California Wildlife Foundation

Request for Proposal
Oyster Element Fabrication for San Francisco Bay Area
January 29, 2018

The California Wildlife Foundation (CWF) is seeking a qualified consultant/contractor to develop a proposal to fabricate Oyster Elements for installation at two sites in San Francisco Bay. We are seeking responses from construction or small contractors with concrete fabrication experience. The work will involve coordination with oyster element fabrication experts and with local Conservation Corps groups.

You are invited to review and respond to this Request for Proposal or to forward this notice broadly to other consultants or contractors that you know of that might be interested in this work.

Work under this project will be funded by a grant to CWF from the California State Coastal Conservancy. Applicants' qualifications, experience, past performance and price will all be considered.

Project details including tasks and deliverables are in the attached Draft Scope of Work.

To Apply

1) Attend the mandatory informational meeting on Thursday, February 8, 2018, 10:00 a.m. PST in person or remotely. The meeting will be held at the California State Coastal Conservancy, San Francisco Bay Conference Room office, 1515 Clay Street, 10th Floor, Oakland, CA, 94612. You are required to RSVP to Amy Larson, alarson@californiawildlifefoundation.org, indicating whether you plan to attend in person or remotely. If the latter, instructions for accessing the meeting will be sent to you. At the meeting, potential applicants will be able to learn more and ask questions about the project. We will also have draft agreement documents available for review.

2) Submit a Statement of Qualifications (SOQ) by February 26, 2018. SOQ's should contain the following information:
   - Cover letter indicating the consultant's main point of contact for the selection process
   - Relevant experience and qualifications of the consultant
   - Relevant experience and qualifications of the consultant's project lead and any other personnel if playing a significant role
   - Description of how the consultant will approach the work
   - Budget by task

To Submit

SOQ's will be accepted until February 26, 2018 and may be submitted via email to:

Amy Larson
California Wildlife Foundation
alarson@californiawildlifefoundation.org

Timeline

January 29, 2018:	RFQ released
February 8, 2018:	Mandatory applicant meeting
February 26, 2018:	Statements of Qualifications due
March 5, 2018:	Decision anticipated by this date
March 15, 2018:	Contract in place

Questions?

Please direct any questions about ***selection process or contracting*** to Amy Larson:

Amy Larson
California Wildlife Foundation
alarson@californiawildlifefoundation.org
(510) 208-4438

Questions about ***oyster element fabrication or the installation sites*** should be directed to:

Marilyn Latta
California State Coastal Conservancy
Marilyn.Latta@scc.ca.gov
(510) 286-4157

Thank you for your interest in Oyster Element Fabrication in San Francisco Bay Area.

Scope of Work

Oyster Element Fabrication for San Francisco Bay Area

Project Background and Description of Services Needed for Oyster Element Fabrication in the San Francisco Bay Area

The State Coastal Conservancy (Conservancy) has been leading efforts to restore submerged habitats in San Francisco Bay through the restoration of native Olympia oyster reefs, eelgrass bed plantings, derelict creosote wharf and piling removal, and other activities. The Conservancy recently provided a grant to the non-profit California Wildlife Foundation (CWF) to assist with the fabrication of elements for native oyster restoration as part of two upcoming restoration projects on the Richmond shoreline in San Francisco Bay. CWF is seeking applications from qualified contractors who can lead the fabrication and production of two types of elements for oyster restoration, including "reef balls" and "oyster blocks" made of "baycrete"- a combination of cement and mined native oyster shell and sand from San Francisco Bay. This approach is designed to lessen the amount of 100% concrete fill in the Bay, while utilizing a minimized portion of concrete that serves as an environmentally benign hard surface that native oysters are attracted to settle on.

Native oyster restoration is a fairly new activity in the Bay Area, and is based on recommendations in the San Francisco Bay Subtidal Habitat Goals Report (www.sfbaysubtidal.org, specifically, see Chapter 7 Shellfish Recommendations). These pilot projects have strong environmental goals to improve subtidal habitats (submerged habitats below the Mean Lower Low Water line) and involve the use of both natural and hybrid/artificial reef elements. The hybrid/artificial oyster elements made of baycrete are the focus of this request for proposals. Please see Attachment 1 for a brief description and pictures of these elements.

