

Lagunitas Creek
Fish Habitat Enhancement
Potential Project Sites

prepared for
Marin Municipal Water District

prepared by

Lizbeth Prunuske
Steven Chatham

PRUNUSKE CHATHAM, INC.

*ecological restoration • civil engineering • hydrology • forestry
land surveying • revegetation • erosion control*

P.O. Box 828 Occidental, California 95465

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May 1994

Lagunitas Creek
Fish Habitat Enhancement
Potential Project Sites

Introduction

The Marin Municipal Water District, in cooperation with Trout Unlimited, is interested in improving the salmonid fish habitat in Lagunitas Creek.

Included herein are a vicinity map, location map and individual site plans with photographs for seventeen candidate habitat improvement sites between Irving and Shafter Bridges on Lagunitas Creek. All seventeen sites are located in Samuel P. Taylor State Park.

The seventeen individual candidate sites described in this report were selected and described based on guidelines developed on the March 17, 1994 field trip with Dana Roxon of MMWD, Leo Cronin of Trout Unlimited, Bill Cox of California Department of Fish and Game, David Boyd of California Department of Parks and Recreation, Barry Hecht of Balance Hydrologics, Inc. and Liza Prunuske of Prunuske Chatham, Inc.. Additional guidance regarding the type of habitat improvement needed was taken from "Habitat Recommendations: Lagunitas Creek" by D.W. Kelly and Entrix dated February 13, 1992. Access has also been an important consideration in site selection.

The best sites will be selected for implementation from the seventeen potential sites. The primary habitat improvement will be accomplished by anchoring woody debris to either the left or right bank to create cover for summer rearing habitat. The woody debris will be logs and/or root crowns. Examples of the material to be anchored are shown in the photographs in Appendix B.

The seventeen candidate sites are presented herein for review and comment and to report progress. The next step will be to review the individual sites to determine that no impact to rare, endangered or sensitive species will occur and to determine which sites hold the best habitat improvement promise. Sites that would have an impact on sensitive species will be rejected. Bill Cox of the California Department of Fish and Game will review each site for possible impacts to sensitive aquatic species. Prunuske Chatham, Inc. will investigate potential impacts to other sensitive species. After final site selection is complete, a draft plan will be prepared. If you have any comments, please contact either Liza Prunuske or Steven Chatham.

revised
checked
12/10/94

Project Installation

Installation will occur primarily during the July 4, 1994 weekend using Trout Unlimited volunteers who will be following a detailed work plan.

Volunteers will be directly supervised by MMWD and Prunuske Chatham, Inc.. In addition to the instream work, some off-stream work may also be done. The off-stream work may include vinca removal and erosion control projects. These projects will be described in the draft plan. Materials and equipment needed for the weekend will be delivered to the sites prior to the weekend.

Access

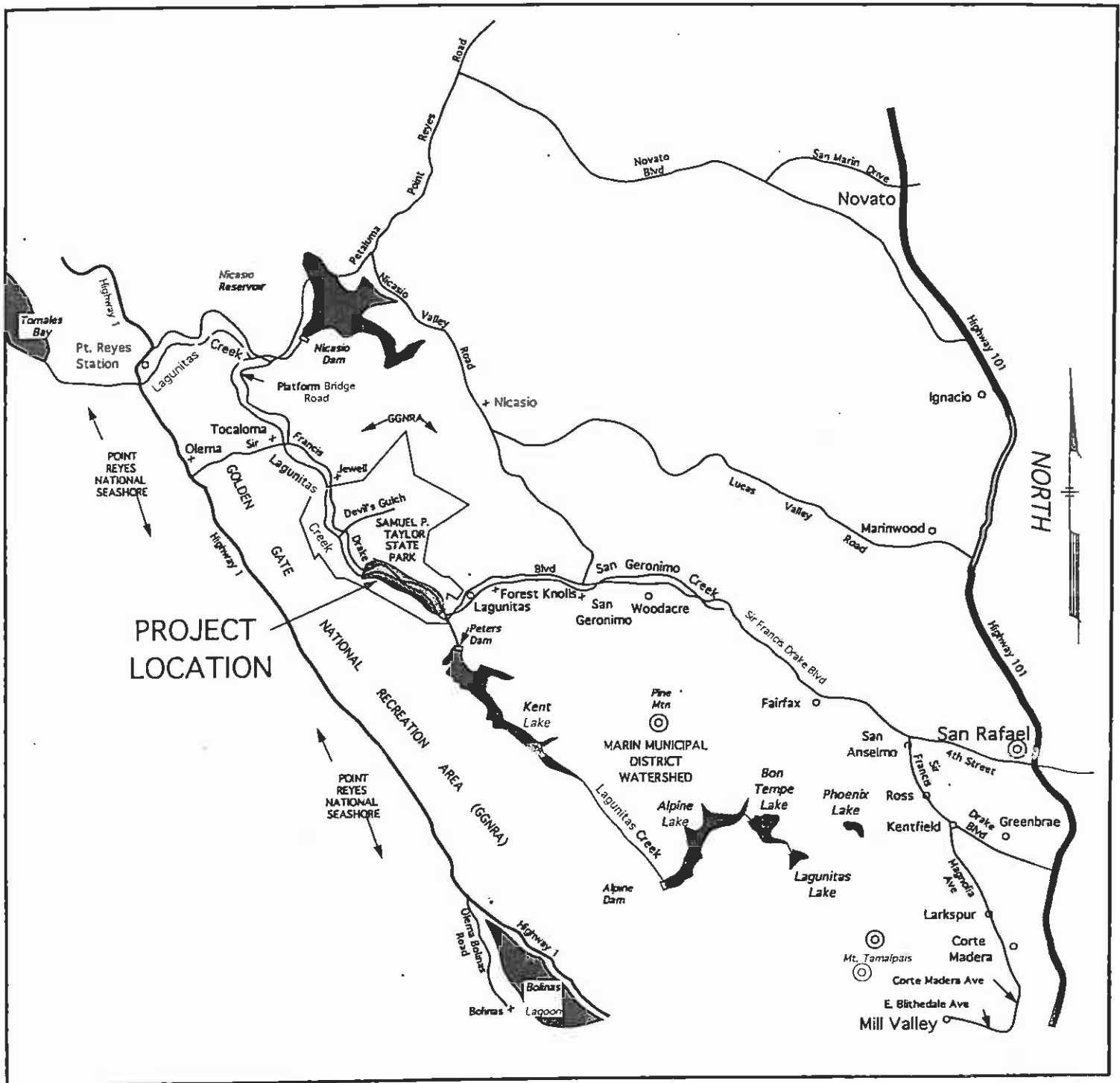
Site access has been and will continue to be a consideration in site selection. Access to the entire reach is challenging. We are not planning to use any heavy equipment in the channel. Because of poor equipment access, the material will have to be skidded using power winches and cable to move it into place. Material will be delivered to the riparian corridor from either Sir Francis Drake Blvd. or the bike trail. Access avenues will be selected to avoid damage to riparian vegetation to the greatest extent possible. No mature woody vegetation or sensitive species will be impacted.

Materials

All woody debris material is available from MMWD watershed lands. This material will be selected after the final site selection and will be delivered to the installation site prior to the work weekend. Much of the material is heavy. It will require equipment to lift and transport it. Loaders and/or cranes working with dump trucks and/or flatbeds will deliver the material prior to the work weekend. Anchors and related hardware needed to anchor the woody debris in place will be purchased.

Anchoring

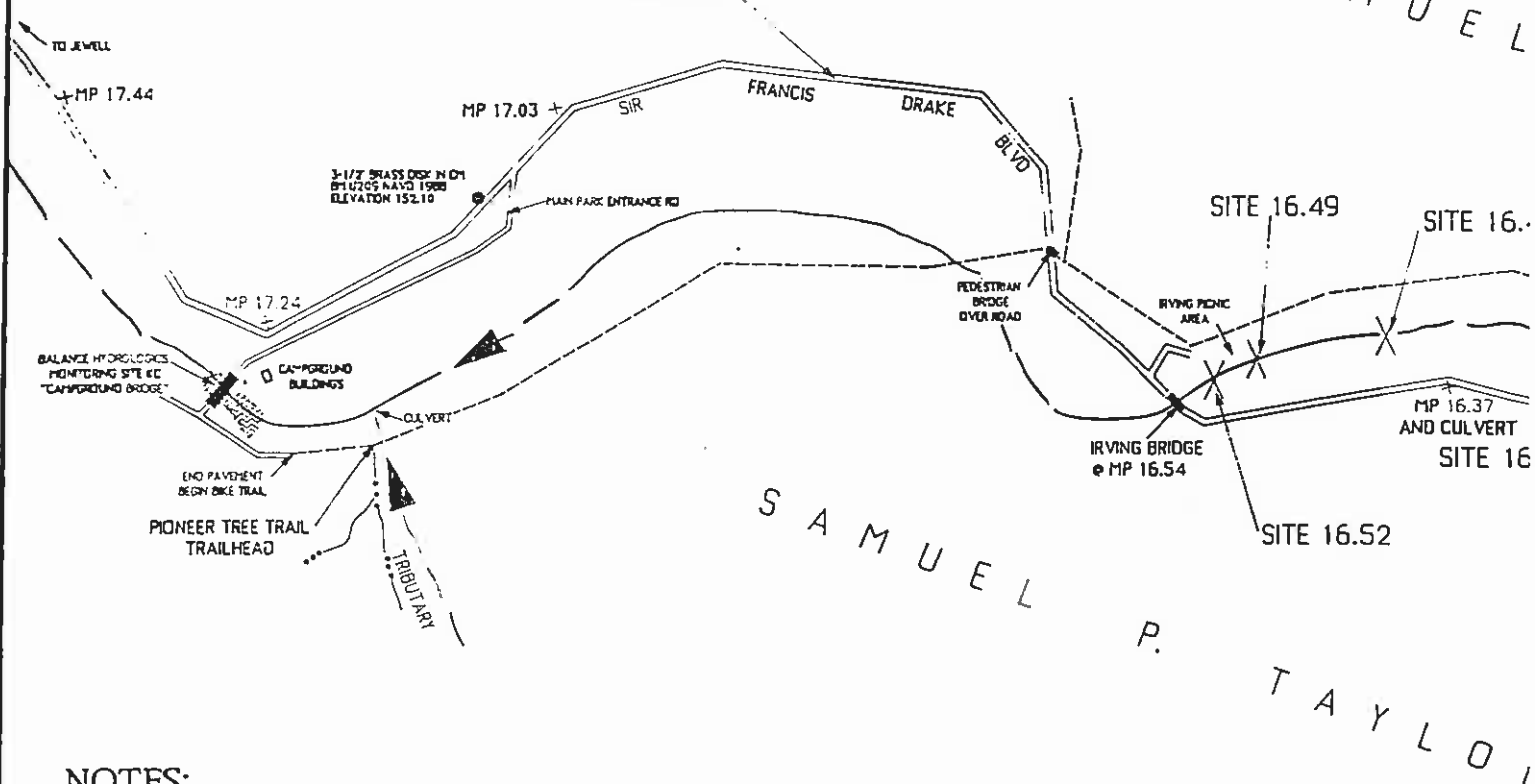
The woody debris will be anchored using soil anchors such as duckbills. Rock bolts will be used when anchoring to rock. Anchoring will be placed so that it is inconspicuous and generally not visible to casual observation.



VICINITY MAP

NOT TO SCALE

APPROXIMATE LOCATION SIR FRANCIS DRAKE BLVD



NOTES:

1. Basis of bearings is observed magnetic.
2. Location of Balance Hydrologics, Inc. (BHI) creek monitoring sites shown hereon is based upon a field survey by PCI, documentation provided to PCI by, Balance Hydrologics, Inc., and a joint site inspection by PCI and BHI.
3. Location of Lagunitas Creek between monitoring sites has not been surveyed by PCI and is approximate only.

LEGEND

- + CULVERT LOCATED BY PCI
- FOUND 3-1/2" BRASS DISK NGS BENCHMARK (OR AS NOTED)
- + MILEPOST MARKER
- BHI REBAR FOUND AT SITE CROSS-SECTION TERMINUS
- ▨ BHI MONITORING SITE
- A/C ROAD
- APPROXIMATE CENTERLINE OF CREEK
- APPROXIMATE CENTERLINE OF BIKE TRAIL



