Save Black Diamond
saveblackdiamond@gmail.com

To: Black Diamond City Council

RE: City of Black Diamond Closed Record Hearing
Proposed Development Agreement for the "Lawson Hills" and "The Villages" Master Planned Development
Appearance of Fairness Doctrine Issues

To the City Council and others it may concern:

After the September 26 meeting continuing Appearance of Fairness hearings, we were able to see the document submitted on September 21 by Yarrow Bay regarding the Appearance of Fairness of four council members. We disagree with the issues raised about Council members Goodwin and Saas for the following reasons:

1. The communications to Goodwin and Saas cited in the YarrowBay letter were not made regarding quasi-judicial matters.
    a. Any conversation regarding the MPD Ordinances passed in September of 2010 were not quasi-judicial because the Ordinance was already passed and no longer pending. In addition, the standing court ruling is that the MPD Ordinance was not a quasi-judicial matter. We recognize this ruling is being appealed, but at the current time and the time of the communications, the standing ruling is the only one which can reasonably be expected to be acted upon.
    b. It is our position that a Development Agreement must be legislative by its nature. This legislative interpretation would also make sense in light of the ruling that the MPD Ordinance is legislative. Therefore, the question of ex parte conversations is invalid.

2. In the unlikely event it is determined that the Development Agreements are quasi-judicial, or if the city of Black Diamond feels it must treat them as such given its ordinances, the issues raised in YarrowBay's letter are still not a reason for recusal for the following reasons:
    a. Any conversation specifically regarding the Development Agreements, which it is not clear there were any, would have been about documents not yet deemed complete by staff and the applicant and not yet pending before council. It was not pending until June 10, 2011.

EXHIBIT 4

b. A communication is allowed and must simply be made part of the record if it occurs. At the commencement of the hearings on the 21st, the first meeting where city council was present on the Development Agreement matter, the communications in question were made part of the record because they were included in Yarrow Bay's letter. RCW 42.36.060 is shown below. It clearly states that written communications are allowed and must be placed on the record and announced publicly at each hearing were action is taken on the subject to which the communication is related.

RCW 42.36.060
Quasi-judicial proceedings -- Ex parte communications prohibited, exceptions.

During the pendency of any quasi-judicial proceeding, no member of a decision-making body may engage in ex parte communications with opponents or proponents with respect to the proposal which is the subject of the proceeding unless that person:

(1) Places on the record the substance of any written or oral ex parte communications concerning the decision of action; and

(2) Provides that a public announcement of the content of the communication and of the parties' rights to rebut the substance of the communication shall be made at each hearing where action is considered or taken on the subject to which the communication related. This prohibition does not preclude a member of a decision-making body from seeking in a public hearing specific information or data from such parties relative to the decision if both the request and the results are a part of the record. Nor does such prohibition preclude correspondence between a citizen and his or her elected official if any such correspondence is made a part of the record when it pertains to the subject matter of a quasi-judicial proceeding.

c. Membership in the Lake Sawyer Community Club is not a reason for recusal. This community organization's primary focus is not political. In addition, in the last year, it has been silent on development issues. It is valid for this organization and any member and any council member to be concerned about Lake Sawyer water quality. This does not make them too biased to rule on this Development Agreement.

We disagree with objections to any council member for the following reasons:

d. Property in close proximity to the development parcels is not a reason for recusal. Black Diamond is a small place and Yarrow Bay plans to develop large land areas on 3 sides of the city. Hundreds of people live in proximity to see the tree removal, hear the noise, experience the changes in water runoff and wildlife, and otherwise be affected by the developments.
e. Property directly bordering the development parcels may not a reason for recusal for the same reason stated above. We believe it is appropriate for city council to debate this matter.

In addition, we finally must state that there would be a gross injustice if the two members of the council who have been so thoughtful in their prior considerations are not at the table. It would also be a gross injustice if the only members debating this issue are the ones who have been perceived to be supportive of Yarrow Bay's development proposals. We all seek a better product, and members of council who have more information will yield a better product.

In addition, Save Black Diamond did not put its objections to various members of council regarding Appearance of Fairness on the record yet, but our objections are well known and those conflicts were disclosed last year during the MPD process, and those conflicts are still present.

Kristen Bryant (425-247-9619)
for Save Black Diamond

Contact information: saveblackdiamond@gmail.com

Bricklin & Newman LLP

Seattle Office:
1001 Fourth Avenue
Suite 3303
Seattle, WA 98154

Spokane Office:
35 West Main
Suite 300
Spokane, WA 99201

Contact:
Phone: 206-264-8600
Toll Free: 877-264-7220
Fax: 206-264-9300
www.bnd-law.com

Reply to: Seattle Office

September 29, 2011

VIA E-MAIL

Mayor Rebecca Olness
Black Diamond City Council
City of Black Diamond
P.O. Box 599
Black Diamond, WA 98010

Re: Authority to Remand Development Agreements to Hearing Examiner Hearings

Dear Mayor Olness and Council Members:

I am writing regarding the legal issue of whether the City Council has authority to remand Yarrow Bay's Development Agreement proposals to the Hearing Examiner for further consideration. As you know, because of Yarrow Bay's refusal to provide the Examiner additional time, he was unable to prepare a recommendation to you that "contained an evaluation of every section of the Development Agreements." Examiner Rec., page 3. Also, because of inadequate time, he could not provide "more detailed findings of fact and conclusions of law" and was unable to provide you with a fully organized summary of the testimony. *Id.* While he accomplished one "priority" of addressing the most "significant concerns," there were many items left unaddressed. *Id.* For instance, he acknowledged that it "was not possible for the Examiner to view the constraint maps in the limited time to prepare this" recommendation. *Id.* at 55.

Consequently, the issue arises as to whether the City Council can remand the matter to the Hearing Examiner for his further consideration. Council Member Hanson suggested that an e-mail she had received from the Municipal Research and Services Center suggested that the Council lacked authority to do so. I am attaching to this letter a copy of that e-mail. It says nothing of the sort. The MRSC e-mail addresses the time deadline for the Examiner's recommendation, not the City Council's authority to remand.

The remand issue also was addressed, briefly, by one of your City attorneys. He noted that the City Code does not expressly state that the City Council may "remand" to the Hearing Examiner for additional fact finding and recommendations. But your attorney did not alert you that a City Council has not only those powers expressly stated in the Code, but also "those powers necessarily or fairly implied in, or incident to, the powers expressly granted." *Port Angeles v. Our Water-Our Choice!*, 170 Wn.2d 1, 14, n.14 (2010). *See also Noe v. Edmonds School District 15*, 83 Wn.2d 97, 103 (1973).

EXHIBIT 5

It is clear that the power to remand for further fact finding and recommendations is "fairly implied" from the power to grant or deny the applications outright. A remand does not finally dispose of the applications, but rather allows a more complete record and more complete recommendations to be developed. Where the Examiner expressly states that he has not had adequate time to address all the issues and all the testimony, and where the applicant has refused to allow the Examiner to take additional time, you certainly would be justified in simply denying the applications outright. Instead of that more drastic action in response to a timing concern, it is "fairly implied" that the Council also has the lesser included authority to simply remand for additional review by the Examiner.

Your attorney also noted that in another section of the Code (dealing with MPD permits), the Code expressly provides for remands. He suggested that because there was an express reference to remands in that section of the Code and no reference to remands in the section of the Code dealing with development agreements that the drafters of the Code had made a conscious decision not to allow remands in this situation. I strongly doubt that that is the correct inference to draw from the different between those two Code sections. It is highly unlikely that the City Council that approved the two different Code sections were even aware of the discrepancy between the two sections. A more probable inference to be drawn is that the discrepancy was a mere oversight. The applicable rule of statutory construction is that codes should be construed to avoid unlikely results. *Whatcom County v. City of Bellingham*, 128 Wn.2d 537, 546 (1996) (code should be construed to "avoid a literal reading if it would result in unlikely, absurd or strained consequences"). It is extremely unlikely that the City Council which adopted the Code section at issue here intended to preclude future City Councils (like this one) from seeking additional information from the Examiner if the Examiner had not had adequate time to fully address all issues – and stated so in his recommendation.

Thank you for considering these comments. If you have any questions, I would be happy to address them.

Very truly yours,

BRICKLIN & NEWMAN, LLP

David A. Bricklin

DAB:psc

cc: Mike Kenyon/Bob Sterbank
Nancy Rogers
Clients

Kristine Hanson

From: Jim Doherty [jdoherty@mrsc.org]
Sent: Tuesday, September 20, 2011 2:05 PM
To: Kristine Hanson
Subject: Recommendation Timeline

Councilmember Hanson,

You called and asked about the time requirement that applies to recommendations made by the city's hearing examiner. Your question was prompted by footnote #1 in the recommendation document indicating that there is a ten day requirement set by the city's regulations, but not by the relevant statute, RCW 35A.63.170.

The statute requires that "final decisions" be issued within ten days, not "recommendations". As indicated in the footnote, the hearing examiner is required to issue his recommendations within ten days because of the city's own procedural regulations. Though the hearing examiner indicated that it was difficult to meet the timeline (see the comments at the top of page 4), the hearing examiner did not indicate that having more time would have changed the recommendations that were made.

As always, we encourage you to review legal issues with your city attorney. Particularly in complex matters such as the Yarrow Bay development proposal, we are hesitant to provide advice without being fully aware of all of the underlying documents, regulations, etc.

Jim Doherty
Legal Consultant
Municipal Research & Services Center
2601 Fourth Avenue, Suite 800
Seattle, WA 98121-1280
206.625.1300
206.625.1220 Fax
jdoherty@mrsc.org

CITY OF BLACK DIAMOND

September 29, 2011

UPDATED JOINT STAFF REPORT FOR THE DEVELOPMENT AGREEMENTS FOR THE VILLAGES MASTER PLANNED DEVELOPMENT FILE NOs.: PLN10-0020/11-0013 LAWSON HILLS MASTER PLANNED DEVELOPMENT FILE NOs.: PLN10-0021/11-0014

I. INTRODUCTION

On September 20, 2010, the Black Diamond City Council unanimously approved Master Planned Development Permits ("MPD Permits") for (a) "The Villages," a planned mixed-use development of 1,196 acres, featuring 4,800 residential units, 775,000 sq. ft. of office, retail and light industrial uses, school sites and both passive and active open space. and (b) "Lawson Hills" a planned mix-use development of 371 acres, featuring 1,250 residential units, 390,000 sq. ft. of office, retail and light industrial uses, one school site and both passive and active open space..

Pursuant to BDMC 18.98.090, the conditions of the MPD Permit approvals must be incorporated into a Development Agreement between the City and the property owners. The Development Agreement must be binding on all MPD property owners and their successors, and requires that the property owners develop the subject property only in accordance with the terms of the MPD approval. The Development Agreement must be signed by the Mayor and all property owners and lien holders within the MPD boundary, and recorded, before the City may approve any implementing permits or approvals (preliminary plat, design review, building permit, etc.) for development of the land subject to the approved MPD Permits. The proposed Development Agreements have been negotiated between City staff and the MPD property owners (BD Village Partners and BD Lawson Partners) in order to satisfy this code requirement.

II. GENERAL INFORMATION

Property Owners: BD Village Partners LP, BD Lawson Partners, LP
10220 NE Points Drive, Suite 310
Kirkland, WA 98033

Parcel Numbers: **The Villages:** 1121069006, 9109, 1521069005, 9088, 9096, 9097, 9098, 9099, 9100, 9101, 9102, 9103, 9104, 9105, 9106, 9108, 9109, 2221069004, 9035, 9036, 9037,

EXHIBIT 6

9038, 9042, 9044, 9045, 9046, 9047, 9052, 9053, 2721069056, 2221069039, 9040, 9041, 9043, 9048, 9049, 9050, 9051, 2321069001, 9003, 9046, 9047, 9048, 9049, 9050, 9051, 9052, 9053, 9054, 9057, and 9058.

Lawson Hills: 0221069024, 9028, 9029, 9030, 0321069076, 1121069044, 1421069001, 9002, 9063, 9186, 1321069007, 9008, 9009, 9010, 9011, 9014, 9021, 9022, 9023, 9024, 9029, 9033, 9034, 9036, 9037, 9038, 9040, 9046, 9047, 9048, 9053, 9054, 9057, 9063, 9066, 9067, 1221069011 and 9012.

Legal Basis: Development Agreements are authorized under RCW 36.70B.170 and BDMC 18.66. Pursuant to BDMC 18.08, a Development Agreement is processed as a Type 4 Quasi-judicial application (Hearing Examiner conducts an open record hearing and forwards a recommendation to the City Council; City Council then conducts a closed record hearing and takes final action on the development agreement).

SEPA Action: A Determination of Significance and Adoption of the prior Final Environmental Impact Statement (FEIS) for The Villages Master Planned Development (dated December 11, 2009) was issued on June 3, 2011.

A Determination of Significance and Adoption of the prior FEIS for the Lawson Hills Master Planned Development (also dated December 11, 2009) was issued on June 3, 2011.

III. WHAT IS A DEVELOPMENT AGREEMENT?

The Municipal Research and Services Center's website offers the following general discussion of a development agreement: "A development agreement is a contract between a local jurisdiction and a person who has ownership or control of property within that jurisdiction. The purpose of the agreement is to specify the standards and conditions that will govern development of the property. The development agreement provides assurances to the developer that he/she may proceed to develop the project subject to the rules and regulations in effect at the time of approval – the development will not be subject to subsequent changes in regulations. (In Washington, a project is subject to the regulations in effect at the time of subdivision or building permit application. However, a development agreement may include additional development standards that will govern property development for the duration of the agreement).

Development agreements should also benefit the local jurisdiction. The city or county may include conditions (mitigation measures) that must be met to assure that a project at a specific location does not have unacceptable impacts on neighboring properties or community infrastructure. The agreement may clarify how the project will be phased, the required timing of public improvements, the developer's contribution toward funding

system-wide community improvements, and other conditions. The agreement can also facilitate enforcement of requirements, since it is a contract that details obligations of the developer and local jurisdiction.

.....These agreements are voluntary, but once made, they are binding on the parties and their successors. Development standards may include permitted uses, densities, impact fees, and mitigation measures. Local jurisdictions must hold a public hearing prior to approving a development agreement and may only impose impact fees, dedications, mitigation measures, and standards as authorized by other laws."

Under the Black Diamond Municipal Code, Section 18.98.090, the purpose of a development agreement for a Master Planned Development Permit is somewhat more narrow. The purpose is to ensure that the conditions of MPD Permit approval are incorporated into a recorded agreement that is binding upon all MPD property owners and their successors, and that requires that development of the MPD property occur only in accordance with the approved MPD Permit conditions.

Some conditions of MPD Permit approval required preparation of supplemental information. These include:

Villages Condition 11/Lawson Hills Condition 10: "The City shall create, at the expense of the Applicant, a new traffic demand model for this project. . . ." With the assistance of Parametrix, this model is being created.

Villages Condition 33(a)/Lawson Hills Condition 29: The City shall commission a study, at the Applicant's expense, on how to limit MPD traffic from using Green Valley Road, and which shall include an assessment of the use of traffic calming devices within the existing, improved right-of-way." With the assistance of Parametrix, this study has been completed.

Villages Condition 81/Lawson Hills Condition 85: "Prior to approval of the Development Agreement, the Applicant shall identify to the City the estimated maximum annual volume of total phosphorus (Tp) that will be discharged in runoff from the MPD site and that will comply with the TMDL established by the State Department of Ecology for Lake Sawyer." The Applicant has provided the information required by this condition to the City.

IV. DEVELOPMENT AGREEMENT PROCESS

As noted in Section II above, both Washington State law and the Black Diamond Municipal Code allow the City to enter into a development agreement with a property owner. In the case of an approved Master Planned Development, a development agreement is required as a pre-condition of the City approving any implementing projects or approvals, such as subdivisions (BDMC 18.98.090).

In addition to the requirements that the development agreements incorporate the conditions of MPD Permit approval and require that all development occur only in accordance with the terms of MPD Permit approval, a basic consensus between the two parties to a development agreement (property owner and the City) is needed before proceeding to public hearing. In this instance, the property owners submitted initial proposals on September 10, 2010 (The Villages) and September 13, 2010 (Lawson

Hills), which initiated the process of discussions and negotiations with staff. Revised agreements dated December 30, 2010 (version 2) were submitted on January 5, 2011, after which further discussions and negotiations occurred. Third versions of the two development agreements were submitted on April 15, 2011 and served as the basis for final discussions and negotiations, with the end result being the June 2011 versions that were under consideration during the Hearing Examiner's open record hearing.

Throughout the negotiation/discussion process with the proponents, staff used outside consultants for assistance. RH2 Engineers, which has served as adjunct staff to the City of Issaquah in its review and implementation of Issaquah Highlands and Talus (two large master planned communities) provided assistance primarily in the areas of engineering and utilities. Henderson and Young, a nationally-recognized firm in the area of impact/mitigation fees and municipal fiscal issues, provided assistance in those areas. And, staff continued to use the services of Parametrix (primary authors of the FEIS documents) in the area of transportation issues and traffic mitigation. All of these consultants will be made available for Council deliberations if Council so desires.

The property owner also submitted new development agreement applications on March 18, 2011, which were identical to the December 30, 2010 proposals received on the initial applications. A letter from Yarrow Bay Holdings, dated June 9, 2011 stated their reason for doing so. As noted above, revised versions of the development agreements (version 3) were subsequently submitted on April 15, 2011 and posted to the City's website for public review and comment. The June 2011 versions should be considered as the final draft for all applications (PLN10-0020 and PLN11-0013 for The Villages, and PLN10-0021 and PLN11-0014 for Lawson Hills).

V. PUBLIC NOTICE

As noted in Section IV, staff has provided public notice during this process consistent with the requirements of BDMC 18.08 for a Type 4 Quasi-judicial process. This included:

A. Notices of Application dated October 5, 2010 and April 22, 2011: published in the official City newspaper; posted to City's website; existing on-site Public Notice Boards modified; plus, mailed notice to approx. 1600 individuals. The initial drafts of the Development Agreements were posted to the City's website, as were all subsequent drafts, including those currently under consideration.
B. Notice of June 28, 2011 Open House event: posted on City's website; notice emailed to individuals on City Clerk's Council distribution list (note: this was an optional activity, intended to provide public notice and information about the Development Agreements and related MPD Permits, and was not required by any code).
C. Notice of Hearing Examiner Open Record Public Hearing: published on June 10, 2011 in the official City newspaper; posted to City's website on the same day; posted on Notice Boards on the same day; mailed to approx. 1600 individuals, which includes all participants from the MPD public hearing process.
D. Notice of Closed Record Hearing: published in the official City newspaper on September 2, 2011; posted to the City's website on the same day; mailed to all parties of record.

VI. MAJOR FEATURES OF THE DEVELOPMENT AGREEMENTS

Pursuant to BDMC 18.98.090, the Development Agreements' function is to govern implementing development permits or approvals (preliminary plat, design review, building permit, etc.) within the approved "The Villages" and "Lawson Hills" Master Planned Developments, to ensure that the property owners "develop the subject property only in accordance with the terms of the MPD approval." As such, the Development Agreements address a wide variety of conditions and topical areas. This section of the staff report highlights the major features in the Development Agreements' various chapters.

The Development Agreements for the two MPDs are almost identical in content and are thus analyzed together in this report. Where there are unique issues of significance pertinent to only one of the two agreements, they are highlighted in this joint staff report.

A. Sections 1 and 2 contain the project goals, objectives and description.

B. Section 3 addresses prior agreements that affect the project sites, such as the Black Diamond Urban Growth Area Agreement (BDUGAA), the Black Diamond Area Open Space Agreement, etc. These Development Agreements fulfill and implement these prior agreements.

C. Section 4 refers to an MPD Site Plan (Exhibit A), which provides conceptual lot layouts for development within the various land use categories that were depicted on Figure 3.1 approved as part of the MPD Permits. (Note: The Hearing Examiner recommends these exhibits be deleted). Allowed land uses within various "development parcels" are re-stated, as are density ranges for those parcels. In addition, for The Villages, Section 4.9 provides greater detail regarding how the use of Transfer of Development Rights (TDRs) will be used intermittently through the duration of the project.

D. Section 5 addresses the bulk, parking, landscape and sign standards that are consistent with City code and that will apply within the two MPDs. Lot sizes will be a minimum of 2200 sq. ft. for detached single family residential development; there are no minimum lot sizes for other types of development. Section 5 also provides that MPD development may include unique layouts such as zero-lot line development; "Z" lots; and courtyard homes (see Section 5.2.6). This will provide for a variety of housing types to meet differing needs and price ranges, as required by the City's MPD Design Guidelines and Villages MPD Permit Condition No. 129/Lawson Hills MPD Permit Condition No. 134.

E. Street standards are addressed in Section 6. Rather than providing detailed cross-sections for a hierarchy of street classifications, a "menu" of street components is provided. The exact amount of each component to be used for a given street will depend upon its planned function in the MPD and the amount of traffic it is expected to carry, based upon trip generation numbers contained within the Agreement (see Section 6.2). This method will provide for greater flexibility over time and will best ensure streets are properly designed for the usage forecast by traffic engineering analyses.

F. One of the most significant highlights with utilities (Section 7) is the commitment of the property owners to ensure no net increase of pH (phosphorous) discharge to the Lake Sawyer drainage basin (Section 7.4.3). This exceeds the standard established by the City Council and set forth within the conditions of MPD approval (Villages Condition of Approval #81/Lawson Hills Condition of Approval #85).

G. Section 8 addresses sensitive areas and notes that the boundaries of all such areas as depicted on the constraints maps are "fixed" for the duration of the project. This provides certainty to the public, the City and the property owners as build-out occurs over time. Note that this provision applies to only to the sensitive areas themselves; for example, specific categories of wetlands are not being established, nor are required buffers being "fixed" at this time. Those issues will be addressed through compliance with the City's Sensitive Areas Ordinance (SAO) at the time of individual project implementation. Regarding mine hazard areas, the Hearing Examiner recommended (Condition "L") that additional language be provided; staff and applicant have agreed upon text that should be included in the Agreements to meet this concern.

H. Per The Villages Condition of Approval No. 91/Lawson Hills Condition of Approval No. 93, Section 9 contains standards for the provision of various parks and recreation facilities within the project. The potential of the City receiving payment in lieu of constructing facilities is noted within Table 9-5. However, it will be within the City's sole discretion whether to receive payment in lieu of constructed facilities.

I. The concept of Expansion Parcels, portrayed in the MPD application, is addressed in Section 10 and depicted in Exhibit S. Since these parcels were not part of the initial MPD Permit approval, further processing will be in order to bring Expansion Parcels into either MPD. The Agreement recognizes that, as long as the established total unit count/commercial square footage cap for the projects are not individually exceeded, additional environmental analysis for the Expansion Parcels could be limited in scope.

J. Section 11 adds definition to the street and utility improvements that are needed to serve the development, identifying which projects will occur during a particular phase and the financing for those projects. Off-site street improvements to occur within the cities of Covington and Maple Valley have been separately negotiated by the property owners and those two jurisdictions; specific agreements concerning those off-site improvements are included as Development Agreement Exhibits R and Q, respectively.

K. The development review process for implementing projects is addressed in Section 12. In order to maintain overall control of project design, the Master Developer will establish a Design Review Committee (DRC), which must approve all applications before they are submitted to the staff for review. For example, the DRC will be responsible for ensuring individual home designs are consistent with the design standards contained within Exhibits H and I; staff will not accept building permit applications unless accompanied by proof of DRC approval. City staff will also independently review all applications for compliance with the MPD Permit conditions, the Development Agreement, the MPD Framework Design Guidelines and other applicable codes and standards.

L. In January 2011, the City Council approved the Comprehensive Schools Mitigation Agreement between Yarrow Bay Holdings, the Enumclaw School District and the City. This agreement describes how school sites and schools to serve the project will be provided over time. That document is referenced in Section 13, but is not part of the Agreements.

M. Subsection 13.4 includes provisions for fire mitigation, including provisions for the Master Developer constructing one satellite fire station. Fire mitigation fees will be used to fund capital improvements (credits will be granted for any

improvements funded by the Master Developer). The amount of the mitigation fee as set forth in the Agreement may change in the future should the City adopt a city-wide fire impact fee as authorized by State law.

N. Section 13.6 details the methodology for conducting the required periodic fiscal impact analyses to ensure that each MPD is, at a minimum, revenue neutral to the City, whether through tax revenues, supplemental funding and/or expense reduction.

O. Section 13.7 addresses noise attenuation strategies, consistent with The Villages Condition of Approval No. 44/Lawson Hills Condition of Approval No. 42. Section 13.8 references the required Green Valley Road Traffic Calming Strategies report that has been prepared as required by The Villages Condition of Approval No. 33.

P. Section 13.9 addresses how the project will mitigate impacts to General Government Facilities such as City Hall; Municipal Court; Public Works; and Police. A mitigation fee is established that will remain in effect until such time that the City may establish a city-wide mitigation fee.

Q. Section 14 defines terms that are specific to the Development Agreements or that otherwise are not defined within Black Diamond Municipal Code.

R. Section 15 contains general provisions and notes the numerous exhibits that support the Development Agreements.

VII. OTHER AREAS OF NOTE

A. **Role of the Designated Official.** The Agreements contain certain references to the "Designated Official's" authority to approve limited minor deviations or alternative designs, consistent with existing processes allowed under City code. This will allow the projects to adapt to changing circumstances, market conditions or improved methods of construction, providing flexibility during the years of project build-out. It is intended that for the purpose of land use/planning type of issues, the Community Development Director will serve as the Designated Official. For engineering related issues, the Executive Director of Engineering Services will serve as Designated Official.

B. **Master Developer.** The Development Agreements provide for a "Master Developer," which will be responsible for overall coordination of the project development from the private side. Having a Master Developer ensures the City of having an identified responsible party for any issues of compliance with implementation of the projects, who in turn is responsible for securing compliance of individual developers within the MPDs. The Master Developer is also responsible for established a Design Review Committee, which must approve all development proposals as being consistent with the Design Guidelines (Exhibits "H" and "I" to each Agreement), before projects are submitted to the City for its independent review.

C. **Section 4.7.3: ADUs.** Both Development Agreements include a maximum number of Accessory Dwelling Units (ADUs) that may be authorized within each project. The property owners' traffic mitigation agreement with the City of Maple Valley (Exhibit Q) established an overall limit of 450 ADUs for both projects. The proponent has elected to allocate these with 350 ADUs being potentially permitted in The Villages and 100 ADUs within Lawson Hills. The Hearing Examiner recommends that ADUs be treated as dwelling units and thus counting towards the overall dwelling unit limit for each MPD.

D. **Section 5.2.6: Alternate lot configurations.** Both MPDs anticipate having a variety of housing types, including auto courts, zero-lot line development, "Z lots" and cottage housing. A visual representation of these various configurations is shown in Section 5.2.6. The extent of use of these types of housing configurations is not known at this time. The intent of allowing these alternatives is to encourage innovative design and the flexibility to provide a variety of housing types and prices.

E. **Section 7.1.9: CFCs will not be collected.** Typically, individual developers are required to pay CFCs (capital facility charges) as a condition of connecting to the City's water and sanitary sewer systems. However, the Master Developers will be constructing substantial infrastructure to serve their projects, including off-site extensions – in other words, building entirely new, large portions of the City's systems in areas not currently served. As this section of the Development Agreements notes, were the City to impose CFCs, it is possible the City would actually owe the Master Developers credits in excess of the amount of funds it would collect. Therefore, staff and the property owners have agreed that CFCs will not be collected.

F. **Section 7.2.4: Water Capacity.** Through the Water Supply Facilities Funding Agreement (WSFFA), the proponents have previously purchased the rights to sufficient water to serve both MPDs. Due to this, and in recognition that both projects will extend water to each of the sites and extend water through those properties, neither project will be assessed general facility charges. Also, in the event the projects do not use all of the water capacity which were purchased through the WSFFA, the City shall have first right to repurchase the water. The Covington Water District submitted information stating they have a right to serve approximately 98 acres within the northern portion of The Villages MPD. Both staff and the proponents have agreed to modify language in The Villages Development Agreement in recognition of this situation.

G. **Section 7.3: King County responsibility for sewer.** Although the City of Black Diamond operates its own sanitary sewer collection system, its contract with King County assigns to the County the responsibility for accepting sewage flows from the City and sending those flows on to regional treatment facilities. This will require the construction by King County of a storage facility to accommodate peak sewage flows. The location of this facility is still under discussion between the City and King County.

H. **Section 12.8.13: Work Hours.** Construction noise was a concern voiced by many individuals during the MPD approval process and was specifically addressed in the MPD Permit conditions of approval. The Development Agreement imposes even greater restrictions on allowable construction hours, as the property owners have agreed to limit those to a greater extent than in otherwise provided by the Municipal Code (BDMC 8.12.040.C). Construction activities on Sundays will only be allowed if approved by the as-yet-to-be-formed Noise Review Committee (which will include citizen members) and in general, construction must cease one hour earlier in the day on weekdays and Saturday than is allowed elsewhere within the city.

I. **Section 13.4: Fire Mitigation.** This section of the Agreements specifies a mitigation fee of $1,783.13 per dwelling unit and $2.29/sq. ft. for non-residential construction that will be paid until whatever time the City may adopt a City-wide fire impact fee. This figure was developed after an analysis prepared for the City by Henderson and Young.

The Master Developer may also elect to build a fire station and receive a credit against existing or future fire mitigation or fire impact fees. This could result in the construction of a new fire station that will serve both the MPDs and other areas of Black Diamond sooner than would otherwise be possible. The Fire Chief of King County Fire District #44 has confirmed support of the proposed means of fire impact mitigation .

J. **Section 13.6: Fiscal Impact Analysis.** This section outlines the methodology that will be used to conduct fiscal impact analyses over the duration of the build-out period. As a result of discussions between staff and the proponents, including consideration of the analysis prepared by Henderson and Young, these sections were significantly changed since the initial Development Agreement applications were received. The methodology outlined in this section will provide for a thorough evaluation of the projects' fiscal impacts as required by the MPD Permits' conditions of approval and by City code.

K. **Section 13.7: Review committees.** The ordinances approving the two MPDs provided for the establishment of three committees: Green Valley Road Review, Noise Review and Water Quality Review. These will provide the opportunity for citizen involvement in these particular issue areas as the projects develop over time.

L. **Exhibit F: Traffic Monitoring.** MPD conditions of approval require periodic traffic modeling to occur, based upon a new transportation demand model that provides an appropriate level of detail for the regional transportation network. The model is to be validated and calibrated once a combined total of 850 dwelling units have been issued for the two projects.

M. **Exhibits H & I: Design Standards.** These two exhibits contain design standards that will apply throughout the projects (Exhibit "I" contains standards that are specific to High Density Residential Development only).The primary responsibility for ensuring compliance with these standards rests with the Master Developer. Proof of Design Review Committee approval must accompany an application submitted to City staff for review. Staff will also conduct its own review to ensure these guidelines are being followed.

N. **Exhibit N: Funding Agreement.** The City and Yarrow Bay are in the final year of a 5-year funding agreement established in 2007. The Funding Agreements contained in Exhibit N will replace the current agreement. They provide for the establishment of a "Master Development Review Team" (MDRT) that will be primarily responsibility for working on implementing projects in the MPDs. The core City staff team is intended to be augmented with outside consultants as necessary, in order to address unique issues and respond to anticipated work flow. The Agreements also provide the proponents with the ability to "wind down" existing staff on the current funding agreement in the event of adverse economic conditions.

O. **LHDA Section 9.1: Open Space.** A unique feature of the Lawson Hills Development Agreement is found within this section. Condition No. 145 of the Lawson Hills MPD Permit required that an additional 14.8 acres of open space be provided in the MPD's Site Plan, or that the Development Agreement contain a plan for providing the acreage. During the MPD Permit process, the property owner redesignated two planned development parcels as open space, reducing the additional required acreage to 9.3 acres. Section 9.1 of the Development Agreement contains the plan to provide the additional 9.3 acres through the provision of school playfields, trails and neighborhood parks provided as part of

implementing development projects but that are not currently depicted on the Site Plan maps.

VI. HEARING EXAMINER RECOMMENDATION

As required for a Type 4 Quasi-judicial process, the Hearing Examiner conducts an open record public hearing and then issues a recommendation to the Council. As noted in his recommendation, the Examiner conducted a multi-day hearing and allowed for a significant amount of written materials to be submitted. The record from the open record hearing is substantial. It has been available for Council review.

BDMC 18.08.070.A.3 provides that for Type 4 Quasi-judicial processes, the Council's closed record hearing is "limited to discussion about the recommendation from the Hearing Examiner. All argument and discussion must be based on the factual record developed at the Hearing Examiner hearing."

Section VIII of the Examiner's recommendation contains the Examiner's twenty-four (24) recommended changes to the Development Agreements. With those changes, he found that the Agreements satisfy the MPD Conditions of Approval. Staff and the proponents have negotiated revisions to the Agreements as outlined in the Examiner's recommendation and concur that with these revisions, the Agreements can be approved. However, there are a few specific issues concerning the Examiner's recommended changes which staff wishes to comment upon.

Condition C addresses Accessory Dwelling Units (ADUs). The Examiner's analysis concluded these should be considered as any other dwelling unit and therefore apply towards the maximum dwelling unit count approved for the two projects (4800 for The Villages; 1250 for Lawson Hills). Staff disagrees with this interpretation. ADUs are not treated as dwelling units in any other zone district for the purpose of computing density (e.g., a single family home with an ADU is not considered to be a duplex). Including ADUs in the total maximum unit count is inconsistent with how they are treated elsewhere in the Zoning Code and also appears to be inconsistent with the State legislation that mandated GMA jurisdictions to allow ADUs.

Conditions F and H relate to water and sewer availability. The proposed Development Agreements contain language that recognize that since the Master Developer will be responsible for this infrastructure within both projects, there is little value added by requiring the issuance of water and sewer certificates for individual Implementing Projects. In staff's opinion, requiring the issuance of certificates will add unnecessary paperwork and workload during the process of reviewing Implementing Projects.

Other comments regarding specific conditions will be addressed in the negotiated document containing revised language, to be presented by the applicant.

VII. DECISION CRITERIA

Development Agreements are authorized under State law (RCW 36.70B.170 and BDMC 18.66 and 18.98.090). BDMC 18.66 code essentially tracks State law and notes the items that can be addressed within a development agreement. BDMC 18.66.020.B provides a non-exhaustive list of development standards that may be modified through a development agreement.
In addition, BDMC 18.98.090 requires the approval of a development agreement before any implementing projects may be approved within an MPD. BDMC 18.98.090 requires

that the conditions of an MPD Permit approval shall be incorporated into the development agreement, that the development agreement bind the MPD property owners and their successors and be recorded, and that the development agreement require that the property owners develop the subject property only in accordance with the terms of the MPD approval.

The negotiated revised language document to be presented by the applicant includes a revised "Compliance Matrix", which outlines the manner in which all applicable MPD Permit conditions of approval have been addressed and satisfied in these Development Agreements, and also how the conditions contained in the Hearing Examiner's recommendation have been addressed. In addition, the Development Agreements provide that they constitute and shall be recorded as a covenant running with the land, benefiting and burdening the MPD Project Sites, and that they are binding upon and inure to the benefit of the property owners and their the successors and assigns. Finally, the Development Agreements provide that the MPD property may be developed only in accordance with the terms of MPD Permit approval.

VII. STAFF RECOMMENDATION

Staff recommends the City Council direct the City Attorney to prepare ordinances for approval of the two Development Agreements, to include the negotiated recommended changes that are being submitted by the proponent. .

YARROWBAY HOLDINGS

a passion to succeed

September 28, 2011

Dear City Councilmembers;

YarrowBay is pleased to present The Villages and Lawson Hills Development Agreements to the Black Diamond City Council. We look forward to partnering with the City of Black Diamond to make the approval of these award-winning planned communities a reality. We hope that the City Council will take the following points under consideration in its Development Agreement review and deliberation process.

- City Staff and YarrowBay's team members spent countless hours developing and negotiating The Villages and Lawson Hills Development Agreements that are now before you. We are proud to say that City Staff and YarrowBay reached consensus on all of the terms included in the agreements.

- The proposed Villages and Lawson Hills Development Agreements meet all of the criteria included in the approved MPD Permits and City Code.

- Further, the Development Agreements do even more for the Black Diamond community than required by the MPD Permits' conditions by committing to "no net increase in phosphorous" in Lake Sawyer; YarrowBay's advanced construction of a fire station to assure improved fire service to the City before the need is triggered by MPD development; and inclusion of a general government mitigation fee to fund future public service needs.

- YarrowBay has agreed to revise the Development Agreements to address issues raised before the Hearing Examiner which the Examiner classified as "Recommended Implementing Conditions."

For additional detail regarding the Development Agreements and the future build-out of each project site, I strongly encourage you to read YarrowBay's *Guide to MPD Design and Build-Out as Envisioned by the Development Agreements* (Exhibit 8). The Guide is an excellent digest of key terms and concepts in the Development Agreements.

YarrowBay is committed to getting The Villages and Lawson Hills off the ground and partnering with the City the whole way. We have been involved in designing these communities for a decade. We have listened to and read through all verbal and written testimony provided by the public. We conducted a thorough review of the Hearing Examiner's recommendation and we are ready to take the next steps in our partnership to deliver the master planned developments the City Council approved last year. YarrowBay strongly urges that the City Council approve the Development Agreements in the form presented by City Staff in Exhibits 1 and 2, together with the amendments outlined in Exhibit 4, and the package of revisions accompanying this presentation which adopt the changes called for by the Hearing Examiner's Recommended Implementing Conditions.

Sincerely,

Brian Ross, CEO, YarrowBay
General Partner to Master Developers

EXHIBIT 7

10220 NE Points Drive Suite 120 Kirkland, WA 98033 425.898.2100 phone 425.898.2139 fax yarrowbayholdings.com

Table of Contents

I. Request for Approval 1

II. Hearing Examiner's Conditions of Approval 2

Condition "A" – Open Space Boundary Amendments 3
Condition "B" – Land Use Plan (changes) 4
Condition "C" – ADUs 6
Condition "D" – City Enforcement of Privately Adopted Sign Standards 7
Condition "E" – Covington Water District 8
Condition "F" – Certificates of Water Availability 9
Condition "G" – Baseline for Water Conservation Plan 11
Condition "H" – Sewer Availability 13
Condition "I" – Stormwater Enforcement 14
Condition "J" – Fish and Wildlife Buffer 16
Condition "K" – Details of Constraint Maps 18
Condition "L" – Mine Hazard Areas 22
Condition "M" – Open Space Assessment 24
Condition "N" – Park Dedication Plan 25
Condition "O" – Park Standards 27
Condition "P" – High School in Commercial Area 28
Condition "Q" – Police and Fire LOS 29
Condition "R" – MPD subject to COAs 31
Condition "S" – Conceptual Site Plan 32
Condition "T" – City Approval of Traffic Reports 33
Condition "U" – Project Level Concurrency 33
Condition "V" – Land Use Plan Legend 37
Condition "W" – Funding Agreement 39
Condition "X" – Stormwater Monitoring 40
Other 41

III. Topical Discussion 47

History of Black Diamond City Council Action & Scope of Current and Future Council Authority 47
Fiscal Analysis and Funding Agreement 49
Infrastructure Financing 51
Transportation 51
Amendments to the MPD Permits and Development Agreements 53
Environmental Impacts and SEPA Review for MPD Implementing Projects 55
MPD Housing and Design 56
Relationship to Other Agreements 58

IV. Other Issues 60

Covington Water District 60
Lake Sawyer Flooding 60
Phosphorus 60
Rural Facilities 60
MPD Committees 61
Private Water System Impacts 61

V. Compliance Matrices 63

I. Request for Approval

Yarrow Bay asks that the Council act to approve the Development Agreements for both The Villages and Lawson Hills. Yarrow Bay recommends the Council move to authorize the City Attorney to draft an Ordinance including findings of fact and conclusions of law, that approves the Development Agreements and authorizes the Mayor to execute the Development Agreements for The Villages and for Lawson Hills in the form of Exhibit 1 (The Villages) and Exhibit 2 (Lawson Hills), as revised by the terms contained in Exhibit 4 (the Errata Sheet) and as revised by the terms presented by Yarrow Bay on September 22, 2011 adopting the changes called for by the Examiner's Recommended Implementing Conditions. That action will also authorize execution of the MPD Funding Agreement, found at Exhibit "N" of each Development Agreement.

