



1. Project Name: Catherine Creek Baum Wetland and Rearing Habitat

2. Applicant:

Grande Ronde Model Watershed
1114 J Ave
La Grande, OR 97850
541-663-0570
541-962-1585 (fax)

3. Participating Landowner(s) and Agencies:

David Baum – Landowner
96 Mattoon St.
La Grande, OR 97850
541-963-7843

Grande Ronde Model Watershed - Sponsor
1114 J Avenue
La Grande, OR 97850
541-663-0570

Anderson Perry & Associates – Design/Permits
Chas Hutchins PE
1901 N. Fir Street
La Grande, OR 97850
541-963-8309

4. Project Contact(s):

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541-663-0570

5. Project Location:

The project is located on Catherine Creek approximately 4 river miles downstream from the town of Union, in Union County. The following is the legal description: T4S, R39E, Section 10, SW $\frac{1}{4}$ of NE $\frac{1}{4}$ and SE $\frac{1}{4}$ of NW $\frac{1}{4}$.



Figure 1 – Project Vicinity

6. Project Objectives:

The following is a list of objectives for this project and how they address limiting factors identified for Catherine Creek in the Grande Ronde Subbasin Plan.

I. Enhance floodplain connectivity:

By moving the dike away from the stream and lowering the elevation of the land between the new dike and stream, new wetlands will be created. The wetland will be approximately 3.5 acres and will be designed to flood annually and partially flood when water is checked up at the upper Davis Dam. The water stored within the newly created wetlands will serve to enhance flow later in the season. Although the effect will be too small to measure, increasing floodplain connectivity will help to address flow and temperature through

hyporheic exchange. Flow and temperature are two key limiting factors identified in the Grande Ronde Subbasin Plan.

II. Enhance habitat quantity and complexity:

The Grande Ronde Subbasin plan identifies instream habitat loss as limiting salmonid production in Catherine Creek. By creating additional rearing habitat for juvenile spring Chinook salmon and juvenile steelhead we will be addressing habitat diversity and quantity, two key limiting factors for Catherine Creek. The new rearing habitat will be in the form of a side channel with large woody debris. Off channel habitat of this nature that has good cover and slow velocity is preferred overwintering habitat for juvenile spring Chinook salmon.

III. Enhance riparian condition:

The project area is approximately four acres and all disturbed areas will be seeded and planted post construction. The project area will be fenced and protected under a conservation easement. The Grande Ronde Subbasin Plan Supplement identifies riparian function as a priority attribute which will be addressed through planting and protecting four acres of riparian habitat.

7. Project Description

Introduction – The proposed project is focused on improving overwinter rearing habitat for juvenile spring Chinook salmon and juvenile steelhead. A section of the existing dike will be moved back from Catherine Creek and a new side channel surrounded by newly created wetlands will be constructed. The new side channel will meander through the project area and return to Catherine Creek at the North end of the project. The project is located near the mouth of Little Creek, which the Oregon Department of Fish and Wildlife's Early Life History Project has identified as being a heavily used reach by overwintering juvenile spring Chinook salmon (see figure 2). Our goal is to create some high quality habitat for these overwintering juvenile fish.

Existing Condition – The dominant land use in the vicinity of the project is agriculture. The east side of the stream is farmed and grazed up to the creek, whereas the west side has a thin buffer between the agricultural field and the stream that is currently protected under a conservation easement. The landowner on the east side is currently not interested in restoration work, so all work for this project will be done on the west side of the stream which will require us to withdraw some land from the conservation easement and then put it back into an easement post construction.

According to ODFW's 1991 habitat survey of Catherine Creek, the project area is located in reach 12 - Upper Davis Dam to the city of Union. This reach is a transition zone where substrate changes from gravels to fines and organics as the slope of the river decreases entering the Grande Ronde Valley. This reach is also where the number of habitat units per 100 meters decreases from 3.2 to 1.9, pointing to the diminishing habitat complexity in this reach. Historically this reach would have been just upstream of Tule Lake, and no doubt would have contained vast wetlands with healthy riparian habitat and plenty of cover for juvenile fish.

Today, the project site lacks floodplain connectivity due to levees built adjacent to the stream over 50 years ago. According to historical aerial photos and meander scars it is evident portions of this reach were straightened. The current habitat is void of any large wood and lacks cover for rearing juveniles. There are a few large willows and some newly planted ponderosa pine, but the riparian zone is dominated by reed canary grass. Although this reach historically may have never been a riffle-pool habitat type reach, it had a healthy riparian zone which provided shade, wood recruitment, and over hanging cover. Log jams would have created deep holes with slow moving water and good cover. This is the very habitat that is non-existent through this reach now.

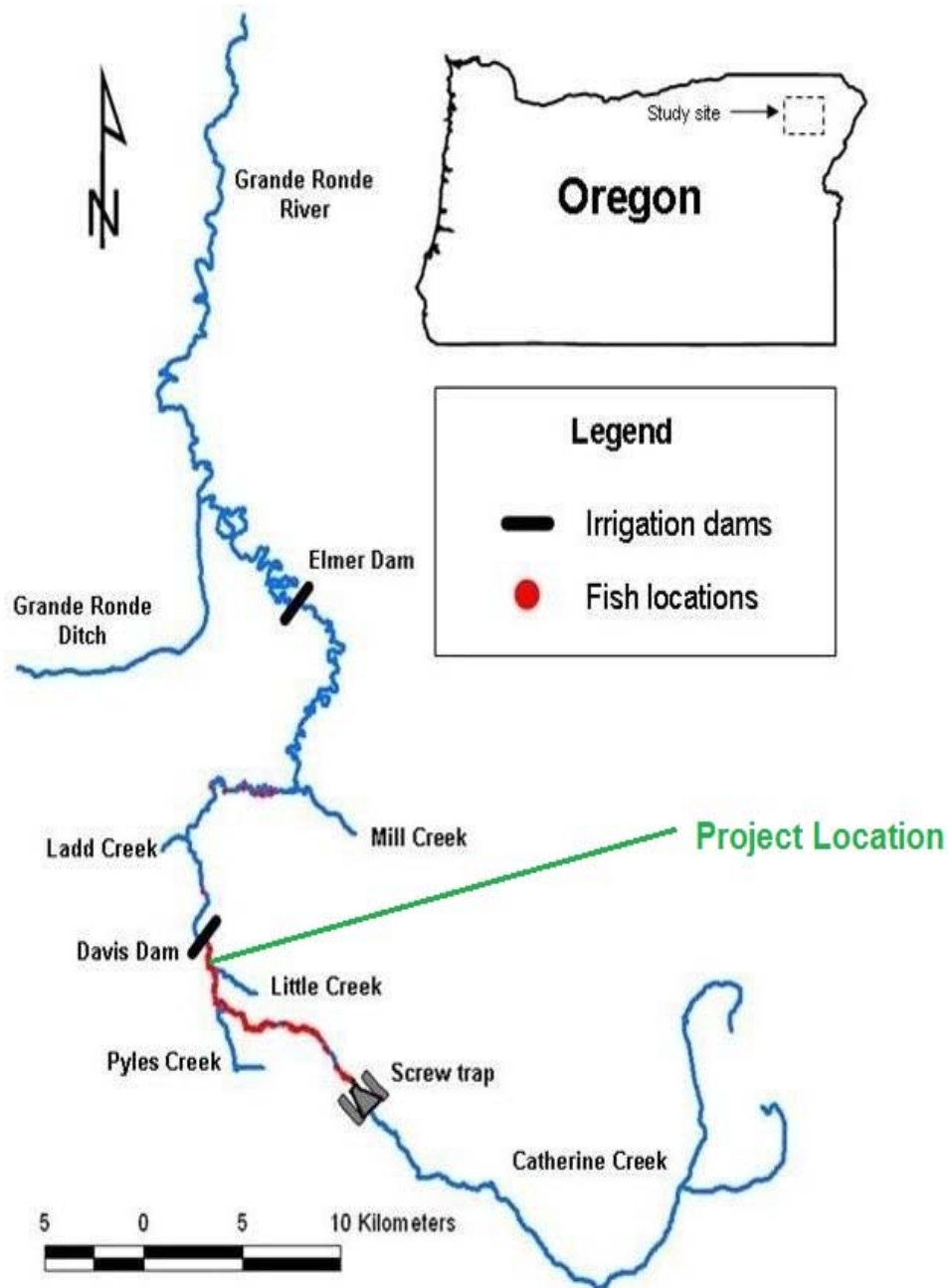


Figure 2 - Juvenile spring Chinook salmon radio tracking locations 2009

Specific Actions

Task 1: Move the existing dike

- Remove approximately 850 feet of existing dike
- Construct approximately 1100 feet of new dike set back from the stream on average 175 feet away
- Create seasonal wetlands by setting the dike back from the stream and lowering the land to encourage seasonal flooding

Task 2: Create off-channel rearing habitat

- Excavate 1300 feet of side channel
- Install two engineered log jams (one at the entrance and one at the exit of the side channel)
- Install 10 large logs with root wads attached in the side channel

Task 3: Improve riparian function

- Broadcast seed disturbed areas
- Plant eight – 900ft² wetland plots
- Plant native tree and brush species

Note: for specifics on species and methods of planting see the attached designs.