VICINITY MAP

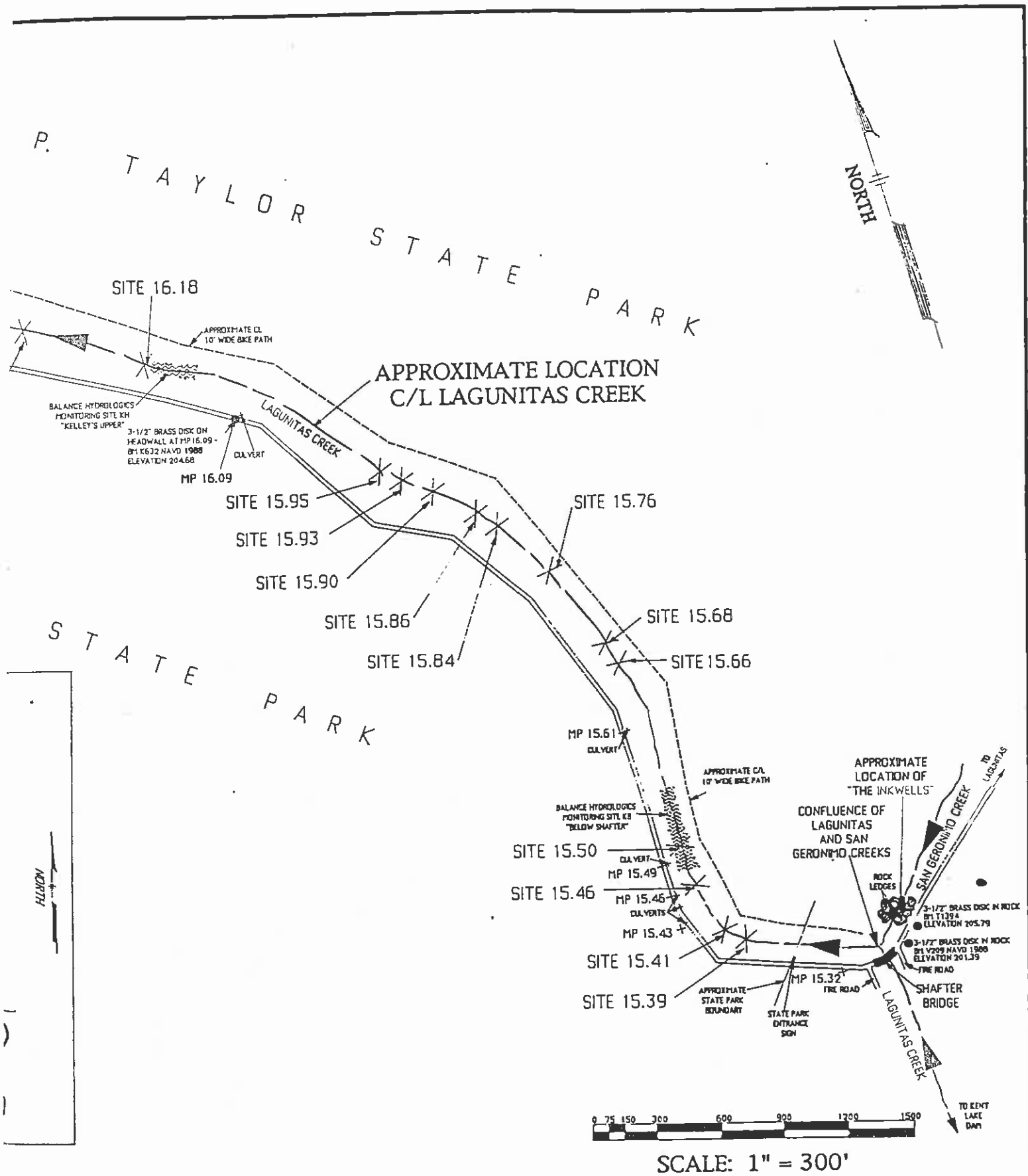
NOT TO SCALE

PRUNUSKE CHATHAM, INC.

P.O. BOX 828
OCCIDENTAL, CA. 95465
(707)874-0100

DATE : 5-1-94
SCALE : 1" = 300'
CHECKED BY:
DRAFTED BY:

REVISIONS	DATE	BY

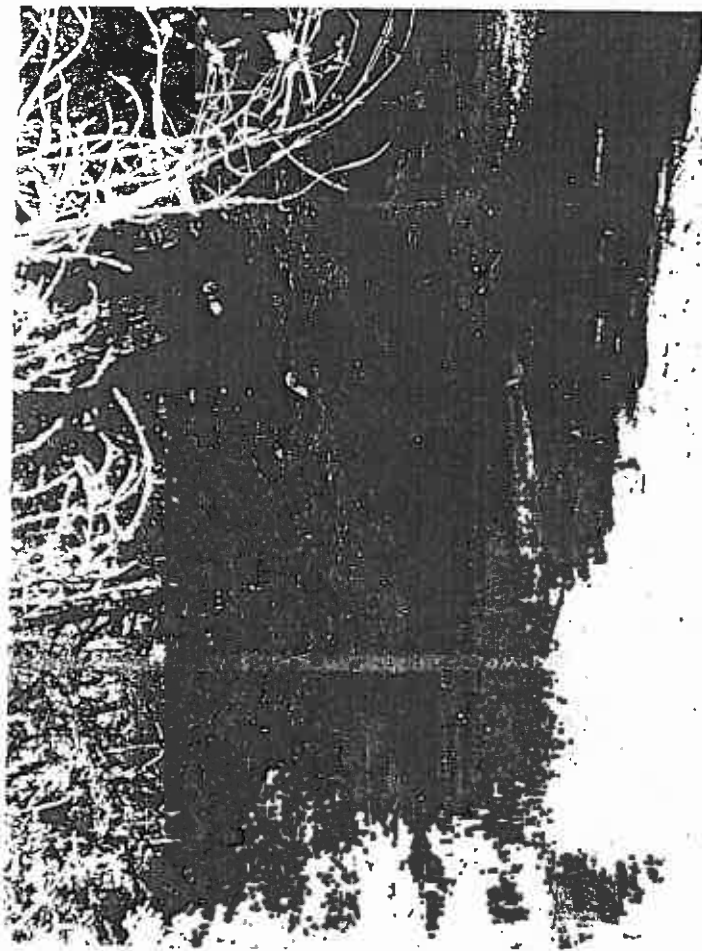


SCALE: 1" = 300'

PREPARED FOR: MARIN MUNICIPAL WATER DISTRICT	PROJECT LOCATION MAP FISH HABITAT IMPROVEMENT SITES SAMUEL P. TAYLOR STATE PARK LAGUNITAS, MARIN COUNTY, CA	SHEET 1 OF 1
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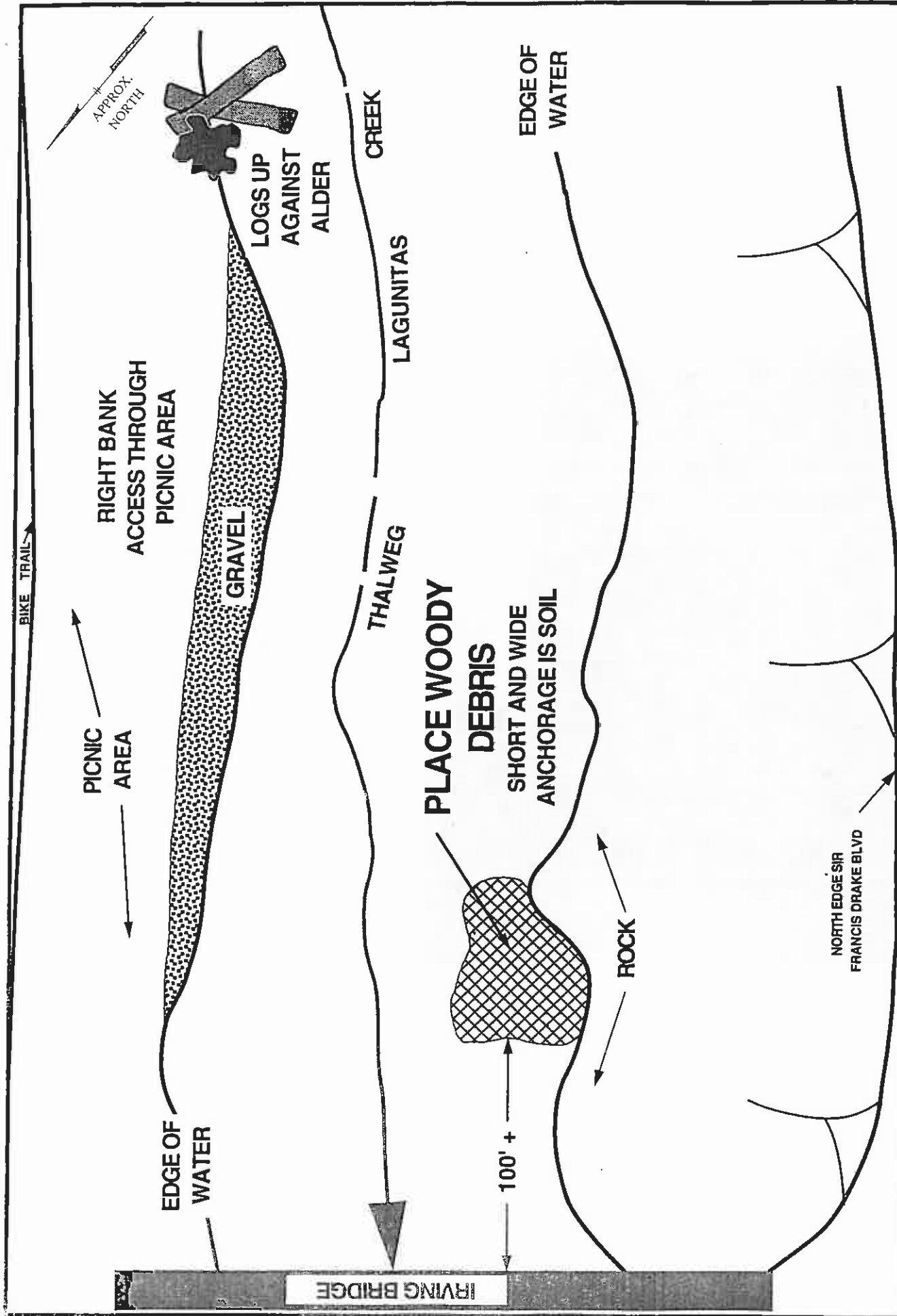
APPENDIX A

