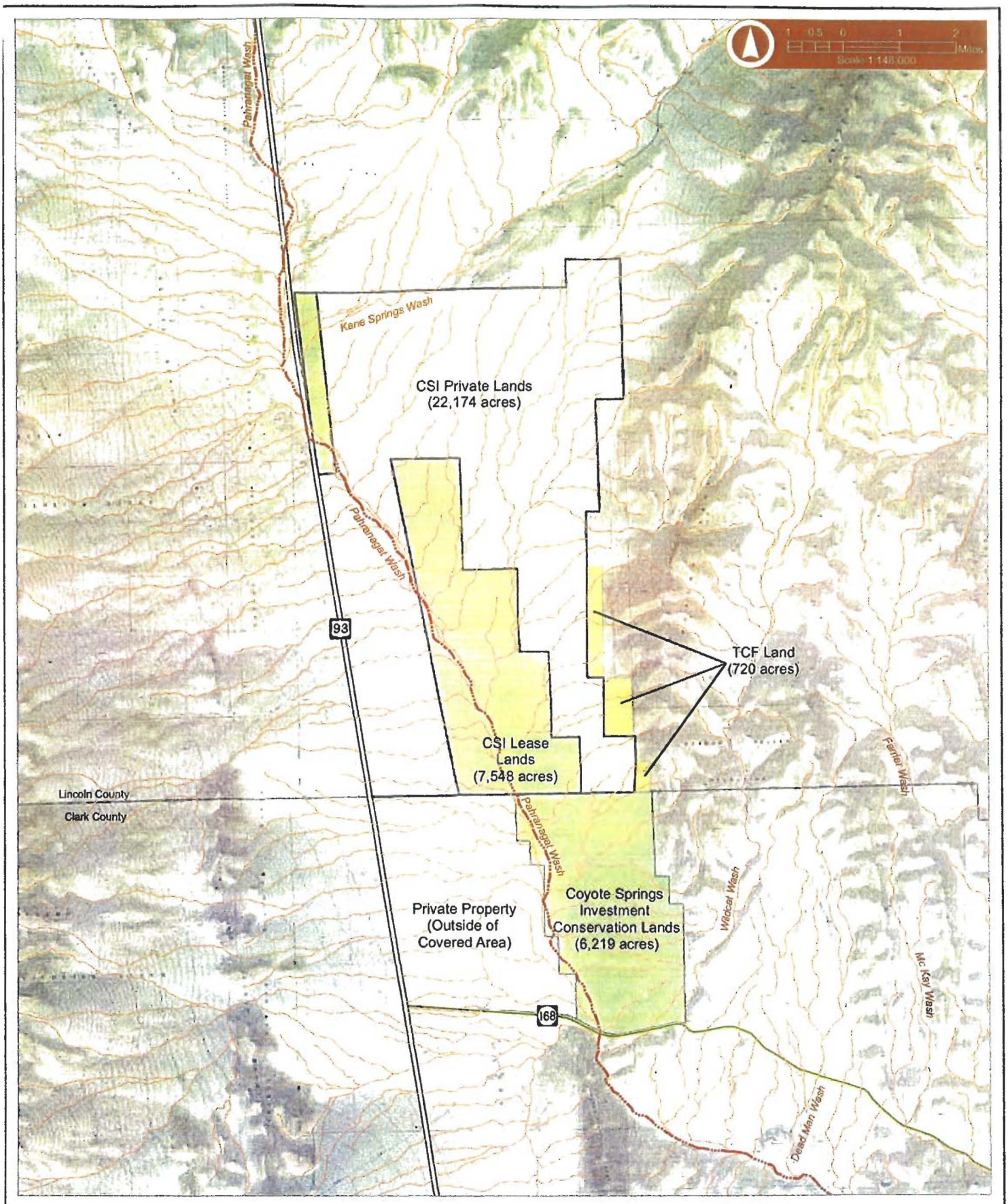
1. Covered Activities in the CSI MSHCP

CSI plans to develop a new town on 21,454 acres of private lands in Lincoln County and manage 13,767 acres of lease lands in Clark and Lincoln counties as the Coyote Springs Investment Conservation Lands (CSICL). Covered Activities would include: residential, commercial and industrial development, recreational facilities, utility infrastructure, water supply infrastructure and management, flood control structure development and maintenance, and resource management features. The following Covered Activities are included in the CSI MSHCP (Entrix et al. 2008a).

a. Community Development

Construction of residential homes and villages, mixed-use urban villages, public buildings, hotel and resorts, and recreational, commercial and light industrial areas would occur on up to 21,454 acres of CSI private lands, also referred to as the "Development Area" in this Biological Opinion. CSI estimates that no more than 20,188 acres within the Development Area would be disturbed because some existing WOUS and upland buffer habitat would be protected. Community development activities also include landscaping activities on CSI private lands. Development would be phased over a number of years, which would include a limit of 2,000 acres of disturbance per year for the first eight years. The phasing of the development would also be dependent on the availability of water to sustain it. Full build-out of the community would take 40 years. Residential areas would eventually cover approximately 65 to 80 percent of total development and may eventually include 111,000 residential dwelling units, based on the density allowed under the Coyote Springs Development Agreement (County and CSI 2005).

Associated with the residential development would be the construction and maintenance of roadways for the town, including, but not limited to: rights-of-way, drainage facilities, roadway construction, utility installations and modifications, noise attenuation devices, bridging structures, lighting, traffic control equipment and signage, aesthetic improvements, landscaping, and other such features customarily provided in a planned community or town. Up to four bridges could be constructed to span the Pahranagat Wash. CSI also may improve and maintain existing roads (US 93 and/or State Route 168 (SR 168)).



CSI Planned Development Project

Figure 1
Coyote Springs Investment Private and Leased Lands
Exsting Land Configuration

Up to 200 acres would be set aside for a combination of nursery, sod, and tree farms. A nursery providing native plants and sod farms would be developed and used to supply CSI facilities such as golf courses. Chemicals would be used in accordance with the CSI Chemical Management Plan as required under the Nevada State 401 Certification. Drip irrigation would be used for the facilities.

b. Recreation Facilities and Open Space

Recreational facilities would be constructed and maintained to serve future residents and visitors on CSI private lands. Recreational facilities may include golf courses, parks, sports fields, and trails. Existing trails within the CSICL would be used for maintenance, hiking, horseback riding, walking, and non-motorized biking. Educational kiosks would be constructed along trail heads and routes. It is anticipated that not more than 20 acres of habitat disturbance from construction of kiosks and trails would occur in the CSICL.

c. Utility Infrastructure

Utilities and other infrastructure would be developed to serve the CSI development. Two or three electrical power substations and underground electric power distribution system would be constructed to deliver electricity within the community. Two wastewater treatment plants and a sanitary sewer collection system would be installed within the Development Area to convey and treat sewage. Alternate sources of energy such as solar, natural gas, or propane may be used.

No landfills would be constructed within the Development Area. Construction debris would be delivered to the nearby private Class III landfill for disposal. For long-term trash disposal, trash transfer stations could be constructed to segregate and consolidate solid waste for shipment off-site to solid waste disposal facilities within Lincoln County. Reclaimed waste water would be distributed throughout the Development Area and used for landscape and golf irrigation, construction water, and potentially groundwater recharge.

d. Water Supply Infrastructure and Management

Production well sites would be located within the Development Area to develop permitted water rights within the Coyote Spring Basin. The total number of production wells that may be constructed is unknown at this time. Additional monitoring wells would be constructed, operated, and maintained throughout the Development Area if required by the State Engineer.

On-site reservoirs would be constructed to store untreated water, to distribute treated water to the community, and to provide water for fire protection at certain elevations. These reservoirs would average three to four million gallons and could be aboveground or underground tanks. Initially, one raw water treatment plant would be constructed in the Development Area. A water delivery system, consisting of wells, pumps, motors, storage facilities, pipelines, telemetry, power line and all related appurtenances would be constructed within the Development Area.

e. Flood Control Structures Development and Maintenance

CSI would develop integrated sub-regional stormwater control facilities to address both off-site alluvial fan stormwater that crosses the Development Area and on-site stormwater generated from within the Development Area. Flood storage and conveyance facilities would be constructed within the Development Area. In addition, CSI intends to construct flood storage and conveyance facilities on up to 244 acres in the BLM utility corridor west of US 93 in Lincoln County.

f. Resource Management Features

Resource management features would include realignment by BLM of CSI's private and lease lands from its existing land ownership in Lincoln County and designation of a conservation area. Informal consultation for this activity is included in Attachment 2.

2. Groundwater Withdrawals

The proposed development would need to acquire up to 70,000 acre-feet per year (afy) of water (Entrix et al. 2008b). As previously described, development would be phased subject to the availability of water supplies. The Service does not consider groundwater withdrawals for the CSI development in Lincoln County as a Covered Activity under the MSHCP. Groundwater withdrawals for the CSI development will be evaluated in separate biological opinions for several GWD projects (including infrastructure) under section 7 of the Act because these projects include development and transport of not only groundwater for the CSI development, but also groundwater for other developments and entities. Any groundwater withdrawals used for the CSI development that would not involve a Federal agency, would require CSI to seek coverage for the activity under section 10(a)(1)(B) of the Act. The following outlines the various permitted groundwater rights to be utilized or potentially acquired for the CSI development and the associated section 7 consultation under which the withdrawals will or would likely be evaluated:

a. Kane Springs Valley Hydrographic Basin

In this basin, permitted water rights are limited to the LCWD/Vidler Water Company applications recently approved by the Nevada State Engineer for 1,000 afy (BLM 2008a) (Ruling #5712 on February 2, 2007). Initial water supply for the CSI development will be provided by these groundwater rights. Development of the 1,000 afy in Kane Springs Valley is being addressed under a separate biological opinion (Service File No. 84320-2008-F-0007). The LCWD has applied for a BLM ROW to construct and operate a system of water facilities on BLM-managed lands and private lands in southern Lincoln County. The system of water facilities consists of several components including, groundwater production wells, monitoring wells, water pipelines, storage tanks, power transmission lines and substations, and access roads. The majority of the proposed facilities would be located along or near the Kane Springs Road, within the 2,640-foot wide Lincoln County Conservation, Recreation, and Development Act utility corridor on public lands managed by the BLM, or on private lands owned by CSI. The project area extends approximately 16.6 miles along Kane Springs Road from the intersection with US 93. The LCWD has an additional four groundwater applications pending before the

Nevada State Engineer; therefore, construction of the system of water facilities would occur in three phases, with one to three years between phases. Phases would correspond to demand for water and issuance of permits for additional water rights.

b. Cave, Dry Lake, and Delamar Valleys Hydrographic Basin

A secondary water supply of 3,000 afy for the CSI development in Lincoln County is anticipated to be provided from Cave, Dry Lake, and Delamar valleys, in accordance with a 2003 cooperative agreement between SNWA and Lincoln County. These water rights have been permitted by the Nevada State Engineer (Ruling #5875 on July 9, 2008). The environmental impacts and section 7 consultation of both the groundwater development and conveyance facilities for the 3,000 afy associated with the CSI development in Lincoln County is being addressed as part of the SNWA Clark, Lincoln, and White Pine counties GWD Project. For this project, SNWA has applied for a BLM ROW to construct approximately 328 miles of buried pipeline, five pumping stations, and other associated infrastructure to develop approximately 167,000 afy of groundwater for water rights and applications in Spring, Snake, Hamlin, Cave, Dry Lake, Delamar, and Coyote Spring valleys. BLM is currently developing the EIS for the issuance of a ROW for the development and conveyance of this groundwater. Project facilities would be located in Spring, Snake, Steptoe, Lake, Cave, Dry Lake, Delamar, Pahranagat, Coyote Spring, Hidden, Garnet, and Las Vegas valleys. Based upon the currently-described project, the water transmission pipeline will be located immediately west of US 93 and the proposed CSI development in Coyote Spring Valley in Lincoln County. Conveyance of any additional water rights for CSI development in Lincoln County through the SNWA Clark, Lincoln, and White Pine counties GWD Project or other infrastructure beyond the 3,000 afy from the Cave, Dry Lake and Delamar valleys, would require additional environmental analysis and section 7 consultation.

c. Lake Valley Hydrographic Basin

Up to 12,000 afy of existing irrigation water rights in Lake Valley may potentially be transferred for use at the CSI development, pending a ruling by the Nevada State Engineer on changes in place and manner of use. SNWA may provide capacity for conveyance of Lincoln County water in the SNWA Clark, Lincoln, and White Pine counties GWD Project, which may include conveyance of these Lake Valley irrigation water rights if permitted by the Nevada State Engineer. There are more than 12,000 afy of existing irrigation water rights in Lake Valley, but it is anticipated that the Nevada State Engineer would only permit the transfer of the portion of the existing Lake Valley irrigation rights that are consumptively used. The hydrologic analysis conducted under NEPA and section 7 consultation for the SNWA Clark, Lincoln, and White Pine counties GWD Project would consider continued use of the existing irrigation water rights in Lake Valley as part of the baseline conditions; thus, potential hydrologic impacts from withdrawal of the consumptive use quantity of existing Lake Valley water rights would be included in the baseline analysis for the SNWA Clark, Lincoln, and White Pine counties GWD Project. Development and transfer by CSI and /or Lincoln County of existing permitted Lake Valley water rights for use in Coyote Spring Valley will not be analyzed in the environmental

analysis and section 7 consultation for the SNWA Clark, Lincoln, and White Pine counties GWD Project.

If the Nevada State Engineer approves this requested transfer, additional Federal rights-of-way, environmental analysis and section 7 consultation would be required to address potential impacts from developing the infrastructure to convey this Lake Valley water from wells on private lands across Federal lands to the SNWA Clark, Lincoln, and White Pine counties GWD Project facilities. In addition, if the Nevada State Engineer approves the requested transfer for more than the consumptive use amount, potential hydrologic impacts would be addressed in any additional environmental analysis and section 7 consultation.

d. Other Sources

The remaining nearly 54,000 afy required for full build-out of the CSI development may come from a variety of sources, including potential transfer of certificated rights or new appropriations in other hydrographic basins in the area. Such transfers or new appropriations have not yet been requested of the Nevada State Engineer, and the specific quantity and source basins cannot be reasonably forecast at this time. Potential hydrologic impacts of transferred and new water rights, and potential terrestrial impacts from associated conveyance infrastructure would be subject to future environmental analysis and section 7 consultation, added to the aforementioned GWD projects or through separate GWD projects. Any groundwater withdrawals used for the CSI development that would not involve a Federal agency, would require CSI to seek coverage for the activity under section 10(a)(1)(B) of the Act for any additional groundwater development in the Coyote Springs Hydrographic Basin. CSI will implement conservation measures and will seek to encourage the use of new technology and management practices that promote water conservation in an effort to reduce the projected water demand for buildout

3. Conservation Measures

The CSI MSHCP includes a number of conservation measures to minimize and mitigate the effects of Covered Activities to Covered Species. Conservation measures could occur on lands within the Development Area, CSICL, or on Federal lands. Conservation measures can be categorized into three groups: avoidance, minimization, and mitigation. Avoidance measures avoid the potential effect. Minimization measures reduce the potential effect to lesser levels over time. Mitigation measures compensate for the potential effect after avoidance and minimization measures have been considered. The following information is summarized from Chapter 6 in the CSI MSHCP and Section 3 in EIS (Entrix et al. 2008a, Entrix et al. 2008b).

a. Desert Tortoise, Banded Gila Monster, and Western Burrowing Owl

1) Avoidance and Minimization Measures.

a) **Surveys:** All land subject to development would be surveyed and cleared of desert tortoise prior to ground-disturbing activities. Desert tortoises removed

during clearance surveys would be translocated or used in conjunction with science-based research projects such as the head-starting program. Only Service-authorized biologists or individuals trained in appropriate methods of handling desert tortoises would survey for and handle desert tortoises during pre-construction tortoise clearance surveys. The MSHCP Administrator (see Chapter 8: Plan Implementation in the CSI MSHCP) in consultation with the Service would choose the surveyors used for this effort. Prior to translocation, an assessment of desert tortoise habitat, densities, carrying capacity, and mortality would be conducted in suitable areas proposed as a translocation site.

The tortoises cleared from the project area would be kept in desert tortoise holding facilities, including the Desert Tortoise Conservation Center (DTCC) in Clark County, and the Coyote Springs Conservation Center (CSCC), to be located on CSI private lands. CSI would provide funds for the construction and maintenance of the facility. Funds for the construction of the CSCC would be supplied from the CSI MSHCP.

During pre-construction surveys, banded Gila monsters located opportunistically would be translocated to suitable areas in consultation with NDOW (NDOW 2007). Data from surveys (e.g., health of individuals, location of individuals, burrows collapsed, individuals moved) would be collected and recorded.

All land subject to development would be surveyed for western burrowing owl and their burrows prior to ground disturbance activities. Data from surveys (e.g., health of individuals, location of individuals, burrows collapsed) would be collected and recorded. Measures contained in the Service's Nevada Fish and Wildlife Office guidance (Service 2007) would be implemented during project construction. In addition, all potential owl burrows seemingly unoccupied by scope inspection would be carefully collapsed to locate any possible owls. Where construction of the area is imminent and fiber-scopes are ineffective, a complete removal by digging back to the end of the burrow and associated intricate system of burrows may be necessary. In the event of a displacement, appropriate depositories of owls discovered should be determined beforehand.

b) **Permanent desert tortoise exclusion fencing:** The north and east boundaries of the Development Area would be permanently fenced. The type of fencing would vary from stone to metal to stucco to wood materials to be architecturally compatible with the adjacent development. Permanent desert tortoise exclusion fencing or other tortoise-proof barriers (as approved by the Service and CSI) would be inspected at least quarterly (more frequently during the desert tortoise active season) and after major precipitation events. This inspection would involve checking to see that there is proper tension in the wire or fencing parts; the wire, wood, stucco or metal grill work is not broken to create gates for human passageways; and appropriate post alignment and stability is maintained. All

fence damage would be repaired in a timely manner and according to guidelines in the *Recommended Specifications for Desert Tortoise Exclusion Fencing* (2005) to prevent tortoises from moving through damaged sections.

c) **Best Management Practices:** Best management practices (BMPs) for construction, operations and maintenance activities are proposed for ground disturbance activities, sediment and erosion control, and water quality. BMPs include: an environmental education program regarding protected habitats and sensitive species would be conducted for all individuals involved in the construction, operation, and/or maintenance activities associated with the project area; project personnel would immediately inform an on-site biological monitor or individual trained in appropriate methods of handling desert tortoises whenever a desert tortoise is observed on or near the construction site or in the path of construction activities; all employees would be instructed that their activities would be confined to locations within areas previously cleared of tortoise and western burrowing owl; travel routes within the project area would be established, cleared of desert tortoise and western burrowing owl, and clearly marked prior to construction in any particular area; existing routes of travel would be used whenever possible; any time a vehicle is parked in an area not enclosed with desert tortoise exclusion fencing, whether the engine is engaged or not, the ground around and under the vehicle would be inspected for desert tortoise, banded Gila monster, and western burrowing owl; and project activities that may endanger a desert tortoise, western burrowing owl, or banded Gila monster would cease if these species are found in harm's way.

d) **Weed management:** A Weed Management Plan would be implemented to reduce the spread of weed species to the CSICL and to Federal lands surrounding the project area. In addition to the noxious weed control measures included in the Weed Management Plan, invasive grasses (e.g., fountain grass (*Pennisetum* ssp.)), would be excluded from landscaping. Refer to the Weed Management Plan in Appendix J of the CSI MSHCP for a detailed description of the policies and objectives that would be implemented as part of the plan.

e) **Fire conservation measures:** Fire conservation measures for the CSI development would be coordinated with the appropriate Federal, State, and county agencies. These measures would focus on using roadways, infrastructure, and golf courses to keep fires from in the community from spreading to the adjacent CSICL and BLM lands and vice versa. All development would be required to meet National Fire Codes and Lincoln County code standards with regard to community design. Fire conservation measures for the CSICL would include implementing an aggressive weed abatement program for *Schismus* and *Bromus* species (see Weed Management Plan in Appendix J of the CSI MSHCP).

f) **Trash management:** Trash would be maintained at all times in covered, sanitary containers approved for such use by Lincoln County or in enclosed areas designed for such purposes. All trash would be hauled off-site for disposal. No rubbish or debris of any kind would be allowed to accumulate anywhere in the project area.

During construction, trash and food items would be disposed properly in predator-proof containers with re-sealing lids and removed regularly to reduce attractiveness to opportunistic predators such as ravens (*Corvus corax*), coyotes (*Canis latrans*), and feral dogs. This trash would be transported to an approved landfill for disposal. Trash includes but is not limited to, cigarettes, cigars, gum wrappers, tissue, cans, paper, and bags. Upon completion of individual structure or activities in an area, all construction refuse, including, but not limited to, broken equipment parts, wrapping material, cords, cables, wire, rope, strapping, twine, buckets, metal or plastic containers, and boxes, would be removed from the site and disposed properly.

g) **Pet management:** Domestic animals occurring within the project area must be kept in an enclosure or an enclosed yard on or in a Lot or Condominium in the Development Area. When not on a Lot or Condominium, all animals other than horses must be kept on a leash or other restraint being held by a person capable of controlling the animal and may only be unleashed outside of a lot or condominium within a designated area, such as a fenced dog park. Cats must not be allowed to freely roam. Horses can be kept and maintained in an equestrian riding and boarding facility in the Development Area, if such a facility were to be constructed, or on Ranch Estate Lots. In addition, domestic sheep, goats, and camelids would be prohibited in the CSI Development. Pet desert tortoises also would not be allowed in the Development Area. All unauthorized desert tortoise pets would be reported to the appropriate authorities.

h) **Off-highway vehicle (OHV) use:** All terrain vehicles (ATV) and OHVs would be prohibited in the CSICL, except for specific access for Federal, State, and local agency needs. In the Development Area, ATVs and OHVs would only be allowed on roads designated for such use, if any. The Coyote Springs Charter Community Association, Inc. would provide information on nearby OHV parks in Clark and Lincoln counties and other areas and trails authorized for OHV and ATV use to residents and visitors, as an encouragement to use these designated areas.

2) ***Mitigation Measures.*** Mitigation measures for the desert tortoise, banded Gila monster, and western burrowing owl would consist of development fees and permanent protection of desert tortoise, banded Gila monster, and western burrowing owl habitat on CSI lease and private lands.

a) **Mitigation fees:** Land developers would pay a per-acre development fee for disturbance on private property throughout the project area. Mitigation fees for the development of private lands would be $800 per acre and are estimated to generate approximately $16.2 million ($800 x 20,188 acre, after preserved WOUS and upland habitat are subtracted from the 21,454-acre Development Area) over the permit period. Fees would be paid as development lands are disturbed. These fees would be used to administer and ensure compliance with the incidental take permit, complete clearance surveys, install fencing, and implement management activities on the CSICL and science-based research activities based on research priorities in the CSI MSHCP.

b) **CSICL:** Approximately 7,548 acres in Lincoln County would be protected and included in the CSICL. These lands are adjacent to approximately 6,219 acres of conserved lands within Clark County, also known as Intensively Managed Area (IMA) in the Clark County Multiple Species Habitat Conservation Plan (CCMSHCP). All 13,767 acres of land are to be included in the CSICL. Any activities that occur within this area would be consistent with protection of terrestrial Covered Species and habitat, scientific research uses, or passive recreational use (up to 20 acres of new trail and kiosk construction), and with the definition of IMA provided in the CCMSHCP. The new configuration of the CSICL, located to the east of the Development Area, would maximize habitat connectivity of the area to adjacent desert tortoise critical habitat and would preserve wildlife migration corridors.

The CSICL would be managed for the conservation of the terrestrial Covered Species. Currently under the Clark County MSHCP, the 6,219 acres of conserved lands is designated as an IMA (RECON Environmental, Inc. 2008). IMAs consist of lands in which management is oriented toward actions that reduce or eliminate potential threats to biological resources, such as wilderness areas, biodiversity hotspots, wilderness study areas, or the conserved/critical habitat areas established for the desert tortoise. In this case, the 6,219 acres of lease lands are critical habitat for desert tortoise; and therefore have been designated as an IMA. These conserved lands in Clark County, which would be included in the CSICL, are expected to be managed above the level of management administered by the Clark County MSHCP. Under the proposed CSI MSHCP, a Conservation Area Management Plan would be developed and implemented for the CSICL in conjunction with the proposed CSI development in Lincoln County. The plan would also address recreation trails, weed and fire management, law enforcement, litter management, and restoration within the CSICL. Some of the specific activities in the CSICL that will be described in the Conservation Area Management Plan may be subject to future analysis under applicable laws (i.e., the Act and NEPA), regulations and BLM policy.

The Clark County MSHCP will continue to count the 6,219 acres of lease lands as IMA, and will coordinate with and seek authorization from CSI and the Service to conduct mitigation for its activities on this land if needed and compatible with the CSI MSHCP. CSI shall coordinate with Clark County to ensure activities being conducted by both parties are separate mitigation actions and are accurately attributed to each HCP. For example, if Clark County conducts tortoise monitoring in this area, then mitigation credit will be provided to Clark County. If CSI conducts restoration on this land, then mitigation credit will be provided to the CSI MSHCP.

c) **Conservation education:** The Coyote Springs Charter Community Association, Inc. would develop educational materials, facilities, projects, or programs to provide education opportunities for future residents and visitors to learn about the local desert environment, the desert plants and animals and their habitat needs.

d) **Research activities:** Research would include head starting and translocation programs for the desert tortoise; ecological implications of fire and habitat restoration after fire; invasive species management; and habitat modeling and surveys for banded Gila monster and western burrowing owl. Prioritization and implementation of these research activities would occur through the Adaptive Management Plan (AMP) and monitoring (Chapter 9: Adaptive Management and Monitoring in the CSI MSHCP).

