CALIFORNIA COASTAL COMMISSION
NORTH COAST DISTRICT OFFICE
710 E STREET • SUITE 200
EUREKA, CA 95501
VOICE (707) 445-7833
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F13a

MEMORANDUM

Date: March 12, 2009

To: Commissioners and Interested Parties

From: Robert S. Merrill, District Manager – North Coast District
Jim Baskin, Coastal Program Analyst – North Coast District

Subject: **Addendum to Commission Meeting for Friday, March 13, 2009**
North Coast District Item F13a, CDP Amendment No. 1-90-104-A2
(City of Eureka – *PALCO Marsh Enhancement Plan Phase 1A*)

ADDENDUM TO STAFF RECOMMENDATION

This addendum presents correspondence received from the applicant and other interested parties since publication of the staff report, dated February 27, 2009. Staff has received correspondence from Humboldt Baykeeper making various comments on the written staff recommendation and suggesting the imposition of an additional special condition requiring further sampling for the presence of dioxin/furans. A full copy of this correspondence is provided as Attachment No. 3, as well as correspondence received from the North Coast Regional Water Quality Control Board, Redwood Region Audubon Society, Sierra Club – North Coast, Redwood Chapter, and the Coastal Conservancy supporting the staff recommendation. Staff has reviewed and considered these comments and, as discussed herein, continues to believe that further sampling for dioxin/furans is not warranted. Staff continues to recommend that the Commission conditionally approve the permit amendment as presented in the staff recommendations of February 27, 2009.

Staff has also received supplemental information from the applicant regarding the drainage system into and out of PALCO Marsh which further supports the staff recommendation not to require further sampling for hazardous materials. In addition, the applicant requests that the terms of Special Condition No. 7 requiring approval of a project-comprehensive erosion and stormwater runoff control plan prior to issuance of the permit amendment be modified to allow for the approval of sequential control plans prior to commencement of each project sub-phase. As discussed in Section II, below, staff is supportive of the proposed special condition

modification and this addendum presents changes to recommended Special Condition No. 7 to allow for the review of the erosion and stormwater control plan in phases.

I. RESPONSE TO COMMENTS RECEIVED FROM HUMBOLDT BAYKEEPER

Staff has received correspondence, dated March 9, 2009, from Humboldt Baykeeper presenting several assertions as to why additional sampling for dioxin/furans would be appropriate, namely:

- The applicant, and review and responsible agencies have been unresponsive to concerns previously raised by Humboldt Baykeeper that additional sampling for contaminated sediments be performed for the project;

- The PALCO Marsh is hydrologically downstream from the known contaminated former plywood mill site;

- The level of dioxin concentrations measured in the tidal slough are elevated relative to certain agencies' screening and action thresholds;

- The project's general proximity to a former industrial site known to be dioxin-contaminated; and

- The Commission staff has dismissed and disregarded the potential risks of exposure of restoration workers and ecological resources to contamination presumed by Humboldt Baykeeper to be present within PALCO Marsh.

The various points made in the correspondence are responded to below:

Contention #1: *Humboldt Baykeeper initially raised this concern with Lisa Shikany of the City of Eureka in a letter dated November 20, 2008. That letter was additionally transmitted to Jim Baskin of the Coastal Commission, Kasey Ashley of the North Coast Regional Water Quality Control Board, and Joel Gerwein of the California Coastal Commission. To date, we have received no response from the City or the agencies.*

Response: Beginning in March 2007 when the issue of potential dioxin contamination was first identified, Commission staff have had numerous telephone and email exchanges, and face-to-face communications with Humboldt Baykeeper administrators and counsel regarding the organization's concerns. The Commission's Water Quality Unit evaluated the contamination issue raised by Humboldt Baykeeper and whether there is a need for further sediment sampling for the project and determined no additional sampling is necessary. The February 27, 2009 staff recommendation discusses the basis of the staff's recommendation

on pages 38-39 and within Exhibit No. 10. Commission staff have been responsive to and have kept Humboldt Baykeeper appraised of the status of the Water Quality Unit's review of the issue, and provided their office with a copy of the public hearing notice and February 27, 2009 staff report. Moreover, the applicant City of Eureka has met with the organization's representatives and similarly included Humboldt Baykeeper as a recipient of the correspondence and information provided to the Commission's Water Quality Unit and the NCRWQCB with regard to the subject existing and proposed drainage facilities and improvements, potential scouring inducement by the project, and other related data.

Contention #2: *Palco Marsh is located downstream of a known dioxin hot-spot, the former Simpson Plywood Mill.*

Response: PALCO Marsh is not located hydrologically "downstream" from the former Simpson Timber Company Eureka Plywood Mill. The project site is situated laterally adjacent to the tidal slough into which stormwater drainage from the former mill site (and the northwestern quadrant of the marsh) drains, separated from the slough by two diked berms. Thus, stormwater drainage from the mill site cannot flow directly into the PALCO Marsh. To reach the marsh, any stormwater drainage from the mill site would first have to flow past the intakes to the marsh and then be backwashed into the marsh through the culverts with the incoming tides. As explained in the staff recommendation and further below, there is no significant likelihood that contaminants entered the PALCO Marsh in this manner in significant concentrations. Please refer to the graphic illustrations within Exhibit No. 10 of the February 27, 2009 staff report for an overview of where these sites are located in relation to one another.

Contention #3: *The Simpson Plywood Mill used large quantities of pentachlorophenol (the source of the dioxins) from 1952 until 1973. The mill's pentachlorophenol storage tanks and spray operation were all located within 50 feet of the drainage swale and within 500 feet of the culvert that feeds Palco Marsh on incoming tides. That culvert was installed in the mid-1950's, and the tide gate that was installed was inoperable from at least the early 1990's, almost 20 years ago. It is reasonable to assume that during the almost 60 years that Palco Marsh was in communication with a tidal channel that has elevated levels of dioxin contamination there was also transport of these contaminants into the marsh.*

Response: Mere proximity to a known contaminated site is not a reasonable basis from which to conclude that additional dioxin sampling within PALCO Marsh proper is warranted. As discussed on pages 38-39 and in Exhibit No. 10 of the February 27, 2009 staff report, given the very nominal temporal connection the marsh has had with the tidal slough into which the marsh and the former mill site drainage culverts both drain, and, in light of site-specific information relating to the historic land use and infrastructural development

pattern of the project and its surroundings, the physical arrangement and orientation of the subject drainage works, flow-line gradients, the hydraulic and fluvial properties of sediment-entrained stormwater flows, and the measured concentrations of constituents of concern encountered in the area, dioxin contaminants from the mill site have not been able to enter the PALCO Marsh in concentrations of any significance.

Furthermore, as summarized in the email from City of Eureka staff, enclosed as Attachment No. 5, a "stub" (i.e., plugged culvert insert opening) into PALCO Marsh was installed as part of the 1955 construction of the drainage junction box to accommodate future stormwater drainage from any future development in the marsh. Thus, there was apparently no direct connection between the tidal marsh and the northwestern quadrant of PALCO Marsh through the junction box installed in 1955 until the commencement of the Phase 1 enhancement work in 1991, approximately 18 years after the plywood mill had closed in 1973 and use of pentachlorophenol-based wood preservatives —the likely source of the dioxin-furan contamination— was discontinued.

Correspondence has been received from the North Coast Regional Water Quality Control Board's (NCRWQCB) that supports staff's recommendation that no further sampling is warranted (see Attachment No. 1.) While acknowledging the theoretical possibility of such entry of contaminated sediment materials, NCRWQCB staff state that they are not aware of any specific information on the movement of sediment from the tidal slough into PALCO Marsh. Moreover, given that drainage from the known contaminated former Simpson Timber Company Eureka Plywood Mill and from PALCO Marsh drain into Humboldt Bay simultaneously through two laterally-positioned outfalls, entry of contaminated sediments from mill site drainage into PALCO Marsh would be highly unlikely. Accordingly, NCRWQCB staff concur with Commission Water Quality Unit staff that additional sampling in the marsh not be recommended.

Contention # 4: *The work that will be occurring in this portion of the Marsh includes the digging of at least one, but possibly two, channels radiating out from the junction box that encompasses the Marsh side of the culverts that connect it with the tidal channel. These channels will be hand dug. Though hand digging of the channels will reduce the amount of disturbance that occurs in marsh sediments, and likely reduces the amount of sediment mobilization, it also brings human workers into much closer proximity to potentially contaminated sediments.*

The staff report prepared for this CDP does acknowledge the close proximity of the remediation work to this hot spot, and identifies the high levels of contamination found in the vicinity. It discounts, however, the need for further testing due to the currently clogged condition of the culverts connecting the tidal channel with the Marsh proper, the minimal amount of excavation work proposed, and the likelihood that the majority of the sediments would be mobilized on outgoing instead of incoming tides, thus reducing the likely

transport of dioxin contaminated sediments into Palco Marsh[1]*. Humboldt Baykeeper does not believe that this reasoning provides sufficient support for disregarding the potential dioxin exposures to workers in this portion of the project, the potential harm to local flora and fauna should increased amounts of dioxin contaminated sediments become mobilized, as well as the potential harm to Humboldt Bay, a bay which is listed as impaired for dioxin. These potential threats outweigh the minimal expense of conducting a few composite samples.*

Response: As discussed above and within the staff recommendation, the evidence does not indicate that the project area is likely to be contaminated. Furthermore, with respect to the concern about potential mobilization of sediment associated with the hand digging of the channels in the northwestern marsh quadrant, the applicant has proposed and the Commission has imposed a special condition requiring such work be performed pursuant to an approved erosion control and stormwater runoff control plan. Such a plan would contain water quality best management practices to prevent such entrainment of sediment, including dry-season work scheduling and the utilization of barriers, such as sediment curtains and debris fencing to confine any silt-laden water to the immediate dug-channel area.

With respect to exposure of workers to hazardous materials, the applicant is proposing to utilize environmental remediation personnel retained to concurrently remove the contaminated sediment and soil at the former mill site and adjacent drainage ditching, to excavate the tidal channel, main marsh outfall training channel and the hand-dug channels. As set forth in Special Condition No. 8, by requiring the approval of a grading and excavated/dredged materials disposal plan prior to the commencement of each phase of grading or dredging, the manner by which these materials would be removed from the tidal slough and marsh would be detailed, including the specific worker safety provisions and handling protocols to be utilized in such removal. This condition would apply whether the project work is coordinated with that occurring at the former mill site, or consecutively by other contractors retained independently by the applicant for just the PALCO Marsh work.

As regards the assertion that the recommendation disregards potential ecological health risks to Humboldt Bay, the Commission staff postponed the project hearing in April 2007 so that a coordinated review of the issue of potential dioxin mobilization could be undertaken for purposes of determining whether the project would be consistent with applicable policies of the Coastal Act (i.e., Sections 30230, 30231, and 30232) regarding the protection of biological resources from water quality degradation and the release of hazardous substances into the environment. This review was conducted by the Commission's Water Quality Unit in coordination with the staff of the NCRWQCB, the agency who is administering the bay's Clean Water Act Section 303(d) impacted waters listing

[1] *See Staff Report at 38-40*.

and is the process of developing the Total Maximum Daily Load Plan (TMDL) for Humboldt Bay to ensure that human and ecological risks associated with exposure to such toxins are effectively managed.

II. REVISIONS TO STAFF RECOMMENDATION

As presented in Attachment No. 6 and mentioned above, the applicant is requesting that Special Condition No. 7, requiring approval of a erosion and stormwater runoff control plan, be modified to allow for the condition to be administered prior to commencement of each phase of project work rather than to be satisfied comprehensively before issuance of the permit amendment Finding no conflict with the intent of the original permit or possible enhanced risk of environmental harm to coastal resources, staff is amenable to the proposed change. Section A of Special Condition No. 7, as presented in Section III, pages 11-12 of the February 27, 2009 staff report should be modified to read as appears below. Text to be deleted text is shown in ~~**bold double-strikethrough**~~; text to be added appears in **bold double-underline**:

A. **PRIOR TO ~~ISSUANCE OF~~ COMMENCEMENT OF EACH SUB-PHASE OF CONSTRUCTION AUTHORIZED BY COASTAL DEVELOPMENT PERMIT AMENDMENT NO. 1-90-104-A2**, the ~~**applicant**~~ **permittee** shall submit, for review and approval of the Executive Director, a plan for erosion and run-off control that ~~**address the entire**~~ **addresses each sub-phase of the** project as amended**,** ~~**to include**~~ **including** Railroad Marsh enhancement, tidal slough dredging and outfall **construction, in-marsh channel excavation**, and other Phase 1A improvements.

All remaining language within Special Condition No. 7, as set forth in the February 27, 2009 staff report, is unchanged.

III. ATTACHMENTS

1. Letter from Kasey Ashley, North Coastal Regional Water Quality Control Board, dated March 5, 2009, received March 9, 2009
2. Letter from Pete Nichols, Humboldt Baykeeper, dated March 9, 2009, received March 10, 2009
3. Letter from Sue Leskiw, Redwood Region Audubon Society, dated and received March 9, 2009
4. Letter from Sue Leskiw, Sierra Club – North Group, Redwood Chapter, dated and received March 9, 2009
5. Email from Lisa Shikany, City of Eureka – Community Development Department, received March 9, 2009, with four attachments
6. Letter from Lisa Shikany, City of Eureka – Community Development Department, dated March 9, 2009, received March 11, 2009
7. Letter from Sam Schuchat, Coastal Conservancy, dated March 9, 2009, received March 12, 2009
8. *Ex Parte* Communications Disclosure, Commissioner Neely

California Regional Water Quality Control Board
North Coast Region
Bob Anderson, Chairman

Linda S. Adams
Secretary for
Environmental Protection

www.waterboards.ca.gov/northcoast
5550 Skylane Boulevard, Suite A, Santa Rosa, California 95403
Phone: (877) 721-9203 (toll free) • Office: (707) 576-2220 • FAX: (707) 523-0135

Arnold
Schwarzenegger
Governor

March 5, 2009

RECEIVED
MAR 0 9 2009
CALIFORNIA
COASTAL COMMISSION

Jack Gregg, Water Quality Program Supervisor
California Coastal Commission
45 Fremont Street, Suite 2000
San Francisco, CA 94105

Dear Mr. Gregg:

Subject: Comments on December 12, 2008 electronic mail

File: Simpson Plywood Mill, 1200 West Del Norte Street, Eureka, California
Case No 1NHU103

Regional Water Board staff reviewed your December 12, 2008 electronic mail and discussed the issues with you on December 22, 2008. This letter details our conversation.

You original question was whether I had additional information that would help characterize the potential for dioxin to have moved into the marsh or do I have recommendations for additional sampling. As we discussed in December, staff is not aware of any specific information on the movement of sediments from the Simpson site into the marsh. To our knowledge, sediment transportation rates and possible areas of deposition have not been studied. Staff does concur that theoretically sediment may move from the drainage swale into the marsh. Sediment also enters the marsh from the storm water discharge locations and from aerial deposition. In addition, both the swale and Palco Marsh drain to the bay simultaneously during the outgoing tides, which also makes sediment deposition from the Simpson site into Palco marsh unlikely.

The levels of dioxin found in the swale adjacent to the marsh are orders of magnitude lower than from the sediments adjacent to the Simpson site. During theoretical sediment transport, the dioxin levels would be further reduced. In addition, staff is unaware of a mechanism that would identify particular sources of dioxins found in marsh sediments. Therefore, staff does not recommend additional marsh sampling.

Regional Water Board staff appreciates working with you on this project. Please contact me at (707) 576-2673 if you have any questions.

Sincerely,

Kasey Ashley

Kasey Ashley P.G.
Senior Engineering Geologist

030509_KA_kasimp80

ATTACHMENT NO. 1

cc: Frank Bickner, LACO Associates Consulting Engineers, P.O. Box 1023, Eureka, CA 95501
Patty Clary, CATS, 315 P Street, Eureka, CA 95501
Northcoast Environmental Center, 1465 G Street, Arcata, CA 95521
Erik Nielsen, SHN Consulting Engineers, 812 West Wabash, Eureka, CA 95501
Ed Conti, Geomatrix, 2101 Webster Street, 12th Floor, Oakland, CA 94612
Ms. Meg Rosegay, Pillsbury Winthrop, 50 Fremont Street, San Francisco, CA 94105
Mr. Tom Becker, 721 Seventh Street, Eureka, CA 95501
Lisa Shikany, City of Eureka, Community Development Department, 531 K Street, Eureka, CA 95501
Rick Azevedo, RWQCB
Mr. Dave McEntee, Vice President Operational Services and External Affairs, Simpson Timber Company, 917 E. 11th Street, Tacoma, WA 98421-3039
Patrick O'Dell, Preston Properties, P.O. Box 471, Fortuna, CA 95540
Michelle D. Smith, Humboldt Baykeeper, 217 E Street, Suite G, Eureka, CA 95501
James R. Baskin, AICP, Coastal Planner, California Coastal Commission, North Coast District, 710 E Street, Suite 200, Eureka, CA 95501

HUMBOLDT BAYKEEPER

March 9, 2009

Bonnie Neely, Chair
California Coastal Commission
45 Fremont Street
Suite 2000
San Francisco, CA 94105-2219

Via U.S. mail

RECEIVED
MAR 1 0 2009
CALIFORNIA
COASTAL COMMISSION

Re: Agenda Item F13a-3-2009, City of Eureka Coastal Development Permit No. 1-90-104-A2

Ms. Neely,

On behalf of the board and staff of Humboldt Baykeeper, the following comments are provided regarding the proposed amendment to City of Eureka Coastal Development Permit No. 1-90-104-A2 ("CDP") for the Palco Marsh Enhancement Plan. This letter is being presented to both the Commission and Coastal Commission staff. Humboldt Baykeeper strongly supports the completion of the Palco Marsh Enhancement Plan restoration activities, however we are concerned that the project as proposed does not include any sampling for dioxins and furans ("dioxins") in areas within Palco Marsh that are expected to be excavated. We encourage the commission to approve the CDP amendment with an additional condition that requires sampling and analysis of sediments for dioxins to ensure the safety of workers and the protection of Humboldt Bay.

Humboldt Baykeeper initially raised this concern with Lisa Shikany of the City of Eureka in a letter dated November 20, 2008. That letter was additionally transmitted to

Jim Baskin of the Coastal Commission, Kasey Ashley of the North Coast Regional Water Quality Control Board, and Joel Gerwein of the California Coastal Commission. To date, we have received no response from the City or the agencies.

Palco Marsh is located downstream of a known dioxin hot-spot, the former Simpson Plywood Mill. In sampling conducted by Humboldt Baykeeper's consultants dioxins were found in sediments adjacent to the former Simpson Mill at levels up to 89,000 pg/g TEQ, and were found in surface sediments adjacent to the culverts connecting Palco Marsh with the tidal channel that drains the former Simpson Plywood Mill at a TEQ of 46 pg/g. Further sampling conducted by Geomatrix on behalf of Simpson Timber Company found dioxin within the sediments adjacent to the former plywood mill at up to 145,000 pg/g TEQ. *See* figure attached. Though the level found closest to the culverts is considerably lower than what was found immediately adjacent to the contaminant source, these numbers are still exceptionally high. For reference, NOAA has developed a sediment screening value for dioxins of 3.6 pg/g TEQ, the EPA has a residential preliminary remediation goal of 3.9 pg/g TEQ, and the North Coast Regional Water Quality Control Board has recently used the Canadian Sediment Quality Guideline for the Protection of Aquatic Life of .85 ng/kg in its evaluation of Humboldt Bay's Clean Water Act section 303(d) impairment evaluation.[1] The sediment result from the area immediately adjacent to Palco Marsh proper is almost 15 times higher than the EPA and NOAA values and is more than 54 times as high as the value used by the Regional Board..

The Simpson Plywood Mill used large quantities of pentachlorophenol (the source of the dioxins) from 1952 until 1973. The mill's pentachlorophenol storage tanks and spray operation were all located within 50 feet of the drainage swale and within 500 feet of the culvert that feeds Palco Marsh on incoming tides. That culvert was installed in the mid-1950's, and the tide gate that was installed was inoperable from at least the early 1990's, almost 20 years ago. It is reasonable to assume that during the almost 60 years that Palco Marsh was in communication with a tidal channel that has elevated levels of dioxin contamination there was also transport of these contaminants into the marsh. The elevated levels of dioxin found at the mouth of these culverts itself creates a reasonable likelihood that they may be found within the Marsh itself. Dioxins are extremely persistent in the environment, and since this appears to be an area of sediment deposition, it is very possible that dioxins may be found at higher levels at the depths that represent the sediment deposition during the mill's operational years.

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[1] *See http://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/303d/2008_integrated_report.shtml*

The work that will be occurring in this portion of the Marsh includes the digging of at least one, but possibly two, channels radiating out from the junction box that encompasses the Marsh side of the culverts that connect it with the tidal channel. These channels will be hand dug. Though hand digging of the channels will reduce the amount of disturbance that occurs in marsh sediments, and likely reduces the amount of sediment mobilization, it also brings human workers into much closer proximity to potentially contaminated sediments.

The staff report prepared for this CDP does acknowledge the close proximity of the remediation work to this hot spot, and identifies the high levels of contamination found in the vicinity. It discounts, however, the need for further testing due to the currently clogged condition of the culverts connecting the tidal channel with the Marsh proper, the minimal amount of excavation work proposed, and the likelihood that the majority of the sediments would be mobilized on outgoing instead of incoming tides, thus reducing the likely transport of dioxin contaminated sediments into Palco Marsh[2]. Humboldt Baykeeper does not believe that this reasoning provides sufficient support for disregarding the potential dioxin exposures to workers in this portion of the project, the potential harm to local flora and fauna should increased amounts of dioxin contaminated sediments become mobilized, as well as the potential harm to Humboldt Bay, a bay which is listed as impaired for dioxin. These potential threats outweigh the minimal expense of conducting a few composite samples.

We propose the following additional condition:

> Due to the project's proximity to a known source of dioxin contamination, in order to determine whether additional management practices are needed to protect onsite workers, and to avoid migration of contaminants to Humboldt Bay, prior to commencing excavation activities the applicant shall collect a minimum of three sediment samples for dioxins and furans analysis at a state-certified laboratory. The samples shall be collected from the 100 feet of new channel that will be hand dug eastward from the existing concrete drainage structure in the northwest corner of PALCO Marsh. If excavation work is conducted within the 320 feet of existing channel that extends from the existing concrete drainage structure in the northwest corner of PALCO Marsh, an additional three sediment samples shall be collected and analyzed for dioxins and furans. All samples shall be collected within the proposed excavation area, within 50 feet of the existing concrete drainage structure, and shall be composited borings from the surface to the proposed depth of excavation.

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[2] *See* Staff Report at 38-40.

The purpose of the Palco Marsh Enhancement Plan is to increase communication between the Marsh and Humboldt Bay, as well as to improve habitat for local wildlife. Humboldt Baykeeper strongly supports these efforts, but believes that this should be done in an informed manner. By collecting samples from Palco Marsh during this restoration work appropriate measures can be employed to minimize any negative impacts that might occur – impacts to both human and ecological health- instead of simply ignoring the possibility of their occurring. As of this date no sampling at all has occurred within Palco Marsh proper, only within Railroad Marsh, an area that is far removed from any known dioxin source.

Humboldt Baykeeper again urges you to grant the CDP with the proposed additional condition requiring dioxin sampling in proposed areas of excavation, to ensure the health and safety of restoration workers, and to determine whether additional sediment management practices need be employed to prevent contaminant mobilization.

Thank you,

/s/
Pete Nichols, Director and Baykeeper
Humboldt Baykeeper

Cc: Peter Douglas, Executive Director, California Coastal Commission (via e-mail)
Bob Merrill, District Manager, North Coast District Office, California Coastal Commission (via e-mail)
Jim Baskin, North Coast District Office, California Coastal Commission (via e-mail and hand delivery)
Catherine Kuhlman, Executive Officer, North Coast Regional Water Quality Control Board (via e-mail)
Lisa Shikany, City of Eureka(via e-mail)
Larry Glass, City of Eureka, City Council (via e-mail)
Joel Gerwein, California Coastal Conservancy (via e-mail)

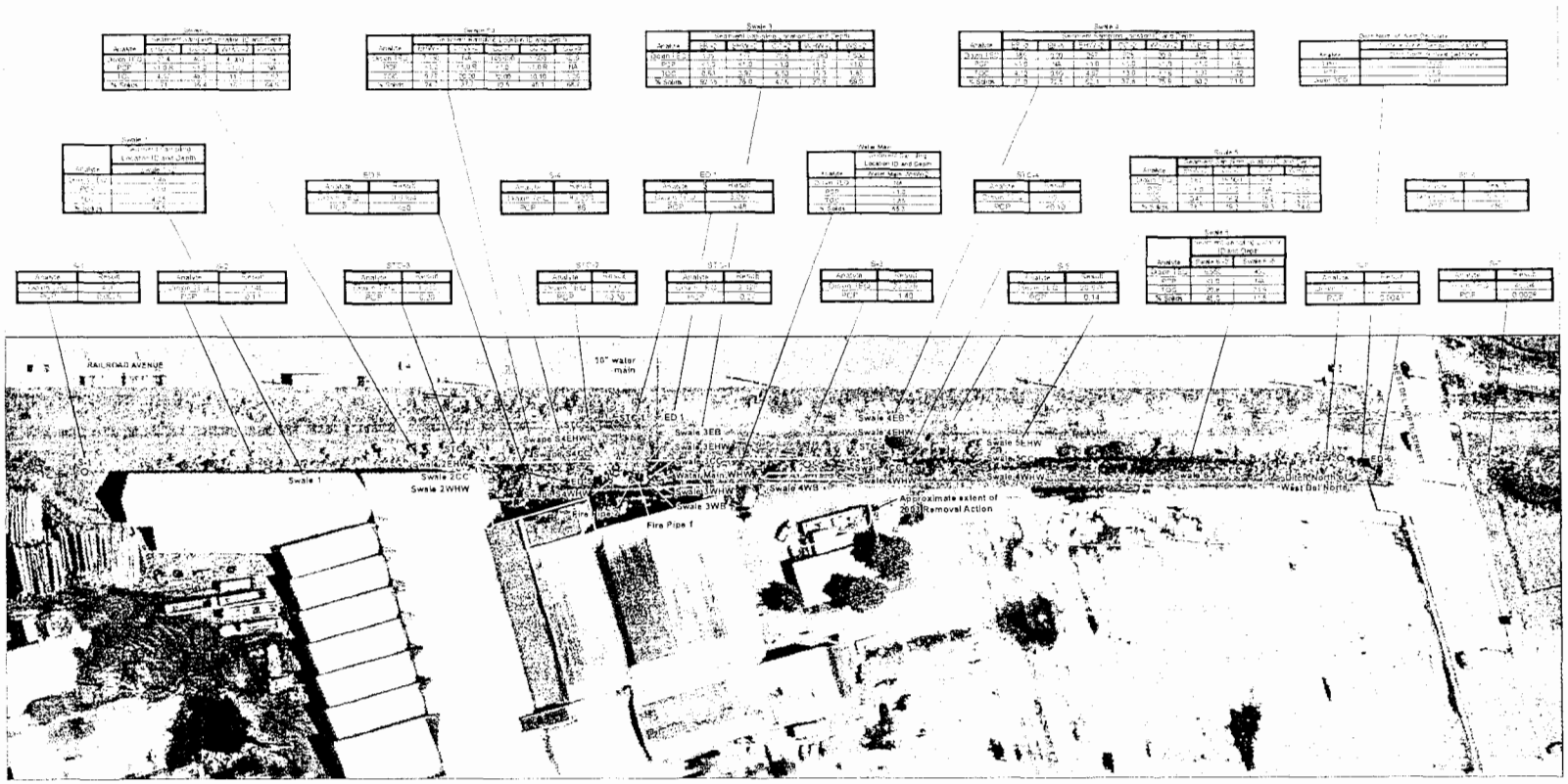
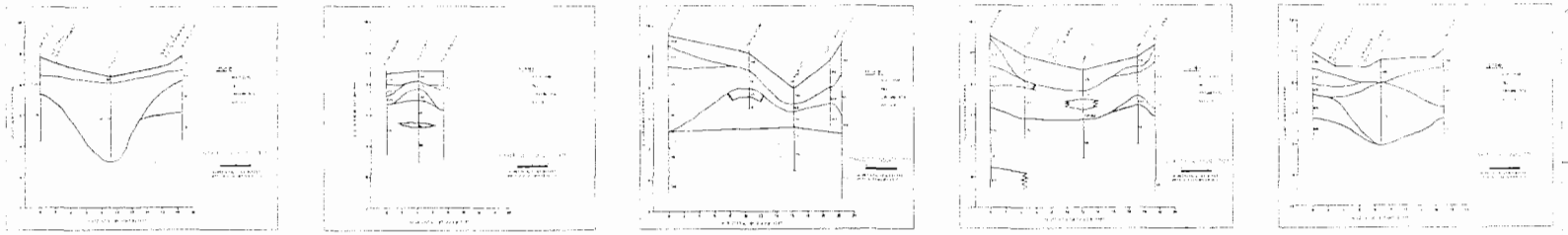


Photo Image Source - City of Eureka. Photography by Cartwright Aerial Survey 2002.



LEGEND

- C = SWAPE April 2006 sediment sampling location
- ■ = Humboldt Baykeeper November 2006 surface water sampling location
- C = SHN July 2006 sediment sampling location
- D = Geomatrix November 2006 sediment core sampling location
- ■ = Geomatrix November 2006 surface water sampling location

EB = east bank

EHW = east high water

CC = channel center

WHW = west high water

WB = west bank

Sediment Analytes

Dioxin TEQ = Total Dioxin Toxic Equivalent (pg/g)

PCP = Pentachlorophenol (mg/kg)

TOC = Total Organic Carbon (%)

Surface Water Analytes

Dioxin TEQ = Total Dioxin Toxic Equivalent (pg/L)

PCP = Pentachlorophenol (ug/L)

TPHd = Total Petroleum Hydrocarbons as Diesel (ug/L)

Data Qualifiers

UJ = The analyte was not detected at or above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R = Data are rejected because presence or absence of analyte cannot be verified.

NA = Not analyzed

Notes:

1. All sediment analytical results are from samples collected at a 1- to 2-foot sampling depth, unless otherwise noted.
2. Sediment samples Swale 5ACC-1 and Swale 5AEHW-1 were collected from a 0 to 1 foot sampling depth.
3. Sediment samples Swale 2AWW-3, Swale 5ACC-5, Swale 5SC-5, and Swale 5-C were collected from a 4 to 5 foot sampling depth.
4. Sediment samples Swale 4EB-6 and Swale 4WB-6 were collected from a 5 to 6 foot sampling depth.
5. All SHN, SWAPE, and Humboldt Baykeeper sampling locations shown are approximate locations.

0 50 Feet

EASTERN DRAINAGE SWALE SAMPLING RESULTS
Former Eureka Plywood Mill
1200 C St. De Nora Street
Eureka, California

By: JB | Date: 5.30.2007 | Project No.: 2617.002

Geomatrix | Figure: 8

REDWOOD REGION AUDUBON SOCIETY
P.O. BOX 1054, EUREKA, CALIFORNIA 95502

Agenda Item 13a

Redwood Region Audubon

March 9, 2009

California Coastal Commission, North Coast District Office
710 E Street, Suite 200
Eureka, CA 95501

This letter is submitted on behalf of Redwood Region Audubon Society (RRAS), a local chapter of the National Audubon Society, representing over 700 members in Humboldt, Del Norte, and western Trinity Counties.

Our comments pertain to Agenda Item 13a, to be considered on Friday, March 13. The agenda item is an amendment to Permit No. 1-90-104-A2, City of Eureka, regarding the PALCO Marsh Enhancement Project.

RRAS supports approval of the permit amendment with 12 special conditions, as outlined in the staff report. Four of these special conditions were part of the original approval on June 13, 1990. The eight new conditions include requiring the City to submit final plans for restoration monitoring, erosion and stormwater runoff control, grading and disposal, and landscaping for approval by the CCC Executive Director, as well as clean up trash. RRAS also wants to make sure that enhancement activities by the City of Eureka take into account the impacts of possible sea level rise from global climate change.

The project is approaching 20 years of delay, as evidenced by its 1990 original permit approval date. For over a decade, RRAS has been advocating for this marsh enhancement/public access project to be completed. We want to see the two marshes connected to Humboldt Bay as before diking and filling occurred, and have invasive plants be replaced by native ones. We do not support further delay for additional contaminant testing.

RRAS urges the Commissioners to accept the staff recommendations and approve the permit amendment with the 12 special conditions.

Sincerely,

Sue Leskiw

Sue Leskiw

On behalf of Redwood Region Audubon Society

Cc: City of Eureka

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MAR 0 9 2009
CALIFORNIA
COASTAL COMMISSION

ATTACHMENT NO. 3

Sierra Club
North Group, Redwood Chapter

P.O. Box 238
Arcata, CA 95518

Agenda Item 13a

North Group Sierra Club

March 9, 2009

California Coastal Commission, North Coast District Office
710 E Street, Suite 200
Eureka, CA 95501

This letter is submitted on behalf of the North Group, Redwood Chapter of the Sierra Club, representing over 1,200 members in Humboldt, Del Norte, Trinity, and the western half of Siskyou Counties.

Our comments pertain to Agenda Item 13a, to be considered on Friday, March 13. The agenda item is an amendment to Permit No. 1-90-104-A2, City of Eureka, regarding the PALCO Marsh Enhancement Project.

The North Group supports approval of the permit amendment with 12 special conditions as outlined in the staff report on this item. Four of these special conditions were part of the original approval on June 13, 1990, intended to assure consistency with the Coastal Act. The eight new ones including requiring the City to submit to the Executive Director for review and approval final plans for restoration monitoring, erosion and stormwater runoff control, grading and disposal, and landscaping, as well as clean up trash on the project site.

As evidenced by the 1990 original permit approval, this project is approaching two decades of delay to be realized. Some came from the City of Eureka, others were from outside (e.g., Corps of Engineers permits, possible tidewater goby habitat, contaminant testing).

The North Group Sierra Club has, for over 10 years, been advocating for the completion of this marsh enhancement project. We want to see improved intertidal exchange between the two marshes and Humboldt Bay and eradication of invasive plants/replanting of native species. We do not support further delay of the project for additional contaminant testing.

Again, the North Group urges the Commissioners to accept the staff recommendations and approve the permit amendment with the 12 special conditions.

Sincerely,

Sue Leskiw

Sue Leskiw

Secretary-Treasurer, North Group, Redwood Chapter, Sierra Club

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MAR 0 9 2009
CALIFORNIA
COASTAL COMMISSION

Cc: City of Eureka

ATTACHMENT NO. 4

Jim Baskin

From: Lisa Shikany [lshikany@ci.eureka.ca.gov]
Sent: Monday, March 09, 2009 10:23 AM
To: Kasey Ashley; Jim Baskin; Jack Gregg
Subject: PALCO Marsh Drainage

All,

We have conducted some additional research into the drainage situation at the NW corner of PALCO Marsh. Here is what we have discovered:

- November of 1954, NWPRR grants an easement to the City for the 3 30-in. storm drains. Easement was to construct, maintain and use the storm drains.

- 4-27-55 Pacific Lumber grants the City an easement approximately 41' x 62' for a storm sewer outlet, located in the NW corner of PL's property, also being the NW corner of the marsh (current location of junction box)

- 5-20-55 surveying and staking for a storm sewer in Railroad Avenue and 30-in. culverts.

- Construction drawings (attached in four 11 x 17 scans) for the "Murray Street Storm Sewer" dated August 1954 (attached in four 11 x 17 sections). The drawing shows the installation of the 42-in. storm drain piping in Railroad Avenue, the junction box, the 3 30-in. culverts under the tracks from the junction box to the tidal channel, and a 30-in pipe or "stub" from the junction box into the marsh. Some key points that support the fact that the junction box and pipes were installed to facilitate storm water leaving the marsh, not tide water entering the marsh.
  - F.L. at the outfall of the 3 30-in. culverts proposed at 3.5 feet. F.L. at outfall of 30-in. stub 3.7 feet. 30-in. pipes sloped at 0.15% from the junction box toward the tidal channel. This seems to indicate the system was designed strictly for the purpose of getting storm flows from the City's storm drain system out into the bay.
  - 30-in. stub shown as a "plug. stub", presumably meaning a "plugged" stub. No water would have entered PALCO Marsh from the bay through the junction box, given the fact that the stub was plugged.
  - An existing barn located directly east of the stub. If the stub were unplugged, it would have flowed directly into the barn.
  - Note on the map noting the fact that the elevation of the 42-in. pipe was lowered dated June 7, 1955, likely indicating date of construction.

- June 1955 surveying notes show 42-in. culvert as installed.

- 12-21-66 survey notes for "Elevation for storm sewer – Extension & Revision – Railroad Avenue and Del Norte". Unclear exactly what work was proposed. Drawing shows 42-in. pipe in Railroad Avenue, 3 30-in. culverts and culvert under Del Norte to tidal channel.

- Deputy City Engineer Gary Boughton was the project manager for Phase 1 of the PALCO Marsh Enhancement Plan. He recalls that during the years prior to 1991 (the year Phase 1 was constructed) there was a functioning tide gate on the 30-in. stub into the marsh. In 1991, he observed the tide gate was tied partially open. Page 8 of the 1991 Baseline Monitoring Report for PALCO Marsh notes that on October 23 (of 1991) "a second (existing) tide gate was opened at the north end of the site", (the "first" being referenced was the old tide gate at the mid-marsh culvert). The fact that the tide gate on the 30-in. stub was opened in 1991 would seem to support the fact that the tide gate was closed prior to that time. The 1995 final monitoring report still notes a tied partially open tide gate at this location, and recommends its removal to facilitate tidal action in the marsh; it has since been removed. Gary also notes that in 1991, there was

ATTACHMENT NO. 5

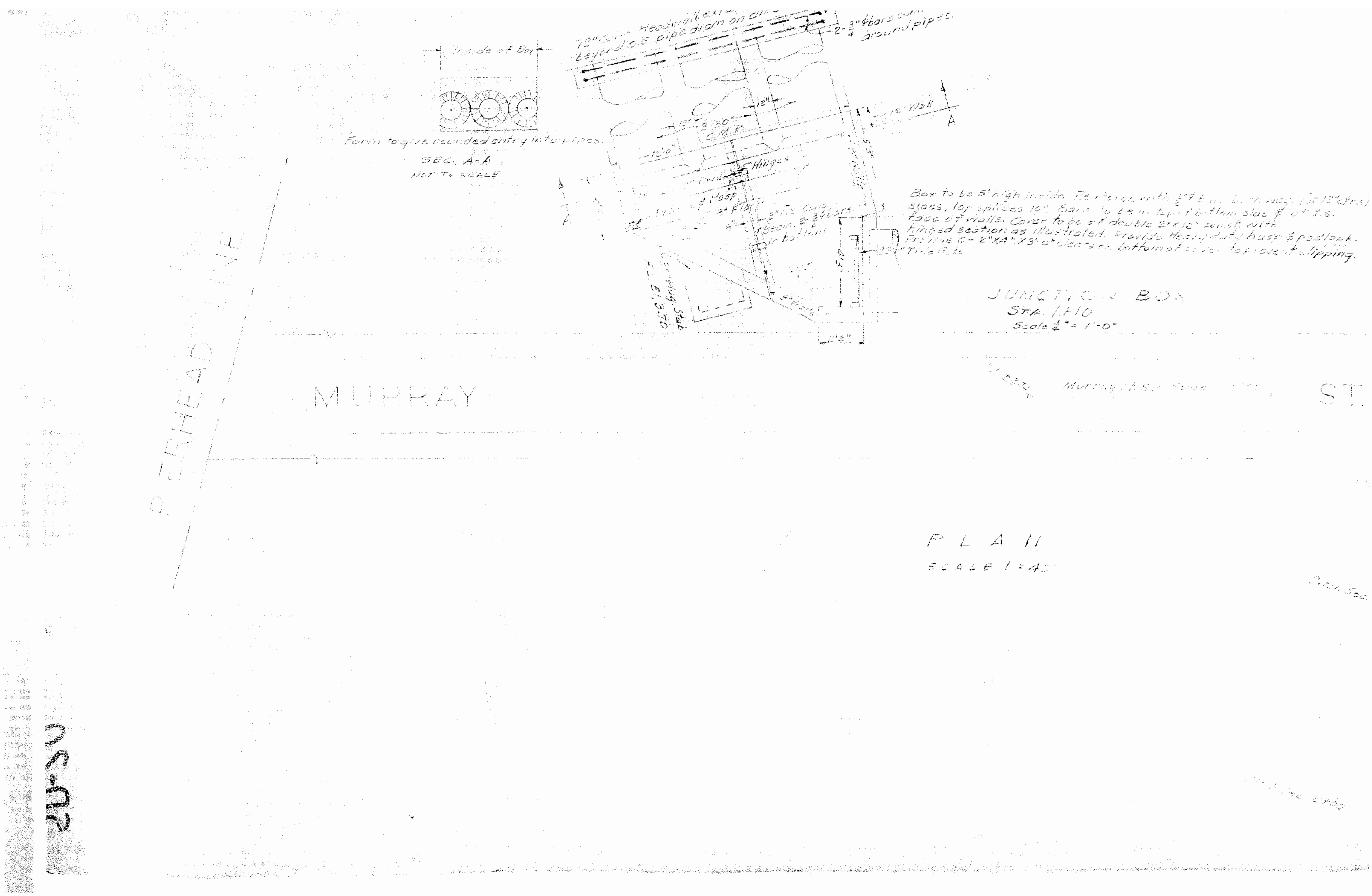
sediment build up at the north end of the tidal channel out in front of, but not fully blocking, the 3 30-in. culverts.

- The 1985 vegetation mapping for the enhancement project shows pickle weed east of the fill prism (the fill was removed in 1991 as part of Phase 1 of the Enhancement Plan) that contained the junction box. No pickle week or channel is shown directly adjacent to the junction box, suggesting no tidal flows were leaving the junction box.

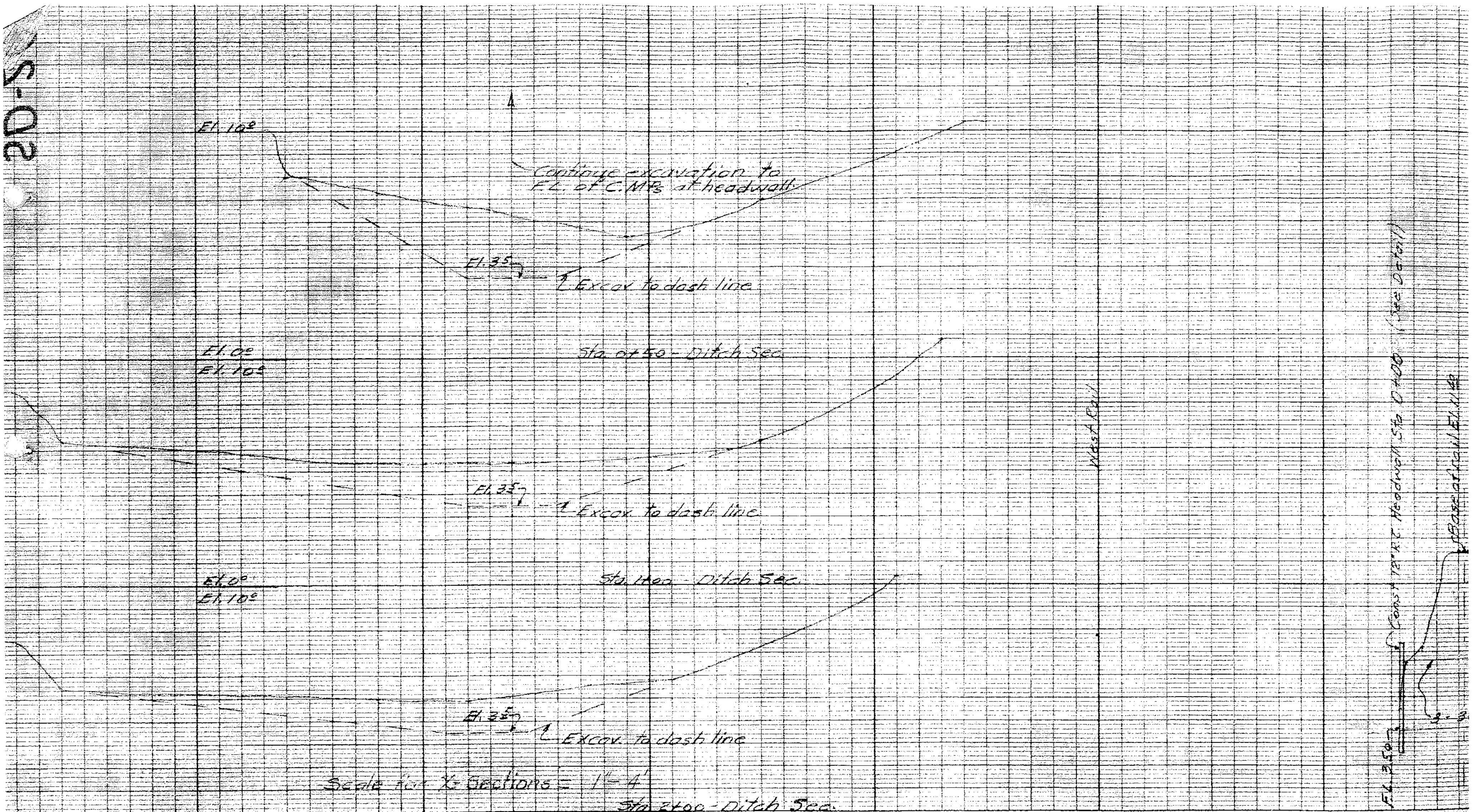
Together, this information seems to indicate that a "closed" storm drain system was installed in 1955, consisting of the 42-in. storm drain in Railroad Avenue and the 3 30-in. culverts from tidal channel into the marsh, connected with a junction box. The 30-in. stub was plugged at construction, and appears to have remained "plugged" in terms of water flowing into the marsh from installation of the storm drain facilities in 1955 until 1991 when the existing tied gate was tied partially open. At that time, the culverts were flowing somewhat, but sediment buildup in the tidal channel at that time, and the eventual plugging of the three culverts and upper channel, would seem to suggest that sediment was dropping out of flows at the culvert outfall.

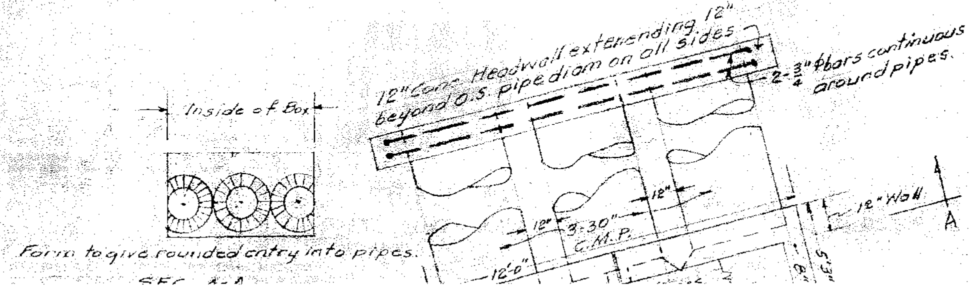
This information further supports the fact that significant sediment transport from the tidal channel into the marsh was and remains quite unlikely.

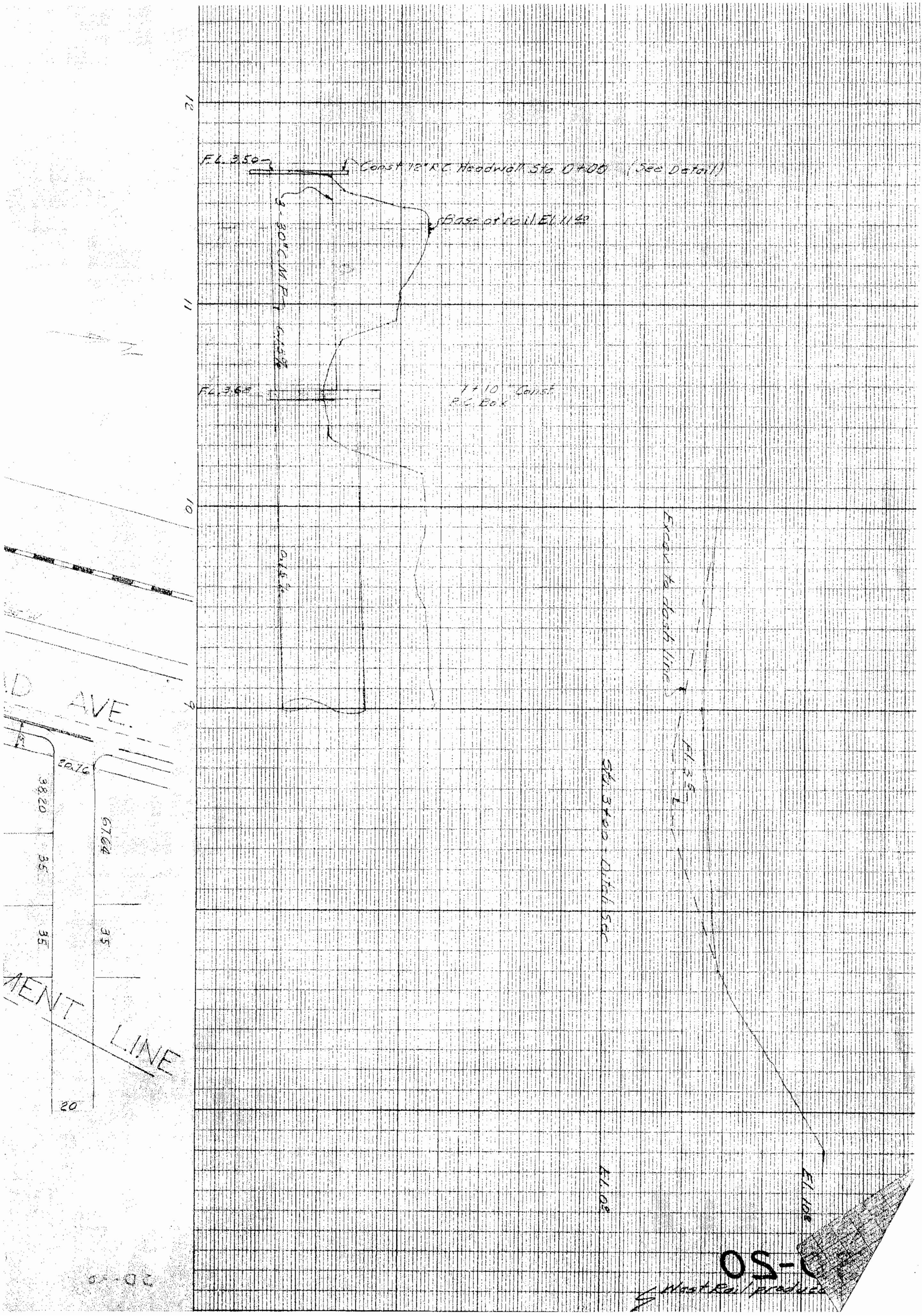
Lisa

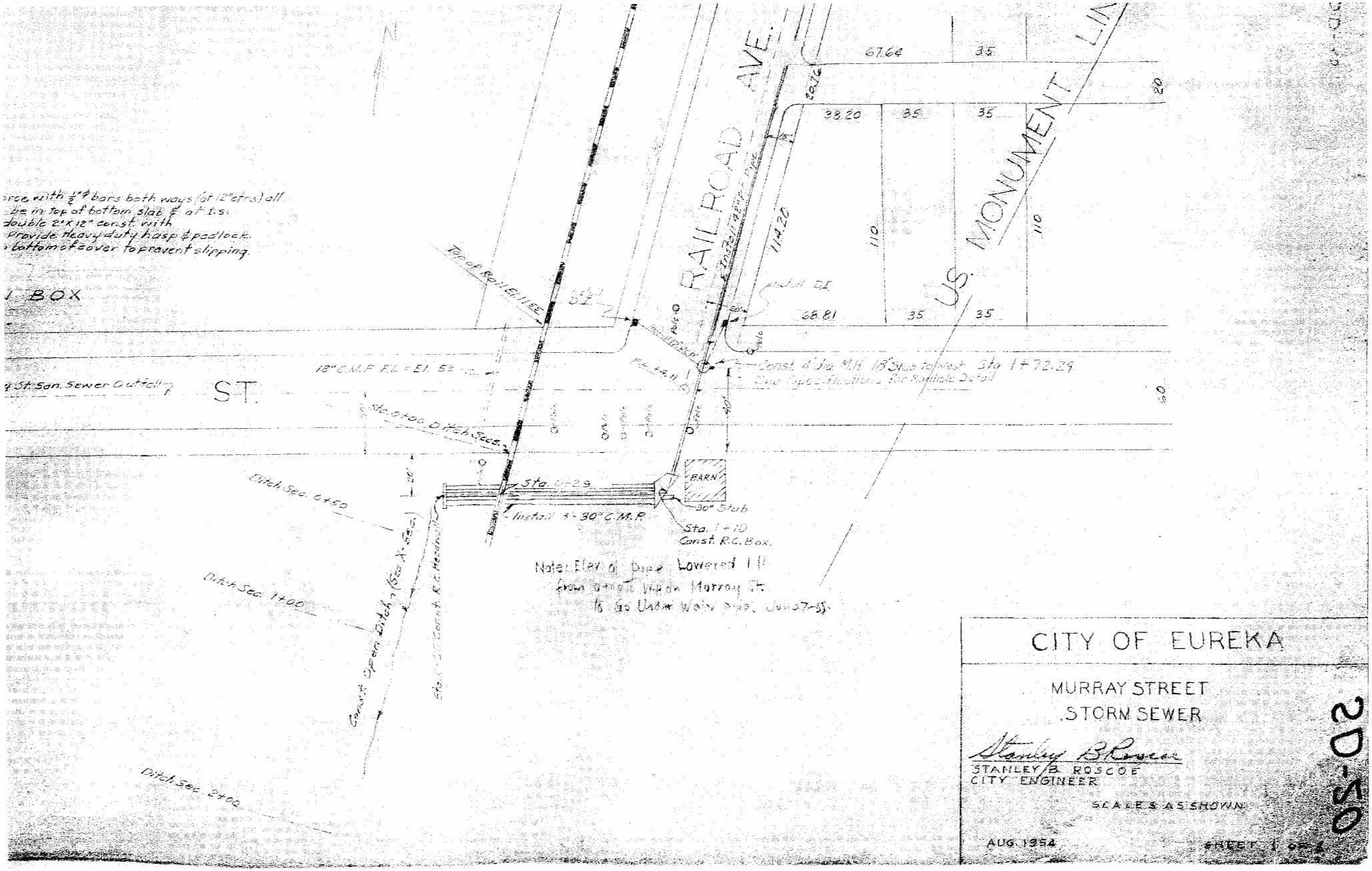


20-30
PIERHEAD LINE
MURRAY
ST.
Form to give rounded entry into pipes.
SEC. A-A
NOT TO SCALE
Inside of Box
Hinges
Box to be 5' high inside. Reinforce with 1/2" Ø bars both ways (at 12" ctrs.)
JUNCTION BOX
STA. 1+10
Scale 1/4" = 1'-0"
PLAN
SCALE 1" = 40'


2D-S
El. 10°
Continue excavation to
F.L. of C.M.P.'s at headwall
El. 35
Excav. to dash line
El. 0°
El. 10°
Sta. 0+50 - Ditch Sec.
El. 35
Excav. to dash line
El. 0°
El. 10°
Sta. 1+00 - Ditch Sec.
El. 35
Excav. to dash line
Scale for X-Sections = 1" = 4'
Sta. 2+00 - Ditch Sec.
West Rail
Const. 12" R.C. Headwall Sta. 0+00 (See Detail)
Base of rail El. 11.40
F.L. 3.50
12


12" Conc. Headwall extending 12" beyond O.S. pipe diam on all sides
2-3/4" bars continuous around pipes.
Inside of Box
Form to give rounded entry into pipes.
12"
12"
3-30" C.M.P.
12'0"
12" Wall
A

 F.L. 3.50
Const 12" R.C. Headwall Sta 0+05 (See Detail)
Base of rail El. 11.40
2-30" C.M.P.
F.L. 3.65
7 + 10" Const R.C. Box
Excav to dash line
El. 3.5
El. 10.0
El. 10.0
AVE.
20.76
38.20
67.64
35
35
35
LINE
20
OS-



CITY OF EUREKA

MURRAY STREET
STORM SEWER

Stanley B. Roscoe
STANLEY B. ROSCOE
CITY ENGINEER

SCALES AS SHOWN

AUG. 1954

SHEET 1 OF 2

D-52

CITY OF EUREKA
COMMUNITY DEVELOPMENT DEPARTMENT
531 K Street • Eureka, California 95501-1146
(707) 441-4160 • Fax (707) 441-4202

March 9, 2009

RECEIVED
MAR 1 1 2009
CALIFORNIA
COASTAL COMMISSION

James R. Baskin, AICP
Coastal Planner
California Coastal Commission
North Coast District
710 "E" Street, Suite 200
Eureka, CA 95501

Re: Amendment to CDP 1-90-104 for the PALCO Marsh Enhancement Plan
Request to amend Special Condition 7. Erosion and Runoff Control Plan

Dear Jim,

Special Condition #7 of the above referenced permit amendment for the PALCO Marsh Enhancement Plan Phase 1A, requires that an erosion and runoff control plan for the entire project be submitted for the review and approval of the Executive Director prior to the issuance of the CDP amendment. Due to the likelihood of construction phasing for the various elements of the Phase 1A Plan, we would like the flexibility of instead, submitting an erosion and runoff control plan for review and approval prior to and addressing each construction phase. Since phasing may extend out two or more years, particularly in regard to the Railroad Marsh enhancement element, we believe this approach will further the completion of earlier phases that are ready for construction without sacrificing water quality protection for future phases.