FISH HABITAT IMPROVEMENT PLANS

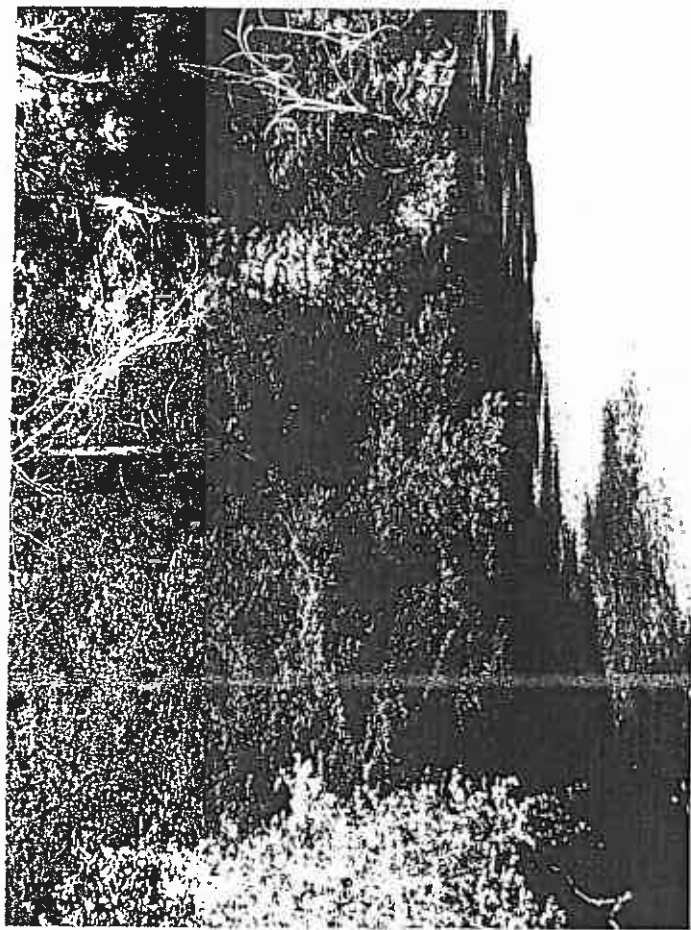


LOOKING UPSTREAM

SITE 16.52

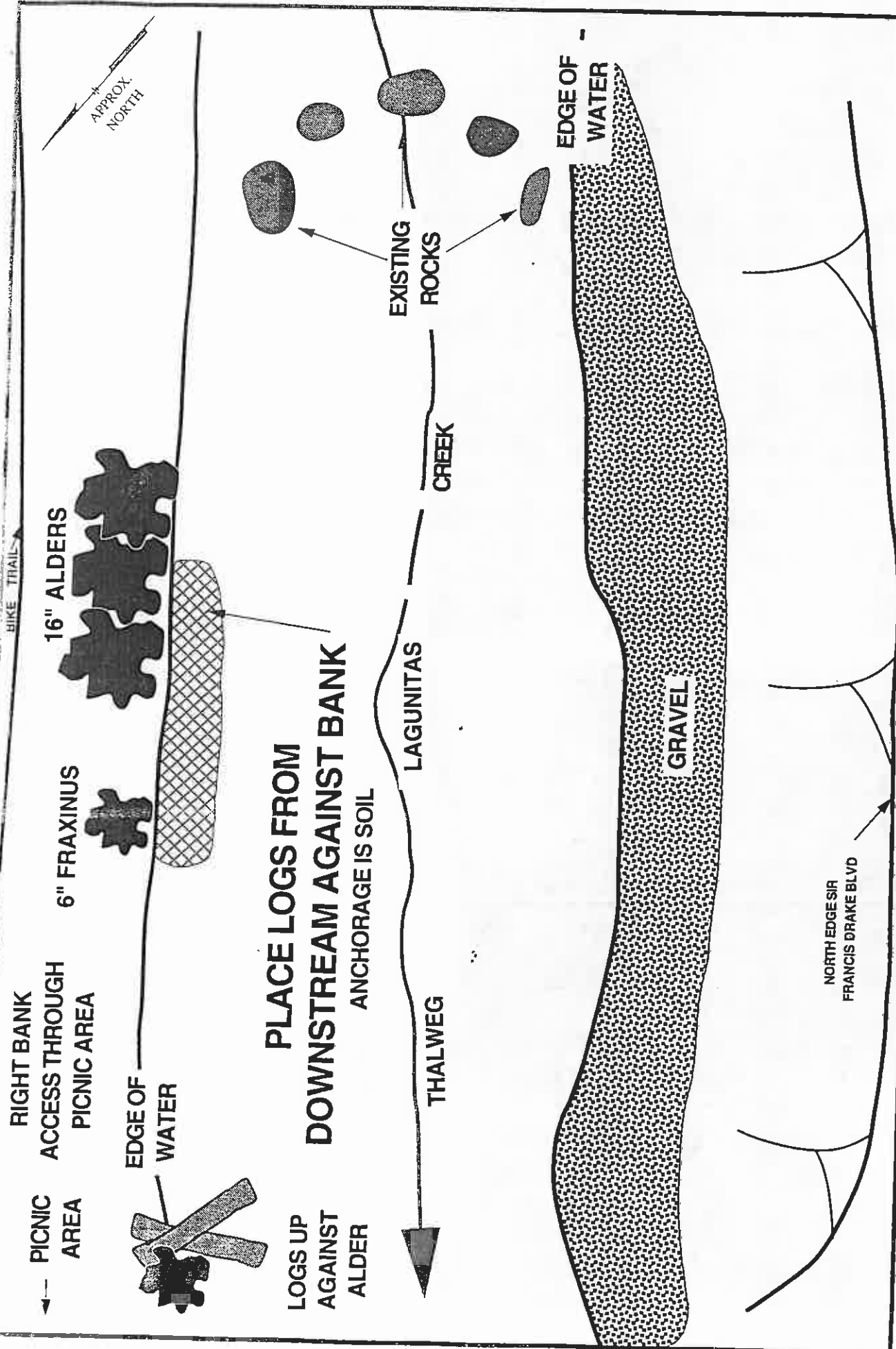


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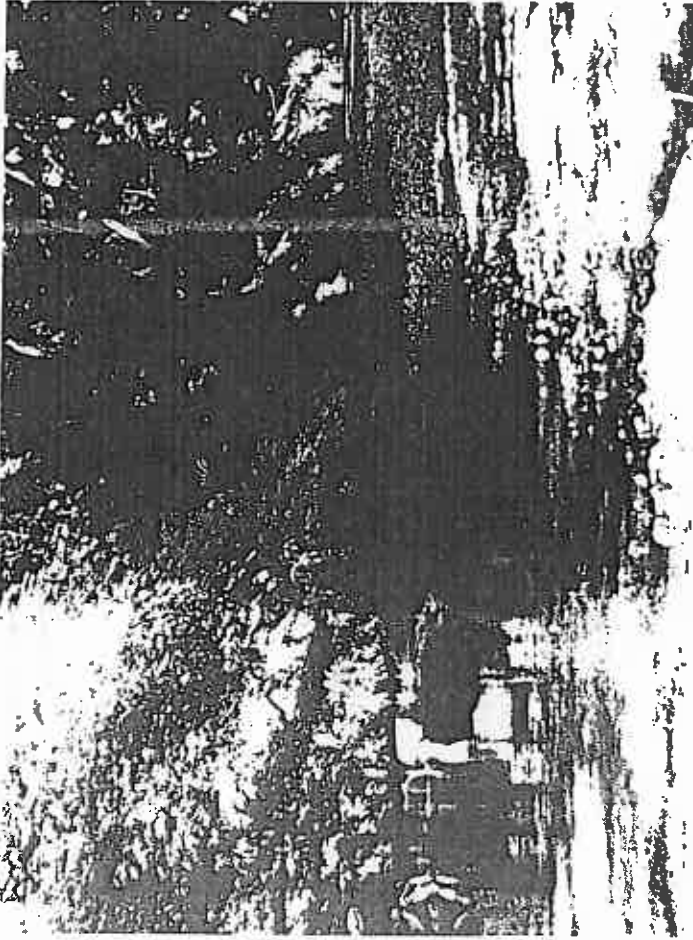


LOOKING UPSTREAM

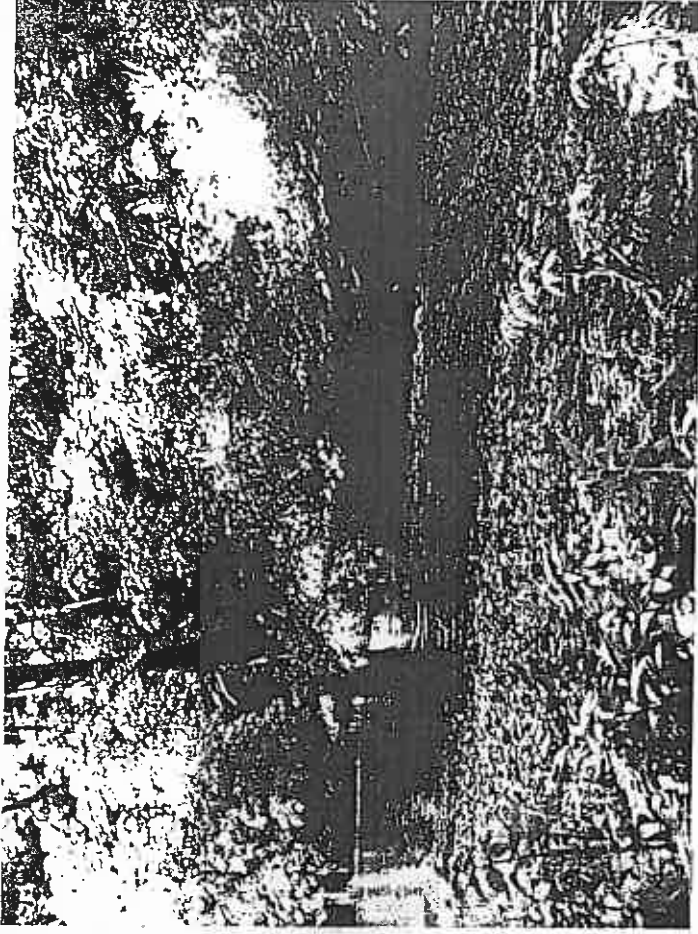
SITE 16.49



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LOOKING UPSTREAM



LOOKING DOWNSTREAM

SITE 16.42

PLACE ADDITIONAL LOGS

16" - 24" 10' - 20' LONG

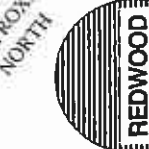
ANCHORAGE IS SOIL & ROCK

EDGE OF
WATER

RIGHT BANK
ACCESS FROM
BIKE TRAIL

BIKE TRAIL

APPROX.
NORTH



REDWOOD

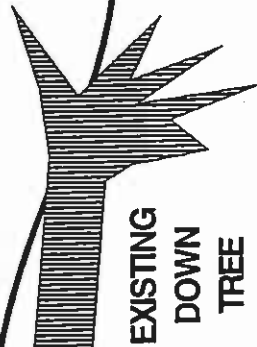


FRAXINUS



REDWOOD

FRAXINUS



EXISTING
DOWN
TREE

LAGUNITAS

THALWEG

CREEK

GRAVEL

EDGE OF
WATER

NORTH EDGE SIR
FRANCIS DRAKE BLVD

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BY: _____

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WATER DISTRICT

MARIN COUNTY, CA

SKETCH PLAN
SITE 16.42

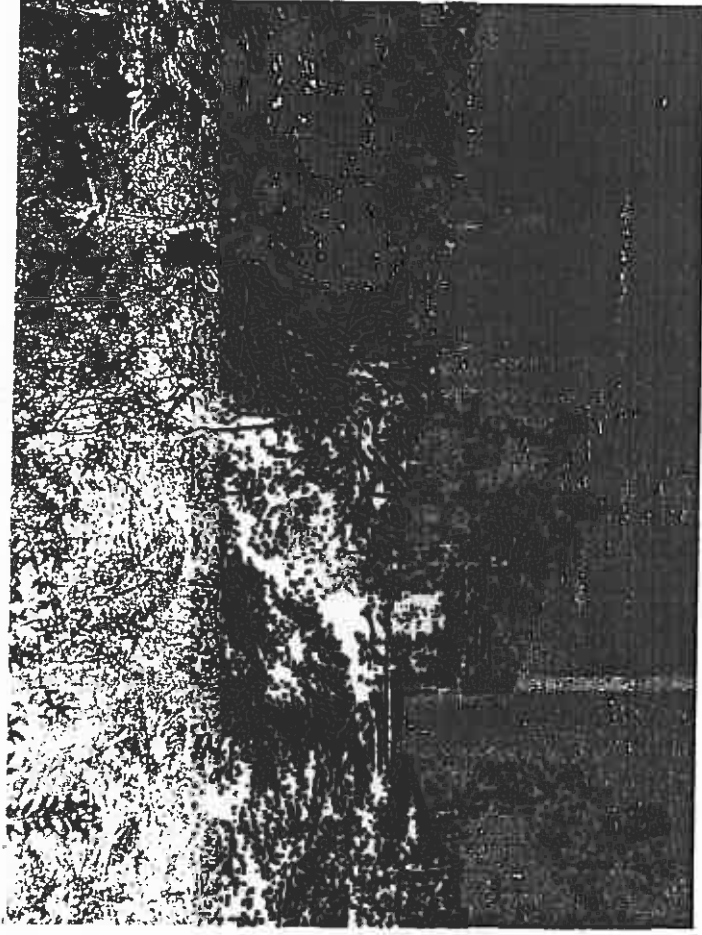
FISH HABITAT
IMPROVEMENT
LAGUNITAS CREEK

SHEET

3

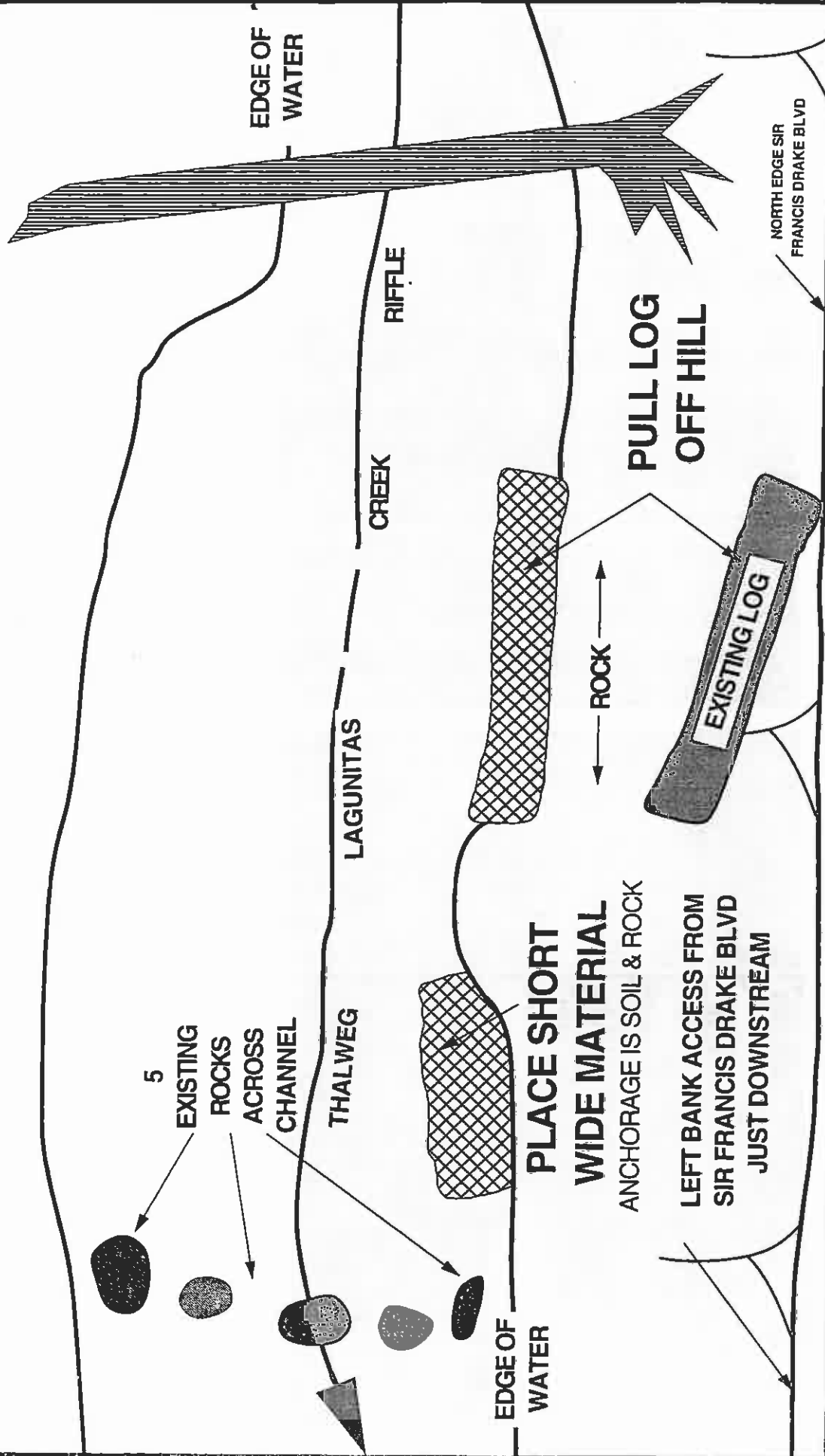
OF

17



LOOKING UPSTREAM

SITE 16.30

APPROX
NORTH

PRUNUSKE CHATHAM, INC.