As mentioned above, desert tortoises collected from the project area would be translocated and/or their progeny could be used for head-starting tortoises at sites in Coyote Spring Valley and/or historically-occupied lands in an effort to enhance tortoise recruitment. Thus, tortoises cleared from CSI lands (and/or their progeny) would eventually contribute to local, regional, and range-wide, long-term recovery efforts. Additionally, research associated with the head-starting program would increase our understanding of effective release methods; movement, growth, health, and survivorship in relation to habitat; and the effectiveness of head-starting as a means to enhance populations.

e) **Additional fees:** CSI would contribute $750,000 to fund research and activities that would further conservation efforts for the desert tortoise. These funds would be set aside within 30 days of issuance of the section 10(a)(1)(B) incidental take permit for the CSI MSHCP. The funds would be deposited in an interest-bearing account, to be used at the Service's direction for research and conservation efforts.

b. Moapa Dace and Virgin River Chub (Muddy River Population)

*71) **Avoidance, Minimization and Mitigation Measures.*** Avoidance, minimization and mitigation measures to protect habitat in WOUS (which include the Pahranagat Wash and its tributaries) for Moapa dace and Virgin River chub are identical to measures proposed

for WOUS in the Mitigation Plan (EIS: Appendix J). Proposed measures include the following: avoidance of construction activities on protected upland buffers and protected WOUS protected under a Perpetual Conservation Easement Grant; avoidance of construction activities within the CSICL; temporary construction fencing around preserved desert dry washes; implementation of stormwater plan and erosion control measures; avoidance of 29.9 acres of existing WOUS in the Development Area; establishment of a monitoring and maintenance period of five years for each restored WOUS; and development of a long-term protection plan and associated funding. Refer to the Section 404 (Corps file # SPK-2007-327-SG) application and associated mitigation plan (EIS: Appendix J) for more detailed information.

Groundwater withdrawals for the CSI development will be evaluated in separate biological opinions for several GWD projects (including infrastructure) because these projects include development and transport of not only groundwater for the CSI development, but also groundwater for other developments and entities (see section entitled "B. U.S. Fish and Wildlife Service Proposed Action" subheading "2. Groundwater Withdrawals"). Additional avoidance, minimization and mitigation measures for the Moapa dace may be included in the separate biological opinions for the GWD projects. For several of the GWD projects, permitted water rights rulings are subject to a monitoring and mitigation program approved by the Nevada State Engineer based on stipulated agreements. Measures specifically for the Virgin River chub (Muddy River population) will not be included in the separate biological opinions since the population is not listed under the Act; however, any additional avoidance and minimization measures for the Moapa dace that may be included in the GWD projects will also likely benefit the Virgin River chub (Muddy River population) further downstream.

4. Service's Determination of Effects to Listed Covered Species

The Service has determined that the proposed issuance of an incidental take permit to CSI is likely to adversely affect listed Covered Species, the threatened desert tortoise and its designated critical habitat, and the endangered Moapa dace. The effects of the proposed action on the desert tortoise and critical habitat are analyzed in this Biological Opinion. It is anticipated that disturbance up to 21,454 acres of desert Mojave scrub would not directly impact the Moapa dace. However, future groundwater withdrawals for the proposed CSI development are likely to indirectly adversely affect the Moapa dace. Any future groundwater withdrawals for the CSI development in Lincoln County are not Covered Activities and are subject to evaluation in separate biological opinions for several GWD projects (see section entitled "B. U.S. Fish and Wildlife Service Proposed Action" subheading "2. Groundwater Withdrawals").

5. Service's Determination of Effects to Unlisted Covered Species

The Service has determined that the proposed issuance of an incidental take permit to CSI is likely to adversely affect unlisted Covered Species – the banded Gila monster, and the western burrowing owl. This Biological Opinion includes an analysis of the effects as a result of issuance

of the proposed section 10(a)(1)(B) incidental take permit to the banded Gila monster and western burrowing owl. The incidental take permit would authorize the incidental take of these unlisted species in the event that they become listed under the Act during the term of the permit. In addition, the Service has determined that the proposed issuance of the section 10(a)(1)(B) permit to CSI may affect, but is not likely to adversely affect the Virgin River chub (Muddy River population), an unlisted Covered Species. Informal consultation analyzing the effects of the proposed action on the Virgin River chub (Muddy River population) is included in Attachment 2.

C. U.S. Army Corps of Engineers Proposed Action

The Corps has proposed to approve issuance of a Clean Water Act Section 404 permit for the proposed CSI Development Area and BLM utility corridor (for detention basins) located in Lincoln County, Nevada. The project would consist of altering and placing fill material in approximately 34 acres of unnamed jurisdictional ephemeral washes located within the project area. Delineation of WOUS within the project area (Development Area, CSI lease lands, and the BLM utility corridor) was completed in 2007 (Huffman-Broadway Group, Inc. 2007, Huffman-Broadway Group, Inc. and RCI 2006). The potentially affected WOUS are west-east running dry desert washes subject to infrequent surface flows during large precipitation events. These washes drain into Pahranagat Wash, a large north-south running ephemeral drainage and tributary to the Muddy River in large storm events (100 year events). Within the Development Area, about 30 acres of WOUS would be avoided, and 64 acres of WOUS in the Development Area and BLM utility corridor would be restored (Entrix et al. 2008c). Unavoidable impacts to WOUS as a result of construction activities, and avoided and restored WOUS are summarized in Table 1.

Table 1. Proposed Modification to Waters of the U.S. (WOUS) for the CSI Development Project in Lincoln County, Nevada

	Development Area	BLM Utility Corridor	Lincoln County Lease Lands (CSICL)	Total
Potentially disturbed WOUS	28.8	5.1	0	33.9
Avoided WOUS	29.9	0	6.9	36.8
Total Existing WOUS	**58.7**	**5.1**	**6.9**	**70.7**
Restored WOUS	64.2*	0	3.6	67.8
*Includes restoration for WOUS impacted within BLM utility corridor. Mitigation ratio calculated at a 2:1 ratio (restored to impacted).				

Upon completion of construction, stormwater would be managed through a variety of flood control facilities, including detention basins, constructed washes, and other facilities that collect stormwater and allow sediment to separate from stormwater prior to entering any jurisdictional waterway. For more information on the Corps' proposed action refer to Section 3 in the EIS for this project (Entrix et al. 2008b) and the Section 404 permit application (Corps File No. SPK-2007-327-SG).

Table 2 below summarizes the avoidance and mitigation measures for WOUS for the CSI development. The avoided WOUS and upland buffer habitat would reduce the total acreage in which Covered Activities could occur to 20,188 acres within the project area (21,454 acres less 29.9 acres of protected existing WOUS and 1,236 acres of associated upland buffer habitat).

Avoidance, minimization, and conservation measures for the desert tortoise are the same measures described above in this Biological Opinion, and which also have been summarized from Section 3 of the EIS for the subject project (Entrix et al. 2008a). Refer to Section 3 in the EIS for the CSI MSHCP for further details on the conservation measures for WOUS (Entrix et al. 2008b). The Corps has determined that the proposed action may affect and is likely to adversely affect the desert tortoise and its designated critical habitat, and these effects are analyzed in this Biological Opinion.

For the Moapa dace, the Corps determined that the loss and disturbance of WOUS and Mojave Desert scrub within the Development Area and BLM utility corridor may affect, but is not likely to adversely affect the Moapa dace. In addition to the BMPs, conservation measures proposed by CSI would help to avoid and minimize impacts to the Moapa dace. Informal consultation analyzing the effects to the Moapa dace is included in Attachment 2.

Table 2. Avoidance and Mitigation Measures for Waters of the U.S. (WOUS)

	Development Area	BLM Utility Corridor	Lincoln County Lease Lands (CSICL)	Total
Restored WOUS	64.2	0	3.6	67.8
Avoided WOUS protected in an easement or CSICL	29.9	0	6.9	36.8
Total WOUS restored or protected in an easement or CSICL	**94.1**	**0**	**10.5[a]**	**104.6**
Upland buffer habitat for preserved, existing WOUS	1,236	0	0[b]	1,236
Upland buffer habitat for restored WOUS	52.1	0	0[b]	52.1
Total Upland Buffer Habitat for preserved or restored WOUS	**1,288.1**	**0**	**0[b]**	**1.288.1**
Total acreage of Perpetual Conservation Easement Grant or Drainage and Maintenance Easement (protected, avoided WOUS, restored WOUS, upland buffer habitat)	**1,382.2**	**0**	**0[b]**	**1,382.2**

[a]protected in CSICL
[b]located within areas where preserved and restored WOUS and surrounding upland habitat lands would be protected in the CSICL

D. BUREAU OF LAND MANAGEMENT PROPOSED ACTION

BLM, at the request of the Service for the benefit of the desert tortoise and other species, proposes to reconfigure the layout of CSI's private and lease lands from its existing land

ownership in Lincoln County. Informal consultation analyzing the effects of this action on the desert tortoise and designated critical habitat is included in Attachment 2.

In the future, CSI or its designee will submit ROW application(s) to BLM for the proposed construction of flood storage and conveyance facilities in the BLM utility corridor west of US 93 in Lincoln County as described above. Up to eight detention basins with trash racks and sediment storage for off-site storm flows could be constructed within the BLM utility corridor. These detention facilities would be designed to address the 100-year flow event for the respective sub-hydrologic basins and subsequently control the peak flows conveyed through the Development Area. The detention basins would help to protect the highway, which currently is subject to wash outs during heavy storms. These detention basins and associated ditches could affect up to 244 acres within the BLM utility corridor. Refer to Section 3 in the EIS (Entrix et al. 2008b) for more information on the proposed detention basins. Since CSI or its designee have not yet submitted ROW application(s) to the BLM for the proposed detention basins in the BLM utility corridor, these actions would subject to future analysis led by the BLM in accordance with applicable laws (i.e., NEPA), regulations and BLM policy. For section 7 consultation under the Act, this may require reinitiation of, an amendment to, or a clarification of this Biological Opinion or potentially a separate biological opinion to provide incidental take coverage for the BLM.

E. DEFINING THE ACTION AREA

In this document, *project area* refers to CSI's private lands in Lincoln County and lease lands in both Clark and Lincoln counties and 244 acres in the BLM utility corridor in Lincoln County, whereas *action area* refers to the entire area in which we anticipate impacts to Covered Species as a result of the proposed action. Thus, the Action Area is defined as all areas to be affected directly or indirectly by the Federal action.

1. Desert Tortoise Action Area

For the purposes of this analysis, the Action Area for the desert tortoise includes the following: (1) the Development Area which includes the 21,454 acres of private lands in Lincoln County; (2) 13,767 acres of lease lands in Clark and Lincoln counties; and (3) the 244 acres within the BLM utility corridor west of US 93 in Lincoln County.

A zone of influence extending 1 mile (5,280 feet) beyond unfenced construction areas and lease lands where adjacent undisturbed Mojave desert is present would be included in the Action Area. The 1-mile zone of influence included in the Action Area is necessary to cover impacts to tortoises that could move onto construction areas and indirect effects to adjacent undisturbed habitat as a result of project implementation. Public, lease, and private lands adjacent to CSI would be subject to increased human activity and elevated numbers of predatory animals such as ravens, coyotes, and domestic and feral dogs resulting from human habitation and the provision of supplemental food and water in a normally resource-limited area. In addition, traffic associated with the new development may increase the level of traffic substantially on

US 93 (starting at the 1-15 junction north to Alamo), and the entire length of SR 168. Tortoises that cross these highways may be impacted by the increase in traffic; therefore, these roads as described above are also included in the Action Area.

While indirect impacts to adjacent lands from these sources are expected to occur with a high degree of certainty, the exact location and magnitude of these effects is largely unknown. These effects will be discussed in detail in the "Effects of the Proposed Action" section of this consultation, but are mentioned here as they must be considered within the context of the Action Area.

2. Banded Gila Monster and Western Burrowing Owl Action Area

The Action Area for the banded Gila monster and western burrowing owl is the same as that of the desert tortoise, with the exception that the 1-mile zone of influence would extend beyond fenced areas as well as unfenced areas. Tortoise fencing is not considered an efficient barrier for these two species.

Similar to the tortoise, the banded Gila monster and western burrowing owl would be impacted by the increase in traffic associated with the new development on US 93 (starting at the I-15 junction north to Alamo), and the entire length of SR 168. Therefore, these highways as described above are included in the Action Area.

3. Moapa Dace Action Area

The Action Area for the Moapa dace is the 21,454-acre project site and Pahranagat Wash from the north edge of the development downstream to the Muddy River-Meadow Valley Wash confluence. Because activities associated with the CSI development may affect spring discharge in the Muddy River, the Coyote Spring Valley and Muddy River Springs Area hydrographic basins are also included in the Action Area. The hydrographic basins and others are part of the White River Groundwater Flow System, a regional groundwater flow system located in southern Nevada (Eakin 1966, Harrill et al. 1988, Prudic et al. 1993). The flow system consists of numerous local basin fill aquifers underlain by a large regional carbonate aquifer that transmits groundwater from basin to basin, beneath topographic divides. Groundwater inflow or recharge to the regional carbonate aquifer is primarily through precipitation. The terminal discharge of the White River Groundwater Flow System is most likely the Warm Springs Area in the Upper Moapa Valley, an area consisting of about twenty regional springs, with numerous seeps and wetlands. The source water supporting spring discharge in the Warm Springs Area is from the regional carbonate groundwater (62 percent) and from local recharge based on precipitation in the surrounding mountain ranges (BLM 2008a). The Moapa dace is dependent upon these springs for survival.

F. STATUS AND ENVIRONMENTAL BASELINE OF THE DESERT TORTOISE AND DESIGNATED CRITICAL HABITAT

1. Rangewide Status of the Desert Tortoise and Designated Critical Habitat

The current rangewide status of the desert tortoise and its critical habitat consists of information on its listing history, species account, recovery plan, recovery units, distribution, reproduction, and numbers, and critical habitat units and their constituent elements. This information is provided on the Service's website at: http://www.fws.gov/nevada. If unavailable, contact the Nevada Fish and Wildlife Office in Las Vegas at (702) 515-5230 and provide File No. 84320-2008-F-0113. Information is also contained in section 3.3.3 of the CSI MSHCP.

2. Environmental Baseline for the Desert Tortoise and Designated Critical Habitat for Desert Tortoise in the Action Area

This section is an analysis of the effects of past and ongoing human and natural factors leading to the current status of the species, its habitat (including designated critical habitat), and ecosystem within the Action Area. The environmental baseline is a "snapshot" of the health of the species or its habitat at a specified point in time. It does not include the effects of the action under review in this consultation.

a. Status of the Desert Tortoise in the Action Area

The vegetation communities within and surrounding the project area are characteristic of the Mojave Desert Scrub Ecosystem. Based on the USGS Southwest ReGAP landcover classification system (2005), the dominant plant community within the project area is the Creosotebush-White Bursage Desert Scrub. In addition, inclusions of Mojave Mid-Elevation Mixed Desert Scrub, Mixed Salt Desert Scrub, North American Warm Desert Wash, and North American Warm Desert Playa are found within the area.

Generally, vegetation is sparsely distributed and consists of low shrubs, cacti and perennial grasses. Occasional short stature trees are found in the washes. Creosotebush (*Larrea tridentata*) and white bursage (*Ambrosia dumosa*) are dominant in most areas. Mojave yucca (*Yucca schidigera*), barrel cactus (*Ferocactus* sp.), chollas (*Opuntia* spp.) and beavertail pricklypear (*Opuntia basilaris*) also are prevalent, although less frequently found within the Pahranagat Wash alluvial plain. Blackbrush (*Coleogyne ramosissima*) dominated stands occur along the northern extent of the Development Area. Common shrub species identified throughout the area include Mormon tea (*Ephedra* sp.), indigo bush (*Psorothamnus fremontii*), four-winged saltbush (*Atriplex canescens*), hopsage (*Grayia spinosa*), spiny mendora (*Mendora spinencens*), brittlebush (*Encelia farinosa*) and purple sage (*Salvia dorrii*). Associated grass

species include big galleta, (*Pleuraphis rigida*), Indian ricegrass (*Acnatherum hymenoides*), and several non-native annual species (*Bromus* spp., *Schismus* spp.).

Within the active channel of the Pahranagat Wash, vegetation is generally scarce except along the channel banks, though the species present are primarily the same as in the adjacent badlands and alluvial fans. Older sandbars may support scattered catclaw acacia (*Acacia greggii*), and an occasional small stand of desert willow (*Chilopsis linearis*). The Southwest ReGAP Analysis vegetation database has classified an area within the Pahranagat Wash incised ephemeral channel area as tamarisk (*Tamarix ramosissima)*. However, on-the-ground surveys were conducted on all dry washes on CSI lands (Huffman-Broadway Group, Inc. and RCI 2007). No tamarisk were observed within the project area in Lincoln County.

CSI lands remain in nearly natural ecological condition (The Nature Conservancy 2001) with limited site-specific impacts due to past and current human activities. The area is closed to livestock grazing, mineral entry, and OHV use. Over the years, there have been various human-based activities on the landscape; however, these have had relatively limited scope (e.g., grazing, borrow pit, scattered two-track roads, paved highways and culverts for wash crossings of paved roadways).

Two Areas of Critical Environmental Concern (ACEC) designated within Lincoln County are adjacent to the project area: the Kane Springs and Mormon Mesa ACECs. These ACECs were established under the Caliente Management Framework Plan Amendment for directing land management to meet desert tortoise habitat minimum protection needs. Certain activities and developments are restricted in these areas to protect the desert tortoise, its habitat, and other resources. The project area is bounded on the north and northeast by the Kane Springs ACEC, and on the east by the Mormon Mesa ACEC. CSI owns a substantial part of the 6,881-acre parcel located in Clark County, which is directly south of the project area. To date, CSI has constructed offices, a golf course, and other facilities on approximately 1,300 acres in Clark County. The entire 6,881-acre parcel would eventually be developed into a community.

To the east and north of the Mormon Mesa and Kane Springs ACECs lie three adjacent wilderness areas managed by the BLM Caliente Field Office: Delamar Mountains (111,328 acres), Meadow Valley Range (123,488 acres), and Mormon Mountains (157,938 acres) (BLM 2007a). To the south of the CSI lands lays the Arrow Canyon Wilderness (27,530 acres), which is managed by the BLM Las Vegas Field Office (BLM 2008a). Like ACECs, certain activities and developments are restricted in wilderness areas, which provides protection to the desert tortoise, its habitat, and other resources that may occur in these areas.

Survey data from 2005 line-distance sampling in the Coyote Spring Valley, which includes transects in the CSI private and lease lands located in the Mormon Mesa Critical Habitat Unit (CHU), estimated the tortoise densities in the valley to be 3.2 tortoise per kilometer^2 (km) (8.3 tortoises per mile^2 (mi)). Tortoise densities in the Coyote Spring Valley are almost 50 percent more dense than the rest of the Northeastern Mojave Recovery Unit (Service unpublished data); however, these results are preliminary as additional analysis that incorporates

2006 and 2007 survey data and a correction for survey effort is needed to finalize the results. Other recent surveys (2006-2007) were conducted in similar habitat immediately adjacent to the Development Area and include 100 percent clearance surveys on 5,302 acres or 21.07 km^2 of CSI private lands in Clark County (SNEI unpublished report). Using the total number of desert tortoises cleared during surveys, 108 tortoises, the Service estimates a density of 5.13 tortoises per 1 km^2 (13.27 tortoises per mi^2) on the CSI private lands in Clark County.

Past surveys based on strip triangular methods have been conducted on CSI private and lease lands in Clark County. Data from strip triangular methods suggested higher tortoise densities, although the relationship between tortoise sign and census population sizes has not been validated and there are limitations to the triangular strip method. However, density estimates from CSI transect surveys may still be useful for establishing presence and absence, as well as identifying distribution patters along the landscape. Refer to the CSI MSHCP for more detailed information on past tortoise surveys within and adjacent to CSI private and lease lands.

Given all of the information and factors described above, the Service concludes that the Action Area in its present condition supports the desert tortoise. Based on site conditions and previous surveys, the Service estimates that tortoise density in the development footprint which includes the 21,454-acre CSI private lands and 244 acres in the BLM utility corridor in Lincoln County is 13.37 tortoises per mi^2. Thus, 450 tortoises and 6 tortoises may occur in the Development Area and BLM utility corridor, respectively. The Service estimates that 286 tortoises may occur in the CSICL.

b. Status of Designated Critical Habitat for the Desert Tortoise in the Action Area

The Development Area is entirely within designated critical habitat for the desert tortoise. CSI private lands in Lincoln County, the CSICL and the BLM utility corridor are located within the western portion of the 427,000-acre Mormon Mesa CHU of the Northeastern Mojave Recovery Unit, as identified in the Desert Tortoise Recovery Plan (Service 1994). The Northeastern Mojave Recovery Unit occurs primarily in Nevada, but it also extends into California along the Ivanpah Valley and into extreme southwestern Utah and northwestern Arizona.

Federal lands lying immediately west of US 93 and the BLM utility corridor are within the Desert National Wildlife Refuge managed by the Service. The 1.6-million-acre DNWR contains approximately 150,000 acres of desert tortoise habitat. Critical habitat for the tortoise was not designated in the DNWR because land management practices were determined to provide sufficient protection for the tortoise (59 FR 5820).

The Service has determined that the physical and biological habitat features (referred to as the primary constituent elements) that support nesting, foraging, sheltering, dispersal, and gene flow are essential to the conservation of the desert tortoise. These elements were determined from studies on desert tortoise habitat preferences (e.g., habitat structure and use, forage requirements) throughout the range of the species and used to designate critical habitat for the tortoise (Service 1993, 59 FR 5820). The status of the primary constituent elements (PCE) of desert tortoise critical habitat is described below.

1) ***Sufficient space to support viable populations within each of the six recovery units, and to provide for movement, dispersal, and gene flow.*** In the Northeastern Mojave Recovery Unit, fires and urban development have resulted in loss of critical habitat, reducing the amount of space available for desert tortoise. In 2005, wildfires burned approximately 46,757 acres (23 percent) of the Beaver Dam Slope CHU (Nevada and Utah) and 15,559 acres (4 percent) of the Mormon Mesa CHU; both CHUs are within the Northeastern Mojave Recovery Unit.

The BLM Ely and Las Vegas Field Office are rehabilitating these burned areas by seeding of native plants on approximately 3,000 acres of critical habitat; constructing 33 miles of fencing to protect burned areas; increasing patrols on undesignated motorized routes; and installing protective cages around emerging and remaining Joshua trees (*Yucca brevifolia*) and yuccas to protect them from grazing and browsing. Many of these treatments are complete but seeding treatments will continue. Benefits to the desert tortoise and critical habitat from these actions will take years to be realized.

As of 2006, approximately 8,200 acres or two percent of the Mormon Mesa CHU has been lost or disturbed by development (Service, unpublished data). The extent of contiguous or large blocks of desert tortoise habitat in the Mormon Mesa CHU is reduced by major utility corridors, railroads, roads, highways, and the Union Pacific railroad.

Within the south limits of the Action Area, CSI is developing a residential and commercial community in Clark County. The CSI development in Clark County will result in the loss of approximately 6,881 acres of the Mormon Mesa CHU. Desert tortoise movement and dispersal is currently limited in the area and long-term direct and indirect effects of development are not known.

2) Sufficient quality and quantity of forage species and the proper soil conditions to provide for the growth of these species. Livestock grazing, OHV use, and invasive weeds have affected this PCE by reducing the quality of forage available to desert tortoise, and facilitating wildfires. BLM permits livestock grazing in the Mormon Mesa CHU. Although the additive effects of 100 years of livestock grazing have been substantial, some of the changes have occurred so slowly that they are almost imperceptible over a span of a few years. Plant communities with a short evolutionary history with grazing such as the Mojave Desert, are more likely to change when grazed by domestic animals than those communities with a long evolutionary history of grazing. The decline in native perennial grasses and their replacement with nonnative annual grasses over vast areas of the Midwest and West are associated with the introduction of large numbers of livestock following European settlement.

Grazing can affect soils by increasing soil compaction and decreasing infiltration rate, the capacity of the soil to absorb water. A lower infiltration rate means less water will be available for plants and more surface erosion may occur. In a review of studies

investigating the hydrologic effect of grazing on rangelands, Gifford and Hawkins (1978) concluded that grazing at any intensity reduces the infiltration rate of the soil. Heavy grazing reduced infiltration rate by 50 percent and light to moderate intensities reduced infiltration by 25 percent over un-grazed areas. These differences are statistically significant.

Soil conditions may also be degraded locally, particularly in areas of livestock concentration. Cryptobiotic soil crusts in the CHUs are mostly impacted by livestock grazing and OHV activity. Removal or damage of the cryptobiotic crusts can have significant adverse effects on desert soils and nutrient cycling (Donahue 1999).

Invasive weeds continue to affect this PCE by reducing the quality of forage available to the desert tortoise, and providing fuel for fires. Wildfires in 2005 burned approximately 15,559 acres of critical habitat in the Mormon Mesa CHU. Nonnative grasses dominate burned areas affected by the 2005 wildfires. Forage for desert tortoises with home ranges that overlap burned areas will have reduced diversity and quantity of forage available.

The Coyote Spring Valley, and therefore the Action Area, were subject to past grazing and may exhibit the effects from this activity to some degree. Currently, no grazing occurs within the Action Area. Recently, OHV use has been prohibited within the CSICL.

3) ***Suitable substrates for burrowing, nesting, and overwintering; burrows, caliche caves, and other shelter sites.*** Many large-scale disturbances such as mineral material sites, utility construction, and development have reduced the burrowing, sheltering, and nesting substrates for the desert tortoise in the Mormon Mesa CHU. Wildfires have greatly reduced the availability of shrubs which serve as shelter sites for tortoises as discussed below. An unknown number of desert tortoise burrows have been damaged or destroyed by grazing livestock. Some of these activities have occurred in the past in the Action Area, such as grazing, but currently none of these types of activities are affecting this PCE in the Action Area.

