MITIGATION BANK INSTRUMENT
FOR
OREGON TRAIL HERITAGE MITIGATION BANK

This Mitigation Bank Instrument (MBI), which describes the establishment, use, operation, maintenance and long-term management of the OREGON TRAIL HERITAGE Mitigation Bank (herein after, Bank) is an agreement made and entered into by and among *Barbara Coon and Tom Coon*, (Sponsor(s)), the U.S. Army Corps of Engineers, Portland District (Corps), the Oregon Department of State Lands (DSL), the U.S. Environmental Protection Agency (EPA), the U.S. Fish and Wildlife Service (USFWS), the Oregon Department of Environmental Quality (DEQ), and the Oregon Department of Fish and Wildlife (ODFW).

This MBI, including the following exhibits, constitutes the entire agreement:

"Exhibit A", Property Legal Description and Vicinity Map
“Exhibit B”, Preliminary Title Report
“Exhibit C”, Mitigation Plan
“Exhibit D”, Crediting and Debiting Procedures
“Exhibit E”, Service Area Map and Description
“Exhibit F”, Property Protection Instrument
“Exhibit G”, Sample Credit Receipt
“Exhibit H”, Sample Credit ledger
“Exhibit I”, Definitions
“Exhibit J”, Financial Assurance

I. PREAMBLE:

Whereas,

A. Purpose: The purpose of this MBI is to establish responsibilities and standards for the establishment, use, operation, and long-term maintenance of the Bank. The Bank will be used for compensatory mitigation for unavoidable impacts to waters of the United States and/or waters of the State that result from activities authorized under Section 404 of the Clean Water Act, Section 10 of the Rivers and Harbors Act, Oregon’s Removal-Fill Law [Oregon Revised Statutes (ORS) 196.800-196.990 and Oregon Administrative Rules (OAR) 141-085] or to resolve enforcement cases resulting from activities subject to these regulations. Credits may also be used to compensate for impacts to waters of the U.S. for Corps Civil Works projects.

B. Goals and Objectives: The ecological goals of the OTH Bank are to (1) construct and maintain sustainable wetlands in the palustrine emergent, scrub-shrub, and forested Cowardin class dominated with native wet prairie and forest bottomland plants, in the Slope/Flats Hydrogeomorphic class, and (2) to construct and maintain upland buffers around the wetlands. The objectives are to:

(1) Enhance emergent, scrub-shrub, and forested wetlands on up to 84.5 acres of agriculturally degraded wetlands;
(2) Create up to 0.9 acre of emergent wetlands from uplands;

(3) Restore historic hydrologic and hydraulic patterns by selective grading to remove shallow drainage ditches and create shallow depressions and vernal pools typical of historic Willamette Valley wet prairie environments; and
(4) Enhance 22 acres of agriculturally degraded buffer areas.

C. Bank Legal Description and Location: The Bank is located in Lane County, Township 15S, Range 5W, Section 33, in the north, central, southwest, and southeast portions of Tax Lot 101, Longitude 123.2957°W and Latitude 44.2222°N . The address of the Bank is 26681 High Pass Road, near the City of Junction City, Oregon. The total area of the Bank is approximately 107.4 acres and is further described in Exhibit A. Said parcels are hereinafter referred to as the "Property."

D. Property Ownership: The Sponsor has provided proof of ownership of the Property. A preliminary title report is included in Exhibit B, Preliminary Title Report. Any liens or easements on the title of the Property that conflict with the mitigation purposes of the bank shall be subordinated before the first credit release.

E. Establishment and Use of Credits: In accordance with the provisions of this MBI and upon satisfaction of the performance standards contained in Exhibit C, Mitigation Plan, and the mitigation credit ratio and schedule determined in Exhibit D, Crediting and Debiting Procedure, credits will be available to be used as mitigation in accordance with all applicable requirements of Section 404 of the Clean Water Act, Section 10 of the Rivers and Harbors Act and Oregon's Removal-Fill Law (ORS 196.800-196.990).

F. Interagency Review Team: The Corps and DSL serve as Co-Chairs ("Co-chair Agencies", collectively) of the Interagency Review Team (IRT). The following agencies have agreed to serve on the IRT:

Environmental Protection Agency; and

U.S. Fish and Wildlife Service; and

Oregon Department of Environmental Quality; and

Oregon Department of Fish and Wildlife..

G. Disclaimer: This MBI does not in any manner affect statutory authorities and/or responsibilities of the signatory parties.

NOW, THEREFORE, the parties hereto agree as to the following:

II. AUTHORITIES

The establishment, use, operation and maintenance of the Bank is carried out in accordance with the following authorities:

A. Federal:

1. Clean Water Act (33 USC 1251 et seq.);
2. Rivers and Harbors Act (33 USC 403);
3. Fish and Wildlife Coordination Act (16 USC 661 et seq.);
4. Regulatory Programs of the Corps of Engineers (33 CFR Parts 320-330);
5. Guidelines for Specification of Disposal Sites for Dredged and Fill Material (40 CFR Part 230);
6. Memorandum of Agreement between the Environmental Protection Agency and the Department of the Army concerning the Determination of Mitigation Under Clean Water Act, Section 404 (b)(1) Guidelines (February 6, 1990); and
7. Compensatory Mitigation for Losses of Aquatic Resources (33 CFR Part 332)
8. Regulatory Guidance Letter 08-03 - Minimum Monitoring Requirements for Compensatory Mitigation Projects Involving the Restoration, Establishment, and/or Enhancement of Aquatic Resources

B. State of Oregon:

1. Oregon Administrative Rules 141-45, 141-85, 141-089, 141-0100 and 141-090. Oregon Revised Statutes 196.600-196.990.

III. ESTABLISHMENT OF THE BANK

A. Scope of Work: The Sponsor agrees to perform all necessary work, in accordance with the provisions of this MBI, to establish and maintain wetlands and associated upland buffers, as described in the Exhibit C, Mitigation Plan, until it is demonstrated to the satisfaction of the co-chair agencies, considering the advice of the IRT, that the project complies with all provisions contained herein.

B. Permits: The Sponsor will obtain all appropriate permits or other authorizations needed to construct and maintain the Bank. This MBI does not fulfill or substitute for such authorization(s).

C. Approval: This MBI is effective upon the latter date of signature by the Sponsor and Co-chair Agencies.

D. Financial Assurance: A financial security instrument will be provided to DSL and the Corps as required to guarantee that the bank will be constructed, monitored and maintained and meet the performance standards in accordance with this MBI. A description of the financial assurance instrument, amount and release schedule is provided in Exhibit J, Financial Assurance. DSL and the Corps may declare forfeiture of all or part of a financial security instrument for any mitigation obligation in the event the Bank fails to meet performance standards, the Sponsor fails to provide monitoring reports, or fails to follow other provisions of this MBI.

E. Real Estate Provisions: The bank sponsor shall permanently protect the bank land by recording a restrictive covenant and/or conservation easement following the DSL template or otherwise approved by the co-chair agencies, a draft of which is attached as Exhibit F, Property Protection Instrument. The sponsor shall also record an access easement granting to the co-chair agencies the right to access the bank site for compliance inspections or remediation, upon prior notice to the landowner. A copy of the recorded site protection document and access easement shall be provided to the co-chair agencies prior

to the initial release of bank credit. The sponsor agrees to notify the co-chair agencies in writing 60 days prior to taking or allowing any action that would transfer interest in the land or establish any other legal claims over the bank property. The sponsor agrees to defend the bank property from any future liens or easements that the Corps or DSL determine would be incompatible with the mitigation objectives of the bank.

F. Corps Authorization: For the initial release of advanced credits by the Corps (not to exceed 30 percent of the total number of credits available from the entire bank), the Corps authorization must be issued and activated (i.e. discharge into a water of the U.S.). The Corps will use the enforcement authority outlined in 33 CFR 326 for enforcing the success of the performance standards as necessary.

G. As-Built Report: The Sponsor agrees to submit an as-built report, containing a survey of the finished grades, to the Co-chair Agencies within 60 days following completion of the grading of the mitigation bank. The as-built report shall describe in detail any substantial deviation from the approved Mitigation Plan.

IV. OPERATION OF THE BANK

A. Service Area: The Bank is established to provide mitigation to compensate for impacts to waters of the United States and/or Waters of the State, within the service area depicted on Exhibit E, Service Area Map and Description. This service area shall include portions of hydrologic unit 17090003, with a maximum topographic elevation limit of 825 feet, as this is the predominant elevation shown for the south and central Willamette Valley in the ODFW publication *The Oregon Conservation Strategy*, and within Lane, Benton, Polk, and Linn Counties, as further described in Exhibit E, Service Area Map and Description. The Bank may be used to compensate for impacts beyond the designated service area, on a case-by-case basis, upon approval by the Co-chair Agencies.

B. Access: Upon reasonable prior notice, the Sponsor will allow, or otherwise provide for, access to the site by the Co-chair agencies, the IRT, or their agents or designees at reasonable times as necessary to conduct inspections and compliance monitoring with respect to the requirements of this MBI. The Sponsor also will allow access to DSL, their agents and designees to carry out Bank remediation using funds provided through the financial assurance requirements of this MBI to address deficiencies related to Bank performance standards, in the circumstances specified in Exhibit J, Financial Assurance. Inspecting parties shall not unreasonably disrupt or disturb activities on the property.

C. Responsible Party: The Sponsor will assume the mitigation responsibility for permittees who purchase credits from the Sponsor. The Sponsor will be named as the party responsible for providing such mitigation in the respective permits. This will be formally documented for each transaction in a Credit Receipt, a sample of which is provided in Exhibit G, Sample Credit Receipt.

D. Number of Credits: The number of credits expected to be generated by this Bank is described in Exhibit C, Mitigation Plan, and the ratios and release schedule is described in Exhibit D, Crediting and Debiting Procedure. The amount to be debited for each impact is equivalent to the area of wetlands or waters to be impacted, or as specified in each permit issued by the Corps and/or DSL.

E. Performance Standards: Credits will be released based on the achievement of performance standards, as described in Exhibit C, Mitigation Plan.

V. MAINTENANCE AND MONITORING OF THE BANK

A. Maintenance Provisions: The Sponsor agrees to perform all necessary work to maintain the Bank consistent with Exhibit C, Mitigation Plan. The Sponsor shall continue with such maintenance activities until completion of the monitoring period described in Exhibit C. Deviation from the approved Mitigation Plan is subject to review and written approval by the Co-chairs Agencies.

B. Monitoring Provisions: The Sponsor agrees to perform all necessary work to monitor the Bank to demonstrate achievement of the performance standards established in Exhibit C, Mitigation Plan.

C. Accounting Procedure: The Sponsor shall submit a credit receipt to the Corps and DSL each time credits are sold. A sample of this receipt is included as Exhibit G, Sample Credit Receipt. In addition, the Sponsor shall submit a ledger to the Co-chair agencies by January 31 of each year, per Exhibit H, Sample Credit Ledger. The credit ledger shall document all transactions of the Bank for the previous calendar year, with a cumulative tabulation of all transactions to date. Annual ledgers and credit receipts shall be submitted to the Co-chair Agencies until the last credit is sold, at which time a final credit ledger shall be submitted.

D. Contingency Plans/Remedial Actions: In the event the Bank, or a specific phase or portion of the Bank, fails to achieve the performance standards specified the Mitigation Plan (Exhibit C) for two growing seasons, the Sponsor shall develop a remedial action plan. The remedial action plan shall be reviewed and approved in writing by the Co-chair Agencies prior to being implemented. The remedial action plan shall be implemented according to the schedule included in such plan. In the event the Sponsor fails to submit a plan or implement the remedial action plan within the time specified in such plan as approved, the bank may be subject to suspension or revocation of available mitigation credits and/or forfeiture of the financial security instruments or enforcement action, as allowed under the regulatory authorities of the Co-chair Agencies.

E. Default: Should the Co-chair Agencies determine that the Sponsor is in material default of any provision of this MBI, the Co-chair Agencies shall notify the Sponsor that the sale or transfer of any credits will be suspended until the claimed deficiencies have been remedied. Upon notice of such suspension, the Sponsor agrees to immediately cease all credit sales until the Co-chair Agencies inform the Sponsor that sales or transfers may be resumed. Should the Sponsor remain in default, the Co-chair Agencies may terminate the MBI and any subsequent Bank operations. Upon termination, the Sponsor agrees to perform and fulfill all obligations under this MBI relating to credits that were sold or transferred prior to termination.

F. Long-Term Management Plan: Prior to bank closure, and prior to release of the last 25% of the mitigation credits, the Sponsor shall develop a Long-term Management Plan for review and approval by the Co-chair agencies, in consultation with the IRT. The Long-Term Management Plan shall include the following five components:
1) Identification of long term management needs and annual cost estimates for these needs;
2) A long term funding mechanism to meet these needs, such as a non-wasting endowment fund;

3) A site protection instrument such as transfer of title or a conservation easement conveyed to an appropriate long-term steward;
4) Identification of the party(s) responsible for ownership and all long-term management of the bank site; and
5) Procedures for future amendment of the Long Term Plan to allow for adaptive management, defining situations in which review and approval of regulatory agencies would be necessary.

Responsibility remains with the bank sponsor until transfer to a land stewardship entity is approved by the co-chair agencies. The site protection instrument must prohibit uses that are not compatible with the mitigation objectives, and must include a provision requiring 60-day advance notification to the co-chairs before any action is taken to void or modify the site protection instrument, or establish any other legal claims over the bank site.

G. Bank Closure: At the end of the monitoring period, upon satisfaction of the performance standards, upon approval of a Long-Term Management Plan the Corps and DSL shall issue a written "bank closure certification" to the Sponsor. DSL will notify the financial security holder, and thereafter any remaining requirement for financial assurances will cease. Prior to bank closure, all elements of the Long Term Management Plan shall be established or activated such that there are no obstacles to its implementation.

VI. RESPONSIBILITIES OF CO-CHAIRS AND THE INTERAGENCY REVIEW TEAM

A. Participation in Development and Operation: The IRT members will participate, as necessary, to advise the Co-chair Agencies in ensuring the development and operation of the bank meets the compensatory mitigation requirements and policies of their respective agencies.

B. Review and Comment: The IRT members will strive to review and provide comments in accordance with timelines specified by the Co-chair Agencies, on MBI drafts, mitigation plans, annual monitoring reports, requests for credit release, remediation plans, and the Long Term Management Plan for the Bank. In making decisions related to approval and credit release for the bank, the Co-chair Agencies shall consider all timely comments.

C. Site Inspections and Recommendations: The Co-Chair agencies and IRT members will conduct inspections, as necessary, to verify the performance of the Bank. If the Bank is not meeting performance standards, the Co-chair agencies, considering the advice of the IRT members, may direct the Sponsor to implement Contingency Plans or Remedial Actions per Section V.D...

D. Signatures on the MBI: Signature of the IRT member agencies indicates consistency with current policy and intent to continue participation, but does not carry any liability. Any of the IRT members may terminate their participation upon written notification to all the signatory parties thirty (30) days in advance of date of termination.

E. The Co-chair agencies shall coordinate as needed to ensure a predictable and timely process for review of documents by all parties to the bank. Each co-chair agency shall strive to respond within 30 days to any written request for action by the sponsor or the other co-chairs.

VII. OTHER PROVISIONS

A. Force Majeure: The Sponsor will not be responsible for Bank failure that is attributed to natural catastrophes such as flood, drought, disease, or regional pest infestation, as determined by the Co-chair Agencies to be beyond the reasonable control of the Sponsor.

B. Dispute Resolution: Disputes related to the interpretation of this instrument may be referred to independent reviewers for advice, or the parties may participate in non-binding mediation. . The Co-chair Agencies will evaluate any such input in making final decisions relative to the dispute. Appeals of DSL decisions are governed by ORS 196.800-900 and OAR chapter 141, division 45.

C. Termination and Transfer of the MBI: This agreement may be terminated by the Sponsor prior to incurring any mitigation obligations (no credit sales) or if all mitigation obligations are met elsewhere, to the satisfaction of the Co-chair Agencies. Any transfer or assignment of any portion of or interest in the Bank shall be subject to the requirement that the successor or assign assume all obligations pursuant to this Instrument and have sufficient financial capacity to carry out those obligations. Transfer or assignment of this Instrument shall also be subject to the requirement that any funds pledged toward the long-term management fund shall continue to be accrued and expended in a manner consistent and in accordance with this Instrument and the Long Term Management Plan. If the initiation of construction as described in the Mitigation Plan (Exhibit C), to include planting of vegetation, has not occurred within three (3) years from the signing of this MBI by the co-chair agencies, this MBI shall be considered terminated, unless the co-chairs determine that circumstances warrant an extension. Any extensions must be approved by the co-chair agencies in writing.

D. Specific Language of MBI Shall Be Controlling: To the extent that specific language in this document changes, modifies, or deletes terms and conditions contained in those documents that are incorporated into the MBI by reference, the MBI shall be controlling.

E. Notice: Any notice required or permitted hereunder shall be deemed to have been given either (i) when delivered by hand, or (ii) three (3) days following the date deposited in the United States mail, postage prepaid, by registered or certified mail, return receipt requested, or (iii) sent by Federal Express or similar next day nationwide delivery system, addressed as follows:

Tom and Barbara Coon
26681 High Pass Road
Junction City, Oregon 97448

J.B. van Hecke (Project Manager) and Stephanie van Hecke
26683 High Pass Road
Junction City, Oregon 97448

U.S. Army Corps of Engineers
CENWP-OD-G Mitigation Program Manager
P.O. Box 2946
Portland Oregon 97208-2946

Oregon Department of State Lands
775 Summer Street NE, Suite 100
Salem, Oregon 97301-1279

F. Entire MBI: This MBI constitutes the entire agreement between the parties concerning the subject matter hereof and supersedes all prior agreements or undertakings.

G. Modifications: This MBI may only be amended or modified with the written approval of the Sponsor and Co-chair Agencies. In the event the Sponsor determines that modifications must be made in the Mitigation Plan to ensure successful establishment and operation of the Bank, the Sponsor shall submit a written request for such modification to the Co-chair Agencies, for approval. The Co-chair Agencies will distribute this request to the IRT to seek their recommendations.

H. Invalid Provisions: In the event any one or more of the provisions contained in this MBI are held to be invalid, illegal or unenforceable in any respect, such invalidity, illegality or unenforceability will not affect any other provisions hereof, and this MBI shall be construed as if such invalid, illegal or unenforceable provision had not been contained herein.

I. Headings and Captions: Any paragraph heading or captions contained in this MBI shall be for convenience of reference only and shall not affect the construction or interpretation of any provisions of this MBI.

J. Counterparts: This MBI may be executed by the parties in any combination, in one or more counterparts, all of which together shall constitute but one and the same instrument.

K. Binding: This MBI shall be immediately, automatically, and irrevocably binding upon the Sponsor and its heirs, successors, assigns and legal representatives upon signing by the Sponsor, the Corps, and DSL even though it may not, at that time or in the future, be executed by the other potential parties to this MBI. The signing of this MBI by EPA, DEQ, ODFW, or the USFWS, or other agency, city or county shall cause the signing agency to become a party to this MBI upon signing, even though all or any of the other potential parties have not signed the MBI.

L. Liability of Regulatory Agencies: The responsibility for financial success and risk to the investment initiated by the Sponsor rests solely with the Sponsor. The regulatory agencies (Corps and DSL) that are parties to this MBI administer their respective regulatory programs and make no guarantee of the financial success of mitigation banks, specific individuals, or entities. Accordingly, there is no guarantee of profitability for any individual mitigation bank. Sponsors should not construe this MBI as a guarantee in any way that the regulatory agencies will ensure sale of credits from this Bank or that the regulatory agencies will forgo other mitigation options that may also serve the public interest. Because the regulatory agencies do not control the number of mitigation banks proposed nor the resulting market impacts upon success or failure of individual banks, market studies of the potential and future demand for bank credits are the sole responsibility of the sponsor.

M. Grant Program Participation: State and Federal funds designated for voluntary restoration projects shall not be used to generate mitigation credits sold for profit.

N. Suspension of Credits: The Co-chair Agencies may suspend the sale of credits upon a determination that information contained in this MBI was falsely represented, the bank is not performing in accordance with this MBI, in the event of default of this MBI, or when the Co-chair Agencies determine that suspension of credits would be in the public interest.

O. Sale of Bank Property or Conveyance of Property Interests: The Sponsor shall not transfer title or otherwise convey interests in the Property without 60 day prior notice and written approval by the Co-chair Agencies.

IN WITNESS WHEREOF, the parties hereto have executed this MBI on the date herein below last written by the Co-Chairs.

Barbara Coon, Land Owner and Sponsor, — Dec. 5, 2010 Date

Tom Coon, Land Owner and Sponsor — DEC 5, 2010 Date

INTERAGENCY REVIEW TEAM

By the IRT Co-Chairs:

Steven R. Miles, P.E.
Colonel, Corps of Engineers
District Commander — 4 Feb 2011 Date

Louise Solliday, Director
Oregon Department of State Lands — 12/22/10 Date

The signatories of the Interagency Review Team (IRT) parties below indicate their participation in development of, and review of this document for consistency with their current policies. The signatories will continue to participate in compliance review and adaptive management of the Bank after approval as staffing priorities allow.

_____ _____

Paul Henson Date
State Supervisor
Oregon Fish and Wildlife Office
U.S. Fish and Wildlife Service

_____ _____

Richard Parkin Date
Director, Office of Ecosystems, Tribal, and Public Affairs
U.S. Environmental Protection Agency, Region 10

_____ _____

Dick Pedersen Date
Director
Oregon Department of Environmental Quality

_____ _____

Roy Elicker Date
Director
Oregon Department of Fish and Wildlife

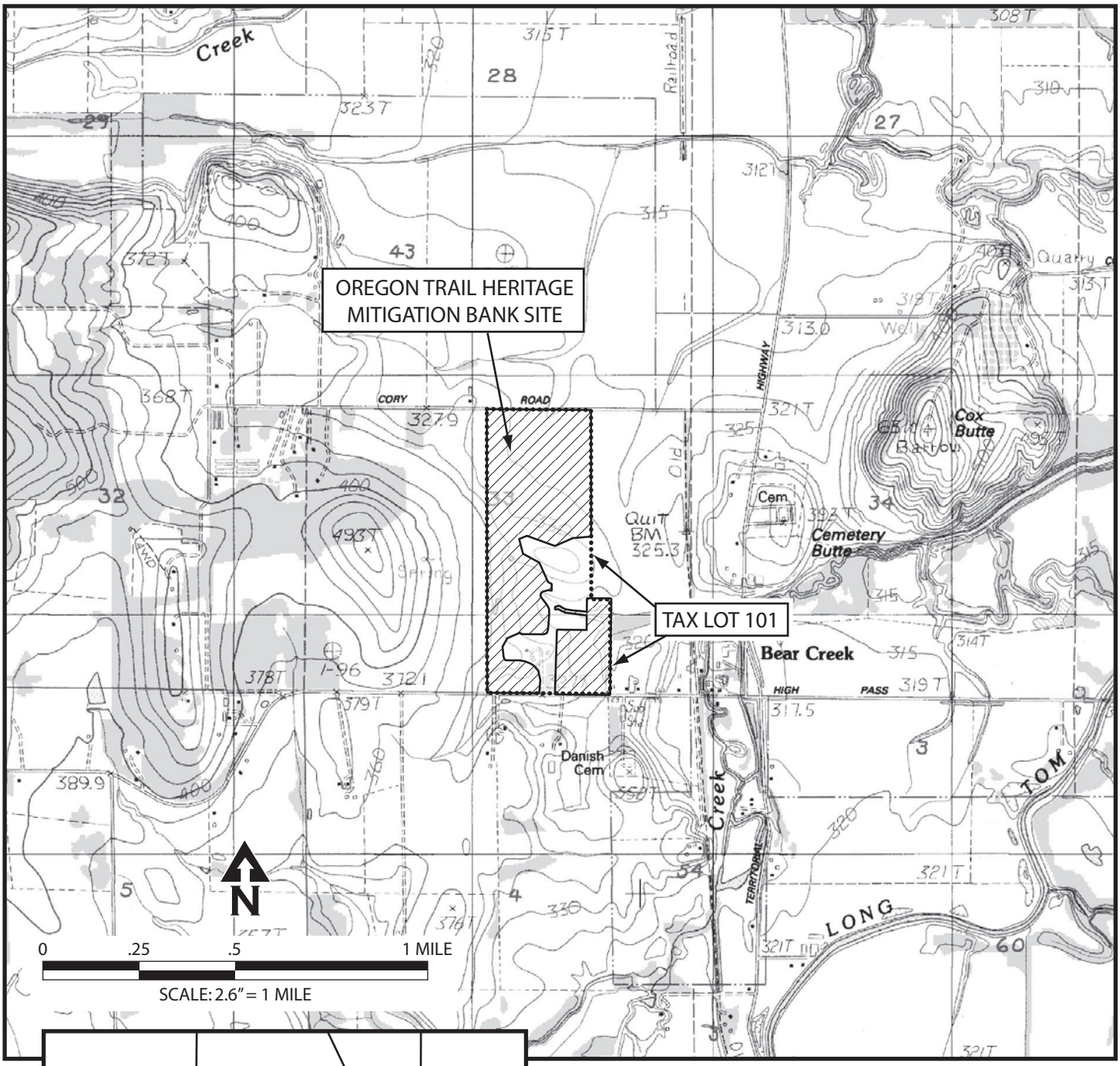
_____ _____

Date

Director
U.S. Environmental Protection Agency

Exhibit A

Property Legal Description and Vicinity Map



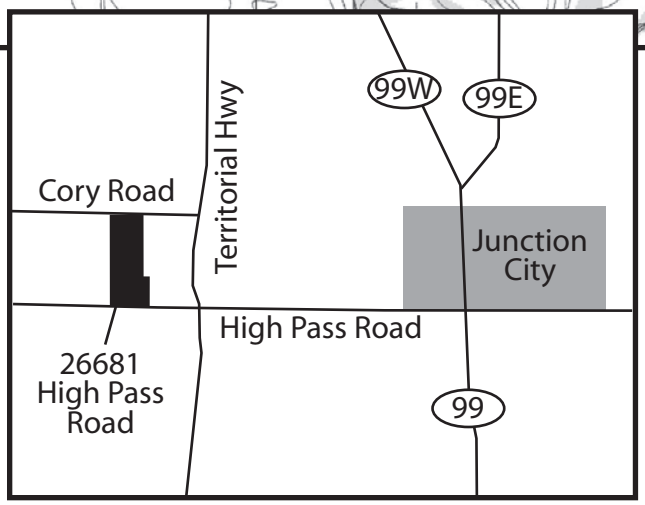
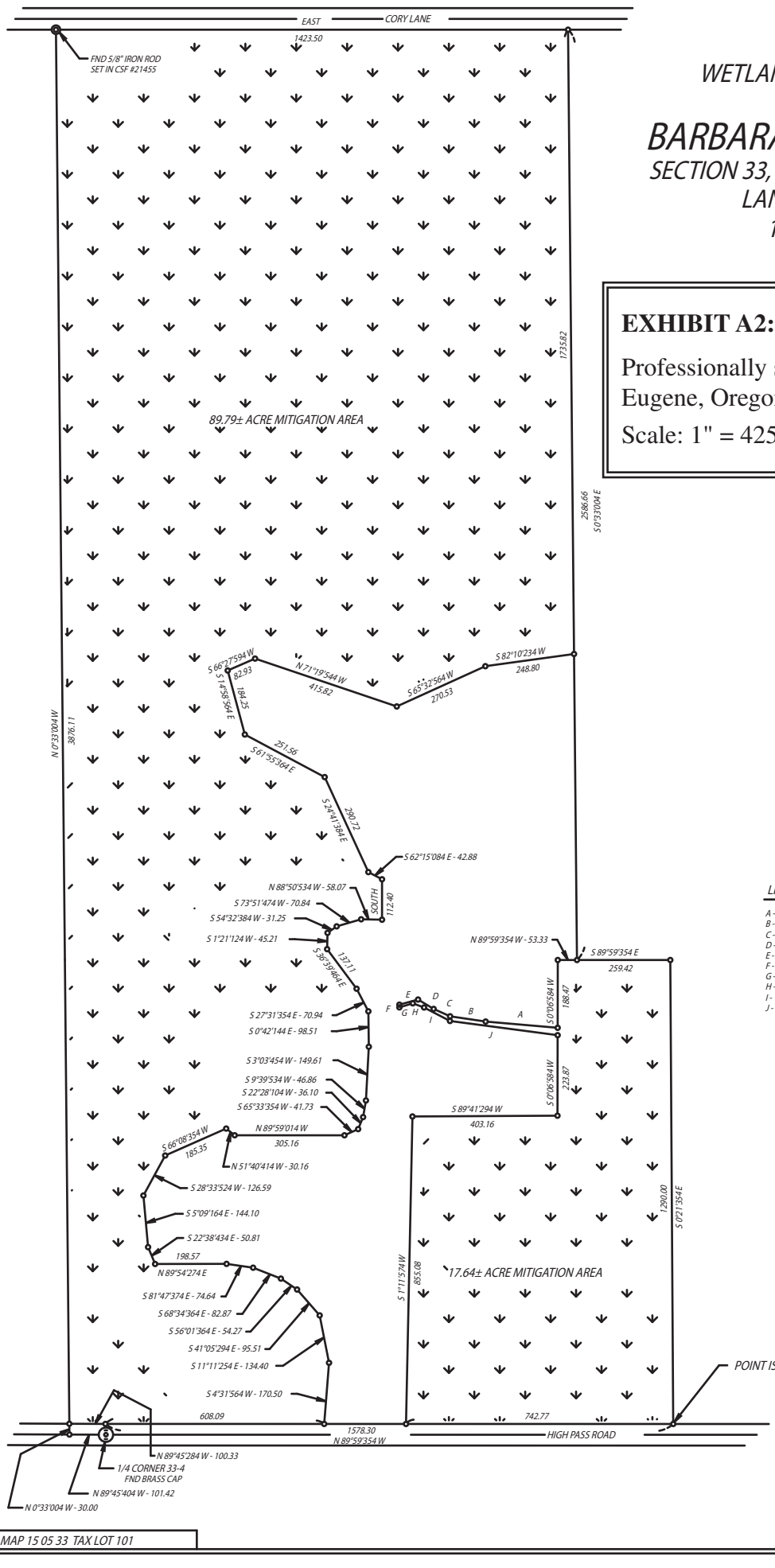


EXHIBIT A1: Vicinity Map

Source: Cheshire USGS Quad
Scale: 2.6" = 1 mile
Inset map = no scale

Oregon Trail Heritage Mitigation Bank site
..... Tax lot 101



WETLAND MITIGATION SURVEY
FOR

BARBARA AND TOM COON

SECTION 33, T. 15 S., R. 5 W., W.M.
LANE COUNTY, OREGON
19 FEBRUARY 2010
SCALE: 1" = 425 FT.

EXHIBIT A2: Property Survey Map

Professionally surveyed by W.J. Eimstad Co., Eugene, Oregon

Scale: 1" = 425'

LINE TABLE:

A - N 85°03'064 W - 200.91
B - N 81°35'524 W - 99.96
C - N 65°48'084 W - 50.16
D - N 58°56'064 W - 50.49
E - S 74°41'234 W - 53.84
F - SOUTH - 7.59
G - N 73°09'064 E - 38.91
H - S 69°42'004 E - 33.40
I - S 62°30'294 E - 81.18
J - S 82°29'034 E - 301.94

LEGEND:

FOUND MONUMENT AS NOTED
COMPUTED POINT

W. J. EIMSTAD CO.
LAND SURVEYING
P.O. BOX 25036
EUGENE, OR 97402
(541) 341-3911
FILE: \2879\MITIGATE.DWG

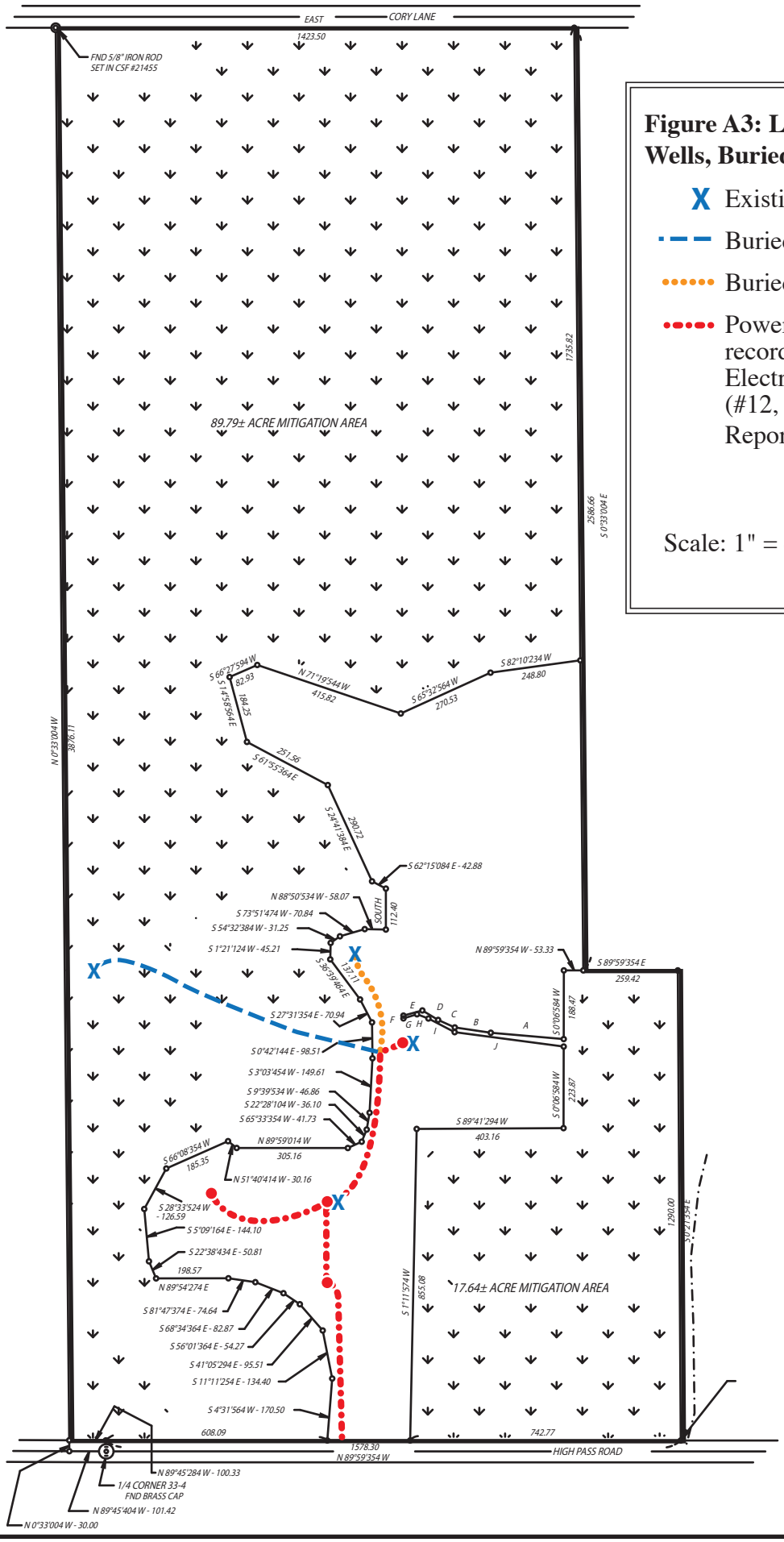


Figure A3: Location of Easements, Existing Wells, Buried Powerlines and Waterlines

X Existing wells

Buried waterline

Buried utility (water & electric)

Powerlines as referred to in easements recorded in favor of Blachly Lane Electric Coop (#12, 13, 15 in Preliminary Title Report)

Scale: 1" = 425'

N

0 200 425

SCALE: 1" = 425'

W. J. EIMSTAD CO.
LAND SURVEYING

P.O. Box 25036 ~~2005 MONTEREY LN.~~
EUGENE, OR 97402
PH (541) 341-3911
FAX (541) ~~341-3939~~ 935-4319

89.79 ACRE MITIGATION AREA
FOR
VAN HECKE PROPERTY
3 July 2009

Beginning at a point on the north right-of-way line of High Pass Road that is 30.00 feet North 0°33'00" West and 101.42 feet North 89°45'40" West of the south one-quarter corner of Section 33 in Township 15 South, Range 5 West of the Willamette Meridian and running thence North 0°33'00" West 3876.11 feet to a point on the south right-of-way line of Cory Lane; thence along said south line, East 1423.50 feet to a point; thence leaving said south line, South 0°33'00" East 1735.82 feet to a point; thence South 82°10'23" West 248.80 feet to a point; thence South 65°32'56" West 270.53 feet to a point; thence North 71°19'54" West 415.82 feet to a point; thence South 66°27'59" West 82.93 feet to a point; thence South 14°58'56" East 184.25 feet to a point; thence South 61°55'36" East 251.56 feet to a point; thence South 24°41'38" East 290.72 feet to a point; thence South 62°15'08" East 42.88 feet to a point; thence South 112.40 feet to a point; thence North 88°50'53" West 58.07 feet to a point; thence South 73°51'47" West 70.84 feet to a point; thence South 54°32'38" West 31.25 feet to a point; thence South 1°21'12" West 45.21 feet to a point; thence South 36°39'46" East 137.11 feet to a point; thence South 27°31'35" East 70.94 feet to a point; thence South 0°42'14" East 98.51 feet to a point; thence South 3°03'45" West 149.61 feet to a point; thence South 9°39'53" West 46.86 feet to a point; thence South 22°28'10" West 36.10 feet to a point; thence South 65°33'35" West 41.73 feet to a point; thence North 89°59'01" West 305.16 feet to a point; thence North 51°40'41" West 30.16 feet to a point; thence South 66°08'35" West 185.35 feet to a point; thence South 28°33'52" West 126.59 feet to a point; thence South 5°09'16" East 144.10 feet to a point; thence South 22°38'43" East 50.81 feet to a point; thence North 89°54'27" East 198.57 feet to a point; thence South 81°47'37" East 74.64 feet to a point; thence South 68°34'36" East 82.87 feet to a point; thence South 56°01'36" East 54.27 feet to a point; thence South 41°05'29" East 95.51 feet to a point; thence South 11°11'25" East 134.40 feet to a point; thence South 4°31'56" West 170.50 feet to a point on the north right-of-way line of High Pass Road; thence along said north line, North 89°59'35" West 608.09 feet to a point; thence North 89°45'28" West 100.33 feet to the point of beginning, containing 89.79 Acres more or less, being all in said Section 33, Lane County, Oregon.

REGISTERED
PROFESSIONAL
LAND SURVEYOR

OREGON
JULY 13, 1979
WILLIAM J. EIMSTAD
1811

RENEWAL: 31 DEC 09

W. J. EIMSTAD CO.
LAND SURVEYING

PO Box 25036 ~~2005 MONTEREY LN~~
EUGENE, OR 97402
PH (541) 341-3911
FAX (541) ~~341-3923~~
935-4319

17.64 ACRE MITIGATION AREA
FOR
VAN HECKE PROPERTY
3 July 2009

Beginning at a point on the north right-of-way line of High Pass Road that is 30.00 feet North 0°21'35" West and 1069.86 feet North 89°59'35" West of the nail marking the southeast corner of Section 33, Township 15 South, Range 5 West of the Willamette Meridian and running thence North 0°21'35" West 1290.00 feet to a point; thence North 89°59'35" West 312.75 feet to a point; thence South 0°06'58" West 188.47 feet to a point; thence North 85°03'06" West 200.91 feet to a point; thence North 81°35'52" West 99.96 feet to a point; thence North 65°48'08" West 50.16 feet to a point; thence North 58°56'06" West 50.49 feet to a point; thence South 74°41'23" West 53.84 feet to a point; thence South 7.59 feet to a point; thence North 73°09'06" East 38.91 feet to a point; thence South 69°42'00" East 33.40 feet to a point; thence South 62°30'29" East 81.18 feet to a point; thence South 82°29'03" East 301.94 feet to a point; thence South 0°06'58" West 223.87 feet to a point; thence South 89°41'29" West 403.16 feet to a point; thence South 1°11'57" West 855.08 feet to a point on the north right-of-way line of High Pass Road; thence along said north line, South 89°59'35" East 742.77 feet to the point of beginning, containing 17.64 Acres more or less, being all in said Section 33, Lane County, Oregon.

REGISTERED
PROFESSIONAL
LAND SURVEYOR

OREGON
JULY 13, 1970
WILLIAM J. EIMSTAD
1811

RENEWAL: 12/31/09

Exhibit B

Preliminary Title Report

Western Title & Escrow Company of Lane County
497 Oakway Road, Suite 340
Eugene, OR 97401
Office Phone: (541) 485-3588
Office Fax: (541) 485-3597

Thomas & Barbara Coon
26681 High Pass Road
Junction City, OR 97448

Date Prepared: July 13, 2010

PRELIMINARY TITLE REPORT
FOR ISSUING TITLE INSURANCE

File Number: 22658
Property Address:
26681 and 26683 High Pass Road
Junction City, OR 97448

Western Title & Escrow Company of Lane County is prepared to issue a title insurance policy, as of the effective date and in the form and amount shown on Schedule A, subject to the conditions, stipulations and exclusions from coverage appearing in the policy form and subject to the exceptions shown on Schedule B. This report is preliminary to the issuance of a policy of title insurance issued by Fidelity National Title Insurance Company and shall become null and void unless a policy is issued and the full premium paid.

This report is for the exclusive use of the person to whom it is addressed. Title insurance is conditioned on recordation of satisfactory instruments that establish the interests of the parties to be insured; until such recordation, the Company may cancel or revise this report for any reason.

Thank you for placing the order with Western Title & Escrow Company of Lane County.

Any questions concerning the Preliminary Title Report should be directed to Jerrilyn Egger at 541-431-3710, or email at jegger@westerntitle.com.

For copies of exceptions, please contact our Title Department at 541-431-3710 or email your request to eugene@westerntitle.com.

LANE COUNTY RECORDING FEES (SUBJECT TO CHANGE)

First Page	$42.00	Each Additional Page	$5.00

For standard Deeds, Trust Deeds and other conveyance documents. For all other documents please call (541) 431-3710 for exact fees.

Address for Recording Package:

Western Title and Escrow - Attention: Recording
497 Oakway Road, Suite 340
Eugene OR 97401

SCHEDULE A

1. The effective date of this preliminary title report is 5:00 P.M. on July 02, 2010

2. The policies and endorsements to be insured and the related charges are:

Policy/Endorsement Description	Liability	Charge
2006 ALTA Standard Owner's Policy	$ TO COME	*$200.00
*Above Charge Includes		
Basic Owner	$200.00	
PROPOSED INSURED for Owner's Policy To be determined		
Local Government Lien Search		$15.00

(Agent portion of above Premiums is: $180.00)
(Underwriter portion of above Premiums is: $20.00)

3. Title to the land described herein is vested in:

   Thomas M. Coon and Barbara Coon, as tenants by the entirety

4. The estate or interest in land is:

   Fee Simple

5. The land referred to in this report is described as follows:

   SEE ATTACHED EXHIBIT "A"

Exhibit "A"

Parcel I:

Beginning at the nail marking the Southeast corner of Section 33, Township 15 South, Range 5 West of the Willamette Meridian; thence along the South line of Section 33 as monumented North 89° 59' 35" West 1069.86 feet to the true point of beginning, said point being referenced by a 5/8 inch iron rod North 0° 21' 35" West 30.00 feet; thence North 0° 21' 35" West, 1320.00 feet to a point marked by a 5/8 inch iron rod; thence North 89° 59' 35" West 1682.92 feet to a point marked by a 5/8 inch iron rod; thence South 0° 33' East 1319.62 feet to a point on the South line of said Section 33, said point being referenced by a 5/8 inch iron rod North 0° 33' West 29.99 feet; thence along the South line of Section 33, South 89° 45' 40" East 101.42 feet to the brass cap monument marking the South one-quarter corner of Section 33; thence continuing along the South line of said Section 33, South 89° 59' 35" East 1577.12 feet to the true point of beginning, in Lane County, Oregon.

Parcel II:

Beginning at the nail marking the Southeast corner of Section 33, Township 15 South, Range 5 West of the Willamette Meridian; thence along the South line of Section 33 as monumented North 89° 59' 35" West 1069.86 feet to a point, said point being referenced by a 5/8 inch iron rod North 0° 21' 35" West 30.00 feet; thence North 0° 21' 35" West 1320.00 feet to a point marked by a 5/8 inch iron rod; thence North 89° 59' 35" West 259.42 feet to the true point of beginning, said point being marked by a 5/8 inch iron rod; thence continue North 89° 59' 35" West 1423.50 feet to a point marked by a 5/8 inch iron rod; thence North 0° 33' West 2616.49 feet to a point in the centerline of Cory Lane County Road No. 289, said point being referenced by a 5/8 inch iron rod South 0° 33' East 30.00 feet; thence along the centerline of said Cory Lane, East 1423.50 feet to a point, said point being referenced by a 5/8 inch iron rod South 0° 33' East 30.00 feet; thence leaving the centerline of said Cory Lane, South 0° 33' East 2616.66 feet to the true point of beginning, in Lane County, Oregon.

SCHEDULE B

Except for the items properly cleared though closing, the proposed policy or policies will not insure against loss or damage which may arise by reason of the following:

STANDARD EXCEPTIONS:

1. Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the public record; proceedings by a public agency which may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the public records.

2. Any facts, rights, interests or claims which are not shown by the public records but which could be ascertained by an inspection of said land or by making inquiry of persons in possession thereof.

3. Easements, or claims of easement, not shown by the public records, reservations or exceptions in patents or in acts authorizing the issuance thereof, water rights, claims or title to water.

4. Any encroachment (of existing improvements located on the subject land onto adjoining land or of existing improvements located on adjoining land onto the subject land), encumbrance, violation, variation or adverse circumstance affecting the title that would be disclosed by an accurate and complete land survey of the subject land.

5. Any lien, or right to lien, for services, labor or material heretofore or hereafter furnished, imposed by law and not shown by the public records.

SPECIAL EXCEPTIONS:

6. 2010-2011 taxes a lien in an amount to be determined, but not yet payable.

7. Note: 2009-2010 TAXES ARE PAID IN FULL and are being shown for informational purposes only. This exception will not be shown on a title insurance policy.
   Original Amount: $4,039.72
   Tax Lot No.: 15 05 33 00 00101
   Account No.: 1254166, Code 06901

   Note: 2009-2010 MOBILE HOME TAXES ARE PAID IN FULL and are being shown for informational purposes only. This exception will not be shown on a title insurance policy.
   Original Amount: $132.24
   Account No.: 4103147, Code 06901

8. The assessment roll and the tax roll disclose that the premises herein described have been specially assessed as Zoned Farm Use Land. Upon declassification, an additional tax may be levied.
   Account No.: 1254166

9. Taxes, including current year, have been assessed with an exemption. If the exempt status is terminated under the statute prior to the date on which the assessment roll becomes the tax roll in the year in which said taxes were assessed, an additional tax may be levied.
Exemption: Veteran 2
Account No.: 1254166

10. The rights of the public in and to that portion of the herein described property lying within the limits of roads and highways.

11. An easement created by instrument, including the terms and provisions thereof,
Recorded: August 7, 1979
Document No.: 79-46637, Lane County Records
In favor of: Lane County

12. An easement created by instrument, including the terms and provisions thereof,
Recorded: December 3, 1979
Document No.: 79-71690, Lane County Records
In favor of: Blachly-Lane County Cooperative Electric Association

13. An easement created by instrument, including the terms and provisions thereof,
Recorded: December 3, 1979
Document No.: 79-71692, Lane County Records
In favor of: Blachly-Lane County Cooperative Electric Association

14. Farm Use and Forest Management Agreement, including the terms and provisions thereof,
Recorded: September 19, 2002
Document No.: 2002-072687, Lane County Records

15. An easement created by instrument, including the terms and provisions thereof,
Recorded: August 11, 2004
Document No.: 2004-063221, Lane County Records
In favor of: Blachly-Lane County Cooperative Electric Association, an Oregon corporation

16. Structure Use Covenant, including the terms and provisions thereof,
Recorded: June 27, 2005
Document No.: 2005-046644, Lane County Records

17. Line of Credit Deed of Trust, to secure an indebtedness in the amount shown below, and any other obligations secured thereby:
Amount: $199,999.00
Dated: August 3, 2007
Recorded: August 6, 2007
Document No.: 2007-055016, Lane County Records
Grantor: Thomas M. Coon and Barbara K. Coon, as tenants by the entirety
Trustee: Peter C. McCord
Beneficiary: OnPoint Community Credit Union
Loan No.: 10626-158

Note to Lender: Western Title & Escrow Company of Lane County is the correct name to use if you are going to use this company as the trustee for a trust deed in this transaction.

Note: Title Insurance Rate Disclosure Notice

The title insurance charges for this order are disclosed in Schedule A of the Preliminary Title Report. In some circumstances, a reduced charge will apply. When it appears to us that a transaction qualifies for a reduced charge, it is our policy in Oregon to identify the reduced charge on Schedule A of the report. The reduction usually is computed as a percentage of the Company's basic rate. If a reduced charge appears on Schedule A, it is one of the following:

Reissue Rate: A discount of 25% of the basic rate applies when there has been title insurance on the property within the previous three years.

Builder-Developer Rate: A discount of 35% of the basic rate may apply when a party to the transaction is a builder or developer and the property is residential.

Lender Post-Foreclosure Rate: A discount of 35% of the basic rate may apply when a seller acquires the property through foreclosure.

Contract Fulfillment Rate: A discount of up to 50% of the basic rate may apply to an owner's policy issued upon fulfillment of a previously insured land sale contract.

Leasehold to Owner's Conversion Rate: A previously insured lessee who exercises an option to purchase in the lease may obtain title insurance for the purchase with a 50% credit from the previous policy.

Post-Construction Permanent Loan Rate. A discount of up to 75% of the basic rate may apply to a loan policy for a permanent mortgage when it refinances a previously insured construction loan.

Reorganization Rate: A discount of up to 65% of the basic rate may apply for title insurance to a business entity that is affiliated with a previously insured business entity.

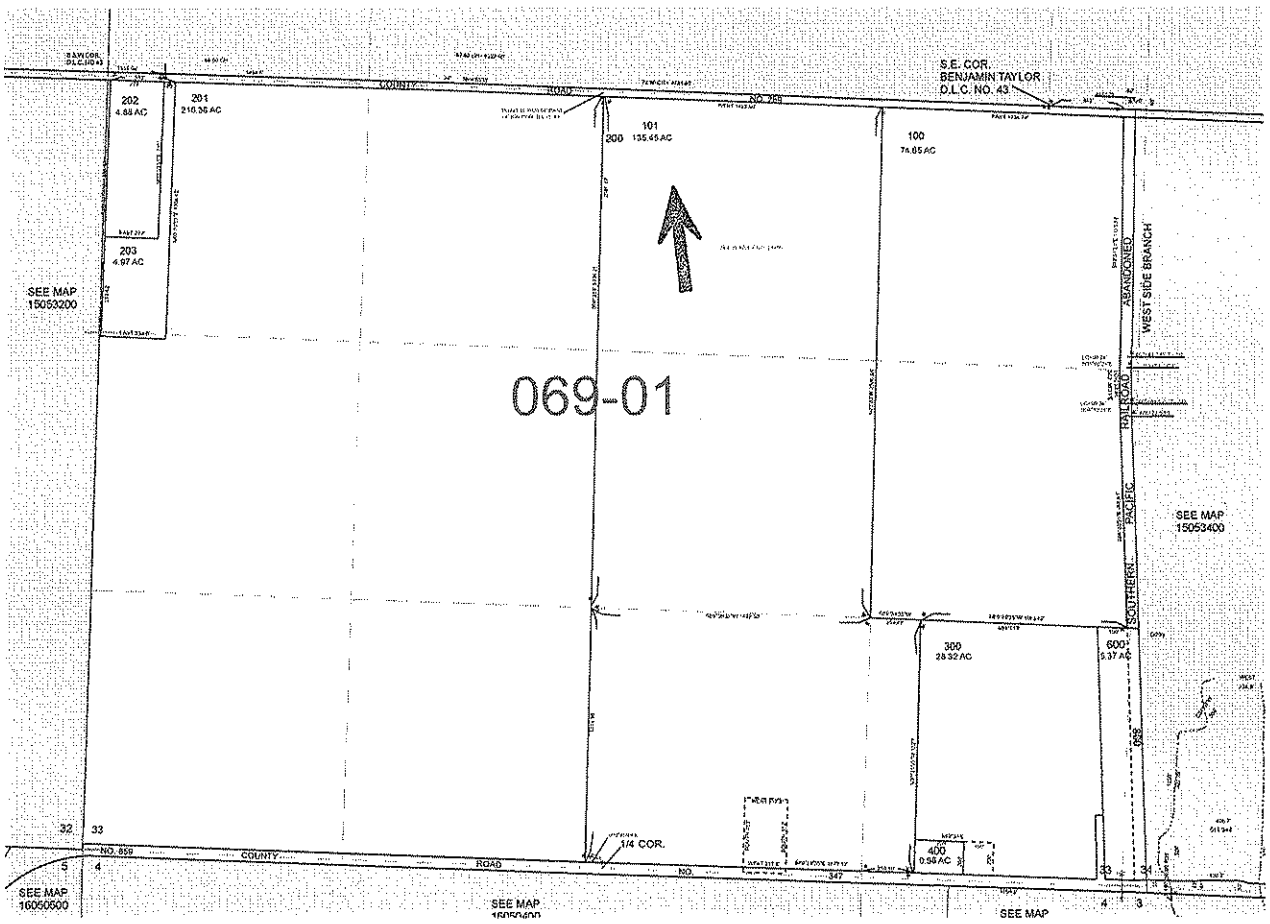
Corporate Employee Transfer Rate: When a corporation transfers an employee from one area to another and the employee's corporation or one rendering employee transfer services acquires the employee's property with title insurance, a discount of up to 50% applies to the resale.

Simultaneous Issue Rate: A special rate may apply when two or more policies are issued simultaneously, such as a loan policy with an owner's policy or two loan policies.

IF YOU THINK A REDUCED RATE APPLIES TO YOUR TRANSACTION BUT IT DOES NOT APPEAR ON SCHEDULE A OF THE PRELIMINARY TITLE REPORT, PLEASE INFORM YOUR ESCROW OFFICER OR TITLE OFFICER by contacting them at the phone number, email address or mailing address shown on the report.

End of Report

THIS PLAT IS FOR YOUR AID IN LOCATING YOUR LAND WITH REFERENCE TO STREETS AND OTHER PARCELS. WHILE THIS PLAT IS BELIEVED TO BE CORRECT, THIS COMPANY ASSUMES NO LIABILITY FOR ANY LOSS BY REASON OF RELIANCE THEREON.
WESTERN TITLE & ESCROW COMPANY OF LANE COUNTY



REVISIONS
9/19/2006 - LCAT110 - CONVERT MAP TO GIS
9/6/2006 - LCAT130 - CASE: 506 CREATED IN ERROR
9/6/2006 - LCAT130 - CORRECT AC. ON TL 400 TO 10.43 CH 06CD

REGIONAL LAND INFORMATION DATABASE

Deeds & Records Property Search

Deeds & Records Document Report

Document #:	1979-46637	**Amount:**	N/A
Recording Date:	08/07/1979	**Description:**	ACROSS S33 T15 5W
Document Type:	EASEMENT	**Book / Page:**	1013 / NA
Grantor(s):	BERGSMA, KARST	**Map & Taxlot Number(s):**	N/A
		Subdivision:	N/A
Grantee(s):	LANE COUNTY	**Hist. Fee Number:**	N/A

No referenced documents were found

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7946637

DEDICATION OF A PUBLIC ROAD EASEMENT

KARST BERGSMA

GRANTOR, grant and dedicate to LANE COUNTY, a political subdivision of the State of Oregon, GRANTEE, a public road easement on and over the following described property:

A parcel of land lying in Section 33, Township 15 South, Range 5 West, Willamette Meridian, and being a portion of the tract of land conveyed to KARST BERGSMA, by that certain deed, recorded on Reel 931-R, Recorder's Reception Number 7855648, Lane County Oregon Deed Records, said parcel being described as follows:

Beginning at the nail marking the Southeast corner of Section 33, Township 15 South, Range 5 West of the Willamette Meridian; thence along the South line of Section 33 as monumented North 89° 59' 35" West 2646.98 feet to the Brass Cap marking the South one-quarter corner of Section 33, Township 15 South, Range 5 West of the Willamette Meridian; thence continue along said South line North 89° 45' 40" West 101.42 feet to a point marked by a railroad spike; thence North 0° 33' West 3936.11 feet to the TRUE POINT OF BEGINNING on the centerline of Lane County Road Number 289 (Cory Lane); thence along the centerline of said County Road Number 289, East 2660.07 feet to a point on the Westerly line of the Southern Pacific Railroad right-of-way as monumented; thence leaving the centerline of said County Road Number 289 along the Westerly line of said railroad right-of-way South 0° 51' 51" East 30.00 feet to a point marked by a 5/8 inch iron rod; thence leaving the Westerly line of said railroad right-of-way, West 2660.24 feet to a point marked by a 5/8 inch iron rod; thence North 0° 33' West 30.00 feet to the TRUE POINT OF BEGINNING, in Lane County, Oregon.

It being the intent herein to widen County Road Number 289 (Cory Lane) to 30 feet from centerline on the Southerly side of the centerline as said road abuts the Grantor's property.

Said parcel being forever dedicated to the use of the public for road purposes and granting a public road easement.

There is no consideration for this dedication.

Dated this 27 day of October, 1978.

Karst Bergsma

STATE OF OREGON)
COUNTY OF LANE) ss.

On October 27, 1978 personally appeared the above-named Karst Bergsma and acknoledged the foregoing instrument to be HIS voluntary act before me:

Notary Public for Oregon
My commission expires: 2/2/82

SB:gc 10-10-78
M72-78
15-3-33 TL 100
Co.Rd.No. 289 Cory Lane

REGIONAL LAND INFORMATION DATABASE

Deeds & Records Property Search

Deeds & Records Document Report

Document #:	1979-71690	**Amount:**	N/A
Recording Date:	12/03/1979	**Description:**	ACROSS S33 T15 5W
Document Type:	EASEMENT	**Book / Page:**	1040 / NA
Grantor(s):	**1.** BAILOR, DEBBIE; **2.** BAILOR, WADE	**Map & Taxlot Number(s):**	N/A
		Subdivision:	N/A
		Hist. Fee Number:	N/A
Grantee(s):	BLACHLY LANE COUNTY CO OP ELECTRIC ASSN		

No referenced documents were found

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http://www.rlid.org/

REGIONAL LAND INFORMATION DATABASE

Deeds & Records Property Search

Deeds & Records Document Report

Document #:	1979-71692	**Amount:**	N/A
Recording Date:	12/03/1979	**Description:**	RACROSS S33 T15 5W
Document Type:	EASEMENT	**Book / Page:**	1040 / NA
Grantor(s):	**1.** BAILOR, DEBBIE; **2.** BAILOR, WADE	**Map & Taxlot Number(s):**	N/A
		Subdivision:	N/A
		Hist. Fee Number:	N/A
Grantee(s):	BLACHLY LANE COUNTY CO OP ELECTRIC ASSN		

No referenced documents were found

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350/350 (R) 7971692

7966128

Easement

M

KNOW ALL MEN BY THESE PRESENTS, That we, the undersigned,

WADE BAILOR and DEBBIE BAILOR

Grantors,

for good and valuable consideration, receipt of which is hereby acknowledged, do hereby grant, bargain and convey unto the Blachly-Lane County Cooperative Electric Association, and Oregon corporation whose address is Eugene, Oregon, and to its successors or assigns, the right to place, construct, operate, repair, maintain, change, alter, improve, inspect, remove and replace underground electric transmission or distribution lines and fixtures including, but not limited to, transformer enclosures consisting of:

880 feet of primary underground power cable, One pad mount transformer and 200 feet of underground secondary power cable.

upon the land hereinafter described, together with the right of the telephone company to place underground across said easement communication facilities in a common trench of the Grantee. Said easement is granted through, over or upon the lands of the Grantors in the County of Lane, State of Oregon, more particularly described as follows:

~~Tax lot #100 in Section 33, Township 15 South, Range 5 West all in Lane County, Oregon.~~

The above description was found to be in error, therefore a second recording was made with the following correct description: Tax Lot #100 in Section 33, Township 15 South, Range 5 West from the Willamette Meridian all in Lane County, Oregon.