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OCCIDENTAL, CA 95465
(707)874-0100

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MARIN MUNICIPAL
WATER DISTRICT

MARIN COUNTY, CA

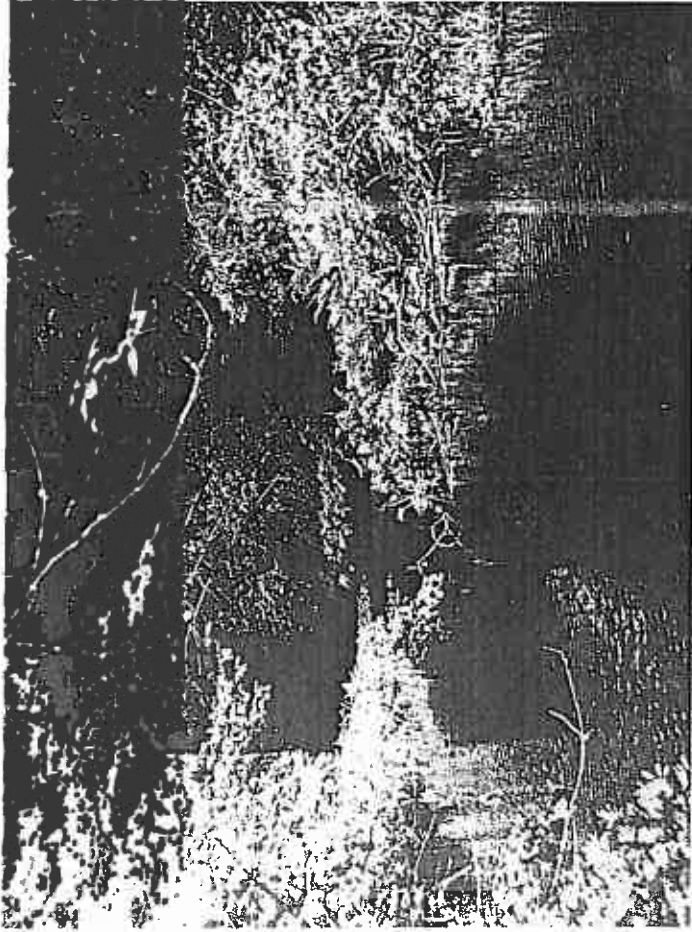
SKETCH PLAN

SITE 16.30

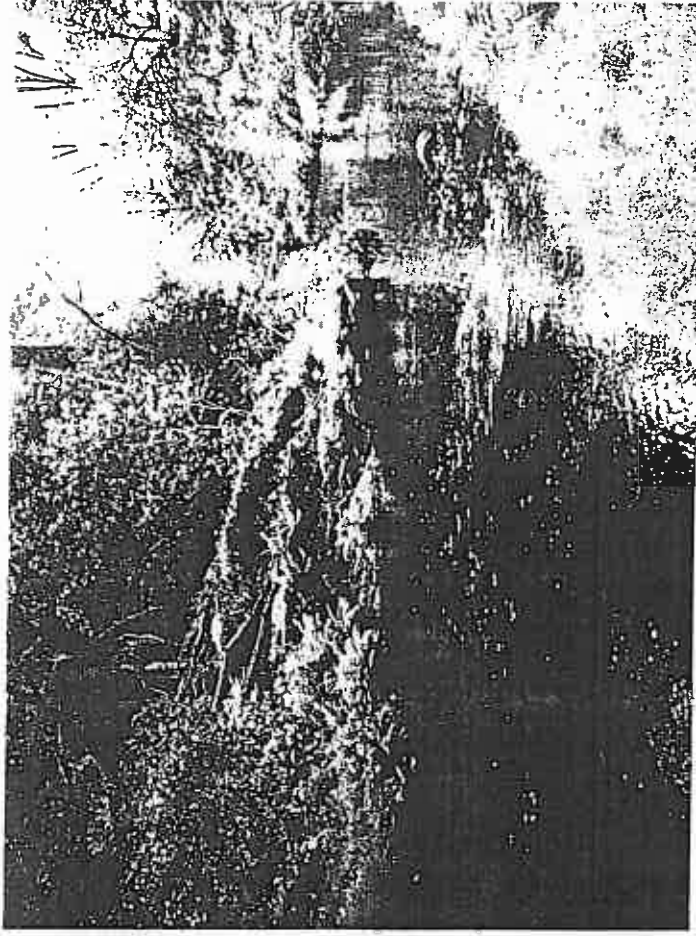
FISH HABITAT
IMPROVEMENT

LAGUNITAS CREEK

SHEET
4
OF
17



LOOKING UPSTREAM



LOOKING DOWNSTREAM

SITE 16.18

EDGE OF
WATERAPPROX
NORTH

GRAVEL

THALWEG

LAGUNITAS

CREEK

RIFFLE

PLACE SHORT

WIDE COVER

ANCHORAGE IS SOIL

EDGE OF
WATER

ROCK

DEBRIS

3.5' DEEP
HOLE

ALDER

TAN OAK

DOWN
LIVING
BAYLEFT BANK ACCESS FROM SIR
FRANCIS DRAKE BLVD WITH
TRAFFIC CONTROLNORTH EDGE SIR
FRANCIS DRAKE BLVD

PRUNUSKE CHATHAM, INC.

P.O. BOX 828
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(707)874-0100

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DRAFTED BY:

REVISION: BY: DATE:

PREPARED FOR:

MARIN MUNICIPAL
WATER DISTRICT

MARIN COUNTY, CA

SKETCH PLAN

SITE 16.18

FISH HABITAT
IMPROVEMENT

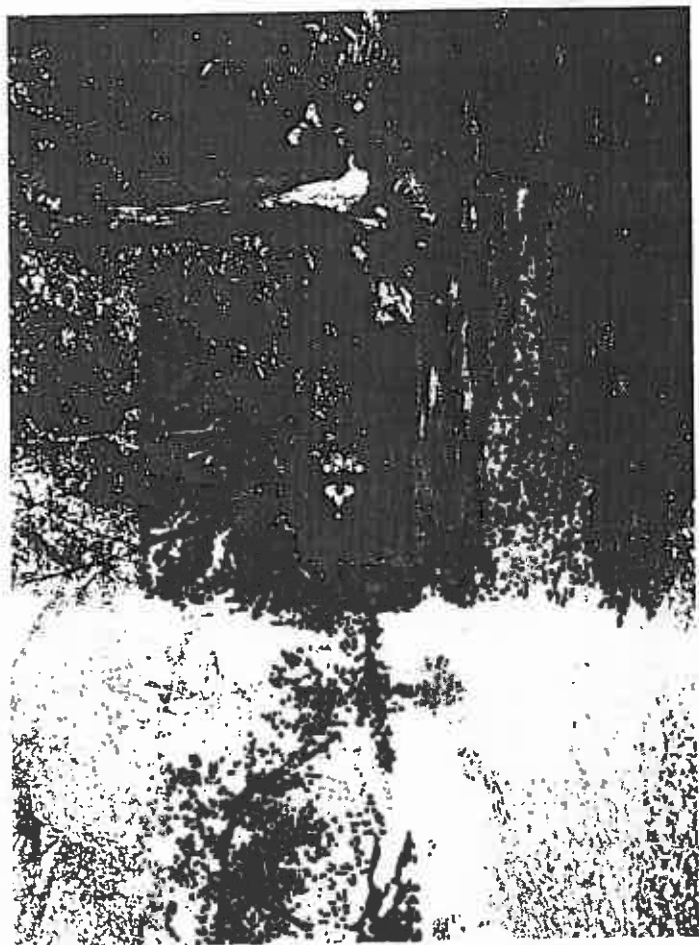
LAGUNITAS CREEK

SHEET

5

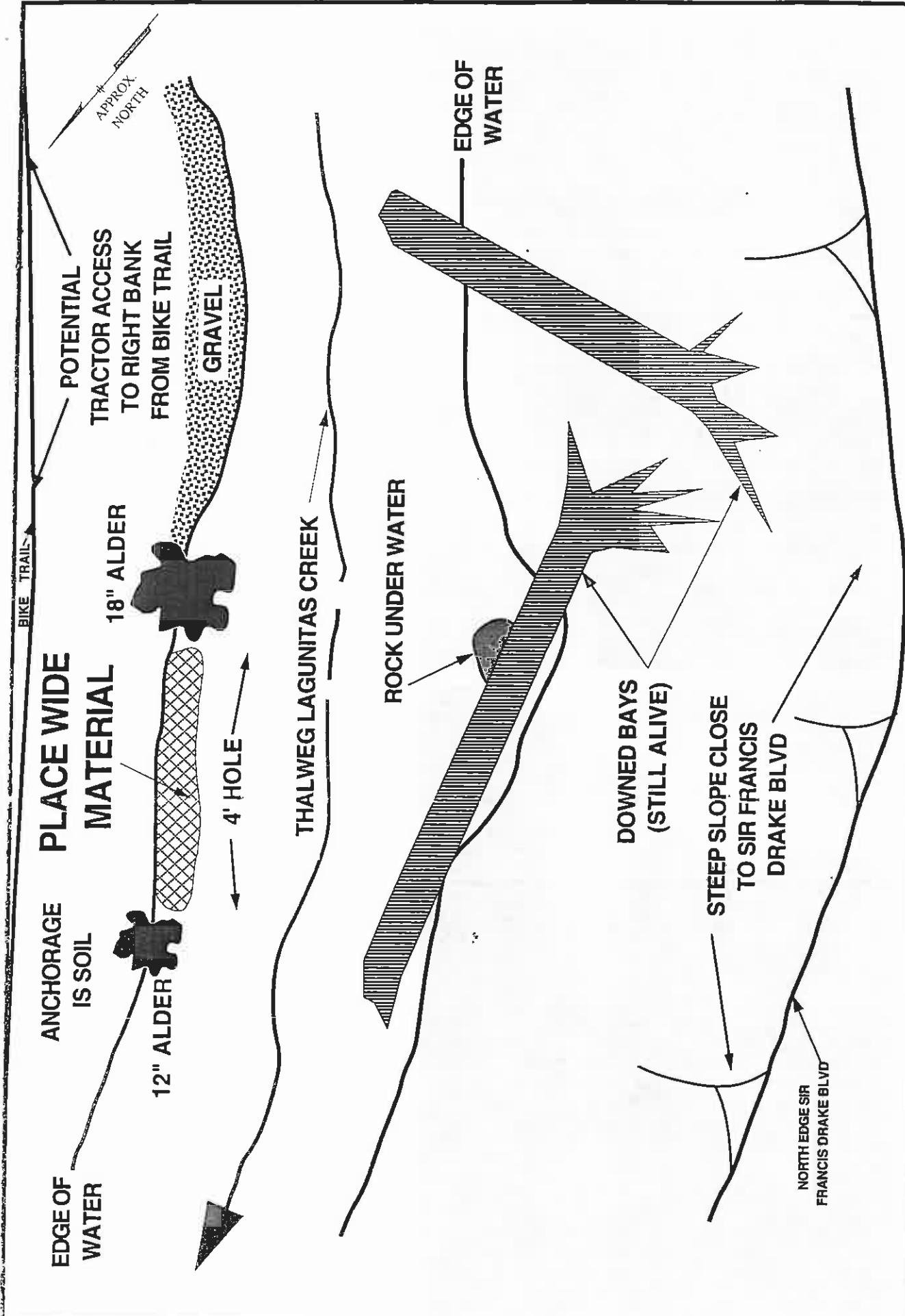
OF

17

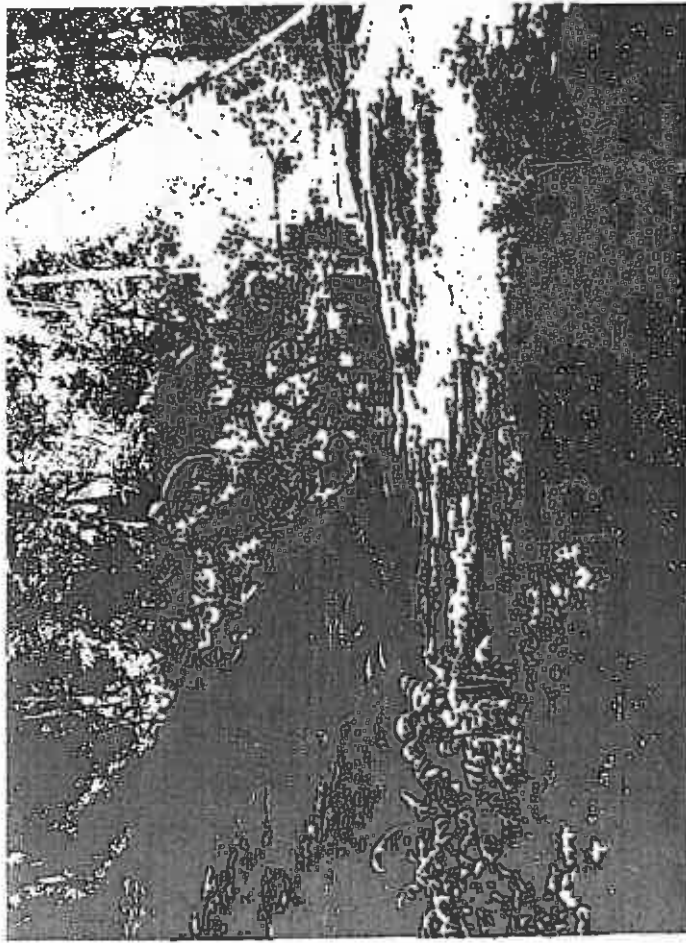


LOOKING DOWNSTREAM

SITE 15.95



PRUNUSKE CHATHAM, INC. P.O. BOX 828 OCCIDENTAL, CA 95465 (707)874-0100		DATE: 5-1-94 SCALE: NTS CHECKED BY: _____ DRAFTED BY: _____		REVISION: _____ BY: _____ DATE: _____	PREPARED FOR: MARIN MUNICIPAL WATER DISTRICT MARIN COUNTY, CA	SKETCH PLAN SITE 15.95 FISH HABITAT IMPROVEMENT LAGUNITAS CREEK	SHEET 6 OF 17
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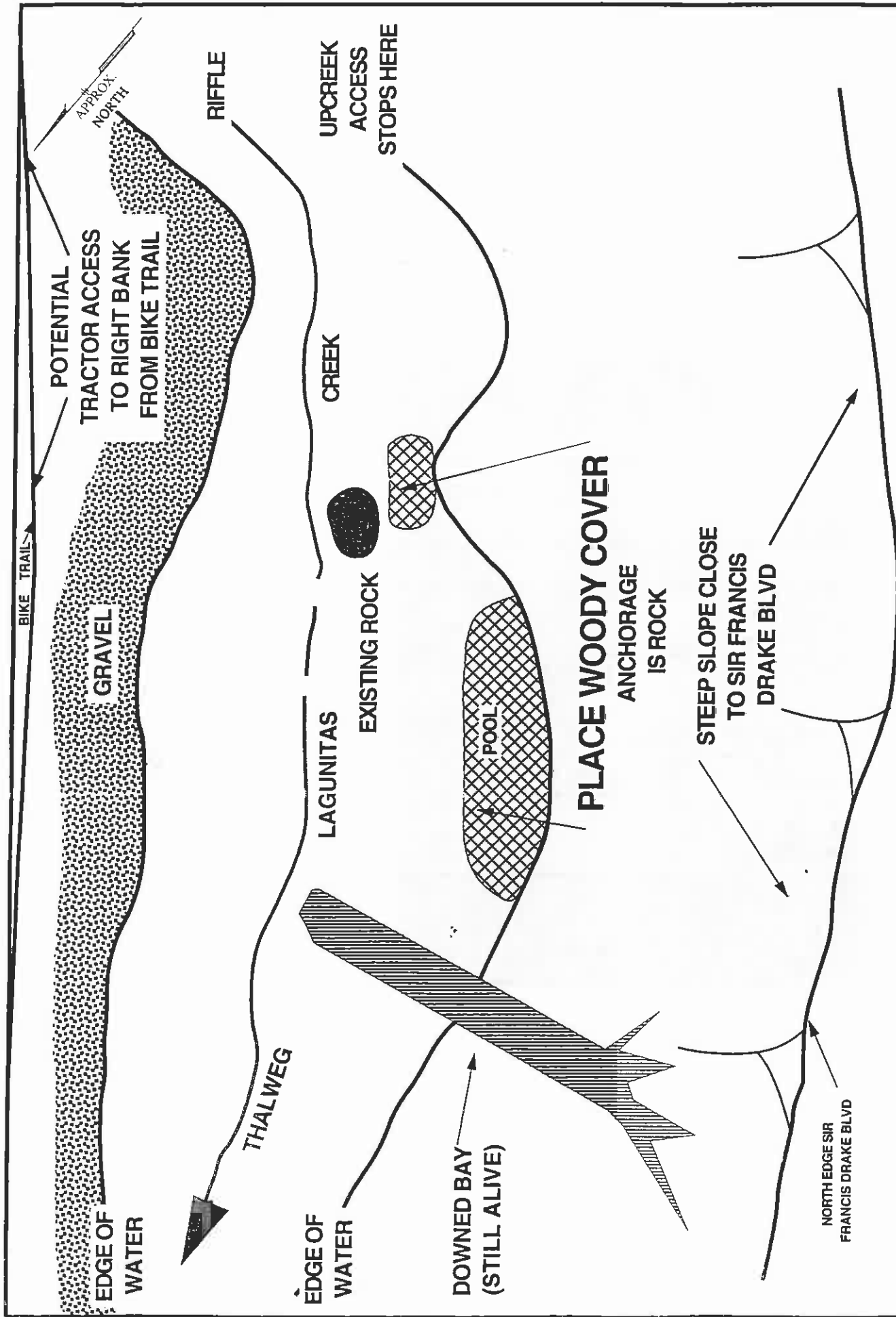