As further assurance that an appropriate erosion control plan(s) will be prepared prior to any construction, Mitigation Measure No. 11 of the City's adopted Mitigation Monitoring and Reporting Program already requires preparation of an erosion control plan for the City's approval, and requires such plan to be incorporated into design and contract documents.

> **MITIGATION MEASURE NO. 11. The contractor shall implement best management practices (BMPs) as contained in Sections 3 and 4 of the Stormwater Quality Association Stormwater Best Management Practice Handbook for Construction dated January 2003, or other generally recognized stormwater BMP compilations as may be required, and as contained in the Stormwater Pollution Prevention Plan to be prepared and approved by the City for the project.**
>
> Monitoring: This measure shall be made a condition of approval for the project, shall be incorporated into design and contract documents prepared by the City for the project, and shall be implemented throughout the duration of the project construction and

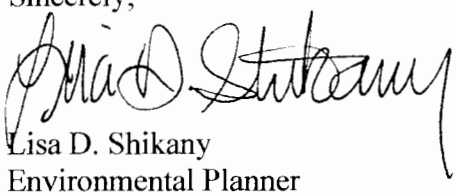
maintenance. The City Engineering Department shall approve the SWPPP, and the City Engineering Department or the Community Development Department shall conduct field observations during the construction process to assure that appropriate BMPs are implemented, and shall be empowered to direct the contractor to temporarily suspend construction activities if evidence is presented to either department that the contractor is not in compliance with this measure, pending the development of specific actions to regain compliance.

We therefore respectfully request that Special Condition #7 be revised in a manner similar to Special Condition #8, to read as follows:

> PRIOR TO THE COMMENCEMENT OF EACH PHASE OF CONSTRUCTION AUTHORIZED BY COASTAL DEVELOPMENT PERMIT AMENDMENT NO. 1-90-104-A2, the applicant shall submit, for review and approval of the Executive Director, a plan for erosion and run-off control that addresses the proposed construction.

Thank you for your consideration of our request. If you have any question, please do not hesitate to contact me.

Sincerely,



Lisa D. Shikany
Environmental Planner
(707) 268-5265
lshikany@ci.eureka.ca.gov

Coastal Conservancy

March 9, 2009

James R. Baskin, AICP
Coastal Planner
California Coastal Commission
North Coast District
710 "E" Street, Suite 200
Eureka, CA 95501

RE: Support for Coastal Development Permit Amendment Application No. 1-90-104-A2
PALCO Marsh Enhancement Plan – Phase 1A

Dear Mr. Baskin,

I am writing to express the Conservancy's support for the City of Eureka's CDP Amendment Application No. 1-90-104-A2. The Conservancy agrees with the Commission that the implementation of Phase 1A of the PALCO Marsh Enhancement Plan is unlikely to result in contaminated sediments entering Humboldt Bay, especially in light of the additional conditions proposed for the amended permit. The project will result in significant benefits for fish and wildlife, as well as wildlife viewing and environmental education for the public. The Conservancy therefore respectfully requests that the project be permitted without requiring the expense and delay associated with further soil testing.

The Conservancy understands that the City will request permission to submit erosion control/stormwater pollution prevention plans specific to each phase of the project as it is about to be implemented. We support the City's request, as this phased approach may expedite earlier phases of the project without causing environmental impacts.

Sincerely,

Sam Schuchat
Executive Officer

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MAR 1 2 2009
CALIFORNIA
COASTAL COMMISSION

ATTACHMENT NO. 7

1330 Broadway, 13th Floor
Oakland, California 94612-2530
510·286·1015 *Fax:* 510·286·0470

FORM FOR DISCLOSURE OF EX PARTE COMMUNICATION

RECEIVED
MAR 05 2009
CALIFORNIA COASTAL COMMISSION

Date and time of communication: (For messages sent to a Commissioner by mail or facsimile or received as a telephone or other message, date time of receipt should be indicated.)	3/4/09 – 1:00 p.m.
Location of communication: (For communications sent by mail or facsimile, or received as a telephone or other message, indicate the means of transmission.)	Via Phone
Person(s) initiating communication:	ORCA Representative Maggie Herbelin
Person(s) receiving communication:	Bonnie Neely
Name or description of project:	F13a. – City of Eureka Permit for Palco Marsh enhancement.

Detailed substantive description of content of communication:
(If communication included written material, attach a copy of the complete test of the written material.)

ORCA supports the project moving forward. Some members wanted more testing for dioxins but it wasn't a unanimous vote.

Date: March 4, 2009

Signature of Commissioner

If the communication was provided at the same time to staff as it was provided to a Commissioner, the communication is not ex parte and this form does not need to be filled out.

If communication occurred seven or more days in advance of the Commission hearing on the item that was the subject of the communication, complete this form and transmit it to the Executive Director within seven days of the communication. If it is reasonable to believe that the completed form will not arrive by U.S. mail at the Commission's main office prior to the commencement of the meeting, other means of delivery should be used, such as facsimile, overnight mail, or personal delivery by the Commissioner to the Executive Director at the meeting prior to the time that the hearing on the matter commences.

If communication occurred within seven days of the hearing, complete this form, provide the information orally on the record of the proceedings and provide the Executive Director with a copy of any written material that was part of the communication.

Coastal Commission Fax: 415 904-5400

ATTACHMENT NO. 8

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

MAILING ADDRESS:
P. O. BOX 4908
EUREKA, CA 95502-4908

F13a

Filed:	February 7, 2009
49th Day:	April 3, 2007
180th Day:	August 12, 2007
Staff:	Jim Baskin
Staff Report:	February 27, 2009
Hearing Date:	March 13, 2009
Commission Action:	

STAFF REPORT: PERMIT AMENDMENT

APPLICATION NO.:	**1-90-104-A2**
APPLICANT:	**City of Eureka**
PROJECT LOCATION:	*PALCO Marsh Enhancement Project* Site, bounded by Broadway (Highway 101), Vigo, Del Norte and Felt Streets, and Humboldt Bay, Eureka, Humboldt County. (APNs 7-031-02, -03, -04, 7-041-03, 7-051-02, and -06).
DESCRIPTION OF PROJECT PREVIOUSLY APPROVED:	Enhance 86 acres of fresh and saltwater marsh, and provide public access improvements.
DESCRIPTION OF AMENDMENT REQUEST:	Modify previously-granted permit to construct saltmarsh, brackish, and freshwater wetland enhancement improvements by: (1) installing culverts and drainage control structures, excavating tidal channels, and removing railroad spur line to further enhance intertidal exchange between PALCO and Railroad Marshes with Humboldt Bay; (2) removing debris racks and non-functioning drainage control and tidegate structures; (3) performing exotic/invasive plant eradication and

	native species replanting activities; (4) installing riparian vegetation buffer along Del Norte and Felt Streets roadways; (5) deleting construction of a public access parking lot support facility already constructed at an alternative site; and (6) instituting a five-year monitoring and follow-up maintenance program for management of the enhanced biologic and hydrologic resources.
GENERAL PLAN DESIGNATION:	Natural Resources (NR), Coastal-Dependent Industrial (CDI), and Water – Development (WD).
ZONING DESIGNATION:	Natural Resources (NR) and Development Water (WD).
OTHER APPROVALS RECEIVED:	U.S. Army Corps of Engineers FCWA §404 / R&HA §10 Nationwide Permits 27 & 33 File No. 301200N, issued February 7, 2007.
OTHER APPROVALS PENDING:	North Coast Regional Water Quality Control Board FCWA § 401 Certification.
SUBSTANTIVE FILE DOCUMENTS:	1) CDP No. 1-90-104; 2) CDPA Application No. 1-90-104-A1 (never acted upon, withdrawn under this amendment); 3) City of Eureka CDP24-91; and 4) City of Eureka LCP

SUMMARY OF STAFF RECOMMENDATION

The staff recommends that the Commission approve with conditions, the requested amendment to the coastal development permit originally granted for the PALCO Marsh Enhancement Project. The proposed amended project would facilitate renewed efforts, with certain modifications, to enhance the diversity of terrestrial and aquatic habitats within the PALCO Marsh complex previously authorized by the Commission in June 1990. The original 1990 permit (CDP No. 1-90-104, City of Eureka, Applicant) authorized saltwater/brackish/freshwater habitat restoration and enhancement activities for improving intertidal saltmarsh, mudflat, and slough habitat within formerly reclaimed lands along the periphery of Humboldt Bay, within the City of Eureka in Humboldt County. The work included removing a tidegate separating the marsh from Humboldt Bay, constructing an inverted siphon to convey and control intertidal flows into, and

stormwater outflow from, the marsh, and excavating tidal channels throughout the marsh. In addition, efforts were undertaken to eradicate exotic/invasive plant species in areas of the marsh where they had become established and were displacing native vegetation. The original project also included the construction of various public access improvements along the marsh perimeter, including the erection of vehicle barriers at street egress points, the paving of sidewalks along the Del Norte and Felt Street frontages, applying a gravel surface to the westerly maintenance dike, and installation of benches and signage along the trail. The City completed these Phase 1 enhancement improvements, but did not undertake other development authorized in the original permit due to, among other reasons, encountering and having to remediate petroleum and hazardous materials contamination at the site.

The proposed project amendments involve reinitiating, with certain modifications, several of the remaining Phase 1 scopes of work, including making hydrologic improvements between PALCO Marsh and adjoining Railroad Marsh, through the installation of two 12-inch-diameter culverts between the two marshes and grading out a bayside railroad spur to marsh elevations, resulting in a three-acre expansion in intertidal saltmarsh. To increase the tidal exchange with Humboldt Bay, a collapsed 24-inch-diameter culvert currently interconnecting PALCO Marsh with the bay would be replaced by a 48-inch-diameter culvert and two junction boxes installed between the new culvert and the inverted siphon and remaining run of 18-inch diameter piping leading into the marsh. Together, these drainage improvements would improve the integrity of the connection of the marsh with the bay, result in an approximately 0.6-foot increase in tidal range within the marsh, improve the currently degraded water quality in the marsh by increasing the flushing rate between these waters, and provide passage for salmonids and other estuarine shallows aquatic species into the marsh. In addition, invasive plant eradication, native plant revegetation, and hand-dug tidal channel improvements would also be undertaken within the enhancement area. Other amended project work entails the removal of unsightly debris racking from the bay culvert outfall and a drainage junction box structure at the project site's Del Norte Street entrance, the planting of street side landscaping along the site's Del Norte and Felt Street frontages, and the deletion of a public access parking lot support facility which has subsequently been developed at an alternative nearby location. To accomplish these enhancements, the project would involve the placement of 253 square-feet of fill materials in, and the dredging of approximately 3,727 cubic-yards of sediment materials from the waters and shorelines of Humboldt Bay and the marsh complex. Staff believes these aspects of the project, as conditioned, would be consistent with the permissible use, requisite mitigation inclusion, least environmentally damaging feasible alternative, and enhance where feasible requirements of Coastal Act Section 30233 regarding authorizable filling, dredging, and diking of coastal waters and wetlands.

With respect to coastal water quality, during the review of this permit amendment request, concerns surfaced as to whether portions of the project site might be contaminated by hazardous materials, namely dioxin/furans, which might possibly

necessitate that the project be further modified to include additional measures to remediate the presence of such substances. These concerns were based on the then-recent listing of Humboldt Bay as "dioxin impaired" by the State Water Resources Control Board, and the observation that dioxin-tainted sediments may have entered PALCO Marsh on tidal in-flows. As discussed further herein, based upon additional sediment sampling, the consideration of historical development, hydrologic, engineering, and other technical data, and further sediment excavation, handling, and disposal criteria modifications being made to the permit amendment request, the Commission's Water Quality Unit staff, in coordination with the staff of the North Coast Regional Water Quality Control Board, have concluded that there is a low likelihood that dioxin contamination is present in appreciable concentrations that would compel that addition testing be undertaken before scheduling the amendment for a hearing before the Commission.

Staff recommends that one of the four special conditions of the original permit approved by the Commission be reimposed verbatim and remain in full force and effect for the amended project. This special condition set forth requirements that the applicant obtain a permit amendment for any additional enhancement work identified in the original permit application that has been deferred to date (i.e., construction of a freshwater pond, restoration-related excavation of the "Pole Shed" site).

Special Conditions Nos. 2 and 4 of the original permit are recommended to be reimposed without revisions to assure that the amended development remains consistent with the policies of the Coastal Act. Special Condition No. 3 would be reimposed with revisions requiring that within 30 days of completion of enhancement plan work two sets of coastal access signs be installed along both north- and south-bound Highway 101 at its Del Norte and Bayshore Way intersections, and maintained in perpetuity.

Staff also recommends that eight new special conditions be attached to the amended permit:

Special Condition No. 5 requires that a final restoration monitoring plan be prepared and submitted for the review and approval of the Executive Director prior to issuance of the permit amendment.

Special Condition No. 6 sets certain construction performance standards for installation of the proposed restoration site enhancements.

Special Condition No. 7 requires that, prior to issuance of the permit amendment, an erosion and stormwater runoff control plan be prepared and submitted for the review and approval of the Executive Director.

Special Condition No. 8 requires that, prior to commencement of each sub-phase of dredging or excavation, a grading and disposal plan be prepared and submitted for the review and approval of the Executive Director.

Special Condition No. 9 requires that, prior to the installation of each sub-phase of restoration revegetation or vegetative screening, a final landscaping plan be prepared and submitted for the review and approval of the Executive Director.

Special Condition No. 10 sets as a condition of acceptance of the permit that the applicant acknowledges the inherent natural risks associated with the development and project site, accepts all liability, and holds the Commission harmless against all claims arising from development of the project.

Special Condition No. 11 requires that, prior to commencement of project construction activities, the permittee submit a copy of the U.S. Army Corps of Engineers Clean Water Act Section 404 permit or other authorization be submitted for the review of the Executive Director.

Special Condition No. 12 requires the permittee to undertake the proposed repair and maintenance activities regarding the project's drainage interpretive kiosks improvements, and the collection of litter, trash, and other forms of solid wastes.

As conditioned, staff has determined that the development with the proposed amendment would be consistent with the policies of the Coastal Act.

The motion to adopt the staff recommendation of approval with conditions is found on page 7.

STAFF NOTES:

1. Procedural Note.

Section 13166 of the California Code of Regulations states that the Executive Director shall reject an amendment request if: (a) it lessens or avoids the intent of the approved permit; unless (b) the applicant presents newly discovered material information, which he or she could not, with reasonable diligence, have discovered and produced before the permit was granted.

The Executive Director has determined that the proposed amendment would not lessen or avoid the intent of the conditionally approved permit and subsequent permit amendment. On June 13, 1990, Coastal Permit No. 1-90-104 (City of Eureka, Applicant) was approved by the Commission with four special conditions intended to assure consistency with the provisions of the Coastal Act for protecting environmentally sensitive habitat

areas, coastal water quality, and public access. Although the now proposed reinitiated estuarine and saltmarsh enhancement work would entail development in and adjacent to additional environmentally sensitive areas on or near the property, the habitat restoration and enhancement impetus of the development would not change. Moreover, the project limitations and performance standards established under the original permit and determined adequate for reducing the effects of the development in and on adjoining ESHA would not be reduced or otherwise altered. Accordingly, the development as amended to reinitiate conducting intertidal habitat within the PALCO Marsh Enhancement Project would conform to the policies and standards of the Coastal Act with respect to designing and siting development so as to be compatible with environmentally sensitive habitat areas and to protect such areas from the significant degrading impacts of new development.

Therefore, for the reasons discussed above, the Executive Director has determined that the proposed amendment would not lessen or avoid the intent of the conditionally approved permit and has accepted the amendment request for processing.

2. Commission Jurisdiction and Standard of Review.

The proposed amended project is located in the Commission's retained jurisdiction. The City of Eureka has a certified LCP, but the site is within an area shown on State Lands Commission maps over which the state retains a public trust interest (see Exhibit No. 3). Therefore, the standard of review that the Commission must apply to the amended project is the Chapter 3 policies of the Coastal Act.

3. Scope.

This staff report addresses only the coastal resource issues affected by the proposed permit amendment, provides recommended special conditions to reduce and mitigate significant impacts to coastal resources and achieve consistency with the certified LCP and the public access and recreation policies of the Coastal Act, and provides findings for conditional approval of the amended project. All other analysis, findings, and conditions related to the originally permitted project, except as specifically affected by this proposed permit amendment and addressed herein, remain as stated within the findings for the original development adopted by the Commission on June 13, 1990, and included as Exhibit No. 7 of this report.

I. MOTION, STAFF RECOMMENDATION, AND RESOLUTION:

The staff recommends that the Commission adopt the following resolution:

Motion:

I move that the Commission approve Coastal Development Permit Amendment No. 1-90-104-A2 pursuant to the staff recommendation.

Staff Recommendation of Approval:

Staff recommends a **YES** vote. Passage of this motion will result in approval of the permit 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 to Approve with Conditions:

The Commission hereby approves the proposed permit amendment and adopts the findings set forth below, subject to the conditions below, on the grounds that the development with the proposed amendment, 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 all feasible mitigation measures and alternatives have been incorporated to substantially lessen any significant adverse impacts of the development on the environment.

II. STANDARD CONDITIONS: See attached.

III. SPECIAL CONDITIONS:

Note: Special Condition Nos. 2 and 4 of the original permit are reimposed as conditions of this permit amendment without any changes and remain in full force and effect. Special Condition No. 1, requiring the permittee to obtain all necessary authorizations for the originally approved project from the U.S. Army Corps of Engineers has been satisfied. Special Condition No. 2, regarding the designation of an entity to manage the project improvements has also been satisfied — the City of Eureka shall retain the PALCO Marsh Enhancement Project Site as a municipal wildlife conservation and public recreational area. Special Condition No. 3 of the original permit is modified below and imposed as a condition of Permit Amendment No. 1-90-104-A2. Special Condition Nos. 5 through 10, below, are additional new conditions attached to this permit amendment. Deleted wording within the modified special conditions is shown in ~~**bold double-**~~

~~**strikethrough**~~ text, new condition language appears as **bold double-underlined** text. For comparison, the text of the original permit conditions is included in Exhibit No. 7.

3. Conspicuous Posting of Public Access Facilities

Within 30 days of completion of the **amended** enhancement plan, the City shall erect, and permanently maintain, two **different sets of directional** public access signs. Both **northbound and southbound sets** will be located adjacent to U.S. 101, one **set** at ~~**Vigo Street**~~ **Bayshore Way** and one **set** at Del Norte Street.

5. Final Restoration Monitoring and Maintenance Program

A. PRIOR TO ISSUANCE OF COASTAL DEVELOPMENT PERMIT NO. 1-90-104-A2, the applicant shall submit for review and written approval of the Executive Director, a final detailed enhancement monitoring program designed by a qualified wetland and/or wildlife biologist for monitoring of the wetland enhancement site. The monitoring program shall at a minimum include the following:

1) Performance standards that will assure achievement of the enhancement goals and objectives set forth in Coastal Development Permit Application No. 1-90-104-A2 as summarized in the Findings IV.C, "Project Description," and shall include but not be limited to the following standards: (a) increases in saltmarsh and brackish water aquatic habitat and the depth and duration of intertidal exchange with Humboldt Bay; (b) increased utilization by invertebrates, amphibians, migratory waterfowl, shorebirds, and raptors; (c) spatial reduction in the presence of exotic invasive plant species; and (d) increasing riparian and emergent wetland vegetation by the planting of native tree and shrub species in areas within and surrounding the salt marshes.

2) Provisions for monitoring biannually for five years using methods such as: tide gauge readings, trap or dip netting, transect sampling, photo plots, and/or direct counting of wildlife species and revegetation plantings, the following attributes: (a) changes in the spatial extent of saltmarsh, brackish marsh, and mudflat intertidal wetlands, and the depth and duration of intertidal flows into and from the marshes; (b) utilization by the following families, genus, and/or species of wildlife: salt marsh snail (*Assiminea californica*), northern red-legged frog (*Rana aurora aurora*), ducks, geese, and swans (*Anatidae*), egrets and herons (*Ardeidae*), cormorants (*Phalacrocoracidae*), willets, sandpipers, curlews, godwits, and dowitchers (*Scolopacidae*), gulls

(*Laridae*), avocets and stilts (*Recurvirostridae*), American Black Oystercatcher (*Haematopus bachmani*), and Northern harrier (*Circus cyaneus*); (c) increases in the following saltmarsh/brackish marsh and mudflat intertidal, and riparian vegetation species: pickleweed (*Salicornia virginica*), saltgrass (*Distichlis spicata*), spikerush (*Eleocharis macrostachya*). sedges (*Cyperus* spp., *Carex* spp.), red alder (*Alnus rubra*), and California wax-myrtle (*Myrical californica*); and (d) corresponding reduction in the extent and cover of exotic/invasive plants species, including: common reed (*Phragmites australis*), pampas grass (*Cortaderia jubata*), Scotch broom (*Cytisus scoparius*), French broom (*Genista monspessulana*), Himalaya blackberry (*Rubus discolor*), English ivy (*Hedera helix*), and white sweet clover (*Meliotus alba*).

3) Provisions for submittal within 30 days of completion of the initial enhancement work of (1) "as built" plans demonstrating that the initial enhancement work has been completed in accordance with the approved enhancement program, and (2) an assessment of the initial biological and ecological status of the "as built" enhancements. The assessment shall include an analysis of the attributes that will be monitored pursuant to the program, with a description of the methods for making that evaluation.

4) Provisions to ensure that the enhancement site will be remediated within one year of a determination by the permittee or the Executive Director that monitoring results indicate that the site does not meet the goals, objectives, and performance standards identified in the approved enhancement program and in the approved final monitoring program.

5) Provisions for submission of annual reports of monitoring results to the Executive Director by October 1 each year for the duration of the required monitoring period, beginning the first year after submission of the "as-built" assessment. Each report shall include copies of all previous reports as appendices. Each report shall also include a "Performance Evaluation" section where information and results from the monitoring program are used to evaluate the status of the wetland enhancement project in relation to the performance standards.

6) Provisions for submission of a final monitoring report to the Executive Director at the end of the five-year reporting period. The final report must be prepared in conjunction with a qualified wetlands and/or wildlife biologist. The report must evaluate whether

the enhancement site conforms with the goals, objectives, and performance standards set forth in the approved final enhancement program. The report must address all of the monitoring data collected over the five-year period.

B. If the final report indicates that the enhancement project has been unsuccessful, in part, or in whole, based on the approved goals and objectives set forth in Coastal Development Permit Amendment Application No. 1-90-104-A2 as summarized in Findings IV.C "Project Description," the applicant shall submit a revised or supplemental enhancement program to compensate for those portions of the original program which did not meet the approved goals and objectives set forth in Coastal Development Permit Application No. 1-90-104-A2 as summarized in Finding IV.C "Project Description." The revised enhancement program shall be processed as an amendment to this coastal development permit unless the Executive Director determines that no amendment is legally required.

C. The permittee shall monitor and remediate the wetland enhancement site in accordance with the approved monitoring program. Any proposed changes from the approved monitoring program shall be reported to the Executive Director. No changes to the approved monitoring program shall occur without a Commission amendment to this coastal development permit unless the Executive Director determines no amendment is legally required.

6. Construction Responsibilities

The permittee shall comply with the following construction performance standards:

(a) No construction materials, debris, or waste shall be placed or stored where it may be subject to entering waters of PALCO Marsh, Railroad Marsh, the lateral back-drains between the reclamation and railroad levees, or Humboldt Bay or;

(b) All construction debris, including fencing materials, gating, demolished drainage structures, and other hazardous materials and solid wastes shall be removed and disposed of in an upland location outside of the coastal zone or at an approved disposal facility; and

(c) All grading activities, including the placement of fill, dredging and diking of channels, and excavations and re-cover operations shall be conducted during the dry season period of June 1 through October 1. Additional coastal development permit authorization shall be obtained for any grading conducted during the period of October 1 through May 31.

7. Erosion and Runoff Control Plan

A. PRIOR TO ISSUANCE OF COASTAL DEVELOPMENT PERMIT AMENDMENT NO. 1-90-104-A2, the applicant shall submit, for review and approval of the Executive Director, a plan for erosion and run-off control that address the entire project as amended to include Railroad Marsh enhancement, tidal slough dredging and outfall, and other Phase 1A improvements.

1) The run-off, spill prevention and response plan 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;

(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 following:

(i.) Stormwater runoff diversion immediately up-gradient of the excavations for culverts and outfalls; and

(ii.) Use of relevant best management practices (BMPs) as detailed in the "California Storm Water Best Management (Construction and Industrial/Commercial) Handbooks, developed by Camp, Dresser & McKee, *et al.* for the Storm Water Quality Task Force (i.e., BMP Nos. EC-1 – *Scheduling*, EC-2 – *Preservation of Existing Vegetation*, EC-12 – *Streambank Stabilization*, SE-1 – *Silt Fence* and/or SE-9 – *Straw Bale Barrier*, NS-9 – *Vehicle and Equipment Fueling*, NS-5 – *Clean Water Diversion*, NS-10 – *Vehicle and Equipment Maintenance and Repair*; NS-14-*Material Over Water*, NS-15 – *Demolition Adjacent to Water*, WM-1 – *Material Delivery and Storage*, WM-3 – *Stockpile Management*, WM-4 – *Spill Prevention and Control*, WM-6 – *Hazardous Waste Management*, WM-9 – *Concrete Waste Management*, SC-11 – *Spill Prevention, Control, and Cleanup*, and SC-73 – *Landscape Maintenance*, ; see http://www.cabmphandbooks.com).

(d) An on-site spill prevention and control response program, consisting of best management practices (BMPs) for the

storage of clean-up materials, training, designation of responsible individuals, and reporting protocols to the appropriate public and emergency services agencies in the event of a spill, shall be implemented at the project to capture and clean-up any accidental releases of oil, grease, fuels, lubricants, hydraulic fluids, or other hazardous materials from entering coastal waters.

2) The plan shall include, at a minimum, the following components:

(a) A schedule for 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 construction materials handling and storage best management practices (BMPs) to prevent the entry of polluted stormwater run-off from the completed development into coastal waters.

B. The permittee shall undertake the amended 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. Grading and Excavated/Dredged Materials Disposal Plan

A. PRIOR TO THE COMMENCEMENT OF EACH PHASE OF GRADING AND DREDGING AUTHORIZED BY COASTAL DEVELOPMENT PERMIT AMENDMENT NO. 1-90-104-A2, the applicant shall submit, for the review and approval of the Executive Director, a disposal plan for all of the excavated materials to be removed from the entire project site, as amended to include the Railroad Marsh enhancement, tidal slough dredging and outfall training channel, and other Phase 1A improvements.

(1) The disposal plan shall demonstrate that:

(a) No excavated materials to be removed shall be temporarily placed or stored during grading activities where it may be subject to entering wetlands or other coastal waters;

(b) All of the fill to be removed shall either be: (i) placed and used pursuant to and consistent with state and federal hazardous materials and/or solid waste regulations, as well as consistent with the terms and conditions of Coastal Development Permit No. 1-90-104 or this permit amendment (CDP No. 1-90-104-A2); or (ii) disposed of at an authorized disposal site capable of receiving such fill materials. Side casting or placement of any such material within Humboldt Bay, any slough, waterway, stream course, or lake, or any other wetland area, except as specified above is prohibited; and

(c) Excavated materials removal activities shall not occur during the rainy season consistent with Special Condition No. 7;

(2) The plan shall include, at a minimum, the following components:

(a) A site plan showing all proposed locations for stockpiling construction materials, debris, or waste during excavated materials removal operations;

(b) A description of the manner by which the materials will be removed from the construction site and identification of all debris disposal sites that will be used;

(c) If the removed fill material is to be placed and used as part of a development either approved by the Commission under another valid coastal development permit or by another regulatory entity, the permittee shall provide: (i) a copy of the approved permit or authorization, (ii) written permission from the owner of the property governed by the approved permit authorizing the fill, (iii) hazardous materials confirmation testing indicating that the concentration of Constituents of Concern within the materials are at levels where such stockpiling and reuse would be in conformance with state and federal hazardous materials regulations, and (iv) a written description and site map indicating when and where the materials will be stockpiled for later use in the approved development; and

(d) A schedule for removal of all debris.

B. The permittee shall undertake development in accordance with the approved final plan. Any proposed changes to the approved final plan shall be reported to the Executive Director. No changes to the approved final plan

shall occur without a Commission amendment to this coastal development permit unless the Executive Director determines that no amendment is legally required.

9. Final Landscaping Plans

A. PRIOR TO ISSUANCE OF COASTAL DEVELOPMENT PERMIT AMENDMENT NO. 1-90-104-A2, the applicant shall submit for the review and written approval of Executive Director, a final landscaping plan for screening the PALCO Enhancement Project Site from Del Norte and Felt Streets.

1. The plan shall demonstrate that:

(a) All vegetation planted on the site will consist of native, drought-tolerant plants;

(b) Only native plant species obtained from local genetic stocks shall be planted with the restoration and mitigation sites. If documentation is provided to the Executive Director prior to planting that demonstrates that native vegetation from local genetic stock is not available, native vegetation obtained from genetic stock outside of the local area may be used;

(c) No plant species listed as problematic and/or invasive by the California Native Plant Society, the California Invasive Plant Council, or as may be identified from time to time by the State of California, shall be employed or allowed to naturalize or persist on the site. No plant species listed as a "noxious weed" by the governments of the State of California or the United States shall be planted within the property;

(d) Rodenticides containing any anticoagulant compounds, including, but not limited to, Bromadiolone or Diphacinone shall not be used;

(e) All planting will be completed within 60 days after completion of enhancement construction; and

(f) All required plantings will be maintained in good growing conditions through-out the life of the project, and whenever necessary, shall be replaced with new plant materials to ensure continued compliance with the landscape plan.

2. The plan shall include, at a minimum, the following components:

(a) A map showing the type, size, and location of all plant materials that will be on the developed site, the irrigation system, topography of the developed site, and all other landscape features;

(b) A schedule for installation of plants, specifically prohibiting the installation of plant species listed as problematic and/or invasive by the California Native Plant Society, the California Invasive Plant Council, or as may be identified from time to time by the State of California;

(c) Provisions for on-going maintenance and replacement of plants as may be needed from time-to-time; and

(d) Prohibitions against the use of rodenticides containing any anticoagulant compounds, including, but not limited to, Bromadiolone or Diphacinone.

B. PRIOR TO COMMENCEMENT OF THE EXCAVATION OF RAILROAD MARSH, the applicant shall submit for the review and written approval of Executive Director, a final restoration landscaping plan for revegetation of Railroad Marsh.

1. The plan shall demonstrate that:

(a) All vegetation planted on the site will consist of native plants suitable for submerged, semi-submerged, and emergent wetlands settings;

(b) Only native plant species obtained from local genetic stocks shall be planted with the restoration and mitigation sites. If documentation is provided to the Executive Director prior to planting that demonstrates that native vegetation from local genetic stock is not available, native vegetation obtained from genetic stock outside of the local area may be used;

(c) No plant species listed as problematic and/or invasive by the California Native Plant Society, the California Invasive Plant Council, or as may be identified from time to time by the State of California, shall be employed or allowed to naturalize or persist on the site. No plant species listed as a "noxious weed"

by the governments of the State of California or the United States shall be planted within the property;

(d) Rodenticides containing any anticoagulant compounds, including, but not limited to, Bromadiolone or Diphacinone shall not be used;

(e) All planting will be completed within 60 days after completion of enhancement construction; and

(f) All required plantings will be maintained in good growing conditions through-out the life of the project, and whenever necessary, shall be replaced with new plant materials to ensure continued compliance with the landscape plan.

2. The plan shall include, at a minimum, the following components:

(a) A map showing the type, size, and location of all plant materials that will be on the developed site, the irrigation system, topography of the developed site, and all other landscape features;

(b) A schedule for installation of plants, specifically prohibiting the installation of plant species listed as problematic and/or invasive by the California Native Plant Society, the California Invasive Plant Council, or as may be identified from time to time by the State of California;

(c) Provisions for on-going maintenance and replacement of plants as may be needed from time-to-time; and

(d) Prohibitions against the use of rodenticides containing any anticoagulant compounds, including, but not limited to, Bromadiolone or Diphacinone; and

(e) Logistics for how ongoing follow-up eradication of common reed (*Fragmities australis*) will be conducted, as may be needed, without significantly adversely impacting the restoration vegetation.

C. 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.

10. Assumption of Risk, Waiver of Liability and Indemnity Agreement

By acceptance of this permit, the applicant acknowledges and agrees (i) that the site may be subject to hazards from waves, storm surge, and flooding; or, erosion and earth movement; (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.

11. U.S. Army Corps of Engineers Permit

PRIOR TO COMMENCEMENT OF CONSTRUCTION AUTHORIZED BY COASTAL DEVELOPMENT PERMIT AMENDMENT NO. 1-90-104-A2, permittee shall provide to the Executive Director a copy of a U.S. Army Corps of Engineers permit, letter of permission or modification, or evidence that no Corps permit is necessary to perform the development as amended.

12. Repair and Maintenance

Ongoing maintenance of the enhancement project site's hydrologic and biologic improvements, and recreational amenities, including the prompt repair of all drainage facilities and interpretative kiosks, ongoing efforts to eradicate exotic-invasive plant species and the replanting, as necessary of restoration native plants, and the periodic collection of litter and other forms of solid wastes, shall be undertaken by the permittee, as proposed within the Phase 1A project description.

III. FINDINGS AND DECLARATIONS.

The Commission hereby finds and declares as follows:

A. Project History

The project site entails the eastern, middle-reach margins of Humboldt Bay along the City of Eureka's southwestern industrial waterfront which comprise the site of the former Pacific Lumber Company timber mill. Through a series of natural and human-induced

events, the resources of the area have suffered a gradual loss of natural and scenic values over time. During the mid 1800s, the project area was wetland, most likely saltmarsh, with a narrow bank of shallow tidal flats. By 1870, most of the area south of Vigo Street was diked and used as agricultural pastureland. In 1901, the Northwest Pacific Railroad was completed, which restricted, but did not fully eliminate tidal influence eastward into the marsh. By 1927, much of the area west of the railroad had been filled and was used for industrial timber processing activities. Since 1944, numerous small fills have encroached on the marshes, with all of the former agricultural lands converted to industrial and commercial uses.

The bay margins comprising and surrounding PALCO Marsh have been long recognized as an area of special importance. In 1980, the U.S. Army Corps of Engineers completed an exhaustive inventory of Humboldt Bay wetlands and designated areas into categories based on their resource values (*Humboldt Bay Wetlands Review and Baylands Analysis*, Shapiro, 1980). The PALCO Marsh project area was designated in this report as an "Area of Importance" because of its integral part of the Humboldt Bay ecosystem. The Corps determined that potential destruction or alteration of this area should be discouraged because of its biological productivity, the habitat it provides for waterfowl, herons and egrets, its storm and flood water storage functions and its archaeological sensitivity.

Throughout the early 1980s, the Commission included PALCO Marsh on its list to the Legislature of priority public acquisition sites and staff has supported the City's application for funds to acquire and enhance the site. Upon certification of the City of Eureka's Local Coastal Program in 1984, policies were formally adopted identifying PALCO Marsh for protection of its existing and potential natural resource values and enhancement of the degraded conditions therein.

The State Coastal Conservancy had similarly expressed interest in purchasing the marsh complex for a number of years, and in 1985, provided the City $610,000 toward purchasing the marsh and the adjacent uplands from the Pacific Lumber Company willingly at roughly half its fair market value. The Conservancy also funded a $30,000 enhancement plan.

On September 29, 1987, the Eureka City Council approved the *PALCO Marsh Enhancement Plan* (Rising Sun Enterprises, 1987). The plan identified a series of actions to be taken to return the marsh area to a higher functioning state, including drainage improvements to enhance the water regime within the marshes, eradicating exotic/invasive plant species in the marsh and surrounding upland areas, and restoring these areas with native species, and converting adjacent upland areas to tidally influenced wetlands. The enhancement also included the demolition of former mill "pole shed" buildings and removing fill on an adjacent 5.75 acre parcel and construction of a 1½-acre freshwater pond along the Vigo Street side of the marsh, both to be accomplished at a later date as "Phase 2." The net result of the plan is enhancement of 86 acres of fresh and saltwater habitat. Although performed and coordinated with other enhancement work

associated with development of the Bayshore Mall on adjoining properties to the south (see CDP No. 1-85-083), the PALCO Marsh enhancement project was not intended to be mitigation for any other development project.

In addition, to meet LCP public access and recreational opportunity objectives, trails were to be constructed along the shoreline and on an abandoned road within the marsh complex, allowing visitors to enjoy the sights and sounds of the marsh and Humboldt Bay. Other improvements include signs, benches, and two small parking areas to support and encourage visitation to the marsh. The plan also identified the construction of a 20-space parking area at the terminus of Del Norte Street at the northern edge of the project site to provide parking for an adjoining public fishing pier, subsequently constructed in 1990 with funds approved by the Wildlife Conservation Board on May 11, 1989.

On May 19, 1989, the Conservancy approved the PALCO Enhancement Plan and allocated $900,000 to implement the plan (see Exhibit No. 6.)

On June 14, 1990, the Commission conditionally approved Coastal Development Permit No. 1-90-104 authorizing the Phase 1 portions of the enhancement plan within the Commission's retained jurisdiction (see Exhibit Nos. 3 and 7.)

Between 1989 and 1991, the City conducted some of the Phase 1 enhancement activities, but did not complete all of the plan work tasks due to, among other reasons, encountering and having to remediate hazardous material contamination at the site and delays in securing rights to perform certain access support improvements (e.g., the Vigo Street parking lot) and some of the various habitat enhancements within areas owned by the then recently-bankrupted Eureka Southern Railroad.

Two other components of the Phase 1 plan work, the freshwater pond and the removal of common reed (*Phragmites australis*) from PALCO Marsh and the railroad right-of-way were not undertaken or successfully completed, respectively, during the Phase 1 construction. Soil contamination in the area where the pond was to be excavated prevented the construction of the pond at that time. Although actions were taken to eradicate common reed from the southwestern corner of PALCO Marsh and adjoining City-owned areas, these efforts proved to be unsuccessful and may have contributed to the plant spreading further into the marsh. In addition, difficulties arose in obtaining an encroachment permit for work within the rail right-of-way due to issues arising from the bankruptcy of Eureka Southern Railroad, preventing treatment of the common reed within Railroad Marsh and adjoining areas.

In 1992, the City of Eureka issued Coastal Development Permit No. 24-91. Although the permit primarily addressed additional development at the adjoining *Bayshore Mall*, CDP-24-91 also made amendments to the City's PALCO Marsh Enhancement Plan, revising the location of the southern public access support parking lot from the foot of Vigo Street to an equivalent number of spaces reserved within the north end of the authorized

overflow parking lot for the mall. The plan was also revised to replace the previously proposed Vigo Street parking lot area development with deferred construction of a four-cell salt marsh and island complex to be authorized under future coastal development permits once funding has been secured for the other Phase 2 work (see Exhibit No. 8.)

In 1999, once the soil contamination issue was resolved and the railroad reorganized as the North Coast Railroad Authority, a public entity, the City began pursuing completion of these two remaining Phase 1 project components, as well as additional recommended components identified in the 1995 Final Monitoring Report regarding further hydrologic enhancements between PALCO Marsh and Humboldt Bay. This renewed plan was entitled Phase 1A, and includes the revised work that is the subject of this permit amendment request.

Progress toward reinitiating the revised scope of enhancement work encountered another challenge when, on October 25, 2006, the waters of Humboldt Bay were listed, pursuant to Section 303(d) of the Federal Clean Water Act, as "dioxin impacted" by the State Water Resources Control Board. Part of the data upon which the listing was petitioned was based upon moderately elevated levels of dioxin/furan cogeners detected in sediment samples taken from within the project site, the tidal slough immediately south of Del Norte Street. In addition, the listing petitioners also provided a list of suspected past timber products processing industrial facilities which identified three such "reservoir sites" in proximity to PALCO Marsh. Although the source of these tidal slough contaminants is generally recognized as originating in stormwater flows from one of the former lumber mill sites located upstream and further to the north, the question was raised as to whether other portions of the PALCO Marsh project site may have similar elevated levels of dioxin contamination which would require the enhancement work plan to be further modified to incorporate hazardous materials remediation actions. As discussed further in Findings Section IV.D Protection of Coastal Water Quality / Hazardous Substances Control, below, Commission staff, in coordination with the staff of the North Coastal Regional Water Quality Control Board, have reviewed supplemental sampling data and other historical and technical information and believe that there is a low probability that significant dioxin contamination exists within the PALCO Marsh project site, and, provided that appropriate handling and disposal protocols are utilized on the tidal slough sediment materials, the amendments to the development may be conditionally authorized without further sampling of the marsh areas.

The PALCO Marsh complex currently contains a remarkably diverse collection of habitat types albeit in a continuing degraded state. Notwithstanding the natural resource diversity of the area, management of the marsh for fish and wildlife habitat, and as a coastal access and recreational facility has its ongoing challenges: Like many other vacant public and private properties along Eureka's western waterfront, homeless encampments, and the associated removal of vegetation, solid waste dumping, and the inappropriate disposal of human, domestic animal, and other bio-hazardous wastes, impact the marsh's habitat resources and water quality, and severely degrade the

aesthetics and desirability of the area for use as public parklands. Vandalism both within the marsh and of its access support facilities, such as benches and informational kiosks, also poses an ongoing maintenance responsibility for the City. Given these difficulties, the City has undertaken little effort to conspicuously advertise the existence of the PALCO Marsh facility as a public access and recreational destination. As a result, although pedestrian and bicycling access to the marsh is readily afforded from multiple state highway, city street, and private retail commercial ingress/egress points, the presence of the facility is relatively understated, with only one directional sign having been erected along Highway 101.

B. Site Description.

The "PALCO" ("Pacific Lumber Company") or "Eureka" Marsh project area includes seven parcels totaling 113.6 acres that are located on the eastern shoreline of Humboldt Bay near the southern edge of the City of Eureka (see Exhibit Nos. 1-4). The marsh is located on a gently sloping terrace that gradually rises from sea level at the bay side of the property to approximately ten feet above sea level along its inland frontage along Broadway (Highway 101.) The project area includes an extremely diverse wetland ecosystem with saltwater, brackish, and freshwater marsh surrounded by emergent scrub-shrub and riparian vegetation and grassy upland areas. Del Norte Street forms the northern boundary of the project site. Railroad track lines and former spurs owned by North Coast Railroad Authority (NCRA) and/or leased to contract operator Northwestern Pacific Railroad Company divide the project area into four sections: (1) a ±39-acre marsh complex comprising PALCO Marsh proper, together with the roughly one-acre triangular "Railroad Marsh;" (2) roughly six acres of developed filled area in which the marsh maintenance roads, main rail line and siding spurs are situated; (3) an approximately 37-acre bayshore strip along a small tidal channel off of Humboldt Bay running along the west side of the rail line to the south side of Del Norte Street; (4) the four-acre Del Norte Street peninsula developed with a 20-space parking lot, dredge spoils decanting area, and short loop trail and vista point network; (5) a 13.3-acre parcel bounded by the railroad tracks, Bayshore Way (formerly Mill Street) and Vigo Street, including 5.75 acres of filled and paved area which was the former site of two large pole buildings formerly used by Pacific Lumber Company as a log storage area; and (6) 15-acre "Parcel 4," located to the west of the *Bayshore Mall*. Although the filled Pole Shed parcel is zoned "Coastal-Dependent Industrial," it was included as a part of the enhancement plan for purposes of redevelopment toward adding to the overall enhancement of the area and to serve as a transitional area between the core of the marsh habitat areas and the adjacent retail commercial *Bayshore Mall*. In addition, while similarly zoned Parcel 4 was acquired at the same time as the bulk of the Pacific Lumber Company property and identified as lying within the bounds of the enhancement plan area, the area was not proposed for any

specific enhancement work in the enhancement plan approved by the City and Conservancy.[1]

The main marsh complex is located at the northern boundary of the project area, east of the railroad tracks between Del Norte and Vigo Streets. Elevations range from 1.7 feet above mean sea level (2.1 MLLW) to slightly over ten feet above mean sea level along the marsh's Broadway/Highway 101 frontage. The marsh contains 17 acres of saltmarsh, nine acres of transitional brackish waters, and eight acres of freshwater wetlands and five acres of fringing riparian vegetation. This area is identified as a combination of "estuarine-intertidal-emergent-persistent-irregularly-flooded" (E2EM1P), "estuarine-intertidal-unconsolidated-muddy-shore-regularly-flooded" (E2US3N), "palustrine-scrub-shrub-broadleaf-deciduous-seasonally-flooded" (PSS1C) and "palustrine-emergent-persistent-seasonally-flooded" (PEM1C) wetlands under the "Cowardin" classification system used by the U.S. Fish and Wildlife Service's National Wetland Inventory.[2]

Vegetation within the saltmarsh portion is dominated by inland saltgrass (*Distichlis spicata*), Marsh jaumea (*Jaumea carnosa*), and in some locales, extensive patches common reed (*Phragmites australis*), an exotic invasive species. Other associates include pickleweed (*Salicornia virginica*), sea lavender (*Limonium californicum* var. *californicum*), arrowgrass (*Triglochin* sp.), another exotic/invasive, cordgrass (*Spartina densiflora*), and orache (Atriplex patula) and brass buttons (*Cotula coronopifolia*) along the channel margins. Small patches of the rare-listed Humboldt Bay gumplant (*Grindelia stricata* ssp. *blakei*) and CNPS List 1B Point Reyes Birdsbeak (*Cordylanthus maritimus* ssp. *palustris*), appear throughout saltmarsh and its margins. Brackish marsh

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[1] Although the 1985 Coastal Conservancy funding for acquisition of the Pacific Lumber Company properties, was allocated primarily for natural resource habitat restoration and coastal access facility development purposes, the Parcel 4 site was contractually reserved for coastal-dependent industrial development pursuant to a comprehensive development plan to be completed by the City by 1995, lest the Conservancy apply an open space easement over the area. A timely Parcel 4 plan was never completed. In late 2003, the City informed the Conservancy that it planned to make available approximately five acres of the 15-acre area for such development, however no specific development proposal accompanied this request. Nonetheless, in March 2004, the Conservancy conditionally approved this contractual change provided that, upon any such coastal-dependent development being initiated, the City reimburse the Conservancy for approximately $90,000 of the total $275,000 allocated for purchasing Parcel 4. The City did not reimburse the Conservancy, and on April 24, 2008, the Conservancy approved the acceptance of the offer-of- dedication of an open space easement over the site by the Redwood Chapter Audubon Society, effectively limiting development at the site in perpetuity to "natural open space, habitat, and conservation purposes."

[2] Refer to U.S. Fish and Wildlife Service - Office of Biological Services' Publication No. FWS/OBS-79/31 "Classification of Wetlands and Deepwater Habitats of the United States" (Lewis M. Cowardin, et al, USGPO December 1979) for a further discussion of the definition of the extent of the sub-classifications of wetland habitats.

areas are covered with a variety of emergent vegetation, including salt rush (*Juncus lesueurii*), slough sedge (*Carex obnupta*), regionally unique outcroppings of Pacific rush (*Juncus effusus* var. *pacificus*), and silverweed (*Potentilla* sp.) Freshwater marsh areas are dominated by water parsley (*Oeanthe sarmentosa*) and scattered stands of cattails (*Typha* sp.) while the riparian vegetation along the Broadway/Highway 101 frontage is comprised chiefly of a canopy of willow species (*Salix* spp.), notably arroyo willow (*Salix lasiolepis*) intermixed with other tree species including red alder (*Alnus rubra*), with an attending sparse understory composed of Himalaya blackberry (*Rubus discolor*), California blackberry (*Rubus ursinus*), coyotebrush (*Bacharris pilularis*) swordfern (*Polystichum munitum*), salmonberry (*Rubus spectablis*), creeping buttercup (*Ranunculus repens*), and horsetail (*Equisetum* sp.). A broken row of native California wax-myrtle (*Myrica californica*) lines the marsh's main north-south pathway. The unpaved filled and developed areas to the east and south of the marsh complex are covered with a variety of ruderal plant species, primarily dominated by thickets of coyotebrush, vetch, Himalaya blackberry, with substantial outcroppings of exotic/invasive pampas grass (*Cortederia selloana*), English ivy (*Hedera helix*), and Scotch and French brooms (*Cytisus*, *Genista* spp.)