CWF requires the use of multiple partners in the oyster element fabrication effort. This includes a lead contractor for the fabrication effort (subject of this RFP), who will manage the overall effort, provide yard space, water, electricity, labor, and materials, and work with additional support from required CWF partners. These partners include:

- Contractors with Reef Innovations, a company in Sarasota FL associated with the non-profit ReefBall International with extensive experience in reef ball fabrication. (www.reefinnovations.com, www.reefballinternational.org).
- Contractors from Drakes Bay Oyster Company will provide the oyster shell bags for the combination reef balls, which consist of clean, Pacific oyster half shell that have been bagged into pvc mesh bags and attached to the combination reef balls.
- Local CA Conservation Corps work crews who will help to provide labor and have the added benefit of gaining job skills in local green infrastructure and nature-based climate adaptation projects. Please contact Adam Cope at the Conservation Corps to discuss the specific details of crew availability and work to be completed. The Conservation Corps will contract directly with CWF, but all applicants need to include information about working with Conservation Corps crews in their proposal.

- CivicCorps – Contact Adam Cope, Job Training Manager - adam.cope@cvcorps.org, (510) 318-8867
- Conservation Corps North Bay – Terri Thomas, Director of Natural Resources

The two restoration projects are briefly summarized below:

1. San Francisco Bay Creosote Piling Removal and Pacific Herring Restoration Project

This project is led by the California State Coastal Conservancy with funding provided by the National Fish and Wildlife Foundation. Additional partners include the City of Richmond (landowner for the Red Rocks Warehouse site) nonprofit organizations CWF and Ducks Unlimited (DU), as well as other agency, university, and CA Conservation Corps partners. The project has been fully permitted by regulatory agencies and includes removal of a derelict creosote wharf and creosote pilings (completed in Fall 2016) and follow-up habitat restoration at the site in a living shorelines approach (to be constructed in Spring 2018). Please see Attachment 1 for the design plans and specifications for the Project. A living shorelines approach includes restoring natural habitat features (oyster reef elements and eelgrass plantings) to achieve both biological goals (such as habitat cover, food resources, nesting and reproductive resources) as well as physical goals (such as wave attenuation, sediment stabilization, shoreline protection). The restoration design includes 50 reef balls, 1,375 oyster blocks, and 98 oyster block bases.

2. San Francisco Bay Living Shorelines Project at Giant Marsh

This project is led by the California State Coastal Conservancy with funding provided by the State Coastal Conservancy, US Fish and Wildlife Service, National Fish and Wildlife Foundation, and other funding partners. Additional partners include East Bay Regional Park District (the landowners for the Giant Marsh site), the CA State Lands Commission, nonprofit organizations CWF and DU, and other agency, university, and CA Conservation Corps partners. The project is developed based on the lessons learned from the San Rafael Living Shorelines Project constructed in 2012 at a subtidal parcel owned by The Nature Conservancy in San Rafael (see www.sfbaylivingshorelines.org). The Giant Marsh project is in the permitting phase now, with final permits expected in February 2018. The project is planned to be constructed in phases, starting with the native oyster element installation in Spring 2018. Please see Attachment 1 for the 60% design specifications for the project; 100% design will be completed once permits are received, but we expect no changes to the basic design for the oyster reef elements. The multi-habitat and multi-objective project design includes several habitat types from subtidal oyster and eelgrass beds to intertidal marsh to upland transition zones, in a living shorelines approach that further tests the biological and physical benefits of restoring multiple habitat types at the same location to better increase habitat connectivity and shoreline protection. The oyster restoration design includes 180 combination reef balls (reef balls plus bagged clean Pacific oyster half shell), 2,380 oyster blocks, and 170 oyster block bases.

Oyster Element Fabrication Process Summary

Oyster restoration treatments for these projects include artificial reef forms made of "baycrete," a roughly 3:2:1 combination of marine grade Portland cement, native sand and fossilized Olympia oyster shell from San Francisco Bay, along with minor amounts of gravel and admixtures. This work is done regularly in other parts of the country (see www.livingshorelinesacademy.org, www.reefballinternational.org) but is new to the San Francisco Bay Area and there are very few contractors familiar with this type of work. The Conservancy and CWF are working to widen the list of San Francisco Bay Area contractors involved in this activity, as we anticipate additional projects of this type to grow in size and scale in the future. For pictures of similar reef ball and oyster block elements constructed in the prior project at San Rafael, see www.sfbaylivingshorelines.org and Attachment 1.

