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W9a

MEMORANDUM

Date: June 10, 2013

To: Commissioners and Interested Parties

From: Alison Dettmer, Deputy Director
Robert Merrill, District Manager – North Coast District

Subject: **Addendum to Commission Meeting for Wednesday, June 12, 2013**
North Coast District Item W9a, CDP Amendment 1-12-004-A1 (Crescent City Harbor District)

Staff is making certain changes to the May 31, 2013 staff recommendation on CDP Amendment Request No. 1-12-004-A1. The proposed permit amendment incorporates a proposed eelgrass mitigation plan into the originally approved harbor dredging and shoreline revetment repair project to mitigate for the loss of eelgrass that eelgrass surveys conducted in 2012 after the original project was approved confirmed would be removed by the approved project dredging. Since publication of the staff report, the applicant submitted the results of additional pre-construction eelgrass surveys performed in 2013. These more recent surveys indicate that the extent and configuration of eelgrass beds has changed somewhat over the last year, and that the total amount of eelgrass that will be affected by the project is increasing slightly from 43 square meters to 45.63 square meters. The applicant has submitted a revised eelgrass mitigation plan that provides for additional eelgrass planting at the same location to account for the greater area of impact. The revised mitigation plan provides for the same 4.82:1 ratio of transplant area to impact area, and the same 1:1.2 ratio of impacted eelgrass bed to successfully created eelgrass bed. This addendum makes the necessary changes to the staff report to reflect the updated eelgrass and mitigation information and to revise staff recommended Special Condition No. 12 to require implementation of the recently revised eelgrass mitigation plan that is based on the 2013 survey data instead of the previous version of the plan.

Staff continues to recommend that the Commission approve the project with the special conditions included in the staff recommendation of September 21, 2012, as modified by the revisions described below. The applicant has indicated that the applicant accepts the special conditions of the staff recommendation as revised by staff. Therefore, staff also recommends that the application be moved to the North Coast District consent calendar.

I. REVISIONS TO RECOMMENDED SPECIAL CONDITIONS

Staff is recommending modifications to the text of Special Condition 12 on pages 4-5 of the May 31, 2013 staff report as follows (text to be deleted is shown in ~~strikethrough~~; text to be added appears in **bold double-underline**):

12. Implement Revised Eelgrass Mitigation and Monitoring Plan

(A) The permittee shall mitigate for the impacts of the project as amended on eelgrass beds as proposed by the permittee by fully implementing the eelgrass mitigation plan submitted with the application for Coastal Development Permit Amendment Nol. 1-12-004-A1 titled, "~~Revised~~ Eelgrass Mitigation and Monitoring Plan, Crescent City Harbor Outer Boat Basin," dated ~~January~~ **May** 2013, and prepared by Kyle Wear, Botanical Consultant. The permittee shall incorporate the project changes detailed in the plan that avoid approximately ~~2,000~~ **2,782** square meters of eelgrass impacts and shall compensate as proposed for the remaining loss of ~~43~~ **45.63** square meters of existing eelgrass beds resulting from the dredging authorized by the project as amended by successfully establishing a minimum of ~~51.6~~ **54.76** square meters of new eelgrass bed (1:1.2 ratio of impacted eelgrass bed to successfully created eelgrass bed) within a minimum ~~207~~ **220-** square-meter area planted with eelgrass (4.82:1 ratio of transplant area to impact area) on new habitat area constructed from dredge material within harbor waters at the southern corner of the Outer Boat Basin. The dredge material to be used for the eelgrass mitigation shall be removed from the dredge area and placed directly on the harbor bottom at the mitigation site rather than dropped through the water and a silt curtain shall be installed within the 25-foot buffer between the mitigation site and existing eelgrass bed ZOMA-1b prior to placement of the dredge material. The permittee shall monitor the success of the eelgrass mitigation and prepare and submit monitoring reports over a five year period for the review and approval of the Executive Director in accordance with the monitoring and reporting schedule detailed in the plan. As proposed in the plan, if the mitigation site fails to meet the success criteria during two consecutive annual monitoring events, the permittee shall submit an application for a further amendment of CDP 1-12-004 for additional mitigation to ensure all performance criteria are satisfied consistent with all terms and conditions of this permit.

(B) The permittee shall undertake development in accordance with the approved final plans. Any proposed changes to the approved final plans shall be reported to the Executive Director. No changes to the approved final plans shall occur without an amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

II. REVISIONS TO FINDINGS

Staff also recommends corresponding modifications to the related findings of the staff report as follows (text to be deleted is shown in ~~strikethrough~~; text to be added appears in **bold double-underline**):

- ***Revise the text of the last paragraph of the "Project Background" portion of Finding III-A on page 7 as follows:***

Pursuant to the pre-construction survey requirements of Special Condition No. 2, the applicant's consultants conducted dive surveys of the Outer Boat Basin in May of 2012. **Additional pre-construction surveys were conducted on May 13, 14, and 15 of 2013.** The surveys identified a total of ~~eight~~ **ten** eelgrass beds, **including two small isolated beds identified in the May 2012 survey that were no longer present when the May 2013 survey was conducted, and two isolated beds identified for the first time in the May 2013 survey.** ~~of which s~~**S**ix **of the currently existing beds** are within the project area originally approved by CDP 1-12-004. According to the Mitigation and Monitoring Plan later prepared by the consultants and included as Exhibit 8, the beds range from less than one square meter in size to over ~~1,500~~ **2,279** square meters and predominantly occur on narrow shoals around the perimeter of the harbor (see Exhibit 5). The beds are identified as ZOMA ~~1-8~~ **1, 2, 3, 6, 7, 8, 9, and 10 (ZOMA 4 and 5 are the two beds identified in 2012 that are no longer present.)**

- ***Revise the text of the "Proposed Amendment" portion of Finding III-A on pages 7-9 as follows:***

Proposed Amendment

The number and extent of eelgrass beds identified by the ~~May 2012~~ **pre-construction** survey**s** within the project area was larger and greater than anticipated at the time the Commission approved the project in April of 2011. The applicant ~~subsequently~~ **has** prepared an eelgrass mitigation plan that reduces the scope of the authorized dredging and rock slope protection repairs to avoid and minimize impacts to eelgrass beds and also proposes the creation of a new eelgrass bed to compensate for dredging impacts to eelgrass beds that cannot be avoided. These revisions are the subject of this proposed permit amendment. The revised dredging plan avoids certain areas near the shoreline embankment that currently contain eelgrass and that have not been extensively used in recent years for boat mooring. The dredgers will maintain a 25-foot or greater setback from the eelgrass beds in these areas. By deleting areas from dredging, the applicant will avoid approximately ~~2,000~~ **2,782** square meters of existing eelgrass beds. However, it is not possible to avoid all of the existing eelgrass beds and a total of ~~43~~ **45.63** square meters of existing eelgrass beds at ZOMA-3, ~~-4, and -5~~ **9, and 10** will be removed by the authorized dredging.

The rock slope protection repairs authorized by the original permit in the vicinity of ZOMA-1 and ZOMA-2 will be similarly reduced to limit disturbance and the placement of new rock to areas above, below, and/or adjacent to the eelgrass beds, maintaining a minimum setback of five feet from the eelgrass beds. As revised, the rock slope protection repairs will avoid all of the eelgrass beds.

Special Condition No. 1 of the original permit requires the submittal of final design and construction plans for the project prior to issuance of the permit. The submitted final plans include the reductions in dredging and rock slope protection repairs described above to avoid and minimize impacts on eelgrass consistent with the requirements of Special Condition No. 2(B).

As noted above, Special Condition No. 2(B) contains provisions requiring that any impacts to eelgrass beds be avoided and mitigated. The condition requires that any net loss of eelgrass based on pre- and post- construction surveys be mitigated by the creation of new or expanded eelgrass beds and that a final mitigation and monitoring plan for the creation and monitoring of the eelgrass beds be submitted for the review and approval of the Commission. The mitigation methods, the location of the mitigation sites, and the monitoring plan are required to be in compliance with the recommendations of the Draft California Eelgrass Mitigation Policy prepared by the National Marine Fisheries Service, Southwest Region dated December 7, 2011.

Based on the pre-construction eelgrass bed survey which identified a greater number and extent of eelgrass beds than anticipated when the original project was approved, eelgrass creation is required, even with the reductions in the amount of dredging and rock slope protection repairs to minimize eelgrass impacts. Eelgrass mitigation is usually accomplished by transplanting eelgrass turions from scattered locations within an existing eelgrass bed to a shallow area of soft bottom habitat at a suitable elevation that does not contain eelgrass. The pre-construction eelgrass survey**s** indicate that eelgrass is present from approximately 0 to -6 feet Mean Lower Low Water (MLLW) with the highest density at -2 feet MLLW. Because of the limited amount of soft bottom habitat at these elevations within the Outer Boat Basin and nearby areas that is not already occupied by eelgrass, the Harbor District proposes to create suitable eelgrass habitat by taking approximately 1,700 cubic yards of the sandy/silty material previously authorized to be dredged from the harbor and disposed at the offshore HOODS disposal site and instead placing the material within a shallow area adjacent to an existing eelgrass bed near the southern corner of the Outer Boat Basin, at a depth of -2 MLLW to create suitable area for eelgrass transplanting. The proposed deposition of dredged material is a form of development that was not previously authorized by the original permit and requires the subject amendment. In addition, the amendment proposes to revise Special Condition No. 2 to require implementation of the final revised eelgrass mitigation plan prepared for the new mitigation proposal. The plan is titled, "~~Revised~~ Eelgrass Mitigation and Monitoring Plan, Crescent City Harbor Outer Boat Basin," prepared by Kyle Wear, Botanical Consultant, and dated ~~January~~ **May** 2013 (See Exhibit 8).

The proposed eelgrass mitigation site is located between the public boat launching ramp and the Coast Guard dock adjacent to the largest and most continuous existing eelgrass bed within the Outer Boat Basin. According to the amendment request, the mitigation site is a low energy area which allows for sediment accumulation and minimizes the potential for erosion of the mitigation area. The reduced dredging and rock slope protection repairs shown in the final plans required by Special Condition No. 1 of the original permit will result in the removal of ~~43~~ **45.63** square meters of existing eelgrass beds at ZOMA-3, -4, and -5. Special Condition No. 2(B) of the original permit requires that the eelgrass mitigation and monitoring plan be in compliance with the recommendations of the Draft California Eelgrass Mitigation Policy prepared by the National Marine Fisheries Service, Southwest Region dated December 7, 2011. Under the provisions of this protocol, the Harbor District must plant approximately ~~207~~ **220** square meters of new habitat (4.82:1ratio of transplant area to impact area) and successfully create ~~51.6~~ **54.76** square meters of new eelgrass bed.

The 1,700 cubic yards of dredge material to be placed to create the eelgrass mitigation site will be placed in water that currently has an average depth of -5 feet MLLW with the deepest point at approximately -9 feet MLLW. The fill would create a flat 511 square meter area of potential eelgrass habitat at the designed depth of -2 feet MLLW. The area of potential eelgrass habitat to be created is larger than the ~~207~~ **220** square meters that must be planted to account for possible erosion of the created area and ensure a better opportunity for success. The sides of the fill area would slope downward at a slope of 4 horizontal to 1 vertical. The base of the fill area would cover a total of approximately 1,167 square meters of the existing bottom of the Outer Boat Basin.

The dredged material will be removed from the dredge area and placed through the water directly onto the ocean floor at the mitigation site with a barge-mounted excavator or via a dredge scow, rather than pumped to the site or dropped through the water. To further minimize turbidity and sedimentation of the adjacent eelgrass bed, a silt curtain will be installed in the 25-foot buffer between the dredged material placement site and the existing eelgrass bed (ZOMA-1b). Sediment samples indicate the dredge material to be deposited consists of sandy/silty/clayey sediment. An analysis of the stability and settlement of the dredge material indicates the bed to be created with its proposed 4:1 vertical to horizontal slopes will remain stable and the deposited material is not expected to migrate from the site.

Under the mitigation plan, transplanting of eelgrass turions will occur during the active growth period for eelgrass (May 1-September 30). **All or** ~~M~~**m**ost of the turions will be harvested from ZOMA-3 before all of ZOMA-3 and some of the surrounding area is dredged for maintenance of the public boat launch ramp. **If necessary,** ~~A~~**a**dditional turions will be harvested from ZOMA 1-~~b~~**a** in a manner that does not create noticeable bare patches and removes no more than ~~5~~ **10** percent of the underground biomass of the eelgrass at ZOMA 1-~~b~~**a**. A biologist with prior experience with eelgrass transplanting that has been approved by the California Department of Fish and Wildlife will carry out the transplanting of the eelgrass.

The applicant proposes to establish a minimum of ~~51.6~~ **54.76** square meters of new eelgrass bed (1:1.2 ratio of impacted eelgrass bed to successfully created eelgrass bed) within a minimum ~~207~~ **220**-square-meter area planted with eelgrass (4.82:1 ratio of transplant area to impact area) in a manner consistent with the Draft California Eelgrass Mitigation Policy prepared by the National Marine Fisheries Service, Southwest Region dated December 7, 2011.

The eelgrass mitigation and monitoring plan provides for mitigation monitoring over a five year period. Additional pre-construction monitoring will be performed and an existing eelgrass bed that will not be disturbed by project activities will be used as a reference bed. The plan provides success criteria to be met during each semi-annual monitoring event over the five-year monitoring period. If the mitigation site fails to meet these criteria during two consecutive annual monitoring events, the plan indicates an application shall be submitted for a further amendment of CDP 1-12-004 for additional mitigation to ensure all performance criteria are met.

- ***Revise the text of the second to the last paragraph of the "Allowable Use for Dredging and Filling of Coastal Waters" portion of Finding III-D on page 13 as follows:***

The placement of dredge spoils in the coastal waters of the Outer Boat Basin now proposed under the amendment to create suitable shallow water area for eelgrass transplanting is part of the mitigation to be provided for the impacts on eelgrass habitat of the dredging authorized under the original permit. The affected eelgrass beds are ZOMA 3, ~~4, and 5~~ **9 and 10** located adjacent to lower end of the public boat launching ramp, near the western corner of the Outer Boat Basin, and in basin waters between the boat launching ramp and the Coast Guard Docks, respectively. Feasible mitigation to minimize the adverse environmental effects of the approved dredging must be provided pursuant to Section 30233(a). In addition, placement of the 1,700 cubic yards of fill over the proposed 1,167-square-meter area to create the eelgrass mitigation site is the least environmentally damaging feasible alternative to mitigate for the adverse impacts of the dredging on existing eelgrass beds as discussed in Section (2) below.

- ***Revise the text of the "ii. Further Modifying Dredging to Avoid Need for Eelgrass Mitigation" portion of Finding III-D(2) on pages 14-16 as follows:***

ii. Further Modifying Dredging to Avoid Need for Eelgrass Mitigation

Further modifying the originally approved dredging area to completely avoid the existing eelgrass beds would eliminate the need for eelgrass mitigation and consequently eliminate the need altogether to place dredge material within the harbor to create a suitable eelgrass transplanting area.

As discussed above, a preliminary eelgrass survey of the project site was conducted by the Harbor District's consultants on March 13, 2012, prior to Commission approval of the original permit. The preliminary survey identified an approximately 289 square meter eelgrass bed near the entrance to the public boat launch area at the southern corner of the Outer Boat Basin and a separate approximately 241-square-meter eelgrass bed in the vicinity of the Administrative Dock. However, the preliminary survey was not conducted during the eelgrass growing season and did not include the open waters of the Outer Boat Basin. Therefore, the preliminary survey report included recommendations that the areas adjacent to all of the RSP repair sites along the Outer Boat Basin as well as all areas of the Outer Boat Basin within and adjacent to any of the proposed dredging be re-surveyed in May 2012 prior to the commencement of construction to determine the full extent of eelgrass within the project area.

Special Condition 2(B) of the original permit required that impacts to eelgrass be avoided to the maximum extent feasible. Among other requirements, Special Condition 2 also required the applicant to conduct comprehensive pre-construction surveys during the active eelgrass growing season to provide a more comprehensive inventory of the number and extent of eelgrass beds within the project area than was available at the time of project approval. ~~The s~~**S**urvey**s** ~~was~~ **were** conducted in May of 2012 **and on May 13, 14, and 15, 2013** and identified a total of ~~eight~~ **ten** eelgrass beds, **including two small isolated beds identified in the May 2012 survey that were no longer present when the May 2013 survey was conducted, and two isolated beds identified for the first time in the May 2013 survey.** ~~of which s~~**S**ix **of the currently existing beds** are within the project area originally approved by CDP 1-12-004. According to the Mitigation and Monitoring Plan later prepared by the consultants and included as Exhibit 8, the beds range from less than one square meter in size to over ~~1,500~~ **2,274** square meters and

predominantly occur on narrow shoals around the perimeter of the harbor (see Exhibit 5). The beds are identified as ZOMA ~~1-8~~ **1, 2, 3, 6, 7, 8, 9, and 10 (ZOMA 4 and 5 are the two beds identified in 2012 that are no longer present.)**

The number and extent of eelgrass beds identified in the **pre-construction** survey**s** ~~was~~ **were** larger and greater than anticipated in April 2011 when the Commission approved the original project. The applicant has therefore reduced the planned extent of authorized dredging and rock slope protection repairs to minimize impacts to the eelgrass beds. The final design and construction plans submitted to satisfy the requirements of Special Condition No. 1 reflect these reductions in dredging and rock slope protection repairs. The revised dredging plan (see Exhibit 5) and the revised plans for revetment repairs (see Exhibit 6) avoid certain areas near the shoreline embankment that currently contain eelgrass (ZOMAs 1A, 1B, 6, 7, and 8) and that have not been extensively used in recent years for boat mooring. By avoiding development in these areas, the applicant will avoid approximately ~~2,000~~ **2,782** square meters of existing eelgrass beds. However, the revised dredging plan still will affect a total of ~~43~~ **45.63** square meters of existing eelgrass beds at ZOMA-3, ~~4, and 5~~ **9 and 10**.

The dredging plan cannot be further modified to eliminate impacts to the remaining ~~43~~ **45.63** square meters of existing eelgrass beds that would be affected (ZOMA-3, ~~4, and 5~~ **9 and 10**) and still provide the necessary depths in the Outer Boat Basin for commercial and recreational vessels. ZOMA 3 is located on shoaled sediments along one side and near the base of the public boat launching ramp. The shoaled sediments are in the path of boat launching operations and cannot be retained without compromising the ability to launch boats.

ZOMA**s** ~~4~~ **9 and 10** ~~is~~ **are** located ~~in the western corner~~ **along the northeastern side** of the Outer Boat Basin close to the ~~southernmost of~~ three commercial fish docks where commercial fishing vessels off-load fish to be processed at the adjacent fish processing plants. The commercial fishing vessels have significant draft and need a certain amount of maneuvering room and depth to safely berth at the commercial fish dock**s**. The design dredge depth of the commercial fish dock berthing area is -15 feet MLLW. The depths of the ZOMA ~~4~~ **9 and 10** eelgrass bed**s** ~~is~~**are** only approximately -2 feet MLLW. To preserve the eelgrass bed**s**, not only would dredging have to avoid the soft bottom directly underlying the footprint of the eelgrass bed**s**, but also avoid an area around ~~the~~ **each** eelgrass bed that increases in size with depth in order to retain a stable base for the perched eelgrass bed with side slopes that are not so steep that the slopes will be subject to sliding and cause the collapse of the eelgrass bed. The slopes would need to be maintained at an approximately 4:1 slope to ensure stability, which means that the lowest part of the base will occupy a much greater area and encroach into vessel mooring and maneuvering area to a much greater degree than the top of the eelgrass bed. The extent of this encroachment is significant enough that preserving the ZOMA ~~4~~ **9 and 10** eelgrass bed**s** would unacceptably interfere with vessel mooring and maneuvering at the southernmost of the commercial fish docks.

~~ZOMA 5 is located near the southern end of the Outer Boat Basin in waters between the public boat launching ramp and the Coast Guard Dock. The base of ZOMA-5 would be located in an area designed to be dredged to a depth of -10 MLLW to accommodate vessels maneuvering in this part of the harbor including vessels using the Coast Guard Dock and boat launching ramp.~~

~~The base needed to support the ZOMA-5 eelgrass bed would extend over a much greater area of the harbor bottom at elevation -10 MLLW than the top of the eelgrass bed at an elevation of approximately -2 MLLW. As is the case with ZOMA-4, the extent of this encroachment of the eelgrass bed and its base into needed vessel mooring and maneuvering area is significant enough that preserving the ZOMA-4 eelgrass bed would unacceptably interfere with vessel operations.~~

As discussed above, Coastal Act policies give high priority to the maintenance and enhancement of commercial fishing and recreational boating uses and facilities. The alternative of further modifying the planned dredging to completely avoid each of the three remaining eelgrass beds that have not already been protected by project changes and thereby eliminate the need to place fill to create a suitable eelgrass transplanting area would unacceptably interfere with commercial fishing and recreational boating uses and facilities. Therefore, the Commission finds that this alternative is not a feasible less environmentally damaging alternative to the project as amended.

- ***Revise the text of the "iii. Transplanting Eelgrass To Mitigate Without Filling," portion of Finding III-D(2) on pages 16-17 as follows:***

i. <u>Transplanting Eelgrass To Mitigate Without Filling</u>

Mitigating the eelgrass impacts of the project by transplanting eelgrass to locations that are currently at a suitable depth for eelgrass habitat but unoccupied by eelgrass would be an alternative that would eliminate the need for filling the waters of the Outer Boat Basin. As discussed above, project dredging will unavoidably impact a total of approximately ~~43~~ **<u>45.63</u>** square meters of eelgrass beds. In accordance with the 4.82:1 ratio of eelgrass planting area to area of impact recommended in the Draft California Eelgrass Mitigation Policy prepared by the National Marine Fisheries Service, Southwest Region dated December 7, 2011, the project requires a total of ~~207~~ **<u>220</u>** square meters of suitable eelgrass planting mitigation area. The eelgrass surveys conducted for the project indicate that the best depth for eelgrass growth in the Outer Boat Basin is at an elevation of -2 MLLW. In addition, the existing eelgrass beds generally are located within low energy areas within the basin, which allows for sediment accumulation and minimizes the potential for erosion at the mitigation site. The consultants who prepared the applicant's eelgrass mitigation plan surveyed the Outer Boat Basin and surrounding areas and found only very limited amounts of existing soft bottom area at elevation -2 MLLW in low energy areas protected from erosion that are not already occupied by eelgrass. The limited amount of area found meeting these criteria falls far short of the ~~207~~ **<u>220</u>** square meters needed for eelgrass mitigation, and none of the individual areas found are of sufficient size to be practical for eelgrass transplanting. Therefore, the Commission finds that mitigating the eelgrass impacts of the project by transplanting eelgrass to locations that are currently suitable for eelgrass habitat but unoccupied by eelgrass is not a feasible less environmentally damaging alternative to the project as amended.

- ***Revise the text of the first two paragraphs of the "iv. Reducing the Size of the Fill Area for Eelgrass Transplanting," portion of Finding III-D(2) on page 17 as follows:***

Reducing the size of the proposed area to be filled for eelgrass mitigation would reduce impacts to existing soft bottom habitat from the mitigation proposal. As discussed above, the project

requires a total of ~~207~~ **220** square meters of suitable eelgrass planting mitigation area to meet the 4.82:1 ratio of eelgrass planting area to area of impact recommended in the Draft California Eelgrass Mitigation Policy. To create the eelgrass mitigation site, the applicant proposes to place 1,700 cubic yards of dredge material in water that currently has an average depth of -5 feet MLLW with the deepest point at approximately -9 feet MLLW. The fill would create a flat 511 square meter area of potential eelgrass habitat at the designed depth of -2 feet MLLW. The sides of the fill area would slope downward at a slope of 4 horizontal to 1 vertical. The base of the fill area would cover a total of approximately 1,167 square meters of the existing bottom of the Outer Boat Basin.

The 511-square-meter area of potential eelgrass habitat proposed to be created is larger than the ~~207~~ **220** square meter transplanting area dictated by the recommended 4.82:1 ratio of eelgrass planting area to area of impact. The flat area of potential eelgrass habitat to be created must be larger than ~~207~~ **220** square meters for several reasons. First the ~~207~~ **220** square meter transplanting area is the minimum size that must be transplanted and providing a larger area will account for possible erosion of the created area and ensure the minimum transplanting area remains available. Second, the size of the proposed transplanting area is dictated in part, by the particular configuration of the transplanting area that fits the site. The site was selected based on its location within a low energy area which further minimizes the chances of erosion and also because the site is adjacent to the ZOMA-1 eelgrass bed, the largest and most continuous eelgrass bed within the Outer Boat Basin. The existence of this large eelgrass bed suggests that the conditions for eelgrass growth in this location are favorable which increases the changes for successful transplantation of the eelgrass. As shown in Exhibit 7, the proposed mitigation area is sited in a location within an inverted corner of the ZOMA-1 eelgrass bed. The proposed fill for the mitigation site is designed to literally fill in this inverted corner of the existing eelgrass bed and ultimately create one larger continuous eelgrass bed. The outer edge of the proposed fill site is designed as a ~~curvilinear~~ convex edge to better deflect wave energy to further minimize potential future erosion of the eelgrass mitigation site. The relative shallow 4 horizontal to 1 vertical slope of the side slopes of the mitigation site fill area is also designed to minimize potential future erosion. Steeper slopes would be more prone to sloughing which would compromise the integrity of the eelgrass mitigation area. Thus, the proposed size and configuration of the eelgrass mitigation area is necessary to maximize the chances for success of the eelgrass mitigation required for the project as amended.

- ***Revise the text of the "i. Displacement of Eelgrass Habitat," portion of Finding III-D(3) on pages 19-21 as follows:***

i. Displacement of Eelgrass Habitat

The dredging activities associated with the project as amended will result in the removal of a total of ~~43~~ **45.63** square meters of existing eelgrass beds at ZOMA-3, ~~-4, and -5~~**9 and 10**. Eelgrass is not a rare species, but eelgrass beds are considered environmentally sensitive due to their important fish habitat functions. Eelgrass is a marine plant that grows in clear, well-lit, shallow coastal waters and provides shelter and spawning habitat for fish and invertebrates. It is widely recognized as one of the most productive and valuable habitats in shallow marine environments. The 1996 amendments to the Magnuson-Stevens Fishery Conservation and

Management Act set forth Essential Fish Habitat (EFH) provisions to identify and protect important habitats of federally managed marine and anadromous fish species. Eelgrass beds are considered a Special Aquatic Site by the U.S. Army Corps of Engineers, DFG, the Fish & Wildlife Service, and NOAA-Fisheries. Eelgrass habitat is regulated under Section 404 of the Clean Water Act and is considered EFH by NOAA-Fisheries.

As discussed in the alternative analysis finding above, the applicant has revised the project plans to eliminate all revetment repairs that would affect existing eelgrass beds and reduce planned dredging to avoid eelgrass beds to the greatest extent feasible. As revised, the project plans will avoid the eelgrass beds at the site identified as ZOMAs 1A, 1B, 2, 6, 7, and 8, avoiding approximately ~~2,000~~ **2,782** square meters of existing eelgrass beds. However, despite this significant reduction in eelgrass impacts, the revised dredging plan still will affect a total of ~~43~~ **45.63** square meters of existing eelgrass beds at ZOMA-3, ~~-4, and -5~~**9 and 10**. As discussed in the alternatives analysis, dredging in the three affected eelgrass beds cannot be avoided without unacceptably interfering with commercial fishing and recreational boating uses and facilities.

Special Condition No. 2(B) of the original permit contains a provision requiring that any net loss of eelgrass based on pre- and post- construction surveys be mitigated by the creation of new or expanded eelgrass beds, and that a final mitigation and monitoring plan for the creation and monitoring of the eelgrass beds be submitted for the review and approval of the Commission. The mitigation methods, the location of the mitigation sites, and the monitoring plan are required to be in compliance with the recommendations of the Draft California Eelgrass Mitigation Policy prepared by the National Marine Fisheries Service, Southwest Region dated December 7, 2011.

The submitted eelgrass mitigation plan is titled, "Revised Eelgrass Mitigation and Monitoring Plan, Crescent City Harbor Outer Boat Basin," prepared by Kyle Wear, Botanical Consultant, and dated January 2013 (See Exhibit 8). Eelgrass mitigation is usually accomplished by transplanting eelgrass turions from scattered locations within an existing eelgrass bed to a shallow area of soft bottom habitat at a suitable elevation that does not contain eelgrass. The pre-construction eelgrass survey indicates that eelgrass is present from approximately 0 to -6 feet Mean Lower Low Water (MLLW) with the highest density at -2 feet MLLW. Because of the limited amount of soft bottom habitat at these elevations within the Outer Boat Basin and nearby areas that is not already occupied by eelgrass, the Harbor District proposes to create suitable eelgrass habitat by taking approximately 1,700 cubic yards of the sandy/silty material previously authorized to be dredged from the harbor and disposed at the offshore HOODS disposal site and instead placing the material within a shallow area adjacent to an existing eelgrass bed near the southern corner of the Outer Boat Basin, at a depth of -2 MLLW to create suitable area for eelgrass transplanting.

The proposed eelgrass mitigation site is located between the public boat launching ramp and the Coast Guard dock adjacent to the largest and most continuous existing eelgrass bed within the Outer Boat Basin. According to the amendment request, the mitigation site is a low energy area which allows for sediment accumulation and minimizes the potential for erosion of the mitigation area. Under the provisions of the Draft California Eelgrass Mitigation Policy prepared by the National Marine Fisheries Service, the Harbor District must plant approximately

~~207~~ **220** square meters of new habitat (4.82:1ratio of transplant area to impact area) and successfully create ~~51.6~~ **54.76** square meters of new eelgrass bed.

The 1,700 cubic yards of dredge material to be placed to create the eelgrass mitigation site will be placed in water that currently has an average depth of -5 feet MLLW with the deepest point at approximately -9 feet MLLW. The fill would create a flat 511 square meter area of potential eelgrass habitat at the designed depth of -2 feet MLLW. The area of potential eelgrass habitat to be created is larger than the ~~207~~ **220** square meters that must be planted to account for possible erosion of the created area and ensure a better opportunity for success. The sides of the fill area would slope downward at a slope of 4 horizontal to 1 vertical. The base of the fill area would cover a total of approximately 1,167 square meters of the existing bottom of the Outer Boat Basin.

The dredged material will be removed from the dredge area and placed through the water directly onto the ocean floor at the mitigation site with a barge-mounted excavator or via a dredge scow, rather than pumped to the site or dropped through the water. To further minimize turbidity and sedimentation of the adjacent eelgrass bed, a silt curtain will be installed in the 25-foot buffer between the dredged material placement site and the existing eelgrass bed (ZOMA-1b). Sediment samples indicate the dredge material to be deposited consists of sandy/silty/clayey sediment. An analysis of the stability and settlement of the dredge material indicates the bed to be created with its proposed 4:1 vertical to horizontal slopes will remain stable and the deposited material is not expected to migrate from the site.

Under the mitigation plan, transplanting of eelgrass turions will occur during the active growth period for eelgrass (May 1-September 30). **All or** ~~M~~**m**ost of the turions will be harvested from ZOMA-3 before all of ZOMA-3 and some of the surrounding area is dredged for maintenance of the public boat launch ramp. **If necessary, a**~~A~~dditional turions will be harvested from ZOMA 1-~~b~~**a** in a manner that does not create noticeable bare patches and removes no more than ~~5~~**10** percent of the underground biomass of the eelgrass at ZOMA 1-~~b~~**a**. A biologist with prior experience with eelgrass transplanting that has been approved by the California Department of Fish and Wildlife will carry out the transplanting of the eelgrass.

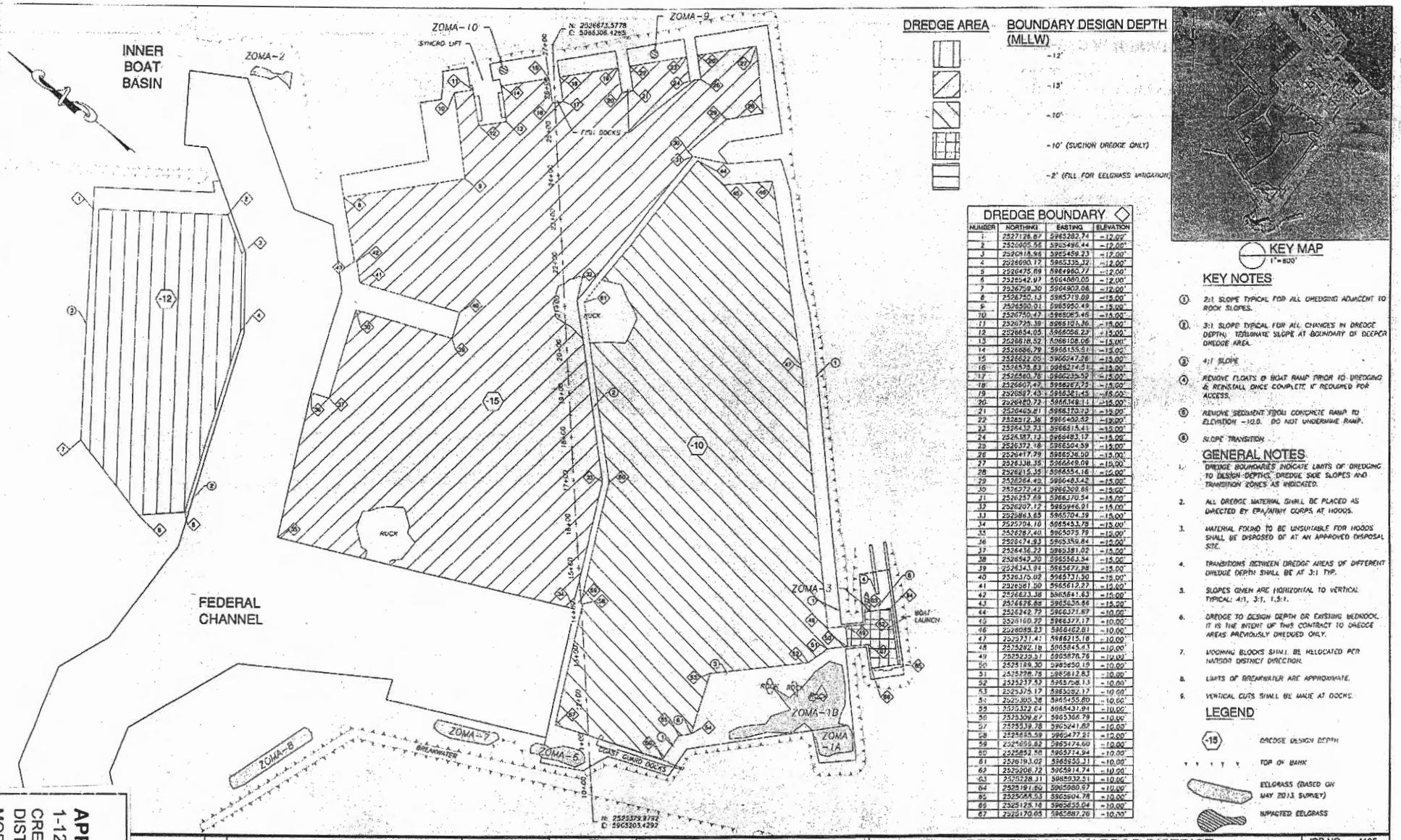
The eelgrass mitigation and monitoring plan provides for mitigation monitoring over a five year period consistent with the Draft California Eelgrass Mitigation Policy. Additional pre-construction monitoring will be performed and an existing eelgrass bed that will not be disturbed by project activities will be used as a reference bed. The plan provides success criteria to be met during each semi-annual monitoring event over the five-year monitoring period. If the mitigation site fails to meet these criteria during two consecutive annual monitoring events, the plan indicates an application shall be submitted for a further amendment of CDP 1-12-004 for additional mitigation to ensure all performance criteria are met.

The Commission's ecologist (John Dixon) and staff of the California Department of Fish and Wildlife were consulted in the preparation of the eelgrass mitigation plan. The final plan was modified to address their recommended changes to ensure that the plan will adequately mitigate the impacts of the project as amended on existing eelgrass beds in a manner consistent with the Draft California Eelgrass Mitigation Policy.

Therefore, the Commission finds that the eelgrass mitigation proposed under the subject amendment provides adequate mitigation for the impacts of the project as amended on eelgrass beds by (1) incorporating project changes that avoid approximately ~~2,000~~ **2,782** square meters of eelgrass impacts and (2) compensating as proposed for the remaining loss of ~~43~~ **45.63** square meters of existing eelgrass beds by successfully establishing a minimum of ~~51.6~~ **54.76** square meters of new eelgrass bed (1:1.2 ratio of impacted eelgrass bed to successfully created eelgrass bed) within a minimum ~~207~~ **220**-square-meter area planted with eelgrass (4.82:1 ratio of transplant area to impact area) on new habitat area constructed from dredge material within harbor waters at the southern corner of the Outer Boat Basin. Therefore, Special Condition No. 2 of the original permit is replaced by Special Condition No. 12 to require implementation of the submitted eelgrass mitigation plan as submitted and proposed by the applicant.

II. REVISIONS TO EXHIBITS

Staff also is also making certain changes to the exhibits of the staff report. Exhibits 5-8 are being replaced by updated exhibits of the same title derived from exhibits contained in the 2013 pre-construction eelgrass survey and the revised eelgrass mitigation plan dated May 2013, both of which were submitted after publication of the staff report. The May 2013 revised eelgrass mitigation report itself replaces the earlier version of the report in Exhibit 8. The 2013 pre-construction eelgrass monitoring report is also attached as new Exhibit 10.



DREDGE BOUNDARY

NUMBER	NORTHING	EASTING	ELEVATION
1	2527126.87	5965282.74	-12.00'
2	2527005.56	5965496.44	-12.00'
3	2526918.96	5965459.23	-12.00'
4	2526690.17	5965335.32	-12.00'
5	2526475.09	5964980.77	-12.00'
6	2526542.97	5964880.05	-12.00'
7	2526759.30	5964902.06	-12.00'
8	2526750.13	5965719.09	-15.00'
9	2526590.01	5965950.49	-15.00'
10	2526750.47	5966065.46	-15.00'
11	2526725.39	5966105.36	-15.00'
12	2526654.05	5966056.23	-15.00'
13	2526818.57	5966108.06	-15.00'
14	2526686.79	5966155.51	-15.00'
15	2526622.05	5966247.26	-15.00'
16	2526575.83	5966214.51	-15.00'
17	2526560.76	5966239.52	-15.00'
18	2526607.47	5966267.75	-15.00'
19	2526587.43	5966361.43	-15.00'
20	2526680.72	5966348.11	-15.00'
21	2526465.81	5966370.32	-15.00'
22	2526512.36	5966402.52	-15.00'
23	2526432.93	5966515.41	-15.00'
24	2526387.13	5966483.17	-15.00'
25	2526372.18	5966504.59	-15.00'
26	2526417.79	5966536.90	-15.00'
27	2526338.35	5966648.09	-15.00'
28	2526215.35	5966854.16	-15.00'
29	2526264.40	5966883.42	-15.00'
30	2526272.42	5966309.66	-15.00'
31	2526257.69	5966370.54	-15.00'
32	2526207.12	5965946.91	-15.00'
33	2525863.65	5965704.39	-15.00'
34	2525704.10	5965543.78	-15.00'
35	2525787.40	5965375.78	-15.00'
36	2526474.93	5965359.84	-15.00'
37	2526436.22	5965381.02	-15.00'
38	2526542.20	5965561.54	-15.00'
39	2526343.94	5965677.98	-15.00'
40	2526375.02	5965731.50	-15.00'
41	2526381.50	5965612.27	-15.00'
42	2526423.38	5965841.63	-15.00'
43	2526526.88	5965636.66	-15.00'
44	2526242.73	5966371.67	-10.00'
45	2526160.22	5966377.17	-10.00'
46	2526089.23	5966402.81	-10.00'
47	2525731.41	5966215.18	-10.00'
48	2525282.16	5965845.43	-10.00'
49	2525233.51	5965876.76	-10.00'
50	2525198.30	5965950.15	-10.00'
51	2525228.75	5965812.83	-10.00'
52	2525237.53	5965768.13	-10.00'
53	2525375.17	5965352.17	-10.00'
54	2525305.36	5965455.80	-10.00'
55	2525322.64	5965431.94	-10.00'
56	2525309.27	5965366.79	-10.00'
57	2525539.78	5965241.60	-10.00'
58	2525655.59	5965477.21	-10.00'
59	2525695.62	5965474.60	-10.00'
60	2525852.56	5965714.94	-10.00'
61	2526193.02	5965955.31	-10.00'
62	2525206.72	5965914.74	-10.00'
63	2525228.11	5965932.51	-10.00'
64	2525191.60	5965980.97	-10.00'
65	2525049.53	5965894.78	-10.00'
66	2525125.16	5965655.04	-10.00'
67	2525170.05	5965887.26	-10.00'

KEY MAP
1"=800'

KEY NOTES

1. 2:1 SLOPE TYPICAL FOR ALL DREDGING ADJACENT TO ROCK SLOPES.
2. 3:1 SLOPE TYPICAL FOR ALL CHANGES IN DREDGE DEPTH; TERMINATE SLOPE AT BOUNDARY OF DEEPER DREDGE AREA.
3. 4:1 SLOPE
4. REMOVE FLOATS & BOAT RAMP PRIOR TO DREDGING & REINSTALL ONCE COMPLETE IF REQUIRED FOR ACCESS.
5. REMOVE SEDIMENT FROM CONCRETE RAMP TO ELEVATION -10.0. DO NOT UNDERMINE RAMP.
6. SLOPE TRANSITION

GENERAL NOTES

1. DREDGE BOUNDARIES INDICATE LIMITS OF DREDGING TO DESIGN DEPTHS. DREDGE SIDE SLOPES AND TRANSITION ZONES AS INDICATED.
2. ALL DREDGE MATERIAL SHALL BE PLACED AS DIRECTED BY EPA/ARMY CORPS AT HOODS.
3. MATERIAL FOUND TO BE UNSUITABLE FOR HOODS SHALL BE DISPOSED OF AT AN APPROVED DISPOSAL SITE.
4. TRANSITIONS BETWEEN DREDGE AREAS OF DIFFERENT DREDGE DEPTH SHALL BE AT 3:1 TYP.
5. SLOPES GIVEN ARE HORIZONTAL TO VERTICAL TYPICAL: 4:1, 3:1, 1.5:1.
6. DREDGE TO DESIGN DEPTH OR EXISTING BEDROCK. IT IS THE INTENT OF THIS CONTRACT TO DREDGE AREAS PREVIOUSLY DREDGED ONLY.
7. MOORING BLOCKS SHALL BE RELOCATED PER HARBOR DISTRICT DIRECTION.
8. LIMITS OF BREAKWATER ARE APPROXIMATE.
9. VERTICAL CUTS SHALL BE MADE AT DOCKS.

LEGEND

-15 DREDGE DESIGN DEPTH

TOP OF BANK

EELGRASS (BASED ON MAY 2013 SURVEY)

IMPACTED EELGRASS

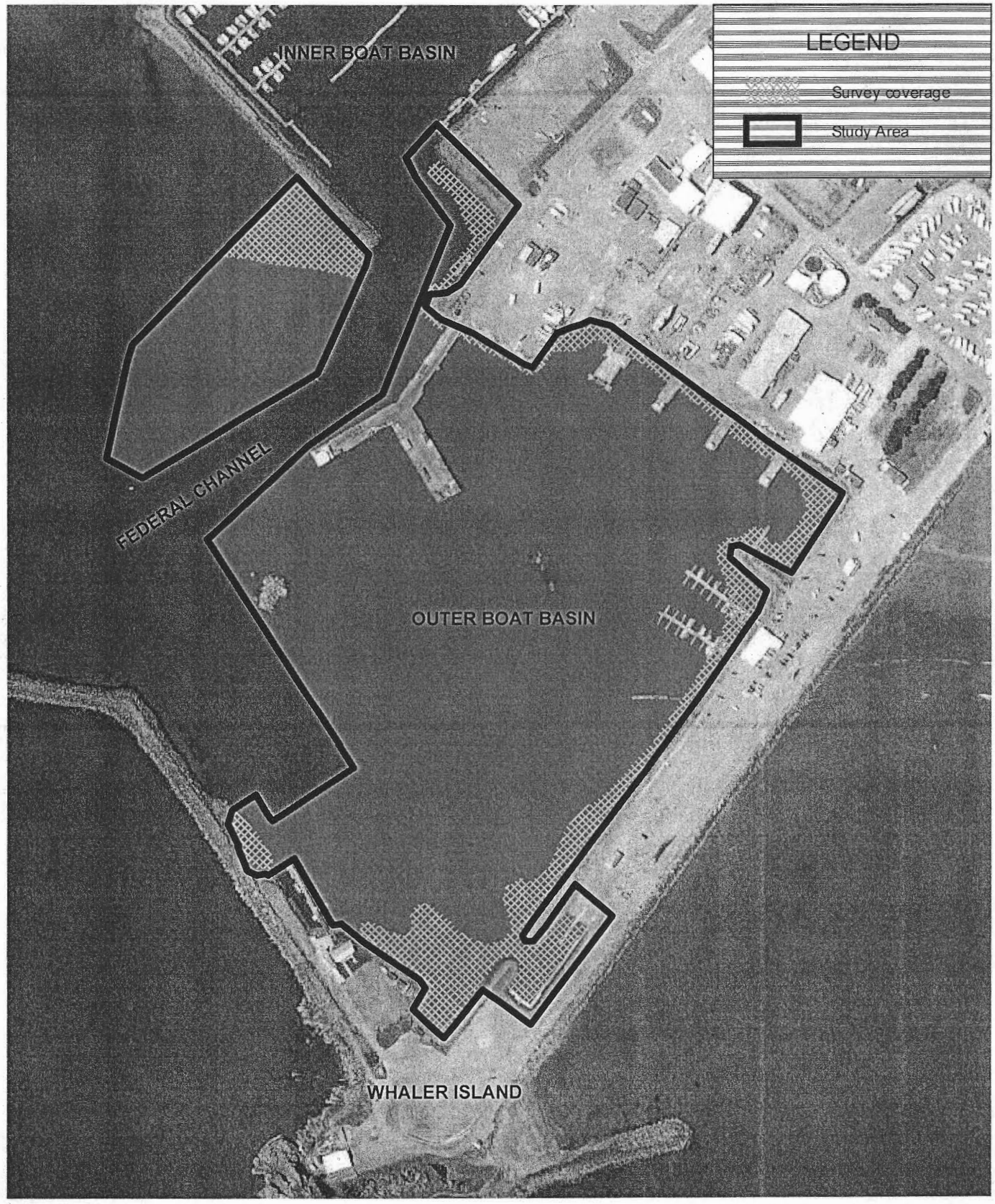
EXHIBIT NO. 5
APPLICATION NO.
1-12-004-A1
CRESCENT CITY HARBOR DISTRICT
MODIFIED PROJECT PLAN & EELGRASS BED LOCATIONS

STOVER ENGINEERING Civil Engineers and Consultants PO BOX 783 - 711 H STREET CRESCENT CITY, CA 95531 - 707-465-6742	NOT FOR CONSTRUCTION	FIGURE 1

CRESCENT CITY HARBOR DISTRICT
MARCH 2011 TSUNAMI RECOVERY DREDGING
CRESCENT CITY, CA

OUTER BOAT BASIN & OUTER HARBOR DREDGE PLAN

JOB NO. 4135
SCALE: 1"=100'
DATE: 05/24/13
SHEET



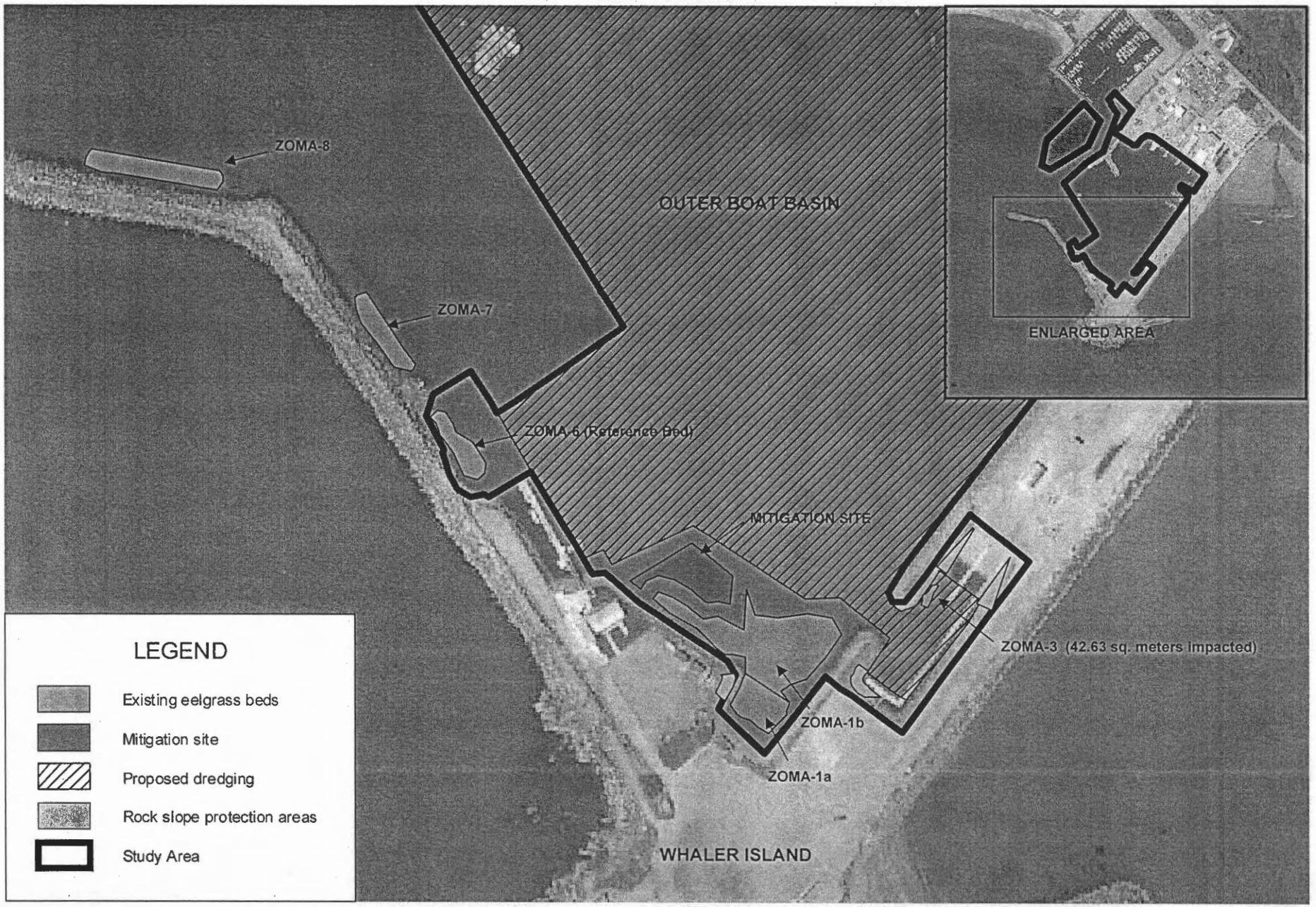
Base Map: 2010 Del Norte County NAIP Image

Figure 1. Crescent City Harbor Eelgrass Survey Coverage Map.

