AGREEMENT FOR GRANT OF TEMPORARY ACCESS AND CONSTRUCTION EASEMENTS FOR THE CARMEL RIVER REROUTE AND SAN CLEMENTE DAM REMOVAL PROJECT

This Agreement for Grant of Temporary Access and Construction Easements for the Carmel River Reroute and San Clemente Dam Removal Project ("Agreement") is made by and between the Monterey Peninsula Regional Park District, a public entity ("Grantor") and California-American Water Company, a California corporation ("Grantee").

RECITALS

A. Grantor, a special district subdivision of the State of California created by the voters of the Greater Monterey Peninsula to acquire lands for the express purpose of preserving open space and providing recreational opportunity, is the owner of certain real property identified as APNs 417-211-005 and 417-251-002 located in the County of Monterey, State of California, and depicted on **Exhibit A** (collectively, "Grantor's Property"). Grantor's Property is from time to time referred to herein as the "Servient Tenement."

B. Grantee, an investor owned public water and wastewater utility regulated by the California Public Utilities Commission ("PUC"), is the owner of certain real property identified as APNs 417-051-004, 417-051-005, 417-051-010 and 417-051-011 and depicted on **Exhibit A**, (collectively, "Grantee's Property). Grantee's Property is from time to time referred to herein as the "Dominant Tenement."

C. Grantee, in partnership with the California State Coastal Conservancy and the National Marine Fisheries Service, is undertaking the Carmel River Reroute and San Clemente Dam Removal Project as authorized by the PUC ("Project"). The Project will result in significant public safety and environmental benefits, including: 1) eliminating the San Clemente Dam seismic safety hazard; 2) protecting the public from potential flood damage; 3) meeting earthquake safety guidelines; 4) protecting endangered species; 5) providing comprehensive habitat restoration of the natural character and function of the valley bottom; 6) restoring steelhead fish passage; and 7) protecting water and water resources.

D. In order to implement the Project, Grantee requires temporary access and construction easements across Grantor's Property. The use of Grantor's Property for Project access was studied at length in the environmental review process for the Project and was determined to have the least environmental impact of any of the alternatives studied. In addition, the proposed access across Grantor's Property was determined to be the safest route with the least susceptibility of flooding and landslides, as well as the most reliable and feasible route.

E. In order to provide sufficient access for the Project and to facilitate long-term public benefit, Grantee proposes to improve an existing road within Grantor's Property known as the "Jeep Trail", and depicted on **Exhibit A**. The proposed improvements will provide the following environmental benefits: 1) all-weather passability for (i) Project-related vehicles; (ii) the Grantor, its successors and assigns; and (iii) easement holders; 2) reduced invasive plant populations currently found along the Jeep Trail shoulders; 3) reduced erosion due to: (i) new and/or improved ditching and culverts; (ii) improved culvert outlets; (iii) road base out sloping for improved hydrological function; and (iv) improved cut and fill slopes for better stabilization; 4) improved access for firefighting crews and other first responders and appropriate equipment;

and 5) potential fuel breaks to slow or prevent the spread of wildfires or otherwise support defensible space.

F. Grantor has agreed to grant to Grantee temporary access and construction easements over the Servient Tenement upon the terms and conditions set forth in this Agreement.

G. Grantor and Grantee have agreed that this Agreement shall be consistent with the conservation easement held by Monterey County, set forth in **Exhibit B**, and the conveyance agreement held by the Grantor, set forth in **Exhibit C**.

AGREEMENT

NOW, THEREFORE, in consideration of the above Recitals, the mutual promises contained herein and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Grantor grants the temporary Access Easement and temporary Construction Easement, as hereinafter defined, (collectively, "Easements") to Grantee under the following terms and conditions:

Section 1. Grant of Easements. Grantor hereby grants to Grantee the following temporary easements subject to all matters and encumbrances of record affecting the Servient Tenement on the terms and conditions set forth in this Agreement:

1.1 Access Easement. A temporary access easement on, over, within and through a portion of the Servient Tenement, specifically, the Jeep Trail as widened and extended and depicted on **Exhibit A**, for the purposes set forth in Section 2 of this Agreement ("Access Easement").

1.2 Construction Easement. A temporary easement for road construction purposes, on, over, within and through a portion of the Servient Tenement, as depicted on **Exhibit A**, for the purposes set forth in Section 2 of this Agreement ("Construction Easement").

Section 2. Easement Purposes. The purposes of the Access Easement and Construction Easement (collectively, "Easement Purposes") are as set forth below with the work described in greater detail in **Exhibit D**, attached hereto and incorporated herein by reference:

2.1 Access Easement Purposes. Use of the Servient Tenement as is necessary, desirable or advisable for the purpose of vehicular and pedestrian ingress and egress including mobilization and demobilization by Grantee, its employees, consultants, contractors, subcontractors and agents, to enable Grantee to implement the Project and perform required mitigation, monitoring, and reporting. Said use by Agreement will include but not be limited to heavy and small equipment mobilization, material hauling trucks, park and ride buses, and construction management personal vehicles.

2.2 Construction Easement Purposes. Use of the Servient Tenement as is necessary, desirable or advisable for the purposes of widening and lengthening the Jeep Trail to enable Grantee to access Grantee's Property, to perform any repairs or restoration, and to use the Access Easement for the purposes set forth in this Agreement.

Section 3. Character of Easements. The Easements are nonexclusive and appurtenant to the Dominant Tenement and include the absolute right of Grantee to use the Easements for the Easement Purposes, which use shall not be disturbed, interrupted or impeded in any manner by

Grantor while this Agreement is in effect. There may be temporary delays to, but no restrictions on: 1) administrative access for MPRPD; and 2) recreational access for members and designated guests of the property owners group known as "Los Compadres."

Section 4. Easement Terms. The terms for the Easements shall be as follows, unless terminated earlier by Grantee in its sole discretion, by providing notice to Grantor thereof:

4.1 Access Easement. The Access Easement shall be in effect as of the Effective Date (as hereafter defined) and will continue until completion of the Project and the mitigation, monitoring, and reporting period ("MMRP"). Work on the Project is anticipated to take a period of three years to complete and the MMRP is expected to continue for a period of five years after Project completion. Grantee will provide Grantor with written notice of completion of the work on the Project and the subsequent completion of the MMRP with a corresponding written confirmation that the Access Easement has been terminated.

4.2 Construction Easement. The Construction Easement shall be in effect as of the Effective Date and will continue until completion of the Project and repairs or restoration as described in Section 5 below. Grantee will provide Grantor with written notice of completion of the work and confirmation that the Construction Easement has been terminated.

Section 5. Consideration. In consideration of the grant of the Easements, within two weeks of the Effective Date Grantee will pay Grantor: a) the sum of seventy-five thousand dollars ($75,000); and b) an amount not to exceed twenty thousand dollars ($20,000.00) for the purpose of drafting a comprehensive public access study and plan acceptable to the County of Monterey. As additional consideration, Grantor will receive the benefit of the improvements made to the Jeep Trail by Grantee consistent with the habitat restoration drafted by URS Corporation set forth in **Exhibit E** ("Habitat Plan") and supervised by the Grantor if and to the extent Grantor elects to retain such improvements.

Section 6. Maintenance and Repair. In exercising its rights under this Agreement, Grantee will use reasonable efforts, and will require its employees, consultants, contractors, subcontractors and agents to use reasonable efforts, to prevent damage to the Servient Tenement. Upon completion of work on the Project or upon earlier termination of the Easements by Grantee as contemplated in Section 4, Grantee shall: a) make repairs as necessary to restore Grantor's Property to as near a condition as proposed in the Habitat Plan which both Grantee and Grantor agree is a condition better than that which existed prior to Grantee's use; and b) leave Grantor's Property clear of any Project debris. Grantee shall have no obligation to repair any damage to Grantor's Property not caused by Grantee's employees, consultants, contractors, subcontractors or agents. Grantor will monitor the property during and up to the date of written notice of completion of the work on the Project and completion of the MMRP to ensure property is clear of Project-related debris. The parties agree that Grantor may choose to retain some or all of the improvements to the Jeep Trail by providing Grantee written notice of such election within thirty calendar days of receipt of Grantee's notice of Project completion. The letter will set a mutually agreed to date and time for the Grantor and Grantee to conduct an onsite inspection of the improvements to the Jeep Trail that will remain and of the improvements to the Jeep Trail which will be restored to pre-Project conditions proposed in the Habitat Plan which both Grantee and Grantor agree will be a condition better than that which existed prior to Grantee's use. If Grantor elects to retain any or all of the Jeep Trail improvements, Grantee's obligation to repair and restore shall not include removing those Jeep Trail improvements.

Section 7. No Impediment to Use. During the term of this Agreement, no walls, fences or barriers of any sort or kind that prevent or impair the use of the Easements, or the exercise or

performance of any of the Easement Purposes, will be constructed, maintained, or permitted on the Easements, or any portion thereof, by Grantor or Grantee.

Section 8. Successors and Assigns. The provisions of this Agreement are intended to and will run with the land, and, until their expiration or termination in accordance with the terms of this Agreement, will bind, be a charge upon and inure to the benefit of Grantor and Grantee, and their respective successors and assigns.

Section 9. Indemnification. Grantee agrees to indemnify and defend Grantor against any and all claims, actions, demands, costs or expenses, including reasonable attorney's fees, arising out of or in any way connected to any activities of Grantee, its employees, consultants, contractors, subcontractors and agents arising out of Grantee's use of the Easement, excluding therefrom claims, actions, demands, costs or expenses resulting from the negligence or willful misconduct of Grantor.

Grantee further agrees to indemnify and defend Grantor against any and all claims, actions, demands, costs or expenses, including reasonable attorney's fees, by any member, members, or representatives of the property owners group known as "Los Compadres Owners Committee", the members of which are identified in **Exhibit F**, and arising out of or in any way connected to the grant of the Easements.

Grantor shall promptly notify Grantee of any such claim, action, demand, cost or expense and Grantor shall cooperate fully in the defense thereof.

Section 10. Attorney's Fees/Venue. If any legal action or proceeding arising out of or relating to this Agreement is brought by either party to this Agreement, the prevailing party will be entitled to receive from the other party, in addition to any other relief that may be granted, the reasonable attorney's fees, costs, and expenses incurred in the action or proceeding by the prevailing party. The venue for any such legal action or proceeding shall be in the County of Monterey.

Section 11. Notices. All notices given pursuant to this Agreement must be in writing and by personal delivery, U.S. Mail, or established express delivery service, such as Federal Express, with postage or delivery charge prepaid, return receipt requested, and addressed to the person and address designated below:

If to Grantor: Monterey Peninsula Regional Park District
Attn: James Sulentich
60 Garden Court, Suite 325
Monterey, CA 93940

If to Grantee: California American Water
Attn: John Kilpatrick
511 Forest Lodge Road, Suite 100
Pacific Grove, CA 93950

Either party may change its notice contact or address at any time upon providing notice to the other party as provided herein.

Section 12. Integration/Governing Law. This Agreement constitutes the entire agreement between Grantor and Grantee relating to the Easements. Any prior agreements, promises, negotiations, or representations not expressly set forth in this Agreement are of no force and effect. Any amendment to this Agreement will be of no force and effect unless it is in writing and signed by Grantor and Grantee or their respective successors or assigns. This Agreement shall be governed and construed in accordance with the laws of the State of California, without reference to or application of conflict of laws provisions.

Section 13. Signature/Counterparts. This Agreement may be executed in two or more counterparts, each of which will be deemed an original, but all of which together will constitute one and the same instrument.

Section 14. Headings. Paragraph and section headings in this Agreement are for convenience only and shall not affect the interpretation of this Agreement.

Section 15. No Waiver. No failure of either party to insist upon the strict performance by the other party of any covenant, term or condition of this Agreement, nor any failure to exercise any right or remedy consequent upon a breach of any covenant, term, or condition of this Agreement, shall constitute a waiver of any such breach of such covenant, term or condition. No waiver of any breach shall affect or alter this Agreement, and each and every covenant, condition, and term hereof shall continue in full force and effect to any existing or subsequent breach.

Section 16. Drafting Ambiguities. The parties agree that they are aware that they have the right to be advised by counsel with respect to the negotiations, terms and conditions of this Agreement, and the decision of whether or not to seek advice of counsel with respect to this Agreement is a decision which is the sole responsibility of each party. This Agreement shall not be construed in favor of or against either party by reason of the extent to which each party participated in the drafting of the Agreement.

Section 17. Assignment. Except as otherwise provided herein, neither party will have a right to assign this Agreement, in whole or in part, whether by operation of law or otherwise, without the prior written consent of the other party, which consent shall not be unreasonably withheld; provided that Company may assign this Agreement to an affiliate located within the United States without such written consent. Except as otherwise provided herein, any attempt by a party to assign this Agreement without written consent shall be void for any and all purposes. Subject to the foregoing, this Agreement shall inure to the benefit of the parties' permitted successors and permitted assigns.

Section 18. Effective Date. This Agreement shall be effective as of the latter of the two signatory dates below ("Effective Date").

Section 19. Exhibits Incorporated. All Exhibits referenced in this Agreement are attached hereto and incorporated herein.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement by and through their duly authorized representatives.

MONTEREY PENINSULA REGIONAL PARK DISTRICT:

By: _____

Name: James Sulentich
Its: General Manager
Reviewed and Approved by District Counsel:

Date: SEPTEMBER 11, 2012

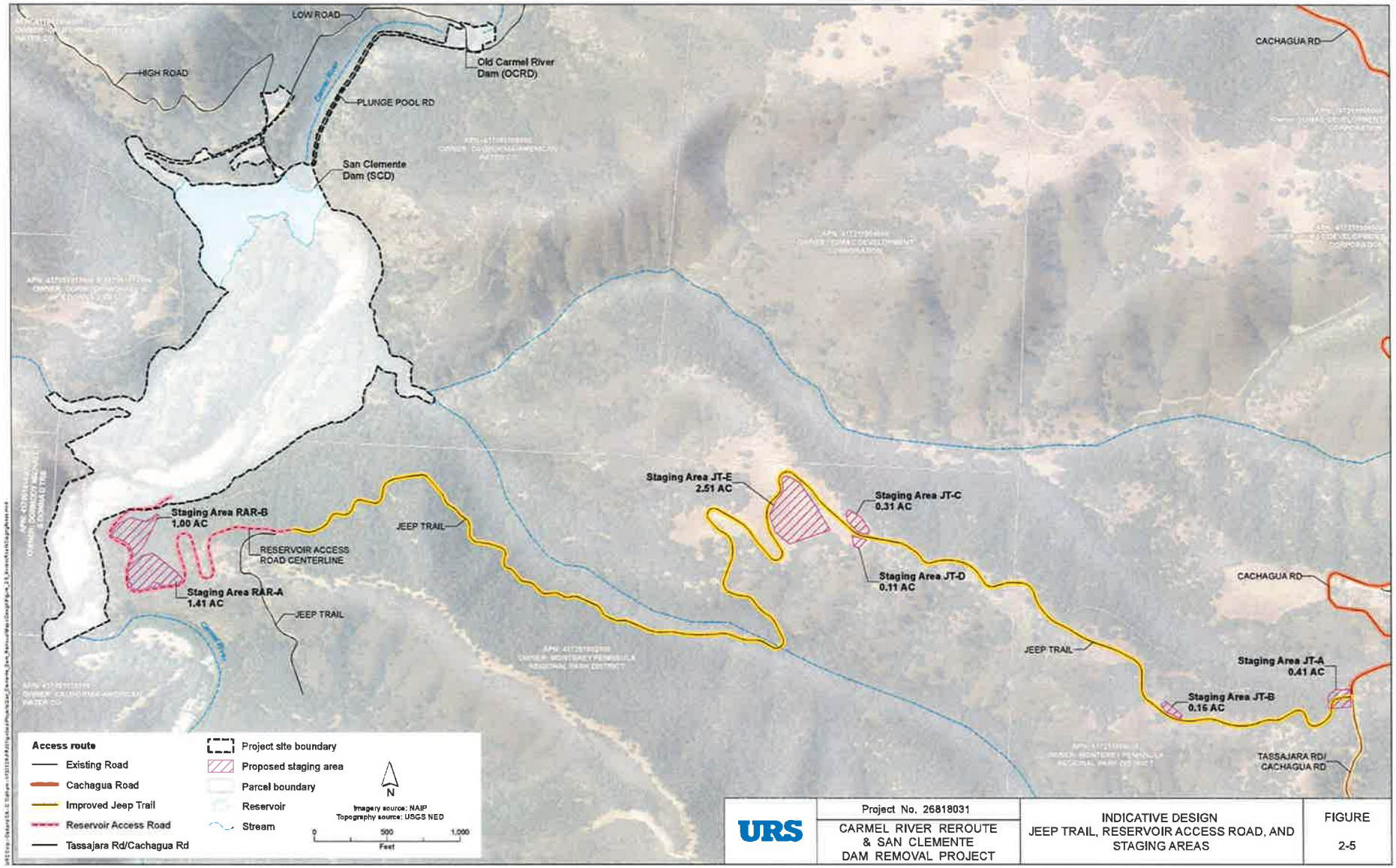
CALIFORNIA-AMERICAN WATER COMPANY:

By: _____

Name: Richard C. Svindland
Its: VP - Eng.
Date: 9/11/12

EXHIBIT A

JEEP TRAIL, RESERVOIR ACCESS ROAD,
AND STAGING AREAS GRAPHIC
[see following page]



URS	Project No. 26818031 CARMEL RIVER REROUTE & SAN CLEMENTE DAM REMOVAL PROJECT	INDICATIVE DESIGN JEEP TRAIL, RESERVOIR ACCESS ROAD, AND STAGING AREAS	FIGURE 2-5

EXHIBIT B

CONSERVATION EASEMENT

[see following pages]

CONSERVATION AND SCENIC EASEMENT DEED

THIS DEED made this 6th day of December, 19 79, by and between the undersigned owners and the undersigned holder of a deed of trust against said property, as Grantor, and the COUNTY OF MONTEREY, a political subdivision of the State of California, as Grantee;

W I T N E S S E T H:

WHEREAS, the said Grantor is the owner in fee of the real property described in Exhibit "A" hereto situate in Monterey County, California; and

WHEREAS, The said land of said Grantor has great and unusual natural scenic beauty because of its location on the Carmel River, its flora and fauna and its location adjacent to a National Forest and wilderness area, and has great value as it is a significant part of the watershed which is the principal water supply for the Monterey Peninsula; and

WHEREAS, the Grantor and the Grantee desire to preserve and conserve for the public benefit the great natural scenic beauty and existing openness, natural condition and present state of use of said property of the Grantor; and

WHEREAS, the said Grantor is willing to grant to the County of Monterey the scenic use as hereinafter expressed of the said land, and thereby protect the present scenic beauty and existing openness by the restricted use and enjoyment of said property by the Grantor through the imposition of the conditions hereinafter expressed;

NOW, THEREFORE, for and in consideration of the premises, the Grantor does hereby grant and convey unto the County of Monterey an estate, interest, and conservation and scenic easement in said real property of Grantor of the nature and character and to the extent hereinafter expressed, which estate, interest, and easement will result from the restrictions hereby imposed upon the use of said property by said Grantor, and to that end and for the purpose of accomplishing the intent of the parties hereto, said Grantor covenants on behalf of itself, its heirs, successors, and assigns with the said Grantee, its successors and assigns to do and refrain from doing severally and collectively upon the Grantor's said property the various acts hereinafter mentioned.

The restrictions hereby imposed upon the use of said property of the Grantor and the acts which said Grantor shall refrain from doing upon their said property in connection therewith are, and shall be, as follows:

1. That no structures will be placed or erected upon said described premises except for storm drains, culverts, sanitary sewer lines and appurtenances, and underground utilities.

2. That no advertising of any kind or nature shall be located on or within said property.

3. That the Grantor shall not plant nor permit to be planted any vegetation upon said premises, except that which is indigenous to the area.

4. That, except for the construction, alteration, relocation and maintenance of public roads, or private roads, private pedestrian and horse trails, storm drains and culverts, sanitary sewer lines and appurtenances, and underground utilities, the general topography of the landscape shall be maintained in its present condition and no excavation or

topographic changes shall be made.

5. That no use of said described property which will or does materially alter the landscape or other attractive scenic features of said land, other than those specified above, shall be done or suffered.

The land of the Grantor hereinabove referred to and to which the provisions of this instrument apply is situate in the County of Monterey, State of California, and is particularly described in Exhibit "A", attached hereto, and made a part hereof.

Excepting and reserving to the Grantor:

(1) The right to prune, trim and maintain the plant and tree life on the property, described in Exhibit "A" hereto, in a manner deemed by Grantor to be acceptable; however, by this reservation Grantor does not covenant to perform any particular maintenance of the said property.

(2) The possession, use, enjoyment and occupancy of said land not inconsistent with the conditions and restrictions herein imposed.

(3) The right to use, maintain, repair, reconstruct and improve the existing stone cabin on the property.

Land uses permitted, or reserved to the Grantor by this instrument, shall be subject to the ordinances of Grantee regulating the use of land.

Nothing herein contained shall preclude the owners, their successors, assigns, licensees and agents from excluding from or admitting anyone to such lands.

If all or any portion of the land described in Exhibit "A" is sought to be condemned for public use, this easement shall terminate as of the time of the filing of any complaint in

condemnation as to the land or any portion thereof or any right therein sought to be taken for public use and the owners shall be entitled to such compensation for the taking as the owners would have been entitled to had the land not been burdened by this easement.

To have and to hold unto the said County of Monterey, its successors and assigns forever. This grant shall be binding upon the heirs and assigns of the said Grantor.

COUNTY OF MONTEREY, Grantee

By _____

Chairman, Board of Supervisors

GRANTORS:

_____
DOUGLAS E. CHAPPELL

_____
ROBERTA S. CHAPPELL

_____
JOSEPH M. TULLY

_____
THEODORE C. HOOKER

STATE OF CALIFORNIA)
) ss
COUNTY OF MONTEREY)

On this 28th day of DECEMBER, 19 79, before me, ERNEST A. MAGGINI, County Clerk of the County of Monterey, and ex-officio Clerk of the Board of Supervisors and of the Superior Court, in and for said County and State, personally appeared SAM FARR, known to me to be the Chairman of said Board of Supervisors of the County of Monterey, and known to me to be the person who executed the within instrument on behalf of said political subdivision, and acknowledged to me that such County of Monterey executed the same.

ERNEST A. MAGGINI, County Clerk
and ex-officio Clerk of the Board
of Supervisors of Monterey County,
State of California

By _____
Deputy Clerk

_____
CAROL J. KELLER

MONTEREY PENINSULA REGIONAL PARK DISTRICT
60 GARDEN COURT, SUITE 325
MONTEREY, CA 93940

CONVEYANCE AGREEMENT

This AGREEMENT is effective December 31, 2003, by and between the "Lost Compadres" property owners ("OWNERS") and the Monterey Peninsula Regional Park District ("DISTRICT"), with reference to the following facts:

A. OWNERS own in fee real property totaling approximately 970± acres and described in attached EXHIBIT A ("PROPERTY").

B. OWNERS are all identified correctly and accurately on page 5 of this document.

C. DISTRICT is a governmental subdivision of the State of California under Public Resources Code 5500 et seq.;

D. OWNERS intend to contribute the Property to DISTRICT upon the terms of this AGREEMENT and DISTRICT intends to accept the PROPERTY and operate and maintain said PROPERTY upon the terms of this AGREEMENT as part of the DISTRICT'S park and open space preserve system.

E. OWNERS intend to retain a certain 18± acre property adjacent to, and formerly part of, the PROPERTY and described in attached EXHIBIT B ("ENCLAVE").

Therefore, OWNERS and DISTRICT agree as follows:

1. DISTRICT representations and warranties. DISTRICT makes no representations or warranties whatsoever except as specifically set forth in Section 1 of this Agreement. Such representations and warranties made pursuant to this Agreement shall be deemed to be continuing.
   a. DISTRICT is a governmental agency duly organized, validly existing, and in good standing under and pursuant to the laws of the State of California.
   b. DISTRICT is exempt from taxation under Section 115 of the Code, and that it is not a private foundation under Section 115 or Section 509(a) of the Code.
   c. The execution of this AGREEMENT, the acceptance of the PROPERTY, and the performance of DISTRICT'S representations, warranties and obligations under this AGREEMENT have been duly authorized by its governing body, is binding on DISTRICT and its successors in interest, and will not violate any of the provisions of its governing instrument or any provision of applicable law.

2. OWNERS representations and warranties. OWNERS make no representations or warranties whatsoever except as specifically set forth in Section 2 of this Agreement. Such representations and warranties made pursuant to this Agreement shall be deemed to be continuing.

   a. OWNERS own in fee said PROPERTY free and clear of any liens and/or judgments, except: items 1-15 as set forth in that certain policy of title insurance N. CNJP-2228-40502 issued by Stewart Title Guaranty Company and dated December 31, 2002; a document entitled "Permit Approval Notice" executed by Charles H. Page, trustee, et al., dated _____ and recorded as Instrument No. _____, Official Records of Monterey County; a document entitled "Floodplain Notice" executed by Charles H. Page, Trustee, et al., dated _____ and recorded as Instrument No. _____, Official Records of Monterey County; and a reserved easement for vehicular, equestrian and pedestrian purposes.

   b. Except as otherwise disclosed by that certain Phase 1 Environmental Report of May 16, 2003, a copy of which is maintained at DISTRICT's office, OWNERS have no actual knowledge that any hazardous materials are located on or under the PROPERTY; that there has been no release, storage, treatment, generation, or disposal of any hazardous materials on, under, or from the PROPERTY; and that no hazardous materials have been transported from the PROPERTY. DISTRICT understands and acknowledges that OWNERS have not undertaken any investigation or inspection of the PROPERTY with regard to environmental matters and that both OWNERS and DISTRICT are relying solely on the aforementioned Phase 1 Environmental Report as the only investigation and inspection undertaken by OWNERS with regard to these matters. OWNERS shall have no duty to make any investigation relating to such matters.

   c. The execution of this AGREEMENT, the contribution of the PROPERTY, and the performance of the OWNERS representations, warranties and obligations under this AGREEMENT have been duly authorized by the OWNERS, are binding on the OWNERS and their successors in interest, and will not violate

any of the provisions of their governing instrument or any provision of applicable law.

3. Contribution and Use of the PROPERTY. OWNERS shall contribute the PROPERTY to the DISTRICT for operation and maintenance as public open space and the DISTRICT shall accept the PROPERTY in an "AS IS" condition for use as public open space with managed public access and will operate and maintain the PROPERTY as public open space in a manner consistent with DISTRICT's Master Plan for perpetuity.
4. Management Plan for the PROPERTY. DISTRICT shall develop a long-term Management Plan for the PROPERTY that includes public access and use, road and trail maintenance, fire prevention, and other management plan elements common to other public park and open space lands owned and administered by the DISTRICT and the OWNERS shall cooperate with the DISTRICT, at no financial cost to the OWNERS, in the management plan process and agree to abide by all policies, rules and regulations DISTRICT establishes in the management plan for public use of the PROPERTY, including access.
5. Monterey County Use Permit. DISTRICT shall obtain, at DISTRICT's cost, a Monterey County Use Permit for public access and use of the PROPERTY and OWNERS shall cooperate and support the DISTRICT, at no financial cost to the OWNERS, in the Use Permit process.
6. Access Road Maintenance. DISTRICT shall maintain the access road into and within the PROPERTY at its sole expense and OWNERS shall maintain the Access Road from into and within the ENCLAVE at its sole expense.
7. Use of the ENCLAVE. OWNERS shall allow limited use of the ENCLAVE and cabin to DISTRICT for special events and the DISTRICT shall abide by any rules and regulations issued by OWNERS for use of the ENCLAVE and cabin.
8. Right of First Refusal. OWNERS hereby grant a *Right of First Refusal* to the DISTRICT to acquire partial or the entire interest in the 18± acre ENCLAVE, subject to and subordinate to the rights of the OWNERS in exercising a *Right of First Refusal* as set forth in the "Co-Tenancy Agreement" made by the OWNERS on June 27, 1978, as described in attached Exhibit D. DISTRICT's *Right of First*

Refusal shall commence on expiration of the thirty (30) day period described in paragraph VIII of the Co-Tenancy Agreement and shall terminate thirty (30) days thereafter unless DISTRICT shall perform all of the acts set forth in paragraph VIII necessary to exercise the *Right of First Refusal*. Upon acquiring an interest in the ENCLAVE, DISTRICT shall be bound by all the terms and provisions of the Co-Tenancy Agreement. DISTRICT's *Right of First Refusal* shall also be subject and subordinate to: (i) the rights of any OWNER (or such OWNER's representative) to transfer or acquire interests in the ENCLAVE under the circumstances or events described in paragraph III of the Co-Tenancy Agreement; and (ii) the rights of the OWNERS (or any of them) to convey a partial interest in the ENCLAVE to Jacqueline McManus and Robert Reid.

9. Binding on Successors. This AGREEMENT shall be binding on, and shall inure to the benefit of OWNERS and DISTRICT, and their respective successors in interest.

10. Entire AGREEMENT. This AGREEMENT constitutes the entire AGREEMENT between the parties pertaining to the subject matter contained herein and supersedes all prior and contemporaneous agreements, representations and understandings of the parties. No supplement, modification, or amendment of this AGREEEMENT shall be binding unless executed in writing by OWNERS and DISTRICT, or by their successors in interest. No waiver of any of the provisions of this AGREEEMENT shall be deemed, or shall constitute, a waiver of any other provision, whether or not similar, nor shall any waiver constitute a continuing waiver. No waiver shall be binding unless executed in writing by the party making the waiver.

11. Execution of the AGREEMENT. This AGREEMENT may be executed in one or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

12. Court Invalidation. If any provision of this AGREEMENT is held invalid or unenforceable by any court of final jurisdiction or by any mediation pursuant to the mediation provisions, it is the intent of the parties that all other provisions of

this AGREEMENT be construed to remain fully valid, enforceable and binding upon the parties.

13. Costs and Expenses. Each party shall pay all costs and expenses incurred or to be incurred by it in negotiating and preparing this Agreement and in closing and carrying out the transactions or requirements contemplated by this Agreement.

14. Notices. All notices, requests, demands and other communications under this AGREEMENT shall be in writing and shall be deemed to have been duly given on the date of service if served personally on the party to whom notice is to be given, or on the third day after mailing if mailed to the party to whom notice is to be given, by first class mail, registered or certified, postage prepaid and properly addressed as follows:

TO: OWNERS	TO: DISTRICT
C/O Charles H. Page 5 La Pradera Carmel, California 93923	MPRPD 60 Garden Court, Suite 325 Monterey, California 93940-5341

Any party or representative may change his, her, or its address for purposes of this paragraph by giving the other parties and representatives written notice of the new address in the manner set forth above.

15. CONTRACT. This AGREEMENT shall be construed in accordance with, and governed by, the laws of the State of California as applied to contracts that are executed and performed entirely in California.

OWNERS

Roberta S. Chappell

12/30/03
Date

ACKNOWLEDGMENT

STATE OF CALIFORNIA)
) ss.
COUNTY OF MONTEREY)

On _____, 2003, before me,_____, a Notary Public, personally appeared _____ personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.

_____
Notary Public, State of California

OWNERS, CONT'

Roberta S. Chappell, Successor
Co-Trustee of the Douglas E. Chappell
Trust Agreement

12/30/03
Date

ACKNOWLEDGMENT

STATE OF CALIFORNIA)
) ss.
COUNTY OF MONTEREY)

On _____, 2003, before me,_____, a Notary Public, personally appeared _____ personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.

