Skagit Environmental Bank Response to Skagit County and Public Comments

Prepared for
Clear Valley Environmental Farm, LLC
and Clear Valley Environmental Farm, II, Inc.

January 2007

Note:
Some pages in this document have been purposefully skipped or blank pages inserted so that this document will copy correctly when duplexed.

CLEAR VALLEY ENVIRONMENTAL FARM, LLC

CLEAR VALLEY ENVIRONMENTAL FARM II, INC.

14067 McLaughlin Extension Road
Mount Vernon, Washington
98273

January 16, 2007

Betsy Stevenson, AICP, Senior Planner
Skagit County Planning & Development Services
1800 Continental Way
Mount Vernon, Washington 98273

RE: Response to September 15, 2006, request for Additional Information for Grading Permit BP06-0669

Dear Ms. Stevenson:

On June 27, 2006, Clear Valley Environmental Farm, LLC, and Clear Valley Environmental Farm II, Inc. (together, the "Applicant"), filed with Skagit County an application for a Grading Permit. The County gave the application Application No. BP06-0669. The application is related to the Applicant's planned creation of a wetland mitigation bank on certain property in Skagit County, a bank that we believe will be a boon to everyone in Skagit County.

On September 15, 2006, you sent the Applicant a letter saying that the application was complete for review purposes, but that based on (1) an initial review, and (2) comments received from the public during the comment period for the Notice of Development, "some additional information will need to be submitted."

In your letter, you followed that statement with a number of requests and questions. You also enclosed the letters that you had received from the public, commenting on the Application.

With this letter, we are sending you a bound document containing our responses to your September 15 letter. Our objective is to answer each and every one of your comments and requests, and of the public comments, to your satisfaction, to further demonstrate the fact that our application should be granted.

Your letter, and the public comments, covered a number of different areas, and our responses required several different kinds of knowledge and expertise. We, the Applicant, were able to answer some of the requests. Other requests required scientific expertise. For those responses,

we turned to our environmental experts, Herrera Environmental Consultants, Inc. Still others required legal expertise. For these responses, we turned to our attorneys, Brent Carson, Esq., and Buck & Gordon LLP.

The number of requests, the varied subject areas, the overlapping of some of the comments, and the fact that three of us are responding, created a challenge related to the organization of the response document. We have made every effort to make our responses accessible and informative, both upon first reading, and as a later reference tool. Here is the way it is organized.

First, we have included this cover letter and a Table of Contents. We have then broken the rest of the bound document into tabbed sections.

Section A of the document is a list of your questions and requests, taken from your September 15 letter. Your questions are numbered, 1 through 21. At the end of each of your questions, we say, for instance, "See Response D-1." This will guide the reader to the applicable response, in this case Response number 1 in Section D of the bound document.

Section B of the document sets out a copy of each public comment letter, reduced in size and put on the right hand side of the page. We have highlighted each significant comment in each letter and have given that comment a number. We respond to each such comment, by number, on the left hand side of the page.

Where the comment needs a fuller explanation than can be made completely in the margin, we refer the reader to a more detailed response, for instance, "See Response E-7." This directs the reader to response number 7 in Section E of the bound document.

Many comments are repeated in separate public comment letters. In each case, we simply refer the reader to the response noted for the earlier comment.

Having set out your requests and the public comments, the bound document then sets out the more detailed responses.

Section C contains the Applicant's responses. It starts out with a Table of Contents. Then, we set out our responses. Our responses are numbered C-1, C-2 and so on. Following the number of the Response is a parenthetical phrase that indicates the request or comment to which it responds. For instance, Response C-1 responds to the County's comment number 2, found in Section A of the document.

Section D contains the responses from Herrera Consulting. It starts out with its own Table of Contents and then follows the same format as Section C.

Section E is a Memorandum from Brent Carson, Esq., of Buck & Gordon LLP, setting out the responses to those requests and comments that require legal expertise. Mr. Carson's responses are numbered and cross-referenced in a slightly different way, but the effect is the same as that of Sections C and D.

Finally, we include an Appendix, which starts with a full copy of your September 15 letter. It includes our Archeological Report, Well Logs, and other data.

We hope that our responses answer all of your requests and the public comments, to your satisfaction, and that we can move to the next steps in this interesting process. It goes without saying that we will be happy to answer any additional questions or provide additional information necessary to go forward. Please contact Jerome Ryan at 360.202.9382 (and Jerome_Ryan@yahoo.com) or Jake Hodge at 360.333.5902 (and jamesbhodge@yahoo.com) with any questions, requests or comments.

We look forward to your review and to a fruitful completion of our project.

Very truly yours,

Jerome Ryan
For Clear Valley Environmental Farm, LLC, and
Clear Valley Environmental Farm II, Inc.

cc: Michael Spillane, Herrera Environmental Consulting, Inc.
Mark Merkelbach, Herrera Environmental Consulting, Inc.
Brent Carson, Esq., Buck & Gordon LLP

Table of Contents

Appendices

SECTION A
Skagit County Comments

Section A—Skagit County Comments

(see Appendix 1 for the original letter)

1. The issue has been raised regarding inconsistencies within the application materials. Specifically, inconsistencies between the grading application, JARPA and SEPA checklist. The proposed phasing of the construction seems to create some confusion for the overall project scope in terms of total grading quantities along with the breakdown of grading quantities for each phase. Also please note the location for material deposition and stockpiling onsite.

   See Response D-1.

2. There have also been comments received regarding the scope of the project in terms of acreage and the overall property ownership. Some early submittals include the transfer of development rights from the agricultural lands to the upland area in the eastern portion of the property for future residential cluster development. Please provide information that accounts for the proposed use of the entire acreage owned by the applicant.

   See Response C-1.

3. Please supply a detailed analysis of the existing and future needs for this proposal in the overall regional basin. What types of resource needs are present in the service area and how are they addressed by this proposal? Please provide a detailed description of the resource needs and their location within the service area. Information generated as part of the service area determination should also be included.

   See Response C-2.

4. There is conflicting information regarding the number of engineered log jams that are proposed for the project. Please confirm the number and their locations.

   See Response D-2.

5. Water and power line easements are mentioned in information submitted prior to the application for a grading permit. Please note their location on the site map and indicate how the easements will be impacted by the proposed project.

   See Response D-3.

6. Please conduct a cultural resource study for the project site and submit the findings for review. You may wish to contact Rob Whitlam, State Archaeologist, at the Washington State Office of Archaeology and Historic Preservation for guidance on the scope of the study. Mr. Whitlam can be reached at (360) 586-3080.

See the *Cultural Resource Assessment for the Skagit Environmental Bank* prepared by Northwest Archaeological Associates, Inc. in Appendix 2.

7. Nookachamps Creek has been designated as a low flow stream, subject to the requirements of Chapter 14.24.300 through 14.24.360 of the Skagit County Code. Some additional information will be required to address existing surface and groundwater characteristics. Our department will rely on Gary Stoyka, hydrogeologist from the Public Works Department, to determine the scope of the information for the proposed wetlands mitigation bank construction. Additional information may be required for the proposed residential development.

   Clear Valley Environmental Farm, LLC received additional comments (see Comments 8 through 15) by Gary Stoyka (Skagit County) which are based on Hydrogeology Site Assessment Report requirements.

Please provide the following information per the requirements of Skagit County Code 14.24.340:

8. All well logs for wells/borings located within 1,000 feet of the project site that are available at the Health Department or the Washington Department of Ecology. The locations of these wells relative to the project site should be shown on a map.

   See Response D-4.

9. A description of the hydrogeological characteristics in the vicinity of the project site including a description of the lithology, static water level of underlying aquifers, and a depiction of the groundwater flow direction for both pre-construction and post-construction conditions shown on a map.

   See Response D-5.

10. Identification of potential sources of water quality impacts located within the area of hydrogeological influence of the project.

    See Response D-6.

11. Identification of any wells, septic systems, or other structures that could be adversely impacted by the expected change in hydrogeological conditions.

    See Response D-7.

12. Identification of any new groundwater discharge areas that may be created by the project, how these new discharge areas could adversely impact downgradient receptors, and any mitigation measures that may be necessary.

    See Response D-8.

13. Obtain a water right permit from the Department of Ecology or provide evidence that a water right permit is not required.

    No permanent wells are proposed for groundwater withdrawal. Ecology does not require water right permits for wetland re-establishment activities.

14. The comment letters received during the comment period for the Notice of Development were forwarded to you on August 28, 2006 for review. Please submit a response to those letters which address any pertinent issues raised regarding this proposal.

    Responses to public comment letters are addressed in Section B.

15. As you know, the surface waters in the project area have 303(d) listings for stream temperature (TMDL Study). Please submit information that addresses this issue as it relates to your proposal.

    See Response D-9.

In addition to the above requested information, Skagit County Public Works Department has reviewed the proposal and supplied the following comments and questions. Please address the following issues in a detailed response to Planning and Development Services:

16. The H&H report uses 37' (NGVD '88) on the Skagit River as ordinary high water (OHW). This is approximately 5 to 6 feet above flood stage (28' –NAVD '29). OHW is not meant to measure flood stage, but the level perhaps of a 1 or 2 year flow. A 37' flood would be closer to a 10 year flow. Stating that the OHW is this high creates the impression that the site is inundated by backwater from the Skagit River on a routine basis.

    See Response D-10.

17. Public Works needs greater details on where the excavated materials will be placed on the site. The placement of 1.4 million cubic yards of material could have a noticeable effect on flood patterns depending on where it is located in the floodplain.

    See Response D-11.

18. The grade and fill numbers are somewhat inconsistent. The JARPA suggests only 65,000 cubic yards of excavation but the plans indicate considerably greater quantities. The applicant will need to show just what the fill and grade permit will be covering in greater detail.

    See Response D-1.

19. Additional analysis of the East Fork Nookachamps is required. The H&H study states a 1.1 foot rise in the surface level at the boundary of the project. More information will be required to show how far upstream this backwater effect will extend.

    See Response D-12.

20. The analysis states that because the localized groundwater level will not be recharged by this rise in water level in the channel, there is no adverse effect to off site properties. This analysis does not seem (to) consider the loss of capacity within the channel to convey additional flows before overtopping. Reducing the in-channel capacity means localized flooding at lower rainfalls.

    See Response D-13.

21. Public Works has concerns that if the backwater effect extends far upstream, some offsite conveyances (ditch and pipe) that drain into the East Fork may be located with invert levels within the 1.1 foot rise, therefore minimizing their capabilities.

    See Response D-14.

22. The applicants analysis shows an offsite impact from the Engineered Log Jam #2, located several thousand feet upstream from the property boundary. The proponent discusses installing up to 5 additional ELJ with no information on their location or potential impact. It will need to be clearly stated that any additional in-stream modifications are not permitted under this permit.

    See Response D-15.

SECTION B
Public Comments

Section B—Public Comments

Comment 1.1
See Response C-1.

Comment 1.2
The Bank will only remove 305 acres of agricultural land. That is far less than 1% of Skagit agricultural lands. Moreover, this was land that was formerly wetland and is being restored back to wetland. The applicant recognizes the concerns about the loss of any agricultural land and, as a result, has proposed a significant mitigation package that will protect and preserve far more acres of agricultural land than may be lost by this project, resulting in no net negative impact. See Response C-7 which details the mitigation plan. Finally, economic impacts are not a relevant issue in a SEPA review. See Response E-7 that addresses economic impacts.

Comment 1.3
See Response E-1.

Comment 1.4
See Response E-2.

Comment 1.5
Large portions of the upland areas within the property boundary will be contained within the project site. The remaining areas outside of the wetland mitigation bank will be utilized as described in Response C-1.

Comment 1.6
See Response D-16.

Comment 1.7
See Response C-3.

Comment 1.8
See Response E-3.

Comment 1.9
See Response D-17.

Comment 1.10
See Response D-18.

Comment 1.11
See Response E-4.

Letter 1

SKAGIT COUNTY
PERMIT CNTR.
AUG 2 5 2006
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FRIENDS of Skagit County

P.O. Box 2632 (mail)
110 N. First Street, Suite #C
Mt. Vernon, WA. 98273
360-419-0988
friends@fidalgo.net
www.friendsofskagitcounty.org

People dedicated to preserving Skagit County's rural character by protecting the natural environment; supporting sustainable, resource-based economies; and promoting livable urban communities for present and future generations.

August 23, 2006

Mr. Brandon Black, Senior Planner
Skagit County Planning and Development Services
1800 Continental Place
Mount Vernon, WA 98273

RE: Grading Permit Application, File # BP06-0669
Clear Valley Environmental Farm, LLC
Skagit Environmental Bank Project

Dear Mr. Black:

Friends of Skagit County (FOSC) appreciates the opportunity to formally comment on the Grading Permit Application for the proposed wetland mitigation bank project submitted by Clear Valley Environmental Farm, LLC.

With respect to pre-existing uses of land, the GMA required counties to adopt development regulations on or before September 1, 1991 that assured the conservation of agricultural lands and did not prohibit uses legally existing on any parcel prior to their adoption. These regulations remained in effect until the county or
1.1 city adopted development regulations pursuant to RCW 36.70A.040. This proposal does not comply with Skagit County's protection of farmland. The regulations also assured that use of lands adjacent to agricultural lands did not interfere with the continued use, in the accustomed manner and in accordance with best management practices, of these designated lands for the production of food and agricultural products. The GMA has been amended a number of times to include innovative economic and zoning incentives to preserve agricultural lands of long-term significance. It is clear that the WA State Legislatures, Governors and the Departments of Community, Trade and Economic Development (who administer GMA) have created, and are enforcing regulations to preserve agricultural lands in WA State.

The Clear Valley project proposes to:

1.2 • remove almost 1% of Skagit agricultural land from production which negatively impacts the main economic contributor to Skagit County
1.3 • ignore requirements of the Growth Management Act and the Skagit County Comprehensive Plan,
1.4 • contradict federal, state and local policies and codes on farmland protection
1.5 • leave the upland areas of the property open for development
1.6 • create drainage issues and runoff that threaten the surrounding agricultural properties and habitat for endangered species
1.7 • threaten the economic stability of the county's purchase of development rights program by paying an inflated price per acre for agricultural land
1.8 • set a precedent that existing rural areas with positive agricultural production are "expendable" to mitigate for the development of urban wetlands.
1.9 • not include the affects of the current FEMA revision of the 100 year flood levels
1.10 • remove over 1million cubic feet of material with no plan for disposal or handling of hazardous site materials and
1.11 • ignore SEPA and other requirements regarding water quality and quantity.

Comment 1.12

See Response E-5.

Comment 1.13

See Response E-6.

Comment 1.14

See Response C-1.

Comment 1.15

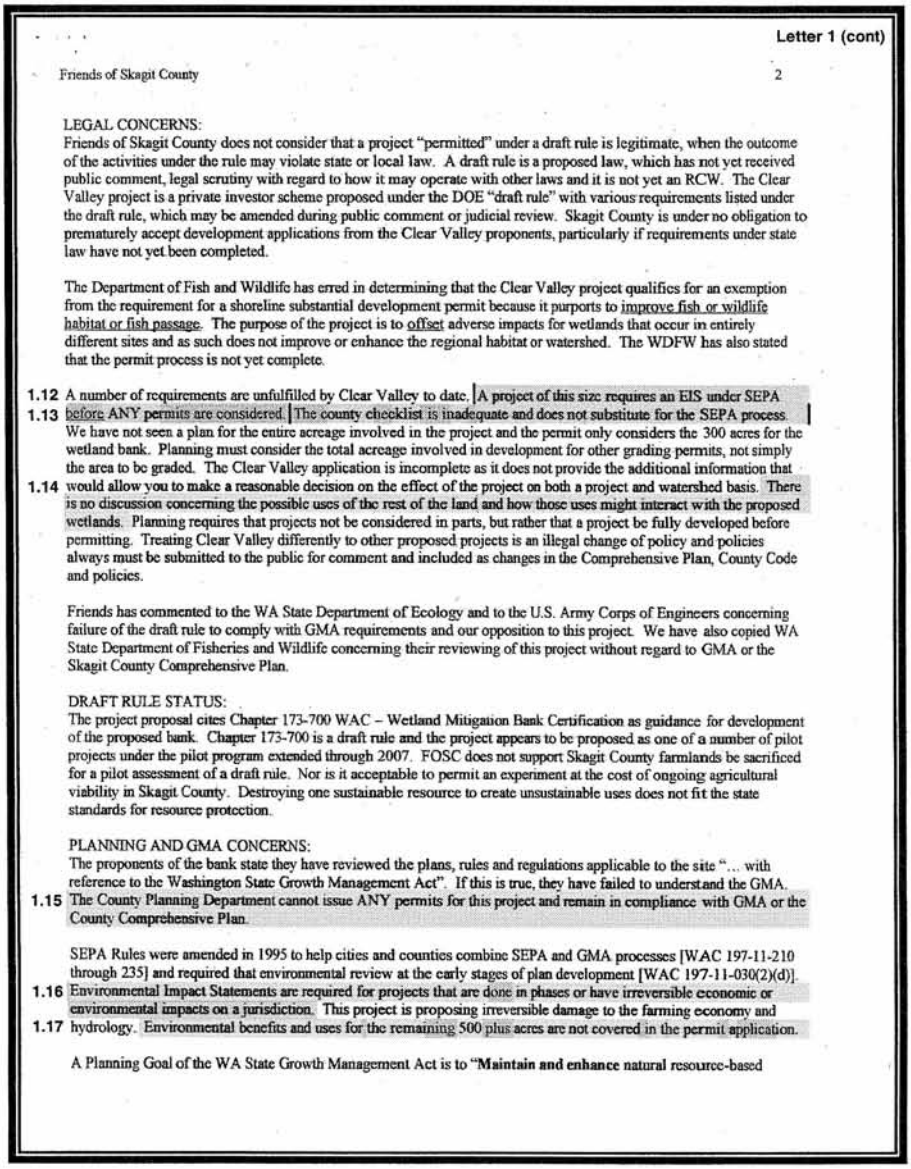
See Response E-1.

Comment 1.16

See Response E-7.

Comment 1.17

The fate of the remaining property is not the subject of this public comment or permit process. Response C-1 details the proposed land use activities adjacent to the wetland mitigation bank.



Letter 1 (cont)

Friends of Skagit County 2

LEGAL CONCERNS:
Friends of Skagit County does not consider that a project "permitted" under a draft rule is legitimate, when the outcome of the activities under the rule may violate state or local law. A draft rule is a proposed law, which has not yet received public comment, legal scrutiny with regard to how it may operate with other laws and it is not yet an RCW. The Clear Valley project is a private investor scheme proposed under the DOE "draft rule" with various requirements listed under the draft rule, which may be amended during public comment or judicial review. Skagit County is under no obligation to prematurely accept development applications from the Clear Valley proponents, particularly if requirements under state law have not yet been completed.

The Department of Fish and Wildlife has erred in determining that the Clear Valley project qualifies for an exemption from the requirement for a shoreline substantial development permit because it purports to improve fish or wildlife habitat or fish passage. The purpose of the project is to offset adverse impacts for wetlands that occur in entirely different sites and as such does not improve or enhance the regional habitat or watershed. The WDFW has also stated that the permit process is not yet complete.

1.12 A number of requirements are unfulfilled by Clear Valley to date. A project of this size requires an EIS under SEPA
1.13 before ANY permits are considered. The county checklist is inadequate and does not substitute for the SEPA process. We have not seen a plan for the entire acreage involved in the project and the permit only considers the 300 acres for the wetland bank. Planning must consider the total acreage involved in development for other grading permits, not simply the area to be graded. The Clear Valley application is incomplete as it does not provide the additional information that
1.14 would allow you to make a reasonable decision on the effect of the project on both a project and watershed basis. There is no discussion concerning the possible uses of the rest of the land and how those uses might interact with the proposed wetlands. Planning requires that projects not be considered in parts, but rather that a project be fully developed before permitting. Treating Clear Valley differently to other proposed projects is an illegal change of policy and policies always must be submitted to the public for comment and included as changes in the Comprehensive Plan, County Code and policies.

Friends has commented to the WA State Department of Ecology and to the U.S. Army Corps of Engineers concerning failure of the draft rule to comply with GMA requirements and our opposition to this project. We have also copied WA State Department of Fisheries and Wildlife concerning their reviewing of this project without regard to GMA or the Skagit County Comprehensive Plan.

DRAFT RULE STATUS:
The project proposal cites Chapter 173-700 WAC – Wetland Mitigation Bank Certification as guidance for development of the proposed bank. Chapter 173-700 is a draft rule and the project appears to be proposed as one of a number of pilot projects under the pilot program extended through 2007. FOSC does not support Skagit County farmlands be sacrificed for a pilot assessment of a draft rule. Nor is it acceptable to permit an experiment at the cost of ongoing agricultural viability in Skagit County. Destroying one sustainable resource to create unsustainable uses does not fit the state standards for resource protection.

PLANNING AND GMA CONCERNS:
The proponents of the bank state they have reviewed the plans, rules and regulations applicable to the site "... with reference to the Washington State Growth Management Act". If this is true, they have failed to understand the GMA.
1.15 The County Planning Department cannot issue ANY permits for this project and remain in compliance with GMA or the County Comprehensive Plan.

SEPA Rules were amended in 1995 to help cities and counties combine SEPA and GMA processes [WAC 197-11-210 through 235] and required that environmental review at the early stages of plan development [WAC 197-11-030(2)(d)].
1.16 Environmental Impact Statements are required for projects that are done in phases or have irreversible economic or environmental impacts on a jurisdiction. This project is proposing irreversible damage to the farming economy and
1.17 hydrology. Environmental benefits and uses for the remaining 500 plus acres are not covered in the permit application.

A Planning Goal of the WA State Growth Management Act is to "**Maintain and enhance** natural resource-based

Comment 1.18

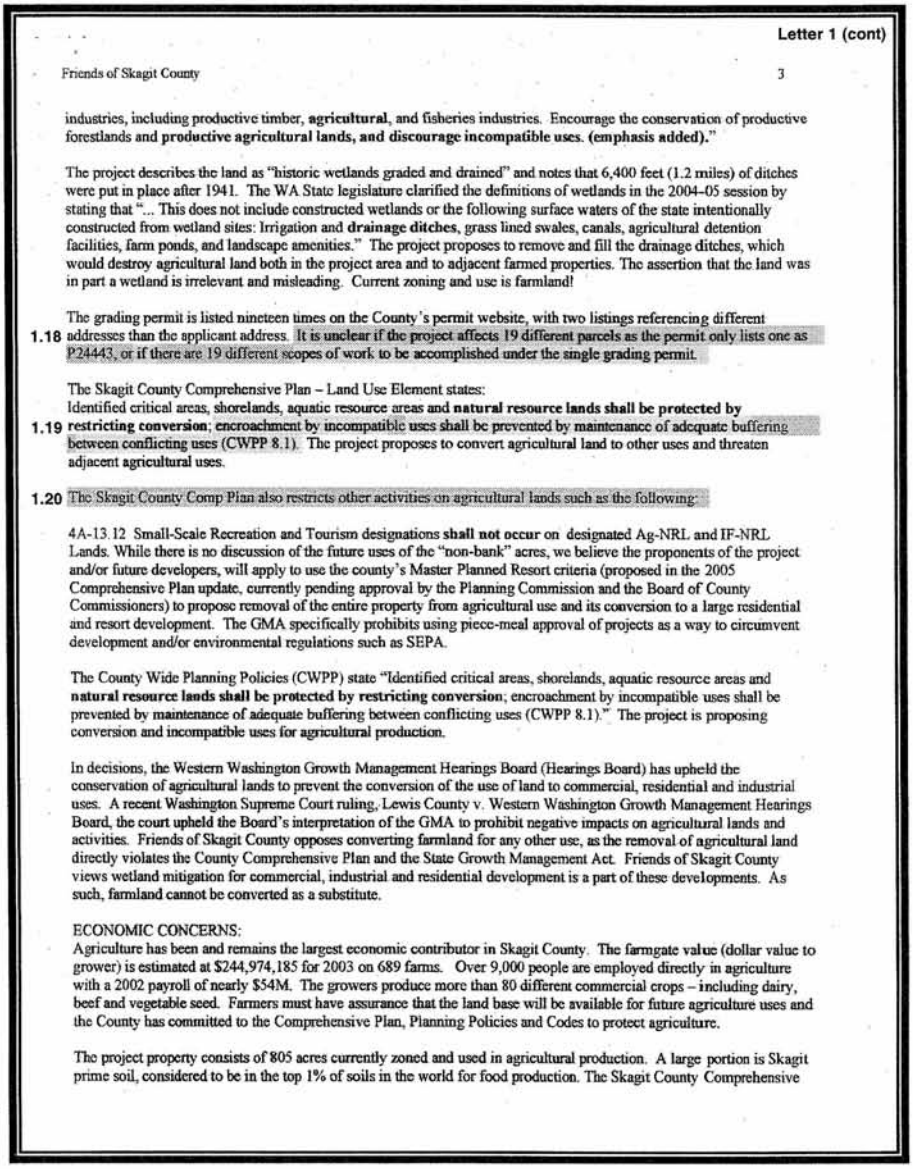
See Response D-19.

Comment 1.19

See Response C-4.

Comment 1.20

See Response E-1.



Letter 1 (cont)

Friends of Skagit County 3

industries, including productive timber, **agricultural**, and fisheries industries. Encourage the conservation of productive forestlands and **productive agricultural lands, and discourage incompatible uses. (emphasis added).**"

The project describes the land as "historic wetlands graded and drained" and notes that 6,400 feet (1.2 miles) of ditches were put in place after 1941. The WA State legislature clarified the definitions of wetlands in the 2004-05 session by stating that "... This does not include constructed wetlands or the following surface waters of the state intentionally constructed from wetland sites: Irrigation and **drainage ditches**, grass lined swales, canals, agricultural detention facilities, farm ponds, and landscape amenities." The project proposes to remove and fill the drainage ditches, which would destroy agricultural land both in the project area and to adjacent farmed properties. The assertion that the land was in part a wetland is irrelevant and misleading. Current zoning and use is farmland!

1.18 The grading permit is listed nineteen times on the County's permit website, with two listings referencing different addresses than the applicant address. It is unclear if the project affects 19 different parcels as the permit only lists one as P24443, or if there are 19 different scopes of work to be accomplished under the single grading permit.

1.19 The Skagit County Comprehensive Plan – Land Use Element states:
Identified critical areas, shorelands, aquatic resource areas and **natural resource lands shall be protected by restricting conversion**; encroachment by incompatible uses shall be prevented by maintenance of adequate buffering between conflicting uses (CWPP 8.1). The project proposes to convert agricultural land to other uses and threaten adjacent agricultural uses.

1.20 The Skagit County Comp Plan also restricts other activities on agricultural lands such as the following:

4A-13.12 Small-Scale Recreation and Tourism designations **shall not occur** on designated Ag-NRL and IF-NRL Lands. While there is no discussion of the future uses of the "non-bank" acres, we believe the proponents of the project and/or future developers, will apply to use the county's Master Planned Resort criteria (proposed in the 2005 Comprehensive Plan update, currently pending approval by the Planning Commission and the Board of County Commissioners) to propose removal of the entire property from agricultural use and its conversion to a large residential and resort development. The GMA specifically prohibits using piece-meal approval of projects as a way to circumvent development and/or environmental regulations such as SEPA.

The County Wide Planning Policies (CWPP) state "Identified critical areas, shorelands, aquatic resource areas and **natural resource lands shall be protected by restricting conversion**; encroachment by incompatible uses shall be prevented by maintenance of adequate buffering between conflicting uses (CWPP 8.1)." The project is proposing conversion and incompatible uses for agricultural production.

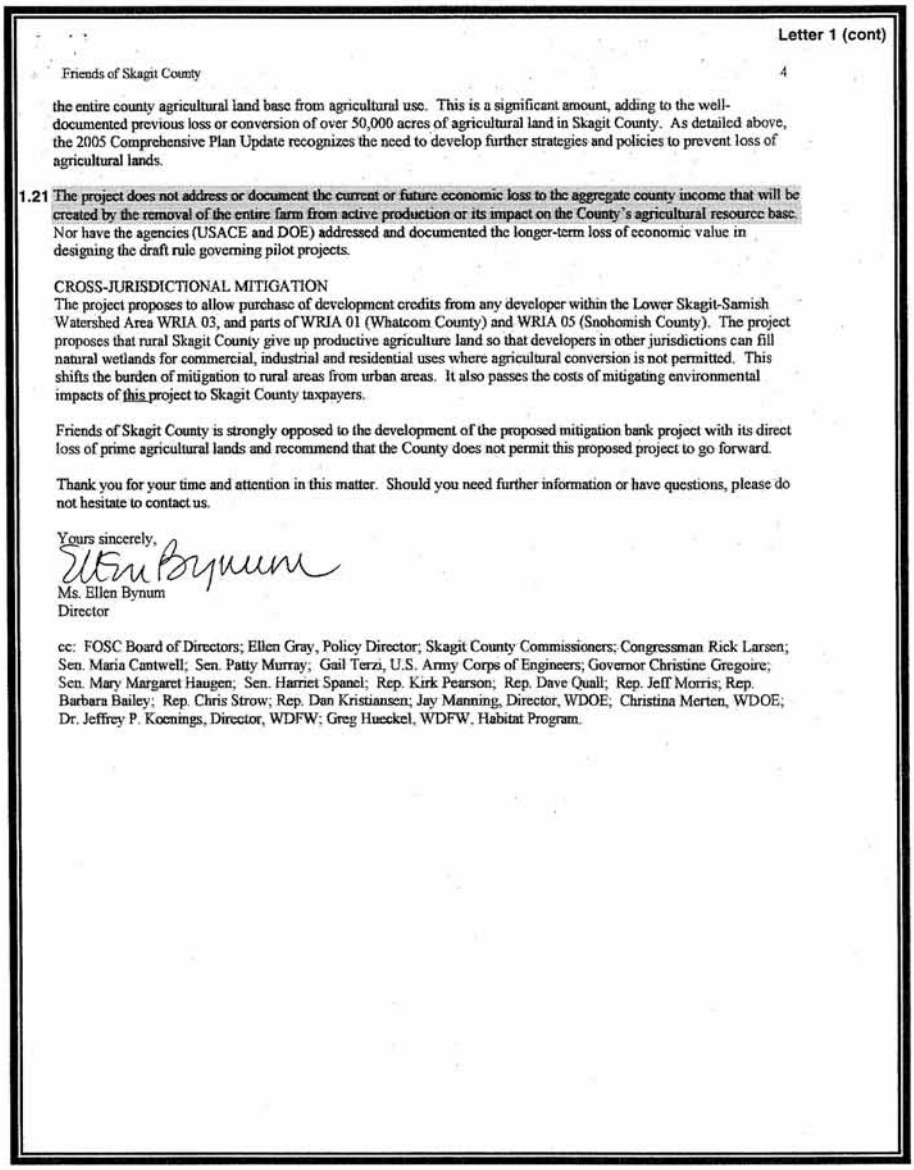
In decisions, the Western Washington Growth Management Hearings Board (Hearings Board) has upheld the conservation of agricultural lands to prevent the conversion of the use of land to commercial, residential and industrial uses. A recent Washington Supreme Court ruling, Lewis County v. Western Washington Growth Management Hearings Board, the court upheld the Board's interpretation of the GMA to prohibit negative impacts on agricultural lands and activities. Friends of Skagit County opposes converting farmland for any other use, as the removal of agricultural land directly violates the County Comprehensive Plan and the State Growth Management Act. Friends of Skagit County views wetland mitigation for commercial, industrial and residential development is a part of these developments. As such, farmland cannot be converted as a substitute.

ECONOMIC CONCERNS:
Agriculture has been and remains the largest economic contributor in Skagit County. The farmgate value (dollar value to grower) is estimated at $244,974,185 for 2003 on 689 farms. Over 9,000 people are employed directly in agriculture with a 2002 payroll of nearly $54M. The growers produce more than 80 different commercial crops – including dairy, beef and vegetable seed. Farmers must have assurance that the land base will be available for future agriculture uses and the County has committed to the Comprehensive Plan, Planning Policies and Codes to protect agriculture.

The project property consists of 805 acres currently zoned and used in agricultural production. A large portion is Skagit prime soil, considered to be in the top 1% of soils in the world for food production. The Skagit County Comprehensive

Comment 1.21

See Response E-7.



Letter 1 (cont)

Friends of Skagit County 4

the entire county agricultural land base from agricultural use. This is a significant amount, adding to the well-documented previous loss or conversion of over 50,000 acres of agricultural land in Skagit County. As detailed above, the 2005 Comprehensive Plan Update recognizes the need to develop further strategies and policies to prevent loss of agricultural lands.

1.21 The project does not address or document the current or future economic loss to the aggregate county income that will be created by the removal of the entire farm from active production or its impact on the County's agricultural resource base. Nor have the agencies (USACE and DOE) addressed and documented the longer-term loss of economic value in designing the draft rule governing pilot projects.

CROSS-JURISDICTIONAL MITIGATION

The project proposes to allow purchase of development credits from any developer within the Lower Skagit-Samish Watershed Area WRIA 03, and parts of WRIA 01 (Whatcom County) and WRIA 05 (Snohomish County). The project proposes that rural Skagit County give up productive agriculture land so that developers in other jurisdictions can fill natural wetlands for commercial, industrial and residential uses where agricultural conversion is not permitted. This shifts the burden of mitigation to rural areas from urban areas. It also passes the costs of mitigating environmental impacts of this project to Skagit County taxpayers.

Friends of Skagit County is strongly opposed to the development of the proposed mitigation bank project with its direct loss of prime agricultural lands and recommend that the County does not permit this proposed project to go forward.

Thank you for your time and attention in this matter. Should you need further information or have questions, please do not hesitate to contact us.

Yours sincerely,

Ms. Ellen Bynum
Director

cc: FOSC Board of Directors; Ellen Gray, Policy Director; Skagit County Commissioners; Congressman Rick Larsen; Sen. Maria Cantwell; Sen. Patty Murray; Gail Terzi, U.S. Army Corps of Engineers; Governor Christine Gregoire; Sen. Mary Margaret Haugen; Sen. Harriet Spanel; Rep. Kirk Pearson; Rep. Dave Quall; Rep. Jeff Morris; Rep. Barbara Bailey; Rep. Chris Strow; Rep. Dan Kristiansen; Jay Manning, Director, WDOE; Christina Merten, WDOE; Dr. Jeffrey P. Koenings, Director, WDFW; Greg Hueckel, WDFW, Habitat Program.

Comment 2.1

See Response C-1.

Comment 2.2

See Response D-1.

Comment 2.3

See Response D-20.

Letter 2

SKAGIT COUNTY
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Skagit Conservation District
2021 East College Way, Suite 203, Mount Vernon, WA 98273-2373
Phone: (360) 428-4313 - Fax: (360) 424-6172 - E-mail: skagitcd@skagitcd.org

August 23, 2006

To: Skagit County Planning & Development Services
ATTN: Brandon Black
1800 Continental Place
Mount Vernon, WA 98273

From: **Skagit Conservation District**

RE: BP06-0669, Grading Permit Application for Clear Valley Environmental Farms

Dear Mr. Black:

On behalf of the Skagit Conservation District I would like to express our concerns with the proposed Skagit Environmental Bank project and the grading permit applied for in association with that project. In the Environmental Checklist (Checklist), the project proponents state project goals of stream restoration as well as wetland reestablishment, rehabilitation, and enhancement. However, let's be clear – the goal of this project is to implement a wetland mitigation bank, with the sole purpose of offsetting wetland losses in other parts of the watershed (or beyond.) There will, therefore, be no net gain of wetlands within the watershed. Any fish and wildlife habitat benefits gained from this project will be at the expense of habitat destroyed elsewhere.

The submitted checklist is confusing as to the exact scope of the project under consideration. The Skagit Environmental Bank is proposed for development on 800
2.1 acres of prime farmland, according to their prospectus. Yet the Checklist addresses only 374 acres. What will be the status of these remaining acres? Therefore, Background, Question Number 7 was incorrectly addressed with a "no future activity" response. Additionally, the project proponents refer to three phases of the proposed project (Q. 3), yet throughout the checklist, incomplete information is provided for Phases II and III. It is impossible to determine if all environmental criteria have been addressed with the
2.2 information provided. Three phases are again reference in the response to Q. 11, yet specifics are not given for Phases II and III.

Also, in response to Q. 11, the proponents state that hydrologic monitoring will be
2.3 conducted after the completion of Phase I. We would urge the County to require studies be completed before project inception, as the Nookachamps is simultaneously a low flow stream and also within the flood plain. Negative impacts to ground water would then be seen during higher flood elevations during winter or lower stream flows during summer.

CONSERVATION - DEVELOPMENT - SELF-GOVERNMENT

Comment 2.4

See Response D-21.

Comment 2.5

See Response C-5.

Comment 2.6

See Response D-1.

Comment 2.7

See Response D-22.

Comment 2.8

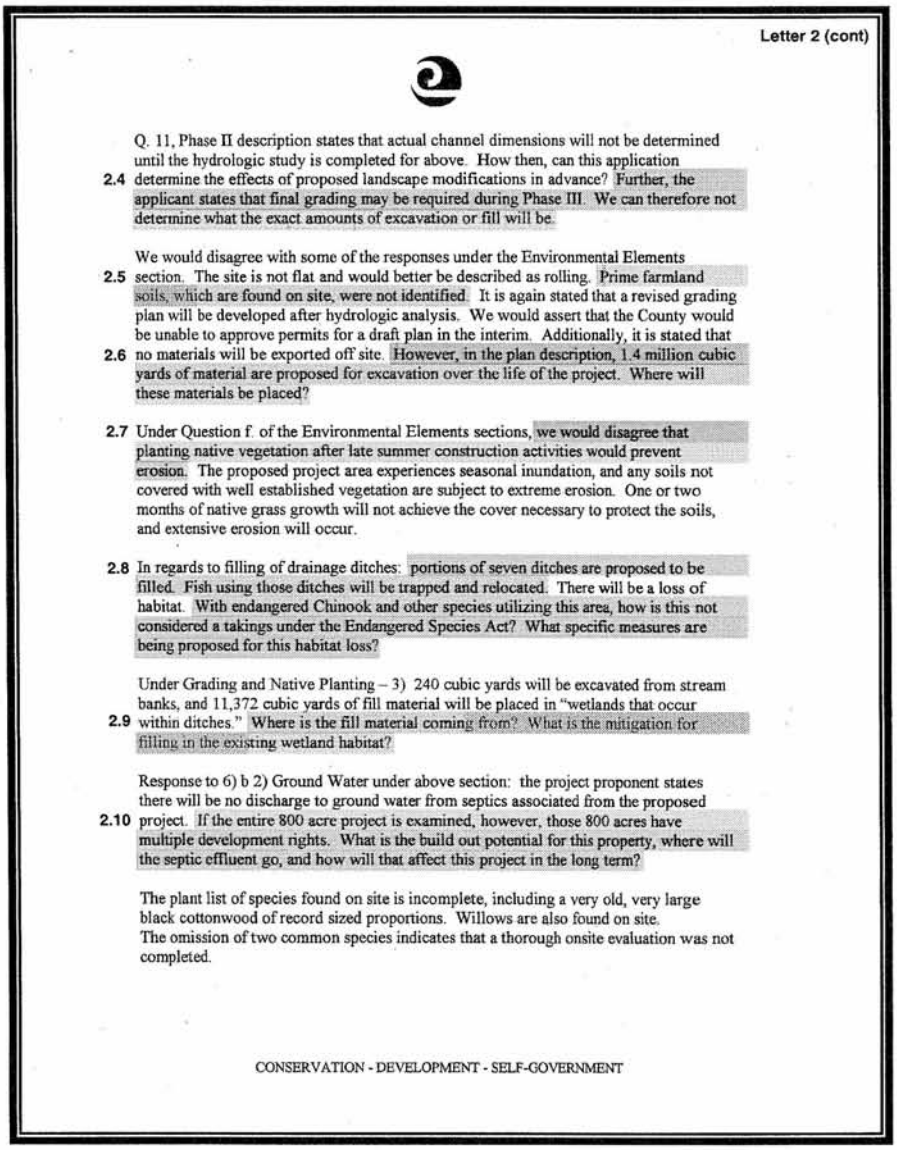
See Response C-6.

Comment 2.9

See Response D-23.

Comment 2.10

See Response D-24.



Letter 2 (cont)

Q. 11, Phase II description states that actual channel dimensions will not be determined until the hydrologic study is completed for above. How then, can this application
2.4 determine the effects of proposed landscape modifications in advance? Further, the applicant states that final grading may be required during Phase III. We can therefore not determine what the exact amounts of excavation or fill will be.

We would disagree with some of the responses under the Environmental Elements
2.5 section. The site is not flat and would better be described as rolling. Prime farmland soils, which are found on site, were not identified. It is again stated that a revised grading plan will be developed after hydrologic analysis. We would assert that the County would be unable to approve permits for a draft plan in the interim. Additionally, it is stated that
2.6 no materials will be exported off site. However, in the plan description, 1.4 million cubic yards of material are proposed for excavation over the life of the project. Where will these materials be placed?

2.7 Under Question f. of the Environmental Elements sections, we would disagree that planting native vegetation after late summer construction activities would prevent erosion. The proposed project area experiences seasonal inundation, and any soils not covered with well established vegetation are subject to extreme erosion. One or two months of native grass growth will not achieve the cover necessary to protect the soils, and extensive erosion will occur.

2.8 In regards to filling of drainage ditches: portions of seven ditches are proposed to be filled. Fish using those ditches will be trapped and relocated. There will be a loss of habitat. With endangered Chinook and other species utilizing this area, how is this not considered a takings under the Endangered Species Act? What specific measures are being proposed for this habitat loss?

Under Grading and Native Planting – 3) 240 cubic yards will be excavated from stream banks, and 11,372 cubic yards of fill material will be placed in "wetlands that occur
2.9 within ditches." Where is the fill material coming from? What is the mitigation for filling in the existing wetland habitat?

Response to 6) b 2) Ground Water under above section: the project proponent states there will be no discharge to ground water from septics associated from the proposed
2.10 project. If the entire 800 acre project is examined, however, those 800 acres have multiple development rights. What is the build out potential for this property, where will the septic effluent go, and how will that affect this project in the long term?

The plant list of species found on site is incomplete, including a very old, very large black cottonwood of record sized proportions. Willows are also found on site. The omission of two common species indicates that a thorough onsite evaluation was not completed.

CONSERVATION - DEVELOPMENT - SELF-GOVERNMENT

Comment 2.11

See Response D-25.

Comment 2.12

See Response E-1.

Comment 2.13

See the *Cultural Resource Assessment for the Skagit Environmental Bank* prepared by Northwest Archaeological Associates, Inc. in Appendix 2.

Comment 2.14

See Response D-26.

Comment 2.15

See Responses E-5 and E-7.

Letter 2 (cont)

The site is important for migratory birds as the proponents state. However, different bird
2.11 species utilize different habitats on the property. How will the project proponents mitigate for the loss of agricultural land that is the preferred habitat for the hundreds of geese and swans currently frequenting the site? Also, if eagles are on site (which they are) WAC 232-12-292 requires a Bald Eagle Management Plan.

2.12 Under Land and Shoreline Use – It must be noted that the proposed project is not in compliance with the Growth Management Act or the Skagit County Comprehensive Plan Agricultural Section for the preservation of agricultural lands of long term significance.

References to the Nookachamps Watershed Nonpoint Action Plan are irrelevant. The SCD has performed extensive monitoring adjacent to the proposed project site, and have found no indications that current land use contributes pollutants. The project will do nothing to enhance drinking water supplies. There is no recreational plan provided for the site. Habitat gains on the site will not be net in nature – they will merely offset losses throughout the rest of the watershed.

The historical and cultural preservation section is incomplete and inaccurate. According to the USDA Natural Resources Conservation Service cultural resources data base, there is an area of cultural concern on one of the sections of the proposed project, and
2.13 additional "hits" on three adjoining sections. This would indicate that there is a high probability of cultural resources on and adjacent to the proposed project site, and a more thorough investigation should be completed before any construction is approved. This investigation should include communication with tribal entities, as this area was once part of their accustomed hunting and fishing grounds.

2.14 We would need more information than provided to determine the impacts regarding a proposed project site access road. There could be serious safety issues involved, but there is not enough information provided.

We have many concerns with the proposed project. The grading application Environmental Checklist does not supply enough information to address those concerns, and much of the information provided is erroneous, confusing, and/or incomplete. In light of the number of environmental issues to be addressed, and considering the presence
2.15 of five species on the Endangered Species list, we cannot understand why the application was not accompanied by a full Environmental Impact Statement. We would urge Skagit County to deny any permitting until that document has been completed and the larger issue of GMA and Skagit County Comprehensive Plan compliance have been addressed.

Thank you for the opportunity to comment.

Sincerely,

Carolyn Kelly

Carolyn Kelly

CONSERVATION - DEVELOPMENT - SELF-GOVERNMENT

Comment 3.1

See Responses C-7 and E-7.

Letter 3

Western Washington Agricultural Association

August 22, 2006

SKAGIT COUNTY
PERMIT CNTR.
AUG 2 3 2006
RECEIVED

Mr. Brandon Black, Senior Planner
Skagit County Planning and Development Services
1800 Continental Place
Mount Vernon, WA 98273

RE: Grading Permit Application, File # BP06-0669
Clear Valley Environmental Farm, LLC
Skagit Environmental Bank Project

Dear Mr. Black,

Thank you for the opportunity to comment on the Grading Permit Application, File # BP06-0669, for the proposed Skagit Environmental Bank project.

The proposed Skagit Environmental Bank is to be located near Mount Vernon in the Nookachamps Creek subbasin of the Skagit watershed. Our primary concern with this project is the significant loss that the project, individually and cumulatively, will impose on the agricultural land base in Skagit County. The proponents purchased an active farm and dairy of 805 acres, discontinued the dairy operation and propose to develop an approximate 374-acre portion of the property into a wetland mitigation bank most likely serving urban development projects mitigation needs in the WRIA 3 watershed. We emphasize that this project is a wetland mitigation bank. It is not a wetland restoration project. The project is designed only to offset for losses of wetland habitats sustained elsewhere due to urban development activities. This project will have a significant adverse impact to a large base of intact productive commercial agricultural land and yet makes no provision for the mitigation of this farmland loss caused by the construction of the wetland bank.

3-1

We are concerned that this proposal runs counter to the Growth Management Act policies to protect and preserve agricultural lands and has not yet been fully evaluated under the State Environmental Policy Act (SEPA) for cumulative impacts of this and similar projects to the agricultural land base of Skagit County. This project site is currently zoned under the county's comprehensive plan as Agricultural-Natural Resource Lands (Ag-NRL). It is mapped as "prime farmland soils" and the Comprehensive Plan recognizes these areas as "agricultural lands of long-term commercial significance." The Skagit County Ag-NRL Code specifically provides that "The purpose of the Agricultural-Natural Resource Lands District is to provide land for continued farming activities,

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E-mail: wwaa@fidalgo.net

Comment 3.2

See Response E-1.

Comment 3.3

See Response E-8.

Comment 3.4

See Response E-9.

Letter 3 (cont)

conserve agricultural land, and reaffirm agricultural use, activities and operations as the
3-2 primary use of the district." The Environmental Checklist, associated with the Grading Application, submitted by the applicant completely fails to acknowledge and address these public policy priority statements. Further, in a recent Washington Supreme Court ruling (Lewis County v. Western Washington Growth Management Hearings Board), the court stated: "In concluding that Lewis County's permitting of non-farm uses could "impact resource lands and activities negatively," and therefore substantially interferes with maintaining and enhancing the farm industry, the Board essentially interpreted the GMA to prohibit negative impacts on agricultural lands and activities. That is consistent with the RCW 36.70A.060 directive to conserve designated agricultural lands, the RCW 36.70A.020(8) goal of maintaining and enhancing the agricultural industry, and the Soccer Fields holding that innovative zoning may not undermine conservation. Therefore, the Board did not err in holding that the non-farm uses of agricultural lands failed to comply with the GMA requirement to conserve designated agricultural lands." We recommend that a full discussion of this issue needs to be developed during the SEPA process for this project.

The farmlands of Skagit County are a unique natural resource. Each year, we see some of this farmland irrevocably converted from actual agricultural use to nonagricultural use. This piece-by-piece conversion of our farmland in Skagit County for nonagricultural purposes is incrementally undermining the economic base of our agricultural community. Over the past few years a number of federal, state and non-profit organizations have acquired several properties in the Ag-NRL zone for conversion to wetlands, fisheries restoration projects and other environmental uses. Each project has had an incremental effect of withdrawing agricultural land from the actively farmed land base. Together these are producing a cumulative negative impact on the "critical mass" of prime farmland necessary to insure the long-term commercial viability of the agricultural sector. Before any applications for the Skagit Environmental Bank project are considered
3-3 by Skagit County, including the Grading Permit, the SEPA process should provide a full evaluation of cumulative impact that this project, the conversion of approximately 374 acres of prime farmlands, is contributing to.

Further, there is no mention of the intended use for the remaining larger 450-acre portion of the former 805-acre dairy farm except that the dairy operation has been discontinued. An associated document prepared for the project, a Wetland Mitigation Bank Prospectus, indicates a conservation easement for the wetland bank site but not for the remaining parcel. This commenter is left to speculate as to the future development interests contemplated for the complete set of parcels comprising the former dairy farm. If there are no future plans for the 450-acre portion of the site then the project description in the Environmental Checklist should so state. We are unable to adequately evaluate the
3-4 entire project and its impacts and affects. This issue of piecemeal development should also be satisfactorily addressed as a part of the SEPA review associated with this wetland bank proposal.

Comment 3.5

See Response D-1.

Comment 3.6

See Response D-1.

Comment 3.7

See Response D-1.

Comment 3.8

A grading plan was not submitted in the original application material. The grading plan (Response D-1, Figure D-1.) contains a professional engineer's stamp.

Comment 3.9

See Responses D-12 through D-15 and D-20.

Letter 3 (cont)

- 3 -

3-5 There is a discrepancy between the documents regarding the size of the Skagit Environmental Bank project area. The Hydrologic and Hydraulic Basis of Decision Report (6/06), submitted with the Grading Permit Application, lists a bank size of 311 acres, and if buffers are included it totals 355 acres. The Shoreline Management Permit Application indicates a project area of 374 acres. The Wetland Delineation Report (8/05) describes a 355-acre site. This is basic project information and should be accurately reflected and consistent between the documents for the project proposal.

3-6 The fill and excavation quantities for the project identified in the various documents are also at significant variance. The JARPA application includes quantities for all three phases of the project, including 64,817cy of estimated excavation. Yet, the Grading Permit application specifies fill and excavation quantities for what appears to be only Phase I of the project. A review of the design plans suggests much greater quantities
3-7 of excavation - 1 million cubic yards or more - associated with the complete project. The project plans and narrative need to detail these quantities much more accurately and understandably. They should also identify how the excavated materials will be handled and illustrate with specificity where they will be re-graded on site or disposed of.

The hydrologic conditions in this area have been historically altered to improve surface drainage for agriculture, including within the project site. The Wetland Delineation Report recognizes that "The drainage ditch system, if left in place and if the plowed fields were left fallow, would continue to effectively drain major portions of the fields and maintain the soils in non-hydric conditions during the growing season." The Grading Permit, JARPA, and SMA applications describe a three-phase project. Phase I includes filling of the 8,550 feet of drainage ditches on the site. Although the Hydrologic and Hydraulic Basis of Decision Report (6/06), concludes that the proposed project when completed will not adversely affect ground water and surface water outside the project boundary we are not convinced. The Environmental Checklist indicates that the project proponent will develop "A revised grading plan after an analysis of the new hydrologic conditions resulting from the modifications in Phase I." The Skagit Hydrologic Conditions Restoration (06/06) design plans and site maps are also limited. They provide basic design detail on Phase I, and include only "conceptual" and "reference" drawings
3-8 for Phase II. Additionally, Skagit County (SCC 14.32) specifies that an approved professionally Engineered Grading Plan is required. The design drawings and maps do not carry a professional engineer's seal and signature.

We observe that there is insufficient project design and knowledge at hand to evaluate the project impacts to hydrology, and verify that the project will perform and
3-9 that no affects to other adjacent properties will result. The current hydrologic conditions, even if modified by this project within the project site, need to be maintained for the agricultural areas outside of the project. The project proponent has not conclusively demonstrated that this can be accomplished.

Comment 3.10

See Response E-1.

Letter 3 (cont)

3-10 We do not believe this project is consistent with or serves the best interests of Skagit County as defined by GMA or the Skagit County Comprehensive Plan. Secondly, we conclude that there is not, at this time, a sufficiently developed project design or adequate environmental review document for us to fully comment on the proposal, or for Skagit County to adequately evaluate and approve a grading permit for the proposed wetland mitigation bank.

Please notify us of any action regarding this grading permit application, and any other pending or future permit application actions related to the Clear Valley Environmental Farm, LLC - Skagit Environmental Bank.

Again, thank you for the opportunity to comment on this Grading Permit Application for the Skagit Environmental Bank project. If you have any questions, please contact our office at (360) 424-7327.

Sincerely,

M. Shelby

Mike Shelby
Executive Director

cc: Skagit County Board of Commissioners
Gordon White, Washington Department of Ecology (MBRT)
Jerome Ryan, Clear Valley Environmental Farm, LLC

Comment 4.1

See Response C-8.

Letter 4

Western Washington Agricultural Association

August 21, 2006

SKAGIT COUNTY
PERMIT CNTR.
AUG 2 3 2006
RECEIVED

Mr. Greg Hueckel, Assistant Director
Habitat Program
Washington Department of Fish and Wildlife
600 Capital Way North
Olympia, WA 98501-1091

RE: Skagit Environmental Bank Project
Clear Valley Environmental Farm, LLC

Dear Mr. Hueckel,

I am writing to provide comment regarding your recent determination that the Skagit Environmental Bank project qualifies for approval under RCW 90.58.147 (Substantial development permit-Exemption for projects to improve fish or wildlife habitat or fish passage) for exemption from the shoreline substantial development permit requirement.

The proposed Skagit Environmental Bank project location is near Mount Vernon in the Nookachamps Creek subbasin of the Skagit River watershed. The project proponents purchased an active dairy farm of 805 acres, discontinued dairy operations, and propose to develop an approximate 374-acre portion of the farm as a wetland mitigation bank. We emphasize that this project is proposed as a mitigation bank. It is not a restoration project.

The purpose for this project, as described in the WDOE/USACE Joint Public Notice-Proposal for a Wetland Mitigation Bank (Public Notice Date: March 10, 2006), is to serve other project development interests "who need to offset the adverse environmental impacts of projects with wetland impacts that would occur within the banks' designated 'service area." The public notice further describes that the bank "is to provide, for sale to the general public, high quality, consolidated, off-site compensatory mitigation for a variety of future adverse aquatic ecosystem impacts associated with (other development project) activities..."

The project is designed only to offset for losses to wetland habitats sustained elsewhere due to development activities. The exemption provided for in the Shoreline Management Act under RCW 90.58.147 clearly applies to projects that are "designed to
4.1 ***improve*** fish or wildlife habitat or fish passage."(Emphasis added). The Skagit

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Comment 4.1 (cont)

Letter 4 (cont)

- 2 -

4.1 (cont) Environmental Bank project will not provide for any improvement in the quantity of available habitat or net increase in wetland area. The project only produces a no-net-loss of habitat outcome. It does not achieve a gain or an enhancement of overall ecosystem function. The project does not pass the "improvement" test for an exemption.

Further, the SEPA determination has not been completed for this project nor has the WDFW issued a Hydraulic Project Approval.

In our view this project simply does not qualify for an exemption from the shoreline permit requirement. Nor, do we believe that this project is yet ready for the approval and endorsement outlined in your July 31, 2006 letter. The proponent should be advised that a substantial development permit is appropriate for the proposed wetland mitigation bank. We would ask you to reevaluate your determination based upon the above discussion.

Thank you for your consideration. If you have any questions please contact Mike Rundlett or me at this office.