4) ***Sufficient vegetation for shelter from temperature extremes and predators.*** The 2005 and 2006 wildfires have effectively removed the shrub component over large areas in the Mormon Mesa CHU which may not return or may require decades to recover and provide shelter for desert tortoises. In their monitoring plots, USGS researchers determined that burned areas had a reduction of perennial cover from 31 percent to 12 percent. Within the Mormon Mesa CHU, wildfires have resulted in the reduction of this PCE. However, the Action Area has not been affected by wildfires and does contain sufficient vegetation for shelter from temperature extremes and predators.

Rights-of-way, particularly for linear projects such as power transmission lines, have also removed the vegetative shelter for tortoises and provide a swath of bare ground across the landscape; thus impacting this PCE. Desert tortoises that cross, or attempt to cross these areas are highly visible to predators, particularly avian predators such as the common

raven or red-tailed hawk (*Buteo jamaicensis*). Within the Action Area, the old U.S. Highway 93 provides an area with no or limited vegetation shelter for tortoises and tortoises crossing this road may be more visible to predators.

5) ***Habitat protected from disturbance and human-caused mortality.*** BLM's designation of ACECs within the Northeastern Mojave Recovery Unit which includes the Mormon Mesa CHU provides a level of protection to the desert tortoises. However, BLM's enforcement of protective measures is sporadic due to limited law enforcement staff. In the Mormon Mesa CHU, any public access into desert tortoise habitat provides the opportunity for human-caused mortality or habitat degradation by vandalism, trash dumping, shooting, illegal collection or traveling off designated roads.

In the Mormon Mesa CHU, habitat for desert tortoise (ACECs) continue to be affected by BLM-permitted activities associated with mineral extraction, utility corridors which also serve as public roads, livestock grazing, and OHV use.

ACECs are protected from potential transfer to private ownership and subsequent development and habitat loss/degradation and are subject to restrictions on potential mineral extraction activities. Livestock and wild horse grazing are prohibited in ACECs that are managed by the BLM's Las Vegas Office. Portions of the Delamar Mountains, Meadow Valley Range, and Mormon Mountains Wilderness Areas overlap the Mormon Mesa CHU as well as the Kane Springs and Mormon Mesa ACECs which provide additional protection.

Although the Action Area is not protected, it has remained in nearly natural ecological condition (The Nature Conservancy 2001) with limited site-specific impacts due to past and current human activities. However, recently, as mentioned above, within the south limits of the Action Area CSI is currently developing a residential and commercial community.

c. Factors Affecting the Environment of the Desert Tortoise and Designated Critical Habitat in the Action Area

This analysis describes factors affecting the environment of the species and critical habitat in the Action Area. This analysis is to be considered part of the baseline and includes State, tribal, local, and private actions in the Action Area already affecting the species or that will occur contemporaneously with the proposed action, as well as unrelated Federal actions in the Action Area affecting (negatively or beneficially) the same species or critical habitat that have completed formal or information consultation.

1) ***Roads.*** A major highway, US 93, connects I-15 in northern Clark County with communities in eastern and northern Nevada. US 93 runs parallel and is located immediately west of the project area. SR 168 connects US 93 with I-15 and is located south of CSI lands in Clark County. Kane Springs Road, north of the project area, is a

major unpaved Lincoln County road which connects US 93 in Coyote Spring Valley with Meadow Valley Wash Road near Elgin.

Old Highway 93, an abandoned two-lane road, traverses a portion of the CSI private and lease lands in a generally north-south direction on the eastern side of Pahranagat Wash incised ephemeral channel. The road is currently used by the landowner for access to the land and is also used by NDOW to access several wildlife guzzlers and wildlife survey locations for birds, bats, and other wildlife.

2) ***Mineral Extraction/Mining.*** Existing oil and gas leases cover approximately 9,625 acres within the Mormon Mesa ACEC (BLM 2008b). Outside ACECs in Lincoln County, existing leases cover approximately 28,740 acres in desert tortoise critical habitat and 43,422 acres of non-critical habitat. There are no existing oil and gas leases in the CSI project area.

3) ***Grazing.*** Grazing by cattle and sheep has occurred in the project area since the mid-1800s, increasing in intensity near the turn of the 19th century. Currently, livestock grazing does not occur within the CSI project area. During tortoise surveys conducted in 1980, Karl (1982) observed that livestock grazing became noticeably heavier at the southwest entrance to Kane Springs Valley than in Coyote Spring Valley, as evidenced by many well-chewed perennial grasses, herds of up to 50 cattle, and the presence of red brome (*Bromus madritensis* ssp. *rubens*), an introduced non-native grass. Karl further observed that desert tortoise sign decreased to zero where grazing pressure became heavier in comparison to observations in Coyote Spring Valley where Karl estimated densities up to 100 tortoises mi^2.

4) ***Rights-of-Way.*** On March 23, 1994, the Service issued a non-jeopardy biological opinion (File No. 1-5-94-F-28R) to BLM for the issuance of a ROW permit for the Southwest Intertie Project (SWIP). The proposed project involves a 500-kV transmission line from Shoshone, Idaho to a substation site in the Dry Lake Valley northeast of Las Vegas. The proposed transmission line would traverse 85.6 km (53.2 mi) of desert tortoise habitat in Coyote Spring Valley along US 93, resulting in long-term disturbance of approximately 380 acres and short-term disturbance of roughly 25 acres of designated critical habitat for the desert tortoise within the Mormon Mesa CHU. The Service anticipated that up to 95 desert tortoises would be incidentally taken, 5 through mortality or injury and 90 through harassment (i.e., capture and removal).

On May 15, 1995, the Service issued a non-jeopardy biological opinion (File Nos. 1-5-94-F-334, 335, 336, and 035) to BLM for the issuance of a ROW to install four proposed fiber-optic lines in Clark and Lincoln counties, Nevada. Segments of these lines would parallel SR 168 for approximately 37 km (23 mi) from Glendale to the junction of SR 168 and US 93; and for 69 km (43 mi) along US 93 from the junction with SR 168 to Alamo, Nevada. The project was expected to result in the long-term disturbance of 144 acres of desert tortoise habitat and the short-term disturbance of

96 acres of habitat. A majority of the disturbance would occur adjacent to the CSI project in designated critical habitat (Mormon Mesa CHU) for the desert tortoise. The Service anticipated that up to 34 tortoises would be incidentally taken, 8 through mortality and 26 through injury or harassment.

On December 8, 1999, the Service issued a non-jeopardy biological opinion (File No. 1-5-99-F-411) to BLM for issuance of a ROW for the Nevada segment of the Las Vegas to Salt Lake City Long-haul Fiber-Optic Project. The project disturbed 119 acres in the Mormon Mesa CHU along US 93 and 39 acres of non-critical habitat north and south of the Mormon Mesa CHU.

On December 20, 2007, the Service issued a non-jeopardy biological opinion (File No. 84320-2008-F-0066) to BLM for their proposal to amend an existing ROW for construction, operation, and maintenance of a single-circuit, overhead 500 kV transmission line (SWIP). The southern portion of the project begins at the Harry Allen Substation in Clark County, Nevada, crossing through the planning area, and ending approximately 34 miles north of Ely in White Pine County, Nevada. The project would disturb 231 acres of non-critical and 365 acres of critical desert tortoise habitat in the Mormon Mesa CHU.

A provision of the Lincoln County Conservation, Recreation, and Development Act (LCCRDA) moved the 0.5-mile wide BLM utility corridor established under Public Law 100-275 (NV-FL Act) from CSI lands in Lincoln and Clark counties to neighboring land just west of and parallel to US 93. The lands within the new ROW, previously in Service ownership and included in the DNWR, were relinquished to BLM in exchange for other lands per the LCCRDA. This newly-established right of way was authorized for numerous purposes, including electrical transmission lines, gas lines, and water pipelines. Detention basins are being built in the ROW in Clark County.

In March 2006, the Service issued a non-jeopardy biological opinion (File No. 1-5-05-FW-536-Tier 01) to the Corps for issuance of the Section 404 permit for the CSI development in Clark County, which is also covered under the Clark County MSHCP. Located immediately south of the project area, CSI is currently developing 6,881 acres of private lands located in Clark County, with 6,219 acres of lease lands set aside as mitigation for impacts to WOUS. Of the 6,881 acres of private lands, approximately 1,300 acres have been disturbed to date (July 2008). Development, including residential, commercial, recreational (e.g., golf), and public facilities, will occur over 25 years, with an eventual build out of 29,000 residential units and approximately 72,500 residents and a visitor capacity equal to 14,500 residents (based on full-time equivalency). The CSI development in Clark County is generally bounded on the south by SR 168, on the north by the Clark-Lincoln county line, on the east by Pahranagat Wash, and on the west by US 93. A detention facility has been constructed for this community and additional detention facilities will be located directly west of the development and US 93 on approximately 669 acres within the BLM utility corridor (File No. 1-5-05-FW-536-Tier 01 R1).

5) ***Recreation.*** BLM lands are used by the public for casual recreation purposes including hunting, camping, hiking, off-highway travel, and racing events.

6) ***Land Management Plans.*** On March 3, 2000, the Service issued a programmatic biological opinion (File No. 1-5-99-F-450) to BLM's Ely District Office for implementation of actions in the Caliente Management Framework Plan Amendment (CMFPA). The planning area consisted of public lands in White Pine, Lincoln, and a portion of Nye counties in east-central Nevada. Cumulatively, 25,521 acres of desert tortoise habitat were projected to be affected by the proposed activities within the planning area over a 10-year period.

   On September 9, 2008, the Service issued a programmatic biological opinion (File No. 84320-2008-F-0078) to BLM for the Ely District Resource Management Plan (Ely RMP). This programmatic biological opinion superseded the March 3, 2000, programmatic biological opinion for the CMFPA. Programs in the 2008 programmatic biological opinion included: vegetation management; weed management; wild horse management; lands, realty, and renewable energy projects; travel and off-highway vehicle management; recreation; livestock grazing management; geological and mineral extraction; and fire management.

   Implementation of multiple-use activities (excluding vegetation and weed management) were projected to result in the disturbance of 22,624 acres of desert tortoise critical habitat and 37,311 acres of desert tortoise habitat. During the 10-year term of the programmatic biological opinion, the Service authorized the take of no more than 47 desert tortoises and estimated that 972 tortoises would be taken by non-lethal means (i.e. harassment).

G. STATUS AND ENVIRONMENTAL BASELINE OF THE BANDED GILA MONSTER

1. Rangewide Status of the Banded Gila Monster

The banded Gila monster is one of only two species of venomous lizards in the world. Gila monsters have enlarged, grooved teeth in their lower jaw immediately adjacent to the opening of the venom duct which conveys venom from the venom gland. The dorsal coloration of the Gila monster is black with pink or orange. In the southern subspecies, the reticulated Gila monster (*H. s. suspectum*), the light markings or bands, are broken up to form a reticulated pattern. In the northern subspecies, the banded Gila monster, the light markings generally form an unbroken band across the back. They are the largest lizard in the U.S. measuring up to 22 inches (in.) in total length, and are able to store more energy than smaller lizards.

Gila monsters are most active aboveground during spring. Not only is this when mating occurs, but it is when their main source of food (vertebrate nests) is most abundant. Gila monsters feed predominately on juvenile mammals and eggs of ground nesting birds and reptiles (Lowe et al. 1986; Beck 1990; Beck 2005). Gila monsters have low resting metabolic rates, are capable of consuming meals up to one-third their body weight, and are capable of storing large amounts of fat in their tails and body, thus making frequent searching for food unnecessary. Therefore, they are rarely seen aboveground. They are diurnal but most activity occurs in the morning. Gila monsters have a home range of about one square mile. They are usually solitary animals, but do gather in communal areas in the spring for mating.

The Gila monster inhabits hot desert regions of the southwestern U.S. and northern Mexico. The range of the banded Gila monster includes extreme southeastern California, southern Nevada, southwestern Utah, and western Arizona (Beck 2005). Banded Gila monster populations show a patchier pattern of geographic distribution in the Mojave Desert than in the Sonoran Desert. The upper elevational limit for the species is approximately 5,000 feet. Habitat parameters for the Gila monster are complex and involve geology, hydrology, vegetation communities, climatic factors, animal communities that share Gila monster habitat, and human-altered habitat.

Since Gila monsters are long-lived, show low reproductive potential, very low rates of metabolism, patchy and localized population distributions, a specialized diet (eggs and young of vertebrate nests), and very low levels of activity (Lowe *et al.* 1986, Beck 1990, Beck and Lowe 1994), these traits make Gila monsters particularly vulnerable to population decline in response to habitat loss, disturbance, and fragmentation, illegal collection, and other factors, yet also make them difficult to study. The current rangewide status of the banded Gila monster is unknown; however, populations are believed to be declining in certain portions of its range (Beck 2005). Additional information on the rangewide status of the Gila monster is available in section 3.3.4 of the CSI MSHCP.

2. Environmental Baseline for the Banded Gila Monster in the Action Area

a. Status of the Banded Gila Monster in the Action Area

In Nevada, the Gila monster is listed as a State-protected species and is included in the Nevada Wildlife Action Plan (NDOW 2005). The banded Gila monster is also listed as a BLM sensitive species and ranked as an imperiled species by Nevada Natural Heritage Program. In Clark, Lincoln, and Nye counties in Nevada, Gila monsters occur below 5,000 feet in elevation and use desert dry washes and riparian habitats that have complex rocky landscapes of upland desert scrub. They will use and are occasionally encountered out in gentler terrain of alluvial fans (bajadas). Gila monsters may also forage in Mojave Mid-Elevation Mixed Desert Scrub (NDOW 2005). Hence, Gila monster habitat overlaps that of desert tortoises.

Gila monsters have not been observed in the Action Area, but have been observed in adjacent areas directly to the northwest and south (Nevada Natural Heritage unpublished data 2004).

More recently, one Gila monster was observed on CSI private lands in Clark County near the intersection of SR 168 and US 93. Another Gila monster was observed north of SR 168 between Coyote Spring and Moapa (A. Northup, SNEI, 2008 pers. comm.). Because Gila monsters in Nevada typically travel far distances with an average home range of 128.3 hectares (Gienger 2003) and their habitat occurs within the project area, they are likely to occur within the Action Area. No data exist about the relative abundance of Gila monsters within the Action Area due to the fact that Gila Monsters are primarily ground dwelling and subterranean, spending greater than 95 percent of their lives underground, thus making detection of animals and development of survey protocols very difficult.

b. Factors Affecting the Environment of the Banded Gila Monster in the Action Area

The factors affecting the environment of the banded Gila monster in the Action Area are the same as those described for the desert tortoise (see section E.2.c. above).

H. Status and Environmental Baseline of the Western Burrowing Owl

1. Rangewide Status of the Western Burrowing Owl

The western burrowing owl is a small, ground-dwelling owl widely distributed throughout arid and semi-arid habitats of southwestern Canada, western United States and Mexico. Other subspecies occur in Florida, islands in the Caribbean, islands west of Baja California and from the Central American mainland to the tip of South America (Haug et al. 1993). The western burrowing owl is migratory in the northern part of its range including Canada and northern Great Basin (James 1992, Haug et al. 1993). Southern California populations are considered predominately year-round residents (Thomsen 1971, Haug et al. 1993). In Nevada, the majority of the nesting population migrates from northern Nevada during the winter months, but burrowing owls have been recorded throughout Nevada during all months (Herron et al 1985).

Western burrowing owls inhabit a wide variety of open habitats including grassland, shrub-steppe, and deserts (Johnsgard 1988, Haug et al. 1993). Throughout its range, the burrowing owl roosts and nests in burrows that have been initially excavated by fossorial species (Zarn 1974, Haug and Oliphant 1990). Owls use burrows excavated by prairie dog (*Cynomys* spp.), ground squirrel (*Spermophilis* spp.), badger (*Taxidea taxus*), skunk (*Mephitis* spp., *Spilogale putorius*), armadillo (*Dasypus novemcinctus*), coyote, kit fox (*Vulpes macrotis*), kangaroo rat (*Dipodomys* spp.), and desert tortoise. Burrowing owls prefer open, arid, treeless, landscapes with low vegetation.

Burrowing owls are capable of breeding at one year of age (Klute et al. 2003). Courtship and pair formation occur in March and April in most areas, but may begin as early as late December in California. Clutch size averages over the entire range are between 6 and 7 eggs and ranges from 4 to 12 (Haug et al. 1993). The young are able to run and forage for themselves at four weeks and achieve sustained flight at six weeks (NatureServe 2006, Klute et al. 2003).

Burrowing owls are opportunistic feeders, primarily taking large insects, small mammals, birds, amphibians and reptiles (Haug et al. 1993).

From 1994 to1996, the western burrowing owl was designated by the Service as a Category 2 candidate species under the Act. In 1996, the Category 2 designation was discontinued. The burrowing owl is currently federally protected by the Migratory Bird Treaty Act of 1918, as amended (16 U.S.C. §§ 703-712) and is listed by the Service as a National Bird of Conservation Concern and as a Bird of Conservation Concern in Regions 1 (Pacific Region, mainland only), 2 (Southwest Region), 6 (Mountain-Prairie Region), and 8 (California-Nevada Region). Additionally, the species is recognized as a species of concern or sensitive species by various Federal, State, and nongovernmental organizations.

Apparent cause for concern stems from suggested population declines including documented peripheral range contractions in several large regions, notable in the northeast Great Plains and Canada. However, estimates of population trends in many regions are generally inconclusive due to limited sample sizes and high degree of data variability. Primary threats across the North American range of the species are habitat loss due to land conversions for agricultural and urban development, and habitat degradation and loss due to reductions of burrowing mammal populations. The elimination of burrowing mammals through control programs and habitat loss has been identified as the primary factors responsible for declines of burrowing owls. Additional threats to burrowing owls include habitat fragmentation, predation, illegal shooting, indirect effects of disease, collision with stationary and moving objects, pesticides, and other contaminants. Information on the rangewide status of the burrowing owl is also provided in section 3.3.5 of the CSI MSHCP.

2. Environmental Baseline for the Western Burrowing Owl in the Action Area

a. Status of the Western Burrowing Owl in the Action Area

In Nevada and in the Action Area, the burrowing owl is a State protected bird and listed as a BLM sensitive species. The Nevada Partners in Flight Bird Conservation Plan (1999) lists the burrowing owl as a Priority Bird Species in the Mojave Region.

Burrowing owls breed throughout Nevada in salt desert scrub, Mojave shrub, and some sagebrush habitat, as well as in agricultural landscapes. Burrowing owls often breed around the fringes of agricultural lands and use crop and pasture lands for foraging during the breeding season. General habitat condition in many of the known nesting territories is poor. Excessive grazing by large ungulates does not seem to decrease nest site suitability, and may be preferred because of increased visibility. Within the Mojave Desert (including the Action Area), the desert tortoise is the primary species providing burrow sites to burrowing owls (USGS 2007). The presence of desert tortoise burrows in low elevation Mojave scrub habitat and slope is a good indicator of the presence of burrowing owls on a site. Owl occurrence is likely restricted to

In 2008, there was an approximately 60 percent decrease in the number of Moapa dace, from 1,172 fish in 2007 to 460 in 2008. Most of this decline is due to large changes in the numbers of dace in the Pederson, Plummer, and Refuge Stream areas which supported more than 92 percent of the population in 2007. The cause of the population decline is currently unknown. However, various habitat enhancement and restoration projects are currently underway and the 2008, decline in population may be a temporary response to ongoing projects. In addition, in September 2007, SNWA purchased 1,179 acres of private property that encompasses several springs in the Muddy River headwaters area, including the former Warm Springs Ranch. The property includes 3.8 miles of the mainstream Muddy River. The Warm Springs Natural Area (as it is now known) is to be managed as a nature preserve for protection of Moapa dace, and restoration and management of the area as an ecological reserve.

3. Factors Affecting the Moapa Dace in the Action Area

The following existing groundwater rights and Nevada State Engineer rulings are described because some are part of the White River Groundwater Flow System, a regional groundwater flow system located in southern Nevada (Eakin 1966, Harrill et al. 1988, Prudic et al. 1993). The flow system consists of numerous local basin fill aquifers underlain by a large regional carbonate aquifer that transmits groundwater from basin to basin, beneath topographic divides. Groundwater inflow or recharge to the regional carbonate aquifer is primarily through precipitation. The terminal discharge of the White River Groundwater Flow System is most likely the Warm Springs Area in the Upper Moapa Valley, an area consisting of about twenty regional springs, with numerous seeps and wetlands. The source water supporting spring discharge in the Warm Springs Area is from the regional carbonate groundwater (62 percent) and from local recharge based on precipitation in the surrounding mountain ranges (BLM 2008a). The endangered Moapa dace is dependent upon these springs for survival.

a. Existing Groundwater Rights and State Engineer Rulings

1) ***Kane Springs Valley, Cave, Dry Lake and Delamar Valleys, and Lake Valley Hydrographic Basins.*** The effects of any groundwater withdrawals for the CSI development in Lincoln County are subject to evaluation in separate biological opinions as part of several GWD projects because these projects include development and transport of not only groundwater for the CSI development, but also groundwater for other developments and entities (see section entitled "B. U.S. Fish and Wildlife Service Proposed Action" subheading "2. Groundwater Withdrawals"). Additional avoidance and minimization measures for the Moapa dace may be included in these separate biological opinions for the GWD projects.

2) ***Coyote Spring Valley Hydrographic Basin.*** In this basin, groundwater rights filed with the Nevada State Engineer include 15 industrial use permits owned by SNWA, 4 municipal use permits owned by CSI and/or the Clark County-Coyote Springs Resources General Improvement District, 1 industrial use permit owned by Nevada Power Company, and 4 permits owned by Bedrock Limited, LLC, associated with sand

and gravel mining operations. Bedrock Limited, LLC also has one vested application for irrigation use. Currently, in the Coyote Spring Valley Hydrographic Basin permitted groundwater rights are 16,304 afy (BLM 2008a). There are 34 pending applications by Las Vegas Valley Water District (LVVWD); CSI; Dry Lake Water, LLC; and Bedrock Limited, LLC in the Coyote Spring Valley Hydrographic Basin.

Because the CSI development utilizes permitted water rights within the Coyote Spring Valley Hydrographic Basin, there are two other Nevada State Engineer rulings described below that affect the use of permitted water rights in this basin or potentially in other basins. In these rulings the Nevada State Engineer has required "staged development," an incremental approach for phasing in development of the carbonate aquifer with adequate monitoring in cooperation with other parties in order to assist in assessing effects. This approach was adopted by the Nevada State Engineer "...in order to predict, through the use of a calibrated model, the effects of continued or increased development with a higher degree of confidence."

In Order No. 1169 issued in 2002, the Nevada State Engineer held in abeyance applications for new groundwater rights in the Coyote Spring Valley, Black Mountains Area, Garnet Valley, Hidden Valley, Upper Moapa Valley, and Lower Moapa Valley groundwater basins until a pump test is completed. All major water right holders in these basins (SNWA, LVVWD, Moapa Valley Water District [MVWD], CSI, and Nevada Power Company) were required to conduct a regional groundwater study, including the pumping of at least 50 percent of the permitted water rights within the Coyote Spring Valley Hydrographic Basin for a period of at least two consecutive years. Order No. 1169 is designed to evaluate how groundwater pumping activities in Coyote Spring Valley will impact water rights and the environment within the Warm Springs Area, including the Muddy River ecosystem. Data obtained from the study will be used to evaluate groundwater development activities within the regional carbonate groundwater system. To date, there has been limited pumping of the permitted groundwater rights in Coyote Spring Valley. In 2005, CSI drilled and pump tested two wells in Coyote Spring Valley under Nevada Division of Water Resources permit numbers 70429 and 70430. The wells authorized under permit numbers 74094 and 74095 were completed in May 2007 and August 2008, respectively. Over time, CSI has changed well locations and increased the distance between production wells and the Muddy River Springs. Currently, CSI is monitoring and pumping water as needed for their development activities in Clark County.

In Ruling #4243 in the Muddy River Springs Area Hydrographic Basin, the Nevada State Engineer granted permits to MVWD for 5,800 afy from Arrow Canyon Well, but with pumping phased in over a 10-year period while monitoring surface water flows and groundwater levels in order to assess potential effects to wells and springs. Annual volume pumped is limited to annual demand, up to the maximum permitted. Annual pumping has consistently been less than the amount allowed in the ruling.

As of 2002, the Nevada State Engineer had granted a total of approximately 14,800 afy of groundwater permits for the alluvial and carbonate aquifer in the Muddy River Springs Area Hydrographic Basin (Service 2006). Included in these are MVWD permits for the Arrow Canyon Well totaling 7,240 afy (1,440 afy prior to Ruling #4243; plus 5,800 afy from Ruling #4243) from the carbonate aquifer. To date, the actual pumping from the Arrow Canyon Well has been far less than the permitted volume. Approximately 2,400 afy has been pumped on average since 1998.

Concurrent with groundwater pumping between 1998 and 2004, groundwater levels and spring discharge in the Warm Springs Area consistently declined (Service 2006). Over the same period, the total spring discharge from the Pedersen Unit, as measured at Warm Springs West, decreased from 4.00 cfs to 3.55 cfs (Service 2006). The discussion in Mayer (2004) shows that the observed decreases in spring discharge are consistent with expected decreases based on the 2-foot decline in groundwater levels observed in the carbonate monitoring wells in the Warm Springs Area. The extremely wet winter of 2005 appears to have recharged the springs with monthly discharge peaking at 4.1 cfs in May of 2006, and decreasing since that time (Mayer 2008). This is expected to be a transient response but the timing and level of a return to equilibrium conditions is not known for certain. Discharge has currently declined to 3.6 cfs (USGS 2008).