_____
Notary Public, State of California

OWNERS, CONT'

John Ishizuka, Successor
Co-Trustee of the Douglas E. Chappell
Trust Agreement

12-30-03
Date

ACKNOWLEDGMENT

STATE OF CALIFORNIA)
) ss.
COUNTY OF MONTEREY)

On _____, 2003, before me,_____, a Notary Public, personally appeared _____ personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.

_____
Notary Public, State of California

OWNERS, CONT'

Theodore C. Hooker

Theodore C. Hooker, Co-Trustee of the Theodore C. Hooker and Joan B. Hooker Living Trust Agreement

12-22-03
Date

ACKNOWLEDGMENT

STATE OF CALIFORNIA)
) ss.
COUNTY OF MONTEREY)

On _____, 2003, before me,_____, a Notary Public, personally appeared _____ personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.

_____
Notary Public, State of California

OWNERS, CONT'

Joan B. Hooker

Joan B. Hooker, Co-Trustee of the Theodore C. Hooker and Joan B. Hooker Living Trust Agreement

12-22-03
Date

ACKNOWLEDGMENT

STATE OF CALIFORNIA)
) ss.
COUNTY OF MONTEREY)

On _____, 2003, before me,_____, a Notary Public, personally appeared _____ personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.

_____
Notary Public, State of California

OWNERS, CONT'

Laurence P. Horan, Co-Trustee
of the Declaration of Trust
by Laurence P. and Jean W. Horan

12/22/03
Date

ACKNOWLEDGMENT

STATE OF CALIFORNIA)
) ss.
COUNTY OF MONTEREY)

On _____, 2003, before me,_____, a Notary Public, personally appeared _____ personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.

_____
Notary Public, State of California

OWNERS, CONT'

Jean W. Horan, Co-Trustee of
the Declaration of Trust by
Laurence P. and Jean W. Horan

12/23/03
Date

ACKNOWLEDGMENT

STATE OF CALIFORNIA)
) ss.
COUNTY OF MONTEREY)

On _____, 2003, before me,_____, a Notary Public, personally appeared _____ personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.

_____
Notary Public, State of California

OWNERS, CONT'

Jay M. Hudson, Co-Trustee under Revocable Trust Agreement dated August 16, 1990 between Jay M. Hudson and Kip J. Hudson, Trustors and as Trustee

Dec 22, 2003
Date

ACKNOWLEDGMENT

STATE OF CALIFORNIA)
) ss.
COUNTY OF MONTEREY)

On _____, 2003, before me,_____, a Notary Public, personally appeared _____ personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.

_____
Notary Public, State of California

OWNERS, CONT'

Kip J. Hudson.
Kip J. Hudson, Co-Trustee under Revocable Trust Agreement dated August 16, 1990 between Jay M. Hudson and Kip J. Hudson, Trustors and as Trustee

12-22-03
Date

ACKNOWLEDGMENT

STATE OF CALIFORNIA)
) ss.
COUNTY OF MONTEREY)

On _____, 2003, before me,_____, a Notary Public, personally appeared _____ personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.

_____
Notary Public, State of California

OWNERS, CONT'

Charles R. Keller

Dec 19, 2003
Date

ACKNOWLEDGMENT

STATE OF CALIFORNIA)
) ss.
COUNTY OF MONTEREY)

On _____, 2003, before me,_____, a Notary Public, personally appeared _____ personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.

_____
Notary Public, State of California

OWNERS, CONT'

Carol J. Keller — 12.22.03

Carol J. Keller — Date

ACKNOWLEDGMENT

STATE OF CALIFORNIA)
) ss.
COUNTY OF MONTEREY)

On _____, 2003, before me,_____, a Notary Public, personally appeared _____ personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.

_____
Notary Public, State of California

OWNERS, CONT'

_____ 12/19/03
Bruce Hyman, Trustee of The Hyman 1993 Revocable Trust — Date

ACKNOWLEDGMENT

STATE OF CALIFORNIA)
) ss.
COUNTY OF MONTEREY)

On _____, 2003, before me, _____, a Notary Public, personally appeared _____ personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.

_____
Notary Public, State of California

OWNERS, CONT'

Charles H. Page, Trustee of the
Page Family Survivor's Trust

12-19-2003
Date

ACKNOWLEDGMENT

STATE OF CALIFORNIA)
) ss.
COUNTY OF MONTEREY)

On _____, 2003, before me,_____, a Notary Public, personally appeared _____ personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.

_____
Notary Public, State of California

OWNERS, CONT'

Frederick M. Pownall, Co-Trustee
of The Pownall Family Trust dated
October 14, 2002

12/23/03
Date

ACKNOWLEDGMENT

STATE OF CALIFORNIA)
) ss.
COUNTY OF MONTEREY)

On Dec 23, 2003, before me, Richard C. Naish, a Notary Public, personally appeared Frederick M. Pownall, personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.

Notary Public, State of California

RICHARD C. NAISH
Commission # 1348368
Notary Public - California
Alameda County
My Comm. Expires Mar 11, 2006

OWNERS, CONT'

Susan S. Pownall
Susan S. Pownall, Co-Trustee
of The Pownall Family Trust Dated
October 14, 2002

12/25/03
Date

ACKNOWLEDGMENT

STATE OF CALIFORNIA)
) ss.
COUNTY OF MONTEREY)

On Dec 25, 2003, before me, Richard C. Naish, a Notary Public, personally appeared Susan S. Pownall personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.

Notary Public, State of California

RICHARD C. NAISH
Commission # 1348375
Notary Public - California
Alameda County
My Comm. Expires Mar 11, 2006

OWNERS, CONT'

Sharon Law Tucker, Co-Trustee
of the Ferris M. Stotler Trust
u/t/a dated February 1, 2001

12/22/03
Date

ACKNOWLEDGMENT

STATE OF CALIFORNIA)
) ss.
COUNTY OF MONTEREY)

On _____, 2003, before me,_____, a Notary Public, personally appeared _____ personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.

_____
Notary Public, State of California

OWNERS, CONT'

Rebecca Dee Law 12-23-03

Rebecca Dee Law, Co-Trustee
Of the Ferris M. Stotler Trust
u/t/a dated February 1, 2001

Date

ACKNOWLEDGMENT

STATE OF CALIFORNIA)
) ss.
COUNTY OF MONTEREY)

On _____, 2003, before me,_____, a Notary Public, personally appeared _____ personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.

_____
Notary Public, State of California

DISTRICT

12-18-03 .

Mary Dainton, President Date

ACKNOWLEDGMENT

STATE OF CALIFORNIA)
) ss.
COUNTY OF MONTEREY)

On _____, 2003, before me,_____, a Notary Public, personally appeared _____ personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.

_____
Notary Public, State of California

EXHIBIT C

CONVEYANCE AGREEMENT

[see following pages]

EXHIBIT D

3.2.2 Jeep Trail and Reservoir Access Road

Initial work for the Jeep Trail would be clearing and grubbing of the area north of the intersection of Cachagua Road and the Jeep Trail to begin development of Staging Area JT-A. Clearing, grubbing and minor grading would also be performed at Staging Areas JT-B through JT-E. The cleared vegetation would be stockpiled in Staging Area JT-E. The topsoil from Staging Area JT-A and from the areas to be improved along the Jeep Trail would be stripped and stockpiled in Staging Area JT-E for site restoration. Grading improvements to the Jeep Trail would provide fill for leveling Staging Area JT-A as well as for fills required for improvement of the Jeep Trail. Excess materials excavated during widening of the Jeep Trail to 18 feet wide would be stored in Staging Area JT-E. Culverts with a capacity to discharge a 25-year peak design flow would be installed at locations depending upon vertical alignment and surrounding topography. In order to minimize the daily volume of trucks hauling materials to the site, importation and stockpiling of aggregate base rock in Staging Area JT-C would begin shortly after improvements to the Jeep Trail begin. Thus, as the Jeep Trail and subsequently the Reservoir Access Road are graded, aggregate base rock would be hauled from the stockpiles, spread on the prepared subgrade and compacted.

Once the Jeep Trail staging areas have been established, the Reservoir Access Road alignment would be surveyed and staked prior to clearing of trees and grubbing. After clearing and grubbing, topsoil would be stripped to the width of the staked roadway grading area, and stored in Staging Areas RAR-A and RAR-B. As the topsoil is stripped, cut/fill grading of the Reservoir Access Road would begin. A larger volume of cut is required than fill. The additional cut volume would be stockpiled in Staging Areas RAR-A and RAR-B. Culverts with a capacity to discharge a 25-year peak design flow would be installed at locations depending upon vertical alignment and surrounding topography.

3.2.3 Staging Areas

Seven staging areas are located along the Jeep Trail and Reservoir Access Road as shown on Figure 2-5. Six of the staging areas (JT-B through JT-E and RAR-A and RAR-B) would only be used for road construction. Staging area JT-A, located at the intersection of the Jeep Trail and Cachagua Road would be used during road construction and during the main project for unloading and loading construction equipment. The staging areas have been located and sized to minimize clearing or trees. These staging areas would provide a total of 5.9 acres available for temporary facilities, equipment, storage of vegetation from site clearing, stripped topsoil, and excess excavated materials, in addition to providing temporary storage of aggregate base rock and drainage materials while the Jeep Trail and Reservoir Access Road are being constructed. The estimated usage of the staging areas is shown in Table 3-3.

Table 3-3
Estimated Use of Access Road Staging Areas

Purpose	Quantity (cubic yards)	Approximate Dimensions of Plan Area Required[a] (width/length/height)	Approximate Required Plan Area (acres)	Estimated Staging Area
Equipment Mobilization/ Demobilization	--	120' x 85'	0.3	JT-A
Equipment Yard	--	100' x 100'	0.3	JT-B & JT-D
Stockpile Topsoil	4,300	65' x 180' x 10' (average height) [c]	0.3 [c]	JT-E
Vegetative debris: 1. Large woody debris (LWD) 2. Mulched vegetative debris	100 850	65' x 40' x 10' (average height) [c]	0.1 [c]	JT-E
Stockpile excess excavated material	48,600 (Jeep Trail)	265' x 300' x up to 40' (varying height) [c]	1.9 [c]	JT-E
	1. 20,000 2. 12,500 3. 6,100 38,600 total (Reservoir Access Road)	1. 165' x 375' x 15' 2. 145' x 300 x 15' 3. 55' x 100' x 30' (average height) [c]	1. 1.4 2. 1.0 3. 0.2 [c]	1. RAR-A 2. RAR-B 3. JT-E
Aggregate base stockpile [b]	2,650	135' x 120' x 15'	0.4	JT-C
Total Estimated Required Staging Area on Access Roads			5.9	

[a] Area assume stockpiles with ramps having 10 percent grade at each end, 2H:1V side slopes and 10-foot-wide travel areas on all sides.
[b] Assumed 50 percent of total aggregate base volume to calculate stockpile footprint requirement.
[c] Based upon plan area of standard stockpile, however Staging Area JT-E will be a 2:1 fill slope requiring a smaller footprint for the same volume

Excess excavated materials stockpiled in Staging Areas JT-E, RAR-A and RAR-B would be removed from the staging areas in 2013 by the Design/Builder and placed in the Sediment Stockpile area. The vegetative debris from clearing and grubbing stockpiled in Staging Area JT-E would be removed from the staging areas in 2013 by the Design/Builder and placed in the Ridge Staging Area stockpile as described below for future use in habitat restoration.

EXHIBIT E

HABITAT PLAN

[see following pages]

Carmel River Reroute & San Clemente Dam Removal Project Environmental Permitting Task 3.6

Habitat Mitigation and Monitoring Plan

Prepared for:

State Coastal Conservancy

California American Water

URS Corporation
1333 Broadway, Suite 800
Oakland, CA 94612

Table of Contents

List of Abbreviations and Acronyms

BLM	U.S. Department of Interior, Bureau of Land Management
BMP	best management practice
CAW	California American Water Company
CDFG	California Department of Fish and Game
cfs	cubic feet per second
CRLF	California Red-legged Frog
CRRDR	Carmel River Reroute and San Clemente Dam Removal
CTS	California tiger salamander
D-B	Design-Build
DSOD	Division of Safety of Dams
DWR	California Department of Water Resources
EIR/EIS	Environmental Impact Report/Environmental Impact Statement
MMRP	Mitigation Monitoring and Reporting Program
MPRPD	Monterey Peninsula Regional Park District
MPWMD	Monterey Peninsula Water Management District
NMFS	National Marine Fisheries Service
o.c.	On center
OCRD	Old Carmel River Dam
Project	CRRDR Project
RWQCB	Regional Water Quality Control Board
SCCC	South-Central California Coast
SCD	San Clemente Dam
Corps	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
WUS	Waters of the U.S.

1.0 Summary

In the early 1990s, the California Department of Water Resources (DWR) Division of the Safety of Dams (DSOD) issued a safety order determining that San Clemente Dam (SCD) could potentially fail in the event of either the maximum credible earthquake or probable maximum flood. In response to this order, the Carmel River Reroute and San Clemente Dam Removal (CRRDR) Project (the Project) was proposed.

The CRRDR project will reroute the Carmel River into San Clemente Creek upstream of SCD, remove SCD and Old Carmel River Dam (OCRD), and restore the Combined Flow Reach (CFR, a portion of creek between SCD and the reroute channel) to provide fish passage for steelhead and other species. The Project accomplishes dam removal while minimizing the volume of accumulated sediment requiring excavation, placement, and stabilization.

This Habitat Mitigation and Monitoring Plan describes the proposed project, including the restoration plan and proposed implementation, long-term maintenance and monitoring, success criteria, and regulatory reporting requirements. In addition to dam removal, the proposed project restores and establishes multiple habitats including seasonal wetland and other waters of the U.S. (the combined San Clemente Creek and Carmel River channel and smaller drainages), oak woodland, grassland and scrub. The wetlands are replaced in a one to one ratio, achieving no net loss of wetlands. These on-site restoration activities offset the adverse impacts associated with construction of the project, thereby making the project self-mitigating.

2.0 Responsible Parties

2.1 Applicant

The applicant for this project is California American Water (CAW):

John Kilpatrick, for California American Water (CAW)
511 Forest Lodge Road, Suite 100
Pacific Grove, CA 93950
Business Phone: 831-464-3241
Email: john.kilpatrick@amwater.com

2.2 Applicant's Designated Agent

This HMMP and other permitting documents are being prepared by URS Corporation (URS) on behalf of CAW. The URS designated agent is:

Francesca Demgen or Seth Gentzler, P.E. URS Corporation
1333 Broadway, Suite 800
Oakland, CA 94612

Reception Phone: 510-893-3600
Direct Phone: 510-874-1731 (Demgen); 510-874-3018 (Gentzler)
Fax: 510-874-3268
Francesca.Demgen@urs.com or Seth.Gentzler@urs.com

2.3 Preparer(s) of the Proposal/Plan

This proposed mitigation plan was prepared by a team of hydrologists, engineers, botanists and designers at URS, including the following task leads:

- Francesca Demgen – Permitting Project Manager
- Seth Gentzler – Engineering Project Manager
- Rebecca Verity and Katherine Dudney– Senior Ecologists
- Michael Carbiener – Senior Fisheries and Wildlife Biologist
- George Strnad and Keith Wright – Landscape Architects/Restoration Design
- Shannon Leonard – Hydrologist
- Jan Novak – Soils/Wetlands Scientist

These individuals can be contacted through the reception number listed for the URS, Oakland office listed under Section 2.2.

3.0 Project Requiring Mitigation

3.1 Location

The project is on the Carmel River in unincorporated Monterey County, south of and upstream from the town of Carmel Valley Village, California (Figure 3-1). The project area consists of: SCD and its associated reservoir; OCRD; the Carmel River, San Clemente Creek, and tributaries just upstream of SCD; the ridge separating Carmel River from San Clemente Creek; and access roads. SCD is a 106-foot-high concrete arch dam that is approximately 18.5 miles from the Pacific Ocean on the Carmel River in Monterey County.

OCRD (36.438892, 121.704834) is approximately 1,700 feet downstream of SCD (36.435854, -121.708696) (Figure 3-2). The project area lies within the Carmel Valley U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle (Figure 3-3), township 17S, range 2E and 3E, Sections 13, 23, 25, 26, and 30.

3.2 Brief Description of Overall Project

The DSOD issued a safety order for SCD in the early 1990s, determining that the dam could potentially fail in the event of either the maximum credible earthquake or probable maximum flood. In 2006, DSOD released a Draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for the SCD Seismic Safety Project that evaluated five alternatives for addressing the safety issue, including CAW's then-preferred approach of Dam Strengthening, as well as the alternative CRRDR option. In December 2007, DWR certified the Final EIR/EIS, and in February 2008, DWR indicated that the dam safety issue could be addressed through implementation of the CRRDR project, which had greater environmental benefits than the Dam Strengthening alternative.

The CRRDR project will reroute the Carmel River into San Clemente Creek upstream of SCD, remove SCD and OCRD, and restore the Combined Flow Reach (CFR), the stream reach between SCD and the reroute channel, to provide fish passage and habitat for steelhead and other species. The total project footprint is approximately 80 acres. This section describes the project components in order of construction sequence. The project components (Figure 3-4) are:

- Access roads
- Staging areas
- Reroute Channel
- Diversion Dike
- Sediment Stockpile
- Stabilized Sediment Slope

- SCD
- OCRD
- Combined Flow Reach
- Habitat Restoration

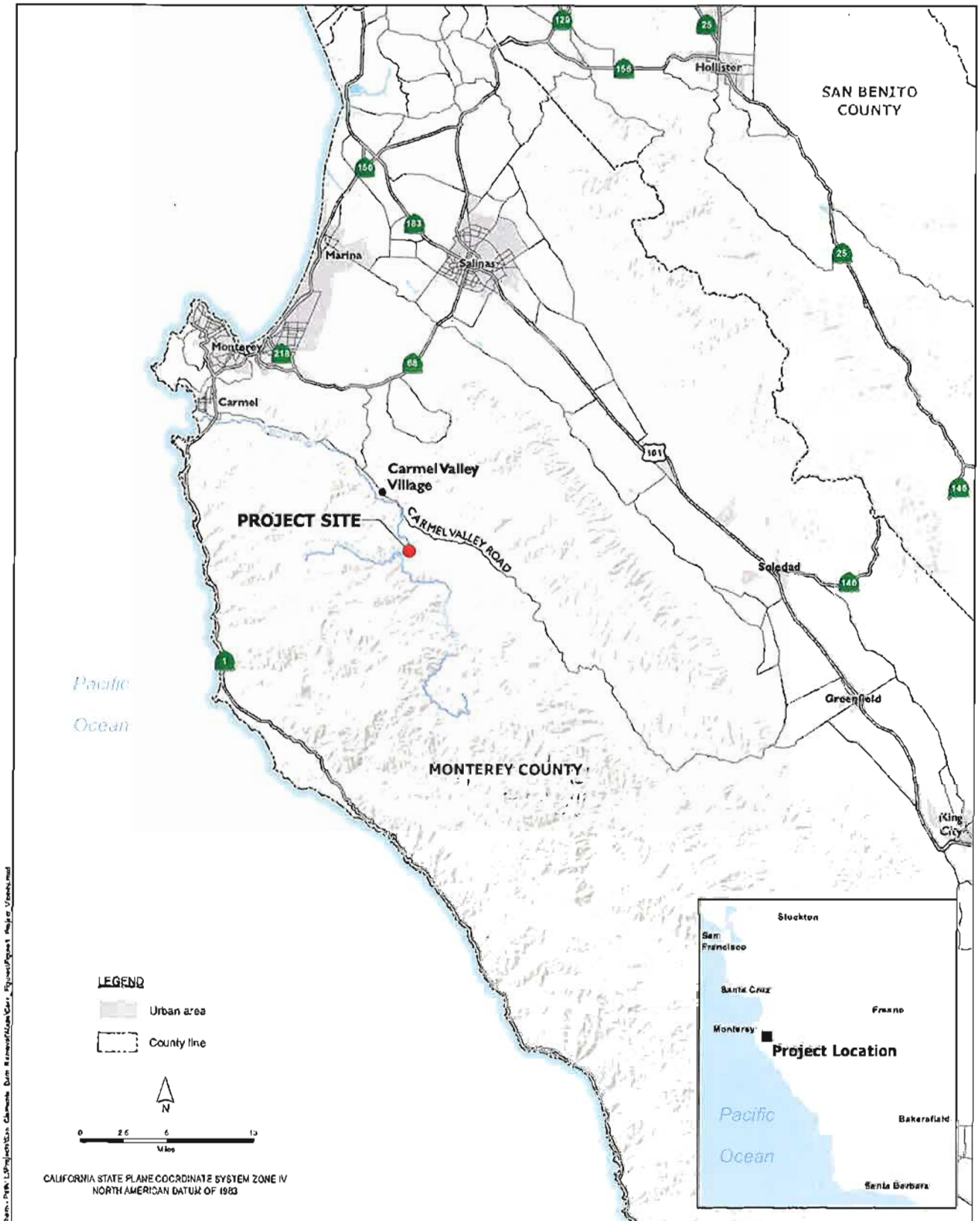
In the summer of construction year (CY) 1, access roads will be improved and constructed for equipment to access the project site. This work will involve vegetation clearing, grading of slopes, and in some cases, widening of existing roads. In addition, staging areas adjacent to the access roads will be cleared. These activities will continue into CY 2 when water diversion systems and dewatering wells will be installed. Construction activities described below will begin in CY 3.

The CRRDR project will reroute the Carmel River into San Clemente Creek at a location approximately 3,000 feet upstream of SCD, bypassing the majority of accumulated sediment in the Carmel River. The bypass (Reroute Channel) will be excavated through the drainage divide between the Carmel River and San Clemente Creek. Upstream of the Reroute Channel, the Upper Carmel River will be excavated and restored to transition to existing channel grades at the upstream end of the project limit. The new CFR between the Reroute Channel and the present dam location will be restored with a focus on steelhead passage. Upstream of the CFR, Upper San Clemente Creek will also be excavated and restored to transition to existing channel grades at the upstream end of the project limit. The accumulated sediment in the San Clemente Creek arm of the reservoir will be excavated and relocated to the abandoned Carmel River arm, and the sediment in the abandoned Carmel River arm will be stabilized in place to form the Sediment Stockpile. A Diversion Dike will be constructed to divert the Carmel River flow into the San Clemente Creek drainage through the Reroute Channel, and to prevent flow from entering the upstream end of the Sediment Stockpile (abandoned reservoir). A Stabilized Sediment Slope will be constructed at the downstream end of the abandoned Carmel River arm to retain sediments in the Sediment Stockpile area (Figure 3-4). When all project elements are in place, SCD will be removed (CY 3 and 4). In addition, OCRD will be removed (CY 4 or 5) as part of the Project.

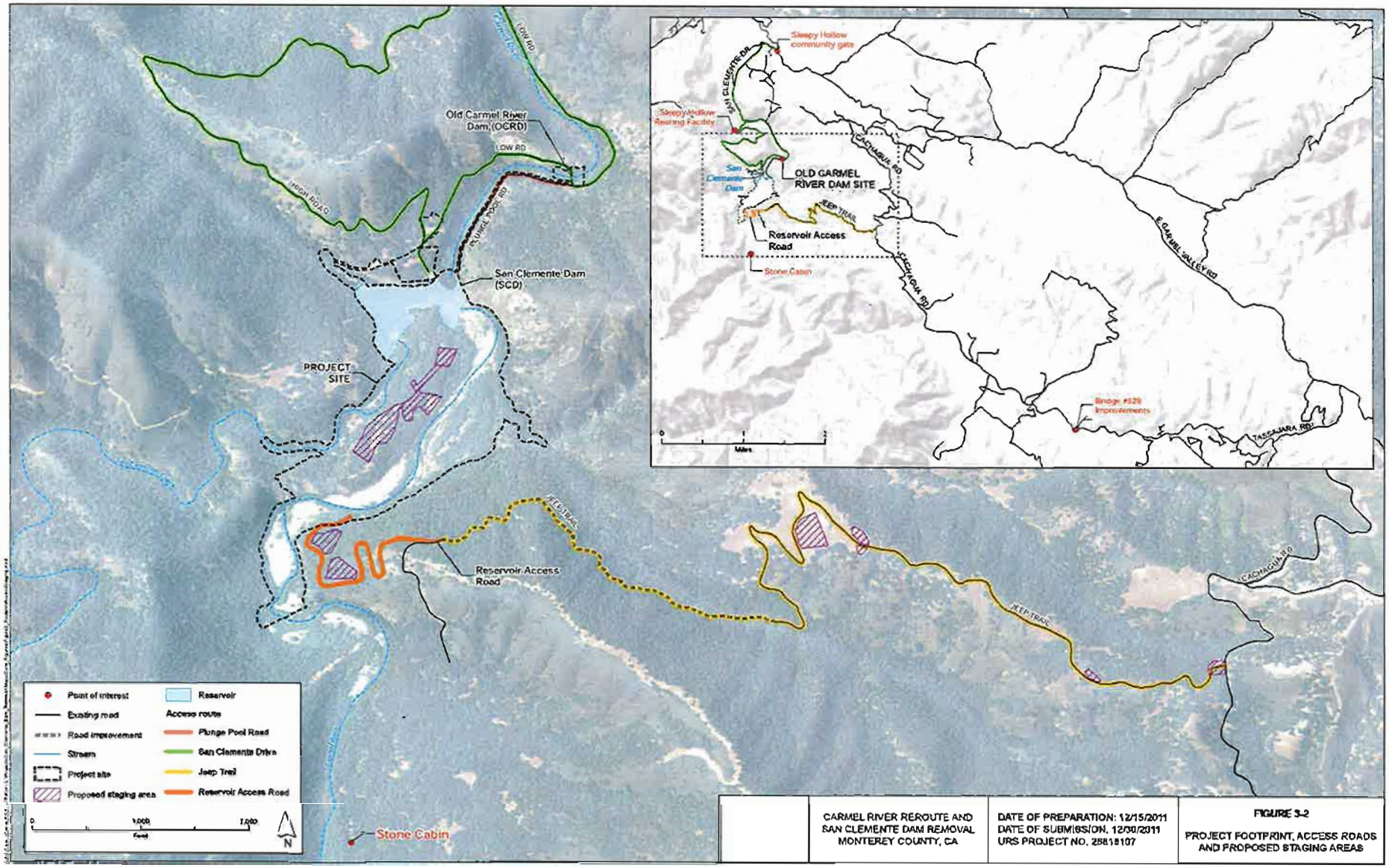
The habitat restoration component of the project includes establishing and/or restoring wetland, riverine, riparian, and upland habitats throughout the site. Approximately 3 acres of wetlands will be established or reestablished within the CFR and on the Sediment Stockpile/Stabilized Sediment Slope to achieve no net loss of wetlands and to provide habitat. Riparian vegetation will be restored or enhanced along the CFR, east and west tributaries, Upper Carmel River, and Upper San Clemente Creek. Upland vegetation, including oak woodland and chaparral scrub, will be established on the Sediment Stockpile/Stabilized Sediment Slope Habitat restoration will occur in CY 3 and CY 4, continuing into CY 5 if necessary, followed by a 5 year maintenance period. Vegetation re-establishment will be supported by routine irrigation and maintenance. After Project completion, CAW intends to convey the property around SCD to the U.S. Department of Interior, Bureau of Land Management (BLM).

CAW will select a Design-Build (D-B) Contractor based on a competitive D-B procurement process.

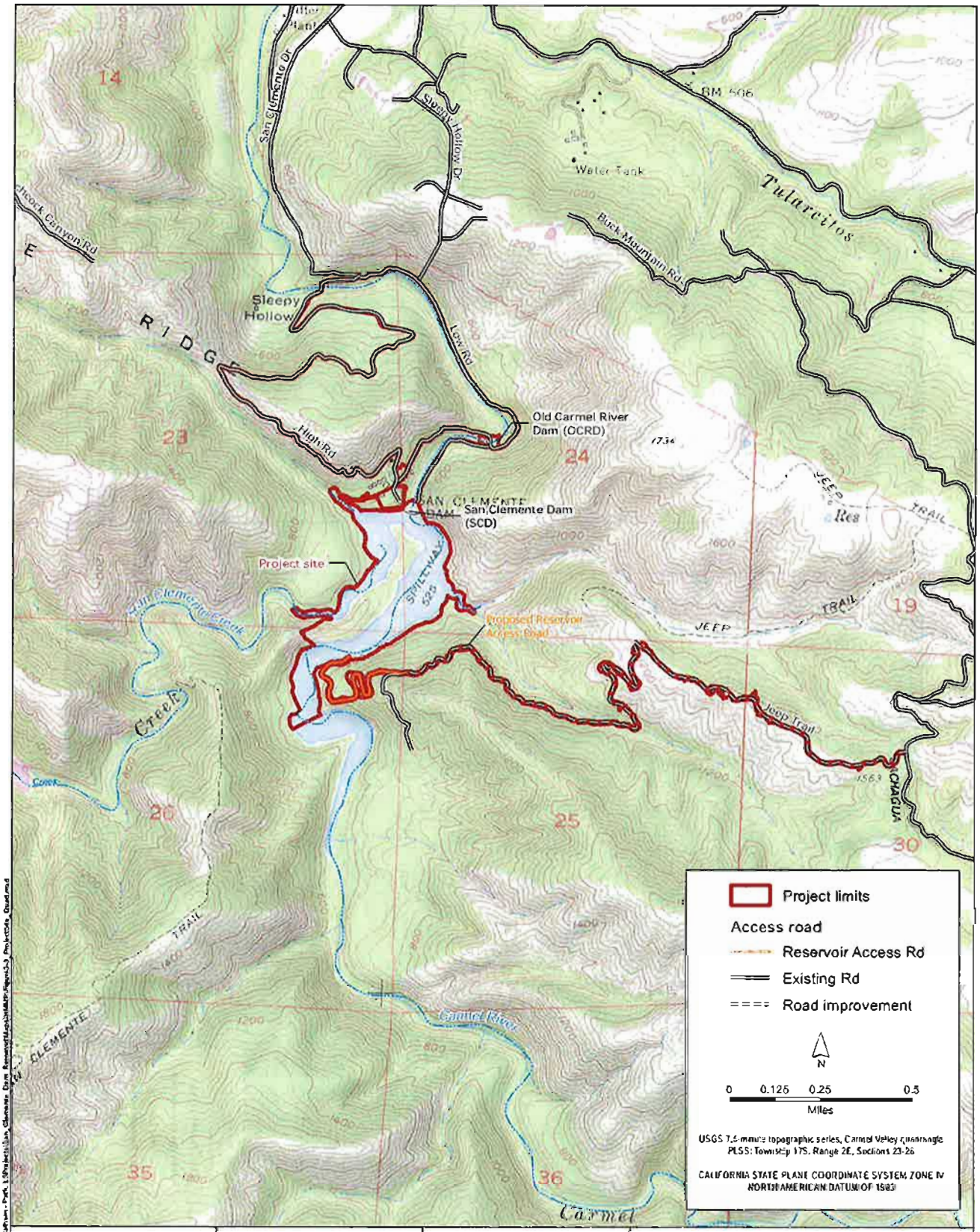
A more detailed project description can be found in Appendix A.