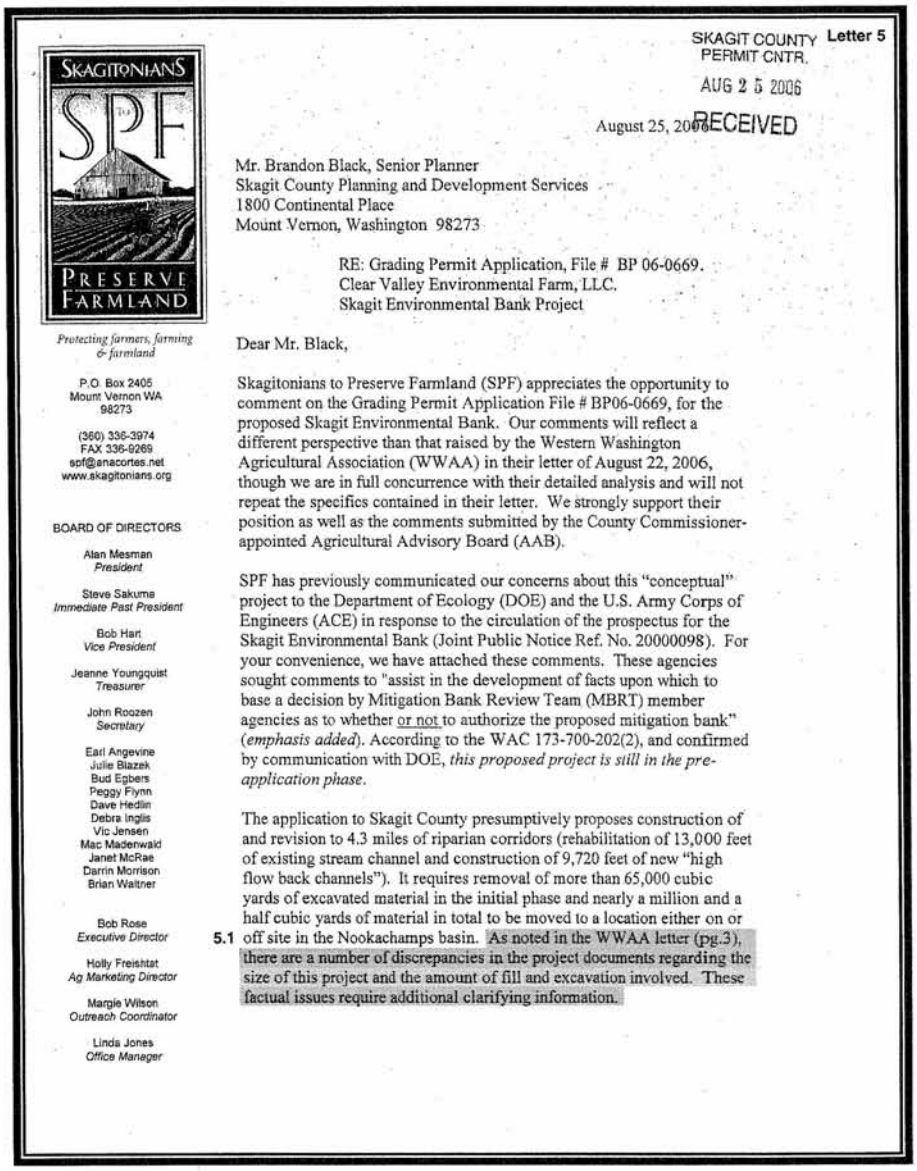
Sincerely,

Mike Shelby
Executive Director

Cc: Oscar Graham, Skagit County Planning and Development Services
Bob Everitt, WDFW
Gordon White, WDOE
Jerome Ryan, Clear Valley Environmental Farm, LLC

Comment 5.1

See Response D-1.



SKAGIT COUNTY PERMIT CNTR. Letter 5

AUG 2 5 2006

RECEIVED

August 25, 2006

SKAGITONIANS TO PRESERVE FARMLAND

Protecting farmers, farming & farmland

P.O. Box 2405
Mount Vernon WA
98273

(360) 336-3974
FAX 336-9269
spf@anacortes.net
www.skagitonians.org

Mr. Brandon Black, Senior Planner
Skagit County Planning and Development Services
1800 Continental Place
Mount Vernon, Washington 98273

RE: Grading Permit Application, File # BP 06-0669.
Clear Valley Environmental Farm, LLC.
Skagit Environmental Bank Project

Dear Mr. Black,

Skagitonians to Preserve Farmland (SPF) appreciates the opportunity to comment on the Grading Permit Application File # BP06-0669, for the proposed Skagit Environmental Bank. Our comments will reflect a different perspective than that raised by the Western Washington Agricultural Association (WWAA) in their letter of August 22, 2006, though we are in full concurrence with their detailed analysis and will not repeat the specifics contained in their letter. We strongly support their position as well as the comments submitted by the County Commissioner-appointed Agricultural Advisory Board (AAB).

SPF has previously communicated our concerns about this "conceptual" project to the Department of Ecology (DOE) and the U.S. Army Corps of Engineers (ACE) in response to the circulation of the prospectus for the Skagit Environmental Bank (Joint Public Notice Ref. No. 20000098). For your convenience, we have attached these comments. These agencies sought comments to "assist in the development of facts upon which to base a decision by Mitigation Bank Review Team (MBRT) member agencies as to whether or not to authorize the proposed mitigation bank" (*emphasis added*). According to the WAC 173-700-202(2), and confirmed by communication with DOE, *this proposed project is still in the pre-application phase.*

The application to Skagit County presumptively proposes construction of and revision to 4.3 miles of riparian corridors (rehabilitation of 13,000 feet of existing stream channel and construction of 9,720 feet of new "high flow back channels"). It requires removal of more than 65,000 cubic yards of excavated material in the initial phase and nearly a million and a half cubic yards of material in total to be moved to a location either on or
5.1 off site in the Nookachamps basin. As noted in the WWAA letter (pg.3), there are a number of discrepancies in the project documents regarding the size of this project and the amount of fill and excavation involved. These factual issues require additional clarifying information.

Comment 5.2

See Response C-9.

Comment 5.3

See Responses D-12 through D-14. Also, refer to Response D-20.

Comment 5.4

See Response E-5.

Letter 5 (cont)

This application presumes that this extensive amount of stream re-location, removal and deposition of excavation spoils to unspecified locations, and filling in of currently functioning agricultural drainage infrastructure, are activities necessary to provide the services of a Wetland Bank that *might* be certified and authorized to operate under county, state and federal rules. The bank will, if certified, result in no net increase in
5.2 wetlands in Skagit County because the bank, by its regulatory nature, is designed to compensate for loss of presently functioning wetlands located elsewhere in the bank's "service area" (not yet determined). It will also result in the loss of 350 acres of designated prime farmland.

Based on recent briefings and review of materials from the Department of Ecology's Wetland Bank Program, it is our understanding that no such presumption (that this proposed bank will be certified and allowed to operate) should be made by the county or by the project proponents. The fact that the property has been purchased at a substantial cost by the proponents before the Wetland Bank is certified (as per WAC 173-700-201 through 234) constitutes a speculative risk by the project proponents. Their untimely investment should not color the county's review process or timetable. It's not a Wetland Bank until officially certified by county, state and federal agencies.

This application is for only the first phase of a much more complex project that will, if
5.3 certified, have as yet undetermined consequences for on and off site drainage, transportation (to move the materials at the scale envisioned), habitat values, loss of
5.4 farmland and numerous other resources and socio-economic values. The scale of this proposal would appear, on its face, to require a full State Environmental Policy Act (SEPA) review and analysis in the form of an Environmental Impact Statement (EIS).

The initial information provided for this permit envisions a three-phase project with Phase I filling in nearly a mile an half (8,50 feet) of drainage ditches that serve this property for its current and historic agricultural use. The Environmental Checklist indicates that after the site is made inoperable for farming, a revised grading plan will be developed "after an analysis of the new hydrologic conditions resulting from the modifications in Phase I." This is insufficient information upon which to make a determination about the consequences of a project that will affect the proposed 355 (±) acre site and the impacts on continuing farming on the remaining 445 acres. This application appears to be part of a classic segmented approach to a much larger project for which all of the details and specifics have not been disclosed By DOE's standards, this project is still in a "conceptual" phase and is not ready for review for substantive permits. The proponents are clearly bringing in this application to create a presumption of vesting for a project for which the regulatory framework has not yet been confirmed.

The DOE pilot rules put the county in a difficult position of having veto authority regarding certification at the end of the process (WAC 173-700-234) at a point when the proponents and other agencies have spend considerable time and resources to bring an application up to required standards. If the county can veto certification at the end of the proposed process, surely it can indicate at a far earlier time that it does not favor the

2

Comment 5.5

See Response E-1.

Comment 5.6

See Response E-10.

Letter 5 (cont)

5.5 certification because it is inconsistent with the county policy under GMA to protect the agricultural land base and the farming enterprises of Skagit County.

5.6 This application is premature. The County should reject this application pending completion of the Wetland Mitigation Bank Certification process. This process depends upon the county making an independent determination that such a banking proposal is an appropriate land use in the Agriculture-NRL zone.

Premature approval of this initial permit will create a presumption of validity for this project that will make it far more difficult for the county to retain its discretionary authority to make the core determination- whether this Wetland Bank is consistent with current county policy and should be part of the county's long-term policies regarding conservation of our agricultural land base.

Thank you for the opportunity to comment on this proposal. Please contact the SPF office if you any questions or require additional information.

Sincerely,

B. & Rose

Bob Rose
Executive Director

cc: Senator Patty Murray
Senator Maria Cantwell
Congressman Rick Larsen
Senator Mary Margaret Haugen
Senator Harriet Spanel
Senator Val Stevens
Representative Dave Quall
Representative Jeff Morris
Representative Kirk Pearson
Rep. Dan Kristiansen
Rep. Barbara Bailey
Rep. Chris Strowe
Gordon White- Department of Ecology
Gail Terzi – U.S. Army Corps of Engineers
Gary Rowe- Skagit County Administrator

3

Comment 6.1

See D-1.

Comment 6.2

The *Hydrologic and Hydraulic Basis of Design Report* concluded that a 1 foot rise in surface water elevation of East Fork Nookachamps Creek was expected at the property boundary; however, we have shown by additional stream survey data and HEC-RAS modeling that this will not adversely impact current landuse activities in properties upstream of the project site boundary. Response D-12 details results of the updated HEC-RAS model. Response D-13 details overbank flooding and Response D-14 discusses how no upstream conveyance structures will be impacted by this change in surface water elevations.

Comment 6.3

No engineered log jams are proposed along Mud Creek. Site grading will improve offsite drainage of Mud Creek and is detailed further in Responses D-1 and D-11.

Letter 6

SKAGIT COUNTY PLANNING
AUG 24 2006
RECEIVED

August 17, 2006

To: Skagit County Planning & Development Services
ATTN: Brandon Black
1800 Continental Place
Mount Vernon, WA 98273

From: **Skagit County Agricultural Advisory Board**
RE: BP06-0669, Grading Permit Application for Clear Valley Environmental Farms

SKAGIT COUNTY AGRICULTURAL ADVISORY BOARD
1800 Continental Place
Mount Vernon, WA 98273
Phone (360) 336-9365
Fax (360) 336-9478

"Honoring our past, sustaining our future, where Skagit farms are the pride of the community."

Dear Mr. Black:

On behalf of the Skagit County Agricultural Advisory Board, I am writing to express our continued concern about the wetland mitigation bank proposed by Clear Valley Environmental Farms, LLC affecting at least 800 acres of prime farmland in Skagit County, and the Grading Permit for which that entity has applied.

6-1 We are concerned about a number of inconsistencies in the Grading Permit application and supporting documentation. These include a Joint Aquatic Resource Permit Application that indicates 65,000 cubic yards of prime agricultural soils excavated, but the overall plans submitted clearly show over one million cubic yards of soil removed; Public Works estimates the soil removal would be the equivalent of eighty-six (86) acres, ten (10) feet deep.

6-2 It also appears that the analysis is incomplete. While the report submitted to support the Grading Permit claims that there will be no adverse off-site impacts, the analysis dismisses as unimportant their own conclusion that during the vital growing season nearby properties will experience more than one foot (1') of rise in the groundwater level, affecting a six hundred foot (600') wide corridor around the watercourses.

6-3 We agree with the proponents that the off-site properties along Mud Creek are very vulnerable to impacts related to alteration in that system. Simply not actively degrading the Mud Creek system is not acceptable – there must be a plan in place prior to permit approval to mitigate for any adverse impact to the system. There should also be a maintenance plan in place in the Mud Creek system to preclude potential impacts from this project.

The Skagit County Agricultural Advisory Board met on May 17th, 2006, to discuss mitigation banking generally and the proposed bank specifically. At that meeting, the Agricultural Advisory Board voted unanimously to adopt a resolution opposing this project as presented. These concerns continue today, and are only increased by the Grading Permit application submitted and its supporting documentation.

Skagit County Agricultural Advisory Board Members: Oscar Lagerlund (Chairman), Dave Boon (Vice Chairman), Murray Benjamin, Randy Good, Bob Hughes, Mike Hulbert, Roger Knutzen, Ann Marie Lohman, Bill McMoran, Kim Mower, John Vendeland, Lyle Wesen

Letter 6 (cont)

Please notify us of any action regarding this grading permit application, and any other pending or future permit application actions related to the Clear Valley Environmental Farms, LLC/Skagit Environmental Bank.

We appreciate your attention to the matters we have outlined above. Thank you for the opportunity to comment on this Grading Permit Application for the Clear Valley Environmental Farms project. If you have any questions, please contact me at (360) 707-5526 or the Skagit County Agricultural Advisory Board office at (360) 336-9365.

Sincerely,

Oscar Lagerlund

Oscar Lagerlund
Chair

CC: Skagit County Board of Commissioners
Gordon White, Washington State Department of Ecology
Gail Terzi, United States Army Corps of Engineers

Skagit County Agricultural Advisory Board Members: Oscar Lagerlund (Chairman), Dave Boon (Vice Chairman), Murray Benjamin, Randy Good, Bob Hughes, Mike Hulbert, Roger Knutzen, Ann Marie Lohman, Bill McMoran, Kim Mower, John Vendeland, Lyle Wesen

Letter 7

SCARP
Skagit Citizens Alliance
for Rural Preservation
PO Box 762, Sedro-Woolley WA 98284 | 360-856-2290

August 19, 2006

Brandon Black, Senior Planner
Skagit County Planning & Development Services
1800 Continental Place
Mount Vernon WA 98273

re: BP06-0669 | Clear Valley Grading Permit

Dear Brandon:

According to the State Department of Ecology and the US Army Corps of Engineers, the applicants intend to operate a wetland mitigation bank (WMB) on the property identified as Ag/Natural Resource Land in the above-noted application.

SCARP supports local farmers, agricultural associations, Friends of Skagit County and the Farmland Legacy Program in opposing the applicant's plan. Our opposition is based largely on the fact that 50% of WMBs fail. According to the Government Accountability Office, the National Research Council has raised concerns that the regulatory body – the Corps – does not spend sufficient time on oversight to ensure that required compensatory mitigation is taking place. Moreover, the GAO says the Corps has been totally ineffective when it comes to monitoring WMBs and enforcement of regulations set forth in the Clean Water Act is practically nonexistent.

During a meeting last May with the proponents and State Senator Mary Margaret Haugen, farmers in the East Nookachamps area expressed concerns that the proposed WMB "rehabilitation" could threaten their ability to farm. Nevertheless, Clear Valley's plans to sell "mitigation credits" inside and outside Skagit County appear to be going forward at federal and state levels, regardless of significant local impact. In fact, Ecology has adopted a draft rule and implemented a pilot project for promoting the proposal.

Last Wednesday Gretchen Lux, an Ecology wetlands expert, presented a PowerPoint overview of the agency's draft rule and pilot project during a public hearing before our Board of County Commissioners. In response to a question from the audience, Lux admitted that authors of the draft rule were wrong to omit local input prior to establishing the pilot. She also assured the BOCC that Skagit County has "veto power" over the WMB development.

~ SKAGIT CITIZENS ALLIANCE FOR RURAL PRESERVATION ~
A Nonprofit Corporation Dedicated to Minimizing Urban Sprawl and Preserving the Country Way of Life in Rural Skagit County

Comment 7.1

See Responses C-7 and E-7.

Letter 7 (cont)

SKAGIT CO. PLANNING | BLACK | 8.19.06 | PG 2

Before the ag land described in BP06-0669 is in any way "rehabilitated, en-
7.1 hanced" or otherwise modified, we believe that a project of this magnitude deserves a plan to establish public awareness of its impact on local farmers and the County's economy overall. We also strongly suggest that a local needs analysis be done before approving development of this or any other WMB project. For a County that claims to preserve and protect its natural resources, permitting excavation that could potentially destroy existing farms is unconscionable.

Per instructions in the legal notice of August 10, 2006, SCARP hereby requests notification of any action related to Clear Valley Environmental Farm's current and future permit applications.

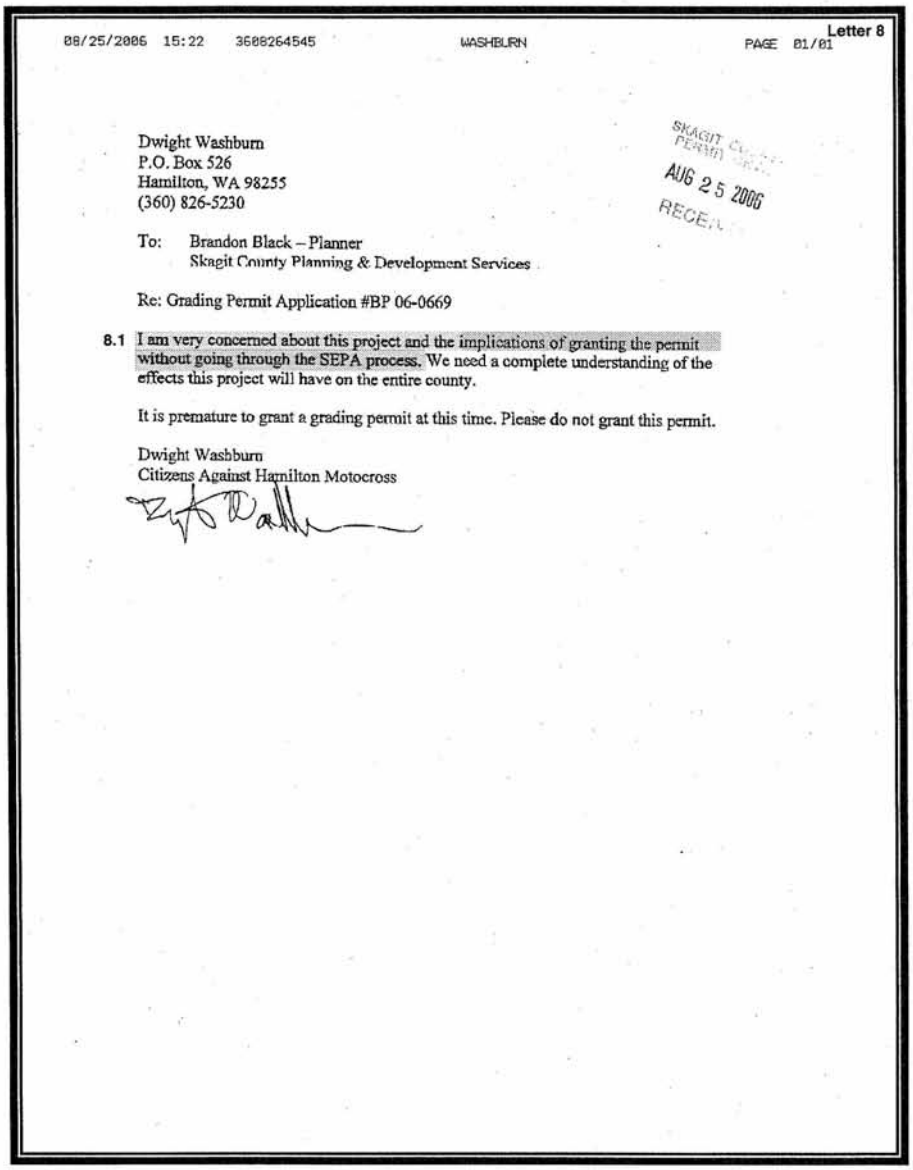
Regards,

The Board of Directors
per D. Freethy, Secretary

cc: Sen. Mary Margaret Haugen
Rep. Kirk Pearson
Gail Terzi, US Army Corps of Engineers
Lauren Driscoll, Wash. State Dept. of Ecology
Wash. State Dept. of Fish & Wildlife
Skagit Board of County Commissioners
Gary Rowe, Skagit County Administrator
Chal Martin, Skagit County Public Works
Gary Christensen, Director Skagit Co. Planning & Development Services
Allison Deets, Skagit County Farmland Legacy Program
Mike Shelby, Western Washington Agricultural Assn
Carolyn Kelly, Skagit Conservation District
Ellen Bynum, Friends of Skagit County

Comment 8.1

See Response E-4.



Letter 8

08/25/2006 15:22 3608264545 WASHBURN PAGE 01/01

Dwight Washburn
P.O. Box 526
Hamilton, WA 98255
(360) 826-5230

SKAGIT COUNTY PERMIT CENTER
AUG 25 2006
RECEIVED

To: Brandon Black – Planner
Skagit County Planning & Development Services

Re: Grading Permit Application #BP 06-0669

8.1 I am very concerned about this project and the implications of granting the permit without going through the SEPA process. We need a complete understanding of the effects this project will have on the entire county.

It is premature to grant a grading permit at this time. Please do not grant this permit.

Dwight Washburn
Citizens Against Hamilton Motocross

SECTION C
Applicant Responses

Table of Contents

Figures

Section C—Applicant Responses to Comments

Responses to Comments from Skagit County Planning Department

Response C-1

The County has asked for information that accounts for the proposed use of the entire acreage owned by the Applicant. Several commenters also raised this question.

The application that we submitted to the County for approval is limited to reestablishing, rehabilitating and enhancing associated wetlands along Nookachamps Creek and the East Fork of Nookachamps Creek on the 374 acre wetland bank site. (Only about 305 acres of that 374 acres is farmland. The rest is streams, stream banks, buffers and other property that is not cultivated.) While we had to acquire the entire 804 acre Clear Valley Farm property from Loren and Arlene Korthuis, we are not asking for approvals for any new uses on the remainder of the Farm property under the current application. The scope of the wetland bank project and the County's review of the permit application should be limited to the 374 acre wetland bank project site and the wetland enhancement proposal. Any future use of the remainder of the Clear Valley Farm property is a separate question, subject to future County review, independent of this application.

To address questions and concerns raised by members of the public regarding potential loss of agricultural lands on the entire Clear Valley Farm, we are voluntarily offering to preserve a significant portion of the Clear Valley Farm property in continued agricultural use. Our complete agricultural mitigation proposal, which also includes a proposal to acquire development rights on other properties to add to the base of permanently protected agricultural lands, is presented in Response C-7.

One element of our voluntary agriculture mitigation plan is to protect from future development at least 300 acres of the Clear Valley Farm property adjacent to the wetland bank site. We will protect this adjacent property by imposing agricultural use covenants or transfer of development rights. Figure C 1 shows the entire Clear Valley Farm property, the wetland bank site on which the wetland mitigation bank will be established, and those areas of the Farm property that will be protected from development so that agricultural uses will remain.

Figure C-1 also delineates portions of the wetland bank site that will remain protected as buffer areas and those portions that may be sold in the future to third parties.

We have previously disclosed to the County that a 37 acre portion of the adjacent land may be sold to a local building company; the building company proposes to process a Long CaRD under Section 14.18.330 of the Skagit County Code. This area is shown in Figure C-1. That project is independent of the proposed Bank and may proceed without the Bank and visa versa. If and when a Long CaRD is proposed, it will be reviewed by the County under applicable criteria including an independent analysis under SEPA. The Long CaRD, if approved, would transfer development rights from the 804 acres of the Clear Valley Farm property that we own to this

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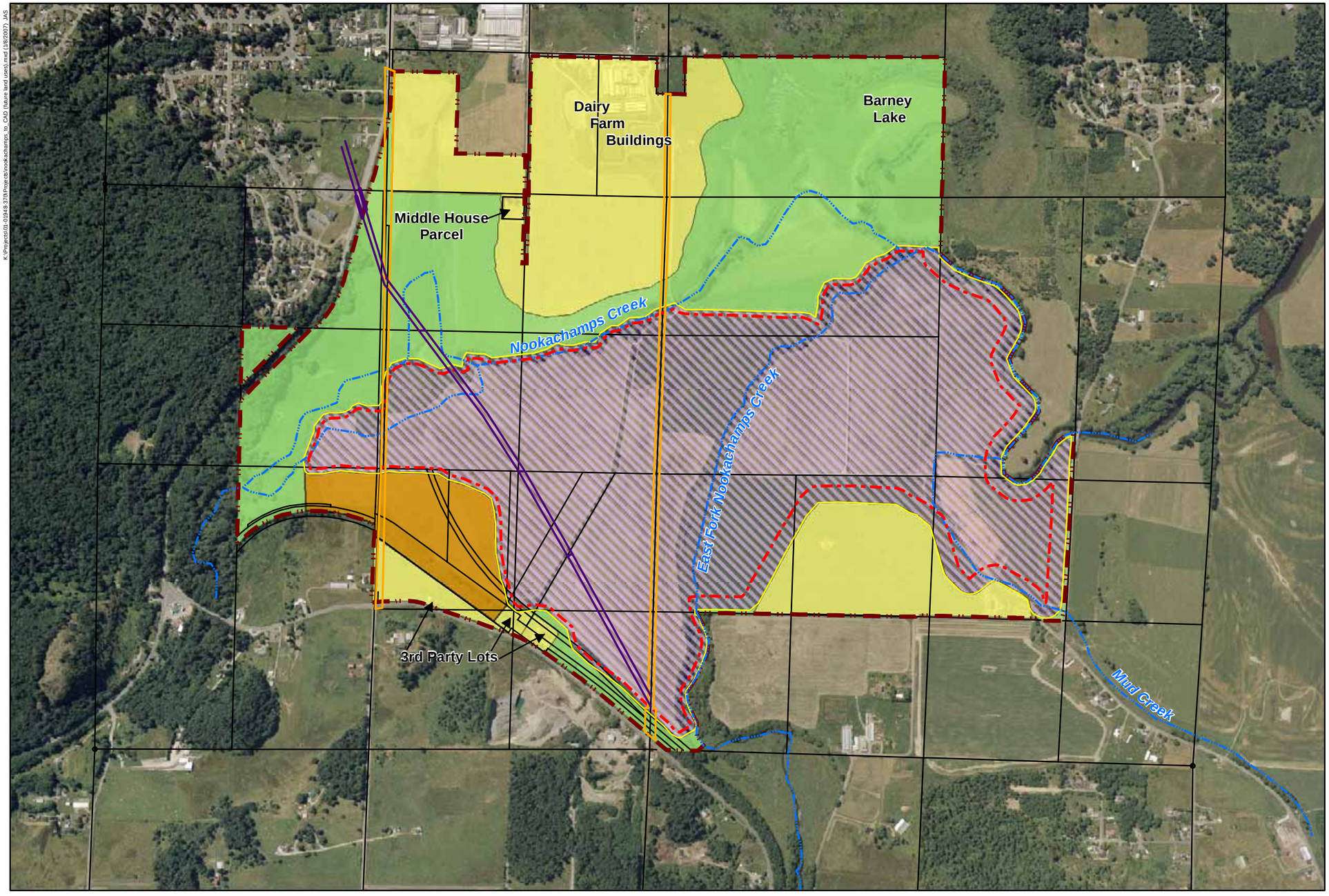

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1 in = 1000 ft

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Legend :

- Stream
- Water line easement
- Power line easement
- Wetland mitigation bank buffer boundary
- Clear Valley Farm property boundary
- Project site
- Parcel boundary
- Third-party lots (167 acres)
- 37-acre development site
- Skagit Land Trust (226 acres)
- Wetland mitigation bank (374 acres)

No.	REVISION	BY	APPD	DATE

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Suite 1100
Seattle, Washington
98121-1820
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DESIGNED:	DRAWN:
DESIGNED:	CHECKED:
DESIGNED:	APPROVED:

SKAGIT ENVIRONMENTAL BANK

FUTURE LAND USE AT CLEAR VALLEY FARM

DATE:	JANUARY 2007
PROJECT NO:	04-02822-003
DRAWING NO:	FIGURE C-1
SHEET NO:	

37 acre site, in order to permanently retain those acres in agriculture. If the Long CaRD is not proposed or is not approved, Clear Valley will still impose the agricultural protection covenant on the property as shown in Figure C-1 to guarantee long term protection for these lands in order to partially mitigate for the concerns express by the public regarding potential loss of agricultural lands.

Only about 15 of the 37 acres proposed for the Long CaRD have ever been cultivated or grazed.

Figure C-1 shows the area (about 226 acres) that may be conveyed to the Skagit Land Trust. This land includes Barney Lake and some land that is now used for agriculture. Figure C-1 also shows portions of the Farm property with existing homes and structures that may be sold to third parties. Those properties or portions of those properties within the area marked on Figure C-1 for agricultural use protection will be subject to an agricultural use covenant or will have its development rights sold, so that these agricultural lands will be protected in perpetuity.

Response C-2

The County has asked for a description of the resource needs and their location within the service area.

In our review of the applicable criteria and standards to obtain necessary land use approvals for this project, we are unaware of any requirement that we must demonstrate existing and future need for this proposal. Like all private applicants for land use approvals, we have developed our own market analysis and we have determined that this proposal is economically feasible and will be supported by expected market demand. We do not see the relevance to the regulatory process of the information requested concerning existing and future needs of this proposal.

Where credits may be used, for which type of impacts, and under what applied ratios, are issues that are being addressed directly with the MBRT. The Corps of Engineers, the Department of Ecology and other members of the MBRT must address these issues in their reviews and in the Bank Instrument in the process of certifying our bank. These issues do not appear to be relevant in the context of the land use permits being sought from the County.

That being the case, however, we would like to answer the question, as we interpreted it after telephone discussions with you.

First, our scientific and other analysis have determined that we will in fact be establishing the type of habitat that will be unavoidably damaged by future development in Skagit County. This means that our wetland site will in fact be available as a source of mitigation for that future off-site unavoidable damage. As we have told you orally, those decisions are ultimately made by the Corps of Engineers and by the Department of Ecology, which are responsible for granting permits for damage done to wetland habitats, and which will oversee the types of mitigation that are allowed, and in particular whether our credits will be available for that mitigation.

Second, one reason that we have chosen this site for restoration is because it was a functioning wetland in the not so distant past. We will make every effort to restore, or encourage the restoration of, what was there, and what was functional, before. We have also studied wetland "reference sites" in the area that are functional and sustainable, and will pattern much of our restoration on what we have found on those sites. Finally, we are basing much of our action on studies and recommendations by the Department of Ecology, and on the experience and advice of our consultants, who have been responsible for many successful restoration projects. For all of these reasons, we believe that the restoration that we propose will be successful and sustainable.

Responses to Comments from Friends of Skagit County

Response C-3

The project does not inflate the prices per acre from agricultural land.

We have already purchased the property upon which the wetland bank will be created, and the purchase price has been paid. We do not think that the purchase price already paid for a property should impact the question of whether a grading and construction permit should be granted to restore the property. In effect, we conjecture, the argument suggested by the comment is that if the permit is denied, it will inhibit other potential purchasers from making the same kind of investment at the same price per acre and from undertaking similar projects. This hardly seems rational. The decision to grant our application should rest on existing laws, rules and regulations, and not on what might happen to real estate values in future unrelated transactions should this application be granted.

The argument seems fallacious for another reason. It seems to argue that transactions should not go forward that might increase the market value of property. But a restraint on the market value of property in this way seems to us to benefit only some. Other property owners might want an increase in the market value of their property.

We doubt that a desire to depress property values is a legitimate state interest in any case. Even if it were, however, if in fact the majority of the community wants to constrain the sale of land, restrict its value, or depress its price, by putting *involuntary* restrictions on the use or sale of property, then the proper steps for doing so would seem to be direct and legislative action, and not indirect action.

That being said, we disagree that the sale of this farm has or will have an effect on the value of much if any of the farmland in the Skagit Valley.

The reason is simple. The portion of the Farm that we are restoring as a wetland bank is different from most farm land in the Valley. It has special and very peculiar characteristics that do not apply to farm land in the Valley or the County. In the language of real estate sales and valuation, this land has no "comparables." That is in fact why we chose it.

There are a number of reasons why the land that we are restoring to its wetland character is unique. To cite but a few:

1. **Proximity** to riparian corridors (Nookachamps Creek and East Fork of the Nookachamps Creek). This enables part of the restoration to include riparian restoration, and, therefore, increase its ecological diversity.

2. **Size**. The property is large, 805 acres, which enables a large scale restoration to take place, and enables the choice of the best acreage to restore. This increases the economic viability of the restoration project, by lowering costs per acre. It also increases the ecological value of the project because of the ability to pick the highest quality areas to restore.

3. **Location**. The proximity of the property to developing urban areas. The property is close to the City of Mount Vernon and its Urban Growth Areas. We can trade credits in only a limited ecological area. There will be a good deal of high density development in these areas, creating a demand for credits.

4. **Historical Wetland**. The property was historically a wetland, and was not cleared for agricultural purposes until 40 to 60 years ago. This means we have far greater certainty of being able to restore it, with far less cost and effort.

5. **Ecological Attributes**. When restored, this particular property will provide an especially wide diversity of ecological habitats, which provides a much wider market for sale of compensatory credits.

6. **Freshwater Wetland**. The property will restore a large freshwater wetland. Much of the land available for restoration in Skagit County is west of Interstate Highway 5, in the tidal-influenced areas of the Skagit Delta, and therefore would be saltwater restoration. Most of the impacts to wetlands in Skagit County are to freshwater wetlands. The statutory requirement is that impacts be mitigated "in-kind." This means that impacts must be restored with like ecological mitigation. Therefore, impacts to fresh water wetlands must be mitigated with fresh water restoration projects.

In the search for an appropriate property within Skagit County, this was the only property that we found that had all of these attributes in such abundance. This property is highly unusual, and this is what justified the price that we paid for it. As we said above, the land does not have comparables, or at the very most has very few comparables, in Skagit County.

(It stands to reason that if there were much other land in the Skagit Valley that had satisfied our needs, we would not have paid such a high price for what we did buy. We would have gone to other sellers, and would have driven the price down by bargaining. In fact, this land was tied up

by the Trust for Public Land and other environmental restoration organizations for some time, and we were forced to wait for years for those deals to collapse before we could go forward with our offer to Mr. and Mrs. Korthuis. If other property in the Valley had been suitable for a wetland bank, we would have bought that other property and moved ahead long ago.)

As additional support that our purchase has not increased the price for general agricultural lands in Skagit County, we refer you to the determinations made in three other appraisals.

Little, if any, of the rest of the land that we purchased, is suitable for development as a wetland bank. We have used all of the land for that purpose that was practical. We commissioned an appraisal of all of the rest of our land (for financing purposes) and asked to have it appriased at its highest and best use. The appraisal that we got back valued the land **at $1,200 an acre**! We would have loved a higher appraisal. Don Montgomery (MAI) of Follis Realtors, Bellingham, Washington did this appraisal. And he did it with full knowledge of the price that we were going to pay for the property. That price did not have the effect of increasing the value of the farmland that we had deemed unusable as wetland bank property.

We propose to sell some of the land to the Skagit Land Trust for conservation and agricultural purposes. Under Federal law the Skagit Land Trust is required to get an independent appraisal of the property it plans to buy. The Skagit Land Trust had Mr. Montgomery do a separate independent appraisal of the farmland and critical area that the Skagit Land Trust proposes to purchase. He gave the Land Trust the same estimate of value; that is, $1,200 per acre. The Land Trust then had his appraisal reviewed (as required by law) by another appraiser who agreed with Mr. Montgomery's valuation, again with full knowledge of the price we had paid for the property.

In short, the price that we paid for the property had no effect whatsoever on the appraised value of land right next door to our wetland bank. It is hard to believe that our purchase is going to provide upward pressure on ordinary farmland in other parts of the Skagit County.

Response C-4

One commenter referred to policies relating to the provision of buffers between conflicting uses of land.

Adequate buffers will be established around the bank, satisfying this policy. The primary purpose of the buffer area is to protect the wetland bank from uses of the surrounding areas. (Farming activities, for instance, may have a negative impact on the bank.). However, these buffers will also mean that the surrounding areas do not have to limit their current land uses to avoid hurting the bank. The buffers are created on the wetland bank, and not on lands outside of the wetland bank.

The basic plan is (as shown on Figure C-2):

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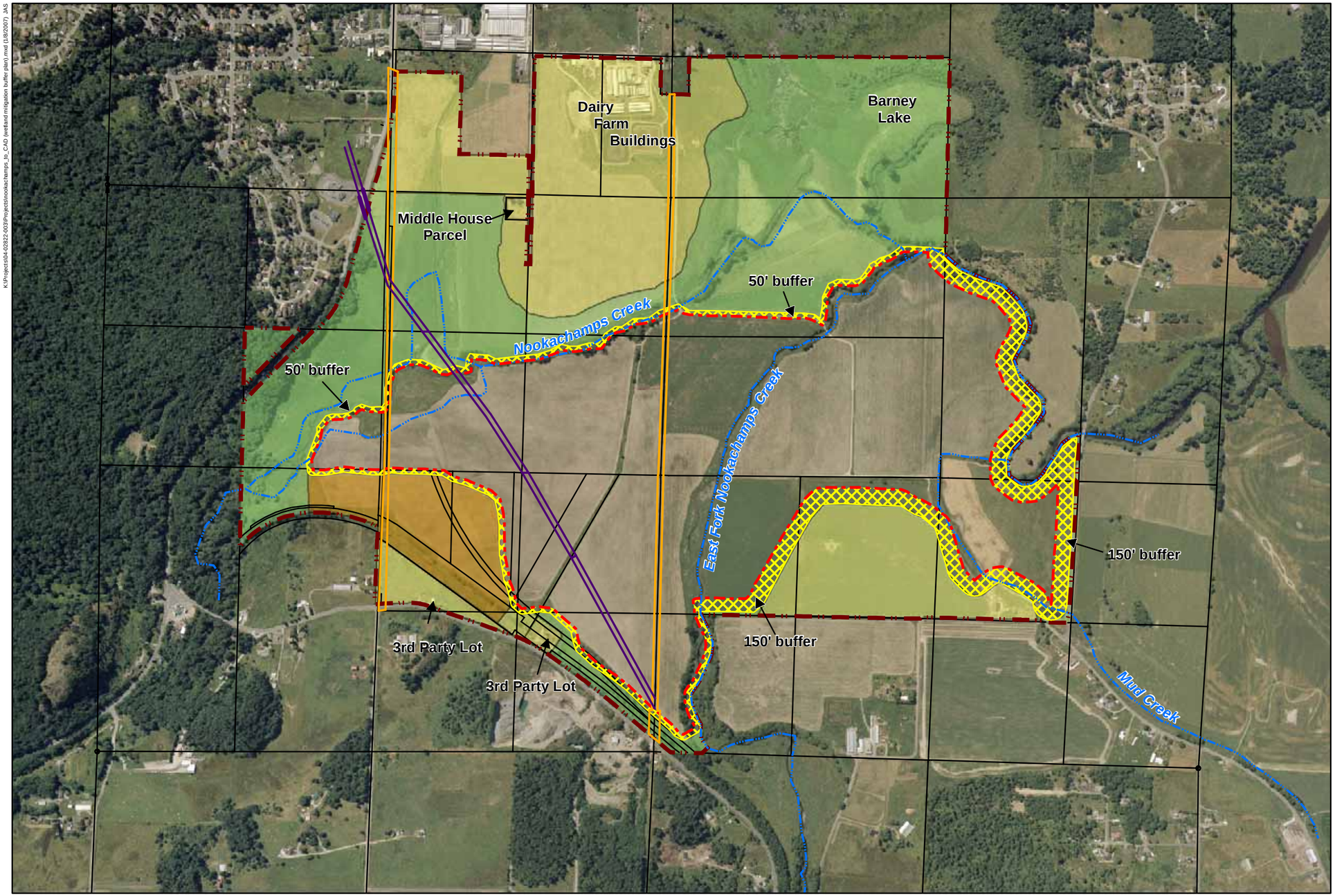

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1 in = 1000 ft

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Legend :

- Stream
- Water line easement
- Power line easement
- Wetland mitigation bank buffer boundary
- Clear Valley Farm property boundary
- Project site
- Parcel boundary
- Third-party lots
- 37-acre development site
- Skagit Land Trust

No.	REVISION	BY	APPD	DATE

HERRERA ENVIRONMENTAL CONSULTANTS
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DESIGNED:		DRAWN:	
DESIGNED:		CHECKED:	
DESIGNED:		APPROVED:	

SKAGIT ENVIRONMENTAL BANK

BUFFER PLAN

DATE:	JANUARY 2007
PROJECT NO:	04-02822-003
DRAWING NO:	FIGURE C-2
SHEET NO:	

1. To establish a 150 foot buffer on the portions of the wetland boundary where we do not have immediate control over the adjacent land.

2. To establish a 50 foot buffer on the portions of the wetland bank where we have immediate control over the adjacent land, and can therefore implement land use limitations that require appropriate land.

In order to determine the location and width of each buffer edge we first used the Washington State wetland rating system for Western Washington – Revised (Hruby, 2004. Washington State Department of Ecology Publication # 04-06-025). Using the wetland rating forms we estimated the conditions that will exist 10 years after construction. The score for Water Quality Functions is 16, for Hydrologic Functions is 26, and for Habitat Functions is 25. The total score is 67, which ranks the mature Bank site as a Category II wetland.

Next, we determined the buffer widths and locations of various width buffer areas around the wetland bank site using Wetlands in Washington State - Volume 2: Guidance for Protecting and Managing Wetlands (Granger, T. et. al. 2005; Washington State Department of Ecology. Publication #05-06-008). The guidance we used is from Appendix 8 of the document titled Guidance on Widths of Buffers and Ratios for Compensatory Mitigation for Use with the Western Washington Wetland Rating System. We chose to use Buffer Alternative 3 which uses the wetland category, the intensity of impacts from surrounding areas, and the wetland functions in defining specific buffer widths necessary to protect the bank wetlands.

According to Table 8C-6: Width of buffers needed to protect Category II wetlands in Western Washington, we have a moderate level of function for habitat (score of 25) and the score of 16 for water quality does not have a buffer width requirement. The table shows that the moderate value for wildlife habitat functions with the expected impacts from surrounding land use that is classified as low should have a buffer width of 75 feet. A land use that is moderate impact needs 110 feet, and a land use that is high impact needs a 150-foot buffer.

We identified the types of land use and its level of impact (high, medium, or low) that will occur around the edges of the banked wetlands. Then we determined the width of the buffer along that land use according to the table. Please refer to the attached Figure C-2 which shows the outer edge of the buffer in yellow as "Wetland mitigation bank buffer boundary" and the inside of the buffer edge as a red dashed line called "Project site." We propose the following buffer locations and widths:

1. The northwest edge of the bank along the northern reach of the Nookachamps. The property across the Nookachamps will likely be kept in agricultural use. This area presents high impact and warrants a 150-foot buffer.

2. The north and northeast edge of the bank along swan road and adjacent the resident property. This area presents high impact and warrants a 150-foot buffer.

3. The east edge of the bank down to the East Fork of the Nookachamps. This edge borders an area that will likely remain as agricultural and considered high impact. This edge warrants a 150-foot buffer.

4. All of the remaining edge of the bank. All of the properties along the remaining edge of the bank will be managed in such a way as to not impact the bank. The land use will be low impact and the edge warrants a 50-foot buffer.

According to the Washington State Department of Ecology's draft wetland mitigation bank rule, Chapter 173-700-340 WAC, no credits are generated for the minimum buffer. Since all of our buffer areas are the required widths, they will not generate credits.

According to the Skagit County Ordinances sited below, the buffers should be 150 feet for Category 1 wetlands:

"14.24.240 Wetland mitigation standards.

(2) Standard Wetland Buffers Requirements: Buffers satisfy the first step in the mitigation sequence set forth in this Section. They are necessary in order to avoid potential project generated impacts. Buffers help maintain water quality and habitat diversity while stabilizing hydrology and minimizing direct human disturbance to wetlands. Buffer widths are based on wetland rating, the functions that the buffer is expected to perform, and the intensity of the proposed land use. The following standard buffers shall be required for regulated wetlands unless otherwise provided for in this Section:

Category I 150
Category II 100
Category III 50
Category IV 25

(a) Wetland buffers shall be measured horizontally in a landward direction from the wetland edge, as delineated in the field, pursuant to the requirements of SCC 14.24.220. Where lands adjacent to a wetland display a continuous slope of 25% or greater, the buffer shall include such sloping areas. Where the horizontal distance of the sloping area is greater than the required standard buffer, the buffer shall be extended to a point 25 feet beyond the top of the bank of the sloping area.

(b) Except as otherwise specified, wetland buffers shall be retained in their natural condition.

(c) Where buffer disturbance or alteration has or will occur in conjunction with regulated activities, re-vegetation with native vegetation shall be required and completed 1 month before the end of the growing season.

(d) Any wetland created, restored or enhanced as compensation for approved wetland alterations shall also include the standard buffer required for the category of the created, restored, or enhanced wetland."

Responses to Comments from Skagit Conservation District

Response C-5

The letter from the Skagit Conservation Dsitrict stated that "Prime farmland soils, which are found on site, were not identified."

We contend that "Prime" farmland soils, as that term is generally used, do not occur within the project site. This wetland mitigation site was selected in part because the land is only marginally productive. According to the U.S. Department of Agriculture, Natural Resources Conservation Services' (NRCS) Skagit County Soils Classification Data Base, the land for the wetland site is described as "not highly productive" and the soils all have very severe limitations. They are classified as "Prime Farmland if Drained." This is a classification below "Prime" status.

The soils on the bank site are classed by the NRCS as either Class 4w soils, which have "very severe limitations" that restrict the choice of plants or that require very careful management, or both, or as Class 6w soils, which "have severe limitations that make them generally unsuitable for cultivation." See Figure C-3.

The capability subclass "w" shows that water in or on the soil interferes with plant growth or cultivation. This makes it difficult to farm the wetland site and makes the land generally undesirable for agricultural conservation or protection. The capability subclass is also a reflection that most of the project site was historically a wetland. This is confirmed by the Soil Survey of Skagit County, which identifies on the bank site three soil series that are hydric: Bellingham silt loam (10), Nookachamps silt loam (101), and Sumas silt loam (136).

Loren and Arlene Korthuis (the couple who sold the property to the Bank Sponsors) offered the farm to the Skagit County Farmland Legacy Program several years ago. Rich Doenges, the former head of the Farmland Legacy Program, refused it as unsuitable for conservation. Thus, we are taking farmland that is only moderately productive and turning it into very valuable wetland.

As noted above, we and the Skagit Land Trust have obtained three appraisals of the farm. Each of them shows that the land on the farm, if used for farming, is worth about between $1,200 and $1,400 per acre. Farmland in the Skagit County, as far as we understand it, is worth from $1,000 to $7,000 per acre. Thus, the value of the farmland on the farm, and on the wetland bank site, in particular, if used for agriculture is at the low end of the range. We believe that this is hard market evidence that the land is not "prime" for farmland, and is not well suited for agriculture.

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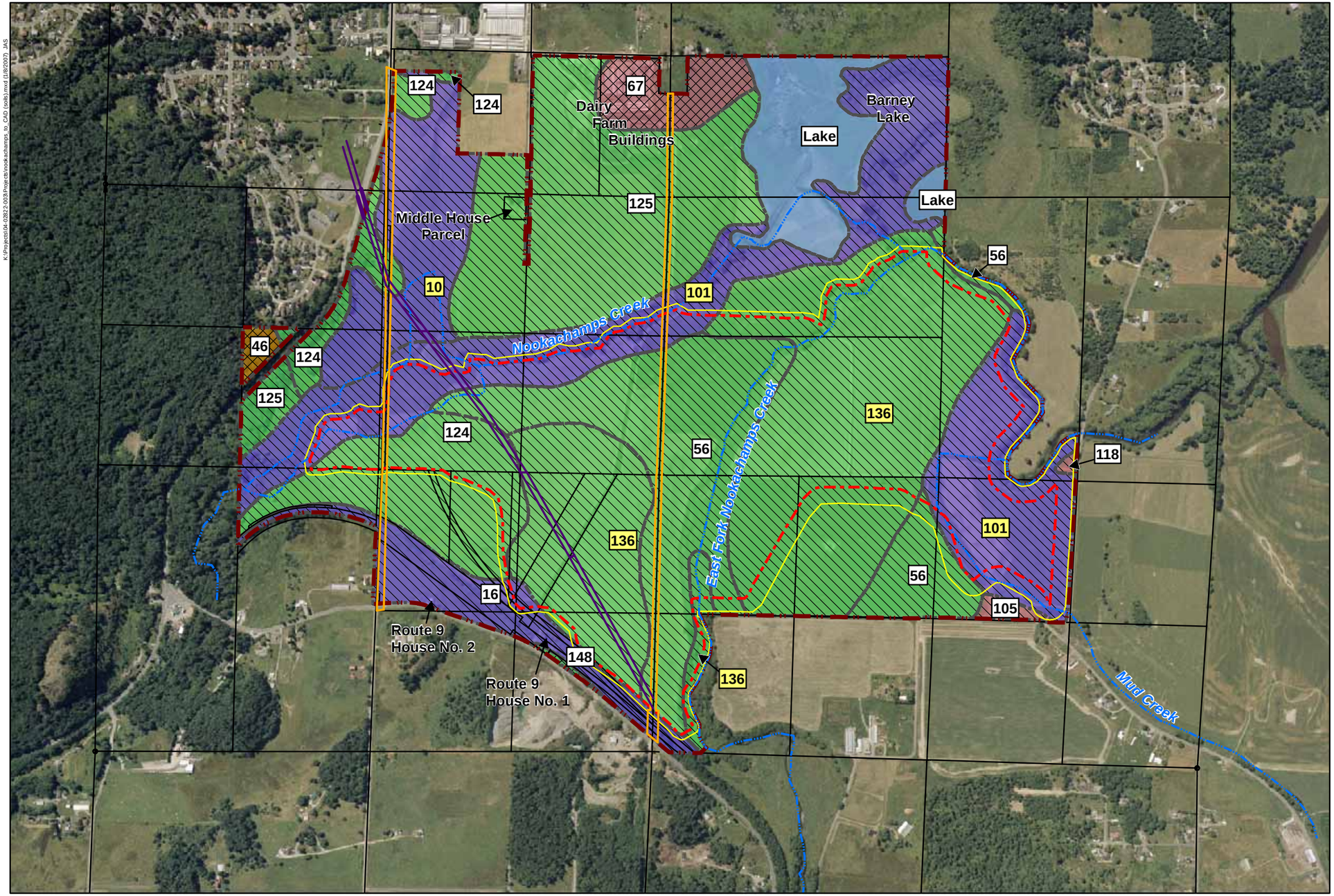

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1 in = 1000 ft

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Legend :

- Stream
- Water line easement
- Power line easement
- Wetland mitigation bank buffer boundary
- Clear Valley Farm property boundary
- Project site
- Parcel boundary
- 136 Soil map unit

Soil capability class

- Lake
- 3
- 4
- 6
- 7

Soil capability subclass

- E (erosion problems)
- W (wetness problems)
- 136 Hydric soil

Soils Data Source: NRCS 2005

No.	REVISION	BY	APPD	DATE

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DESIGNED:	DRAWN:
DESIGNED:	CHECKED:
DESIGNED:	APPROVED:

SKAGIT ENVIRONMENTAL BANK

FARMLAND SOIL MAP

DATE:	JANUARY 2007
PROJECT NO:	04-02822-003
DRAWING NO:	FIGURE C-3
SHEET NO:	

Response C-6

The treatment of the drainage ditches proposed by this project is not a taking under the Endangered Species Act, nor will habitat be lost.

The ditches are not currently used by anadromous fish. If fish use the ditches during flooding, these ditches provide poor quality off-channel habitat and refugia, both of which will be replaced with higher quality off-channel habitat that will provide better refugia. Currently, the ditches are covered with a monoculture of a non-native grass species, and they adversely impact wetland groundwater hydrology by intercepting the ground water and funneling it to the nearby creeks. The bank project will replace these low quality ditch habitats with the creation of 9,720 feet (1.8 miles) of new high-flow back channels that will be accessible by anadromous and resident fish species. We will design the bank channels to allow fish to escape in receding waters, and we will plant them with a variety of native plant species.

A biological assessment was prepared for the proposed project (Herrera 2005) in accordance with Section 7(c) of the federal Endangered Species Act of 1973. The purpose of this assessment was to determine whether any protected species are present within the project area and whether they or their habitats will be adversely affected by the proposed wetland mitigation bank. In September 2006, a letter of concurrence was received from Ken S. Berg, manager of the Western Washington Fish and Wildlife Office of the U.S. Fish and Wildlife Service indicating that adequate actions will be used to protect listed species under the Endangered Species Act (Berg 2006). A similar letter was received from the Seattle District, Corps of Engineers in April 2006, concluding that this project may affect, but is not likely to adversely affect Puget Sound chinook or its critical habitat (Walker 2006).

Responses to Comments from Western Washington Agricultural Association

Response C-7

Several commenters say that the project makes no provisions for the adverse impact of farmland taken out of production by the bank project.

As noted in response to Friends of Skagit County comment 1.8 we do not agree that the project will have a significant adverse impact on the environment (see Response E-3). To the contary, we believe that our use of the farm and the bank site will be a significant benefit to the entire community. Nonetheless, we recognize the concerns of this commenter and others regarding the loss of approximately 305 acres of existing farmland use by the proposed development of the wetland mitigation bank. (Note that, while the wetland bank will take up 374 acres, only 305 of those acres have been or can be used for agriculture. Therefore, we estimate that there will be a loss of those 305 acres.)

We are committed to creating "no net negative impact" on agricultural lands in the County. Our challenge to date has been to come up with a plan that satisfies the County and that part of the community that is opposed to our project. To date, despite our efforts, we have not been able to engage the farm community or its representatives in substantive discussions relating to mitigation.

Therefore, we unilaterally propose a four part mitigation plan.

If the County grants the permits and approvals that we require, and if we are certified as a wetland mitigation bank under State and Federal law, we will agree to: 1) set aside funds to purchase development rights on prime agricultural lands in Skagit County; 2) establish an agricultural easement on approximately 300 acres of the remainder of the Clear Valley Farm property not being used for the wetland bank; 3) create an experimental buffer project along the Nookachamps Creeks to assist in evaluating the effect of riparian buffers in an effort to reduce the cost of, and increase the value of, buffers to farmers in the Valley; and 4) establish a high school and college "future farmers" educational program. Each of these is described in more detail in the numbered paragraphs below.

1. **A Set-Aside of Funds for Purchase of Development Rights for Long Term Protection of Agricultural Lands**. On July 20, 2004, the Conservation Futures Advisory Committee, which oversees the Skagit County Farmland Legacy Program, issued a policy position regarding farmland loss. The Committee adopted a policy of "no *net* loss" of farmland (emphasis added). The Committee adopted two provisions relating to future loss. One was a recommendation for an amendment to the Comprehensive Plan relating to the rezoning of agricultural land adjacent to Ag-NRL. The other was a statement that "Skagit County may require mitigation, to be paid to the Skagit County Farmland Legacy Program, in order (sic) protect other farmland in the County." (Memo to the record: Amendment to Skagit County Farmland Legacy Program Policy Regarding: Farmland Loss in Skagit County, dated July 2004.)

   In the Fall 2005 issue of the Skagitonian, the Newsletter of Skagitonians to Preserve Farmland, Bob Rose, the then executive Director of the Skagitonians said:

   "Conservation projects may be necessary to restore the health of the salmon resource or provide additional wetlands for migratory birds…..To ensure that the loss of additional acres of farmland doesn't accelerate the overall rate of farmland loss in the future, SPF's policy recommends that the transformation of farmland to other uses should require mitigation in the form of payment to the county's Farmland Legacy Program. Those funds would purchase development rights from strategic farmland to assure continued farming."