To avoid later frustration or confusion, YarrowBay wants to be sure that the City Council understands that the motion described above, and the Development Agreements themselves are package deals. YarrowBay also has to sign the Development Agreements and, therefore, this is not a situation where the Council can freely revise these Development Agreement packages and expect YarrowBay to agree. There are elements of the Examiner's Recommended Implementing Conditions, in particular his view of Accessory Dwelling Units, to which YarrowBay objects. At this time, YarrowBay is willing to agree to even those elements, but only as part of the overall package.

II. Hearing Examiner's Recommended Implementing Conditions

The Black Diamond Hearing Examiner determined that, with the "Recommended Implementing Conditions" as defined in Section IX of the Hearing Examiner's Recommendation dated September 14, 2011, The Villages and Lawson Hills Development Agreements satisfy all of the development agreement requirements of the MPD Permits' Conditions of Approval (Black Diamond Ordinances Nos. 10-946 and 10-947, Exhibit C). If the City Council is willing to approve the Development Agreements as specifically revised in accordance with the Recommended Implementing Conditions with no other modifications, YarrowBay is also willing to move forward with the Hearing Examiner's September 14th Recommendation despite the significant hardships associated with some of the conditions.[1] The following pages of this Section address each of the Hearing Examiner's Recommended Implementing Conditions and revisions to the Development Agreements to incorporate each of them.

[1] This offer neither indicates YarrowBay's concurrence with the legal enforceability of the Recommended Implementing Conditions nor constitutes a waiver of YarrowBay's right to challenge the Recommended Implementing Conditions if the City Council elects to reject this offer.

HEARING EXAMINER'S RECOMMENDED IMPLEMENTING CONDITION "A"

A. Open Space Boundary Amendments. V DA 4.4.6 should be amended to require that minor amendments for changes to open space boundaries may only be used if all the prerequisites for qualifying as a minor amendment in BDMC 18.98.100(D) are met.

EXPLANATION OF RESPONSE

While the Hearing Examiner only referenced The Villages Development Agreement Section 4.4.6 in his Recommended Implementing Condition "A", this section is identical to Section 4.4.4 of the Lawson Hills Development Agreement and identical revisions to the Lawson Hills Development Agreement are discussed by the Hearing Examiner on pages 20 and 67 of his Recommendation dated September 14, 2011. Therefore, YarrowBay drafted the following identical revisions to both projects' Development Agreements consistent with the Examiner's Recommendation.

IMPLEMENTING LANGUAGE

(Revisions to Section 4.4.6 of The Villages Development Agreement and Section 4.4.4 of the Lawson Hills Development Agreement as shown in underlined and ~~strike through~~ text)

The Villages Development Agreement

4.4.6 MPD Site Plan amendments to Open Space areas as shown on Exhibit "~~A~~U" shall be allowed with a Minor Amendment to the MPD Permit Approval provided all of the criteria outlined in BDMC 18.98.100(A)-(H) for a minor amendment are met.~~,~~ Such amendments~~which~~ may only be processed concurrently with the submittal to the City of an Implementing Project application; ~~and~~ shall not modify the overall Open Space requirement set forth in Section 9.1;~~. Such amendments~~ are exempt from the annual docketing requirement set forth in Section 4.4 above; and may include converting entire Development Parcels to Open Space.

Lawson Hills Development Agreement

4.4.4 MPD Site Plan amendments to Open Space areas as shown on Exhibit "~~A~~U" shall be allowed with a Minor Amendment to the MPD Permit Approval provided all of the criteria outlined in BDMC 18.98.100(A)-(H) for a minor amendment are met.~~,~~ Such amendments~~which~~ may only be processed concurrently with the submittal to the City of an Implementing Project application; ~~and~~ shall not modify the overall Open Space requirement set forth in Section 9.1;~~. Such amendments~~ are exempt from the annual docketing requirement set forth in Section 4.4 above; and may include converting entire Development Parcels to Open Space.

HEARING EXAMINER'S RECOMMENDED IMPLEMENTING CONDITION "B"

B. Land Use Plan. DA 4.4.8 should be revised to require that any changes in the approximate acreages identified in the legend of the Land Use Plan, V DA Ex. L, may not be changed by more than 5% without an MPD amendment.

EXPLANATION OF RESPONSE

While the Hearing Examiner only referenced The Villages Development Agreement Section 4.4.8 in his Recommended Implementing Condition "B", this section is identical to Section 4.4.6 of the Lawson Hills Development Agreement and identical revisions to the Lawson Hills Development Agreement are discussed by the Hearing Examiner on pages 23 of his Recommendation dated September 14, 2011. Therefore, YarrowBay drafted the following identical revisions to both projects' Development Agreements consistent with the Examiner's Recommendation.

Moreover, while the Hearing Examiner's Recommended Implementing Condition discusses the acreages listed in the legend of the Land Use Plan, Sections 4.4.8 and 4.4.6 of The Villages and Lawson Hills Development Agreements, respectively, are in fact targeted towards the acreages of the Development Parcels themselves and reliance on the legend would introduce inconsistencies with Section 4.4.1 of both Development Agreements and Conclusion of Law No. 8 of the MPD Permit Approvals (Black Diamond Ord. Nos. 10-946 and 10-947). The revisions drafted by YarrowBay below address the Examiner's concern, while focusing on the acreages of Development Parcels set forth on the updated MPD Site Plan in new Exhibit "U".

IMPLEMENTING LANGUAGE

(Revisions to Section 4.4.8 of The Villages Development Agreement and Section 4.4.6 of the Lawson Hills Development Agreement as shown in underlined and ~~strike through~~ text)

The Villages Development Agreement

4.4.8 Although the Design Concept and Land Use Plan shown in Exhibit "L" was not a specifically surveyed map, approximate acreages were assigned to each Development Parcel to aid in understanding the Design Concept and Land Use Plan. The stated acreage of any Development Parcel may be increased or decreased up to five percent (5%) concurrent with the City's processing of an Implementing Project application without an amendment to the MPD Permit Approval or this Agreement. The stated acreage of any Development Parcel may be increased or decreased five-to-ten percent (5-10%) concurrent with the City's processing of an Implementing Project application with a Minor Amendment to the MPD Permit Approval. Typical reasons for altering the acreage of a Development Parcel include but are not limited to accommodating on the ground surveying, accommodating detailed engineering designs for necessary infrastructure, improving the location and/or access to a Park or active Open Space area, enhancing protections for a sensitive Open Space area, and providing better clustering, buffers, or trail connections between neighborhoods. The acreage of a Development Parcel may not be increased or decreased without a Major Amendment to the MPD Permit Approval if doing so alters the maximum total residential units and square footage of commercial space, or target densities for the Project Site as a whole, as were approved in Condition of Approval No. 128.

Lawson Hills Development Agreement

4.4.6 Although the Design Concept and Land Use Plan shown in Exhibit "L" was not a specifically surveyed map, approximate acreages were assigned to each Development Parcel to aid in understanding the Design Concept and Land Use Plan. The stated acreage of any Development Parcel may be increased or decreased five percent (5%) concurrent with the City's processing of an Implementing Project application without an amendment to the MPD Permit Approval or this Agreement. The stated acreage of any Development Parcel may be increased or decreased five-to-ten percent (5-10%) concurrent with the City's processing of an Implementing Project application with a Minor Amendment to the MPD Permit Approval. Typical reasons for altering the acreage of a Development Parcel include but are not limited to accommodating on the ground surveying, accommodating detailed engineering designs for necessary infrastructure, improving the location and/or access to a Park or active Open Space area, enhancing protections for a sensitive Open Space area, and providing better clustering, buffers, or trail connections between neighborhoods. The acreage of a Development Parcel may not be increased or decreased without a Major Amendment to the MPD Permit Approval if doing so alters the maximum total residential units and square footage of commercial space, or target densities for the Project Site as a whole, as were approved in Condition of Approval No. 132.

HEARING EXAMINER'S RECOMMENDED IMPLEMENTING CONDITION "C"

C. Accessory Dwelling Units. VDA 4.7.3 should be clarified to provide that accessory dwelling units count towards the total number of dwelling units authorized for the MPDs.

EXPLANATION OF RESPONSE

While the Hearing Examiner only referenced The Villages Development Agreement Section 4.7.3 in his Recommended Implementing Condition "C", this section is identical to Section 4.7.3 of the Lawson Hills Development Agreement and identical revisions to the Lawson Hills Development Agreement are discussed by the Hearing Examiner on pages 16 of his Recommendation dated September 14, 2011. Therefore, YarrowBay drafted the following identical revisions to both projects' Development Agreements consistent with the Examiner's Recommendation.

IMPLEMENTING LANGUAGE

(Revisions to Section 4.7.3 of The Villages and Lawson Hills Development Agreements as shown in underlined and ~~strike through~~ text)

The Villages Development Agreement

4.7.3 Accessory Dwelling Units (ADUs)

The Villages MPD is limited to three hundred (300) Accessory Dwelling Units (ADUs) on the Project Site. The Master Developer is the only party that may submit ADUs applications for the Project Site unless the Master Developer assigns or transfers this right (or a portion thereof) to a third party. The City shall not accept an ADU application for the Project Site from a third party unless such application is accompanied by written approval from the Master Developer. Accessory Dwelling Unit applications must also be reviewed and approved by the DRC prior to submittal to the City for approval. Each constructed ADU shall be counted towards the total number of Dwelling Units allowed on the Project Site as set forth in Section 4.2 of this Agreement. So long as this restriction (i.e., to count ADUs toward the total number of Dwelling Units) is effective, it is anticipated that the Master Developer will not grant approval for any ADU applications.

Lawson Hills Development Agreement

4.7.3 Accessory Dwelling Units (ADUs)

The Lawson Hills MPD is limited to one hundred fifty (150) Accessory Dwelling Units (ADUs) on the Project Site. The Master Developer is the only party that may submit ADUs applications for the Project Site unless the Master Developer assigns or transfers this right (or a portion thereof) to a third party. The City shall not accept an ADU application for the Project Site from a third party unless such application is accompanied by written approval from the Master Developer. Accessory Dwelling Unit applications must also be reviewed and approved by the DRC prior to submittal to the City for approval. Each constructed ADU shall be counted towards the total number of Dwelling Units allowed on the Project Site as set forth in Section 4.2 of this Agreement. So long as this restriction (i.e., to count ADUs toward the total number of Dwelling Units) is effective, it is anticipated that the Master Developer will not grant approval for any ADU applications.

HEARING EXAMINER'S RECOMMENDED IMPLEMENTING CONDITION "D"

D. City Enforcement of Privately Adopted Sign Standards. V DA 5.4.3 should be revised to remove the obligation for the City to enforce privately adopted sign standards.

EXPLANATION OF RESPONSE

While the Hearing Examiner only referenced The Villages Development Agreement Section 5.4.3 in his Recommended Implementing Condition "D", this section is identical to Section 5.4.3 of the Lawson Hills Development Agreement and, on page 25 of the Recommendation, the Examiner discussed Section 5.4.3 without reference to either of the projects specifically. Therefore, YarrowBay drafted the following identical revisions to both projects' Development Agreements consistent with the Examiner's Recommendation.

IMPLEMENTING LANGUAGE

(Revisions to Section 5.4.3 of The Villages and Lawson Hills Development Agreements as shown in underlined and ~~strike through~~ text)

The Villages Development Agreement

5.4.3 Real Estate and Construction Sign Program

The Design Review Committee will create a Construction and Real Estate Sign Program that includes standards for the size, number, location and removal of construction and real estate signs within The Villages MPD. This sign program shall at a minimum meet all requirements related to construction and real estate signs within BDMC Chapter 18.82 (Exhibit "E")~~, including the requirement to obtain a sign permit from the City and review and approval by the Design Review Committee~~. The Master Developer or Homeowners' Association (HOA) shall provide enforcement for the Construction and Real Estate Sign Program ~~signage on private property~~. ~~The City shall enforce the standards within public right-of-way and may enforce the standards on private property.~~

Lawson Hills Development Agreement

5.4.3 Real Estate and Construction Sign Program

The Design Review Committee will create a Construction and Real Estate Sign Program that includes standards for the size, number, location and removal of construction and real estate signs within The Lawson Hills MPD. This sign program shall at a minimum meet all requirements related to construction and real estate signs within BDMC Chapter 18.82 (Exhibit "E")~~, including the requirement to obtain a sign permit from the City and review and approval by the Design Review Committee~~. The Master Developer or Homeowners' Association (HOA) shall provide enforcement for the Construction and Real Estate Sign Program ~~signage on private property~~. ~~The City shall enforce the standards within public right-of-way and may enforce the standards on private property.~~

HEARING EXAMINER'S RECOMMENDED IMPLEMENTING CONDITION "E"

E. Covington Water District. V DA 7.2 should be clarified to provide that Covington water system standards and the like shall apply within areas of the MPDs subject to the Covington Water District, to the extent required by law.

EXPLANATION OF RESPONSE

The Covington Water District's testimony only impacts a portion of The Villages project site. Therefore, only revisions to The Villages Development Agreement are drafted by YarrowBay herein.

On page 35 of his Recommendation, the Hearing Examiner recommends specific language for inclusion in Section 7.2 to effectuate his Recommended Implementing Condition "E". The Examiner's specific recommended language is shown in underline text under Section 7.2 of The Villages Development Agreement below. Moreover, in Exhibit 139, YarrowBay proposed the addition of new Section 7.2.7 (as set forth below) to further address the Covington Water District.

IMPLEMENTING LANGUAGE

(Revision to Section 7.2 and addition of new Section 7.2.7 of The Villages Development Agreement as shown in underlined and ~~strike through~~ text. *See also* revisions to Section 7.2.1 of the Villages Development Agreement on the following page.)

The Villages Development Agreement

7.2 WATER SYSTEM STANDARDS

This Agreement shall not apply within the Covington Water District to the extent that this Section unlawfully conflicts with the authority of the Covington Water District.

. . .

New Section 7.2.7

This Agreement governs MPD Development and, as such, nothing in this Agreement shall have any effect on, nor constitute legal support for, any right of either the Covington Water District to provide water service to that portion of the MPD Development lying within Covington Water District's water service area boundaries as shown in the South King County Coordinated Water System Plan (SKCCWSP), or the City of Black Diamond to provide water service to that same area as shown in the City's Water System Plan.

All MPD Development that is located within Covington Water District's water service area boundaries and that is ultimately connected to and physically served by Covington Water District facilities shall comply with the District's adopted standards, procedures and system extension requirements for water service and connection to District facilities.

HEARING EXAMINER'S RECOMMENDED IMPLEMENTING CONDITION "F"

F. Certificates of Water Availability. V DA 7.2.1 should be eliminated. It provides that the DA shall serve in the place of certificates of water availability for the MPDs.

EXPLANATION OF RESPONSE

While the Hearing Examiner only referenced The Villages Development Agreement Section 7.2.1 in his Recommended Implementing Condition "F", this section is identical to Section 7.2.1 of the Lawson Hills Development Agreement and, on pages 31-32 of his Recommendation, the Examiner discusses Section 7.2.1 without reference to either of the projects specifically. Therefore, YarrowBay drafted the following identical revisions to both projects' Development Agreements consistent with the Examiner's Recommendation. The language drafted for The Villages Development Agreement also includes the text from YarrowBay's Exhibit 139.

IMPLEMENTING LANGUAGE

(Revisions to Section 7.2.1 of The Villages and Lawson Hills Development Agreements as shown in underlined and ~~strike through~~ text)

The Villages Development Agreement

7.2.1 Water Availability

The Master Developer controls property with the rights to approximately 1,080,310 gallons of water per day ("GPD"). This is determined through the "Three Party Agreement" between Plum Creek Land Company, Black Diamond Associates, Ltd., and Palmer Coking Coal Company dated August 8, 2003.

~~Any Implementing Project application process that calls for a certificate of water availability shall be satisfied by reference to this Agreement.~~ Improvements necessary to provide water service to each Implementing Project must be provided by the Master Developer consistent with this Agreement, and the MPD Conditions of Approval. Connections are allowed up to the point of existing capacity as arranged for in the Water Supply and Facilities Funding Agreement dated August 11, 2003, as amended by the First Addendum dated July 22, 2004 ("WSFFA"). If there are insufficient facilities or capacity to serve some or all of a proposed Implementing Project, then the Designated Official may require the Master Developer to obtain such additional water supply capacity and/or design and construct new water mains, upgrades to existing mains, a reservoir, pressure reducing valves or such other facilities necessary to serve the Implementing Project. In addition, consistent with MPD Condition of Approval Nos. 51 and 52, in the event functionally equivalent water distribution facilities are proposed by the Master Developer, for example, to accommodate service from another provider, and those new distribution alternatives necessitate an amendment to the City's Water System Plan, the Master Developer shall be responsible to pay for the cost of that update.

Lawson Hills Development Agreement

7.2.1 Water Availability

The Master Developer controls property with the rights to approximately 258,750 gallons of water per Day ("GPD"). This is determined through the "Three Party Agreement" between Plum Creek Land Company, Black Diamond Associates, Ltd., and Palmer Coking Coal Company dated August 8, 2003. In

addition, the Master Developer controls property in which nine (9) additional water meters are already connected to the City's system.

~~Any Implementing Project application process that calls for a certificate of water availability shall be satisfied by reference to this Agreement.~~ Improvements necessary to provide water service to each Implementing Project must be provided by the Master Developer consistent with this Agreement, and the MPD Conditions of Approval. Connections are allowed up to the point of existing capacity as arranged for in the Water Supply and Facilities Funding Agreement dated August 11, 2003, as amended by the First Addendum dated July 22, 2004 ("WSFFA"). If there are insufficient facilities or capacity to serve some or all of a proposed Implementing Project, then the Designated Official may require the Master Developer to obtain such additional water supply capacity and/or design and construct new water mains, upgrades to existing mains, a reservoir, pressure reducing valves or such other facilities necessary to serve the Implementing Project.

HEARING EXAMINER'S RECOMMENDED IMPLEMENTING CONDITION "G"

G. Baseline for Water Conservation Plan. V DA 7.2.5 sets an inaccurate baseline for measuring water conservation. An accurate historical figure should be used as referenced in Section VII.

EXPLANATION OF RESPONSE

While the Hearing Examiner only referenced The Villages Development Agreement Section 7.2.5 in his Recommended Implementing Condition "G", this section is identical to Section 7.2.5 of the Lawson Hills Development Agreement and, on pages 32-34 of his Recommendation, the Examiner discusses Section 7.2.5 without reference to either of the projects specifically. Therefore, YarrowBay drafted the following identical revisions to both projects' Development Agreements consistent with the Examiner's Recommendation.

IMPLEMENTING LANGUAGE

(Revisions to Section 7.2.5 of The Villages and Lawson Hills Development Agreements as shown in underlined and ~~strike through~~ text)

The Villages Development Agreement

7.2.5 Water Conservation and Monitoring Plan

The Villages MPD's Water Conservation Plan at Chapter 8 of the MPD Permit Application was approved in the MPD Permit Approval. Pursuant to Condition of Approval No. 53 of the MPD Permit Approval, this Section restates the Water Conservation Plan approved in the MPD Permit Approval Conditions for The Villages. The intent of this plan is to create a 10% reduction in water consumption compared to the current existing average use per ERU use standard of ~~230~~187 gallons per day (GPD). If the 10% savings target is not achieved, then resulting constraints on water supply allocated to The Villages MPD may limit ultimate build-out of the MPD.

In order to ensure the water conservation techniques proposed for The Villages MPD will in fact obtain a 10% reduction, a monitoring plan will be implemented by the Master Developer. Monitoring residential water use can only be attained through direct meter reading of individual homes. Pursuant to Condition of Approval No. 54 of the MPD Permit Approval, following occupancy of the 500th Dwelling Unit, a representative block of homes, representing 5% of the total (25 Dwelling Units), will be selected by the Designated Official from the different home types. Water use for those 25 Dwelling Units shall be tracked for a period of one year. If the Designated Official determines, in his reasonable discretion, that the water monitoring plan described above is not adequately tracking MPD water usage, the Designated Official may select a method for monitoring water use including review of City meter records. The resulting data will be compared to the baseline of ~~230~~187 gallons per day to determine if the 10% reduction is being achieved. The results of the water monitoring plan shall be completed within thirty (30) days following the conclusion of meter reading and be maintained by the Designated Official.

This same monitoring method will be repeated following the completion of future Phases. If the data results show water use of any particular Phase has not been reduced by at least ~~23~~18.7 GPD (10% below the City's current existing ~~City~~ average use per ERU use standard of ~~230~~187 GPD), then an updated mitigation plan reasonably acceptable to the City will be developed by the Master Developer

at that time to bring the future Development within the required standard and to offset any excess water usage from prior Development that did not meet this standard.

. . .

Lawson Hills Development Agreement

7.2.5 Water Conservation and Monitoring Plan

The Lawson Hills MPD's Water Conservation Plan at Chapter 8 of the MPD Application was approved in the MPD Approval. Pursuant to Condition of Approval No. 55 of the MPD Permit Approval, this Section restates the Water Conservation Plan approved in the MPD Approval Permit Conditions for The Lawson Hills. The intent of this plan is to create a 10% reduction in water consumption compared to the current existing average use per ERU use standard of ~~230~~187 gallons per day (GPD). If the 10% savings target is not achieved, then resulting constraints on water supply allocated to The Lawson Hills MPD may limit ultimate build-out of the MPD.

In order to ensure the water conservation techniques proposed for The Lawson Hills MPD will in fact obtain a 10% reduction, a monitoring plan will be implemented by the Master Developer. Monitoring residential water use can only be attained through direct meter reading of individual homes. Pursuant to Condition of Approval No. 56 of the MPD Permit Approval, following occupancy of the 500th Dwelling Unit, a representative block of homes, representing 5% of the total (25 Dwelling Units), will be selected by the Designated Official from the different home types. Water use for those 25 Dwelling Units shall be tracked for a period of one year. If the Designated Official determines, in his reasonable discretion, that the water monitoring plan described above is not adequately tracking MPD water usage, the Designated Official may select a method for monitoring water use including review of City meter records. The resulting data will be compared to the baseline of ~~230~~187 gallons per day to determine if the 10% reduction is being achieved. The results of the water monitoring plan shall be completed within thirty (30) days following the conclusion of meter reading and be maintained by the Designated Official.

This same monitoring method will be repeated following the completion of future Phases. If the data results show water use of any particular Phase has not been reduced by at least ~~23~~18.7 GPD (10% below the City's current existing ~~City~~ average use per ERU use standard of ~~230~~187 GPD), then an updated mitigation plan reasonable acceptable to the City will be developed by the Master Developer at that time to bring the future Development within the required standard and to offset any excess water usage from prior Development that did not meet this standard.

. . .

HEARING EXAMINER'S RECOMMENDED IMPLEMENTING CONDITION "H"

H. Sewer Availability. V DA 7.3.1, stating that the DA provides for sewer availability should be stricken.

EXPLANATION OF RESPONSE

While the Hearing Examiner only referenced The Villages Development Agreement Section 7.3.1 in his Recommended Implementing Condition "H", this section is identical to Section 7.3.1 of the Lawson Hills Development Agreement and, on pages 36-37 of his Recommendation, the Examiner discusses Section 7.3.1 without reference to either of the projects specifically. Therefore, YarrowBay drafted the following identical revisions to both projects' Development Agreements consistent with the Examiner's Recommendation.

IMPLEMENTING LANGUAGE

(Revisions to Section 7.3.1 of The Villages and Lawson Hills Development Agreements as shown in underlined and ~~strike through~~ text)

The Villages Development Agreement

7.3.1 ~~Sewer Availability~~RESERVED

~~This Agreement provides sewer availability to service 4,800 Dwelling Units on The Villages MPD (3,600 Single Family and 1,200 Multi-family) as well as 775,000 square feet of commercial/office/retail/light industrial uses, plus additional Public Uses and schools as defined in part by the School Agreement. Any Implementing Project application process that calls for a certificate of sewer availability shall be satisfied by reference to this Agreement.~~

Lawson Hills Development Agreement

7.3.1 ~~Sewer Availability~~RESERVED

~~This Agreement provides sewer availability to service 1,250 Dwelling Units on the Lawson Hills MPD (930 Single Family and 320 Multi-family) as well as 390,000 square feet of commercial/office/retail/light industrial uses, plus additional Public Uses and schools as defined in part by the School Agreement. Any Implementing Project application process that calls for a certificate of water availability shall be satisfied by reference to this Agreement.~~

HEARING EXAMINER'S RECOMMENDED IMPLEMENTING CONDITION "I"

I. Stormwater Enforcement. V DA 7.4.5 shall be revised to include timelines for phosphorous mitigation and mechanisms for enforcement. It should be noted that Section VII encourages the Council to negotiate timelines and enforcement for the "no net increase" standard voluntarily assumed by YB, but recognizes that YB cannot be compelled to agree to such requirements.

EXPLANATION OF RESPONSE

While the Hearing Examiner only referenced The Villages Development Agreement Section 7.4.5 in his Recommended Implementing Condition "I", this section is identical to Section 7.4.5 of the Lawson Hills Development Agreement and, on pages 40-41 of his Recommendation, the Examiner discusses Section 7.4.5 without reference to either of the projects specifically. Therefore, YarrowBay drafted the following identical revisions to both projects' Development Agreements consistent with the Examiner's Recommendation.

IMPLEMENTING LANGUAGE

(Revisions to Section 7.4.5 of The Villages and Lawson Hills Development Agreements as shown in underlined and ~~strike through~~ text)

The Villages Development Agreement

7.4.5 Stormwater Monitoring and Phosphorus Load Calculation

The Master Developer shall monitor stormwater for the following parameters: Total Phosphorus (Tp), Temperature, pH, Turbidity, Conductivity, and Dissolved Oxygen (DO). Monitoring of a specific stormwater facility shall continue for five (5) years following the completion of development that discharges into that facility. Completion shall be defined as the date the City's maintenance bond (which follows the time period of the City's performance bond), as required by BDMC 14.04.360 and the Black Diamond Engineering Design and Construction Standards (Exhibit "E") Section 1.5, is released or expires for a given facility. A tabular list of stormwater monitoring requirements is included at Exhibit "O". The monitoring parameters include annual volumes of total phosphorus (Tp) from The Villages MPD that will comply with the TMDL established by the State Department of Ecology for Lake Sawyer. If monitoring indicates that the MPD site is discharging more Tp than indicated, the Master Developer shall modify existing practices or facilities (source control) within thirty (30) days of obtaining a substandard sampling measure. If annual monitoring data shows Tp levels are exceeding pre-development background levels the Master Developer shall~~,~~ modify the design of existing and~~any~~ proposed ~~new~~ stormwater treatment facilities, and/or implement a project within the Lake Sawyer basin that individually or collectively provide an offsetting reduction in Tp. The selected compensating measures shall be implemented within six (6) months, subject to City approval. Pursuant to Condition of Approval No. 79 of the MPD Permit Approval, Exhibit "O" also contains a memorandum describing how the Master Developer will meet the Stormwater Management ~~Goal~~provision set in Section 7.4.3(A).

Lawson Hills Development Agreement

7.4.5 Stormwater Monitoring and Phosphorus Load Calculation

The Master Developer shall monitor stormwater for the following parameters: Total Phosphorus (Tp), Temperature, pH, Turbidity, Conductivity, and Dissolved Oxygen (DO). Monitoring of a specific stormwater facility shall continue for five (5) years following the completion of development that discharges into that facility. Completion shall be defined as the date the City's maintenance bond (which follows the time period of the City's performance bond), as required by BDMC 14.04.360 and the Black Diamond Engineering Design and Construction Standards (Exhibit "E") Section 1.5, is released or expires for a given facility. A tabular list of stormwater monitoring requirements is included at Exhibit "O". The monitoring parameters include annual volumes of total phosphorus (Tp) from the Lawson Hills MPD that will comply with the TMDL established by the State Department of Ecology for Lake Sawyer. If monitoring indicates that the MPD site is discharging more Tp than indicated, the Master Developer shall modify existing practices or facilities (source control) within thirty (30) days of obtaining a substandard sampling measure. If annual monitoring data shows Tp levels are exceeding pre-development background levels the Master Developer shall~~,~~ modify the design of existing and~~any~~ proposed ~~new~~ stormwater treatment facilities, and/or implement a project within the Lake Sawyer basin that individually or collectively provide an offsetting reduction in Tp. The selected compensating measures shall be implemented within 6 months, subject to City approval. Pursuant to Condition of Approval No. 82 of the MPD Permit Approval, Exhibit "O" also contains a memorandum describing how the Master Developer will meet the Stormwater Management ~~Goal~~provision set in Section 7.4.3(A).

IMPLEMENTING EXHIBIT

(Updated Exhibit "O" for The Villages and Lawson Hills Development Agreements)

HEARING EXAMINER'S RECOMMENDED IMPLEMENTING CONDITION "J"

J. Fish and Wildlife Buffer. It is recommended that staff provide the Council an explanation, based upon the record, of whether the wildlife corridors comply with the City's Sensitive Areas Ordinance and that the corridor boundaries be revised as necessary if they do not before any agreement is made to the boundaries as identified in V DA 8.2.2.

EXPLANATION OF RESPONSE

When the Black Diamond Comprehensive Plan was adopted in June 2009, it identified Study Areas for the City's Potential Fish and Wildlife Habitat Conservation Areas as well as the King County Wildlife Habitat Network (see Figure 4-2 of the Comprehensive Plan). Also in 2009, the City adopted its Sensitive Areas Ordinance (BDMC Ch. 19.10) that established the designation criteria for Fish and Wildlife Habitat Conservation Areas (FWHCAs):

- The "Core" stream and wetland complex (and their associated buffers) is regulated FWHCA under the SAO;
- Other regulated FWCHAs include areas within the City with which state or federally designated endangered, threatened, or sensitive species have a primary association; and
- Stream buffers.

Pursuant to the SAO under BDMC 19.10.020(B)(1), the City maintains an inventory of mapped sensitive areas in the Black Diamond Sensitive Area Maps. BDMC 19.10.020(B)(1) also states, however, that subsequent technical information may be submitted in a technical report following field investigation, and should this occur, the more detailed information shall prevail over the Black Diamond Sensitive Area Maps, This concept is further emphasized in BDMC 19.10.310.D, which states "these [Black Diamond Sensitive Area Maps] are a reference and do not provide a final sensitive area designation".

When the FEISs for The Villages and Lawson Hills MPDs were published, they were based upon numerous specific technical reports that analyzed the study areas of the City's FWHCA identified in the 2009 Comprehensive Plan as well as the more specific designation criteria in the SAO. See, e.g., pages 4-75 through 4-76 of The Village FEIS. The reports completed for the FEIS identified that the more likely wildlife habitat network extended from the Core Complex area due west to the City's western most municipal boundaries as opposed to the location identified by King County's Wildlife Habitat Network. As a result, the Villages FEIS included a mitigation measure on pg. 6-11 that stated "Provide a 300-foot-wide wildlife corridor from the western edge of the Core Complex to the City's western boundary. The corridor should be located within areas of contiguous open space that form a network." The Villages FEIS was deemed adequate by the Hearing Examiner and this mitigation measure was included as MPD Condition of Approval No. 125 in The Villages MPD Permit Approval (Black Diamond Ord. No. 10-946).

The 300-foot-wide wildlife corridor identified in The Villages FEIS, and required by MPD Condition of Approval No. 125, is shown on the existing Constraint Maps of The Village Development Agreement at Exhibit "G". The FWHCA, on the other hand, was not specifically identified in the Development Agreements because due to its designation criteria, as summarized above, it includes sensitive areas that were already mapped on the Constraint Maps contained in Exhibit "G".

YarrowBay understands, however, that this has caused some confusion. Therefore, YarrowBay has updated the legend on the Constraint Map for The Villages MPD (Exhibit "G") to show and identify all required FWHCAs. A copy of the Updated Exhibit "G" for The Villages and Lawson Hills MPD is included herein. Also included is a new map, per the Hearing Examiner's request, that shows the FWHCAs defined in the SAO along with the King County Wildlife Habitat Network. However, as described above, the location of the wildlife network corridor has been updated to traverse east-west from the western edge of the Core.

IMPLEMENTING MAPS/DIAGRAMS

(Updated Exhibit "G" for The Villages and Lawson Hills Development Agreements and new map showing FWHCAs defined in the SAO along with the King County Wildlife Habitat Network)

HEARING EXAMINER'S RECOMMENDED IMPLEMENTING CONDITION "K"

K. Detail of Constraints Map. It is recommended that staff make the constraint maps that set the sensitive area boundaries in V DA 8.2 available for City Council review and explain to the Council, based on information contained in the record, the level of detail provided in the map so that Council may determine if they are detailed enough to be used for implementing projects.

EXPLANATION OF RESPONSE

As required by The Villages MPD Condition of Approval No. 155 and Lawson Hills MPD Condition of Approval No. 159, sensitive area boundaries shall become fixed once the mapped boundaries have been agreed to. City Staff agrees with the mapped boundaries of the sensitive areas shown in the Updated Constraint Maps submitted herein and to be included within Exhibit "G". Given the substantial confusion amongst the public and Hearing Examiner regarding the buffers associated with each sensitive area identified in the maps, YarrowBay and City Staff agreed to remove the buffers from the Updated Constraint Maps (Exhibit "G"). Section 8.1 of the Development Agreements has been revised to clarify that while the mapping of sensitive area boundaries within and adjacent to the MPD Sites is deemed final and complete, buffers for the sensitive areas will be determined and approved by the City on an Implementing Project by Implementing Project basis consistent with the regulations set forth in the City's SAO (Exhibit "E"). These revisions are provided below.

In the future, should an MPD Implementing Project propose a change to a wetland, such as a road crossing, a new sensitive area report shall be required pursuant to BDMC 19.10.130, and that report must be prepared under then-applicable manuals as required by Washington State Department of Ecology (DOE), or as provided by the Army Corps of Engineers (Corps). Finally, any such alteration will also be reviewed by DOE and the Corps, as noted by the Hearing Examiner.

In his Recommendation, the Hearing Examiner raised a question about whether the appropriate manual was used when YarrowBay submitted the delineated sensitive area boundaries for City review during the EIS process, and whether those delineations are as accurate as would be required for an Implementing Project. As declared by Mr. Brainard in Attachment 1 to Exhibit 139, then in Exhibit 210, and again in Exhibit 272, the wetlands were inspected according to the manual in effect at the time the reports were prepared for the EIS, and they were delineated in a manner sufficient for Implementing Projects. Parametrix, the City's peer reviewer, confirmed the delineations during the EIS process.

In Mr. Brainard's second declaration, Exhibit 210, he discusses how groundwater was assessed in regards to maintaining hydrology to wetlands. As noted, Section 4.1 of Appendix O of both FEISs adequately described and provided mitigation to maintain wetland hydrology.

In regards to the off-site wetlands adjacent to the Lawson Hills MPD property, Section 8.2.1 of the Lawson Hills Development Agreement provides that any off-site wetlands must still be delineated pursuant to the City's SAO. At BDMC 19.10.130(D)(4), any off-site wetlands within three hundred (300) feet of the property must be delineated. At the time of Implementing Project application in these areas, a sensitive areas report will provide identification and characterization of off-site features, and as noted by the Hearing Examiner, a minor amendment will be made to update the constraints map in the Development Agreement. Language has been added to Section 8.2.1 of the Lawson Hills Development Agreement (as outlined below) to clarify this requirement.

Finally, while the Hearing Examiner only referenced The Villages Development Agreement Section 8.2 in his Recommended Implementing Condition "K", this section is identical to Section 8.2 of the Lawson Hills Development Agreement and, on pages 50-54 of his Recommendation, the Examiner discusses the Constraint Maps without reference to either of the projects specifically. Therefore, YarrowBay drafted the following identical revisions to both projects' Development Agreements consistent with the Examiner's Recommendation.

IMPLEMENTING LANGUAGE

(Revisions to Sections 8.1, 8.2, 8.2.1, 8.2.2, 8.2.3 and 8.2.4 and new Section 8.2.5 of The Villages and Lawson Hills Development Agreements as shown in underlined and ~~strike through~~ text)

The Village Development Agreement

8.1 SENSITIVE AREAS ORDINANCE APPLICABILITY

All Development within The Villages MPD shall be subject to the standards, requirements and processes of the Sensitive Area Ordinance. The sensitive areas ~~jurisdictional~~ boundary determinations ~~and sensitive area reports~~ have been completed and verified for the Project Site and are depicted on the Constraint Maps attached hereto as Exhibit "G". ~~Consistent with the Sensitive Areas Ordinance, any Implementing Project that does not propose any changes or alterations to sensitive areas or their buffers as shown in the reports described in Subsection 8.2 has met the jurisdictional determination requirement of BDMC 19.10.120(C) Sensitive Area Jurisdiction Decision, such that no additional reports under BDMC 19.10.130, BDMC 19.10.337, BDMC 19.10.435, and BDMC 19.10.445 (Exhibit "E") need to be submitted with the Implementing Project application.~~ Buffers for the sensitive areas mapped on Exhibit "G" will be determined and approved by the City on an Implementing Project by Implementing Project basis consistent with the regulations set forth in the City's SAO (Exhibit "E").

8.2 SENSITIVE AREAS DETERMINATIONS

Consistent with the Sensitive Areas Ordinance, at the time of construction, sensitive areas and their established buffers shall be clearly identified and marked in the field.

8.2.1 Wetland Determinations and Delineations Final

The presence and absence of wetlands, wetland typing, and delineations, consistent with the Sensitive Areas Ordinance, are shown on the Constraint Maps attached hereto as Exhibit "G". The wetland delineations and types outlined in the Constraints Map as surveyed on 7/27/09 are deemed final and complete through the term of this Agreement. Pursuant to Condition of Approval No. 155 of the MPD Permit Approval, if during construction it is discovered that the actual boundary is smaller or larger than what was mapped, the mapped and described boundary shall prevail.

8.2.2 Fish and Wildlife Habitat Conservation Areas Final

The presence and typing of Fish and Wildlife Conservation Areas within The Villages MPD are shown on the Constraints Map. These Fish and Wildlife Habitat Conservation Areas~~, types and buffers~~ as surveyed on 7/27/09 are deemed final and complete through the term of this Agreement. Pursuant to Condition of Approval No. 155 of the MPD Permit Approval, if during construction is it discovered that the actual boundary is smaller or larger, than what was mapped, the mapped boundary shall prevail.

8.2.3 Mine Hazard Areas

Mine hazard areas for The Villages MPD were evaluated in the EIS's Appendix D and are shown on the Constraints Maps. These mine hazard areas for The Villages MPD as surveyed on 7/27/09 are deemed final and complete through the term of this Agreement. Pursuant to Condition of Approval No. 155 of the MPD Permit Approval, if during construction is it discovered that the actual boundary is smaller or larger than what was mapped, the mapped boundary shall prevail.

8.2.4 Seismic Hazard Areas

Seismic hazard areas for The Villages MPD were evaluated in the EIS's Appendix D and are shown on the Constraints Map. The seismic hazard areas for The Villages MPD as surveyed on 7/27/09 are deemed final and complete through the term of this Agreement. Pursuant to Condition of Approval No. 155 of the MPD Permit Approval, if during construction is it discovered that the actual boundary is smaller or larger than what was mapped, the mapped boundary shall prevail.

8.2.5 Steep Slopes

Steep slope areas for The Villages MPD are shown on the Constraints Map. The steep slope areas for The Villages MPD are deemed final and complete through the term of this Agreement. Pursuant to Condition of Approval No. 155 of the MPD Permit Approval, if during construction it is discovered that the actual boundary is smaller or larger than what was mapped, the mapped boundary shall prevail.