Involving local labor:

The Conservancy and CWF are interested in linking contractors with other sources of local labor. This would include California Conservation Corps groups, to provide job opportunities and involvement in green infrastructure and climate adaptation projects, as well as keep costs reasonable. Conservation crews work in shifts of 5 staff plus a supervisor. They are generally available Mondays – Thursdays from 8:30am – 3pm.

Timeframe for work to be completed:

This Request for Proposal (RFP) is released on January 29, 2018 and a contractor will be selected by March 5, 2018. The contractor will be under contract to California Wildlife Foundation by March 15, 2018. The fabrication work will generally occur from **March 15- May 30, 2018, exact timeframe to be confirmed after review of proposal and selection of contractor**. The placement (or construction) of reef elements at the restoration project sites will start in May 2018, and will be led by construction manager Ducks Unlimited. Ducks Unlimited will release a separate Request for Bids for the construction phase of the work at both sites.

Description of Work:

As described above, a total of 50 reef balls, 180 combination reef balls with shell bags, 3,755 oyster blocks, and 270 oyster block bases need to be fabricated and assembled for these projects.

- **The reef ball and combination reef ball/shell bag** fabrication and assembly work will be led by contractors from Reef Innovations in Sarasota FL who have expertise fabricating thousands of reef balls for projects on the Gulf and East Coasts. ***Work will be supported by the selected contractor as described below.***

  Reef Balls (50):

  Please see the 100% design plans for the SF Bay Project at Red Rocks (Attachment 1), finalized by ESA. Reef balls will be constructed using forms provided by Reef Innovations. The main labor for this work will be provided by the Conservation Corps crews.

  The services sought for this effort include 1) coordination with Reef Innovations consultant and CA Conservation Corps labor, 2) yard space, and 3) materials (water, concrete, sand, shell, and admixtures), 4) electricity to support Reef Innovations in

construction of the reef balls. The work involves preparing forms with floats, preparing and pouring the "baycrete" mix, pouring baycrete into forms, disassembling forms and removing reef balls, assembly of final reef ball elements with base, and safe secure storage of reef balls until construction.

Combination Reef Balls/Shell Bags (180):

The combination reef ball/shell bags work will be overseen by contractors from Reef Innovations in Sarasota FL who have expertise fabricating thousands of reef balls for projects on the Gulf and East Coasts. The main labor for this work will be provided by the Conservation Corps crews.

Please see the 60% design plans for the SF Bay Living Shorelines Project at Giant Marsh (Attachment 1), prepared by ESA. Reef balls with four oyster shell bags attached are roughly 1 meter in height, and will be constructed using forms provided by Reef Innovations. The reef balls will be truncated at the top, with four shell bags attached via wood dowels. Combination Reef Balls/Shell Bags also have an integrated baycrete base.

The services sought for this effort include: 1) coordination with consultants from Reef Innovations, consultants from Drakes Bay Oyster Company, and CA Conservation Corps labor, 2) yard space, and 3) materials (water, concrete, sand, shell, and admixtures), 4) electricity to support Reef Innovations in construction of the combination reef balls/shell bags. The work involves preparing forms with floats, preparing and pouring the "baycrete" mix, pouring baycrete into forms, disassembling forms and removing reef balls, assembly of final combination reef ball/shell bag elements with base, and safe secure storage of reef balls until construction.

The oyster block and oyster block base construction will be conducted by the contractor chosen as part of this RFP, with support from consultants from Reef Innovations in Sarasota FL and Conservation Corps crews. The main labor for this work will be provided by the Conservation Corps crews.

Please see the 60% design plans for the SF Bay Living Shorelines Project at Giant Marsh (Attachment 1), prepared by ESA. Each oyster block is square in shape and roughly 8" in height and resembles a "cinder block", but has an interlocking design so they can be fit together into one oyster block element. Each oyster block element contains 14 individual oyster blocks stacked in a pyramid shape, with individual blocks connected by grout.

Oyster Block Prototypes – contractor shall cast fourteen (14) prototypes for review and acceptance by CWF, prior to full scale fabrication.

Oyster blocks (3,755): The lead contractor (subject of this RFP) shall prepare forms made of wood, metal, or other appropriate material to fabricate the oyster blocks. Services sought for this effort include: 1) lead on oyster block effort with coordination with consultants from Reef Innovations and CA Conservation Corps labor, 2) fabrication of wood or metal forms, 3) yard space, and 4) materials (water, concrete, sand, shell, and admixtures), to lead fabrication of the oyster block elements. The work involves

preparing forms, preparing and pouring the "baycrete" mix, pouring baycrete into forms, disassembling forms and removing oyster blocks, and safe secure storage of oyster blocks until construction.