The marsh and its surrounding uplands provide habitat for a wide variety of wildlife species. Shorebirds are often seen feeding in the low areas of the marsh and nearby mudflats. Swallows and raptors (especially marsh hawks and kites) hunt over the marsh. The freshwater marshes provide habitat for red-wing blackbirds, marsh wrens and bitterns. The marsh provides important resting and feeding areas for a wide variety of migratory birds including waterfowl and shorebirds. The shoreline strip tapers gently from high elevation grassland at Del Norte Street to low elevation salt and brackish marsh and mudflats in its central portion. It rises again to upland at the southern project boundary where the concrete foundations of several former buildings are still evident. In the mudflats, lines of pilings are all that remain of docks and a railroad trestle that once serviced Pacific Lumber Company's bustling lumber yard.

The project site is surrounded by a variety of public and private land uses. At the foot of Del Norte Street, adjacent to the project area to the north, is situated the Del Norte Street Fishing Pier, a recreational facility constructed by the City in 1990 with funding provided by the Wildlife Conservation Board. A series of service commercial, light industrial, and warehousing businesses line the site's Del Norte Street and Broadway frontages. Across Vigo Street to the south of the PALCO Marsh lies the forested 9.34-acre Maurer Marsh freshwater wetlands. Though surficial hydrologically independent of one another, these two marshes are linked by a culvert running under Vigo Street that allows for the release of stormwater overflow from Maurer Marsh into PALCO Marsh. Adjoining the project site to the south are the perimeter parking facilities of the *Bayshore Mall*.

C. Project Description.

1. Originally Approved Project

Phase 1 PALCO Marsh Enhancement Plan

Under Coastal Development Permit Application No. 1-90-104, the City of Eureka proposed to enhance the salt, brackish and freshwater marshes, riparian areas, and grassy uplands of the 86-acre area of the PALCO Marsh environs (see Exhibit No. 6.) Of particular emphasis was the objective of expanding quality resting and foraging habitat for herons, egrets, gulls, and the hundreds of migratory waterfowl and shorebirds that depend on Humboldt Bay's wetlands during their spring and fall migrations to and from the Arctic Circle and South America. At the time of its acquisition, the marsh's habitat value was extremely degraded, primarily due to poor tidal circulation and pronounced seasonal fluctuations in salinity, dissolved oxygen, temperature, pH, and other critical biological parameters associated with the marshes retention of large quantities of stormwater runoff during the winter and desiccating conditions during the dry summer and early autumn months. Due to these fluxes in substrate conditions, the plant community within any given portion of the marsh was under constant successional stress, decreasing its productivity and overall sustainability. As a result, wildlife use at the marsh was surprisingly sparse, both in terms of numbers and species diversity, for a comparative site of similar size and location on fringes of an urbanized estuary.

The enhancement plan activities consisted of a total of 22 work tasks to be undertaken in two phases within four geographical areas as follows:

PALCO Marsh Complex

1. Remove the mid-marsh tide gate under the City's maintenance dike. (Phase 1)
2. Construct an inverted siphon under the City maintenance dike in the former tidegate location. (Phase 1)
3. Excavate perimeter channel improvements, extend hand dug channels as necessary. (Phase 1)
4. Construct culverts under the maintenance dike to allow tidal influx to RR Marsh. (Phase 1)
5. Remove the railroad spur adjacent to Railroad Marsh and grade the rail bed to marsh elevations. (Phase 1)
6. Clean out the channel between RR Marsh and the culvert under the railroad tracks. (Phase 1)
7. Remove exotic vegetation and excavate channels in RR Marsh. (Phase 1)
8. Replant excavated salt marsh vegetation in PALCO and Railroad Marshes and along channels, as appropriate. (Phase 1)
9. Excavate permanent open water area in cattail/common rush vegetated areas; provide resting islands; provide a low dike around open water area; provide an adjustable weir. (Phase 1)

10. Elevate and maintain the existing maintenance dike for public access and periodic maintenance. (Phase 1)
11. Remove exotic plants initially, maintain eradication yearly. (Phase 1)
12. Plant riparian buffer areas along road edges, adjacent properties and around parking area for screening. (Phase 1)
13. Install public access improvements including: gravel trail surfaces and benches along the maintenance dike trail, erect vehicular exclusion gates and project identification and usage signage at the Del Norte and Vigo Street entrances, and sidewalks along Del Norte Street, Felt Street and Broadway frontages. (Phase 1)
14. Construct a 1½-acre freshwater pond wetland along the southern Vigo Street side of the PALCO Marsh (Phase 2).

Paved Drying "Pole Shed" Area

1. Remove drying sheds and other debris. (Phase 1)
2. Remove a 40' wide strip of paving outside of the proposed parking area, berm and plant with riparian buffer. (Phase 2)
3. Provide vehicular access barriers where necessary. (Phase 1)
4. Retain the majority of paved area for future enhancement and public access improvements. (Phase 1)
5. Use the remaining paved area for drying dredged materials from excavation of channels and open water area. (Phase 2)

Area West of Railroad Tracks

1. Provide public access improvements including parking, sidewalks, information kiosk, picnic area, trail, and an elevated viewing area. (Phase 1)
2. Provide maintenance access for periodic removal of sediment from drainage channels in the least impacting manner. (Phase 1)
3. Provide a temporary dredged materials drying area adjacent to Del Norte Street. (Phase 1)

The Phase 1 improvements were designed to achieve the following habitat enhancements:

- Increase the tidal range of PALCO Marsh by approximately two feet;

- Facilitate colonization of salt marsh vegetation in areas of mudflat that were previously semi-permanently flooded and in areas that were previously upland;

- Increase invertebrate species diversity and abundance, and general faunal composition similar to salt marsh communities in other parts of Humboldt Bay;

- Increase bird species diversity and abundance; and

- Decrease the numbers of mosquito larvae and adults.

Phase 2 of the Enhancement Plan is focused primarily on restoring wetland functions to the pole shed property, which lies between Vigo Street and the *Bayshore Mall* (see Exhibit No. 8.) The City did not seek authorization from the Commission for the Phase 2 improvements under the original coastal development permit, even though the overall Phase 2 work plan was approved by Conservancy. A number of modifications have been made to the conceptual future developments identified in the original Phase 1 work plan. For example, the Conservancy authorized the use of a portion of the pole shed property for the *Bayshore Mall* parking lot that had been considered in the original enhancement plan for interim use as a dredged materials stockpiling area for the Railroad Marsh deepening enhancement work and for eventual restoration as upland open space.

2. Permit Amendment

Under the current permit amendment application, the City proposes a Phase 1A Work Plan for the PALCO Marsh Enhancement Project which involves completing several tasks deferred from the Phase I plan and, based upon the results of the 1995 monitoring report and subsequent stakeholder reconsultation as part of the City and Conservancy's environmental review and reauthorizations, add in additional enhancement activities to the original project's Phase 1. Table One below, summarizes the status of the various completed, past-deferred, reinitiated, new, and future enhancement plan work tasks:

Table One: Permitting Status of PALCO Marsh Enhancement Plan Work Tasks

Project Area / Work Task		Permitting Status	Work Status
Project Area A: PALCO Marsh Complex			
1	Remove tide gate on culvert under the City's maintenance dike	Authorized by 1-90-104	Completed in Phase 1
2	Install mid-marsh 24″-diameter CMP culvert between bay and maintenance road and inverted siphon (two parallel 18″-diameter CMP culverts connecting two weir boxes beneath maintenance road to improve tidal circulation into/from PALCO Marsh	Authorized by 1-90-104	Completed in Phase 1; **to be upgraded in Phase 1A (see Work Tasks A14 & D1 - D4)**
3	Excavate perimeter channel improvements, extend hand dug channels as necessary	Authorized by 1-90-104	Completed in Phase 1
4	**Construct culverts under maintenance dike to allow tidal influx to Railroad Marsh**	Authorized by and vested under 1-90-104	**Deferred to Phase 1A**
5	**Remove railroad spur adjacent to Railroad Marsh and grade to marsh elevations**	Authorized by and vested under 1-90-104	**Deferred to Phase 1A**

Project Area / Work Task		Permitting Status	Work Status
6	Clean out channel between Railroad Marsh and culvert under railroad tracks	Authorized by 1-90-104	Completed in Phase 1
7	**Remove exotic vegetation and excavate channels in Railroad Marsh**	Authorized by and vested under 1-90-104	**Deferred to Phase 1A and revised (see Work Task A15)**
8	**Replant excavated salt marsh vegetation in PALCO Marsh, Railroad Marsh and along channels, as appropriate**	Authorized by and vested under 1-90-104	**Deferred to Phase 1A**
9	Excavate permanent open water area in cattail/common rush vegetated areas; provide resting islands; provide low dike around open water area; provide adjustable weir	Authorized by and vested under 1-90-104	Deferred to later work phases or to be formally deleted at a future time
10	Elevate and maintain existing maintenance dike for public access and periodic maintenance	Authorized by 1-90-104	Completed in Phase 1
11	Remove exotic plants initially; maintain eradication yearly	Authorized by 1-90-104	Completed in Phase 1 (unsuccessfully)
12	Plant riparian buffer areas along road edges, adjacent properties and around parking area for screening	Authorized by 1-90-104	Completed in Phase 1 (partially successful)
13	Install public access improvements: Apply gravel trail surface, erect vehicular gates, use restriction signage, and benches along maintenance dike	Authorized by 1-90-104	Completed in Phase 1
14	**Replace existing 24″-diameter CMP culvert with 48″-diameter HDPE culvert between bay and inverted siphon; install culvert/siphon junction box**	**Requested by 1-90-104-A2**	**Proposed for Phase 1A**
15	**Eradicate exotic vegetation with repeated applications of aquatically-approved herbicide (AquaMaster®) and excavate Railroad Marsh to grade of PALCO Marsh; interconnect marshes with 2 12″-diameter HDPE culverts**	**Requested by 1-90-104-A2**	**Proposed for Phase 1A**
16	**Renovate Del Norte Street drainage structure by removing security fencing and replacing with lid cover, repair/replace tidegate into marsh**	**Requested by 1-90-104-A2**	**Proposed for Phase 1A**
17	**Hand-dig drainage channels along northern side of marsh**	**Requested by 1-90-104-A2**	**Proposed for Phase 1A**
Project Area B: <u>Paved Lumber Drying "Pole Shed" Area</u>			
1	Remove drying sheds and other debris	Authorized by 1-90-104	Completed in Phase 1

Project Area / Work Task		Permitting Status	Work Status
2	Remove 40´ wide strip of paving outside of proposed parking area, berm and plant with riparian buffer	Pending City approval	Deferred to Phase 2
3	Provide vehicular access barriers where necessary	Authorized by 1-90-104	Completed in Phase 1
4	Install access improvements: Construct 100´ x 200´ 29-space pave parking lot at Terminus of Vigo Street	Northern one-third authorized by 1-90-104, **proposed to be deleted under 1-90-104-A2**; enhancement plan for southern two-thirds amended by City of Eureka CDP No. 24-91 and full facility developed within the expanded *Bayshore Mall* parking lot	**Northern one-third to be formally deleted under Phase 1A**
5	Establish remaining paved area for drying dredge spoils from excavation of channels and open water areas	Authorized by 1-90-104	Available for use during Phases 1A and 2
6	Retain majority of paved area to be removed as part of Phase 2	Pending City approval	Proposed for Phase 2
Project Area C: <u>West of NCRA Railroad Tracks (Incl. Del Norte Street "Peninsula")</u>			
1	Install public access improvements: 20-space parking lot at terminus of Del Norte Street, information kiosk, picnic area, trail, and elevated viewing area	Authorized by 1-90-104	Completed in Phase 1
2	Provide maintenance access for periodic removal of sediment from drainage channel in the least impacting manner	Authorized by and vested under 1-90-104	Available for use during Phase 1A
3	Establish a temporary dredge spoils drying area adjacent to Del Norte Street	Authorized by and vested under 1-90-104	Available for use during Phase 1A
4	**Onsite storage and decanting of approximately 260 cubic yards of dredged tidal channel sediment materials**	**Requested by CDPA 1-90-104-A2**	**Proposed for Phase 1A**
5	**Install interpretative signage in Del Norte Street parking lot**	**Requested by CDPA 1-90-104-A2**	**Proposed for Phase 1A**
Project Area D: <u>Within Del Norte Street Tidal Slough</u>			
1	**Remove mid-marsh culvert outfall debris screen**	**Requested by CDPA 1-90-104-A2**	**Proposed for Phase 1A**
2	**Install rock slope protection around base of new mid-marsh 48-inch-diameter replacement culvert outfall (see Work Tasks A14)**	**Requested by CDPA 1-90-104-A2**	**Proposed for Phase 1A**
3	**Dredge approximately six cubic yards**	**Requested by**	**Proposed for Phase 1A**

Project Area / Work Task		Permitting Status	Work Status
	of sediment from segment of tidal slough directly outboard of new mid-marsh 48-inch-diameter culvert outfall (also see Work Tasks A14)	**CDPA 1-90-104-A2**	
4	**Dredge approximately 260 cubic yards of sediment from 1,000-foot segment of tidal slough from Del Norte Street outfall to mid-marsh outfall (also see Work Tasks A14 and A16)**	**Requested by CDPA 1-90-104-A2**	**Proposed for Phase 1A**
Project Area E: <u>Adjoining Broadway, and Del Norte, Felt, & Vigo Streets Rights-of-Way</u>			
1	Install access improvements: Construct sidewalks along Del Norte Street, Felt Street, and Broadway	Authorized by 1-90-104	Completed in Phase 1
2	Install native landscaping along Del Norte and Felt Street frontages	**Requested by CDPA 1-90-104-A2**	**Proposed for Phase 1A**
Project Area-wide			
1	Institute a five-year biologic and hydrologic monitoring and adaptive management program	**Requested by CDPA 1-90-104-A2**	**Proposed for Phase 1A**
2	Conduct repairs and maintenance on drainage facilities, remove accumulated sediments, conduct follow-up exotic-invasive plant eradication efforts, replant restoration native species, and clean up litter and trash, as needed and/or determined by the monitoring and adaptive management program	**Requested by CDPA 1-90-104-A2**	**Proposed for Phase 1A**

D. <u>Protection of the Marine and Wetland Habitat Areas</u>.

1. <u>Applicable Coastal Act Policies and Standards</u>

Section 30108 defines the term "feasible" as follows:

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

Coastal Act Section 30230 states as follows:

> *<u>Marine resources shall be</u> maintained, enhanced, and <u>where feasible, restored</u>. Special protection shall be given to areas and species of special biological or economic significance. <u>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</u>*

> *of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.* [Emphasis added.]

Coastal Act Section 30231 states as follows:

> *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.* [Emphases added.]

Coastal Act Section 30232 states:

> *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 containment and cleanup facilities and procedures shall be provided for accidental spills that do occur.*

Coastal Act Section 30233 provides as follows, 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:…*
>
> *(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…* [Emphases added.]

2. Consistency Analysis

The proposed project amendments involves development within wetlands consisting of: (1) excavation and placement of fill at intake and outfall ends of an existing culvert and inverse siphon connection between PALCO Marsh and Humboldt Bay to install a new drainage inlet, culvert, headwall, and rock-slope protection, for increasing tidal exchange between these water bodies; (2) the dredging of accumulated sediment from within the adjoining tidal slough to provide better drainage and inflow at the northwestern corner of PALCO Marsh; (3) the excavation of Railroad Marsh to the same grade as that in adjacent PALCO Marsh and installation of an interconnecting culvert between the two marshes; and (4) hand-digging and removal of accumulated sediment from drainage channels within PALCO Marsh proper, to improve stagnant water conditions in its northeastern quadrant.

This fill component of the project totals approximately 237 cubic yards of soil, rock, and concrete cover and back-fill materials and prefabricated drainage piping and inlet devices. These materials would be placed over a 253-square-foot area of estuarine and saltmarsh wetlands comprising the projecting ends of the new culverts and PALCO Marsh's new drainage junction box bay outfall headwall, splash pad, and rock-slope protection. This wetland fill would be offset by the removal of the existing outfall's headwall, splash block and debris rack structures, and the excavating the upland periphery of Railroad Marsh to form the 1.5H:1V side slopes into the deepened marsh, restoring some 55 square-feet of muddy intertidal and 1,200 square-feet of emergent estuarine wetlands, respectively. Under the amended scope of work a net increase of approximately 1,000 square-feet of wetland area would result.

The dredging component of the amended project entails the removal of approximately 3,620 cubic yards of sediment materials from within the tidal channel areas to the west of PALCO Marsh where water flows enter into and drain from the marsh, and in deepening Railroad Marsh by approximately 2½ feet to match that of PALCO Marsh.

Section 30233 of the Coastal Act states that the diking, filling, or dredging of wetlands shall be permitted only when there is no feasible less environmentally damaging alternative, and only when feasible mitigation measures have been provided to minimize adverse environmental effects. Section 30233 also specifies that diking, filling, and/or dredging are allowed in wetlands only for limited uses. In addition, Coastal Act Sections 30231 provides in applicable part that the biological productivity and the quality of marine resources and coastal waters be maintained and restored where feasible by protecting natural vegetation buffer areas near riparian habitats and by minimizing alteration of natural streams.

Furthermore, Section 30232 requires that protection against the release of crude oil, gas, petroleum products, or hazardous substances shall be provided in relation to any

development or transportation of such materials. In addition effective containment and cleanup facilities and procedures are to be provided for accidental spills that do occur.

When read together as a suite of policy directives, Sections 30230, 30231, 30232, and 30233 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 are:

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

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

The first test set forth above is that any proposed filling, diking or dredging must be for an allowable purpose as specified under Section 30233 of the Coastal Act. Two of the allowable purposes for diking, filling, or dredging, under Section 30233(a) sub-sections (6) and (7) are "*restoration purposes*" and "*nature study … and other resource dependent uses*," respectively. As discussed below, the permit amendment seeks authorization to restore and enhance approximately 40 acres saltmarsh transitional wetlands along the eastern margins of Humboldt Bay. In addition, the project area serves as a publicly-accessible wildlife and recreational (e.g., hiking, cycling, bird-watching) area.

Neither the Coastal Act nor the Commission's administrative regulations contain a precise definition of "restoration." The dictionary defines "restoration" in terms of actions that result in returning an article "back to a former position or condition," especially to "an unimpaired or improved condition."[3] The particular restorative methods and outcomes vary depending upon the subject being restored. For example, the Society for Ecological Restoration defines "ecological restoration" as "the process of intentionally altering a site to establish a defined indigenous, historical ecosystem. The goal of the process is to emulate the structure, function, diversity, and dynamics of the specified ecosystem."[4] However, within the field of "wetland restoration," the term also applies to actions taken "in a converted or degraded natural wetland that result in the

[3] Merriam-Webster's Collegiate Dictionary, Tenth Edition

[4] "Definitions," *Society of Ecological Restoration News*, Society for Ecological Restoration; Fall, 1994

reestablishment of ecological processes, functions, and biotic/abiotic linkages and lead to a persistent, resilient system integrated within its landscape"[5] that may not necessarily result in a return to historic locations or conditions within the subject wetland area.

Implicit in all of these varying definitions and distinctions is the understanding that the restoration entails returning something to a prior state. Wetlands are extremely dynamic systems in which specific physical functions such as nutrient cycles, succession, water levels, and flow patterns directly affect biological composition and productivity. Consequently "restoration," as contrasted with "enhancement," encompasses not only re-establishing certain prior conditions but also reestablishing the processes that create those conditions. In addition, most of the varying definitions of restoration imply that the reestablished conditions will persist to some degree, reflecting the homeostatic natural forces that formed and sustained the original conditions before being artificially altered or degraded, and will not promptly return to the pre-restored state.

Moreover, finding that proposed diking, filling, and dredging is for "restoration purposes" must be based, in part, on evidence that the proposed project will be successful in restoring habitat values. Should the project be unsuccessful at increasing and/or enhancing habitat values, or worse, if the proposed diking, filling, and dredging impacts of the project actually result in long term degradation of the habitat, the proposed diking, filling, and dredging would not actually be for "restoration purposes." The reestablishment of prior conditions and the processes that create those conditions are particularly noteworthy to restoration grant program administrators in reviewing funding requests to ensure that the return on the funding investment is maximized and liabilities associated with unwanted side effects of the project are minimized.

Thus, to ensure that the project achieves its stated habitat restoration or enhancement objectives, and therefore be recognized as being for "restoration purposes," the project must demonstrate that: (1) it either entails (a) a return to, or re-establishment of, former habitat conditions, or (b) entails actions taken in a converted or degraded natural wetland that will result in the re-establishment of landscape-integrated ecological processes, and/or abiotic/biotic linkages associated with wetland habitats; (2) there is a reasonable likelihood that the identified improvements in habitat value and diversity will result; and (3) once re-established, it has been designed to provide the desired habitat characteristics in a self-sustaining, persistent fashion independent of the need for repeated maintenance or manipulation to uphold the habitat function.

According to information from the U.S. Fish and Wildlife Service (FWS), in the Humboldt Bay region it is estimated that between 7,000 and 8,700 acres of tidal marsh (including salt marsh and brackish marsh habitats) were present prior to human development (more recent estimates [Pickart 1988] place the historic tidal marshes closer

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[5] *Position Paper on the Definition of Wetland Restoration*, Society of Wetland Scientists, August 6, 2000

to 10,000 acres). Since the mid-1800's, most of what was likely to have been historic tidal marsh has been diked or filled and has been reduced to a total area of around 900 acres, a reduction of at least 87 percent. The FWS has indicated that restoration of tidal marsh habitats around the Bay is a high priority, as tidal marsh restoration is important for the protection, enhancement, and restoration of native fish, wildlife, and plant communities, some of which are dependent on tidal marsh for their existence. In past permit actions on wetland restoration projects around Humboldt Bay, the Commission has acknowledged that, in general, restoring areas that have historically supported tidal marsh is preferable when the physical conditions of a site present such an opportunity.

Brackish marsh habitat is even more limited than salt marsh habitat in the Humboldt Bay region. Brackish marsh habitat represents a transitional interface between salt marsh and freshwater marsh, where salinity levels are relatively low, but the habitat still is tidally influenced. Typical brackish marsh vegetation in the Humboldt Bay region is dominated by tufted hairgrass, Lyngbye's sedge, and other species. One of the few remaining pristine examples of brackish marsh habitat occurs along Fay Slough, approximately three miles northeast of the project site.

Due to the subject site's location along the margin of the Bay and its proximity to historic freshwater courses feeding the Bay, the eastern portions of the site appear to have historically supported some amount of transitional brackish marsh habitat. Therefore, the Commission finds that the proposed enhancement of 40 acres of salt marsh and brackish marsh habitat is mandated by the requirements of Section 30230 that marine resources shall be maintained, enhanced, and where feasible, restored. The Commission further finds that the proposed dredging of approximately 1,100 lineal feet of the channels within the existing marsh and adjoining tidal slough to improve water circulation, and the placement of 253 square feet of fill for culvert and outfall improvements for the restoration of 40 acres of salt marsh and brackish marsh habitat is permissible dredge and fill under Section 30233(a)(6) for "restoration purposes."

Historically, the whole of the PALCO Marsh project site consisted of saltmarsh and muddy intertidal habitats prior to its reclamation in the 1870s. The project proposes to further enhance the approximately 40-acre area comprising the two marshes and conduct native vegetation habitat improvements on the adjoining upland portions. A return of the entire area to its original pre-reclamation habitat is not proposed.

The Commission notes that all development authorized by this permit amendment, especially the installation of drainage conveyance system and flow line improvements is approved for purposes of enhancing the intertidal and marine habitat, coastal access, and recreational values within the PALCO Marsh Enhancement Project Site, and in no way is intended to foster or provide increased-capacity drainage infrastructure to serve any future public vehicular transportation facilities through the project area.

With regard to the overall project's consistency with the restore-where-feasible test of Section 30230 and 30231, the Commission finds that while restoring the project site entirely as tidal saltmarsh is technologically plausible, it is nonetheless infeasible from economic, social, and technological perspectives. As described in Findings Section IV.B Site Description, above, in addition to the open water marsh areas, the site is developed with a variety of domestic water transmission, sanitary sewer collection, and rail transport infrastructure, The costs of acquiring alternative alignments for relocating these facilities and their related reconstruction, and construction of a new levee field to enclose the whole of the property, would represent several orders of magnitude greater than the significant Coastal Conservancy grant and municipal revenues expended to date and authorized for implementation of the enhancement plan, totaling $900,000. Moreover, such a large scale public works undertaking would involve far greater environmental impacts extending as much as ¼ mile easterly to Highway 101 and potentially adversely affecting a wide variety of natural habitat areas and established commercial industrial land uses and surface transportation networks.

With respect to social feasibility parameters, as described in Findings Section IV.C Project Description, and discussed further below in Findings Section IV.E, Protection of Marine and Wetland Habitats, the project is being undertaken for a variety of reasons, including: (a) the direct restoration of intertidal marine resources (i.e., saltmarsh and brackish water wetlands); (b) the enhancement of the existing, upland post-reclamation habitat diversity of the Humboldt Bay margins; and (c) to provide for natural study and resource-dependent activities, such as interpretative nature trails, scientific investigation, and educational purposes.

Thus, given that the project is being undertaken with a variety of goals and purposes in mind including "nature study and other and similar resource dependent activities," and includes mitigation measures to minimize adverse project effects (i.e., direct loss of 253 square-feet of existing saltmarsh habitat), the Commission finds that there are valid environmental and social factors which render full restoration of the project site to saltmarsh marine resources infeasible.

Therefore, the Commission finds that the proposed wetlands enhancement project, that does not fully involve restoring the entire site to salt marsh is consistent with Coastal Act Sections 30230 and 30231 because complete restoration of the project site to saltmarsh restoration is not feasible due to economic, environmental, and social factors unique to the project. Nonetheless, as discussed further below, the proposed project would enhance coastal wetlands and maintain and increase the biological productivity of the coastal wetlands consistent with these policies.

In addition, the Commission finds that the Phase 1A amendments to the wetland enhancement project provide public coastal access and passive, non-consumptive, natural resource-oriented recreational opportunities constitute allowable fill, dredging, and diking

for "restoration purposes" and "nature study … and other resource dependent uses," pursuant to Section 30233(a), sub-section (7).

This finding that the proposed diking, filling, and dredging is for "restoration purposes" is based, in part, on the assumption that the proposed project will be successful in increasing wetland habitat values. Should the project be unsuccessful at increasing wetland habitat values, or worse, if the proposed filling impacts of the project actually result in long term degradation of the habitat, the proposed filling would not actually be for "restoration purposes."

The applicant is proposing to undertake a five-year, post-project monitoring program of the relative success of the marshes' biological and hydrological improvements. The monitoring program is very preliminary at this time and lack specificity as to the particular metrics, survey protocols, success milestones, and remedial action thresholds (see Exhibit No. 5, pages 51 - 52.)

To ensure that the project achieves the wetland restoration/enhancement objectives for which the project is intended, the Commission attaches Special Condition No. 5. Special Condition No. 5 requires the applicant to submit a final monitoring plan for review and approval by the Executive Director prior to the issuance of the coastal development permit. The monitoring plan is required to outline a method for measuring and documenting the improvements in habitat value and diversity at the site, including wildlife species and abundance, over the course of five years following project completion. Furthermore, Special Condition No. 5 requires the monitoring plan to include provisions for specific remediation to ensure that the goals and objectives of the wetland enhancement project are met. Special Condition No. 5 also requires the applicant to repair and maintain both the drainage facilities and the revegetated areas. Culverts, outfall structures, and rock-slope revetments are to be promptly repaired if they should be damaged in a manner that adversely affects hydrologic conditions within the marshes. Similarly, should any of the scheduled restoration plants die or otherwise be removed, the plants shall be replaced at a 1:1 ratio. Special Condition No. 12 also requires that provisions for periodic clean-up of litter, trash, and other solid waste from the restoration site be included in the monitoring plan.

The Commission finds that as conditioned, the proposed filling in coastal wetlands for the proposed restoration and enhancement of coastal stream, riparian, and tidal slough habitats is an allowable use pursuant to Section 30233(a), sub-sections (6) and (7) of the Coastal Act.

(2) Adequate Mitigation Measures

The second test set forth by Section 30233 is that adequate mitigation must be provided for adverse environmental impacts. Potential significant adverse impacts that could result from the proposed dredging or filling along Humboldt Bay and within PALCO and

Railroad Marshes include: (1) removal or coverage of estuarine shoreline and saltmarsh habitat; (2) impacts to water quality from mobilization of dioxin contaminants found in wetlands in and around the project site (3) impacts to water quality from accidental spills of other hazardous materials during project construction; (4) impacts to fish and wildlife habitat from water pollution in the form of pollutants, sedimentation or debris entering coastal waters and wetlands; (5) introduction through re-planting of exotic invasive or non-indigenous plants species that could compete with native vegetation and/or impact the genetic composition of the plant community, thereby negate the habitat improvement they would provide; and (6) use of certain rodenticides that could deleteriously bio-accumulate in predator bird species. Overall, the project would enhance wetland habitat values and would produce generally only beneficial environmental effects. However, the proposed project has been conditioned to ensure that habitat enhancement results and that potentially significant adverse impacts are minimized.

a) Removal of Estuarine Shoreline and Saltmarsh Habitat Area

A potential significant adverse impact resulting from the filling and/or dredging in wetlands is the coverage or removal of estuarine shoreline and saltmarsh habitat. As discussed in Findings Section IV.C Project Description, the proposed project would involve the placement of a total of approximately 237 cubic yards of soil and rock materials, and prefabricated drainage works, over an approximately 253-square-foot area, and the excavation of approximately 3,454 cubic yards of sediment materials from within Railroad Marsh.

The vegetation along and within the portion of the PALCO Marsh complex that would be either filled or dredged is comprised of a mixture of ruderal species that are generally found on disturbed sites, including common reed (*Phragmites australis*), pampas grass (*Cortaderia jubata*), Scotch broom (*Cytisus scoparius*), French broom (*Genista monspessulana*), white sweet clover (*Meliotus alba*), coyote brush (*Baccharis pilularis*), and rushes (*Juncus* sp.). Given the dominance of these invasive and/or pioneering plant species and the low-density of wetland plants and fish and wildlife species normally found along sheltered estuarine margins and coastal saltmarsh of this size, the current habitat value of these shoreline areas can be considered to be severely degraded.

The impact of the 237 cubic yards of structural fill to be placed over the 253-square-foot area comprising the drainage facilities, backfill, and rock-slope protection would be off-set by the excavation and revegetation of the upland periphery of the proposed Railroad Marsh restoration site, resulting in a net increase of approximately 1,000 square-feet of newly restored wetland from the amended project. In addition, the amendment includes the enhancement of the entire 40-acre project area through hydrologic improvements to the marshes tidal exchanges with Humboldt Bay and removal of invasive exotic plant species with subsequent native species revegetation. Compared to the existing sparsely vegetated and degraded seasonal wetlands currently established at the site, the newly created riverine and riparian replacement wetlands would provide increased habitat area

for water-associated wildlife including, numerous invertebrates, amphibians, shorebirds, wading birds, passerine songbirds, and raptors, and small mammals such as stripped skunk, raccoons, and grey fox.

To ensure that the habitat characteristics intended to be re-established and improved by the project do not deteriorate over time through deterioration of either the drainage facilities or loss of the native vegetation plantings, the Commission imposes Special Condition Nos. 9 and 12. Special Condition No. 9 also requires that approval of a final landscaping plan be secured from the Executive Director prior to commencing the excavation work within Railroad Marsh, and that ongoing efforts be exerted to ensure and viability of the restoration revegetation, including on-going measures to prevent the reestablishment of common reed within the project area. In addition to the conducting the project pursuant to success thresholds to be established under an approved monitoring plan pursuant to Special Condition No. 5, Special Condition No. 12 also requires that, as proposed by the applicant, the applicant shall repair and maintain the drainage, access, and recreational facilities, and promptly replace any of the planted vegetation as it fails to establish itself, dies, or is otherwise removed.

(b) Mobilization of Dioxin Contaminants

As discussed in Findings Section IV.A Project Background, as part of investigations regarding the release and spread of pentachlorophenol wood preservatives in stormwater runoff from the adjacent former Simpson Timber Company's Eureka Plywood Mill, relatively elevated levels of dioxin at 46.04 pg/g TEQ[6] were discovered in Sediment Sample S-7, located within the tidal channel proposed for dredging, situated down gradient from that former mill site (see Exhibit No. 9, pages 8-10, & 13.)

The discovery of the tidal slough contaminants, and the receipt of a letter by the City from Humboldt Baykeeper postulating that dioxin may have migrated into PALCO Marsh from inflows through the drainage facilities junction box raised concerns about whether additional dioxin contamination might be present in other portions of the project site and whether the project work might result in further releases of such contaminated sediments into Humboldt Bay (see Exhibit No. 12.) These concerns prompted additional sampling to be undertaken within the PALCO Marsh project area at locations where ground-disturbing excavation was proposed and where the possibly scour-inducing enhanced hydrologic exchange might mobilize such sediments, namely from within Railroad Marsh and at the main marsh outfall into the bay. The two samples from Railroad Marsh yielded levels of 9.899 and 14.461 pg/g TEQ. The sample taken from the

[6] Dioxin/furan cogener concentrations are measured in parts-per-trillion (ppt) by weight as picograms-per-gram (pg/g.) A "TEQ" is a Toxic EQuivalent, calculated by looking at all toxic dioxins and furans and measuring them in terms of the most toxic form of dioxin, 2,3,7,8-tetrachlorodibenzo-p-dioxin.

bay muds at the marsh outfall, 0.927 pg/g TEQ, reflects at-large background dioxin levels.

As further discussed in a memo from Jack Gregg PhD, RG, the Commission's Water Quality Supervisor, while elevated above background levels, the dioxin concentrations were well below levels considered hazardous and/or state and federal standards necessitating additional characterization evaluation and remedial action (see Exhibit No. 10.) Moreover, Dr. Gregg notes that the City has revised the requested permit amendment to include both construction best management practices and sediment disposal logistics to ensure that releases of dioxin-contaminated sediments are not mobilized and/or become entrained in flows from the marshes (see Exhibit No. 5, pages 1-17.) Dry season scheduling, coffer-damming of inlets and outfalls, containment of dredged spoils to confined upland storage areas, and decanting basins would be utilized during the excavation of the tidal slough and in-marsh sediments. In addition, the sediments from the Northwest quadrant of PALCO Marsh and the tidal marsh will be assumed to exceed hazardous materials action thresholds and combined with those from the former Simpson Timber Company's Eureka Plywood Mill to be removed at an appropriate disposal facility, provided the two projects can be conducted concurrently. If such coordinated timing is not possible, the subject areas would be further sampled and characterized and, depending on the concentrations of constituents-of-concern measured therein, appropriately excavated, (possibly stockpiled,) and disposed of, as to be detailed in a pre-excavation disposal plan.

To ensure that these measures are implemented during the construction of the amended development, the Commission attaches Special Condition Nos. 6, 7, and 8. Special Condition No 6 establishes certain performance standards for the excavation, handling, and disposal of dredged materials, earthen materials, and other construction debris. Special Condition No 7 requires that an erosion control plan be prepared and submitted for the review and approval of the Executive Director prior to issuance of the permit amendment. Special Condition No. 8 requires that, prior to the commencement of each sub-phase of excavation, a grading and excavated/dredged materials disposal plan be prepared and submitted for the review and approval of the Executive Director.

Finally, with regard to the possible dioxin contaminated in-flow through the Del Norte Street junction box, due to the current significant block of the culvert leading into PALCO Marsh, the acute hydraulic geometrics such in-flows would need to overcome, the lack of other credible driving forces, such as wind, which might drive drainage flows up-gradient into the marsh, and the typical behavior of decanted sediments in sloughs likely becoming re-suspended and discharged out of the marsh during outflow drainage periods, there is a low probability that significant quantities of dioxin-tainted sediments originating in runoff from the former Simpson Timber Company Eureka Plywood Mill have entered and/or are present in PALCO Marsh.

Thus, the Commission finds that adequate protections against the release of dioxin/furan Constituents of Concern during construction and operation of the habitat enhancement project have been provided consistent with Sections 30232 and 30233 of the Coastal Act.

(c) Accidental Spills of Other Hazardous Materials

The amended project would entail the use of mechanized heavy equipment in proximity to coastal waters. Fuels, lubricants, or hydraulic fluids could be released unless measures are included to prevent and minimize the impacts of any accidental releases. Special Condition No. 7 includes the requirement that the erosion and stormwater runoff control plans also include a spill prevention and cleanup response module, wherein training to contracted construction workers will be provided and adequate stocks of cleanup supplies shall be kept on hand at all times during the enhancement project's construction phase.

d) Hazardous Substances and Sedimentation Impacts to Aquatic Habitat and Water Quality

Potential adverse impacts to fish and wildlife habitat and water quality could occur in the form of entrained hazardous materials, sedimentation or debris from project filling and excavation (i.e., soils disturbed during the placement of and backfilling for the drainage facilities improvements) and dredging (i.e., removing accumulated sediment from within the tidal channel, excavating the outfall training channel, and hand-dug channel work within the marsh to improve stagnant water conditions). Although the project description states that such impacts would be prevented and minimized by conducting the ground-disturbing work during dry weather, and other mechanized equipment performance standards, the application provides few details as to precisely how this fill would be placed and equipment operated relative to the potential for causing soil materials to enter into the bay or marshes during the installation of the improved drainage components.

Given the necessity of using mechanized heavy equipment for performing the fill and grading work, the project poses significant risks to environmental sensitive resources, namely the water quality of the receiving coastal waters. To ensure that adverse impacts to water quality do not occur from construction activities conducted along the immediate bay and marsh margins, the Commission imposes Special Condition Nos. 6, 7, and 8. Special Condition No 6 establishes certain performance standards for the excavation, handling, and disposal of soils and earthen materials, and other construction debris. Special Condition No 7 requires that an erosion control plan be prepared and submitted for the review and approval of the Executive Director prior to issuance of the permit amendment. Special Condition No. 8 requires that, prior to the commencement of each sub-phase of excavation, a grading and excavated/dredged materials disposal plan be prepared and submitted for the review and approval of the Executive Director.

c) Introduction of Exotic Invasive Plants

The use of non-invasive plant species adjacent to environmentally sensitive habitat areas (ESHAs) is critical to protecting such areas from disturbance. If invasive species are planted adjacent to an ESHA they can displace native species and alter the composition, function, and biological productivity of the ESHA.

The project tentatively identifies the planting of a variety of native aquatic and upland forb-, tree-, and shrub-layer species to revegetate eradicated exotic/invasive plant infested areas and to screen the enhancement site from adjoining roadways. However, the proposed project does not further specify the source or specifications for the plants, nor precludes the planting of other plant species beyond those identified in the permit amendment application.

To assure that the restoration plants are composed solely of native species, the Commission imposes Special Condition No. 9 requires that only native plant species obtained from local genetic stocks, if available, be planted. Furthermore, Special Condition No. 9 specifically prohibits the planting of any plant species listed as problematic and/or invasive by the California Native Plant Society, the California Invasive Plant Council, or the State of California. Furthermore, no plant species listed as a 'noxious weed' by the governments of the State of California or the United States may be utilized in the revegetation and landscape screening portions of the project.

d) Use of Anticoagulant-based Rodenticides

To help in the establishment of vegetation, rodenticides are sometimes used to prevent rats, moles, voles, and other similar small animals from eating the newly planted saplings. Certain rodenticides, particularly those utilizing blood anticoagulant compounds such as brodifacoum, bromadiolone and diphacinone, have been found to poses significant primary and secondary risks to non-target wildlife present in urban and urban/ wildland areas. As the target species are preyed upon by raptors or other environmentally sensitive predators and scavengers, these compounds can bio-accumulate in the animals that have consumed the rodents to concentrations toxic to the ingesting non-target species.

To avoid this potential cumulative impact to environmentally sensitive wildlife species, Special Condition No. 9 contains a prohibition on the use of such anticoagulant-based rodenticides.

The Commission finds that as conditioned, the proposed wetland enhancement project provides feasible mitigation measures to minimize all potential adverse environmental effects.

(3) Alternatives Analysis

The third test set forth by Section 30233 is that the proposed wetland fill/dredging/diking project must have no feasible less environmentally damaging alternative. In this case, the Commission has considered the various alternatives presented by the applicant and determines that there is no feasible less environmentally damaging alternative to the project as conditioned by Special Conditions No. 1, and 3-10. A total of two possible alternatives to the proposed project have been identified including: (1) eliminating the drainage system, tidal slough, and in-marsh channel enhancements, and limiting restoration to the eradication of invasive exotic plant species and replanting vegetation within the marsh and its margins, and surrounding uplands; and (2) the "no project" alternative.

a) Eradication of Exotic-Invasives / Restoration of Native Vegetation Only

As discussed previously, the subject hydrologic enhancements will involve grading and excavation which has the potential to cause impacts to the water quality of Humboldt Bay, either through sediments being directly discharged into bay waters or pollutants entrained in stormwater. One method to minimize impacts to these areas would be to avoid any enhancement work that involved subsurface construction of physical structures, such as the drainage culvert, inlet junction box, and headwall installations, or entails significant grading, such as the maintenance dredging of the tidal channel and the deepening of Railroad Marsh. Instead, the scope of the enhancement work could be limited to maintenance activities and improvements which do not require significant ground disturbances, namely, replacing dislodged existing rip rap materials onto the shore bank, discrete clearing of the blocked culvert outfalls, the eradication of exotic/invasive plant species and associated native plant revegetation, street side landscaping, renovating the drainage junction box cover, and kiosk installation. In this way, the environmental impact to aquatic habitat and water quality associated with the coverage and/or excavation of wetlands or the introduction of sediment from disturbed soil materials in or near the bay, associated with tidal channel maintenance dredging and the placement of the drainage structures, could be prevented.

However, this alternative would likely frustrate the success of the project's hydrologic enhancement component. Without the restored channel work and drainage conduit improvements, estuarine and emergent wetland habitat would likely remain underutilized as the degraded conditions within these waterbodies, due primarily to the constrained tidal circulation between the marshes and the bay, would remain unchanged. In addition, without the associated dredging within the marshes and tidal channel to form a more effective drainage gradient, the restricted flow through the culvert outfalls, notwithstanding them having been cleaned out, would likely persist. Moreover, given the dilapidated state of the existing drainage works, without installation of the proposed new culverts, the eventual full blockage and/or collapse of these structures would hydrologically isolate PALCO Marsh from Humboldt Bay, limiting in-flows to direct precipitation and stormwater runoff sheetflow from adjoining areas. Over time, the marsh

would seasonally dry out and take on the character of a detention basin, eventually resulting in the loss of nearly 40 acres of intertidal saltmarsh habitat. Therefore, limiting restoration to exotic/invasive plant eradication, restoration replanting, and other activities not involving excavation and ground disturbances is not a feasible less environmentally damaging alternative.

b) No Project

The "no project" alternative would leave the subject PALCO and Railroad Marshes in their current condition with no restoration or enhancement actions being taken. The "no project" alternative would eliminate the opportunity for potentially significant increased habitat diversity and species abundance within a highly degraded saltmarsh. Similar to the preceding alternative, overtime, the hydrologic connections between PALCO Marsh and Humboldt Bay would be severed, leading to the ecological collapse of the areas marine resources. Therefore, the no project alternative is not a less environmentally damaging feasible alternative as it would not accomplish the project objectives of enhancing wetland habitat values within degraded City marshes.

(c) Conclusion

Based on the alternatives analysis above, the Commission concludes that the proposed amendment to Coastal Development Permit No. 1-90-104 to reinitiate and expand the above-described habitat enhancement work within the 40-acre area comprising PALCO and Railroad Marshes is the least environmentally damaging feasible alternative for protecting and enhancing estuarine and saltmarsh wetland habitat values at the site and is consistent with Section 30233.

(4) Maintenance and Enhancement of Biological Productivity and Functional Capacity

The fourth general limitation set forth 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, where feasible.

The proposed restoration of the reclaimed saltmarsh margins of the eastern middle-reaches of Humboldt Bay would enhance the biological productivity and functional capacity of estuarine, intertidal saltmarsh, and nearshore habitats. Although the project as amended would result in only a very small net increase in wetland area (1,000 square-feet; 11,000 square-feet cumulatively with the original permit's upland excavation restoration work included), the 40 acres of potentially highly-productive saltmarsh proposed to be further restored from the currently degraded and relatively low productivity, emergent wetlands, together with the additional native revegetated emergent, riparian and upland areas would provide substrates that could support significant biomass production by a wide variety of estuarine, intertidal, and terrestrial organisms. The restored saltmarsh, brackish water, and intertidal water bodies would

provide a mosaic of deep to shallow in-water and emergent shoreline areas where a wide assortment of migratory fowl, amphibian, and other aquatic wildlife could hold, feed, rest, and rear their young. The native planting of the areas surrounding the marshes would restore a riparian character to the site periphery, providing additional shade and cover for other terrestrial organisms.

In addition to the direct benefits to coastal biological resources associated with the project's proposed habitat restoration and enhancement aspects, the increased connectivity between the PALCO and Railroad Marshes, and the open waters of Humboldt Bay will serve to increase sequestration and flow of carbon in and through the margins of the middle-reach of Humboldt Bay. With the increase in hydraulic exchange between these water bodies that the project would furnish, dissolved and suspended carbon materials, and other nutrients, would be more readily transported through the fluvial system and into estuarine and coastal areas, fostering greater overall productivity throughout the watershed. In addition, fixation of carbonaceous organic compounds in the forms of vegetation biomass with high carbon-to-nitrogen ratios typical of intertidal marsh plain settings, and/or as buried peat sediments, can also help reduce the amount of gaseous carbon dioxide entering the atmosphere, a major factor in global warming.[7]

Furthermore, as discussed above in the findings section on permissible filling, dredging, and diking of coastal waters and wetlands, the conditions of the permit would ensure that the project would not have significant adverse individual or cumulative impacts on existing wetland habitats or on the water quality of PALCO Marsh, Railroad Marsh, or Humboldt Bay. Thus, the proposed project would maintain and enhance the diversity, sustainability, and productivity of wetland habitats historically and currently existing on the site. For all of the above reasons, the proposed project will maintain and enhance the biological productivity and functional capacity of the wetlands consistent with the requirements of Sections 30230 and 30231 of the Coastal Act.

(5) Conclusion

The Commission thus finds that the proposed fill is for an allowable use, that there is no feasible less environmentally damaging alternative, that feasible mitigation is required for potential impacts associated with the dredging and filling of coastal wetlands, and that the biological productivity and functional capacity of the wetland habitat affected by the dredging and filling will be maintained and enhanced. Therefore, the Commission finds that the proposed amended development, as conditioned, is consistent with Sections 30230, 30231, 30232, and 30233 of the Coastal Act.

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[7] For a more in-depth discussion of the role of coastal areas in carbon sequestration, please refer to *Carbon Sinks in Nearshore Marine Vegetated Ecosystems*, Thom, Blanton, Woodruff, *et al.*, Pacific Northwest National Laboratory, Paper published in *Proceedings of the First National Conference on Carbon Sequestration*, Washington, DC, May 14-17, 2001

E. Public Access.

Coastal Act Section 30210 requires that maximum public access opportunities be provided when consistent with public safety, private property rights, and natural resource protection. Coastal Act Section 30211 requires that development not interfere with the public's right of access to the sea where acquired through use. Coastal Act Section 30212 requires that public access from the nearest public roadway to the shoreline and along the coast be provided in new development projects, except in certain instances, as when adequate access exists nearby. In applying Sections 30210, 30211, and 30212, the Commission is limited by the need to show that any denial of a permit application based on those sections, or any decision to grant a permit subject to special conditions requiring public access, is necessary to avoid or offset a project's adverse impact on existing or potential public access.

Several shoreline access and recreational facilities presently exist within the project site area. These include, from north to south: (a) the Del Norte Street Fishing Pier, picnicking area, and parking lot; (b) the trail and benches along the main levee within the PALCO Marsh Enhancement Project Site proper; (c) the non-vehicular Vigo Street entrance to the marsh complex off of Highway 101; and (d) the parking lot support facility at the north end of the *Bayshore Mall* over-flow parking lot.

As discussed in Finding Section IV.C Project Description above, the proposed development entails restoration and enhancement activities to a publicly accessible shoreline wildlife area which included a trail system, benches, and off-street parking lots, and represents a form of coastal access facility. In addition, the project as designed will not result in any significant interference with public access. With the exception of the construction across the main trail to install the Railroad Marsh culvert connection and the temporary closures of other portions of the marsh complex for equipment and material staging, the construction work would not significantly obstruct shoreline access in the vicinity of the PALCO Marsh area. Although there may be limited and temporary restrictions on use of portions of the facility during installation of the new drainage facility improvements and dredging activities, these impacts are only of a temporary duration, not exceeding more than a week in length at any one locale, and thus will not have any long-term impact on access.

Therefore, for the reasons indicated above, the proposed amended project will not have any significant adverse effect on public access. The Commission finds that the proposed amended project, which does not include any new provision for shoreline additional public access, is consistent with the public access policies of the Coastal Act.

F. Visual Resources.

Section 30251 of the Coastal Act requires that the scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance, and requires in applicable part that permitted development be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, and to be visually compatible with the character of surrounding areas. Furthermore, Section 30240(b) of the Coastal Act states that development in areas adjacent to 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 recreation areas.

As detailed in Findings Section IV.C Project Description above, the proposed project amendment entails, among other activities, the installation of prefabricated drainage culverts, an inlet junction box, and a related headwall, splash pad, and riprap to prevent scouring at the main outfall. These new project components would be visible during low tide periods from along the main marsh trail and from the loop trails on the small peninsular area jutting south from the base of the Del Norte Street Fishing Pier. However, the culvert, outfall, and new riprap around the headwall will be either within the shoreline bank or below grade (new inlet junction box) and will not obstruct views to and along the shore or from/into the PALCO Marsh complex. Additionally, given the project site location along a developed urban waterfront, the appearance of the new drainage culvert outfall would not be out of character with the surrounding area. Moreover, the color and texture of these metal, concrete, and rock materials will be of neutral to dark natural hues and reflectivity such that they would blend in with their bay shoreline setting.

With respect to the proposed removal of exotic-invasive plants, the vegetated character of portions of the marsh occupied by common reed, Himalaya berry, English ivy, and pampas grass, would be altered during the period between the removal of these plants and the establishment of the restoration native species. However, this temporary denuding of the marsh and railroad siding areas will nonetheless allow for an overall improvement in the biological integrity and visual character of a nearly ¼-mile stretch of bay frontage by restoring native plant community within the marsh complex. Finally, in addition to providing a vegetated buffer from noise, light, and other human activity impacts, the landscaping (coyote brush, California wax-myrtle, and shore pine) proposed to be installed around the Del Norte Street and Felt Street frontages, will serve screen the adjoining stark commercial-industrial buildings from view from the project site and the adjacent recreational fishing pier.

Therefore, given that the proposed development as requested to be amended would not block scenic public views to and along the shorelines of Humboldt Bay and would contribute to making the project site more visually compatible with the character of the surrounding area by replacing exotic vegetation with native plants and screening

adjoining commercial-industrial buildings, the Commission finds that the amended project is consistent with Sections 30251 and 30240(b) of the Coastal Act.

G. Other Agency Approvals.

The amended project requires review and approval by the U.S. Army Corps of Engineers. 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. As part of the Army Corps permit process, the City is required to undergo formal Federal Endangered Species Act Section 7 consultation with the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS). Additionally, the amended project requires a Section 1600 Streambed Alteration Agreement from the California Department of Fish and Game (CDFG). To ensure that the project ultimately approved by the CDFG and by the Corps in consultation with the USFWS and the NMFS is the same as the project authorized herein, the Commission imposes Special Condition No. 11 requiring the City to submit to the Executive Director evidence of this agency's approval of the amended project prior to the commencement of construction. The condition requires that any project changes resulting from these other agency reviews and approvals not be incorporated into the project until the applicant obtains any necessary amendments to this coastal development permit.

H. California Environmental Quality Act.

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 development as amended has been conditioned to be consistent with the policies 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 project, as conditioned to mitigate the identified impacts, can be found consistent with the requirements of the Coastal Act to conform to CEQA.