We are willing to do just what the Conservation Futures Advisory Committee and the Skagitonians to Preserve Farmland propose. If our bank is granted the permits we have applied for, and if our bank is certified, then upon the sale of each credit generated by our bank, we will pay an agreed upon amount into the Farmland Legacy Program for the purchase of development rights to protect prime agricultural lands. These funds can be used to conserve more farmland of better quality in more valuable areas than the land we are taking out of production.

If the County accepts this proposal, we would reach an agreement with the County that would set the amount that we would pay into the Farmland Legacy Program.

We also would agree to have those funds used in other ways to make farming in the County more productive and sustainable. However, we would leave the final decision as to how to best use these funds up to the County.

2. **Agricultural Easement on Non-Bank Land**. We will agree to permanently protect approximately 300 acres of the existing Clear Valley farm from future development by establishing an agricultural easement which binds these properties or by transferring development rights from these properties. If the Long CaRD previously discussed in [reference to Response to Skagit Comment 2] is approved, there would be a transfer of development rights from 800 acres of the Farm property. If the Long CaRD is not proposed or is not approved, if our applications are approved and the mitigation bank is certified, and if the County makes this a condition to our approvals and certification, we will impose the agricultural protection easement on the property to guarantee long term protection. This is exactly the kind of program carried out by the Skagit County's Farmland Legacy Program. (See paragraph 1 above.) This means that we will be conserving as much, if not more, farmland then we are taking out of its existing use. It will be forever protected from change to another use.

3. **Experimental Buffer Project**. We propose to set aside much of the land that is outside of the wetland mitigation bank, and that is along the Nookachamps Creek, as an experimental site to determine the effects of various sizes and types of buffers. The question of the effects and effectiveness of buffers is a serious one in Skagit County and we are willing to set aside these lands to help the Skagit County and the farming community to come up with a workable buffer program. A working draft of our buffer proposal is found in Appendix 4. A final agreement would be negotiated prior to opening of the bank. We are also willing to provide funding for this program out of the funding commitment set forth in Section 1 above.

4. **High School and College "Future Farmers" Program**. "There's little sense protecting farmland if there's no one around to farm it." So said reporter Josh Lintereur in an article titled "Succession seminars help farmers plan for the future," that appeared in the Skagit Valley Herald in November of, 2006. The article announced two seminars sponsored by the Farmland Legacy to educate local farmers on problems and solutions for succession. A bumper sticker printed by the Skagitonians to Preserve Farmland proclaims says it more simply: "There are no farms without farmers."

The Farm study "Economic Impacts of Agriculture in Skagit County, WA.", dated August 1, 2003, reported that the average age of farmers in Skagit County may have reached 57 years of age in 2002. The study indicated that, "This increasing average age is significant in that it reflects reduced entry into farming by younger farmers, it presages an increasing rate of farm sales and, thus, possibilities for conversion of land to non-farm uses, and it may anticipate a reduced rate of long-term investment in farming." There is a desperate need for new young farmers in the Skagit Valley. We would like to help find and train them.

For several years we have worked on an educational program in conjunction with the development of the wetland mitigation bank. This program focuses on hands on experimentation, observation, research and monitoring.

We propose that we include farm education at the high school and college level in this program. We would do this to interest and educate "future farmers" in the County, so that there will be someone to farm in the future. We would establish a farm education site that would be available to the local high school, junior college and college agricultural programs. This would provide an opportunity for those schools to expand their existing farm and agricultural educational efforts.

The specific area and elements of this education program will be established as a condition of using the mitigation bank. To date, we have worked with Craig Harpel, the head of the Mount Vernon High School science department in the development of this program. For more than a year, we have paid to store the science lab desks, sinks, counters, and other equipment that were taken out of the old science building at Mount Vernon High School. We would like to install it on site if it is practical. The program would have sufficient land set aside for school projects and experiments relating to crops and livestock. We would like to involve the junior college and WSU in this program as well.

Response C-8

This project will "improve fish or wildlife habitat or fish passage," as that term is used in the Shoreline Management Act, RCW 90.58.147.

The wetland restoration will be of superior quality, and will be approved as such by the U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, Environmental Protection Agency,

National Marine Fisheries Service, Skagit County Planning and Development Services, and the State Department of Ecology. The project will produce a significant gain in wetland and forested upland area (374 acres) and functional value within the Skagit watershed. Wetland permittees, that impact wetland resources, will be required to compensate for the loss at ratios of greater than one acre of bank compensation for every acre of wetland impact, therefore, the bank will serve to provide a no net loss and a net gain in wetland area and function within the Skagit County.

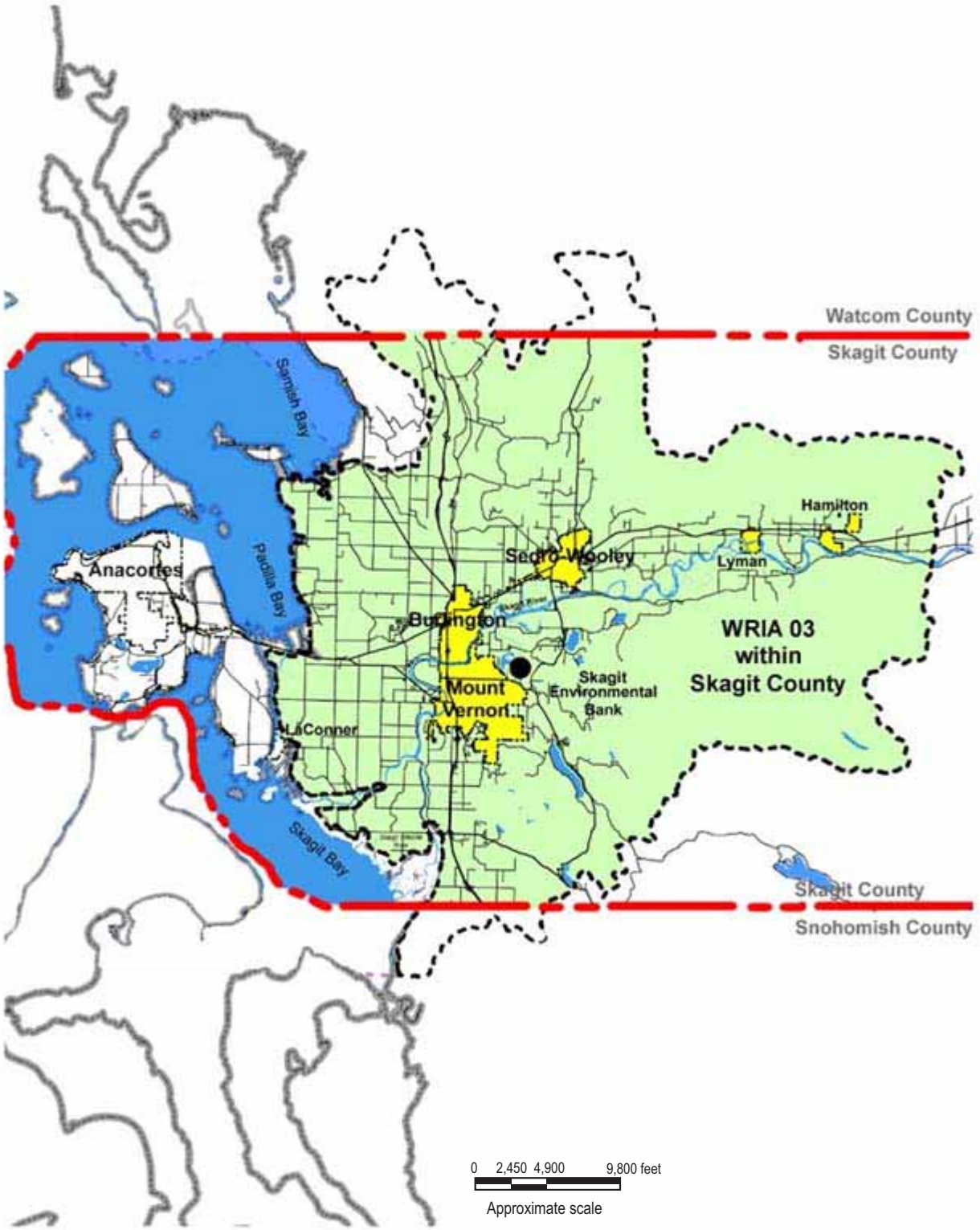
Please refer to the citation below, which is taken from the Skagit County Code, that outlines the proposed ratios of mitigation required for impacts to wetland in Skagit County:

> "Except under SCC 14.24.240(9) (Exceptions), any person who alters or proposes to alter regulated wetlands shall restore or create areas of wetland in order to compensate for wetland losses. The following ratios in the table below apply to creation or restoration which is in-kind (i.e., the same type of wetland), on-site, and is accomplished prior to or concurrently with loss. The first number specifies the acreage of wetlands to be restored or created and the second specifies the acreage of wetlands lost:
>
> Wetland On-Site Restoration/Creation Ratios:
>
> - Resource Impact — Bank Credits: Impact Acreage
> - Wetland, Category I — Case-by-Case or 4:1
> - Wetland, Category II — 3:1
> - Wetland, Category III — 2:1
> - Wetland, Category IV — 1.25:1
> - Critical Area Buffer — Case-by-Case
> - Stream — Case-by-Case

Response to Comments from Skagitonians to Preserve Farmland

Response C-9

The primary service area for the Bank extends to Water Resources Inventory Area 3 (WRIA 3), located in Skagit County. The proposed geographic service area (that is, the area within which the Bank may be used to compensate for permitted impacts) includes fresh-water wetlands within the Washington State Water Resource Inventory Lower Skagit-Samish Watershed Area WRIA 03; this would exclude the Islands in Puget Sound adjacent to the WRIA 03 Watershed Area, and would exclude all estuarine (saltwater) wetlands Figure C-4. We propose to limit the sale and trade of credits for impact wetlands to within the Skagit County boundaries and within WRIA 03.



Prepared by:

HERRERA ENVIRONMENTAL CONSULTANTS
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(206) 441-9080
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Date: January 2007

PROPOSED SERVICE AREA

Application for:

SKAGIT ENVIRONMENTAL BANK
SKAGIT COUNTY, WASHINGTON

Applicant:
CLEAR VALLEY
ENVIRONMENTAL FARM, LLC

SCALE see above

FIGURE C-4

SECTION D
Herrera Responses

Table of Contents

Figures

HERRERA
ENVIRONMENTAL
CONSULTANTS

January 16, 2007

Betsy Stevenson, ACIP
Skagit County Planning and Development Services
1800 Continental Place
Mount Vernon, Washington 98273

Subject: Responses to Comments on Permit Applications and September 15, 2006, Request for Additional Information for Grading Permit BP06-0669

Dear Ms. Stevenson:

Herrera Environmental Consultants (Herrera) is pleased to provide responses to comments from the Skagit County Planning Department, the Skagit County Public Works Department, and the public.

To accommodate the request for additional information for the grading permit, Herrera surveyed additional areas along Mud Creek and East Fork Nookachamps Creek, performed a stream survey in East Fork Nookachamps Creek to identify any conveyance structures upstream of the project site, and updated our HEC-RAS hydraulic model to assess possible offsite impacts on surface water and ground water elevations. All of this information is provided in our responses, which constitute Section D of the *Skagit Environmental Bank Response to Skagit County and Public Comments*.

Sincerely,

Herrera Environmental Consultants, Inc.

Mark Merkelbach
Civil/Environmental Engineer

cc: Jerome Ryan, Clear Valley Environmental Farm , LLC
James Hodge, Clear Valley Environmental Farm , LLC
Kevin Noon, Clear Valley Environmental Farm , LLC
Brent Carson, Buck and Gordon, LLP

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Section D—Herrera Environmental Consultants Responses to Comments

Responses to Comments from Skagit County Planning Department

Response D-1

Inconsistencies in the application materials were due to documents being prepared at different times and formats for different stages of design. Updated quantities for the project as a whole are provided in the following paragraphs. In order to quantify the total grading quantities in each of the proposed three phases of construction (especially Phase II), a grading plan with 2-foot contours (Figure D-1) was developed using predicted stream water elevations determined by HEC-RAS modeling and ground water elevations based on ground water monitoring data. Based on this grading plan, the excavation and fill quantities for Phase II activities in the JARPA, SEPA, and grading permits have been revised. No changes have been made in the fill quantities for the drainage ditch work in Phase I.

Phase I will include filling ditches and constructing three engineered logjams (ELJs) in Nookachamps Creek and East Fork Nookachamps Creek (Figure D-2). The objective of Phase I is to restore the floodplain hydrology associated with these streams, resulting in restored wetland hydrology conditions. Backfilling the drainage ditches and disconnecting them from the Nookachamps system is expected to raise local ground water levels within the boundary of the project site. No backfilling will occur within the Mud Creek drainage. The installation of three ELJs will increase the frequency of localized onsite flooding, which is a common attribute of a healthy functioning floodplain. Backfill material will come from the excavation associated with the ELJ construction and from the earthen berms adjacent to the drainage ditches. These berms are composed of the spoils resulting from the excavation and maintenance of the drainage ditches. Construction will occur within a 75-day construction window during which fish are least likely to be present (June 15 to August 31). The project is designed with the intention that activities will result in a reduction in the amount of required material excavation to establish appropriate ground water elevations within the project site in Phase II and III. Grading quantities for the Phase I activities are provided in Table D-1.

The wetland fill impacts associated with Phase I are considered temporary because these areas will be reexcavated and greatly expanded during the grading activities in Phase II. The excavation and fill impacts associated with Nookachamps Creek and East Fork Nookachamps Creek are considered temporary because the channel area will not be changed.

Phase II will include constructing four high-flow back channels off Nookachamps Creek and East Fork Nookachamps Creek, regrading the site, and planting native vegetation across the project site (Figure D-3). The activities that will occur during Phase II are as follows:

- Each of the three new high-flow back channels will be approximately 1,400 to 3,800 feet long and approximately 75 feet wide except for the area associated with Wetland 5. The actual channel dimensions will not be determined until the hydrologic conditions resulting from the modifications during Phase I are analyzed.
- The back channels will be excavated during dry conditions, and a soil plug will be left in place at the confluence of the back channel and the existing stream channel. Excavated material will be stockpiled in identified stockpile areas on the site.
- Water will be introduced to the channels slowly, and turbid water will be pumped to upland sedimentation/infiltration areas before the establishment of connectivity between the high-flow channels and the existing stream channels.
- Silt booms and turbidity monitoring stations will be in place downstream of the work areas when flows are introduced into the new channels.
- In graded areas where the hydrologic conditions are well understood and not expected to change after the channel construction, final plantings will be installed. Other disturbed areas that may require additional grading during Phase III will be seeded with native grasses, and the final plantings will be installed during Phase III.

Table D-1. Summary of Phase I activities on the project site for the Skagit Environmental Bank.

		Temporary Excavation Impact		Temporary Fill Impact		Permanent Fill Impact	
Aquatic Resource	Activity	Area (acres)	Volume (cubic yards)	Area (acres)	Volume (cubic yards)	Area (acres)	Volume (cubic yards)
Wetland 1	Ditch filling	–	–	2.01	1,967	–	–
Wetland 2	Ditch filling	–	–	0.74	351	–	–
Wetland 3	Ditch filling	–	–	0.58	272	–	–
Wetland 4	Ditch filling	–	–	1.87	7,262	–	–
Wetland 5	Ditch filling	–	–	0.14	259	–	–
Wetland 7	Ditch filling	–	–	0.12	1,261	–	–
Total Wetland Impacts		–	–	5.46	11,372	–	–
Nookachamps Creek	Installation of ELJ 1	0.02	80	0.11	711	–	–
East Fork Nookachamps Creek	Installation of ELJ 2	0.02	80	0.05	233	–	–
East Fork Nookachamps Creek	Installation of ELJ 3	0.02	80	0.02	133	–	–
Total Riverine Impacts		0.06	240	0.18	1,077	–	–

A dash indicates no impacts.
See Figure D-2 for wetland locations.

ONE INCH
AT FULL SIZE. IF NOT ONE INCH SCALE ACCORDINGLY

CONCEPTUAL DESIGN NOT FOR CONSTRUCTION

No.	REVISION	BY	APP'D	DATE

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MICHAEL M. SPILLANE
STATE OF WASHINGTON
30786
REGISTERED
PROFESSIONAL ENGINEER
11/17/07
EXPIRES: 4/5/2007

DESIGNED: M. MERKELBACH	DRAWN: T. GRIGA
DESIGNED: C. BARTON	DRAWN: -
DESIGNED: -	CHECKED: -
SCALE: AS NOTED	APPROVED: M. SPILLANE

SKAGIT ENVIRONMENTAL BANK PHASE II

PROPOSED GRADING PLAN

DATE:	JANUARY 2007
PROJECT NO:	04-02822-003
DRAWING NO:	Figure D-1
SHEET NO:	OF

Path: O:\proj\04-02822-003\Cad\Dwgs\Phase 2\Figure D-1.dwg
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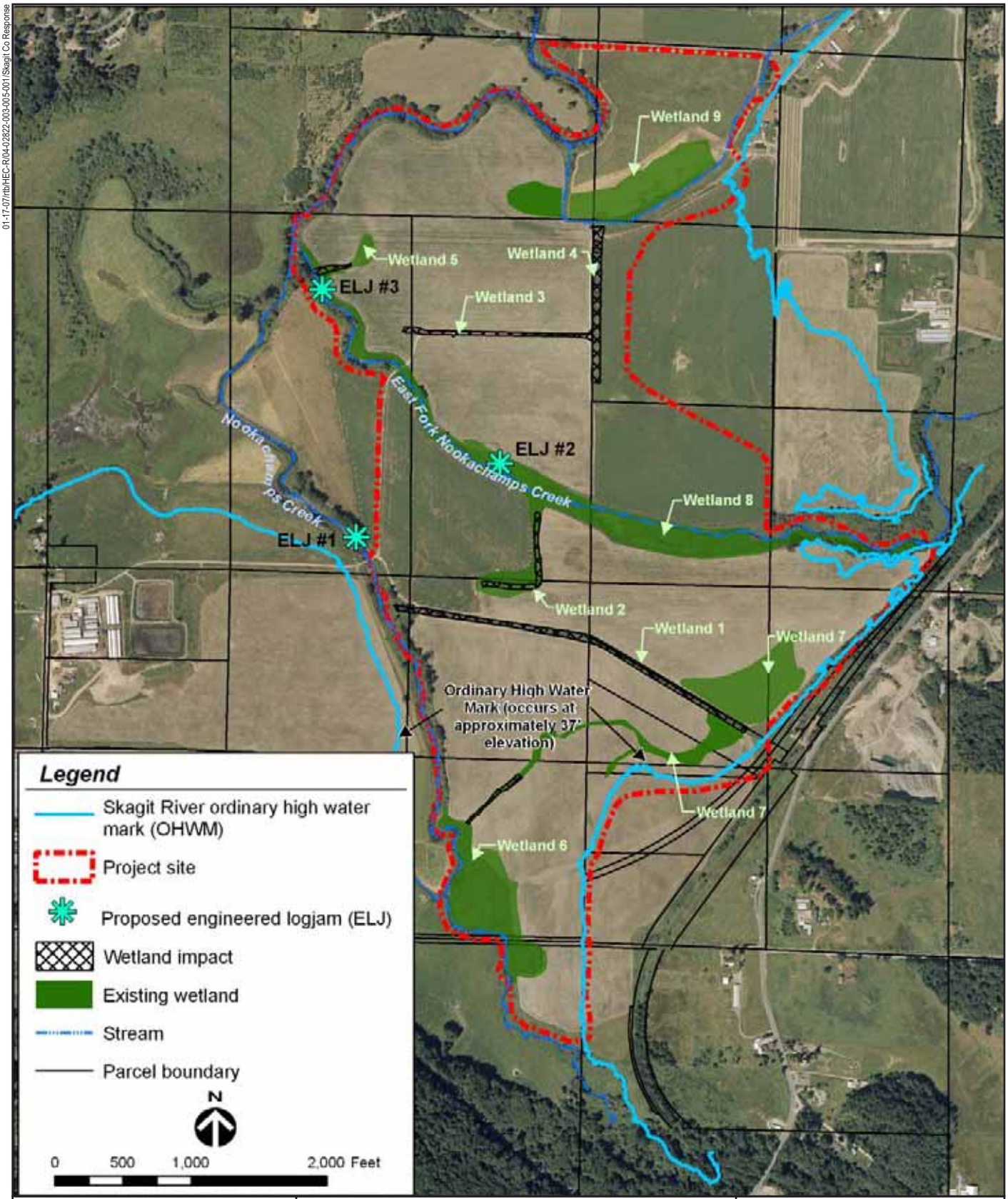
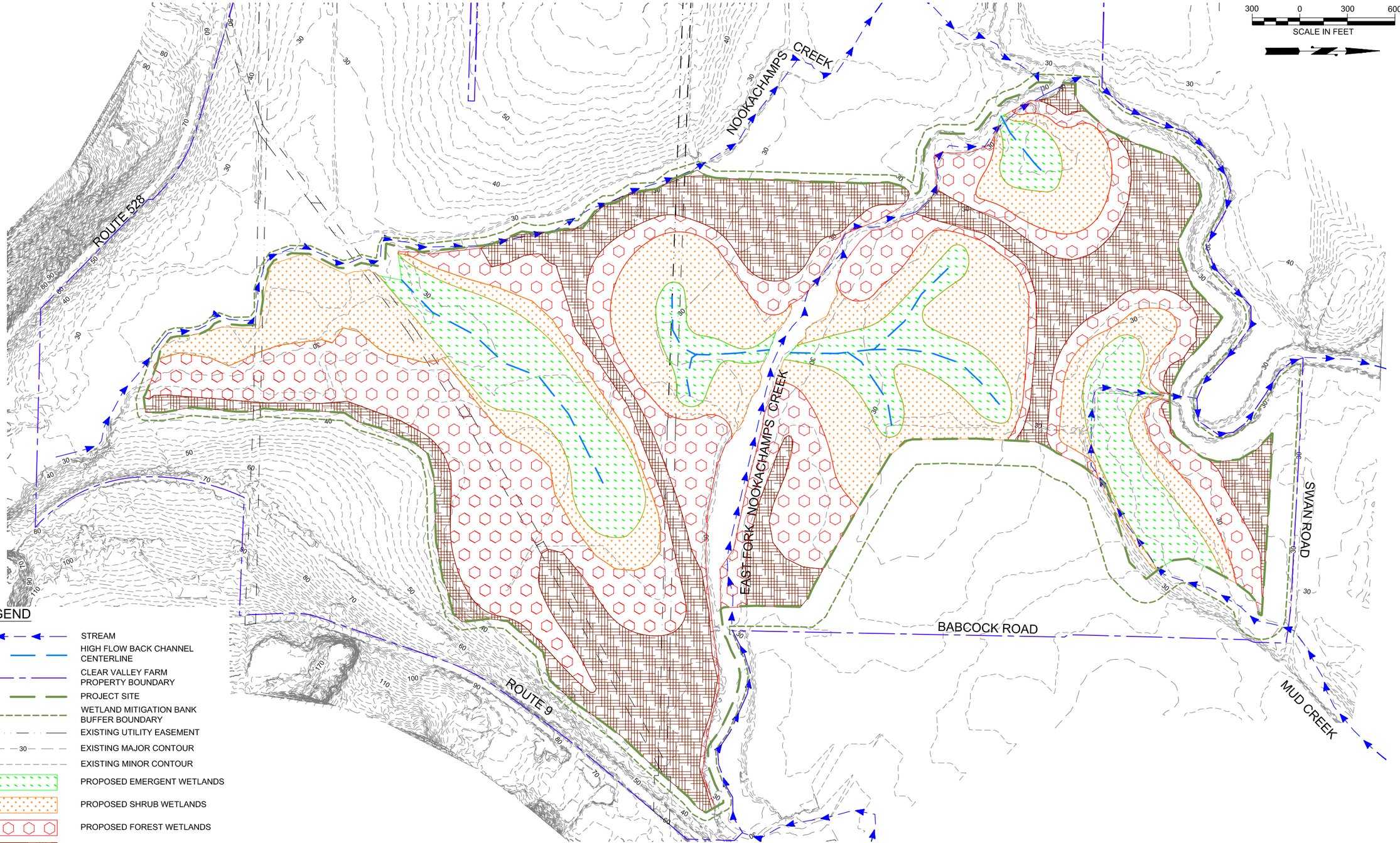
Plot Style Table: Herrera.ctb Plotter: Adobe PDF



Prepared by: HERRERA ENVIRONMENTAL CONSULTANTS 2200-6th Avenue-Suite 1100 Seattle, WA 98121-1820 (206) 441-9080 (206) 441-9108 (Fax) Date: January 2007	LOCATIONS OF EXISTING WETLANDS AND PROPOSED ENGINEERED LOGJAMS Application for: SKAGIT ENVIRONMENTAL BANK SKAGIT COUNTY, WASHINGTON	Applicant: CLEAR VALLEY ENVIRONMENTAL FARM, LLC SCALE see above FIGURE D-2



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EXPIRES: 4/5/2007

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DESIGNED: K. NOON	DRAWN: -
DESIGNED: -	CHECKED: -
SCALE: AS NOTED	APPROVED: M. SPILLANE

SKAGIT ENVIRONMENTAL BANK PHASE II

PROPOSED VEGETATION PLAN

DATE: JANUARY 2007
PROJECT NO: 04-02822-003
DRAWING NO: Figure D-3
SHEET NO: OF

Path: O:\proj\04-02822-003\Cad\Dwgs\Phase 2\Figure D-3.dwg
Plot Date: 1/17/2007 2:39 PM Cad User: Tom Griga
Plot Style Table: Herrera-Color.ctbPlotter: Adobe PDF

The wetland impacts (Table D-2) are considered temporary because the excavation activities will greatly expand the size of these wetland areas, and wetland conditions will persist. Permanently filled wetlands will result from site utility road crossings or the designation of sections of the wetlands as uplands as is the case of the northeast section of Wetland 7.

Table D-2. Summary of Phase II activities on the project site for the Skagit Environmental Bank.

Aquatic Resource	Activity	Temporary Excavation Impact		Temporary Fill Impact		Permanent Fill Impact	
		Area (acres)	Volume (cubic yards)	Area (acres)	Volume (cubic yards)	Area (acres)	Volume (cubic yards)
Wetland 1	Excavation	2.66	10,000	–	–	0.04	268
Wetland 2	Excavation	2.56	16,470	–	–	–	–
Wetland 3	Excavation	0.84	2,600	–	–	0.07	200
Wetland 4	Excavation	1.65	6,080	–	–	–	–
Wetland 5	Excavation	0.73	3,890	–	–	–	–
Wetland 6	Excavation	0.22	160	–	–	–	–
Wetland 7	Excavation	3.66	14,740	–	–	0.78	1,250
Wetland 8	Excavation	6.45	10,462	–	–	–	–
Wetland 9	Excavation	3.77	10,800	–	–	–	–
Total Wetland Impacts:		22.54	75,202	–	–	0.89	1,724

A dash indicates no impacts.

The total quantity of material excavated during Phase II activities will be 1,025,440 cubic yards, approximately 400,000 cubic yards less than the amount stated in the original grading permit. The quantities of fill material needed on the project site are estimated to total 289,900 cubic yards. These quantities are considered conservative. The estimated quantities are expected to be reduced after the Phase I activities have been completed and the results of the surface water and groundwater monitoring have been evaluated. Areas that will be filled include the access road alignment, the water line easement, and designated upland areas. Three soil stockpile areas (1, 2, and 3) have also been located on the project site (Figure D-4), which will decrease the distance over which the fill material will need to be transported. But, more importantly, the stockpile areas will provide flood refuge habitat for wildlife during backwater events on the Skagit River. The remainder of the excavated material (704,810 cubic yards) will be placed above the 100-year floodplain in stockpile 4, which is outside the boundary of the project site but within the boundary of the Clear Valley Farm property. This excess material will also be available for local construction projects that require fill material. Stockpile 4 can accommodate up to 1.2 million cubic yards; however, roughly half of its storage capacity will be needed. The removal of material outside the floodplain will increase the floodwater storage capacity of the project site.

300 0 300 600
SCALE IN FEET

STOCKPILE #	VOLUME	AREA
1	35,480 CY	4.6 AC
2	3,820 CY	2.5 AC
3	115,420 CY	11.7 AC
4	1,200,000 CY	46 AC
5	30,730 CY	9.9 AC

STOCKPILE 4
STOCKPILE 3
STOCKPILE 2
STOCKPILE 1
STOCKPILE 5
ABOVE 100-YEAR FLOODPLAIN
NOOKACHAMPS CREEK
ROUTE 528
ROUTE 9
SOUTH FORK NOOKACHAMPS CREEK
EAST FORK
BABCOCK ROAD
SWAN ROAD
MUD CREEK

LEGEND
- STREAM
- CLEAR VALLEY FARM PROPERTY BOUNDARY
- PROJECT SITE
- WETLAND MITIGATION BANK BUFFER BOUNDARY
- WETLAND LIMITS
- EXISTING UTILITY EASEMENT
- PROPOSED ACCESS ROAD
- 30 EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- 65 PROPOSED MAJOR CONTOUR
- 66 PROPOSED MINOR CONTOUR
- STOCKPILE AREAS

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EXPIRES: 4/5/2007

DESIGNED: M. MERKELBACH	DRAWN: T. GRIGA
DESIGNED: -	DRAWN: -
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SCALE: AS NOTED	APPROVED: M. SPILLANE

SKAGIT ENVIRONMENTAL BANK PHASE II

STOCKPILE AREAS

DATE: JANUARY 2007
PROJECT NO: 04-02822-003
DRAWING NO: Figure D-4
SHEET NO: OF

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Plot Date: 1/17/2007 2:41 PM Cad User: Tom Griga
Plot Style Table: Herrera.ctb Plotter: Adobe PDF

Response D-2

After updating the HEC-RAS hydraulic model, it was determined that only three logjams (Figure D-2 in Response D-1) will be needed to reconnect the Nookachamps system to its floodplain. The locations of these logjams will not affect the characteristics of the drainage to Barney Lake or the Mud Creek drainage because the logjams are located upstream of these confluences.

Response D-3

The locations of the easements for the power lines and the water line are shown on Figure D-5. The combined areas of the two power lines on the project site total 5.0 acres, and the area of the water line is 4.3 acres. The project design will not involve any alterations or relocation of structures within their easements.

- Areas within the power line easements will be revegetated with native wetland species and upland species. Puget Sound Electric will be notified prior to construction activities to ensure the integrity of the power lines and power line poles.

- Similar to the power line easement, areas along the water line easement will be planted with native species. A minimum depth of cover will remain over the water line as required by Skagit County Public Utility District.

K:\Projects\04-02822-003\Projects\nooksachamps_to_CAD (Vwtl modifications.mxd (1/6/2/07) JAS

0 500 1,000 2,000 ft

1 in = 1000 ft

N

Dairy Farm Buildings
W10
Barney Lake
Middle House Parcel
S12
S11
W9
S9
S10
S2
Route 9 House No. 2
W5
W6
Route 9 House No. 1
S3
S4
S5
S6
W4
S7
W3
W7
W8
W1
W2
S1
Mud Creek

Legend :

- 23 — Well location and number
- W9 — Approximate well location (Ecology database)
- S4 — Approximate septic tank location
- Stream
- Water line easement
- Power line easement
- Wetland mitigation buffer bank boundary
- Clear Valley Farm property boundary
- Project site
- Parcel boundary
- 1000-foot buffer from project site boundary

Existing wetlands

- Palustrine: persistent
- Palustrine: non-persistent and plowed
- Palustrine: ditch
- Riverine

No.	REVISION	BY	APPD	DATE

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DESIGNED:	CHECKED:
DESIGNED:	APPROVED:

SKAGIT ENVIRONMENTAL BANK

LOCATIONS OF WELLS AND SEPTIC TANKS WITHIN 1,000 FEET OF PROJECT SITE BOUNDARY

DATE: JANUARY 2007
PROJECT NO: 04-02822-003
DRAWING NO: FIGURE D-5
SHEET NO:

Response D-4

The locations of all wells (Figure D-5) with labels within 1,000 feet of the project site boundary were identified through the Washington Department of Ecology Well Log Database. Well logs for each well are included in Appendix 3.

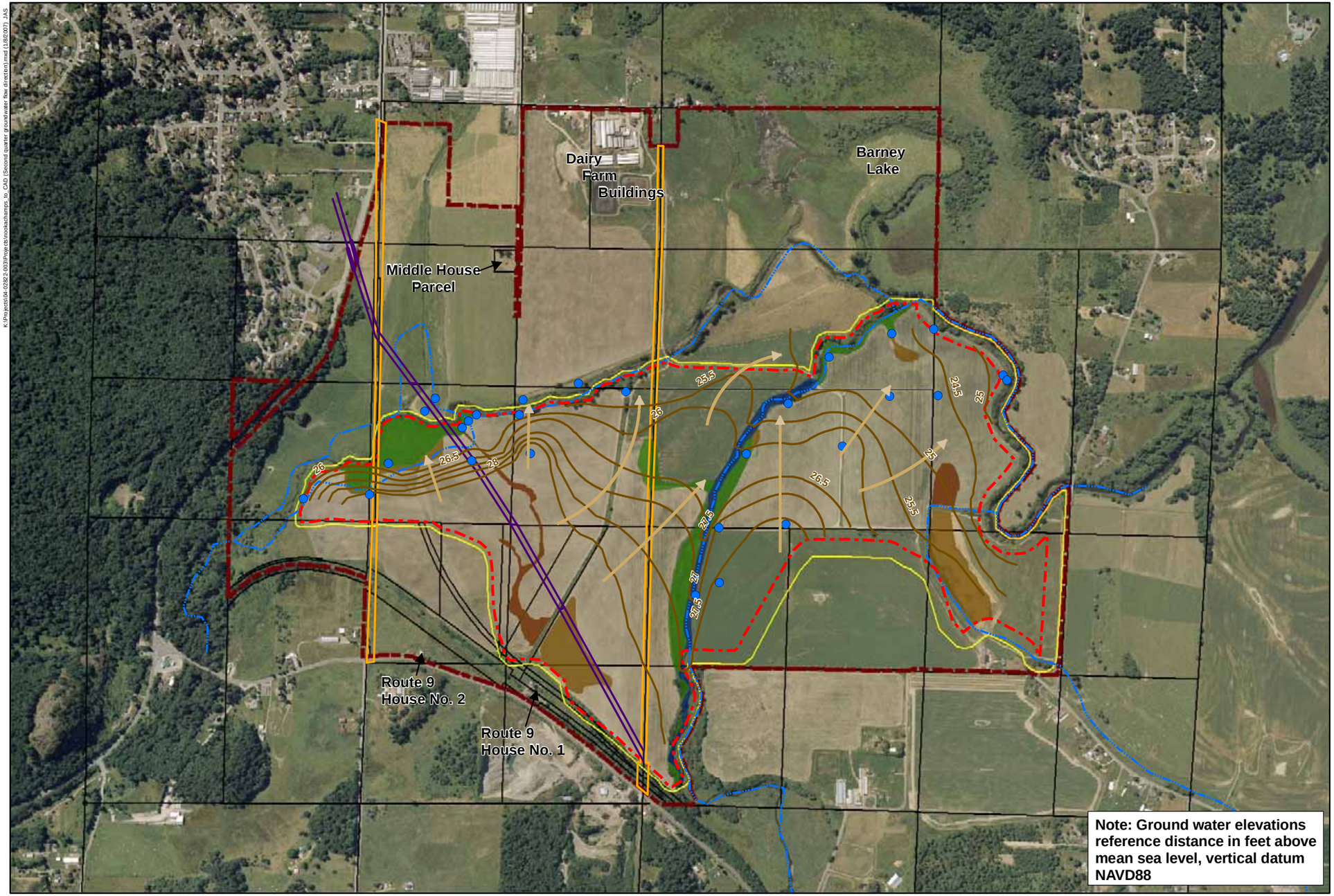
Response D-5

The surface of nearly the entire project site consists of Holocene alluvium deposited during flood events on the Skagit River. The composition of these sediments is variable, but they generally consist of a silty to sandy loam. Underneath this surface layer is a unit of Quaternary glaciomarine drift and outwash. This thickness and depth of this package vary. Both the drift sediments and the variations in the permeability of the alluvium can generate temporary perched aquifers, as evidenced by the wetland areas resulting from the seepage from the bluff at the southeast edge of the Clear Valley Farm property. Underneath the Quaternary sediments, there is basement bedrock that is Jurassic to Mesozoic in age and volcanic to marine sedimentary in origin. Distance to bedrock is variable throughout the site but is generally more than 40 feet based on a survey of Washington Department of Ecology well logs. The bedrock appears to be an effective aquitard because none of the Department of Ecology well logs for water supply wells indicated that the wells had penetrated this layer.

In the winter and spring, the perched ground water flows along surface topographic gradients. Beneath the surface sediments, the underlying consolidated sediments and bedrock support a perennial ground water table supplied by Clear Lake, Beaver Lake and upstream portions of the Skagit River. This perennial ground water flows generally from east to west (Figure D-6), although some ground water flows toward Nookachamps Creek and East Fork Nookachamps Creek on the project site during drier portions of the year. This water acts to supply base flow to these streams. The elevation of the perennial ground water table varies across the site (higher in the east and lower in the west) but is less than 26 feet the North American Vertical Datum of 1988 (NAVD 88).

It is expected that construction will result in no impact on the regional ground water table beyond the project site boundary. The volumes of water contained within regional ground water recharge areas are far greater than the changes in storage expected on the project site. Furthermore, it is the regional ground water regime that controls ground water surface elevations outside the project site boundary; expected changes in local ground water elevations will not extend beyond the boundary of the Clear Valley Farm property. Because the engineered logjams will retain more surface water in the streams during periods of lower flow such as the summer and early fall, ground water discharge to stream channels during these periods will likely be somewhat diminished on the site. However, these effects are expected to be negligible outside the project site boundary. The patterns of ground water flow after project implementation will follow the existing patterns, primarily from east to west. The presence of high-flow back channels will have little effect on flow patterns during dry periods because the channel inlets will be established at higher elevations than the water surface elevations during low flow, and the channels will capture only water from high flows resulting storm events in the fall through the spring.

K:\Projects\04-02822-003\Projects\snoolachamps_to_CAD (Second quarter groundwater flow direction).mxd (1/8/2007) JAS



0 500 1,000 2,000 ft

1 in = 1000 ft

N

Legend :

- Well location
- Second quarter 2005 ground water elevation contour (0.5-foot interval) (27.5)
- Stream
- Water line easement
- Power line easement
- Wetland mitigation bank buffer boundary
- Clear Valley Farm property boundary
- Project site
- Parcel boundary
- Estimated ground water flow direction

Existing wetlands

- Palustrine: persistent
- Palustrine: non-persistent and plowed
- Palustrine: ditch
- Riverine

No.	REVISION	BY	APPD	DATE

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DESIGNED:	DRAWN:	
DESIGNED:		
DESIGNED:		

SKAGIT ENVIRONMENTAL BANK

GROUND WATER FLOW DIRECTION, SECOND QUARTER 2005

DATE:	JANUARY 2007
PROJECT NO:	04-02822-003
DRAWING NO:	FIGURE D-6
SHEET NO:	

Response D-6

The project will improve water quality in the lower Skagit River watershed by decreasing soil and stream bank erosion, decreasing instream water temperatures, and helping to increase concentrations of dissolved oxygen. Soil loss and water temperature will be improved by revegetating any bare soils, stabilizing stream banks**,** and installing dense plantings of trees and shrubs along the stream banks. Increases in dissolved oxygen concentration could result from the decrease in nutrient delivery to the stream, decrease in stream temperature by revegetation of riparian areas, and decrease in sediment delivery to the stream. Significant amounts of nitrogen, phosphorus, and fecal coliform bacteria will be eliminated by removing the dairy farm operation, resulting in improvements of water quality in Nookachamps Creek and East Fork Nookachamps Creek. A detailed explanation of the improvement in dissolved oxygen and temperature is provided in Response D-9.

Appropriate best management practices will be used to minimize short-term water quality impacts during construction.

- **Sediment-laden runoff**. The activities associated with the construction of the engineered logjam structures, habitat improvements, stream bank stabilization, and high flow bank channels could increase the delivery of fine sediment to Nookachamps Creek and East Fork Nookachamps Creek. However, any sedimentation during project construction will be temporary. In addition, because of the best management practices that will be implemented as part of this project, no significant impacts on water quality are expected.

- **Increased turbidity**. Increased sediment delivery to Nookachamps Creek and East Fork Nookachamps Creek would increase turbidity. However, because of the best management practices that will be implemented as part of the project, significant increases in turbidity are not expected to result from construction activities. An erosion and sediment control plan submitted in the hydrologic and hydraulic basis of design report provides additional detail (Herrera 2006).

Response D-7

The locations of all wells and septic tanks (Figure D-5 in Response D-4) with labels within 1,000 feet of the project site boundary were identified through the Washington Department of Ecology Well Log Database and the Skagit County Geographic Information System (GIS) Database.

No wells located on adjacent properties will be affected by the activities associated with the proposed wetland mitigation bank. To ensure that there will be no effect on these wells, additional monitoring wells (MW 35, 36, 37, 38, 39) have been installed along the property boundary to monitor ground water elevations. This baseline information will be used during

Phase I activities to document any local changes to groundwater elevation. However, none are anticipated. HEC-RAS modeling has indicated that alterations to surface water levels resulting from the installation of engineered logjams (ELJs) would have direct effects on the ground water elevations within 300 feet of the stream on the project site. These ELJs will not affect ground water elevations beyond the boundary of the project site in the upstream and downstream portions of Nookachamps Creek and the upstream portions of Mud Creek. There will be upstream effects in East Fork Nookachamps Creek for approximately 3,372 feet. However, this will not affect any stream conveyance structures, wells, or septic systems. The backwater created by ELJ 2 is further detailed in Responses D-12 through D-15.

All alterations in water levels on the project site will occur within the 22- to 27-foot (NAVD 88) contours. All septic systems within 1,000 feet of the project site along State Route 9 have a minimum elevation of 60 feet; therefore, there will be no adverse effects. There will be no impacts on septic system S1 because there will be no ELJs to backwater up the Mud Creek drainage hence no increase in ground water elevations.

Response D-8

All of the proposed modifications will enhance ground water recharge. The engineered logjams and the grading are specifically designed to enhance the capability of the project site to store surface waters. Therefore, no new ground water discharge areas are expected.

Responses to Comments from Skagit County Public Works Department

Response D-9

Nookachamps Creek and East Fork Nookachamps Creek have been included on the 303(d) list for their failure to meet the water quality standards for temperature and dissolved oxygen, based on the 2004 water quality assessment for Category 5 listing in water resource inventory area (WRIA) 3 (lower Skagit–Samish watershed) (Ecology 2004a). This project will provide a functional improvement in water quality by reducing daily maximum stream temperatures and increasing concentrations of dissolved oxygen.

Temperature

Elevated water temperatures can be attributed to the loss of stream bank vegetation when land is cleared (as is the case on the project site), thereby exposing the stream to more sunlight. Bartholow (2000) found that a change in stream shading was the most influential factor governing increases in maximum daily water temperature, accounting for 40 percent of the total increase. Other influential factors mentioned in his study are channel widening alterations and changes in air temperature.

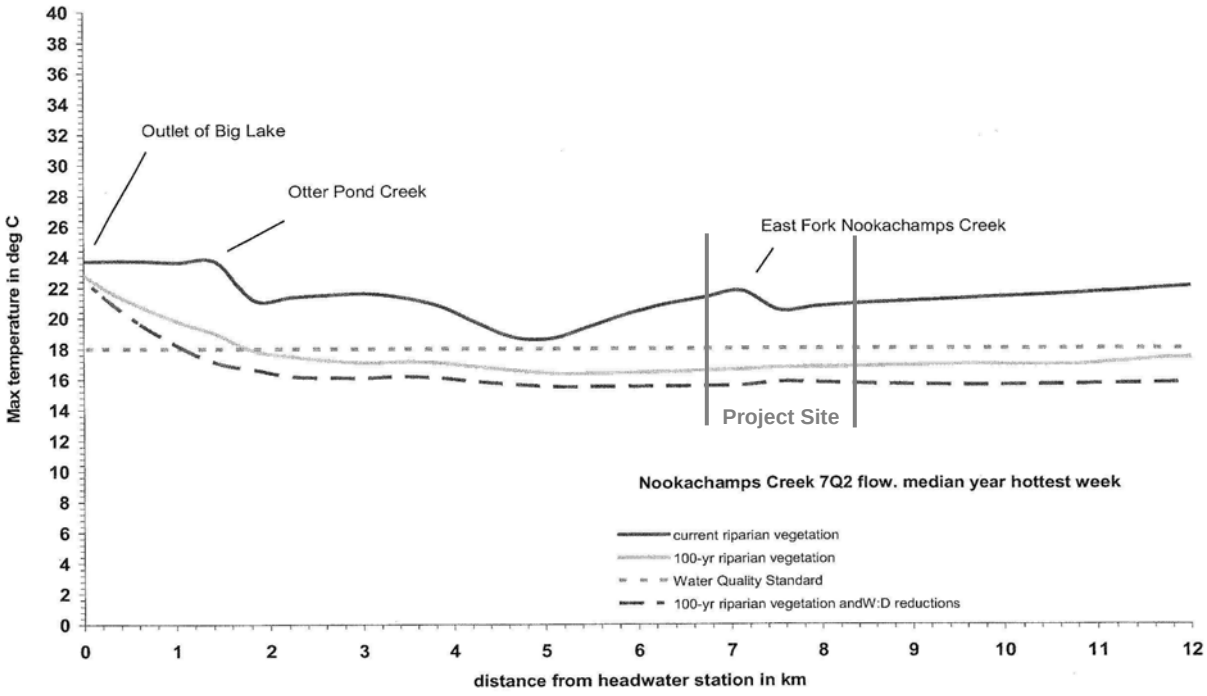
In order to address the issue of elevated water temperature, we based our planting grading design on the guidance provided in the *Lower Skagit River Tributaries Temperature Total Maximum Daily Load Study* conducted by the Washington Department of Ecology (Ecology 2004b). This study modeled the effects of restoring forested riparian areas along Nookachamps Creek and East Fork Nookachamps Creek, including the stream reaches on the project site. The results predict that effective shade resulting from 100-year-old riparian vegetation would have the potential to produce water temperatures that would meet the water quality standard (Figure D-7). We propose to reforest the stream reaches on the project site using the same revegetation parameters that the Department of Ecology used in its predictive model. Over time, water temperatures will decrease substantially as the riparian vegetation along the streams matures and the delivery of sediment from unstable farm fields is reduced. The modelers state that "restoration activities that would reconnect or reestablish side channels, backwaters, and riverine wetlands would probably further improve channel water temperatures.

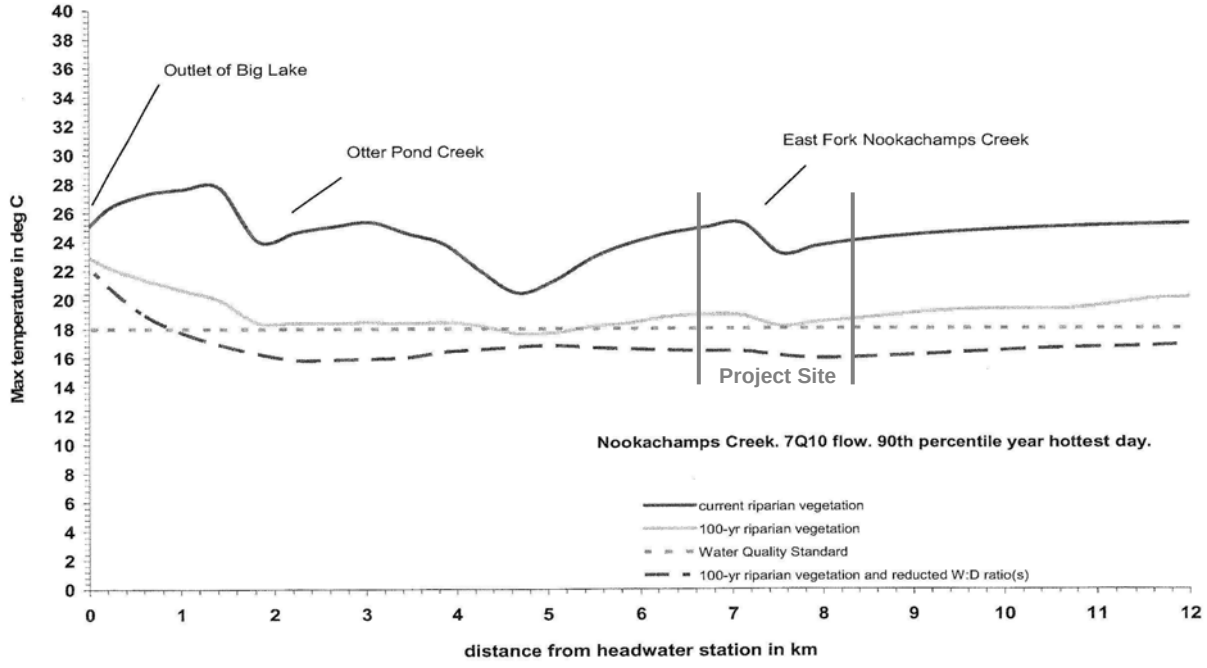
Implementing the following management recommendations should result in long-term temperature reductions in streams on the project site.

- Riparian zones will be managed to allow full maturation of vegetation, consisting of native woody species that offer shade protection. Such managed zones will not only provide temperature benefits associated with direct shading of streams, but also indirect benefits related to microclimate development, source of woody debris, and eventual narrowing and deepening of the stream. Streams identified as having large width-to-depth ratios (susceptible to sunlight exposure) as a result of erosion and sedimentation will be investigated to determine the causes of erosion and sources of sediment. Sources such as eroding stream banks and poorly managed upland areas will be addressed through riparian restoration projects and/or improved land management practices to minimize any further widening.

Stream restoration activities that increase ground water inflows to streams will be part of the restoration design to also reduce stream temperatures.

- Currently, the lack of floodplain connectivity due to channel straightening and incision reduces the opportunity for floodwaters to penetrate the alluvial aquifer and, in turn, decreases base flow by reducing ground water discharge during the low-flow season (Steiger et al. 1998). Ground water inflows to streams could increase if recharge is increased as a result of renewed connectivity between the channel and the floodplain. Engineered logjams will increase the likelihood of flooding due to high flows in Nookachamps Creek and East Fork Nookachamps. The extent of flooding is based on a HEC-RAS model, which shows that flooding will be localized to the project site and will not adversely affect adjacent properties or offsite drainages.





Adapted from Ecology 2004b.

Figure D-7. Predicted daily maximum temperature in Nookachamps Creek compared to the threshold for the total maximum daily load.

Dissolved Oxygen

The decay of organic waste in water can lower the concentrations of dissolved oxygen that fish and other aquatic creatures need to survive. Additionally, phosphorus from land-applied fertilizers promotes algal blooms that consume oxygen. Agriculture, particularly crop production and animal keeping, has a greater adverse effect on rivers and stream than any other major nonpoint source (FEMAT 2004). The primary pollutants on this project site are nitrogen and phosphorus compounds in fertilizer and livestock waste (feces, urine, and washdown water).

The removal of the dairy farm operation and crop production will significantly reduce the discharge of nitrogen and phosphorus compounds into East Fork Nookachamps Creek and Nookachamps Creek, which should increase the concentration of dissolved oxygen. Removal of the dairy operation alone would eliminate the application of 6.1 million gallons of waste (or 48 million pounds per year, which contains 263,000 pounds of nitrogen and 41,000 pounds of phosphorus and constitutes 31 percent of the total waste produced by all dairy farms in the Nookachamps subwatershed) that are used as fertilizer on the farm fields on the project site.

Response D-10

The Skagit River inundates the project site on a regular basis. In fact, Skagit County Public Works has documented the important role the Nookachamps basin plays in storing floodwater from the Skagit River (Stansbury 2004, p. 45). Numerous observations of flow reversal in Nookachamps Creek have been made by Herrera, not only during flood flows but during moderate meltwater events in the spring. Herrera contacted Betsey Stevenson (Skagit County Planning Department) for further clarification regarding the location of the ordinary high water mark (OHWM). She referred us to Washington Department of Fish and Wildlife (WDFW) to make a formal determination of the OHWM location on the project site. Herrera contends that the project site is inundated on an annual basis, indicating that the OHWM is located within the floodplain, rather than within the stream banks. Jeffery Kamps (Skagit Area Habitat Biologist for WDFW) confirmed Herrera's OHWM locations (Kamps 2006), stating the following:

> "The only good way to determine the OHWM in a location like this (project site) is to analyze the Skagit River flood elevations in the area, and then map the elevation across the floodplain.
>
> "Your application indicates this as it notes that the depicted OHWM is the Skagit River OHWM, not the Nookachamps. You also note in your application 'The extent of flooding is at approximately 37 feet above sea level.' The Hydrologic and Hydraulic Basis of Design Report that you submitted with your application provides the supporting data for the determination. The FEMA Flood Insurance Map was used to determine the 100-year flood elevation at this site: 47.7 feet (NAVD 88).

> "Most of the cross sections examined using the HEC-RAS modeling data with moderate backwater effects from the Skagit River produce elevations for the 2-year event to be at 36.9 to 37 feet. Even without the backwater effect from the Skagit, the elevations approach or slightly exceed 30 feet, producing flooding over much of this area during any 2-year event.
>
> "That said, the determination for the OHWM is most likely correct at approximately 37 feet, due to the backwater effect of the Skagit River."

Response D-11

Figure D-1 (grading plan) in Response D-1 and Figure D-4 (stockpile locations) in Response D-1 provide the necessary information for how the site will be graded and where excavated material will be placed. In order to assess the effects of grading on flood patterns on and adjacent to the project site, it should be recognized that two types of flooding regimes occur on the site. The most significant type of flooding regime occurs when water in the Skagit River backs up and floods the area and adjacent properties. As part of the proposed project, 704,810 cubic yards of material will be placed outside the floodplain, which will increase the flood storage capacity of the project site by 16 acre-feet. Even though this is a considerable increase in flood storage, it would provide only minimal benefits because the increased storage is minuscule compared to the excessive amounts of floodwater generated by the Skagit River.

The other type flooding regime occurs when the Skagit River is flowing at lower rates and Mud Creek, East Fork Nookachamps Creek, and Nookachamps Creek are flowing at higher rates due to summer thunderstorms (or monsoonal late summer/early fall storms), resulting in localized flooding on the project site and adjacent properties. On the project site, Mud Creek is restricted to a narrow flow path (15 to 20 feet wide) with a channel slope approaching zero in some sections. This results in poor drainage of the upstream reaches of Mud Creek, which prolongs the flooding. The grading design (Figure D-1) for the Mud Creek drainage increases the width of the flow pathway to 30 to 40 feet at a maximum elevation of 22 feet to a minimum of 21 feet NAVD 88. This is an important design feature because any areas below 22.2 feet (which represents the downstream invert elevation of the Mud Creek culvert under Swan Road) will help to increase upstream drainage of the system. Positive drainage will continue to the confluence of Nookachamps Creek, facilitating flow. The increased storage is very minimal; however, the regrading will establish positive drainage of Mud Creek throughout the project site, resulting in no adverse impacts on ground water or flooding on adjacent properties. In addition, 16 area-feet of increased flood storage would have a dramatic effect of decreasing the magnitude of downstream flooding while creating additional protection to adjacent properties.

Response D-12

Responses D-12 through D-15 address hydraulic conditions on and adjacent to the project site that were not evaluated in the HEC-RAS hydraulic model described in the hydrologic and hydraulic basis of design report for the project (Herrera 2006). In order to address these

questions, the area covered by the model was extended up East Fork Nookachamps Creek as far as the State Route 9 bridge. Figure D-8 shows the updated model geometry, including the locations of five new cross-sections on East Fork Nookachamps Creek (cross-sections E9 through E13). These cross-sections were surveyed on September 27 and September 28, 2006.

