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Commission Action:	

STAFF REPORT: REGULAR CALENDAR

APPLICATION NO.: **1-05-017**

APPLICANT: **City of Arcata – Environmental Services Department**

PROJECT LOCATION: Within the open pasture areas east of Highway 101 and south of Samoa Boulevard, Arcata, Humboldt County. (APNs 501-042-01, 05, -08, and -14)

PROJECT DESCRIPTION: Restore several creeks and sloughs by: 1) improving riparian habitat, increasing canopy cover, providing future large woody debris recruitment for coho salmon, steelhead and cutthroat trout by realigning a 910-foot reach of Campbell Creek currently flowing through an artificial drainage ditch adjacent to Highway 101; 2) repairing an existing and non-functioning tidegate structure separating Gannon Slough from Humboldt Bay and replacing it with a side-hinged gate with a muted opening to provide access for anadromous salmonids; 3) providing enhanced floodplain and fish habitat structure by restoring a definable channel along an 850-foot reach of Beith Creek; and 4) installing livestock exclusion fencing and plant native trees and shrubs on both Campbell and Beith Creeks.

GENERAL PLAN DESIGNATION: Agricultural Exclusive (A-E).

ZONING DESIGNATION:	Coastal Agricultural Exclusive with Wetland and Creek Protection Combining Zone (C-A-E:WCP)
OTHER APPROVALS REQUIRED:	California Department of Fish and Game CFGC Sec. 1603 Streambed Alteration Agreement and U.S. Army Corps of Engineers CWA Section 404 Permit
SUBSTANTIVE FILE DOCUMENTS:	City of Arcata LCP

SUMMARY OF STAFF RECOMMENDATION

Staff recommends approval with special conditions of the proposed riparian wetland enhancement project. The project would restore the diversity of terrestrial and aquatic habitats afforded along the lower reaches of the watercourse known as lower Beith Creek, Campbell Creek, and Gannon Slough, located at the north end of Arcata Bay, within the City of Arcata in Humboldt County. The proposed project involves riparian/wetland restoration and enhancement activities for improving in-stream and riparian habitat for juvenile and adult coho, steelhead and coastal cutthroat trout by repairing a concrete tidegate structure separating Gannon Slough from Humboldt Bay and replacing the existing top-hinged gate with a side-hinged gate with a muted opening to provide access for anadromous salmonids. In addition, a 910-foot reach of Campbell Creek would be relocated away from its current location immediately adjacent to Highway 101 to develop a more natural channel and riparian area. The applicant also proposes to eliminate the existing topographic break in the creek as it leaves the culvert that carries the creek under the Highway 101 off-ramp. Flows would be directed into the new channel by installation of a weir deflector. The former channel within the State Highway right-of-way would remain and function as a high flow channel. Finally, the proposed Beith Creek reach enhancements include removal of the bermed fill currently lining the channel to allow the creek to meander under higher flows. Both creek reaches would be fenced to exclude livestock (2.1 acres on Campbell Creek and 2.5 acres on Beith Creek) and revegetated with native trees and shrubs.

The project includes wetland fill in the form of the installation of the weir deflector, transitional bank berming and the fence posts to be placed in grazed seasonal wetlands. A total of 150 cubic yards of fill materials would be placed over a roughly 1,612 square-foot area in installing the diversion weir and transitional bank berm on Campbell Creek. Conversely, 400 cubic yards of fill placed in the past to channelize Beith Creek through the pasturelands would be removed along a 17,425 square-foot area flanking the creek to allow the stream to reform a more topographically diverse high-flow floodplain. Together, the grading would result in a total of approximately 15,813 square-feet, or about 1/3 acre of wetlands being recreated by the project.

The project is an allowable use for dredging and filling of wetlands because it is solely for a restoration purpose intended to enhance wetland habitat values at the site consistent with Coastal Act Section 30233(a)(7). The proposed project is intended to benefit the environment by enhancing riparian/wetland habitat values. However, to ensure that the proposed project does not result in unintended significant adverse impacts to coastal resources and actually enhances wetland habitat values consistent with the resource protection provisions of Section 30233 and 30240, staff recommends that the Commission attach Special Condition Nos. 1-9.

To ensure that the goals and objectives of the fish and wildlife habitat enhancement project are met, Special Condition No. 1 requires the applicant to submit a final monitoring plan for the review and approval of the Executive Director detailing specific performance criteria to be measured over a five-year period following completion of the installation of the project improvements and identifying corrective action, as necessary, to remediate any unforeseen environmental impacts the project might cause.

Special Condition No. 2 requires the applicant to maintain and promptly repair the cattle exclusion fencing throughout the life of the project to assure the protection of the streamside vegetation enhancements and water quality of the stored stream reaches.

Special Condition No. 3 sets construction, debris disposal, and excavated materials disposition performance standards for the development.

Special Condition No. 4 requires the applicants to submit for the review and approval of the Executive Director, a fill disposal and implementation plan detailing the methods by which materials excavated in the formation of the stream channel realignments will be extracted, temporarily stored on-site, and transported from the site. In addition the plan shall reveal the site(s) for the ultimate disposition of these materials and provide evidence of the securement of all rights and authorizations to place the excavated materials at the identified site(s).

Special Condition No. 5 requires the applicant to submit for the review and approval of the Executive Director an erosion and stormwater runoff control plan to prevent impacts to coastal water quality during and following installation of the proposed stream enhancements.

Special Condition No. 6 requires the applicant to plant those portions of the proposed stream-side vegetation originating from cuttings during the late-autumn / early winter months to maximize the success of the vegetation's establishment.

Special Condition No. 7 would require the applicant to submit evidence that any necessary authorization from the State Lands Commission has been obtained prior to issuance of the permit to assure that the applicant has a sufficient legal property interest

in the site to carryout the project and to comply with the terms and conditions of this permit.

Special Condition No. 8 requires the applicant, prior to issuance of the coastal development permit, to provide a copy of the executed Fish and Game Code Section 1600 Streambed Alteration Agreement reached between the applicant and the California Department of Fish and Game regarding the subject restoration and enhancement work.

Finally, Special Condition No. 9 requires the applicant, prior to the commencement of the restoration and enhancement construction to provide a copy of the Clean Water Act Section 404 permit issued by the U.S. Army Corps of Engineers authorizing the subject restoration and enhancement work.

Staff believes the proposed project as conditioned is consistent with the Coastal Act and recommends approval of the proposed project with the above-identified conditions.

STAFF NOTES

1. Jurisdiction and Standard of Review.

The proposed project is located in the Commission's retained jurisdiction. The City of Arcata 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 project is the Chapter 3 policies of the Coastal Act.

STAFF RECOMMENDATION:

The staff recommends that the Commission adopt the following resolution:

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 No. 1-05-017 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 as conditioned and adoption of the following resolution and findings. The motion passes only by affirmative vote of the majority of the Commissioners present.

Resolution to Approve Permit:

The Commission hereby approves a coastal development permit for the proposed development and adopts the findings set forth below on grounds that the development as conditioned will be in conformity with the policies of Chapter 3 of the Coastal Act. Approval of the permit complies with the California Environmental Quality Act because either 1) feasible mitigation measures and/or alternatives have been incorporated to substantially lessen any significant adverse effects of the development on the environment, or 2) there are no further feasible mitigation measures or alternatives that would substantially lessen any significant adverse impacts of the development on the environment.

II. STANDARD CONDITIONS: See attached.

III. SPECIAL CONDITIONS:

1. Final Restoration Monitoring Program

A. **PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT,** the applicant shall submit for review and written approval of the Executive Director, a final detailed restoration monitoring program designed by a qualified wetland 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 restoration goals and objectives set forth in Coastal Development Permit Application No. 1-05-017 as summarized in the Findings IV.B, "Project Description," and shall include but not be limited to the following standards: (a) utilization by one or more of the following species: steelhead (Oncorhynchus mykiss), coho salmon (Oncorhynchus kisutch), and/or coastal cutthroat trout (Oncorhynchus clarki); (b) increases in freshwater and brackish water aquatic habitat by increasing the length of flow length of Campbell Creek by a minimum of 110 lineal feet and expanding the high-flow floodplain of lower Beith Creek by a minimum of 0.4-acre (17,425 square-feet); and (c) increasing adjoining riparian vegetation by the planting of a minimum of 725 native tree and shrub species.

2) Provisions for monitoring at least the following attributes: (a) presence of steelhead (Oncorhynchus mykiss), coho salmon (Oncorhynchus kisutch), and coastal cutthroat trout (Oncorhynchus clarki); and (b) increases in freshwater and brackish water aquatic habitat, and saltmarsh and riparian

vegetation at the following frequency: biannually for five years using methods such as: fyke netting / electro-fishing sampling, transect sampling, photo plots, and/or direct counting of surviving tree and shrub plantings.

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 monitoring and remediation of the enhancement site in accordance with the approved final enhancement program and the approved final monitoring program for a period of five years.

6) 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.

7) 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 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 Application No. 1-05-017 as summarized in Findings IV.B "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. 1-05-017 as summarized in Finding IV.B "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.

2. Fencing and Revegetation Maintenance Requirement

As any of the cattle exclusion fencing, including posts, stringers, and wiring is removed or otherwise becomes damaged and allows cattle to enter the riparian exclusion area, the fencing shall be immediately repaired to restore its function as a barrier to entry by cattle throughout the life of the development. As any of the trees or shrubs to be planted die or are removed for any reason, they shall be immediately replaced in-kind throughout the life of the development.

3. Construction Responsibilities, Debris Removal, and Disposition of Excavated Materials

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

(a) No construction materials, debris, or waste shall be placed or stored where it may be subject to entering waters of Humboldt Bay, Gannon Slough, Campbell Creek, or Beith Creek;

(b) All construction debris, including fencing materials packaging, wiring scraps, fasteners, and excess or broken fence posts, 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.

4. Excavated Materials Disposal Plan

A. **PRIOR TO THE COMMENCEMENT OF DEVELOPMENT,** 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 project site.

(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 a valid coastal development permit, as well as consistent with the terms and conditions of this permit (CDP No. 1-05-017); or (ii) disposed of at an authorized disposal site capable of receiving such fill materials (i.e., CDP 1-03-004, Reclamation District No. 768, Applicant). Side casting or placement of any such material within Arcata Bay, any slough, waterway, streamcourse, or lake, or any other wetland area, including any grazed seasonal wetlands, except as specified above is prohibited; and

(c) Excavated materials removal activities shall not occur during the rainy season consistent with Special Condition No. 4;

(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 approved by the Commission under a valid coastal development permit, the permittee shall provide: (i) a copy of the approved permit, (ii) written permission from the owner of the property governed by the approved permit authorizing the fill, and (iii) 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.

5. Erosion and Runoff Control Plan

A. **PRIOR TO ISSUANCE OF COASTAL DEVELOPMENT PERMIT NO. 1-05-017**, the applicant shall submit, for review and approval of the Executive Director, a plan for erosion and run-off control.

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 excavation for building foundations; 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*; WM-1 – *Material Delivery and Storage*, WM-4 – *Spill Prevention and Control*; 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, 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 development in accordance with the approved final plans. Any proposed changes to the approved final plans shall be reported to the Executive Director. No changes to the approved final plans shall occur without a Commission amendment to this coastal development permit unless the Executive Director determines that no amendment is legally required.

6. <u>Restoration Site Revegetation</u>

The coastal stream and riparian corridor enhancement site shall be revegetated as proposed and comply with the following standards and limitations:

a. Only native and/or non-invasive plant species shall be planted. 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 utilized within the property.

b. Only California Crop Improvement Association-certified "yellow tag" California native grass seed shall be used in the proposed soil stabilization applications.

c. All planting will be completed within 60 days after completion of construction of the realigned and restored stream channels.

d. All required plantings will be maintained in good growing conditions throughout the life of the project, and whenever necessary, shall be

replaced with new plant materials to ensure continued compliance with the landscape plan.

e. The use of rodenticides containing any anticoagulant compounds, including, but not limited to, Bromadiolone, Brodifacoum or Diphacinone. shall not be used.

f. Willow Cuttings shall comply with the following:

(1) Cuttings shall be taken from nearby willow trees and planted during the period of November 1 to March 1;

(2) The stakes shall be obtained from long, upright branches taken off the parent plant by cutting the branch at an angle, so that it makes a point. Live stakes shall be between 18 and 24 inches long and at least three-eighths inch (⅜") in diameter;

(3) Leaves and small branches shall be removed from the stakes as soon as possible after cutting them, to keep the stakes from drying out;

(4) Stakes shall be planted within 24 hours of their cutting for best results. The cuttings shall be kept moist and wet by storing them in buckets or wet burlap sacks. The cuttings shall be kept in the shade until they are planted; and

(5) The stakes shall be inserted angle-cut end down a minimum of one foot deep into the streambank, with three to six inches of the cutting exposed above the ground surface to allow for leaf sprouting.

7. <u>State Lands Commission Review</u>

PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT NO. 1-05-017, the applicant shall submit to the Executive Director a written determination from the State Lands Commission that:

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

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

c. State or public trust lands may be involved in the development, but pending a final determination an agreement has been made with the State

Lands Commission for the approved project as conditioned by the Commission to proceed without prejudice to that determination.

8. California Department of Fish and Game Approval

PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT NO. 1-05-017, applicant shall provide to the Executive Director a copy of a permit issued by the California Department of Fish and Game (CDFG), or letter of permission, or evidence that no permit or permission is required. The applicant shall inform the Executive Director of any changes to the project required by the CDFG. Such changes shall not be incorporated into the project until the applicant obtains a Commission amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

9. U.S. Army Corps of Engineers Approval

PRIOR TO COMMENCEMENT OF CONSTRUCTION, the permittee shall provide to the Executive Director a copy of a permit issued by the Army Corps of Engineers, or letter of permission, or evidence that no permit or permission is required. The applicant shall inform the Executive Director of any changes to the project required by the Army Corps of Engineers. Such changes shall not be incorporated into the project until the applicant obtains a Commission amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

IV. FINDINGS AND DECLARATIONS.

The Commission hereby finds and declares as follows:

A. Site Description.

The City of Arcata proposes to restore and enhance riparian wetlands within the lower reaches of the watercourses known as Campbell Creek / Gannon Slough and Beith Creek to provide greater habitat value and diversity for water-associated wildlife. The Campbell Creek watershed comprises approximately 920 acres and drains the portions of the city east of Highway 101 along the lower southwest-facing slopes of Fickle Hill, the landform that forms the eastern backdrop of the City of Arcata. The Beith Creek watershed comprises 731 acres and drains much of the lower Fickle Hill area between the City's East Arcata-Bayview and Sunnybrae neighborhood areas (see Exhibit Nos. 1 and 2). Campbell Creek runs generally north-south for an approximately 800-foot distance through its realignment project area, then continues southward for ½ mile further to join Beith Creek before passing through a malfunctioning tide gate proposed for replacement situated on a levee farm road. After passing through this tidegate, Gannon Slough turns westward and passes through a functioning tide-gated culvert beneath Highway 101, to

enter into Arcata Bay. The overall project site consists of three sub-area segments: (1) Campbell Creek Realignment; (2) Gannon Slough Tide Gate Replacement; and (3) Beith Creek Channel Restoration (see Exhibit No. 4).

The **Campbell Creek Realignment** project area is situated at the southern entry to Arcata in the grazing lands lying along the eastern side of Highway 101 south of Samoa Boulevard (see Exhibit No. 4). The Campbell Creek Realignment project area comprises the northwestern 2½ acres of a 46.7-acre pastureland tract recently purchased by the City for stream restoration purposes situated on the east side of Highway 101 immediately adjacent to the northbound Sunnybrae / Samoa Boulevard exit.

The **Gannon Slough Tidegate Replacement** project area is located on the tidally-influenced portion of Campbell Creek (Gannon Slough) along the east side of Highway 101, ¾ mile south of the Campbell Creek Realignment site. The tidegate runs beneath a ranch levee access road that intersects with Highway 101 across the freeway from the South G Street onramp.

The **Beith Creek Channel Restoration** project area, comprising a roughly 2½-acre easement area extending west-southwesterly across APN 501-042-01 in a roughly 120-foot-wide band for a distance of approximately 1,000 feet from the rear of the Meadowbrook Apartments multi-family residential complex, lies laterally between the Campbell Creek and Gannon Slough project sites, approximately ½ mile to the east.

The subject pasturelands are situated on former tidelands that made up the eastern third of the Arcata Bay lobe of Humboldt Bay prior to its reclamation in the late 1800s. Over time, this former salt marsh intertidal channel conveying flows from the Beith and Campbell Creek watersheds have become more of a stream. Depending upon the phase and intensity of the tides and the proper functioning of the tidegates, these watercourses may contain and convey fresh, brackish, and/or saltwater. As a result of this dynamic hydrology and the presence of cattle along and within the banks of the watercourse, much of the vegetation along the creek and slough sides has been denuded, save for scattered remaining outgrowths of coyotebrush (Baccharis pulularis) and Himalaya blackberry (Rubus discolor). Much of the Campbell Creek channel is choked with cattails (Typha sp.), water parsley (Oenanthe sarmentosa), marsh pennywort (Hydrocotyle umbellata), and other ruderal aquatic vegetation. There are no rare, threatened, endangered or special-status plants within the Campbell Creek Channel Realignment and Beith Creek Channel Restoration project areas. Three plant species enumerated on the California Native Plants Society's "List 1B" and "List 2"[1] of rare native plants, Humboldt Bay

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[1] Pursuant to the Native Plant Protection Act (NPPA) and the California Endangered Species Act (CESA), plants appearing on the California Native Plant Society's "List 1B" and "List 2" meet the definition as species eligible for state listing as a rare, threatened, or endangered plant. List 1B plants are defined as "rare plant species vulnerable under present circumstances or to have a high potential for becoming so because of its limited or vulnerable habitat, its low numbers of individuals per population (even though they

Owl's Clover (Castilleja ambigua ssp. humboldiensis), Point Reyes Birdsbeak (Cordylanthus maritimus ssp. palustris), and Lyngbye's sedge (Carex lyngbyei), are found in the general vicinity of the Gannon Slough Tidegate Replacement project area. However, these outcroppings are not within the immediate area where the tidegate reconstruction would be performed and care would be taken in the staging of equipment and materials to avoid impacts to these distinct and readily-identifiable rare plants.

In addition to the readily recognizable riparian wetlands within the creek and slough banks, the adjoining pasturelands, with the exception of the various bermed roadbeds and levees that have been filled in the past to heights of two or more feet above the surrounding terrain, are considered seasonal wetlands, exhibiting a combination of wetland hydrology, hydric soils, or hydrophytic vegetation indicators.

The restoration/enhancement sites are situated along the channelized Campbell Creek stream course at elevations ranging from approximately +4 to +14 feet above mean sea level (msl) referenced from the 1988 North American Vertical Datum ($NAVD_{88}$).