The exact timing of the groundwater level decline is important because if the actual decline precedes in time any action or event suspected of causing the decline (such as increased pumping or drought), then this is strong evidence that there are other factors causing the decline. The Service (2006) analyzed the timing of the decline as it was concerned about the rate and magnitude of the 1998 to 2004 decrease. The onset of the decline coincides with MVWD's increased pumping from the carbonate aquifer. In order to address the possibility that drought caused the groundwater level declines, the Service (2006) compiled precipitation records from a number of stations in the southeastern Nevada area. Their analysis showed that the decline from 1998 to 2004 was not likely to be drought-related. These declines observed between 1998 and 2004 have occurred not only locally in the Warm Springs Area, but have also occurred in monitoring wells 12 miles upgradient in Coyote Spring Valley and 15 miles south in monitoring wells in the California Wash Basin, based on USGS monitoring well data and monitoring well data (Service 2006).

Prior to the issuance of Order No. 1169, a stipulation was executed on July 19, 2001 among Federal agencies (including the Service) and SNWA regarding protests filed by Federal agencies against SNWA applications for new groundwater rights in the Coyote Spring Valley Hydrographic Basin. The Federal agencies and SNWA agreed to implement a monitoring study. Although SNWA, MVWD, and CSI do not believe the available hydrologic data supports the conclusions described above, a MOA was signed by the SNWA, MVWD, CSI, Moapa Band of Paiutes (Tribe), and the Service on July 14, 2005, regarding groundwater withdrawal of 16,100 afy from the regional carbonate aquifer in Coyote Spring Valley and California Wash Basins, and establishment of

conservation measures for the Moapa dace. The MOA outlined specific conservation actions that each party would complete in order to minimize potential impacts to the Moapa dace should water levels decline in the Muddy River system as a result of the cumulative withdrawal of 16,100 afy of groundwater from the two basins within the regional carbonate aquifer system. In order to be considered a benefit to the species, the proposed conservation measures will be initiated or fully implemented prior to the proposed groundwater withdrawal of 16,100 afy. Since development of these water rights requires the construction of facilities, there would be a two to five year timeframe in which to implement many of these actions prior to the pumping of the full amount of water. CSI is utilizing a small portion of their water rights in Coyote Spring Valley for development in Clark County prior to full implementation of all of the conservation measures. The action items identified in the MOA include development of a Recovery Implementation Program, restoration, ecological studies, construction of fish barriers, eradication of non-native fish, and dedication of water rights. Many of these action items are underway. Minimum in-stream flow levels were established in the MOA that trigger various conservation actions should those predetermined levels be reached. The flow levels will be measured at the Warm Springs West Flume located on the Moapa Valley NWR.

On January 30, 2006, the Service issued a non-jeopardy intra-Service programmatic biological opinion for the Muddy River MOA (Service File No. 1-5-05-FW-536; Service 2006). The programmatic biological opinion evaluated the execution of the MOA by the Service. Before implementation, activities included in the MOA require activity-specific consultations that are tiered to the programmatic biological opinion. The programmatic biological opinion evaluated the effects of the cumulative groundwater withdrawal of 16,100 afy from the two basins within the regional carbonate aquifer to the Moapa dace at a programmatic level in light of the conservation measures proposed in the MOA. Species not evaluated in the programmatic biological opinion that may be evaluated as part of future activity-specific consultations that are tiered to the programmatic biological opinion include the desert tortoise, southwestern willow flycatcher (*Empidonax trailii extimus*), the Yuma clapper rail (*Rallus longirostris yumanensis*), and candidate yellow-billed cuckoo (western U.S. distinct population segment) (*Coccyzus americanus*). To date, three activity-specific consultations have been tiered to the programmatic biological opinion.

J. EFFECTS OF THE PROPOSED ACTION

Direct effects encompass the immediate, often obvious effect of the proposed action on the listed species or its habitat. Indirect effects are caused by or will result from the proposed action and are later in time, but still reasonably certain to occur. In contrast to direct effects, indirect effects can often be more subtle, and may affect species' populations and habitat quality over an extended period of time, long after project activities have been completed. Indirect effects are of particular concern for long-lived species such as the desert tortoise, because project-related effects may not become evident in individuals or populations until years later. Additionally,

effects from actions such as groundwater withdrawals will likely manifest later in time; but could be of great consequence to aquatic-dependent species, such as the Moapa dace.

1. Effects of the Proposed Action on Desert Tortoise

Direct effects to the desert tortoise from the proposed action include the permanent loss of 21,698 acres of desert tortoise habitat in the Development Area (21,454-acre area) and the BLM utility corridor (244-acre area) in Lincoln County, although it is anticipated that 20,432 acres of desert tortoise habitat would likely be disturbed since 29.9 acres of existing WOUS and 1,236 acres of upland buffer habitat would be protected. All desert tortoises would be affected within the Development Area and BLM utility corridor due to conversion from desert scrub to residential, commercial, and flood control uses. Based on site conditions and previous surveys, it is estimated that desert tortoise density in the development footprint which includes the 21,454-acre CSI private lands and 244-acre BLM utility corridor in Lincoln County is 13.37 tortoises per mi^2. Thus, 445 tortoises and 5 tortoises may occur in the Development Area and BLM utility corridor, respectively, for a total of 450 desert tortoises. Within the CSICL, it is estimated that 286 tortoises may occur in this area.

Other potential effects to desert tortoises in the Development Area and BLM corridor include: increased fragmentation of the Mojave desert scrub vegetation community in the Mormon Mesa CHU; increased vehicular traffic and road mortality of tortoises attempting to cross roads; possible mortality or injury as a result of being crushed by vehicles and heavy equipment on the construction site, or falling into excavated areas or utility trenches upon entering a construction site for commercial or residential development; possible effects of noise and vibration from vehicles and heavy equipment; disruption of established home ranges and tortoise behavior; increased predation rates by ravens, kit fox, and/or coyotes attracted to the construction site due to project-related trash, litter, and water; increased trash and litter leading to injury or mortality of tortoises through ingestion of harmful objects (e.g., plastics); exposure or ingestion of toxicants present in the environment from construction-related activities or spills; possible illegal collection of tortoises by project personnel; potential injury or death of tortoises if they are missed during clearance surveys and/or wander on to the construction site and are not detected; and potential loss of desert tortoise eggs if they are not located and removed during clearance surveys.

Additionally, desert tortoises could be inadvertently harmed if not handled properly during capture and transport to the DTCC and CSCC. Urine and large amounts or urates are frequently voided during handling and may represent a severe water loss, particularly to juveniles (Luckenbach 1982). Averill-Murray (2002) determined that tortoises that voided their bladders during handling had significantly lower overall survival rates (0.81-0.88) than those that did not void (0.96). If multiple desert tortoises are handled by biologists/ monitors without protective measures including unused latex gloves, pathogens may be spread among the tortoises. Overheating can occur if tortoises are not placed in the shade when ambient temperatures equal or exceed temperature maximums for the species (Desert Tortoise Council 1994, revised 1999).

Desert tortoises may also be adversely affected by the anticipated increase in human populations in the area, resulting in an overall increase in use of public lands. This may lead to compacted soils, crushed or destroyed vegetation, removal of vegetation, increased soil erosion, altered hydrology, and increased non-point source pollution that may result in harm to the desert tortoise through habitat loss or degradation. Additional desert tortoise mortality and fragmentation of its habitat may result from road and trail construction and maintenance, as well as OHV or other recreational uses, especially on adjacent public lands and the CSICL. These and other types of indirect effects are discussed in detail in *Threats to Desert Tortoise Populations: A Critical Review of the Literature* (Boarman 2002), the Desert Tortoise Recovery Plan (Service 1994); the Desert Tortoise Recovery Plan Assessment Report (Tracy et al. 2004); and the final rule for designation of desert tortoise critical habitat (59 FR 5820).

Threats to desert tortoises from human presence in tortoise habitat are directly related to the amount of access people have to an area (Boarman 2002; Boarman refers to this as the most important general threat to tortoise populations). Elevated human use of public lands adjacent to the proposed CSI development will result in additional loss, degradation, and/or fragmentation of desert tortoise habitat, but how far out these effects will radiate is unknown. Recreational activity on surrounding land will undoubtedly increase with the greatest and most frequent impacts likely occurring close to the development. The extensive road network that currently exists on adjacent BLM lands in the Mormon Mesa CHU will create easy access for incursions into desert tortoise critical habitat. Many of these roads are unimproved and/or require high-clearance or OHV for passage. Illegal routes will likely proliferate as more people begin using the land. BLM's Las Vegas Field Office has completed their transportation plan that designates routes as open or close to OHV use in the Mormon Mesa and Coyote Springs ACECs in Clark County. BLM's Caliente Field Office is currently in the process of a roads inventory for the Mormon Mesa and Kane Springs ACECs as part of a route-designation process in Lincoln County. Through this process, some of the roads on BLM lands surrounding the CSI development may eventually be closed to vehicular and/or foot traffic; however, studies from other BLM sites indicate that road closures do not deter all users (Goodlett and Goodlett 1993), and some illegal use on closed roads may still occur without sufficient monitoring or law enforcement.

Roads have the obvious effect of increasing tortoise mortality rates through vehicle collisions, and this may be more pronounced for juveniles which can be difficult to detect. Additionally, tortoise population densities are often depressed near paved roads/highways (though high tortoise densities have been found near I-15 in California (T. Esque, USGS, pers. comm.)), potentially due to road-related mortality and perhaps other factors such as vehicular noise and vibrations, pollution, and habitat loss due to roadside fires. This effect has been observed at least within 0.8 km of paved highways (Boarman et al. 1997). Whether or not tortoise densities are lower near lightly-traveled dirt roads is not known; it is likely that road-kill rates are lower on unimproved than paved roads, but some mortality likely occurs (Boarman 2002). OHV use in the desert, which has greatly increased over the years and is the single greatest recreational use of public lands in southern Nevada (RECON 2000), can result in a significant cumulative loss of tortoise habitat and a significant impact on tortoise abundance and distribution (50 FR 5820).

Roads may result in many other indirect impacts to tortoise populations by increasing opportunities for human access for illegal collection of tortoises for pets, food, or sport; release of diseased, captive tortoises into wild populations and the subsequent spread of disease; littering and illegal dumping; increased chance and incidence of human-caused fire in tortoise habitat; and the spread of non-native, invasive weeds (Boarman 2002).

Passive or non-motorized recreation such as hiking, camping, wildlife viewing, rock climbing, mountain biking, and horseback riding may also have some level of adverse impact on wildlife, including tortoises. Little information is available on impacts of human recreation on desert tortoises. Negative impacts on other taxonomic groups have been documented (e.g., ungulates, birds), and similar impacts to tortoises may occur (Service 2001). A 20-year study of the potential association of human recreation and wood turtle decline at two populations of wood turtles suggest that human recreation may have caused or contributed to this observed decline, possibly through collection and handling of wood turtles; increased numbers of turtle predators resulting from increased garbage; road kill; and/or disturbance by dogs (Garber and Burger 1995).

Direct impacts of recreation may include vandalism or harassment of tortoises such as shooting; intentionally running over tortoises on roads; and collecting tortoises. Additionally, tortoises may be inadvertently affected by human recreation through accidental trampling and/or vehicle collisions. The primary impact of human recreation on tortoises will likely be temporary disruption of activity and modification of behavior resulting from human-tortoise encounters, whether intentional or unintentional (Service 2001). Desert tortoises have excellent vision and audio acuity and can detect an approaching person even from within burrows and shelter sites. When disturbed, wild tortoises commonly remain inactive for many minutes afterward. This change in behavior can cause tortoises to cease feeding, seeking shelter, or interacting with other tortoises; ultimately increasing stress levels, exposure to extreme temperatures, and/or altering mating or nesting behavior (Service 2001).

The anticipated increase in human use and habitation of the Coyote Spring Valley may attract and concentrate predators such as ravens, coyotes, and kit fox, resulting in increased predation of desert tortoises. Predators are more likely to be attracted to the area if trash or other subsidized resources are present. Natural predation in undisturbed, healthy ecosystems is generally not a significant threat to the desert tortoise. However, predation rates may be altered when natural habitats are disturbed or modified. Common raven populations in some areas of the Mojave Desert have increased 1,500 percent from 1968 to 1988, in response to expanding human use of the desert (Boarman 1992). Considering that ravens were very scarce in the Mojave Desert prior to 1940, it is assumed that the current level of raven predation on juvenile desert tortoises is an unnatural occurrence (BLM 1990). Because ravens make frequent use of food, water, and nest site subsidies provided by humans, their population increases can be tied to this increase in food and water sources, such as landfills and septic ponds (Boarman 1992, Boarman and Berry 1995, Service 1994). The existing extensive road network in the Coyote Spring Valley and Mormon Mesa area, as well as future trail systems that may be developed to accommodate recreational needs could create opportunities for trash dumping that will attract desert tortoise predators to the

area. Desert tortoises may also be killed or injured as a result of encounters with trash (e.g., entanglement or ingestion of plastic).

Raven populations in the Coyote Spring Valley may increase with human habitation and the increased availability of anthropogenic food and water resources, and nest-sites. Additionally, the anticipated increase in traffic volume on US 93 and Kane Springs Road will likely result in more road-killed animals, thus providing more food for scavenger species such as the raven. As the human presence in the Valley increases, the incidence of un-restrained domestic and/or feral dogs in tortoise habitat adjacent to the proposed development may subsequently increase. Preliminary results from a study in the Mojave Desert of California indicate a significantly higher percentage of tortoises with moderate to severe canid-like shell trauma within 3 km of settlements than tortoises at more remote sites (Demmon and Berry 1995). Others have also reported high incidence of canid-like shell damage at sites with feral dogs and dog packs (Bjurlin and Bissonette 2001).

The unlawful collection of desert tortoises may increase on lands adjacent to the proposed CSI development. Additionally, pet tortoises, both desert and exotic, kept by future residents of the CSI community may be intentionally or unintentionally released into surrounding areas. Well-meaning citizens may capture, transport, and release tortoises they find and perceive to be in harm's way. This could contribute to the spread of diseases such as upper respiratory tract disease (URTD) and/or the loss of unique, local characteristics through interbreeding and genetic mixing. URTD has been documented in both the Coyote Spring and Mormon Mesa permanent study plots (Service 1994, BLM 1998). URTD appears to be spreading and may have been introduced to wild tortoise populations through the release or escape of diseased, captive tortoises (Jacobson et al. 1994), something that is more likely to occur near an urban area (Boarman 2002). A high or increased prevalence of URTD in tortoise populations adjacent to urbanized areas or within suburban areas has been documented in several regions, for example, in Florida with gopher tortoises (Brown et al. 2005) and in Tucson, Arizona with the Sonoran population of desert tortoises (Jones et al. 2005). While evidence indicates a correlation between high rates of tortoise mortality/population decline and URTD incidence, a direct cause-effect relationship has not been established (Boarman 2002, Tracy et al. 2004). Additionally, tortoises that are physiologically stressed due to poor habitat conditions may be more likely to succumb to diseases such as URTD (Tracy et al. 2004).

Human use of lands adjacent to the proposed development could also modify desert tortoise habitat within the Coyote Spring Valley and Mormon Mesa. Vehicular and non-motorized recreation on adjacent lands could lead to soil compaction and vegetation changes, including decreased native plant cover and diversity, and increased erosion and non-native, invasive plant cover. Not only will the incidence of anthropogenic fire in the Valley and Mormon Mesa area likely increase due to greater human presence, but fires of any cause are likely to be more intense and burn more area due to increased ground cover and fuel loads in the form of non-native, annual grasses. Historically, fires in the Mojave Desert were infrequent and did not spread far or fast due to gaps in vegetation that served as mini-firebreaks. Non-native grasses (*Bromus*, *Schismus*) have become increasingly more prevalent and dominant throughout the Mojave

Desert, including in the Coyote Spring Valley, creating continuous fuel beds of highly-flammable, dead material. Additionally, increased human presence and recreational use of the valley will likely introduce and/or facilitate the spread of non-native, invasive plants, especially along roadways. Many native plant species cannot out-compete the non-native grasses that not only thrive in disturbed (e.g., burned) areas, but are extremely difficult to eradicate or control once established. Under these circumstances, a plant-fire regime cycle is created whereby non-native grass proliferation leads to higher frequency and intensity fires, which leads to greater non-native grass proliferation.

Fire can negatively impact tortoises and tortoise populations through direct mortality and injury, and loss and fragmentation of habitat, at least for the short-term, including loss of forage and shelter sites (Brooks and Esque 2002, Esque et al. 2003). Creosote bush is slow to re-sprout and germinate following intense fire (Brown and Minnich 1986). Loss of these shrubs and other vegetation, even temporarily, may change the thermal environment and increase exposure of tortoises to temperature extremes (Esque and Schwalbe 2002). Loss of forage, water, or shelter sites can result in nutritional deficiencies and decreased reproductive rates. The Coyote Spring Valley and Mormon Mesa area have been relatively unimpacted by fire to date. However, conditions are suitable for fire to occur in this area, as happened during the summer of 2005 when a complex of 12 fires (Southern Nevada Complex) burned approximately 403,644 acres of potential desert tortoise habitat, including 15,559 acres within the Mormon Mesa CHU (BLM 2005). These fires, largely fueled by high fuel loads of non-native annual grasses and extreme wind conditions, moved through the landscape in a mosaic pattern, burning areas with different degrees of severity and leaving other patches within the fire perimeter unburned. In the Coyote Spring Valley, fire could be an especially important threat to tortoise populations due to the small size of the valley (CSI Science Advisory Team 2006).

Fire likely could have devastating population-level effects on desert tortoises, depending on the intensity and severity of the fire, acreage burned, fire pattern, and factors (e.g., post-fire precipitation) affecting vegetation rehabilitation of burned areas in the Mojave Desert. However, threats such as increased numbers of tortoise predators, recreation, roads, and disease are known to affect individual tortoises, but the demographic consequences of these threats on tortoise populations are largely unknown (Service 1994, Boarman 2002, Tracy et al. 2004). Additionally, these threats interact with one another synergistically, potentially compounding negative impacts and necessitating management actions that address threats simultaneously rather than one at a time (Tracy et al. 2004). Additionally, in an environment with multiple anthropogenic threats, the elimination of one threat through management action may be ineffective at protecting tortoise populations if another mortality factor simply takes its place (Tracy et al. 2004). This is important to consider in terms of CSI's proposed residential development because multiple threats (either new or intensified) will be acting on the tortoise population(s) of the adjacent CSICL and CHU, land intended for the conservation and recovery of the species.

2. Effects of the Proposed Action on Desert Tortoise Critical Habitat

Our analysis of effects to desert tortoise critical habitat follows recent Service-issued guidance: *Application of the "Destruction or Adverse Modification" Standard under section 7(a)(2) of the Endangered Species Act* issued on December 9, 2004; and *Guidance on Conducting Endangered Species Act section 7 Consultations on the Desert Tortoise and Other Species* issued on February 15, 2005. These guidance documents indicate that critical habitat analyses should focus on the entire critical habitat area designated *unless* the final rule for the designation identifies another basis for the analysis, such as discrete units and/or groups of units that are necessary for different life cycle phases, units representing distinctive habitat characteristics or gene pools, or units fulfilling essential geographic distribution requirements; and that the analysis should focus on the function and conservation role of affected critical habitat unit(s) for the species.

The Desert Tortoise Recovery Plan proposed six Recovery Units for the Mojave population of the desert tortoise representing six potentially distinct population segments (Service 1994). Designation of Recovery Units was based on behavioral, ecological, genetic, morphological, and physiological differences in desert tortoises across their range, which likely mirrors biotic and abiotic variability in desert tortoise habitat. By conforming closely to desert wildlife management area (DWMA) boundaries proposed in the Draft Recovery Plan (Service 1993), CHUs are intended to provide for viable populations of desert tortoises representing this variation in traits (59 FR 5820). The final rule designating desert tortoise critical habitat indicates that the basis for critical habitat analysis for each proposed project will need review as to its impacts at all levels; for the individual CHU (including the local area that will be affected) and the recovery unit in which it resides. Each CHU has a specific function and role both locally and rangewide and the loss of a single unit may significantly reduce the ability of critical habitat to contribute to the recovery of the species (59 FR 5820).

Furthermore, the evaluation of actions that may affect critical habitat for desert tortoise should consider the effects of the action on its primary constituent elements. The constituent elements of desert tortoise critical habitat include: (PCE1) sufficient space to support viable populations within each recovery unit and to provide for movement, dispersal, and gene flow; (PCE2) sufficient quality and quantity of forage species and the proper soil conditions to provide for the growth of these species; (PCE3) suitable substrates for burrowing, nesting, and over-wintering; burrows, caliche caves, and other shelter sites; (PCE4) sufficient vegetation for shelter from temperature extremes and predators; and (PCE5) habitat protected from disturbance and human-caused mortality.

Direct impacts to desert tortoise critical habitat would be the permanent loss of 21,698 acres in the Development Area (21,454-acre area) and BLM utility corridor (244-acre area) that contains the PCEs of desert tortoise critical habitat, although it is anticipated that 20,432 acres is likely to be disturbed because some existing WOUS and upland buffer habitat would be protected. Although these preserved WOUS and upland buffer habitat would remain within the Development Area, desert tortoise use of these WOUS would be limited. The permanent loss of

21,698 acres would further reduce the space and restrict tortoise movement as the development move northward, and therefore negatively impact PCE 1.

The indirect effects of building a new city in an area currently removed from human habitation and relatively unmodified by anthropogenic disturbances will result in the degradation of the primary constituent elements and the fragmentation of habitat within the Mormon Mesa CHU, particularly in areas immediately adjacent to the Development Area but within the Action Area. Recreation in desert tortoise habitat, particularly OHV travel, will likely increase and over time, may destroy or alter cover on critical habitat adjacent to the Developed Area, and impact PCE 1, 2, and 5. Soils (e.g., sandy loams) may also be compacted by OHVs, rendering it difficult for tortoises to construct burrows or nests. Compacted sediments are not easily penetrated by rain, thus increasing runoff and erosion potential. Additionally, native plants are slow to colonize areas where the soil has been compacted because their roots cannot penetrate the denser sediments (Perkins 2004). Native plants that are disturbed by OHVs may be substantially reduced in height and width, thus providing little or no shelter for desert tortoises inhabiting surrounding lands, and thus impact PCE 4. OHV recreation may remove forage plants for the desert tortoise or cover plants with dust, thus affecting photosynthesis; and disturb soils and destroy soil crusts and cryptogams, thus accelerating the spread of invasive non-native plants and impacting PCE 2. These non-native plants (such as *Bromus* and *Schismus*) out-compete the native plant species, replacing the native annual plants that the desert tortoise requires for nutrients and shelter and increasing the ability of the desert to carry wildfire (Lovich and Bainbridge 1999).

The potential proliferation of non-native plant species could also contribute to an increase in fire frequency within the Action Area by providing sufficient fuel to carry fires. Fires in desert tortoise habitat result in loss of habitat by altering of plant composition and structure, and would impact all the PCEs.

The proposed CSI development would impact PCE 4 in the Action Area by reducing vegetation for shelter from temperature extremes and predators. An increase in new sites for perches and nests (e.g., fence posts, power poles and towers, signs, building, bridges) for the common raven would increase mortality of tortoises due to increased foraging advantages for common ravens. Tortoises that use vegetation as shelter within the undisturbed habitat immediately adjacent to the development footprint may find their shelter site inadequate and would be most susceptible to predation by ravens. In addition, rights-of-way, particularly for linear projects such as transmission and the proposed CSI detention basin within the BLM utility corridor, results in the removal of the vegetative shelter for tortoises and provides a swath of bare ground across the landscape. Desert tortoises that cross, or attempt to cross these areas are highly visible to predators, particularly avian predators such as the common raven or red-tailed hawk.

As mentioned, approximately 8,200 acres, or 2 percent, of the Mormon Mesa CHU has been lost or disturbed by development (Service 2006, unpublished data). The numerous fires of 2005 burned approximately 15,559 acres, or 4 percent of the Mormon Mesa CHU. In total, the 2005 fires burned approximately 10 percent of the Northeastern Mojave Recovery Unit. These

numbers represent a worst-case scenario: burned acreages are the total area inside fire perimeters, and are not broken out by unburned areas and burn severity class, as this information is currently not available. Although efforts are underway to rehabilitate these burned areas, it is unlikely that these acres will return to functional desert tortoise habitat for decades.

Table 3 includes the acres of critical habitat that would be affected by the proposed action, and the amount of critical habitat in the Mormon Mesa CHU and Northeastern Mojave Recovery. The loss of 21,698 acres of critical habitat represents an additional 5 percent loss of habitat to the Mormon Mesa CHU. In the Northeastern Mojave Recovery Unit, the proposed action would destroy approximately less than 2 percent of the potentially suitable desert tortoise critical habitat.

Table 3. Potential desert tortoise habitat, Critical Habitat Units of the Northeastern Mojave Recovery Unit

Area	Size (acres)	Potential Tortoise Habitat (acres)[1]	Potential Tortoise Habitat in 2005 Burn Perimeters (acres)[2]
CSI Project Area	21,698[4]	21,698[4]	0
Mormon Mesa CHU	427,900	421,631	15, 559
All CHUs in the Northeastern Mojave Recovery Unit[3]	1,194,517	1,172,646	120,146

[1] Defined as areas <4,200 feet in elevation minus playas, permanent waters, urban and agricultural/cultivated lands. Source: GIS analysis conducted by Region 1 Fish and Wildlife Service Office.
[2] Numbers represent total acreage for 56 fires (including the Southern Nevada Complex) that occurred in the Northeastern Mojave Recovery Unit in 2005. This total likely includes unburned areas and low, moderate, and high severity burned areas; accurate numbers for these burn severity classes are currently unavailable.
[3] Includes the entirety of the Mormon Mesa, Beaver Dam Slope, and Gold Butte-Pakoon CHUs and a small portion of the Piute-Eldorado CHU.
[4] CSI estimates that 20,188 acres of private lands and 244 acres of BLM utility corridor would likely be disturbed because some existing WOUS will be avoided and upland buffer habitat will be protected on the private lands.