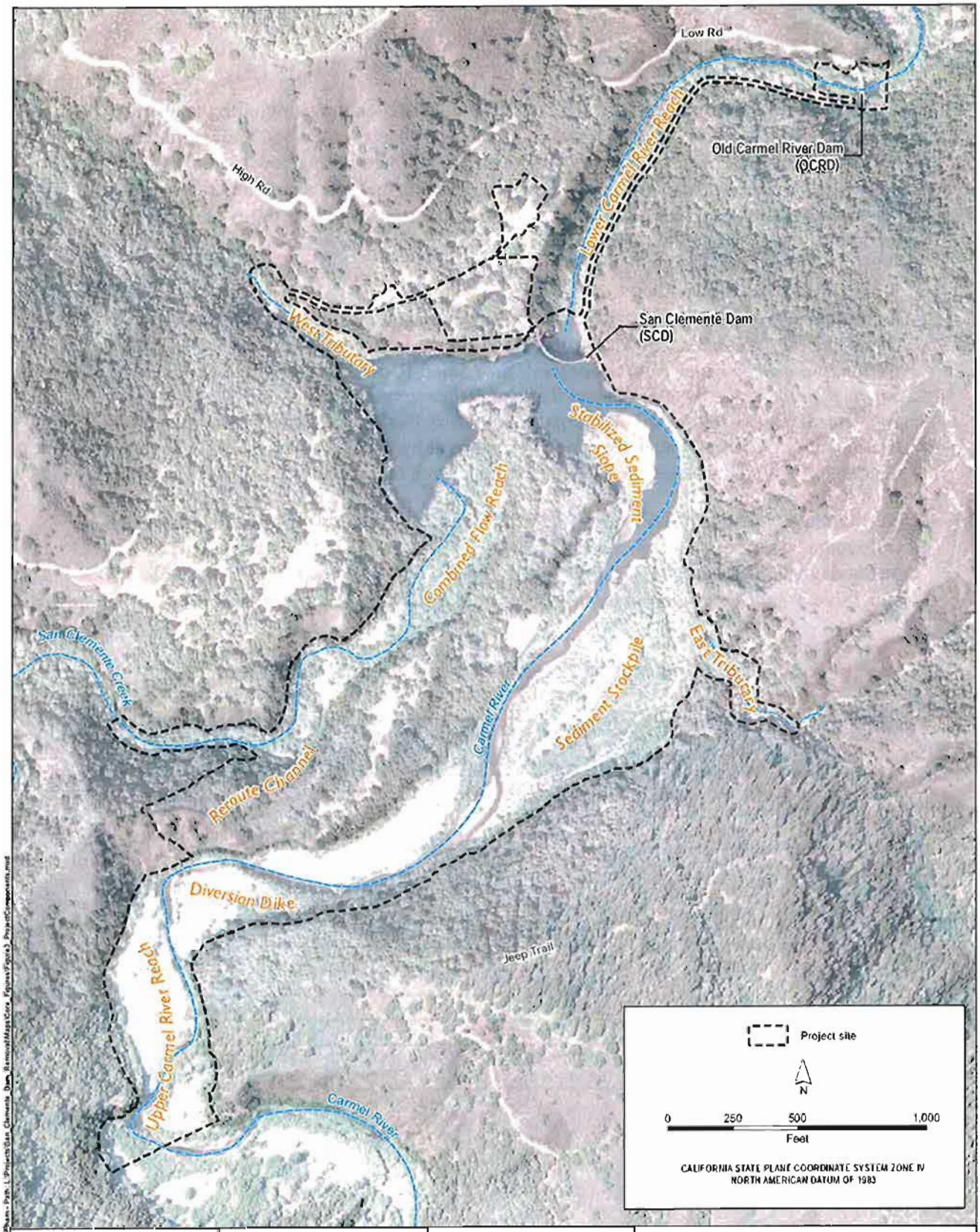
	CARMEL RIVER REROUTE AND SAN CLEMENTE DAM REMOVAL MONTEREY COUNTY, CA	DATE OF PREPARATION: 11/14/2011 DATE OF SUBMISSION: 11/30/2011 URS PROJECT NO. 26818107	FIGURE 3-1 PROJECT VICINITY



	CARMEL RIVER REROUTE AND SAN CLEMENTE DAM REMOVAL MONTEREY COUNTY, CA	DATE OF PREPARATION: 12/15/2011 DATE OF SUBMISSION: 12/30/2011 URS PROJECT NO. 25818107	FIGURE 3-2 PROJECT FOOTPRINT, ACCESS ROADS AND PROPOSED STAGING AREAS



	CARMEL RIVER REROUTE AND SAN CLEMENTE DAM REMOVAL MONTEREY COUNTY, CA	DATE OF PREPARATION: 2/3/2011 DATE OF SUBMISSION: 2/16/2011 URS PROJECT NO. 26818107	FIGURE 3-3 PROJECT QUAD MAP



	CARMEL RIVER REROUTE AND SAN CLEMENTE DAM REMOVAL MONTEREY COUNTY, CA	DATE OF PREPARATION: 11/14/2011 DATE OF SUBMISSION: 11/30/2011 URS PROJECT NO. 26818107	FIGURE 3-4 PROJECT COMPONENTS

3.3 Site Characteristics

The project area contains a mosaic of aquatic and upland habitats, including lacustrine, riverine, wetland, floodplain, riparian, chaparral and coastal oak woodlands. Small areas of disturbed habitat occur within the project area, and include a narrow road, two individual residences, and two dams. This section describes site characteristics including the aquatic and upland habitats present and their functions, site hydrology and topography, soils, vegetation and wildlife.

3.3.1 Jurisdictional Areas

A wetland delineation for the project area was conducted during May, August, and October 2011. Wetlands and waters classification are based on *the Classification of Wetlands and Deep water Habitats of the United States* (Cowardin 1979), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid 12 West Supplement* (Corps 2008), and the *Corps of Engineers Wetlands Delineation Manual, online edition* (Environmental Laboratory 1987). A site visit by the U.S. Army Corps of Engineers (Corps) to verify the wetland delineation was conducted on February 15, 2012.

During the delineation, 28.63 acres (1,247,265 square feet) of waters of the U.S. (WUS) were mapped within the project area, including 2.95 acres (128,569 square feet) of wetlands and 25.68 acres (1,118,696 square feet) of Other WUS (Figure 3-5, Table 3-1 and Table 3-2). There were no non-jurisdictional waters in the project area.

Table 3-1: Area of Potentially Jurisdictional Wetlands in the Project Area

Cowardin Classification	Common/Map Name	Area (acres)	Area (square feet)
Lacustrine, Littoral, Unconsolidated Bottom, wetland	Wetland 1 (WL 1)	0.56	24,517
	Wetland 2 (WL 2)	1.39	60,528
	Wetland 3 (WL 3)	0.41	17,988
Riverine, Unconsolidated Bottom wetland	Wetland 4 (WL 4)	0.37	16,246
	Wetland 6 (WL 6)	0.03	1,321
	Wetland 7 (WL 7)	0.01	265
	Wetland 8 (WL 8)	0.01	248
	Wetland 8.2 (WL 8-2)	<0.01	93
	Wetland 9 (WL 9)	0.06	2,820
	Wetland 10 (WL 10)	0.10	4,544
	Total	2.95*	128,569*

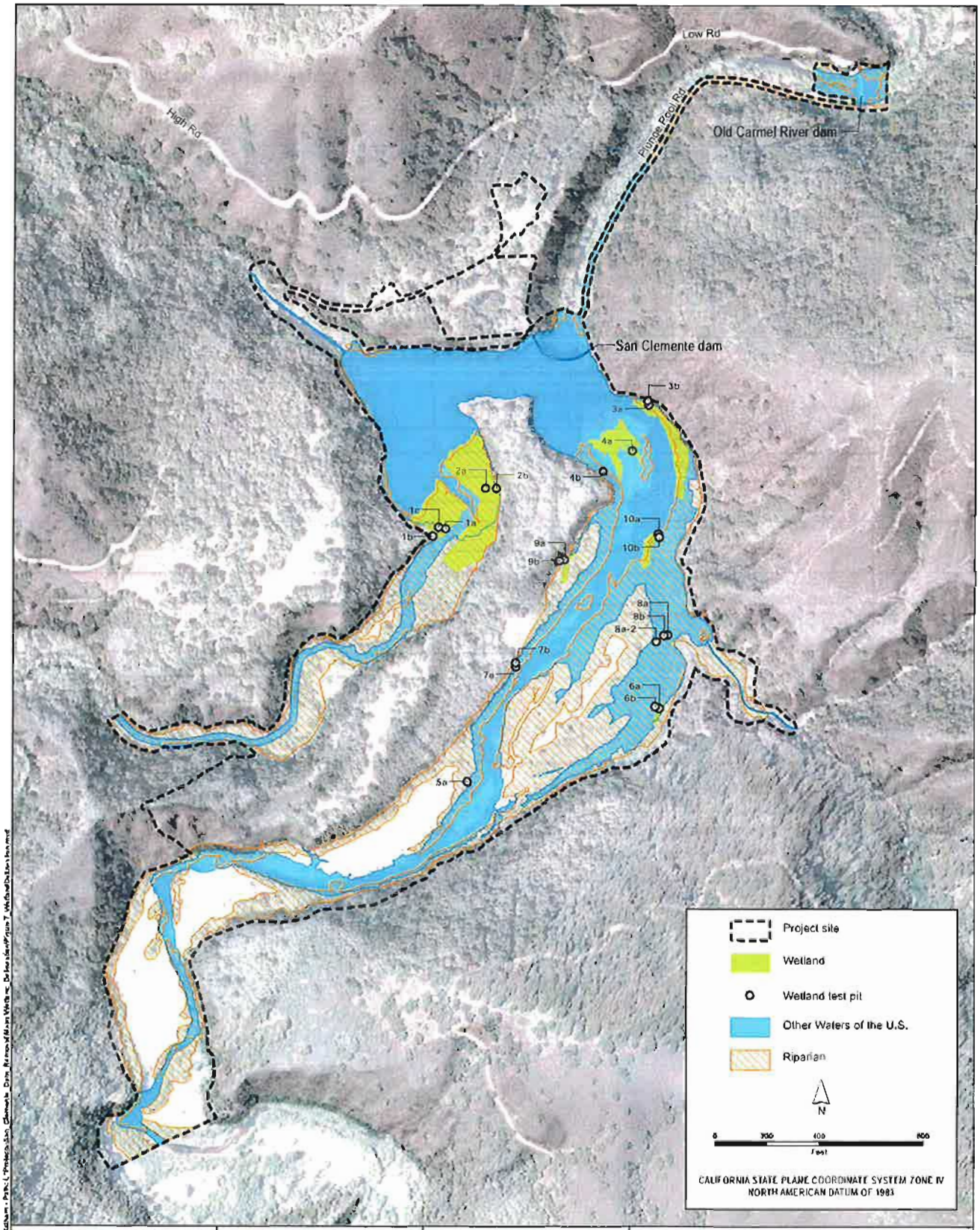
*Totals are based on unrounded values. Columns may not sum to totals due to rounding of individual rows, but totals are accurate.

Table 3-2: Potentially Jurisdictional Non-Wetland Waters Mapped in the Project Area

Feature type	Feature	Length (linear feet)	Area (square feet)
Other Waters of the U.S.	Upstream of San Clemente Dam (Carmel River, San Clemente Creek, Dam Reservoir)	*	1,042,027 (23.92 acres)
	Downstream of SCD (Plunge Pool, Plunge Pool Road, and OCRD Area)	*	66,602 (1.53 acres)
	Western Tributary	485	3,311
	Eastern Tributary	521	2,086
	Jeep Trail Ephemeral Drainage	16	49
	Cachagua Creek Under Bridge #529 (Cachagua Road)	60	3,133
	Subtotal	**1,082***	**1,117,209**
Culvert Waters of the U.S. (CWUS)	CWUS_1	14	28
	CWUS_2	29	57
	CWUS_3	14	28
	CWUS_4	14	28
	CWUS_5	44	788
	CWUS 6	25	37
	CWUS 7	20	30
	CWUS 8	23	34
	CWUS 9	46	68
	CWUS 10	44	174
	CWUS 11	54	214
	Subtotal	**325**	**1,487**
Total Jurisdictional Non-Wetland Waters		**1,407***	**1,118,696** (25.68 acres)**

*Linear feet are not applicable to the Dam Reservoir and OCRD.

**Totals are based on unrounded values. Columns may not sum to totals due to rounding of individual rows, but totals are accurate.



	CARMEL RIVER REROUTE AND SAN CLEMENTE DAM REMOVAL MONTEREY COUNTY, CA	DATE OF PREPARATION 11/15/2011 DATE OF SUBMISSION 11/30/2011 URS PROJECT NO. 26818107	FIGURE 3-5 MAPPED WETLAND AND OTHER WATERS OF THE UNITED STATES WITHIN THE PROJECT

The CRRDR Project will discharge dredged and or fill material into WUS as presented in Tables 3-1 and 3-2. The wetlands and Other Waters described in these tables are expected to be disturbed due to the construction activities, except CWUS 1-5 (0.02 acre). The total amount of impacted wetlands is 2.95 acres and Other Waters is 25.66 acres. The Other Waters includes 12 acres of riparian vegetation that is not delineated as wetland because it lacks hydric soils, one of the three essential wetland parameters.

3.3.2 Aquatic and Upland Habitat Functions

This section describes functions of the aquatic features (as identified in Section 3.3.1) as well as functions of upland habitat (Section 3.3.5) that will be lost and/or directly or indirectly impacted by the project. These functions include:

- Water quality and cold freshwater habitat
- Preservation of rare and endangered species
- Wildlife habitat
- Water contact and noncontact recreation
- Water supply and freshwater replenishment
- Groundwater recharge
- Commercial and sport fishing

Water Quality and Cold Freshwater Habitat

Reaches of the Carmel River and San Clemente Creek upstream of SCD reservoir provide high quality cold water, shaded by riparian trees and oxygenated in runs and riffles. Dissolved oxygen (DO) is generally at or near saturation. Water clarity is high.

SCD currently creates a slow moving, wide, and very shallow reservoir. Water quality varies from good to poor, depending on precipitation, flow, weather, and drawdown conditions. Water temperature within the reservoir can reach as high as 73° F. DO is variable and can drop to lethal levels for fish during summer and fall months. Turbidity is periodically high, both from sediment or algal growth stimulated by the slow moving, warm reservoir water.

Downstream of SCD, water quality improves compared to the reservoir. Low temperature, high DO, and low turbidity contribute to high water quality.

Anthropogenic pollutants are generally not found upstream of, or within, the project area. The project could temporarily affect water quality during construction through potential increases in temperature and turbidity and decreases in DO. A Storm Water Pollution Prevention Plan and best management practices (BMPs) will be implemented. Water quality will be monitored to identify times when additional turbidity control may be necessary to meet discharge limits set forth in the Section 401 Water Quality Certification. Following construction temperature may temporarily increase through the project reach during riparian vegetation reestablishment. Removal of the dam and reservoir is expected to result in long-term benefits to water quality in the Carmel River within and downstream of the project.

Preservation of Rare and Endangered Species

The Carmel River and its tributaries provide cold fresh water habitat (in some locations) for a number of native species, and migration and spawning opportunities for diverse aquatic organisms. Species listed under the Endangered Species Act potentially present in the project vicinity include: South-Central California Coast (SCCC) Steelhead, California red-legged frog (CRLF), and California tiger salamander (CTS).

SCCC Steelhead: Reaches of the Carmel River upstream of SCD reservoir provide high quality habitat for steelhead. Water quality is high with cold temperatures, high DO, an intact riparian canopy, and in-channel root mats for cover and foraging. Substrates within the stream channel consist primarily of gravels and cobble, appropriate for steelhead spawning and benthic macro invertebrate production as a food source. Riffles and pool habitat within this reach of the Carmel River provide cover and forage habitat for fry, juvenile, and adult fish. While non-native predators such as bullfrog and crayfish are present in these reaches, conditions for these non-native predators are poor compared to SCD reservoir.

SCD reservoir generally provides poor quality habitat for steelhead. Water temperatures commonly reach 73°F n the summer, well above the maximum of 60° preferred by steelhead (CDFG 1996) and close to the 75°F upper lethal limit for steelhead (Corps 2009). In addition, DO is low, which has been found to result in mortality or impact development of steelhead (RWQCB 2005). Shelter in the form of riffles, pools, and riparian shade are largely absent. Substrate is inappropriate for steelhead spawning, being primarily soft sediments and sand with no hydraulic break or flow to provide oxygen to the eggs. Predator populations of crayfish, bullfrogs, and non-native fish species are present. While a fish ladder is present, SCD may still serve as a potential partial barrier to steelhead migration.

Downstream of SCD steelhead spawn in the lower reaches where gravel and cobble are present. Monterey Peninsula Water Management District (MPWMD) has injected gravel into lower reaches to preserve spawning habitat and replace gravel trapped by SCD. Some areas within the lower reaches show high embeddedness and/or consolidation. Benthic macro invertebrates, food for both steelhead and CRLF, are generally abundant in these regions. Non-native predators such as bullfrog and crayfish are known in these reaches.

The project would temporarily affect steelhead habitat during construction through the removal of vegetation and channel excavation. However, in the long-term, the project would enhance steelhead habitat functions.

CRLF: Potentially suitable aquatic and upland habitats for CRLF breeding, refugia, and dispersal occur throughout the project area. Factors affecting the quality of aquatic habitat include the duration of water inundation, pond/pool structure and depth, vegetative cover (e.g., emergent, overhanging, riparian), and presence of exotic predators (e.g., bullfrog, crayfish, and non-native fish). Upland and dispersal habitat quality is high throughout the project area and consists of riparian cover, boulders, and wood piles.

The upper reaches of the Carmel River above SCD reservoir are relatively pristine, and likely provide high quality habitat for all life stages of CRLF. The channel contains boulders and cobbles of various sizes, and seasonal off-channel pools and backwater areas appropriate for breeding, egg mass attachment, and tadpole development are likely present. San Clemente Creek upstream of SCD reservoir contains excellent aquatic non breeding habitat. Both reaches have a healthy, diverse riparian canopy which functions to provide shade, shelter, and habitat for CRLF prey, and upland refugia and migration opportunities for adult CRLF. Habitat for non-native CRLF predators is poor compared to SCD.

The reach of San Clemente Creek just upstream of the reservoir currently contains high sediment deposition, with dense emergent and overhanging vegetation that can be used by CRLF for egg mass attachment and escape cover for tadpoles. This area likely provides better rearing habitat for CRLF tadpoles than the reach of the Carmel River just upstream of the reservoir. Channel structure in this reach supports periodic and seasonal off-channel pools and backwater areas.

The Western Tributary is a small drainage at the northwest corner of San Clemente Creek. This ephemeral drainage is not well defined and likely lacks the water ponding and depth needed for successful CRLF breeding. This channel may be used by CRLF adults and juveniles for dispersal and refugia. In contrast, the Eastern Tributary is a small drainage that flows to the Carmel River upstream of SCD. A small pond on the Eastern tributary does not provide CRLF habitat due to the density of willow growth (Reis 2011, pers. comm.).

Within SCD reservoir, water is shallow and accumulated sediment deposits are soft and sandy. The reservoir provides foraging habitat for CRLF adults, and isolated pools in the sediment beds and floodplains may provide CRLF breeding and tadpole rearing habitat, depending on rainfall and the timing of reservoir drawdown events. However, much of this area lacks substrate needed for egg attachment and provides ideal habitat for several species of non-native predators, including bullfrogs, which negatively impact CRLF breeding success.

Below SCD, the area of the Plunge Pool and OCRD provides high quality riparian areas for CRLF adult and juvenile migration and refuge, but likely provides low quality CRLF breeding habitat. The bed and bank contain more cobble and less sand than upstream of SCD, but this area contains little off-channel or backwater areas with the slow-moving water suitable for CRLF reproduction.

The access roads associated with the proposed action generally provide marginal dispersal habitat for CRLF. During periods of wet weather (i.e., rain or fog) CRLF may travel across upland habitats in the area of the access roads. CRLF have been observed in Cachagua Creek at Bridge 529.

CRLF aquatic breeding and non-breeding habitat would be temporarily disturbed during project construction. Habitat would be disturbed through sediment excavation, vegetation

clearing, and grading activities. This includes approximately 3,000 linear feet of the Carmel River between the Reroute Channel and the Stabilized Sediment Slope that will be permanently filled with excavated sediment. Approximately 27 acres of riparian vegetation would be removed. While the reservoir would be removed, the project would create seasonal ponds, off-channel ponds, and upland habitat that would provide additional habitat for this species. The removal of SCD reservoir would reduce the amount of suitable habitat for non-native predators, such as bullfrog, which could lead to increased CRLF success.

CTS: The project footprint includes potential CTS dispersal and estivation habitat along the access roads, however, no suitable breeding habitat occurs within the footprint. Potentially suitable estivation and breeding habitat occurs adjacent to the project area, along the ridge top immediately to the west of Cachagua Road. There is potential CTS migration habitat on Cachagua Road and some potential estivation habitat along portions of the Jeep Trail. The project would result in an incremental increase in traffic on these roads and some grading along the Jeep Trail, but would have little impact on CTS habitat.

The restoration component of the project could enhance CTS habitat within the project area. This is described in Section 4.5.3.

Wildlife Habitat

Upland, riparian and wetland zones throughout the watershed provide shade, shelter, food, nesting, and resting habitat for a wide variety of species.

Uplands

Uplands within the project area consist of a mosaic of woodlands, grasslands, scrub, and chaparral habitats. These areas are situated within millions of acres of primarily open space and protected lands. Roads and residential areas are minimal, land use is restricted, and the proportion of non-native vegetation is relatively low. This is high quality upland habitat which functions to support a diverse and dynamic resident and migratory wildlife population.

Upland areas along the access roads and staging areas would be temporarily impacted during construction. However, the project would create additional upland habitat in the filled Carmel River Reach, just upstream of SCD.

Riparian

Healthy riparian areas provide a plethora of habitat functions. They provide cooling shade to moderate both land and water temperatures and reduce algal growth in water. Instream root mats trap and clear turbidity from the water column, improving water clarity and quality, and also function to stabilize banks, reduce erosion, and provide shelter and food for aquatic insects, amphibians, reptiles and fish. Vegetation provides shelter for a variety of small mammals, snakes, turtles and birds, and supports nesting populations of migratory birds such as vireos and warblers.

The Carmel River above SCD reservoir has high quality riparian habitat with a diverse overstory. Plants are also diverse in age, with a healthy mix of seedlings, saplings, and mature trees. Non-native and invasive plant cover is low.

Around and within SCD reservoir, there are large areas of unshaded aquatic habitat. Riparian diversity is reduced in this area with willows and mulefat scrub being the dominant species. Below SCD, riparian habitat quality is somewhat reduced; while native plants still dominate, there is less diversity of species, age ranges, and horizontal zonation.

This project would reduce riparian habitat throughout the project area. With time, riparian habitat along the CFR would be restored, but there would be permanent losses along the filled Carmel River channel. This area, which will be converted to upland, will provide upland, rather than riparian, habitat functions in the future. The riparian habitat within the project area will be enhanced through a diversity of site-appropriate planted riparian communities.

Wetlands

Wetlands provide numerous ecosystem services including forage and cover components of wildlife habitat and water purification. Wetland soils retain organic matter and create unique anaerobic as well as aerobic environments for microorganisms such as fungi and bacteria which sequester and metabolize complex organic material. Wetlands act as natural barrier and buffer zones that aid in improving water quality and maintaining healthy environments for aquatic species. Wetland vegetation can limit erosion along river banks and shorelines reducing sediment generation, improving water quality and light penetration.

Within the project area, ten wetlands totaling 2.95 acres (Section 3.3.1) were delineated. These wetlands are primarily either Riverine wetlands, occurring along the margins of San Clemente Creek and the Carmel River or Lactustrine wetlands, formed around the margins of the San Clemente reservoir. The wetlands are dominated by a variety of emergent herbaceous and riparian vegetation that serves as habitat. The project area wetlands have developed due to the presence of SCD. SCD slows water flow contributing to warmer water temperature associated with high algal density and dissolved oxygen extremes.

The project will permanently impact wetlands within the project area. The proposed restoration would create new wetlands, resulting in no net loss of wetland area.

Water Contact and Noncontact Recreation

Water contact and noncontact recreation are listed as beneficial uses of the Carmel River in the Basin Plan. Currently, the Carmel River within the project area is on private land, and public access is limited, although kayakers traverse the river from SCD to the Pacific Ocean.

The project should have minimal effects to recreation. In the future, the land will be transferred to BLM. With this transfer to public ownership, additional recreation function may be realized.

Water Supply and Freshwater Replenishment

Use of the Carmel River for municipal, domestic, and agricultural water supply is not expected to change as a result of this project. Under existing conditions, the Carmel River flows through the SCD reservoir, over SCD, then downstream to the river mouth. Flow through the reservoir and dam can be controlled to some extent by the dam outlet works when water elevation is below the spillway level.

Groundwater Recharge

Flows in Carmel River have a direct effect on local groundwater levels and associated recharge. The project may impact local groundwater levels within and directly adjacent to the project footprint; however, the project will not impact groundwater levels or associated recharge upstream or downstream of the project footprint.

Commercial and Sport Fishing

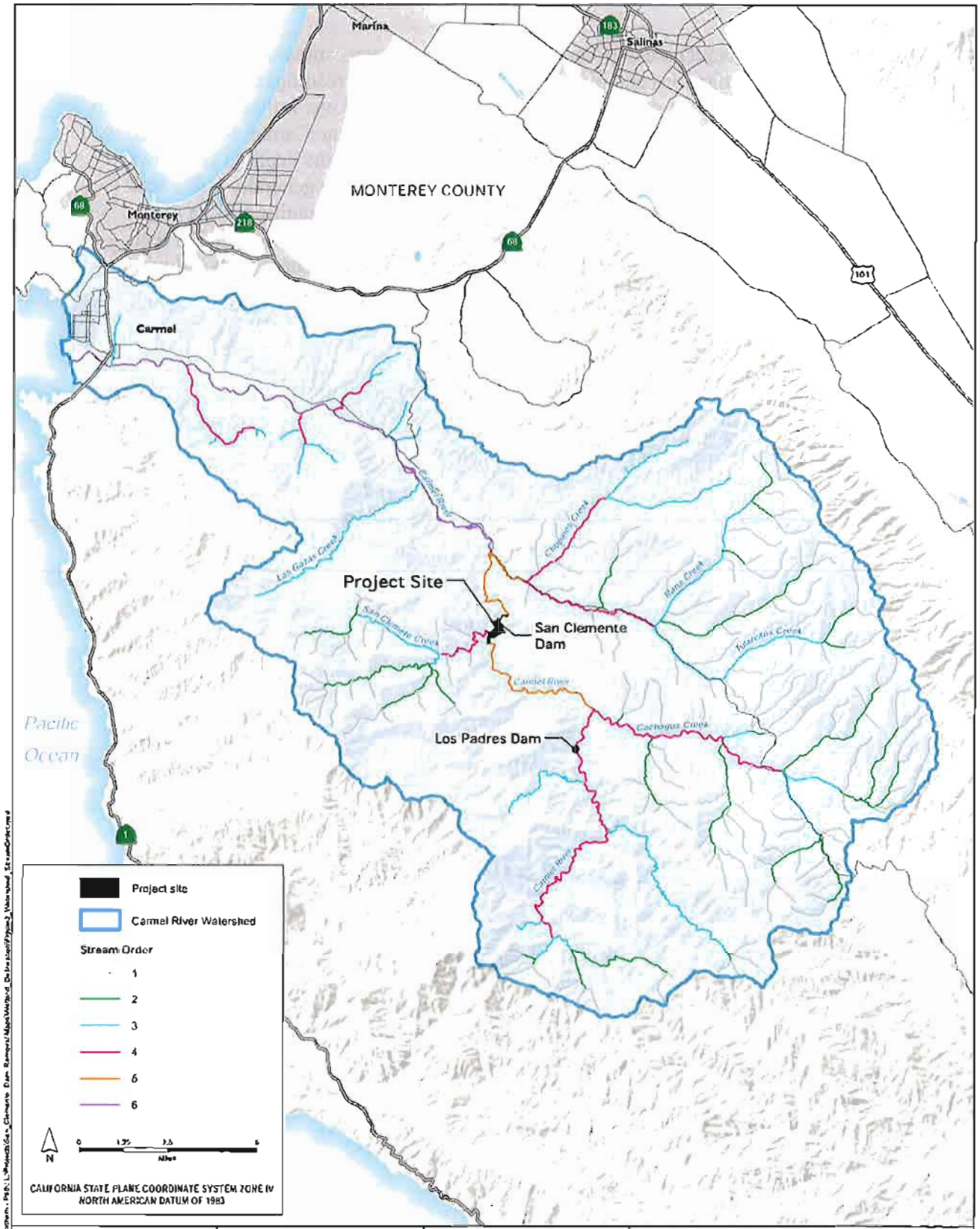
In the Carmel River, steelhead fishing is limited to catch and release below the Robles Del Rio Bridge, approximately four miles downstream of the OCRD. Fishing for rainbow trout is permitted above Los Padres Dam; the catch limit is 2 per day within the size limits of 10 to 16 inches. The project is not expected to impact fishing.

3.3.3 Hydrology/Topography

The project is located in the valley formed by the Carmel River and San Clemente Creek and includes a ridgeline feature separating these two waters. Elevations in the project area range from approximately 430 feet to 740 feet. The headwaters of the Carmel River are located in the Santa Lucia Mountains southeast of the project area, and the river discharges to the Pacific Ocean at Carmel Bay near the City of Carmel. The Carmel River collects flows from Tularcitos Creek, Pine Creek, Cachagua Creek and other streams. San Clemente Creek enters the southwest portion of the project area after its confluence with Black Rock Creek and South Fork Creek. The hydrology of the Carmel River has been modified in the project area for over a century, particularly by construction of three dams (SCD, OCRD, and Los Padres Dam upstream) to impound municipal water supply. Figure 3-6 is a map of the 255-acre Carmel River watershed and displays stream orders for drainages in and around the project location.

Wetlands within the project area are either lacustrine, deriving their water from SCD reservoir, or riverine, deriving their water from Carmel River or San Clemente Creek. The lacustrine wetlands are low gradient features that are primarily the result of sedimentation behind SCD. These wetlands are within the OHWM of the reservoir and are regularly inundated. During the May 2011 delineation, the wetland soil pit locations had groundwater levels within 10 inches of the surface and were saturated, but were not inundated. Riverine wetlands form in off channel pools that may change with the course of the river. During the May 2011 surveys, water levels in these wetlands were encountered from 16 inches below the surface to above ground level.

Elsewhere in the project area, groundwater levels have been estimated through geotechnical investigations and piezometer installations and readings conducted in 2008. The data indicate that the surface water level in the Carmel River influences the depth to groundwater on adjacent flood plain terrace alluvium. Since the Carmel River generally flows year around in the project area, seasonal fluctuations in the depth to groundwater within the alluvium are expected to have little variation and are generally 3 to 7 feet below ground surface. The depth to groundwater in the mixed granitic rock in the proposed Reroute Channel (currently a ridge) is about 79 feet, or elevation 510 feet, which is 12 to 18 feet lower than the groundwater elevation measured in the alluvium.



