

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION**

In the matter of:)
)
)
City of San Diego) **Order No. R9-2017-0056**
)
Administrative Civil Liability) **Settlement Agreement and Stipulation**
Complaint No. R9-2016-0155) **for Entry of Administrative Civil Liability**
) **Order**
Place ID: CW-255222)

Section I: Introduction

This Settlement Agreement and Stipulation for Entry of Administrative Civil Liability Order ("Order") is entered into by and between the Assistant Executive Officer of the California Regional Water Quality Control Board, San Diego Region ("San Diego Water Board") on behalf of the San Diego Water Board Prosecution Staff ("Prosecution Staff"), and the City of San Diego ("City" or "Discharger") (collectively, the "Parties"). The Order is presented to the San Diego Water Board for adoption as an order by settlement pursuant to Government Code section 11415.60.

Section II: Recitals

1. On July 18, 2016 the Assistant Executive Officer of the San Diego Regional Water Board issued Administrative Civil Liability Complaint No. R9-2016-0155 ("Complaint") to the City, proposing \$4,614,868 in administrative civil liability. The Complaint is attached hereto as Attachment A and incorporated herein by reference. In the Complaint, the Assistant Executive Officer alleged that the Discharger violated multiple provisions of San Diego Water Board Order No. R9-2007-0001, NPDES No. CAS0108758, *Waste Discharge Requirements for Urban Runoff From the Municipal Separate Storm Sewer Systems (MS4s) Draining the Watershed of the County of San Diego, the Incorporated Cities of San Diego County, the San Diego Unified Port District, and the San Diego County Regional Airport Authority* (MS4 Permit).
2. The MS4 Permit requires the City to conduct the necessary oversight of construction projects within its jurisdiction to ensure compliance with the requirements therein. The City's alleged violations of the MS4 Permit pertain to this lack of oversight and were grouped into the following categories: 1) failure to require implementation of minimum best management practices (BMPs) designated by the City's storm water standards at construction sites; 2) failure to comply with discharge prohibitions requiring a reduction of pollutants from construction site discharges to the maximum extent practicable (MEP); and 3) failure to implement an escalating enforcement process to require implementation of designated minimum BMPs at construction sites.

3. These alleged violations of the MS4 Permit constitute violations of California Water Code section 13376 for which discretionary penalties may be assessed pursuant to California Water Code section 13385, subdivisions (a) and (c).

4. The Parties have engaged in settlement negotiations and agree to settle this matter without administrative or civil litigation and by presenting this Order to the San Diego Water Board for adoption as an order pursuant to Government Code section 11415.60. During the course of the Parties' negotiations, the City clarified the Prosecution Staff's estimated costs and respective non-compliance and compliance dates for each compliance action input into USEPA's BEN financial model revising the calculated economic benefit to \$2,927,877. Furthermore, the Parties agreed to reduce the "cleanup and cooperation" factor described in the State Water Resources Control Board's Water Quality Enforcement Policy (Enforcement Policy) from 1.2 to 1.0 in consideration of the corrective actions proposed and implemented by the City to address the alleged violations. A summary of these corrective actions is attached hereto as Attachment B and incorporated herein by reference. Based on this reduction to the cleanup and cooperation factor, the calculated Total Base Liability resulted in an amount less than the revised economic benefit plus ten percent which represents the minimum liability amount pursuant to the Enforcement Policy and California Water Code section 13385, subdivision (e). Therefore, to resolve by consent the alleged violations of the California Water Code set forth in the Complaint without further administrative or civil proceedings, the Parties have agreed to the imposition of \$3,220,664 in administrative civil liability, which equates to the revised economic benefit plus ten percent ($\$2,927,877 \times .1 = \$292,787 + \$2,927,877 = \$3,220,664$). Staff costs accrued during the course of this investigation and Complaint preparation are not included in the agreed upon liability. In the interest of settlement, the Prosecution Staff agreed to forego staff costs as part of the overall liability because it believes the settlement provides a sufficient general and specific deterrent against future violations.

5. The Prosecution Staff asserts that the resolution of the alleged violations is fair, reasonable, and fulfills its enforcement objectives, that no further action is warranted concerning the specific violations alleged in the Complaint except as provided in this Order, and that this Order is in the best interest of the public.

Section III: Stipulations

The Parties stipulate to the following:

6. **Administrative Civil Liability:** The Discharger hereby agrees to administrative civil liability totaling **THREE MILLION TWO HUNDRED TWENTY THOUSAND SIX HUNDRED SIXTY FOUR DOLLARS** (\$3,220,664.00). Within thirty (30) days of the effective date of this Order, Discharger agrees to remit, by check, \$1,610,332, payable to the *State Water Pollution Cleanup and Abatement Account*, and shall indicate on the check the number of this Order. The Discharger shall send the original signed check referencing this Order number to the Division of Administrative Services ATTN: Accounting, State Water Resources Control Board, 1001 I Street 18th Floor, Sacramento, California 95814 and shall send a copy to the Prosecution Staff at the address listed below. The remaining \$1,610,332 in administrative civil liability will be satisfied through the implementation of the following Supplemental Environmental Projects ("SEP"):

- a. Los Peñasquitos Lagoon Inlet Restoration Project: \$630,000
- b. San Diego River Restoration and Arundo Removal: \$225,000
- c. Restoring and Protection Our Waterways: Bioassessment Tools and Priorities for Action: \$682,932
- d. Chollas Creek Restoration Opportunities Assessment: \$72,400

The cost associated with each SEP will collectively be referred to as the "SEP Amount" of the total administrative civil liability.

7. **Compliance with Applicable Laws:** The Discharger understands that payment of administrative civil liability in accordance with the terms of this Order does not relieve the Discharger of its need to comply with applicable laws and that new violations of the type alleged in the Complaint may subject it to further enforcement, including additional administrative civil liability. The Discharger has reassessed the programmatic deficiencies identified in the Complaint and has implemented changes to its overall construction storm water management program to help prevent violations of this type from occurring in the future (See Attachment B).

8. **Party Contacts for Communications related to the Order:**

For the Prosecution Staff:

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California Regional Water Quality Control Board, San Diego Region
2375 Northside Drive, Suite 100
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For the Discharger:

Kris McFadden
Director, Transportation and Storm Water Department
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City of San Diego
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(619) 446-5423

9. **Supplemental Environmental Project:** The Parties agree that the payments specified in Paragraphs 6(a) – 6(d) are for SEPs and that each amount associated with each discrete SEP shall be treated as a suspended Administrative Civil Liability at the time of project completion for purposes of this Order. The San Diego Water Board is entitled to recover any SEP funds that are not expended in accordance with this Order. Detailed project descriptions, including milestones, budgets, and performance measures are attached hereto as Attachment C – SEP Proposal and incorporated herein by reference.

A. **SEPs approved by San Diego Water Board Resolution No. R9-2017-0014:** These SEPs have been approved, in concept, by San Diego Water Board Resolution No. R9-2017-0014 and consist of projects that specifically reflect the San Diego Water Board's established priorities, State Water Board policies (i.e. Enforcement Policy and SEP Policy), and comply with the criteria enumerated therein.

- i. Los Peñasquitos Lagoon Inlet Restoration Project:
 - a) **Water Quality Benefits of the SEP:** This project aims to excavate and remove the sediment deposited around the inlet at Los Peñasquitos Lagoon with the goal of returning the inlet status to 1985 baseline observed conditions. The lagoon is a State Preserve, thus the project addresses an area of special importance for the key beneficial use category of habitats and ecosystems. Returning the inlet to 1985 baseline conditions will help restore the historic salt marsh character of the Lagoon by reducing brackish water and freshwater inundation, will improve water quality parameters, particularly regarding dissolved oxygen and salinity, and will allow for restoration of native salt marsh habitat within the Lagoon.

- b) Public Benefits of the SEP: In addition to contributing to the restoration of the Lagoon to its historic salt marsh state and improving water quality, this project will help abate flooding in City neighborhoods within the Lagoon watershed by improving connectivity between the watershed, lagoon channels, and the Pacific Ocean. Restoration of the Lagoon will also assist with carbon sequestration and reduce the risk of vector-borne diseases associated with freshwater marshes.
- c) SEP Completion Date: Fiscal Year 2021
- d) Agreement for the Discharger to Fund, Report and Guarantee Implementation of SEP. The City represents that:
 - i) the SEP is unrelated in scope to the actions completed to remedy issues with Complaint No. R9-2016-0155 and not otherwise required by law;
 - ii) it will fund the SEP in the amount described in this Order
 - iii) it will provide certifications and written quarterly reports detailing SEP implementation, consistent with the terms of this Order; and
 - iv) it will guarantee payment by remaining liable for \$630,000 of suspended administrative liability until the SEP is completed and accepted by the San Diego Water Board.
- e) Distinctions from original SEP concept proposal (number 2016-0008): The original project scope was written to support one year of monitoring and inlet maintenance. The scope of the project has been scaled to 4 years of monitoring and maintenance.

ii. San Diego River Restoration and *Arundo* Removal:

- a) Water Quality Benefits of the SEP: The San Diego River suffers from numerous water quality problems, including trash dumping, pollution runoff, invasive non-native plant species, and the impacts of transient encampments. This project proposes to improve the water quality of the River by engaging in strategic clean-ups and removal of the invasive plant species *Arundo donax*. Removal of trash and *Arundo* will allow for habitat improvements, reduction in pollutants, and other impacts to River health.
- b) Public Benefits of the SEP: Removal of trash and *Arundo* will help to restore key beneficial use categories of recreation and habitats and ecosystems in the San Diego River. It will also improve flood control, remove potential locations for transient encampments, and result in beautification of one of the region's predominant waterbodies.
- c) SEP Completion Date: Fiscal Year 2020
- d) Agreement for the Discharger to Fund, Report and Guarantee Implementation of SEP. The City represents that:

- i. the SEP is unrelated in scope to the actions completed to remedy issues with Complaint No. R9-2016-0155 and not otherwise required by law;
 - ii. it will fund the SEP in the amount described in this Order
 - iii. it will provide certifications and written quarterly reports detailing SEP implementation, consistent with the terms of this Order; and
 - iv. it will guarantee payment by remaining liable for \$225,000 of suspended administrative liability until the SEP is completed and accepted by the San Diego Water Board.
- e) Distinctions from original SEP concept proposal (number 2016-0036): The scope of this project was originally focused on trash removal and water quality monitoring. The currently proposed project continues to focus on trash removal, but substitutes the monitoring component with *Arundo* removal and replanting with native plants, where feasible.

B. Other Proposed SEPs: The following proposed SEPs have not been previously reviewed or approved, in concept, by San Diego Water Board:

- i. Restoring and Protecting Our Waterways: Bioassessment Tools and Priorities for Action:
 - a) Water Quality Benefits of the SEP: This project would refine an existing screening causal assessment (SCA) by incorporating Flow Ecology research, would develop a restoration and protection prioritization (RPP) framework, and integrate the SCA and RPP into a tool for prioritizing restoration, protection, and source control efforts. This project will combine flow ecology models and the screening causal assessment to measure how the health of waterbodies changes with modifications in the watershed. This project will help further the recovery of streams, wetlands, and riparian systems by helping the City to determine which stream areas to restore and/or where to most efficiently target pollution or hydromodification reduction efforts in the watershed.
 - b) Public Benefits of the SEP: Prioritization of restoration areas and management efforts may help to improve water quality and biological conditions in disadvantaged communities, and will result in determining the most effective infrastructure improvements in these communities, that may include green infrastructure, storm water BMPs, and other watershed and improvements.
 - c) SEP Completion Date: Fiscal Year 2020
 - d) Agreement for the Discharger to Fund, Report and Guarantee Implementation of SEP. The City represents that:

- i. the SEP is unrelated in scope to the actions completed to remedy issues with Complaint No. R9-2016-0155 and not otherwise required by law;
 - ii. it will fund the SEP in the amount described in this Order
 - iii. it will provide certifications and written quarterly reports detailing SEP implementation, consistent with the terms of this Order; and
 - iv. it will guarantee payment by remaining liable for \$682,932 of suspended administrative liability until the SEP is completed and accepted by the San Diego Water Board.

- ii. Chollas Creek Restoration Opportunities Assessment:
 - a) Water Quality Benefits of the SEP: Chollas Creek is a California and U.S. EPA-identified impaired waterbody and is subject to Total Maximum Daily Load (TMDL) requirements for metals, diazinon, and bacteria. This project leverages existing efforts to identify and prioritize restoration sites in Chollas Creek. The proposed restoration sites selected by this project will maximize improvements to water quality by restoring natural habitat, and reducing turbidity and suspended solids and associated pollutants.
 - b) Public Benefits of the SEP: In addition to optimizing improvements to water quality, this project will identify projects that will enhance disadvantaged communities in the Chollas Creek Watershed by promoting neighborhood beautification, investing in green infrastructure, and reducing flood risk.
 - c) SEP Completion Date: Fiscal Year 2018
 - d) Agreement for the Discharger to Fund, Report and Guarantee Implementation of SEP. The City represents that:
 - v. the SEP is unrelated in scope to the actions completed to remedy issues with Complaint No. R9-2016-0155 and not otherwise required by law;
 - vi. it will fund the SEP in the amount described in this Order
 - vii. it will provide certifications and written quarterly reports detailing SEP implementation, consistent with the terms of this Order; and
 - viii. it will guarantee payment by remaining liable for \$72,400 of suspended administrative liability until the SEP is completed and accepted by the San Diego Water Board.

C. **Representation of the Discharger:** As a material consideration for the San Diego Water Board's acceptance of this Order, the Discharger represents that it will utilize the funds outlined in Paragraph 6(a) – 6(d) to implement the SEPs in accordance with the SEP Proposals as described in Attachment C. The Discharger understands that its promise to implement each discrete SEP project in accordance with the schedule for implementation is a material condition of this settlement of liability between the Parties.

D. **Request for Extension of SEP Completion Deadlines:** If the Discharger cannot meet any one of the SEP Completion Dates due to circumstances beyond Discharger's anticipation or control, the Discharger shall notify the Executive Officer in writing within thirty (30) days of the date the Discharger first knew of the event or circumstance that caused or could cause a violation of this Order. The notice shall describe the reason for the nonperformance and specifically refer to this Paragraph. The notice shall describe the anticipated length of time the delay may persist, the cause or causes of the delay, the measures taken or to be taken by the Discharger to prevent or minimize the delay, the schedule by which the measures will be implemented, and the anticipated date of compliance. The Discharger shall adopt all reasonable measures to avoid and minimize such delays.

The determination as to whether the circumstances were beyond the reasonable control of the Discharger and its agents will be made by the Executive Officer. Where the Executive Officer concurs that compliance was or is impossible, despite the timely good faith efforts of the Discharger, due to circumstances beyond the control of the Discharger that could not have been reasonably foreseen and prevented by the exercise of reasonable diligence by the Discharger, a new compliance deadline shall be established and this Order will be revised accordingly. The Executive Officer will endeavor to grant a reasonable extension of time if warranted.

E. **SEP Oversight:** The Discharger agrees to oversee implementation of all SEPs. Additional oversight of each SEP will be provided by the San Diego Water Board. Pursuant to Section H of the SEP Policy, the Discharger is solely responsible for paying all reasonable oversight costs incurred by the San Diego Water Board to oversee the SEPs. The oversight costs are in addition to the total administrative civil liability and are not credited toward the Discharger's obligation to fund the SEPs. Reasonable oversight tasks to be performed by the San Diego Water Board include, but are not limited to, updating CIWQS and SMARTS, reviewing and evaluating progress, conducting site inspections, reviewing the final completion report, verifying completion of each SEP with a site inspection, and auditing appropriate expenditure of funds.

F. **SEP Publicity:** If the Discharger publicizes the SEPs or results of the SEPs, it will state in a prominent manner that the project is being undertaken as part of a stipulated settlement of a San Diego Water Board enforcement action.

G. Submission of SEP Monitoring Reports: The Discharger agrees to submit quarterly reports to the San Diego Water Board. Quarterly monitoring reports will be due on the 15th of April, July, October, and February, starting with the first full quarter after the adoption date of this order, and will include information relating to the implementation progress of each SEP.