Two additional cross-sections have also been added to model the geometry through interpolation (cross-sections 18a and 18b). These cross-sections were added on Nookachamps Creek near the southern boundary of the Clear Valley Farm property, between cross-sections 18 and 19 (Figure D-8). They were added in order to decrease the distance between cross-sections 18 nd 19 and increase the resolution of the model output to more accurately evaluate the distance of upstream influence on surface water elevations from ELJ 1.

Additional geometric improvements in the model include updated representation of the ELJs. The preliminary model conditions represented the ELJs as weirs with a roughness coefficient of 0.08. The updated model accurately represents the proposed geometry of the structures, and the roughness of the ELJs has been increased to 0.1. The geometries of the ELJs as represented in the updated model are presented in Table D-3.

Table D-3. Physical conditions of proposed engineered logjams incorporated into the updated HEC-RAS hydraulic model for the Skagit Environmental Bank project site.

Engineered Logjam	Location	Length (feet)	Upstream Elevation	Downstream Elevation	Manning's roughness coefficient, *n*
1	Nookachamps Creek	150	27	20.5	0.1
2	East Fork Nookachamps Creek	40	25.15	23.5	0.1
3	East Fork Nookachamps Creek	50	24	22	0.1

Elevations in feet above NAVD 88.

The HEC-RAS hydraulic model results presented in the hydrologic and hydraulic basis of design report clearly illustrate that during high-magnitude flow events, and flow events during which backwater conditions are imposed on the project site by the Skagit River, water surface elevations in Nookachamps Creek and East Fork Nookachamps Creek are not affected by the roughness and changes in bed elevation imposed by the ELJs. In order to evaluate the influence of the ELJs on water surface elevations during intermediate-flow conditions, that is, flows between the growing-season flow and the 2-year flow, four additional flow scenarios were added to the model (Table D-4).

Updated HEC-RAS model results incorporating the changes and improvements detailed above are presented in Tables D-5 and D-6.

The results of the hydraulic modeling indicate that during growing-season flows that typically occur in April, May, and June, the backwater influence of ELJ 2 will result in a 1.1-foot increase in the water surface elevation on East Fork Nookachamps Creek in the vicinity of the east

boundary of the Clear Valley Farm property. The results of the updated model show that the increased water surface elevations extend no farther than 3,372 feet upstream (cross-section E11) of the project site boundary under any flow conditions. Under all the flow scenarios evaluated, except for growing-season flow and intermediate flow 1, the magnitude of this increase is no more than 0.2 feet. For the growing season, increased water surface elevations do not extend beyond 2,455 feet (cross-section E10) upstream of the project site boundary. For intermediate flow 1, increases of more than 0.2 feet also extend no farther than 2,455 feet upstream of the project site boundary.

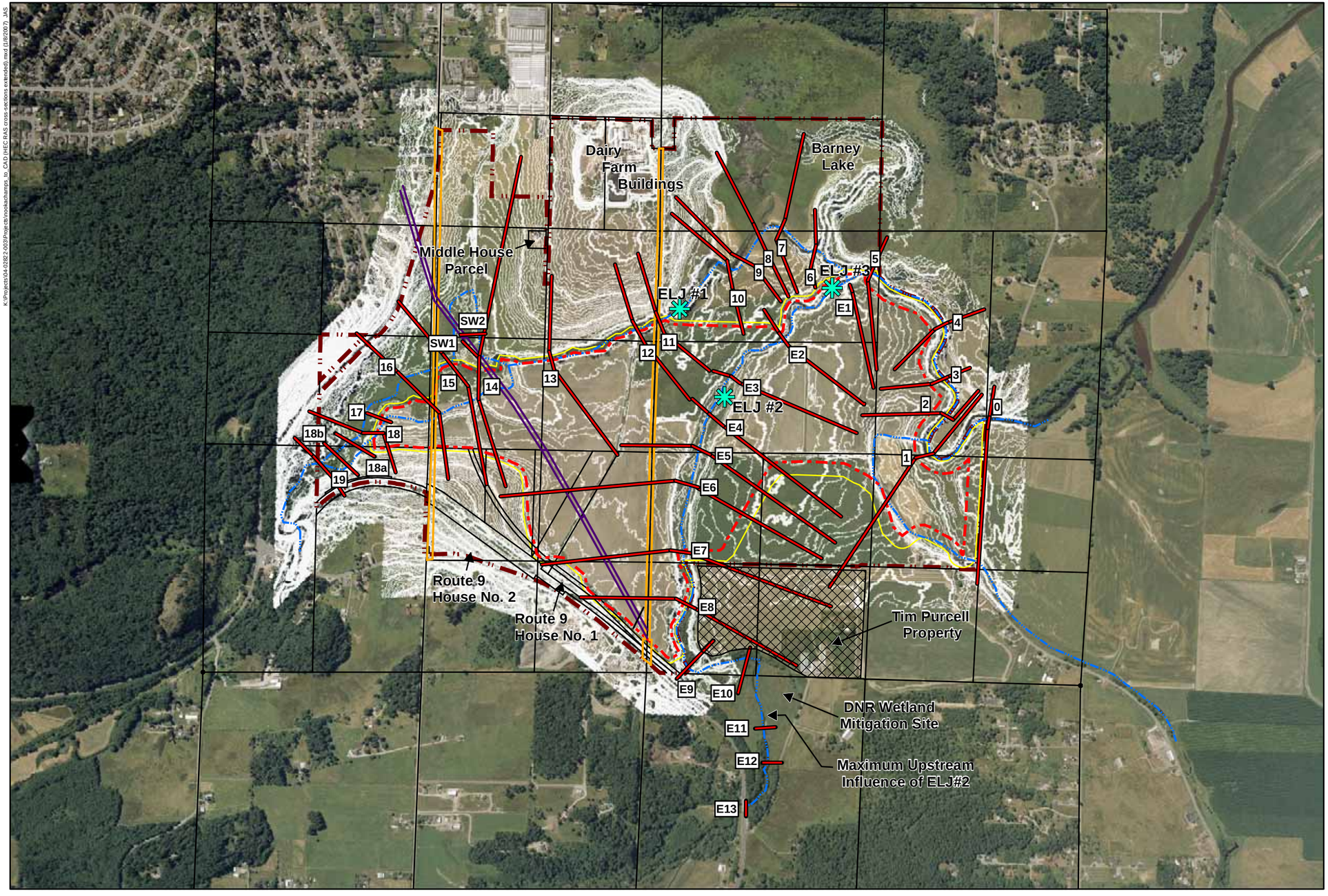
Table D-4. Flow scenarios incorporated into the updated HEC-RAS hydraulic model for the Skagit Environmental Bank project site.

Flow	Upper Nookachamps Creek Flows (cfs)	East Fork Nookachamps Creek Flows (cfs)	Lower Nookachamps Creek Flows (cfs)
Growing season	35	46	81
Intermediate flow 1	76	100	176
Intermediate flow 2	152	200	352
Intermediate flow 3	228	300	528
Intermediate flow 4	304	400	704
2-year [a]	450	540	990
25-year [a]	1,400	1,705	3,105
100-year [a]	2,180	2,660	4,840

cfs = cubic feet per second

[a] Flows for the 2-year, 25-year and 100-year recurrence interval were evaluated under conditions with no Skagit River backwater effect.

As is documented further in Response D-15, there are no conveyance structures that intersect any portion of East Fork Nookachamps Creek between the boundary of the Clear Valley Farm property and the State Route 9 bridge that could be influenced by these limited changes in water surface elevation.



0 625 1,250 2,500 ft

1 in = 1250 ft

N

Legend :

- Proposed Engineered logjam (ELJ)
- Stream
- Water line easement
- Power line easement
- Wetland mitigation bank buffer boundary
- Clear Valley Farm property boundary
- Project site
- Parcel boundary
- E1 HEC-RAS cross-section location
- 10-foot contours
- 1 foot contours

No.	REVISION	BY	APPD	DATE

HERRERA ENVIRONMENTAL CONSULTANTS
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DESIGNED: M. SPILLANE	DRAWN: J. SCHMIDT	SKAGIT ENVIRONMENTAL BANK	DATE: JANUARY 2007
DESIGNED:	DRAWN:		PROJECT NO: 04-02822-003
DESIGNED:	CHECKED: C. BARTON	**UPDATED HEC-RAS CROSS-SECTION LOCATIONS**	DRAWING NO: FIGURE D-8
DESIGNED:	APPROVED: M. SPILLANE		SHEET NO:

Table D-5. Water surface elevations from the updated HEC-RAS hydraulic model for the Skagit Environmental Bank project site under existing conditions.

Cross-Section	Growing Season	Intermediate Flow 1	Intermediate Flow 2	Intermediate Flow 3	Intermediate Flow 4	2-Year Flow	25-Year Flow	100-Year Flow
Nookachamps Creek								
0	22.3	24.0	25.6	26.6	27.5	28.7	33.6	34.9
1	22.7	24.5	26.2	27.3	28.2	29.5	34.5	35.7
2	22.8	24.6	26.4	27.6	28.4	29.6	34.6	35.9
3	22.8	24.7	26.5	27.7	28.5	29.7	34.7	36.0
4	22.8	24.7	26.5	27.7	28.5	29.7	34.6	35.7
5	22.9	24.8	26.6	27.8	28.7	29.9	35.0	36.6
6	23.0	24.8	26.6	27.8	28.7	30.0	35.1	36.6
7	23.0	24.8	26.6	27.8	28.7	30.0	35.1	36.6
8	23.0	24.9	26.6	27.8	28.7	30.0	35.1	36.6
9	23.0	24.9	26.6	27.8	28.7	30.0	35.1	36.6
10	23.0	24.9	26.6	27.8	28.7	30.0	35.1	36.6
ELJ 1								
11	23.1	24.9	26.7	27.9	28.8	30.0	35.1	36.7
12	23.1	25.0	26.8	28.0	28.8	30.1	35.1	36.7
13	23.1	25.0	26.8	28.0	28.9	30.2	35.2	36.7
14	23.3	25.2	27.0	28.1	29.0	30.3	35.2	36.7
15	23.5	25.3	27.0	28.2	29.0	30.3	35.2	36.7
16	23.5	25.3	27.0	28.2	29.0	30.3	35.2	36.7
18	23.9	25.4	27.1	28.2	29.1	30.3	35.2	36.8
18a	26.7	27.3	27.8	28.5	29.2	30.4	35.2	36.8
18b	27.5	28.1	28.6	29.1	29.6	30.6	35.3	36.9
19	28.2	28.9	29.5	29.9	30.3	31.1	35.4	37.0
East Fork Nookachmaps Creek								
E1	23.8	24.7	26.7	27.9	28.8	30.1	35.1	36.7
ELJ 3								
E2	24.5	25.6	27.1	28.2	29.1	30.3	35.2	36.7
E3	24.6	25.6	27.2	28.3	29.3	30.4	35.2	36.7
ELJ 2								
E4	24.6	25.9	27.7	28.8	29.5	30.5	35.2	36.7
E5	24.7	26.1	27.9	28.9	29.7	30.6	35.2	36.8
E6	25.0	26.4	28.2	29.2	29.9	30.7	35.2	36.8
E7	25.8	27.5	29.4	30.2	30.8	31.5	35.4	36.9
E8	26.1	27.8	29.7	30.6	31.2	31.9	35.7	37.1
E9	27.0	28.3	30.0	30.8	31.4	32.2	36.0	37.4
E10	28.4	29.1	30.4	31.1	31.7	32.4	36.1	37.5
E11	29.5	30.3	31.3	31.9	32.3	32.8	36.2	37.6
E12	29.9	30.8	31.7	32.3	32.8	33.3	36.4	37.8
E13	30.5	31.3	32.4	33.1	33.7	34.3	37.7	39.3

Light shading indicates one side of the channel is experiencing overbank flow. Dark shading indicates both sides of the channel are experiencing overbank flow.
Water surface elevations are provided in feet above NAVD 88.
ELJ = engineered logjam

Table D-6. Water surface elevations from the updated HEC-RAS hydraulic model for the Skagit Environmental Bank project site under proposed conditions.

Cross-Section	Growing Season	Intermediate Flow 1	Intermediate Flow 2	Intermediate Flow 3	Intermediate Flow 4	2-Year Flow	25-Year Flow	100-Year Flow
Nookachamps Creek								
0	22.3	24.0	25.6	26.6	27.5	28.7	33.6	34.9
1	22.7	24.5	26.2	27.3	28.2	29.5	34.5	35.7
2	22.8	24.6	26.4	27.6	28.4	29.6	34.6	35.9
3	22.8	24.7	26.5	27.7	28.5	29.7	34.7	36.0
4	22.8	24.7	26.5	27.7	28.5	29.7	34.6	35.7
5	22.9	24.8	26.6	27.8	28.7	29.9	35.0	36.6
6	23.0	24.8	26.6	27.8	28.7	30.0	35.1	36.6
7	23.0	24.8	26.6	27.8	28.7	30.0	35.1	36.6
8	23.0	24.9	26.6	27.8	28.7	30.0	35.1	36.6
9	23.0	24.9	26.6	27.8	28.7	30.0	35.1	36.6
10	23.0	24.9	26.6	27.8	28.7	30.0	35.1	36.6
ELJ 1								
11	27.2	27.4	27.6	28.0	28.8	30.1	35.1	36.7
12	27.2	27.4	27.6	28.0	28.8	30.1	35.1	36.7
13	27.2	27.4	27.6	28.0	28.9	30.2	35.2	36.7
14	27.2	27.4	27.7	28.2	29.0	30.3	35.2	36.7
15	27.2	27.4	27.7	28.2	29.0	30.3	35.2	36.7
16	27.2	27.4	27.7	28.2	29.1	30.3	35.2	36.7
18	27.2	27.4	27.8	28.2	29.1	30.3	35.2	36.8
18a	27.3	27.6	28.1	28.5	29.2	30.4	35.2	36.8
18b	27.6	28.1	28.6	29.1	29.6	30.6	35.3	36.9
19	28.2	28.9	29.5	29.9	30.3	31.1	35.4	37.0
East Fork Nookachamps Creek								
E1	23.9	24.7	26.7	27.9	28.8	30.1	35.1	36.7
ELJ 3								
E2	26.4	27.5	28.6	29.5	30.0	30.7	35.2	36.7
E3	26.4	27.5	28.7	29.5	30.1	30.8	35.2	36.7
ELJ 2								
E4	26.6	27.8	29.0	29.7	30.3	30.9	35.2	36.8
E5	26.6	27.8	29.0	29.8	30.3	31.0	35.2	36.8
E6	26.7	27.9	29.1	29.9	30.4	31.1	35.2	36.8
E7	26.9	28.4	29.7	30.5	31.0	31.7	35.4	36.9
E8	27.0	28.6	30.0	30.8	31.4	32.0	35.7	37.1
E9	27.3	28.9	30.2	31.0	31.6	32.3	36.0	37.4
E10	28.3	29.3	30.5	31.2	31.8	32.4	36.1	37.5
E11	29.5	30.3	31.3	31.9	32.3	32.8	36.2	37.6
E12	29.9	30.8	31.7	32.3	32.8	33.3	36.4	37.8
E13	30.5	31.3	32.3	33.0	33.6	34.2	37.5	39.1

Light shading indicates one side of the channel is experiencing overbank flow. Dark shading indicates both sides of the channel are experiencing overbank flow.
Water surface elevations are provided in feet above NAVD 88.
ELJ = engineered logjam

Response D-13

In order to evaluate the influence of the proposed project on the occurrence of overbank flows during moderate-sized events, four additional flow scenarios, between the growing-season flow and the 2-year flow (with no Skagit River backwater influence) were included in the model. Results from the hydraulic model are presented in Tables D-5 and D-6. Overbank events are shown in Tables D-5 and D-6 by shading, with light shading indicating overbank flow on one side of the channel, and dark shading indicating overbank flow on both sides of the channel. The only location in which overbank flow occurs under the proposed conditions and does not occur under the existing conditions is cross-section E8 during the intermediate flow 1scenario. This event is associated with flooding of the left bank only. The left bank at cross-section E8, although not part of the proposed wetland mitigation bank, is owned by Clear Valley Environmental Farm, LLC and Clear Valley Environmental Farm II, Inc. The largest change in water surface elevation in cross-sections E9 through E10 is 0.2 feet when comparing current conditions to proposed conditions.

Figure D-9 shows East Fork Nookachamps Creek in the vicinity of cross-section E10, approximately 2,455 feet upstream of the project site boundary. The incised channel conditions evident in the photograph are typical of East Fork Nookachamps Creek downstream of cross-section E11. As a result of the confined and incised channel geometry, it is clear that changes in water surface elevation on the order of a few inches that occur below the top of the stream bank will have little influence on flooding conditions.

Previous modeling results have shown that the proposed project ELJs do not result in an increased occurrence of flooding during high-magnitude events and when the site is influenced by backwater in the Skagit River. These results indicate that the proposed project ELJs would not result in an increased occurrence of flooding during low- to moderate-flow events.

Figure D-9. Incised channel of East Fork Nookachamps Creek in the vicinity of cross-section 10, approximately 2,455 feet upstream of the project site boundary, looking downstream (September 26, 2006).

Response D-14

On September 26, 2006, Herrera conducted a survey of East Fork Nookachamps Creek between the State Route 9 bridge and the east boundary of the project site in order to identify conveyance structures. No conveyance structures were located during this survey. The lack of conveyance structures on tax parcel 24534 was confirmed by Tim Purcell, who leases the property for agricultural purposes (Purcell 2006). Upstream of tax parcel 24534, the land adjacent to East Fork Nookachamps Creek is a wetland mitigation site owned by the Washington Department of Natural Resources.

Response D-15

After updating the HEC-RAS model, Herrera determined that only three logjams (Figure D-2) will be needed to reconnect the Nookachamps system to its floodplain. The locations of these logjams will not affect the characteristics of drainage to Barney Lake or the Mud Creek drainage because the logjams are upstream of these confluences. There will be no offsite impacts in upstream sections of Nookachamps Creek. Offsite impacts associated with ELJ 2 are detailed in Responses D-12 through D-14.

Responses to Comments from Friends of Skagit County (August 25, 2006)

Response D-16

The grading plan (Figure D-1 in Response D-1) uses the site's natural drainage patterns to dictate the surface water flow paths. All surface water patterns south of East Fork Nookachamps Creek flow westerly toward Nookachamps Creek or northerly toward East Fork Nookachamps Creek. Areas north of East Fork Nookachamps Creek drain away from adjacent agricultural properties as shown on the grading plan. No surface water runoff poses any threat to agricultural properties adjacent to the site. The site regrading will increase the existing wetland areas, resulting in greater flood storage capacity when there are no backwater conditions in the Skagit River. This will help to reduce downstream flooding on Nookachamps Creek and increase the drainage rate in upstream reaches of Nookachamps Creek, East Fork Nookachamps Creek, and Mud Creek.

The project will result in a net benefit for listed fish species. High-flow back channels will provide rearing, refuge, and migration habitat for salmonid species. A restored floodplain will increase stream cover, reducing daily maximum temperatures, and increase the delivery of wood and organic matter to support a multitude of aquatic species. In addition, bald eagle habitat as well as the habitat of other bird species will be enhanced by the creation of more perch sites, an increase in fishing opportunities, and increased privacy with a forest cover.

A biological assessment was prepared for the proposed project (Herrera 2005) in accordance with Section 7(c) of the federal Endangered Species Act of 1973. The purpose of this assessment was to determine whether any protected species are present within the project area and whether they or their habitats will be adversely affected by the proposed wetland mitigation bank. In September 2006, a letter of concurrence was received from Ken S. Berg, manager of the Western Washington Fish and Wildlife Office of the U.S. Fish and Wildlife Service indicating that adequate actions will be used to protect listed species under the Endangered Species Act (Berg 2006). A similar letter was received from the Seattle District, Corps of Engineers in April 2006, concluding that this project may affect, but is not likely to adversely affect Puget Sound chinook or its critical habitat (Walker 2006).

Response D-17

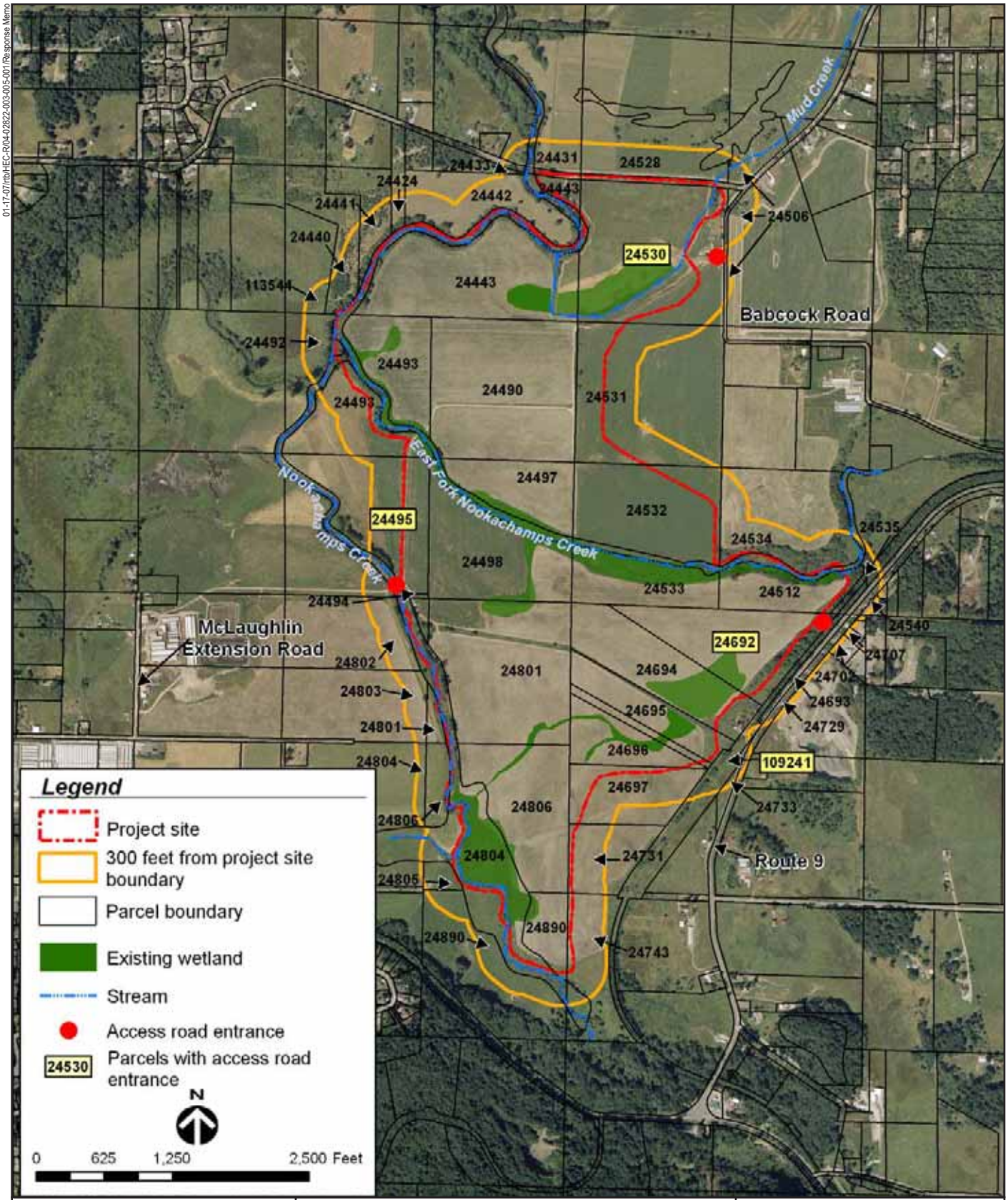
The entire project site is within the 100-year floodplain; therefore, any modification in the location of the floodplain would have no effect on the project or project design. Stockpile 4 shown on Figure D-2 (Response D-1) is located outside the current 100-year floodplain. It is expected that roughly half this area will be used for stockpiling; therefore, there is flexibility to decrease the size of this stockpile area if the size of the 100-year floodplain is increased.

Response D-18

See Response D-1 for information related to the removal of spoils. In addition, the only issue related to hazardous materials on the site would be associated with vehicle refueling during grading activities. Specific best management practices will be used and detailed in construction drawings to prevent any spills into adjacent wetlands or streams on the project site. Historically, this site has always been used for agricultural purposes; therefore, hazardous materials are not expected to be present. All fueling and maintenance of farm vehicles and equipment has occurred within the dairy farm facilities, which are located outside the boundary of the project site.

Response D-19

The grading permit submitted to Skagit County included a spreadsheet detailing 20 parcels that will be affected by this project. The locations of these parcels are shown in Figure D-10.



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Date: January 2007

PARCELS ON AND ADJACENT TO THE PROJECT SITE

Application for:

SKAGIT ENVIRONMENTAL BANK
SKAGIT COUNTY, WASHINGTON

Applicant:
CLEAR VALLEY ENVIRONMENTAL FARM, LLC

SCALE see above

FIGURE D-10

Responses to Comments from Skagit Conservation District (August 23, 2006)

Response D-20

Analysis that addresses both of these issues has already been performed. During flood events, the water surface elevation in the floodplain is controlled by the Skagit River. The hydrologic and hydraulic basis of design (H&H) report (Herrera 2006) describes the results of the analysis documenting that the water surface elevation is unaffected (both within and outside the boundary of the project site by the proposed changes under all flood conditions on the Skagit River. Because it is the water surface elevation that establishes the ground water recharge rate, ground water will not be adversely affected during these times. During the low-flow summer, ground water is discharged to the streams throughout the project site. The H&H report demonstrates that more than 300 feet away from the streams, the ground water elevation is established by large-scale regional factors (e.g., the elevation of Clear Lake and Beaver Lake). Therefore, the project will have no impact on the ground water elevation more than 300 feet from the streams. The only impact on the ground water elevation due to activities associated with the wetland mitigation bank will be near East Fork Nookachamps Creek on the east end of the Clear Valley Farm property. This impact is discussed in detail in the H&H report and detailed further in Responses D-12 through D-14. Additionally, ground water elevations will be monitored to verify that the small, limited effect predicted by the H&H report is accurate.

Response D-21

Response D-1 details the full extent of grading activities and volumes in Phases I and II. It is the intent of the project design that no more grading should occur after Phase II; however in order to remain flexible in terms of the design and ensure that the project succeeds in providing adequate wetland hydrology, additional grading may be required. Any additional grading in Phase III would be significantly less than that in Phase II, but the exact quantities would be impossible to calculate at this point. This material would be added to stockpile 4, which is located outside of the 100-year floodplain as shown in Figure 4.

Response D-22

Herrera recommends a two-step approach for preventing soil erosion while trying to establish a thriving native plant population. It is projected that the project site will be reseeded after grading activities in mid-September. A mixture of native grass seed (explained in the next paragraph) and a rapid-germinating ground cover such as REGREEN® will be applied to the site in both wetland and upland areas. The benefit of adding REGREEN, a wheat/wheatgrass sterile hybrid, is that it germinates in 6 days and will form a temporary cover crop in less than a month. This will protect against soil erosion and weed invasion while allowing the native grass seed to become established.

Herrera recommends seeding the wetland areas with a mixture of three native wetland grasses: tufted hairgrass (*Deschampsia cespitosa*, a facultative species), meadow barley (*Hordeum brachyantherum*, a facultative wetland species), and tall mannagrass (*Glyceria elata*, a facultative wetland species). Tall mannagrass is included in the seed mix to provide plant diversity as well as cover. Two native grasses are recommended for seeding the upland buffer: California brome (*Bromus carinatus*, an upland species) and blue wildrye (*Elymus glaucus*, an upland species). All of these plants have a demonstrated seeding track record and will germinate within 7 to 21 days.

The committee states that one to two months of native grass growth would not be sufficient to protect soil, however it should be noted that when the site was being operated as a dairy farm, the Clear Valley fields would remain bare throughout the winter. This was the result of corn harvesting activities. Soil erosion and sediment transport to Nookachamps Creek was a common feature and aggressive seeding strategy would provide a far greater benefit when compared to past land use activities.

Response D-23

Fill material will come from excavations associated with the ELJ construction and the earthen berms adjacent to the drainage ditches. These berms contain material originating from the initial excavation of the ditches.

While the U.S. Army Corps of Engineers has decided it has jurisdiction over the 6,400 linear feet and 7 acres of ditches, the wetland habitat associated with the ditches has an extremely low functional value. Nonnative reed canarygrass (*Phalaris arundinacea*) lines the ditches, choking out any native vegetation. In addition, the ditches are not passable by fish.

There will be no need to mitigate the impacts on the ditch wetlands because the proposed project will replace the ditches with high-flow back channels within a palustrine wetland habitat that will provide essential off-channel fish habitat fish which is of a high functional value. Therefore, there will be no loss of wetland habitat. These high-flow back channels will provide fish access to emergent plant communities during the winter season. Tree and shrub plantings along water courses will reduce the water temperatures in the summer.

Response D-24

Clear Valley Environmental Farm, LLC and Clear Valley Environmental Farm II, Inc. do not propose to develop any parcels adjacent to the Skagit Environmental Bank. The applicant does intend to sell portions of the Clear Valley Farm property as stated in Response C-1. Any issues related to septic effluent resulting from a proposed development are the responsibility of the new property owner. New developments on sold parcels will be subject to county, state and federal regulations in a separate permitting process filed by the new property owner and independent of the Skagit Environmental Bank.

Response D-25:

Impacts on Swan and Geese Habitat

It is acknowledged that the Skagit Environmental Bank will be transforming areas of row crops that have historically been used by water fowl as foraging areas. However, because of the abundant farming in the Skagit watershed (over 75,000 acres) and the limited amount of winter roosting refuge habitat in the area, this transformation is expected to result in net benefits for water fowl. According to the previous landowner, Loren Korthuis, a large trumpeter swan population roosts overnight on Barney Lake during the winter, and the project design will increase habitat similar to that of Barney Lake (a mix of shrub and emergent species). In addition to crop lands, trumpeter swans prefer large, shallow wetlands 1 to 3 feet deep with a diverse mix of emergent vegetation and open water. This type of habitat, which will be provided as part of the project design, will support a rich variety of submergent (underwater) plants used for food, such as spatter-dock (*Nuphar luteum*) and broad-leaved pondweed (*Potamogeton amplifolins*). These species are preferred by trumpeter swans, along with emergent plants such as arrowhead (*Sagittaria latifolia*), burreed (*Sparganium angustifolium*), bulrush (*Scirpus* spp.), and sedges (*Carex* spp.). Geese are found in similar habitat types and will also benefit from the more diverse landscape provided by the project design.

Bald Eagle Management Plan

Before construction, a site-specific bald eagle management plan will be requested from the Washington Department of Fish and Wildlife (WDFW) Bald Eagle Management contact for Skagit County, Julie Stofel. Typical turnaround time is 1 month. The WDFW representative will prepare the site-specific plan based on information provided to WDFW by the project proponents, including the location of the bald eagle nest (as mentioned in the biological assessment) on the project site, the locations of large trees, building permits, and project plans. The bald eagle management plan will require the project activities not to adversely affect any trees.

A biological assessment was prepared for the proposed project in accordance with Section 7(c) of the federal Endangered Species Act of 1973 (Herrera 2005) The purpose of this assessment was to determine whether any protected species are present within the project area and whether they or their habitats will be adversely affected by the proposed wetland mitigation bank. In September 2006, the applicant received a letter of concurrence from Ken S. Berg, Manager of the Western Washington Fish and Wildlife Office of the U.S. Fish and Wildlife Service indicating that adequate actions will be used to protect listed species under the Endangered Species Act (Berg 2006).

Ken Berg stated the following:

> "The proposed action will not result in the loss or modification of suitable nesting, roosting, or perch tree habitat for bald eagles. There is one active bald eagle territory adjacent to Barney Lake at the confluence of the East Fork and mainstem Nookachamps. An equipment access route and new side channel site will be located just across the creek from the nest site (within 0.1 mile). Although the bald eagles that occupy this territory are accustomed to agricultural operations

during the nesting season, construction activities will be close to the nest, are stationary, and are longer in duration than farming activities such as mowing. Therefore, the site will be monitored by a qualified biologist to ensure that project-related activities do not cause disturbance to the eagles. Construction will be sequenced such that operations in the vicinity of the nest will occur late in the nesting season and will be halted if the eagles show signs of agitation. Because the nest site will be monitored and activities adjusted to avoid disturbance, effects to nesting bald eagles are considered insignificant.

"Bald eagles forage along the Nookachamps and Skagit River all year. Since the water quality is often poor in Nookachamps Creek, the Skagit River provides the best foraging opportunities during the summer. Because foraging opportunities are limited in the action area, construction activities will be conducted during daylight hours, and sound levels associated with pile driving and/or equipment operations will not reach harmful levels, effects to foraging bald eagles are considered insignificant."

Response D-26:

The project site occupies land on both the north and south side of the East Fork Nookachamps Creek, and to the east of Nookachamps Creek. The county road access will be on parcel 24530 (see Figure D-10 in Response D-19), at 22344 Babcock Road. This access will serve the north side of East Fork Nookachamps Creek. A secondary county road access will be established at 14067 McLaughlin Extension Road on the west Side of Nookachamps Creek. Private bridge crossings do exist, but may not be suitable for heavy equipment. The only point of access for the southern portion of the project site that does not require crossing either creek is from State Route 9 via parcels 109241 and the adjacent parcel P24692 (Figure D-10). Both parcels are owned by Clear Valley Environmental Farm, LLC and Clear Valley Environmental Farm II, Inc.

Current site entrances (proposed project site entrances) to McLaughlin Extension Road and Babcock Road have been routinely used in the past for farm machine equipment and are in good condition. These entrances are open to the road with little to no tall vegetation allowing for sufficient line of sight to on coming traffic. A Skagit County Access Permit was submitted for these two site entrances.

A third proposed access road, along State Route 9, as pictured in Figure D-11, has been used in the past to provide access to the power line easement. Since this is a state road, a Washington State Department of Transportation (WSDOT) Application for Access Connection was submitted to the Northwest Regional Office in accordance with RCW 47.50 Laws of Washington State to have an approved permit prior to constructing an access connection to a State Highway. WSDOT will detail the minimum requirements necessary to provide a safe entrance. At a minimum, vegetation will be cleared to provide an adequate line of sight and the access road width will be increased. Since no material will exported offsite as detailed in Response D-1, it is anticipated that vehicle traffic entering and exiting the project site will have very minimal impacts to traffic congestion along any of the roads adjacent to the proposed site entrances.

Figure D-11. Photo identification of access point at MP 50.5, State Route 9, Mount Vernon, Washington.

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SECTION E
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Responses

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MEMORANDUM

TO: Ms. Betsy Stevenson, AICP
Planning & Development Services
Skagit County

CC: Clear Valley Environmental Farm LLC

FROM: Brent Carson

DATE: November 28, 2006

RE: Response to September 15, 2006 Request for Additional Information for Grading Permit BP06-0669

I am pleased to provide responses to several of the issues raised in the public comment letters received by the County during the comment period for the Notice of Development.

RESPONSE E-1

ISSUE 1: Does the Project comply with the Skagit County Comprehensive Plan and the requirements of the Growth Management Act?

ANSWER: Yes.

A few commenters questioned the project's compliance with the County's comprehensive plan policies. We take exception to these comments and firmly believe that the project complies with these policies.

The County must first recognize the critical relationship between the zoning code and the Comprehensive Plan. Where a project is permitted outright within a zone but the Comprehensive Plan contains policies suggesting that the use may not be appropriate, the zoning code, not the Comprehensive Plan, controls. The Comprehensive Plan is only a "blueprint" for planning but is not used to make specific land use decisions. *Citizens for Mount Vernon v. City of Mount Vernon*, 133 Wn.2d 861, 873-74 (1998). In *Mount Vernon*, there was a conflict between the zoning code, which prohibited the use in question, and the Comprehensive Plan, which contained policies promoting that use. The Supreme Court found that when such a conflict occurs, the zoning code controls:

> Since a comprehensive plan is a guide and not a document designed for making specific land use decisions, conflicts surrounding the appropriate use are resolved in favor of the more specific regulations, usually zoning regulations. A specific zoning ordinance will prevail over an

> inconsistent comprehensive plan. If a comprehensive plan prohibits a particular use but the zoning code permits it, the use would be permitted. These rules require that conflicts between a general comprehensive plan and a specific zoning code be resolved in the zoning code's favor.

133 Wn.2d at 873-74 (emphasis added).

Under the *Mount Vernon* decision, which remains controlling law, even if Skagit County's comprehensive plan contained policies adverse to the use of the site as a mitigation bank, which we do not believe it does, the proposed project must be permitted because it is expressly authorized by the zoning code.

Moreover, a detailed review of the Comprehensive Plan policies reveals a much different conclusion than the one reached by commenters regarding the proposed use of this property for a wetland restoration project and its relationship to the Comprehensive Plan policies.

Looking at the Comprehensive Plan as a whole, it cannot be said that the proposed Bank is inconsistent with the Plan. The Comprehensive Plan balances several objectives including encouragement of economic development, protection of natural resource lands (including agriculture, forestry and minerals), and protection and enhancement of critical areas including wetlands and aquatic resources. While there are specific policies to protect prime agricultural lands (Policy 5A-3.1) there are also policies to restore and enhance wetlands (Policy 13A-5.5). While agricultural production is the highest priority use for designed agricultural resource lands (Natural Resource Conservation Element - Objective 6), the natural resource policies recognize that other uses will occur on such lands and recommend mitigation by the newer use (Policy 5A.6.2).

The policies of the Comprehensive Plan, which present sometimes competing objectives, are reflected in the adopted provisions of the zoning code. The Bank is proposed to be located in the Ag-NRL zone. For the Ag-NRL zone, specific uses are listed as permitted outright, others are prohibited, and others are identified as needing special use permits. This zone is designed primarily for farming activities. SCC 14.16.400(100). However, agriculture and agriculture related uses and facilities are not the only uses that are permitted outright in this zone. SCC 14.16.400 (2) (p) states that "water diversion structures and impoundments related to resource management and on-site wetland restoration/enhancement projects" are also an outright permitted use. Thus, the Bank and agricultural uses are each permitted uses in this zone. This confirms that the balancing of the policy objectives of the Comprehensive Plan were resolved in favor of allowing this use in areas designated primarily for natural resource uses.

To the extent that public comments on this application may be interpreted as identifying deficiencies in the zoning regulations, the County may not consider such comments as part of this project-level review. SCC 14.06.030.

The policies in the Comprehensive Plan adopted to meet Object 3 of the Natural Resource Conservation Element, namely maintenance of agricultural production on designed agricultural resource lands, focus primarily on precluding incompatible residential development, not on uses such as that proposed by Clear Valley, the restoration of areas that were formerly wetlands. Policies 5A-3.4, 5A-3.5, 5A-3.6 and 5A-3.7 all address residential development. There are, in fact, no policies which prohibit or discourage habitat and wetland restoration projects in areas with agricultural resource lands. In contrast, Policy 13A-5.5 states that wetlands should be restored without limiting the type of existing land uses on those properties which were formerly wetlands.

Clear Valley does not consider restoration of wetland areas as "incompatible" with farming. Clear Valley has carefully selected the bank site area and provided buffers around the entire project area. There are specific attributes of this property, and of the design and placement of the mitigation bank within this property, that will mitigate any conflicts between the ongoing agricultural activities of the neighboring agricultural concerns and the mitigation bank.

Clear Valley has also chosen to voluntarily pursue means of mitigating for its impact on agricultural lands by imposing conservation easements that would preclude incompatible residential development. Clear Valley is also committed to funding acquisition of development rights on lands not now owned or controlled by Clear Valley in order to achieve no net negative impact on agriculture. The details of this voluntary mitigation proposal are presented above in Section C-7.

Public comments regarding compliance with the requirements of the Growth Management Act ("GMA") are misplaced. GMA's requirements are implemented by the County through its adoption of the Comprehensive Plan and its development regulations. This project must be reviewed in light of those regulations, not the GMA itself.

The County's zoning code is a development regulation under GMA, which must be consistent with the County's Comprehensive Plan. The existing zoning code provisions for the Ag-NRL zone have never been found to be inconsistent with the Comprehensive Plan or the GMA despite a long history of challenges to the County's comprehensive land development regulations. As such, the legislative determination of what uses are allowed in the Ag-NRL zone is conclusively in compliance with the County's Comprehensive Plan and GMA.

Finally, some of the comments cite to the recent Washington Supreme Court decision *Lewis County v. Western Washington Growth Management Hearing Board*, 157 Wn.2d 488, 139 P.3d 1096 (2006) in support of a position that the project's potential loss of agricultural lands is inconsistent with GMA. Reliance on the *Lewis County* case is misplaced.

Lewis County concerned a challenge to adoption of a zoning code and regulation of agricultural lands pursuant to the GMA. In *Lewis County*, the Court found that the zoning code itself did not comply with GMA because it did not adequately conserve agricultural lands.

Unlike the *Lewis County* case, the situation presented by Clear Valley's application is completely different. While the *Lewis County* case involved a challenge under GMA to the validity of the zoning code, Clear Valley's application involves an individual permit application filed pursuant to an adopted zoning code already established as being in compliance with the GMA. Review of a project specific application cannot be used to reassess the appropriateness of zoning regulations:

> During development permit review, the County shall not re-examine alternatives to or hear appeals from fundamental land use planning choices made in the Comprehensive Plan or adopted development regulations, except for issues of plan or code interpretation. If during development permit review deficiencies are identified in the Comprehensive Plan or in development regulations, development permit review shall continue under existing plans and regulations and any identified deficiencies shall be docketed for consideration on at least an annual basis, consistent with the provisions of Chapter 14.08 SCC.

SCC 14.06.030(2). We understand that the County is, in fact, now considering potential changes to its development regulations relating to wetland restoration projects in agricultural lands. That is the proper forum to address the issues being raised by these commenters. However, because this project application is vested to the existing regulations, the County cannot, during this project review, reexamine or reconsider the adopted regulations which expressly permit this use in the Ag-NRL zone.

RESPONSE E-2

ISSUE 2: Does the Project contradict federal, state and local policies and codes on farmland protection?

ANSWER: No.

The County's review of this project is limited to determining whether it complies with applicable County adopted plans and development regulations. SCC 14.06.030. State or Federal policies regarding farmland protection are not relevant to the County's permit decision.

This project's consistency with the comprehensive plan is discussed in response to Issue 1 above. The proposal is an outright permitted use in the AG-NRL zone and, as such, complies with the zoning code.

RESPONSE E-3

ISSUE 3: Does the Project set a precedent that existing rural areas with positive agricultural production are "expendable" to mitigate for the development of urban wetlands?"

ANSWER: No.

This Project will not set any precedent for using other farmland for future wetland mitigation banks. Approval of the proposed wetland mitigation bank does not necessitate or facilitate approval of future banks. Future mitigation banks, if any, will be subject to separate approval processes and will be approved, or not, on their own merit.

RESPONSE E-4

ISSUE 4: Does the application ignore SEPA and other requirements regarding water quality and quantity?

ANSWER: No.

A few commenters claim that SEPA has been ignored. These groups and individuals misunderstand the process being followed by the County as mandated by County code and state law. The County is considering water quality and quantity impacts through SEPA and will make a threshold determination before approval of the grading permit for this project. Likewise, the State Department of Fish and Wildlife cannot issue a Hydrologic Project Approval before the SEPA determination has been made.

RESPONSE E-5

ISSUE 5: Does the size of the proposal itself mandate preparation of an EIS.

ANSWER: No.

One commenter suggested that the size of the project itself necessitates an EIS. The law states otherwise.

An Environmental Impact Statement can only be required if there are probable significant adverse impacts. Moreover, in making a threshold determination the County must take into account "mitigation measures which an agency or the applicant will implement as part of the proposal, including any mitigation measures required by development regulations, comprehensive plans, or other existing environmental rules or laws." WAC 197-11-330(1)(c) (adopted by reference in SCC 14.12.070).

The mere size of a project, cannot, alone, dictate whether an EIS is required. *Moss v. Bellingham*, 109 Wn.App. 6, 31 P.3d 703 (2001) In *Moss*, an application was filed for a large residential subdivision, a use permitted in the zone. The city issued a Mitigated Determination of Non-Significance for this project. A group appealed the MDNS and, in court, argued that a Determination of Significance should have been prepared because of the size of the project alone dictated preparation of an EIS. The Court disagreed:

> Appellants rely heavily on *Norway Hill Preservation and Protection Association. v. King County Council* in arguing that the City's decision to issue a DNS for the Birch Street project was clearly erroneous. They argue that under *Norway Hill,* a large scale subdivision such as the Birch Street project has per se significant environmental impacts

> requiring an EIS. . . . Though it is quite understandable that local citizens would find it hard to believe that a large subdivision has "no significant impact" and does not require an EIS, the law is on Pennbrook's side. First, appellants' reliance on *Norway Hill* for the proposition that a large subdivision automatically requires an EIS is misplaced. . . [W]hen *Norway Hill* was decided in 1976, the MDNS process did not yet exist. The MDNS has its roots in *Hayden v. City of Port Townsend.* In *Hayden,* the Washington Supreme Court upheld a DNS issued after officials worked with the project proponents and government agencies to remedy environmental deficiencies in the proposed plan.. . . . Four years after *Hayden,* the MDNS process was "embraced by the SEPA Rules and reined in by process requirements" with the promulgation of WAC 197-11-350. . . . [T]he MDNS has found favor with courts and decision makers as "conducive to efficient, cooperative reduction or avoidance of adverse environmental impacts.". . . Therefore, to the extent that *Norway Hill* can be read to mandate an EIS for every large subdivision, regardless of attempts to mitigate the impacts prior to permitting, it is no longer good law.

Thus, the focus on Skagit County's SEPA review must be on an evaluation of the adverse environmental impacts, and not simply on project size. An assessment of those impacts, in light of the voluntary mitigation and in light of the code requirements which this project must meet, should back the County to issue a determination of non-significance.

RESPONSE E-6

ISSUE 6: Is the County SEPA checklist inadequate and does it substitute for the SEPA Project?

ANSWER: No.

The commenter appears to misunderstand the SEPA process. The Environmental Checklist does not substitute for the SEPA process. It is one of the documents required to be completed by an applicant to disclose environmental impacts of the project. Supplemental information has now been provided by the applicant, in response to requests from the County.

RESPONSE E-7

ISSUE 7: Is an Environmental Impact Statement required for this project because of its potential impacts to farmland and to the farming economy?

ANSWER: No.

A few commenters allege that the conversion of "prime agricultural land" itself (as opposed to potential drainage or flooding impacts from the project) should be considered a significant

adverse environmental impact, under the land use element of the environment, triggering the need for an Environmental Impact Statement. Other commenters argue that an EIS is required because of potential "irreversible damage" to the farming economy. These comments misunderstand SEPA and the County's role in evaluating the environmental impacts of a project that is permitted outright.

The Bank is proposed to be located in the Ag-NRL zone. As noted above in response to Issue 1, while this zone is designed primarily for farming activities, among the uses permitted outright "are water diversion structures and impoundments related to resource management and on-site wetland restoration/enhancement projects." SCC 14.16.400 (2) (p).

The County defines a "permitted use" as "any use authorized or permitted alone or in conjunction with another use in a specified zone and subject to the limitations of the regulations of such zone. " SCC 14.04.020. There are no special permits or other special criteria established for creating a wetland restoration/enhancement project in this zone. Its establishment is simply permitted outright.

By providing clear code language authorizing Clear Valley's proposed use in this zone, the County has conferred specific rights to Clear Valley which must be recognized.[1] By adopting the current zoning provisions, the County already chose what uses would be permitted outright, prohibited, or only allowed under special circumstances. It has acknowledged that replacing one permitted use (agriculture) with another permitted use (a wetland restoration project) cannot, by itself, create an adverse land use impact.

If establishment of wetland restoration/enhancement projects in the Ag-NRL zone, in place of another permitted were considered a potential adverse land use environmental impact, those impacts were already addressed and resolved through the County's SEPA review which it conducted prior to adoption of the zoning code. The County cannot now consider replacement of one permitted use (agriculture) with another permitted use (a wetland restoration/enhancement project) a significant adverse environmental impact.

This is not to say that establishment of an outright permitted use cannot be evaluated for potential impacts to other elements of the environment (e.g. air, water, noise etc.). What this does mean, however, is that the fundamental choices considered for land uses that may or may not be established in each zone were already evaluated for their land use impacts. Replacing one permitted use for another

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[1] In contrast to Clear Valley's situation, if a property owner proposes to develop a use which is not permitted in the zone, the property owner has no legal right to such development. *Dykstra v. Skagit County*, 97 Wn.App. 670, 985 P.2d 424 (1999). In *Dykstra*, the court held: "[I]n an Agricultural District, residential use is accessory to the principal use, not an outright permitted use. Dykstras intend to use the lots for residential purposes, a use which is not permitted except in conjunction with agricultural uses as their property is now zoned. This further demonstrates the importance of considering the zoning code in its entirety." The court upheld the county's denial of this use and denied Dykstra's claims for violation of his right to substantive due process.

permitted use can never, by itself, trigger a "land use" impact under SEPA.

As further explanation, consider another example. If an applicant came to the County to establish a farm within a Rural Reserve zone, and in doing so, proposed to convert existing residential properties to the farm, that would be a change from one permitted use (low-density residential use) to another permitted use (a farm). Although the purpose of the Rural Reserve zone is to "allow low-density development and to preserve the open space character of those areas not designated as resource lands" the conversion of residences to farms would not and could not be considered an adverse land use environmental impact, because farms are one of the uses listed as permitted in this zone. While SEPA review might consider other impacts to the environment from the proposed use (e.g. water, noise, air), the loss of residential development in the Rural Reserve zone and additional farms in their place, could not be considered an adverse environmental land use impact.

It appears that these comments are really asking the County to treat this project application as if it were an application for a rezone from Ag-NRL to another zone. A change from one zoning designation to another does trigger the need to consider land use impacts as an environmental impact under SEPA.[2] Again, however, where the project that is proposed is an outright permitted use, the replacement of one permitted use for another cannot constitute a land use impact to be reviewed under SEPA.

Additionally, these comments relate more to economic impacts than environmental impact. Economic impacts are not considerations addressed by SEPA. SEPA addresses impacts to the physical environment. *Indian Trail Property Owner's Ass'n v. City of Spokane*, 76 Wn.App. 430, 444, 886 P.2d 209 (1994); *West 514, Inc. v. County of Spokane*, 53 Wn.App. 838, 847, 770 P.2d 1065 (1989). Thus, even if the potential economic impacts of the project on farming are accurate, which we dispute, this is not an impact to be addressed by SEPA.

RESPONSE E-8

ISSUE 8: Should the County, in its SEPA determination, consider the cumulative impacts on agriculture from this project and other projects that have converted agricultural lands?

ANSWER: No.

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2 For example, in Moss v. Bellingham, 109 Wn.App. 6,26, 31 P.3d 703 (2001), the Court noted that "if an area designated for urban growth and residential development, as this area was, if a developer were to come in and say we want to put in a power plant, and they look for rezoning, and they look for approval of that plan, then clearly the existing SEPA process that was utilized previously is so out of line with what is being proposed that a brand new assessment from the inception and an EIS would have to be done."

A number of comment letters allege, explicitly or implicitly, that the proposed Wetland Mitigation Bank will have "cumulative impacts" that must be evaluated under SEPA. In particular, these commenters contend that, over the last few years, other organizations have converted agricultural lands to various environmental uses, producing "a cumulative negative effect on the 'critical mass' of prime farmland," and argue that SEPA review for the project should evaluate the "cumulative impact" of the project combined with those other projects.

These contentions are contrary to SEPA's legal framework. Under SEPA, a determination of non-significance should be issued if the responsible official determines that "there will be no probable significant adverse environmental impacts from a proposal." WAC 197-11-340(1) (adopted by reference Skagit County Code 14.12.070). The SEPA Rules provide that, in determining an impact's significance, "the responsible official shall take into account that a proposal may to a significant degree, "establish a precedent for future actions with significant effects." WAC 197-11-330(3)(e)(iv).[3] Thus, the SEPA Rules envision that the impacts of other projects should be taken into account for purposes of evaluating the impacts of the proposal under review only to the extent that the proposal under review establishes a precedent for future projects.

Washington case law confirms that, in the context of a threshold determination, the concept of "cumulative impacts" refers to the extent to which a proposal leads to future actions that will result in additional impacts. In *Boehm v. City of Vancouver*, 111 Wn. App. 711 (2002), a city issued a MDNS for a gas station project and citizens challenged the MDNS alleging that the city had failed to consider the cumulative impacts of the project. The court stated:

> as a general proposition, the nature of cumulative impacts is prospective and not retrospective. A cumulative impact analysis need only occur when there is some evidence that the project under review will facilitate future action that will result in additional impacts.

Id. at 720. The court held that the citizens had not identified evidence of a cumulative impact under this standard; any cumulative impacts were "merely speculative" and therefore did not need to be considered. *Id.*[4]

By definition, under the foregoing standards, the SEPA review for the Bank need not add to the Bank's impacts the impacts of prior projects that allegedly may have resulted in "conversion" of farmland. Since those prior projects have already occurred, there is no way that

---

[3] This is consistent with the SEPA Rules' provision concerning the content of environmental review: "A proposal's effects include direct and indirect impacts caused by a proposal. Impacts include those effects resulting from growth caused by a proposal, as well as the likelihood that the present proposal will serve as a precedent for future actions." WAC 197-11-060(4)(d).

[4] The court also held that the cumulative impact argument required the citizens to demonstrate that the project was dependent on subsequent proposed development. Boehm, 111 Wn. App. at 720-21.

the Bank could facilitate them. To require the SEPA review for the Bank to include evaluation of the impacts of those prior projects would constitute impermissible "retrospective" analysis.

Moreover, as noted above in response to Issue 3, the Bank does not set a precedent for using other County farmland for wetland mitigation banking. Alteration of wetlands is regulated by the County under Skagit County Code (SCC) 14.24.230 and 14.24.240. If a wetland is permitted to be altered by the County, that impact must be mitigated. Use of credits from an approved wetland mitigation bank is one of the means established by the County to "compensate for unavoidable, adverse wetland impacts associated with future development." SCC 14.24.250(f).

Under state law, use of credits from a wetland mitigation bank cannot be used as mitigation unless "all appropriate and practicable steps have been undertaken to first avoid and then minimize adverse impacts to wetlands." RCW 90.84.050. Moreover, the Department of Ecology is tasked with looking at "the functions and values of the wetland, including fish habitat, ground water quality, and protection of adjacent properties." Id. Ecology may only approve use of credits from a bank when:

> (1) The credits represent the creation, restoration, or enhancement of wetlands of like kind and in close proximity when estuarine wetlands are being mitigated;
>
> (2) There is no practicable opportunity for on-site compensation; or
>
> (3) Use of credits from a bank is environmentally preferable to on-site compensation.

Id.

For SEPA purposes, development of the Bank would not set a precedent for future development of other mitigation banks. Commenters suggesting such precedent offer no explanation as to how approval of the Bank will "facilitate future action that will result in additional impacts" (*Boehm* at 720) such that the Bank's SEPA review would need to include evaluation of the impacts of future projects.[5]

As a factual matter, there is no causal connection whatsoever between development of the Bank and development of future mitigation banks. The Bank's proposal does not include development of mitigation banks elsewhere in Skagit County, nor does the Bank have any plans for development of such banks. Nor does the approval of the Bank's proposal necessitate or facilitate approval of future banks. Future mitigation banks, if any, will be subject to separate approval processes and will be approved, or not, on their own merits. If the commenters' approach to cumulative impacts were correct, the SEPA

[5] SPF's comment letter cites to page 20 of the Bank's prospectus, but the prospectus simply references the Bank's proposed geographic service area; nothing in the Bank's prospectus supports the contention that the Bank would set a precedent for future mitigation banks.

review for every residential plat would have to be evaluated in consideration of the cumulative impacts from all future residential plats. This is simply not the law. In this situation, any alleged cumulative impacts resulting from development of future mitigation banks are "merely speculative" and the SEPA review for the Bank need not consider such impacts.