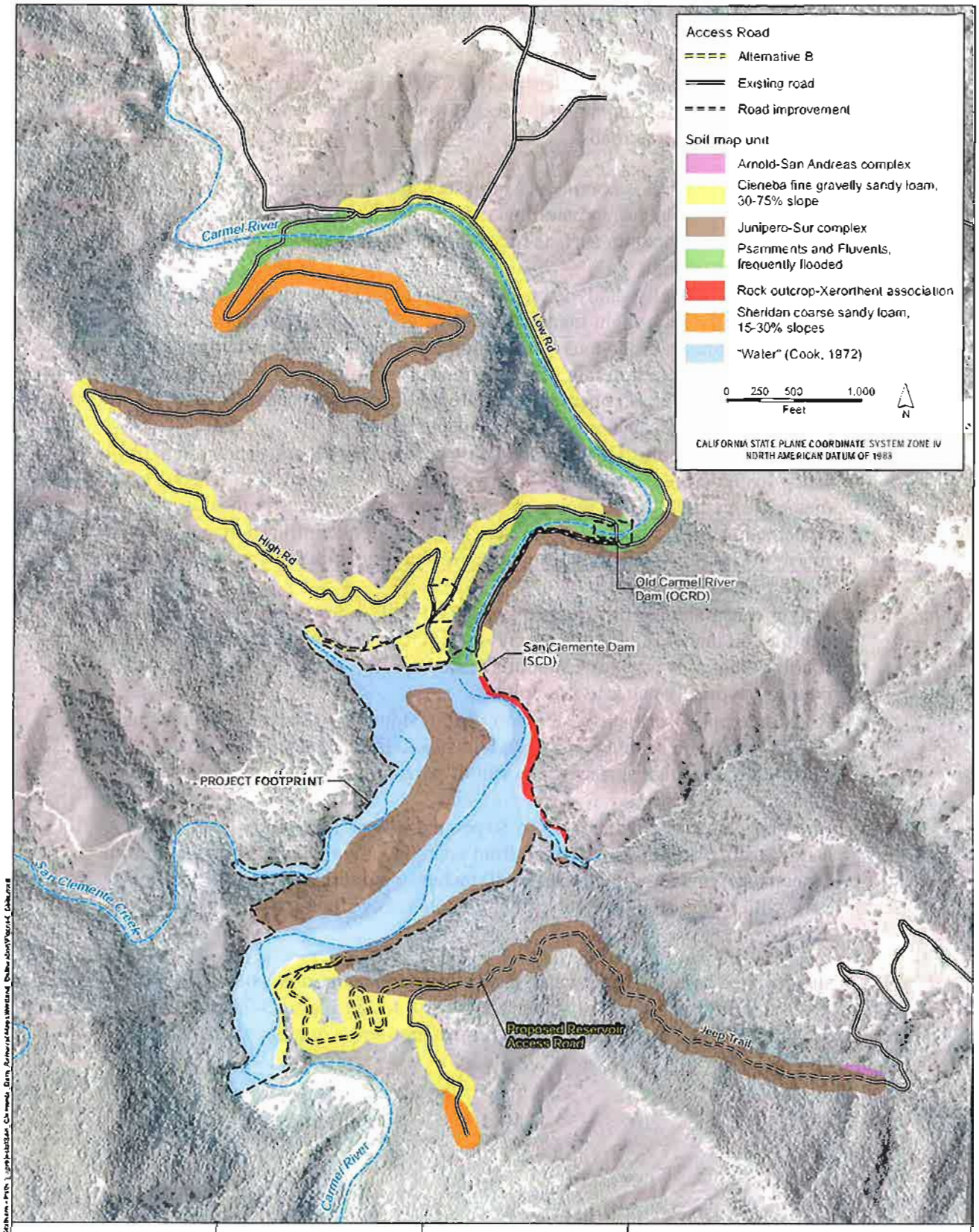
	CARMEL RIVER REROUTE AND SAN CLEMENTE DAM REMOVAL MONTEREY COUNTY, CA	DATE OF PREPARATION: 11/14/2011 DATE OF SUBMISSION: 11/30/2011 URS PROJECT NO. 26818107	FIGURE 3-6 WATERSHED BOUNDARY AND STREAM ORDER FOR THE PROJECT

3.3.4 Soils/Substrate

The Natural Resource Conservation Service (NRCS) soil survey identifies six soil map units within the project area and along the access roads (the soils analysis included a 250 foot buffer around the access roads):

- Arnold - San Andrea's complex (Am): sands and loamy sands derived from sandstone, 40-60 inches to paralithic contact, moderate infiltration rate (well drained), low to medium surface runoff potential, typically forming on hills and mountainous uplands.
- Cieneba fine gravelly sandy loam, 30 to 75 percent slopes (CcG): sandy loam, gravelly sandy loam, light loam or gravelly light loam derived from sandy and gravelly residuum of igneous or metamorphic rock, 4-20 inches to paralithic contact, slow infiltration rate with medium surface runoff potential, do not support ponding, weakly cemented paralithic bedrock restrictive layer, mountainous landscapes with 30-75 percent slopes.
- Junipero-Sur complex (Jc): coarse loamy, coarse sandy loam, sandy loam, or fine sandy loam derived from coarse-loamy residuum weathered from igneous and metamorphic rock, 20-40 inches to lithic contact with a weakly to strongly cemented paralithic bedrock restrictive layer; moderate infiltration and medium runoff potential, do not support ponding or flooding, mountainous landscapes of 50-85 percent slopes.
- Psamments and Fluvents, frequently flooded (Ps): sandy and gravelly alluvium, depth to 60 inches, high infiltration rate with low water capacity, surface water runoff potential is very low, supports frequent, long-lasting flooding, but not ponding, typically occur in floodplains.
- Rock outcrop-Xerorthent association (Rc): residuum weathered from igneous, metamorphic and sedimentary rock, 8 inches to lithic contact, very slow infiltration rate, high surface water runoff potential, mountainous landscapes of 30-75 percent slope.
- Sheridan coarse sandy loam, 15 to 30 percent slopes (Sh): sandy loam, coarse sandy loam, or light loam derived from coarse-loamy residuum weathered from igneous and metamorphic rock, 25-40 inches to paralithic contact, well drained soils with low available water capacity, moderately sloping to very steep hills of 15-30 percent slope.

NRCS also mapped some areas as water, indicating permanent inundation (i.e., not considered a soil) at the time of the soil survey (Cook 1972). Figure 3-7 displays the results of the NRCS soil surveys within the project area and along the access roads.



	CARMEL RIVER REROUTE AND SAN CLEMENTE DAM REMOVAL MONTEREY COUNTY, CA	DATE OF PREPARATION: 11/15/2011 DATE OF SUBMISSION: 11/30/2011 URS PROJECT NO. 26018107	FIGURE 3-7 NRCS SOIL MAP UNITS LOCATED WITHIN PROJECT AND ALONG ACCESS ROADS

3.3.5 Vegetation

The vegetation community typology used below is from *A Manual of California Vegetation* (Sawyer *et al.* 2009). Botanical nomenclature follows The Jepson Manual (Hickman 1993). Figure 3-8 displays an aggregated nomenclature grouping the Sawyer *et al.* classification into categories of riparian, oak woodland, chaparral, wetland, and grassland.

Riparian Vegetation Communities

Riparian habitat occurs throughout the project area along San Clemente Creek, Carmel River, San Clemente dam reservoir, Eastern and Western Tributaries, and Cachagua Creek at Bridge 529 (Figure 3-8 and Figure 3-9). Dominant species include arroyo willow (*Salix lasiolepis*), red willow (*Salix laevigata*), white alder (*Alnus rhombifolia*), black cottonwood (*Populus balsamifera* ssp. *trichocarpa)*, California sycamore (*Platanus racemosa)* and a number of other plant species.

There are 26.99 acres of riparian habitat in the project area, distributed as follows:

- 25.56 acres are upstream of SCD within the Carmel River, San Clemente Creek, SCD reservoir, and East and West Tributaries;
- 1.39 acres are along the Plunge Pool Road and surrounding OCRD;
- 0.04 acres at Bridge 529 on Cachagua Road.

Approximately 16 acres of riparian habitat are above the OHWM and therefore not delineated as Corps wetlands; however, this area is recognized as riparian habitat by the California Department of Fish and Game (CDFG).

White alder groves

White alder riparian forest is a dominant community lining both the Carmel River and San Clemente Creek channels, particularly along sandy or granitic stretches within or adjacent to the annual floodplain. Deciduous trees such as white alder and red willow dominate, but provide a sparse canopy that enables an understory of large shrubs including narrow-leaved willow (*Salix exigua*), mule fat (*Baccharis salicifolia*), arroyo willow, and red-osier dogwood (*Cornus sericea*), which form dense thickets in some areas.

Red willow thicket

Red willow riparian forest is common along the Carmel River and San Clemente Creek channels, and is most abundant along the shores of the reservoir. A high, dense canopy generally excludes a shrub understory. In addition to red willow, other willow species such as arroyo willow and shining willow (*Salix lucida* ssp. *lasiandra*) are also common. The herbaceous layer is often flooded, supporting hydrophytes such as white-root (*Carex barbarae)*, stinging nettle (*Urtica dioica* ssp. *holosericea*), panicled bulrush (*Scirpus microcarpus*), and needle spikerush (*Eleocharis acicularis*). In spite of a closed canopy; a few other shrubs such as coyote brush (*Baccharis pilularis*), poison oak (*Toxicodendron diversilobum*), Pacific blackberry (*Rubus ursinus*); and sparse herbs like Douglas'

mugwort (*Artemisia douglasiana*), California beeplant (*Scrophularia californica*), and water speedwell (*Veronica anagallis-aquatica*) may be present on the margins.

California Sycamore Woodland
California Sycamore Woodland is a common riparian type on the flood plains of the Carmel River. A thick, multi-layered canopy is created by large trees such as California sycamore, red willow, arroyo willow, and white alder. Black cottonwood is also present. Coast live oak (*Quercus agrifolia*), California buckeye (*Aesculus californica*), and California bay (*Umbellularia californica*) are found along the margins of this riparian forest. Common snowberry (*Symphoricarpos mollis*), and poison-oak are characteristic shrubs of this forest-type, along with locally abundant Pacific blackberry and virgin's bower (*Clematis ligusticifolia*). The herb layer is generally sparse, but slough sedge (*Carex obnupta*), stinging nettle, and Douglas' mugwort may occur.

Mulefat thickets
The mulefat series is composed of a low, open scrub, growing on sandbars and the adjacent floodplain, up into upland areas. Other common species from adjoining series are interspersed throughout the scrub, as this is a successional habitat within the riparian zone. Few or no other herbaceous species are found within the mulefat.

Freshwater Wetland Vegetation Communities
Freshwater wetlands occur along the river channels and around the perimeter of SCD. The majority of the wetlands within the project area are the result of sediment accumulation behind SCD.

White-root beds
Dominated by tufts of white-root (*Carex barbarae*), this vegetation community is limited to moist areas along the rivers' edge, particularly in openings adjacent to white alder groves. Areas dominated by white-root are generally wet for half of the year, and have a cobble substrate which mostly excludes mature shrubby vegetation. Riparian saplings may occur, but most common associates are other sedges (*Carex* spp.), Durango root (*Datisca glomerata*), ferns, and needle spikerush.

Baltic and Mexican rush marshes
Baltic (*Juncus balticus*) and Mexican rush (*Juncus mexicanus*) marshes are characterized by low-growing hydrophytes of saturated, poorly-drained organic soil. Either Baltic or Mexican rushes create a dense or intermittent groundcover shared with common white yarrow (*Achillea millefolium*), bulrushes, and occasional sedges. It frequently grows in the channels' backwater pools or in the reservoir shallows.

Torrent sedge patches
Torrent sedge (*Carex nudata*) exists in broken strips and patches between riparian communities, particularly in areas where boulders, cobbles, and high water otherwise make the colonization of trees and shrubs difficult. These herbaceous patches are comprised of Douglas mugwort, seep monkeyflower (*Mimulus guttatus*), Durango root, western coltsfoot (*Petasites frigidus* var. *palmatus*), giant wood fern (*Woodwardia fimbriata*), and umbrella sedge (*Cyperus eragrostis*).

Hardstem bulrush marsh
Freshwater marshes are typically dominated by distinctive, tall, colonial herb species like bulrush (*Scirpus* spp.) and cattail (*Typha* spp.). Freshwater marshes are created in areas that are permanently or seasonally ponded or flooded in both natural and man-made areas. Most common species are hard-stem bulrush (*Schoenoplectus acutus* var. *occidentalis*), American tule (*Schoenoplectus acutus*), soft-stem bulrush (*Schoenoplectus tabernaemontani*) and broad-leaved cattail (*Typha latifolia*).

Upland Forest Vegetation Communities
Upland forest communities dominate along the access roads to the project site. In addition, the ridge separating San Clemente Creek and Carmel River is also predominantly upland forest with scattered chaparral and grassland communities.

Coast Live Oak Forest
Coast live oak forest is the most prevalent upland vegetation community within the project vicinity, found on terraces, slopes, and hillsides above riparian zones and throughout canyons. Trees associated with coast live oak are California bay, madrone (*Arbutus menziesii*), and other oak species (*Quercus* spp.). Coast live oak forests typically have a sparse but diverse shrubby understory, commonly made of well-spaced ocean spray (*Holodiscus discolor*), California coffeeberry (*Rhamnus californica*), hillside gooseberry (*Ribes californicum* var. *californicum*), Pacific blackberry, common snowberry, and blue elderberry (*Sambucus mexicana*). In openings and gaps, shrubs such as toyon (*Heteromeles arbutifulia*), poison oak, and sticky monkeyflower (*Mimulus aurantiacus*); and trees such as California buckeye generally dominate. Herbaceous understory species of the Coast Live Oak Series include bracken (*Pteridium aquilinum*), California melic (*Melica californica*), California fescue (*Festuca californica*), sweet cicely (*Osmorhiza chilensis*), purple sanicle (*Sanicula bipinnatifida*), Pacific pea (*Lathyrus vestitus*), California toothwort (*Cardamime californica*), hairy honeysuckle (*Lonicera villosa*), farewell to spring (*Clarkia amoena*), Chinese houses (*Collinsia heterophylla*) and common swordfern (*Polystichum imbricans*).

California Bay Forest
The California bay forest occurs on the lower western slope of the reservoir's main arm. California bay commonly occurs adjacent to Coast Live Oak in mesic conditions on north-facing slopes, narrow riparian stretches, and as an ecotone with other communities. In general, this series resembles the Coast Live Oak series structure and associated species, although the canopy is generally denser which can limit the understory growth at maturity.

Chaparral and Coastal Sage Vegetation Communities
Chaparral and coastal sage vegetation communities occur within the project vicinity on steep slopes with shallow soils. Within the project area, chaparral communities are identified in patches along the edge of the ridge separating San Clemente Creek and Carmel River on south facing slopes.

Coyote Brush Scrub
Coyote brush series is a prevalent upland community within the project vicinity, particularly on dry, north-facing slopes with thin soils. It is often adjacent or interspersed with Coast live oak woodlands, differentiated by a lack of tree layer. In addition to coyote brush, California sagebrush (*Artemisia californica*), sticky monkeyflower, poison oak, ocean-spray, golden mock-heather (*Ericameria ericoides*), California coffeeberry, and Pacific blackberry are common shrubs. Although the herbaceous layer is sparse in mature stands of this series, a few herbs grow between shrubs and in rocky or disturbed pockets. These may include bee plant, bracken fern (*Pteridium aquilinum* var. *pubescens*), farewell-to-spring (*Clarkia* spp.), fescue (*Festuca* spp.), California poppy (*Eschscholtzia californica*), and other grasses and forbs known to occur in adjacent Chamise chaparral and Coast Live Oak woodland.

California Sagebrush-Black Sage Scrub
California sagebrush-black sage scrub is a prominent shrub community of south-facing slopes, where it replaces or intergrades with the Coyote brush series, and appears in gaps of other upland associations. It is also characteristic of xeric, steep exposed slopes; particularly in the area east of SCD. It may have properties similar to chamise chaparral, but is generally less dense, is less fire-dependent, and may be summer deciduous. The most abundant associates of California sagebrush-black sage scrub are drought tolerant shrubs such as sticky monkeyflower, California brickelbush (*Brickellia californica*), golden yarrow (*Eriophyllum confertifolium*), blue elderberry, California buckwheat (*Eriogonum fasciculatum*), white pitcher-sage (*Lepechinia calycina*), and California broom (*Lotus californicus*) and chaparral yucca (*Yucca whipplei*). A diverse assemblage of annual and perennial herbs and grasses may be present in this scrub, notably dry, cliff-dwelling species like coffee fern (*Pellaea andromedifolia*) and birdsfoot fern (*Pellaea mucronata*) and other species also associated with chamise chaparral such as California fescue, yerba buena (*Satureja douglasii*), blue dicks (*Dichelostemma capitatum*), California manroot (*Marah fabaceus*), hummingbird mint (*Monardella macrantha*), California hummingbird fuschia (*Epilobium canum*),.

Chamise Chaparral
Chamise chaparral forms a carpet of dense, fire-prone interlocking shrub vegetation prevalent on dry ridges and rocky slopes within and adjacent to the Project Vicinity. The widespread chamise (*Adenostoma fascicularis*) may occur in pure stands, or in association with other xeric-adapted, deep-rooting chaparral shrubs, particularly buckbrush (*Ceanothus cuneatus*), blue blossom (*Ceanothus thyrsiflorus*), toyon, chaparral yucca, yerba santa (*Eriodictyon californicum*), and California coffeeberry. In more mesic situations and north-facing slopes, chamise chaparral may also contain coastal scrub shrubs including coyote brush (*Baccharis pilularis*), California buckwheat (*Eriogonum fasciculatum*), ocean-spray (*Holodiscus discolor*), and white pitcher-sage. Although this series is exclusively shrub-dominated, a sparse but diverse herbaceous layer is often present. Farewell-to-spring, California poppy, lupines (*Lupinus* spp.), Indian paintbrush (*Castilleja affinis*), blue dicks, and hairy honeysuckle (*Lonicera hispidula* ssp. *vacillans*) are examples of common species in mature chaparral.

Upland Herbaceous Vegetation Communities

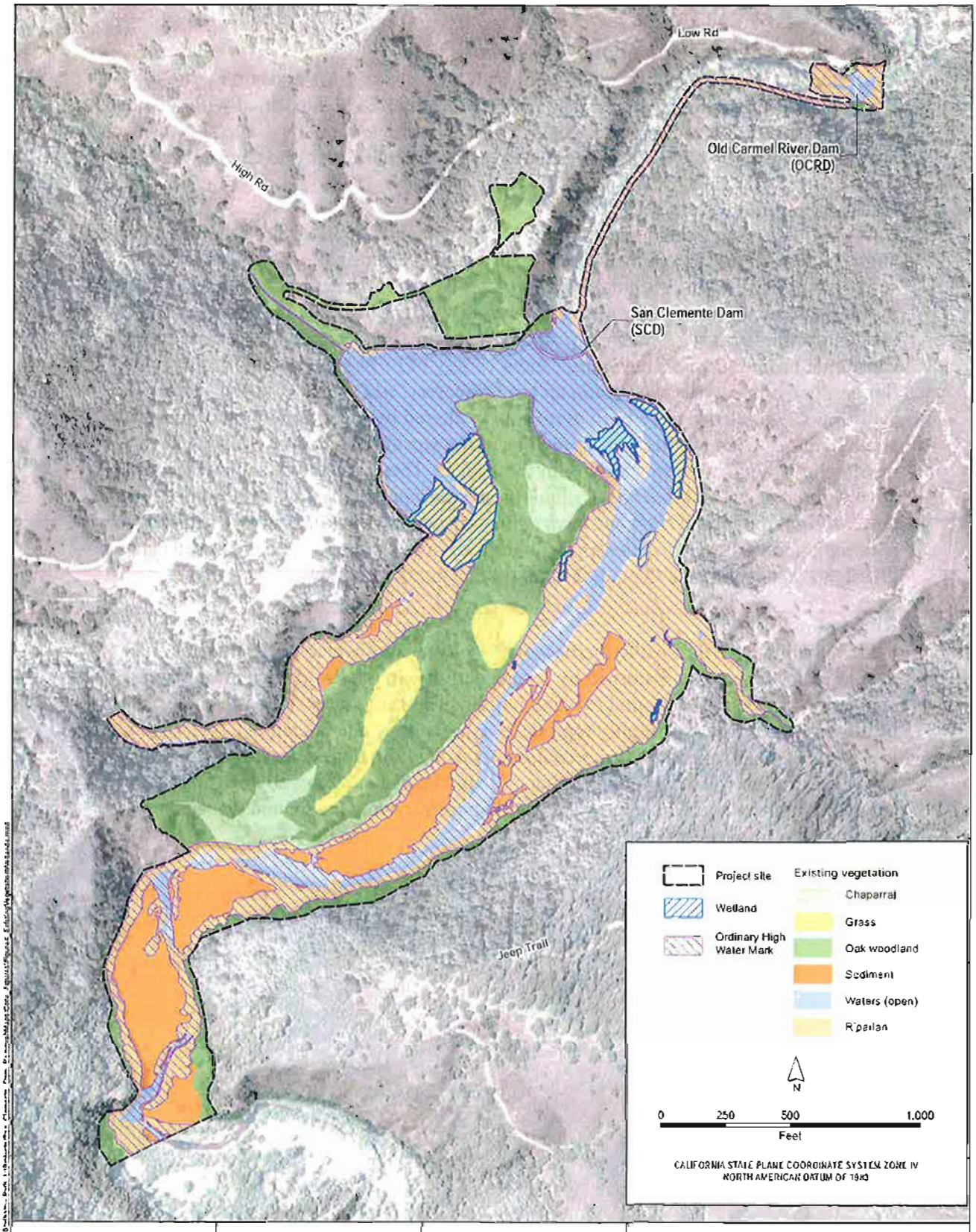
Upland herbaceous vegetation communities are mapped as grasslands on Figure 3-8. Ruderal areas are not mapped because they are too small to be identified within the map scale. The location of ruderal habitats is described in the text below. Several grasslands patches occur on top of the ridge separating San Clemente Creek and Carmel River.

California annual grassland

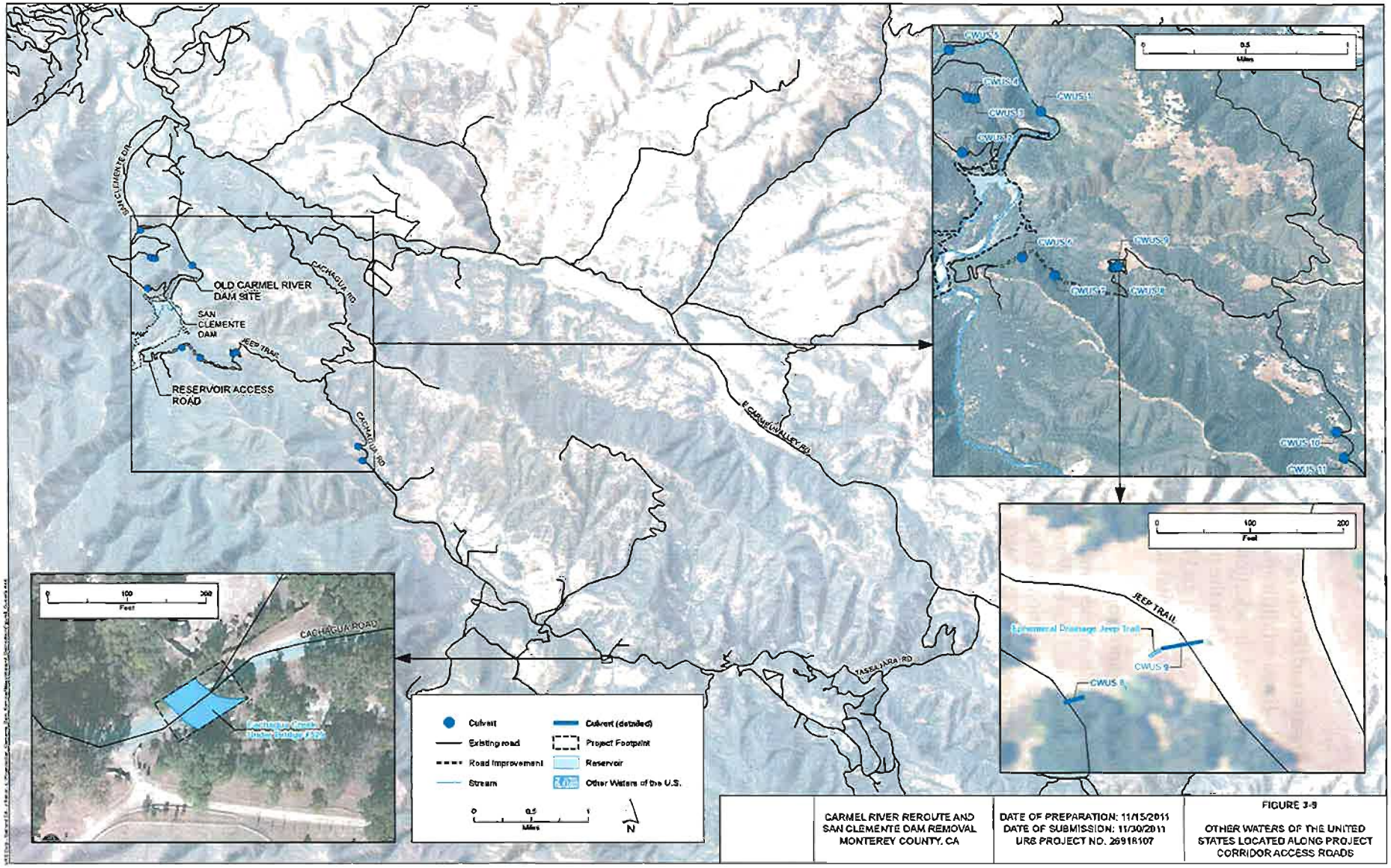
California annual grassland is a common habitat type interspersed throughout the Project Vicinity. It is almost exclusively made up of grasses. Historically, dominants of this series would have been perennial bunch grasses like purple needle-grass (*Nassella pulchra*), creeping wildrye (*Leymus triticoides*), western fescue (*Festuca occidentalis*) and California fescue (*Festuca californica*), purple melic (*Melica imperfecta*), and California brome (*Bromus carinatus*) and a variety of forbs such as California poppy, lupines, baby blue eyes (*Nemophila* sp.) red ribbons (*Calandrinia ciliata*). Today, California's grasslands have been permanently altered by the introduction of non-native annual grasses from Mediterranean regions of the world, which have completely or nearly eliminated native species within these areas. These grasses include wild oats (*Avena fatua* and *Avena barbata*), ripgut brome (*Bromus diandrus*), soft brome (*Bromus hordeaceus*), red brome (*Bromus madritensis* ssp. *rubens*), Italian wildrye (*Lolium perenne*), and barley (*Hordeum* spp.). Other forbs and shrubs may be present, as annual grassland tends to invade the edges of all other natural communities.

Ruderal

Ruderal habitats are defined by herbaceous weedy species which occur in areas developed or repeatedly disturbed by human activity. In the Project Vicinity, ruderal vegetation can be found around existing buildings and structures. Dominant species may be any non-native herb or highly reproductive perennials like poison hemlock (*Conium maculatum*), black mustard (*Brassica nigra*), thistles, and docks (*Rumex* spp.). A few native species may also be found in ruderal habitats, and are generally confined to highly adaptable pioneer species, namely California poppy, coyote brush, and Canada sneezeweed (*Conyza canadensis*).



	CARMEL RIVER REROUTE AND SAN CLEMENTE DAM REMOVAL MONTEREY COUNTY, CA	DATE OF PREPARATION: 11/7/2011 DATE OF SUBMISSION: 11/30/2011 URS PROJECT NO. 26818107	FIGURE 3-8 WETLANDS AND EXISTING VEGETATION COMMUNITIES



	CARMEL RIVER REROUTE AND SAN CLEMENTE DAM REMOVAL MONTEREY COUNTY, CA	DATE OF PREPARATION: 11/15/2011 DATE OF SUBMISSION: 11/30/2011 URS PROJECT NO. 26918107	FIGURE 3-9 OTHER WATERS OF THE UNITED STATES LOCATED ALONG PROJECT CORRIDOR ACCESS ROADS

3.3.6 Threatened/Endangered Species

Two federally-listed wildlife species are known to occur within the project area: CRLF and SCCC steelhead. In addition, there are nearby occurrences of CTS. These three species were considered in the preparation of Biological Assessments for U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS). The project area lies within critical habitat for both CRLF and SCCC steelhead (Figure 3-10)

California red-legged frog

CRLF is listed as threatened under the Federal ESA. CRLFs have been documented from throughout the Carmel River Watershed, both upstream and downstream of the project footprint, with the exception of the plunge pool and spill-influenced portion of the channel downstream of SCD (DWR and Corps 2008; Duffy and Associates 2000; MPWMD 2004).

Forty-eight CNDDB-reported occurrences of CRLF fall within a 10-mile radius of the project footprint. CRLF egg masses, tadpoles, subadults, and adults were observed during various years (i.e., 1989, 1997, 2000, 2002-2003) in San Clemente Reservoir and along San Clemente Creek to Rancho San Carlos Lake, about 1.7 miles west of the reservoir (CDFG 2011). Annual surveys conducted in the project footprint between 2002 and 2006 have consistently documented CRLF reproduction in side-channel and off-channel pools up to 1.5 miles upstream of San Clemente Reservoir (Froke 2007). CRLFs have been documented in San Clemente Creek, upstream of SCD, including 10 adults observed in 2004 (Froke 2004 in DWR and Corps 2008) and five adults in 2005 (Froke 2005 in DWR and Corps 2008). No CRLF tadpoles were collected in San Clemente Creek during these surveys, but bullfrog adults, tadpoles, and juveniles were removed in 2004, 2005, and 2006 (Froke 2005 and 2007 in DWR and Corps 2008).

When water levels recede in summertime and during the annual reservoir drawdown, frogs tend to congregate in isolated pools with dense vegetation (DWR and Corps 2008). Since 2003, hundreds of adults, juveniles, and tadpoles from the reservoir have been relocated during drawdown to suitable upstream habitats. In addition, hundreds of bull frogs have been eradicated (Froke 2005, 2007 in DWR and Corps 2008).

Steelhead

The SCCC steelhead (*Oncorhynchus mykiss*) Distinct Population Segment (DPS) is listed as threatened under the ESA. Within this DPS, the Carmel River currently represents the largest adult run of any single stream (NMFS 2007). The Carmel River and most of its major tributaries, including San Clemente Creek, below natural limits to anadromy, are designated as critical habitat for SCCC steelhead.

The number of adult fish returning to the Carmel River watershed has declined between 50 to 75 percent since the mid-1970s. This decline is primarily the result of reservoir operations, extensive well pumping from the Carmel Valley, and barriers, including dams, to upstream spawning and rearing habitat. Removal of SCD and re-establishment of fish passage through the site via a channel and floodplain system will provide improved access to over 25 miles of spawning and rearing habitat for steelhead.

Adult steelhead return to the Carmel River to spawn annually, with peak migration past SCD between January and May. Steelhead smolts and kelts subsequently migrate downstream through the Project reach to the ocean.