The designation of the Mormon Mesa CHU was based on the Desert Tortoise Recovery Plan (Proposed DWMAs for Recovery of the Mojave Population of the Desert Tortoise) (Service 1994), which characterizes the proposed Mormon Mesa DWMA as incurring much habitat degradation, thus necessitating a large DWMA to achieve a sustainable tortoise population size. The Desert Tortoise Recovery Plan Assessment (Tracy et al. 2004) indicates that the number of threats in the Mormon Mesa area has increased since 1994. One of the most significant threats to the Mormon Mesa CHU stems from urbanization and the resulting loss, fragmentation, and degradation of tortoise habitat. CSI's proposed project will result in the direct loss of habitat in the Mormon Mesa CHU and will contribute to the degradation of constituent elements on surrounding land, though the geographic extent and severity of this effect is largely unknown. Based on rangewide tortoise population monitoring that began in 2001, tortoise densities in the Coyote Spring Valley are almost 50 percent more dense than the rest of the Northeastern Mojave Recovery Unit (Service 2005 unpublished data). Therefore, the proposed action would reduce the value of the area locally for tortoise conservation and result in less land available for recovery of the tortoise in the Mormon Mesa CHU and the Northeastern Mojave Recovery Unit.

3. Implementation of the CSI MSHCP and Avoidance, Minimization, and Mitigation Measures for the Proposed Action

The BLM, Corps and CSI will implement measures to avoid, minimize, and mitigate the above mentioned impacts to desert tortoise and 21,698 acres of desert tortoise critical habitat (although, it is anticipated that 20,432 acres would be disturbed). For a detailed description of proposed avoidance, minimization, and mitigation measures see the Conservation Measures section under Proposed Action in this Biological Opinion, and Chapter 6 of the CSI MSHCP. By complying with the proposed section 10(a)(1)(B) incidental take permit and CSI MSHCP, effects of the proposed action on desert tortoise will be minimized and mitigated through implementation of measures funded and administered through the CSI MSHCP activities/programs. These activities are intended to avoid, minimize, and mitigate project impacts to the desert tortoise.

a. Avoidance and Minimization Measures

1) Tortoise clearance surveys prior to ground-disturbing activities within the project area would minimize incidental take of desert tortoise. Desert tortoises removed during clearance surveys would be translocated or used in conjunction with science-based research projects such as the head-starting program. To avoid injury to tortoises from clearance surveys, only Service-authorized biologists or individuals trained in appropriate methods of handling desert tortoises would survey for and handle desert tortoises during pre-construction tortoise clearance surveys.

2) Permanent desert tortoise exclusion fencing would be erected along the north and east boundaries of the Development Area. Permanent tortoise exclusion fencing or other tortoise-proof barriers would be inspected at least quarterly (more frequently during the desert tortoise active season) and after major precipitation events. Tortoise fencing would prevent the ingress of desert tortoises from adjacent undisturbed habitat into the Development Area prior to site use, and thus minimize incidental take of tortoises due to injury or mortality from construction activities.

3) A Weed Management Plan would be implemented to reduce the spread of weed species to the CSICL and to Federal lands surrounding the project area. In addition to the noxious weed control measures included in the Weed Management Plan, invasive grasses would be excluded from landscaping. This measure would prevent the potential proliferation of non-native plant species within the Action Area, and minimize the likelihood of non-native plant species fueling fires in undisturbed areas adjacent to the proposed CSI development.

4) Fire conservation measures for the proposed CSI development would be coordinated with the appropriate Federal, State, and county agencies. These measures would focus on using roadways, infrastructure, and golf courses to keep fires from within the community from spreading to the adjacent CSICL and BLM lands and vice versa. Fire conservation measures for the CSICL would also include monitoring and implementing an aggressive

weed abatement program for invasive weed species as directed by the CSI Technical Steering Committee. This measure would help avoid the spread of fire on adjacent undisturbed habitat, and prevent the PCEs in the Mormon Mesa CHU from being impacted by fire. BLM will be given access to a hydrant that will be installed as part of the Kane Springs improvements for obtaining water for fire fighting.

5) Trash would be maintained at all times in covered, sanitary containers or in enclosed areas designed for such purposes. All trash would be hauled off-site for disposal. No rubbish or debris of any kind would be allowed to accumulate anywhere in the project area. During construction, trash and food items would be disposed properly in predator-proof containers with re-sealing lids and removed regularly to reduce attractiveness to opportunistic predators such as ravens, coyotes, and feral dogs. Upon completion of individual structure or activities in an area, all construction refuse would be removed from the site and disposed properly. By preventing the accumulation of trash in the project area, the availability of anthropogenic food and water resources, and nest-sites for predators would be limited. Thus, this measure is intended to avoid and minimize take of tortoises from increased predators that may become attracted, without adequate trash management, to the proposed project.

6) Pets including cats and dogs would not be allowed to roam free in the CSICL and Development Area. This restriction would minimize the incidence of un-restrained domestic and/or feral dogs in desert tortoise habitat adjacent to the proposed development, and minimize injury or mortality to tortoises from pets. In addition, pet desert tortoises would not be allowed in the Development Area. All unauthorized desert tortoise pets would be reported to the appropriate authorities. This measure is intended to prevent residents from collecting wild tortoises on adjacent habitat, as well as releasing pet tortoises into the wild tortoise populations.

7) BMPs for construction, operations and maintenance activities, include but are not limited to general site measures for ground disturbance activities, sediment and erosion control, water quality measures, trash management, and a desert tortoise education program to all workers. The BMPs would help to avoid and minimize any impacts to desert tortoise and habitat.

8) Reconfiguring the CSI private and lease lands would minimize habitat fragmentation by consolidating the private lands to the west and the lease lands adjacent to the BLM ACEC along the east side of the property. Habitat connectivity between CSI lease lands in Lincoln County, CSI lease lands in Clark County, which has been protected (see Service's File No. 1-5-05-FW-536-Tier 01), and the adjacent BLM ACEC would be maintained and desert tortoises would be able to move between these lands.

9) OHV and ATV use would be prohibited in the CSICL. CSI Community Patrol would monitor the CSICL and notify local law enforcement and the BLM, if deemed necessary through the CSI MSHCP's AMP process. A law enforcement presence would be

important to help minimize indirect impacts to desert tortoises and tortoise habitat on lands within the CSICL and adjacent to the CSI development

b. Mitigation Measures

1) Land developers would pay a per-acre development fee for disturbance as described above, estimated to generate approximately $16.2 million over the permit period. Fees would be used to implement the CSI MSHCP minimization and avoidance measures, as well as the conservation measures which consist of research priorities in the CSI MSHCP and implementing a Conservation Area Management Plan for the CSICL.

a) Research would include head starting and translocation programs for the desert tortoise; ecological implications of fire and habitat restoration after fire; and invasive species management.

Desert tortoises collected from the project area would be translocated and/or their progeny could be used for head-starting tortoises at sites in Coyote Spring Valley and critical habitat within the Northeastern Mojave Recovery Unit in an effort to enhance tortoise recruitment. Thus, tortoises cleared from CSI lands (and/or their progeny) would eventually contribute to local, regional, and range-wide, long-term recovery efforts.

Research associated with the head-starting program would increase understanding of effective release methods; movement, growth, health, and survivorship in relation to habitat; and the effectiveness of head-starting as a means to enhance populations. In addition, research on head starting, fire and weed management is expected to extend beyond the Action Area and provide valuable information that would result in on-the-ground management actions that would enhance the PCEs within the Mormon Mesa CHU, Northeastern Mojave Recovery Unit, and rangewide.

b) The CSICL would be managed for the conservation of the desert tortoise. A Conservation Area Management Plan, which includes restoration of these lands, would be developed within one year of issuance of the permit to CSI.

2) CSI would pay a total of $750,000 to fund research and activities that would further conservation efforts for the desert tortoise. These funds would be set aside within 30 days of issuance of the section 10(a)(1)(B) incidental take permit for the CSI MSHCP. The funds would be deposited in an interest-bearing account, to be used at the Service's direction for research and conservation efforts.

3) The Coyote Springs Charter Community Association, Inc. would develop educational materials, facilities, projects, or programs to provide education opportunities for future residents and visitors about the local desert environment, the desert plants and animals, and their habitat needs.

4) Approximately 13,767 acres would not be developed and set aside for the conservation of the desert tortoise. This area would be designated as the CSICL, as described above.

3. Effects of the Proposed Action on the Banded Gila Monster and Western Burrowing Owl

Land development activities on 21,698 acres within the Development Area and BLM utility corridor would result in the loss and degradation of banded Gila monster and burrowing owl habitat. During construction activities, there is potential for direct mortality of Gila monsters and burrowing owls exist during operation of heavy equipment. Gila monsters may also be inadvertently harmed if not handled property during capture and transport.

During pre-construction surveys for the western burrowing owl, active burrows would be checked for owls. If owls are not present in the burrow, the burrow would be collapsed to prevent the owl from reentering its burrow. As a result, owls would be displaced onto adjacent undisturbed habitat. During the bird breeding season, active owl nests would not be disturbed until young have fledged, and Service guidance would be followed to avoid impacts to breeding birds and their young. However, although a minimum 250 foot buffer would be placed around any active nests, construction occurring within the project site may decrease reproductive success of owls. Burrowing owl reproductive success at sites where home construction occurs has been documented to be significantly less than at sites next to construction or where construction is not taking place (Millsap and Bear 1988). Habitat degradation from construction may also reduce the ability of unpaired owls to find mates (Haug et al. 1993)

Gila monsters and burrowing owls that venture beyond habitat edges into the development once built would be at great risk of mortality from vehicles. Gila monsters may be encountered on roads during the warm nights of May through August, when they are dispersing from nests. Thus, they may be more vulnerable to mortality on roads during these periods (Beck 2005). Burrowing owls are also known to frequent roads as they have been observed using street lights to aid in nocturnal hunting. Vehicle collisions are a major source of mortality for burrowing owls (Haug et al. 1993). Increased mortality on roads for Gila monsters, particularly during May through August, and burrowing owls may result from the increase in vehicle traffic of future residents and visitors on US 93, SR 168, and Kane Springs Road.

Indirect effects to Gila monsters and burrowing owls would occur from increases in human presence, illegal collection, illegal recreational and OHV use in the Action Area, and increased presence and spread of non-native plants onto surrounding habitat which may result in increased fire occurrence. Although capable of swimming, Gila monsters are at risk of mortality if they fall into swimming pools or golf course waterways and become disoriented.

Gila monsters and burrowing owls may be vulnerable to mortality from pet dogs and cats. Dogs and cats also kill prey species of Gila monsters (e.g., cottontail rabbits, squirrels, and quails), which may in turn reduce the prey base available to foraging Gila monster.

Use of recreational facilities and trails within the CSICL by horses and pedestrians have the potential to result in disturbance, disruption of established home ranges and behavior of Gila monsters and burrowing owls. Habitat loss of up to 20 acres for trails would also occur within the CSICL.

4. Effects of the Proposed Action on the Moapa Dace

The WOUS in the Action Area include the tributaries to and from the Pahranagat Wash, a large north-south running ephemeral drainage and tributary to the Muddy River during large storm events (100-year events). Effects to the Moapa dace and their habitats from the loss of WOUS in the Development Area and BLM utility corridor are analyzed in Attachment 2. The potential hydrologic effects of groundwater withdrawals to support the CSI development in Lincoln County will likely indirectly affect the Moapa dace. For example, the production wells in the Kane Springs Valley that would be pumped to support the CSI development are located about 20 miles northwest of the Warm Springs Area of the Muddy River. The high permeability and transmissivity of the carbonate aquifer underlying the Kane Springs Valley and down-gradient Coyote Spring Valley are generally believed to connect the aquifer to springs in the Warm Springs area. Long-term effects from groundwater extraction could be propagated over great distances. Barriers to flow, such as faults or rock units with low permeability, would affect the extent of drawdown. There may be a break in the regional hydraulic gradient at the location of the Kane Springs Wash fault zone. The effects of any groundwater withdrawals for the CSI development in Lincoln County are subject to evaluation in separate biological opinions as part of several GWD projects because these projects include development and transport of not only groundwater for the CSI development, but also groundwater for other developments and entities (see section entitled "B. U.S. Fish and Wildlife Service Proposed Action" subheading "2. Groundwater Withdrawals"). Any groundwater withdrawals used for the CSI development that would not involve a Federal agency, would require CSI to seek coverage for the activity under section 10(a)(1)(B) of the Act.

K. Cumulative Effects

Cumulative effects include the effects of future State, tribal, local government, or private activities 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.

A portion of the Action Area is within the lands leased from BLM by CSI in Clark County. Development on non-Federal lands in Clark County will continue to occur, as Clark County, Nevada, is one of the fastest growing counties in the United States. The population of Clark County has more than doubled between 1990 and 2007, increasing from 770,000 to 1.9 million, and the population is expected to grow to over 3 million people by 2028 (Nevada State Demographer's Office 2007, 2008). Approximately 5,000 acres were developed each year in Clark County from 1970 to 2003 (BLM 2004), and this rate of development is expected to

continue or increase in the future. Outside Las Vegas proper, the cities of North Las Vegas, Mesquite, and Henderson are some of the fastest growing areas in the County. The Moapa and Moapa Valley area, which are located southeast of the Action Area along the Muddy River, are also growing rapidly, increasing from approximately 5,000 to approximately 7,700 acres of development between 1996 and 2003 for the two areas combined. BLM (1998) has identified approximately 41,000 acres for disposal near the towns of Moapa and Glendale that could allow for possible expansion of these communities. More people will pursue recreational activities on Federal lands surrounding the Development Area, which will result in direct and indirect effects to the environment, including the species and their habitats included in this consultation, across an area larger than just the acreage of the CSI development itself.

As the human population continues to grow in Clark County and surrounding areas, additional resources (water, energy, etc.) will be needed to meet the needs of residents and visitors to the area. Development of these resources on non-Federal lands in the Action Area may occur, but most likely will require ROWs across Federal lands, thus falling under purview of section 7 of the Act and not considered as cumulative effects.

L. CONCLUSION

1. Desert Tortoise and Designated Critical Habitat

After reviewing the current status of the desert tortoise (Mojave population) and its designated critical habitat, the environmental baseline for the Action Area, the effects of the proposed action, and the cumulative effects, it is the Service's biological opinion that the action, as proposed and analyzed, is not likely to jeopardize the continued existence of the threatened desert tortoise (Mojave population), and is not likely to adversely modify designated critical habitat.

CSI has committed to implement minimization and conservation measures which include tortoise clearance surveys of the Development Area, fencing the northern and eastern boundary of the Development Area with tortoise-proof barriers to prevent tortoises from entering the site post-construction; and the provision for desert tortoise research and conservation within the Coyote Spring Valley and Mormon Mesa areas.

The Service determined that the activities under the CSI MSHCP would not jeopardize the continued existence of the desert tortoise because the minimization, mitigation, and monitoring measures under the MSHCP would contribute to its conservation and recovery. While the proposed project will result in the permanent loss of 21,698 acres of designated critical habitat for the desert tortoise (although it is likely that 20,432 acres would be disturbed in the Development Area and BLM utility corridor because some existing WOUS and upland buffer habitat would be protected), this represents 5 percent of the designated critical habitat within the Mormon Mesa CHU, less than 2 percent of critical habitat in Northeastern Mojave Recovery Unit, and 0.3 percent of critical habitat rangewide. A total of 6 percent has been lost or disturbed in the Mormon Mesa CHU to fire and other development. However, with the additional

disturbance from the proposed, it is the Service's opinion that designated critical habitat in the affected CHU (Mormon Mesa) and Recovery Unit (Northeastern Mojave) will continue to function as intended by providing reserve quality habitat and functional corridors for conservation of the desert tortoise.

Additionally, it is the Service's opinion that the action as proposed will not jeopardize the continued existence of the desert tortoise because (1) the number of tortoises that would be killed or injured should be extremely small due to commitments by CSI to survey and clear the Development Area of tortoises prior to ground-disturbing activities; (2) tortoises removed from the site will likely be used for translocation and/or a head starting program in the Coyote Spring Valley or areas of historic occupancy; (3) research stemming from funds contributed by CSI will greatly aid in our understanding of tortoise conservation, threat abatement, the use of head starting for conservation purposes, and provide knowledge to improve fire-impacted and control weed species within desert tortoise critical habitat rangewide; and (4) CSI has committed to permanently protect and manage 13,767 acres for the conservation of the desert tortoise. Our finding is based on full implementation of CSI's conservation and minimization measures described in the CSI MSHCP and this Biological Opinion; as well as the CSI Mitigation Plan in the Section 404 Corps permit.

2. Banded Gila monster and Western Burrowing Owl

After reviewing the current status of and environmental baseline for the banded Gila monster and western burrowing owl, the effects of the proposed action, and the cumulative effects, it is the Service's biological opinion that authorizing the incidental take of the currently unlisted species should they become listed during the term of the section 10(a)(1)(B) incidental take permit, is not likely to jeopardize the continued existence of the unlisted banded Gila monster and western burrowing owl. The Service's opinion is based on the conservation measures outlined in the CSI MSHCP for the banded Gila monster and western burrowing owl.

3. Moapa Dace

After reviewing the current status of and environmental baseline for the Moapa dace, the effects of the proposed action, and the cumulative effects, it is the Service's biological opinion that the action, as proposed and analyzed, is not likely to jeopardize the continued existence of the endangered Moapa dace. Our finding is based on implementation of measures in place and under development that are associated with separate and specific GWD projects, stipulation agreements, and Nevada State Engineer orders or rulings that should avoid irreversible effects on the Muddy Springs and Muddy River flows. As previously mentioned in this Biological Opinion, these include conservation actions, such as the Muddy River Recovery Implementation Program, that are intended to increase the current population levels of the Moapa dace in order to assure their long-term survival.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act, as amended, prohibits take (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct) of listed species of fish or wildlife without a special exemption. "Harm" is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering (50 CFR § 17.3). "Harass" is defined as actions that create the likelihood of injury to listed species by annoying them to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering (50 CFR § 17.3). Incidental take is any take of listed animal species that results from, but is not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or applicant. Under the terms of sections 7(b)(4) and 7(o)(2) of the Act, taking that is incidental to and not intended as part of the agency action is not considered a prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The CSI MSHCP and its associated documents identify anticipated impacts to covered species that are likely to result from the proposed action and the measures that are necessary and appropriate to minimize those impacts. The evaluation of the effects of the proposed actions includes consideration of the measures developed by the Service, BLM, Corps, and CSI, to minimize the adverse effects of the proposed action on affected species. All conservation measures described in the proposed CSI MSHCP, together with terms and conditions described in the associated IA and any section 10(a)(1)(B) permit or other permits issued with respect to the proposed CSI MSHCP, are hereby incorporated by reference as Reasonable and Prudent Measures with Terms and Conditions in this Incidental Take Statement pursuant to 50 CFR § 402.14(i).

The Reasonable and Prudent Measures with Terms and Conditions described below are nondiscretionary and must be implemented by the Service, Corps, or other jurisdictional Federal agencies as appropriate, so that they become binding conditions of any section 10(a)(1)(B) incidental take permit, other permits or grant documents issued by the Service, Corps, BLM or other jurisdictional Federal agencies as appropriate, in order for the exemption under section 10(a)(1)(B) and section 7(o)(2) to apply. The exemption from section 9 prohibitions for take provided by this incidental take statement extends only to the action areas described in the CSI MSHCP and this Biological Opinion. The Reasonable and Prudent Measures that follow are intended to clarify or supplement the conservation measures that were proposed by the Service, BLM, Corps, and CSI, as part of the CSI MSHCP and proposed action. The amount or extent of incidental take anticipated under the proposed CSI MSHCP, associated reporting requirements, and provisions for disposition of dead or injured animals are described in the CSI MSHCP and its accompanying section 10(a)(1)(B) incidental take permit.

The Service, BLM, Corps, or other jurisdictional Federal agencies as appropriate, have a continuing duty to regulate the activity that is covered by this incidental take statement. To monitor the impact of incidental take, the Service, Corps, BLM or other jurisdictional Federal agencies as appropriate, must monitor the progress of the section 10(a)(1)(B) incidental take permit, other permits or grant documents and impacts to the species as specified in the incidental take statement (50 CFR § 402.14(i)(3)). If the Service, BLM, Corps, or other jurisdictional Federal agencies as appropriate, fail to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the section 10(a)(1)(B) incidental take permit, other permits or grant documents, and/or fail to retain oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse. In addition, if the section 10(a)(1)(B) Permittee, CSI, fails to adhere to these terms and conditions, protective coverage of the section 10(a)(1)(B) incidental take permit and section 7(o)(2) may lapse.

Two Covered Species under the CSI MSHCP, the banded Gila monster and western burrowing owl, are not currently listed or proposed for listing; therefore, there is no take prohibition under the Act for these species at this time. The incidental take statement and the section 10(a)(1)(B) incidental take permit for these two unlisted Covered Species shall become effective for each species if and when that species becomes listed under the Act during the term of the section 10(a)(1)(B) incidental take permit.

For the incidental take of any migratory bird species listed under the Act that would result from the Service's issuance of the section 10(a)(1)(B) incidental take permit, the Service will not refer the incidental take of any migratory bird or eagle for prosecution under the Migratory Bird Treaty Act of 1918, as amended (16 U.S.C. §§ 703-712), or the Bald and Golden Eagle Protection Act of 1940, as amended (16 U.S.C. §§ 668-668d), if such take is in compliance with the Terms and Conditions (including amount and/or number) specified herein.

A. AMOUNT OR EXTENT OF TAKE ANTICIPATED

1. U.S. Fish and Wildlife Service Proposed Action

The Service proposes to issue an incidental take permit to CSI, under the authority of section 10(a)(1)(B) and section 7(o)(2) of the Act for a period of 40 years. CSI proposes to permanently disturb or cover 21,454 acres of private lands and 244 acres of a BLM utility corridor in Lincoln County (for a total of 21,698 acres), as well as manage 13,767 acres of lease lands from the BLM in Clark and Lincoln counties as the CSICL, in accordance with the requirements, guidelines, measures and processes described in the CSI MSHCP and IA, and this Biological Opinion. The disturbance and conversion of 21,698 acres of habitat is expected to result in incidental take of the desert tortoise, banded Gila monster and western burrowing owl, and their habitats. However, CSI estimates that no more than 20,432 acres within the Development Area and BLM utility corridor would be disturbed because some existing WOUS and upland buffer habitat would be protected. Take incidental to the management of the 13,767 acres of CSICL is also expected. CSI has developed a MSHCP which includes avoidance, minimization, and mitigation

measures to address the incidental take. Incidental take that will result from habitat conversion of the private lands and management of the CSICL will be authorized through the section 10(a)(1)(B) incidental take permit for the CSI MSHCP.

a. Desert Tortoise, Banded Gila Monster and Western Burrowing Owl

The Service expects that incidental take of the terrestrial Covered Species (desert tortoise, banded Gila monster, and western burrowing owl) will be difficult to detect or quantify for the following reasons: (1) the secretive nature of these species makes detection or quantification difficult; (2) species abundance may be masked by seasonal fluctuations in numbers or other causes; and (3) these species mostly use habitats (e.g., burrows) that make them difficult to detect. The Service estimates and describes below that take of the terrestrial Covered species associated with the loss of up to 21,698 acres (21,454 acres of private lands and 244 acres of BLM utility corridor) of terrestrial Covered Species habitat will occur as a result of issuing the proposed section 10(a)(1)(B) incidental take permit to CSI. The Service estimates that loss of habitat for the terrestrial Covered Species is likely to be 20,432 acres (20,188 acres of private lands and 244 acres of BLM utility corridor) because some existing WOUS will be avoided and upland buffer habitat will be protected on the private lands). Also addressed below is the amount of take anticipated on the 13,767-acre CSICL as a result of management activities (e.g., restoration, law enforcement, etc.).

*1) **Individuals and Eggs.*** It is anticipated that all individuals of the desert tortoise, banded Gila monster and western burrowing owl will or may be taken during conversion of the 21,698 acres of habitat on private lands and BLM utility corridor as addressed in this Biological Opinion or in the CSI MSHCP. Take will be in the form of harm, harass, kill, wound, capture or collect. Based on prior surveys of the project site, the Service believes that take will amount to no more than 450 desert tortoises (445 on CSI private lands and 5 in the BLM utility corridor). Surveys have not been completed for banded Gila monster and western burrowing owl; therefore, the estimated amount of take for these species is undetermined.

Desert tortoise and western burrowing owl clearance surveys will be conducted prior to ground-disturbance activities, and banded Gila monsters may also be located during these pre-construction surveys for tortoises and owls. The Service anticipates that a majority of the take of adult and sub-adult desert tortoises for these activities will be in the form of collection (i.e., capture) with subsequent removal to the CSCC and DTCC; the majority of take of banded Gila monster will be in the form of collection (i.e., capture) with removal and translocation to suitable areas in consultation with NDOW; and the majority of take of western burrowing owl will be in the form of harassment (i.e., to ensure birds flee burrows) or collection (i.e., capture) with removal and release to the adjacent CSICL.

However, some desert tortoises, banded Gila monsters and western burrowing owls will undoubtedly be missed during clearance surveys, especially juveniles and eggs which are

more difficult to detect, and/or others may wander unnoticed onto the construction site subsequent to surveys, resulting in injury or death. Thus, we anticipate that some unknown number of desert tortoises, banded Gila monsters, and western burrowing owls will be accidentally injured or killed as a result of project-related activities within or adjacent to the project area, but that those numbers are not quantifiable and depend largely on the use and effective implementation of conservation measures (e.g., temporary exclusion fencing). Additionally, an unknown number of desert tortoise, banded Gila monster and western burrowing owl eggs and non-emerged hatchlings may be incidentally destroyed or excavated and moved to the adjacent CSICL, or the CSCC and DTCC during removal activities. The number of eggs that each species can produce in a season is dependent on a variety of environmental and physiological factors; thus, without detailed information on the species populations and habitat conditions, it is impossible to quantify potential take of eggs and non-emergent hatchlings for these species.