A 3 • 2=19 3059 00005.50

together with the right to fell or trim any trees, brush or shrubbery to the extent necessary to locate, construct, operate, repair, change, alter, improve, inspect, maintain, replace and remove said underground installation and any portion thereof including the right of ingress and egress thereto to carry out any purposes herein contained.

The Grantors covenant and warrant that they are the owners of the above described premises, and that said lands are free and clear of all encumbrances and liens of whatsoever name, nature or description excepting the following:

A 3 • 3=79 4919 00005.50

IN WITNESS WHEREOF, we have hereunto set our hands and seals this 2nd day of Sept, 19 79.

x Wade Bailor

x Debbie Bailor

Executed in the presence of:

STATE OF OREGON
County of Lane SS.

Be it remembered, That on this 20th day of Sept, 19 79, before me, the undersigned, a Notary Public in and for said County and State, personally appeared the within named

Wade Bailor and Debbie Bailor

who are known to me to be the identical individuals described in and who executed the within instrument and acknowledged to me that they executed the same freely and voluntarily.

PATRICIA A. DIPPOLD NOTARY PUBLIC STATE OF OREGON

FARM USE AND FOREST MANAGEMENT AGREEMENT

Grantor(s) Barbara K. Coon
is/are the owner(s) of real property as described on Exhibit "A", attached hereto. In accordance with the conditions set forth in the decision of the Lane County Land Management Division dated 9-11-02 approving Special Use Permit PA # 02-5589, for Assessor's Map and Tax Lot 15-05-33#101 **Grantor(s)** hereby grant(s) to the owner(s), **(Grantees)**, of all property adjacent to the property described in Exhibit "A", a perpetual non-exclusive forest practices management easement as follows:

1. The Grantor(s), the heirs, successors, and assignees acknowledge by the granting of this easement that the above described property is situated in a farm or forest zone in Lane County, Oregon, and may be subjected to conditions resulting from farm use or commercial forests operations on adjacent lands. Such operations may include farm use as defined in ORS 215.203 and management and harvesting of timber, disposal of slash, reforestation, application of chemicals, road construction and maintenance, and other accepted and customary forest management activities conducted in accordance with Federal and State Laws. Said farm use and forest management activities ordinarily and necessarily produce noise, dust, odors, smoke and other conditions, which may conflict with Grantor's use of Grantor's property for residential purposes. Grantor(s) hereby waive(s) all common law rights to object to normal, non-negligent farm use or forest management activities legally conducted on adjacent lands which may conflict with Grantors use of Grantors property for residential purposes, and Grantor(s) hereby give(s) an easement to the adjacent property owners for the resultant impact on Grantors property caused by the farm use of forest management activities on adjacent lands.

2. Grantor(s) shall comply with all restrictions and conditions for maintaining residences in farm or forest zones that may be required by State, Federal, and local land use laws and regulations. Grantor(s) will comply with all fire safety regulations developed by the Oregon Department of Forestry for residential development within a forest zone.

This easement is appurtenant to all property adjacent to the above described property, and shall bind the heirs, successors, and assignees of Grantor(s), and shall endure for the benefit of the adjacent landowners, the heirs, successors, and assignees. The adjacent landowners, the heirs, successors, and assignees are hereby expressly granted the right of third party enforcement of this easement.

Barbara K Coon
GRANTOR (PLEASE PRINT)

Barbara Coon
GRANTOR SIGNATURE

IN WITNESS WHEREOF, the Grantor(s) has/have executed this easement on 19 September 2002.
(date)

State of OREGON
County of Lane

Signed or attested before me on 19 Sept 2002, by Barbara K. Coon
(date)

OFFICIAL SEAL
LISA M LACEY
NOTARY PUBLIC - OREGON
COMMISSION NO. 317839
MY COMMISSION EXPIRES NOVEMBER 8, 2002

Lisa M. Lacey
(SIGNATURE OF NOTARY)

My commission expires: 11-8-02

After Recording Return to:
Lane Co. Land Mgmt Div.
attn: Thom Lanfear
125 E 8th Ave
Eugene, Or 97401

Division of Chief Deputy Clerk
Lane County Deeds and Records
2002-072687
$31.00
00337615200200726870020025
09/19/2002 02:45:57 PM
RPR-ESMT Cnt=1 Stn=7 CASHIER 07
$10.00 $10.00 $11.00

OFFICIAL RECORD OF DESCRIPTIONS OF REAL PROPERTIES

OFFICE OF COUNTY ASSESSOR LANE COUNTY, OREGON

OLD NUMBER

ACCOUNT NUMBER 201 254 166

TAX LOT MAP NO.	PARCEL NO.	SECTION	TOWNSHIP	RANGE
15 05 33	101	33	15 S.	5W W.M

INDENT EACH NEW COURSE TO THIS POINT — LEGAL DESCRIPTION	DEED RECORD DATE OF ENTRY	DEED RECORD DEED NUMBER	ACRES REMAINING
Parcel 1	1978	R947/70634	
Beginning at the nail marking the SOutheast corner of Section 33, towsnhip 15 South, Range 5 West of the Willamette meridian; thence	1985	R1333/85-02304	
along the South line of Section 33 as monumneted North 89°59'35" West 1059.86 Ft to the True point of beginning, said point being referenced by a 5/8 inch iron rod North 0°21'35" West 30.00 Ft; thence	1986	R1358/8525144	
North 0°21'35"West 1320.00 Ft to a point marked by a 5/8 inch iorn rod; thence	1987	R1458/8719896	
North 89°59'35" West 1682.92 Ft to a point marked by a 5/8 inch iron rod; thence	2000 WD	33411	
South 0°33' East 1319.62 Ft to a point of the South line of said Section 33, said point being referenced by a 5/8 inch iron rod North 0°33' West 29.99 Ft; thence			
along the SOuth line of Section 33, South 89°45'40" East 101.42 Ft to the Brass cap monumnet marking the South 1/4 corner of Section 33; thence			
continuing along the South line of said Section 33, South 89°59'35" East 1577.12 Ft to the Truepoint of beginning, in Lane County, Oregon.			
PARCEL 2			
Beginning at the Nail marking the Southeast corner of Section 33, Township 15 South, Range 5 West of the Willamette Meridian; thence			
along the South line of Section 33 as monumented North 89°59'35" West 1069.86 ft to a point, said point being referenced by a 5/8 inch iron Rod North 0°21'35" West 30.00 Ft; thence			
North 0°21'35" West 1320.00 Ft to a point marked by a 5/8 inch iron rod; thence			
North 89°59'35" West 259.42 Ft to the TRUE POINT OF BEGINNING, said point being marked by a 5/8 inch iorn rod; thence continue			
North 89°59'35" West 1423.50 Ft to a point marked by a 5/8 inch iron rod; thence			
North 0°33' West 2616.49 Ft to a point in the centerline of Cory Lane County ROAD No. 289, said point being referenced by a 5/8 inch iron rod SOuth 0°33'East 30.00 ft; thence			
along the centerline of said Cory Lane, East 1423.50 Ft to a point, said point being referenced by a 5/8 inch iron rod South 0°33' East 30.00 Ft; thence			
leaving the centerline of said Cory lane, South 0°33' East 2616.66 Ft to the TRUE POINT OF BEGINNING, in Lane County, Oregon.			
Containing more or less			135.45

Exhibit "A"

Division of Chief Deputy Clerk
Lane County Deeds and Records

2005-046644

$36.00

00707514200500466440030039

06/27/2005 10:56:00 AM

RPR-REST Cnt=1 Stn=15 CASHIER 05

$15.00 $10.00 $11.00

After Recording Return to:

Barbara Coon
26681 High Pass Rd
Junction City OR 97448

LAND MANAGEMENT DIVISION
http://www.LaneCounty.org/PW_LMD/

STRUCTURE USE COVENANT

The undersigned OWNER hereby agrees that the structure proposed under PA 055645, located on the real property as described on Exhibit "A", (legal description obtained from Lane County Assessment and Taxation) and Exhibit "B" the plot plan, attached hereto, will be used solely as an agricultural building as defined by ORS 455.315 (2). (See below) This agreement further serves as notice to the owner and successors in interest that no change in use of the structure shall occur without obtaining the necessary land use approval and building permits from Lane County. This covenant shall be binding upon the OWNER, their heirs, successors and assigns.

455.315 Exemption of agricultural buildings. (1) Nothing in this chapter is intended to authorize the application of a state structural specialty code to any agricultural building.

(2) As used in this section, "agricultural building" means a structure located on a farm and used in the operation of such farm for storage, maintenance or repair of farm machinery and equipment or for the raising, harvesting and selling of crops or in the feeding, breeding, management and sale of, or the produce of, livestock, poultry, fur-bearing animals or honeybees or for dairying and the sale of dairy products or any other agricultural or horticultural use or animal husbandry, or any combination thereof, including the preparation and storage of the produce raised on such farm for human use and animal use and disposal by marketing or otherwise. "Agricultural building" does not include:

(a) A dwelling; (b) A structure used for a purpose other than growing plants in which 10 or more persons are present at any one time; (c) A structure regulated by the State Fire Marshal pursuant to ORS chapter 476; (d) A structure used by the public; or (e) A structure subject to sections 4001 to 4127, title 42, United States Code (the National Flood Insurance Act of 1968) as amended, and regulations promulgated thereunder. (3) Notwithstanding the provisions of subsection (1) of this section, incorporated cities may regulate agricultural buildings within their boundaries pursuant to this chapter. [Formerly 456.758 and then 456.917; 1995 c.783 §1]

Dated this 20th day of June, 2005

Barbara Coon

OWNER(S)

STATE OF OREGON)
) SS.
County of Lane)

The foregoing instrument was acknowledged before me this 20th day of June, 2005 by Barbara Coon,

x Barbara Holmes
Notary Public for Oregon

OFFICIAL SEAL
BARBARA HOLMES
NOTARY PUBLIC - OREGON
COMMISSION NO. 378301
MY COMMISSION EXPIRES MAR. 18, 2008

My commission expires:

'EXHIBIT A'

PARCEL I:

Beginning at the nail marking the Southeast corner of Section 33, Township 15 South, Range 5 West of the Willamette Meridian; thence along the South line of Section 33 as monumented North 89° 59' 35" West 1069.86 feet to the True Point of Beginning, said point being referenced by a 5/8 inch iron rod North 0° 21' 35" West 30.00 feet; thence North 0° 21' 35" West 1320.00 feet to a point marked by a 5/8 inch iron rod; thence North 89° 59' 35" West 1682.92 feet to a point marked by a 5/8 inch iron rod; thence South 0° 33' East 1319.62 feet to a point on the South line of said Section 33, said point being referenced by a 5/8 inch iron rod North 0° 33' West 29.99 feet; thence along the South line of Section 33, South 89° 45' 40" East 101.42 feet to the Brass Cap monument marking the South one-quarter corner of Section 33; thence continuing along the South line of said Section 33, South 89° 59' 35" East 1577.12 feet to the True Point of Beginning, in Lane County, Oregon.

PARCEL II:

Beginning at the nail marking the Southeast corner of Section 33, Township 15 South, Range 5 West of the Willamette Meridian; thence along the South line of Section 33 as monumented North 89° 59' 35" West 1069.86 feet to a point, said point being referenced by a 5/8 inch iron rod North 0° 21' 35" West 30.00 feet; thence North 0° 21' 35" West 1320.00 feet to a point marked by a 5/8 inch iron rod; thence North 89° 59' 35" West 259.42 feet to the True Point of Beginning, said point being marked by a 5/8 inch iron rod; thence continue North 89° 59' 35" West 1423.50 feet to a point marked by a 5/8 inch iron rod; thence North 0° 33' West 2616.49 feet to a point in the centerline of Cory Lane County Road No. 288, said point being referenced by a 5/8 inch iron rod South 0° 33' East 30.00 feet; thence along the centerline of said Cory Lane, East 1423.80 feet to a point, said point being referenced by a 5/8 inch iron rod South 0° 33' East 30.00 feet; thence leaving the centerline of said Cory Lane, South 0° 33' East 2616.66 feet to the True Point of Beginning, in Lane County, Oregon.

Return To:
Blachly-Lane County Cooperative Electric Association
90680 Hwy 99
Eugene, OR 97402

Easement

KNOW ALL MEN BY THESE PRESENTS, That we, the undersigned,

Thomas M. Coon

Barbara K. Coon Grantors,

for good and valuable consideration, receipt of which is hereby acknowledged, do hereby grant, bargain and convey unto the Blachly-Lane County Cooperative Electric Association, an Oregon corporation whose address is Eugene, Oregon, and to its successors or assigns, the right to place, construct, operate, repair, maintain and replace overhead or underground electric transmission or distribution lines and fixtures including poles, guy wires, anchors and transformer enclosures consisting of:

Approximately 400 feet of primary (7200 volt) underground electrical cable, (1) pad mounted transformer, and approximately 30 feet of secondary (120/240 volt) underground electrical cable.

upon the land hereinafter described, together with the right of the telephone company to string over or place underground across said easement communication facilities attached to any or all of the poles or to place them in a common trench of the Grantee. Said easement is granted through, over or upon the lands of the Grantors in the County of Lane, State of Oregon, more particularly described as follows:

Tax Lot 101, Section 33, Township 15 South
Range 5 West of the Willamette Meridian,
all in Lane County, Oregon.

(Legal property description on back)

together with the right to fell or trim any trees, brush or shrubbery to the extent necessary to keep them clear of said electrical line or system, and to cut and remove from time to time any dead, weak, leaning or dangerous trees that might endanger the facilities of Grantee, including the right to use chemicals for the control of brush and shrubbery on said right-of-way, including the right of ingress and egress thereto to carry out any purposes herein contained.

The Grantors covenant and warrant that they are the owners of the above described premises, and that said lands are free and clear of all encumbrances and liens of whatsoever name, nature or description excepting the following:

NO EXCEPTIONS

IN WITNESS WHEREOF, we have hereunto set our hands and seals this 23th day of October ~~xxx~~ 2002

Barbara Coon
Thomas M Coon

STATE OF OREGON
County of Lane } SS.

Be it remembered, That on this 23th day of October ~~xxx~~ 2002 before me, the undersigned, a Notary Public in and for said County and State, personally appeared the within named Thomas M. Coon & Barbara K. Coon

who are known to me to be the identical individuals described in and who executed the within instrument and acknowledged to me that they executed the same freely and voluntarily.

IN TESTIMONY WHEREOF, I have hereunto set my hand and official seal on this day and year last above written.

OFFICIAL SEAL
WILLIAM ALAN WILDE
NOTARY PUBLIC-OREGON
COMMISSION NO. 349902
MY COMMISSION EXPIRES SEPT 13, 2005

Notary Public for Oregon

My commission expires 9-13-2005

PARCEL I:

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Exhibit "B"

PLOT PLAN SUBMITTAL FORM

Use this sheet for your drawings

OWNER NAME: Barbara K. Coon	OWNER ADDRESS: 26681 High Pass Rd. Junction City OR 97448
OWNER PHONE #: 541-998-1509	

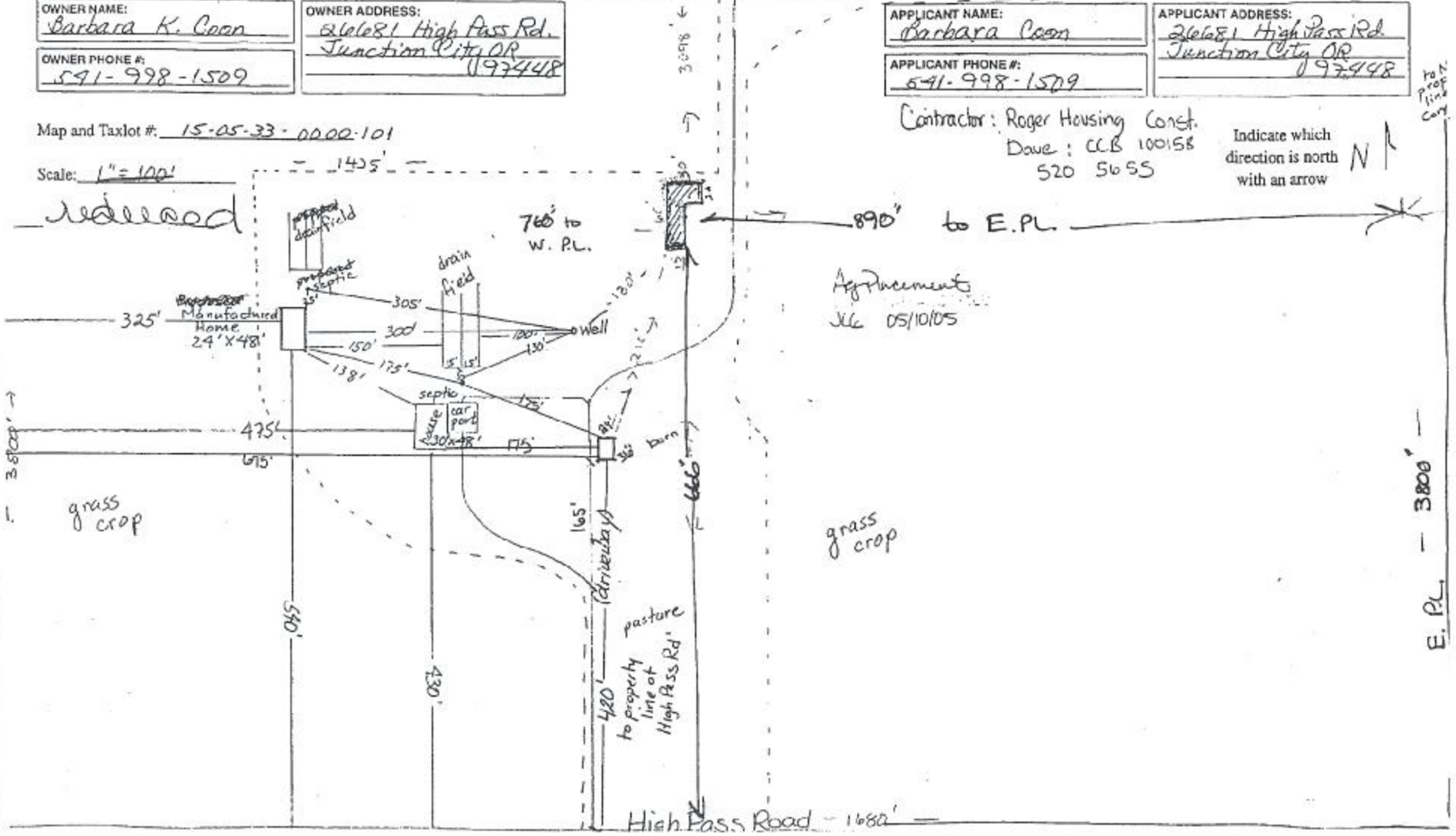
APPLICANT NAME: Barbara Coon	APPLICANT ADDRESS: 26681 High Pass Rd. Junction City OR 97448
APPLICANT PHONE #: 541-998-1509	

Contractor: Roger Housing Const.
Dave: CCB 100158
520 5655

Map and Taxlot #: 15-05-33-0000-101

Scale: 1" = 100'

Indicate which direction is north with an arrow N



Mitigation Banking Instrument
For the
Oregon Trail Heritage Wetland Mitigation Bank

Exhibit C
WETLAND MITIGATION PLAN

Presented to
Oregon Department of State Lands
US Army Corps of Engineers

July 2010

Prepared by:
Environmental Solutions LLC
55646 Drury Drive
Blue River, Oregon

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SUPPLEMENTAL INFORMATION

1.0 MITIGATION PLAN OVERVIEW

This Mitigation Plan has been prepared for the 107.43-acre Oregon Trail Heritage Wetland Mitigation Bank (OTH Bank) site, which is presently being used for agricultural production. The activities outlined in this plan involve primarily enhancement of the existing agriculturally cropped wetlands, using limited grading and native plantings, to native wet prairie and bottomland forest plant communities typical of the area's historic habitat conditions, with a small area of wetland creation in agriculturally cropped uplands.

1.1 Bank Site Ownership and Location Information

The OTH Wetland Mitigation Bank site is owned by:

Tom and Barbara Coon
26681 High Pass Road
Junction City, Oregon 97448
Phone: (541) 914-2241

The OTH Bank site is in the southern Willamette Valley, just west of Junction City (refer to Figure 1). It is in the 4th Field HUC (HUC4) identified as 17090003 (refer to Figure 6A). The OTH Bank site includes land in the Bear Creek and Ferguson Creek sub-drainages of the Long Tom watershed. Ferguson Creek and Bear Creek are tributaries to the Lower Long Tom River, below Fern Ridge Reservoir. The OTH Bank site comprises 107.43 acres in the northern, southwestern, and southeastern portions of Tax Lot 101 as mapped on Tax Map 15-05-33-00 and Township 15 South Range 5 West, west half of the east half of Section 33, (refer to Figure 2). The centroid latitude and longitude points are 44.2222°N latitude and 123.2957°W longitude.

1.2 Ecological Goals and Objectives

Goal 1: **Construct and maintain sustainable wetlands in the palustrine emergent, scrub-shrub, and forest Cowardin classes and the Slope/Flats hydrogeomorphic (HGM) class, dominated with native species typical of the southern Willamette Valley.**

Objective 1: Enhance emergent, shrub, and forested wetlands on up to 84.5 acres of agriculturally degraded wetlands.

Objective 2: Create up to 0.9 acre of emergent wetland from uplands.

Objective 3: Restore historic hydrologic and hydraulic patterns by selective grading to remove shallow drainage ditches and to create shallow depressions and vernal pools typical of historic Willamette Valley wet prairie environments.

Goal 2: **Construct and maintain buffers around the wetlands.**

Objective 1: Enhance up to 22 acres of agriculturally degraded buffer areas with native herbaceous, shrub, and tree plant communities.

Onsite agricultural management activities have significantly degraded the physical and biological wetland functions in the OTH bank site, including water storage and delay, primary production, amphibian and invertebrate habitat, wintering and migratory waterbird support, and support of characteristic vegetation. These will be improved significantly by returning the site to a more

native condition. Onsite agricultural activities that have led to function degradation include ditching to increase runoff, conversion of native wet prairie and forest bottomlands to a monoculture agricultural crop, and regular use of herbicides. The Long Tom Watershed Council Assessment (Thieman 2000) and the Oregon Department of Fish and Wildlife Oregon Conservation Strategy (ODFW 2005) emphasize the significant loss of native wet prairie and closed forest bottomland habitats in the Long Tom Watershed and southern Willamette Valley and encourage restoration of those two habitat types.

Changes brought about by agricultural conversion in the Willamette Valley, including on the OTH Bank site, consist of ditching and other methods to increase drainage off the land; clearing of native prairie and riparian forest vegetation; and tilling with use of fertilizers and herbicides to produce a monoculture crop such as ryegrass and Christmas trees. Agricultural lands in the Long Tom watershed erode at a rate of 105 pounds per acre per year, for a total of 7,237,894 pounds per year, with ryegrass, bare fallow land, and Christmas tree farms accounting for 75% of total erosion in the watershed (Thieman 2000). In the Long Tom watershed, surface erosion from cropland, including on the OTH Bank site, is a significant source of sediment to streams (Thieman 2000).

In addition, fertilizers and pesticides used in crop and orchard production, including on the OTH Bank site, enter local streams and degrade water quality and aquatic habitat. The fine clay soils in the lower watershed, including on the OTH Bank site, stay suspended in water for a long time, and are more likely to bind with nutrients such as phosphorus. Therefore when sediment erodes into water it carries the phosphorus with it, further degrading water quality and aquatic habitat. A high percent of non-native fish inhabit the lower sections of both Bear Creek and Ferguson Creek, in the vicinity of the OTH Bank site, including bluegill, mosquitofish, and yellow bullhead. From fish survey information, the majority of fish found in the lower reach of Bear Creek at the crossing of Territorial Road, had a high percent of external lesions and anchor worms, attributed to high stream temperatures, low dissolved oxygen, and poor riparian habitat compared to the upper Bear Creek reach sample where cutthroat were found in higher quality riparian habitat (Thieman 2000). Other native wildlife species associated with wetlands in the Long Tom watershed have significantly declined from historic times, including the northern Pacific pond turtle which has declined 96% since the early 1900s, and the red legged frog, once prevalent in Willamette Valley bottomland streams and forests (Thieman 2000). The loss of the latter is primarily attributed to predation by non-native bullfrog and warmwater game fish as well as degraded water quality as a result of pesticides and fertilizers (Thieman 2000).

These changes in vegetation patterns, soil, and drainage result in increased runoff, an increase in peak flows, a reduction in natural storage area of winter precipitation, a reduction in area available for water filtration, and a reduction in quality wildlife habitat. In the Long Tom watershed, approximately 1000 acres of the historic 34,600 acres of historic wet prairie remain, or approximately 3% of historic wet prairie, making it the most endangered habitat in the Willamette Valley (Thieman 2000). Additional habitat degradation effects identified in the Long Tom Watershed Assessment included a lack of trees and the narrow width of forested riparian zones, including the Bear Creek and Ferguson Creek riparian areas (Thieman 2000). The site plan for the OTH bank and its future management will reverse the historic degradation actions, with an anticipated result in a significant improvement to water quality both onsite and downslope, native

plant communities, and associated habitat for native fauna.

The OTH bank site is directly adjacent to the West Eugene Conservation Opportunity Area (WV-23) in the Willamette Valley ecoregion, as identified by the ODFW in the Oregon Conservation Strategy (ODFW 2005). That Conservation Opportunity Area extends from Camas Swale north to Cox Butte (refer to Figure 5). Cox Butte is approximately 1 mile northeast of the OTH Bank site. Strategy habitats in WV-23 identified by ODFW include grasslands, wetlands, and wet prairie habitats, with key species identified as waterfowl, Fender's blue butterfly, and the northern Pacific pond turtle (ODFW 2005). Recommended conservation actions include conservation, restoration, and reconnection of high value habitats, with restoration and maintenance of wildlife habitat and riparian habitat along the Long Tom corridor. The OTH bank site will restore and maintain wildlife habitat with its conversion from an agricultural monoculture to a diverse suite of native plant communities.

1.3 Net Losses and Gains in Wetland Functions and Values

The OTH Bank site will be re-contoured to remove artificially created drainage features so that it will more closely resemble historic topographic conditions, and be planted primarily to native wet prairie and forest bottomland species. This will result in an increase in the level of physical and biological functions provided by the site. The OTH Bank site provides 9 of the 13 functions identified in the HGM Assessment Method for Slope/Flats wetlands (Adamus 2001). Table 1 illustrates the existing conditions and the conditions anticipated five years after the OTH Bank site has been constructed and planted, with the assumption that at that time these wetlands will exhibit hydrologic and vegetation conditions typical of native wet prairie, emergent, and young forest bottomland habitats.

Table 1. HGM Function Assessment Summary for W1 the OTH Bank site wetlands.

Functions	Function Capacity Score: Existing Site Conditions	Function Capacity Score: Post-Construction Mitigation Site Conditions	Difference Between Existing and Post-Construction Mitigation Site Conditions
Water storage and delay	0.03	0.30	+0.27
Sediment stabilization and Phosphorus retention	0.58	0.74	+0.16
Nitrogen removal	0.48	0.60	+0.12
Thermoregulation	--	--	--
Primary production	0.28	0.51	+0.23
Resident fish habitat support	--	--	--
Anadromous fish habitat support	--	--	--
Invertebrate habitat support	0.12	0.28	+0.16
Amphibian and turtle habitat support	0.43	0.54	+0.11
Breeding waterbird support	0	0	0
Wintering and Migratory waterbird support	0.71	0.94	+0.23
Songbird habitat support	0.83	0.92	+0.09
Support of characteristic vegetation	0.38	0.85	+0.47

Mitigation site habitat restoration activities include removing drainage ditches, recontouring the

site to restore historic topographic relief degraded by soil leveling actions, excavating several shallow depressions, and planting with native prairie and forest bottomland species. These actions will increase the water storage and delay, sediment stabilization and phosphorus retention, and nitrogen removal physical functions on the site primarily by slowing down runoff and providing a longer retention time for soil microbe and plant uptake of nutrients. The physical functions are very important for the site, as upslope lands are in grass and Christmas tree production, both of which have been recognized as significant sources of erosion, herbicides, and fertilizers to local and HUC4 streams and the Willamette River. Restoration of native wet prairie and forest bottomland habitat will increase the level of biological functions that the onsite agriculturally degraded wetlands perform, by converting the monoculture grass crop to a diversity of native plant communities. This will increase the plant species diversity and vertical structure, and thereby increase the onsite habitat available for invertebrates, amphibians, and birds. Converting the site to native plant species will also significantly increase the support of characteristic vegetation function. A full discussion of the wetland function assessment is included in the Plan appendices.

The greatest values associated with the OTH Bank site are those concerning the physical functions, based on the amount of land alteration that has occurred in both the Bear Creek and Ferguson Creek watersheds, as illustrated in Table 2. The Ferguson Creek watershed is 26 square miles, with 59% of the land used for forestry and 40% for agriculture (Thieman 2000). The Bear Creek watershed is 28 square miles in size, with 57% of the land used for forestry and 33% used for agriculture (Thieman 2000). Land zoned rural residential comprises 10% of the area in both watersheds (Thieman 2000). As discussed previously, erosion of soil and associated nutrients from fertilizers, and use of herbicide associated with forestry and agricultural land use activities is high, which result in significant degradation to water quality downslope. These negative effects are exemplified by observations of parasites and lesions on the majority of fish sampled in the lower Bear Creek watershed, just downstream from the OTH Bank site (Thieman 2000). By recontouring the OTH Bank site to increase the water storage and delay function, negative effects to the downslope waterways, including increased sedimentation and transport of phosphorus and nitrogen, will be reduced. The OTH Bank site will no longer be fallow in late summer and early fall, as it has been following harvest and tilling of the agricultural crop, which will also reduce the amount of erosion and nutrient transport offsite and into the adjacent waterways. Although the values of the physical functions do not change with the activities proposed on the OTH Bank site because they are determined by upslope conditions which will not change with the OTH Bank actions, the OTH Bank site will play an important role in mitigating some of those offsite upslope negative effects of forestry and agricultural management. Because the OTH Bank site and surrounding land is primarily in agricultural production, its present values for biological functions are low. However, with conversion of the OTH Bank site to native habitats, the value of the site will increase in terms of biodiversity, support of food webs, and support of fish and wildlife, all represented by the biological functions of primary production, invertebrate habitat support, amphibian and turtle habitat support, resident fish habitat support, wintering and migratory waterbird habitat support, songbird habitat support, and support of characteristic vegetation. Table 2 provides a summary of the existing and post-construction mitigation site values, and the difference between the two.

Table 2. HGM Value Assessment Summary for the OTH Bank site wetlands.

Functions	Value Score: Existing Conditions	Value Score: Post-Construction Mitigation Site Conditions	Difference Between Existing and Post- Construction Mitigation Site Conditions
Water storage and delay	0.5	0.5	0
Sediment stabilization and Phosphorus retention	0.5	0.5	0
Nitrogen removal	0.4	0.4	0
Thermoregulation	--	--	--
Primary production	0.3	0.4	+0.1
Resident fish habitat support	--	--	--
Anadromous fish habitat support	--	--	--
Invertebrate habitat support	0.2	0.4	+0.2
Amphibian and turtle habitat support	0.1	0.5	+0.4
Breeding waterbird support	0.1	0.2	+0.1
Wintering and Migratory waterbird support	0.1	0.3	+0.2
Songbird habitat support	0.1	0.6	+0.5
Support of characteristic vegetation	0.1	0.9	+0.8

1.4 Mitigation Site Acreage

The OTH Bank will enhance up to 84.5 acres of existing agriculturally degraded wetlands in the PEM Cowardin class with conversion to native wetlands in the PEM, PSS (Palustrine Scrub-Shrub) and PFO (palustrine forested) Cowardin classes. It will also create up to 0.9 acre of native wetlands in the PEM Cowardin class from agriculturally degraded uplands. The addition of PFO Cowardin class to the OTH Bank site stems from historic loss of native riparian forest bottomland habitat along streams including tributaries to Bear Creek and Ferguson Creek. The OTH Bank site will restore a forested corridor along the west side of an onsite tributary to Bear Creek and include small areas of forested pond habitat; the majority of the site will be in the PEM Cowardin class. Table 3 illustrates the acreage conversions associated with the proposed OTH Bank project.

Table 3. OTH Bank Mitigation Acreage

Acres	Mitigation Type	Cowardin Class	HGM Class
74.4	Enhancement	PEM	Slope/Flats
2.7	Enhancement	PSS	Slope/Flats
7.4	Enhancement	PFO	Slope/Flats
0.9	Creation	PEM	Slope/Flats
22	Buffer Enhancement	Upland buffers: NA Wetland buffers: PSS	Upland buffers: NA Wetland buffers: Riverine flow-through
Total: 107.4			

1.5 Demonstration of Need

Based on information provided by DSL, there is presently a potential need for approximately 300 credits with projects proposed in the vicinity of the Bank. That need may be reduced if the proposed projects include onsite mitigation for wetland impacts instead of purchase of credits

from a mitigation bank. The existing mitigation banks already established with service areas in the vicinity of the Oregon Trail Heritage Mitigation Bank site include the Evergreen Mitigation Bank, Muddy Creek Mitigation Bank, Long Tom Mitigation Bank, and the West Eugene Wetland Mitigation Bank, which have a present total of approximately 78 credits available for sale (as of April 2010), and a future potential of approximately 93 credits available for sale (as of April 2010), most of which will not be available for sale for several years.

All of the counties in the Bank's proposed service area have experienced significant population and development growth in the past decade, and population projections for the next decade are similar, with an anticipated doubling of the current population in the Willamette River Basin in the next fifty years based on information from the Willamette River Basin Planning Atlas. Several projects are planned in the near future in Junction City, 4 miles east of the Bank, involving construction of a state hospital and prison, and expansion of the city's wastewater treatment facility. These projects will be sited on lands that contain agricultural wetlands (cropped hydric soils) and may require purchase of mitigation Bank credits as compensatory mitigation for wetland impacts. In addition, concurrent with construction of these large facilities is the anticipated need for an increase in housing and infrastructure in the area including retail and commercial developments, all of which could very likely impact wetlands and therefore require some form of mitigation including purchase of mitigation bank credits.

Within the service area, the cities of Eugene, Corvallis, Albany, and Philomath have approved Local Wetland Inventories (LWI). The LWIs determined that 676 acres of wetlands are present in the Eugene Urban Growth Boundary (UGB) (not including the West Eugene Wetlands Plan area), 2534 acres of wetlands are within the 17,963-acre Corvallis UGB, 1695 acres of wetlands are within the 7127-acre Albany UGB, and 449 acres of wetlands are within the 2680-acre Philomath UGB. Junction City, located within the service area and the near vicinity of the Oregon Trail Heritage Wetland Mitigation Bank, is in the process of having an LWI prepared, in anticipation of increased development pressure which would likely include wetland impacts. This demonstrates that as development needs increase with increasing population growth in the service area, there is a continued potential for wetland fill to occur, with a resulting need for compensatory mitigation, likely including that provided by wetland mitigation banks within the service area.

The majority of wetland types present in the service area and likely to be sites proposed for fill both at present and in the future, are agricultural wetlands that have been altered from a pre-settlement wet prairie or emergent habitat, based on information from the historic vegetation maps produced in the mid-1800s. These wetlands are typically in the palustine emergent (PEM) Cowardin class and the Slope/Flats Hydrogeomorphic class, with lesser amounts of ash forest (palustrine forested (PFO) Cowardin class) and shrubby wetland areas (scrub/shrub (PSS) Cowardin class). This Mitigation Plan has been designed to provide a predominance of wet prairie and emergent wetland habitats in the Slope/Flats Hydrogeomorphic (HGM) class, with lesser areas of forested and shrub wetland, and therefore will be suitable for replacement of lost wetlands within the HUC4 service area by Cowardin class and HGM classification.

2.0 COMPENSATORY WETLAND MITIGATION PRINCIPAL OBJECTIVES per OAR 141-085-0680

The OTH Bank site has been designed to meet the principal objectives for compensatory wetland mitigation outlined in OAR 141-085-0680, discussed following.

Principal Objective A: **Replace functions and values lost at the removal-fill site.** Because the OTH Bank site is a wetland mitigation bank, its construction is not associated with a specific removal-fill activity. The majority of wetland types present in the HUC4 within which the OTH Bank site is located, and likely to be sites proposed for fill both at present and in the future, are agricultural wetlands that have been altered from a pre-settlement wet prairie or emergent habitat (Thieman 2000). The majority of these wetlands are in the PEM Cowardin class and the Slope/Flats HGM class, with lesser amounts of ash forest in the PFO Cowardin class and shrubby wetland areas in the PSS Cowardin class. The OTH Bank Site Plan has been designed to provide a predominance of native wet prairie and emergent wetland habitats in the Slope/Flats HGM class, with lesser areas of forested and shrub wetland, and therefore will be suitable for replacement of lost wetlands within the HUC 4 by Cowardin class and HGM classification.

As described in Section 1.3, the agriculturally altered habitats provide low levels of physical and biological functions. Table 1 illustrates the wetland function assessment for the agriculturally degraded OTH Bank site as it exists today, which is typical of agricultural lands in the HUC4 within which the OTH Bank site is located and would service. The OTH Bank site will replace the wetland functions and values lost when similar agricultural lands are developed. The OTH Bank site goes one step further in not only replacing lost functions from development of agricultural lands, but improving the functions to more closely replace the function loss associated with conversion of historic native wet prairie and forest bottomland habitats to agricultural lands. That enhancement also results in an improvement in the biological values typically lost with development of agricultural land, as illustrated in Table 2.

Principal Objective B: **Provide local replacement for locally important functions and values, where appropriate.** As discussed in 1.3, the OTH Bank site will improve onsite physical functions including water storage and delay, sediment stabilization, and retention of nutrients such as phosphorus. This will help mitigate the negative impacts of agricultural and forestry activities in the local Ferguson and Bear Creek watersheds as well as in the Long Tom watershed and HUC 4, where significant erosion and water quality degradation results from management of land for forestry and crop production, in addition to those lost at impact sites. So much land in the Ferguson and Bear Creek watersheds, as well as the Long Tom watershed and HUC 4, has been converted to forestry or agricultural uses resulting in a diminished value in primarily the biological functions, resulting from conversion to monoculture crops such that they are no longer vital to native amphibians and reptiles, birds, or invertebrates. The OTH will replace the locally important functions and values that have been lost with land conversion as well as with development. In addition, the value of characteristic vegetation has significantly declined with the loss of native plant associations, including wet prairie habitat which is locally important to the valley. By investing to improve habitat conditions for native animals and to bring back native vegetation, the OTH Bank site will replace lost values at sites that have been converted from

natural conditions as well as sites that have been converted to development within the HUC4. The values of the OTH site are anticipated to be much higher than those of potential impact sites that would be using the OTH site for purchase of credits. Most potential impact sites in the HUC4 watershed have been degraded with conversion to agricultural production, resulting in typically low scores for physical and biological function values. Based on the HGM value assessment, features that negatively affect the value scores for agricultural sites, anticipated to be the primary purchasers of OTH bank credits, include (1) reduced opportunity for storing and delaying runoff because of increased ditching and other methods used to increase offsite drainage so a site is more suitable to farming; (2) their common nature in the watershed; (3) the lack of importance of such monoculture sites to local food webs; and (4) the lack of unique species and habitats, both plant and animal, that such sites typically support. In contrast, the OTH site has been designed to (1) create a relatively high opportunity to store and delay water; (2) provide a diversity of wetland habitats with native plant communities that are fairly uncommon in the site vicinity and therefore will be important to local food webs because most of the surrounding land is managed for agricultural production; and (3) provide a large area of native wetland plant communities that will provide habitat for and support a diversity of animals less likely to be present in an agricultural setting, such as migrating and wintering waterbirds, songbirds, amphibians, and reptiles.

Principal Objective C: Enhance, restore, or create wetlands and tidal areas that are self-sustaining and minimize long term maintenance needs. The large size of the OTH Bank site is an asset in terms of its being self-sustaining. The OTH Bank site consists of enhancement of existing degraded wetlands, therefore wetland hydrology and hydric soil conditions are already present. The remaining factor, establishment of native plant species across the site, will be the factor that requires long term maintenance, however the large size of the OTH Bank site helps buffer it from non-native plant species in adjacent lands. In addition, shrub and tree plantings along the outer edges of the bank provide an additional buffer from adjacent non-native plant sources. Early detection and rapid response provided by regular and periodic monitoring will be the management method used to control non-native species, most critical during the early years before the site is fully vegetated as planned. Once the site is established with native vegetation, it is anticipated that the long term maintenance needs will be greatly reduced, and its potential to be self-sustaining is anticipated to increase through time.

Principal Objective D: Ensure the siting of CWM in ecologically suitable locations considering: local watershed needs and priorities, appropriate landscape position for the wetland types, functions, and values sought; connectivity to other habitats and protected resources; and the absence of contaminants or conflicting adjacent land uses that would compromise wetland functions.

Local watershed needs and priorities. As discussed in the Long Tom Watershed Assessment, native wet prairie and bottomland forest habitats have exhibited the largest loss in the Long Tom watershed due primarily to conversion of those lands for agricultural production, therefore restoring those native habitats is in line with recommendations of the Long Tom Watershed Assessment. The Long Tom Watershed Assessment also identified high rates of soil erosion as a result of farming and timber harvest as a significant water quality concern, in addition to runoff containing nutrients and herbicides or pesticides associated with timber and agricultural

management (Thieman 2000). Historic hydrologic alterations on the OTH Bank site include shallow ditching to increase drainage off the site, which contributes to an increased potential for downslope flooding and erosion, and potential decreased groundwater recharge. Reversing present hydrologic patterns by removing the ditches will provide for greater temporary storage of water on the OTH Bank site, thereby increasing retention time and reducing erosion and the potential for downslope flooding. In addition, agricultural practices will cease on the OTH Bank site. Those practices include plowing and removing vegetation prior to seeding the crop, which contribute to increased soil erosion, a key concern in the local subdrainages and Long Tom watershed. The site will no longer have periods of bare land but be fully vegetated year-round. This will improve downslope water quality by allowing the vegetation, soils, and water to filter nutrients, thereby increasing both onsite and offsite water quality.

Appropriate landscape position for the wetland types, functions, and values sought. The OTH Bank site includes both gently sloped wetlands at the base of two hills, and flat wetlands where the topography levels out into an alluvial plain. This landscape position is perfectly situated for Slope/Flats HGM class wetlands and associated physical and biological functions and values that are desired, as shown in the HGM pre- and post-construction discussion in Section 1.3. This HGM class of wetlands is also the type anticipated to be lost with development of land in the HUC4 that the OTH Bank site will service. Based on information from historic vegetation maps, the historic vegetation types present on the OTH Bank site were wet prairie, with forest along the bottomland streams, identical to what is proposed for the OTH Bank site. The location of the OTH Bank site enables provision of water quality improvement as well as biological habitat improvement, both needed in the local and Long Tom watersheds as well as the HUC4. By providing increased diversity of native plant communities, the OTH Bank site will restore native wildlife habitats to a local area that has experienced a significant loss of native wildlife habitats due to alterations from historic native conditions. The OTH Bank site is connected to a forested stream corridor southeast of the site, which will provide habitat connectivity and cover for wildlife potentially using the OTH Bank site. In addition, onsite hydrology to support wetlands in the Slope/Flats HGM class is already present, as the OTH Bank consists of agriculturally degraded wetlands that are saturated or inundated winter through spring, considered a sufficient hydrology condition and duration to support native wet prairie and forest bottomland vegetation. In addition, the majority of wetlands in the HUC4 watershed that the OTH Bank proposes to service are in the Slope/Flats HGM class.

Connectivity to other habitats and protected resources. No protected habitats are connected to the OTH Bank site, as it is surrounded by private land. The southeast portion of the OTH Bank site is connected to a forested riparian area along a tributary of Bear Creek, which provides contiguous wildlife habitat offsite. The OTH Bank site is just north of the north edge of Habitat Unit WV-12 of Oregon Conservation Strategy which extends from Camas Swale, south of Eugene, to Cox Butte, approximately 1 mile northeast of the OTH Bank site (Figure 5).

Absence of contaminants or conflicting adjacent uses that would compromise wetland functions. No evidence of areas devoid of vegetation or of stressed vegetation, drums, fill pipes, dump sites, stained soils, or unusual odors were noted on the OTH Bank site during site reconnaissance. Herbicide has been used regularly on the OTH Bank site, to maximize agricultural production and ensure the crop quality. Existing onsite land uses and adjacent land uses are primarily

agricultural, and as such, rely on periodic annual applications of fertilizer and/or herbicides, including land and aerial applications which could have a negative impact on plant survival in the OTH Bank site if large doses reached the site. The adjacent agriculturally managed grass fields also increase the potential for introduction of non-native plants to the OTH Bank site. In order to minimize the potential for negative effects from adjacent land uses, vegetated upland buffers of native herbaceous, tree, and shrub species have been designed along most of the OTH Bank site perimeter. The narrow ditch along the west boundary of the OTH Bank site will be retained in order to divert potentially contaminated runoff from the adjacent upslope Christmas tree farm away from the OTH Bank site. None of the adjacent land uses are anticipated to affect the hydrologic input to the OTH Bank site. Even with the small ditch along the upslope west perimeter of the OTH Bank site that diverts upslope surface water away from the site, onsite hydrology is sufficient to support wetland conditions, as evidenced by the high amount of existing onsite wetlands. Excluded area within the Tax Lot 101 includes storage buildings and barns used to raise chickens. Most manure from the chicken operation is removed by farmers as soon as it is stockpiled. If it will be stockpiled for a period of time, it will be covered to prevent contaminated runoff. Therefore, manure stored on the adjacent land is not anticipated to have a negative effect on the OTH Bank wetland functions. A small amount of chemicals including herbicides are properly labeled and stored in enclosed outbuildings adjacent to the OTH Bank site, and therefore is not anticipated to have a negative effect on the OTH Bank wetland functions. Water is drawn from the southern pond in the west portion of the OTH Bank site during approximately 3 weeks in summer for use with the chicken rearing operation on the excluded area of Tax Lot 101. Water is transported from the pond to the facility via a 3-foot deep underground water pipe that crosses the OTH Bank site (refer to Figure 17). Because this is a continuation of an existing use within which time the wetland delineation study determined the high amount of existing wetland area, that use is not anticipated to negatively affect the OTH Bank wetland functions.

Principal Objective E: Minimize temporal loss of wetlands and tidal waters and their functions and values. The OTH Bank will be constructed in existing wetlands, therefore there will be no temporal loss of wetland area during its construction. There will be a short term temporal loss of the physical wetland functions that rely at least in part on vegetation, such as phosphorus retention and nitrogen removal, as well as the biological functions following grading and planting as vegetation is being established. Credits, purchased by others to mitigate wetland area as well as wetland function and value loss in the HUC4 for which the OTH Bank will be servicing, will be released as the bank is constructed or meeting established performance standards. Therefore temporal loss of wetlands in the HUC4 impact areas that would be using the OTH Bank for compensatory wetland mitigation is avoided. The physical functions of the OTH Bank site, including water storage and delay and sediment stabilization, will be provided after site grading. The remaining physical functions that rely on vegetation, including phosphorus retention and nitrogen removal, and the biological functions that rely on vegetation to provide animal habitat will be provided following planting, with partial release of credits as performance standards are met. In this manner, temporal loss of wetlands and their functions and values in the HUC4 for which it will be servicing will be minimized or avoided.

3.0 EXISTING SITE CONDITIONS

3.1 Wetland Delineation

A wetland delineation for the OTH Bank site was completed in March 2008 by Environmental Solutions LLC, which determined that 85.15 acres of wetlands and 0.19 acre of open water ponds are present in the study area on Tax Lot 101; all but 0.74 acre of which is in the OTH bank site. That delineation was reviewed by DSL, assigned as DSL WD#08-0139, and received a letter of concurrence dated 8/13/2008. The Corps verified the wetland delineation in a concurrence letter dated 9/11/2009. The DSL concurrence will expire 8/13/2013. A copy of the wetland delineation report has been submitted to both the Corps and DSL with the Bank Prospectus.

3.2 HGM and Cowardin Classes of Onsite Wetlands

Table 4 displays the HGM classes of wetlands in the OTH Bank site and Table 5 displays the Cowardin classes and subclasses.

Table 4. HGM Classes for the OTH Bank Site.

HGM Class	Acreage
Slope/Flats	84.5ac
Depressional (permanent ponds)	0.19 ac

Table 5. Cowardin Classes and Subclasses for the OTH Bank Site.

Cowardin Class	Subclass and Modifiers	Acreage
Palustrine Emergent (PEM)	Persistent, Seasonally flooded/ saturated	84.5 ac
Lacustrine Limnetic Unconsolidated Bottom (L1UB) (ponds)	Mud, Permanently flooded, excavated	0.19 ac

3.3 Topography

The OTH Bank site consists of two drainage subbasins separated by a saddle in the southwest area of the site, with the Bear Creek watershed to the south and the Ferguson Creek watershed to the north (Figure 14). Elevation on the OTH Bank site ranges from a low of 315 feet at the north end and a low of 313 feet at the southeast corner to a high of 333 feet along the central west boundary. Three wetland areas were delineated in the OTH Bank site (refer to Figure 4). Wetland 1 is separated from Wetland 3 by an upland saddle that runs west to east across the southwest portion of the OTH Bank site. Wetland 1 is separated from Wetland 2 in the southeast corner of the OTH Bank site by onsite development including a driveway and barns, however the two wetlands are connected by 2 seasonally inundated ditches in the vicinity of the chicken barns. The southernmost ditch is connected to W1 by a culvert under the driveway to the chicken barns. Two small excavated ponds are in the west portion of the Bank site. These ponds hold water year-round, and appear to be no more than 6 feet deep. Many shallow drainage ditches averaging 6 inches deep and 6-12 inches across, cross the OTH Bank site. These ditches direct drainage to the north and east of the OTH Bank site. A ditch along the east property line in the southeast corner of the OTH Bank site is 2 feet deep and 8-10 feet wide, and continues offsite to the east, eventually connecting to Bear Creek approximately 1/4 mile east of the OTH Bank site (refer to Figure 14).

The northern portion of the OTH Bank site has a northeast aspect. The central and southeast portions of the OTH Bank site have an east to southeast aspect. The southwestern portion of the

Bank site has a southwest aspect. The northern portion of the OTH Bank site is the flattest, corresponding to an alluvial plain. Slopes in the west and southeast areas of the OTH Bank site are fairly gentle, averaging 5-10%.

3.4 Vegetation

The vast majority of the OTH Bank site is managed for agricultural seed production. It has been managed for colonial bentgrass (*Agrostis tenuis*) for the past several years, was converted to oats (*Avena* sp.) production in spring 2008, and to ryegrass (*Lolium* sp.) production in late 2008-2009. The edges of the two small ponds in the west-central portion of the Bank site are vegetated with native cattail (*Typha latifolia*), non-native reed canary grass (*Phalaris arundinacea*), and a few native Pacific red willow (*Salix lucida* ssp. *lasiandra*) as well as non-native colonial bentgrass. The vegetation along and in the tributary ditch to Bear Creek in the southeast corner of the OTH Bank site is primarily reed canary grass. A small patch of native Oregon white oak (*Quercus garryana*) with an understory of Armenian blackberry is in an upland area in the southeast corner of the OTH Bank site. A small area of upland around the southwest portion of the southern pond and around the perimeter of the north pond is vegetated with Armenian blackberry. Armenian blackberry borders the southern edge of the OTH Bank site where it is adjacent to High Pass Road.

Based on information from the historic vegetation surveys and mapping as well as information from review of historic aerial photos back to 1936, the OTH Bank site was predominantly prairie terraces, with wet prairie in the bottomlands and upland prairie in the upper slopes, and bottomland forest along tributaries to Bear Creek (Thieman 2000).

3.5 Soils

The OTH Bank site is mapped in the Lane County Soil Survey with five soil types: 63C Jory silty clay loam in the northwest portion of the OTH Bank site, #73 Linslaw loam in the central portion of the OTH Bank site, #98 Noti loam in the southwest portion of the Bank site, #105A Pengra silt loam in the northeast portion of the OTH Bank site, and #128B Veneta loam in the south central portion of the OTH Bank site (refer to Figure 3). Noti loam and Pengra silt loam are listed as hydric soils in the Lane County Hydric Soil List. Veneta loam and Linslaw loam are not listed as hydric soils in themselves, but are listed as having inclusions of Noti, a listed hydric soil. Jory silty clay loam is not listed as a hydric soil. The Lane County Soil Survey describes the Jory series as a deep well-drained soil, the Linslaw series as a deep, somewhat poorly drained soil along drainageways, the Noti series as a deep, poorly drained soil in swales and drainageways on terraces, the Pengra series as a deep, somewhat poorly drained soil on toe slopes and fans, and the Veneta series as a deep moderately well drained soil on old alluvial terraces and low foothills.

Table 6. OTH Bank Site Soil Characteristics

Soil series	Drainage	Permeability	Runoff	Hydric
Jory silty clay loam	well-drained	moderately slow	slow	No
Linslaw loam	somewhat poorly drained	slow	slow	No, but with inclusion of hydric Noti
Noti loam	poorly drained	slow	slow	Yes
Pengra silt loam	poorly drained	slow	slow	Yes
Veneta loam	moderately well-drained	slow	slow	No, but with inclusion of hydric Noti

Strong hydric soil conditions were observed during the 2008 spring wetland delineation study in

the southwest and central portions of the OTH Bank site in the areas mapped as hydric Noti loam and nonhydric Linslaw loam, in the north portion of the OTH Bank site mapped with hydric Pengra loam, and in the northwest portion of the site that is mapped as nonhydric Jory loam. The 2008 wetland delineation study showed that approximately 84 acres of the wetland area within the OTH Bank site met the hydric soil criteria per the 1987 US Army Corps of Engineers Wetland Delineation Manual. Upland soils were observed on the small knoll in the central portion of the OTH Bank site, which is mapped with nonhydric Veneta loam, and along the very west portion of the OTH Bank site where the elevation rises to the west and is mapped with nonhydric Jory loam. Upland soils were also observed on approximately 1 acre in the southeast corner of the OTH Bank site that will be the site of wetland creation. It should be noted that the Lane County Soil Survey mapped much of the northern portion of the site as Jory silty clay loam, a non-hydric soil. Field surveys during the wetland delineation documented a much different soil that more closely resembled Pengra silt loam over most of the northern portion of the site, and those soils were obviously hydric.

3.6 Hydrology

Most of the OTH Bank site was observed to be inundated or saturated in the top 12 inches during field surveys in December 2007, February 2008, and April 2009. Many shallow drainage ditches have been excavated in the OTH Bank site in order to facilitate drainage for farming, and all were carrying water to 6 inches deep and deeper during the field surveys. The northern portion of the OTH site drains north into a ditch that is culverted under Cory Road, and continues north across farmed land to Ferguson Creek, approximately 1 mile north of the OTH Bank site. The central-north portion of the site, north of the knoll, drains offsite onto the east adjacent property. From there it is directed northward via a ditch that crosses under Cory Road and eventually connects to Ferguson Creek. A ditch between the two barns in the southeast portion of the site and a ditch just north of the barns direct drainage from the central-south portion of the site into another ditch along the east OTH Bank property line, that connects to Bear Creek approximately 1/4 mile east of the OTH Bank site. An additional ditch along the west boundary line of the OTH Bank site, runs from Cory Road south to High Pass Road. The north-facing portion drains into the Cory Road roadside ditch and the south-facing portion drains into the High Pass Road roadside ditch.

The OTH Bank site receives surface and subsurface runoff from the unnamed ridge to the west and the small knoll in the central portion of the site. The tighter silty clay and clay layers just below the surface in the existing wetland areas on the OTH Bank site impede percolation, and enable a perched water table to form as the topography levels out. Based on site observations in 2007-2009 and from information from the landowners, the existing wetland areas identified in the OTH Bank site are inundated up to 6 inches deep in the shallow ditches and ponded areas from winter through early spring, and are saturated in the upper 12 inches into late spring. The onsite ditches are dry by August, and begin to carry water in early winter. Water depths in the onsite ditches are up to 2 feet from winter into summer.

Two ponds, approximately 6 feet deep, have been excavated in the west portion of the OTH Bank site. These ponds hold water year-round, and water from one of these ponds is pumped for approximately 3 weeks each summer to provide water for chickens and cooling for two chicken barns located in the excluded area of Tax Lot 101, adjacent of the OTH Bank site. One well, over 400 feet deep, is located on the OTH Bank site near the southern pond, and is used for residential

and agricultural purposes (refer to Figure 17).

Water features within 500 feet of the OTH Bank site include wetlands and a tributary ditch to Bear Creek to the east, a roadside ditch along Cory Road to the north that continues across the farmed land to the north of Cory Road, and a roadside ditch along the south side of High Pass Road that empties onto the property to the south of High Pass Road.

All of the property is within the Zone A floodplain, based on information from map 41039C 0600F, Flood Insurance Rate Map (June 2, 1999) (refer to Figure 8). Zone A is defined as special flood hazard areas inundated by a 100-year flood, where base flood elevations have not been documented.

As far as the landowners know, there is no water right for the Bank property.

3.7 Wetland Degradation Activities and Effects

Degradation of onsite wetlands has taken place over the past 100+ years, with conversion of historic native wet prairie and bottomland forest habitats to agricultural grass fields. Associated disturbance features with the conversion include soil disturbance by periodic plowing, biological disturbance by applications of herbicide to maintain the monoculture crop, applications of fertilizer to encourage growth of the crop, removal of seed by mowing, and reseeding to the agricultural crop. The negative physical and biological effects of agricultural management on the OTH site include increased erosion, sedimentation, and runoff containing nutrients and contaminants, increased water temperature in streams from removal of bottomland forests, wildlife and fish exposure to herbicide, and loss of wildlife and fish forage, cover, nesting, and breeding habitat. In addition, a significant amount of ditching is present on the OTH Bank site, used to increase drainage off the site to better support agricultural production. Potential negative affects from accelerated drainage offsite include degradation of water quality in streams from increased sediment, nutrients, and contaminants, loss of a potential source of groundwater recharge, and an increased potential for downslope flooding.

3.8 National Wetland Inventory Mapping

The National Wetland Inventory (NWI) map (refer to Figure 7) shows only a few small wetland areas on the OTH Bank site, including the two ponds in the west portion of the OTH Bank site. It is typical of the NWI maps to only show the most obviously inundated or wooded wetland areas in agriculturally managed lands, therefore it is not surprising that the larger wetland areas determined to be present on the OTH Bank site during the 2008 wetland delineation field study are not shown on the NWI map.

3.9 Summary of Wetland Functions and Values Assessment

A complete discussion of the wetland functions and values existing on the OTH Bank site is included in the Appendices of this Plan. Table 7 displays the scores for the existing wetland functions and values that the OTH Bank site provides.