LOOKING DOWNSTREAM

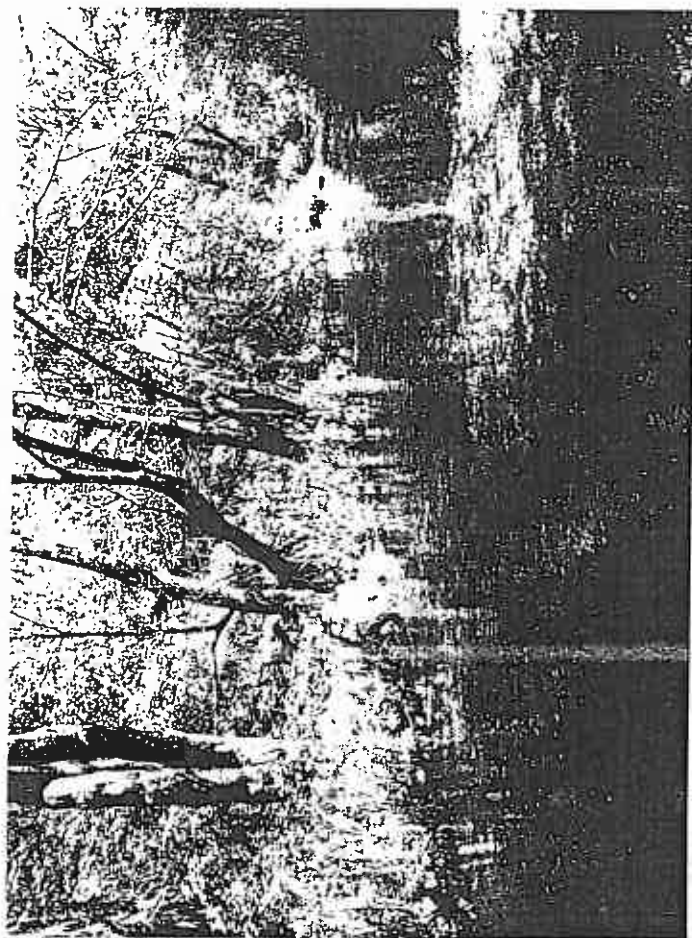


LOOKING UPSTREAM

SITE 15.93

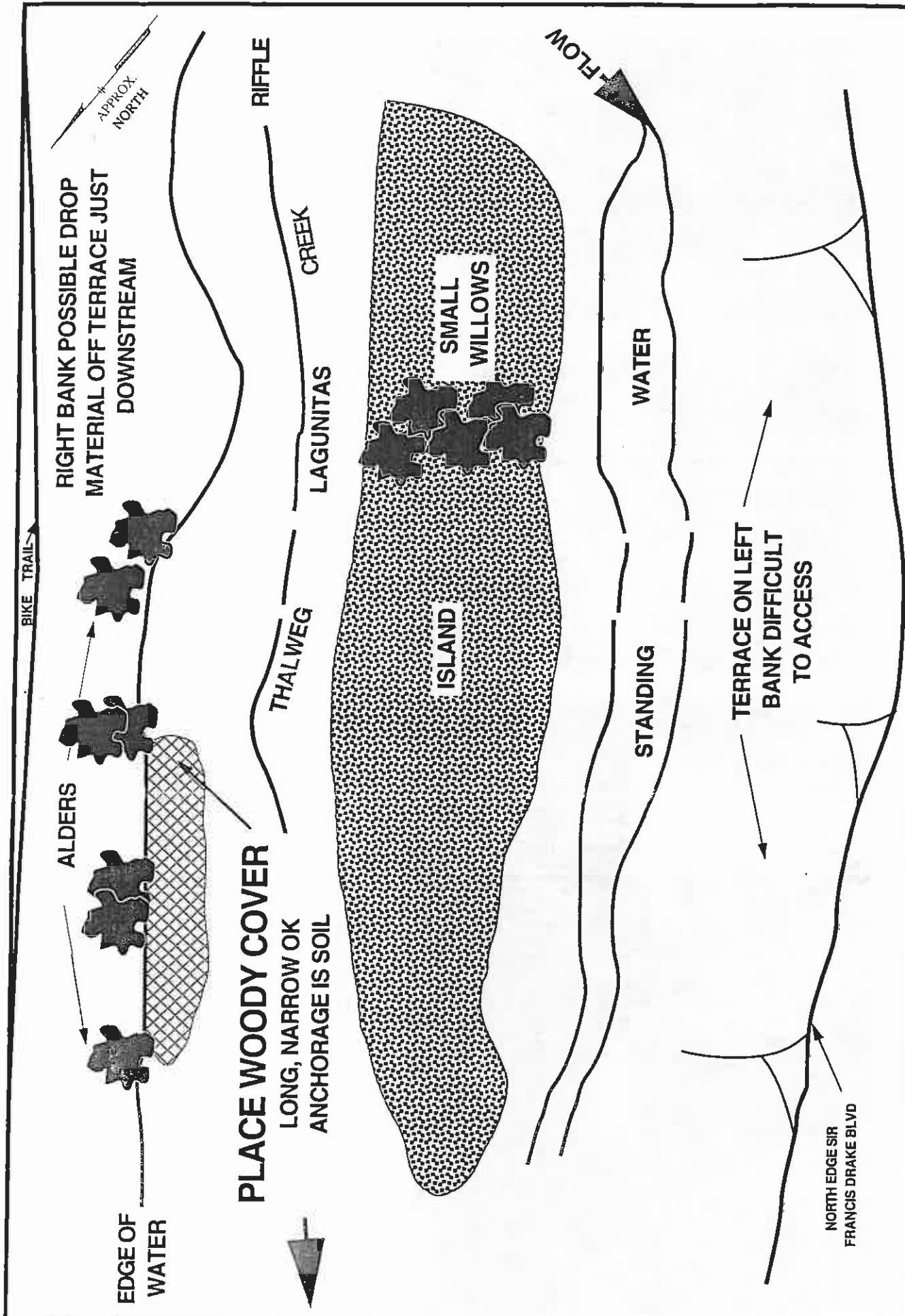


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LOOKING UPSTREAM

SITE 15.90



PRUNUSKE CHATHAM, INC. P.O. BOX 828 OCCIDENTAL, CA 95465 (707)874-0100				DATE: 5-1-94 SCALE: NTS CHECKED BY: _____ DRAFTED BY: _____		<table><thead><tr><th>REVISION:</th><th>BY:</th><th>DATE:</th></tr></thead><tbody><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr></tbody></table>			REVISION:	BY:	DATE:																PREPARED FOR: MARIN MUNICIPAL WATER DISTRICT MARIN COUNTY, CA		SKETCH PLAN SITE 15.90 FISH HABITAT IMPROVEMENT LAGUNITAS CREEK		SHEET 8 OF 17	
REVISION:	BY:	DATE:																														