Lawson Hills Development Agreement

8.1 SENSITIVE AREAS ORDINANCE APPLICABILITY

All Development within The Lawson Hills MPD shall be subject to the standards, requirements and processes of the Sensitive Area Ordinance. The sensitive areas ~~jurisdictional~~ boundary determinations ~~and sensitive area reports~~ have been completed and verified for the Project Site and are depicted on the Constraint Maps attached hereto as Exhibit "G". ~~Consistent with the Sensitive Areas Ordinance, any Implementing Project that does not propose any changes or alterations to sensitive areas or their buffers as shown in the reports described in Subsection 8.2 has met the jurisdictional determination requirement of BDMC 19.10.120(C) Sensitive Area Jurisdiction Decision, such that no additional reports under BDMC 19.10.130, BDMC 19.10.337, BDMC 19.10.435, and BDMC 19.10.445 (Exhibit "E") need to be submitted with the Implementing Project application.~~ Buffers for the sensitive areas mapped on Exhibit "G" will be determined and approved by the City on an Implementing Project by Implementing Project basis consistent with the regulations set forth in the City's SAO (Exhibit "E").

8.2 SENSITIVE AREAS DETERMINATIONS

Consistent with the Sensitive Areas Ordinance, at the time of construction, sensitive areas and their established buffers shall be clearly identified and marked in the field.

8.2.1 Wetland Determinations and Delineations Final

The presence and absence of wetlands, wetland typing, and delineations, consistent with the Sensitive Areas Ordinance, are shown on the Constraint Maps attached hereto as Exhibit "G". The

wetland delineations and types outlined in the Constraints Map as surveyed on 7/27/09 are deemed final and complete through the term of this Agreement, except for Wetland K. Pursuant to Condition of Approval No. 159 of the MPD Permit Approval, if during construction it is discovered that the actual boundary is smaller or larger than what was mapped, the mapped boundary shall prevail. Wetland K boundaries are subject to additional reporting that must be completed by the Master Developer and reviewed and approved by the City prior to any proposed Implementing Project in the vicinity of or including Wetland K and its boundaries.

An ~~O~~off-site wetland adjoining the North Triangle has ~~have~~ not been fully delineated~~;~~. ~~additional~~ A delineation ~~may be needed~~ pursuant to the City's Sensitive Areas Ordinance, and addition of the location of that wetland and buffer on the Constraint Maps (Exhibit "G") shall be conducted at the time an Implementing Project is proposed on the North Triangle, and the Constraint Maps shall be updated prior to issuance of the Implementing Approval for the first Implementing Project application on the North Triangle.

8.2.2 Fish and Wildlife Habitat Conservation Areas Final

The presence and typing of Fish and Wildlife Conservation Areas within The Lawson Hills MPD are shown on the Constraints Map as surveyed on 7/27/09. These Fish and Wildlife Habitat Conservation Areas~~, types and buffers~~ are deemed final and complete through the term of this Agreement. Pursuant to Condition of Approval No. 159 of the MPD Permit Approval, if during construction it is discovered that the actual boundary is smaller or larger than what was mapped, the mapped boundary shall prevail.

8.2.3 Mine Hazard Areas

[see language under Recommended Implementing Condition L below]

8.2.4 Seismic Hazard Areas

Seismic hazard areas for The Lawson Hills MPD were evaluated in the EIS's Appendix D and are shown on the Constraints Map. The seismic hazard areas for The Lawson Hills MPD as surveyed on 7/27/09 are deemed final and complete through the term of this Agreement. Pursuant to Condition of Approval No. 159 of the MPD Permit Approval, if during construction it is discovered that the actual boundary is smaller or larger than what was mapped, the mapped boundary shall prevail.

8.2.5 Steep Slopes

Steep slope areas for the Lawson Hills MPD are shown on the Constraints Map. The steep slope areas for the Lawson Hills MPD are deemed final and complete through the term of this Agreement. Pursuant to Condition of Approval No. 159 of the MPD Permit Approval, if during construction it is discovered that the actual boundary is smaller or larger than what was mapped, the mapped boundary shall prevail.

IMPLEMENTING MAPS

(*See* Updated Exhibit "G" for The Villages and Lawson Hills Development Agreements)

HEARING EXAMINER'S RECOMMENDED IMPLEMENTING CONDITION "L"

L. Mine Hazard Areas. The City Council should not agree to any mine hazard area delineations in 8.2.3 until revised language is added to the DAs as specified in Section VII.

EXPLANATION OF RESPONSE

As a result of YarrowBay's agreement to remove buffers from the Constraints Maps (Exhibit "G") as outlined above in response to Hearing Examiner's Recommended Implementing Condition "K", we have also removed references to buffers in Section 8.2.3 below. Moreover, per page 61 of the Hearing Examiner's Recommendation, Recommended Implementing Condition "L" is limited to the Lawson Hills Development Agreement. As so revised, the language referenced by the Hearing Examiner is provided below.

IMPLEMENTING LANGUAGE

(Revisions to Section 8.2.3 of the Lawson Hills Development Agreement as shown in underlined and ~~strike through~~ text)

Lawson Hills Development Agreement
8.2.3 Mine Hazard Areas

Mine hazard areas for The Lawson Hills MPD were evaluated in the EIS's Appendix D and are shown on the Constraints Maps. ~~These~~Subject to the exceptions described below, the mine hazard areas for The Lawson Hills MPD as surveyed on 7/27/09~~, including the High Mine Hazard area buffer which the Master Developer mapped to protect even though such a buffer is not required in the City's Sensitive Areas Ordinance, BDMC 19.10 (Exhibit "E"),~~ are deemed final and complete through the term of this Agreement. Pursuant to Condition of Approval No. 159 of the MPD Permit Approval, except as provided below, if during construction it is discovered that the actual boundary is smaller or larger than what was mapped, the mapped boundary shall prevail.

As of the time of execution of this Agreement, the mine hazard area boundaries for the following areas have been generally agreed to by the Designated Official, but additional subsurface exploration and analysis is necessary in order to further evaluate: (1) the location and extent of the Macks Mine hazard area near the northern end of the Project Site; (2) the mine hazard boundary for the McKay Section 12 Surface Mine and older underground mines beneath it; and (3) the width of the Moderate Mine Hazard zone above the Lawson Mine. Additional work to identify the Macks Mine hazard zone, the McKay Section 12 area, and the width of the Moderate Mine Hazard area for the Lawson Mine was described in the MPD materials as to be conducted pursuant to the standards set in the City's Sensitive Areas Ordinance, BDMC 19.10 (Exhibit "E"). That work will be conducted together with Implementing Project applications involving Development in or near these locations, and will define the nature and extent of those mine hazard areas. Once the boundaries of (1) the location and extent of the Macks Mine hazard zones near the northern end of the Project Site; (2) the location of the hazard zone for the McKay Section 12 Surface Mine and older underground mines beneath it; and (3) the width of the Moderate Mine Hazard above the Lawson Mine have been agreed to, these boundaries shall also be fixed.

Finally, based on the level of surface exploration, historical document review, and mine exploration work conducted at the Project Site, it is unlikely that any new mine hazard areas will be discovered outside those areas mapped and referenced in this section. However, in the event that a new or higher classification of mine hazard area is discovered during the term of this Agreement, that area will be assessed and protected pursuant to the City's Sensitive Areas Ordinance, BDMC 19.10 (Exhibit "E") and no Implementing Project within such affected area will be approved until agreement between the City and Master Developer is reached on the boundaries of the new or higher classification of mine hazard area.

Any additional work provided with Implementing Project applications shall be reviewed by an independent qualified third party reviewer as part of the MDRT review process described in Exhibit "N", at the Implementing Project applicant's expense, to perform peer review of mine hazard reports.

HEARING EXAMINER'S RECOMMENDED IMPLEMENTING CONDITION "M"

M. Open Space Assessment. V DA 9.1 should be revised to enable the City to require that MPD-wide open space requirements be satisfied at earlier stages of development within MPD phases as discussed in Section VII.

EXPLANATION OF RESPONSE

While the Hearing Examiner references Villages Development Agreement Section 9.1 in Recommended Implementing Condition "M" above, on page 67-68 of his Recommendation dated September 14, 2011, he specifically notes that revisions to Section 9.1 are needed to address the remaining 9.3 acres of open space necessary to meet the requirements of LH MPD COA 145 in order to protect against the possibility that a final implementing project "does not have any property suited to accommodate quality open space of that size." While recognizing that under BDMC 18.98.140(A) effectively all undeveloped property meets the definition of "open space," YarrowBay drafted revisions to Section 9.1 of the Lawson Hills Development Agreement to address the concerns of the Examiner as set forth below.

IMPLEMENTING LANGUAGE

(Revisions to Section 9.1 of the Lawson Hills Development Agreement as shown in underlined and ~~strike through~~ text)

Lawson Hills Development Agreement

9.1 OVERALL OPEN SPACE REQUIREMENT

Pursuant to BDMC 18.98.140 (Exhibit "E") and the MPD Permit Approval, The Lawson Hills MPD is required to provide at least 134 acres of open space in addition to preservation of a view corridor on the North Triangle. The 50 acre East Annexation Area and the North Triangle are subject to the BDUGAA and the Black Diamond Open Space Agreement. The open space requirement for the MPD under these agreements is the dedication of the 50-acre In-City Forest land to the City and preservation of a view corridor on the North Triangle. The Master Developer shall provide the additional, approximately 134 acres of Open Space for those properties not subject to the BDUGAA within the MPD Project Site. Approximately 124.7 acres of Open Space meeting these requirements is shown on the MPD Site Plan (Exhibit "A"). Pursuant to Condition of Approval No. 145 of the MPD Permit Approval, an additional 14.8 acres of Open Space shall be provided. (Development Parcels L1 and L2 have been designated as Open Space, resulting in 5.5 acres of additional Open Space; accordingly, 9.3 acres is the required additional Open Space). Each Implementing Project on the Lawson Hills Main Property shall account for how much Open Space has been provided throughout the MPD, how much Open Space is being proposed within the Implementing Project, and how much remaining Open Space is required to be provided. When the final Implementing Project is proposed, all remaining Open Space shall be provided prior to approval of the final Implementing Project. The City may, however, require an earlier Implementing Project to accommodate the required additional Open Space if there is a potential that property suited for Open Space will not be available in later Implementing Projects.

HEARING EXAMINER'S RECOMMENDED IMPLEMENTING CONDITION "N"

N. Park Dedication Plan. V DA 9.9.1 should be revised to provide for a more global park dedication plan that prevents park dedications to be conducted on a piecemeal basis at project implementation.

EXPLANATION OF RESPONSE

While the Hearing Examiner only referenced The Villages Development Agreement Section 9.9.1 in his Recommended Implementing Condition "N", this section is identical to Section 9.9.1 of the Lawson Hills Development Agreement and, on page 75 of his Recommendation, the Examiner discusses Section 9.9.1 without reference to either of the projects specifically. Therefore, YarrowBay drafted the following identical revisions to both projects' Development Agreements consistent with the Examiner's Recommendation.

IMPLEMENTING LANGUAGE

(Revisions to Sections 9.9.1 and 9.2 of The Villages and Lawson Hills Development Agreements as shown in underlined and ~~strike through~~ text)

The Villages Development Agreement

9.9.1 Environmentally Sensitive Areas and Buffers

Pursuant to Condition of Approval No. 153 of the MPD Permit Approval, ownership and maintenance of sensitive areas and buffers shall be consistent with the requirements of the Sensitive Area Ordinance, which allows sensitive area tracts to be held in undivided ownership by all lots within The Villages MPD, dedicated to the City or other governmental entity, protected with conservation easements or conveyed to a non-profit land trust. If the Master Developer elects not to dedicate an Open Space to the City, a permanent public access easement or other means of access shall be provided to the Open Space as part of the Implementing Project. To assure that the sensitive areas and buffers are properly assigned for purposes of ownership and maintenance, any Implementing Project that includes within its boundaries or abuts at least 25% of the border of a sensitive area buffer shall include that entire sensitive area and buffer within its boundaries, so that ownership and maintenance will be determined by the Designated Official as part of the Implementing Approval.

Lawson Hills Development Agreement

9.9.1 Environmentally Sensitive Areas and Buffers

Pursuant to Condition of Approval No. 157 of the MPD Permit Approval, ownership and maintenance of sensitive areas and buffers shall be consistent with the requirements of the Sensitive Area Ordinance, which allows sensitive area tracts to be held in undivided ownership by all lots within The Lawson Hills MPD, dedicated to the City or other governmental entity, protected with conservation easements or conveyed to a non-profit land trust. If the Master Developer elects not to dedicate an Open Space to the City, a permanent public access easement or other means of access shall be provided to the Open Space as part of the Implementing Project. To assure that the sensitive areas and buffers are properly assigned for purposes of ownership and maintenance, any Implementing Project that includes within its boundaries or abuts at least 25% of the border of a sensitive area buffer

shall include that entire sensitive area and buffer within its boundaries, so that ownership and maintenance will be determined by the Designated Official as part of the Implementing Approval.

The Villages Development Agreement

9.2 PARK AND OPEN SPACE PLAN

The approximate location and type of Parks to be provided by the Master Developer are shown on the Park and Trail Plan (Figure 9.2) above. The Master Developer shall design and construct the Parks shown on the Parks and Trail Plan (Figure 9.2). The actual location and boundaries of Parks may vary (provided that the minimum Open Space requirement is met) and will be defined through Implementing Approvals and Projects (for example, adjacent subdivision or site plan). Parks within each Phase of The Villages MPD shall be constructed or bonded prior to occupancy, final site plan or final plat approval of any portion of the Phase, whichever occurs first, to the extent necessary to meet park level of service standards for the Implementing Approval or Project. In the event a bond is in place, construction of all Parks within Phase 3 will be triggered when Certificates of Occupancy or final inspection have been issued for 40% of the Dwelling Units on lots located within ¼ mile of a given Park located in Phase 3. Parks must be completed when Certificates of Occupancy or final inspection has been issued for 60% of the Dwellings Units located within ¼ mile of a given Park in any Phase. Recreation facilities shall be constructed as required by Table 9-5. The Master Developer may elect to build Parks in advance of the triggers set forth in this subsection. To assure that the Parks are properly assigned for purposes of ownership and maintenance, any Implementing Project that includes within its boundaries or abuts at least 25% of the border of a Park shall include that entire Park within its boundaries, so that ownership and maintenance will be determined by the Designated Official as part of the Implementing Approval.

Lawson Hills Development Agreement

9.2 PARK AND OPEN SPACE PLAN

The approximate location and type of Parks to be provided by the Master Developer are shown on the Parks and Trail Plan (Figure 9.2) below. The Master Developer shall design and construct the Parks shown on the Parks and Trail Plan. The actual location and boundaries of Parks may vary (provided that the minimum Open Space requirement is met) and will be defined through Implementing Projects (for example, adjacent subdivision or site plan). Parks within each Phase of The Lawson Hills MPD shall be constructed or bonded prior to occupancy, final site plan or final plat approval of any portion of the Phase, whichever occurs first, to the extent necessary to meet park level of service standards for the Implementing Approval or Project. In the event a bond is in place, construction of all Parks within Phase 3 will be triggered when Certificates of Occupancy or final inspection have been issued for 40% of the Dwellings Units on lots located within ¼ mile of a given Park in Phase 3. Parks must be completed when Certificates of Occupancy or final inspection has been issued for 60% of the Dwellings Units located within ¼ mile of a given Park in any Phase. Recreation facilities will be constructed as per Table 9.5.5. The Master Developer may elect to build Parks in advance of the triggers set forth in this subsection. To assure that the Parks are properly assigned for purposes of ownership and maintenance, any Implementing Project that includes within its boundaries or abuts at least 25% of the border of a Park shall include that entire Park within its boundaries, so that ownership and maintenance will be determined by the Designated Official as part of the Implementing Approval.

HEARING EXAMINER'S RECOMMENDED IMPLEMENTING CONDITION "O"

O. Parks Standards. V DA Chapter 9 should be clarified to provide that the City's Parks and Open Space Plan will govern park design standards when stricter standards are not imposed by the DA.

EXPLANATION OF RESPONSE

While the Hearing Examiner only referenced The Villages Development Agreement Chapter 9 in his Recommended Implementing Condition "O", this chapter is effectively identical to Chapter 9 of the Lawson Hills Development Agreement and, on page 74 of his Recommendation, the Examiner discusses trail standards without reference to either of the projects specifically. Therefore, YarrowBay drafted the following identical revisions to both projects' Development Agreements consistent with the Examiner's Recommendation.

IMPLEMENTING LANGUAGE

(Additions to Section 9.5 of The Villages and Lawson Hills Development Agreements as shown in the underlined text)

The Villages Development Agreement

9.5 RECREATION AND USEABLE OPEN SPACE STANDARDS

All Implementing Projects must comply with the City's Parks, Recreation and Open Space Plan dated December 18, 2008 (Exhibit "E") as well as the standards and guidelines imposed in this Agreement.

Lawson Hills Development Agreement

9.5 RECREATION AND USEABLE OPEN SPACE STANDARDS

All Implementing Projects must comply with the City's Parks, Recreation and Open Space Plan dated December 18, 2008 (Exhibit "E") as well as the standards and guidelines imposed in this Agreement.

HEARING EXAMINER'S RECOMMENDED IMPLEMENTING CONDITION "P"

P. High School in Commercial Area. City staff should clarify, using information in the record, if the high school is proposed for a commercially designated area. If so, the Council should specify in the DA when an updated fiscal analysis will be necessary to ensure the fiscal neutrality of the MPDs.

EXPLANATION OF RESPONSE

Per the terms of the School Agreement, a potential high school site has been identified within The Villages MPD project site. Therefore, YarrowBay drafted the following addition to The Villages Development Agreement only.

IMPLEMENTING LANGUAGE

(Additions to Section 13.3 of The Villages Development Agreement as shown in the underlined text)

The Villages Development Agreement

13.3 SCHOOLS

Pursuant to Condition of Approval No. 98 of the MPD Permit Approval, school mitigation is accomplished through the Comprehensive School Mitigation Agreement, dated January 24, 2011, between the City of Black Diamond, the Enumclaw School District and the Master Developer, and approved by Black Diamond Resolution No. 11-727 ("School Agreement").

Amendments to the Comprehensive School Mitigation Agreement shall be processed as Minor Amendments to this Agreement pursuant to Section 10.4.2; provided, such amendments are: (i) executed by the City, the Enumclaw School District, BD Lawson Partners, L.P., and the Master Developer, and (ii) otherwise satisfies Condition of Approval No. 98 of the MPD Permit Approval.

Per the terms of the School Agreement, a portion of Parcel C (as described in Exhibit "B") may be developed as a high school "no earlier than ten (10) years after [January 24, 2011] . . ." A portion of the 40-acre High School Site (as shown on Exhibit I of the School Agreement) is designated on the MPD Site Plan (Exhibit "U") as "Commercial/Office/Retail". The location of this High School Site may be modified consistent with the terms of the School Agreement. Pursuant to MPD Condition of Approval No. 99 of the MPD Permit Approval and subsection 4.4.7 of this Agreement, if any party submits an Implementing Project application that seeks to locate a high school as a conditional use within any lands designated on the MPD Site Plan (Exhibit "U") for commercial/office/retail use, then the application for the Minor Amendment to MPD Permit Approval shall also include an updated fiscal analysis prepared by the Master Developer pursuant to Section 13.6 of this Agreement.

HEARING EXAMINER'S RECOMMENDED IMPLEMENTING CONDITION "Q"

Q. Police and Fire LOS. The DA should be revised to provide that the fiscal analysis shall maintain the City's police and fire level of service standards.

EXPLANATION OF RESPONSE

YarrowBay drafted the following identical revisions to Section 13.6 of The Villages and Lawson Hills Development Agreements in order to implement the Hearing Examiner's Recommended Implementing Condition "Q".

IMPLEMENTING LANGUAGE

(Addition of subsection (j) to Section 13.6 of The Villages and Lawson Hills Development Agreements as shown in underlined text)

The Villages Development Agreement

13.6 FISCAL IMPACTS ANALYSIS

…

i. Revenues and expenses for general fund departments that are determined to be one time in nature will not be included in the fiscal analysis. These may include the costs of planning, inspection and permit activities along with planning, inspection, permitting and development impact fees. Provided, however, if the building division is removed from the MDRT pursuant to the terms of the Funding Agreement, only then would the revenues and expenses of the building division be included in the fiscal analysis.

j. Each updated fiscal analysis shall confirm that revenue from The Villages MPD is sufficient to maintain levels of service for police and fire services as such levels of service are adopted in the Comprehensive Plan (Exhibit "E").

2. Operating revenues will be calculated for the following sources using the methods described for each source of revenue.

…

Lawson Hills Development Agreement

13.6 FISCAL IMPACTS ANALYSIS

…

i. Revenues and expenses for general fund departments that are determined to be one time in nature will not be included in the fiscal analysis. These may include the costs of planning, inspection and permit activities along with planning, inspection, permitting and development impact fees. Provided, however, if the building division is removed from the MDRT pursuant to the terms of the Funding Agreement, only then would the revenues and expenses of the building division be included in the fiscal analysis.

j. Each updated fiscal analysis shall confirm that revenue from the Lawson Hills MPD is sufficient to maintain levels of service for police and fire services as such levels of service are adopted in the Comprehensive Plan (Exhibit "E").

2. Operating revenues will be calculated for the following sources using the methods described for each source of revenue.

HEARING EXAMINER'S RECOMMENDED IMPLEMENTING CONDITION "R"

R. MPD Subject to COAs. V DA 15.1 should be revised to provide that all development within the properties subject to the MPD approval shall be developed in conformance with all COAs.

EXPLANATION OF RESPONSE

While the Hearing Examiner only referenced The Villages Development Agreement Section 15.1 in his Recommended Implementing Condition "R", this section is identical to Section 15.1 of the Lawson Hills Development Agreement. Therefore, YarrowBay drafted the following identical revisions to both projects' Development Agreements consistent with the Examiner's Recommendation.

IMPLEMENTING LANGUAGE

(Addition to Section 15.1 of The Villages and Lawson Hills Development Agreements as shown in underlined text)

The Villages and Lawson Hills Development Agreements

15.1 BINDING EFFECT & VESTING

This Agreement constitutes and shall be recorded as a covenant running with the land, benefiting and burdening the Project Site. This Agreement shall be binding upon and inure to the benefit of the Master Developer and the City and to the successors and assigns of the Master Developer and the City. All Development subject to the MPD Permit Approval shall be developed in conformance with the MPD Conditions of Approval as set forth in "Ex. C – Conditions of Approval" of Exhibit "C" attached hereto and incorporated herein by this reference.

HEARING EXAMINER'S RECOMMENDED IMPLEMENTING CONDITION "S"

S. Conceptual Site Plan. The conceptual site plan, DA Ex. A, should be removed from the DA.

EXPLANATION OF RESPONSE

While there is no particular reason for removing the conceptual site plan set forth in Exhibit "A", YarrowBay drafted the following identical revisions to The Villages and Lawson Hills Development Agreements in order to implement the Hearing Examiner's Recommended Implementing Condition "S".

IMPLEMENTING LANGUAGE

(In order to implement the Hearing Examiner's Recommended Implementing Condition "S," five revisions are needed to The Villages and Lawson Hills Development Agreement as described below in the underlined and ~~strike through~~ text.)

The Villages and Lawson Hills Development Agreements

(1) Revise the Cover Page for Exhibit "A" as follows. Copies of the revised cover pages for The Villages and Lawson Hills Development Agreements are included herein.

Exhibit A

Project Boundaries and MPD Site Plan

(Removed Pursuant to Examiner's Recommended Implementing Conditions. Please see Exhibit "U").

(2) Revise Section 14.0 Definitions as follows:

- **MPD Site Plan** – The site plan attached to this Agreement as Exhibit "~~A~~U".

(3) All references to ~~Exhibit "A"~~ within this Agreement are replaced and superseded with a reference to Exhibit "U" except for the Table of Contents and Section 15.7.

(4) Add Figure 6-4 as the last page of Section 6 showing the anticipated locations of streets that have a classification greater then neighborhood collector. Copies of new Figure 6-4 for both The Village and Lawson Hills are included herein.

(5) Revise Section 4.4.9 of The Villages Development and Section 4.4.7 of the Lawson Hills Development Agreement as follows:

> The road way alignments shown on the MPD Site Plan (Exhibit "~~A~~U"), and as further refined in Figure 6-4, may be modified pursuant to and concurrent with an Implementing Project application (e.g., subdivision or binding site plan) without an amendment to the MPD Permit Approval or this Agreement. Such amendments are exempt from the annual docketing requirement set forth in Section 4.4. above.

HEARING EXAMINER'S RECOMMENDED IMPLEMENTING CONDITIONS "T" and "U"

T. City Approval of Traffic Reports. The DA traffic monitoring plans, DA Ex. F, should be revised to require City approval of all traffic monitoring reports.

U. Project Level Concurrency. The DA monitoring plans, Ex. F, should be revised to provide that the City will not approve any implementing projects unless they comply with GMA concurrency requirements as adopted into the City's concurrency regulations.

EXPLANATION OF RESPONSE

In his Recommendation, the Examiner requested two revisions to the Traffic Monitoring Plan (Exhibit "F") contained within the Development Agreements. YarrowBay drafted revisions to Exhibit "F" of The Villages and Lawson Hills Development Agreements in order to implement the Hearing Examiner's Recommended Implementing Conditions "T" and "U".

IMPLEMENTING LANGUAGE

(Revise Exhibit "F" of The Villages and Lawson Hills Development Agreements as shown in underlined and ~~strike through~~ text)

The Villages and Lawson Hills Development Agreements

EXHIBIT "F"

TRAFFIC MONITORING PLAN

The transportation mitigation measures imposed on The Villages MPD include projects that address the potential full transportation impacts of complete build-out of The Villages MPD together with build-out of the Lawson Hills MPD. The build-out of both MPDs will occur over a period of years and, therefore, the transportation mitigation also should be implemented over a period of years. To assure that the mitigation keeps pace with MPD Development and appropriate improvements are constructed at the appropriate time, the following monitoring and trigger protocol is established.

A. Required Timing for Modeling and Monitoring

Before submitting Implementing Project applications for each Phase of the combined MPDs, and in the middle of each Phase, the Master Developer shall model and monitor traffic to identify the expected traffic impacts of that Phase~~.~~ and to determine what improvements or strategies, if any, will be necessary to comply with the City's transportation concurrency requirements as defined in the City of Black Diamond's Comprehensive Plan (2009). The middle of a Phase is defined as the point at which occupancy has been granted for the mid-point ERUs[1] for the MPDs. The modeling shall take into

[1] ERU means an Equivalent Residential Unit, which is intended to equate all land uses to equivalent single-family dwelling units in terms of trips generated. The ITE trip generation rates designate that a single-family dwelling unit generates one trip during the PM peak hour. Therefore, if, for example, the ITE trip generation rates applied

account the number of new homes and commercial buildings that are actually occupied and generating traffic. In the event that one MPD is not proceeding, the modeling and monitoring need only be conducted for the active MPD. In the event that there are separately controlled Master Developers for each MPD, and both are proceeding, the Master Developers shall be required to coordinate to model and monitor traffic and submit a joint report. In the event that a subsequent Phase is submitted prior to full build-out of an existing Phase, the subsequent Phase shall establish as its baseline what is constructed and occupied as of the date of submittal of the report. The subsequent Phase shall also assume buildout of the remainder of the existing Phase as part of the modeling in addition to what is being submitted in the Implementing Project application.

When the City has completed its regional transportation model, all subsequent modeling and monitoring shall be done with that regional model.

B. Report Requirements

The results of the traffic modeling and monitoring shall be presented to the City in a written report. The traffic monitoring report shall be prepared by a registered professional engineer chosen by the Master Developer and licensed to practice in the State of Washington with experience in traffic engineering and transportation planning. The written report shall document the findings including an evaluation of the existing conditions~~, and~~ (including traffic counts), a forecast of future traffic volumes based on the next Phase's (or the remaining portion of the Phase's) projected level of development~~.~~, and identification of expected Implementing Projects' impacts. The report shall also evaluate the phase using the City's transportation concurrency requirements (as defined in the City of Black Diamond's Comprehensive Plan (2009)) so as to identify any improvements or strategies necessary to maintain the City's then-applicable, adopted level of service (LOS) standard on transportation facilities within the City of Black Diamond.

The existing conditions section of each traffic monitoring report shall include a summary of updated peak hour turning movement counts for intersections or two-direction roadway counts for roadway segments for all of the transportation mitigation projects included in the traffic monitoring plan (refer to Section C below). Existing level of service shall also be calculated for each transportation mitigation project included in the traffic monitoring plan. Traffic counts shall be conducted on representative weekdays (Tuesday, Wednesday, or Thursday during weeks not affected by holidays, bad weather such as snow, or other days with unusually high or low traffic volumes) and when school is in session. To enable comparisons back to prior monitoring reports, traffic counts shall be conducted during the same month to the extent feasible—alternatively, seasonal adjustment factors shall be applied to counts conducted during different months.

Evaluation of potential future traffic volumes from other Black Diamond development shall not be required because the City will independently require other projects to evaluate and mitigate their own impacts. However, infill traffic growth (exempt from SEPA) and background traffic growth from outside of Black Diamond (also exempt from SEPA) shall be included in modeling.

---

to a commercial office building result in 60 PM peak hour trips, that building would be deemed to generate 60 ERUs.

For intersection improvements, the report shall compare the results with the LOS threshold for each existing facility to determine whether and at what time any improvement to an existing facility is required.

The report shall also evaluate the extent to which MPD traffic would cause or contribute to any level of service failure on an existing facility in Black Diamond or need for access to or circulation within the MPD. The City, in its reasonable discretion, may use the report to determine whether to request that the Master Developer modify its proposed timing for construction of any new roadway alignments or intersection improvements described in MPD Condition of Approval No. 10 of the MPD Permit Approval.

As described in Development Agreement Section 11.4.A, all documents that result from the Traffic Monitoring Plan, including traffic monitoring reports, are required to be "submitted to the Designated Official for approval." The City of Black Diamond shall be responsible for reviewing and approving each traffic monitoring report submitted by the Master Developer pursuant to the requirements of this Traffic Monitoring Plan. Moreover, the City shall not approve an Implementing Project unless the most recent traffic monitoring report prepared by the Master Developer per this Exhibit—and approved by the City—demonstrates compliance with the City's transportation concurrency requirements (as defined in the City of Black Diamond's Comprehensive Plan (2009)).

C. Transportation Projects to be Monitored and Modeled

The following projects shall be monitored and/or included in the model of the Phase's future traffic impacts: all projects listed in Table 11-~~3~~5-1 of the Development Agreement, (and any modifications to that list following the periodic review process of Condition of Approval No. 17 of the MPD Permit Approval), together with existing facilities in the City of Black Diamond where the level of service impacts of the MPD may be addressed by construction of a new roadway alignment or intersection improvements inside Black Diamond as described in Condition of Approval No. 10 of the MPD Permit Approval. However, if the Master Developer has entered into a mitigation agreement with an outside jurisdiction that either sets the timing for payment towards or construction of the mitigation projects, or exempts that jurisdiction's projects from later monitoring, modeling or other review, that mitigation agreement is deemed to satisfy all mitigation and no further monitoring or modeling of facilities within that jurisdiction are required. In addition, any projects listed on Table 11-5-1 of the Development Agreement that are outside the City of Black Diamond are not subject to the transportation concurrency testing.

The monitoring plan and model need not analyze a specific improvement after that improvement has been constructed.

D. Triggers and Timing for Construction of Transportation Projects

For intersection improvements, the threshold trigger is when the intersection ~~level of service (LOS)~~ (as defined in the Highway Capacity Manual, TRB, 2000) for the entire PM peak hour would (1) no longer meet the City's then-applicable, adopted LOS standard ~~(as defined in the City of Black Diamond's~~

~~Comprehensive Plan, 2009,~~ or other jurisdiction's standard applicable to the MPD Permit Approval~~)~~ or (2) in the event that the LOS is already below the applicable threshold, the trigger shall be when traffic volumes from the new MPD Phase begin to increase delay at the intersection causing an additional impact .

For new roadway improvements inside Black Diamond, the MPD Phasing Plan anticipates that the transportation mitigation projects will be constructed to service the new MPD development of each Phase, including for access to and circulation within the MPD. For purposes of the modeling and monitoring plan, the threshold trigger to construct the improvement is when MPD traffic would increase delay or impact LOS at any intersection on existing roadways to a point at which the new roadway would be warranted. This trigger does not supersede other City standard requirements such as providing two points of access or the obligations for constructing the Pipeline Road.

The Master Developer shall only be required to perform an improvement if the applicable threshold is triggered.

The specific construction timing shall be set in each report, based on the results of the required monitoring and modeling. For City of Black Diamond projects, by execution of the Development Agreement, the City commits to prompt permit review, such that the Master Developer's prompt construction of transportation improvements shall commence before the impacted street or intersection falls below the applicable level of service. For projects within Black Diamond that are also within the State right-of-way, the report shall set a deadline for commencement of only engineering and design of the improvement but not a deadline for commencement of construction. For projects outside the City of Black Diamond where additional permitting from another jurisdiction is required, the report shall set the time at which the Master Developer must commence the permitting and/or engineering and design process, but shall not set a deadline for commencement of construction. Within the City of Black Diamond, if additional public right-of-way should be needed for the design of a particular improvement, the Master Developer shall first demonstrate a good faith effort to acquire the right-of-way needed. If, after making an offer equal to the fair market value, the Master Developer is unable to purchase the needed right of way, the City shall be responsible for acquiring the needed right-of-way.

HEARING EXAMINER'S RECOMMENDED IMPLEMENTING CONDITION "V"

V. Land Use Plan Legend. The legend on Land Use Plan, DA Ex. L, shall be clarified to differentiate between uses as required by LH COA 151 prior to DA approval.

EXPLANATION OF RESPONSE

YarrowBay drafted a new Exhibit "U" for, as well as revisions to Section 15.7 of, The Villages and Lawson Hills Development Agreements in order to implement the Hearing Examiner's Recommended Implementing Condition "V".

IMPLEMENTING LANGUAGE

(Addition of new Exhibit "U" to The Villages and Lawson Hills Development Agreements as shown in underlined text)

The Villages and Lawson Hills Development Agreements

Figure 3-1 Land Use Plan was approved in September 2010 as part of the MPD Permit Approval Ordinances, and is included within both The Villages and Lawson Hills Development Agreements in Exhibit "L". The Figure has been clarified to differentiate between uses as required by Lawson Hills MPD Condition of Approval No. 151. These updated MPD Site Plans shall be included as a new Exhibit "U" in each Development Agreement along with a Cover Page to read:

Exhibit U
Updated MPD Site Plan
(Added Pursuant to Examiner's Recommended Implementing Conditions.)

Copies of Exhibit "U" and its associated cover page for both The Villages and Lawson Hills Development Agreements are included herein. This new Exhibit "U" shall be added to the Table of Contents of each Development Agreement as well as incorporated into Section 15.7 as follows:

15.7 EXHIBITS

The exhibits to this Agreement are hereby incorporated herein as though fully set forth as terms of this ~~a~~Agreement. The exhibits are:

Exhibit "A" – ~~Project Boundaries and MPD Site Plan~~ [Removed. Please see Exhibit "U"]
Exhibit "B" – Legal Description and Parcel Map
Exhibit "C" – MPD Permit Approval
Exhibit "D" – Summary of Prior Agreements
Exhibit "E" – City of Black Diamond Municipal Code
Exhibit "F" – Traffic Monitoring Plan
Exhibit "G" – Constraint Maps
Exhibit "H" – MPD Project Specific Design Standards and Guidelines
Exhibit "I" – High Density Residential Supplemental Design Standards and Guidelines
Exhibit "J" – Construction Waste Management Plan

Exhibit "K" – MPD Phasing Plan
Exhibit "L" – Excerpts from Chapter 3 of MPD Permit Application
Exhibit "M" – Mine Hazard Release Form
Exhibit "N" – ~~Villages~~ MPD Funding Agreement
Exhibit "O" – Stormwater Monitoring
Exhibit "P" – Green Valley Road Measures
Exhibit "Q" – Maple Valley Transportation Mitigation Agreement
Exhibit "R" – Covington Transportation Mitigation Agreement
Exhibit "S" – Potential Expansion Areas
Exhibit "T" – Impact Fees for Fire Protection Facilities dated 1-13-2011
Exhibit "U" – Updated MPD Site Plan

. . .

IMPLEMENTING EXHIBITS

(Addition of new Exhibit "U" to The Villages and Lawson Hills Development Agreements included herein)

HEARING EXAMINER'S RECOMMENDED IMPLEMENTING CONDITION "W"

W. Funding Agreement. It is recommended that the DA be revised to require that the proposed funding agreement attached as DA Ex. N, or a substantially similar agreement, be executed prior to the acceptance of any implementing project applications or prior to the execution of the DA and that no applications already received be processed further until the Ex. N agreement is executed.

EXPLANATION OF RESPONSE

No revision to the Development Agreements is required to implement the Hearing Examiner's Recommended Implementing Condition "W". The MPD Funding Agreement is Exhibit "N" to both The Villages and Lawson Development Agreements. As an exhibit that is incorporated in full per Section 15.7 of each Agreement, if the Black Diamond City Council votes to approve The Villages and Lawson Hills Development Agreements the Council thereby also approves the MPD Funding Agreement. Thus, as currently formatted, the Development Agreements provide for concurrent approval of both the MPD Funding Agreement and the Development Agreement thereby ensuring that no MPD implementing projects are approved prior to execution of the Development Agreements and MPD Funding Agreement.

IMPLEMENTING LANGUAGE

[*none*]

HEARING EXAMINER'S RECOMMENDED IMPLEMENTING CONDITION "X"

X. Stormwater monitoring. V DA Ex. O should be clarified to provide that the Kindig stormwater monitoring plan shall be required to extend for five years beyond the completion of all development that discharges into the facility.

EXPLANATION OF RESPONSE

While the Hearing Examiner only referenced The Villages Development Agreement Exhibit "O" in his Recommended Implementing Condition "X", this exhibit is identical to Exhibit "O" of the Lawson Hills Development Agreement. Therefore, YarrowBay drafted the following identical revisions to both projects' Development Agreements consistent with the Examiner's Recommendation.

IMPLEMENTING EXHIBIT

(Revise Exhibit "O" to The Villages and Lawson Hills Development Agreements as shown in underlined and ~~strike through~~ text included herein)

OTHER

In his Recommendation dated September 14, 2011, the Hearing Examiner noted other "Recommended Implementing Conditions", including revisions offered by YarrowBay in Exhibit 139. These provisions were not separately listed as Recommended Implementing Conditions in Section IX of the Hearing Examiner's Recommendation. Each of these items is addressed in turn below, as subparts of Item "Y", to be consistent with the Hearing Examiner's formatting.

Y(1)- On page 18 of his Recommendation, the Hearing Examiner stated that "DA 11.8 should be clarified that affordable housing requirements "shall" be adopted at some point in MPD review and that these requirements may include specified affordable housing measures to apply to implementation projects."

IMPLEMENTING LANGUAGE

(Revise Section 11.8 of The Villages and Lawson Hills Development Agreements as shown in underlined and ~~strike through~~ text)

The Villages Development Agreement

11.8 HOUSING TYPES

Targets for housing types in each Phase of The Villages MPD are shown in Table 4-8-4. These are only targets not requirements. Pursuant to Condition of Approval No. 138 of the MPD Permit Approval, after each Phase of The Villages MPD is completed, the City shall prepare an analysis of affordable housing City-wide. For purposes of this Agreement, Dwelling Units shall be deemed "affordable housing" if the upper median income limits as determined by King County are satisfied. That analysis may be used to set specifications for affordable housing in any on-going or future Phase of The Villages MPD. Specifications for affordable housing needs within the MPD shall be determined as a result of the Phase-by-Phase analysis and may be applied to Implementing Projects prospectively.

Lawson Hills Development Agreement

11.8 HOUSING TYPES

Targets for housing types in each Phase of The Lawson Hills MPD are shown in Table 4-8-1. These are only targets, not requirements. Pursuant to Condition of Approval No. 142, after each Phase of The Lawson Hills MPD is completed, the City shall prepare an analysis of affordable housing City-wide. For purposes of this Agreement, Dwelling Units shall be deemed "affordable housing" if the upper median income limits as determined by King County are satisfied. That analysis may be used to set specifications for affordable housing in any on-going or future Phase of The Lawson Hills MPD. Specifications for affordable housing needs within the MPD shall be determined as a result of the Phase-by-Phase analysis and may be applied to Implementing Projects prospectively.