In sum, under applicable law, the SEPA review for the Bank need not evaluate the impacts of prior conservation projects or the impacts of future mitigation banks elsewhere in Skagit County.

RESPONSE E-9

ISSUE 9. Is the County required to evaluate impacts associated with potential future development on other acreage purchased by Clear Valley as it considers the environmental impacts from the proposed Bank?

ANSWER: No.

A number of commenters suggest that environmental review must occur now regarding the entire acreage owned by the applicant. However, these allegations are not supported by SEPA or the case law interpreting SEPA.

The application establishes that, other than the wetland mitigation bank, there are no proposals for development of the subject property at this time. The property owner has stated that other portions of the property will be conserved as wetland or in farm uses, with the exception of a portion of the property which may have future development potential for a large lot residential project. Thus, the only issue is whether this potential future residential development is required, under SEPA, to be evaluated in the same environmental review process as the Bank. The following review of SEPA regulations and case law establishes that the environmental review of the wetland mitigation bank does not need to consider potential future residential or other development unrelated to the Bank.

SEPA regulations establish the standard for when proposals are related to each other closely enough to be, in effect, a single course of action such that they are required to be evaluated in the same environmental document. WAC 197-11-060 (3)(b) (adopted by reference in SCC 4.12.020) establishes a two part test for the requisite relationship of proposals:

> (b) Proposals or parts of proposals are closely related, and they shall be discussed in the same environmental document, if they:
>
> (i) Cannot or will not proceed unless the other proposals (or parts of proposals) are implemented simultaneously with them; or
>
> (ii) Are interdependent parts of a larger proposal

> and depend on the larger proposal as their justification or for their implementation."

The proposed Bank and the potential future residential development, while both proposed for parts of the same total acreage, do not meet the definition in WAC 197-11-060 (3)(b) of proposals that are so closely related that they must be discussed in the same environmental document.

The wetlands bank and the potential future residential project do not meet the first prong of the above test, (b)(i), because the two proposals are completely independent. Each project can proceed without the other. SEPA's concern with looking at two proposals separately in this prong of the test is the coercive effect that proceeding ahead with one proposal or segment of a proposal may have on another. That is, if one proposal will make the second project a foregone conclusion, then it is appropriate that SEPA review of both proceed together. That is not the case with the wetlands bank and future potential residential development through a Long Conservation and Reserve Development (Long CaRD). If and when a Long CaRD is proposed, it will be reviewed independently under SEPA. Its approval or denial has not effect on the current wetland mitigation banking proposal.

By contrast, the type of projects that are so closely related that they must be discussed in the same environmental document was addressed in the case of *Merkel v. Port of Brownsville, 8 Wn. App. 844 (1973).* In *Merkel*, the proposed project included the construction of both uplands and wetland facilities for boats where the developer proposed to proceed ahead with the upland proposal separately. However, trees cut on the uplands were to be used in constructing the marine facilities and parking on the uplands was going to serve the waterside development. The Court found that the uplands and wetlands parts of this proposal were interrelated such that one could not proceed without the other and thus, the entire development should be evaluated in one SEPA document. To the contrary, in the subject application, the Bank is entirely separate and distinct from the potential residential development. Development of the Bank in no way dictates that the residential project will be built.

The second prong of the test, (b)(ii), is also not met here because the wetland bank and the potential future residential proposals are not interdependent parts of a larger proposal. They do not depend on the larger proposal as justification for their implementation. To the contrary, the Bank and potential future residential development are entirely different types of projects, with no functional relationship and do not depend on any larger project for their implementation. The courts have taken a very narrow view of this criterion and even found that a dock and a bulkhead proposal were not interdependent parts of a larger proposal to construct a residence and sewage tank on the same property. See, *Manza v. Shorelines Hearings Board, 128 Wn.App. 1023 (June, 28, 2005) (unpublished opinion)*

In addition, SEPA review is not required at this time to consider potential future residential development because such impacts are now speculative. SEPA does not require consideration of speculative

impacts. In *Boehm v. City of Vancouver, 111 Wn.App. 711 (2002)* the Court held that a City was not required to consider cumulative impacts of unspecified future actions when the challengers failed to prove that the instant proposal was dependent on future actions or what such future actions might be. There will be ample opportunity to evaluate and mitigate the impacts of a future residential proposal at such time as the project becomes certain and the specifics of the proposal are known.

RESPONSE E-10

ISSUE 10: Should consideration of the proposed grading permit be rejected pending completion of the Wetland Mitigation Bank Certification process?

ANSWER. No.

There is no code provision that allows delaying consideration of land use permit applications for a proposed wetland mitigation bank until the County completes its role in certifying the bank by signing the Bank Instrument. Moreover, completion of the land use review process prior to consideration of the Bank Instrument is the most logical and appropriate sequence.

Wetland Mitigation Banking was expressly authorized by state law as "an important tool for providing compensatory mitigation for unavoidable impacts to wetlands." RCW 90.84.005. State law provides that wetland mitigation banks are to be certified through a signed banking instrument. RCW 90.84.040(1). A banking instrument documents the objectives and administration of the bank and describes in detail the physical and legal characteristics of the bank, including the service area, and how the bank will be established and operated. RCW 90.84.010(1). The bank instrument is to be signed by the Department of Ecology and by the local jurisdiction in which the bank is located. RCW 90.84.040(1).

Because the bank instrument must contain the physical and legal characteristics of the bank, it makes the most sense to have the final form of the instrument signed by the local jurisdiction after the local jurisdiction has reviewed the permit applications for construction of the bank, considered how the bank will be built and has been assured in those applications and through appropriate mitigation conditions, that the bank will be built in conformance with applicable local land use and environmental regulations.

Moreover, until detailed regulations are adopted that provide guidance on the elements of a local government's certification of a bank instrument, local governments can only rely upon the existing permitting process and the decisions they make on applications filed by a bank applicant, in order to assess whether to certify the bank. To make a decision on bank certification, without regard to permit decisions, would be arbitrary and capricious.

APPENDICES

APPENDIX 1

County Letter

PLANNING & DEVELOPMENT SERVICES

GARY R. CHRISTENSEN, AICP, DIRECTOR
OSCAR GRAHAM, DEPUTY DIRECTOR

PATTI CHAMBERS
Administrative Coordinator

BILL DOWE, CBO
Building Official

Clear Valley Environmental Farm LLC
ATT: Jerome Ryan
9 Teaberry Lane
Tiburon, CA 94920

September 15, 2006

REGARDING: Request for additional information for Grading Permit BP06-0669

Dear Mr. Ryan:

Skagit County Planning and Development Services has reviewed the above referenced grading permit application and has determined the application complete for review purposes. Based on an initial review and comments received during the comment period for the Notice of Development, some additional information will need to be submitted.

- The issue has been raised regarding inconsistencies within the application materials. Specifically, inconsistencies between the grading application, JARPA and SEPA checklist. The proposed phasing of the construction seems to create some confusion for the overall project scope in terms of total grading quantities along with the breakdown of grading quantities for each phase. Also please note the location for material deposition and stockpiling onsite.

- There have also been comments received regarding the scope of the project in terms of acreage and the overall property ownership. Some early submittals include the transfer of development rights from the agricultural lands to the upland area in the eastern portion of the property for future residential cluster development. Please provide information that accounts for the proposed use of the entire acreage owned by the applicant.

- Please supply a detailed analysis of the existing and future needs for this proposal in the overall regional basin. What types of resource needs are present in the service area and how are they addressed by this proposal? Please provide a detailed description of the resource needs and their location within the service area. Information generated as part of the service area determination should also be included.

- There is conflicting information regarding the number of engineered log jams that are proposed for the project. Please confirm the number and their locations.

- Water and power line easements are mentioned in information submitted prior to the application for a grading permit. Please note their location on the site map and indicate how the easements will be impacted by the proposed project.

- Please conduct a cultural resource study for the project site and submit the findings for review. You may wish to contact Rob Whitlam, State Archaeologist, at the Washington State Office of Archaeology and Historic Preservation for guidance on the scope of the study. Mr. Whitlam can be reached at (360) 586-3080.

- Nookachamps Creek has been designated as a low flow stream, subject to the requirements of Chapter 14.24.300 through 14.24.360 of the Skagit County Code. Some additional information will be required to address existing surface and groundwater characteristics. Our department will rely on Gary Stoyka, hydrogeologist from the Public Works Department, to determine the scope of the information for the proposed wetlands mitigation bank construction. Additional information may be required for the proposed residential development.

Hydrogeology Site Assessment Report Requirements
Provide by Gary Stoyka

Skagit Environmental Bank
22344 Babcock Road, Mount Vernon

Please provide the following information per the requirements of Skagit County Code 14.24.340:

• All well logs for wells/borings located within 1,000 feet of the project site that are available at the Health Department or the Washington Department of Ecology. The locations of these wells relative to the project site should be shown on a map.

• A description of the hydrogeological characteristics in the vicinity of the project site including a description of the lithology, static water level of underlying aquifers, and a depiction of the groundwater flow direction for both pre-construction and post-construction conditions shown on a map.

• Identification of potential sources of water quality impacts located within the area of hydrogeological influence of the project.

• Identification of any wells, septic systems, or other structures that could be adversely impacted by the expected change in hydrogeological conditions.

• Identification of any new groundwater discharge areas that may be created by the project, how these new discharge areas could adversely impact downgradient receptors, and any mitigation measures that may be necessary.

• Obtain a water right permit from the Department of Ecology or provide evidence that a water right permit is not required.

- The comment letters received during the comment period for the Notice of Development were forwarded to you on August 28, 2006 for review. Please submit a response to those letters which address any pertinent issues raised regarding this proposal.

- As you know, the surface waters in the project area have 303(d) listings for stream temperature (TMDL Study). Please submit information that addresses this issue as it relates to your proposal.

In addition to the above requested information, Skagit County Public Works Department has reviewed the proposal and supplied the following comments and questions. Please address the following issues in a detailed response to Planning and Development Services:

1. The H&H report uses 37'(NGVD '88) on the Skagit River as ordinary high water (OHW). This is approximately 5 to 6 feet above flood stage (28' –NAVD '29). OHW is not meant to measure flood stage, but the level perhaps of a 1 or 2 year flow. A 37' flood would be closer to a 10 year flow. Stating that the OHW is this high creates the impression that the site is inundated by backwater from the Skagit River on a routine basis.

2. Public Works needs greater details on where the excavated materials will be placed on the site. The placement of 1.4 million cubic yards of material could have a noticeable effect on flood patterns depending on where it is located in the floodplain.

3. The grade and fill numbers are somewhat inconsistent. The JARPA suggests only 65,000 cubic yards of excavation but the plans indicate considerably greater quantities. The applicant will need to show just what the fill and grade permit will be covering in greater detail.

4. Additional analysis of the East Fork Nookachamps is required. The H&H study states a 1.1 foot rise in the surface level at the boundary of the project. More information will be required to show how far upstream this backwater effect will extend.

5. The analysis states that because the localized groundwater level will not be recharged by this rise in water level in the channel, there is no adverse effect to off site properties. This analysis does not seem (to) consider the loss of capacity within the channel to convey additional flows before overtopping. Reducing the in-channel capacity means localized flooding at lower rainfalls.

6. Public Works has concerns that if the backwater effect extends far upstream, some offsite conveyances (ditch and pipe) that drain into the East Fork may be located with invert levels within the 1.1 foot rise, therefore minimizing their capabilities.

7. The applicants analysis shows an offsite impact from the Engineered Log Jam #2, located several thousand feet upstream from the property boundary. The proponent discusses installing up to 5 additional ELJ with no information on their location or potential impact. It

will need to be clearly stated that any additional in-stream modifications are not permitted under this permit.

The requested information needs to be received within 180 days of the date of this letter as required by Skagit County Code 14.06.100. Additional information may also be requested in the future as review continues. If you have any questions regarding this letter, please feel free to contact me.

Sincerely,

Betsy Stevenson, AICP
Senior Planner

APPENDIX 2

Archeological Report

CULTURAL RESOURCES ASSESSMENT
FOR THE
SKAGIT ENVIRONMENTAL BANK,
SKAGIT COUNTY, WASHINGTON

CONTAINS CONFIDENTIAL INFORMATION – NOT FOR GENERAL DISTRIBUTION

October 21, 2005

NWAA Report Number WA 05-46

NORTHWEST ARCHAEOLOGICAL ASSOCIATES, INC.
SEATTLE, WASHINGTON

CULTURAL RESOURCES ASSESSMENT
FOR THE
SKAGIT ENVIRONMENTAL BANK
SKAGIT COUNTY
WASHINGTON

Report Prepared for

Clear Valley Environmental Farm, LLC
Mount Vernon, Washington

By

Charles M. Hodges

October 21, 2005

NWAA Report Number WA 05-46

CONTAINS CONFIDENTIAL INFORMATION – NOT FOR GENERAL DISTRIBUTION

Northwest Archaeological Associates, Inc.
5418 - 20th Avenue NW, Suite 200
Seattle, Washington 98107

ABSTRACT

The proposed 776-acre Skagit Environmental Bank mitigation wetlands restoration project is located along Nookachamps Creek adjacent to the northeast boundary of the City of Mount Vernon in Skagit County. Geoarchaeological and archaeological investigations examined multiply-aged surfaces underlain by weathered glacial till and historical alluvium. No precontact archaeological resources were found; however, the remains of a trestle built by the Puget Sound and Cascade Railroad between 1911 and 1922 across Nookachamps Creek were recorded (Temporary Number SEB-1).

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INTRODUCTION

Clear Valley Environmental Farm, LLC (Clear Valley), is proposing to restore wetland functions to portions of a 776-acre parcel of dairy farmland in the lower Nookachamps Creek basin near the city of Mount Vernon in Skagit County, Washington. The project intends to restore riverine channel habitat and associated palustrine wetlands with the primary goal to provide compensatory mitigation for adverse impacts to aquatic ecosystems in the lower Skagit River watershed.

As part of the proposed project site preparation, Clear Valley contacted Northwest Archaeological Associates, Inc. (NWAA) to conduct a cultural resources assessment of the farm. In the course of providing information relating to the cultural resources of the project area, NWAA conducted prefield archival research that identified the locations of previously known prehistoric and historic cultural properties within the project and within a half-mile radius beyond the project boundaries. The prefield research was followed by geoarchaeological studies and an archaeological field survey. NWAA also contacted the Upper Skagit Tribe and the Swinomish Tribal Community to request information on culturally sensitive areas on or near the project (Appendix A).

Project Location and Description

The Skagit Environmental Bank wetlands mitigation project is adjacent to the eastern limits of the City of Mt. Vernon in Sections 10, 11, 15, and 14, T. 34 N, R. 4 E, (Figure 1). The overall project area encompasses about 776 acres of which 311 acres are slated for wetland restoration. The remaining acres will be restored to forested wetland or riparian habitat, or as foraging areas for overwintering waterfowl.

Clear Valley intends to construct compensatory wetlands on 311 acres in the lower elevations of the study area along the main stem of Nookachamps Creek, the lower reach of the East Fork of Nookachamps Creek, and lower Mud Lake Creek. The project will be developed in three phases and each phase will include restoration of riverine hydrologic processes, side-channel habitat, and associated palustrine emergent, scrub-shrub, and forested wetlands.

Regulatory Context

The protection of cultural resources in the State of Washington is guided by several pieces of legislation. Foremost among these is the Archaeological Sites and Resources Act [RCW 27.53] which prohibits knowingly excavating or disturbing prehistoric and historic archaeological sites on public or private land. The Indian Graves and Records Act [RCW 27.44] prohibits knowingly destroying American Indian graves and provides that inadvertent disturbance through construction or other activity requires reinterment under supervision of the appropriate Indian tribe.

Archaeological and historical studies are also conducted in the State of Washington under regulations of the State Environmental Protection Act (SEPA). This report provides documentation for information requested under the SEPA environmental checklist item B13, *Historic and Cultural Preservation*, and addresses the three areas of concern identified in the checklist item:

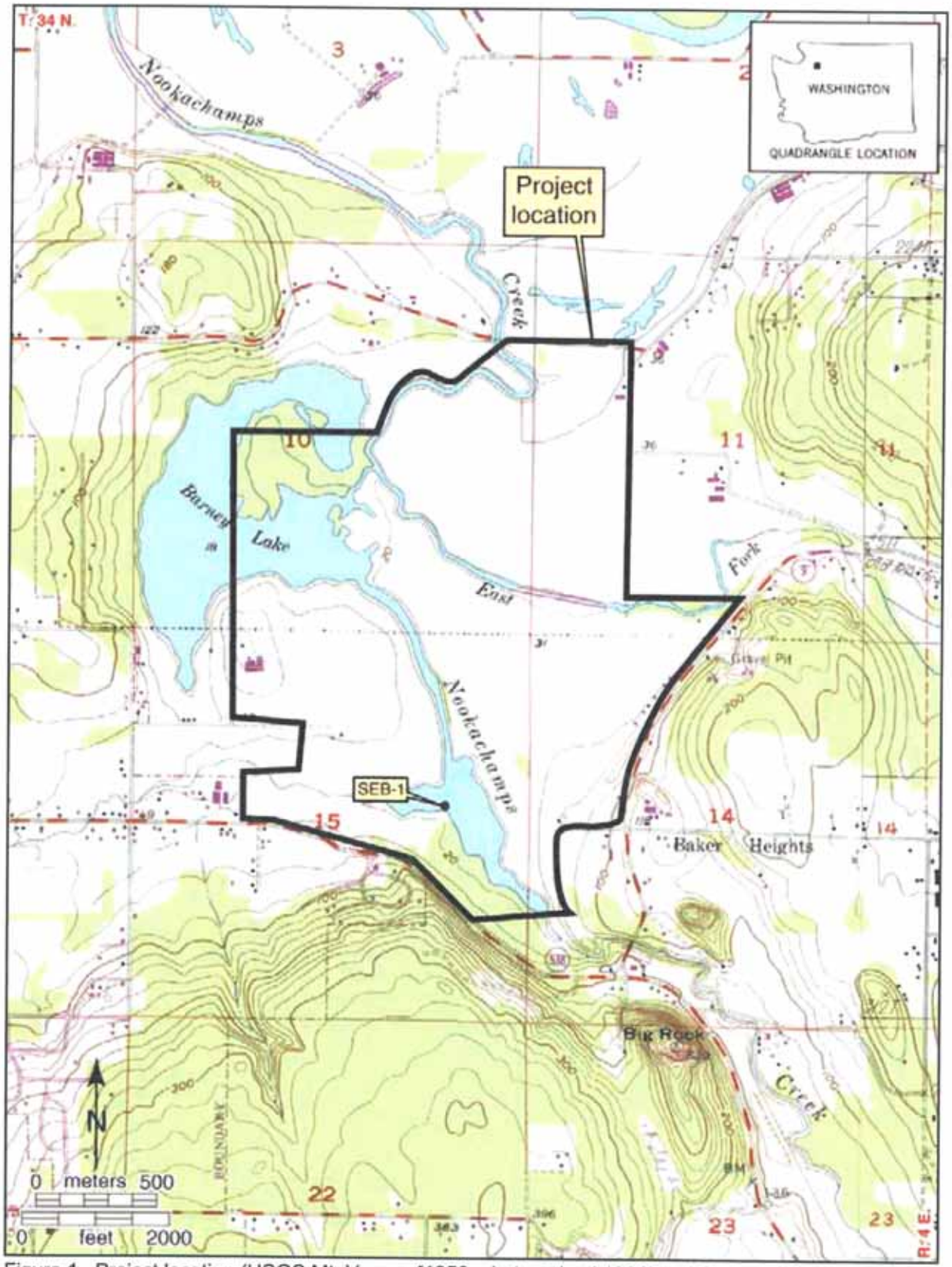

Figure 1. Project location (USGS Mt. Vernon [1956, photorevised 1981] and Sedro-Wooley [1989 provisional edition], WA, 7.5' Quads.).

13a. Identify places or objects on or adjacent to the project that are listed or proposed for listing on a historic register;

13b. Identify places or objects on or adjacent to the project that are of archaeological, scientific, or cultural importance, and;

13c. Indicate appropriate mitigation measures for historic or cultural resources.

The cultural resources assessment was designed to identify historic properties defined as any significant pre-contact Native American, ethnographic, ethnohistoric, or historic archaeological site, historic structure, or object, that may be affected by the project.

Report Organization

This report is organized into several sections and begins with summaries of the natural and cultural setting of the project and its vicinity. The summaries are followed by other sections detailing the methods used for the archaeological assessment of the parcel, expectations based on archival research, and presentation of the results generated by both the prefield research and the field investigations. The final section presents recommendations based on the results of the archival research and the fieldwork.

NATURAL AND CULTURAL BACKGROUND

Archaeological evidence indicates that the Pacific Northwest has been occupied by humans over the last 12,000 years, since the end of glaciation. Following retreat of the continental ice sheet, geomorphic, geologic, and climate changes continued to shape the landscape throughout the Holocene and have exerted an influence on people who resided in the region. The operation of natural processes such as sea level rise, changes in climate, and tectonic events have affected the potential distribution of resources used by people as well as creating landforms suitable for human occupation. At the same time, these processes have also altered the archaeological record itself by selectively preserving or destroying sites that record the lifeways of earlier resdients.

Geology and Geomorphology

The study area lies within a large north-south-oriented structural trough, called the Puget Lowland, lying between the Cascade Range on the east and the Olympic Mountains on the west and extending south from southwestern British Columbia to the Willamette Valley of western Oregon (Orr and Orr 1996). The geomorphology and surficial geology of the northern Puget Lowland is dominated by landforms and deposits associated with multiple Pleistocene glacial ice sheets that expanded southward from the mountains of southwestern British Columbia to the Strait of Juan de Fuca and the Puget Lowland (1.8 million to 10,000 years ago) (Booth and Goldstein 1994; Clague et al. 1980).

The effects of these glaciations in the Puget Lowland are expressed topographically as a series of predominantly north-trending ridges and comparatively level glacial drift uplands on which numerous surface depressions, many of which are now occupied by small lakes and peat bogs, were created as the ice retreated. The upland areas are separated by large Pleistocene glacial troughs or flutes (Galster and Laprade 1991; Liesch et al. 1963; Yount et al. 1993).

During the last glaciation, known as the Fraser Glaciation, the Puget lobe advanced south into the Puget Lowland while the Juan de Fuca lobe extended west into the Strait of Juan de Fuca north of the Olympic Mountains. The Puget lobe reached its maximum southern extent near the town of Centralia about 14,500 years before present (B.P.) (Kovanen and Slaymaker 2004; Porter and Swanson 1998). After remaining stationary for about 1000 years, the ice then began to retreat rapidly northward, reaching Seattle by 13,600 B.P. and then northern Whidbey Island by about 12,850 B.P. (Easterbrook 2003; Porter and Swanson 1998). During the time of its maximum advance, the ice attained an average thickness of about 1730 m (5,675 feet) near Mount Baker, northeast of the study area, and thinned southward to about 1200 m (4,000 feet) near the city of Everett (Booth et al. 2003; Dethier et al. 1995).

During ice advance portions of the Puget lobe pushed up the Skagit River from the Puget Lowland. The ice initially flowed almost due east (upvalley), but then later flowed south-southeast across the highlands once the glacier thickened enough to overtop divides. Evidence in the valley for the ice movement includes deposits of ice-rafted stones, flow tills, and subsidence features (Heller 1980). Alpine glaciers in the upper Skagit River at the crest of the Cascade Range had already advanced to their maximum positions and begun retreating as the Puget lobe advanced up Cascade Range valleys from the Puget Lowland (Heller 1978; Porter 1976; Waitt 1977).

During the maximum extent of the ice sheets, global sea level was about 390 feet below the present sea level (bpsl). As the ice sheets melted away, global sea level rose rapidly to about 30 feet bpsl between 13,000 years ago and 7,000 years ago. After 7,000 years ago, the rate of sea level rise slowed and by about 5,700 years ago sea level was about 16 feet bpsl. At the same time that global sea level was responding to waxing and waning of the continental ice sheets, local relative sea level in the Puget Sound basin was affected by isostatic rebound. Depending on the thickness of the overlying ice, land that had been depressed under the weight of the ice rebounded to elevations ranging between 197 and 262 feet. The rebound appears to have halted by 9,000 years ago at which time worldwide sea-level rise began to drown the early Holocene shorelines (Dragovich et al. 1994). Rising global sea level resulted in renewed deltaic sedimentation and formation of deltas in Puget Sound marine embayments such as the lower Skagit and Nooksack River valleys (Crandell 1963; Dragovich et al. 1994).

To complicate matters even more, when the western lobe of the ice sheet withdrew from the Strait of San Juan de Fuca about 13,500 years ago, marine waters invaded the northern Puget Lowland, inundating most of the San Juan Islands and Whidbey Island as well as the lowland north of Bellingham (Kovanen and Slaymaker 2004) (Figure 2). The estimated elevation of this marine invasion 48 kilometers (30 miles) north of Everett is just under 60 m (197 feet)(Dethier et al. 1995). At this elevation only the upper 70 m of Burlington Hill, just north of the proposed project, would have been exposed above sea level.

Cutbanks, gravel pits, and other exposures around northern Puget Lowland show a broad mix of deposits associated with the marine incursion ranging from poorly sorted matrix-supported, cobble-rich deposits (diamictons) to laminated silty clay. Exposures of massive to laminated marine silt are common in the Mt. Vernon-Conway area; a recently studied section in the Big Lake area showed deposits of pebbly sand and gravel beneath silt containing freshwater gastropods, suggesting the area was a beach about 13,300 years ago (Dethier et al. 1995).

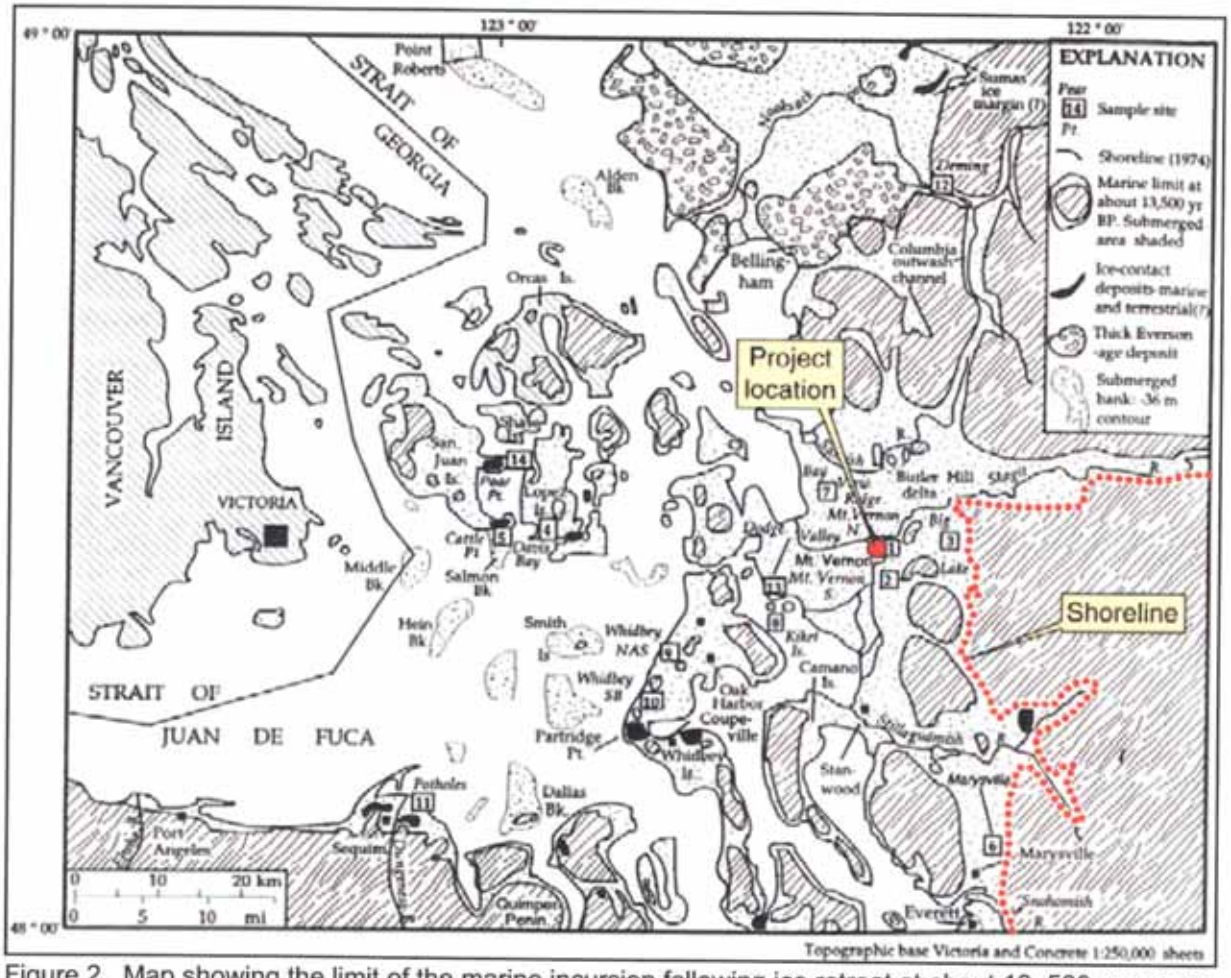

Figure 2. Map showing the limit of the marine incursion following ice retreat at about 13, 500 years ago (from Dethier et al. 1995).

Globally, present-day deltas are relatively young since they have formed only after the commencement of sea level rise during post-Pleistocene times (Stanley and Warne 1997). The lower reaches of the modern Skagit River rest on a Holocene delta that began growing (prograding) seaward about 11,000 years ago from a location near the present town of Hamilton. By about 5,000 years ago the delta had prograded Samish, Padilla, and Skagit bays and engulfed several islands, such as Burlington Hill, in the process. Areas of active delta growth shifted over time and the delta now consists of two inactive lobes, northern and western, and the currently active southern lobe where the Skagit River empties into Port Susan. The western lobe is separated from Fidalgo Island by Swinomish Channel (Thompson 1978). Delta growth has also been enhanced by sedimentation due to lahars originating on Mt. Baker and Glacier Peak. Around 5,000 years the lower Skagit River valley was inundated by lahar runout flows associated with eruptive events on Glacier Peak. These laharic sediments now form 10- to 50-foot-high terraces adjacent to the flood plain in the lower Skagit River valley and surround Burlington Hill just north of the project area (Dragovich et al. 2000).

The Puget Lowland is also a geologically active region that has experienced at least seven great earthquakes since 3500 B.P., including an event dated to 1700 A. D. (Atwater and Hemphill-Haley 1997; Atwater and Hemphill-Haley 1997; Atwater and Moore 1992). Recent paleoseismic

research on the Snohomish River delta south of the project area has found evidence for five episodes of plate movement based on three episodes of liquefaction, at least one abrupt subsidence event, and at least one tsunami, all occurring since about 800 A.D. (Bourgeois 2001).

In historic times, the lower Skagit River was notorious for logjams, and steamboat travel above Mount Vernon was blocked by a large raft logjam just upstream from the town until 1879, when a hand-hewn passage through the jam was completed. According to historical documents reviewed by Collins and others (2002:102-103) this jam was 9 m (30 feet) deep and consisted of from five to eight tiers of logs ranging from three to eight feet in diameter. Beginning in the nineteenth century the Army Corps of Engineers began removing snags from most of the large rivers emptying into Puget Sound; on the lower Skagit River alone in the 10 years between 1898 and 1908, 30,000 snags were removed (Collins et al. 2002).

Through the Nookachamps reach, the Skagit River now exhibits a relatively low-sinuosity single-thread channel planform, though formerly the river exhibited a more complex meandering pattern characterized by scroll-and-swale topography, oxbow lakes, and cut-off meanders. In 1872 Nookachamps Creek joined the Skagit River through an abandoned meander of the main-stem Skagit River, but now the creek directly empties into the Skagit River. The same GLO map shows the course of the East Fork Nookachamps Creek prior to its being channelized and moved to its current position (Figure 3).

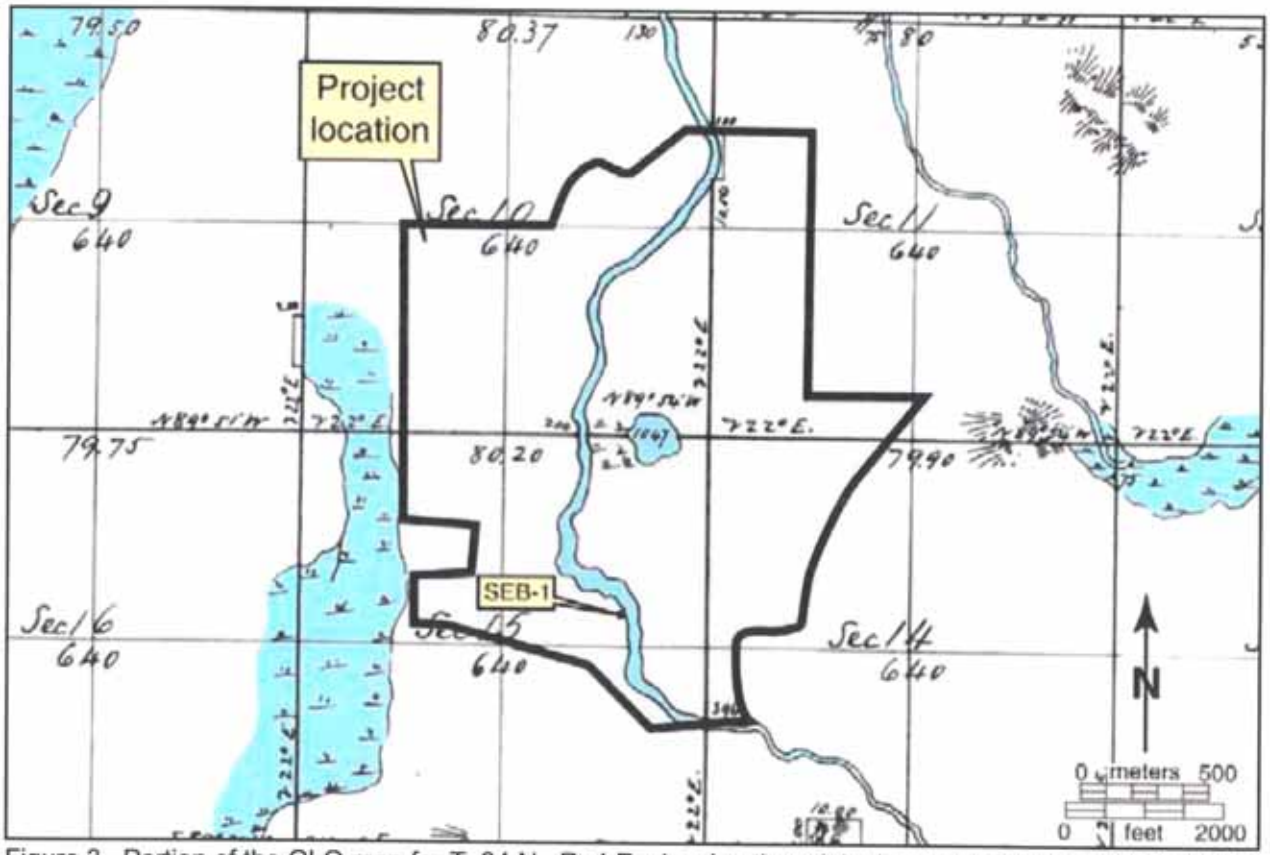

Figure 3. Portion of the GLO map for T. 34 N., R. 4 E. showing the original course of Nookachamps Creek through the study area, 1872.

Climate and Vegetation

Northwest Washington is characterized by a temperate maritime climate regime with warm summers and moderate winters. Summer average temperatures are about 61° F; during the winter temperatures average about 40° F. Rainfall is typically light during summers so that several weeks can pass without precipitation; however, winters experience frequent rains with the highest amounts of precipitation occurring late in fall and in winter.

Like most of the northwest coast of North America, the Puget Lowland is covered with extensive stands of coniferous forest that comprise the *Tsuga heterophylla* (western hemlock) vegetation zone. The species comprising the potential vegetation of this zone are western hemlock, western red cedar, and Douglas fir, with Douglas fir being the dominant species. Old growth forest understories are typically dense, consisting of shrubs and herbaceous species dominated by sword fern, salal, Oregon grape, ocean spray, blackberry, red huckleberry, and red elderberry (Franklin and Dyrness 1973). Bigleaf maple and red alder are common in moist areas subject to disturbance; stream courses and flood plains are dominated by red alder, black cottonwood, bigleaf maple, and other riparian plants. Wetlands are common in river valleys and typically support willow, alder, cranberries, cattail, reeds, wapato, nettles, and skunk cabbage.

In the nineteenth century General Land Office surveyors noted that the floodplains of Puget Lowland rivers consisted of a mix of conifers and hardwoods. Most of the trees were hardwoods, but conifers provided the most biomass (that is, were the biggest trees). Western redcedar and Douglas fir were widely distributed and found in all river valleys, but rarely lived in streamside settings (Collins et al. 2002:97-98).

Fauna

Puget Sound is a diverse marine environment that has long provided a rich array of resources for humans living around Puget Sound. The areas of open water in the Sound harbor squid, shrimp, various sea mammals, and runs of sockeye and chinook salmon, and steelhead trout. Although, salmon and steelhead trout may be the best known of Puget Sound fishes, there are 211 species of fish indigenous to Puget Sound (Kruckeberg 1991) including bottom-dwelling species such as ling cod, flounder, sole, rockfish, and invertebrates such as clams, sea cucumbers, crabs, starfish, and octopuses. The intertidal zone includes invertebrates such as crabs, shrimp, clams, oysters, mussels, sea anemones, sea stars, sponges, ribbon worms, round worms, chitons, barnacles, sea urchins, and sand dollars (Kruckeberg 1991). Marine plants include phytoplankton, eel grass, and many kinds of seaweed.

The Puget Sound basin and the western slopes of the Cascade Range contain a wide variety of marine and terrestrial resources. Larger mammals common to low- and mid-elevation forests in the Puget Lowland and Cascade Range include black-tailed deer, elk, and black bear. Black-tailed deer tend to prefer meadow fringes, and are especially fond of burns where the thick vegetation provides an abundance of browse. Although usually found in ecotones between grassy areas and forest, or in small islands of trees or shrubs, some groups live in deep, old-growth coniferous forest (Maser 1998). Both deer and elk migrate to higher elevations during the summer months where open spaces afford more sunlight and grass.

At higher elevations marmots, goats, sheep and large birds (grouse and especially ptarmigan) tend to frequent alpine landscapes. Marmots, which can weigh up to 8 pounds, live in rocky areas in lava fields, rockslides, and large talus at the bases of cliffs. Mountain goats are

generalist herbivores who inhabit a variety of elevations and can live in different forest types, but are always located near cliffs. In western Washington, mountain goats summer above 5,000 feet in cliffed areas and snowfields. Also at higher elevations, bighorn sheep inhabit alpine meadows, grassy mountain slopes and foothill country in proximity to rugged, rocky cliffs and bluffs. Sheep migrate seasonally and typically use larger upland areas in the summer while concentrating in sheltered valleys during the winter. Their winter range usually lies between 2,500-5,000 feet in elevation; summer range is between 6,000 and 8,500 feet.

In addition to ptarmigan and grouse, waterfowl such as ducks, geese, and swans are seasonally abundant at lower elevations. Lakes, ponds, rivers and marshes hosted migratory and resident waterfowl as well as freshwater fish (Kruckeberg 1991; Larrison 1967).

Paleoenvironments

Regional pollen data recovered from cores in lakes and wetlands in the central Puget Lowland show that there have been several climate-induced shifts in the composition and distribution of regional vegetation since the end of the Pleistocene (Tsukada 1982; Whitlock 1992). As land emerged from under the ice sheets at the end of the Fraser glaciation, the Puget Lowland was colonized initially by pioneer species such as lodgepole pine, bracken fern, and red alder, followed by Douglas fir a few centuries later (Barnosky 1985). As the climate continued to warm during the early Holocene, grasslands and oak/hazel woodlands were established and, after a brief period of suppression, Douglas fir became the dominant tree species between 10,500 and 7,000 years ago. At the height of postglacial warming, between 10,000 and 5,000 years ago, overall effective moisture levels had dropped and precipitation exhibited a marked seasonal pattern characterized by increased droughty conditions during the summer. During this period, fires were more common and local prairies in the central Puget Lowland expanded their ranges. After about 7,000 years ago, cedar and hemlock pollen began to increase and continued to do so until reaching a peak about 5,000 years ago. The modern climate regime was established by 5,000 to 4,000 years ago when cool, moist climate conditions prevailed and closed canopy cedar and hemlock climax forests came to predominate (Tsukada 1982; Whitlock 1992). The climate since then has been marked by small-scale changes fluctuating between warmer/drier and cooler/moist conditions (Leopold et al. 1982).

Cultural Setting

Prehistory

A few dated archaeological sites and surface finds attest to the presence of people in coastal western Washington and southern British Columbia by at least 11,000 years ago (Carlson 1990; Matson and Coupland 1995). People living in North America during this time period are referred to as Paleoindian and their presence is marked by a highly distinctive projectile point style known as Clovis. The earliest radiocarbon ages associated with Clovis points in the West date to about 12,000 years ago (Meltzer 2004), and several of these points have been found west of the Cascade Mountains in Washington. A single basalt fluted point was found near Coupeville on Whidbey Island (Shong and Miss 2002), and a fluted point fashioned from chert was recovered from peat deposits near Maple Valley south of Seattle (Meltzer and Dunnell 1987). Other finds have been reported from near Olympia in the southern Puget Lowland and from within the Chehalis River valley (Morgan 1999; Schalk 1988). The Clovis people are believed to have been mobile hunters whose economy was primarily focused on hunting megafauna species (such as the mammoth) that became extinct soon after the end of the last glaciation.

Other early Holocene archaeological sites in western North America contain projectile points types, such as large stemmed, shouldered, and lanceolate styles, that closely follow, or are contemporaneous with, the fluted points. The period spans from about 8000 B.P. to about 5000 B.P. and, although the period has been given different names under different prehistoric cultural chronologies, is generally referred to as the Early period. In western Washington, the regional manifestation of these early Holocene economies has been termed Olcott, after the type site in Snohomish County along the Stillaguamish River (Kidd 1964). Artifacts associated with Olcott sites include large leaf-shaped and stemmed points, scrapers, flake tools and blade cores, and typically fashioned from fine-grained extrusive volcanic rocks (Carlson 1990). The sites are often found in elevated areas at some distance from tidal areas despite their general proximity to the coast. Olcott sites have been identified around Lake Cushman on the Olympic Peninsula and on glacial terraces above Hood Canal (Wessen and Welch 1991). Features such as hearths and structures, or plant and animal remains, which would offer insights into the settlement and subsistence of these early Holocene people, are usually absent from the sites, although the Olcott component of a large archaeological site several kilometers inland from the Strait of Juan de Fuca near the town of Sequim contains discrete clusters of lithic material that have been interpreted as stone tool manufacturing locales (Morgan 1999). Olcott-like material also has been recovered farther inland at Marymoor Park in Redmond (Greengo and Houston 1971) and near the present-day Tolt Water Treatment Facility (Blukis Onat et al. 2000).

During the period from about 5000 B.P. to 2500 B.P., the human population of western Washington increased and socio-economic organization of communities exhibited greater complexity (Ames and Maschener 1999). Groups exploited a wider range of marine resources, including sea mammals, fish and shellfish, and the kinds of archaeological sites that date to this period are diversified with respect to setting and inferred function. Increasingly specialized use of local environments, such as prairies and salmon streams, is apparent from site distribution and artifact types. Ground stone implements appear in both coastal and inland sites after 5000 B.P.; and bone and antler tools, including toggling harpoons, and ground shell found in shell midden sites have also been found, suggesting marine mammal hunting.

Archaeological trends such as full-scale development of marine-oriented cultures on the Pacific coast, the presence of a mixed marine and terrestrial economy along the shores of Puget Sound, and development of an inland terrestrial mammal and riverine fishing tradition are differentiated by the Late prehistoric period, from about 2500 B.P. until widespread Euroamerican contact in the early 19th century (Ames and Maschener 1999). The period witnessed increased community-level aggregation in permanent or semi-permanent winter villages at river confluences and along tidewater shorelines. At the same time, seasonal use of specialized upland and lowland camps focused on the harvesting of targeted resources such as salmon or camas also increased. The archaeological evidence of these increasingly developing patterns is seen in the greater diversity of hunting, fishing, plant processing, and woodworking tools found in Late period sites.

Ethnography and Ethnohistory

The people in the southern Puget Sound lived in centrally located autonomous villages, and engaged in a seasonal cycle of movements to other smaller and more informal settlements in order to exploit regional resources. The village was the focal point for winter activities and served as the center of the social and ceremonial life for the local groups. Each village typically consisted of between two and four longhouses, some up to 100 feet long, and were constructed of cedar planks with shed or gabled roofs. Each house provided shelter for one to four families

and was occupied from late fall to early spring. Boundaries between villages were traditionally based on watersheds, with people from each village exercising exclusive use in the areas immediately surrounding the village and for some distance upstream (Smith 1940).

Groups were not coordinated by any political structure and formed a continuous cultural series. Permanent houses were located at strategic points along waterways, generally at the mouths of rivers or of smaller streams. Territorial control was usually exercised in the area immediately above and below the village, but territories of contiguous villages rarely directly contacted each other so that there were frequent stretches of relatively unused country. The mouth of every stream of any size, however, contained from one to five named house clusters which were often within shouting distance of one another (Smith 1941).

Upper Skagit villages, like others in the Puget Sound region, might extend some miles along the river with several separate living sites within them. Houses on a tributary entering the river were sometimes regarded as belonging to the same village as the houses on the main river near the mouth of the tributary (Collins 1974). Villages were settlements inhabited in the winter and cool months where shelter was provided by permanent housing in the form of one or a cluster of several cedar post-and-plank houses. Camps, on the other hand, were used by visitors from several nearby villages. At fishing camps and particularly at hunting sites for beaver, racks and small smoke-houses were built. All settlements, apart from the most casual, were economically significant, sited at or near good fishing, game or collection areas. All villages with permanent housing were at or near excellent fishing (Snyder 1980).

During the spring, summer, and fall, people would journey from their villages to temporary camps established on streams during salmon runs. Smaller groups also traveled to other localities from which they would hunt, gather plant resources, and fish for other, non-salmonid fishes (Haeberlin and Gunther 1930; Smith 1940; Suttles and Lane 1990). Large or important game were deer, elk, bear, mountain goat, and beaver. In addition to the meat, elk and deer sinew were used as sewing thread; pelts of bear and beaver, hides of elk and deer, and wool of goats were used in fashioning clothing and other fasteners. Ducks were hunted for their flesh, feathers, and down (Snyder 1980:33-34). Hunting techniques included drives (deer only), bow-and-arrow, spearing, pits and deadfalls, and snares.

People living along the Skagit River, like other Puget Sound Salish-speaking groups, in winter relied mostly on stored foods, particularly salmon, and spent time making and repairing tools, clothing and other items, and engaging in religious and ceremonial activities. At the end of winter, the village inhabitants dispersed into smaller groups and traveled to seasonal sites throughout their territory to fish, hunt, and gather resources as they became available.

Vegetable foods included sprouts, roots and bulbs, berries, and nuts. The most important roots and bulbs were probably bracken, camas, and to a lesser extent, wapato. Important berries included the salmonberry, thimbleberry, trailing blackberry, blackcap, serviceberry, salal berry, red huckleberry, blueberry, and red and blue elderberry (Suttles and Lane 1990). Around 20 species of waterfowl were caught. Hunters went out on dark nights with fires in their canoes and caught ducks with a multiprong spear or a net on a shaft. Ducks were caught in long nets raised between pairs of high poles, in nets anchored underwater over places where herring were spawning, and in snares. Seagulls were caught with gorges (Suttles and Lane 1990:489).

The Nookachamps (also known as *dvkacäbis)* lived along the Skagit River from Mt. Vernon to Sedro Woolley and up the Nookachamps Creek drainage including Clear and Big Lakes (Smith

Table 2. Previous Sites Recorded Within One Mile of the Skagit Environmental Bank Project Area.

SITE NO.	COMPILER	DATE	SITE TYPE	RELATIONSHIP TO PROJECT
45SK69	W. Dancey; Onat, Schmidt, Cressman, Oswald, Woodruff	September 1969; August 1974	Shell midden with associated artifacts	0.15 mile north of project area
45SK70	W. Dancey; Onat, Schmidt, Cressman, Oswald, Woodruff	September 1969; August 1974	Midden, cooking depression and burial	0.3 mile north of project area
26-00186	unknown	no date	South Fork Nookachamps Creek Bridge	

EXPECTATIONS

The landscape setting and the presence of previously recorded archaeological sites downstream from the study area suggested high potential for significant archaeological materials to be present in the study area. The landscape setting includes flood plain areas as well as adjacent upland areas overlooking the riparian zones along Nookachamps, East Fork Nookachamps, and Mud Lake Creeks. Surfaces of variable antiquity are probably represented within the project area in addition to the potential for buried surfaces under the central flood plain closest to the channel of Nookachamps Creek.

METHODS

Fieldwork employed backhoe trenches (BHT), bucket augers (AH), shovel probes (SP), and pedestrian survey to examine the project area for potentially significant archaeological materials (Figure 4). The whole 776-acre parcel was considered when deciding on sampling strategy, but particular attention was paid to the 311 acres proposed for restoration.

Phase 1 fieldwork used geoarchaeological techniques to collect geomorphic and sedimentological data to develop a landscape history of the study area and search for buried occupation surfaces. Thirteen backhoe trenches (BHTs) were excavated using a rubber-tired backhoe equipped with a standard 2-foot-wide bucket. Each trench was excavated to a depth of five feet (150 cm) below the modern surface. Both trench walls were inspected, and one wall was cleaned thoroughly and examined for the presence of archaeological materials. The depositional sequence in each trench was described and illustrated with graphical logs (Appendix B). Sediment descriptions and the definition of bounding contacts are based on visual inspection and hand texturing. Selected trenches were excavated below five feet and the sediment brought up in each bucket-load was examined for archaeological materials. The backhoe trench data was supplemented during the Phase 2 archaeological investigations with six hand-excavated auger holes.

Thirteen backhoe trenches were excavated during Phase 1. The Nookachamps Creek flood plain south of the creek's confluence with East Fork Nookachamps Creek was transected with two lines of backhoe trenches. The southern transect consisted of BHTs 1 through 6 which were placed at intervals ranging from 75 to 100 m. The second transect consisted of AHs 5 and 6, and BHTs 9, 10, and 11 placed at considerably wider intervals along the current course of East Fork Nookachamps Creek.

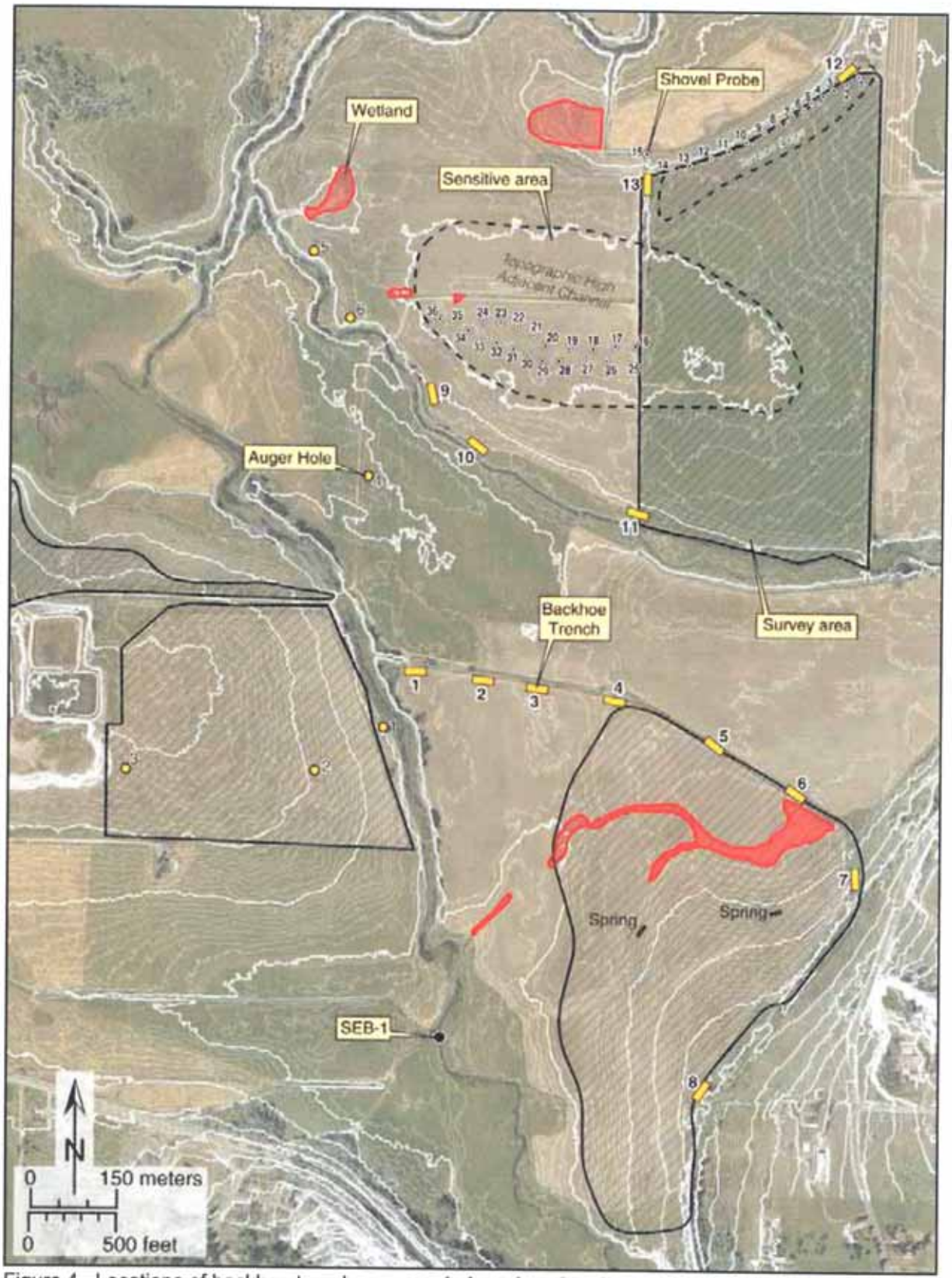

Figure 4. Locations of backhoe trenches, auger holes, shovel probes, and pedestrian survey blocks within the study area.

The fill underlying the terrace above Mud Lake Creek was examined with BHT 12, and BHT 13 was placed in the approximate nineteenth century location of the East Fork Nookachamps Creek channel as depicted by the GLO (Figure 3). The lower valley slopes above the flood plain were examined with two backhoe trenches on the east slope (BHTs 7 and 8) and three auger holes on the west slope (AHs 1 - 3).

The Phase 2 archaeological fieldwork employed pedestrian survey and shovel probes to examine more closely areas of the project considered to have high potential for harboring archaeological materials. Using the results of the Phase 1 backhoe work, selected areas above 40 feet elevation were surveyed in transects with surveyors spaced 30 m (about 100 feet) apart. Areas surveyed included a rectangle extending south from Mud Lake Creek to East Fork Nookachamps Creek, the high ground on the lower valley slopes in the southeast portion of the project, the slope below the milking barns on the west slope, and the high ground along the southern margins of Barney Lake. Visibility ranged from excellent (early corn) to poor (pasture). Fifteen shovel probes were excavated at 30-m intervals along the terrace edge overlooking Mud Lake Creek in the northeast portion of the study area; an additional 21 shovel probes were placed in a staggered pattern at approximate 30-m intervals along a subtle curvilinear topographic high on the flood plain overlooking the present confluence of Nookachamps Creek and East Fork Nookachamps Creek.

Ash-sized volcanic tephra recovered from AH 6 was sent to GeoAnalytical Laboratories at Washington State University for glass identification (Appendix D).