Task 4: Conservation Easement

- Construct approx. 1200 feet of fence to protect project area
- Enter the project area into a conservation program

Note: see sheet eight of the attached designs for locations of wetland plots, log jams, and side channel.

Benefits - The main objective and benefit of this project will be to create additional juvenile spring Chinook salmon winter rearing habitat. Through adding off channel habitat and large woody debris juvenile fish will have access to an additional 1300 linear feet of improved rearing habitat. The low velocity side channel with good cover will provide ideal habitat for overwintering juvenile spring Chinook salmon. The addition of log jams and root wads will provide additional hiding areas.

Another benefit will be improved wetland and floodplain function. By excavating and lowering the land between the new dike and Catherine Creek we will create new wetlands that will flood annually. These new wetlands will increase the storage and recharge ability of these four acres. The newly created wetlands will be planted to benefit fish and wildlife species.

Additionally we will improve the riparian habitat on these four acres. Through the planting of native brush and tree species we will improve shade, cover, and future wood recruitment in Catherine Creek.

This project will also serve as a pilot project. Fish use will be monitored in the project area to verify the benefits of wetland creation and off channel habitat type projects. We anticipate implementing more of this type of project with the completion of the Catherine Creek Tributary Assessment being conducted by the Bureau of Reclamation. Therefore data collected from this project will help to direct future restoration efforts.

Project Maintenance – GRMW in cooperation with the landowner will address any maintenance issues that do arise. The landowner will enter into a maintenance agreement for the fencing when the land is entered into a conservation program.

Permits – Anderson Perry & Assocs. will be obtaining all necessary permits. Applications for DSL and ACOE permits have been submitted and ESA consultation has been initiated. The cultural resource survey has been completed and submitted to SHPO.

Monitoring Plan – monitoring will include the following

- Establish at least 6 photo points (photos will be taken twice annually)
- GRMW will submit a completion report annually identifying plant survival and project integrity.
- GRMW will coordinate with ODFW fish research to document juvenile spring Chinook salmon use of the project area

Work Dates – The following is the anticipated work schedule

- Permits/Consultation - July 2011 - July 2012
- Construction - August/September 2012
- Monitoring - September 2011-2017
- Requested BPA contract term – July 2012 – July 2013

8. Project Budget

See attached budget

9. Attachments:

- Pictures – Figures 3 & 4
- Budget
- Designs



Figure 3 – North end of project site looking upstream toward the south. All work will be done on the right side of Catherine creek in this picture.



Figure 4 - South end of project site looking towards the North.

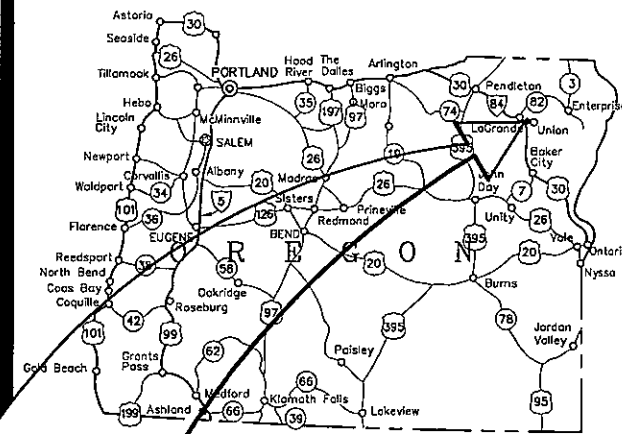
Catherine Creek Baum Wetland & Rearing Habitat Project
Preliminary Cost Estimate - September 2011

| | |
|---|-----------|
| TOTAL YEAR 2011 ESTIMATED CONSTRUCTION COST | \$ 85,300 |
|---|-----------|

GRANDE RONDE MODEL WATERSHED

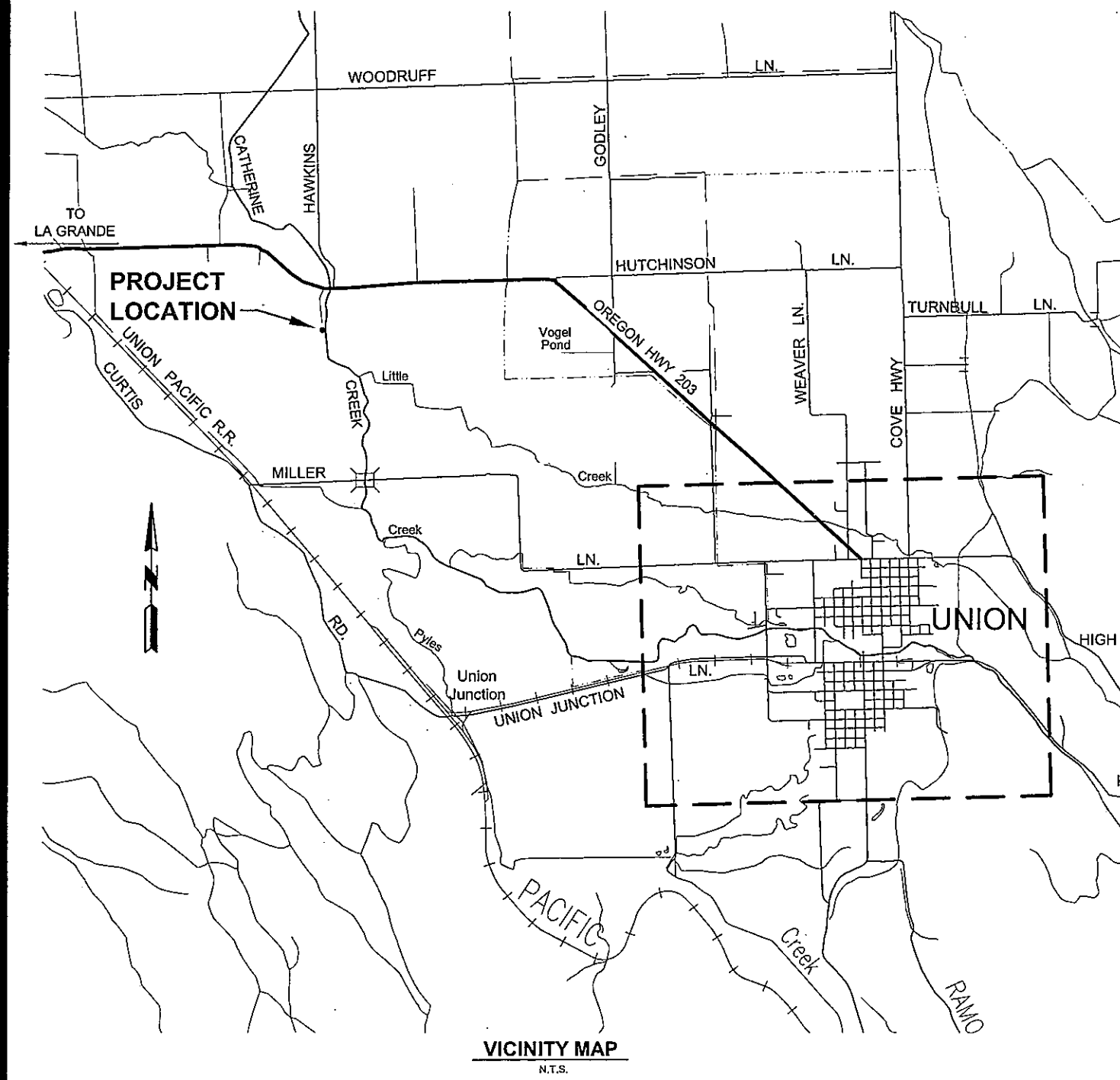
CATHERINE CREEK - BAUM HABITAT IMPROVEMENTS - 2012

UNION COUNTY, OREGON



INDEX

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- 1 LEGEND AND EXISTING SITE PLAN
- 2 SITE PLAN AND PROFILE
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- 6 SIDE CHANNEL PLAN AND SECTION II
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- 8 TYPICAL PLANTING DETAILS



The Grande Ronde Model Watershed has reviewed these drawings and approved them for construction to fulfill the intended project objectives.