IV. EXHIBITS:

1. Regional Location Map
2. Vicinity Map
3. Excerpt, Post-certification Permit Jurisdictional Map – *City of Eureka*
4. Project Site Aerial
5. Proposed Phase 1A Work Plan and Site Maps
6. Excerpts, Original *Palco Marsh Enhancement Plan*
7. Original Coastal Development Permit No. 1-90-104 Staff Report
8. Excerpts, *Palco Marsh Enhancement Plan – Phase II*
9. Excerpts, *Preliminary Assessment of Pentachlorophenol and Dioxin in Sediment Located Adjacent to the Former Simpson Plywood Plant, Eureka, California* (SWAPE, August 10, 2006)
10. Memorandum from Dr. Jack Gregg, Supervisor, CCC Water Quality Unit
11. Agency Correspondence
12. Comment Letter from Humboldt Baykeeper to City of Eureka

APPENDIX A

STANDARD CONDITIONS

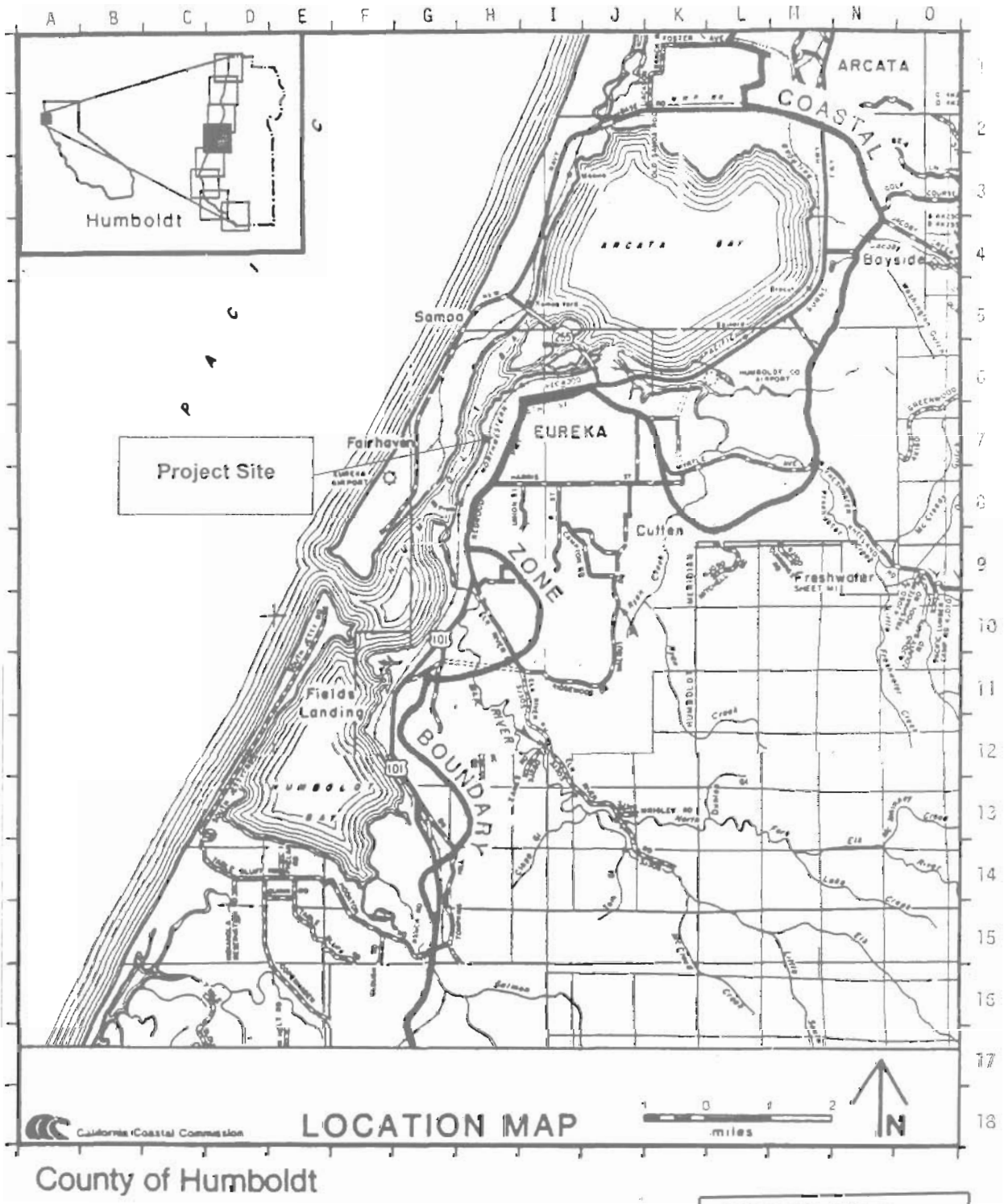
1. Notice of Receipt and Acknowledgement. The permit is not valid and development shall not commence until a copy of the permit, signed by the permittee or authorized agent, acknowledging receipt of the permit and acceptance of the terms and conditions, is returned to the Commission office.

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 amount 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 of 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.



County of Humboldt

EXHIBIT NO. 1

APPLICATION NO.

1-90-104-A2

CITY OF EUREKA

REGIONAL LOCATION MAP

EXHIBIT NO. 2

APPLICATION NO.

1-90-104-A2

CITY OF EUREKA

VICINITY MAP

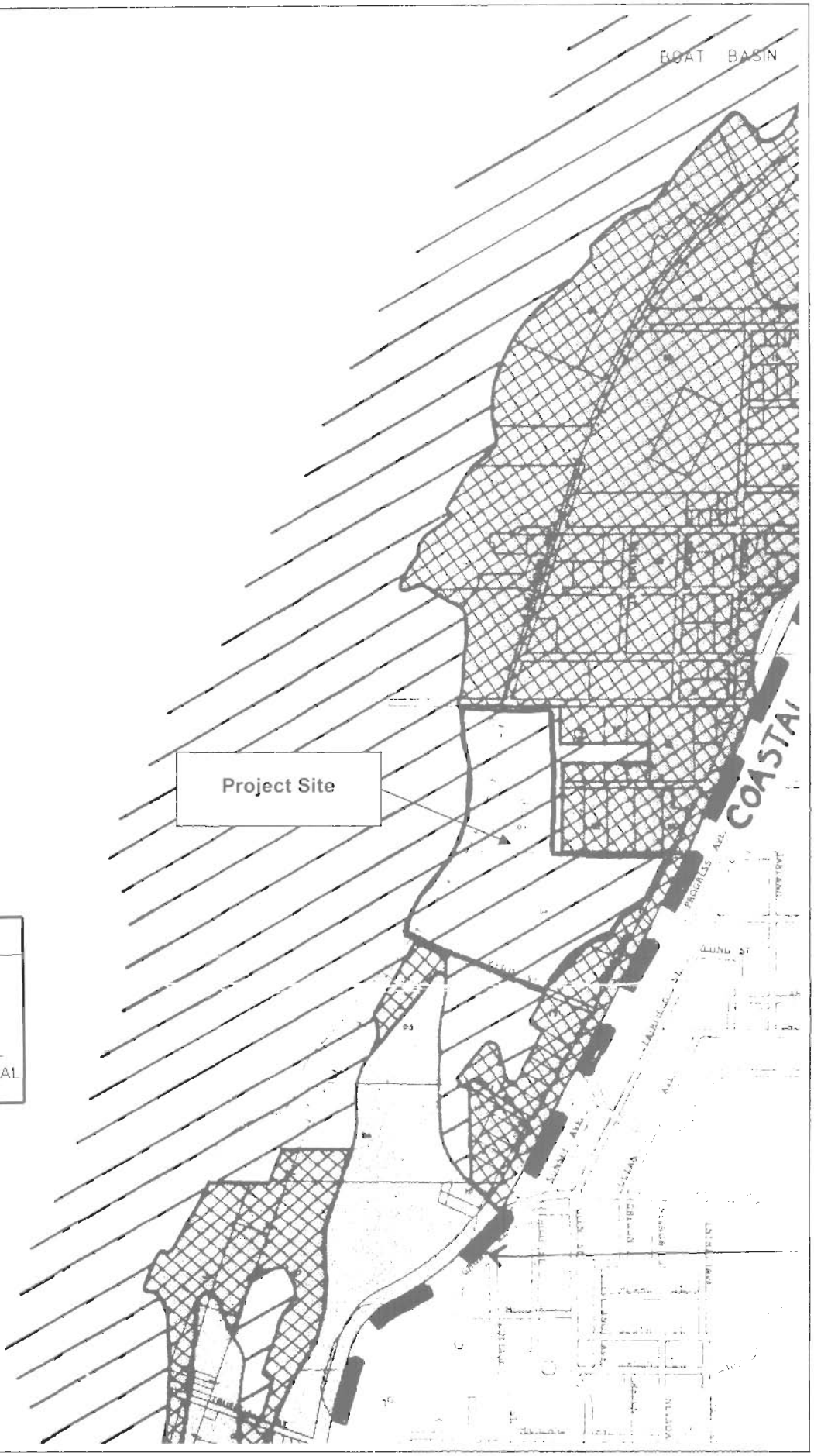


EXHIBIT NO. 3

APPLICATION NO.

1-90-104-A2

CITY OF EUREKA

EXCERPT, POST-CERTIFICATION PERMIT JURISDICTIONAL MAP – *CITY OF EUREKA*

EXHIBIT NO. **4**

APPLICATION NO.

1-90-104-A2

CITY OF EUREKA

PROJECT SITE AERIAL

CITY OF EUREKA
COMMUNITY DEVELOPMENT DEPARTMENT
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COASTAL COMMISSION

February 20, 2009

James R. Baskin, AICP
Coastal Planner
California Coastal Commission
North Coast District
710 "E" Street, Suite 200
Eureka, CA 95501

EXHIBIT NO. 5
APPLICATION NO.
1-90-104-A2
CITY OF EUREKA
PROPOSED PHASE 1A WORK PLAN AND SITE MAPS (1 of 58)

Re: Amendment to CDP 1-90-104 for the PALCO Marsh Enhancement Plan

Dear Jim,

My letter to you of June 13, 2008 includes discussion as to why implementation of Phase 1A of the PALCO Marsh Enhancement plan will not result in substantial indirect impacts to coastal resources from mobilization of sediment, and therefore will not result in mobilization of sediment potentially containing dioxin, if dioxin should exist in PALCO Marsh. The letter also sets forth the methods we intend to employ to address the Coastal Commission staff concerns regarding potential direct impacts to coastal resources associated with excavation of sediment during various Phase 1A project elements, should that sediment contain dioxin. Please consider these methods as contained in my June 13, 2008 letter as amended into the Phase 1A Enhancement Plan.

We have also discussed the potential need to amend our coastal development permit to address the changes in the location of one of the PALCO Marsh public parking areas. A parking lot was originally proposed to be located at the west end of Vigo Street in the northeast corner of the pole shed property. A small area of the parking lot was located within Vigo Street, which is in the State's CDP jurisdiction. The majority of the parking lot was in the City of Eureka's jurisdiction.

I reviewed of our old files, and here is what I believe occurred. After the City of Eureka approved the original PALCO Marsh Enhancement Plan, and after the Coastal Commission approved CDP 1-90-104 for the Enhancement Plan, the City issued CDP-24-91 for the following four major project components: 1) the construction of a supermarket and appurtenances south of the Bayshore Mall; 2) the construction of additional parking on mall property adjacent to the Broadway and Harris Street entrance; 3) the construction of a 2.6 acre parking lot on the pole shed property; and 4) the revision of the PALCO Marsh Enhancement Plan approved in 1988, changing the proposed habitat restoration from an open water/riparian habitat to a tidal salt

marsh habitat, and providing for a public parking area, originally planned for Phase 2 of the implementation, to be relocated from the foot of Vigo street to the north end of the proposed 2.6 acre parking lot. The area originally identified for parking was to be excavated and enhanced as a wetland area. The relocated parking is located completely within the City's CDP jurisdiction, and has been constructed and appropriately signed for use by the public to access PALCO Marsh. The City notified the Coastal Commission of our action on 5-24-92, a Notification of Appeal Period was issued dated 6-25-92, and the action became final on 7-8-92.

You have explained that it appears the existing State CDP 1-90-104 for the PALCO Marsh Enhancement Plan still includes the original location of the parking lot at the west end of Vigo Street, and that the City needs to submit an amendment to correct this situation. I can only surmise the need to amend this permit was overlooked by both of our agencies, probably because the new parking lot location was fully within the City's permit jurisdiction and was permitted by the City accordingly, and because such minor part of the original parking area was in the State's jurisdiction. It also appears that the City ultimately viewed the original Vigo Street parking lot as a Phase 2 project element and the Coastal Commission permitted the parking area as part of Phase 1, further confusing the issue. Please consider this letter as a request to amend CDP 1-90-104 for PALCO Marsh to reflect the relocation of the public parking area from the west end of Vigo Street to the north end of the Bayshore Mall parking lot.

Please let me know if you require anything further in support of our CDP amendment. I appreciate your efforts in preparing our project for presentation to the Coastal Commission in Marsh.

Sincerely,

Lisa D. Shikany
Environmental Planner
(707) 268-5265
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June 13, 2008

James R. Baskin, AICP
Coastal Planner
California Coastal Commission
North Coast District
710 "E" Street, Suite 200
Eureka, CA 95501

RE: Coastal Development Permit Application No. 1-06-51 – Addendum
PALCO Marsh Enhancement Plan – Phase 1A

Dear Jim,

The City of Eureka submitted a permit application to the California Coastal Commission (Commission) for the PALCO Marsh Phase 1A Enhancement Plan Project (Project) on December 21, 2006. The Project was subsequently placed on the Commission's April 2007 agenda for consideration, but was postponed by Commission staff just prior to the April meeting due to concerns about the detection of dioxin in sediments in and around the Project site. We understand the Commission's concerns to be that Project implementation may result in direct environmental impacts resulting from the excavation and disposal of sediment that may contain dioxin, as well as in indirect environmental impacts to Humboldt Bay as a consequence of increased mobilization of any such sediment due to enhanced tidal flows.

We have since gathered additional information to assist the Commission in addressing the potential impacts associated with dioxin that could result from Project implementation. Considering this additional information and further clarifications of existing information as contained herein, the Project can be found to result in no meaningful increase in potential dioxin-related impacts to coastal resources. Accordingly, we are submitting this letter as an addendum to our permit application, in the hope that it provides you with the information necessary to allow our permitting process to move forward.

Background

The Commission staff's concerns regarding dioxin initially stemmed from the results of soil sampling (of which I was unaware at the time we submitted our permit application) undertaken by SWAPE on behalf of Humboldt Baykeeper. We presume this testing was associated with the lawsuit Baykeeper filed against Simpson over dioxin allegedly associated with the former Eureka

Plywood Mill site owned by Simpson. The testing revealed the presence of relatively high levels of dioxin in the drainage swale located just north of Del Norte Street; this swale drains directly into the City's tidal channel through a culvert under Del Norte Street. SWAPE's tests also showed the existence of relatively low levels of dioxin in the north portion of this tidal channel, which we propose to dredge as part of our Project. The sample taken in the tidal channel at a point just south of Del Norte Street contained a total dioxin TEQ concentration of 46.04 pg/g according to SWAPE's preliminary assessment for pentachlorophenol and dioxin dated August 10, 2006, a copy of which is on file at the North Coast District Coastal Commission office. This represents a dioxin level substantially below hazardous waste levels, and considerably below levels found in the swale north of Del Norte Street where the maximum detection of dioxin was 89,220 pg/g total TEQ according to the SWAPE report. The presence of dioxin in this swale and tidal channel, coupled with the 303(d) listing of Humboldt Bay as dioxin impaired, caused the Commission staff's concern and the subsequent removal of our Project from consideration in April of 2007.

Consequently, Commission staff expressed the need for the City to conduct testing for dioxin within the Project boundaries where there would be a possibility for Project activities to result in direct or indirect mobilization of sediment containing dioxin into Humboldt Bay. The testing was requested to be completed prior to the Commission's consideration of our permit. We originally agreed that the areas of concern were the tidal channel we propose to dredge, and Railroad Marsh where we propose to excavate approximately 2.5 feet in order to lower the elevation to that of PALCO Marsh and install two culverts to connect Railroad Marsh with PALCO Marsh. Therefore, the City focused on gathering additional information relative to dioxin in those two areas.

In June of 2007, Kasey Ashley of the North Coast Regional Water Control Board (Regional Board) conducted sediment sampling at ten separate locations around Humboldt Bay. One of the sampling locations was the southerly end of the City's tidal channel (i.e., the opposite end of the channel from where the above referenced SWAPE sample was taken) and just north of the wooden structure located opposite the outfall of the 24-in. culvert scheduled to be replaced as part of the Project (this culvert connects PALCO Marsh with the bay). The test results for this location show the presence of dioxin at a TEQ concentration of 0.927 pg/g, which was the lowest concentration detected in the samples taken by the Regional Board during their sampling event.

The City had soil sampling for dioxin and priority pollutant metals conducted in October of 2007 at the north and south end of Railroad Marsh. (Test results for the metals indicated they do not occur at levels of concern.) The Commission staff expressed an interest in testing for dioxin in this location because of the extensive excavation proposed, and because the connection of Railroad Marsh to PALCO Marsh via new culverts would indirectly connect Railroad Marsh to Humboldt Bay, thus providing a potential new source of dioxin for the bay. (In its present state, Railroad Marsh does not have a surficial hydrologic connection to the bay.) Test results received in January reveal the presence of dioxin at a TEQ concentration of 9.899 pg/g at the north end of Railroad Marsh, and at a TEQ concentration of 14.461 pg/g at the south end.

Joel Gerwein of the Coastal Conservancy and I met with you and Vicki Frey of DFG in mid-February to share our Railroad Marsh findings and determine what, if any, resulting concerns the Commission and DFG might have. While Commission and DFG concerns relative to the Railroad Marsh dioxin appeared to be minor because of the Project's proposal to remove the upper 2.5 feet of Railroad Marsh (and thus presumably most if not all of the soil containing dioxin), a new concern was raised relative to dioxin and the replacement of the existing 24-in. culvert connecting PALCO Marsh and the bay.

The Project includes replacement of this collapsing 24-in. culvert with a 48-in. culvert, with the goal being to increase the PALCO Marsh tidal prism and provide for hydrologic function that more closely resembles what would occur "naturally" within the Marsh. The concern expressed by the Commission and DFG was that the changes in the hydrologic function within the marsh resulting from the upsizing of the culvert could result in the mobilization of sediment potentially containing dioxin from PALCO Marsh into Humboldt Bay. The specific concerns expressed were that an increase in the tidal prism could result in new areas within the marsh being inundated, or in an increase in velocity of tidal flows, either or both of which have the potential to increase sediment mobilization. No testing has been conducted within PALCO Marsh to confirm the presence or absence of dioxin. Consequently, dioxin sampling in the marsh was requested by the Commission, although no specific protocol for the location and number of sampling locations was provided by DFG or the Commission.

The following sections of this letter explain potential impacts and mitigating circumstances relative to dioxin for various Project components. We believe the discussions contained in these sections demonstrate that no further testing is required in order for the Project to be implemented in a manner that complies with the Coastal Act and adequately protects coastal resources from Project impacts relative to dioxin.

Direct Impacts Due to Excavation of Sediments Containing Dioxin

The Project includes four components that require the excavation of sediment that could potentially contain dioxin. Each of these components is discussed below, including a brief description of the activity (see the PALCO Marsh Enhancement Plan – Phase 1A Work Plan for more detailed information on each activity) and a description of the potential impacts and mitigating circumstances relative to dioxin. Also, the following mitigation measures which are included in the Mitigation Monitoring and Reporting Program adopted for the Project, are in place to protect water quality and will therefore help reduce impacts to Humboldt Bay from dioxin should it be contained in excavated sediment within the Project boundaries.

> MITIGATION MEASURE NO. 11. The contractor shall implement best management practices (BMPs) as contained in Sections 3 and 4 of the Stormwater Quality Association Stormwater Best Management Practice Handbook for Construction dated January 2003, or other generally recognized stormwater BMP compilations as may be required, and as contained in the Stormwater Pollution Prevention Plan to be prepared and approved by the City for the project.

MITIGATION MEASURE NO. 12. The contractor shall employ techniques to protect water quality when excavating aggraded channels. Techniques may include:

- conducting excavation in the dry (i.e. low tide)
- deploying silt curtains at either end of section to be excavated
- placement of spoils only in upland areas and placing artificial containment such as weed-free straw bales around the spoils
- isolating the excavation area by temporarily blocking culverts, or using coffer dams, sheet piling, or similar device
- utilizing siltation basins should dewatering be required

Railroad Marsh Excavation and Culvert Installation

The Project proposes tidal inundation of Railroad Marsh. To accomplish this goal, Railroad Marsh is proposed to be excavated approximately 2.5 feet down to an elevation equivalent to that of PALCO Marsh, followed by the installation of two 12-inch diameter culverts to connect PALCO and Railroad marshes. This will require excavation of approximately 3,500 cubic yards of soil from the marsh. As previously noted, the total dioxin TEQ concentration found in two samples taken from Railroad Marsh in October 2007 was 9.899 pg/g in the soil sample taken from the north end the marsh, and 14.461 pg/g in the sample taken at the south end.

Railroad Marsh is not known to have been previously developed, and remains undeveloped today. It is presumed that the dioxin found in the marsh probably resulted from past industrial activities in the vicinity of Railroad Marsh, and was carried in stormwater runoff into the marsh. It could therefore be reasonably presumed that removal of the upper 2.5 feet of the marsh would also remove the low levels of dioxin found on the site. When the City is ready to excavate Railroad Marsh and install the culverts (after we have eradicated the majority of the *Phragmites australis* in PALCO and Railroad marshes), we will coordinate with the Regional Board to ensure that the City and its contractor employ methods that are compliant with State law and best management practices when handling and transporting spoils from Railroad Marsh. Prior to conducting the required excavation and culvert installation, we will submit a plan to the Commission outlining the specifics of how the spoils will be handled, including what if any additional testing will be conducted, how stockpiling will be conducted (if it occurs), and where the spoils will be taken. The currently prescribed water quality mitigation measures, State law requirements, and best management practices are sufficient to minimize impacts to water quality from excavation and stockpiling activities.

PALCO Marsh Channel Excavation and Vegetation Thinning

Approximately 100 feet of new channel will be hand dug from the existing concrete drainage structure in the northwest corner of PALCO Marsh, east approximately 100 feet to an area that can remain ponded and stagnating during the summer months. An additional 320 feet of existing channel in the northwest portion of the marsh has been reported to have periodically become clogged with vegetation in past years. If this occurs in the future to the extent that tidal flows become impeded, some vegetation may need to be removed by hand from within these channels.

There has been no testing for dioxin conducted within PALCO Marsh. There have been no known uses that have occurred within what constitutes the present-day marsh that would have likely generated dioxin. There is a known historic dump site that extended up Railroad Avenue and south into the northwest portion of the marsh. Excavations for past projects in the area (e.g. Costco) revealed articles manufactured from between the late 1800's to the 1930's, consisting of mostly bottles, ceramics, and enameled tinware. The northwest corner of the marsh immediately south of Del Norte Street and opposite the southerly terminus of Railroad Avenue (in the vicinity of the drainage structure) contained fill associated with the use of the area as a dump; the fill was removed as part of Phase 1 of the PALCO Marsh Enhancement Plan. The northerly portion of PALCO Marsh was also used as pasture, with some of the old fencing still visible.

The only activity associated with this Project element requiring soil excavation would be the digging of the 100 feet of channel. We anticipate this channel would be approximately 2-feet wide and 1-feet deep (this is the width and depth proposed for the channels excavated within the marsh during Phase 1), and thus would require the removal of approximately 7 cubic yards of material. This soil can be handled in one of two ways if we presume it may potentially contain dioxin – it can be tested prior to removal to determine if there is any dioxin present in order to establish how to handle the spoils, or we can simply presume presence and handle the spoils accordingly. Either way, the soil will be handled and disposed of according to State law, prescribed mitigation for protection of water quality, and commonly accepted best management practices. Therefore, conducting additional tests in this area prior to issuance of the Commission's coastal development permit would not change our approach to handling the spoils.

We intend to conduct this channel excavation at the same time as the tidal channel dredging Project element, and in coordination with Simpson's remediation project which will remove the sediment containing dioxin from the drainage swale north of Del Norte Street (the tidal channel dredging Project element and coordination with Simpson are discussed below). If coordination occurs as we intend, spoils from this hand-excavated channel as well as from the tidal channel dredging Project element, would be disposed of by Simpson together with all of their spoils; Simpson's sediments have been confirmed in situ to contain high levels of dioxin and will be handled and disposed of accordingly. Thus, the PALCO Marsh channel spoils would be treated as though they contain dioxin as well, and would be handled appropriately, further negating the need for additional testing.

Tidal Channel Dredging

This Project element includes dredging approximately 1,000 linear feet of the tidal channel located between the overlook peninsula and the railroad, and between Del Norte Street and the outfall of the existing 24-in. culvert that connects PALCO Marsh and the bay. As noted previously, an August 2006 sediment sample taken at the north end of this channel by SWAPE showed a total dioxin TEQ concentration of 46.04 pg/g, and a July 2007 sediment sample taken at the south end of the channel by the Regional Board showed a total dioxin TEQ concentration of 0.927 pg/g. In addition to dredging this channel, the tidal dredging Project element includes cleaning the three culverts that connect the tidal channel to the drainage structure in the northwest corner of PALCO Marsh, as well as cleaning the drainage structure. We expect the

culvert and drainage structure sediment would be removed using a vacuum truck, with the tidal channel sediment removed using an excavator as described in the Phase 1A Work Plan.

The Project includes measures that will protect the bay from increased mobilization of sediment that could result from these Project element activities, as listed above. These measures will also be effective in protecting the bay if the sediment contains dioxin. The measures include the limitation that dredging will occur in the dry during very low tides. If some dredging must occur when there is enough water present to result in mobilization of sediment into the bay (e.g. if dredging is almost complete, the tide starts to come, and there is not another very low tide due for weeks thereby necessitating that dredging be completed in that tidal cycle), a sediment curtain will be installed downstream of dredging activities. We may also install a water bladder or similar device to keep incoming tides out of the dredging area long enough to complete the dredging. Although some sediment may be temporarily mobilized as a result of the dredging, the long-term impacts of the dredging will be positive due to the removal of sediment containing dioxin from the channel.

We intend to complete this Project element in conjunction with the Simpson remediation project just north of Del Norte Street. (Simpson's project is within the City's coastal development permit jurisdiction; the City will consult with the Coastal Commission staff during the permitting process for the project.) The dredge spoils to be excavated by the City as part of the tidal channel dredging Project element are estimated to total approximately 300 cubic yards, and would be disposed of by Simpson along with their swale spoils which contain a much higher concentration of dioxin. This means that all tidal channel dredging Project element spoils (as well as the hand-excavated channel spoils as described in the preceding section) would be handled conservatively, as though they contained dioxin in levels that require special handling. If the City were to complete this Project element independently of Simpson, testing would be conducted either prior to dredging activities, or most likely once the spoils are stockpiled (dredging and stockpiling would be preformed presuming all spoils may contain dioxin), and disposal would be carried out accordingly and in compliance with state law as dictated by dioxin levels present in the spoils.

Prior to dredging, the City will submit a plan to the Commission outlining the specifics of how the spoils will be handled, including what if any additional testing will be conducted, how stockpiling will be conducted (if it occurs – direct haul may be proposed by Simpson), and where the spoils will be taken. We anticipate this requirement being fulfilled either by our submittal of germane portions of Simpson's approved project plans, or by submitting a separate plan prepared by the City demonstrating that the spoils will be handled, stockpiled and disposed of according to state law, prescribed mitigation for protection of water quality, and commonly accepted best management practices such that impacts to Humboldt Bay will be minimized (e.g. the plan will specify drainage from sediment dewatering would be captured and treated, and sediment containing dioxin would be disposed of in an appropriately licensed waste facility, etc.).

The Regional Board has indicated that after completion of the tidal channel dredging Project element, a sediment sample and test for dioxin will be required. The Regional Board has offered to conduct this sampling on behalf of the public, and will be take the sample at a time they deem

appropriate relative to completion of this Project element. The sample will be taken from the south end of the tidal channel and from the same general location as that of the Regional Board's June 2007 sample. The City will provide the Coastal Commission with the sampling results.

Training Channel Excavation

A channel approximately 30 feet long and 2 feet wide will be excavated between the bay outfall of the new 48-in. culvert (replacing the aforementioned 24-in. culvert connecting PALCO Marsh and the bay) and the center of the tidal channel, and will be excavated to an elevation equal to that of the tidal channel. The excavation will remove approximately 6 cubic yards of sediment that has accumulated between the existing culvert outfall and the center of the tidal channel, and will occur in conjunction with the installation of the 48-in. culvert. Given the extremely low dioxin levels in the vicinity of the culvert outfall as revealed by the Regional Board's June 2007 sediment testing, we would not expect additional information to be required by the Commission relative to dioxin for permitting of this Project element. Training channel excavation will be carried out as described in the Phase 1A Work Plan, and by employing prescribed water quality protection mitigation measures; no special sediment handling or disposal relative to dioxin is required or proposed.

Indirect Impacts Due to Sediment Mobilization

We understand the Commission and DFG are concerned about potential mobilization of sediment containing dioxin from PALCO Marsh into Humboldt Bay (presuming PALCO Marsh were to actually contain dioxin) due to increases in the tidal prism[1] and tidal velocity that could result from Project implementation. Tidal prism and velocity may increase as a result of two project components: the replacement and upsizing of the 24-inch culvert connecting PALCO Marsh to Humboldt Bay, and the excavation of approximately 100 feet of channel between the existing drainage structure and the ponded area in the most northerly portion of PALCO Marsh.

PALCO Marsh Channel Excavation

We do not believe the small increase in the PALCO Marsh tidal prism resulting from the 100 feet of new channel at a width of two feet and depth of one foot (approximately seven cubic yards of excavated sediment) within northwest PALCO Marsh is likely to result in ongoing increased sediment transport into the bay beyond what may be occurring now. Because we would not expect an increase in Project sediment entering the bay, we would also not expect an increase in the amount of dioxin (that may be contained in this sediment) entering the bay.

PALCO Marsh proper is not known to have been developed with heavy industrial uses. As previously discussed, there was a historic dump site extending into the northwest corner of the marsh, with fill associated with this dump site having been removed during Phase 1 of the PALCO Marsh Enhancement Plan. The area where the fill was removed is subject to tidal inundation and stormwater runoff, and the excavation of this small channel will not alter that situation.

[1] Tidal prism is defined as the change in the volume of water covering the marsh between a low tide and the subsequent high tide.

Any dioxin that could potentially be present in the marsh would most logically have been carried there by stormwater or tidal flows and deposited on the ground surface. Therefore, the hand-excavation to remove sediment in order to create this channel can be reasonably presumed to result in the removal of any dioxin that may be contained in that sediment, if dioxin exists in the area of the new channel. In addition, stormwater runoff from this area already occurs during storm events, and the area can also be flooded during larger storm events and/or very high tides, so any sediment containing dioxin in this area already has the potential to be mobilized at times.

PALCO Marsh Culvert Replacement

The primary component associated with potential tidal prism and velocity increases is the replacement of the 24-in. culvert with a 48-in. culvert. Increases in tidal prism and velocity as they relate to the culvert replacement are discussed in the following two sections. Most of this information is excerpted from my April 24, 2006 letter to Greg Goldsmith of the U.S. Fish and Wildlife Service (a copy of which was provided to you previously in our permit application package) addressing the potential impacts of tidal prism and velocity Project changes on the tidewater goby and their habitat, and is repeated here for your convenience.

Tidal Prism

After completion of Phase 1 of the PALCO Marsh Enhancement Plan in 1991 (the inverted siphon was installed during this phase), hydrologic and hydraulic monitoring was conducted between the fall of 1991 and the winter of 1994. The results of this monitoring were presented in the *Interim Monitoring for the Palco Marsh Enhancement Project, Phase I*, prepared for the City and the Coastal Conservancy, with the same hydrologic and hydraulic information also included in the *Final Monitoring Report for the Palco Marsh Enhancement Project, Phase 1, December 1995*. The report provided numerous recommendations, including replacement of the 24-inch culvert under the railroad tracks with a 36-inch to 48-inch culvert. The report notes:

> Flood and ebb flows must pass through two separate drainage structures to move between Palco Marsh and Humboldt Bay: the new siphon constructed as part of the enhancement activities, and an older 24" diameter culvert beneath the railroad tracks. Presently, the older culvert has the lower capacity and therefore limits the rate of water exchange. This limitation is primarily expressed as delayed and partially suppressed tidal flows to and from the marsh. While the target tidal range of 2.0 feet is attained under some circumstances, the predominant range is presently 1.0 to 1.5 feet, and frequently less. This causes longer durations of inundation periods on tidal plains and upper slough margins. Consequently, standing water may remain in these areas during many higher low tides which might otherwise drain if the rate of ebb were not limited by the culvert. We believe this may be restricting full attainment of project goals. If biological conditions and trends observed during the monitoring period appear to fall short of expectations, the limitations on tidal range imposed by the culvert beneath the railroad tracks could be a likely cause.
>
> Since implementation of the enhancement plan, most of the railroad tracks have been removed. Consequently, replacing the pipe would presently be less costly

> and thus more feasible than when the original enhancement was done. Replacement of this pipe with one of larger diameter (e.g., 36" – 48") is recommended to increase the tidal prism of the Palco Marsh and further restore natural hydrologic functioning.

There are generally two factors that will change as a result of the culvert replacement that will contribute to the increase in the tidal prism. The first is the lowering of the elevation within the culvert/siphon system that will theoretically allow the marsh to drain to a greater extent then it can at present. The current flow line of the inverted siphon (as installed in 1991) at the marsh end of the siphon is 3.1 feet. The flow line at the west end of the siphon (where the open water exchange area is located) is 2.85 feet. However, the flow line at the east end of the 24-in. culvert (the east end is located also where the open water exchange area is located) is at 3.7 feet. Thus, under current conditions, the marsh cannot drain below 3.7 feet.

The new 48-in. culvert will be installed by removing the west end of the inverted siphon and installing a junction box. The junction box will connect the new 48-in. culvert with the two existing 18-in. culverts that form part of the inverted siphon. The flow line of the new junction box will match that of the east end of the 18-in. culverts (- 0.55 feet), with a rise to 0.50 feet to the new 48-in. culvert. From there, the flow line of the 48-in. culvert gets lower as it extends to the bay, to the point where it ends at a flow line elevation of 0.0 feet. Thus, once the new culvert is installed, the new constraint for the elevation of the water in the marsh becomes the flow line at the east end of the inverted siphon, which is 3.1 feet. This means the water in the marsh would be able to drop no more than 0.6 feet lower in elevation then it does currently.

How this translates to what will actually occur in the marsh is not exactly clear because the elevations within the marsh channels have not been recently measured. When the main channel running north and south from the siphon adjacent to the west side of the marsh was excavated as part of Phase 1 in 1991, the constructed elevations of the channel ranged from 3 feet in front of the siphon, to 3.5 moving north and south within the channel, to 4.0 feet at either end of the channel. The elevation at the east end of the 24-in. culvert of 3.7 feet was the constraint in the system at that time (and still is). It was anticipated that maximum water levels would remain approximately at pre-Phase 1 levels, but minimum water levels were anticipated to approach channel bottom levels. The current elevations in this channel are unknown, but changed from the constructed elevations within the first few years due to aggradation as noted in the final hydrologic monitoring plan.

With the elevation of 3.1 feet at the marsh end of the inverted siphon becoming the limiting elevation once the 48-in. culvert is installed, it is anticipated that the tidal flows within the main marsh channel could theoretically achieve a lower elevation than when the 3.7-ft. elevation at the 24-in. culvert was the constraint. On the other hand, the elevations within the channel may have increased from aggradation to the point that the 3.7-ft. elevation is no longer a constraint, and thus there may not be a significant change in the tidal prism from this factor alone. In addition, it was observed in 1991 during excavation of the main channel that there were deeper areas in the marsh to the east of the channel that may be lower than 3.1 feet in elevation, and therefore would remain inundated during low tide after the new culvert is installed.

There is, however, a second factor that will contribute to an increase in the tidal prism, and that is the increase in the size of the 24-in. culvert to a 48-in. culvert. As provided in the 1995 Phase 1 final monitoring plan, the size of the 24-in. culvert was believed to be the cause of delayed and partially suppressed tidal flows to and from the marsh. These muted tidal flows cause longer durations of inundation periods within the marsh, resulting in standing water remaining during higher low tides which might otherwise drain if the rate of ebb were not limited by the culvert. In other words, the tidal flows that enter the marsh do not have enough time to drain completely out before the next high tide due to the small size of the 24-in. culvert. Thus, the recommendation was made in the 1995 final monitoring report to replace the 24-in. culvert with a larger culvert in order to increase the tidal prism within the marsh.

The two 18-in. culverts located under the City's sewer lines that form part of the inverted siphon will remain in place. The existence of these two culverts in the system will to some extent attenuate the increase in water flowing into and out of the marsh as a result of the installation of the 48-in. culvert. The restriction of these two 18-inch culverts will likely not come into play unless there is an extremely high or fast moving tide, but without analyzing the marsh hydraulics, we cannot say for certain what impact the two 18-in. culverts will have on the system, or for that matter, what exactly can be expected in terms of the tidal prism that would result from the new culvert installation. Generally, we expect that the 48-inch culvert will improve the tidal flushing over what currently exists despite the restriction of the two 18-inch culverts, but that under higher tides, the tidal cycle will still remain muted because of these smaller culverts.

Tidal Velocity

As discussed above, we expect to see a change in tidal flows into and out of the marsh with the installation of the new 48-in. culvert, albeit somewhat attenuated by the existing two 18-in. culverts. The culvert upsizing will also result in a change in flow velocities. (It should be pointed out that the 24-in. culvert is collapsed and plugged at present, so changes in flow volume and velocity may be more pronounced with the installation of the new culvert than they would otherwise be if the 24-in. culvert was fully functional, as it was when the inverted siphon was installed in 1991.) Some increase in velocity is expected for tidal flows into the marsh, but without doing additional work we do not know specifically what the increase will be. Following is an excerpt from the initial study prepared for the Phase 1A Work Plan, which discusses the expected changes in the velocity of the tidal flows resulting from the upsizing of the existing culvert:

> The potential for erosion was also determined to be less than significant for this project. The project element that could potentially result in increased erosion effects is the upsizing of the 24-in. culvert to a 48-in. culvert, work plan task #1. The potential for the increased tidal flows into and out of the marsh as a result of the upsizing was analyzed to determine if the increased flows would result in erosion at the outfall. Based on an analysis provided by Spencer Engineering, the firm that designed the culvert installation, the outlet velocity will actually decrease slightly by replacing the 24-in. pipe with a 48-in. pipe. For analysis purposes, Spencer assumed that the water surface level at the upstream end of the

> 24-in pipe is at an elevation of 5.5 feet, which is the approximate high water level of the marsh. In this case, the existing flow will be about 30 cubic feet per second, the pipe will flow full, and the velocity at the outlet will be about 9.6 feet per second. For the 48-in pipe, Spencer assumed the same inlet water surface elevation. In this case, the flow will be about 85 cubic feet per second, the 48-in pipe will be about 72% full, and the velocity at the outlet will be about 8.8 feet per second. Also, although the 48-in. culvert will increase the flow into and out of the marsh over what is presently occurring, Spencer notes that the two existing parallel 18-in. pipes, just upstream of the proposed 48-in. culvert, will likely attenuate any changes in flow and velocity. Therefore, we would not expect to see significant problems with erosion at either end of the culvert system with the increase in culvert size and resulting increase in tidal flows into and out of the marsh.

The Regional Board has indicated that after installation of the 48-in. culvert, another sediment sample and test for dioxin will be required since this project element is expected to be completed next year, while the tidal channel dredging Project element will hopefully be completed this fall. The Regional Board has offered to conduct this sampling, as well. The sample will be taken in the same general location as the other samples, in the vicinity of the culvert outfall to the bay. The City will provide the Coastal Commission with the sampling results. If the tidal channel dredging Project element is delayed until next year and occurs in the same construction season as the culvert replacement, only one sampling event will be required.

Summary Points

After reviewing and considering the information provided herein concerning the potential impacts to the tidal prism and velocities from Project implementation, the following key points should be considered:

- PALCO Marsh was not known to have been developed with a heavy industrial use. There was part of an old dump site located in the northwest corner; fill associated with the site was removed as part of Phase 1 of the Enhancement Plan, and this area is currently tidally influenced and receives stormwater. Any dioxin that could potentially be located within the marsh is likely to have been deposited on the marsh surface via stormwater runoff. It is therefore unlikely that highly elevated levels of dioxin are present in any subsurface sediment that would be newly mobilized as a result of this project.

- The primary change in the tidal prism is likely to be reduced periods of tidal inundation; that is, the marsh would be anticipated to drain more quickly and to a greater extent between tidal cycles than it does currently. Some increase in the volume of water entering the marsh may occur, but because the primary change is expected to be greater draining of the marsh, it is unlikely that significant mobilization of sediment in areas presently untouched by tidal flows would occur.
- The areas of PALCO Marsh that could potentially receive increased tidal inundation after culvert replacement due to an increased tidal prism are already inundated under current

conditions during higher tides and/or large storm events, and also currently receive rainfall and associated stormwater runoff. Therefore, a significant increase in sediment mobilization due to increased tidal inundation is unlikely.

- Project implementation is not expected to significantly increase tidal velocity at either end of the inverted siphon/culvert system, and may actually decrease velocity at the outfall to Humboldt Bay. Therefore, velocities resulting from the installation of the 48-in. culvert would not be expected to result in a notable increase in the mobilization of sediment, or sediment containing dioxin, into the bay.
- The two parallel 18-in. culverts that form the easterly end of the inverted siphon will remain as part of the siphon/culvert system connecting PALCO Marsh and Humboldt Bay, and will attenuate changes in the tidal prism and velocity that could result from the installation of the 48-in. culvert. This will reduce the chances that changes in velocity or tidal prism will result in increased sediment mobilization into the bay.
- An insignificant level of dioxin was found in the sediment near the outfall of the existing 24-in. culvert connecting PALCO Marsh with Humboldt Bay. This was the lowest concentration detected in the samples taken by the Regional Board during their 2007 sampling event around Humboldt Bay.

We believe the information we have provided regarding changes in the tidal prism and velocity, as well as historical information regarding the uses within PALCO Marsh, supports the finding that there will be no notable increase in sediment transport from PALCO Marsh to Humboldt Bay as a result of Project implementation, and consequently no notable, if any, increase in dioxin entering the bay. In addition, the excavation associated with the project, most notably the tidal channel dredging, will actually reduce the likelihood that sediment containing dioxin will be mobilized by tidal flows into the bay.

Project Phasing

As discussed earlier in this letter, the City is working with Simpson to coordinate elements of the City's Project with Simpson's drainage swale remediation project just upstream of the City's tidal channel. Project coordination will benefit the City due to Simpson's commitment to properly receive, handle and dispose of all spoils generated by several elements of the City's Project. These elements include: 1) the City's tidal channel dredging; 2) cleaning the three culverts connecting the drainage structure in the northwest corner of PALCO Marsh with the tidal channel; 3) cleaning the drainage structure; and 4) excavation of approximately 100 feet of channel within the north portion of the marsh to connect the drainage structure with an area that ponds in the northeast corner of the marsh. This coordination effort will save the City the cost of additional handling, testing and disposal fees since Simpson will receive, handle and dispose of all the City's spoils generated by these project elements together with their spoils, meaning the City's spoils will be presumed to contain dioxin and will be treated accordingly.

Simpson will benefit by coordination of our projects, as well. Simpson's project will improve drainage flows associated with the drainage swale due to the cleaning out of the Del Norte Street culvert that connects the tidal channel and drainage swale, which in turn has the potential to

mobilize sediment containing dioxin (per the SWAPE report) that has accumulated in front of the culvert in the north end of the tidal channel. In order to avoid mobilization of this sediment into the bay as a result of Simpson's project, it would need to be removed. This activity will be permitted under the City's permit, and carried out by the City under the tidal channel dredging Project element.

In addition, by working together and conducting the drainage swale and tidal channel dredging project elements at the same time, both Simpson and the City will avoid having sediment containing dioxin reenter either project site, which could occur if one project was completed without the other. The City (i.e. the public) will also benefit through reduced construction costs, as we hope to utilize Simpson's contractor for our dredging work, thus saving us mobilization costs. The Humboldt Bay environment generally will benefit by the coordination of these two projects since they are hydrologically connected, and thus are best completed together.

Simpson's project is located within the City's coastal development permit jurisdiction. We are hopeful we can permit Simpson's project in sufficient time to allow work to be completed this summer and fall. Since both projects are best completed at the same time as discussed above, we are hopeful our permit can be issued soon enough to allow this to occur. If the Commission is unable to proceed with permitting the Project in its entirety at this time, we would request issuance of a permit for just the portions of the Project that must be coordinated with Simpson's project which as noted above include: 1) tidal channel dredging; 2) cleaning the three culverts that connect the drainage structure in the northwest corner of PALCO Marsh with the tidal channel; 3) cleaning the drainage structure; and 4) excavating approximately 100 feet of channel within the north portion of the marsh to connect the drainage structure with an area that ponds in the northeast corner of the marsh.

Please consider the possibility of permitting just these Project elements as an immaterial amendment to the City's existing Phase 1 coastal development permit. With required implementation of existing mitigation measures for protection of air quality, water quality, biological resources, and cultural resources; implementation of best management practices; implementation of the approved Remedial Action Plan (RAP) for Simpson's drainage swale, and close coordination with the Coastal Commission staff during the City's permit process for the RAP, we are confident the Commission will be able to find that the Project is consistent with the Coastal Act with no potential impact to coastal resources. We do not expect controversy over carrying out either of these projects, but rather controversy could result if they are not implemented.

Vigo Street Parking Lot

You asked about amending our coastal development permit to reflect the current conditions on the site, and remove the parking area originally proposed at the west end of Vigo Street. It appears that the City approved CDP-24-91 which among other things included "the revision of the Palco Marsh Enhancement Plan, approved in 1988, changing the proposed habitat restoration from an open water/riparian habitat to a tidal salt marsh habitat, and providing for a public parking areas, originally planned for Phase II of the implementation, to be relocated form the

foot of Vigo Street, to the north end of the proposed 2.6 acre parking lot adjacent to the Bayshore Mall parking lot. . . . The area previously proposed as a public parking lot at the foot of Vigo Street is to be excavated and enhanced as a wetland area." It would thus appear that the parking area you were concerned about at the end of Vigo Street has been "unpermitted", so to speak.

We hope this letter provides you with information you will find useful in determining the increased potential for dioxin to enter Humboldt Bay that may be associated with Project implementation. As presented here, we do not believe the potential is notable, and respectfully request the Coastal Commission to proceed with the processing of our permit application. We again stress the importance of the obtaining at permit for at least the Project activities to be coordinated with Simpson's project (the tidal channel dredging and PALCO Marsh channel excavation Project elements) so we have the opportunity to complete this portion of our project in coordination with Simpson's project, which Simpson is hoping to complete this fall.

Please bear in mind that when the PALCO Marsh Enhancement Plan was approved in 1987, one of the three main purposes of the plan was to enhance tidal action within the marsh. Phase I accomplished this with the installation of the inverted siphon and excavation of channels within the marsh. Phase 1A seeks to further increase the tidal action enhancement by replacing the collapsing 24-in. culvert with a 48-in. culvert as recommended in the marsh enhancement monitoring reports, as well as by dredging accumulated sediment from the tidal channel and infrastructure connecting the marsh with the channel. We expect the culvert replacement and dredging to result in improved hydrologic functioning of the salt marsh, and the community has been expecting an upsized culvert to be installed for several years. If the collapsing 24-in. culvert is not replaced, it is likely to fail completely at some future date, resulting in a severe loss of tidal influence in PALCO Marsh. We are therefore hopeful that we can move forward with the PALCO Marsh Phase 1A Work Plan in a manner that satisfies all parties and concerns. Please do not hesitate to contact me should you have any questions.