N
W E
S

100 0 100 Meters

Crescent City Harbor, May 2013



Base Map: 2010 Del Norte County NAIP Image

Figure 2. Crescent City Harbor Eelgrass Distribution and Project Components Map 1.

Crescent City Harbor, May 2013

N
W E
S

50 0 50 Meters

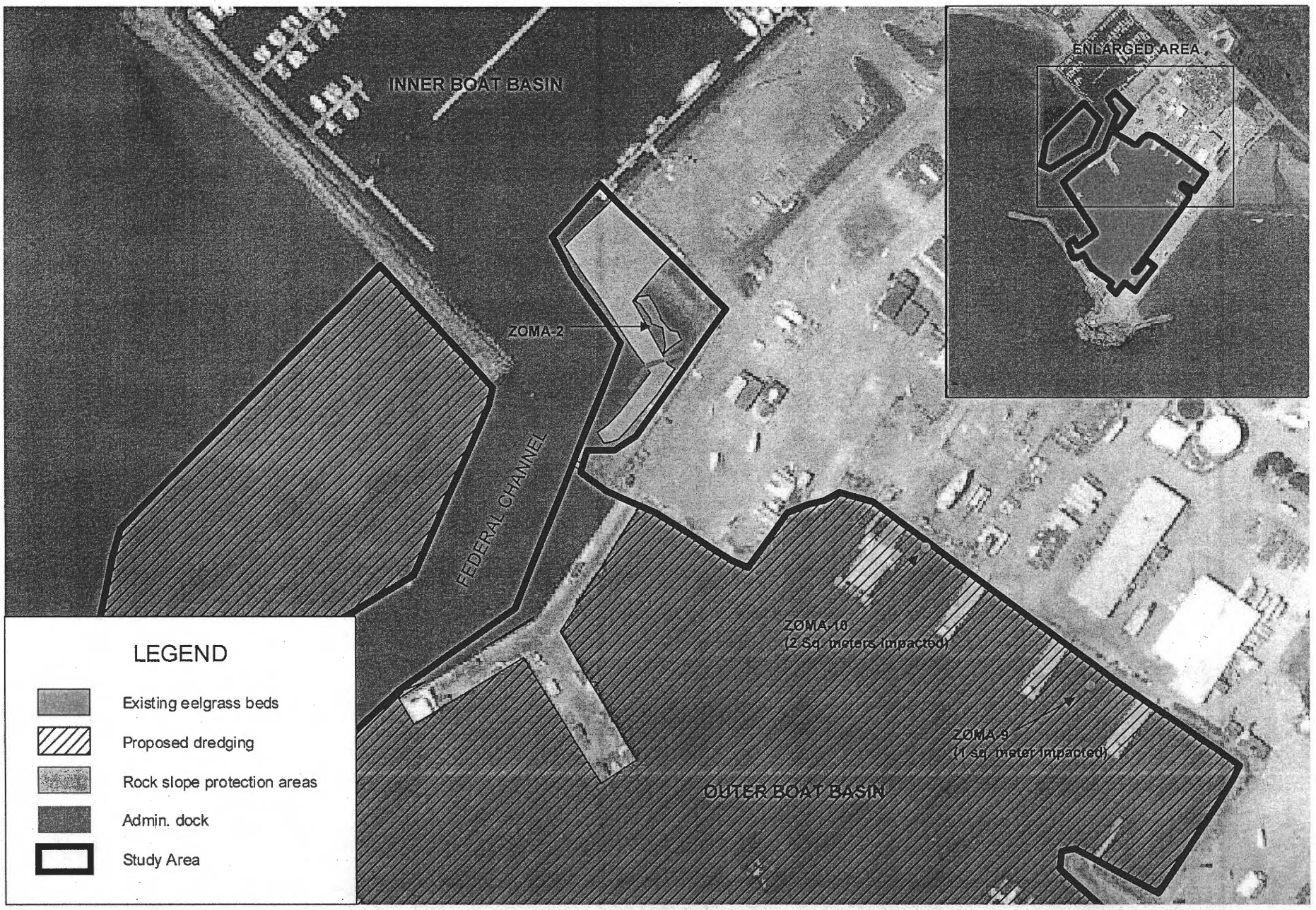
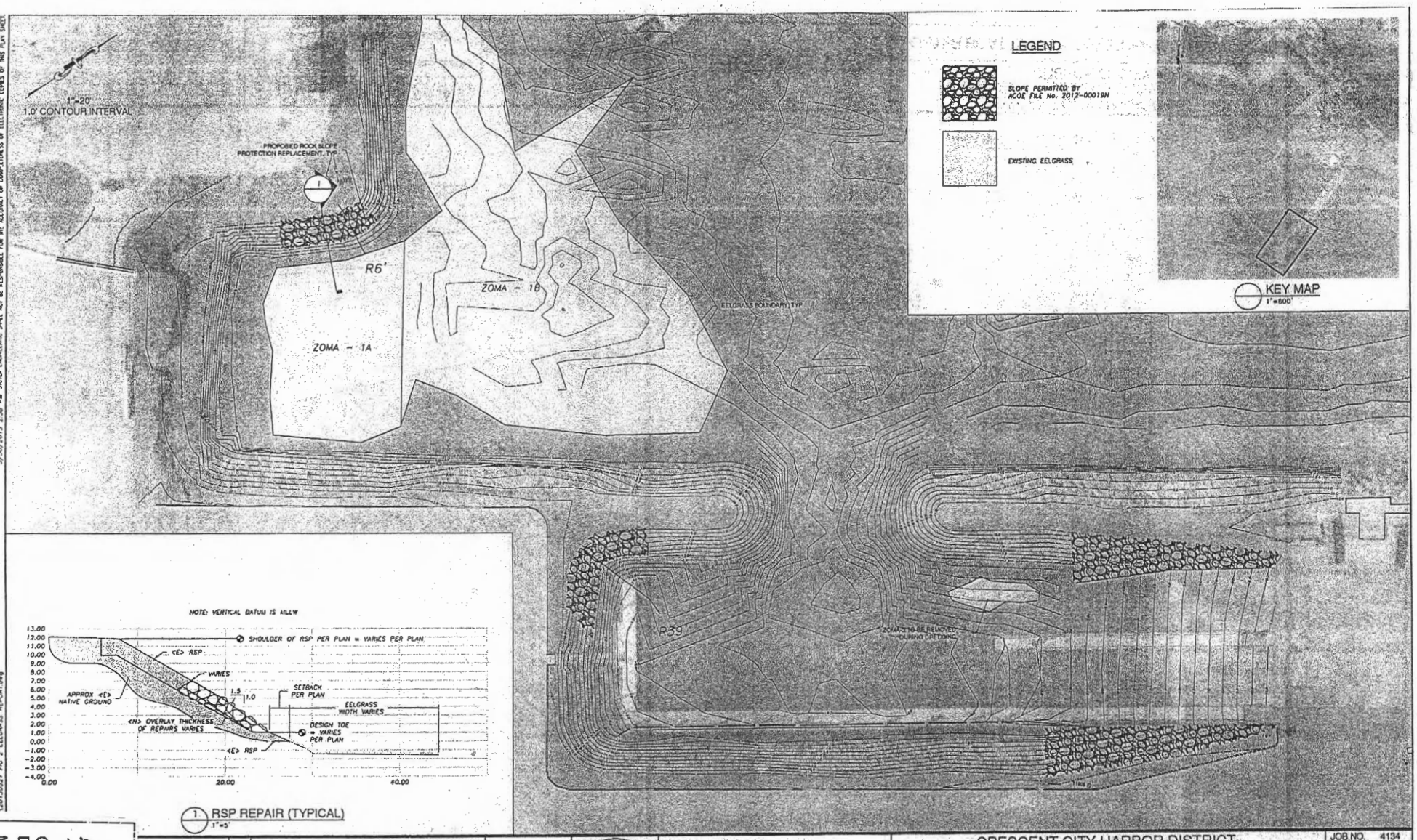


Figure 3. Crescent City Harbor Eelgrass Distribution and Project Components Map 2.

Crescent City Harbor, May 2013



1 RSP REPAIR (TYPICAL)
1"=5'

EXHIBIT NO. 6
APPLICATION NO.
1-12-004-A1
CRESCENT CITY HARBOR D.:STRICT
MODIFIED REVETMENT REPAIRS (1 of 3)

evision	Aprvd.	
AWN BY: GLH CHECKED BY: WLS		
HE INCH ON ORIGINAL DRAWING. DISTANCE VARIES ACCORDINGLY.		

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FIGURE 2

CRESCENT CITY HARBOR DISTRICT
MARCH 2011 TSUNAMI RECOVERY DREDGING
CRESCENT CITY, CA

PREFFERED ALTERNATIVE

JOB NO. 4134
SCALE: 1"=100'
DATE: 05/30/13
SHEET

GENERAL NOTES:

1. VERTICAL DATUM IS MLLW
2. PROPOSED SLOPE REPAIRS ARE PERMITTED FILE No. 2012-00019N

FIGURE 3A

PW# HD02 &
ALTERNATIVE 2

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CRESCENT CITY HARBOR DISTRICT
ROCK SLOPE PROTECTION REPAIRS
CRESCENT CITY, CA

ADMIN DOCK EELGRASS LOCATION

JOB NO. 4134
SCALE: 1"=20'
DATE: 05/30/13
SHEET

No. | Date | Revision | Apvd
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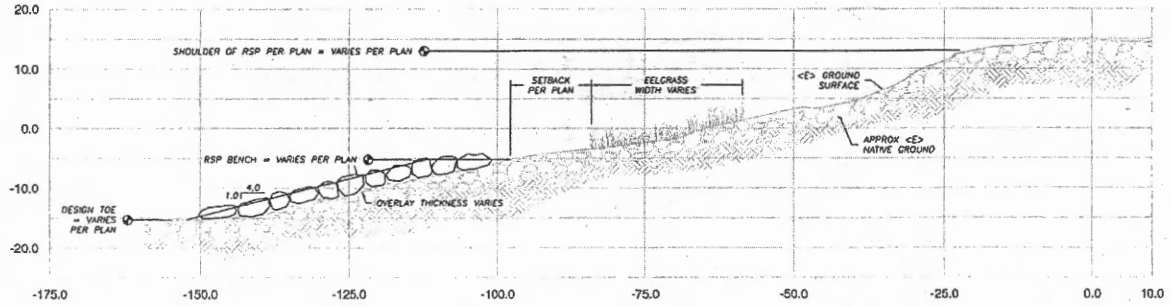
S:\4135.1 OSB Dredge Area\dwg\20130521 FIG 3A 3B EELGRASS REPORT.dwg



1. THE RSP OVERLAY IS INTENDED TO PROTECT THE SLOPE FROM FURTHER EROSION. DUE TO THE LOCATION OF THE EELGRASS AN OVERLAY METHOD WAS SELECTED INSTEAD OF DIGGING OUT AND REBUILDING THE ENTIRE SLOPE.
2. VERTICAL DATUM IS MLLW

(1/1) RSP SECTION AT ZOMA-2 EELGRASS STA 5+50
H: 1"=10' V: 1"=10'

FEMA DECLARATION #1968 DR CA PW 55 HD02

No.	Date	Revision	Aprvd.

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FIGURE 3B

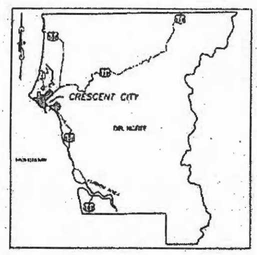
CRESCENT CITY HARBOR DISTRICT
ADMIN DOCK & HARBOR POINT RSP REPAIRS
CRESCENT CITY, CA

ADMIN DOCK EELGRASS SECTIONS

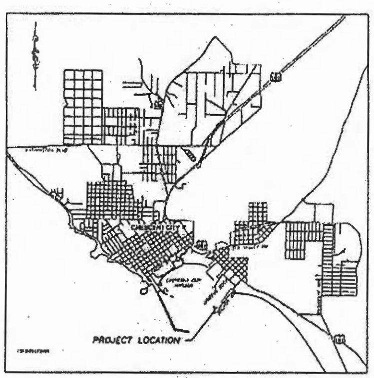
JOB NO. 4134
SCALE: 1"=1'
DATE: 05/30/13
SHEET

CRESCENT CITY HARBOR DISTRICT
EELGRASS MITIGATION PLAN
CRESCENT CITY, CA

STATE MAP
NTS



COUNTY MAP
NTS



CITY MAP
NTS

CONTROL POINT DATA				
CP No.	NORTHING	EASTING	ELEVATION	DESCRIPTION
CP1	2526793.45	5965753.79	13.48'	4" BRASS CAP 1941 TIDAL 20 RESET
CP17	2524753.86	5965635.86	16.66'	MAG NAIL

SITE MAP
1"=300'

SHEET INDEX

VICINITY MAP & SHEET INDEX	1
EELGRASS MITIGATION AREA & CROSS SECTIONS	2

ACTUAL MITIGATION AREA WILL BE 511m²

PROPOSED EELGRASS MITIGATION
1"=100'

No.	Date	Revision	Aprvd.

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FIGURE 5

CRESCENT CITY HARBOR DISTRICT
EELGRASS MITIGATION PLAN
CRESCENT CITY, CA

VICINITY MAP & SHEET INDEX

JOB NO. 4135
SCALE: NTS
DATE: 05/24/13
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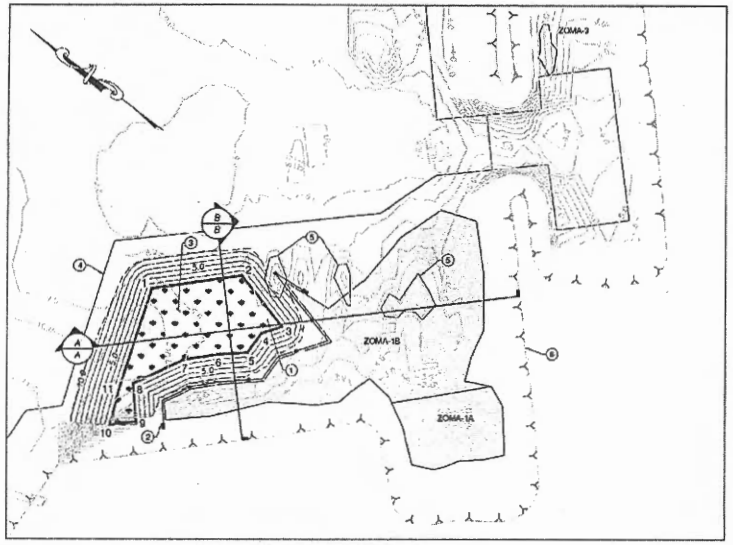
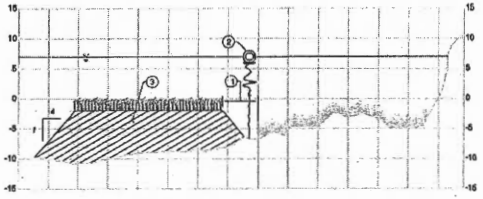
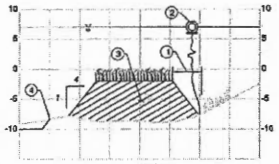
S:\4135.1 0S8 Dredge Area\dwg\20130521 FIG 5 EELGRASS REPORT.dwg



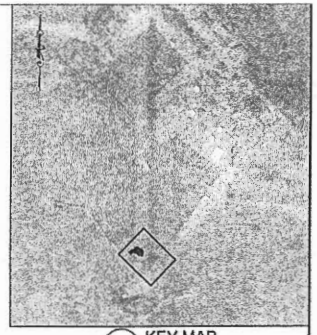
1/2 MITIGATION AREA
1"=50'



A/A MITIGATION SECTION
H: 1"=50' V: 1"=10'



B/B MITIGATION SECTION
H: 1"=50' V: 1"=10'

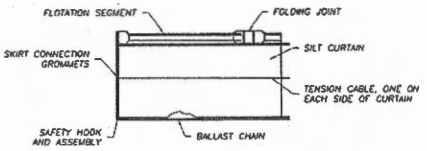


KEY MAP
1"=800'

KEY NOTES

1. 25' BUFFER AREA BETWEEN <E> EELGRASS AND MITIGATION AREA
2. SILT CURTAIN, SEE DETAIL 2/2
3. EELGRASS MITIGATION AREA AVAILABLE
4. DREDGE LIMITS BOUNDARY
5. APPROXIMATE ROCK LOCATION
6. <E> TOP OF BANK

MITIGATION BOUNDARY DATA			
No.	NORTHING	EASTING	ELEVATION
1	2525324.61	5985577.24	-2.00'
2	2525280.11	5965638.78	-2.00'
3	2525225.91	5965633.78	-2.00'
4	2525233.99	5965612.40	-2.00'
5	2525230.52	5965598.02	-2.00'
6	2525246.27	5965579.06	-2.00'
7	2525263.33	5965554.89	-2.00'
8	2525278.03	5965511.31	-2.00'
9	2525253.04	5965490.67	-2.00'
10	2525266.92	5965473.86	-2.00'
11	2525282.10	5965498.21	-2.00'



PROVIDE SUFFENT LENGTH TO REACH BOTTOM AT ALL TIDAL CONDITIONS

2/2 (TYP) FLOATING BOOM W/ OPTIONAL SILT CURTAIN
NTS

GENERAL NOTES

1. VERTICAL DATUM IS MLLW.
2. PLACE SILT CURTAIN PRIOR TO PLACEMENT OF NEW MATERIAL FOR MITIGATION AREA.
3. SOURCE MATERIAL FOR MITIGATION AREA SHALL BE APPROVED BY BOTANIST PRIOR TO PLACEMENT. FILL MATERIAL SHALL BE PLACED ON THE OCEAN FLOOR, NOT DUMPED.
4. CONTRACTOR SHALL PROVIDED A REPRESENTATIVE SAMPLE OF MATERIAL TO BOTANIST FOR APPROVAL.
5. SUITABLE MATERIAL MAY BE AVAILABLE ADJACENT TO THE MITIGATION SITE. MATERIAL TO BE REMOVED DURING THE DREDGING OF THE OUTER HARBOR IS PREFERRED IF FOUND TO BE ACCEPTABLE.
6. MITIGATION AREA WILL BE PLANTED WITH EELGRASS AS DESCRIBED IN KYLE WEAR'S EELGRASS MITIGATION AND MONITORING PLAN FOR CRESCENT CITY HARBOR OUTER BOAT BASIN (JULY 2012).
7. ACTUAL MITIGATION AREA CONSTRUCTED WILL BE 511 M^2

5/30/2013 2:52 PM STOVER ENGINEERING SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET

S:\4135.1 DBB Dredge Area\dwg\20130521 FIG 5 EELGRASS REPORT.dwg

No.	Date	Revision	Aprvd.

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FIGURE 6

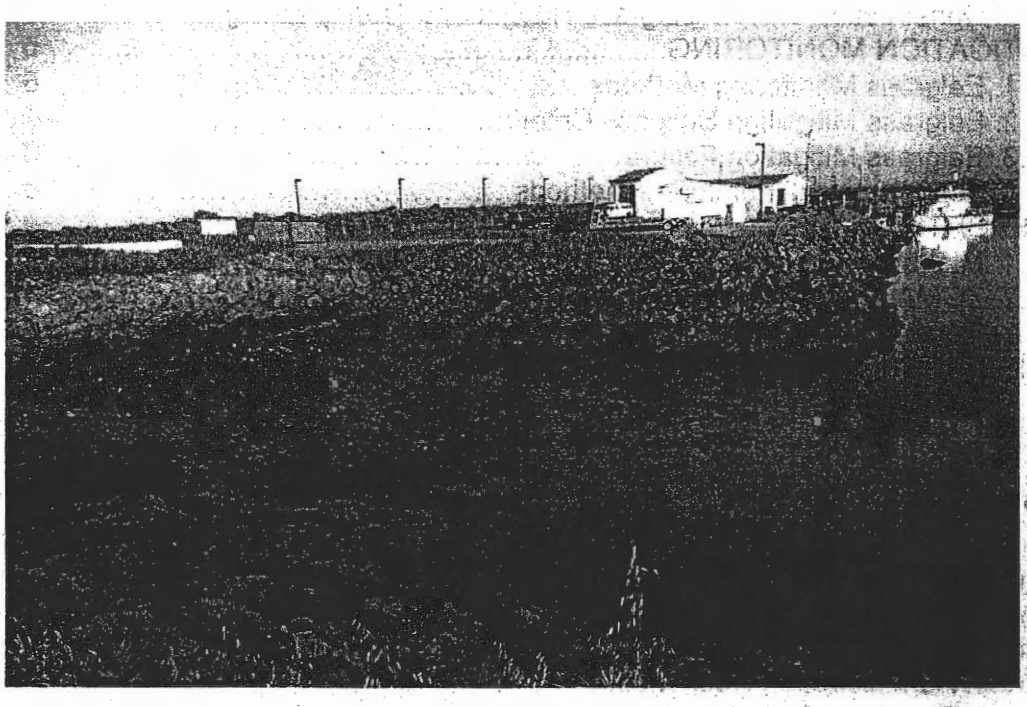
CRESCENT CITY HARBOR DISTRICT
EELGRASS MITIGATION PLAN
CRESCENT CITY, CA

EELGRASS MITIGATION PLAN & CROSS SECTIONS

JOB NO. 4135
SCALE: H: 1"=50' V: 1"=10'
DATE: 05/30/13
SHEET

EELGRASS MITIGATION AND MONITORING PLAN
Crescent City Harbor Outer Boat Basin

Crescent City, California



Prepared for:

Crescent City Harbor District
101 Citizens Dock Road
Crescent City, CA 95531

Prepared by:

Kyle Wear
Botanical Consultant
3484 Zelia Court
Arcata, CA 95521

May 2013

TABLE OF CONTENTS

APPENDIX A

1. INTRODUCTION

This Mitigation and Monitoring Plan was developed to address impacts to eelgrass (*Zostera marina*) beds from the planned dredging, rock slope protection repairs, and replacement of the Administrative Dock in the Crescent City Harbor Outer Boat Basin. The work is authorized by the Crescent City Harbor District's Coastal Development Permit #1-12-004 and Army Corps of Engineers permits #2012-0006N and #2012-00019N. The purpose of the project is to repair damage from the March 2011 tsunami.

The Crescent City Harbor District has made modifications to the original project based on the May 2012 eelgrass survey of the Outer Boat Basin to avoid eelgrass beds to the greatest extent feasible. However, it is not feasible to avoid a relatively small percentage of the eelgrass in the Outer Boat Basin during dredging. This plan provides an evaluation of impacts to eelgrass beds, mitigation measures that include both avoidance and transplanting, outlines mitigation success criteria, monitoring methods, and reporting requirements. This is the first eelgrass mitigation project in the Crescent City Harbor.

2. OBJECTIVES

The objectives of the Mitigation and Monitoring plan are:

- Comply with California Coastal Commission and Army Corps of Engineers permit and other agency requirements.
- Avoid impacts to 2,782 square meters of existing eelgrass beds within the project area.
- Mitigate for impacts to 45.63 square meters of eelgrass beds. This will require planting 220 square meters (1:4.82 ratio) of new habitat constructed from dredge material, and successful establishment of 54.76 square meters of new eelgrass bed (1:1.2 ratio).

3. EXISTING EELGRASS BEDS

Dive surveys of the Outer Boat Basin in May 2013 identified six eelgrass beds within or adjacent to the Project Area (Wear 2013). The beds range from one square meter to 2,279 square meters and predominantly occur on narrow shoals around the perimeter of the harbor (Figure 1).

4. IMPACT ASSESSMENT

Dredging

It is not feasible to avoid ZOMA-3, ZOMA-9, or ZOMA-10 to achieve the necessary depths in the Outer Boat Basin for commercial and recreational vessels. Thus, these beds will be removed during dredging (Figure 1). The total areal extent of these beds is 45.63 square meters. The remaining beds will be avoided. Setbacks from the remaining beds are approximately 25 feet or greater. Dredging shall be conducted with an excavator that will allow for precise dredging and produce minimal turbidity.

Rock Slope Protection

The rock slope protection in the vicinity of the ZOMA-1 will be placed above the toe of the existing rock. This should not disturb the adjacent eelgrass bed or habitat, provided repairs do not disturb the rock at the base of the slope (Figure 2). The rock slope protection around ZOMA-2 will be placed above, below, and adjacent to the eelgrass bed with a minimum setback of 5 feet (Figures 3a & 3b). Most of the shallow unoccupied habitat adjacent to the bed will be preserved, allowing for future expansion of the bed. Because of the close proximity of the rock slope protection repairs to ZOMA-2, there is a potential for physical disturbance during removal and placement of rock.

Administrative Dock

The Administrative Dock will be approximately 65 feet away from ZOMA-2. A portion of the ADA compliant walkway to the dock will be setback approximately 10 feet from a portion of the bed. The dock also includes a concrete footing within the rock slope protection (Figure 4). Due to the proximity of the dock and walkway to ZOMA-2 there is a potential for impacts from alteration of circulation patterns, shading of the bed or potential habitat, and disturbance from boats.

5. MITIGATION TECHNIQUE

5.1. Avoidance

Dredging

Dredging shall be completed as quickly as possible to minimize the duration of any turbid conditions. Dredging operations personnel shall be made aware of the location of all eelgrass beds and aware of the mitigation measures to protect them. Dredging operations personnel shall be provided, and required to review the mitigation and monitoring plan including the figures (Appendix A) showing the location of the eelgrass beds in the project area. The edges of the beds adjacent

to dredging shall be marked with PVC pipe, or similar material, so they are clearly visible to the operators.

Rock Slope Protection

The rock slope protection work shall be conducted by skilled operators capable of removing and placing rock with minimal disturbance to adjacent habitat. The edges of ZOMA-2 shall be marked with PVC pipe or similar material so that the location of the bed is clearly visible to the operators.

Administrative Dock

During installation of the dock, construction activity shall be as far away from ZOMA-2 as feasible. The edge of the bed shall be marked as described above so it is clearly visible to construction personnel.

5.2. Construction of New Eelgrass Habitat and Transplanting

It will be necessary to mitigate for impacts to ZOMA-3, ZOMA-9, and ZOMA-10 by transplanting. The combined areal extent of these three beds is 45.63 square meters. This requires that 220 square meters of eelgrass be transplanted into the constructed mitigation site and that a minimum 54.76 square meters of eelgrass bed be successfully established.

Construction of New Eelgrass Habitat

Because of the limited amount of unoccupied eelgrass habitat in the Outer Boat Basin, new habitat will be created by depositing approximately 1,700 cubic yards of sandy/silty dredge material to create new shallow habitat in the harbor (Figure 5). The mitigation site was selected based on its proximity to ZOMA-1, which includes the largest eelgrass bed and most continuous eelgrass habitat in the Outer Boat Basin. Additionally, the site is within a low energy area, which allows for sediment accumulation and minimizes the potential for erosion of the mitigation site. A total of 511 square meters of habitat will be created at -2 feet MLLW. This depth is considered an ideal depth for eelgrass in the Outer Boat Basin based on observed turion density in ZOMA-1 across its depth profile in May 2012. Eelgrass was present from approximately 0 to -6 feet MLLW with the highest density at approximately -2 feet. The site will also include 656 square meters of additional habitat ranging from -2 to -6 feet MLLW on the slopes.

Material will be removed from the dredge area and placed directly on the ocean floor at the mitigation site with a barge-mounted excavator. The material will not be dropped through the water. This will allow for precise placement of the material and minimize turbidity. A silt curtain will be installed in the 25-foot buffer between the mitigation site and ZOMA-1b to minimize turbidity in the adjacent eelgrass bed.

An analysis of the stability and settlement of the dredge material was conducted by Stover Engineering (Jon Olson, Project Engineer, Email message to Kyle Wear, October 4, 2012). The following is a summary of their analysis:

- Samples of the dredge material taken in the vicinity of the mitigation site and the location of the source material by Western Solutions (2012) are sandy/silty/clayey sediment. An additional seven samples from the location of the source material were examined by Kyle Wear on May 16, 2013. All of the samples were sandy/silty material that is suitable for eelgrass.

- There should be minimal settlement because the material will remain densified and will be placed directly on the ocean floor and not pumped or dropped through the water.

- The mitigation site will be stable. The slope of the mitigation site will be a 4:1 horizontal to vertical slope (Figure 6). A recent geotechnical report (Treadwell and Rollo 2011) describes a slope of native sand of 1.5:1 and less than 10 feet high as stable. Stover Engineering examined actual dredge material from the Crescent City Harbor and found that the average angle of repose was 2.45:1. The slopes where eelgrass is currently growing range from 1.2:1 to 4.1:1, and have remained mostly stable even during the 2011 tsunami.

- The dredge material is not expected to migrate from the site. While there is no guarantee that all of material will stay in place due to the dynamic and often unpredictable nature of the ocean, Stover Engineering is confident that under most conditions the site will remain stable. The location of the mitigation site is a low energy area and appears to consistently accumulate sediment, even under extreme conditions such as the 2011 tsunami. During the tsunami, deposition at the proposed mitigation site was between +0.4 and +1.6 feet.

Transplanting

Transplanting shall occur during the active growth period (May 1 – September 30). Transplanting methods shall follow those described by Merkel & Associates (2004). This involves the planting of anchored bare-root bundles of turions harvested from donor beds. Turions will be harvested by carefully removing the rhizomes and associated roots from the substrate. The leaves will be trimmed to 30 cm to aid in storage and handling. The material will be held in seawater for no longer than 24 hours before planting. The bundles will consist of approximately 8 turions held together with biodegradable twine and anchored with biodegradable anchors. A hole will be excavated by hand or with a small shovel in the substrate. The anchors will be planted at approximately 10 cm parallel to the surface. The

roots/ rhizomes will be inserted from 2-6 cm below the surface. The hole will be backfilled with substrate. The bundles will be planted at one meter intervals throughout the mitigation site.

The dredging of the Outer Boat Basin is expected to begin in June 2013. Transplanting shall occur after the mitigation site is constructed, but before dredging of the public boat launch area where most of the donor material will be harvested.

It is expected that all or most of the turions for transplanting will come from ZOMA-3 in the public boat launch area. If necessary additional turions will be harvested from and ZOMA-1a. All of ZOMA-3 will be harvested. No more that 10 percent of ZOMA-1a shall be harvested and no more than three turions per square meter will shall be collected.

Fish and Game Code (§ 6400) requires a Letter of Authorization from the California Department of Fish and Wildlife to harvest and plant eelgrass into state waters. The letter was obtained on April 16, 2013 and authorizes transplanting of eelgrass between June 1 and August 31, 2013. Due to the history of failed eelgrass mitigation projects in Northern California, the California Department of Fish and Wildlife has also required that a biologist with prior experience carry out the harvesting and transplanting aspects of the project.

6.0. MITIGATON MONITORING

Pre-construction monitoring shall occur within 60 days of construction in accordance with the Draft California Eelgrass Mitigation Policy (NMFS 2011) and shall include a survey of all existing eelgrass beds and potential habitat in the project area. Suitable eelgrass habitat in the Crescent City Harbor is considered to be all soft bottom areas that are -7 feet MLLW or shallower. ZOMA-6 has been selected as the reference bed for monitoring, which shall be monitored during the pre-construction survey and all annual monitoring events. This bed occurs along a narrow shoal along the breakwater, similar to ZOMA-3 where most of the eelgrass will be impacted, and is representative of the majority of eelgrass habitat in the harbor.

ZOMA-1 and ZOMA-2

Pre-construction monitoring of ZOMA-1 and ZOMA-2 will determine baseline bed parameters for comparison with post-construction monitoring results. The CDFG has required a 60 month period of monitoring of theses beds due to the proximity of the placement of dredge material to ZOMA-1, and the potential for direct or indirect impacts to ZOMA-2 from the RSP work and administrative dock. Post-construction monitoring shall occur within 30 days of the completion of

construction, or within 30 days of the beginning of the next active growth period if the project is completed within 30 days of the end of the active growth period.

ZOMA-3, ZOMA-9, and ZOMA-10

Pre-construction monitoring of ZOMA-3, ZOMA-9, and ZOMA-10 will determine pre-construction bed parameters and the final target areal extent for mitigation. These beds will be extirpated, thus there is no need for post-construction monitoring of the beds. Mitigation monitoring will involve monitoring of the mitigation site and a reference bed (ZOMA-6) for 60 months following the initial planting.

Topographical Monitoring of the Mitigation Site

The California Department of Fish and Wildlife has also required that detailed topographical monitoring of the mitigation site be conducted at each of the annual monitoring events.

6.1. Eelgrass Monitoring Methods

All monitoring shall occur during the active growth period (May 1 – September 30). All annual monitoring events shall take place within the same calendar month as the pre-construction survey. The following bed parameters will be measured during the pre-construction and post-construction monitoring events, with the exception of the Month 0 and Month 6 mitigation site monitoring events, which do not require measurements of bed parameters.

Areal extent

The areal extent of the eelgrass beds will be determined by mapping points around the perimeter of the beds. This shall be done with a total station or sub-meter accuracy GPS. The point data will be used to create polygons in GIS software. The horizontal datum used will be UTM, NAD 83, Zone 10. The spatial data layer will be in ESRI shapefile format.

Bottom cover

The bottom cover of the eelgrass within the beds will be determined by dividing the area of eelgrass patches that form the bed, by the area of the bed.

Turion density

Turion density will be sampled in a minimum of thirty 0.25 square meter randomly placed quadrats within each bed. Quadrats will not be placed in interstitial gaps between patches in the beds. Density will be reported as mean turion density +/- the standard deviation of the samples. Transects will be randomly placed

perpendicular to a baseline established along the edge of the bed. Quadrats will be sampled at random points along each transect across the bed. The number of transects and quadrats along them will vary depending on the size and shape of the bed, but shall result in a minimum of 30 samples per bed to maximize statistical power for testing for differences. It may be appropriate depending on the size and shape of the bed to stratify it spatially to ensure transects are sampled across the spatial distribution of the bed. It may also be appropriate to stratify the samples according to depth or differences in turion density. Stratification may not be necessary for small beds. Because eelgrass beds are irregular in shape and contain gaps within them, some of the random points will fall in interstitial gaps or outside of the bed. If necessary, additional random transects shall be sampled until turion counts have been made in at least 30 quadrats. A t-test or similar analysis shall be used to test for differences in mean turion density between the mitigation site and reference bed.

6.2. Eelgrass Mitigation Success Criteria

ZOMA-1 and ZOMA-2

Monitoring of ZOMA-1, ZOMA-2, and the reference bed (ZOMA-6), shall occur for a period of 60 months after construction. The mitigation success criteria are:

> Months 0, 12, 24, 36, 48, and 60 – The beds shall have a minimum of 100 percent cover of the beds during the pre-construction survey and no less than 75 percent turion density of the pre-construction survey corrected by cover and density of the reference bed.

Mitigation Site

Monitoring of the mitigation site and the reference bed, ZOMA-6, shall occur for a period of 60 months after the initial planting. The reference bed will not be monitored during the Month 0 or Month 6 monitoring events. The mitigation success criteria are:

> Month 0 – Monitoring shall confirm the full coverage distributions of planting units over the mitigation site.
>
> Month 6 – Persistence and growth of eelgrass within the initial mitigation area shall be confirmed, and there shall be a survival of at least 50 percent of the initial planting units with well-distributed coverage over the mitigation site.
>
> Month 12 – The mitigation site shall achieve a minimum of 40 percent of the cover of eelgrass in the reference bed and 20 percent density of the reference bed over not less than 1.2 times the area of the initial impact.

Month 24 – The mitigation site shall achieve a minimum of 85 percent cover of eelgrass in the reference bed and 70 percent density of the reference bed over not less than 1.2 times the area of initial impact.

Months 36, 48, and 60 – The mitigation site shall achieve a minimum of 100 percent cover of eelgrass in the reference bed and 85 percent density of the reference bed over not less than 1.2 times the area of initial impact.

6.3. Eelgrass Mitigation Failure

Mitigation Site

If the mitigation site fails to meet the standards listed in Section 5.2 during two consecutive annual monitoring events, an application shall be submitted for an amendment of the CDP for additional mitigation to ensure all performance criteria are met. Potential corrective actions include additional transplanting onto the mitigation site or shallow habitat around the perimeter of the harbor. Placement of additional material will likely not be feasible if erosion occurs. However, the site includes more than twice the amount of optimal eelgrass habitat, thus if a small amount of the site erodes, there will likely be enough suitable habitat remaining for additional transplanting.

ZOMA-1 and ZOMA-2

If the mitigation site fails to meet the standards listed in Section 5.2 during any post-construction monitoring event, an application shall be submitted for an amendment of the CDP for additional mitigation to ensure all performance criteria are met. Potential corrective measures include additional transplanting within or adjacent to these beds, or planting additional areas on the mitigation site.

6.4. Topographical Monitoring Methods

The perimeter, slopes, and depths of the mitigation site shall be measured at each annual monitoring event by taking manual soundings with a lead line in accordance with Chapter 8 of the Army Corps' Engineering Manual EM 110-2-1003 (U.S. Army Corps of Engineers 2002). The GPS coordinates of each data point will be recorded and the depth will be corrected for tide in accordance with Army Corps standards. A minimum of 20 data points will be recorded at each monitoring event that will be used to create topographical maps of the mitigation site.

7.0. REPORTING

All monitoring reports shall be submitted with 30 days of the completion of each monitoring event, and shall comply with Army Corps of Engineers Regulatory

Guidance Letter No. 08-03 to the extent applicable and shall include the report components listed below.

7.1. Mitigation Site and Reference Bed (ZOMA-6)

Pre-construction Monitoring

1) Project Overview

- Army Corps and Coastal Commission Permit Numbers.
- Name of party responsible for conducting the monitoring, and the dates the monitoring was conducted.
- A brief paragraph describing the purpose of the project, size and type of aquatic resources to be impacted, and mitigation acreage and type of aquatic resources authorized to compensate for the impacts.
- Written description of the location of the mitigation site, including identifiable landmarks and UTM coordinates of the site.
- The dates the mitigation project will commence.

2) Summary Data

- Detailed description of the monitoring methods used.
- Measurements of bed parameters described in Section 6.1 for the eelgrass to be impacted and reference bed (ZOMA-6).

3) Maps

- Maps clearly delineating the perimeter and indicating the areal extent of the eelgrass to be impacted. Each map shall be formatted to print on a standard 8.5 x 11 inch sheet of paper.

Month 0 (Construction and planting of the mitigation site)

1) Project Overview

- Army Corps and Coastal Commission Permit Numbers.
- Name of party responsible for conducting the transplanting and the dates the transplanting was conducted.

- A brief paragraph describing the purpose of the project, size and type of aquatic resources impacted, and mitigation acreage and type of aquatic resources authorized to compensate for the impacts.

- Written description of the location of the mitigation site, including identifiable landmarks and UTM coordinates of the site.

2) Summary Data

- Detailed description of the methods used to construct the mitigation site.

- Detailed description of the planting methods used, including the number of turions transplanted, the number of turions per bundle, materials used for transplanting, and planting density.

3) Maps

- The report shall include as built plans for the mitigation site. Each figure shall be formatted to print on a standard 8.5 x 11 inch sheet of paper.

Month 6

1) Project Overview

- Army Corps and Coastal Commission Permit Numbers.

- Name of party responsible for conducting the monitoring and the dates the monitoring was conducted.

- A brief paragraph describing the purpose of the project, size and type of aquatic resources impacted, and mitigation acreage and type of aquatic resources authorized to compensate for the impacts.

- Written description of the location of the mitigation site, including identifiable landmarks and UTM coordinates of the site.

- The dates the mitigation project commenced.

- Statement of whether the performance standards are being met.

- Specific recommendations for any corrective actions.

2) Requirements

- A list of the monitoring requirements and performance standards, as specified in the Mitigation and Monitoring Plan.

- An evaluation of whether the mitigation site is successfully achieving the performance standards, or is trending toward success.

3) Summary Data

- Detailed description of the monitoring methods used.

4) Conclusions

- A general statement shall be included that describes the conditions of the mitigation site. If the performance standards are not being met, a brief explanation of the difficulties and potential remedial actions proposed by the permittee, including a timetable, shall be included.

Months 12, 24, 36, 48, and 60 (Annual monitoring reports)

1) Project Overview

- Army Corps and Coastal Commission Permit Numbers.
- Name of party responsible for conducting the monitoring, and the dates the monitoring was conducted.
- A brief paragraph describing the purpose of the project, size and type of aquatic resources impacted, and mitigation acreage and type of aquatic resources authorized to compensate for the impacts.
- Written description of the location of the mitigation site, including identifiable landmarks and UTM coordinates of the site.
- The dates the mitigation project commenced.
- Statement of whether the performance standards are being met.
- Dates of any maintenance or corrective actions since the previous report.
- Specific recommendations for any additional corrective actions.

2) Requirements

- A list of the monitoring requirements and performance standards, as specified in the Mitigation and Monitoring Plan.
- An evaluation of whether the mitigation site is successfully achieving the performance standards, or is trending toward success.

3) Summary Data

- Detailed description of the monitoring methods used.
- Measurements of bed parameters described in Section 6.1 for the mitigation site and reference bed (ZOMA-6).

4) Maps

- Updated maps clearly delineating the perimeter and indicating the areal extent of the eelgrass in the mitigation site and reference bed. Each map shall be formatted to print on a standard 8.5 x 11 inch sheet of paper.
- A topographical map of the mitigation site based on the manual soundings, formatted to print on a standard 8.5 x 11 inch sheet of paper.

5) Conclusions

- A general statement shall be included that describes the conditions of the mitigation site. If the performance standards are not being met, a brief explanation of the difficulties and potential remedial actions proposed by the permittee, including a timetable, shall be included.

7.2. ZOMA-1 and ZOMA-2

Pre-construction Monitoring

1) Project Overview

- Army Corps and Coastal Commission Permit Numbers.
- Name of party responsible for conducting the monitoring, and the dates the monitoring was conducted.
- A brief paragraph describing the purpose of the project.
- Written description of the location of the eelgrass beds, including identifiable landmarks and UTM coordinates of the beds.

2) Summary Data

- Detailed description of the monitoring methods used.
- Measurements of bed parameters described in Section 6.1 for ZOMA-1, ZOMA-2 and reference bed (ZOMA-6).

3) Maps

- Maps clearly delineating the perimeter and indicating the areal extent of the eelgrass beds and reference bed. Each map shall be formatted to print on a standard 8.5 x 11 inch sheet of paper.

Months 0, 12, 24, 36, 48, and 60

1) Project Overview

- Army Corps and Coastal Commission Permit Numbers.
- Name of party responsible for conducting the monitoring, and the dates the monitoring was conducted.
- A brief paragraph describing the purpose of the project.
- Written description of the location of the mitigation site, including identifiable landmarks and UTM coordinates of the site.
- The dates construction was completed.
- Statement of whether the performance standards are being met.
- Specific recommendations for any additional corrective actions.

2) Requirements

- A list of the monitoring requirements and performance standards, as specified in the Mitigation and Monitoring Plan.
- An evaluation of whether the mitigation site is successfully achieving the performance standards, or is trending toward success.

3) Summary Data

- Detailed description of the monitoring methods used.
- Measurements of bed parameters described in Section 6.1 for ZOMA-1 and ZOMA-2 and the reference bed (ZOMA-6).

4) Maps

- Updated maps clearly delineating the perimeter and indicating the areal extent of ZOMA-1, ZOMA-2, and reference bed. Each map shall be formatted to print on a standard 8.5 x 11 inch sheet of paper.

5) Conclusions

- A general statement shall be included that describes the conditions of the mitigation site. If the performance standards are not being met, a brief explanation of the difficulties and potential remedial actions proposed by the permittee, including a timetable, shall be included.

7.3. Report Distribution List

The final updated mitigation and monitoring plan and all monitoring reports shall be submitted electronically to the following agencies (Email contacts shall be updated if necessary):

AGENCY	CONTACT
Army Corps of Engineers	Debra.A.O'Leary@usace.army.mil
California Coastal Commission	John.Dixon@coastal.ca.gov, Bob.Merrill@coastal.ca.gov
California Department of Fish and Game	VFrey@dfg.ca.gov, Rgarwood@dfg.ca.gov
State Water Resources Quality Control Board	Dean.Prat@waterboards.ca.gov
National Oceanographic and Atmospheric Administration	Catherine.Mcgourty@noaa.gov, Korie.Schaeffer@noaa.gov, ann.garrett@noaa.gov, wes.smith@noaa.gov
Crescent City Harbor District	ryoung@ccharbor.com, eperry@ccharbor.com

8.0. REFERENCES

Merkel & Associates. 2004. Experimental Eelgrass Transplant Program, Emeryville Flats, San Francisco Bay, Investigations for On-Site Eelgrass Mitigation. Report Prepared for CALTRANS District 4.

NMFS 2011. Draft California Eelgrass Mitigation Policy. National Marine Fisheries Service, Southwest Region.

Treadwell and Rollo (2011). Crescent City Harbor Supplemental Geotechnical Consultation. Report prepared for Stover Engineering, Crescent City, CA.

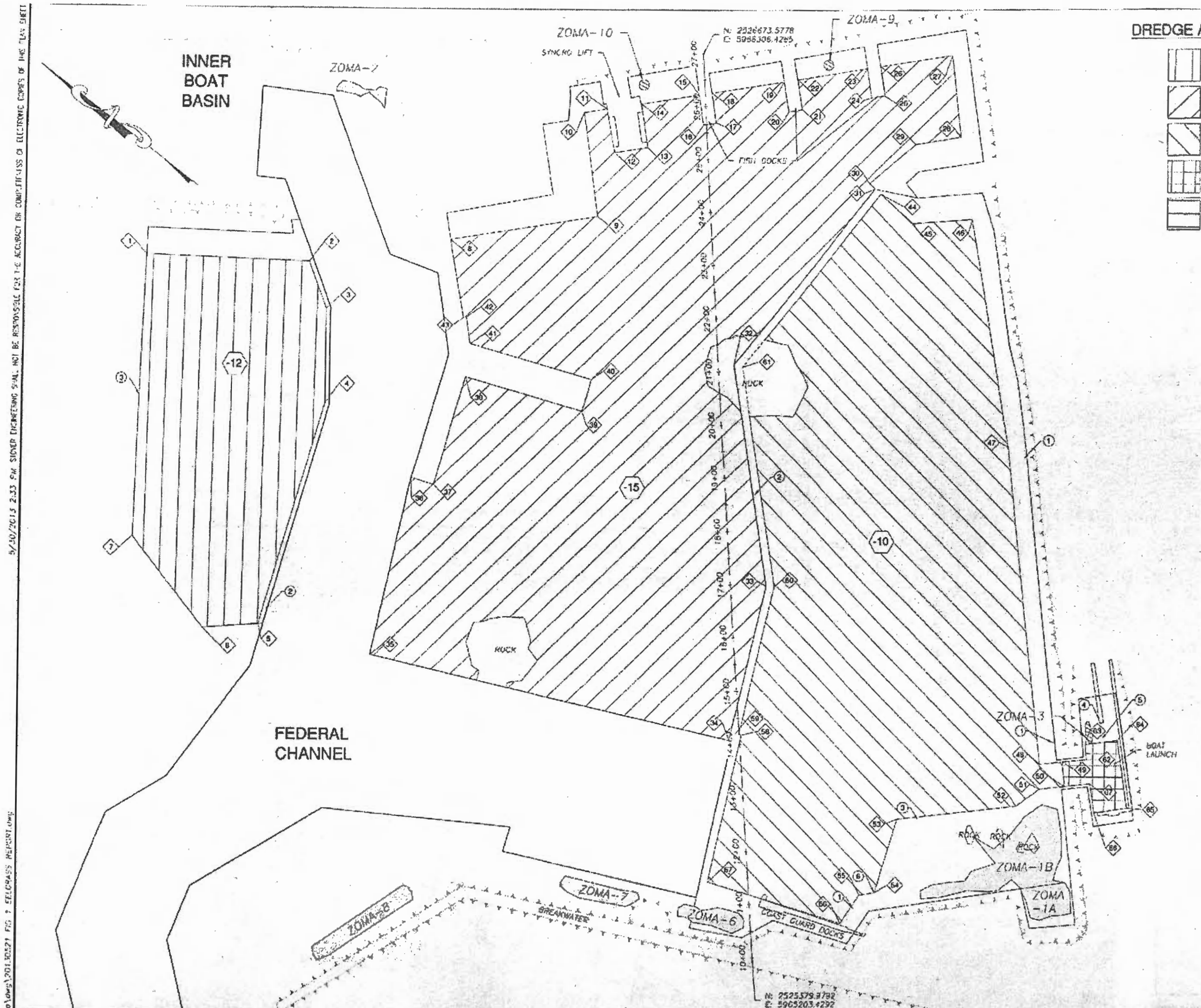
U.S. Army Corps of Engineers. 2002. Engineering and Design – Hydrographic Surveying. EM 1110-3-1003. Vicksburg, MS: U.S. Army Corps of Engineers, Washington, DC.

Wear, K. S. 2013. Eelgrass (*Zostera marina*) Pre-construction Monitoring Report, Crescent City Harbor Outer Boat Basin, Report prepared for the Crescent City Harbor District, Crescent City, CA.

Western Solutions 2012. Results of High-Resolution and Acclimation Bioassay Testing of Sediments from Crescent City Harbor. Inner Harbor Approach Area and East Outer Harbor. Report prepared for the Crescent City Harbor District. Western Solutions Inc. Oakland, CA.