Arcata Bay, its feeder creeks and the surrounding agricultural, public facility, and open space lands provide habitat for a diversity of wildlife. The project area is habitat for a wide variety of resident and migratory waterfowl, shorebirds, wading birds, songbirds, and raptors. A smaller number of mammals, amphibians and reptiles also inhabit the area. Several species of fish have been found in Campbell Creek / Gannon Slough, including the *coho* salmon (Oncorhynchus kisutch), listed as endangered federally and as a threatened species in California, steelhead (Oncorhynchus mykiss) a state-listed threatened species, and coastal cutthroat trout (Oncorhynchus clarki), a California species-of-special-concern. Numerous avian species are also known to commonly forage at the site include the northern harrier (Circus cyaneus), white-tailed kite (Elanus leucurus), Great blue heron (Ardea herodias), and Snowy egret (Egretta thula).

The project site is surrounded by a mixture of agricultural, private recreation, public facility, and multi-family residential uses, taking the form of grazing pastures and paddocks, Little League baseball playing fields, a California Highway Patrol station, a freeway and a state highway, and a apartment complex. The subject property is designated Coastal Agricultural Exclusive with Wetlands and Creeks Protection Combining Zone (C-A-E:WCP). With the exception of Highway 101's Class II bike lanes and the paved roadside walkways and Class III bike lanes along Samoa Boulevard, there are no coastal access and recreational amenities for hiking, cycling, bird-watching, and boating in the immediate project vicinity. However, numerous such activities centered around Arcata Bay and its saltwater tidal margins are available nearby at the

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may be wide ranging), or its limited number of populations." List 2 plants are defined as "plants rare, threatened, or endangered in California, but more common elsewhere." The NPPA mandates that plants so listed be considered in the preparation of all environmental analyses conducted pursuant to the California Environmental Quality Act (CEQA).

Arcata Marsh and Wildlife Sanctuary, the Butcher Slough Restoration Project, the Arcata Marsh Interpretative Center, and the Department of Fish and Games Mad River Slough Restoration Area, across Highway 101 to the west and south of State Route 255, along the northern shoreline of bay.

B. Project Description.

The City of Arcata proposes to restore and enhance the lower reaches of the Campbell Creek / Gannon Slough and Beith Creek watercourses. Beith and Campbell Creeks are Class II, first-order coastal streams that have been significantly culverted, and channelized along their approximately 1½-mile lower lengths over the last century. As a result, much of the original streamside riparian canopy has been removed and major portions of the creeks lie in closed culverts beneath Highway 101 and underneath the mixed single- and multi-family residential neighborhoods of east-central Arcata.

Despite this history of impacts, the habitat potential of the Beith and Campbell Creek watersheds, along with that of the other urban creeks within the northern Humboldt Bay region, has been recognized by numerous public resource agencies and non-government organizations alike that have expressed a common interest to restore the creek. In 1986, under a City-issued coastal development permit, previously culverted, channelized, and denuded sections of the creek above the project site on the other side of the Highway 101 – Samoa Boulevard interchange were significantly re-contoured and revegetated as part of the City's community park and sports complex project. Similar efforts to restore or "daylight" other sub-surfaced urban creeks within the City have been ongoing since the mid-1980's. In addition, pursuant to Coastal Development Permit No. 1-03-031, approved by the Commission on November 6, 2003, the City has constructed cattle exclusion fencing to enclose an 8.7-acre area along a 2,537-foot reach between the currently proposed Campbell Creek realignment and Gannon Slough tidegate replacement sites, and has re-vegetated the enclosed area with native plants. In addition, pursuant to a public works emergency permit waiver issued in March 2000 (CDP File No. 1-99-068, City of Arcata Environmental Services Department, Applicant), a breached portion of the Beith Creek streambank was repaired to prevent the creek's waters from leaving its channel and sheet-flowing onto adjoining pasturelands.

The restored portions of Campbell Creek north of the project site alongside the City's Sports Complex now consist of a series of meandering channels and alcoves flanked by over-flow plains and shaded by a developing riparian corridor vegetation complex with a canopy of willows (Salix sp.) and red alder (Alnus rubra) interspersed with an understory of native shrubs. The native vegetation along more recently fenced and planted portions of Campbell Creek between the currently proposed realignment and tide gate replacement portions installed under CDP No. 1-03-031 is in the very early stages of establishing a streamside canopy along that stream reach. Notwithstanding these improvements, the subject slough and creek reaches remain narrow, denuded, relatively straight drainage channels with little hydrologic complexity. Until the remaining sections of channelized,

over-grown, and/or denuded streambank have been restored and the vertical barriers to fish passage removed, these watersheds will continue to afford only a minimum of fish and wildlife habitat.

Project's Habitat Restoration and Enhancement Objectives

As part of its ongoing efforts to preserve and protect fish and wildlife habitat, with assistance and funding from the Coastal Conservancy and the California Department of Fish and Game's Wildlife Conservation Board, the City of Arcata has acquired and began to actively manage the streamside and grassland portions of the 46.7-acre parcel through which the waters of lower Campbell Creek / Gannon Slough flow. The central goal of the City's stream rehabilitation project is to protect and restore riparian habitat to benefit anadromous fish species. The City also wishes to foster compatible scientific and educational uses within the area. These efforts are being undertaken both as implementation of the city-wide Arcata Creeks Management Plan as well as complimenting other resource agency, conservation group, and watershed association projects throughout the Humboldt Bay region.

One of the most straightforward methods for improving degraded stream habitat is to return the watercourse as closely as practicable back to its pre-modified conditions. Depending upon the specific modifications that have been made, the creek or slough can be improved by a combination of techniques. Specific to the project site, appropriate techniques would include restoring over-bank and floodplain areas lost to channelization, returning hydrologic complexity to the stream by increasing channel sinuosity on artificially straightened reaches and creating off-channel refugia alcoves, replacing large wood vegetation cover elements within the stream channel and along the banks, and re-establishing the native riparian corridor vegetation on denuded reaches or those dominated by invasive, exotic plants.

The applicant proposes to conduct such work alongside Campbell Creek / Gannon Slough and Beith Creek as part of the stream habitat restoration project. The proposed project would entail some the above-listed enhancements and improvements to the watercourses along major segments of their lowermost freshwater reaches, and would represent the next phase of the City's ongoing creek restoration work for this watershed. Specifically, a 910 lineal-foot length of meandering channel with variable cross-section geometrics and large woody debris structures would be developed on Campbell Creek in place of the roughly 800-foot-length of straight, relatively featureless drainage ditching the creek currently occupies. In addition, the high-flow floodplain along an 850-foot reach of Beith Creek would be expanded by over 1/3 acre by removing the fill that forms the berms on either side of the creek's present constrained channel. For the subject site, however, pursuing all of these restoration methods simultaneously along all reaches of all of the watercourses would be either inappropriate for the site conditions present, economically or environmentally infeasible to carry out, or a premature measure at this particular time.

Additionally, complete "restoration" of the site back to the estuarine tidal salt marsh conditions that existed prior to the reclamation of the eastern side of Arcata Bay would entail extensive construction of diking around the perimeter of the site to be restored and tying back into levees running along the bayfront to form an enclosed embayment. This structure would need to be engineered to withstand the hydraulic forces associated with full tidal bore inundation and direct storm surge exposure, and would require extensive modifications to portions of the Highway 101 roadway to ensure its protection from coastal erosion, a prohibitively costly and environmentally risky undertaking.

Similarly, there would be little benefit to the target salmonid fish species resulting from placing any in-channel structural habitat improvements, such as large woody debris, before the more basic deleterious conditions along the watercourse are corrected. These deleterious conditions include elevated water temperatures associated with lack of canopy and elevated sediment levels, exposure to predators, and eutrophication. These conditions can be corrected through the exclusion of water quality-impacting cattle and reestablishing the solar-shading and predatory screening riparian vegetation canopy.

The proposed restoration and enhancement work is being pursued as one of a number of the City's efforts to improve the fish and wildlife habitat and water quality within the Campbell, Fickle Hill, Little Fickle Hill, Grotzman, and Beith Creek watersheds along the City's south-east side. Although comprehensive project plans have not yet been finalized, preliminary plans envision further such cattle exclusion and revegetation projects, in the channels along the recently City-acquired lands flanking Jacoby Creek, downstream of where this creek crosses Old Arcata Road.

The proposed project under application has four components: 1) improve riparian habitat, increase canopy cover, provide future large woody debris recruitment for coho salmon, steelhead and cutthroat trout by realigning a 910-foot reach of Campbell Creek currently flowing through an artificial drainage ditch adjacent to Highway 101; 2) repair an existing and non-functioning tidegate structure separating Gannon Slough from Humboldt Bay and replace with a side-hinged gate with a muted opening to provide access for anadromous salmonids; 3) provide enhanced floodplain and fish habitat structure by restoring a definable channel along an 850-foot reach of Beith Creek; and 4) install livestock exclusion fencing and plant native trees and shrubs on both Campbell and Beith Creeks. These project segments are further detailed as follows:

Campbell Creek Channel Realignment

Transitional Jump Pools: Beginning at the downstream end of the box culvert within the Highway 101 right-of-way, two boulder weirs with intervening jump pools would be installed to step the existing water level within the state highway drainage works down to the grade of the to-be-excavated channel. The weir-bounded pools would facilitate upstream migration for salmonids, namely coastal cutthroat trout, steelhead trout, and coho salmon. Each weir would form jump heights of about 0.7 feet each, with each pool being about two feet deep and about 12 feet in length. The weir crests include inner

spillways of about one foot in width and 0.7 feet in depth to provide sufficient depth for fish passage at low flows.

Bypass Spillway/Diversion Weir: To route the streamflow into the restored channel, the existing ditch would be blocked off by placing a diagonal plug of fill in the ditch. However, the existing channel would be retained to function as a high flow drainage bypass channel. By limiting its height to several feet below the top of the existing ditch banks, this fill plug would also serve as a bypass spillway to ensure the capacity of the new channel is not exceeded that could result in fish strandings during high flows. The spillway would be armored with small riprap to prevent erosion during spill events. The upstream face of the fill plug would form the outside of the bend toward the new channel. Boulders and large woody debris would also be incorporated into the upstream face to prevent bend erosion and provide resting habitat for fish. The proper elevation of the spillway would be determined by hydraulic modeling to ensure maximum peak discharges in the restored channel do not exceed channel capacity.

Log Grade Control: A log grade control structure would be placed flush with the channel bed downstream of the weirs to stabilize the finished grade of the new channel and prevent headward migration of scour that might otherwise undermine the weirs. The structure would consist of two logs forming an upstream-pointing, low profile weir, but with very little relief.

Channel Restoration: The new channel would consist of a series of six meander bends and six intervening crossovers (straight reaches), for with a total length of about 910 feet. The meander bends would have asymmetrical cross sections, with a point bar left along the inside of each bend and a deeper thalweg along the outside of the bend. Crossover sections would be somewhat trapezoidal with a deeper middle section for centering and deepening low flows. The top width of the channel would be thirty feet and bottom widths will be about twenty feet. The side slopes of the streambanks are designed to be 1:1, slightly gentler than those typically found in slough channels. The rerouted new channel would include four to six logs anchored into the bank as cover structures. A total 160 cubic yard of fill representing 0.037 acres (1,612 square-feet) of wetlands coverage, would be placed to create the spillway, jump pools and meander bends for the new channel. As described further below, the City proposes to remove 400 cubic yards of upland fill from a 0.4-acre (17,425 square-foot) area within the Beith creek flood plain area to mitigate for the fill that would be placed in constructing the Campbell Creek realignment.

Channel bed elevations are designed to be within the tidal range to be reintroduced with the new tide gate installed downstream on Gannon Slough. The tidegate would be designed to limit mean higher high water (MHHW) to an elevation of about 4.0 feet $NAVD_{88}$, or about 2.8 feet below MHHW in Arcata Bay. With channel beds within two feet of the artificial MHHW, salt marsh plants would be able to colonize point bars and other marginal areas of the channel bed and banks. Due to its lower depth, the thalweg

should remain open and unvegetated. The slope over most of the reach would be about 0.3%, with a steeper slope commencing immediately upstream in the weir reach.

Once the new channel has been completed and allowed time to develop an adequate vegetated cover to stabilize its banks, creek flows would then be directed into the new channel by installing the riprap plug within the existing channel. The City anticipates that this stage would encompass two months. Irrigation would be used, if necessary, to promote seed germination and establishment of the bank stabilization vegetative cover. Immediately before and during the time that flow is directed to the new channel, City staff proposes to walk the old channel and rescue aquatic organisms remaining in the original channel. Any organisms found within the old channel would be released into the new channel. Silt fencing would be installed down stream of the work site as an added precaution. All habitat improvements would be done in accordance with techniques described in the California Department of Fish and Game's "California Salmonid Stream Habitat Restoration Manual."

The approximately 4,000 cubic yards of fill removed in realigning Campbell Creek channel site would be hauled to approved fill sites (see Exhibit No. 6). The excavation of the new channel would occur during the dry late summer/early autumn dry season. Flows are estimated to be less than one cubic-foot-per-second (cfs) during the low flow season. The applicant observes that this timing would prevents negative impacts to aquatic species by performing the work during the dry season when the creek is in a low flow condition and aquatic species are not reproducing. Eggs and larvae of aquatic species will not be present when the work would be performed. Working when the site is driest part of the year would also minimize compaction and reduce damage to adjacent vegetation.

Access and Staging: Access to the site would be over a gated farm road leading into the site from the entrance to the California Highway Patrol Station at the traffic circle intersection of Samoa Boulevard and Union Street. Materials and equipment would be staged on upland areas along the roadway.

Gannon Slough Tidegate Replacement

The entire tidegate assembly would be installed as one piece so the headwall is integral with the unit. The new tidegate is a custom-fabricated, side-hinged aluminum gate that would be mounted on the wing-walls of the existing non-functioning tidegate structure. The new tidegate would have a muted opening with an adjustable "guillotine-style" auxiliary door. set with a maximum aperture opening of two square feet. The auxiliary door is a top-hinged tidegate mounted on a track that can be adjusted up and down and also adjusted to reduce the size of the opening. Hydrologic modeling has determined that the muted opening and tidegate can be installed to allow greater tidal exchange in Gannon Slough/Campbell Creek /Beith Creek without flooding adjacent lands.

The repair is anticipated to take three days. No coffer damming or isolation of the creek waters would be necessary as the work would be undertaken during the diurnal low tide

cycles. On the first day, the culverts and tide gate would be assembled in an adjacent upland area along the farm access road beneath which the tidegate lies. Required backfill and riprap materials would similarly be staged. All excavation and removal of soil materials and piping that can be extricated without breaching would also be completed. Upon the falling tide on the second day, a full excavation of the old tidegate structure would occur. The bed for the new assembly would be prepared and the assembly would be installed during slack low tide. Ahead of the incoming tide, riprap & backfill would be placed to a minimum elevation of that of the next high-high tide crest. Work on the third day would entail finishing the grade and restoring the road surface, loading and out-hauling any material that has been rejected for reuse, out-hauling the old tidegate assembly, and seeding and bedding the area with straw mulch. No additional fill would be required for installing the replacement tidegate.

Access and Staging Areas: Vehicular and equipment access to the work site would be via an existing unpaved ranch road leading onto the site from the northbound lane of Highway 101 near the Sunnybrae / Samoa Bouldvard exit. Materials and equipment would be staged along the upland portions of the access road on either side of the slough crossing. Care would be taken in the staging of materials and equipment to avoid the patches of distinct and readily-identifiable rare Humboldt Bay owl's clover, Lyngbye's sedge, and Point Reyes birds-beak within the project's vicinity.

Beith Creek Channel Restoration

Setback Levee Grading: The goal of this project element is to develop less constrained channel with riparian cover on both sides of the channel. The existing berm (fill) would be pulled back to let the stream meander and occupy a wider low flow channel. Approximately 400 cubic yards of upland fill would be removed from a 0.4-acre (17,425 square-foot) area within the Beith Creek flood plain. Accounting for the 0.037 acre of fill that would be placed to form the Campbell Creek spillway and diversion berms, removal of the fill along Beith Creek would result in a net increase of 0.363 acre (15,812 square-feet) of wetland area within the combined lower watersheds of these two coastal streams. The existing low-flow channel would not be physically altered by the proposed action. The stream would be allowed to occupy a wider high flow channel and expand its meander pattern. As a result, stream velocities should be lessened by the removal of the current restricted flow line within Beith Creek.

An excavator or backhoe would load dump trucks that are adjacent to the new channel excavation area. To prevent sediment transport, the City would install a sediment fence downstream of the existing channel. The approximately 400 cubic yards of fill removed from the Beith Creek channel enhancement site would be hauled to approved fill sites (see Exhibit No. 6). The excavation of the channel enhancements to lower Beith Creek would occur during the late summer/early autumn dry season. During this period, flows within Beith Creek are estimated to be less than one cubic-foot-per-second (cfs). The applicant observes that this timing would prevent negative impacts to aquatic species by performing the work during the dry season when the creek is in a low flow condition and

aquatic species are not reproducing. Eggs and larvae of aquatic species will not be present when the work would be performed. Working when the site is driest part of the year would also minimize compaction and reduce damage to adjacent vegetation.

Campbell and Beith Creeks Riparian Corridor Revegetation

Cattle Exclusion Fencing: The City also proposes to install 910 lineal-feet of high-tensile, single-stand, 12.5-gauge electrical wire fencing to create a 2.1-acre riparian setback corridor on one side of the Campbell Creek Channel Realignment site and to form a 2.5-acre riparian corridor along both sides of the 850 lineal-feet of the Beith Creek Channel Restoration site. The wire would be secured on seven-foot-long metal "T"-shaped posts pounded into the ground to a depth of 30 inches. The roughly 400 posts would be placed on a on-center spacing not to exceed 10 feet, with a maximum of four gates. The 10-watt solar panel and battery unit would be secured near by the fenced area. A second battery pack may be installed as a back up power source. No cattle creek crossing platform is proposed. The fencing work would occur in late summer and revegetation would occur during the winter dormancy period (late December - January). Revegetation would occur in December 2005 and January 2006. The project would be completed under a plan and design approved by CDFG.

Riparian Revegetation: The City would plant total of 725 native trees and shrubs comprised of a mixture of willows (Salix sp.), red alder (Alnus rubra), Sitka spruce (Picea sitchensis), big-leaf maple (Acer macrophyllum), and coast redwood (Sequoia sempervirens), gooseberry (Ribes sanguinium), twinberry (Lonicera involucrata), and California bay (Myrica californica) in the newly fenced 75-foot-wide buffer areas. Willow stakes for the willow trees would be selected from nearby City of Arcata natural resource areas. Tree and shrub species are stated to be "tree pot size or equivalent." Big leaf maple would be one-gallon size or equivalent tree pot size. Estimated height of the trees would be one to three feet upon installation. The trees would be clustered when planting to provide a random more natural vegetated area, generally with 10- to 15-foot spacings. The trees would be mulched for weed control. The City expects a minimum of 50% survival rate. If need be, trees would be added to meet that in future years. The City would seed the disturbed areas with native annual grasses at a rate of ten pounds per acre. The riparian channel enhancement would improve movement and storage of flood waters. The riparian revegetation enhancements would improve habitat for fish by contributing to a stream bottom character, providing increased cover and feeding opportunities, and helping to keep dissolved oxygen levels high.