H. Audits and Certification of Completion of SEPs

i. Certification of Completion:

Within 30 days of completion of each discrete SEP, the Discharger shall submit a certified statement of completion of the SEP ("Certification of Completion"). The Discharger's authorized representative shall submit the Certification of Completion under penalty of perjury to the Designated San Diego Water Board Representative listed in Paragraph 8 above.

ii. The Certification of Completion shall include the following:

a) Certification of Expenditures:

Certification documenting all expenditures by the Discharger. The expenditures may include external payments to outside vendors or contractors implementing the SEP. If applicable, the expenditures may include the costs of internal Environmental Management resources and internal Business Unit resources, provided that such expenditures are directly related to development and implementation of the SEP. In making such certification, the official may rely upon normal company and project tracking systems that captures employee time expenditures and external payments to outside vendors such as environmental and information technology contractors or consultants. The Discharger shall provide any additional information requested by the San Diego Water Board staff which is reasonably necessary to verify SEP expenditures. The certification need not address any costs incurred by the San Diego Water Board for oversight.

b) Certification of Performance of Work:

Certification that the SEP has been completed in accordance with the terms of this Order. Such documentation may include photographs, invoices, receipts, certifications, and other material reasonably necessary for the San Diego Water Board to evaluate the completion of the SEP and the costs incurred by the Discharger.

c) Certification that Work Performed on each SEP Met or Exceeded Requirements of CEQA and other Environmental Laws [where applicable]:

Certification that the each SEP meets or exceeds the requirements of CEQA and/or other environmental laws. Unless the Discharger is exempted from compliance with CEQA, the Discharger shall, before the SEP implementation date, consult with other interested State Agencies regarding potential impacts of the SEP. Other interested State Agencies include, but are not limited to, the California Department of Fish and Wildlife. To ensure compliance with CEQA where necessary, the Discharger and/or the Implementing Party shall provide the San Diego Water Board with the following documents:

1. Categorical or statutory exemptions;
2. Negative Declaration if there are no "significant" impacts;
3. Mitigated Negative Declaration if there are potential "significant" impacts but revisions to the project have been made or may be made to avoid or mitigate those potential significant impacts;
4. Environmental Impact Report if there are "significant" impacts.

iii. Third Party Audit:

If the Designated San Diego Water Board Representative obtains information that causes the representative to reasonably believe that the Discharger has not expended money in the amounts claimed by the Discharger, or has not adequately completed any of the work in any of the agreed upon SEPs, the Designated San Diego Water Board Representative may require, and the Discharger shall submit, at its sole cost, a report prepared by an independent third party(ies)'s, stating that in its professional opinion, the Discharger has expended money in the amounts claimed by the Discharger. In the event of such an audit, the Discharger agrees that they will provide the third party auditor with access to all documents which the auditor requests. Such information shall be provided to the Designated San Diego Water Board Representative within three months of the completion of the Discharger's discrete SEP obligations. The audit need not address any costs incurred by the San Diego Water Board for oversight.

- I. **San Diego Water Board Acceptance of Completed SEPs:** Upon the Discharger's satisfaction of its obligations under this Order, the completion of each discrete SEP and any audit, the Designated San Diego Water Board Representative, with notice to the regional Enforcement Coordinator, shall request that the San Diego Water Board, or the Board's delegee, issue a "Satisfaction of Order." The issuance of the Satisfaction of Order shall terminate any further obligation of the Discharger and/or the Implementing Party under this Order.

J. **Failure to Expend All Suspended Administrative Civil Liability Funds on the Approved SEPs:** In the event that the Discharger is not able to demonstrate to the reasonable satisfaction of the Designated San Diego Water Board Representative that each discrete SEP Amount listed in Paragraph 6(a) – 6(d) has been spent for the corresponding complete SEPs, the Discharger shall pay, as an administrative civil liability the difference between the discrete SEP Amount at issue and the amount the Discharger can demonstrate was actually spent on that discrete SEP.

K. **Failure to Complete the SEPs:** If the SEPs are not fully implemented within the corresponding SEP Completion Period required by this Order and an extension has not been granted by the Executive Officer pursuant to Paragraph 9.D above, the Designated San Diego Water Board Representative shall issue a Notice of Violation. As a consequence, the Discharger shall be liable to pay the entire Suspended Liability or, some portion thereof. Alternatively, the Discharger may be compelled to complete the SEP. The Prosecution Staff may act as follows:

i. The Prosecution Team may elect payment of the Suspended Liability

The Discharger may not be entitled to any credit, offset, or reimbursement from the San Diego Water Board for expenditures made on the SEP(s) prior to the date of the "Notice of Violation" by the San Diego Water Board. The amount of the Suspended Liability owed shall be determined via a "Motion for Payment of Suspended Liability" before the San Diego Water Board. In the event that the Discharger is liable for payment of Suspended Liability, the San Diego Water Board will not include that portion of the SEP amount found by the San Diego Water Board to have been expended in a timely manner and in compliance with the description of the SEP(s) in Attachment C in the amount of the Suspended Liability owed. Upon a determination by the San Diego Water Board of the amount of the Suspended Liability assessed, the amount owed shall be paid to the State Water Pollution Cleanup and Abatement Account within thirty (30) days after the service of the San Diego Water Board's determination. In addition, the Discharger, in the event it is liable for Suspended Liability, shall be liable of the San Diego Water Board's reasonable costs of enforcement, including but not limited to legal costs and expert witness fees. Payment of the assessed amount will satisfy the Discharger's obligation to implement the SEP.

ii. The Prosecution Staff may elect to enforce the SEP(s)

The Prosecution Staff may file a Motion to Enforce the SEP(s) before the San Diego Water Board against the Discharger. Upon the identification by the San Diego Water Board of the remaining work of the SEP(s) to be performed, the Discharger agrees that the San Diego Water Board may order the Discharger to perform that work.

iii. Claims between the Discharger and its contractor

Any claims for reimbursement, costs (other than the payment by the Discharger of the SEP Amount pursuant to Paragraph 6(a) – 6(d) above), or disputed between the Discharger and its contractor are outside the scope of this Order and should be handled as between the Discharger and the contractor.

- L. **San Diego Water Board Not Liable:** Neither the San Diego Water Board members nor the San Diego Water Board staff, attorneys, or representatives shall be liable for any injury or damage to person or property resulting from acts or omissions by the Discharger (or the Implementing Party where applicable), its directors, officers, employees, agents, representatives or contractors in carrying out activities pursuant to this Order, nor shall the San Diego Water Board, its members or staff be held as parties to or guarantors of any contract entered into by the Discharger, its directors, officers, employees, agents, representatives or contractors in carrying out activities pursuant to this Order.

The Discharger and the Implementing Party covenant not to sue or pursue any administrative or civil claim or claims against any State Agency or the State of California, or their officers, employees, representatives, agents, or attorneys arising out of or relating to any matter expressly addressed by the Complaint, this Order or the SEPs. This provision does not preclude the Discharger and/or the Implementing Party from opposing a Notice of Violation or Motion brought under Paragraph 9.K.i.

10. **Attorney's Fees and Costs:** As between the Parties, Discharger shall bear its own attorneys' fees and costs arising from its own counsel in connection with the matters set forth herein. The San Diego Water Board shall not seek and shall bear its own fees and costs beyond the amounts paid pursuant to this Order.

11. **Matters Addressed by Order:** Upon the San Diego Water Board's adoption of this Order, this Order represents a final and binding resolution and settlement of all the violations alleged in the Complaint, and all other claims, violations, or causes of action that could have been asserted against the Discharger by the Prosecution Staff as of the effective date of this Order based on the specific facts alleged in this Order ("Covered Matters"). The provisions of this Paragraph are expressly conditioned on the payment of the administrative civil liability and the funding of the SEPs as provided above.

12. **Public Notice:** The Discharger understands that the San Diego Water Board will conduct a 30-day public review and comment period prior to consideration and adoption of the Order. If significant new information is received that reasonably affects the propriety of presenting this Order to the San Diego Water Board for adoption, the Assistant Executive Officer may unilaterally declare this Order void and decide not to present it to the San Diego Water Board. The Discharger agrees that it may not rescind or otherwise withdraw its approval of this proposed Order.

13. **Addressing Objections Raised During Public Comment Period:** The Parties agree that the procedure contemplated for the San Diego Water Board's adoption of the settlement by the Parties and review by the public, as reflected in this Order, will be adequate.

14. **No Waiver of Right to Enforce:** The failure of the Prosecution Staff or the San Diego Water Board to enforce any provision of this Order shall in no way be deemed a waiver of such provision, or in any way affect the validity of the Order. The failure of the Prosecution Staff or San Diego Water Board to enforce any such provision shall not preclude it from later enforcing the same or any other provision of this Order.

15. **Procedural Objections:** The Parties agree that the procedure contemplated for adopting the Order by the San Diego Water Board and review of this Order by the public is lawful and adequate. In the event procedural objections are raised prior to the Order becoming effective, the Parties agree to meet and confer concerning any such objections, and may agree to revise or adjust the procedure as necessary or advisable.

16. **Interpretation:** This Order shall be construed as if the Parties prepared it jointly. Any uncertainty or ambiguity shall not be interpreted against any one Party.

17. **Modification:** This Order shall not be modified by any of the Parties by oral representation made before or after its execution. With the exception of Paragraph 9.D. above, all modifications must be in writing, signed by all Parties, and approved by the San Diego Water Board.

18. **If Order Does Not Take Effect:** In the event that this Order does not take effect because it is not approved by the San Diego Water Board or is vacated in whole or in part by the State Water Board or a court, the Parties acknowledge that they expect to proceed to a contested evidentiary hearing before the San Diego Water Board, on a future date after reasonable notice and opportunity for preparation, to determine whether to assess administrative civil liabilities for the underlying alleged violations, unless the Parties agree otherwise. The Parties agree that all oral and written statements and agreements made during the course of settlement discussions will not be admissible as evidence in such a hearing. The Parties agree to waive any and all objections based on settlement communications in this matter, including, but not limited to:

- a. Objections related to prejudice or bias of any of the San Diego Water Board members or their advisors and any other objections that are premised in whole or in part on the fact that the San Diego Water Board members or their advisors were exposed to some of the material facts and the Parties' settlement positions as a consequence of reviewing the Order, and therefore may have formed impressions or conclusions prior to any contested evidentiary hearing on the Complaint in this matter; or,
- b. Laches or delay or other equitable defenses based on the time period for administrative or judicial review to the extent this period has been extended by these settlement proceedings.

19. **Waiver of Hearing:** The Discharger has been informed of the rights provided by California Water Code section 13323(b), and subject to this Paragraph 21 hereby waives its right to a hearing before the San Diego Water Board prior to the adoption of the Order. This waiver will not apply if the Order does not take effect.

20. **Waiver of Right to Petition:** The Discharger hereby waives its right to petition the San Diego Water Board's adoption of the Order as written for review by the State Water Board, and further waives its rights, if any, to appeal the same to a California Superior Court and/or any California appellate level court. This waiver will not apply if the Order does not take effect.

21. **Covenant Not to Sue:** Upon adoption of the Order, the Discharger covenants not to sue or pursue any administrative civil claim(s) against any State Agency or the State of California, its officers, Board Members, employees, representatives, agents, or attorneys arising out of or relating to any Covered Matter, and the San Diego Water Board covenants not to sue or pursue any administrative civil claim(s) against the Discharger for the Covered Matters.

22. **San Diego Water Board is Not Liable:** Neither the San Diego Water Board members nor the San Diego Water Board staff, attorneys, or representatives shall be liable for any injury or damage to persons or property resulting from acts or omissions by the Discharger, its directors, officers, employees, agents, representatives or contractors in carrying out activities pursuant to this Order.

23. **Authority to Bind:** Each person executing this Order in a representative capacity represents and warrants that he or she is authorized to execute this Order on behalf of and to bind the entity on whose behalf he or she executes the Order.

24. **No Third Party Beneficiaries:** Except as described in this Order, the Order is not intended to confer any rights or obligations on any third party or parties, and no third party or parties shall have any right of action under this Order for any cause whatsoever.

25. **Effective Date:** This Order shall be effective and binding on the Parties on the date that the San Diego Water Board enters the Order.

Order No. R9-2017-0056
City of San Diego
Settlement Agreement and Stipulation for Entry of Administrative Civil Liability Order

26. **Counterpart Signatures:** This Order may be executed and delivered in any number of counterparts, each of which when executed and delivered shall be deemed to be an original, but such counterparts shall together constitute one document.

27. **Severability:** The provisions of this Order are severable, and should any provision be found invalid, the remainder shall remain in full force and effect.

IT IS SO STIPULATED

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD PROSECUTION STAFF
SAN DIEGO REGION

By: 
James G. Smith, Assistant Executive Officer

Date: 11 July 2017

CITY OF SAN DIEGO

By: 
Steven LoMedico
Assistant Chief Operating Officer

Date: July 13, 2017

APPROVED AS TO FORM:

MARA W. ELLIOTT
City Attorney

By: 
Davin A. Widgerow
Deputy City Attorney

Date: 7-14-2017

ATTACHMENT A: ACL Complaint No. R9-2016-0155
ATTACHMENT B: Corrective Measures Related to Allegations in ACL Complaint R9-2016-0155
ATTACHMENT C: SEP Proposals

Section IV: Findings of the San Diego Water Board¹

28. The San Diego Water Board incorporates Paragraphs 1 through 27 by this reference as if set forth fully herein.

29. In accepting this settlement, the San Diego Water Board has considered, where applicable, each of the factors prescribed in California Water Code sections 13385. The San Diego Water Board's consideration of these factors is based upon information obtained by the San Diego Water Board's staff in investigating the allegations in the Complaint or otherwise provided to the San Diego Water Board.

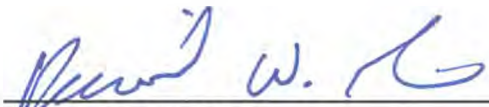
30. This is an action to enforce the laws and regulations administered by the San Diego Water Board. The San Diego Water Board finds that issuance of this Order is exempt from the provisions of the California Environmental Quality Act (Public Resources Code section 21000 et seq.), in accordance with section 15321(a)(2), Title 14, of the California Code of Regulations.

31. The San Diego Water Board's Executive Officer is hereby authorized to refer this matter directly to the Attorney General for enforcement if the Discharger fails to perform any of its obligations under this Order.

32. Fulfillment of the Discharger's obligations under the Order constitutes full and final satisfaction of any and all liability for each claim in the Complaint in accordance with the terms of the Order.

33. The attached Agreement between the Assistant Executive Officer and the Discharger is approved pursuant to Government Code section 11415.60 and is incorporated by reference into this Order.

I, David W. Gibson, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by delegated authority granted to me from the California Regional Water Quality Control Board, San Diego Region.



DAVID W. GIBSON
Executive Officer

Date: 10 August 2016

¹ These findings by the Board may be modified prior to adoption without requiring amendment of the settlement agreement between the Parties.

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION**

**In the matter of:
City of San Diego**

**COMPLAINT NO. R9-2016-0155
FOR
ADMINISTRATIVE CIVIL LIABILITY**

**Violations of Order No.
R9-2007-0001**

Place ID: CW-225222

July 18, 2016

THE CITY OF SAN DIEGO IS HEREBY GIVEN NOTICE THAT:

1. The City of San Diego (Discharger) has violated provisions of law for which the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) may impose civil liability pursuant to section 13385 of the California Water Code (CWC).
2. This Administrative Civil Liability Complaint is issued under authority of CWC section 13323.
3. Discharger owns and operates a municipal separate storm sewer system (MS4) in San Diego County, California. Discharger is required to prohibit discharges from its MS4 that contain pollutants which have not been reduced to the maximum extent practicable (MEP) in compliance with requirements of San Diego Water Board Order No. R9-2007-0001, NPDES No. CAS0108758, *Waste Discharge Requirements for Urban Runoff From the Municipal Separate Storm Sewer Systems (MS4s) Draining the Watersheds of the County of San Diego, the Incorporated Cities of San Diego County, the San Diego Unified Port District, and the San Diego County Regional Airport Authority.*
4. The primary storm water pollutant at construction sites is excess sediment. Excess sediment can cloud the water, which reduces the amount of sunlight reaching aquatic plants, clog fish gills, smother aquatic habitat and spawning areas, and impede navigation in waterways. Sediment also transports other pollutants such as nutrients, bacteria, metals, organic contaminants (i.e., pesticides and PCBs) and oils and greases.
5. Provision D.2. of San Diego Water Board Order No. R9-2007-0001 states, "Each Copermitee shall implement a construction program which meets the requirements of this section, reduces construction site discharges of pollutants from the MS4 to the MEP, and prevents construction site discharges from the MS4 from causing or contributing to a violation of water quality standards."