APPENDIX A

Figures



DREDGE AREA — BOUNDARY DESIGN DEPTH (MLLW)

- -12'
- -15'
- -10'
- -10' (SUCTION DREDGE ONLY)
- -2' (FILL FOR EELGRASS MITIGATION)

DREDGE BOUNDARY ◇

NUMBER	NORTHING	EASTING	ELEVATION
1	2527126.87	5965282.74	-12.00'
2	2526905.56	5965496.44	-12.00'
3	2526816.96	5965459.23	-12.00'
4	2526690.17	5965335.32	-12.00'
5	2526475.69	5964960.77	-12.00'
6	2526542.97	5964860.05	-12.00'
7	2526759.30	5964802.06	-12.00'
8	2526750.13	5965719.09	-15.00'
9	2526590.01	5965950.49	-15.00'
10	2526750.47	5966065.46	-15.00'
11	2526725.39	5966101.36	-15.00'
12	2526654.95	5966056.23	-15.00'
13	2526618.52	5966108.06	-15.00'
14	2526686.79	5966155.51	-15.00'
15	2526622.05	5966247.26	-15.00'
16	2526575.83	5966214.51	-15.00'
17	2526560.78	5966235.52	-15.00'
18	2526607.47	5966267.75	-15.00'
19	2526527.43	5966381.45	-15.00'
20	2526480.72	5966349.11	-15.00'
21	2526465.81	5966370.13	-15.00'
22	2526512.36	5966402.52	-15.00'
23	2526432.73	5966515.41	-15.00'
24	2526387.13	5966483.17	-15.00'
25	2526372.18	5966504.59	-15.00'
26	2526417.79	5966536.50	-15.00'
27	2526338.35	5966649.09	-15.00'
28	2526215.35	5966554.16	-15.00'
29	2526264.45	5966483.42	-15.00'
30	2526272.42	5966309.69	-15.00'
31	2526257.69	5966370.54	-15.00'
32	2526207.12	5965946.91	-15.00'
33	2525863.65	5965704.39	-15.00'
34	2525794.16	5965453.78	-15.00'
35	2526287.40	5965075.79	-15.00'
36	2526474.93	5965359.84	-15.00'
37	2526436.22	5965381.02	-15.00'
38	2526542.20	5965563.54	-15.00'
39	2526343.94	5965677.98	-15.00'
40	2526375.02	5965731.50	-15.00'
41	2526581.50	5965612.27	-15.00'
42	2526623.38	5965641.63	-15.00'
43	2526626.88	5965636.86	-15.00'
44	2526242.72	5966371.67	-10.00'
45	2526160.22	5966377.17	-10.00'
46	2526089.23	5966462.81	-10.00'
47	2525731.41	5966215.18	-10.00'
48	2525252.18	5965845.43	-10.00'
49	2525235.51	5965876.76	-10.00'
50	2525199.30	5965850.19	-10.00'
51	2525228.75	5965812.83	-10.00'
52	2525237.52	5965756.13	-10.00'
53	2525375.17	5965582.17	-10.00'
54	2525305.38	5965455.80	-10.00'
55	2525322.64	5965431.94	-10.00'
56	2525309.87	5965368.79	-10.00'
57	2525539.78	5965241.82	-10.00'
58	2525685.59	5965477.21	-10.00'
59	2525699.62	5965474.60	-10.00'
60	2525852.58	5965714.94	-10.00'
61	2526193.02	5965955.31	-10.00'
62	2525206.72	5965914.74	-10.00'
63	2525228.31	5965932.51	-10.00'
64	2525191.60	5965980.97	-10.00'
65	2525088.53	5965904.78	-10.00'
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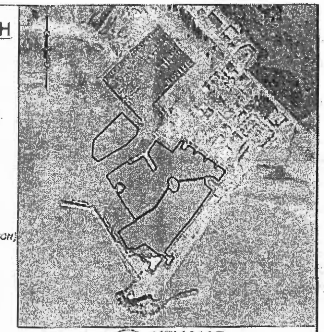
67	2525170.05	5965887.26	-10.00'



KEY MAP
1"=800'

KEY NOTES

1. 2:1 SLOPE TYPICAL FOR ALL DREDGING ADJACENT TO ROCK SLOPES.
2. 3:1 SLOPE TYPICAL FOR ALL CHANGES IN DREDGE DEPTH. TERMINATE SLOPE AT BOUNDARY OF DEEPER DREDGE AREA.
3. 4:1 SLOPE
4. REMOVE FLOATS @ BOAT RAMP PRIOR TO DREDGING & REINSTALL ONCE COMPLETE IF REQUIRED FOR ACCESS.
5. REMOVE SEDIMENT FROM CONCRETE RAMP TO ELEVATION -10.0. DO NOT UNDERMINE RAMP.
6. SLOPE TRANSITION

GENERAL NOTES

1. DREDGE BOUNDARIES INDICATE LIMITS OF DREDGING TO DESIGN DEPTHS. DREDGE SIDE SLOPES AND TRANSITION ZONES AS INDICATED.
2. ALL DREDGE MATERIAL SHALL BE PLACED AS DIRECTED BY EPA/ARMY CORPS AT HOODS.
3. MATERIAL FOUND TO BE UNSUITABLE FOR HOODS SHALL BE DISPOSED OF AT AN APPROVED DISPOSAL SITE.
4. TRANSITIONS BETWEEN DREDGE AREAS OF DIFFERENT DREDGE DEPTH SHALL BE AT 3:1 TYP.
5. SLOPES GIVEN ARE HORIZONTAL TO VERTICAL TYPICAL: 4:1, 3:1, 1.5:1.
6. DREDGE TO DESIGN DEPTH OR EXISTING BEDROCK. IT IS THE INTENT OF THIS CONTRACT TO DREDGE AREAS PREVIOUSLY DREDGED ONLY.
7. MOORING BLOCKS SHALL BE RELOCATED PER HARBOR DISTRICT DIRECTION.
8. LIMITS OF BREAKWATER ARE APPROXIMATE.
9. VERTICAL CUTS SHALL BE MADE AT DOCKS.

LEGEND

- (-15) DREDGE DESIGN DEPTH
- TOP OF BANK
- EELGRASS (BASED ON MAY 2013 SURVEY)
- IMPACTED EELGRASS

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CRESCENT CITY HARBOR

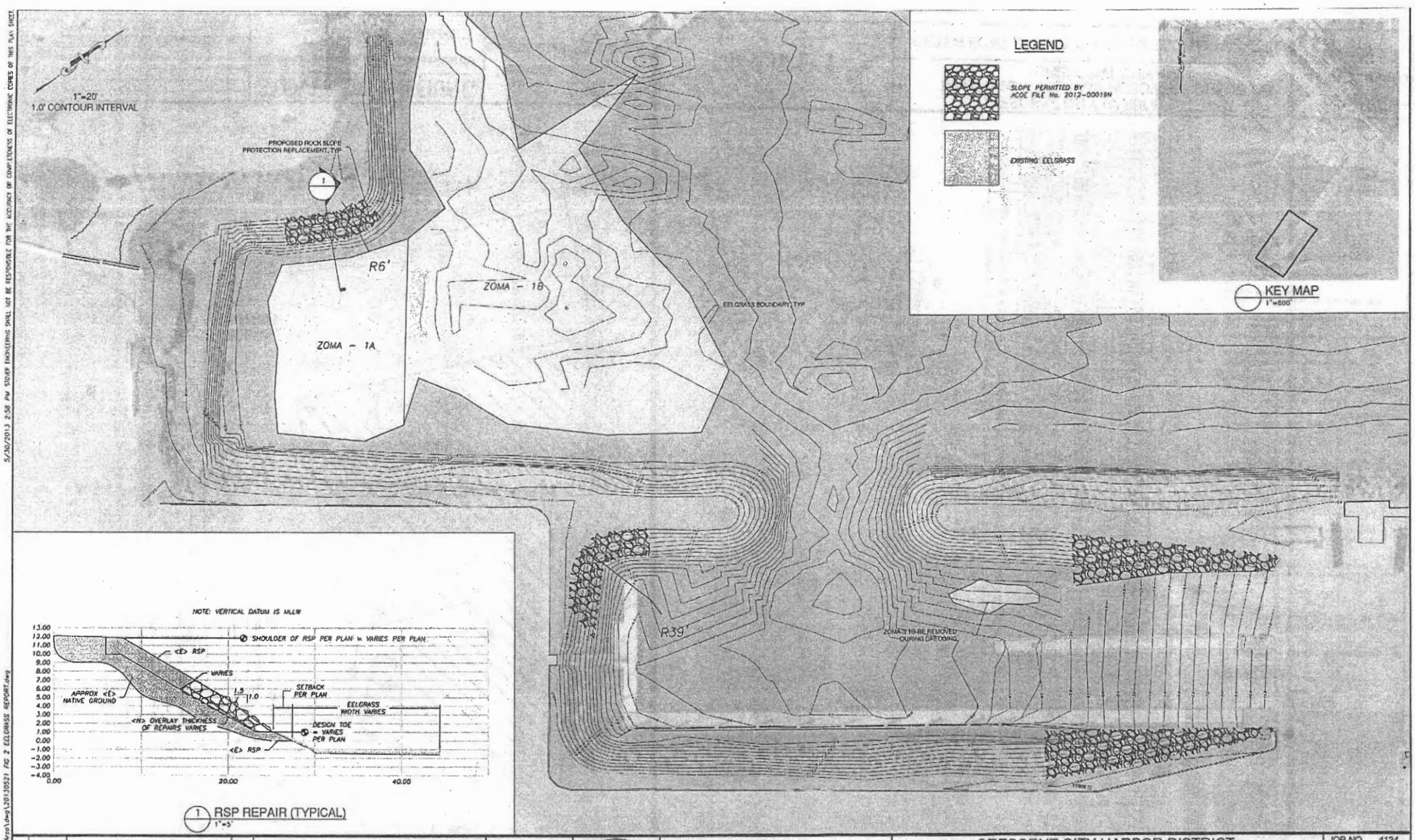
FIGURE 1

CRESCENT CITY HARBOR DISTRICT
MARCH 2011 TSUNAMI RECOVERY DREDGING
CRESCENT CITY, CA

OUTER BOAT BASIN & OUTER HARBOR DREDGE PLAN

JOB NO. 4135
SCALE: 1"=100'
DATE: 05/24/13
SHEET

S:\4135.1 OBB Dredge Area\dwg\20130521 FIG 1 EELGRASS REPORT.dwg
5/30/2013 2:33 PM STOVER ENGINEERING SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET



1 RSP REPAIR (TYPICAL)
1"=5'

No.	Date	Revision	Aprvd
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FIGURE 2

CRESCENT CITY HARBOR DISTRICT
MARCH 2011 TSUNAMI RECOVERY DREDGING
CRESCENT CITY, CA

PREFFERED ALTERNATIVE

JOB NO. 4134
SCALE: 1"=100'
DATE: 05/30/13
SHEET

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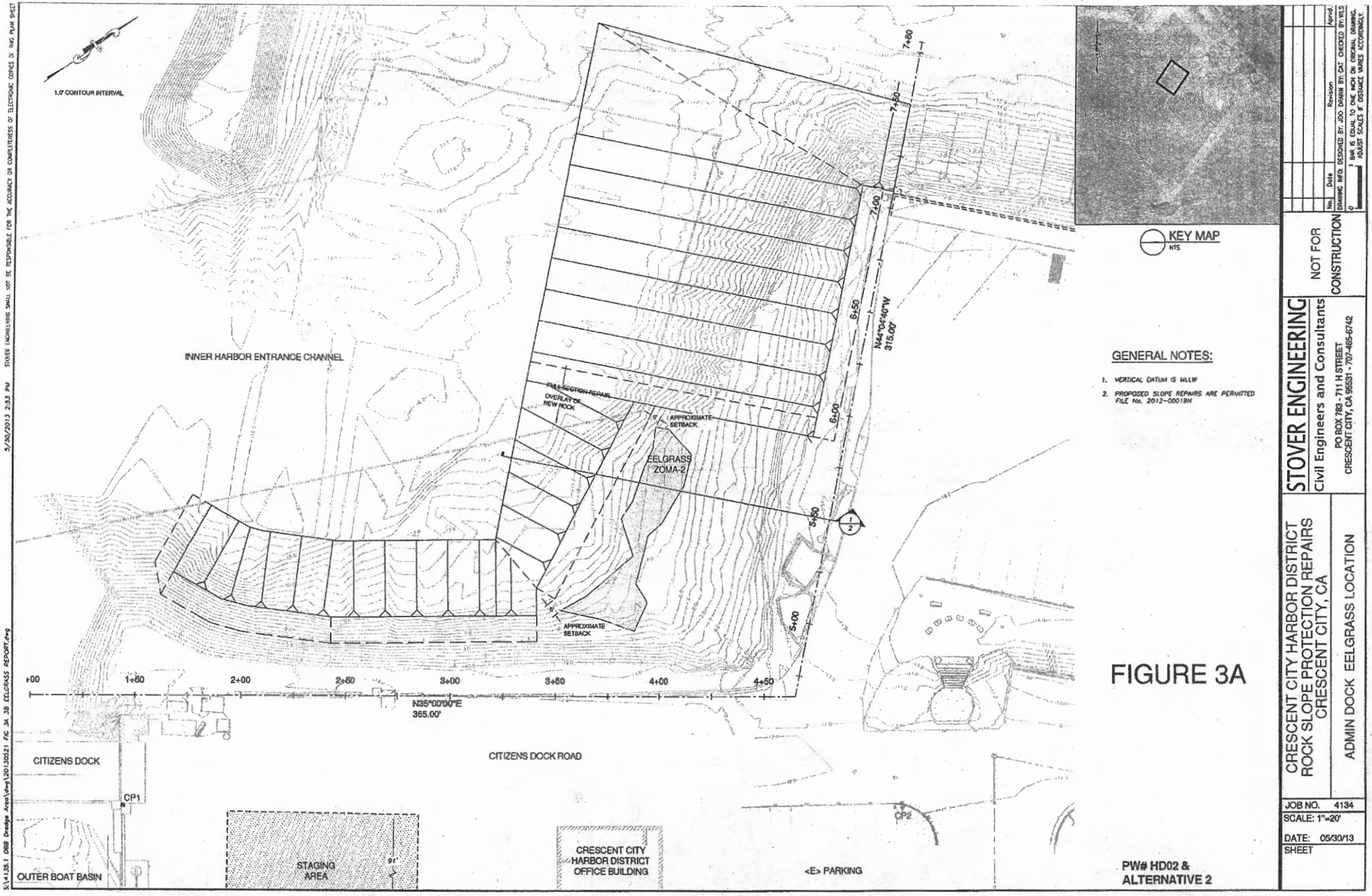
S:\4134.1 ODB Dredge Area\dwg\20130521 Fig 2 EELGRASS REPORT.dwg



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CRESCENT CITY HARBOR DISTRICT
ROCK SLOPE PROTECTION REPAIRS
CRESCENT CITY, CA

ADMIN DOCK EELGRASS LOCATION

JOB NO. 4134
SCALE: 1"=20'
DATE: 05/30/13
SHEET

No.	Date	Revision	Apvd.

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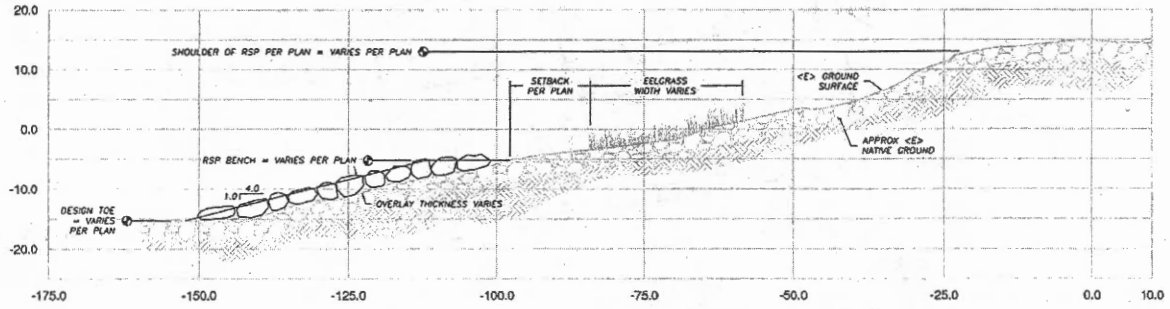
S:\4135.1 DRB Dredge Area\dwg\201305211 FIG 3A JB EELGRASS REPORT.dwg 5/30/2013 2:53 PM STOVER ENGINEERING SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET



1/1 RSP SECTION AT ZOMA-2 EELGRASS STA 5+50
H: 1"=10' V: 1"=10'

1. THE RSP OVERLAY IS INTENDED TO PROTECT THE SLOPE FROM FURTHER EROSION. DUE TO THE LOCATION OF THE EELGRASS AN OVERLAY METHOD WAS SELECTED INSTEAD OF DIGGING OUT AND REBUILDING THE ENTIRE SLOPE.
2. VERTICAL DATUM IS MLLW

FEMA DECLARATION #1968 DR CA PW 55 HD02

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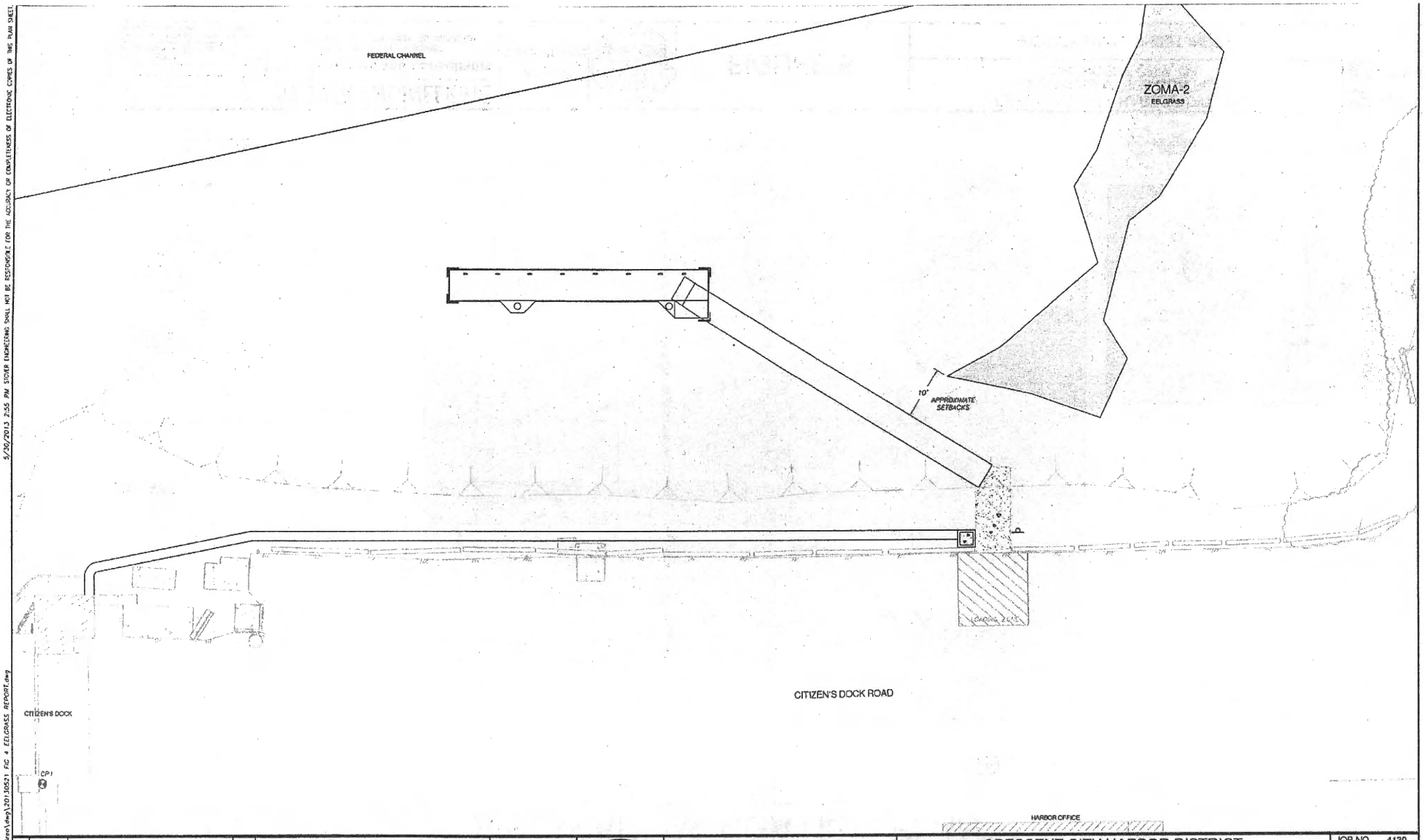
FIGURE 3B

CRESCENT CITY HARBOR DISTRICT
ADMIN DOCK & HARBOR POINT RSP REPAIRS
CRESCENT CITY, CA

ADMIN DOCK EELGRASS SECTIONS

JOB NO. 4134
SCALE: 1"=1'
DATE: 05/30/13
SHEET



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S:\4135.1 DBB Dredge Area\dwg\20130521 FIG 4 EELGRASS REPORT.dwg

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FIGURE 4

CRESCENT CITY HARBOR DISTRICT
ADMINISTRATION DOCK
CRESCENT CITY, CA

EELGRASS LOCATION PLAN

JOB NO. 4130
SCALE: 1"=10'
DATE: 05/30/13
SHEET

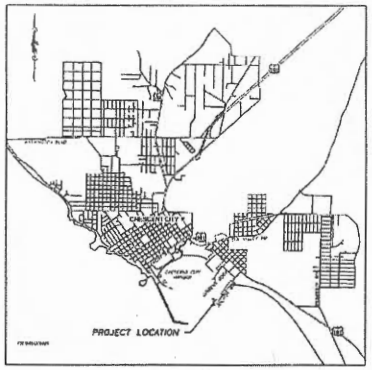
CRESCENT CITY HARBOR DISTRICT

EELGRASS MITIGATION PLAN

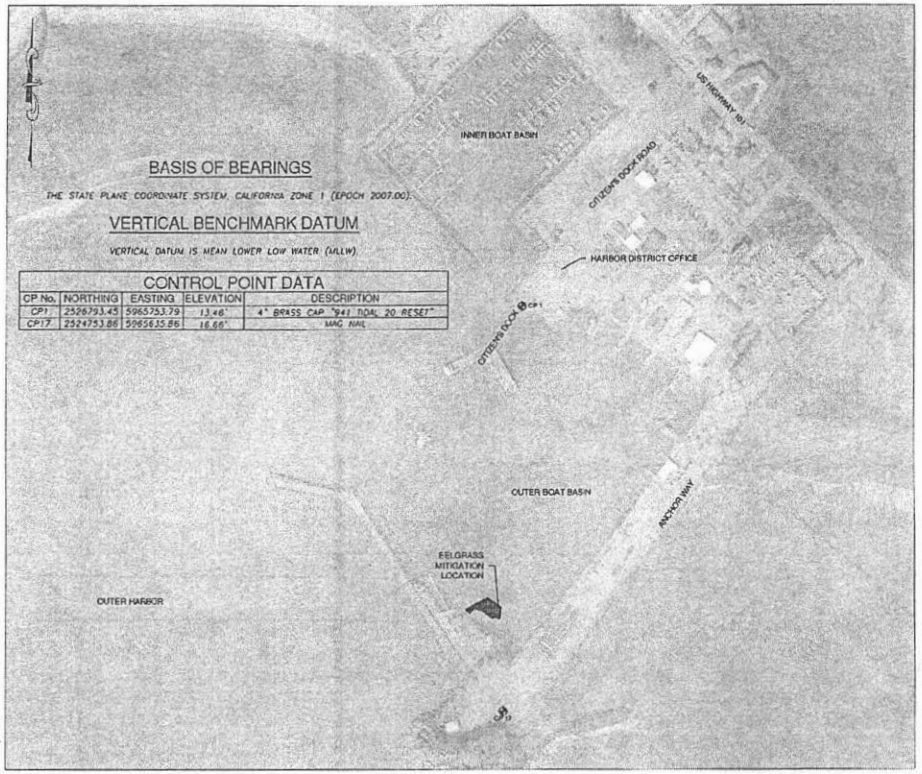
CRESCENT CITY, CA

STATE MAP
NTS

COUNTY MAP
NTS

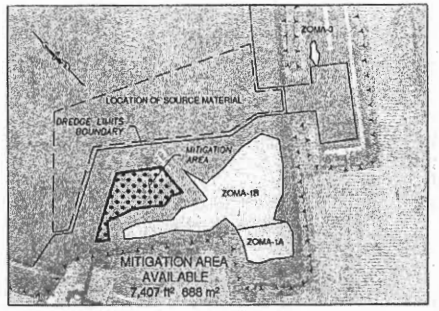


CITY MAP
NTS



1/1 SITE MAP
1"=300'

SHEET INDEX



ACTUAL MITIGATION AREA WILL BE 511m²

2/1 PROPOSED EELGRASS MITIGATION
1"=100'

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FIGURE 5

CRESCENT CITY HARBOR DISTRICT
EELGRASS MITIGATION PLAN
CRESCENT CITY, CA

VICINITY MAP & SHEET INDEX

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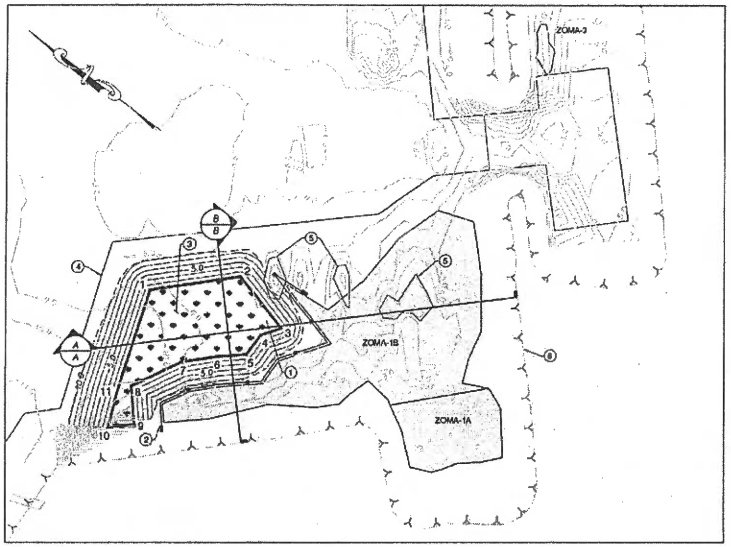
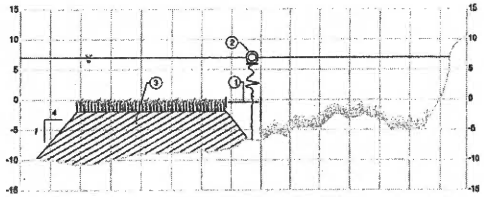
5/30/2013 2:57 PM STOVER ENGINEERING SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET

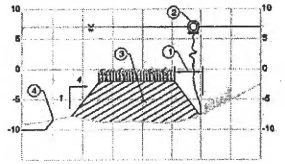
S:\4135.1 CCH Dredge Area\dwg\20130521 FIG 5 EELGRASS REPORT.dwg



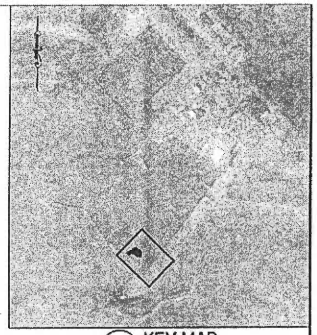
1/2 MITIGATION AREA
1"=50'



A/A MITIGATION SECTION
H: 1"=50' V: 1"=10'



B/B MITIGATION SECTION
H: 1"=50' V: 1"=10'

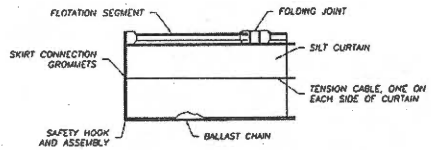


KEY MAP
1"=800'

KEY NOTES

1. 25' BUFFER AREA BETWEEN <E> EELGRASS AND MITIGATION AREA
2. SILT CURTAIN, SEE DETAIL 2/2
3. EELGRASS MITIGATION AREA AVAILABLE
4. DREDGE LIMITS BOUNDARY
5. APPROXIMATE ROCK LOCATION
6. <E> TOP OF BANK

MITIGATION BOUNDARY DATA			
No.	NORTHING	EASTING	ELEVATION
1	2525324.61	5965577.24	-2.00'
2	2525280.11	5965538.78	-2.00'
3	2525225.91	5965633.78	-2.00'
4	2525233.99	5965617.40	-2.00'
5	2525230.52	5965598.02	-2.00'
6	2525246.27	5965579.06	-2.00'
7	2525263.33	5965554.89	-2.00'
8	2525278.03	5965511.31	-2.00'
9	2525251.04	5965490.67	-2.00'
10	2525266.92	5965473.86	-2.00'
11	2525282.10	5965498.21	-2.00'



PROVIDE SUFFENT LENGTH TO REACH BOTTOM AT ALL TIDAL CONDITIONS

2/2 (TYP) FLOATING BOOM W/ OPTIONAL SILT CURTAIN
NTS

GENERAL NOTES

1. VERTICAL DATUM IS MLLW.
2. PLACE SILT CURTAIN PRIOR TO PLACEMENT OF NEW MATERIAL FOR MITIGATION AREA.
3. SOURCE MATERIAL FOR MITIGATION AREA SHALL BE APPROVED BY BOTANIST PRIOR TO PLACEMENT. FILL MATERIAL SHALL BE PLACED ON THE OCEAN FLOOR, NOT DUMPED.
4. CONTRACTOR SHALL PROVIDED A REPRESENTATIVE SAMPLE OF MATERIAL TO BOTANIST FOR APPROVAL.
5. SUITABLE MATERIAL MAY BE AVAILABLE ADJACENT TO THE MITIGATION SITE. MATERIAL TO BE REMOVED DURING THE DREDGING OF THE OUTER HARBOR IS PREFERRED IF FOUND TO BE ACCEPTABLE.
6. MITIGATION AREA WILL BE PLANTED WITH EELGRASS AS DESCRIBED IN KYLE WEAR'S EELGRASS MITIGATION AND MONITORING PLAN FOR CRESCENT CITY HARBOR OUTER BOAT BASIN (JULY 2012).
7. ACTUAL MITIGATION AREA CONSTRUCTED WILL BE 511 M^2

No.	Date	Revision	Aprvd.

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FIGURE 6

CRESCENT CITY HARBOR DISTRICT
EELGRASS MITIGATION PLAN
CRESCENT CITY, CA

EELGRASS MITIGATION PLAN & CROSS SECTIONS

JOB NO. 4135
SCALE: H: 1"=50' V: 1"=10'
DATE: 05/30/13
SHEET

S:\4135_1 OBB Dredge Area\dwg\20130521 FIG 5 EELGRASS REPORT.dwg

EELGRASS (*Zostera marina*) PRE-CONSTRUCTION MONITORING REPORT
Crescent City Harbor Outer Boat Basin

Crescent City, CA

Prepared for:

Crescent City Harbor District
101 Citizens Dock Road
Crescent City, CA 95531

Prepared by:

Kyle Wear
Botanical Consultant
3484 Zelia Court
Arcata, CA 95521
kyle_wear@suddenlink.net

May 2013

1. PROJECT OVERVIEW

Pre-construction eelgrass (*Zostera marina*) monitoring was conducted in the Crescent City Harbor Outer Boat Basin on May 13, 14, and 15, 2013 by Botanist Kyle Wear, Wildlife Biologist Frank Galea, and Pacific Watershed Associates. The monitoring is required as part of the Crescent City Harbor's Outer Boat Basin Eelgrass Mitigation and Monitoring Plan (Wear 2013).

The Crescent City Harbor District will conduct dredging, rock slope protection work, and dock construction in the Outer Boat Basin to repair damage from the March 2011 tsunami. The work is authorized by the Crescent City Harbor District's Coastal Development Permit #1-12-004 and Army Corps of Engineers permits #2012-0006N and #2012-00019N.

The objective of the monitoring was to measure the bed parameters of all eelgrass beds in the Study Area. The purpose was to determine areal extent of eelgrass beds that will be directly impacted by dredging that will require transplanting and provide baseline bed parameters for all other eelgrass beds that will be avoided, but may have the potential for indirect impacts. The results will be compared with post-construction monitoring followed by 5 years of annual monitoring, as described in the Mitigation and Monitoring plan.

Dredging will directly impact 45.63 square meters eelgrass beds. This includes the bed in the public boat launch area (ZOMA-3) in addition to two small isolated beds in the Outer Boat Basin (ZOMA-9 and 10). The project also has the potential for indirect impacts from shading, alteration of circulation patterns, and increased turbidity to other beds adjacent to the Project Area. A 511 square meter mitigation site will be constructed from dredge material and planted with eelgrass as described in the Mitigation and Monitoring Plan. The mitigation site will provide shallow habitat for planting 220 square meters of eelgrass to mitigate for the 45.63 square meters directly impacted (4.82:1 impact to planting ration) and will provide additional habitat for planting if supplemental mitigation is required.

The mitigation site is located in the southern corner of the Outer Boat Basin near the U.S Coast Guard Station. The UTM coordinates (Zone 10, NAD 83) for the general vicinity of the mitigation site are E 401,521.11; N 4,621,784.20

Construction of the site is expected to begin in mid-June 2013, with planting of the site to occur in early-mid July 2013.

2. SUMMARY DATA

2.1 Methods

Pre-construction monitoring included a survey of all potential eelgrass habitat in the Study Area and measurement of eelgrass bed parameters for all eelgrass beds present. The surveys were conducted according to the eelgrass survey methods outlined in Appendix B of the draft *California Eelgrass Mitigation Policy* (NMFS 2011). A summary of the dates, monitoring times, and conditions is provided in Table 1.

2.1.2. Surveys

Dive surveys were conducted in all potential eelgrass habitat in the Study Area. This includes all soft bottom habitat -7 feet MLLW or shallower (Figure 1). The majority of this area was known to be occupied by eelgrass based on surveys in May 2012. The Studay Area contains a relatively small amount of additional shallow habitat around the perimeter of the harbor. The areas around the existing eelgrass beds were surveyed extensively during the process of locating and marking of the beds described in Section 2.2. The remaining habitat was surveyed by swimming dive transects around the southwest and northeast perimeters of the Outer Boat Basin.

2.1.3. Bed Parameters

Areal extent

The perimeters of the beds were marked with PVC pipe by Botanist Kyle Wear and Wildlife Biologist Frank Galea and were mapped by Pacific Watershed Associates. The PVC pipes range from 10 to 15 feet long and are intended to remain through construction so the beds are clearly visible to operators.

In some cases, the edges of the beds were marked from the shore at peak low tide or from a canoe when the edge was clearly visible. However, most of the edges were identified using scuba or free diving gear. A canoe was used to carry PCV pipe and provide surface support to the diver.

The areal extent of the beds was measured by Pacific Watershed Associates using an electronic total station. Divers held prisms at each of the PVC pipes and the positions were recorded from shore with the total station. A polygon shapefile was generated from the survey data and projected to NAD 83, UTM Zone 10 using ArcGIS 10.1 software.

Bottom cover

The bottom cover of the eelgrass within the beds was determined by dividing the estimated area of eelgrass patches that form the bed by the area of the bed.

Turion density

Turion density was sampled in a minimum of thirty 0.25 square meter quadrats within each bed by Kyle Wear and Frank Galea. A baseline was established along the landward edge of each bed. The baseline was divided into tree to five spatial strata depending on the size and shape of the bed. A transect was placed perpendicular to the baseline at a random point in each strata. Two to three quadrats were randomly sampled for every 3 meters across the depth profile of the bed. If the designated number of samples could not be taken along the transect because of the shape of the bed or gaps, a second random transect was sampled.

2.2. RESULTS

The Study Area contains six eelgrass beds (Figures 2 and 3). The parameters for each bed are provided in Table 2. ZOMA-1 was stratified by a clear decrease in bottom cover along the depth profile of the bed. Two small isolated beds recorded in May 2012 were no longer present (ZOMA-4 and 5), but two new isolated beds were identified (ZOMA-9 and 10). There are two other beds in the Outer Boat Basin, but not within the Study Area that were not monitored in 2013 (ZOMA-7 and 8).

The eelgrass bed parameters in Table 2 shall be the baseline for comparison with post-construction and annual monitoring results as described in the Mitigation and Monitoring Plan.

The dredging will impact 45.63 square meters of eelgrass in ZOMA-3, ZOMA-9, and ZOMA-10. This requires that 220 square meters of eelgrass be transplanted into the constructed mitigation site and that a minimum 54.76 square meters of eelgrass bed be successfully established. ZOMA-6 shall serve as the reference bed for all post-construction and annual monitoring events.

3. REFERENCES

NMFS 2011. Draft *California Eelgrass Mitigation Policy.* National Marine Fisheries Service, Southwest Region.

Wear, K. S. 2013. *Eelgrass Mitigation and Monitoring Plan, Crescent City Harbor Outer Boat Basin*. Report prepared for the Crescent City Harbor District, May 2013.

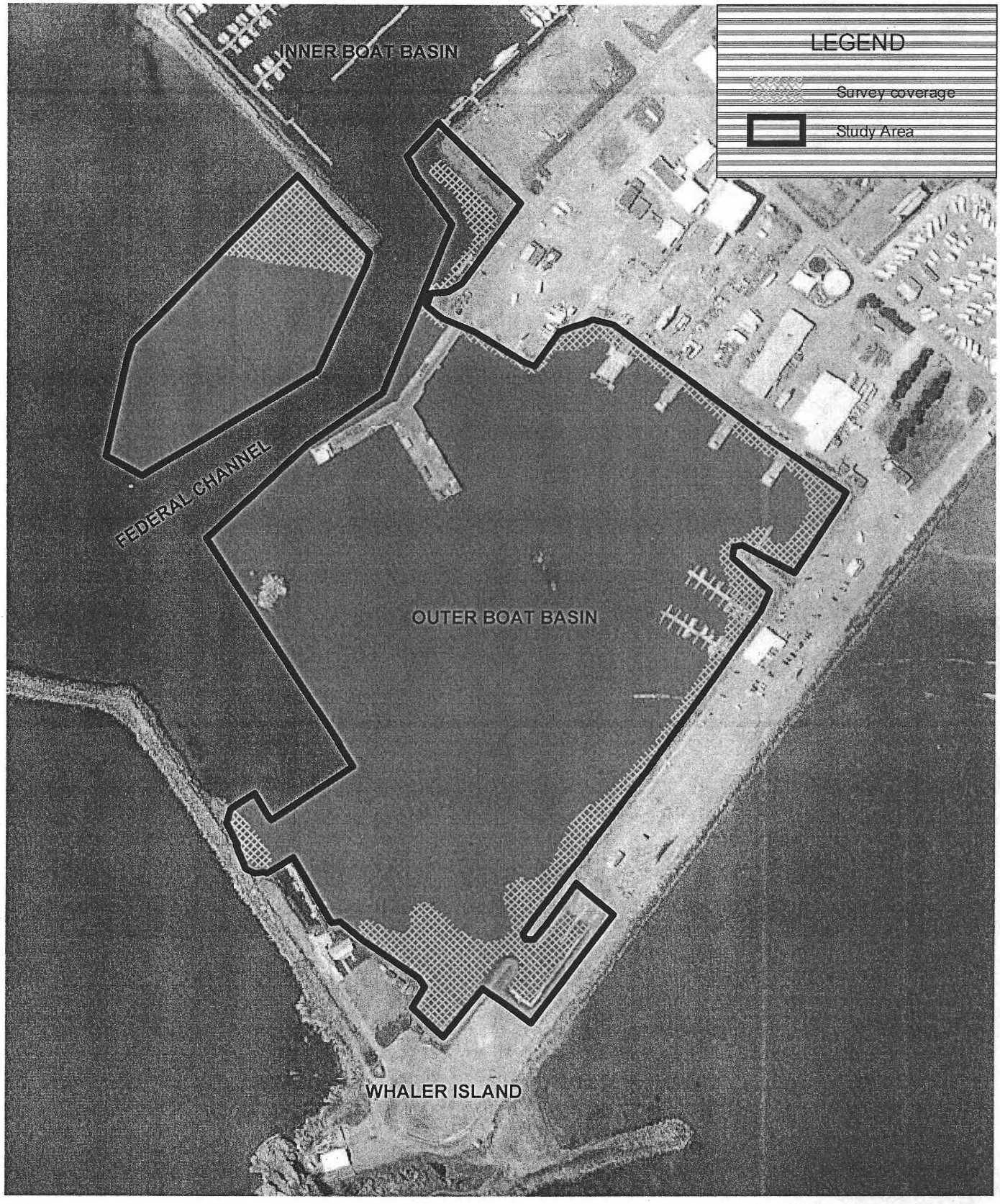
Table 1. Monitoring Dates, Times, and Conditions.

Date	**Survey Time**	**Weather**	**Tides** (MLLW)	**Water Visibility**
May 13, 2013	08:30-13:00	Wind < 5 mph, overcast/drizzle	08:39 Low -0.5 15:24 High 5.2	Poor (0.5-3 ft.)
May 14, 2013	08:30-13:00	Wind 3-5 mph becoming 10 + by 13:00, sunny	09:19 Low -0.3 16:11 High 5.1	Poor (0.5-3 ft.)
May 15, 2013	08:30-11:00	Wind < 5 mph, sunny	10:01 Low 0.0 16:59 High 5.1	Poor (0.5-3 ft.)

Table 2. Crescent City Harbor Outer Boat Basin Pre-construction Eelgrass Bed Parameters, May 2013.

Bed	**Sample Size**	**Areal Extent** (m^2)	**Mean Turion Density or Total** ($0.25m^2$ quadrat)	**Standard Deviation**	**Bottom Cover** (%)	**UTM Coordinates*** (Zone 10, NAD 83)
ZOMA-1	65	2279.14	6.21	3.16	35	E 401554.79 N 4621729.43
ZOMA-1a	30	448.74	7.6	3.72	80	
ZOMA-1b	35	1830.40	5.03	1.96	20	
ZOMA-2	30	156.00	5.63	3.37	20	E 401577.42 N 4622332.19
ZOMA-3 (Impacted)	31	42.63	7.94	5.52	80	E 401633.55 N 4621773.24
ZOMA-4	Small bed identified in 2012, not present in 2013					
ZOMA-5	Small bed identified in 2012, not present in 2013					
ZOMA-6 (Reference Bed)	30	346.69	13.10	5.00	80	E 401406.32 N 4621845.39
ZOMA-7	Outside of study area, not monitored in 2013					E 401366.15 N 4621902.02
ZOMA-8	Outside of study area, not monitored in 2013					E 401262.93 N 4621980.74
ZOMA-9 (Impacted)	NA	2.0	12 total turions	NA	NA	E 401788.49 N 4622154.84
ZOMA-10 (Impacted)	NA	1.0	5 total turions	NA	NA	E 401707.52 N 4622221.75

* Approximate center of bed.



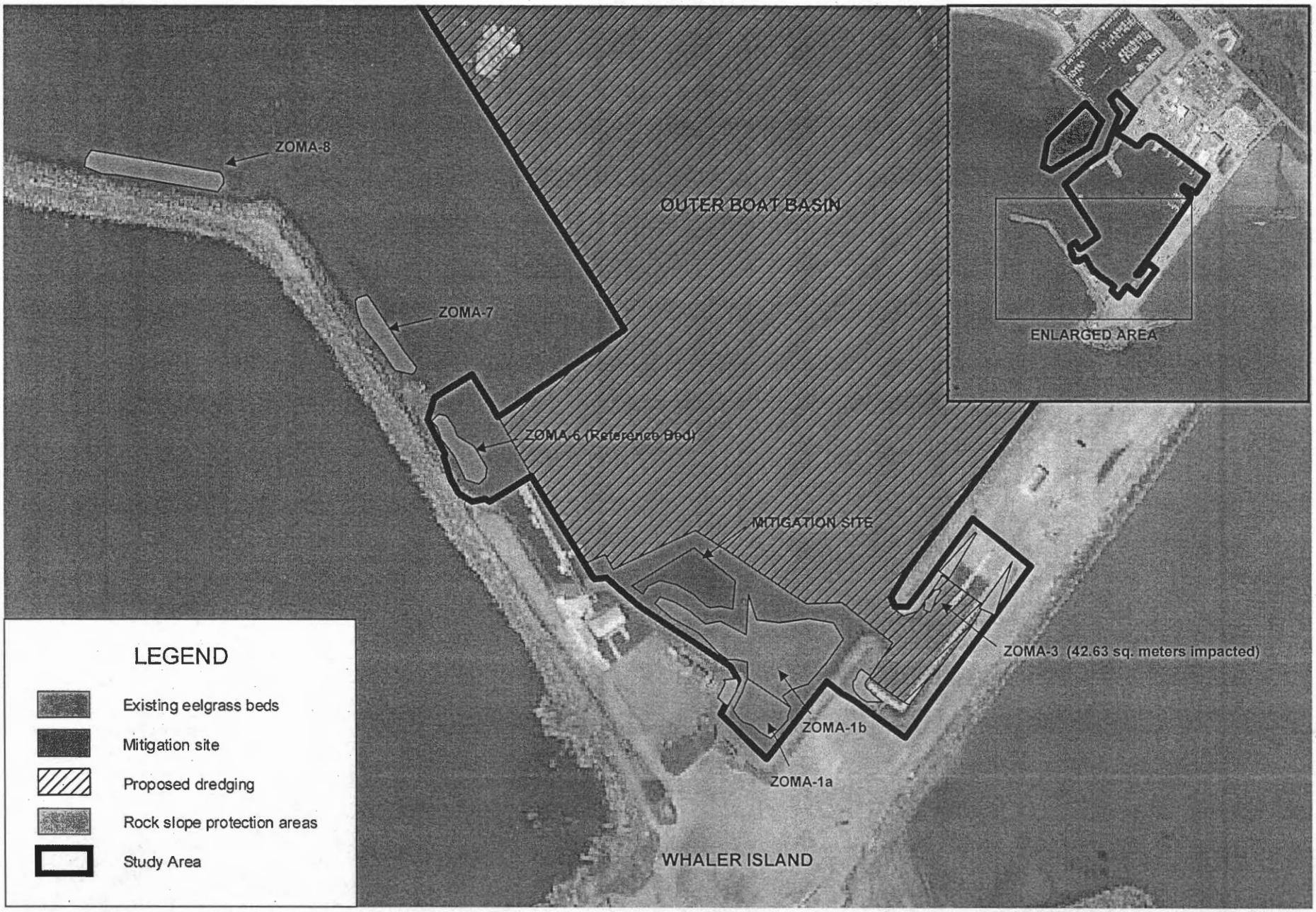
Base Map: 2010 Del Norte County NAIP Image

Figure 1. Crescent City Harbor Eelgrass Survey Coverage Map.

N
W E
S

100 0 100 Meters

Crescent City Harbor, May 2013



Base Map: 2010 Del Norte County NAIP Image

Figure 2. Crescent City Harbor Eelgrass Distribution and Project Components Map 1.

Crescent City Harbor, May 2013

N
W E
S

50 0 50 Meters

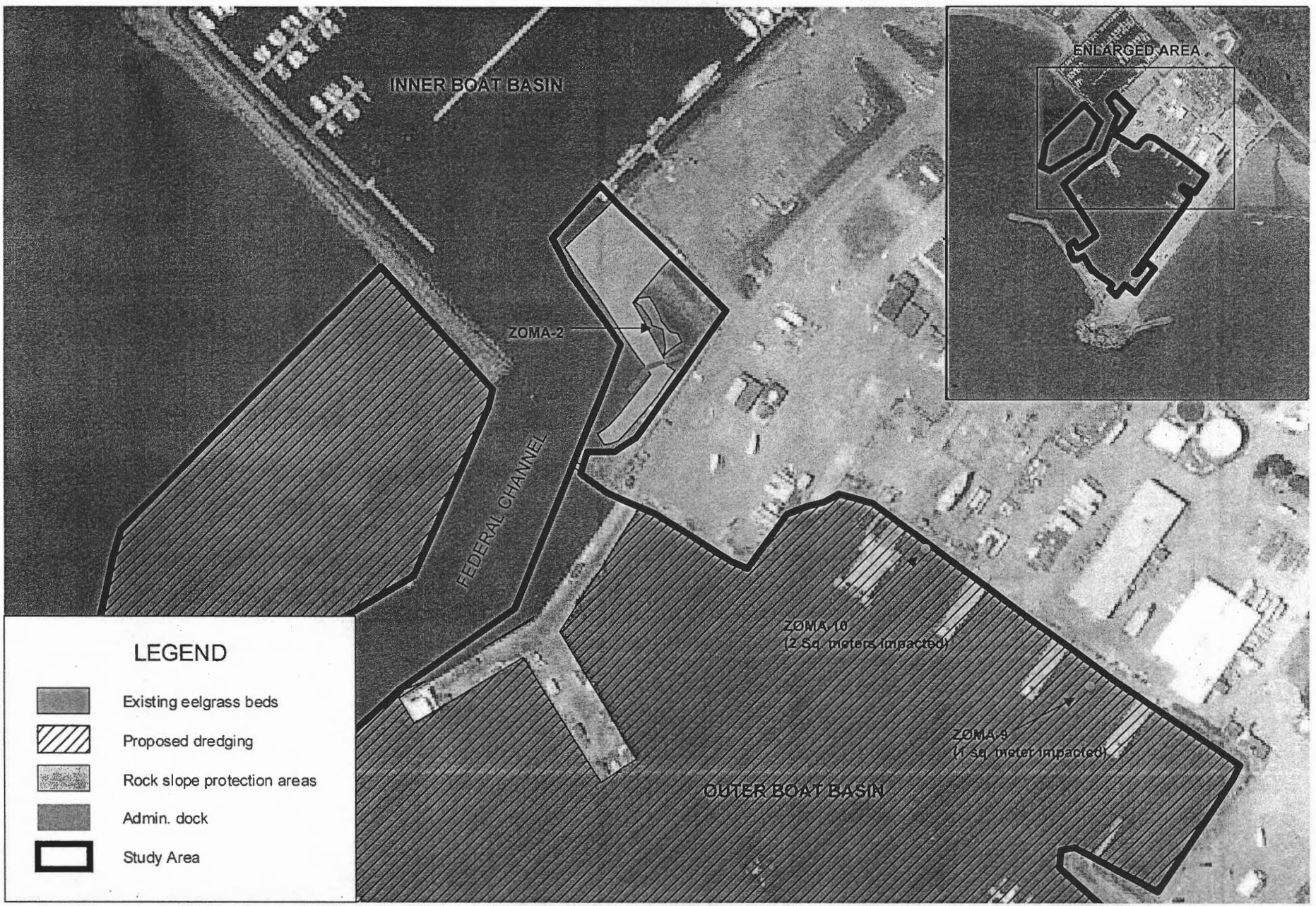


Figure 3. Crescent City Harbor Eelgrass Distribution and Project Components Map 2.

Crescent City Harbor, May 2013

CALIFORNIA COASTAL COMMISSION
NORTH COAST DISTRICT OFFICE
1385 8TH STREET, SUITE 130
ARCATA, CA 95521
VOICE (707) 826-8950
FACSIMILE (707) 826-8960

W9a

Filed:	4/24/13
180th Day:	10/21/13
Staff:	R. Merrill-A
Staff Report:	5/31/13
Hearing Date:	6/12/13

STAFF REPORT: MATERIAL AMENDMENT

Amendment Application No.:	**1-12-004-A1**
Applicant:	**Crescent City Harbor District**
Project Location:	Within the Crescent City Harbor Outer Boat Basin, 101 Citizens Dock Road, Crescent City, Del Norte County.
Description of CDP 1-12-004:	Restore the Outer Boat Basin to its capacity and function prior to damage from March 11, 2011 tsunami by (a) dredging approximately 251,160 cubic yards of material from the basin and (b) excavating 4,200 cubic yards of damaged rock slope revetment materials and placing 3,731 cubic yards of new rock to repair the existing shoreline revetment at five locations along the interior embankments of the basin.
Amendment Request:	Modify permit to authorize the placement of approximately 1,700 cubic yards of dredged material in an approximately 1,167 square-meter area of the harbor to create an eelgrass bed as mitigation for impacts to eelgrass from permissible dredging and revetment repairs.
Staff Recommendation:	Approval with Special Conditions.

SUMMARY OF STAFF RECOMMENDATION

The Crescent City Harbor District proposes to amend Coastal Development Permit (CDP) 1-12-004 granted by the Commission for the rehabilitation of the Crescent City Harbor District's Outer Boat Basin to address sediment shoaling and revetment damage resulting from the March

2011 tsunami generated by the 9.0 Tohuku Earthquake in Japan. The approved project includes the dredging of approximately 251,160 cubic yards of shoaled sediments and the repair of the existing shoreline revetment at five locations by reassembling existing revetment materials and adding a total of approximately 3,731 cubic yards of new quarry rock.

Special Condition No. 2(B) of the original permit contains provisions requiring that any impacts to eelgrass beds be avoided and mitigated. The condition requires that any net loss of eelgrass based on pre- and post- construction surveys be mitigated by the creation of new or expanded eelgrass beds and that a final mitigation and monitoring plan for the creation and monitoring of the eelgrass beds be submitted for the review and approval of the Commission. The pre-construction survey conducted in May of 2012 identified a total of six eelgrass beds within the project area. The number and extent of eelgrass beds identified were greater than anticipated when the project was approved. The applicant subsequently prepared an eelgrass mitigation plan that reduces the scope of the authorized dredging and rock slope protection repairs to avoid and minimize impacts to eelgrass beds and also proposes the creation of a new eelgrass bed to compensate for dredging impacts to eelgrass beds that cannot be avoided. These revisions are the subject of this proposed permit amendment.