Table 7. HGM Function Assessment Summary for the Oregon Trail Heritage Bank site: Existing Conditions for onsite wetlands.

Functions	Function Capacity Score: Existing Site Conditions	Value Score: Existing Conditions
Water storage and delay	0.03	0.5
Sediment stabilization and Phosphorus retention	0.58	0.5
Nitrogen removal	0.48	0.4
Thermoregulation	--	--
Primary production	0.28	0.3
Resident fish habitat support	--	--
Anadromous fish habitat support	--	--
Invertebrate habitat support	0.12	0.2
Amphibian and turtle habitat support	0.43	0.1
Breeding waterbird support	0	0.1
Wintering and Migratory waterbird support	0.71	0.1
Songbird habitat support	0.83	0.1
Support of characteristic vegetation	0.38	0.1

1. Water storage and delay function: The onsite wetlands scored low for this function because although a portion of the site is seasonally inundated (10%), the shallow topographic relief limits the depth of inundation in most of the seasonal zone to 4 inches or less. The value of this function is moderate because of the large amount of precipitation and increase in runoff downslope due to ditching, however limiting factors regarding the value of this function include the absence of paved land in the contributing watersheds, the small size of the site compared to the contributing watershed, and the relatively small amount of water from the contributing watersheds that actually reach the site.

2. Sediment stabilization and phosphorus retention: The onsite wetlands scored moderately high for this function because soils are heavy in clay, puddling is present at high water periods, and it has not been impacted by compaction, however it is limited by the soil disturbance activities including soil mixing and plowing, the low score for water storage and delay, and the absence of hummocks. The value of this function is moderate because of the high amount of phosphorus and other nutrients in the soil and groundwater (based on information from the Long Tom Watershed Assessment) and the increase in erosion due to land management practices in the local subdrainages. Limiting factors regarding this value are the relatively small size of the site compared to the local subdrainages and watershed, and the absence of fish spawning habitat in downslope streams.

3. Nitrogen removal: The onsite wetlands scored moderate for this function because of the absence of compaction impacts, the presence of hydric soils, the high percent vegetation cover, the high percent of seasonal inundation on the site, and the harvesting of the crop each year. Limiting factors include leveling which reduced historic microtopographic relief and area of puddling which would allow greater de-nitrification by soil microbes. The value of this function on the site is moderate because of its small size in relation to the local watershed, the reduced opportunity for the site to store water due to the significant amount of ditching, and because no upslope streams are water quality limited (or DEQ 303(d) listed) although the Long Tom River is DEQ 303(d) listed for temperature and E. coli. The Long Tom Watershed Assessment indicates

that nitrogen levels are below the DEQ criteria in the watershed and therefore not a concern (Thieman 2000).

4. Thermoregulation: This function is not applicable to wetlands that do not have permanent inundation, therefore was not evaluated.

5. Primary production: The onsite wetlands scored low for this function. Positive factors in the wetlands include the high amount of vegetation cover and absence of compaction. Limiting factors include the lack of vegetation form diversity with only the herbaceous vegetation form present, the absence of hummocks, and the amount of leveling on the site associated with past and present farming activities. The value of this function is low because upslope areas in the watershed are well vegetated and the size of the site is relatively small compared to the amount of vegetated area in the vicinity.

6. Resident fish habitat support: This function is not applicable to wetlands that do not have permanent inundation or provide habitat for fish, therefore was not evaluated.

7. Anadromous fish habitat support: The onsite wetlands are not accessible by anadromous fish.

8. Invertebrate habitat support: The onsite wetlands scored at a low level for this function because of the majority of seasonally inundated areas in winter and early spring are not significantly vegetated, when the seeded grass is just starting to grow. Additional limiting factors include the lack of diversity of vegetation cover types (shrubs, herbs, and trees) as the site is dominated with a single monoculture of herbaceous vegetation which greatly reduces the variety of vegetative food for invertebrates such as insects and centipedes. The value of this function is low because the site does not provide habitat for rare invertebrate species, it is relatively small in relation to the watershed, and because of the paucity of invertebrates that it potentially supports due to agricultural management activities, and as such, it does not provide a significant contribution to local or regional foodwebs.

9. Amphibian and turtle habitat: The onsite wetlands scored at a moderate level for this function because there are areas of seasonal inundation, however there is a paucity of vegetation diversity in terms of species and forms, and the agricultural management activities, including regular use of herbicide during spring breeding season, greatly reduce the adequacy of any onsite pools to provide suitable breeding habitat. The value of this function is low because the site does not support rare amphibian species or turtles or provide potential habitat for such animals, money has not been spent on the site for habitat restoration work, and the site is typical of wetlands in the lower reaches of the Ferguson Creek, Bear Creek, and the Long Tom watersheds.

10. Breeding waterbird support: The onsite wetlands do not perform this function because they do not have a large area of stagnant water through July, a requirement for this function.

11. Wintering and migratory waterbird support: The onsite wetlands scored moderately high for this function because of the areas of seasonal inundation and surrounding grassland area, however it is limited by the absence of hummocks and shorebird scrapes. The value of this

function is low because the onsite agricultural field condition is a common local habitat condition, it does not provide any unique habitat condition for rare waterbird species, no money has been spent on the site for habitat restoration work, and the primary waterbird species that would use the agricultural wetlands on the site are Canada geese, which are potentially detrimental to crops.

12. Songbird habitat support: The onsite wetlands scored at a high level for this function because of the high percent vegetation cover, the presence of (a small) permanent water source in the small ponds, and the large area of grasslands and wetlands in the vicinity, however it is limited by the lack of vegetation cover type diversity which limits hiding cover, food, and nesting habitat, and the significant amount of land disturbance activities including plowing, spraying with herbicide, and mowing. The value of this function is low because the onsite agricultural field condition is a common local habitat condition, it does not provide any unique habitat condition for rare bird species, and no money has been spent on the site for habitat restoration work.

13. Support of characteristic vegetation: The onsite wetlands scored at a moderate level for this function because of the high percent vegetation cover, presence of hydric soils, and absence of urban and industrial uses in the watershed upstream which could act as a source of non-native vegetation to the site. Limiting factors include an absence of trees and a total dominance of non-native plant species onsite as well as in the surrounding areas. The value of this function is low because the onsite agricultural field condition is a common local habitat condition, it does not provide any unique habitat condition for rare plant species, and no money has been spent on the site for habitat restoration work.

3.10 Wetland Connectivity to Waters of the US

The northern wetland area on the OTH Bank site has two drainage routes: (1) the far north section drains north into a roadside ditch along the south side of Cory Road, which runs along the north boundary of the OTH Bank and then is culverted under Cory Road and (2) a portion of surface runoff from the north-central portion of the OTH Bank site continues onto the east adjacent property, from where it appears to be ditched to the north-northeast and continues through a culvert under Cory Road (refer to Figure 14). These two ditches cross farmed land to the north and enter a branch of Ferguson Creek 1 mile from the northern OTH Bank site boundary. Water in these ditches, including on the OTH Bank site, typically flows from November into May and therefore meets the Corps definition of a relatively permanent stream (one that typically flows year-round or that has a continuous flow at least seasonally (3 months)). An ordinary high water (OHW) mark based on a line of wetland vegetation is evident on the banks of the main channel that is the collector of the shallow drainage ditches in the north portion of the OTH Bank site, as well as in the roadside ditch along Cory Road and the two ditches on the north adjacent property, as viewed from Cory Road.

The wetland area in the central portion of the site drains into an excavated ditch to a channelized tributary of Bear Creek along the east property line of Tax Lot 101, both of which have an OHW line. The tributary ditch joins Bear Creek approximately 1/4 mile east of the OTH Bank site. Water in these ditches, including on the OTH Bank site, typically flows from November into June and therefore meets the Corps definition of a relatively permanent stream. The wetland in the southeast corner of the site drains into the same tributary ditch of Bear Creek along the east OTH Bank property line.

The wetland in the southwestern portion of the OTH Bank site drains into a roadside ditch along the north side of High Pass Road which runs along the south boundary of the OTH Bank for 700 feet, from where it flows south through a culvert under High Pass Road onto the south adjacent property, and is directed by ditching to the east and northeast across that property and into a ditch that heads north under High Pass Road and continues north along the east boundary of Tax Lot 101 from High Pass Road, entering Bear Creek approximately 1/4 mile east of the site and approximately 1 mile upstream from its confluence with the Long Tom River. Water in these ditches typically flows from December into May and therefore meets the Corps definition of a relatively permanent stream.

Both Ferguson Creek and Bear Creek are permanent fish-bearing streams, based on information from the Long Tom Watershed Assessment (Thieman 2000). Both Bear Creek and Ferguson Creek are nonnavigable tributaries of the Long Tom River, which is a tributary to the Willamette River, a navigable water.

3.11 Surrounding Uses

Surrounding uses to the OTH Bank site include Cory Road and land managed for agricultural production to the north, farmed land and rural residential to the east and south, and a Christmas tree farm to the west. The east adjacent landowner has a private airstrip along their east property line.

4.0 WETLAND MITIGATION PLAN

4.1 General Description, Rationale, and Reference Sites

The OTH Bank site design is presented on Figure 17 and the Planting Plan is presented on Figure 21. The potential for developing this property into a mitigation bank site is based primarily on the area and distribution of hydric soils and the existing and potential amount of water reaching the site at least during the early part of the growing season (February through April-May). Based on information from the vegetation mapping surveys completed in the mid-1800s, prior to colonization of the area by white settlers and conversion of the site to agricultural uses, it was largely in a prairie condition, with wet prairie in the lower elevation wetter portions of the site, and upland prairie or oak savannah in the higher elevation portions of the site including along the west portion of the site and on the shallow knoll across the central portion of the site. The greatest potential for enhancement of onsite wetlands and restoration of historic wetland plant communities is in areas that were observed during early spring 2008 and 2009 field surveys to exhibit hydric soil indicators and wetland hydrology indicators such as inundation or saturation in the upper 10-12 inches. Because of the history of agricultural management on the site which included scalping and leveling as well as excavation of many shallow drainage ditches, these areas are ideal for enhancement by shallow grading and contouring to restore historic topographic diversity, and by vegetation management to remove non-native agricultural species and restore native wetland herbaceous, shrub, and tree plant communities. A small 0.9-acre area in the southeast corner of the site is suited for wetland creation because of its gentle slopes and small

gradient difference from the adjacent wetland area. It will be graded to bring the elevation down to that of the adjacent wetlands.

The OTH Bank site has been hydrologically and vegetatively degraded from its historic conditions in order to improve its agricultural production potential. Hydrologic alterations to the site include extensive excavation of shallow ditches to improve drainage into onsite and offsite ditches. The results of this alteration include a reduction in hydroperiod, amount of inundation, and depth of inundation across the site compared to historic conditions. In addition, leveling has occurred on the OTH Bank site in order to improve its agricultural production capacity. As such, physical functions including sediment stabilization, water storage and delay, and nitrogen removal have been negatively impacted. Vegetative alterations have been significant, including conversion of bottomland forest and wet prairie habitats to agricultural grass or grain crops such as oats, ryegrass, and colonial bentgrass. The primary methods that will be used to restore the OTH Bank site's historic site conditions include grading to remove the many shallow drainage ditches, excavate several shallow depressions, and to build three shallow berms. This will increase areas of shallowly and seasonally inundated emergent and vernal pool habitats, increase the physical and biological functions, and provide a diverse wetland environment with wet prairie, wetland shrub, and ash forest, emergent, and shallow pond communities.

Native plant communities in the OTH Bank site will include *Deschampsia cespitosa* (tufted hairgrass) wet prairie, *Plagiobothrys* sp. (popcorn flower) and *Downingia* sp. (downingia) vernal pools or shallow depressions, *Carex* (sedge) and *Juncus* (rush) emergent wetlands, *Fraxinus latifolia* (Oregon ash) forested wetlands, and *Spirea douglasii* (Douglas spirea)/*Rosa* sp. (rose) wetland shrub communities. In addition, the higher elevation portions of the OTH Bank site that would not support wetland vegetation, including areas at the base of the onsite knoll and the land along the west Bank boundary, will be converted to native upland prairie, savannah, and woodland and thereby act as a buffer for the OTH Bank site from adjacent potential disturbance activities. Native plant communities in these upland habitats will include *Festuca roemeri* (Romer's fescue)/*Bromus* sp. (brome)/ *Danthonia californica* (California oatgrass) prairie, and *Quercus garryana* (Oregon white oak)/*Pinus ponderosa* (Willamette Valley ponderosa pine) savannah. Oregon ash forest areas will be situated along the periphery of the Bank site to also serve as a buffer from adjacent activities including the residential and agricultural uses on Tax Lot 101 as well as from Cory Road and High Pass Road.

The enhanced and created wetlands will include semi-permanently flooded, seasonally flooded, saturated palustrine emergent (PEM), palustrine scrub-shrub (PSS), and forest (PFO) Cowardin classes. These wetlands will be in the Slope/Flats HGM class. The water sources will consist of groundwater, surface water, and precipitation. The hydrodynamics will be both horizontal and vertical movement. The OTH Bank also has quite a topographic diversity which provides a potential for including upland oak and prairie habitats, two habitat types in addition to native wet prairie that are also rapidly vanishing from the Willamette Valley. This will increase the amount and diversity of wildlife habitat on the site, and maximize its use by wildlife species because of the greater edge effect created by adjacent high quality upland and wetland habitats so that animals adapted to both habitats will be able to use the OTH Bank site.

Restoration of native wetland habitats to agriculturally degraded wetlands and uplands on the OTH Bank will add up to 107.4 acres of diverse native wetland and upland habitats to the Willamette Valley Conservation Opportunity Area WV-23 identified in the Oregon Conservation Strategy.

The West Eugene Wetlands Willow Creek/Willow Corner and Dragonfly Bend wetlands have been used as the reference sites for the OTH Bank site (Figures 11-13). Although these areas are approximately 10 miles south of the OTH Bank site, they are similar in target plant communities, climate, topography, and soil types, are located in the Long Tom, watershed, and are actively managed by the City of Eugene for high quality wetland conditions. These reference sites were used in planning the OTH Bank site project, including the Grading, Planting, and Monitoring Plans, as follows:

- to provide information on native plant species and their frequency of occurrence to aid in developing seed mixes;
- to provide comparative information during monitoring by helping determine trends in the OTH Bank site wetlands that may be due to local environmental conditions (e.g., drought, late freeze, etc.) and not necessarily a result of the site design;
- to determine excavation depths in the grading plan to maximize onsite hydrology in the enhancement areas.

The results of the HGM analysis for both reference sites are presented in Table 8, following.

Table 8. HGM assessment for Dragonfly Bend and Willow Creek reference sites.

HGM Function	Dragonfly Bend reference site	Willow Creek reference site	OTH Bank Existing Pre-construction	OTH Bank Post-construction
Water storage and delay	0.20	0.2	0.03	0.30
Sediment stabilization and phosphorus retention	0.59	0.72	0.58	0.74
Nitrogen removal	0.69	1.0	0.48	0.60
Thermoregulation	--	--	--	--
Primary production	0.44	0.73	0.28	0.51
Resident fish habitat support	--	--	--	--
Anadromous fish habitat support	--	--	--	--
Invertebrate habitat support	0.56	0.82	0.12	0.28
Amphibian and turtle habitat	0.75	0.89	0.43	0.54
Breeding waterbird support	--	--	0	0
Wintering and migratory waterbird support	0.40	0.43	0.71	0.94
Songbird habitat support	0.58	0.58	0.83	0.92
Support of characteristic vegetation	0.80	0.99	0.38	0.85

Briefly, both reference sites are dominated with native herbaceous species typical of native tufted hairgrass wet prairie habitats of the southern Willamette Valley. Both have a silty clay loam over clay soil, which enables a perched water table to form and provide wetland hydrology conditions

suitable for establishment of wetland vegetation. Both sites are in the process of developing hummocky microtopography, and are seasonally saturated in the top 12 inches with areas of ponding in winter through at least early spring. The Willow Creek site includes vernal pool areas that are inundated 6-12 inches deep following winter storms. In both sites, the wet prairie habitats are inundated with depths ranging from 0.5-3 inches during winter storms. The Willow Creek site includes a large area of ash forest wetland, which increases its wildlife habitat value. Both reference sites are performing at high levels for sediment stabilization and phosphorus retention, nitrogen removal, primary production, invertebrate habitat support, and support of characteristic vegetation because of the diversity of vegetation types and dominance of native plant species. Both are functioning at a moderate level for amphibian and turtle habitat, wintering and migratory waterbird support and songbird habitat because of the diversity of vegetation forms, areas of seasonal inundation, and proximity to natural landscapes.

4.2 Mitigation Categories and Credits Generated

The wetland mitigation projects include enhancement of up to 84.5 acres of agriculturally cropped and degraded wetlands and creation of up to 0.9 acre of wetlands from uplands. DSL has determined that the northern portion of the mitigation bank meets the definition of cropped enhancement of degraded wetlands, while the remainder does not, as shown in Table 9. Using a modified function based crediting assessment process, DSL and the Corps determined that the wetlands in the southern portion of the OTH bank site would meet a 4:1 ratio. Upland buffer credits will be generated at the close of the bank, anticipated to be at a 10:1 ratio because of their enhancement to native species and because of their importance in protecting the OTH Bank site from effects of agricultural activities on adjacent land, including herbicide drift and non-native seed. The OTH Bank will have 87% of its acreage and credits in the PEM Cowardin class, 2% in the PSS Cowardin class, and 6% in the PFO Cowardin class, with 5% in upland buffers.

Table 9. OTH Bank Mitigation Acreage and Wetland Ratios (see Figure 16)

Acres	Mitigation Type	Ratio	Total Wetland Credits	Cowardin Class	HGM Class
66.1	Enhancement	2:1	33.05	PEM	Slope/Flats
1.0	Enhancement	2:1	0.50	PSS	Slope/Flats
3.1	Enhancement	2:1	1.55	PFO	Slope/Flats
8.3	Enhancement	4:1	2.07	PEM	Slope/Flats
1.7	Enhancement	4:1	0.43	PSS	Slope/Flats
4.3	Enhancement	4:1	1.07	PFO	Slope/Flats
0.9	Creation	1.5:1	0.6	PEM	Slope/Flats
up to 22	Upland and wetland buffer enhancement	10:1	up to 2.2	Upland buffers: NA Wetland buffer: PSS	Upland buffers: NA Wetland buffer: Riverine flow-through
Total: 107.4			up to 41.47 PEM credits: 35.72 PSS credits: 0.93 PFO credits: 2.62 Buffer credits: up to 2.2		

4.3 Vegetation

The wet prairie, vernal pool, and emergent habitats will consist of native grasses and forbs including *Deschampsia cespitosa*, *Agrostis exarata* (spike bentgrass), *Beckmannia syzigachne*

(American sloughgrass), *Glyceria occidentalis* (western mannagrass), *Hordeum brachyantherum* (meadow barley), *Camassia quamash* (camas), *Plagiobothrys* sp., *Downingia* sp., *Carex* sp., *Juncus* sp., and *Eleocharis* sp. (spikerush), depending upon availability. The emergent habitats will have a greater percent cover in sedges, rushes, and spikerushes and the wet prairie will have a greater percent cover in broadleaf forbs and grasses.

The forested wetlands, including along the west side of the tributary ditch to Bear Creek, will be planted primarily to *Fraxinus latifolia* (Oregon ash), with lesser amounts of *Malus fusca* (Oregon crabapple). Understory species to be seeded in the forested wetlands will include native wet prairie and emergent species. The wetland shrub habitats will include *Spirea douglasii*, *Cornus sericea (*red osier dogwood), and *Rosa* (rose) sp., with underseeding of wet prairie and emergent species.

The upland prairie habitats including in the upland buffer areas will include *Festuca roemeri*, *Elymus glaucus* (blue wildrye), *Danthonia californica* (California oatgrass), native *Bromus* sp. such as *Bromus carinatus* (California brome), *Achillea millefolium* (yarrow), *Prunella vulgaris* var. *lanceolata* (selfheal), and *Escholscholzia californica* (California poppy), with a few *Quercus garryana* and *Pinus ponderosa*. Although the upland knoll in the central area of the tax lot is excluded from the OTH Bank site, it will be seeded with native upland prairie species in order to reduce the potential for introduction of non-native and invasive species onto the OTH Bank site.

The two permanent ponds in the west portion of the site will be maintained as open water features surrounded by native herbaceous and shrub plant species, and managed to eradicate and prevent re-establishment of invasive and non-native vegetation. Native vegetation planned around the ponds will include small areas of willows (*Salix* sp.) to add to the small patches that are present, with slough sedge and wetland grasses such as tufted hairgrass, meadow barley, and American sloughgrass.

4.4 Wetland Function Assessment Post-Construction

As described in Section 1.3, the mitigation site habitat restoration actions include removing drainage ditches, recontouring the site to restore historic topographic diversity, excavating small shallow depressions, and replanting with native prairie and forest bottomland species, all of which will increase both the physical and biological wetland functions compared to the existing agriculturally degraded wetland conditions. The water storage and delay, sediment stabilization and phosphorus retention, and nitrogen removal physical functions on the site will be improved by slowing down runoff and providing a longer retention time for soil microbe and plant uptake of nutrients. Restoration of native wet prairie and forest bottomland habitat will increase the plant species diversity and vertical structure, and thereby increase the habitat available onsite for invertebrates, amphibians, and birds. Converting the site to native plant species will significantly increase the support of characteristic vegetation function. Refer to Table 1 (page 3) for a comparative summary of the pre- and post-construction wetland functions. A full discussion of the wetland function assessment is included in the appendices of this plan.

4.5 Design Constraints and Assumptions

Design constraints and assumptions associated with construction of the OTH Bank are listed following.

- Re-establishment of reed canary grass and other non-native plant species present in the existing seed bank may be a problem until native species are thoroughly established. Regular preventative maintenance will include removing invasive species by hand pulling, hoeing, and/or use of herbicide, and reseeding bare areas with native seed for several years after the initial seeding.
- Creating a diverse habitat in terms of plant species and vegetation cover types will increase available wildlife nesting, foraging, and cover habitat.
- Creation of seasonally ponded areas will increase the water storage and delay, sediment stabilization and phosphorus retention, and nitrogen removal functions. This is an important consideration because of the predominantly agricultural and forestry land uses in the Bear Creek and Ferguson Creek watersheds upslope from the OTH Bank site, and in the HUC4 watershed within which the OTH Bank will service. These land uses result in high erosion, offsite sediment load, and runoff containing nutrients and other chemicals from fertilizer and herbicides/pesticides.
- Rotational mowing or burning of the prairie portions of the mitigation site in late summer or early fall may be used to help maintain the wet prairie habitat and reduce invasion by woody species.
- The upland buffer areas will increase the site's suitability for use by wildlife and its biological functions because of the increased habitat types and edge available.
- The upland buffer areas will buffer the onsite wetlands from adjacent land uses by providing a visual screen as well as a buffer from adjacent non-native seed sources and chemicals. This will help ensure that the physical functions on the site will be maintained.
- The upland knoll in the north portion of the excluded area will be treated with herbicide and seeded with native upland species in order to reduce the potential for introduction of non-native agricultural grasses onto the OTH Bank site.

4.6 Work Plan and Implementation Schedule

Year 1:

Summer:

- Remove non-native vegetation from the site including the existing crop, blackberries and other non-natives from around the permanent ponds and other areas, remove the crop stubble by baling or burning, treat the entire site with appropriate herbicide, and stake the site prior to grading to indicate proposed elevations.
- Grade when the site is dry as indicated in the Grading Plan to remove the onsite shallow drainage ditches, create four shallow berms strategically located to allow for increased seasonal emergent wetland areas, create several depressions 6 inches deep in the wet prairie areas, and excavate several shallow pools in the ash forest habitats. Grading also includes removal of up to a foot in approximately 0.9 acre in the southeast area in order to create wetlands from uplands. The elevations in the created wetland area will continue from the adjacent wetlands that it is contiguous to, with slopes in the vernal pools and wet prairie areas at no greater than 10% (10:1), with most at 5% (20:1). Grading and finishing activities will be conducted with heavy equipment including graders, excavators, and bulldozers. In order to maintain good topsoil conditions during grading, where grading will occur, the top 6 inches of topsoil will be removed and stockpiled for placement following mass excavation to 6 inches below final grade, and replaced to finished grade. Finish grading of the topsoil will be

minimal, just sufficient to establish the proper elevations and not result in a high degree of compaction, as the topsoil must be friable enough to hold precipitation. If deemed necessary, this will be followed by discing and/or harrowing to expose weed seed and provide a good seed bed. All grading activities will be overseen by a qualified wetland biologist, and checked periodically to ensure that the base layer has a high clay content to support a perched water table, critical to the success of the OTH Bank site as well as at least 6 inches of silty clay loam topsoil.

- Conduct a post-grading topographic survey with 1-foot contours and produce a contour map for the OTH Bank site.
- Request site visit with IRT to review grading.
- Prepare and submit a grading as-built report to DSL and the Corps within 60 days of completion of grading.

Fall:

- Treat the entire OTH Bank site as well as the upland knoll in the north portion of the excluded area with appropriate herbicide after the first rain, to eradicate germinating weeds brought out by the early rains.
- If winter erosion appears to be a concern, i.e. on bare slopes during winter rains, then erosion control methods will be applied as needed, including spreading of sterile straw or use of bioberms in problem areas.

Year 2:

Spring:

- Evaluate hydrology, prescribing minor adjustments as needed to ensure proper hydrologic conditions are present to support the wet prairie, vernal pool, emergent, and forest wetland habitats; prescribe additional grading as needed for summer, or adjust planting plan as needed to fit observed hydrology.
- Treat the entire site as well as the upland knoll in the north portion of the excluded area with appropriate herbicide. Do not plow or otherwise disturb these areas in order to avoid exposing more weed seed.
- Conduct bi-weekly weed patrol, spot treat non-native plants as needed.

Summer:

- Conduct bi-weekly weed patrol, spot treat non-native plants as needed.

Fall:

- Treat the entire site as well as the upland knoll in the north portion of the excluded area with appropriate herbicide.
- Seed the OTH Bank site, including the upland buffers and the upland knoll in the north portion of the excluded area with the native seed mixes per habitat type as described in the Planting Plan. Seed will be obtained from a local (within 100 mile radius) source to the extent possible. Forbs will be broadcast seeded, and grass seed will be applied with a no-till drill in order to ensure maximum coverage and germination. All seeding equipment must be thoroughly cleaned prior to use on the OTH Bank site, in order to remove any agricultural seed and soil or mud from prior use. All seeding activities will be overseen by a qualified wetland consultant. Because of the disagreement as to the method of seed application, the following alternatives will be evaluated as adaptive management, following herbicide treatment of the site to determine how "clean" the

site is and what non-native species are determined to be problematic:

1. Year 2: no-till grasses followed by broadcast of forbs.
2. Year 2: broadcast meadowfoam and forbs; Year 3: spray for grasses (ie. bentgrass and ryegrass that have been produced on the site) followed by no-till drill of grasses.
3. Year 2: broadcast forbs, Year 3: spray grasses, followed by no-till of grasses.

Fall/Winter:

- Plant bare root shrubs, trees, and emergent plugs in late fall and early winter (this could be delayed to Year 3 if grasses are to be drilled Year 3). This will be followed by overseeding with native grasses and forbs as needed. Bare root plants will be obtained from local nursery stock (within 100 miles of the site) to the extent possible. All plantings will be overseen by a qualified wetland consultant. If animal browse is a problem, trees and shrubs will need to be caged to prevent animal browse damage.
- Prepare second as-built report to document plantings and any remedial grading if needed, and submit to agencies within 60 days of last planting; this may be delayed into Year 3 if grass seeding occurs in Year 3.

Year 3:

Spring:

- Evaluate site hydrology.
- Conduct bi-weekly weed patrol, spot treat non-native plants as needed.
- Monitor vegetation (late spring: May), prescribe treatment method for non-natives as needed, prescribe reseeding and re-planting as needed to ensure performance standards are being met.
- Conduct bi-weekly weed patrol, spot treat non-native plants as needed.
- Request site visit with IRT to check vegetation.

Summer:

- Conduct bi-weekly weed patrol, spot treat non-native plants as needed.
- Continue evaluation for non-natives and treatment to ensure that performance standards are being met.

Fall/Winter:

- Reseed in fall as needed, replant in winter as needed.
- Conduct final annual site visit to evaluate site after first winter rains and recommend corrective measures as needed
- Prepare Year 1 monitoring report and submit to DSL and Corps.

Years 4-7:

Spring:

- Evaluate site hydrology.
- Sometime after the third growing season, conduct a "delineation lite" study.
- Conduct bi-weekly weed patrol, spot treat non-native plants as needed.
- Monitor vegetation (late spring: May), prescribe treatment method for non-natives as needed, prescribe reseeding and re-planting as needed to ensure performance standards are being met.

- Request site visit with IRT to check vegetation.

Summer:

- Conduct bi-weekly weed patrol, spot treat non-native plants as needed.
- Continue evaluation for non-natives and treatment to ensure that performance standards are being met.

Fall/Winter:

- Reseed in fall as needed, replant in winter as needed.
- Conduct final annual site visit to evaluate site after first winter rains and recommend corrective measures as needed
- Prepare annual monitoring reports (Years 2-5) and submit to DSL and Corps. Abbreviated monitoring reports will be prepared and submitted to DSL and the Corps after performance standards have been met for 3 consecutive years or until bank closure.

It may be necessary to water all newly planted trees and shrubs 1" per month from June 1 through October 31 for at least the first 2 years of the mitigation project, the need will be determined from vegetation monitoring information. If it is determined that vehicle trespass and/or vandalism are issues, ie.) along the northern portion of the site due to the distance from the home, a fence and gate will be installed along the respective site perimeter(s). The fence will be checked several times per year for structural integrity, and repaired/replaced as needed.

Access for grading the north portion of the site will be from Cory Road, and access for the south portion of the site will be from High Pass Road and the property driveway (Figure 19). Grading has been designed such that no excess soils that would require disposal or importation of soils are anticipated.

No engineering analysis of soil stability is required for the mitigation site, as no major earth structures are proposed with this project.

4.7 OTH Bank Site Water Sources

The hydrologic sources for the onsite wetlands would be captured seasonal high groundwater including groundwater discharge, precipitation, and surface water. These sources are present on the site, however the high amount of shallow ditching directing drainage off the OTH Bank site has degraded these sources. Grading to fill the shallow ditches, minor excavation to increase ponded areas, and construction of three shallow berms will increase the amount of water retained on the site compared to its current conditions. The berms will be placed at three locations on the downslope portions of the OTH Bank, with minor excavation upslope to also hold water on the site for a longer period of time than at present. Surface water runoff from the onsite knoll and the ridge to the west that extends onto the Bank site in addition to the seasonal high water table should result in shallow inundation and saturated soils between December and May on the wet prairie, shrub, and forested wetlands, and into June in the vernal pools and emergent wetlands. This will be sufficient to support the wetland habitats planned for the OTH Bank site.

The ditch along the west boundary of the OTH Bank site will be retained because it directs potentially contaminated runoff originating upslope on the Christmas tree farm from the OTH

Bank site and allows for treatment of runoff within the ditch system offsite. Based on winter and spring hydrology observations, adequate water sources are available to support the wetland areas in the OTH Bank site without the additional water that the boundary ditch diverts from upslope runoff. In addition, the benefit of preventing the potentially contaminated surface runoff from entering the OTH Bank site outweighs the loss of a small source of surface runoff to the site. That ditch will continue to be managed with periodic cleanout in such a manner to avoid incision of the ditch channel and contamination from upslope sources.

4.8 Proposed Methods for Non-native and Noxious Plant Species Control

Because the OTH Bank site has been converted almost entirely to non-native agricultural species, including colonial bentgrass and ryegrass, the potential for non-native and invasive plant species to colonize the OTH Bank site is high without proper site preparation actions. In addition, the tributary ditch to Bear Creek is bordered by non-native invasive reed canary grass and Armenian blackberry, and a perimeter ditch along the west boundary of the site is a potential source of non-natives from upslope including bentgrass and reed canary grass. The two permanent ponds are bordered by blackberry and reed canary grass.

Prior to grading activities and after the stubble has been removed from the site, an initial application of appropriate herbicide will be sprayed on the OTH Bank site, including in upland buffers. Once grading has been completed, site preparation will consist of treating the entire OTH Bank site with three applications of glyphosate prior to any seeding or planting. The first application will occur in late fall following grading if green-up has occurred. The second and third applications will occur in the following spring and late summer or early fall. Spraying will be done on non-windy days with temperatures below 80 degrees Fahrenheit, in order to prevent vaporization.

No soil disturbance activities will take place on the OTH Bank site following the initial site preparation work including grading and possibly discing, in order to minimize the potential exposure and germination of buried non-native seed. If areas need to be regraded the following summer, then the herbicide treatments will take place following the same schedule in the re-graded areas prior to their seeding or planting. Spirea, an effective buffer for upslope influences, is planned for planting along the east edge of the west boundary ditch. Reed canary grass along the tributary to Bear Creek in the southeast corner of the site will likely continue to be problematic, hence the planting prescription of a dense screen of shrubs and Oregon ash along the west side of the tributary. Both areas will be diligently monitored and treated with appropriate methods to ensure that they do not threaten the performance standards established for the site.

Following seeding and planting, subsequent treatment methods for non-native and invasive species will be used to ensure that the performance standards are being met. This could include spot applications of a herbicide and/or manual methods of removal including shade cloth or hand weeding, depending upon the intensity of the threat. All bare areas, including from hand pulling, hoeing, or spot spraying, will be seeded immediately with the requisite seed mix so the potential for re-establishment of non-native and invasive species is minimized.

Maintenance activities are outlined in the Maintenance Plan, Section 6.0 of this Plan, and include early identification and treatment of invasives with the appropriate methods in the wetland areas

and upland buffer areas.

4.9 Potential Impacts during Construction of the OTH Bank Project

Direct impacts to the wetlands within the OTH Bank site are primarily associated with grading activities. The impacts include compaction by heavy equipment, potential for introduction of non-native seed from equipment, potential for pollution from an equipment leak, and increased sedimentation and erosion of exposed material should heavy rain fall before the site is planted. These potential impacts are not anticipated to have a significant effect on the site or surrounding areas because conservation measures including best management practices to prevent pollution, erosion, and sedimentation will be used during grading, and the site will be graded in summer when the site is dry and rainfall is least expected. Equipment will be checked regularly for leaks and immediately repaired as needed.

4.10 Water Storage Permit

The conceptual mitigation site design was reviewed with Michael Mattick, the local Water Master with the Oregon Water Resources Department. Based on his review, he determined that a Water Storage Permit would not be required for the project. His letter is included in the Appendices.

4.11 County Review

The Removal-Fill permit application and mitigation site plan was reviewed by Lane County, and the use of the property for wetland enhancement, restoration, or creation of wetlands is an approved use in land zoned for farmed use under LC 16.212(3)(f). Based on the Land Use Application Review with Lane County, because the OTH Bank site is within a mapped floodplain and will involve removal and fill activities, although no new material will be added to the site, a Floodplain Fill Permit is required. That permit has been received, and is included in the Appendices.

4.12 Performance Standards

Wet Prairie, Emergent, and Depressions (Vernal Pool):

1. Native herbaceous plant cover will be at least 50% across all strata at the end of the first and second growing seasons, and no less than 60% cover by the end of the third growing season and thereafter.
2. Invasive species cover will be no more than 10%. Invasive species are defined by DSL as being:

   (1) any plant on the Oregon Department of Agriculture (ODA) noxious weed list, plus pennyroyal, reed canary grass, colonial bentgrass, velvet grass, sweet vernal grass, ryegrass, **and**

   (2) any non-native plant species that occupies 15% or greater cover in 10% of more of the sample plots, starting the second growing season after site planting, **and**

   (3) has greater percent cover than it had in the plot in any previous monitoring year.
3. The Prevalence Index total will be 3.0 or less.
4. By Year 3 and thereafter, at least 10 native wet prairie species will be present and represented as at least 5% average cover in the habitat class, and occur in at least 10% of

the plots sampled in the wet prairie management units.

5. No more than 5% cover will be composed of shrubs and trees.
6. Tufted hairgrass cover in the wet prairie management units will be at least 25% by Year 5, and not exceed 50%.
7. In wet prairie areas, soils will be saturated in the upper 10 inches for at least 2 weeks in early spring (to March 15) in years of normal rainfall.
8. In vernal pool areas, soils will be saturated in the upper 10 inches for at least 2 weeks in late spring (to May 1) in years of normal rainfall.

Forested and Shrub Wetlands:

1. Native herbaceous vegetation cover will be no less than 50% at the end of the first and second growing seasons, and no less than 60% cover by the end of the third growing season and thereafter.
2. A minimum of 150 native tree stems per acre will be present by the end of the second and fifth growing seasons in the PFO areas,
3. A minimum of 300 native shrub plants per acre OR 30% native shrub cover will be present by the end of the second and fifth growing seasons.
4. Invasive species cover will be no more than 10% across all strata, as defined in PS (2) for the wet prairie areas. After the site has matured to the stage when desirable canopy species reach 50% cover, the cover of invasive understory species may increase but may not exceed 30%.
5. By Year 3 and thereafter, at least 6 native species will be present in the shrub and tree habitats, with a species having at least 5% average cover in the habitat class and occur in at least 10% of the plots sampled (woody vegetation standards should be met for two successive years without irrigation).
6. The Prevalence Index total for all strata will be 3.0 or less.
7. Tree and shrub density standards must be met for at least 2 seasons after irrigation has ceased.

Upland Buffers:

1. Native plant cover will be at least 50% across all strata.
2. Invasive species cover will be no more than 10%, as defined in PS (2) of the wet prairie areas.
3. At least 3 native upland species will have at least 10% cover in 10% of the plots.
4. By the end of the second growing season, there will be at least 4 native trees per acre in the savanna areas.

Wetland Buffers:

1. By Year 3, the total cover of native trees and shrubs will be at least 50%.

Wetland Acreage:

1. A post-construction delineation will be done some time after the third growing season to confirm wetland acreage achieved in any wetland restoration and creation areas, and in any high spots created by grading. For areas other than creation or restoration, any variation from the pre-project delineation in excess of 0.1 acre will be cause for bank credits to be adjusted on a pro-rated basis, according to the approved ratios.

Any stratum can be composed of desirable native volunteers as well as seeded and planted species when measuring cover.

4.13 Grading Plan

The primary goal for grading the mitigation site is to:

- increase seasonal onsite hydro-period by removing shallow ditches, and excavating shallow depressions and shallow berms to increase water storage and delay, with graded slopes no greater than 10%.

Prior to grading, the site will be staked to mark proposed elevations. In areas to be graded, the top 6 inches of topsoil will be removed and temporarily stockpiled for use in the final layer. Mass excavation in the graded areas will occur by grading to 6 inches below the finished grade elevation. This will be followed by placement of topsoil, which will be at least 6 inches deep over the compacted clay base. Finish grading of the topsoil will be minimal, just sufficient to establish the proper elevations and not result in a high degree of compaction, as the topsoil must be arable enough to hold rainwater. The outer edges of the graded areas will be made even with the adjacent natural grade. Grading may be followed by discing or other method to improve the seed bed. All grading activities will be overseen by a qualified wetland biologist, and checked periodically to ensure that the bottom layer has a relatively high content of clay to support a perched water table and that the topsoil is fluffy enough to hold precipitation, both factors critical to the success of the site. The removal-fill balance has been calculated to be equal, as soil removed during excavation will be used to fill onsite ditches and create the berms. However, if there is excess removed soil not used on the OTH Bank site, it will be hauled off site to an appropriate disposal area in onsite uplands and graded to the adjacent relief.

Access to the north end of the OTH Bank site will be from a farm entrance off Cory Road. Access to the south end of the OTH Bank site will from the existing driveway off High Pass Road. The staging area for equipment will be either at the northwest corner of the site or in the cleared area near the chicken barns. Soil will be temporarily stockpiled near the graded areas, in order to minimize the amount of equipment use and associated compaction across the site.

Grading will be monitored by a wetland consultant to make sure that correct slopes, appearances, and desired drainage pattern are achieved. A post-grading topographic survey to 1-foot contours will be conducted following grading, and a post-grading contour map will be produced from that survey for use in the As-Built and Monitoring reports. Remedial grading will be done the following summer, if needed, based on observations during the spring hydrology monitoring prior to seeding with native wetland species, to ensure that proper hydrologic conditions are present to support the wet prairie, vernal pool, and emergent plant communities. As a rule, and based on information from the two reference wetlands, the wet prairie areas should be shallowly inundated or saturated in the top 12 inches of the soil from February into April, and the vernal pool and emergent areas inundated or saturated in the top 12 inches through May or June, depending upon local climatic conditions.

4.14 Planting Plan

Native herbaceous, shrub, and tree species present in the reference sites will be used for planting

the mitigation site. The upland buffer areas will be seeded with a native upland seed mix consisting of species typical of upland prairies as noted in literature. There are three alternatives for seeding: (1) drill both grass and forbs together the first fall following grading and 3 herbicide applications; (2) drill meadow foam and broadcast forbs the first fall, drill grasses the second fall; and (3) broadcast or drill forbs the first fall, drill grasses the second fall. The acreage numbers have been rounded up to be on the conservative side, therefore the total may be greater than that shown for the PEM/PSS/PFO areas in other sections of this report. It should be noted that these are the recommended species lists, and will be used guidance, based on availability and price: if the cost of a subdominant species' seed is too exorbitant (ie. $200/lb) or not available locally, then substitution may be made with approval from the wetland consultant.

4.14.1 Upland Prairie and Savanna, not including upland knoll. Total acres: 22

Forbs: 7.75#/ac (broadcast)

Scientific name and wetland indicator status	Common name	lb /ac	Total lb
Achillea millefolium: UPL	Yarrow	2.5	55
Prunella vulgaris var. lanceolata: FACU+	Selfheal	2	44
Eschscholzia californica: UPL	California poppy	1	22
Lotus micranthus: UPL	Small-flowered lotus	0.25	4.5
Lotus purshianus (L. unifoliolatus): UPL	Spanish clover	0.5	11
Solidago canadensis: UPL	Goldenrod	1	22
*Madia sativa (*UPL*) or M. glomerata (*FACU+*):*	Tarweed	0.5	11

Grasses: 12#/ac (drill)

Scientific name and wetland indicator status	Common name	lb /ac	Total lb
Elymus glaucus: FACU	Blue wildrye	5	88
Festuca idahoensis ssp. *roemeri*: UPL	Roemer's fescue	1	22
Danthonia californica: FACU	California oatgrass	1	22
Bromus carinatus: UPL	California brome	5	88

Bare root or potted plantings: as noted on Planting Plan

Scientific name and wetland indicator status	Common name	#/ac	Total #
Pinus ponderosa: UPL	Ponderosa pine-Willamette Valley variety	8- 200 foot spacing	175
Quercus garryana: UPL	Oregon white oak	2- 200 foot spacing	44

4.14.2 Upland prairie on knoll: 13 ac

Grasses: 11#/ac (drill)

Scientific name and wetland indicator status	Common name	lb /ac	Total lb
Elymus glaucus: FACU	Blue wildrye	5	65
Festuca idahoensis ssp. *roemeri*: UPL	Roemer's fescue	2	26
Bromus carinatus: UPL	California brome	4	52

4.14.3 Wet prairie (Slope/Flats HGM Class, Palustrine Emergent Cowardin class). Total acres: 69

Forbs: 6.25#/ac (broadcast)

Scientific name and wetland indicator status	Common name	lb /ac	Total lb
Juncus tenuis: FACW-	Slender rush	0.25	17.25
Epilobium densiflorum: FACW-	Dense spike primrose	0.5	34.5
Epilobium ciliatum: FACW-	Hairy willow herb	0.25	17.25
Ranunculus orthorhynchus: FACW-	Straightbeak buttercup	0.5	34.25
Lotus purshianus (L. unifoliolatus): UPL	Spanish clover	0.5	34.25
Grindelia integrifolia: FACU+	Idaho gumweed	0.25	17.25
Madia glomerata: FACU-	Tarweed	0.25	17.25
Camassia quamash FACW or *C. leichtlinii:* FACW-	Small camas or large camas	1	69
Carex densa: FACW	Dense sedge	1	69
Carex unilateralis: FACW	One sided sedge	1	69
Carex feta: FACW	Green-sheathed sedge	0.5	34.25
Juncus tenuis: FACW	Slender rush	0.25	17.25

Grasses: 9.5#/ac (drill)

Scientific name and wetland indicator status	Common name	lb /ac	Total lb
Deschampsia cespitosa: FACW	Tufted hairgrass	1.5	103.5
Deschampsia elongata: FACW-	Slender hairgrass	1.5	103.5
Deschampsia danthanoides: FACW-	Annual hairgrass	1	69
Danthonia californica: FACU	California oatgrass	0.5	34.5
Agrostis exarata: FACW	Spike bentgrass	2	138
Glyceria occidentalis: OBL	Western mannagrass	0.5	34.5
Hordeum brachyantherum: FACW-	Meadow barley	2	138
Panicum occidentale: FACW	Western panicgrass	0.5	38.5

Bulbs: In areas as noted in Planting Plan: 50 patches with 100 bulbs per patch

Scientific name and wetland indicator status	Common name	# /ac	Total #
Camassia quamash FACW or *C. leichtlinii:* FACW-	Small camas or large camas	50 100sf patches with 100 bulbs per patches, planted 1 foot deep	5000

4.14.4 Wet prairie depressions (also referred to as vernal pools). Total acres: 1.5

Forbs: 9.5#/ac (broadcast)

Scientific name and wetland indicator status	Common name	lb /ac	Total lb
Carex densa: OBL	Dense sedge	2	3
Downingia elegans: OBL *or D. yina*: OBL	Elegant downingia or Willamette downingia	2	3
Epilobium densiflorum: FACW-	Dense spike primrose	2	3
Plagiobothrys figuratus: FACW or *P. scouleri*: FACW	Fragrant popcorn flower or Scouler's popcorn flower	2	3
Ranunculus orthorhynchus: FACW-	Straightbeak buttercup	0.5	0.75
Eleocharis acicularis or E. obtusa: OBL	Least spikerush or blunt spikerush	1	1.5

Grasses: 10.5#/ac (drill)

Scientific name and wetland indicator status	Common name	lb /ac	Total lb
Deschampsia cespitosa: FACW	Tufted hairgrass	0.5	0.75
Deschampsia danthanoides: FACW-	Annual hairgrass	1	1.5
Deschampsia elongata: FACW-	Slender hairgrass	1	1.5
Agrostis exarata: FACW	Spike bentgrass	1	1.5
*Hordeum brachyantherum:*FACW-	Meadow barley	1	1.5
Beckmannia syzigachne: OBL	American sloughgrass	5	7.5
Glyceria occidentalis: OBL	Western mannagrass	1	1.5

4.14.5 Forest Pools (Slope/Flats HGM Class, Palustrine Emergent Cowardin class). Total acres: 1- includes overseeding bare root plantings

Grasses: 4.5#/ac (broadcast)

Scientific name and wetland indicator status	Common name	lb/ac	Total lb
Glyceria elata: FACW+	Tall mannagrass	0.5	0.5
Glyceria occidentalis: OBL	Western mannagrass	4	4

Bare root plantings: 0.61 ac

Scientific name and wetland indicator status	Common name	#/ac	Total #
Carex obnupta: OBL	Slough sedge	3000- 2 foot spacing	1830

4.14.6 Open Emergent wetlands (Slope/Flats HGM Class, Palustrine Emergent Cowardin class). Total acres: 5.5- includes overseeding bare root plantings

Forbs: 6.25#/ac (broadcast or drill)

Scientific name and wetland indicator status	Common name	lb/ac	Total lb
Eleocharis obtusa or E. ovata: OBL	Blunt spikerush or Ovate spikerush	0.5	2.75
Eleocharis palustris: OBL	Creeping spikerush	1	5.5
Carex densa: OBL	Dense sedge	1	11
Alisma plantago-aquatica: OBL (aka *A. triviale*)	Lanceleaf waterplantain	1	5.5
Bidens cernua: FACW+	Nodding beggarticks	0.25	1.5
Veronica americana: OBL	American speedwell	0.5	2.75
Carex unilateralis: OBL	One sided sedge	1	2.75
Juncus ensifolius: FACW or *J. oxymeris*: FACW+	Dagger leaved rush or Pointed rush	0.5	2.75
Juncus tenuis: FACW-	Spreading rush	0.5	2.75
Sparganium emersum: OBL	Burreed	1	5.5

Grasses: 8#/ac (drill)

Scientific name and wetland indicator status	Common name	lb/ac	Total lb
Glyceria occidentalis: OBL	Western mannagrass	3	16.5
Hordeum brachyantherum: FACW	Meadow barley	2	11
Beckmannia syzigachne: OBL	American sloughgrass	3	16.5

4.14.7 Forested wetlands (Slope/Flats HGM Class, Palustrine Forested Cowardin class). Total acres: 7.5

Grasses: 7#/ac (broadcast)

Scientific name and wetland indicator status	Common name	lb/ac	Total lb
Glyceria elata: FACW+	Tall mannagrass	1	7.5
Glyceria occidentalis: OBL	Western mannagrass	4	30
Deschampsia cespitosa: FACW	Tufted hairgrass	1	7.5
Agrostis exarata: FACW	Spike bentgrass	1	7.5

Bare root plantings.

Scientific name and wetland indicator status	Common name	#/ac	Total #
Fraxinus latifolia: FACW	Oregon ash	190- 15 foot spacing	1400
Malus fusca: FACW	Western crabapple	10 patches: 10 ea. at 8 foot spacing, per Fig. 21A-B	100

4.14.8 Scrub/Shrub wetlands (Slope/Flats HGM Class, Palustrine Scrub/Shrub Cowardin class). Total acres: 2.70

Grasses: 7#/ac (broadcast)

Scientific name and wetland indicator status	Common name	lb/ac	Total lb
Glyceria elata: FACW+	Tall mannagrass	1	3
Glyceria occidentalis: OBL	Western mannagrass	3	8.5
Deschampsia cespitosa: FACW	Tufted hairgrass	2	6
Agrostis exarata: FACW	Spike bentgrass	1	3

Bare root plantings in PSS areas - see acreage per each in table.

Scientific name and wetland indicator status	Common name	#/ac	Total #
Spirea douglasii: FACW-1.76 ac	Douglas spirea	1210- 6 foot spacing	1208
Rosa nutkana: FAC-0.25 ac	Nootka rose	1210- 6 foot spacing	300
Rosa pisocarpa: FAC-0.2 ac	Pear fruited rose	1210- 6 foot spacing	240
Cornus sericea: FACW-0.38 ac	Red osier dogwood	1210- 6 foot spacing	450
Salix lasiandra: FACW: 0.11 ac	Pacific willow	1210- 6 foot spacing	130

Bare root plantings along west perimeter ditch: 3875 LF as 2 rows along E bank, 4 foot spacing.

Scientific name and wetland indicator status	Common name	Total #
Spirea douglasii: FACW	Douglas spirea	1000
Rosa nutkana: FAC	Nootka rose	240
Rosa pisocarpa: FAC	Pear fruited rose	500
Salix sp. (S. sitchensis, S. lucida, S. hookeriana) : FACW	Willows (Sitka willow, Pacific red willow, Hooker's willow)	300 (can be live stakes)

Bare root plantings along west side of tributary ditch to Bear Creek: 875 LF as 3 rows, 4 foot spacing.

Scientific name and wetland indicator status	Common name	Total #
Spirea douglasii: FACW	Douglas spirea	400
Rosa nutkana: FAC	Nootka rose	55
Rosa pisocarpa: FAC	Pear fruited rose	100
Salix sp. (S. sitchensis, S. lucida, S. hookeriana) : FACW	Willows (Sitka willow, Pacific red willow, Hooker's willow)	200 (can be live stakes)
Cornus sericea: FACW	Red osier dogwood	50

Bare root plantings along chicken barn ditch: 500 LF as 2 rows each side, 4 foot spacing.

Scientific name and wetland indicator status	Common name	Total #
Spirea douglasii: FACW	Douglas spirea	300
Salix sp. (S. sitchensis, S. lucida, S. hookeriana): FACW	Willows (Sitka willow, Pacific red willow, Hooker's willow)	300 (can be live stakes)
Rosa nutkana: FAC	Nootka rose	50
Rosa pisocarpa: FAC	Pear fruited rose	100
Cornus sericea: FACW	Red osier dogwood	50

Trees and shrubs may need to be caged to protect against animal browse damage. Supplemental watering of shrubs and trees may need to be applied at the rate of 1" per month from May 15 though October 31 for at least the first 2 years of plantings if plantings show signs of dessication during the monitoring.

5.0 MONITORING PLAN

Monitoring will include an as-built survey and report to document grading and planting activities, as well as annual monitoring surveys and reports for 5 years after completion of construction and planting, and for 2 growing seasons after meeting all performance standards. The initial as-built report will be completed within 60 days of grading, to document those activities and include a topographic survey showing 1-foot contours of the graded mitigation site. A follow-up as-built report will be completed within 60 days of the final seeding and planting to document seed mixes, bare root plantings, application methods, areas seeded and planted, as well as to document any regrading that may have been needed. The as-built reports will also document and explain any deviations from the Mitigation Plan.

5.1 Monitoring Schedule

Vegetation monitoring for the OTH Bank site will occur in early to mid-summer (end of May-July) to document vegetation cover when biomass is near maximum. Raw vegetation data for the current year will be made available by the date of the annual bank inspection tour, and plot locations marked in the field at that time so that the review team can spot-check plots for accuracy. Informal monitoring to note problems and identify maintenance needs will occur throughout the year, in order to allow for a quicker response time to correct maintenance issues before they escalate into larger problems.

5.2 Vegetation Sampling

The Routine Monitoring Guidance for Vegetation (RMGV: DSL September 23, 2009) will be the method used for monitoring vegetation in the OTH Bank site. Site monitoring will also include the establishment of fixed photo points. Sampling will be stratified by herbaceous, shrub, forest, and upland buffer habitats as described in the RMGV. The number of sample plots per habitat type will follow the RMGV recommendations. The baseline for the west portion of the Bank will be the west site boundary and the baseline for the southeast portion of the Bank will be the two west boundaries, as illustrated on the Monitoring Plan (Figure 22A and 22B). The location of the sampling transects will be permanently marked in the field in such a manner as to not harm farm equipment tires or hinder maintenance activities, and identified on the surveyed map. The photo points will be located such that the majority of the wetland mitigation areas can be viewed. The photo points will be marked on the ground in the same manner as the sample plots, and identified on the survey map. Sample plot information will be recorded on appropriate data sheets, noting native/non-native status and wetland indicator status.

Table 10. Minimum sample sizes for the OTH Bank site.

Habitat class	Acres	Number of Samples
Herbaceous	75.3	30 (planned for 34)
Shrub	2.7	10+20 herbaceous
Forest	7.4	15 + 30 herbaceous
Upland buffer	22	15 (planned for 16)

Vegetation sampling will include absolute cover by plant stratum and species, wetland indicator status, species composition (note whether native or exotic, planted or colonizer), stem counts for trees, and plant counts for multi-stemmed shrubs. Data collected will be recorded on appropriate data forms and evaluated based on the performance standards identified in Section 4.12.

Photographs of the mitigation site will be taken annually from fixed photo points to document site development and vegetative development over time.

5.3 Hydrology Sampling and Wetland Delineation

Groundwater monitoring wells will be installed within the wetland creation area and any transitional areas in order to monitor site hydrology. It is assumed that approximately 20 monitoring wells will be installed on the site. Annual monitoring will include documentation of water levels in the wells during spring (anticipated to be March through April), with results included in the annual monitoring reports. The locations of the monitoring wells will be shown in the annual monitoring reports.

A post-construction delineation will be done some time after the third growing season to confirm wetland acreage achieved in any wetland restoration and creation areas, and in any high spots created by grading. The wetland acreage will be confirmed with a wetland delineation field study following DSL's "delineation lite" specifications. For wetland creation areas, paired plots will be used to define the boundary, per the 2010 Manual Supplement and 1987 Manual. Delineation lite does not require characterization plots; paired plots should be located along all topographic boundary lines with additional plot pairs on any high points in the topography or areas where water leaves or enters the site at a higher or lower contour. Hydric soil field indicators may not

be present due to the length of time they take to develop, however if hydrology and vegetation indicators are positive, the plot may still be called wetland. However, soil data is included in all data sheets, with an explanation of why the three parameters may not be present. Wetland boundaries and plot locations precision should be 1 meter (3.3 feet) or less.

5.4 Buffers

The upland and wetland buffers will be evaluated for absolute cover by plant stratum and species, species composition (note whether native or exotic, planted or colonizer), average height, condition, and percent survival of each tree species during plant surveys in May-July in the same manner as described in Section 5.2.

5.5 Reporting

The as-built surveys and reports will be submitted to DSL and the Corps within 45 days of initial grading and seeding/plantings. Annual monitoring reports summarizing the results of the monitoring field visits will be submitted to both the Division of State Lands and the Corps each year for five years following construction and plantings, and for two growing seasons after all performance standards have been met. The report will provide a discussion of each performance standard in terms of if they are being met, and offer potential reasons for non-performance if that occurs. The report will also provide a discussion of any problem areas and failures, if they occur, such as inappropriate design, installation flaws, and inappropriate plantings, with a discussion of methods to correct identified problems and failures. The report will include photos from the fixed photo points and completed data forms for the sample plots. In addition, the report will include a current ledger of credit sales and releases, and a summary of work conducted in the past year.

The wetland delineation (delineation lite) will be included with the appropriate monitoring report, with a discussion of results in terms of wetland acreage and any associated effects on the bank credits.

Monitoring will continue during the time period between when all performance standards have been met and when the sale of the last credit has been completed. Abbreviated monitoring reports will be submitted after performance standards have been met for 3 consecutive years or until bank closure. The abbreviated annual monitoring reports shall include the up-to-date cumulative ledger of credit sales, a listing of management and maintenance activities conducted, photo-point monitoring, and every 3 years, an analysis of the vegetation performance standards.

5.6 Anticipated Monitoring Schedule

Note: Years are January to January, with reporting usually in October-December of each year. Because of the anticipated schedule, Year 1 would be 2010.

<u>Year 1 (2010)</u>
Prepare initial as-built report for grading, including survey map, and submit to DSL and the Corps within 60 days of completion of initial grading.

Year 2 (2011)
March-May: Evaluate hydrology to determine if grading is adequate for prescribed plant communities.

June-October: Evaluate site for vegetation issues and success of site preparation activities.

Year 3 (2012)

Feb:	Prepare addendum to as-built report to include additional corrective grading, seeding, and tree and shrub planting information, and submit to DSL and the Corps within 60 days of final planting date.
Feb-Dec:	Conduct monthly site visits to evaluate general conditions.
March-Apr:	Evaluate hydrology, note problems, determine causes and possible solutions.
May-June:	Monitor vegetation in wetland and upland buffer areas, note problems, determine causes and possible solutions.
Sept-Dec:	Prepare Year 1 monitoring report and submit to DSL and Corps by December 1.

Year 4 (2013)

Feb-Dec:	Conduct periodic site visits to evaluate general conditions.
March-Apr:	Evaluate hydrology, note problems, determine causes and possible solutions.
May-June:	Monitor vegetation in wetland and upland buffer areas, note problems, determine causes and possible solutions.
Sept-Dec:	Prepare Year 2 monitoring report and submit to DSL and Corps by December 1.