An unknown number of desert tortoises, banded Gila monsters, and western burrowing owls in the project area or adjacent lands may be taken indirectly in the form of harm and harass through increased noise and ground vibrations associated with the use of heavy equipment, as well as other construction-related activities. Finally, an unknown number of desert tortoises may also be taken in the form of mortality through predation by ravens attracted to construction-related trash in the project area.

Desert tortoises adjacent to the Development Area and within the CSICL may be taken indirectly in the form of harass, harm, pursue, hunt, shoot, wound, kill, capture or collect due to increased human access and use of surrounding lands once the development is completed. The degree and extent of this indirect take is not quantifiable and is not authorized through this Biological Opinion.

2) ***Habitat.*** In terms of take of habitat, the loss of 21,698 acres of desert tortoise critical habitat, and banded Gila monster and western burrowing owl habitat for the CSI development activities (on CSI private lands and BLM utility corridor) would be the maximum incidental take of habitat for the CSI MSHCP. It is estimated, though, that about 20,432 acres (20,188 acres of private lands and 244 acres of BLM utility corridor) will likely be the total amount disturbed, as some existing WOUS will be avoided and upland buffer habitat will be protected.

3) ***Individuals and Habitat in the CSICL.*** The CSICL would be managed for the conservation of the desert tortoise, banded Gila monster, and western burrowing owl. Take of these species that is incidental to the management of the CSICL is expected. Under the proposed CSI MSHCP, a Conservation Area Management Plan would be developed for the CSICL and implemented in conjunction with the proposed CSI development in Lincoln County. The plan would address recreation trails (up to 20 acres), weed and fire management, law enforcement, litter management, and restoration within the CSICL. The majority of the activities will be beneficial in nature, but a certain level of human activity (e.g., human presence, equipment vibrations or

activity, etc.) will be associated with each activity. Therefore, as a result of the CSICL management plan activities, up to 286 desert tortoises, and an unknown number of banded Gila monsters and western burrowing owls may be taken in the form of harass, harm, wound, kill, capture or collect. The Service estimates that a relatively small number of each of these species will be taken in the form of wound or kill over the term of the section 10(a)(1)(B) incidental take permit. In addition, desert tortoise critical habitat and banded Gila monster and western burrowing owl habitat within the 13,767-acre CSICL would be subject to minor disturbance as a result of trail construction and use, and Conservation Area Management Plan activities, such as restoration. Trail construction and Conservation Area Management Plan activities will be reviewed and approved by the Technical Advisory Committee (TAC). These estimates of take of individuals and species habitats vastly overstate the actual amount of take likely to occur as a result of the CSICL Conservation Area Management Plan activities and trail construction and use, but the precise quantification of take for these activities at this time is unavailable. Some of the specific activities in the CSICL that will be described in the Conservation Area Management Plan may be subject to future analysis under applicable laws (i.e., the Act and NEPA), regulations and BLM policy, and the Service may at that time during future analyses clarify this Incidental Take Statement and Biological Opinion by providing additional quantification of estimated take for specific CSICL activities.

In the CSICL and in other habitat for the Covered Species, science-based research projects or activities associated with, or funded by the CSI MHSCP (e.g., head starting program for the desert tortoise; research on ecological implications of fire and habitat restoration after fire; invasive species management; and habitat modeling and surveys for banded Gila monster and western burrowing owl) may result in take of the desert tortoise, banded Gila monster and western burrowing owl. For the desert tortoise, and other species if they become listed, any incidental take associated with these research projects would be analyzed and authorized separately by the Service under section 10(a)(1)(A) scientific permits.

b. Moapa Dace

If the Service issues a section 10(a)(1)(B) incidental take permit to CSI for its MSHCP, no take is authorized for the Moapa dace in this incidental take statement for the potential hydrologic effects of groundwater withdrawals to support the CSI development in Lincoln County. These withdrawals and their effects to the Moapa dace are subject to evaluation under separate biological opinions for several GWD projects (see section entitled "B. U.S. Fish and Wildlife Service Proposed Action" subheading "2. Groundwater Withdrawals"), and any appropriate incidental take would be authorized through those biological opinions when issued. Any groundwater withdrawals used for the CSI development that would not involve a Federal agency, would require CSI to seek coverage for the activity under section 10(a)(1)(B) of the Act. If, in the future, CSI is granted water rights from the State Engineer for pending applications in the Lincoln County portion of the Coyote Springs Hydrographic Basin, and if there is no federal

nexus, CSI would be required to analyze the impacts and seek take authorization through an amendment to their section 10(a)(1)(B) permit.

2. U.S. Army Corps of Engineers Proposed Action

The Corps has proposed to approve issuance of a Clean Water Act Section 404 permit for the proposed CSI development and BLM utility corridor located in Lincoln County, Nevada. The project would consist of altering and placing fill material in approximately 34 acres of unnamed jurisdictional ephemeral washes located within the project area, which is necessary in order to develop the 21,454 acres of CSI private lands and 244 acres of BLM utility corridor in Lincoln County. The project would also consist of managing the 13,767-acre CSICL for the conservation of the desert tortoise, banded Gila monster, and western burrowing owl. Take of the desert tortoise and its designated critical habitat on the approximately 34 acres of impacted WOUS and connected 21,698 acres of CSI private lands and BLM utility corridor to be developed in Lincoln County, as well as the management of the 13,767 acres of CSICL would be the same as described above in the Incidental Take Statement for the "U.S. Fish and Wildlife Service Proposed Action." Exemption of take under section 7(o)(2) for the Corps, or other jurisdictional Federal agency as appropriate, does not apply for the banded Gila monster and western burrowing owl because they are not listed under the Act.

C. Effect of the Take

In this Biological Opinion, the Service determined that the above-mentioned levels of anticipated take are not likely to jeopardize the continued existence of the desert tortoise or is not likely to destroy or adversely modify designated critical habitat for the desert tortoise. Furthermore, in this Biological Opinion, the Service determined that the above-mentioned levels of anticipated take are not likely to jeopardize the continued existence of the banded Gila monster and western burrowing owl should they become listed. These determinations are based in part on the implementation of conservation measures detailed in the CSI MSHCP, EIS, and Clean Water Act Section 404 Corps permit.

D. Reasonable and Prudent Measures with Terms and Conditions

The Service believes that the following Reasonable and Prudent Measures are necessary and appropriate to minimize take of desert tortoise, banded Gila monster, and western burrowing owl that may result from the CSI development in Lincoln County, as described in the CSI MSHCP and this Biological Opinion. These measures, and the subsequent terms and conditions, are intended to clarify or supplement the conservation measures that are part of the proposed action.

For the Corps, or other jurisdictional Federal agency as appropriate, the Reasonable and Prudent Measures with their implementing Terms and Conditions that involve or contain language

regarding the banded Gila monster and western burrowing owl do not apply to the Federal agencies as they are unlisted species under the Act. The Reasonable and Prudent Measures, with their implementing Terms and Conditions, are designed to minimize the impact of incidental take of listed species that might otherwise result from the proposed action. For the proposed action of the Corps, or other jurisdictional Federal agency as appropriate, if during the course of the action, the level of incidental take or loss of habitat identified is exceeded, such incidental take and habitat loss represents new information requiring reinitiation of consultation and review of the reasonable and prudent measures provided. The Corps, or other jurisdictional Federal agency as appropriate, must immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification of the Reasonable and Prudent Measures.

RPM 1: The Corps or other jurisdictional Federal agency as appropriate, and CSI shall implement measures to ensure compliance with the conservation measures, reasonable and prudent measures, terms and conditions, reporting requirements, and reinitiation requirements contained in this Biological Opinion and incidental take statement.

Terms and Conditions

1a. CSI shall designate a Service-approved field contact representative (FCR) during construction. The FCR would be in charge of overseeing project compliance with the conservation measures outlined herein and the Federal and State laws protecting the desert tortoise. The FCR would have the authority to halt all activities in the event there is a violation of the committed conservation actions. The FCR must be independent of the project proponent.

1b. An Authorized Biologist shall be hired for the project. In accordance with Procedures for Endangered Species Act Compliance for the Mojave Desert Tortoise (Service 1992), an Authorized Biologist should possess a bachelor's degree in biology, ecology, wildlife biology, herpetology, or closely related fields as determined by the Service. The Authorized Biologist must have demonstrated prior field experience using accepted resource agency techniques to survey for desert tortoises and tortoise sign, which should include a minimum of 60 days field experience. Any Authorized Biologist shall comply with the Service-approved handling protocol (Desert Tortoise Council 1994, revised 1999). In addition, the Authorized Biologist shall have the ability to recognize and accurately record survey results and must be familiar with the terms and conditions of this Biological Opinion. Those seeking to be an Authorized Biologist for the project shall complete the Qualifications Form (see attached Appendix A) and submit it to the Service for review and approval as appropriate. Allow 30 days for Service review and response. The Authorized Biologist will be responsible for approving, evaluating, and supervising approved monitors to assist in implementing the desert tortoise measures of this Biological Opinion.

1c. The Authorized Biologist shall have the authority to temporarily halt non-emergency construction activities that are not in compliance with these measures. Actions shall be halted long enough to remedy the immediate situation and shall apply only for the equipment and parties involved in the situation. All actions of non-compliance or conditions that threaten a federally-listed species shall be recorded and reported immediately to the FCR, project proponent, and the Service, Corps or other jurisdictional Federal agencies.

1d. CSI shall ensure the conservation measures proposed in the CSI MSHCP and repeated above in this Biological Opinion are implemented.

1e. The Corps or other jurisdictional Federal agency as appropriate, shall notify the Service if project changes result in additional effects to federally-listed species not previously discussed in the EIS, and Corps section 404 permit application and supplemental materials, and reinitiation of formal consultation shall be requested.

1f. Reporting for CSI development activities shall be completed in accordance with the MSHCP.

RPM 2: The Corps or other jurisdictional Federal agency as appropriate, and CSI shall implement measures to minimize injury and mortality of desert tortoises due to CSI construction activities and operation of heavy equipment in the project area. In addition, CSI shall implement the following measures for the banded Gila monster and western burrowing owl, as specified below and in the CSI MSHCP (measures for unlisted species do not apply to the Corps or other jurisdictional Federal agencies).

Terms and Conditions

2a. Prior to initiation of construction, an Authorized Biologist or approved monitor(s) shall present a desert tortoise education program to all personnel who will be on-site, including but not limited to contractors, contractors' employees, supervisors, inspectors, and subcontractors. This program will contain information concerning the biology and distribution of the desert tortoise and other sensitive species such as the banded Gila monster and western burrowing owl, their legal status and occurrence in the project area; the definition of "take" and associated penalties under the Act; the terms and conditions of this Biological Opinion; the means by which employees can help facilitate this process; responsibilities of workers, approved monitor(s), Authorized Biologist, and supervisors; hazardous substance spill prevention and containment measures; and reporting procedures to be implemented in case of desert tortoise encounters or non-compliance with this Biological Opinion. All informed persons shall sign a statement indicating that they have completed the education program and understand fully its provisions.

2b. Project personnel shall be notified that they are not authorized to handle or otherwise move federally-listed species and sensitive species encountered on the site. Instead, project personnel shall immediately inform the FCR, an Authorized Biologist or approved monitor(s) whenever a desert tortoise or sensitive species is observed on or near the construction site, *whether or not the tortoise is in the path of construction activities.* The Authorized Biologist will inform project personnel on how to proceed and/or will move the desert tortoise or sensitive species out of harm's way.

2c. Observations of federally-listed species and their sign during activities shall be conveyed to the FCR, Authorized Biologist, or approved monitor(s). This includes all observations of desert tortoises, tortoise sign, and mortalities.

2d. Within the Development Area, CSI shall not disturb more than 2,000 acres per year for the first eight years. Accordingly, desert tortoise clearance surveys will occur on no more than 2,000 acres per year for the first eight years. Desert tortoise fencing will be installed on-site around the perimeter of the development footprint up to 2,000 acres per year for the first eight years. After year eight, tortoise clearance surveys and tortoise fencing will be expanded to the remaining CSI private lands, as described in the CSI MSHCP and EIS.

2e. For the Development Area, all surface disturbance activities associated with construction of the CSI development shall occur inside the temporary or permanent tortoise fencing, as applicable. An Authorized Biologist shall be on-site during construction of the fence to ensure that no tortoises, banded Gila monsters, and western burrowing owls are harmed. The Authorized Biologist shall thoroughly examine the proposed fence line and burrows for the presence of tortoises and eggs no more than three days before construction commences. Fence construction shall follow the Service's recommended specifications for desert tortoise exclusion fencing (see attached Appendix B for specifications).

2f. During construction activities, desert tortoise-proof fences shall be monitored weekly and as soon as possible following precipitation. Maintenance shall include regular removal of trash and sediment accumulation, the immediate repair of any damage, and restoration of zero clearance between the ground and the bottom of the fence.

2g. The Authorized Biologist shall complete a pre-construction clearance survey. The survey shall be completed within five days prior to initial ground disturbances. The clearance survey will also be conducted in Pahranagat Wash and other washes within the Development Area. During the survey the Authorized Biologist would flag and photo-document all desert tortoise burrows, feeding sites, nesting sites, and special habitat features. Any desert tortoises located during the survey would be handled according to the Service-approved protocols (Desert Tortoise Council

1994, revised 1999). Two complete passes shall be conducted. If a desert tortoise is located on the second survey, a third survey will be required. All desert tortoise burrows, and other species' burrows that may be used by tortoises, shall be examined to determine whether the burrow is occupied by desert tortoises.

2h. All potential desert tortoise burrows located within the Development Area (including Pahranagat Wash and other washes) shall be excavated by hand by an Authorized Biologist, tortoises and eggs removed, and collapsed or blocked to prevent occupation by desert tortoises. All desert tortoise handling and removal, and burrow excavations, including nests, shall be conducted by an Authorized Biologist in accordance with the Service-approved protocol (Desert Tortoise Council 1994, revised 1999). If the Desert Tortoise Council or Service releases a revised protocol for handling of desert tortoises before initiation of project activities, the revised protocol shall be implemented for the project area. The tortoises cleared from the Development Area and BLM utility corridor for the detention basins would be kept in separate desert tortoise holding facilities, which include the DTCC in Clark County and the CSCC.

2i. Desert tortoises shall be treated in a manner to ensure that they do not overheat, exhibit signs of overheating (e.g., gaping, foaming at the mouth, etc.), or are placed in a situation where they cannot maintain surface and core temperatures necessary for their well-being. Desert tortoises shall be kept shaded at all times until it is safe to release them. No desert tortoise shall be captured, moved, transported, released, or purposefully caused to leave its burrow for whatever reason when the ambient air temperature is above 95°F (35°C). Ambient air temperature shall be measured in the shade, protected from wind, at a height of 2 inches (5 centimeters) above the ground surface. No desert tortoise shall be captured if the ambient air temperature is anticipated to exceed 95°F before handling and relocation can be completed.

If the ambient air temperature exceeds 95°F during handling or processing, desert tortoises shall be kept shaded in an environment that does not exceed 95°F, and the animals shall not be released until ambient air temperature declines to below 95°F. Special precautions shall be taken to ensure that desert tortoises are not harmed as a result of their capture and movement during extreme temperatures (i.e., air temperatures below 55° F or above 95° F). Under such adverse conditions, tortoises captured will be monitored continually by an Authorized Biologist or approved monitor(s) until the tortoise exhibits normal behavior. If a desert tortoise shows signs of heat stress, procedures will be implemented as identified in the Service-approved protocol (Desert Tortoise Council 1994, revised 1999).

2j. During pre-construction tortoise surveys, banded Gila monsters located opportunistically within the Development Area shall be translocated to suitable areas in consultation with NDOW (NDOW 2007). Data from surveys (e.g., health

of individuals, location of individuals, burrows collapsed, individuals moved) will be collected and recorded.

2k. All land within the Development Area shall be surveyed for western burrowing owl and their burrows prior to ground disturbance activities. Data from surveys (e.g., health of individuals, location of individuals, burrows collapsed) will be collected and recorded. Measures contained in the Service's guidance (Service 2007) will be implemented during project construction. In addition, all potential owl burrows seemingly unoccupied by scope inspection will be carefully collapsed to locate any possible owls. Where construction of the area is imminent and fiber-scopes are ineffective, a complete removal by digging back to the end of the burrow and associated intricate system of burrows may be necessary. In the event of a displacement, appropriate depositories of owls discovered will be determined beforehand.

2l. All project personnel shall be instructed that their activities shall be confined to locations within areas previously cleared of tortoises and western burrowing owls. Travel routes within the project area should be established, cleared of desert tortoises and western burrowing owls, and clearly marked prior to construction in any particular area.

2m. Because some tortoises may be missed during clearance surveys, all open pits or other excavations shall be inspected for tortoises and other entrapped animals by a an Authorized Biologist or approved monitor(s) on a routine basis and prior to backfilling. Entrapped tortoises shall be removed only by a Authorized Biologist. Whenever possible, open trenches or pits shall be backfilled within 72 hours.

2n. During construction, a speed limit of 25 mph shall be maintained in areas cleared of tortoises and fenced with desert tortoise exclusion fencing.

2o. Vehicular travel and staging of equipment within areas that have not been cleared of tortoises and western burrowing owls shall be prohibited in the Development Area. Vehicular travel and staging of equipment within areas that have not been cleared of tortoises shall also be prohibited in the BLM utility corridor. Exceptions to this prohibition in the Development Area and BLM utility corridor to conduct project-related activities (e.g., to flag tortoise exclusion fence line) in areas not yet cleared of tortoises, include:

i. Travel in areas not yet cleared of tortoises and western burrowing owls may occur only if vehicles or equipment stay on existing, previously disturbed roads, their driver(s) or passenger(s) carefully watch for tortoises or owls on the road to avoid them, and they do not exceed a speed limit of 15 mph; or

ii. Travel in areas not yet cleared of tortoises and western burrowing owls may occur if an Authorized Biologist clears the path of desert tortoises and western burrowing owls (checking burrows) for all equipment and vehicles that must travel off-road and they do not exceed a speed limit of 15 mph.

2p. During construction activities, any time a vehicle is parked, whether the engine is engaged or not, the ground around and under the vehicle shall be inspected for desert tortoise.

2q. Pet desert tortoises shall not be allowed in the Development Area and within the CSI development after it is built. All unauthorized desert tortoise pets would be reported to the appropriate authorities.

RPM 3: The Corps or other jurisdictional Federal agency as appropriate, and CSI, shall implement measures to minimize predation on tortoises by ravens and other potential desert tortoise predators drawn to the project area during construction. In addition, CSI shall implement the following measures to prevent predation on the banded Gila monster and western burrowing owl (measures for unlisted species do not apply to the Corps or other jurisdictional Federal agencies).

Terms and Conditions

3a. Trash shall be maintained at all times in covered, sanitary containers approved for such use by Lincoln County or in enclosed areas designed for such purposes. All trash would be hauled off-site for disposal. No rubbish or debris of any kind will be allowed to accumulate anywhere in the project area.

3b. During construction, trash and food items shall be disposed properly in predator-proof containers with re-sealing lids and removed regularly to reduce attractiveness to opportunistic predators such as ravens, coyotes and feral dogs. This trash will be disposed properly in an approved landfill. Trash includes but is not limited to, cigarettes, cigars, gum wrappers, tissue, cans, paper, and bags. Upon completion of individual structure or activities in an area, all construction refuse, including, but not limited to, broken equipment parts, wrapping material, cords, cables, wire, rope, strapping, twine, buckets, metal or plastic containers, and boxes, will be removed from the site and disposed properly.

3c. Domestic dogs and cats shall be prohibited from active construction areas in the Development Area and BLM utility corridor.

RPM 4: The Corps or other jurisdictional Federal agency as appropriate, and CSI shall implement measures to minimize destruction of desert tortoise habitat (soil compaction, erosion, or crushed vegetation) on adjacent lands due to CSI construction activities. In addition, CSI shall implement the following measures to minimize destruction of the banded Gila monster and western burrowing owl habitat on adjacent lands (measures for unlisted species do not apply to the Corps or other jurisdictional Federal agencies).

Terms and Conditions:

4a. The area of disturbance associated with the development of the CSI residential community shall be confined to the Development Area described in this Biological Opinion. This includes the location of stockpiles, staging and storage areas, turnaround sites, maintenance areas, and all pre-construction activities such as surveys and flagging of work areas.

4b. TVs and OHVs shall be prohibited in the CSICL, except for specific access on Old Highway 93 and existing dirt routes within the CSICL for Federal, State, and local agency needs.

4c. After the construction of the CSI development, ATVs and OHVs will only be allowed within designated areas, if any, and on roads designated for such use, if any, within the Development Area. The Coyote Springs Charter Community Association, Inc. shall provide information on nearby OHV parks in Clark and Lincoln counties and other areas and trails authorized for OHV and ATV use to residents and visitors, as an encouragement to use these designated areas.

4d. A Weed Management Plan shall be implemented to reduce the spread of weed species to the CSICL and to Federal lands surrounding the project area. In addition to the noxious weed control measures included in the Weed Management Plan, invasive grasses (e.g., fountain grass [*Pennisetum* ssp.]), will be excluded from landscaping. Refer to the Weed Management Plan in Appendix J of the CSI MSHCP for a detailed description of the policies and objectives that will be implemented as part of the plan.

4e. CSI shall clean heavy equipment of soil with high-pressure air or water prior to arrival at the project area to minimize the potential introduction of alien plant seeds. All imported materials will be certified weed-free.

4f. Fire conservation measures for the proposed CSI development shall be coordinated with the appropriate Federal, State, and county agencies. These measures will focus on using roadways, infrastructure, and golf courses to keep fires from within the community from spreading to the adjacent CSICL and other

BLM lands, and vice versa. All development will be required to meet National Fire Codes and Lincoln County code standards with regard to community design (see Chapter 6 in the CSI MSHCP for more detail). Fire conservation measures for the CSICL shall include implementing an aggressive weed abatement program for *Schismus* and *Bromus* species as directed by the CSI Technical Steering Committee (see Weed Management Plan in Appendix J of the CSI MSHCP).

RPM 5: The Corps or other jurisdictional Federal agency as appropriate, and CSI shall implement measures to minimize the likelihood of desert tortoises entering the Development Area.

Terms and Conditions:

5a. The north and east boundaries of the Development Area shall be permanently fenced as each phase of the project is completed. In the interim, for each phase of construction temporary fencing will be installed. The type of fencing would vary from stone to metal to stucco to wood materials to be architecturally compatible with the adjacent development. Permanent tortoise exclusion fencing or other tortoise-proof barriers (as approved by the Service and CSI) will be inspected at least quarterly (more frequently during the desert tortoise active season) and after major precipitation events. This inspection will involve checking to see that there is proper tension in the wire or fencing parts; the wire, wood, stucco or metal grill work is not broken to create gates for human passageways; and appropriate post alignment and stability is maintained. All fence damage will be repaired in a timely manner and according to guidelines in the *Recommended Specifications for Desert Tortoise Exclusion Fencing* (Appendix 2) (Service 2005) to prevent tortoises from moving through damaged sections.

RPM 6: CSI shall implement measures to mitigate for the loss of desert tortoises, banded Gila monster, and western burrowing owl and their habitat as a result of the implementation of the CSI MSHCP (measures for unlisted species do not apply to the Corps or other jurisdictional Federal agencies).

Terms and Conditions:

6a. CSI shall ensure that the mitigation measures, which include fees, are followed as stated in the CSI MSHCP, 6.2.1.2.2 and repeated in this Biological Opinion (heading "Conservation Measures", subheading "Mitigation Measures").

6b. Any activities that occur within the CSICL will be consistent with passive recreational use or scientific research uses. The CSICL will be managed for the conservation of the desert tortoise, banded Gila monster, and western burrowing

owl. The Conservation Area Management Plan, which would include restoration, trail use and construction, will be reviewed and approved by the TAC (see CSI MSHCP 8.1.3 for definition of TAC).

RPM 7: The Corps or other jurisdictional Federal agency as appropriate, and CSI shall implement measures to mitigate for the loss of desert tortoise and its habitat as result of the construction of the CSI detention basins in Lincoln County.

Terms and Conditions:

7a. The Corps or other jurisdictional Federal agency as appropriate, shall ensure that the project proponent, CSI or its designee, pay remuneration fees for up to 244 acres of disturbance to desert tortoise critical habitat on Federal lands within the BLM utility corridor in Lincoln County. The current compensation rate for disturbance to desert tortoise habitat in the project area is $753 per acre. Each year these fees will be indexed for inflation based on the Bureau of Labor Statistics Consumer Price Index for All Urban Consumers (CPI-U). Information on the CPI-U can be found on the internet at: http://stats.bls.gov/news.release/cpi.nr0.htm. The next rate adjustment will occur on March 1, 2009. The section 7 payments shall be accompanied by the attached Section 7 Fee Payment Form (see attached Appendix C) and completed by the payee. Because desert tortoise critical habitat will be impacted, a multiplier of 4 to the $753 per acre will be included for permanent disturbance. Therefore, the project proponents will pay $3,012 per acre of disturbance. The total remuneration fee will be $734,928. This calculation is provided as an example based upon the entire 244 acres of land in the BLM utility corridor being disturbed, which may or may not occur. All the detention basins will not be constructed at once as they will be phased over the life of the CSI project; therefore, the payment of fees for this disturbance will also be phased and paid as appropriate when all grants or permits are secured. Fees for habitat disturbance as a result of the detention basins in Lincoln County will be paid by certified check or money order to the Lincoln County Treasurer (refer to attached form in Appendix C) and delivered to:

Lincoln County Habitat Conservation Section 7 Account
Lincoln County Treasurer
Attn: Ms. Cathy Hiatt
P.O. Box 416
Pioche, Nevada 89043
(775) 962-5805

Fees deposited in the Lincoln County Section 7 account will be managed consistent with an MOA to be developed between BLM and the Service.