C. Protection of the Wetland Environment.

The proposed project involves development within wetlands consisting of the placement of fill in the form of the Campbell Creek diversion weir and bank berm, and the fence posts along the new watercourse channels. This fill totals approximately 150 cubic yards over a 1,612 square-feet area. Once the project has been completed, a total of approximately 1.2 acres of Riverine Emergent Nonpersistent Semi- permanently Flooded

(stream channel) and 3.4 acres of Palustrine Persistent Emergent Seasonally Flooded (riparian corridor) wetlands will have been re-established and/or enhanced from their current state as degraded drainage ditching and non-native perennial grasslands. Because the project would also entail the dredging of areas of fill that represent bermed uplands adjoining portions of the Beith Creek channel, a net increase of 0.363 acre (15,812 square-feet) of wetland area would result within the combined lower watersheds of Campbell and Beith Creeks.

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, or dredging are allowed in wetlands only for limited uses. In addition, Coastal Act Section 30231 provides in applicable part that the biological productivity and the quality of coastal waters be maintained and restored where feasible by protecting natural vegetation buffer areas near riparian habitats and by minimizing alteration of natural streams.

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:...*
>
> *(7) Restoration purposes...*
>
> (c) *In addition to the other provisions of this section, diking, filling, or dredging in existing estuaries and wetlands shall maintain or enhance the functional capacity of the wetland or estuary...* [emphasis added]

Sections 30233 and 30231 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:

1. The purpose of the filling, diking, or dredging is for one of the eight uses allowed under Section 30233;

2. that feasible mitigation measures have been provided to minimize adverse environmental effects;

3. that the project has no feasible less environmentally damaging alternative; and

4. 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. One of the allowable purposes for diking, filling, or dredging, under Section 30233(a)(7) is "restoration purposes." As discussed in detail above, the proposed project intends to restore and enhance approximately 1,600 lineal feet freshwater/saltmarsh transitional wetlands along the lower reaches of Campbell Creek / Gannon Slough.

The Commission finds that this wetland enhancement project, where the sole purpose of the project is to improve wetland habitat values, constitutes allowable fill, dredging, and diking for "restoration purposes" pursuant to Section 30233(a)(7). For example, the Commission concurred with a consistency determination for a wetland enhancement project proposed by the U.S. Fish and Wildlife Service at the Humboldt Bay National Wildlife Refuge (CD No. 33-92). This project similarly involved filling of wetlands to create and enlarge shallow ponds and sloughs and replace water control structures and was approved as fill for a "restoration purpose" under Section 30233(a)(7). Another similar wetland enhancement project approved by the Commission as a "restoration purpose" under Section 30233(a)(7) involved the excavation of six acres of Doran Park Marsh to create a new tidal pond wildfowl foraging area at the southeast end of Bodega Harbor, Sonoma County (CDP No. 1-93-04).

The Commission has found wetland enhancement projects to be for an allowable restoration purpose both in cases where such enhancement projects have been undertaken to restore an area of the bay to the salt marsh conditions that existed prior to European settlement as well as to freshwater habitat enhancement projects more typical of the post-reclamation setting. The Commission approved the wetland enhancement projects proposed by the Department of Fish and Game involving excavation of slough channels to create freshwater ponds at the Mad River Slough Wildlife Area adjacent to Arcata Bay several miles to the northwest of the subject site (CDP No. 1-99-063) and on the Fay Slough Wildlife Area (CDP No. 1-00-025). The Commission has also approved restoration projects conducted by the City of Arcata, on the lower Jolly Giant / Butchers Slough interface on the former Little Lake Industries mill site (CDP No 1-02-020) as well as that conducted previously on Campbell Creek / Gannon Slough (CDP 1-03-031). All of these projects are located on former salt marsh tidal flats.

The Commission thus finds that the proposed project, solely intended to restore and enhance wetland habitat values on the lower reaches of Campbell Creek and Beith Creek is for a "restoration purpose" and is allowable under Section 30233.

This finding that the proposed diking, filling, and dredging constitutes "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." To ensure that the project achieves the wetland restoration/enhancement objectives for which the project is intended, the Commission attaches Special Condition Nos. 1 and 2. Special Condition No. 1 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. 1 requires the monitoring plan to include provisions for remediation to ensure that the goals and objectives of the wetland enhancement project are met. Special Condition No. 2 requires the applicant to repair and maintain both the fencing and the revegetated areas. Fencing is to be promptly repaired if it should be damaged in a manner that allows cattle to enter the riparian vegetation restoration exclusion area. Similarly, should any of the scheduled restoration plants die or otherwise be removed, the plants shall be replaced at a 1:1 ratio.

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)(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 Campbell Creek / Gannon Slough and Beith Creek include: (1) removal or coverage of streambank habitat; (2) impacts to fish and wildlife habitat from water pollution in the form of sedimentation or debris entering coastal waters and wetlands; (3) introduction through re-planting of exotic invasive plants species that could compete with native vegetation and negate the habitat improvement they would provide; and (4) 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 Stream and Streambank Habitat Area

A potential significant adverse impact resulting from filling in wetlands is the coverage or removal of streamside habitat. As discussed in Project Description Findings Section IV.B, the proposed project would involve the placement of a total of approximately 150 cubic yards of riprap materials over an approximately 1,612 square-foot area within and adjacent to the existing Campbell Creek channel. In addition, approximately 400 metal "T-posts" with an aggregate coverage area of approximately 2½ square feet could be used to string the hot wire and form the gating.

The vegetation along and within the portion of Campbell Creek that would be either filled and bypassed in diverting flows into the new channel is comprised of a mixture of ruderal species that are generally found along disturbed streams, including salt grass (Distichlis spicata), Himalayan blackberry (Rubus discolor), creeping buttercup (Ranunculus repens), coyote brush (Baccharis pilularis), pampas grass (Cortaderia jubata), and rushes (Juncus sp.). Given the dominance of invasive pioneering plant species and the near-absence of fish and wildlife species normally found along coastal streams of this size, the current habitat value of this streambank area can be considered to be severely degraded.

The impact of the 150 cubic yards of structural fill over the 1,612 square-foot area comprising the diversion weir and bank berming, along with the seasonal de-watering of the roughly 800 lineal feet of roadside drainage ditching associated with the Campbell Creek Channel Realignment project on the habitat value of the area would be off-set by the excavation and revegetation of a 2.1-acre area along 75 feet of either side of the new 910-foot-long channel. The newly created riverine and riparian replacement wetlands would provide increased habitat area for water-associated fish and wildlife including, salmonid fish species, shorebirds, wading birds, perching songbirds, and raptors, and small mammals such as stripped skunk and raccoons. In addition, 400 cubic yards of upland berm materials that would be removed from the 17,425 square-foot area alongside the Beith Creek Channel Restoration site would be in excess of 2½ times the quantity and over 10 times the area being affected by the placement of the fill materials at the Campbell Creek site.

To ensure that the habitat characteristics intended to be re-established and improved by the project do not cause impacts to aquatic habitat and coastal water quality over time through deterioration of either the cattle exclusion fencing or loss of the riparian vegetation, the Commission attaches Special Condition No. 1. Special Condition No. 1 requires that the applicant repair and maintain the fencing to ensure that cattle do not enter the restoration area and promptly replace any of the planted vegetation as it dies or is otherwise removed.

b) Sedimentation Impacts to Aquatic Habitat and Water Quality

The subject wetlands that would be filled by the diversion weir and bank berming on Campbell Creek consist of the brackish riparian areas with the roughly four-foot-wide

drainage channel constructed parallel to northbound Highway 101 south of the Samoa Boulevard exit (50 cubic yards over 305 square-feet), together with a portion of the adjoining seasonal grazing wetland areas in which the realigned channel would be sited (100 cubic yards over 1,307 square-feet). The watercourse provides cover and forage to a variety of fish species such as the *coho* salmon (Oncorhynchus kisutch), a federally-listed endangered species, listed as endangered federally, threatened in California, steelhead (Oncorhynchus mykiss) a state-listed threatened species, and coastal cutthroat trout (Oncorhynchus clarki). The seasonal wetlands provide habitat to a wide assortment of terrestrial organisms, most notably several environmentally sensitive avian species, including northern harrier (Circus cyaneus), white-tailed kite (Elanus leucurus), Great blue heron (Ardea herodias), and Snowy egret (Egretta thula).

Potential adverse impacts to fish and wildlife habitat and water quality could occur in the form of sedimentation or debris from project filling (i.e., soils disturbed during the placement of the diversion weir and bank berming) and dredging (i.e., the materials excavated in restoring the Beith Creek channel). Although the project description states that such impacts would be prevented and minimized by conducting the ground-disturbing work during dry weather, the application provides few details as to precisely how this fill would be placed relative to: (1) the potential for causing stream bank soil materials to enter into the creek/slough during the erection of the weirs; (2) installing the berming across the existing ditched channel and grazing lands; and (3) during the channel restoration work on Beith Creek. In addition, other than identifying three sites (one coastal zone, two non-coastal zone) where the excavated materials would ultimately be disposed, the applicants provide no information as to the criteria to be used in determining what properties the excavated materials must possess to qualify for their disposal at one of the three sites.

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 stream bank margins, the Commission attaches Special Condition Nos. 2, 3, 4, 5, and 6. Special Condition No. 2 requires the applicant to undertake the development pursuant to certain construction and debris removal performance standards. Specifically, no construction materials, debris, or waste are to be placed or stored where they may enter the coastal waters of Humboldt Bay, Gannon Slough, Campbell Creek, or Beith Creek. In addition, all construction debris, including fencing materials packaging, wiring scraps, fasteners, and excess or broken fence posts, are to be removed and disposed of in an upland location outside of the coastal zone or at an approved disposal facility. Special Condition No. 3 requires the applicant to submit, for the Executive Director's review and approval, a debris disposal plan detailing the methods, schedule and confirmed final destination of the materials dredged from the site. Special Condition No. 4 similarly requires the applicant to submit, for the Executive Director's review and approval, an erosion and runoff control plan that is to include certain specified water quality best

management practices for minimizing impacts to coastal waters associated with the dredging, filling, and diking of Campbell and Beith Creeks and the replacement of the Gannon Slough tidegate. To maximize the success of the soil-binding revegetation proposed to be planted, Special Condition No. 6 requires that the willow planting be performed during a late autumn to mid-winter timeframe. During this period (± November 1 to March 1), auxin production in most temperate plants is suppressed to the point where the growth of root tissue occurs at higher rates than foliage from apical and lateral buds. Planting cuttings during this period will allow adequate time for the stem tissue to undergo adventitious differentiation into root tissue and for the new roots to become established prior to the onset of budding in the early spring, when, if adequate roots have not developed, the plants could desiccate and expire.

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 identifies the planting of a variety of native tree- and shrub-layer species and the use of a "native annual grass" mixture to stabilize ground-disturbed areas. However, the proposed project does not further specify the source or composition of the seed mix nor precludes the planting of other plant species beyond those identified in the permit application.

To assure that the grass mixture is composed solely of native annual grass seeds, Special Condition No. 6 requires that only seed stock bearing the California Crop Improvement Association "yellow tag" certification as California native grass seed be used in the proposed soils stabilization applications. Furthermore, Special Condition No. 6 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 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. Furthermore, no plant species listed as a 'noxious weed' by the governments of the State of California or the United States are to be utilized in the revegetation portion 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. 6 contains a prohibition on the use of such anticoagulant-based rodenticides.

The Commission finds that the proposed wetland restoration/enhancement project is a permitted use under Section 30233 of the Coastal Act, and that as conditioned, all potential adverse impacts have been minimized to the maximum extent feasible.

(3) Alternatives Analysis

The third test set forth by Section 30233 is that the proposed fill 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. 1-8. A total of two possible alternatives to the proposed project have been identified including: (1) eliminating the channel realignment, channel restoration, and cattle exclusion fencing portions of the project and limiting restoration to replanting riparian vegetation alongside the slough banks; and (2) the "no project" alternative.

a) Restoration of Riparian Vegetation Only

As discussed previously, the subject watercourse provides habitat to a variety of federal- and state-listed threatened, endangered, or otherwise noteworthy of concern plant and animal species. One method to minimize impacts to these areas would to avoid any enhancement work that involved the construction of physical structures such as the diversion weir, bank berming, and exclusion fencing, or entails significant grading, such as in forming the new alignment of Campbell Creek and reforming the high-flow channel of Beith Creek. 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 near to the creeks associated with grading and the erection of the diversion and flow containment structures could be prevented.

However, this alternative would likely compromise the success of the project's riparian vegetation restoration component. Without the new and restored channel work, fish habitat within the creeks would likely remain underutilized as the degraded conditions within the watercourses due to the current conditions within the shallow, linear, vegetation-choked streambeds and the presence of a significant passage barrier would remain unchanged. In addition, without installation of the proposed fencing, cattle would continue to have uncontrolled access to and across the full length of the lower waterways where they cause impacts to the creeks' water quality from trampling and defecating in

and alongside the stream channels. In addition, the plantings placed along the stream banks would inevitably be grazed upon and never allowed to become an established vegetated riparian corridor. Therefore, limiting restoration to stream bank replanting is not a feasible less environmentally damaging alternative.

b) No Project

The "no project" alternative would leave the subject reaches of Campbell Creek / Gannon Slough and Beith Creek in their current condition with no restoration or enhancement actions being taken. The "no project" alternative would eliminate the opportunity for increased habitat diversity and increased species abundance within two degraded anadromous fish-bearing coastal streams. 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 City creeks.

Based on the alternatives analysis above, the Commission concludes that the proposed: 1) realignment of the 910-foot reach of Campbell Creek currently flowing through an artificial drainage ditch adjacent to Highway 101; 2) repair of an existing and non-functioning tidegate structure separating Gannon Slough from Humboldt Bay and replace with a side-hinged gate with a muted opening to provide access for anadromous salmonids; 3) restoration of a definable channel along an 850-foot reach of Beith Creek; and 4) installation of livestock exclusion fencing and planting 725 native trees and shrubs on both Campbell and Beith Creeks is the least environmentally damaging feasible alternative for protecting and enhancing 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 Section 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 expansion and enhancement of the watercourse would enhance the biological productivity and functional capacity of the watercourse habitat. The project would result in only a very small net decrease in wetland area (1,612 square feet), as small portions of the degraded wetland areas are covered by riprap materials divert and contain the Campbell Creek flows in their new channel and by fencing materials to exclude cattle and thus foster re-establishment of potentially more productive wetland habitat on the project sites. However, when the removal of the 400 cubic yards of fill within the 17,425 square-foot area alongside Beith Creek is factored in, the overall project would result in approximately 15,813 square-feet, or about 1/3 acre of wetlands being recreated. The new and restored streambanks would be enclosed to exclude the cattle who currently have direct access to the stream areas where anadromous fish could hold and rest during migration. The re-planting of the stream banks would restore a

riparian character to the watercourse, providing additional shade and cover for fish, and tree- and shrub-covered habitat for other terrestrial organisms.

Furthermore, as discussed above in the section of this finding on mitigation, 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 Campbell Creek / Gannon Slough, Beith Creek, or Arcata Bay. Thus, the proposed project would maintain the diversity of wetland habitats at 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 Section 30233 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 development, as conditioned, is consistent with Sections 30231 and 30233 of the Coastal Act.

D. Restoration of Marine Resources and Coastal Wetlands Where Feasible.

Coastal Act Section 30230 states as follows:

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

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.

Coastal Act sections 30230 and 30231 require in part, that marine resources and coastal wetlands be maintained, enhanced, and restored where feasible. These policies call for restoration of coastal wetlands and marine resources where feasible. Restoration in the strictest sense generally refers to the reestablishment of wetland functions and characteristics that existed prior to human disturbance. The watercourse through the subject site was historically subject to the tidal influence of Humboldt Bay. Since being reclaimed behind the dikes built along the bay margins, the subject site now functions as a combination of brackish-freshwater riparian wetlands. The proposed project would involve reestablishing and enhancing the vegetated riparian character of the watercourse, resulting in the enhancement of the aquatic habitat within these brackish-freshwater riparian wetlands.

According to information from the U.S. Fish and Wildlife Service (USFWS), in the Humboldt Bay region it is estimated that between 7,000 and 8,700 acres of salt marsh were present prior to human development. Since the mid-1800's, most of what was likely to have been historic salt marsh has been diked or filled and has been reduced to a total area of around 900 acres, a reduction of at least 87%. In general, restoring areas that have historically supported tidal salt marsh is preferable when the physical conditions of a site present such an opportunity. The USFWS for example, has indicated that restoration of salt marsh habitats around the Bay is a high priority, as salt marsh restoration is important for the protection, enhancement, and restoration of native fish, wildlife, and plant communities, some of which are dependent on salt marsh for their existence.

Coastal Act sections 30230 and 30231 call for the restoration of coastal wetlands and marine resources "where feasible." Restoring the project site entirely to tidal salt marsh is not feasible due to the watercourse's minimal tidal connection to Humboldt Bay. The stream area to be restored is upstream of a functioning tidegate. In addition, restoring the entire lengths of Campbell Creek/Gannon Slough and Beith Creek that were historically subject to tidal action to tidal marsh would require extensive grading or removing existing dikes and tide gates which would result in extensive flooding of adjacent private development and Highways 101 and 255. Therefore, the Commission finds that the proposed coastal stream enhancement project that does not involve restoring the entire site to salt marsh is consistent with Coastal Act Sections 30231 and 30230 because complete salt marsh restoration is not feasible. Nonetheless, the proposed project would enhance coastal wetlands and maintain and increase the biological productivity of the coastal wetlands consistent with Section 30230.

E. <u>Conversion of Agricultural Lands</u>.

The Coastal Act sets forth policies that relate to the protection of agricultural land and limit the conversion of agricultural lands to non-agricultural uses. Sections 30241 and 30242 address methods to be undertaken to maintain the maximum amount of prime agricultural land in production and to minimize conflicts between agricultural and urban land uses.

Coastal Act Sections 30241 and 30241.5 set a series of standards for reviewing new development to insure that agricultural lands are not unduly converted or otherwise adversely impacted. In addition to other provisions, Section 30241 requires that the maximum amount of prime agricultural land be maintained in agricultural production to assure the protection of the area's agricultural economy, and that conflicts be minimized between agricultural and urban land uses. Among the methods to be used to ensure such protections and conflict resolution are:

- Establishing stable boundaries separating urban and rural areas, including, where necessary, clearly defined buffer areas to minimize conflicts between agricultural and urban land uses;

- Limiting conversions of agricultural lands around the periphery of urban areas to the lands where the viability of existing agricultural use is already severely limited by conflicts with urban uses or where the conversion of the lands would complete a logical and viable neighborhood and contribute to the establishment of a stable limit to urban development;

- Permitting the conversion of agricultural land surrounded by urban uses only where the conversion of the land would be located within, contiguous with, or in close proximity to, existing developed areas able to accommodate it or, where such areas are not able to accommodate it, in other areas with adequate public services and where it will not have significant adverse effects, either individually or cumulatively, on coastal resources;

- Developing available lands not suited for agriculture prior to the conversion of agricultural lands; and

- Assuring that public service and facility expansions and nonagricultural development do not impair agricultural viability, either through increased assessment costs or degraded air and water quality

Coastal Act Section 30242 continues on to state that:

> *All other lands suitable for agricultural use shall not be converted to nonagricultural uses unless (l) continued or renewed agricultural use is not feasible, or (2) such conversion would preserve prime agricultural*

> *land or concentrate development consistent with Section 30250.*[2] *Any such permitted conversion shall be compatible with continued agricultural use on surrounding lands.*

Prior to the City's acquisition of the site in 2001, the site was a ranch used for agricultural purposes, mainly as grazing land. In addition, according to information submitted by the City, based on Soils of Western Humboldt County, California (McLaughlin and Harradine, 1965) the Bayside 0-3 soils are graded 1 through 6. Soils in the 1 and 2 grades are considered very good soils and are identified as prime agricultural soils. Soils in grades 5 and 6 are considered poor agricultural soils. The soils on the MRSWA (Bayside 2 soil series) have a grade of 4. They are heavy bay-formed silty clay loams with poor drainage, identified as having some of the slowest percolation rates in the county. These soils are therefore, not prime agricultural soils. Since acquiring the property, the City has continued to lease the property for seasonal agricultural grazing on an annual basis. The project would not change this practice. The acquisition of the property by the City did not require a coastal development permit.