_____ Date



GRANDE RONDE MODEL WATERSHED

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PRELIMINARY

anderson perry & associates, inc.
engineering • surveying • natural resources
1901 N. Fir Street - La Grande, OR 97850 Ph: (541)963-8309 Fax: (541)963-5456
LA GRANDE, OR. WALLA WALLA, WA.

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PLAN LEGEND

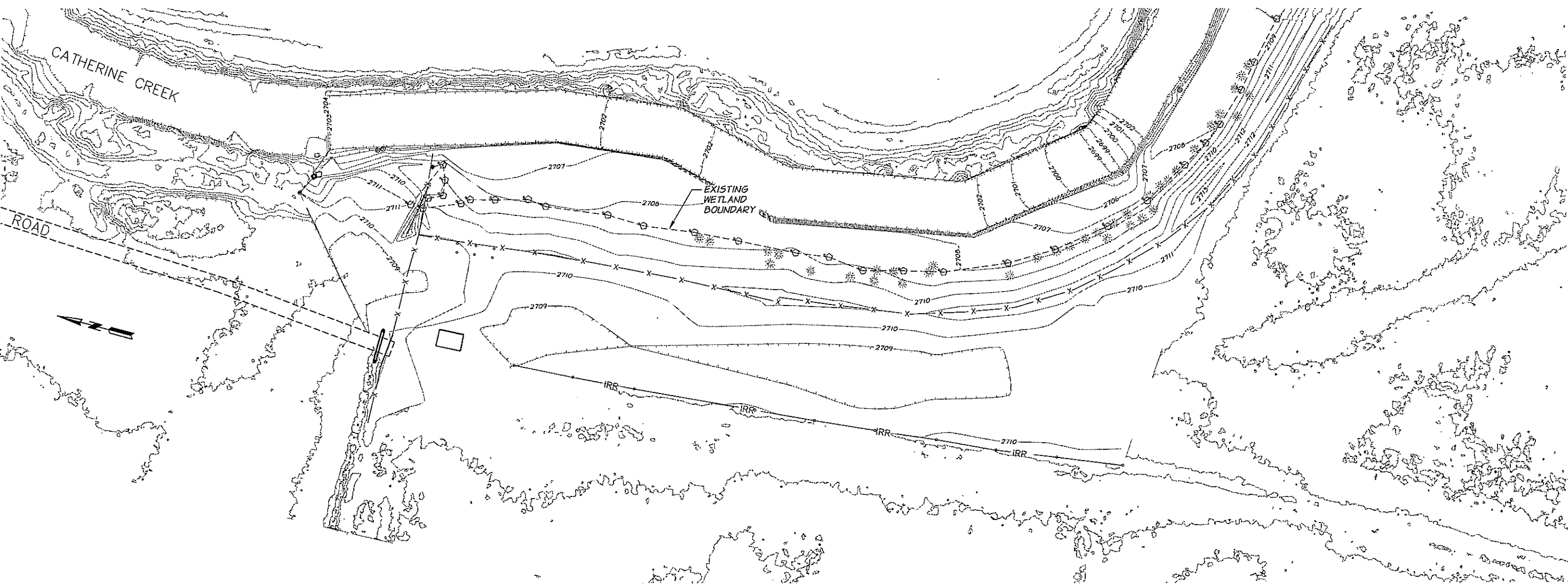
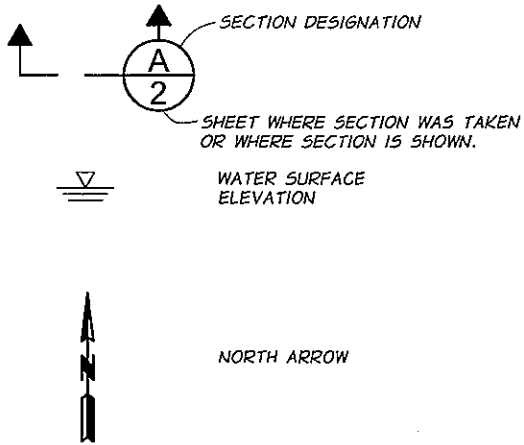
SITE SURVEY


| | |
|----------------------|-----|
| INDEX CONTOUR | 750 |
| INTERMEDIATE CONTOUR | 750 |
| CENTERLINE | |
| FILL AREA | |
| CUT AREA | |

GENERAL

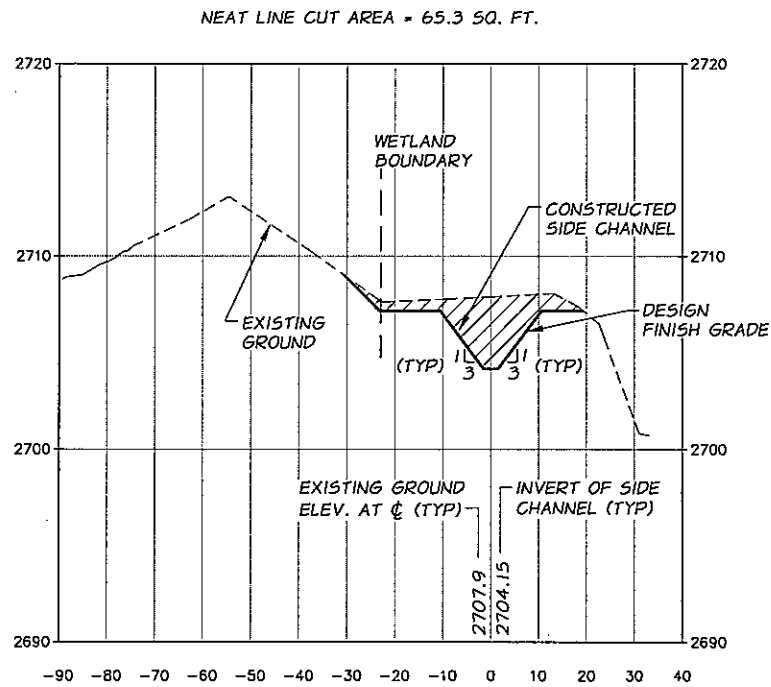
| | EXISTING | PROPOSED |
|--------------------------|----------|----------|
| FENCE LINE/GATE | | |
| DITCH CENTERLINE | | |
| ORDINARY HIGH WATER | | |
| CREEK THALWAG | | |
| EDGE OF GRAVEL | | |
| ROCK | | |
| WOODY DEBRIS | | |
| EDGE OF WETLAND BOUNDARY | | |