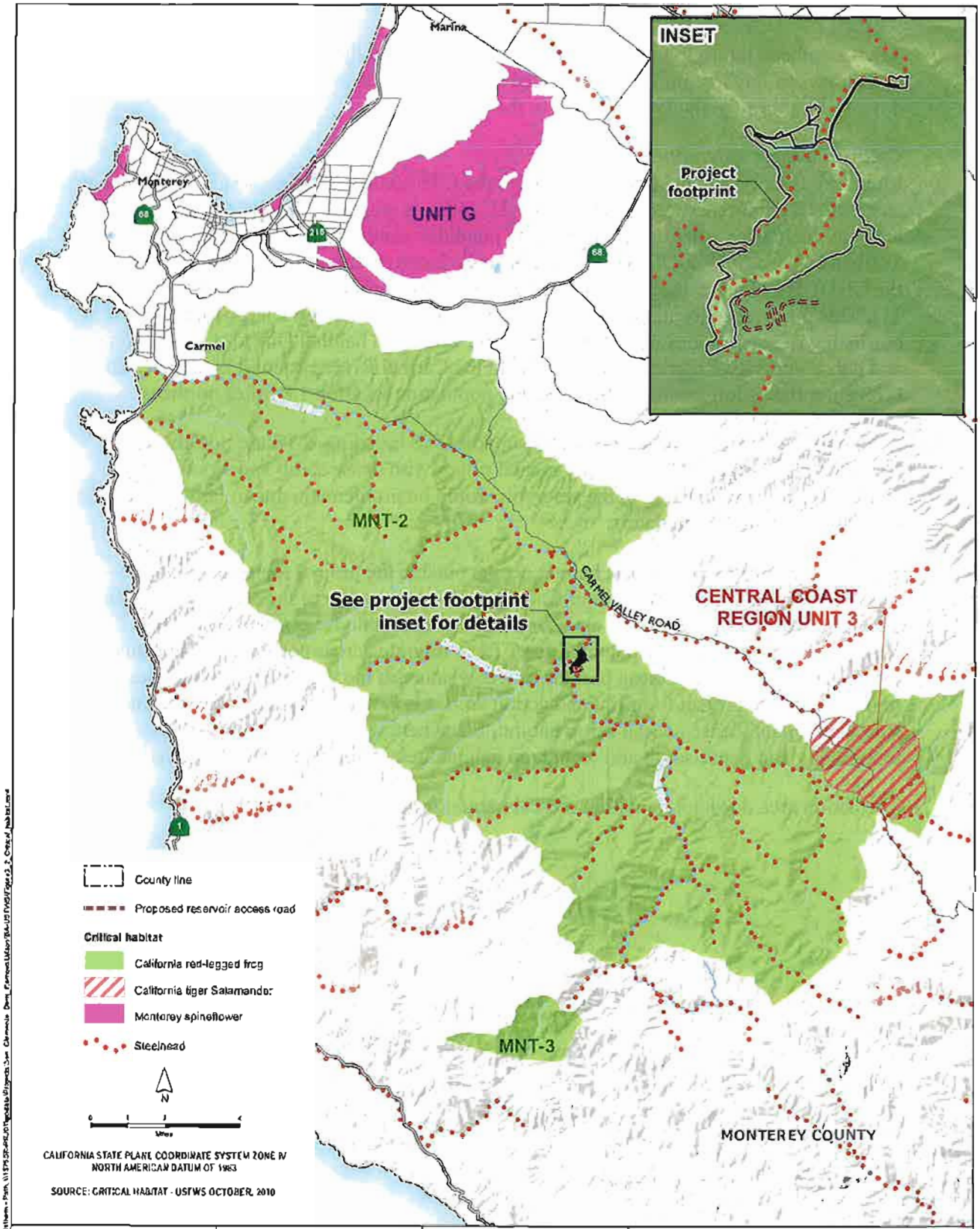
California tiger salamander

Monterey County is considered to be within the CTS's current range (USFWS 2002). The closest CTS occurrence, recorded January 11, 1953, is within 0.35 miles of the action area and includes a potential CTS breeding pond due south of the intersection of the Jeep Trail and Cachagua Rd. USFWS staff provided a more recent occurrence (not listed in the CNDDB), of a breeding population 1.8 miles to the northeast of the project (Figure 3-11). This occurrence location is separated from the project area by a large ridge consisting of steep slopes with dense scrub and woodland habitat. Due to the steep terrain and dense vegetative barriers associated with the Carmel River system it is unlikely that CTS enter the action area from the breeding population location 1.8 miles northeast.

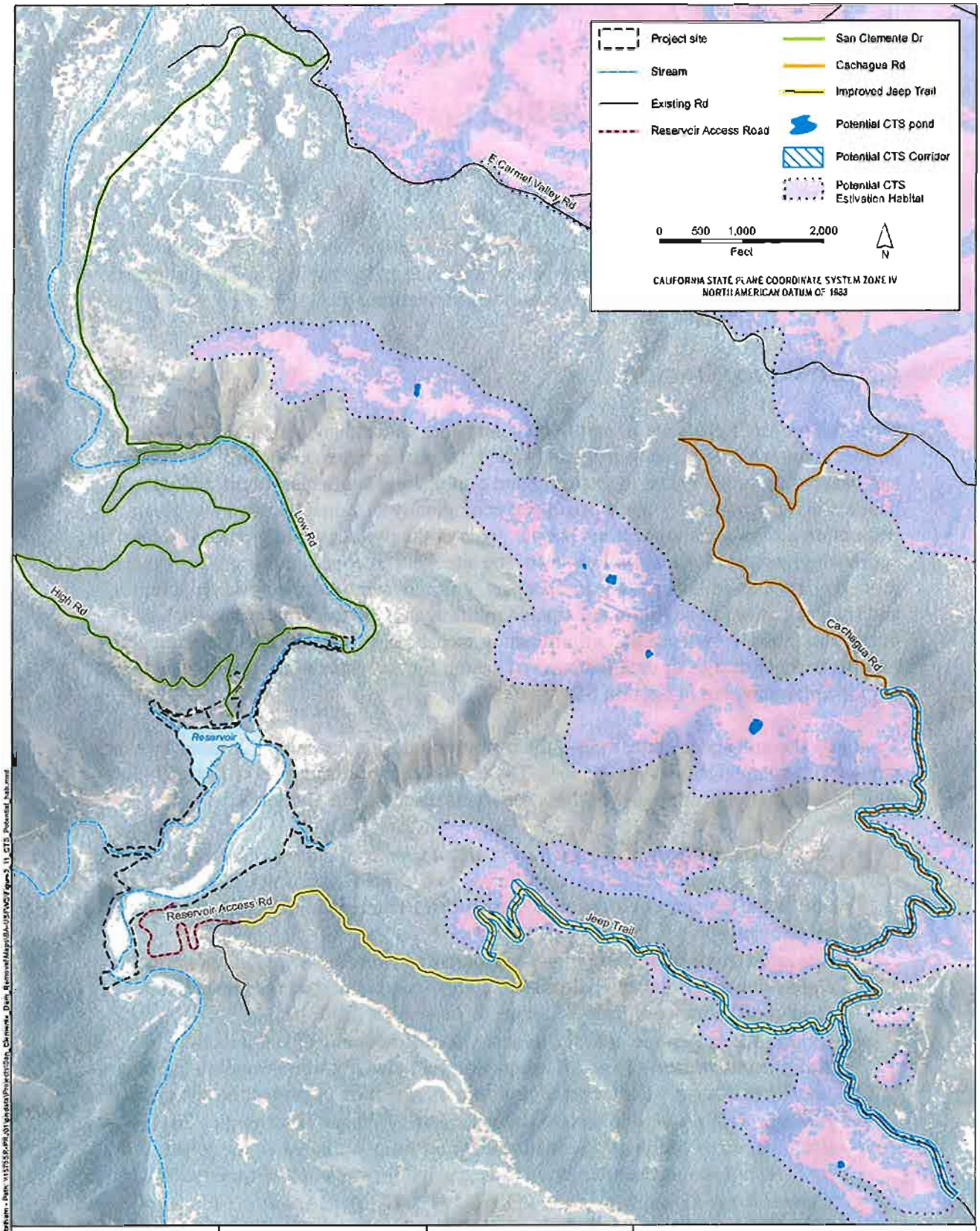
Although the reservoir could potentially support CTS breeding, CTS are not likely to reach the reservoir due to the steeply sloped ridges with dense scrub and woodland habitat. Successful breeding in the reservoir would be problematic due to large numbers of bullfrogs and other predators.

Suitable estivation and breeding habitat occurs outside the project footprint along the ridge top immediately to the west of Cachagua Road and north of the Jeep Trail (Figure 3-11). Portions of the Jeep Trail also contain habitat suitable for estivation but lack burrow complexes. There is potential for CTS to migrate across portions of Cachagua Road and the Jeep Trail during periods of wet weather in the winter and spring. The remainder of the project footprint and action area is isolated from these locations due to steep terrain and dense coastal scrub habitat. Elsewhere within the action area, topography and dense scrub and woodland habitat are not suitable for CTS estivation.

The action area does not lie within critical habitat for this species.



	CARMEL RIVER REROUTE AND SAN CLEMENTE DAM REMOVAL MONTEREY COUNTY, CA	DATE OF PREPARATION: 8/25/2011 DATE OF SUBMISSION: 9/9/2011 URS PROJECT NO. 26818107	FIGURE 3-10 CRITICAL HABITAT WITHIN A 10-MILE RADIUS OF THE ACTION AREA



	CARMEL RIVER REROUTE AND SAN CLEMENTE DAM REMOVAL MONTEREY COUNTY, CA	DATE OF PREPARATION: 1/18/2012 DATE OF SUBMISSION: 1/30/2012 URS PROJECT NO. 26818107	FIGURE 3-11 CALIFORNIA TIGER SALAMANDER POTENTIAL HABITAT

4.0 Mitigation Design

4.1 Location

All mitigation will occur on site. The dams will be removed and on-site restoration will serve as mitigation for the project impacts to wetlands and Other WUS. The project site is the mitigation site and the location is described in Section 3.1.

4.2 Basis for Design

Since the project's goals are in part to create, restore, and enhance habitat values, the project approach is to be self-mitigating. The relationship between the project location and basis of design is linked to restoring and establishing wetlands, waters and upland habitats in topographically appropriate and ecologically sustainable locations. The restoration design aims to meet the habitat goals of the project while providing a feasible approach given the physical limitations of the site. Design constraints include physical properties such as soil, slope/elevation/aspect, groundwater, hydrology and hydraulics, and solar radiation. In addition, anticipated multi-agency permit conditions, such as mitigation ratios, avoidance and minimization measures, and BMPs also were integrated into the basis of design. A detailed basis of design for each habitat proposed is included with the planting plan in Section 6.2.

To assess site and agency constraints, the restoration design has been informed by a large number of technical studies and reports. The most recent relevant ones are listed below and the information from many of these reports is discussed in Section 4.5.

- *Supplemental Channel Survey Report – San Clemente Dam Removal* (Interfluve 2009) – included detailed ground survey of Carmel River, San Clemente Creek and West Tributary at locations where project segments meet existing grades in these channels.
- *Site and Geomorphic Reconnaissance Report – San Clemente Dam Removal* (Interfluve and Balance Hydrologics 2009) – supplemented the channel analog field observations of Philip Williams & Associates (2007).
- Carmel River Reroute & San Clemente Dam Removal Project, Second Administrative Draft Task 2: Design Criteria Selection Memorandum (URS and Interfluve 2011a) – documented preliminary selection of project design criteria.
- *Concept Refinement of Channel* (Interfluve and Balance Hydrologics 2011) - documented selection of Alternative 2 from Philip Williams & Associates 2007 by Stakeholders as the alternative to be carried forward to preliminary design.
- *Carmel River Reroute and Dam Removal Project, Draft Subtask 3.6: Initial Construction Plan* (URS and Interfluve 2011b) – included an initial description of

the anticipated construction approach and sequencing for the project channel segments and an audits of the channel construction cost estimate.

- *Memorandum: Reroute Channel – Potential Design Adjustments* (Interfluve 2011) –included an alternatives analysis for proposed refinements to the RR alignment, geometry and slope.

Most recently, technical studies performed by URS to inform design include:

- CRRDR 2-foot contour basemap created from LiDAR survey performed on April 26, 2011. For the jeep trail and new access road alignments, the LiDAR data was combined with photographic mapping data to develop a 1-foot contour basemap. A field bathymetric survey was completed to confirm soil/sediment elevations in inundated areas directly upstream of SCD.
- Hydrologic and hydraulic analyses. including a water balance. was conducted for the East Tributary to evaluate the ability to create seasonal wetland habitat for CRLF and mitigation.
- Seismic analyses to determine the response spectra and associated ground motions for the design earthquake(s).
- Geotechnical analyses were conducted in 2008. Additional analyses are planned for construction year 2.
- *Channel & Fish Passage Assessment* (Interfluve 2011) to support channel restoration design and optimize ecological benefit and geomorphic function including hydraulics, refinement of the channel corridor design, engineering channel design, fish passage assessment, and coordination with sediment transport assessment.
- *CRLF Habitat Requirements Technical Memorandum* reviewed the current state of knowledge regarding upland and aquatic habitat preferences, particularly identifying mechanisms and habitat components that decrease the likelihood of predation by non-native or invasive species. It was used to refine upland and side-channel pond design to maximize habitat benefits for CRLF breeding and rearing.
- *Habitat Restoration & Planting Strategy*: The habitat restoration and planting strategy was developed to identify ecological and permitting constraints and present a restoration design that maximizes habitat continuity and benefit within these constraints.

In a self-mitigating, ecologically oriented project, the basis of design is contingent on integrating multidisciplinary approaches to achieving project objectives. This is accomplished by project engineers, hydrologists and designers working closely with project wildlife and fisheries biologists, land use planners, habitat restoration ecologists, and water resource scientists. Fisheries biologists and botanists worked with engineers and hydrologists to identify ideal riparian species for the site that would enhance steelhead habitat. Species were selected that occur in the area so as to create a higher chance for successful establishment. Aerial photo interpretation and vegetation studies from the 2008 EIR/EIS were used to determine surrounding vegetation communities and design an interconnected ecosystem across the larger landscape of the Carmel Valley.

4.3 Characteristics of Reference Sites

Appropriate reference sites are present within the project vicinity. Upstream, undisturbed reaches of San Clemente Creek and the Carmel River were used as design reference reaches as applicable. Existing off-channel wetlands were used as reference sites to inform the design of created off-channel wetlands. Aquatic and other functions, hydrology/topography, soils/substrate, and vegetation of these areas are described in Section 3.3. Undisturbed oak woodland and chaparral habitat is abundant in the area surrounding the project site and was used as a design reference.

4.4 Proposed Project/Mitigation Site

This project's on-site restoration will serve as mitigation for the project impacts. For this reason, the mitigation site characteristics (i.e., location, jurisdictional area, aquatic functions, hydrology/topography, soils/substrate, vegetation) are the same as the project site described in Section 3.3. Additional information regarding the present and historical uses of the site and adjacent areas is described in the subsections below.

4.4.1 Ownership Status

Existing land ownership within these limits is shown in Table 4-1 (Bestor Engineering, Inc. 2010). After project completion, it is CAW's intent to convey the property to BLM for habitat preservation, watershed conservation, and creation of a public park compatible with resource conservation.

Table 4-1: Owners of proposed project/mitigation sites

Assessee	APN Number
Main Project Area (San Clemente Dam & Reservoir)	
California-American Water Company	417051004000, 417051005000, 417051011000
Monterey Peninsula Regional Park District	417251002000
Old Carmel Dam Site & the Plunge Pool Road	
California-American Water Company	417051005000
Existing Jeep Trail	
Monterey Peninsula Regional Park District	417211005000
Proposed Access Road	
California-American Water Company	417051005000, 417051011000
Monterey Peninsula Regional Park District	417251002000

4.4.2 Present and Historical Uses of the Project/Mitigation Area

SCD was constructed in 1921 to provide water for commercial and residential use. The project area also contains a number of historic buildings that were built in association with the maintenance and operation of the dam, including the dam keeper's cottage and house, filtration plant, and chemical buildings. OCRD, a masonry dam, was built in 1883 by Pacific Improvement Company to divert water for commercial use. Due to significant sedimentation, neither SCD nor OCRD are currently used for water storage.

4.4.3 Present and Proposed Uses of All Adjacent Areas

The project area and upstream watershed are located within regional open space in the Santa Lucia Coastal Range. The project area is bordered by the Garland Regional Park to the west and the San Clemente Open Space to the east, both of which are owned and managed by the Monterey Peninsula Regional Park District (MPRPD). A 1,600 acre Scenic Conservation Easement granted to the County in 1979 exists on land owned by the MPRPD. The Conservation Easement excludes alterations of the landscape as it existed at the time. Two privately owned land parcels bordering the project to the west are zoned only for resource conservation. The Los Padres National Forest (operated by the US Forest Service) is located approximately two miles south of the project area and encompasses the headwaters of the Carmel River. This National Forest encompasses 1.75 million acres of protected open space. Some of these lands are not open to the public while others allow hiking, camping, fishing, boating, and similar recreational uses. The project area itself is currently closed to the public, but upon transfer of the land to BLM, may be opened to the public for activities compatible with watershed conservation.

The nearest residential development, the Sleepy Hollow subdivision, is located approximately one mile north of (downstream from) the dam. Residential land use within this subdivision is not expected to change as a result of the project. Figure 4-1 is a parcel map of the adjacent areas.

Zoning

All areas within or adjacent to the project site owned by CAW and MPRPD are zoned as Permanent Grazing and/or Resource Conservation (Table 4-2, Figure 4-2). Zoning for parcels adjacent to the project area are listed in Table 4-3. Two parcels directly adjacent to the western-most project limits are privately owned and zoned as resource conservation. The Sleepy Hollow Subdivision is zoned Rural Density Residential. The remainder of the parcels adjacent to the project area, primarily along Cachagua Road, is zoned for one or more of the following uses: Resource Conservation, Public/Quasi-Public, Historic Resources District, Farming, Rural Grazing, Permanent Grazing, Design Control District, and Rural or Low Density Residential.

Table 4-2: Zoning of Project Site Parcels

Owner	APN	Zoning	Map Id No.
California-American Water Co	417051004000	PG & RC	15
California-American Water Co	417051005000	PG & RC	16
California-American Water Co	417051011000	PG	19
Monterey Peninsula Regional Park District	417251002000	RC & PG	20
Monterey Peninsula Regional Park District	417211005000	PG	42
Zoning Codes RC= Resource Conservation PG=Permanent Grazing			

Table 4-3: Zoning of Parcels Adjacent to the Project*

ASSESSEE	APN	Zoning	MAP ID No.
California-American Water Co	197081029000	PQP & RC	1
Private Land Owner	197191012000	RDR	2
Private Land Owner	197191011000	RDR	3
Private Land Owner	197191010000	RDR	4
Private Land Owner	197191009000	RDR	5
Private Land Owner	197191008000	RDR	6
Private Land Owner	197191007000	RDR	7
Private Land Owner	197191006000	RDR	8
Private Land Owner	197191005000	RDR	9
Private Land Owner	197191004000	RDR	10
Private Land Owner	197191003000	RDR	11
Private Land Owner	197191002000	RDR	12
Private Land Owner	197191001000	RDR	13
California-American Water Co	417051003000	PG & RC	14
California-American Water Co	417051004000	PG & RC	15
California-American Water Co	417051005000	PG & RC	16
Private Land Owner	417051013000	RC	17
Private Land Owner	417051014000	RC	18
California-American Water Co	417051011000	PG	19
Monterey Peninsula Regional Park District	417251002000	RC & PG	20
Yumac Development Corporation	417211004000	PG	21
Private Land Owner	197161055000	RDR	22
Private Land Owner	197161022000	RDR	23
Private Land Owner	197161045000	RDR	24
Private Land Owner	197161025000	RDR	25
Private Land Owner	197161046000	RDR	26
Private Land Owner	197161010000	RDR	27
Private Land Owner	197161026000	RDR	28
State Of California	197161006000	PQP	29
State Of California	197071003000	LDR	30
Private Land Owner	197071002000	LDR	31
Private Land Owner	197211002000	RG	32
Carmel Cutting Horses Inc.	197211001000	RG	33
Yumac Development Corporation	197211005000	RG	34
Carmel Cutting Horses Inc.	197211003000	RG	35
Yumac Development Corporation	417211006000	PG	36

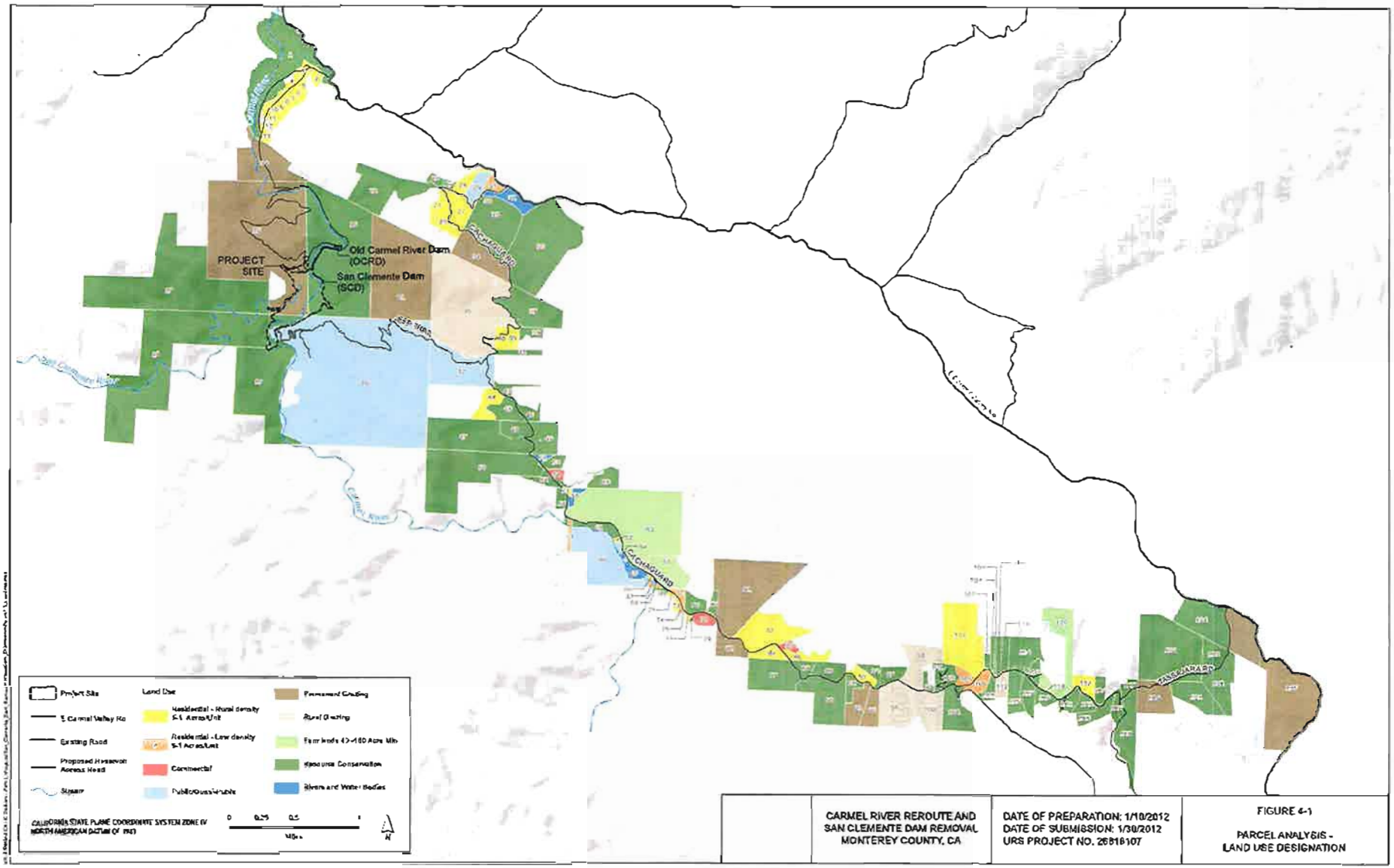
Table 4-3: Zoning of Parcels Adjacent to the Project*

ASSESSEE	APN	Zoning	MAP ID No.
Private Land Owner	417211001000	RDR	37
Private Land Owner	417081045000	RDR	38
Private Land Owner	417081043000	PG & RDR	39
Private Land Owner	417081042000	PG & RDR	40
Private Land Owner	417081058000	RDR	41

*Table only includes those parcels adjacent to the project footprint including the High/Low Road, Jeep Trail, and access to the Jeep Trail via the northern portion of Cachagua Road. Zoning designation for parcels along Cachagua Road south of the Jeep Trail are shown on Figure 4-2, but are not included in this table.

Zoning Codes:
Public/Quasi-Public (PQP)
Resource Conservation (RC)
Rural Density Residential (RDR)
Permanent Grazing (PG)
Low Density Residential (LDR)
Rural Grazing (RG)

Two land use conservation plans cover the Carmel River Watershed, including the project area: the Monterey Peninsula Integrated Regional Watershed Management Plan (MPWMD 2007) and the Water Quality Control Plan for the Central Coastal Basin (RWQCB 1994). The project is consistent with both. The project area lies in two Monterey County plan areas: the Cachagua Area Plan east of the Carmel River and the Greater Monterey Peninsula Area Plan west of the river.

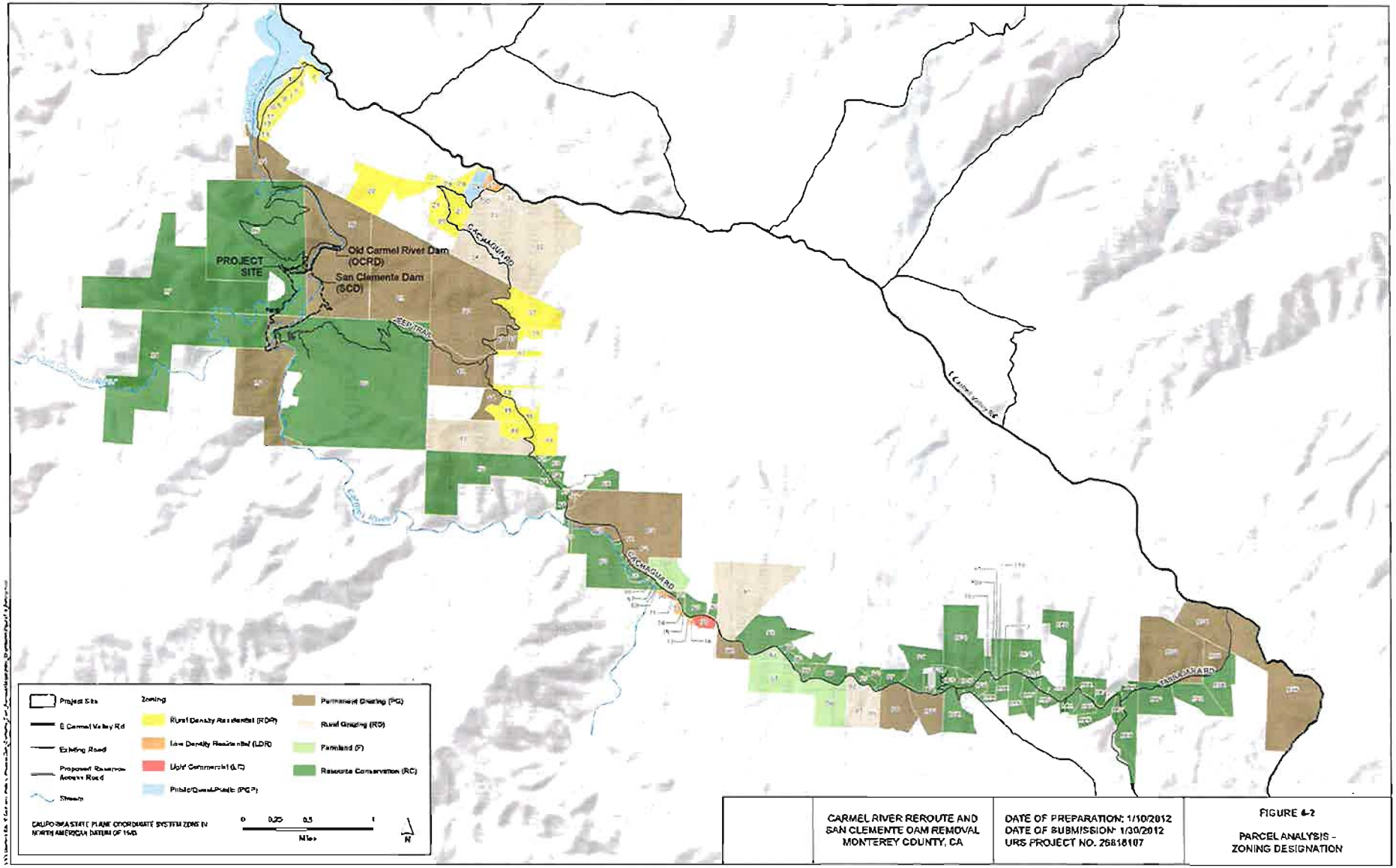


CARMEL RIVER REROUTE AND SAN CLEMENTE DAM REMOVAL
MONTEREY COUNTY, CA

DATE OF PREPARATION: 1/10/2012
DATE OF SUBMISSION: 1/30/2012
URS PROJECT NO. 26818107

FIGURE 4-1

PARCEL ANALYSIS - LAND USE DESIGNATION



CARMEL RIVER REROUTE AND SAN CLEMENTE DAM REMOVAL
MONTEREY COUNTY, CA

DATE OF PREPARATION: 1/10/2012
DATE OF SUBMISSION: 1/30/2012
URS PROJECT NO. 26818107

FIGURE 4-2

PARCEL ANALYSIS - ZONING DESIGNATION

4.5 Created/Restored Habitat

The project involves the restoration, enhancement, and establishment of upland habitat and WUS, including wetlands, at several locations (Figure 4-3). These features are designed to improve the site's hydrological and ecological functions, and they are included as integral project components, not just as compensatory mitigation and are expected to improve and restore habitat on a watershed level. Table 4-4 quantifies the acreage of wetlands, other waters, and riparian habitat proposed for establishment, restoration, or enhancement as part of the project. These quantities may change slightly as the design is finalized.

Table 4-4: Approximate Proposed* Acreage of Wetlands, Other Waters, and Riparian Habitat to be Established, Restored, or Enhanced

	Established	Restored (Re-established/ rehabilitated)	Total
Wetlands	1.5	1.5	3.0
Other Waters	0.8	3.6	4.4
Riparian	0.9	15.7	16.6

*Restoration Plans have not yet been finalized. Final restoration will be designed to meet the ecological conditions of the site while providing the acreage required in permits, including no net loss of wetlands and sufficient riparian and upland acreage to mitigate for impacts to trees.

Wetlands: The required wetland acreage (Section 5) will be achieved by constructing wetlands in two distinct project areas: wetlands adjacent to the Carmel River and three seasonal wetland CRLF breeding ponds constructed on the Sediment Stockpile (Figure 4-3). A total of 1.5 acres of wetlands will be re-established on the Carmel River's first flood plain terrace and 1.5 acres will be established in 3 ponds on the Sediment Stockpile. The wetlands on the river's first flood plain terrace will be dynamic due to the river's migratory nature, and are not expected to retain their precise location, size, and shape over time. The seasonal wetlands on the Sediment Stockpile are designed to dry each summer, limiting the potential for bullfrogs. The establishment and reestablishment of 3 acres of wetlands results in no net loss of wetland area and improves functions and values.