Complaint No. R9-2016-0155
City of San Diego
Violation of Order No. R9-2007-0001

2

July 18, 2016

6. Provision D.2.c.(3) of San Diego Water Board Order No. R9-2007-0001 states, "Each Copermittee shall implement, or require the implementation of, the designated minimum BMPs and any additional measures necessary to comply with this Order at each construction site within its jurisdiction year round."
7. Provision D.2.d.(6)(b) of San Diego Water Board Order No. R9-2007-0001 states, "Inspections conducted by each Copermittee shall include assessment of compliance with Permittee ordinances and permits related to urban runoff, including the implementation and maintenance of designated minimum BMPs."
8. Provision D.2.d.(6)(c) of San Diego Water Board Order No. R9-2007-0001 states, "Inspections conducted by each Copermittee shall include assessment of BMP effectiveness."
9. Provision A.2 of San Diego Water Board Order No. R9-2007-0001 states, "Discharges from MS4s containing pollutants which have not been reduced to the maximum extent practicable (MEP) are prohibited."
10. Provision D.2.d.(5) of San Diego Water Board Order No. R9-2007-0001 states, "Based upon inspection findings, each Copermittee shall implement all follow-up actions (i.e., re-inspection, enforcement) necessary to comply with the Order."
11. Provision D.2.e of San Diego Water Board Order No. R9-2007-0001 states, "Each Copermittee shall develop and implement an escalating enforcement process that achieves prompt corrective actions at construction sites for violations of the Copermittee's water quality protection permit requirements and ordinances. This enforcement process shall include authorizing the Copermittee's construction site inspectors to take immediate enforcement actions when appropriate and necessary. The enforcement process shall include appropriate sanctions such as stop work orders, non-monetary penalties, fines, bonding requirements and/or permit denials for non-compliance."

ALLEGED VIOLATIONS

12. Discharger violated Provision D.2. of San Diego Water Board Order No. R9-2007-0001 by failing to implement a construction program that reduces construction site discharges of pollutants from the MS4 to the MEP.
13. Discharger violated section D.2.c.(3) of San Diego Water Board Order No. R9-2007-0001 by failing to require BMP implementation during the dry season that addresses rain events that may occur during the dry season.

Complaint No. R9-2016-0155
City of San Diego
Violation of Order No. R9-2007-0001

3

July 18, 2016

14. Discharger violated section D.2.d.(6)(b) of San Diego Water Board Order No. R9-2007-0001 by failing to conduct inspections that assess compliance with ordinances and permits related to urban runoff, including the implementation and maintenance of designated BMPs at construction sites.
15. Discharger violated section D.2.d.(6)(c) of San Diego Water Board Order No. R9-2007-0001 by failing to conduct inspections that assess BMP effectiveness at construction sites.
16. Discharger violated section A.2 of San Diego Water Board Order No. R9-2007-0001 by failing to ensure that discharges from construction sites have been reduced to the MEP prior to discharging into the MS4.
17. Discharger violated section D.2.d.(5) of San Diego Water Board Order No. R9-2007-0001 by failing to implement all follow-up actions (i.e., re-inspection, enforcement) necessary to comply with San Diego Water Board Order No. R9-2007-0001.
18. Discharger violated section D.2.e of San Diego Water Board Order No. R9-2007-0001 by failing to escalate enforcement to achieve prompt corrective actions at construction sites for violations of local and State ordinances.
19. The details of these violations are set forth in full in the accompanying Technical Analysis, which is incorporated herein by this reference as if set forth in full.

MAXIMUM LIABILITY

20. Pursuant to CWC section 13385, subdivision (a), any person who violates Water Code section 13376 is subject to administrative civil liability pursuant to Water Code section 13385, subdivision (c), in an amount not to exceed the sum of both of the following: (1) ten thousand dollars (\$10,000) for each day in which the violation occurs and (2) where there is a discharge, any portion of which is not susceptible to cleanup or is not cleaned up, and the volume discharged but not cleaned up exceeds 1,000 gallons, an additional liability not to exceed ten dollars (\$10) multiplied by the number of gallons by which the volume discharged but not cleaned up exceeds 1,000 gallons.
21. The alleged violations, set forth in full in the accompanying Technical Analysis, constitute violations subject to Water Code section 13385. The maximum liability that the San Diego Water Board may assess pursuant to Water Code section 13385, subdivision (c) is **\$22,680,000**.

Complaint No. R9-2016-0155
City of San Diego
Violation of Order No. R9-2007-0001

4

July 18, 2016

MINIMUM LIABILITY

22. CWC section 13385, subdivision (e) requires that, at a minimum, liability shall be assessed at a level that recovers the economic benefit, if any, derived from the acts that constitute the violation(s). The State Water Resources Control Board Water Quality Enforcement Policy (Enforcement Policy) further instructs the Regional Water Boards to assess liability against a violator at least ten percent higher than the economic benefit realized from the violation so that liabilities are not construed as the cost of doing business and so that the assessed liability provides a meaningful deterrent to future violators.
23. As detailed in the incorporated Technical Analysis, and based on a calculated economic benefit amount of **\$4,195,335**, the minimum liability the San Diego Water Board should assess the Discharger is **\$4,614,868** (calculated economic benefit \$4,195,335 x 1.1).

PROPOSED LIABILITY

24. Pursuant to CWC section 13385, subdivision (e), in determining the amount of any civil liability, the San Diego Water Board shall consider the nature, circumstances, extent, and gravity of the violations, whether the discharges are susceptible to cleanup or abatement, the degree of toxicity of the discharges; and with respect to the Discharger, the ability to pay, the effect on the Dischargers' ability to continue in business, any prior history of violations, the degree of culpability, economic benefit or savings, if any, resulting from the violations, and other matters as justice may require.
25. The Enforcement Policy establishes a methodology for assessing administrative civil liability. The use of this methodology addresses the factors that are required to be considered when imposing a civil liability as outlined in Water Code section 13385, subdivision (e). The required factors have been considered for the violations alleged herein using the methodology in the Enforcement Policy, as explained in detail in the Technical Analysis and summarized in Attachment 1.
26. Based on consideration of the above facts, the applicable law, and after applying the penalty calculation methodology in section VI of the Enforcement Policy, the San Diego Water Board Prosecution Team recommends that the San Diego Water Board impose the minimum civil liability against the Discharger in the amount of **\$4,614,868** for the violations alleged herein and set forth in full in the accompanying Technical Analysis.

Complaint No. R9-2016-0155
City of San Diego
Violation of Order No.R9-2007-0001

5

July 18, 2016

Dated this 18th day of July, 2016.


JAMES G. SMITH

Assistant Executive Officer

Signed pursuant to the authority delegated
by the Executive Officer to the Assistant
Executive Officer

Attachment 1: Penalty Methodology Decisions

For internal use only	
PIN Number	CW-255222
WDID	9 000000510
Regulatory Measure ID	406987
Violation IDs	889367 964457 985712

Attachment 1
Discharger: City of San Diego

Penalty Methodology Decisions
ACL Complaint No. R9-2016-0155

Step 1: Potential Harm Factor				
Violations	Harm/Potential Harm to Beneficial Uses [0 - 5]	Physical, Chemical, Biological or Thermal Characteristics [0 - 4]	Susceptibility to Cleanup or Abatement [0 or 1]	Total Potential for Harm [0 - 10]
Violation 2 (Discharges)	4	2	1	7

Step 2: Assessments for Discharge Violations						
Violations	Per Gallon Factor					Statutory or Policy Max per Gallon [\$]
	Potential for Harm [0 - 10]	Deviation from Requirement [minor, moderate, major]	High Volume Discharges [yes / no]	Gallons Discharge	Total Per Gallon Factor	

No Per Gallon Discharge Violations

Violations	Per Day Factor				Statutory Max per Day [section 13385]
	Potential for Harm [0 - 10]	Deviation from Requirement [minor, moderate, major]	Total Per Day Factor	Days of Violation	
Violation 2 (Discharges)	7	Moderate	0.2	19	\$10,000

Step 3: Per Day Assesments for Non-Discharge Violations					
Violations	Per Day Factor				Statutory/ Adjusted Max [section 13385]
	Potential for Harm [minor, moderate, major]	Deviation from Requirement [minor, moderate, major]	Total Per Day Factor	Days of Violation	
Violation 1 (BMPs)	Major	Major	0.85	1663	\$10,000
Violation 3 (Enforcement)	Moderate	Major	0.55	586	\$10,000

Initial Liability From Steps 1 - 3	
Violation 1: (.85) x (1) x (10,000) = \$8,500	
Violation 2: (0.2) x (1) x (\$10,000) = \$2,000	
Violation 3: (0.55) x (1) x (\$10,000) = \$5,500	

Step 4: Adjustments					
Violations	Culpability [0.5 - 1.5]	Cleanup and Cooperation [0.75 - 1.5]	History of Violations	Multiple Violations (Same incident)	Adjusted Days of Violation
Violation 1	1.5	1.2	1.2	n/a	170
Violation 2	1.5	1.2	1.2	n/a	n/a
Violation 3	1.5	1.2	1.1	n/a	25

Step 5: Total Base Liability Amount	
(Per day Factor x statutory maximum) x (Step 4 Adjustments)	
Violation 1: (\$8,500) x (1.5) x (1.2) x (1.2) = \$18360	
Violation 2: (\$2,000) x (1.5) x (1.2) x (1.2) = \$4,320	
Violation 3: (\$5,500) x (1.5) x (1.2) x (1.1) = \$10,890	

Step 6: Ability to Pay / Continue in Business	
[Yes, No, Partly, Unknown]	
Yes	

Step 7: Other Factors as Justice May Require	
Costs of Investigation and Enforcement	\$40,011
Penalty Adjustment for Violation 2	\$107,920

Step 8: Economic Benefit	
\$4,195,335	

Step 9: Maximum and Minimum Liability Amounts		
	Minimum	Maximum
Violation 1		\$16,630,000
Violation 2	\$4,614,868	\$190,000
Violation 3		\$5,860,000

Step 10: Final Liability Amount	
(total base liability) + (other factors)	
\$4,614,868	

Attachment B

CORRECTIVE MEASURES RELATED TO ALLEGATIONS IN ACLC R9-2016-0155

The City of San Diego (City) is continuously improving its storm water procedures, including within the construction management program, and is working to identify and implement the corrective actions listed in the table below. All but one of the items listed in the complaint have been addressed, and the remaining item is due to be completed in December 2018.

The City's response to the San Diego Regional Water Quality Control Board's (San Diego Water Board) allegations were divided into four main categories (*shown in bold*), and summarized below.

To address **implementation**, the City increased the frequency and emphasis of storm water training and added a briefing to pre-construction meetings so that contractors understand the City's storm water requirements.

To address **enforcement**, the City refined operating procedures and added clear criteria as to what warrants each level of enforcement.

To address **communication**, the City is developing a unified storm water database to provide real-time information to staff in the field. The City has implemented interim communication measures that will remain in place until the unified database is operational.

To address **staffing**, the City hired and reallocated staff to serve in dedicated storm water positions to increase coverage, provide specialization, and strengthen the overall construction management program.

ALLEGED DEFICIENCY	CORRECTIVE ACTION
<p>Inadequate knowledge and implementation of the MS4 Permit's construction management requirements</p>	<p>Completed in May 2015</p> <ul style="list-style-type: none"> Staff attended a mandatory 6-hour storm water training led by a private subject matter expert. Experts will continue to be acquired for training on an as needed basis. <p>Completed in June 2015</p> <ul style="list-style-type: none"> Monthly storm water e-Newsletters that focus on recent issues, lessons learned, and BMP implementation are now being distributed to staff. These materials are also available for internal educational purposes. <p>Completed in July 2015</p> <ul style="list-style-type: none"> A watershed-based construction inventory was developed for use by staff to determine which sites represent a potentially high threat to water quality. <p>Completed in September 2015</p> <ul style="list-style-type: none"> Additional storm water training was developed and implemented to keep staff informed, up-to-date and educated on the subject. These internal training sessions target inspectors, resident engineers, and planners and will continue to be held as needed. Operating procedures were updated to improve enforcement protocols, reinforce staff's authority to require more effective BMPs, and improve overall inspection guidance. The procedures will continue to be evaluated, and updated as needed. As a result of this effort, the City has seen a 92% increase in the number of violations documented and enforced on since fiscal year 2016. <p>Completed in September 2016</p> <ul style="list-style-type: none"> Storm water training videos were, and will continue to be made available on the City's website for both City staff and the public. <p>Completed in December 2016</p> <ul style="list-style-type: none"> Storm water construction brochures were made available on the City's website, and are now being distributed at pre-construction meetings. Educational material will be evaluated and updated on a regular basis.

Attachment B

ALLEGED DEFICIENCY	CORRECTIVE ACTION
<p>Failure to implement an effective escalating enforcement process</p>	<p>Completed in March 2015</p> <ul style="list-style-type: none"> • Escalating enforcement procedures were improved and implemented to consistently take action against violators and discourage repeat offenders. This includes the use of a tiered enforcement structure with clear triggers at each level. • Since the start of fiscal year 2017, staff have issued over 312 Notices of Violation, 48 Inspection Holds, 12 Stop Work Orders, 204 Administrative Citations, and 2 Civil Penalties, which is a 293% increase in the City's overall enforcement actions compared to fiscal year 2014. This has been a successful strategy towards achieving prompt compliance, and this effort is evaluated on an ongoing basis. <p>Completed in August 2015</p> <ul style="list-style-type: none"> • Procedures were improved to prioritize and conduct continued unannounced storm water inspections on sites with a history of non-compliance. <p>Completed in August 2016</p> <ul style="list-style-type: none"> • Staff was trained on the improved escalating enforcement procedures, and will continue to be trained as needed. Contractors are continuously notified of the City's requirements and consequences for non-compliance with reminders provided at pre-construction and progress meetings. <p>Completed in October 2016</p> <ul style="list-style-type: none"> • Implemented a modification to the City's Municipal Code allowing for the escalating penalty procedure for contractors, to include debarment. The debarment procedure is applicable to all Capital Improvement Program (CIP) projects and non-compliance with storm water regulations can constitute grounds for debarment. Contractors who repeatedly violate storm water regulations may be precluded from bidding on future CIP construction contracts.

Attachment B

ALLEGED DEFICIENCY	CORRECTIVE ACTION
<p>Failure to communicate BMP deficiencies led to a lack of accountability among the departments</p>	<p>Completed in March 2014</p> <ul style="list-style-type: none"> • Site and staff assessment program was established to review inspection notices and develop reports for tracking. <p>Scheduled for completion in December 2018</p> <ul style="list-style-type: none"> • The City is developing a unified storm water data sharing system, which will connect multiple database resources to provide real-time information to staff in the field. Interim communication measures were put in place until this unified database is operational.

ALLEGED DEFICIENCY	CORRECTIVE ACTION
<p>Inadequate staffing/resources</p>	<p>Completed in May 2015</p> <ul style="list-style-type: none"> • Additional City staff were allocated to support inspectors, and ensure follow-up inspection frequencies are met. <p>Completed in September 2015</p> <ul style="list-style-type: none"> • Additional staff was hired specifically for storm water inspections, regulatory compliance, and enforcement. Staff was also hired to support the overall inspection workload and ensure more time is allotted to perform storm water inspections. • Subject matter experts are now available to City staff for storm water support.