DRAFTING



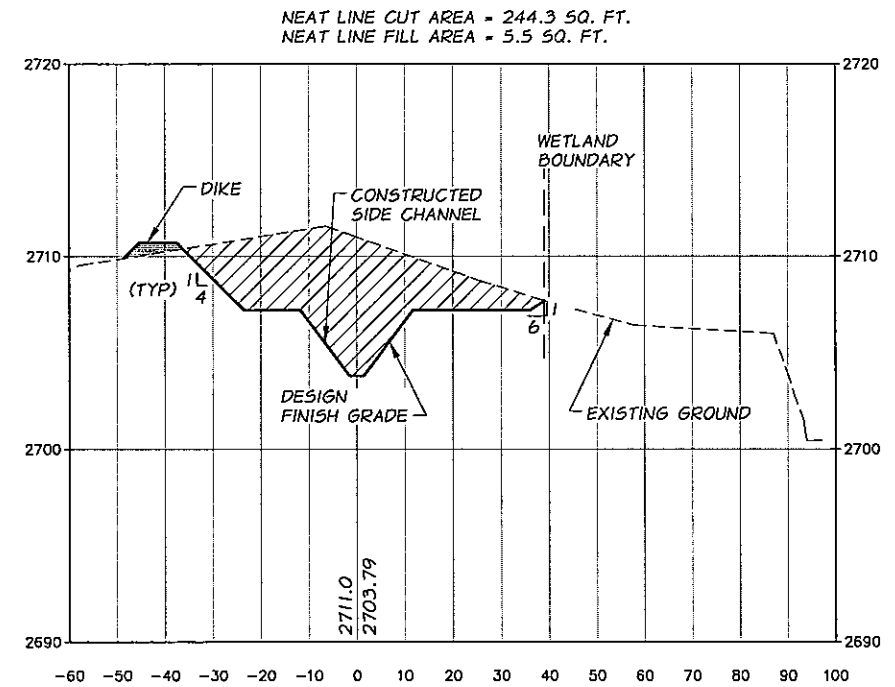
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| DESIGNED BY | C. HUTCHINS | XREFS:TB | BaumCatherineCr.dwg | JOB NUMBER | 81-35 | | | | 1 |
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| REVIEWED BY | B. MOORE | COPYRIGHT 2011 BY ANDERSON-PERRY & ASSOC., INC. | | | | | | | |

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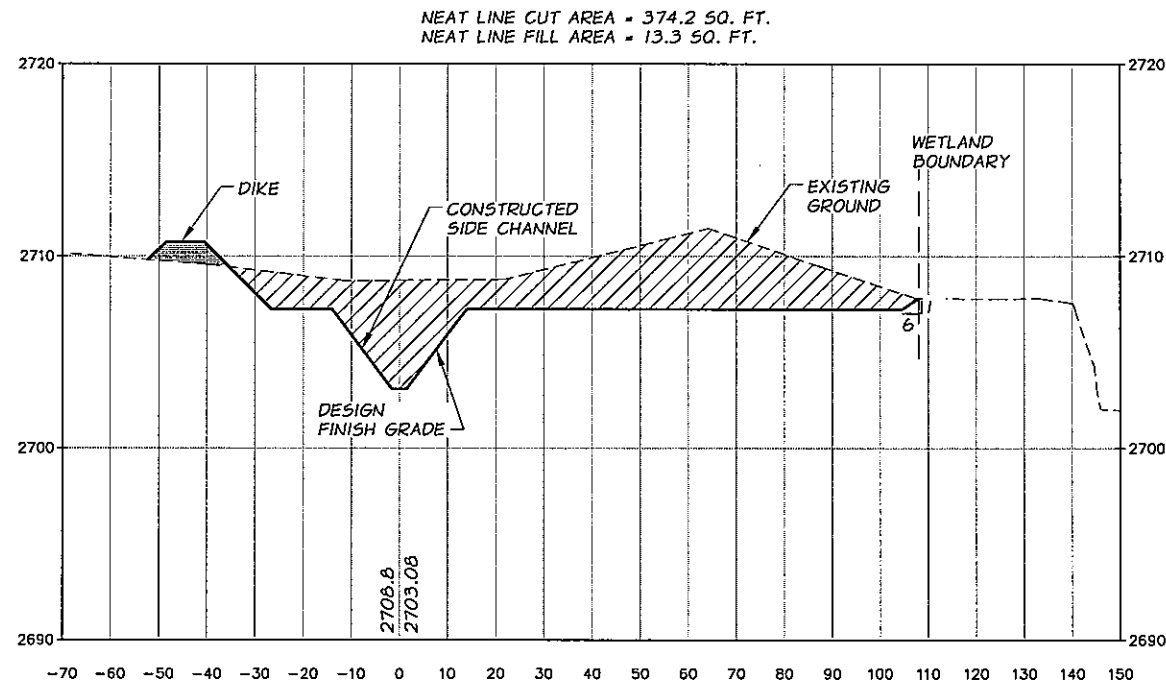
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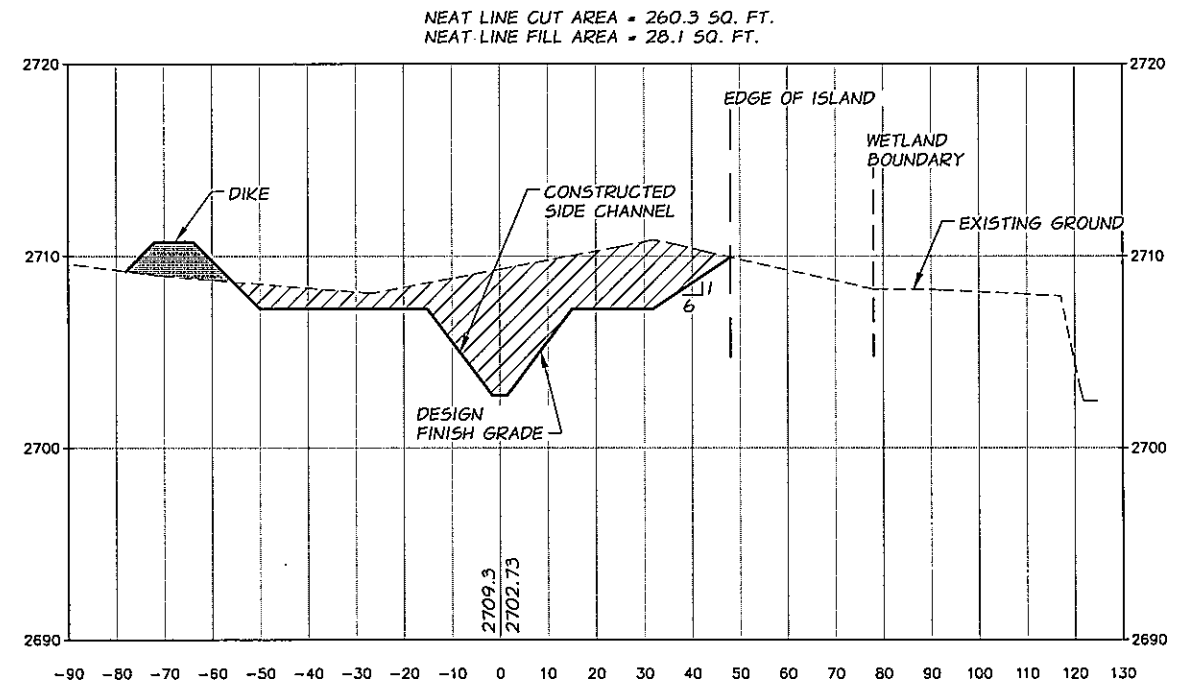
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& associates, inc.
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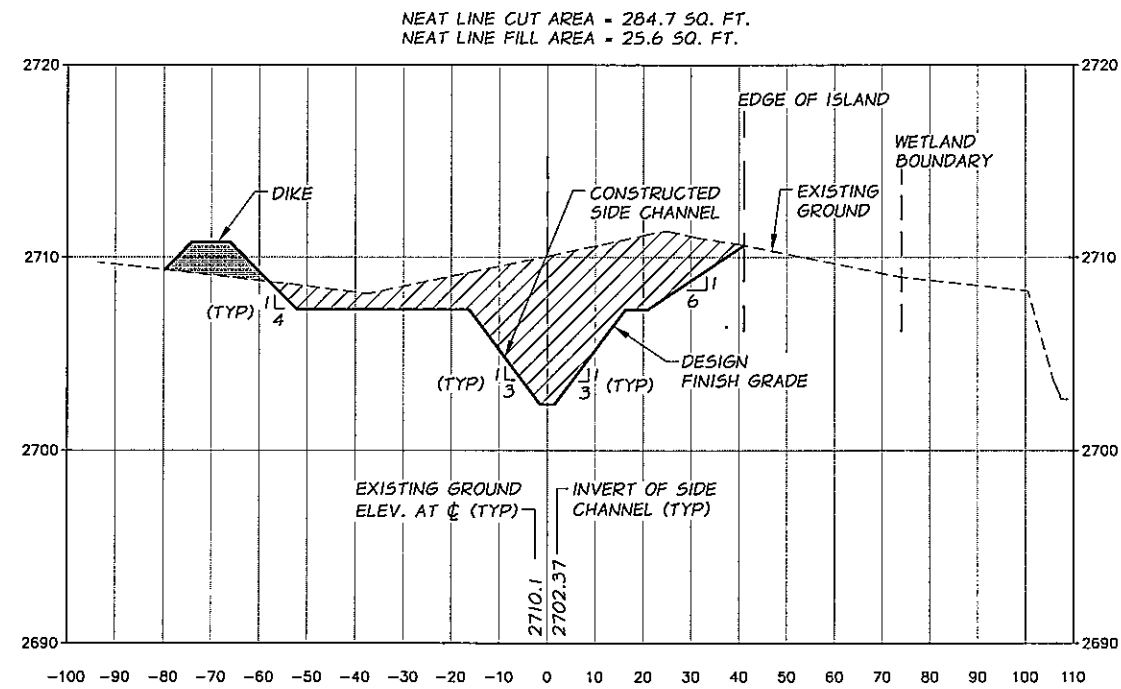
GRANDE RONDE MODEL WATERSHED
CATHERINE CREEK - BAUM HABITAT
IMPROVEMENTS

CROSS SECTIONS 1 (AT 100' O.C.)