Years 5-9 (2014-2018)

Feb-Dec:	Conduct periodic site visits to evaluate general conditions.
Feb.-April:	Evaluate hydrology; note problems. Sometime after 2014, conduct a "delineation lite".
May-June:	Monitor vegetation; note problems.
Sept-Dec:	Prepare Years 3-7 monitoring reports and submit to DSL and Corps by December 1. Additional annual monitoring reports may be needed if all performance standards have not been met by Year 7. Monitoring will continue between the time when all performance standards have been met and when the sale of the last credit has been completed. Abbreviated monitoring reports will be submitted after performance standards have been met for 3 consecutive years or until bank closure.

6.0 MAINTENANCE and CONTINGENCY PLANNING

6.1 Potential Maintenance and Contingency Issues

The Sponsors will maintain involvement in and fund the project through the final design and construction phases and ensure that a qualified biologist monitors the site as specified above. Coordination with the various regulatory agencies will take place throughout the length of the project. In the event the site fails to meet performance standards, the Sponsors will promptly notify the Corps and DSL to determine the necessary corrective actions. The Sponsors agree to take corrective action(s) as needed. Corrective actions may include additional excavation or filling for the purpose of establishing the desired hydroperiod and reseeding, replanting, or other remedies agreed upon by the Sponsors and the agencies. Should unforeseen circumstances delay the initiation of a particular element of this plan (e.g., re-excavation or planting delays), DSL and the Corps will be notified in a timely manner and the monitoring and commitment period will be

extended accordingly.

It is anticipated that site inspections will be conducted monthly for at least the first two years conducted by a qualified wetland biologist(s) in order to note concerns and problems, and identify correction measures in a timely manner so as to minimize the need for larger corrective measures. Maintenance activities will be performed as needed, based on information from the site visits, including installation of animal damage protection devices and regular weeding and/or spot spraying to prevent the establishment of non-native invasive and noxious plant species, with reseeding following any spot spraying or hand weeding. Reseeding is anticipated to be an ongoing activity for the first two years when these maintenance activities will be most heavily conducted. Problems and areas of failure, should they occur, will be reported at least annually in the annual Monitoring Report. Potential anticipated problems may include the possibility of insufficient water during establishment of new plantings, animal damage to young seedlings, less than optimal survival rates for new plantings, and invasion by non-native plant species. If survival rates and/or percent cover falls below that specified in the performance standards, replacement plantings, reseeding, or other measures will be taken to insure that the mitigation goals are met.

Supplemental Watering of Trees and Shrubs

Temporary supplemental watering of planted trees and shrubs may need to be done at the rate of 1 inch per month, typically between June and October for at least 2 years after planting, or until the new plantings become established, if signs of dessication are observed during the summer monitoring survey. If dry conditions continue to be a problem, then the planting mix, topography, and hydrology conditions need to be evaluated and new prescriptions may need to be prepared, including modification of the planting plans.

Animal Damage

Animal damage may occur on young shrubs and trees, which may need to be protected until they grow tall enough to be out of damage potential. Methods of protection include the installation of screen cages or large diameter plastic tubes supported with rebar or strong wooden stakes around the individual plants. Animal damage will be recorded with the monitoring visits, and the proper activities will take place to correct the situation. A significant number of vole burrows were noticed during the 2008 wetland delineation field survey. Voles can have a significant negative effect on planting success, as they feed on grasses and forbs. As such, it is anticipated that predator nest boxes will be constructed and installed around the site for species such as barn owls that feed voraciously on voles and other herbivores, and perhaps rock piles in a few places to shelter snakes that feed on rodents. It should be noted that any predator attractants need to be located in the very north section of the mitigation site to maximize the distance from the chicken barns, where rodenticide bait is used.

Non-Native Species

Site evaluation during the growing season will include identification of areas with non-native species. This will be followed by treatment prescription(s), which could include use of herbicide and/or hoeing and grubbing. It is anticipated that vegetation management to control non-native species will be a continuous and intensive maintenance activity at least for the first 2-3 years following planting.

Bare Ground

Bare areas will be reseeded as needed with the appropriate grass/forb mix, and the reason for bare ground will be documented in the annual Monitoring Reports. Dead shrubs and trees will be replanted as needed to meet the OTH Bank performance standards. Necessary planting and seeding will be completed at the appropriate time of year for the species. If survival continues to be a problem, the reasons will need to be determined and corrective actions taken, including new plant species and mixes.

Wet Prairie Management

The site may need to be managed to maintain a wet prairie condition by either rotational mowing or burning if thatch or invasion by woody species become a problem. In order to minimize potential for succession to an ash forest or shrubby habitat condition in the wet prairie, it would be preferable for half of the wet prairie/vernal pool area to be burned starting in Year 5 following seeding, the other half in Year 6, and a break in Year 7, as a 3-year cycle. If it is not deemed feasible to conduct a habitat burn, late summer or fall mowing is an alternative, in the same cycle as burning.

Vandalism

Vandalism and unauthorized trespass is not anticipated to be an issue with the OTH Bank because the Sponsors live on the same property as the Bank, however there may be a need to install a fence and gate(s) along the periphery of at least a portion of the bank in the future, especially in the event that the Sponsors no longer reside on the property.

6.2 Potential Temporary Wetland Impacts

Potential temporary impacts to the wetlands are those associated with (1) maintenance and repair of the waterline across the north-central portion of the site, (2) maintenance of existing easements including for powerlines, which could include use of herbicides and vehicle use by the utility company, and (3) drilling a new well. Any temporary impact that involves excavation in the wetlands, such as for the water line or for a new well, will be conducted in the following manner:

1. The excavation will be conducted so that the top 12 inches removed is set alongside the route, followed by the remainder of the material to be set outside the area where the topsoil is placed.
2. Once the repair or replacement has been completed, the soil will be replaced as it was removed, with the soil excavated from below 12 inches placed first, followed by the topsoil.
3. The area will be graded to pre-disturbance contours and seeded and/or planted per the seed mixes or bare root species specified for the habitat type in the Planting Plan, during the appropriate seasons.
4. The impact area will be monitored during annual monitoring surveys if the work is conducted within the 5-year monitoring period. If the work is conducted after the 5-year monitoring period, it will be documented and monitored for a minimum of 2 years to ensure that the disturbed area is restored to pre-disturbance conditions, with a report filed with DSL and Corps.

Prior to conducting any work that may impact onsite wetlands after the DSL and Corps Removal-Fill permits issued for the project have expired, DSL and the Corps will be notified and a Removal-Fill permit will be prepared if required.

6.3 Financing Maintenance and Contingency Work

Short-term maintenance and contingency work is considered work to be conducted during the required monitoring period, which will be financed by an endowment established with a percent of each credit sale, at the onset of credit sales.

6.4 Long Term Maintenance Plan

A Long-term Maintenance Plan will be prepared prior to release of final credits and approved by the co-chairs. That plan will include a discussion of how maintenance will be accomplished beyond the monitoring period, it will identify the long-term ownership and party responsible for the long-term maintenance, and it will identify the funding source and begin investment for long-term maintenance activities. Anticipated Long-term maintenance activities include:

- continued work associated with managing the site to maintain the wetland functions and plant communities per the Mitigation Plan;
- remediation of damage incurred for repairs/replacement of the waterline, well(s), and work along the utility easement; and
- installation, maintenance, and repair of a perimeter fence and gate(s).

Concerning the perimeter fence, it is assumed that a fence and gate will not be necessary as long as the Sponsors are living on the property, however the financial vehicle for purchase and installation of the fence and gate(s) will be put in place so that if it is required, it can be installed immediately.

7.0 ADAPTIVE MANAGEMENT PLANNING

Adaptive management is a systematic process for continually improving management practices by learning from the outcomes of previous practices. Adaptive management is implemented by a repetitive process from making decisions guided by scientific information that is newly available as well as from data collected and analyzed through the monitoring program. The results of the monitoring program for the OTH bank site provide the basis for revising past decisions, and these improved actions and solutions are then monitored to determine their success in meeting the performance standards set for the OTH Bank. Adaptive management is based on the assumption that managed ecosystems are complex and inherently unpredictable, and people do not know all of the answers and probably never will: there will always be surprises and puzzling conditions that arise.

Potential challenges on the OTH Bank site that could prevent attainment of performance standards and therefore require adaptive management include drought brought about by climate change, higher than anticipated inundation levels, and continued presence of non-native and invasive species due to the historic agricultural use as well as reed canary grass along the tributary ditch to Bear Creek in the southeast corner of the site. Although the full potential effects and implications of drought are unknown, measures to increase onsite hydrology from the existing

wet site conditions include removal of ditches and installation of berms to increase water storage onsite. The shallow berms allow for sheet flow over the top if water levels exceed their height, therefore the depth of inundation behind the berms should be no more than 1 foot. Maintenance will be conducted on a regular basis, and prescribed maintenance activities will stem from monitoring observations. Management of non-native and invasive plant species will occur regularly. Some areas may never be free of non-native invasives, such as alongside the tributary ditch to Bear Creek in the southeast corner of the site. If management of the reed canary grass involves continued use of herbicide such that water quality and amphibian breeding habitat is compromised, adaptive management is a tool to evaluate the benefits and environmental costs.

If performance standards are not met but a suitable alternative is devised, a site visit will be requested of the IR Team. The IR Team will review and determine whether the proposed alternative will be acceptable, which will be discussed at the annual meeting. Substantive changes to the MBI, such as changes to the performance standards or the number of credits, will be subject to written approval of both the Sponsor and co-chair agencies, considering the advice of the IRT.

Adaptive management of the OTH Bank site will be instigated by careful monitoring, documentation of observations taken throughout the year, and thoughtful consideration of the original performance standards. The Willamette Valley has a wonderful source of experts working in wetland enhancement and restoration, many of which are an excellent source of information and an excellent resource for discussing problems or questions, including the City of Eugene's Wetland Program staff. Adaptive management includes working with outside sources where questions and concerns arise.

8.0. PROPOSED FINANCIAL INSTRUMENT

The proposed method for the financial security instrument is anticipated to be a Performance Bond, which will be posted prior to release of the first credit. The Sponsors will be responsible for establishing and managing the financial assurance. Partial reductions of the performance bond as performance milestones are achieved will be shown. Table 11 displays the projected costs of the project, and financial assurance costs.

Table 11. Projected Costs until Turnover to Long Term Steward and Cost of Default to DSL and Corps: Oregon Trail Heritage Wetland Mitigation Bank

Activity	Year 1 2010	Year 2 2011	Year 3 2012	Year 4 2013	Year 5 2014	Year 6 2015	Year 7 2016	Year 8 2017	Year 9 2018	Total Project Costs	Cost if Default	Justification
Development												
Mortgage cost	$200,000									$200,000	$200,000	100%
Engineering	$7500									$7500		Covered by Sponsor
subtotal	*$207,500*									*$207,500*	*$200,000*	
Construction												
Spraying	$10,000									$10,000	$10,000	100%
Grading	$120,000									$120,000	$30,000	covered by Sponsor; 25% cost for repairs
Prairie seed, plants, and labor		$24,000								$24,000	$24,000	100%
Shrub/forest plants and labor		$14,500								$14,500	$14,500	100%
As-built survey	$7500									$7500	$7500	100%
subtotal	*$137,500*	*$38,500*								*$176,000*	*$86,000*	
Maintenance												
Spot or equipment boom spraying	$3500	$5000	$7500	$7500	$7500	$3500	$3500	$1500	$1500	$41,000	$41, 000	100%
Reseeding		$7500	$7500	$2000	$2000	$2000	$2000	$2000	$2000	$27,000	$27,000	100%
Replanting		$4000	$3000	$3000	$2000	$2000	$2000			$16,000	$16,000	100%
Fence and gate	$20,000									$20,000		Covered in endowment
Contingency: Repair costs from easement disturbance, vandalism	$2500									$2500		Covered in endowment
subtotal	*$26,000*	*$16,500*	*$18,000*	*$12,500*	*$11,500*	*$7500*	*$7500*	*$3500*	*$3500*	*$106,500*	*$84,000*	
Monitoring												
Vegetation			$3000	$3000	$3000	$3000	$3000	$3000	$3000	$21,000	$21.000	100%
Delineation "lite"					$15000					$15,000	$15,000	100%
Photographic			$1000	$1000	$1000	$1000	$1000	$1000	$1000	$7000	$7000	100%
Reporting			$5000	$5000	$5000	$5000	$5000	$5000	$5000	$35,000	$35,000	100%
subtotal			*$9,000*	*$9,000*	*$24,000*	*$9,000*	*$9,000*	*$9,000*	*$9,000*	*$78,000*	*$78,000*	
Financial												
Endowment	$5000	$5000	$10,000	$20,000	$30,000	$40,000	$40,000	$40,000	$30,000	$220,000		Covered by Sponsor
Financial Assurance	$448,000									$438,500		Covered by Sponsor
subtotal	*$453,000*	*$5000*	*$10,000*	*$20,000*	*$30,000*	*$40,000*	*$40,000*	*$40,000*	*$30,000*	*$658,000*		
TOTAL	**$824,000**	**$60,000**	**$37,000**	**$41,500**	**$65,500**	**$56,500**	**$56,500**	**$52,500**	**$42,500**	**1,236, 000**	**$448,000**	

The security release schedule is anticipated to be as follows:

1. 25% release following grading, planting, and successful attainment of Year 2 performance standards, anticipated to be 2013.
2. 50% release following successful attainment of Year 3 performance standards, anticipated to be 2014.
3. 75% release following successful attainment of Year 5 performance standards.
4. 100% release following approval of long-term plan and approval and security of endowment, anticipated 2016.

9.0 SITE PROTECTION INSTRUMENT

A draft proposed deed restriction has been prepared for the OTH Bank property. It will be finalized prior to approval of the Bank Instrument, and recorded before the first credits are released. It is included in Exhibit F of the Mitigation Banking Instrument. A Conservation Easement will likely be the long-term protection instrument, and will be conveyed prior to Bank closure. The Sponsors plan to set aside a percent of each credit purchase to establish an endowment for long-term maintenance.

10.0 IDENTIFICATION OF LONG TERM STEWARD

A long term stewardship agreement will be secured prior to release of final credits.

11.0 REFERENCES

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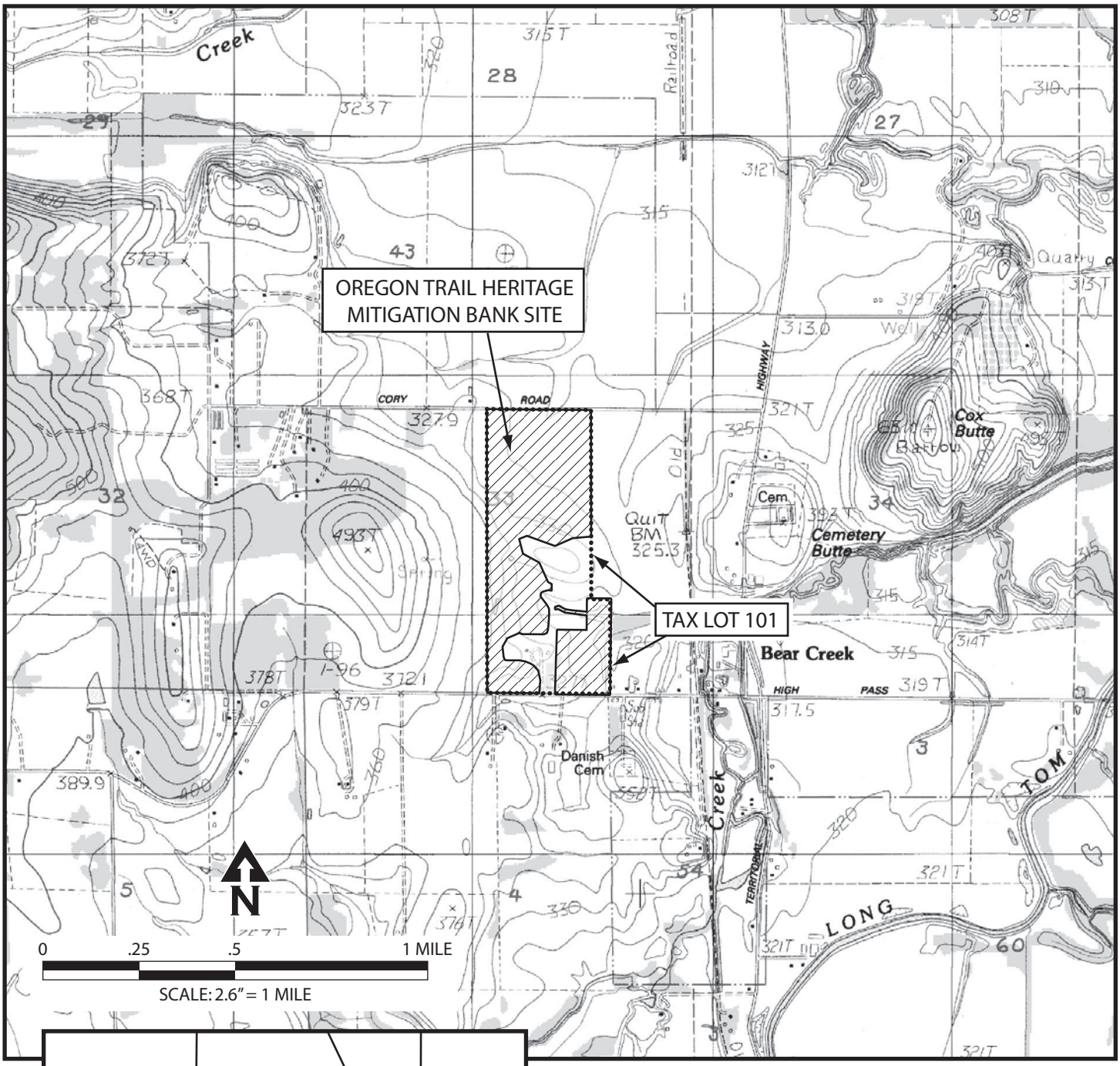


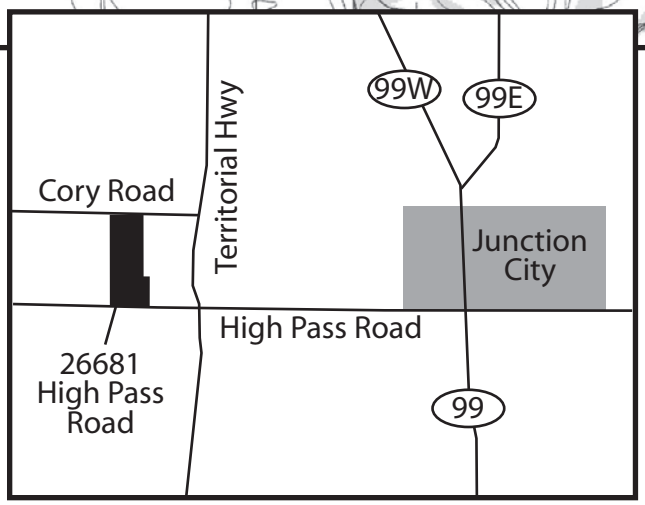


FIGURE 1: Site Location Map

Source: Cheshire USGS Quad
Scale: 2.6" = 1 mile
Inset map = no scale

Oregon Trail Heritage Mitigation Bank site
..... Tax lot 101

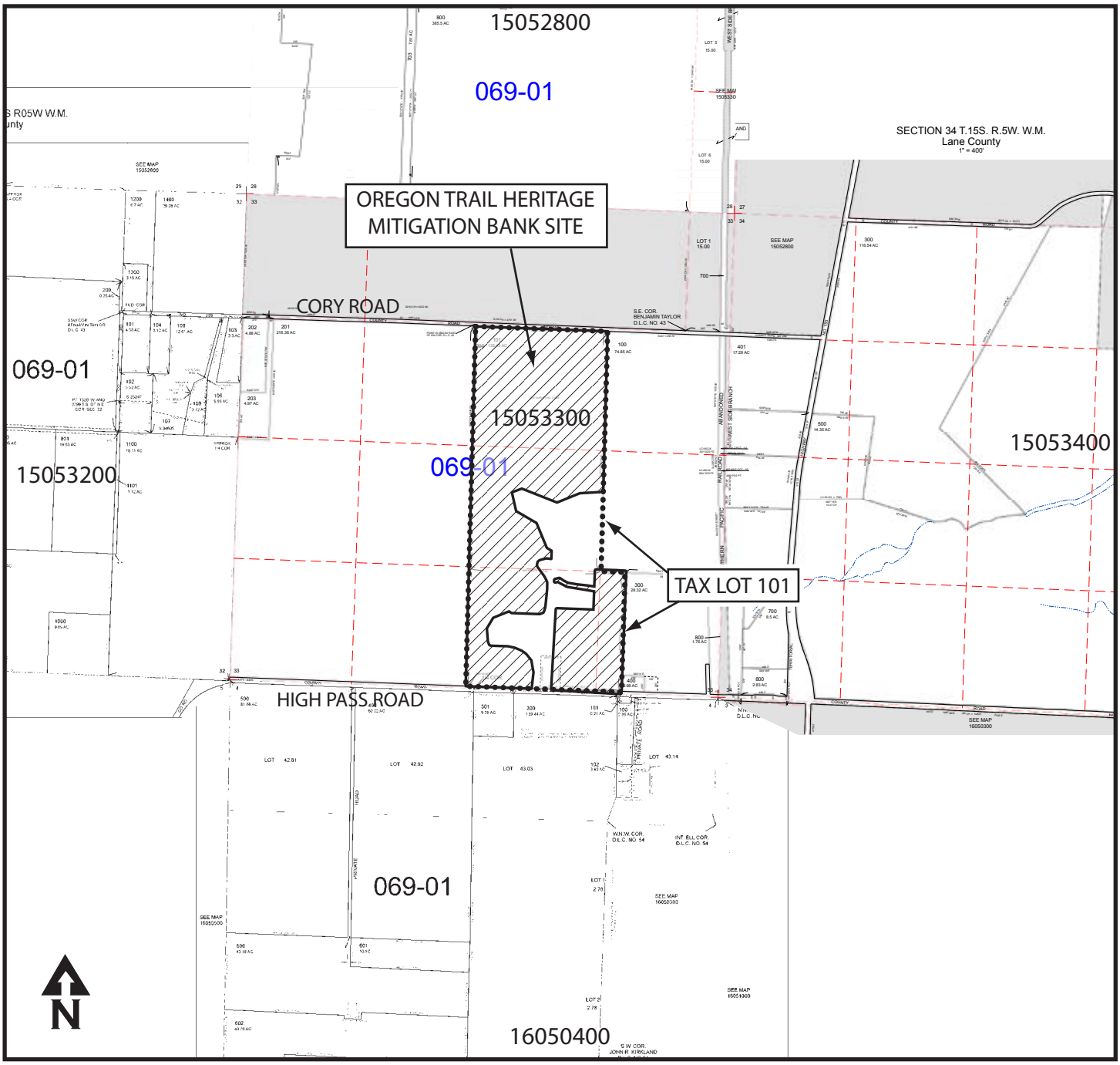
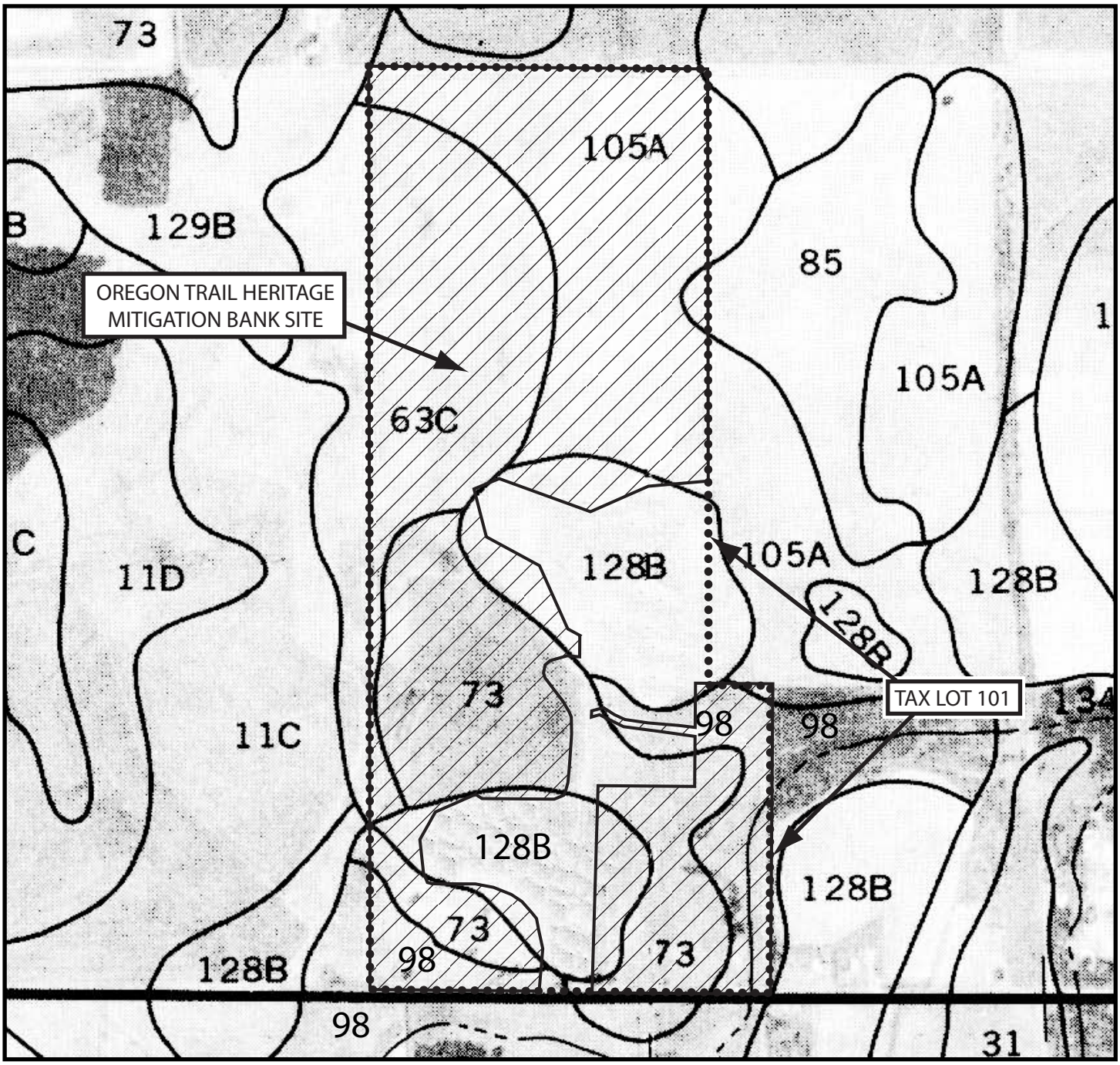


FIGURE 2: Site Location on Tax Map

Source: Lane County Tax Map #15153300
Scale: Undetermined

Oregon Trail Heritage Mitigation Bank site
Tax lot 101



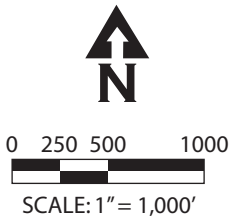
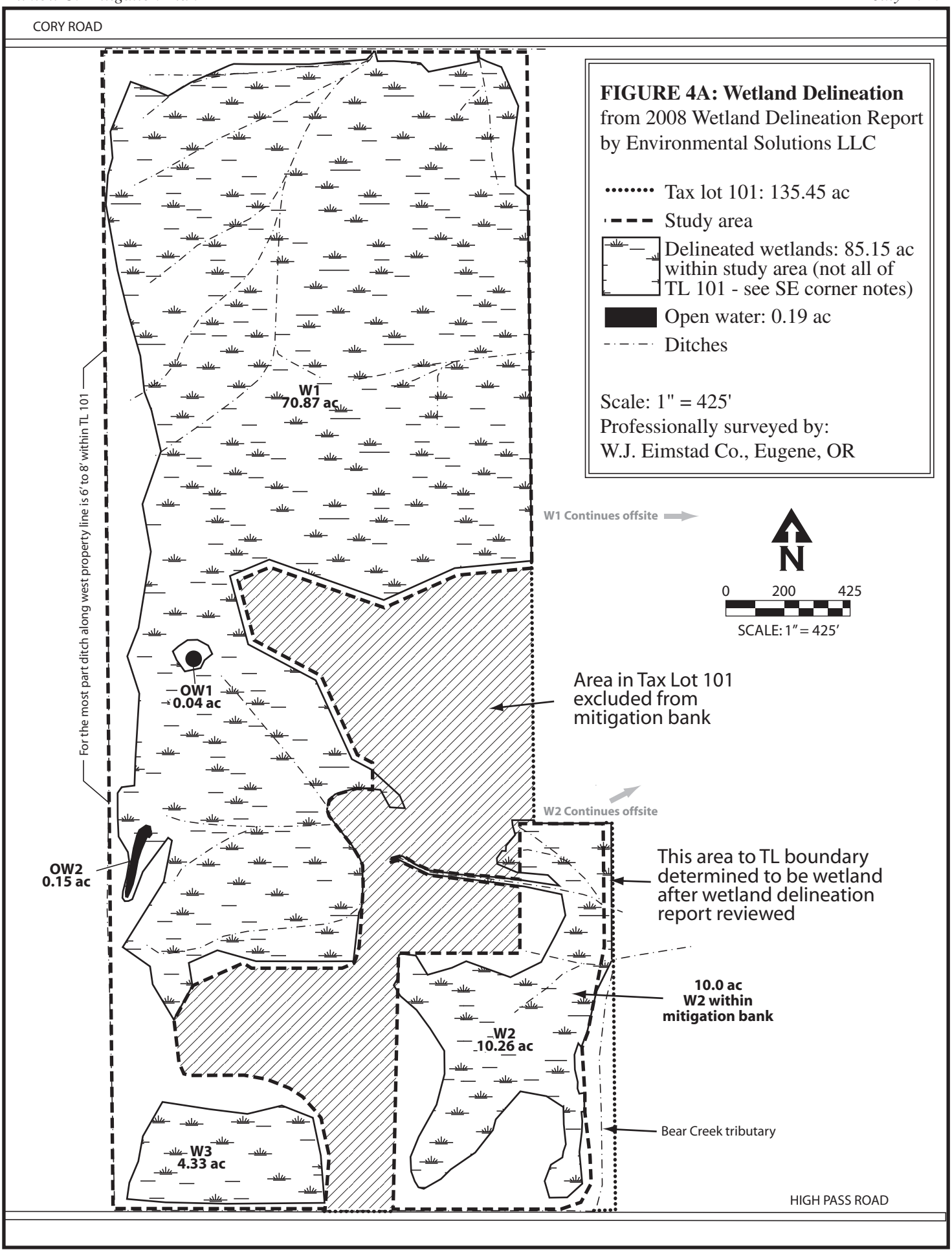


FIGURE 3: Soil Survey Map
Source: Lane County Soil Survey Sheet #15
#63C: Jory silty clay loam, Nonhydric
#73: Linslaw loam, Nonhydric with inclusions of hydric Noti
#98: Noti loam, Hydric
#105A: Pengra silt loam, Hydric
#128B: Veneta loam, Nonhydric with inclusions of hydric Noti
Scale: 1" = 1,000'
Oregon Trail Heritage Mitigation Bank site
Tax lot 101


CORY ROAD
FIGURE 4A: Wetland Delineation
from 2008 Wetland Delineation Report
by Environmental Solutions LLC
Tax lot 101: 135.45 ac
Study area
Delineated wetlands: 85.15 ac within study area (not all of TL 101 - see SE corner notes)
Open water: 0.19 ac
Ditches
Scale: 1" = 425'
Professionally surveyed by:
W.J. Eimstad Co., Eugene, OR
W1
70.87 ac
W1 Continues offsite
N
0
200
425
SCALE: 1" = 425'
For the most part ditch along west property line is 6' to 8' within TL 101
OW1
0.04 ac
Area in Tax Lot 101 excluded from mitigation bank
W2 Continues offsite
OW2
0.15 ac
This area to TL boundary determined to be wetland after wetland delineation report reviewed
10.0 ac
W2 within
mitigation bank
W2
10.26 ac
Bear Creek tributary
W3
4.33 ac
HIGH PASS ROAD

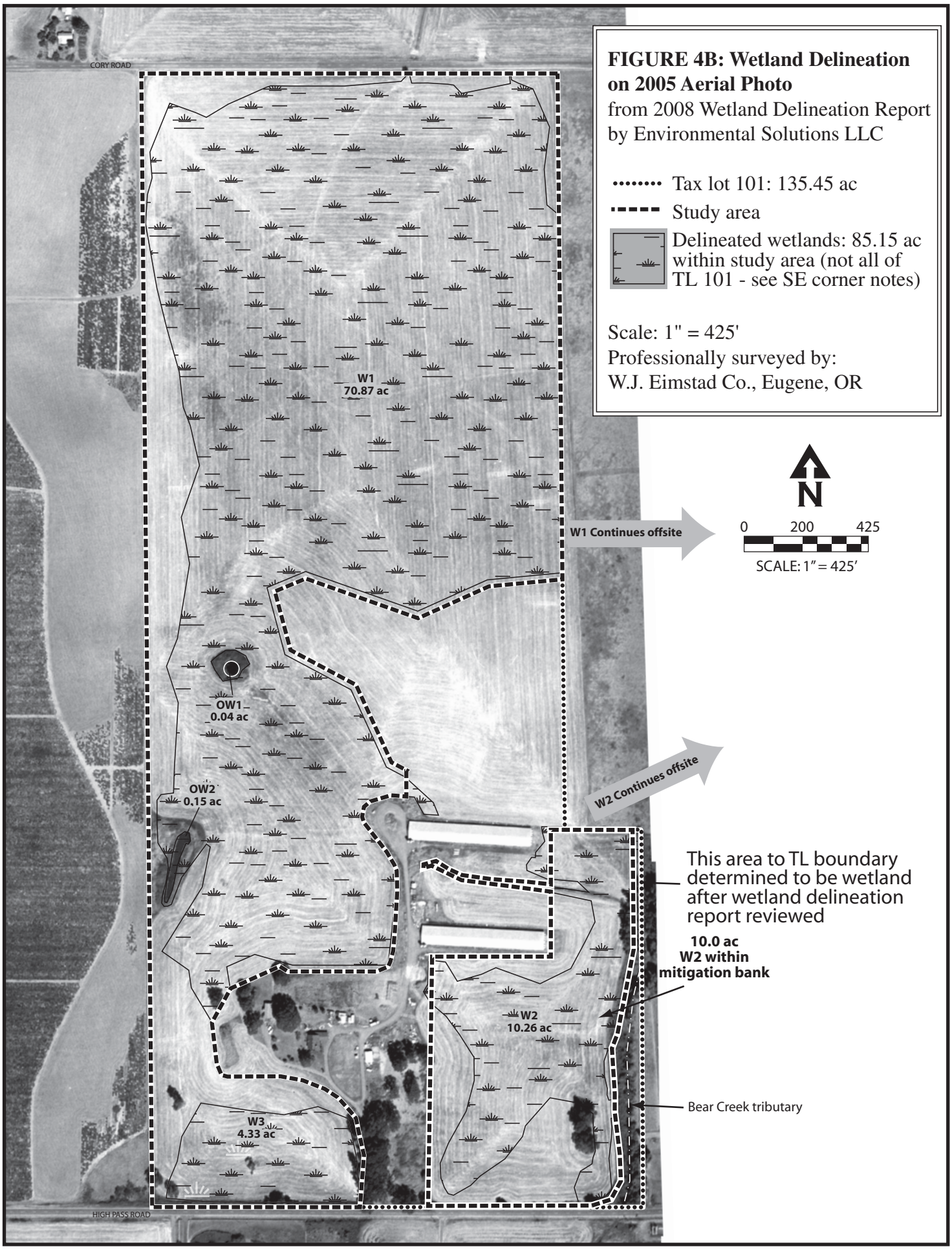


FIGURE 4B: Wetland Delineation on 2005 Aerial Photo
from 2008 Wetland Delineation Report by Environmental Solutions LLC

Tax lot 101: 135.45 ac
Study area
Delineated wetlands: 85.15 ac within study area (not all of TL 101 - see SE corner notes)

Scale: 1" = 425'
Professionally surveyed by:
W.J. Eimstad Co., Eugene, OR

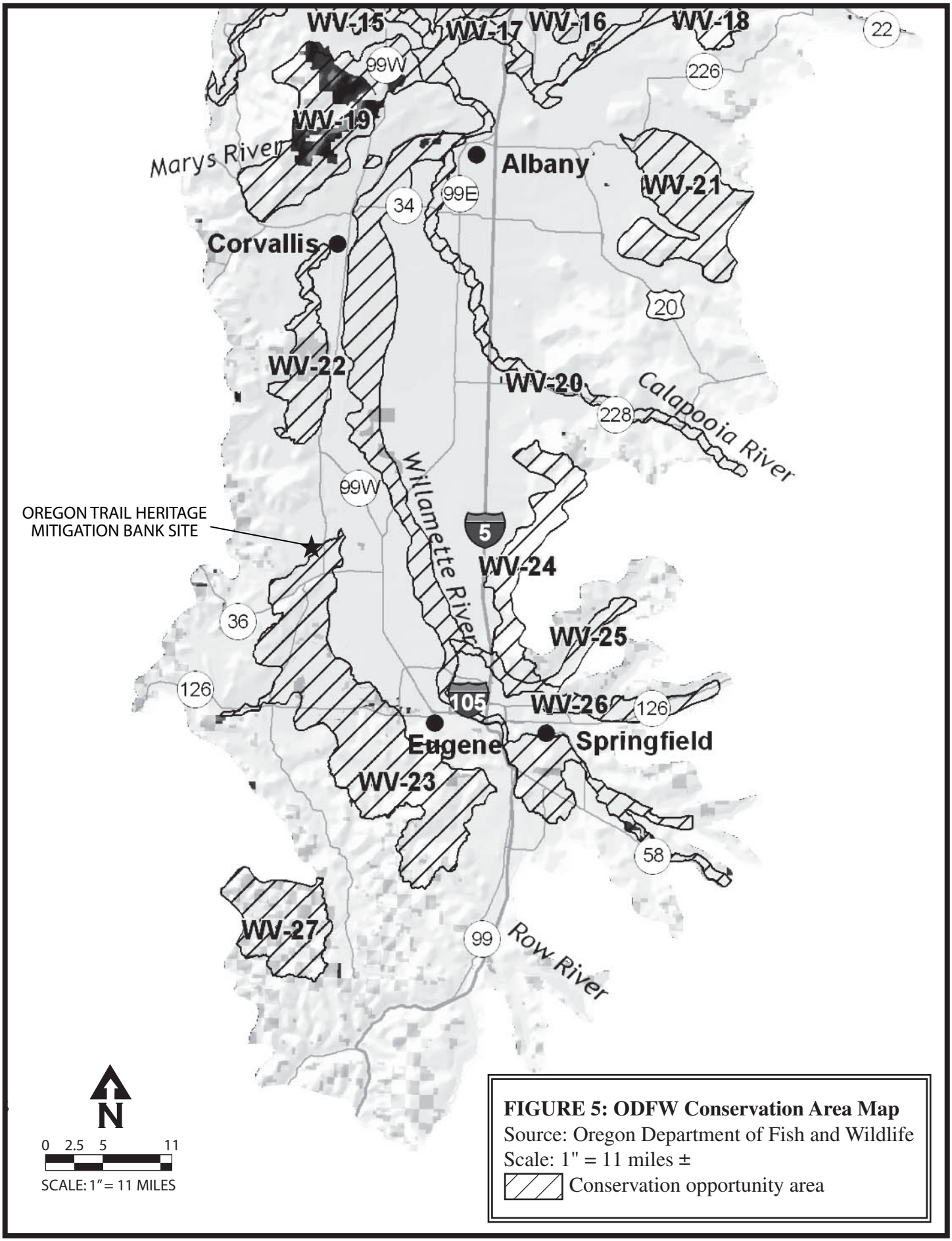


FIGURE 5: ODFW Conservation Area Map
Source: Oregon Department of Fish and Wildlife
Scale: 1" = 11 miles ±
Conservation opportunity area

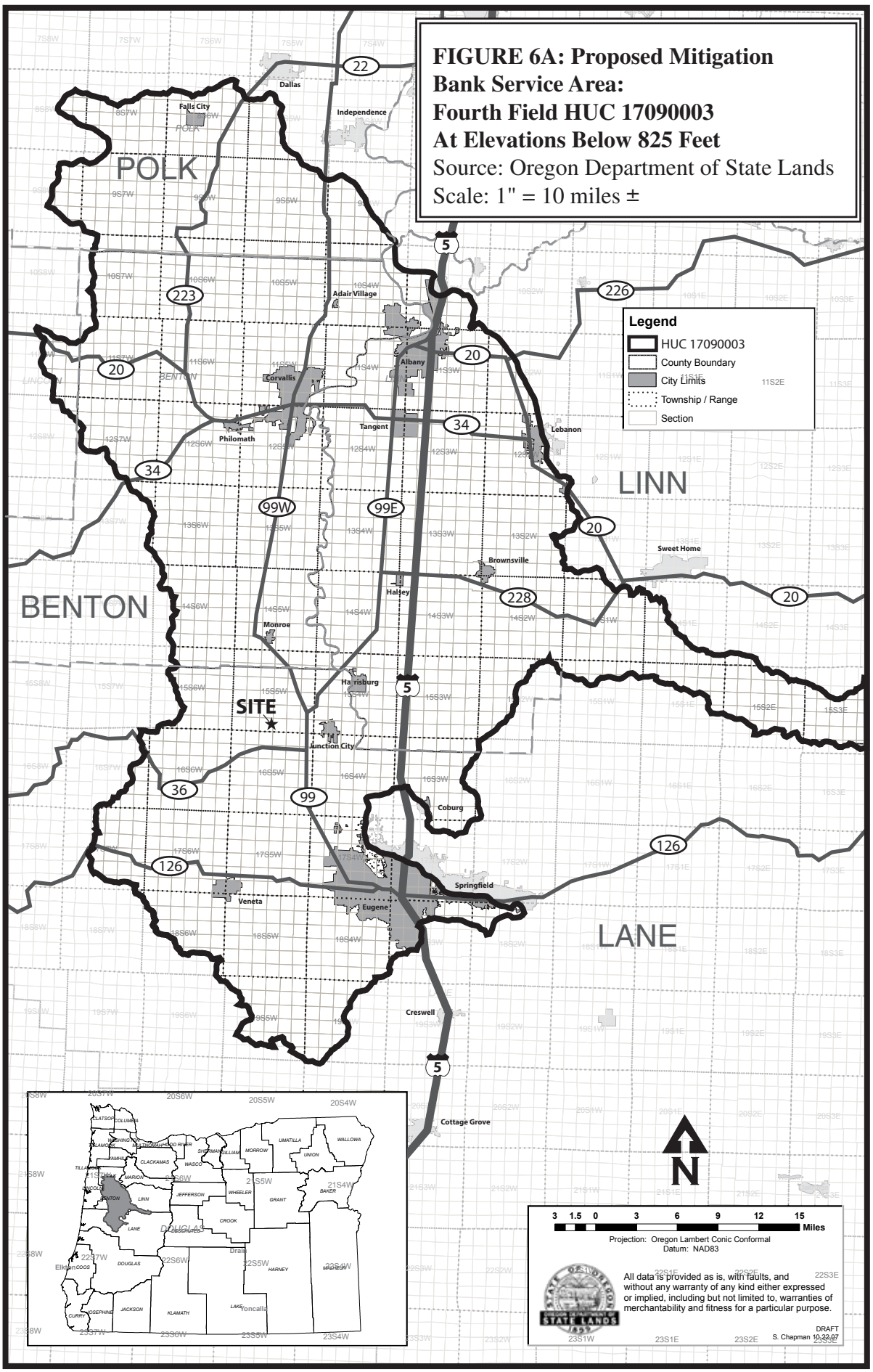


FIGURE 6A: Proposed Mitigation Bank Service Area:
Fourth Field HUC 17090003
At Elevations Below 825 Feet
Source: Oregon Department of State Lands
Scale: 1" = 10 miles ±
Legend
HUC 17090003
County Boundary
City Limits
Township / Range
Section
POLK
BENTON
LINN
LANE
SITE
Dallas
Falls City
Independence
Adair Village
Corvallis
Albany
Philomath
Tangent
Lebanon
Sweet Home
Brownsville
Halsey
Monroe
Harrisburg
Junction City
Coburg
Springfield
Eugene
Veneta
Creswell
Cottage Grove
Elkton
Drain
Oakridge
Yoncalla
22
5
223
226
20
34
99W
99E
228
36
99
126
N
3 1.5 0 3 6 9 12 15
Miles
Projection: Oregon Lambert Conic Conformal
Datum: NAD83
All data is provided as is, with faults, and without any warranty of any kind either expressed or implied, including but not limited to, warranties of merchantability and fitness for a particular purpose.
STATE LANDS
DRAFT
S. Chapman 10.22.07

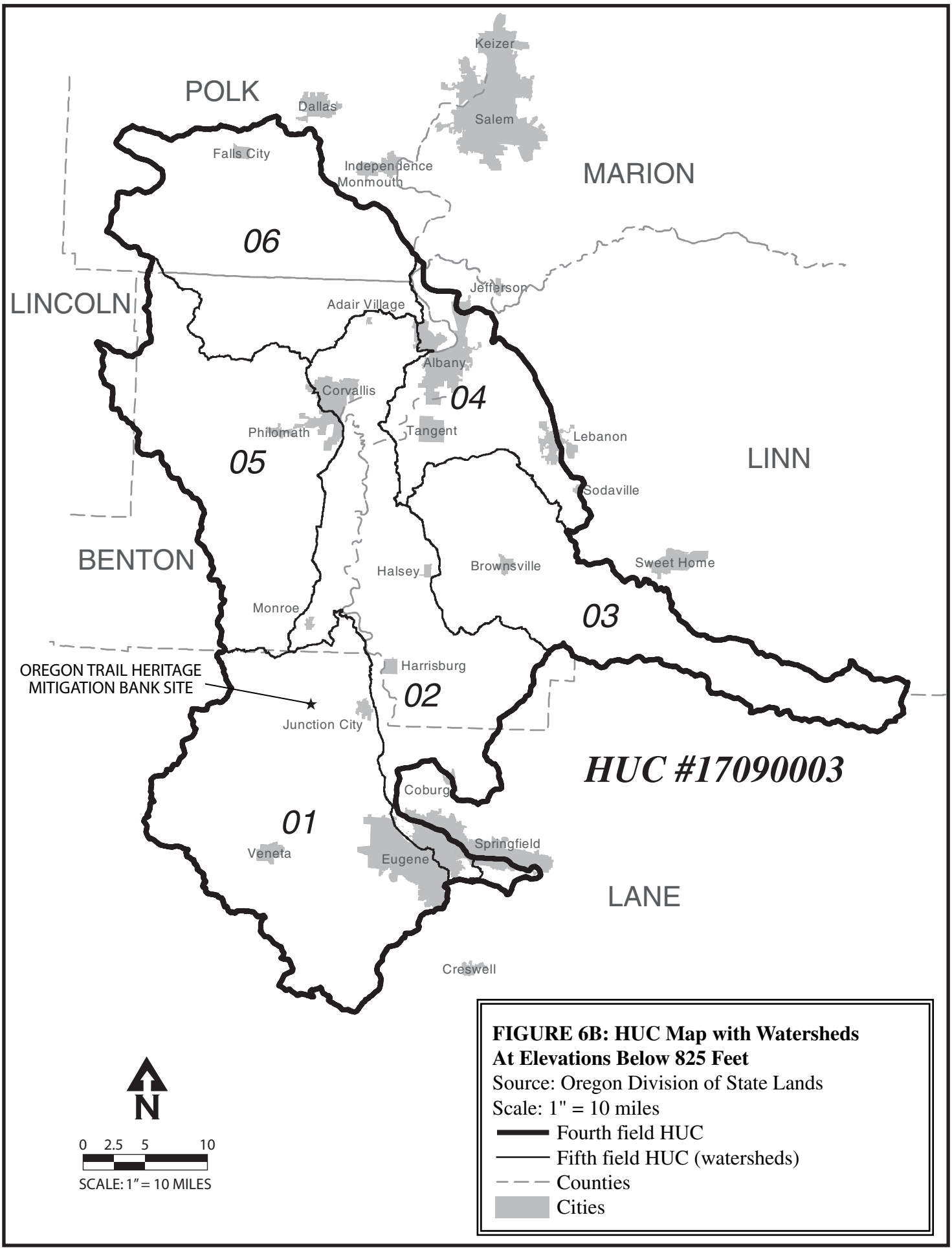
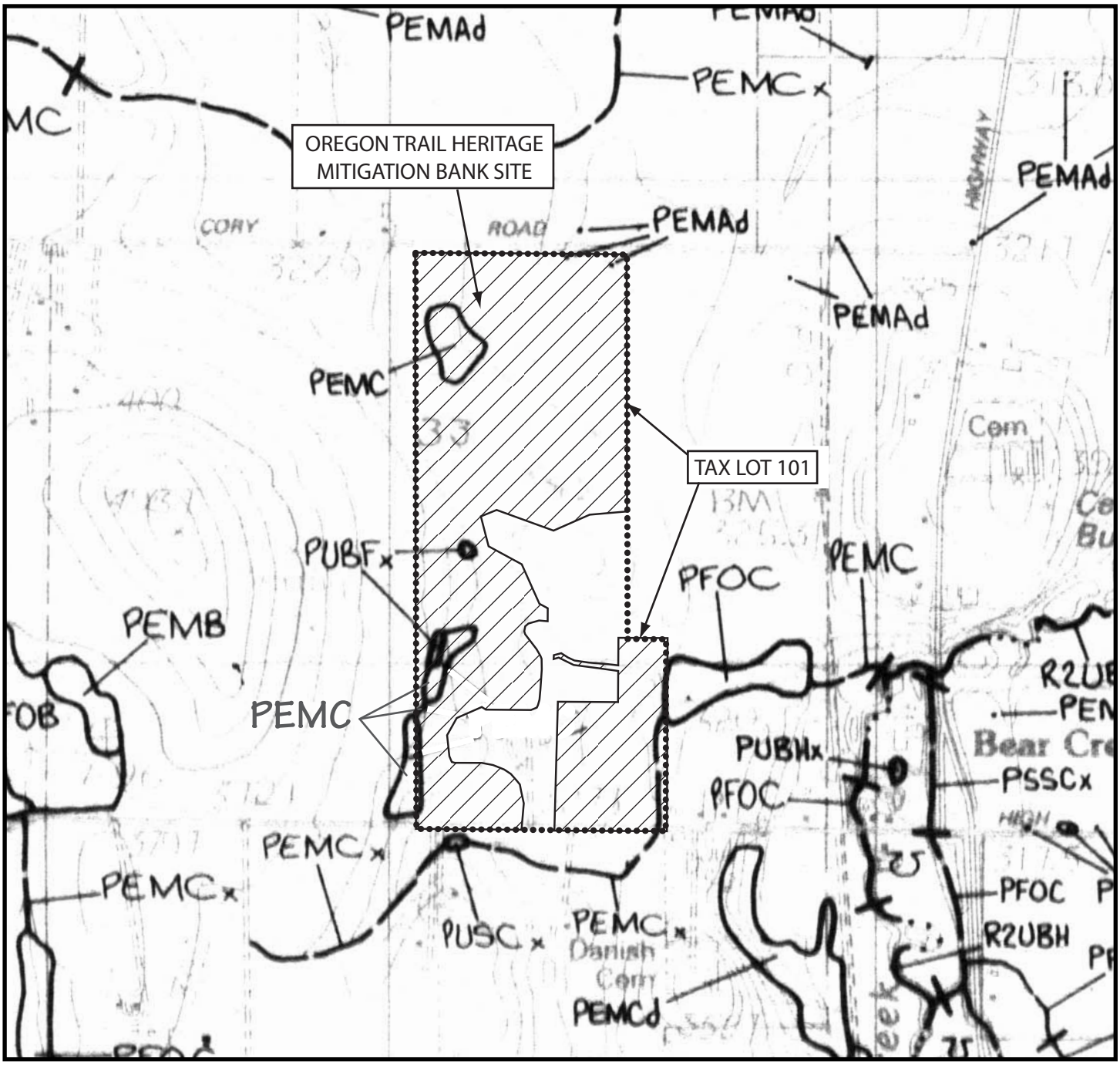


FIGURE 6B: HUC Map with Watersheds At Elevations Below 825 Feet
Source: Oregon Division of State Lands
Scale: 1" = 10 miles
Fourth field HUC
Fifth field HUC (watersheds)
Counties
Cities



N

0 250 500 1000

SCALE: 1" = 1,000'

FIGURE 7: National Wetland Inventory Map

Source: Cheshire USGS Quad
Scale: 1" = 1,000'

Oregon Trail Heritage Mitigation Bank site
Tax lot 101

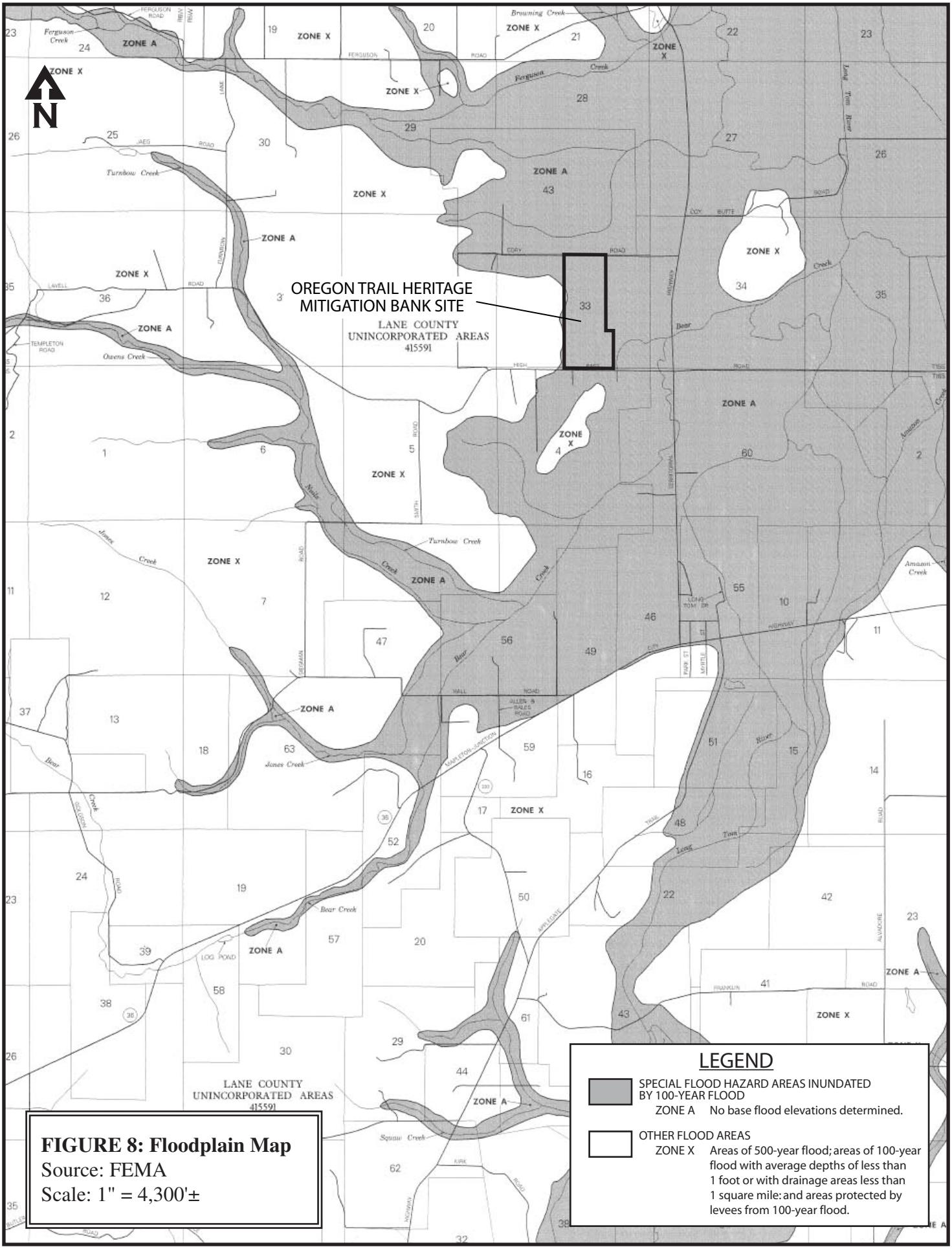


FIGURE 8: Floodplain Map
Source: FEMA
Scale: 1" = 4,300'±

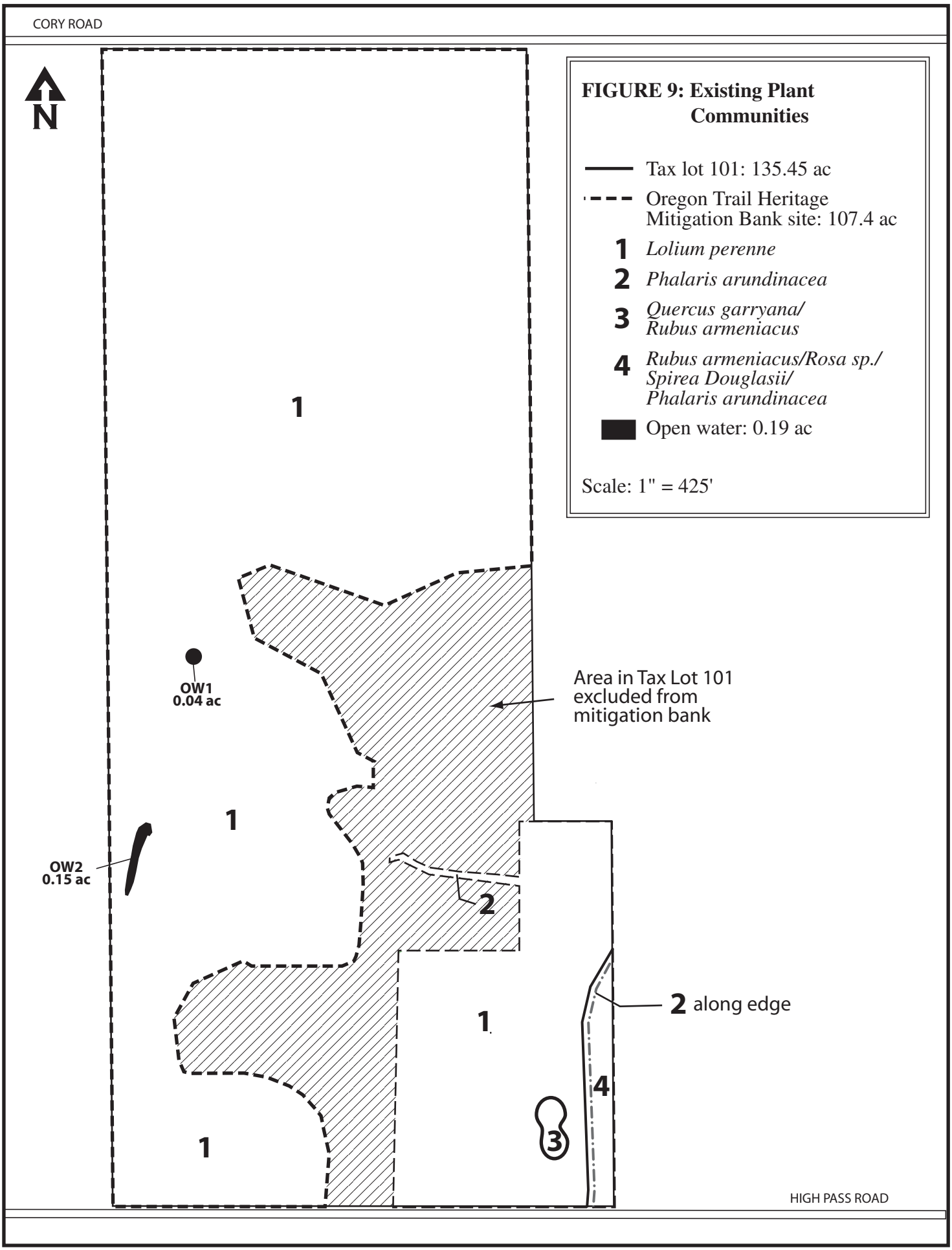

CORY ROAD
N
FIGURE 9: Existing Plant Communities
Tax lot 101: 135.45 ac
Oregon Trail Heritage Mitigation Bank site: 107.4 ac
1 Lolium perenne
2 Phalaris arundinacea
3 Quercus garryana/ Rubus armeniacus
4 Rubus armeniacus/Rosa sp./ Spirea Douglasii/ Phalaris arundinacea
Open water: 0.19 ac
Scale: 1" = 425'
1
OW1
0.04 ac
Area in Tax Lot 101 excluded from mitigation bank
1
OW2
0.15 ac
2
2 along edge
1
4
3
1
HIGH PASS ROAD