The primary issue raised by the proposed amendment is the amended project's consistency with the requirements of Section 30233 of the Coastal Act limiting dredging and filling of coastal waters and wetlands. Commission staff believes the project as amended is the least environmentally damaging feasible alternative as dredging impacts to eelgrass cannot be further reduced without unacceptably interfering with priority commercial fishing and recreational boating uses at the harbor and the proposed size and configuration of the fill for the eelgrass mitigation area is necessary to maximize the chances for success of the eelgrass mitigation. In addition, staff believes the eelgrass mitigation proposal provides adequate mitigation for the impacts of the project as amended on eelgrass beds. Staff recommends Special Condition No. 12 to require implementation of the eelgrass mitigation plan and Special Conditions 13 and 14 to ensure other agency approvals are obtained.

Commission staff recommends approval of coastal development permit amendment request 1-12-004-A1, as conditioned.

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I. MOTION AND RESOLUTION

Motion:

I move that the Commission approve the proposed amendment to Coastal Development Permit 1-12-004 pursuant to the staff recommendation.

Staff recommends a **YES** vote. Passage of this motion will result in approval of the amendment as conditioned and adoption of the following resolution and findings. The motion passes only by affirmative vote of a majority of the Commissioners present.

Resolution:

The Commission hereby approves the coastal development permit amendment on the ground that the development as amended and subject to conditions, will be in conformity with the policies of Chapter 3 of the Coastal Act. Approval of the permit amendment complies with the California Environmental Quality Act because feasible mitigation measures and/or alternatives have been incorporated to substantially lessen any significant adverse effects of the amended development on the environment.

II. STANDARD AND SPECIAL CONDITIONS

The standard conditions and Special Condition Nos. 1, 3, 4, 5, 6, 7, 8, 9, 10, and 11 of CDP No. 1-12-004 remain in full force and effect. CDP Amendment 1-12-004-A1 also includes new Special Condition Nos. 12, 13, and 14. Special Condition No. 12 replaces Special Condition No. 2 of the original permit. The new conditions are listed below. The text of all of the original permit conditions is included in Exhibit No. 9.

12. <u>Implement Revised Eelgrass Mitigation and Monitoring Plan</u>

(A) The permittee shall mitigate for the impacts of the project as amended on eelgrass beds as proposed by the permittee by fully implementing the eelgrass mitigation plan submitted with the application for Coastal Development Permit Amendment Nol. 1-12-004-A1 titled, "Revised Eelgrass Mitigation and Monitoring Plan, Crescent City Harbor Outer Boat Basin," dated January 2013, and prepared by Kyle Wear, Botanical Consultant. The permittee shall incorporate the project changes detailed in the plan that avoid approximately 2,000 square meters of eelgrass impacts and shall compensate as proposed for the remaining loss of 43 square meters of existing eelgrass beds resulting from the dredging authorized by the project as amended by successfully establishing a minimum of 51.6 square meters of new eelgrass bed (1:1.2 ratio of impacted eelgrass bed to successfully created eelgrass bed) within a minimum 207-square-meter area planted with eelgrass (4.82:1 ratio of transplant area to impact area) on new habitat area constructed from dredge material within harbor waters at the southern corner of the Outer Boat Basin.

The dredge material to be used for the eelgrass mitigation shall be removed from the dredge area and placed directly on the harbor bottom at the mitigation site rather than dropped through the water and a silt curtain shall be installed within the 25-foot buffer between the mitigation site and existing eelgrass bed ZOMA-1b prior to placement of the dredge material. The permittee shall monitor the success of the eelgrass mitigation and prepare and submit monitoring reports over a five year period for the review and approval of the Executive Director in accordance with the monitoring and reporting schedule detailed in the plan. As proposed in the plan, if the mitigation site fails to meet the success criteria during two consecutive annual monitoring events, the permittee shall submit an application for a further amendment of CDP 1-12-004 for additional mitigation to ensure all performance criteria are satisfied consistent with all terms and conditions of this permit.

(B) The permittee shall undertake development in accordance with the approved final plans. Any proposed changes to the approved final plans shall be reported to the Executive Director. No changes to the approved final plans shall occur without an amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

13. California Department of Fish and Wildlife Letter of Authorization

PRIOR TO ISSUANCE OF COASTAL DEVELOPMENT PERMIT AMENDMENT NO. 1-12-004-A1, the applicant shall provide to the Executive Director a copy of the Letter of Authorization required by the California Department of Fish and Wildlife for eelgrass harvesting and transplanting activities to be conducted as part of the amended development. The applicant shall inform the Executive Director of any changes to the project required by the California Department of Fish and Wildlife, including but not limited to, required changes that may conflict with modifications or conditions imposed by the Commission in approving Coastal Development Permit Amendment No. 1-12-004-A1. Such changes shall not be incorporated into the project until the applicant obtains a Commission amendment to this coastal development permit, unless the Executive Director determines that no further amendment is legally required.

14. U.S. Army Corps of Engineers Approval

PRIOR TO COMMENCEMENT OF ANY DEVELOPMENT AUTHORIZED BY COASTAL DEVELOPMENT PERMIT AMENDMENT NO. 1-12-004-A1, the applicant shall provide to the Executive Director a copy of an individual permit, nationwide permit, letter of modification or other approval issued by the Army Corps of Engineers reflecting final design modifications, or evidence that no letter of modification or other approval is required. The applicant shall inform the Executive Director of any changes to the project required by the Corps, including but not limited to, required changes that may conflict with modifications or conditions imposed by the Commission in approving Coastal Development Permit Amendment No. 1-12-004-A1. Such changes shall not be incorporated into the amended project until the applicant obtains a Commission amendment to this coastal development permit, unless the Executive Director determines that no further amendment is legally required.

III. FINDINGS AND DECLARATIONS

A. AMENDMENT DESCRIPTION

Project Background

On April 11, 2012, the Commission approved with conditions Coastal Development Permit (CDP) 1-12-004 for the rehabilitation of the Crescent City Harbor District's Outer Boat Basin from sediment shoaling and revetment damage resulting from the March 2011 tsunami generated by the 9.0 Tohuku Earthquake in Japan. The Outer Boat Basin is located in the eastern portion of the harbor off of Anchor Way and Citizens Dock Road in an unincorporated portion of Crescent City (see Exhibits 1-2).

The primary element of the approved project is the dredging of approximately 251,160 cubic yards of shoaled sediments from the bottom of the Outer Boat Basin to restore adequate depths for navigation, with disposal of the dredged material at the Humboldt Open Ocean Dredged Site (HOODS), located in federal waters offshore from Eureka (see Exhibit 3).

The approved project also includes the repair of the existing shoreline revetment at five locations along the interior embankments of the basin and along the shoreline embankment adjacent to the Administrative dock near the entrance to the adjacent Inner Boat Basin. As approved, a total of approximately 4,200 cubic yards of the existing RSP and accumulated sediments overlying the lower portions of the RSP at the damaged sites along the shoreline embankments will be removed and replaced and a total of approximately 3,731 cubic yards of new quarry rock will be placed in the five damaged areas to rebuild the RSP. See pages 12-15 of the Adopted Findings for CDP 1-12-04-A1 attached as Exhibit 9 for more details of the originally approved project.

The project was approved with 11 special conditions, including Special Condition No. 2, "Eelgrass Mitigation and Monitoring Plan," which requires avoidance of impacts to eelgrass beds to the maximum extent feasible. Although eelgrass (Zostera marina) had not been known to inhabit tidal and submerged areas of the Crescent City Harbor prior to the tsunami, eelgrass beds were discovered by staff of the Department of Fish & Game in certain locations within the Outer Harbor Basin and near the Administrative Dock location in 2011 after the tsunami. Eelgrass beds function as important shelter, foraging, and in some cases spawning habitats for a variety of fish species. The long, green leaves of the aquatic flowering plant also are an important food source for certain birds, such as black brant (small migratory geese). Eelgrass growth is sensitive and susceptible to human-related direct and indirect impacts, such as direct contact from construction and indirect shading from over-water structures (such as piers and gangways). Eelgrass is considered Essential Fish Habitat (EFH) under the Magnuson-Stevens Fishery Conservation and Management Act.

A preliminary eelgrass survey was conducted by the Harbor District's consultants on March 13, 2012, prior to Commission approval of the original permit. The preliminary survey identified an approximately 289-square-meter eelgrass bed near the entrance to the public boat launch area at the southern corner of the Outer Boat Basin and a separate approximately 241-square-meter eelgrass bed in the vicinity of the Administrative Dock. However, the preliminary survey was not conducted during the eelgrass growing season and did not include the open waters of the Outer Boat Basin. Therefore, the preliminary survey report included recommendations that the

areas adjacent to all of the RSP repair sites along the Outer Boat Basin as well as all areas of the Outer Boat Basin within and adjacent to any of the proposed dredging be re-surveyed in May 2012 prior to the commencement of construction to determine the full extent of eelgrass within the project area.

To ensure that the applicant obtained an accurate inventory of eelgrass present in the project area prior to construction and to minimize and mitigate any adverse impacts to eelgrass, Special Condition No. 2 required the applicant to submit an eelgrass mitigation and monitoring plan. The condition requires that the plan include provisions for conducting both pre- and post-construction surveys during the active eelgrass growing season and if the surveys demonstrate any net loss of eelgrass from the project, a final eelgrass mitigation and monitoring plan providing for creation of new or expanded eelgrass beds to mitigate for project impacts to eelgrass beds must be prepared and submitted for the review and approval of the Commission. The mitigation methods, the location of the mitigation sites, and the monitoring plan are required to be in compliance with the recommendations of the Draft California Eelgrass Mitigation Policy prepared by the National Marine Fisheries Service, Southwest Region dated December 7, 2011.

Pursuant to the pre-construction survey requirements of Special Condition No. 2, the applicant's consultants conducted dive surveys of the Outer Boat Basin in May of 2012. The surveys identified a total of eight eelgrass beds, of which six are within the project area originally approved by CDP 1-12-004. According to the Mitigation and Monitoring Plan later prepared by the consultants and included as Exhibit 8, the beds range from less than one square meter in size to over 1,500 square meters and predominantly occur on narrow shoals around the perimeter of the harbor (see Exhibit 5). The beds are identified as ZOMA 1-8

Proposed Amendment

The number and extent of eelgrass beds identified by the May 2012 survey within the project area was larger and greater than anticipated at the time the Commission approved the project in April of 2011. The applicant subsequently prepared an eelgrass mitigation plan that reduces the scope of the authorized dredging and rock slope protection repairs to avoid and minimize impacts to eelgrass beds and also proposes the creation of a new eelgrass bed to compensate for dredging impacts to eelgrass beds that cannot be avoided. These revisions are the subject of this proposed permit amendment. The revised dredging plan avoids certain areas near the shoreline embankment that currently contain eelgrass and that have not been extensively used in recent years for boat mooring. The dredgers will maintain a 25-foot or greater setback from the eelgrass beds in these areas. By deleting areas from dredging, the applicant will avoid approximately 2,000 square meters of existing eelgrass beds. However, it is not possible to avoid all of the existing eelgrass beds and a total of 43 square meters of existing eelgrass beds at ZOMA-3, -4, and -5 will be removed by the authorized dredging.

The rock slope protection repairs authorized by the original permit in the vicinity of ZOMA-1 and ZOMA-2 will be similarly reduced to limit disturbance and the placement of new rock to areas above, below, and/or adjacent to the eelgrass beds, maintaining a minimum setback of five feet from the eelgrass beds. As revised, the rock slope protection repairs will avoid all of the eelgrass beds.

Special Condition No. 1 of the original permit requires the submittal of final design and construction plans for the project prior to issuance of the permit. The submitted final plans include the reductions in dredging and rock slope protection repairs described above to avoid and minimize impacts on eelgrass consistent with the requirements of Special Condition No. 2(B).

As noted above, Special Condition No. 2(B) contains provisions requiring that any impacts to eelgrass beds be avoided and mitigated. The condition requires that any net loss of eelgrass based on pre- and post- construction surveys be mitigated by the creation of new or expanded eelgrass beds and that a final mitigation and monitoring plan for the creation and monitoring of the eelgrass beds be submitted for the review and approval of the Commission. The mitigation methods, the location of the mitigation sites, and the monitoring plan are required to be in compliance with the recommendations of the Draft California Eelgrass Mitigation Policy prepared by the National Marine Fisheries Service, Southwest Region dated December 7, 2011.

Based on the pre-construction eelgrass bed survey which identified a greater number and extent of eelgrass beds than anticipated when the original project was approved, eelgrass creation is required, even with the reductions in the amount of dredging and rock slope protection repairs to minimize eelgrass impacts. Eelgrass mitigation is usually accomplished by transplanting eelgrass turions from scattered locations within an existing eelgrass bed to a shallow area of soft bottom habitat at a suitable elevation that does not contain eelgrass. The pre-construction eelgrass survey indicates that eelgrass is present from approximately 0 to -6 feet Mean Lower Low Water (MLLW) with the highest density at -2 feet MLLW. Because of the limited amount of soft bottom habitat at these elevations within the Outer Boat Basin and nearby areas that is not already occupied by eelgrass, the Harbor District proposes to create suitable eelgrass habitat by taking approximately 1,700 cubic yards of the sandy/silty material previously authorized to be dredged from the harbor and disposed at the offshore HOODS disposal site and instead placing the material within a shallow area adjacent to an existing eelgrass bed near the southern corner of the Outer Boat Basin, at a depth of -2 MLLW to create suitable area for eelgrass transplanting. The proposed deposition of dredged material is a form of development that was not previously authorized by the original permit and requires the subject amendment. In addition, the amendment proposes to revise Special Condition No. 2 to require implementation of the final revised eelgrass mitigation plan prepared for the new mitigation proposal. The plan is titled, "Revised Eelgrass Mitigation and Monitoring Plan, Crescent City Harbor Outer Boat Basin," prepared by Kyle Wear, Botanical Consultant, and dated January 2013 (See Exhibit 8).

The proposed eelgrass mitigation site is located between the public boat launching ramp and the Coast Guard dock adjacent to the largest and most continuous existing eelgrass bed within the Outer Boat Basin. According to the amendment request, the mitigation site is a low energy area which allows for sediment accumulation and minimizes the potential for erosion of the mitigation area. The reduced dredging and rock slope protection repairs shown in the final plans required by Special Condition No. 1 of the original permit will result in the removal of 43 square meters of existing eelgrass beds at ZOMA-3, -4, and -5. Special Condition No. 2(B) of the original permit requires that the eelgrass mitigation and monitoring plan be in compliance with the recommendations of the Draft California Eelgrass Mitigation Policy prepared by the National Marine Fisheries Service, Southwest Region dated December 7, 2011. Under the provisions of this protocol, the Harbor District must plant approximately 207 square meters of new habitat

(4.82:1ratio of transplant area to impact area) and successfully create 51.6 square meters of new eelgrass bed.

The 1,700 cubic yards of dredge material to be placed to create the eelgrass mitigation site will be placed in water that currently has an average depth of -5 feet MLLW with the deepest point at approximately -9 feet MLLW. The fill would create a flat 511 square meter area of potential eelgrass habitat at the designed depth of -2 feet MLLW. The area of potential eelgrass habitat to be created is larger than the 207 square meters that must be planted to account for possible erosion of the created area and ensure a better opportunity for success. The sides of the fill area would slope downward at a slope of 4 horizontal to 1 vertical. The base of the fill area would cover a total of approximately 1,167 square meters of the existing bottom of the Outer Boat Basin.

The dredged material will be removed from the dredge area and placed through the water directly onto the ocean floor at the mitigation site with a barge-mounted excavator or via a dredge scow, rather than pumped to the site or dropped through the water. To further minimize turbidity and sedimentation of the adjacent eelgrass bed, a silt curtain will be installed in the 25-foot buffer between the dredged material placement site and the existing eelgrass bed (ZOMA-1b). Sediment samples indicate the dredge material to be deposited consists of sandy/silty/clayey sediment. An analysis of the stability and settlement of the dredge material indicates the bed to be created with its proposed 4:1 vertical to horizontal slopes will remain stable and the deposited material is not expected to migrate from the site.

Under the mitigation plan, transplanting of eelgrass turions will occur during the active growth period for eelgrass (May 1-September 30). Most of the turions will be harvested from ZOMA-3 before all of ZOMA-3 and some of the surrounding area is dredged for maintenance of the public boat launch ramp. Additional turions will be harvested from ZOMA 1-b in a manner that does not create noticeable bare patches and removes no more than 5 percent of the underground biomass of the eelgrass at ZOMA 1-b. A biologist with prior experience with eelgrass transplanting that has been approved by the California Department of Fish and Wildlife will carry out the transplanting of the eelgrass.

The applicant proposes to establish a minimum of 51.6 square meters of new eelgrass bed (1:1.2 ratio of impacted eelgrass bed to successfully created eelgrass bed) within a minimum 207-square-meter area planted with eelgrass (4.82:1 ratio of transplant area to impact area) in a manner consistent with the Draft California Eelgrass Mitigation Policy prepared by the National Marine Fisheries Service, Southwest Region dated December 7, 2011.

The eelgrass mitigation and monitoring plan provides for mitigation monitoring over a five year period. Additional pre-construction monitoring will be performed and an existing eelgrass bed that will not be disturbed by project activities will be used as a reference bed. The plan provides success criteria to be met during each semi-annual monitoring event over the five-year monitoring period. If the mitigation site fails to meet these criteria during two consecutive annual monitoring events, the plan indicates an application shall be submitted for a further amendment of CDP 1-12-004 for additional mitigation to ensure all performance criteria are met.

B. OTHER AGENCY APPROVALS

California Department of Fish and Wildlife

Chapter 5, Section 6400 of the California Fish and Wildlife Code requires a Letter of Authorization form the California Department of Fish and Wildlife for the harvesting and planting of eelgrass in state waters. The Letter of Authorization should be requested three to four weeks prior to harvesting and transplanting activities. To ensure that the eelgrass harvesting and transplanting is consistent with the eelgrass habitat mitigation authorized herein, the Commission attaches Special Condition No. 13, which requires the applicant to submit to the Executive Director evidence of approval of the required Letter of Authorization from the California Department of Fish and Wildlife prior to issuance of Coastal Development Permit Amendment No. 1-12-004-A1. The condition requires that any project changes resulting from this other agency approval not be incorporated into the project until the applicant obtains any necessary further amendment to this coastal development permit.

California State Lands Commission

The project site is located in an area that was formerly State-owned waters, but remains otherwise subject to the public trust. On July 13, 1963, by Senate Bill No. 1383, the State of California transferred all rights, title, and interest to portions of the submerged and tidelands within Crescent City Harbor and surrounding ocean waters to the District. In granting these ownership rights, the State Lands Commission (SLC) has retained authority over these former sovereign lands through both exempted and reserved rights to all deposits of minerals, and its public trust responsibilities under the state Constitution. Granted lands are monitored by the SLC to ensure compliance with the terms of the issued statutory grant. These grants encourage development of tidelands consistent with the public trust, while requiring grantees to re-invest revenues produced from the lands back into the lands where they are generated. In a letter dated March 28, 2008, States Land Commission staff indicated that dredging projects within granted tide lands may still require direct State Lands Commission approval. On December 22, 2011, the State Lands Commission executed a Dredging Lease (Lease No. PRC5202.9) for dredging at the Crescent City Harbor, including the dredging authorized under the amended coastal development permit. On March 4, 2013, the State Lands Commission executed amendments to Lease No. PRC5202.9 authorizing an extension of time from December 31, 2012 to December 31, 2015 for the previously authorized dredging.

U.S. Army Corps of Engineers

The amended project requires review and authorization by the U.S. Army Corps of Engineers ("USACE" or "Corps"). Pursuant to the Federal Coastal Zone Management Act, any permit issued by a federal agency for activities that affect the coastal zone must be consistent with the coastal zone management program for that state. Under agreements between the Coastal Commission and the U.S. Army Corps of Engineers, the Corps will not issue a permit until the Coastal Commission approves a federal consistency certification for the project or approves a permit. To ensure that the project ultimately approved by the Corps is the same as the project authorized herein, the Commission attaches Special Condition No. 14, which requires the applicant to submit to the Executive Director evidence of the Corps' approval of the amended project prior to commencement of any development. The condition requires that any project changes resulting from this other agency approval not be incorporated into the project until the applicant obtains any necessary further amendment to this coastal development permit.

C. STANDARD OF REVIEW

The site of the proposed amended project is within and adjacent to the semi-confined waters of the Crescent City Harbor, an embayment of the Pacific Ocean. The amended project is located in areas subject to the public trust within the Coastal Commission's area of original or retained jurisdiction. Therefore, the standard of review that the Commission must apply to the development is the Chapter 3 policies of the Coastal Act.

D. PERMISSIBLE DIKING, DREDGING, & FILLING OF COASTAL WETLANDS & PROTECTION OF WATER QUALITY

Section 30230 of the Coastal Act states the following:

Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes. [Emphasis added.]

Section 30231 of the Coastal Act states the following:

The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams. [Emphasis added.]

Section 30233(a) of the Coastal Act provides, in applicable part, as follows:

> *(a) The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division, where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:*
>
> *(1) New or expanded port, energy, and coastal-dependent industrial facilities, including commercial fishing facilities.*
>
> *(2) Maintaining existing, or restoring previously dredged, depths in existing navigational channels, turning basins, vessel berthing and mooring areas, and boat launching ramps.*
>
> *(3) In open coastal waters, other than wetlands, including streams, estuaries, and lakes, new or expanded boating facilities and the placement of structural pilings for public recreational piers that provide public access and recreational opportunities.*

(4) Incidental public service purposes, including but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines.

(5) Mineral extraction, including sand for restoring beaches, except in environmentally sensitive areas.

(6) Restoration purposes.

(7) Nature study, aquaculture, or similar resource dependent activities.

…

(c) In addition to the other provisions of this section, diking, filling, or dredging in existing estuaries and wetlands shall maintain or enhance the functional capacity of the wetland or estuary… [Emphasis added.]

…

The project as originally approved included the placement of 3,731 cubic yards of new rock to repair the existing shoreline revetment at five locations and the dredging of approximately 251,160 cubic yards of shoaled sediments from the bottom of the Outer Boat Basin to restore adequate depths for navigation. The proposed amendment allows for the additional filling of 1,167 square meters of soft bottom substrate within the waters of the Crescent City Harbor to create a suitable shallow water area at a finished depth of -2 MLLW for eelgrass transplanting adjacent to an existing eelgrass bed near the southern corner of the Outer Boat Basin. The new fill under the proposed amendment consists of approximately 1,700 cubic yards of dredge material from the total 251,160 cubic yards of dredging authorized by the original permit.

When read together as a suite of policy directives, Sections 30230, 30231, and 30233 of the Coastal Act set forth a number of different limitations on what types of projects may be allowed in coastal wetlands. For analysis purposes, the limitations applicable to the subject project can be grouped into four general categories or tests. These tests require that projects that entail the dredging, diking, or filling of wetlands demonstrate:

a. That the purpose of the filling, diking, or dredging is for one of the seven uses allowed under Section 30233;
b. That the project has no feasible less environmentally damaging alternative;
c. That feasible mitigation measures have been provided to minimize adverse environmental effects; and
d. That the biological productivity and functional capacity of the habitat shall be maintained and enhanced where feasible.

Each category is discussed separately below.

(1) Allowable Use for Dredging and Filling of Coastal Waters

The first test set forth above is that any proposed filling, diking, or dredging in wetlands must be for an allowable purpose as specified under Section 30233 of the Coastal Act. The relevant categories of uses listed under Section 30233(a) that relate to the project as amended are subsection (1) involving new or expanded port facilities, including commercial fishing facilities, and subsection, (2) dredging for maintaining existing, or restoring previously dredged depths in existing vessel berthing and mooring areas, and launching ramps, and (3) in open coastal waters, other than wetlands, including streams, estuaries, and lakes, new or expanded boating facilities that provide public access and recreational opportunities.

The outer boat basin was constructed to create a harbor for boaters to moor, launch, and retrieve their boats. Once the outer boat basin is rehabilitated back to its original configuration and structurally augmented as authorized under the permit as amended, exposure of persons and property to potentially injury and damage from wave attack will be lessened.

As the applicant proposes to undertake these improvements to the outer boat basin to provide essential protection for the safety and longevity of commercial fishing and recreational boat mooring, loading, and launching operations, the Commission found in approving the original permit that the fill for the authorized rock slope protection improvements is permissible under Section 30233(a) subsection (1) for new or expanded port facilities, including commercial fishing facilities, and subsection (3) for new or expanded boating facilities in open coastal waters, other than wetlands, including streams, estuaries, and lakes, that provide public access and recreational opportunities. The Commission found in approving the 251,160 cubic yards of dredging authorized by the original permit that the dredging is permissible under Section 30233(2) for maintaining existing, or restoring previously dredged depths in existing vessel berthing and mooring areas, and launching ramps.

The placement of dredge spoils in the coastal waters of the Outer Boat Basin now proposed under the amendment to create suitable shallow water area for eelgrass transplanting is part of the mitigation to be provided for the impacts on eelgrass habitat of the dredging authorized under the original permit. The affected eelgrass beds are ZOMA 3, 4, and 5 located adjacent to lower end of the public boat launching ramp, near the western corner of the Outer Boat Basin, and in basin waters between the boat launching ramp and the Coast Guard Docks, respectively. Feasible mitigation to minimize the adverse environmental effects of the approved dredging must be provided pursuant to Section 30233(a). In addition, placement of the 1,700 cubic yards of fill over the proposed 1,167-square-meter area to create the eelgrass mitigation site is the least environmentally damaging feasible alternative to mitigate for the adverse impacts of the dredging on existing eelgrass beds as discussed in Section (2) below.

As the Commission found in approving the original permit as discussed above that the project is required to protect the safety and longevity of commercial fishing and recreational boat mooring, loading, and launching operations and involves filling and dredging of coastal waters for purposes consistent with Section 30233(a)(1),(2), and (3) of the Coastal Act, the Commission finds that the proposed fill for the eelgrass mitigation site is also permissible under Section 30233(a) subsection (1) for new or expanded port facilities, including commercial fishing facilities, subsection (2) subsection (1) for new or expanded port facilities, including commercial fishing facilities, and subsection (3) for new or expanded boating facilities in open coastal waters, other than wetlands, including streams, estuaries, and lakes, that provide public access and recreational opportunities.

(2) Least Environmentally Damaging Feasible Alternative

The second test set forth by the Commission's dredging and fill policies is that the proposed fill project must have no feasible less environmentally damaging alternative. Coastal Act Section 30108 defines "feasible" as follows:

"Feasible" means capable of being accomplished in a successful manner within a reasonable time, taking into account economic, environmental, social, and technological factors.

In this case, the Commission has considered alternatives and determines that there are no feasible less environmentally damaging alternatives to the project as amended. Alternatives that have been identified include: (1) the "no project" alternative; (2) further modifying the dredge area to completely avoid the existing eelgrass beds and eliminate the need for eelgrass mitigation; (3) mitigating eelgrass impacts by transplanting eelgrass to locations that are currently at a suitable depth for eelgrass habitat but unoccupied by eelgrass to eliminate the need for filling to create a suitable the eelgrass mitigation area; and (4) reducing the size (area) of the eelgrass mitigation area.

i. "No Project" Alternative

The "no project" alternative would mean that no maintenance dredging of the accumulated sediments within the Woodley Island Marina would be undertaken and no repair and augmentation of the rock slope protections lining the shoreline embankments of the Outer Boat Basin and in the vicinity of the Administration Dock would be performed. The Commission examined the no project alternative in its review of the original project and determined that the no project alternative is not a feasible less environmentally damaging alternative.

With no dredging and rock slope protection repairs, there would be no impacts to the tidal and intertidal habitat and water quality of the Outer Boat Basin. However, without maintenance dredging, the berthing areas would eventually silt in to the point that they could no longer be used for commercial fishing vessels or recreational boating, except by the shallowest draft vessels. Without the proposed repairs to and augmentation of the embankment rock slope protection, erosion of the shoreline embankments would continue further causing blockage of certain vessel navigation, launching, and mooring areas and erosion of shore-side facilities. As a result, the berthing areas within the Outer Boat Basin would likely be forced to close, and the boaters who currently use the site would be displaced. As there are limited mooring facilities in the region, many of these users would be forced to leave. This outcome would be contrary to policies of the Coastal Act that give high priority to the maintenance and enhancement of commercial fishing and recreational boating uses and facilities. Therefore, the Commission continues to find that the no project alternative is not a feasible less environmentally damaging alternative to the project as amended.

ii. Further Modifying Dredging to Avoid Need for Eelgrass Mitigation

Further modifying the originally approved dredging area to completely avoid the existing eelgrass beds would eliminate the need for eelgrass mitigation and consequently eliminate the need altogether to place dredge material within the harbor to create a suitable eelgrass transplanting area.

As discussed above, a preliminary eelgrass survey of the project site was conducted by the Harbor District's consultants on March 13, 2012, prior to Commission approval of the original

permit. The preliminary survey identified an approximately 289 square meter eelgrass bed near the entrance to the public boat launch area at the southern corner of the Outer Boat Basin and a separate approximately 241-square-meter eelgrass bed in the vicinity of the Administrative Dock. However, the preliminary survey was not conducted during the eelgrass growing season and did not include the open waters of the Outer Boat Basin. Therefore, the preliminary survey report included recommendations that the areas adjacent to all of the RSP repair sites along the Outer Boat Basin as well as all areas of the Outer Boat Basin within and adjacent to any of the proposed dredging be re-surveyed in May 2012 prior to the commencement of construction to determine the full extent of eelgrass within the project area.

Special Condition 2(B) of the original permit required that impacts to eelgrass be avoided to the maximum extent feasible. Among other requirements, Special Condition 2 also required the applicant to conduct comprehensive pre-construction surveys during the active eelgrass growing season to provide a more comprehensive inventory of the number and extent of eelgrass beds within the project area than was available at the time of project approval. The survey was conducted in May of 2012 and identified a total of eight eelgrass beds, of which six are within the project area originally approved by CDP 1-12-004. According to the Mitigation and Monitoring Plan later prepared by the consultants and included as Exhibit 8, the beds range from less than one square meter in size to over 1,500 square meters and predominantly occur on narrow shoals around the perimeter of the harbor (see Exhibit 5). The beds are identified as ZOMA 1-8

The number and extent of eelgrass beds identified in the survey was larger and greater than anticipated in April 2011 when the Commission approved the original project. The applicant has therefore reduced the planned extent of authorized dredging and rock slope protection repairs to minimize impacts to the eelgrass beds. The final design and construction plans submitted to satisfy the requirements of Special Condition No. 1 reflect these reductions in dredging and rock slope protection repairs. The revised dredging plan (see Exhibit 5) and the revised plans for revetment repairs (see Exhibit 6) avoid certain areas near the shoreline embankment that currently contain eelgrass (ZOMAs 1A, 1B, 6, 7, and 8) and that have not been extensively used in recent years for boat mooring. By avoiding development in these areas, the applicant will avoid approximately 2,000 square meters of existing eelgrass beds. However, the revised dredging plan still will affect a total of 43 square meters of existing eelgrass beds at ZOMA-3, -4, and -5.

The dredging plan cannot be further modified to eliminate impacts to the remaining 43 square meters of existing eelgrass beds that would be affected (ZOMA-3, -4, and -5) and still provide the necessary depths in the Outer Boat Basin for commercial and recreational vessels. ZOMA 3 is located on shoaled sediments along one side and near the base of the public boat launching ramp. The shoaled sediments are in the path of boat launching operations and cannot be retained without compromising the ability to launch boats.

ZOMA 4 is located in the western corner of the Outer Boat Basin close to the southernmost of three commercial fish docks where commercial fishing vessels off-load fish to be processed at the adjacent fish processing plants. The commercial fishing vessels have significant draft and need a certain amount of maneuvering room and depth to safely berth at the commercial fish

dock. The design dredge depth of the commercial fish dock berthing area is -15 feet MLLW. The depth of the ZOMA 4 eelgrass bed is only approximately -2 feet MLLW. To preserve the eelgrass bed, not only would dredging have to avoid the soft bottom directly underlying the footprint of the eelgrass bed, but also avoid an area around the eelgrass bed that increases in size with depth in order to retain a stable base for the perched eelgrass bed with side slopes that are not so steep that the slopes will be subject to sliding and cause the collapse of the eelgrass bed. The slopes would need to be maintained at an approximately 4:1 slope to ensure stability, which means that the lowest part of the base will occupy a much greater area and encroach into vessel mooring and maneuvering area to a much greater degree than the top of the eelgrass bed. The extent of this encroachment is significant enough that preserving the ZOMA 4 eelgrass bed would unacceptably interfere with vessel mooring and maneuvering at the southernmost of the commercial fish docks.

ZOMA 5 is located near the southern end of the Outer Boat Basin in waters between the public boat launching ramp and the Coast Guard Dock. The base of ZOMA-5 would be located in an area designed to be dredged to a depth of -10 MLLW to accommodate vessels maneuvering in this part of the harbor including vessels using the Coast Guard Dock and boat launching ramp. The base needed to support the ZOMA-5 eelgrass bed would extend over a much greater area of the harbor bottom at elevation -10 MLLW than the top of the eelgrass bed at an elevation of approximately -2 MLLW. As is the case with ZOMA-4, the extent of this encroachment of the eelgrass bed and its base into needed vessel mooring and maneuvering area is significant enough that preserving the ZOMA 4 eelgrass bed would unacceptably interfere with vessel operations.

As discussed above, Coastal Act policies give high priority to the maintenance and enhancement of commercial fishing and recreational boating uses and facilities. The alternative of further modifying the planned dredging to completely avoid each of the three remaining eelgrass beds that have not already been protected by project changes and thereby eliminate the need to place fill to create a suitable eelgrass transplanting area would unacceptably interfere with commercial fishing and recreational boating uses and facilities. Therefore, the Commission finds that this alternative is not a feasible less environmentally damaging alternative to the project as amended.

iii. Transplanting Eelgrass To Mitigate Without Filling

Mitigating the eelgrass impacts of the project by transplanting eelgrass to locations that are currently at a suitable depth for eelgrass habitat but unoccupied by eelgrass would be an alternative that would eliminate the need for filling the waters of the Outer Boat Basin. As discussed above, project dredging will unavoidably impact a total of approximately 43 square meters of eelgrass beds. In accordance with the 4.82:1 ratio of eelgrass planting area to area of impact recommended in the Draft California Eelgrass Mitigation Policy prepared by the National Marine Fisheries Service, Southwest Region dated December 7, 2011, the project requires a total of 207 square meters of suitable eelgrass planting mitigation area. The eelgrass surveys conducted for the project indicate that the best depth for eelgrass growth in the Outer Boat Basin is at an elevation of -2 MLLW. In addition, the existing eelgrass beds generally are located within low energy areas within the basin, which allows for sediment accumulation and minimizes the potential for erosion at the mitigation site. The consultants who prepared the applicant's eelgrass mitigation plan surveyed the Outer Boat Basin and surrounding areas and

found only very limited amounts of existing soft bottom area at elevation -2 MLLW in low energy areas protected from erosion that are not already occupied by eelgrass. The limited amount of area found meeting these criteria falls far short of the 207 square meters needed for eelgrass mitigation, and none of the individual areas found are of sufficient size to be practical for eelgrass transplanting. Therefore, the Commission finds that mitigating the eelgrass impacts of the project by transplanting eelgrass to locations that are currently suitable for eelgrass habitat but unoccupied by eelgrass is not a feasible less environmentally damaging alternative to the project as amended.

iv. Reducing the Size of the Fill Area for Eelgrass Transplanting

Reducing the size of the proposed area to be filled for eelgrass mitigation would reduce impacts to existing soft bottom habitat from the mitigation proposal. As discussed above, the project requires a total of 207 square meters of suitable eelgrass planting mitigation area to meet the 4.82:1 ratio of eelgrass planting area to area of impact recommended in the Draft California Eelgrass Mitigation Policy. To create the eelgrass mitigation site, the applicant proposes to place 1,700 cubic yards of dredge material in water that currently has an average depth of -5 feet MLLW with the deepest point at approximately -9 feet MLLW. The fill would create a flat 511 square meter area of potential eelgrass habitat at the designed depth of -2 feet MLLW. The sides of the fill area would slope downward at a slope of 4 horizontal to 1 vertical. The base of the fill area would cover a total of approximately 1,167 square meters of the existing bottom of the Outer Boat Basin.

The 511-square-meter area of potential eelgrass habitat proposed to be created is larger than the 207 square meter transplanting area dictated by the recommended 4.82:1 ratio of eelgrass planting area to area of impact. The flat area of potential eelgrass habitat to be created must be larger than 207 square meters for several reasons. First the 207 square meter transplanting area is the minimum size that must be transplanted and providing a larger area will account for possible erosion of the created area and ensure the minimum transplanting area remains available. Second, the size of the proposed transplanting area is dictated in part, by the particular configuration of the transplanting area that fits the site. The site was selected based on its location within a low energy area which further minimizes the chances of erosion and also because the site is adjacent to the ZOMA-1 eelgrass bed, the largest and most continuous eelgrass bed within the Outer Boat Basin. The existence of this large eelgrass bed suggests that the conditions for eelgrass growth in this location are favorable which increases the changes for successful transplantation of the eelgrass. As shown in Exhibit 7, the proposed mitigation area is sited in a location within an inverted corner of the ZOMA-1 eelgrass bed. The proposed fill for the mitigation site is designed to literally fill in this inverted corner of the existing eelgrass bed and ultimately create one larger continuous eelgrass bed. The outer edge of the proposed fill site is designed as a curvilinear convex edge to better deflect wave energy to further minimize potential future erosion of the eelgrass mitigation site. The relative shallow 4 horizontal to 1 vertical slope of the side slopes of the mitigation site fill area is also designed to minimize potential future erosion. Steeper slopes would be more prone to sloughing which would compromise the integrity of the eelgrass mitigation area. Thus, the proposed size and configuration of the eelgrass mitigation area is necessary to maximize the chances for success of the eelgrass mitigation required for the project as amended.

Therefore, the Commission finds that reducing the size of the proposed area to be filled for eelgrass mitigation to reduce project impacts to existing soft bottom habitat is not a feasible less environmentally damaging alternative to the project as amended.

Conclusion:
Based on the above analysis, the Commission concludes that there are no feasible less environmentally damaging alternatives to the amended project as conditioned.

(3) Feasible Mitigation Measures

The third test set forth by the above-cited policies is whether feasible mitigation measures have been provided to minimize the adverse environmental effects of any proposed diking, dredging, and/or filling of coastal wetlands and waters. The development as amended includes approximately 251,160 cubic yards of dredging, the placement of 3,731 cubic yards of new rock to repair the existing shoreline revetment at five locations around the Outer Boat Basin, and the placement of approximately 1,700 cubic yards of dredge material over an approximately 1,167-square-meter area of harbor bottom to create the proposed eelgrass mitigation site. Depending on the manner in which the proposed dredging and filling is conducted, the significant adverse impacts of the project as amended may include: (1) effects on sensitive fish and wildlife species including threatened or endangered salmonid species, Steller sea lions, and other pinipeds from direct disturbance and increases in the turbidity of the waters occupied by the species; (2) water quality impacts from the placement of sediment containing materials in and/or undertaking construction involving the use of hazardous materials in close proximity to coastal waters; (3) the permanent and temporary displacement of soft bottom habitat within the harbor by the installation of additional rock slope protection and dredging activities; (4) the direct displacement of eelgrass habitat by the installation of additional rock slope protection and dredging activities; (5) the smothering of adjacent eelgrass habitat from turbidity generated by the placement of dredged material to create the eelgrass mitigation site; and (6) the displacement of soft bottom habitat by the placement of dredged material to create the eelgrass mitigation site.

The changes to the project resulting from the proposed amendment do not change the nature and extent of the first three of these six impacts from the filling and dredging activities associated with the project. These impacts were addressed in the findings the Commission adopted for the original permit (See pages 22-28 of the Adopted Findings for Permit 1-12-004 attached as Exhibit 9). In approving the original permit, the Commission found that as conditioned, all feasible mitigation measures had been provided to minimize adverse environmental effects consistent with Section 30233(a) of the Coastal Act. In addition, The Commission further found that as conditioned to require: (1) adherence to various construction responsibilities to protect coastal resources; and (2) submittal of a final sedimentation and runoff control plan, hazardous materials management plan, and debris disposal plan; the proposed development was consistent with Coastal Act Sections 30230, 30231, and 30232.

The nature and extent of the latter three of the impacts of the project as amended and identified above are affected by the changes to the project resulting from the proposed amendment. The potential impacts and their mitigation are discussed below.

i. Displacement of Eelgrass Habitat

The dredging activities associated with the project as amended will result in the removal of a total of 43 square meters of existing eelgrass beds at ZOMA-3, -4, and -5. Eelgrass is not a rare species, but eelgrass beds are considered environmentally sensitive due to their important fish habitat functions. Eelgrass is a marine plant that grows in clear, well-lit, shallow coastal waters and provides shelter and spawning habitat for fish and invertebrates. It is widely recognized as one of the most productive and valuable habitats in shallow marine environments. The 1996 amendments to the Magnuson-Stevens Fishery Conservation and Management Act set forth Essential Fish Habitat (EFH) provisions to identify and protect important habitats of federally managed marine and anadromous fish species. Eelgrass beds are considered a Special Aquatic Site by the U.S. Army Corps of Engineers, DFG, the Fish & Wildlife Service, and NOAA-Fisheries. Eelgrass habitat is regulated under Section 404 of the Clean Water Act and is considered EFH by NOAA-Fisheries.

As discussed in the alternative analysis finding above, the applicant has revised the project plans to eliminate all revetment repairs that would affect existing eelgrass beds and reduce planned dredging to avoid eelgrass beds to the greatest extent feasible. As revised, the project plans will avoid the eelgrass beds at the site identified as ZOMAs 1A, 1B, 2, 6, 7, and 8, avoiding approximately 2,000 square meters of existing eelgrass beds. However, despite this significant reduction in eelgrass impacts, the revised dredging plan still will affect a total of 43 square meters of existing eelgrass beds at ZOMA-3, -4, and -5. As discussed in the alternatives analysis, dredging in the three affected eelgrass beds cannot be avoided without unacceptably interfering with commercial fishing and recreational boating uses and facilities.

Special Condition No. 2(B) of the original permit contains a provision requiring that any net loss of eelgrass based on pre- and post- construction surveys be mitigated by the creation of new or expanded eelgrass beds, and that a final mitigation and monitoring plan for the creation and monitoring of the eelgrass beds be submitted for the review and approval of the Commission. The mitigation methods, the location of the mitigation sites, and the monitoring plan are required to be in compliance with the recommendations of the Draft California Eelgrass Mitigation Policy prepared by the National Marine Fisheries Service, Southwest Region dated December 7, 2011.

The submitted eelgrass mitigation plan is titled, "Revised Eelgrass Mitigation and Monitoring Plan, Crescent City Harbor Outer Boat Basin," prepared by Kyle Wear, Botanical Consultant, and dated January 2013 (See Exhibit 8). Eelgrass mitigation is usually accomplished by transplanting eelgrass turions from scattered locations within an existing eelgrass bed to a shallow area of soft bottom habitat at a suitable elevation that does not contain eelgrass. The pre-construction eelgrass survey indicates that eelgrass is present from approximately 0 to -6 feet Mean Lower Low Water (MLLW) with the highest density at -2 feet MLLW. Because of the limited amount of soft bottom habitat at these elevations within the Outer Boat Basin and nearby areas that is not already occupied by eelgrass, the Harbor District proposes to create suitable eelgrass habitat by taking approximately 1,700 cubic yards of the sandy/silty material previously authorized to be dredged from the harbor and disposed at the offshore HOODS disposal site and instead placing the material within a shallow area adjacent to an existing eelgrass bed near the

southern corner of the Outer Boat Basin, at a depth of -2 MLLW to create suitable area for eelgrass transplanting.

The proposed eelgrass mitigation site is located between the public boat launching ramp and the Coast Guard dock adjacent to the largest and most continuous existing eelgrass bed within the Outer Boat Basin. According to the amendment request, the mitigation site is a low energy area which allows for sediment accumulation and minimizes the potential for erosion of the mitigation area. Under the provisions of the Draft California Eelgrass Mitigation Policy prepared by the National Marine Fisheries Service, the Harbor District must plant approximately 207 square meters of new habitat (4.82:1ratio of transplant area to impact area) and successfully create 51.6 square meters of new eelgrass bed.

The 1,700 cubic yards of dredge material to be placed to create the eelgrass mitigation site will be placed in water that currently has an average depth of -5 feet MLLW with the deepest point at approximately -9 feet MLLW. The fill would create a flat 511 square meter area of potential eelgrass habitat at the designed depth of -2 feet MLLW. The area of potential eelgrass habitat to be created is larger than the 207 square meters that must be planted to account for possible erosion of the created area and ensure a better opportunity for success. The sides of the fill area would slope downward at a slope of 4 horizontal to 1 vertical. The base of the fill area would cover a total of approximately 1,167 square meters of the existing bottom of the Outer Boat Basin

The dredged material will be removed from the dredge area and placed through the water directly onto the ocean floor at the mitigation site with a barge-mounted excavator or via a dredge scow, rather than pumped to the site or dropped through the water. To further minimize turbidity and sedimentation of the adjacent eelgrass bed, a silt curtain will be installed in the 25-foot buffer between the dredged material placement site and the existing eelgrass bed (ZOMA-1b). Sediment samples indicate the dredge material to be deposited consists of sandy/silty/clayey sediment. An analysis of the stability and settlement of the dredge material indicates the bed to be created with its proposed 4:1 vertical to horizontal slopes will remain stable and the deposited material is not expected to migrate from the site.

Under the mitigation plan, transplanting of eelgrass turions will occur during the active growth period for eelgrass (May 1-September 30). Most of the turions will be harvested from ZOMA-3 before all of ZOMA-3 and some of the surrounding area is dredged for maintenance of the public boat launch ramp. Additional turions will be harvested from ZOMA 1-b in a manner that does not create noticeable bare patches and removes no more than 5 percent of the underground biomass of the eelgrass at ZOMA 1-b. A biologist with prior experience with eelgrass transplanting that has been approved by the California Department of Fish and Wildlife will carry out the transplanting of the eelgrass.

The eelgrass mitigation and monitoring plan provides for mitigation monitoring over a five year period consistent with the Draft California Eelgrass Mitigation Policy. Additional pre-construction monitoring will be performed and an existing eelgrass bed that will not be disturbed by project activities will be used as a reference bed. The plan provides success criteria to be met during each semi-annual monitoring event over the five-year monitoring period. If the

mitigation site fails to meet these criteria during two consecutive annual monitoring events, the plan indicates an application shall be submitted for a further amendment of CDP 1-12-004 for additional mitigation to ensure all performance criteria are met.

The Commission's ecologist (John Dixon) and staff of the California Department of Fish and Wildlife were consulted in the preparation of the eelgrass mitigation plan. The final plan was modified to address their recommended changes to ensure that the plan will adequately mitigate the impacts of the project as amended on existing eelgrass beds in a manner consistent with the Draft California Eelgrass Mitigation Policy.

Therefore, the Commission finds that the eelgrass mitigation proposed under the subject amendment provides adequate mitigation for the impacts of the project as amended on eelgrass beds by (1) incorporating project changes that avoid approximately 2,000 square meters of eelgrass impacts and (2) compensating as proposed for the remaining loss of 43 square meters of existing eelgrass beds by successfully establishing a minimum of 51.6 square meters of new eelgrass bed (1:1.2 ratio of impacted eelgrass bed to successfully created eelgrass bed) within a minimum 207-square-meter area planted with eelgrass (4.82:1 ratio of transplant area to impact area) on new habitat area constructed from dredge material within harbor waters at the southern corner of the Outer Boat Basin. Therefore, Special Condition No. 2 of the original permit is replaced by Special Condition No. 12 to require implementation of the submitted eelgrass mitigation plan as submitted and proposed by the applicant.

ii. <u>Turbidity Effects of Placement of Dredge Material on Adjacent Eelgrass</u>

The placement of the dredge material in harbor waters to create the eelgrass mitigation area could create turbidity in the water column that could adversely affect the adjacent eelgrass bed, ZOMA-1b. The turbid waters could smother the eelgrass with sediment and deter or preclude use of the eelgrass bed as habitat by fish and other species.

The applicant proposes certain mitigation measures that would be implemented during construction to minimize turbidity impacts under the eelgrass mitigation plan submitted as part of Coastal Development Permit Amendment No. 1-12-004-A1. First, the applicant proposes to remove the dredge material to be used to create the eelgrass mitigation area from the dredge area and place the material through the water directly onto the ocean floor at the mitigation site with a barge-mounted excavator or via a dredge scow, rather than by pumping the material to the site or dropping the material through the water. To further minimize turbidity and sedimentation of the adjacent eelgrass bed, the applicant proposes to install a silt curtain within the 25-foot buffer that will be maintained between the dredged material placement site and the existing eelgrass bed. To ensure that the applicant implements the proposed measures to minimize the turbidity impacts on the adjacent eelgrass bed, the Commission attaches Special Condition Nos. 12. Special Condition No. 12 replaces Special Condition No. 2 of the original permit and requires the applicant to implement of the submitted eelgrass mitigation plan as submitted and proposed by the applicant.

iii. Displacement of Soft Bottom Habitat by Placement of Dredge Material

The proposed eelgrass mitigation area will be constructed on top of the silty-sandy substrate that underlies the Crescent City Harbor, displacing soft bottom habitat. Such soft bottom habitat typically supports a variety of worms, mollusks, and other benthic organisms. Although the soft bottom habitat to be buried will be buried by silty-sandy material dredged from adjacent areas of the harbor to create similar soft-bottom habitat where the eelgrass will be transplanted, the created eelgrass mitigation area may not support the same kind of organisms that would be buried. The eelgrass mitigation site will be developed in water that currently has an average depth of -5 feet MLLW, with the deepest point at approximately -9 feet MLLW.
The fill for the eelgrass mitigation area will be constructed to create a flat 511 square meter area of potential eelgrass habitat at the designed depth of -2 feet MLLW. Just as eelgrass does not grow within harbor areas at depths greater than approximately -2 to -6 feet MLLW, the particular kinds of benthic organisms living in site of the proposed eelgrass mitigation area that is currently at an average depth of -5 feet MLLW may not survive in the higher -2 foot MLLW elevation of the finished mitigation site. In addition, the eelgrass bed to be created may create a more organic-rich environment or create other conditions that are not suitable to support the same kinds of benthic organisms that exist at the site now. Therefore, creation of the eelgrass mitigation site may displace one type of soft bottom habitat with another that no longer supports the current kinds of inhabitants of the site. In addition to displacing these kinds of organisms, the loss of this habitat area would reduce the forage opportunities for fish, rays, seabirds, and marine mammals that prey on benthic invertebrates.