SHEET

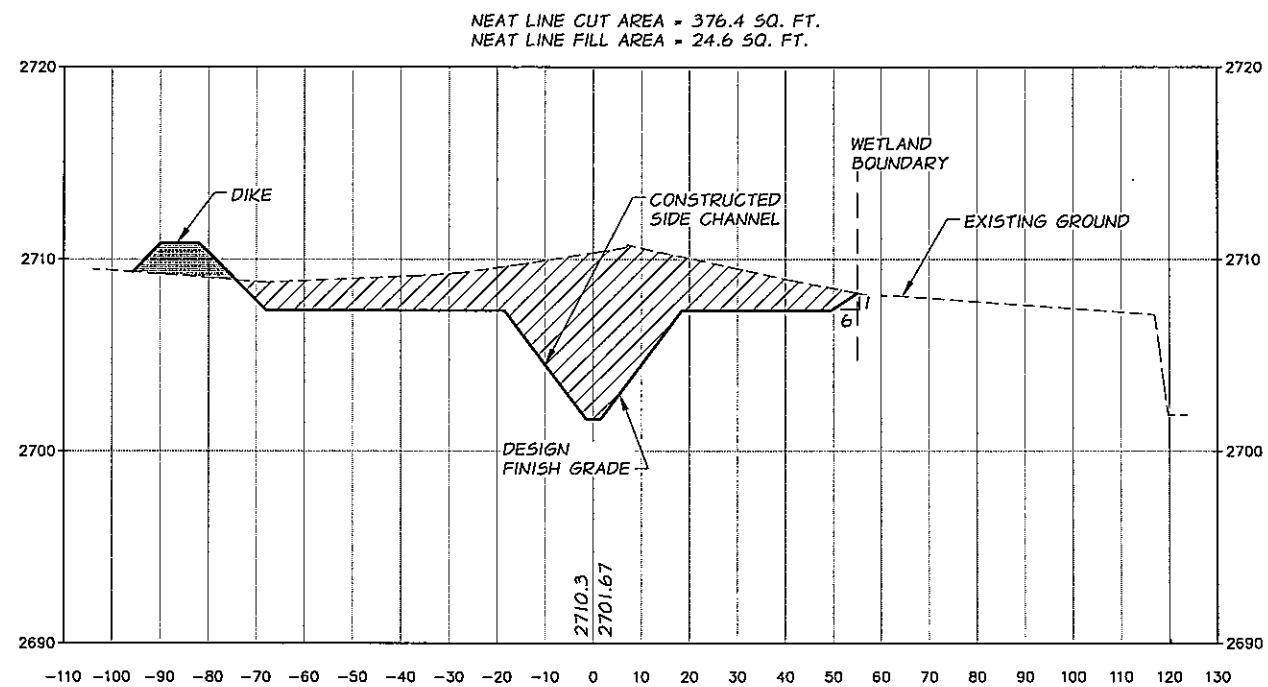
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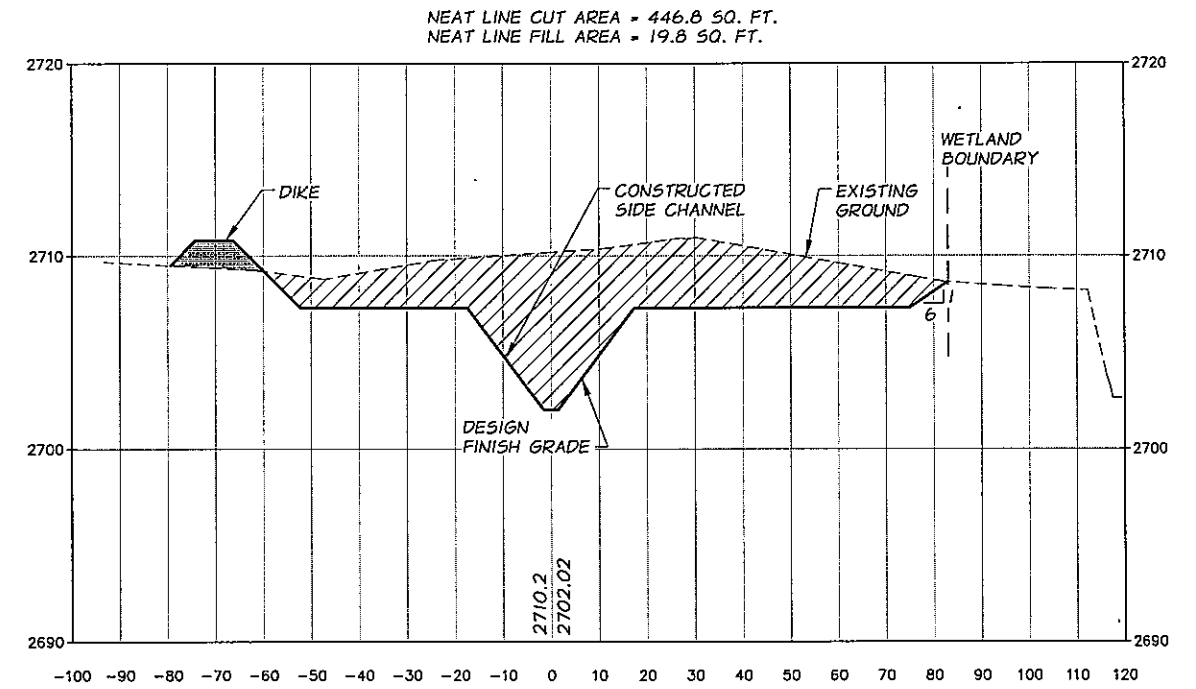
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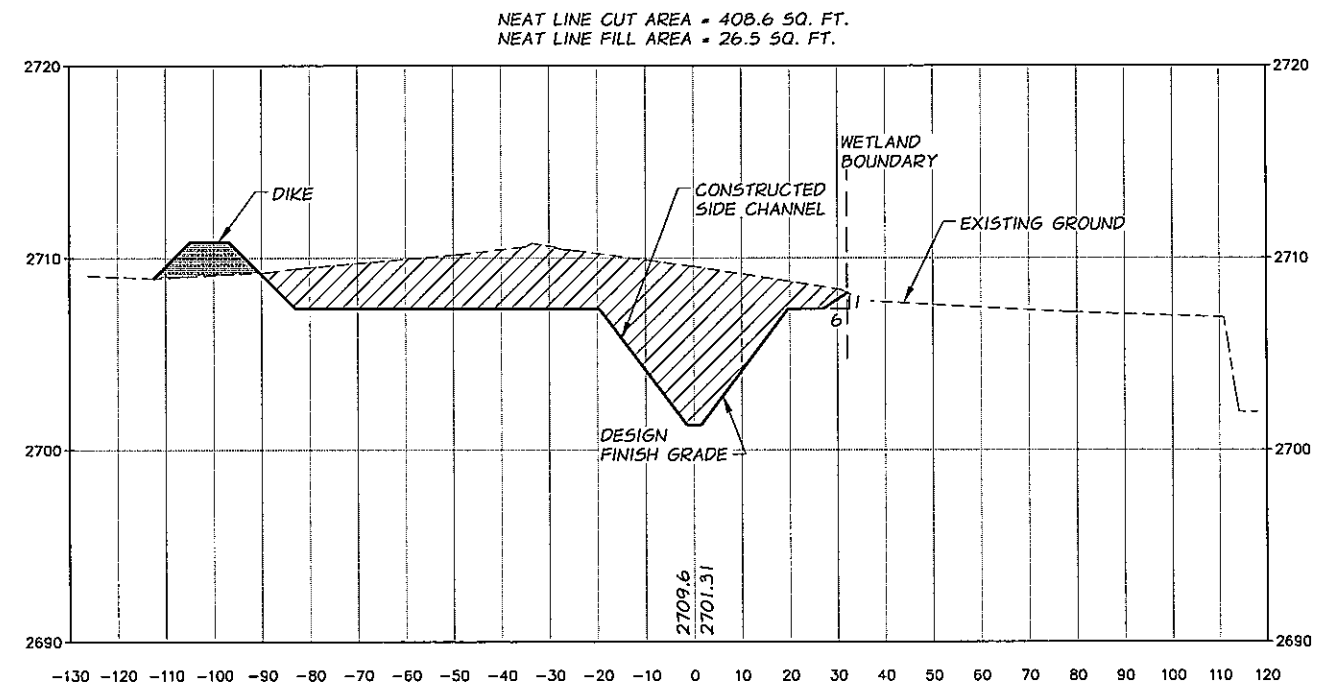
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GRANDE RONDE MODEL WATERSHED
CATHERINE CREEK - BAUM HABITAT
IMPROVEMENTS