Attachment C

Proposed Supplemental Environmental Projects (SEPs) and Costs for the City of San Diego

Costs by Fiscal Year

Project Name	Sponsor	FY18	FY19	FY20	FY21	Project Totals
Los Peñasquitos Inlet Dredging*	Los Peñasquitos Lagoon Foundation	\$210,000	\$210,000	\$210,000	If needed	\$630,000
San Diego River Restoration and Arundo Removal**	San Diego River Park Foundation	\$75,000	\$75,000	\$75,000	\$0	\$225,000
Restoring and Protecting Our Waterways: Bioassessment Tools and Priorities for Action**	City of San Diego	\$250,100	\$216,421	\$216,411	\$0	\$682,932
Chollas Creek Restoration Opportunities Assessment**	City of San Diego	\$72,400	\$0	\$0	\$0	\$72,400
TOTAL COSTS		\$607,500	\$501,421	\$501,411	\$0	\$1,610,332

*Amount spent per year may vary, with a total project cost not to exceed \$630,000 by FY 2021

**Amount spent per year may vary, with a total project cost not to exceed the amount shown in the project totals column

SEP Application Form – 2016
Los Peñasquitos Lagoon Inlet Restoration Project
Los Peñasquitos Lagoon Foundation
October 2016

SEP APPLICATION FORM

Los Peñasquitos Lagoon Inlet Restoration Project

PROBLEM STATEMENT

Los Peñasquitos Lagoon (LPL) is a relatively small coastal estuary (565 acres) with salt marsh located in the northern portion of San Diego County and is part of the Torrey Pines State Reserve. LPL receives perennial freshwater flows and storm runoff from a 60,000-acre watershed comprised of three sub-watersheds: Carmel Valley, Los Peñasquitos Canyon and Carroll Canyon. Listed as a Marsh Natural Preserve within the Torrey Pines State Natural Reserve, LPL is afforded the highest level of protection by the State of California. LPL provides critical habitat to Federally and State Listed Species that include the Ridgeway's Rail (*Rallus obsoletus*), Western Snowy Plover (*Charadrius alexandrinus nivosus*), Belding's savannah sparrow (*Passerculus sandwichensis beldingi*), Nuttall's Lotus (*Lotus nutallianus*) and Coulter's goldfields (*Laesthenia glabrata ssp coulteri*). LPL also serves as an important refuge for migratory bird species using the Pacific Flyway, while also providing habitat for other avian, terrestrial and marine species native to coastal salt marshes along the Southern California Bight. LPL contains Essential Fish Habitats and is the closest coastal lagoon to the only two Areas of Special Biological Significance (ASBS) located offshore of San Diego County. LPL also provides ecosystem services that include flood control for surrounding urban areas and provides water quality improvements for the coastal waters.

LPL is located along the southern reach of the Oceanside Littoral Cell, a nearshore process by which sand moves along the coastline primarily in a southern direction from Oceanside Harbor to the marine canyons located offshore of Scripps and Blacks Beach. While some beaches in the northern portion of North County San Diego experience northern movement of sand during summer months, Torrey Pines typically maintains a strong north-to-south movement throughout the year with pronounced increase rates during winter months due to the oblique angle of swells. Large, fast-moving waves generated by winter storms in the North Pacific scour beaches to the north of the LPL inlet and push sand downshore, moving sand and cobbles into the Lagoon's inlet area via storm surge, wave activity and high tides. While the initial deposit of sand can be removed by outflows from the lagoon, the cobbles remain. These cobbles form a sill that facilitates future sediment deposition in the lagoon inlet during subsequent winter swells and high tides. Evidence indicates that the LPL's inlet to the ocean had remained open year-round historically. However, land use change, including urban encroachment, during the last two centuries has reduced the

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Los Peñasquitos Lagoon Inlet Restoration Project
Los Peñasquitos Lagoon Foundation
October 2016

lagoon's ability to flush out sediment after storm events, constrained the lagoon inlet to a fixed location south of its historic location, and introduced perennial freshwater input from the watershed. Though tidal exchange has improved with the construction of the new lower bridge at North Torrey Pines Road (a.k.a. Historic Highway 101), reductions in the LPL's tidal prism and closures still occur as large volumes of marine sediment are still deposited within the inlet area and lagoon channels.

Decreased tidal prism and extended inlet closures at LPL can impact both aquatic and terrestrial habitats, impact native and migratory species, pose risks to nearshore coastal water quality, impair the Lagoon's Beneficial Uses, and threaten nearby urban infrastructure vulnerable to flooding. Water quality parameters (e.g. dissolved oxygen and salinity) degrade during extended inlet closures once they are no longer exposed to tidal mixing from ocean waters. Impacts to water quality can occur rapidly during periods of warm temperatures typical of summer months, resulting in fish kills and loss of invertebrate communities. Since 1995 all three of the Lagoon's three main tributaries became perennial, providing a new type of impact to Lagoon environs during extended closures as impounded water becomes hyposaline. As a result, LPL has experienced rapid habitat conversion as areas of historic salt marsh located in the eastern portion of the Lagoon have been displaced by brackish and freshwater habitats. In addition to loss of salt marsh habitats, year-round inputs of freshwater from the watershed have also raised serious public health risks due to vector-borne disease. LPL is also a known location of mosquito breeding habitat for *Culex tarsalis*, the species known to transmit West Nile Virus (WNV) in southern California. Documented cases of WNV have occurred in both wild and sentinel avian populations, as well as within human populations located near the Lagoon.

Since 1985, the Los Peñasquitos Lagoon Foundation (LPLF) has performed mechanized lagoon inlet openings at LPL. Through adaptive management and stakeholder coordination, LPLF has been successful in maintaining the inlet at LPL while producing multiple benefits to support and restore the Lagoon's Beneficial Uses in a cost effective manner. Typically, one large excavation of the inlet area is required to restore and maintain water quality parameters each year. However, beach nourishment efforts conducted under the Regional Beach Sand Project (RBSP) II in 2012 have greatly impaired LPLF's ability to maintain an open inlet during summer months when water quality parameters (e.g. dissolved oxygen) are most vulnerable due to warmer ambient temperatures. Part of RBSP II included the placement of over 300,000 cubic yards (cy) of sand along the beaches of Encinitas and Solana Beach in the Spring of 2012. During the years following

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Los Peñasquitos Lagoon Inlet Restoration Project
Los Peñasquitos Lagoon Foundation
October 2016

RBSP II, LPL experienced larger than typical volumes of sand entering the lagoon inlet area along with +4-6-foot increase in beach profiles along Torrey Pines State Beach adjacent to the inlet. Numerous lines of evidence indicate the excessive volume of sand within the inlet at LPL and along the beach came from receiver sites north of the Lagoon transported downshore by the predominate north-to-south longshore current during the winters of 2012/13, 2013/14 and 2015/16. While excavated material from the inlet typically averages around 24,000 cy during annual spring cleaning of the inlet to maintain tidal mixing throughout the summer and autumn months, post-RBSP II efforts required multiple efforts each year to remove 40,000 cy in 2013 and over 55,500 cy in 2014. During the winter of 2014/2015 the lack of frequent, large winter swells resulted in less deposition within the inlet area at the Lagoon and 25,575 cy was removed. However, this changed in 2015/2016 due to the El Niño Southern Oscillation Event (El Niño). It is believed that the numerous closures in spring of 2016 were caused in part to the consistency of large wave events generated during the winter months due to the El Niño. During the month of February, several large wave events eroded local beaches including Torrey Pines State Beach and mobilized sand within the nearshore sediment cell. Several of the eroded beaches north of the Lagoon were receiver sites for beach nourishment under the Regional Beach Sand Project II in 2012. It is estimated that more than 65,000 cy of excavated material (i.e. sand and cobbles) was hauled to Torrey Pines State Beach for disposal south of the inlet during five separate mechanized inlet openings between March 2016 and August 2016. This volume exceeds all previous years since 2007 when loads hauled to the beach were first recorded and is more than double the average. Unfortunately, the inlet closed again in early October 2016 due the large volume of sand that still remained within the inlet as both annual and emergency funding has been exhausted.

LPLF is submitting the proposed SEP to provide supplemental funding needed to excavate and remove the additional sand that currently clogs the inlet at Los Peñasquitos Lagoon to return inlet status to baseline conditions observed since 1985. LPLF, City of San Diego and CA State Parks are deeply concerned about the inability to maintain tidal mixing within the Lagoon even though an endowment has been established to perform inlet work at LPL. Annual funds provided by the endowment was calculated and negotiated prior to RBSP II and adequately covers “typical” years. However, following RBSP II and the recent El Niño there is simply too much sand and not enough funding to keep the inlet open at Los Peñasquitos Lagoon. Mitigation was not required for RBSP II for coastal estuaries located downshore of beaches that received sand, so the financial burden has fallen upon LPLF and CA State Parks to maintain an open inlet at LPL. Both LPLF and CA State Parks simply do not have the additional resources or funds to remove this excess sand, putting the Lagoon’s Beneficial Uses at risk for further degradation and potentially exposing adjacent

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Los Peñasquitos Lagoon Inlet Restoration Project
Los Peñasquitos Lagoon Foundation
October 2016

communities and businesses to vector-borne brain encephalitis. LPLF believes the proposed SEP has a nexus to discharges within the Lagoon's watershed that result in pollutant loading to LPL, since pollutants will be trapped within Lagoon channels and adjacent habitats without adequate tidal flushing through the inlet. Maintaining an open inlet will help to abate impacts to LPL due to dilution and mixing with ocean waters.

WORK PLAN (TASKS, DELIVERABLES)

The project involves the restoration of tidal circulation and flushing within Lagoon channels by removing excess sand deposited within the inlet area and along the beach as a result of RBSP II and later exacerbated by the 2015/2016 El Niño. Tidal circulation and flushing will be restored through mechanical excavation of marine sediments from the inlet area to reconnect the Lagoon's main channels to its ocean inlet. Excavated sand and cobbles will be hauled to Torrey Pines State Beach for disposal to reduce project cost and provide for beneficial reuse of materials that include creating habitat for grunion spawns and improving beach access and use (REC-1 and REC-2) by restoring sandy beach habitat along an eroded shoreline that is typically dominated by cobbles. The project will also include a trash/debris clean up within Los Peñasquitos Lagoon (LPL) and along its boundaries. The focus of this effort will be to remove trash and debris from the inlet area and around the Lagoon to reduce impacts to native flora and fauna.

The following work plan is provided by task and deliverable:

Task 1. Permit Compliance & Reporting (Inlet Work). This task includes all compliance measures dictated by the project's permit that include: Protoled surveys for listed bird species within and adjacent to the project area; Onsite monitoring for listed species and protection of sensitive habitats; Site management to coordinate efforts with the contractor to pursue and achieve daily goals and objective to meet project milestones; Notification to resource agency contacts regarding compliance with permit conditions to justify inlet work (e.g. dissolved oxygen below 5 mg/l); Photo-monitoring and reporting; and Notification to resource agencies regarding completion of work.

Deliverables: Pre- and Post-Monitoring Forms, Grain Size Analysis Results, Summary Report.

Task 2. Mechanical Excavation of the Inlet at Los Peñasquitos Lagoon. This task includes the mechanical excavation of the inlet area to restore and maintain tidal circulation at Los Peñasquitos

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Los Peñasquitos Lagoon Inlet Restoration Project
Los Peñasquitos Lagoon Foundation
October 2016

Lagoon using heavy equipment that includes: excavators, front-loader, and dozer. Excavated material is then loaded onto 3 articulated rock trucks and hauled out to Torrey Pines State Beach for disposal.

Deliverables: Volume of material removed from the inlet and Technical Memo that summarizes efforts.

Task 3. Trash & Debris Clean Up. This task involves at least 2 separate trash and debris cleanup efforts within LPL and along its boundaries. Efforts will be coordinated with local NGOs that include San Diego Coastkeeper and the Surfrider Foundation to help supplement regional efforts to track trash and debris cleanup efforts. Trash and associated debris collected will be recorded using standardized methods to allow for comparison to other efforts around the Lagoon and within the region. Other efforts under this task include coordinating with staff from California State Parks (CSP) for required permits related to access needs and disposal of trash/debris.

Deliverables: Trash/Debris Tracking Sheets and Technical Memo that summarizes efforts.

Task 4. Project Management & Contract Administration. Includes coordinating efforts between project team members and contractors, the LPLF Board of Directors and CSP staff. Contractor procurement and managing of associated contracts is also included under this task, as well as invoicing and reimbursement. This task also includes communication, coordination and contracting efforts with staff from the San Diego Water Board.

Deliverables: Copies of contracts and agreements, invoicing.

TIMELINE (MILESTONES & END DATES)

The project is shovel-ready with inlet work (Task 2) being performed during the spring months once a contract has been executed and sub-contractor selected. Trash and debris clean up will occur prior to the inlet work if possible.

Task 1. Permit Compliance & Reporting (Inlet Work).

Milestones: Authorization to perform work, Completion of Work Notification, Summary Report.

End Dates: 14 months following project start

SEP Application Form – 2016
Los Peñasquitos Lagoon Inlet Restoration Project
Los Peñasquitos Lagoon Foundation
October 2016

Task 2. Mechanical Excavation of the Inlet at Los Peñasquitos Lagoon.

Milestones: Completion of Work, Volume of material removed from the inlet at LPL.

End Dates: 12 months following project start

Task 3. Trash & Debris Cleanup.

Milestones: Completion of each cleanup effort.

End Dates: 12 months following project start

Task 4. Project Management & Contract Administration.

Milestones: Executed Contract with San Diego Water Board, Executed Contract with sub-contractors, Monthly Invoices Report.

End Dates: 14 months following project start

BUDGET (TASKS)

Task 1. Permit Compliance & Reporting (Inlet Work).

Budget: \$35,000

Task 2. Mechanical Excavation of the Inlet at Los Peñasquitos Lagoon.

Budget: \$150,000

Task 3. Trash & Debris Cleanup.

Budget: \$5,000

Task 4. Project Management & Contract Administration.

Budget: \$20,000

PERMITTING REQUIREMENTS

The project is certified under CEQA as Categorically Exempt and has all of its required permits that include:

- Right of Entry Permit – CSP
- Coastal Development Permit – California Coastal Commission
- Section 401 Wetland Certification – San Diego Water Board
- Section 1602 Agreement and CESA Waivers – California Department of Fish & Wildlife
- Informal Consultation under Section 7 of the Endangered Species Act – United States Fish & Wildlife Service

SEP Application Form – 2016
Los Peñasquitos Lagoon Inlet Restoration Project
Los Peñasquitos Lagoon Foundation
October 2016

- Section 404 Individual Permit – Army Corps of Engineers.

WATERSHED AFFECTED

Los Peñasquitos Watershed that includes Carmel Valley, Los Peñasquitos Canyon, and Carroll Canyon, as well as the minor drainages that feed into them.

DESCRIBE IF PROJECT CAN BE A BASIS FOR ADDITIONAL FUNDING FROM OTHER SOURCES

Yes, the project can be a basis for additional funding and/or in-kind services from other sources that include CSP, County of San Diego and the City of San Diego. Each of these entities are able to offer partial support but do not have the funding to cover all project costs. In addition, over \$2 million has been spent to date to update the Lagoon Enhancement Plan, expand the annual monitoring program within the Lagoon, and move large-scale restoration of historical salt marsh within LPL beyond conceptual design and toward implementation through a Design & Feasibility Study.

MONITORING, SUCCESS CRITERIA, AND OTHER TOOLS FOR TRACKING LONG-TERM SUCCESS

Tracking long-term success will be facilitated using the long-term annual monitoring program at Los Peñasquitos Lagoon currently conducted by Jeff Crooks and other wetland scientists from the Tijuana River National Estuarine Research Reserve combined with inlet surveys to measure channel depth, width and elevations of the inlet area. Data generated by these efforts will be compared to baseline conditions at the inlet during typical years to assess the success of removing the additional sand and cobbles deposited within the inlet area as a result of beach nourishment efforts under RBSP II and the El Niño of 2015/2016. Success criteria will include total volume of sand and cobbles removed, days the inlet remains open and inlet morphology with regard to seasonal variations, and a comparative analysis of channel dimensions and elevations for years preceding and following RBSP II.

DESCRIBE HOW PROJECT IS RESILIENT TO CLIMATE CHANGE

The project is resilient to climate change by improving connectivity between the watershed, lagoon channels and ocean to abate flood events generated by storm surge and precipitation during winter and spring storms that will most likely intensify in the years to come. The project

SEP Application Form – 2016
Los Peñasquitos Lagoon Inlet Restoration Project
Los Peñasquitos Lagoon Foundation
October 2016

will also facilitate the preservation of the Lagoon's salt marsh habitat, which provides one of the best forms of natural carbon sequestration while minimizing releases of methane gas that typically occurs in brackish and freshwater marsh regimes.