RESULTS

Geoarchaeological Fieldwork

Eight of the backhoe trenches (BHT 1 - 6, and 9 - 11) exposed sequences of overbank alluvium underlying the flood plain along the main axis of Nookachamps Creek and East Fork Nookachamps Creek. Bounding contacts within beds and between major bedsets were well preserved and easily traced. In BHTs 1-6, the bases of the trenches were dominated by sand (0.063 mm to 2 mm) that consistently exhibited a fining upward trend from medium sand (0.25 mm) at the base to a very fine sand (0.063) just below the plowzone at the modern surface. Concomitant with the upward decrease in sand size, the silt-sized fraction (particles less than .063 mm) comprised an increasingly greater proportion of the sediments, from the almost total absence of silt at the base of the sequence to comprising more than 50 per cent of the matrix near the surface.

The deeper sand beds where silt was absent exhibited internal sedimentary structures representing different water flow regimes. These structures included graded beds (normally graded and sand-silt couplets), horizontal beds and laminae, and planar cross-bedded laminae as well as ripple-laminated sand (Figure 5). These bedding structures were typically found at depths ranging between about 50 and 170 cmbs and were most common in the trenches along the transect comprised of BHTs 1-6. The graded beds were predominantly sand-silt couplets in which each couplet was characterized by a base of sand capped by a silt drape (Figure 6). The couplets were often found stacked in beds above the bedded sand and extended upward to the

Figure 5. Close-up of ripple-laminated sand.

Figure 6. Close-up of sand-silt couplet; silt drape is well-expressed overlying sand in middle ground of photograph.

base of the plowzone. Internal bedding contacts (at the boundary between the sand and the silt, and at the boundary between each of the couplets) varied from horizontal and smooth to slightly convolute.

Biogenic traces, such as root casts or insect burrows, and other evidence for periods of soil formation indicating a stable surface, such as darkening of the sediments due to the addition of soil organic matter, were not observed. Flotsam that may have been floated into the valley by floodwaters, such as leaves, twigs, or branches which are typically found at the contact between sand-silt couplets, was also notably absent.

The backhoe trenching also revealed facies assemblage differences between the BHT 1-6 group of trenches and the group of auger holes and trenches (BHTs 9-11, and AHs 5 and 6) excavated along the current alignment of East Fork Nookachamps Creek. The upper portions of the East Fork backhoe trenches and auger holes were dominated by massive silt and slightly sandy silt beds exhibiting few internal sedimentary structures. Additionally, a layer of ash-sized volcanic tephra layer was encountered below the silt in AHs 4 and 6 between 120 and 130 cmbs which was subsequently identified as a 2,000-year-old tephra originating from Glacier Peak (Appendix D). The deeper portions of the auger holes showed that sand-silt couplets lay south and north (AHs 4 and 5, respectively) of a coarse sand found at 210 cmbs in AH 6. The bracketing suggests the auger holes may be aligned across a channel meander of ancestral Nookachamps Creek or across a paleochannel of East Fork Nookachamps Creek.

The plowzone, that is, the surface and near-surface sediments affected by agricultural tilling, was between 30 and 50 cm thick and easily distinguished from the underlying intact sediments (Figure 7).

Figure 7. Base of plowzone (basal contact is at blade of profiling tool).

The west and east valley slopes above the flood plain were examined with BHTs 7 and 8 (east slope), and AHs 1, 2, and 3 (west slope). Backhoe Trenches 7 and 8, in the southeast portion of the study area adjacent to a series of springs, encountered dense silt and clay containing dispersed poorly sorted pebble-gravel. A thin organic-rich layer (designated ***Ah*** for humic A horizon) was found at the upper bounding contact of the dense clay in Trench 7 and represents a relict spring deposit (Figure 8). A light-colored, gritty, silt-sized deposit overlies the organic-rich Ah horizon, and represents either diatomaceous earth or a fine-grained volcanic tephra.

On the west slope of the valley, AHs 1, 2, and 3 were excavated to define the lower leading edge of the dense pebbly clay. Auger Hole 1 was placed at the foot of the slope and was excavated to 100 cmbs before encountering the pebbly clay. The other two auger holes were much more shallow, encountering the dense clay at 40 and 30 cmbs, respectively. During the pedestrian survey, pebbles and small cobbles were observed at the surface on the slope above AH 1.

Farther north in the northeast portion of the study area and adjacent the terrace edge overlooking Mud Lake Creek, Trench 12 encountered massive medium to coarse sand (.25 mm to 2 mm) below 110 cmbs that extended to the base of excavation at 230 cmbs. Above the sand was a series of poorly graded finer-grained deposits reminiscent of the sand-silt couplets found in the trenches at lower elevations on the flood plain. The final trench, BHT 13, was excavated at the base of the slope west of the Mud Lake Creek terrace where the slope joined the flood plain. The vertical sequence in the upper portion of this trench was similar to BHTs 1 through 6 but granules were found in a coarse sand at the base of the trench at about 230 cmbs.

Figure 8. Ah layer (dark-colored layer) associated with relict spring.

Archaeological Fieldwork

The backhoe trenching program suggested that the flood plain portion of the project area was of relatively recent origin, and that much older surfaces were exposed at or near the surface at elevations about 35 feet or higher. Accordingly, the study area was sampled with a combination of shovel probes and pedestrian survey (Figure 4). The two areas subjected to more detailed examination with shovel probes were along the leading edge of the terrace overlooking Mud Lake Creek and on the topographic high on the Nookachamps flood plain north of the current alignment of East Fork Nookachamps Creek. The four blocks selected for examination with pedestrian survey were areas on the valley slopes starting between 35 and 40 feet elevation and extending in places down to the flood plain.

No precontact archaeological materials were recovered from the shovel probes nor were any observed on the surface during the pedestrian survey. A few of the shovel probes, notably those at the terrace edge overlooking Mud Lake Creek, showed traces of burning preserved as small nodules of fire-oxidized and -cemented matrix and dispersed charcoal flecking. Most of these occurrences were at the base of the plow zone or just below (30-40 cmbs), and so were interpreted to be the result of agricultural operations.

Historical archaeological remains were limited to the remnants of a railroad trestle spanning Nookachamps Creek in the southern portion of the project (Figure 9). This was part of a much longer trestle spanning the Nookachamps flood plain as part of the logging railroad system built by the Puget Sound and Cascade Railroad beginning in 1911 (Figure 10) (Thompson 1989).

Figure 9. Railroad trestle bents at Nookachamps Creek, recorded as Field No. SEB-1; view to the southwest.

Figure 10. Historic photo of Puget Sound and Cascade Railroad trestle crossing the flooded Nookachamps Creek, c. 1925; view to the east (Thompson 1989).

DISCUSSION

The lack of buried soils, biogenic traces, or flotsam in the subsurface deposits on the lower slopes and along the axis of Nookachamps Creek indicate that at least the upper three feet of the valley alluvium is of relatively recent origin, and possibly may have been deposited in the last century. The lack of woody debris seems particularly significant and may indicate that most of the alluvium was deposited after the surrounding land had been cleared of forest and the bottom lands were in agricultural production.

The degree of consolidation and the lack of marine shell in the pebbly clay sediments found in BHTs 7 and 8, and AHs 1 -3 suggest that this deposit represents glacial till. The surface of the till in Trenches 7 and 8 is at about 40 feet elevation above mean sea level (amsl) and in both trenches is within 30 cm of the surface. The lack of flood alluvium overlying the till indicates the surface was above flood stage for most floods on Nookachamps Creek. The thin veneer of unconsolidated sediment just under the surface is either slopewash or the weathered top of the glacial till that has been further affected by agricultural tilling.

The basal coarse-grained sand in BHT 12 overlooking Mud Lake Creek may represent the distal margins of a small paraglacial fan formed from reworked glacial outwash or morainal deposits which are exposed in the quarry face to the east of SR 9. The sediments comprising the depositional sequence in BHT 12 overlying the basal coarse sand is flood alluvium expressed as weakly graded deposits. The poor expression of the bedding and the elevation of the trench at about 38 feet amsl suggests that only the largest floods along Nookachamps Creek reached this elevation.

The slopes along the eastern boundary of the project below SR 9 (Figure 11) may have been formed by water movement of much higher magnitude than would have been characteristic of the Nookachamps basin during the Holocene following the end of the glacial period. The lack of marine shell in the sediments under the higher surfaces of the project, and the lack of sediment depositional geometries representing beach or other shore geomorphic features, suggests the Nookachamps basin temporarily served as a meltwater conduit for a brief period between retreat of the Puget ice lobe and marine inundation following the opening of the Strait of Juan de Fuca. The long, smooth slope topography, the weathering of the top of the till, and the thin veneer of slopewash indicates little modification of the surface above the flood limit since glacial retreat.

At a smaller scale, the bedding structures of the lithofacies exposed in the backhoe trenches and in the hand augers point to a predominance of turbulent flood regimes characterized by low flow rates, a thin water column, and the presence of minor roughness elements on the flood plain surface. The rippled sand may be related to the creation of sand sheets through the

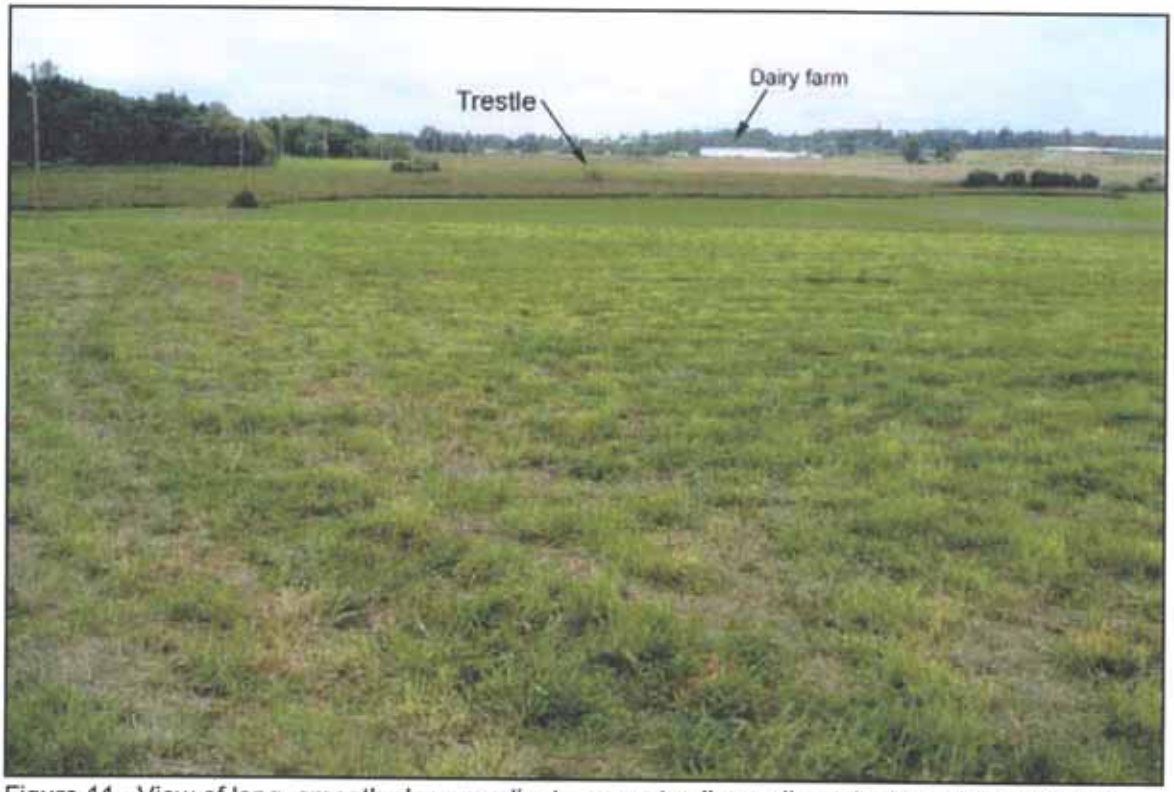

Figure 11. View of long, smooth slope gradients on east valley wall overlooking Nookachamps Creek.

coalescing of crevasse splays caused as flood water leaves the channel and accesses the overbank area of the flood plain. Ripple cross-lamination and parallel lamination are common features of sand sheets, though they are often destroyed by roots. The internal organization and geometry of crevasse splays are not well documented but are often interbedded with flood plain silts and clays. Rapid sedimentation may be reflected in climbing ripple cross-lamination, though crevasse splays may be colonized by plants with resulting disturbance of depositional structures (see Collinson 1978, and Reineck and Singh 1980 for more complete description).

The sets of graded bedding and flood couplets, and the thick silt beds north of East Fork Nookachamps Creek, on the other hand, indicate a flood regime where water remained ponded on the flood plain after initial flooding along the creek.

The general model proposed for the typical mode of flooding within this reach of Nookachamps Creek is that flood water on the Skagit River moves upstream up Nookachamps Creek initially confined within the channel and the levees along the creek. As flooding continues, water eventually spills over the banks or breaks through channel levees to flow onto the flood plain of Nookachamps Creek. In the upper (southern) portion of the project area, the flood water flows downstream paralleling the channel (hence, creating parallel- and ripple-laminated sand deposits) until it can rejoin the channel or is trapped in ponds on the flood plain (denoted by the thick silt beds near East Fork Nookachamps). The sand-silt couplets are interpreted as flood deposits associated with flooding along Nookachamps Creek rather than the result of backflooding up the creek from the Skagit River.

Figure12 shows a large-scale cross section across the central portion of the proposed project area based on the data retrieved from BHTs 1 - 8 and AHs 1-3 in the south-central portion of the proposed project.

The lack of precontact archaeological materials is surprising given the indications that the slopes above the flood plain had been stable since emergence in the early portion of the Holocene at least 7,000 years ago.

RECOMMENDATIONS

Backhoe trenches, auger holes, shovel probes, and pedestrian survey revealed no intact precontact or historical archaeological resources within the proposed *Skagit Environmental Bank* project that would be affected by development of the project. Though the remains of a portion of the Puget Sound and Cascade Railroad trestle across Nookachamps Creek were recorded, the dismantlement of the railroad after its abandonment has resulted in the loss of contextual and associative relationships among historical features and artifacts, suggesting the trestle does not attain historical significance.

NWAA recommends that no further archaeological work is necessary.

In spite of the lack of archaeological materials, there is always a possibility that undiscovered prehistoric or historic cultural resources may be inadvertently encountered during ground-disturbing activities. If prehistoric or historical cultural resources are observed in the project area during construction, work should be temporarily suspended at that location and a

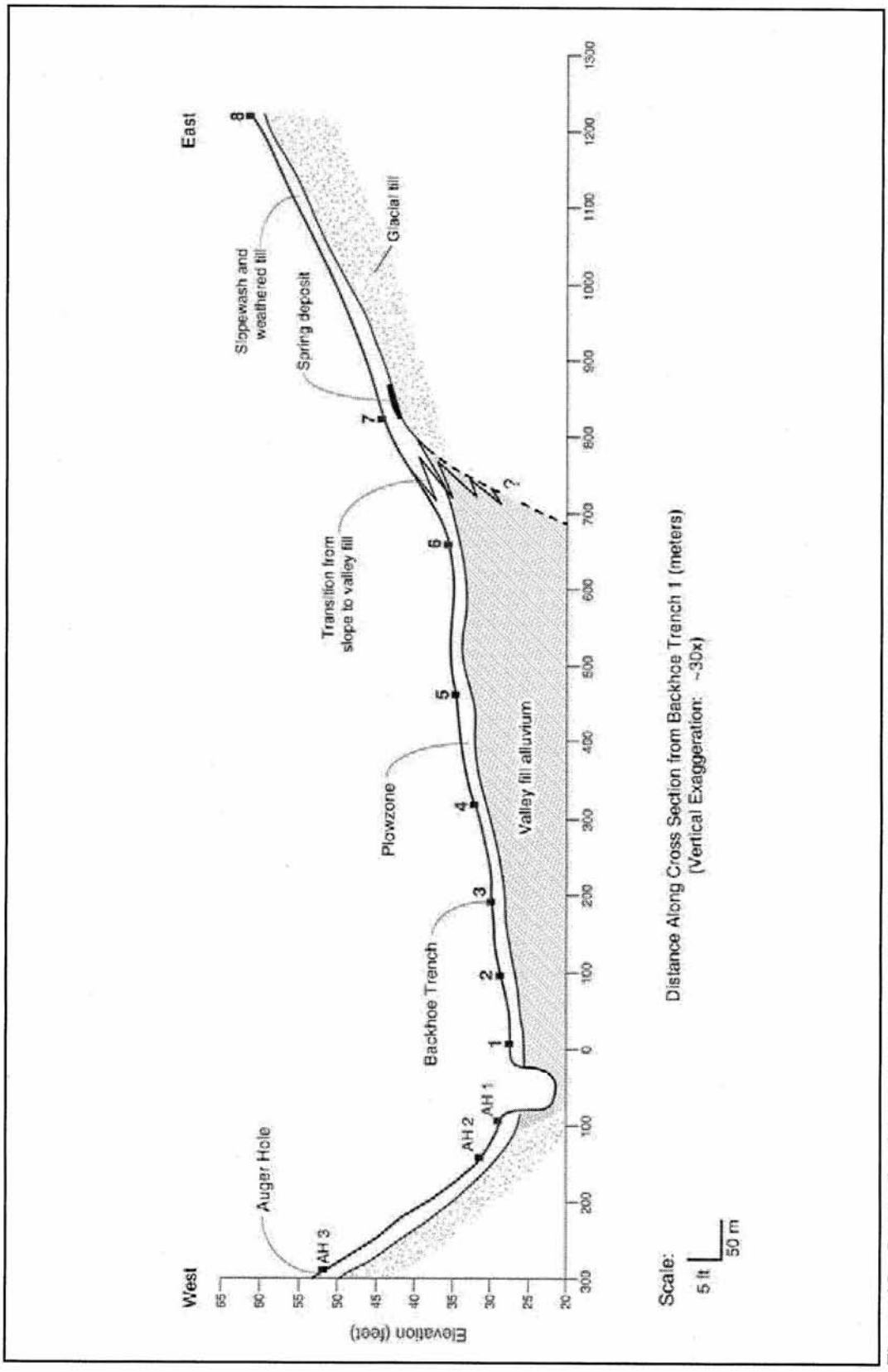

Figure 12. Generalized east-west cross section through south-central portion of study area based on BHTs 1 - 8 and AHs 1 - 3.

professional archaeologist should be retained to document and assess the discovery. The Washington Department of Archaeology and Historic Preservation (DAHP) and the affected Tribes should be contacted for any issues involving Native American sites.

If project activities expose human remains, either in the form of burials or isolated bones or teeth, or other mortuary items, work in that area should be stopped and local law enforcement officials, the DAHP in Olympia, and the affected Tribes should be immediately contacted. In no case should additional excavation be undertaken until a protocol has been agreed upon by the above mentioned parties. No exposed human remains should be left unattended.

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APPENDIX A: Tribal Correspondence

Northwest Archaeological Associates, Inc.
Cultural Resources Management Services
5418 20th Avenue NW, Suite 200, Seattle, WA 98107

June 1, 2005

Mr. Ray Williams
Cultural Resources
Swinomish Tribal Community

RE: Skagit Environmental Bank: Wetland Mitigation Project

Dear Mr. Williams,

Clear Valley Environmental Farm, LLC, (Clear Valley) is proposing to construct a 311-acre wetlands mitigation bank, called the Skagit Environmental Bank, on 776 acres of dairy farmland near the town of Mount Vernon. The parcel is adjacent to and northeast of the Mount Vernon city limits on the Nookachamps Creek flood plain in Sections 10, 11, 14, and 15, T 34 N., R 4 E (see attached map). Northwest Archaeological Associates, Inc. (NWAA) has been retained by Clear Valley to provide an cultural resources assessment of the proposed project area.

The purpose of the proposed project is to create a general-use wetlands mitigation bank that will restore reaches of the main stem of Nookachamps Creek, the East Fork of Nookachamps Creek, and Mud Lake Creek, as well as associated historic flood plain wetlands. The proposed wetlands project will be carried out in three phases that will create or restore riverine channel habitat and restore 311 acres to palustrine, scrub-shrub, and forested wetlands. Because the project area was wetland before agricultural development, the archaeological assessment will be conducted in two parts, with the first part consisting of geoarchaeological investigations focused on soil profile characterization, determining the presence of buried surfaces, and reconstruction of the local landscape history. The second part of the field investigations will be contingent on the findings of the geoarchaeological fieldwork and will be a fine-grained examination of the portions of the project deemed to have high potential for archaeological resources.

I am writing to let the Swinomish Tribal Community know that NWAA will be conducting the geoarchaeological component of the field investigations on June 9th and 10th, and I would like to invite members of the Tribe out to the project to monitor the fieldwork. As part of our contract with Clear Valley, NWAA will prepare a draft cultural resources technical report at the conclusion of the fieldwork. I would like to know if the Tribe has any concerns regarding historic properties in or near the project that should be considered in early planning. We respect concerns about sharing sensitive information and we will work with you in a way that accommodates those concerns.

This letter is intended as a technical inquiry solely related to the identification of cultural resources for the permit review process. It does not constitute a formal policy-level request for consultation, which is the responsibility of the proponent.

Sincerely,

Charles M. Hodges
Geoarchaeologist/Senior Archaeologist

Tel: (206) 781-1909
Fax: (206) 781-0154
Email: cmhodges@northwestarch.com

Northwest Archaeological Associates, Inc.
Cultural Resources Management Services
5418 20th Avenue NW, Suite 200, Seattle, WA 98107

June 1, 2005

Mr. Scott Schuyler
Cultural Resources Policy Representative
Upper Skagit Indian Tribe

RE: Skagit Environmental Bank: Wetland Mitigation Project

Dear Mr. Schuyler,

Clear Valley Environmental Farm, LLC, (Clear Valley) is proposing to construct a 311-acre wetlands mitigation bank, called the Skagit Environmental Bank, on 776 acres of dairy farmland near the town of Mount Vernon. The parcel is adjacent to and northeast of the Mount Vernon city limits on the Nookachamps Creek flood plain in Sections 10, 11, 14, and 15, T 34 N., R 4 E (see attached map). Northwest Archaeological Associates, Inc. (NWAA) has been retained by Clear Valley to provide an cultural resources assessment of the proposed project area.

The purpose of the proposed project is to create a general-use wetlands mitigation bank that will restore reaches of the main stem of Nookachamps Creek, the East Fork of Nookachamps Creek, and Mud Lake Creek, as well as associated historic flood plain wetlands. The proposed wetlands project will be carried out in three phases that will create or restore riverine channel habitat and restore 311 acres to palustrine, scrub-shrub, and forested wetlands. Because the project area was wetland before agricultural development, the archaeological assessment will be conducted in two parts, with the first part consisting of geoarchaeological investigations focused on soil profile characterization, determining the presence of buried surfaces, and reconstruction of the local landscape history. The second part of the field investigations will be contingent on the findings of the geoarchaeological fieldwork and will be a fine-grained examination of the portions of the project deemed to have high potential for archaeological resources.

I am writing to let the Upper Skagit Indian Tribe know that NWAA will be conducting the geoarchaeological component of the field investigations on June 9th and 10th, and I would like to invite members of the Tribe out to the project to monitor the fieldwork. As part of our contract with Clear Valley, NWAA will prepare a draft cultural resources technical report at the conclusion of the fieldwork. I would like to know if the Tribe has any concerns regarding historic properties in or near the project that should be considered in early planning. We respect concerns about sharing sensitive information and we will work with you in a way that accommodates those concerns.

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Sincerely,

Charles M. Hodges
Geoarchaeologist/Senior Archaeologist

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APPENDIX B: Graphical Logs of Backhoe Trenches and Auger Holes

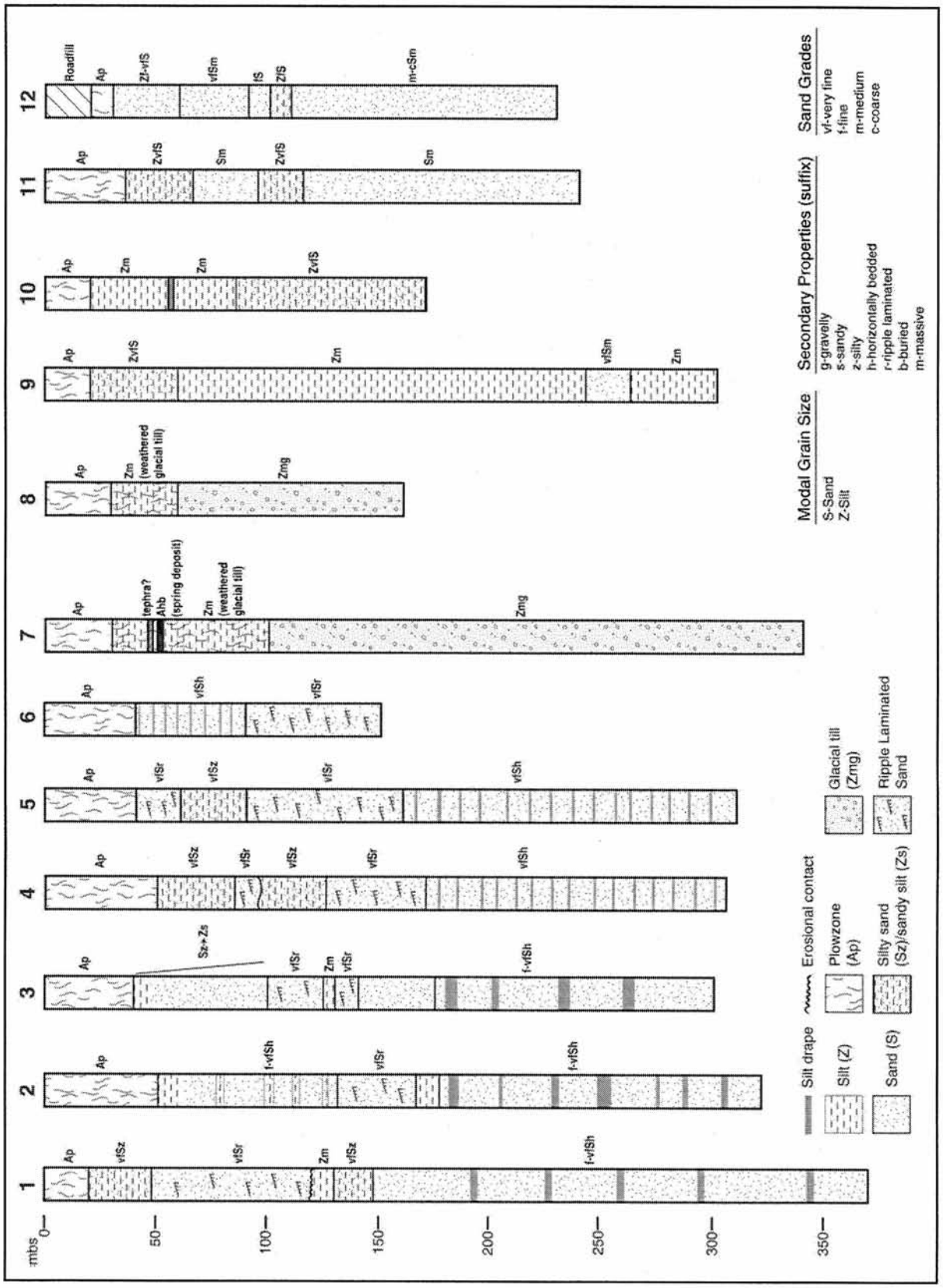


Figure B-1. Graphical logs of auger holes.

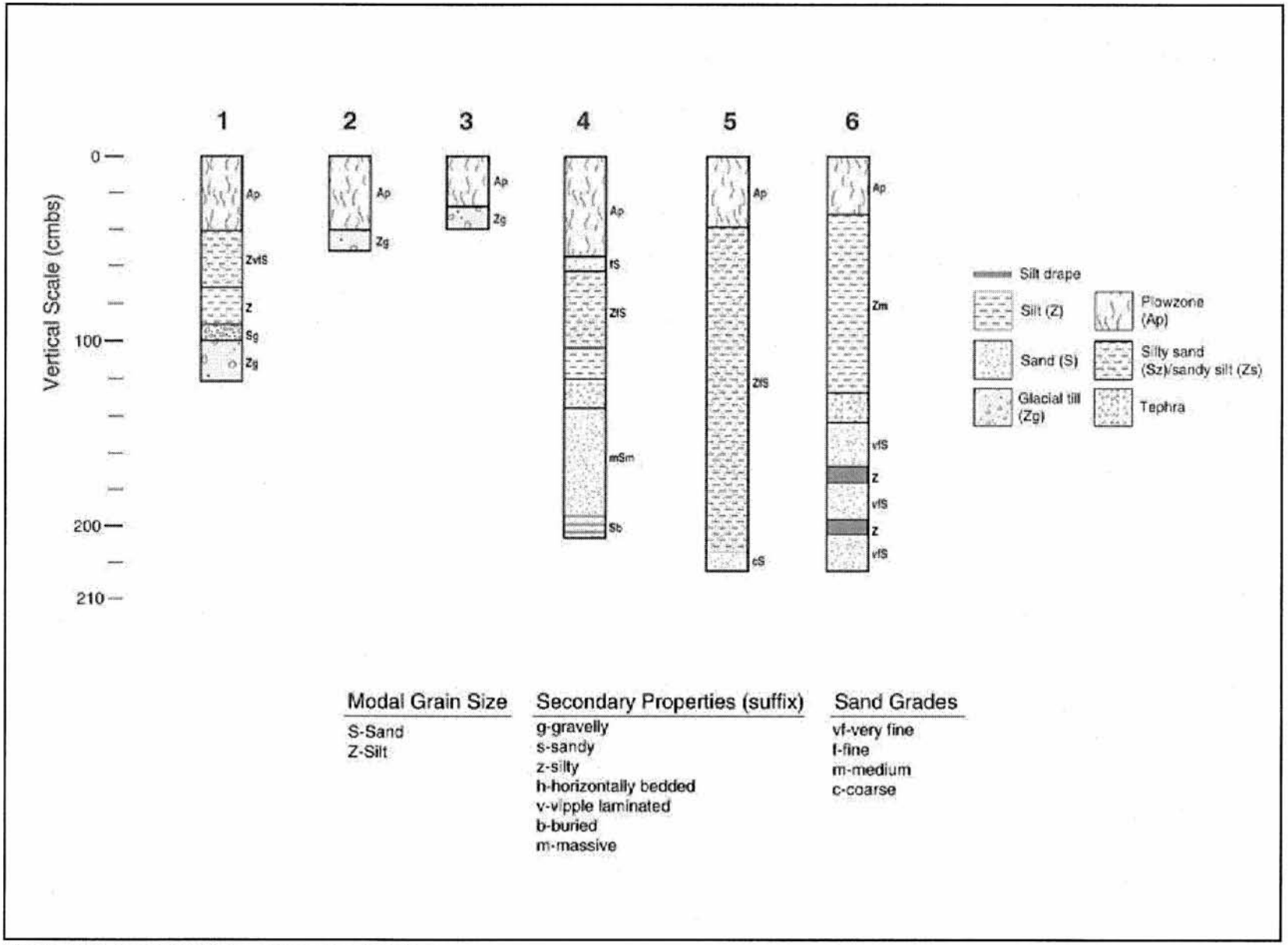


Figure B-2. Graphical logs of backhoe trenches.

APPENDIX C: Shovel Probe Data

Table C-1. Shovel Probe Summary for Skagit Environmental Bank.

PROBE NO.	DESCRIPTION	CULTURAL MATERIAL
1	0-14cm: Silty loam, small pebbles. 14-28cm: Gravelly sand, small pebbles, compact,oxidization, gray silt lenses. 28-50cm: Dark gray silt, compact. 50-60cm: Light tan silt.	None
2	0-28cm: Brown silt, slightly sandy. 28-40cm: Yellowish brown sandy silt, lighter colored silt lenses. 40-44cm:Brown silt, some oxidization. 44-68cm:Yellowish gray silt.	None
3	0-26cm: Dark grayish brown sandy silt, gravelly. 26-70cm: Yellowish brown sandy silt, lighter colored silt lenses.	None
4	0-14cm: Silty loam, small pebbles. 14-23cm:Dark gray silt, charcoal flecking. 23-32cm: Tan silt, compact, dry. 32-35cm: Gray ash, oxidization below. 35-60cm: Tan silt, charcoal flecking, dry.	None
5	0-11cm: Brown silt, slightly sandy. 11-26cm: Gray silt, very compact. 26-61cm: Yellowish brown sandy silt, lighter colored silt lenses.	None
6	0-22cm: Grayish brown silty sand. 22-40cm: Grayish brown silt, charcoal flecking. 40-61cm: Yellowish brown sandy silt, lighter colored silt lenses.	None
7	0-14cm: Sandy gravel, oxidized silt lenses. 14-30cm: Dark silt, compact, charcoal flecks and fragments. 30-47cm: Light tan silt, compact, charcoal flecking. 47-50cm: Oxidized silt, ash miture. 50-60cm: Light tan silt.	None
8	0-9cm: Medium brown silt, slightly sandy. 9-20cm: Light gray silt, compact, oxidized lenses. 20-61cm: Light yellowish brown silt.	None
9	0-10cm: Medium brown sandy silt. 10-32cm: Grayish brown silt, oxidization at bottom, charcoal concentrations. 32-62cm: Yellowish brown silt.	None
10	0-15cm: Sandy gravel, burned wood, charcoal flecking, heavily compacted. 15-40cm: Brown silt, ash and oxidization lenses. 40-45cm: Dark reddish brown silt, high charcoal content. 45-60cm: Light tan silt.	None
11	0-18cm: Grayish brown silt, gravels and sand. 18-40cm: Gray silt, 2 highly organic bands, very compact. 40-71cm: Yellowish brown silt.	None
12	0-12cm: Grayish brown silt, gravels and sand. 12-50cm: Yellowish brown silt, charcoal. 50-71cm: Gray silt mottled with yellowish brown silt, patchy oxidization.	None
13	0-21cm: Sandy gravel, patchy oxidization, compact. 21-60cm: Gray silt, charcoal flecking.	None
14	0-16cm: Grayish brown silt, some gravel and sand. 16-32cm: Gray silt, oxidized mottling. 32-61cm: Light gray silt, heavily compacted.	None
15	0-40cm: Gravish brown silt.	None
16	0-31cm: Brown silt, charcoal flecking. 31-60cm: Light gray silt, mottled oxidization.	None
17	0-37cm: Brown silt. 37-64cm: Gray silt, mottled oxidization. 64-72cm: Grayish brown, fine sand.	None
18	0-34cm: Brown silt. 34-41cm: Light gray silt, mottled oxidization. 41-60cm: Light gray sand, loosely compacted.	None

Table C-1. Shovel Probe Summary for Skagit Environmental Bank.

PROBE NO.	DESCRIPTION	CULTURAL MATERIAL
19	0-38cm: Medium brown silt. 38-65cm: Gray silt, mottled oxidization. 65-70cm: Grayish brown fine sand.	None
20	0-42cm: Medium brown silt. 42-67cm: Grayish brown fine sand.	None
21	0-32cm: Medium brown silt. 32-60cm: Light gray silt, mottled oxidization.	None
22	0-38cm: Brown silt. 38-62cm: Gray silt, mottled oxidization.	None
23	0-32cm: Medium brown silt. 32-60cm: Light gray silt, mottled oxidization.	None
24	0-38cm: Medium brown silt. 38-47cm: Light gray clay. 47-53cm: Dark gray silt, organically rich, oxidization lenses. 53-62cm: Gray silt, mottled oxidization.	None
25	0-44cm: Medium brown silt. 44-71cm: Gray silt, mottled oxidization.	None
26	0-33cm: Brown silt. 33-60cm: Gray silt, mottled oxidization.	None
27	0-44cm: Medium brown silt. 44-71cm: Gray silt, mottled oxidization.	None
28	0-34cm: Medium brown silt. 34-70cm: Gray silt, mottled oxidization.	None
29	0-35cm: Medium brown silt. 35-60cm: Gray silt, mottled oxidization.	None
30	0-38cm: Medium brown silt. 38-60cm: Gray silt, mottled oxidization.	None
31	0-38cm: Medium brown silt. 38-51cm: Gray silt, mottled oxidization. 51-65cm: Yellowish brown silt.	None
32	0-31cm: Medium brown silt. 31-60cm: Gray silt, mottled oxidization.	None
33	0-33cm: Medium brown silt. 33-51cm:Yellowish brown silt. 51-65cm:Gray silt, mottled oxidization.	None
34	0-33cm: Medium brown silt. 33-51cm:Yellowish brown silt.	None
35	0-34cm: Medium brown silt. 33-60cm:Tan silt, mottled oxidization.	None
36	0-34cm: Medium brown silt. 34-60cm:Yellowish brown silt.	None

APPENDIX D: Tephra Glass Identification

WASHINGTON STATE UNIVERSITY
Department of Geology

September 8, 2005

Mr. Charlie Hodges
Northwest Archaeological Associates, Inc.
Suite 200
5418 20th Avenue NW
Seattle, WA 98107

Dear Charlie,

As you suspected the tephra you provided is from Glacier Peak and I believe it is Glacier Peak tephra A which dates to approximately 2000 BP. It an excellent match (0.98) to a tephra sample from the Twin Lake core (55-56 cmbs) taken by Jon Riedel of North Cascades National Park. I've only recently been able to correlate it to the tephra A described by Jim Beget back in the 80's. It nice you've now provided me with another locality for this hard to find tephra.

I trust these results will be useful in your study. Thanks for using our service.

Sincerely,

Nick

Franklin F. (Nick) Foit, Jr.
Professor and Director of the Microbeam Lab

PO Box 642812, Pullman, WA 99164-2812
509-335-3009 • Fax: 509-335-7816 • geology@wsu.edu • www.wsu.edu/~geology

TABLE 1. GLASS CHEMISTRY OF NOOKACHAMPS CREEK TEPHRA

Oxide	HODGES SEB-T1
SiO_2	78.40(0.50)
Al_2O_3	11.85(0.33)
Fe_2O_3	1.16(0.18)
TiO_2	0.27(0.09)
Na_2O	3.32(0.09)
K_2O	3.96(0.21)
MgO	0.15(0.04)
CaO	0.80(0.12)
Cl	0.10(0.03)
Total**	100
Number of shards analyzed	17
Probable Source/Age	Glacier Peak A ~2000 BP
Similarity Coefficient***	0.98

* Standard deviations of the analyses given in parentheses
** Analyses normalized to 100 weight percent
*** Borchardt et al. (1972) J. Sed. Petrol., 42, 301-306

APPENDIX E: Site Record

(Submitted to DAHP under separate cover)

APPENDIX 3

Well Logs

RESOURCE PROTECTION WELL REPORT Notice of Intent No. 58466

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission *("x" in circle)*

(X) Construction

( ) Decommission *Original Construction Notice of Intent Number* _____

Type of Well *("x" in circle)*

(X) Resource Protection

( ) Geotech Soil Boring

Property Owner LOREN KORTHUIS

Site Address 14067 M'LAUGHLIN EXT. RD

Unique Ecology Well ID Tag No. #1

City MT VERNON County: SKAGIT

Consulting Firm SUSTAINABLE ENV. LLC

Location SE 1/4- NE 1/4 Sec 15 Twn 34 R 4 EWM or (WWM) *circle one*

Driller or Trainee Name Michael SPILLANE

Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____

Driller or Trainee Signature Michael Spillane

Long Deg _____ Long Min/Sec _____

Driller or Trainee License No CE 30780

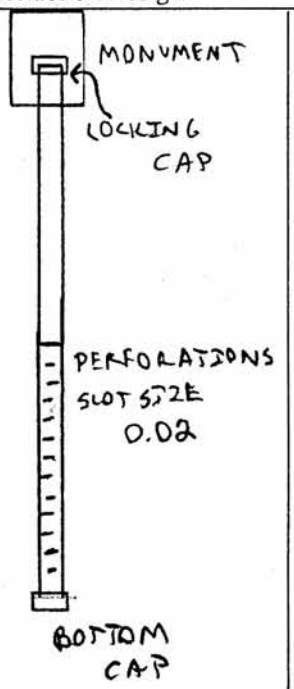
Tax Parcel No. _____

If trainee, licensed driller's Signature and License no. _____

Cased or Uncased Diameter 2" Static Level 1.42

Work/Decommission Start Date 9-6-04

Work/Decommission Completed Date 9-6-04

Construction/Design	Well Data	Formation Description
	TD = 4.9' SWL = 1.42 BLS BENTONITE 0'-2' SAND (20-30) 2'-4.9' PERFORATIONS 3'-5'	0-2' CLAY LOAM - MOTTLED 2-3' SILTY LOAM - MOTTLED 3-4.9' FINE SAND - GLEY SOIL TYPE: NOOKACHAMPS SERIES

0 2 4 6

Scale 1"= ~ 2'

RESOURCE PROTECTION WELL REPORT Notice of Intent No. 58466

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission *("x" in circle)*

(X) Construction
( ) Decommission *Original Construction Notice of Intent Number* _____

Type of Well *("x" in circle)*

(X) Resource Protection
( ) Geotech Soil Boring

Property Owner LOREN KORTHUIS

Unique Ecology Well ID Tag No. #2

Consulting Firm SUSTAINABLE ENV. LLC

Driller or Trainee Name Michael Spillane, PE

Driller or Trainee Signature Michael Spillane

Driller or Trainee License No. PE # CE 30780

If trainee, licensed driller's Signature and License no. _____

Site Address 14067 M'LAUGHLIN EXT. RD

City MT VERNON County: SKAGIT

Location SE 1/4-1/4 NE 1/4 Sec 15 Twn 34 R 4 EWM (circle one)

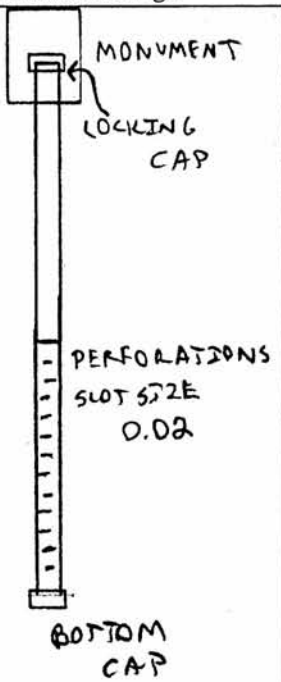
Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. _____

Cased or Uncased Diameter 2" Static Level 1.55'

Work/Decommission Start Date 9-6-04

Work/Decommission Completed Date 9-6-04

Construction/Design	Well Data	Formation Description
	TD = 4.7' SWL = 1.55' BLS BENTONITE 0'-2' SAND (20-30) 2'-4.7' PERFORATIONS 3-4.7'	0-2' LOAM MOTTLED 2-4.7' CLAY MOTTLED SOIL TYPE: NOOKACHAMPS SERIES

0
2
4
6

Scale 1"= ~ 2'

RESOURCE PROTECTION WELL REPORT Notice of Intent No. 58466

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission *("x" in circle)*

- (X) Construction
- ( ) Decommission *Original Construction Notice of Intent Number* _____

Type of Well *("x" in circle)*

- (X) Resource Protection
- ( ) Geotech Soil Boring

Property Owner LOREN KORTHUIS

Unique Ecology Well ID Tag No. #3

Consulting Firm SUSTAINABLE ENV. LLC

Driller or Trainee Name Michael Spillane, PE

Driller or Trainee Signature Michael Spillane

Driller or Trainee License No CE 30780

If trainee, licensed driller's Signature and License no. _____

Site Address 14067 MCLAUGHLIN EXT. RD

City MT VERNON County: SKAGIT

Location SE 1/4- 1/4 NE 1/4 Sec 15 Twn 34 R 4 EWM or WWM *circle one*

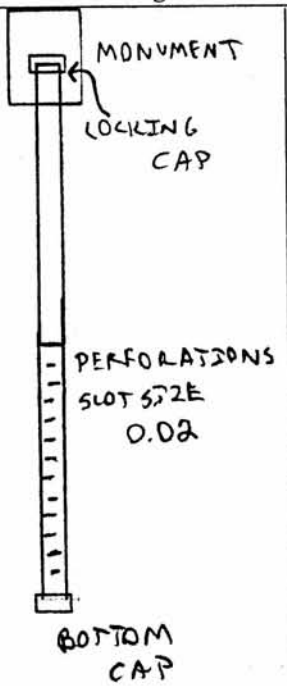
Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. _____

Cased or Uncased Diameter 2" Static Level 3.50

Work/Decommission Start Date 9-6-04

Work/Decommission Completed Date 9-6-04

Construction/Design	Well Data	Formation Description
	TD = 5.48' SWL 3.50' BLS BENTONITE 0'-2' SAND (20-30) 2-5.48' PERFORATIONS 3-5.48'	0-3' SILTY LOAM-MOTTLED 3'-5 CLAY - GLEY SOIL TYPE: NOOKACHAMPS SERIES

Scale 1"= ~ 2'

RESOURCE PROTECTION WELL REPORT Notice of Intent No. 58466

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission *("x" in circle)*

- (X) Construction
- ( ) Decommission *Original Construction Notice of Intent Number* _____

Type of Well *("x" in circle)*

- (X) Resource Protection
- ( ) Geotech Soil Boring

Property Owner LOREN KORTHUIS

Unique Ecology Well ID Tag No. #5

Consulting Firm SUSTAINABLE ENV. LLC

Driller or Trainee Name Michael Spillane, PE

Driller or Trainee Signature Michael Spillane

Driller or Trainee License No. CE 30780

If trainee, licensed driller's Signature and License no. _____

Site Address 14067 M'LAUGHLIN EXT. RD

City MT VERNON County: SKAGIT

Location SE 1/4- 1/4 NE 1/4 Sec 15 Twn 34 R 4 EWM or (WWM) *circle one*

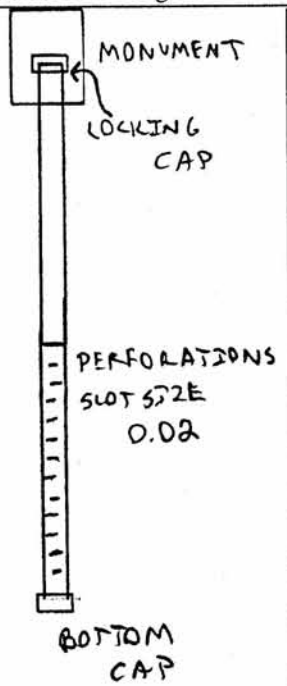
Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. _____

Cased or Uncased Diameter 2" Static Level 4.21

Work/Decommission Start Date 9-6-04

Work/Decommission Completed Date 9-6-04

Construction/Design	Well Data	Formation Description
	TD = 5.4' SWL = 4.21' BLS BENTONITE 0-2' SAND (20-30) 2-5.4' PERFORATIONS 3-5.4'	0-4 SILTY LOAM - MOTTLED 4-5.4' SILTY LOAM - GLEY SOIL TYPE: NOOKACHAMPS SERIES

Scale 1"= ~ 2'

RESOURCE PROTECTION WELL REPORT Notice of Intent No. 58466

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission *("x" in circle)*

(X) Construction
( ) Decommission *Original Construction Notice of Intent Number* _____

Property Owner LOREN KORTHUIS

Unique Ecology Well ID Tag No. #6

Consulting Firm SUSTAINABLE ENV. LLC

Driller or Trainee Name Michael Spillane, PE

Driller or Trainee Signature Michael Spillane

Driller or Trainee License No CE 30780

If trainee, licensed driller's Signature and License no. _____

Type of Well *("x" in circle)*

(X) Resource Protection
( ) Geotech Soil Boring

Site Address 14067 M'LAUGHLIN EXT. RD

City MT VERNON County: SKAGIT

Location SE 1/4-1/4 NE 1/4 Sec 15 Twn 34 R 4 EWM or (WWM) *circle one*

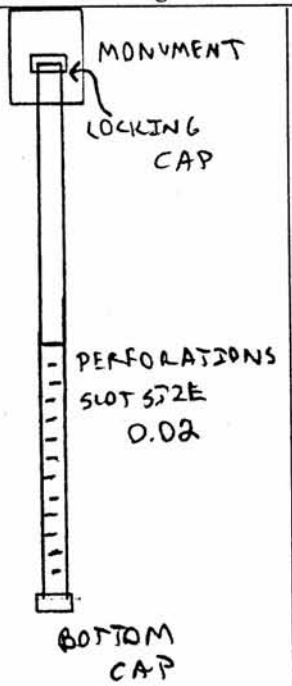
Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. _____

Cased or Uncased Diameter 2" Static Level 4.18'

Work/Decommission Start Date 9-6-04

Work/Decommission Completed Date 9-6-04

Construction/Design	Well Data	Formation Description
	TD = 5.49' SWL 4.18' BLS BENTONITE 0'-2' SAND (20-30) 2'-5.49' PERFORATIONS 3-5.49'	0-3' LOAM - MOTTLED 3-5.4' LOAMY CLAY - CLEY

Scale 1"= ~ 2'

RESOURCE PROTECTION WELL REPORT Notice of Intent No. 58467

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission *("x" in circle)*

☒ Construction

○ Decommission *Original Construction Notice of Intent Number* _____

Type of Well *("x" in circle)*

☒ Resource Protection

○ Geotech Soil Boring

Property Owner LOREN KORTHUIS

Unique Ecology Well ID Tag No. #8

Consulting Firm SUSTAINABLE ENV. LLC

Driller or Trainee Name Michael SPILLANE, PE

Driller or Trainee Signature [signature]

Driller or Trainee License No CE 30780

If trainee, licensed driller's Signature and License no. _____

Site Address 14067 MCLAUGHLIN EXT. RD

City MT VERNON County: SKAGIT

Location NE 1/4- 1/4 NE 1/4 Sec 10 Twn 34 R 4 EWM or WWM *circle one*

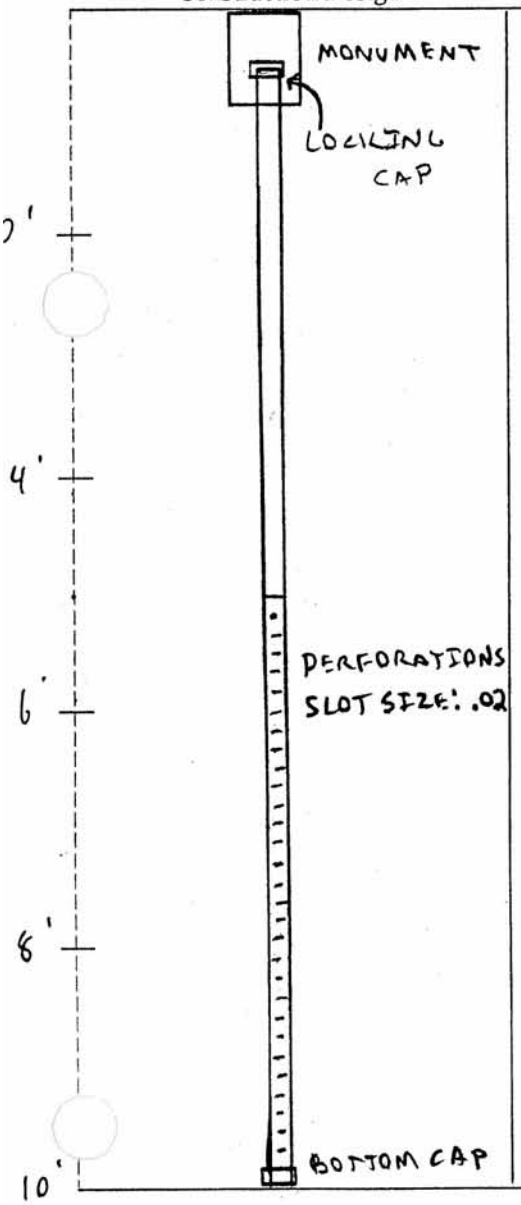
Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. _____

Cased or Uncased Diameter 2" Static Level 7.41

Work/Decommission Start Date 9-6-04

Work/Decommission Completed Date 9-7-04

Construction/Design	Well Data	Formation Description
	TD = 10.54' SWL = 7.41' BLS BENTONITE 0-4' SAND (20-30) 4-10.5' PERFORATIONS 5.5'-10.5'	0-3' TOPSOIL - ORGANIC 3-4' FINE SAND - OXIC 4-5' SILTY LOAM - MOTTLED 5-10.5' SILTY LOAM - GLEY SOIL TYPE: NOOKACHAMPS SERIES

Scale 1"= ~2'

RESOURCE PROTECTION WELL REPORT Notice of Intent No. 58467

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission *("x" in circle)*

(x) Construction
( ) Decommission *Original Construction Notice of Intent Number* _____

Type of Well *("x" in circle)*

(x) Resource Protection
( ) Geotech Soil Boring

Property Owner LOREN KORTHUIS

Unique Ecology Well ID Tag No. #9

Consulting Firm SUSTAINABLE ENV. LLC

Driller or Trainee Name Michael Spillane, PE

Driller or Trainee Signature Michael Spillane

Driller or Trainee License No CR 30780

If trainee, licensed driller's Signature and License no. _____

Site Address 14067 M'LAUGHLIN EXT. RD

City MT VERNON County: SKAGIT

Location NE 1/4- 1/4 NE 1/4 Sec 15 Twn 34 R 4 EWM *circle one*

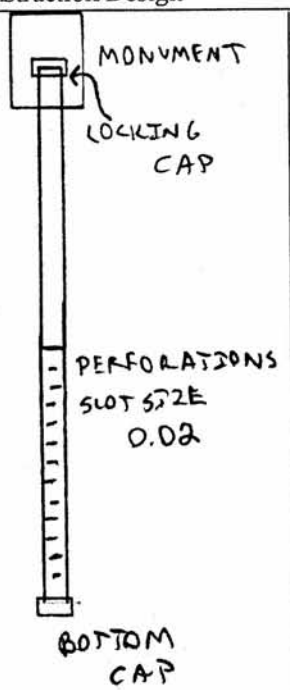
Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. _____

Cased or Uncased Diameter 2" Static Level 1.47'

Work/Decommission Start Date 9-6-04

Work/Decommission Completed Date 9-7-04

Construction/Design	Well Data	Formation Description
	TD = 5.49' SWL = 1.47' BLS BENTONITE 0'-2' SAND (20-30) 2'-5.49' PERFORATIONS 3-5.49'	0-4' SILTY LOAM - MOTTLED 4'-5.5' CLAY - MOTTLED SOIL TYPE: NOOKACHAMPS SERIES

Scale 1"= ~ 2'

RESOURCE PROTECTION WELL REPORT Notice of Intent No. 58468

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission *("x" in circle)*

(X) Construction
( ) Decommission *Original Construction Notice of Intent Number* _____

Type of Well *("x" in circle)*

(X) Resource Protection
( ) Geotech Soil Boring

Property Owner LOREN KORTHUIS

Site Address 14067 M'LAUGHLIN EXT. RD

Unique Ecology Well ID Tag No. #10

City MT VERNON County: SKAGIT

Consulting Firm SUSTAINABLE ENV. LLC

Location SW 1/4- 1/4 SW 1/4 Sec 11 Twn 34 R 4 EWM or WWM *circle one*

Driller or Trainee Name Michael SPILLANE, PE

Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____

Driller or Trainee Signature [signature]

Long Deg _____ Long Min/Sec _____

Driller or Trainee License No CE 30780

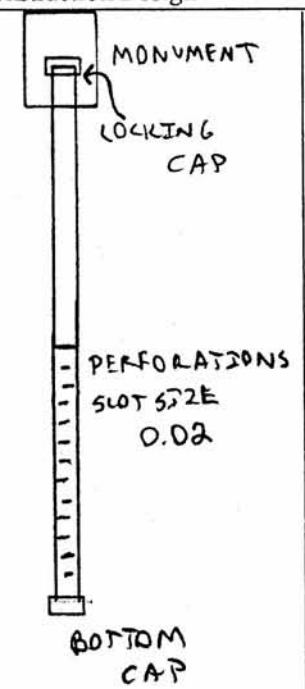
Tax Parcel No. _____

If trainee, licensed driller's Signature and License no. _____

Cased or Uncased Diameter 2" Static Level 4.19

Work/Decommission Start Date 9-6-04

Work/Decommission Completed Date 9-7-04

Construction/Design	Well Data	Formation Description
	TD = 5.49' SWL 4.18' BLS BENTONITE 0 - 2' SAND (20-30) 2 - 5.49' PERFORATIONS 3 - 5.49'	0-3' SILTY LOAM - MOTTLED 3'-5'+ FINE SAND - MOTTLED SOIL TYPE: SUMAS SERIES

Scale 1"= ~ 2'

ECY 050-12 (Rev 2/01)

RESOURCE PROTECTION WELL REPORT Notice of Intent No. 58468

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission *("x" in circle)*

✓ Construction

Decommission *Original Construction Notice of Intent Number* _____

Type of Well *("x" in circle)*

○ Resource Protection

○ Geotech Soil Boring

Property Owner LOREN KORTHUIS

Site Address 14067 MCLAUGHLIN EXT RD

Unique Ecology Well ID Tag No. #11

City MT VERNON County: SKAGIT

Consulting Firm SUSTAINABLE ENV. LLC.