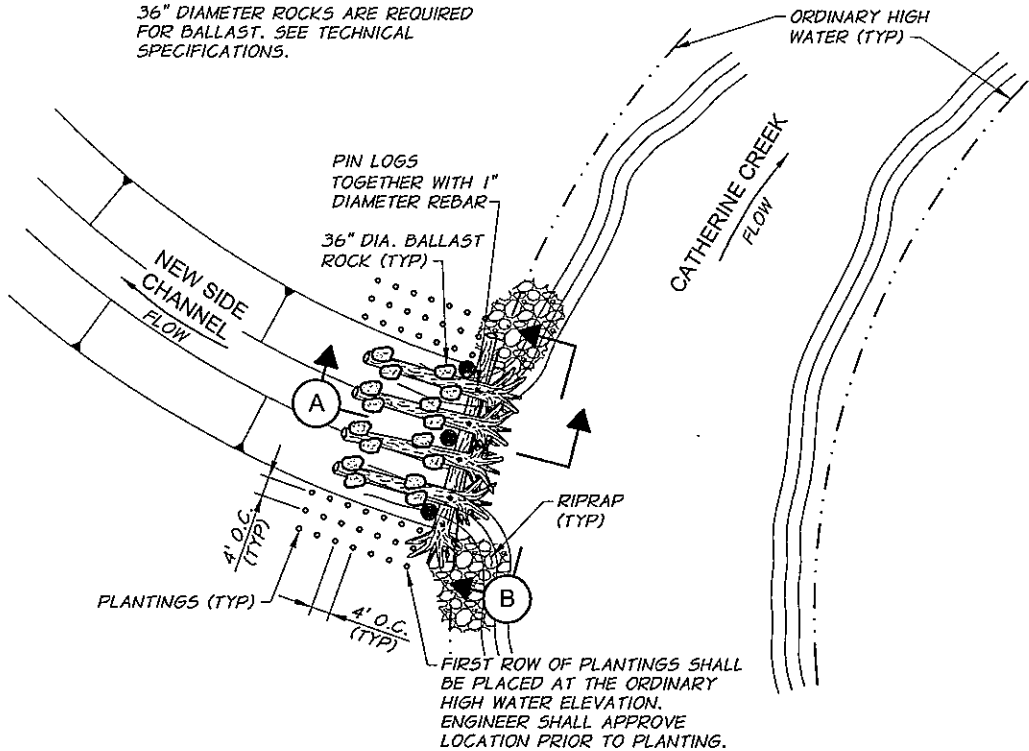
CROSS SECTIONS 2 (AT 100' O.C.)

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1

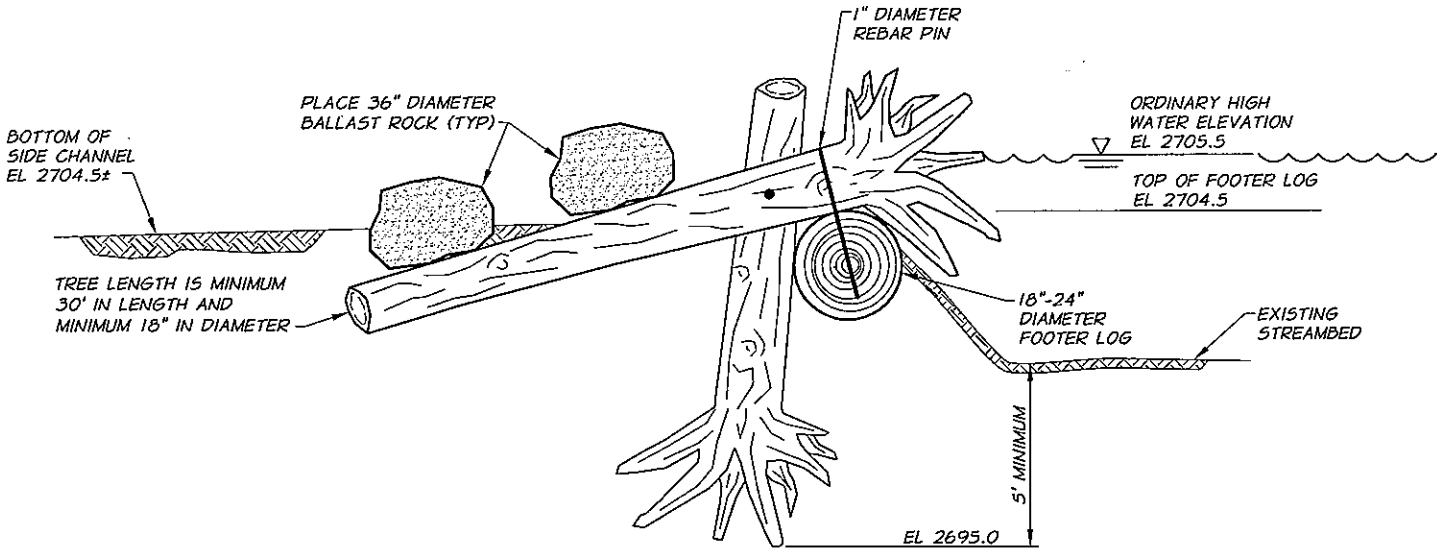
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NOTE:
NOT ALL BALLAST ROCKS ARE SHOWN
FOR CLARITY. A MINIMUM OF EIGHTEEN
36" DIAMETER ROCKS ARE REQUIRED
FOR BALLAST. SEE TECHNICAL
SPECIFICATIONS.



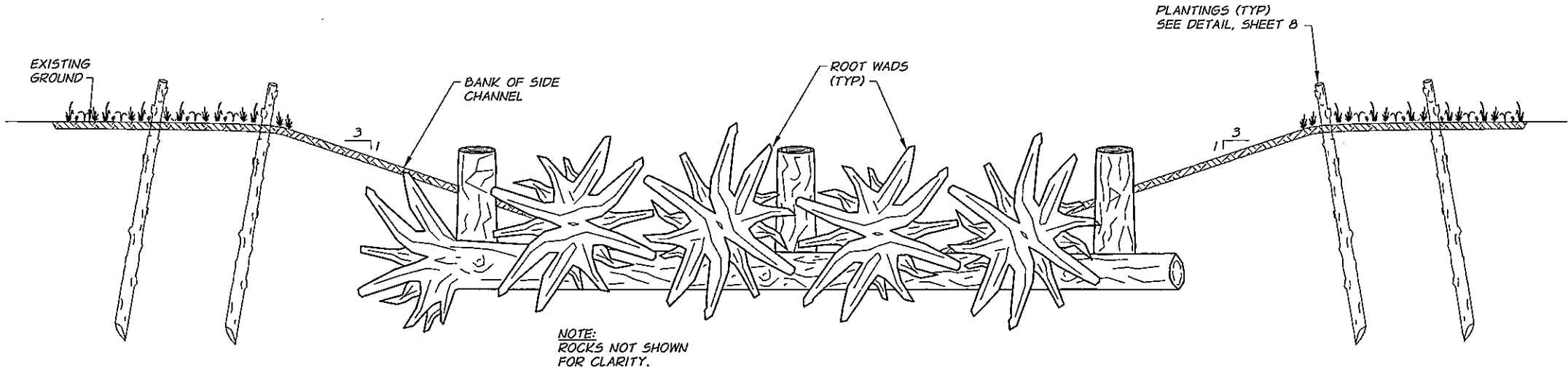
SIDE CHANNEL PLAN

N.T.S.