Oyster Block Base Prototypes – contractor shall cast three (3) prototypes for review and acceptance by CWF, prior to full scale fabrication.

Oyster block bases (270): The lead contractor (subject of this RFP) shall prepare forms made of wood, metal, or other appropriate material to fabricate the oyster block bases. Services sought for this effort include: 1) lead on oyster block effort with minor oversight with contractors from Reef Innovations and CA Conservation Corps labor, 2) fabrication of wood or metal forms, 3) yard space, and 4) materials (water, concrete, sand, shell, and admixtures), to lead fabrication of the oyster block elements. The work involves preparing forms, preparing and pouring the "baycrete" mix, pouring baycrete into forms, disassembling forms and removing oyster block bases, and safe secure storage of oyster blocks until construction.

Yard Space and Other Specifications:

The selected contractor shall provide all yard space, water and power, materials, and labor necessary complement Conservation Corps labor to complete the fabrication and secure storage of all oyster elements in accordance with the specifications, project schedule, and budget. The selected contractor shall also specifically provide and maintain the following to facilitate work by required partner Reef Innovations:

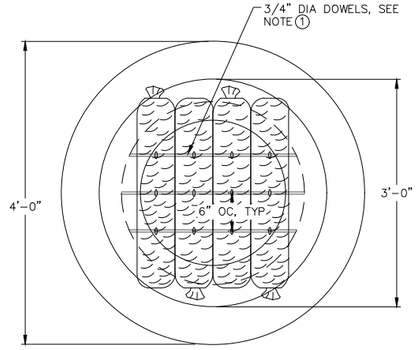
- Space, labor, equipment, duration, material quantities, work hours, etc.
- Handling and storage

Submittals: Fabrication Plan

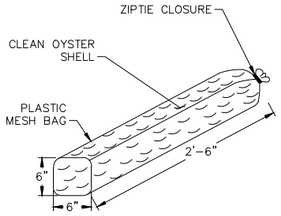
Mandatory Meeting for Applicants

There will be an informational meeting held on Thursday, February 8, 10:00-11:00 a.m. at the California State Coastal Conservancy office (1515 Clay St, 10th floor, Oakland CA 94612).

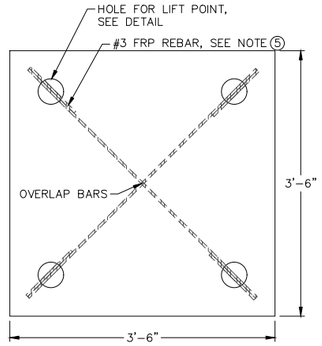
This meeting is mandatory to attend, and RSVP is required to alarson@californiawildlifefoundation.org. Please indicate whether you will attend in person or remotely. If remotely, a GoTo meeting link will be sent to you.



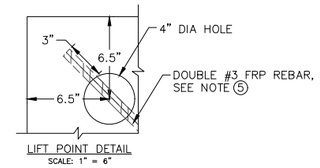
PLAN



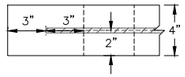
SHELL BAG DETAIL



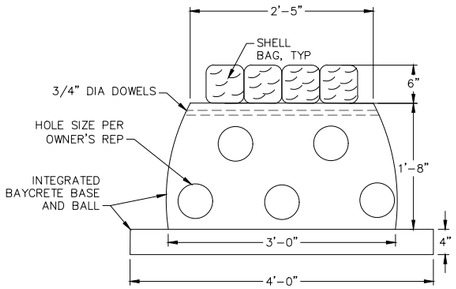
PLAN – BASE



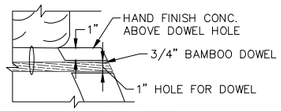
LIFT POINT DETAIL
SCALE: 1" = 6"



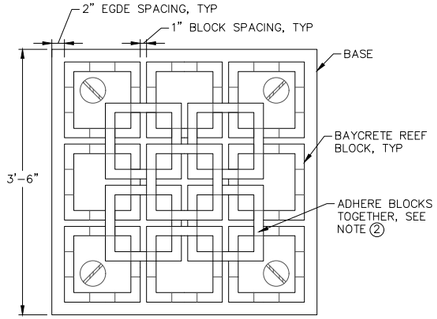
SLAB SECTION
SCALE: 1" = 6"