APPLICANT'S ABILITY/AUTHORITY TO RECEIVE AND DISTRIBUTE FUNDS

LPLF has been the lead entity that manages inlet work at LPL since the certification of the Los Peñasquitos Lagoon Enhancement Plan in 1985. While annual efforts are coordinated with CA State Parks and other key stakeholders, LPLF handles all project aspects that include: receipt and management of funds, sub-contractor procurement, and distribution of funds that includes reimbursement of sub-contractors. In consultation with CA State Parks staff and sister NGOs that operate in the Torrey Pines State Natural Reserve (i.e. Torrey Pines Association, Torrey Pines Docents), LPLF often takes on community outreach and education efforts specific to the Lagoon that include trash and debris clean up within the inlet area, adjacent beach areas and along the borders of LPL.

LPLF has worked with several state agencies that include the State Water Board to receive, manage, and distribute funds for restoration efforts in LPL and its adjacent upland areas. LPLF has also worked directly with the City of San Diego and the County for similar efforts that include restoring the inlet at LP.

IS THE PROJECT TO CONDUCT WORK REQUIRED BY ANY ENTITY/AGENCY? (E.G. CLEAN UP OR MITIGATION)

The project is not required by any entity or agency as a result of a clean up and abatement order, or required mitigation as RBSP II was not subjected to mitigation requirements by resource agencies with regard to impacts to coastal estuaries located downshore of the receiver sites.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

PROJECT APPLICATION FORM

Name of Project: San Diego River Restoration

Project Applicant: The San Diego River Park Foundation

Applicant Contact Person: Sarah Hutmacher, Associate Director

Applicant Phone Number: (619) 297-7380, ext. 102

Applicant Email Address: sarah@sandiegoriver.org

Problem Statement:

The San Diego River is located in an urban watershed, and its health suffers from impacts of urban development in the watershed and channelization. Each year, over 200,000 pounds of trash are dumped, dropped, or washed into the San Diego River. Along with this are untold amounts of other less visible pollution and polluted runoff. The health of the ecosystem is also impacted by growth of invasive non-native plants that compete for resources with native plant species and provide shelter for illegal encampments.

The San Diego River Park Foundation proposes to activate our volunteer stewards to address these issues through strategic clean-ups and removal of targeted invasive, nonnative plants along the San Diego River within the City of San Diego.

Work Plan containing tasks and deliverables compartmentalized into partial funding opportunities, if applicable.

This proposal includes restoration activities, which have been broken into a trash removal category and invasive removal category.

Trash Removal:

This effort is scalable based on the size and need in the project area. Based on recent survey information and trends over the last 8 years, trash removal is an ongoing need at sites along more than 13 miles of the San Diego River. The San Diego River Park Foundation coordinates with landowners to coordinate clean-up efforts at locations from Santee to Mission Valley to the Pacific Ocean. By engaging the community in field surveys to document size and locations

of trash issues, clean-up and follow up monitoring, we plan events that are efficient, effective, and foster long-term investment in health of the watershed.

For each segment targeted, clean-up efforts will consist of:

- Coordination with appropriate landowner, plus pre-clean-up field surveys by volunteers to document with GPS and photographs the precise locations and quantities of trash.
- Volunteer clean-up event (or events) planned based on data to target 100% removal of the identified sites. These events engage 10-150 volunteers and typically remove 1,000-10,000 pounds of trash.

The San Diego River Park Foundation conducts twice annual comprehensive surveys to document the state of the River as well as weekly data updates, and thus have data year-round about the current needs for clean-up. Dependent on funding availability, clean-up projects can be proposed with expenses from \$1,000 to over \$100,000 per year dependent on quantity, type and location of trash and debris.

Because of the urban nature of the San Diego River and the homelessness issues in our region, this clean-up effort continues to be needed on an ongoing basis. These proposed activities can be completed over two years or as a longer project to increase success.

Invasive Removal:

In some sections of the riverbed, dense stands of invasive nonnative species dominate the habitat. *Arundo donax*, or Giant reed, causes significant problems in the riverbed, including reducing habitat quality for sensitive species, contributing to flooding issues by impeding the flow of water, and creating shelter for illegal homeless encampments. Homeless encampments contribute to nearly 90% of the trash in the riverbed, so removal of arundo impacts not only habitat quality but potentially contributes to reducing a trash source as well.

Arundo has been targeted as a focus of this proposal because of the high threat of rhizomes spreading and establishing new stands in areas downstream. For each segment of the river targeted, there may be incidental removal of other non-native species within the target area, but restoration will focus on Arundo stands.

We propose to engage volunteers and/or sub-contractors under the supervision of an expert and qualified applicator (QAL), to remove emerging stands of Arundo that are 250 square feet or smaller. This type of removal effort is most appropriate for smaller stands of arundo and is more effective. Large stand removal requires heavy, mechanized equipment that causes soil

disturbance, erosion, and often an increased risk of the arundo spreading. Removal efforts will include the following activities, coordinated over the course of a two year period:

- Coordination with landowner
- Secure appropriate permits for removal
- Biomass removal and appropriate disposal
- Herbicide application
- Follow-up surveys by volunteers to evaluate regrowth
- Retreatment as needed up to twice per year for two years
- Evaluate feasibility of re-establishing native plants (including irrigation options), and if deemed feasible by the City of San Diego, to support re-planting with any needed supplemental irrigation, complete replanting.
- If the arundo sites are located on City property, the City will consider the feasibility of using these locations for future restoration opportunities.

We estimate removal of each stand of Arundo (up to 250 square feet) will cost approximately \$9,000-11,000 depending on whether replanting is feasible. By tackling smaller emerging stands near the waterway, we believe we can reduce spread while these areas are still manageable. We have documented many Arundo sites in the riverbed through our comprehensive surveys, and would work with funding partners to identify highest priority locations. Our data is available here: <http://www.immappler.com/sdriverblitz/>

Timeline (from funding approval) with milestones and end dates.

The timeline will be dependent on the number of clean-up sites targeted and the number of invasive removal sites included. If multiple sites are funded, these timelines can begin concurrently.

For trash removal work, from the date of funding approval, the timeline would include:

- Comprehensive surveys take place in October and April to collect trash data along the lower San Diego River.
- Within 6 weeks of funding approval, conduct field surveys to refine data for trash locations and quantities.
- Within 2 months of funding approval, complete work plan with adaptive strategy for trash removal.
- After work plan is completed, trash removal will be scheduled over the following 1-6 months dependent on the number of sites targeted for removal.

- Follow-up surveys to confirm removal scheduled in the month following completion of volunteer trash removal events, with adaptive strategy to respond to any incomplete removal or new issues by the end of month 10.
- Quarterly and final reporting will be completed for the City of San Diego as a part of this SEP, which includes amounts and locations of trash and Arundo removed. The City intends to use the data collected during the clean-up and Arundo removal to help inform management decisions.
- State of the River Report issued in November.

For the invasive removal task, from the date of funding approval, the timeline would include:

- Comprehensive surveys take place in October and April to collect invasive plant data along the lower San Diego River.
- Within 6 weeks of funding approval, complete field surveys of target areas to refine specific removal strategy.
- Within 6 months of funding approval, complete initial removal of targeted sites.
- Surveys to evaluate regrowth and develop adaptive management for retreatment will be completed quarterly following initial removal.
- As needed, retreatment will follow up to twice per year.
- Within 12 months, the City of San Diego will consider the feasibility to complete appropriate re-establishment of native plant species on the arundo removal sites.
- Monitoring will continue for two years following final retreatment to evaluate long-term regrowth and need for additional treatment. At sites where re-planting is completed, monitoring teams will also complete plant survival survey.

With a multi-year project, we anticipate prioritizing the invasive removal portion of the project in year one to complete initial treatments and removal. In the following years, funding for invasive removal will focus on retreatment and project priority can shift to trash removal.

Budget broken down into tasks.

For trash removal, the average trash site requires the following budget:

<u>Trash Removal Staff:</u> Volunteer Coordination (20 hours/event) Field Clean-Up Coordinator (20 hours/event) Field Assessment Coordinator (10 hours/event) Admin/Web (4 hours)	\$1,500+
<u>Restoration Materials:</u> Clean-up supplies: trash bags, grab sticks, leather gloves, hand tools Volunteer support: hand sanitizer, sunscreen, snacks, water, t-shirts, first aid kits Survey materials (cameras, GPS units, tablets, clipboards, backpack field kits), cost/survey Event supplies: table, tent, banner, barricades, parking signage (per use), cost/event Printing: waivers, data sheets, State of the River Report	\$500+ \$150 \$35 \$50 \$15
<u>Expenses:</u> Hauling and disposal Mileage Web	\$500-1000 \$150 \$100
TOTAL:	\$3,000-\$5,000 depending on trash site selected and # of clean-ups needed at that site

For invasive removal, each 250 square foot stand of Arundo will require the following budget:

<u>Invasive Removal Staff:</u> Volunteer Coordination (10 hours/site) Field Coordinator (30 hours/site) Contract admin, permitting, and landowner coordination (10 hours/site)	\$980
<u>Invasive Removal:</u> Removal crew, mileage, disposal, herbicide Retreatment (twice per year for 2 years) Surveys and monitoring	\$2,676 \$1,080/treatment \$1,024
<u>Replanting:</u> If re-planting is considered feasible by the City of San Diego, budget will also include additional staff time to coordinate planting event and follow-up supplemental irrigation as needed, as well as purchase of appropriate native plants, planting supplies/tools, and delivery.	\$0 (if not feasible) to \$2,000
TOTAL:	\$9,000 - \$11,000

Discuss all permitting requirements, including CEQA, and their status. If exempt, cite applicable statute.

All invasive removal will be completed under the San Diego River Conservancy's invasive removal permit. Permit coordination and agreement will be coordinated by River Park Foundation staff.

Permits are not required for the trash removal and survey components of this project, as the work only requires monitoring and minor non-disturbance alterations to land. If CEQA was required due to the funding source, we would pursue a categorical exemption based on these statutes:

- **15306. Information Collection**

Class 6 consists of basic data collection, research, experimental management, and resource evaluation activities which do not result in a serious or major disturbance to an environmental resource. These may be strictly for information gathering purposes, or as part of a study leading to an action which a public agency has not yet approved, adopted, or funded.

- **15330. Minor Actions to Prevent, Minimize, Stabilize, Mitigate or Eliminate the Release or Threat of Release of Hazardous Waste or Hazardous Substances.**

Class 30 consists of any minor cleanup actions taken to prevent, minimize, stabilize, mitigate, or eliminate the release or threat of release of a hazardous waste or substance which are small or medium removal actions costing \$1 million or less.

- **15304. Minor Alterations to Land**

Note: Authority cited: Section 21083, Public Resources Code; Reference: Section 21084, Public Resources Code.

Watershed(s) affected.

The proposed project is entirely in the San Diego River Watershed.

Describe if this project can be a basis for additional funding from other sources.

Yes, this project could be used as a match to leverage investment and other grants for monitoring, invasive removal, and trash removal along the whole San Diego River. Our trash removal program is strategically designed to be adaptable, and the survey data we collect allows us to be both efficient and precise as we allocate the right resources to each trash site. With additional funding, we can scale up the effort to engage more volunteers, pay for more

hauling, coordinate with more partners, address additional stands of Arundo and continue to advance the trash-free River vision. In some cases, additional funding could result in some cost savings from economy of scale.

Monitoring, success criteria, and other tools to track long-term success.

As part of this proposed project, we will monitor the following metrics to track our success:

- Number of miles of riverbed surveyed
- Number of trash sites identified and removed
- Number of pounds of trash, e-waste and recycling removed
- Number of Arundo stands removed, and number of square feet removed, including retreatment report and photo documentation
- All data will be compiled to be included in an annual State of the River Report
- Number of community volunteers engaged, and number of hours of service

These metrics will be reported through quarterly reports.

Description of how the project is resilient to climate change.

Development of the floodplain has resulted in habitat loss for sensitive species, loss of permeable surfaces for safe and consistent groundwater infiltration, and decreased flow of clean, cool water for aquatic species. For the land that remains undeveloped, habitat degradation like trash accumulation, dumping, invasive plants and pollution threatens the sensitive species that rely on the increasingly rare habitats along the San Diego River. At the same time, freshwater ecosystems and estuary ecosystems are particularly sensitive to effects of climate change, including increase of surface water temperatures and changes in precipitation amounts and intensities.

This project increases the climate resilience of these ecosystems by protecting the environmental quality and function of the ecosystems that remain. In addition, by engaging the public in this solution, we hope to activate an engaged and responsible citizenry with the knowledge to protect habitat and water resources for the region.

Applicant's ability/authority to receive and distribute funds.

The San Diego River Park Foundation is a 501(c)3 nonprofit organization, and has extensive experience in successfully executing contracts and performing on grants. In addition to many grants from private and corporate foundations, we have recently completed or are in contract on over \$1 million for restoration, community engagement, and conservation projects through SANDAG's TransNet EMP program, The U.S. Department of Fish and Wildlife, the State of California, the County Water Authority, and more.

Our stewardship programs have been recognized regionally and nationally for innovative and effective strategies to advance the goal of a trash-free river, including the Take Pride in America Distinguished Service Citation, received at the White House. Our volunteers removed the 2 millionth pound of trash from the San Diego River in October 2016, thanks to the over 20,000 hours of service we coordinate annually.

Is the project to conduct work that is required by any entity/agency? (e.g. cleanup or mitigation)

The proposed project is not part of a mitigation project or other required action. The arundo removal under this project will not be used for mitigation credits. However, sites where the arundo has been removed may be considered in the future for other restoration opportunities including stream restoration.

Project Application Form

Restoring and Protecting Our Waterways: Bioassessment Tools and Priorities for Action

Name of Project: Restoring and Protecting Our Waterways: Bioassessment Tools and Priorities for Action

Project Applicant: City of San Diego

Applicant Contact Person: Vicki Kalkirtz, Senior Planner

Applicant Phone Number: 858-541-4326

Applicant Email Address: vkalkirtz@sandiego.gov

Problem Statement

The San Diego Regional Water Quality Control Board (San Diego Water Board) is in the process of developing biological objectives for streams and rivers in the San Diego region. Development of biological objectives was identified as a Tier 1 priority in the San Diego Water Board's most recent Basin Plan Triennial Review (Resolution No. 2015-0043), given that existing water quality objectives focus on water chemistry measures, which is an indirect method for protecting biological integrity. Biological objectives will provide the San Diego Water Board and other stakeholders the ability to directly assess the condition of waterbodies rather than only relying on proxy water quality measures. The California State Water Resources Control Board (State Water Board) is also proposing to update the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays and Estuaries of California (ISWEBE Plan) to include narrative or numeric objectives for biostimulatory substances (e.g., nutrients) and an implementation program focused on improving biological integrity. Draft plan language includes guidance on the use of bioassessment tools (California Stream Condition Index - CSCI) and causal assessment, application within water quality control programs, and the regulatory roles of various agencies. Together, these efforts will provide the foundation for an improved assessment program that focuses on ecosystem health and protection of aquatic life beneficial uses.

As part of the process for developing biological objectives, the San Diego Water Board understands the need for causal assessment tools that stakeholders can use to rapidly screen and identify the causes of biological impairment in a given waterbody, and thereby assist with prioritizing restoration and protection actions. The City of San Diego (City), with technical assistance from Tetra Tech, Inc., has been developing a causal assessment screening approach that can be used to identify the likely stressors that affect biological condition in waterbodies throughout the City and the Southern California Coast ecoregion (Ecoregion 85). Current progress toward developing the preliminary design and key components was recently presented to the San Diego Water Board, the Southern California Coastal Water Research Program (SCCWRP), and others. Demonstration of the tool was well received and input included universal agreement on the need for further development to help streamline causal assessment studies and efficiently target management actions. Enhancements discussed include refinement of the approach for identification of comparator sites, incorporation of better diagnostic capabilities, use of more data from a site (as available), and synthesis of the major potential causes of impairment.