SECTION A

N.T.S.



SECTION B

N.T.S.

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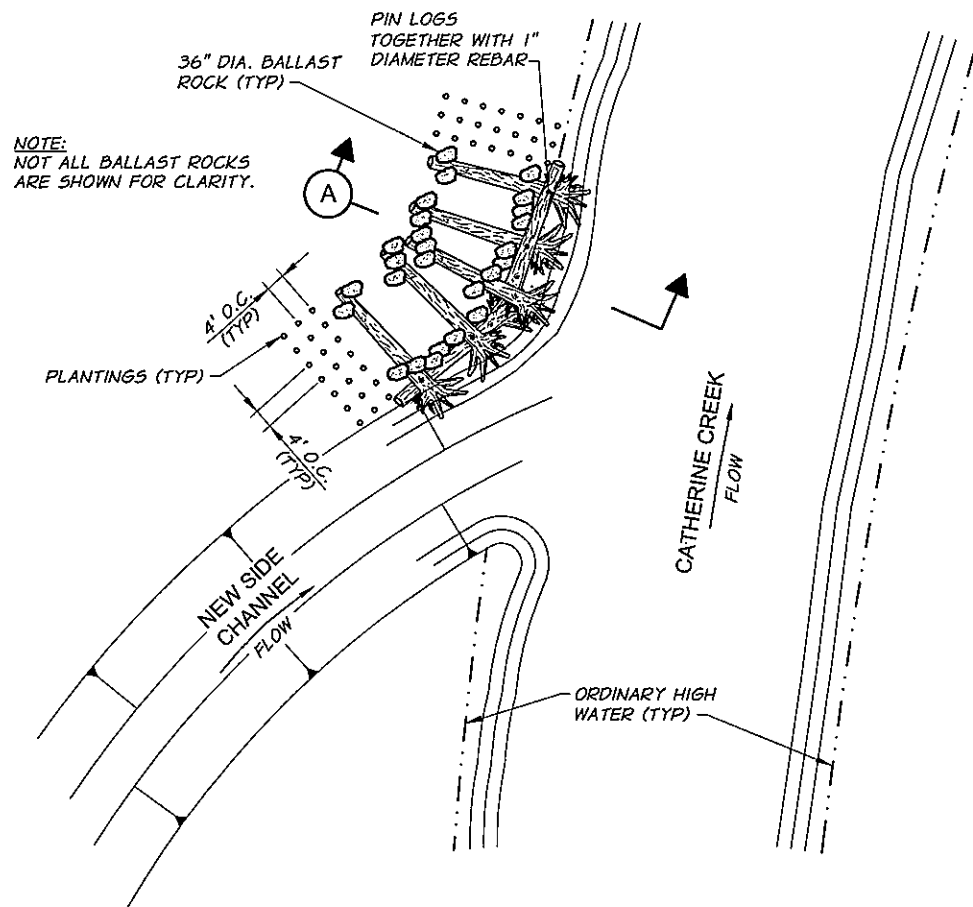
GRANDE RONDE MODEL WATERSHED
CATHERINE CREEK - BAUM HABITAT
IMPROVEMENTS

SIDE CHANNEL PLAN AND SECTION I

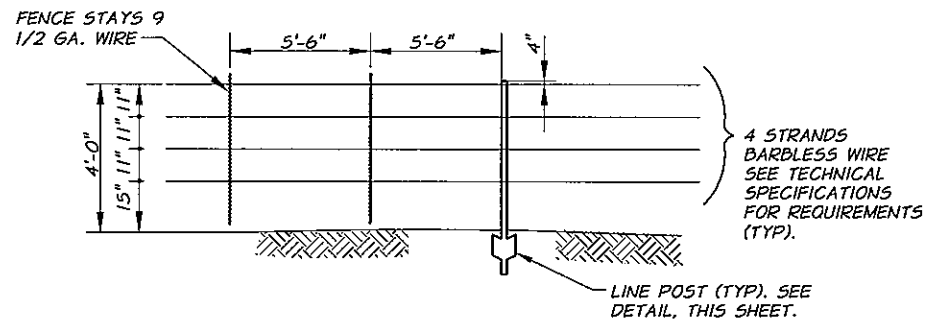
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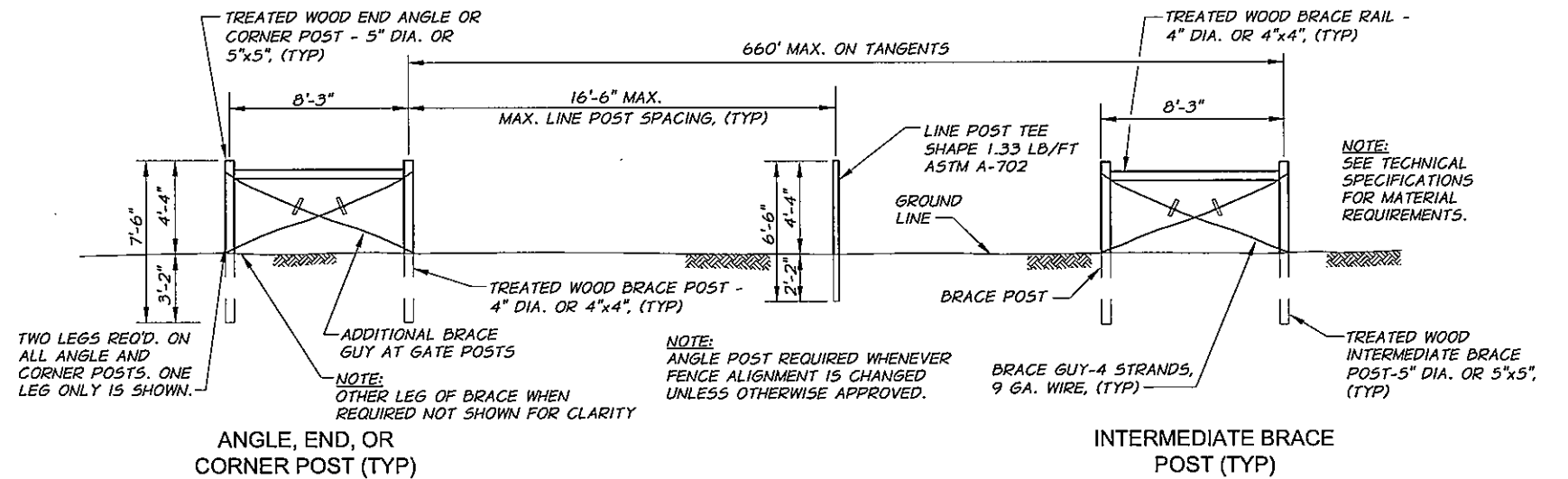
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WOODY DEBRIS PLAN
N.T.S.



FENCE DETAIL
N.T.S.



TREATED WOOD AND STEEL FENCE POSTS
N.T.S.