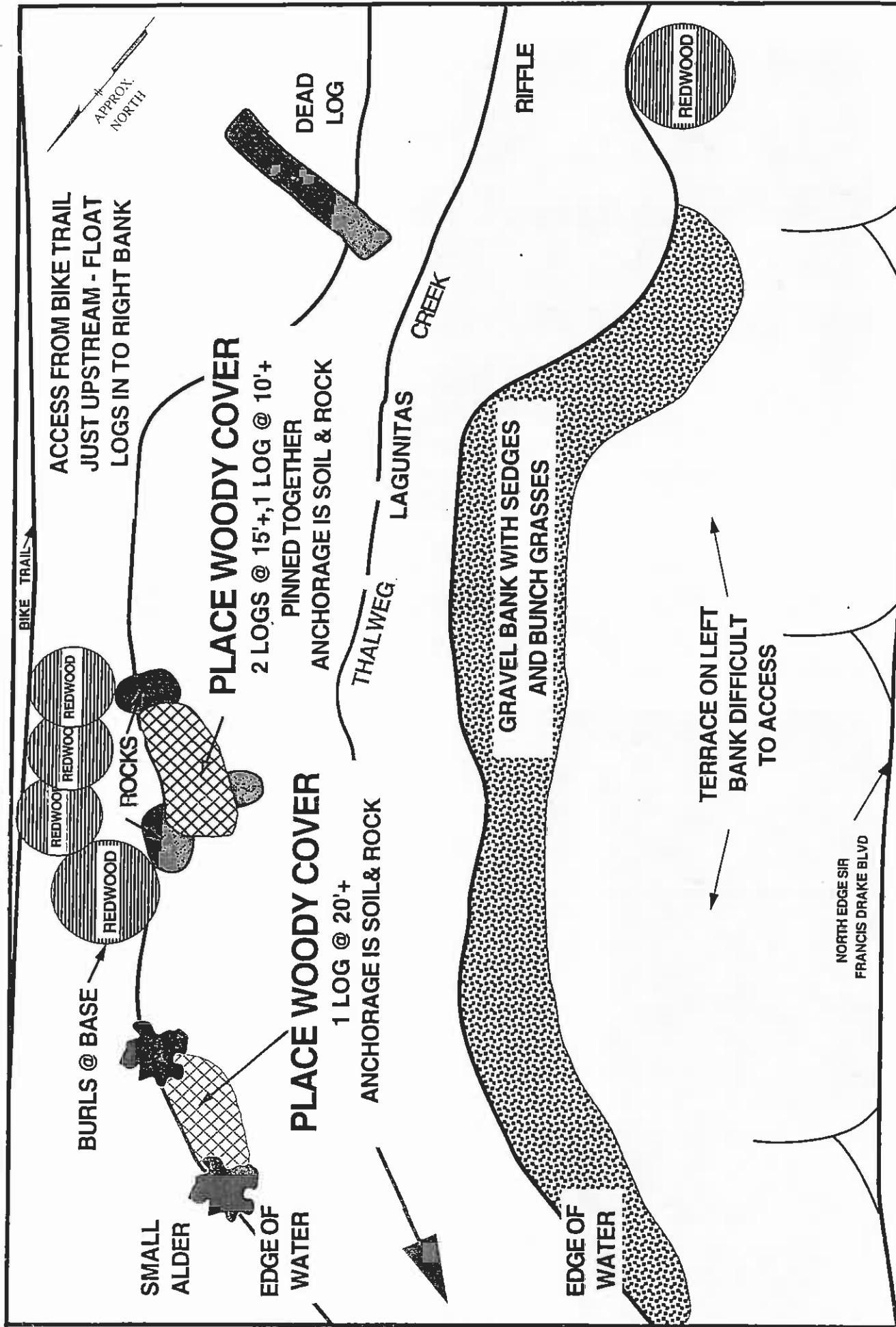


LOOKING UPSTREAM

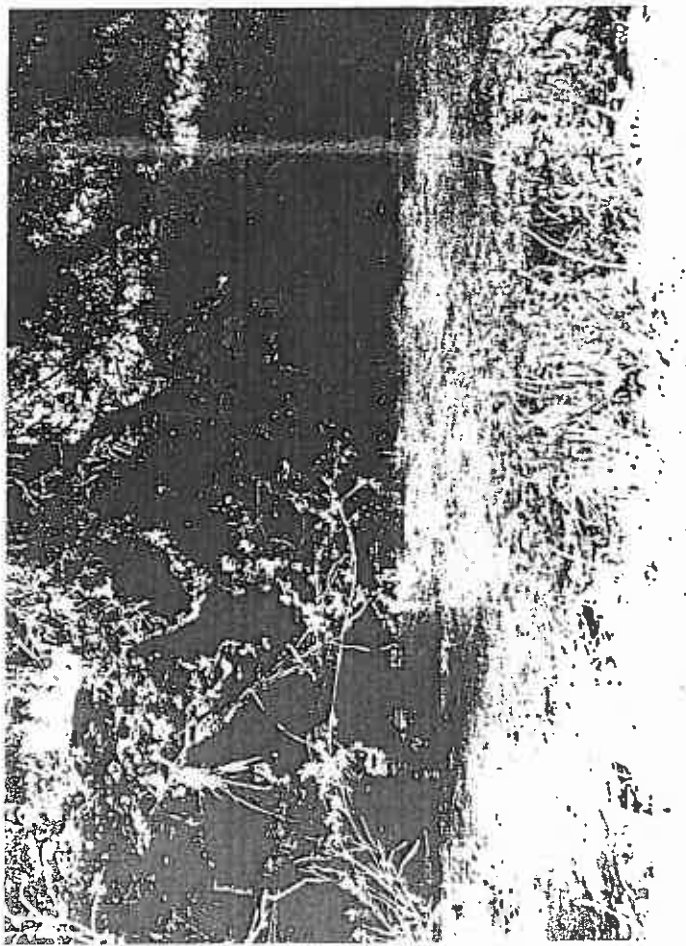


LOOKING DOWNSTREAM

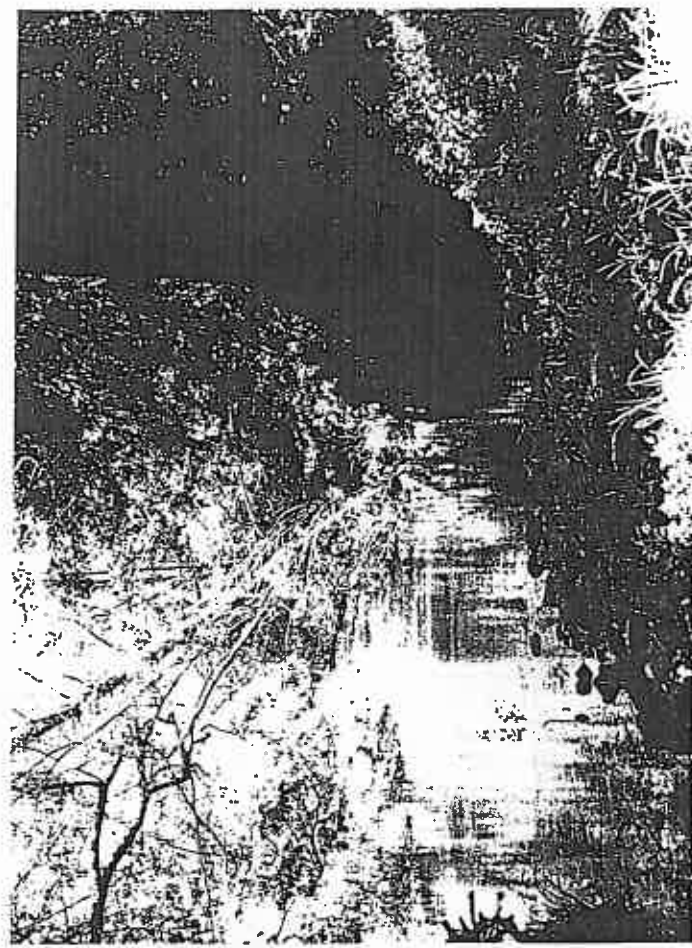
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PRUNUSKE CHATHAM, INC. P.O. BOX 828 OCCIDENTAL, CA 95465 (707)874-0100	DATE: 5-1-94 SCALE: NTS CHECKED BY: DRAFTED BY:	REVISION: BY: DATE:	PREPARED FOR: MARIN MUNICIPAL WATER DISTRICT MARIN COUNTY, CA	SKETCH PLAN SITE 15.86 FISH HABITAT IMPROVEMENT LAGUNITAS CREEK	SHEET 9 OF 17
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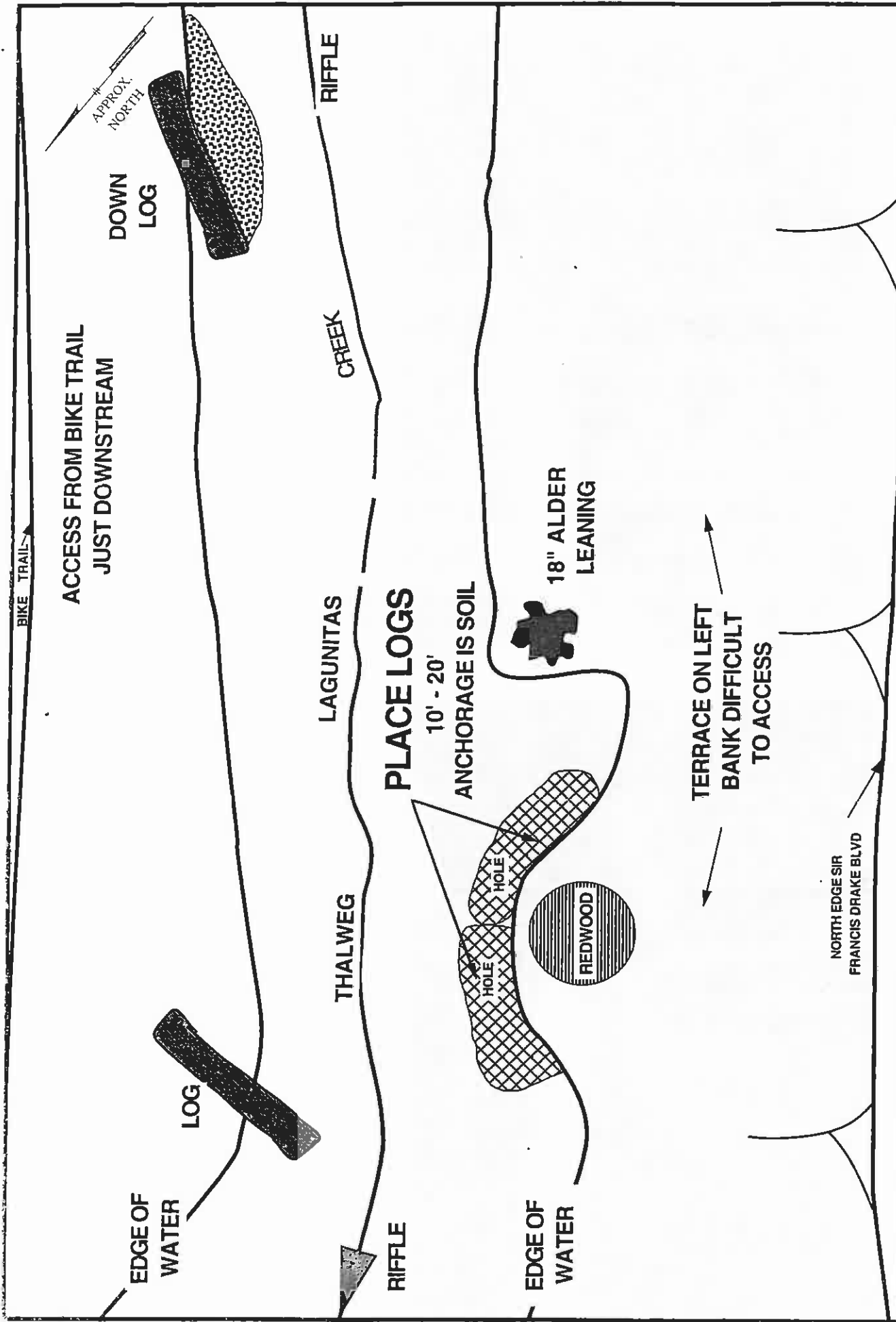


LOOKING ACROSS

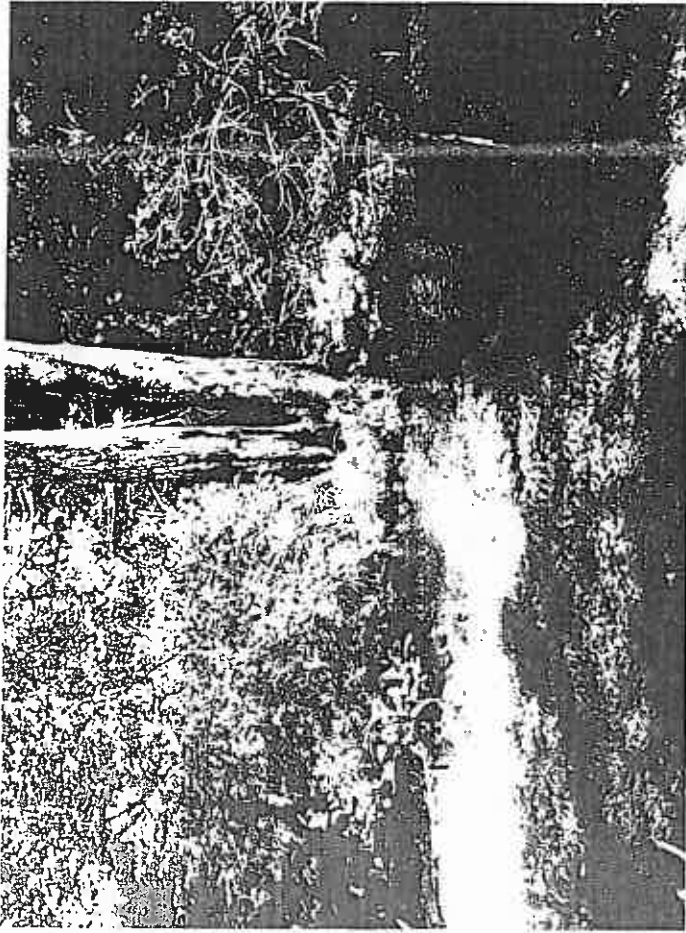


LOOKING UPSTREAM

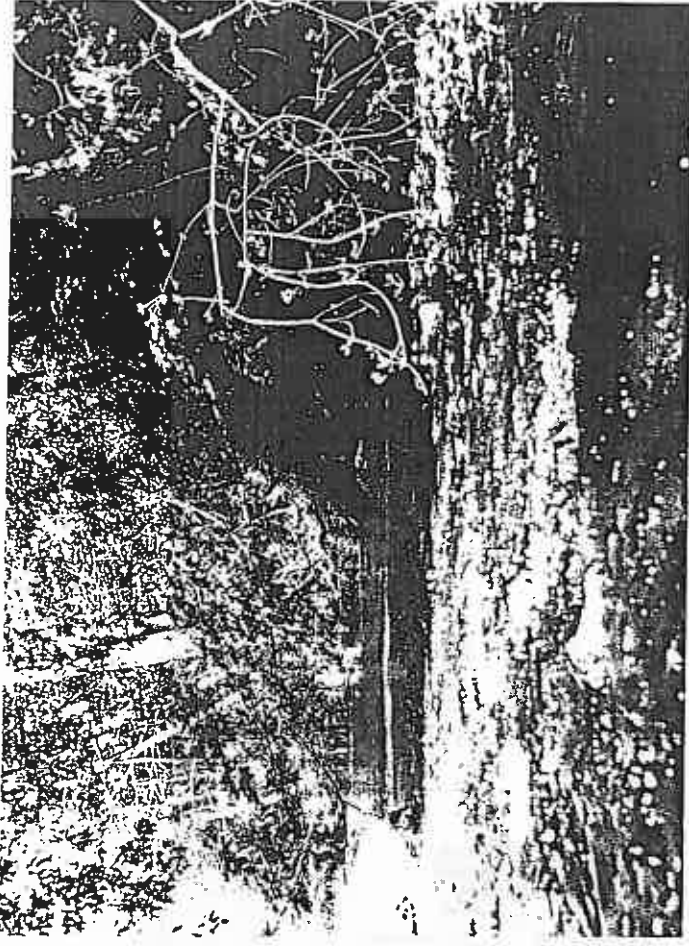
SITE 15.84



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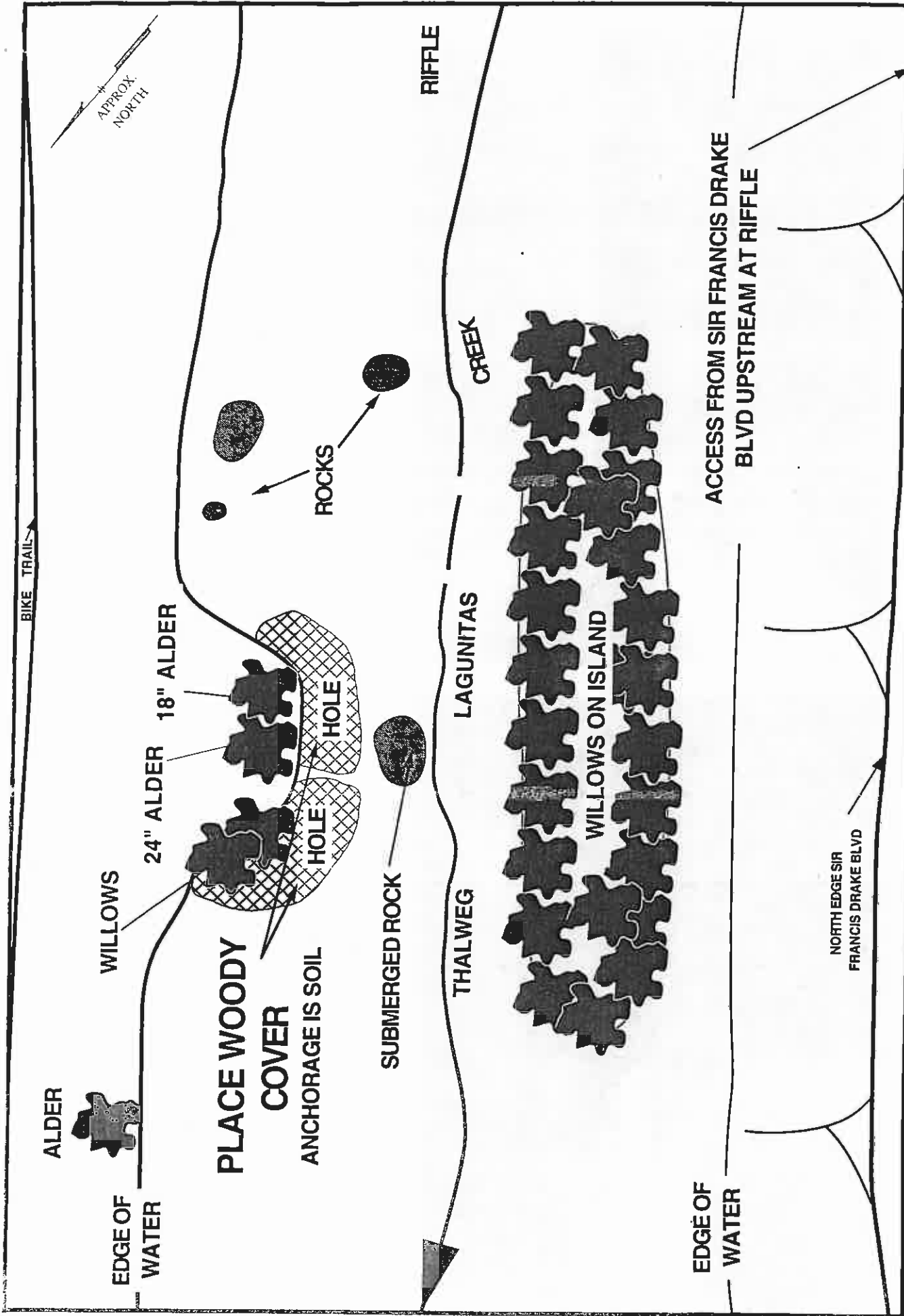