Y(2) – In his Recommendation on page 21, the Examiner recognizes that the revisions proposed by YarrowBay to Section 4.5 in Exhibit 139 resolve some of the concerns raised during public testimony. YarrowBay's modified language in Section 4.5, as drafted in Exhibit 139, is provided below.

IMPLEMENTING LANGUAGE

(Revise Section 4.5 of The Villages and Lawson Hills Development Agreements as shown in underlined and ~~strike through~~ text)

> When an Implementing Project application for a Development Parcel along the Project Site perimeter is submitted, and the abutting property outside the MPD to such Development Parcel is ~~already developed on that submittal date~~not owned by the Master Developer, then the Development Parcel is subject to the section of the MPD Framework Design Standards and Guidelines entitled "Interface with Adjoining Development," which provides guidelines to ensure a transition between the Development within The Villages MPD that abuts Development outside the Project Site but within the City limits.

Y(3) – On page 90, the Hearing Examiner notes that "[w]hile the phasing plan appears to address utilities, transportation and parks, other required concurrency elements are missing (open space, trails and other recreational amenities) . . ." YarrowBay notes that these "missing" elements, however, are in fact addressed in Section 9 of each Development Agreement. Therefore, in order to address the Hearing Examiner's concern, YarrowBay drafted the following addition to Section 11.2 of both Development Agreements.

IMPLEMENTING LANGUAGE

(Revise Section 11.2 of The Villages and Lawson Hills Development Agreements as shown in underlined and ~~strike through~~ text)

The Villages Development Agreement

11.2 PHASING OF IMPROVEMENTS

> Pursuant to Conditions of Approval Nos. 4, 63, and 163 of the MPD Permit Approval, this Section describes the phasing and timing of infrastructure within and outside of The Villages MPD. The phasing and timing of Open Space, trails, and other recreational amenities is addressed in Section 9 of this Agreement. However, as noted on p. 9-1 of the approved MPD Phasing Plan (Exhibit "K"):
>
> . . .

Lawson Hills Development Agreement

11.2 PHASING OF IMPROVEMENTS

> Pursuant to Conditions of Approval Nos. 4 and 162 of the MPD Permit Approval, this Section describes the phasing and timing of infrastructure within and outside of the Lawson Hills MPD. The phasing and timing of Open Space, trails, and other recreational amenities is addressed in Section 9 of this Agreement. However, as noted on p. 9-1 of the approved MPD Phasing Plan (Exhibit "K"):
>
> . . .

Y(4) – At page 91 of his Recommendation, the Examiner recommended changes to the timing for Forest Practices.

IMPLEMENTING LANGUAGE

(Revise Section 13.2 of The Villages and Lawson Hills Development Agreements as shown in underlined and ~~strike through~~ text)

The Villages Development Agreement

13.2 FOREST PRACTICES

Pursuant to Conditions of Approval Nos. 87 and 121 of the MPD Permit Approval, clearing and tree removal will be necessary and may only be proposed after an application for an Implementing Project is proposed, and preferably after Implementing Approval is issued, for a Development Parcel, or when grading is proposed on another Development Parcel in the vicinity of an Implementing Project to assure a balance of cut and fill for the proposed Implementing Project (as is required by Condition of Approval No. 110 in the MPD Permit Approval). The preference for clearing and tree removal to occur after Implementing Approval is intended to assure the minimum amount of time that a Development Parcel will be cleared prior to Implementing Project construction. However, clearing and tree removal is preferably conducted during certain times of the year (i.e., to avoid fire danger, clearing and tree removal is sometimes not desirable during hot summer months, and to avoid erosion, clearing and tree removal is not desirable during the rainiest months of the year). Accordingly, the timing for clearing and tree removal will be proposed by the Master Developer for review and approval by the Designated Official. All tree removal shall be done in accordance with BDMC 19.30 (Exhibit "E"). In some cases, tree removal necessitated by an Implementing Project or the need to balance cut and fill may have result in enough timber value to result in timber revenue, and in those cases a separate Forest Practices Act approval will be required. To the extent that a Development Parcel or portion thereof is logged for timber revenue, the time period for which the parcel may remain cleared and undeveloped shall be set by condition of the Implementing Project or of the Forest Practices Approval, whichever is more strict. Development Parcels being cleared or logged that are easily accessible to the public will be secured with fencing and signage.

Lawson Hills Development Agreement

13.2 FOREST PRACTICES

Pursuant to Conditions of Approval Nos. 88 and 124 of the MPD Permit Approval, clearing and tree removal will be necessary and may only be proposed after an application for an Implementing Project is proposed, and preferably after Implementing Approval is issued, for a Development Parcel, or when grading is proposed on another Development Parcel in the vicinity of an Implementing Project to assure a balance of cut and fill for the proposed Implementing Project. The preference for clearing and tree removal to occur after Implementing Approval is intended to assure the minimum amount of time that a Development Parcel will be cleared prior to Implementing Project construction. However, clearing and tree removal is preferably conducted during certain times of the year (i.e., to avoid fire danger, clearing and tree removal is sometimes not desirable during hot summer months, and to avoid erosion, clearing and tree removal is not desirable during the rainiest months of the year). Accordingly, the timing for clearing and tree removal will be proposed by the Master Developer for review and approval by the Designated Official. All tree removal shall be done in accordance with BDMC 19.30 (Exhibit "E"). In some cases, tree removal necessitated by an Implementing Project or the need to balance cut and fill may result in enough timber value, and in those cases a separate Forest Practices Act approval will be required. To the extent that a Development Parcel or portion thereof is logged for timber revenue, the time period for which the parcel may remain cleared and undeveloped shall be set by condition of the

Implementing Project or of the Forest Practices Approval, whichever is more strict. Development Parcels being cleared or logged that are easily accessible to the public will be secured with fencing and signage.

Y(5) – In Exhibit 139, the following revisions to Section 6.4.3 of The Villages Development Agreement (as show in the underlined text) were provided to further ensure that Pipeline Road will be constructed by the Master Developer before Level of Service on Roberts Drive is significantly adversely affected by MPD traffic (as shown in underlined and ~~strike through~~ text):

IMPLEMENTING LANGUAGE

The design of Pipeline Road is to extend from Parcel C at the intersection of the Community Connector and Lake Sawyer Rd SE, easterly towards SR-169, intersecting SR-169 in the vicinity of Black Diamond-Ravensdale Rd, or where the future improved intersection of SR-169 and Black Diamond-Ravensdale Road lies, as determined by the City. Pursuant to Condition of Approval No. 31 of the MPD Permit Approval, the preliminary design and alignment of the Pipeline Road shall be completed by the Master Developer and the right of way dedicated to the City prior to the City's approval of a building permit for the 1200th Dwelling Unit of The Villages MPD. The Pipeline Road shall be constructed by the Master Developer and open for traffic prior to the earlier of: (i) City's approval of a building permit for the 1746th Dwelling Unit of The Villages MPD; or (ii) when the Traffic Monitoring Plan (Exhibit "F") shows that construction is necessary to prevent a significantly adverse degradation of Level of Service on Roberts Drive.

Y(6) – As set forth in Exhibit 139, YarrowBay and City Staff agree to the following changes to Section 7.1.9 of both The Villages and Lawson Hills Development Agreements to correct certain scrivener's errors (as shown in underlined and ~~strike through~~ text).

IMPLEMENTING LANGUAGE

Pursuant to BDMC 13.04 and 13.20 (Exhibit "E"), the purpose of the City's water capital facilities charge and sewer connection and reserve capacity capital charges (the "Capital Facilities Charges") is to collect funds to assure new users pay an equitable share of the City's water and sewer facilities. The Master Developer, however, will not be using the City's existing system to serve the MPD's Implementing Projects, other than on a limited basis and will instead be constructing the water and sewer infrastructure necessary to serve the Project Site. Further, if the City were to assess Capital Facilities Charges against the Implementing Projects and then, as required by state law, provide a credit to the Master Developer for the cost of its facility infrastructure construction, the total amount of the credit due would exceed the total Capital Facilities Charges to be collected. Therefore, in consideration for the Master Developer's construction of the water and sewer infrastructure necessary to serve the Project Site, the City shall not collect Capital Facilities Charges for Implementing Project approvals sought for [The Lawson Hills MPD/The Villages MPD] provided the City Council adopts an ~~resolution~~ordinance exempting Implementing Projects from the City's Capital Facilities Charges, and the Master Developer shall not seek credit or reimbursement from the City under the Water Supply and Facilities Funding Agreement. If the City Council does not adopt such an ~~resolution~~ordinance, general facilities charges will be assessed against Implementing Projects of [The Lawson Hills

MPD/The Villages MPD] and the Master Developer will receive a credit against such charges for the cost of its construction of facility infrastructure.

. . .

Y(7) – As set forth in Exhibit 139, YarrowBay and City Staff agree to the following clerical changes to Section 7.2.3 of both The Villages and Lawson Hills Development Agreements (as shown in underlined and ~~strike through~~ text).

IMPLEMENTING LANGUAGE

Pursuant to Section 7.1.9 above and in recognition: (i) that [The Lawson Hills MPD's/The Villages MPD's] water system and the improvements to the City's water system necessary for Development have been or will be installed at the Master Developer's cost; ~~and~~ (ii) of the substantial investment in water infrastructure resulting from the WSFFA; and (iii) that the Master Developer shall not seek credit or reimbursement from the City under the Water Supply and Facilities Funding Agreement, Implementing Projects within [The Lawson Hills MPD/The Villages MPD] shall not be required to pay the City's general facilities charges, connection charges, or system development charges, including any amendments thereto except as provided for in Section 7.2.1.

Y(8) – As set forth in Exhibit 139, there is a scrivener's error in Section 10.3 of the Lawson Hills Development Agreement. YarrowBay and City Staff agree to the following revisions to the last sentence of this section (as shown in underlined text).

IMPLEMENTING LANGUAGE

. . . The appealing party shall exhaust its remedies as set forth herein prior to exercising its remedies as set forth in Subsection 15.13.

Y(9) – As set forth in Exhibit 139, there is a scrivener's error is Section 11.4(A) of the Lawson Hills Development Agreement. YarrowBay and City Staff agree that the following revisions be made to this subsection (as shown in underlined and ~~strike through~~ text).

IMPLEMENTING LANGUAGE

Phasing. Off-Site Regional Facilities are Regional Facilities that are located outside the Project Site and the boundaries of The Villages MPD. Off-Site Regional Facilities necessary to serve the Lawson Hills MPD and The Villages are described in ~~Tables 11-3-1 through 11-3-4~~ Tables 11-4-1 through 11-4-4. Transportation improvements located in the Cities of Maple Valley and Covington, however, are not included in Table 11-5-1 and 11-5-2 because these improvements are addressed in the separate mitigation agreements attached as Exhibits "Q" and "R", respectively.

Y(10) – As set forth in Exhibit 139, to alleviate apparent concerns, YarrowBay and City Staff agree to the inclusion of additional language to the end of this Section 15.16 of both The Villages and Lawson Hills Development Agreements (as shown in underlined text).

IMPLEMENTING LANGUAGE

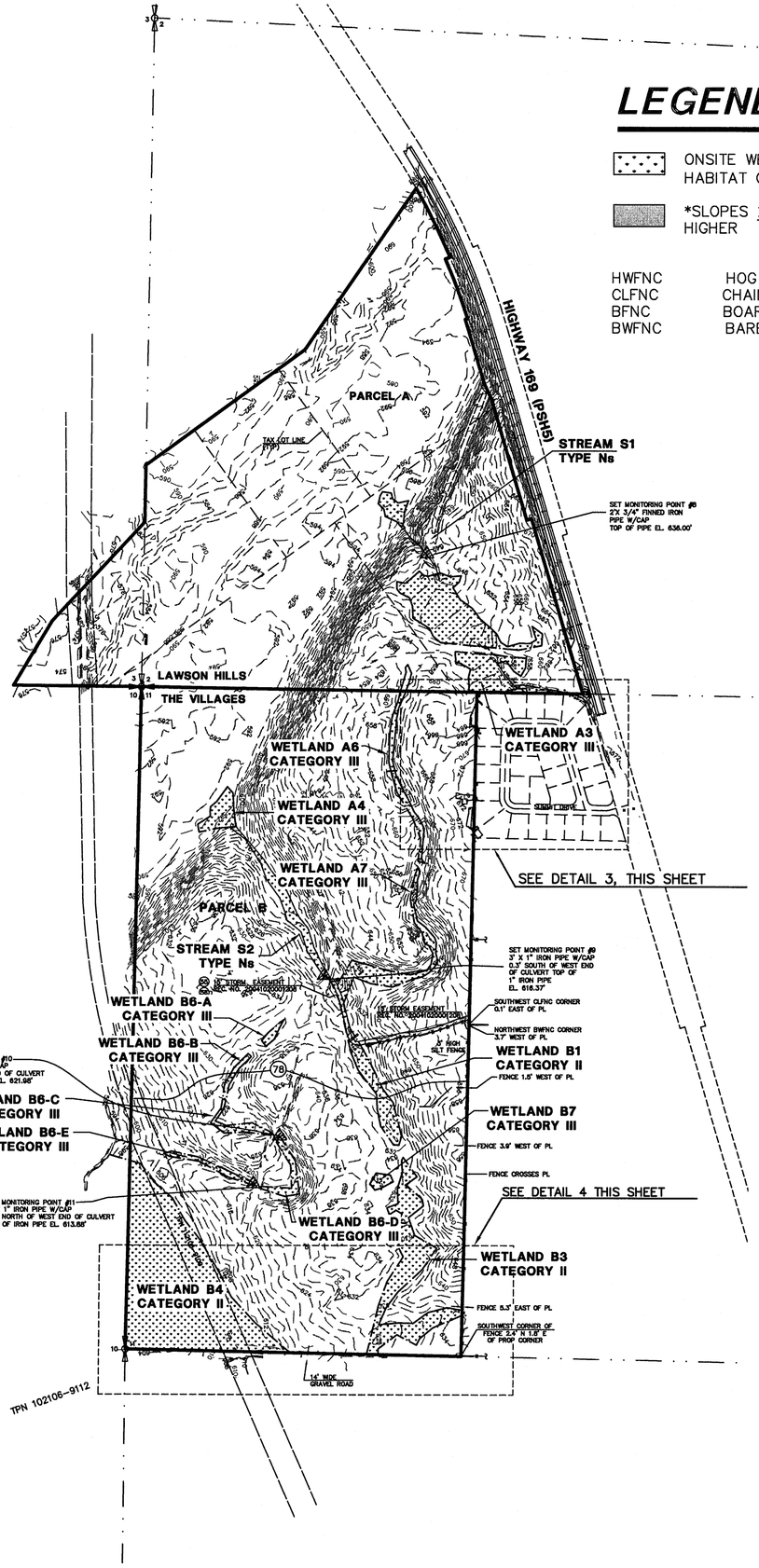
(Add as last sentence of Section 15.16 of both Development Agreements)

In no event, shall the Build-Out Period for all Development and construction exceed twenty (20) years.

PORTION OF SECTIONS 2, 3 AND 11, TOWNSHIP 21 N, RANGE 6 E., W.M.

SCALE: 1" = 400'

0 200 400 800



LEGEND

ONSITE WETLAND AREA (INCLUDES FISH AND HABITAT CONSERVATION AREAS)

*SLOPES ≥ 40% AND 10 FEET HIGH OR HIGHER

HWFNC	HOG WIRE FENCE
CLFNC	CHAIN LINK FENCE
BFNC	BOARD FENCE
BWFNC	BARB WIRE FENCE

CONSTRAINT MAP ASSUMPTIONS

STREAMS, WETLANDS, AND STEEP SLOPES

1. THE WETLANDS AND STREAMS ARE BASED ON THE CITY'S SENSITIVE AREAS ORDINANCE DATED FEBRUARY 2009.

2. THE LOCATIONS OF OFF-SITE STREAMS AND WATER BODIES HAVE NOT BEEN SURVEYED. THEY ARE LOCATED BASED ON WASHINGTON DEPARTMENT OF NATURAL RESOURCES WATER AND STREAM TYPE MAPS, LIDAR TOPOGRAPHY, AND LIMITED FIELD RECONNAISSANCE IN SOME INSTANCES.

3. THE WETLAND FLAGS IN THE BDA PARCEL WERE ESTABLISHED BY OTHERS AND SURVEYED BY ESM. SUBSEQUENT REVISIONS TO THE WETLAND BOUNDARIES WERE PROVIDED BY WETLAND RESOURCES AND SURVEYED BY TRIAD.

4. THE CHANNEL (S3) RUNNING DOWN A ROAD BED IN THE SOUTHEAST CORNER OF PARCEL D SHOULD BE TYPED AS AN UNREGULATED DITCH. THE CITY OF BLACK DIAMOND, WDFW AND THE USACE WOULD MAKE THE FINAL DETERMINATION ON THE STATUS OF THE DITCH.

TOPOGRAPHY

TRIAD SURVEYED GROUND TOPOGRAPHY IS SHOWN FOR PARCELS A, B, C, D, E, AND THAT PORTION OF PARCEL F NORTH LYING SOUTHERLY OF BLACK DIAMOND LAKE AND STREAM S5 AND WETLAND S1/S2. GROUND TOPO FOR THE BDA PARCEL WAS PROVIDED BY ESM. LIDAR TOPOGRAPHY IS SHOWN ON THE REMAINDER OF PARCEL F, PARCEL G AND OFFSITE.

EASEMENTS

1. SOME EASEMENTS ON THE BDA PROPERTY MAY HAVE BEEN EXTINGUISHED UPON PURCHASE OF THE PROPERTY BY YARROW BAY COMMUNITIES.

2. ACCESS AND UTILITY EASEMENT REC. NO. 8712140407
ALT. D-UNSPECIFIED 60' MINIMUM EASEMENT FROM NW 1/4 THROUGH S. 1/2 SEC. TO SE 352ND STREET A.K.A. SE GREN VALLEY ROAD

NOTES CORRESPONDING TO PARAGRAPH NUMBERS FROM SCHEDULE B-SECTION 2, SPECIAL EXCEPTIONS OF THE TITLE REPORT

49. PARCEL G IS SUBJECT TO RESERVATIONS FOR MINERALS, OIL AND GAS PER RECORDING NUMBERS 8907070390, 8907070391, 8907070392, 9112301747, 9206230401, AND 9301152402.

55. REC. NO. 1629726 UNDEFINED PACIFIC TELEPHONE AND TELEGRAPH CO. RELOCATABLE LICENSE FOR 86 POLES, ETC. AND EQUIPMENT IN SECTION 11 AND 12; NO POLES FOUND.

56. REC. NO. 1726627-UNDEFINED PACIFIC TELEPHONE AND TELEGRAPH RELOCATABLE LICENSE FOR 65 POLES ETC. IN SECTION 11, 14, 23, AND 26. NO POLES FOUND.

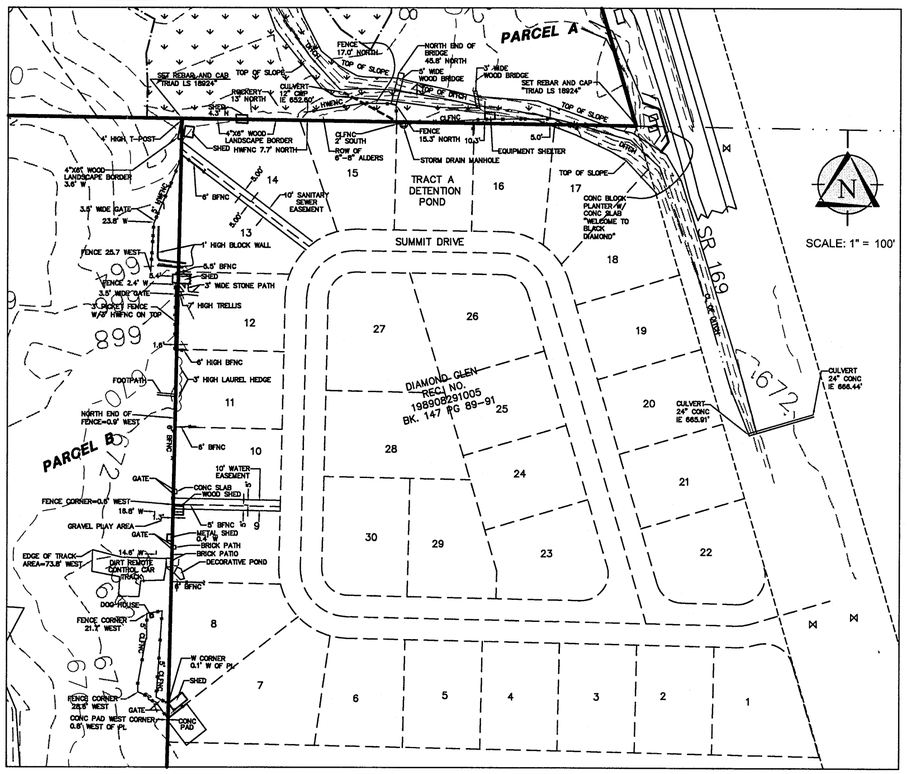
57. RECORDING NUMBER 20041020001208 STORM DRAINAGE DITCH EASEMENT (RELOCATABLE) BENEFITING BLACK DIAMOND DEVELOPMENT COMPANY, LLC FOR THE PURPOSE OF WATER OVERFLOW FROM RETENTION POND TO THE EAST.

62. GENERAL EXCEPTION TO THE RIGHTS OF THE PUBLIC TO THAT PORTION OF THE PROPERTY, IF ANY, LYING WITHIN MAPLE VALLEY-BLACK DIAMOND ROAD.

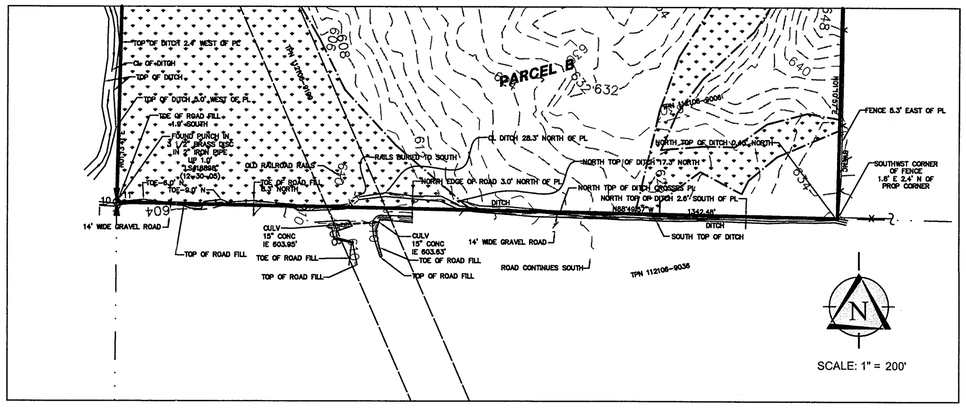
77. WEST HALF OF SECTION 15 IS SUBJECT TO UNDEFINED 63.3 ACRE CONSERVATION EASEMENT PER REC. NO. 20060323001818 (TRAIL CORRIDOR CREDITED AS PART OF THE 63.3 ACRES)

78. CONSERVATION EASEMENT REC. NO. 20060323001819 ESTABLISHES AN UNDEFINED 91 ACRE CONSERVATION EASEMENT. PARCELS B, E, AND F ARE BURDENED BY THE EASEMENT. THE EASEMENT DOES NOT APPORTION THE 91 ACRES TO EACH OF THESE PARCELS.

DETAIL 3



DETAIL 4



TRIAD ASSOCIATES
12112 115th Ave. NE
Kirkland, WA 98034-8929
425.821.8448
425.821.3481 fax
800.488.0756 toll free
www.triadassoc.com

WASHINGTON

THE VILLAGES - PARCEL B
CONSTRAINT MAP - LAND USE WORKSHEET
YARROW BAY COMMUNITIES

CITY OF BLACK DIAMOND

REV.	DATE	REVISION	BY	CK
1	11/06/07	REVISED SLOPES	AD	DS
2	3/3/08	MODIFIED WETLANDS A1 AND B6 AND ADD ENCROACHMENTS	AD	DS
3	5/21/08	MODIFY WETLAND B-3 BUFFER	AD	DS
4	8-26-08	REVISE WETLAND BUFFERS AND MARKS	AD	DS
5	9-2-11	REDUCED BUFFERS AND AREAS	AD	DS

AL FURE
PROJECT MANAGER
MARK S. HARRISON, PLS
PROJECT SURVEYOR
PROJECT ENGINEER
PROJECT LANDSCAPE ARCHITECT
FIRST SUBMITTAL DATE: 11/06/07
SCALE: HORZ.1"= 400' VERT.:

STATE OF WASHINGTON
MARK S. HARRISON
21467
REGISTERED PROFESSIONAL LAND SURVEYOR

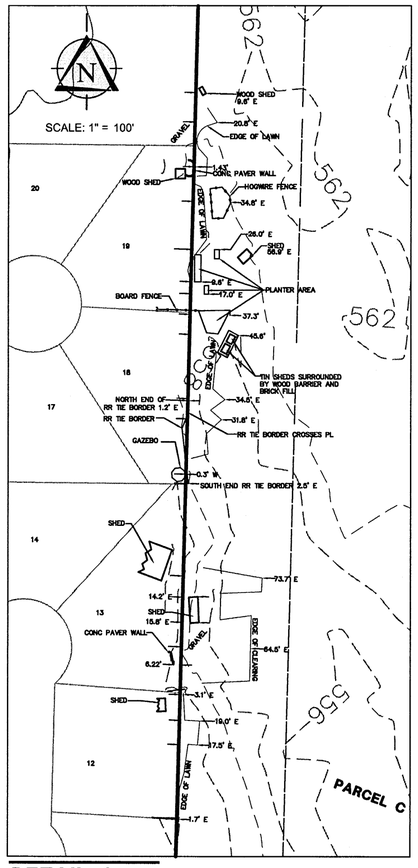
STAMP NOT VALID UNLESS SIGNED AND DATED

JOB NO. 05-336

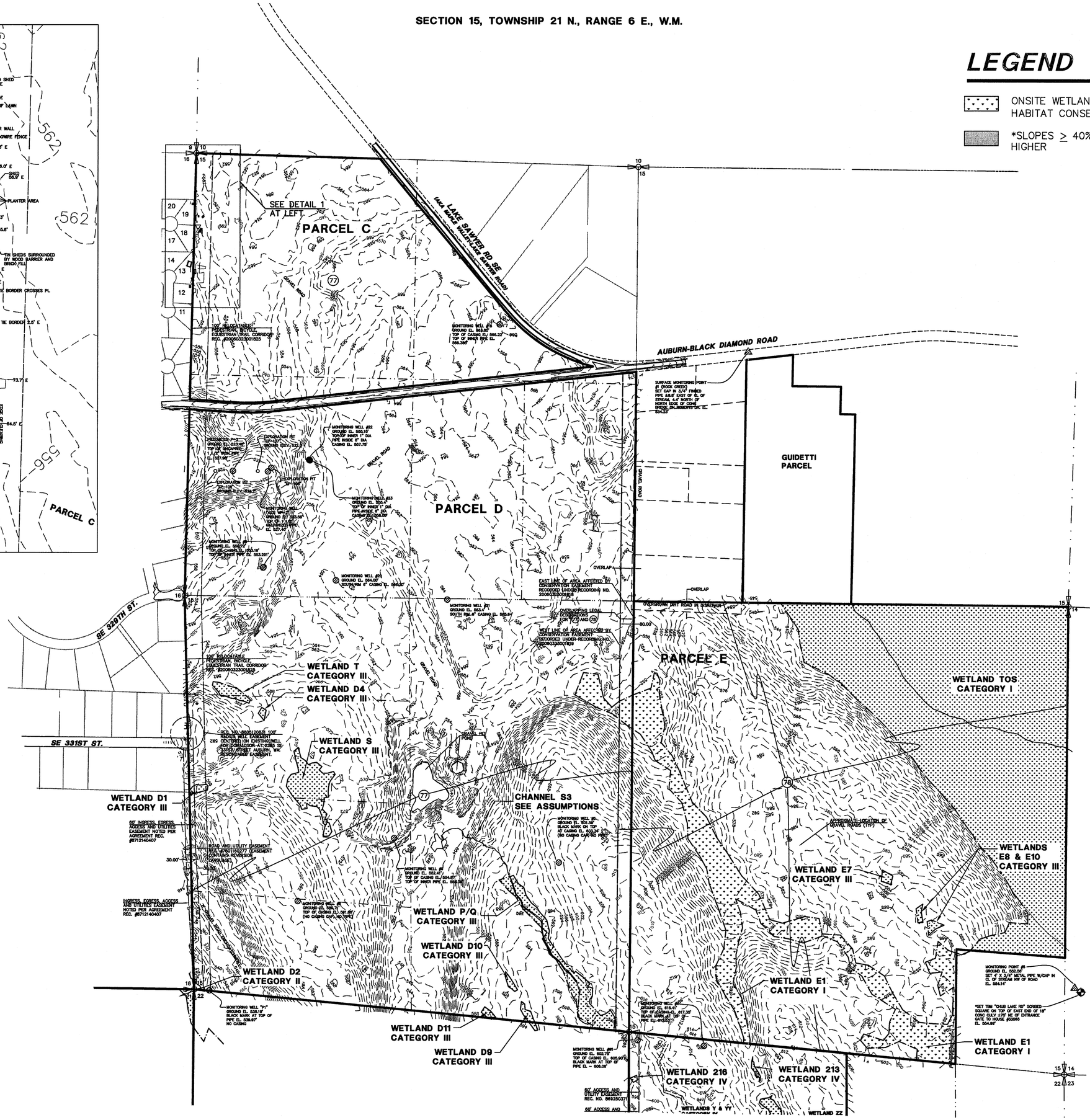
SHEET NO. 1 OF 4

© 2011 TRIAD ASSOCIATES

SECTION 15, TOWNSHIP 21 N., RANGE 6 E., W.M.



DETAIL 1



LEGEND

ONSITE WETLAND AREA (INCLUDES FISH AND HABITAT CONSERVATION AREAS)

*SLOPES ≥ 40% AND 10 FEET HIGH OR HIGHER

SCALE: 1" = 400'

0 200 400 800

TRIAD ASSOCIATES
12112 115th Ave. NE
Kirkland, WA 98034-6929
425.821.8448
425.821.3481 fax
800.488.0756 toll free
www.triadassoc.com

THE VILLAGES - PARCELS C, D & E AND THE GUIDETTI PARCEL

CONSTRAINT MAP - LAND USE WORKSHEET

YARROW BAY COMMUNITIES

CITY OF BLACK DIAMOND

WASHINGTON

NO.	DATE	REVISION	BY	CK
1	3/5/08	ADDED EASEMENTS, OVERLAP AND CORPORATION BOUNDARIES, RENDE WETLANDS	AJU	DKS
2	1/22/08	REVISED WETLANDS	AJU	DKS
3	3/6-7/08	ADDED WETLANDS, TRAILS, AND ADJUSTED WETLAND BUFFER FOR WETLAND P	AJU	DKS
4	3/6-7/08	REVISED WETLANDS	AJU	DKS
5	3/6-7/08	REVISED WETLANDS	AJU	DKS
6	3/7/08	MODIFY AREAS AND E-1 BUFFER	AJU	DKS
7	3/7-8/08	REVISED WETLAND BUFFERS	AJU	DKS
8	3/7-8/08	REVISED WETLANDS	AJU	DKS
9	3/8-7/08	REVISED BUFFERS AND AREAS	AJU	DKS

AL FURE
PROJECT MANAGER

MARK S. HARRISON, PLS
PROJECT SURVEYOR

PROJECT ENGINEER

PROJECT LANDSCAPE ARCHITECT

FIRST SUBMITTAL DATE: 11/06/07

SCALE: HORZ.:1"= 400' VERT.:

MARK S. HARRISON 21467 REGISTERED PROFESSIONAL LAND SURVEYOR STATE OF WASHINGTON

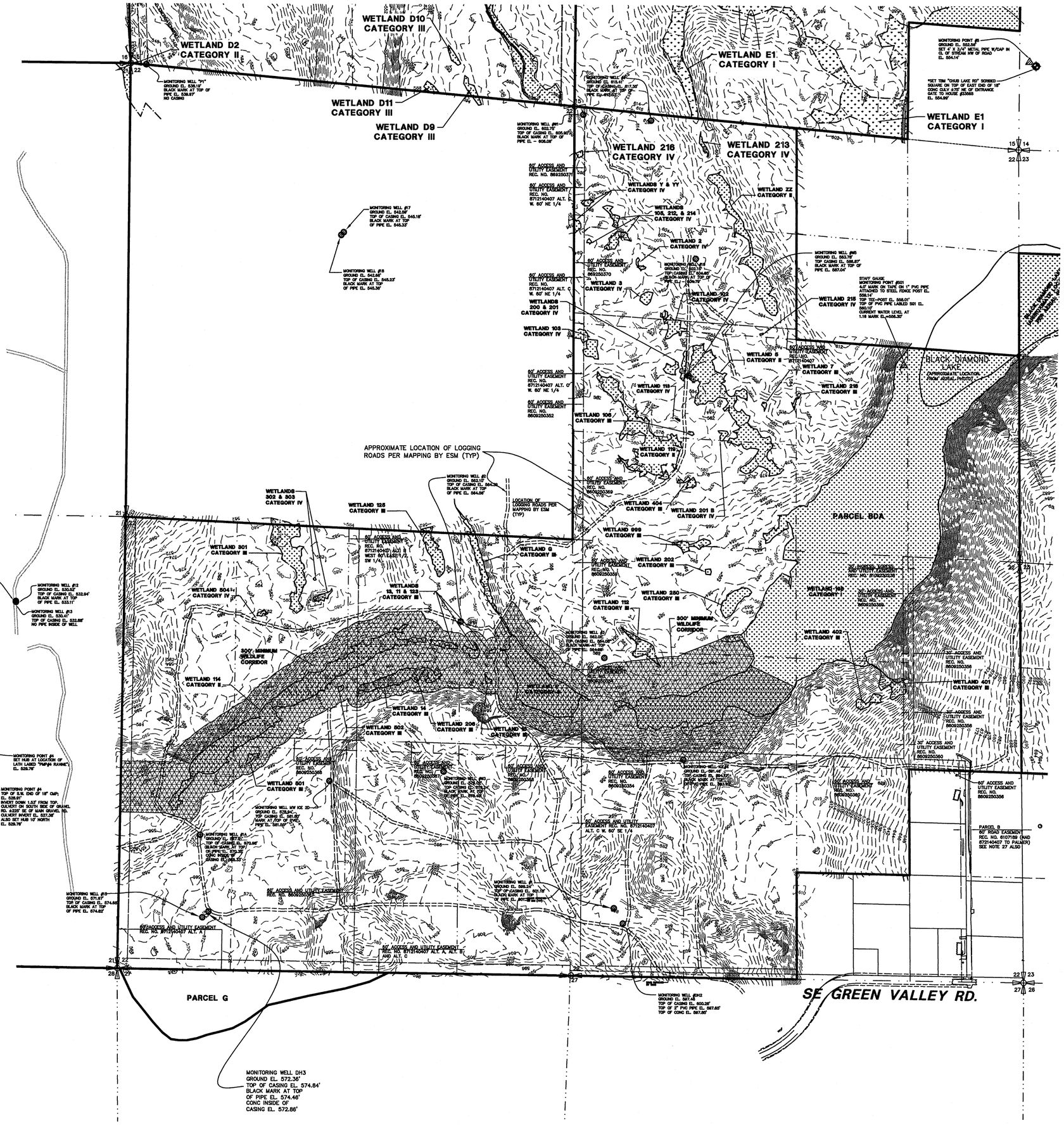
STAMP NOT VALID UNLESS SIGNED AND DATED

JOB NO. 05-336

SHEET NO. 2 OF 4

© 2011 TRIAD ASSOCIATES

SECTION 22, TOWNSHIP 21 N., RANGE 6 E., W.M.



SCALE: 1" = 400

0 200 400 800

LEGEND

- ONSITE WETLAND AREA (INCLUDES FISH AND HABITAT CONSERVATION AREAS)
- *SLOPES ≥ 40% AND 10 FEET HIGH OR HIGHER
- 300' MINIMUM FISH AND WILDLIFE CORRIDOR

TRIAD ASSOCIATES
12112 115th Ave. NE
Kirkland, WA 98034-6929
425.821.8448
425.821.3481 fax
800.488.0756 toll free
www.triadassoc.com

THE VILLAGES - BDA PARCEL AND PARCEL G

CONSTRAINT MAP - LAND USE WORKSHEET

YARROW BAY COMMUNITIES

CITY OF BLACK DIAMOND

WASHINGTON

REVISED BY:		DATE:	BY	CK
NO.	DESCRIPTION			
1	ADD 40% AND STEEP SLOPES & MODIFY WETLANDS	1-8-08	AMJ	CKS
2	ADD 300' WIDE WETLANDS	1-22-08	AMJ	CKS
3	ADD WETLANDS	2-12-08	AMJ	CKS
4	REVISED WETLANDS	3-10-08	AMJ	CKS
5	REVISED WETLANDS	3-25-08	AMJ	CKS
6	REVISED WETLAND BUFFERS	4-28-08	AMJ	CKS
7	REVISED WETLAND 216 CATEGORY	7-29-08	AMJ	LS
8	ADDED 300' WILDLIFE CORRIDOR	11-20-11	AMJ	MSH
9	REVISED BUFFERS AND AREAS	06-21-11	AMJ	CKS

AL PURE
PROJECT MANAGER

MARK S. HARRISON, PLS
PROJECT SURVEYOR

PROJECT ENGINEER

PROJECT LANDSCAPE ARCHITECT

FIRST SUBMITTAL DATE: 11/06/07

SCALE: HORZ.:1"= 400' VERT.:

STATE OF WASHINGTON
MARK S. HARRISON
21467
REGISTERED PROFESSIONAL LAND SURVEYOR

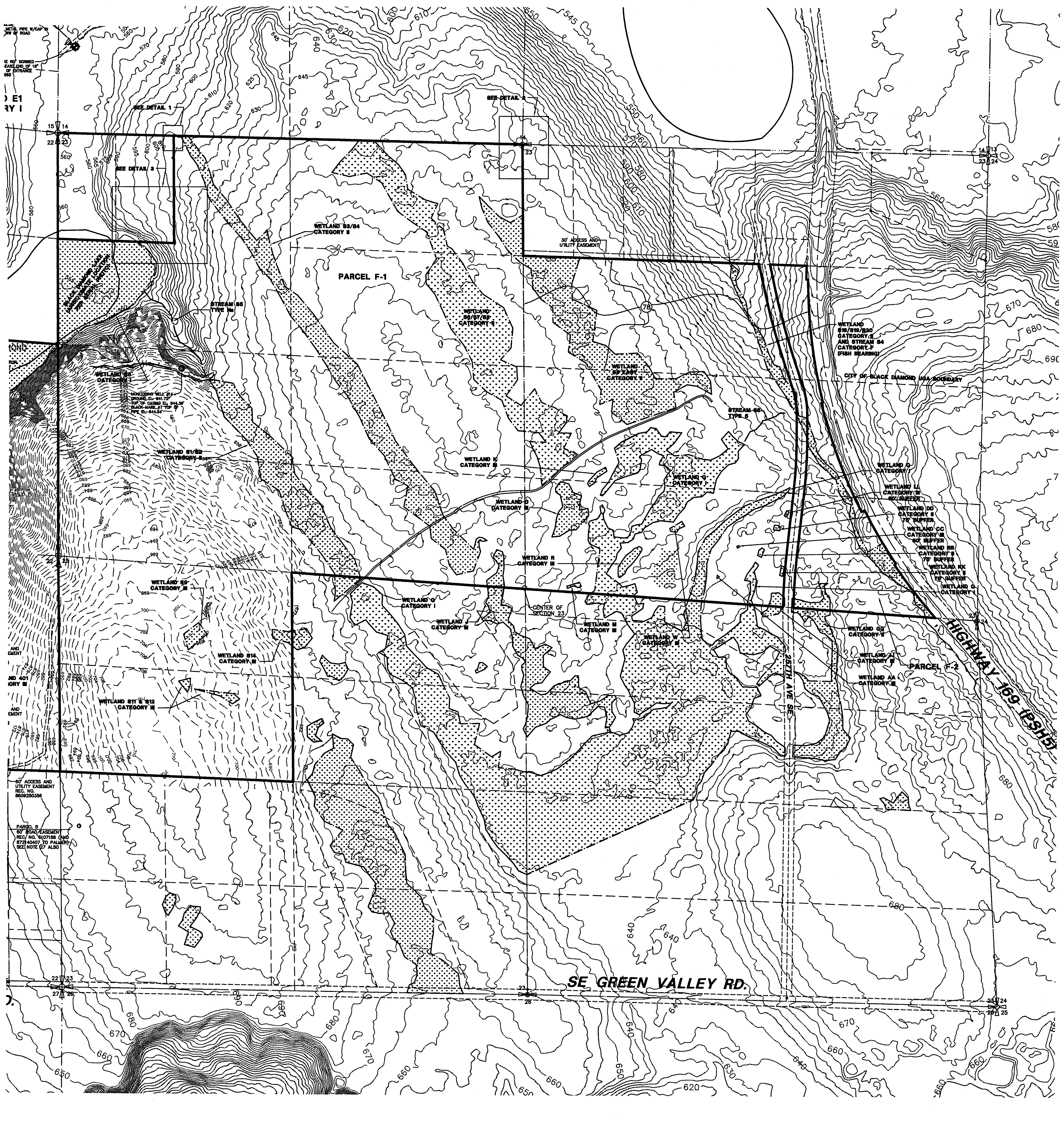
STAMP NOT VALID UNLESS SIGNED AND DATED

JOB NO. 05-336

SHEET NO. 3 OF 4

© 2011 TRIAD ASSOCIATES

SECTION 23, TOWNSHIP 21 N., RANGE 6 E., W.M.