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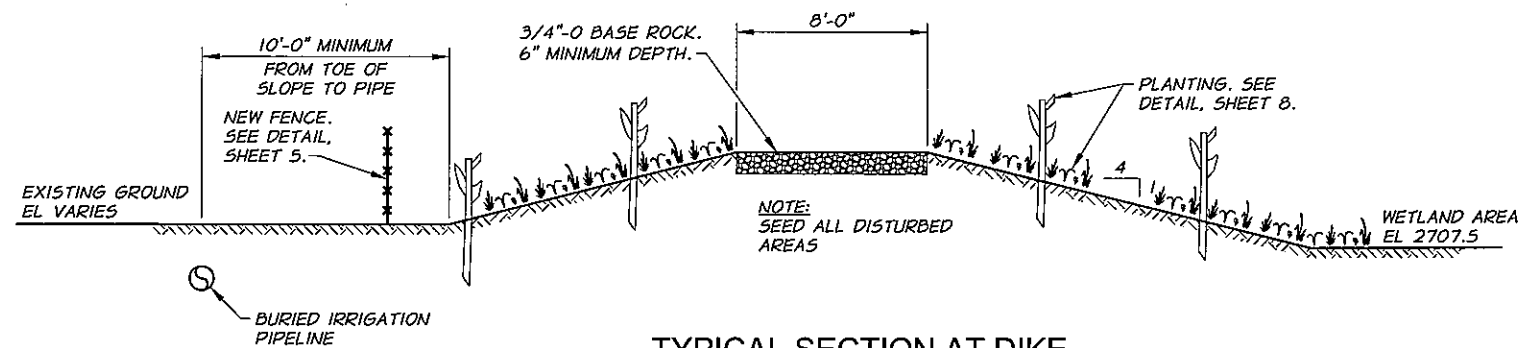


GRANDE RONDE MODEL WATERSHED
CATHERINE CREEK - BAUM HABITAT
IMPROVEMENTS

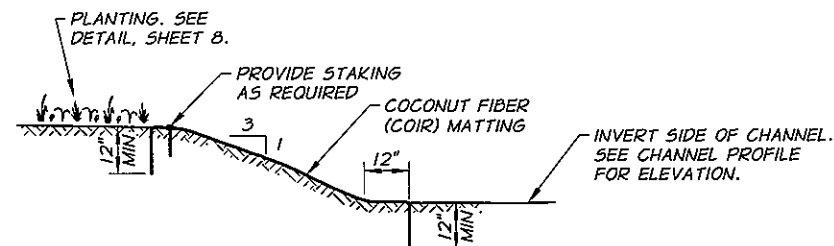
SIDE CHANNEL PLAN AND SECTION II

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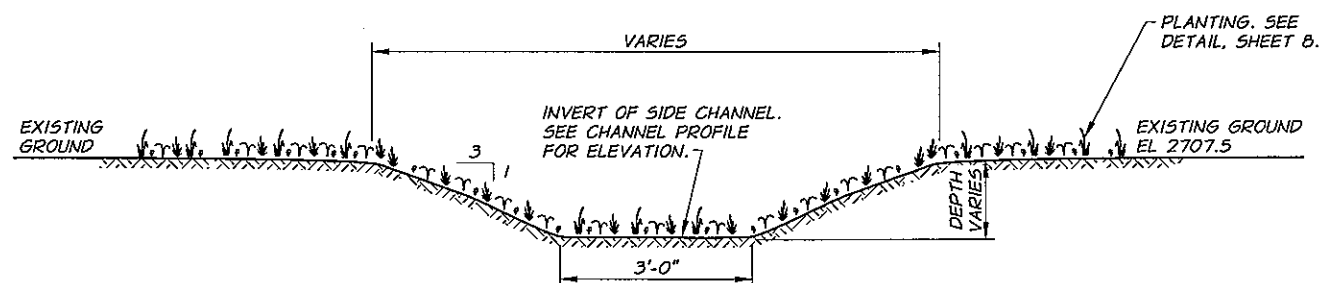
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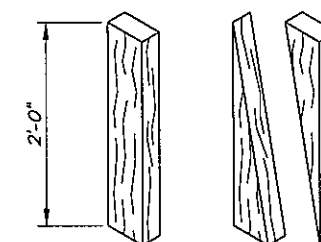
TYPICAL SECTION AT DIKE
N.T.S.



BANK PROTECTION DETAIL
N.T.S.

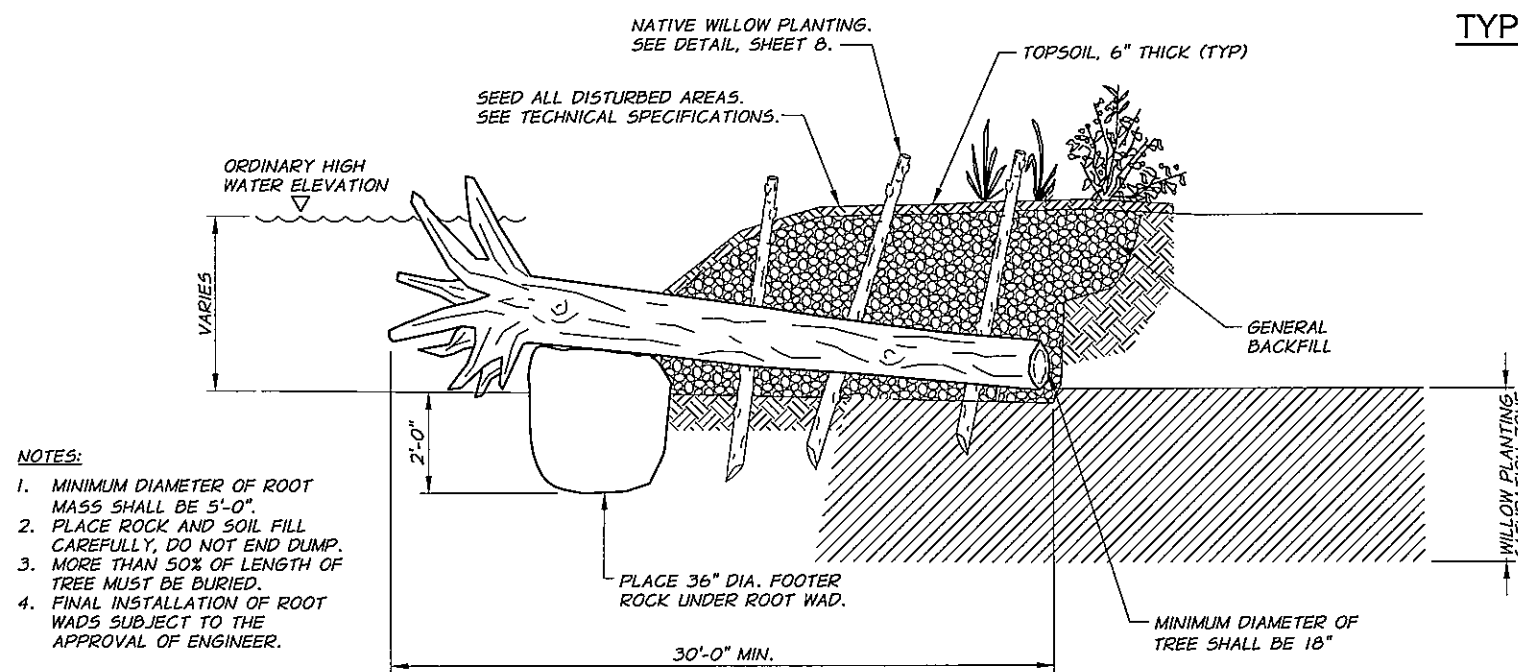


TYPICAL DITCH CROSS-SECTION
N.T.S.



NOTE:
SAW A 2"x4" DIAGONALLY
TO PRODUCE 2 STAKES.

TYPICAL STAKE DETAIL
N.T.S.



- NOTES:
1. MINIMUM DIAMETER OF ROOT MASS SHALL BE 5'-0".
 2. PLACE ROCK AND SOIL FILL CAREFULLY, DO NOT END DUMP.
 3. MORE THAN 50% OF LENGTH OF TREE MUST BE BURIED.
 4. FINAL INSTALLATION OF ROOT WADS SUBJECT TO THE APPROVAL OF ENGINEER.

ROOTWAD SECTION
N.T.S.

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| DESIGNED BY H. MORRISON | XREFS:TB BaumCatherineCr.dwg | | | JOB NUMBER 81-35 | DATE 2011 |
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GRANDE RONDE MODEL WATERSHED
CATHERINE CREEK - BAUM HABITAT
IMPROVEMENTS

TYPICAL SECTIONS

SHEET

7

SALIX SCOULERIANA (SCOULER WILLOW):
CENTER OF ONE GROUP OF 10 PLANTS
SPACED 4 FEET APART IN TWO ROWS

3