The proposed project would not result in coverage of the project site with permanent structures that would prevent future agricultural use of the property. The construction of the cattle exclusion fencing would excluded grazing from only a relatively minor 2.5 square-feet of the 4.6-acre area that would be fenced off. Furthermore, the proposed fencing and revegetation plantings are improvements that could be easily removed in order to conduct agricultural operations within the proposed restoration area should demand for such land base rise in the future. In addition, with respect to the project's effect on other agricultural operations in the surrounding area, the proposed exclusion of cattle from 4.6 acres would elimiate grazing from an approximate four-acre area of pasture outboard of the stream banks. Based on an analysis by U.C. Cooperative Extension Farm Advisor Gary Markegard, given a carrying capacity of 3 acres per animal-unit (a 1,000-pound cow) for this low-lying, poorly drained, saltwater intruded, and flood-prone area, an estimated reduction in grazing capacity of 1.5 animal-units would result from the project (see Exhibit No. 6). Mr. Markegard considers this amount of lost grazing opportunity to be a relatively insignificant amount from a regional perspective both directly and, when considered with the previous enhancement work conducted at the site, cumulatively, and one not likely to significantly adversely affect the viability of existing agricultural grazing lands or operations within the North Bay / Arcata Bottom area.

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[2] Coastal Act Section 30250 in applicable part stipulates that, "*New residential, commercial, or industrial development, except as otherwise provided in this division, shall be located within, contiguous with, or in close proximity to, existing developed areas able to accommodate it or, where such areas are not able to accommodate it, in other areas with adequate public services and where it will not have significant adverse effects, either individually or cumulatively, on coastal resources.*"

According to the City of Arcata's certified LCP, the subject site is planned and zoned for Agriculture Exclusive uses. Section 1-0207.1(a) of the City's Land Use and Development Guide recognizes "wildlife habitat management --- including fisheries... and related temporary structures" as one of the "rural uses" allowed by-right within the C-A-E zoning district. However, the site is within the Commission's retained jurisdiction and therefore, the standard of review is the Coastal Act rather than the LCP. Nonetheless, as the above-stated analysis concludes, although a portion of the 46.7-acre site is proposed to be managed for fish and wildlife habitat rather than for agriculture, the proposed project does not constitute a conversion of agricultural land as no permanent structural coverage of the site or exclusion of grazing would occur that would result in the future agricultural use of the site being rendered infeasible. The City plans to continue grazing on a remaining 30-acre portion of the site as a means of managing short-grass habitat. In addition, the restoration of wetland habitat values over portions of the site and the general improvements to water quality would, as proposed and conditioned, be compatible with agricultural uses on surrounding lands.

Therefore, the Commission finds that the proposed project does not constitute a conversion of agricultural lands and is consistent with Sections 30241 and 30242 of the Coastal Act.

F. State Waters.

The project site is located in an area subject to the public trust. Therefore, to ensure that the applicant has the necessary authority to undertake all aspects of the project on these public lands, the Commission attaches Special Condition No. 6, which requires that the project be reviewed and where necessary approved by the State Lands Commission prior to the issuance of a permit.

G. Other Agency Approvals.

The 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 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 attaches Special Condition Nos. 7 and 8 which require the City to submit to the Executive Director evidence of these

agencies' approval of the project prior to the issuance of the permit and prior to the commencement of construction, respectively. The conditions require that any project changes resulting from these other agency 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 proposed project 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, City of Arcata Post-Certification Jurisdictional Boundary Map
4. Project Description Narrative, Site Plans, and Structural Cross-sectionals
5. Fill Disposal Sites Location Map
6. Beith Creek Wetland Delineation

APPENDIX A

STANDARD CONDITIONS

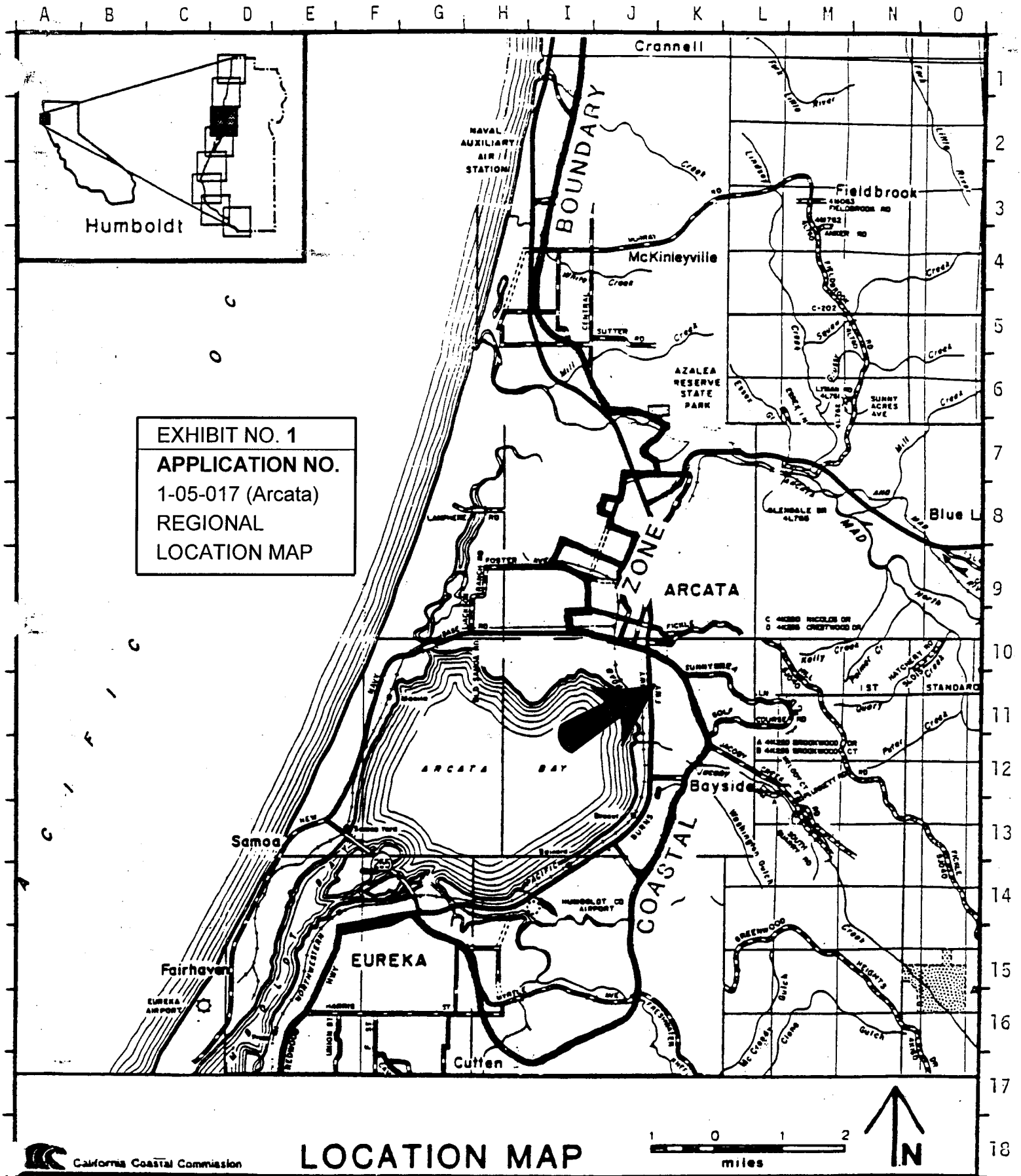
1. Notice of Receipt and Acknowledgement. The permit is not valid and development shall not commence until a copy of the permit, signed by the permittee or authorized agent, acknowledging receipt of the permit and acceptance of the terms and conditions, is returned to the Commission office.

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.

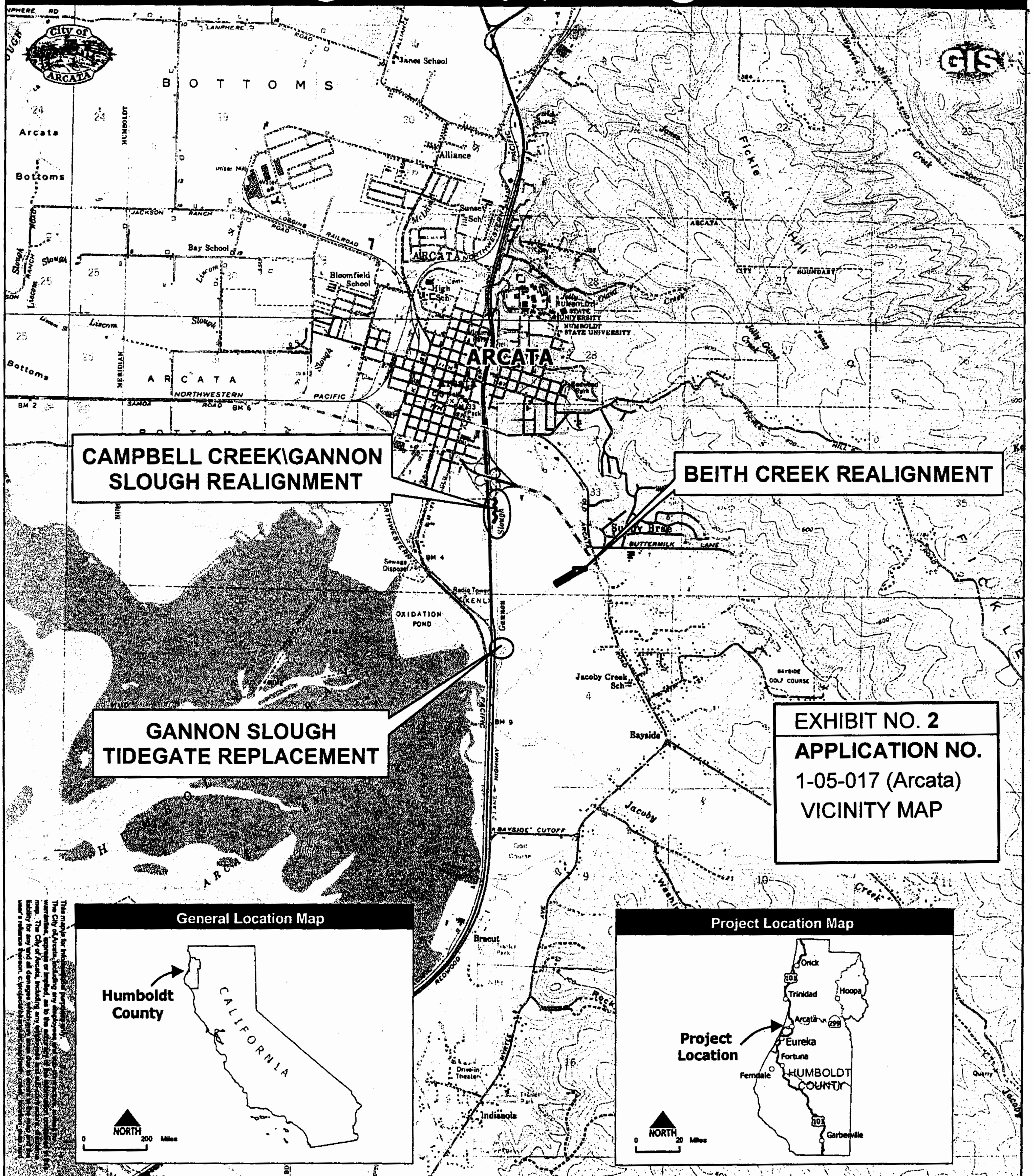
5. Terms and Conditions Run with the Land. These terms and conditions shall be perpetual, and it is the intention of the Commission and the permittee to bind all future owners and possessors of the subject property to the terms and conditions.



County of Humboldt

Sheet 3 of 8

Vicinity Map



NO.	REVISION	BY	DATE	CITY OF ARCATA		City of Arcata/USFWS	SCALE	DATE
				Environmental Services Department		**Gannon Slough\Campbell & Beith Creek Channel Realignment Riparian Restoration**	1:42,200	3/18/2005
				DESIGNED BY	M. ANDRE	USGS 7.5 Minute Topographic Map: Arcata South Quad	JOB NO. beith_creek_location_map.mxd	
				DRAWN BY	B. KANG	Por. of Sections 32, 33, T.6.N., R.1.E. &	SHEET	1
				CHECKED BY	M. ANDRE	Por. of Section 4, T.5.N., R.1.E. of H.B & M	OF	1
				EXPIRES		Location Map		

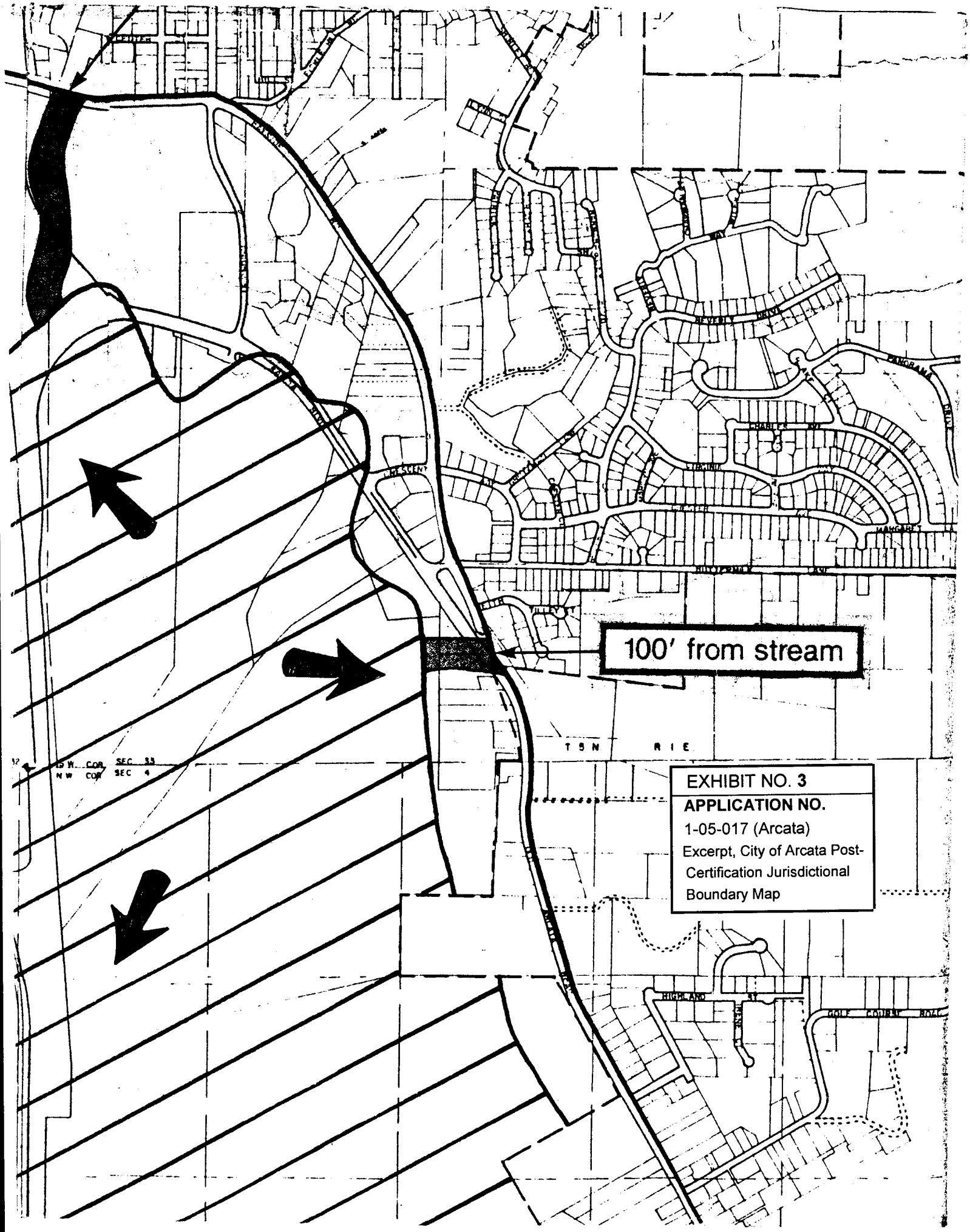


EXHIBIT NO. 3

APPLICATION NO.

1-05-017 (Arcata)

Excerpt, City of Arcata Post-Certification Jurisdictional Boundary Map

City of Arcata Gannon Slough/Campbell & Beith Creek Channel Realignment/Enhancement - Riparian Restoration Project

LEAD AGENCY: City of Arcata
736 F Street
Arcata, CA 95521
7607-822-8184

EXHIBIT NO. 4
APPLICATION NO.
1-05-017 (Arcata)
Project Description Narrative, Site Plans, & Structural Cross-Sectionals (Page 1 of 13)

PREPARED BY:
Julie Neander
Resource Specialist
Environmental Services Department
(707)825-2151

PROJECT SUMMARY: The project includes four main elements: 1.) Repair an existing and non-functioning tidegate structure separating Gannon Slough from Humboldt Bay and replace with a side-hinged gate with a muted opening to provide access for anadromous salmonids; 2.) improve riparian habitat; increase canopy cover; provide future large woody debris recruitment for coho salmon, steelhead and cutthroat trout by rerouting/restoring a 910-foot reach of Campbell Creek currently flowing through an artificial drainage ditch adjacent to Highway 101; 3.) providing an enhanced floodplain and fish habitat structure along an 850-foot reach of Beith Creek 4.) and installing livestock exclusion fencing and planting native trees and shrubs on both Campbell and Beith Creeks

PROJECT LOCATION - The project is located in Arcata in Humboldt County - Arcata South – Campbell Realignment - Portions of Section 32 & 33 - T6N, R1E, H.B.&M. – 40 ° 51" 38.17" N, 124 ° 4' 50.31" W,
Beith Creek - Section 33 T6N, R1E - H.B.&M - 124 ° 4' 22.13" W, 40 ° 51'18.74" N
Tidegate Repair - Section 4 T5N, R1E - H.B.&M - 124°4'46.40" W, 40° 50' 59.42" N

Maps are attached.