The City's current screening causal assessment (SCA) approach is based on USEPA's Causal Analysis/Diagnosis Decision Information System (CADDIS) and lessons learned from recent causal assessment efforts in California and throughout the country. The City's SCA approach currently focuses on the major lines of evidence that can be routinely conducted using available site data. In addition, the SCA approach relies on an improved comparator site approach than that conceived in USEPA's CADDIS. Comparator sites are used to assess conditions at target (impaired) sites and to help identify the potential causes of impairment. Traditionally, the causal assessment process considered relatively simplistic environmental scenarios, in which there is a single stressor (e.g., an industrial facility discharge) and sites

upstream of the stressor source that are otherwise relatively unaffected by anthropogenic activities (e.g., reference sites). However, within the City and other urbanized areas, it is common to have multiple sources of potential stressors that affect biological conditions given the extent of human activity and alterations to the landscape. As a result, it is challenging to identify appropriate sites to use for comparison, as demonstrated in the pilot causal assessments that were conducted for the lower San Diego River. A scientifically defensible approach is needed to identify appropriate comparator sites, as this is central to the causal assessment process.

Previous research conducted by the San Diego Water Board, City, Tetra Tech, and SCCWRP has demonstrated the occurrence of several common stressors in the San Diego region that could potentially affect biological condition and aquatic life beneficial uses. Common stressors include poor physical habitat, altered hydrology, pesticides, nuisance biological organisms, and high ionic strength or total dissolved solids (TDS). Some of these stressors may originate from highly urbanized land uses, which are prevalent within the City. However, not all of these stressors co-occur at all impaired sites and the relative effect of each stressor can vary depending on the site characteristics.

Previous work conducted by the City and Tetra Tech has been incorporated into the preliminary design of the SCA approach, including a previously developed GIS-based screening methodology that identifies potential geomorphically modified streams, as well as non-perennial streams, and benthic macroinvertebrate taxa tolerance values for specific water quality stressors (e.g., conductivity/TDS) and benthic community taxon-specific sensitivities to constituents such as pesticides. The City's SCA approach also currently includes a statistical approach to identify different groups of comparator sites based on non-biological factors such as elevation, slope, and underlying geology. The statistical approach used to identify comparator groups is similar to that used by the State Water Board to develop the CSCI scoring approach, which the San Diego Water Board intends to use in their proposed policy. Concurrently, SCCWRP has been exploring a different comparator site approach with the same goal of improving the accuracy and diagnostic ability of causal assessment process. This proposal provides an opportunity to test and evaluate the two different comparator site approaches (see Task 1.1) in order to develop a unified approach that makes the best use of available information to promote more accurate and useful causal assessments.

The SCA approach needs to be capable of ranking the likelihood of different potential stressors as causes of observed biological impairment at a site. This proposal includes several refinements and additional components that will provide a more comprehensive screening assessment of potential causes of biological impairment. The refinements include the incorporation of more stressor-specific diagnostic indicators (Task 1.2), better use of temporal data and determination of the relative importance of each candidate cause (Task 1.3), and development of a transparent scoring system for summarizing which stressors are the most likely causes of biological impairment (Task 1.4). In addition, recent advances in hydrologic stressors (flow ecology) provided by SCCWRP and diagnostic indicators of altered flow will be incorporated (Task 2.1). The flow ecology analyses will be incorporated into the SCA approach and evaluated along with other potential types of stressors (water quality, habitat, and biological stressors) at sites in several pilot watersheds (Task 1.4).

This proposal also provides the development and testing of a restoration and protection prioritization (RPP) framework that takes the results of the SCA to prioritize where (i.e., what sites or catchments) substantial improvement in biological condition is possible ("ecological lift") based on the stressors identified and other supporting information (Tasks 3.1 and 3.2). The SCA will be incorporated into the RPP framework to create a SCA-RPP tool that will be user-friendly (Task 4.1) and will incorporate the refinements made in the SCA (Task 4.2) including flow ecology diagnostics from Task 3.1. The SCA-RPP tool will be tested in several pilot watersheds (Task 4.3) to demonstrate that the tool is effective in identifying high priority sites for restoration. Furthermore, the SCA-RPP tool will help identify the most appropriate best management practices (BMPs) or other actions that will reduce the primary causes of

biological impairment resulting in ecological lift. The SCA-RPP tool will also be used to help identify high quality sites and waterbody segments that may be vulnerable to stressors and would benefit from increased protection efforts. Another application of the SCA-RPP tool could be to prioritize sites that meet their CSCI target but would benefit from restoration activities. With further refinements, the SCA-RPP tool could also be used as a predictive tool to streamline decision-making and evaluate the relative benefits of various restoration activities. Once finalized, this approach will be shared with other agencies and entities to inform management and decision-making efforts (Task 4.4). The City will use this information to inform future updates to Water Quality Improvement Plans (WQIPs) and the Jurisdictional Watershed Management Plan (JRMP) through the iterative and adaptive management process, as well as storm water BMP planning and maintenance activities, stream and habitat restoration opportunities, and other applications.

Work Plan

The City of San Diego is submitting the proposed SEP to prioritize and target restoration and protection efforts that are likely to succeed in terms of stream biological improvements with the most effective use of available resources. There are four major objectives that will be addressed in this SEP including:

1. Collaboration between Tetra Tech and SCCWRP to develop an improved SCA methodology, incorporating a validated comparator site approach, additional diagnostics, taxa traits, better use of available site data, and more informative findings.
2. Incorporate the latest research on flow ecology and the San Diego River pilot study conducted by SCCWRP into the SCA approach. Update and refine the flow ecology metrics and results based on more detailed genus/species level data and statistical analyses. Identify recommendations for future flow ecology studies/enhancements.
3. Develop a draft restoration and protection prioritization (RPP) framework, incorporating the concepts of recovery potential, which will help the City of San Diego determine high priority sites for restoration/protection based on the main stressors present and the potential for ecological lift.
4. Integrate the SCA approach into the RPP framework to create a SCA-RPP tool to increase the utility of the results for decision-making and appropriate allocation of City resources for the most beneficial activities.

Detailed tasks and associated deliverables to meet these objectives are as follows:

Project Management and Reporting

Quarterly progress reports and the deliverables described below.

Objective 1. Refine SCA approach, perform additional development and testing

Objective 1 will be addressed in this SEP via several tasks designed to harmonize the comparator site methods currently proposed by Tetra Tech and SCCWRP, as well as incorporate other refinements to the SCA approach that includes a transparent method for weighing the data provides clear results regarding potential stressors based on the information available.

Task 1.1. Improve comparator site methodology. Tetra Tech and SCCWRP will collaborate to test the different comparator site methods using the entire regional dataset produced through the Stormwater Monitoring Coalition (SMC) and determine the most defensible method to be used for SCA. The results will be used to develop a consensus comparator site method and measures to assess confidence levels in comparator sites relative to specific test sites of interest.

Task 1.2. Expand the use of stressor-specific diagnostics in the SCA approach, including macroinvertebrate and algal indicators of different types of habitat alteration (e.g., fine sediment), flow ecology (with Objective 3), and excess nutrients. Identify stressor-specific species tolerance values, species sensitivity distributions, or trait-based diagnostics, and incorporate those diagnostics into the SCA approach. These diagnostics will help tease apart confounding or co-occurring stressors and help

determine which stressor(s) are the primary causes of observed biological impairment at a site or catchment.

Task 1.3. Incorporate additional SCA refinements. Tetra Tech will incorporate other refinements requested by the San Diego Water Board, such as temporal analyses of biological and stressor information at a site, determination of relative certainty in the importance of each potential stressor, and a high-level data gap analysis to inform the need for additional monitoring.

Task 1.4. Develop a preliminary scoring algorithm for likely stressors, including altered flow under Objective 3, and a clear summary of findings to interpret the results of the SCA. Test the SCA approach at select sites within the Los Peñasquitos, Chollas Creek, and San Diego River watersheds for which stressor information is known and data is available.

Deliverable for Objective 1: Technical memorandum describing 1) the comparator site selection method and test results, 2) the preliminary scoring algorithm for likely stressors, 3) the development of stressor-specific diagnostics and presentation of the results in tabular or graphic form, and 4) description of additional SCA refinements and the testing results; 5) 2-4 page fact sheet summarizing the technical memo

Objective 2. Incorporate the latest research on flow ecology and the San Diego River pilot study conducted by SCCWRP into the SCA approach

Task 2.1. Incorporate flow ecology diagnostic metrics and altered flow status into the SCA approach developed under Objective 1 so that altered hydrology can be evaluated along with other stressors at a site. SCCWRP will evaluate potential refinements to the flow ecology metrics based on more detailed genus/species level data and statistical analyses. The refined SCA approach incorporating flow ecology metrics and results will be tested using sites within the pilot watersheds listed under Task 1.4 above for which biological and other stressor data exist. In addition, SCCWRP will identify potential updates to the flow ecology tools, such as algal response, and other refinements that may be explored in future studies. This review will provide recommendations on future enhancements to the flow ecology tools and metrics, including increased resolution across a broader range of stream types (e.g., engineered channels). Results of the flow ecology work in this task, along with other diagnostics developed in the SCA under Objective 1, will be used to determine which stressor(s) are likely causes of biological impairment in the pilot watersheds. This information will then be used in Objective 3 to identify restoration/protection priorities.

Deliverable for Objective 2: 1) Technical memorandum describing the flow ecology metrics that were incorporated into the SCA for identifying and scoring altered hydrology as a stressor, incorporation of flow ecology status in the form of a GIS layer or other dataset in the SCA approach, and a description of the refinements to the diagnostic metrics. 2) Results of the pilot watershed evaluations using the updated SCA approach developed under Objectives 1 and 2 that demonstrate the relative importance of altered hydrology at a given site based on the scoring algorithms developed in Task 1.4. 3) Recommendations for City efforts to address the findings from the pilot watershed evaluations, 4) Provide recommendations on future flow ecology enhancements.

Objective 3. Develop a restoration and protection prioritization (RPP) framework

Task 3.1. Develop a RPP framework that uses the results of the SCA. The stressors identified by the SCA at a site will be used to help identify restoration priorities and inform management actions that will achieve the stressor reduction and desired ecological lift (including perhaps additional co-benefits such as recreational opportunities). Tetra Tech will develop a RPP framework building on USEPA's recovery potential tool and other sources, with support from SCCWRP. The RPP will incorporate input from the San Diego Water Board. The framework will include a qualitative scoring approach and a schema for prioritizing sites.

Task 3.2. Perform iterative testing of the RPP framework based on sites in the pilot watersheds used under Tasks 1.4 and 2.1 and refine the framework to provide the most useful approach.

Deliverable for Objective 3: Technical memorandum describing the RPP framework, test results at selected sites within the City, and recommendations for Objective 4 for finalizing the SCA-RPP tool.

Objective 4. Integrate the SCA approach into the RPP framework and incorporate recovery potential concepts

Task 4.1. Develop presentation format for RPP results. Tetra Tech and SCCWRP will develop a user-friendly presentation format of the RPP framework results to increase the utility of the SCA- RPP tool for decision-making.

Task 4.2. Integrate the SCA approach into the RPP framework and recovery potential concepts to form a simplified SCA-RPP tool. This SCA-RPP tool will provide the means by which the City (and other potential users) can prioritize restoration/protection efforts.

Task 4.3. Test the SCA-RPP tool at selected sites within the City, including those used under Task 3.2.

Task 4.4 Provide outreach to WQIP stakeholders in the Los Peñasquitos, San Diego River, and Chollas Creek watersheds to summarize the findings.

Deliverable for Objective 4: Technical memorandum describing the SCA- RPP tool and its use in identifying sites that are high priority for restoration or protection efforts. Provide the SCA-RPP tool for other entities and a prioritized list of sites for restoration/protection based on those examined in this project.

The City will conduct outreach to the WQIP stakeholders in the Los Peñasquitos, San Diego River, and Chollas Creek watersheds to discuss how this information can be used to inform WQIP decision making. The completed tool and associated information will be posted on a website for public use. Additional outreach may include fact sheets and other appropriate forms of communication for the interested audiences.

Quarterly and/or final reports will include a discussion of the data and information produced, and how it has informed the WQIPs, JRMP, and other planning and implementation efforts.

Timeline (Milestones & End Dates)

Objective 1. Refine SCA approach, perform additional development and testing

Milestones: Authorization to perform work; Refined SCA incorporating more diagnostics and a user-friendly reporting summary and results of testing the refined SCA at sites in pilot watersheds.

End Date: 12 months following project start.

Objective 2. Incorporate the latest research on flow ecology and the San Diego River pilot study conducted by SCCWRP into the SCA approach

Milestone: Refined flow ecology metrics and diagnostic indicators of altered flow that will be incorporated into the SCA approach. Results of analyses testing the SCA flow ecology diagnostics at sites in the pilot watersheds.

End Date: 24 months following project start.

Objective 3. Develop a restoration and protection prioritization (RPP) framework and incorporate recovery potential concepts

Milestone: Results of iterative testing of the RPP at sites in pilot watersheds and the final RPP framework, including recovery potential metrics shown to be useful as part of the RPP.

End Date: 36 months following project start.

Objective 4. Integrate the SCA approach into the RPP framework and provide outreach on the SCA-RPP tool

Milestones: Simplified SCA-RPP tool and results of demonstrations using sites from pilot watersheds. A prioritized list of sites within the pilot watersheds for restoration and/or protection. Outreach to WQIP stakeholders in the Los Peñasquitos, San Diego River, and Chollas Creek watersheds in the form of public meetings and fact sheets.

End Date: 36 months following project start.

Budget

Year 1 (\$250,100)

- Project Management and Reporting
- Objective 1

Year 2 (\$216,421)

- Project Management and Reporting
- Objective 2
- Objective 3 – Task 3.1

Year 3 (\$216,411)

- Project Management and Reporting
- Objective 3 - Task 3.2
- Objective 4

Restoring and Protecting Our Waterways: Bioassessment Tools and Priorities for Action

Discuss all permitting requirements, including CEQA, and their status. If exempt, cite applicable statute.

There are no permits required for this project.

Watersheds Affected

This project will use sites in several watersheds throughout the City of San Diego, most likely San Diego River, Los Peñasquitos and Chollas Creek. Development of the consensus comparator site approach and other tasks will utilize data/results from selected City watersheds and throughout the region as discussed.

Describe if this project can be a basis for additional funding from other sources.

The approach developed by this project and its results will be a versatile instrument for future bioassessment projects, management, and implementation decisions.

Monitoring, success criteria, and other tools to track long-term success.

This project will develop an approach that combines flow ecology and screening casual assessment (SCA) to help inform cost-effective management and implementation decisions that have the most benefit to the environment. This project will also help identify data gaps, additional monitoring needs, future refinements, and other information that can be used to track water quality/biological improvements for long-term success. Development of the SCA is an important element for a Bio-objectives program to identify effective management and implementation actions that target the likely identified stressors.

Description of how the project is resilient to climate change.

Changes in flow regime due to climate change can affect the biology of receiving waters. This approach can help inform management and implementation decisions by looking at the hydromodification of watersheds and how the potential decisions will affect local water bodies. In addition, the purpose of the SCA is to provide reliable information on the likely stressors of biological impairment, based on available data that can include the potential effects of climate change on stream/watershed conditions.

Applicant's ability/authority to receive and distribute funds.

Per the San Diego City Charter, the City has the power to assess taxes, make appropriations, set budgets, and distribute funds, including the power to appropriate and distribute funds to cover the costs of the proposed project.

Is the project to conduct work that is required by any entity/agency?

No, this project is not otherwise required

Restoring and Protecting Our Waterways: Bioassessment Tools and Priorities for Action

Eligibility Requirements

1. Does the project address an environmental justice (EJ) issue or benefit a disadvantaged community (DAC)?

Design of the restoration and projection prioritization (RPP) framework can include the ability to prioritize implementation activities to improve water quality and biological condition in DAC communities, depending on the SCA results and stressors identified. The concept of recovery potential includes socio-economic factors, such as political will and community interest that can help prioritize activities that encourage positive water quality outcomes in DAC communities. The Chollas Creek Watershed is considered a DAC community, and this effort will include examining sites in this area.

2. Does the project address DAC water related infrastructure needs?

This project does not address potable water infrastructure, but does address storm water infrastructure options that may be used to address identified stressors in target watersheds. These may include restoration projects, green infrastructure, BMPs, etc.

3. Does the project promote preservation or restoration of aquatic ecosystems in the San Diego Region?

Yes, this approach is intended to help identify and prioritize locations that the City can use to inform management measures, mitigation projects and other restoration opportunities. The approach will help determine the locations that will provide the most biological benefit.