FIGURE 10: Aerial Photo of Oregon Trail Heritage Mitigation Bank and Vicinity
Source: Google Earth
Scale: 1" = 2,855'±

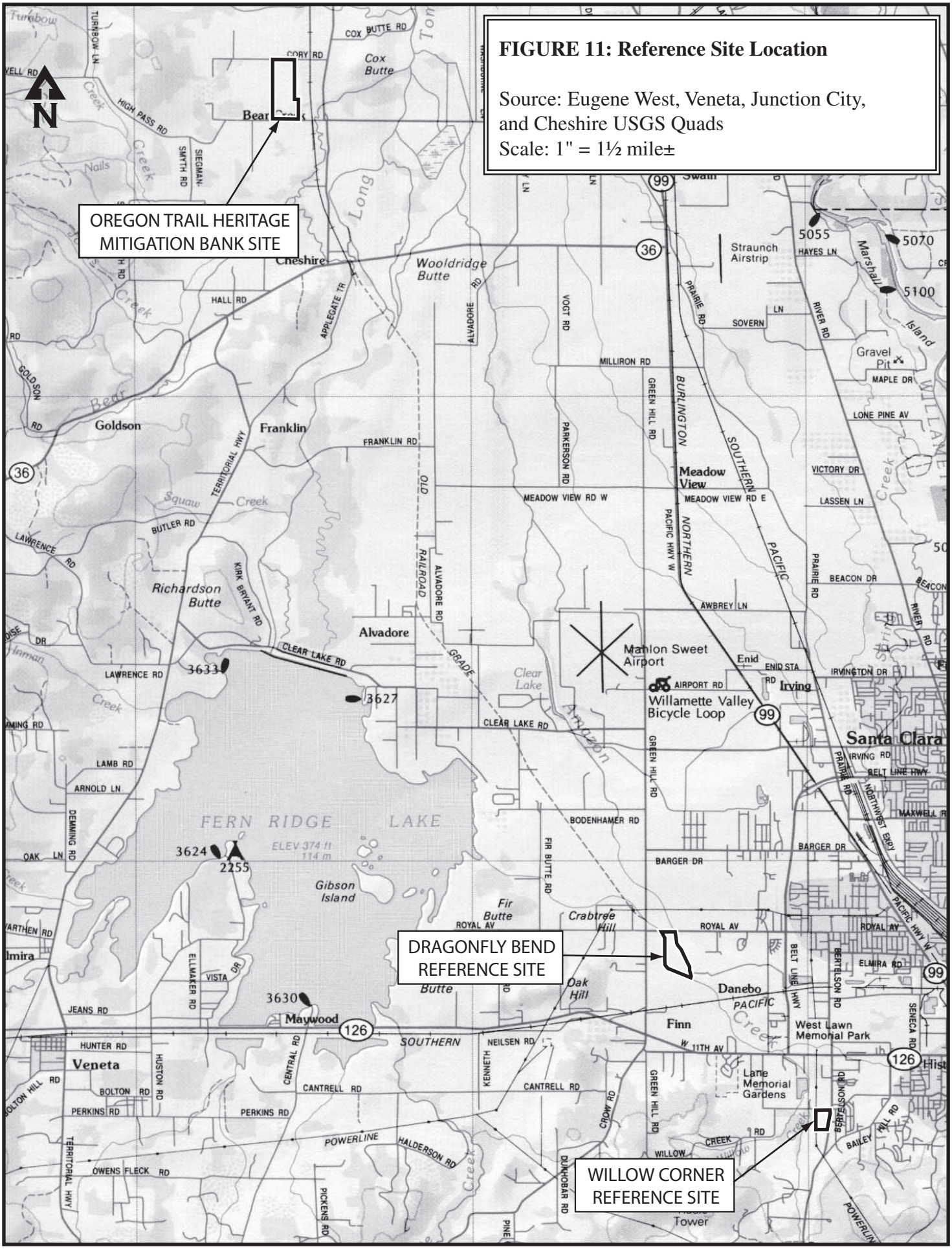


FIGURE 11: Reference Site Location

Source: Eugene West, Veneta, Junction City, and Cheshire USGS Quads
Scale: 1" = 1½ mile±

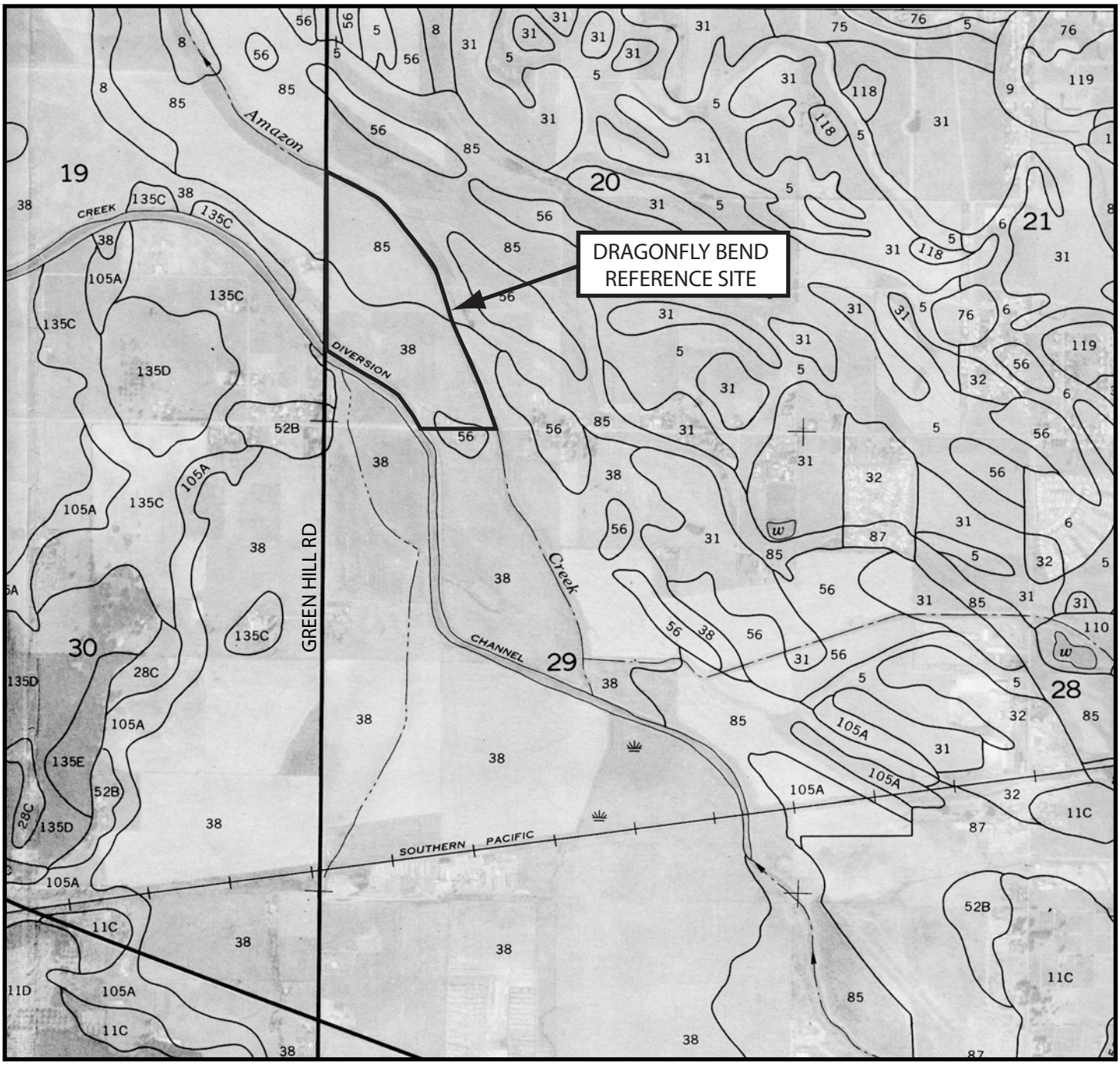


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FIGURE 12: Soil Survey Map for Dragonfly Bend Reference Site
Source: Lane County Soil Survey Sheet #75

#38: Dayton silt loam, Hydric
#56: Holcomb silty clay loam, Nonhydric with inclusions of hydric Aubrig and Dayton
#85: Natroy silty clay loam, Hydric

Scale: 3" = 5,000'

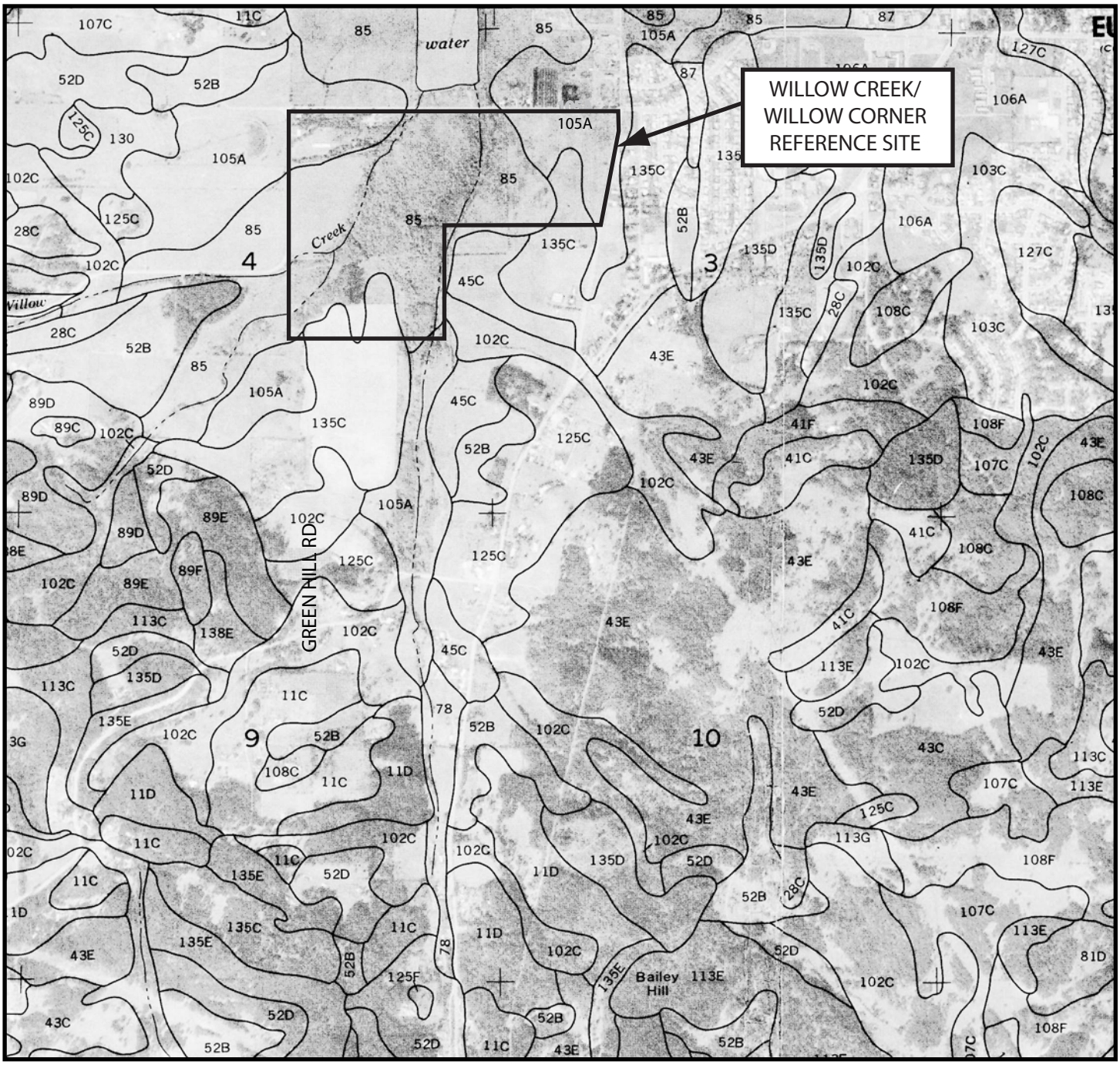

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FIGURE 13: Soil Survey Map for Willow Creek/Willow Corner Reference Site
Source: Lane County Soil Survey Sheet #90

#85: Natroy silty clay loam, Hydric
#105A: Pengra silt loam, Hydric
#135C: Willakenzie clay loam, Nonhydric

Scale: 3" = 5,000'

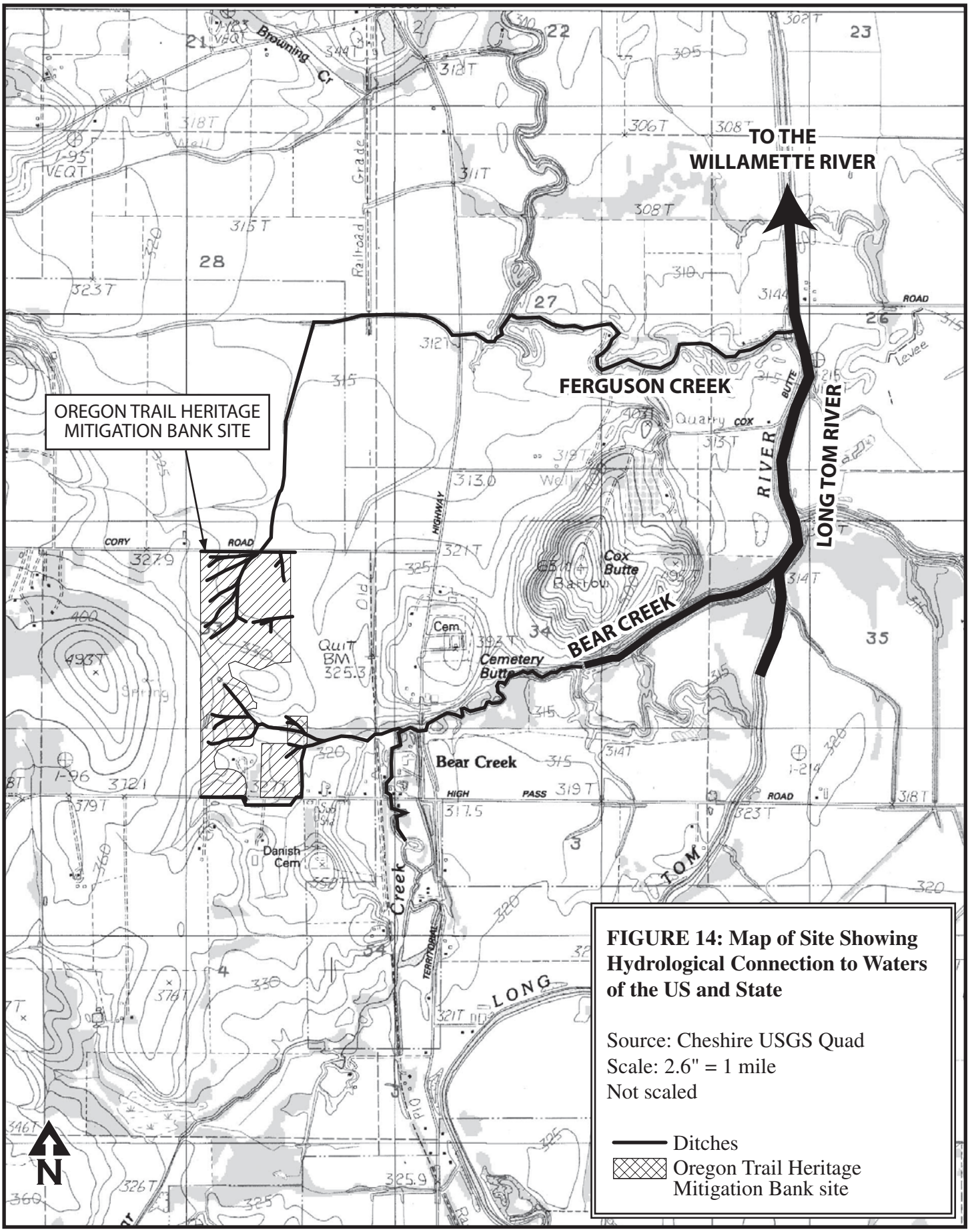

FIGURE 14: Map of Site Showing Hydrological Connection to Waters of the US and State

Source: Cheshire USGS Quad
Scale: 2.6" = 1 mile
Not scaled

Ditches
Oregon Trail Heritage Mitigation Bank site

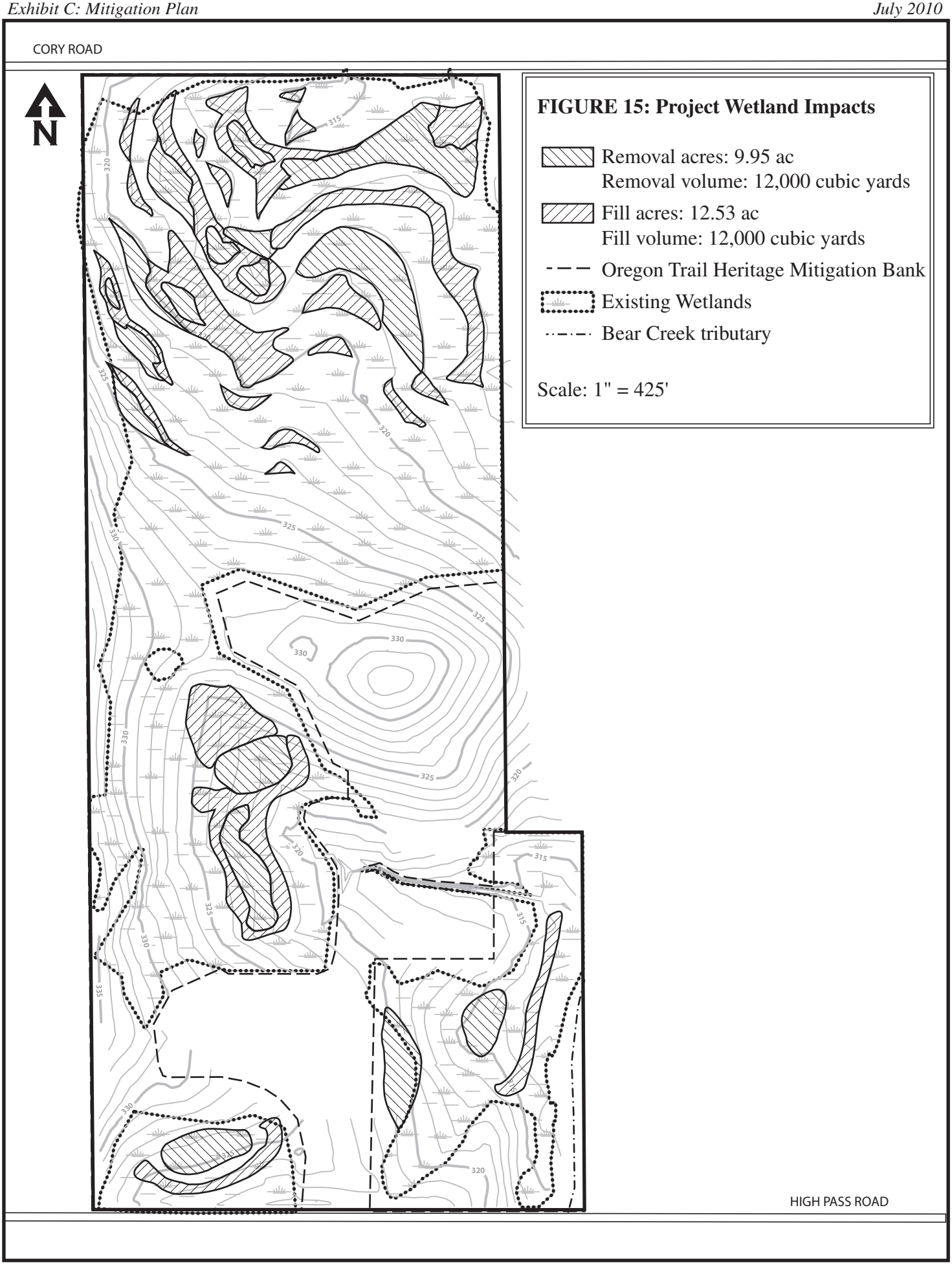
CORY ROAD
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FIGURE 15: Project Wetland Impacts
Removal acres: 9.95 ac
Removal volume: 12,000 cubic yards
Fill acres: 12.53 ac
Fill volume: 12,000 cubic yards
Oregon Trail Heritage Mitigation Bank
Existing Wetlands
Bear Creek tributary
Scale: 1" = 425'
HIGH PASS ROAD

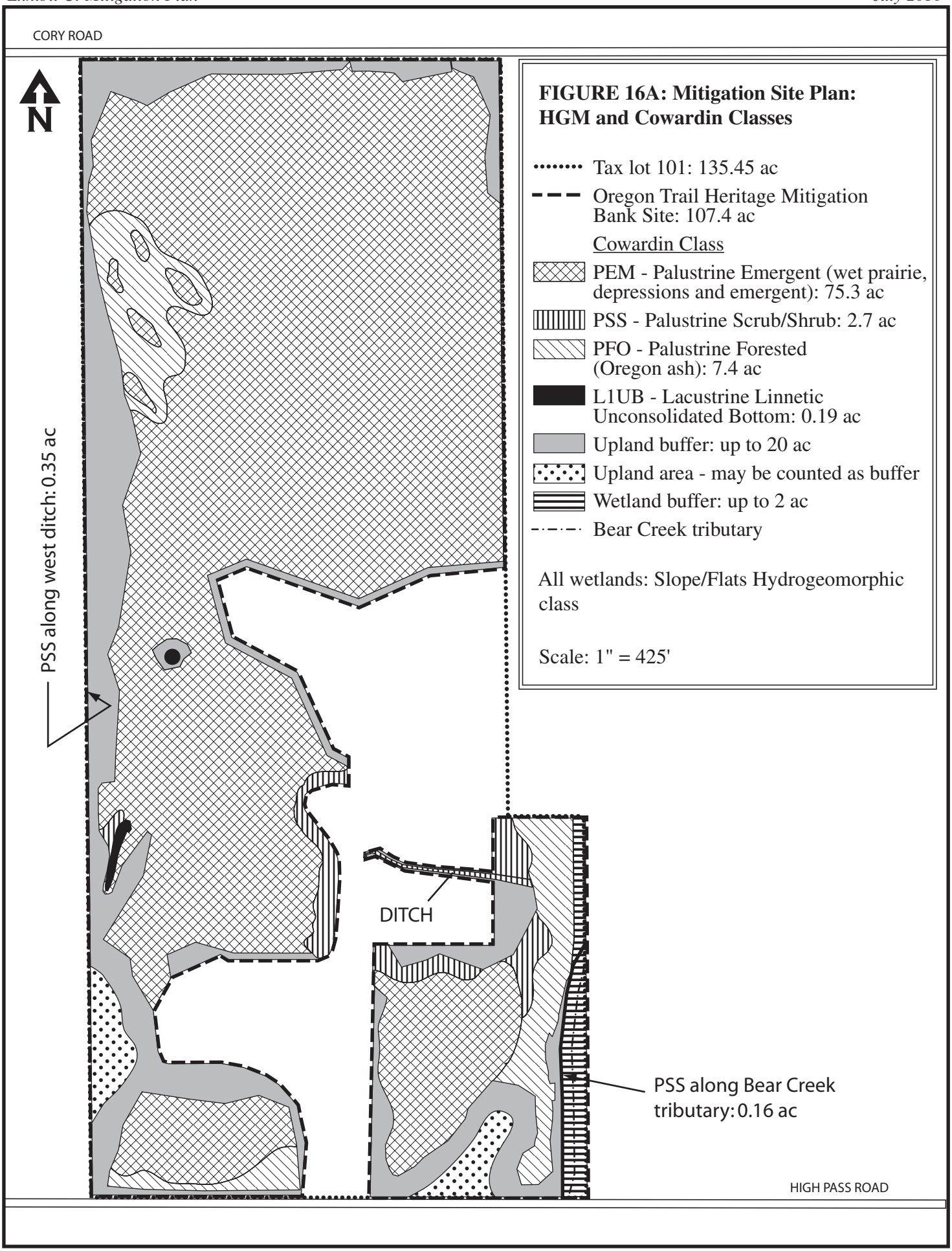
CORY ROAD
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FIGURE 16A: Mitigation Site Plan: HGM and Cowardin Classes
Tax lot 101: 135.45 ac
Oregon Trail Heritage Mitigation Bank Site: 107.4 ac
Cowardin Class
PEM - Palustrine Emergent (wet prairie, depressions and emergent): 75.3 ac
PSS - Palustrine Scrub/Shrub: 2.7 ac
PFO - Palustrine Forested (Oregon ash): 7.4 ac
L1UB - Lacustrine Linnetic Unconsolidated Bottom: 0.19 ac
Upland buffer: up to 20 ac
Upland area - may be counted as buffer
Wetland buffer: up to 2 ac
Bear Creek tributary
All wetlands: Slope/Flats Hydrogeomorphic class
Scale: 1" = 425'
PSS along west ditch: 0.35 ac
DITCH
PSS along Bear Creek tributary: 0.16 ac
HIGH PASS ROAD

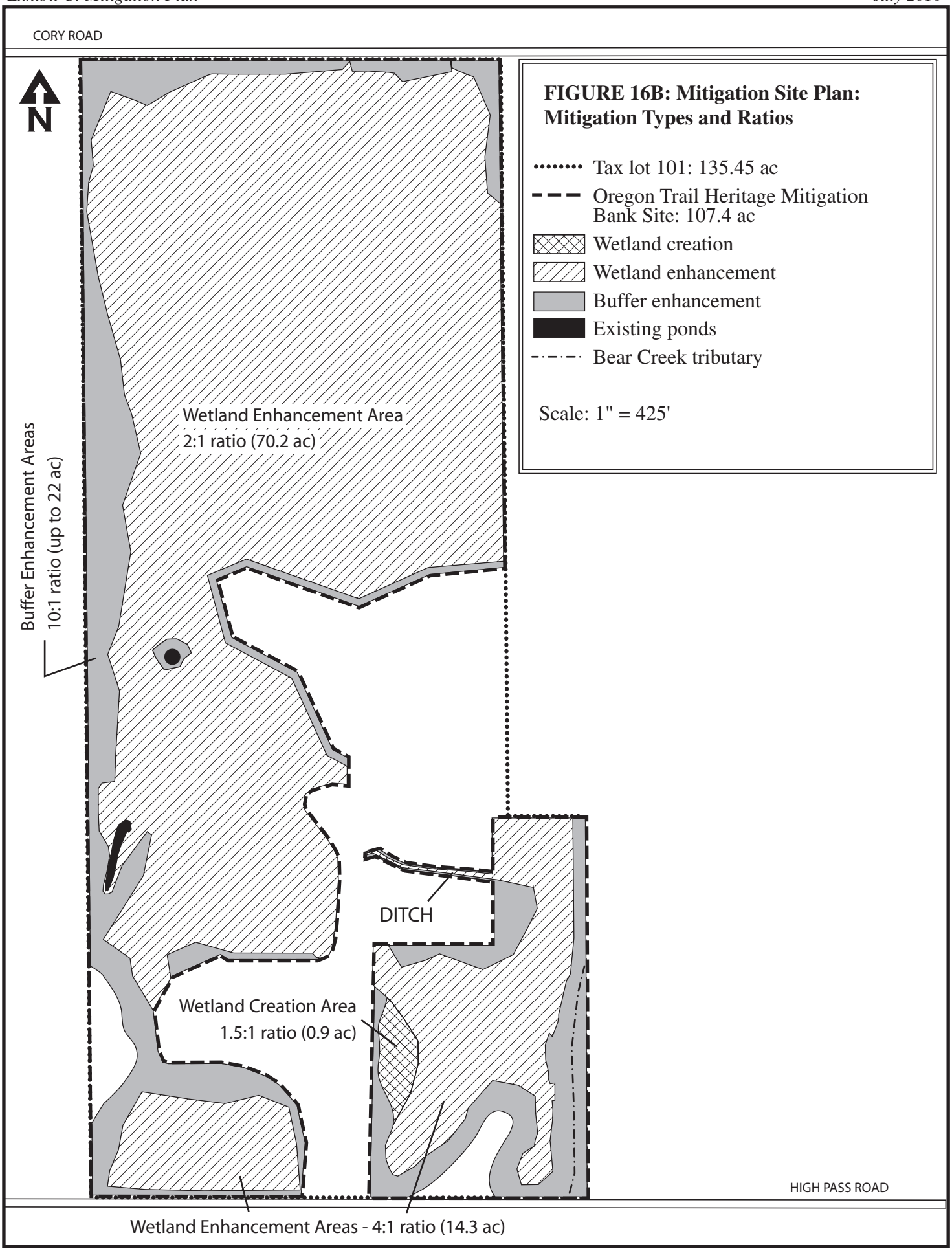
CORY ROAD
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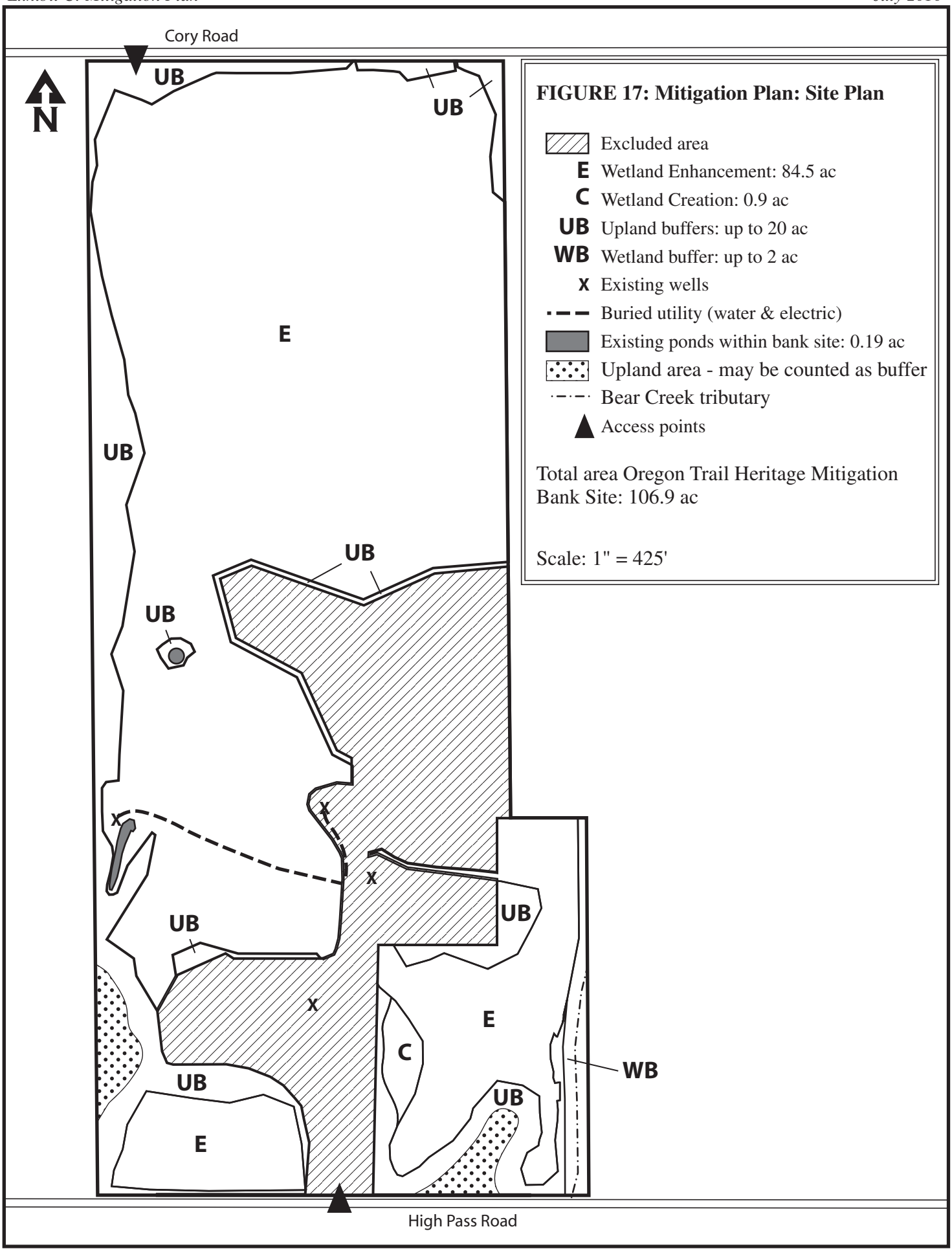
FIGURE 16B: Mitigation Site Plan: Mitigation Types and Ratios
Tax lot 101: 135.45 ac
Oregon Trail Heritage Mitigation Bank Site: 107.4 ac
Wetland creation
Wetland enhancement
Buffer enhancement
Existing ponds
Bear Creek tributary
Scale: 1" = 425'
Wetland Enhancement Area
2:1 ratio (70.2 ac)
Buffer Enhancement Areas
10:1 ratio (up to 22 ac)
DITCH
Wetland Creation Area
1.5:1 ratio (0.9 ac)
HIGH PASS ROAD
Wetland Enhancement Areas - 4:1 ratio (14.3 ac)


Cory Road
N
UB
UB
E
UB
UB
UB
X
X
X
UB
UB
X
E
C
WB
UB
UB
E
High Pass Road
FIGURE 17: Mitigation Plan: Site Plan
Excluded area
E Wetland Enhancement: 84.5 ac
C Wetland Creation: 0.9 ac
UB Upland buffers: up to 20 ac
WB Wetland buffer: up to 2 ac
X Existing wells
Buried utility (water & electric)
Existing ponds within bank site: 0.19 ac
Upland area - may be counted as buffer
Bear Creek tributary
Access points
Total area Oregon Trail Heritage Mitigation Bank Site: 106.9 ac
Scale: 1" = 425'

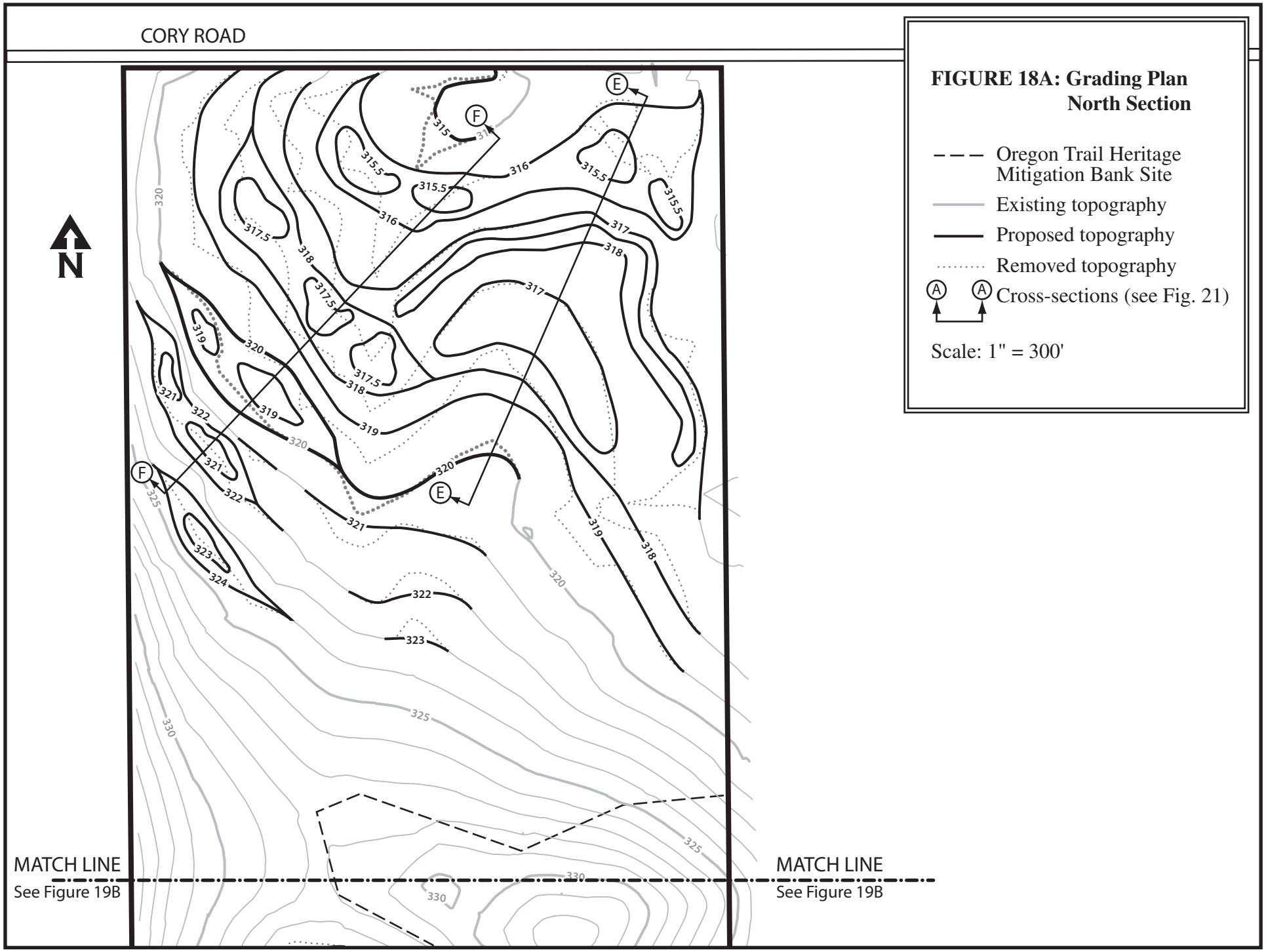
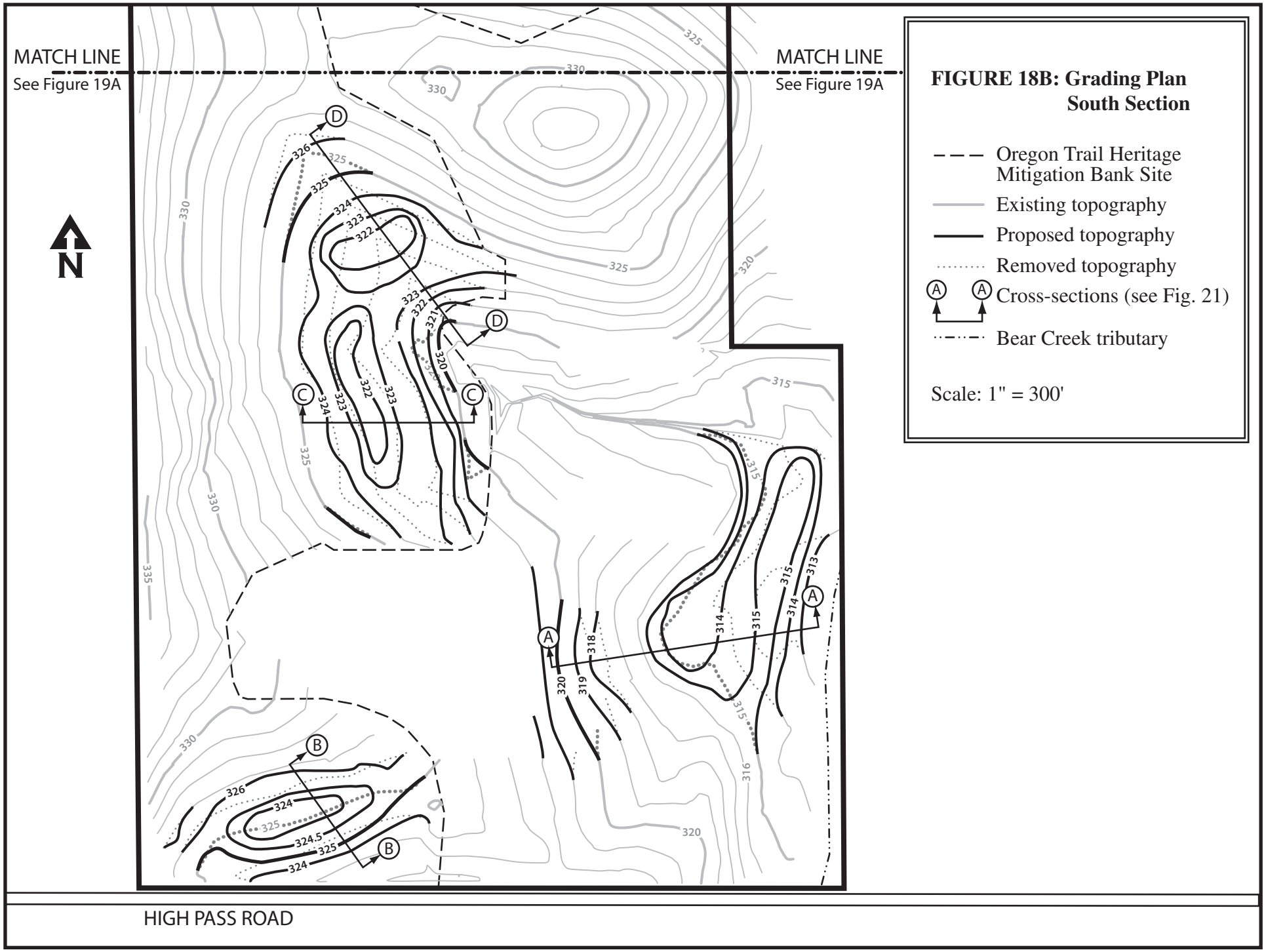


FIGURE 18A: Grading Plan North Section


MATCH LINE
See Figure 19A
MATCH LINE
See Figure 19A
N
HIGH PASS ROAD
FIGURE 18B: Grading Plan
South Section
Oregon Trail Heritage Mitigation Bank Site
Existing topography
Proposed topography
Removed topography
Cross-sections (see Fig. 21)
Bear Creek tributary
Scale: 1" = 300'

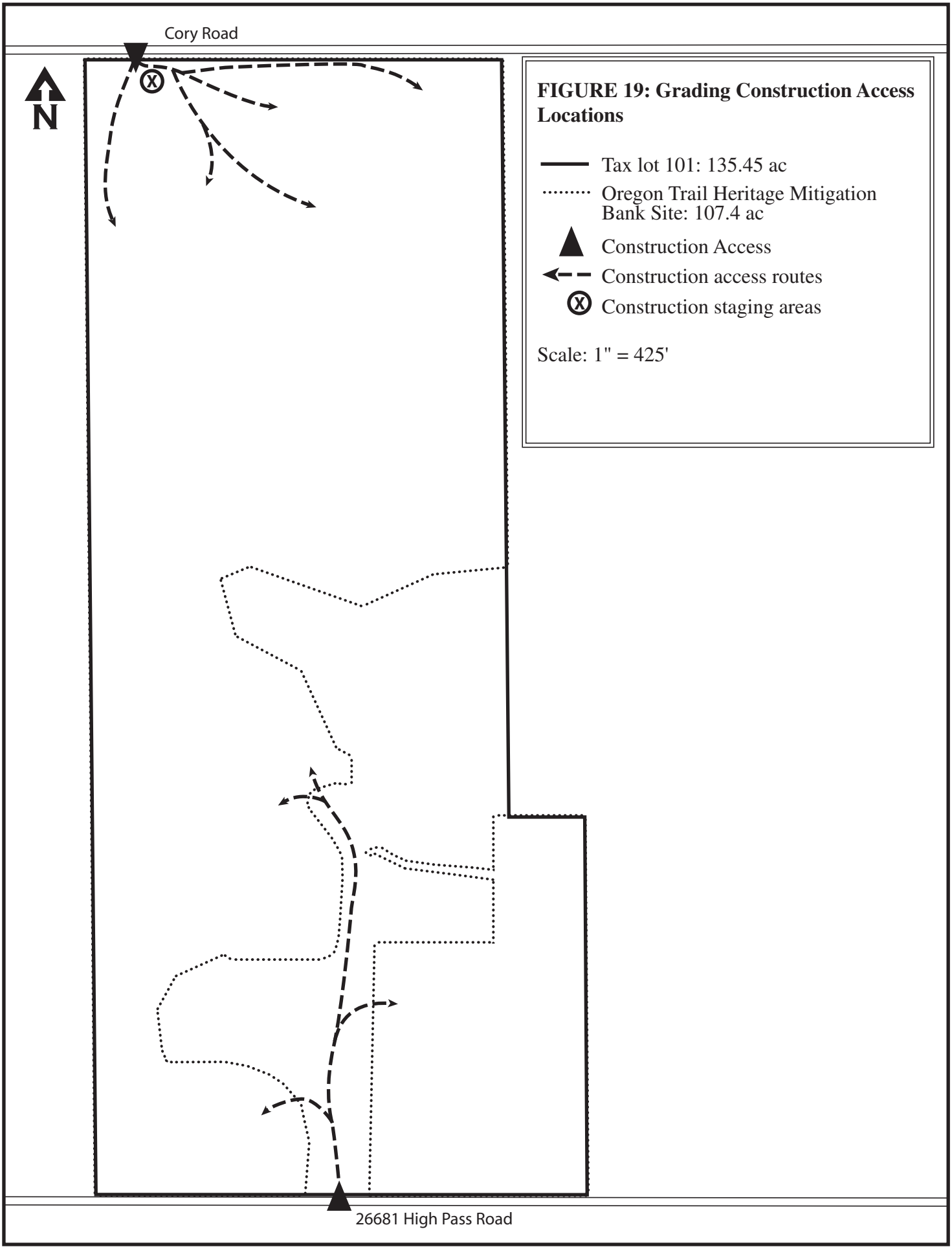


FIGURE 19: Grading Construction Access Locations

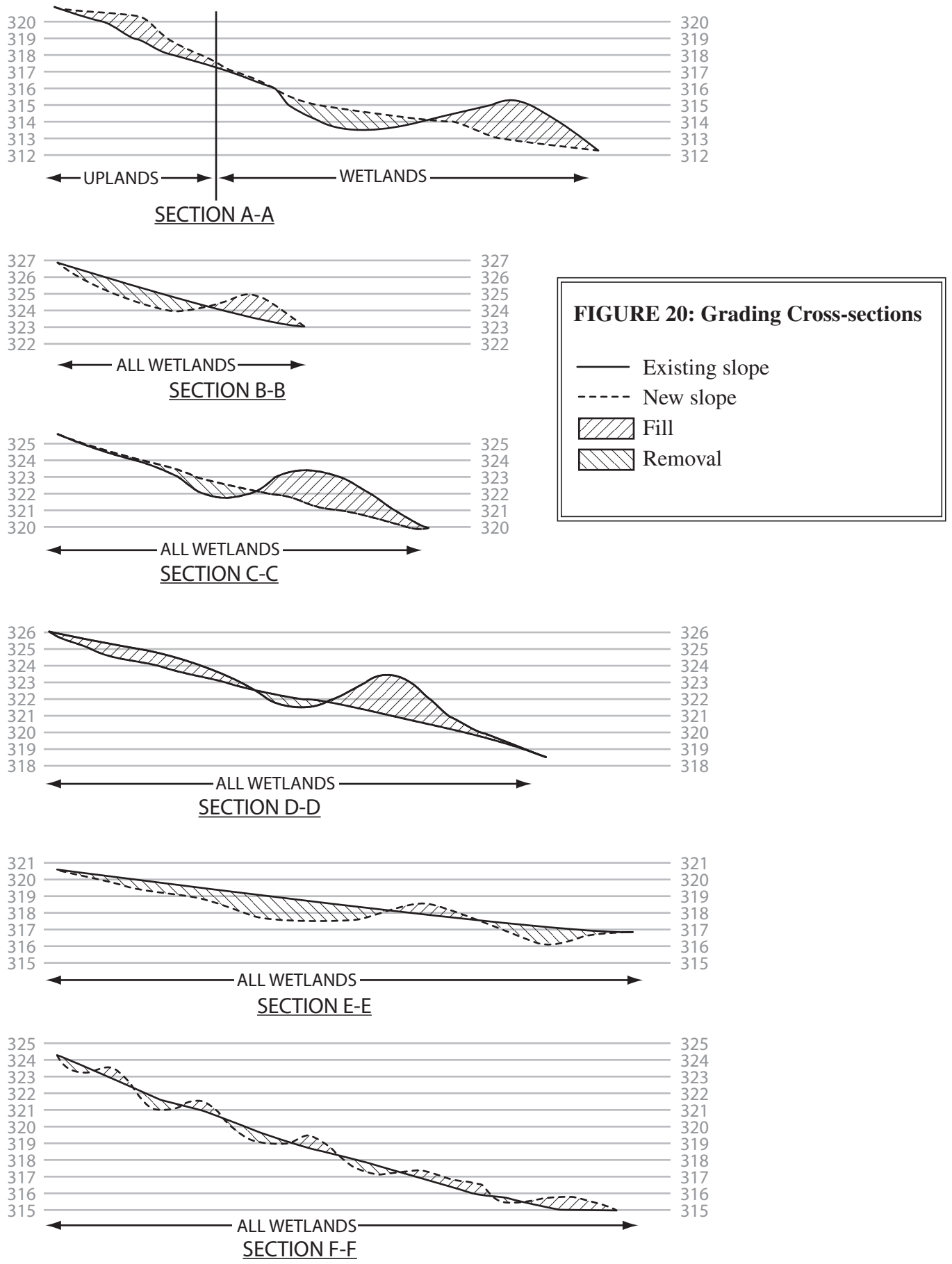


FIGURE 20: Grading Cross-sections

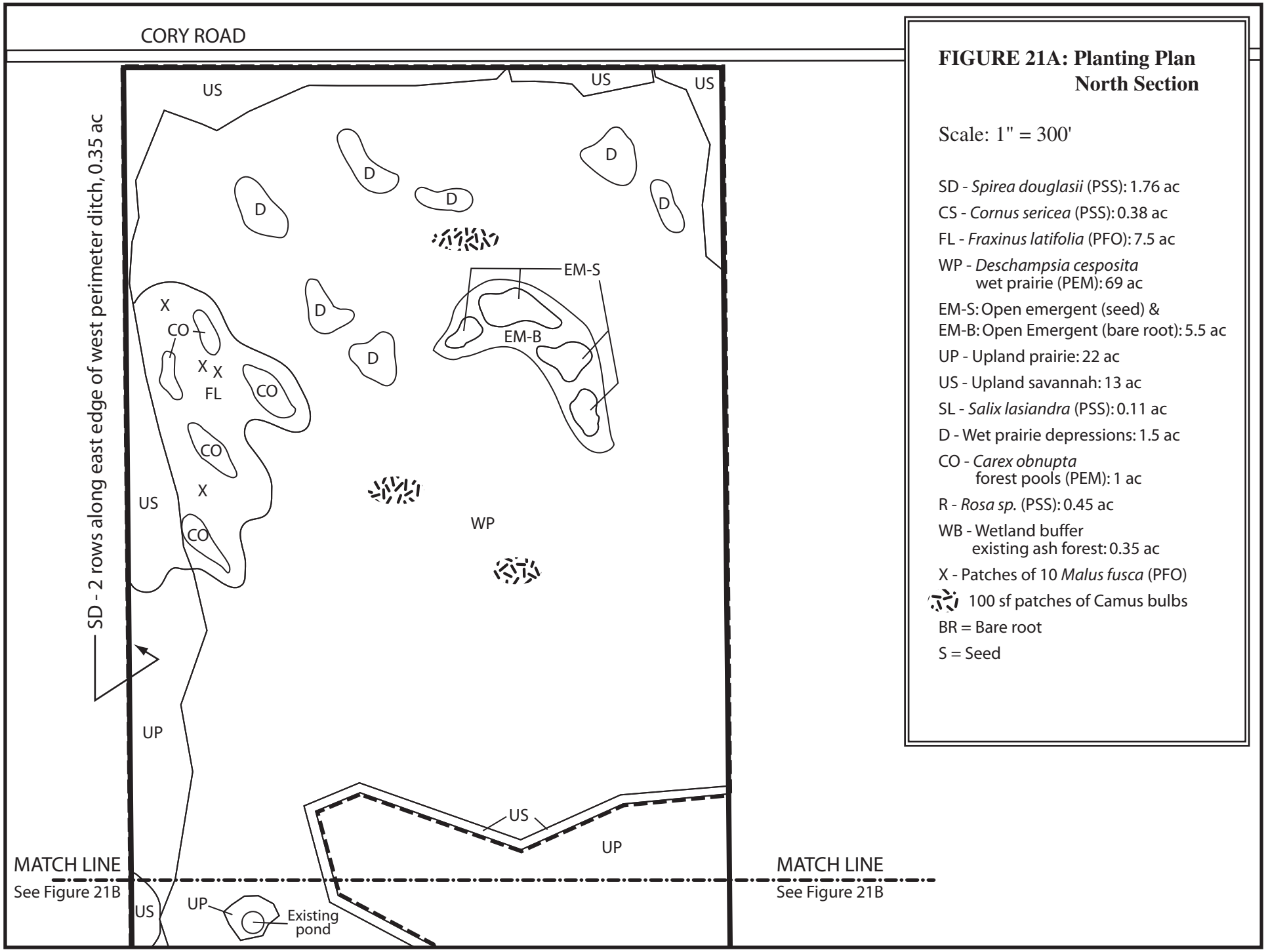


FIGURE 21A: Planting Plan North Section

Scale: 1" = 300'

SD - *Spirea douglasii* (PSS): 1.76 ac

CS - *Cornus sericea* (PSS): 0.38 ac

FL - *Fraxinus latifolia* (PFO): 7.5 ac

WP - *Deschampsia cesposita* wet prairie (PEM): 69 ac

EM-S: Open emergent (seed) &
EM-B: Open Emergent (bare root): 5.5 ac

UP - Upland prairie: 22 ac

US - Upland savannah: 13 ac

SL - *Salix lasiandra* (PSS): 0.11 ac

D - Wet prairie depressions: 1.5 ac

CO - *Carex obnupta* forest pools (PEM): 1 ac

R - *Rosa sp.* (PSS): 0.45 ac

WB - Wetland buffer existing ash forest: 0.35 ac

X - Patches of 10 *Malus fusca* (PFO)

100 sf patches of Camus bulbs

BR = Bare root

S = Seed

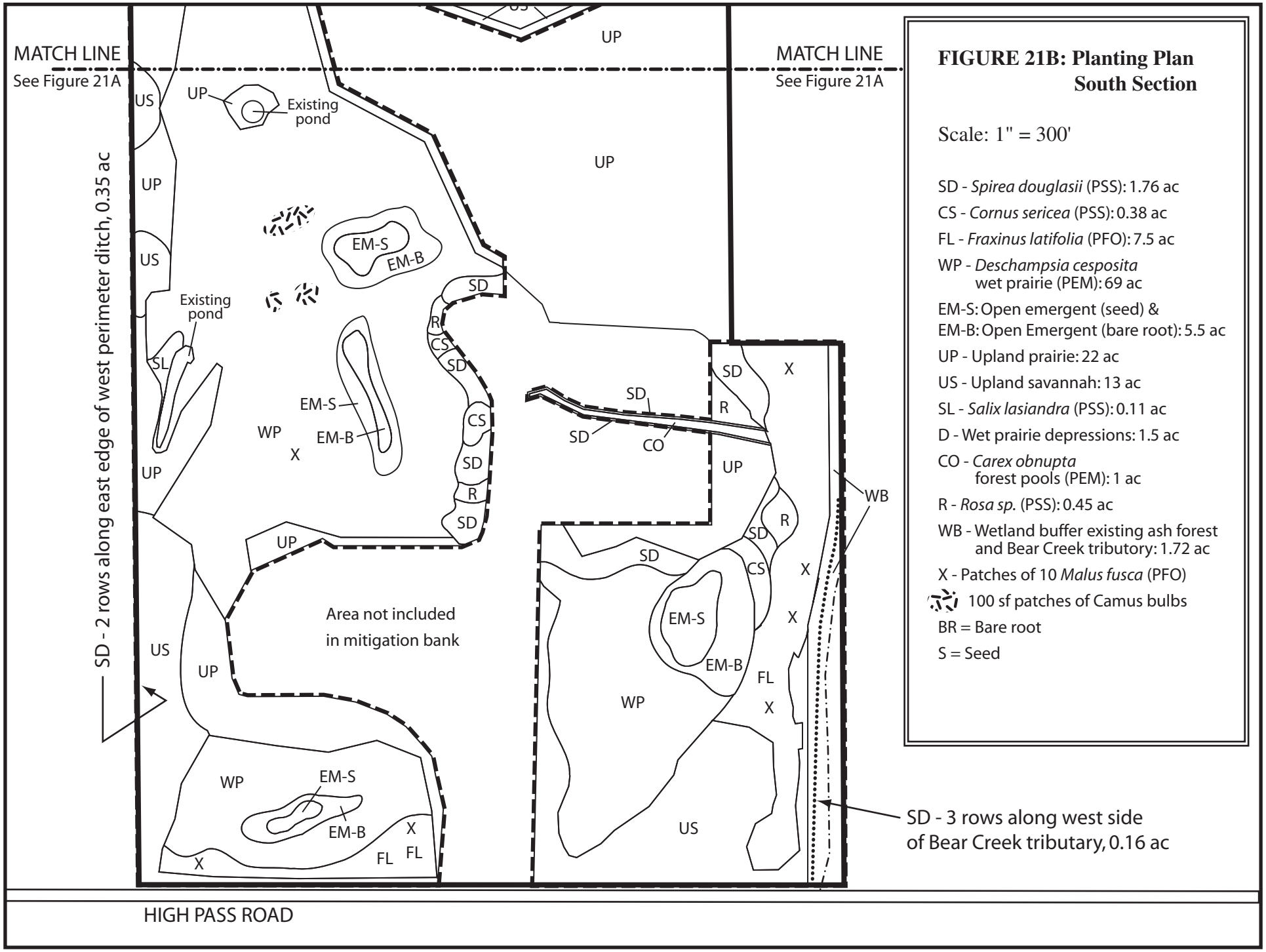


FIGURE 21B: Planting Plan South Section

Scale: 1" = 300'

SD - *Spirea douglasii* (PSS): 1.76 ac

CS - *Cornus sericea* (PSS): 0.38 ac

FL - *Fraxinus latifolia* (PFO): 7.5 ac

WP - *Deschampsia cesposita* wet prairie (PEM): 69 ac

EM-S: Open emergent (seed) &
EM-B: Open Emergent (bare root): 5.5 ac

UP - Upland prairie: 22 ac

US - Upland savannah: 13 ac

SL - *Salix lasiandra* (PSS): 0.11 ac

D - Wet prairie depressions: 1.5 ac

CO - *Carex obnupta* forest pools (PEM): 1 ac

R - *Rosa sp.* (PSS): 0.45 ac

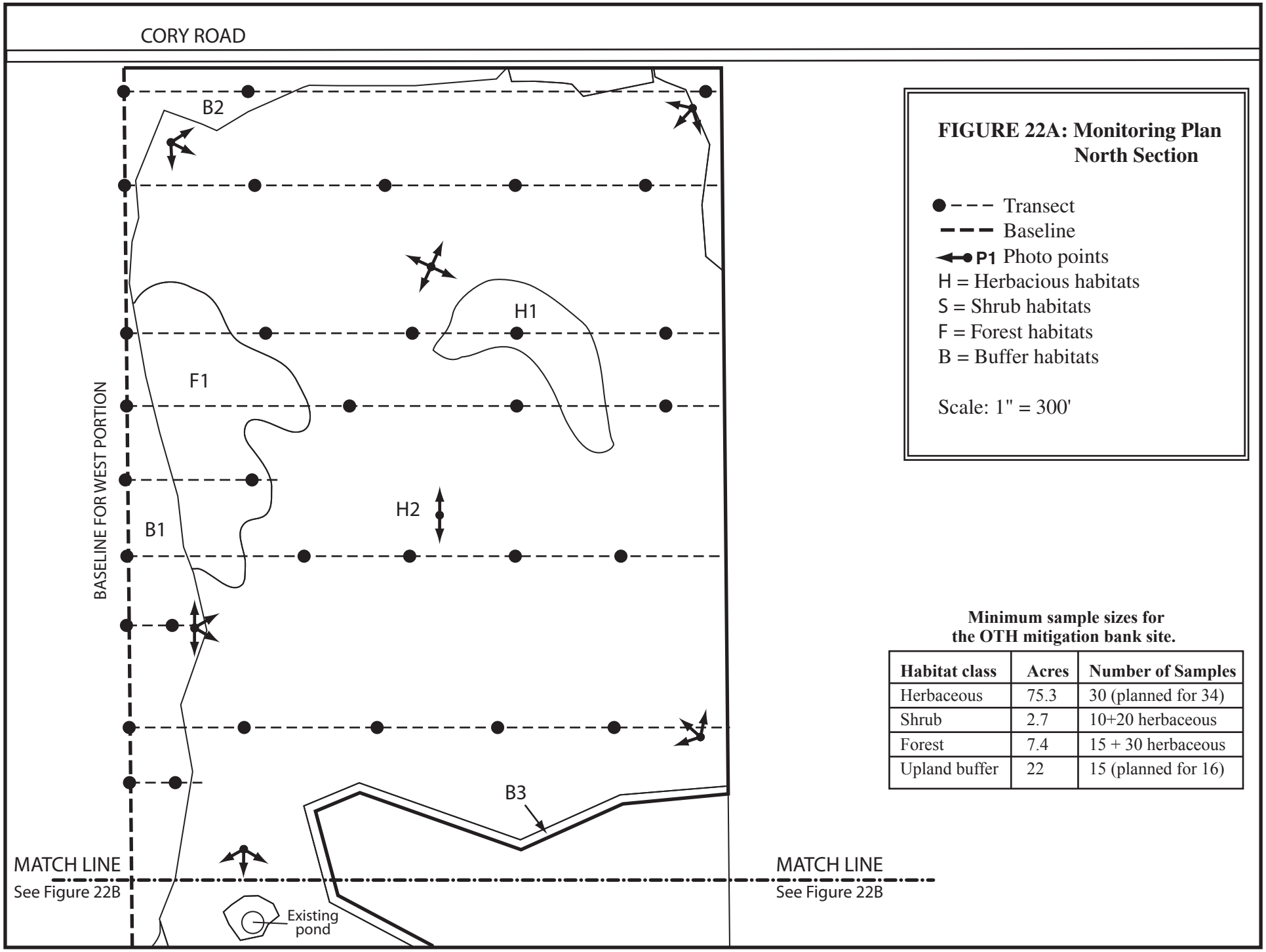
WB - Wetland buffer existing ash forest and Bear Creek tributory: 1.72 ac

X - Patches of 10 *Malus fusca* (PFO)

100 sf patches of Camus bulbs

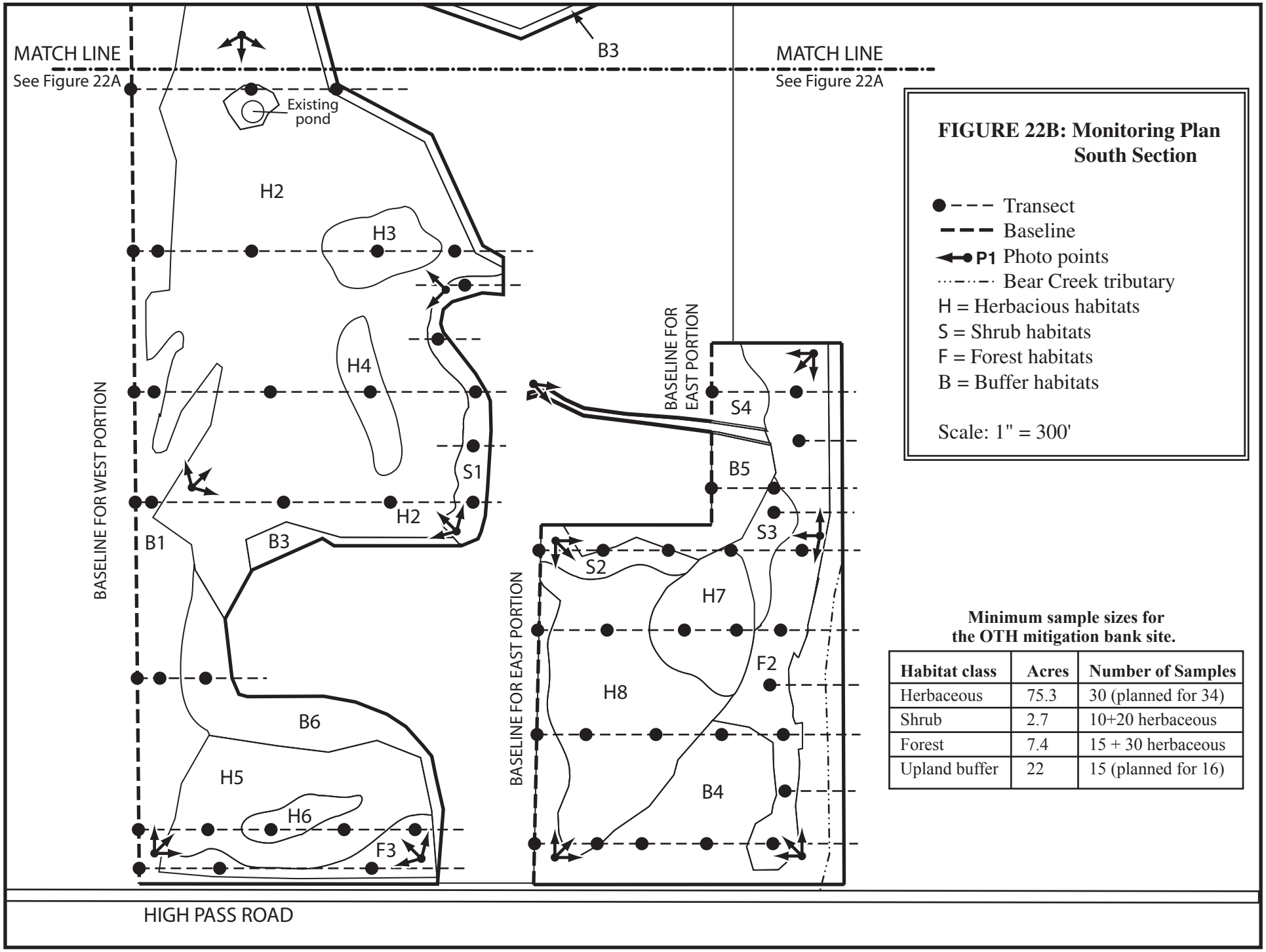
BR = Bare root

S = Seed



Minimum sample sizes for the OTH mitigation bank site.