SCALE: 1" = 400'

0 200 400 800

LEGEND

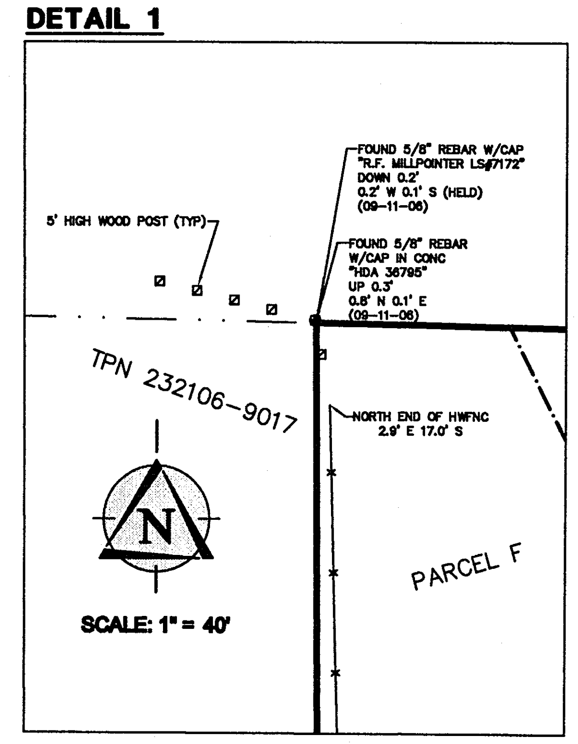
ONSITE WETLAND AREA (INCLUDES FISH AND HABITAT CONSERVATION AREAS)

*SLOPES ≥ 40% AND 10 FEET HIGH OR HIGHER

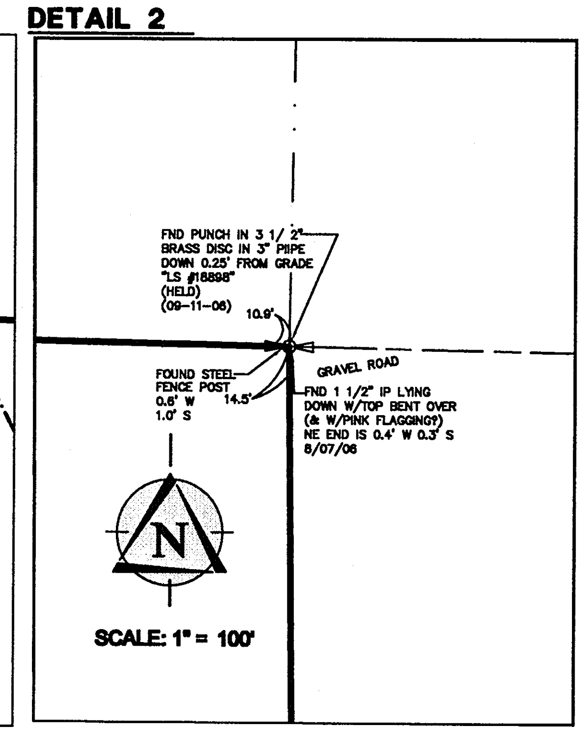
NOTES

1.) CONTOURS EAST OF THE WEST EDGE OF WETLAND S1/S2 AND STREAM S5 ARE BASED ON LIDAR TOPOGRAPHY.

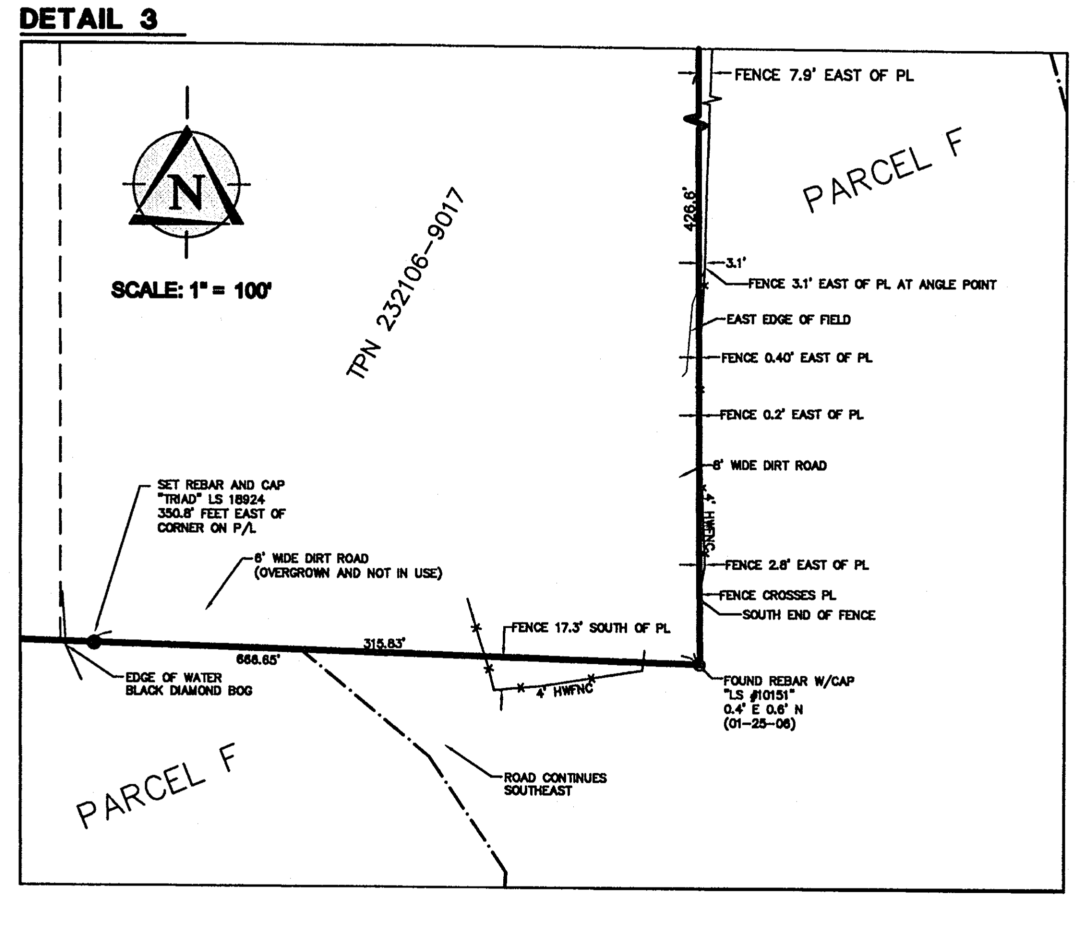
DETAIL 1



DETAIL 2



DETAIL 3



TRIAD ASSOCIATES
12112 115th Ave. NE
Kirkland, WA 98034-6929
425.821.8448
425.821.3481 fax
800.488.0756 toll free
www.triadassoc.com

THE VILLAGES - PARCEL F NORTH

CONSTRAINT MAP - LAND USE WORKSHEET

YARROW BAY COMMUNITIES

CITY OF BLACK DIAMOND

WASHINGTON

REVIEWED BY: DATE:

NO.	DATE	REVISION	BY	CK
	3/7/08	ADD STEEP SLOPES AND REVISE WETLANDS	ARJ	CHS
	4/21/08	REVISE WETLANDS	ARJ	CHS
	05-05-08	ADDED STREAMS S4 AND S6	ARJ	CHS
	5-12-08	REVISED WETLANDS	ARJ	CHS
	5/23/08	REVISE EASTERLY BUFFERS	ARJ	CHS
	06/27/08	REVISED BUFFERS	ARJ	CHS
	05-05-09	REVISE WETLAND BUFFERS	ARJ	CHS
	07-22-09	REVISED BUFFERS	ARJ	CHS
	09-21-11	REMOVED BUFFERS AND AREAS	ARJ	CHS

AL FURE
PROJECT MANAGER
MARK S. HARRISON, PLS
PROJECT SURVEYOR
PROJECT ENGINEER
PROJECT LANDSCAPE ARCHITECT
FIRST SUBMITTAL DATE: 11/06/07
SCALE: HORIZ.: 1" = 400' VERT.:

MARK S. HARRISON — STATE OF WASHINGTON — 21467 — REGISTERED PROFESSIONAL LAND SURVEYOR

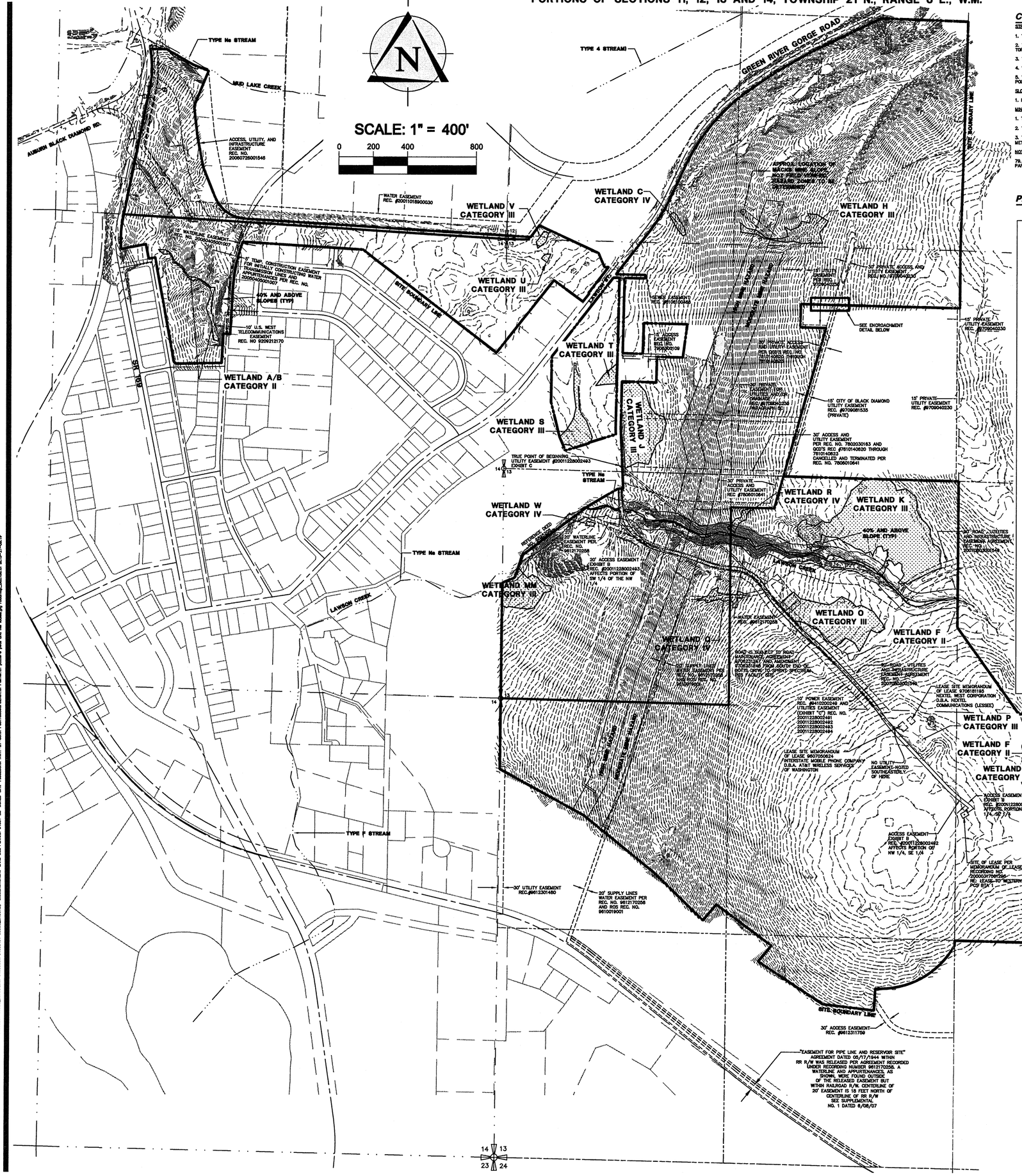
STAMP NOT VALID UNLESS SIGNED AND DATED

JOB NO. 05-336

SHEET NO. 4 OF 4

© 2011 TRIAD ASSOCIATES

PORTIONS OF SECTIONS 11, 12, 13 AND 14, TOWNSHIP 21 N., RANGE 6 E., W.M.



CONSTRAINT MAP ASSUMPTIONS

STREAMS AND WETLANDS

1. THE WETLANDS AND STREAMS ARE BASED ON THE CITY'S SENSITIVE AREAS ORDINANCE DATED FEBRUARY 2009.
2. THE LOCATIONS OF OFF-SITE STREAMS AND WATERBODIES HAVE NOT BEEN SURVEYED. THEY ARE LOCATED BASED ON WASHINGTON DEPARTMENT OF NATURAL RESOURCES WATER AND STREAM TYPE MAPS, LIDAR TOPOGRAPHY, AND KING COUNTY IMAP.
3. THE TERMINUS OF WETLAND F IS ASSUMED TO BE WHERE IT BECOMES LAWSON CREEK.
4. WETLAND R ENDS AT THE EASTERNMOST FLAGS,.
5. WETLANDS L, M, P, S, T, U, V AND Q ARE ASSUMED TO BE ISOLATED WETLANDS. THE FINAL DETERMINATION AS TO WHETHER THEY ARE ISOLATED WILL BE MADE BY THE US ARMY CORPS OF ENGINEERS AT SOME POINT IN THE FUTURE.

SLOPES

1. MAN MADE SLOPES GREATER THAN 40% ARE NOT SHOWN AS A CONSTRAINT.

MINE HAZARDS

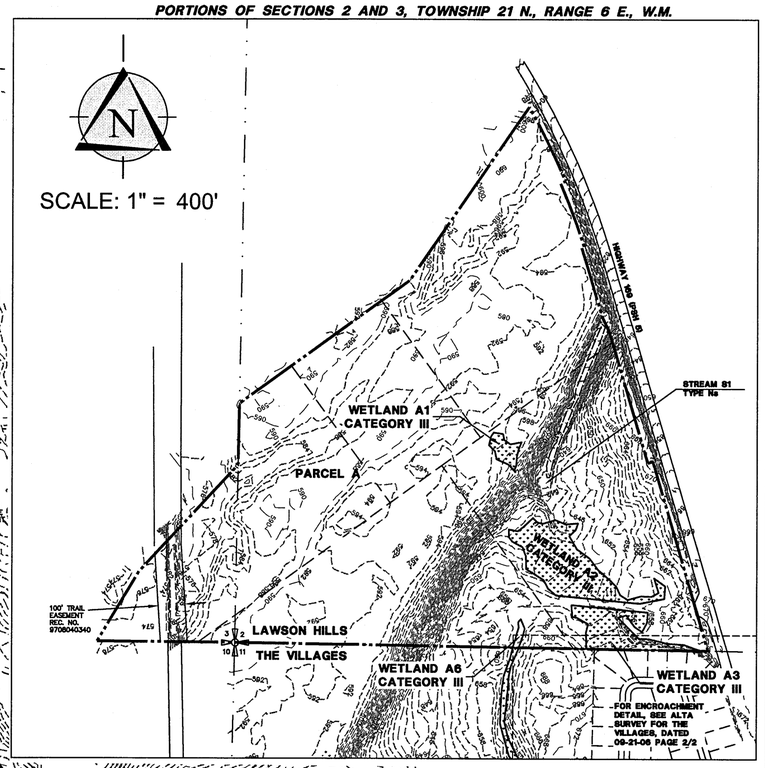
1. THE HIGH MINE HAZARD AND MODERATE HAZARD SHOWN ON THE MAP ARE BASED ON GOLDER ASSOCIATES MINE HAZARD REPORT DATED JUNE 2005 AND THE FOLLOW-UP REPORT DATED JULY 27, 2005.
2. THE HIGH MINE HAZARD HAS BEEN EXTENDED FROM THE FAULT LINE OVER THE OLD JESSUP/MAKS MINE WORKINGS UNTIL FURTHER GROUND-TRUTHING IS DONE IN THAT AREA BY GOLDER.
3. THE RECLAIMED OPEN PIT MINE AREA IS A BACKFILLED OPEN PIT MINE LOCATED OVER THE UNDERGROUND WORKINGS OF THE NO. 12 MINE. ADDITIONAL BORINGS ARE NECESSARY TO DETERMINE THE CONSTRUCTION METHODS NECESSARY FOR DEVELOPMENT IN THIS AREA. APPROXIMATE LOCATION DEPICTED BASED ON GOLDER ASSOCIATES LETTER DATED 08/24/2007.

NOTES CORRESPONDING TO PARAGRAPH NUMBERS FROM SCHEDULE B-SECTION 2, SPECIAL EXCEPTIONS OF THE TITLE REPORT

79. CONSERVATUION EASEMENT #20060323001820 ESTABLISHES 55 ACRES OF VIEW CORRIDOR SCREENING FOR OBSTRUCTING VIEWS OF DEVELOPMENT FROM SR 169. A PORTION OF PARCEL A AND SEVERAL OTHER PARCELS TO THE EAST AND NORTHEAST OF PARCEL A ARE BURDENED BY THE EASEMENT. THE EASEMENT DOES NOT APPORTION THE 55 ACRES TO EACH OF THE PARCELS.

PARCEL A

PORTIONS OF SECTIONS 2 AND 3, TOWNSHIP 21 N., RANGE 6 E., W.M.



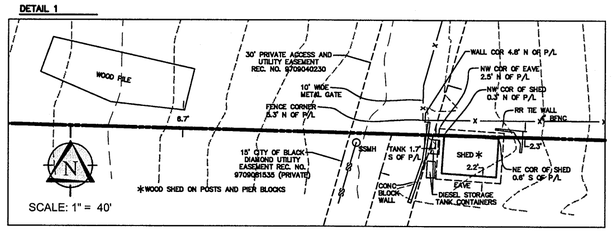
LEGEND

- ONSITE WETLAND AREA (INCLUDES FISH AND HABITAT CONSERVATION AREAS)
- MINE HAZARD AREA
- *SLOPES ≥ 40% AND 10 FEET HIGH OR HIGHER

EASEMENT KEY

1. 100' TACOMA WATER EASEMENT REC. #20050121001008
2. 20.00' CITY OF BLACK DIAMOND WATER EASEMENT REC. NO. 20050405001007

DETAIL 1



TRIAD ASSOCIATES
12112 115th Ave. NE
Kirkland, WA 98034-8929
425.821.8448
425.821.3481 fax
800.488.0756 toll free
www.triadassoc.com

CITY OF BLACK DIAMOND

YARROW BAY COMMUNITIES

LAWSON HILLS

CONSTRAINT MAP - LAND USE WORKSHEET

WASHINGTON

REVISED BY:		
NO.	DATE	DESCRIPTION
1	05/05/11	REVISED TO WETLAND F DESCRIPTION AND REVISED BUFFERS AND AREAS

		DATE
AL FURE	PROJECT MANAGER	05/04/09
MARK S. HARRISON, PLS	PROJECT SURVEYOR	05/04/09
	PROJECT ENGINEER	
	PROJECT LANDSCAPE ARCHITECT	

FIRST SUBMITTAL DATE: 05/04/09

SCALE: HORZ.:1"=400' VERT.:

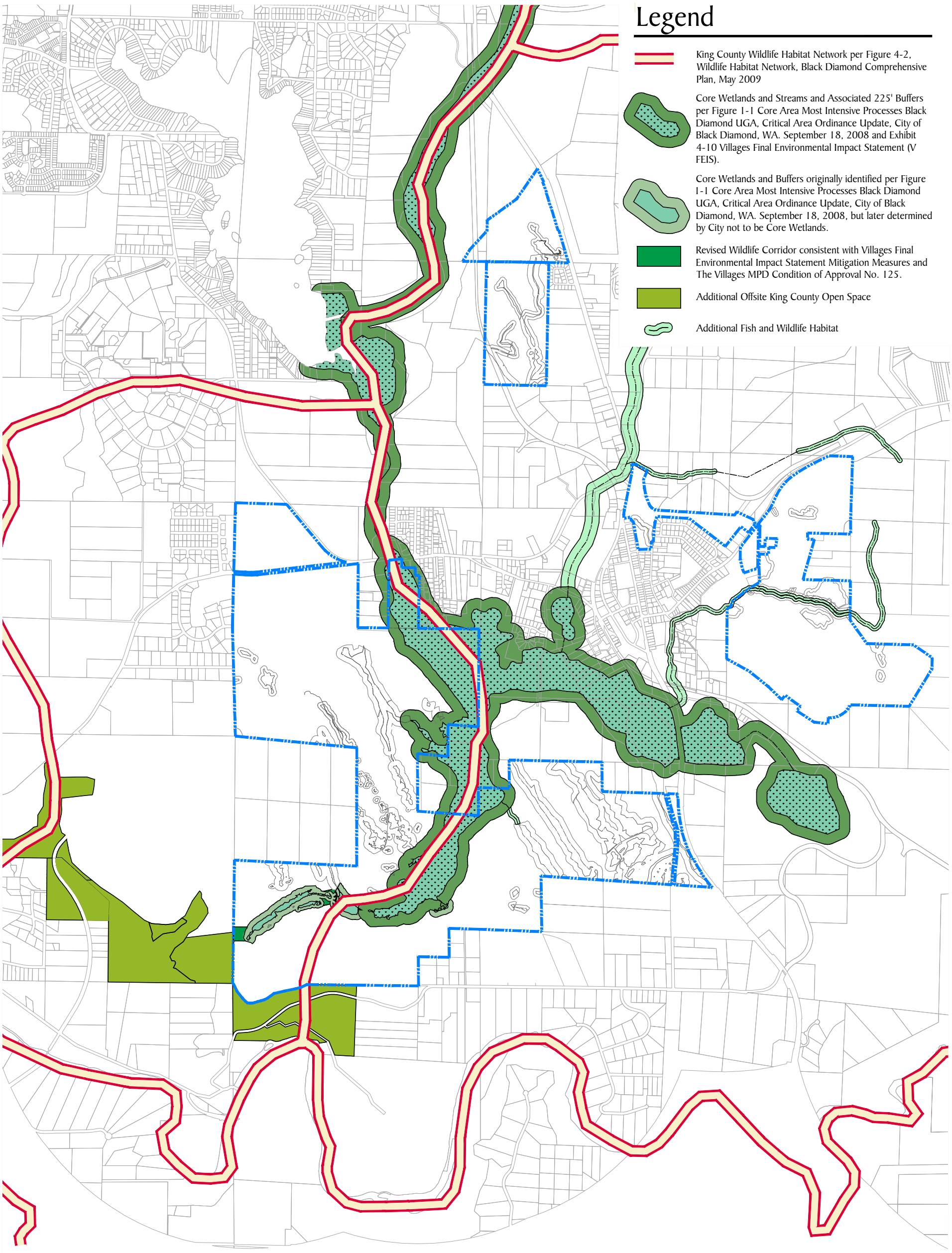
MARK S. HARRISON, 21467, REGISTERED PROFESSIONAL LAND SURVEYOR, STATE OF WASHINGTON

STAMP NOT VALID UNLESS SIGNED AND DATED

JOB NO. 04-058

SHEET NO. 1 OF 1

© 2011 TRIAD ASSOCIATES



Black Diamond Fish and Wildlife Habitat Conservation Areas and King County Wildlife Habitat Network

MEMORANDUM

Date:	September 19, 2011
To:	City of Black Diamond
From:	Alan D. Fure, PE
Re:	No Net Phosphorous Implementation Plan
Triad Job No.:	05-336
Copies To:	Yarrow Bay Holdings

Requirement: Minimize impacts to water quality in Lake Sawyer by assuring no net increase in phosphorous to Lake Sawyer occurs associated with The Villages and Lawson Hills MPD development within basins that drain to Lake Sawyer. No net increase can be accomplished by on-site or off-site source control or physical/chemical/biological interception (treatment and removal from water system).

Summary of Approach: Establish existing baseline phosphorous contributions from relevant project drainage basins[1] and from potential compensating projects located outside the developed MPD that currently contribute phosphorous to Lake Sawyer. Determine strategies for meeting the no net phosphorous goal ahead of project construction. Implement strategies and then monitor post implementation phosphorous levels to confirm compliance with the requirement. If onsite measures do not meet the requirement, implement compensatory project mitigation. Measure post implementation phosphorous reductions from compensatory projects to confirm the amount of offset.

Baseline Monitoring: Prior to construction of the first implementing project within the Lake Sawyer drainage basin, the Master Developer, i~~I~~n conjunction with the City of Black Diamond shall review, plan and institute the following:

1. Monitor pre-development phosphorous levels at pre-determined locations within the project drainage basins. Monitoring is to occur consistently over the course of at least one water year (October to September) in accordance with the procedures and criteria outlined in Chapters 6 through 12 of the QAPP (see Attachment 1). Use data collected over the water year to establish a baseline phosphorous load from the project. This load should be factored to an average year rainfall volume for future comparisons of phosphorous loads for years where the rainfall is more or less than the average.

---

[1] The first areas of The Villages project planned to be developed are in drainage basins that do not drain to Lake Sawyer.

2. Select one or two possible compensation projects. Offsite compensation projects will be on land not being actively developed for the MPD but that includes features that

   currently contribute phosphorus to Lake Sawyer that are amenable to reductions of phosphorus, such as roadway segments or intersections, pastures with farm animals, or existing developed property all lacking modern stormwater controls, or erosive slopes or streams. Monitor pre-mitigation phosphorous levels at pre-determined locations within the compensating project drainage basin. Monitoring is to occur consistently over the course of at least one water year (October to September) in accordance with the procedures and criteria outlined in Chapters 6 through 12 of the QAPP (see Attachment 1). Use data collected over the water year to establish a baseline phosphorous load from the compensating project. This load should be factored to an average year rainfall volume for future comparisons of phosphorous loads for years where the rainfall is more or less than the average.

Project Design Phase: In conjunction with City of Black Diamond review, prepare on-site drainage designs with phosphorous mitigation solutions which include the following:

1. Phosphorous control menu items from the 2005 DOE Manual (or later manuals if adopted and imposed for later Project phases).
2. Any additional AKART (all known and reasonable technologies) not identified in 1. above, that are in compliance with The Villages MPD Permit Approval Condition No. 76 or the Lawson Hills MPD Permit Approval Condition No. 79.
3. Drainage designs should include contingency planning for augmentation of treatment so that future interventions can be made if needed.

Project Construction Phase: Upon commencement of implementing project construction the following shall be instituted:

1. Monitoring shall be performed at all drainage facility outlet points to establish post-construction~~mitigation~~ phosphorous levels. This monitoring is to occur consistently over the course of the water year in accordance with the procedures and criteria outlined in the QAPP (see Attachment 1).
2. Regular comparisons shall be made to determine if stormwater management~~mitigation~~ strategies are achieving goals established in the design phase. If levels are exceeding goals, source control interventions shall be implemented within 30 days of obtaining a substandard sampling measurement~~immediately~~.
3. Upon completion of the water year compare actual loads to pre-development loads. If loads are exceeding pre-development loads, institute compensatory project(s) within 6 months (subject to City approvals). Mitigation projects can include on-site or off-site measures that reduce the Tp input to the Lake Sawyer Basin.

Project Build-Out Phase: Continue monitoring of drainage outlets for five years following the completion of development that discharges into that facility to confirm compliance with the no net phosphorous goal as per procedures noted above. Completion shall be defined as the date the City's maintenance bond, as required by BDMC 14.04.360 and the Black Diamond Engineering Design and Construction Standards (Exhibit "E") Section 1.5, is released or expires for a given facility. ~~following acceptance of each constructed facility to confirm compliance with the no net phosphorous goal as per procedures noted above.~~ If data show variations from the standard, institute source control or improved maintenance solutions. If these interventions are insufficient, institute alternate compensatory projects or mitigations.

Attachment 1

Quality Assurance Project Plans for:

- **Nutrient Removal Effectiveness by The Villages to Rock Creek**
- **Nutrient Removal Effectiveness by Basin A (Wet Pond #1 & #2) to Lawson Creek**

Quality Assurance Project Plan
for
Nutrient Removal Effectiveness
by The Villages to Rock Creek:
Lake Sawyer Implementation Plan

Yarrow Bay Development Company
Contract Work 20-15-101-00
Contract/Project Number:

January 2011

Prepared by

Robert Plotnikoff, Harry Gibbons, Shannon Brattebo and Gene Welch

Tetra Tech, Inc.
1420 Fifth Avenue
Seattle, WA 98101

Prepared for

BD Village Partners LP.

Approval Signatures:

_____ Date: _____
Project Manager

_____ Date: _____
Senior Technical Staff

_____ Date: _____
Additional

_____ Date: _____
Additional

Table of Contents and Distribution List

1.0 BACKGROUND **1**

2.0 PROJECT DESCRIPTION **2**

3.0 ORGANIZATION AND SCHEDULE **5**

4.0 QUALITY OBJECTIVES **7**

5.0 SAMPLING PROCESS DESIGN **11**

6.0 SAMPLING PROCEDURES **18**

7.0 MEASUREMENT PROCEDURES **22**

8.0 QUALITY CONTROL **24**

9.0 DATA MANAGEMENT PROCEDURES **29**

10.0 AUDITS AND REPORTS **31**

11.0 DATA VERIFICATION AND VALIDATION **33**

12.0 DATA QUALITY (USABILITY) ASSESSMENT **38**

13.0 REFERENCES **39**

APPENDIX A **40**

Distribution List

Name, Title	Phone, Fax, E-mail	Mailing Address
Yarrow Bay Development Company		
Triad Associates, Inc.		
Tetra Tech, Inc. Surface Water Group		

1.0 Background

1.1 Study Area and Surroundings

Lake Sawyer is located near the city of Black Diamond, and is a popular recreational resource for the area. Lake Sawyer is 280 acres in size and its watershed occupying approximately 8,300 acres. The watershed is divided into three sub-basins: Rock Creek, Ravensdale Creek, and the nearshore area of Lake Sawyer that serve as management areas for water quality improvement. Lake Sawyer serves is part of the migratory pathway for late-winter Coho salmon (*Oncorhynchus kisutch*) and spawn in Ravensdale Creek and Rock Creek drainages. Resident rainbow trout, cutthroat trout, kokanee, and several warm-water fish species are present in Lake Sawyer (King County 2000).

The lake has generally good water quality, but has elevated phosphorus concentrations. Historically, in the 1970's Black Diamond lacked sewage treatment plant facilities and effluent was treated by septic tanks and drainfields, including a city septic tank located just south of Auburn-Black Diamond Road that discharged to Ginder Creek. These methods for effluent treatment also resulted in elevated concentrations of fecal coliform, nitrogen, and biochemical oxygen demand in Ginder Creek.

High nutrient concentrations were likely associated with high phosphorus concentrations which would have promoted increased loading to Lake Sawyer. The Black Diamond Wastewater Treatment Plant (WWTP) began operation in 1981 and discharged effluent to a natural wetland coincident with the mouth of Rock Creek. The strategy for use of a natural wetland as part of the treatment train used to abate the pollutants in WWTP effluent rapidly became ineffective with signs of eutrophication in Lake Sawyer. Algal blooms were commonly detected in the late 1980's. The treatment using the wetland system was closed. Department of Ecology developed a TMDL (Total Maximum Daily Load) model predicting phosphorus concentrations under various loading scenarios.

2.0 Project Description

2.1 Tasks

The following tasks for this project have been developed:

Task 1. Evaluate Water Quality conditions in the stormwater pond structure to determine total phosphorus load reduction from The Villages development.
Task 2. Determine effectiveness of the stormwater structure from the Villages development area, conveyance of treated surface water to the natural creek channel, and influence of the treated water once introduced into Rock Creek.

2.2 Objectives

Information in this Quality Assurance Project Plan (QAPP) is organized to provide sampling and analysis methods that will generate data and interpretations necessary to address the following objective:

1. To determine whether annual average total phosphorus discharge concentrations from a representative stormwater structure as predicted in the EIS water quality technical report (FEIS Appendix M, A.C. Kindig & Co. 2008) for the Villages MPD (Master Planned Development) is meeting regulatory requirements of the approved MPD permit.

2.3 BMP and Stream Sampling

The proposed project describes a monitoring strategy that evaluates nutrient (phosphorus input) introduction to the constructed BMP, the efficiency of the BMP in removing entrained nutrients, and the resulting output concentration. The second step in the monitoring strategy measures the nutrient load in the receiving water (Rock Creek) to determine the nutrient portion originating from the BMP and the background load originating from other sources. This QAPP has been developed to ensure that all methods used and all data collected during the project is defensible and repeatable. The QAPP has been developed for monitoring effectiveness of BMP implementation as required by the Washington Department of Ecology's QAPP Guidance.

a) BMP/LID Effectiveness Monitoring

Purpose: Determine efficiency of BMP facilities in removal of phosphorus routed to each structure from overland flow in the Development during storm events. The parameter of concern is phosphorus.

Sampling of BMP facilities within the Development will occur during 6 to 8 storm events per year. Storm water samples will be collected during the wet season which is defined as October 1st through March 31st. Samples will be collected from the input and outflow of each BMP facility in order to determine nutrient removal efficiencies. Samples will be collected manually. The grab samples will be delivered to an accredited Washington Laboratory and analyzed for total phosphorus and soluble reactive phosphorus.

For the purposes of defining a single storm event, the minimum amount of rainfall should be at least 0.2 inches and the event must be preceded by a dry period of at least 4 hours. Two of the 8 storm events should have a minimum amount of rainfall of at least 0.5 inches. To account for the variability of each sampling event, storm conditions, and pond discharge, each sampling event will last for four hours or for the duration of the storm. Samples will be collected at defined time intervals, i.e. one sample every hour. Flow at the facility input and outflow will be measured continuously with a data logger. Flow data will be used to volume and time-weight nutrient concentrations in and out of each facility over a storm event.

b) Rock Creek Monitoring

Purpose: Determine the nutrient load contributed from The Villages Development to the receiving water (Rock Creek). Use results from the nutrient loading analysis to inform on contributions from the Development versus other non-point sources.

Grab samples will be collected in Rock Creek at two points on the creek to characterize both baseline nutrient conditions and conditions during storm events. Grab samples will be collected in Rock Creek just upstream of the point of treated effluent discharge, upstream and downstream of the BMP facility within the Development, as well as upstream of all Development property. Collecting nutrient samples from these locations will provide information on nutrient loading not only from the Development but also from other non-point sources within the watershed. Baseline nutrient monitoring in Rock Creek will include collection of samples at the above mentioned locations on a monthly basis. Baseline monitoring of Rock Creek will provide information on nutrient concentrations and conditions without influence or impact from the Development. Samples will also be collected in Rock Creek during storm events to help characterize nutrient loading associated with stormwater runoff. Storm event sampling in Rock Creek will correspond with sampling of BMP facilities within The Villages Development. All samples collected in Rock Creek will be analyzed for total phosphorus and soluble reactive phosphorus. Continuous flow measurements and field parameters (e.g., temperature, pH, conductivity, and dissolved oxygen) will also be collected during each sampling event.

2.4 Water Quality Constituents to Monitor (Primary Monitoring Program)

Phosphorus, both soluble reactive (SRP) and TP is the most important constituent ultimately controlling the DO levels. Analytical procedures are extremely important. Laboratory quality control can be acceptable, while determined concentrations in the river may be in error, especially for TP due to different digestion procedures and contamination. SRP should be determined on samples filtered through P-free filters using the EPA 365.1 ascorbic acid method. TP should be determined by the same method for SRP following digestion with persulfate according to Standard Methods (APHA 2005). A contract laboratory that can meet these rigorous reporting limit and laboratory performance requirements is required for analysis of P forms.

Other constituents to monitor include temperature, dissolved oxygen concentration, pH, and specific conductance. All of these can be used to indicate sources of contamination in the same way dissolved oxygen concentrations are usually used as a surrogate to indicate increased concentrations of phosphorus and loading present in the basin.

Precipitation

Phosphorus content should be determined in bulk and wet fall (rain-containing phosphorus in dry and wet forms. Review of data collected in the fall from the October 1st through March 31st will be used to forecast volume and intensity of rainfall events throughout this monitoring period.

One location for a unit to monitor wet and dry fall (use a rain gage) on a weekly- or twice-monthly basis should be adequate. The rainfall patterns measured during the proposed monitoring period will provide perspective on the amount of airborne phosphorus that might be expected to be loading into the Basin and the receiving stream (Rock Creek).

3.0 Organization and Schedule

The purpose of this document is to present the quality assurance project plan (QAPP) for collecting water quality and other data to assess the chemical, physical, and biological characteristics of non-point sources of pollution affecting Lake Sawyer, Washington. A team of technical professionals will conduct journey-level scientific investigations that include: 1) collection of environmental data (routine monitoring and source-tracing), 2) collection and interpretation of phosphorus loading data from the stormwater Basin, and 3) interpreted technical information used to inform on effectiveness of BMP operation.

This QAPP provides general descriptions of the work to be performed to collect the samples, the standards to be met, and the procedures that will be used to ensure that the data are scientifically valid and defensible and that uncertainty has been reduced to a known and practical minimum. It describes the procedures used to obtain concentrations of the desired chemical analytes and other parameters of concern.

The organizational aspects of a program provide the framework for conducting tasks. The organizational structure can also facilitate project performance and adherence to quality control (QC) procedures and quality assurance (QA) requirements. Key project roles are filled by those persons responsible for ensuring the collection of valid data and the routine assessment of the data for precision and accuracy, as well as the data users and the person(s) responsible for approving and accepting final products and deliverables. The key personnel and responsibilities for this project for The Villages MPD (Master Planned Development) in the Lake Sawyer drainage in urban Black Diamond are listed in Table 3.0-1.

Table 3.0-1. Project/Task organization and responsibility summary.

Personnel	Responsibility	Address/E-Mail	Phone Number
Al Fure, Triad Associates, Inc.	Project Manager	Al Fure Triad Associates, Inc. 12112 115th Avenue NE Kirkland, WA 98034 afure@triadassociates.net	(425)216-2110
Harry Gibbons, Tetra Tech, Inc. Robert Plotnikoff, Tetra Tech, Inc.	Co-Project Leads	Tt Surface Water Group 1420 Fifth Avenue, Ct. E Seattle, WA 98101 harry.gibbons@tetratech.com robert.plotnikoff@tetratech.com	(206)728-9655
Name, Position, Tetra Tech, Inc.	Field Lead	Tt Surface Water Group Address City, WA Email address	Contact Information
Name, Position, Tetra Tech, Inc.	Quality Assurance Officer (QAO)	Tt Surface Water Group Address City, WA Email address	Contact Information
Name, Position, Tetra Tech, Inc.	Data Manager	Tt Surface Water Group Address City, WA Email address	Contact Information

Each component of the Nutrient Removal Effectiveness Monitoring Study has specific milestones and products. The project schedule contains several deliverables in draft and final form. The schedule for each of these products is outlined here:

Table 3.0-2. Project deliverables and typical target calendar dates for The Villages MPD monitoring.