4. Does the project implement or further the recovery of streams, wetlands, and riparian systems?

This approach is intended to help further the recovery of streams, wetlands and riparian systems by helping to determine the areas with the greatest need and that would have the most benefit.

5. Does the project implement or further the monitoring and assessment framework in the San Diego Water Board’s Practical Vision Chapter 2?

Yes, this project directly informs the San Diego Water Board’s interest in moving toward biological objectives and biological health of waterbodies rather than focusing on discharger oriented monitoring activities.

6. Does the project implement or further a strategy for achieving a sustainable local water supply?

This project does not address local water supply.

Restoring and Protecting Our Waterways: Bioassessment Tools and Priorities for Action

Project Attributes

1. Does the project directly contribute to improvements of water quality objectives and/or beneficial uses?

Not directly, however, this project is intended to be used to focus on improving overall ecosystem health and protection of aquatic life beneficial uses through application of the assessment tools.

2. Does the project propose measurable environmental outcomes?

Not directly, the purpose of this project is to create a better way of prioritizing sites for restoration and/or protection. The result of this project will be a useful tool for prioritizing sites for restoration and protection and a list of priority sites for restoration based on this tool. The SCA approach will be used to identify likely stressors, such as unnatural flow regime, to facilitate management and implementation actions designs to promote measurable environmental outcomes. This may enable the City to make better decisions when choosing restoration/protection sites or determining the locations and types of BMPs or green infrastructure in the watershed that will provide the most benefit.

3. Does the project demonstrate sustained longevity of environmental outcomes (e.g., conservation, maintenance endowments, easements, monitoring)?

Not directly but indirectly, this project will look at various aspects of environmental outcomes using the SCA-RPP tool including flow ecology diagnostics. This approach can be used to demonstrate the long term effects of management decisions on environmental outcomes.

4. Is the project part of a larger vetted, adopted, or established plan with support from multiple and diverse partners?

This approach is intended to inform the type and location of BMPs and green infrastructure that may be incorporated into the City's WQIPs and other planning efforts. This project is supported by the San Diego Water Board's Healthy Waters Branch.

5. Does the project improve conditions for a 303(d) limited segment or preserve conditions in a high quality water body?

Not directly, but indirectly this approach is intended to help the City choose watershed activities that provide the most benefit in high quality water bodies.

6. Does the project improve a designated priority listed in a Water Quality Improvement Plan?

Yes, the assessment tool is intended to help the City choose watershed activities that can address the priority water quality conditions in the Los Peñasquitos, San Diego River and Chollas Creek Watersheds by determining the likely outcomes of management and implementation decisions that are designed to improve water quality conditions. This tool and the prioritization list is intended to be used to inform and consider WQIP strategies that can address multiple stressors, not only those that provide habitat improvements.

7. Does the project improve conditions of a key beneficial use category in a key area?

Sites for the analysis have not been chosen at this time, though it is likely they will be within key areas. The goal of the SCA is to provide the information needed on likely stressors to facilitate future improvements of aquatic life beneficial uses.

8. Does the project address the source of the problem at/near the source of the problem?

The SCA-RPP tool developed in this project will be able to determine the likely causes of biological impairment (or stressors that a non-impaired site may be vulnerable too in the future) and is intended help the City determine probable causes of those stressors at a site. This information will then help inform management decisions regarding BMPs and other ways to control or mitigate sources of critical stressors that are preventing the attainment of aquatic life uses.

9. Does the project address problems to sensitive/vulnerable/rare places/waters/uses?

Yes, the assessment tool will help the City choose watershed activities that can address the conditions in the watersheds with sensitive/vulnerable/rare places/waters/uses by determining likely outcomes of management and implementation decisions that are designed to improve the water quality conditions for aquatic life that are the foundation of the ecosystem.

10. Can the project be used for leverage for other funding/actions/benefits?

Funding of this SEP will provide the information necessary to identify appropriate sites for future restorations, green infrastructure, non-structural activities, and allow the City to secure funding more quickly with proven outcomes. Refinements to the SCA approach and the potential applications discussed above are not currently funded; therefore, funding under the proposed SEP is critical to the timely completion of this valuable product.

11. Does the project provide a cost-effective means of attaining water quality goals?

Yes, development of the SCA and prioritization approaches will encourage informed and cost-effective decision-making to help meet water quality goals.

12. Does the project integrate outreach and education to targeted audiences?

The project includes outreach to the WQIP consultation committees and stakeholders in the Los Peñasquitos, San Diego River and Chollas Creek Watersheds. The objective of the outreach is to educate stakeholders on the findings of the project and will hopefully solicit ideas regarding ways to implement useful and appropriate BMPs. The resulting tool, associated information and prioritized list of sites will also be made available on a website, fact sheets and other avenues as appropriate.

Restoring and Protecting Our Waterways: Bioassessment Tools and Priorities for Action

Applicant Attributes

1. Does the applicant have an established record of project completion with the Water Board?

Yes. The City of San Diego has constructed and continues to maintain treatment control best management practices facilities as prescribed by the San Diego Water Board. The City also continues to develop and maintain a growing suite of low-impact-development facilities addressing water quality concerns identified by the San Diego Water Board. The City has served as a lead agent and partner with the San Diego Water Board on projects designed to reduce automotive brake pad pollution, sedimentation in estuarine environments and the bi-national flow of trash and debris into the sensitive Tijuana River Valley watershed. In addition, the City regularly works in partnership with the San Diego Water Board to develop, refine and address Total Maximum Daily Load requirements for sedimentation (Peñasquitos watershed), dissolved metals (Chollas Creek/San Diego Bay), and bacteria (20 beaches and creeks). The San Diego Water Board has accepted and approved the City's elements of the mandated multi-jurisdictional Water Quality Improvement Plans including the physical solutions proposed to address priority pollutants in each of its watersheds.

2. Does the applicant have a record of project completion with other awarding agencies?

Yes. The City has worked in partnership with the US Army Corps of Engineers to improve navigation while reducing shoaling and sedimentation impacting water quality in San Diego's Mission Bay. The City has developed best management practices for watershed planning, community outreach and participation and flood risk management accepted and acknowledged as national models by the United States Environmental Protection Agency. The City has also developed responses to bi-national pollution with assistance from the International Boundary and Water Commission. Each of these projects and initiatives are in addition to the many other efforts undertaken by City departments working with awards from the San Diego Association of Governments, the United States Navy, the State of California and the Federal Government.

3. Does the applicant demonstrate a commitment to continue the water quality/restoration effort into the future, beyond the elements which are sought for funding?

The City is committed to using the results of this project to inform WQIP strategies and planning efforts. Additionally, the City of San Diego developed the nation's first comprehensive Watershed Asset Management Plan now recognized by the U.S. Environmental Protection Agency as a preferred model for other jurisdictions throughout the country. The Plan describes asset, funding and capital project requirements for the City's storm water management program for the next 100 years. The Plan serves as the basis for budget requests and prioritizes the flood risk and water quality improvement efforts necessary to protect the City across the scope of its forecast. In addition, the City has made public commitments regarding the general maintenance of its various water systems and its intent to increase water quality protections in the near and long-term. The City has restored its financial strength and fiscal reserves over the past decade and now has one of the highest long-term municipal credit ratings in the country. The City's Climate Action Plan, sustainability initiatives, Water Quality Improvement Plans and capital improvement plans each have decades-long targets for action. The City is capable of continuing its water quality/restoration efforts far beyond the future scope of the elements included in this funding request.

4. Does the applicant have the institutional stability and capacity to complete the project including the ability to accomplish the work and provide the products and reports expected?

Yes. The City of San Diego has the financial resources and staffing necessary to accomplish the work, products and reports expected in response to this anticipated award. The City will continue its practices of balanced-budgeting, long-term planning for staffing capacity and appropriate succession planning for project management. The City has an appropriate and consistent political process that maintains institutional knowledge and provides an inclusive community-drive decision making process compatible with the requirements and intention of this request.

Project Application Form
Chollas Creek Restoration Opportunities Assessment

Name of Project: Chollas Creek Restoration Opportunities Assessment

Project Applicant: City of San Diego

Applicant Contact Person: Vicki Kalkirtz, Senior Planner

Applicant Phone Number: 858-541-4326

Applicant Email Address: vkalkirtz@sandiego.gov

Problem Statement:

The Chollas Creek Watershed includes inner-city neighborhoods within the greater Mid-City (City Heights, Eastern), Encanto Neighborhoods, Southeastern San Diego, and Barrio Logan communities, from its headwaters in La Mesa and Lemon Grove to the mouth at San Diego Bay. In its early history the watershed was well known to Native Americans, who used it for settlement and as a major trail through the region. The watershed also has a long geological history evidenced by a number of paleontological sites. The watershed has lost many of its natural geographic features due to urban development that has segmented the creek so that there is limited use as an open space system. The historic channel and floodplain of the segments in the Chollas watershed have been altered as a result of decades of development and human activity. Today, most of the segments in the watershed are urban, with little native vegetation and many of the channels are armored or are concrete lined.

The State and the U.S. Environmental Protection Agency have identified Chollas Creek as an "impaired" water body and issued total maximum daily loads (TMDLs) for metals (copper, lead, and zinc) and bacteria. Stream restoration within the Chollas Creek Watershed has the potential to reduce the volume of runoff during rain events thereby improving water quality and providing an overall environmental benefit. By widening the creek and reducing flooding in the neighborhood, less runoff from flooding will carry pollutants into the waterways while allowing more time for infiltration into the soil that may improve water quality. The potential of urban restoration as an urban park asset has been identified in City planning documents such as the Barrio Logan-Harbor 101 Community Plan of 1978, the Southeastern San Diego Community Plan of 1987, and the Mid-City Communities Plan of 1998, and the Chollas Creek Enhancement Project of 2002. Additionally, the City of San Diego is currently developing a Chollas Creek Watershed Master Plan that is expected to be completed in the summer of 2017. The population of Mid-City and southeastern San Diego communities exceeds 380,000 people, and the limited number of parks and open space in the inner city, as well as an income level below City average, the restoration of creek will be an important component of community revitalization.

The vision for the Chollas Creek Watershed area is multi-faceted including: maintaining the natural areas in an undisturbed fashion, promoting cohesive new development that integrates buildings, open space, and the creek into successful and useable areas for the community, and restoring channelized creek in urbanized areas to more natural and safe conditions where possible. Finally, the vision is to create useable linkages throughout the Chollas Creek Watershed and the community to San Diego Bay.

Work Plan containing tasks and deliverables compartmentalized into partial funding opportunities, if applicable; Timeline (from funding approval) with milestones and end dates; and Budget broken down into tasks.

The City is exploring stream restoration opportunities within the Chollas Creek Watershed. The objectives of the stream restoration projects include improving water quality, providing a community enhancement (passive and active recreation), and flood risk reduction.

The City is currently developing a Chollas Creek Watershed Master Plan (WMP) which is expected to be completed in the summer of 2017. This plan has synthesized high-resolution data to assess the existing water quality and drainage conditions within the study area and subsequently utilized detailed modeling and prioritization analyses to propose improvements to the storm drain infrastructure and management system for improving water quality, identifying stream restoration opportunities, and flood control efforts.

This planning effort combines new data sets and field work with existing information. For example, high-resolution Light Detection and Ranging (LiDAR) data in 2014 for the entire study area was used in the development of the WMP to provide the ability to rapidly characterize the drainage characteristics and water quality BMP opportunities using geospatial processing algorithms. The prompt generation of new datasets (e.g., land cover, catch basin inlet drainage areas, BMP opportunities, etc.) with high levels of accuracy facilitated the development of design-level representations at the watershed scale. These new datasets were verified and enhanced through field visits and surveying to ensure that the study area representations were reflective of actual conditions. Several different consultants are providing information that build on each other's expertise to provide a comprehensive plan that addresses water quality improvements, restoration opportunities and flood control. Additionally, the City is working closely with Groundworks San Diego to incorporate information from restoration opportunity assessments they have completed. This is fostering a relationship to include additional collaborations in the future including potential property acquisition and maintenance assistance as the City moves forward with restoration efforts.

This master planning effort has identified open channel areas, and areas where channel restoration is the most feasible for water quality, community enhancement and flood control. The purpose of this SEP project is to select the top five locations for restoration projects from the master planning effort, and provide additional technical information relative to their feasibility as the WMP effort does not address implementation issues. This process is a much more detailed analysis of the sites and will focus on the typical barriers to implementation such as property ownership, width, biology, utilities and other parameters. The ultimate goal is to prioritize among these five sites based on an evaluation of these factors, and prepare these sites for restoration activities. Five sites will be evaluated in this effort due to funding availability.

Objectives of this project are:

1. Select five stream reaches (urbanized segments) for study within the watershed. Build upon previous studies to examine drainage areas, and confirm basic physical parameters (a field review to confirm there are no undocumented structures, facilities or other conditions that would compromise the project) for the study sites (see attached map).
2. Evaluate stream restoration solutions to improve water quality, provide community enhancement through stream restoration, and reduce flooding. Restoration solutions may include:
 - a. Channel stabilization, through the use of vegetation or other means.
 - b. Construction/re-construction of energy dissipaters to address localized erosion and scour.
 - c. Extension/enlargement of channels or the creation of drop structures to address localized erosion and scour.
 - d. Modifications to the channel cross section and profile, and/or other bio-engineering practices deemed to be cost-effective, practical to construct, and defensible from a regulatory perspective to prevent long term scour.

Task 1: Desktop Research

Conduct a detailed review of the following items;

1. Review of hydrology and hydraulic information for the selected study locations
2. Current and historic aerial photographs
3. Regional topography – City of San Diego LiDAR
4. Record public right of way and tax assessors map information
5. Existing utilities and “as-built” information
6. NRCS soils information and USGS information regarding geologic formations

Work under this task will also include selection of the five locations within the Chollas Watershed to investigate for this project.

Deliverable – Assembled desktop research items. Selection of five study locations.

Task 2: Engineering Field Reconnaissance

Perform field reconnaissance throughout the course of work to observe conditions not documentable in desktop research items and to “ground truth” proposed solutions.

Deliverable – Photos and Field Visit Logs

Task 3: Prepare Framework for Preliminary Engineering Analysis

Prepare a framework for evaluating the cost effectiveness, practicality of construction, and ease of permitting for a series of alternative solutions at each project site.

The framework will describe the scoring criteria that will be used to rank the projects. The framework will also provide direction for identifying key regulatory constraints, and quantifying construction and other costs.

Deliverables – Framework for Preliminary Engineering Analysis

Task 4: Preliminary Engineering Analysis

Apply the framework developed in Task 3 to the five selected site locations. In accordance with the approved framework, each alternative will be analyzed based on the following specific elements:

1. Determination of engineering feasibility, including development of calculations such as:
 - a. Hydrology and hydraulic calculations to support channel restoration design. Each of the 5 site locations will be modeled in HEC RAS using its hydraulic design functions to confirm stable geometry under an assumed particle size distribution and sediment transport function. Desktop soils information will be used as the basis for particle size information and cross sections shall be developed using LiDAR information supplied by the City of San Diego.
 - b. Other sizing calculations necessary to support ancillary structures such as drops or revetments.
 - c. Estimate of the change in annual runoff volume (loss) associated with the improvements. This effort shall be performed by modeling each of the 5 site locations in EPA SWMM.
2. Physical constraints analysis including:
 - a. Extent of grading/earthwork

- b. Required measures for vegetation establishment
- c. Utility relocation needs
- d. Temporary/permanent easements/right of way impacts/private encroachments
3. Regulatory constraints analysis to identify the necessary resource agency permits, or other key public or private stakeholders required for project completion.
4. Preliminary opinion of probable cost and schedule (capital and maintenance).
5. Application of scoring criteria (Task 3)
6. Prepare renderings (24"x36") that will include an oblique plan view and imbedded cross section in color for each selected alternative.

Deliverables – “Draft” and “Final” Alternatives Analysis and Renderings for each project location. The sites will have a scored hierarchy of preferred alternatives - those with the highest scores are recommended for implementation first. This hierarchy will include the analysis above.

Task 5: Project Management, Meetings, and Coordination

Coordinate with staff, and attend meetings involving issues directly pertinent to this scope of work including, but not limited to the following:

1. Progress meetings , monthly progress reports, quarterly reports, meeting agendas, and meeting notes
2. Coordination with stakeholders and preparing the results for public outreach such as website postings and fact sheets.