Location SW 1/4- 1/4 SW 1/4 Sec 11 Twn 34 R 4 EWM *circle one*

Driller or Trainee Name Michael Spillane PE

Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____

Long Deg _____ Long Min/Sec _____

Driller or Trainee Signature Michael Spillane

Driller or Trainee License No CE 30780

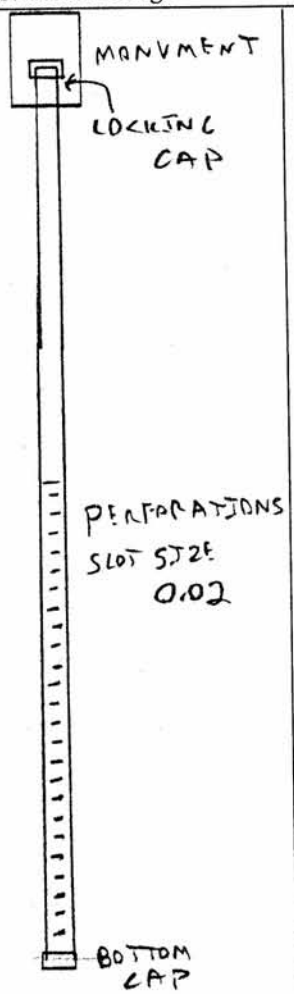
Tax Parcel No. _____

Cased or Uncased Diameter 2" Static Level 7.42

If trainee, licensed driller's Signature and License no. _____

Work/Decommission Start Date 9-5-04

Work/Decommission Completed Date 9-7-04

Construction/Design	Well Data	Formation Description
	TD = 8.09' SWL = 7.42' BLS BENTONITE 0-3' SAND (20-30) 3-8' PERFORATIONS 4-8.09	0-5' SAND - OXIC 5-6' SILTY LOAM - MOTTLED 6-7' SAND - MOTTLED SOIL TYPE: SUMAS SERIES

Scale 1"= ~2'

RESOURCE PROTECTION WELL REPORT Notice of Intent No. 58469

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission *("x" in circle)*

(X) Construction

( ) Decommission *Original Construction Notice of Intent Number* _____

Type of Well *("x" in circle)*

(X) Resource Protection

( ) Geotech Soil Boring

Property Owner LOREN KORTHUIS

Site Address 14067 MCLAUGHLIN EXT. RD

Unique Ecology Well ID Tag No. #12

City MT VERNON County: SKAGIT

Consulting Firm SUSTAINABLE ENV. LLC

Location SE 1/4- 1/4 SE 1/4 Sec 10 Twn 34 R 4 EWM or WWM *circle one*

Driller or Trainee Name Michael Spillane, PE

Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____

Long Deg _____ Long Min/Sec _____

Driller or Trainee Signature [signature]

Driller or Trainee License No CE 30780

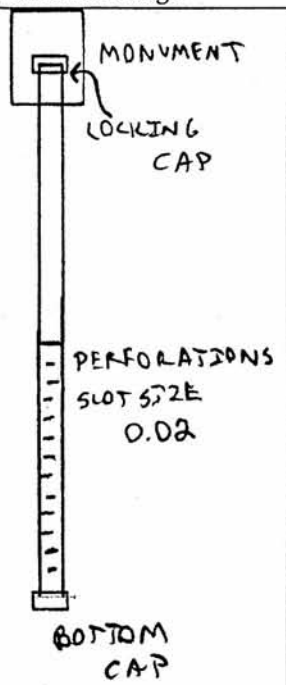
Tax Parcel No. _____

Cased or Uncased Diameter 2" Static Level 4.07

If trainee, licensed driller's Signature and License no. _____

Work/Decommission Start Date 9-6-04

Work/Decommission Completed Date 9-7-04

Construction/Design	Well Data	Formation Description
	TD = 5.47' SWL = 4.07' BLS BENTONITE 0'-2' SAND (20-30) 2'-5.47' PERFORATIONS 3'-5.47'	0-3' SILTY LOAM - MOTTLED 3-5.47 SANDY LOAM - GLEY SOIL TYPE: SUMAS SERIES

Scale 1"= ~ 2'

RESOURCE PROTECTION WELL REPORT Notice of Intent No. 58469

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission *("x" in circle)*

(X) Construction

( ) Decommission *Original Construction Notice of Intent Number* _____

Type of Well *("x" in circle)*

(X) Resource Protection

( ) Geotech Soil Boring

Property Owner LOREN KORTHUIS

Unique Ecology Well ID Tag No. # 13

Consulting Firm SUSTAINABLE ENV. LLC

Driller or Trainee Name Michael Spillane, PE

Driller or Trainee Signature [signature]

Driller or Trainee License No CE 30780

If trainee, licensed driller's Signature and License no. _____

Site Address 14067 McLAUGHLIN EXT. RD

City MT VERNON County: SKAGIT

Location SE 1/4- 1/4 SE 1/4 Sec 10 Twn 34 R 4 EWM or WWM *circle one*

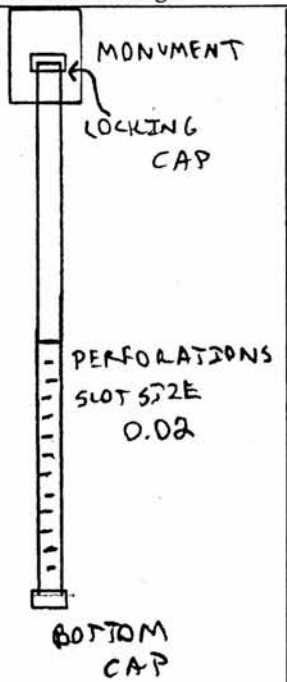
Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. _____

Cased or Uncased Diameter 2" Static Level 4.28

Work/Decommission Start Date 9-6-04

Work/Decommission Completed Date 9-7-04

Construction/Design	Well Data	Formation Description
	TD = 6.11' SWL = 4.28' BLS BENTONITE 0-2' SAND (00-30) 2-6.1' PERFORATIONS 3'-6'	0-5' SILTY LOAM - MOTTLED 5-6'+ SILTY SAND - MOTTLED SOIL TYPE: SUMAS SERIES

0 2' 4' 6'

Scale 1"= ~ 2'

RESOURCE PROTECTION WELL REPORT Notice of Intent No. 58469

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission *("x" in circle)*

(X) Construction

( ) Decommission *Original Construction Notice of Intent Number* _____

Type of Well *("x" in circle)*

(X) Resource Protection

( ) Geotech Soil Boring

Property Owner LOREN KORTHUIS

Site Address 14067 M'LAUGHLIN EXT. RD

Unique Ecology Well ID Tag No. #14

City MT VERNON County: SKAGIT

Consulting Firm SUSTAINABLE ENV. LLC

Location SE 1/4- 1/4 SE 1/4 Sec 10 Twn 34 R 4 EWM or (WWM) *circle one*

Driller or Trainee Name Michael Spillane, PE

Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____

Driller or Trainee Signature _____

Long Deg _____ Long Min/Sec _____

Driller or Trainee License No CTZ 30780

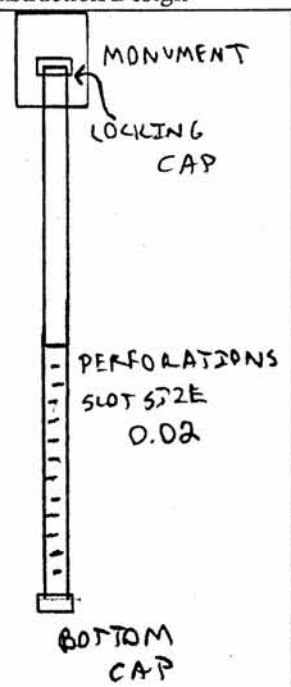
Tax Parcel No. _____

If trainee, licensed driller's Signature and License no. _____

Cased or Uncased Diameter 2" Static Level 2.69'

Work/Decommission Start Date 9-6-04

Work/Decommission Completed Date 9-7-04

Construction/Design	Well Data	Formation Description
	TD = 5.34' SWL = 2.89' BLS BENTONITE 0-2' SAND (20-30) 2-5.34' PERFORATIONS 3'-5.34'	0-5' SILTY LOAM - MOTTLED SOIL TYPE: SUMAS SERIES

0

2'

4'

6

Scale 1"= ~ 2'

RESOURCE PROTECTION WELL REPORT Notice of Intent No. 68470

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission *("x" in circle)*

(X) Construction
( ) Decommission *Original Construction Notice of Intent Number* _____

Type of Well *("x" in circle)*

(X) Resource Protection
( ) Geotech Soil Boring

Property Owner LOREN KORTHUIS

Unique Ecology Well ID Tag No. #15

Consulting Firm SUSTAINABLE ENV. LLC.

Driller or Trainee Name Michael SPILLANE PE

Driller or Trainee Signature Michael Spillane

Driller or Trainee License No CE 30780

If trainee, licensed driller's Signature and License no. _____

Site Address 14067 M'LAUGHLIN EXT RD.

City MT VERNON County: SKAGIT

Location NE 1/4- 1/4 SE 1/4 Sec 10 Twn 34 R 4 EWM (circle one)

Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

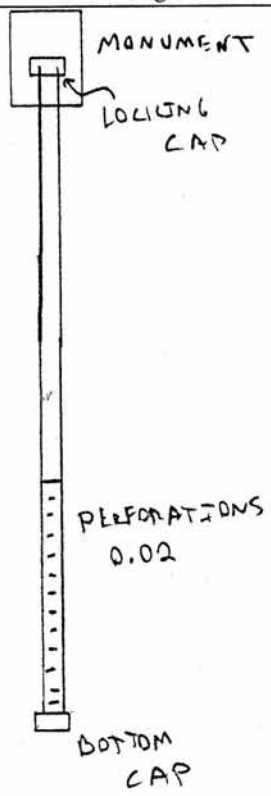
Tax Parcel No. _____

Cased or Uncased Diameter 2" Static Level 4.69

Work/Decommission Start Date 9-5-04

Work/Decommission Completed Date 9-7-04

Construction/Design



Well Data

TD = 6.69

SWL = 4.68 BLS

BENTONITE 0 - 3'

SAND (20-30) 3 - 6.7'

PERFORATIONS 4 - 6.7'

Formation Description

0-6' SILTY LOAM - MOTTLED

6-7' SAND - MOTTLED

SOIL TYPE:

SUMAS SERIES

Scale 1"= ~ 2'

ECY 050-12 (Rev 2/01)

RESOURCE PROTECTION WELL REPORT Notice of Intent No. 58470

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission *("x" in circle)*

(X) Construction
( ) Decommission *Original Construction Notice of Intent Number* _____

Type of Well *("x" in circle)*

(X) Resource Protection
( ) Geotech Soil Boring

Property Owner LOREN KORTHUIS

Unique Ecology Well ID Tag No. #16

Consulting Firm SUSTAINABLE ENV. LLC

Driller or Trainee Name Michael Spillane, PE

Driller or Trainee Signature Michael Spillane

Driller or Trainee License No. CE 30780

If trainee, licensed driller's Signature and License no. _____

Site Address 14067 MCLAUGHLIN EXT. RD

City MT VERNON County: SKAGIT

Location NE 1/4- 1/4 SE 1/4 Sec 10 Twn 34 R 4 EWM or WWM *circle one*

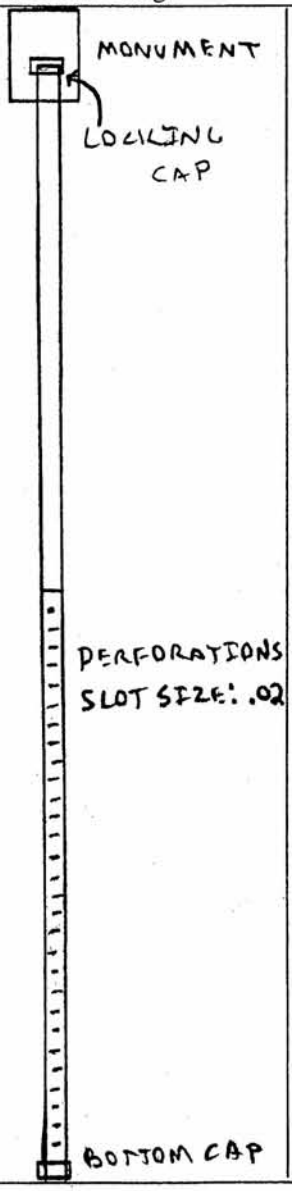
Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. _____

Cased or Uncased Diameter 2" Static Level 4-85

Work/Decommission Start Date 9-6-04

Work/Decommission Completed Date 9-7-04

Construction/Design	Well Data	Formation Description
	TD = 9.47' SWL = 4.85' BLS BENTONITE 0-4' SAND (20-30) 4-9.47 PERFORATIONS 5-9.47	0-4.5 LOAM MOTTLED 4.5-9.47 SILTY LOAM MOTTLED SOIL TYPE: SUMAS SERIES

Scale 1"= ~2'

Page 1 of 1

ECY 050-12 (Rev 2/01)

RESOURCE PROTECTION WELL REPORT Notice of Intent No. 58470

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission *("x" in circle)*

☒ Construction

○ Decommission *Original Construction Notice of Intent Number* _____

Type of Well *("x" in circle)*

☒ Resource Protection

○ Geotech Soil Boring

Property Owner LOREN KLORTHUIS

Unique Ecology Well ID Tag No. #17

Consulting Firm SUSTAINABLE ENV. LLC

Driller or Trainee Name Michael SPILLANE

Driller or Trainee Signature Michael Spillane

Driller or Trainee License No CE 30780

If trainee, licensed driller's Signature and License no. _____

Site Address 14067 MCLAUGHLIN EXT. RD

City MT VERNON County: SKAGIT

Location NE 1/4- 1/4 SE 1/4 Sec 10 Twn 34 R 4 EWM or WWM *circle one*

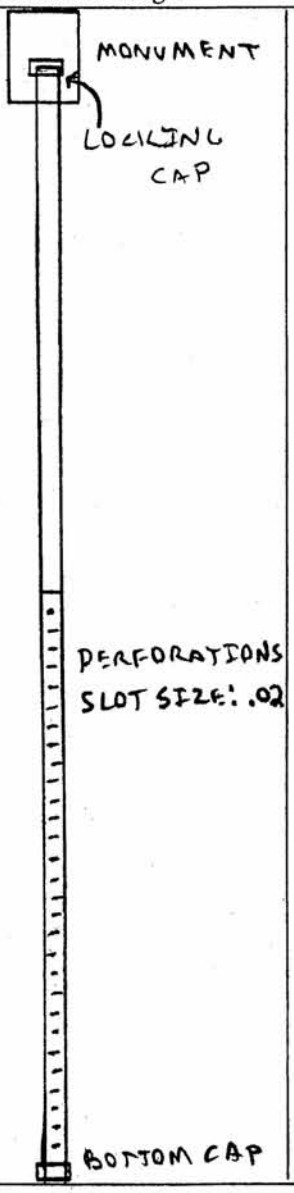
Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. _____

Cased or Uncased Diameter 2" Static Level 6.31

Work/Decommission Start Date 9-6-04

Work/Decommission Completed Date 9-7-04

Construction/Design	Well Data	Formation Description
	TD = 9.15' SWL = 6.31' BLS BENTONITE = 0-4' SAND (20-30) 4'-9.15' PERFORATIONS 5'-9.15'	0-6' SILTY LOAM - MOTTLED 6-8' SAND - MOTTLED 8'-9' SILTY LOAM - MOTTLED SOIL TYPE SUMAS SERIES

Scale 1"= ~2'

Page 1 of 1

ECY 050-12 (Rev 2/01)

RESOURCE PROTECTION WELL REPORT Notice of Intent No. 58471

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission *("x" in circle)*

(X) Construction
( ) Decommission *Original Construction Notice of Intent Number* _____

Type of Well *("x" in circle)*

(X) Resource Protection
( ) Geotech Soil Boring

Property Owner LOREN KORTHUIS

Unique Ecology Well ID Tag No. #18

Consulting Firm SUSTAINABLE ENV. LLC

Driller or Trainee Name Michael SPILLANE, PE

Driller or Trainee Signature Michael Spillane

Driller or Trainee License No. CE 30780

If trainee, licensed driller's Signature and License no. _____

Site Address 14067 McLAUGHLIN EXT. RD

City MT VERNON County: SKAGIT

Location NW 1/4- 1/4 SE 1/4 Sec 10 Twn 34 R 4 EWM or (WWM) *circle one*

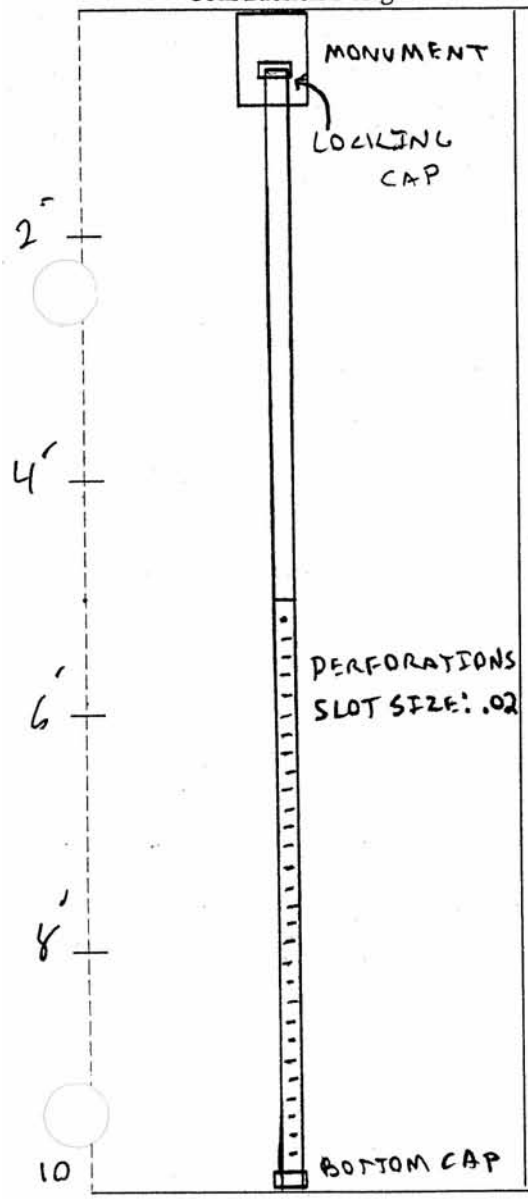
Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. _____

Cased or Uncased Diameter 2" Static Level 7.43'

Work/Decommission Start Date 9-8-04

Work/Decommission Completed Date 9-7-04

Construction/Design	Well Data	Formation Description
	TD = 10.5' SWL = 7.43' BLS BENTONITE 0-4' SAND (20-30) 4-10.5' PERFORATIONS 5.5'-10.5'	0-7' SILTY LOAM - MOTTLED 7-10.5 SANDY LOAM - MOTTLED SOIL TYPE: SUMAS SERIES

Scale 1"= ~2'

ECY 050-12 (Rev 2/01)

RESOURCE PROTECTION WELL REPORT Notice of Intent No. 58471

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission *("x" in circle)*

- ⊗ Construction
- ○ Decommission *Original Construction Notice of Intent Number* _____

Type of Well *("x" in circle)*

- ⊗ Resource Protection
- ○ Geotech Soil Boring

Property Owner LOREN KORTHUIS

Unique Ecology Well ID Tag No. #19

Consulting Firm SUSTAINABLE ENV. LLC

Driller or Trainee Name Michael SPILLANE, PE

Driller or Trainee Signature Michael Spillane

Driller or Trainee License No. CE 30780

If trainee, licensed driller's Signature and License no. _____

Site Address 14067 McLAUGHLIN EXT. RD

City MT VERNON County: SKAGIT

Location NW 1/4- 1/4 SE 1/4 Sec 10 Twn 34 R 4 EWM or (WWM) *circle one*

Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

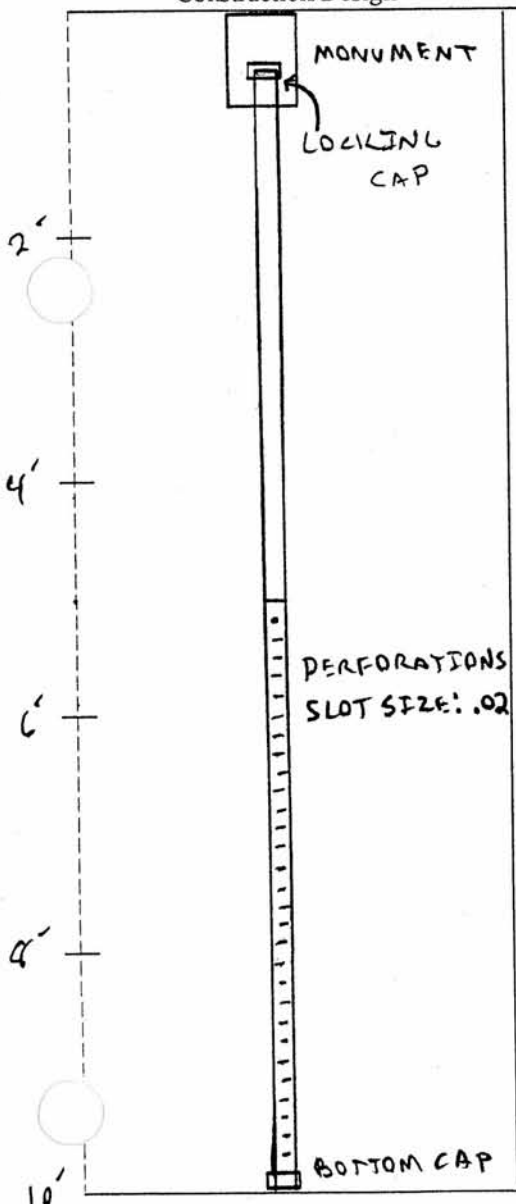
Tax Parcel No. _____

Cased or Uncased Diameter 2" Static Level 5.04'

Work/Decommission Start Date 9-5-04

Work/Decommission Completed Date 9-7-04

Construction/Design



Well Data

TD = 10.55'

SWL = 5.04' BLS

BENTONITE 0-4'

SAND (20.30) 4-10.5'

PERFORATIONS 5.5-10.5'

Formation Description

0-8' SILTY LOAM - MOTTLED

8-10.5 SANDY LOAM - MOTTLED

SOIL TYPE:

SUMAS SERIES

Scale 1"= ~2'

RESOURCE PROTECTION WELL REPORT Notice of Intent No. 58472

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission *("x" in circle)*

☒ Construction

Decommission *Original Construction Notice of Intent Number* _____

Type of Well *("x" in circle)*

☒ Resource Protection

○ Geotech Soil Boring

Property Owner LOREN KORTHUIS

Unique Ecology Well ID Tag No. #20

Consulting Firm SUSTAINABLE ENV. LLC

Driller or Trainee Name Michael SPILLANE, PE

Driller or Trainee Signature Michael Spillane

Driller or Trainee License No. CE 30780

If trainee, licensed driller's Signature and License no. _____

Site Address 14067 MCLAUGHLIN EXT. RD

City MT VERNON County: SKAGIT

Location SW 1/4-1/4 NE 1/4 Sec 10 Twn 34 R 4 EWM or ~~WWM~~ *circle one*

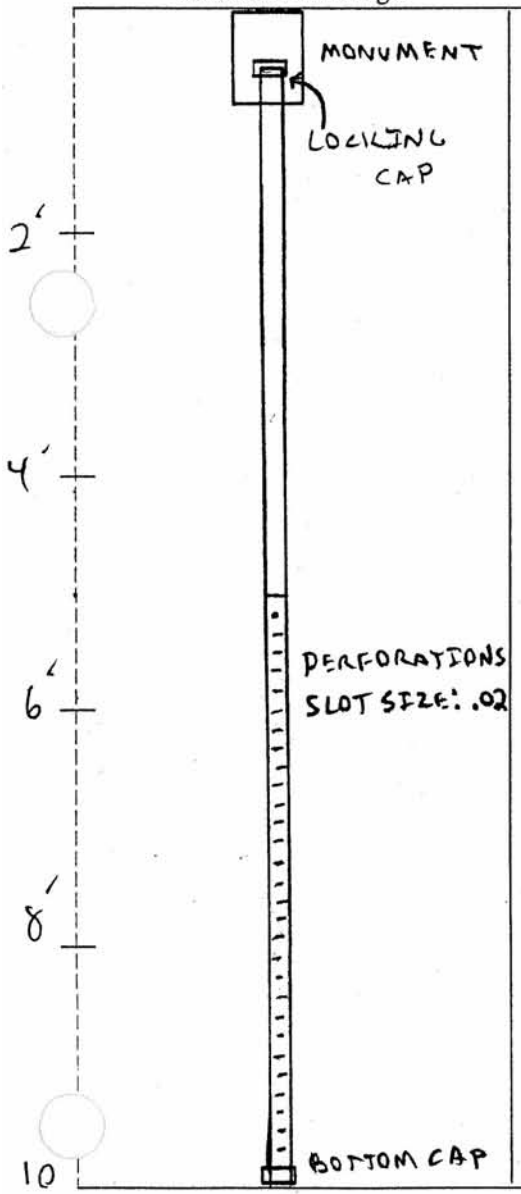
Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. _____

Cased or Uncased Diameter 2" Static Level 8.38

Work/Decommission Start Date 9-8-04

Work/Decommission Completed Date 9-7-04

Construction/Design	Well Data	Formation Description
	TD = 10.47' SWL = 8.38' BLS BENTONITE 0-4' SAND (20-30) 4-10.47' PERFORATIONS 5.5-10.47'	0-5' SILTY LOAM - MOTTLED 5'-6' SAND - MOTTLED 6-7' SANDY LOAM - MOTTLED 7-10.5' SANDY LOAM - GLEY SOIL TYPE: SUMAS SERIES

Scale 1"= ~2'

RESOURCE PROTECTION WELL REPORT Notice of Intent No. 58472

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission *("x" in circle)*

(X) Construction
( ) Decommission *Original Construction Notice of Intent Number* _____

Type of Well *("x" in circle)*

(X) Resource Protection
( ) Geotech Soil Boring

Property Owner LOREN KORTHUIS

Site Address 14067 McLAUGHLIN EXT. RD

Unique Ecology Well ID Tag No. #21

City MT VERNON County: SKAGIT

Consulting Firm SUSTAINABLE ENV. LLC

Location SW 1/4- 1/4 NE 1/4 Sec 10 Twn 34 R 4 EWM or (EWM) *circle one*

Driller or Trainee Name Michael SPILLANE PE

Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____

Long Deg _____ Long Min/Sec _____

Driller or Trainee Signature Michael Spillane

Driller or Trainee License No CE 30780

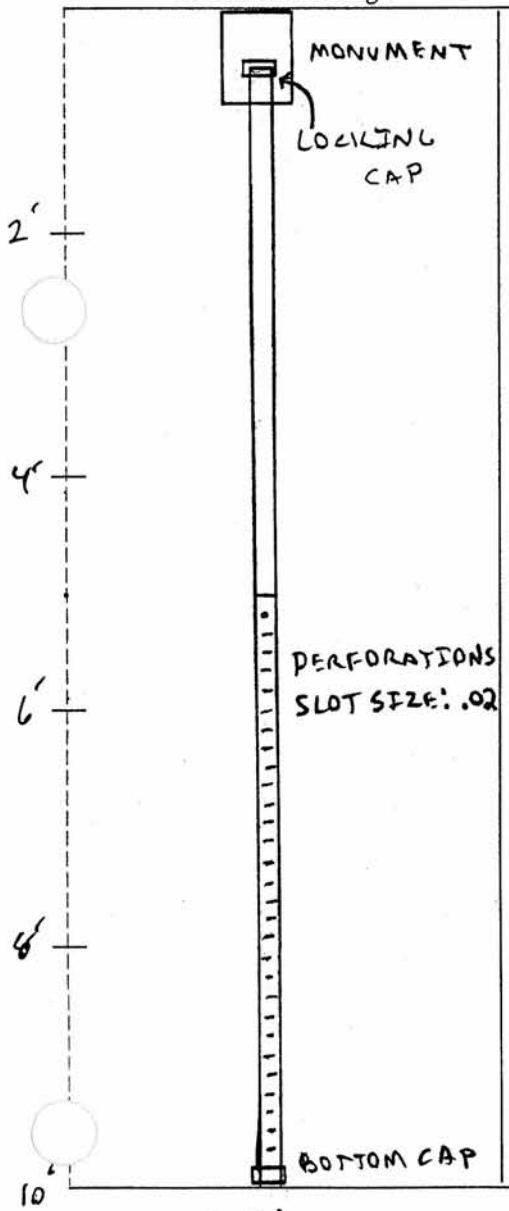
Tax Parcel No. _____

If trainee, licensed driller's Signature and License no. _____

Cased or Uncased Diameter 2" Static Level 9.96'

Work/Decommission Start Date 9-6-04

Work/Decommission Completed Date 9-7-04

Construction/Design	Well Data	Formation Description
	TD = 10.45' SWL = 9.96' BLS BENTONITE 0-4' SAND (20-30) 4-10.5' PERFORATIONS 5.5'-10.5'	0-10.5' SILTY LOAM - MOTTLED SOIL TYPE: SUMAS SERIES

Scale 1"= ~2'

ECY 050-12 (Rev 2/01)

RESOURCE PROTECTION WELL REPORT Notice of Intent No. 58472

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission *("x" in circle)*

(x) Construction
( ) Decommission *Original Construction Notice of Intent Number* _____

Type of Well *("x" in circle)*

(x) Resource Protection
( ) Geotech Soil Boring

Property Owner LOREN KORTHUIS

Unique Ecology Well ID Tag No. #22

Consulting Firm SUSTAINABLE ENV. LLC.

Driller or Trainee Name Michael Sullivan, PE

Driller or Trainee Signature [signature]

Driller or Trainee License No. CR 30780

If trainee, licensed driller's Signature and License no. _____

Site Address 14067 McLAUGHLIN EXT. RD.

City MT VERNON County: SKAGIT

Location SW 1/4- 1/4 NE 1/4 Sec 10 Twn 34 R 4 EWM or (WWM) *circle one*

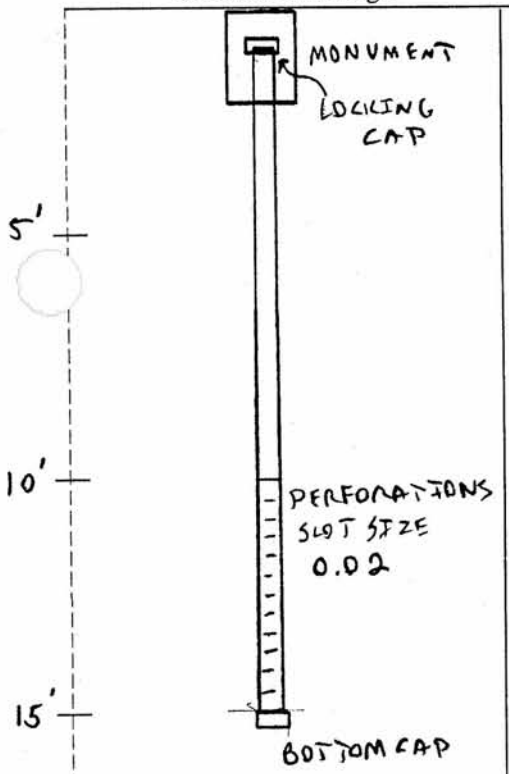
Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. _____

Cased or Uncased Diameter 2" Static Level 11.04

Work/Decommission Start Date 9-6-04

Work/Decommission Completed Date 9-6-04

Construction/Design	Well Data	Formation Description
	TD = 15.28' SWL 11.04 BLS BENTONITE 0-6' SAND (20-30) 6-15.28' PERFORATIONS 10'-15.28'	0-15' SILTY LOAM - MOTTLED SOIL TYPE: NOOKLACHAMPS SERIES

Scale 1"= ~5'

ECY 050-12 (Rev 2/01)

RESOURCE PROTECTION WELL REPORT Notice of Intent No. 58467

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission *("x" in circle)*

☒ Construction

Decommission *Original Construction Notice of Intent Number* _____

Type of Well *("x" in circle)*

☒ Resource Protection

○ Geotech Soil Boring

Property Owner LOREN KORTHUIS

Unique Ecology Well ID Tag No. #23

Consulting Firm SUSTAINABLE ENV. LLC

Driller or Trainee Name Michael SPILLANE PE

Driller or Trainee Signature Michael Spillane

Driller or Trainee License No CE 30780

If trainee, licensed driller's Signature and License no. _____

Site Address 14067 MCLAUGHLIN EXT. RD

City MT VERNON County: SKAGIT

Location NE 1/4- 1/4 NE 1/4 Sec 15 Twn 34 R 4 EWM or ~~WM~~ *circle one*

Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

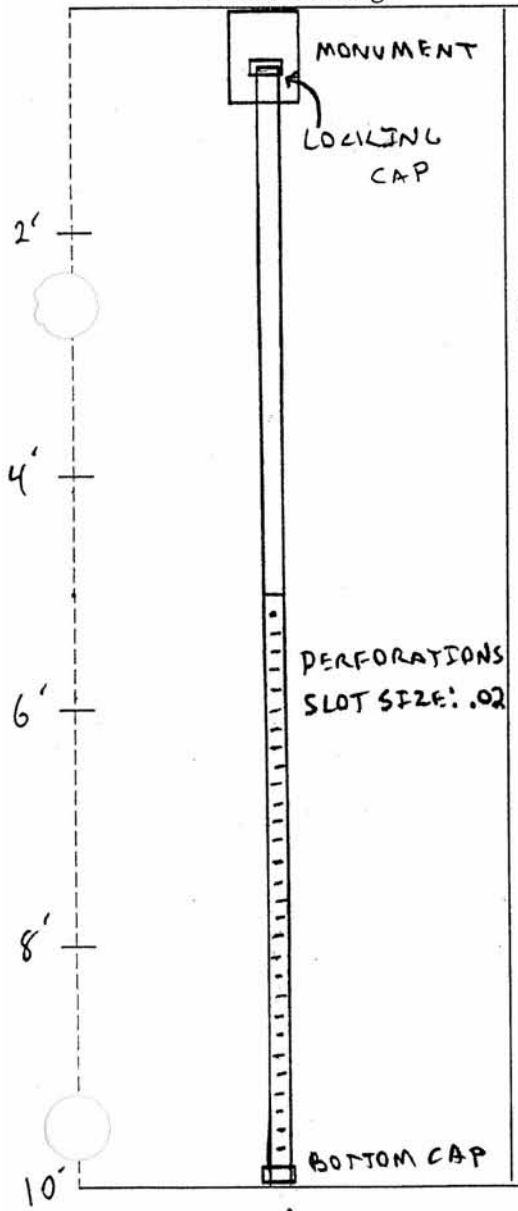
Tax Parcel No. _____

Cased or Uncased Diameter 2" Static Level 8.30

Work/Decommission Start Date 9-6-04

Work/Decommission Completed Date 9-7-04

Construction/Design



Well Data

TD = 10.45'

SWL 8.30' BLS

BENTONITE 0-4'

SAND (20-30) 4-10.5'

PERFORATIONS 5.5'-10.5'

Formation Description

0-3' LOAMY SAND - OXIC

3-6' SAND - MOTTLED

6-8 LOAMY SAND - GLEY

8-10.5 LOAMY SAND - MOTTLED

SOIL TYPE:

NOOKACHAMPS

Scale 1"= ~2'

Page 1 of 1

ECY 050-12 (Rev 2/01)

Please print, sign and return by mail to Department of Ecology

RESOURCE PROTECTION WELL REPORT

CURRENT Notice of Intent No. _____

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission *(select one)*

☐ Construction

☐ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Type of Well *(select one)*

☑ Resource Protection

☐ Geotech Soil Boring

Consulting Firm Sustainable Environments LLC

Unique Ecology Well ID

Tag No. #29

Property Owner Loren Korthius

Site Address 14067 McLaughlin Ext. Rd.

City Mount Vernon County Skagit

Location NE 1/4-1/4 NE 1/4 Sec 15 Twn 34 R 4E Select One ☐ EWM ☒ WWM

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

☐ Driller ☑ Engineer ☐ Trainee Name (Print) Michael Spillane

Driller/Engineer /Trainee Signature _____

Driller or Trainee License No. CE 30780

Tax Parcel No. _____

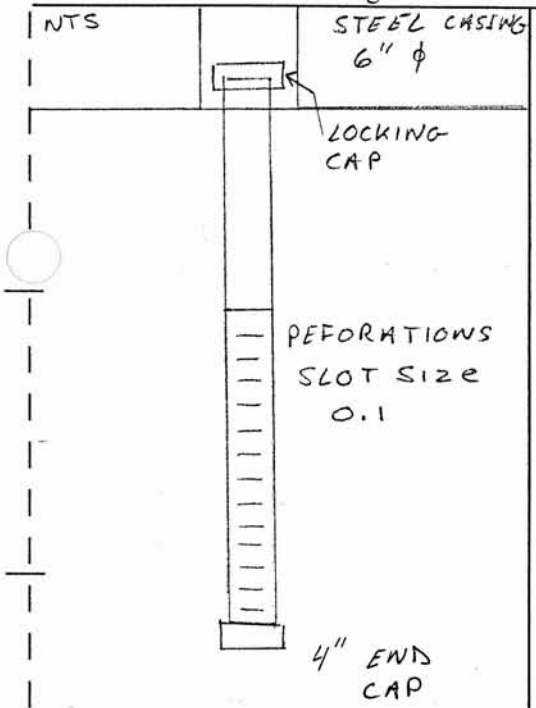
Cased or Uncased Diameter 2" Static Level 4.93'

Work/Decommission Start Date 8-10-05

Work/Decommission Completed Date 8-10-05

If trainee, licensed driller's Signature and License No. CE 30780

Construction/Design



Well Data

TD = 5.4'

SWL = 4.93' BLS

BENTOWITE 0-1'

SAND 1-5.4'

PERFORATIONS 2-5.1'

RISER 4'

CASING 4.5'

Formation Description

0-0.5' SILTY CLAY LOAM

0.5-1.5' SILT LOAM -MOTTLED

1.5-3' SANDY LOAM -MOTTLED

3'-5' SILT LOAM -MOTTLED

5-5.4' SANDY LOAM

SOIL TYPE:

SUMAS SERIES

The Department of Ecology does NOT warranty the Data and/or Information on this Well Report.

Please print, sign and return by mail to Department of Ecology

RESOURCE PROTECTION WELL REPORT

CURRENT Notice of Intent No. _____

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission *(select one)*

☐ Construction

☐ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Type of Well *(select one)*

☑ Resource Protection

☐ Geotech Soil Boring

Consulting Firm: Sustainable Environments LLC

Unique Ecology Well ID Tag No.: # 30

Property Owner: Loren Korthius

Site Address: 14067 McLaughlin Ext. Rd.

City: Mount Vernon County: Skagit

Location: NE 1/4-1/4 NE 1/4 Sec 15 Twn 34 R 4E (Select One: ☐ EWM ☒ WWM)

Lat/Long (s, t, r still REQUIRED): Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No.: _____

Cased or Uncased Diameter: 2" Static Level: 7.65'

Work/Decommission Start Date: 8-10-05

Work/Decommission Completed Date: 8-10-05

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

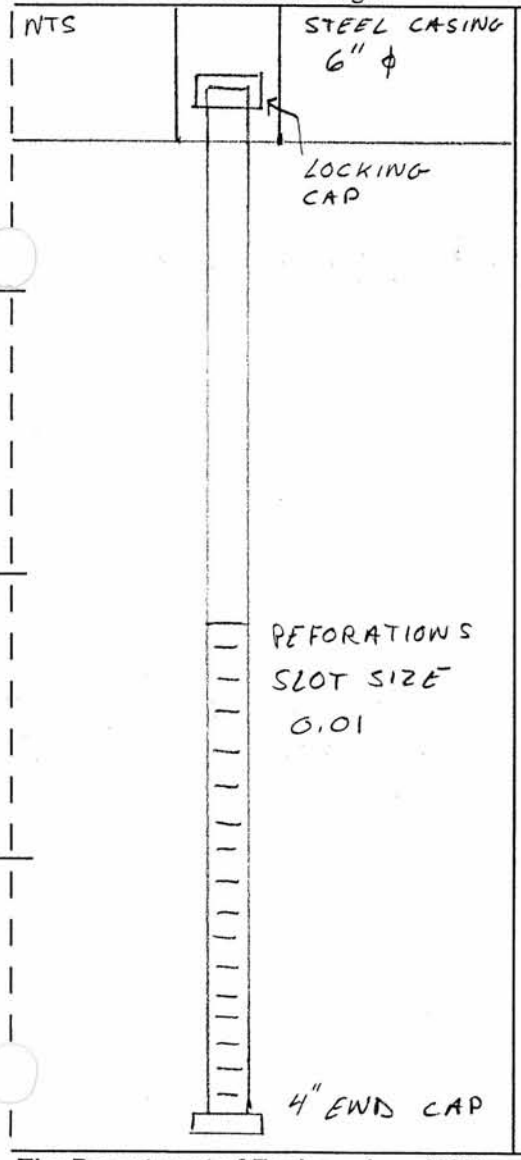
☐ Driller ☑ Engineer ☐ Trainee Name (Print): Michael Spillane

Driller/Engineer /Trainee Signature: _____

Driller or Trainee License No.: CE 30780

If trainee, licensed driller's Signature and License No.: CE 30780

Construction/Design



Well Data

TD = 10.2'

SWL = 7.65' BLS

BENTONITE 0-1'

SAND - 1-10.2'

PEFORATIONS 4.6'

RISER 4.75'

CASING 5'

Formation Description

0-0.5' TOP SOIL

0.5-2.5' SILTY CLAY LOAM
- MOTTLING @ 1'

2.5-4' SILT LOAM
- MOTTLED

4-10.2' SANDY LOAM
minor INCLUSIONS OF SILTY CLAY
- GLEY/MOTTLED

SOIL SERIES:

NOOKACHAMPS SERIES

The Department of Ecology does NOT warranty the Data and/or Information on this Well Report.

Please print, sign and return by mail to Department of Ecology

RESOURCE PROTECTION WELL REPORT

CURRENT Notice of Intent No. _____

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission *(select one)*

☐ Construction

☐ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Type of Well *(select one)*

☑ Resource Protection

☐ Geotech Soil Boring

Consulting Firm Sustainable Environments LLC

Unique Ecology Well ID

Tag No. # 31

Property Owner Loren Korthius

Site Address 14067 McLaughlin Ext. Rd.

City Mount Vernon County Skagit

Location SE 1/4-1/4 NE 1/4 Sec 10 Twn 34 R 4E Select One ☐ EWM ☒ WWM

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. _____

☐ Driller ☑ Engineer ☐ Trainee Name (Print) Michael Spillane

Driller/Engineer /Trainee Signature _____

Driller or Trainee License No. CE 30780

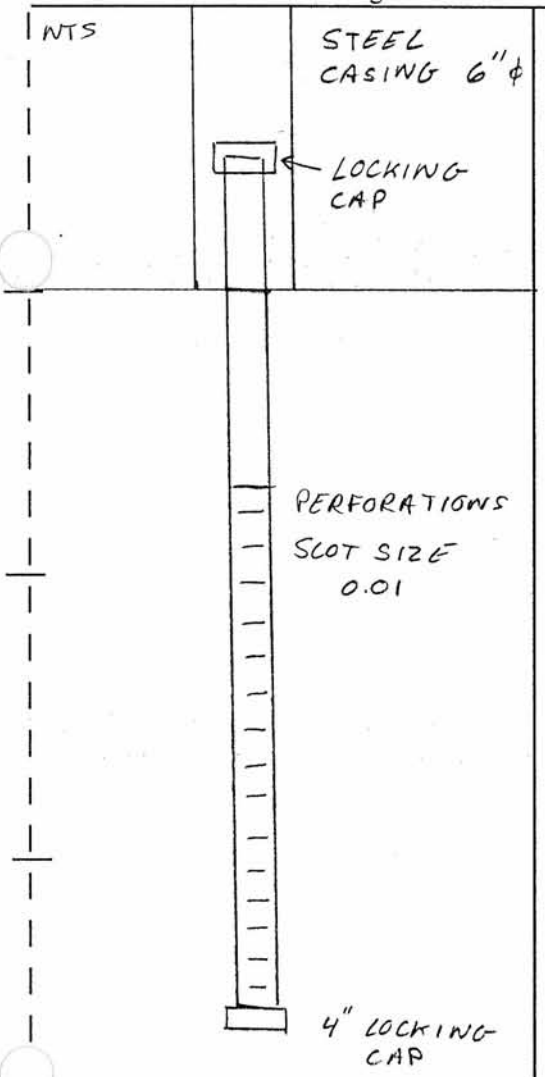
Cased or Uncased Diameter 2" Static Level 7.13'

Work/Decommission Start Date 8-10-05

Work/Decommission Completed Date 8-10-05

If trainee, licensed driller's Signature and License No. CE 30780

Construction/Design



Well Data

TD = 7.4

SWL = 7.13' BLS

BENTONITE 0-1'

SAND 1-7.4'

PERFORATIONS 5.4'

RISER 3.4'

CASING 4'

Formation Description

0-1' TOP SOIL

1-2' SILTY CLAY LOAM

2-3.5' SILTY CLAY LOAM - MOTTLED

3.5'-6.5' SANDY LOAM

6.5-7.5' LOAMY SAND

SOIL TYPE:

Sumas SERIES

The Department of Ecology does NOT warranty the Data and/or Information on this Well Report.

Please print, sign and return by mail to Department of Ecology

RESOURCE PROTECTION WELL REPORT

CURRENT Notice of Intent No. _____

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission *(select one)*

☐ Construction

☐ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Type of Well *(select one)*

☑ Resource Protection

☐ Geotech Soil Boring

Consulting Firm Sustainable Environments LLC

Unique Ecology Well ID

Tag No. #32

Property Owner Loren Korthius

Site Address 14067 McLaughlin Ext. Rd.

City Mount Vernon County Skagit

Location SE 1/4-1/4 NE 1/4 Sec 10 Twn 34 R 4E Select One ☐ EWM ☒ WWM

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

☐ Driller ☑ Engineer ☐ Trainee Name (Print) Michael Spillane

Driller/Engineer /Trainee Signature _____

Driller or Trainee License No. CE 30780

Tax Parcel No. _____

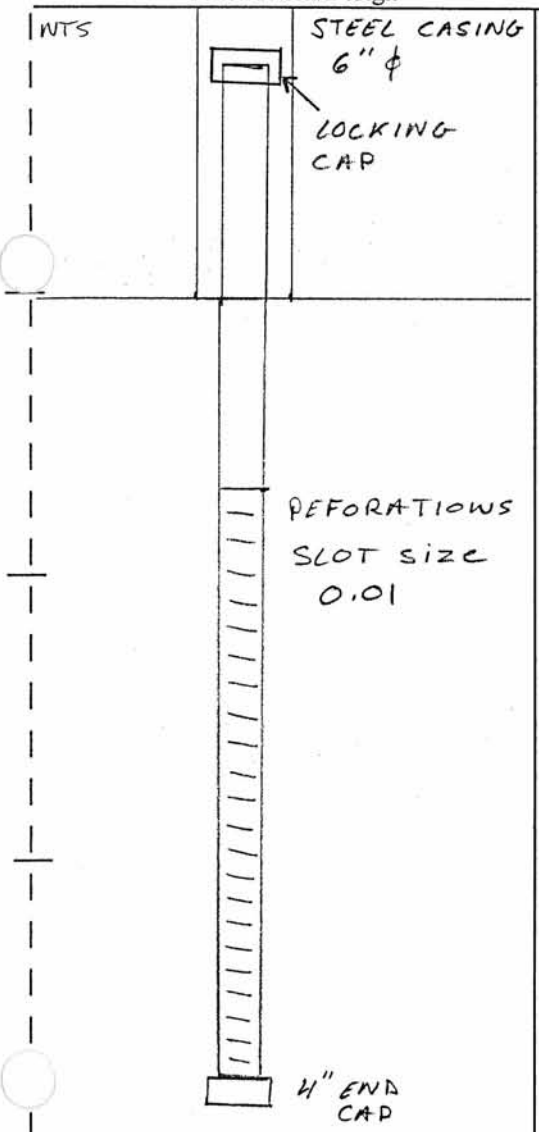
Cased or Uncased Diameter 2" Static Level 4.2'

Work/Decommission Start Date 8-11-05

Work/Decommission Completed Date 8-11-05

If trainee, licensed driller's Signature and License No. CE 30780

Construction/Design



Well Data

TD : 8'

SWL : 4.2' BSL

BENTONITE 0-1"

SAND 1-8'

PERFORATIONS 6"

RISER 4'

CASING 4.5'

Formation Description

0-0.5' TOP SOIL

0.5-1.5' SILTY CLAY LOAM

1.5-8' SILTY CLAY LOAM - MOTTLED

SOIL TYPE: NOOKACHAMPS SERIES

The Department of Ecology does NOT warranty the Data and/or Information on this Well Report.

Please print, sign and return by mail to Department of Ecology

RESOURCE PROTECTION WELL REPORT

CURRENT Notice of Intent No. _____

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission *(select one)*

☐ Construction

☐ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Type of Well *(select one)*

☑ Resource Protection

☐ Geotech Soil Boring

Consulting Firm Sustainable Environments LLC

Unique Ecology Well ID Tag No. # 33

Property Owner Loren Korthius

Site Address 14067 McLaughlin Ext. Rd.

City Mount Vernon County Skagit

Location NE 1/4-1/4 NE 1/4 Sec 15 Twn 34 R 4E Select One ☐ EWM ☒ WWM

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. _____

☐ Driller ☑ Engineer ☐ Trainee Name (Print) Michael Spillane

Driller/Engineer /Trainee Signature _____

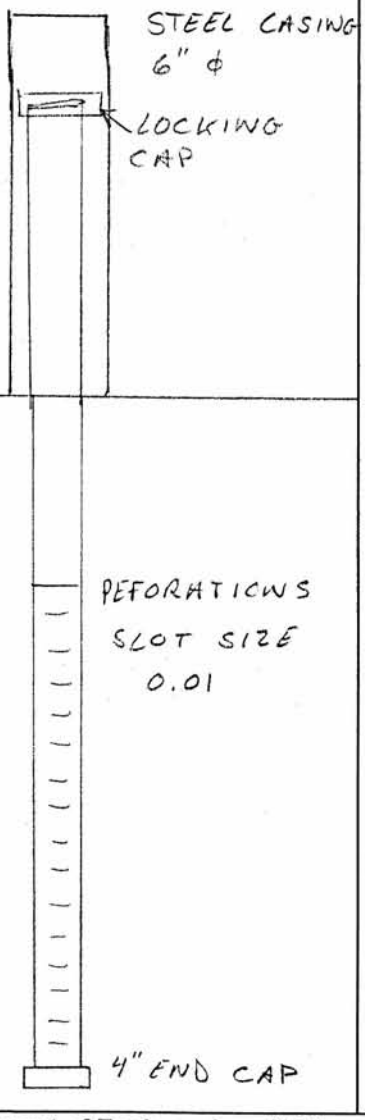
Driller or Trainee License No. CE 30780

Cased or Uncased Diameter 2" Static Level 4.95'

Work/Decommission Start Date 8-11-05

Work/Decommission Completed Date 8-11-05

If trainee, licensed driller's Signature and License No. CE 30780

Construction/Design	Well Data	Formation Description
	TD = 6.6' SWL = 4.95' BLS BENTOWITE 0-1' SAND 1-6.6' PEFORATIONS 5' RISER 3.3' CASING 4'	0-2' SILTY CLAY LOAM · MOTTLED @ 1' 2-3' SILT LOAM · MOTTLED 3-3.5' CLAY 3.5'-7' SILT LOAM SOIL TYPE: SUMAS SERIES

The Department of Ecology does NOT warranty the Data and/or Information on this Well Report.

Please print, sign and return by mail to Department of Ecology

RESOURCE PROTECTION WELL REPORT

CURRENT Notice of Intent No. _____

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission *(select one)*

☐ Construction

☐ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Type of Well *(select one)*

☑ Resource Protection

☐ Geotech Soil Boring

Consulting Firm Sustainable Environments LLC

Unique Ecology Well ID Tag No. #34

Property Owner Loren Korthius

Site Address 14067 McLaughlin Ext. Rd.

City Mount Vernon County Skagit

Location NE 1/4-1/4 NE 1/4 Sec 15 Twn 34 R 4E Select One ☐ EWM ☒ WWM

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☐ Driller ☑ Engineer ☐ Trainee Name (Print) Michael Spillane

Driller/Engineer /Trainee Signature _____

Driller or Trainee License No. CE 30780

If trainee, licensed driller's Signature and License No. CE 30780

Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

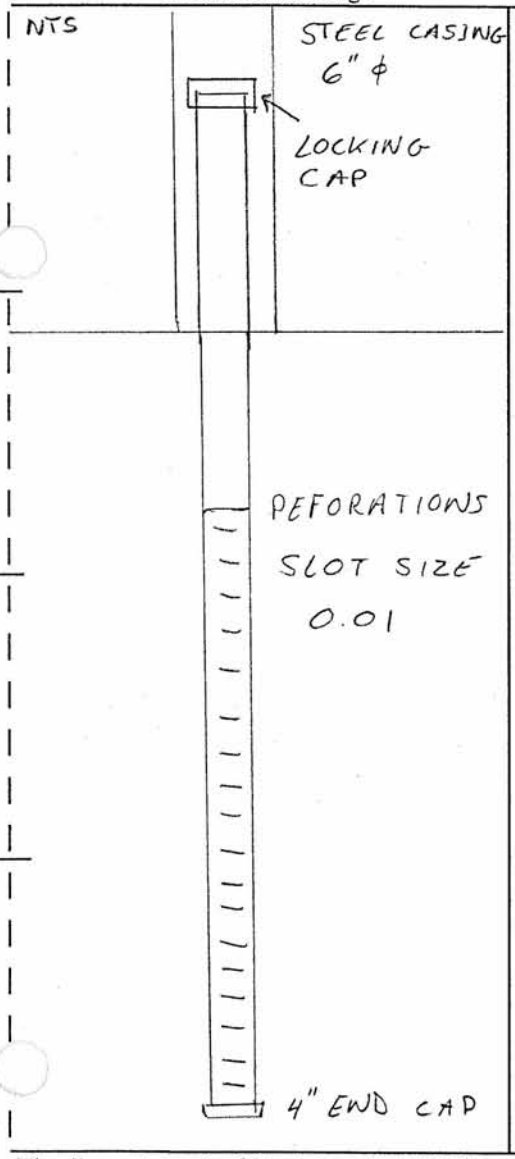
Tax Parcel No. _____

Cased or Uncased Diameter 2" Static Level 5.69'

Work/Decommission Start Date 8-11-05

Work/Decommission Completed Date 8-11-05

Construction/Design



Well Data

TD = 7.2'

SWL = 5.69' BLS

BENTONITE 0-1'

SAND 1-7.2'

PEFORATIONS 6'

RISER 4.3'

CASING 4.5'

Formation Description

0-1.5' SILTY CLAY LOAM
-MOTTLED @ 1'

1.5-7.5 SILT LOAM
-MOTTLED

SOIL TYPE:

Sumas SERIES

The Department of Ecology does NOT warranty the Data and/or Information on this Well Report.