PROJECT PROPONENT: City of Arcata
Environmental Services Department
736 F Street
Arcata, CA 95521
707-822-5957

PROPERTY OWNER: City of Arcata
736 F Street
Arcata, CA 95521
707-822-5957

ZONING/GENERAL PLAN DESIGNATION: Wetland and Creek Protection Combining Zone

PARCEL NUMBERS: 501-042-001, 501-042-014, 501-042-008; 501-042-014; 501-042-005

PROJECT DESCRIPTION:

Background Campbell and Beith Creeks are small coastal streams that flow from headwaters on Fickle Hill through residential sections of the City to low gradient diked former tidelands (that are

Creeks). Because of the project's value in providing for reliable passage of threatened fish species, the California Department of Fish & Game awarded grant funding for the project in 2004.

PROPOSED LAND USE

The City recently purchased these project area lands with funds from the Wildlife Conservation Board and California Coastal Conservancy as part of the Jacoby Creek/Gannon Slough Enhancement area. The Jacoby Creek/Gannon Slough Enhancement Area is adjacent to the Arcata Marsh and Wildlife Sanctuary (AMWS) and U.S Fish and Wildlife Service Humboldt Bay Wildlife Refuge lands in Humboldt Bay. The City's natural resource management goals for these riparian areas include: continued agricultural use, protection and restoration of the riparian habitat and long term habitat management to benefit anadromous fish species, water fowl, shorebirds, wading birds, and raptors. The City also encourages scientific and educational use. Existing City general plan policies and programs including the Arcata Creeks Management Plan will ensure the long-term investment in habitat projects will be maintained and monitored over time. Land surrounding the project area will continue to be grazed for agricultural use.

The proposed project is not required as mitigation in a CEQA approval process, Timber Harvest Plan process or otherwise required as mitigation for other activities.

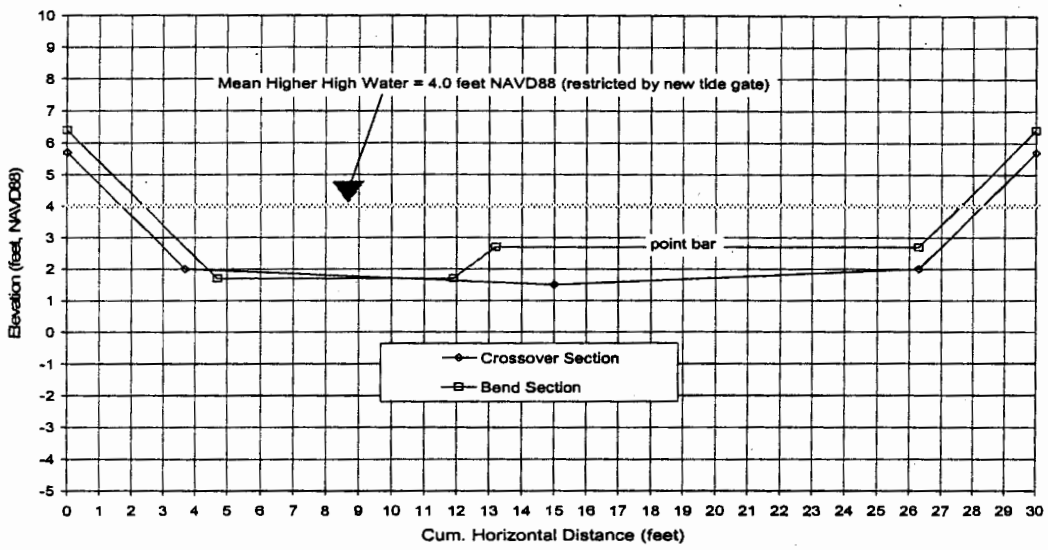
PROJECT DESCRIPTION -This project will improve instream and riparian habitat for juvenile and adult coho, steelhead and coastal cutthroat trout by repairing a concrete tidegate structure separating Gannon Slough from Humboldt Bay and replacing the existing top-hinged gate with a side-hinged gate with a muted opening to provide access for anadromous salmonids; relocating a 910 foot reach of Campbell creek away from Highway 101 to develop a more natural channel and riparian area. The City also proposes to eliminate the existing drop to the creek as it leaves the culvert that carries the creek under the Highway 101 access ramp. Flow will be directed to the new channel by installation of a weir deflector. The former channel within the Cal Trans right of way will remain and function as a high flow channel. The Beith Creek reach enhancements include removal of the bermed fill currently lining the channel to allow the creek to meander under higher flows. The low flow channel of the creek will not be impacted. Both creek reaches will be fenced to exclude livestock (2.1 acres on Campbell Creek and 2.5 acres on Beith Creek) and revegetated with native trees and shrubs.

Tidegate Repair

The new tidegate is a custom-fabricated, side-hinged aluminum gate that will be mounted on the wing-walls of the existing structure. The new tidegate will have a muted opening with an adjustable "guillotine-style" auxiliary door with a maximum aperture opening of two square feet. The auxiliary door is a top-hinged tidegate mounted on a track that can be adjusted up and down and also adjusted to reduce the size of the opening. Hydrologic modeling has determined that the muted opening and tidegate can be installed to allow greater tidal exchange in Gannon Slough/Campbell/Beith Creek without flooding adjacent lands.

The repair is anticipated to take three days. On day one the culverts and tidegate will be assembled in an adjacent area, required backfill and riprap will be staged and pre-digging, to excavate and remove all material and pipe that can be removed without breaching, will be completed. On day two following the falling tide a full excavation of the old structure will occur. The bed for the new assembly will be prepped and the assembly will be installed at slack low tide. Rip rap & backfill ahead of rising tide will be completed to a level at least high enough for the coming high tide. The final day includes finishing the grade and surface, loading and outhauling any material that has been rejected for reuse, outhauling old assemblies and seeding and bedding with straw. The operation is done with no coffer dams or

Figure 1. Gannon Slough Typical Cross Sections



Channel bed elevations are designed to be within the tidal range to be reintroduced with the new tidegate downstream. The tidegate will be designed to limit mean higher high water (MHHW) to an elevation of about 4.0 feet NAVD88, or about 2.8 feet below MHHW in Arcata Bay. With channel beds within two feet of the artificial MHHW, salt marsh plants will be able to colonize point bars and other marginal areas of the channel bed and banks, while the thalweg, because it is lower, should remain unvegetated.

Figure 2 shows a longitudinal thalweg profile of the restore channel. Locations of crossover (C1-6) and bend (B1-6) sections are shown, as well as weir locations and tie-in point to existing remnant slough channel. As shown, the slope over most of the reach will be about 0.3%, with a steeper slope upstream in the weir reach.

existing channels and the at the new Campbell Creek channel tie in. Fill removed from the Campbell Creek channel realignment (approximately 4,000 yd^3) and the Beith Creek channel enhancement site (approximately 400 yd^3) will be hauled to approved fill sites. The City will prevent negative environmental impacts by undertaking this work in the summer or early fall. Revegetation will occur in December 2005 and January 2006.

Fencing and Revegetation
The City proposes to install 910 linear feet of high tensile single stand 12.5 gage hot wire fencing to create a riparian setback on both sides of the Campbell creek and 850 feet on Beith Creek. The riparian areas to be fenced include 2.1 acres along Campbell creek and 2.5 acres along Beith Creek. Both areas will be revegetated with native trees and shrubs. The wire will be secured on 7 foot metal posts pounded into the ground 30 inches. Posts are spaced a maximum of 10 foot on center. There will be a maximum of 4 gates. The 10 watt solar panel and battery unit will be secured near by the fenced area. A second battery pack may be installed as a back up power source. No creek crossing platform is proposed. Native trees and shrubs will be planted on a clustered 10 to 15-foot spacing.

The City will plant native trees and shrubs (*Salix sp., Alnus rubra, Picea sitchensis, Acer macrophyllum and Sequioa sempervirens, Ribes sanguinium, Lonicera involucrate, Myrica californica.*) in the newly fenced 75 foot buffer areas. Willow stakes for the willow trees will be selected from nearby City of Arcata natural resource areas. Tree and shrub species will be tree pot size or equivalent. Big leaf maple will be one gallon size or equivalent tree pot size. Estimated height of the trees will be one to three feet upon installation. The trees will be clustered when planting to provide a random more natural vegetated area. Trees will be mulched for weed control. The City expects a minimum of 50% survival rate. If need be trees will be added to meet that in future years. The City will seed the disturbed areas with native annual grasses at a rate of 10 pounds per acre.

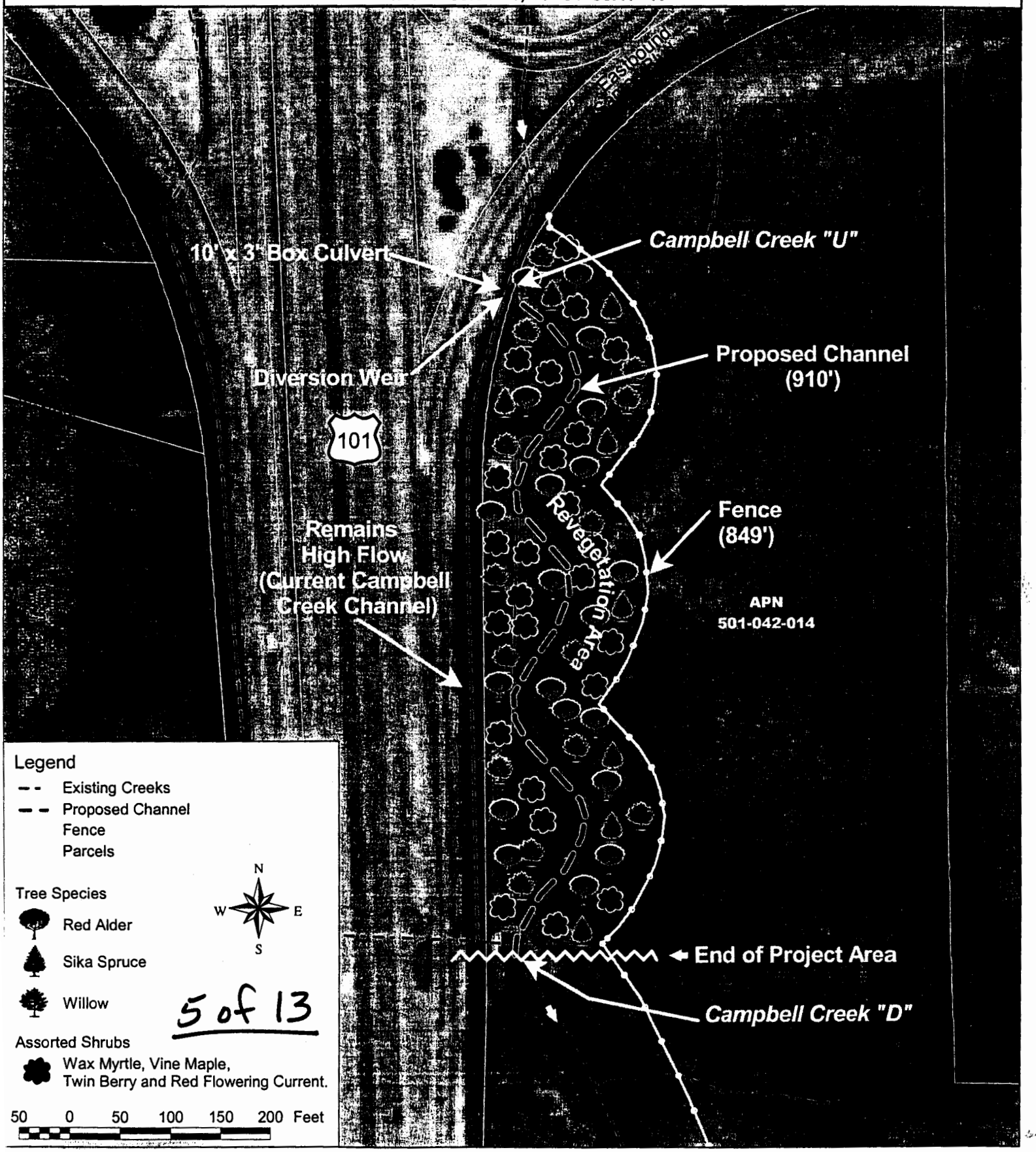
Timing
The excavation of the new Campbell channel and enhancement of the Beith Creek reach will occur during the dry season. Flows are estimated to be less than 1 cfs during the low flow season. This prevents negative impacts to aquatic species by performing the work during the dry season when the creek is in a low flow condition and aquatic species are not reproducing. Eggs and larvae of aquatic species will not be present when work is being performed. Working when the site is driest – late summer/early fall will minimize compaction and reduce damage to vegetation. The fencing work will occur in late summer and revegetation will occur during the winter dormancy period (late December - January). The project will be completed under a plan and design approved by DFG.

The riparian enhancement will improve movement and storage of flood waters and improve habitat for fish by restoring a natural stream bottom, providing increased cover and feeding opportunity and improving riparian habitat. All work will be consistent with the *California Stream Habitat Restoration Manual.*

SURROUNDING LAND USES AND SETTING: The project area is east of Highway 101 and lies completely within lands zoned Agriculture Exclusive. While not in the mapped FEMA flood plain, the area floods frequently. Location maps and plan views are attached.

CITY OF ARCATA
CAMPBELL CREEK CHANNEL REALIGNMENT: PLAN VIEW
GANNON SLOUGH/CAMPBELL & BEITH CREEK
CHANNEL REALIGNMENT-RIPARIAN RESTORATION PROJECT

USGS 7.5 Minute Topographic Map: Arcata South Quad
Por of Sections 32 & 33 of T6N, R1E of the H. B. & M.
124° 4' 50.31"W, 40° 51' 38.17" N



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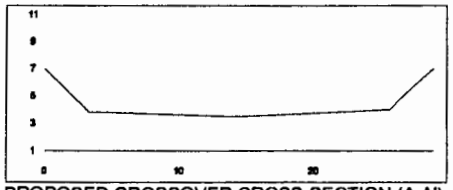
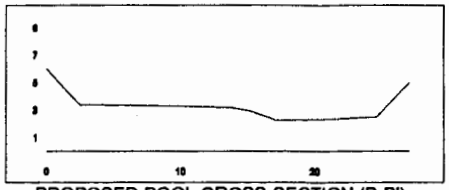


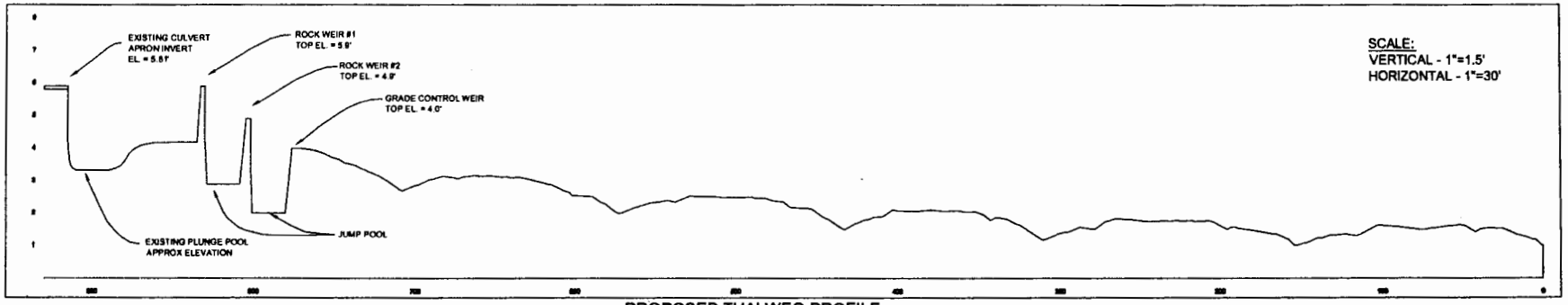
PROPOSED CROSSOVER CROSS-SECTION (A-A')



PROPOSED POOL CROSS-SECTION (B-B')

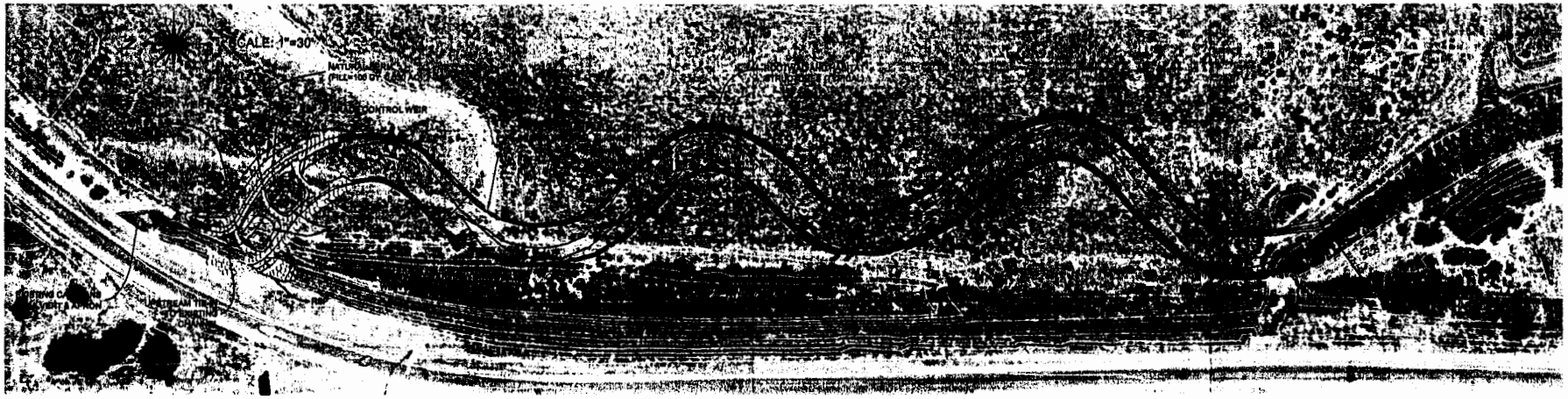
QUANTITIES:

CUT: 4000 CUBIC YARDS
FILL: 160 CUBIC YARDS, 0.037 ACRES
EXISTING CHANNEL LENGTH = 750 FEET
PROPOSED DESIGN CHANNEL LENGTH = 910 FEET



SCALE:
VERTICAL - 1"=1.5'
HORIZONTAL - 1"=30'

PROPOSED THALWEG PROFILE



PROPOSED AND EXISTING CAMPBELL CREEK PLANFORM

DESIGNED BY	JKA, RK	DAD. 3/05	REVISIONS	PREPARED FOR: CITY OF ARCATA ENVIRONMENTAL SERVICES DEPT 736 F ST. ARCATA, CA 95518	PROPOSED DESIGN CHANNEL ALIGNMENT, SITE OVERVIEW AND PROJECT ELEMENTS CAMPBELL CREEK REALIGNMENT, ARCATA, CA HUMBOLDT COUNTY	PREPARED BY: Jeff Anderson & Associates Engineering - Hydrology - Stream Restoration P.O. Box 841 Arcata, CA 95518		SCALE NOT TO SCALE	SHEET 1/1
PREPARED BY	BS	3/05							