The project proponents may choose to erect and maintain permanent desert tortoise fencing between the length of the west side of the detention basins and the adjacent lands of the Desert National Wildlife Refuge and use the cost of the fencing in lieu of a commensurate portion of the remuneration fees. If the fencing option is chosen, temporary desert tortoise fencing also will be erected on the north and south end of the detentions basins, which would run east and west up until (and perpendicular to) US 93. If the fencing is erected, CSI will also adhere to Term and Conditions 2e and 2f above. Temporary desert tortoise fencing will prevent the ingress of desert tortoise into the BLM utility corridor, and thus further minimize impacts to the tortoise. Because other utilities will eventually be constructed within the corridor and the proposed modified action will result in habitat fragmentation within the corridor, removal of desert tortoises will also further minimize future impacts to tortoises. All desert tortoises that are removed from the BLM utility corridor will be handled and processed for the desert tortoise head start program in accordance with Service protocol and the direction of the Service's Desert Tortoise Recovery Office.

CSI may use the cost of fencing the BLM utility corridor as described above as credit toward the required remuneration fees required for the 244 acres of disturbance to desert tortoise habitat. Future Federal projects within this fenced segment of the BLM utility corridor will be assessed section 7 remuneration fees for impacts to the remaining acres of desert tortoise habitat within the fenced portion, as appropriate.

E. REPORTING REQUIREMENTS

Upon locating a dead or injured Covered Species, initial notification must be made to the Service in Las Vegas, Nevada at (702) 515-5230 within 24 hours of finding the dead or injured Covered Species, and the following requirements for each species must be carried out. For CSI MSHCP activities, additional reporting requirements are outlined in the MSHCP.

1. Desert Tortoise

The following actions should be taken by the Corps or other jurisdictional Federal agencies as appropriate, and/or CSI for injured or dead tortoises if directed by the Service's Division of Law Enforcement:

a. The Corps or other jurisdictional Federal agencies, and/or CSI as appropriate must provide an explanation of the causes of the taking and review with the Service the need for possible modification of the protective measures.

b. Injured desert tortoises shall be delivered to a qualified veterinarian for appropriate treatment or euthanasia, as appropriate.

c. Dead desert tortoises may be buried away from the project area or cremated, upon authorization by the Service.

d. Should injured desert tortoises be treated by a veterinarian and survive, they may be transferred as directed by the Service.

2. Banded Gila Monster

The following actions should be taken by CSI for banded Gila monsters (does not apply to the Corps or other jurisdictional Federal agencies):

a. If a Gila monster is killed or injured due to construction-related activities, the Service's Nevada Fish and Wildlife Office in Las Vegas, and the Nevada Department of Wildlife in Las Vegas shall also be notified within 24 hours of finding the dead or injured Gila monster. CSI must provide an explanation of the causes of the taking and review with the Service the need for possible modification of the protective measures.

b. Injured Gila monsters shall be delivered to a qualified veterinarian for appropriate treatment or euthanasia, as appropriate.

c. Should injured Gila monsters be treated by a veterinarian and survive, they may be transferred as directed by NDOW.

3. Western Burrowing Owl

The following actions should be taken by CSI for western burrowing owls (does not apply to the Corps or other jurisdictional Federal agencies):

a. If a burrowing owl is killed or injured due to construction-related activities, the Service's Nevada Fish and Wildlife Office in Las Vegas shall be notified within 24 hours of finding the dead or injured burrowing owl. CSI must provide an explanation of the causes of the taking and review with the Service the need for possible modification of the protective measures.

b. Injured burrowing owls shall be delivered to a qualified veterinarian for appropriate treatment or euthanasia, as appropriate.

c. Dead burrowing owls may be buried away from the project area or cremated, upon authorization by the Service.

d. Should injured burrowing owls be treated by a veterinarian and survive, they may be transferred as directed by the Service.

F. CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to use 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. In order for the Service to be kept informed of actions that either minimize or avoid adverse effects or that benefit listed species or their habitats, the Service requests notification of implementation of any of the following conservation recommendations.

1. Desert Tortoise, Banded Gila Monster and Western Burrowing Owl

The following conservation recommendations are aimed at minimizing the indirect effects of developing a residential community in Coyote Spring Valley to Federal lands and CSICL:

a. Community Design

1) Provide a buffer between residential development and adjacent Federal/CSICL lands by locating low-density housing (that which incorporates a significant proportion of natural area to developed area per lot) at the periphery of the development, with higher density housing and commercial centers located in the center of the development or toward US 93.

2) Situate commercial development so as to promote and facilitate low-impact modes of transportation (i.e., foot and bicycle) that limit local traffic and air pollution.

3) Direct development lighting inward so as to minimize impacts to the night sky over adjacent Federal/CSICL lands; and to minimize impacts on nocturnal wildlife that use drainages and adjacent lands as movement corridors.

4) Preserve as much natural desert within the footprint of the project area as possible and/or use only native (including salvaged) plants to landscape the project area to limit the impacts of development on local biotic communities.

5) Limit the amount of impervious surfaces within the development as much as reasonably possible to promote natural recharge and prevent excessive runoff and erosion.

b. Infrastructure Location and Design

1) Design wastewater treatment ponds to provide wildlife habitat (wetlands) and wildlife-viewing and educational opportunities, drying out ponds on a rotational schedule to prevent or minimize establishment of non-native species.

2) Provide underground utilities (e.g., power lines) to the maximum extent practicable so as to decrease the amount of artificial perch and nest sites provided for ravens.

3) Replace and, where feasible, construct new culverts in select segments of US 93 that will facilitate wildlife movement, including that of desert tortoises and bighorn sheep. Monitor the effectiveness of these culverts in terms of wildlife movement and adapt design and location as needed.

4) Provide *temporary* tortoise exclusion fencing along the western and southern boundary of the Development Area if NDOT's fencing of US 93 and SR 168 is not completed in a timely manner relative to the CSI project. The need for this action shall be coordinated with the Service. Temporary tortoise exclusion fencing materials and construction shall be approved by the Service and shall be inspected regularly and following major precipitation events and repaired in a timely manner.

c. Recreation

1) Provide ample trails and parks within the proposed Development Area so as to promote on-site recreation and reduce recreational pressure on surrounding Federal/CSICL lands. Design and maintain these facilities so as to invite frequent use.

2) Design golf courses in an environmentally-friendly manner to incorporate the natural environment, minimize water use, improve water quality, and limit pesticide use. Utilize reclaimed waste water for irrigation to the maximum extent possible.

3) Situate ponds developed in association with golf courses away from drainages that empty into Pahranagat Wash and only stock ponds with non-native, aquatic wildlife if permitted by appropriate State and/or Federal agencies. Provide signage to educate residents about the importance of not dumping aquarium fish and vegetation into ponds.

4) Work with the Service, BLM and others to minimize and monitor recreation impacts and the proliferation and use of roads and social trails on adjacent Federal/CSICL lands. In cooperation with the Federal agencies, implement measures to focus recreational activities on adjacent BLM lands so as to minimize impacts on desert tortoises, banded Gila monsters, and western burrowing owls. Measures used may

include, but are not limited to: providing designated, clearly marked trails that concentrate activity in areas less valuable in terms of Covered Species conservation efforts; installing signage at public use areas (e.g., trailheads) informing recreationists about the rules and regulations in place; requiring dogs to be on-leash; and closing specific areas to recreational use and/or motorized use. In cooperation with Federal agencies, consider blocking roads that access adjacent lands to discourage OHV travel and trash dumping.

d. Community Regulations

Restrictions required to minimize impacts to surrounding habitat and individuals of desert tortoise, banded Gila monster, and western burrowing owl should be applied through Covenants, Conditions, and Restrictions (CC&Rs) enforced through Homeowners' Associations. Such restrictions may include, but are not limited to:

1) Prohibiting the intentional feeding of wildlife and not allowing pet food to be left outside.

2) Requiring trash containers to be sealed and predator proofed, and requiring residential trash to be put outside only on days that trash is picked up.

3) Encouraging residents to use xeric and native landscaping and water recycling/conservation techniques.

e. Education

1) Provide kiosks and/or an education center to educate the public about the desert environment, its inhabitants (specifically the desert tortoise, banded Gila monster and western burrowing owl), conservation needs, and ways to minimize impacts to the Mojave Desert and its wildlife. Signage should include information on the status of the desert tortoise (including its protected status), banded Gila monster, and western burrowing owl, as well as suggestions on how the public can contribute to conservation of these species. Recreationists and residents should be instructed to stay on designated trails, keep pets on leashes, not dump trash or litter, and avoid contact with desert tortoises, banded Gila monsters and western burrowing owls.

2) Consider establishing a non-profit organization with locally-stationed staff specifically dedicated to working with residents to protect the natural resources of Coyote Spring Valley and the Mormon Mesa ACEC. This program could be modeled after the Rincon Institute in the Rincon Valley, Arizona, which was established due to the pending development of Rocking K Ranch bordering Saguaro National Park. The non-profit organization could be involved with local outreach, environmental education, ecological restoration, and possibly research as directed by the CSI TAC,

and can serve as the local contact for volunteers interested in natural resource management and protection.

f. Monitoring and Mitigating Impacts on Adjacent (Federal/CSICL) lands

1) Rehabilitate degraded areas in the CSICL and assist Federal agencies with rehabilitation of degraded areas on adjacent ACECs. Degraded areas include but are not limited to: old Highway 93 and the jeep trail west of Pahranagat Wash and within the CSICL; social trails and unauthorized roads; and any open space areas within the Development Area that may be temporarily disturbed during construction activities. Restoration techniques shall be approved by BLM and the Service.

2) Monitor effectiveness of any rehabilitation efforts using monitoring protocols approved by the Service, CSI TAC, and BLM.

3) Implement a control and monitoring plan for invasive and non-native species within the development and at development boundary areas. Establish baseline conditions on both sides of the proposed development boundaries before barrier construction and at select locations (e.g., along roads and washes, in open space within development).

4) Initiate regular trash patrols along the periphery of the development and on adjacent public lands, as long as lawful access to federally-managed lands is maintained.

5) Work with the Service, BLM, and CSI TAC to monitor the extent and intensity of impacts to habitat and individuals of desert tortoise, banded Gila monster, and western burrowing owl on Federal/CSICL lands adjacent to the CSI development, including effects associated with recreation and the proliferation of social trails.

2. Moapa Dace

As stated in the intra-Service programmatic biological opinion for the Muddy River MOA (CSI MSHCP: Appendix A, page 63), the following conservation recommendations should be considered in cooperation with other parties to the MOA:

a. Acquire Moapa dace habitat and/or water rights that are currently privately owned and secure the management of these rights for the long-term benefit of the Moapa dace in perpetuity;

b. Restore and enhance additional Moapa dace habitat. This includes funding restoration actions at Baldwin Spring, Cardy Lamb, and/or Muddy Spring or other areas identified by the Muddy River Recovery Implementation Program;

c. Provide funding for pre- and post-construction monitoring of water quality and quantity throughout the range of the species; and

d. Assist with the development and implementation of a Moapa dace habitat restoration plan.

G. REINITIATION NOTICE

This concludes formal consultation on the actions outlined in the CSI MSHCP, CSI EIS, and the Biological Assessment (Corps 2008). As required by 50 CFR § 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over an 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; (3) the action is subsequently modified in a manner that causes an effect to the listed species or critical habitat in a manner or to an extent not considered in this Biological Opinion; (4) a new species is listed or critical habitat designated that may be affected by the action; and (6) assumptions used for the analysis in this Biological Opinion have not been met or become invalid. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

The Incidental Take Statement provided in this Biological Opinion for unlisted Covered Species does not become effective until the unlisted Covered Species is listed.

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Attachment 2

INFORMAL CONSULTATION

A. PROPOSED ACTION

As detailed in the Biological Opinion (Attachment 1), Coyote Springs Investment Development, LLC (CSI) is seeking an incidental take permit from the U.S. Fish and Wildlife Service (Service) pursuant to section 10(a)(1)(B) and of the Endangered Species Act of 1973, as amended (Act) for a 40-year Multiple-Species Habitat Conservation Plan (MSHCP) in Lincoln County, Nevada. CSI is also seeking a Clean Water Act Section 404 permit from the U.S. Army Corps of Engineers (Corps) to discharge fill into waters of the U.S. (WOUS). CSI proposes to permanently disturb or cover 21,454 acres of private lands and up to 244 acres of the BLM utility corridor in Lincoln County, as well as manage 13,767 acres of lease lands from the BLM in Clark and Lincoln counties as the Coyote Springs Investment Conservation Lands (CSICL), in accordance with the requirements, guidelines, measures and processes described in the CSI MSHCP and Implementing Agreement (IA), and the attached Biological Opinion.

B. DETERMINATION OF EFFECTS

The following determinations have been made:

1. Issuance by the Service of the proposed section 10(a)(1)(B) incidental take permit to CSI *may affect, but is not likely to adversely affect* the Virgin River chub (*Gila seminuda*) (Muddy River population), a species not listed under the Act but included as a Covered Species in the CSI MSHCP.

2. Issuance by the Corps of the proposed Section 404 permit under the Clean Water Act for the loss and disturbance of WOUS, and Mojave Desert scrub within the Development Area and BLM utility corridor *may affect, but is not likely to adversely affect* the Moapa dace (*Moapa coriacea*), a species listed as endangered under the Act.

3. Realignment or reconfiguration by BLM of the layout of CSI lease and private lands from BLM existing land ownership and designation of a conservation area *may affect, but is not likely to adversely affect* the threatened desert tortoise (*Gopherus agassizii*) (Mojave population) and its designated critical habitat.

C. Species Information, Conservation Measures to Reduce Effects, and Effects of the Proposed Action

1. Service Issuance of the Proposed Section 10(a)(1)(B) Incidental Take Permit

As described in the CSI MSHCP and the attached Biological Opinion, CSI plans to develop a new town on 21,454 acres of private lands in Lincoln County and manage 13,767 acres of lease lands in Clark and Lincoln counties as the Coyote Springs Investment Conservation Lands (CSICL). Covered Activities would include: residential, commercial and industrial development, recreational facilities, utility infrastructure, water supply infrastructure and management, flood control structure development and maintenance, and resource management features.

a. Species and Habitat Information

The Virgin River chub is a silvery, medium-sized minnow and a subspecies of *Gila robusta* of the Cyprinidae family. Virgin River chub are most often associated with deep runs or pool habitats of slow to moderate velocities with large boulders or instream cover, such as root snags. Adults and juveniles are often associated together within these habitats. Historically, the Virgin River chub is believed to have occurred throughout most of the Virgin River from its original confluence with the mainstem Colorado upstream to La Verkin Creek, near the town of Hurricane, Utah. This species has experienced a general decline in Utah, Arizona, and Nevada, particularly since the mid-1980s (Service 2008). Currently, one population of the Virgin River chub is endemic to 134 miles of the Virgin River in southwest Utah, northwest Arizona, and southeast Nevada. This population is listed as endangered and has designated critical habitat under the Act. For additional information on the rangewide status of the Virgin River chub, see section 3.3.2 of the CSI MSHCP or the Service's "Virgin River Fishes 5-Year Review" (Service 2008).

Another population of the Virgin River chub occurs in the Muddy River, and is not listed under the Act. The Muddy River was originally a tributary of the Virgin River prior to their confluence being inundated by Lake Mead. The Virgin River chub historically occurred within a 26-mile stretch (between the Warm Springs Area and the Wells Siding Diversion to Bowman Reservoir) of the Muddy River in Clark County, Nevada. Virgin River chub have been collected throughout the Muddy River, but were historically most abundant between the Warm Springs Area and Logandale (Deacon and Bradley 1972, Cross 1976).

In the 1960s, a decline in Virgin River chub abundance in the Muddy River was first documented (Wilson et al. 1966, Deacon and Bradley 1972, both cited in Service 1996). According to Wilson et al. (1966), the abundance of Virgin River chub at a 1938 collection site had decreased more than 83 percent by 1964, and a similar decrease (approximately 92 percent) was documented at a 1942 collection site (Service 1996). An upstream shift in Virgin River chub distribution was noted between 1964 and 1968 (Deacon and Bradley 1972, as cited in Service 1996). By 1974 to

1975, Virgin River chub had been virtually eliminated from the lower Muddy River (downstream of I-15 and below Wells Siding Diversion) and were further reduced in abundance in the middle portion of the river (Cross 1976). The species' decline may have been related to (Service 1996): cumulative effects of changes in water quality and quantity, and substrate (Deacon and Bradley 1972, Cross 1976); channelization (Cross 1976); non-native fish species (Deacon et al. 1964, Hubbs and Deacon 1964, Deacon and Bradley 1972, Cross 1976); and parasitism (Wilson et al. 1966).

In 1996, the population in the middle portion of the Muddy River between Warm Springs Road and I-15 was estimated at 20,593 individuals (confidence interval ± 7,339; adjusted Petersen method) (Scoppettone unpubl. data, as cited in Service 1996). As of 1996, Virgin River chub were still rarely captured downstream of I-15 and Wells Siding Diversion (Scoppettone unpubl. data, Heinrich, NDOW, unpubl. data, Deacon and Bradley 1972, Cross 1976, all cited in Service 1996). Surveys in 2007 and 2008, continued to demonstrate that most of the Virgin River chub occurred in the middle portion of the Muddy River (upstream from the Wells-Siding Diversion and I-15 to the Warm Springs Road), with only one Virgin River chub found downstream of the Wells-siding Diversion, in one of the plunge pools associated with this diversion (BIO-WEST Inc. 2008). The middle of the river exhibits a more constant flow regime due to the influx of water from spring habitats in the upper Muddy River head waters. As the river progresses downstream, increased demand and thus, increased water withdrawals, slowly result in diminishing flow.

b. Proposed Conservation Measures and Anticipated Effects

The Action Area for the Virgin River chub (Muddy River population) is the 21,454-acre project site, the 244-acre BLM utility corridor and the Pahranagat Wash from the north edge of the development downstream to the Muddy River-Meadow Valley Wash confluence and to the Logandale Bridge on the Muddy River. Because activities associated with the CSI development may affect spring discharge in the Muddy River, the Coyote Spring Valley and Muddy River Springs Area hydrographic basins are included in the Action Area.

For the surface disturbing activities related to the development of the 21,454-acre private lands and 244-acre BLM utility corridor, avoidance and minimization measures to protect habitat in WOUS (which include the Pahranagat Wash and its tributaries) for Virgin River chub (Muddy River population) are identical to measures proposed for WOUS in the Mitigation Plan (CSI Environmental Impact Statement: Appendix J). Proposed measures include the following: avoidance of construction activities on upland buffers and protected WOUS protected in a Perpetual Conservation Easement Grant; avoidance of construction activities within the CSICL; temporary construction fencing around preserved desert dry washes; implementation of stormwater plan and erosion control measures; avoidance of 29.9 acres of existing WOUS; establishment of a monitoring and maintenance period of five years for each restored WOUS; and development of a long-term protection plan and associated funding. Refer to Section 404 (Corps file # SPK-2007-327-SG) application and associated mitigation plan (Appendix J in the Environmental Impact Statement (EIS) for the CSI MSHCP) for more detailed information.

The Virgin River chub (Muddy River population) would not be directly affected by the physical construction of the project features. Indirect effects may potentially occur to the Virgin River chub and their habitat from the loss of WOUS in the main Pahranagat Wash and its tributaries which are connected to the Muddy River during large storm events (100-year events). With the implementation of the abovementioned avoidance and minimization measures, the Service anticipates that the indirect effects to the Virgin River chub (Muddy River population) from these surface disturbing activities will be negligible.

The Kane Springs Valley, Coyote Spring Valley and Muddy River Springs Area hydrographic basins mentioned previously are part of the White River Groundwater Flow System, a regional groundwater flow system located in southern Nevada (Eakin 1966, Harrill et al. 1988, Prudic et al. 1993). The flow system consists of numerous local basin fill aquifers underlain by a large regional carbonate aquifer that transmits groundwater from basin to basin, beneath topographic divides. Groundwater inflow or recharge to the regional carbonate aquifer is primarily through precipitation. The terminal discharge of the White River Groundwater Flow System is most likely the Warm Springs Area in the Upper Moapa Valley, an area consisting of about twenty regional springs, with numerous seeps and wetlands. The source water supporting spring discharge in the Warm Springs Area is from the regional carbonate groundwater (62 percent) and from local recharge based on precipitation in the surrounding mountain ranges (BLM 2008a). These springs are an important source of input for the Muddy River system, on which the Virgin River chub (Muddy River population) depends for survival.

For the groundwater withdrawals for the CSI development, the effects will be analyzed under separate biological opinions for several GWD projects (see Attachment 1, Biological Opinion, section, section entitled "B. U.S. Fish and Wildlife Service Proposed Action" subheading "2. Groundwater Withdrawals"). Many of the permitted water rights rulings are subject to a monitoring and mitigation program approved by the Nevada State Engineer based on stipulated agreements. Any effects that may occur from groundwater withdrawals utilizing permitted water rights in the Kane Springs Valley, Coyote Spring Valley and Muddy River Springs Area hydrographic basins are anticipated to be detected through monitoring at the spring discharges in the Warm Springs Area (upstream of where Virgin River chub are located in the Muddy River).

Specific conservation measures for the Moapa dace, which is dependent on the spring discharge in the Warm Springs Area, are currently underway through the Muddy River Recovery Implementation Program to avoid and minimize effects to the species, and additional measures would be implemented should water levels decline in the Muddy River system as a result of the water withdrawals permitted under Nevada State Engineer Order No. 1169. The conservation measures are based on the State Engineer's order, the stipulated agreement between Federal agencies (including the Service), the subsequent Memorandum of Agreement (MOA) signed by the SNWA, MVWD, CSI, Moapa Band of Paiutes, and the Service, and the non-jeopardy intra-Service programmatic biological opinion for the Muddy River MOA (Service File No. 1-5-05-FW-536; Service 2006). Additional information and details are available in the attached Biological Opinion (see section Factors affecting the Virgin River chub are the same as detailed for the Moapa dace in the attached Biological Opinion (see "I. Status and Environmental

Baseline of the Moapa Dace, 3. Factors Affecting the Moapa Dace in the Action Area"). Minimum in-stream flow levels were established in the MOA that trigger various conservation actions should those predetermined levels be reached. The Service anticipates that any avoidance and minimization measures for the Moapa dace that are being implemented to avoid and minimize effects of groundwater withdrawals to the species will also benefit the Virgin River chub (Muddy River population) further downstream (e.g., non-native fish removal, restoration, etc.).

Beyond those discussed above, additional avoidance and minimization measures for the endangered Moapa dace are or will be included in the separate biological opinions for the GWD projects. Measures specifically for the Virgin River chub (Muddy River population) will not be included in these separate biological opinions since the population is not listed under the Act; however, any avoidance and minimization measures for the Moapa dace that may be included in the GWD projects will also likely benefit the Virgin River chub (Muddy River population) further downstream. Based on the above information, if the measures are implemented appropriately, any potential effects of groundwater withdrawals would be discountable (not result in take) in the downstream portion of the Muddy River system which the Virgin River chub (Muddy River population) currently occupies.

2. Corps Issuance of a Section 404 permit under the Clean Water Act

The Corps has proposed to approve issuance of a Clean Water Act Section 404 permit for the proposed CSI Development Area and BLM utility corridor (for detention basins) located in Lincoln County, Nevada. The project would consist of altering and placing fill material in approximately 34 acres of unnamed jurisdictional ephemeral washes located within the project area. The potentially affected WOUS are west-east running dry desert washes subject to infrequent surface flows during large precipitation events. These washes drain into Pahranagat Wash, a large north-south running ephemeral drainage and tributary to the Muddy River.

a. Species and Habitat Information

Information on the rangewide status and status in the Action Area for the Moapa dace is contained in section 3.3.1 of the CSI MSHCP and in the intra-Service programmatic biological opinion for the Muddy River MOA issued on January 30, 2006 (Service File No. 1-5-05-FW-536; Service 2006). Updated information on the Moapa dace since the issuance of the aforementioned programmatic biological opinion is provided in the attached Biological Opinion (see section "I. Status and Environmental Baseline of the Moapa Dace").

b. Proposed Conservation Measures and Anticipated Effects

As detailed in section 3 of the EIS and summarized in the attached Biological Opinion, best management practices (BMPs) for construction, operations and maintenance activities are proposed for ground disturbance activities, sediment and erosion control, and water quality. In addition to the BMPs, avoidance and minimization measures to protect habitat in WOUS (which include the Pahranagat Wash and its tributaries) for the Moapa dace are identical to measures proposed for WOUS in the Mitigation Plan (CSI Environmental Impact Statement: Appendix J).