However, in the context of the larger project area and the Crescent City Harbor as a whole, the conversion of 1,167 square meters of the kind of soft bottom habitat that exists at elevation -5 feet MLLW is not anticipated to adversely affect the biological productivity of harbor waters or substantially reduce populations of marine organisms that inhabit soft bottom habitat at that depth within the harbor. In past studies of the Crescent City Harbor conducted by Applied Environmental Technologies, Inc. in 2006 and URS Corporation in 2007 for previous maintenance dredging and breakwater repair projects, respectively, the harbor's consultants characterized the harbor waters to be very harsh intertidal environments subject to intensive wave action, wide temperature range fluctuations, and periodic tidal exposure at their periphery. As a result, large areas within the harbor are effectively denuded of vegetative cover and provide similar soft bottom habitat as exist at the site of the proposed eelgrass mitigation area. On the other hand, eelgrass surveys performed for the subject project demonstrate that eelgrass beds exist only in a limited number of relatively small areas on the fringes of the Outer Boat Basin. As discussed above, eelgrass beds are widely recognized as one of the most productive and valuable habitats in shallow marine environments. Therefore, given the small size of the proposed eelgrass mitigation area relative to the abundance of benthic habitat in the harbor similar to the existing soft-bottom habitat at the site, the adverse impacts on soft bottom habitat associated with the creation of the eelgrass mitigation area are expected to be minimal. Therefore, the Commission finds that no mitigation is needed for the conversion of the soft bottom habitat at an average elevation of -5 MLLW to eelgrass habitat is necessary.

Conclusion
In conclusion, the Commission finds that as conditioned to require the various mitigation measures described above in Special Condition No 12, the project as amended provides feasible mitigation measures to minimize impacts to eelgrass beds, other soft bottom habitat, and water quality as required by Sections 30230, 30231, and 30233(a) of the Coastal Act.

(4) Maintenance and Enhancement of Marine Habitat Values

The fourth general limitation set by Section 30233 is that any proposed dredging and/or filling in coastal wetlands must maintain, enhance and where feasible restore the biological productivity and functional capacity of the habitat. Section 30233(c) states that the diking, filling, or dredging of wetlands shall maintain or enhance the functional capacity of the wetland. Sections 30230 and 30231 state that marine resources shall be maintained, enhanced, and, where feasible, restored.

As discussed above, the conditions of the permit will ensure that the project as amended will not have significant adverse impacts on the water quality of coastal waters in the project area and that the project construction will not adversely affect the biological productivity and functional capacity of coastal waters. Therefore, the Commission finds that the project, as conditioned, will maintain the biological productivity and functional capacity of the harbor habitat consistent with the requirements of Sections 30230, 30231, and 30233 of the Coastal Act.

Conclusion of Finding D:
In summary, the Commission finds that the proposed diking, dredging, and filling project is for an allowable use, there is no feasible less environmentally damaging alternative, adequate mitigation is required for potential impacts associated with the diking, dredging, and filling of coastal waters and wetlands, and marine habitat values will be maintained or enhanced. Therefore, the Commission finds that the proposed development, as conditioned, is consistent with Sections 30230, 30231, and 30233 of the Coastal Act.

E. GEOLOGIC HAZARDS

Coastal Act Section 30253 states in applicable part:

> *New development shall do all of the following:*
>
> *(a) Minimize risks to life and property in areas of high geologic, flood, and fire hazard.*
> *(b) Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs.*

Coastal Act Section 30253 requires in applicable part that new development minimize risks to life and property in areas of high geologic, flood, and fire hazard and neither create nor contribute significantly to erosion or geologic instability.

The project as originally approved included the rebuilding of five sections of the existing rock slope revetment along the embankment at the perimeter of the Outer Boat Basin by the

excavation and replacement of a total of approximately 4,200 cubic yards of existing rock slope protection materials and accumulated sediments and the placement of an additional approximately 3,731 cubic yards of new quarry rock would be placed in the five damage areas to rebuild the RSP. The shoreline revetment is located in an area of high geologic and flood hazard from waves and tidal action, and the approved rock slope protection rehabilitation work is necessary to repair previous damage from these hazards and strengthen the rock slope protection against further damage from such hazards. To assure the structural integrity and stability of the repaired rock slope shoreline protection, the repairs were engineered. To ensure that the repairs conform to the engineered design, the Commission imposed Special Condition No. 1 in the original permit which requires that the repairs to the shoreline revetment be performed consistent with the submitted plans. The Commission also attached Special Condition No. 8 requiring the applicant to assume the risks of extraordinary erosion and flood hazards of the outer boat basin area and waive any claim of liability on the part of the Commission.

The project as amended includes the placement of 1,700 cubic yards of the shoaled sediment authorized to be dredged under the original permit over 1,167 square meters of soft bottom substrate within waters adjacent to an existing eelgrass bed near the southern corner of the Outer Boat Basin to create a suitable shallow water area at a finished depth of -2 MLLW for eelgrass transplanting. The present average depth of the mitigation area is -5 feet MLLW with the deepest point at approximately -9 feet MLLW. Depending on the manner in which the dredged material is placed on the substrate of the boat basin, the placed fill could be highly unstable and subject to erosion by water currents, causing the migration of fill materials over a wide area of the Outer Boat Basin bottom habitat and causing turbidity damaging to fish species within basin waters.

To ensure the stability of the mitigation site fill, the applicant's consultants, Stover Engineering, prepared an analysis of the stability and settlement of the proposed fill area. The findings of the analysis are summarized on page 4 of the eelgrass mitigation and monitoring plan submitted with the amendment application. The summary states the following:

- Samples of the dredge material taking in the vicinity of the mitigation site and location of the source material by western Solutions (2012) are sandy/silty/clayey sediment.

- There should be minimal settlement because the material will remain densified and will be placed directly on the ocean floor and not pumped or dropped through the water.

- The mitigation site will be stable. The slope of the mitigation site will be a 4:1 vertical to horizontal slope…A recent geotechnical report (Treadwell and Rollo 2011) describes a slope of native sand of 1.5:1 and less than 10 feet high as stable. Stover Engineering examined actual dredge material from the Crescent City Harbor and found that the average angle of repose was 2.45:1. The slopes where eelgrass currently is growing range from 1.2:1 to 4.1:1, and have remained mostly stable even during the 2011 tsunami.

- The dredge material is not expected to migrate from the site. While there is no guarantee that all of the material will stay in place due to the dynamic and often unpredictable nature of the ocean, Stover Engineering is confident that under most conditions the site

> will remain stable. The location of the mitigation site is a low energy area and appears to consistently accumulate sediment, even under extreme conditions such as the 2011 tsunami. During the tsunami, deposition at the proposed mitigation site was between 0.4 and 1.6 feet.

Final plans for the mitigation fill site have been prepared that incorporate the design criteria specified in the engineering analysis. Based on the engineering analysis summarized above, the proposed mitigation site fill has been designed to neither create nor contribute significantly to erosion or geologic instability. To ensure that the mitigation fill site is constructed as designed, the Commission attaches Special Condition No. 12. This condition requires that the mitigation fill site is developed consistent with the submitted plans and that no changes to the plan shall occur without a Commission approved amendment to this coastal development permit unless the Executive Director determines that no amendment is legally required.

The Commission finds that as conditioned, the project as amended will minimize risks to life and property from geologic and flood hazards, will assure stability and structural integrity, and will neither create nor contribute significantly to erosion, geologic instability, or erosion of the site or surrounding area consistent with the requirements of Section 30253 of the Coastal Act.

F. PUBLIC ACCESS AND RECREATION

Coastal Act Section 30604(c) requires that every coastal development permit issued for new development between the nearest public road and the sea "shall include a specific finding that the development is in conformity with the public access and recreation policies of [Coastal Act] Chapter 3." The proposed project is located seaward of the first through public road.

Coastal Act Sections 30210 through 30214 and 30220 through 30224 specifically protect public access and recreation. In particular:

> *In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.* [PRC §30210]
>
> *Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.* [PRC §30211]
>
> *Public access from the nearest public roadway to the shoreline and along the coast shall be provided in new development projects…* [PRC §30212(a)]
>
> *Lower cost visitor and recreational facilities shall be protected, encouraged, and, where feasible, provided. Developments providing public recreational opportunities are preferred.* [PRC §30213]

The public access policies of this article shall be implemented in a manner that takes into account the need to regulate the time, place, and manner of public access depending on the facts and circumstances in each case… [PRC §30214 (a)]

Oceanfront land suitable for recreational use shall be protected for recreational use and development unless present and foreseeable future demand for public or commercial recreational activities that could be accommodated on the property is already adequately provided for in the area. [PRC § 30221]

Increased recreational boating use of coastal waters shall be encouraged, in accordance with this division, [...] providing harbors of refuge, and by providing for new boating facilities in natural harbors, new protected water areas, and in areas dredged from dry land. [PRC §30224]

Likewise, Coastal Act Section 30240 (b) also requires that development not interfere with recreational areas and states:

Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.

Crescent City Harbor provides public access and recreational opportunities of regional and statewide significance. These opportunities include boat launching, berthing for commercial vessels and recreational boats, boat repair areas, marine-related retail/commercial businesses, sailing programs, yacht club and boat sales, and passive recreational pursuits, such as shoreline walking, beachcombing, and bird-watching. The District's Outer Boat Basin rehabilitation project will strongly benefit public access and recreation, by restoring boat launching and mooring capacity and providing enhanced protection from coastal flooding and erosion storm surge to the harbor's mooring and launching areas.

Temporary impacts to public access as a result of construction activities are possible, but will be of limited duration and are not significant. The creation of the eelgrass habitat area under the permit amendment will not affect the length of time of the temporary impacts to public access caused by construction activities. In addition, the creation of the 511-square-meter eelgrass habitat area in tidal waters within the Outer Boat Basin will not have any significant adverse impact on recreational boating activities as the area is not currently used as a vessel berthing area and is within a shallow area near the shoreline embankment of the basin that is not commonly used as a vessel maneuvering area.

Therefore, the Commission finds that, as conditioned, the project as amended will preserve public access and recreational opportunities and is consistent with the above-cited public access and recreational policies of the Coastal Act.

G. CALIFORNIA ENVIRONMENTAL QUALITY ACT

The Crescent City Harbor District served as the lead agency for the project for CEQA purposes. The District found the subject outer boat basin repairs and upgrades qualified for "Class 1" and "2" categorical exemptions to environmental review, pursuant to Sections 15301 and 15302 of the CEQA Guidelines (14 CCR §§15000) as repair, maintenance, replacement, and/or reconstruction of existing structures.

In response to the March 11, 2011 tsunami, the Governor of California declared a state of emergency for Del Norte and other affected coastal counties. The District found the additional repairs and actions needed to respond to the devastation caused by the March 11, 2011 tsunami qualified for categorical exemptions to environmental review, pursuant to Section 15269 of the CEQA Guidelines (14 CCR §§15000) as "Emergency Projects."

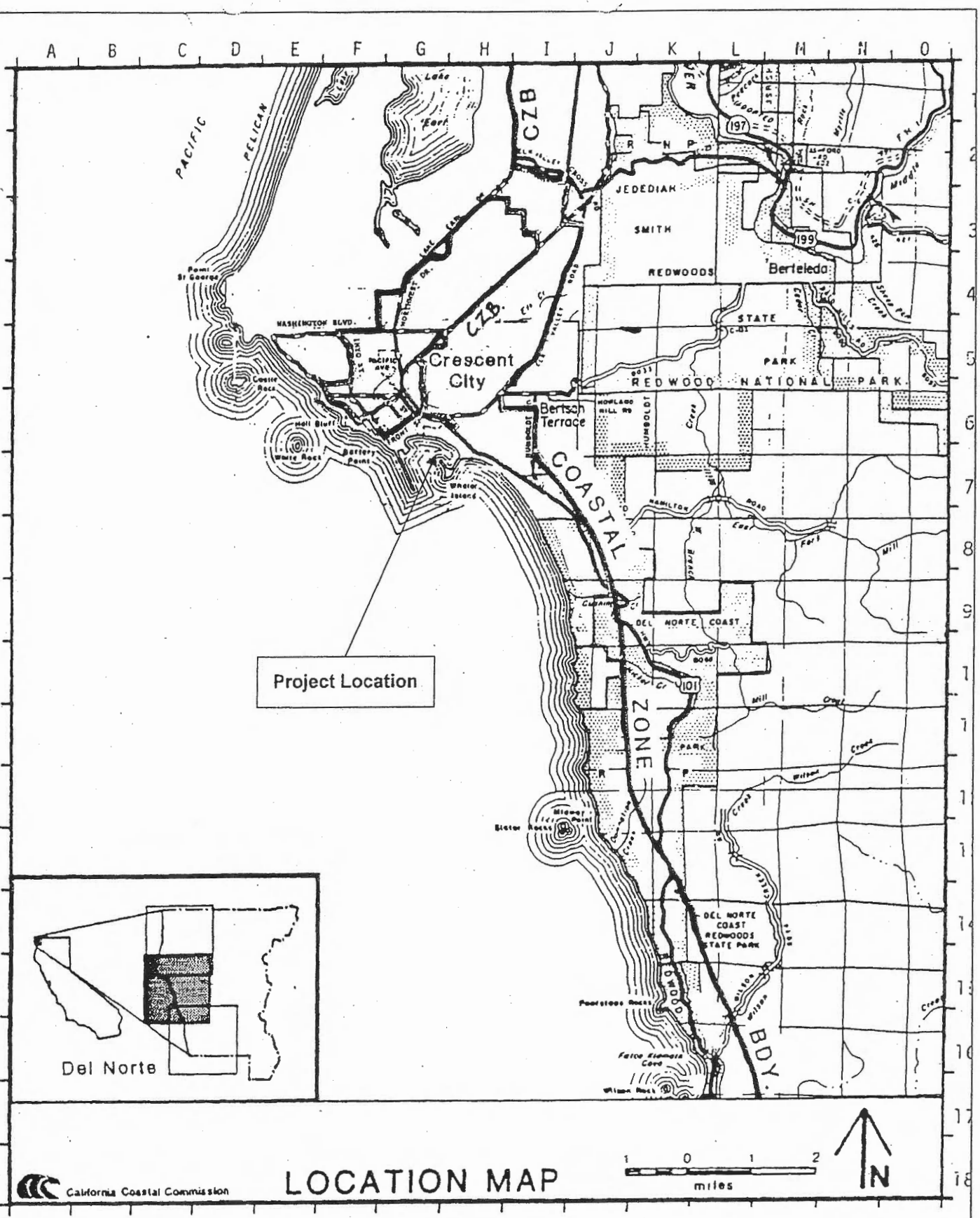
Section 13906 of the Commission's administrative regulation requires Coastal Commission approval of coastal development permit applications to be supported by a finding showing the application, as modified by any conditions of approval, is consistent with any applicable requirements of the California Environmental Quality Act (CEQA). Section 21080.5(d)(2)(A) of CEQA prohibits a proposed development from being approved if there are any feasible alternatives or feasible mitigation measures available, which would substantially lessen any significant adverse effect the proposed development may have on the environment.

The Commission incorporates its findings on Coastal Act consistency at this point as if set forth in full. As discussed above, the project as proposed to be amended has been conditioned to be consistent with the policies of the Coastal Act. No public comments regarding potential significant adverse environmental effects of the project were received prior to preparation of the staff report. As specifically discussed in these above findings, which are hereby incorporated by reference, mitigation measures that will minimize or avoid all significant adverse environmental impacts have been required. As conditioned, there are no other feasible alternatives or feasible mitigation measures available which would substantially lessen any significant adverse impacts which the activity may have on the environment. Therefore, the Commission finds that the proposed amended project, as conditioned to mitigate the identified impacts, can be found consistent with the requirements of the Coastal Act to conform to CEQA.

APPENDIX A:

SUBSTANTIVE FILE DOCUMENTS

1. Coastal Development Permit No. 1-12-004 (Crescent City Harbor District)
2. Del Norte County Local Coastal Program



County of Del Norte

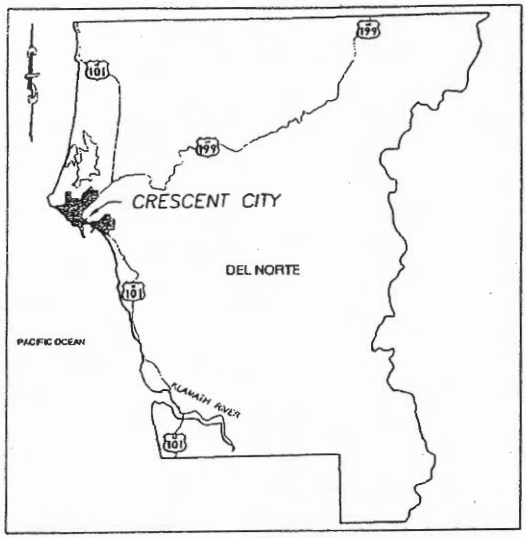
EXHIBIT NO. 1

APPLICATION NO.
1-12-004-A1

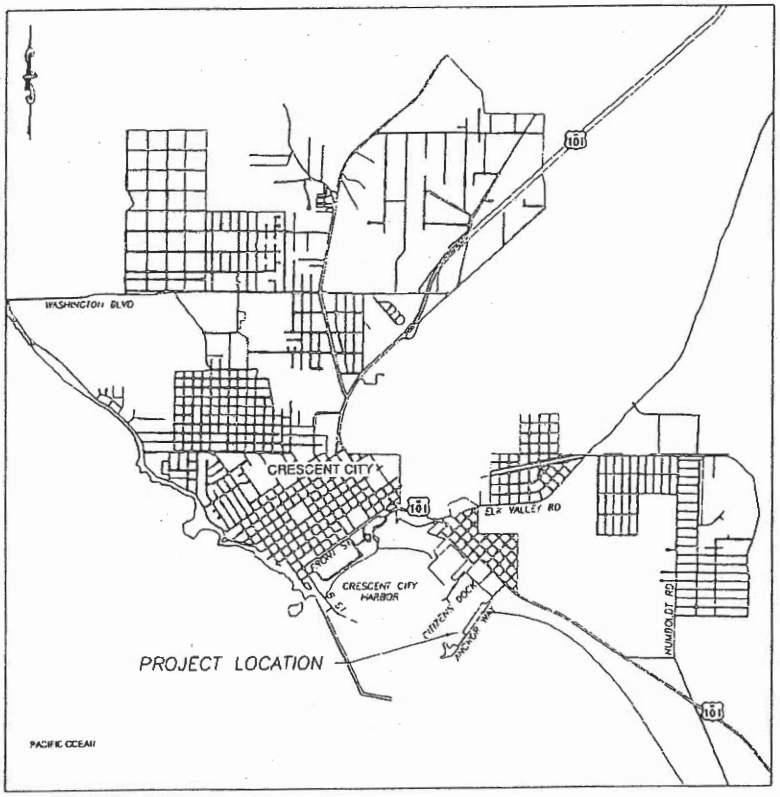
CRESCENT CITY HARBOR DISTRICT

LOCATION MAP

STATE MAP
NTS



COUNTY MAP
NTS



CITY MAP
NTS

EXHIBIT NO. 2

APPLICATION NO.
1-12-004-A1
CRESCENT CITY HARBOR DISTRICT
VICINITY MAP

NG ants	CRESCENT CITY HARBOR DISTRICT CRESCENT CITY, CA			CDP APPLICATION OUTER BOAT BASIN PROJECTS
	ONE INCH	NTS	01/30/12	JN:4135	FIGURE 1: VICINITY MAP

smi entrance damage\dwg\EXHIBITS 20120130.dwg

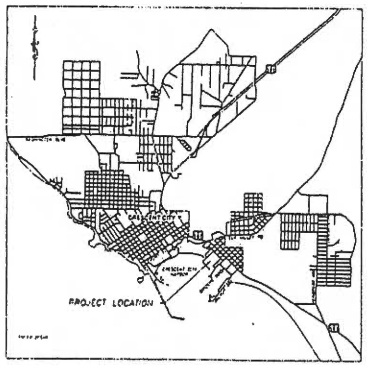
CRESCENT CITY HARBOR DISTRICT

ADMINISTRATION DOCK AREA AND WHALER ISLAND RSP REPAIRS AND OUTER BOAT BASIN DREDGING

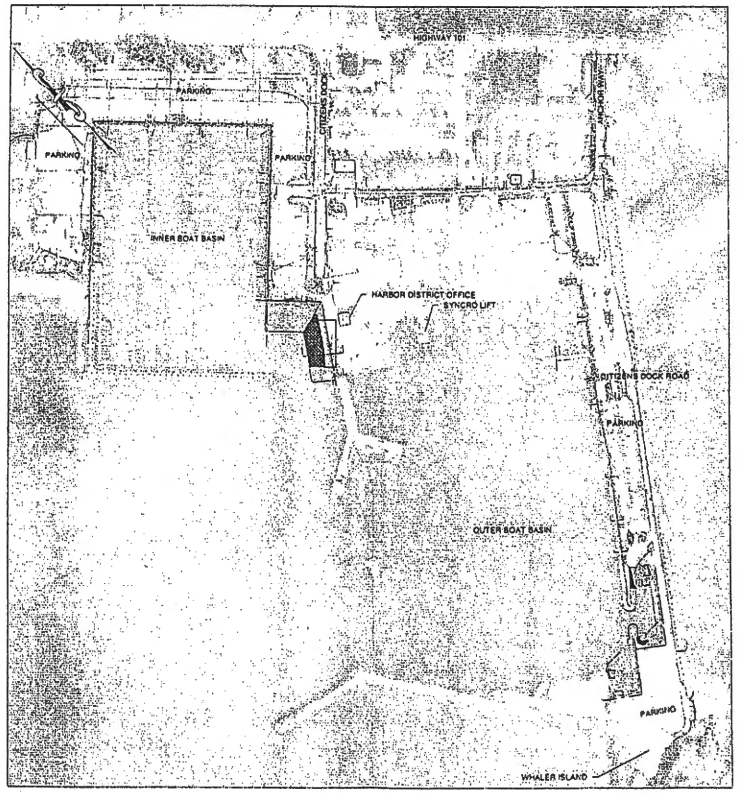
CRESCENT CITY, CA

STATE MAP
NTS

COUNTY MAP
NTS



CITY MAP
NTS



SITE MAP
1"=250'

SHEET INDEX

EXHIBIT NO. 3
APPLICATION NO.
1-12-004-A1
CRESCENT CITY HARBOR DISTRICT
ORIGINAL PROJECT PLANS (1 of 5)

COASTAL DEVELOPMENT PERMIT APPLICATION FIGURES

PRELIMINARY

STOVER ENGINEERING
Civil Engineers and Consultants
PO BOX 783 - 711 H STREET
CRESCENT CITY, CA 95531 - 707-465-6742

CRESCENT CITY HARBOR DISTRICT
HARBOR AND BASIN RECONSTRUCTION
CRESCENT CITY, CA

COVER SHEET

JOB NO. 4134
SCALE: AS SHOWN
DATE: 01/25/12
SHEET 1 OF 5

COASTAL DEVELOPMENT PERMIT
APPLICATION FIGURES

CRESCENT CITY HARBOR DISTRICT
HARBOR AND BASIN RECONSTRUCTION
CRESCENT CITY, CA

ADMIN DOCK RSP REPAIR & SECTION

STOVER ENGINEERING
Civil Engineers and Consultants
PO BOX 783 - 711 H STREET
CRESCENT CITY, CA 95531 - 707-465-6742

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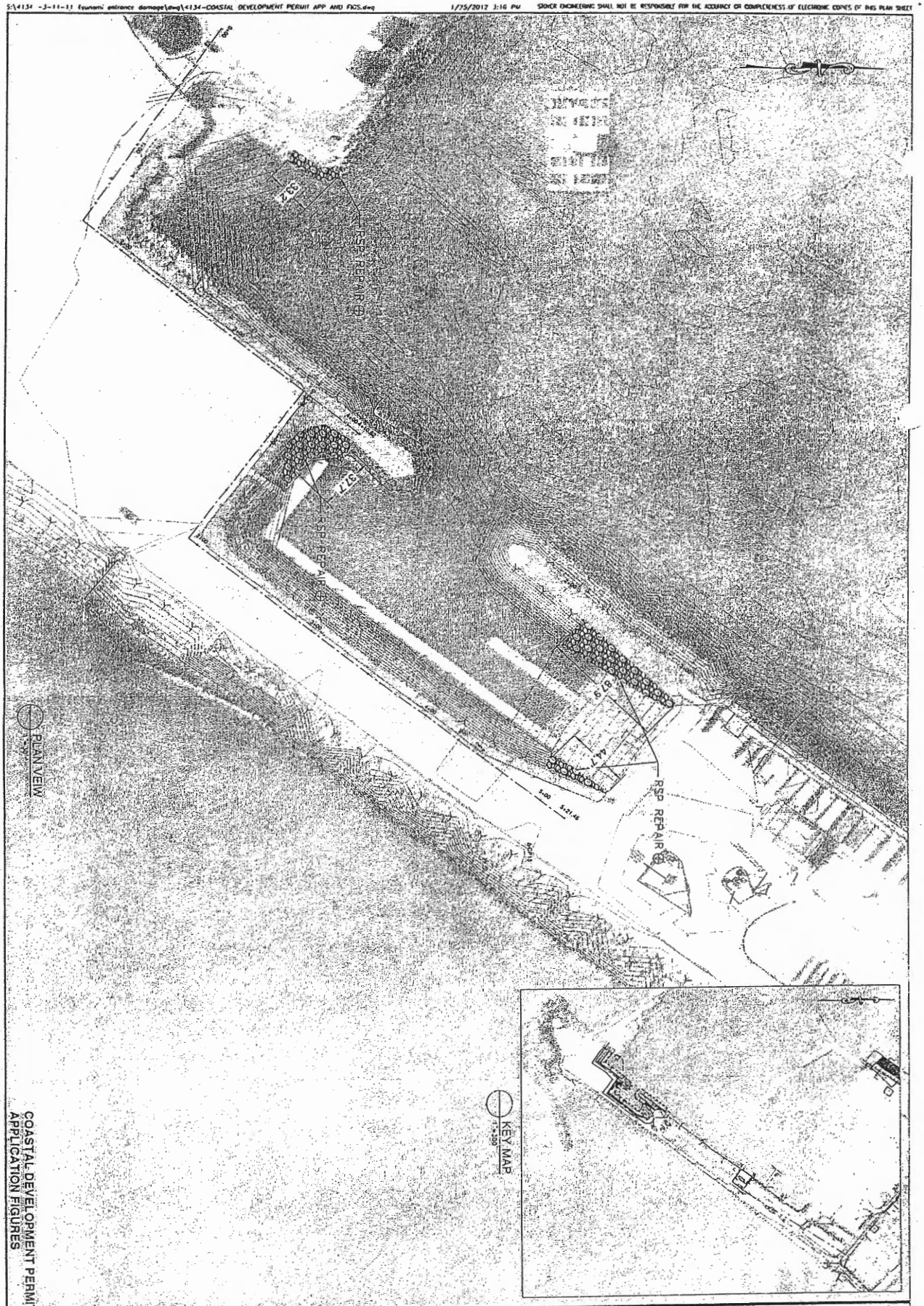
No.	Date	Revision
1	01/25/12	FOR REVISION SET OF 01/25/12

JOB NO. 4134
SCALE: AS SHOWN
DATE: 01/24/2012
SHEET 2 OF 5

S:\4134 -5-11-11 Erosion entrance damage\dwg\4134-COASTAL DEVELOPMENT PERMIT APP AND FIGS.dwg 1/25/2012 3:03 PM

STOVER ENGINEERING SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS

5 of 5



COASTAL DEVELOPMENT PERMIT APPLICATION FIGURES

CRESCENT CITY HARBOR DISTRICT
HARBOR AND BASIN RECONSTRUCTION
CRESCENT CITY, CA

WHALER ISLAND RSP REPAIR & SECTION

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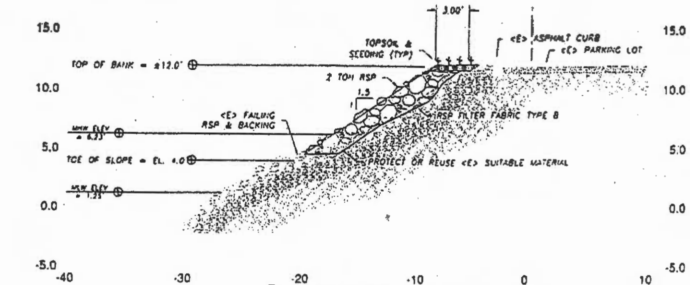
No.	Date	Revision	Appvd.
1	01/25/12	FULL REVISION SET OF 06/07/11	

DRAWING INFO: DESIGNED BY: JDH DRAWN BY: CAL CHECKED BY: RS

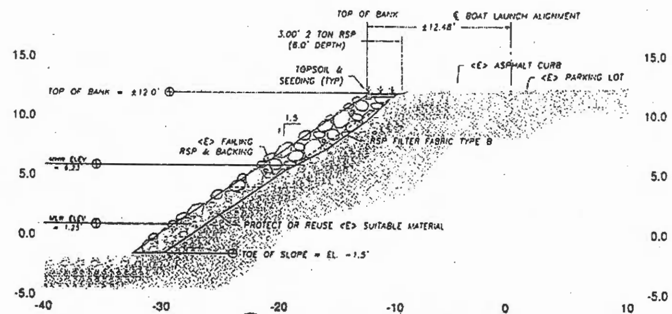
0 1" BAR IS EQUAL TO ONE INCH ON ORIGINAL DRAWING. ADJUST SCALES IF DISTANCE VARIES ACCORDINGLY.

SHEET 3 OF 5
DATE: 01/25/2012
SCALE: AS SHOWN
JOB NO. 4134

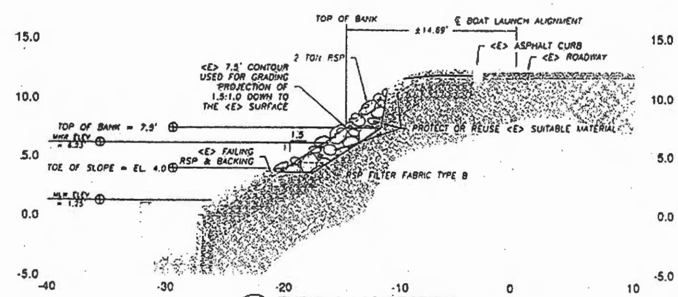
345



1/3 TYPICAL RSP SECTION
PARKING LOT ALIGNMENT – STA: 2+82 TO 3+90



2/3 TYPICAL RSP SECTION
BOAT LAUNCH ALIGNMENT – STA: 0+50 TO 2+10.5



3/3 TYPICAL RSP SECTION
BOAT LAUNCH ALIGNMENT – STA: 4+40 TO 5+22

COASTAL DEVELOPMENT PERMIT
APPLICATION FIGURES

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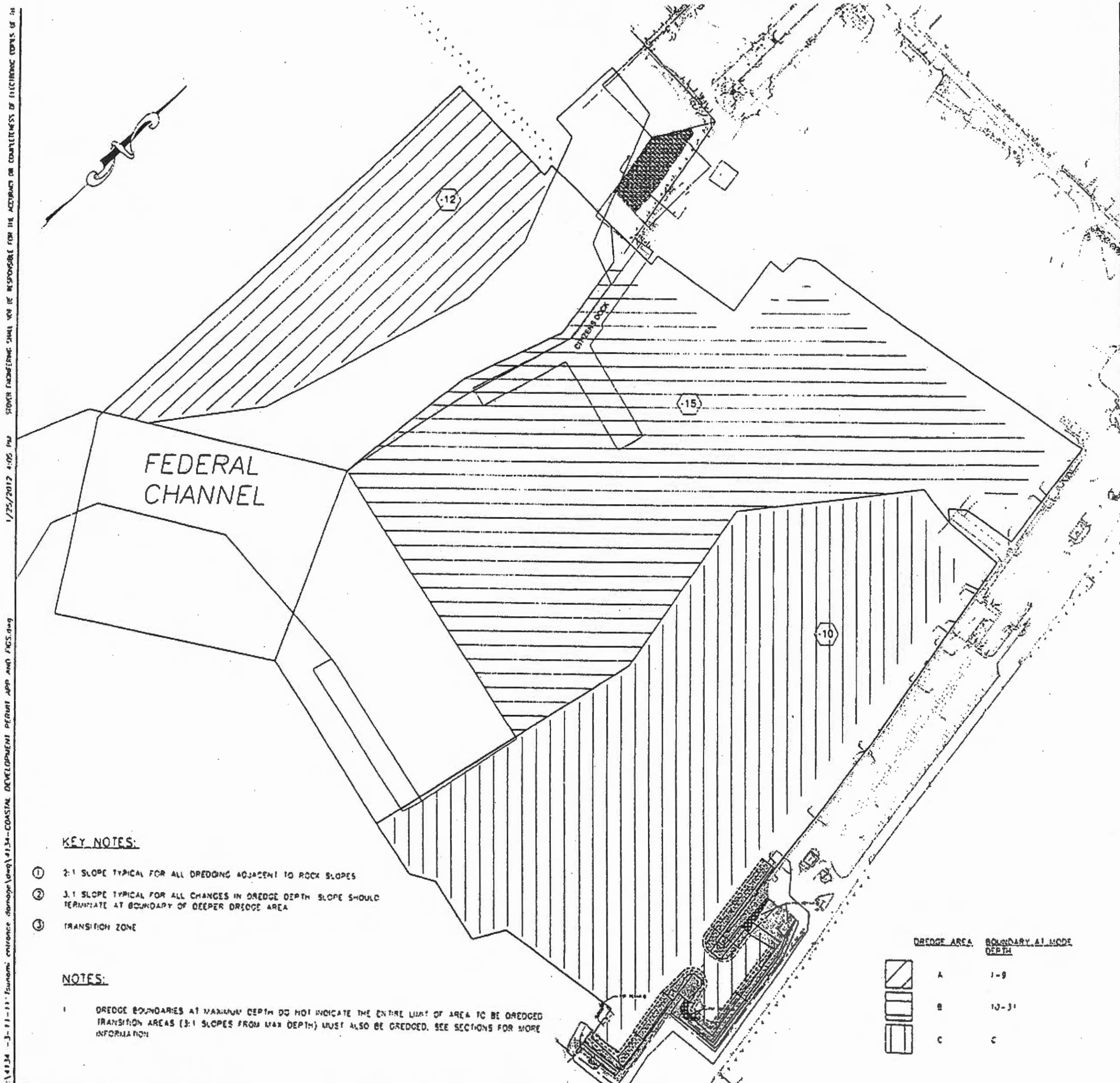
CRESCENT CITY HARBOR DISTRICT
HARBOR AND BASIN RECONSTRUCTION
CRESCENT CITY, CA

WHALER ISLAND RSP REPAIR & SECTION

JOB NO. 4134
SCALE: 1"=5'
1"=5'
DATE: 01/25/2012
SHEET 4 OF 5

4 of 5



KEY NOTES:

① 2:1 SLOPE TYPICAL FOR ALL DREDGING ADJACENT TO ROCK SLOPES

② 3:1 SLOPE TYPICAL FOR ALL CHANGES IN DREDGE DEPTH. SLOPE SHOULD TERMINATE AT BOUNDARY OF DEEPER DREDGE AREA

③ TRANSITION ZONE

NOTES:

1 DREDGE BOUNDARIES AT MAXIMUM DEPTH DO NOT INDICATE THE ENTIRE LIMIT OF AREA TO BE DREDGED. TRANSITION AREAS (3:1 SLOPES FROM MAX DEPTH) MUST ALSO BE DREDGED. SEE SECTIONS FOR MORE INFORMATION

DREDGE AREA		BOUNDARY AT MODE DEPTH
[hatched]	A	1-9
[hatched]	B	10-31
[hatched]	C	C

Number	Northing	Easting	Elevation	Raw Desc	Full Desc
1	2527155.351	5965312.239	0	PARCEL 1	PARCEL 1
2	2526950.177	5965330.345	0	PARCEL 1	PARCEL 1
3	2526968.81	5965523.615	0	PARCEL 1	PARCEL 1
4	2526818.959	5965459.228	0	PARCEL 1	PARCEL 1
5	2526690.171	5965335.32	0	PARCEL 1	PARCEL 1
6	2526437.528	5964893.706	0	PARCEL 1	PARCEL 1
7	2526393.284	5964617.155	0	PARCEL 1	PARCEL 1
8	2526410.83	5964541.155	0	PARCEL 1	PARCEL 1
9	2526789.918	5965664.256	0	PARCEL 2	PARCEL 2
10	2526646.6	5965755.931	0	PARCEL 2	PARCEL 2
11	2526712.238	5965774.882	0	PARCEL 2	PARCEL 2
12	2526590.008	5965950.495	0	PARCEL 2	PARCEL 2
13	2526697.817	5966028.583	0	PARCEL 2	PARCEL 2
14	2526679.66	5966049.9	0	PARCEL 2	PARCEL 2
15	2526716.506	5966097.759	0	PARCEL 2	PARCEL 2
16	2526726.098	5966099.928	0	PARCEL 2	PARCEL 2
17	2526338.353	5966649.086	0	PARCEL 2	PARCEL 2
18	2526215.347	5966554.162	0	PARCEL 2	PARCEL 2
19	2526264.449	5966483.417	0	PARCEL 2	PARCEL 2
20	2526272.418	5966369.695	0	PARCEL 2	PARCEL 2
21	2526257.889	5966370.539	0	PARCEL 2	PARCEL 2
22	2526207.123	5965946.91	0	PARCEL 2	PARCEL 2
23	2525863.651	5965704.395	0	PARCEL 2	PARCEL 2
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25	2526287.4	5965075.79	0	PARCEL 2	PARCEL 2
26	2526471.9	5965354.54	0	PARCEL 2	PARCEL 2
27	2526594.8	5965569.54	0	PARCEL 2	PARCEL 2
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29	2526745.337	5965647.098	0	PARCEL 2	PARCEL 2
30	2526248.156	5966366.612	0	PARCEL 3	PARCEL 3
31	2526241.688	5966371.742	0	PARCEL 3	PARCEL 3
32	2526160.216	5966377.148	0	PARCEL 3	PARCEL 3
33	2526088.228	5966462.813	0	PARCEL 3	PARCEL 3
34	2525731.411	5966215.155	0	PARCEL 3	PARCEL 3
35	2525258.625	5965842.834	0	PARCEL 3	PARCEL 3
36	2525203.460	5965912.636	0	PARCEL 3	PARCEL 3
37	2525288.135	5965982.504	0	PARCEL 3	PARCEL 3
38	2525252.352	5966033.44	0	PARCEL 3	PARCEL 3
39	2525063.574	5965890.615	0	PARCEL 3	PARCEL 3
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43	2525024.233	5965657.951	0	PARCEL 3	PARCEL 3
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46	2525285.684	5965435.382	0	PARCEL 3	PARCEL 3
47	2525265.404	5965362.304	0	PARCEL 3	PARCEL 3
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49	2525405.587	5965224.478	0	PARCEL 3	PARCEL 3
50	2525506.605	5965160.138	0	PARCEL 3	PARCEL 3
51	2525857.011	5965210.724	0	PARCEL 3	PARCEL 3
52	2526198.661	5963951.953	0	PARCEL 3	PARCEL 3

COASTAL DEVELOPMENT PERMIT APPLICATION FIGURES

No.	Date	Revision
1	01/25/11	FULL REVISION SET OF 04/07/11

DRAWING WAS DESIGNED BY AND DRAWN BY CAD CHECKED
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PRELIMINARY

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Civil Engineers and Consultants
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CRESCENT CITY, CA 95531 - 707-465-6742

CRESCENT CITY HARBOR DISTRICT
HARBOR AND BASIN RECONSTRUCTION
CRESCENT CITY, CA

OBB DREDGING

JOB NO. 4134
SCALE: 1"=120'
DATE: 01/25/2012
SHEET 5 OF 5

S:\4134 -3-11-11 Tsunami entrance damage\dwg\4134-COASTAL DEVELOPMENT PERMIT APP AND FIGS.dwg 1/25/2012 4:05 PM STOVER ENGINEERING SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF TH

5 of 5

DESCRIPTION OF PROPOSED AMENDMENT:

On April 11, 2012, the Coastal Commission approved CDP 1-12-04, to dredge the Outer Boat Basin of 251,160 cubic yards of material generated by the March 2011 tsunami. Special Condition 2 requires the preparation of an Eelgrass Mitigation and Monitoring Plan (MMP). A MMP has been prepared to address impacts to eelgrass beds from the planned dredging, rock slope protection repairs, and replacement of dock facilities. This amendment to the existing permit is to permit the placement of approximately 1,700 cubic yards of dredge material at a specific location within the Outer Boat Basin to create and eelgrass mitigation site consistent with the Eelgrass MMP. And to amend Special Condition 2 to acknowledge the preparation of the Eelgrass MMP which has been reviewed and commented on by Coastal staff, CA Fish and Wildlife, and NOAA Fisheries.

EXHIBIT NO. 4
APPLICATION NO.
1-12-004-A1
CRESCENT CITY
HARBOR DIST.
AMENDMENT
DESCRIPTION
(1 of 2)

The Harbor District has made minor modifications to the original project based on a May 2012 eelgrass survey of the project area. These modifications are to avoid eelgrass beds to the extent feasible, including not dredging the larger eelgrass beds and not dredging the area proposed for the eelgrass mitigation area. However, it was not possible to avoid a relatively small percentage of the eelgrass in the Outer Boat Basin during dredging. By deleting areas from dredging, approximately 2,000 square meters of existing eelgrass beds have been avoided, leaving approximately 43 square meters of eelgrass beds that will be impacted. Under the provisions of the accepted eelgrass protocol for mitigation, the Harbor must therefore plant approximately 207 square meters of new habitat constructed from dredge materials with a minimum success rate of 51.6 square meters of new eelgrass bed.

In general, the eelgrass at the Outer Boat Basin only grows in very limited areas of the Outer Boat Basin. Because of this limited amount of suitable eelgrass habitat, new habitat must be created adjacent to existing habitat in order to create new shallow water habitat. The mitigation site was chosen based on its proximity to the largest and most continuous existing eelgrass bed within the Outer Boat Basin. The mitigation site is a low energy area which allows for sediment accumulation and minimizes the potential for erosion of the mitigation area. The mitigation area will create approximately 511 square meters of potential eelgrass habitat at a depth of about -2 feet which is the optimum depth observed for eelgrass within the Outer Boat Basin. The increase in size over the minimum area required for the mitigation area is to ensure a better opportunity for success for the MMP.

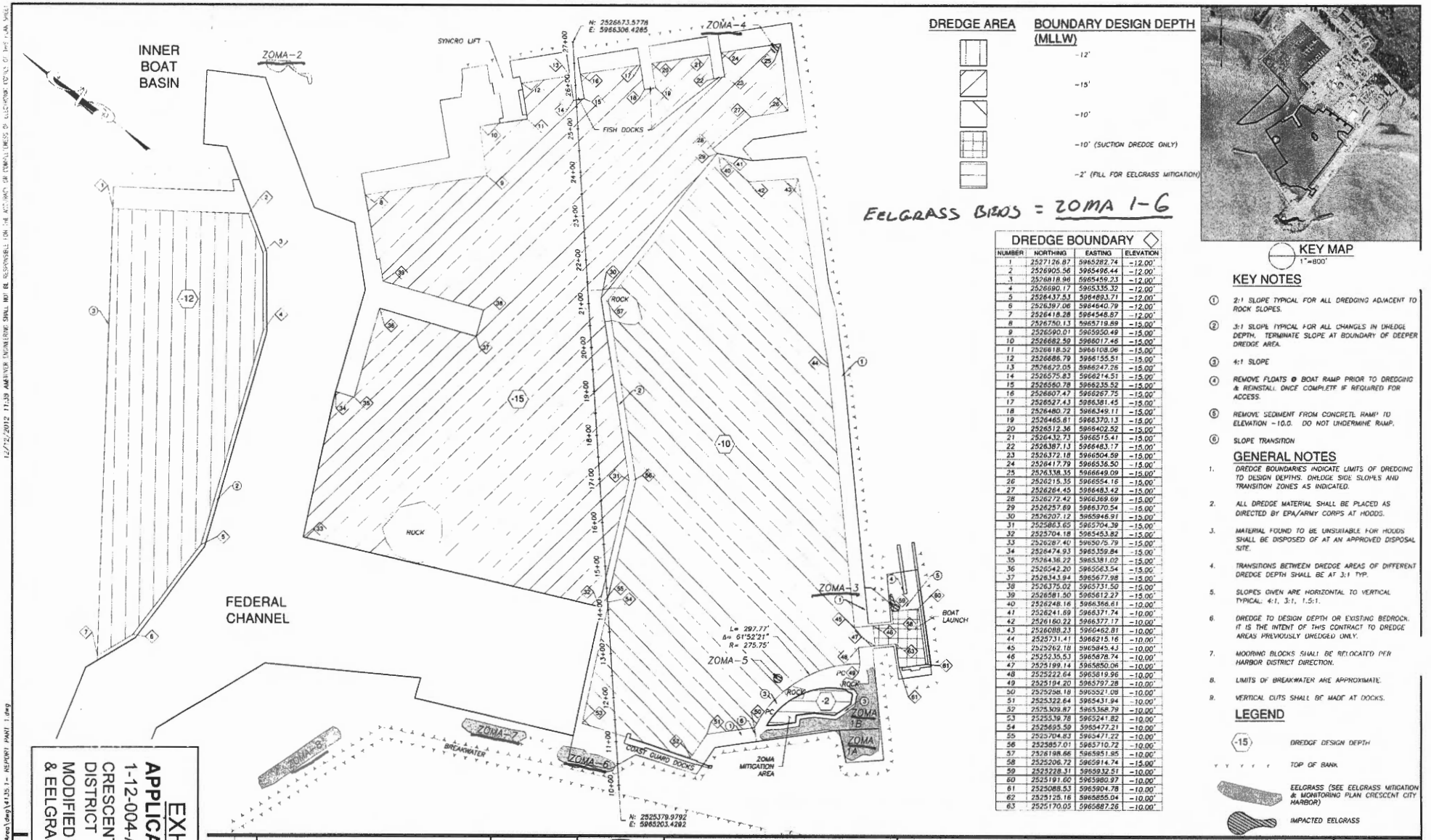
In order to create the eelgrass mitigation area as described above, approximately 1,700 cubic yards of dredge material will be moved from the dredging areas to the mitigation site. The dredged material will be placed through the water to the floor bottom either directly by the excavating equipment or via a dredge scow. The present average depth of the mitigation area is -5 feet with the deepest point at approximately -9 feet. The design depth for the mitigation area upon completion is -2 feet. A silt curtain will be installed in the 25-foot buffer area between the mitigation site and the existing eelgrass bed (ZOMA-1b). This will minimize turbidity in the adjacent eelgrass bed. Monitoring will take place during the placement of the dredge material to the mitigation site. Given the configuration of the mitigation site, dredge material is not expected to migrate from the site. Transplanting will be conducted by Whelan Gilkerson, GIS/Natural Resources Specialist with Pacific Watershed Associates, Inc.

The Eelgrass MMP further provides for mitigation monitoring over a five year period of time. The MMP provides criteria to measure the success of the MMP and the mitigation

site. Monitoring reports will be generated at the conclusion of the mitigation area and annually each year for the subsequent five year period. While all parties are optimistic that the site will succeed, should the site fail to meet the standards listed in Section 5.2 during two consecutive annual monitoring events, an application will be submitted for additional mitigation.

The requested coastal development permit amendment is to allow the implementation of the Eelgrass Mitigation and Monitoring Plan for the Crescent City Harbor Outer Boat Basin dredging project (copy previously provided and attached). The MMP has been prepared with a lot of care to achieve the intended success rate for the mitigation area. However, to achieve the success desired, minor adjustments may be required for the overall success of the mitigation area. The Harbor requests that the Executive Director or his designee be permitted to approve any minor changes to the MMP and its implementation that will not adversely impact coastal resources.

Attachment:
Revised Eelgrass Mitigation and Monitoring Plan Crescent City Harbor Outer Boat Basin (January 2013)



KEY MAP
1"=800'

DREDGE BOUNDARY

NUMBER	NORTHING	EASTING	ELEVATION
1	2527126.87	5965282.74	-12.00'
2	2526905.56	5965496.44	-12.00'
3	2526818.96	5965459.23	-12.00'
4	2526690.17	5965335.32	-12.00'
5	2526437.53	5964803.71	-12.00'
6	2526397.06	5964640.79	-12.00'
7	2526418.28	5964546.87	-12.00'
8	2526750.13	5965719.89	-15.00'
9	2526590.01	5965950.49	-15.00'
10	2526682.59	5966017.46	-15.00'
11	2526818.52	5966108.06	-15.00'
12	2526686.79	5966155.51	-15.00'
13	2526622.05	5966247.26	-15.00'
14	2526575.83	5966214.51	-15.00'
15	2526560.78	5966235.52	-15.00'
16	2526807.47	5966267.75	-15.00'
17	2526527.43	5966381.45	-15.00'
18	2526480.72	5966349.11	-15.00'
19	2526465.81	5966370.13	-15.00'
20	2526512.36	5966402.52	-15.00'
21	2526432.73	5966515.41	-15.00'
22	2526387.13	5966483.17	-15.00'
23	2526372.18	5966504.59	-15.00'
24	2526417.79	5966536.50	-15.00'
25	2526338.35	5966649.09	-15.00'
26	2526215.35	5966554.16	-15.00'
27	2526264.45	5966483.42	-15.00'
28	2526272.42	5966369.59	-15.00'
29	2526257.69	5966370.54	-15.00'
30	2526207.12	5965946.91	-15.00'
31	2525863.65	5965704.39	-15.00'
32	2525704.18	5965453.82	-15.00'
33	2526287.40	5965075.79	-15.00'
34	2526474.93	5965359.84	-15.00'
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37	2526343.94	5965677.98	-15.00'
38	2526375.02	5965731.50	-15.00'
39	2526581.50	5965612.27	-15.00'
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41	2526241.69	5966371.74	-10.00'
42	2526160.22	5966377.17	-10.00'
43	2526088.23	5966462.81	-10.00'
44	2525731.41	5966215.16	-10.00'
45	2525262.18	5965845.43	-10.00'
46	2525235.53	5965878.74	-10.00'
47	2525199.14	5965850.06	-10.00'
48	2525222.64	5965819.96	-10.00'
49	2525194.20	5965797.28	-10.00'
50	2525298.18	5965521.08	-10.00'
51	2525322.64	5965431.94	-10.00'
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53	2525539.78	5965241.82	-10.00'
54	2525695.59	5965477.21	-10.00'
55	2525704.83	5965471.22	-10.00'
56	2525857.01	5965710.72	-10.00'
57	2526198.66	5965951.95	-10.00'
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59	2525228.31	5965932.51	-10.00'
60	2525191.60	5965980.97	-10.00'
61	2525088.53	5965904.78	-10.00'
62	2525125.16	5965855.04	-10.00'
63	2525170.05	5965887.26	-10.00'

KEY NOTES

1. 2:1 SLOPE TYPICAL FOR ALL DREDGING ADJACENT TO ROCK SLOPES.
2. 3:1 SLOPE TYPICAL FOR ALL CHANGES IN DREDGE DEPTH. TERMINATE SLOPE AT BOUNDARY OF DEEPER DREDGE AREA.
3. 4:1 SLOPE
4. REMOVE FLOATS @ BOAT RAMP PRIOR TO DREDGING & REINSTALL ONCE COMPLETE IF REQUIRED FOR ACCESS.
5. REMOVE SEDIMENT FROM CONCRETE RAMP TO ELEVATION -10.0. DO NOT UNDERMINE RAMP.
6. SLOPE TRANSITION

GENERAL NOTES

1. DREDGE BOUNDARIES INDICATE LIMITS OF DREDGING TO DESIGN DEPTHS. DREDGE SIDE SLOPES AND TRANSITION ZONES AS INDICATED.
2. ALL DREDGE MATERIAL SHALL BE PLACED AS DIRECTED BY EPA/ARMY CORPS AT HOODS.
3. MATERIAL FOUND TO BE UNSUITABLE FOR HOODS SHALL BE DISPOSED OF AT AN APPROVED DISPOSAL SITE.
4. TRANSITIONS BETWEEN DREDGE AREAS OF DIFFERENT DREDGE DEPTH SHALL BE AT 3:1 TYP.
5. SLOPES GIVEN ARE HORIZONTAL TO VERTICAL TYPICAL. 4:1, 3:1, 1.5:1.
6. DREDGE TO DESIGN DEPTH OR EXISTING BEDROCK. IT IS THE INTENT OF THIS CONTRACT TO DREDGE AREAS PREVIOUSLY DREDGED ONLY.
7. MOORING BLOCKS SHALL BE RELOCATED PER HARBOR DISTRICT DIRECTION.
8. LIMITS OF BREAKWATER ARE APPROXIMATE.
9. VERTICAL CUTS SHALL BE MADE AT DOCKS.