Please print, sign and return to the Department of Ecology

RESOURCE PROTECTION WELL REPORT

CURRENT Notice of Intent No. 46162212

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission *("x" in box)*

☒ Construction
☐ Decommission

ORIGINAL INSTALLATION Notice of Intent Number:

Consulting Firm Sustainable Env., LLC

Unique Ecology Well IDTag No. # 35

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☐ Driller ☒ Engineer ☐ Trainee
Name (Print Last, First Name) Michael Spillane
Driller/Engineer /Trainee Signature
Driller or Trainee License No. CE 30780

If trainee, licensed driller's Signature and License Number:

Type of Well *("x in box)*

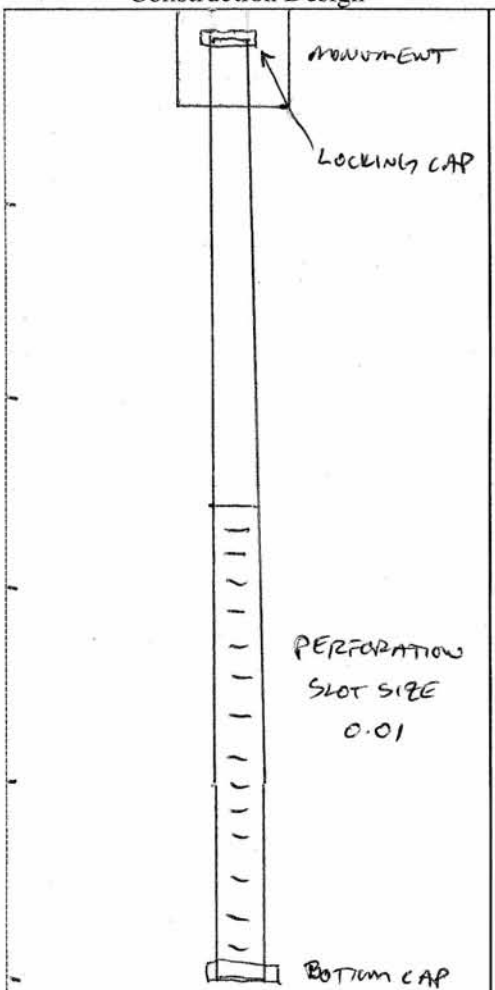
☒ Resource Protection
☐ Geotech Soil Boring

Property Owner Clear Valley Environmental
Site Address 14067 McLaughlin Ext. Rd.
City Mt. Vernon County Skagit
Location SE 1/4-1/4 SW 1/4 Sec 11 Twn 34 R 4
EWM ☐ or WWM ☒

Lat/Long (s, t, r still REQUIRED)
Lat Deg 48 Min 26 Sec 42.6
Long Deg 122 Min 15 Sec 50.7

Tax Parcel No.
Cased or Uncased Diameter 2" Static Level dry
Work/Decommission Start Date 10-27-06
Work/Decommission Completed Date 10-27-06

Construction Design



NOTE: FENCED OFF TO KEEP CATTLE AWAY.

Well Data

TD = 10.2'
SWL = dry
Bentonite 0 - 2'
Sand (20-30) 2'-10'
Perforations 5'-10'

Formation Description

0 - 0.75'	Roots/loam	10YR 3/3
0.75' - 4.2'	Silt	10YR 5/3
4.2' - 9.6'	Sand	
9.6' - 10'	Coarse sand	
10' - 11.3'	Coarse sand w/ gravel (no water)	

SCALE: 1"= ~2' PAGE 1 OF 1

Please print, sign and return to the Department of Ecology

RESOURCE PROTECTION WELL REPORT

CURRENT Notice of Intent No. 461K 2212

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission *("x" in box)*

☒ Construction
☐ Decommission

ORIGINAL INSTALLATION Notice of Intent Number:

Consulting Firm Sustainable Env., LLC

Unique Ecology Well IDTag No. # 36

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☐ Driller ☒ Engineer ☐ Trainee
Name (Print Last, First Name) Michael Spillane.
Driller/Engineer /Trainee Signature
Driller or Trainee License No. CE 30760

If trainee, licensed driller's Signature and License Number:

Type of Well *("x in box)*

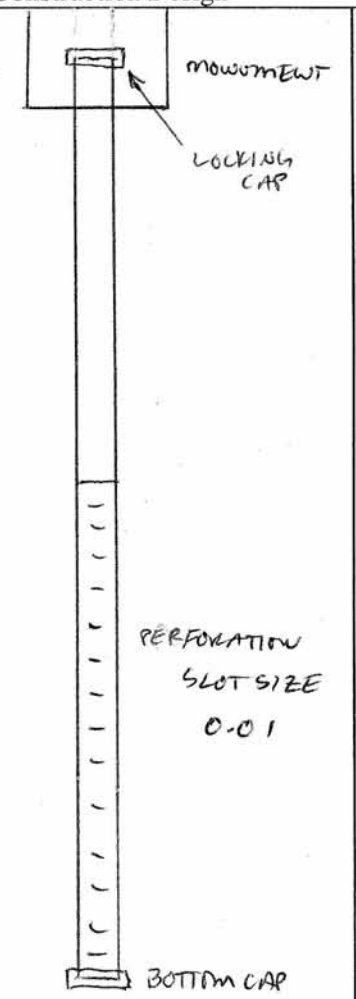
☒ Resource Protection
☐ Geotech Soil Boring

Property Owner Clear Valley Environmental
Site Address 14067 McLaughlin Ext. Rd.
City Mt. Vernon County Skagit
Location NE 1/4-1/4 SW 1/4 Sec 11 Twn 34 R 4
EWM ☐ or WWM ☒

Lat/Long (s, t, r still REQUIRED) Lat Deg 48 Min 26 Sec 53.7
Long Deg 122 Min 15 Sec 50.7

Tax Parcel No.
Cased or Uncased Diameter 2" Static Level 9.23'
Work/Decommission Start Date 10-27-06
Work/Decommission Completed Date 10-27-06.

Construction Design



NOTE: FENCED OFF TO KEEP CATTLE AWAY.

Well Data

TD = 10.2'
SWL = 9.23' BLS

Bentonite	0-2'
Sand (20-30)	2'-10'
Perforations	5'-10'

Formation Description

0-0.4'	Fill Material
0.4'-1.1'	Silty Clay 10YR 3/3
1.1'-2.3'	Silty Clay 10YR 3/3
2.3'-4.1'	Silt 10YR 6/4
4.1'-7.9'	Sand
7.9'-8.3'	Silt (wet)

SCALE: 1"= ~2' PAGE 1 OF 1

Please print, sign and return to the Department of Ecology

RESOURCE PROTECTION WELL REPORT

CURRENT Notice of Intent No. 461K2212

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission *("x" in box)*

☒ Construction
☐ Decommission

ORIGINAL INSTALLATION Notice of Intent Number:

Consulting Firm Sustainable Env., LLC

Unique Ecology Well IDTag No. # 37

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☐ Driller ☒ Engineer ☐ Trainee
Name (Print Last, First Name) Michael Spillane
Driller/Engineer /Trainee Signature
Driller or Trainee License No. CE 30780

If trainee, licensed driller's Signature and License Number:

Type of Well *("x in box)*

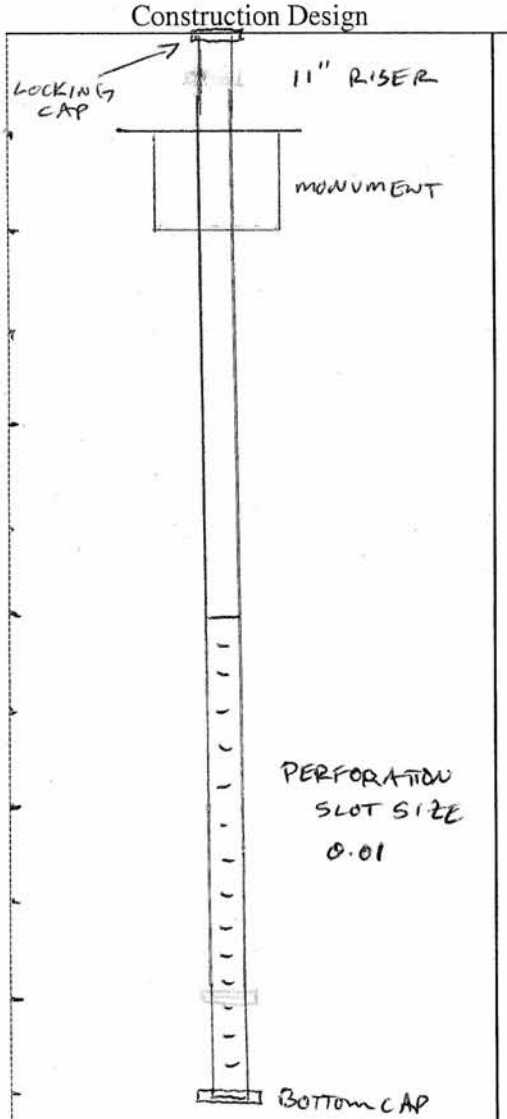
☒ Resource Protection
☐ Geotech Soil Boring

Property Owner Clear Valley Environmental
Site Address 14067 McLaughlin Ext. Rd.
City Mt. Vernon County Skagit
Location SE 1/4-1/4 NW 1/4 Sec 11 Twn 34 R 4
EWM ☐ or WWM ☒

Lat/Long (s, t, r still REQUIRED) Lat Deg 48 Min 27 Sec 2.0
Long Deg 122 Min 15 Sec 50.7

Tax Parcel No.
Cased or Uncased Diameter 2" Static Level 8.29'
Work/Decommission Start Date 10-27-06
Work/Decommission Completed Date 10-27-06

Construction Design



Well Data

TD = 10.25'

SWL = 8.29' BLS

Bentonite 0-2'
Sand (20-30) 2'-10'
Perforations 5'-10'

NOTE: FENCED OFF TO KEEP CATTLE AWAY.

Formation Description

0-0.5' Roots

0.5'-3.1' Silt Loam 2.5 Y 5/3

3.1'-3.5' Silt 10YR 5/3

3.5'-4.7' silty clay - mottled
[silty clay 10YR 5/1
mottles 2.5YR 4/6]

4.7'-10.3' Sand

SCALE: 1"= ~2' PAGE 1 OF 1

Please print, sign and return to the Department of Ecology

RESOURCE PROTECTION WELL REPORT

CURRENT Notice of Intent No. 46IK2212

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission *("x" in box)*

[x] Construction

[ ] Decommission

ORIGINAL INSTALLATION Notice of Intent Number:

Type of Well *("x in box)*

[X] Resource Protection

[ ] Geotech Soil Boring

Property Owner Clear Valley Environmental

Site Address 14067 McLaughlin Ext. Rd.

City Mt. Vernon County Skagit

Location SW 1/4-1/4 NW 1/4 Sec 11 Twn 34 R 4

EWM [ ] or WWM [X]

Lat/Long (s, t, r still REQUIRED) Lat Deg 48 Min 27 Sec 12.4

Long Deg -122 Min 15 Sec 57.2

Tax Parcel No.

Cased or Uncased Diameter 2" Static Level 7.72'

Work/Decommission Start Date 10-27-06

Work/Decommission Completed Date 10-27-06

Consulting Firm Sustainable Ew., LLC

Unique Ecology Well IDTag No. #38

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

[ ] Driller [X] Engineer [ ] Trainee

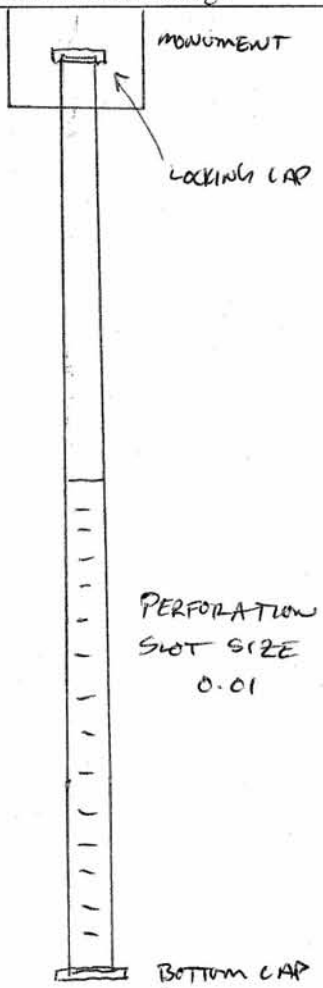
Name (Print Last, First Name) Michael Spillane

Driller/Engineer /Trainee Signature

Driller or Trainee License No. CE 30750

If trainee, licensed driller's Signature and License Number:

Construction Design



NOTE: FENCED OFF TO KEEP CATTLE AWAY.

Well Data

TD = 10.2'

SWL = 7.72' BLS

Bentonite 0'-2'

Sand (20-30) 2'-10'

Perforations 5'-10'

Formation Description

0-5.3' Silty clay - faint mottles

[silty clay 10YR 4/4
mottles 5YR 4/4]

5.3'-8.9' clayey silt - more distint mottles

[clayey silt gley2 5/10B]

8.9'-10.2' silt (water saturation)

SCALE: 1"= ~2' PAGE 1 OF 1

Please print, sign and return to the Department of Ecology

RESOURCE PROTECTION WELL REPORT

CURRENT Notice of Intent No. 46116 2212

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission *("x" in box)*

☒ Construction
☐ Decommission

ORIGINAL INSTALLATION Notice of Intent Number:

Consulting Firm Sustainable Env., LLC

Unique Ecology Well IDTag No. # 39

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☐ Driller ☒ Engineer ☐ Trainee
Name (Print Last, First Name) Michael, Spillane
Driller/Engineer /Trainee Signature [signature]
Driller or Trainee License No. CE 30780

If trainee, licensed driller's Signature and License Number:

Type of Well *("x in box)*

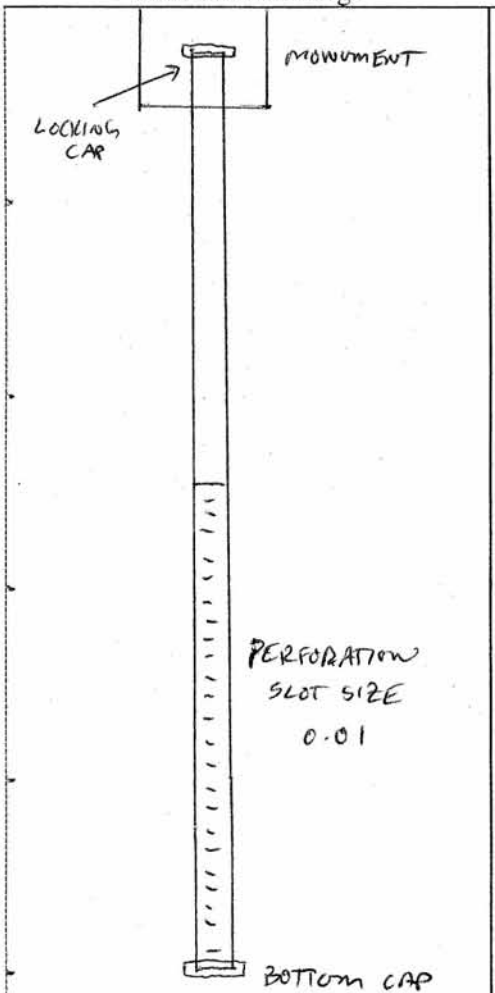
☒ Resource Protection
☐ Geotech Soil Boring

Property Owner Clear Valley Environmental
Site Address 14067 McLaughlin Ext. Rd.
City Mt. Vernon County Skagit
Location SW 1/4-1/4 NW 1/4 Sec 11 Twn 34 R 4
EWM ☐ or WWM ☒

Lat/Long (s, t, r still REQUIRED) Lat Deg 48 Min 27 Sec 12.4
Long Deg -122 Min 16 Sec 8.4

Tax Parcel No.
Cased or Uncased Diameter 2" Static Level 7.95'
Work/Decommission Start Date 10-27-06
Work/Decommission Completed Date 10-27-06

Construction Design



NOTE: FENCED OFF TO KEEP CATTLE AWAY.

Well Data

TD = 9.4'

SWL = 7.95' BLS

Bentonite 0'-2'

Sand (20-30) 2'-5'

Perforations 5'-10'

Formation Description

0-5.3' Clayey silt - faint mottles
[clayey silt 10YR 4/4
mottles 5YR 4/4]

5.3'-7.8' Silty clay w/ distinct mottles
[silty clay Gley2 5/10B]

7.8'-8.7' Sand

8.7'-9.4' Gravel

SCALE: 1"= ~2' PAGE 1 OF 1

Please print, sign and return to the Department of Ecology

RESOURCE PROTECTION WELL REPORT

CURRENT Notice of Intent No. 461K2212

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission *("x" in box)*

☒ Construction
☐ Decommission

ORIGINAL INSTALLATION Notice of Intent Number:

Type of Well *("x in box)*

☒ Resource Protection
☐ Geotech Soil Boring

Property Owner Clear Valley Environmental

Site Address 14067 Mclaughlin Ext. Rd.

City mt. Vernon County Skagit

Location NW 1/4-1/4 NW 1/4 Sec 14 Twn 34 R 4

EWM ☐ or WWM ☒

Lat/Long (s, t, r still REQUIRED) Lat Deg 48 Min 26 Sec 25.4

Long Deg -122 Min 15 Sec 51.0

Tax Parcel No.

Cased or Uncased Diameter 2" Static Level 5.86'

Work/Decommission Start Date 10-27-06

Work/Decommission Completed Date 10-27-06.

Consulting Firm Sustainable Env., LLC

Unique Ecology Well IDTag No. #40

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☐ Driller ☒ Engineer ☐ Trainee

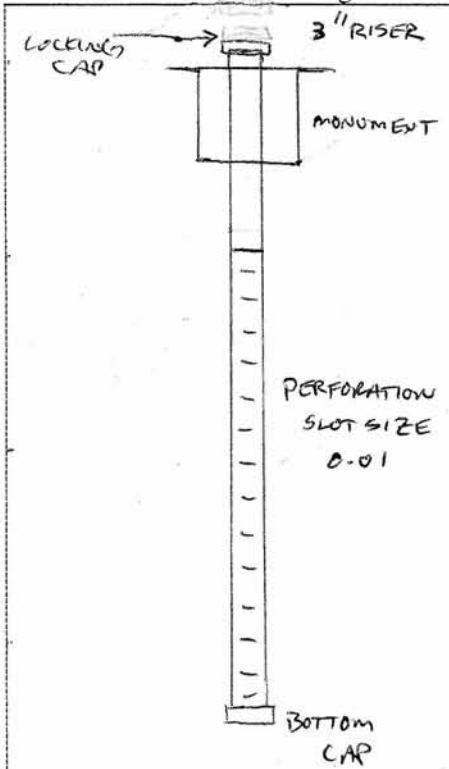
Name (Print Last, First Name) Michael Spillane

Driller/Engineer /Trainee Signature

Driller or Trainee License No. CE 30780

If trainee, licensed driller's Signature and License Number:

Construction Design



NOTE: FENCED OFF TO KEEP CATTLE AWAY

Well Data

TD = 7.3'

SWL = 5.86' BLS

Bentonite 0'-2'

Sand (20-30) 2'-7.3'

Perforations 2.3'-7.3'

Formation Description

0 - 1.3' Root mass

1.3' - 3.1' Silt - mottled [Silt 10YR 5/2, mottles 10YR 5/6]

3.1' - 7.3' Sand

SCALE: 1"= ~2' PAGE 1 OF 1

STATE OF WASHINGTON
DEPARTMENT OF CONSERVATION
AND DEVELOPMENT

WELL LOG

No. Appli. 2098
Cert. 920-A

Date July 22, 1951

Record by Lloyd V. Holmes

Source Driller's Record

Location: State of WASHINGTON

County Skagit

Area

DIAGRAM OF SECTION

34N/4E-11E
File number

04-02822-003

TASK 007-001

W ¼ sec. 11 T. 34 N., R 4 E. W.

Lloyd V. Holmes

Route 2; Mt. Vernon

Drilling Date July 22 1951

. W. Gadbois

oute 4; Mt. Vernon

Land surface, datum ft. above / below

CORRELATION	MATERIAL	THICKNESS (feet)	DEPTH (feet)
	(Transcribe driller's terminology literally but paraphrase as necessary, in parentheses If material water-bearing, so state and record static level if reported Give depths in feet below land-surface datum unless otherwise indicated Correlate with stratigraphic column, if feasible Following log of materials, list all casings, perforations, screens, etc)		
	Top soil	4	4
	Sandy loam	14	18
	Clay	1	19
	Sand & gravel	11	30
	Pump Test:		
	Dim: 30' x 8" Air Jetted		
	SWL: 14'		
	DD: 10'		
	Yield: 180 g.p.m.		
	Casing: 8" dia. from 0 to 30'		
	Perforations:		
	1/16 by 7 15 per ft. from 20 to 30'		

Turn up

Sheet of sheets

W2

File Original with Department of Ecology
Second Copy - Owner's Copy
Third Copy - Driller's Copy

108789

WATER WELL REPORT

STATE OF WASHINGTON

Notice of Intent WD1302
UNIQUE WELL I.D # AGO238
Water Right Permit No 34-4E.11F

(1) **OWNER:** Name Larry Gadbois Address 2246 Mud Lk Rd Mt Vernon

(2) **LOCATION OF WELL:** County Skagit SE 1/4 NW 1/4 Sec 11 T 34 N R 4 WM

(2a) **STREET ADDRESS OF WELL:** (or nearest address) Same

TAX PARCEL NO.

(3) **PROPOSED USE:** ☒ Domestic ☐ Industrial ☐ Municipal ☐ Irrigation ☐ Test Well ☐ Other ☐ DeWater

(4) **TYPE OF WORK:** Owner's number of well (if more than one)
☒ New Well Method
☐ Deepened ☐ Dug ☐ Bored
☐ Reconditioned ☐ Cable ☐ Driven
☐ Decommission ☒ Rotary ☐ Jetted

(5) **DIMENSIONS:** Diameter of well 6 inches
Drilled 39 feet. Depth of completed well 38 ft

(6) **CONSTRUCTION DETAILS**
Casing Installed:
☒ Welded 6 " Diam. from +1½ ft to 33 ft
☐ Liner installed " Diam from ft. to ft
☐ Threaded " Diam. from ft to ft.

Perforations: ☐ Yes ☒ No
Type of perforator used
SIZE of perforations in. by in
perforations from ft to ft

Screens: ☒ Yes ☐ No ☐ K-Pac Location 33
Manufacturer's Name Johnson
Type S/S Model No
Diam. 5 Slot Size 10 from 33 ft to 38 ft
Diam. Slot Size from ft. to ft.

Gravel/Filter packed: ☐ Yes ☒ No ☐ Size of gravel/sand
Material placed from ft to ft.

Surface seal: ☒ Yes ☐ No To what depth? 18 ft
Material used in seal Bentonite
Did any strata contain unusable water? ☐ Yes ☒ No
Type of water? Depth of strata
Method of sealing strata off

(7) **PUMP:** Manufacturer's Name Goulds
Type. SUB HP ½

(8) **WATER LEVELS:** Land-surface elevation above mean sea level ~~17~~ ft
Static level 17 ft below top of well Date 18 Feb 02
Artesian pressure lbs per square inch Date
Artesian water is controlled by (Cap, valve, etc)

(9) **WELL TESTS:** Drawdown is amount water level is lowered below static level
Was a pump test made? ☐ Yes ☒ No If yes, by whom?
Yield. gal./min with ft drawdown after hrs
Yield gal /min. with ft drawdown after hrs.
Yield. gal /min. with ft drawdown after hrs.
Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test
Bailer test gal /min with ft drawdown after hrs
Airtest 18+ gal /min. with Stem @ 30 ft drawdown after 1 hrs
Artesian flow g.p m. Date
Temperature of water Was a chemical analysis made? ☒ Yes ☐ No

(10) **WELL LOG or DECOMMISSIONING PROCEDURE DESCRIPTION**
Formation Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information Indicate all water encountered

MATERIAL	FROM	TO
Brown Top Soil	0	2
Brown Silty Sand	2	20
Brown Sand	20	30
Dark Brown Sand	30	31
Log (wood)	31	33
Dark Brown Sand	33	39
Drilled in Compliance with SCC 12.48 Based on information Supplied by owner Larry Gadbois		

RECEIVED
FEB 22 2002
DEPT OF ECOLOGY

Work Started 16 Feb 02 Completed 17 Feb 02

WELL CONSTRUCTION CERTIFICATION:

I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards Materials used and the information reported above are true to my best knowledge and belief.

Type or Print Name HALVORSON License No 2480
(Licensed Driller/Engineer)

Trainee Name License No
Drilling Company Affordable Water Systems
(Signed) License No. 2480
(Licensed Driller/Engineer)
Address 14021 Beaverland Rd Mt Vernon
Contractor's Registration No AFFORWS101RT Date 20 Feb 02

(USE ADDITIONAL SHEETS IF NECESSARY)

Ecology is an Equal Opportunity and Affirmative Action employer. For special accommodation needs, contact the Water Resources Program at (360) 407-6600 The TDD number is (360) 407-6006

ECY 050-1-20 (11/98)

The Dep. The Department of Ecology does NOT Warranty the Data and/or the information on this well report.

W3

File Original and First Copy — Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

ENTERED WATER WELL REPORT

STATE OF WASHINGTON

Start Card No. W077501

UNIQUE WELL I.D. #

Water Right Permit No. 34-4-11 Q

(1) **OWNER:** Name Lenny Thompson Address 1397 Hwy 9 Mt Vernon WA

(2) **LOCATION OF WELL:** County Skagit SW 1/4 SE 1/4 Sec 12 T. 34 N., R 4 W.M.

(2a) **STREET ADDRESS OF WELL** (or nearest address) Same

(3) **PROPOSED USE:** ☒ Domestic ☐ Industrial ☐ Municipal ☐ ☐ Irrigation ☐ Test Well ☐ Other ☐ ☐ DeWater

(4) **TYPE OF WORK:** Owner's number of well (if more than one)

Abandoned ☐ New well ☒ Method: Dug ☐ Bored ☐ Deepened ☐ Cable ☐ Driven ☐ Reconditioned ☐ Rotary ☒ Jetted ☐

(5) **DIMENSIONS:** Diameter of well 6 inches. Drilled 60 feet. Depth of completed well 58 ft.

(6) **CONSTRUCTION DETAILS:**

Casing installed: 6" Diam. from +2 ft. to 58 ft.
Welded ☒ Liner installed ☐ Threaded ☐
" Diam. from ft. to ft.
" Diam. from ft. to ft.

Perforations: Yes ☐ No ☒
Type of perforator used
SIZE of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: Yes ☒ No ☐
Manufacturer's Name Johnson
Type Stainless Steel Model No.
Diam. 6 Slot size 25 from 53 ft. to 58 ft.
Diam. Slot size from ft. to ft.

Gravel packed: Yes ☐ No ☒ Size of gravel
Gravel placed from ft. to ft.

Surface seal: Yes ☒ No ☐ To what depth? 18 ft.
Material used in seal Bentonite
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? Depth of strata
Method of sealing strata off

(7) **PUMP:** Manufacturer's Name Goulds
Type: 10 GPM Sub. H.P. 1/2

(8) **WATER LEVELS:** Land-surface elevation above mean sea level ft.
Static level 36 ft. below top of well Date 3-7-97
Artesian pressure lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) **WELL TESTS:** Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☒ If yes, by whom?
Yield: gal./min. with ft. drawdown after hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test
Bailer test 12 gal./min. with 3 ft. drawdown after 1 hrs.
Airtest 20 gal./min. with stem set at 55 ft. for 1/2 hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? Yes ☐ No ☒

(10) **WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION**

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information.

MATERIAL	FROM	TO
Gray clay	0	3
Brown silty clay + sand	3	38
Brown silty sand, gravel water	38	42
Brown med. sand, gravel + water	42	45
Brown silty sand, gravel water	45	50
Brown med sand + gravel water	50	53
Brown fine sand + water	53	54
Brown med sand, gravel + water	54	

Work Started 3-7-97 19. Completed 3-7-97 19

WELL CONSTRUCTOR CERTIFICATION:

I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

NAME Aquatech Well Drilling + Pump Inc (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)

Address 272 Butler Cr Rd

(Signed) (WELL DRILLER) License No. 1825

Contractor's Registration No. AQUATWD040KY Date 3-10-97 19

(USE ADDITIONAL SHEETS IF NECESSARY)

Ecology is an Equal Opportunity and Affirmative Action employer. For special accommodation needs, contact the Water Resources Program at (206) 407-6600. The TDD number is (206) 407-6006.

ECY 050-1-20 (9/93)

W4

34-4E-14-B

WATER WELL REPORT
STATE OF WASHINGTON

Start Card No. [redacted]
Water Right Permit No.

(1) OWNER: Name CHEEK, MIKE Address 3400 WOODLAND DR MT VERNON, WA 98273-

(2) LOCATION OF WELL: County SKAGIT - NW 1/4 NE 1/4 Sec 14 T 34 N., R 4E WM
(2a) STREET ADDRESS OF WELL (or nearest address) HWY 9

(3) PROPOSED USE: DOMESTIC

(4) TYPE OF WORK: Owner's Number of well (If more than one) 2
NEW WELL Method: ROTARY

(5) DIMENSIONS: Diameter of well 6 inches
Drilled 108 ft. Depth of completed well 105 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 6 " Dia. from +2 ft. to 105 ft.
WELDED " Dia. from ft. to ft.
" Dia. from ft. to ft.

Perforations: NO
Type of perforator used
SIZE of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: NO
Manufacturer's Name
Type Model No.
Diam. slot size from ft. to ft.
Diam. slot size from ft. to ft.

Gravel packed: NO Size of gravel
Gravel placed from ft. to ft.

Surface seal: YES To what depth? 18 ft.
Material used in seal BENTONITE
Did any strata contain unusable water? NO
Type of water? Depth of strata ft.
Method of sealing strata off

(7) PUMP: Manufacturer's Name
Type H.P.

(8) WATER LEVELS: Land-surface elevation above mean sea level ... ft.
Static level 66 ft. below top of well Date 02/10/92
Artesian Pressure lbs. per square inch Date
Artesian water controlled by

(9) WELL TESTS: Drawdown is amount water level is lowered below static level.
Was a pump test made? NO If yes, by whom?
Yield: gal./min with ft. drawdown after hrs.

Recovery data

Time	Water Level	Time	Water Level	Time	Water Level

Date of test / /
Bailer test gal/min. ft. drawdown after hrs.
Air test 20 gal/min. w/ stem set at 103 ft. for 1 hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? NO

(10) WELL LOG

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change in formation.

MATERIAL	FROM	TO
BROWN GRAVEL	0	2
BROWN CLAY	2	19
GRAY CLAY & GRAVEL	19	25
GRAY GRAVEL & CLAY	25	30
BROWN GRAVEL	30	33
GRAY GRAVEL & SAND	33	40
GRAY GRAVEL & SAND & CLAY	40	67
GRAY SAND & WATER	67	99
GRAY GRAVEL & SAND & WATER	99	107
SHALE	107	

Work started 02/06/92 Completed 02/10/92

WELL CONSTRUCTOR CERTIFICATION:
I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

NAME HAYES DRILLING, INC.
(Person, firm, or corporation) (Type or print)

ADDRESS 556 ERSHIG RD. BOW, WA

[SIGNED] Steve Hayes License No. 762

Contractor's
Registration No. HAYESDI106J5 Date 03/06/92

WELL SITE MEETS ALL SIGHTING CRITERIA UNDER I.C.C. 12.48.090 AND WAC 173-160 BASED ON INFORMATIO SUPPLIED BY THE OWNER OR OWNER'S AUTHORIZED REPRESENTATIVE.

RECEIVED
MAR 25 1992
DEPT. OF ECOLOGY

STATE OF WASHINGTON
DEPARTMENT OF CONSERVATION
AND DEVELOPMENT

WELL LOG

No. Appli. #2769
Cert. #1829-A

Date Dec. 9, 1952

Record by Carl Moody

Source Driller's Record

Location: State of WASHINGTON

County Skagit

Area

Map

SE ¼ NW ¼ sec 14 T. 34 N., R. 4 E. XX

DIAGRAM OF SECTION

Drilling Co Carl Moody

Address Route #1; Burlington, Washington

Method of Drilling drilled Date Jan. 3 1953

Owner Dorotha Stevens Tennyson

Address Rte. 4, Box 171; Mt. Vernon, Wash.

Land surface, datum ft. above / below

CORRELATION	MATERIAL	THICKNESS (feet)	DEPTH (feet)
	(Transcribe driller's terminology literally but paraphrase as necessary, in parentheses. If material water-bearing, so state and record static level if reported. Give depths in feet below land-surface datum unless otherwise indicated. Correlate with stratigraphic column, if feasible. Following log of materials, list all casings, perforations, screens, etc.)		
	Clay	30	30
	Coarse water sand	4	34
Pump Test:			
	Dim: 34' x 6"		
	SWL: 13'		
	Dd: 3'		
	Yield: 15 g.p.m.		
	Casing: 6" diameter from 0 to 34.0'		
	6" drill shoe--10"		

Turn up

Sheet ____ of ____ sheets

File number 34N/4E-14E

146840

WATER WELL REPORT
STATE OF WASHINGTON

Start Card No **W175540**
AKY 852

10532

(1) OWNER. Name **HOBBICK, HERMAN** Address **P.O. BOX 249 MOUNT VERNON, WA 98273-**

(2) LOCATION OF WELL. County **SKAGIT** - **SE** 1/4 **NW** 1/4 Sec **14** T **34** N., R **4E** WM

(2a) STREET ADDRESS OF WELL (or nearest address) **STATE ROUTE 9**

(3) PROPOSED USE **DOMESTIC**

(4) TYPE OF WORK Owner's Number of well (If more than one) **1**
NEW WELL Method. **ROTARY**

(5) DIMENSIONS Diameter of well **6** inches
Drilled **82** ft Depth of completed well **81.25** ft

(6) CONSTRUCTION DETAILS:
Casing installed **6** " Dia from **1.75** ft. to **72.5** ft
WELDED " Dia from ft to ft
" Dia. from ft to ft

Perforations· **NO**
Type of perforator used
SIZE of perforations in by in
perforations from ft to ft
perforations from ft. to ft
perforations from ft to ft

Screens· **YES**
Manufacturer's Name **JOHNSON**
Type **STAINLESS STEEL** Model No
Diam **6** slot size **30** from **76.25** ft to **81.25** ft
Diam **6** slot size **30** from **71.25** ft. to **76.25** ft

Gravel packed· **NO** Size of gravel
Gravel placed from ft to ft.

Surface seal. **YES** To what depth? **18** ft
Material used in seal **BENTONITE**
Did any strata contain unusable water? **NO**
Type of water? Depth of strata ft
Method of sealing strata off

(7) PUMP: Manufacturer's Name
Type H P

(8) WATER LEVELS Land-surface elevation above mean sea level . ft.
Static level **20.3** ft below top of well Date **03/08/04**
Artesian Pressure lbs per square inch Date
Artesian water controlled by

(9) WELL TESTS Drawdown is amount water level is lowered below static level
Was a pump test made? **YES** If yes, by whom? **HAYES DRILLING**
Yield **105** gal /min with **5.98** ft. drawdown after **2** hrs

Recovery data

Time	Water Level	Time	Water Level	Time	Water Level

Date of test
Bailer test gal/min. ft drawdown after hrs
Air test **50** gal/min w/ stem set at **70** ft for 1 hrs
Artesian flow g.p.m Date
Temperature of water Was a chemical analysis made? **YES**

(10) WELL LOG

Formation Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change in formation

MATERIAL	FROM	TO
BROWN GRAVEL & CLAY	**0**	**21**
BROWN GRAVEL & WOOD	**21**	**35**
BROWN SAND & GRAVEL & WATER	**35**	**70**
GRAY SAND & GRAVEL & WATER	**70**	

RECEIVED
MAR 23 2004
DEPARTMENT OF ECOLOGY
WELL DRILLING UNIT

DEPT OF ECOLOGY
FISCAL & SUDGE

'04 MAR 19 P1:40

Well site meets all sighting criteria under S.C.C. 12.48.090 and WAC 173-160 based on information supplied by the owner or owner's authroized representative.

Work started **03/02/04** Completed **03/02/04**

WELL CONSTRUCTOR CERTIFICATION
I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief

NAME **HAYES DRILLING, INC.**
(Person, firm, or corporation) (Type or print)

ADDRESS **5696 ERSHIG RD. BOW, WA**

[SIGNED] License No. **2562**
Contractor's **1966**
Registration No **HAYESDI106J5** Date 03/15/04

07748

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy 34/4E/11/L

WATER WELL REPORT

STATE OF WASHINGTON

Application No. 34/04-11 L

Permit No. W7

(1) OWNER: Name G. W. Gadbois Address 1329 Babcock Rd. Mt Vernon Wa 98273

(2) LOCATION OF WELL: County Skagit NE ¼ SW ¼ Sec 11 T 34 N., R 4 E W.M.

Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☑ Industrial ☐ Municipal ☐ Irrigation ☐ Test Well ☐ Other ☑ Pump

(4) TYPE OF WORK: Owner's number of well (if more than one) 2

New well ☐ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☑
Reconditioned ☐ Rotary ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 1½ inches.
Drilled ..... ft. Depth of completed well 30 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 1½" Diam. from ..... ft. to 30 ft.
Threaded ☑ ..." Diam. from ..... ft. to ..... ft.
Welded ☐ ..." Diam. from ..... ft. to ..... ft.

Perforations: Yes ☐ No ☑
Type of perforator used .....
SIZE of perforations ..... in. by ..... in.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.

Screens: Yes ☐ No ☒ Johnson
Manufacturer's Name .....
Type ..... Model No. Gravel Pack
Diam. ..... Slot size ..... from ..... ft. to ..... ft.
Diam. ..... Slot size ..... from ..... ft. to ..... ft.

Gravel packed: Yes ☐ No ☑ Size of gravel: .....
Gravel placed from ..... ft. to ..... ft.

Surface seal: Yes ☐ No ☑ To what depth? ..... ft.
Material used in seal .....
Did any strata contain unusable water? Yes ☐ No ☐
Type of water? ..... Depth of strata .....
Method of sealing strata off .....

(7) PUMP: Manufacturer's Name Dempsey
Type: ..... H.P. 1-3/4

(8) WATER LEVELS: Land-surface elevation above mean sea level .... 50 ft.
Static level 18 ft. below top of well Date Always
Artesian pressure ..... lbs. per square inch Date .....
Artesian water is controlled by ..... (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☑ If yes, by whom? .....
Yield: ..... gal./min. with ..... ft. drawdown after ..... hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test .....
Bailer test ..... gal./min. with ..... ft. drawdown after ..... hrs.
Artesian flow ..... g.p.m. Date .....
Temperature of water 52 Was a chemical analysis made? Yes ☑ No ☐

(10) WELL LOG:

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
Top soil 4'	Top	4'
Sugar silt # 3	4	14'
Sand	14'	28'
Gravel Sand	28'	30

Work started 1936 19 ..... Completed Sept 1936

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME A. W. Gadbois (Person, firm, or corporation) (Type or print)

Address 1329 Babcock Rd

[Signed] G. W. Gadbois (Well Driller)

License No. — Date 2-20, 1974

(USE ADDITIONAL SHEETS IF NECESSARY)

S. F. No. 7356—OS—(Rev. 4-71).

W8

ENTERED

WATER WELL REPORT

STATE OF WASHINGTON

Start Card No. W043272
Unique Well I.D. #
Water Right Permit No.

(1) OWNER: Name VERDOSE JOE Address 577 DRIVER ST ANACORTES, WA 98221- 34/4E/11-L

(2) LOCATION OF WELL: County SKAGIT - NE 1/4 SW 1/4 Sec 11 T 34 N., R 4E WM
(2a) STREET ADDRESS OF WELL (or nearest address) BABCOCK RD, MT. VERNON

(3) PROPOSED USE: DOMESTIC

(4) TYPE OF WORK: Owner's Number of well (If more than one) 3
NEW WELL Method: ROTARY

(5) DIMENSIONS: Diameter of well 6 inches
Drilled 140 ft. Depth of completed well 140 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 6 " Dia. from 0 ft. to 126 ft.
WELDED 5 " Dia. from 123 ft. to 140 ft.
" Dia. from ft. to ft.

Perforations: NO
Type of perforator used
SIZE of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: YES
Manufacturer's Name HOUSTON
Type WIRE WRAP Model No.
Diam. 5 slot size 10 from 126 ft. to 131 ft.
Diam. 5 slot size 10 from 131 ft. to 136 ft.

Gravel packed: NO Size of gravel
Gravel placed from ft. to ft.

Surface seal: YES To what depth? 18+ ft.
Material used in seal BENTONITE
Did any strata contain unusable water? NO
Type of water? Depth of strata ft.
Method of sealing strata off PRESSURE GROUT

(7) PUMP: Manufacturer's Name FLYNT & WALLING
Type SUBMERSIBLE H.P. .75

(8) WATER LEVELS: Land-surface elevation above mean sea level ... ft.
Static level 20 ft. below top of well Date 05/20/95
Artesian Pressure lbs. per square inch Date
Artesian water controlled by CAP

(9) WELL TESTS: Drawdown is amount water level is lowered below static level.
Was a pump test made? NO If yes, by whom?
Yield: gal./min with ft. drawdown after hrs.

Recovery data

Time	Water Level	Time	Water Level	Time	Water Level

Date of test / /
Bailer test 15 gal/min. 30 ft. drawdown after 4 hrs.
Air test gal/min. w/ stem set at ft. for hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? NO

(10) WELL LOG

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change in formation.

MATERIAL	FROM	TO
BROWN TOPSOIL	0	3
BROWN SAND	3	10
BLACK SAND	10	18
GRAY SAND WATER	18	75
GRAY CLAY SAND WATER	75	100
GRAY SAND WATER	100	140

RECEIVED
JUN 13 1995
DEPT. OF ECOLOGY

Work started 05/18/95 Completed 05/20/95

WELL CONSTRUCTOR CERTIFICATION:
I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

NAME DYNATRAX INC.
(Person, firm, or corporation) (Type or print)

ADDRESS 211 COLONY RD 724-4724

[SIGNED] License No. 1938

Contractor's
Registration No. DYNATI*077LS Date 06/10/95

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

ENTERED

WATER WELL REPORT

STATE OF WASHINGTON

Start Card No. W052395

UNIQUE WELL I.D. # [illegible] 314

Water Right Permit No. 34-4E-14D

(1) **OWNER:** Name Clear Valley LLC Address 14667 McLaughlin Ext Rd Mt Vernon Wa. 98273

(2) **LOCATION OF WELL:** (County) 14242 State Hiway 9 Mt Vernon Wa. NW 1/4 NW 1/4 Sec 14 T 34 N, R 04 WM.

(2a) **STREET ADDRESS OF WELL** (or nearest address) SKagit county 14242 state Hiway 9 Mt. Vernon Wa. 98273

(3) **PROPOSED USE:** ☒ Domestic ☐ Industrial ☐ Municipal ☐ ☐ Irrigation ☐ Test Well ☐ Other ☐ ☐ DeWater

(4) **TYPE OF WORK:** Owner's number of well (If more than one) _____
Abandoned ☐ New well ☒ Method Dug ☐ Bored ☐ Deepened ☐ Cable ☒ Driven ☐ Reconditioned ☐ Rotary ☐ Jetted ☐

(5) **DIMENSIONS:** Diameter of well 6 inches
Drilled 54 feet Depth of completed well 54 ft

(6) **CONSTRUCTION DETAILS:**
Casing installed: 49 " Diam from +1 ft to 49 ft
Welded ☐ Liner installed ☐ Threaded ☐ _____ " Diam from _____ ft to _____ ft
_____ " Diam from _____ ft to _____ ft

Perforations: Yes ☐ No ☒
Type of perforator used _____
SIZE of perforations _____ in by _____ in
_____ perforations from _____ ft to _____ ft
_____ perforations from _____ ft to _____ ft
_____ perforations from _____ ft to _____ ft

Screens: Yes ☒ No ☐
Manufacturer's Name Johnson
Type cl.e round Model No _____
Diam 5 Slot size .035 from 54 ft to 49 ft
Diam ____ Slot size _____ from _____ ft to _____ ft

Gravel packed: Yes ☐ No ☒ Size of gravel _____
Gravel placed from _____ ft to _____ ft

Surface seal: Yes ☒ No ☐ To what depth? 18 ft
Material used in seal bentite
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? _____ Depth of strata _____
Method of sealing strata off _____

(7) **PUMP:** Manufacturer's Name ace jacuzzi
Type sub HP ½

(8) **WATER LEVELS:** Land-surface elevation above mean sea level _____ ft
Static level 7 ft below top of well Date 5-25-99
Artesian pressure _____ lbs per square inch Date _____
Artesian water is controlled by _____ (Cap, valve, etc.)

(9) **WELL TESTS:** Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☒ If yes, by whom? _____
Yield _____ gal /min with _____ ft drawdown after _____ hrs
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test _____
Bailer test 12 gal /min with 15 ft drawdown after 1 hrs
Airtest _____ gal /min with stem set at _____ ft for _____ hrs
Artesian flow _____ g p m Date _____
Temperature of water 52 Was a chemical analysis made? Yes ☐ No ☒

(10) **WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION**

Formation Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information

MATERIAL	FROM	TO
soil	0	3'
hardpan	3	37
sand gravle silty wet	37	54

RECEIVED
JUL 16 1999
DEPARTMENT OF ECOLOGY
WELL DRILLING UNIT

Work Started 5-25 19 Completed 6-4 19 99

WELL CONSTRUCTOR CERTIFICATION:

I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief

NAME ace drilling & pump service
(PERSON, FIRM OR CORPORATION) (TYPE OR PRINT)

Address 14503 23 ave NE Marysville, Wa 98223

(Signed) Ed Countryman (WELL DRILLER) License No 0597

Contractor's Registration No ACEDRPS1317 Date 6-7 19 99

(USE ADDITIONAL SHEETS IF NECESSARY)

ECL 050-1-20 (2/93)

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

34/04 - 15C

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

Application No. W10

Permit No. .....

(1) OWNER: Name Robert Lundvall Address Mail 7105 E; Hewitt, Everett 98201

(2) LOCATION OF WELL: County Skagit NE¼ NE¼ NW¼ Sec. 15 T. 34 N., R. 04 W.M.

Bearing and distance from section or subdivision corner Less road

(3) PROPOSED USE: Domestic ☒ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) .....
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☒ Driven ☐
Reconditioned ☐ Rotary ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 169 ft. Depth of completed well 167 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6" Diam. from 0 ft. to 167 ft.
Threaded ☐ ." Diam. from ft. to ft.
Welded ☒ ." Diam. from ft. to ft.

Perforations: Yes ☐ No ☒
Type of perforator used
SIZE of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: Yes ☐ No ☒
Manufacturer's Name
Type Model No.
Diam. Slot size from ft. to ft.
Diam. Slot size from ft. to ft.

Gravel packed: Yes ☐ No ☒ Size of gravel:
Gravel placed from ft. to ft.

Surface seal: Yes ☒ No ☐ To what depth? 18 ft.
Material used in seal Bentonite
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name Sta-Rite MFG
Type: Submersible HP 3/4

(8) WATER LEVELS: Land-surface elevation above mean sea level ..... ft.
Static level 151 ft. below top of well Date 1-23-76
Artesian pressure lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☐ If yes, by whom?
Yield: gal./min. with ft. drawdown after hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test
Bailer test 18 gal./min. with — ft. drawdown after hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG:

Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
Topsoil	0	10
Blue Clay	10	105
Gravel	105	106
Blue Clay	106	157
Gravel & Water	157	161
Blue Clay	161	164
Gravel & Water	164	169
Blue Clay	169	

Work started 11-1-76 19 Completed 11-15-76 19

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME DAHLMAN PUMP & DRILLING, INC.
(Person, firm, or corporation) (Type or print)

Address Burlington 98233

[Signed] R. C. Johnson
(Well Driller)

License No. 223-02-7387 Date 11-23-76 19

(USE ADDITIONAL SHEETS IF NECESSARY)

S. F. No. 7356—OS—(Rev. 4-71).

APPENDIX 4

Riparian Buffer Study Program

Nookachamps Creek Riparian Buffer Study Program Overview and Objectives

The Skagit Environmental Bank's proponents propose to create a riparian buffer study program using land bordering the Nookachamps Creek. The purpose of the program is to analyze the ecological objectives of buffer requirements, and then identify economically viable buffer creation and use options for farmers. The objective will be to identify the riverine and riparian buffer processes that affect the agricultural community, other landowners, and natural processes in the Nookachamps drainage, and then to design a study that will provide information on how riparian buffers can be modified to either reduce costs to farmers or provide alternative income. Some potential goals are to develop recommendations for: 1) configuring the buffer to achieve the desired condition of ecological riverine processes while reducing the area of the buffer, 2) reducing the costs of creating and maintaining buffers and 3) creating economic opportunities using buffers.

To this end, we propose the following steps:

1. Talk with interested or informed individuals, communities, agencies, institutions and organizations in the Skagit Valley to gain insights, direction and cooperation in the riparian buffer study. We might contact, by way of example but not by way of limitation, the Skagit County Planning Department, the Skagit County Board of Commissioners, the local Indian Tribes, the Washington State University extension program, the Western Washington Agricultural Association, the local Cattleman's Association, the Skagit County Conservation District, the U.S. Department of Agriculture Wetland Restoration Program, the Skagitonians to Preserve Farmland, the Skagit County Farmland Legacy Program, the Washington State Department of Ecology, the Washington State Department of Fish and Game, the Skagit Regional Enhancement Group, the Skagit Watershed Council, WetNet, the Skagit Land Trust, and the Skagit County Public Works Department. We do not want to get mired down in discussions and politics with these entities, but would like to see if they have valuable input, or have requests related to the project.

2. Conduct an interview with the Skagit County soil conservation service to catalog any previous riparian buffer studies and document their goals, results, and short-comings. This step will also develop a list of studies proposed or in progress by Skagit County. The interview will focus on identifying the critical riparian buffer issues that affect the health and needs of the agricultural community.

3. Research historic economic and cultural losses in the agricultural community due to flooding, erosion, and river channel migration. Identify

and document case studies to determine the losses to farm income and evaluate the potential to offset these losses with buffers sufficient to protect agricultural resources (comparative case studies, if available).

4. Conduct interviews with local farmers and farm groups to identify buffer issues and farmers' concerns and needs. These interviews would focus on identifying opportunities to minimize or eliminate losses to farm income from river processes.

5. Based on the information gathered during the four initial steps, a riparian buffer study will be designed to test the effectiveness of different riparian buffer configurations in addressing the needs of the agricultural community. The study will include evaluations of erosion control measures, the role of root cohesion, effectiveness of sediment sequestering and nutrient removal, contributions to bank stability and effects on water temperature. Buffer parameters that will be examined include width, topography, vegetation community, large woody debris (LWD), and stream reach characteristics.

6. The requirements of the Skagit County code will be compared to state and regional recommendations for buffer widths in agricultural settings (See example in Attachment A).

7. A matrix of riparian functions will be compiled (See example in Attachment B). The matrix will allow a comparison of different riparian processes and the features of buffers which support these functions (based on research and study results), with the trade-offs that are likely to exist between different riparian buffer management strategies (e.g., protecting tillable acreage vs. the loss of topsoil due to erosion from river processes). This matrix will be a resource for determining effective buffers for agriculture, forestry, and restoration activities in the Nookachamps watershed as well as other watersheds dominated by resource lands.

8. Make every effort to include local high schools and the Skagit Community College programs and classes, the local 4H and Future Farmers of America in this study, to stimulate interest and study in the science and practice of farming and the environment.

Attachment A:
Analysis of Skagit County Code Provisions for Riparian Buffers:

Code:

14.24.530 (Fish and Wildlife Habitat conservation areas)

- For Types 1 and 2 waters, the standard buffer is 200 feet in width (up to a 50 percent reduction is allowed, with conditions).
- Five riparian performance standards are presented to protect in-stream and near-stream habitat quality:
  - Recruitment of LWD
  - Shade
  - Bank integrity (root reinforcement)
  - Runoff filtration
  - Wildlife habitat
- Allowed activities in the buffer include limited timber harvest in outer 100 feet (for possible use as a cash crop).

Ecology Buffer Guidance (BAS- Vol. 2, 8C.2.1):

Standard recommended buffer width (for a riparian area assumed to be Category II wetland or higher): 300 feet.

Reductions to 150 feet are acceptable, if the surrounding land use is classified as low impact, 225 feet is recommended when land use is low-intensity agriculture such as pasture, hay, or orchards, a full 300 feet is recommended if land use is annual tilling and row crops, or dairy, etc.

Identified features which support buffer functions are: width, land use, topography, and standing and downed wood.

Possible Study Topics:

1. Compare different buffer species and planting densities for their adequacy in achieving ecological objectives and then identify plant assemblages that are least expensive for the farmer.

2. Width: Compare the effectiveness of varied buffer widths in meeting ecological goals and compare that to the varying costs to the farmer (both in planting and the loss of farmland).

3. Quantify the effectiveness of buffers in protecting the farming business. This could be an investigation of how buffers prevent soil erosion, direct impacts to crops, etc.

4. Possibly quantify the adverse impacts of maintaining buffers, although we believe this may be more difficult to do and may eliminate this topic at a later date.

5. Examine the costs of enhancing fish management in the creeks and compare that to the economic gains from a leased access fishing business on the same creek reach.

6. Topography: Compare effectiveness of off-channel impoundments, the slope of a buffer, and the presence of low flood terraces in creating waterfowl habitat, then compare that to the economic gains from a leased access hunting business on the same riverine wetland area.

7. Shade: Compare the shading effects of different plant communities within the buffer with crop production of the shaded soils outside the buffer.

8. Reach Characteristics: Evaluate how reach characteristics affect buffer effectiveness requirements. Determine if there differences between requirements for straight stream reaches versus the inside bends and outside bends, then, identify the minimum buffer required (to achieve ecological goals) for each type of reach. This may point to narrower buffers for the farmer.

9. Making money in the buffer: Identify cash crops (such as limited timber harvesting, berry cultivation, bee operations, seed production, hunting and fishing leases, and others), that would comply with the County's "no degradation" clause in the code.

10. Evaluate the changes in fertility of flooded soils.

Attachment B:
Sample Matrix of Riparian Functions, Study parameters, and Synthesis of Data

The following matrix is included to provide a conceptual framework for the research and analysis that is proposed for the riparian buffer study:

Function	Buffer Attributes which Support the Function	Potential Conflict with Agricultural Interests	Potential Commonality with Agricultural Interests	Existing Studies/ Literature Review	Input from Agricultural Interests	Data Gaps
Nutrient uptake	Width	Loss of crop area	Comply with water quality standards, including "salmon-friendly" branding			
	Vegetation Community cover	Possible loss of crop area (forage and/or haying may be compatible)	Co-use for agricultural product			
	Topography	Reduced field drainage, or none.	Reduced erosion			
Bank stability	Root cohesion	Loss of crop area	Reduced erosion			
	LWD	Reduces stream conveyance, increases interaction with floodplain	Reduced erosion, fertile flood deposits			
Stream shading	Tree and shrub cover	Loss of crop area	Wind and water erosion protection, provides for agricultural pest predator base, possible partial co-use as agricultural crop			
	LWD	Reduces stream conveyance, increases interaction with floodplain	Reduced erosion, fertile flood deposits			
	Width	Loss of crop area	Sustained protection of agricultural land			
Wood and organic recruitment	Tree and shrub cover	Loss of crop area	Wind and water erosion protection, agricultural pest predator base, possible, partial co-use as agricultural crop			
	LWD	Reduces stream conveyance, increases interaction with floodplain	Reduced erosion, fertile flood deposits			
	Width	Loss of crop area	Sustained protection of agricultural land			