6 of 13

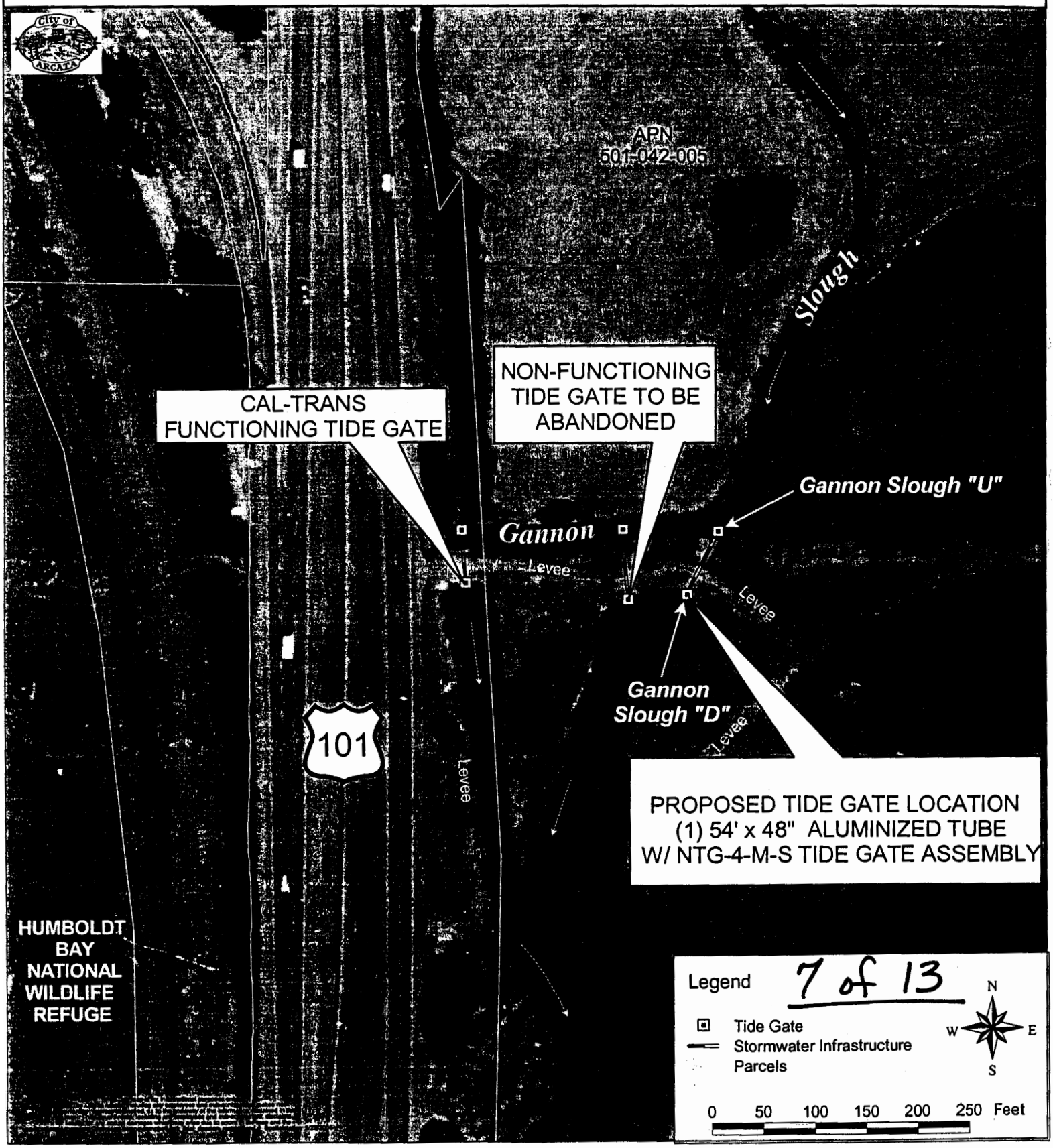
CITY OF ARCATA

GANNON SLOUGH TIDEGATE REPLACEMENT: PLANVIEW MAP

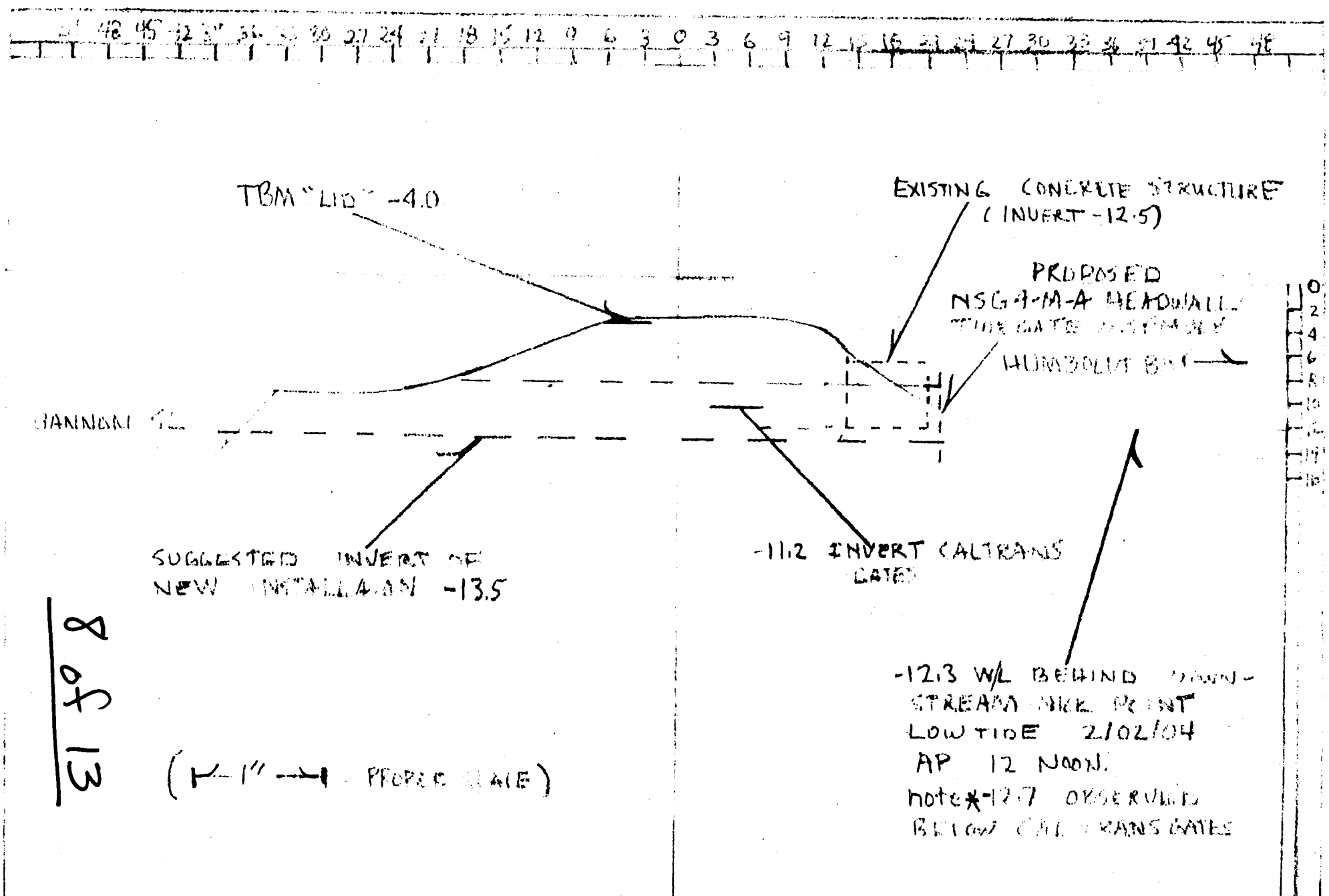
GANNON SLOUGH/CAMPBELL & BEITH CREEK CHANNEL REALIGNMENT-RIPARIAN RESTORATION PROJECT

USGS 7.5 Minute Topographic Map: Arcata South Quad
Por. of Section 4, T.6.N., R.1.E. of H.B. & M.

124° 4' 46.40" W, 40° 50' 59.42" N



7 of 13



8 of 13

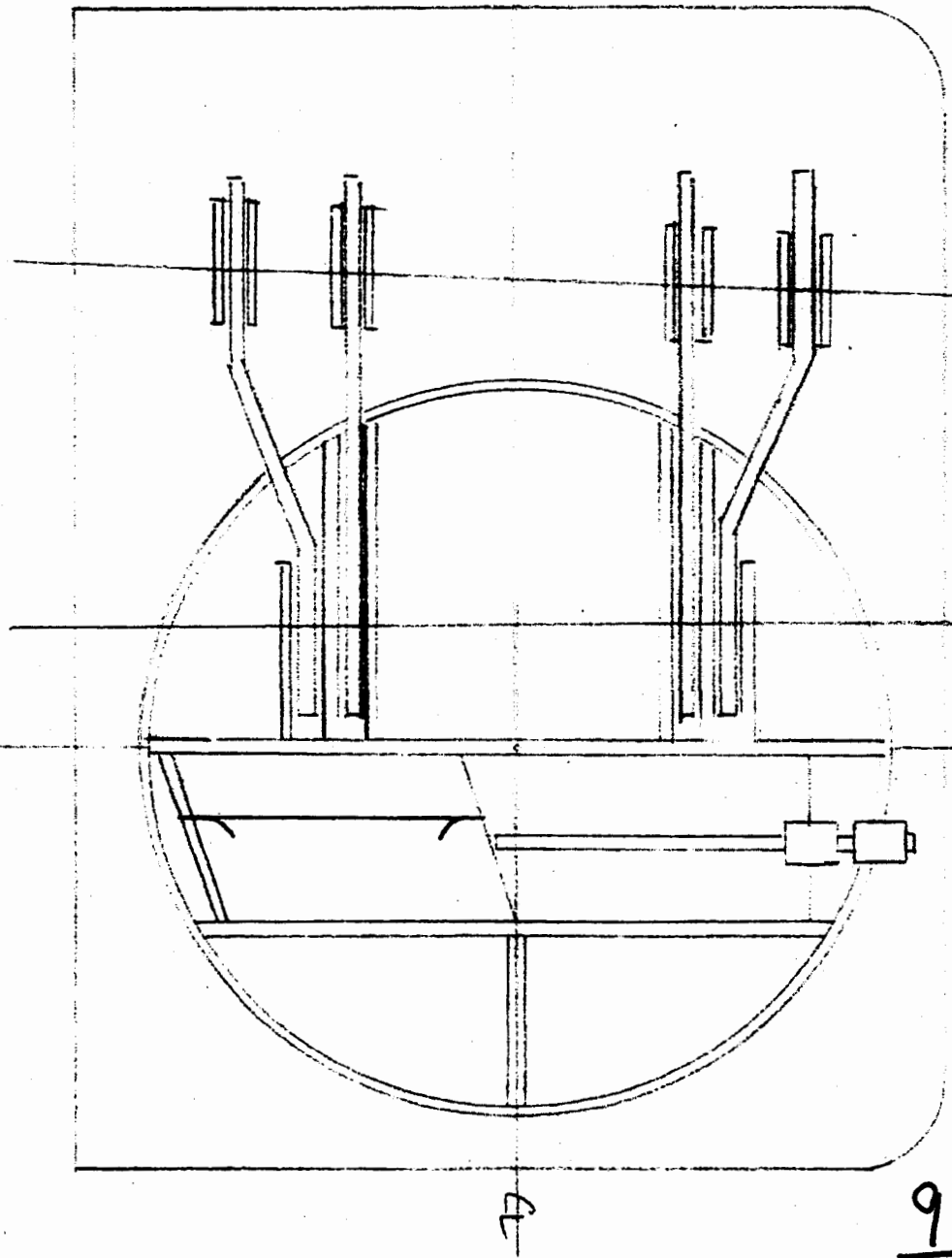
(1" = 1' PROPER SCALE)

TIDEGATE ASSEMBLY INSTALLATION SKETCH
FOR: MARBLE / CITY OF ARCATA.

3/32 SCALE
TBM LID -4.0
LRK 2/4/05

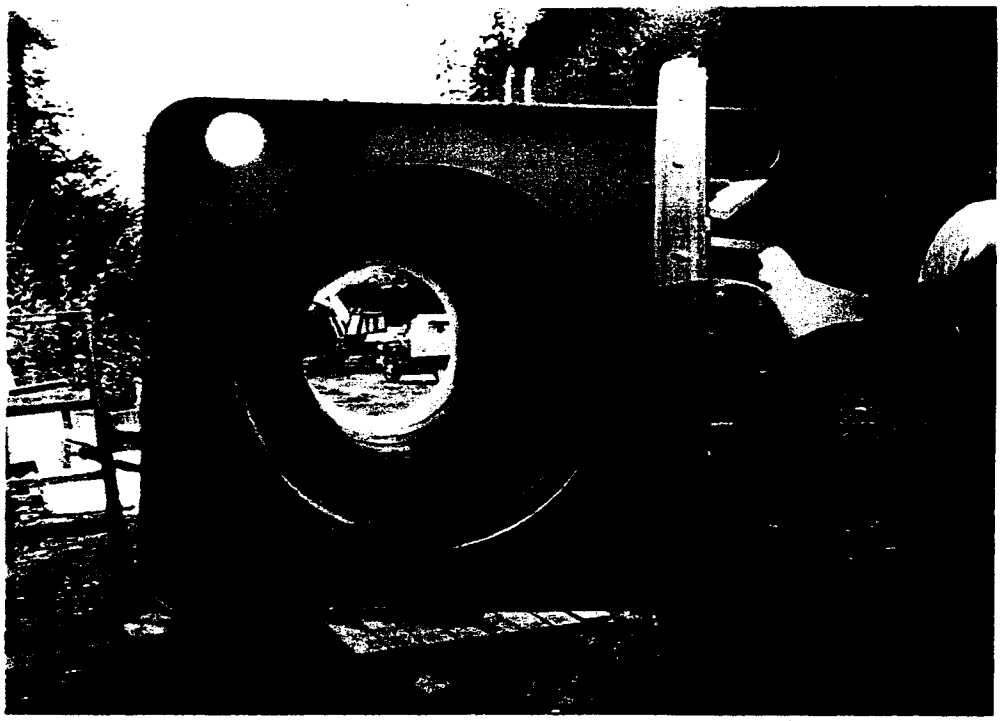
Nehalem Marine
24755 Miami-Foley Rd
Nehalem, OR 97131

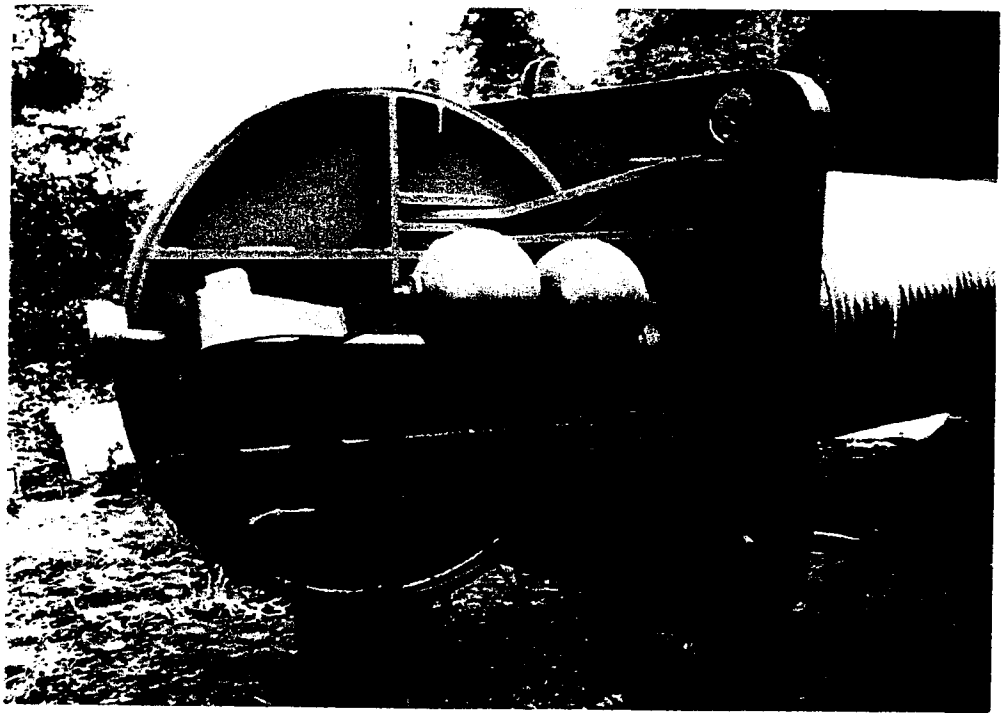
GANNON SLOUGH TIDEGATE REPLACMENT
(DRAWING 90% OF ORIGINAL SIZE)



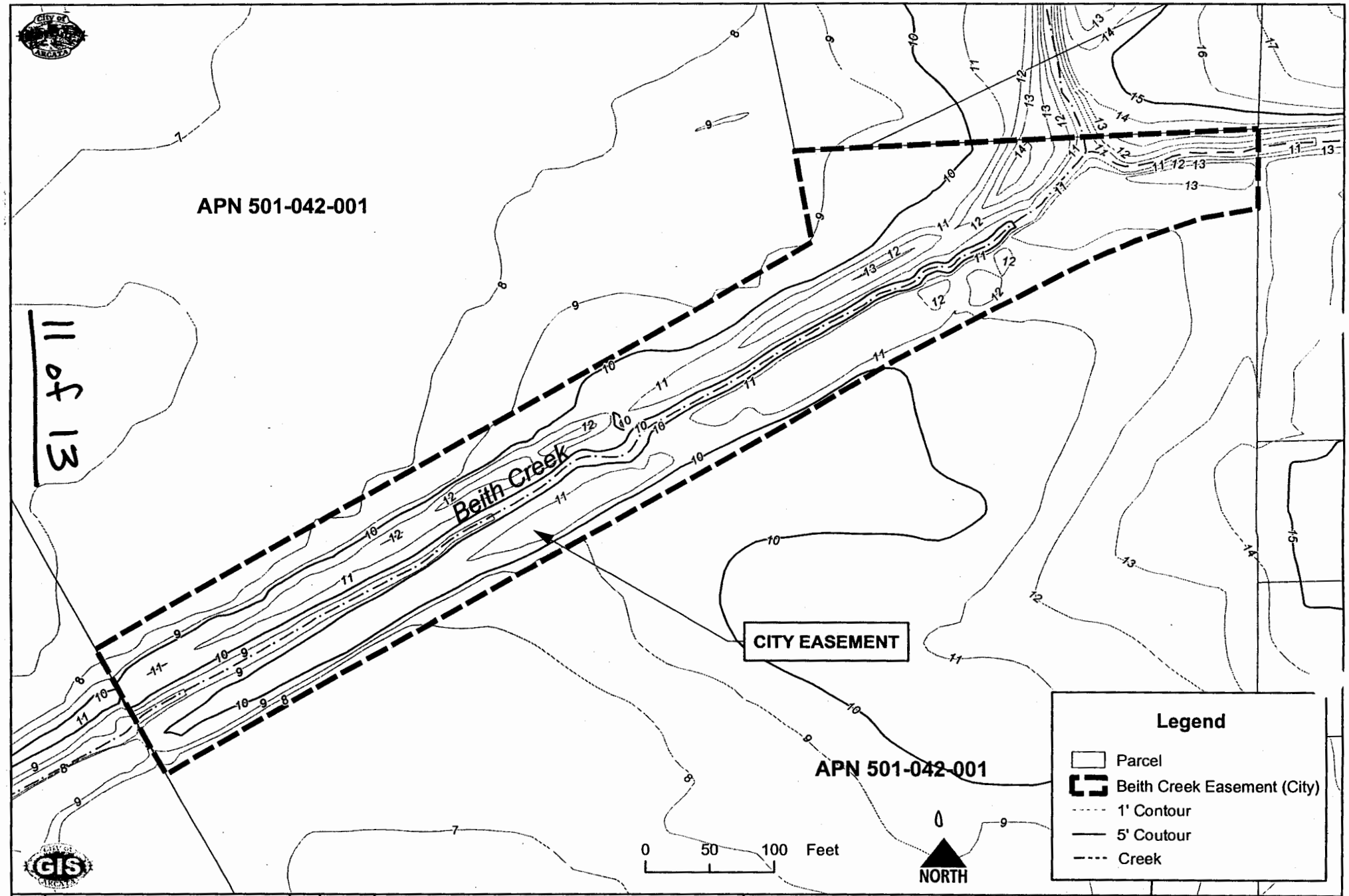
9 of 13

NSG-4A-A TIDE GATE ASSEMBLY FOR CITY OF ARCATA	SCALE 1"=1' 9/12/05 RL	Nehalem Marine 24755 Miami-Foley Rd Nehalem, OR 97131	1 OF 1