LEGEND

-15 DREDGE DESIGN DEPTH

TOP OF BANK

EELGRASS (SEE EELGRASS MITIGATION & MONITORING PLAN CRESCENT CITY HARBOR)

IMPACTED EELGRASS

EXHIBIT NO. 5
APPLICATION NO.
1-12-004-A1
CRESCENT CITY HARBOR DISTRICT
MODIFIED PROJECT PLAN
& EELGRASS BED LOCATIONS

STOVER ENGINEERING
Civil Engineers and Consultants
PO BOX 783 - 711 H STREET
CRESCENT CITY, CA 95531 - 707-465-6742

PRELIMINARY

FIGURE 1

CRESCENT CITY HARBOR DISTRICT
MARCH 2011 TSUNAMI RECOVERY DREDGING
CRESCENT CITY, CA

OUTER BOAT BASIN & OUTER HARBOR DREDGE PLAN

JOB NO. 4135
SCALE: 1"=100'
DATE: 12/10/2012
SHEET

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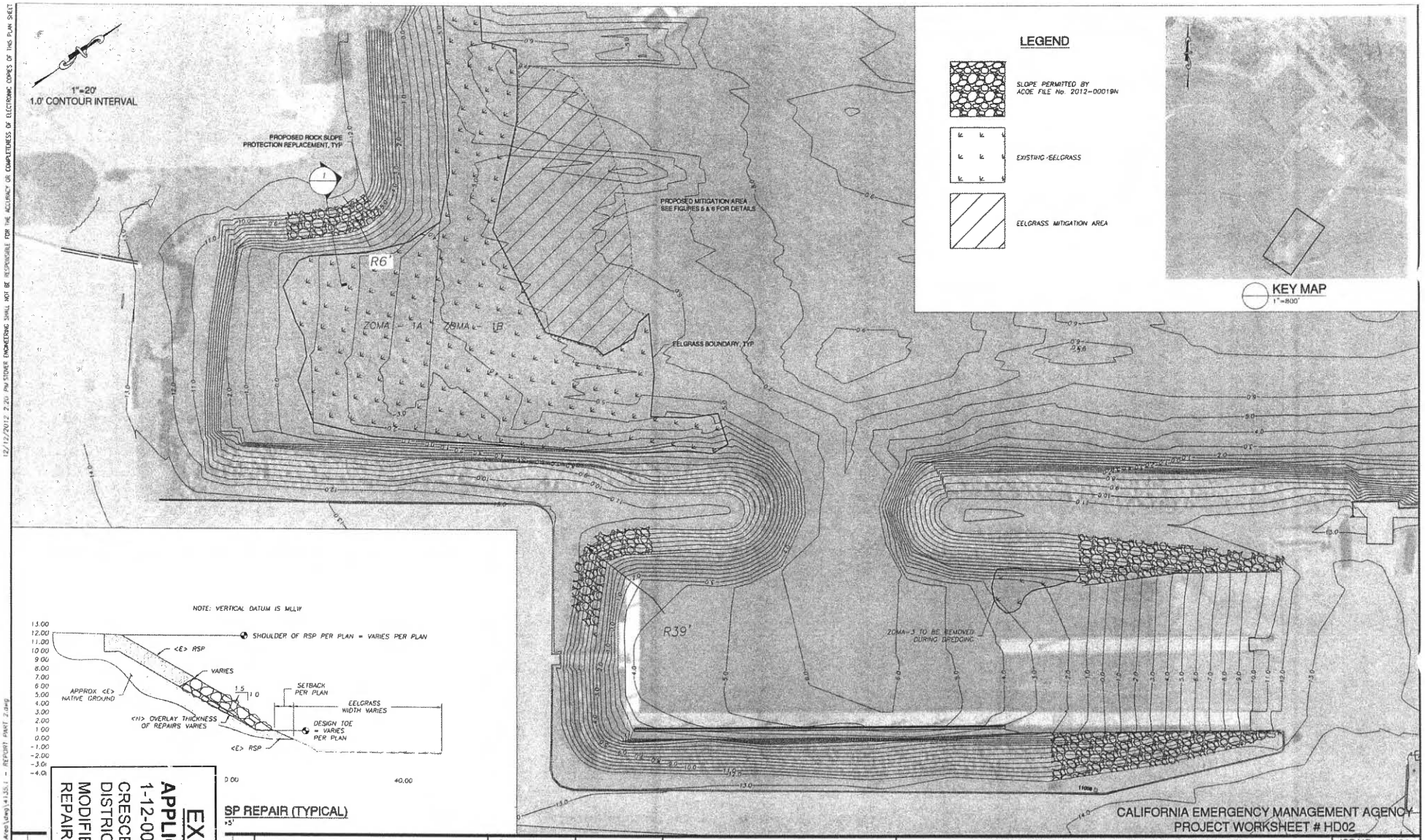

SP REPAIR (TYPICAL)

CALIFORNIA EMERGENCY MANAGEMENT AGENCY
PROJECT WORKSHEET # HD02

EXHIBIT NO. 6
APPLICATION NO.
1-12-004-A1
CRESCENT CITY HARBOR DISTRICT
MODIFIED REVETMENT REPAIRS (1 of 3)

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PRELIMINARY

FIGURE 2

CRESCENT CITY HARBOR DISTRICT
ROCK SLOPE PROTECTION REPAIRS
CRESCENT CITY, CA

PREFFERED ALTERNATIVE

JOB NO. 4134
SCALE: 1"=20'
DATE: 12/10/2012
SHEET

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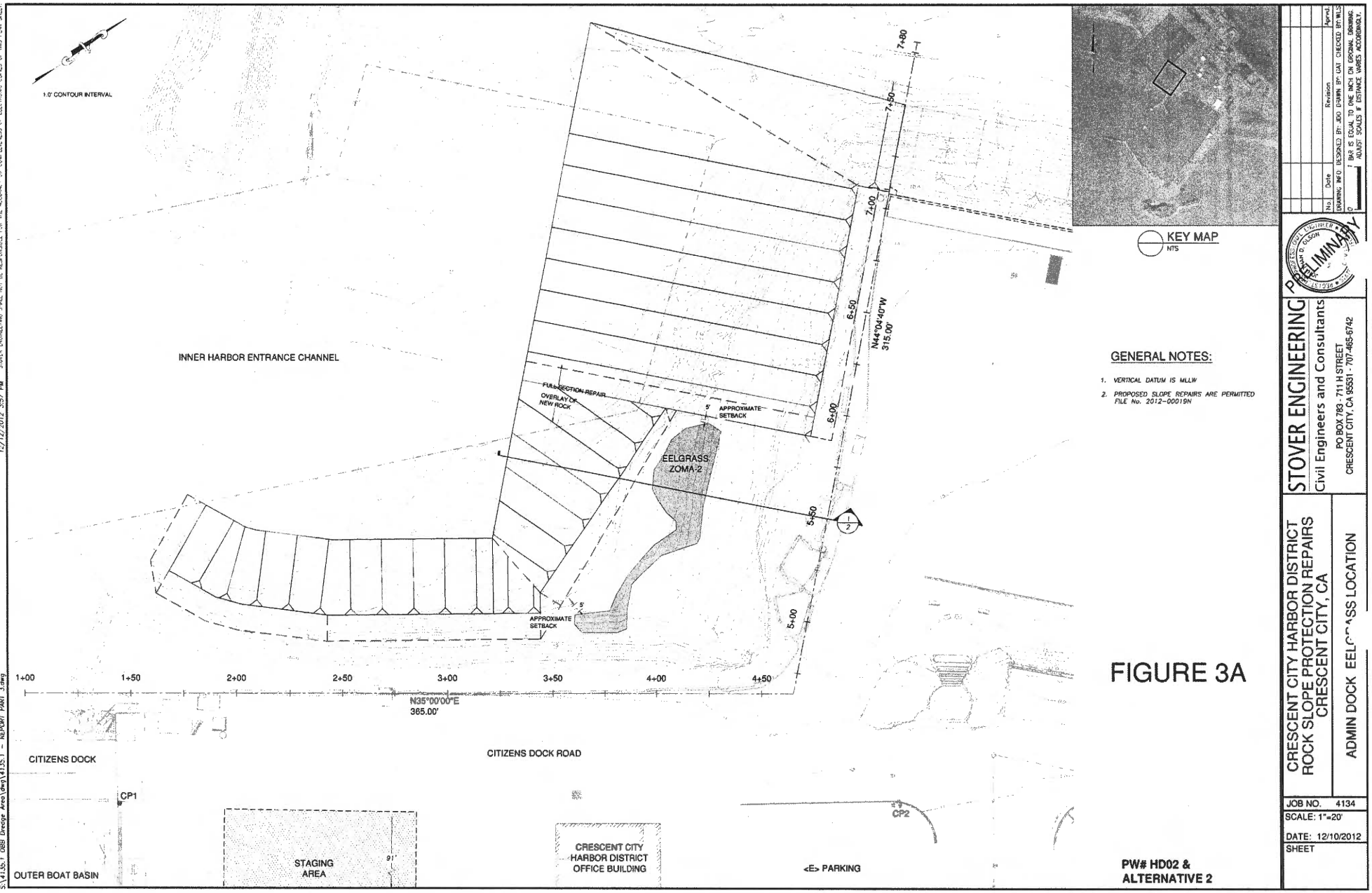
S:\4135 ODBF Bridge Area\dwg\4135-1 - REPORT PART 2.dwg



GENERAL NOTES:

1. VERTICAL DATUM IS MLLW
2. PROPOSED SLOPE REPAIRS ARE PERMITTED FILE No. 2012-00019N

FIGURE 3A

PW# HD02 & ALTERNATIVE 2

PRELIMINARY

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CRESCENT CITY HARBOR DISTRICT
ROCK SLOPE PROTECTION REPAIRS
CRESCENT CITY, CA

ADMIN DOCK EELGRASS LOCATION

JOB NO. 4134
SCALE: 1"=20'
DATE: 12/10/2012
SHEET

No.	Date	Revision	Aprvd.

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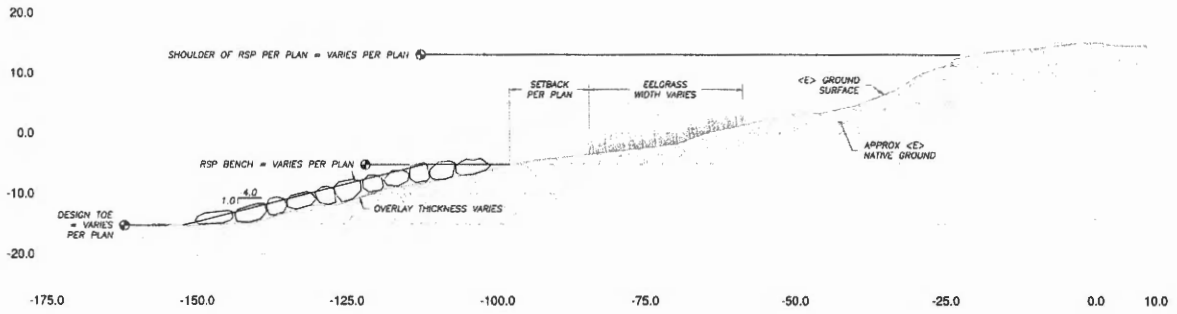
3 of 3



1. THE RSP OVERLAY IS INTENDED TO PROTECT THE SLOPE FROM FURTHER EROSION. DUE TO THE LOCATION OF THE EELGRASS AN OVERLAY METHOD WAS SELECTED INSTEAD OF DIGGING OUT AND REBUILDING THE ENTIRE SLOPE.
2. VERTICAL DATUM IS MLLW

1/1 RSP SECTION AT ZOMA-2 EELGRASS STA 5+50
H: 1"=10' V: 1"=10'

FEMA DECLARATION #1968 DR CA PW 55 HD02

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PRELIMINARY

FIGURE 3B

CRESCENT CITY HARBOR DISTRICT
ADMIN DOCK & HARBOR POINT RSP REPAIRS
CRESCENT CITY, CA

ADMIN DOCK EELGRASS SECTIONS

JOB NO. 4134
SCALE: 1"=1'
DATE: 12/10/2012
SHEET

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EXHIBIT NO.7
APPLICATION NO.
1-12-004-A1
CRESCENT CITY HARBOR DISTRICT
EELGRASS MITIGATION SITE PLAN & CROSS-SECTIONS (1 of 2)

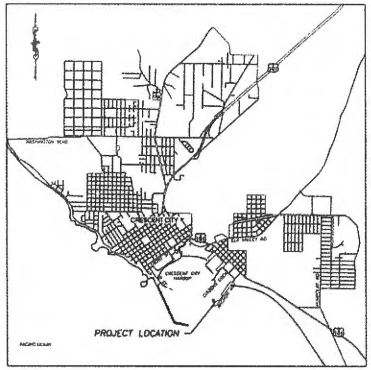
CRESCENT CITY HARBOR DISTRICT

EELGRASS MITIGATION PLAN

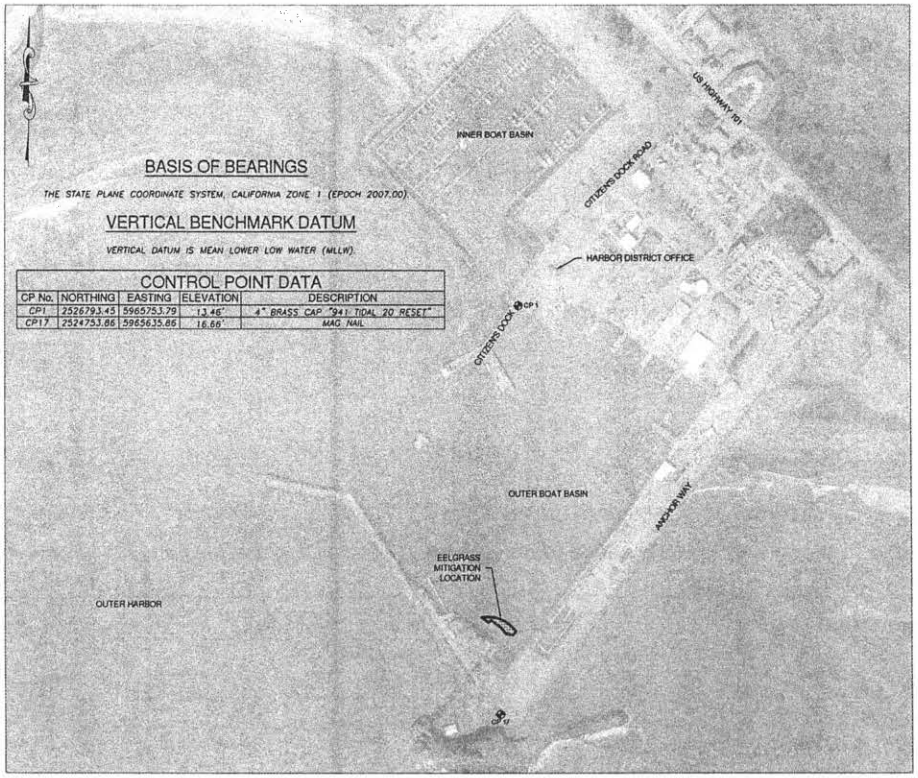
CRESCENT CITY, CA

STATE MAP
NTS

COUNTY MAP
NTS

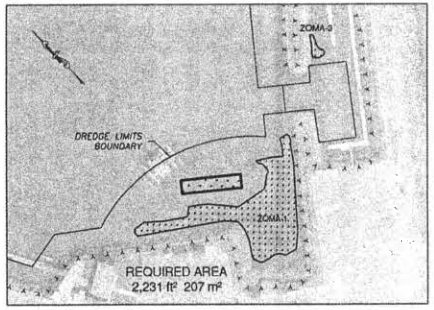


CITY MAP
NTS

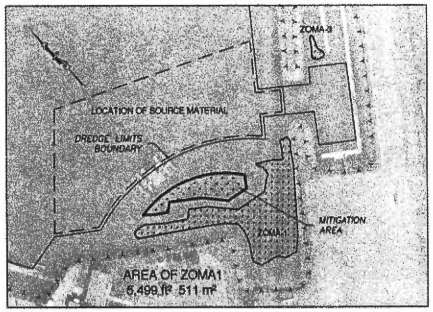


SITE MAP
1"=300'

SHEET INDEX



1/1 REQUIRED EELGRASS MITIGATION AREA
1"=100'



2/1 PROPOSED EELGRASS MITIGATION
1"=100'

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PRELIMINARY

FIGURE 5

CRESCENT CITY HARBOR DISTRICT
EELGRASS MITIGATION PLAN
CRESCENT CITY, CA

VICINITY MAP & SHEET INDEX

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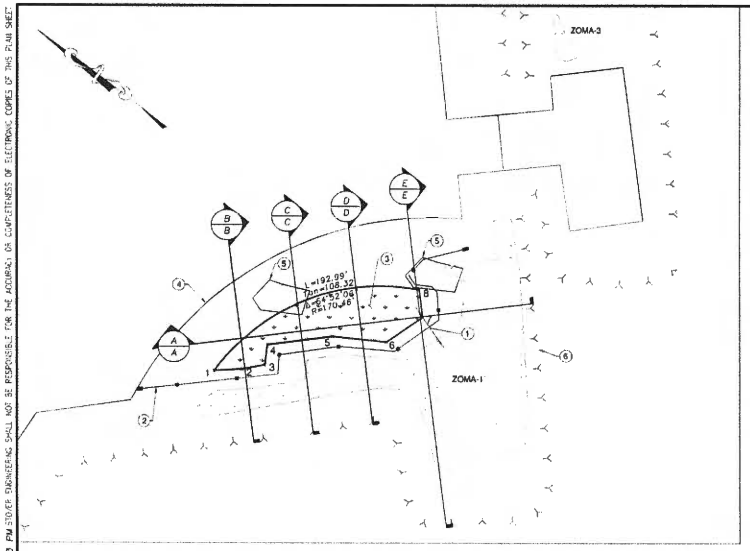
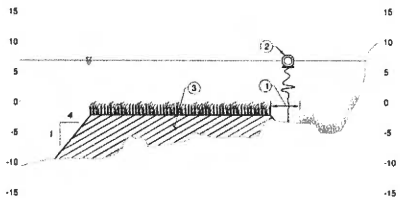
S:\4135.1 GBB Dredge Area\dwg\4135 - FIGURE PART 5.dwg

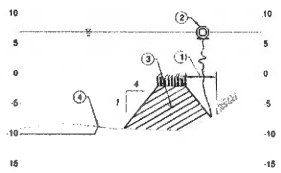


1/2 MITIGATION AREA
1"=50'

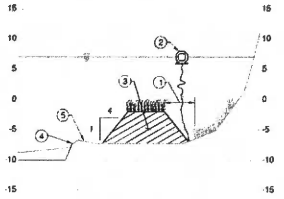
MITIGATION BOUNDARY DATA			
No.	NORTHING	EASTING	ELEVATION
1	2525246.26	5965562.50	-2.00'
2	2525231.46	5965579.75	-2.00'
3	2525220.64	5965595.58	-2.00'
4	2525231.36	5965608.86	-2.00'
5	2525198.74	5965652.60	-2.00'
6	2525164.44	5965681.61	-2.00'
7	2525150.02	5965717.61	-2.00'
8	2525176.31	5965731.43	-2.00'



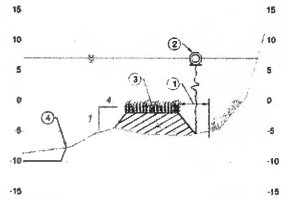
A/A MITIGATION SECTION
H: 1"=50' V: 1"=10'



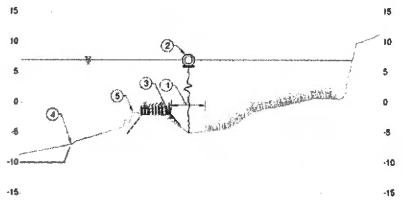
B/B MITIGATION SECTION
H: 1"=50' V: 1"=10'



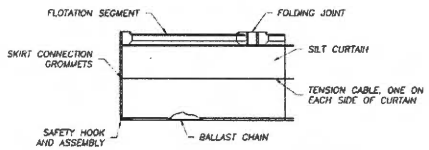
C/C MITIGATION SECTION
H: 1"=50' V: 1"=10'



D/D MITIGATION SECTION
H: 1"=50' V: 1"=10'

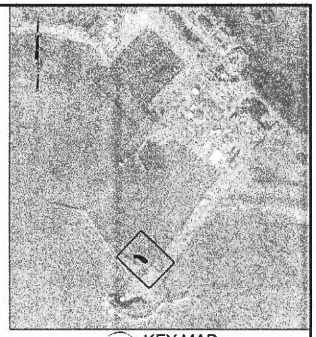


E/E MITIGATION SECTION
H: 1"=50' V: 1"=10'



PROVIDE SUFFENT LENGTH TO REACH BOTTOM AT ALL TIDAL CONDITIONS

2/2 (TYP) FLOATING BOOM W/ OPTIONAL SILT CURTAIN
NTS



KEY MAP
1"=800'

KEY NOTES

1. 25' BUFFER AREA BETWEEN <E> EELGRASS AND MITIGATION AREA
2. SILT CURTAIN, SEE DETAIL 2/2
3. EELGRASS MITIGATION AREA
4. DREDGE LIMITS BOUNDARY
5. APPROXIMATE ROCK LOCATION
6. <E> TOP OF BANK

GENERAL NOTES

1. VERTICAL DATUM IS MLLW.
2. PLACE SILT CURTAIN PRIOR TO PLACEMENT OF NEW MATERIAL FOR MITIGATION AREA.
3. SOURCE MATERIAL FOR MITIGATION AREA SHALL BE APPROVED BY BOTANIST PRIOR TO PLACEMENT. FILL MATERIAL SHALL BE PLACED ON THE OCEAN FLOOR, NOT DUMPED.
4. CONTRACTOR SHALL PROVIDED A REPRESENTATIVE SAMPLE OF MATERIAL TO BOTANIST FOR APPROVAL.
5. SUITABLE MATERIAL MAY BE AVAILABLE ADJACENT TO THE MITIGATION SITE. MATERIAL TO BE REMOVED DURING THE DREDGING OF THE OUTER HARBOR IS PREFERRED IF FOUND TO BE ACCEPTABLE.
6. MITIGATION AREA WILL BE PLANTED WITH EELGRASS AS DESCRIBED IN KYLE WEAR'S EELGRASS MITIGATION AND MONITORING PLAN FOR CRESCENT CITY HARBOR OUTER BOAT BASIN (JULY 2012).

No.	Date	Revision	Aprvd.
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PRELIMINARY

FIGURE 6

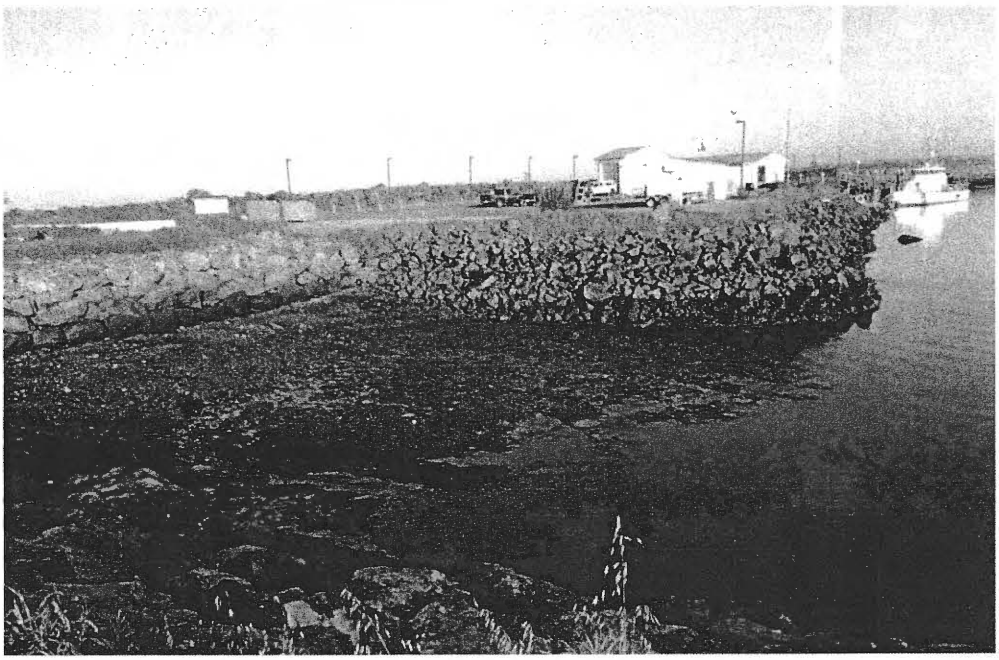
CRESCENT CITY HARBOR DISTRICT
EELGRASS MITIGATION PLAN
CRESCENT CITY, CA

EELGRASS MITIGATION PLAN & CROSS SECTIONS

JOB NO. 4135
SCALE: H: 1"=50' V: 1"=10'
DATE: 12/10/2012
SHEET

REVISED EELGRASS MITIGATION AND MONITORING PLAN
Crescent City Harbor Outer Boat Basin

Crescent City, California



Prepared for:

Crescent City Harbor District
101 Citizens Dock Road
Crescent City, CA 95531

Prepared by:

Kyle Wear
Botanical Consultant
3484 Zelia Court
Arcata, CA 95521
kyle_wear@suddenlink.net

January 2013

EXHIBIT NO. 8
APPLICATION NO.
1-12-004-A1
CRESCENT CITY HARBOR DISTRICT
EELGRASS MITIGATION PLAN TEXT (1 of 25)

TABLE OF CONTENTS

APPENDIX A

1. INTRODUCTION

This Mitigation and Monitoring Plan was developed to address impacts to eelgrass (*Zostera marina*) beds from the planned dredging, rock slope protection repairs, and replacement of the Administrative Dock in the Crescent City Harbor Outer Boat Basin as a condition of the Crescent City Harbor District's Coastal Development Permit (1-12-004) and Army Corps of Engineers permit (2012-0006N) authorizing maintenance dredging of the Outer Harbor. The purpose of the project is to repair damage from the March 2011 tsunami.

The Crescent City Harbor District has made modifications to the original project based on the May 2012 eelgrass survey of the Outer Boat Basin to avoid eelgrass beds to the greatest extent feasible. However, it is not feasible to avoid a relatively small percentage of the eelgrass in the Outer Boat Basin during dredging. This plan provides an evaluation of impacts to eelgrass beds, mitigation measures that include both avoidance and transplanting, outlines mitigation success criteria, monitoring methods, and reporting requirements.

2. OBJECTIVES

The objectives of the Mitigation and Monitoring plan are:

- Comply with California Coastal Commission and Army Corps of Engineers permit and other agency requirements.
- Avoid impacts to approximately 2,127 square meters of existing eelgrass beds within the project area.
- Mitigate for impacts to approximately 43 square meters of eelgrass beds. This will require planting approximately 207 square meters (1:4.82 ratio) of new habitat constructed from dredge material, and successful establishment of 51.6 square meters of new eelgrass bed (1:1.2 ratio).

3. EXISTING EELGRASS BEDS

Dive surveys of the Outer Boat Basin in May 2012 identified eight eelgrass beds, of which six are within the originally proposed Project Area (Wear 2012). The beds range from less than one square meter to over 1,500 square meters and predominantly occur on narrow shoals around the perimeter of the harbor (Figure 1).

4. IMPACT ASSESSMENT

Dredging

It is not feasible to avoid ZOMA-3, ZOMA-4, or ZOMA-5 to achieve the necessary depths in the Outer Boat Basin for commercial and recreational vessels. Thus, these beds will be removed during dredging (Figure 1). The total areal extent of these beds is approximately 43 square meters, which accounts for 1.3 percent of the total areal extent of eelgrass beds in the Outer Boat Basin. The remaining beds will be avoided. Setbacks from the remaining beds are approximately 25 feet or greater. Dredging shall be conducted with an excavator that will allow for precise dredging and produce minimal turbidity.

Rock Slope Protection

The rock slope protection in the vicinity of the ZOMA-1 will be placed above the toe of the existing rock. This should not disturb the adjacent eelgrass bed or habitat, provided repairs do not disturb the rock at the base of the slope (Figure 2). The rock slope protection around ZOMA-2 will be placed above, below, and adjacent to the eelgrass bed with a minimum setback of 5 feet (Figures 3a & 3b). Most of the shallow unoccupied habitat adjacent to the bed will be preserved, allowing for future expansion of the bed. Because of the close proximity of the rock slope protection repairs to ZOMA-2, there is a potential for physical disturbance during removal and placement of rock.

Administrative Dock

The Administrative Dock will be approximately 65 feet away from ZOMA-2. A portion of the ADA compliant walkway to the dock will be setback approximately 10 feet from a portion of the bed. The dock also includes a concrete footing within the rock slope protection (Figure 4). Due to the proximity of the dock and walkway to ZOMA-2 there is a potential for impacts from alteration of circulation patterns, shading of the bed or potential habitat, and disturbance from boats.

5. MITIGATION TECHNIQUE

5.1. Avoidance

Dredging

Dredging shall be completed as quickly as possible to minimize the duration of any turbid conditions. Dredging operations personnel shall be made aware of the location of all eelgrass beds and aware of the mitigation measures to protect them. Dredging operations personnel shall be provided, and required to review the mitigation and monitoring plan including the figures (Appendix A) showing the

location of the eelgrass beds in the project area. The edges of the beds adjacent to dredging shall be marked with PVC pipe, or similar material, so they are clearly visible to the operators.

Rock Slope Protection

The rock slope protection work shall be conducted by skilled operators capable of removing and placing rock with minimal disturbance to adjacent habitat. The edges of ZOMA-2 shall be marked with PVC pipe or similar material so that the location of the bed is clearly visible to the operators.

Administrative Dock

During installation of the dock, construction activity shall be as far away from ZOMA-2 as feasible. The edge of the bed shall be marked as described above so it is clearly visible to construction personnel.

5.2. Construction of New Eelgrass Habitat and Transplanting

It will be necessary to mitigate for impacts to ZOMA-3, ZOMA-4, and ZOMA-5 by transplanting. The combined areal extent of these three beds is approximately 43 square meters. These beds will be re-surveyed within 60 days prior to construction to determine the final target areal extent for mitigation. Based on the areal extent of these beds in May 2012, and provided no additional eelgrass beds become established in the project area by the 2013 survey, it is estimated that approximately 207 square meters (4.82:1 ratio) of comparable eelgrass habitat will need to be planted and a minimum of 51.6 square meters of new eelgrass bed be established.

Construction of New Eelgrass Habitat

Because of the limited amount of unoccupied eelgrass habitat in the Outer Boat Basin, new habitat will be created by depositing approximately 1,700 cubic yards of sandy/silty dredge material to create new shallow habitat in the harbor (Figure 5). The mitigation site was selected based on its proximity to ZOMA-1, which includes the largest eelgrass bed and most continuous eelgrass habitat in the Outer Boat Basin. Additionally, the site is within a low energy area, which allows for sediment accumulation and minimizes the potential for erosion of the mitigation site. A total of 511 square meters of habitat will be created at -2 feet MLLW. This depth is considered an ideal depth for eelgrass in the Outer Boat Basin based on observed turion density in ZOMA-1 across its depth profile in May 2012. Eelgrass was present from approximately 0 to -6 feet MLLW with the highest density at approximately -2 feet. The site will also include 656 square meters of additional habitat ranging from -2 to -6 feet MLLW on the slopes.

Material will be removed from the dredge area and placed directly on the ocean floor at the mitigation site with a barge-mounted excavator. The material will not be dropped through the water. This will allow for precise placement of the material and minimize turbidity. A silt curtain will be installed in the 25-foot buffer between the mitigation site and ZOMA-1b to minimize turbidity in the adjacent eelgrass bed.

An analysis of the stability and settlement of the dredge material was conducted by Stover Engineering (Jon Olson, Project Engineer, Email message to Kyle Wear, October 4, 2012). The following is a summary of their analysis:

- Samples of the dredge material taken in the vicinity of the mitigation site and the location of the source material by Western Solutions (2012) are sandy/silty/clayey sediment.

- There should be minimal settlement because the material will remain densified and will be placed directly on the ocean floor and not pumped or dropped through the water.

- The mitigation site will be stable. The slope of the mitigation site will be a 4:1 vertical to horizontal slope (Figure 6). A recent geotechnical report (Treadwell and Rollo 2011) describes a slope of native sand of 1.5:1 and less than 10 feet high as stable. Stover Engineering examined actual dredge material from the Crescent City Harbor and found that the average angle of repose was 2.45:1. The slopes where eelgrass is currently growing range from 1.2:1 to 4.1:1, and have remained mostly stable even during the 2011 tsunami.

- The dredge material is not expected to migrate from the site. While there is no guarantee that all of material will stay in place due to the dynamic and often unpredictable nature of the ocean, Stover Engineering is confident that under most conditions the site will remain stable. The location of the mitigation site is a low energy area and appears to consistently accumulate sediment, even under extreme conditions such as the 2011 tsunami. During the tsunami, deposition at the proposed mitigation site was between +0.4 and +1.6 feet.

Transplanting

Transplanting shall occur during the active growth period (May 1 – September 30). Transplanting methods shall follow those described by Merkel & Associates (2004). This involves the planting of anchored bare-root bundles of turions harvested from donor beds. Turions will be harvested by carefully removing the rhizomes and associated roots from the substrate. The leaves will be trimmed to 30 cm to aid in storage and handling. The material will be held in seawater for no longer than 24 hours before planting. The bundles will consist of 8 turions held

together with biodegradable twine and anchored with biodegradable anchors. A hole will be excavated by hand or with a small shovel in the substrate. The anchors will be planted at approximately 10 cm parallel to the surface. The roots/ rhizomes will be inserted from 2-6 cm below the surface. The hole will be backfilled with substrate. The bundles will be planted at one meter intervals throughout the mitigation site.

The dredging of the Outer Boat Basin is expected to begin in June 2013. Transplanting shall occur after the mitigation site is constructed, but before dredging of the public boat launch area where most of the donor material will be harvested.

Turions will be harvested from ZOMA-3 in the public boat launch area and from and ZOMA-1a to obtain the material for transplanting. All of ZOMA-3 will be harvested. ZOMA-1a shall be thinned so that there are no noticeable bare patches created by harvesting, and no more than 5 percent of the underground biomass shall be harvested.

Fish and Game Code (Chapter 5, § 6400) requires a Letter of Authorization from the California Department of Fish and Game to harvest and plant eelgrass into state waters. The Letter of Authorization should be requested 3 to 4 weeks prior to harvesting and transplanting activities. Due to the history of failed eelgrass mitigation projects in Northern California, the California Department of Fish and Game has also required that a biologist with prior experience carry out the harvesting and transplanting aspects of the project. The biologist shall be approved by the California Department of Fish and Game prior to harvesting and transplanting activities.

6.0. MITIGATON MONITORING

Pre-construction monitoring shall occur within 60 days of construction in accordance with the Draft California Eelgrass Mitigation Policy (NMFS 2011) and shall include a survey of all existing eelgrass beds and potential habitat in the project area. Suitable eelgrass habitat in the Crescent City Harbor is considered to be all soft bottom areas that are -7 feet MLLW or shallower. ZOMA-6 has been selected as the reference bed for monitoring, which shall be monitored during the pre-construction survey and all annual monitoring events. This bed occurs along a narrow shoal along the breakwater, similar to ZOMA-3 where most of the eelgrass will be impacted, and is representative of the majority of eelgrass habitat in the harbor. Bottom cover and turion density of ZOMA-3 and ZOMA-6 are also similar (Wear 2012).

ZOMA-1 and ZOMA-2

Pre-construction monitoring of ZOMA-1 and ZOMA-2 will determine baseline bed parameters for comparison with post-construction monitoring results. The CDFG has required a 60 month period of monitoring of theses beds due to the proximity of the placement of dredge material to ZOMA-1, and the potential for direct or indirect impacts to ZOMA-2 from the RSP work and administrative dock. Post-construction monitoring shall occur within 30 days of the completion of construction, or within 30 days of the beginning of the next active growth period if the project is completed within 30 days of the end of the active growth period.

ZOMA-3, ZOMA-4, and ZOMA-5

Pre-construction monitoring of ZOMA-3, ZOMA-4, and ZOMA-5 will determine pre-construction bed parameters and the final target areal extent for mitigation. These beds will be extirpated, thus there is no need for post-construction monitoring of the beds. Mitigation monitoring will involve monitoring of the mitigation site and a reference bed (ZOMA-6) for 60 months following the initial planting.

Topographical Monitoring of the Mitigation Site

The California Department of Fish and Game has also required that detailed topographical monitoring of the mitigation site be conducted at each of the annual monitoring events.

6.1. Eelgrass Monitoring Methods

All monitoring shall occur during the active growth period (May 1 – September 30). All annual monitoring events shall take place within the same calendar month as the pre-construction survey. The following bed parameters will be measured during the pre-construction and post-construction monitoring events, with the exception of the Month 0 and Month 6 mitigation site monitoring events, which do not require measurements of bed parameters.

Areal extent

The areal extent of the mitigation bed and reference bed will be determined by recording GPS points around the perimeter of the beds. The point data will be used to create polygons in ArcView, which will calculate the areal extent of the polygons. The horizontal datum used will be UTM, NAD 83, Zone 10. The spatial data layer will be in ESRI shapefile format.

Bottom cover

The bottom cover of the eelgrass within the beds will be determined by dividing the area of eelgrass patches that form the bed, by the area of the bed.

Turion density

Turion density will be sampled in a minimum of thirty 0.25 square meter randomly placed quadrats within each bed. Quadrats will not be placed in interstitial gaps between patches in the beds. Density will be reported as mean turion density +/- the standard deviation of the samples. Transects will be randomly placed perpendicular to a baseline established along the edge of the bed. Quadrats will be sampled at random points along each transect across the bed. The number of transects and quadrats along them will vary depending on the size and shape of the bed, but shall result in a minimum of 30 samples per bed to maximize statistical power for testing for differences. It may be appropriate depending on the size and shape of the bed to stratify it spatially to ensure transects are sampled across the spatial distribution of the bed. It may also be appropriate to stratify the samples according to depth or differences in turion density. Stratification may not be necessary for small beds. Because eelgrass beds are irregular in shape and contain gaps within them, some of the random points will fall in interstitial gaps or outside of the bed. If necessary, additional random transects shall be sampled until turion counts have been made in at least 30 quadrats. A t-test or similar analysis shall be used to test for differences in mean turion density between the mitigation site and reference bed.

6.2. Eelgrass Mitigation Success Criteria

ZOMA-1 and ZOMA-2

Monitoring of ZOMA-1, ZOMA-2, and the reference bed (ZOMA-6), shall occur for a period of 60 months after construction. The mitigation success criteria are:

> Months 0, 12, 24, 36, 48, and 60 – The beds shall have a minimum of 100 percent cover of the beds during the pre-construction survey and no less than 75 percent turion density of the pre-construction survey corrected by cover and density of the reference bed.

Mitigation Site

Monitoring of the mitigation site and the reference bed, ZOMA-6, shall occur for a period of 60 months after the initial planting. The reference bed will not be monitored during the Month 0 or Month 6 monitoring events. The mitigation success criteria are:

Month 0 – Monitoring shall confirm the full coverage distributions of planting units over the mitigation site.

Month 6 – Persistence and growth of eelgrass within the initial mitigation area shall be confirmed, and there shall be a survival of at least 50 percent of the initial planting units with well-distributed coverage over the mitigation site.

Month 12 – The mitigation site shall achieve a minimum of 40 percent of the cover of eelgrass in the reference bed and 20 percent density of the reference bed over not less than 1.2 times the area of the initial impact.

Month 24 – The mitigation site shall achieve a minimum of 85 percent cover of eelgrass in the reference bed and 70 percent density of the reference bed over not less than 1.2 times the area of initial impact.

Months 36, 48, and 60 – The mitigation site shall achieve a minimum of 100 percent cover of eelgrass in the reference bed and 85 percent density of the reference bed over not less than 1.2 times the area of initial impact.

6.3. Eelgrass Mitigation Failure

Mitigation Site

If the mitigation site fails to meet the standards listed in Section 5.2 during two consecutive annual monitoring events, an application shall be submitted for an amendment of the CDP for additional mitigation to ensure all performance criteria are met. Potential corrective actions include additional transplanting onto the mitigation site or shallow habitat around the perimeter of the harbor. Placement of additional material will likely not be feasible if erosion occurs. However, the site includes more than twice the amount of optimal eelgrass habitat, thus if a small amount of the site erodes, there will likely be enough suitable habitat remaining for additional transplanting.

ZOMA-1 and ZOMA-2

If the mitigation site fails to meet the standards listed in Section 5.2 during any post-construction monitoring event, an application shall be submitted for an amendment of the CDP for additional mitigation to ensure all performance criteria are met. Potential corrective measures include additional transplanting within or adjacent to these beds, or planting additional areas on the mitigation site.

6.4. Topographical Monitoring Methods

The perimeter, slopes, and depths of the mitigation site shall be measured at each annual monitoring event by taking manual soundings with a lead line in

accordance with Chapter 8 of the Army Corps' Engineering Manual EM 110-2-1003 (U.S. Army Corps of Engineers 2002). The GPS coordinates of each data point will be recorded and the depth will be corrected for tide in accordance with Army Corps standards. A minimum of 20 data points will be recorded at each monitoring event that will be used to create topographical maps of the mitigation site.

7.0. REPORTING

7.1. Final Updated Mitigation and Monitoring Plan

After the pre-construction monitoring, and prior to transplanting eelgrass, an updated final Mitigation and Monitoring Plan shall be submitted that will include updated maps of the eelgrass bed and the final target bed parameters for mitigation.

7.2. Monitoring Reports

All monitoring reports shall be submitted with 30 days of the completion of each monitoring event, and shall comply with Army Corps of Engineers Regulatory Guidance Letter No. 08-03 to the extent applicable and shall include the report components listed below.

7.2.1. Mitigation Site and Reference Bed (ZOMA-6)

Pre-construction Monitoring

1) Project Overview

- Army Corps and Coastal Commission Permit Numbers.
- Name of party responsible for conducting the monitoring, and the dates the monitoring was conducted.
- A brief paragraph describing the purpose of the project, size and type of aquatic resources to be impacted, and mitigation acreage and type of aquatic resources authorized to compensate for the impacts.
- Written description of the location of the mitigation site, including identifiable landmarks and UTM coordinates of the site.
- The dates the mitigation project will commence.

2) Summary Data

- Detailed description of the monitoring methods used.
- Measurements of bed parameters described in Section 6.1 for the eelgrass to be impacted and reference bed (ZOMA-6).

3) Maps

- Maps clearly delineating the perimeter and indicating the areal extent of the eelgrass to be impacted. Each map shall be formatted to print on a standard 8.5 x 11 inch sheet of paper.

Month 0 (Construction and planting of the mitigation site)

1) Project Overview

- Army Corps and Coastal Commission Permit Numbers.
- Name of party responsible for conducting the transplanting and the dates the transplanting was conducted.
- A brief paragraph describing the purpose of the project, size and type of aquatic resources impacted, and mitigation acreage and type of aquatic resources authorized to compensate for the impacts.
- Written description of the location of the mitigation site, including identifiable landmarks and UTM coordinates of the site.

2) Summary Data

- Detailed description of the methods used to construct the mitigation site.
- Detailed description of the planting methods used, including the number of turions transplanted, the number of turions per bundle, materials used for transplanting, and planting density.

3) Maps

- The report shall include as built plans for the mitigation site. Each figure shall be formatted to print on a standard 8.5 x 11 inch sheet of paper.

Month 6

1) Project Overview

- Army Corps and Coastal Commission Permit Numbers.
- Name of party responsible for conducting the monitoring and the dates the monitoring was conducted.
- A brief paragraph describing the purpose of the project, size and type of aquatic resources impacted, and mitigation acreage and type of aquatic resources authorized to compensate for the impacts.
- Written description of the location of the mitigation site, including identifiable landmarks and UTM coordinates of the site.
- The dates the mitigation project commenced.
- Statement of whether the performance standards are being met.
- Specific recommendations for any corrective actions.

2) Requirements

- A list of the monitoring requirements and performance standards, as specified in the Mitigation and Monitoring Plan.
- An evaluation of whether the mitigation site is successfully achieving the performance standards, or is trending toward success.

3) Summary Data

- Detailed description of the monitoring methods used.

4) Conclusions

- A general statement shall be included that describes the conditions of the mitigation site. If the performance standards are not being met, a brief explanation of the difficulties and potential remedial actions proposed by the permittee, including a timetable, shall be included.

<u>Months 12, 24, 36, 48, and 60 (Annual monitoring reports)</u>

1) Project Overview

- Army Corps and Coastal Commission Permit Numbers.
- Name of party responsible for conducting the monitoring, and the dates the monitoring was conducted.

- A brief paragraph describing the purpose of the project, size and type of aquatic resources impacted, and mitigation acreage and type of aquatic resources authorized to compensate for the impacts.

- Written description of the location of the mitigation site, including identifiable landmarks and UTM coordinates of the site.

- The dates the mitigation project commenced.

- Statement of whether the performance standards are being met.

- Dates of any maintenance or corrective actions since the previous report.

- Specific recommendations for any additional corrective actions.

2) Requirements

- A list of the monitoring requirements and performance standards, as specified in the Mitigation and Monitoring Plan.

- An evaluation of whether the mitigation site is successfully achieving the performance standards, or is trending toward success.

3) Summary Data

- Detailed description of the monitoring methods used.

- Measurements of bed parameters described in Section 6.1 for the mitigation site and reference bed (ZOMA-6).

4) Maps

- Updated maps clearly delineating the perimeter and indicating the areal extent of the eelgrass in the mitigation site and reference bed. Each map shall be formatted to print on a standard 8.5 x 11 inch sheet of paper.

- A topographical map of the mitigation site based on the manual soundings, formatted to print on a standard 8.5 x 11 inch sheet of paper.

5) Conclusions

- A general statement shall be included that describes the conditions of the mitigation site. If the performance standards are not being met, a brief explanation of the difficulties and potential remedial actions proposed by the permittee, including a timetable, shall be included.

7.2.2. ZOMA-1 and ZOMA-2

Pre-construction Monitoring

1) Project Overview

- Army Corps and Coastal Commission Permit Numbers.
- Name of party responsible for conducting the monitoring, and the dates the monitoring was conducted.
- A brief paragraph describing the purpose of the project.
- Written description of the location of the eelgrass beds, including identifiable landmarks and UTM coordinates of the beds.

2) Summary Data

- Detailed description of the monitoring methods used.
- Measurements of bed parameters described in Section 6.1 for ZOMA-1, ZOMA-2 and reference bed (ZOMA-6).

3) Maps

- Maps clearly delineating the perimeter and indicating the areal extent of the eelgrass beds and reference bed. Each map shall be formatted to print on a standard 8.5 x 11 inch sheet of paper.

Months 0, 12, 24, 36, 48, and 60

1) Project Overview

- Army Corps and Coastal Commission Permit Numbers.
- Name of party responsible for conducting the monitoring, and the dates the monitoring was conducted.
- A brief paragraph describing the purpose of the project.
- Written description of the location of the mitigation site, including identifiable landmarks and UTM coordinates of the site.
- The dates construction was completed.
- Statement of whether the performance standards are being met.

- Specific recommendations for any additional corrective actions.

2) Requirements

- A list of the monitoring requirements and performance standards, as specified in the Mitigation and Monitoring Plan.

- An evaluation of whether the mitigation site is successfully achieving the performance standards, or is trending toward success.

3) Summary Data

- Detailed description of the monitoring methods used.

- Measurements of bed parameters described in Section 6.1 for ZOMA-1 and ZOMA-2 and the reference bed (ZOMA-6).

4) Maps

- Updated maps clearly delineating the perimeter and indicating the areal extent of ZOMA-1, ZOMA-2, and reference bed. Each map shall be formatted to print on a standard 8.5 x 11 inch sheet of paper.

5) Conclusions

- A general statement shall be included that describes the conditions of the mitigation site. If the performance standards are not being met, a brief explanation of the difficulties and potential remedial actions proposed by the permittee, including a timetable, shall be included.

7.2.3. Report Distribution List

The final updated mitigation and monitoring plan and all monitoring reports shall be submitted electronically to the following agencies (Email contacts shall be updated if necessary):

AGENCY	CONTACT
Army Corps of Engineers	Debra.A.O'Leary@usace.army.mil
California Coastal Commission	John.Dixon@coastal.ca.gov, Bob.Merrill@coastal.ca.gov
California Department of Fish and Game	VFrey@dfg.ca.gov, Rgarwood@dfg.ca.gov
State Water Resources Quality Control Board	Dean.Prat@waterboards.ca.gov
National Oceanographic and Atmospheric Administration	Catherine.Mcgourty@noaa.gov, Korie.Schaeffer@noaa.gov, ann.garrett@noaa.gov, wes.smith@noaa.gov
Crescent City Harbor District	ryoung@ccharbor.com, eperry@ccharbor.com

8.0. REFERENCES

Merkel & Associates. 2004. Experimental Eelgrass Transplant Program, Emeryville Flats, San Francisco Bay, Investigations for On-Site Eelgrass Mitigation. Report Prepared for CALTRANS District 4.

NMFS 2011. Draft California Eelgrass Mitigation Policy. National Marine Fisheries Service, Southwest Region.

Treadwell and Rollo (2011). Crescent City Harbor Supplemental Geotechnical Consultation. Report prepared for Stover Engineering, Crescent City, CA.