Timeline (milestones & End Dates)

Task 1 – Desktop Analysis - including utility, legal and property research and environmental constraints – 4 months

Task 2 – Engineering Field Reconnaissance – 1 month

Task 3 – Prepare Framework for Preliminary Analysis – 1 month

Task 4 – Preliminary Engineering Analysis – 6 months

Budget (Tasks)

Task 1 – Desktop Analysis – \$16,300

Task 2 – Engineering Field Reconnaissance – \$7,000

Task 3 – Prepare Framework for Preliminary Analysis – \$5,500

Task 4 – Preliminary Engineering Analysis – \$35,300

Task 5 – Project Management - \$8,300

Total: \$72,400

Discuss all permitting requirements, including CEQA, and their status. If exempt, cite applicable statute.

There are no permits required for this project. However, the permits required for the restoration efforts will be determined with this SEP. This will allow for the sites to be ready for implementation as soon as possible.

Watersheds Affected

Chollas Creek sub-watershed of the San Diego Bay Watershed Management Area.

Describe if this project can be a basis for additional funding from other sources.

Receiving SEPs funding for this portion of the project will be helpful to leverage additional funds to perform the restoration projects. These sites will be prioritized and ready for the engineering and permitting process to begin.

Monitoring, success criteria, and other tools to track long-term success.

The City of San Diego is identifying locations for restorations in the Chollas Creek Watershed, tools to track long term success of the projects will be developed once the sites are selected and the restoration activities are implemented.

Description of how the project is resilient to climate change.

The project is resilient to climate change by improving connectivity within the watershed, channels and bay to abate flood events that will most likely intensify in the years to come. Water storage will be added through the channel restoration, and vegetated channels with associated floodplain areas are more resilient and can improve flooding conditions compared to conventional engineered channels. Concrete removal would also provide additional climate change benefits including increased carbon sequestration with planting and the possible reduction of the urban heat island effect.

Applicant's ability/authority to receive and distribute funds.

Per the San Diego City Charter, the City has the power to assess taxes, make appropriations, set budgets, and distribute funds, including the power to appropriate and distribute funds to cover the costs of the proposed project.

Is the project to conduct work that is required by any entity/agency?

No, this project is not otherwise required.

Chollas Creek Restoration Opportunities Assessment

Eligibility Requirements

Projects must address at least one of the following priorities to qualify for further evaluation and inclusion in the SEP/ECA List. To the extent that they apply to your project, please make sure to describe these in your proposal.

1. Does the project address an environmental justice (EJ) issue or benefit a disadvantaged community (DAC)?

Yes, the Chollas Creek Watershed is in a Disadvantaged Community and will address EJ issues such as access to passive and active recreation opportunities and improved water quality. Please see attached map (CalEnviroScreen 3.0 Results) of the Chollas Creek Watershed area.

2. Does the project address DAC water related infrastructure needs?

Chollas Creek is not a potable water source at this time. However, this SEP project addresses storm water infrastructure needs by addressing flood control measures as part of restoration opportunities in this DAC community.

3. Does the project promote preservation or restoration of aquatic ecosystems in the San Diego Region?

Yes, this project will identify and prioritize locations that the City of San Diego will use for future mitigation projects and other restoration opportunities.

4. Does the project implement or further recovery of streams, wetlands, and riparian systems?

Yes, it will further the recovery of the Chollas Creek Watershed by identifying and prioritizing restoration opportunities in this urbanized creek. Much of the creek is a concrete channel, and this project will provide the information needed to begin restoration projects throughout the watershed.

5. Does the project implement or further the monitoring and assessment framework in the San Diego Water Board's Practical Vision Chapter 2?

This planning phase of the restoration projects does not include monitoring and assessment, however the restoration projects will include monitoring and assessment to determine the success of the project and utilize adaptive management processes.

6. Does the project implement or further a strategy for achieving a sustainable local water supply?

No, Chollas Creek is not a potable water source at this time.

Chollas Creek Restoration Opportunities Assessment

Project Attributes

Eligible projects will also be evaluated based on the following attributes. To the extent that they apply to your project, please make sure to describe these in your proposal.

1. Does the project directly contribute to improvements of water quality objectives and/or beneficial uses?

Not directly, however, the project will provide the preliminary assessment to identify restoration sites in the Chollas Creek Watershed. Once completed, these restorations can directly contribute to improvements of Water Quality Objectives such as Turbidity and Total Suspended Solids (TSS), and will address beneficial uses of Rec-2, WARM and WILD. Additionally, the Chollas Creek Watershed drains into the San Diego Bay and these future restoration projects can also contribute to the improvement of Water Quality Objectives and Beneficial Uses in the San Diego Bay.

2. Does the project propose measurable environmental outcomes?

Not directly, however, this project will provide the preliminary assessment to identify restoration sites. Once restored, these projects will have measurable environmental outcomes specific to each site. These may include water quality and habitat improvements.

3. Does the project demonstrate sustained longevity of environmental outcomes (e.g., conservation, maintenance endowments, easements, monitoring)?

Yes, this project includes identifying easements, long term maintenance and monitoring efforts for each site. This component of the project will include working closely with local organizations such as Groundworks San Diego that has intimate knowledge of the area, property owners and their willingness to support restoration projects.

4. Is the project part of a larger vetted, adopted, or established plan with support from multiple and diverse partners?

This project is part of an overall assessment of the Chollas Creek Watershed Planning efforts that are working closely with stakeholders such as Groundworks San Diego and the Sierra Club.

5. Does the project improve conditions for a 303(d) limited segment or preserve conditions in a high quality water body?

Once these sites have been restored they may have the ability to improve 303(d) listed conditions in Chollas Creek that include phosphorus, trash and nitrogen. Additionally, these restoration sites will help improve water quality for the adopted TMDLs for dissolved metals and bacteria. The specific improvements are dependent on site conditions and the chosen restoration activities.

6. Does the project improve a designated priority listed in a Water Quality Improvement Plan?

These potential restorations may improve the Highest Priority Water Quality Conditions listed in the San Diego Bay Water Quality Improvement Plan and listed in the table below. By widening the creek bed, removing concrete, and allowing for slower, natural infiltration, water quality can be improved by less pollutant introduction into the water way.

**Table 2-1
San Diego Bay WMA Summary of Highest and Focused Priority Conditions**

HU	Condition	Pollutant/ Stressor	Geographic Extent (HU/HA)	Responsible Parties
Pueblo (908)	Water Quality¹	Bacteria; Dissolved copper, lead, and zinc	Chollas Creek (908.22)	City of La Mesa City of Lemon Grove City of San Diego County of San Diego Port of San Diego Caltrans
	Water Quality	Copper and zinc (Wet Weather)	Airport Authority jurisdiction within 908.21	Airport Authority
Sweetwater (909)	Riparian Area Quality	Various	Paradise Creek—lower Sweetwater, HA 909.1 ²	City of National City
	Physical Aesthetics	Trash	The western portion of the City of Chula Vista within HA 909.1	City of Chula Vista Port of San Diego
Otay (910)	Swimmable Waters (Beaches)	Bacteria	Applicable RP jurisdiction within HA 910.1	City of Coronado Port of San Diego
	Physical Aesthetics	Trash	Applicable RP jurisdiction in HA 910.2	City of Chula Vista City of Imperial Beach Port of San Diego

Notes:

1. The conditions in bold are the Highest Priority Conditions for the San Diego Bay WMA. Pollutants in regular font are the Focused Priority Conditions.
2. For the purposes of the Water Quality Improvement Plan, Paradise Creek is considered to be part of the lower Sweetwater area, for which the San Diego Bay priority condition analysis has identified potential impacts to beneficial uses such as habitat and non-contact recreation.

7. Does the project improve conditions of a key beneficial use category in a key area?

These potential restoration projects are located in Chollas Creek, a stream system which drains to the San Diego Bay. Stream systems and stream mouths are a key area for Rec-2 and Habitats and Ecosystems.

8. Does the project address the source of the problem at/near the source of the problem?

These potential restoration projects can address pollutant sources that are located immediately adjacent to and upstream from the project sites, depending on the locations that are chosen through this process.

9. Does the project address problems to sensitive/vulnerable/rare places/waters/uses?

These potential restorations projects are located in Chollas Creek which drains to the San Diego Bay.

10. Can the project be used for leverage for other funding/actions/benefits?

Funding of this SEP will provide the information necessary to identify appropriate sites for future restorations and allow the City to secure funding more quickly.

11. Does the project provide a cost-effective means of attaining water quality goals?

Full extent of cost-effectiveness is unknown at this time. However, this study will look at cost effective locations for restoration efforts which will help meet water quality goals. Monitoring efforts as part of the restoration process will help determine the cost-effectiveness of the projects.

12. Does the project integrate outreach and education to targeted audiences?

This planning project will be conducted with the input of key stakeholder groups including Groundworks San Diego and the Sierra Club. The future restoration projects will include education and outreach to the surrounding community as well as impacted stakeholders.

Chollas Creek Restoration Opportunities Attributes

Applicant Attributes

1. Does the applicant have an established record of project completion with the Water Board?

Yes. The City of San Diego has constructed and continues to maintain treatment control best management practices facilities as prescribed by the San Diego Water Board. The City also continues to develop and maintain a growing suite of low-impact-development facilities addressing water quality concerns identified by the San Diego Water Board. The City has served as a lead agent and partner with the San Diego Water Board on projects designed to reduce automotive brake pad pollution, sedimentation in estuarine environments and the bi-national flow of trash and debris into the sensitive Tijuana River Valley watershed. In addition, the City regularly works in partnership with the San Diego Water Board to develop, refine and address Total Maximum Daily Load requirements for sedimentation (Peñasquitos watershed), dissolved metals (Chollas Creek/San Diego Bay), and bacteria (20 beaches and creeks). The San Diego Water Board has accepted and approved the City's elements of the mandated multi-jurisdictional Water Quality Improvement Plans including the physical solutions proposed to address priority pollutants in each of its watersheds.

2. Does the applicant have a record of project completion with other awarding agencies?

Yes. The City has worked in partnership with the US Army Corps of Engineers to improve navigation while reducing shoaling and sedimentation impacting water quality in San Diego's Mission Bay. The City has developed best management practices for watershed planning, community outreach and participation and flood risk management accepted and acknowledged as national models by the United States Environmental Protection Agency. The City has also developed responses to bi-national pollution with assistance from the International Boundary and Water Commission. Each of these projects and initiatives are in addition to the many other efforts undertaken by City departments working with awards from the San Diego Association of Governments, the United States Navy, the State of California and the Federal Government.

3. Does the applicant demonstrate a commitment to continue the water quality/restoration effort into the future, beyond the elements which are sought for funding?

The City intends to use the results of this project to inform and prioritize restoration projects. The City of San Diego developed the nation's first comprehensive Watershed Asset Management Plan now recognized by the U.S. Environmental Protection Agency as a preferred model for other jurisdictions throughout the country. The Plan describes asset, funding and capital project requirements for the City's storm water management program for the next 100 years. The Plan serves as the basis for budget requests and prioritizes the flood risk and water quality improvement efforts necessary to protect the City across the scope of its forecast. In addition, the City has made public commitments regarding the general maintenance of its various water systems and its intent to increase water quality protections in the near and long-term. The City has restored its financial strength and fiscal reserves over the past decade and now has one of the highest long-term municipal credit ratings in the country. The City's Climate Action Plan, sustainability initiatives, Water Quality Improvement Plans and capital improvement plans each have decades-long targets for action. The City is capable of continuing its water quality/restoration efforts far beyond the future scope of the elements included in this funding request.

4. Does the applicant have the institutional stability and capacity to complete the project including the ability to accomplish the work and provide the products and reports expected?

Yes. The City of San Diego has the financial resources and staffing necessary to accomplish the work, products and reports expected in response to this anticipated award. The City will continue its practices of balanced-budgeting, long-term planning for staffing capacity and appropriate succession planning for project management. The City has an appropriate and consistent political process that maintains institutional knowledge and provides an inclusive community-drive decision making process compatible with the requirements and intention of this request.

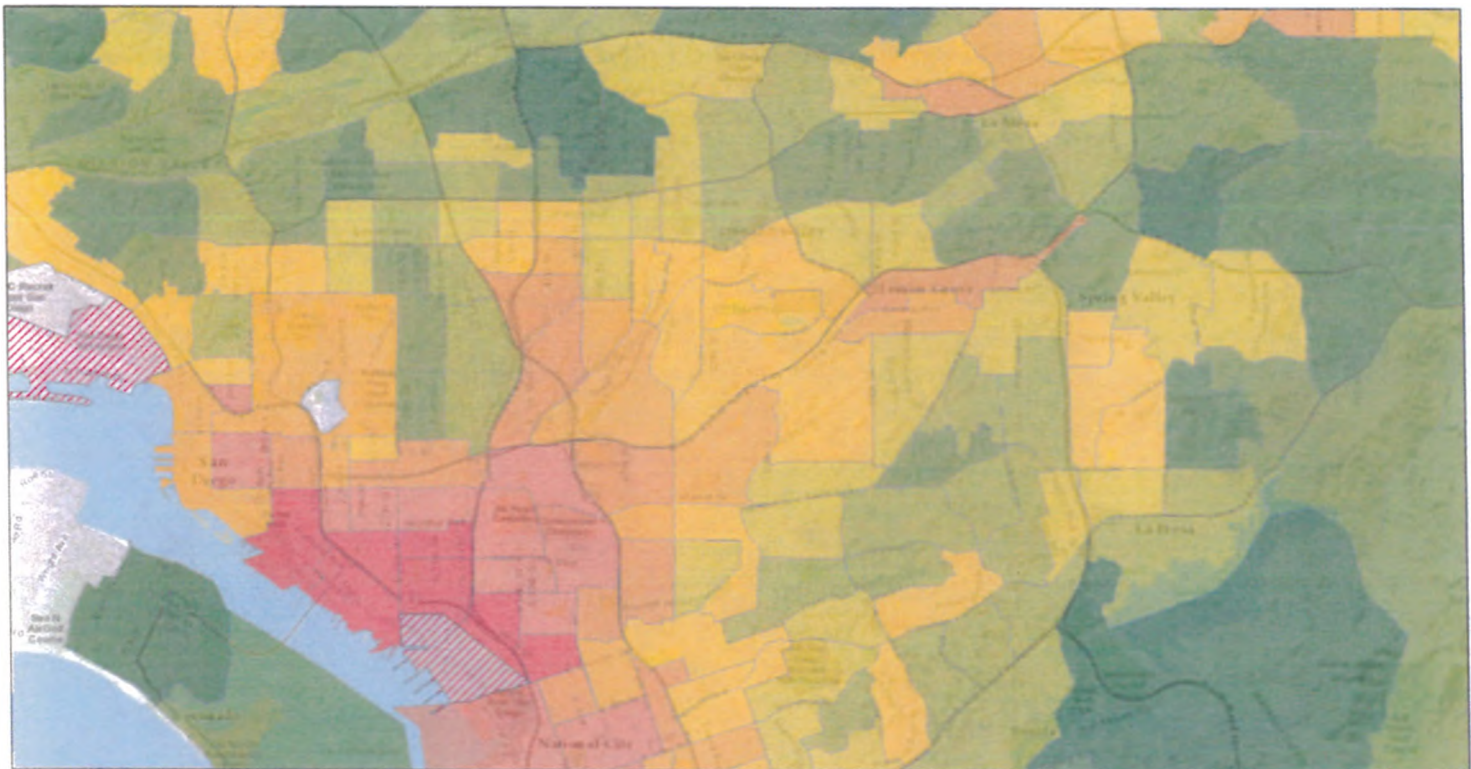


Potential Creek Restoration Areas - Chollas Watershed

CHOLLAS WATERSHED MASTER PLAN

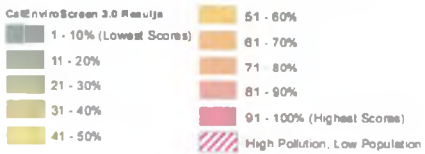
CalEnviroScreen 3.0 Results

Attachment C



March 13, 2017

CalEnviroScreen 3.0 Results



1:72,224



Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBris, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), Swisstopo, Mapbox, © OpenStreetMap contributors, and the GIS

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