GANNON SLOUGH TIDEGATE REPLACEMENT 1



NO.	REVISION	BY	DATE

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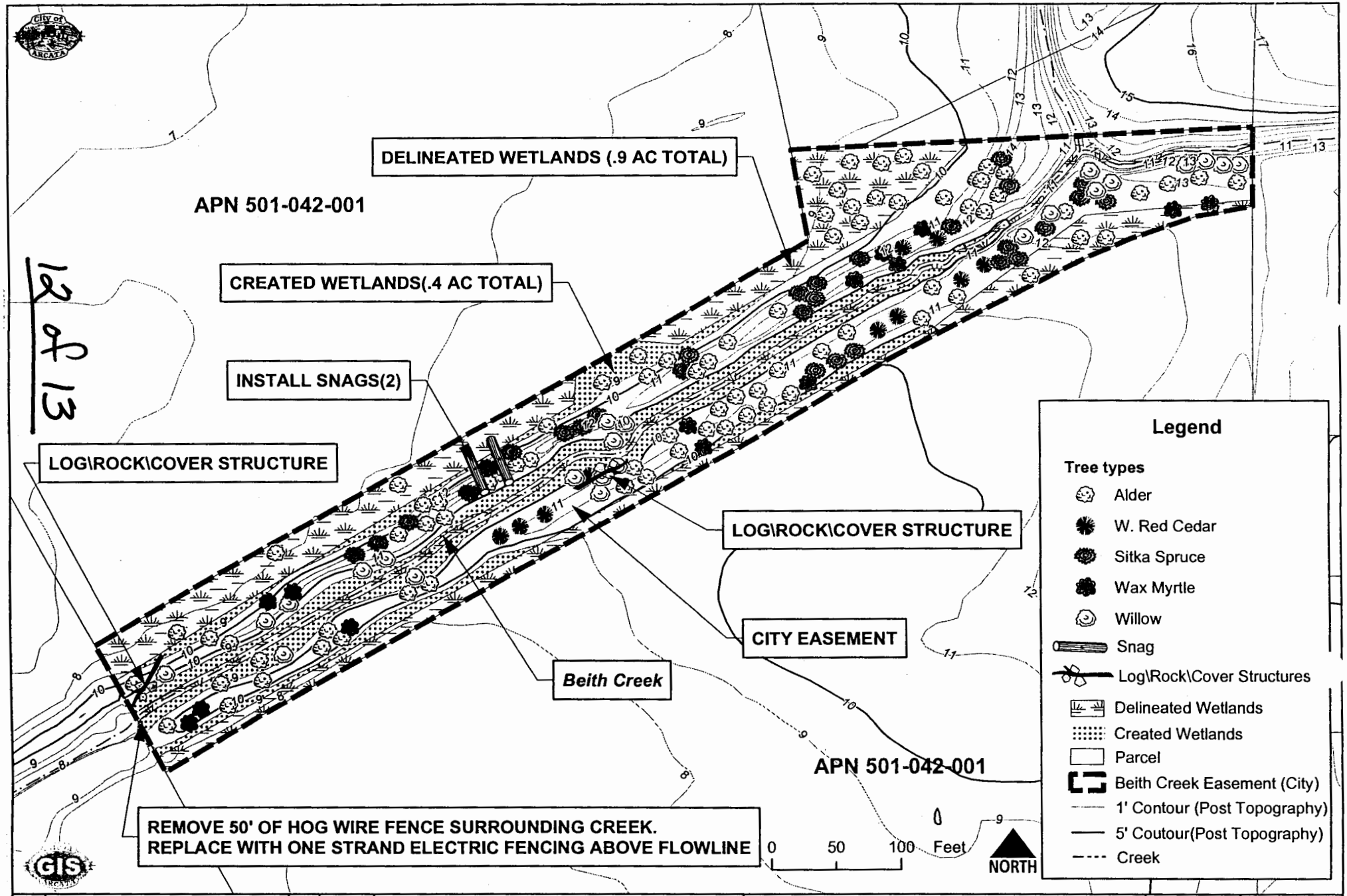
CITY OF ARCATA
Environmental Services Department

DESIGNED BY: M. ANDRE
DRAWN BY: B. KANG
CHECKED BY: M. ANDRE
EXPIRES:

City of Arcata/USFWS
Beith Creek Restoration Phase #1: Existing Topography
Gannon Slough\Campbell & Beith Creek Channel Realignment Riparian Restoration
USGS 7.5 Minute Topographic Map: Arcata South Quad
Section 33, T.6.N., R.1.E. of H.B & M
124° 4' 22.13"W, 40° 51' 18.74"N

SCALE	DATE
1" = 50 FEET	3/18/2005
JOB NO. beith_creek_existing_topo.mxd	
SHEET 1	
OF 1	



12 of 13

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CITY OF ARCATA
Environmental Services Department

DESIGNED BY:	M. ANDRE
DRAWN BY:	B. KANG
CHECKED BY:	M. ANDRE
EXPIRES:	

City of Arcata/USFWS
Beith Creek Restoration Phase #1: Planting Plan
Gannon Slough\Campbell & Beith Creek Channel Realignment Riparian Restoration
USGS 7.5 Minute Topographic Map: Arcata South Quad
Section 33, T.6.N., R.1.E. of H.B & M
124° 4' 22.13"W, 40° 51' 18.74"N

SCALE	DATE
1" = 50 FEET	3/18/2005
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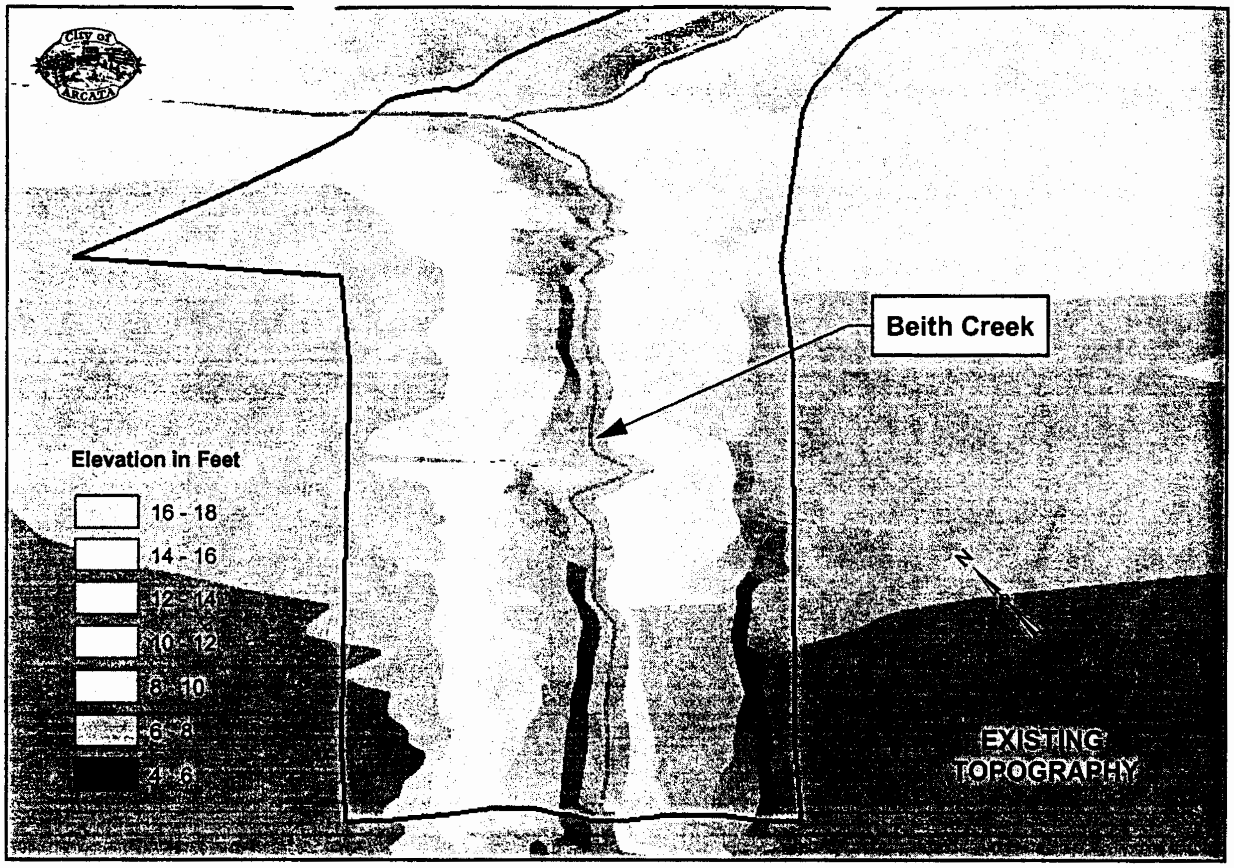
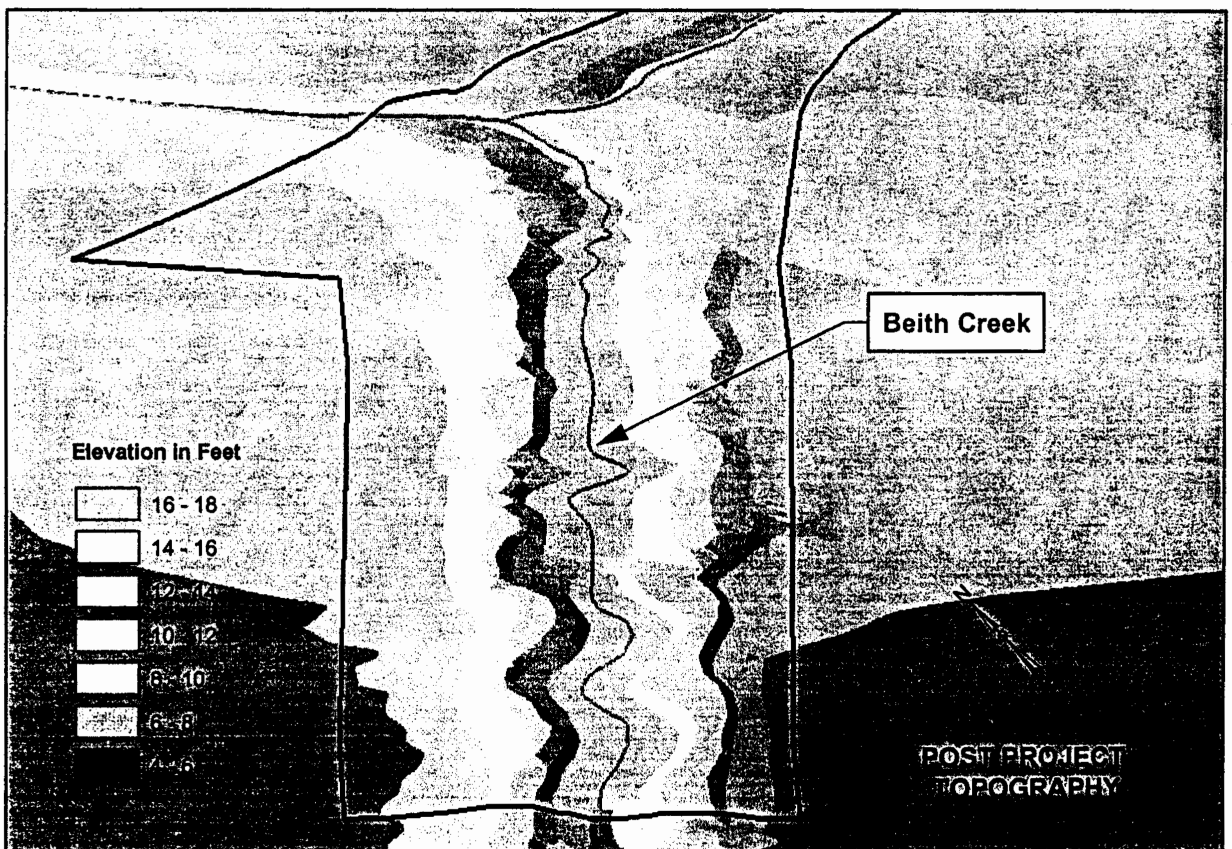
SHEET 1	
OF 1	





NO.	REVISION	BY	DATE

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Environmental Services Department

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DRAWN BY	B. KANG
CHECKED BY	M. ANDRE
EXPIRES	

City of Arcata/USFWS
Beith Creek Restoration Phase #1: 3D Viewshed
Gannon Slough\Campbell & Beith Creek Channel Realignment Riparian Restoration
USGS 7.5 Minute Topographic Map: Arcata South Quad
Section 33, T.6.N., R.1.E. of H.B & M
124° 4' 22.13"W, 40° 51' 18.74"N

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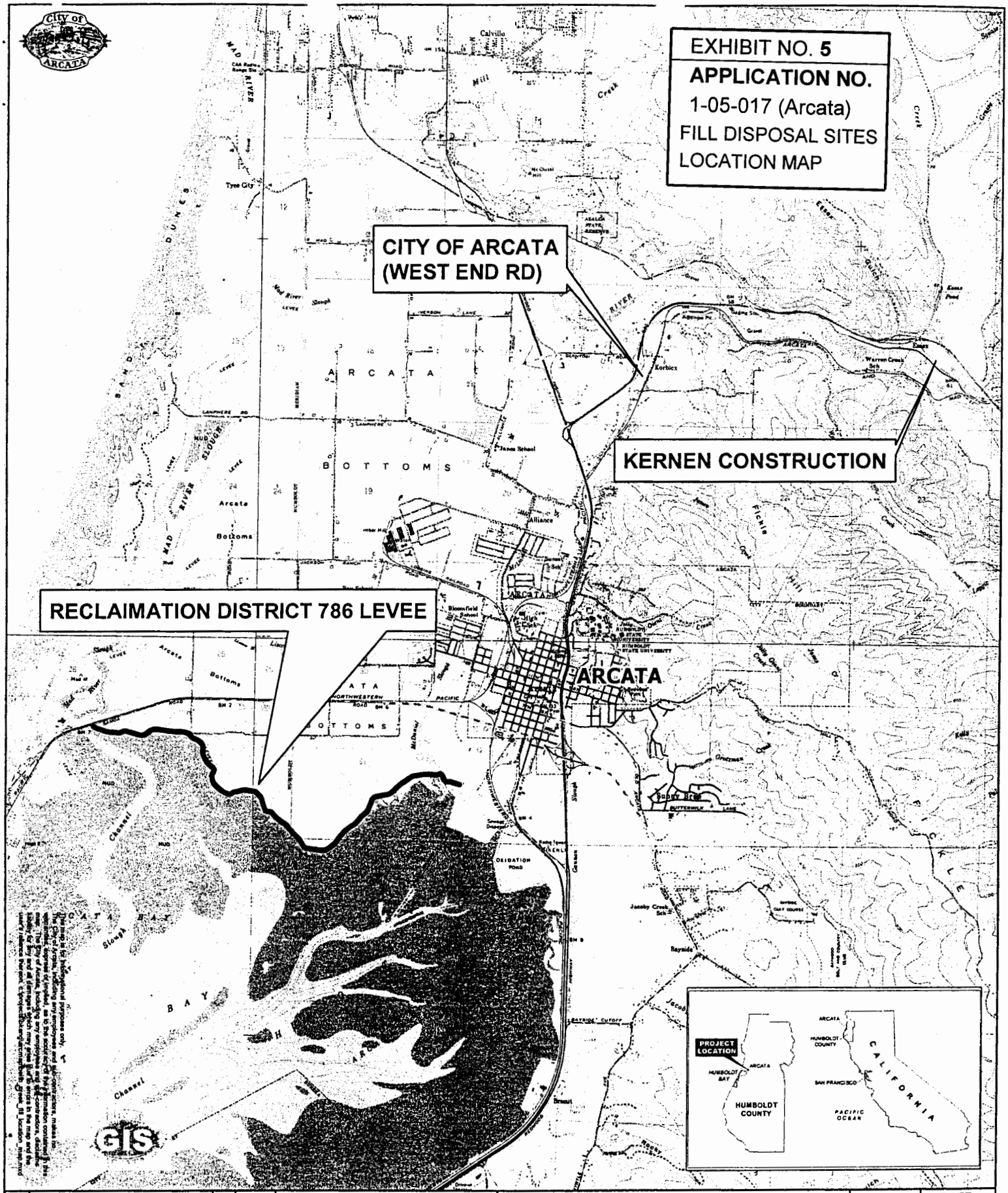
OF	1



NO.	REVISION	BY	DATE

CITY OF ARCATA
Environmental Services Department

DESIGNED BY	M. ANDRE
DRAWN BY	B. KANG
CHECKED BY	M. ANDRE
EXPIRES	

City of Arcata/USFWS

Gannon Slough\Campbell & Beith Creek Channel Realignment Riparian Restoration

USGS 7.5 Minute Topographic Map: Arcata South Quad
Por. of Sections 32, 33, T.6.N., R.1.E. &
Por. of Section 4, T.5.N., R.1.E. of H.B & M

Fill Location Map

SCALE	DATE
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SHEET	1
OF	1

04-1051-01031

COPY

WETLANDS DELINEATION FOR BIETH CREEK DRAINAGE EASEMENT PROJECT ARCATA, CALIFORNIA

March 2005

Prepared for:
City of Arcata
736 F Street
Arcata, California 95521

Prepared by:
Winzler & Kelly Consulting Engineers
633 Third Street
Eureka, California 95501-0417
(707) 443-8326

EXHIBIT NO. 6
APPLICATION NO.
1-05-017 (Arcata)
BEITH CREEK WETLAND DELINEATION
(Page 1 of 11)

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ATTACHMENTS

Appendix A: Field Data Sheets
Appendix B: Wetland Delineation Map

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I. SUMMARY

On March 1 and 2, 2005, a wetland delineation was performed on a 2.5 acre (100 feet wide) section of the Bieth Creek drainage adjacent to the defined boundaries of the Bieth Creek "waters of the United States" (from ordinary high water mark). The wetland delineation determined that wetland-type vegetation, hydric soils, and wetland hydrology exist adjacent to Bieth Creek inside the creek banks. Wetlands were also identified beginning approximately 40 feet from creek center on either side of the creek beyond existing banks, and extending away from the creek into the adjacent pasture. The Army Corp of Engineers (COE) considers the identified wetland areas as "waters of the United States".