LOOKING ACROSS

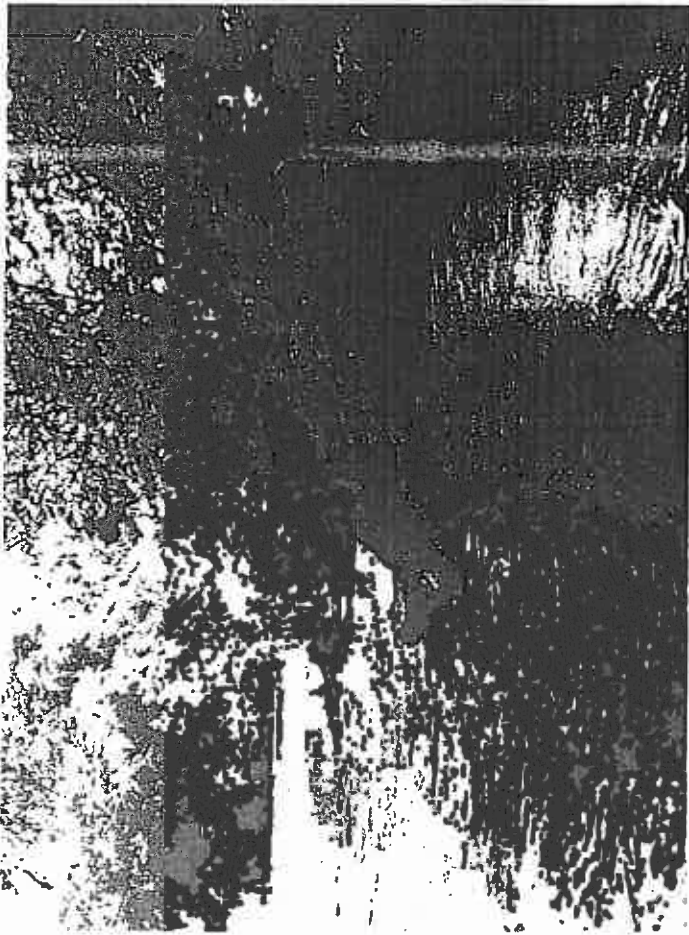


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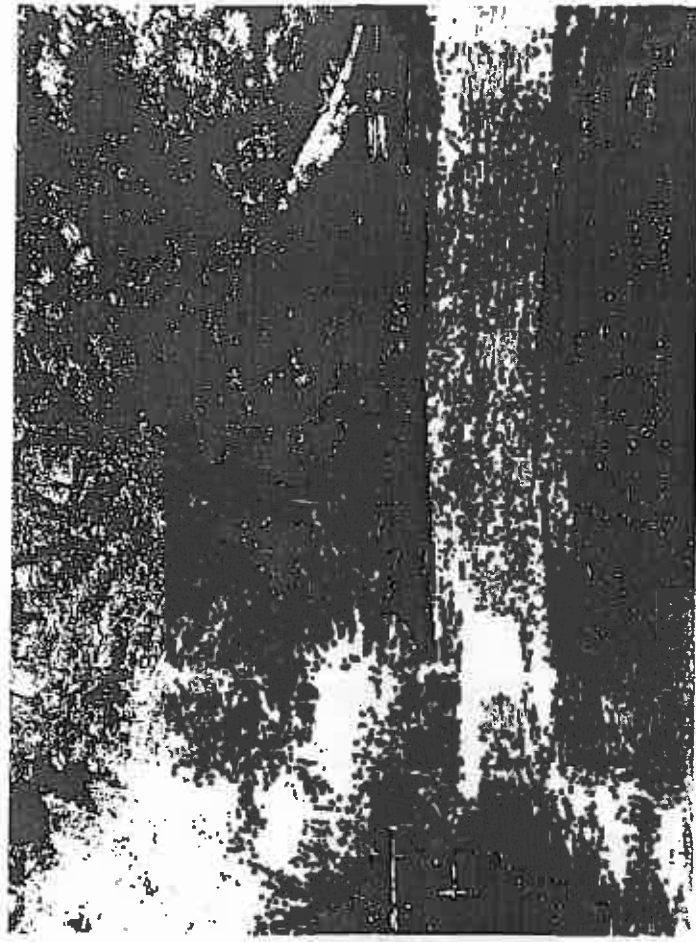
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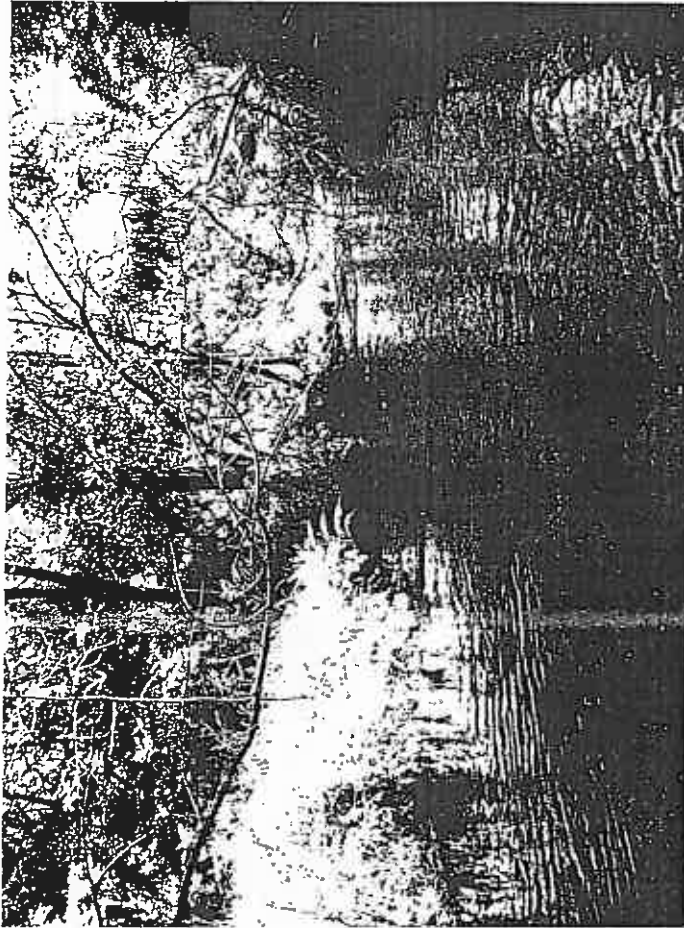


LOOKING UPSTREAM



LOOKING DOWNSTREAM

SITE 15.68



LOOKING UPSTREAM

SITE 15.66

BIKE TRAIL

PLACE LOG

COVER

UP TO 50' LONG
ANCHORAGE IS SOIL



24" ALDER

APPROX.
NORTH

3' TROUGH

EDGE OF
WATER

LAGUNITAS

CREEK

RIFFLE

THALWEG

DOWN LOG
WITH
DEBRIS AT
NORTH END

DOWN LOG
WITH
DEBRIS AT
NORTH END

DOWN LOG
WITH
DEBRIS AT
NORTH END

GRAVEL

DOWN
FRAXINUS

EDGE OF
WATER

5'
REDWOOD
W/BURL

NORTH EDGE SIR
FRANCIS DRAKE BLVD

LEFT BANK ACCESS
GOOD FROM SIR
FRANCIS DRAKE BLVD

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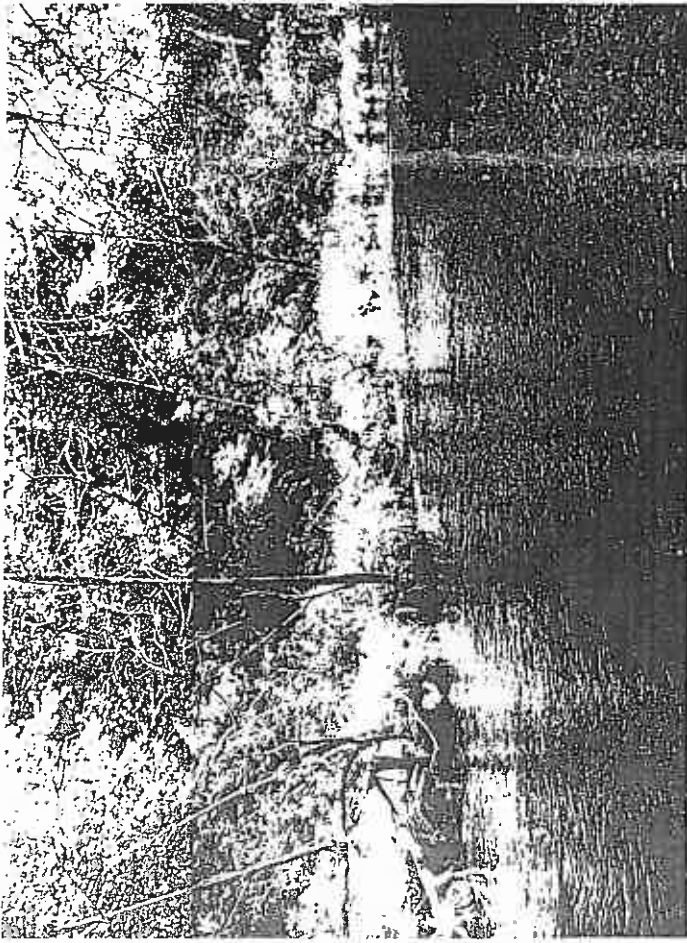
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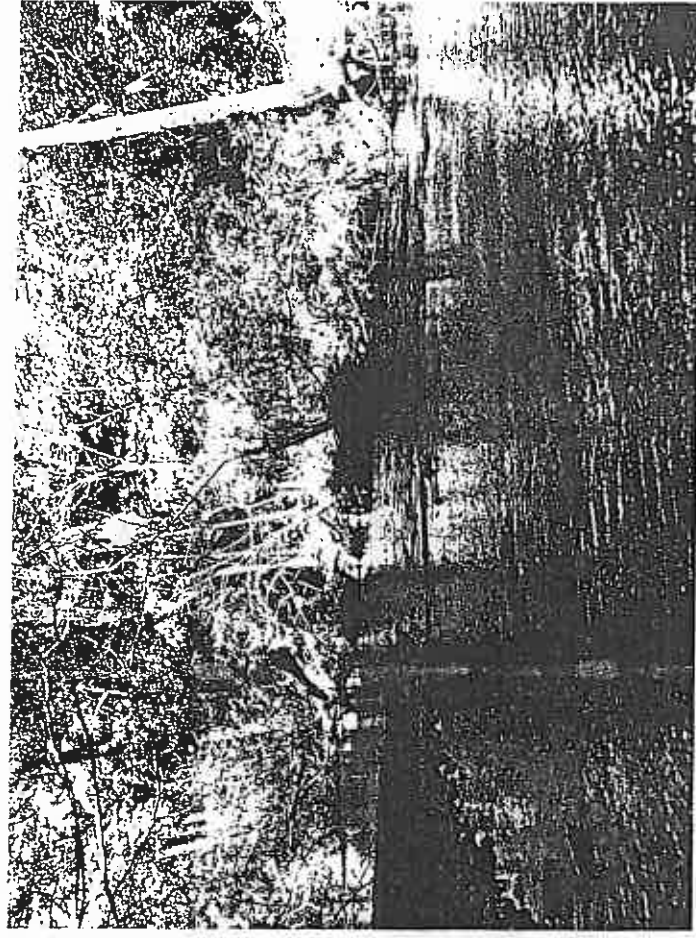
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MARIN COUNTY, CA