Sincerely,

Lisa D. Shikany
Environmental Planner

cc: Kasey Ashley, North Coast Regional Water Quality Control Board
Vicki Frey, Department of Fish and Game
Joel Gerwein, California Coastal Conservancy
Dave McEntee, Simpson
Andrew Lojo, Geomatrix
Kurt Gierlich, City Engineer

CITY OF EUREKA

PALCO MARSH ENHANCEMENT – PHASE 1A

CITY OF EUREKA, CALIFORNIA

BID NO. 2003-3

BID OPENING _____

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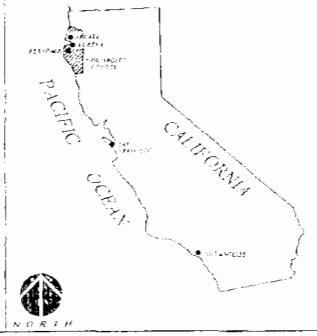
SHEET INDEX

SHEET	CONTENT
1.	TITLE SHEET
2.	ABBREVIATIONS AND LEGEND SHEET
3.	SITE PLAN
4.	DETAILS & CROSS SECTIONS

LOCATION MAP



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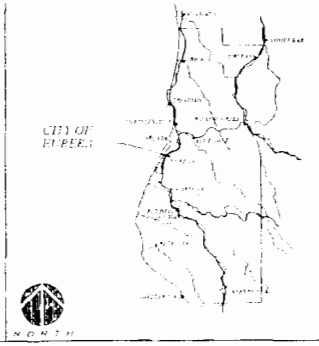

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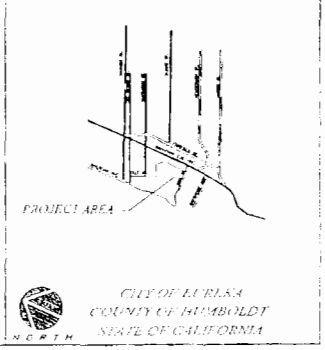


CITY OF EUREKA
COUNTY OF HUMBOLDT
STATE OF CALIFORNIA

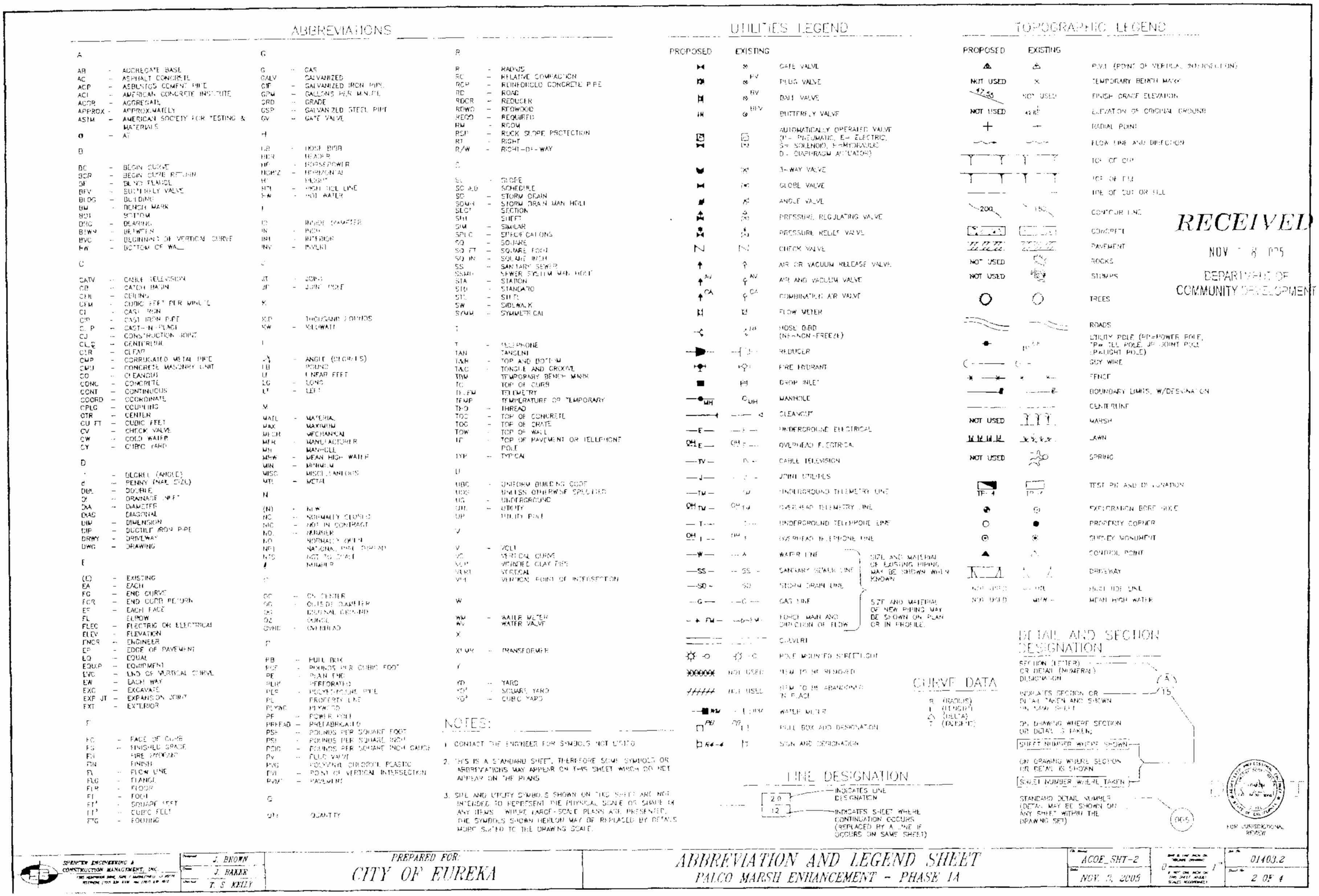
ENGINEER

T. SCOTT KELLY
R.C.E. 46004 EXPIRES 9-30-05

APPROVED:

BRIAN C. SIEMEN
CITY ENGINEER/PUBLIC WORKS DIRECTOR
R.C.E. 33559

SPIKER ENGINEERING & CONSTRUCTION MANAGEMENT, INC.	J. BROWN J. BAKER T. S. KELLY	PREPARED FOR: CITY OF EUREKA	TITLE SHEET PALCO MARSH ENHANCEMENT – PHASE 1A	ACOE SHT-1 NOV. 8, 2005	0 1" G1403 2 1 OF 4


ABBREVIATIONS
UTILITIES LEGEND
PROPOSED
EXISTING
TOPOGRAPHIC LEGEND
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2. THIS IS A STANDARD SHEET, THEREFORE SOME SYMBOLS OR ABBREVIATIONS MAY APPEAR ON THIS SHEET WHICH DO NOT APPEAR ON THE PLANS.
3. SIZE AND UTILITY SYMBOLS SHOWN ON THIS SHEET ARE NOT INTENDED TO REPRESENT THE PHYSICAL SCALE OR SHAPE OF ANY ITEMS. WHERE LARGE-SCALE PLANS ARE PRESENTED, THE SYMBOLS SHOWN HEREON MAY BE REPLACED BY DETAILS MORE SUITED TO THE DRAWING SCALE.
LINE DESIGNATION
CURVE DATA
DETAIL AND SECTION DESIGNATION
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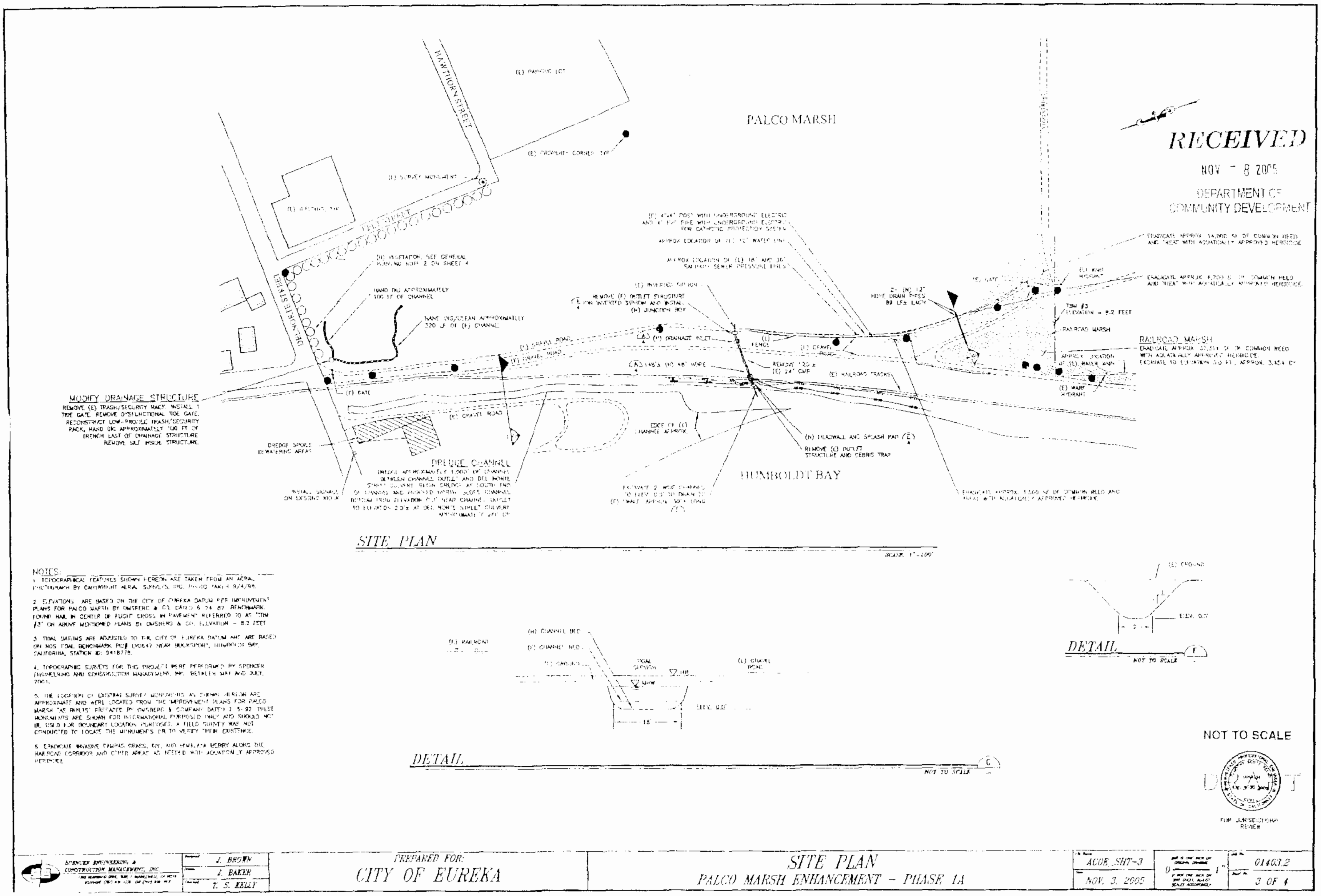
PREPARED FOR:
CITY OF EUREKA
ABBREVIATION AND LEGEND SHEET
PALCO MARSH ENHANCEMENT - PHASE 1A
J. BROWN
J. BAKER
T. S. KELLY
ACOE_SHT-2
NOV. 3, 2005
01403.2
2 OF 4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PALCO MARSH
HUMBOLDT BAY
HAWTHORN STREET
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MODIFY DRAINAGE STRUCTURE
DREDGE CHANNEL
RAILROAD MARSH
SITE PLAN
DETAIL
NOT TO SCALE
NOTES:
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2. ELEVATIONS ARE BASED ON THE CITY OF EUREKA DATUM PER IMPROVEMENT PLANS FOR PALCO MARSH BY OMSBERG & CO. DATED 6-24-87. BENCHMARK: FOUND NAIL IN CENTER OF FLIGHT CROSS IN PAVEMENT REFERRED TO AS "TBM #3" ON ABOVE MENTIONED PLANS BY OMSBERG & CO. ELEVATION = 8.2 FEET
3. TIDAL DATUMS ARE ADJUSTED TO THE CITY OF EUREKA DATUM AND ARE BASED ON NOS TIDAL BENCHMARK PID# LV0647 NEAR BUCKSPORT, HUMBOLDT BAY, CALIFORNIA, STATION ID: 9418778.
4. TOPOGRAPHIC SURVEYS FOR THIS PROJECT WERE PERFORMED BY SPENCER ENGINEERING AND CONSTRUCTION MANAGEMENT, INC. BETWEEN MAY AND JULY, 2001.
5. THE LOCATION OF EXISTING SURVEY MONUMENTS AS SHOWN HEREON ARE APPROXIMATE AND WERE LOCATED FROM THE IMPROVEMENT PLANS FOR PALCO MARSH "AS BUILTS" PREPARED BY OMSBERG & COMPANY DATED 2-5-92. THESE MONUMENTS ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY AND SHOULD NOT BE USED FOR BOUNDARY LOCATION PURPOSES. A FIELD SURVEY WAS NOT CONDUCTED TO LOCATE THE MONUMENTS OR TO VERIFY THEIR EXISTENCE.
6. ERADICATE INVASIVE PAMPAS GRASS, IVY, AND HIMALAYA BERRY ALONG THE RAILROAD CORRIDOR AND OTHER AREAS AS NEEDED WITH AQUATICALLY APPROVED HERBICIDE.
SPENCER ENGINEERING & CONSTRUCTION MANAGEMENT, INC.
J. BROWN
J. BAKER
T. S. KELLY
PREPARED FOR:
CITY OF EUREKA
SITE PLAN
PALCO MARSH ENHANCEMENT - PHASE 1A
ACOE SHT-3
NOV. 3, 2005
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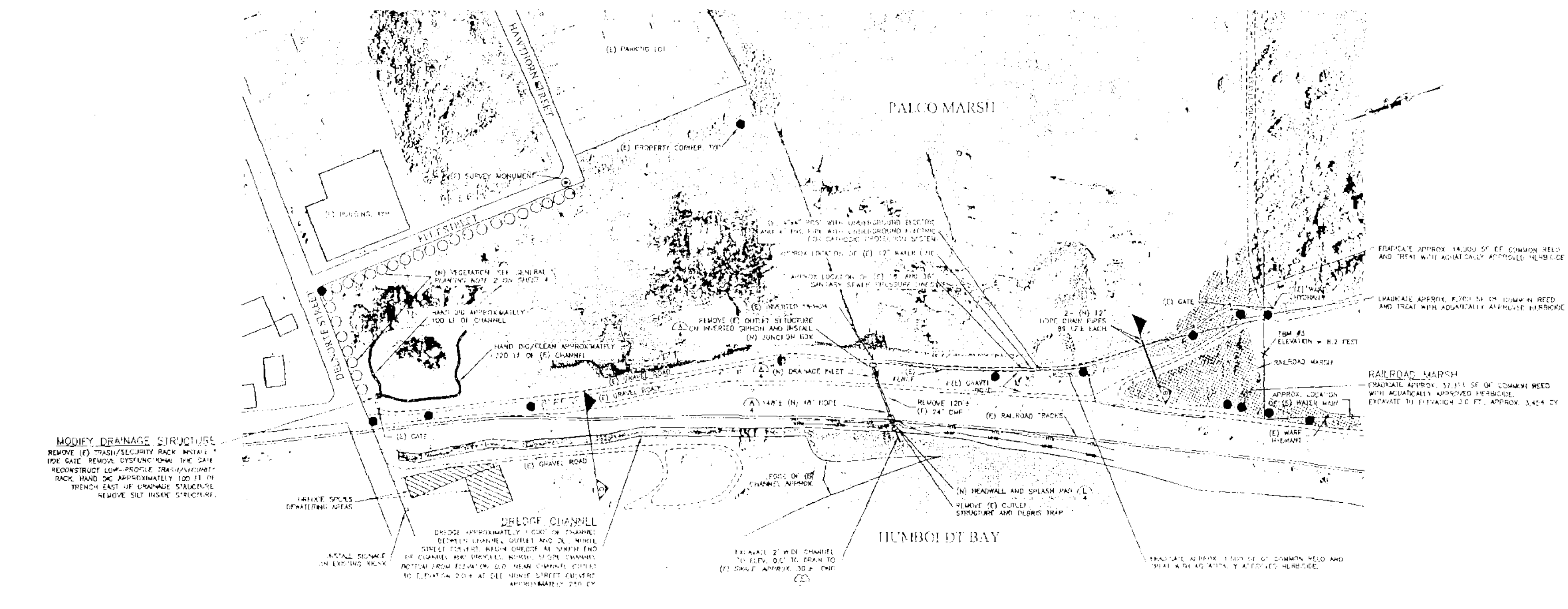
3 OF 4
FOR JURISDICTIONAL REVIEW



SITE PLAN

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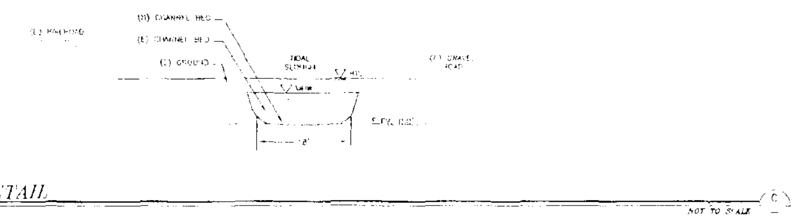

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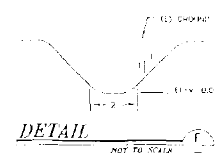

DETAIL (F)

NOT TO SCALE

NOTES

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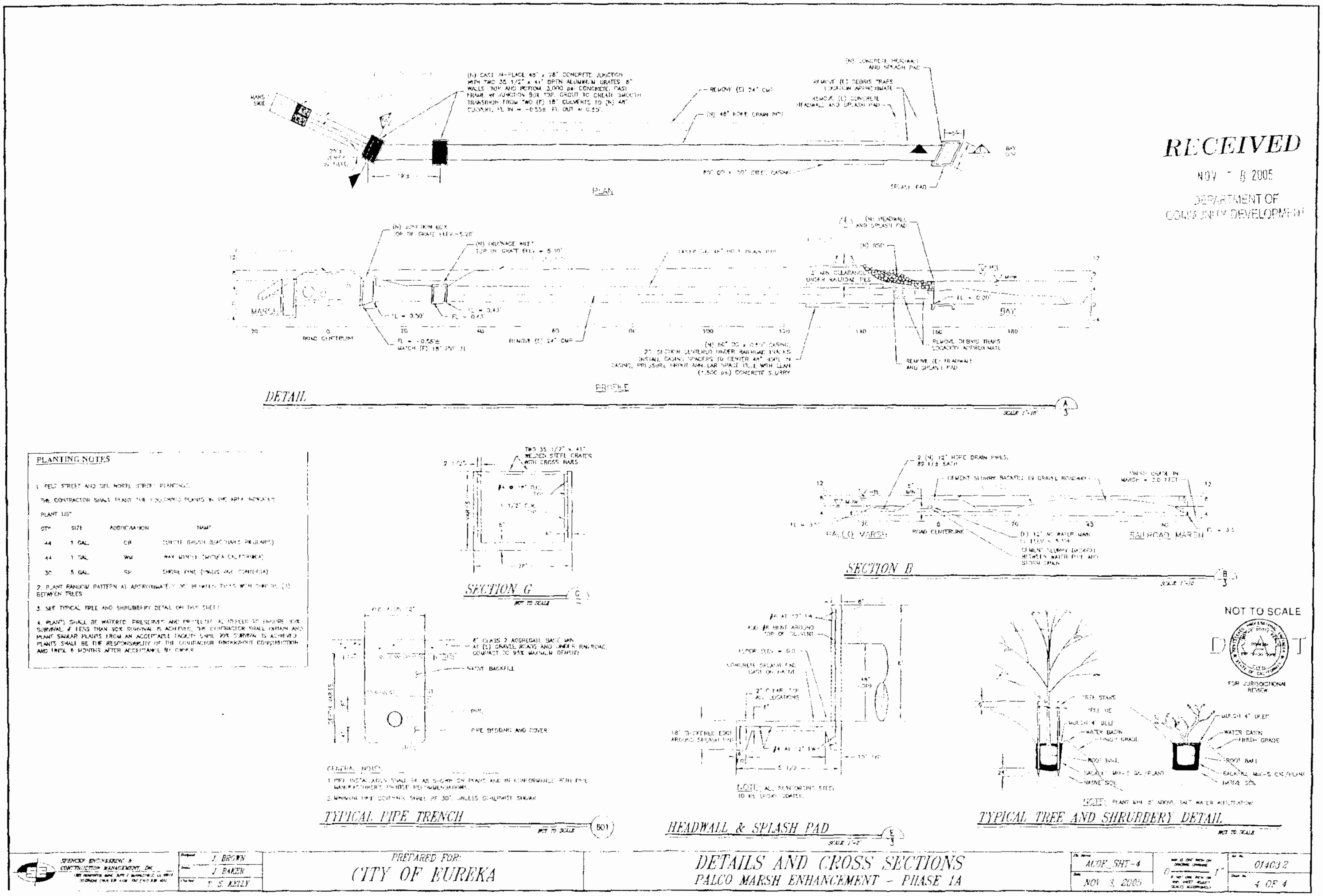
NOT TO SCALE

FOR JURISDICTIONAL REVIEW

SPENCER ENGINEERING & CONSTRUCTION MANAGEMENT, INC	J. BROWN / J. BAKER / T. S. KELLY	PREPARED FOR: CITY OF EUREKA	SITE PLAN — PALCO MARSH ENHANCEMENT - PHASE 1A	ACOE_SHT-3a / NOV. 3, 2005	0 — 1"	01403.2 / 3 OF 4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DEPARTMENT OF
COMMUNITY DEVELOPMENT
PLAN
DETAIL
PROFILE
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PLANT LIST
SECTION G
SECTION B
PALCO MARSH
RAILROAD MARSH
ROAD CENTERLINE
BAY
NOT TO SCALE
DRAFT
TYPICAL PIPE TRENCH
HEADWALL & SPLASH PAD
TYPICAL TREE AND SHRUBBERY DETAIL
J. BROWN
J. BAKER
T. S. KELLY
PREPARED FOR:
CITY OF EUREKA
DETAILS AND CROSS SECTIONS
PALCO MARSH ENHANCEMENT - PHASE 1A
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4 OF 4

CITY OF EUREKA

PALCO MARSH ENHANCEMENT PLAN

PHASE 1A WORK PLAN

SEPTEMBER 2004

PALCO MARSH ENHANCEMENT PLAN

PHASE 1A WORK PLAN

September 2004

I. INTRODUCTION

The Palco Marsh Phase 1A Work Plan proposes the final phase of work to be completed under State Coastal Conservancy Grant Agreement 88-076, dated June 2, 1989. This work plan incorporates some remaining components from the Phase 1 plan, recommendations from the 1995 Phase 1 Final Monitoring Report, and some additional components deemed to be beneficial in meeting the enhancement goals for the marsh. This plan is comprised of work plan tasks; a Monitoring, Maintenance and Management Plan; an implementation schedule; a budget; and a summary review of the 1995 monitoring recommendations and how they are addressed by the current plan.

The following background discussion is included to provide some perspective on the evolution of the Phase 1A Work Plan, both in terms of content and timing. Significant changes to two components of the plan, the freshwater pond and the treatment of *Phragmites australis*, are discussed in the Background section. Issues that arose during preparation of the work plan related to these two project components contributed significantly to the content and timing for the final Phase 1A plan.

II. BACKGROUND

The City of Eureka purchased several properties collectively called Palco Marsh, with Coastal Conservancy funding in 1986. The Conservancy then provided funding for the Palco Marsh Enhancement Plan, which was approved in 1987. The Conservancy provided the funding to acquire, plan and enhance Palco Marsh with three primary objectives: 1) enhance tidal action in the marsh; 2) remove fill from the pole shed property and restore marsh habitat; and 3) assemble land in the project area to improve future management.

Phase I of the Enhancement Plan was funded under the above mentioned Agreement 88-076 in 1989. Phase I generally focused on removal of the pole sheds, creation of a parking area on Del Norte Street; enhancement of the 39-acre marsh between Del Norte Street, Vigo Street and the railroad including improvement of a public access trail along the west boundary; and creation of a viewing area on the peninsula west of the railroad. The following is a summary of the main enhancement implementations listed by project area as contained in Section 4.3 of the Palco Marsh Enhancement Plan. Items are noted as completed or not completed as applicable.

Palco Marsh Complex

1. Remove tide gate (This was the tide gate on the culvert under the City's maintenance dike where the inverted siphon was installed) – *completed*
2. Construct an inverted siphon under the City maintenance dike - *completed*
3. Excavate perimeter channel improvements, extend hand dug channels as necessary - *completed*
4. Construct culverts under maintenance dike to allow tidal influx to RR Marsh. – *not completed; included in Phase 1A*
5. Remove railroad spur (adjacent to RR Marsh) and grade to marsh elevations – *not completed; included in Phase 1A as part of Railroad Marsh excavation*
6. Clean out channel between RR Marsh and culvert under railroad tracks – *completed*
7. Remove exotic vegetation and excavate channels in RR Marsh – *not completed; included in Phase 1A*
8. Replant excavated salt marsh vegetation in Palco Marsh, RR Marsh and along channels, as appropriate – *replanting in Railroad Marsh not completed; included as part of Phase 1A*
9. Excavate permanent open water area in cattail/common rush vegetated areas; provide resting islands; provide low dike around open water area; provide adjustable weir – *not completed and not included in Phase 1A*
10. Elevate and maintain existing maintenance dike for public access and periodic maintenance - *completed*
11. Remove exotic plants initially, maintain eradication yearly – *partially completed outside railroad right of way but unsuccessful; included in Phase 1A*
12. Plant riparian buffer areas along road edges, adjacent properties and around parking area for screening – *completed and partially successful; replanting included in Phase 1A*
13. Access improvements
    -gravel trail, gates and signs and benches along maintenance dike and Vigo Street – *completed*
    -sidewalks along Del Norte Street, Felt Street and Broadway Avenue – *completed*

Paved Drying Shed Area

1. Remove drying sheds and other debris – *completed*
2. Remove 40' wide strip of paving outside of proposed parking area, berm and plant with riparian buffer – *not completed; included in Phase 2*
3. Provide vehicular access barriers where necessary – *completed*
4. Use remaining paved area for drying dredge spoils from excavation of channels and open water area – *area currently still available for this use*
5. Retain majority of paved area to be removed as part of "Phase 2" of project – *this area was retained for inclusion in Phase 2*

Area West of Railroad Tracks

1. Provide public access improvements including parking, sidewalks, information kiosk, picnic area, trail, and an elevated viewing area – *completed*

2. Provide maintenance access for periodic removal of sediment from drainage channel in the least impacting manner – *completed*
3. Provide a temporary dredge spoils drying area adjacent to Del Norte Street – *completed, and will be utilized in Phase 1A*

Phase II of the Enhancement Plan is focused primarily on restoring wetland functions to the pole shed property, which lies between Vigo Street and the Bayshore Mall. The Conservancy approved the use of a portion of the pole shed property for Bayshore Mall parking. Phase II has not been funded at this time.

The majority of Phase 1 improvements, somewhat limited in scope due to contaminated soil issues and problems acquiring approval for portions of the project from the Eureka Southern Railroad, were completed in 1991. Pre-enhancement conditions were documented and post-enhancement monitoring was conducted for Phase I. Generally, Phase 1 improvements resulted in the following enhancements:

- an increased tidal range of approximately 2 feet;
- some colonization of salt marsh vegetation in areas of mudflat that were previously semi-permanently flooded and in areas that were previously upland;
- an increase in invertebrate species diversity and abundance, and generally a faunal composition much more similar to salt marsh communities in other parts of Humboldt Bay;
- an increase in bird species diversity and abundance; and
- a decrease in numbers of mosquito larvae and adults.

Two components of the Phase I plan, the freshwater pond and the removal of *Phragmites australis* (known as common reed) from the railroad right of way (efforts elsewhere were made but failed) were not completed during the Phase I construction. Soil contamination in the area where the pond was to be excavated prevented the construction of the pond at that time. Difficulties in obtaining an encroachment permit from the railroad due to issues arising from their bankruptcy prevented treatment of the common reed within Railroad Marsh and adjoining areas. In 1999, once the soil contamination issue was resolved and the railroad stabilized, the City began pursuing completion of these two remaining Phase 1 project components, as well as additional recommended components identified in the 1995 Final Monitoring Report. This renewed plan was entitled Phase 1A.

Because of the time lapse between Phase 1 and Phase 1A, the Coastal Conservancy felt it was important to consult on the revitalized project with pertinent resource and regulatory agencies to ensure the plan was still appropriate, although not necessarily with the intent of redoing the entire enhancement plan. This consultation was initially started by the Conservancy with the participation of the City, and later carried forward by the City during preparation of the Phase 1A work plan. The Conservancy also determined that the time lapse provided an opportunity to incorporate monitoring recommendations into the Phase 1A plan, and requested that the City do so; these recommendations are therefore included in this work plan.

The City determined as lead agency pursuant to CEQA that because of the length of time since the initial environmental review, changes in environmental conditions, the addition or alteration of work plan components and the substantial public interest in Palco Marsh, a subsequent environmental document would be prepared. To facilitate preparation of the final Phase 1A work plan and environmental document, the preliminary plan was provided to all resource agencies having potential jurisdiction over the project for review in late 2002. The plan included the following components:

1. Construction of a 1.5 acre, 9-foot deep freshwater pond. (Substantially the same as work proposed for Phase 1, but not completed.)

2. Excavation of soil and common reed from Railroad Marsh, and connection of Railroad Marsh to Palco Marsh with two 12-inch culverts. (Substantially the same as work proposed for Phase 1, but not completed.)

3. Excavation of common reed from the southwesterly corner of Palco Marsh. (Much smaller area of common reed was removed in this location in Phase 1. Area covered by common reed considerably larger now.)

4. Replanting vegetation along Del Norte and Felt Streets. (Work completed in Phase 1, but needs to be redone due to a high mortality for earlier plantings.)

5. Replacement of the collapsing 24-inch culvert that connects Palco Marsh with Humboldt Bay, with a 48-inch culvert that will be connected to the existing two 18-inch culverts under the utility road/pathway along Palco Marsh. (New work not originally included in Phase 1 or 2, but recommended in the interim and final Palco Marsh monitoring reports.)

The City received comments from several agencies, and continued to pursue finalization of the Phase 1A plan as described above and completion of a subsequent environmental document. In the process of working with the Coastal Commission staff to address their comments on the project, the potential for a revision to the Palco Marsh Enhancement Plan and subsequent Phase 1A Work Plan in regard to the proposed freshwater pond was raised.

FRESHWATER POND

Southeast corner of Palco Marsh where 1.5 acre freshwater pond was originally proposed, as viewed from the southwest corner of the marsh in 2003.

Construction of a freshwater pond was supported by resource agencies, including the Coastal Commission and the Department of Fish and Game, as a component of the original Enhancement Plan. However, subsequent to providing comments on the draft Phase 1A plan in November of 2002 which included no specific mention of the freshwater pond, the Commission informed the City in March of 2003 that they could not likely support the proposed pond, while Fish and Game remained supportive. The City, the City's consulting biologist Mad River Biologists (MRB) and the Coastal Commission spent the next few months working to resolve this issue. After considering the Commissions concerns and further evaluating the historic and existing ecology at the marsh, MRB recommended the elimination of the freshwater pond because it was not the most ecologically sound enhancement alternative for the marsh for the following reasons:

1. Replacement of one wetland type with another cannot be ecologically justified in this instance.

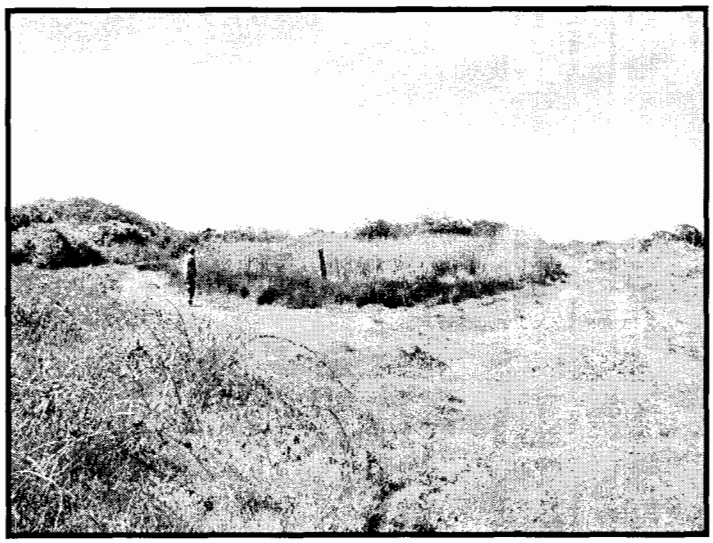
2. A created freshwater pond would likely require long-term maintenance, perhaps in perpetuity.

3. The argument of increased bird species diversity as a result of pond creation (this was one of the reasons set for in the original enhancement plan for creation of the pond) is not appropriate for the site.

A full explanation of each of these points is contained on pages 6 and 7 of the *Palco Marsh Phase 1A Biological Impacts Assessment and Mitigation and Monitoring Plan* dated February 25, 2004 prepared by MRB. In response to the Commission's expressed concerns and MRB's recommendation, the City elected to remove the freshwater pond from the project. While Fish

and Game still felt the pond was appropriate, they did not object to its removal from the project. It is anticipated that the increased tidal flushing that will result as a consequence of remaining project components presented in Section III of this plan will improve the conditions in the area of the marsh where the pond was previously proposed.

TREATMENT OF COMMON REED



Phragmites australis, also known as common reed, located in Railroad Marsh in 2003, looking south.

As the City continued to finalize the Phase 1A Work Plan, significant issues with the proposed eradication of common reed by excavation began to surface. This caused the City to spend a considerable amount of time and effort reevaluating the original Enhancement Plan proposal to excavate the common reed, and exploring alternative treatment methods in lieu of excavation.

A short history on common reed in Palco Marsh may be helpful in understanding the issues involved with removing common reed from the marsh. Approximately 1,000 square feet of common reed in the southwest corner of the 39-acre central marsh area was treated by excavation as part of Phase 1 of the Enhancement Plan in 1991. The 1991 contract specifications for treatment of common reed in this area called for seed stem removal, cutting, excavation, and removal of surrounding soils with visual inspection and hand clearing to follow. Follow-up treatments using manual excavation are believed to have occurred in 1992 and 1994 according to City staff recollection; documentation of these follow-up treatments may exist but was not located. Due to previously discussed issues with the railroad, the 10,000 sq. ft. of common reed that existed at the time in Railroad Marsh was not treated. The disturbance resulting from the excavation of the common reed in the 39-acre marsh seemed to stimulate the reed to reproduce and today approximately 14,000 sq. ft. of common reed exist in this same area of the marsh. The untreated Railroad Marsh now contains 37,300 sq. ft. of reed, and there are two new areas of common reed between the two marshes totaling approximately 8,200 sq. ft. in area.

Extensive research was conducted by MRB and City staff during the latter part of 2003, including review of numerous published reports and consultations with practitioners and common reed experts regarding various methods available for treatment of common reed. The Department of Fish and Game was consulted to determine if they had objections to herbicide use under these circumstances. They offered suggestions to promote efficacy, but raised no objections. Based on this thorough research, it was determined that a combination of burning and herbicide application is the most appropriate control method available to treat this pernicious invasive exotic in this location. The proposed treatment method generally consists of burning the dead above-ground biomass (common reed is a perennial, and thus dies back every year) during the winter, applying an aquatically approved herbicide to the new growth during the late summer or early fall after the initial burn, and following up with another winter burn. Yearly herbicide applications will follow, decreasing in scale, until the plant is eradicated. The specific approach proposed for Palco Marsh is discussed in Section III.

A number of methods for controlling common reed have been used in other areas and were considered for use by the City before choosing the proposed treatment method. A thorough discussion of common reed, including various treatment methods, is contained in the above referenced *Palco Marsh Phase 1A Biological Impacts Assessment and Mitigation and Monitoring Plan.* The following discussion on the various alternative treatment methods is included here to clearly document why they were deemed inappropriate for use at Palco Marsh.

- **Excavation** – This was the method previously utilized in Phase I for removal within the 39-acre marsh area, which resulted in a significant increase in the amount of common reed in the removal area. The original proposal for Phase 1A involved excavation to a depth of 3 feet of over 59,000 sq. ft. of reed, with the placement of a heavy filter fabric prior to backfilling with soil. This procedure presents significant risks associated with the spreading of common reed, not only within the marsh but to areas outside the marsh. Common reed thrives in disturbed areas, and thus excavation stimulates the plant to grow as it attempts to respond to stress unless all rhizomes can be removed. Excavation to a depth of 3 feet would not remove all rhizomes, as they can grow to a depth of over 6 feet. The proposed filter fabric may have been able to deter the emergence of above-ground growth from remaining rhizomes in the area where fabric was applied for a period of time, but would not prevent the continued survival and growth of the remaining rhizomes and sprouting in areas not covered by fabric. Also, any tears or breakdown of the fabric would provide an opportunity for the plant to reappear. A 3-ft. deep excavation would result in approximately 6,700 cu. yds. of material containing live rhizomes that would need to be transported offsite. Considering a bulking factor, this equates to over 750 truckloads of live rhizomatous material and soil that would need to be transported, providing an opportunity for viable rhizome fragments to fall from the truck and establish in a new area. Furthermore, an appropriate spoils site would need to be found for this volume of material where there would be no risk the plant could reestablish itself. Excavation to a depth of up to seven feet would be required to potentially remove all rhizomatous material, more than doubling the amount of material that would need to be disposed of and with no assurance all rhizomes had been removed. In addition to all the risks, this method would be extremely costly.

- **Mowing or cutting** – Generally, mowing or cutting will not remove common reed permanently, and may actually stimulate growth if not done at the appropriate time of the year. Cutting common reed below water level and maintaining high water levels can kill the plant, but as discussed below, maintaining high water levels is not practical or desirable in Palco Marsh. This method also does not address the removal of the large amount of biomass.

- **Hand Removal** – This method has the same issues as excavation with regard to stimulating growth, risk of spreading the plan and disposal issues. In addition, it would require years of effort with highly unlikely success and high labor costs.

- **Burning** – Use of burning alone will not kill common reed unless root burn occurs, which is highly unlikely because the rhizomes are covered at a significant depth by soil, mud and/or water. Burning can actually stimulate aggressive regrowth of common reed in much the same way that excavation does. Burning can, however, be very useful in combination with herbicide application. Burning the common reed during the winter or early spring prior to herbicide application reduces above ground biomass, making herbicide application easier and more efficient. The fact that burning stimulates growth of the common reed will likely make herbicide treatment more effective, since the vigorous growth will tap more of the plants energy reserves initially, making it more susceptible to the effects of the herbicide.

- **Covering with plastic** – Covering areas of common reed that have first been cut with plastic over successive years may prove effective in killing the plant. However, high temperatures are the key to success, and it is not likely that high enough temperatures would be achieved for a sufficient amount of time to kill common reed at Palco Marsh. In addition, it would be extremely difficult to keep 1.4 acres of plastic in place long enough to be effective considering the weather conditions (particularly wind), and considering the transient occupancy of the marsh. The plastic would be used in place as tents, vandalized, or cut up and removed for use elsewhere.

- **Manipulation of Water Level and Salinity** – Some studies indicate that increased salinity may help deter common reed growth, but it will not eliminate it entirely. In fact, it now appears that common reed can tolerate greater salinity levels than once believed. Because common reed occurrences in Palco Marsh and Railroad Marsh are so extensive, reduction in density of common reed would not be observable by using salinity control for at least several years. Manipulation of water levels to submerge rhizomes for at least four months can control common reed, but is not a practical solution to implement in Palco Marsh without impacting adjacent plant communities, and is not feasible at Railroad Marsh. Furthermore, flooding for such duration would cause damage to soils and invertebrates that may currently utilize this habitat. The project does propose the lowering of the elevation of Railroad Marsh and the installation of culverts connecting it to Palco Marsh as a means of introducing brackish water and discouraging re-growth of common reed once it is removed.

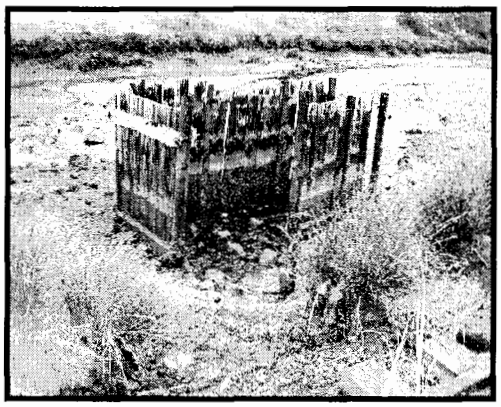
ADDITIONAL PROJECT COMPONENTS

The Phase 1A work plan contains several components within the work plan tasks described below that were not originally included in the earlier version of the plan, but were added when the pond was removed (work tasks #2 and #6). The remaining tasks implement recommendations from the final monitoring report, with task #7 also implementing work that was not completed in Phase 1. Some of the new components will enhance the tidal action within the marsh, and others will enhance the public's enjoyment of the marsh from a visual and educational perspective. The work plan components are described in Section III below.

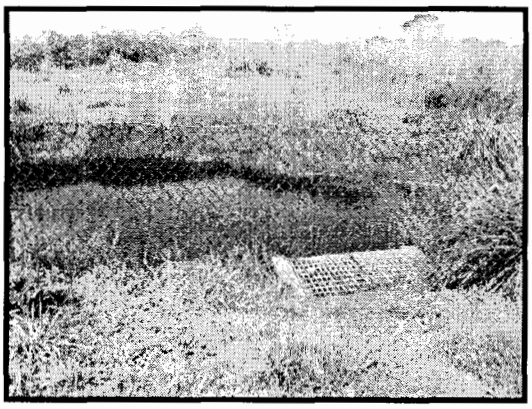
III. WORK PLAN TASKS

DRAINAGE AND LANDSCAPING WORK TASKS

1. Replace collapsing 24-inch culvert that connects Palco Marsh with Humboldt Bay with a 48-inch culvert



"Debris screen" to be removed, located just westerly of the 24-inch culvert to be replaced



Westerly end of inverted siphon, where new culvert will connect.

Hydrologic and hydraulic monitoring was conducted between the fall of 1991 and the winter of 1994. The results of this monitoring were presented in the *Interim Monitoring for the Palco Marsh Enhancement Project, Phase I*, prepared for the City and the Coastal Conservancy, with the same hydrologic and hydraulic information also included in the *Final Monitoring Report for the Palco Marsh Enhancement Project, Phase 1*. The report provided numerous recommendations, including replacement of the 24-inch culvert under the railroad tracks with a 36-inch to 48-inch culvert. The report notes:

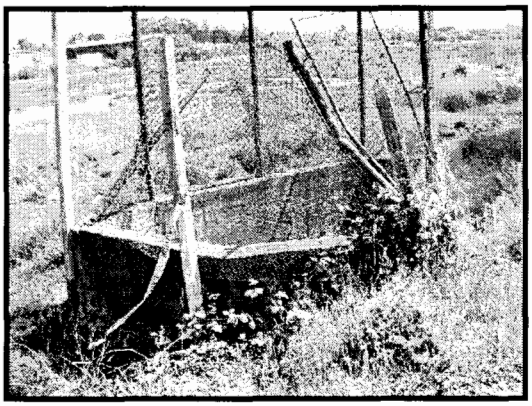
> Flood and ebb flows must pass through two separate drainage structures to move between Palco Marsh and Humboldt Bay: the new siphon constructed as part of the enhancement activities, and an older 24" diameter culvert beneath the railroad tracks. Presently, the older culvert has the lower capacity and therefore limits the rate of water exchange. This limitation is primarily expressed as delayed and partially suppressed tidal flows to and from the marsh. While the target tidal range of 2.0 feet is attained under some circumstances, the predominant range is presently 1.0 to 1.5 feet, and frequently less. This causes longer durations of inundation periods on tidal plains and upper slough margins. Consequently, standing water may remain in these areas during many higher low tides which might otherwise drain if the rate of ebb were not limited by the culvert. We believe this may be restricting full attainment of project goals. If biological conditions and trends observed during the monitoring period appear to fall short of expectations, the limitations on tidal range imposed by the culvert beneath the railroad tracks could be a likely cause.
>
> Since implementation of the enhancement plan, most of the railroad tracks have been removed. Consequently, replacing the pipe would presently be less costly and thus more feasible than when the original enhancement was done. Replacement of this pipe with one of larger diameter (e.g., 36" – 48") is recommended to increase the tidal prism of the Palco Marsh and further restore natural hydrologic functioning.

The new 48-inch culvert is proposed to replace an existing 24-inch culvert which is collapsing, and will enhance tidal flushing in Palco Marsh which is one of the primary objectives of the restoration project. The new culvert will be connected with a new junction box to the existing two18-inch culverts that are located under the pathway along Palco Marsh, and will include a new drainage inlet in what is now an open water exchange area, so surface water will continue to enter the system. A headwall and splash pad will be constructed at the bay outfall. The flow line of the new culvert will be at the same elevation as the middle of the tidal channel into which it empties (0 feet elevation), which is approximately two feet lower than the existing 24-inch culvert. Tidal flows into and out of the marsh through the culvert will be periodically interrupted during construction for an approximate total time of up to one week. The existing wooden debris screen located just west of the existing bay outfall will be removed. Large rocks that have come loose and have come through the existing culvert will be removed from the mud flat in the vicinity of the outfall.

Approximately 6 cubic yards of bay mud will be excavated to remove mud currently blocking the existing culvert, as well as mud that will block the new culvert since it will be two feet lower than the existing culvert. This excavation will be approximately 2 feet wide and extend out approximately 30 feet, creating a small "training" channel to facilitate and train water flow into and out of the 48-inch culvert. The depth of the mud to be removed is approximately 4 feet at the mouth of the culvert, decreasing to approximately 2 feet near the channel. The mud will be excavated to an elevation of 0 feet, which is the existing elevation of the channel approximately 30 feet west of the outfall. There was a small, sparse eel grass bed at westerly terminus of the proposed training channel in 2003. The training channel will be extended to a point short of requiring excavation of the eel grass, should it still be there when construction occurs. An eelgrass avoidance area will be staked by a qualified biologist.

Despite the smaller cross-sectional area provided by the two 18-inch culverts, the 48-inch pipe will increase the rate and duration of water exchange to and from the marsh. The restriction of these two 18-inch culverts will not come into play unless there is an extremely high or fast moving tide. Thus, the 48-inch culvert will improve the tidal flushing over what currently exists despite the restriction of the two 18-inch culverts. In addition, a larger size culvert will lessen the chance of the culvert being plugged, and make cleaning it easier should it become plugged. Thus, the need for the wooden "debris screen" currently in place will be eliminated, allowing more direct flow into and out of the marsh through the new culvert.

2. Modify Del Norte Street drainage structure and tide gates



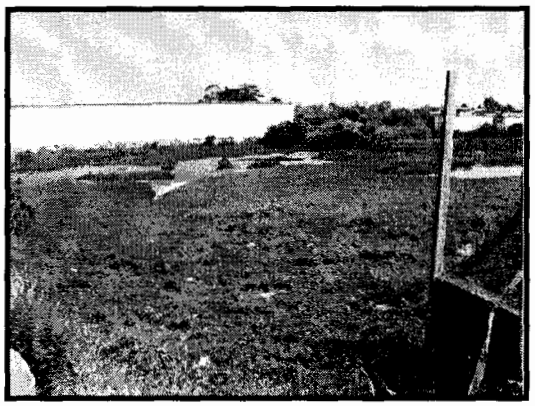
Northerly and westerly sides of the Del Note Street drainage structure

The concrete junction box located in the northwest corner of Palco Marsh near Del Norte Street is unsightly, mostly due to the deteriorating cyclone fencing that was installed to keep people out of the open junction box. The structure will be modified by removal of the existing fencing and installation of a less obtrusive barrier. This barrier will likely be a lid type barrier that will not extend beyond the top of the drainage structure.

This junction box connects five culverts. Three of the culverts are located under the railroad tracks to the west and connect to the tidal channel between the peninsula and the railroad. A fourth culvert is located underneath Del North Street. The fifth culvert is a short section that connects the drainage structure to Palco Marsh. There is currently a tide gate on the Del Norte Street culvert that prevents tidal flows from entering the Del Norte Street storm drain, but it is believed the tide gate may be dysfunctional. A new tide gate will be installed on the Del Norte Street culvert, unless we find it is functioning properly. The tide gate on the culvert from the junction box into the marsh is either missing or not functioning. This tide gate will be removed if it is still in place, in compliance with recommendation #3 of the *Final Monitoring Report.* In addition, silt has accumulated inside the drainage structure and needs to be removed. This can be accomplished by a backhoe working from the adjoining utility road.

A 50 sq. ft. area of Pt. Reyes bird's beak consisting of 244 occurrences was found by MRB in 2002 in the northwest corner of Palco Marsh. Due to the location of the plants, it is not anticipated that impacts to the plants will result from modification of the drainage structure. The location of these plants will be confirmed during pre-construction botanical monitoring.

3. Hand dig and clean Palco Marsh channels



Area between the Del Norte Street drainage structure to an area of ponding water where a small channel will be dug

A small section of new channel will be hand dug from the Del Norte Street drainage structure easterly until it connects with a section of existing channel that leads to a ponded area of the marsh at the corner of Del Norte and Felt Streets. Construction of this channel will improve circulation and water quality in this ponded area, which tends to stagnate during the summer months. The elevation of this channel will be determined by the elevation of the culvert at the west end, and the elevation of the channel it will be connecting to on the east end. Although no channel was dug in this specific location originally, the intent of this proposal is consistent with recommendation #4 of the Final Monitoring Plan, which notes that excessive ponding of water during ebb flows is an undesirable condition remedied by re-excavation of channels.

During this past summer, vegetation was clogging the channel that runs southerly from the Del Norte Street drainage structure. If the problem persist after this winter, vegetation will be cleaned out of the channel to facilitate better water movement through the channel. As described above, Pt. Reyes bird's beak was previously found in the northwest corner of the marsh. It is not anticipated that effects from channel clearing would occur in the vicinity of these occurrences. The location of these plants will be confirmed during pre-construction botanical monitoring.

4. Dredge tidal slough between Palco Marsh and peninsula west of the marsh

Looking south from Del Norte Street down the tidal channel

This tidal channel is connected with the Del Norte Street junction box with three 30-inch culverts. The silt accumulation at the upper end of this channel restricts water flow into and out of the marsh. The sediment will be removed by an excavator which will be located on the maintenance road (previously constructed for this purpose) on the peninsula along the west side of the channel. The amount of silt to be removed is the greatest at the north end of the channel, and it is anticipated that a total of approximately 260 cubic yards of silt will be removed from the channel. Dredging will stop short of the outfall of the new 48-inch culvert, thus avoiding the eelgrass bed discussed above. There were small, isolated clumps of eelgrass extending part way up the channel in 2003 that if still remaining, may be impacted by dredging. Prior to dredging, any clumps that may be impacted will be transplanted to the nearest functioning eel grass bed. Spoils will be temporarily stored near Del Norte Street to dewater before they are loaded into a truck and hauled to an appropriate upland permitted spoils site. Along with the sediment, any debris located in the channel will also be removed and disposed of at an appropriate disposal site.

Occurrences of Pt. Reyes bird's beak and Humboldt Bay owl's clover were documented on the west bank of the tidal channel near the southerly end of the peninsula in the *1995 Final Monitoring Report* for Phase I. Humboldt Bay owl's clover was casually observed by MRB in this general location in June of 2003. It is not anticipated that effects from dredging would occur in the vicinity of these occurrences, but the location of these species will be identified in the field prior to the start of work.

5. Install Del Norte and Felt Streets Landscaping

Looking easterly with area along Del Norte Street to be landscaped at the left, and area along Felt Street to be landscaped straight ahead below the building.

This area was planted with willow and alder cuttings during Phase 1 to create a vegetative buffer between these roadways and Palco Marsh, but the plantings did not survive. Further attempts were made to establish vegetation in this area, but still with no success. We believe the primary reason for the mortality rate for previous plantings was failure of the plantings to penetrate the geotextile fabric installed when the road was built, and will work to avoid this happening again.

As recommended in the *Final Monitoring Report* for Phase 1, the margins of Palco Marsh along Del Norte and Felt Streets will be replanted. After consultation with the Department of Fish and Game and RCAA, we have identified coyote brush, wax myrtle and shore pine as appropriate species to be planted. These species were chosen for their hardiness due to the harshness of this

site. As described in the "Planting Notes" on the project plans, shore pines will be planted approximately every 30 feet, with random plantings of three shrubs, either coyote brush and wax myrtle, between each two shore pine trees. The planting specifications show plantings to extend to native soil, but also at least 5 inches above salt water infiltration. The plans require the plants to be watered, preserved and protected as needed to ensure 90% survival. If less than 90% survival is achieved, the contractor will need to replant until the specified survival rate is achieved. This responsibility extends for six months after acceptance of the work by the City.

Planting activities will be conducted from the shoulders of Del Norte and Felt Street, with no equipment entering the marsh. Plantings will not extend into the marsh. If there is any threat of spoils entering the marsh from planting activities, a silt fence will be installed.

6. Install Interpretive Signage

Eight-sided under utilized sign kiosk located in the northeasterly corner of the Palco Marsh parking area

A kiosk was installed as part of Phase I in the Del Norte Street parking lot, and is currently not used. It has eight panels that are available for signage. Permanent interpretive displays such as a map of the marsh and the bay, facts about the marsh, a welcome message or similar signs will be installed on six of the panels. The two remaining panels will be used for temporary postings or other appropriate signage as needed. A protective display case (such a Plexiglas) may be installed on one or both of the remaining kiosk panels to better protect temporary postings from the weather and vandalism. In addition, at least two interpretive signs will be installed along the pathway that borders Palco Marsh.

INVASIVE EXOTIC VEGETATION CONTROL WORK TASKS

7. Eradicate common reed

Common reed (*Phragmites australis)* located in the southwest corner of Palco Marsh, looking west from Vigo Street

Phragmites australis (common reed) will be eradicated from Railroad Marsh, Palco Marsh and areas in between by a combination of burning and herbicide application. This treatment was determined to be the least environmentally damaging feasible alternative for eradicating common reed from Palco Marsh. All other alternatives available for treatment of this pernicious invasive exotic are associated with greater environmental risks, or would be ineffective, impractical or infeasible. This method also best addresses the physiological process of common reed to store carbohydrates (energy) in the rhizomes for up to six years. The basis for the City's decision to utilize this particular treatment is well documented in the MRB report prepared for this project, and is also discussed in Section II above.

Burn Reed Prior to Herbicide Application

The first step in the treatment process will be to burn the common reed in place (as opposed to cutting it, piling it and then burning it) during the winter months after the plant has finished storing its energy reserves in the rhizomes. Burning will remove all of the above ground biomass (as well as seed), facilitating easier and more efficient herbicide application to the new growth the following growing season. In addition, by burning the plant in the winter while energy is stored below ground, it is expected that the plant will tap its energy resources in the following growing season and send up vigorous new growth.

The common reed patches are sometimes occupied by homeless people who frequent the marsh. Notices will be posted stating the City's intent to burn the reed at least one week prior to the anticipated burn day, in order to provide time for people who may be camping in the reed to remove their belongings. Also during that week, the reed patches will be checked for garbage that would be undesirable to burn, and it will be removed. The day of the burn, a thorough search of the common reed patches will be conducted to insure nobody is within the patch. Every precaution will be taken to insure no one is harmed during the burning process.

Apply Aquatically Approved Herbicide

Herbicide application will follow during the growing season after the initial burn. A glyphosate herbicide licensed in California for use in aquatic environments will be used. Most likely AquaMaster (also marketed under the name Rodeo) will be used, which is approved by the EPA and licensed in California for use in aquatic environments. A Qualified Applicator Certificate is not required to use this herbicide, since it is not restricted. Literature reviews indicate glyphosate is safe when used according to label instructions, and has been used extensively and successfully on the east coast where common reed has become a significant problem in wetland areas.

Information reviewed indicates glyphosate exhibits relatively low toxicity to achlorophyllous (without chlorophyll) organisms including bacteria, fungi, and animals. Glyphosate is non-volatile, and will not vaporize from a treated site and move to a non-target area. Glyphosate becomes immobilized in most soils since it is strongly adsorbed to soil (on the terrace surface, and also suspended in water), which prevents it from excessive leaching or from being taken-up from the soil or water by non-target plants. It is not expected to bioaccumulate in aquatic food chains, as it is highly water soluble and can be readily broken down by microbes, although strong adsorption to soil can inhibit microbial metabolism and slow degradation. The half-life of glyphosate ranges from several weeks to years, but averages two months in soil. In water, glyphosate is rapidly dissipated through adsorption to suspended and bottom sediments, and has a half-life of a few days to ten weeks. EPA classified glyphosate as a "Group E' carcinogen or a chemical that has not shown evidence of carcinogencity in humans.

Glyphosate is a non-selective systemic herbicide that kills actively growing plants when applied to green tissue. In order to work, the compound must be translocated throughout the plant body and into the roots and rhizomes. To facilitate adherence to plant tissue and subsequent absorption and translocation by the plant, AquaMaster must be mixed with water a nonionic surfactant. The concentration of surfactant is relatively low when mixed according to label instructions, as compared to other glyphosate herbicides such as Roundup which already contain a surfactant. Since it is the surfactant rather than the glyphosate that can potentially harm aquatic organisms, the low concentration of surfactant and the selection of an aquatically appropriate surfactant, makes herbicides such as AquaMaster acceptable for use in aquatic environments.

The specific surfactant to be utilized has not been selected, but will be limited to a nonionic surfactant licensed for use in California in an aquatic environment. The surfactant must be appropriate for use with AquaMaster or similar aquatic glyphosate herbicide, and must not interfere with the efficacy of this systemic herbicide. Surfactants being considered and researched include R-11, Li-700, Agri-Dex and Hasten. (California licensing of Hasten in aquatic environments, potentially under the name Competitor, is pending. It will not be utilized if California registration is not completed prior to the time the herbicide application is made. Hasten has been successfully utilized for aquatic herbicide applications in Washington, and is currently licensed in California for non-aquatic use.) The issues of suitability, toxicity, and efficacy will be considered when selecting the appropriate licensed surfactant for this application.

Immediately following seed set, the plant will begin to send energy and nutrients to the root system, which is the ideal time to apply herbicide since the plant will also translocate the herbicide. Herbicide application should occur before the plant has had a chance to actually store energy and nutrients. Herbicide application at this time will provide the best opportunity for the herbicide to be translocated into the root system, and thus provide the best opportunity for killing the plant. A qualified biologist will need to monitor floristic development of the common reed beginning in June of any given year herbicide will be applied to determine the appropriate time for treatment.