II. INTRODUCTION

The property identified as Assessor's Parcel Number (APN) 501-042-01 is located west of Samoa Boulevard at the intersection with Buttermilk Lane in the residential area of Sunnybrae, which is part of Arcata, California. Bieth Creek has a relatively narrow low gradient creek bed as it transects the property. The delineation was performed in accordance with both the COE and the City of Arcata criteria for identifying a wetland. Appendix B depicts the project location and delineation results (wetland/upland boundary).

III. DELINEATION PURPOSE

The purpose of this investigation was to determine the size and location of wetland(s) adjacent to an approximately 1,000-foot stretch of Bieth Creek (totaling 2.5-acres) on APN 501-042-01 in preparation for a drainage restoration project.

IV. WETLAND DELINEATION METHODOLOGY

Lia Webb and Holly Vadurro of Winzler & Kelly, Consulting Engineers, conducted the wetlands delineation on March 1 and 2, 2005, following the COE criteria (COE, 1987). To define a wetland, the COE requires that all three parameters (vegetation, soil, and hydrology) show wetland attributes. The City of Arcata requires two parameters to be present in order to define the site as a wetland. Vegetation, soil, and hydrology data were collected at three transects with two plots (upland/wetland) per transect (see attached Field Data Sheets). Other wetland/upland boundaries were determined and marked as "intermediate" points, i.e., W1T1-INT. The site was evaluated using both COE and City of Arcata methodologies. Primary determination of the wetland boundary was made based on vegetation, soil characteristics, and direct observation of hydrology.

A. Botanical Methodology

Vegetation data collection consisted of listing the five dominant species at each plot if only one layer, or up to three species in each layer (herb, shrub, tree). The species were then classified as to whether or not they are wetlands indicators, using the standard

reference for plant wetlands indicators, National List of Plant Species that Occur in Wetlands: California (Region O) (Department of the Interior, 1988). That document classifies plants based on the probability that they would be found in wetlands, ranging from Obligate (almost always in wetlands), Facultative/wet (67% to 99% in wetlands), Facultative (34% to 66% in wetlands), Facultative/up (1% to 33% in wetlands) to Uplands (less than 1% in wetlands). Plants not listed are included in the uplands category. If 50% or greater of the dominant plant species at each plot are classified Obligate (OBL), Facultative/wet (FACW), or Facultative (FAC), the vegetation is determined to be hydrophytic (wetland plants).

B. Soils Methodology

Soil test pits were dug to an approximate depth of 18 inches. The COE procedures and criteria were combined with the Natural Resources Conservation Service's (NRCS) definition of hydric soils presented in Changes in Hydric Soils of the United States and Field Indicators of Hydric Soils in the United States (USDA, 1995 and USDA/NRCS, 1998, respectively). Care was taken to observe mottling (iron concentrations) and to distinguish between chromas of 1 and 2.

Soils/hydrology data sheets were prepared for use as supplements to the 1987 Manual's Data Sheet 1 (as modified by Winzler & Kelly, Consulting Engineers). Data sheets are attached to this report (Appendix A). Color indicators of hydric soils were used in this delineation and are as follows:

1. Matrix chroma of 2 or less in mottled soils (1987 Manual)
2. Matrix chroma of 1 or less in unmottled soils (1987 Manual)
3. Colors (evidence of saturation) determined at 12 inches depth in poorly drained or very poorly drained soil (NRCS)

Colors were described for the entire depth of the test pit and were compared to the above parameters at a depth of 10 inches. Colors were determined on moist ped surfaces, which had not been crushed, using the Munsell Color Chart (GretagMacbeth, 2000). Some soils had low chromas with variegated colors due to historic land use (ie, grading, mixing, and moving of the soil) and not due to saturation conditions. Soils with low chromas were verified as being hydric or upland using indicators for dark surface horizons (F4, F5, F6, or F7) from Field Indicators of Hydric Soils in the United States (USDA/NRCS, 1998).

C. Hydrology Methodology

The delineation was performed during early spring. Direct evidence of ground water (soil saturation, standing water, etc.) was present in most of the wetland plots when the delineation was performed. Wetland hydrologic conditions were based on direct observation of the water table within 12 inches of the surface.

D. Wetland Determination

The wetland determination was made with an emphasis on redoximorphic soil features and the presence of wetland hydrology and wetlands vegetation. An area was determined to be a wetland when soil, vegetation, and hydrology met the wetlands criteria defined above (three parameter approach). An area was determined to be uplands based on

absence of at least two of the following parameters: wetland hydrology, hydrophytic vegetation, and wetland soil indicators.

Once wetland characteristics were determined for a transect, a flag was placed to delineate the limits of the wetland/upland boundary. Plot numbers were written on each flag.

V. RESULTS OF WETLAND DELINEATION

The parameters used to identify a wetland are characteristics of the soil, hydrology, and vegetation. To define a wetland, the COE (1987) requires that all three parameters show wetland attributes. The wetland boundary line that satisfies the COE methodology also satisfies the City of Arcata requirements (two-parameter method). Results of analysis of the three on-site parameters, vegetation, soils and hydrology, are described below.

Hydrophytic vegetation was dominant within the wetland area (see data sheets, Appendix A). Typical vegetation associated with the Palustrine Persistent Emergent Seasonally Flooded wetlands located beyond the creek banks / birm included:

- Curly dock *(Rumex crispus)*
- Common rush *(Juncus effusus)*
- Pennyroyal *(Mentha pulegium)*
- Annual bluegrass *(Poa annua)*
- Himalayan blackberry *(Rubus discolor)*

Typical vegetation associated with the Riverine Emergent Nonpersistent Semi-permanently Flooded wetlands located within the creek banks included:

- Red alder *(Alnus rubrus)*
- True watercress *(Nasturtium officinale)*
- Slough sedge *(Carex obnupta)*

All the above aforementioned species are OBL, FACW, or FAC designated indicator species (U.S. Fish and Wildlife Services, 1988). All upland plots were confirmed by upland soils and lack of wetland groundwater parameters. All wetland plots exhibited a predominance of FAC or wetter vegetation. Not all upland plots exhibited a predominance of FAC or drier vegetation. Plot W1T2-U exhibited a predominance of wetland type vegetation, partly due to the existence of FAC-Wet species Himalayan blackberry (*Rubus discolor*), which is often invasive in disturbed pastures. The wetland boundary based on the COE and City of Arcata requirements was marked in the field with a wooden stake and spray paint.

Soils in the area delineated were predominantly sandy loams to silt loams in texture with the subsoil being mixed soils of silt, loam, and gravelly sandy loam texture beginning at between 3 – 8 inches depth (see Appendix A, Data Sheets). Wetland soils exhibited redoximorphic features typically found in hydric soils, specifically iron concentrations at or above 10 inches from the soil surface. Wetland (hydric) soils had a matrix color of 10YR 3/2 and 5Y 4/1. Iron

concentrations of 10YR 3/6 and 10YR 3/4 existed in all of the wetland plots within 10 inches of the surface. Upland soils had surface colors of 10YR 3/2 with subsoil of 10YR 3/2, 10YR 3/4, and 2.5Y 4/2 and no redoximorphic features within 10 inches of the surface. Much of the upland soils were variegated and mixed in the subsoil, presumably due to historic manipulation of the soil surface for formation of the birm that runs on either side of the creek.

Hydrologic conditions were present in all of the wetland plots to confirm the wetland/upland boundary. The primary indicator of hydrology was the direct observation of the water table. Other primary indicators present in the "Creek" transect were inundation and the observation of a drainage pattern. A secondary indicator noted was a pass on the FAC-neutral test.

VI. CONCLUSIONS

The wetlands delineation of March 1 and 2, 2005 identified wetlands adjacent to Bieth Creek inside the creek banks and also beginning approximately 40 feet from creek center on either side of the creek, and running roughly parallel to the creek. Bieth Creek (defined from ordinary high water mark) as well as the identified wetland areas are considered "waters of the United States" by the Army Corp of Engineers (COE). The area with hydrophytic vegetation, hydric soil characteristics, and in association with observable hydrology was classified as a Palustrine Persistent Emergent Seasonally Flooded wetland. The wetland area directly adjacent to Bieth Creek inside the creek banks was classified as Riverine Emergent Nonpersistent Semi-permanently Flooded wetlands.

The primary wetland boundary line as depicted on the site map complies with COE and City of Arcata definitions of a wetland. All field data sheets are attached to this report (Appendix A).

VII. SPECIAL TERMS AND CONDITIONS

To achieve the delineation objectives stated in this report, we based our conclusions on the information available during the period of the investigation, March 1 and 2, 2005. This report does not authorize any individuals to develop, fill or alter the wetlands delineated. Verification of the delineation by jurisdictional agencies is necessary prior to the use of this report for site development purposes. Permits to affect wetlands must be obtained from the involved government agencies. If permits are obtained to develop the delineated wetlands after agency review, and written verification, the delineation is given a 5-year expiration period. If filling is used under permitted authority, care should be given to maintain and sufficient quantity of fill to prevent a reestablishment of wetlands. Land use practices and regulations can change thereby affecting current conditions and delineation results.

This report was prepared for the exclusive use of the City of Arcata. Winzler & Kelly is not liable for any action arising out of the reliance of any third party on the information contained within this report.

6 of 11

VIII. REFERENCES

COE, date unknown. *Wetlands Delineation Manual*. Tech. Rep 4-87-11987, United States Department of the Army Corps of Engineers (COE).

GretagMacbeth, 2000. *Munsell Soil Color Charts.*

Hickman, James, 1993. *The Jepson Manual,* University of California Press, Berkeley and Los Angeles, California.

Soil Survey Staff, 1992. *Keys to Soil Taxonomy.* 5th Edition, SMSS Technical Monograph No. 19, Blacksburg, Virginia.

USDA/NRCS, 1998. *Field Indicators of Hydric Soils in the United States.* United States Department of Agriculture, Natural Resources Conservation Service (USDA/NRCS).

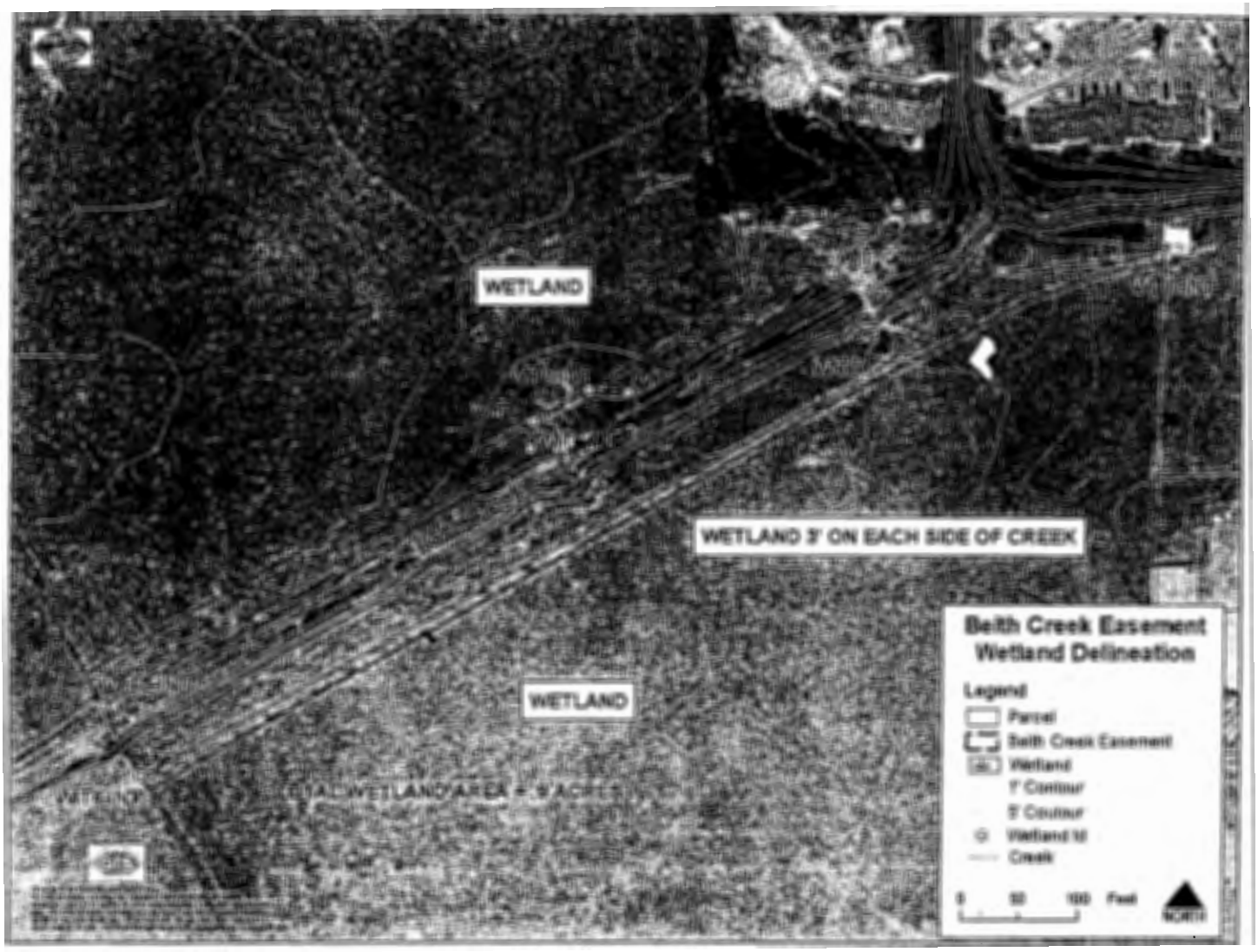
USDA, 1995. *Changes in Hydric Soils of the United States.* Federal Register, Vol. 60, No. 37, United States Department of Agriculture (USDA).

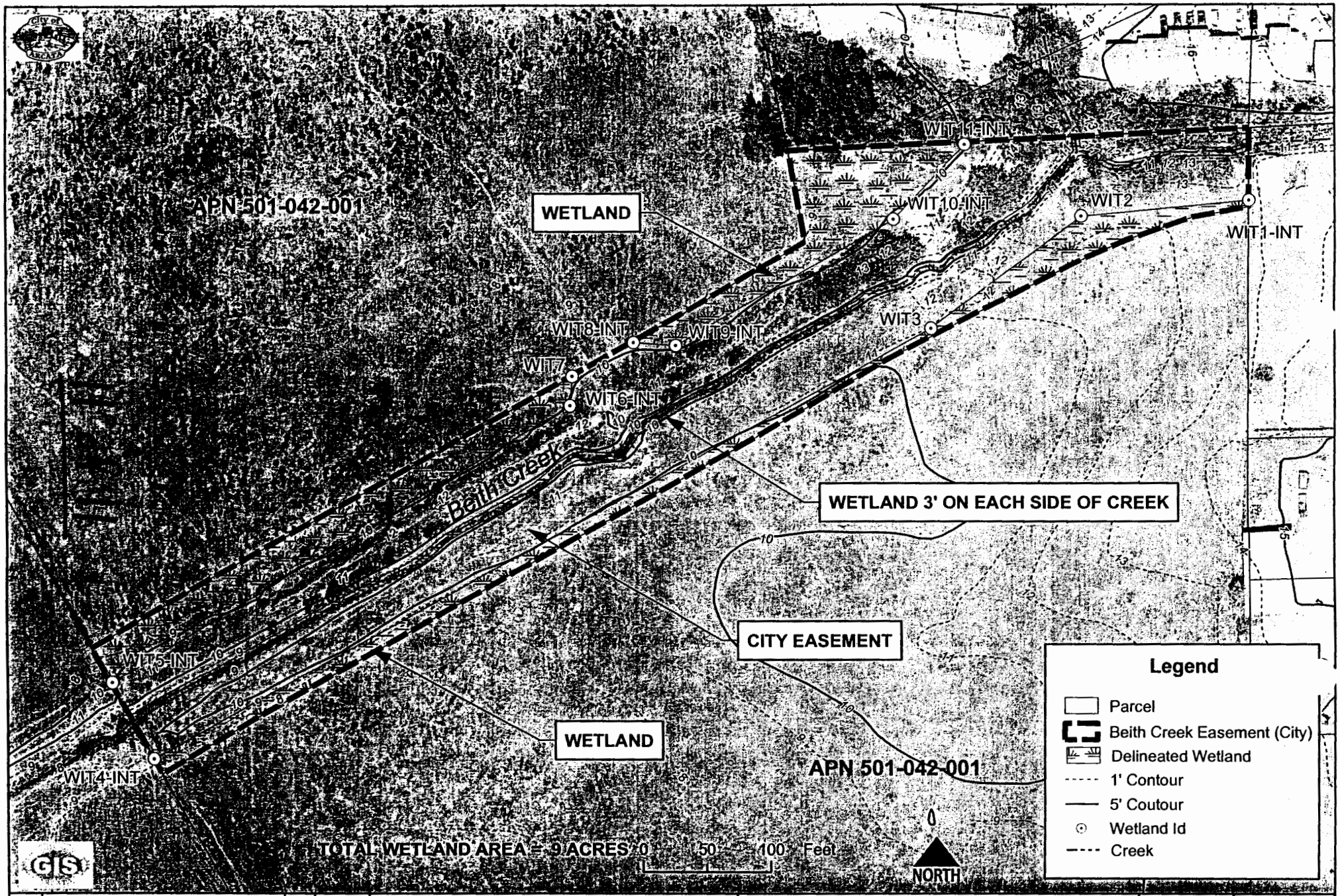
United States Department of the Interior, 1988. *National List of Plant Species that Occur in Wetlands, California (Region O).* Bio. Rep. 88 (26.20).

United States Fish and Wildlife Service, 1979. *Classification of Wetlands and Deepwater Habitats of the United States,* FWS/OBS 79/31.

Appendix A:
Field Data Sheets

Appendix B:
Wetland Delineation Map


WETLAND
WETLAND 3' ON EACH SIDE OF CREEK
WETLAND
Beith Creek Easement
Wetland Delineation
Legend
Parcel
Beith Creek Easement
Wetland
1' Contour
5' Contour
Wetland Id
Creek
0
50
100
Feet
NORTH



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CITY OF ARCATA
Environmental Services Department

DESIGNED BY:	M. ANDRE
DRAWN BY:	B. KANG
CHECKED BY:	M. ANDRE
EXPIRES:	

City of Arcata/USFWS
Beith Creek Restoration Phase #1: Wetland Delineation
Gannon Slough\Campbell & Beith Creek
Channel Realignment Riparian Restoration
USGS 7.5 Minute Topographic Map: Arcata South Quad
Section 33, T.6.N., R.1.E. of H.B & M
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1" = 50 FEET	3/18/2005
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SHEET 1	
OF 1	