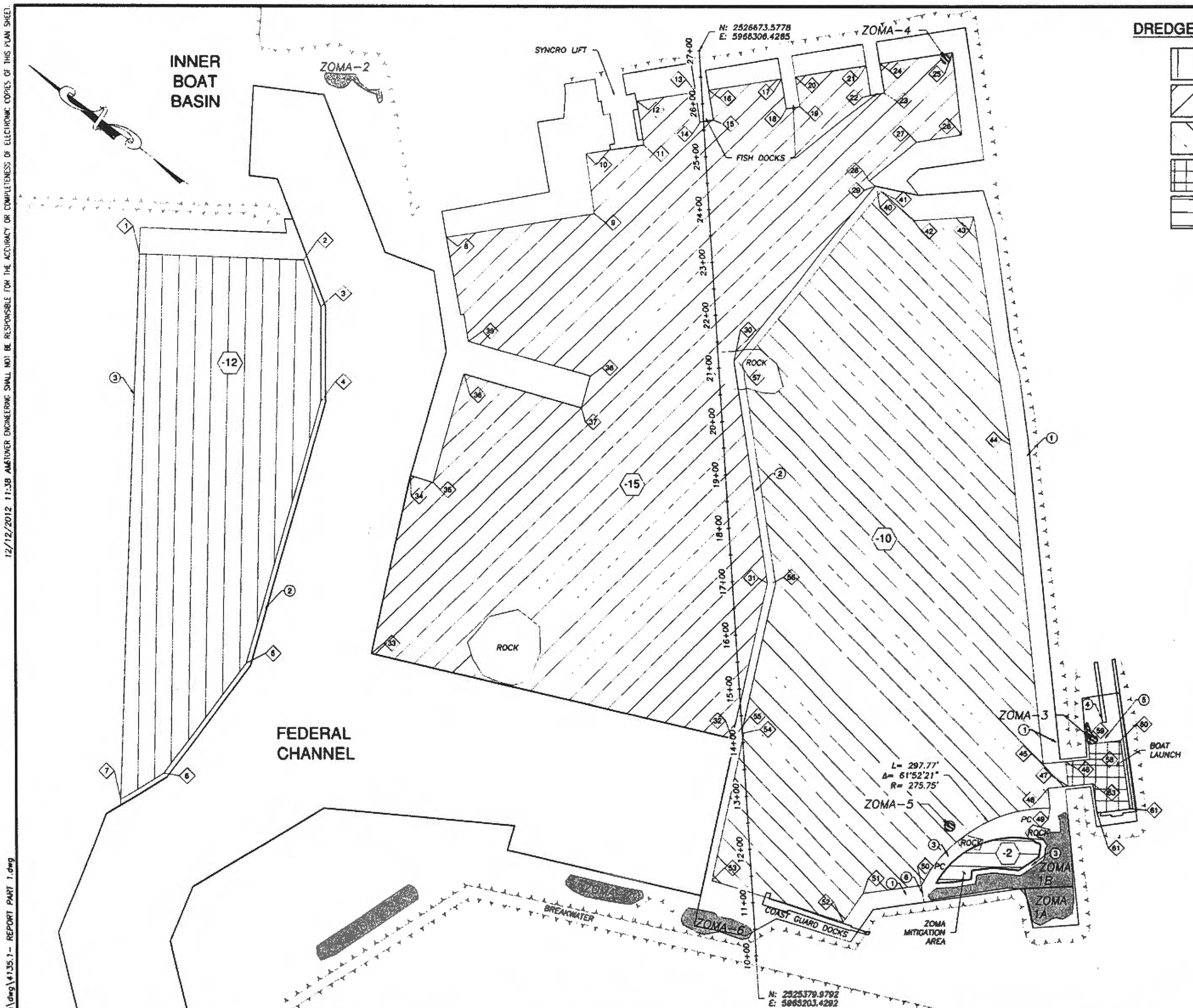
U.S. Army Corps of Engineers. 2002. Engineering and Design – Hydrographic Surveying. EM 1110-3-1003. Vicksburg, MS: U.S. Army Corps of Engineers, Washington, DC.

Wear, K. S. 2012. Eelgrass (*Zostera marina*) Survey Report, Crescent City Harbor Outer Boat Basin, Report prepared for the Crescent City Harbor District, Crescent City, CA.

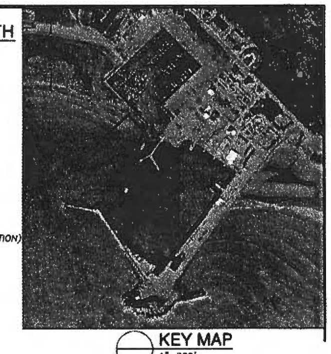
Western Solutions 2012. Results of High-Resolution and Acclimation Bioassay Testing of Sediments from Crescent City Harbor. Inner Harbor Approach Area and East Outer Harbor. Report prepared for the Crescent City Harbor District. Western Solutions Inc. Oakland, CA.

APPENDIX A

Figures



DREDGE AREA	BOUNDARY DESIGN DEPTH (MLLW)
	-12'
	-15'
	-10'
	-10' (SUCTION DREDGE ONLY)
	-2' (FILL FOR EELGRASS MITIGATION)



KEY MAP
1"=800'

DREDGE BOUNDARY ◇

NUMBER	NORTHING	EASTING	ELEVATION
1	2527126.87	5965282.74	-12.00'
2	2526905.56	5965496.44	-12.00'
3	2526818.96	5965459.23	-12.00'
4	2526690.17	5965335.32	-12.00'
5	2526437.53	5964893.71	-12.00'
6	2526397.06	5964640.79	-12.00'
7	2526418.28	5964546.87	-12.00'
8	2526750.13	5965719.89	-15.00'
9	2526590.01	5965950.49	-15.00'
10	2526682.59	5966017.46	-15.00'
11	2526818.52	5966108.06	-15.00'
12	2526686.79	5966155.51	-15.00'
13	2526622.05	5966247.26	-15.00'
14	2526575.83	5966214.51	-15.00'
15	2526560.78	5966235.52	-15.00'
16	2526607.47	5966267.75	-15.00'
17	2526527.43	5966381.45	-15.00'
18	2526480.72	5966349.11	-15.00'
19	2526465.81	5966370.13	-15.00'
20	2526512.36	5966402.52	-15.00'
21	2526432.73	5966515.41	-15.00'
22	2526387.13	5966483.17	-15.00'
23	2526372.18	5966504.59	-15.00'
24	2526417.79	5966536.50	-15.00'
25	2526338.35	5966649.09	-15.00'
26	2526215.35	5966554.16	-15.00'
27	2526264.45	5966483.42	-15.00'
28	2526272.42	5966369.69	-15.00'
29	2526257.69	5966370.54	-15.00'
30	2526207.12	5965946.91	-15.00'
31	2525863.65	5965704.39	-15.00'
32	2525704.18	5965453.82	-15.00'
33	2526287.40	5965075.79	-15.00'
34	2526474.93	5965359.84	-15.00'
35	2526436.22	5965381.02	-15.00'
36	2526542.20	5965563.54	-15.00'
37	2526343.94	5965677.98	-15.00'
38	2526375.02	5965731.50	-15.00'
39	2526581.50	5965612.27	-15.00'
40	2526248.16	5966366.61	-10.00'
41	2526241.69	5966371.74	-10.00'
42	2526160.22	5966377.17	-10.00'
43	2526088.23	5966462.81	-10.00'
44	2525731.41	5966215.16	-10.00'
45	2525262.18	5965845.43	-10.00'
46	2525235.53	5965878.74	-10.00'
47	2525199.14	5965850.06	-10.00'
48	2525222.64	5965819.96	-10.00'
49	2525194.20	5965797.28	-10.00'
50	2525258.18	5965521.08	-10.00'
51	2525322.64	5965431.94	-10.00'
52	2525309.87	5965368.79	-10.00'
53	2525539.78	5965241.82	-10.00'
54	2525695.59	5965477.21	-10.00'
55	2525704.83	5965471.22	-10.00'
56	2525857.01	5965710.72	-10.00'
57	2526198.66	5965951.95	-10.00'
58	2525206.72	5965914.74	-15.00'
59	2525228.31	5965932.51	-10.00'
60	2525191.60	5965980.97	-10.00'
61	2525088.53	5965904.78	-10.00'
62	2525125.16	5965855.04	-10.00'
63	2525170.05	5965887.26	-10.00'

KEY NOTES

① 2:1 SLOPE TYPICAL FOR ALL DREDGING ADJACENT TO ROCK SLOPES.

② 3:1 SLOPE TYPICAL FOR ALL CHANGES IN DREDGE DEPTH. TERMINATE SLOPE AT BOUNDARY OF DEEPER DREDGE AREA.

③ 4:1 SLOPE

④ REMOVE FLOATS @ BOAT RAMP PRIOR TO DREDGING & REINSTALL ONCE COMPLETE IF REQUIRED FOR ACCESS.

⑤ REMOVE SEDIMENT FROM CONCRETE RAMP TO ELEVATION -10.0. DO NOT UNDERMINE RAMP.

⑥ SLOPE TRANSITION

GENERAL NOTES

1. DREDGE BOUNDARIES INDICATE LIMITS OF DREDGING TO DESIGN DEPTHS. DREDGE SIDE SLOPES AND TRANSITION ZONES AS INDICATED.
2. ALL DREDGE MATERIAL SHALL BE PLACED AS DIRECTED BY EPA/ARMY CORPS AT HOODS.
3. MATERIAL FOUND TO BE UNSUITABLE FOR HOODS SHALL BE DISPOSED OF AT AN APPROVED DISPOSAL SITE.
4. TRANSITIONS BETWEEN DREDGE AREAS OF DIFFERENT DREDGE DEPTH SHALL BE AT 3:1 TYP.
5. SLOPES GIVEN ARE HORIZONTAL TO VERTICAL TYPICAL: 4:1, 3:1, 1.5:1.
6. DREDGE TO DESIGN DEPTH OR EXISTING BEDROCK. IT IS THE INTENT OF THIS CONTRACT TO DREDGE AREAS PREVIOUSLY DREDGED ONLY.
7. MOORING BLOCKS SHALL BE RELOCATED PER HARBOR DISTRICT DIRECTION.
8. LIMITS OF BREAKWATER ARE APPROXIMATE.
9. VERTICAL CUTS SHALL BE MADE AT DOCKS.

LEGEND

(-15) DREDGE DESIGN DEPTH

TOP OF BANK

EELGRASS (SEE EELGRASS MITIGATION & MONITORING PLAN CRESCENT CITY HARBOR)

IMPACTED EELGRASS

No.	Date	Revision	Aprvd.

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PRELIMINARY

FIGURE 1

CRESCENT CITY HARBOR DISTRICT
MARCH 2011 TSUNAMI RECOVERY DREDGING
CRESCENT CITY, CA

OUTER BOAT BASIN & OUTER HARBOR DREDGE PLAN

JOB NO. 4135
SCALE: 1"=100'
DATE: 12/10/2012
SHEET

12/12/2012 11:38 AM STOVER ENGINEERING SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET

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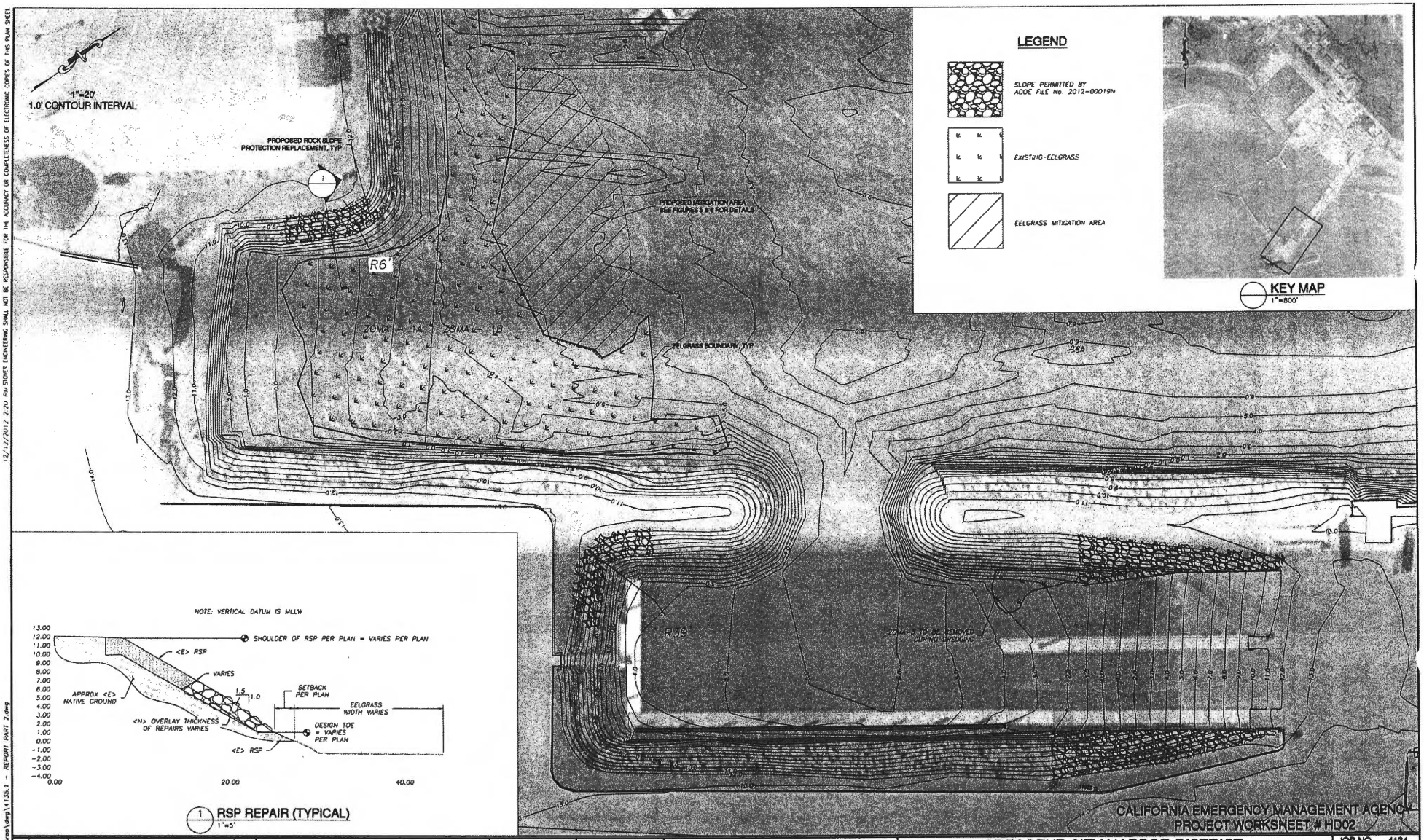

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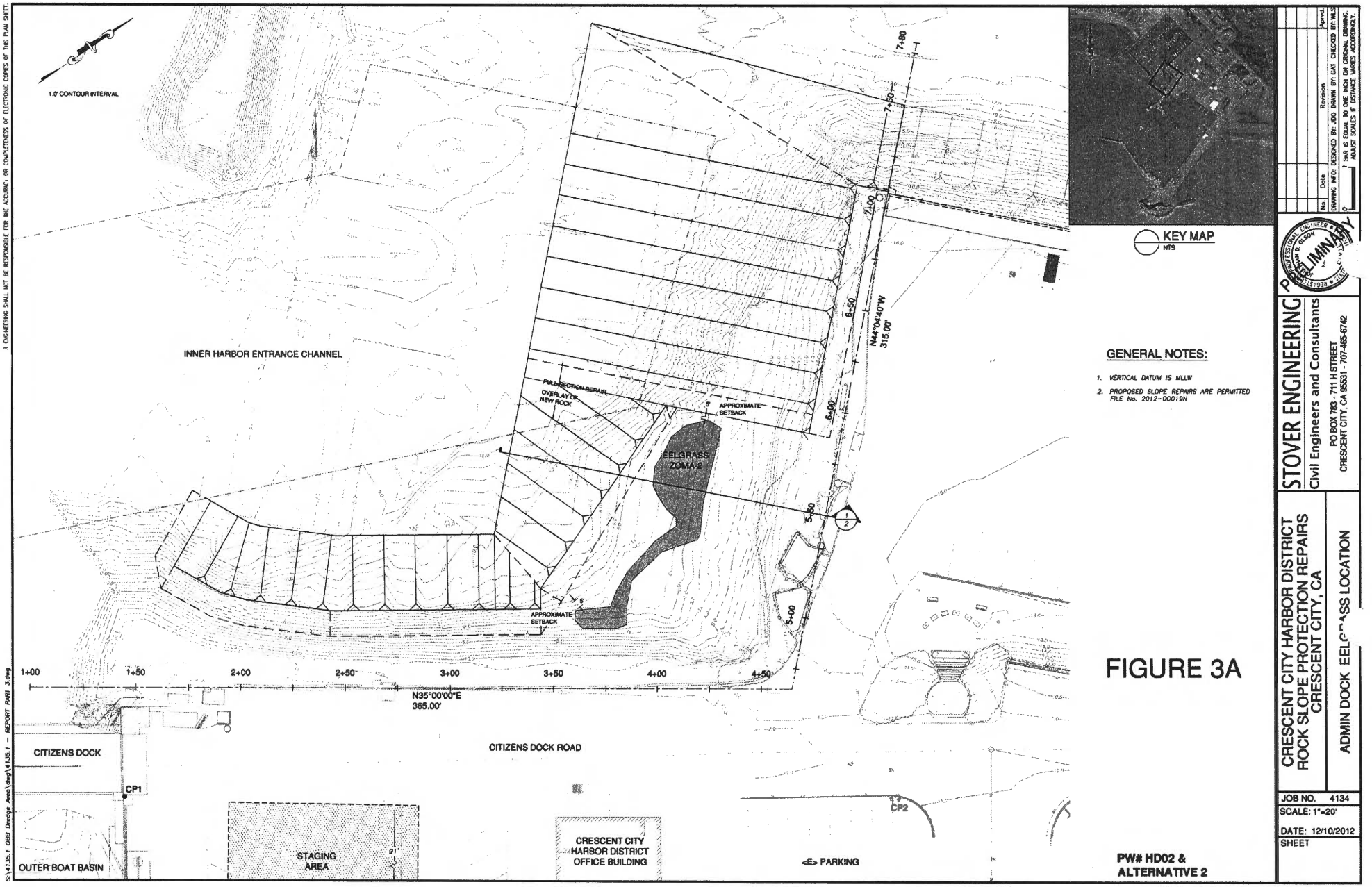
PRELIMINARY

FIGURE 2

CRESCENT CITY HARBOR DISTRICT
ROCK SLOPE PROTECTION REPAIRS
CRESCENT CITY, CA

PREFFERED ALTERNATIVE

JOB NO. 4134
SCALE: 1"=20'
DATE: 12/10/2012
SHEET



GENERAL NOTES:

1. VERTICAL DATUM IS MLLW
2. PROPOSED SLOPE REPAIRS ARE PERMITTED FILE No. 2012-0001BN

FIGURE 3A

PW# HD02 & ALTERNATIVE 2

No.	Date	Revision	Apvd.

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CRESCENT CITY HARBOR DISTRICT
ROCK SLOPE PROTECTION REPAIRS
CRESCENT CITY, CA

ADMIN DOCK EELGRASS LOCATION

JOB NO. 4134
SCALE: 1"=20'
DATE: 12/10/2012
SHEET

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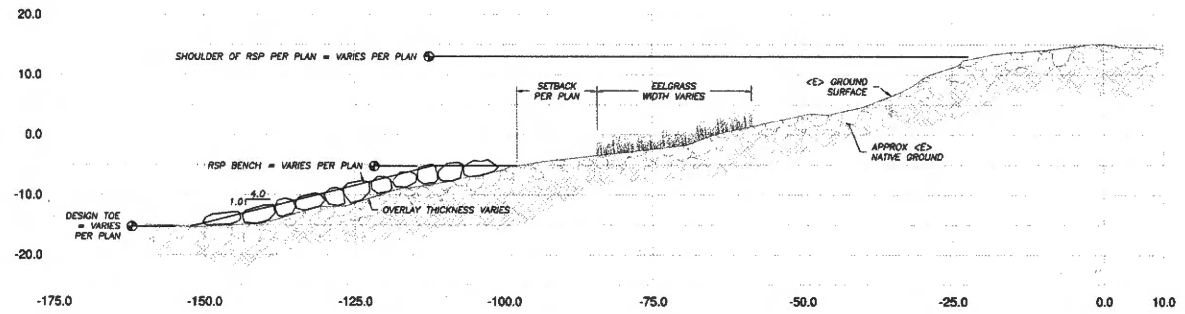

1. THE RSP OVERLAY IS INTENDED TO PROTECT THE SLOPE FROM FURTHER EROSION. DUE TO THE LOCATION OF THE EELGRASS AN OVERLAY METHOD WAS SELECTED INSTEAD OF DIGGING OUT AND REBUILDING THE ENTIRE SLOPE.
2. VERTICAL DATUM IS MLLW

1/1 RSP SECTION AT ZOMA-2 EELGRASS STA 5+50
H: 1"=10' V: 1"=10'

FEMA DECLARATION #1968 DR CA PW 55 HD02

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PRELIMINARY

FIGURE 3B

CRESCENT CITY HARBOR DISTRICT
ADMIN DOCK & HARBOR POINT RSP REPAIRS
CRESCENT CITY, CA

ADMIN DOCK EELGRASS SECTIONS

JOB NO. 4134
SCALE: 1"=1'
DATE: 12/10/2012
SHEET

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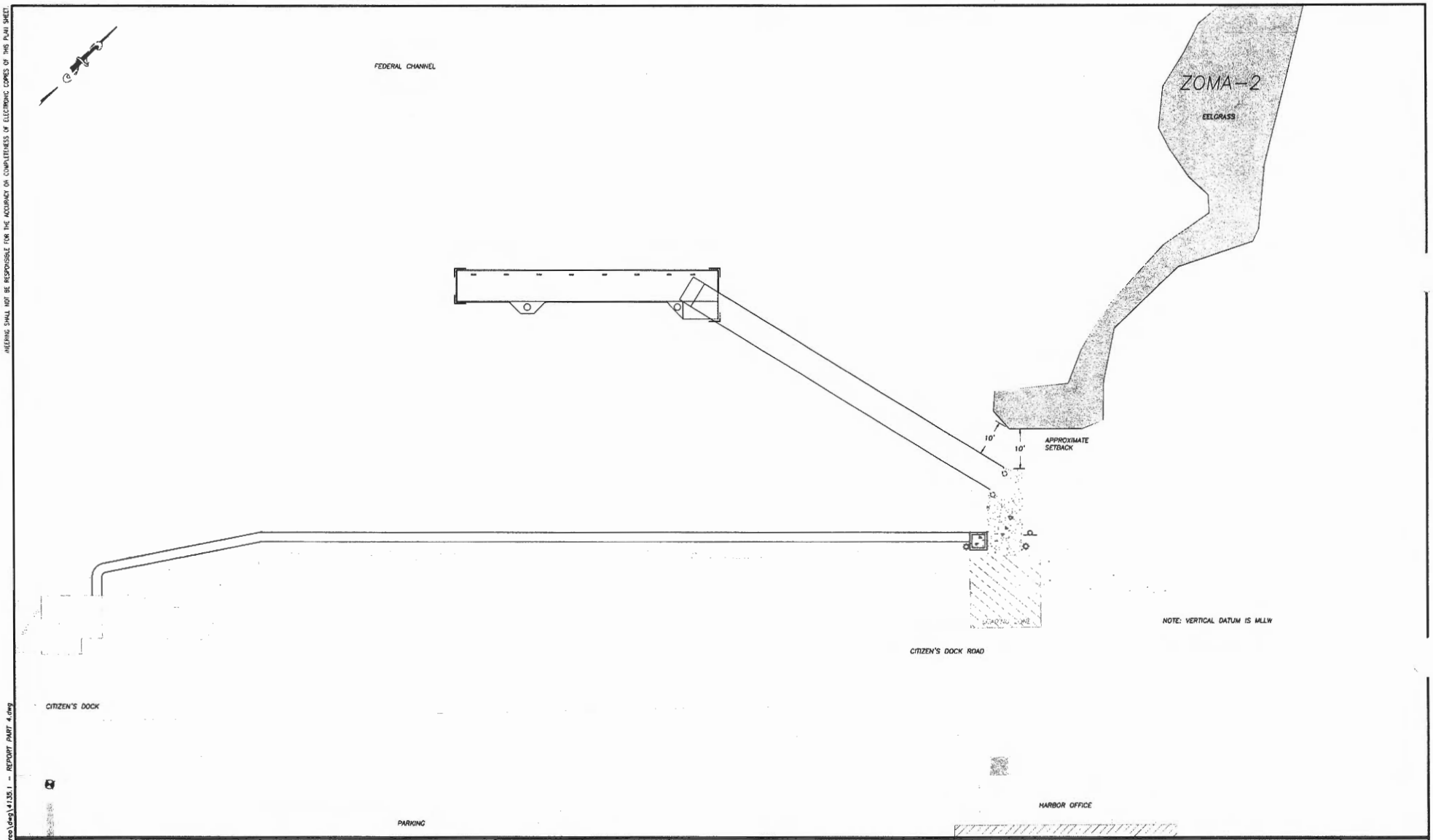

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PO BOX 783 - 711 H STREET
CRESCENT CITY, CA 95531 - 707-465-6742

PRELIMINARY

FIGURE 4

CRESCENT CITY HARBOR DISTRICT
ADMINISTRATION DOCK
CRESCENT CITY, CA

EELGRASS LOCATION PLAN

JOB NO. 4130
SCALE: 1"=10'
DATE: 12/10/2012
SHEET

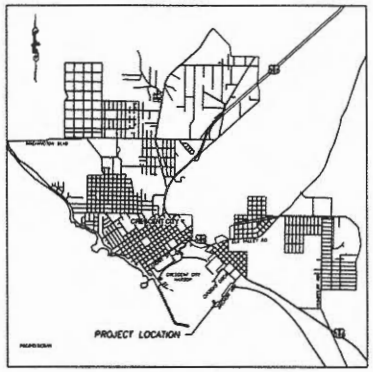
CRESCENT CITY HARBOR DISTRICT

EELGRASS MITIGATION PLAN

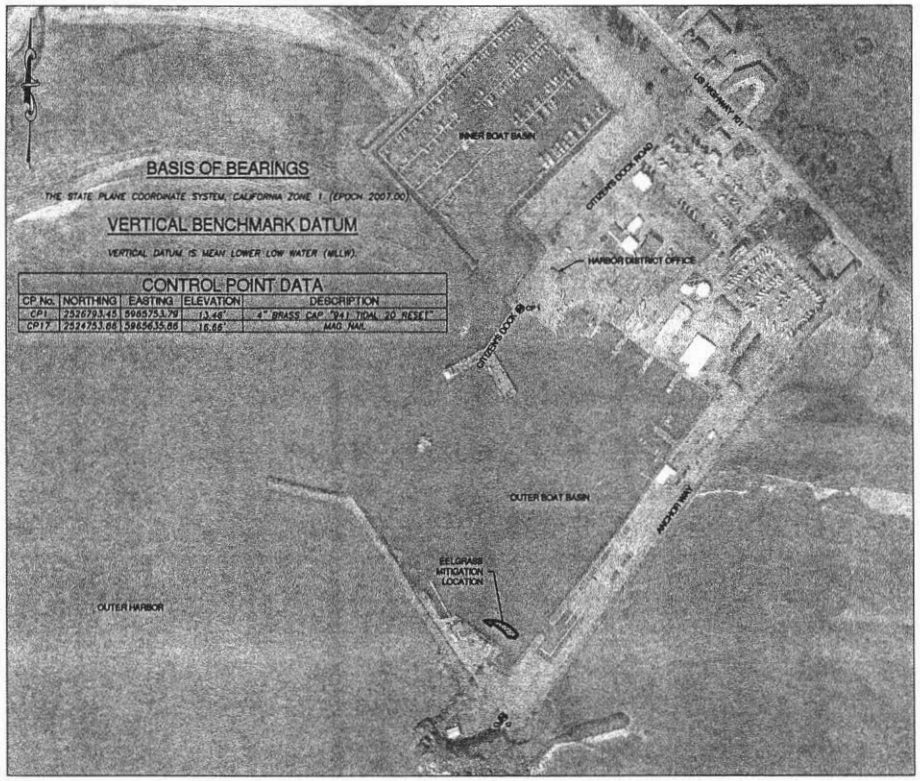
CRESCENT CITY, CA

STATE MAP
NTS

COUNTY MAP
NTS

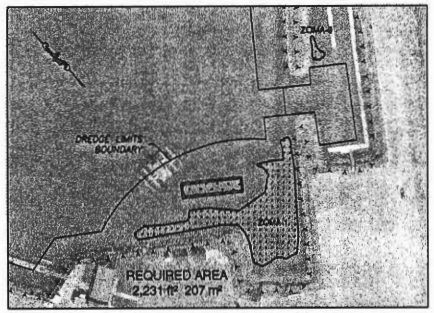


CITY MAP
NTS

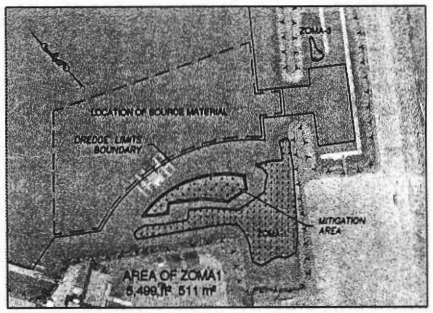


SITE MAP
1"=300'

SHEET INDEX



1/1 REQUIRED EELGRASS MITIGATION AREA
1"=100'



2/1 PROPOSED EELGRASS MITIGATION
1"=100'

No.	Date	Revision	Aprvd

DRAWING INFO: DESIGNED BY: JDO DRAWN BY: GLH CHECKED BY: WLS

0 1 BAR IS EQUAL TO ONE INCH ON ORIGINAL DRAWING. ADJUST SCALES IF DISTANCE VARIES ACCORDINGLY.

STOVER ENGINEERING
Civil Engineers and Consultants
PO BOX 783 - 711 H STREET
CRESCENT CITY, CA 95531 - 707-465-6742

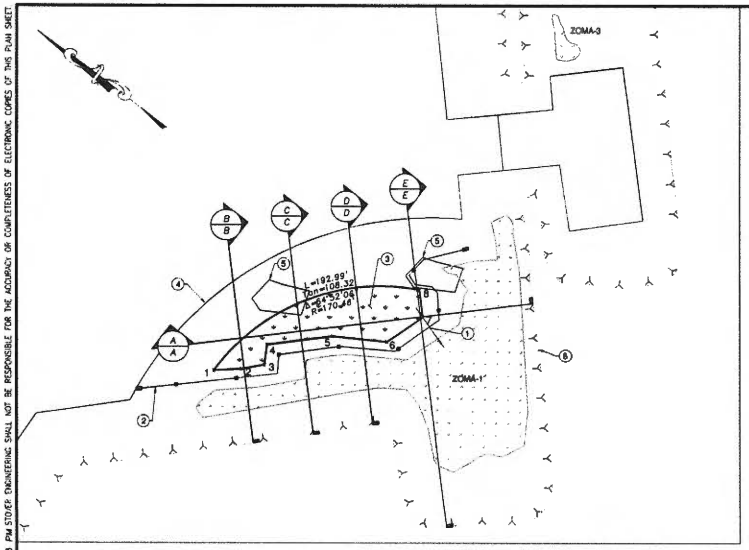
PRELIMINARY

FIGURE 5

CRESCENT CITY HARBOR DISTRICT
EELGRASS MITIGATION PLAN
CRESCENT CITY, CA

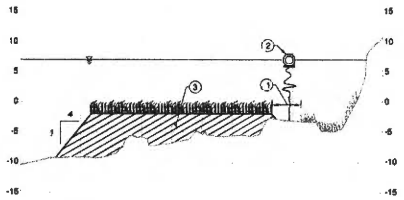
VICINITY MAP & SHEET INDEX

JOB NO. 4135
SCALE: NTS
DATE: 12/10/2012
SHEET

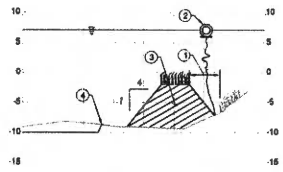


1/2 MITIGATION AREA
1"=50'

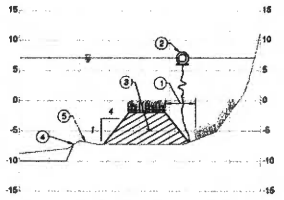
MITIGATION BOUNDARY DATA			
No.	NORTHING	EASTING	ELEVATION
1	2525246.26	5965562.50	-2.00'
2	2525231.46	5965579.75	-2.00'
3	2525220.64	5965595.58	-2.00'
4	2525231.36	5965608.86	-2.00'
5	2525198.74	5965652.60	-2.00'
6	2525164.44	5965681.61	-2.00'
7	2525158.02	5965717.61	-2.00'
8	2525176.31	5965731.43	-2.00'



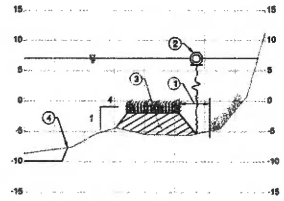
A/A MITIGATION SECTION
H: 1"=50' V: 1"=10'



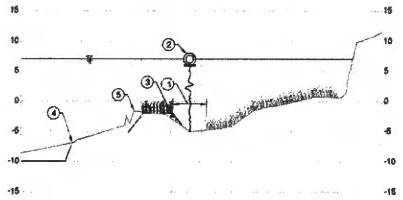
B/B MITIGATION SECTION
H: 1"=50' V: 1"=10'



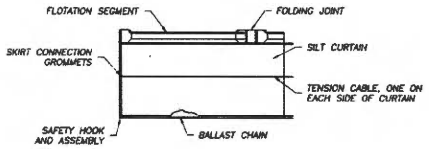
C/C MITIGATION SECTION
H: 1"=50' V: 1"=10'



D/D MITIGATION SECTION
H: 1"=50' V: 1"=10'



E/E MITIGATION SECTION
H: 1"=50' V: 1"=10'



PROVIDE SUFFENT LENGTH TO REACH BOTTOM AT ALL TIDAL CONDITIONS

2/2 (TYP) FLOATING BOOM W/ OPTIONAL SILT CURTAIN
NTS

KEY MAP
1"=800'

KEY NOTES

1. 25' BUFFER AREA BETWEEN <E> EELGRASS AND MITIGATION AREA
2. SILT CURTAIN, SEE DETAIL 2/2
3. EELGRASS MITIGATION AREA
4. DREDGE LIMITS BOUNDARY
5. APPROXIMATE ROCK LOCATION
6. <E> TOP OF BANK

GENERAL NOTES

1. VERTICAL DATUM IS MLLW.
2. PLACE SILT CURTAIN PRIOR TO PLACEMENT OF NEW MATERIAL FOR MITIGATION AREA.
3. SOURCE MATERIAL FOR MITIGATION AREA SHALL BE APPROVED BY BOTANIST PRIOR TO PLACEMENT. FILL MATERIAL SHALL BE PLACED ON THE OCEAN FLOOR, NOT DUMPED.
4. CONTRACTOR SHALL PROVIDED A REPRESENTATIVE SAMPLE OF MATERIAL TO BOTANIST FOR APPROVAL.
5. SUITABLE MATERIAL MAY BE AVAILABLE ADJACENT TO THE MITIGATION SITE. MATERIAL TO BE REMOVED DURING THE DREDGING OF THE OUTER HARBOR IS PREFERRED IF FOUND TO BE ACCEPTABLE.
6. MITIGATION AREA WILL BE PLANTED WITH EELGRASS AS DESCRIBED IN KYLE WEAR'S EELGRASS MITIGATION AND MONITORING PLAN FOR CRESCENT CITY HARBOR OUTER BOAT BASIN (JULY 2012).

S:\4135.1 OBB Dredge Area\dwg\4135 - EELGRASS MITIGATION - 20120910.dwg

No.	Date	Revision	Aprvd.

DRAWING INFO: DESIGNED BY: JDO DRAWN BY: GLH CHECKED BY: WLS

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STOVER ENGINEERING
Civil Engineers and Consultants
PO BOX 783 - 711 H STREET
CRESCENT CITY, CA 95531 - 707-465-6742

PRELIMINARY
REGISTERED PROFESSIONAL ENGINEER
JONAH D. OLSON
No. CIVIL
STATE OF CALIFORNIA

CRESCENT CITY HARBOR

FIGURE 6

CRESCENT CITY HARBOR DISTRICT
EELGRASS MITIGATION PLAN
CRESCENT CITY, CA

EELGRASS MITIGATION PLAN & CROSS SECTIONS

JOB NO. 4135
SCALE: H: 1"=50' V: 1"=10'
DATE: 12/10/2012
SHEET

CALIFORNIA COASTAL COMMISSION
NORTH COAST DISTRICT OFFICE
710 E STREET • SUITE 200
EUREKA, CA 95501-1865
VOICE (707) 445-7833
FACSIMILE (707) 445-7877

Hearing Date: April 11, 2012
Commission Action: **Approved with Conditions, April 11, 2012**

ADOPTED FINDINGS

APPLICATION NO.: **1-12-04**

APPLICANT: **Crescent City Harbor District**

AGENT OF PROCESS: Stover Engineering

PROJECT DESCRIPTION: Restore the Outer Boat Basin to its capacity and function prior to damage from March 11, 2011 tsunami by (a) dredging approximately 251,160 cubic yards of material from the basin and (b) excavating 4,200 cubic yards of damaged rock slope revetment materials and placing 3,731 cubic yards of new rock to repair the existing shoreline revetment at five locations along the interior embankments of the basin

PROJECT LOCATION: At various locations within the Crescent City Harbor District's Outer Boat Basin Marina, 101 Citizens Dock Road, Crescent City (Del Norte County). APN 117-020-16

AGENCY APPROVALS RECEIVED: (1) Regional Water Quality Control Board FCWA §401 *Water Quality Certification.*

OTHER APPROVALS REQUIRED: (1) U.S. Army Corps of Engineers Federal Clean Water Act (FCWA) *Section 404 Individual Permit* or *Nationwide Permit(s)*; (2) U.S. Army Corps of Engineers Rivers and Harbors Act §10 *Dredging and Disposal General Permit* (3) NOAA Fisheries Endangered Species Act and Essential Fish Habitat Consultation *Letter of Concurrence* or *Biological Opinion*;

EXHIBIT NO. 9
APPLICATION NO.
1-12-004-A1
CRESCENT CITY HARBOR DISTRICT
ADOPTED FINDINGS FOR ORIGINAL PERMIT (1 of 35)

SUBSTANTIVE FILE
DOCUMENTS: (1) County of Del Norte LCP.

STAFF NOTES

1. Adopted Findings

The Commission held a public hearing and approved the permit at the meeting of April 11, 2012. The adopted findings for approval differ from those contained in the written staff recommendation dated March 30, 2012. At the hearing, the staff presented an addendum that contained certain revisions and additions to the published staff recommendation. The changes included (1) modifications to Special Condition No. 2, "Eelgrass Mitigation and Monitoring Plan; and (2) revisions and additions to the findings. **Staff orally presented a further change to Special Condition No. 2 at the hearing.** The Commission adopted the staff recommendation as modified by the addendum and orally by staff at the hearing in its entirety.

The following resolution, conditions, and findings were adopted by the Commission on April 11, 2012 upon conclusion of the public hearing.

2. Jurisdiction and Standard of Review

The site of the proposed project is within and adjacent to the semi-confined waters of the Crescent City Harbor, an embayment of the Pacific Ocean. The project is located in areas subject to the public trust within the Coastal Commission's area of original or retained jurisdiction. Therefore, the standard of review that the Commission must apply to the development is the Chapter 3 policies of the Coastal Act.

I. RESOLUTION TO APPROVE THE PERMIT:

The Commission hereby approves a coastal development permit for the proposed development and adopts the findings set forth below on grounds that the development as conditioned will be in conformity with the policies of Chapter 3 of the Coastal Act. Approval of the permit complies with the California Environmental Quality Act because feasible mitigation measures and/or alternatives have been incorporated to substantially lessen any significant adverse effects of the development on the environment.

II. STANDARD CONDITIONS: See Appendix A.

III. SPECIAL CONDITIONS:

1. Final Design and Construction Plans

A. **PRIOR TO ISSUANCE OF COASTAL DEVELOPMENT PERMIT NO. 1-12-004**, the applicant shall submit to the Executive Director for review and written approval final design and construction plans for the project which are consistent with: (1) the approved project narrative and preliminary site plans titled "Crescent City Harbor District, Administration Dock and Whaler Island RSP Repairs and Outer Boat Basin Dredging," dated January 25, 2012, as prepared by Stover Engineering Civil Engineers and Consultants, attached as Exhibit No. 4; (2) all impact minimizing mitigation measures as may be required by NOAA Fisheries in any letter of concurrence, biological opinion, or other review documentation issued after completion of consultation with the U.S. Army Corps of Engineers on effects of the project on marine species and essential fish habitat; and (3) all special conditions of Coastal Development Permit No. 1-12-004.

B. The permittee shall undertake development in accordance with the approved final plans. Any proposed changes to the approved final plans shall be reported to the Executive Director. No changes to the approved final site plan shall occur without a Commission amendment to this coastal development permit unless the Executive Director determines that no amendment is required.

2. Eelgrass Mitigation and Monitoring Plan

(A) **PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT NO. 1-12-004**, the applicant shall submit, for the review and approval of the Executive Director, an eelgrass mitigation and monitoring plan. The plan shall be prepared by a qualified botanist or ecologist with experience in surveying and monitoring eelgrass and preparing and implementing eelgrass mitigation plans. The plan shall address all phases of development and construction activities authorized under this coastal development permit and shall be consistent with the requirements of all conditions of this permit. The plan, at a minimum, shall provide for the following:

1. A pre-construction eelgrass survey of the entire Outer Boat Basin project area (which does not include the federal channel) and areas within 50 feet of any shoreline embankment area where rock slope protection repairs are proposed, including near the Administration Dock site, shall be completed

during the months of May through August. The pre-construction survey shall be completed prior to the beginning of construction and shall be valid for 60 days or until the next period of active growth if construction takes place after the end of the active growth period. The pre-construction survey shall be in complete compliance with all survey recommendations of Appendix B, "Recommendations Concerning Surveys for Assessing Impacts to Eelgrass,"of the Draft California Eelgrass Mitigation Policy prepared by the National Marine Fisheries Service, Southwest Region dated December 7, 2011.

2. A post-construction eelgrass survey and assessment of impacts shall be completed within the first 30 days of completion of construction, or within the first 30 days of the next active growth period following completion of construction that occurs outside of the active growth period. The post-construction survey shall document adverse impacts to eelgrass. The post-construction survey and impact assessment shall be in complete compliance with all recommendations of Appendix C, "Recommended Measures for Assessing Impacts to Eelgrass," of the Draft California Eelgrass Mitigation Policy prepared by the National Marine Fisheries Service, Southwest Region dated December 7, 2011.

3. Adverse impacts to eelgrass shall be measured as the difference between the pre-construction and post-construction estimates of eelgrass cover and density.

4. Density and extent of vegetative cover shall be estimated at reference areas during pre-construction surveys, post-construction surveys, and during annual monitoring. Changes in density and extent of vegetated cover of the control areas shall be used to account for natural variability. Selection of an appropriate control site shall be performed in consultation with the Department of Fish and Game and NOAA-Fisheries staff.

(B) Impacts to eelgrass shall be avoided to the maximum extent feasible. If post-construction survey results demonstrate to the satisfaction of the Executive Director that eelgrass densities have not decreased at all and there has been no loss of extent of vegetated cover, then no further monitoring or mitigation is required. If post-construction eelgrass surveys indicate any decrease in eelgrass density or cover, then a final eelgrass mitigation and monitoring plan shall be prepared and submitted for the review and approval of the Commission within three months of completion of the post-construction eelgrass survey. The mitigation methods, the location of the mitigation sites, and the monitoring plan shall be in compliance with the recommendations in Appendix D, "Recommended Measures for Eelgrass Impact Mitigation," of the Draft California Eelgrass Mitigation Policy prepared by the National Marine Fisheries Service, Southwest Region dated December 7, 2011 and shall provide for the following:

1. The plans shall provide for an initial transplant area to impact area ratio of 4.82 to 1.

2. Within three years of completion of the transplanting, the eelgrass mitigation site shall have a minimum of 40% of the coverage of eelgrass and 20% of the density of the reference site over an area not less than 1.2 times the area of impact.

3. The plan shall provide for mitigation site identification, planting methods, monitoring methods, and schedule. Specific success and monitoring criteria are as follows:

   (a). A minimum of 40% of the coverage of eelgrass and 20% of the density of the reference site over an area not less than 1.2 times the area of impact in the first year;

   (b). A minimum of % of the coverage of eelgrass and 70% of the density of the reference site over an area not less than 1.2 times the area of impact in the second year;

   (c). A minimum of 100% of the coverage of eelgrass and 85% of the density of the reference site over an area not less than 1.2 times the area of impact in years three through five.

4. Monitoring methods shall include mapping and random sampling of the eelgrass mitigation areas using a sampling size adequate to obtain representative data for the entire project site to determine bed size, percent cover and shoot density.

5. A detailed monitoring schedule shall be provided that indicates when each of the required monitoring events will be completed. Monitoring reports shall be provided to the Executive Director, DFG, and NOAA-Fisheries within 30 days of completion of each required monitoring period;

6. If the impacted eelgrass mitigation areas have not met the recovery standard in subsection (b) above in five years, the permittee shall submit an application for an amendment to Coastal Development Permit No. 1-12-004 proposing additional mitigation to ensure all performance criteria are satisfied consistent with all terms and conditions of this permit.

(C) The permittee shall undertake development in accordance with the approved eelgrass mitigation and monitoring plans. Any proposed changes to the approved final plans shall be reported to the Executive Director. No changes to the approved final plans shall occur without a Commission amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

3. Timing of Construction

a. In-water construction activities authorized by this permit, shall be conducted during the period of June 1 through November 15, or for such additional time that the Executive Director may permit for good cause and in consultation with all relevant resource protection agencies, to minimize conflicts with commercial and recreational fisheries and to protect sensitive fish species; and

b. All construction activities involving the removal and/or placement of rip rap within coastal waters authorized under this coastal development permit shall be conducted during periods of low-tides only and from above the water surface to the maximum extent feasible to minimize the generation of suspended sediment and potential water quality impacts.

4. Construction Responsibilities

The permittee shall comply with the following construction-related requirements:

a. No construction materials, equipment, debris, or waste shall be placed or stored where it may be subject to wave, wind, or rain erosion and dispersion. Construction materials shall be stored only in approved designated staging and stockpiling areas;

b. Public roadway surfaces adjacent to the construction site entrances shall be swept at the end of each day to remove sediment and/or other construction materials deposited due to construction activities and prevent such sediment and/or materials from contaminating coastal waters or other environmentally sensitive habitat areas;

c. Any and all debris resulting from construction activities shall be removed from the inner boat basin and adjacent beach areas on a daily basis and disposed of at an appropriate location(s);

d. Any fueling and maintenance of construction equipment shall occur within upland areas outside of environmentally sensitive habitat areas or within designated staging areas. Mobile fueling of construction equipment and vehicles on and around the inner boat basin construction site shall be prohibited. Mechanized heavy equipment and other vehicles used during the construction process shall not be stored or re-fueled within 50 feet of drainage courses and other coastal waters;

e. Temporary staging and storage of construction machinery, equipment, debris, and other materials during the construction period shall occur on land at property owned by the Crescent City Harbor District and may not occur within harbor waters or on adjacent beaches;

f. Machinery and construction materials not essential for project improvements are prohibited at all times in the subtidal or intertidal zones;

g. Construction vehicles shall be maintained and washed in confined areas specifically designed to control runoff and located more than 100 feet away from the mean high tide line;

h. Floating booms shall be used to contain debris discharged into coastal waters, and any debris discharged shall be removed as soon as possible but no later than the end of the each day;

i. During construction, all trash shall be properly contained, removed from the work site, and disposed of on a regular basis to avoid contamination of habitat during inner boat basin rehabilitation activities. Following construction, all trash and construction debris shall be removed from work areas and disposed of properly;

j. Fuels, lubricants, and solvents shall not be allowed to enter the coastal waters. Hazardous materials management equipment including oil containment booms and absorbent pads shall be available immediately on-hand at the project site, and a registered first-response, professional hazardous materials clean-up/remediation service shall be locally available on call; and

k. At the end of the construction period, the permittee shall inspect the project area and ensure that no debris, trash, or construction materials remain on land or in the water, and that the project has not created any hazard to navigation.

5. <u>Final Sedimentation & Stormwater Runoff Control Plan</u>

A. **PRIOR TO ISSUANCE OF COASTAL DEVELOPMENT PERMIT NO. 1-12-004**, the applicant shall submit, for the review and written approval of the Executive Director, a final detailed Sedimentation & Stormwater Runoff Control Plan that addresses all phases of development and construction activities authorized under this coastal development permit.

(1) The Sedimentation and Run-off Control Plan shall be consistent with the requirements of Special Condition No. 3 and the other conditions of this permit, and demonstrate that:

(a) Run-off from the project site shall not increase sedimentation in coastal waters;

(b) Run-off from the project site shall not result in pollutants entering coastal waters;

(c) Best Management Practices (BMPs) shall be used to prevent the entry of polluted stormwater runoff into coastal waters during the construction of the authorized structures, including, but not limited to, the use of relevant best management practices (BMPs) as detailed in the "California Storm Water Best Management Practice Handbooks (Construction and Industrial/ Commercial), developed by Camp, Dresser, & McKee et al. for the Storm Water Quality Task Force (e.g., BMP Nos. EC-1–Scheduling, SE-1–Silt Fence &/or SE-9–Straw Bale Barrier, NS-9–Vehicle & Equipment Fueling, NS-10–Vehicle & Equipment Maintenance & Repair; NS-14–Material Over Water, NS-15–Demolition Adjacent to Water, WM-1–Material Delivery & Storage, WM-3–Stockpile Management, WM–Spill Prevention & Control, WM-6–Hazardous Waste Management, WM-9–Concrete Waste Management, SC-11–Spill Prevention, Control, & Cleanup, and others, as appropriate;

(2) The Sedimentation and Run-off Control Plan shall include, at a minimum, the following components:

(a) A schedule for the installation and maintenance of appropriate construction source control best management practices (BMPs) to prevent entry of stormwater run-off into the construction site and the entrainment of excavated materials into run-off leaving the construction site; and

(b) A schedule for installation, use and maintenance of appropriate BMPs to prevent the entry of polluted stormwater run-off from the completed development into coastal waters.

B. The permittee shall undertake development in accordance with the approved final plans. Any proposed changes to the approved final plans shall be reported to the Executive Director. No changes to the approved final plans shall occur without a Commission amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

6. Hazardous Materials Management Plan

A. **PRIOR TO ISSUANCE OF COASTAL DEVELOPMENT PERMIT NO. 1-12-004**, the applicant shall submit, for the review and written approval of the Executive Director, a plan to reduce impacts to water quality from the use and management of hazardous materials on the site. The plan shall be prepared by a licensed engineer with experience in hazardous materials management. The plan shall address all phases of development and construction activities authorized under this coastal development permit and shall be consistent with the requirements of Special Condition No. 3 and the other conditions of this permit. The plan, at a minimum, shall provide for the following:

(1) Equipment fueling shall occur only during daylight hours in designated fueling areas;

(2) Oil absorbent booms and/or pads shall be on site at all times during project construction. All equipment used during construction shall be free of oil and fuel leaks at all times;

(3) Provisions for the handling, cleanup, and disposal of any hazardous or non-hazardous materials used during the construction project including, but not limited to, paint, asphalt, cement, equipment fuel and oil, and contaminated sediments;

(4) A schedule for maintenance of containment measures on a regular basis throughout the duration of the project;

(5) Provisions for the containment of rinsate from the cleaning of equipment and methods and locations for disposal off-site. Containment and handling shall be in upland areas and otherwise outside of any environmentally sensitive habitat areas;

(6) A site map detailing the location(s) for hazardous materials storage, equipment fueling and maintenance, and any concrete wash-out facilities; and

(7) Reporting protocols to the appropriate public and emergency services agencies in the event of a spill.