Habitat class	Acres	Number of Samples
Herbaceous	75.3	30 (planned for 34)
Shrub	2.7	10+20 herbaceous
Forest	7.4	15 + 30 herbaceous
Upland buffer	22	15 (planned for 16)



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Herbaceous	75.3	30 (planned for 34)
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Upland buffer	22	15 (planned for 16)

SHEET FOR AUTOMATIC CALCULATION OF FUNCTION SCORES - revised June 2008

Slope or Flats subclass

OTH Mitigation Bank-pre construction. August 2009

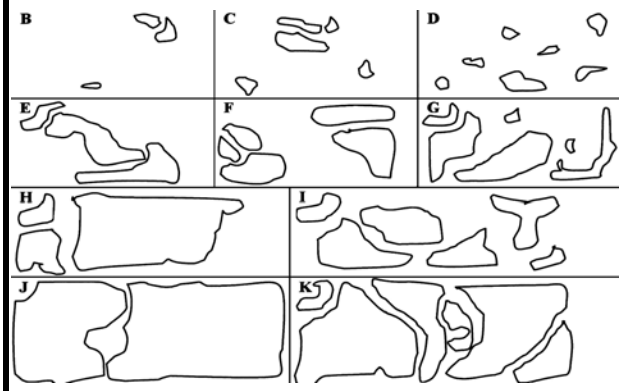
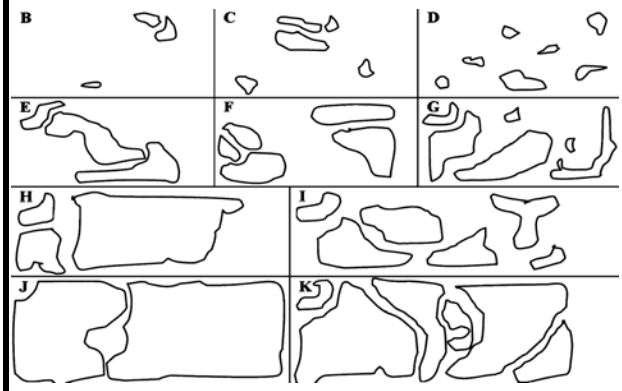
It is recommended to do a "Save As" from this blank spreadsheet for each use, assigning different file names. This will help reduce the chance of accidentally confusing new data with previously entered data.
For reference, the function(s) addressed by each indicator are noted in column E. Codes are shown below next to the function names. The capital letter in the code (e.g., sp-**B**) in column E refers to the code for the indicator in the published Volume IA.
HFR= scaled to highest functioning site of this subclass found by DSL; **LAR**= scaled to least-altered site of this subclass found by DSL Scores greater than 1 indicate the capacity of the function at the site you assessed may be greater than in all sites of this subclass assessed by the DSL team during model calibration.
Data **must** be entered for every indicator, unless the scale block for this subclass is shaded. Each value in column D must be less than or equal to 1.

Function:	**Calculated Function Capacity for SF sites if HFR:**	**if LAR:**
Water Storage & Delay (ws)	0.03	0.06
Sediment Stabilization & Phosphorus Retention (sp)	0.58	0.62
Nitrogen Removal (n)	0.48	0.49
Primary Production (pp)	0.28	0.42
Invertebrate Habitat Support (i)	0.12	0.12
Amphibian & Turtle Habitat (at)	0.43	0.43
Breeding Waterbird Support (bw)	0.00	0.00
Wintering & Migrating Waterbird Support (ww)	0.71	0.82
Songbird Habitat Support (sb)	0.83	0.93
Support of Characteristic Vegetation (v)	0.38	0.40

Note 1: Models and scores for ws, sp, n, and pp intentionally do not account for the **area** of the wetland, an especially important factor for these functions.
Note 2: This method should be applied to an entire contiguous wetland, not just to the portion affected directly by a planned alteration or restoration.

Indicator	***Raw Datum***	***Scale for SF sites***	***Scaled Datum***	***Function***
Presence of permanent surface water (water year-round during most years)? (p. 82)	yes	absent = 0 present = 1.0	1	sb-P rf-X
Percent of permanent zone that is open water (i.e., lacking emergent and underwater plants) (p. 79) (Answer "0" if no permanent zone is present)	20	100 =.1 80-99 =.8 60-80 = 1.0 40-60 =.8 20-40 =.4 0-20 =.2	0.4	at-M
Percent of site that is inundated only seasonally (i.e., watermarks, moss lines, debris lines, etc.) (p. 81)	10	none = 0 1-10 =.1 10-25 =.6 25-50 =.8 > 50 = 1.0	0.1	i-B n-A ws-A
		none = 0 1-20 =.5 20-40 =.7 40-60 =.8 60-80 =.9 >80 = 1.0	0.5	ww-A

At least 0.5 acre of surface water persists until at least July 1 and water is mostly wider than 10 ft?	no	Yes = 1 No = 0	0	bw-X
Predominant water depth during biennial low water (p. 82)	0	0" = 0 1-2" =.6 2-24" = 1.0 2-6 ft =.8 >6 ft =.6	0	bw-D
		0 =.1 1-2" = 1.0 2-24" =.8 >24" =.2	0.1	i-D
Percent of site occupied by the most extensive depth category at this site during biennial low water. (p. 81). (Delimit the low water zone first, then break into these depth categories, then identify the category that predominates horizontally). (Possible categories are: 0 inches; 1-2 inches; 2-24 inches; 2-6 feet; < 6 feet)	95	100 = 0 80-100 =.1 50-80 =.4 30-50 =.8 <30 = 1.0	0.1	bw-B
Difference between the predominating biennial high and low water levels (p. 71) 0) = No change 1) = Difference of 1 class 2) = Difference of 2 classes 3) = Difference of 3 classes 4) = Difference of 4 classes Class 1 = 0 inches Class 2 = 1-2 inches Class 3 = 2-24 inches Class 4 = 2-6 feet Class 5 = > 6 feet	2	0) = 0 1) =.3 2) =.5 3) =.8 4) = 1.0	0.5	n-B at-E bw-E
		0) = 0 1) = .25 2) = .5 3) = .75 4) = 1.0	0.5	ww-F
Predominant vertical increase in surface water level (ft) in most of the seasonal zone (i.e., water marks, moss lines, debris lines, etc. Look at the highest point for 2 year flood and measure the difference from biennial low)	0.4	0 = 0 .1 - .4 =.25 .5- 1.0 =.5 1 - 2 =.75 >2 = 1.0	0.25	ws-B
Number of depth categories during biennial high water. (p. 77) Categories are: ___ 1 - 2 inches ___ 2 - 24 inches ___ 2 – 6 ft ___ > 6 ft	3	1 = 0 2 =.3 3 =.6 4 = 1.0	0.6	bw-C
		1 = .1 2 = .3 3 = .6 4 = 1.0	0.6	ww-E

Percent & distribution of pools during biennial high water. (p. 80) (Note: if site is > 1 acre, select the condition that predominates in 1 acre sub-units of the site.) A = None  	C	A = 0 B =.6 C =.65 D =.7 E,F =.75 K =.8 H =.85 I =.9 J =.95 G = 1.0	0.65 0.65	sp-C ww-D i-E, at-A
Percent & distribution of pools during biennial low water. (p. 80) (Note: if site is > 1 acre, select the condition that predominates in 1 acre sub-units of the site.) A = None  	A	A = 0 B =.6 C =.65 D =.7 E,F =.75 J =.8 H =.85 I =.9 K =.95 G = 1.0	0 0	bw-A, pp-E, n-1
Percent of the site occupied by hummocks (p. 74, 75)	none	none = 0 1-10 =.6 10-90 =.8 >90 = 1.0	0	at-B ww-C sb-M sp-B pp-C n-G i-F

Maximum annual extent of vernal pools/ shorebird scrapes and mudflats: (p. 76) A = none B = 1 – 100 sq. ft. C = 100-1000 sq. ft. D = 1000 – 10,000 sq. ft. E = >10,000 sq. ft Must meet ALL of the following: a) herbs are generally < 4" and comprise < 80% ground cover during winter or early spring b) topography is basically flat c) inundated to a depth of < 6" for 2 or more continuous weeks d) never shaded by trees, shrubs, or buildings e) not entirely a constructed ditch	A	A = 0 B =.6 C =.7 D =.8 E = 1.0	0	ww-B
Presence of logs or boulders that extend above the surface of permanent water (p. 84)	none	absent = 0 present = 1.0	0	at-G
Predominant soil texture: (p 83) GC= gravel or cobble SA=sand, sandy loam, or loamy sand L= loam, silty loam, gravelly loam C= clay, sandy clay, silty clay, clay loam, silty clay loam O= organic particles<1mm Guidance: 1. Soil remains in a ball when squeezed YES…Go to 3; NO …Go to 2 2. > 50% of the particles (by weight) are > 1 mm YES…"GC"; NO …"SA" 3. Squeezed soil forms an even ribbon YES…Go to 4; NO …"SA" 4. Soil ribbon extended > 1" without breaking YES…"C/O"; NO …Go to 5 5. Soils feels very gritty YES... "SA"; NO…"L"	C	GC =.1 SA =.2 L =.8 C/O = 1.0	1	sp-D
Presence of some mottling and/or other features that indicate oxygen deficits, or, permanent water is present	yes	absent = 0 present = 1.0	1	n-X
Mapped soil series is hydric (not simply a hydric inclusion). See county soil map and p. 75.	yes	1= yes 0= no	1	v-C at-D ww-G i-I
Percent of site that was constructed on former uplands (non-hydric soil) (p. 81): 6) = recent, >90% of site 5) = recent, 10-90% of site 4) = recent, 1-10% of site 3) = >5 years ago, >90% of site 2) = >5 years ago, 10-90% of site 1) = >5 years ago, 1-10% of site 0) = none	none	6) = 0 5) = .1 4) = .2 3) = .3 2) = .4 1) = .5 0) = 1.0	0	i-J at-K v-K n-D

Tally the percent of surrounding land cover (exclude the site itself) as exists during a typical May. Answer each row independently. They do not necessarily sum to 100%.

within 200 ft of the site boundary:

a. % Water, wetland =	20
b. % Grassland, water, wetland =	75
c. % Grassland, row crops =	90
d. % Wooded =	5
e. % Natural (not lawn, crops, paved, building)=	5

within 1000 ft:

f. % Water, wetland =	30
g. % Grassland, water, wetland =	85
h. % Grassland, row crops =	85
i. % Wooded =	15
j. % Natural =	10

within 5,280 ft:

k. % Water, wetland =	30
l. % Grassland, row crops =	80
m. % Wooded =	10

In column D, enter the scaled value for the number in column B. (= a), above)	20	0 = 0 1–10 =.4 10-20 =.8 >20 = 1.0	0.8	bw-I ww-I
In column D, enter the scaled value for the number in column B. (=(b), above)	75	<10 =.1 10-20 =.2 20-40 =.4 40-60 =.6 60-80 =.8 >80 = 1.0	0.8	sb-N
In column D, enter the scaled value for the number in column B. (=(c), above)	90	<10 = 0 10-20 = .1 20-40 = .3 40-80 = .5 80-90 = .7 90-100 = 1.0	0.7	ww-K
In column D, enter the scaled value for the number in column B. (=(d), above)	5	0 = 0 1-10 =.1 10-20 =.2 20-40 =.4 40-60 =.6 60-80 =.8 >80 = 1.0	0.1	sb-I
In column D, enter the scaled value for the number in column B. (=(e), above)	5	<10 = 0 10-20 = .1 20-40 = .3 40-80 = .5 80-90 = .7 90-100 = 1.0	0	i-L at-O v-R
In column D, enter the scaled value for the number in column B. (=(a+f+k)/3), above)	27	none = 0 1 – 10 =.4 10-20 =.8 >20 = 1.0	1	ww-H bw-J

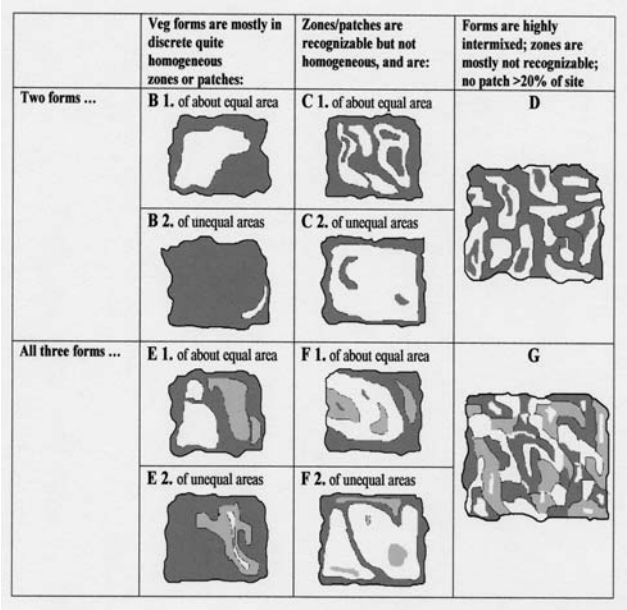
In column D, enter the scaled value for the number in column B. (=(c+h+l)/3), above)	85	<10 = 0 10-20 = .1 20-40 = .3 40-80 = .5 80-90 = .7 90-100 = 1.0	0.7	ww-J
In column D, enter the scaled value for the number in column B. (= (d+i+m)/3), above)	10	<10 =.1 10-20 =.2 20-40 =.4 40-60 =.6 60-80 =.8 >80 = 1.0	0.2	sb-J
In column D, enter the scaled value for the number in column B. (= (e+j)/2), above)	7.5	<10 = 0 10-20 = .1 20-40 = .3 40-80 = .5 80-90 = .7 90-100 = 1.0	0	bw-K
In column D, enter the scaled value for the number in column B. (= (b+g)/2), above)	80	<10 =.1 10-20 =.2 20-40 =.4 40-60 =.6 60-80 =.8 >80 = 1.0	0.8	sb-O
Percent of land cover within 200 ft (but only in the contributing watershed) that is "natural" – that is, NOT cropland, lawns, pavement, or buildings (p. 79)	0	<10 = 0 10-20 =.1 20-40 =.3 40-90 =.5 90-100 = 1.0	0	pp-F
		<10 = 0 10-20 =.1 20-40 =.3 40-90 =.5 90-99 =.9 100 = 1.0	0	i-M v-Q
Percent woodland divided by percent grassland-crops within 200 ft of the site (p. 71)	0.05	<.1 =.1 0.1-0.8 =.6 0.8-1.2 = 1.0 1.2 –2.0 =.6 >2.0 =.1	0.1	at-P
Distance (ft) to nearest busy road (p. 71) This includes a) any road or parking lot in a develop area that contains >4 buildings per acre, b) any road with a maximum traffic rate of > 6 vehicles per minute, during an average day during the summer	2400-4800	<100 = 0 100-300 =.3 300-600 =.5 600-1200 =.7 1200-2400 =.8 2400-4800 =.9 >4800 = 1.0	0.9	bw-G at-N v-P sb-R

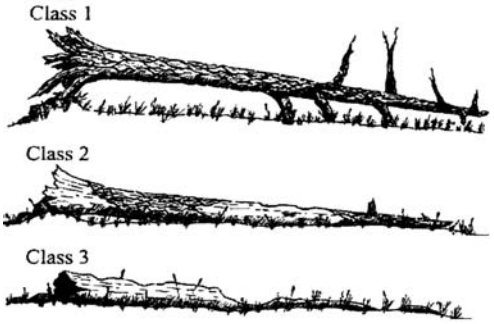
Note: The following 5 rows must sum to 100%. The **number** of visitors is immaterial.

Percent of site including 100-ft buffer that is visited 365 days a year or almost so =	10
Percent of site including 100-ft buffer that is visited more than 80 days a year (>20% of year), but less than daily =	20
Percent of site including 100-ft buffer that is visited 20-80 days a year (e.g., about once a week) =	5
Percent of site including 100-ft buffer that is visited just a few days a year =	10
Percent of site including 100-ft buffer that is almost never visited =	55

Scale the calculated value in the box on the right (sum of the above 5 rows) and enter the scaled value in column D (p. 72)	380	100-200 = 0 200-300 =.3 300-400 =.7 400-500 =1.0	0.7	bw-H v-O sb-Q
Percent of site affected by soil leveling (i.e., portion previously leveled by equipment for farming)	50	100 =.1 10-99 =.3 1-10 =.6 0 = 1.0	0.3	at-C i-G pp-D sp-F n-H
Percent of site currently affected by soil compaction: (i.e., by equipment, vehicles, livestock, humans, fill) 6 = recent, at >90% of site 5 = recent, at 10-90% of site 4 = recent, at 1-10% of site 3 = >5 years ago, >90% of site 2 = >5 years ago, 10-90% of site 1 = >5 years ago, 1-10% of site 0 = none	6	5/6) =.1 4) =.2 3) =.4 2) =.6 1) =.8 0) = 1.0	0.1	sp-G v-M sb-K
Percent of site's vegetation that is mowed or subject to extreme grazing at least annually (p. 81)	100	>90 = 0 10-90 =.2 1-10 =.4 none = 1.0	0	sb-L v-N
Most of site is burned, or harvested for hay or timber, at least biennially? (p. 72)	yes	no = 0 yes = 1.0	1	n-J
Percent of site currently affected by soil mixing (plowing, excavation, bulldozing, etc.): (p. 81) 6 = recent, at >90% of site 5 = recent, at 10-90% of site 4 = recent, at 1-10% of site 3 = >5 years ago, >90% of site 2 = >5 years ago, 10-90% of site 1 = >5 years ago, 1-10% of site 0 = none	6	5 or 6 =.1 4 =.2 3 =.4 2 =.6 1 =.8 0 = 1.0	0.1	at-f i-H v-L pp-A n-C sp-E
Percent of the site that is vegetated (including submersed aquatics) (p. 82)	100	<10 =.1 10-20 =.2 20-40 =.4 40-60 =.6 60-80 =.8 >80 = 1.0	1	sb-A v-A

Percent of site with woody vegetation (p. 82)	0	<10 =.1 10-20 =.2 20-40 =.4 40-60 =.6 60-80 =.8 >80 = 1.0	0.1	sb-b
Percent of seasonal zone that is bare during most of the dry season. (i.e., devoid of vegetation, except trees) (Answer "0" if no seasonal zone)	0	>80 = 0 60-80 =.2 40-60 =.4 20-40 =.6 1-20 =.8 0 = 1.0	1	pp-G sp-H
Percent of site that is inundated permanently and contains emergent, floating, or submersed plants (p. 72)	0	0 = 0 1-10 =.9 >10 = 1.0	0	i-A
		0 = 0 1-10 =.4 10-30 =.8 30-60 = 1.0 60-90 =.9 >90 =.6	0	bw-F
Percent cover of herbs within the seasonal zone (p. 72)	100	0 = 0 1-30 =.1 30-50 =.6 50-70 =.75 70-100 = 1.0	1	at-L
Percent of whole site that has closed canopy (p. 80)	0	<10 =.1 10-20 =.2 20-40 =.4 40-60 =.6 60-80 =.8 >80 = 1.0	0.1	sb-C
Percent understory shrub & vine cover beneath the drip line of trees (p. 82) (Answer "0" if no wooded areas)	0	<10 =.1 10-20 =.2 20-40 =.4 40-60 =.6 60-80 =.8 >80 = 1.0	0.1	sb-D

Number & distribution of vegetation forms --- herbs, shrubs, trees. If only one form, answer "A". To count, the patch must comprise >0.5 acre or >5% of vegetated area. See p. 77 for enlargement of diagram.  	A	A = 0 B2 =.60 C2 =.65 B1 =.70 C1,D =.75 E2 =.80 F2 =.85 E1 =.90 F1 =.95 G = 1.0	0	pp-B v-B at-J i-K sb-H
Number of woody species (p. 82)	0	unwooded= 0 1-2 =.1 3-4 =.25 5-6 =.5 7-9 =.75 10-18 =.9 >18 = 1.0	0	sb-E
Number of native woody species(p. 78)	0	0 = 0 1 =.1 2-3 =.25 4-5 =.5 6-9 =.75 10-13 =.9 >14 = 1.0	0	v-F
Percent of woody species list consisting of species that are native (p. 78)	0	0 = 0 1-57 =.1 58-66 =.25 67-74 =.5 75-79 =.75 80-99 =.9 100 = 1.0	0	v-g
Percent of woody cover within stratum that is comprised of non-native species (p. 82) (Use the greater of the tree, understory shrub, or open shrub stratum's percent)	0	100 = 0 80-99 =.1 30-79 =.25 10-29 =.5 5-9 =.75 1-4 =.9 0 = 1.0	0	v-H
Spatial predominance of non-native herbs (p. 84) A = Non-natives predominate B = Cannot determine (about equal) C = Natives predominate	A	A = 0 B =.5 C = 1.0	0	v-D

Percent of herb species list comprised of species that are non-native (p. 80)	100	100 = 0 80-99 =.1 67-79 =.25 60-66 =.5 25-59 =.75 1-24 =.9 0 = 1.0	0	v-E
Average diameter (inches) of the 3 largest trees. (p. 71)	0	none = 0 1-5 =.1 6-9 =.25 10-17 =.5 18-25 =.75 26-35 =.9 >35 = 1.0	0	sb-G v-J at-I n-F
Number of deadwood types. Potentially 12 types:(p. 77) ___ Class 1: freshly fallen, have bark & branches, 4-8” ___ Class 1: freshly fallen, have bark & branches, 8-20” ___ Class 1: freshly fallen, have bark & branches, >20” ___ Class 2: mildly rotted and mostly on ground: 4-8” ___ Class 2: mildly rotted and mostly on ground: 8-20” ___ Class 2: mildly rotted and mostly on ground: >20” ___ Class 3: well rotted, losing shape: 4-8” ___ Class 3: well rotted, losing shape: 8-20” ___ Class 3: well rotted, losing shape: >20” ___ Standing stumps/snags: 4-8” ___ Standing stumps/snags: 8-20” ___ Standing stumps/snags: >20” ___ Artificial debris – check only if no others present  	0	0 = 0 1 =.1 2 =.25 3-4 =.5 5-7 =.75 >7 = 1.0	0	sb-F v-I n-E at-H
Land cover in the vicinity of the site in the 1850's was wooded?	no	1 = Yes 0 = No	0	n-K pp-H at-R sb-S v-S

SHEET FOR AUTOMATIC CALCULATION OF FUNCTION SCORES - revised June 2008

Slope or Flats subclass

OTH Bank Site- post construction . August 2009

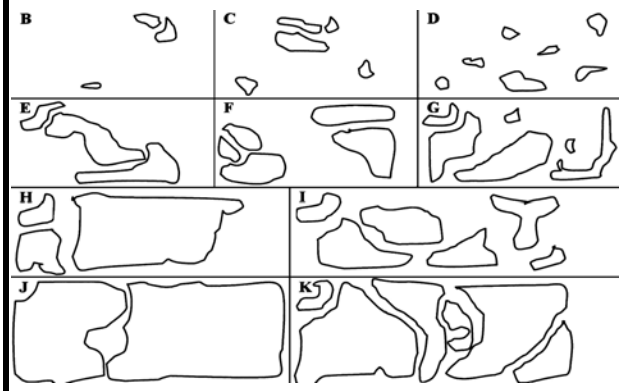
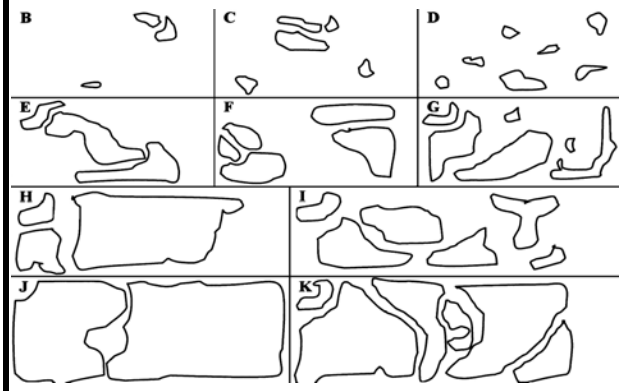
It is recommended to do a "Save As" from this blank spreadsheet for each use, assigning different file names. This will help reduce the chance of accidentally confusing new data with previously entered data.
For reference, the function(s) addressed by each indicator are noted in column E. Codes are shown below next to the function names. The capital letter in the code (e.g., sp- **B**) in column E refers to the code for the indicator in the published Volume IA.
HFR= scaled to highest functioning site of this subclass found by DSL; **LAR**= scaled to least-altered site of this subclass found by DSL Scores greater than 1 indicate the capacity of the function at the site you assessed may be greater than in all sites of this subclass assessed by the DSL team during model calibration.
Data **must** be entered for every indicator, unless the scale block for this subclass is shaded. Each value in column D must be less than or equal to 1.

Function:	**Calculated Function Capacity for SF sites if HFR:**	**if LAR:**
Water Storage & Delay (ws)	0.30	0.67
Sediment Stabilization & Phosphorus Retention (sp)	0.74	0.79
Nitrogen Removal (n)	0.60	0.62
Primary Production (pp)	0.51	0.67
Invertebrate Habitat Support (i)	0.28	0.28
Amphibian & Turtle Habitat (at)	0.54	0.54
Breeding Waterbird Support (bw)	0.00	0.00
Wintering & Migrating Waterbird Support (ww)	0.94	1.09
Songbird Habitat Support (sb)	0.92	1.03
Support of Characteristic Vegetation (v)	0.85	0.89

Note 1: Models and scores for ws, sp, n, and pp intentionally do not account for the **area** of the wetland, an especially important factor for these functions.
Note 2: This method should be applied to an entire contiguous wetland, not just to the portion affected directly by a planned alteration or restoration.

Indicator	***Raw Datum***	***Scale for SF sites***	***Scaled Datum***	***Function***
Presence of permanent surface water (water year-round during most years)? (p. 82)	yes	absent = 0 present = 1.0	1	sb-P rf-X
Percent of permanent zone that is open water (i.e., lacking emergent and underwater plants) (p. 79) (Answer "0" if no permanent zone is present)	20	100 =.1 80-99 =.8 60-80 = 1.0 40-60 =.8 20-40 =.4 0-20 = .2	0.4	at-M
Percent of site that is inundated only seasonally (i.e., watermarks, moss lines, debris lines, etc.) (p. 81)	20	none = 0 1-10 =.1 10-25 =.6 25-50 =.8 > 50 = 1.0	0.6	i-B n-A ws-A
		none = 0 1-20 =.5 20-40 =.7 40-60 =.8 60-80 =.9 >80 = 1.0	0.5	ww-A
At least 0.5 acre of surface water persists until at least July 1 and water is mostly wider than 10 ft?	no	Yes = 1 No = 0	0	bw-X

Predominant water depth during biennial low water (p. 82)	0	0" = 0 1-2" =.6 2-24" = 1.0 2-6 ft =.8 >6 ft =.6	0	bw-D
		0 =.1 1-2" = 1.0 2-24" =.8 >24" =.2	0.1	i-D
Percent of site occupied by the most extensive depth category at this site during biennial low water. (p. 81). (Delimit the low water zone first, then break into these depth categories, then identify the category that predominates horizontally). (Possible categories are: 0 inches; 1-2 inches; 2-24 inches; 2-6 feet; < 6 feet)	95%	100 = 0 80-100 =.1 50-80 =.4 30-50 =.8 <30 = 1.0	0.1	bw-B
Difference between the predominating biennial high and low water levels (p. 71) 0) = No change 1) = Difference of 1 class 2) = Difference of 2 classes 3) = Difference of 3 classes 4) = Difference of 4 classes Class 1 = 0 inches Class 2 = 1-2 inches Class 3 = 2-24 inches Class 4 = 2-6 feet Class 5 = > 6 feet	2	0) = 0 1) =.3 2) =.5 3) =.8 4) = 1.0	0.5	n-B at-E bw-E
		0) = 0 1) = .25 2) = .5 3) = .75 4) = 1.0	0.5	ww-F
Predominant vertical increase in surface water level (ft) in most of the seasonal zone (i.e., water marks, moss lines, debris lines, etc. Look at the highest point for 2 year flood and measure the difference from biennial low)	0.5	0 = 0 .1 - .4 =.25 .5- 1.0 =.5 1 - 2 =.75 >2 = 1.0	0.5	ws-B
Number of depth categories during biennial high water. (p. 77) Categories are: ___ 1 - 2 inches ___ 2 - 24 inches ___ 2 – 6 ft ___ > 6 ft	3	1 = 0 2 =.3 3 =.6 4 = 1.0	0.6	bw-C
		1 = .1 2 = .3 3 = .6 4 = 1.0	0.6	ww-E

Percent & distribution of pools during biennial high water. (p. 80) (Note: if site is > 1 acre, select the condition that predominates in 1 acre sub-units of the site.) A = None  	D	A = 0 B =.6 C =.65 D =.7 E,F =.75 K =.8 H =.85 I =.9 J =.95 G = 1.0	0.7 0.7	sp-C ww-D i-E, at-A
Percent & distribution of pools during biennial low water. (p. 80) (Note: if site is > 1 acre, select the condition that predominates in 1 acre sub-units of the site.) A = None  	A	A = 0 B =.6 C =.65 D =.7 E,F =.75 J =.8 H =.85 I =.9 K =.95 G = 1.0	0 0	bw-A, pp-E, n-1
Percent of the site occupied by hummocks (p. 74, 75)	20	none = 0 1-10 =.6 10-90 =.8 >90 = 1.0	0.8	at-B ww-C sb-M sp-B pp-C n-G i-F

Maximum annual extent of vernal pools/ shorebird scrapes and mudflats: (p. 76) A = none B = 1 – 100 sq. ft. C = 100-1000 sq. ft. D = 1000 – 10,000 sq. ft. E = >10,000 sq. ft Must meet ALL of the following: a) herbs are generally < 4" and comprise < 80% ground cover during winter or early spring b) topography is basically flat c) inundated to a depth of < 6" for 2 or more continuous weeks d) never shaded by trees, shrubs, or buildings e) not entirely a constructed ditch	C	A = 0 B =.6 C =.7 D =.8 E = 1.0	0.7	ww-B
Presence of logs or boulders that extend above the surface of permanent water (p. 84)	no	absent = 0 present = 1.0	0	at-G
Predominant soil texture: (p 83) GC= gravel or cobble SA=sand, sandy loam, or loamy sand L= loam, silty loam, gravelly loam C= clay, sandy clay, silty clay, clay loam, silty clay loam O= organic particles<1mm Guidance: 1. Soil remains in a ball when squeezed YES…Go to 3; NO …Go to 2 2. > 50% of the particles (by weight) are > 1 mm YES…"GC"; NO …"SA" 3. Squeezed soil forms an even ribbon YES…Go to 4; NO …"SA" 4. Soil ribbon extended > 1" without breaking YES…"C/O"; NO …Go to 5 5. Soils feels very gritty YES... "SA"; NO…"L"	C	GC =.1 SA =.2 L =.8 C/O = 1.0	1	sp-D
Presence of some mottling and/or other features that indicate oxygen deficits, or, permanent water is present	yes	absent = 0 present = 1.0	1	n-X
Mapped soil series is hydric (not simply a hydric inclusion). See county soil map and p. 75.	yes	1= yes 0= no	1	v-C at-D ww-G i-I
Percent of site that was constructed on former uplands (non-hydric soil) (p. 81): 6) = recent, >90% of site 5) = recent, 10-90% of site 4) = recent, 1-10% of site 3) = >5 years ago, >90% of site 2) = >5 years ago, 10-90% of site 1) = >5 years ago, 1-10% of site 0) = none	4	6) = 0 5) = .1 4) = .2 3) = .3 2) = .4 1) = .5 0) = 1.0	0.2	i-J at-K v-K n-D

Tally the percent of surrounding land cover (exclude the site itself) as exists during a typical May. Answer each row independently. They do not necessarily sum to 100%.

within 200 ft of the site boundary:

a. % Water, wetland =	20
b. % Grassland, water, wetland =	75
c. % Grassland, row crops =	90
d. % Wooded =	5
e. % Natural (not lawn, crops, paved, building)=	5

within 1000 ft:

f. % Water, wetland =	30
g. % Grassland, water, wetland =	85
h. % Grassland, row crops =	85
i. % Wooded =	15
j. % Natural =	10

within 5,280 ft:

k. % Water, wetland =	30
l. % Grassland, row crops =	80
m. % Wooded =	10

In column D, enter the scaled value for the number in column B. (= a), above)	20	0 = 0 1–10 =.4 10-20 =.8 >20 = 1.0	0.8	bw-I ww-I
In column D, enter the scaled value for the number in column B. (=(b), above)	75	<10 =.1 10-20 =.2 20-40 =.4 40-60 =.6 60-80 =.8 >80 = 1.0	0.8	sb-N
In column D, enter the scaled value for the number in column B. (=(c), above)	90	<10 = 0 10-20 = .1 20-40 = .3 40-80 = .5 80-90 = .7 90-100 = 1.0	0.7	ww-K
In column D, enter the scaled value for the number in column B. (=(d), above)	5	0 = 0 1-10 =.1 10-20 =.2 20-40 =.4 40-60 =.6 60-80 =.8 >80 = 1.0	0.1	sb-I
In column D, enter the scaled value for the number in column B. (=(e), above)	5	<10 = 0 10-20 = .1 20-40 = .3 40-80 = .5 80-90 = .7 90-100 = 1.0	0	i-L at-O v-R
In column D, enter the scaled value for the number in column B. (=(a+f+k)/3), above)	27	none = 0 1 – 10 =.4 10-20 =.8 >20 = 1.0	1	ww-H bw-J

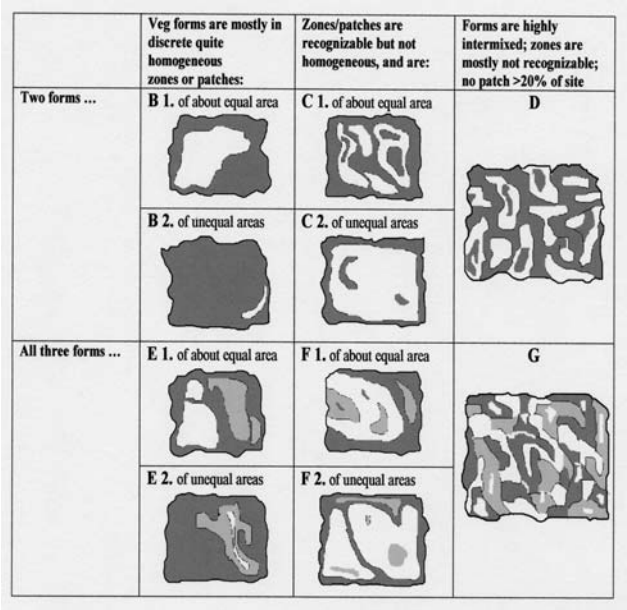
In column D, enter the scaled value for the number in column B. (=(c+h+l)/3), above)	85	<10 = 0 10-20 = .1 20-40 = .3 40-80 = .5 80-90 = .7 90-100 = 1.0	0.7	ww-J
In column D, enter the scaled value for the number in column B. (= (d+i+m)/3), above)	10	<10 =.1 10-20 =.2 20-40 =.4 40-60 =.6 60-80 =.8 >80 = 1.0	0.2	sb-J
In column D, enter the scaled value for the number in column B. (= (e+j)/2), above)	7.5	<10 = 0 10-20 = .1 20-40 = .3 40-80 = .5 80-90 = .7 90-100 = 1.0	0	bw-K
In column D, enter the scaled value for the number in column B. (= (b+g)/2), above)	80	<10 =.1 10-20 =.2 20-40 =.4 40-60 =.6 60-80 =.8 >80 = 1.0	0.8	sb-O
Percent of land cover within 200 ft (but only in the contributing watershed) that is "natural" – that is, NOT cropland, lawns, pavement, or buildings (p. 79)	0	<10 = 0 10-20 =.1 20-40 =.3 40-90 =.5 90-100 = 1.0	0	pp-F
		<10 = 0 10-20 =.1 20-40 =.3 40-90 =.5 90-99 =.9 100 = 1.0	0	i-M v-Q
Percent woodland divided by percent grassland-crops within 200 ft of the site (p. 71)	0.05	<.1 =.1 0.1-0.8 =.6 0.8-1.2 = 1.0 1.2 –2.0 =.6 >2.0 =.1	0.1	at-P
Distance (ft) to nearest busy road (p. 71) This includes a) any road or parking lot in a develop area that contains >4 buildings per acre, b) any road with a maximum traffic rate of > 6 vehicles per minute, during an average day during the summer	2400-4800	<100 = 0 100-300 =.3 300-600 =.5 600-1200 =.7 1200-2400 =.8 2400-4800 =.9 >4800 = 1.0	0.9	bw-G at-N v-P sb-R

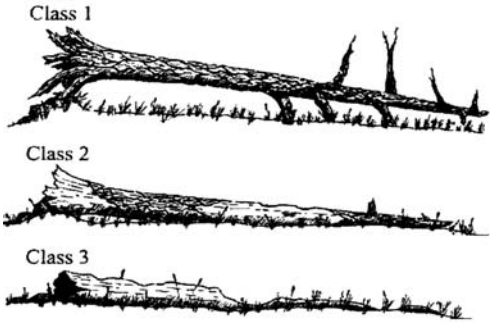
Note: The following 5 rows must sum to 100%. The **number** of visitors is immaterial.

Percent of site including 100-ft buffer that is visited 365 days a year or almost so =	10
Percent of site including 100-ft buffer that is visited more than 80 days a year (>20% of year), but less than daily =	10
Percent of site including 100-ft buffer that is visited 20-80 days a year (e.g., about once a week) =	50
Percent of site including 100-ft buffer that is visited just a few days a year =	25
Percent of site including 100-ft buffer that is almost never visited =	5

Scale the calculated value in the box on the right (sum of the above 5 rows) and enter the scaled value in column D (p. 72)	305	100-200 = 0 200-300 =.3 300-400 =.7 400-500 =1.0	0.7	bw-H v-O sb-Q
Percent of site affected by soil leveling (i.e., portion previously leveled by equipment for farming)	0	100 =.1 10-99 =.3 1-10 =.6 0 = 1.0	1	at-C i-G pp-D sp-F n-H
Percent of site currently affected by soil compaction: (i.e., by equipment, vehicles, livestock, humans, fill) 6 = recent, at >90% of site 5 = recent, at 10-90% of site 4 = recent, at 1-10% of site 3 = >5 years ago, >90% of site 2 = >5 years ago, 10-90% of site 1 = >5 years ago, 1-10% of site 0 = none	3	5/6) =.1 4) =.2 3) =.4 2) =.6 1) =.8 0) = 1.0	0.4	sp-G v-M sb-K
Percent of site's vegetation that is mowed or subject to extreme grazing at least annually (p. 81)	0	>90 = 0 10-90 =.2 1-10 =.4 none = 1.0	1	sb-L v-N
Most of site is burned, or harvested for hay or timber, at least biennially? (p. 72)	no	no = 0 yes = 1.0	0	n-J
Percent of site currently affected by soil mixing (plowing, excavation, bulldozing, etc.): (p. 81) 6 = recent, at >90% of site 5 = recent, at 10-90% of site 4 = recent, at 1-10% of site 3 = >5 years ago, >90% of site 2 = >5 years ago, 10-90% of site 1 = >5 years ago, 1-10% of site 0 = none	3	5 or 6 =.1 4 =.2 3 =.4 2 =.6 1 =.8 0 = 1.0	0.4	at-f i-H v-L pp-A n-C sp-E
Percent of the site that is vegetated (including submersed aquatics) (p. 82)	100	<10 =.1 10-20 =.2 20-40 =.4 40-60 =.6 60-80 =.8 >80 = 1.0	1	sb-A v-A

Percent of site with woody vegetation (p. 82)	10	<10 =.1 10-20 =.2 20-40 =.4 40-60 =.6 60-80 =.8 >80 = 1.0	0.2	sb-b
Percent of seasonal zone that is bare during most of the dry season. (i.e., devoid of vegetation, except trees) (Answer "0" if no seasonal zone)	0	>80 = 0 60-80 =.2 40-60 =.4 20-40 =.6 1-20 =.8 0 = 1.0	1	pp-G sp-H
Percent of site that is inundated permanently and contains emergent, floating, or submersed plants (p. 72)	0	0 = 0 1-10 =.9 >10 = 1.0	0	i-A
		0 = 0 1-10 =.4 10-30 =.8 30-60 = 1.0 60-90 =.9 >90 =.6	0	bw-F
Percent cover of herbs within the seasonal zone (p. 72)	90	0 = 0 1-30 =.1 30-50 =.6 50-70 =.75 70-100 = 1.0	1	at-L
Percent of whole site that has closed canopy (p. 80)	5	<10 =.1 10-20 =.2 20-40 =.4 40-60 =.6 60-80 =.8 >80 = 1.0	0.1	sb-C
Percent understory shrub & vine cover beneath the drip line of trees (p. 82) (Answer "0" if no wooded areas)	25	<10 =.1 10-20 =.2 20-40 =.4 40-60 =.6 60-80 =.8 >80 = 1.0	0.1	sb-D

Number & distribution of vegetation forms --- herbs, shrubs, trees. If only one form, answer "A". To count, the patch must comprise >0.5 acre or >5% of vegetated area. See p. 77 for enlargement of diagram.  	B2	A = 0 B2 =.60 C2 =.65 B1 =.70 C1,D =.75 E2 =.80 F2 =.85 E1 =.90 F1 =.95 G = 1.0	0.6	pp-B v-B at-J i-K sb-H
Number of woody species (p. 82)	5	unwooded= 0 1-2 =.1 3-4 =.25 5-6 =.5 7-9 =.75 10-18 =.9 >18 = 1.0	0.5	sb-E
Number of native woody species(p. 78)	5	0 = 0 1 =.1 2-3 =.25 4-5 =.5 6-9 =.75 10-13 =.9 >14 = 1.0	0.5	v-F
Percent of woody species list consisting of species that are native (p. 78)	100	0 = 0 1-57 =.1 58-66 =.25 67-74 =.5 75-79 =.75 80-99 =.9 100 = 1.0	1	v-g
Percent of woody cover within stratum that is comprised of non-native species (p. 82) (Use the greater of the tree, understory shrub, or open shrub stratum's percent)	0	100 = 0 80-99 =.1 30-79 =.25 10-29 =.5 5-9 =.75 1-4 =.9 0 = 1.0	1	v-H
Spatial predominance of non-native herbs (p. 84) A = Non-natives predominate B = Cannot determine (about equal) C = Natives predominate	C	A = 0 B =.5 C = 1.0	1	v-D

Percent of herb species list comprised of species that are non-native (p. 80)	10	100 = 0 80-99 =.1 67-79 =.25 60-66 =.5 25-59 =.75 1-24 =.9 0 = 1.0	0.9	v-E
Average diameter (inches) of the 3 largest trees. (p. 71)	1"	none = 0 1-5 =.1 6-9 =.25 10-17 =.5 18-25 =.75 26-35 =.9 >35 = 1.0	0.1	sb-G v-J at-I n-F
Number of deadwood types. Potentially 12 types:(p. 77) ___ Class 1: freshly fallen, have bark & branches, 4-8” ___ Class 1: freshly fallen, have bark & branches, 8-20” ___ Class 1: freshly fallen, have bark & branches, >20” ___ Class 2: mildly rotted and mostly on ground: 4-8” ___ Class 2: mildly rotted and mostly on ground: 8-20” ___ Class 2: mildly rotted and mostly on ground: >20” ___ Class 3: well rotted, losing shape: 4-8” ___ Class 3: well rotted, losing shape: 8-20” ___ Class 3: well rotted, losing shape: >20” ___ Standing stumps/snags: 4-8” ___ Standing stumps/snags: 8-20” ___ Standing stumps/snags: >20” ___ Artificial debris – check only if no others present  	0	0 = 0 1 =.1 2 =.25 3-4 =.5 5-7 =.75 >7 = 1.0	0	sb-F v-I n-E at-H
Land cover in the vicinity of the site in the 1850's was wooded?	no	1 = Yes 0 = No	0	n-K pp-H at-R sb-S v-S

OTH Bank Site - Pre-construction/Post-construction

Section 4. Qualitative Assessment of Values of Functions

Directions: In each row of the following tables, indicate with a checkmark if your site looks more like the "highest function value" condition or the "minimal function value" condition. Then circle a number on the scoring line below the table, based on your overall impression of the site's capacity to support this function. Alternatively, instead of checkmarks, you can assign a 0 (minimal capacity) -to- 1.0 (highest capacity) score to each row in the "Suggested Score" column, and then combine the row scores in a manner of your choosing, perhaps weighting some rows more than others. Assess indicators of value as they exist currently. Note that the listing of values associated with each function may not be comprehensive. When appropriate, you may add new indicators of value for particular functions. See Glossary (Appendix A) for definitions of some of the terms, especially ones in italics.

Note: If a site does not support the named function *at all*, consideration of the site's value for that function is moot and you should not perform a value assessment, unless you are only examining the site's potential for restoration.

4.1 Value of Water Storage and Delay

Highest Function Value	Suggested Score:	Minimal Function Value
***Opportunity* to store or delay runoff:**		
___ Size of the site is large relative to the area of its *contributing watershed*, and groundwater inputs are minor	.5	___ Size of the site is small relative to the area of its *contributing watershed*
___ *Contributing watershed* is extensively paved (Laenen 1980, Hubbard 1992, Horner et al. 2000, Reinelt & Taylor 2000)	0	___ *Contributing watershed* is covered almost entirely by natural vegetation
___ The time that runoff reaches the site from the *contributing watershed* has been greatly accelerated by channels, ditches, gutters, subsurface tile, or stormwater pipes (Laenen 1980, Hubbard 1992)	.1	___ Runoff in *contributing watershed* has not been greatly accelerated by channels, ditches, gutters, and stormwater pipes
___ No dikes or diversions immediately above the site interfere with runoff that otherwise would reach it	.5	___ All runoff that otherwise would reach the site has been redirected by dikes and diversions
___ *Contributing watershed* is steep throughout (Swift 1966)	.7	___ *Contributing watershed* is almost flat
___ *Contributing watershed* is narrow, from ridgeline to ridgeline (Tolle 1978)	.7	___ *Contributing watershed* is quite broad, from ridgeline to ridgeline, promoting storage of much runoff before it reaches the site
___ *Contributing watershed* upslope from this site contains few or no other water control structures, ponds, lakes, or wetlands (Coulton 1996). This is often true of headwater sites, and sites situated between developed areas and floodplains.	.7	___ *Contributing watershed* upslope from this site contains effective water control structures or a large proportion of ponds, lakes, and wetlands. This is often true of sites along major channels and/or within their floodplains.
___ Precipitation amounts are relatively large (Oster 1968, Laenen & Risley 1997)	.7	___ Precipitation amounts are relatively small

Highest Function Value	Suggested Score:	Minimal Function Value
___ Precipitation intensity (inches/hr) is typically large, with much of the annual rainfall occurring during discrete storm or snowmelt events (Lowery 1980)	.5	___ Precipitation intensity is low, with nearly all rainfall occurring lightly over protracted periods (hours or days)
___ Output data from statistical models (e.g., Harris et al. 1979) or validated computer models of watershed runoff processes indicate runoff entering the site at a relatively rapid rate	.7	___ Output data from validated computer models of watershed runoff processes indicate runoff entering the site at a relatively gradual rate
***Significance* of water storage or delay by this site (assuming it occurs):**		
___ The site is near the headwater of a small stream.	.6	___ The site is along a large river (where its individual effect, if any, will be dwarfed by the river's large discharge)
___ Economic losses potentially associated with flooding of areas downslope* of the site are enormous	.7	___ Economic losses potentially associated with flooding downslope* of the site are minor
___ Downslope* channels are experiencing rates of erosion and severe downcutting that are far greater than historically, due to unnatural focusing of runoff events	.8	___ Erosion in downslope* channels is not significantly greater than what occurred historically
___ Downslope* base flows and water table levels are much lower than historically due to much less detention in the watershed than occurred historically	.7	___ Downslope* base flows and water tables have not changed significantly from their historical condition
___ Other factors suggest that storage or delay of water by this site is of unusually great importance to biological resources located onsite or downslope* (describe below)	.6	___ Other factors suggest that storage or delay of water by this site is not atypically important to biological resources located onsite or downslope* (describe below)
___ The site is one of only a few, or is one of the largest ones, of its subclass in this watershed & that store or delay water to this degree	.2	___ Sites of this subclass and size that store or delay water to this degree are abundant in this watershed both locally and regionally

* When weighing the significance, consider the proximity of the site to these areas, including areas to at least one-quarter mile away, and the availability of other runoff storage mechanisms. These areas must be located in the same watershed as the site being assessed. For watershed boundaries, see the land cover map in the CD accompanying this guidebook.

Pre- & post: No Δ

Your Judgments of **Value** of This Site's Capacity to Store & Delay Water:

Value score = .5/.5 , or circle one of the following:

1.0	.8	.6	.4	.2	0
Highest					Lowest

4.2 Value of Sediment Stabilization and Phosphorus Retention

Highest Function Value	Suggested Score:	Minimal Function Value
Opportunity to stabilize sediment and/or retain phosphorus:		
___ This site's opportunity for storing or delaying runoff was considered among the highest (p. 47)	.3	___ This site's opportunity for storing or delaying runoff was considered among the lowest (p. 47) (Horner et al. 2000)

Highest Function Value	Suggested Score:	Minimal Function Value
___ The *contributing watershed* is almost entirely occupied by land uses that potentially export high loads of nutrients and/or sediments in runoff or windborne dust, especially P-fertilized and plowed cropland (Laird 1981), dirt roads, heavily used pastures, gravel mining operations, urban areas (Miller 1987), and overloaded waste treatment facilities (Wert 1970)	.7	___ The *contributing watershed* is almost entirely occupied by natural land cover (Horner et al. 2000)
___ Potential nutrient-exporting land uses adjoin or are located very nearby & upslope of the site (Simmons 1980)	.7	___ Potential nutrient-exporting land uses, if any, are located distant from the site
___ Soils in the *contributing watershed*, especially those closest to the site, are intrinsically very erodible (Brown et al. 1979, Klingeman 1979) and/or contain high phosphorus levels, e.g., high fertility (Reckendorf 1993, Abrams & Jarrell 1995, McCarthy 2000)	.6	___ Soils in the *contributing watershed*, especially those closest to the site, are not intrinsically very erodible and do not contain high phosphorus levels, e.g., low fertility
___ Groundwater, if a significant source of water to the site, contains high levels of phosphorus (Bonn et al. 1995, 1996)	.6	___ Groundwater, if a significant source of water to the site, does not contain high levels of phosphorus
___ Part of the *contributing watershed*, especially the part closest to the site, is designated as "water quality limited" or similar designation (303d or other published list) due to excessive nutrients or sediment runoff. See: waterquality.deq.state.or.us/wqlmaps/wqlmapshome.htm or (secondarily): http://map2.epa.gov/enviromapper/	.6	___ Water quality has been assessed in the *contributing watershed*, and no areas have been designated as "water quality limited" or similar designation (303d or other published list) due to excessive nutrients or sediment runoff
___ Severe erosion and/or frequent & extensive blooms of algae are apparent in connected waters immediately upslope of the site	0	___ Severe erosion and/or frequent & extensive blooms of algae are absent from connected waters upslope of the site
___ Output data from validated computer models of watershed processes indicate major net export of sediment and/or nutrients to this site	?	___ Output data from validated computer models of watershed processes indicate little or no export of sediment and/or nutrients to this site
Significance of stabilizing sediment and/or retaining phosphorus (assuming this occurs):		
___ The site is near the headwater of a small stream.	.6	___ The site is along a large river (where its individual effect, if any, will be dwarfed by the river's large discharge)
___ Downslope* water bodies are experiencing much greater rates of sedimentation than occurred historically (Moore 1985)	.7	___ Downslope* water bodies are experiencing rates of sedimentation well within their historical range
___ Downslope* waters are in violation of published criteria for phosphorus or total solids	.6	___ Downslope* waters are not in violation of published criteria for phosphorus or total solids
___ Phosphorus is not the most limiting nutrient for native biological communities in downslope* water bodies (MacDonald et al. 1991)	.2	___ Phosphorus is known to be the most limiting nutrient for native biological communities in downslope* water bodies
___ Outstanding fish spawning areas are located in connected waters downslope*	.1	___ Outstanding fish spawning areas are not present downslope*, or wetland has no surface water outlet

Highest Function Value	Suggested Score:	Minimal Function Value
___ Other factors suggest that phosphorus retention or stabilization of sediments by this site is of unusually great importance to biological or human resources located onsite or downslope* (describe below)	.6	___ Other factors suggest that phosphorus retention or stabilization of sediments by this site is not atypically important to biological or human resources located onsite or downslope* (describe below)
___ The site is one of only a few, or is one of the largest ones, of its subclass in this watershed that stabilize sediment or retain phosphorus to this degree	.2	___ Sites of this subclass and size that stabilize sediment or retain phosphorus to this degree are abundant in the watershed locally or regionally

* Consider the proximity of the site to these areas, and the availability of other sediment and phosphorus retention mechanisms, when weighing the significance.