Other Waters: Approximately 4.4 acres (3,800 linear feet) of riverine WUS will be constructed comprised of the following:

- Excavation of the Reroute Channel and in new drainages on the Sediment Stockpile will establish approximately 0.78 acres of new waters
- 1,300 linear feet will be restored along the East and West Tributaries

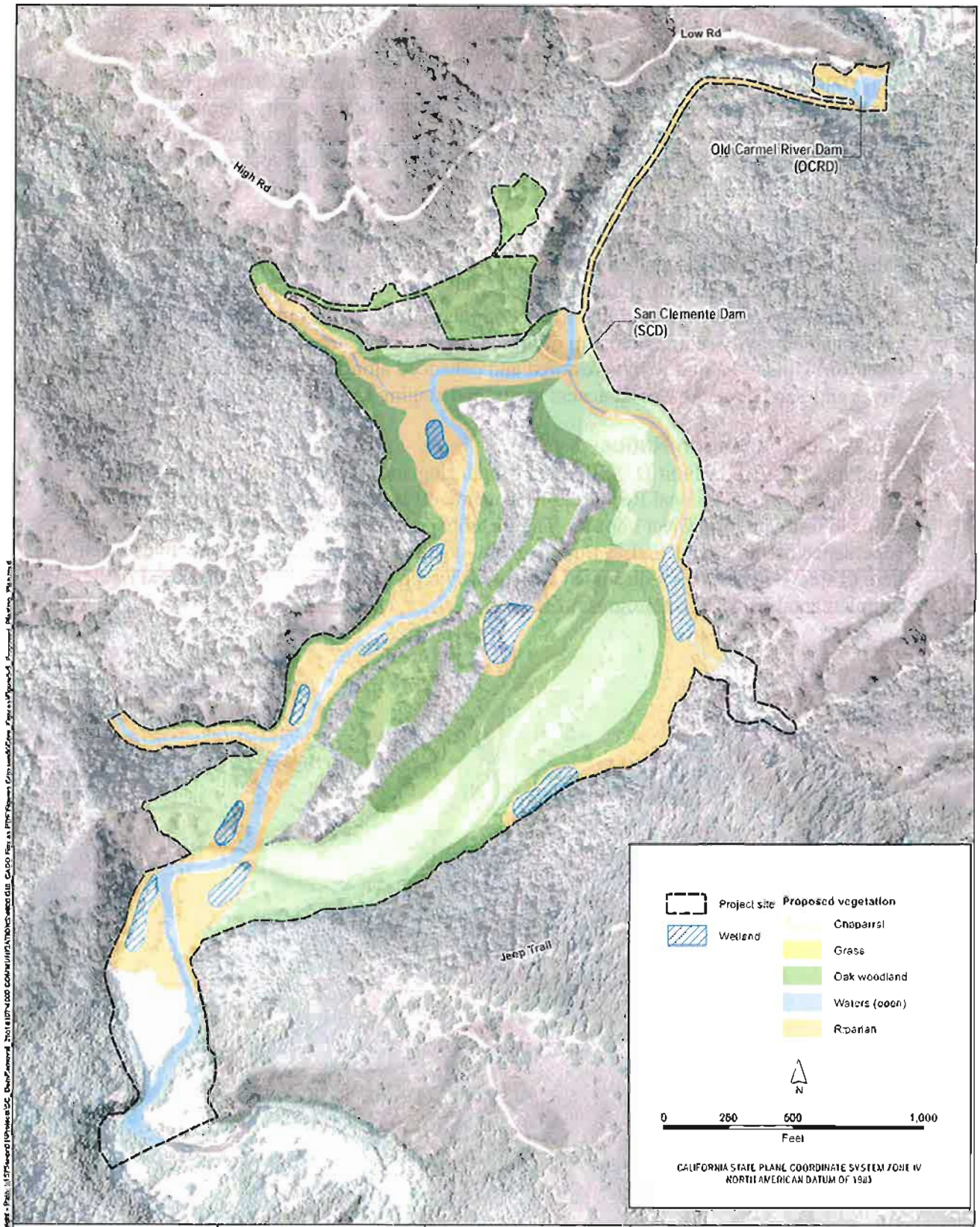
The remainder is reestablished in the Combined Flow Reach of the Carmel River.

Riparian: Approximately 16.6 acres of riparian corridor will be reestablished and more than 10,000 riparian trees installed along the Carmel River and San Clemente Creek. This riparian habitat will reestablish watershed and riverine habitat integrity. Removal of SCD and OCRD allows unobstructed fish passage to 40 miles of channels upstream of SCD. The habitat in these channels comprise 59% of the river's steelhead spawning habitat (pg. 4.4-29 Final EIR/EIS).

Other habitats: Approximately 45 acres of upland habitat will be established, restored or enhanced. This includes approximately 19 acres of oak woodland, 21 acres of chaparral, and 5 acres of scrub habitat. Upland habitat will be established on the Sediment Stockpile, Diversion Dike, and Stabilized Sediment Slope, in the area that currently contains the heavily sedimented arm of the Carmel River upstream of SCD and SCD reservoir. Upland habitat will be restored and enhanced along the ridge separating Carmel River and San Clemente Creek, access roads, and staging areas for the project.

4.5.1 Compensation Ratios

The Final EIR/EIS Exhibit D, Mitigation Monitoring and Reporting Program (MMRP) and Appendix U, Botanical Resources Management Plan established initial compensation ratios to mitigate for project impacts. The measures in these documents may be superseded by the 2012 EIR/EIS Supplemental document. Compensation objectives listed here (Table 4-5) have been discussed with agency representatives and are proposed in the Supplemental EIR/EIS (in progress).



	CARMEL RIVER REROUTE AND SAN CLEMENTE DAM REMOVAL MONTEREY COUNTY, CA	DATE OF PREPARATION: 1/12/2012 DATE OF SUBMISSION: 1/1/2012 URS PROJECT NO. 26818107	FIGURE 4-3 PROPOSED RESTORATION PLAN

Table 4-5: Compensation Objectives per Supplemental EIR/EIS

Feature	Impact (Amount Removed)	Compensation Objective per EIR/EIS	Amount Currently Proposed for Restoration Planting	Meets EIR/EIS Objective Yes/No
Wetlands	2.95 ac.	No net loss (minimum of 2.95 acres)	3 ac.	Yes
Oak trees (>6 In. DBH)	938 trees	Replace 50% of trees removed at 3 to 1 (469*3=1407 trees)	2,445 trees	Yes
Riparian trees (>2 in. diameter @ 2 feet above ground)	3540 trees	3 to 1 (3540*3=10,620 trees)	10,620 trees	Yes

The restoration design, as currently proposed, meets or surpasses the compensation amounts that will be proposed in the Supplemental EIR/EIS. While the total number of trees planted and exact acreage of the final design may vary, the design, will at a minimum, meet the compensation requirements in the Supplemental EIR/EIS or other requirements as agreed upon with agencies.

In order to meet the mitigation requirements, the tree planting density was maximized to the extent feasible while still providing a healthy ecosystem. In addition to canopy tree cover, the restoration design includes understory trees, shrubs, and herbaceous cover to increase strata diversity and habitat function.

4.5.2 Long-Term Goal

The broad project goal is to remove SCD and OCRD and restore habitat. Proposed target habitats were designed to best suit the ecological conditions and constraints of the site while considering the required compensation set forth by regulatory agencies. While the specific acreage of different plant communities may vary from existing to future conditions, overall, ecosystem functions will be improved.

Within 10 to 30 years, the project aims to achieve the acreages of habitats and tree counts as expressed in Table 4-5. The restoration goal is for these communities to be structurally diverse, species rich, and provide the habitat components to support breeding, foraging, rearing, and dispersal requirements of target wildlife species. Overall, the CRRDR Project is expected to improve water quality, sediment transfer, fish passage and aquatic habitat, and to restore natural character and function to the water bodies and upland habitats both within the project footprint and on a watershed level.

4.5.3 Aquatic and Upland Habitat Functions to be Created/Restored

The project is expected to improve the value of the following beneficial uses:

- Water quality and cold fresh water habitat
- Preservation of rare and endangered species
- Wildlife habitat
- Water contact and noncontact recreation
- Groundwater recharge
- Commercial and sport fishing

Beneficial uses which are not expected to change include: municipal & domestic water supply, agricultural supply, warm fresh water habitat, freshwater replenishment of downstream water bodies and commercial fishing. Catch and release sport fishing may be improved if the project promotes an increase in steelhead returning annually to the river.

Water Quality and Cold Fresh Water Habitat

The shallow, sunny, warm, turbid, slow moving and poorly oxygenated water of SCD reservoir will be removed, and will be replaced with shaded, cold, well-mixed and highly oxygenated waters of the Combined Flow Reach. Water quality values through this reach are expected to be high and similar to reaches upstream of the project area.

Some increases in turbidity, especially during and after high flow events, may be expected downstream of the project area as a natural sediment regime is restored.

Preservation of Rare and Endangered Species
Habitat values are expected to improve for both steelhead and CRLF.

Steelhead: Reaches of the Carmel River upstream of SCD reservoir will continue to provide high habitat integrity for steelhead. Water quality, dissolved oxygen, and riparian buffers may improve over the years as the channel responds to the newly constructed grades downstream.

The poor quality habitat, e.g. unconsolidated, soft bottom substrate in SCD reservoir will be replaced by high quality cobble bottom habitat in the Combined Flow Reach. SCD and associated fish ladder, which present upstream and downstream migration barriers, will be removed and replaced with a river channel designed specifically to provide steelhead passage at high and low flows.

Downstream of SCD, restoration of a natural sediment regime may improve the composition, consolidation, and embeddedness of gravel, and consequently improve steelhead spawning habitat and foraging opportunities in the form of improved benthic macroinvertebrate populations.

Removing SCD and reservoir will decrease or eliminate some species of non-native predators, e.g. bullfrogs. Improved water quality, as described above, will improve steelhead habitat.

CRLF: The upper reaches of the Carmel River and San Clemente Creek above SCD reservoir will continue to provide high quality aquatic and upland habitat for all life

stages of CRLF. A major predator source pool (SCD reservoir) will be removed, and numbers of some species of non-native predators are expected to decrease in this region.

Some existing CRLF breeding habitat in the lower, slower reaches of San Clemente Creek near the reservoir may be replaced by fast moving water inappropriate for CRLF breeding. However, the project design incorporates several back-water ponded areas within the Combined Flow Reach floodplain that are specifically designed to provide the slow moving water and emergent vegetation required for CRLF egg-laying and tadpole rearing. These ponds are expected to provide high quality breeding habitat for CRLF. However, predators may have access when the ponds are hydrologically connected to the river.

CRLF aquatic habitat within SCD reservoir on the Carmel River side will be replaced with upland refugia and dispersal habitat. Three new, seasonal ponds, designed to maximize CRLF breeding habitat and minimize bullfrog breeding habitat, will also be established within the Sediment Stockpile area. These seasonal ponds are not connected to the Carmel River, and are not expected to support non-native fish, crayfish, or bullfrogs, which require two continuously inundated seasons to mature.

The downstream portions of the project reach, from SCD to OCRD will continue to provide high quality aquatic habitat for CRLF adult and juvenile migration and refuge. Enhancement of CRLF breeding habitat is not planned for this reach. However, removal of both dams will improve movement options for CRLF through these areas.

The impacts to CRLF associated with road construction and staging areas are anticipated to be seasonal and short term, habitat quality for CRLF within and around the project access roads is not expected to change as a result of this project.

CTS: While the project footprint does not currently support CTS habitat, except along a portion of the Jeep trail, the proposed restoration includes building several seasonal ponds that could serve as breeding habitat for CTS. CTS use of these ponds is dependent on their colonization from breeding populations outside of the project footprint. While unlikely, there is some potential for CTS to migrate to the site. The established ponds would retain water long enough to support CTS breeding but would dry annually to limit the success of predators such as bullfrog. The ponds will contain emergent vegetation that would serve as substrate for egg attachment.

Wildlife Habitat

Upland, riparian, and wetland zones throughout the watershed provide high quality shade, shelter, food, nesting, breeding, and resting habitat for a wide variety of species (Section 3.3.6 and 3.3.7). The project will temporarily reduce habitat value during construction, but habitat value is expected to return to high following project completion, planting, and vegetation monitoring and maintenance, as discussed below in Sections 5, 6, and7.

Uplands

Each of the upland habitats planned for restoration have been designed to provide a suite of specific benefits, including providing a diverse mosaic of wildlife habitat appropriate

for existing wildlife communities, promotion of a healthy multi-story community, reduction of non-native vegetation, and provision of transitional ecotones.

Woodland vegetation will be ideally suited to create successful transition into the existing upland vegetation from proposed riparian zones. This zone will provide a rich habitat for numerous wildlife species throughout both the diverse understory and large tree canopies. Large trees will support nesting and perching sites for large raptors, owls, and a variety of migratory birds, and denning opportunities for larger mammals. Understory plants will provide habitat for snakes, lizards, and small rodents, and foraging habitat for larger mammals such as deer (grazing herbivores) and fox (carnivores foraging on prey) living in the undergrowth.

Chaparral and scrub vegetation will provide high quality erosion protection for the majority of the warm aspect slopes in the project area. It will also provide a dense, low overstory that serves as good habitat, shade and shelter from predators for numerous small wildlife species. The mosaic of scrub and open sunny areas within the scrub provide excellent basking areas for cold blooded species, e.g. snakes and lizards.

Riparian

Riparian habitat provides multiple ecosystem functions and is comprised of zones based on hydrology and topography. The lowest zone is at the top of bank where riparian vegetation can shade the river and attenuate water temperatures, drop coarse particulate matter into the water, promote bank stability, and provide overhanging cover. Riparian vegetation enhances physical channel features, provides large wood recruitment, and serves as a major source of nutrients to support in-stream fauna and flora, all of which play important roles in maintaining steelhead habitat. Dense willow thickets will be planted at bankfull elevation to develop root mats, and create undercut banks, providing habitat complexity and shelter. Sedges and rushes will create habitat for benthic macroinvertebrates which serve as food for steelhead. Established sedges and rushes may also provide channel stability via deep root systems.

Higher in the riparian corridor in cobble bottom floodplain areas, facultative grasses, shrubs, and sycamores will be established. These open areas offer ideal browsing for wildlife, while the upper canopy supports riparian-dependent birds and other wildlife.

The highest riparian areas will be revegetated with a mosaic of species designed to provide a niche environment where species adapted to either upland or riparian habitat types interact, and are able to find food and shelter between two complementary ecosystems.

Ponds and Wetlands

Seasonal ponds, with minimal vegetation will provide enhanced aquatic breeding habitat for CRLF. Seasonal wetlands, with vegetation, may provide habitat, shade and some predator protection for other small reptiles and amphibians. Taller wetland plant species may provide nesting opportunities for riparian nesting birds and foraging opportunities for wading birds.

Water Contact and Noncontact Recreation

Water contact and noncontact recreation are listed as beneficial uses of the Carmel River in the Basin Plan. Following completion of the project, SCD will be removed. The dam is a major barrier to kayaking on the Carmel River and once removed, the 5.3 miles of river from the existing SCD to the Los Padres Dam are expected to be used by kayakers. Public access for resource protection-compatible activities such as hiking will be opened on 928 acres of currently private land.

Groundwater Recharge

The project may impact local groundwater levels within and directly adjacent to the project footprint, however, the project will not impact groundwater levels or associated recharge upstream or downstream of the project footprint.

Commercial and Sport Fishing

The project may increase the average size of steelhead runs, potentially improving the catch and release fishery. The project is not expected to affect the rainbow trout fishery above Los Padres Dam.

4.5.4 Hydrology/Topography of Created/Restored Habitats

Numerous studies, as listed in Section 4.2, have been conducted to determine the characteristics of water features within the restoration area after the completion of the project. This section considers the hydrologic budgets for created wetlands and waters separately.

Waters – Perennial Streams and Rivers

Hydrologic and hydraulic analyses have been conducted to inform channel restoration design. The Carmel River at the project site, including the CFR channel, will flow perennially, with water sources from upstream headwaters and tributaries as described in the site hydrology description, Section 3.3.3. Flow continues downstream of the project area through the Carmel Valley to the Pacific Ocean at Carmel Bay.

Peak flow estimates within the restored CFR were prepared to inform the fish passage and channel design. Table 4-6 summarizes the peak flow estimates for the Upper Carmel River and Reroute Channel (UCR &RR), San Clemente Creek, CFR, and below SCD.

Table 4-6: Summary table of CRRDR project peak flow estimates in cubic feet per second (cfs) for primary project channel segments

Return Period (yr)	UCR & RR	San Clemente Creek	CFR	Below SCD
1.1	272	33	307	309
2	1,391	167	1,569	1,581
5	3,244	390	3,661	3,687
10	4,999	601	5,641	5,700
25	7,205	867	8,131	8,256

50	8,918	1,015	10,006	10,200
100	10,655	1,145	11,886	12,100
500	14,592	1,475	16,184	16,600

Flow estimates to support fish passage were assessed. Flow range accepted for project design and evaluation are shown in bold in Table 4-7 below.

Table 4-7: Flow ranges for use in fish passage design

Criteria	Lifestage	Method	UCR (cfs)	CFR (cfs)	San Clemente Creek (cfs)	Notes
high flow	**adult**	**1percent annual exceedance**	**1106**	**1260**	**163**	**Primary NMFS/CDFG Criteria**
		50% of Q2-yr	695	785	89	Secondary NMFS/CDFG if primary criteria data NA
		MPWMD data	700	750	91	97.5% of upstream migrants counted 2000-2011 pass SCD at this flow or less
	juvenile	**10% annual exceedance**	**196**	**225**	**29**	**Primary NMFS/CDFG Criteria**
		10% of Q2-yr	139	156	17	Secondary NMFS/CDFG if primary criteria data NA
low flow	**adult**	**50% annual exceedance**	**15**	**16**	**1.2**	**Primary NMFS/CDFG Criteria**
		3 cfs minimum default			3	Secondary NMFS/CDFG if primary criteria data NA
		MPWMD data	29	33	3.3	97.5% of upstream migrants counted 2000-2011 pass SCD at this flow or greater
	juvenile	**95% annual exceedance**	**4.1**	**4.3**	**1***	**Primary NMFS/CDFG Criteria**
		1 cfs minimum default			1	Secondary NMFS/CDFG if primary criteria data NA

*Default to 1 cfs minimum

Wetlands

A hydrologic analysis was conducted to inform the design of wetlands and ephemeral drainages on the Sediment Stockpile (Appendix C). The analysis identified three areas

suitable for establishing seasonal wetlands. Table 4-8 summarizes the estimated capacity of the proposed wetlands.

Table 4-8: Pond Hydrology Analysis

Feature	Maximum depth	Area (acres)	Watershed area	Slope
Pond 1	5 ft	0.7	10.8	5H:1V to 20H:1V:
Pond 2	3 ft	0.2	18.0	3H:1V to 5H:1V
Pond 3	3ft	0.6	947	3H:1V to 20H:1V

In addition, a water balance analysis was conducted to assess whether the ponds would remain ponded for the desired duration of the year. The analysis used hourly precipitation data collected over a 10-year period (i.e., from 2000 to 2010) to estimate average precipitation. The water balance analysis showed that all three ponds would remain ponded December to August, and all three ponds dry every summer between late August and late September. This result is consistent with the habitat requirements for CRLF.

4.5.5 Soils/Substrates of Created/Restored Habitats

Since much of the proposed site will be disturbed due to surface grading, excavation, or fill, the soils and substrates of the restored site will be significantly different than those of the current environment. The soils/substrates for waters (CFR, Reroute Channel, Upper San Clemente Creek and Upper Carmel River), wetland (seasonal wetlands on the Sediment Stockpile and Stabilized Sediment Slope), and uplands (non-wetland areas on the Sediment Stockpile, Stabilized Sediment Slope, and Diversion Dike, ridge, access roads) are described below. Additional detail regarding wetland and channel design can be found in Appendix B and C.

Waters

Within the restored channel areas accumulated sediment will be excavated to recreate the 1921 surface topography (bedrock). Gravel, cobble, boulders, and large woody debris will then be placed on top of this excavated surface to provide habitat complexity for wildlife and support natural geomorphic functions. Banks will be contoured with topsoil as needed to support proposed riparian vegetation.

Wetlands

The proposed Sediment Stockpile will consist of uncompacted fill material. As a result, the proposed seasonal wetland ponds will be constructed on a surface that is highly pervious in nature. A clay liner may be installed to limit infiltration. The clay liner would be comprised of a more impermeable clayey soil with infiltration rates that range from $1x10^{-5}$ to $1x10^{-6}$ centimeters per second (cm/sec). For the purpose of the pond water balance analysis, an average infiltration rate of $5.5x10^{-6}$ cm/sec (0.0156 ft/day) was assumed.

Uplands

Substrate of the created upland habitat on the Sediment Stockpile will consist of excavated fill material (sediment, rockfill, boulders, alluvium, and demolition debris) covered with a layer of topsoil. Soil filled rockfill will be placed on the surface of the Stabilized Sediment Slope and Diversion Dike. The limited water holding capacity and shallow soils of these features were considered in the restoration design. Accordingly, shallow-rooted plant species tolerant of limited nutrients are proposed in these areas.

The ridge separating the current alignments of San Clemente Creek and Carmel River will only be used as staging and is not expected to be greatly disturbed. Soils in this area should remain the same as in the baseline conditions described in Section 3.3.4.

Access roads will be graded, but the soils after restoration is completed are not expected to be significantly different than the baseline soils.

4.5.6 Vegetation of Created/Restored Habitats

The restoration plan proposes planting upland (scrub, chaparral, and oak woodland), riparian (alder/willow, cottonwood/sycamore, and oak/maple) and wetland communities as shown on Figure 4-3. A detailed description of these communities including the proposed species, spacing, and seed sourcing is provided in the planting plan in Section 6.2.4.

5.0 Success Criteria and Monitoring

5.1 Success Criteria

Final success criteria are assessed at the end of the permit compliance monitoring period to determine if the site has successfully met the restoration goals. Routine monitoring may be conducted monthly, quarterly, annually, bi-annually, or at other intervals as specified below. Performance guidelines are milestones used to track progress towards meeting the final success criteria. This section discusses both success criteria and performance guidelines.

5.1.1 Final Success Criteria

Final success criteria are established to assess vegetation establishment, hydrologic function, and special-status species habitat enhancement success.

Vegetation

Restoration and revegetation efforts serve three purposes: (1) to create habitat; (2) to protect water quality by retarding erosion and attenuating temperatures at maturity; and (3) to ensure native or naturalized plants become established and non-native invasive plants do not become established.

The qualitative vegetation success criteria are:

- Vegetation will be fully established and self-sustaining (as evidenced by successive years of healthy vegetative growth and increased cover) at the end of the monitoring period.
- Non-native vegetation does not contribute to failure of native vegetation to meet cover criteria.
- Vegetative cover will be sufficient to prevent erosion of disturbed surfaces.

The quantitative success criteria are:

- Habitats will meet the percent cover and survivorship ratios in Table 5-1.
- Approximately 3 acres of Corps jurisdictional wetland will be created so that the project will result in no net loss of wetlands.

If success criteria are not met, replacement plantings or other adaptive management actions will be implemented until the site meets the success criteria.

Table 5-1: Final Criteria for Vegetation Cover and Survivorship

Habitat Type	Relative Cover	Survivorship	Final Monitoring Year
Wetland	Not applicable*	Not applicable	5
Riparian	> 50%	> 50%	10
Upland (Woodland)	N/A-	> 50%	10

*While no specific vegetation cover or survival criteria are established for wetlands, wetlands must meet Corps wetland delineation criteria, including dominance (as established by the 50/20 rule method) of hydrophytic vegetation.

Special Status Species

California Red-legged Frog
Habitat restoration for CRLF will be successful if the

- primary constituent elements as described by the USFWS are documented within the project area by the end of post-construction monitoring Year 5.
- ponds, including in-stream channels and those in upland habitats (Sediment Stockpile Area) hold water for a sufficient duration to support metamorphosis of CRLF larvae to adults, approximately 6 months/year.
- Ponds in upland habitats (Sediment Stockpile Area) dry long enough every year or every other year to interrupt bullfrog metamorphosis.

Steelhead
Habitat restoration for steelhead will be considered successful if it provides fish passage, cover, forage, and sustains step pools and resting pools.

Hydrologic/Hydrogeomorphic
Hydrology of the site will be sufficient to support wetland vegetation, CRLF breeding cycles, and fish passage as described in previous sections.

5.1.2 Performance Guidelines

Performance guidelines will be used to evaluate progress towards meeting final success criteria. At the conclusion of each monitoring period, results will be compared to target performance guidelines to determine if remedial actions or adaptive management are necessary.

Vegetation

In upland and riparian habitats, performance guidelines will be based on survival of tree plantings, as well as percentage of relative cover of native herbaceous, shrub, and tree species. In wetland habitats, performance guidelines will be based on progress towards meeting Corps wetland criteria. Table 5-2 provides performance guidelines for each monitoring year for each of the three primary vegetation communities.

Table 5-2: Interim Performance Guidelines

Years After Construction	Relative Native Cover			Survival
	Riparian	Wetland	Upland	
Year 1	None	20%	None	100%
Year 2	10%	30%	10%	90%
Year 3	30%	40%	15%	85%
Year 5	50%	50%-	20%	75%
Year 10 (If required)	50%	Not applicable	30%	75%

Riparian

The performance guidelines and success criteria for planted riparian habitats include parameters for both survival and cover (Table 5-2). No cover criterion is set for riparian areas in Year 1 due to the time needed for willow stakes to establish and produce branches. Relative cover criterion for riparian habitats is low due to the volatility of riparian systems and the general lack of herbaceous groundcover. The majority of the riparian cover will be comprised of riparian tree species, which take longer to establish, than forbs and grasses.

Wetland

Annual performance guidelines for wetland habitats are designed to monitor progress towards meeting Corps delineation requirements for wetland soils, hydrology and vegetation. Under normal circumstances (undisturbed conditions), a potential jurisdictional wetland must have positive indicators of all three parameters.

The wetlands located on the first flood plain terrace of the Carmel River are expected to morph over time, potentially changing location, size, and shape due to the dynamic nature of a river confined to a canyon. For the purposes of success criteria, wetlands will be considered successful if the desired acreage of delineated wetlands (a minimum of 2.95 acres throughout the entire site) is met at the end of five years.

The annual performance guideline for hydrophytic vegetation listed in Table 5-2 is intended to monitor progress towards meeting Corps '50/20' rule. The 50/20 rule considers wetland indicator status of dominant species (i.e., the most abundant species which make up at least 50 percent of the site relative cover and any additional species that individually accounts for at least 20 percent absolute cover) per strata. For a strata to be considered hydrophytic, at least 50 percent of the dominant species must have wetland

indicators of FAC, FACW, or OBL (facultative, facultative wetland, or obligate, respectively) (Corps 2008).

In addition, the site must meet wetland hydrology and soil definitions by Year 5. A hydric soil is one that has developed anaerobic conditions in the upper part of the soil profile due to conditions of saturation, flooding, or ponding (Federal Register 1994). Indicators of hydric soils are defined in the Field Indictors of Hydric Soils in the United States and include features such as sulfides, organic bodies, dark surfaces, histosols, gleys, and redoximorphic features (USDA 2010). Wetland hydrology applies to soils which are inundated or saturated to the surface during the growing season. Indicators of wetland hydrology may include drainage patterns, sediment deposition, watermarks and drift lines, historic records, and observation of saturation or inundation (Environmental Laboratory 1987).

Upland

Annual performance guidelines and success criteria for upland habitats planted with trees and shrubs (*e.g.*, woodlands, scrub, chaparral) are designed to measure survival of planted trees (Table 5-2) and cover of shrubs, grasses, and herbaceous plantings. Cover criteria is not used to estimate restoration success in woodlands due to the small size of tree plantings, even after several years of growth. A final success criterion for 75 percent survival of planted trees is established for Year 10. Replanting would be conducted should survival not meet any monitoring year performance guidelines as presented in Table 5-2. Percent survival will be calculated by dividing the total number of surviving trees during the monitoring event by the original planting plan amounts, as described in Section 5.2.1. If the survival criterion is met, it is assumed that the tree density will be sufficient to provide the desired habitats. If required by regulatory agencies, a final visual assessment of the habitat will be conducted in Year 10 to see whether the habitat has matured as anticipated. Total, native cover should exceed the performance guidelines in Table 5-2 in scrub and chaparral communities.

Hydrologic/Hydrogeomorphic

Hydrologic and hydrogeomorphic monitoring will be conducted to assess whether the site is meeting habitat goals for fish passage and seasonal pond development.

Streams

The hydrologic criteria for the restored channel are to maintain sufficient water velocity and depth and provide channel structure that supports steelhead passage and summer rearing.

The restored channel includes the Combined Flow Reach, Reroute Channel, Upper San Clemente Creek, and Upper Carmel River restoration areas. The design criteria presented in the channel design report (Appendix B) specify flow velocities, slopes, and dimensions of the channel that would allow for fish passage. Monitoring of these features is described in Section 5.2 below.

Wetlands
Wetlands will be established on the first floodplain terrace of the restored river channel and on the upland area proposed for the existing Carmel River arm of SCD reservoir. Success criteria for wetlands are described in Section 5.1. The presence of hydric soil indicators will be assessed during the 5 year delineation. The hydrologic success criteria for these wetlands include measurements and observation of sufficient inundation or soil saturation for at least 5 percent of the growing season. WETs table for Salinas, nearest to the project area, indicate a 365 day growing period for this area (USDA 2011). Therefore, inundation or soil saturation of wetland areas should be for a minimum of 18 days per year (USDA 2011).

Special Status Species

California Red-legged Frog
CRLF habitat establishment relies on successful creation of wetland, riparian, and upland habitat, on target hydrology in potential breeding pools, and on predator elimination. Performance guidelines for CRLF will include the vegetation performance guidelines described above, with the following additions:

- Presence of upland refugia in the form of burrows, vegetation, rock piles, etc. within 500 feet of aquatic habitat.
- Presence and persistence of appropriate hydrology, in the form of wetland ponds and pools or other slow moving water appropriate for breeding, for the length of the breeding season.
    - Upland breeding ponds shall dry out at least 3 out of 5 years.
- Non-native predator abundance shows an annually decreasing trend.

Steelhead
Performance guidelines are synonymous with the streams channel hydrology criteria as described above.

5.2 Monitoring

This section describes monitoring methods and schedule for vegetation, hydrologic, and species monitoring. In addition, photo documentation is described.

5.2.1 Methods

Monitoring provides a tool for determining the progress towards, and attainment of, success criteria. Methods for monitoring vegetation, hydrology, and species are described in this section. Monitoring assessments will be conducted by qualified personnel (e.g., a professional biologist, botanist, ecologist, and/or hydrologist/geomorphologist).

Vegetation Monitoring

Vegetation monitoring will be conducted during years 1-3 and 5 for all vegetation communities. If all success criteria are met at the end of Year 5, CAW may request that agencies accept the project's restoration and mitigation components as completed. If required, an additional, final, visual vegetation assessment of habitats where trees have been planted, including riparian communities and oak woodlands, will be conducted in Year 10. The point-line intercept method will be used to estimate total vegetative cover, native cover, and hydrophytic cover within riparian and wetland habitats. A count of planted trees and shrubs within 100 m^2 plots will be used to estimate tree and shrub survival in upland areas. Power analysis was used to determine the number of sampling points necessary to perform accurate statistical analysis. T-tests and regression trend analysis will be used to compare results to annual performance guidelines and determine whether the restored areas are progressing towards meeting final success criteria.

Sample Size

Based on a power analysis (assuming 95 percent confidence level, 80 percent power of detection, and a margin of error of 15 percent, and 50 percent survival goal), the number of samples required for robust statistical analysis is 67 samples. Table 5-3 shows the number of plots proposed for each habitat type; data collected from the plots exceed the minimum sample threshold as determined by the power analysis.