Deliverables	**Target Date**
Final Approved QA Project Plan	One month prior to start of sampling
Sampling Start/End	October 1st/March 31st
Draft Study Report	May 31st
Final Study Report	July 15th
Submit Data to Client	Within 45 days following each sampling event

3.1 Priority of Task Implementation

The monitoring strategies described in this QAPP are implemented simultaneously in order to determine source and quantity of phosphorus loading. Each of the monitoring strategies will build upon the base of information informing on source and magnitude of non-point pollution originating from The Villages MPD Basins and from other sources. The following is the suggested priority for implementing each monitoring strategy:

1. The Villages Stormwater Structure Sampling (nutrient sources)
2. Rock Creek Receiving Water Sampling (transport to Lake Sawyer)

4.0 Quality Objectives

Data quality objectives (DQOs) are qualitative and quantitative statements that clarify the intended use of the data, define the types of data needed to support the decision, identify the conditions under which the data should be collected, and specify tolerable limits on the probability of making a decision error due to uncertainty in the data (if applicable). Data users develop DQOs to specify the data quality and quantity needed to support specific decisions.

4.1 Decision (Data) Quality Objectives

Data, or decision, quality objectives determine when data will be used to select between management alternatives or to determine compliance with a standard. Management decisions for improving lake quality by using monitoring data will require generation of an adequate quantity of data influenced by numbers, locations, and frequency of samples from sites that must be analyzed. A set of data eventually used to make management decisions will meet various standards or comply with minimum requirements of a statistical evaluation and have the ability to distinguish between two environmental conditions (e.g., impaired or not-impaired) with an acceptable level of uncertainty.

The quality of an environmental monitoring program can be evaluated in three steps: (1) establishing scientific assessment quality objectives, (2) evaluating program design to evaluate whether the objectives can be met, and (3) establishing assessment and measurement quality objectives that can be used to evaluate the appropriateness of the methods being used in the program. The quality of a particular data set is some measure of the types and amount of error associated with the data.

Sources of error or uncertainty in statistical inference are commonly grouped into two categories:

1. *Sampling error:* The difference between sample values and *in situ* "true" values from unknown biases due to sampling design. Sampling error includes natural variability (spatial heterogeneity and temporal variability in population abundance and distribution) not specifically accounted for in a design (for design-based inference), and variability associated with model parameters or incorrect model specification (for model-based inference).
2. *Measurement error:* The difference between sample values and *in situ* "true" values associated with the measurement process. Measurement error includes bias and imprecision associated with sampling methodology, specification of the sampling unit, sample handling, storage, preservation, identification, instrumentation, and the like.

The data requirements for this project encompass aspects of laboratory analysis and database management to reduce sources of errors and uncertainty in the use of the data.

4.2 Measurement Quality Objectives

Type and Frequency of Laboratory Quality Control Samples

For samples analyzed at a commercial laboratory, the type and frequency of the quality control samples to be analyzed are summarized in Table 4.0-1 and Table 4.0-2. Additional quality

control sampling will be conducted in the field and is detailed in Section 8.0 Quality Control Procedures.

Table 4.2-1. Laboratory quality control samples.

Type of Quality Control Sample	Description
Method Blank	Reagent grade sample matrix analyzed to provide an indication of laboratory contamination.
Check Sample	Generally purchased, prepared independently from analytical standards and used to provide an indication of the accuracy of the analytical determination.
Laboratory Duplicate	A second aliquot of a sample, processed in exactly the same manner.
Matrix Spike	An aliquot of a sample to which known quantities of analytes are added, processed in exactly the same manner.
Field Duplicate	A split sample, labeled in a similar manner as regular samples, submitted to laboratory, and processed in exactly the same manner.

Precision

Precision is a measure of the scatter in the data due to random error that is expected primarily from sampling and/or analytical procedures. Laboratory duplicates for assessment of precision will be analyzed at a frequency of about 10 percent of the total number of samples submitted to the laboratory or at least one per sample batch. In addition, field duplicates will be collected for approximately 10 percent of samples submitted to the laboratory. For sample results which exceed the reporting detection limit (RDL), the relative percent difference (RPD) will be less than or equal to 20 percent.

This QC calculation also addresses uncertainty due to natural variation and sampling error. Precision is calculated from two duplicate samples by relative percent difference (RPD) as follows:

$$RPD = \frac{|C_1 - C_2|}{Mean(C_1, C_2)} x100$$

where C_1 = the first of the two values and C_2 = the second of the two values.

For laboratory sample results with values less than 5 units, the precision criterion will be less than or equal to 1.5 units rather than the RPD to account for the effect of smaller values on percent differences. No criteria are presented for duplicates which are below the RDL, as these data are provided for informational purposes only. For instance, where one result is below the RDL, professional judgment will be used in determining the compliance of the data to project requirements.

Table 4.2-2. Frequency of laboratory quality control samples.

Parameter	Matrix	Check Standards	Method Blanks	Analytical Duplicates	Matrix Spikes	Field Duplicates
Total Phosphorus	Water	One per analysis batch of 20 samples	One per analysis batch of 20 samples	One per analysis batch of 20 samples	One per analysis batch of 20 samples	Minimum 10% of samples
Soluble Reactive Phosphorus	Water	One per analysis batch of 20 samples	One per analysis batch of 20 samples	One per analysis batch of 20 samples	One per analysis batch of 20 samples	Minimum 10% of samples

Bias

Bias provides an indication of the accuracy of the analytical data, as provided by both method blanks and percent recovery of target analytes from reagent and field sample matrix. Check samples will be used to provide compliance criteria for bias. The percent recovery of the matrix spikes and standard reference materials will be less than or equal to +/- 20 percent.

Method blank samples will be analyzed with each batch of samples. Results for method blank samples should be less than the minimum detection limit for each parameter.

Accuracy

Accuracy is a measure of confidence that describes how close a measurement is to its "true" value. Methods to ensure accuracy of field measurements include instrument calibration and maintenance procedures. Sample handling procedures and procedures for verification of data influence the accuracy of results.

Analytical laboratory accuracy is normally determined by the percent recovery of the target analyte in spiked samples and also by the recoveries of the surrogates in all samples and Quality Control samples. Laboratory accuracy ranges are specified in the contract laboratory Quality Management Plan and depend on the parameter being measured. Accuracy is calculated as follows:

$$\%Rec = \frac{\text{Analyzed value}}{\text{True value}} \times 100$$

The Tetra Tech Technical Lead will ensure the contract laboratory accuracy by meeting %Recovery (Rec) values specified by EPA methods and listed in Table 4.0-3.

In addition, performance of field equipment and operation of meters will be evaluated by meeting relative percent difference goals for each of the parameters (Table 4.0-4). Accuracy for field measurements cannot be measured directly, but can be evaluated based on description of equipment performance.

Table 4.2-3. Measurement quality objectives for laboratory analysis.

	Precision		Bias/Accuracy			
Parameter	**Analytical Duplicate Samples**	**Field Duplicate Samples**	**Check Standard (LCS)**	**Matrix Spikes**	**Method Blanks**	**Lowest Concentrations of Interest**
	Relative Percent Difference (RPD)	**Relative Percent Difference (RPD)**	**% Recovery Limits**	**% Recovery Limits**	**Units**	**Units of Concentration**
Surface Water						
Total Phosphorus	±20 [a]	±20 [a]	±10	±20	< RL	Reporting Limit [b], µg/L
Soluble Reactive Phosphorus	±20 [a]	±20 [a]	±10	±20	< RL	Reporting Limit [b], µg/L

[a] For sample results with values of less than 5 units, the precision criterion will be less than or equal to 1.5 units rather than the RPD to account for the effect of smaller values on percent differences.
[b] The Required Reporting Limit (or Minimum Detection Limit) is listed in Table 5.0-1.

Table 4.2-4. Measurement quality objectives for field measurements.

	Precision (from replicate measurements	**Bias/Accuracy**	**Lowest Values of Interest**
Parameter	**Relative Percent Difference (RPD)**	**(% Recovery) (deviation from true value)**	**Units of Measurement**
Dissolved Oxygen (LDO)[a†]	10	N/A	Minimum detection limit [b]
Conductivity†	5	N/A	Minimum detection limit [b]
pH†	5	N/A	4.0 units
Temperature†	5	N/A	0 ^{o}C
River and Lake Level	0.5 inches	N/A	0.5 inches

[a] Luminescent Dissolved Oxygen Probe.
[b] The Minimum Detection Limit is listed in Table 5.0-1.
[†] Parameters collected continuously at 15-minute intervals.

5.0 Sampling Process Design

5.1 Sampling Design and Rationale

Nutrient introduction into Lake Sawyer has been identified as a primary cause for promoting nuisance algal blooms caused by periodic high total phosphorus concentrations during portions of the year. Following almost two decades of phosphorus reduction efforts, concentrations of this nutrient are generally being met throughout the year. The Washington Department of Ecology (Ecology) and the City of Black Diamond have expended effort in fixing some of the obvious source problems for nutrient in the drainage; primarily on-site septic systems and drainage from a wetland originally expected to treat effluent discharged from a wastewater treatment plant. Other basin-wide implementation measures have been identified by the Department of Ecology (WSDOE 2009).

The Villages MPD permit approval includes conditions to identify the estimated maximum annual volume of total phosphorus from the MPD site and that will comply with the TMDL for Lake Sawyer, and to monitor phosphorus coming from the MPD site. The sampling design and rationale presented are intended to provide information that can be used in an adaptive management program and continually update/upgrade the phosphorus monitoring program.

The sampling design meets the requirements from the City of Black Diamond as Conditions of Approval for the Lawson Hills Master Planned Development approval (Exhibit C: Conditions 76, 82, and 85) that monitoring of the stormwater treatment facility and the influence on receiving water be described. Exceedence of the allowable estimated maximum annual volume of total phosphorus discharged from the Development site will require a redesign of existing structures, modify the design of new treatment facilities, or implementation of another project in the Lake Sawyer basin that results in a reduction in total phosphorus so the annual maximum load is below the target quantity outlined in the Condition.

The proposed monitoring strategy addresses each of the potential sources of non-point nutrient total phosphorus contributions and methods that would detect presence of this pollutant and directly address tasks described in Section 2.0. The Sampling Process Design is described here based on each of these tasks:

Task 1. Evaluate Water Quality conditions in The Villages stormwater structures to determine total phosphorus load from The Villages Development Basin.

THE VILLAGES STORMWATER STRUCTURES

Locations: Outlet/Inlet of the stormwater structure or treatment train (BMP)

A. Parameters:
   The stormwater structures are designed to remove phosphorus from surface water runoff originating in The Villages Development. The efficiency and the effectiveness of this BMP or treatment train will determine whether the structure is operating properly, needs retrofitting or maintenance, or informs on contaminant loads in stormwater that were greater than expected. The data from these monitoring efforts serve as a feedback

mechanism for making future decisions in meeting treated water requirements. The monitoring effort and decision-making process in determining effectiveness of stormwater phosphorus mitigation is directed by Conditions of the MPD agreement.

Parameters will be measured below the stormwater structure Outlet and the Incoming conduit to the stormwater structure. Total Phosphorus will be sampled as well as flow (both incoming and outgoing). Continuous field monitoring will be conducted at the outlet of the stormwater structure in order to isolate effects of any potential temperature increases from the standing water. In addition, flow measurements will be recorded by calibrating a flow rating curve with pressure transducer readings. The pressure transducer readings will be converted into flow estimates following collection and download of this data. Periodic check for actual flow measurements will be made during sample collection for Total Phosphorus.

The Total Phosphorus load will be calculated using the flow estimates from both incoming and outgoing conduits associated with the stormwater structure(s). Since loading rates combine flow and parameter concentration, data comparisons can be made directly among months or years. These comparisons provide insight into short and long-term patterns for determining the effectiveness of the implementation plan for this drainage.

B. Reasons for Monitoring Design and Parameter Analysis:
Requirements for discharge of Total Phosphorus from the stormwater structures are set by The Villages MPD permit and guidelines and expected to be entrained in surface water runoff from storm events. For this reason, the winter wet season is targeted for most of the monitoring and is the time of year when water levels are sufficiently high to enable the stormwater structures to begin working as designed.

Task 2. Determine effectiveness of the stormwater structure(s) in removing phosphorus load and conveyance to receiving water (Rock Creek).

ROCK CREEK (Conveyance from the stormwater structures to receiving water)

The stormwater structures may change some of the physical characteristics of the water depending on residence time, incoming volume, and time of year. These factors may influence surface water temperature which is of concern during the warmer months of the year (when water is present). A sampling design describing temperature was recommended in order to demonstrate the potential for the stormwater structure(s) to increase temperature of surface water in a natural receiving water stream. This sampling schedule targets a period of the year when this parameter is most likely to increase due to climate conditions and when declining flows cease to dissipate heat energy. Although the primary concern is during the storm season and lower water temperatures, surface water characteristics may change with increasing human activity during the cold weather seasons.

5.2 Sampling Locations and Frequencies

The two tasks described in Section 5.1 require collection of physicochemical field data and water samples for laboratory analysis. The following description of proposed study sites and design for

sampling (at discrete sites) are presented in descriptive and map form (Figure 5.2-1). The proposed discrete sites for sampling will be field-verified prior to final location. Once selections are made for sites they will be monumented by using a GPS locational unit.

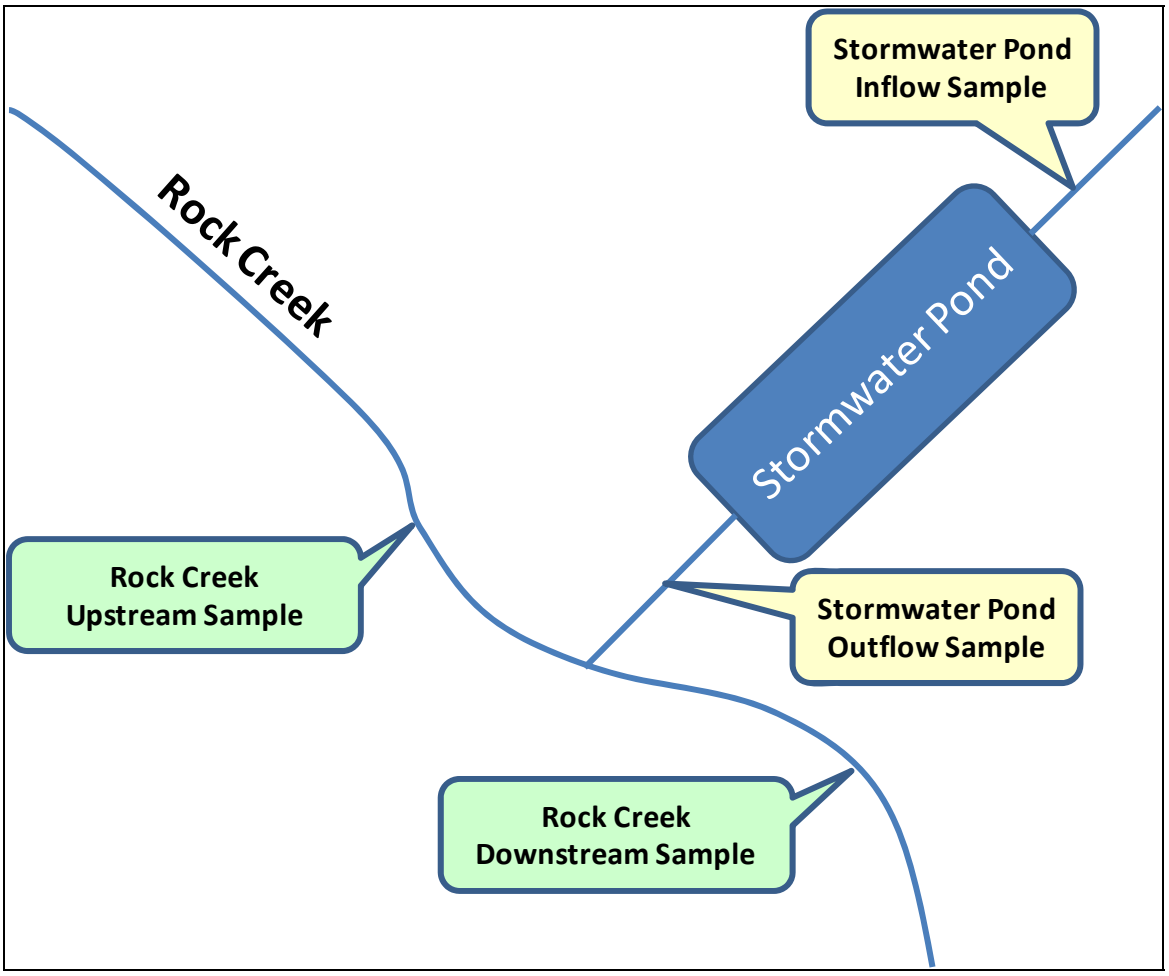


Figure 5.2-1. Proposed sample sites and locations for collection of surface water data.

Task 1. The Villages Stormwater Structure(s)

A. Frequency of Sample Collection:

Sample collection timing and frequency is determined by the occurrence of storm events. Ideally, monitoring will be completed at 6-8 storm events; each with varying intensities of rainfall and longevity of the storm event. Monitoring based on these 2 factors provides some level of detail in understanding optimum effectiveness of the BMP (stormwater structures) under varying storm conditions. The period of monitoring is established from October 1st through March 31st of each calendar year for five years following the completion of development that discharges into this stormwater structure. Completion shall be defined as the date the City's maintenance bond, as required by BDMC 14.04.360 and the Black Diamond Engineering Design and Construction Standards (Exhibit "E") Section 1.5, is released or expires for such facility.

Grab samples will be collected in order for sample integrity to be maintained and for making observations about environmental conditions when an investigator is present.

Information gathered about physical characteristics of the water, how water travels to and from the stormwater structures, and surrounding information that might explain why specific water quality problems might arise are reasons why being present and sampling affords a greater opportunity to construct information for the critical feedback loop.

Task 2. Rock Creek

A. Upstream of Discharge

a. Surface Water temperature (Continuous data logging)

The upstream site for monitoring surface water temperature will serve as the control for determining if the stormwater structure discharge is a cause for increased downstream temperatures. The monitoring frequency is recommended at 15 minute intervals so that 7-day average of the daily maximum temperatures (7-DADMax) can be calculated from the continuous monitoring data. Additional monitoring effort will be conducted at both the upstream and downstream site; including continuous monitoring with a HydroLab® unit. Additional parameters that will be collected are:

- Water Temperature
- Dissolved Oxygen concentration
- Conductivity
- pH

These additional parameters are important for understanding how the receiving water assimilates effects from additional nutrient input. Conversely, the receiving water may, at times, have higher concentrations of nutrient input that uses up the assimilative capacity. By generating a greater amount of information about water quality characteristics, identification of nutrient sources will assist in making drainage-level management decisions to assure The Villages MPD permit Conditions are met.

B. Downstream of Discharge

a. Surface Water temperature (Continuous data logging)

Comparison between upstream and downstream (of the stormwater structure outfall) water quality characteristics will evaluate the effect treated stormwater pond water has on receiving water. The upstream/downstream sample design with site located in close proximity to the outfall will isolate effects from the BMP output. Water quality parameter measurements will be sampled identical to those described for the upstream site above. In addition, flow monitoring will be conducted using pressure transducers calibrated using a flow-rating curve. The total phosphorus loads originating from upstream of the stomrwater structure outfall will be combined with stormwater structure loads and the resulting load compared against the downstream estimate. This analytical exercise is intended to reveal the dynamic nature of nutrients in natural streams receiving treated stormwater.

5.3 Order (Timing) of Sampling

Non-point source pollutants enter streams and lakes at different rates during each season throughout the year with transfer and distance of travel influenced primarily by climatic events. Each of the tasks addresses potential source and pathway for introduction of nutrient pollution into nearby receiving streams and accounts for optimal time of year when pollution is either detectable or loading is greatest to surface water. In some cases, a division of the year that

differentiates wet- from dry seasons is used as a contrast to estimate the magnitude of nutrient pollution load introduced during a time period. Distinguishing seasons and differences in pollution load is used as a guide to suggest abatement of pollution by using BMPs (best management practices). The suggested monitoring interval is has been determined from previous studies and has sufficient flows to enable measurement of effectiveness of phosphorus removal from surface water.

The following are descriptive examples for sampling dates and frequencies for satisfying study objectives in each of the tasks:

Task 1

- Sampling Intervals for the constructed stormwater BMP(s); Rainfall Events and No. of Visits
  October 1st – March 31st (6-8 visits)

Task 2

- Rock Creek upstream/downstream sampling:
- October 1st – March 31st
- Continuous Surface Water Temperature monitoring (15-minute intervals)
- Dissolved Oxygen concentration (15-minute intervals)
- Conductivity (15-minute intervals)
- pH (15-minute intervals)
-
- April 1st – September 30th
- Continuous Surface Water Temperature monitoring (15-minute intervals)

5.4 Representativeness

Sample representativeness will be addressed at two distinct steps in the data collection process. During sample collection, the use of generally accepted sampling procedures in a consistent manner throughout the project will ensure that representative samples are obtained. During sub-sampling within the laboratory, samples will be mixed by inverting several times to ensure that the analytical sub-sample is representative of the sample container contents.

Stormwater Structure Water Quality
Representativeness will be achieved through collection of samples aimed at capturing the complexity and dynamics of the treatment pond. Locations surrounding the treatment pond will be sampled to characterize water quality at multiple depths to adequately describe nutrient levels and other conditions related to dissolved oxygen. Sampling will be concentrated during summer to determine worst-case conditions and magnitude of internal P loading.

Rock Creek Water Quality
Data will be gathered to characterize water quality constituents during dry and wet seasons of the year. Sample collection will be conducted less frequently during the dry season as ambient conditions remain similar throughout this period of time. Sample collection will increase in frequency during wet season portions of the year in order to characterize ambient conditions and the influence from stormwater events. Stormwater samples will be collected manually and at

equal time intervals in order to characterize storm events that present combinations of duration and intensity (i.e., distribution of precipitation quantity with time). Additional detail is provided for description of storm events in Western Washington and the characteristics that will be described by stormwater monitoring (see Section 5.2, Task 2). Loading estimates will characterize storm flow.

5.5 Completeness

Completeness is defined as the percentage of measurements made that are judged to be valid according to specific criteria and are entered into the data management system. Lack of data entry into the database will reduce the ability to perform analyses, integrate results, and prepare reports. Therefore, every effort is made to avoid accidental or inadvertent sample or data loss. Accidents during sample transport or lab activities that cause the loss of the original samples will result in irreparable loss of data. Samples will be stored and transported in unbreakable (plastic) containers wherever possible. All sample processing (sub-sampling, sorting, identification, and enumeration) will occur in a controlled environment within the laboratory. Field personnel will assign a set of continuous identifiers to a batch of samples.

Percent completeness (*%C*) for measurement parameters can be defined as follows:

$$\%C = \frac{V}{T} x100$$

where V = the number of measurements judged valid and T = the total number of measurements taken

For this project, sampling will be considered complete when no less than 90 percent of the samples collected during a particular sampling event are judged valid. At any time where data are not complete, decisions regarding re-sampling and/or re-analysis will be made by Tetra Tech. These decisions will take into account the project data quality objectives as presented above.

Completeness will also be judged by comparison to the monitoring parameters and frequency laid out in the monitoring schedule. For this criterion, completeness is defined as the number of measurements taken divided by the number of measurements scheduled. While the goal for this criterion is 100 percent completeness, a lower percent completeness may be acceptable for a volunteer monitoring program.

5.6 Comparability

Two data sets are considered to be comparable when there is confidence that the two sets can be considered equivalent with respect to the measurement of a specific variable or group of variables. Comparability is dependent on the proper design of the sampling program and on adherence to accepted sampling techniques, SOPs (Standard Operating Procedures), and QA (Quality Assurance) guidelines.

Data comparability generated throughout The Villages Study Area will be ensured through application of standardized sampling procedures and convergence with methods and practices of existing monitoring programs (e.g., Washington Department of Ecology), analytical methods (e.g., state-accredited laboratories), units of measurement, and detection limits. The sampling results will be tabulated in a database for comparison between sampling events and sampling sites.

Method detection limits and laboratory methods for surface water quality variables analyzed in The Villages projected are listed in Table 5.0-1.

Table 5.6-1. Reporting limits and analytical methods for surface water and sediment data.

Water Quality Parameter	Units	Minimum Reporting Limit	Accuracy	Method
Surface Water				
Total Phosphorus, TP	µg/L	2.0	±2	EPA 365.1
Soluble Reactive Phosphorus, SRP	µg/L	1.0	±2	EPA 365.1
Temperature	ºC	0.5	±0.5	[a] Thermometer
		0.01	±0.1	[a] HydroLab MS5
Dissolved Oxygen	mg/L	0.2 (test kit) 0.01 (meter)	±0.4 (test kit) ±0.2 (meter)	Bioluminescence Probe (LDO) HydroLab MS5
pH	pH units	0.1	±0.2	HydroLab MS5
Conductivity	µmhos/cm	5	±1	HydroLab MS5
[b] Creek/Basin level	inches	0.5	±0.5	Pressure Transducer

Note:
[a] Calibration checks of the HydroLab® will be checked with a field thermometer twice during the monitoring year using a NIST-approved calibration thermometer.
[b] Select locations of the Stormwater Basin will be continuously monitored for level (pressure transducer) in order to estimate flow for determining loading estimates of nutrient pollutants.

6.0 Sampling Procedures

Sampling methods focus on characterization of surface water chemistry (e.g., dissolved oxygen and pH) and some of the physical properties (e.g., temperature and conductivity). The collection of samples prescribes collection periods, handling procedures, and identification procedures that minimize and identify systematic error in the The Villages MPD project. Performance expectations of the samplers described in this section records information that can be used for data verification and validation.

Achieving accuracy in data generation begins with a sampling procedure that is well conceived, described, and carefully implemented (WSDOE 2001). The sampling locations, sample types, sampling equipment, and methods were briefly described in *Section 2.0 Project Description*. This section of the QAPP discusses the details of the sample collection method and the sample handling and labeling procedures (U.S. EPA 1990).

6.1 Sampling Schedule

Stormwater structure and Creek sampling will occur over a six month Index Period; characterizing the variety of storm events through several water quality collection events will capture pollutant loading from intensity and length of individual storms. Measurements will be taken at pre-determined locations for characterizing water quality in each component of the study area and during specific periods of the year (e.g., optimal times for characterizing water quality conditions) based on information reported in Table 6.1-1.

Table 6.1-1. Monitoring schedule and timing/frequency for collection of samples.

Sampling Routine	Jan.	Feb	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.
Task #1	Inflow/Outflow Monitoring									Inflow/Outflow Monitoring		
Task #2	Upstream/Downstream Monitoring			Continuous Temperature Monitoring						Upstream/Downstream Monitoring		

Note: Task #1 – Continuous field monitoring parameters and 12 water quality samples collected per storm event (6-8 storm events characterized).
Task #2 - Continuous field monitoring parameters and 12 water quality samples collected per storm event (6-8 storm events characterized).

6.2 Sample Collection and Handling

Recommended sample sizes, containers, preservation techniques, and holding times for measurement of the conventional water quality parameters are listed in Table 6.2-1. Sample containers will be kept closed until each set of sample containers is filled. All samples will be placed immediately in a cooler and kept cool and dark until delivered to the lab.

Water samples will be collected for each monitoring program using specific devices that minimize potential for contamination and that enable samples to be collected safely. Each of the monitoring programs presents challenges in locating and collecting a representative water sample. The following collection devices and locations for sampling will be used for each monitoring program:

1. Stormwater Structure Sampling: cleaned collection vessel from bank or in the pond.
2. Creek Sampling: Surface water collected from bank or while standing downstream of the sample collection location.

Note:

a. Bank sampling or instream/pond sampling will be conducted by filling collection bottles supplied by the contract laboratory.

Total phosphorus and soluble reactive phosphorus will be collected in polyethylene or glass bottles provided by the laboratory. Sample bottles and laboratory glassware for lake-related sampling shall be reserved for ultra-low P waters (i.e. lakes, streams, or basins) and can never be used for sampling or analyzing wastewater or agricultural runoff where there is a potential to exceed 100 µg/L. All sample bottles are to be acid washed with 1N HCL six times followed by 6 rinses with de-ionized water (for low-level nutrient analysis and to ensure acid is rinsed away, especially in soft water). Dissolved oxygen samples will be collected in glass bottles.

Whenever possible, samples will be processed within the recommended holding time. However, when volunteers are available for monitoring duties there may be a delay on delivery of samples when collected on weekends; not delivered to the laboratory until Monday. This would exceed the recommended holding time for select variables like soluble reactive phosphorus samples. Lab results from samples exceeding holding times may be accepted as usable data depending on sample storage conditions following collection. Data Management Section 9.0 further outlines how to record variation from QAPP protocol or DQOs (Data Quality Objectives).

Table 6.2-1. Containers, preservation techniques, and holding times for measurement of water quality and sediment parameters.

Parameters	Sample Container	Sample Volume	Preservation	Recommended Holding Time
Surface Water				
Total Phosphorus	Polyethylene, Glass	50 ml	Cool, <4ºC	28 days
Soluble Reactive Phosphorus	Polyethylene, Glass	125 ml	Filter within 12 hours, Cool <4ºC	48 hours

6.3 Field Recording Methods

When visiting a sampling station, the sample collector will record the following information on water-proof field sheets. Detailed information on field observations should include the following:

- Date
- Time
- Names of sampling personnel
- Number/type of samples collected
- Weather
- Descriptions of any photographs taken
- On-site field measurement (e.g., temperature, water level)
- Color of water
- Unusual conditions (changes in land uses, presence of oil sheens, odors, nuisance conditions).

6.4 Sampling Identification and Custody

Each sample bottle will have a waterproof sample identification label or tag. All sample bottles will be labeled with an indelible marker before the time of collection. Sample labels will include station designation, date, time, collectors' initials and type of sample. Special analyses to be performed and any pertinent remarks will also be recorded on the label.

All water quality samples will be delivered by courier to the contract commercial laboratory. Samples will be accompanied by the sample tracking forms with sample numbers, requested analyses, number of bottles, bottle sizes and contact information. An example of the sample tracking (or Chain-of-Custody) form that may be used for The Villages project is presented in the Appendix A.

Water samples will be collected, placed in the labeled transfer bottles, and delivered to the laboratory as soon as possible following collection. Bottleware for each parameter, including the container types and preservatives, will be supplied by the contract laboratory and used to collect samples. Handling requirements for samples collected in Lawson Hills study area will also be provided by the ;laboratory. The samples taken for laboratory analysis will be stored in coolers containing re-sealable bags of ice. The temperature inside the coolers and acid preservation for samples will be verified by the receiving laboratory as a component of field quality control.

All samples will be transferred to the receiving analytical laboratory using Chain of Custody forms. The sample Chain of Custody form (included in Appendix A) acts as a record of sample shipment and a catalog of the contents of each shipment (coinciding with information on the field record), in addition to maintaining a complete record of evidentiary custody transfer. It will contain the following, at a minimum:

- Sampler's name
- Project name
- Page number (e.g., 1 of 1)
- Sample location (facility name, waste stream, sampling point)
- Collection date and time
- Sample number
- Number of containers
- Type of analysis required
- Laboratory recipient signature
- Laboratory receipt date and time

Immediately following the packing of each shipping container, each container (cooler) will be secured with packaging tape.

7.0 Measurement Procedures

All analysis methods used for this project are approved standard analytical methods approved for use by the EPA and Ecology (Table 5.0-1). Water quality parameters including pH, dissolved oxygen, conductivity and temperature will be measured in the field during each sampling event using a YSI®, Hydrolab®, or other similar multi-parameter probe. Routine maintenance on the multi-parameter probe will be conducted according to schedules described in the manual provided by the manufacturer and recorded in the maintenance log for each instrument. All technical maintenance or repairs of the instrumentation while in use will be reported to the suppliers' trained staff upon completion of each sampling event for suggestions on corrective action.

The contracted laboratory for the program must be Ecology-certified for drinking-water analyses, and this lab will perform all other physicochemical analyses for this study. The contract laboratory QMP (Quality Management Plan) must be on file with Ecology detailing their quality assurance procedures.

7.1 Field Sampling Procedures and Laboratory Analysis Procedures

Procedures describing field sampling are fully described for each parameter in Section 6. Laboratory Analysis procedures are described in Section 5. All water sample analyses except the field measurements of temperature, DO (dissolved oxygen), conductivity, and pH will be completed by fully qualified subcontract laboratories. The analytical chemistry methods to be used, as well as the sample volume requirements, detection limits, and holding times, will be consistent with the laboratory's QA and QC plans and SOPs.

7.2 Calibration of Equipment

Care will be taken to ensure that the multi-parameter probes used for field measurement are calibrated and adjusted prior to sampling by using known buffer solutions (low ionic strength buffers) that are included with the instrument. The multi-parameter probes will be calibrated following the manufacturer's designated procedures. Field measurements that exceed the normal range of values for each parameter will require that a calibration check of the instrument be completed upon return from the field. If the calibration check falls outside the acceptable calibration limits, the instrument will be re-calibrated and a new field measurement will be taken at the site. All calibration checks and remediation actions taken will be recorded on field forms and in calibration logs and be available upon request.

Laboratory turnaround times must be within 10 to 20 working days. Any issues regarding analytical data quality will be resolved by the Tetra Tech and Triad Associates Program Directors through regular communication with the laboratory project manager.

Laboratory analytical procedures will follow U.S. EPA (1983, 1991) or APHA et al. (2005) methods. Detection limits and methods are summarized in Section 5 and in Table 5.0-1.

Table 7.2-1. Measurement methods for laboratory analysis of surface water and sediment samples.

Analyte	Sample Matrix	Samples [Number/ Arrival Date]	Expected Range of Results	Reporting Limit (RL)	Sample Prep Method	Analytical (Instrumental) Method
Total Phosphorus	Water	TBD		2.0 µg/L	Persulfate, autoclave	EPA 365.1
Soluble Reactive Phosphorus	Water	TBD		1.0 µg/L	0.45u filtration	EPA 365.1
Dissolved Oxygen (DO)[a]	Water	TBD	RL to 12 mg/L	<0.1 mg DO/L	None	Standard Methods 4500-O G [b]
pH [a]	Water	TBD	pH 3-9	pH<1	None	Standard Methods 4500-H^{+} [b]
Temperature [a]	Water	TBD	0-30 ^{0}C	32°C	None	Standard Methods 2550B [b]
Conductivity a	Water	TBD	RL to 200 µsiemens/cm	1 Microsiemens/cm[e]	None	USGS NFM 6.3.3A-SW

NOTES:

a. This is a field measurement.
b. Cell chosen, based on anticipated conductance will determine reporting limit.

8.0 Quality Control

Data quality is addressed, in part, by consistent performance of valid procedures documented in Standard Operating Procedures (SOPs). It is enhanced by the training and experience of project staff (Section 3.0) and documentation of project activities (Section 5.0). This QAPP and other supporting materials will be distributed to all sampling personnel. A QC Officer will ensure that samples are taken according to the established protocols and that all forms, checklists, and measurements are recorded and completed correctly during the sampling event.

To establish the precision, accuracy, and representativeness of data obtained from the sampling effort, QC samples for laboratory analyses will be analyzed according to methods reported in Table 5.0-1 and collected at the frequency described in Figure 4.0-2. Three types of QA and QC samples will be analyzed during each sampling event: field blanks, sample QC, and laboratory QC.

Field blanks will be collected during each sampling event for all the chemical parameters listed in Section 4.2 to ensure that no contamination was introduced during sample collection, preservation, and handling. At the same time samples are collected, field blanks will be prepared by running analyte-free deionized water through the same equipment used to collect the samples, collecting it in the appropriate sample containers, and preserving it with the same procedures used to preserve the samples. The field blanks will be collected, stored, shipped, and analyzed with the associated samples. In addition, a transport blank will be included in the cooler to determine if cross-contamination among samples occurs. If field blank target analyte concentrations are detected, the field blanks will be examined to determine the source of contamination.

Analyte concentrations measured in samples collected during the event will be considered valid when no corresponding field blank analyte concentrations are detected or when the sample analyte concentrations are at least 10 times the field blank analyte concentrations. If a sample analyte concentration is at least 5 times but less than 10 times the field blank analyte concentration, the laboratory will report the numerical result as an upper limit of the true analyte concentration by the laboratory. If a sample analyte concentration is less than 5 times the field blank sample concentration, the results for that analyte will be considered unacceptable, and the result will be reported as undetected using the value as the limit of quantitation for the sample.

Analytical QC samples must be collected for 10 percent of the samples for each sampling event. The additional volumes collected for analytical QC are used to perform duplicate and spiked sample analyses or matrix spike and matrix spike duplicate analyses, depending on method requirements. For the purpose of this collection, sample QC will be evaluated using the criteria established in Table 5.0-1 (Target analytes, analysis methods, and quantitation limits), and as detailed in the reference methods and the laboratory QA Plan. Any results noted as deviating from program or laboratory QC acceptance criteria require immediate investigation, and thorough documentation as detailed in the assessment and response actions of this QAPP. Corrective actions might vary widely from re-preparation and reanalysis to disqualification of sample data for use. Under no circumstances will outlying sample or QC results be submitted without a detailed explanation. The Project Manager should be contacted immediately regarding

deviations for which there is not a suitable analytical corrective action due to holding time or other restrictions, so that recollection can be requested, if possible.

In addition, **laboratory QC** analyses will be performed concurrently with sample preparation and analysis. Laboratory QC includes analysis of appropriate reagent or method blanks for each analytical method or technique, as well as analysis of laboratory control sample or certified standard reference materials as appropriate. Method and reagent blanks should be free from analytes of interest at levels above the project quantitation limits. The same criteria applied to field blanks will be applied to laboratory blanks in sample data interpretation for use. (Analyte concentrations measured in samples collected during the event will be considered valid when no corresponding field blank analyte concentrations are detected or when the sample analyte concentrations are at least 10 times the field blank analyte concentrations. If a field blank analyte concentration is at least 5 times, but less than 10 times the sample analyte concentration, the numerical result will be reported as an upper limit of the true analyte concentration by the laboratory. If a blank sample analyte concentration is less than 5 times the sample analyte concentration, the results for that analyte will be considered unacceptable.)

Following data entry operations, all spreadsheets or database printouts will be proofread using the original handwritten field and laboratory data sheets, where available. Someone other than the data entry specialist will conduct this review.

Measurement performance criteria for data to be collected during this project are discussed in the following sections.

8.1 Precision

Precision is a measure of internal method consistency. It is demonstrated by the degree of mutual agreement between individual measurements or enumerated values of the same property of a sample, usually under demonstrated similar conditions. Precision of sampling methods is estimated by taking duplicate samples at the same sampling station at approximately 10 percent of the sites, usually at the final sampling point(s). Duplicate sampling for this system, due to its current impairment status, might indicate significant variability for some parameters because of differing amounts of suspended biological (algal) and organic materials. The usability assessment will include consideration of this condition in evaluating field duplicates as a measure of the entire measurement system. Although precision evaluations within 20 percent relative percent difference (RPD) are generally considered acceptable for water quality studies and analyses, no data validation or usability action will be taken for results in excess of the 20 percent limit. Instead, the results will be noted and compared with the balance of the parameters analyzed for a more comprehensive assessment before any negative assessment, disqualification, or exclusion of data.

This QC calculation also addresses uncertainty due to natural variation and sampling error. Precision is calculated from two duplicate samples by RPD as follows:

$$RPD = \frac{|C_1 - C_2|}{\overline{(C_1, C_2)}} \times 100\%$$

where C_1 = the first of the two values and C_2 = the second of the two if precision is to be calculated from three or more replicate samples (as is often the case in laboratory analytical work), the relative standard deviation (RSD) will be used and is calculated as

$$RSD = \frac{s}{\overline{\chi}}$$

where χ is the of the replicate samples, and s is the standard deviation and is determined by the following equation:

$$SD = \sqrt{\frac{\sum_{i=1}^{n}\left(\chi_i - \overline{\chi}\right)^2}{n-1}}$$

where χ_i is the measured value of the replicate, $\overline{\chi}$ is the mean of the measured values, and n is the number of replicates.