Your Judgments of **Value** of This Site's Stabilizing of Sediment and Retention of Phosphorus:
Value score = .5/.5 , or circle one of the following:

1.0	.8	.6	.4	.2	0
Highest					Lowest

Pre & Post-
No Δ

4.3 Value of Nitrogen Removal

Highest Function Value	Suggested Score:	Minimal Function Value
Opportunity to remove nitrogen:		
___ This site's opportunity for storing or delaying runoff was considered among the highest. (p. 47)	.3	___ This site's opportunity for storing or delaying runoff was considered among the lowest (p. 47)
___ The *contributing watershed* is almost entirely occupied by land uses and land cover types that potentially export high loads of nitrogen, e.g., ammonia-fertilized cropland, heavily used pastures, overloaded waste treatment facilities, thickets of nitrogen-fixing alder (*Alnus* sp.). (Binkley et al. 1992)	.7	___ The *contributing watershed* is almost entirely occupied by natural land cover (except alder), and even the inputs of nitrogen from vehicular exhaust are minimal
___ The potential nitrogen-exporting land uses and land cover types adjoin or are located very nearby & upslope of the site	.8	___ Potential nitrogen-exporting land uses, if any, are located distant from the site
___ Soils in the *contributing watershed*, especially closest to the site, are not hydric	.2	___ Soils in the *contributing watershed*, especially those closest to the site, are "hydric"
___ Part of the *contributing watershed*, especially the part closest to the site, is designated as "water quality limited" or similar designation (303d or other published list) due to excessive nutrients. See: waterquality.deq.state.or.us/wqlmaps/wqlmapshome.htm or (secondarily): http://map2.epa.gov/enviromapper/	.3	___ Water quality has been assessed in the *contributing watershed*, and no areas have been designated as "water quality limited" or similar designation (303d or other published list) due to excessive nutrients
___ Downslope* waters or groundwaters within 1 mile are in violation of published criteria for nitrate	0	___ Downslope* waters or groundwaters within 1 mile are not in violation of published criteria for nitrate
___ Extensive blooms of algae are apparent in connected waters immediately upslope of site	0	___ Blooms of algae are absent from connected waters upslope of the site

Highest Function Value	Suggested Score:	Minimal Function Value
___ Groundwater, if a significant source of water to the site, contains high levels of nitrogen (e.g., Wondzell & Swanson 1996, Griffith et al. 1997)	.2	___ Groundwater, if a significant source of water to the site, does not contain high levels of nitrogen
Significance of this site's removal of nitrogen (assuming this occurs):		
___ The site is near the headwater of a small stream.	.7	___ The site is along a large river (where its individual effect, if any, will be dwarfed by the river's large discharge)
___ Nitrogen is not the most limiting nutrient for native biological communities in downslope* water bodies	.5	___ Nitrogen is known to be the most limiting nutrient for native biological communities in downslope* water bodies (e.g., Dieterich 1993, Dodds and Castenholz 1988).
___ Other factors suggest that removal of nitrogen by this site is of unusually great importance to biological or human resources located onsite or downslope* (describe below)	.7	___ Other factors suggest removal of nitrogen by this site is not atypically important to biological or human resources located onsite or downslope* (describe below)
___ The site is one of only a few, or is one of the largest ones, of its subclass in this watershed that remove nitrogen to this degree	.2	___ Sites of this subclass and size that remove nitrogen to this degree are abundant in the watershed locally or regionally

* Consider the proximity of the site to these areas, and the availability of other N-retention mechanisms, when weighing the significance.

Your Judgments of **Value** of This Site's Removal of Nitrogen:

Value score = .4/.4 , or circle one of the following: Pre+Post - No Δ

1.0	.8	.6	.4	.2	0
Highest					Lowest

4.4 Value of Thermoregulation NA

Highest Function Value	Suggested Score:	Minimal Function Value
Opportunity to reduce water temperatures:		
___ Most runoff entering the site has traveled slowly across unvegetated areas, e.g., urban or cropland watersheds with no streamside buffers (Risley 1997)		___ Most runoff entering the site has traveled through areas continuously covered with dense (especially evergreen) vegetation
___ Parking lots, industrial outfalls, and other sources of heated water are located very nearby & upslope of the site		___ Potential sources of heated water are located distant from the site
___ All of the site's water is from direct precipitation and runoff. None is comprised of groundwater or subsurface lateral flow that feeds the site directly		___ The site is fed directly by groundwater, and it comprises nearly all of the site's water budget
___ Part of the *contributing watershed*, especially the part closest to the site, is designated as "water quality limited" or similar designation (303d or other published list) due to high water temperature. See: waterquality.deq.state.or.us/wqlmaps/wqlmapshome.htm		___ Water quality has been assessed in the *contributing watershed*, and no areas have been designated as "water quality limited" or similar designation (303d or other published list) due to high water temperature

Highest Function Value	Suggested Score:	Minimal Function Value
___ Frequent direct measurement of surface water temperature as it enters the site indicates temperatures that are consistently far above normal for the situation		___ Frequent direct measurement of surface water temperature as it enters the site indicates temperatures that are consistently normal for the situation
Significance of this site's reducing of water temperature:		
___ The site is near the headwater of a small stream.		___ The site is along a large river (where its individual effect, if any, will be dwarfed by the river's large discharge -- Zwieniecki & Newton 2000)
___ The site is located immediately upslope of* areas identified as "water quality limited" or similar designation (303d or other published list) due to elevated water temperature		___ Downslope* from the site, there are no areas identified as "water quality limited" or similar designation (303d or other published list) due to elevated water temperature
___ The site is connected by surface water to, and is located immediately upslope of*, areas identified as essential to native coldwater fish species		___ The site is not connected by surface water to areas occupied by native coldwater fish species
___ Other factors suggest that reduction or maintenance of water temperature by this site is of unusually great importance to biological resources located onsite or downslope* (describe below)		___ Other factors suggest that reduction or maintenance of water temperature by this site is not atypically important to biological resources located onsite or downslope* (describe below)
___ The site is one of only a few, or is one of the largest ones, of its subclass in this watershed that maintain or reduce water temperature to this degree		___ Sites of this subclass and size that maintain or reduce water temperature to this degree are abundant in the watershed locally or regionally

* Consider the proximity of the site to these areas, and the availability of other thermoregulation mechanisms, when weighing the significance.

Your Judgments of **Value** of This Site's Reducing of Water Temperature:

Value score = _____, or circle one of the following:

1.0	**.8**	**.6**	**.4**	**.2**	**0**
Highest					Lowest

4.5 Value of Primary Production

Highest Function Value	Suggested Score:	Minimal Function Value
Opportunity for primary production: Not assessed because all sites receive about equal amounts of solar radiation. They vary mainly in their ability to convert it efficiently into organic matter.		
Significance of primary production from this site:		
___ No downslope* water bodies experience major oxygen deficits as a result of excessive accumulation of decomposing organic matter	.6/.6	___ Downslope* water bodies experience frequent and extensive oxygen deficits as a result of excessive accumulation of decomposing organic matter
___ Production of native plants at this site is commercially and sustainably grazed or harvested (e.g., hay, timber) and the economic value is probably substantial (McAllister 1996, Julin & Meade 1997)	.5/0	___ Plant production at this site is not commercially grazed or harvested directly and sustainably

Highest Function Value	Suggested Score:	Minimal Function Value
___ Upslope areas* in the *contributing watershed* are largely devoid of vegetation	0/0	___ Upslope areas* in the *contributing watershed* are well-vegetated
___ Other factors suggest that primary production from this site is of unusually great importance to food webs located onsite or downslope*	.2/.8	___ Other factors suggest that primary production from this site is not atypically important to food webs located onsite or downslope*
___ The site is one of only a few, or is one of the largest ones, of its subclass in this vicinity that supports primary production to this degree	.2/.8	___ Sites of this subclass and size that support primary production to this degree are relatively abundant both locally and regionally

* Consider the proximity of the site to these areas when weighing the significance.

Your Judgments of **Value** of This Site's Primary Production:
Value score = .3/.4 , or circle one of the following:

1.0	.8	.6	.4	.2	0
Highest					Lowest

4.6 Value of Invertebrate Habitat Support

Highest Function Value	Suggested Score:	Minimal Function Value
___ In the Willamette Valley ecoregion, site is one of a very few known to be used by a particular invertebrate species	.1/.2	___ All invertebrate species known from this site are widespread in the Willamette Valley ecoregion
___ Site is one of a very few that contains unusual but natural physical or chemical conditions (e.g., hot spring) that often are associated with presence of unusual invertebrate species	.1/.3	___ Site does not contain unusual physical or chemical conditions that often are associated with presence of unusual invertebrate species
___ All upland areas near this site have very limited capacity to support invertebrates, e.g., largely devegetated, chemical contamination, frequent soil disturbance	.6/.5	___ Upland areas near this site have considerable capacity to support invertebrates, e.g., land cover is mostly unaltered
___ Other factors suggest that invertebrate species or densities produced at this site are of unusually great importance to food webs or ecological processes located onsite or in the region generally	.1/.6	___ Other factors suggest that invertebrate species or densities produced at this site are not atypically important to food webs or ecological processes located onsite or in the region generally
___ The site is one of only a few, or is one of the largest ones, of its subclass in this vicinity that support invertebrates to this degree	.1/.6	___ Sites of this subclass and size that support invertebrates to this degree are relatively abundant both locally and regionally

Your Judgments of **Value** of This Site's Invertebrates:
Value score = .2/.4 , or circle one of the following:

1.0	.8	.6	.4	.2	0
Highest					Lowest

4.7 Value of Resident Fish Support NA

Highest Function Value	Suggested Score:	Minimal Function Value
___ In the Willamette Valley ecoregion, site is one of a very few known to be used by a particular resident fish species, e.g., Oregon chub		___ All fish species known from this site are widespread in the Willamette Valley ecoregion
___ Site is one of a very few that contains physical or chemical conditions identified as optimal for a particularly rare native fish species		___ Site does not contain unusual physical or chemical conditions typically associated with presence of a particularly rare native fish species
___ Site provides some of the most consistently productive fishing for species native to the Willamette Valley		___ Site does not provide atypically productive fishing for any species native to the Willamette Valley
___ Other factors suggest that resident fish species or densities produced at this site are of unusually great importance to food webs or ecological processes located onsite or in the region generally		___ Other factors suggest that resident fish species or densities produced at this site are not atypically important to food webs or ecological processes located onsite or in the region generally
___ The site is one of only a few, or is one of the largest ones, of its subclass in this vicinity that supports resident fish to this degree		___ Sites of this subclass and size that support resident fish to this degree are relatively abundant both locally and regionally

Your Judgments of **Value** of This Site's Resident Fish:
Value score = _____, or circle one of the following:

1.0	**.8**	**.6**	**.4**	**.2**	**0**
Highest					Lowest

4.8 Value of Anadromous Fish Support NA

Highest Function Value	Suggested Score:	Minimal Function Value
___ Site is vital to an anadromous fish stock or species that is, in the Willamette Valley ecoregion, particularly uncommon and has a possibly declining population, e.g., Chinook salmon and others classified by Oregon Natural Heritage Program as S1, S2, G1, or G2 (see Appendix D of accompanying *Profiles* report).		___ Site is not used by any anadromous fish species
___ In the past, considerable funds have been expended to restore anadromous fish support functions of this particular site		___ In the past, no funds have been expended to restore anadromous fish support functions of this particular site
___ The site is one of only a few, or is one of the largest ones, of its subclass in this vicinity that supports anadromous fish to this degree		___ Sites of this subclass and size that support anadromous fish to this degree are relatively abundant both locally and regionally

Your Judgments of **Value** of This Site's Anadromous Fish:
Value score = _____, or circle one of the following:

1.0	**.8**	**.6**	**.4**	**.2**	**0**
Highest					Lowest

4.9 Value of Amphibian & Turtle Habitat

Highest Function Value	Suggested Score:	Minimal Function Value
___ Site is vital to a native amphibian or turtle species that is, in the Willamette Valley ecoregion, particularly uncommon and has a possibly declining population, e.g., Red-legged Frog and others classified by Oregon Natural Heritage Program as S1, S2, G1, or G2 (see Appendices E, F of *Profiles* report).	.1/.5	___ All amphibian and turtle species known from this site occur widely in the Willamette Valley ecoregion, and in uplands as well as in wetlands, and none are known to be declining in the ecoregion
___ Site is one of a very few that contains physical or chemical conditions identified as optimal for a particularly rare native amphibian or turtle species (e.g., see St. John 1987)	.1/.4	___ Site does not contain unusual physical or chemical conditions typically associated with presence of a particularly rare native amphibian or turtle species
___ Other factors suggest that amphibian/turtle species or densities at this site are of unusually great importance to food webs or ecological processes located onsite or in the region generally	.1/.5	___ Other factors suggest that amphibian/turtle species or densities at this site are not atypically important to food webs or ecological processes located onsite or in the region generally
___ In the past, considerable funds have been expended to restore specifically the amphibian/turtle support functions of this particular site	0/.6	___ In the past, no funds have been expended to restore specifically the amphibian/turtle support functions of this particular site
___ The site is one of only a few, or is one of the largest ones, of its subclass in this vicinity that supports amphibians and/or turtles to this degree	.1/.3	___ Sites of this subclass and size that support amphibians and/or turtles to this degree are relatively abundant both locally and regionally

Your Judgments of **Value** of This Site's Native Amphibians & Turtles:
Value score = .1/.5 , or circle one of the following:

1.0	.8	.6	.4	.2	0
Highest					Lowest

4.10 Value of Breeding Waterbird Support

Highest Function Value	Suggested Score:	Minimal Function Value
___ Site is consistently used by, or is vital to, many nesting waterbird species that are regionally uncommon and/or have declining populations in the Pacific Northwest, e.g., species classified by Oregon Natural Heritage Program as S1, S2, G1, or G2 (see Appendix G of accompanying *Profiles* report).	.1/.2	___ All waterbird species that nest consistently at this site occur widely in the Willamette Valley ecoregion, and none are known to be declining in the ecoregion
___ Site is one of a very few that contains habitat conditions identified as optimal for nesting of one or more particularly rare and/or regionally declining waterbird species	.1/.2	___ Site does not contain habitat suitable for nesting by any particularly rare and/or regionally declining waterbird species

Highest Function Value	Suggested Score:	Minimal Function Value
___ Other factors suggest that waterbird species or nesting densities at this site are of unusually great importance to food webs or ecological processes located onsite or in the region generally	0/.2	___ Other factors suggest that waterbird species or nesting densities at this site are not atypically important to food webs or ecological processes located onsite or in the region generally
___ In the past, considerable funds have been expended to restore specifically the suitability of this particular site for nesting waterbirds	0/.3	___ In the past, no funds have been expended to restore specifically the suitability of this particular site for nesting waterbirds
___ The site is one of only a few, or is one of the largest ones, of its subclass in this vicinity that support breeding waterbirds to this degree	.1/.2	___ Sites of this subclass and size that support breeding waterbirds to this degree are relatively abundant both locally and regionally

Your Judgments of **Value** of This Site's Breeding Waterbirds:
Value score = .1/.2 , or circle one of the following:

1.0	**.8**	**.6**	**.4**	**.2**	**0**
Highest					Lowest

4.11 Value of Migratory & Wintering Waterbird Support

Highest Function Value	Suggested Score:	Minimal Function Value
___ Site is consistently used by, or is vital to, many migrating/wintering waterbird species that are uncommon and/or have declining populations, e.g., Dunlin	.1/.3	___ All waterbird species that migrate/winter consistently at this site occur widely in the Willamette Valley ecoregion, and none are known to be declining in the ecoregion
___ Site is one of a very few that contains habitat conditions identified as optimal for migration/wintering of one or more particularly rare and/or regionally declining waterbird species	.1/.1	___ Site does not contain habitat suitable for migration/wintering of any particularly rare and/or regionally declining waterbird species
___ Other factors suggest that migrating/wintering waterbird species or densities at this site are of unusually great importance to food webs or ecological processes located onsite or in the region generally	.1/.3	___ Other factors suggest that migrating/wintering waterbird species or nesting densities at this site are not atypically important to food webs or ecological processes located onsite or in the region generally
___ The site is one of only a few, or is one of the largest ones, of its subclass in this vicinity that support migratory or wintering waterbirds to this degree	.1/.3	___ Sites of this subclass and size that support migrating or wintering waterbirds to this degree are relatively abundant both locally and regionally
___ In the past, considerable funds have been expended to restore specifically the suitability of this particular site for migrant/wintering waterbirds	0/.3	___ In the past, no funds have been expended to restore specifically the suitability of this particular site for migrant/wintering waterbirds
___ Waterbird species that predominate at the site are ones that appear to be beneficial or neutral with regard to crops in surrounding areas, e.g., herons	.6/.6	___ Waterbird species that predominate at the site are ones that are potentially detrimental to crops in surrounding areas, e.g., geese

Your Judgments of **Value** of This Site's Migratory/Wintering Waterbirds:
Value score = .1/.3 , or circle one of the following:

1.0	.8	.6	.4	.2	0
Highest					Lowest

4.12 Value of Songbird Habitat Support

Highest Function Value	Suggested Score:	Minimal Function Value
___ Site is consistently used by, or is vital to, many wetland-associated birds (other than waterbirds) that are regionally uncommon and/or have declining populations in the Pacific Northwest according to the Breeding Bird Survey; species with special regional status according to Altman (2000); species classified as G1, G2, S1, or S2 by the Oregon Natural Heritage Program (see Appendix G of accompanying *Profiles* report).	.2/.6	___ All songbird species that consistently use this site occur widely in the Willamette Valley ecoregion, and none are known to be declining in the ecoregion
___ Site is one of a very few that contains habitat conditions identified as optimal for one or more particularly rare and/or regionally declining wetland-associated bird species (other than waterbirds)	.2/.6	___ Site does not contain habitat suitable for any particularly rare and/or regionally declining, wetland-associated bird species (excluding waterbird species)
___ Other factors suggest songbird species or densities at this site are of unusually great importance to food webs or ecological processes located onsite or in general region	.1/.7	___ Other factors suggest that songbird species or densities at this site are not atypically important to food webs or ecological processes located onsite or in the region generally
___ In the past, considerable funds have been expended to restore specifically the suitability of this particular site for wetland-associated birds (other than waterbirds)	0/.5	___ In the past, no funds have been expended to restore specifically the suitability of this particular site for wetland-associated birds (other than waterbirds)
___ The site is one of only a few, or is one of the largest ones, of its subclass in this vicinity that support wetland-associated birds (other than waterbirds) to this degree	.1/.6	___ Sites of this subclass and size that support songbirds to this degree are relatively abundant both locally and regionally

Your Judgments of **Value** of This Site's Songbirds:
Value score = .1/.6 , or circle one of the following:

1.0	.8	.6	.4	.2	0
Highest					Lowest

4.13 Value of Characteristic Vegetation

Highest Function Value	Suggested Score:	Minimal Function Value
___ Site contains many native plant species or associations that are uncommon and/or have declining populations in the Willamette Valley ecoregion. This may include, but is not limited to, species categorized as G1, G2, S1, or S2 by the Oregon Natural Heritage Program	0/1	___ All plant species and associations at this site also occur widely in the Willamette Valley ecoregion, and none have been documented to be declining in the ecoregion

Highest Function Value	Suggested Score:	Minimal Function Value
___ Site is one of a very few that contains habitat conditions identified as optimal for one or more particularly rare and/or regionally declining native plant species or associations. See Christy & Titus (1998)	.6/1	___ Site does not contain habitat suitable for any particularly rare and/or regionally declining native plant species or association
___ Other factors suggest that native plants at this site are of unusually great importance to food webs or ecological processes located onsite or in the region generally	0/1	___ Other factors suggest that native plants at this site are not atypically important to food webs or ecological processes located onsite or in the region generally
___ The site is one of only a few, or is one of the largest ones, of its subclass in this vicinity that support characteristic vegetation to this degree	.1/.6	___ Sites of this subclass and size that support characteristic vegetation to this degree are relatively abundant both locally and regionally
___ In the past, considerable funds have been expended to restore specifically the suitability of this particular site for unusual or characteristic native plant species or associations	0/1	___ In the past, no funds have been expended to restore specifically the suitability of this particular site for native plant species

Your Judgments of **Value** of This Site's Characteristic Vegetation:
Final score = .1/.9 , or circle one of the following:

	1.0	**.8**	**.6**	**.4**	**.2**	**0**
Highest						Lowest

You have now completed the assessment. If you wish, you may transfer scores from preceding pages to the assessment summary form on the following page.

SHEET FOR AUTOMATIC CALCULATION OF FUNCTION SCORES - revised December 2003

Slope or Flats subclass

Dragonfly Bend reference site: 4-7-09 **Date:**

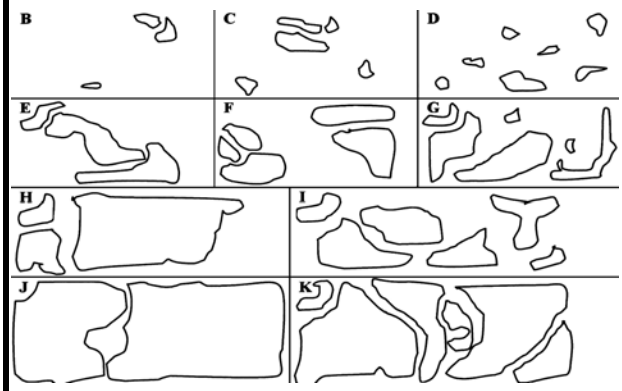
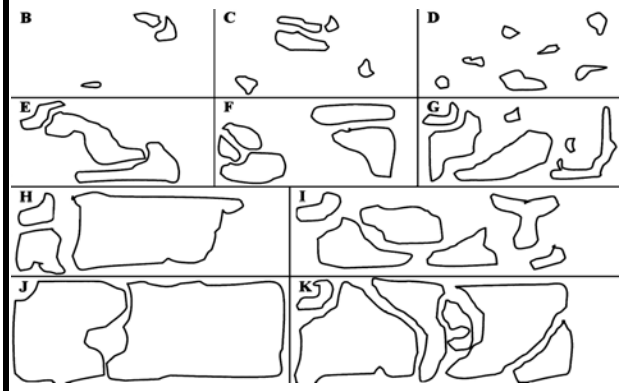
It is recommended to do a "Save As" from this blank spreadsheet for each use, assigning different file names. This will help reduce the chance of accidentally confusing new data with previously entered data.
For reference, the function(s) addressed by each indicator are noted in column E. Codes are shown below next to the function names. The capital letter in the code (e.g., sp- **B**) in column E refers to the code for the indicator in the published Volume IA.
HFR= scaled to highest functioning site of this subclass found by DSL; **LAR**= scaled to least-altered site of this subclass found by DSL Scores greater than 1 indicate the capacity of the function at the site you assessed may be greater than in all sites of this subclass assessed by the DSL team during model calibration.
Data **must** be entered for every indicator, unless the scale block for this subclass is shaded. Each value in column D must be less than or equal to 1.

Function:	**Calculated Function Capacity for SF sites if HFR:**	**if LAR:**
Water Storage & Delay (ws)	0.20	0.44
Sediment Stabilization & Phosphorus Retention (sp)	0.59	0.63
Nitrogen Removal (n)	0.69	0.71
Primary Production (pp)	0.44	0.60
Invertebrate Habitat Support (i)	0.56	0.56
Amphibian & Turtle Habitat (at)	0.75	0.75
Breeding Waterbird Support (bw)	0.00	0.00
Wintering & Migrating Waterbird Support (ww)	0.40	0.46
Songbird Habitat Support (sb)	0.58	0.64
Support of Characteristic Vegetation (v)	0.80	0.83

Note 1: Models and scores for ws, sp, n, and pp intentionally do not account for the **area** of the wetland, an especially important factor for these functions.
Note 2: This method should be applied to an entire contiguous wetland, not just to the portion affected directly by a planned alteration or restoration.

Indicator	***Raw Datum***	***Scale for SF sites***	***Scaled Datum***	***Function***
Presence of permanent surface water (water year-round during most years)? (p. 82)	0	absent = 0 present = 1.0	0	sb-P rf-X
Percent of permanent zone that is open water (i.e., lacking emergent and underwater plants) (p. 79) (Answer "0" if no permanent zone is present)	0	100 =.1 80-99 =.8 60-80 = 1.0 40-60 =.8 20-40 =.4 0-20 = .2	0	at-M
Percent of site that is inundated only seasonally (i.e., watermarks, moss lines, debris lines, etc.) (p. 81)	40	none = 0 1-10 =.1 10-25 =.6 25-50 =.8 > 50 = 1.0	0.8	i-B n-A ws-A
		none = 0 1-20 =.5 20-40 =.7 40-60 =.8 60-80 =.9 >80 = 1.0	0.7	ww-A
At least 0.5 acre of surface water persists until at least July 1 and water is mostly wider than 10 ft?	no	Yes = 1 No = 0	0	bw-X

Predominant water depth during biennial low water (p. 82)	0	0" = 0 1-2" =.6 2-24" = 1.0 2-6 ft =.8 >6 ft =.6	0	bw-D
		0 =.1 1-2" = 1.0 2-24" =.8 >24" =.2	0.1	i-D
Percent of site occupied by the most extensive depth category at this site during biennial low water. (p. 81). (Delimit the low water zone first, then break into these depth categories, then identify the category that predominates horizontally). (Possible categories are: 0 inches; 1-2 inches; 2-24 inches; 2-6 feet; < 6 feet)	0	100 = 0 80-100 =.1 50-80 =.4 30-50 =.8 <30 = 1.0	0	bw-B
Difference between the predominating biennial high and low water levels (p. 71) 0) = No change 1) = Difference of 1 class 2) = Difference of 2 classes 3) = Difference of 3 classes 4) = Difference of 4 classes Class 1 = 0 inches Class 2 = 1-2 inches Class 3 = 2-24 inches Class 4 = 2-6 feet Class 5 = > 6 feet	1 class	0) = 0 1) =.3 2) =.5 3) =.8 4) = 1.0	0.3	n-B at-E bw-E
		0) = 0 1) = .25 2) = .5 3) = .75 4) = 1.0	0.25	ww-F
Predominant vertical increase in surface water level (ft) in most of the seasonal zone (i.e., water marks, moss lines, debris lines, etc. Look at the highest point for 2 year flood and measure the difference from biennial low)	0.25	0 = 0 .1 - .4 =.25 .5- 1.0 =.5 1 - 2 =.75 >2 = 1.0	0.25	ws-B
Number of depth categories during biennial high water. (p. 77) Categories are: ___ 1 - 2 inches ___ 2 - 24 inches ___ 2 – 6 ft ___ > 6 ft	1	1 = 0 2 =.3 3 =.6 4 = 1.0	0	bw-C
		1 = .1 2 = .3 3 = .6 4 = 1.0	0.1	ww-E

Percent & distribution of pools during biennial high water. (p. 80) (Note: if site is > 1 acre, select the condition that predominates in 1 acre sub-units of the site.) A = None  	d	A = 0 B =.6 C =.65 D =.7 E,F =.75 K =.8 H =.85 I =.9 J =.95 G = 1.0	0.7	sp-C ww-D i-E, at-A
Percent & distribution of pools during biennial low water. (p. 80) (Note: if site is > 1 acre, select the condition that predominates in 1 acre sub-units of the site.) A = None  	0	A = 0 B =.6 C =.65 D =.7 E,F =.75 J =.8 H =.85 I =.9 K =.95 G = 1.0	0	bw-A, pp-E, n-1
Percent of the site occupied by hummocks (p. 74, 75)	5	none = 0 1-10 =.6 10-90 =.8 >90 = 1.0	0.6	at-B ww-C sb-M sp-B pp-C n-G i-F

Maximum annual extent of vernal pools/ shorebird scrapes and mudflats: (p. 76) A = none B = 1 – 100 sq. ft. C = 100-1000 sq. ft. D = 1000 – 10,000 sq. ft. E = >10,000 sq. ft Must meet ALL of the following: a) herbs are generally < 4" and comprise < 80% ground cover during winter or early spring b) topography is basically flat c) inundated to a depth of < 6" for 2 or more continuous weeks d) never shaded by trees, shrubs, or buildings e) not entirely a constructed ditch	a	A = 0 B =.6 C =.7 D =.8 E = 1.0	0	ww-B
Presence of logs or boulders that extend above the surface of permanent water (p. 84)	0	absent = 0 present = 1.0	0	at-G
Predominant soil texture: (p 83) GC= gravel or cobble SA=sand, sandy loam, or loamy sand L= loam, silty loam, gravelly loam C= clay, sandy clay, silty clay, clay loam, silty clay loam O= organic particles<1mm Guidance: 1. Soil remains in a ball when squeezed YES…Go to 3; NO …Go to 2 2. > 50% of the particles (by weight) are > 1 mm YES…"GC"; NO …"SA" 3. Squeezed soil forms an even ribbon YES…Go to 4; NO …"SA" 4. Soil ribbon extended > 1" without breaking YES…"C/O"; NO …Go to 5 5. Soils feels very gritty YES... "SA"; NO…"L"	c	GC =.1 SA =.2 L =.8 C/O = 1.0	1	sp-D
Presence of some mottling and/or other features that indicate oxygen deficits, or, permanent water is present	yes	absent = 0 present = 1.0	1	n-X
Mapped soil series is hydric (not simply a hydric inclusion). See county soil map and p. 75.	yes	1= yes 0= no	1	v-C at-D ww-G i-I
Percent of site that was constructed on former uplands (non-hydric soil) (p. 81): 6) = recent, >90% of site 5) = recent, 10-90% of site 4) = recent, 1-10% of site 3) = >5 years ago, >90% of site 2) = >5 years ago, 10-90% of site 1) = >5 years ago, 1-10% of site 0) = none	0	6) = 0 5) = .1 4) = .2 3) = .3 2) = .4 1) = .5 0) = 1.0	1	i-J at-K v-K n-D

Tally the percent of surrounding land cover (exclude the site itself) as exists during a typical May. Answer each row independently. They do not necessarily sum to 100%.

within 200 ft of the site boundary:

a. % Water, wetland =	40
b. % Grassland, water, wetland =	50
c. % Grassland, row crops =	50
d. % Wooded =	0
e. % Natural (not lawn, crops, paved, building)=	30

within 1000 ft:

f. % Water, wetland =	30
g. % Grassland, water, wetland =	40
h. % Grassland, row crops =	75
i. % Wooded =	0
j. % Natural =	30

within 5,280 ft:

k. % Water, wetland =	30
l. % Grassland, row crops =	50
m. % Wooded =	1

In column D, enter the scaled value for the number in column B. (= a), above)	40	0 = 0 1–10 =.4 10-20 =.8 >20 = 1.0	0.1	bw-I ww-I
In column D, enter the scaled value for the number in column B. (=(b), above)	50	<10 =.1 10-20 =.2 20-40 =.4 40-60 =.6 60-80 =.8 >80 = 1.0	0.1	sb-N
In column D, enter the scaled value for the number in column B. (=(c), above)	50	<10 = 0 10-20 = .1 20-40 = .3 40-80 = .5 80-90 = .7 90-100 = 1.0	0	ww-K
In column D, enter the scaled value for the number in column B. (=(d), above)	0	0 = 0 1-10 =.1 10-20 =.2 20-40 =.4 40-60 =.6 60-80 =.8 >80 = 1.0	0.8	sb-I
In column D, enter the scaled value for the number in column B. (=(e), above)	30	<10 = 0 10-20 = .1 20-40 = .3 40-80 = .5 80-90 = .7 90-100 = 1.0	1	i-L at-O v-R
In column D, enter the scaled value for the number in column B. (=(a+f+k)/3), above)	33	none = 0 1 – 10 =.4 10-20 =.8 >20 = 1.0	0.4	ww-H bw-J

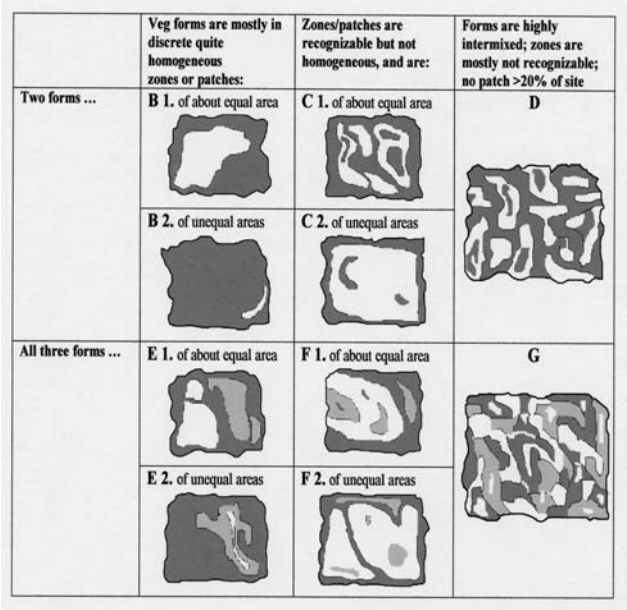
In column D, enter the scaled value for the number in column B. (=(c+h+l)/3), above)	58	<10 = 0 10-20 = .1 20-40 = .3 40-80 = .5 80-90 = .7 90-100 = 1.0	0	ww-J
In column D, enter the scaled value for the number in column B. (= (d+i+m)/3), above)	0.333333333	<10 =.1 10-20 =.2 20-40 =.4 40-60 =.6 60-80 =.8 >80 = 1.0	0.6	sb-J
In column D, enter the scaled value for the number in column B. (= (e+j)/2), above)	30	<10 = 0 10-20 = .1 20-40 = .3 40-80 = .5 80-90 = .7 90-100 = 1.0	0.7	bw-K
In column D, enter the scaled value for the number in column B. (= (b+g)/2), above)	45	<10 =.1 10-20 =.2 20-40 =.4 40-60 =.6 60-80 =.8 >80 = 1.0	0.1	sb-O
Percent of land cover within 200 ft (but only in the contributing watershed) that is "natural" – that is, NOT cropland, lawns, pavement, or buildings (p. 79)	30	<10 = 0 10-20 =.1 20-40 =.3 40-90 =.5 90-100 = 1.0	0.3	pp-F
		<10 = 0 10-20 =.1 20-40 =.3 40-90 =.5 90-99 =.9 100 = 1.0	0.3	i-M v-Q
Percent woodland divided by percent grassland-crops within 200 ft of the site (p. 71)	0	<.1 =.1 0.1-0.8 =.6 0.8-1.2 = 1.0 1.2 –2.0 =.6 >2.0 =.1	0.1	at-P
Distance (ft) to nearest busy road (p. 71) This includes a) any road or parking lot in a develop area that contains >4 buildings per acre, b) any road with a maximum traffic rate of > 6 vehicles per minute, during an average day during the summer	300-600	<100 = 0 100-300 =.3 300-600 =.5 600-1200 =.7 1200-2400 =.8 2400-4800 =.9 >4800 = 1.0	0.5	bw-G at-N v-P sb-R

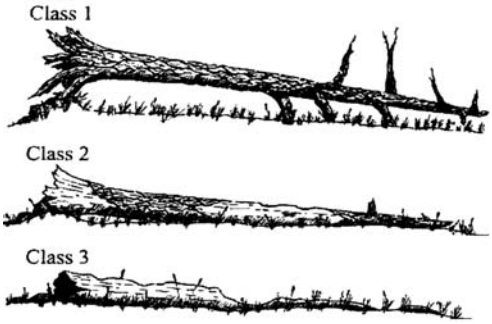
Note: The following 5 rows must sum to 100%. The **number** of visitors is immaterial.

Percent of site including 100-ft buffer that is visited 365 days a year or almost so =	0
Percent of site including 100-ft buffer that is visited more than 80 days a year (>20% of year), but less than daily =	5
Percent of site including 100-ft buffer that is visited 20-80 days a year (e.g., about once a week) =	30
Percent of site including 100-ft buffer that is visited just a few days a year =	50
Percent of site including 100-ft buffer that is almost never visited =	15

Scale the calculated value in the box on the right (sum of the above 5 rows) and enter the scaled value in column D (p. 72)	375	100-200 = 0 200-300 =.3 300-400 =.7 400-500 =1.0	1	bw-H v-O sb-Q
Percent of site affected by soil leveling (i.e., portion previously leveled by equipment for farming)	0	100 =.1 10-99 =.3 1-10 =.6 0 = 1.0	1	at-C i-G pp-D sp-F n-H
Percent of site currently affected by soil compaction: (i.e., by equipment, vehicles, livestock, humans, fill) 6 = recent, at >90% of site 5 = recent, at 10-90% of site 4 = recent, at 1-10% of site 3 = >5 years ago, >90% of site 2 = >5 years ago, 10-90% of site 1 = >5 years ago, 1-10% of site 0 = none	0	5/6) =.1 4) =.2 3) =.4 2) =.6 1) =.8 0) = 1.0	1	sp-G v-M sb-K
Percent of site's vegetation that is mowed or subject to extreme grazing at least annually (p. 81)	0	>90 = 0 10-90 =.2 1-10 =.4 none = 1.0	1	sb-L v-N
Most of site is burned, or harvested for hay or timber, at least biennially? (p. 72)	0	no = 0 yes = 1.0	0	n-J
Percent of site currently affected by soil mixing (plowing, excavation, bulldozing, etc.): (p. 81) 6 = recent, at >90% of site 5 = recent, at 10-90% of site 4 = recent, at 1-10% of site 3 = >5 years ago, >90% of site 2 = >5 years ago, 10-90% of site 1 = >5 years ago, 1-10% of site 0 = none	5	5 or 6 =.1 4 =.2 3 =.4 2 =.6 1 =.8 0 = 1.0	0.1	at-f i-H v-L pp-A n-C sp-E
Percent of the site that is vegetated (including submersed aquatics) (p. 82)	100	<10 =.1 10-20 =.2 20-40 =.4 40-60 =.6 60-80 =.8 >80 = 1.0	1	sb-A v-A

Percent of site with woody vegetation (p. 82)	0	<10 =.1 10-20 =.2 20-40 =.4 40-60 =.6 60-80 =.8 >80 = 1.0	0.1	sb-b
Percent of seasonal zone that is bare during most of the dry season. (i.e., devoid of vegetation, except trees) (Answer "0" if no seasonal zone)	10	>80 = 0 60-80 =.2 40-60 =.4 20-40 =.6 1-20 =.8 0 = 1.0	0.8	pp-G sp-H
Percent of site that is inundated permanently and contains emergent, floating, or submersed plants (p. 72)	0	0 = 0 1-10 =.9 >10 = 1.0	0	i-A
		0 = 0 1-10 =.4 10-30 =.8 30-60 = 1.0 60-90 =.9 >90 =.6	0	bw-F
Percent cover of herbs within the seasonal zone (p. 72)	100	0 = 0 1-30 =.1 30-50 =.6 50-70 =.75 70-100 = 1.0	1	at-L
Percent of whole site that has closed canopy (p. 80)	0	<10 =.1 10-20 =.2 20-40 =.4 40-60 =.6 60-80 =.8 >80 = 1.0	0.1	sb-C
Percent understory shrub & vine cover beneath the drip line of trees (p. 82) (Answer "0" if no wooded areas)	0	<10 =.1 10-20 =.2 20-40 =.4 40-60 =.6 60-80 =.8 >80 = 1.0	0	sb-D

Number & distribution of vegetation forms --- herbs, shrubs, trees. If only one form, answer "A". To count, the patch must comprise >0.5 acre or >5% of vegetated area. See p. 77 for enlargement of diagram.  	a	A = 0 B2 =.60 C2 =.65 B1 =.70 C1,D =.75 E2 =.80 F2 =.85 E1 =.90 F1 =.95 G = 1.0	0	pp-B v-B at-J i-K sb-H
Number of woody species (p. 82)	0	unwooded= 0 1-2 =.1 3-4 =.25 5-6 =.5 7-9 =.75 10-18 =.9 >18 = 1.0	0	sb-E
Number of native woody species (p. 78)	0	0 = 0 1 =.1 2-3 =.25 4-5 =.5 6-9 =.75 10-13 =.9 >14 = 1.0	0	v-F
Percent of woody species list consisting of species that are native (p. 78)	0	0 = 0 1-57 =.1 58-66 =.25 67-74 =.5 75-79 =.75 80-99 =.9 100 = 1.0	0	v-g
Percent of woody cover within stratum that is comprised of non-native species (p. 82) (Use the greater of the tree, understory shrub, or open shrub stratum's percent)	0	100 = 0 80-99 =.1 30-79 =.25 10-29 =.5 5-9 =.75 1-4 =.9 0 = 1.0	0	v-H
Spatial predominance of non-native herbs (p. 84) A = Non-natives predominate B = Cannot determine (about equal) C = Natives predominate	c	A = 0 B =.5 C = 1.0	1	v-D

Percent of herb species list comprised of species that are non-native (p. 80)	10	100 = 0 80-99 =.1 67-79 =.25 60-66 =.5 25-59 =.75 1-24 =.9 0 = 1.0	0.9	v-E
Average diameter (inches) of the 3 largest trees. (p. 71)	0	none = 0 1-5 =.1 6-9 =.25 10-17 =.5 18-25 =.75 26-35 =.9 >35 = 1.0	0	sb-G v-J at-I n-F
Number of deadwood types. Potentially 12 types:(p. 77) ___ Class 1: freshly fallen, have bark & branches, 4-8” ___ Class 1: freshly fallen, have bark & branches, 8-20” ___ Class 1: freshly fallen, have bark & branches, >20” ___ Class 2: mildly rotted and mostly on ground: 4-8” ___ Class 2: mildly rotted and mostly on ground: 8-20” ___ Class 2: mildly rotted and mostly on ground: >20” ___ Class 3: well rotted, losing shape: 4-8” ___ Class 3: well rotted, losing shape: 8-20” ___ Class 3: well rotted, losing shape: >20” ___ Standing stumps/snags: 4-8” ___ Standing stumps/snags: 8-20” ___ Standing stumps/snags: >20” ___ Artificial debris – check only if no others present  	0	0 = 0 1 =.1 2 =.25 3-4 =.5 5-7 =.75 >7 = 1.0	0	sb-F v-I n-E at-H
Land cover in the vicinity of the site in the 1850's was wooded?	no	1 = Yes 0 = No	0	n-K pp-H at-R sb-S v-S

SHEET FOR AUTOMATIC CALCULATION OF FUNCTION SCORES - revised December 2003

Slope or Flats subclass

Willow Creek reference site 8-11-03 **Date:**

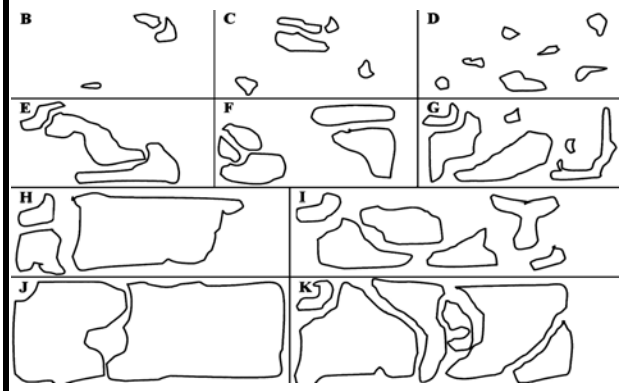
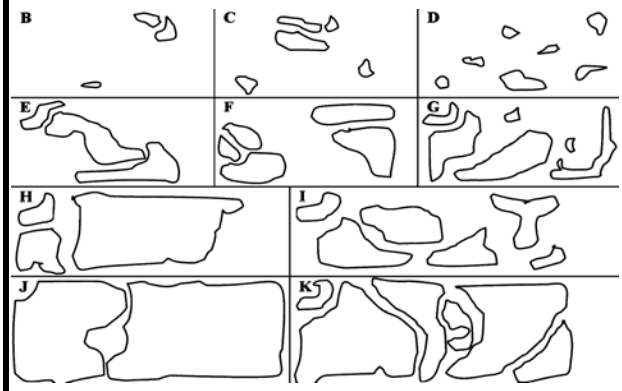
It is recommended to do a "Save As" from this blank spreadsheet for each use, assigning different file names. This will help reduce the chance of accidentally confusing new data with previously entered data.
For reference, the function(s) addressed by each indicator are noted in column E. Codes are shown below next to the function names. The capital letter in the code (e.g., sp- **B**) in column E refers to the code for the indicator in the published Volume IA.
HFR= scaled to highest functioning site of this subclass found by DSL; **LAR**= scaled to least-altered site of this subclass found by DSL Scores greater than 1 indicate the capacity of the function at the site you assessed may be greater than in all sites of this subclass assessed by the DSL team during model calibration.
Data **must** be entered for every indicator, unless the scale block for this subclass is shaded. Each value in column D must be less than or equal to 1.

Function:	**Calculated Function Capacity for SF sites if HFR:**	**if LAR:**
Water Storage & Delay (ws)	0.20	0.44
Sediment Stabilization & Phosphorus Retention (sp)	0.72	0.76
Nitrogen Removal (n)	1.07	1.09
Primary Production (pp)	0.73	0.89
Invertebrate Habitat Support (i)	0.82	0.82
Amphibian & Turtle Habitat (at)	0.89	0.89
Breeding Waterbird Support (bw)	0.00	0.00
Wintering & Migrating Waterbird Support (ww)	0.43	0.50
Songbird Habitat Support (sb)	0.58	0.65
Support of Characteristic Vegetation (v)	0.99	1.03

Note 1: Models and scores for ws, sp, n, and pp intentionally do not account for the **area** of the wetland, an especially important factor for these functions.
Note 2: This method should be applied to an entire contiguous wetland, not just to the portion affected directly by a planned alteration or restoration.

Indicator	***Raw Datum***	***Scale for SF sites***	***Scaled Datum***	***Function***
Presence of permanent surface water (water year-round during most years)? (p. 82)	0	absent = 0 present = 1.0	0	sb-P rf-X
Percent of permanent zone that is open water (i.e., lacking emergent and underwater plants) (p. 79) (Answer "0" if no permanent zone is present)	0	100 =.1 80-99 =.8 60-80 = 1.0 40-60 =.8 20-40 =.4 0-20 = .2	0	at-M
Percent of site that is inundated only seasonally (i.e., watermarks, moss lines, debris lines, etc.) (p. 81)	30	none = 0 1-10 =.1 10-25 =.6 25-50 =.8 > 50 = 1.0	0.8	i-B n-A ws-A
		none = 0 1-20 =.5 20-40 =.7 40-60 =.8 60-80 =.9 >80 = 1.0	0.7	ww-A
At least 0.5 acre of surface water persists until at least July 1 and water is mostly wider than 10 ft?	no	Yes = 1 No = 0	0	bw-X

Predominant water depth during biennial low water (p. 82)	0	0" = 0 1-2" =.6 2-24" = 1.0 2-6 ft =.8 >6 ft =.6	0	bw-D
		0 =.1 1-2" = 1.0 2-24" =.8 >24" =.2	0.1	i-D
Percent of site occupied by the most extensive depth category at this site during biennial low water. (p. 81). (Delimit the low water zone first, then break into these depth categories, then identify the category that predominates horizontally). (Possible categories are: 0 inches; 1-2 inches; 2-24 inches; 2-6 feet; < 6 feet)	0	100 = 0 80-100 =.1 50-80 =.4 30-50 =.8 <30 = 1.0	0	bw-B
Difference between the predominating biennial high and low water levels (p. 71) 0) = No change 1) = Difference of 1 class 2) = Difference of 2 classes 3) = Difference of 3 classes 4) = Difference of 4 classes Class 1 = 0 inches Class 2 = 1-2 inches Class 3 = 2-24 inches Class 4 = 2-6 feet Class 5 = > 6 feet	2	0) = 0 1) =.3 2) =.5 3) =.8 4) = 1.0	0.5	n-B at-E bw-E
		0) = 0 1) = .25 2) = .5 3) = .75 4) = 1.0	0.5	ww-F
Predominant vertical increase in surface water level (ft) in most of the seasonal zone (i.e., water marks, moss lines, debris lines, etc. Look at the highest point for 2 year flood and measure the difference from biennial low)	0.3	0 = 0 .1 - .4 =.25 .5- 1.0 =.5 1 - 2 =.75 >2 = 1.0	0.25	ws-B
Number of depth categories during biennial high water. (p. 77) Categories are: ___ 1 - 2 inches ___ 2 - 24 inches ___ 2 – 6 ft ___ > 6 ft	2	1 = 0 2 =.3 3 =.6 4 = 1.0	0.3	bw-C
		1 = .1 2 = .3 3 = .6 4 = 1.0	0.3	ww-E

Percent & distribution of pools during biennial high water. (p. 80) (Note: if site is > 1 acre, select the condition that predominates in 1 acre sub-units of the site.) A = None  	d	A = 0 B =.6 C =.65 D =.7 E,F =.75 K =.8 H =.85 I =.9 J =.95 G = 1.0	0.7	sp-C ww-D i-E, at-A
Percent & distribution of pools during biennial low water. (p. 80) (Note: if site is > 1 acre, select the condition that predominates in 1 acre sub-units of the site.) A = None  	0	A = 0 B =.6 C =.65 D =.7 E,F =.75 J =.8 H =.85 I =.9 K =.95 G = 1.0	0	bw-A, pp-E, n-1
Percent of the site occupied by hummocks (p. 74, 75)	30	none = 0 1-10 =.6 10-90 =.8 >90 = 1.0	0.8	at-B ww-C sb-M sp-B pp-C n-G i-F

Maximum annual extent of vernal pools/ shorebird scrapes and mudflats: (p. 76) A = none B = 1 – 100 sq. ft. C = 100-1000 sq. ft. D = 1000 – 10,000 sq. ft. E = >10,000 sq. ft Must meet ALL of the following: a) herbs are generally < 4" and comprise < 80% ground cover during winter or early spring b) topography is basically flat c) inundated to a depth of < 6" for 2 or more continuous weeks d) never shaded by trees, shrubs, or buildings e) not entirely a constructed ditch	a	A = 0 B =.6 C =.7 D =.8 E = 1.0	0	ww-B
Presence of logs or boulders that extend above the surface of permanent water (p. 84)	0	absent = 0 present = 1.0	0	at-G
Predominant soil texture: (p 83) GC= gravel or cobble SA=sand, sandy loam, or loamy sand L= loam, silty loam, gravelly loam C= clay, sandy clay, silty clay, clay loam, silty clay loam O= organic particles<1mm Guidance: 1. Soil remains in a ball when squeezed YES…Go to 3; NO …Go to 2 2. > 50% of the particles (by weight) are > 1 mm YES…"GC"; NO …"SA" 3. Squeezed soil forms an even ribbon YES…Go to 4; NO …"SA" 4. Soil ribbon extended > 1" without breaking YES…"C/O"; NO …Go to 5 5. Soils feels very gritty YES... "SA"; NO…"L"	c	GC =.1 SA =.2 L =.8 C/O = 1.0	1	sp-D
Presence of some mottling and/or other features that indicate oxygen deficits, or, permanent water is present	yes	absent = 0 present = 1.0	1	n-X
Mapped soil series is hydric (not simply a hydric inclusion). See county soil map and p. 75.	yes	1= yes 0= no	1	v-C at-D ww-G i-I
Percent of site that was constructed on former uplands (non-hydric soil) (p. 81): 6) = recent, >90% of site 5) = recent, 10-90% of site 4) = recent, 1-10% of site 3) = >5 years ago, >90% of site 2) = >5 years ago, 10-90% of site 1) = >5 years ago, 1-10% of site 0) = none	0	6) = 0 5) = .1 4) = .2 3) = .3 2) = .4 1) = .5 0) = 1.0	1	i-J at-K v-K n-D

Tally the percent of surrounding land cover (exclude the site itself) as exists during a typical May. Answer each row independently. They do not necessarily sum to 100%.

within 200 ft of the site boundary:

a. % Water, wetland =	100
b. % Grassland, water, wetland =	60
c. % Grassland, row crops =	60
d. % Wooded =	40
e. % Natural (not lawn, crops, paved, building)=	90

within 1000 ft:

f. % Water, wetland =	50
g. % Grassland, water, wetland =	50
h. % Grassland, row crops =	30
i. % Wooded =	30
j. % Natural =	90

within 5,280 ft:

k. % Water, wetland =	30
l. % Grassland, row crops =	30
m. % Wooded =	25

In column D, enter the scaled value for the number in column B. (= a), above)	100	0 = 0 1–10 =.4 10-20 =.8 >20 = 1.0	0.1	bw-I ww-I
In column D, enter the scaled value for the number in column B. (=(b), above)	60	<10 =.1 10-20 =.2 20-40 =.4 40-60 =.6 60-80 =.8 >80 = 1.0	0.1	sb-N
In column D, enter the scaled value for the number in column B. (=(c), above)	60	<10 = 0 10-20 = .1 20-40 = .3 40-80 = .5 80-90 = .7 90-100 = 1.0	0	ww-K
In column D, enter the scaled value for the number in column B. (=(d), above)	40	0 = 0 1-10 =.1 10-20 =.2 20-40 =.4 40-60 =.6 60-80 =.8 >80 = 1.0	0.8	sb-I
In column D, enter the scaled value for the number in column B. (=(e), above)	90	<10 = 0 10-20 = .1 20-40 = .3 40-80 = .5 80-90 = .7 90-100 = 1.0	1	i-L at-O v-R
In column D, enter the scaled value for the number in column B. (=(a+f+k)/3), above)	60	none = 0 1 – 10 =.4 10-20 =.8 >20 = 1.0	0.4	ww-H bw-J

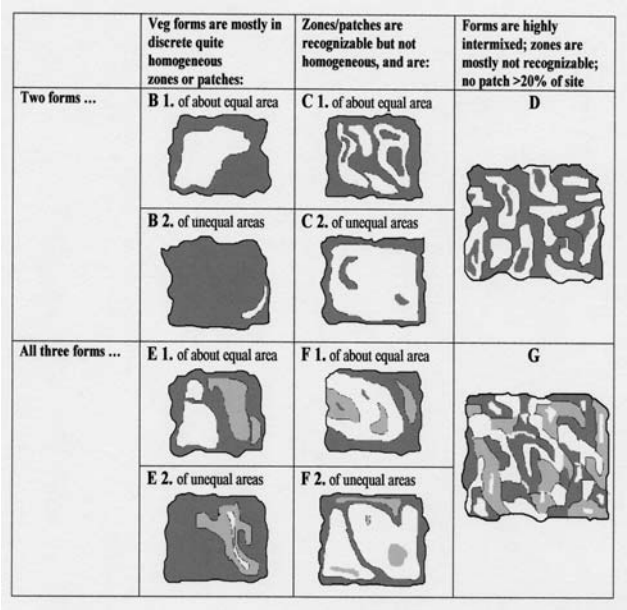
In column D, enter the scaled value for the number in column B. (=(c+h+l)/3), above)	40	<10 = 0 10-20 = .1 20-40 = .3 40-80 = .5 80-90 = .7 90-100 = 1.0	0	ww-J
In column D, enter the scaled value for the number in column B. (= (d+i+m)/3), above)	31.66666667	<10 =.1 10-20 =.2 20-40 =.4 40-60 =.6 60-80 =.8 >80 = 1.0	0.6	sb-J
In column D, enter the scaled value for the number in column B. (= (e+j)/2), above)	90	<10 = 0 10-20 = .1 20-40 = .3 40-80 = .5 80-90 = .7 90-100 = 1.0	0.7	bw-K
In column D, enter the scaled value for the number in column B. (= (b+g)/2), above)	55	<10 =.1 10-20 =.2 20-40 =.4 40-60 =.6 60-80 =.8 >80 = 1.0	0.1	sb-O
Percent of land cover within 200 ft (but only in the contributing watershed) that is "natural" – that is, NOT cropland, lawns, pavement, or buildings (p. 79)	100	<10 = 0 10-20 =.1 20-40 =.3 40-90 =.5 90-100 = 1.0	1	pp-F
		<10 = 0 10-20 =.1 20-40 =.3 40-90 =.5 90-99 =.9 100 = 1.0	1	i-M v-Q
Percent woodland divided by percent grassland-crops within 200 ft of the site (p. 71)	0.25	<.1 =.1 0.1-0.8 =.6 0.8-1.2 = 1.0 1.2 –2.0 =.6 >2.0 =.1	0.6	at-P
Distance (ft) to nearest busy road (p. 71) This includes a) any road or parking lot in a develop area that contains >4 buildings per acre, b) any road with a maximum traffic rate of > 6 vehicles per minute, during an average day during the summer	300-600+	<100 = 0 100-300 =.3 300-600 =.5 600-1200 =.7 1200-2400 =.8 2400-4800 =.9 >4800 = 1.0	0.5	bw-G at-N v-P sb-R

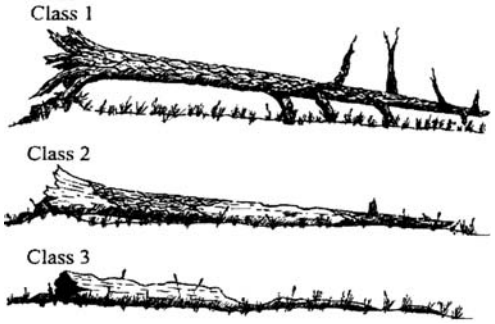
Note: The following 5 rows must sum to 100%. The **number** of visitors is immaterial.