(B) The permittee shall undertake development in accordance with the approved final plans. Any proposed changes to the approved final plans shall be reported to the Executive Director. No changes to the approved final plans shall occur without a

Commission amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

7. Debris Disposal Plan

(A) **PRIOR TO ISSUANCE OF COASTAL DEVELOPMENT PERMIT NO. 1-12-004,** the applicant shall submit, for the review and approval of the Executive Director, a plan detailing the methods by which, and locations at which excavated material and other project debris will be legally disposed. The plan shall demonstrate at a minimum that:

(i) No construction materials, debris, or waste shall be placed or stored where it may be subject to entering waters of Crescent City Harbor; and

(ii) All construction debris, including general wastes from the excavation of existing damaged rock slope protection materials shall be removed and disposed of in an upland location outside of the coastal zone or at an approved disposal facility.

(B) The permittee shall undertake development in accordance with the approved final plans. Any proposed changes to the approved final plans shall be reported to the Executive Director. No changes to the approved final plans shall occur without a Commission amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

8. Assumption of Risk

By acceptance of this permit, the applicant acknowledges and agrees: (i) that the site may be subject to hazards from waves, tidal inundation, and other hazards; (ii) to assume the risks to the applicant and the property that is the subject of this permit of injury and damage from such hazards in connection with this permitted development; (iii) to unconditionally waive any claim of damage or liability against the Commission, its officers, agents, and employees for injury or damage from such hazards; and (iv) to indemnify and hold harmless the Commission, its officers, agents, and employees with respect to the Commission's approval of the project against any and all liability, claims, demands, damages, costs (including costs and fees incurred in defense of such claims), expenses, and amounts paid in settlement arising from any injury or damage due to such hazards.

9. U.S. Army Corps of Engineers Approval

PRIOR TO COMMENCEMENT OF ANY DEVELOPMENT AUTHORIZED BY COASTAL DEVELOPMENT PERMIT NO. 1-12-004, the permittee shall provide to the Executive Director a copy of a individual permit, nationwide permit, letter of modification or other approval issued by the Army Corps of Engineers reflecting final design modifications, or evidence that no letter of modification or other approval is required. The applicant shall inform the Executive Director of any changes to the project required by the Corps, including but not limited to, required changes that may conflict with modifications or conditions imposed by the Commission in approving Coastal Development Permit No. 1-12-004. Such changes shall not be incorporated into the project until the applicant obtains a Commission amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

10. State Lands Commission Review

PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT NO. 1-12-004, the applicant shall submit to the Executive Director, a written determination from the State Lands Commission that:

a. No State lands are involved in the development; or

b. State lands are involved in the development and all permits required by the State Lands Commission have been obtained; or

c. State lands may be involved in the development, but pending a final determination an agreement has been made with the State Lands Commission for the project to proceed without prejudice to that determination.

11. National Marine Fisheries Service Consultation Results

PRIOR TO ISSUANCE OF COASTAL DEVELOPMENT PERMIT NO. 1-12-004, the permittee shall provide to the Executive Director a copy of the informal consultation, letter of concurrence, biological opinion or other documentation issued by the National Marine Fisheries Service (NOAA Fisheries) regarding their assessment of the potential effects of the development on fish and wildlife species subject to protections of the Endangered Species Act, the Marine Mammals Protection Act, the Magnuson-Stevens Fishery Conservation and Management Act, the Marine Mammals Protection Act, and all other applicable natural resources law. The applicant shall inform the Executive Director of any changes to the project required by NOAA Fisheries, including but not limited to, required changes that may conflict with modifications or conditions imposed by the Commission in approving Coastal Development Permit No. 1-10-035. Such changes shall not be incorporated into the project until the applicant obtains a Commission

amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

IV. FINDINGS & DECLARATIONS

The Commission hereby finds and declares as follows:

A. Background.

On March 11, 2011, a tsunami generated by the 9.0 magnitude Tohoku Earthquake off the coast of Japan struck the California coast. The Crescent City Harbor experienced extensive damage from the tsunami with the greatest damage occurring within the harbor's Inner Boat Basin. Virtually all of the docks in the Inner Boat Basin were destroyed and many vessels sank, leaving the Inner Boat Basin non-functional. Extensive damage also occurred to the rock slope protection (RSP) covering the shoreline embankment around the perimeter of the Inner Boat Basin. Other damage occurred elsewhere within the Harbor, including damage to the RSP covering the shoreline embankment adjacent to the Administrative dock near the entrance to the Inner Boat Basin. In addition, damage occurred in four separate locations to the RSP covering the shoreline within the Outer Boat Basin of the harbor. Furthermore, the surges from the tsunami caused extensive shoaling of sand within both the Inner and Outer Boat Basins.

Permit Application No. 1-12-004 proposes harbor rehabilitation development work needed to repair a portion of the damage to the harbor resulting from the March 11, 2011 tsunami. The permit application seeks authorization to repair damage to facilities at Crescent City Harbor District's outer boat basin resulting from the March 3011 tsunami and restore the outer boat basin to its pre-March 2011 capacity and function. The elements of the project include dredging approximately 251,160 cubic yards of shoaled sediments from the bottom of the Outer Boat Basin to restore adequate depths for navigation and placing 3,731 cubic yards of new rock to repair the existing shoreline revetment at five locations along the interior embankments of the basin and along the shoreline embankment adjacent to the Administrative dock near the entrance to the Inner Boat Basin.

B. Project Setting

Crescent City Harbor is located approximately 20 miles south of the California-Oregon border in west-central Del Norte County (see Exhibit Nos. ___). The harbor lies on the seaward edge of the broad coastal plain that extends from South Beach to the south to the lower Smith River floodplain to the north. The harbor lies within a crescent-shaped bay, with Battery Point as the upcoast (western) limit and the rocky causeway connecting the former offshore Whaler Island, approximately one mile to the southeast, as the downcoast

(eastern) limit. A significant anadromous fish-bearing watercourse, Elk Creek, enters the harbor on its northeastern shoreline.

The relative location of this south-facing cove, situated between the Ports of Humboldt Bay and Brookings (Oregon), makes it an important "harbor of refuge" from the predominantly northwesterly winds and seas in the area. In addition, the constructed outer breakwaters provide supplemental protection against westerly and southerly storms. Facilities within the bounds of the harbor include a boat basin, launch areas, a repair and fabrication boatyard, associated marina fueling, lift hoist, drayage, stevedore, waste disposal services, a recreational vehicle park, and other ancillary visitor accommodations and harbor-related services.

Two principal features of the Crescent City Harbor are the Inner Boat Basin and the Outer Boat Basin. The Inner Boat Basin is located northwest of Citizen's Dock Road. The Inner Boat Basin comprises an approximately 17.5-acre rectangular area of water area partially enclosed by revetment covered shoreline embankment on most of three sides and an in-water breakwater along its seaward side. The Inner Boat Basin is the main berthing area for commercial fishing boats and recreational vessels at the harbor.

The Outer Boat Basin is located to the south and is more seaward than the Inner Boat Basin. The Outer Boat Basin includes the waters of the harbor that are seaward of the shore-side industrial area of the harbor and which are partially enclosed by (a) the approximately half-mile long narrow projection of filled land that extends perpendicular to the shoreline to Whaler Island and supports Anchor Way, and (b) a breakwater that extends northwest from Whaler Island parallel to the mainland.

The specific project area of Coastal Development Permit Application No. 1-12-004 includes the Outer Boat Basin as well as the site of the Administrative Dock, located just outside the rectangular Inner Boat Basin along the shoreline adjacent to the end of Citizen's Dock Road just east of the Federal Channel that leads into the Inner Boat Basin (See Exhibit 3)

The surfaces of the Outer Boat Basin revetment, breakwater, and dock pilings support habitat for a diversity of marine algal, invertebrate, and fish species. The harbor, in general, provides habitat to a variety of sensitive fish and wildlife species, including coho salmon and Steller sea lion. Although eelgrass (Zostera marina) had not been known to inhabit tidal and submerged areas of the Crescent City Harbor, eelgrass beds have been recently discovered by staff of the Department of Fish & Game in certain locations within the Outer Harbor Basin and near the Administrative Dock location since the tsunami. Eelgrass is considered Essential Fish Habitat (EFH) under the Magnuson-Stevens Fishery Conservation and Management Act. A preliminary eelgrass survey was conducted by the Harbor District's consultants on March 13, 2012 at various locations along the Outer Harbor Basin shoreline and also along the shoreline area in the vicinity of the Administrative Dock, near the entrance to the Inner Boat Basin. The preliminary survey located an approximately 289 square meter eelgrass bed southwest of the entrance to the public boat launch area at the southern corner of the Outer Boat Basin. A separate

approximately 241-square-meter eelgrass bed was located in the vicinity of the Administrative Dock. The surveyed bed is located just to the northeast of the Administrative Dock, but does not extend to the Administrative Dock location itself. The extent of eelgrass preliminary survey may have only located some of the eelgrass that exists in and around the Outer Boat Basin. The preliminary survey was not conducted during the eelgrass growing season and did not include the open waters of the Outer Boat Basin. The preliminary survey report includes recommendations that the areas adjacent to all of the RSP repair sites along the Outer Boat Basin should be re-surveyed in May 2012 as well as all areas of the Outer Boat Basin within and adjacent to any of the proposed dredging to determine the full extent of eelgrass within the project area.

C. Project Description

The proposed project would repair damage to facilities at Crescent City Harbor District's outer boat basin and an adjoining area near the entrance to the Inner Boat Basin resulting from the March 3011 tsunami and restore these facilities to their pre-March 2011 capacity and function. The proposed development includes the following elements:

Dredging

The tsunami consisted of a series of waves that were most intense between 6:00 a.m. and 11:30 a.m. on March 11, 2011, but continued for over a 48 hour period within the harbor area. The rapid fluctuation and high velocity of the wave action and the water level was sufficient to suspend sand and carry suspended sand into the outer boat basin and harbor area. As water movement slowed, sedimentation and shoaling occurred. Normal operational depths of the outer basin are generally -12 feet adjacent to the federal entrance channel, -15 feet in the vicinity of the commercial fleet hoist and operational docks along the northwestern side of the outer basin, and -10 feet in the recreational marina along the western side of the outer boat basin. Sedimentation and shoaling from the tsunami did not deposit sand uniformly across the bottom of the outer boat basin. Along the federal channel, shoaled sand deposits are visible at low tide, the commercial operational area has depths as shallow as 3.2 feet, and the recreational marina had depths as shallow as 4 feet.

To restore adequate depths for vessel navigation and boat berthing, the Harbor District proposes to dredge approximately 251,160 cubic yards of material from an approximately 58.4 acre area that includes the recreational marina area, the commercial/industrial docks area, and the area adjoining the Federal Channel of the outer boat basin. The dredging would re-establish the previous depths of the different sections of the basin described above. Exhibit 4 shows the planned dredged depths for the different portions of the outer basin. The dredged material would be placed on barges and transported for disposal at the Humboldt Open Ocean Dredged Site (HOODS), located in federal waters offshore from Eureka. As the disposal occurs outside the coastal zone, Coastal

Development Permit No. 1-12-004 does not address the disposal. However, the disposal at the Hoods disposal site will require separate federal consistency review by the Commission.

The dredging would be performed by clamshell dredge or by a large excavator. A floating boom would be placed around the perimeter of the dredging area and a silt curtain would be placed around the immediate area of dredging. The barges would be equipped with a screen (commonly referred to as a grizzly) with approximately one foot grids to separate out the larger pieces of debris picked up within the dredged sediment. Screened material would be brought to shore and transported for disposal through the Del Norte County Solid Waste Transfer Station.

Replace Rock Slope Protection

The high velocity wave action of the tsunami damaged the existing rock slope protection that lines the embankments that form the inner perimeter of the outer boat basin, although not to the extent that the rock slope protection within the inner boat basin was damaged. Within the outer boat basin, the damage was limited to four specific areas along the east side of the outer boat basin, including in locations near the public recreational boat launching facility and elsewhere along the breakwater that extends to Whaler Island. See Exhibit 4. In addition, damage to the RSP that occurred along the embankment adjacent to the Administrative dock near the entrance to the Inner Boat Basin would be repaired.

As proposed, a total of approximately 4,200 cubic yards of the existing RSP and accumulated sediments overlying the lower portions of the RSP at the damaged sites along the shoreline embankments would be removed and replaced. A total of approximately 3,731 cubic yards of new quarry rock would be placed in the five damage areas to rebuild the RSP. Approximately 3,300 cubic yards of new material would be placed at the repair site near the Administrative Dock with the remaining 431 cubic yards of new material being placed at the other four repair sites along the east side of the outer boat basin.

The reconstruction of the RSP at the four repair sites along the west side of the outer boat basin would restore the RSP to its original form and would encroach no further into the water than the originally constructed RSP. The repairs of the RSP at the Administrative Dock would differ from the other RSP repairs in that instead of simply reconstructing the RSP to its original shape and form, material would be added to the existing bank to buttress the embankment. Approximately 4-ton stone would be placed to establish a 3:1 slope starting somewhat below the top of bank at the 3-foot elevation and extending down to the toe at -17 or -18, depending on the actual scour depth from the tsunami. Some limited excavation at the toe would occur to seat the large stone property. Any excavated sand material would be disposed of with the dredged material.

D. Revetment Repair & Maintenance

Coastal Act Section 30610(d) generally exempts from Coastal Act permitting requirements the repair or maintenance of structures that does not result in an addition to, or enlargement or expansion of, the structure being repaired or maintained. However, the Commission retains authority to review certain extraordinary methods of repair and maintenance of existing structures that involve a risk of substantial adverse environmental impact as enumerated in Section 13252 of the Commission regulations.

Section 30610 of the Coastal Act provides, in relevant part (emphasis added):

> *Notwithstanding any other provision of this division, no coastal development permit shall be required pursuant to this chapter for the following types of development and in the following areas: . . .*
>
> *(d) Repair or maintenance activities that do not result in an addition to, or enlargement or expansion of, the object of those repair or maintenance activities; provided, however, that if the commission determines that certain extraordinary methods of repair and maintenance involve a risk of substantial adverse environmental impact, it shall, by regulation, require that a permit be obtained pursuant to this chapter.*

Section 13252 of the Commission administrative regulations (14 CCR 13000 *et seq.*) provides, in relevant part (emphasis added):

> *For purposes of Public Resources Code section 30610(d), the following extraordinary methods of repair and maintenance shall require a coastal development permit because they involve a risk of substantial adverse environmental impact:...*
>
> *(3) Any repair or maintenance to facilities or structures or work located in an environmentally sensitive habitat area, any sand area, within 50 feet of the edge of a coastal bluff or environmentally sensitive habitat area, or within 20 feet of coastal waters or streams that include:*
>
> *(A) The placement or removal, whether temporary or permanent, of rip-rap, rocks, sand or other beach materials or any other forms of solid materials;*
>
> *(B) The presence, whether temporary or permanent, of mechanized equipment or construction materials.*
>
> *All repair and maintenance activities governed by the above provisions shall be subject to the permit regulations promulgated pursuant to the Coastal Act, including but not limited to the regulations governing administrative and emergency permits. The provisions of this section shall not be applicable to methods of repair and maintenance undertaken by the ports listed in Public Resources Code section 30700 unless so provided elsewhere in these regulations. The provisions of this section shall not be applicable to those activities specifically described in the document entitled Repair, Maintenance and Utility Hookups, adopted by the Commission on September 5, 1978*

> *unless a proposed activity will have a risk of substantial adverse impact on public access, environmentally sensitive habitat area, wetlands, or public views to the ocean....*

The proposed repairs to the existing rock slope protection at the four repair sites along the east side of the outer boat basin constitute a repair and maintenance project because repairs do not involve an addition to or enlargement of the subject rock slope protection. The repairs at these four locations would encroach no further into the water than the originally constructed RSP. The repair of the RSP at the Administrative Dock does not constitute a repair and maintenance project because the proposed repair in this location involves an addition to or enlargement of the subject rock slope protection. Instead of simply reconstructing the RSP to its original shape and form, material would be added to the existing bank to buttress and enlarge the embankment.

Although certain types of repair projects are exempt from CDP requirements, Section 13252 of the regulations requires a coastal development permit for extraordinary methods of repair and maintenance enumerated in the regulation. The proposed repair work involves the placement of construction materials and removal and placement of solid materials within 50 feet of a coastal bluff and within 20 feet of coastal waters. The proposed repair project therefore requires a coastal development permit under CCR Section 13252(a)(1).

In considering a permit application for a repair or maintenance project pursuant to the above-cited authority, the Commission reviews whether the proposed method of repair or maintenance is consistent with the Chapter 3 policies of the Coastal Act. The Commission's evaluation of such repair and maintenance projects does not extend to an evaluation of the conformity with the Coastal Act of the underlying existing development.

The repair and maintenance of shoreline protective devices, such as is proposed under the subject CDP application, can have adverse impacts on coastal resources, in this case primarily tidal wetlands and coastal waters adjacent to the project area, if not properly undertaken with appropriate mitigation. As described above, the applicant proposes to repair and maintain the existing rock slope shoreline protective device by placing quarry rock at the individual repair locations. The rock is proposed to be placed on to restore the 1.5 horizontal to 1 vertical slope of the rock slope protection revetment as it was originally constructed. The applicant has included a number of mitigation measures as part of its proposal, as discussed above, such as limiting work to the dry season and using standard appropriate Best Management Practices (BMPs) to avoid sediment discharges to the waters of the harbor. Although these and other measures proposed by the applicant are appropriate, additional measures are needed to avoid or minimize potential project impacts on water quality and adjacent wetland habitats. The conditions required to meet these standards are discussed in the following findings relevant to water quality and marine resources. Therefore, as conditioned, the Commission finds that the proposed rock

slope protection repairs at the four repair sites along the west side of the outer boat basin are consistent with all applicable Chapter 3 policies of the Coastal Act.

E. Protection of Coastal Waters & Water Quality.

1. Applicable Coastal Act Policies and Standards

Section 30230 of the Coastal Act states the following:

> *Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.* [Emphasis added.]

Section 30231of the Coastal Act states the following (emphasis added):

> *The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams. .* [Emphasis added.]

Section 30232 of the Coastal Act states the following:

> *Protection against the spillage of crude oil, gas, petroleum products, or hazardous substances shall be provided in relation to any development or transportation of such materials. Effective containments and cleanup facilities and procedures shall be provided for accidental spills that do occur.*

Section 30233 of the Coastal Act states, in applicable part:

> *(a) The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other*

applicable provisions of this division, where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:

(1) New or expanded port, energy, and coastal-dependent industrial facilities, including commercial fishing facilities.

(2) Maintaining existing, or restoring previously dredged, depths in existing navigational channels, turning basins, vessel berthing and mooring areas, and boat launching ramps.

(3) In open coastal waters, other than wetlands, including streams, estuaries, and lakes, new or expanded boating facilities and the placement of structural pilings for public recreational piers that provide public access and recreational opportunities.

(4) Incidental public service purposes, including but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines.

(5) Mineral extraction, including sand for restoring beaches, except in environmentally sensitive areas.

(6) Restoration purposes.

(7) Nature study, aquaculture, or similar resource dependent activities...

(c) In addition to the other provisions of this section, diking, filling, or dredging in existing estuaries and wetlands shall maintain or enhance the functional capacity of the wetland or estuary... [Emphasis added.]

2. Consistency Analysis

The proposed outer boat basin dredging and revetment repairs and upgrades that will involve dredging and filling within coastal waters

When read together as a suite of policy directives, Sections 30230, 30231, and 30233 of the Coastal Act set forth a number of different limitations on what types of projects may be allowed in coastal wetlands and waters. For analysis purposes, the limitations applicable to the subject project can be grouped into four general categories or tests. These tests require that projects that entail the dredging, diking, or filling of wetlands and waters demonstrate that:

- The purpose of the filling, diking, or dredging is for one of the seven uses allowed under Section 30233;
- The project has no feasible less environmentally damaging alternative;
- Feasible mitigation measures have been provided to minimize adverse environmental effects; and

- The biological productivity and functional capacity of the habitat shall be maintained and enhanced, where feasible.

Each category is discussed separately below.

Permissible Use for Dredging and Filling in Coastal Waters

The Commission must evaluate the proposed dredging and enlargement of the rock slope protection revetment near the Administration Dock as "new" development rather than as a repair and maintenance project. As discussed in Finding D, above, the other rock slope protection repairs proposed at the four sites along the eastern side of the outer boat basin are considered repair and maintenance for which the Commission reviews whether the proposed method of repair or maintenance is consistent with the Chapter 3 policies of the Coastal Act but does not evaluate the development for conformity with the use limitations of the Coastal Act

For analysis purposes, the Commission must find that the proposed dredging and fill within the intertidal and tidal zone is for an allowable purpose as specified under Section 30233 of the Coastal Act. The relevant categories of uses listed under Section 30233(a) that relate to the proposed revetment improvements are subsection (1) involving new or expanded port facilities, including commercial fishing facilities, and subsection, (2) dredging for maintaining existing, or restoring previously dredged depths in existing vessel berthing and mooring areas, and launching ramps, and (3) in open coastal waters, other than wetlands, including streams, estuaries, and lakes, new or expanded boating facilities that provide public access and recreational opportunities.

The outer boat basin was constructed to create a harbor for boaters to moor, launch, and retrieve their boats. Once the outer boat basin is rehabilitated back to its original configuration and structurally augmented, exposure of persons and property to potentially injury and damage from wave attack will be lessened.

As the applicant proposes to undertake these improvements to the outer boat basin to provide essential protection for the safety and longevity of commercial fishing and recreational boat mooring, loading and launching operations, the Commission finds that the proposed fill for the rock slope protection improvements is permissible under Section 30233(a) subsection (1) for new or expanded port facilities, including commercial fishing facilities, and subsection (3) for new or expanded boating facilities in open coastal waters, other than wetlands, including streams, estuaries, and lakes, that provide public access and recreational opportunities.

Furthermore, as the proposed dredging is limited to areas that have been previously dredged to the same elevation for vessel berthing and mooring, the Commission finds that the proposed dredging is consistent with Section 30233(2) allows dredging for

maintaining existing, or restoring previously dredged depths in existing vessel berthing and mooring areas, and launching ramps.

Least Environmentally Damaging Feasible Alternative

The second test set forth by the Commission's dredging and fill policies is that the proposed fill project must have no feasible less environmentally damaging alternative. Coastal Act Section 30108 defines "feasible" as follows:

"Feasible" means capable of being accomplished in a successful manner within a reasonable time, taking into account economic, environmental, social, and technological factors.

Alternatives to the proposed project that were examined include the "no-project" alternative. As explained below, the alternatives analyzed are infeasible and/or do not result in a project that is less environmentally damaging than the proposed project as conditioned:

"No-Project" Alternative

The "no project" alternative would mean that no dredging of the outer boat basin and no repairs to the rock slope protection would be undertaken.

With no dredging, there would be no impacts from dredging. However, without the proposed dredging, the sandy material that has shoaled within the basin would continue to interfere with vessel and navigation and limit access to the basin berthing areas that have historically been used for commercial fishing vessels or recreational boating, except by the shallowest draft vessels. Boaters who used the site prior to the March 11, 2011 tsunami would continue to be displaced. As there are limited mooring facilities on the North Coast, many of these users would be forced to leave this region of the coast. Such a result would be contrary to policies of the Coastal Act. Commercial fishing and recreational boating are given high priority under the Coastal Act and the Coastal Act policies call for the protection of these uses and the facilities needed to continue these uses.

Without the proposed repairs and augmentation of the rock slope protection lining the shoreline embankments of the outer boat basin and in the area of the Administration Doc, erosion of the shoreline embankments would continue further causing blockage of certain vessel navigation, launching, and mooring areas and erosion of shore-side facilities. As discussed above, Crescent City Harbor has been used for commercial and recreational fishing for decades, and it provides the only harbor of refuge from the common northwesterly winds and seas between Brookings in southern Oregon and Trinidad Bay in Humboldt County. Moreover, commercial fishing and recreational boating are given high priority under the Coastal Act, and the Coastal Act policies call for the protection of

these uses and the facilities needed to continue these uses. Therefore, the Commission finds that the no project alternative is not a feasible less environmentally damaging alternative to the proposed project, as conditioned.

The no project alternative would entail that no maintenance dredging of the accumulated sediments within the Woodley Island Marina be undertaken. With no dredging, there would be no impacts from dredging and no impacts from disposal. However, without maintenance dredging, the berthing areas would eventually silt in to the point that they could no longer be used for commercial fishing vessels or recreational boating, except by the shallowest draft vessels. The berthing areas would likely be forced to close, and the boaters who currently use the site would be displaced. As there are limited mooring facilities in Humboldt Bay, many of these users would be forced to leave this region of the coast. Such a result would be contrary to policies of the Coastal Act. As discussed previously, commercial fishing and recreational boating are given high priority under the Coastal Act and the Coastal Act policies call for the protection of these uses and the facilities needed to continue these uses. Therefore, the Commission finds that the no project alternative is not a feasible less environmentally damaging alternative.

Conclusion

For all of the reasons discussed above the Commission finds that there is no less environmentally damaging feasible alternative to the development as conditioned, as required by Section 30233(a).

Feasible Mitigation Measures

The third test set forth by Section 30233 is whether feasible mitigation measures have been provided to minimize adverse environmental impacts. The proposed development would be located within and around coastal waters and wetlands. Depending on the manner in which the proposed filling is conducted, the significant adverse impacts of the project may include: (1) effects on sensitive fish and wildlife species; (2) water quality impacts from the placement of sediment containing materials in and/or undertaking construction involving the use of hazardous materials in close proximity to coastal waters; and (3) displacement of harbor bottom habitat by the installation of additional rock slope protection. The potential impacts and their mitigation are discussed below.

Effects on Sensitive Fish and Wildlife Species

To avoid impacts to various sensitive fish and wildlife species, the applicant proposes that the inner boat basin in-water repairs and upgrade construction be undertaken between June 1 and November 15. Mechanized equipment needed for the project includes dredging equipment, barges, and various land-based material delivery vehicles, excavators, back-hoes, and possibly a crane.

NOAA Fisheries staff has not completed its review of the proposed project. However, On April 26, 2011, the National Marine Fisheries Service ("NMFS" or "NOAA Fisheries") issued an informal consultation letter for the associated Corps FCWA Section 404 permit for tsunami repairs and harbor upgrades within the Inner Boat Basin. The informal consultation outlined that project's potential effects on marine species listed under the federal Endangered Species Act and "Essential Fish Habitat" (EFH) under the Magnuson-Stevens Fishery and Conservation Act. The consultation addressed potential impacts to various threatened and endangered species evaluated in the biological assessment provided by the funding agency, including coho salmon (*Oncorhynchus kisutch*), Steller Sea lions (*Eumetopias jubatus*), Western Snowy Plover (Charadrius alexandrinus nivosus), Marbled Murrelet (*Brachyramphus marmoratus*), and California Brown Pelican (*Pelecanus occidentalis*), and EFH for salmon species.

The NOAA Fisheries consultation for the preceding inner boat basin repair and enhancement project concluded that the project may affect, but is not likely to adversely affect, listed salmonids, Steller sea lions, western snowy plovers, marbled murrelets, and California brown pelicans (see CDP Amendment No. 1-10-035-A1, Exhibit No. 10).

The applicant has structured the proposed outer boat basin project to employ the same impact avoidance and mitigation measures as was used in the inner boat basin repair and enhancement project and has similarly asserted that the project would have no effect on sensitive species.

Based on: (1) the conclusion of the biological assessment prepared by the Harbor District that the development will not result in significant adverse impacts on marine biological resources; (2) the informal consultation letter for the associated tsunami repairs and harbor upgrade project within the Inner Boat Basin and its findings that based upon the impact avoidance and mitigation measures cooperatively developed by the applicant and the agency, the proposed project will not likely result in significant direct or cumulative impacts to endangered or threatened species or other protected fish and wildlife; (3) the proposed mitigation measures incorporated into the project to schedule construction when sensitive species are unlikely to be within the harbor, and (4) the results of other biological consultations conducted by NOAA Fisheries for other development activities in the harbor, including navigational channel maintenance dredging and breakwater repair work, the Commission finds that with the attachment of certain special conditions, the proposed project is consistent with the Coastal Act Chapter 3 policies.

To ensure that the proposed outer boat basin repairs and enhancements are carried out in a manner that will not cause significant adverse impacts to sensitive fish species or habitat, as to be determined by NOAA Fisheries staff, the Commission attaches **Special Condition Nos. 1, 2, and 4**. These conditions require that final revised plans for the development incorporate all impact minimizing mitigation measures identified in the final letter of concurrence or biological opinion, and that in-water construction activities be conducted only during the period of June 1 through November 15, to protect sensitive fish and marine mammal species by avoiding times of the year when these species are normally present. Furthermore, the conditions require that all project work be conducted

during periods of low-tides only, above the water surface to minimize suspended sediment and potential water quality impacts that could affect sensitive fish and wildlife species. Special Condition Nos. 9 through 11 require that the applicant inform the Executive Director of any changes to the project required by the Corps, NOAA Fisheries and other reviewing agencies, including any changes that may conflict with the modifications or conditions imposed by the Commission in approving CDP 1-12-04, and obtain a permit amendment for such changes. Final review and coordination with NOAA Fisheries and all other reviewing agencies except for the Army Corps of Engineers must occur prior to issuance of the CDP, with Army Corps of Engineers coordination occurring prior to commencement of development. With these conditions, the Commission will be able to reconsider through a permit amendment if necessary, the consistency of the proposed project as modified with the Coastal Act if NOAA Fisheries or the other reviewing agencies require changes to the project to further mitigate impacts on biological resources that are not currently anticipated.

Construction and Runoff Impacts on Water Quality

The proposed rock slope protection repairs and dredging could adversely affect water quality. The outer boat basin rehabilitation work involves placing rock within and adjacent to coastal waters and the use of heavy equipment. The use of construction equipment and materials within sensitive marine and beach habitats could lead to habitat contamination and impacts through the discharge of debris, trash, and contaminants such as leaky gas and other fluids and sediment- and other pollutant-laden runoff. Allowing such debris or pollutants to enter the ocean could adversely affect water quality and marine organisms inconsistent with Coastal Act Sections 30230, 30231, and 30232.

Coastal Act Section 30231 protects the quality of coastal waters, streams, and wetlands through, among other means, controlling runoff. Sediment-laden runoff from a project work site, upon entering coastal waters, increases turbidity and adversely affects fish and other sensitive aquatic species. Sediment is considered a pollutant that affects visibility through the water and affects plant productivity, animal behavior (such as foraging) and reproduction, and the ability of animals to obtain adequate oxygen from the water. In addition, sediment is the medium by which many other pollutants are delivered to aquatic environments, as many pollutants are chemically or physically associated with the sediment particles.

In addition, Coastal Act Section 30232 requires protection against the spillage of crude oil, gas, petroleum products and hazardous substances and requires that effective containments and cleanup procedures be provided for accidental spills that do occur. The applicant has proposed to prepare a hazardous materials management plan to address the transport, handling, and storage of fuels and other equipment fluids, with emphasis on preventing releases to the ocean or beach, and to address spill prevention, cleanup, and disposal. To date, however, no such plan has been prepared.

Given that the proposed construction methods and activities: (1) will be located within and adjacent to coastal waters and thus could cause an increase in sediment and other

pollutants entering coastal waters and other sensitive habitats through either the release of polluted runoff from the project site and/or leaky equipment contaminating coastal waters and beaches; and (2) are located within an area of special biological significance, which warrants "special protection" under Coastal Act Section 30230, the Commission finds it necessary to attach Special Condition Nos. 3 through 6, as described below.

- **Special Condition No. 3** in part requires that certain construction activities, namely the removal and placement of rock slope protection within coastal waters authorized under the permit, shall be conducted during periods of low-tides only to minimize suspended sediment and potential water quality impacts.

- **Special Condition No. 4** requires adherence to various construction responsibilities including, but not limited to, the following: (a) construction methods shall conform to those described in Findings Section IV.B.2 *Project Description*, specifically, the outer boat basin rehabilitation shall be conducted from land (which will allow marine organisms inhabiting the existing inner boat basin to continue to have habitat available in areas of the inner boat basin not being worked on); (b) no construction materials, equipment, debris, or waste shall be placed or stored where it may be subject to wave, wind, or rain erosion and dispersion; (c) public roadway surfaces adjacent to the construction entrances shall be swept at the end of each day to remove sediment and/or other construction materials deposited due to construction activities, to prevent such sediment and/or materials from contaminating coastal waters or other environmentally sensitive habitat areas; (d) any and all debris resulting from construction activities shall be removed from the inner boat basin and adjacent beach areas on a daily basis and disposed of at an appropriate location(s); (e) any fueling and maintenance of construction equipment shall occur within upland areas outside of environmentally sensitive habitat areas or within designated staging areas, mobile fueling of construction equipment and vehicles on and around the inner boat basin construction site shall be prohibited, and mechanized heavy equipment and other vehicles used during the construction process shall not be stored or re-fueled within 50 feet of drainage courses and other coastal waters; (f) construction vehicles shall be maintained and washed in confined areas specifically designed to control runoff and located more than 100 feet away from the mean high tide line; (g) floating booms shall be used to contain debris discharged into coastal waters, and any debris discharged shall be removed as soon as possible but no later than the end of the each day; (h) during construction, all trash shall be properly contained, removed from the work site, and disposed of on a regular basis to avoid contamination of habitat during restoration activities; (i) hazardous materials management equipment including oil containment booms and

absorbent pads shall be available immediately on-hand at the project site, and a registered first-response, professional hazardous materials clean-up/remediation service shall be locally available on call; and (j) at the end of the construction period, the permittee shall inspect the project area and ensure that no debris, trash, or construction material remain on the beach, inner boat basin, or in the water.

- **Special Condition No. 5** requires submittal of a final Sedimentation and Runoff Control Plan, which shall demonstrate that: (a) run-off from the project site shall not increase sedimentation in coastal waters; (b) run-off from the project site shall not result in pollutants entering coastal waters; and (c) Best Management Practices (BMPs) shall be used to prevent the entry of polluted stormwater runoff into coastal waters during the construction of the authorized structures.

- **Special Condition No. 6** requires submittal of a final Hazardous Materials Management Plan, which, at a minimum, shall provide for the following (a) equipment fueling shall occur only during daylight hours in designated fueling areas; (b) oil absorbent booms and/or pads shall be on site at all times during project construction, and all equipment used during construction shall be free of oil and fuel leaks at all times; (c) provisions for the handling, cleanup, and disposal of any hazardous or non-hazardous materials used during the construction project including, but not limited to, paint, asphalt, cement, equipment fuel and oil, and contaminated sediments; (d) a schedule for maintenance of containment measures on a regular basis throughout the duration of the project; (e) provisions for the containment of rinsate from the cleaning of equipment and methods and locations for disposal off-site; (f) a site map detailing the location(s) for hazardous materials storage, equipment fueling and maintenance, and any concrete wash-out facilities; and (g) reporting protocols to the appropriate public and emergency services agencies in the event of a spill.

Loss of Harbor Bottom Habitat

The applicant is proposing to buttress the rock slope protection along the shoreline embankment adjacent to the Administration Dock. The expanded rock slope protection would be performed on the silty-sandy substrate that underlies the Crescent City Harbor. Such harbor bottom materials typically support a variety of worms, mollusks, and other benthic organisms. Eelgrass has also recently been discovered on the substrate of the harbor in this location.

The displacement of the soft bottom substrate, result in a loss of habitat area for invertebrates that dwell in or on the substrate within the intertidal area. On the other hand, the expanded rock slope protection provide hard intertidal substrate habitat that is beneficial for other kinds of sessile marine invertebrates such as barnacles and mussels.

In past studies of the Crescent City Harbor conducted by Applied Environmental Technologies, Inc. in 2006 and URS Corporation in 2007 for the preceding maintenance dredging and breakwater repair projects, respectively, the harbor's consultants characterized the harbor waters, including in the sandy areas within the inner boat basin project area, to be very harsh intertidal environments subject to intensive wave action, wide temperature range fluctuations, and periodic tidal exposure at their periphery. As a result, larger areas within the inner harbor are effectively denuded of vegetative cover, and exhibit a pattern of decreasing density and diversity of marine epifauna corresponding to locations furthest into the harbor's dock and wharf recesses. In addition, the bottom materials within the boat basin were found to have a relatively high wood fragment content compared to similar areas further out into the harbor. These studies also reported that while the area of soft bottom habitat in the harbor is extensive, areas of hard intertidal substrate are relatively limited to the perimeter shoreline revetments and remnants of the former sea stack known as Whaler's Island.

Therefore, the Commission finds that no additional mitigation for the loss of bottom habitat (other than eelgrass as discussed below) is necessary for the buttressing of the rock slope protection along the shoreline embankment in the vicinity of the Administration Dock.

The Department of Fish & Game submitted comments on the permit application indicating that the Department is aware that native eelgrass, (Zostera marina), occurs inside the Crescent City harbor in several locations, including near the Administrative Dock. Eelgrass beds are considered to be a type of environmentally sensitive habitat worthy of protection because they function as important shelter, foraging, and in some cases spawning habitats for a variety of fish species. The long, green leaves of the aquatic flowering plant also are an important food source for certain birds, such as black brant (small migratory geese). Eelgrass growth is sensitive and susceptible to human-related direct and indirect impacts, such as direct contact from construction and indirect shading from over-water structures (such as piers and gangways).

The applicant performed a preliminary eelgrass survey of the proposed rock slope protection repair areas and confirmed the presence of eelgrass (See Exhibit No. 6). Two eelgrass beds were located during the survey and are shown in the maps attached to Exhibit No. 6. One of the beds is located southwest of the entrance to the public boat launch area near the southeastern portion of the Outer Boat Basin and is approximately 289 square meters in size. The other eelgrass bed is located in the vicinity of the Administrative Dock neat the entrance to the inner boat basin and is approximately 241 square meters in size. The survey report indicates that the eelgrass bed in the vicinity of the Administrative Dock could be adversely impacted by the proposed addition of more rock slope protection along the shoreline embankment. The survey report indicates that portion of the other bed near the public boat launch facility could also be affected by project construction. The preliminary survey did not examine other portions of the Outer Boat Basin outside of the proposed rock slope protection areas and recommends that a more comprehensive survey be performed during the eelgrass growing season in May.

To ensure that the applicant obtains an accurate inventory of eelgrass present at the site prior to construction and to minimize and mitigate any adverse impacts to eelgrass, staff recommends Special Condition No. 2. The special conditions requires the applicant to submit an eelgrass mitigation and monitoring plan for the review and approval of the Executive Director that includes monitoring provisions requiring: (1) that impacts to eelgrass shall be avoided to the maximum extent feasible; (2) that the applicant conduct both pre- and post-construction surveys to be completed during the active eelgrass growing season prior to the beginning of construction; and (3) if any net loss of eelgrass results from the project, an eelgrass mitigation and monitoring plan shall be prepared and submitted for the review and approval of the Commission. The mitigation methods, the location of the mitigation sites, and the monitoring plan are required to be in compliance with the recommendations of the Draft California Eelgrass Mitigation Policy prepared by the National Marine Fisheries Service, Southwest Region dated December 7, 2011.

Conclusion

The Commission finds that as conditioned, all feasible mitigation measures have been provided to minimize adverse environmental effects consistent with Section 30233(a) of the Coastal Act. In addition, The Commission finds that as conditioned to require: (1) adherence to various construction responsibilities to protect coastal resources; (2) submittal of an eelgrass mitigation and monitoring plan, and (3) submittal of a final sedimentation and runoff control plan, hazardous materials management plan, and debris disposal plan; the proposed development is consistent with Coastal Act Sections 30230, 30231, and 30232.

Maintenance & Enhancement of Biological Productivity & Functional Capacity

The fourth general limitation set by Sections 30230, 30231, and 30233 is that any proposed dredging or filling in coastal wetlands must maintain and enhance the biological productivity and functional capacity of the habitat in terms of biological productivity, functional capacity, and the quality of coastal waters, where feasible.

As discussed above, the conditions of the permit will ensure that the project will not have significant adverse impacts on the water quality of any of the coastal waters in the project area and will ensure that the project construction will not adversely affect the biological productivity and functional capacity coastal waters or wetlands. Therefore, the Commission finds that the project, as conditioned, will maintain the biological productivity and functional capacity of the habitat consistent with the requirements of Sections 30230, 30231, and 30233 of the Coastal Act.

F. Protection of Commercial Fishing & Recreational Boating Facilities.

1. Applicable Coastal Act Policies and Standards

Section 30224 of the Coastal Act states:

> *Increased recreational boating use of coastal waters shall be encouraged, in accordance with this division, by developing dry storage areas, increasing public launching facilities, providing additional berthing space in existing harbors, limiting non-water-dependent land uses that congest access corridors and preclude boating support facilities, providing harbors of refuge, and by providing for new boating facilities in natural harbors, new protected water areas, and in areas dredged from dry land.* [Emphases added.]

Section 30234 of the Coastal Act states, in applicable part:

> *Facilities serving the commercial fishing and recreational boating industries shall be protected and, where feasible, upgraded*... [Emphasis added.]

2. Consistency Analysis

Crescent City Harbor has long been used as a launch site for commercial and recreational fishermen, and provides the only harbor of refuge from the common northwesterly winds and seas between Brookings Oregon and Trinidad Bay in Humboldt County, as discussed above.

The outer boat basin's capability to moor and shelter watercraft from wave attack has been reduced due to 2006 tsunami event. In addition, the outer boat basin in its damaged condition is vulnerable to further damage that would likely lead to its eventual closure if the marina is not rehabilitated.

To minimize conflicts with biological resources, the proposed construction activities would occur between June 1 and November 15. Commercial and sports fishing is most common during late spring through mid-fall, and again in late fall through winter during the crab season. The project will be conducted during part of this time period. However, the Commission finds that this impact is short-term and temporary, and the rehabilitation of the outer boat basin will restore boat mooring capacity and improve boating access and safety over the long-term..

Therefore, the Commission finds that the project as conditioned will protect and improve the existing boat launching facility that serves commercial fisheries and recreational boating, consistent with Coastal Act Sections 30224 and 30234.

G. Public Trust Lands.

The project site is located in an area that was formerly State-owned waters, but remains otherwise subject to the public trust. On July 13, 1963, by Senate Bill No. 1383, the State of California transferred all rights, title, and interest to portions of the submerged and tidelands within Crescent City Harbor and surrounding ocean waters to the District. In granting these ownership rights, the State Lands Commission (SLC) has retained authority over these former sovereign lands through both exempted and reserved rights to all deposits of minerals, and its public trust responsibilities under the state Constitution. Granted lands are monitored by the SLC to ensure compliance with the terms of the issued statutory grant. These grants encourage development of tidelands consistent with the public trust, while requiring grantees to re-invest revenues produced from the lands back into the lands where they are generated. In a letter dated March 28, 2008, States Land Commission staff indicates that no further perfection of use rights is necessary unless dredging is needed as part of the project. As the project does involve dredging, additional approval from SLC may be necessary for the proposed development. To assure that the applicant has a sufficient legal property interest in the site to carry out the project consistent with the terms and conditions of this permit, the Commission attaches Special Condition No. 10. This special condition requires that the applicant submit evidence that any necessary authorization from the State Lands Commission has been obtained prior to issuance of the permit.

H. U.S. Army Corps of Engineers Approval.

The project requires review and authorization by the U.S. Army Corps of Engineers ("USACE" or "Corps"). Pursuant to the Federal Coastal Zone Management Act, any permit issued by a federal agency for activities that affect the coastal zone must be consistent with the coastal zone management program for that state. Under agreements between the Coastal Commission and the U.S. Army Corps of Engineers, the Corps will not issue a permit until the Coastal Commission approves a federal consistency certification for the project or approves a permit.

To ensure that the project ultimately approved by the Corps is the same as the project authorized herein, the Commission attaches Special Condition No. 9, which requires the applicant to submit to the Executive Director evidence of the Corps' approval of any design changes to the project prior to commencement of any development. The condition requires that any project changes resulting from this other agency approval not be incorporated into the project until the applicant obtains any necessary amendments to this coastal development permit.

I. Public Recreation and Access.

Coastal Act Section 30604(c) requires that every coastal development permit issued for new development between the nearest public road and the sea "shall include a specific finding that the development is in conformity with the public access and recreation policies of [Coastal Act] Chapter 3." The proposed project is located seaward of the first through public road.

Coastal Act Sections 30210 through 30214 and 30220 through 30224 specifically protect public access and recreation. In particular:

> *In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.* [PRC §30210]
>
> *Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.* [PRC §30211]
>
> *Public access from the nearest public roadway to the shoreline and along the coast shall be provided in new development projects...* [PRC §30212(a)]
>
> *Lower cost visitor and recreational facilities shall be protected, encouraged, and, where feasible, provided. Developments providing public recreational opportunities are preferred.* [PRC §30213]
>
> *The public access policies of this article shall be implemented in a manner that takes into account the need to regulate the time, place, and manner of public access depending on the facts and circumstances in each case...* [PRC §30214 (a)]
>
> *Oceanfront land suitable for recreational use shall be protected for recreational use and development unless present and foreseeable future demand for public or commercial recreational activities that could be accommodated on the property is already adequately provided for in the area.* [PRC § 30221]
>
> *Increased recreational boating use of coastal waters shall be encouraged, in accordance with this division, [...] providing harbors of refuge, and by*

> *providing for new boating facilities in natural harbors, new protected water areas, and in areas dredged from dry land.* [PRC §30224]

Likewise, Coastal Act Section 30240 (b) also requires that development not interfere with recreational areas and states:

> *Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.*

Crescent City Harbor provides public access and recreational opportunities of regional and statewide significance. These opportunities include boat launching, berthing for commercial vessels and recreational boats, boat repair areas, marine-related retail/commercial businesses, sailing programs, yacht club and boat sales, and passive recreational pursuits, such as shoreline walking, beachcombing, and bird-watching. The District's outer boat basin repair and upgrade project would strongly benefit public access and recreation, by restoring boat launching and mooring capacity and providing enhanced protection from coastal flooding and erosion storm surge to the harbor's mooring and launching areas.

Temporary impacts to public access as a result of construction activities are possible, but would be of limited duration and are not significant. Thus, the Commission concludes that the project as conditioned would protect boating and beach recreational opportunities consistent with Coastal Act Sections 30210, 30213, 30220, 30224, 30234 and 30234.5. Therefore, the Commission finds that, as conditioned, the proposed project would preserve public access and recreational opportunities and, is consistent with the above-cited public access and recreational policies of the Coastal Act.

J. Geologic Hazards

Coastal Act Section 30253 states in applicable part:

> *New development shall do all of the following:*
>
> *(a) Minimize risks to life and property in areas of high geologic, flood, and fire hazard.*
>
> *(b) Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs.*

Coastal Act Section 30253 requires in applicable part that new development minimize risks to life and property in areas of high geologic, flood, and fire hazard and neither create nor contribute significantly to erosion or geologic instability.

The existing rock slope shoreline protective device is located in an area of high geologic and flood hazard from waves and tidal action, and the proposed rock slope protection rehabilitation work is necessary to repair previous damage from these hazards and strengthen the rock slope protection against further damage from such hazards. To assure the structural integrity and stability of the repaired rock slope shoreline protection, the repairs have been engineered. The quarry rock to be used in the repairs and the design meet appropriate engineering specifications. To ensure that the repairs conform to the plans that have been determined to be acceptable, the Commission attaches Special Condition No. 1. This condition requires that the repairs to the shoreline protective device be performed consistent with the submitted plans and that no changes to the plan shall occur without a Commission approved amendment to this coastal development permit unless the Executive Director determines that no amendment is legally required.

Due to the uncertain nature and inherent risk associated with the construction of improvements in high energy coastal environments, the Commission attaches Special Condition No. 8. Special Condition No. 8 requires the applicant to assume the risks of extraordinary erosion and flood hazards of the outer boat basin area and waive any claim of liability on the part of the Commission. Given that the applicant has chosen to implement the project despite these risks, the applicant must assume the risks. In this way, the applicant is notified that the Commission is not liable for damage as a result of approving the permit for the development. The condition also requires the applicant to indemnify the Commission in the event that third parties bring an action against the Commission as a result of the failure of the development to withstand hazards.

The Commission finds that as conditioned, the project will minimize risks to life and property from geologic and flood hazards, will assure stability and structural integrity, and will neither create nor contribute significantly to erosion, geologic instability, or erosion of the site or surrounding area consistent with the requirements of Section 30253 of the Coastal Act.

J. California Environmental Quality Act (CEQA).

The Crescent City Harbor District served as the lead agency for the original project for CEQA purposes. The District found the subject inner boat basin repairs and upgrades qualified for "Class 1" and "2" categorical exemptions to environmental review, pursuant to Sections 15301 and 15302 of the CEQA Guidelines (14 CCR §§15000) as repair, maintenance, replacement, and/or reconstruction of existing structures.

In response to the March 11, 2011 tsunami, the Governor of California declared a state of emergency for Del Norte and other affected coastal counties. The District found the additional repairs and actions needed to respond to the devastation caused by the March 11, 2011 tsunami qualified for categorical exemptions to environmental review, pursuant to Section 15269 of the CEQA Guidelines (14 CCR §§15000) as "Emergency Projects."

Section 13906 of the California Code of Regulation requires Coastal Commission approval of a coastal development permit application to be supported by findings showing that the application, as modified by any conditions of approval, is consistent with any applicable requirements of the California Environmental Quality Act (CEQA). Public Resources Code Section 21080.5(d)(2)(A) of CEQA prohibits a proposed development from being approved if there are feasible alternatives or feasible mitigation measures available, which would significantly lessen any significant effect that the activity may have on the environment.

The Commission incorporates its findings on Coastal Act consistency at this point as if set forth in full. As discussed above, the proposed amended development has been conditioned to be consistent with the policies of Chapter 3 of the Coastal Act. The findings address and respond to all public comments regarding potential significant adverse environmental effects of the project that were received prior to preparation of the staff report. As specifically discussed in these above findings, which are hereby incorporated by reference, mitigation measures that will minimize or avoid all significant adverse environmental impacts have been required. As conditioned, there are no other feasible alternatives or feasible mitigation measures available which would substantially lessen any significant adverse impacts which the activity may have on the environment. Therefore, the Commission finds that the proposed amended development, as conditioned to mitigate the identified impacts, can be found consistent with the requirements of the Coastal Act to conform to CEQA.

V. EXHIBITS

1. Regional Location Map
2. Vicinity Map
3. Site Map
4. Project Plans
5. Project Description
6. Preliminary Eelgrass Survey

APPENDIX A

STANDARD CONDITIONS

1. Notice of Receipt and Acknowledgment. The permit is not valid and development shall not commence until a copy of the permit, signed by the permittee or authorized agent, acknowledging receipt of the permit and acceptance of the terms and conditions, is returned to the Commission office.

2. Expiration. If development has not commenced, the permit will expire two years from the date on which the Commission voted on the application. Development shall be pursued in a diligent manner and completed in a reasonable period of time. Application for extension of the permit must be made prior to the expiration date.

3. Interpretation. Any questions of intent of interpretation of any condition will be resolved by the Executive Director or the Commission.

4. Assignment. The permit may be assigned to any qualified person, provided assignee files with the Commission an affidavit accepting all terms and conditions of the permit.

5. Terms and Conditions Run with the Land. These terms and conditions shall be perpetual, and it is the intention of the Commission and the permittee to bind all future owners and possessors of the subject property to the terms and conditions.