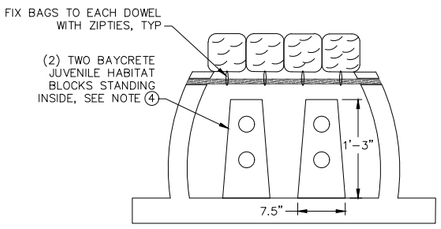
ELEVATION



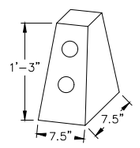
DOWEL DETAIL
(SCALE: 1" = 6")



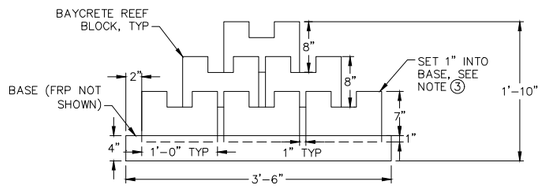
PLAN – FULLY ASSEMBLED



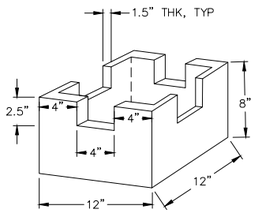
CUTAWAY



JUVENILE BLOCK DETAIL



ELEVATION – FULLY ASSEMBLED



DETAIL: BAYCRETE REEF BLOCK
(NOT TO SCALE)

1 / - REEF BALL WITH SHELL BAGS
SCALE: 1" = 1'

2 / - OYSTER BLOCK ELEMENT
SCALE: 1" = 1'

GENERAL NOTES:

1. DIMENSIONS SHOWN ARE APPROXIMATE AND SUBJECT TO CHANGE UPON PERMIT RECEIPT AND OWNERS REVIEW OF PROTOTYPES.

CONSTRUCTION NOTES:

(1) DOWELS FOR SHELL BAG SUPPORT SHALL BE 3/4" DIA BAMBOO DOWELS, SPACED 6" OC. INSTALLED WITH THE TOP OF THE DOWEL 1" VERTICALLY BELOW THE TOP SURFACE OF THE BAYCRETE. THE DOWELS SHALL EXTEND HORIZONTALLY THROUGH THE FULL THICKNESS OF THE BAYCRETE AND BE CUT TO MATCH WIDTH OF FINISHED REEF BALL.

(2) PLACE A BEAD OF TWO-PART MARINE ADHESIVE WHERE BLOCKS REST UPON EACH OTHER TO BOND BLOCKS TOGETHER.

(3) LOWEST NINE BLOCKS SHALL BE SET BE SET AND PRESSED APPROX. 1.0" INTO UNCURED BASE. HAND FINISH SURROUNDING AREAS.

(4) JUVENILE HABITAT BLOCKS SHALL BE APPROXIMATELY THE SIZE SHOWN, AND AS DIRECTED BY REEF INNOVATIONS.

(5) FRP REBAR SHALL BE #3 GRADE F60, E6.0 OR GREATER WITH TRANSVERSE SHEAR EXCEEDING 22,000 PSI. ALL FRP SHALL BE IN ACCORDANCE WITH ACI 440.3R-4.

PREPARED BY:
ESA
550 Kearny Street
Suite 800
San Francisco, CA 94108
415.896.5900 phone