Percent of site including 100-ft buffer that is visited 365 days a year or almost so =	10
Percent of site including 100-ft buffer that is visited more than 80 days a year (>20% of year), but less than daily =	10
Percent of site including 100-ft buffer that is visited 20-80 days a year (e.g., about once a week) =	20
Percent of site including 100-ft buffer that is visited just a few days a year =	50
Percent of site including 100-ft buffer that is almost never visited =	10

Scale the calculated value in the box on the right (sum of the above 5 rows) and enter the scaled value in column D (p. 72)	340	100-200 = 0 200-300 =.3 300-400 =.7 400-500 =1.0	1	bw-H v-O sb-Q
Percent of site affected by soil leveling (i.e., portion previously leveled by equipment for farming)	0	100 =.1 10-99 =.3 1-10 =.6 0 = 1.0	1	at-C i-G pp-D sp-F n-H
Percent of site currently affected by soil compaction: (i.e., by equipment, vehicles, livestock, humans, fill) 6 = recent, at >90% of site 5 = recent, at 10-90% of site 4 = recent, at 1-10% of site 3 = >5 years ago, >90% of site 2 = >5 years ago, 10-90% of site 1 = >5 years ago, 1-10% of site 0 = none	0	5/6) =.1 4) =.2 3) =.4 2) =.6 1) =.8 0) = 1.0	1	sp-G v-M sb-K
Percent of site's vegetation that is mowed or subject to extreme grazing at least annually (p. 81)	0	>90 = 0 10-90 =.2 1-10 =.4 none = 1.0	1	sb-L v-N
Most of site is burned, or harvested for hay or timber, at least biennially? (p. 72)	yes	no = 0 yes = 1.0	1	n-J
Percent of site currently affected by soil mixing (plowing, excavation, bulldozing, etc.): (p. 81) 6 = recent, at >90% of site 5 = recent, at 10-90% of site 4 = recent, at 1-10% of site 3 = >5 years ago, >90% of site 2 = >5 years ago, 10-90% of site 1 = >5 years ago, 1-10% of site 0 = none	2	5 or 6 =.1 4 =.2 3 =.4 2 =.6 1 =.8 0 = 1.0	0.6	at-f i-H v-L pp-A n-C sp-E
Percent of the site that is vegetated (including submersed aquatics) (p. 82)	100	<10 =.1 10-20 =.2 20-40 =.4 40-60 =.6 60-80 =.8 >80 = 1.0	1	sb-A v-A

Percent of site with woody vegetation (p. 82)	40	<10 =.1 10-20 =.2 20-40 =.4 40-60 =.6 60-80 =.8 >80 = 1.0	0.4	sb-b
Percent of seasonal zone that is bare during most of the dry season. (i.e., devoid of vegetation, except trees) (Answer "0" if no seasonal zone)	10	>80 = 0 60-80 =.2 40-60 =.4 20-40 =.6 1-20 =.8 0 = 1.0	0.8	pp-G sp-H
Percent of site that is inundated permanently and contains emergent, floating, or submersed plants (p. 72)	0	0 = 0 1-10 =.9 >10 = 1.0	0	i-A
		0 = 0 1-10 =.4 10-30 =.8 30-60 = 1.0 60-90 =.9 >90 =.6	0	bw-F
Percent cover of herbs within the seasonal zone (p. 72)	50	0 = 0 1-30 =.1 30-50 =.6 50-70 =.75 70-100 = 1.0	1	at-L
Percent of whole site that has closed canopy (p. 80)	30	<10 =.1 10-20 =.2 20-40 =.4 40-60 =.6 60-80 =.8 >80 = 1.0	0.1	sb-C
Percent understory shrub & vine cover beneath the drip line of trees (p. 82) (Answer "0" if no wooded areas)	20	<10 =.1 10-20 =.2 20-40 =.4 40-60 =.6 60-80 =.8 >80 = 1.0	0	sb-D

Number & distribution of vegetation forms --- herbs, shrubs, trees. If only one form, answer "A". To count, the patch must comprise >0.5 acre or >5% of vegetated area. See p. 77 for enlargement of diagram.  	f1	A = 0 B2 =.60 C2 =.65 B1 =.70 C1,D =.75 E2 =.80 F2 =.85 E1 =.90 F1 =.95 G = 1.0	0.95	pp-B v-B at-J i-K sb-H
Number of woody species (p. 82)	7	unwooded= 0 1-2 =.1 3-4 =.25 5-6 =.5 7-9 =.75 10-18 =.9 >18 = 1.0	0.75	sb-E
Number of native woody species (p. 78)	6	0 = 0 1 =.1 2-3 =.25 4-5 =.5 6-9 =.75 10-13 =.9 >14 = 1.0	0.75	v-F
Percent of woody species list consisting of species that are native (p. 78)	85	0 = 0 1-57 =.1 58-66 =.25 67-74 =.5 75-79 =.75 80-99 =.9 100 = 1.0	0.9	v-g
Percent of woody cover within stratum that is comprised of non-native species (p. 82) (Use the greater of the tree, understory shrub, or open shrub stratum's percent)	5	100 = 0 80-99 =.1 30-79 =.25 10-29 =.5 5-9 =.75 1-4 =.9 0 = 1.0	0.75	v-H
Spatial predominance of non-native herbs (p. 84) A = Non-natives predominate B = Cannot determine (about equal) C = Natives predominate	c	A = 0 B =.5 C = 1.0	1	v-D

Percent of herb species list comprised of species that are non-native (p. 80)	18	100 = 0 80-99 =.1 67-79 =.25 60-66 =.5 25-59 =.75 1-24 =.9 0 = 1.0	0.9	v-E
Average diameter (inches) of the 3 largest trees. (p. 71)	8	none = 0 1-5 =.1 6-9 =.25 10-17 =.5 18-25 =.75 26-35 =.9 >35 = 1.0	0.25	sb-G v-J at-I n-F
Number of deadwood types. Potentially 12 types:(p. 77) ___ Class 1: freshly fallen, have bark & branches, 4-8” ___ Class 1: freshly fallen, have bark & branches, 8-20” ___ Class 1: freshly fallen, have bark & branches, >20” ___ Class 2: mildly rotted and mostly on ground: 4-8” ___ Class 2: mildly rotted and mostly on ground: 8-20” ___ Class 2: mildly rotted and mostly on ground: >20” ___ Class 3: well rotted, losing shape: 4-8” ___ Class 3: well rotted, losing shape: 8-20” ___ Class 3: well rotted, losing shape: >20” ___ Standing stumps/snags: 4-8” ___ Standing stumps/snags: 8-20” ___ Standing stumps/snags: >20” ___ Artificial debris – check only if no others present  	5	0 = 0 1 =.1 2 =.25 3-4 =.5 5-7 =.75 >7 = 1.0	0.75	sb-F v-I n-E at-H
Land cover in the vicinity of the site in the 1850's was wooded?	no	1 = Yes 0 = No	0	n-K pp-H at-R sb-S v-S

Pollution and Erosion Control Plan

Preventing, Controlling, and Reporting Leaks and Spills of Chemicals and Other Petroleum Products

(1) The operator will maintain equipment used for transportation, on-site storage, or application of chemicals in a leak proof condition. If there is evidence of chemical leakage, the operator will suspend the further use of such equipment until the deficiency has been corrected.

(2) Operators will take adequate precautions to prevent leaks or spills of other petroleum products, such as fuel, motor oil, and hydraulic fluid, from entering wetlands or waters of the state.

(3) Operators will take immediate and appropriate action to stop and contain leaks or spills of chemicals and other petroleum products. An oil spill responses kit will be on the site and ready for deployment.

(4) Staging, mixing, and transfer for chemicals and other petroleum products shall only be in locations where spillage of chemicals or other petroleum products will not enter the waters of the state and are located 150 feet away from a stream unless a variance has been approved.

(5) The operator shall immediately report to the appropriate state regulatory agency (Department of Sate Lands, Oregon Department of Forestry, Oregon Department of Agriculture) any chemical spills and other petroleum product spills resulting from the operation that enter, or may enter, the waters of the state. Such notification will not exempt the operator from any requirements of other local, state, and federal agencies to report chemical or other petroleum product spills.

(6) The Oregon Emergency Resource Center 1-800-452-0311 will be notified within 2 hours if more than 40 gallons of chemical or other petroleum products is spilled.

Erosion Control.

Operators will designate equipment routes to limit the alteration of natural slopes and drainage patterns to that which will safely accommodate the anticipated use of the equipment and will also protect waters of the state. The map shows the approximate route (temporary disturbance) of the equipment trail.

(1) Operators will use variable grades and alignments to avoid less suitable terrain so that the route minimizes the disturbance to protected resources, avoids steep sidehill areas, wet areas and potentially unstable areas.

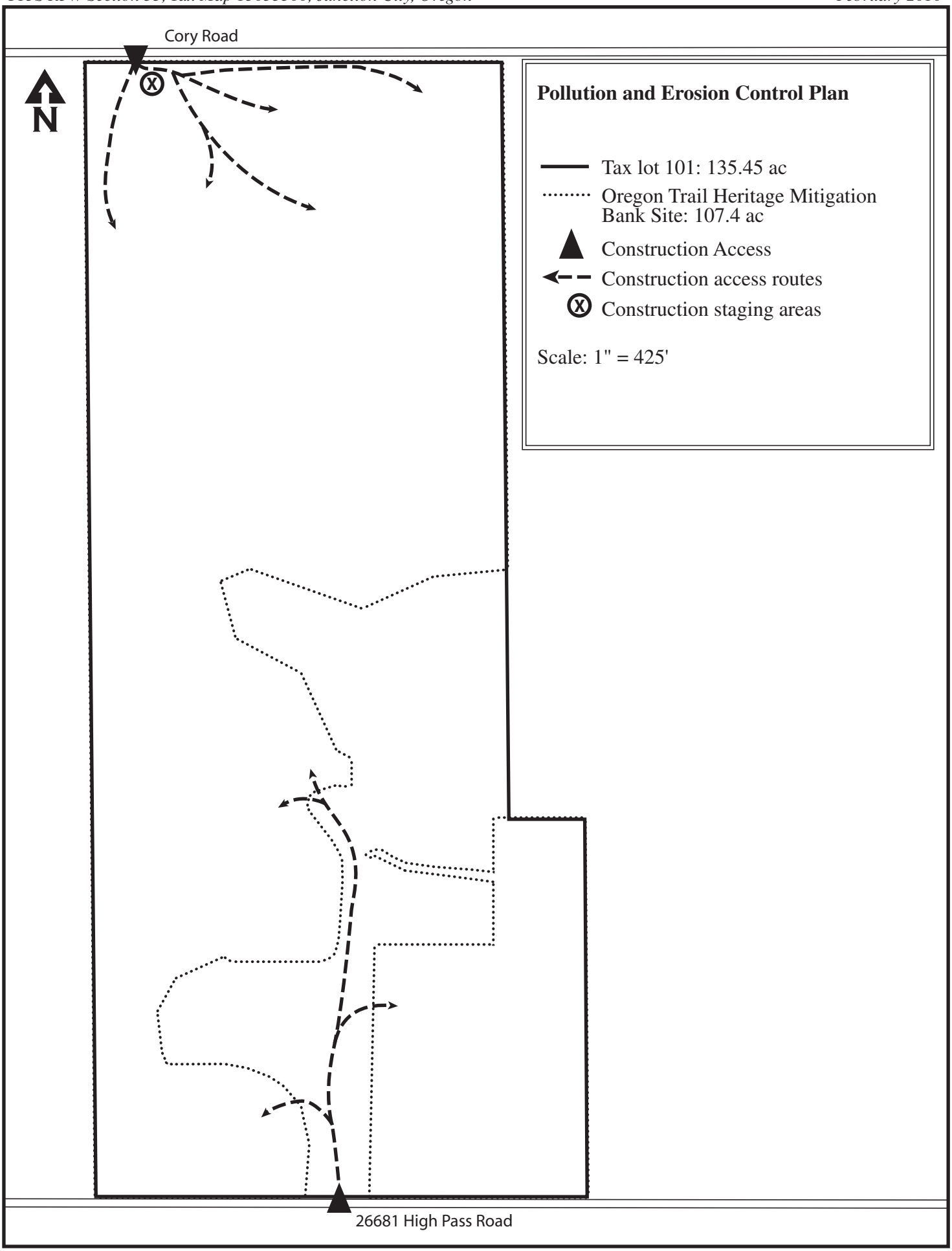
(2) Operators will design routes no wider than necessary to accommodate the anticipated use.

(3) Operators will stabilize routes as needed to prevent fill failure and subsequent damage to waters of the state using bioberms or similar material where needed and will be spaced at the following intervals.

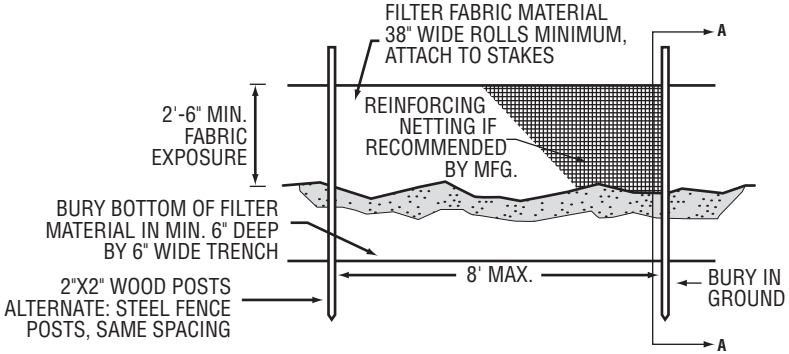
Slope	Normal	Erodible (sand or ash)
5-15%	300’	150’
15-35%	200’	100’
35-50%	100’	50’
over 50%	50’	25’

(4) Drainage of the water will be directed to vegetated areas or mulched areas to contain any sediment.

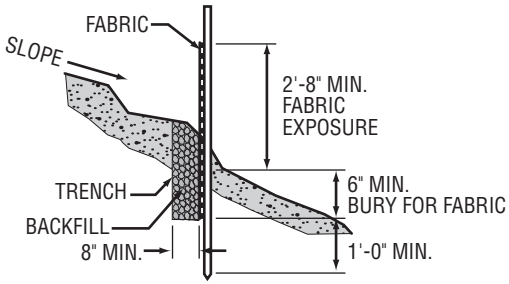
(5) Operators shall remove temporary stream crossing structures promptly after use, and shall construct effective sediment barriers at approaches to channels.


Cory Road
N
Pollution and Erosion Control Plan
Tax lot 101: 135.45 ac
Oregon Trail Heritage Mitigation Bank Site: 107.4 ac
Construction Access
Construction access routes
Construction staging areas
Scale: 1" = 425'
26681 High Pass Road

NOTES:
1. Installation shall follow the manufacturer's recommendations.
2. Posts shall be installed so that a min. of 3'-0" extends above the ground with a min. 2'-0" embedment.
3. Filter fabric fabric shall be purchased in a continuous roll to avoid joints.
4. Splice joints at support posts only, with a min. 6" overlap.



ELEVATION

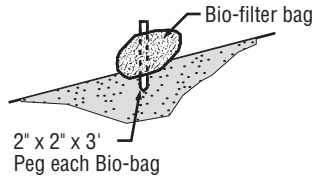


SECTION A-A

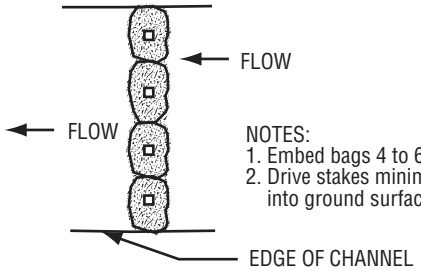
TYPICAL SEDIMENT FENCE DETAIL

NOT TO SCALE

Bio-filter bags to be butted together snugly in lines across the enhanced channel



SECTION

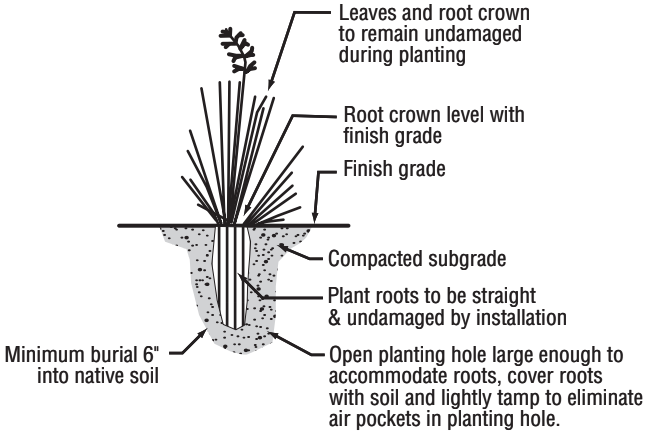


NOTES:
1. Embed bags 4 to 6 inches.
2. Drive stakes minimum 12" into ground surface

PLAN VIEW

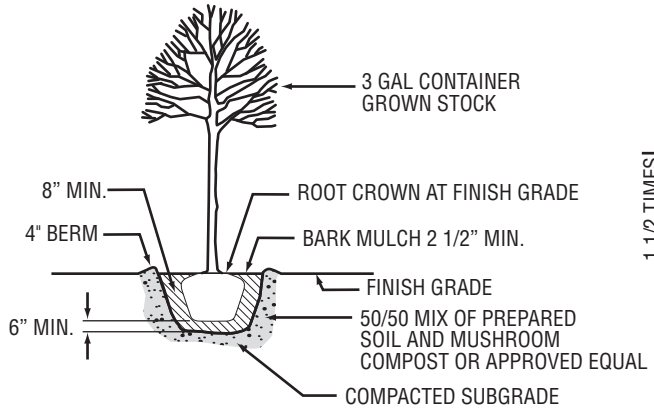
BIO-FILTER BAG

NOT TO SCALE



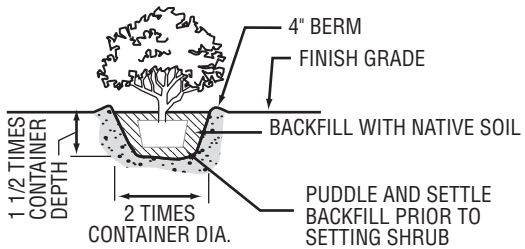
8 CU IN STYRO-BLOC PLUG

NOT TO SCALE



TREE PLANTING DETAIL

NOT TO SCALE



SHRUB PLANTING DETAIL

NOT TO SCALE

Erosion Control and Planting Detail

Oregon
Theodore R. Kulongoski, Governor

Department of State Lands
775 Summer Street NE, Suite 100
Salem, OR 97301-1279
(503) 986-5200
FAX (503) 378-4844
www.oregonstatelands.us.

August 13, 2008

J.B. van Hecke
26683 High Pass Road
Junction City, OR 97448

Re: Wetland Delineation for Proposed Mitigation Bank Site and Power Generating Facility between High Pass Road and Cory Road, Lane County; T15S R5W Sec. 33, Tax Lot 101 (portion); DSL WD #08-0139

Dear Mr. van Hecke:

The Department of State Lands has reviewed the wetland delineation report prepared by Nancy Holzhauser, Environmental Solutions, for the site referenced above. Based upon the information presented in the report, we concur with the wetland and waterway boundaries as mapped in Figure 6 of the report.

Within the study area, three wetlands (totaling 85.15 acres), two ponds (0.19 acres of non-wetland waters of the state), and several perimeter ditches were identified. The wetlands and ponds are subject to the permit requirements of the state Removal-Fill Law. Of the ditches, only the ditch segment between Wetland #3 and High Pass Road is subject to state permit requirements. A state permit is required for cumulative fill or annual excavation of 50 cubic yards or more in the wetlands and ponds or below the ordinary high water line (OHWL) of the jurisdictional ditch.

This concurrence is for purposes of the state Removal-Fill Law only. Federal or local permit requirements may apply as well. The Army Corps of Engineers will review the report and make a determination of jurisdiction for purposes of the Clean Water Act at the time that a permit application is submitted. We recommend that you attach a copy of this concurrence letter to both copies of any subsequent joint permit application to speed application review.

This concurrence is based on information provided to the agency. The jurisdictional determination is valid for five years from the date of this letter, unless new information necessitates a revision. Circumstances under which the Department may change a determination are found in OAR 141-090-0045 (available on our web site or upon request). The applicant, landowner, or agent may submit a request for reconsideration of this determination in writing within six months of the date of this letter.

Thank you for having the site evaluated. I apologize for the delay in approving the delineation. Please phone me at 503-986-5236 if you have any questions.

Sincerely,

Janet C. Morlan

Janet C. Morlan, PWS
Wetlands Program Manager

Enclosure

ec: Nancy Holzhauser, Environmental Solutions
Shelly Hanson, Corps of Engineers, Eugene
Lane County Planning Department
Dana Field and Gloria Kiryuta, DSL

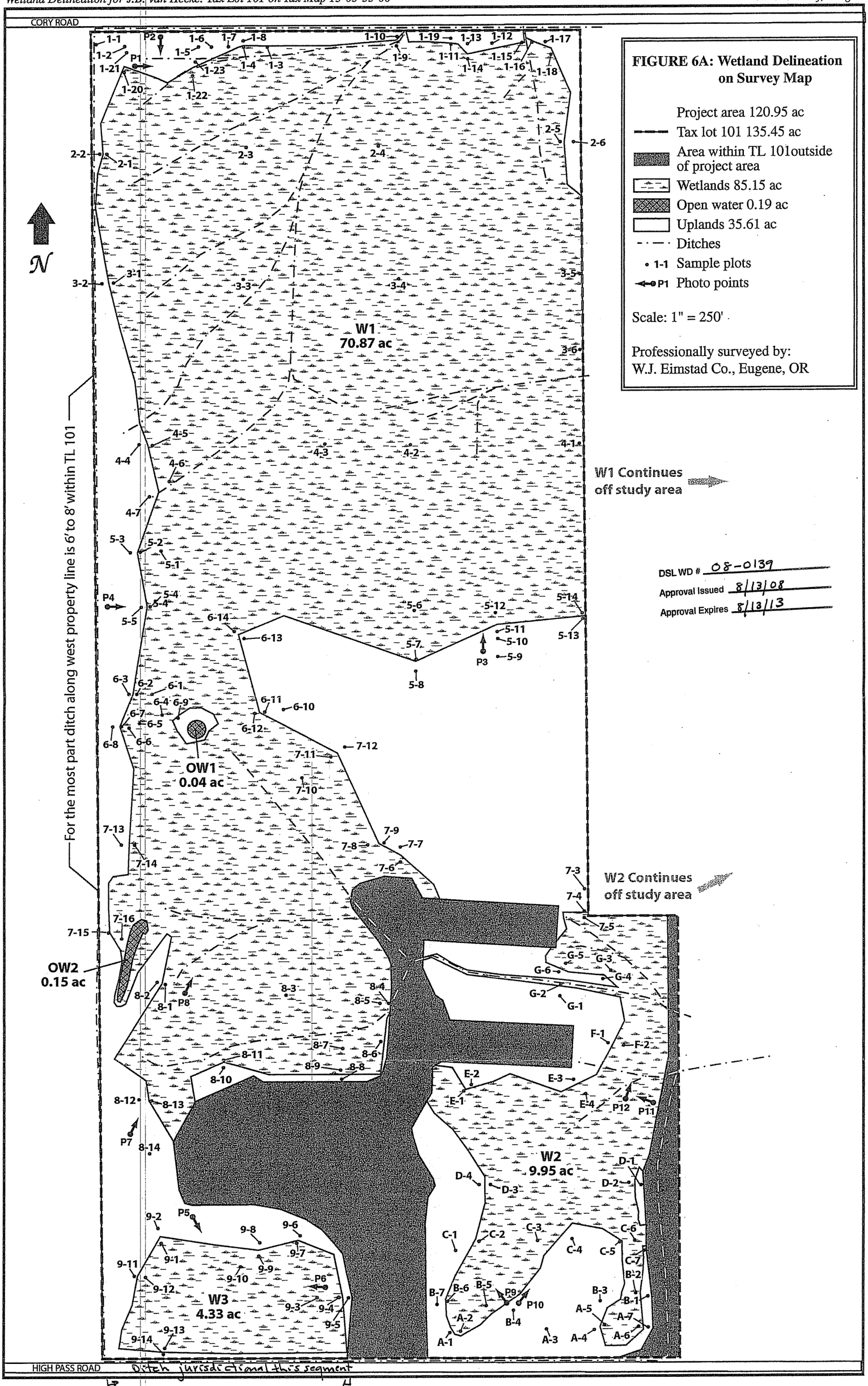


FIGURE 6A: Wetland Delineation on Survey Map

Project area 120.95 ac
Tax lot 101 135.45 ac
Area within TL 101outside of project area
Wetlands 85.15 ac
Open water 0.19 ac
Uplands 35.61 ac
Ditches
1-1 Sample plots
P1 Photo points

Scale: 1" = 250'

Professionally surveyed by:
W.J. Eimstad Co., Eugene, OR

Oregon
Theodore R. Kulongoski, Governor

Water Resources Department
Watermaster District 2
Central Lane Justice Court
220 North 5th
Springfield, OR 97477
Ph: 541-682-3620
Fax: 541-746-1861
www.wrd.state.or.us

April 27, 2009

Nancy Holzhauser
Environmental Solutions LLC
Blue River, Oregon

Dear Nancy Holzhauser,

Thank you for brining me the Oregon Trail Heritage Wetland Mitigation Bank Plans for review.
Based on the size of the berms, 1 foot, and the intent being to *restore* the wetland hydrology, and the expectation that they will not hold water past the late spring, you will not need a permit to store water.

Sincerely,

Michael J. Mattick
District 2 Watermaster

LANE COUNTY PLANNING DIRECTOR
FLOODPLAIN PERMIT

Date: May 12, 2009 **File No.:** PA09-5229

I. **APPLICANT/OWNER:**
J.B. Van Hecke
26683 High Pass Road
Junction City, OR 97448

II. **PROPOSAL:** Obtain a Floodplain Development Permit to re-grade approximately 12,000 cubic yards of existing native material within the 100-year flood hazard area as per Lane Code 16.244.

III. **GENERAL INFORMATION**

Location and Site Description:

Map: 15-05-33 Tax Lot: 101

The project is located at 26683 High Pass Road, Junction City. The property is located within the 100-year flood hazard area, in Zone "A", as per Flood Insurance Rate Map (FIRM) Panel #415591 41039C0600F, eff. June 2, 1999.

The project consists of regrading selected areas of a 101acres agricultural wetland. The project consists of removing shallow drainage ditches, excavating shallow depressions, and constructing shallow berms to restore the historic topography and to increase the physical and biological wetland functions.

IV. **DECISION**

The Special Use Permit is approved with conditions as contained in Exhibit "A".

Jeremy A. Sherer, Engineering Associate

5/12/09
Date

EXHIBIT "A"

PA 07-5404

CONDITIONS OF APPROVAL

FILL/EXCAVATION

WORK AUTHORIZED

1. This permit authorizes the re-grading of approximately 12,000 cubic yards of existing native material within selected areas of a 101acres agricultural wetland. The project is limited to the specific locations on the submitted site map shown on figure 6, Project Wetlands Impacts

2. The development shall occur in the location shown. Any substantial deviation from the approved location shall invalidate this approval.

ADDITIONAL DESIGN REQUIREMENTS

3. Upon completion of the fill, temporary seeding of native tuft hairgrass shall occur following grading in order to minimize erosion and sedimentation.

4. Fill materials shall be native silty clay.

GENERAL CONDITIONS

5. This permit does not authorize any work that is not in compliance with the underlying base zone or other local, state or federal regulations pertaining to the operations authorized by this permit. The permit holder is responsible for obtaining the necessary approvals and permits before proceeding under this permit.

6. Violations of the terms and conditions of this permit are subject to administrative and/or legal actions which may result in revocation of the permit or damages. The permit holder is responsible for the activities of all contractors or other operators involved in work done at the site or under this permit.

7. A copy of the permit shall be available at the work site whenever operations authorized by the permit are being conducted.

8. Employees of Lane County and all duly authorized representatives of the Director shall be permitted access to the project area at all reasonable times for the purpose of inspecting work performed under this permit.

9. Lane County retains authority to temporarily halt or modify the operations if it should cause excessive turbidity or damage to natural drainages.

10. The Applicant shall notify Lane County Lane Management Division upon completion of the fill/excavation project for a final inspection.

11. This approval shall expire two years from the date of final approval. This approval can be renewed for one additional year only by a letter submitted to Lane County Land Management Division before the expiration date, provided the flood plain regulations have not changed.

Exhibit D

Crediting and Debiting Procedures

Crediting and Debiting Procedures for the Bank

1.0 Impact Debit Values

The US Army Corps of Engineers (Corps) and the Department of State Lands (DSL) will determine the appropriate and specific number of mitigation credits necessary to be debited against the Oregon Trail Heritage Wetland Mitigation Bank (OTH Bank) to achieve no net loss of functions and values during the permit process, based upon their use of methods determined to be appropriate by said agencies, of the impact areas and the status of this Bank.

2.0 Mitigation Credit Creation

Mitigation credits will be created by development of a wetland mitigation area in substantial conformance with the Mitigation Plan described in Exhibit C of the MOA. The number of credits created by the OTH Bank shall initially be based upon the Mitigation Plan. Credits may then be adjusted by the IRT based upon the results of the monitoring program described in Section V of the MOA, if and only if as-built conditions differ substantially from those anticipated in the Mitigation Plan. Each acre of land area within the OTH Bank described in Exhibit B will be designated by the Mitigation Plan as to which types of wetlands, as classified by the Cowardin classification, will be enhanced or created by grading. The exact number of credits created is estimated by the Mitigation Plan and will be adjusted, if necessary, based upon final as-built conditions. The number of credits for the OTH Bank is estimated to be 41.47, as shown in Table D-1.

Wetland credits will be offered at approximately 87% palustrine emergent, 2% palustrine scrub-shrub and 6% palustrine forested Cowardin classes, with up to 5% as upland buffer. The entire bank will be constructed as a single phase.

Table D-1. Credits to be Generated by the Oregon Trail Heritage Wetland Mitigation Bank (refer to Figure 16 of Exhibit C)

Acres	Mitigation Type	Ratio	Total Wetland Credits	Cowardin Class	HGM Class
66.1	Enhancement	2:1	33.05	PEM	Slope/Flats
1.0	Enhancement	2:1	0.50	PSS	Slope/Flats
3.1	Enhancement	2:1	1.55	PFO	Slope/Flats
8.3	Enhancement	4:1	2.07	PEM	Slope/Flats
1.7	Enhancement	4:1	0.43	PSS	Slope/Flats
4.3	Enhancement	4:1	1.07	PFO	Slope/Flats
0.9	Creation	1.5:1	0.6	PEM	Slope/Flats
up to 22	Upland and wetland buffer enhancement	10:1	up to 2.2	Upland buffers: NA Wetland buffer: PSS--	Upland buffers: NA Wetland buffers; Riverine flow-through--
Total: 107.4			up to 41.47 PEM credits: 35.72 PSS credits: 0.93 PFO credits: 2.62 Buffer credits: up to 2.2		

The Corps and DSL, acting in consultation with the IRT, may assess the functions and values of this ecological system if part or all of the site fails to meet the Performance Standards listed in the Mitigation Plan (or when requested to do so by the Sponsor). The Corps and DSL may issue a written determination to the Sponsor that due to the demonstration of successful/unsuccessful performance, the number of credits attributable to this Bank are increased or decreased to reflect the functions and values provided.

3.0 Accounting Procedures

The Sponsor will comply with the accounting procedures described in Section V of the MOA and the quantitative assessment of credits and debits for permitted impacts as described herein. In no event shall the cumulative total area of impacts to Waters of the US and State permitted to use credits from the OTH Bank exceed the total area of Waters of the US and State constructed by the OTH Bank.

Table D-2 exhibits the anticipated Credit Release Schedule for the OTH Bank.

Table D-2. OTH Bank Credit Release Schedule

Release	Percent	Performance Standard To be Met	Expected Year
First Credit Release	Up to 15%	• Recorded deed restriction and signing of instrument by MCIRT co-chairs • Financial surety posted • Grading completed • Grading As-Built report completed and approved	2010
Second Credit Release	up to 5%	Initial site preparation and seeding of forbs, sedges, and planting of woody vegetation, with greenup	Fall 2011-winter 2011-2012
Third Credit Release	Up to 10%	**1st** growing season performance standards: **For wet prairie, vernal pool, and emergent (PEM) areas:** • Native herbaceous cover ≥50% across all strata • Invasive species cover ≤ 10% • Prevalence Index total ≤ 3.0 • Tufted hairgrass cover ≤50% • Shrub/Tree cover in wet prairie management units ≤ 5% • Wet prairie soils will be saturated in upper 10 inches at least 2 weeks in early spring (to March 15) in normal rainfall years • Vernal pools soils will be saturated in upper 10 inches at least 2 weeks in late spring (to May 1) in normal rainfall years **For Shrub/Forest areas**: • Native herbaceous cover ≥50% • Invasive species cover ≤ 10% across all strata • Prevalence Index total for all strata ≤3.0 **For Upland buffer areas**: • Native plant cover ≥50% all strata • Invasive species cover ≤ 10% across all strata • ≥ 3 native upland species will have ≥ 10% cover in ≥10% plots	2012
Fourth Credit	Up to	**2nd** growing season performance standards	2013

Release	Percent	Performance Standard To be Met	Expected Year
Release	10%	**For wet prairie, vernal pool, and emergent (PEM) areas:** • Native herbaceous cover ≥50% across all strata • Invasive species cover will be ≤ 10% • Prevalence Index total ≤ 3.0 • Tufted hairgrass cover ≤50% • Shrub/Tree cover in wet prairie management units ≤ 5% • Wet prairie soils will be saturated in upper 10 inches at least 2 weeks in early spring (to March 15) in normal rainfall years • Vernal pools soils will be saturated in upper 10 inches at least 2 weeks in late spring (to May 1) in normal rainfall years **For Shrub/Forest areas**: • Native herbaceous cover ≥50% • ≥150 native tree stems/ac in PFO wetland areas • ≥300 native shrub plants/ac or ≥30% native shrub cover in PSS areas • Invasive species cover ≤ 10% across all strata • Prevalence Index total for all strata ≤3.0 • Tree and shrub density standards met for at least 2 seasons after irrigation ceased **For Upland buffer areas**: • Native plant cover ≥50% all strata • Invasive species cover ≤ 10% across all strata • ≥ 3 native upland species will have ≥ 10% cover in ≥10% plots • ≥4 native trees/ac in savanna areas	
Fifth Credit Release	Up to 10%	**3rd** growing season performance standards **For wet prairie, vernal pool, and emergent (PEM) areas:** • Native herbaceous cover ≥60% across all strata • Invasive cover will be ≤ 10% • Prevalence Index total ≤ 3.0 • ≥ 10 native wet prairie species as ≥5% cover in ≥10% of plots in wet prairie units • Tufted hairgrass cover ≤50% • Shrub/Tree cover in wet prairie management units ≤ 5% • Wet prairie soils will be saturated in upper 10 inches at least 2 weeks in early spring (to March 15) in normal rainfall years • Vernal pools soils will be saturated in upper 10 inches at least 2 weeks in late spring (to May 1) in normal rainfall years **For Shrub/Forest areas**: • Native herbaceous cover ≥60% • Invasive species cover ≤ 10% across all strata • ≥ 6 native species in PSS and PFO habitats, with a species at ≥5% cover in the habitat class and occur in ≥10% of plots sampled • Prevalence Index total for all strata ≤3.0 • Tree and shrub density standards met for at least 2 seasons after irrigation ceased **For Upland buffer areas**: • Native plant cover ≥50% all strata • Invasive species cover ≤ 10% across all strata • ≥ 3 native upland species will have ≥ 10% cover in ≥10% plots • ≥4 native trees/ac in savanna areas	2014

Release	Percent	Performance Standard To be Met	Expected Year
		For Wetland buffer areas: • Total cover of native trees and shrubs ≥50%	
Sixth Credit Release	Up to 10%	**4th** growing season performance standards **For wet prairie, vernal pool, and emergent (PEM) areas:** • Native herbaceous cover ≥60% across all strata • Invasive species cover ≤ 10% • Prevalence Index total ≤ 3.0 • ≥ 10 native wet prairie species as ≥5% cover in ≥10% of plots in wet prairie units • Tufted hairgrass cover ≤50% • Shrub/Tree cover in wet prairie management units ≤ 5% • Wet prairie soils will be saturated in upper 10 inches at least 2 weeks in early spring (to March 15) in normal rainfall years • Vernal pools soils will be saturated in upper 10 inches at least 2 weeks in late spring (to May 1) in normal rainfall years **For Shrub/Forest areas (w/no irrigation)**: • Native herbaceous cover ≥60% • Invasive species cover ≤ 10% across all strata • ≥ 6 native species in PSS and PFO habitats, with a species at ≥5% cover in the habitat class and occur in ≥10% of plots sampled • Prevalence Index total for all strata ≤3.0 • Tree and shrub density standards met for at least 2 seasons after irrigation ceased **For Upland buffer areas**: • Native plant cover ≥50% all strata • Invasive species cover ≤ 10% across all strata • ≥ 3 native upland species will have ≥ 10% cover in ≥10% plots • ≥4 native trees/ac in savanna areas **For Wetland buffer areas:** • Total cover of native trees and shrubs ≥50% **For wetland acreage**: • Wetland delineation "lite" completed to confirm acreage, during a year of near-normal precipitation pattern	2015
Seventh Credit Release	Up to 15%	**5th** growing season performance standards **For wet prairie, vernal pool, and emergent (PEM) areas:** • Native herbaceous cover ≥60% across all strata • Invasive species cover ≤ 10% • Prevalence Index total ≤ 3.0 • ≥ 10 native wet prairie species as ≥5% cover in ≥10% of plots in wet prairie units • Tufted hairgrass cover ≥25% and ≤50% • Shrub/Tree cover in wet prairie management units ≤ 5% • Wet prairie soils will be saturated in upper 10 inches at least 2 weeks in early spring (to March 15) in normal rainfall years • Vernal pools soils will be saturated in upper 10 inches at least 2 weeks in late spring (to May 1) in normal rainfall years **For Shrub/Forest areas (w/no irrigation)**: • Native herbaceous cover ≥60%	2016

Release	Percent	Performance Standard To be Met	Expected Year
		• ≥150 native tree stems/ac in PFO wetland areas • ≥300 native shrub plants/ac or ≥30% native shrub cover in PSS areas • Invasive species cover ≤ 10% across all strata; after site has matured to where 50% canopy cover obtained in PFO and PSS areas, cover of invasive understory species ≤ 30%. • ≥ 6 native species in PSS and PFO habitats, with a species at ≥5% cover in the habitat class and occur in ≥10% of plots sampled • Prevalence Index total for all strata ≤3.0 • Tree and shrub density standards met for at least 2 seasons after irrigation ceased **For Upland buffer areas**: • Native plant cover ≥50% all strata • Invasive species cover ≤ 10% across all strata • ≥ 3 native upland species will have ≥ 10% cover in ≥10% plots • ≥4 native trees/ac in savanna areas **For Wetland buffer areas:** • Total cover of native trees and shrubs ≥50%	
Final Credit Release	All remaining credits (up to 25%)	• Long Term Management Plan approved • Steward signs agreement to take over site.	2016

Exhibit E

Service Area Map and Description

Service Area Description

The service area for the Oregon Trail Heritage Mitigation Bank is the 4th Field Hydrologic Unit 17090003, with a maximum topographic elevation limit of 825 feet, as this is the predominant elevation shown for the south and central Willamette valley in the ODFW publication *The Oregon Conservation Strategy*. The service area is totally within the boundaries of the Middle Willamette Drainage Basin, The service area has similar soils, climate, and vegetation to the Property, as well as identifiable wetland mitigation needs. The Service Area consists primarily of agricultural lands in the southern Willamette Valley with a mix of small to medium cities in Linn, Benton, Lane, and a small portion of Polk counties. It is intended to service the urban growth boundaries of Junction City, Monroe, Harrisburg, Veneta, Eugene, Springfield, Halsey, Brownsville, Lebanon, Tangent, Corvallis, Philomath, Albany, and Millersburg.

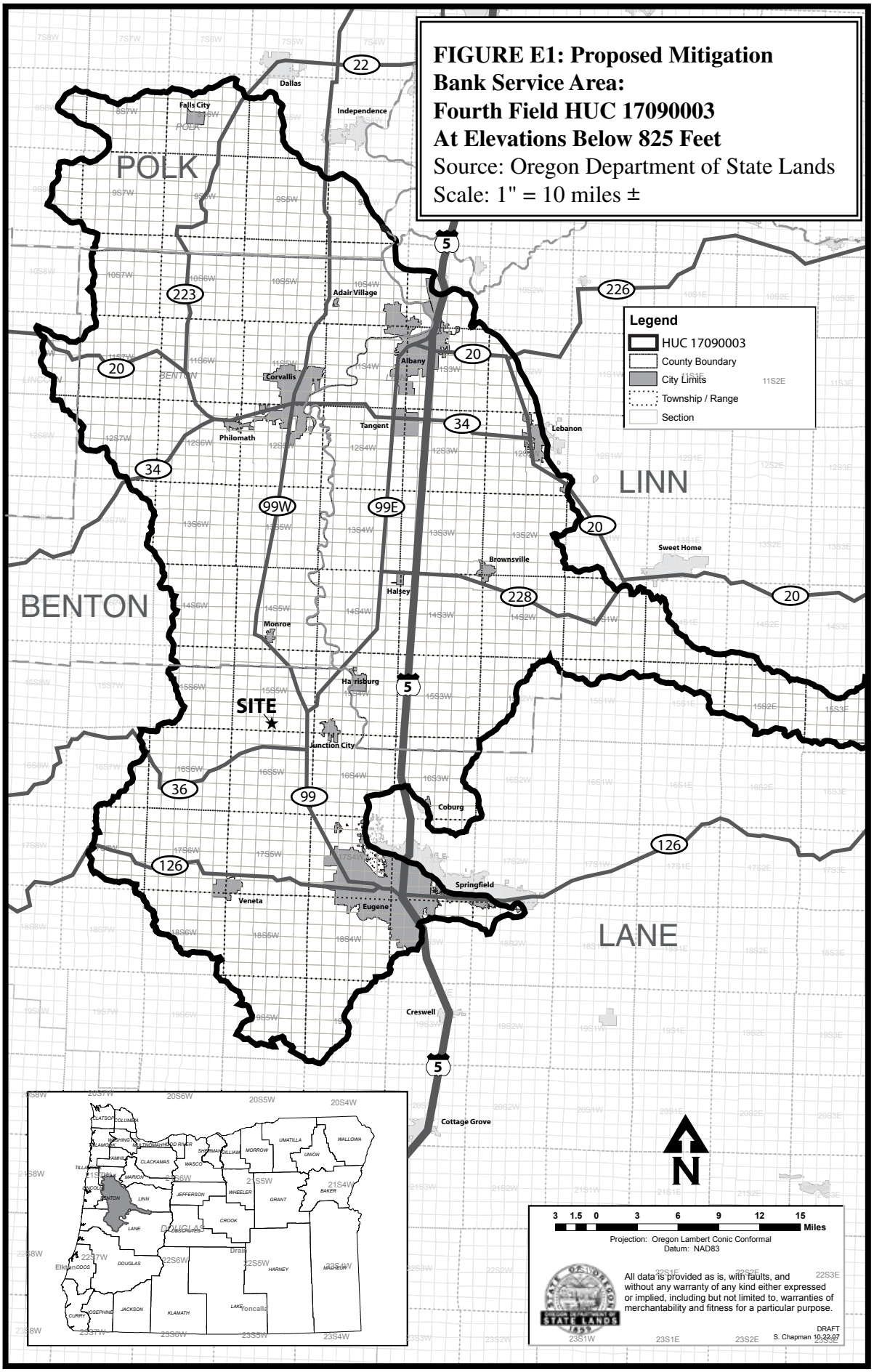


FIGURE E1: Proposed Mitigation Bank Service Area:
Fourth Field HUC 17090003
At Elevations Below 825 Feet
Source: Oregon Department of State Lands
Scale: 1" = 10 miles ±
Legend
HUC 17090003
County Boundary
City Limits
Township / Range
Section
POLK
BENTON
LINN
LANE
SITE
Dallas
Falls City
Independence
Adair Village
Albany
Corvallis
Philomath
Tangent
Lebanon
Sweet Home
Brownsville
Halsey
Monroe
Harrisburg
Junction City
Coburg
Springfield
Eugene
Veneta
Creswell
Cottage Grove
22
5
223
226
20
34
99W
99E
228
36
99
126
N
3 1.5 0 3 6 9 12 15
Miles
Projection: Oregon Lambert Conic Conformal
Datum: NAD83
All data is provided as is, with faults, and without any warranty of any kind either expressed or implied, including but not limited to, warranties of merchantability and fitness for a particular purpose.
DRAFT
S. Chapman 10.22.07

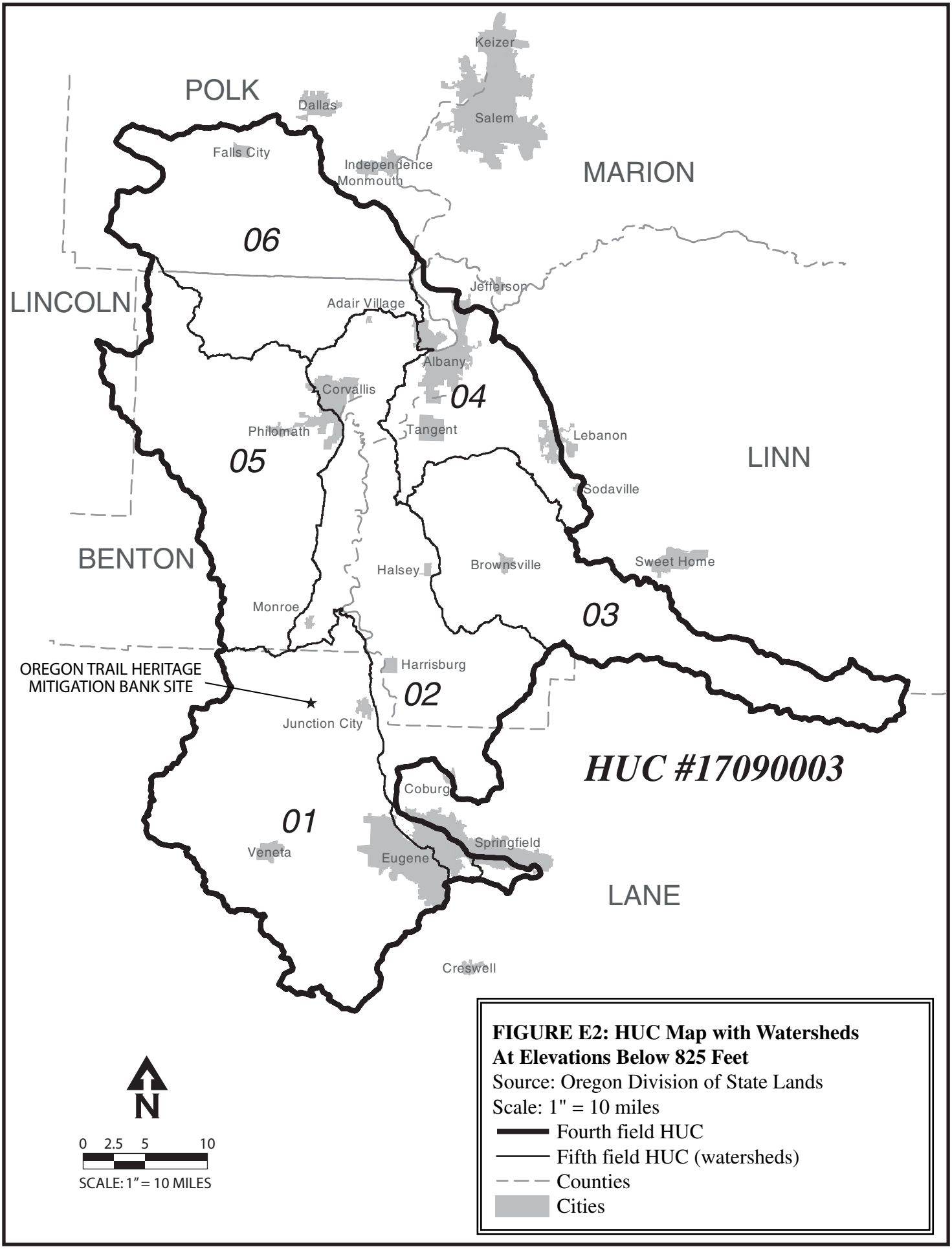


FIGURE E2: HUC Map with Watersheds At Elevations Below 825 Feet
Source: Oregon Division of State Lands
Scale: 1" = 10 miles
Fourth field HUC
Fifth field HUC (watersheds)
Counties
Cities

Exhibit F

Property Protection Instrument

A Draft Property Protection Instrument is exhibited; the Restrictive Covenant will be recorded prior to the first credit release. The Sponsors plan on setting aside a percent of each credit sale to establish an endowment for long-term management. The Sponsors will establish a long-term stewardship plan which could involve management with a conservation group using the endowment money for long-term management.

DECLARATION OF COVENANTS AND RESTRICTIONS
FOR THE

Oregon Trail Heritage Mitigation Bank

THIS DECLARATION made this _____ day of _____, 20 ,
By Barbara and Tom Coon ("Declarant").

RECITALS

1. WHEREAS, Declarant is the owner of the real property described in Exhibit "A" attached hereto and by this reference incorporated herein as the "Property", and desires to create, enhance, and preserve thereon wetlands to be maintained in accordance with the Permit Number approved by the Oregon Department of State Lands ("Department");

2. WHEREAS, Declarant desires to provide for the preservation and enhancement of the wetland values of the Property and for the maintenance and management of the Property and improvements thereon, and to this end desires to subject the Property to the covenants, restrictions, easements and other encumbrances hereinafter set forth, each and all of which is and are for the benefit of the Property.

NOW, THEREFORE, the Declarant declares that the Property shall be held, transferred, sold, conveyed and occupied subject to the covenants, restrictions, easements and other encumbrances hereinafter set forth in this Declaration. These restrictions cannot be released unless authorized by the Department.

ARTICLE 1
DEFINITIONS

1.1 "Declaration" shall mean the covenants, restrictions, and all other provisions set forth in the Declaration of Covenants and Restrictions.

1.2 “Declarant” shall mean and refer to Barbara and Tom Coon, their successors or assigns.

1.3 “Removal fill permit” shall mean the final document approved by the Department that formally establishes the wetland mitigation and/or preservation area and stipulates the terms and conditions of its construction, operation and long-term management.

1.4 “Property” shall mean and refer to all real property subject to this Declaration, as more particularly set forth in Exhibit “A.

ARTICLE 2
PROPERTY SUBJECT TO THIS DECLARATION

The real property which is and shall be held, transferred, sold, conveyed and occupied subject to this Declaration is located in Lane County, Oregon and is more particularly described in Exhibit “A”.

ARTICLE 3
GENERAL PLAN OF DEVELOPMENT

Declarant currently manages the site for the purpose of wetland mitigation or preservation. Current management is in accordance with Permit Number 42511-RF.

ARTICLE 4
USE RESTRICTIONS AND MANAGEMENT RESPONSIBILITIES

The Property shall be used and managed for wetland mitigation or preservation purposes in accordance with Permit Number 42511-RF. Declarant and all users of the Property are subject to any and all easements, covenants and restrictions of record affecting the Property.

1. There shall be no removal, destruction, cutting, trimming, mowing, alteration or spraying with biocides of any vegetation in the Property, nor any disturbance or change in the natural habitat of the Property, except to eliminate non-native invasive species from the site or conduct other required maintenance.

2. There shall be no agricultural, commercial, or industrial activity undertaken or allowed in the Property; nor shall any right of passage across or upon the Property be

allowed or granted if that right of passage is used in conjunction with agricultural, commercial or industrial activity.

3. No domestic animals shall be allowed on the Property.

4. There shall be no filling, excavating, dredging, mining or drilling; no removal of topsoil, sand, gravel, rock minerals or other materials, nor any dumping of ashes, trash, garbage, or of any other material, and no changing of the topography of the land of the Property in any manner, unless specified in the Reserved Rights.

5. There shall be no construction or placing of buildings, mobile homes, advertising signs, billboards, or other advertising material, or other structures on the Property.

6. There shall be no operation of dune buggies, motorcycles, all terrain vehicles, or other types of motorized vehicles on the Property, except for monitoring, maintenance, disable access for site viewing and education, and oversight purposes by Declarant or their designee(s).

RESERVED RIGHTS

1) Any activities related to the initial or corrective measures or for long term maintenance of the wetlands relating to construction, wildlife enhancement, planting, replanting, maintenance, trash removal, invasive weed or dominant species control may be conducted to insure compliance with the mitigation plan, based upon Oregon's Removal-Fill Law and the requirements of the Department of State Lands.

2) The Property may be used for educational purposes. Activities may include soil or plant sampling, wildlife monitoring or other "outdoor classroom" activities, to the extent that this use does not unduly alter the health of the protected area. The Protected Property may also be used for limited native seed or bulb harvesting.

3) Trails may be made through the upland habitat portions of the Property using gravel, wood chips or other products normally used for trail development and upkeep. These areas may be provided with benches and/or raised walkways.

4) Emergency crossing of the Property by farm equipment or other large equipment is allowed. Restoration of the site will be conducted for any damages that are incurred to the Property.

5) The right to undeveloped recreational uses including limited hunting, fishing, and hiking for fee or gratis.

6) The right to prevent trespass and control access by the general public.

7) The right to install wildlife blinds for viewing and hunting.

8) The right to withdraw water from the excavated ponds in the west area as needed for summer use on the land excluded from the Property within Tax Lot 101.

9) The right to conduct minor excavation as needed to repair or replace water line extending across the Property to the excavated ponds in the west area of the Property.

ARTICLE 5
RESOLUTION OF DOCUMENT CONFLICTS

In the event of any conflict between this Declaration and DSL Permit Number 42511-RF and Corps Permit #NWP2008-329, the permit shall control.

IN WITNESS WHEREOF, the undersigned being Declarant herein, has executed this instrument this _____ day of _____, 20_____.

Barbara Coon

Tom Coon

Lane County, Oregon

By: _____

Title: _____

STATE OF OREGON)
) ss:
County of_____)

This instrument was acknowledged before me on _____(*date*) by _____(*name of person*) as _____ _____(*title*) of Your firms name of

Lane County, Oregon.

_____
Signature of Notarial Officer

My Commission Expires: _____

Document1

Exhibit G

Sample Credit Receipt

Prior to each credit sale, the Sponsor will be notified by either the permitting agency or the applicant that the Oregon Trail Heritage Wetland Mitigation Bank has been approved for use for a removal/fill permit application or resolution of a removal/fill violation. The Bank Sponsor will notify both Co-Chair Agencies, regardless of jurisdiction, in writing (fax is acceptable) within two business days of the sale of the credits, using the credit receipt template below. The Bank Sponsor will submit an Annual Report to both Co-Chair Agencies including an accounting of credits earned and sold.

	Date
	Number of credits sold
	Acres of wetland impacts, by HGM and Cowardin class
	HGM and Cowardin class of the credits being sold to compensate for those impacts
	Permittee Name
	Project Name
	Corps Permit Number
	DSL Permit Number
	Or other project identifier
	Impact HUC (10 digit HUC)
By selling credits to the permittee, _____(SPONSOR NAME) hereby assumes responsibility for fulfilling the mitigation obligation of the Permit(s) listed above. Sponsor signature: _____	

Exhibit H

Sample Credit Ledger

Oregon Trail Heritage Wetland Mitigation Bank Instrument
Sample Credit Ledger

Transaction Date	Transaction Type (Withdrawal or Release)	Jurisdiction (State and/or Federal)	Number of Credits	Credit Unit	State Permit Number	Federal Permit Number	Credit Type (HGM class, Cowardin class)	Balance of Released Credits	Balance of Remaining Credits

The sponsor shall keep the spreadsheet up to date and provide copies to DSL and the Corps as requested, and in the annual report.

Exhibit I
Definitions

BUFFER - An upland, wetland, or riparian area that enhances the functions and/or protects the functions of a mitigation bank from disturbance associated with adjacent land uses.

CO-CHAIRS – The Corps and DSL representatives who make decisions regarding bank establishment and operation. The USFWS and/or NMFS may be Co-chair Agencies if a bank also serves to mitigate for losses to federally listed species or habitats. Each co-chair agency retains independent authority to implement their respective regulations.

CONSERVATION – Also known as preservation. The preservation and perpetual protection and maintenance of certain existing high quality wetlands or aquatic resources that would otherwise be threatened with destruction or degradation, using appropriate legal and physical mechanisms.

CREATION – Also known as establishment. To establish or convert an area that has never been a wetland to a jurisdictional wetland. Results in a gain in aquatic resource area and function.

CREDIT – A unit of measure of the increase in wetland functions or area achieved at a mitigation bank site. Unless otherwise specified in the MBI or authorization, one wetland credit is sufficient to offset one acre of wetland loss. Advance credits are those credits that are released for sale in advance of full performance of a mitigation bank, and secured by a financial assurance. Certified credits are those credits that are generated after the bank is meeting all performance standards.

DEBIT – A unit of measure representing the reduction of function or loss of area of wetlands or other aquatic resources at the site of impact.

ENDOWMENT - A dedicated, non-wasting account to be established by the Sponsor concurrent with the operation of the MBI, and which shall generate interest to be used exclusively for the ongoing management of the mitigation bank for conservation purposes consistent with the MBI, associated conservation easement and long-term management plan.

ENHANCEMENT – Actions or treatments that increase the function of an existing degraded wetland. Enhancement may include rehabilitation of the historic or natural functions of a degraded aquatic resource. Enhancement does not result in a gain in aquatic resource area.

ESTABLISHMENT – See Creation.

FINANCIAL ASSURANCES – A financial instrument such as an irrevocable letter of credit, escrow account, performance bond, or other surety mechanism accessible to DSL, required of the sponsor to ensure that the mitigation obligations of the bank can be fulfilled in the event of default or incapacity of the sponsor. The amount of the assurance shall be sufficient to ensure a

high level of confidence that the goals of the bank will be achieved and maintained over the long term pursuant to the plans set forth in the MBI.

FUNCTIONS – The physical, chemical, and biological processes that occur in aquatic ecosystems. Examples include: support of habitat for various fish, wildlife, and plants; retention and detention of water; adsorption and transformation of nutrients and pollutants, and filtration and settling of sediment.

LEDGER – A cumulative accounting spreadsheet of all credits released and sold.

MITIGATION – Sequentially avoiding impacts, minimizing impacts, and compensating for impacts to aquatic resources.

MITIGATION BANK – A site or sites where wetlands, other aquatic resources, and any associated buffers are restored, enhanced, created, or protected expressly for the purpose of providing compensatory mitigation in advance of authorized impacts to similar resources. A mitigation bank sells compensatory mitigation credits to permittees whose mitigation obligation is thereby transferred to the bank sponsor. The establishment and operation of a mitigation bank is governed by the MBI.

MITIGATION BANK INSTRUMENT – (MBI) The legally binding and enforceable agreement between the Director of DSL, the District Engineer of the Corps, and a mitigation bank sponsor that formally establishes the mitigation bank and stipulates the terms and conditions of its construction, operation, use, and long-term management.

INTERAGENCY REVIEW TEAM (IRT) – A committee of local, state, federal, and tribal resource agency representatives that provides advice to the DSL and the Corps on establishment and management of mitigation banks. The Corps and DSL are the Co-chairs and the final decision makers. For a Conservation Bank, the USFWS and/or NMFS may be Co-chair Agencies.

MITIGATION SITE PLAN – A detailed drawing that identifies specifically where aquatic resources and associated upland buffers will be restored, created, enhanced, and/or preserved on the mitigation bank.

PERFORMANCE STANDARDS – Observable and measurable physical and biological indicators used to determine if a mitigation project is meeting its objectives. Credit releases are linked to achievement of minimum performance standards required to meet the objectives for which the Bank was established.

PRESERVATION – See Conservation.

RE-ESTABLISHMENT - See Restoration.

REHABILITATION – See Enhancement.

RESTORATION – The re-establishment of wetland hydrology to a former wetland sufficient to support wetland characteristics, with a goal of returning historic or natural functions to the site.

SERVICE AREA – The geographic area within which impacts can be mitigated at a specific mitigation bank, as designated in the MBI.

SPONSOR – Any public or private entity responsible for establishing and operating a mitigation bank. The sponsor is the entity that assumes all legal responsibilities for carrying out the terms of the MBI, unless specified otherwise in the MBI.

STEWARD – The landowner or easement holder of the bank lands charged with long-term maintenance and management responsibility. The sponsor is the steward until such responsibilities are formally transferred to another party, with the approval of the Co-chair Agencies.

Exhibit J

Financial Assurances

Proposed Financial Instrument

The proposed method for the financial security instrument is anticipated to be a Performance Bond, which will be posted prior to release of the first credit. The Sponsors will be responsible for establishing and managing the financial assurance. Partial reductions of the performance bond as performance milestones are achieved will be shown.