Herbicide application will initially be done using direct foliar ground-based spray application. This application method (as opposed to aerial or individual plant application) is determined to be the most feasible way to apply herbicide to this 1.4 acres of dense stands of common reed while minimizing collateral damage to desirable native plants that may be in the vicinity. Railroad Marsh is virtually surrounded by the railroad berm or pathways, and very densely populated with common reed, so the potential for damage to desirable native species in this area is minimal. There is a higher potential for such damage within Palco Marsh, but the stand in this area is still dense enough that natives have been precluded for the most part, and thus collateral damage should be minimal if ground-based application is used.

The common reed will be burned once again during the winter following the initial spray, in order to remove the above ground biomass and again, encourage vigorous growth from any remaining viable rhizomes, in anticipation of the need for a second herbicide application the following year.

Temporary signage will be placed at least one week prior to herbicide treatment stating the City's intent to apply herbicide. The signs will be placed at visible locations in the vicinity of the treated areas, and will remain in place for at least one week after spraying has occurred. The City will do its best to insure signs remain for the specified period of time, recognizing that signs will very likely be vandalized.

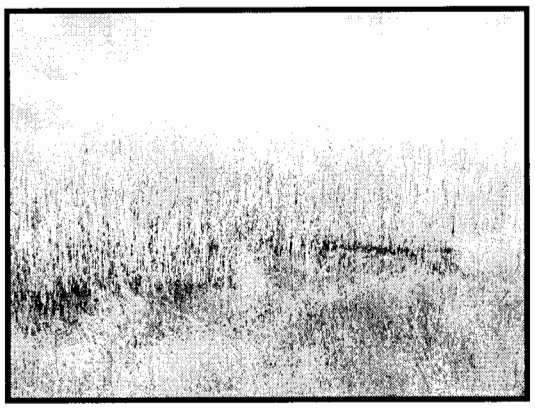
Subsequent Treatments

It is anticipated that it will take several years to completely eradicate common reed. Treatment strategy after the initial burn, initial herbicide application and second burn will depend on how successful this initial treatment is. Even if it is highly successful, at least one more year of ground-based spray herbicide application will likely be required, and depending on how dense the stand is following the initial treatment, there is a possibility of another burn being required following the second herbicide application.

From that point on, herbicide applications would likely still be necessary, although the amount of herbicide required will be greatly reduced as time passes due to the reduction in stem density, and application methods may be altered. As the stem density diminishes, it may be possible to apply herbicide to individual plants with an absorbent glove (sometimes call the "bloody glove" method). This will further minimize the potential for collateral damage, which will become more important as the density of the reed diminishes and establishment of native vegetation

begins. Yearly inspections will need to be conducted for many years to ensure any emerging plants are treated immediately and not allowed to flourish.

8. Plant treated common reed areas



This thick stand of common reed in Railroad Marsh will be planted with native wetland vegetation, once the reed is eradicated.

Planting with native vegetation of areas where common reed has been treated is proposed to discourage reestablishment of the reed and discourage establishment of dense-flowered cordgrass (*Spartina densiflora*), another exotic species that occupies the marsh now and may begin to thrive with increased tidal action. As noted in MRB's report, it is expected that recolonization from adjacent seed banks within the marsh will occur naturally. However, due to the high potential for dense-flowed cordgrass to establish in these areas, and to provide competition for any remaining viable common reed, a dense planting of native species will be installed in all treated areas.

Planting of areas within Palco Marsh and adjacent drainage ditches where the reed will be eradicated and which will not be disturbed by the excavation required to enhance Railroad Marsh as described below, may occur earlier than the Railroad Marsh planting, depending on the mortality rate of the reed. Once the reed dies back sufficiently to feasibly allow control by direct application of herbicide to individual plants, thus minimizing collateral damage to newly planted natives, these areas can be planted.

A qualified biologist will prepare a planting plan of appropriate species to introduce to the area for preliminary vegetative cover following exotics removal. Species chosen will be based upon habitat, final elevations, and surrounding vegetation. MRB recommends a dense planting of native species (75% vegetative cover) at all sites primarily to discourage colonization by invasive species as noted above, but also to help stabilize sediment and accelerate habitat development and diversity. MRB provided the following recommendations for possible species to be used for revegetating treated common reed areas. As they note, other appropriate species may be identified by a qualified biologist and included in a planting plan:

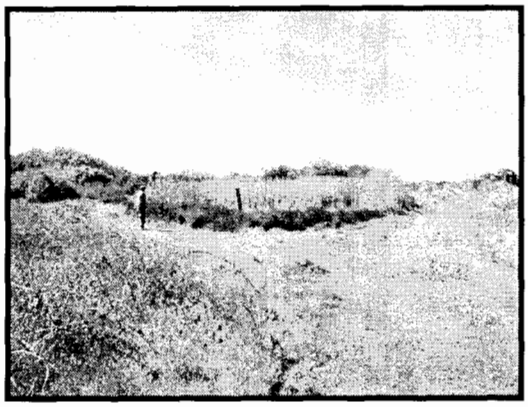
> Pickleweed *(Salicornia virginic*a) will readily colonize from seed banks and is therefore unnecessary to plant. Suitable species for planting in Palco Marsh include salt grass

(Distichlis spicata), water foxtail *(Alopecurus geniculatus)*, salt rush *(Juncus leseurii)* and pacific silverweed *(Potentilla anserina* ssp. *pacifica)*. Dunegrass *(Leymus mollis)* is one appropriate option for planting along the trailside to deter common reed encroachment up the banks. Male silk tassel plants *(Garrya elliptica)* and/or coyote bush *(Baccharis pilularis)* may also be considered along the banks as useful and attractive shrubs.

Appropriate plantings for the drainage ditch areas between Palco and Railroad Marsh can include seaside arrow-grass *(Triglochin maritima)*, willow herb *(Epilobium ciliatum)*, and spike rush *(Eleocharis macrostachya)*. Pickleweed may likely establish itself here as well.

At Railroad Marsh, suitable species for replanting include salt grass, water foxtail, salt rush, pacific silverweed, and either saltmarsh bulrush *(Scirpus robustus)* or prairie bulrush *(Scirpus maritimus)*. Use of both bulrush species should be avoided to prevent hybridization, which is common between the two.

9. Hydrologic enhancement of Railroad Marsh



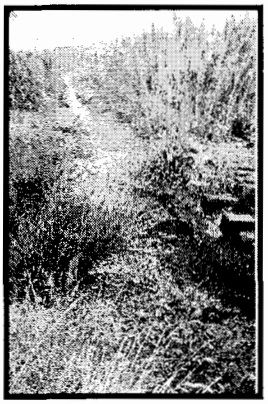
Railroad Marsh shown in center of photo will by connected with culverts to Palco Marsh, to the left of Railroad Marsh

In order to further discourage re-establishment of common reed in Railroad Marsh and enhance the habitat conditions, the hydrologic connection of Railroad Marsh to Palco Marsh is proposed. This connection will allow tidal flushing to occur in Railroad Marsh. The introduction of brackish water in combination with dense plantings of natives may help discourage the return of common reed to Railroad Marsh. To accomplish this, Railroad Marsh will be excavated 2.5 feet down to an elevation consistent with Palco Marsh, and two12-inch culverts connecting Railroad and Palco Marsh will be installed. Material excavated from the marsh will be taken to an appropriate permitted upland spoils site where conditions will not facilitate regeneration of any potentially viable rhizomes in the spoils. After excavation is complete and the culverts are installed, Railroad Marsh will be planted with suitable native species.

None of this excavation work can be done until after the common reed has been eradicated sufficiently so as not to pose a substantial risk of spreading the plant onsite as a result of excavation or offsite as a result of transportation and disposal. Planting cannot occur in Railroad Marsh until after it has been excavated. It is likely that the excavation work could not be

conducted until after the second year of herbicide application at the earliest. The amount of common reed regeneration will be assessed by a qualified biologist in the spring following the second herbicide application, who together with the City, will determine whether it is prudent to conduct the required excavation at that time. It is not possible to identify the exact timing for this excavation, since it is impossible to determine the mortality rate of the reed.

10. Eradicate other invasive exotics including but not limited to pampas grass, Himalaya berries, English Ivy, Scotch broom and French Broom



Pampas grass along the railroad berm, adjacent to Humboldt Bay in the vicinity of the outfall of the 24-inch culvert to be replaced.

There is a substantial amount of pampas grass, many of the plants being quite large, located in the vicinity of Palco Marsh and Railroad Marsh. The railroad property contains the vast majority of the plants, where they are growing under the tracks and fences and all along the railroad berm. Himalaya berries also have a significant presence, and there are at least one or two known areas of English ivy. The *1995 Final Monitoring Plan* notes the presence of Scotch broom, French broom and white sweet clover, and it assumed they are still present. The larger exotics contribute significantly to the attractiveness of this area for transient use, as they severely limit visibility and provide cover for transient camps and other activities. Removal of these exotics should discourage transient use and thus encourage use by the general public. Removal is proposed for the area roughly bordered by Del North Street on the north, the bay on the west, Palco Marsh on the east and the southerly tip of Railroad Marsh on the south.

The density and size of these exotics, particularly the pampas grass and the berries, make hand or mechanical removal a daunting task at best, and realistically a cost prohibitive and logistically difficult process. Most of the plants are so large that a backhoe or similar machinery would be required to remove them. The substrate they are located in within the railroad berm consists of hard packed fill, making hand digging difficult. In some areas, mechanical or hand removal would be impossible without disturbing the railroad tracks or the existing fence that runs along the railroad. These species also thrive in disturbed soil, making physical removal of the plants a contributing factor to their continued presence and spread.

Because of the extent and nature of the problem at present, initial treatment using herbicide is proposed in order to get the problem under control. Glyphosate will kill pampas grass, and may kill or partially control the Scotch and French broom and the berries. It will only partially

control the ivy. It will not control the clover, and will not be applied to it. Control of the clover is discussed in Section IV. Although an aquatically approved herbicide is not necessary in most areas where these species occur, it may be necessary in some due to the scope of the initial application. For this reason, in addition to the ease of using one type of herbicide throughout the project area during initial herbicide application, the same glyphosate herbicide used on common reed will also be used on these species for the initial control.

Temporary signage will be placed at least one week prior to herbicide treatment stating the City's intent to apply herbicide. The signs will be placed at visible locations in the vicinity of the treated areas, and will remain in place for at least one week after spraying has occurred. The City will do its best to insure signs remain for the specified period of time, recognizing that signs will very likely be vandalized.

A follow-up herbicide application the next year would be prudent, and is proposed. This second application will further damage the brooms and ivy, and kill any residual pampas grass. After this second herbicide application, hand removal on a yearly maintenance schedule may be sufficient to keep these species under control. Maintenance will be critical, or these species will easily re-establish. Use of herbicides for future maintenance may still be necessary and should remain an option, although as discussed, diligent yearly maintenance will reduce the extent and amount of herbicide that may be required to maintain control.

IV. MONITORING, MAINTENANCE AND MANAGEMENT PLAN

1. Conduct Botanical Monitoring. Botanical monitoring includes pre-project and post-project monitoring, and is recommended by MRB to occur over a period of five years to document changes that result from the increased tidal flushing that is expected as a result of the Phase 1A project elements. MRB recommends vegetation sampling using plots previously established for Phase 1 monitoring, with monitoring occurring six months, one year, two years, three years and five years after the completion the project (i.e. completion of project components affecting tidal conditions within the marsh.) Since the 30 original plots were located within the 39-acre main Palco Marsh, an additional one or two plots will need to be added in Railroad Marsh.

   Part of this monitoring should include documentation of the two rare plant species that exist at the marsh, Point Reyes bird's beak and Humboldt Bay owl's clover. Bird's beak exists within Palco Marsh, and thus will be included in the proposed monitoring plan that will document project effects. Both species were documented as occurring on the peninsula to the west of the marsh. Although it is unlikely that these areas will be affected by the project, these populations should be included in the monitoring that will be conducted for project effects. The *1995 Final Monitoring Plan* recommends yearly monitoring of these species by a qualified botanist, and if a steady decline or obvious threats to the plants are noted, then measures could be taken to protect the populations. A recommendation on the future monitoring of these species should be incorporated into the final monitoring report that will document project effects.

2. Conduct Hydrologic Monitoring. Hydrologic monitoring should be conducted to document the change in the tidal prism resulting from the installation of the 48-inch culvert. Since the goals of the monitoring are to document the changes in the tidal flux within the marsh due to the new 48-in. culvert, a limited monitoring period that does not account for rainfall contributions would be sufficient to address that goal. Monitoring should begin two months before the culvert is installed, and continue two months after installation. The previous hydrologic monitoring was also based on this model. The monitoring will be conducted using electronic data loggers that measure water levels every fifteen minutes, with one logger in the bay, and the other in the marsh. The loggers will be checked every two weeks, at which time data will be downloaded and general observations regarding marsh conditions will be made and recorded.

3. Monitor and Treat Exotics. As noted in work tasks #7 and #8 above, ongoing monitoring and treatment of exotics should occur into the future. Vigilance is critical to maintaining control of the exotics at Palco Marsh and minimizing required treatment. Monitoring should occur on a yearly basis at the seasonally appropriate time (likely every spring) to determine what treatment is required to continue to maintain adequate control. A qualified biologist will be consulted as specifically required per work task #7, and as may be required for assistance with identification and treatment of the remaining exotic species.

   White sweet clover will not respond to glyphosate, so it will not be treated along with the other exotics. It will respond to other types of herbicide, and can also be treated by hand pulling, cutting and burning. The extent of this plant is not known at this time, but should be assessed during botanical monitoring activities. If the plant's presence is extensive and it is determined in consultation with a qualified biologist that control of the plant is necessary, the issue of control should be addressed at that time. The approach to be taken will depend on the amount of clover to be treated and the biologist's recommendation.

4. Monitor Dense-flowered Cordgrass. This plant already exists in Palco Marsh, and the increase in tidal flushing in Palco and Railroad Marshes will likely facilitate the spread of dense-flowered cordgrass within these marshes. This plant will be included in the above described botanical monitoring program. As recommended by MRB, local research and management recommendations should continue to be monitored for consideration of their applicability at Palco Marsh. After completion of the 5-year monitoring program, a periodic inspection by a qualified biologist should be made to determine if dense-flowered cordgrass has become a threat to the health of the marsh and determine if treatment is required.

5. Monitor and Remove Channel Aggradation. The *1995 Final Monitoring Plan* recommends monitoring of aggradation in the marsh; this recommendation continues to apply. Some work is proposed as part of the Phase 1A Work Plan to address aggradation that has occurred (work task #3), and aggradation in the slough channels should continue to be monitored. If the upper reaches of the slough channels start to show excessive ponding of water during ebb flows, indicating aggradation is impeding tidal flows, aggraded sections of the channels should be re-excavated.

6. Monitor and Remove Sediment from Tidal Channel. The tidal channel between Palco Marsh and the peninsula west of the marsh should be monitored for silt or garbage accumulation that would interfere with water flow into and out of the marsh. At the time that silt accumulation is such that the collective capacity of the culverts is reduced by 50%, dredging of the channel should be considered. Garbage should be removed on a ongoing basis.

7. Monitor, Repair and Maintain Drainage Facilities. Culverts and drainage systems that allow the flow of water, both freshwater and tides, in and out of Palco Marsh should be maintained and repaired or replaced as necessary to insure adequate functioning of these facilities.

8. Monitor and Clean-up Garbage. The Palco Marsh area should be monitored periodically for the presence of garbage. This is a continual problem due to the presence of transient camps in the area, which are cleaned out periodically by the Eureka Police Department. A group specifically dedicated to the marsh could be formed, and with assistance from the community and facilitation by the City, hold work days to pick up garbage and remove exotics, provide interpretive walks, and generally provide a continuing presence in the area. This would help to discourage the uses that result in trash and garbage being deposited at the marsh.

V. 1995 FINAL MONITORING PLAN RECOMMENDATIONS

The Palco Marsh Enhancement Project, Phase I Final Monitoring Report contains a summary of recommendation on pages 2 – 4 of the report. Following is a discussion of how the Phase 1A Work Plan incorporates each of these recommendations, or if not, why the recommendation was not incorporated. The recommendations are numbered as they are in the *Final Monitoring Report*, with the discussion included under each recommendation.

1. Replace the culvert beneath the railroad tracks with one of a larger diameter. the existing 24" diameter culvert is limiting the rate of water exchange. A larger culvert (e.g., 36" – 48") would allow improved drainage of the tidal plains, and would thereby enhance the biological productivity of the site.

This recommendation is addressed in work task #1 of the Phase 1A Work Plan. A 48-inch culvert is proposed to be installed.

2. Remove the tidal flap gate near the foot of Del Norte Street and clean debris from the culvert and headwall area at the bayward end of this drainage facility. Removal of the existing dysfunctional flap gate would allow unrestricted tidal flow in and out of the marsh.

This recommendation is addressed in work task #3 of the Phase 1A Work Plan; if the tide gate leading from the drainage structure to the marsh is still in place, it will be removed. Debris removal on the bayward end of the drainage facility is presumed to mean on the west side of the headwall in the tidal channel, and is addressed in work task #4 of the Phase 1A Work Plan.

3. Control erosion occurring near the siphon within the basin fed by the western end of the siphon and the eastern end of the bay pipe. On the embankment immediately opposite the bay pipe, rip-rap has been dislodged, exposing the underlying material to erosion. The embankment should be re-graded and the rip-rap should be replaced with larger material that will withstand high water velocities.

The installation of the junction box which will connect the existing 18-inch culverts with the proposed 48-inch culvert, and which also includes a drainage inlet to allow overland flows to continue to enter the system, will eliminate the need for these erosion control measures. The vortex that is created by the existing system is causing the erosion, and will be eliminated with this new system. Thus, this recommendation is addressed in work task #1 of the work plan.

4. Monitor aggradation in the slough channels. Minor aggradation has been noted thus far, but presently it does not appear to be impeding tidal water flux. This process should be monitored. If the upper reaches of the slough channels start to show excessive ponding of water during ebb flows, it would indicate that aggradation is impeding tidal flows. If this occurs, the heavily-aggraded sections of the channels should be re-excavated.

Work task #3 of the Phase 1A work plan proposes work in the northwest corner of the marsh in response to this recommendation. In addition, with the replacement of the existing deteriorating 24-inch culvert with the proposed 48-inch culvert and dredging of the tidal channel, we would expect that the increased tidal action will adequately flush any aggraded channels. We will wait to allow this natural flushing to occur, and continue monitoring pursuant to this recommendation. This monitoring requirement is included in the Phase 1A Monitoring, Maintenance and Management Plan.

5. Monitor populations of the two rare salt marsh annuals occurring at the site annually. This could be accomplished quickly with an inventory each July by a qualified botanist. If a steady decline or obvious threats to the plants were noted, then measures could be taken to protect the populations.

This recommendation is addressed in work task #1 of the Phase 1A Monitoring, Maintenance and Management Plan. Pt. Reyes bird's beak and Humboldt Bay owl's clover will be monitored in conjunction with the monitoring program proposed as part of the Phase 1A Work Plan. A recommendation on the future monitoring of these species will be incorporated into the final monitoring report for project effects.

6. Conduct remedial planting of riparian vegetation at the site. Only a few willows survived from the initial plantings. A riparian buffer should be replanted adjacent to Felt and Del Norte Streets. Specifications for planting and standards for success (i.e., survival of the plants) should be prepared by a qualified botanist. The contractor installing the plants should be held accountable for meeting the standards before being paid in full for the work. If plans for excavation of the freshwater pond are carried through, planting the riparian buffer along Vigo Street should proceed, also with specifications and standards.

This recommendation is addressed in work task #5 of the Phase 1A Work Plan, including the replanting of the buffer and provision of performance standards. The Vigo Street planting is not included in the Phase 1A plan since the freshwater pond is no longer a project component.

7. Conduct follow-up control of the non-native plant species common reed (*Phragmites australis*). The patch occurring at the south end of the site was removed as part of Phase 1 enhancement, but the reed has come back vigorously in the areas excavated, and several new patches were evident in the channel between the walkway and the railroad berm. These areas should be re-excavated. Following removal, black plastic could be laid down to discourage regrowth of the reed.

The recommendation for follow-up control for common reed is implemented in work task # 7 of the work plan. However, as thoroughly discussed in the work plan, excavation and application of black plastic were determined to be an inappropriate treatment for Palco marsh, and have been replaced with a combination of burning and herbicide application.

8. Control non-native plant species occurring on the railroad berm. Right-of-way restrictions imposed by Eureka Southern Railroad prevented the removal of any plants during Phase I enhancement, but since 1991, this property has undergone a change in ownership and some of the railroad tracks have been removed. Negotiations with the new owners should be pursued to allow removal of pampas grass (*Cortaderia jubata*), Scotch broom (*Cytisus scoparius*), French broom (*Genista monspessulana*), and white sweet clover (*Melilotus alba*) growing along the railroad berm.

This recommendation is addressed in work task #8 of the Phase 1A Work Plan, and work task #3 of the Monitoring, Maintenance and Management.

9. Pursue plans for excavation of a freshwater pond as stated in the "Palco Marsh Enhancement Plan." The plans were delayed by diesel fuel contamination of the underlying marsh soils.

The pond has been eliminated from the Palco Marsh Enhancement Plan and thus from the Phase 1A Work Plan based on the determination that it was not ecologically appropriate. Section II of the Phase 1A Work Plan contains a discussion of why the pond was removed

10. Pursue plans for rehabilitation of the RR Marsh as stated in the "Palco Marsh Enhancement Plan." The plans were delayed because of right-of-way restrictions imposed by Eureka Southern Railroad, but the property has since changed ownership.

This recommendation will be carried out under work task #7 of the work plan. This recommendation includes eradication of common reed, lowering of the terrace surface elevation of Railroad Marsh, introduction of tidal flushing by hydrologic connection to Palco Marsh, and planting with appropriate native species.

11. Pursue plans for Phase II Enhancement as stated in the "Palco Marsh Enhancement Plan." Phase II will involve restoring to wetland an upland area currently occupied by a lumber drying shed.

The drying sheds were removed as part of Phase I, and a portion of the pole shed property was approved by the Coastal Conservancy for use for Bayshore Mall parking. The enhancement of the remaining property that constitutes Phase II has not been funded.

12. Develop a program for monitoring and clean-up of garbage dumped in the marsh and testing for presence of toxic substances in the refuse. Develop a strategy for preventive measures such as education, signs, and enforcement of "No littering" laws.

This recommendation is carried forward as work task # 7 of the Phase 1A Monitoring, Maintenance and Management Plan, since it is something that needs to occur on an ongoing basis. Previous clean-up days were held, and this practice will be reinstated but will require the help and cooperation of the local community on a continuing basis.

VI. SCHEDULE

Work Plan Tasks

All work plan tasks assume CEQA review will be completed by approximately the end of August, and that all work plan tasks will require permits. Some tasks, however, may actually not require permits or may be covered by previous permits, and may therefore potentially move forward on a shorter time schedule. This will be clarified once the permitting agencies have reviewed the work plan and environmental document, and have had an opportunity to comment.

*Work plan tasks #1, #2, #3, #4 and #5 are scheduled for the same period since it is more efficient and cost effective to include them in one bid package under one contract.

1. Replace collapsing 24-inch culvert that connects Palco Marsh with Humboldt Bay with a 48-inch culvert*

- September 2004 – Submit permit applications
- February 2005 – Obtain permits
- March 2005 – Finalize bid documents.
- April 2005 – Advertise for bids
- May 2005 – Award contract and schedule work for the 2005 construction season

2. Modify Del Norte Street drainage structure and tide gates*

- September 2004 – Submit permit applications
- February 2005 – Obtain permits

- March 2005 – Finalize bid documents.
- April 2005 – Advertise for bids
- May 2005 – Award contract and schedule work for the 2005 construction season

3. Hand dig and clean Palco Marsh channels*

- September 2004 – Submit permit applications
- February 2005– Obtain permits
- March 2005 – Finalize bid documents
- April 2005 – Advertise for bids
- May 2005 – Award contract and schedule work for the 2005 construction season

4. Dredge tidal slough between Palco Marsh and peninsula west of the marsh*

- September 2004 – Submit permit applications
- February 2005– Obtain permits
- March 2005 – Finalize bid documents.
- April 2005 – Advertise for bids
- May 2005 – Award contract and schedule work for the 2005 construction season

5. Install Del Norte and Felt Streets Landscaping*

- September 2004 – Submit permit applications
- February 2005 – Obtain permits
- March 2005 – Finalize bid documents.
- April 2005 – Advertise for bids
- May 2005 – Award contract and schedule work for the 2005 construction season

6. Install Interpretive Signage

- September 2004 – Submit permit applications
- February 2005 – Obtain permits
- March 2005 – Finalize bid documents
- April 2005 – Advertise for bids
- May 2005 – Award contract
- December 2005 – Install signs before end of 2005

It is likely we will not need to bid this item, and that permits may not be required. If this is the case, the following schedule would be appropriate.

- September 2004 – Begin work on signage design and construction
- Summer 2005 – Install new signage

7. Eradicate common reed

- September 2004 – Submit permit applications
- October 2004 – Obtain burning permit (potentially the only permit required)
- Winter 2004-2005 – Burn common reed
- February 2005– Obtain any other required permits, if required
- March 2005 – Finalize bid documents, if required
- April 2005 – Advertise for bids, if required
- May 2005 – Award contract and schedule work for late summer/early fall 2005
- Late summer/early fall 2005 – initial herbicide application
- Winter 2005-2006 – Second burn of common reed
- Late summer/early fall 2006 – second herbicide application
- Winter 2006-2007 – Burn common reed if remaining biomass is significant
- Late summer/early fall 2007 – Third herbicide application, potentially using "bloody glove" method if reoccurrence of common reed is minimal and planting has occurred; or third spray application of common reed if reoccurrence still enough to preclude planting
- Late summer/early fall 2008 – Fourth herbicide application, likely using "bloody glove" method

8. Plant treated common reed areas

- September 2004 – Submit permit applications
- February 2005 – Obtain permits
- Spring 2007 – Assess possibility of planting Palco Marsh and Railroad Marsh. If it can be planted, schedule will proceed as follows.
- April 2007 – Finalize bid documents
- May 2005 – Advertise for bids
- June 2005 – Award contract and schedule work for the fall
- Fall 2007 – Assess potential of planting Palco Marsh and, and excavation and planting of Railroad Marsh. If planting is not possible in Railroad Marsh, only Palco Marsh may be planted. If enough reed remains as to require a third spray application of herbicide, no planting will be conducted.
- Spring 2008 – If planting not completed as noted above, repeat process as described above beginning in spring 2007 until work can be completed
- Fall 2008 – Plant Palco and Railroad Marsh if common reed eradication is sufficient so a so allow "bloody glove" herbicide application

9. Hydrologic enhancement of Railroad Marsh

- September 2004 – Submit permit applications
- February 2005 – Obtain permits

- Spring 2007 – Assess mortality status of common reed and determine if excavation of Railroad Marsh and installation of culverts to connect the marsh with the 39-acre Palco Marsh can occur. If it can, the schedule will proceed as follows.
- April 2007 – Finalize bid documents
- May 2005 – Advertise for bids
- June 2005 – Award contract and schedule work for the 2005 construction season
- Spring 2007 – If excavation and culvert work is not completed, repeat process as described above beginning in spring 2007 until work can be completed.

10. Eradicate other invasive exotics including but not limited to pampas grass, Himalaya berries, English Ivy, Scotch broom and French Broom

No permits are anticipated for this activity.

- Fall 2005– Initial herbicide application
- Summer/fall 2006 – Follow-up herbicide application

Monitoring, Maintenance and Management Tasks

1. Conduct Botanical Monitoring

The goal of this monitoring activity is to document changes in vegetation that will result from work that will enhance the tidal flux in the marsh. Baseline monitoring should begin at seasonally appropriate times for target species during the spring immediately prior to completing work that would enhance tidal flushing in the marsh (work plan tasks #1, #3, and #4). Post-construction monitoring will occur six months, one year, two years, three years and five years after completion of this work.

Spring 2005 – Baseline monitoring
Fall 2005 – Construction work completed
Spring 2006 – six months post-construction monitoring
Spring 2007 – one year post-construction monitoring
Spring 2008 – two years post-construction monitoring
Spring 2009 – three years post-construction monitoring
Spring 2011 – five years post-construction monitoring and the final monitoring

2. Conduct Hydrologic Monitoring

Monitoring should be conducted before and after work plan tasks #1, #3 and #4 are completed. Scheduling will depend on whether rainfall is to be considered together with tidal effects. If only tidal effects are considered, monitoring should begin two months before construction and end two months after. If rainfall effects are to be considered, monitoring should begin six months before construction and end six months after.

January 2005 – Finalize bid documents and determine what type of monitoring should be conducted and when it should begin.

3. Monitor and Treat Exotics

Work plan tasks #7 outlines monitoring in conjunction with treatment of common reed through 2008. An assessment of the Palco Marsh area should be conducted at least once a year to determine if and what type of treatment is required. At least one yearly assessment should be done during the spring, so treatment can be conducted before plants begin to flower.

4. Monitor Dense-flowered Cordgrass

This plant will be monitored for five years after completion of the project, as noted in the Botanical Monitoring task above. The final monitoring report should make a recommendation on the frequency for future monitoring of this plant.

5. Monitor and Remove Channel Aggradation

Monitoring should occur in the early spring each year, so as to allow time during the dry season of any given year to accomplish the required work.

6. Monitor and Remove Sediment from Tidal Channel

Monitoring should occur in the early spring each year, so as to allow time during the dry season of any given year to accomplish the required work.

7. Monitor, Repair and Maintain Drainage Facilities

Monitoring should occur periodically throughout each year so as to allow time during the dry season of any given year to conduct repair and maintenance activities.

8. Monitor and Clean-up Garbage

Monitoring should occur on a ongoing basis, with clean-up occurring as often as necessary but at least twice per year if garbage continues to be a problem at the marsh.

VII. BUDGET (See attached budget for estimated project costs)

Notes

1. The cost of replanting the common reed areas as shown in the budget includes material and labor for installing locally grown wetland herbaceous plants 3-ft. on center throughout each area of eradicated common reed, as well as installing wetland shrubs along the outside perimeter of areas where reed was eradicated. It is likely these costs will be lower if there is

significant natural revegetation, which should occur in Palco Marsh and which will reduce the number of plants needed in Palco Marsh. However, planting will not be delayed to allow for natural revegetation, but will be delayed until common reed occurrences are low enough to allow use of the "bloody glove" method to reduce the potential for collateral damage to native vegetation. Costs could also be reduced if volunteers did the planting. Cost breakdown is as follows:

Planting Plan:	$ 7,000
Plants:	$14,000
Labor:	$18,000

2. The budget reflects the cost for the Eureka Fire Department to conduct two burns. This will be an excellent training exercise for the Department, as well as provide the necessary services for this project. The cost identified is for extra fire personnel, since the personnel conducting the burn cannot leave the site if there is a fire in the community.

3. Monitoring, Maintenance and Management tasks #5, #6, #7, and #8 will occur into perpetuity at the City's expense. Task #3 will ultimately become the City's financial responsibility once items specified in the budget pertaining to this task are completed.

4. The exact cost of the above proposed project components will not be known until the work plan is finalized and bids are received. Based on the attached budget, there may be remaining grant funds. However, since this is a multi-year project, costs will likely increase as time passes. This fact, coupled with the potential for unforeseen costs, reduces the possibility that we will actually have excess funds. Should there be remaining grant funds at the completion of the Phase 1A work tasks, we would propose these funds be retained for future maintenance of the marsh area, including activities such as the replanting of any Phase 1A vegetation that may fail, continued removal of invasive exotic vegetation, providing materials and advertising for clean-up days, and repair of damaged interpretive signs or the installation of additional signs.

MITIGATION MONITORING AND REPORTING PROGRAM (MMRP)

AIR QUALITY

MITIGATION MEASURE NO. 1. The applicant, at all times, shall comply with Air Quality Regulation 1, Chapter IV to the satisfaction of the NCUAQMD.

Air Quality Regulation 1, Chapter IV, Rule 420 – Particulate Matter: A person shall not discharge particulate matter into the atmosphere from any combustion source in excess of 0.46 grams per standard cubic meter (0.20 grains per standard cubic foot) of exhaust gas, calculated to 12 percent carbon dioxide; or in excess of the limitations of NSPS as applicable.

Air Quality Regulation 1, Chapter IV, Rule 430 – Fugitive Dust Emissions: The handling, transporting, or open storage of materials in such a manner which allows or may allow unnecessary amounts of particulate matter to become airborne, shall not be permitted. Reasonable precautions shall be taken to prevent particulate matter from becoming airborne, including, but not limited to, the following provisions (only those sections of the law most germane for this project and listed below):

(1) Covering open bodied trucks when used for transporting materials likely to give rise to airborne dust;
....
....
....
(5) the application of asphalt, oil, water or suitable chemicals on dirt roads, materials stockpiles, and other surfaces which can give rise to airborne dusts;
....
(7) the prompt removal of earth or other material from paved streets onto which earth or other material has been transported by trucking or earth moving equipment, erosion by water, or other means.

Monitoring: This measure shall be made a condition of approval for the project, shall be incorporated into design and contract documents prepared by the City for the project, and shall be implemented throughout the duration of the project construction and maintenance. The City Engineering Department shall, on the basis of their observations or complaints to the City regarding excessive construction dust, smoke, or other particulate matter, be empowered to direct the contractor to undertake additional measures in the field if it appears that the contractor does not follow this measure.

MITIGATION MEASURE NO. 2. The applicant, at all times, shall comply with Air Quality Regulation 2, Open Burning, to the satisfaction of the NCUAQMD. Further, burning shall be conducted in a manner that minimizes smoke and related air quality impacts to Broadway and surrounding development.

Monitoring: This measure shall be made a condition of approval for the project, shall be incorporated into design and contract documents prepared by the City for the project, and shall be implemented throughout the duration of the project construction and maintenance. The City Engineering Department shall, on the basis of their observations or complaints to the City regarding excessive smoke or other particulate matter, be empowered to direct the contractor to undertake additional measures in the field if it appears that the contractor is not following this measure.

BIOLOGICAL RESOURCES

MITIGATION MEASURE NO. 3. Construction activities shall avoid impacts to Humboldt Bay owl's clover or Point Reyes bird's beak to the extend feasible. If impacts are unavoidable, work shall be conducted from September through December (outside the blooming period) where these plants could be directly impacted. The top 6-inches of soil will be removed, separately stockpiled, and replaced, and original contours restored upon completion of the work.

Monitoring: This measure shall be made a condition of approval for the project, shall be incorporated into design and contract documents prepared by the City for the project, and shall be implemented throughout the duration of the project construction and maintenance. The City Engineering Department or the Community Development Department shall conduct field observations during the construction process to assure the appropriate implementation of this measure, and shall be empowered to direct the contractor to temporarily suspend construction activities if evidence is presented to either department that the contractor is not in compliance with this measure, pending the development of specific actions to regain compliance.

MITIGATION MEASURE NO. 4. MITIGATION MEASURE NO. 4. Heavy equipment used within wetlands shall be washed prior to entering the site, and if used in an area contain invasive plant species shall be washed prior to leaving the site to avoid introducing exotic plant material into our outside the marsh area.

Monitoring: This measure shall be made a condition of approval for the project, shall be incorporated into design and contract documents prepared by the City for the project, and shall be implemented throughout the duration of the project construction and maintenance. The City Engineering Department or the Community Development Department shall conduct field observations during the construction process to assure the appropriate implementation of this measure, and shall be empowered to direct the contractor to temporarily suspend construction activities if evidence is presented to either department that the contractor is not in compliance with this measure, pending the development of specific actions to regain compliance.

MITIGATION MEASURE NO. 5. Heavy equipment staging directly in the marshes within the project area shall be avoided to the extent feasible. Equipment may not enter the center of the 39-acre Palco Marsh, but may enter the more stable perimeter areas if stabilizing mats are utilized and equipment is strategically placed to minimize vegetation impacts. Pre-project conditions shall be restored in areas where equipment has operated, except in areas where the purpose of the excavation is to alter pre-project conditions (e.g. removal of aggradation within tidal channels).

Monitoring: This measure shall be made a condition of approval for the project, shall be incorporated into design and contract documents prepared by the City for the project, and shall be implemented throughout the duration of the project construction and maintenance. The City Engineering Department or the Community Development Department shall conduct field observations during the construction process to assure the appropriate implementation of this measure, and shall be empowered to direct the contractor to temporarily suspend construction activities if evidence is presented to either department that the contractor is not in compliance with this measure, pending the development of specific actions to regain compliance.

MITIGATION MEASURE NO. 6. If in-water construction activities will occur where there is a potential for the presence of sensitive fish species as determined by a qualified fisheries biologist, the area shall first be cleared of fish and the fish relocated pursuant to Department of Fish and Game and/or NOAA Fisheries guidelines under the direction of a qualified fisheries biologist.

Monitoring: This measure shall be made a condition of approval for the project, shall be incorporated into design and contract documents prepared by the City for the project, and shall be implemented throughout the duration of the project construction and maintenance. The City Engineering Department or the Community Development Department shall conduct field observations during the construction process to assure the appropriate implementation of this measure, and shall be empowered to direct the contractor to temporarily suspend construction activities if evidence is presented to either department that the contractor is not in compliance with this measure, pending the development of specific actions to regain compliance.

CULTURAL RESOURCES

MITIGATION MEASURE NO. 7. If, during construction, subsurface archaeological resources (or materials that may be considered to be archaeological resources) are encountered, City staff shall be notified immediately and all ground-disturbing work in the immediate area shall cease and not resume until a qualified archaeologist has been contacted to evaluate the materials and recommend appropriate action. If buried human remains are discovered, they shall be treated in a manner consistent with Section 7050.5 of the California Health and Safety Code and Section 5097.98 of the California Public Resources Code. The County Coroner shall be contacted to determine whether further investigations are warranted, and the remains will be turned over to the corner, who may contact the Native American Heritage Council and Native American representatives as required or appropriate.

Monitoring: This measure shall be made a condition of approval for the project, shall be incorporated into design and contract documents prepared by the City for the project, and shall be implemented throughout the duration of the project construction and maintenance. The City Engineering Department or the Community Development Department shall conduct field observations during the construction process to assure the appropriate implementation of this measure, and shall be empowered to direct the contractor to temporarily suspend construction activities if evidence is presented to either department that the contractor is not in compliance with this measure, pending the development of specific actions to regain compliance.

MITIGATION MEASURE NO. 8. When ground-disturbing activities occur that involve excavation of native soils, a cultural monitor shall be present.

Monitoring: This measure shall be made a condition of approval for the project, shall be incorporated into design and contract documents prepared by the City for the project, and shall be implemented throughout the duration of the project construction and maintenance. The City Engineering Department or the Community Development Department shall be empowered to direct the contractor to temporarily suspend construction activities if evidence is presented to either department that the contractor is not in compliance with this measure, pending the development of specific actions to regain compliance.

HAZARDS AND HAZARDOUS MATERIALS

MITIGATION MEASURE NO. 9. The City will regularly inspect construction activities to insure equipment is free of leaks and in good working order. A spill containment and clean-up plan shall be prepared by the contractor for the City's review and approval.

Monitoring: This measure shall be made a condition of approval for the project, shall be incorporated into design and contract documents prepared by the City for the project, and shall be implemented throughout the duration of the project construction. The City Engineering Department shall review the Spill Containment and Clean-up Plan

prepared by the contractor, and shall conduct field observations during the construction process to assure that the Plan is implemented. The City Engineering Department shall be empowered to direct the contractor to modify implemented spill-prevention and clean-up measures that do not conform to the approved Plan.

MITIGATION MEASURE NO. 10. The presence or absence of contaminated soil within the area to be excavated for installation of the 48-in. culvert shall be determined prior to excavation for installation of the culvert. If contaminated soils are present, the North Coast Regional Water Quality Control Board will be notified, and the City will proceed pursuant to State law and best management practices under the direction of the Regional Board and/or the Humboldt County Health Department.

Monitoring: This measure shall be made a condition of approval for the project, shall be incorporated into design and contract documents prepared by the City for the project, and shall be implemented prior to and in conjunction with the installation of the 48-in. culvert. The City Engineering Department shall conduct field observations during the construction process to assure compliance. The City Engineering Department shall be empowered to direct the contractor to temporarily suspend construction activities if evidence is presented that the contractor is not in compliance with this measure, pending the development of specific actions to regain compliance.

HYDROLOGY AND WATER QUALITY

MITIGATION MEASURE NO. 11. The contractor shall implement best management practices (BMPs) as contained in Sections 3 and 4 of the Stormwater Quality Association Stormwater Best Management Practice Handbook for Construction dated January 2003, or other generally recognized stormwater BMP compilations as may be required, and as contained in the Stormwater Pollution Prevention Plan to be prepared and approved by the City for the project.

Monitoring: This measure shall be made a condition of approval for the project, shall be incorporated into design and contract documents prepared by the City for the project, and shall be implemented throughout the duration of the project construction and maintenance. The City Engineering Department shall approve the SWPPP, and the City Engineering Department or the Community Development Department shall conduct field observations during the construction process to assure that appropriate BMPs are implemented, and shall be empowered to direct the contractor to temporarily suspend construction activities if evidence is presented to either department that the contractor is not in compliance with this measure, pending the development of specific actions to regain compliance.

MITIGATION MEASURE NO. 12. The contractor shall employ techniques to protect water quality when excavating aggraded channels. Techniques may include:

- **conducting excavation in the dry (i.e. low tide)**
- **deploying silt curtains at either end of section to be excavated**
- **placement of spoils only in upland areas and placing artificial containment such as weed-free straw bales around the spoils**
- **isolating the excavation area by temporarily blocking culverts, or using coffer dams, sheet piling, or similar device**
- **utilizing siltation basins should dewatering be required**

Monitoring: This measure shall be made a condition of approval for the project, shall be incorporated into design and contract documents prepared by the City for the project, and shall be implemented throughout the duration of the project construction and maintenance. The City Engineering Department or the Community Development

Department shall conduct field observations during the construction process to assure that techniques for protection of water quality are implemented, and shall be empowered to direct the contractor to temporarily suspend construction activities if evidence is presented to either department that the contractor is not in compliance with this measure, pending the development of specific actions to regain compliance.

TRANSPORATION/TRAFFIC

MITIGATION MEASURE NO. 13. The City's selected contractor shall prepare a Traffic Management Plan pursuant to City of Eureka standards to address truck traffic. Traffic control measures consistent with Institute of Transportation Engineers, Caltrans or similar standards shall be implemented during construction. The Traffic Management Plan shall address the following elements, as applicable:

A. Hours of construction or contractor operation. In critical circulation areas or locations the hours of operation may be scheduled to occur to avoid significant traffic flow restrictions.

B. Identification of travel routes that:
   1. **Minimize trips through residential areas and in areas containing sensitive receptors to the extent feasible;**
   2. **Limit truck traffic to streets capable of carrying the truck weight;**
   3. **Provide for only right turns onto Broadway at unsignalized intersections;**
   4. **Limit round trips through any one signalized intersection utilized to enter or leave Broadway to or from the project site to no more than five per hour (i.e. if truck traffic will exceed this number of hourly trips, it should be spread out to more than one intersection);**

C. Changes in roadway conditions, including avoidance of lane closures during AM and PM peak traffic hours.

D. Warning signs, lights, or other traffic control measures required to inform the traveling public of the project.

E. Notification of potentially affected residents and businesses of possible access disruptions, at least 24 hours prior to construction activities that would affect such access.

F. Notification of emergency service providers and school districts of expected construction timing and duration, and of probable travel restrictions within the construction area. Emergency vehicles will be given priority at traffic control stations during construction. Delays for school buses will be minimized to the extent feasible.

Monitoring: This measure shall be made a condition of approval for the project, shall be incorporated into design and contract documents prepared by the City for the project, and shall be implemented throughout the duration of the project construction. The City Engineering Department shall review the Traffic Management Plan prepared by the contractor, and shall conduct field observations during the construction process to assure that the Traffic Control Plan is implemented. The City Engineering Department shall be empowered to direct the contractor to modify implemented traffic control measures that do not conform to the approved Traffic Management Plan.

Phase I

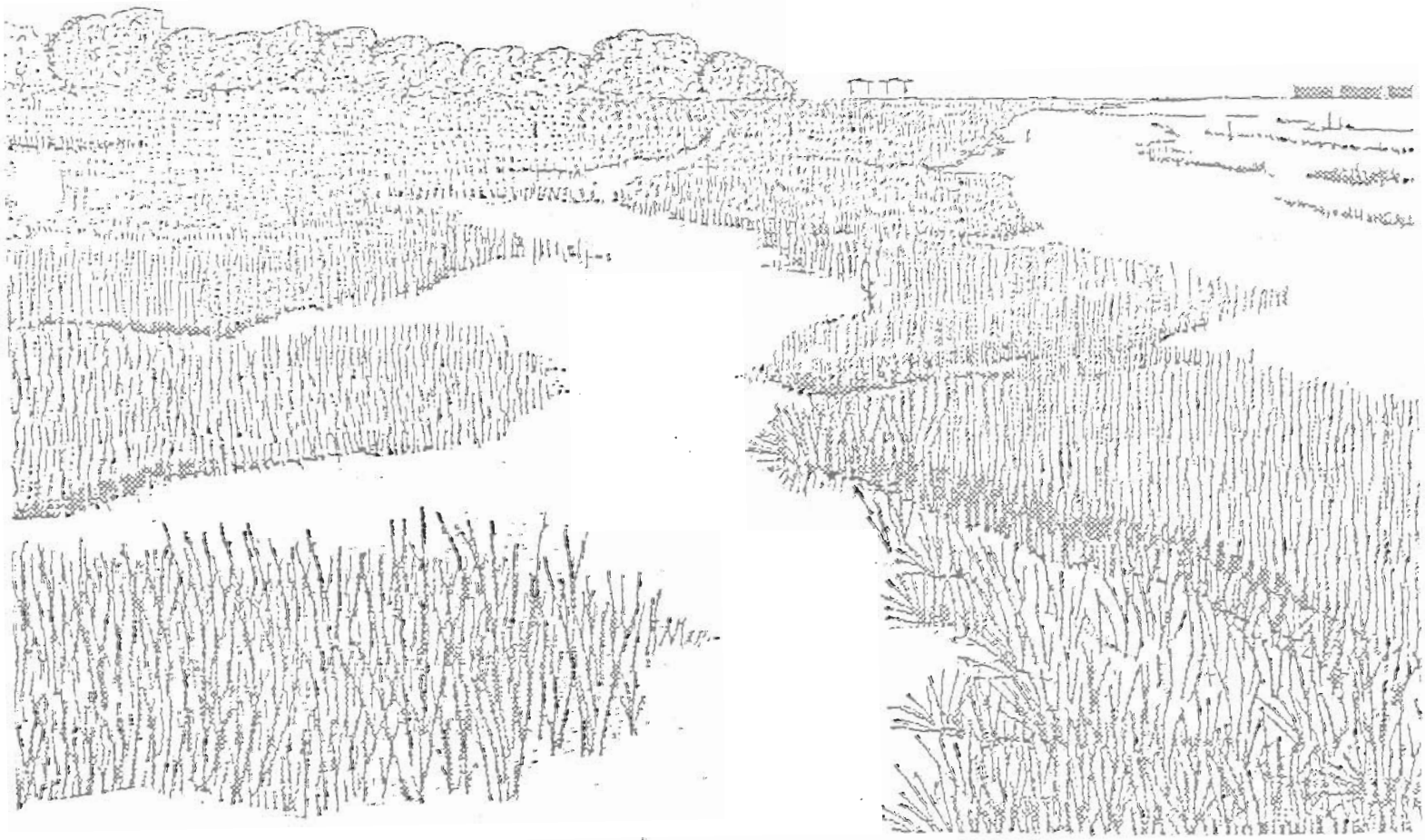
CITY OF EUREKA

and

CALIFORNIA COASTAL CONSERVANCY

EXHIBIT NO. 6
APPLICATION NO.
1-90-104-A2
CITY OF EUREKA
EXCERPTS. ORIGINAL *PALCO MARSH ENHANCEMENT PLAN* (1 of 17)

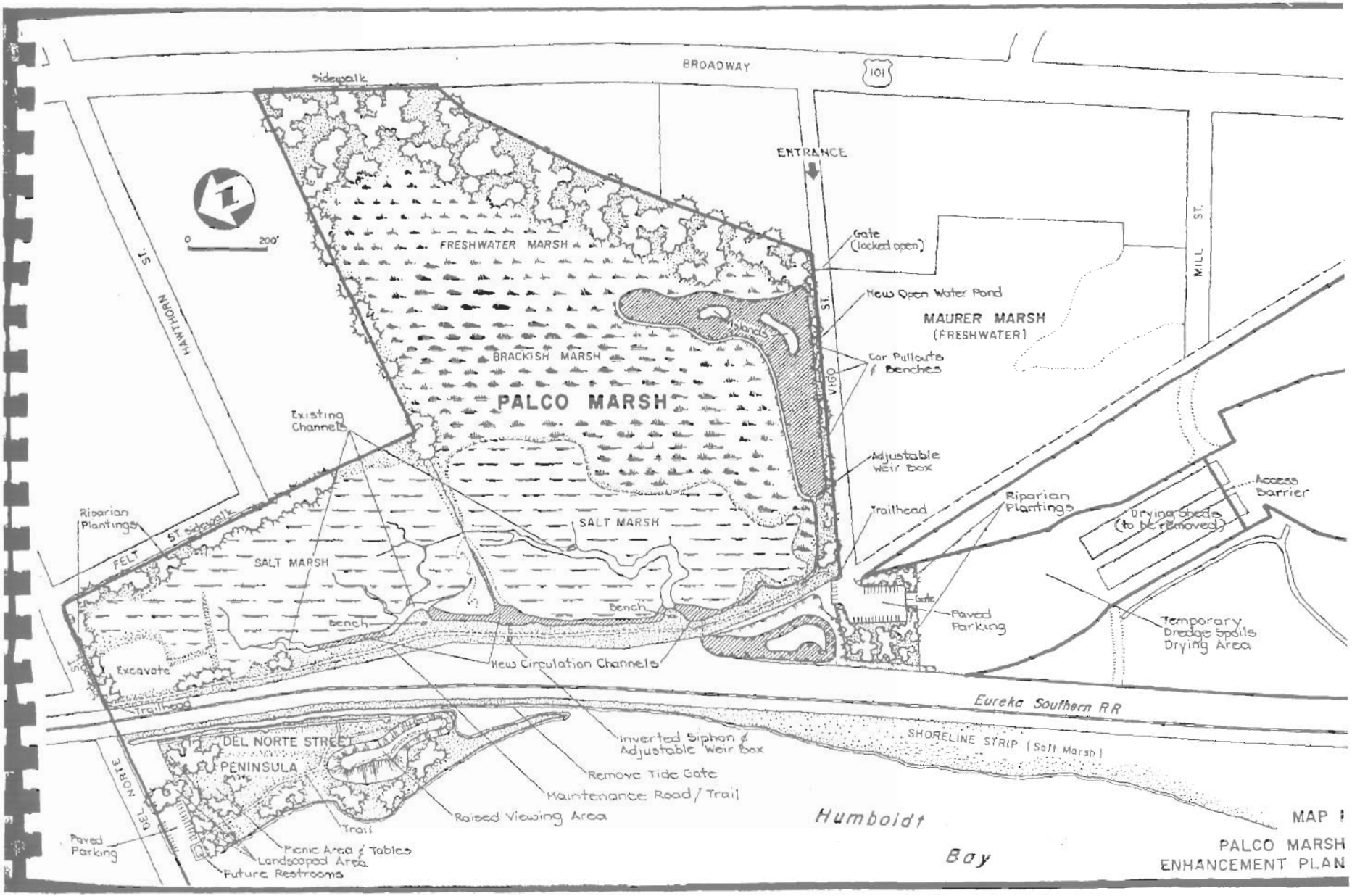
PALCO MARSH ENHANCEMENT PLAN



RISING SUN ENTERPRISES PLANNER/ENVIRONMENTAL CONSULTANTS

OMSBERG & COMPANY SURVEYORS/ENGINEERS

1864 MYRTLE AVENUE EUREKA, CA 95501 (707) 443-8651/445-2433


BROADWAY
101
Sidewalk
ENTRANCE
0 200'
FRESHWATER MARSH
BRACKISH MARSH
PALCO MARSH
SALT MARSH
SALT MARSH
HAWTHORN ST.
FELT ST.
VIGO ST.
MILL ST.
Gate (locked open)
New Open Water Pond
MAURER MARSH (FRESHWATER)
Car Pullouts & Benches
Existing Channels
Adjustable Weir Box
Trailhead
Riparian Plantings
Riparian Plantings
Drying Sheds (to be removed)
Access Barrier
Gate
Paved Parking
Temporary Dredge Spoils Drying Area
Bench
Bench
Excavate
New Circulation Channels
Trailhead
Eureka Southern RR
SHORELINE STRIP (Salt Marsh)
DEL NORTE STREET
PENINSULA
DEL NORTE
Inverted Siphon & Adjustable Weir Box
Remove Tide Gate
Maintenance Road / Trail
Raised Viewing Area
Trail
Paved Parking
Picnic Area & Tables
Landscaped Area
Future Restrooms
Humboldt Bay
MAP I
PALCO MARSH ENHANCEMENT PLAN

4.0 ENHANCEMENT PLAN

4.1 Introduction

The development of the following Enhancement Plan takes into account agency goals, site conditions, and subsequent discussions with the City of Eureka, the Coastal Conservancy and other interested agencies.