For this project, duplicate field samples will be collected to assess sampling precision and field blanks will accompany samples to assess the potential for contamination in the sample collection process.

8.2 Accuracy

Accuracy is defined as the degree of agreement between an observed value and an accepted reference or true value. Accuracy is determined by using a combination of random error (precision) and systematic error (bias) due to sampling and analytical operations. Bias is the systematic distortion of a measurement process that causes errors in one direction so that the expected sample measurement is always greater or lesser to the same degree than the sample's true value. EPA now recommends that the term *accuracy* not be used and that *precision* and *bias* be used instead.

Because accuracy is the measurement of a parameter and comparison to a *truth*, and the true values of environmental physicochemical characteristics cannot be known, use of a surrogate is required. Accuracy of field measurements will be assumed to be determined through use of precision. Accuracy of laboratory chemical measurements will be determined by analysis of matrix spikes and matrix spike duplicates, laboratory control samples (fortified blanks), and other method-specified QC samples. Analyses for specific nutrients will include the use of spiked samples or certified standard reference materials, where appropriate, to determine percent recovery. In the absence of manufacturers' certified range, the recoveries for spiked analytes should not exceed $\pm$ 20 percent of the true values to be acceptable (unbiased). Bias is assessed in

terms of recovery of a known value for control samples and matrix spikes and is calculated as follows:

% Recovery (LCS):

$$\%\,\mathrm{Recovery} = \frac{analytical\,result}{truevalue} \times 100\%$$

% Recovery (MS):

$$\%\,\mathrm{Recovery} = \frac{(spikedsampleresult - sampleresult)}{amountspiked} \times 100\%$$

The accuracy of field equipment for the measurement of temperature, DO, conductivity, salinity, and pH will be determined at a minimum of two points that span the expected range of values for these parameters. Instruments used and procedures for determining accuracy include the following:

Temperature sensors:

The accuracy of temperature sensors used in this project will be checked using a standard thermometer.

DO sensors:

The accuracy of DO sensors and methods used in this project will have higher standards based on performance of the optical probes. The LDO (luminescent dissolved oxygen) sensor uses luminescent technology that results in the lowest level of drift over continuous use. Calibration is completed using air-saturated water equilibrated over a 12-24 hour period. Determination of dissolved oxygen concentration is adjusted according to barometric pressure at the time of calibration and the probe meter adjusted to the calculated dissolved oxygen concentration.

Conductivity sensors:

The accuracy of the salinity and conductivity sensor used in this project will be checked using the autocal solution provided by the manufacturer. The conductivity sensor is calibrated from the autocal solution, which contains a certified 0.449 µS/cm solution (or other low-level conductivity solution).

pH sensors:

The accuracy of pH sensors used in this project will be checked using calibration solution provided by the manufacturer (or equivalent quality), which contains any two of three buffer solutions (pH 4, pH 7, pH 10). These solutions will be low-ionic strength with meter calibration accounting for temperature of the solution at the time of meter adjustment.

8.3 Representativeness

Data representativeness is defined as the degree to which data accurately and precisely represents a characteristic of a population, parameter, and variations at a sampling point, a process condition, or an environmental condition. It therefore addresses the natural variability or the

spatial and temporal heterogeneity of a population. The number of sampling points and their location within the study area will be examined to ensure that representative sample collection of each area of the watersheds and each target analyte series occurs. Multiple sampling episodes will be conducted over a period of 6 months to obtain sufficient data to determine analyte concentration variability.

8.4 Completeness

Completeness is defined as the percentage of measurements made that are judged to be valid according to specific criteria and entered into the data management system. To achieve this objective, every effort is made to avoid accidental or inadvertent sample or data loss. Accidents during sample transport or lab activities that cause the loss of the original samples will result in irreparable loss of data. Lack of data entry into the database will reduce the ability to perform analyses, integrate results, and prepare reports. Samples will be stored and transported in unbreakable (plastic) containers wherever possible. All sample processing (sub-sampling, sorting, identification, and enumeration) will occur in a controlled environment within the laboratory. Field personnel will assign a set of continuous identifiers to a batch of samples.

Percent completeness (*%C*) for measurement parameters can be defined as follows:

$$\%C = \frac{V}{T} \times 100\%$$

where V = the number of measurements judged valid and T = the total number of measurements planned. For this project, sampling will be considered complete when no less than 90 percent of the samples collected during a particular sampling event are judged valid.

8.5 Comparability

Two data sets are considered to be comparable when there is confidence that the two sets can be considered equivalent with respect to the measurement of a specific variable or group of variables. Comparability is dependent on the proper design of the sampling program and on adherence to accepted sampling techniques, SOPs, and QA guidelines.

Table 8.5-1. Quality Control samples; sample types and frequency.

	Matrix	Field		Laboratory (%)			
Parameter		**Blanks**	**Replicates**	**Check Standards**	**Method Blanks**	**Analytical Duplicates**	**Matrix Spikes**
Total Phosphorus	Water	1	1	Minimum once per quarter	One per analysis batch of 20 samples	Minimum 10% of samples	Minimum 10% of samples
Soluble Reactive Phosphorus	Water	1	1	Minimum once per quarter	One per analysis batch of 20 samples	Minimum 10% of samples	Minimum 10% of samples

9.0 Data Management Procedures

Samples will be documented and tracked on Field Data Record forms, Sample Identification labels, and Chain of Custody records (Appendix A). The Field Task Leader will be responsible for ensuring that these forms are completed and reviewed for correctness and completeness by the designated field QC Officer. Triad Associates, Inc. will maintain copies of these forms in the project files. A sampling report will be prepared following each sampling event. Another person will manually check data entered into any spreadsheet or other format against the original source to ensure accurate data entry. If there is any indication that requirements for sample integrity or data quality have not been met (for samples or measurements collected by Triad Associates, Inc. or contractors), the Triad Associates Project Manager will be notified immediately (with an accompanying explanation of the problems encountered).

Laboratory data will be managed in accordance with established protocols. The data will be submitted to Triad Associates and shared with Yarrow Bay Development Company in hard copy and in electronic database format, as well as scanned data recorded on CD-ROM. The electronic data will be submitted in a format to be negotiated with the lab. At a minimum, the electronic data files will include the date and time of sample collection, date received, date of preparation or analysis, requested parameter, analytical batch ID, results, and data qualifiers. Electronic data will be provided for all samples and QC, including laboratory blanks, control samples, duplicates, and spiked samples analyzed in a format compatible with the requirements of Spokane County's (or Contractor) statistical and modeling software routines. Hard copy data packages will be paginated, fully validated raw data packages that include an analytical narrative with a signed certification of compliance with this QAPP and all method requirements; copies of Chain of Custody forms; sample inspection records; laboratory sample and QC results; calibration summaries; example calculations by parameter; and copies of all sample preparation, analysis, and standards logs adequate to reconstruct the entire analysis. The CD-ROM data will include a full copy of the paginated report scanned and stored in portable document format (PDF) for potential future submission to the client, if requested, and for long-term storage in the project files. Initially, the full raw data package will be submitted to the Tetra Tech and Triad Associates QAO for assessment of compliance with the program goals and guidance.

All computer files associated with the project will be stored in a project sub-directory by Tetra Tech and Triad Associates (subject to regular system backups) and will be copied to disk for archive for 5 years subsequent to project completion (unless otherwise directed).

Data obtained during sampling activities will be entered into field notebooks.
The following is a list of data information that will be kept at Tetra Tech and Triad Associates or the contract laboratory for review upon request:

- Field equipment and chemicals maintenance, cleaning and calibration records;
- Field notebooks;
- Sample Data Sheets;
- Photographs of sampling stations and events;
- Chain-of-Custody forms;
- Laboratory equipment maintenance, cleaning and calibration records;

- Laboratory bench sheets, control charts, and SOPs;
- Records of QA/QC problems and corrective actions (field and/or laboratory);
- Laboratory data QC records;
- Records of data review sheets;
- Duplicate, performance evaluation records and other QA/QC control records (field and laboratory); and
- Data review, verification and validation records.

Data handling equipment will include computer software applications Microsoft Excel® and Access®. Data will be entered into the Access® database in a form compatible with requirements specified by the developer.

Field notebooks will be filled out using *Write in the Rain*® ink or pencil, and will not be erased. Changes will be made by crossing out errors, initialing, and adding correct information. Field notebooks will be bound with numbered pages.

Laboratory data results will be recorded on laboratory data sheets, bench sheets and/or in laboratory logbooks for each sampling event. These records as well as control charts, logbook records of equipment maintenance records, calibration and quality control checks, such as preparation and use of standard solutions, inventory of supplies and consumables, check-in of equipment, equipment parts and chemicals will be kept on file at the laboratory.

Any procedural or equipment problems will be recorded in the field notebooks. Any deviation from this Quality Assurance Project Plan will also be noted in the field notebooks. Data results will include information on field and/or laboratory QA/QC problems and corrective actions.

Standard turnaround time for the analytical samples taken to the contract laboratory will be seven to ten working days.

Chain-of-custody forms will be kept with the sample during transport and will accompany data results back to Spokane County. Training records and data review records will be kept on file at Spokane County and be available on request. All sample analysis records and documents are kept at the contract laboratory and will be available for inspection at any time. In addition to any written report, data collected for the project will be provided electronically via a CD-ROM or e-mail ZIP file.

All records will be retained by the contract laboratory for five years. All project records at Tetra Tech and Triad Associates should be retained permanently.

A Microsoft Access data management system should be developed for use in analyzing and interpreting results. The system should be a relational database that enables the analyst to aggregate data from a variety of tables and identify correlates among media and settings in each study reach.

10.0 Audits and Reports

Upon completion of periodic sampling activities, the Project Leader will summarize sampling team progress. Following completion of field sampling, the Project Leader will prepare a field sample collection summary (detailed listing of all sampling participants, sampling locations, and specimens collected) for review by the Project Manager.

Following the completion of each data quality assessment, the Project Manager or designee will prepare a Data Quality Assessment Report and submit copies to the Project Manager for inclusion in project records. The data quality assessment will include any required qualification of data based on observations, relevant laboratory or field QC analyses, or other observations that might affect data quality. The laboratory data can then be incorporated into final sampling event reports to consolidate the information corresponding to each event.

When required, reports summarizing incidents of technical direction requests from laboratory or field staff, required corrective actions, and any other issues affecting data quality or usability will be submitted to the Project Leader. These observations will be compiled and submitted in interim QA reports where warranted, in informal file memoranda to the Project Manager for inclusion in the project files. These regular QA reports and memoranda, along with routine data quality assessments performed throughout the data collection will be the basis of the final QA report for this collection effort.

10.1 Audits

Should the sampling staff, laboratory personnel or Project Manager find errors in sampling or analysis, the Project Manager will notify the party responsible for the error or deficiency and recommend methods of correcting the deficiency. The responsible party will then take action to correct the problem and will report corrections to the QAO and Project Manager.

The Quality Assurance Officer will review the QA/QC procedures used for the sampling and analytical program. Procedures for this review, included in Section 8, will meet the data quality criteria specified in Section 4. The Project Manager will ensure the documentation of these assessment records in the Draft and Final Reports.

10.2 Reports to Management

Sampling results will be summarized in the draft and final reports completed for this project. These reports will include the field and laboratory results of project assessments listed above. Reports will be submitted to the Project Manager at Triad Associates. Email updates will be submitted to the Project Manager after each sampling event providing notification of any issues or problems for which corrective actions have been taken. The results of all corrective actions or data quality assessments will be reported to the Project Manager from Triad Associates upon completion.

Standard reporting formats will be developed and approved by Triad Associates Managers. These will be used to produce interim and final reports following completion of this study.

Consistency in reporting of progress, data generation, and interpretations will be maintained in order to improve comparability between related studies and where data-sharing is needed between monitoring efforts that address each of the project tasks (*e.g.*, mass loading analysis, stormwater runoff, etc.).

11.0 Data Verification and Validation

Data validation and review services provide a method for determining the usability and limitations of data and provide a standardized data quality assessment. All Field Data forms and Chain of Custody forms will be reviewed by the Project Leader (assisted by the Project Manager, as needed) for completeness and correctness. The Project Leader will be responsible for reviewing data entries and transmissions for completeness and adherence to QA requirements. Data quality will be assessed by comparing entered data to original data or by comparing results to the measurement performance criteria summarized in Section 4.2 to determine whether to accept, reject, or qualify the data. Results of the review and validation processes will be reported to the Program Manager. Analytical data provided by the laboratories will be reviewed before its release by the laboratory QAO, and laboratory manager, and will include a certifying statement that the data included have been reviewed for compliance with the reference methods and this QAPP.

The Project Lead or designee will review all Field Data Record forms and Chain of Custody forms. The Project QAO will review a minimum of 5 percent of the Field Data Record forms and other records. Any discrepancies in the records will be reconciled with the appropriate associated field personnel and will be reported to the Project Lead. Laboratory validation and verification methods are outside the scope of this QAPP; however, it is expected that the laboratory validation and verification will include an assessment of completeness and method compliance, including verification of sample calculations and of any required manual data entry. The analytical narrative reports will include discussions of attainment of the program goals as established herein. Samples submitted to the sample analysis laboratory will include Chain of Custody forms documenting sampling time and date. This information will be checked by the analytical laboratory to ensure that holding times have not been exceeded. Violations of holding times will be reported (by the laboratory) to the Project Lead, who will consult with the Project QAO to develop corrective action recommendations and define any recommended technical directives. Finally, the Project Manager will be consulted with deficiencies, observations, and findings, as well as with corrective action and technical directive recommendations for consideration and approval.

Data verification and validation includes completeness of data entry into a data management system, correctness of data entry, and assurance that entries fall within the expected range for each analyte. These exercises prevent generation of poor results when analyzing data for cause-and-effect relationships or for status of environmental resources. Missing or incorrect data can bias description of environmental resources and result in false conclusions.

11.1 Data Review, Validation & Verification Requirements

Analytical results will be reviewed and validated in accordance with EPA documents, including the *USEPA Guidance on Environmental Data Verification and Validation* (EPA QA/G-8), 2002b; the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (EPA 540/R-94/012), 1999; and the *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (EPA 540/R-94/013), 1994b. Tetra Tech will conduct data review and validation using the following methods on 10% of the

primary project samples, including their associated quality control duplicates and laboratory quality control samples.

- A review of sample handling and analytical and field data for completeness, accuracy, holding time compliance, and quality control (QC) sample frequency compliance.
- Evaluation of laboratory blank samples.
- Evaluation of the accuracy and precision of field duplicate samples, laboratory control samples (LCS), and matrix spike/spike duplicate (MS/MSD) samples.
- Assignment of data qualifiers, when necessary, to reflect limitations identified in the data assessment process.
- Estimation of completeness.

11.2 Validation and Verification Methods

The following procedures will be used to determine if data meets the measurement and data quality objectives and criteria specified in Section 4. If data QA/QC procedures do not meet the specified criteria, the Quality Assurance Officer will review all field and laboratory records to determine the cause. If equipment failures are limiting the usability of the data, calibration and maintenance procedures will be reviewed and changed as needed. If sampling or analytical procedures are the source of failures, methods will be reviewed to resolve the errors. Any changes or modifications to quality control procedures will be approved by the Project Manager prior to inclusion in the QAPP.

Review of Sample Handling

Proper sample handling techniques are required to ensure sample integrity. During data review, the sample handling procedures identified below are evaluated to determine potential effects on data quality.

- Review of field sample collection and preservation procedures to determine whether they were completed in accordance with the requirements specified by the analytical methods.
- Review of chain-of-custody documentation to ensure control and custody of the samples was maintained.
- Review of sample holding times between sample collection, extraction, and analysis (see Table 6.2-1 in Section 6).
- Review of sample conditions upon receipt at the contract laboratory.
- Review of Quality Assurance/Quality Control (QA/QC) Samples. Specific procedures for review of QA/QC samples are included in the sections below.

Laboratory Blank Samples

Laboratory blank samples (method and instrument blanks) are laboratory-prepared, analyte-free samples used to detect the introduction of contamination or other artifacts into the laboratory sample handling and analytical process. These blanks play an especially important role in sampling programs involving trace-level analyses or analytes that are common solvents found in a laboratory. None of the analytes of concern for this project are common laboratory contaminants. If a contaminant is discovered in the analytical sample at less than five times the concentration it is found in the laboratory blank, it will be considered a laboratory contaminant. Otherwise, it will be reported as an environmental contaminant.

Laboratory Control Samples

Laboratory control samples are used to assess analytical performance under a given set of standard conditions. Synthetic samples, containing some or all of the analytes of interest at known concentrations, are prepared independently from calibration standards. The samples consist of laboratory control samples (LCS) and laboratory control sample duplicates (LCSD). Laboratory control samples will be analyzed with each analytical batch. LCS may be used to estimate analytical accuracy and precision by comparing measured results to actual concentrations. LCS/LCSD percent recoveries will be checked on laboratory reports to ensure they are within the limits set by the EPA methods listed in Table 4.0-3.

LCS are also duplicated in the laboratory and then analyzed in an identical manner by the laboratory to assess the laboratory's internal precision. The analytical precision is expressed by the relative percent difference (RPD) (equation 11.2-1). Analytical precision and accuracy should meet the method criteria listed in Table 4.0-3 in Section 4.

$$\frac{X_1 - X_2}{X_{ave}} x100 = RPD$$

X_1 = duplicate no. 1
X_2 = duplicate no. 2
X_{ave} = mean of two sample duplicates
RPD = relative percent difference

Matrix Spike and Matrix Spike Duplicates

Matrix spike samples are actual field samples to which known amounts of select compounds (one, or more, of the analytes of interest) are added. Both spiked and unspiked aliquots (sample portions) are analyzed. The difference between the concentration of the spike compound(s) in the spiked and unspiked aliquots is compared to the amount of spike added before the extraction process. Since actual samples are used for the recovery determination, the matrix effects can be evaluated. Usually expressed as a percentage of the mass of the spiked amount, spike recovery is the measurement of accuracy anticipated for the sample matrix. Percent recoveries will be compared to EPA method specific recoveries listed in Table 4.0-3.

Matrix spike samples are also duplicated in the laboratory and then analyzed in an identical manner by the laboratory to assess sample reproducibility and the laboratory's internal precision. The analytical precision is expressed by the RPD between the measurement results of the two duplicate samples. Analytical precision and accuracy should meet the criteria provided in Table 4.0-3. MS/MSD samples will be run on each batch of samples.

Field Duplicate Samples

Field duplicate samples will be collected simultaneously with a primary project sample. Duplicates are treated in the same manner as the primary sample during all phases of sample collection, handling, and analysis. Duplicate sample results are used to assess precision, including variability associated with both the laboratory analysis and the sample collection process (i.e., QC purposes). At least one duplicate field sample will be collected and submitted blind to the laboratory during each sampling date for this program.

Analytical results will be reviewed for agreement with each other or their respective reporting limits and evaluated for comparability. Estimated results quantified below the reporting limit and qualified with a "J" flag are not considered significant for the purpose of data agreement. The comparison between project and field duplicate sample results should meet RSD (relative standard deviation) criteria for each method listed in Table 4.0-3.

Reporting Limits

The reporting limits are the lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory conditions. For many analytes, the reporting limit analyte concentration is selected by the laboratory as the lowest non-zero standard in the calibration curve. Sample reporting limits vary based on sample matrix and dilution of the samples during analysis. Reporting limits should be equal to or below the PQLs (Practical Quantitation Limits) provided in Table 7.0-1 for each method.

Data Qualification

Qualifiers will be applied to QC samples when acceptance criteria are not met and corrective action is not performed or is unsuccessful. These same qualifiers will be applied to the associated sample data, as defined in the following table.

Table 11.2-1. Data Qualifiers.

Qualifier	Description
J	The analyte was positively identified, the quantitation is estimated.
U	The analyte was analyzed for, but not detected. The associated numerical value is at or below the method detection limit (MDL).
F	The analyte was positively identified but the associated numerical value is below the reporting limit (RL).
R	The data are unusable due to deficiencies in the ability to analyze the sample and meet QC criteria.
B	The analyte was found in an associated blank, as well as in the sample.
M	A matrix effect was present.
H	Analysis was performed outside of the recommended holding time.

Completeness

Completeness is calculated after the QC data have been evaluated, and the qualifiers have been applied to the sample data. Invalid results, broken or spilled samples, and samples that are unable to be analyzed for other reasons are included in the assessment of completeness. The criteria and calculation to determine completeness are provided in Section 5. If data cannot be qualified to meet completeness goals, Tetra Tech will consult with the Project Manager to determine if additional sampling should be performed to accomplish data quality objectives.

11.3 Reconciliation with User Requirements

The Project Manager will review all data deliverables upon receipt from the lab. Laboratory results will be checked for data qualifiers entered by the lab to ensure that sample collection and preservation procedures were adequate and that laboratory analysis procedures met quality assurance objectives. Any outstanding issues will be addressed immediately with the lab and/or sampling staff to ensure that project quality assurance objectives are met.

The Project Manager will review and validate the data during interim reporting to management and final reporting stages of the project. If there are any problems with quality sampling and analysis, these issues will be addressed immediately and methods will be modified to ensure that data quality objectives are being met. Modifications to monitoring will require notification to the Project Manager and subsequent edits to the approved QAPP.

12.0 Data Quality (Usability) Assessment

As soon as possible following completion of the sample collection and analyses, Tetra Tech and Triad Associates will assess the precision, accuracy, and completeness measures and compare them with the criteria discussed in Section 4.0. This will be the final determination of whether the data collected are of the correct type, quantity, and quality to support their intended use for this project. Any problems encountered in meeting the performance criteria (or uncertainties and limitations in the use of the data) will be discussed with the project QA personnel and will be reconciled if possible.

12.1 Interpreting Data

Task 1
Total phosphorus loads will be calculated (inflow and outflow of the stormwater pond) and compared against the performance goal of 50% removal. This goal for removal applies to influent concentration ranges from 0.1 – 0.5 mg/L total phosphorus.

Task 2
Total phosphorus concentrations and loads will be compared between upstream and downstream of the treated stormwater input location to Rock Creek. Continuous temperature monitoring data generated for each of the monitoring periods (October 1st - March 31st and April 1st – September 30th) will be compared (upstream to downstream of the point of entry of stormwater), especially during the warmer months, for influence, if any, on temperature of the receiving water (Rock Creek).

13.0 References

APHA. 2005. Standard Methods for the Examination of Water and Wastewater, 21st Edition. American Public Health Association Press, Washington, D.C.

Kindig, A.C. 2008. The Villages MPD Water Quality Technical Analysis Evaluation. Appendix M in the Villages FEIS. September 10, 2008.

King County. 2000. Lake Sawyer Management Plan. King County Surface Water Management. July 2000.

The Lawson Hills Master Planned Development Permit: Conditions of Development Approval. Exhibit C: Conditions #16, #81, and #85.

United States Environmental Protection Agency (USEPA). 1990. Recommended Protocols for Measuring Conventional Water Quality Variables and Metals in Fresh Water of the Puget Sound Region. Prepared by Tetra Tech, Inc. Bellevue, WA for the USEPA Region X Office of Puget Sound, Seattle, WA.

EPA (U.S Environmental Protection Agency). 1998. EPA Guidance for Quality Assurance Project Plans (EPA QA/G-5). Office of Research and Development, EPA/600/R-98/018. Washington, D.C. 136p.

USEPA (U.S. Environmental Protection Agency). 2002. *USEPA Contract Laboratory Program, National Functional Guidelines for Inorganic Data Review*, OSWER 9240.1-35, EPA 540-R-01-008. U.S. Environmental Protection Agency, Office of Environmental Information, Washington, DC.

Washington State Department of Ecology (WSDOE). 2001. Guidelines for Preparing Quality Assurance Project Plans for Environmental Studies. February 2001. No. 01-03-003. Olympia, WA.

Washington State Department of Ecology (WSDOE). 2009. Lake Sawyer Total Phosphorus Total Maximum Daily Load: Water Quality Implementation Plan. Publication No. 09-10-053. Olympia, WA. 75p.

Appendix A

Chain-of-Custody Form
Field Data Report Form
Meter Calibration Log Form

Aquatic Research Inc.
3927 Aurora Avenue N, Seattle, WA 98103
P 206.632.2715 | F 206.632.2417

www.aquaticresearchinc.com

SHEET _____ OF _____

CLIENT: **CHAIN-OF-CUSTODY RECORD**
SAMPLING DATE: _____
SAMPLERS: _____

PROJECT ID: _____
CASE FILE NO.: _____
DATA RECORDED BY: _____

SAMPLE INFORMATION

SAMPLE ID	DATE/TIME COLLECTED	PARAMETERS																			BOTT #	NOTES

	Relinquished By	Date/Time	Received By	Date/Time
Printed Name				
Signature				
Affiliation				

	Relinquished By	Date/Time	Received By	Date/Time
Printed Name				
Signature				
Affiliation				

Miscellaneous Notes (Hazardous Materials, Quick turn-around time, etc.): _____

3927 Aurora Ave. N | Seattle, WA 98103 | 206.632.2715

TETRA TECH

FIELD DATA REPORT FORM

Y M M D D
0

SURVEY ..... SAMPLER ..... PAGE ..... OF .....

STATION NO.	STATION NAME	TIME	TEMP ºC	DO mg/L	DO #	pH	TRUE pH / METER	COND. µMHOS/CM	REDOX POTENTIAL	*L/M/R	DEPTH (meters)	COMMENTS

WEATHER:

ADDITIONAL COMMENTS:

Tt (Rev. 11/07)

* L = Left Bank; M = Middle Bank; R = Right Bank

Project: _____ Date: _____

Meter Calibration Log Form

Cond Meter# _____ Initial Cell Constant _____ Standard _____ µmhos/cm Meter _____ µmhos/cm

pH Meter # _____ pH Probe # _____

Thermistor # _____ Thermistor _____ °C Thermometer _____ °C Correction _____

DAY 1

Low Ionic Strength pH Value vs. Temp. °C

	7	10
10	7.01	9.27
15	6.99/7.00	9.23
20	6.98	9.19

Slope _____ 92-102%
mv @ pH 7 _____ ± 30 mv
mv @ pH 4/10 _____ Difference between mv @ pH7 160-180
Response Time _____ < 90 seconds
Time of Day _____

	true pH	meter	time of day		
QA Check #1	_____	_____	_____	Recalibrated	Y / N
QA Check #2	_____	_____	_____	Recalibrated	Y / N
QA Check #3	_____	_____	_____	Recalibrated	Y / N

If meter pH is not within 0.10 pH units of true value in pH 7 buffer, then recalibrate & re-read sample.

Conductivity Standard _____ µmhos/cm Meter _____ µmhos/cm

DAY 2

Initial Cell Constant _____ Standard _____ µmhos/cm Meter _____ µmhos/cm

Slope _____ 92-102%
mv @ pH 7 _____ ± 30 mv
mv @ pH 4/10 _____ Difference between mv @ pH7 160-180
Response Time _____ < 90 seconds
Time of Day _____

	true pH	meter	time of day		
QA Check #1	_____	_____	_____	Recalibrated	Y / N
QA Check #2	_____	_____	_____	Recalibrated	Y / N
QA Check #3	_____	_____	_____	Recalibrated	Y / N

If meter pH is not within 0.10 pH units of true value in pH 7 buffer, then recalibrate & re-read sample.

Conductivity Standard _____ µmhos/cm Meter _____ µmhos/cm

DAY 3

Initial Cell Constant _____ Standard _____ µmhos/cm Meter _____ µmhos/cm

Slope _____ 92-102%
mv @ pH 7 _____ ± 30 mv
mv @ pH 4/10 _____ Difference between mv @ pH7 160-180
Response Time _____ < 90 seconds
Time of Day _____

	true pH	meter	time of day		
QA Check #1	_____	_____	_____	Recalibrated	Y / N
QA Check #2	_____	_____	_____	Recalibrated	Y / N
QA Check #3	_____	_____	_____	Recalibrated	Y / N

If meter pH is not within 0.10 pH units of true value in pH 7 buffer, then recalibrate & re-read sample.

Conductivity Standard _____ µmhos/cm Meter _____ µmhos/cm

Quality Assurance Project Plan
for
Nutrient Removal Effectiveness by Basin A (Wet Pond #1 & #2) to Lawson Creek: Lake Sawyer Implementation Plan

Yarrow Bay Development Company
Contract Work 20-15-010-00
Contract/Project Number:

January 2011

Prepared by

Robert Plotnikoff, Harry Gibbons, Shannon Brattebo and Gene Welch

Tetra Tech, Inc.
1420 Fifth Avenue
Seattle, WA 98101

Prepared for

BD Lawson Partners, LP

Approval Signatures:

_____ Date: _____
Project Manager

_____ Date: _____
Senior Technical Staff

_____ Date: _____
Additional

_____ Date: _____
Additional

Table of Contents and Distribution List

1.0 BACKGROUND 1

2.0 PROJECT DESCRIPTION 2

A) BMP/LID EFFECTIVENESS MONITORING 2

B) LAWSON CREEK MONITORING 3

3.0 ORGANIZATION AND SCHEDULE 5

5.0 SAMPLING PROCESS DESIGN 11

6.0 SAMPLING PROCEDURES 18

6.1 SAMPLING SCHEDULE 18
6.3 FIELD RECORDING METHODS 20
6.4 SAMPLING IDENTIFICATION AND CUSTODY 20

7.0 MEASUREMENT PROCEDURES 22

8.0 QUALITY CONTROL 24

9.0 DATA MANAGEMENT PROCEDURES 29

10.0 AUDITS AND REPORTS 31

11.0 DATA VERIFICATION AND VALIDATION 33

12.0 DATA QUALITY (USABILITY) ASSESSMENT 38

13.0 REFERENCES 40

APPENDIX A 41

Distribution List

Name, Title	Phone, Fax, E-mail	Mailing Address
Yarrow Bay Development Company		
Triad Associates, Inc.		
Tetra Tech, Inc. Surface Water Group		

1.0 Background

1.1 Study Area and Surroundings

Lake Sawyer is located near the city of Black Diamond, and is a popular recreational resource for the area. Lake Sawyer is 280 acres in size and has a watershed of approximately 8,300 acres. The watershed is divided into three sub-basins: Rock Creek, Ravensdale Creek, and the nearshore area of Lake Sawyer. These sub-basins of the Lake Sawyer watershed serve as management areas for water quality improvement. Lake Sawyer serves as part of the migratory pathway for late-winter Coho salmon (*Oncorhynchus kisutch*) which spawn in Ravensdale Creek and Rock Creek drainages. Resident rainbow trout, cutthroat trout, kokanee, and several warm-water fish species are present in Lake Sawyer (King County 2000).

The lake has generally good water quality, but experiences elevated phosphorus concentrations. In the 1970's Black Diamond lacked sewage treatment plant facilities and effluent was treated by septic tanks and drainfields, including a city septic tank located just south of Auburn-Black Diamond Road that discharged to Ginder Creek. These methods for effluent treatment also resulted in elevated concentrations of fecal coliform, nitrogen, and biochemical oxygen demand in Ginder Creek.

High nutrient concentrations from the treated sewerage effluent were likely associated with high phosphorus concentrations which promoted increased loading to Lake Sawyer. The Black Diamond Wastewater Treatment Plant (WWTP) began operation in 1981 and discharged effluent to a natural wetland coincident with the mouth of Rock Creek. The strategy for use of a natural wetland as part of the treatment train used to abate pollutants in the WWTP effluent rapidly became ineffective as signs of eutrophication in Lake Sawyer appeared. Algal blooms were commonly detected in the late 1980's. The treatment plant using the wetland system was closed. The Department of Ecology (Ecology) developed a Total Maximum Daily Load (TMDL) model for Lake Sawyer predicting phosphorus concentrations under various loading scenarios.

2.0 Project Description

2.1 Tasks

The following tasks for this project have been developed:

Task 1. Evaluate Water Quality conditions in Wet Pond #1 to determine total phosphorus load from The Lawson MPD development areas into Basin A.
Task 2. Determine effectiveness of the Wet Pond in removing phosphorus load and conveyance to receiving water (Lawson Creek a tributary to Jones Lake and Rock Creek).

2.2 Objectives

Information in this Quality Assurance Project Plan (QAPP) is organized to provide sampling and analysis methods that will generate data and interpretations necessary to address the following objective:

2. To determine whether annual average total phosphorus discharge concentrations from a representative Large Wet Pond are as predicted in the EIS water quality technical report (FEIS Appendix M, A.C. Kindig & Co. 2008) for the Lawson Hills MPD (Master Planned Development) and are meeting regulatory requirements of the approved MPD permit.

2.3 BMP and Stream Sampling

The monitoring strategy for this project includes elements that evaluate nutrient (phosphorus input) introduction to the constructed stormwater Best Management Practice (BMP) (Wet Pond #1), determine the efficiency of the BMP in removing entrained nutrients, and describe the resulting output phosphorus concentration. The second step in the monitoring strategy measures the nutrient load in the receiving water (Lawson Creek and ultimately to Rock Creek) to determine the nutrient portion originating from the stormwater BMP (Wet Pond #1) and the background load originating from other sources in the watershed. This QAPP has been developed to ensure that all methods used and all data collected during the project is defensible and repeatable. The QAPP has been developed for monitoring effectiveness of BMP implementation as required by the Washington Department of Ecology's QAPP Guidance.

a) BMP/LID Effectiveness Monitoring

Purpose: Determine efficiency of BMP facilities in removal of phosphorus routed to each structure from overland flow in the Development during storm events. The parameter of concern is phosphorus.

Sampling of the BMP facility (Wet Pond #1) within Lawson Development will occur during 6 to 8 storm events per year. Storm water samples will be collected during the wet season which is defined as October 1st through March 31st. Samples will be collected from the input and outflow of each BMP facility in order to determine nutrient removal efficiencies. Samples will be collected manually. The grab samples will be delivered to an accredited Washington Laboratory and analyzed for total phosphorus and soluble reactive phosphorus.

For the purposes of defining a single storm event, the minimum amount of rainfall should be at least 0.2 inches and the event must be preceded by a dry period of at least 4 hours. Two of the 8 storm events should have a minimum amount of rainfall of at least 0.5 inches. To account for the variability of each sampling event, storm conditions, and pond discharge, each sampling event will last for four hours or for the duration of the storm. Samples will be collected at defined time intervals, i.e. one sample every hour, which will result in 4 or less nutrient samples per storm event. Flow at the facility input and outflow will be measured continuously with a data logger, which will be installed prior to the start of monitoring activities. Flow data will be used to volume and time-weight nutrient concentrations in and out of each facility over a storm event.

b) Lawson Creek Monitoring

Purpose: Determine the nutrient load contributed from the Lawson Development to the receiving water (Lawson Creek). Use results from the nutrient loading analysis to inform on contributions from the Development versus other non-point sources.

Grab samples will be collected in Lawson Creek at several locations to characterize both baseline nutrient conditions and conditions during storm events. Grab samples will be collected in Lawson Creek just upstream of and downstream of each BMP facility within the Development, as well as upstream of all Development property. Collecting nutrient samples from these locations will provide information on nutrient loading not only from Lawson Development but also from other non-point sources within the watershed. Baseline nutrient monitoring in Lawson Creek will include collection of samples at the above mentioned locations on a monthly basis. Baseline monitoring of Lawson Creek will provide information on nutrient concentrations and conditions without influence or impact from the Lawson Development. Samples will also be collected in Lawson Creek during storm events to help characterize nutrient loading associated with stormwater runoff. Storm event sampling in Lawson Creek will correspond with sampling of BMP facilities within the Lawson Development. All samples collected in Lawson Creek will be analyzed for total phosphorus and soluble reactive phosphorus. Flow measurements and field parameters (e.g., temperature, pH, conductivity, and dissolved oxygen) will also be collected during each sampling event.

2.4 Water Quality Constituents to Monitor (Origin of Phosphorus Sources)

Phosphorus, both soluble reactive and total phosphorus are important constituents ultimately controlling DO levels in receiving water and in Lake Sawyer. Analytical procedures used to determine concentration of phosphorus are extremely important and need to be consistent. Soluble reactive phosphorus should be determined on samples filtered through phosphorus-free filters using the EPA 365.1 ascorbic acid method. Total phosphorus should be determined with the exception of filtering, by the same method for soluble reactive phosphorus following digestion with persulfate according to Standard Methods (APHA 2005). A contract laboratory

that can meet these rigorous reporting limit and laboratory performance requirements is required for analysis of phosphorus forms.

Other constituents that will be monitored include temperature, dissolved oxygen concentration, pH, and specific conductance. These constituents can be used to indicate sources of contamination in the same way dissolved oxygen concentrations are usually used as a surrogate to indicate increased concentrations of phosphorus and loading present in the basin.

Precipitation

Phosphorus content within precipitation should be determined in bulk and wet fall (rain-containing phosphorus in dry and wet forms). Review of precipitation data collected in the fall from the October 1st through March 31st will be used to forecast volume and intensity of rainfall events throughout this monitoring period.

One location for a unit to monitor wet and dry fall (use a rain gage) on a weekly- or twice-monthly basis should be adequate. The rainfall patterns measured during the proposed monitoring period will provide perspective on the amount of airborne phosphorus that might be expected to be loading into the Wet Pond and the receiving stream (Lawson Creek).

3.0 Organization and Schedule

The purpose of this document is to present the quality assurance project plan (QAPP) for collecting water quality and other data to assess the chemical, physical, and biological characteristics of non-point sources of pollution affecting Lake Sawyer. A team of technical professionals will conduct scientific investigations that include: 1) collection of environmental data (routine monitoring), 2) collection and interpretation of phosphorus loading data from a stormwater BMP (Wet Pond #1), and 3) interpret technical information used to inform on effectiveness of the BMP operation.

This QAPP provides general descriptions of the work to be performed to collect the samples, the standards to be met, and the procedures that will be used to ensure that the data are scientifically valid and defensible and that uncertainty has been reduced to a known and practical minimum. It describes the procedures used to obtain concentrations of the desired chemical analytes and other parameters of concern.

The organizational aspects of a program provide the framework for conducting tasks. The organizational structure can also facilitate project performance and adherence to quality control (QC) procedures and quality assurance (QA) requirements. Key project roles are filled by those persons responsible for ensuring the collection of valid data and the routine assessment of the data for precision and accuracy, as well as the data users and the person(s) responsible for approving and accepting final products and deliverables. The key personnel and responsibilities for this project for Lawson Hills MPD (Master Planned Development) in the Lake Sawyer drainage in urban Black Diamond are listed in Table 3.0-1.

Table 3.0-1. Project/Task organization and responsibility summary.

Personnel	Responsibility	Address/E-Mail	Phone Number
Al Fure,Triad Associates, Inc.	Project Manager	Al Fure Triad Associates, Inc. 12112 115th Avenue NE Kirkland, WA 98034 afure@triadassociates.net	(425)216-2110
Harry Gibbons, Tetra Tech, Inc. Robert Plotnikoff, Tetra Tech, Inc.	Co-Project Leads	Tt Surface Water Group 1420 Fifth Avenue, Ct. E Seattle, WA 98101 harry.gibbons@tetratech.com robert.plotnikoff@tetratech.com	(206)728-9655
Name, Position, Tetra Tech, Inc.	Field Lead	Tt Surface Water Group Address City, WA Email address	Contact Information
Name, Position, Tetra Tech, Inc.	Quality Assurance Officer (QAO)	Tt Surface Water Group Address City, WA Email address	Contact Information
Name, Position, Tetra Tech, Inc.	Data Manager	Tt Surface Water Group Address City, WA Email address	Contact Information

Each component of this project has specific milestones and products. The project schedule contains several deliverables in draft and final form. The schedule for each of these products is outlined in Table 3.0-2.

Table 3.0-2. Project deliverables and typical target calendar dates for Lawson Hills MPD monitoring.