SHEET TITLE
REEF ELEMENT AND COMPONENT DETAILS

PROJECT
LIVING SHORELINES PROJECT AT GIANT MARSH

PREPARED FOR:
COASTAL CONSERVANCY

Coastal Conservancy
1515 CLAY ST., 10TH FLOOR
OAKLAND, CA 94612-1401

PRELIMINARY

APPROVED	M. ORR
DESIGNED	J. DARNELL
DRAWN	E. BARTOLOMEO
INCHARGE	B. BATTALIO
SCALE	AS NOTED
DATE	JANUARY 2018
SHEET	1

1 OF 1

VERTICAL DATUM: NAVD88

VERIFY SCALE
0 1"
BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

PRELIMINARY
NOT FOR CONSTRUCTION

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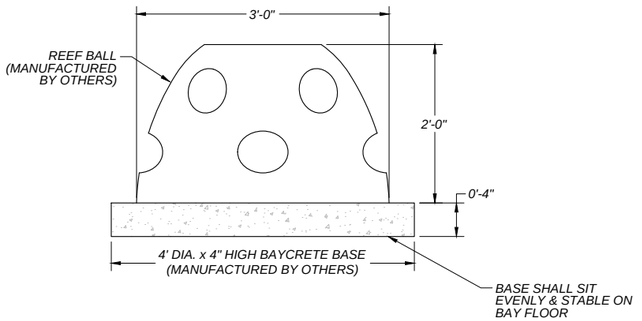
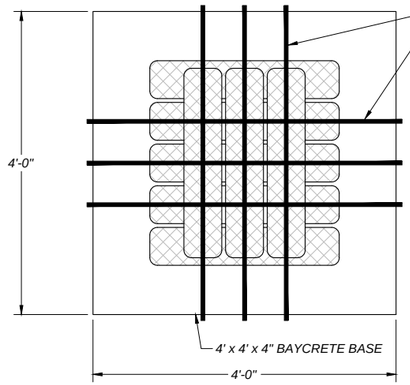
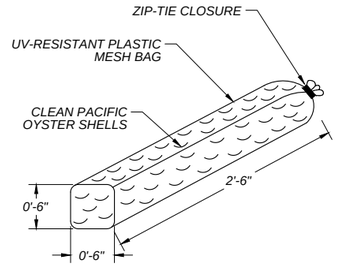


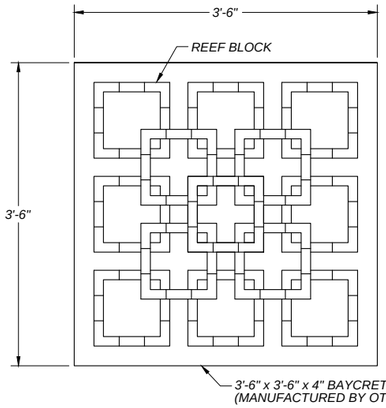
TYPICAL DETAIL
REEF □ALL □STYLE □□

REEF BALL PICTURE



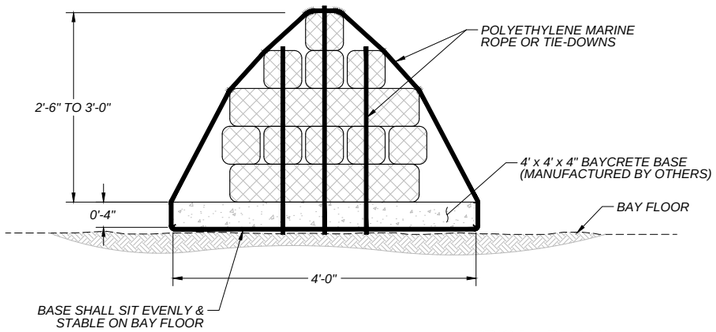


SHELL BAG
(MANUFACTURED BY OTHERS)

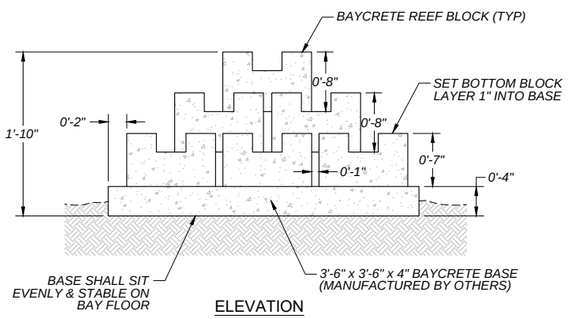


PLAN

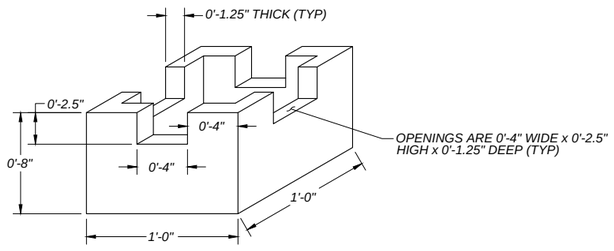
REEF BLOCK PICTURE



TYPICAL DETAIL
S□ELL □A□ MOUND □STYLE □□



ELEVATION



BAYCRETE REEF BLOCK
(MANUFACTURED BY OTHERS)

TYPICAL DETAIL
REEF □LOC□ STAC□ □STYLE □□

NOTES:

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100% DESIGN

REVISIONS			
REV. NO.	DESCRIPTION	DATE	APPROVED
5			
4			
3			
2			
1			

DUCKS UNLIMITED

PROJECT NO. US□CA□□□□□ DATE: □□□□□□□□	DESIGNED BY: AP
RED ROC□ SU□TIDAL PRO□ECT	DRAWN BY: JS
RESTORATION P□ASE	SURVEYED BY:
	CHECKED BY:
DETAILS	SHEET NO. 9 of 9

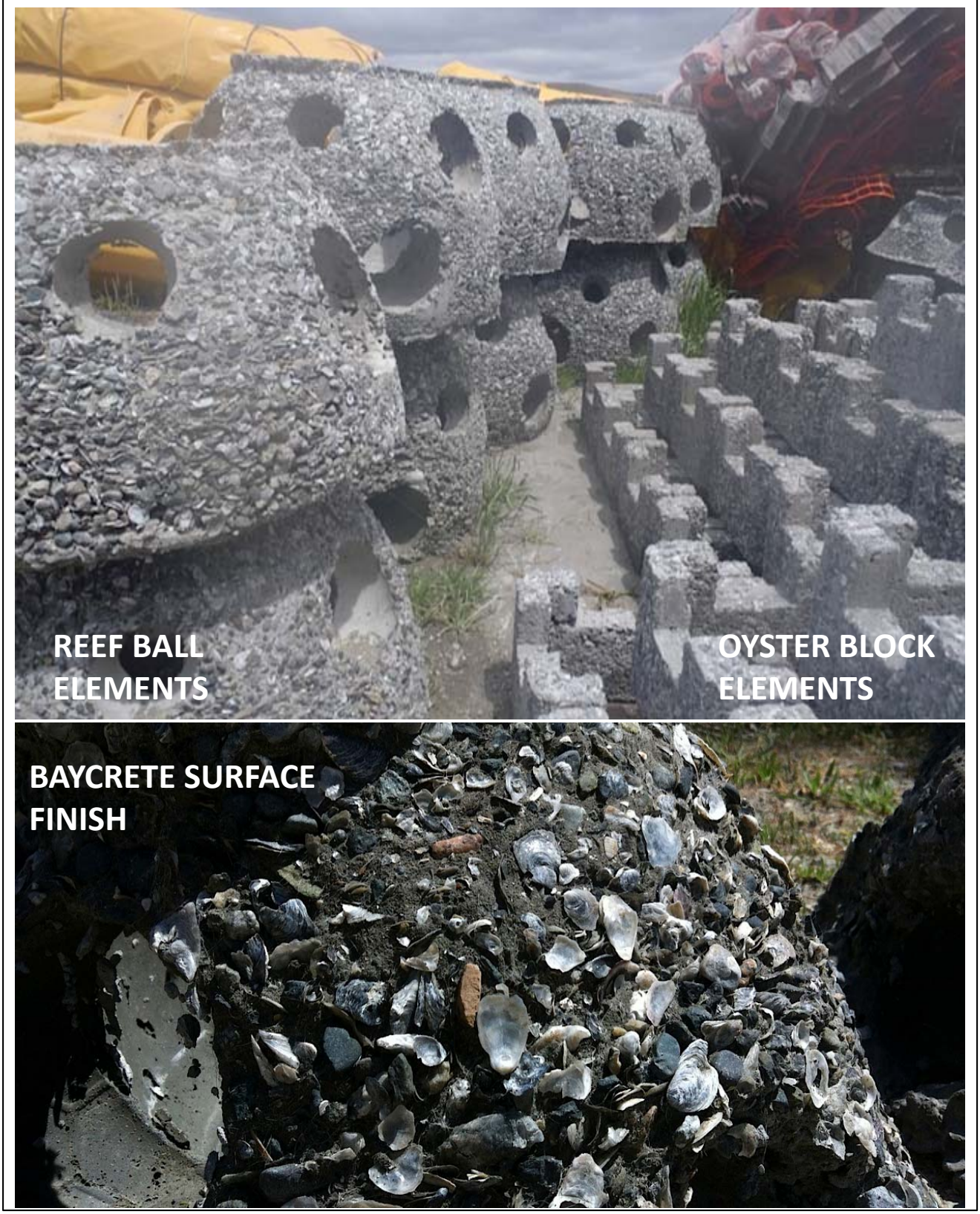

Figure 7
Photographs of Reef Elements

Figure 7

Photographs of Reef Elements