SKETCH PLAN
SITE 15.66
FISH HABITAT
IMPROVEMENT
LAGUNITAS CREEK

SHEET
13
OF
17

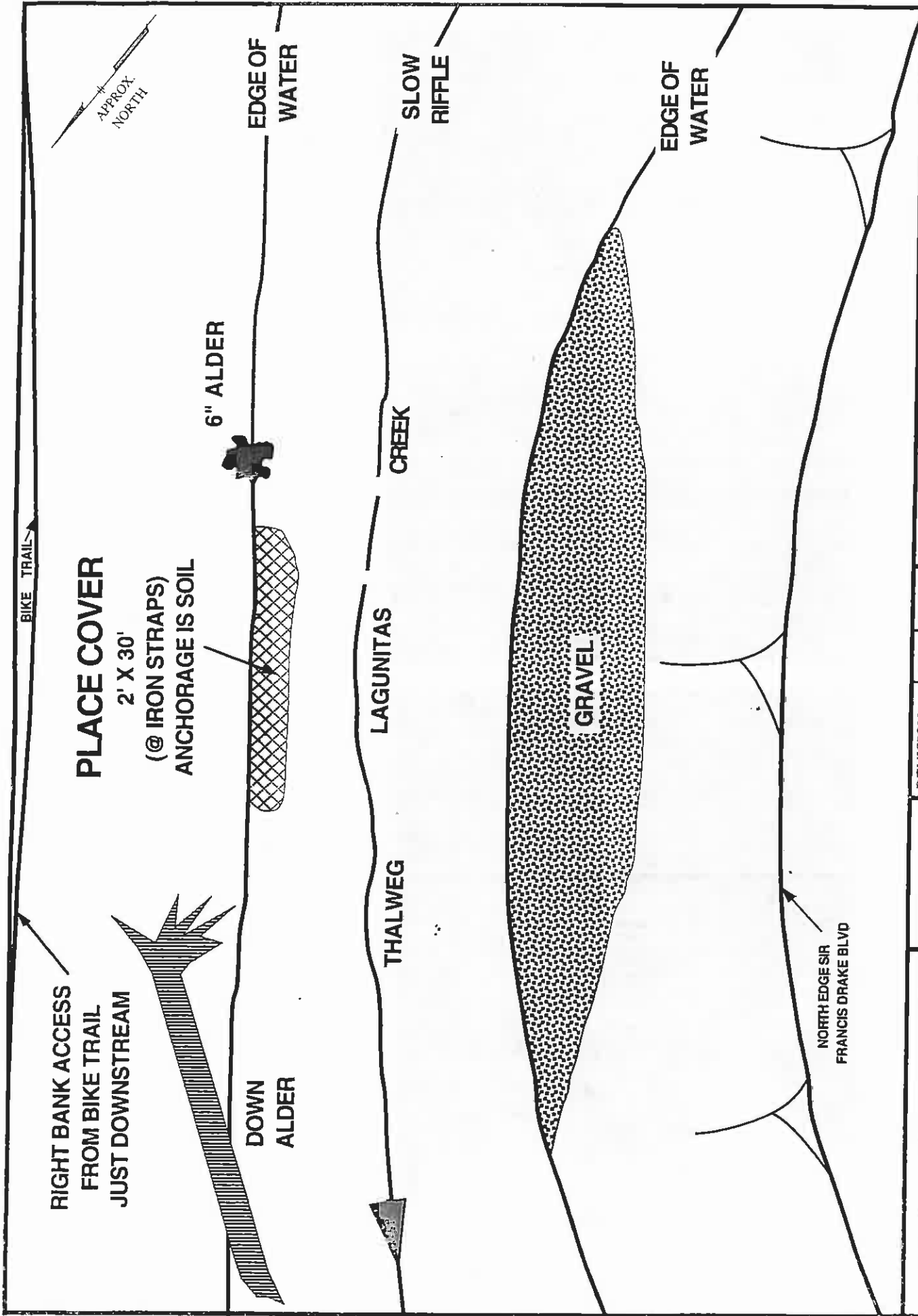


LOOKING UPSTREAM



LOOKING DOWNSTREAM

SITE 15.50



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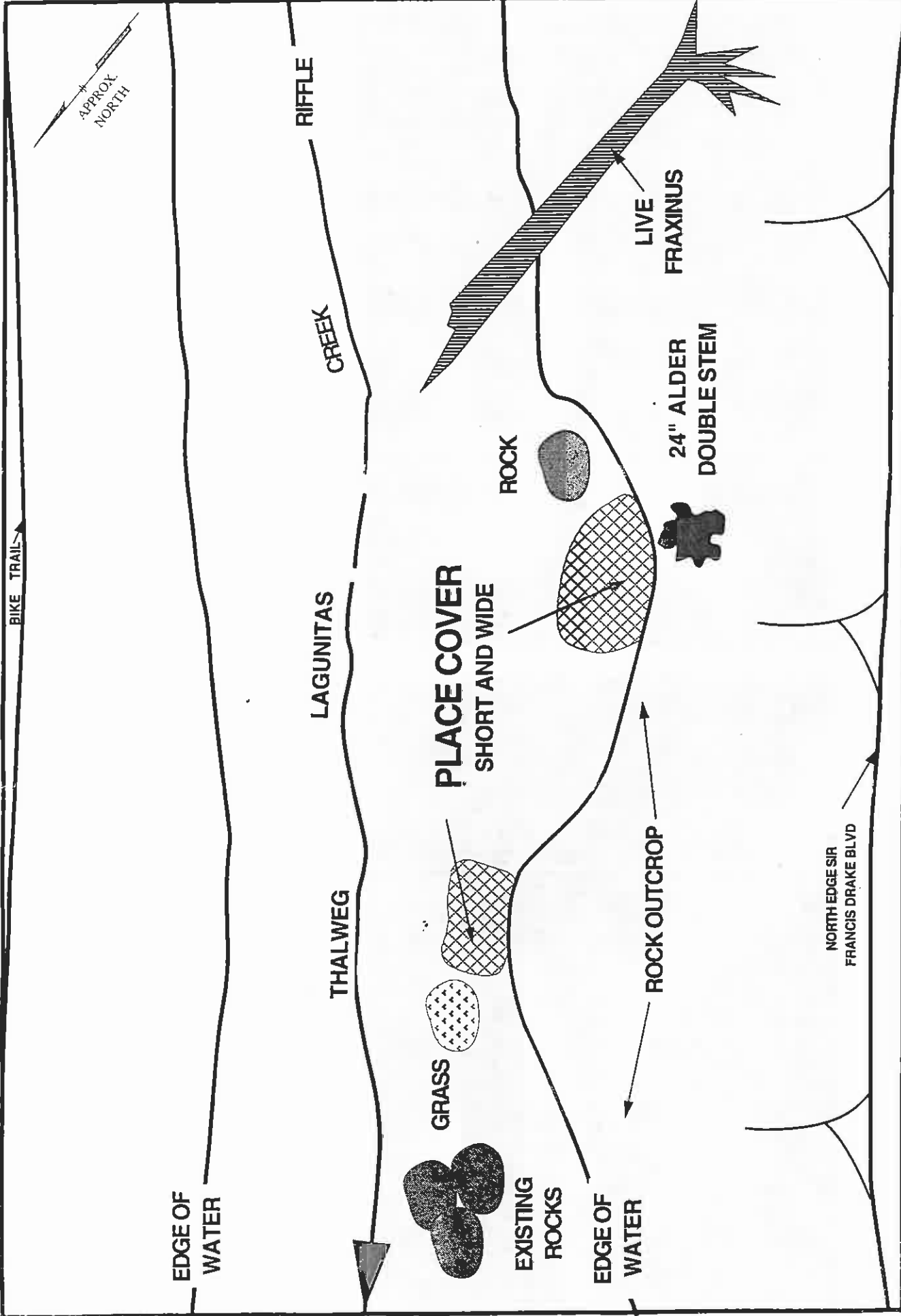


LOOKING UPSTREAM



LOOKING DOWNSTREAM

SITE 15.46



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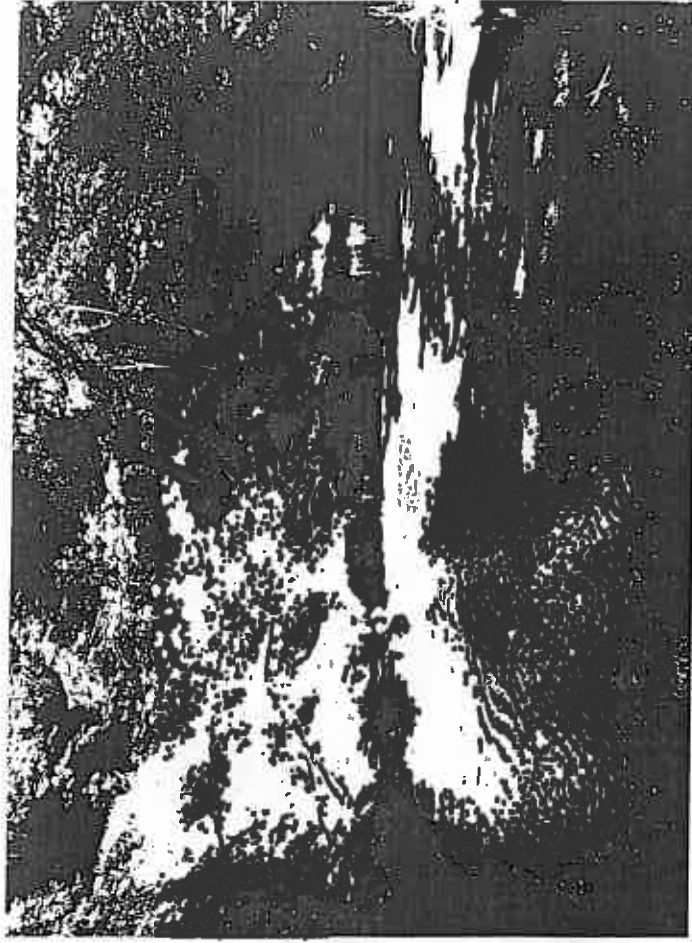
REVISION:	BY:	DATE:

PREPARED FOR:
MARIN MUNICIPAL
WATER DISTRICT

SKETCH PLAN
SITE 15.46
FISH HABITAT
IMPROVEMENT
LAGUNITAS CREEK



LOOKING UPSTREAM



LOOKING DOWNSTREAM

SITE 15.41

BIKE TRAIL

APPROX.
NORTH

EDGE OF
WATER

REDWOOD
DOWN
ACROSS
CREEK

GRAVEL

LAGUNITAS

THALWEG

CREEK

18" DEEP
0.5'+ FPS

GLIDE

EXISTING ROCKS

PLACE LOGS

30' LONG
ANCHORAGE IS SOIL
AND ROCK

EDGE OF
WATER

LEFT BANK ACCESS
GOOD FROM SIR
FRANCIS DRAKE BLVD
WITH TRAFFIC
CONTROL

NORTH EDGE SIR
FRANCIS DRAKE BLVD

PRUNUSKE CHATHAM, INC.

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PREPARED FOR:

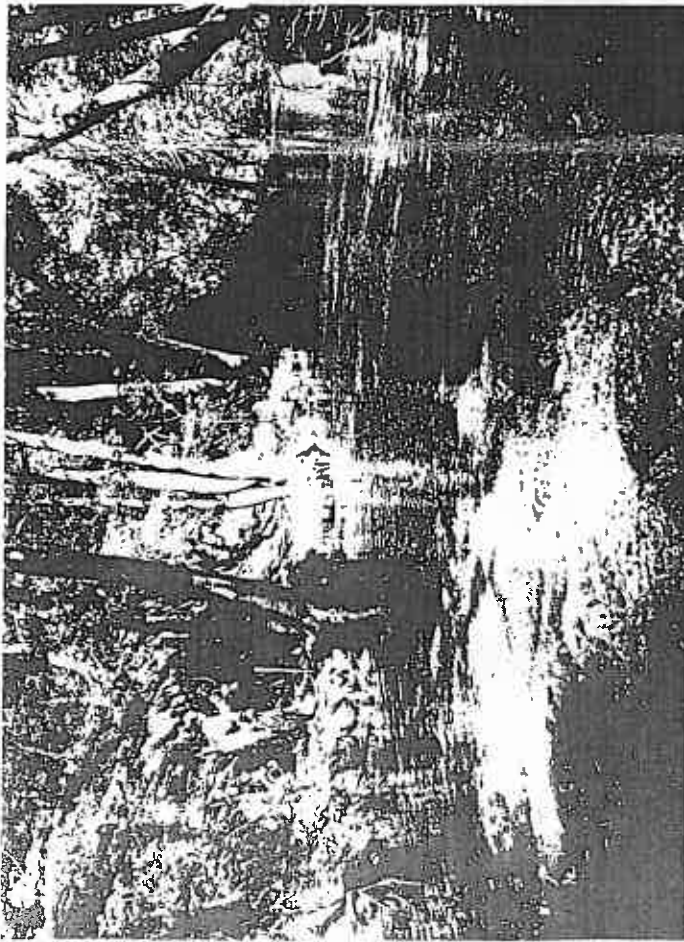
MARIN MUNICIPAL
WATER DISTRICT

MARIN COUNTY, CA

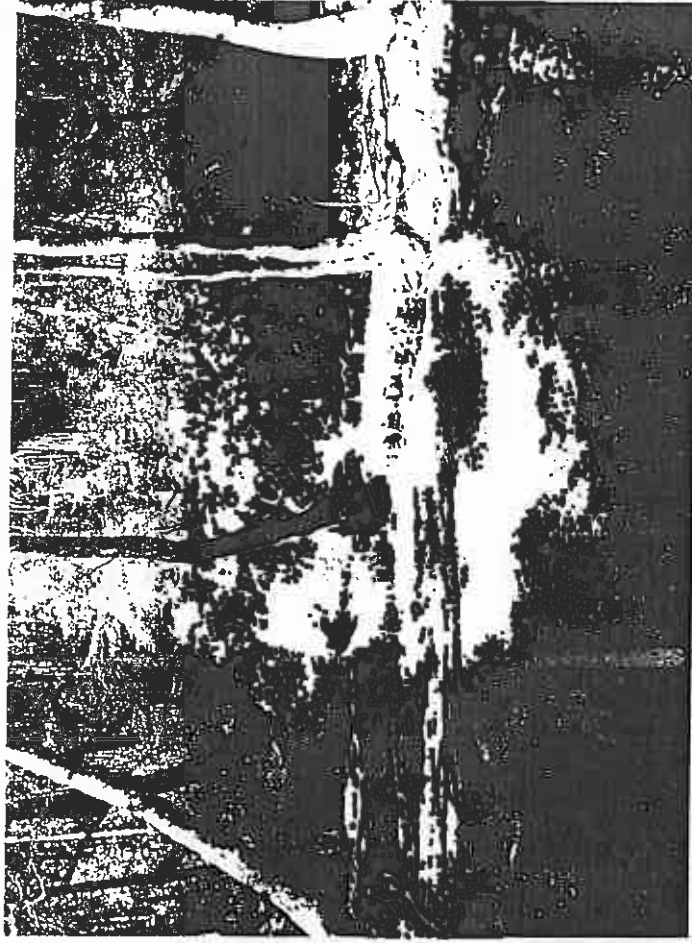
SKETCH PLAN
SITE 15.41

FISH HABITAT
IMPROVEMENT
LAGUNITAS CREEK

SHEET
16
OF
17



LOOKING UPSTREAM



LOOKING DOWNSTREAM

SITE 15.39

APPENDIX B

EXAMPLES OF MATERIALS
TO BE USED AS
WOODY DEBRIS COVER