The Palco Marsh has been a focus of concern for enhancement activities by a number of agencies; the Army Corps of Engineers designated the site as an "Area of Importance" to the functioning of the Humboldt Bay ecosystem; the California Coastal Commission included the Palco Marsh on its list of priority public acquisition sites; and the City of Eureka designated this site in its Local Coastal Plan for acquisition and enhancement activity. The City of Eureka requested funding from the Coastal Conservancy for acquisition and eventual enhancement improvements.

The Coastal Conservancy agreed to provide funding to acquire, plan and restore the Palco Marsh site with three primary objectives:

1. Enhance tidal action in the Palco Marsh.

2. Remove fill in drying shed area and restore to marsh habitat.

3. Assemble land in the project area to improve future management.

The initial enhancement phase involved a site inventory and identification of opportunities and constraints. This was completed in Section 3.0. The principle findings and opportunities for enhancement planning, summarized with goals developed by subject area, are listed below.

4.2 Site Analysis Results and Goal Development

4.21 Topography, Geology and Soils

Site topography, geology and soils are suitable for wetland restoration. Excavation will be necessary in some areas to provide channels to distribute tidal input in the salt marsh area and establish elevations which will provide open water in the freshwater marsh area. The paved drying shed area, which is several feet above native wetland soils, will require significant amounts of material to be graded to wetland elevations. Fill will be required for planting along proposed roadside buffer areas. Construction activities could subject wetland soils to compaction.

1. Improve channel capacities to minimize restrictions on tidal input.

2. Establish substrate elevations for a 1.5 acre pond conducive to open water habitat in the freshwater marsh.

3. Remove fill at drying shed area to expose native soils and establish elevations favorable to wetland development.

4. Design proposed improvements to minimize grading and equipment operation within existing marsh areas.

5. Utilize construction methods that minimize compaction (e.g. dragline, crawler tractor). Utilize hand ditching where feasible.

4.22 Hydrology

Tidal influx and runoff within the Palco Marsh are inhibited by a faulty tide gate, inadequately sized and improperly placed water exchange pipes, and inadequately sized channels for internal water distribution. Groundwater conditions appear favorable for establishment of freshwater and brackish marsh systems. Flooding conditions within the Marsh are primarily due to restriction in run-off drainage from the site. Water quality problems resulting from on-site conditions will improve with increased tidal circulation.

1. Improve tidal circulation to Palco Marsh by removing existing tide gate and install larger capacity pipes at a lower elevation across the existing City maintenance road.

2. Make selected improvements to existing drainage channels and construct new drainage channels to improve circulation within the salt marsh area.

3. Construct weirs, culverts and other water control devices as needed to maintain hydrologic conditions favorable to planned vegetation improvements.

4. Design new water exchange improvements to avoid increasing flood event water elevations.

5. Design channels and weirs to promote scour of natural drainage features in the Marsh that have filled with sediment.

4.23 Vegetation

Salt marsh vegetation west of the railroad is healthy and diverse; east of the tracks, it is degraded and low in diversity due to inadequate tidal circulation and insufficient runoff drainage. This has caused large areas of pickleweed and salt-

grass to die back, leaving bare mudflat areas. Brackish marsh vegetation is highly diversified in some areas. Existing freshwater marsh vegetation is dense and has choked almost all open-water areas. Riparian vegetation along the east side of the marsh site is encroaching westward into the freshwater marsh habitat. Freshwater marsh vegetation distribution is at least partially fed by near surface groundwater resources. The drying shed area and other upland areas presently supports no wetland habitats. Invasive exotic species have become established in several locations in the marsh, as well as upland areas. Populations of rare plant species, located outside of degraded salt marsh areas and west of the railroad right-of-way, will not be affected by. Enhancement activities should encourage further development.

1. Maintain existing overall vegetation patterns within the Palco Marsh complex.

2. Improve degraded salt marsh conditions in the Palco Marsh to pre-1981 conditions or better by hydraulic improvements and natural plant propagation.

3. Provide approximately 1.5 acres of submergent marsh (open water) area in existing cattail dominated habitats and in the Palco Marsh.

4. Rehabilitate RR Marsh to provide salt marsh habitat adjacent to existing salt/brackish marsh habitat.

5. Excavate existing upland areas along railroad spur to RR Marsh habitat.

6. Provide riparian screening along roadways and commercial development.

7. Reduce or eliminate existing invasive exotic plant species populations to the extent feasible.

4.24 Wildlife

Wildlife use of salt marsh habitat at the Palco Marsh is extremely low, both in numbers and diversity. This is primarily due to the lack of adequate invertebrate food sources resulting from poor tidal circulation. Use of freshwater/brackish marsh habitat by wildlife is low due to the lack of open water areas. None of these areas are receiving the amount of use by wildlife that would be expected, given its location to the Bay and surrounding areas.

1. Provide open water areas for waterfowl habitat.

2. Improve density of salt marsh vegetation in Palco Marsh as habitat for aquatic invertebrates.

3. Limit public access improvements to margin areas and design to limit wildlife disturbance.

4. Design channel improvements and ditching to limit public access into wetland areas.

5. Develop and adopt area use regulations which limit disturbances which adversely affect wildlife use.

6. Provide approximately 1.5 acres of submergent marsh (open water) area in existing cattail dominated habitats.

7. Provide riparian screening along roadways and commercial development.

8. Design marsh areas in the paved drying shed area to maximize wildlife habitat values by removing paving, fill, grading and providing an adequate water source.

4.25 Public Access

Existing use of site varies widely in type, amount and occurrance. The enhancement of the proposed marsh will eventually result in increasing the number of visitors to the area. Many current uses now conflict with anticipated enhancement goals. Access routes are undefined, unimproved and abundant, allowing for degradation of marsh habitats and wildlife disturbance.

1. Encourage amounts and types of public use which are consistent with enhancement goals in areas which are compatible with wildlife habitat use.

2. Provide controlled public access and wildlife viewing areas consistent with the maintenance of marsh resource values.

3. Develop a small parking area and interpretive signs at Vigo Street just east of the marsh complex.

4. Develop a small parking area, trails, viewing areas and picnic sites at the foot of Del Norte Street.

4.26 Maintenance

As the project's maintenance would be the responsibility of the City of Eureka, maintenance costs should be minimized.

1. Design improvements to minimize maintenance requirements and law enforcement demands.

2. Provide attractive public access and viewing areas by initially clearing debris followed with regular maintenance.

3. Perform preventive maintenance as needed to maintain target habitats and prevent re-invasion by exotic plant species of vegetation.

4. Upon project construction, institute a program to monitor restoration progress, identify shortfalls and take corrective action.

4.3 Proposed Enhancement Plan Summary

The improvements necessary to accomplish the previously listed goals include both improving conditions in the existing marshes, as well as creating wetlands in non-marsh areas. The following is a summary of the main enhancement implementations by project area. A map delineating the improvements (Map 1) is located at the back of this report. Associated cost estimates are listed in Appendix C.

4.31 Palco Marsh Complex

1. Remove tide gate.
2. Construct an inverted siphon under the City maintenance dike.
3. Excavate perimeter channel improvements, extend hand dug channels as necessary.
4. Construct culverts under maintenance dike to allow tidal influx to RR Marsh.
5. Remove railroad spur and grade to marsh elevations.
6. Clean out channel between RR Marsh and culvert under railroad tracks.
7. Remove exotic vegetation and excavate channels in RR Marsh.
8. Replant excavated salt marsh vegetation in Palco Marsh, RR Marsh and along channels, as appropriate.
9. Excavate permanent open water area in cattail/common rush vegetated areas; provide resting islands; provide low dike around open water area; provide adjustable weir.
10. Elevate and maintain existing maintenance dike for public access and periodic maintenance.
11. Remove exotic plants initially, maintain eradication yearly.
12. Plant riparian buffer areas along road edges, adjacent properties and around parking area for screening.
13. Access improvements
    - gravel trail, gates, signs and benches along maintenance dike and Vigo Street;
    - sidewalks along Del Norte Street, Felt Street and Broadway Avenue.

4.32 Paved Drying Shed Area

1. Remove drying sheds and other debris.
2. Remove 40'wide strip of paving outside of proposed parking area, berm and plant with riparian buffer.
3. Provide vehicular access barriers where necessary.
4. Use remaining paved area for drying dredge spoils from excavation of channels and open water area.
5. Retain majority of paved area to be removed as part of "Phase 2" of project.

4.33 Area West of Railroad Tracks

1. Provide public access improvements including parking, sidewalks information kiosk, picnic area, trail, and an elevated viewing area.
2. Provide maintenance access for periodic removal of sediment from drainage channel in the least impacting manner.
3. Provide a temporary dredge spoils drying area adjacent to Del Norte Street.

4.4 Alternatives Considered

Several alternatives were looked at within the Palco Marsh complex but not chosen for this project. These included major elevation changes in the existing marsh as well as major shifts in the amounts of different habitat types. Since the goal was to enhance existing wetland systems, these went beyond what was necessary. In addition, large scale restoration projects not only disrupt existing wildlife use but also have questionable success.

Several alternatives were considered for the paved area that involved grading for varying degrees of salt/brackish or freshwater marsh habitats, depending on the source of water utilized. Several nearby water sources, including both tidal and freshwater from the Bayshore Mall restoration areas and freshwater from Maurer Marsh, are on private lands and currently not available. In addition, on-site groundwater resources are approximately five feet below grade. Potential flooding problems with the Bayshore Mall project, as well as untested success of the restoration projects (including this project), indicated that more information was necessary before obtaining the best utilization of the surrounding areas. The relative costs associated with removal of large amounts of paving and fill, in comparison with costs associated with the rest of this project, also dictate delay of major enhancement efforts. As "Parcel 4", the adjacent coastal dependent industrial parcel is developed, wetland mitigation requirements could be partially fulfilled at this location. For these reasons, minimum excavation/grading is presently proposed within this area. The project will become fully planned as some of the above mentioned constraints are

removed. This should be undertaken as "Phase 2" for this project. (See Section 4.9)

Other opportunities for providing additional tidal influx to Palco Marsh included constructing a new or larger culvert under the railroad right-of-way. Major grading would be necessary in the Bay, as well as the Marsh to take advantage of any benefits. A drainage structure, at the northwest corner of the Palco Marsh, also would allow additional but limited opportunities for tidal and freshwater runoff influence in the Marsh. This had the potential of causing the storm drain system to back-up during peak storm flows. In addition, a more centralized location for tidal exchange seemed more appropriate for meeting the goals of this project. This drainage structure would be an option in the future if site conditions or management goals warranted. Another option was to keep the RR Marsh drainage separate from the Palco Marsh. Tidal influx is now partially blocked by the 36 inch sewer line that crosses the channel between the railroad right-of way and the maintenance dike. Tidal input would be increased if flow lines of the ditch were excavated below the sewer line. This option may be beneficial to the Bayshore Mall Restoration Project and should be further developed as part of Phase 2 of this project.

Additional open water areas could be provided in the interior of the fresh/brackish marsh without use of heavy equipment. This would be accomplished by utilizing a technique, not common in Coastal California, but used extensively in the Mid-West and Northeast portions of the United States to open marsh areas for wildlife use. This involves placing small amounts of Ammonia Nitrate fertilizer in various locations and detonating it with an electric charge. This method could create several 20 x 20 foot freshwater pond "holes", which could have a life expectancy of 10-15 years before infilling again. This is a low cost method which is less intrusive than heavy equipment use. State certification for use of explosives is required. This alternative was not further pursued though its application at this site seemed appropriate. Additional research as to its applicability to this area should be pursued by an appropriate resource agency, and if feasible, applied to this site.

4.5 Proposed Enhancement Plan - Construction Aspects

The Enhancement Plan has been designed to minimize construction impacts on non-involved areas of the Marsh. This included avoiding the use of heavy equipment in the middle of the marsh. Except for the excavation of the open-water area in the infilled freshwater marsh and the central inlet channel, most of the proposed improvements can be completed from adjacent upland areas.

Overall clean-up of the site should be completed and temporary access controls should be installed as soon as possible. Signs describing the future enhancements efforts should be installed at

the existing access points: Vigo and Del Norte Streets. Monitoring programs should begin baseline data collection prior to construction.

4.51 Palco Marsh Complex

The tide gate at the Bay will be removed after the construction phase of the project. Until then, and just prior to construction, the gate should be put into operating condition and left in place to temporarily eliminate tidal input during construction. The flapgate should be stored for temporarily reinstallment if required for maintenance purposes.

Construction of the inverted siphon will involve placing two 18 inch culverts under the sewer lines which are enclosed in the City maintenance dike. The flow line will be approximately at 0.0 foot (City Datum). A weir box will be placed at both ends of the 18 inch pipes to allow manipulation of water levels. These boxes will be covered with a debris screen for public safety purposes. Since the flow line elevation in the culvert that brings in tidal input is at 3.7 foot, all areas in this structure and within the Marsh below 3.7 foot elevation will be inundated.

The weirs will be adjustable from 3.0 to 7.0+ foot elevation, allowing a wide range of marsh management goals. Initially the weir should be set at 3.0 feet elevation. This allows the maximum amount of both tidal input and run-off drainage.

Channels will be constructed with flow lines beginning at about 3.0 foot elevation in the marsh, one towards the east, 200 feet, and two others adjacent to the maintenance dike; one north for 500 feet and one south to Vigo Street, 850 feet. Channels will be approximately 3 foot wide. Flow lines will gently slope from 3.0 feet at the inlet to 4.5 feet at the channel ends. Sides will be sloped at 2:1. Smaller channels, two foot wide, one foot deep (4.0-4.5 foot elevation) will be hand dug in locations where several existing channels have filled with sediment, as indicated on on the Enhancement Plan Map.

The hydraulic modeling, developed as part of the site analysis for this project, indicates that these improvements will increase both tidal fluctuation into the Marsh and run-off drainage from the Marsh. Figures 9 a, b, c, and d (pages 4-9, 4-10) depict both present and expected water level fluctuation during a normal tidal cycle and during periods of storm run-off. Figure 9a shows a typical tidal fluctuation in the Bay overlaid with the existing muted tidal prism, as well as the tidal variation expected from the proposed improvements. As depicted, the Marsh will be subject to a diurnal tidal cycle and in-phase with the tides occurring in the Bay. Maximum water levels will remain approximately where they currently exist. Minimum water levels will approach channel bottoms elevations. Table 6 compares tidal water elevations, volume and inlet velocities for both present and proposed

conditions. Figure 9b represents the response of the marsh to a "two-year flood". As depicted, the present conditions depict an extended drainage time required (58 hours after the peak) before reaching normal water surface elevation. With the proposed improvements this time is reduced to 14 hours. Figure 9c depicts the response of the marsh to extreme flooding events for both present conditions and with proposed improvements. Flood level water elevations will not be significantly increased and should be somewhat lower than depicted on the graphs; the higher levels shown represent a six hour precipitation event coinciding with a 10 foot tidal surge. Proposed improvements will improve drainage under most flood conditions. Though peak water elevations will remain the same, run-off will be discharged from the site at a more expedient rate. Table 7 compares response of the marsh to the proposed improvements.

Figure 9d depicts modeling results, which represented conditions occurring in February, 1986 (See Section 3.32). With the proposed improvements, water levels in the Marsh would respond by rising and falling after each precipitation event, drastically reducing the opportunity for water levels to build up and subsequently flood adjacent properties.

A 1.5 acre open water area will be created in the southeast corner of the Marsh which will replace dominant cattail vegetated areas. The pond will be "L" shaped, approximately 100 feet across with several island areas. Bottom elevations will be at 0.0 feet sloping upwards to existing elevations of 6.0 feet. An eight to ten foot wide dike, at approximately 7.0 foot elevation (6-12 inches high) will be placed around the north, west and south perimeter. Natural overflow will occur over the dike. An adjustable weir will be installed at the western end of the open water area to allow adjustable pond heights between 3 and 7 feet. This design incorporates measures that will lessen the current problem of backflooding into the Mauer Marsh and improve the draingage during flood conditions.

Excessively wet conditions in the open water area may require temporary fill to be placed in the construction area and utilized as a road to transport materials from the area. Fill materials will come from the paved area. This fill would be removed as surrounding excavation is completed. Several islands will be left intact as resting islands for wildlife. Fill that is removed may be utilized for the raised viewing platform on the Del Norte Street Peninsula.

Revegetation within the salt marsh will be limited, for the most part, to along the upper edges of the newly constructed channels. This will involve planting salvaged pickleweed and salt grass from excavated areas. The interior areas of the salt marsh, which have experienced die-back of vegetation, may take a year or two to have conditions conducive to revegetation. Natural revegetation should be adequate once healthy conditions return.

Salt marsh areas will be allowed to develop naturally under the influence of tidal circulation in the site and natural seed dispersal from the surrounding areas. Natural development of wetland vegetation should be favored by slow water currents and nearness of seed sources. Target species include pickleweed, saltgrass, jaumea and arrow grass. Water level management (pre-soaking of seeds) is an option that can be undertaken by the managing entity once the project is underway and specific information is available. This will be done by periodic adjustment of the weir structure at the inlet channel. The open water area will be influenced by surrounding cattail and common rush vegetation surrounding the pond. Steep sloping sides will prevent infilling by cattails, preserving the open water aspect. Sources of hydracotyl and other submergent vegetation exist in the remnant pond on the project site.

Plantings of willow and alder will occur at various locations for screening and buffering adjacent land uses. Solid plantings will occur along Felt and Del Norte Streets. Periodic clumps will be planted along the north side of Vigo Street, the east side of the maintenance dike, and in the picnic area on the Del Norte Street Peninsula.

Cuttings will consist of three sizes depending on soil moisture conditions: 1/2", 1" and 2" diameters, approximately 18 inches long, and should be planted at a density of approximately 2,000 per acre, spaced every 4 feet. Red alders should be interdispersed in the plantings to provide variation in canopy height, particularly near public access areas.

The four exotic species of concern should be removed as necessary and monitored yearly. This will prohibit re-establishment. The extent of scotch and/or french broom is limited and can easily be removed by hand grubbing plants. Care should be taken to remove this plant with the roots prior to seed development. Removal during flowering season will aid in identification and location of plant.

The removal of pampas grass presents a more difficult problem; but if done with care, will cut down on the intensity of growth now occurring. The majority of the pampas grass occurs along the maintenance dike, the railroad right-of-way, the northwest sector of Palco Marsh, and/or the Del Norte Street Peninsula. Seed stalks should be removed prior to major disturbance of the plant. Care should be taken not to discharge the wind dispersed seeds. The majority of the leaves should be cut down to ground level and rock salt should be poured onto the remaining clump.

Specimens located on the peninsula at the marsh edge and along the side of the maintenance dike can be removed by a backhoe, removing the rootball intact. The specimens located along the top of the maintenance dike may be scraped or dug out with special care not to disturb the underlying water or sewer lines. The specimens scraped, as well as those located on the railroad right-of-way will probably require additional hand removal of

plants. All holes should be examined for evidence of complete removal of the rootball and subsequently filled with the appropriate materials (clean, upland soil/gravel).

Removal of the common reed specimens present also requires special care. Though specimens are, for the most part, accessible by backhoe, special care is necessary to assure complete removal. Seed stems should be removed prior to disturbance and disposed off-site with care not to disperse seeds (burning on-site is an option). Specimens should be cut down and treated with rock salt and later, where appropriate, removed by backhoe. Visual checking and hand clearing should follow. Surrounding soils, which may contain dormant seeds, should also be scraped and removed off-site. Since this plant propagates from rhizomes, special care to remove all roots is necessary. Holes left from removal of plants, if not part of designed excavation plans, should be filled so as not to provide ponding for mosquito reproduction. Since this plant seems to be limited to stressed brackish marsh habitats, increasing tidal actions should eliminate this concern.

Gravel fill will be placed on top of the maintenance dike to a minimum elevation of 8.5 feet and will serve as the main pedestrian access to the site. Public access will be available from the Vigo Street entrance, along the paved road and unto the gravelled surface trail to Del Norte Street. Each end of the maintenance dike will have a walk-around entrance gate that allows pedestrian access, as well as a locked gate for maintenance purposes. Project identification and usage signs will be posted at each entrance. Eight benches will be placed at various locations between the Vigo Street entrance and Del Norte Street.

4.52 Paved Dry Shed Area / Railroad Marsh

The drying sheds should be sold as surplus property or put out to bid for salvage/removal. Other debris, left from use of the mill site, including remnants of a burned shed, fencing and the railroad spur should also be removed.

Directly at the end of Vigo Street a 100 x 200 foot paved area will be reserved for parking. A 40 foot wide strip of paving and fill will be removed from the south and west sides of the parking area to construct a barrier for vehicular access onto the remaining paved areas. This barrier will consist of a combination of berms, ditches and willow plantings. If poles were available from the salvaged drying sheds, these could be used as either bumper logs or as fence posts for an additional access barrier. A locked gate will allow access to the remaining paved area for future enhancement and maintenance purposes. Vehicular access from Mill Street to the paved area will be discouraged by a combination of fencing, berms and plantings.

The RR Marsh will be excavated and initially used as a settling basin for drainage from dredge spoils. The drainage ditch that

currently exists between the railroad right-of-way and the maintenance dike will be cleared of debris and graded to 4.5 foot elevation for a distance of 400 feet. Two 12 inch culverts will be placed under the maintenance dike just south of where the sewer line crosses the ditch. New channels in the RR Marsh will be excavated to 4.0 foot elevation, the railroad spur will be graded from 5.5 foot to 8.0 foot elevation. A channel will extend from the RR Marsh south adjacent to the railroad right-of-way 300 feet. This would limit vehicular access to or from the railroad right-of-way.

The unused, paved area could serve as a temporary area for drying and storing channel dredgings from this project. This will be particularly important for handling the saturated, organic soils removed from the freshwater open water pond. The area would be bermed to direct drainage towards the RR Marsh.

4.53 West of Railroad Tracks

Improvements west of the railroad right-of-way are limited to that portion located on or adjacent to the Del Norte Street Peninsula. A twenty spaced paved parking area will be provided off the end of Del Norte Street to be used as access to this project, as well as the Del Norte Street pier, if and when reconstruction of that project occurs. Sidewalks will extend to the end of Del Norte Street. An information kiosk will provide educational information of the project site. Curbing and fencing will limit vehicular access to the paved parking and street. A half acre flat area will be designated as a picnic/play area just south of the parking area and will be planted with native trees and shrubs around its perimeter. Typical species will include wax myrtle, ceanothus, shore pine, willows and alders. Restrooms are not being proposed as part of this project but allowances have been made to locate them adjacent to the parking area. An area directly east of the parking area will be reserved for future parking needs. Non-saline soils and fill removed from the paved drying shed area will be deposited towards the southern end of the peninsula to form a 4 foot high viewing area.

The existing drainage channel/slough between the peninsula and the railroad right-of-way tends to fill in, and needs periodic dredging. Bank slumping also occurs along both sides of the channel. According to City staff, maintenance of the channel occurs approximately every ten years. Dredgings from the channel have periodically been stored in an area adjacent to Del Norte Street and removed when dry.

A maintenance road will be constructed along the channel and connect to the existing gravelled roadway.This will be used as a trail for pedestrian use. A four foot wide trail will extend onto the viewing area mound. A steep bank, at the southern end of the viewing mound, in addition to blackberry or willow plantings, should discourage access into the fragile, narrow salt marsh bluffs at the southern end of the peninsula.

4.6 Operation/Maintenance

Facilities required for safe and effective operation and maintenance of the wetland site should be monitored and repaired as needed. Facilities to be maintained include the inverted siphon/water exchange improvements. This will include periodic sediment removal from both sides of the culvert and potential flushing of pipes. This should be inspected and corrected as needed previous to each rainy season and after each substantial storm event. Weir adjustment may also be periodically altered to obtain a preferred management goal. Other facilities to be maintained include the maintenance road, Vigo Street, parking areas, fencing, gates, signs, and culverts. Collection of litter and trash will be periodically needed, as well as street sweeping the parking areas and brushing the road sides.

4.7 Monitoring

Monitoring the site for hydraulics, vegetation, invertebrates, wildlife and mosquitoes will be necessary for several years after construction is completed to ensure that enhancement goals are satisfied and to develop a management plan for the area.

Monitoring should started prior to the construction phase to develop baseline conditions. This will be necessary to determine changes as a result of this project. In addition, yearly reports should be compiled to compare findings in the various mentioned disciplines described below

Hydraulics

1. Monitor water levels in the marsh over a complete tidal cycle quarterly, and at least once during or after a two year storm event to compare with hydraulic modeling results. Observe flow patterns and velocities, identify restrictions or flow problems and adjust weirs to decrease/increase velocities.
2. Utilize results to fine tune the system to meet management goals.

Anticipated Schedule: 10 person-days per year, 2 years

Vegetation

1. Prior to construction, establish representative test plots in existing stressed and healthy salt marsh areas. Inventory for species presence and density prior to improvements. Recheck and evaluate once a year, for years 1, 2 and 4. If significant progress does not occur after year 4, make adjustments consistent with wildlife use analysis.
2. Yearly obtain and review aerial photographs of the project site, as well as adjacent wetlands .

Anticipated Schedule: 10-15 person-days per year, 4 years

Invertebrates

1. Prior to construction, establish representative test plots in existing stressed and healthy salt marsh areas. Inventory for species presence and abundance prior to improvements. Recheck and evaluate after year 1, 2 and 4. Correlate with wildlife use of the site, particularly during fall migration of shorebirds.
2. Locate and monitor development of rare species habitat range.

Anticipated schedule: 5 person-days per year, 4 years

Wildlife

1. Starting in the fall of 1987, census the area seasonally for 3 years, at different times of day and tidal cycle. Correlate information with local birdwatchers for changes in wildlife use. Identify available food source development.

Anticipated schedule: 10-15 person-days per year, 3 years

Mosquitoes

1. Review recommendations from County Health Department's monitoring of site to identify problem areas. Incorporate needs into management goals to minimize problem.

CALIFORNIA COASTAL COMMISSION
NORTH COAST AREA
631 HOWARD STREET, 4TH FLOOR
SAN FRANCISCO, CA 94105
(415) 543-8555

W11d

SFS

Filed: May 22, 1990
49th Day: July 10, 1990
180th Day: November 27, 1990
Staff: Linda Locklin
Staff Report: May 25, 1990
Hearing Date: June 13, 1990
Commission Action:

STAFF REPORT: CONSENT CALENDAR

APPLICATION NO.: 1-90-104

APPLICANT: CITY OF EUREKA

PROJECT LOCATION: PALCO Marsh, between Humboldt Bay and U.S. 101, south of Del Norte Street, City of Eureka

PROJECT DESCRIPTION: Enhancement of 86 acres of fresh and saltwater marsh, AND public access improvements

Lot area:	113 acres
Pavement coverage:	6 acres
Parking spaces:	50
Zoning:	Natural Resources
Plan designation:	Natural Resources

LOCAL APPROVALS RECEIVED: City of Eureka Negative Declaration granted, HBHRCD permit granted, U.S. Corps of Engineers permit pending

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STAFF RECOMMENDATION:

The staff recommends that the Commission adopt the following resolution:

I. Approval with Conditions.

The Commission hereby grants a permit, subject to the conditions below, for the proposed development on the grounds that the development will be in conformity with the provisions of Chapter 3 of the California Coastal Act of 1976 is located between the sea and the first public road nearest the shoreline and is in conformance with the public access and recreational policies of Chapter 3 of the Coastal Act, and will not have any significant adverse impacts on the environment within the meaning of the California Environmental Quality Act.

II. Standard Conditions. See attached

III. Special Conditions.

EXHIBIT NO. 7
APPLICATION NO.
1-90-104-A2 - CITY OF EUREKA
ORIGINAL COASTAL DEVELOPMENT PERMIT NO. 1-90-104 STAFF REPORT
(1 of 10)

1. U.S. ARMY CORPS OF ENGINEERS PERMIT: PRIOR TO COMMENCEMENT OF CONSTRUCTION, permittee shall provide to the Executive Director a copy of a U.S. Army Corps of Engineers permit, or letter of permission, or evidence that no Corps permit is necessary.

2. PRIOR TO COMMENCEMENT OF CONSTRUCTION, permittee shall identify the agency or non-profit group that is responsible for implementing and managing the PALCO Marsh, to the Executive Director.

3. Within 30 days of completion of the enhancement plan, the City shall erect, and permanently maintain, two public access signs. Both will be located adjacent to U.S. 101, one at Vigo Street and one at Del Norte Street.

4. Any changes to the approved enhancement plan, including construction of the pond north of Vigo Street and removal of the fill under the pole sheds, shall require an amendment to this coastal development permit.

IV. Findings and Declarations.

The Commission hereby finds and declares:

1. Project History The PALCO Marsh has been long recognized as an area of special importance. In 1980, the Corps of Engineers completed an exhaustive inventory of Humboldt Bay wetlands and designated areas into categories based on their resource values (Humboldt Bay Wetlands Review and Baylands Analysis, Shapiro, 1980). The PALCO Marsh project area was designated in this report as an "Area of Importance" because of its integral part of the Humboldt Bay ecosystem. The Corps determined that potential destruction or alteration of this area should be discouraged because of its biological productivity, the habitat it provides for waterfowl, herons and egrets, its storm and floodwater storage functions and its archaeological sensitivity.

The Commission included PALCO Marsh on its list of priority public acquisition sites and staff has supported the City's application for funds to acquire and enhance the site.

The City of Eureka certified Local Coastal Program proposes that PALCO Marsh be protected and enhanced. The State Coastal Conservancy had been interested in purchasing the marsh complex for a number of years, and in 1985 the agency provided the City $610,000 to purchase the marsh and the adjacent uplands from the Pacific Lumber Company. The Conservancy also funded a $30,000 restoration and enhancement plan, plus $900,000 to implement the plan. It is this restoration and enhancement plan that is the subject of this permit application.

2. Site/Project Description

The PALCO Marsh project area includes seven parcels totalling 113.6 acres that

are located on the eastern shoreline of Humboldt Bay near the southern edge of the City of Eureka. Through a series of natural and human-induced events, the resources of the area have suffered a gradual loss of natural and scenic values. During the mid 1800's, the project area was wetland (probably saltmarsh) with a narrow bank of shallow tidal flats. By 1870, most of the area south of Vigo Street was diked and used as pastureland. In 1901, the Northwest Pacific Railroad was completed, which restricted, but did not eliminate tidal influence eastward into the marsh. By 1927, much of the area west of the railroad had been filled and was used for industrial activities. Since 1944, numerous small fills have encroached on the marshes, industrial and commercial uses.

The project area includes an extremely diverse wetland ecosystem with salt, brackish and fresh marsh surrounded by swamp and riparian vegetation and grassy upland areas. Del Norte Street forms the northern boundary of the project site. Railroad tracks owned by Northwestern Pacific railroad divide the project area into three sections: a 40 acre marsh complex; a shoreline strip; and a filled and paved area which contains two large pole buildings.

The marsh complex is located at the northern boundary of the project area, east of the railroad tracks between Del Norte and Vigo Streets. The marsh contains saltmarsh dominated by saltgrass and jaumea, brackish marsh with rushes and sedges, and freshwater marsh with water parsley and scattered stands of cattails. The marsh provides habitat for a wide variety of wildlife species. Shorebirds are often seen feeding in the low areas of the marsh and nearby mudflats. Swallows and raptors (especially marsh hawks and kites) hunt over the marsh. The fresh marshes provide habitat for red-wing blackbirds, marsh wrens and bitterns. The marsh provides important resting and feeding areas for a wide variety of migratory birds including waterfowl and shorebirds.

The shoreline strip tapers gently from high elevation grassland at Del Norte Street to low elevation salt and brackish marsh and mudflats in its central portion. It rises again to upland at the southern project boundary where the concrete foundations of several former buildings are still evident. In the mudflats, lines of pilings are all that remain of docks and a railroad trestle that once serviced Pacific Lumber Company's bustling lumber yard.

At the foot of Del Norte Street, adjacent to the project area, is a pier which is currently in disrepair and inaccessible to the public. The City of Eureka is applying to the Wildlife Conservation Board for funds to restore the pier for public fishing. When that work is completed, the pier will become an integral part of the public improvements associated with PALCO.

The 13.3 acre parcel bounded by the railroad tracks, Mill Street and Vigo Street, includes 5.75 acres that have been filled and paved and contains two large pole buildings formerly used by Pacific Lumber Company as a log storage area. While the filled area is zoned "Coastal-Dependent Industrial" it was included as a part of the enhancement plan as the area can be restored and add to the overall enhancement. However, due to the high cost of removing this

fill, the City is postponing work in this area until funds are available. Thus, an amendment to this permit (for this Phase II work) will be required to remove this fill. The remaining 7.8 acres, zoned "Natural Resources", have been acquired and restored by General Growth, Inc., in conformance with the Commission's permit for the construction of Bayshore Mall (1-85-83). According to the City, General Growth has agreed to dedicate the restored 7.8 acres to the same management entity that will be responsible for the PALCO Marsh project.

3. Proposed Palco Marsh Enhancement Plan

The PALCO Marsh enhancement project would include enhancing tidal action to the forty acre marsh complex, removing fill on a 5.75 acre parcel (to be accomplished at a late date as Phase II) and assembling parcels of land to improve the resource management of the project area. The net result is enhancement of 86 acres of fresh and saltwater habitat; this project is not intended to be mitigation for any other project.

The proposed enhancement plan calls for increasing tidal action to the PALCO Marsh complex which currently receives restricted tidal action midway between its northern and southern boundary. Exotic species, such as pampas grass, would be removed and a buffer of native riparian vegetation would be planted to screen the marsh from adjacent roads and commercial development. Public access to and through the area is provided.

The City is currently establishing a nonprofit organization that would manage the PALCO Marsh project as well as other enhancement projects planned in the City of Eureka. If the City is unable to establish a nonprofit organization to perform this function, the Department of Fish and Game has expressed an interest in managing the project area. To ensure resources are managed, the project is conditioned to require identification of the management entity.

4. Wetlands

Section 30233 of the Coastal Act states:

> (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:
>
> (7) Restoration purposes.

The certified City of Eureka LCP contains the following pertinent policy.

> 5.12 (b) states that permissible wetland restoration projects include the PALCO on-site restoration and enhancement program that involves the emergent saltmarsh and wet horsepasture located near the northwestern Pacific Railroad right-of way. Such wetlands restoration and enhancement programs shall be prepared and implemented in consultation with the Department of Fish and Game, Coastal Commission, and State Coastal Conservancy.

As stated above, the proposed project will enhance 86 acres of fresh and salt water marsh. The project in not intended to act as mitigation for any other development impacts; it is solely an enhancement project. By increasing tidal action, removing exotic species and fill, and planting native species, the area will be greatly enhanced. Fresh, brackish, and saltwater habitats will attract a variety of wildlife.

Therefore, as submitted, the project meets the requirements of section 30233 of the Coastal Act, as it is an allowable use, does not create any environmental damage and there is no need to review alternative sites as this project is an enhancement, not mitigation.

The plan includes several years of monitoring (for hydraulics, vegetation, and invertebrates) and management is provided, however as noted above the management agency still must be identified. The Commission notes while the enhancement plan calls for the construction of a pond north of Vigo Street, the City is not requesting approval of that portion of enhancement plan at this time. This is due to recent information which revealed the presence of contaminated soil in this area. The Commission, and the City has approved an emergency permit to the adjacent landowner (Cummins 1-90-1G) to remove the contaminated (from oil and grease) soil. As the full scope of removal is still being researched, it is not known exactly how much soil will need to be removed in this area in and adjacent to the proposed pond. The City prefers to wait for the results of that study in order to determine how the soil removal will affect the pond construction. Thus, when that information is available, the City will apply to amend this permit to include the soil removal and pond construction.

5. Access

Historically the area has been used by the public. The proposed project will formalize those public use areas, and will direct the public to appropriate places, so as to not interfere with the wildlife habitat areas. Public access will be provided continuously through the site, from U.S. 101 east to the railroad tracks, north along the tracks and the bay front, and eventually over the water when funds become available to improve the Del Norte Street Pier.

Two parking lots, for 50 cars will be improved. However, there is no provision for public access signs from U.S. 101. In order to fully inform the public as to the location and availability of this area, the Commission finds it necessary to require public access signs at both Vigo and Del Norte Streets, where they intersect with U.S. 101.

As so conditioned, the project is consistent with Sections 30210-12 of the Coastal Act as public access will be protected and provided for.

6. CEQA/LCP

As noted above, the certified LCP provides for the enhancement of PALCO marsh. The plan has been carried out in accordance with the LCP requirements, in that both the conservancy and the Department of Fish and Game have reviewed and approved the project. Also as discussed above, the project is an enhancement plan and will improve sensitive resources. Therefore, it carries out the intent of the California Environmental Quality Act.

7151P
LL/mem/ltc

ATTACHMENT 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.

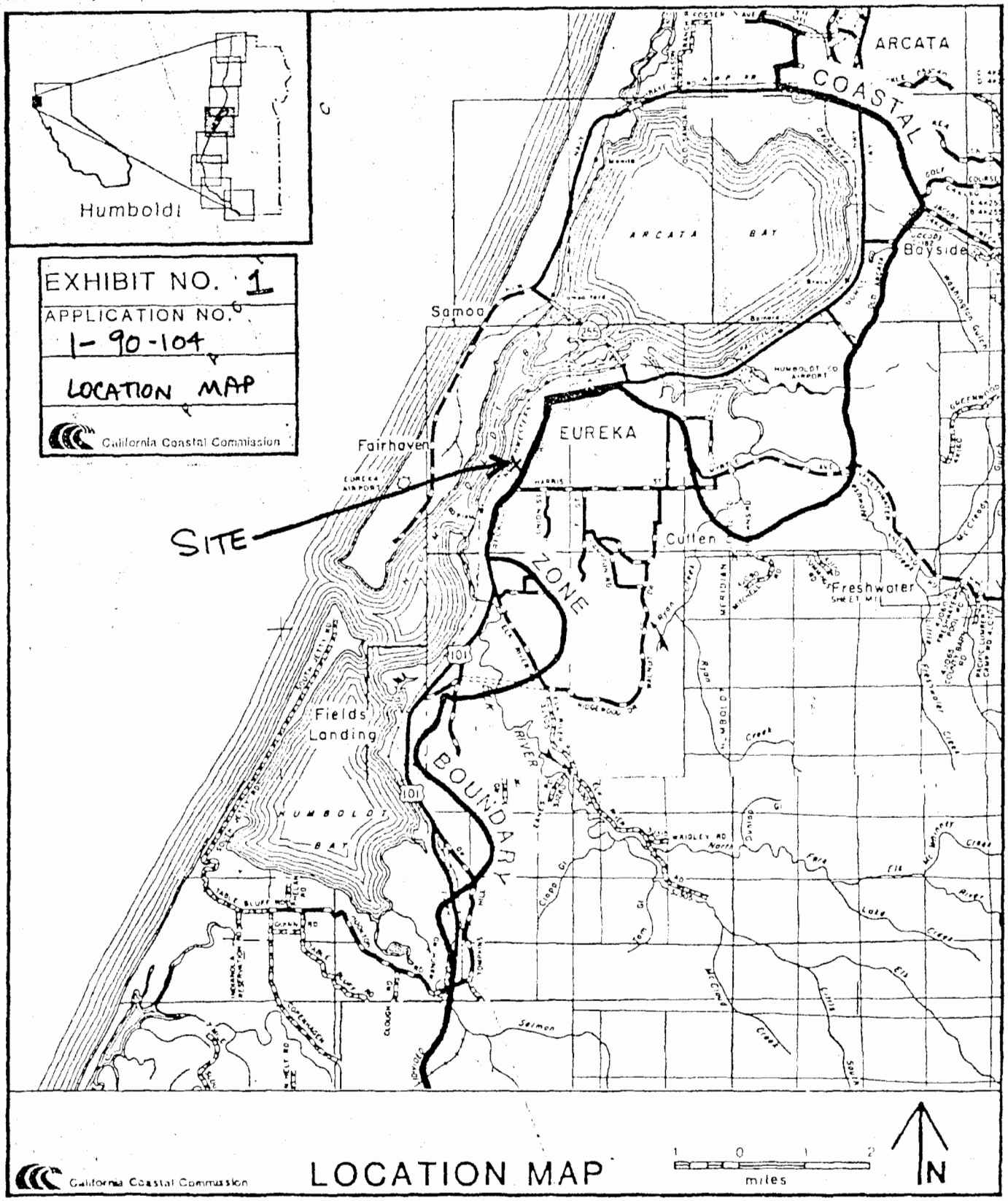
3. Compliance. All development must occur in strict compliance with the proposal as set forth in the application for permit, subject to any special conditions set forth below. Any deviation from the approved plans must be reviewed and approved by the staff and may require Commission approval.

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

5. Inspections. The Commission staff shall be allowed to inspect the site and the development during construction, subject to 24-hour advance notice.

6. 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.

7. 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.



County of Humboldt

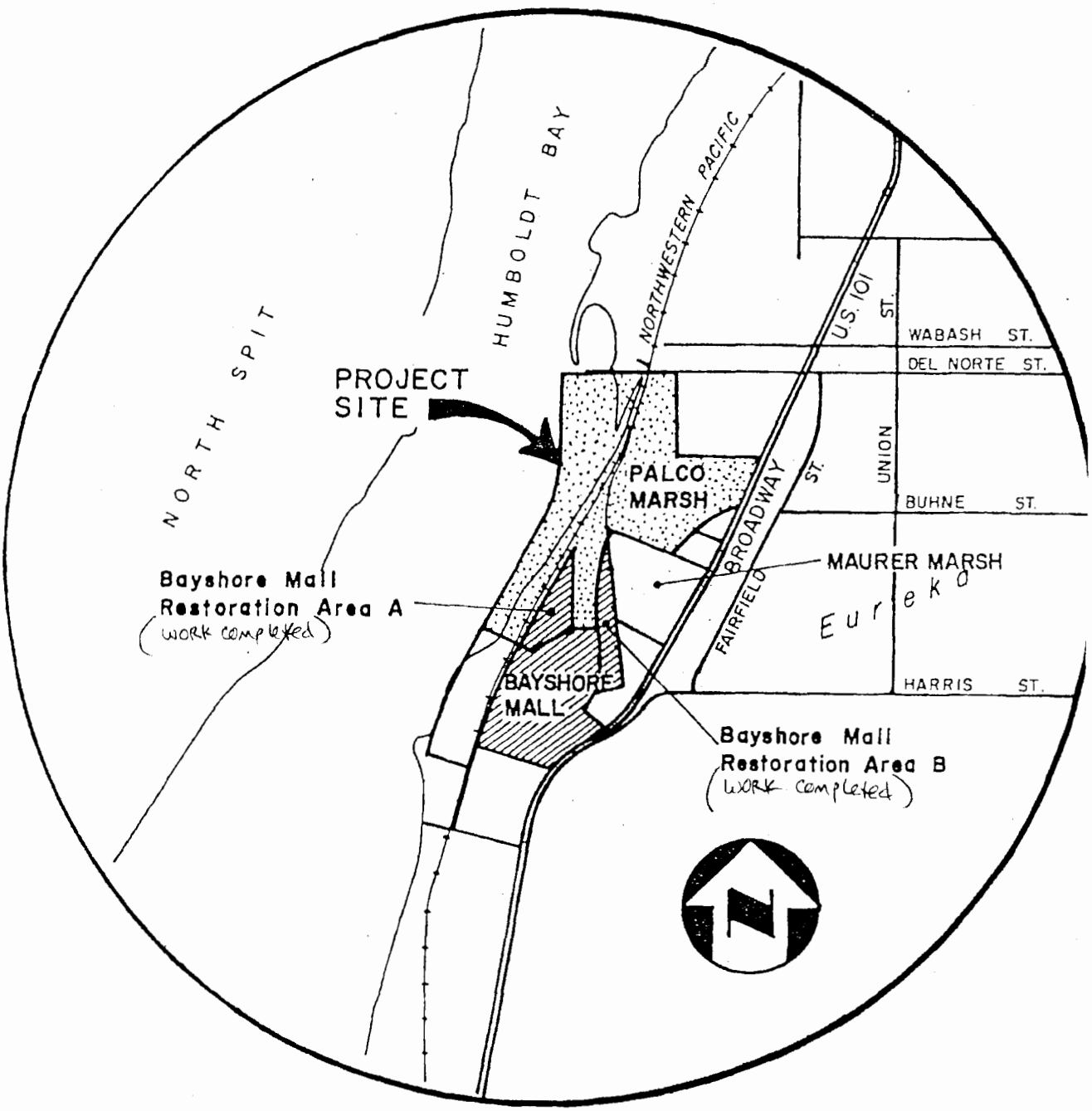
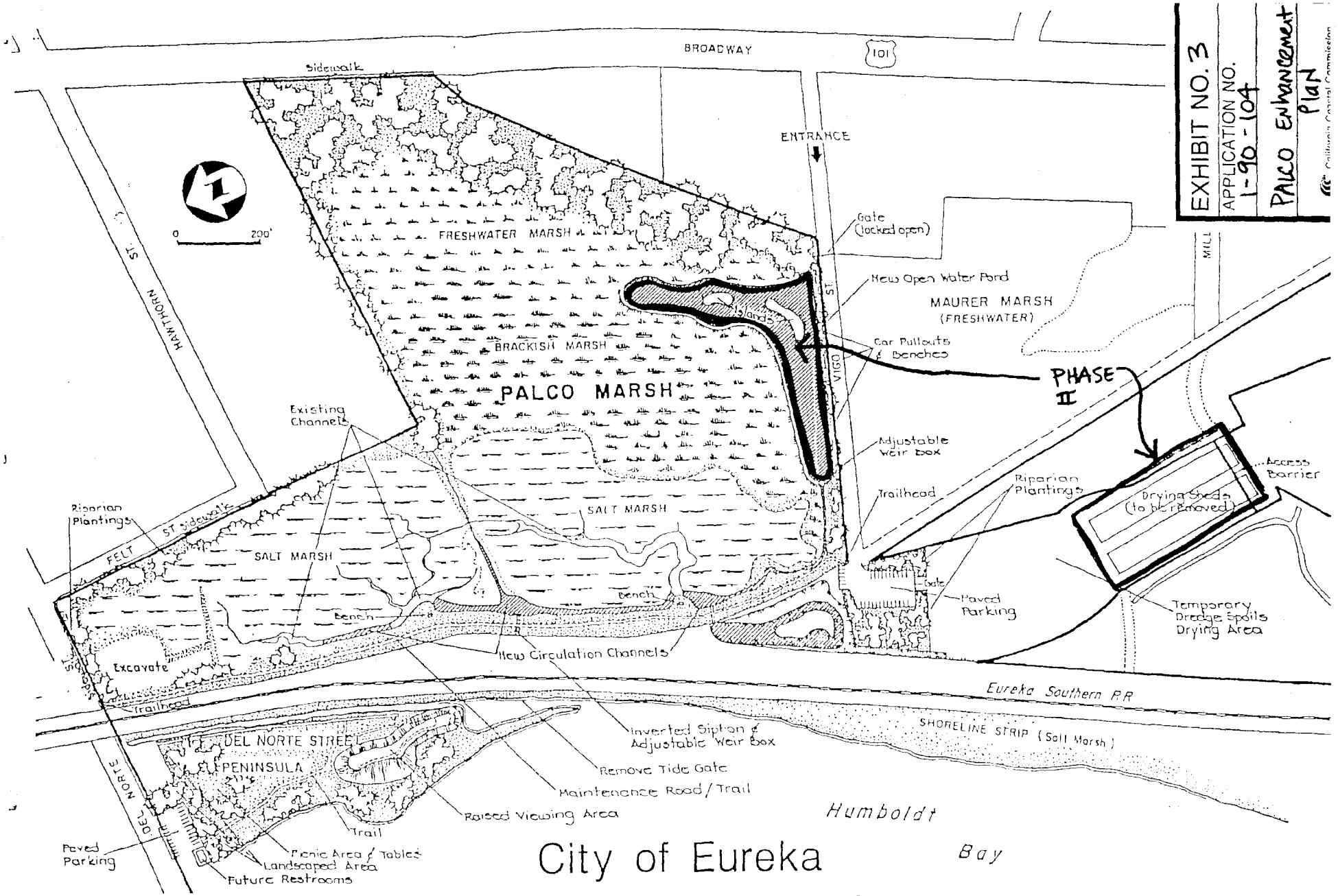


EXHIBIT NO. 2
APPLICATION NO. 1-90-104
Vicinity Map
California Coastal Commission



City of Eureka

PALCO MARSH ENHANCEMENT PLAN

CCC - CDP - MAY 1988

CITY OF EUREKA

and

CALIFORNIA COASTAL CONSERVANCY

PALCO MARSH ENHANCEMENT PLAN

PHASE II

MARCH, 1992

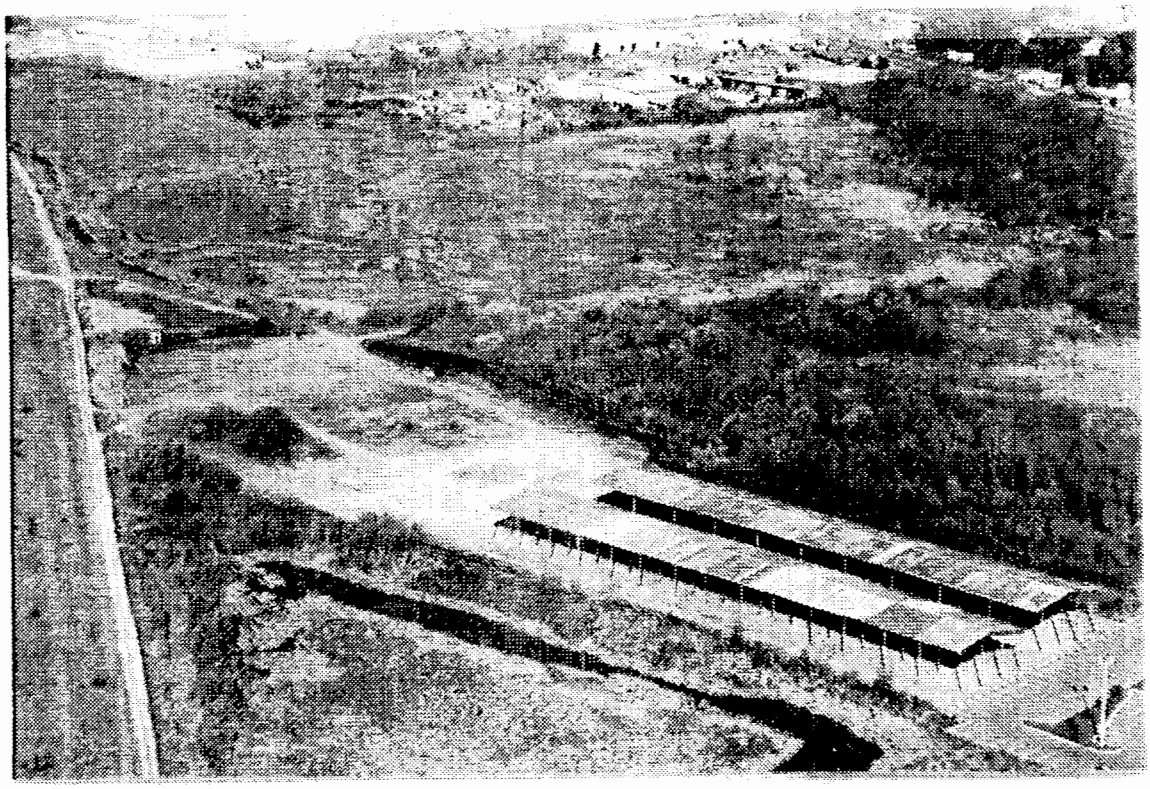


EXHIBIT NO. 8
APPLICATION NO.
1-90-104-A2
CITY OF EUREKA
EXCERPTS, *PALCO MARSH ENHANCEMENT PLAN - PHASE II* (1 of 2)

RISING SUN ENTERPRISES
PLANNING • PERMITTING • ENVIRONMENTAL CONSULTING
1864 Myrtle Avenue • Eureka, CA 95501 • (707) 445-2433

RECEIVED
APR 13 1992
CALIFORNIA COASTAL COMMISSION

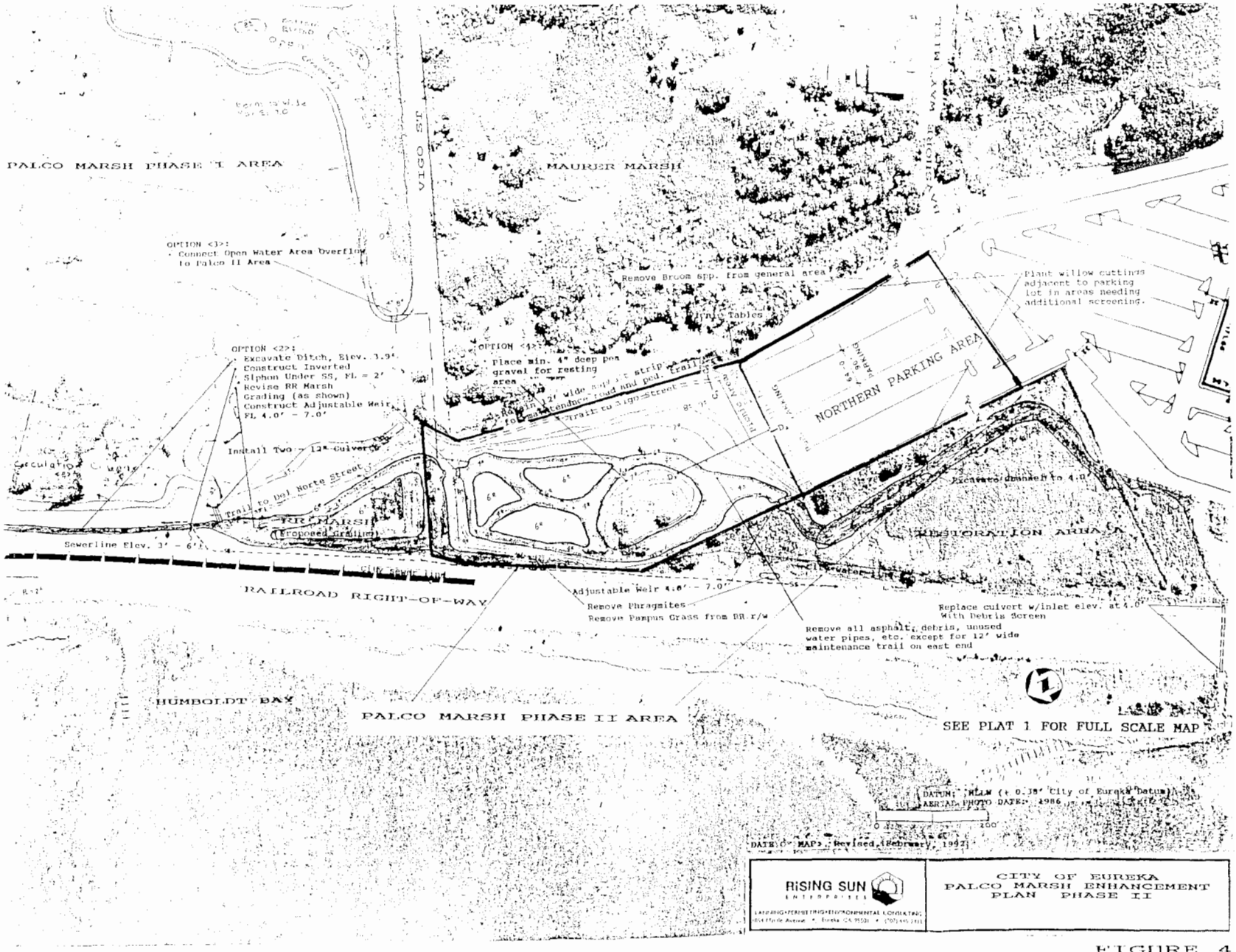

PALCO MARSH PHASE I AREA
MAURER MARSH
VIGO ST
OPTION <3>:
- Connect Open Water Area Overflow to Palco II Area
OPTION <2>:
Excavate Ditch, Elev. 3.9'
Construct Inverted Siphon Under SS, FL = 2'
Revise RR Marsh Grading (as shown)
Construct Adjustable Weir, FL 4.0' - 7.0'
Install Two - 12" Culverts
Remove Broom spp. from general area
OPTION <4>:
Place min. 4" deep pea gravel for resting area
Plant willow cuttings adjacent to parking lot in areas needing additional screening.
NORTHERN PARKING AREA
Trail to Del Norte Street
RR MARSH
(Proposed Grading)
Sewerline Elev. 3' - 6'
RAILROAD RIGHT-OF-WAY
Adjustable Weir 4.0' - 7.0'
Remove Phragmites
Remove Pampus Grass from RR r/w
Remove all asphalt, debris, unused water pipes, etc. except for 12' wide maintenance trail on east end
Replace culvert w/inlet elev. at 4.0' With Debris Screen
RESTORATION AREA A
HUMBOLDT BAY
PALCO MARSH PHASE II AREA
SEE PLAT 1 FOR FULL SCALE MAP
DATUM: MLLW (± 0.38' City of Eureka Datum)
AERIAL PHOTO DATE: 1986
0 100'
DATE OF MAP: Revised February, 1997
RISING SUN ENTERPRISES
CITY OF EUREKA
PALCO MARSH ENHANCEMENT PLAN PHASE II

FIGURE 4

SWAPE Technical Consultation, Data Analysis and Litigation Support for the Environment

SOIL/WATER/AIR PROTECTION ENTERPRISE
201 Wilshire Boulevard, Second Floor
Santa Monica, California 90401
Fax: (310) 393-4898

Matt Hagemann
Tel: (949) 887-9013
Email: mhagemann@swape.com

August 10, 2006

EXHIBIT NO. 9
APPLICATION NO.
1-90-104-A2 - CITY OF EUREKA
EXCERPTS: PRELIMINARY ASSESSMENT OF PENTACHLOROPHENOL & DIOXIN IN SEDIMENT LOCATED ADJACENT TO THE FORMER SIMPSON PLYWOOD PLANT, EUREKA, CALIFORNIA (SWAPE, August 10, 2006) (1 of 13)

Mr. Fred Evenson
Law Offices of Fredric Evenson
424 First Street
Eureka, CA 95501

Dear Mr. Evenson:

I have attached the report we prepared to document the results of sediment sampling we conducted on April 17 and 18, 2006 adjacent to the former Simpson Plywood facility in Eureka, California. The objective of the sampling effort was to determine if PCP and dioxin were present in the sediment in a ditch that borders the east side of the facility and in Humboldt Bay on the west side of the facility. We also collected a background sample from Humboldt Bay eight miles to the south.