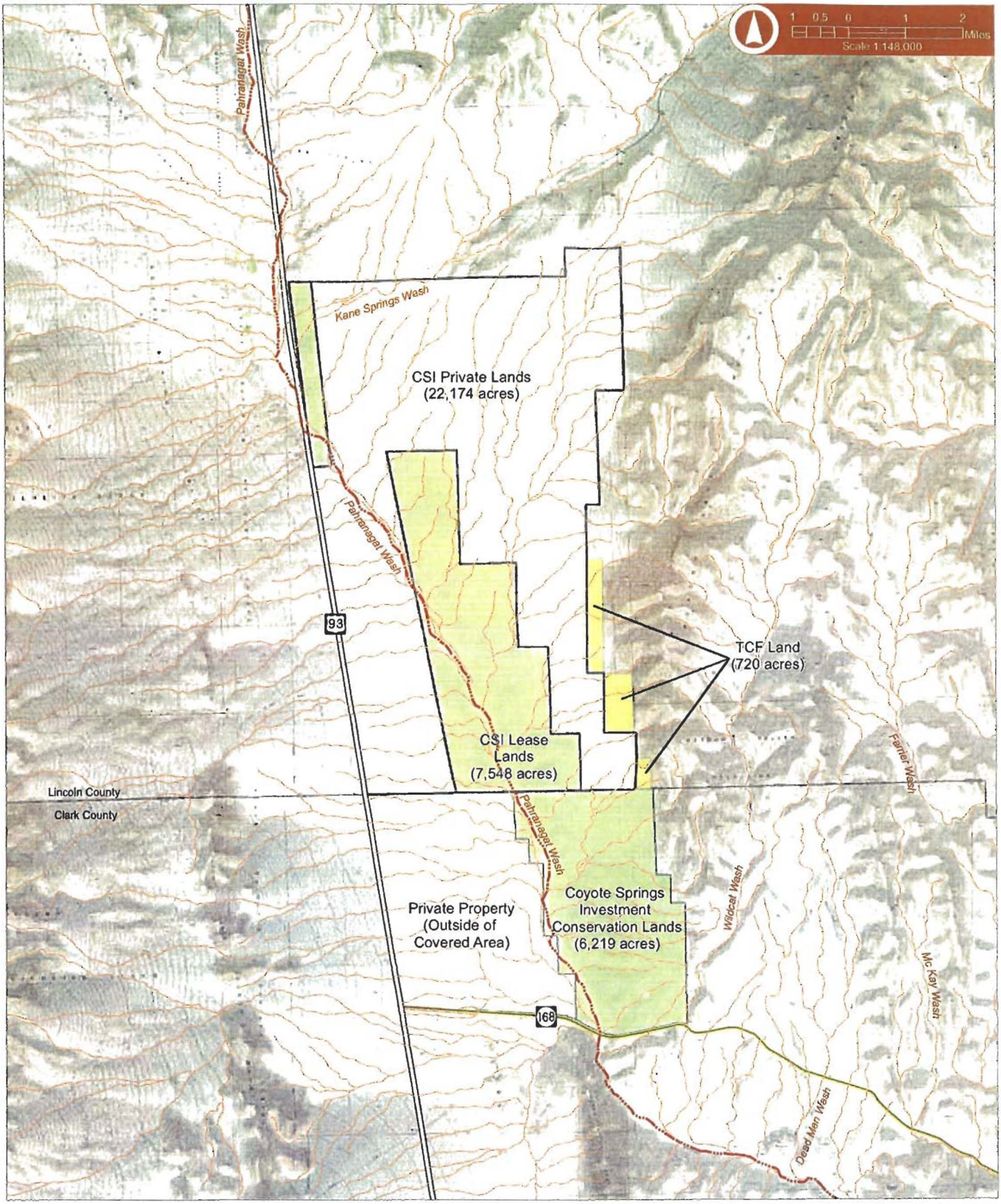
Proposed measures include the following: avoidance of construction activities on upland buffers and protected WOUS protected in a Perpetual Conservation Easement Grant; avoidance of construction activities within the CSICL; temporary construction fencing around preserved desert dry washes; implementation of stormwater plan and erosion control measures; avoidance of 29.9 acres of existing WOUS; establishment of a monitoring and maintenance period of five years for restored WOUS; and development of a long-term protection plan and associated funding. Upon completion of construction, stormwater would be managed through a variety of flood control facilities, including detention basins, constructed washes, and other facilities that collect stormwater and allow sediment to separate from stormwater prior to entering any jurisdictional waterway. Refer to Section 404 (Corps file # SPK-2007-327-SG) application and associated mitigation plan (EIS: Appendix J) for more detailed information.

It is anticipated that the loss and disturbance of WOUS (in the main Pahranagat Wash and its tributaries), and Mojave Desert scrub within the Development Area and BLM utility corridor would indirectly, not directly, affect the Moapa dace. With the implementation of the abovementioned avoidance and minimization measures, the Corps anticipates that the indirect effects to the Moapa dace from these surface disturbing activities would be negligible.

3. BLM Realignment of CSI Lease and Private Lands

The BLM, at the request of the Service for the benefit of the desert tortoise and other species, proposes an administrative action to realign or reconfigure the layout of CSI lease and private lands from BLM existing land ownership and designation of a conservation area (CSICL). The threatened desert tortoise and designated critical habitat occupy the lease and private lands. For information on the rangewide status of the desert tortoise and designated critical habitat, see section 3.3.3 of the CSI MSHCP and the Service's website at http://www.fws.gov/nevada; and for information on the status of the desert tortoise and critical habitat in the Action Area, see the attached Biological Opinion (section "E. Desert Tortoise, 2. Environmental Baseline for the Desert Tortoise and Designated Critical Habitat for Desert Tortoise in the Action Area").

Under the existing configuration (Figure 1), CSI lease lands are an island within the CSI private lands. This configuration presents cumbersome management for both BLM and CSI. Further, development of private lands in the existing configuration would likely isolate desert tortoises, banded Gila monsters, western burrowing owls, and other wildlife within the island of lease lands. The reconfigured layout would consolidate the private lands to the west and the lease lands to the east resulting in the lease lands becoming contiguous with the adjacent BLM Area of Critical Environmental Concern (ACEC) (designated critical habitat for desert tortoise) (Figure 2). Habitat connectivity for movement of wildlife would be maintained between the CSI lease lands in Lincoln County, CSI lease lands in Clark County (which has already been protected; see Service File No. 1-5-05-FW-536-Tier 01) and the adjacent BLM ACEC.

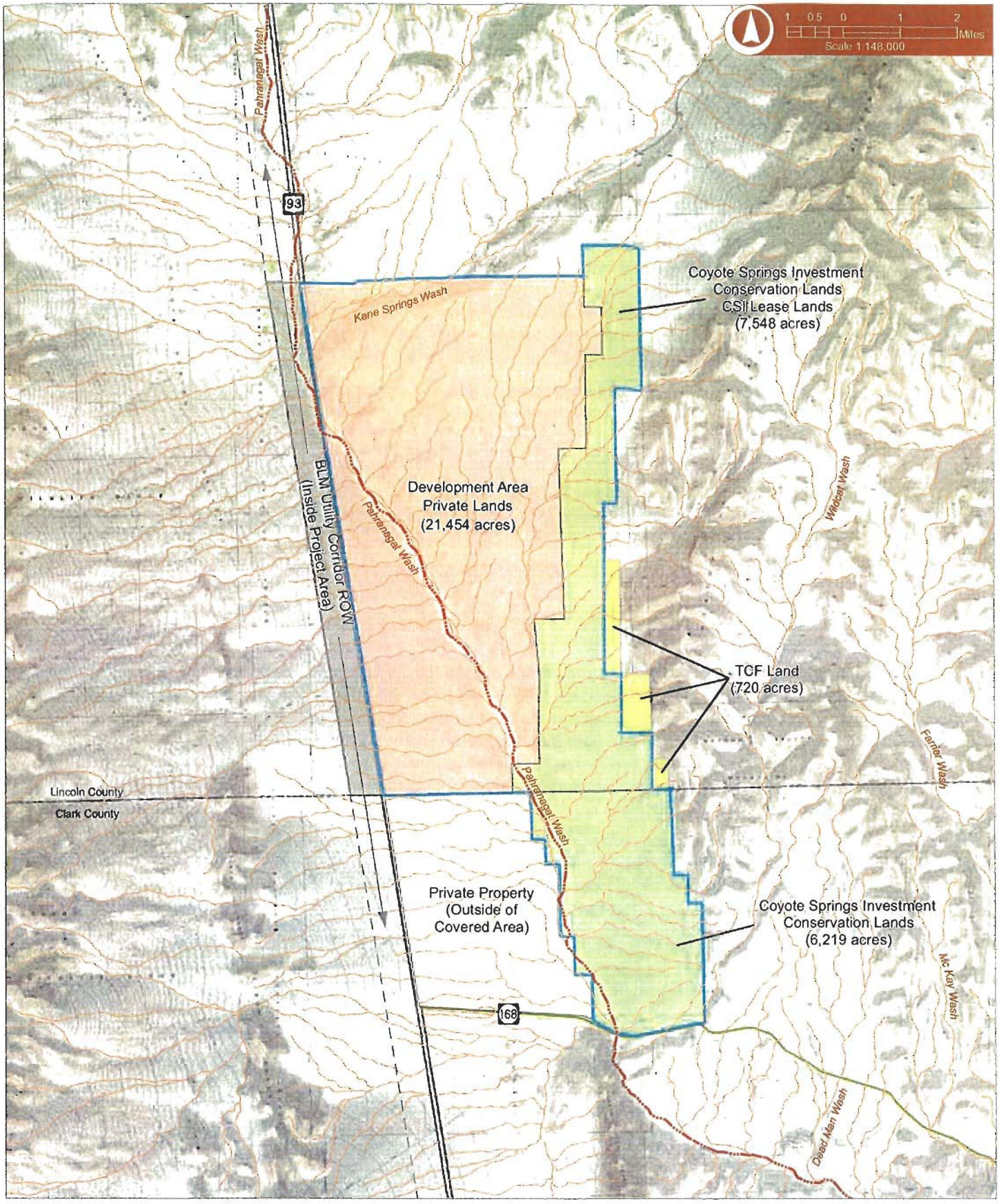


Land Status
- Private Lands
- Conservation Lands Area or Lease Lands
- The Conservation Fund Parcels

- Highway
- State Route
- Ephemeral Channel
- Desert Dry Wash

CSI Planned Development Project

Figure 1
Coyote Springs Investment Private and Leased Lands
Exsting Land Configuration



CSI Planned Development Project

Figure 2
Coyote Springs Investment
Private and Leased Lands Proposed Land Configuration

The proposed realignment would create a 13,767 acre conservation area (Coyote Springs Investment Conservation Lands; CSICL), which is a vital element of the CSI MSHCP mitigation program that would be managed under the section 10 incidental take permit for the conservation of the terrestrial Covered Species – the desert tortoise, banded Gila monster and western burrowing owl. CSI, in coordination with the Service and BLM, would develop and implement a Conservation Area Management Plan for the CSICL that would address recreation trails, weed and fire management, law enforcement, and restoration and litter management within the CSICL. Management activities within the CSICL would be funded by mitigation fees collected by CSI as part of the MSHCP conservation strategy. For additional detail on the proposed realignment, see Section 3 (3.2.2.2.1 Resource Management, page 3-25; and 3.2.2.3.3 Conservation Commitments, page 3-40) of the EIS for the CSI MSHCP.

Since the BLM proposed reconfiguration is an administrative action, no desert tortoises or designated critical habitat would be negatively affected. Based on the information provided above, the BLM anticipates that the proposed reconfiguration would benefit the desert tortoise and its designated critical habitat.

D. SERVICE RESPONSE AND JUSTIFICATION

1. Service Issuance of the Proposed Section 10(a)(1)(B) Incidental Take Permit

The Service concurs that the proposed issuance of a section 10(a)(1)(B) incidental take permit to CSI *may affect, but is not likely to adversely affect* the Virgin River chub (Muddy River population), a species not listed under the Act but included as a Covered Species in the CSI MSHCP. Our concurrence is based on the following:

a. Potential effects to the Virgin River chub (Muddy River population) from the surface disturbing activities for the CSI development are indirect effects that would not directly affect the Virgin River chub or its aquatic habitat. Avoidance and minimization measures (including BMPs) would be implemented to reduce the level of indirect effects to negligible.

b. Potential effects to the Virgin River chub (Muddy River population) from the groundwater withdrawals for the CSI development would be discountable (not result in take) in the downstream portion of the Muddy River system which the species currently occupies, if conservation measures for the listed Moapa dace are implemented. Measures are currently underway through the Muddy River Recovery Implementation Program to avoid and minimize effects to the Moapa dace, and additional measures would be implemented should water levels decline in the Muddy River system as a result of the water withdrawals permitted under Nevada State Engineer Order No. 1169.

c. Additional avoidance and minimization measures may also be included in separate biological opinions for groundwater development projects that would convey groundwater for the CSI development. Measures specifically for the Virgin River chub (Muddy River population) will not be included in these separate biological opinions since the population is not listed under the Act; however, any avoidance and minimization measures for the Moapa dace that may be included in the projects will also likely benefit the Virgin River chub further downstream.

2. Corps Issuance of a Section 404 permit under the Clean Water Act

The Service concurs with the Corps' determination that the proposed issuance of a Section 404 permit under the Clean Water Act for the loss and disturbance of WOUS, and Mojave Desert scrub within the Development Area and BLM utility corridor *may affect, but is not likely to adversely affect* the endangered Moapa dace. Our concurrence is based on the following:

a. Potential effects to the Moapa dace from the surface disturbing activities to construct the flood storage and conveyance facilities are potential indirect effects that would not directly affect the Moapa dace or its aquatic habitat.

b. Avoidance and minimization measures (including BMPs) would be implemented to reduce the level of indirect effects to negligible.

3. BLM Realignment of CSI Lease and Private Lands

The Service concurs with the BLM's determination that the proposed realignment or reconfiguration of the layout of CSI lease and private lands from BLM existing land ownership and designation of a conservation area *may affect, but is not likely to adversely affect* the threatened desert tortoise (Mojave population) and its designated critical habitat. Our concurrence is based on the following:

a. The effects of the proposed action on the desert tortoise and designated critical habitat in and near the Action Area are anticipated to beneficial. This realignment would result in beneficial effects by providing habitat connectivity between CSI lease lands in Lincoln County, CSI lease lands in Clark County, and the adjacent BLM ACEC (critical habitat) which would allow continued movement of desert tortoises and other wildlife species (including banded Gila monster and western burrowing owl) between these contiguous, conserved lands.

b. Reconfiguring the CSI private and lease lands would minimize habitat fragmentation by consolidating the private lands to the west and the protected lease lands adjacent to the BLM ACEC (critical habitat) along the east side of the property.

c. The proposed action is an administrative action and will not directly result in any ground disturbing activity that would cause take of desert tortoise, or any loss of acreage of desert tortoise habitat or designated critical habitat.

d. Any effects to and incidental take of desert tortoise and its designated critical habitat as a result of the development of the CSI private lands would be mitigated and authorized pursuant to a section 10 incidental take permit, if issued to CSI by the Service.

E. CONCLUSION

This response constitutes informal consultation under regulations promulgated in 50 CFR § 402.14, which establish procedures governing interagency consultation under section 7 of the Endangered Species Act of 1973, as amended. For the listed species and the associated proposed actions described in this informal consultation, take of those listed species is not authorized.

F. LITERATURE CITED

BIO-WEST Inc. 2008. 2007 Fisheries sampling efforts on the Muddy River. Final Report. PN-1110-01. Prepared for Southern Nevada Water Authority, Las Vegas, Nevada.

BLM (Bureau of Land Management). 2008. Final environmental impact statement for the Kane Springs Valley Groundwater Development Project. FES 08-01. BLM, Nevada State Office, Reno, Nevada. February 2005.

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Service (Fish and Wildlife Service). 1996. Recovery Plan for the Rare Aquatic Species of the Muddy River ecosystem. USFWS. Portland, Oregon. 60 pages.

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APPENDIX A

GENERAL DESERT TORTOISE QUALIFICATIONS STATEMENT

This form should be used to provide your qualifications to agency officials if you wish to undertake the duties of an authorized biologist with regard to desert tortoises during construction or other projects authorized under Sections 7 (Biological Opinions) or 10(a)(1)(B) (i.e. Habitat Conservation Plans) of the Endangered Species Act.

(If you seek approval to attach/remove/insert any devices or equipment to/into desert tortoises, withdraw blood, or conduct other procedures on desert tortoises, a recovery permit or similar authorization may be required. Application for a recovery permit requires completion of Form 3-200-55, which can be downloaded at http://www.fws.gov/forms/3-200-55.pdf.)

1. Contact Information:

Name	
Address	
City, State, Zip Code	
Phone Number(s)	
Email Address	

2. Date:

3. Areas in which authorization is requested (check all that apply):

□ San Bernardino, Kern, and Los Angeles Counties, California (Ventura office)
□ Riverside and Imperial Counties, California (Carlsbad office)
□ Nevada □ Utah □ Arizona

4. Please provide information on the project:

USFWS Biological Opinion or HCP Permit No.		**Date:**
Project Name		
Federal Agency		
Proponent or Contractor		

APPENDIX A

5. If you hold, or have held, any relevant state or federal wildlife permits provide the following:

Species	Dates	State (specify) or Federal Permit Number	Authorized Activities

6. **Education:** Provide up to three schools, listing most recent first:

Institution	Dates attended	Major/Minor	Degree received

7. **Desert Tortoise Training.**

Name/Type of Training	Dates (From/To)	Location	Instructor/Sponsor
1. Classes			
2. Field Training			
3. Translocation			
4.			

8. **Experience** – Include only those positions relevant to the requested work with desert tortoises. Distinguish between Mojave desert tortoise and other experience. Include only your experience, not information for the project you worked on (e.g., if 100 tortoises were handled on a project and you handled 5 of those tortoises, include only those 5. List most recent experience first. Handling a Mojave desert tortoise must be authorized by a Biological Opinion or other permit and reported to the USFWS. Information provided in this section will be used by the USFWS to track the numbers of tortoises affected by previous projects (baseline). **Be sure to include a project supervisor or other contact that can verify your skills and experience in relation to your job performance.** Attach additional sheets as necessary.

APPENDIX A

Experience by project and activity:

Project Name, Job Title, Dates	Project Contact name, phone no., & Email address		Conduct Clearance Surveys (Hrs/Days)	Excavate DT burrows (No.)	Locate DT No. < 100mm ≥100mm	Relocate DTs (No.)	Excavate, and relocate DT nests (No.)
1.							
2.							
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							

APPENDIX A

Experience by project and activity (continued): Each project number should correspond with the project listed on the previous page

Project Number (Corresponds to previous page)	Construct Artificial Burrows (No.)	Monitor project equipment and activities (Hrs/Days)	Oversee project compliance (Hrs/Days)	Supervise field staff (Hrs/Days)	DT fence Installation and inspection (Hrs/Days)	Present DT Awareness Training (No.)
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						

APPENDIX A

Summary of experience:

Total time spent for all desert tortoise-related field activities (referenced above):
Specify total number of hours
OR total number of 8-hour days: _____

Total number of miles/kilometers walked conducting survey transects:

Total number of wild, free-ranging desert tortoises you personally handled:

<100 mm: _____

≥100 mm: _____

I certify that the information submitted in this form is complete and accurate to the best of my knowledge and belief.
I understand that any false statement herein may subject me to the criminal penalties of 18 U.S.C. Ch.47, Sec. 1001.

Signed: _____ **Date:** _____

Appendix B

RECOMMENDED SPECIFICATIONS FOR DESERT TORTOISE EXCLUSION FENCING
September 2005

These specifications were developed to standardize fence materials and construction procedures to confine tortoises or exclude them from harmful situations, primarily roads and highways. Prior to commencing any field work, all field workers should comply with all stipulations and measures developed by the jurisdictional land manager and the U.S. Fish and Wildlife Service for conducting such activities in desert tortoise habitat, which will include, at a minimum, completing a desert tortoise education program.

FENCE CONSTRUCTION

Materials

Fences should be constructed with durable materials (*i.e.,* 16 gauge or heavier) suitable to resist desert environments, alkaline and acidic soils, wind, and erosion. Fence material should consist of 1-inch horizontal by 2-inch vertical, galvanized welded wire, 36 inches in width. Other materials include: Hog rings, steel T-posts, and smooth or barbed livestock wire. Hog rings should be used to attach the fence material to existing strand fence. Steel T-posts (5 to 6-foot) are used for new fence construction. If fence is constructed within the range of bighorn sheep, 6-foot T-posts should be used (see New Fence Construction below). Standard smooth livestock wire fencing should be used for new fence construction, on which tortoise-proof fencing would be attached.

Retrofitting Existing Livestock Fence

Option 1 (see enclosed drawing). Fence material should be buried a minimum of 12 inches below the ground surface, leaving 22-24 inches above ground. A trench should be dug or a cut made with a blade on heavy equipment to allow 12 inches of fence to be buried below the natural level of the ground. The top end of the tortoise fence should be secured to the livestock wire with hog rings at 12 to 18-inch intervals. Distances between T-posts should not exceed 10 feet, unless the tortoise fence is being attached to an existing right-of-way fence that has larger interspaces between posts. The fence must be perpendicular to the ground surface, or slightly angled away from the road, towards the side encountered by tortoises. After the fence has been installed and secured to the top wire and T-posts, excavated soil will be replaced and compacted to minimize soil erosion.

Option 2 (see enclosed drawing). In situations where burying the fence is not practical because of rocky or undigable substrate, the fence material should be bent at a 90° angle to produce a lower section approximately 14 inches wide which will be placed parallel to, and in direct contact with, the ground surface; the remaining 22-inch wide upper section should be placed vertically against the existing fence, perpendicular to the ground and attached to the existing fence with hog rings at 12 to18-inch intervals. The lower section in contact with the ground should be placed within the enclosure in the direction of potential tortoise encounters and level with the ground surface. Soil and cobble (approximately 2 to 4 inches in diameter; can use larger

rocks where soil is shallow) should be placed on top of the lower section of fence material on the ground covering it with up to 4 inches of material, leaving a minimum of 18 inches of open space between the cobble surface and the top of the tortoise-proof fence. Care should be taken to ensure that the fence material parallel to the ground surface is adequately covered and is flush with the ground surface.

New Fence Construction

Options 1 or 2 should be followed except in areas that require special construction and engineering such as wash-out sections (see below). T-posts should be driven approximately 24 inches below the ground surface spaced approximately 10 feet apart. Livestock wire should be stretched between the T-posts, 18 to 24 inches above the ground to match the top edge of the fence material; desert tortoise-proof fencing should be attached to this wire with hog rings placed at 12 to 18-inch intervals. Smooth (barb-less) livestock wire should be used except where grazing occurs.

If fence is constructed within the range of bighorn sheep, two smooth-strand wires are required at the top of the T-post, approximately 4 inches apart, to make the wire(s) more visible to sheep. A 20 to 24-inch gap must exist between the top of the fence material and the lowest smooth-strand wire at the top of the T-post. The lower of the top two smooth-strand wires must be at least 43 inches above the ground surface.

(72-inch T-posts: 24 inches below ground + 18 inches of tortoise fence above ground + 20 to 24-inch gap to lower top wire + 4 inches to upper top wire = 66 to 70 inches).

INSPECTION OF DESERT TORTOISE BARRIERS

The risk level for a desert tortoise encountering a breach in the fence is greatest in the spring and fall, particularly around the time of precipitation including the period during which precipitation occurs and at least several days afterward. All desert tortoise fences and cattleguards should be inspected on a regular basis sufficient to maintain an effective barrier to tortoise movement. Inspections should be documented in writing and include any observations of entrapped animals; repairs needed including bent T-posts, leaning or non-perpendicular fencing, cuts, breaks, and gaps; cattleguards without escape paths for tortoises or needed maintenance; tortoises and tortoise burrows including carcasses; and recommendations for supplies and equipment needed to complete repairs and maintenance.

All fence and cattleguard inventories should be inspected at least twice per year. However, during the first 2 to 3 years all inspections will be conducted quarterly at a minimum, to identify and document breaches, and problem areas such as wash-outs, vandalism, and cattleguards that fill-in with soil or gravel. GPS coordinates and mileages from existing highway markers should be recorded in order to pinpoint problem locations and build a database of problem locations that may require more frequent checking. Following 2 to 3 years of initial inspection, subsequent

inspections should focus on known problem areas which will be inspected more frequently than twice per year. In addition to semi-annual inspections, problem areas prone to wash-outs should be inspected following precipitation that produces potentially fence-damaging water flow. A database of problem areas will be established whereby checking fences in such areas can be done efficiently.

REPAIR AND MAINTENANCE OF DESERT TORTOISE BARRIERS

Repairs of fence wash-outs: (1) realign the fence out of the wash if possible to avoid the problem area, or (2) re-construct tortoise-proof fencing using techniques that will ensure that an effective desert tortoise barrier is established that will not require frequent repairs and maintenance. Gaps and breaks will require either: (a) repairs to the existing fence in place, with similar diameter and composition of original material, (b) replacement of the damaged section to the nearest T-post, with new fence material that original fence standards, (c) burying fence, and/or (d) restoring zero ground clearance by filling in gaps or holes under the fence and replacing cobble over fence constructed under Option 2. Tortoise-proof fencing should be constructed and maintained at cattleguards to ensure that a desert tortoise barrier exists at all times.

All fence damage should be repaired in a timely manner to ensure that tortoises do not travel through damaged sections. Similarly, cattleguards will be cleaned out of deposited material underneath them in a timely manner. In addition to periodic inspections, debris should be removed that accumulates along the fence. All cattleguards that serve as tortoise barriers should be installed and maintained to ensure that any tortoise that falls underneath has a path of escape without crossing the intended barrier.

Appendix C

LINCOLN COUNTY SECTION 7
LAND DISTURBANCE FEE
PAYMENT FORM
Entire form is to be completed by project proponent

Biological Opinion File Number: File No.

Fish and Wildlife Service Office that issued the Opinion:
Nevada Fish and Wildlife Office, Reno, Nevada

Species: Desert tortoise (*Gopherus agassizii*)

Project: _____

Number of acres anticipated to be disturbed: _____

Fee rate (per acre): _____

Total payment required: _____

Amount of payment received: _____

Date of receipt: _____

Check or money order number: _____

Project proponent: _____

Telephone number: _____

Authorizing agencies: Bureau of Land Management

Make checks payable to: Lincoln County Treasurer

Deliver check to:
Lincoln County Habitat Conservation Section 7 Account
Lincoln County Treasurer
Attn: Ms. Cathy Hiatt
P.O. Box 416
Pioche, Nevada 89043
(775) 962-5805

If you have questions, you may call the Nevada Fish and Wildlife Office in Las Vegas at (702) 515-5230.