Table 5-3: Number of Sample Plots Per Habitat Type

Habitat	Number of Sampling Plots
Upland Zone 1	20
Upland Zone 2	20
Upland Zone 3	10
Riparian Zone 1	10
Riparian Zone 2	10
Riparian Zone 3	7

Estimating Planted Tree Survival

Survivorship of planted species within upland and riparian zones will be estimated by counting the number of living, planted trees within annually determined, random sampling plots. Sampling plots (100 m^2) will be randomly established each year based on a grid overlay of the entire impacted area. The number of sampling plots depends on the vegetation community and size of planting area. Since some habitat types (*e.g.*, riparian habitats) are being established in very narrow bands, it is possible that the 100 m^2 plots will not fall entirely within a single habitat type. If this occurs the plots can be shifted such so the entire plot is in a single habitat type. The plot dimensions may also be altered if necessary, though monitoring biologists should strive to sample 100 m^2 plots.

Using GIS, a 10-meter by 10-meter grid will be overlaid on a map of proposed restoration areas. Each vertex of the grid will be labeled with a number (Figure 5-1). Using a random

number generator, vertices will be selected each year to serve as the center of square sampling plots and transects (Appendix D). Once the vertices have been selected, locations will be identified in the field using a GPS device.

Biologists will navigate to the coordinates specified by the GPS and establish a center point. For scrub, chaparral, and riparian habitats two 10-meter transect tapes will be extended from this center point, 5 meters in each cardinal direction; the center point will be located at the 5-meter mark for both cross-transects. For oak woodland habitats (due to larger spacing between plantings), two 30-meter transect tapes will be extended from this center point, 15 meters in each direction. In each plot, each live, planted tree will be counted. In addition, observations regarding tree and shrub health (e.g., premature leaf loss, evidence of dieback shoots, severe insect infestation) will be noted, particularly when poor health is an apparent indicator of imminent mortality. This information will be compared to proposed density as per the planting plan.

Percent survival will be estimated per plot by dividing the number of living trees/shrubs observed by the number proposed as estimated by the on center (o.c.) planting spacing for that habitat zone. For example, if trees are planted 10 feet o.c. a 100 m^2 plot should contain 16 trees. If 12 living plants are observed, a percent survival for the plot will be 75 percent.

affecting the trend analysis results. The monitoring report will describe any weather anomalies that appear to impact cover or survival, and take these events into consideration when making recommendations on remedial actions.

Year 10 Vegetation Monitoring
The plot based method for assessing vegetative cover and survival will be implemented for years 1, 2, 3, and 5 as described above. The Year 5 site assessment is an opportunity to assess the site and determine whether all criteria have been adequately met. If permitting agencies agree that the site has adequately met all criteria in Year 5, the Year 10 assessment is not needed. If the site has not met all criteria in Year 5, adaptive management actions will be negotiated and implemented. In that case, a Year 10 assessment will be performed. The Year 10 assessment, if required, would consist of a visual assessment of any habitats that did not meet Year 5 criteria. The visual assessment would be used to assess whether the site had met all final success criteria goals. If the site appears to have met all criteria, agency approval will be sought as verification of restoration completion. If criteria are still not met, additional adaptive management actions will be developed with agency coordination.

Wetland Monitoring
Seasonal wetlands will be visually monitored annually in late spring in Years 1, 2, and 3 post construction to assess the establishment of hydrologic conditions and hydric soils to support the growth of hydrophytic vegetation. These qualitative assessments will be used to determine if remedial actions are needed. In Year 5, a qualified wetland specialist trained in the delineation of Corps wetlands will delineate the wetlands using the methodology from the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual* (Corps 2008). If 2.95acres of wetland have not been established by Year 5 then adaptive management measures will be implemented.

Hydrologic Monitoring
Hydrologic monitoring of the restored stream channels in Years 1, 2, 3, and 5 post-construction will consist of visual assessment for blockages, erosion, and pool weir blow-outs. Monitoring reports will include fish data gathered at Los Padres dam, and flow data from existing USGS and MPWMD gaging stations.

A fish passage assessment following standard fish passage criteria methods will be conducted in Year 1 to determine whether the new channel meets the criteria, if required by NMFS in the Biological Opinion or by CDFG.

Species Monitoring
Detailed monitoring methods for predator removal and special status species are provided below.

Bullfrog Eradication Program
Wetlands and waters will be monitored annually to determine presence/absence of bullfrogs and eradicate those found. Bullfrogs are not expected to be supported in the Sediment Stockpile ponds if the ponds are meeting hydrology guidelines and drying annually. Due to the connectivity of the floodplain terrace ponds with Carmel River,

bullfrogs are not expected to be eliminated from these wetland areas. Monitoring will be conducted to assess whether bullfrogs are present and whether this presence is impacting CRLF populations. After two years of monitoring, the monitoring data will be assessed in consultation with regulatory agencies to determine whether additional monitoring is necessary.

Bullfrog monitoring/eradication surveys shall be conducted by two qualified wildlife biologists. During construction, an intensive bullfrog eradication program will occur. This entails monthly surveys as described below to remove as many individual bullfrogs from the population as possible. Post construction, the biologists will conduct one daytime and one nighttime visual and aural encounter survey during spring and late summer for bullfrogs at each seasonal wetland and at an accessible location along the CFR channel. Each survey will last long enough to allow full visual inspection of the shoreline and emergent vegetation; surveys may require the use of waders, boats, or other floatation devices to fully inspect emergent vegetation. Night surveys will be conducted using binoculars and lights that produce fewer than 100,000 candle watts but are sufficiently bright to detect frogs. In the event that bullfrogs are encountered during the monitoring surveys, they will be hand-captured (e.g., with a dip net or gig) and euthanized by hand; bullfrog egg masses will be collected and removed from the pond. All bullfrogs and other wildlife detected during surveys will be documented.

Upland and Aquatic Habitat Monitoring for California Red-legged Frog
CRLF habitat within the project area will be monitored if required by the USFWS Biological Opinion.

Habitat Monitoring for Steelhead
Steelhead habitat within the project area will be monitored if required by the NMFS Biological Opinion.

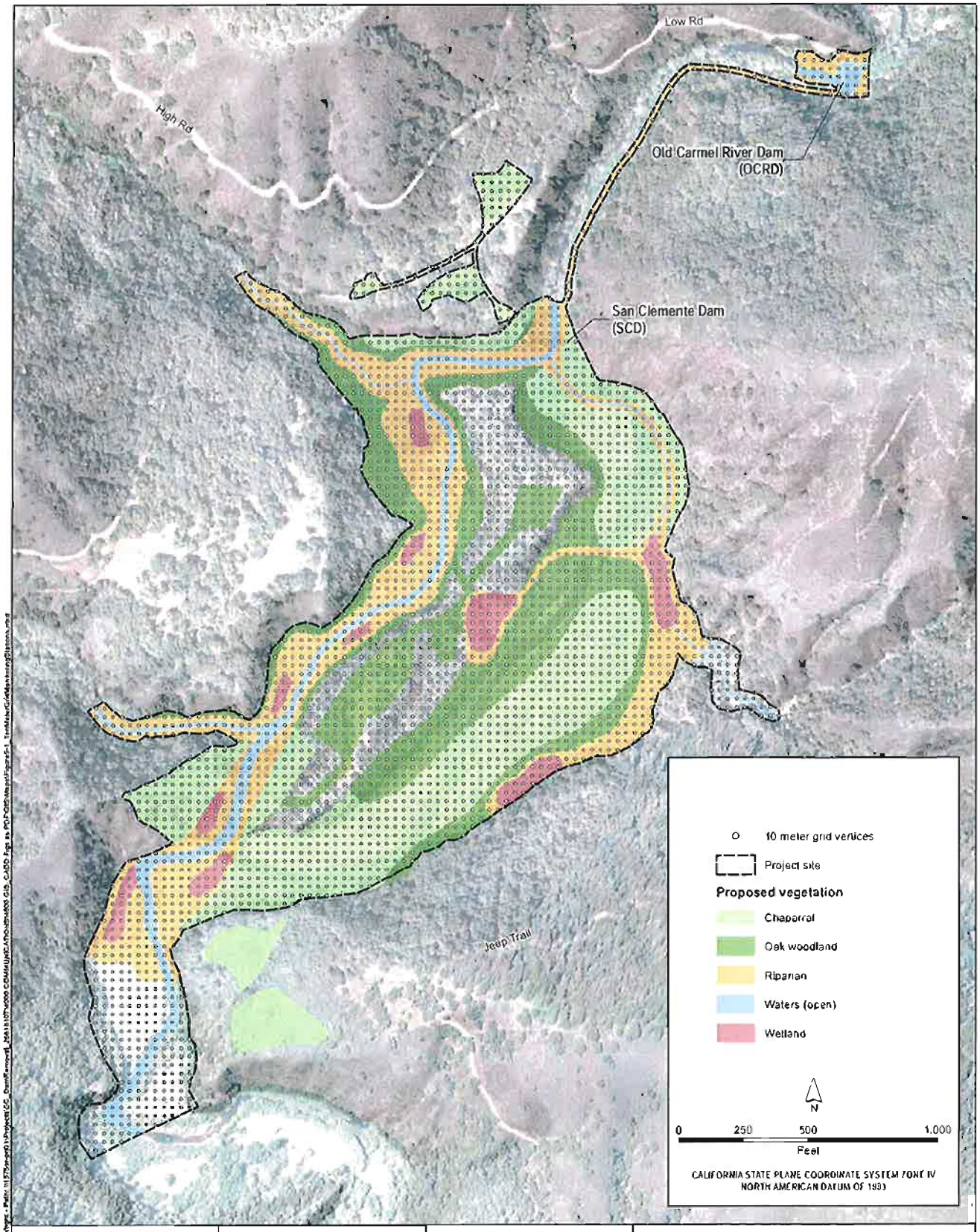
5.2.2 Monitoring Schedule

Table 5-4 summarizes the monitoring tasks for each year for the first five years after construction. Monitoring will be timed to coincide with the optimal periods for identification of the performance guidelines. Data will be collected at approximately the same time each year to standardize results (i.e., within a 3-week window, adjusted annually to account for seasonal variations in vegetation conditions, weather, precipitation, and temperature).

If it appears that a component is not on track to meet final success criteria, CAW will identify adaptive management actions such as additional plantings, changes to the irrigation regimen, erosion control measures, or changes to weeding schedule or method.

Table 5-4: Suggested Monitoring Annual Schedule

Monitoring	*Monitoring Year Post Project Completion*						
	1	2	3	4	5	Timing	Comments & Frequency
CRLF Aquatic Habitat	x	x	x			Spring and early summer	If required by USFWS
Bullfrog eradication	x	x				Spring and summer	If bullfrogs are identified in Years 1 and 2; additional monitoring and eradication may continue in Years 3 and 4
Vegetation –Upland, Riparian	x	x	x		x	Annually in early summer	If criteria are not met in Year 5, a visual assessment will be conducted in Year 10
Wetlands	x	x	x		x	Spring or early summer	Wetland delineation in Year 5
Fish Passage Assessment /Stream Flow Monitoring	x	x	x		x	At various flows (low & high)	If required by NMFS or CDFG

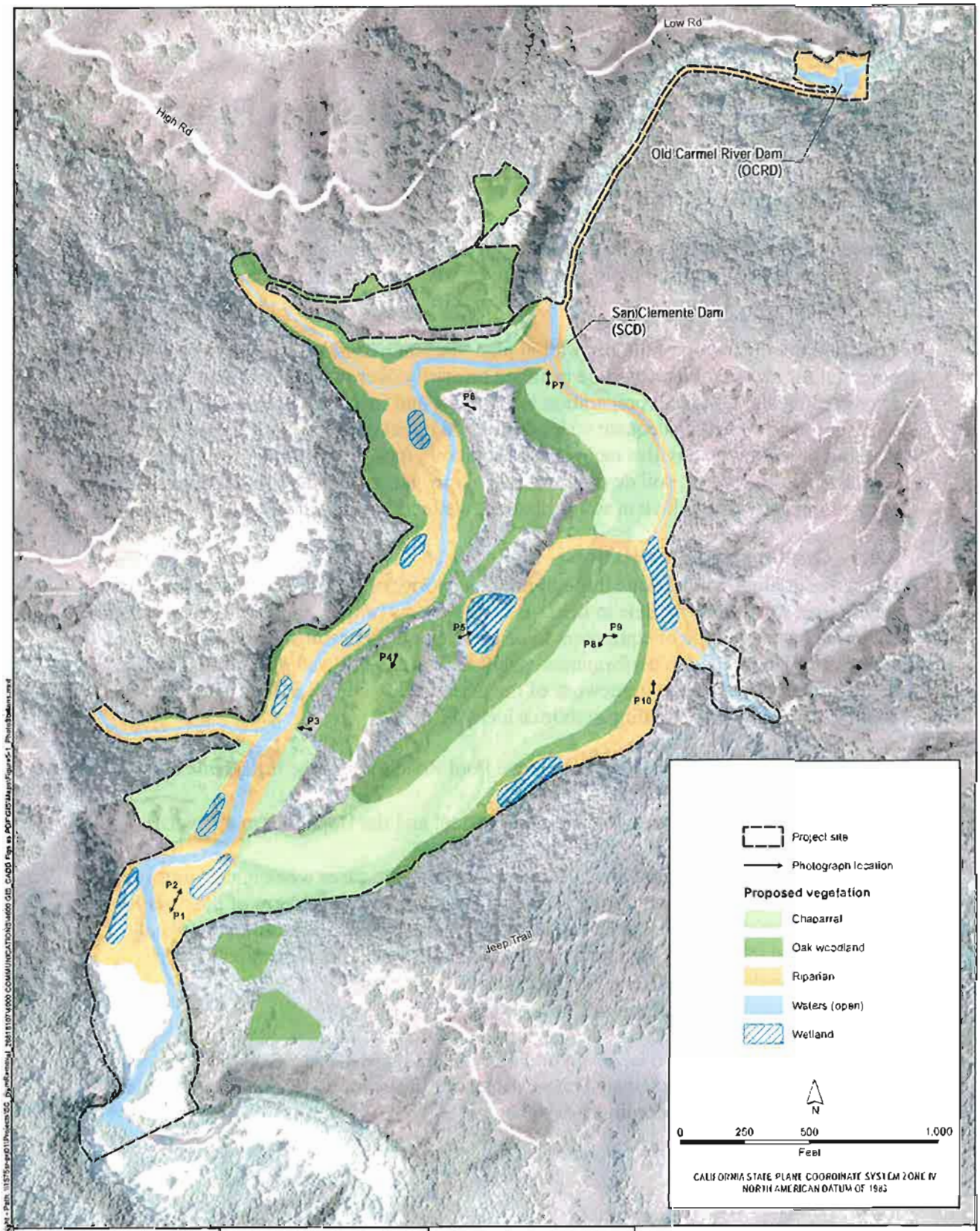


	CARMEL RIVER REROUTE AND SAN CLEMENTE DAM REMOVAL MONTEREY COUNTY, CA	DATE OF PREPARATION: 3/22/2012 DATE OF SUBMISSION: 4/3/2012 URS PROJECT NO. 26818107	FIGURE 5-1 10 METER GRID FOR SELECTION OF PROPOSED VEGETATION MONITORING STATIONS

5.2.3 Photo Monitoring

Permanent photo stations will be established and photographs will be taken annually from the same vantage point and in the same direction. Approximate locations for photo monitoring stations are shown on Figure 5-2, but may be revised as appropriate by the monitoring contractor depending on site access and final restoration plan. Once established, photo monitoring stations will be mapped using GPS and marked with rebar. Photo monitoring station locations will include vantage points that capture representative areas of each proposed habitat and be co-located with other stations to the extent feasible. In addition to the permanent photo stations, photographs will also be taken from the origin of each vegetation monitoring transect.

Photos will be taken with a digital camera at an approximate height of between 4 feet 8 inches and 5 feet in height above ground level. For each photo, the photo number, project site, habitat type, photo station location number, azimuth of the image from the photo station, the date, and the weather will be recorded.



	CARMEL RIVER REROUTE AND SAN CLEMENTE DAM REMOVAL MONTEREY COUNTY, CA	DATE OF PREPARATION: 2/9/2012 DATE OF SUBMISSION: 2/16/2012 URS PROJECT NO. 26818107	FIGURE 5-2 PROPOSED PHOTOGRAPH STATIONS

6.0 Restoration Implementation Plan

6.1 Site Preparation

Site planting preparation will be performed by a D-B Contractor working for CAW. Restoration supervisors and biological monitors under this contractor are yet to be selected.

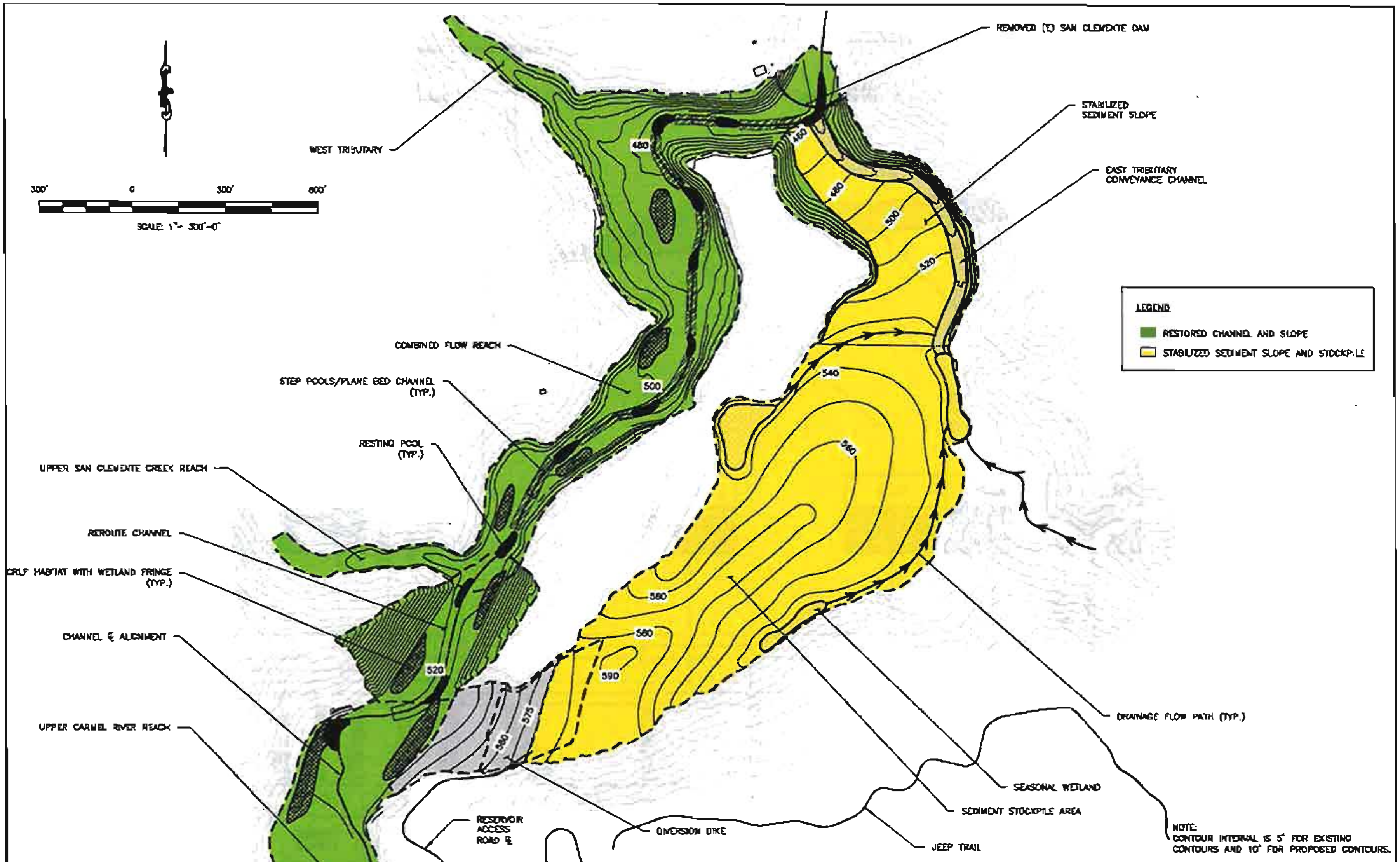
Prior to implementation of the restoration plan, the site will be prepared to increase the potential for success. Plants will be installed primarily over two construction seasons after grading work and soil preparation is complete and irrigation equipment is in place, to ensure plants receive adequate water during the initial establishment period. Site and planting preparation activities include seed sourcing, topsoil salvaging, onsite vegetation recycling, weed control, soil de-compaction, and irrigation. In addition, tailored site preparation activities will be used for riparian, wetland, and upland sites.

6.1.1 Grading Implementation

Extensive grading will be done throughout the majority of the project area and also for access road improvement. Due to the D-B nature of this project, the specifics regarding the procedures and type of equipment to be used are not yet determined. The D-B Contractor will be held to performance specifications and allowed flexibility to select their equipment within the framework of the performance specifications and contract documents. Anticipated grading activities include:

- Minimal earthwork along the Plunge Pool Road to be make it passable by construction equipment;
- Transitioning between the Reroute Channel and the Upper Carmel River floodplain;
- Excavation of accumulated sediment, and in some cases weak underlying soils, behind SCD and contouring surfaces; San Clemente Creek arm of the reservoir contoured to 1921 surface elevation; Carmel River arm contoured to upland habitat (Stabilized Sediment Slope, Sediment Stockpile, Diversion Dike);
- Excavation of the Diversion Dike cut-off wall;
- Excavation of the Reroute Channel.

A preliminary grading plan is shown on Figure 6-1. Figure 6-2 is a material balance diagram displaying the anticipated excavation and fill volumes and source and deposition locations, based on the preliminary design.



URS | Project No. 28816031 CARMEL RIVER REROUTE & SAN CLEMENTE DAM REMOVAL PROJECT | PRELIMINARY DESIGN SITE PLAN | FIGURE 6-1

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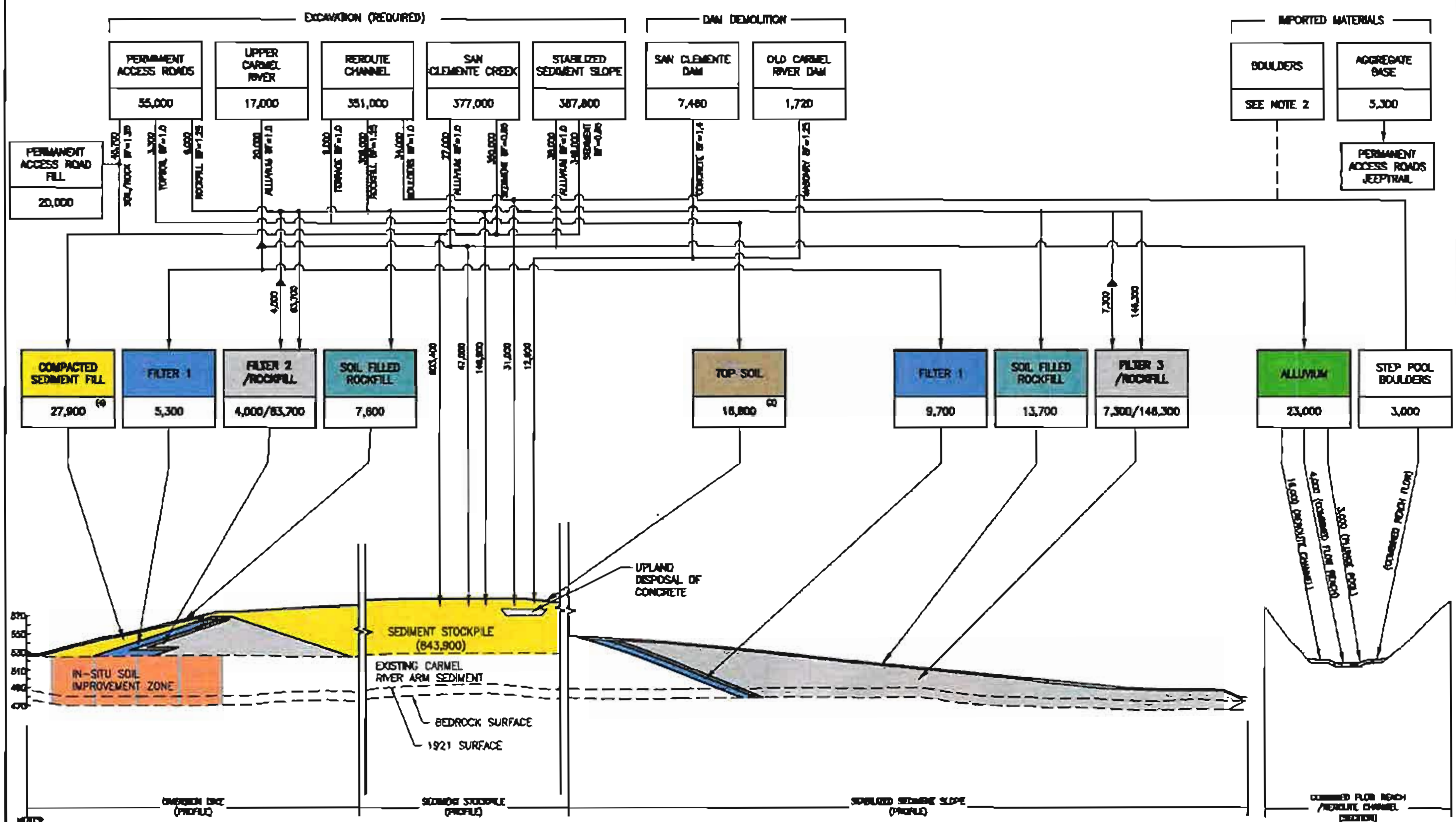
\\p02\cme2\CARDR\5000 Technical\5300 CADD\FIGURES\2011-12-01\Figure 2-3 Site Plan.dwg



NOTES:

1. QUANTITIES ARE IN CUBIC YARDS.
2. VOLUME OF IMPORTED BOULDERS DEPENDS ON VOLUME OF LARGE BOULDERS OBTAINED FROM REROUTE CHANNEL EXCAVATION AND FROM ALLUVIUM IN STABILIZED SEDIMENT SLOPE EXCAVATION.
3. TOP SOIL ASSUMED TO BE PLACED TO AN AVERAGE OF [illegible] INCHES THICK.
4. COMPACTED SEDIMENT FILL SHALL HAVE A MINIMUM OF [illegible] PASSING NO.200 SIEVE.

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Project No. 28818031

CARMEL RIVER REROUTE & SAN CLEMENTE DAM REMOVAL PROJECT

PRELIMINARY DESIGN MATERIAL BALANCE DIAGRAM

Figure 6-2

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\\s021emc2\CRRDR\5000 Technical\5300 CADD\FIGURES\2011-12-01\Figure 3-2 Material Balance.dwg

6.1.2 Avoidance Measures

Avoidance and minimization measures will be implemented in accordance with permit conditions as issued by regulatory agencies. Some measures to avoid sensitive areas outside of the grading plan, as required in the MMRP of the Final EIR/EIS, include the following:

- Confine improvement activities to the defined and permitted project footprint, using fencing to the extent practical to prevent encroachment of vehicles or other activity into native habitat;
- Implement BMPs to minimize sedimentation and turbidity;
- Prevent water and aquatic species from entering the project site once dewatering has begun;
- Conduct work during the day to the extent feasible to limit light disturbance.

6.1.3 Soil Disposal

Soil excavated from the San Clemente Reservoir and San Clemente Creek will be placed in the Sediment Stockpile. No off-site soil disposal will be required.

6.1.4 Soil Treatment

Topsoil will be salvaged and re-used in the restoration areas. No spreading of inoculum is considered necessary since on-site topsoil should already be inoculated as appropriate for the local conditions. Soil treatment activities may also include measures to reduce soil compaction.

Topsoil Salvaging

The project area has fine-particle and nutrient-rich top soils that have accumulated in the reservoir. They are adapted to sustain plant life within the areas to be graded and excavated. These soils will be harvested and used where appropriate in proposed planting areas to improve soil conditions and support plant growth. Topsoil will be temporarily stored in defined staging areas as shown on Figure 3-2. Topsoil will be excavated during CY 1, 2, or 3 and replaced by the end of CY 5.

The depth of topsoil placed is dependent on the proposed community type. Grasslands, scrub, and riparian areas can tolerate shallower topsoil than coast live oak forests, which require moderately deep to deep soils.

Reduce Soil Compaction

Following the earthwork activities, many planting areas are expected to have compacted soil conditions due to construction activities and traffic. De-compacting these areas will greatly benefit soil conditions, enhance nutrient intake and soil moisture and air content, which are critical for healthy root development. De-compacting these areas entails ripping to a 12-inch depth, and adding 12 inches of topsoil. To support aeration, root growth, water holding, and natural composting processes, soil compaction within riparian, upper wetlands, and upland areas will not exceed 80 percent relative density for a depth of 24 inches. Soil compaction is not an issue within Wetland Zone 1 because soils are expected to be saturated with water.

6.1.5 Pest Plant Removal

Weed control will be executed before planting activities commence. No synthetic fertilizer or herbicides will be applied. Instead, integrated pest management practices will be used to the maximum extent possible.

6.1.6 Restoration Monitor

A restoration monitor familiar with the mitigation/monitoring plan will supervise the restoration activities that will serve as mitigation for this project. The monitor will submit a summary report (described in Section 8) to the Corps to document construction observations and any problems that arose during construction.

6.2 Planting Plan

Field surveys, solar aspect maps, topographic maps, aerial photography and hydrology models were utilized in development of the planting plan and habitat restoration design. The preliminary design is comprised of planting zones with a diversity of native plant species that occur in multiple existing adjacent vegetation alliances within the same ecological range. Plants will be clustered in groupings responsive to local microhabitat and microtopography within each planting zone.

The project site preliminary revegetation design consists of three proposed major vegetation types: Riparian, Wetland, and Upland. Each vegetation type is further divided into two to three planting zones based on local climate, soil characteristics and conditions, topography, slope aspect, depth to future water table, water table fluctuations, rainfall, hydrology, inundation depths and frequencies, channel velocity (as appropriate), etc. The restoration design is based on ecological functions and principles, utilizes an all-native plant palette, and strives for biodiversity comparable to that of the adjacent native habitats.

Vegetation types proposed for the Project are discussed in more detail in the sections below. The proposed vegetation may change slightly as the design is finalized; however, the D-B contractor will be required to provide the amount of wetland acreage and number of trees required by regulatory agencies and permits.

6.2.1 Riparian Vegetation

Three riparian planting zones will cover the site in a continuous corridor paralleling the banks of the restored channel

- Riparian Zone 1 (Lower)
- Riparian Zone 2 (Middle)
- Riparian Zone 3 (Upper)

Restored site conditions will consist of a narrow valley with a floodplain ranging from 100 to 300 ft. in width. The river channel will have a downstream longitudinal slope that will fluctuate from 2 to 5 percent. The floodplain will be relatively flat and will end abruptly at both sides of the valley where the terrain will quickly rise. Steep slopes will

transition from the upper riparian planting zone (Riparian Zone 3) to the lower upland planting zone in most cases. Riparian species were selected for the adaptability to the seasonal conditions of the Carmel River, which can range from high velocity generated by storms in the winter to very low flows during the summer, and the resulting varying water table elevation within the floodplain soils.