The concentrations of PCP and dioxin in sediment samples that were obtained from the ditch on the east side of the facility are among the highest we found in an Internet search of assessment and cleanup documents for sites in California and the U.S. All samples in the ditch adjacent to and downgradient of the facility exceed a recent U.S. EPA dioxin soil cleanup level of 30 ppt total TEQ for a Superfund site under an industrial scenario (U.S. EPA, August 2005). Please note that the upgradient sample, collected 25 feet north and upstream of the facility, was less than the U.S. EPA cleanup level. All samples from the ditch, with the exception of the upgradient sample, exceed an action level of 10 ppt total TEQ that was used in 2002 at a rocket incineration site cleanup under California Department of Toxic Control oversight (DTSC, July 2002). Additionally, the samples collected in the mud flat adjacent to the western perimeter of the facility are both in excess of the 10 ppt DTSC cleanup level. Four samples in the ditch exceed a previously used Cal/EPA DTSC health-based action level for dioxin of 1,000 ppt total TEQ (DTSC, August 2001). The background sample, collected in the southern part of Humboldt Bay, was the lowest of all dioxin results from our sampling (less than 0.1 ppt total TEQ) and is less than all cleanup levels cited above.

When compared to U.S. EPA Region 9 preliminary remediation goal of 16 ppt under a direct contact industrial scenario (U.S. EPA, October 2004), the maximum detection of dioxin in the ditch, 89,000 ppt total TEQ, constitutes a risk to human health of greater than one in a thousand (1×10^{-3}) excess cancer risk. This is ten times in excess of the

least protective end of the human health risk range of one in ten thousand (1×10^{-4}) to one in a million (1×10^{-6}) that is generally accepted by the U.S. EPA and Cal/EPA. Therefore, the sediment in the ditch may be considered a principal threat waste under CERCLA and may be considered to constitute an imminent and substantial endangerment to human health and wildlife. Such wastes generally require expeditious consideration of containment and treatment alternatives.

We stress that these sediments are found in an unrestricted area offsite of the former Simpson facility along a railway right of way that is frequented by people, many of them homeless. The area of the highest detection for PCP and dioxin in the ditch is a small pond that may be attractive for bathing or wading. Therefore, a scenario of direct dermal contact and ingestion by the public should be considered in conducting any preliminary human health risk calculations that may be required.

The source of the PCP and dioxin sediment contamination is likely related to the former 10,000 gallon above ground storage tank (AST) and associated piping that were used to supply Woodlife, a mineral spirits solution containing 3% PCP which was applied to plywood for waterproofing. PCP is known to contain dioxin as an impurity. In the vicinity of the former AST and along former pipeline routes, separate phase (immiscible) liquids were noted in 1991 and 1997 (Geomatrix, 1998). Pipelines were routed to a spray booth where Woodlife was applied in the warehouse and dryer building which currently houses the Eureka Flea Market. The AST, pipeline routes, and the former spray booth are located within approximately 50 feet of the ditch where the greatest PCP and dioxin concentrations found in the sediment sampling we conducted and where a sheen and strong odor were noted in the field at sample location S-4. The separate phase liquids likely leaked from the interconnected system of the AST, pipelines and the spray booth.

Our preliminary conceptual model is that separate phase liquids, with the mineral spirits serving as a carrier of PCP and dioxin, were not completely removed during soil excavation in 2003. That effort focused on only an accessible soil, i.e. not below buildings, just to the east of the warehouse and dryer building to depths of one to four feet. Separate phase liquids likely exist below the warehouse and dryer building, as indicated by recent detections of PCP in groundwater which was detected in February 2005 at 3,100 ug/L (SHN, April 2005). Another indication of separate phase in the area beneath the warehouse and dryer building is the concentration of PCP in soil at 8,500,000 ug/kg collected within 10 feet of the building footprint in 2001 (Geomatrix, May 2001). This concentration greatly exceeds the U.S. EPA preliminary remediation goal of 9,000 ug/kg for PCP in soil under an industrial exposure scenario. We have noted that a clay barrier installed along approximately 80 linear feet of the warehouse and dryer in 2003 to "inhibit the migration of PCP in groundwater" (SHN, August 2005), did not extend to the area where the high detection of PCP was found in soil in 2001.

Since 2003, the separate phase liquid has likely remobilized into the area where soil excavation occurred, adjacent to or into the ditch. During sampling, a strong hydrocarbon odor and a sheen were noted on sample S-4 in an area adjacent to locations

where separate phase was noted in the 1990s. The separate phase may have moved toward the ditch along preferential pathways.

The potential that the separate phase is moving along preferential flow pathways toward the ditch including along routes for water lines, pipelines, and storm drains (all of which have been identified beneath the facility) should be a focus of site assessment activities. We have also noted paleochannels (old stream courses) from predevelopment maps of the late 1800s in this vicinity that should be evaluated as preferential flow pathways.

The upper groundwater unit at the site (A-zone) is likely interconnected with the surface water in the ditch (Geomatrix, May 1999); see also quarterly groundwater reports, for example May 2002 and August 2002 (Geomatrix, May 2002; Geomatrix, August 2002). Therefore the surface water is also likely to be contaminated with PCP and potentially dioxin if, given dioxins affinity for soil adsorption, colloidal transport is occurring. In fact, PCP contamination of surface water in the ditch has been documented at least nine times in the period from 2001 to 2005 at concentrations ranging from 0.3 ppb to 0.9 ppb (SHN, September 2005) which indicates a groundwater/surface water interconnection. Additionally, sediment in a sample we collected in Humboldt Bay downgradient from the ditch and adjacent to Eureka Marsh, shows elevated concentrations of dioxins, indicating contaminated sediment transport to Humboldt Bay. Similarly, a sediment sample collected adjacent to surface water discharge from a ditch that runs along the northern perimeter of the Site to the former log inlet area was elevated for dioxins. The public fishing pier at the foot of Del Norte Street is located along the western perimeter of the Site and in close proximity to the noted sediment samples in Humboldt Bay.

Because the A-zone is known to be interconnected with the lower B-zone groundwater (Geomatrix, 2000), and because the B-zone is tidally influenced, discharge of PCP-contaminated groundwater to Humboldt Bay is also likely. On January 13, 2006 we observed seepage of what appeared to be groundwater directly into Humboldt Bay along the bulkhead that forms the western perimeter of the facility. The seepage was observed at a minus tide in cracks between the boards of the bulkhead and at the base of the riprap where the bulkhead is absent. Clay and metal pipes were observed along this perimeter that may be related to a storm drain and a septic drain which have been depicted on facility layout maps to trend westward and intersect the margin of Humboldt Bay in the vicinity of the samples we collected from the mud flat.

Although a site assessment and a thorough assessment of human health and ecologic risk is necessary, and should be conducted in accordance with Superfund protocol, we believe that it is most important to implement immediate actions to protect public health. First, public access to the length of the ditch adjacent to the former Simpson facility should be restricted with fencing. Second, we believe an evaluation of interim actions to excavate sediment in the ditch should be conducted along with plans to contain and treat surface water in the ditch. These plans should be completed and executed before the onset of the winter rains to prevent migration of dioxin- and PCP-contaminated sediments to Humboldt Bay.

At the same time, Simpson should be considered for assessment and cleanup under imminent and substantial endangerment authority. The current cleanup and abatement order, as issued by the RWQCB in December 1998, should be revised to include interim cleanup actions as well as a schedule for a Superfund-equivalent remedial investigation/feasibility study (RI/FS) with strict penalties for noncompliance with milestones. We note, for instance, that under the current RWQCB order, despite repeated requests by the RWQCB, human health and ecologic risk assessments have not been competed.

The need for interim remedial actions and to conduct a full, Superfund-equivalent RI/FS, to include ecologic and human health risk assessments, is especially urgent in light of the findings from our sampling, including:

- Unrestricted public access to the area of highest PCP and dioxin detections in the ditch to the east and offsite of the facility;
- The direct connection of the ditch to Humboldt Bay, 1500 feet south of the facility, and vital ecologic habitat;
- The location of a public fishing pier at the foot of Del Norte Street within a few hundred feet of dioxin samples collected in the mud flat of Humboldt Bay which are in excess of a previous DTSC dioxin cleanup level; and
- Operation of the former warehouse and dryer building as a Flea Market where the public may be exposed to vapors that may migrate upward from contaminated groundwater beneath the building.

Sincerely,

Matt Hagemann

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SWAPE Technical Consultation, Data Analysis and Litigation Support for the Environment

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August 10, 2006

Mr. Fred Evenson
Law Offices of Fredric Evenson
424 First Street
Eureka, California 95501

Subject: **Preliminary Assessment of Pentachlorophenol and Dioxin in Sediment Located Adjacent to the Former Simpson Plywood Plant, Eureka, California**

Dear Mr. Evenson:

This report summarizes the procedures and analytical results for sampling of sediments located adjacent to the former Simpson Plywood Plant located at 1200 Del Norte Street in Eureka, California (Site). A total of nine sediment samples were collected adjacent to the Site on April 17 and 18, 2006. One background sediment sample was collected on April 18, 2006 at a location in the southern portion of Humboldt Bay at Hookton Slough. Sampling was performed in accordance with SWAPE's Sampling and Analysis Plan (SAP), dated April 16, 2006 (see Attachment 1), and in accordance with applicable regulatory agency guidelines.

The objectives of this sampling assessment, as stated in the SAP, were to:

- Determine if pentachlorophenol (PCP) and dioxin are present at elevated concentrations in sediments located adjacent to the Site;
- Compare analytical results to agency screening values to evaluate impacts to human and ecologic receptors; and
- Compare analytical results for samples collected adjacent to the Site with the results for: (1) one sediment sample collected approximately 25 feet north and upstream of the Site; and (2) one sediment sample collected in the southern portion of Humboldt Bay at Hookton Slough.

Sampling Methodology

Samples were collected adjacent to the Site in two areas: (1) along the eastern perimeter of the Site, just outside of the fence line, in a channelized tributary (East Ditch) to Humboldt Bay; and (2) in the mud flat of Humboldt Bay, exposed at low tide, on the western perimeter of the Site (see Figure 1). A sample was also collected in Hookton Slough, an area of Humboldt Bay approximately eight miles to the south of the Site. On both days of sampling activities, the weather was sunny and approximately 50 to 65 degrees with a maximum wind velocity of 10 miles per hour.

Sediment was extracted in the field using a new, stainless-steel, barrel-core sampler and slide hammer (AMS Core Sampling Mini Kit). The slide hammer was used to drive the barrel core sampler into the sediment approximately 6-inches to 1-foot in depth below the sediment surface. Sediment samples S-1 through S-7 were collected below a few inches to a few feet of standing water. Sample S-7 is located in an area of Humboldt Bay that feeds Eureka Marsh at high tide. Samples S-8 through S-10 were collected in Humboldt Bay from mud flat areas at low tide where no standing water was present at the time of sampling.

Samples were recovered from the barrel-core sampler and homogenized in stainless-steel bowls using a stainless-steel spatula and then transferred to laboratory-supplied, 4-ounce glass jars. Samples were labeled and then placed into a chilled cooler for shipment to the analytical laboratory via Federal Express. Chain-of-custody documentation was included with the samples and is provided in the laboratory analytical report (see Attachment 2).

Conditions in the field at each sampling locale were recorded on field forms (see Attachment 3). Coordinates of the sampling locations were recorded in the field with a hand-held GPS device. Sample locations were also referenced to buildings and other features on the former Simpson property and were recorded in field notes (Attachment 4).

All sediment sampling equipment and sample preparation tools were thoroughly decontaminated prior to and between each use. Decontamination procedures were performed in accordance with the SAP and included washing sampling equipment, bowls and spatulas with Liquinox, followed by successive rinses with bottled water, de-ionized water, acetone, and hexane. Following decontamination, all equipment was allowed to air dry prior to re-assembly.

Analytical Results

Samples were submitted to Severn Trent Laboratories in Sacramento, California for analysis. Pentachlorophenol was analyzed in sediment samples using a modified U.S. EPA Method 8151. Dioxin analysis was conducted using U.S. EPA Method 8290. The analytical results for the sediment samples are summarized in Figure 1 and in the following table (Table 1). The complete laboratory analytical report is included in Attachment 2.

Table 1
Summary of Analytical Results for PCP and Total Dioxin TEQ in Sediment Samples

Sample ID/Location	Lat./Long	Collection Date	PCP (ug/kg)	Dioxin (Total TEQ) (pg/gm)
S-1 (E. Ditch)	40°47.620'N, 124°11.096'W	April 17, 2006	2.6	4.07
S-2 (E. Ditch)	40°47.596'N, 124°11.063'W	April 17, 2006	130	2,140.50
S-3 (E. Ditch)	40°47.526'N, 124°11.092'W	April 17, 2006	1400	23,739.00
S-4 (E. Ditch)	40°47.550'N, 124°11.085'W	April 17, 2006	86,000	89,220.00
S-5 (E. Ditch)	40°47.507'N, 124°11.104'W	April 17, 2006	140	20,678.00
S-6 (E. Ditch)	40°47.450'N, 124°11.124'W	April 17, 2006	4.3	58.74
S-7 (E. Ditch)	40°47.436'N, 124°11.130'W	April 17, 2006	2.8	46.04
S-8 (Mud Flat)	40°47.570'N, 124°11.238'W	April 18, 2006	18	60.67
S-9 (Mud Flat)	40°47.539'N, 124°11.217'W	April 18, 2006	9.1	12.02
S-10 (Hookton)	40°40.634'N, 124°13.257'W	April 18, 2006	19	0.08
NOAA SQuiRT	--	--	17	3.6
EPA Res. PRG	--	--	3,000	3.9

Abbreviations:
ug/kg = micrograms per kilogram (parts per billion)
pg/gm = picograms per gram (parts per trillion)
TEQ = toxicity equivalent
NOAA SQuiRT = National Oceanic and Atmospheric Administration Screening Quick Reference Tables
EPA Res. PRG = U.S. Environmental Protection Agency residential preliminary remediation goal

East Ditch

Six sediment samples were collected along the East Ditch adjacent to the Site on April 17, 2006. Concentrations of PCP ranged from 2.6 ug/kg in sample S-1, collected 25 feet to the north of the Site, to 86,000 ug/kg in sample S-4, collected adjacent to the Site in an area that was the focus of a remedial effort in 2003. Concentrations of dioxin, expressed as total TEQ, ranged from 4.07 pg/gm in sample S-1 to 89,220 pg/gm in sample S-4. A

sheen was noted in the liquid fraction of the sample S-4 as it was homogenized in the stainless steel bowl prior to transfer to the sample jar. As sample S-4 was homogenized, a strong hydrocarbon odor was also noted. In sample S-7, located in Humboldt Bay adjacent to the Eureka Marsh, dioxin was found at 46.04 pg/gm.

Humboldt Bay Along Western Perimeter

Two sediment samples were collected in the mud flat along the western perimeter of the Site during a low tide on April 18, 2006. Sample S-8 was collected from the log inlet just adjacent to a 5 gallon per minute (gpm) surface water discharge. The water drains to the log inlet from a ditch that runs westerly between the former Simpson property and a log deck to the north (Figure 1). Sample S-9 was collected from an area adjacent to a surface water discharge of 1 gpm that flowed through a hole in a wooden bulkhead that forms the western perimeter of the Simpson property. This location is in the general vicinity of a "septic drain" that has been identified on historical site maps.

Concentrations of PCP ranged from 9.1 ug/kg in sample S-9 to 18 ug/kg in sample S-8. Dioxin ranged from 12.02 pg/g, in sample S-9 to 60.67 pg/gm in sample S-8.

Hookton Slough

A background sample was collected at Hookton Slough on April 18, 2006 for purposes of assessing concentrations of PCP and dioxin in an area that is not industrialized and that is distant from the Site. PCP was detected at 19 ug/kg and dioxin was detected at 0.0840 pg/gm.

Comparison to Agency Screening Levels

Sample results were compared to National Oceanic and Atmospheric Administration (NOAA) Screening Quick Reference Tables (SQuiRTs) to screen for impacts to ecologic receptors in marine sediment (NOAA, 2005). NOAA describes SQuiRTs as useful for identifying substances "which may threaten resources of concern to NOAA." SQuiRTs are accepted by U.S. EPA where the agency has not established ecological screening criteria for contaminants in specific media as is the case with PCP and dioxin in sediment (U.S. EPA, 2006). Sample results were also compared to U.S. EPA Region 9 soil preliminary remediation goals (PRGs) for the protection of human health (U.S. EPA, 2004).

PCP Results

Sediment samples S-2 through S-5, collected along the East Ditch in the area directly to the east of the Site, exceeded the SQuiRT screening concentration of 17 ug/kg for PCP. The maximum PCP concentration, 86,000 ug/kg in sample S-4, exceeded the SQuiRT screening value by more than three orders of magnitude. Sample S-4 exceeded the U.S. EPA Region 9 residential PRG of 3,000 ug/kg for the protection of human health (U.S. EPA, 2004). Sample S-1, collected in the East Ditch 25 feet northeast of the Site, and

samples S-6 and S-7, which bracket Del Norte Street, were below the SQuiRT screening concentration.

Sample S-8, one of two samples collected in Humboldt Bay to the west of the Site, exceeded the SQuiRT screening value for PCP. Neither sample exceeded the U.S. EPA residential PRG. The sample collected from Hookton Slough, sample S-10, had a concentration of 19 ug/kg, exceeding the SQuiRT screening value of 17 ug/kg.

Dioxin Results

The SQuiRT screening concentration for total dioxin TEQ is 3.6 pg/gm for comparison with the laboratory results. The U.S. EPA Region 9 soil PRG is 3.9 pg/gm for the protection of human health under a residential scenario and 16 ppt for an industrial scenario. All samples collected in the East Ditch (S-1 to S-7) had dioxin TEQ concentrations that exceeded the SQuiRT screening value and the U.S. EPA Region 9 residential PRG. The maximum concentration of dioxin TEQ for samples collected in the East Ditch, 89,220 pg/gm in sample S-4, exceeds the SQuiRT screening value and the U.S. EPA Region 9 residential PRG by over four orders of magnitude.

Both samples collected in Humboldt Bay to the west of the Site exceeded the SQuiRT screening value and the U.S. EPA Region 9 residential PRG for dioxin TEQ. The sample collected from Hookton Slough had a dioxin TEQ concentration of 0.0840 pg/gm, less than the SQuiRT value of 3.6 pg/gm and the PRG of 3.9 pg/gm.

Conclusions

PCP and dioxin were detected at elevated concentrations in sediment adjacent to the former Simpson Plywood plant in Eureka, California. Concentrations of PCP in the East Ditch (just to the east of the Site) exceeded the NOAA SQuiRT ecological screening value by up to three orders of magnitude. Dioxin concentrations in the East Ditch exceeded the SQuiRT screening value and the U.S. EPA residential PRG by as much as four orders of magnitude. Concentrations of PCP and dioxin in the sample collected upstream of the Site were the lowest of the seven samples collected along the East Ditch. Dioxin was detected in samples collected in the mud flat to the west of the Site at concentrations that exceeded the SQuiRT screening value and U.S. EPA residential PRG.

PCP and dioxin were detected in a background sample in an unindustrialized area eight miles south of the Site. At this location, the PCP sample slightly exceeded the SQuiRT screening value and the dioxin sample was less than both the SQuiRT screening value and the U.S. EPA residential PRG.

Sincerely,

Matt Hagemann
Project Manager

Rob C. Hesse, R.G., REA
Geologist

References

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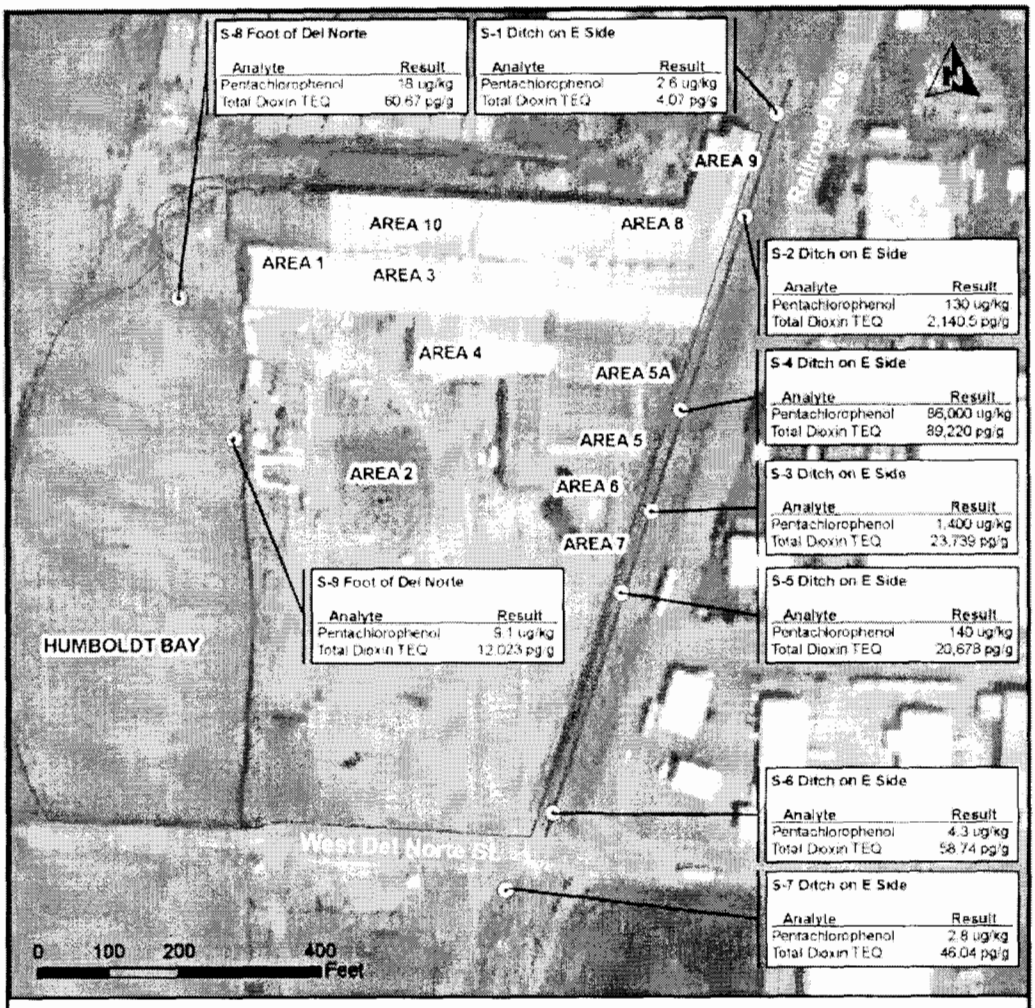

Legend:

- Location of Sediment Sample
- Surface Water Drainage Ditch
- Site Boundary

Notes:

1. All locations are approximate.
2. Drainage lines and features based on: "Industrial Storm Water Pollution Prevention Plan and Monitoring and Reporting Plan," by LACO Associates, June 1, 2006.

Site: Simpson Redwood Company d.b.a. Simpson Timber Company 1200 West Del Norte Street, Eureka, California			
Title: **Concentrations of Pentachlorophenol and Total Dioxins TEQs in Samples of Sediment**			
Drawn By: RCH	Date: 8/6/06	Figure No.: **1**	

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EXHIBIT NO. **10**
APPLICATION NO.
1-90-104-A2 - CITY OF EUREKA
MEMORANDUM FROM DR. JACK GREGG, SUPERVISOR, CCC WATER QUALITY UNIT
(1 of 7)

February 19, 2009

MEMORANDUM

To: Jim Baskin
From: Jack Gregg, Ph.D., R.G.
Water Quality Supervisor
Re: Palco Marsh Sampling Recommendation

Summary:

After review of the documents listed below, additional materials provided by the City of Eureka (City) and correspondence with the City, the State Coastal Conservancy and the staff of the North Coast Regional Water Quality Control Board (RWQCB), water quality staff found that the City has adequately characterized Palco Marsh for the proposed restoration project. Although concerns have been expressed by Humboldt Baykeeper about adverse impacts of the restoration project on Humboldt Bay water quality, the city has provided evidence that it is unlikely that elevated levels of dioxin exist in Palco Marsh or that the restoration efforts will cause adverse impacts to Humboldt Bay. In addition, the City has proposed management practices to minimize or eliminate disturbance of sediments beyond the boundaries of the restoration project. The City is seeking to complete excavation work at Palco Marsh coincident with a dioxin clean up project at the adjacent Former Eureka Plywood Mill so that the City can take advantage of the waste handling efforts of the cleanup project. By combining the small volumes of material from the Palco restoration project with the wastes from the clean up project, City and Coastal Conservancy funds can be focused on restoration efforts. This strategy has the advantage of disposing any soils excavated for the Palco Marsh project that have significant dioxin contamination in a Class II landfill designed to isolate wastes with much higher levels of dioxin and other contaminants.

Documents Reviewed:

- Letter from Lisa Shikany, City of Eureka to James R. Baskin dated June 13, 2008
- Various materials submitted by Lisa Shikany regarding the proposed restoration project in Palco Marsh and history of the marsh property.
- Palco Marsh Enhancement Plan Phase 1A Work Plan, September 2004
- Amended Application for Coastal Development Permit to Implement Remedial Activities at the Former Eureka Plywood Mill, 1200 West Del Norte Street, Eureka, California, dated May 5, 2008
- Addendum to the Coastal Development Permit Application to conduct Eastern Drainage Swale Remedial Measures, Letter from Andrew Lojo to Lisa Shikany, dated June 18, 2008
- Photos and maps submitted by the City of Eureka

Background:

The Palco wetlands site has been isolated from the Humboldt Bay since the 1870s by levees and the levees were improved during construction of the Northwestern Pacific Railroad tracks in 1901. During this time the Palco site was primarily used for pasture. The adjacent Eureka Plywood Mill (now owned by Simpson Timber Company) was constructed after the levees were

in place. The Eureka Plywood Mill is closed and the current owner is conducting remedial activities to clean up dioxin and other contaminants. While this cleanup action is not currently before the Commission, CCC water quality staff have reviewed the Amended Application submitted to the City of Eureka for a Coastal Development Permit to Implement the Remedial Activities at the Former Eureka Plywood Mill (May 2008), and found the site characterization and proposed remedial activities to be consistent with protection of coastal resources.

Dioxin samples near Palco Marsh

Based on the Palco Marsh site history, it is unlikely that there was a significant source of dioxin in the marsh itself. The marsh was primarily used as a pasture after it was leveed off from the bay in the 1870s. Portions of the marsh were subjected to land filling, but those materials were investigated during planning for past projects and land fill material was removed as Phase I of the Palco Marsh Restoration project. Areas of suspected contamination near Palco Marsh have been characterized, including samples analyzed for dioxin. Very high levels of dioxin and related contaminants were found at the former Eureka Plywood Mill, just to the north of Palco Marsh. Those high levels led to additional site characterization and a remedial plan to cleanup the site and prevent further release of contaminants. After full site characterization, the maximum level of dioxin/furan found was 89,220 pg/g (picograms per gram of soil or parts per trillion) expressed as total dioxin toxic equivalents or TEQ[1].

Two dioxin samples were taken at Railroad Marsh, an area adjacent to the southwest corner of Palco Marsh. This area is surrounded by levees and the restoration plan proposes to restore tidal influence by excavating 2.5 feet of surface soil and connecting it to PALCO Marsh with culverts. The surface soils had dioxin levels at 9.899 and 14.461 pg/g TEQ. These levels are elevated above the ambient levels found in Humboldt Bay, but are well below hazardous levels. Railroad marsh only receives local runoff due to the surrounding levees and it is likely that the dioxin came from a local source (possibly from air deposition). Since one of the Railroad Marsh levees previously supported a railway, it is reasonable to assume that the small amounts of dioxin found in the surface soils came from the creosote-treated railroad ties. By removal of 2.5 feet of surface soil, the restoration efforts will remove the elevated dioxin levels. The City has committed to coordinating with the RWQCB on the final disposition of the soils and will provide Commission staff with a plan "outlining the specifics of how the soils will be handled, including what if any additional testing will be conducted, how stockpiling will be conducted (if it occurs), and where the spoils will be taken" (June 13, 2008 letter from Lisa Shikany to Jim Baskin). Unless there is geologic evidence that the soils that are exposed after the excavation of Railroad Marsh are pre-industrial soils, it would be prudent to take confirmation samples on the new exposed surface to show that dioxin is absent or below levels of concern.

Dioxin samples were also taken in the tidal channel that drains from the Eureka Plywood Mill (EPM) site to Humboldt Bay, by both Humboldt Baykeeper and RWQCB staff. This tidal channel also connects the northwest end of Palco Marsh to the bay, through three old culverts (Figure 1), but those culverts have been blocked by sediment and debris and water flow is impeded (Figure 2). A sample taken by Humboldt Baykeeper staff at the north end of the tidal channel (near the outlet from the EPM and the blocked culverts to Palco Marsh), showed a total dioxin level of 46.04 pg/g TEQ, clearly elevated above ambient levels in the bay, but much reduced from the levels found at the former plywood mill. Regional Water Quality Control Board staff also took dioxin samples at ten locations around Humboldt Bay in June 2007. Their

[1] TEQ is a standard measure of the toxicity of chemicals of the dioxin and furan groups called the Toxic Equivalent and estimates the toxicity of the dioxin/furan mixture as a concentration of the most toxic dioxin species.

sample, taken at the south end of the tidal channel near the main outlet from Palco Marsh (a 24 inch culvert) revealed a dioxin level of 0.927 pg/g TEQ. This was the lowest level found by the RWQCB sampling and a level that can be found in surface sediments in many areas of Humboldt Bay.

Soil/sediment disturbance and waste handling by the Palco Marsh project

The marsh restoration project has several elements that include removal of sediments from the marsh and the adjacent channels. One element is to dredge approximately 1000 linear feet of the tidal channel located between the outlet of the EPM property at Del Norte Street and the outfall of the existing 24-inch culvert that connects Palco Marsh with the bay. This is estimated to be about 300 cubic yards of material and the City plans to dispose of this material with the EPM excavated materials. A second excavation element will be a "training channel", 30 feet long and 2 feet wide, to be excavated between the tidal channel and the current location of the 24 inch culvert (which will be converted to a 48 inch culvert as part of the restoration). A third excavation element will be the creation of a 100 foot long channel, 2 feet wide and 1 foot deep, in the northwest portion of the wetland that will be created so that standing water in the part of the wetland, currently a vector issue, will drain better at low tides. This small channel will be dug by hand to reduce impacts to the marsh and will result in about 7 cubic yards of material that will be disposed with the EPM material.

The city is trying to complete the restoration efforts that may excavate parts of the Palco Marsh and the adjacent tidal channel concurrent with the Simpson site restoration. This will allow the city, through an agreement with Simpson, to combine the excavated Palco Marsh soils with the highly contaminated Simpson soils for disposal in a landfill. This arrangement will allow the city to properly dispose of soils without further testing, saving tens of thousands of dollars for sampling and analysis, while still ensuring protection of coastal resources.

Concerns about need for more dioxin samples in Palco Marsh

A possible source of dioxin to Palco Marsh that concerns Humboldt Baykeeper is that dioxin-contaminated sediments from the EPM may have moved from the tidal channel into Palco Marsh and that these contaminated sediments may be remobilized by the restoration work. This scenario would require that significant amounts of sediments moving from the EPM were conveyed into Palco Marsh through the three culverts at the northwest corner of Palco Marsh. The City has made the case that the capacity of those culverts has been drastically reduced by sediment clogging (see attached photos). Since these culverts are currently blocked by sediment, the concern would be that sediment moved into the marsh during periods when the culverts were more effective at transmitting tidal flows.

Even during times when these culverts were more open, it is unlikely that much sediment was carried from the EPM site into Palco Marsh. During times when sediments are discharging from EPM to the tidal channel (low tides or storm events), that flow and those sediments will preferentially discharge to the bay (not into Palco Marsh) since the flow will primarily follow the open channel to the bay, rather that moving back upgradient through the constriction of the culverts. During high tides, when bay water may flow into Palco Marsh (at low rates due to the constricted culverts), bay water will also be moving toward EPM restricting conveyance of contaminated sediments from EPM to Palco Marsh or the bay. Concerns about conveyance of contaminated sediment from the tidal channel into Palco Marsh seem unfounded. There is unlikely to be sufficient tidal flow velocities, wind or wave energy in the tidal channel to

resuspend significant amounts of contaminated sediments and keep them suspended long enough to convey them through the culverts into Palco Marsh. Typically outgoing flows from sloughs have more ability to resuspend sediments than incoming tides, due to the force of gravity and concentration of the outgoing flows. The tidal channel occurs behind a long spit of land and is sheltered from wind and waves that could keep sediments suspended on incoming tides (see Figure 3).

Water quality staff agrees with the City that these conditions make it unlikely that significant amounts of contaminated sediments have traveled from the EPM to Palco Marsh. In a phone conversation with Kasey Ashley, Senior Engineering Geologist for the North Coast RWQCB, she agreed that additional dioxin analysis for samples from Palco Marsh is not necessary at this time. Ms. Ashley conducted the dioxin sampling in Humboldt Bay for the RWQCB in 2007 and is supervisor of the RWQCB's Northern Cleanups Unit.

Conclusion

After review of the documents listed above and additional materials provided by the City of Eureka, water quality staff would not recommend that additional testing is necessary to proceed with wetland restoration work. Dioxin was released to Humboldt Bay at many places due primarily to past practices of many timber processors around the bay. The wetland restoration project will benefit wetland habitat development around the bay. The characterization of water quality risks of the restoration and the oversight of the restoration by the RWQCB and local agencies are adequate to allow the restoration to proceed, consistent with the water quality policies of the California Coastal Act.

Figures

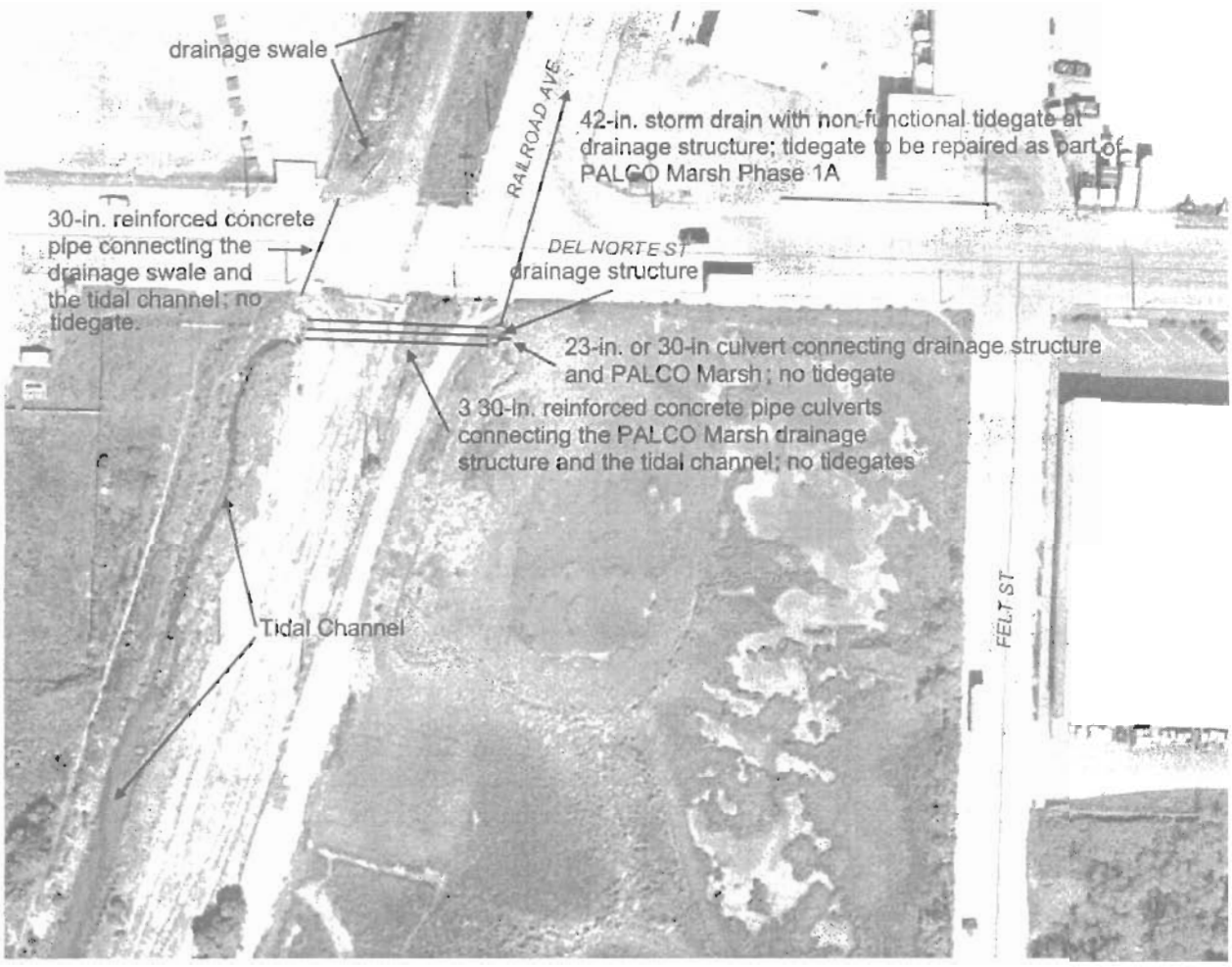

Figure 1. Overview of northwest outlet from Palco Marsh to the Tidal Channel. Note the former Eureka Plywood Mill drains to the drainage swale in the upper left of the photo. The bay is at the south end of the Tidal Channel, about 800 feet beyond the lower left corner of the photo.

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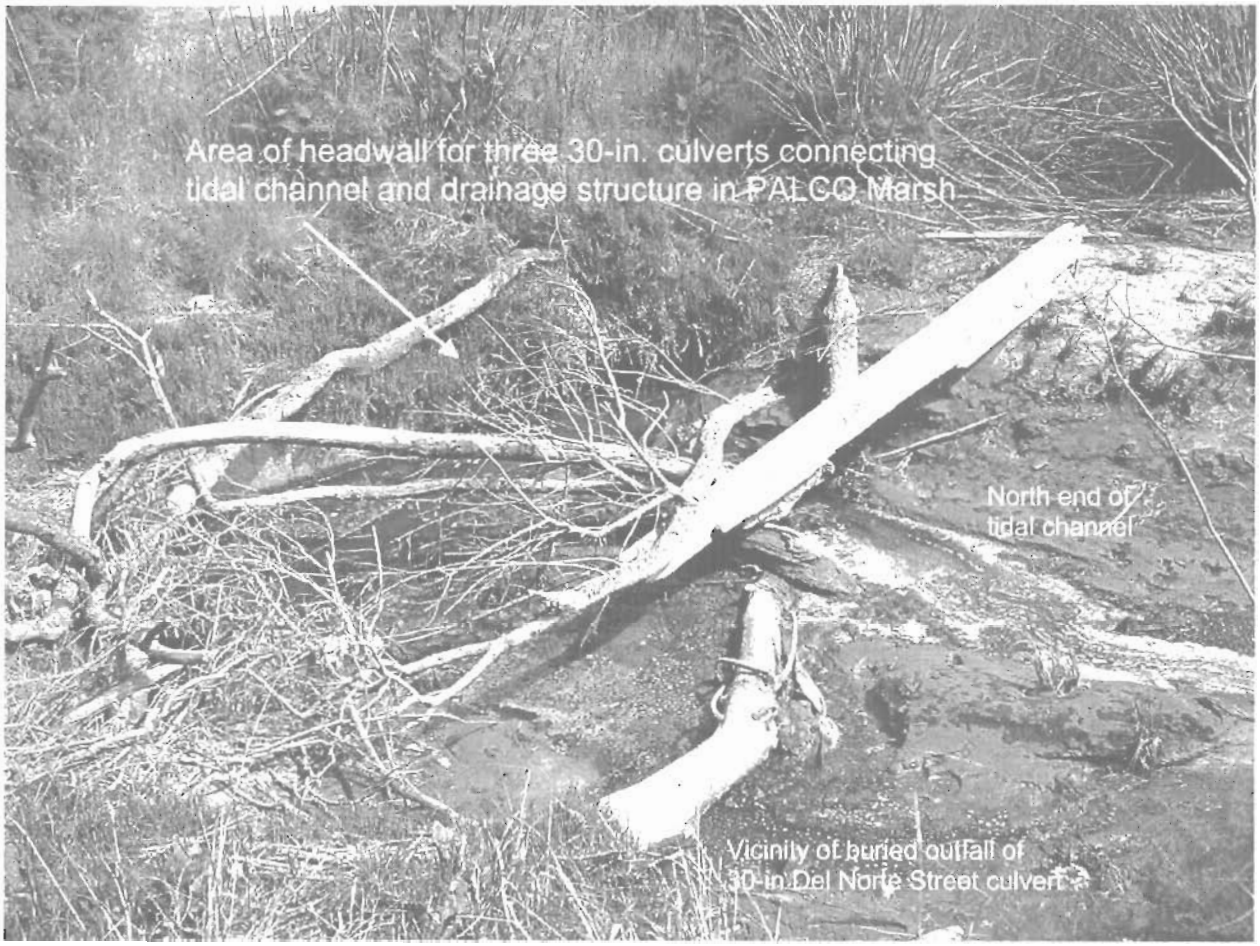

Figure 2. Blocked culverts that connect the Tidal Channel to Palco Marsh

Figure 3. Tidal Channel looking south to the outlet to Humboldt Bay.

Coastal Conservancy

June 17, 2008

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CALIFORNIA
COASTAL COMMISSION

James R. Baskin, AICP
Coastal Planner
California Coastal Commission
North Coast District
710 "E" Street, Suite 200
Eureka, CA 95501

RE: Support for Coastal Development Permit Application No. 1-06-51
PALCO Marsh Enhancement Plan – Phase 1A

Dear Mr. Baskin,

I am writing to express the Conservancy's support for the City of Eureka's CDP Application No. 1-06-51. The Conservancy agrees with the City of Eureka that the implementation of Phase 1A of the PALCO Marsh Enhancement Plan is unlikely to result in contaminated sediments entering Humboldt Bay, and respectfully requests that the project be permitted without requiring the expense and delay associated with further soil testing.

Sincerely,

Nadine P. Hitchcock for:

Sam Schuchat
Executive Officer

EXHIBIT NO. 11
APPLICATION NO.
1-90-104-A2
CITY OF EUREKA
AGENCY CORRESPONDENCE

1330 Broadway, 13th Floor
Oakland, California 94612-2530

510·286·1015 *Fax:* 510·286·0470

HUMBOLDT BAYKEEPER®

November 20, 2008

Lisa Shikany
Environmental Planner
City of Eureka
Community Development Department
531 "K" Street
Eureka, CA 95501

EXHIBIT NO. **12**
APPLICATION NO.
1-90-104-A2
CITY OF EUREKA
COMMENT FROM HUMBOLDT BAYKEEPER TO CITY OF EUREKA (1 of 3)

Re: Palco Marsh Enhancement Plan, CDP 1-06-51

Ms. Shikany:

In response to your e-mail dated November 10, 2008, Humboldt Baykeeper offers the following comments. Humboldt Baykeeper would like to express our support and excitement regarding the completion of the Palco Marsh Enhancement Plan. Restoration of valuable intertidal marsh habitat in this vicinity will help further improve the ecological value and productivity of Humboldt Bay. Humboldt Baykeeper fully supports your restoration efforts, however we would like to encourage any restoration efforts to incorporate all available information to ensure that potential negative impacts are not overlooked and thus not properly addressed and considered. Specifically, we have concerns regarding the lack of dioxin testing that has been conducted in Palco Marsh itself prior to the excavation that is planned in this area.

As Joel Gerwein excerpted in his e-mail dated October 24, 2008, there is currently a junction box in the north western corner of Palco Marsh. *See also* Palco Marsh Enhancement Plan Phase 1A Work Plan ("Workplan") at 11. The junction box connects five culverts, three of which connect to the tidal channel into which drainage from the former Simpson Plywood Mill drainage ditch flows and then into Humboldt Bay. *Id.* One of the other culverts connected to the City of Eureka storm drain system, and the other culvert connected to Palco Marsh. *Id.* As noted in the Workplan, there was a tide gate within the junction box that prevented tidal water from moving up the culverts and into the City storm drain system. *Id.* Thus, any incoming tidal water would have moved up the tidal channel and into Palco Marsh through the junction box. As noted in your e-mail, this tidal channel is known to be contaminated by dioxins. Further, the Workplan states that a 100' channel would be hand excavated within Palco Marsh in this vicinity. Workplan at 12, *see also* June 13, 2008 letter Addendum to CDP Application 1-06-51 at 5.

The crux of Humboldt Baykeeper's concern is that dioxin contaminated sediments could have been forced up with the tide into Palco Marsh and that the excavation the City plans on conducting here would entail the disturbance of dioxin contaminated sediments. Our concern is that whether these sediments are in fact contaminated is unknown, and that the excavation of this channel could further expose dioxin contaminated sediments along the new channel edges, mobilizing dioxin contaminated sediments for discharge into Humboldt Bay, not to mention the further exposure to flora and fauna using the marsh complex. As stated in the CDP Addendum dated June 13, 2008 "There has been no testing for dioxin conducted within Palco Marsh." June 13, 2008 letter Addendum to CDP Application 1-06-51 at 5. Dioxins adsorb to organic material and they also bioaccumulate. The potential harms that they pose should not be overlooked.

Humboldt Baykeeper appreciates your assurances that any of the sediments excavated from Palco Marsh and the tidal channel will not be mixed with soils excavated by Simpson Timber Company from their excavation and remediation of the drainage channel across Del Norte Street from the tidal channel. As you correctly note in your e-mail, any such dilution is illegal. Proper disposal, however, is only one of the concerns presented here, and stating that "the PALCO Marsh channel spoils would be treated as though they contain dioxin as well (as the sediments excavated by Simpson Timber Company), and would be handled appropriately, further negating the need for additional testing" (June 13, 2008 letter Addendum to CDP Application 1-06-51 at 5) does not obviate concerns regarding potential impacts from contaminated sediments being left behind or newly exposed to scouring.

Although the question of sediment disposal and potential illegal dilution is of concern to us, our prime concern is that further harm to Humboldt Bay, a Bay which is listed as impaired for dioxin on the 303(d) list, not occur as a result of restoration activities in Palco Marsh. In order that such further harm does not occur, Humboldt Baykeeper would like to request that sampling for dioxins occur in this section of Palco Marsh prior to excavation activities commencing. In the alternative, we would accept the collection of grab samples from the excavated material to determine whether dioxin is found within the Marsh. Depending on the results from this sampling, we would then like to see appropriate measures taken as necessary.

Sincerely,

/s/

Michelle D. Smith
Staff Attorney
Humboldt Baykeeper

Cc: Kasey Ashley, NCRWQCB
Joel Gerwein, State Coastal Conservancy
Jim Baskin, California Coastal Commission
Pete Nichols, Humboldt Baykeeper
Scott Steever, Lanahan & Reilley

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