A large factor in the placement of the three riparian planting zones is the hydrology, hydraulics and topography of the valley. Ability to survive fluctuating water tables, ideal depth of the water table to the plant's root system, time spent inundated by water and exposure to high velocity flows are all considerations that uniquely define each riparian planting zone. Models of the 3-, 10-, and 100-year flood events were used to determine boundaries between the planting zones for the preliminary design.

Native plant species selected for each of the three zones grow in the Project Area or the Carmel River Watershed. Using locally sourced propagules will result in vegetation that is genetically adapted to the local environment and will encourage biodiversity in the larger ecosystem of the Carmel Valley.

The following sections summarize the basis of design and ecosystem benefits of each of the three riparian planting zones. Table 6-1 lists the dominant species that will be planted in each zone along with the container size or propagule type and relative abundance.

Lower Riparian Planting Zone (R1, willow/alder dominated)

Located between the top of bank and the 3-year flood WSEL, the lower riparian planting zone (R1) will be the zone closest to the river's edge and spilling into the channel at low flow in some locations. The width of this zone will fluctuate with the width of the floodplain and elevation. At certain points where the riverbanks will be steep, lower riparian vegetation zone will occur only in a narrow band on the banks, leaving the majority of the floodplain for the middle and upper riparian planting zones. At other points in the valley the streambanks will be sloping very gently and lower riparian vegetation will extend across the majority of the floodplain. Vegetation planted in the lower riparian zone will be adapted to the fine clayey soils that will be installed in the riparian areas.

Native species typically occurring in vegetation alliances such as White Alder Grove, Arroyo Willow Thicket, White-Root Beds, and Herbaceous Wet Meadows will be utilized in the lower riparian planting zone to provide habitat complexity and species diversity. Keystone species for this zone primarily consist of a canopy of willows and alders with an understory of rushes and sedges (Table 6-1). The trees would be closely spaced, approximately 7 feet o.c., in order to provide a thick canopy.

The lower riparian zone will provide important ecosystem benefits for a healthy steelhead population. Alders and willows growing close to the water's edge will shade the river and attenuate water temperatures for steelhead habitat. Riparian vegetation will promote bank stability, enhance physical channel features, provide large woody material, and serve as a major source of nutrients to support in-stream fauna. Dense willow thickets planted just above OHWM elevation will develop root mats and potentially create undercut banks,

providing good habitat complexity for steelhead. Grasses, sedges and rushes in the lower riparian zone will create habitat for small invertebrates that serve as food source for the steelhead. Additionally, sedges and rushes typically develop an extensive and strong root system that will over time stabilize the banks of the river channel. Willow poles can withstand initial velocities of 1 to 2.5 feet per second and established velocities of 3 to10 feet per second (Woodhouse et al. 2006).

Middle Riparian Planting Zone (R2, cottonwood/sycamore dominated)

The middle riparian planting zone (R2) will be further away from the OHWM, between the 3- and 10-year flood event water surface elevations, and will act as an ecotone between the lower and upper riparian planting zones. This planting zone will occupy the flatter and raised terraces of the floodplain. These terraces will be occasionally flooded, and vegetation proposed for this zone will be able to withstand a flooding regime that is less frequent than that in the lower riparian zone. Soils in the middle riparian zone will be fine-textured, with a high content of clay, mixed with rocks and cobbles and with permanent moisture near the soil surface. The rocks and cobbles will stabilize the soil in place when middle riparian terraces are flooded. Trees planted in the middle riparian zone will come from treepots (long and narrow containers) and will have a deep and well developed root system. The understory will be hydroseeded with a riparian seed mixture. Native vegetation alliances that do well within the elevational range of this zone include Sandbar Willow Scrub, California Sycamore Woodland, and Creeping Rye Grass Turfs. The California Sycamore Woodland alliance will be ideal for the larger open flat areas of the middle riparian zone.

The open grasslands and sparse spacing of mature trees sometimes seen in the middle riparian zone brings a diversity of shrubs and herbaceous species. This zone will be dominated by sycamore and cottonwoods with box elder, narrowleaf willow, and shrubs in the understory. Proposed tree spacing is greater than in R1, approximately 20 feet o.c.

Upper Riparian Planting Zone (R3, oak/bay dominated)

The upper riparian planting zone (R3) will contain vegetation typically occurring the furthest away from the OHWM, between the 10- and 100-year flood event water surface elevations. Native plants in this zone will be able to survive the most extreme water table fluctuations of the riparian corridor. Because of the steep slopes bordering on the floodplain, this planting zone will sometimes be reduced to a narrow band.

Riparian tree species that require less water will be planted with wider spacing in this zone. Dominant tree species would be big leaf maple, valley oak, California bay, and California black walnut with shrubs and perennial herbs in the understory. Tree spacing is wider than in R2, approximately 35 feet o.c.

Table 6-1: Proposed Dominant Species for Planting in Riparian Zones

Zone	Scientific Name	Common Name	Life Form	Container Size/ Propogule	Percent of strata
Riparian Zone 1	*Alnus rhombifolia*	white alder	tree	Treepot	40%
	Salix laevigata	red willow	tree	Pole	30%
	Salix lasiolepis	arroyo willow	tree	Pole	30%
	Cornus glabrata	brown dogwood	shrub	D16	
	Carex barbarae	white-root	perennial	Seed	
	Carex globosa	round fruit sedge	Perennial	Seed	
	Juncus effusus	Pacific rush	perennial	Seed	
Riparian Zone 2	*Acer negundo*	boxelder	tree	Treepot	10%
	Platanus racemosa	California sycamore	tree	Treepot	30%
	Populus balsamifera ssp. *trichocarpa*	black cottonwood	tree	Treepot	30%
	Populus fremontii	Fremont cottonwood	tree	Treepot	10%
	Salix exigua	Narrowleaf willow	tree	Treepot	20%
	Rosa californica	California rose	shrub	D16	
	Rubus parviflorus	thimbleberry	shrub	D16	
	Artemisia douglasiana	mugwort	perennial	D16	
	Leymus triticoides	creeping wildrye	grass	Seed	
Riparian Zone 3	*Clematis ligusticifolia*	creek clematis	vine	Seed	
	Acer macrophyllum	big-leaf maple	tree	Treepot	20%
	Quercus lobata	valley oak	tree	Acorn	35%
	Umbellularia californica	California bay	tree	Treepot	30%
	Juglans californica	California black walnut	Tree	Treepot	15%
	Lupinus albifrons var. albifrons	silver bush lupine	Shrub	Seed	
	Sambucus mexicana	blue elderberry	Shrub	Seed	
	Scrophularia californica	California beeplant	perennial herb	Seed	
	Trifolium wildenovii	tomcat clover	perennial herb	Seed	
	Sisyrinchium bellum	blue-eyed grass		D16	

6.2.2 Wetland Vegetation

The following sections summarize the wetland basis of design and ecosystem benefits. To support CRLF breeding, the surface area of a pond needs to include both vegetation and open water. A water balance analysis has been completed and can be found in Attachment B, Preliminary Design of Sediment Stockpile. Table 6-2 lists the dominant species for planting.

Lower Wetland Planting Zone (W1)

The lower wetland planting zone (W1) will be located in wet areas with deeper, finer and less-permeable soils, in or around small ponds created throughout the Project site.

The lower wetland planting zone species are comprised of native, obligate wetland plants installed from approximately 2 feet above the lowest point of the shallow ponds to about 1 foot below the pond overflow elevation. The depth will vary from one to several feet, and the pond will be designed to dry out every year to arrest development of bullfrog tadpoles. Herbaceous perennial species selected for the lower wetland planting zone include species from the following vegetation alliances: White-Root Beds, Needle Spikerush Stands, Small-Fruited Bulrush Marsh, American Bulrush Marsh and California Bulrush Marsh (Sawyer et al. 2009).

Table 6-2 lists the dominant species proposed for planting in this zone. At the lower edge of this planting zone, herbaceous perennials will transition into the open waters of the ponds, while at the higher areas above the water surface they will transition into the trees and shrubs of the upper riparian or upper wetland planting zones.

Upper Wetland Planting Zone (W2)

The upper wetland planting zone (W2) will be located in wet to mesic areas with deeper, finer and less-permeable soils, in or around small ponds created in the proposed river floodplain. It will be planted from approximately 1 foot below the overflow point of the ponds to approximately 2 feet above the pond overflow. This planting zone will be quite similar to the middle riparian planting zone (R2) and will consist primarily of trees, shrubs and herbaceous perennials that prefer slowly moving water. Species selected for the upper wetland planting zone have been observed on or in the immediate vicinity of the Project site and are typically present in the California Sycamore Woodland, Black Cottonwood Forest, Mulefat Thicket, California Rose Briar Patch, Coastal Bramble, Sandbar Willow Thicket and Creeping Ryegrass Turf vegetation alliances.

Table 6-2: Proposed Dominant Species for Planting in Wetland Zone

Zone	Scientific Name	Common Name	Life Form	Container Size/ Propogule
Wetland Zone 1	*Hoita macrostachya*	leatherroot	vine	Seed
	Carex barbarae	white-root	perennial herb	Seed
	Carex globosa	round-fruited sedge	perennial herb	Seed
	Rumex salicifolius	willow dock	perennial herb	Seed
	Scirpus fluviatilis	river tule	perennial herb	Seed
	Stachys ajugoides	bugle hedgenettle	perennial herb	Seed
Wetland Zone 2	*Platanus racemosa*	California sycamore	tree	Treepot
	Populus balsamifera ssp. trichocarpa	black cottonwood	tree	Treepot
	Baccharis salicifolia	mulefat	shrub	D16
	Rosa californica	California rose	shrub	D16
	Rubus parviflorus	thimbleberry	shrub	D16
	Salix exigua	narrowleaf willow	shrub	D16
	Artemisia douglasiana	mugwort	perennial	D16
	Leymus triticoides	creeping wildrye	grass	Seed

6.2.3 Upland Vegetation

The three upland vegetation zones will be restored throughout the project area in higher and more xeric areas. Benefits associated with the three upland planting zones include provision of habitat, forage, and cover using native plants. The three upland zones integrate at the transition between the zones and progress from more mesic to drier communities as the elevation increases.

Lower Upland Planting Zone (U1, Woodland)

The first upland planting zone (U1), which is typically the lowest in elevation, will be located within the Project Area primarily in cooler, more mesic areas with deeper soil on northwest, north, northeast, and east facing aspect slopes. These areas are present throughout the majority of the project site. This planting zone will consist of tree, shrub, herbaceous perennial and annual species typically present in the Coast Live Oak

Woodland, California Buckeye Grove, Ocean Spray Brush, California Coffeeberry Scrub, California Fescue Grassland, Blue Wildrye Meadow, Torrey's Melic Patch, Curly Bluegrass Grassland and Nodding Needlegrass Grassland vegetation alliances

Table 6-3 lists the dominant species proposed for planting in this zone, including coast live oak and Pacific madrone. Proposed spacing is 20 feet o.c. At the lower, mesic edge of this vegetation zone, these dominant trees will transition into the big leaf maple, California bay, and valley oak trees of the upper riparian zone (R3).

In this planting zone, topsoil will be amended with on-site generated compost to create a planting medium that will be nutrient-rich and weed-free. Chipped debris from cleared healthy native vegetation could also be used as mulch throughout the tree and shrub planting areas.

Middle Upland Planting Zone 2 (U2, Chaparral)

Upland planting zone 2 (U2) will be located in warm xeric areas within the proposed Project site with deeper soil on southeast, south, southwest, and west facing slopes. This planting zone is proposed primarily on the Diversion Dike, Sediment Stockpile, Stabilized Sediment Slope with small patches upslope from the Combined Flow Reach and along the Reservoir Access Road.

This planting zone will consist primarily of small trees, and drought resistant shrubs, with very sparse herbaceous perennial and annual species in the understory. Species selected for this restoration have been observed on or in the immediate vicinity of the project site and are typically present in the Chamise, Chaparral, Holly-Leaf Cherry Chaparral, Eastwood Manzanita Chaparral, Coyote Brush Scrub, Buck Brush Chaparral, Blue Blossom Chaparral, and Hairy Leaf Ceanothus Chaparral vegetation alliances.

Table 6-3 lists the dominant species proposed for planting in this zone. At the lower or cooler aspect edge of this planting zone, these shrubs and small trees will transition into the coast live oak and California buckeye trees of the lower upland planting zone (U1). Because of the shrub density and closed canopy in the chaparral zone, the ground layer vegetation will be very sparse.

Topsoil will not be amended in the middle or upper upland planting zones (U2 or U3), because the majority of species within this community require primarily mineral soil for good growth. High organic content soils promote fungal diseases that are detrimental to chaparral and scrub.

Upper Upland Planting Zone (U3, Scrub)

The upland planting zone 3 (U3) occupies very warm xeric areas with shallow soil on southeast, south, southwest, and west facing slopes within the proposed Project site. This planting zone will consist primarily of herbaceous perennials. Species selected have been observed on or in immediate vicinity of the Project site and are typically present in the Black Sage Scrub, California Yerba Santa Scrub, California Sagebrush Scrub, Deer Weed Scrub, Bush Monkeyflower Scrub and Giant Wildrye Grassland vegetation alliances.

Table 6-3 lists the dominant species proposed for planting in this zone. At the lower edge of the zone, these herbaceous perennials and suffrutescent shrubs will transition into the chamise, manzanita and ceanothus shrubs of the middle upland planting zone (U2). At the cooler aspect areas they will transition into the coast live oak and California buckeye of the lower upland planting zone (U1). Because of the open canopy and wide spacing of the shrubs in this planting zone, the understory vegetation will be quite diverse.

Table 6-3: Proposed Dominant Species for Planting in Upland Zones

Zone	Scientific Name	Common Name	Life Form	Container Size/ Propogule
Upland Zone 1	*Quercus agrifolia var. agrifolia*	coast live oak	tree	Acorn
	Aesculus californica	California buckeye	tree	Treepot
	Arbutus menziesii	Pacific madrone	Tree	Treepot
	Heteromeles arbutifolia	toyon	shrub	D16
	Oemleria cerasiformis	oso berry	shrub	D16
	Rhamnus californica	coffeeberry	shrub	D16
	Ribes californicum var. californicum	hillside gooseberry	shrub	D16
	Ribes speciosum	fuchsia-flowered gooseberry	shrub	D16
	Symphoricarpos mollis	common snowberry	shrub	D16
	Bromus carinatus var. c.	California brome	grass	Seed
	Elymus glaucus var. glaucus	blue wildrye	grass	Seed
	Festuca californica	California fescue	grass	Seed
	Melica imperfecta	purple melic	grass	Seed
	Nassella cernua	nodding needlegrass	grass	Seed
Upland Zone 2	*Prunus ilicifolia*	holly-leaf cherry	tree	Treepot
	Adenostoma fasciculatum	chamise	shrub	D16
	Arctostaphylos glandulosa ssp. g.	Eastwood's manzanita	shrub	D16
	Baccharis pilularis	coyote brush	shrub	D16
	Ceanothus cuneatus	buck brush	shrub	D16
	Ceanothus oliganthus var. sorediatus	jimbrush	shrub	D16
	Ceanothus thyrsiflorus	blue blossom	shrub	D16
	Cercocarpus betuloides	mountain mahogany	shrub	D16
	Rhamnus crocea	redberry	shrub	D16

Table 6-3: Proposed Dominant Species for Planting in Upland Zones

Zone	Scientific Name	Common Name	Life Form	Container Size/ Propogule
Upland Zone 3	*Eriodictyon californicum*	California yerba santa	shrub	Seed
	Helianthemum scoparium	rush rose	shrub	Seed
	Salvia mellifera	black sage	shrub	Seed
	Artemisia californica	California sagebrush	perennial herb	Seed
	Eremocarpus setigerus	turkey mullein	perennial herb	Seed
	Lotus scoparius var. *scoparius*	common deerweed	perennial herb	Seed
	Mimulus aurantiacus	bush monkeyflower	perennial herb	Seed
	Penstemon centranthifolius	scarlet bugler	perennial herb	Seed
	Yucca whipplei	chaparral yucca	perennial herb	D16
	Leymus condensatus	giant wild rye	grass	Seed

Onsite Reuse and Recycling of Existing Vegetation

All vegetation and organic matter removed will be used in the new landscape. Large removed trees will be used as large woody materials, partly installed with their canopy sides in the stream to provide habitat for wildlife. Smaller woody debris will be chipped and used as mulch.

6.2.4 Nature and Source of Propagules and Plant Installation

Seed and plant collection will be performed by a seed collection professional or specialized nursery, and will consist of collecting, processing and treating, storage and laboratory testing of seeds, and the collection, processing and storage of plant and pole cuttings. The restoration landscape will benefit most from seeds and plants collected within the Carmel River watershed. Collected seeds and pole cuttings will share a similar elevation, slope and aspect range to the local conditions and environment, and will offer similar conditions for new plant growth. The D-B contractor, or a consultant through a separate contract, will coordinate with selected nurseries that will provide and/or grow plant material, and collect and process seed mixes for the project area. Only native species adapted to the local environment will be used. Proper species, seed source and collection, treatment, propagation, and care of seedlings will help increase the likelihood of planting survival at the site.

Plant Installation

Planting will take place after site preparation, layout, and irrigation are completed. In sites with no rock slope protection, container plants will be planted in dug or augered

holes. At sites with rock slope protection, 12-inch-diameter Sonotube planter boxes filled with soil and extending through the rock into subsoil will be placed prior to rock placement, holding planting spaces for shrubs. Large, 30-inch-diameter Sonotubes will be installed at tree-planting locations in rock slope protection. Willow cuttings installed at sites with rock slope protection will be placed in gaps between rocks. Hydroseeding will be used to apply seed mixes comprised of locally collected seed, water, mulch, compost, binder and other ingredients.

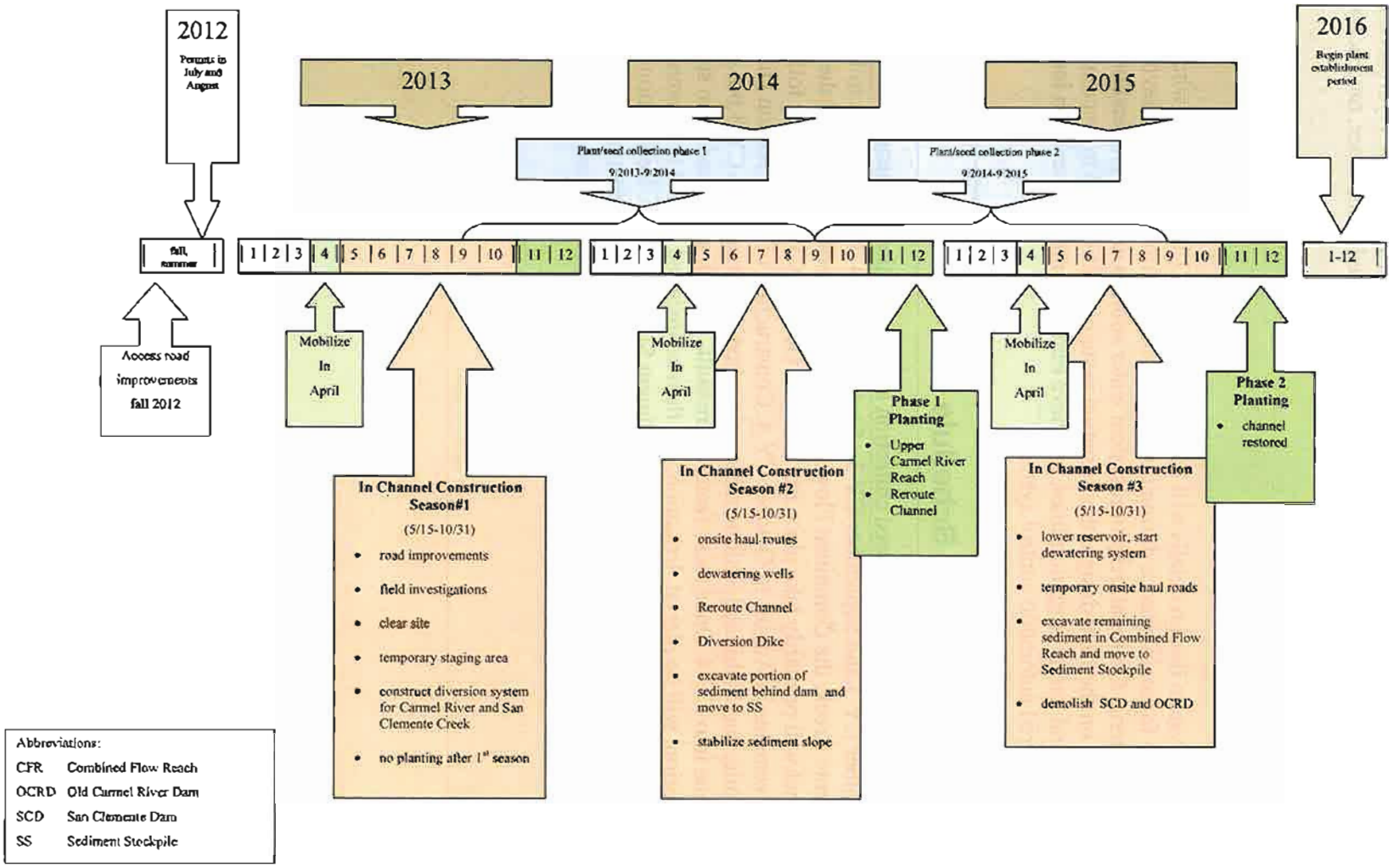
6.3 Irrigation Plan

Irrigation system design details will be prepared by the D-B Contractor, who will be responsible for maintenance during the establishment period and for achieving final success criteria. Optional irrigation system water sources are the river and/or well water. Depending on the final design, the irrigation system is anticipated to be comprised of a main line and lateral irrigation lines, and have remote control valves with local battery or solar-powered automatic control systems.

6.4 Implementation Schedule

There will be two phases of seed collection and propagation: September CY 2 - September CY 3 and September CY 3 - September CY 4. Improvements to Upper San Clemente Creek, the Combined Flower Reach, Upper Carmel River, and the Reroute Channel will primarily take place from May to October CY 3 with some follow-up improvements in August to October CY 4. Construction of the Diversion Dike, Sediment Stockpile, and Stabilized Sediment Slope is scheduled to occur in CY 3 but could continue into CY 4. Once these features are built, topsoil, which had been stored since excavation, will be placed. Irrigation will then be installed around the channels, Diversion Dike, Sediment Slope, and Sediment Stockpile areas. Restoration planting will occur in November and December CY 4 and CY 5 in areas where construction is complete. Figure 6-3 provides a flow chart of the habitat restoration and channel improvement schedule.

FIGURE 6-3 CRRDR CONSTRUCTION PHASES PER PRELIMINARY DESIGN



7.0 Maintenance During Monitoring Period

7.1 Maintenance Activities

7.1.1 Irrigation

The D-B Contractor will be required to maintain the irrigation system in working order throughout the Plant Establishment Period, for a minimum of 2 years, unless otherwise directed by the Owner. Irrigation in years 3-5 will be at the discretion of the D-B as necessary to meet coverage requirements.

7.1.2 Plant Protection

If plant protection is installed to limit browsing of plantings, then regular inspection and maintenance of these protections will be necessary. Plant protection devises could include deer fencing, plant tubes, buried fencing or other deterrent depending on the pest. Plant protection is considered an adaptive management activity and solutions will be developed on a case-by-case basis.

7.1.3 Erosion Control

The project's design will incorporate erosion control techniques and the Stormwater Pollution Prevention Plan will define Best Management Practices to minimize erosion during construction. Should significant erosion (e.g., erosion with the potential to affect restoration plantings, special status species, water quality, or hydrologic function at a site) be identified, repairs will be implemented. Adaptive management measures and solutions would continue to be developed on a case-by-case basis.

7.1.4 Weeding

Weeding will be part of routine maintenance. Weed removal methods may include hand weeding around plantings, mowing, and weedwacking or other methods considered appropriate for removing specific, aggressive plants. Invasive plants are those species defined by the California Invasive Plant Council (Cal-IPC 2011). Herbicide application will not be permitted as a means of controlling weeds.

7.2 Maintenance Schedule

Table 7-1 provides a potential maintenance schedule for activities such as plant inspections, replanting, weeding, and repairs of the irrigation system, fencing, and any repair of observed erosion. The table is a suggested schedule; routine maintenance will be performed to allow the project to meet vegetation establishment success criteria.

Table 7-1: Suggested Maintenance Schedule

Plant Establishment, Year 1		
	Activity	**Minimum Frequency**
Vegetation	Plant inspections	Monthly
	Replanting	Winter, as needed
	Weeding	Monthly, as needed
	Irrigation	As needed
Physical	Inspect and maintain irrigation system	Weekly during summer
	Inspect and maintain fences	Monthly
	Inspect and repair erosion control	Monthly between construction seasons
Other	Record keeping and reporting	Quarterly
Year 2 through Year 5		
Vegetation	Plant inspections	Per monitoring schedule
	Replanting	Winter, as needed
	Weeding	As needed
	Irrigation	As needed
Physical	Inspect and maintain irrigation system	As needed
	Inspect and maintain fences	As needed
	Inspect and repair erosion control	As needed
Other	Record keeping and reporting	Per monitoring schedule

8.0 Proposed Monitoring Reports

This section discusses the contents and requirements for three types of reports:

- As-built report,
- Annual monitoring reports, and
- Final monitoring report.

The as-built report will be submitted after completion of construction activities. Routine monitoring reports will be submitted annually after monitoring activities in years 1-3 and 5. The monitored activities summarized in these annual reports will vary depending on year according to the monitoring schedule. A final monitoring report will be submitted in Year 5 or 10 (depending on agency approval of restoration success by the end of Year 5), summarizing all monitoring and stating completion of permit requirements. Reports will be submitted electronically, unless requested otherwise, to Corps, CDFG, USFWS, NMFS, Regional Water Quality Control Board (RWQCB), Monterey County, and the U.S. Environmental Protection Agency.

8.1.1 Due Dates

Table 8-1 describes the due dates for monitoring reports.

Table 8-1: Monitoring Report Dates

Report	Approximate due date
As-Built Report	Within 6 months of the completion of construction
Annual monitoring reports (Years 1, 2, 3, and 5 post-construction)	Annually, March 1 following monitoring Years 1, 2, 3, 5
Final monitoring report	March 1 following Year 5 or Year 10, dependent on agency approval

8.1.2 As-Built Report

As required in the permits and CEQA document, CAW would submit as-built plans and a report to the agencies listed in the Section 8.0 describing the post-construction condition of the site. The as-built report will identify the construction completion date used for starting the monitoring schedule, photo point locations and accompanying photos showing the conditions at construction completion (i.e., monitoring baseline condition).

8.1.3 Annual Monitoring Report

Annual monitoring reports will be submitted after each monitoring year. The annual reports will include the results of all monitoring activities that took place during the year including monitoring of revegetation, wildlife and aquatic species, hydrology, erosion, and physical infrastructure. The collected data will be compared to the annual performance guidelines and used to assess progress toward meeting the final success

criteria. The reports will recommend adaptive management actions to address performance shortfalls. The report will summarize the monitoring data collected during the monitoring year and will be submitted by March 1 of the following calendar year. Per Corps guidelines, the reports will also include:

- Project Information, including
  - Agency permit/file numbers
  - Project name
  - Applicant name, address, and phone number
  - Consultant name, address, and phone number (if appropriate)
  - Acres of impact and type of habitat impacted
  - Date project construction commenced
  - Mitigation monitoring year
  - Amount and information on any required performance bond or surety, if any
- Project/Mitigation Site Information, including:
  - Location of the site
  - Specific purpose/goals for the restoration
  - Date of mitigation site construction and planting completed
  - Summary of dates of previous maintenance and monitoring visits
  - Name, address, and contact number of responsible parties for the site
- Location Map
- Site Map, including:
  - Habitat types as described in the approved mitigation plan
  - Locations of any photographic record stations
  - Landmarks
  - Location of sample points
- List of Corps-approved success criteria
- Tabulated results of monitoring results, including previous years, versus success criteria
- Summary of field data taken to determine compliance with success criteria
- Problems noted and proposed remedial measures
- Appendices
- Original data sheets and technical appendices
- Photographic record of the site

Years of Full Monitoring
Full monitoring will be conducted in Years 1, 2, 3 and 5 after construction. Monitoring reports will be submitted after the monitoring during these years.

Final Monitoring Report
Completion of monitoring will be documented by submittal of a final monitoring report with notification to, and agreement from, the permitting agencies. If final success criteria have been met or sufficient contingency plans have been implemented, the agencies should confirm the fulfillment of the monitoring and the completion of the project. Final monitoring will be conducted during Year 5, and if approved, no additional monitoring

will be performed. If not approved, adaptive management measures will be implemented and a final visual assessment of the site will be conducted in Year 10.

The final monitoring report will include those items included in the annual reports. In addition, the report will specify how the monitoring obligations have been completed. The permitting agencies (e.g., CDFG, USFWS, NMFS, RWQCB, Corps, EPA, Monterey County) may require a site visit to confirm the completion of the monitoring effort. After confirmation, the agencies will provide a written confirmation that monitoring is complete and no additional action is needed.

9.0 Potential Contingency Measures

9.1 Initiating Procedures

If annual performance guidelines are not met for all or any portion of the project in any year, or if the final success criteria are not met, CAW will analyze the cause of failure and, if necessary, propose remedial action through an adaptive management framework. Adaptive management is a process which optimizes decision making by using an iterative process based in research and monitoring. This approach allows managers to learn by experience within unique environments and apply lessons learned to remedy deficiencies in a structured and scientific approach. Maintenance and monitoring obligations continue until the agencies confirm that that project has sufficiently fulfilled permit specified requirements.

9.2 Funding Mechanism

CAW will be responsible for funding through the completion of this project. Project funds as well as contingency funds have been built into the overall project costs.

10.0 Completion of Mitigation

10.1 Notification of Completion

When the monitoring period is complete and if CAW believes final success criteria have been met, CAW shall notify the Corps when submitting the annual report that documents this completion. Where appropriate, a current delineation of the created wetland area will be submitted with the report (copies of all field data sheets will be available).

10.2 Corps Confirmation

Following receipt of the report, the Corps may require a site visit to confirm the completion of the project and any delineation.

11.0 Long-Term Management

11.1 Property Ownership

Once the project has been accepted as complete by permitting agencies, CAW is anticipating transfer of the project areas owned by CAW to BLM. Project areas currently owned by MPRPD will remain in the custody of the MPRPD.

11.2 Management Plan

11.2.1 Resource Manager

BLM will provide resource management for the site following project sign-off and land transference.

11.2.2 Management Approach

The long-term management plan for the site will be developed in coordination with the ultimate land owner, BLM. The site will be managed for resource conservation and compatible uses, such as some types of recreation, may be permitted. Long-term management goals include:

- Provide steelhead spawning, rearing, and/or migration habitat throughout the restored channel,
- Provide riparian and upland vegetation for cover and habitat for wildlife,
- Maintain seasonal ponds to support CRLF breeding habitat.

These long-term goals will be further developed in the long-term management plan.

11.3 Site Protection

BLM, the anticipated long-term site owner and manager, is a public land management agency with a mission 'to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations'. Transfer of land to this agency is considered long-term site protection assurance. Once the land is transferred, the owner will be responsible for long-term management. The funding mechanism for long-term maintenance and management will be negotiated as part of the land transfer agreement.

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EXHIBIT F

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