Deliverables	Target Date
Final Approved QA Project Plan	One month prior to start of sampling
Sampling Start/End	October 1st/March 31st
Draft Study Report	May 31st
Final Study Report	July 15th
Submit Data to Client	Within 45 days following each sampling event

3.1 Priority of Task Implementation

The monitoring strategies described in this QAPP are implemented simultaneously in order to determine source and quantity of phosphorus loading. Each of the monitoring strategies will build upon the base of information informing on source and magnitude of non-point pollution originating from The Lawson Hills Development stormwater basin and from other sources. The following is the suggested priority for implementing each monitoring strategy:

3. Wet Pond #1 Stormwater Sampling (nutrient sources)
4. Lawson Creek Receiving Water Sampling (transport to Jones Lake)

4.0 Quality Objectives

Data quality objectives (DQOs) are qualitative and quantitative statements that clarify the intended use of the data, define the types of data needed to support the decision, identify the conditions under which the data should be collected, and specify tolerable limits on the probability of making a decision error due to uncertainty in the data (if applicable). Data users develop DQOs to specify the data quality and quantity needed to support specific decisions.

4.1 Decision (Data) Quality Objectives

Data, or decision, quality objectives determine when data will be used to select between management alternatives or to determine compliance with a standard. Management decisions for improving lake quality by using monitoring data will require generation of an adequate quantity of data influenced by numbers, locations, and frequency of samples from sites that must be analyzed. A set of data eventually used to make management decisions will meet various standards or comply with minimum requirements of a statistical evaluation and have the ability to distinguish between two environmental conditions (e.g., impaired or not-impaired) with an acceptable level of uncertainty.

The quality of an environmental monitoring program can be evaluated in three steps: (1) establishing scientific assessment quality objectives, (2) evaluating program design to evaluate whether the objectives can be met, and (3) establishing assessment and measurement quality objectives that can be used to evaluate the appropriateness of the methods being used in the program. The quality of a particular data set is some measure of the types and amount of error associated with the data.

Sources of error or uncertainty in statistical inference are commonly grouped into two categories:

3. *Sampling error:* The difference between sample values and *in situ* “true” values from unknown biases due to sampling design. Sampling error includes natural variability (spatial heterogeneity and temporal variability in population abundance and distribution) not specifically accounted for in a design (for design-based inference), and variability associated with model parameters or incorrect model specification (for model-based inference).
4. *Measurement error:* The difference between sample values and in situ “true” values associated with the measurement process. Measurement error includes bias and imprecision associated with sampling methodology, specification of the sampling unit, sample handling, storage, preservation, identification, instrumentation, and the like.

The data requirements for this project encompass aspects of laboratory analysis and database management to reduce sources of errors and uncertainty in the use of the data.

4.2 Measurement Quality Objectives

Type and Frequency of Laboratory Quality Control Samples

For samples analyzed at a commercial laboratory, the type and frequency of the quality control samples to be analyzed are summarized in Table 4.0-1 and Table 4.0-2. Additional quality control sampling will be conducted in the field and is detailed in Section 8.0 Quality Control Procedures.

Table 4.2-1. Laboratory quality control samples.

Type of Quality Control Sample	Description
Method Blank	Reagent grade sample matrix analyzed to provide an indication of laboratory contamination.
Check Sample	Generally purchased, prepared independently from analytical standards and used to provide an indication of the accuracy of the analytical determination.
Laboratory Duplicate	A second aliquot of a sample, processed in exactly the same manner.
Matrix Spike	An aliquot of a sample to which known quantities of analytes are added, processed in exactly the same manner.
Field Duplicate	A split sample, labeled in a similar manner as regular samples, submitted to laboratory, and processed in exactly the same manner.

Precision

Precision is a measure of the scatter in the data due to random error that is expected primarily from sampling and/or analytical procedures. Laboratory duplicates for assessment of precision will be analyzed at a frequency of about 10 percent of the total number of samples submitted to the laboratory or at least one per sample batch. In addition, field duplicates will be collected for approximately 10 percent of samples submitted to the laboratory. For sample results which exceed the reporting detection limit (RDL), the relative percent difference (RPD) will be less than or equal to 20 percent.

This QC calculation also addresses uncertainty due to natural variation and sampling error. Precision is calculated from two duplicate samples by relative percent difference (RPD) as follows:

$$RPD = \frac{|C_1 - C_2|}{Mean(C_1, C_2)} x100$$

where C_1 = the first of the two values and C_2 = the second of the two values.

For laboratory sample results with values less than 5 units, the precision criterion will be less than or equal to 1.5 units rather than the RPD to account for the effect of smaller values on percent differences. No criteria are presented for duplicates which are below the RDL, as these data are provided for informational purposes only. For instance, where one result is below the RDL, professional judgment will be used in determining the compliance of the data to project requirements.

Table 4.2-2. Frequency of laboratory quality control samples.

Parameter	Matrix	Check Standards	Method Blanks	Analytical Duplicates	Matrix Spikes	Field Duplicates
Total Phosphorus	Water	One per analysis batch of 20 samples	One per analysis batch of 20 samples	One per analysis batch of 20 samples	One per analysis batch of 20 samples	Minimum 10% of samples
Soluble Reactive Phosphorus	Water	One per analysis batch of 20 samples	One per analysis batch of 20 samples	One per analysis batch of 20 samples	One per analysis batch of 20 samples	Minimum 10% of samples

Bias

Bias provides an indication of the accuracy of the analytical data, as provided by both method blanks and percent recovery of target analytes from reagent and field sample matrix. Check samples will be used to provide compliance criteria for bias. The percent recovery of the matrix spikes and standard reference materials will be less than or equal to +/- 20 percent.

Method blank samples will be analyzed with each batch of samples. Results for method blank samples should be less than the minimum detection limit for each parameter.

Accuracy

Accuracy is a measure of confidence that describes how close a measurement is to its “true” value. Methods to ensure accuracy of field measurements include instrument calibration and maintenance procedures. Sample handling procedures and procedures for verification of data influence the accuracy of results.

Analytical laboratory accuracy is normally determined by the percent recovery of the target analyte in spiked samples and also by the recoveries of the surrogates in all samples and Quality Control samples. Laboratory accuracy ranges are specified in the contract laboratory Quality Management Plan and depend on the parameter being measured. Accuracy is calculated as follows:

$$\%Rec = \frac{\text{Analyzed value}}{\text{True value}} \times 100$$

The Tetra Tech Technical Lead will ensure the contract laboratory accuracy by meeting %Recovery (Rec) values specified by EPA methods and listed in Table 4.0-3.

In addition, performance of field equipment and operation of meters will be evaluated by meeting relative percent difference goals for each of the parameters (Table 4.0-4). Accuracy for field measurements cannot be measured directly, but can be evaluated based on description of equipment performance.

Table 4.2-3. Measurement quality objectives for laboratory analysis.

	Precision		Bias/Accuracy			
Parameter	**Analytical Duplicate Samples**	**Field Duplicate Samples**	**Check Standard (LCS)**	**Matrix Spikes**	**Method Blanks**	**Lowest Concentrations of Interest**
	Relative Percent Difference (RPD)	**Relative Percent Difference (RPD)**	**% Recovery Limits**	**% Recovery Limits**	**Units**	**Units of Concentration**
Surface Water						
Total Phosphorus	±20 [a]	±20 [a]	±10	±20	< RL	Reporting Limit [b], µg/L
Soluble Reactive Phosphorus	±20 [a]	±20 [a]	±10	±20	< RL	Reporting Limit [b], µg/L

[a] For sample results with values of less than 5 units, the precision criterion will be less than or equal to 1.5 units rather than the RPD to account for the effect of smaller values on percent differences.
[b] The Required Reporting Limit (or Minimum Detection Limit) is listed in Table 5.0-1.

Table 4.2-4. Measurement quality objectives for field measurements.

	Precision (from replicate measurements	**Bias/Accuracy**	**Lowest Values of Interest**
Parameter	**Relative Percent Difference (RPD)**	**(% Recovery) (deviation from true value)**	**Units of Measurement**
Dissolved Oxygen (LDO)[a†]	10	N/A	Minimum detection limit [b]
Conductivity†	5	N/A	Minimum detection limit [b]
pH†	5	N/A	4.0 units
Temperature†	5	N/A	0 ^{o}C
Flow	0.5 inches	N/A	0.5 inches

[a] Luminescent Dissolved Oxygen Probe.
[b] The Minimum Detection Limit is listed in Table 5.0-1.
[†] Parameters collected continuously at 15-minute intervals.

5.0 Sampling Process Design

5.1 Sampling Design and Rationale

Nutrient introduction into Lake Sawyer has been identified as a primary cause for promoting nuisance algal blooms caused by periodic high total phosphorus concentrations during portions of the year. Following almost two decades of phosphorus reduction efforts, concentrations of this nutrient are generally being met throughout the year. Ecology and the City of Black Diamond have expended effort in fixing some of the obvious source problems for nutrient in the drainage; primarily on-site septic systems and drainage from a wetland originally expected to treat effluent discharged from a wastewater treatment plant. Other basin-wide implementation measures have been identified by the Department of Ecology (WSDOE 2009).

The Lawson Hills MPD permit approval includes conditions to identify the estimated maximum annual volume of total phosphorus from the MPD site and that will comply with the TMDL for Lake Sawyer, and to monitor phosphorus coming from the MPD site. The sampling design and rationale presented are intended to provide information that can be used in an adaptive management program and continually update/upgrade the phosphorus monitoring program.

The sampling design meets the requirements from the City of Black Diamond as Conditions of Approval for the Lawson Hills Master Planned Development approval (Exhibit C: Conditions 76, 82, and 85) that monitoring of the stormwater treatment facility and the influence on receiving water be described. Exceedence of the allowable estimated maximum annual volume of total phosphorus discharged from the Development site will require a redesign of existing structures, modify the design of new treatment facilities, or implementation of another project in the Lake Sawyer basin that results in a reduction in total phosphorus so the annual maximum load is below the target quantity outlined in the Condition.

The proposed monitoring strategy addresses each of the potential sources of non-point nutrient total phosphorus contributions and methods that would detect presence of this pollutant and directly address tasks described in Section 2.0. The Sampling Process Design is described here based on each of these tasks:

Task 1. Evaluate Water Quality conditions in Wet Pond #1 (Basin A) to determine total phosphorus load from the Lawson Hills Development Basin.

WET POND #1

Locations: Outlet/Inlet of the first constructed Wet Pond (BMP)

C. Parameters:
   The Wet Ponds are designed to remove phosphorus from surface water runoff originating in the Lawson Hills Development. The efficiency and the effectiveness of this BMP will determine whether the structure is operating properly, needs retrofitting or maintenance, or informs on contaminant loads in stormwater that were greater than expected. The data from these monitoring efforts serve as a feedback mechanism for making future decisions in meeting treated water requirements. The monitoring effort and decision-making

process in determining effectiveness of stormwater phosphorus mitigation is directed by Condition #85 in Exhibit C of Lawson Hills MPD agreement.

Parameters will be measured below the Wet Pond Outlet and the Incoming conduit to the Wet Pond. Total Phosphorus will be sampled as well as flow (both incoming and outgoing). Continuous field monitoring will be conducted at the outlet of the Wet Pond in order to measure direct effects of stormwater on the natural streams and delayed effects once the storms have subsided. In addition, flow measurements will be recorded by calibrating a flow rating curve with pressure transducer readings. The pressure transducer readings will be converted into flow estimates following collection and download of this data. Periodic check for actual flow measurements will be made during sample collection for total phosphorus.

The total phosphorus load will be calculated using the flow estimates from both incoming and outgoing conduits associated with the Wet Pond. Since loading rates combine flow and parameter concentration, data comparisons can be made directly among months or years. These comparisons provide insight into short and long-term patterns for determining the effectiveness of the implementation plan for this drainage.

D. Reasons for Monitoring Design and Parameter Analysis:
Requirements for discharge of total phosphorus from the Wet Pond #1 are set by the Lawson Hills MPD Permit Conditions, and expected to be entrained in surface water runoff from storm events. For this reason, the winter wet season is targeted for most of the monitoring and is the time of year when water levels are sufficiently high to enable the Wet Pond to begin working as designed.

Task 2. Determine effectiveness of Wet Pond #1 in removing phosphorus load and conveyance to receiving water (Lawson Creek).

LAWSON CREEK (Conveyance from Wet Pond #1 to receiving water)

The Wet Pond may change some of the physical characteristics of the water depending on residence time, incoming volume, and time of year. These factors may influence surface water temperature which is of concern during the warmer months of the year. A sampling design describing temperature was recommended in order to demonstrate the potential for the Wet Pond to increase temperature of surface water in a natural receiving water stream. This sampling schedule targets a period of the year when this parameter is most likely to increase due to climate conditions and when declining flows cease to dissipate heat energy.

5.2 Sampling Locations and Frequencies

The two tasks described in Section 5.1 require collection of physicochemical field data and water samples for laboratory analysis. The following description of proposed study sites and design for sampling (at discrete sites) are presented in descriptive and map form (Figure 5.2-1). The proposed discrete sites for sampling will be field-verified prior to final location. Once selections are made for sites they will be monumented by using a GPS locational unit.

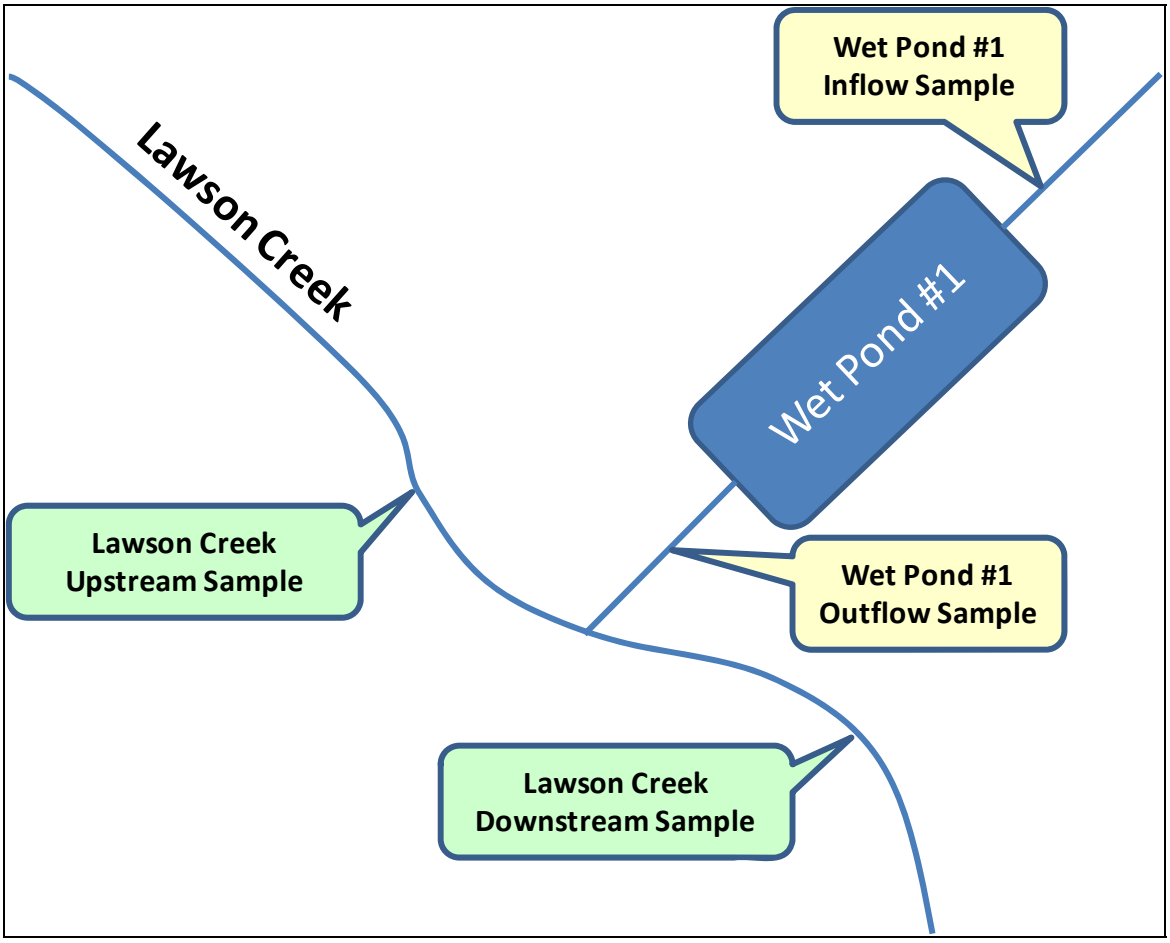


Figure 5.2-1. Proposed sample sites and locations for collection of surface water data.

Task 1. Wet Pond #1

B. Frequency of Sample Collection:

Sample collection timing and frequency is determined by the occurrence of storm events. Ideally, monitoring will be completed at 6-8 storm events; each with varying intensities of rainfall and longevity of the storm event. Monitoring based on these 2 factors provides some level of detail in understanding optimum effectiveness of the BMP (Wet Pond) under varying storm conditions. The period of monitoring is established from October 1st through March 31st of each calendar year for five years following the completion of development that discharges into Wet Pond #1. Completion shall be defined as the date the City's maintenance bond, as required by BDMC 14.04.360 and the Black Diamond Engineering Design and Construction Standards (Exhibit "E") Section 1.5, is released or expires for such facility.

Grab samples will be collected in order for sample integrity to be maintained and for making observations about environmental conditions when an investigator is present. Information gathered about physical characteristics of the water, how water travels to and from the Wet Pond, and surrounding information that might explain why specific water quality problems might arise are reasons why being present and sampling affords a greater opportunity to construct information for the critical feedback loop.

Task 2. Lawson Creek

C. Upstream of Discharge

b. Surface Water Parameters (Continuous data)

The upstream site for monitoring surface water quality will serve as the control for determining if the Wet Pond discharge is a cause for increased downstream temperatures. The monitoring frequency is recommended at 15 minute intervals so that 7-day average of the daily maximum temperatures (7-DADMax) can be calculated from the continuous monitoring data. Additional monitoring effort will be conducted at both the upstream and downstream site; including continuous monitoring with a HydroLab® unit. Additional parameters that will be collected are:

- Water Temperature
- Dissolved Oxygen concentration
- Conductivity
- pH

These additional parameters are important for understanding how the receiving water assimilates effects from additional nutrient input. Conversely, the receiving water may, at times, have higher concentrations of nutrient input that uses up the assimilative capacity. By generating a greater amount of information about water quality characteristics, identification of nutrient sources will assist in making drainage-level management decisions to meet the goals of the TMDL Implementation Strategy.

D. Downstream of Discharge

a. Surface Water Parameters (Continuous data)

Comparison between upstream and downstream (of the Wet Pond outfall) water quality characteristics will evaluate the effect Wet Pond water has on receiving water. The upstream/downstream sample design with site located in close proximity to the outfall will isolate effects from the BMP output. Water quality parameter measurements will be sampled identical to those described for the upstream site above. In addition, flow

monitoring will be conducted using pressure transducers calibrated using a flow-rating curve. The total phosphorus loads originating from upstream of the Wet Pond outfall will be combined with Wet Pond loads and the resulting load compared against the downstream estimate. This analytical exercise is intended to reveal the dynamic nature of nutrients in natural streams receiving treated stormwater.

5.3 Order (Timing) of Sampling

Non-point source pollutants enter streams and lakes at different rates during each season throughout the year with transfer and distance of travel influenced primarily by climatic events. Each of the tasks addresses potential source and pathway for introduction of nutrient pollution into nearby receiving streams and accounts for optimal time of year when pollution is either detectable or loading is greatest to surface water. In some cases, a division of the year that differentiates wet- from dry seasons is used as a contrast to estimate the magnitude of nutrient pollution load introduced during a time period.

The following are descriptive examples for sampling dates and frequencies for satisfying study objectives in each of the tasks:

Task 1

- Sampling Intervals for the constructed Wet Pond #1; Rainfall Events and No. of Visits
  October 1st – March 31st (6-8 visits)

Task 2

- Lawson Creek upstream/downstream sampling:
  <u>October 1st – March 31st</u>
  Continuous Surface Water Temperature monitoring (15-minute intervals)
  Dissolved Oxygen concentration (15-minute intervals)
  Conductivity (15-minute intervals)
  pH (15-minute intervals)

  <u>April 1st – September 30th</u>
  Continuous Surface Water Temperature monitoring (15-minute intervals)

5.4 Representativeness

Sample representativeness will be addressed at two distinct steps in the data collection process. During sample collection, the use of generally accepted sampling procedures in a consistent manner throughout the project will ensure that representative samples are obtained. During sub-sampling within the laboratory, samples will be mixed by inverting several times to ensure that the analytical sub-sample is representative of the sample container contents.

Wet Pond #1 Water Quality
Representativeness will be achieved through collection of samples aimed at capturing the characteristics of the stormwater entering and exiting the BMP. The Wet Pond #1 will be sampled to characterize water quality during multiple storms of varying sizes.

Lawson Creek Water Quality

Data will be gathered to characterize water quality constituents during dry and wet seasons of the year. Additional detail is provided for description of storm events in Western Washington and the characteristics that will be described by stormwater monitoring (see Section 5.2, Task 2).

5.5 Completeness

Completeness is defined as the percentage of measurements made that are judged to be valid according to specific criteria and are entered into the data management system. Lack of data entry into the database will reduce the ability to perform analyses, integrate results, and prepare reports. Therefore, every effort is made to avoid accidental or inadvertent sample or data loss. Accidents during sample transport or lab activities that cause the loss of the original samples will result in irreparable loss of data. Samples will be stored and transported in unbreakable (plastic) containers wherever possible. All sample processing (sub-sampling, sorting, identification, and enumeration) will occur in a controlled environment within the laboratory. Field personnel will assign a set of continuous identifiers to a batch of samples.

Percent completeness (*%C*) for measurement parameters can be defined as follows:

$$\%C = \frac{V}{T} x100$$

where V = the number of measurements judged valid and T = the total number of measurements taken

For this project, sampling will be considered complete when no less than 90 percent of the samples collected during a particular sampling event are judged valid. At any time where data are not complete, decisions regarding re-sampling and/or re-analysis will be made by Tetra Tech. These decisions will take into account the project data quality objectives as presented above.

Completeness will also be judged by comparison to the monitoring parameters and frequency laid out in the monitoring schedule. For this criterion, completeness is defined as the number of measurements taken divided by the number of measurements scheduled. While the goal for this criterion is 100 percent completeness, a lower percent completeness may be acceptable for a volunteer monitoring program.

5.6 Comparability

Two data sets are considered to be comparable when there is confidence that the two sets can be considered equivalent with respect to the measurement of a specific variable or group of variables. Comparability is dependent on the proper design of the sampling program and on adherence to accepted sampling techniques, SOPs (Standard Operating Procedures), and QA (Quality Assurance) guidelines.

Data comparability generated throughout The Lawson Hills Development will be ensured through application of standardized sampling procedures and convergence with methods and practices of existing monitoring programs (e.g., Ecology), analytical methods (e.g., state-accredited laboratories), units of measurement, and detection limits. The sampling results will be tabulated in a database for comparison between sampling events and sampling sites.

Method detection limits and laboratory methods for surface water quality variables analyzed in the Lawson Hills project are listed in Table 5.0-1.

Table 5.6-1. Reporting limits and analytical methods for surface water and sediment data.

Water Quality Parameter	Units	Minimum Reporting Limit	Accuracy	Method
Surface Water				
Total Phosphorus, TP	µg/L	2.0	±2	EPA 365.1
Soluble Reactive Phosphorus, SRP	µg/L	1.0	±2	EPA 365.1
Temperature	ºC	0.5	±0.5	[a] Thermometer
		0.01	±0.1	[a] HydroLab
Dissolved Oxygen	mg/L	0.2 (test kit) 0.01 (meter)	±0.4 (test kit) ±0.2 (meter)	Bioluminescence Probe
pH	pH units	0.1	±0.2	HydroLab
Conductivity	µmhos/cm	5	±1	HydroLab
[b] Creek/Basin level	inches	0.5	±0.5	Pressure Transducer

Note:
[a] Calibration checks of the HydroLab will be checked with a field thermometer twice during the monitoring year using a NIST-approved calibration thermometer.
[b] Select locations of the Stormwater Basin will be continuously monitored for level (pressure transducer) in order to estimate flow for determining loading estimates of nutrient pollutants.

6.0 Sampling Procedures

Sampling methods focus on characterization of surface water chemistry (e.g., phosphorus, dissolved oxygen and pH) and some of the physical properties (e.g., temperature and conductivity). The collection of samples prescribes collection periods, handling procedures, and identification procedures that minimize and identify systematic error in the Lawson Hills project. Performance expectations of the samplers described in this section records information that can be used for data verification and validation.

Achieving accuracy in data generation begins with a sampling procedure that is well conceived, described, and carefully implemented (WSDOE 2001). The sampling locations, sample types, sampling equipment, and methods were briefly described in *Section 2.0 Project Description*. This section of the QAPP discusses the details of the sample collection method and the sample handling and labeling procedures (U.S. EPA 1990).

6.1 Sampling Schedule

Wet Pond and Creek sampling will occur over a six month Index Period; characterizing the variety of storm events through several water quality collection events will capture pollutant loading from intensity and length of individual storms. Measurements will be taken at pre-determined locations for characterizing water quality in each component of the study area and during specific periods of the year (e.g., optimal times for characterizing water quality conditions) based on information reported in Table 6.1-1.

Table 6.1-1. Monitoring schedule and timing/frequency for collection of samples.

Sampling Routine	Jan.	Feb	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.
Task #1	Inflow/Outflow Monitoring									Inflow/Outflow Monitoring		
Task #2	Upstream/Downstream Monitoring			Continuous Temperature Monitoring						Upstream/Downstream Monitoring		

Note: Task #1 – Continuous field monitoring parameters and 12 water quality samples collected per storm event (6-8 storm events characterized).
Task #2 - Continuous field monitoring parameters and 12 water quality samples collected per storm event (6-8 storm events characterized).

6.2 Sample Collection and Handling

Recommended sample sizes, containers, preservation techniques, and holding times for measurement of the conventional water quality parameters are listed in Table 6.2-1. Sample containers will be kept closed until each set of sample containers is filled. All samples will be placed immediately in a cooler and kept cool and dark until delivered to the lab.

Water samples will be collected for each monitoring program using specific devices that minimize potential for contamination and that enable samples to be collected safely. Each of the monitoring programs presents challenges in locating and collecting a representative water sample. The following collection devices and locations for sampling will be used for each monitoring program:

3. Wet Pond #1 Sampling: cleaned collection vessel from bank or in the pond.
4. Creek Sampling: Surface water collected from bank or while standing downstream of the sample collection location.

Note:

b. Bank sampling or instream/pond sampling will be conducted by filling collection bottles supplied by the contract laboratory.

Total phosphorus and soluble reactive phosphorus will be collected in polyethylene or glass bottles provided by the laboratory. Sample bottles and laboratory glassware for lake-related sampling shall be reserved for ultra-low P waters (i.e. lakes, streams, or basins) and can never be used for sampling or analyzing wastewater or agricultural runoff where there is a potential to exceed 100 µg/L. All sample bottles are to be acid washed with 1N HCL six times followed by 6 rinses with de-ionized water (for low-level nutrient analysis and to ensure acid is rinsed away, especially in soft water). Whenever possible, samples will be processed within the recommended holding time. This would exceed the recommended holding time for select variables like soluble reactive phosphorus samples. Lab results from samples exceeding holding times may be accepted as usable data depending on sample storage conditions following collection. Data Management Section 9.0 further outlines how to record variation from QAPP protocol or DQOs (Data Quality Objectives).

Table 6.2-1. Containers, preservation techniques, and holding times for measurement of water quality and sediment parameters.

Parameters	Sample Container	Sample Volume	Preservation	Recommended Holding Time
Surface Water				
Total Phosphorus	Polyethylene, Glass	50 ml	Cool, <4ºC	28 days
Soluble Reactive Phosphorus	Polyethylene, Glass	125 ml	Filter within 12 hours, Cool <4ºC	48 hours

6.3 Field Recording Methods

When visiting a sampling station, the sample collector will record the following information on water-proof field sheets. Detailed information on field observations should include the following:

- Date
- Time
- Names of sampling personnel
- Number/type of samples collected
- Weather
- Descriptions of any photographs taken
- On-site field measurement (e.g., temperature, water level)
- Color of water
- Unusual conditions (changes in land uses, presence of oil sheens, odors, nuisance conditions).

6.4 Sampling Identification and Custody

Each sample bottle will have a waterproof sample identification label or tag. All sample bottles will be labeled with an indelible marker before the time of collection. Sample labels will include station designation, date, time, collectors' initials and type of sample. Special analyses to be performed and any pertinent remarks will also be recorded on the label.

All water quality samples will be delivered by courier to the contract commercial laboratory. Samples will be accompanied by the sample tracking forms with sample numbers, requested analyses, number of bottles, bottle sizes and contact information. An example of the sample tracking (or Chain-of-Custody) form that may be used for the Lawson Hills project is presented in Appendix A.

Water samples will be collected, placed in the labeled transfer bottles, and delivered to the laboratory as soon as possible following collection. Bottleware for each parameter, including the container types and preservatives, will be supplied by the contract laboratory and used to collect samples. Handling requirements for samples collected in Lawson Hills study area will also be provided by the ;laboratory. The samples taken for laboratory analysis will be stored in coolers containing re-sealable bags of ice. The temperature inside the coolers and acid preservation for samples will be verified by the receiving laboratory as a component of field quality control.

All samples will be transferred to the receiving analytical laboratory using Chain of Custody forms. The sample Chain of Custody form (included in Appendix A) acts as a record of sample shipment and a catalog of the contents of each shipment (coinciding with information on the field record), in addition to maintaining a complete record of evidentiary custody transfer. It will contain the following, at a minimum:

- Sampler's name
- Project name
- Page number (e.g., 1 of 1)
- Sample location (facility name, waste stream, sampling point)
- Collection date and time
- Sample number
- Number of containers
- Type of analysis required
- Laboratory recipient signature
- Laboratory receipt date and time

Immediately following the packing of each shipping container, each container (cooler) will be secured with packaging tape.

7.0 Measurement Procedures

All analysis methods used for this project are approved standard analytical methods approved for use by the EPA and Ecology (Table 5.0-1). Water quality parameters including pH, dissolved oxygen, conductivity and temperature will be measured in the field during each sampling event using a YSI®, Hydrolab®, or other similar multi-parameter probe. Routine maintenance on the multi-parameter probe will be conducted according to schedules described in the manual provided by the manufacturer and recorded in the maintenance log for each instrument. All technical maintenance or repairs of the instrumentation while in use will be reported to the suppliers' trained staff upon completion of each sampling event for suggestions on corrective action.

The contracted laboratory for the program must be Ecology-certified for drinking-water analyses, and this lab will perform all other physicochemical analyses for this study. The contract laboratory QMP (Quality Management Plan) must be on file with Ecology detailing their quality assurance procedures.

7.1 Field Sampling Procedures and Laboratory Analysis Procedures

Procedures describing field sampling are fully described for each parameter in Section 6. Laboratory Analysis procedures are described in Section 5. All water sample analyses except the field measurements of temperature, DO (dissolved oxygen), conductivity, and pH will be completed by fully qualified subcontract laboratories. The analytical chemistry methods to be used, as well as the sample volume requirements, detection limits, and holding times, will be consistent with the laboratory's QA and QC plans and SOPs.

7.2 Calibration of Equipment

Care will be taken to ensure that the multi-parameter probes used for field measurement are calibrated and adjusted prior to sampling by using known buffer solutions (low ionic strength buffers) that are included with the instrument. The multi-parameter probes will be calibrated following the manufacturer's designated procedures. Field measurements that exceed the normal range of values for each parameter will require that a calibration check of the instrument be completed upon return from the field. If the calibration check falls outside the acceptable calibration limits, the instrument will be re-calibrated and a new field measurement will be taken at the site. All calibration checks and remediation actions taken will be recorded on field forms and in calibration logs and be available upon request.

Laboratory turnaround times must be within 10 to 20 working days. Any issues regarding analytical data quality will be resolved by the Tetra Tech and Triad Associates Program Director through regular communication with the laboratory project manager.

Laboratory analytical procedures will follow U.S. EPA (1983, 1991) or APHA et al. (1998) methods. Detection limits and methods are summarized in Section 5 and in Table 5.0-1.

Table 7.2-1. Measurement methods for laboratory analysis of surface water and sediment samples.

Analyte	Sample Matrix	Samples [Number/ Arrival Date]	Expected Range of Results	Reporting Limit (RL)	Sample Prep Method	Analytical (Instrumental) Method
Total Phosphorus	Water	TBD		2.0 µg/L	Persulfate, autoclave	EPA 365.1
Soluble Reactive Phosphorus	Water	TBD		1.0 µg/L	0.45u filtration	EPA 365.1
Dissolved Oxygen (DO)[a]	Water	TBD	RL to 12 mg/L	<0.1 mg DO/L	None	Standard Methods 4500-O G [b]
pH [a]	Water	TBD	pH 3-9	pH<1	None	Standard Methods 4500-H^{+} [b]
Temperature [a]	Water	TBD	0-30 ^{0}C	32°C	None	Standard Methods 2550B [b]
Conductivity a	Water	TBD	RL to 200 µsiemens/cm	1 Microsiemens/cm[e]	None	USGS NFM 6.3.3A-SW

NOTES:

c. This is a field measurement.
d. Cell chosen, based on anticipated conductance will determine reporting limit.

8.0 Quality Control

Data quality is addressed, in part, by consistent performance of valid procedures documented in Standard Operating Procedures (SOPs). It is enhanced by the training and experience of project staff (Section 3.0) and documentation of project activities (Section 5.0). This QAPP and other supporting materials will be distributed to all sampling personnel. A QC Officer will ensure that samples are taken according to the established protocols and that all forms, checklists, and measurements are recorded and completed correctly during the sampling event.

To establish the precision, accuracy, and representativeness of data obtained from the sampling effort, QC samples for laboratory analyses will be analyzed according to methods reported in Table 5.0-1 and collected at the frequency described in Figure 4.0-2. Three types of QA and QC samples will be analyzed during each sampling event: field blanks, sample QC, and laboratory QC.

Field blanks will be collected during each sampling event for all the chemical parameters listed in Section 4.2 to ensure that no contamination was introduced during sample collection, preservation, and handling. At the same time samples are collected, field blanks will be prepared by running analyte-free deionized water through the same equipment used to collect the samples, collecting it in the appropriate sample containers, and preserving it with the same procedures used to preserve the samples. The field blanks will be collected, stored, shipped, and analyzed with the associated samples. In addition, a transport blank will be included in the cooler to determine if cross-contamination among samples occurs. If field blank target analyte concentrations are detected, the field blanks will be examined to determine the source of contamination.

Analyte concentrations measured in samples collected during the event will be considered valid when no corresponding field blank analyte concentrations are detected or when the sample analyte concentrations are at least 10 times the field blank analyte concentrations. If a sample analyte concentration is at least 5 times but less than 10 times the field blank analyte concentration, the laboratory will report the numerical result as an upper limit of the true analyte concentration by the laboratory. If a sample analyte concentration is less than 5 times the field blank sample concentration, the results for that analyte will be considered unacceptable, and the result will be reported as undetected using the value as the limit of quantitation for the sample.

Analytical QC samples must be collected for 10 percent of the samples for each sampling event. The additional volumes collected for analytical QC are used to perform duplicate and spiked sample analyses or matrix spike and matrix spike duplicate analyses, depending on method requirements. For the purpose of this collection, sample QC will be evaluated using the criteria established in Table 5.0-1 (Target analytes, analysis methods, and quantitation limits), and as detailed in the reference methods and the laboratory QA Plan. Any results noted as deviating from program or laboratory QC acceptance criteria require immediate investigation, and thorough documentation as detailed in the assessment and response actions of this QAPP. Corrective actions might vary widely from re-preparation and reanalysis to disqualification of sample data for use. Under no circumstances will outlying sample or QC results be submitted without a detailed explanation. The Project Manager should be contacted immediately regarding

deviations for which there is not a suitable analytical corrective action due to holding time or other restrictions, so that recollection can be requested, if possible.

In addition, **laboratory QC** analyses will be performed concurrently with sample preparation and analysis. Laboratory QC includes analysis of appropriate reagent or method blanks for each analytical method or technique, as well as analysis of laboratory control sample or certified standard reference materials as appropriate. Method and reagent blanks should be free from analytes of interest at levels above the project quantitation limits. The same criteria applied to field blanks will be applied to laboratory blanks in sample data interpretation for use. (Analyte concentrations measured in samples collected during the event will be considered valid when no corresponding field blank analyte concentrations are detected or when the sample analyte concentrations are at least 10 times the field blank analyte concentrations. If a field blank analyte concentration is at least 5 times, but less than 10 times the sample analyte concentration, the numerical result will be reported as an upper limit of the true analyte concentration by the laboratory. If a blank sample analyte concentration is less than 5 times the sample analyte concentration, the results for that analyte will be considered unacceptable.)

Following data entry operations, all spreadsheets or database printouts will be proofread using the original handwritten field and laboratory data sheets, where available. Someone other than the data entry specialist will conduct this review.

Measurement performance criteria for data to be collected during this project are discussed in the following sections.

8.1 Precision

Precision is a measure of internal method consistency. It is demonstrated by the degree of mutual agreement between individual measurements or enumerated values of the same property of a sample, usually under demonstrated similar conditions. Precision of sampling methods is estimated by taking duplicate samples at the same sampling station at approximately 10 percent of the sites, usually at the final sampling point(s). Duplicate sampling for this system, due to its current impairment status, might indicate significant variability for some parameters because of differing amounts of suspended biological (algal) and organic materials. The usability assessment will include consideration of this condition in evaluating field duplicates as a measure of the entire measurement system. Although precision evaluations within 20 percent relative percent difference (RPD) are generally considered acceptable for water quality studies and analyses, no data validation or usability action will be taken for results in excess of the 20 percent limit. Instead, the results will be noted and compared with the balance of the parameters analyzed for a more comprehensive assessment before any negative assessment, disqualification, or exclusion of data.

This QC calculation also addresses uncertainty due to natural variation and sampling error. Precision is calculated from two duplicate samples by RPD as follows:

$$RPD = \frac{|C_1 - C_2|}{(C_1, C_2)} \times 100\%$$

where C_1 = the first of the two values and C_2 = the second of the two if precision is to be calculated from three or more replicate samples (as is often the case in laboratory analytical work), the relative standard deviation (RSD) will be used and is calculated as

$$RSD = \frac{s}{\bar{\chi}}$$

where χ is the of the replicate samples, and s is the standard deviation and is determined by the following equation:

$$SD = \sqrt{\frac{\sum_{i=1}^{n}\left(\chi_i - \bar{\chi}\right)^2}{n-1}}$$

where χ_i is the measured value of the replicate, $\bar{\chi}$ is the mean of the measured values, and n is the number of replicates.

For this project, duplicate field samples will be collected to assess sampling precision and field blanks will accompany samples to assess the potential for contamination in the sample collection process.

8.2 Accuracy

Accuracy is defined as the degree of agreement between an observed value and an accepted reference or true value. Accuracy is determined by using a combination of random error (precision) and systematic error (bias) due to sampling and analytical operations. Bias is the systematic distortion of a measurement process that causes errors in one direction so that the expected sample measurement is always greater or lesser to the same degree than the sample's true value. EPA now recommends that the term *accuracy* not be used and that *precision* and *bias* be used instead.

Because accuracy is the measurement of a parameter and comparison to a *truth*, and the true values of environmental physicochemical characteristics cannot be known, use of a surrogate is required. Accuracy of field measurements will be assumed to be determined through use of precision. Accuracy of laboratory chemical measurements will be determined by analysis of matrix spikes and matrix spike duplicates, laboratory control samples (fortified blanks), and other method-specified QC samples. Analyses for specific nutrients will include the use of spiked samples or certified standard reference materials, where appropriate, to determine percent recovery. In the absence of manufacturers' certified range, the recoveries for spiked analytes should not exceed $\pm$ 20 percent of the true values to be acceptable (unbiased). Bias is assessed in terms of recovery of a known value for control samples and matrix spikes and is calculated as follows:

% Recovery (LCS)*:*

$$\%\,\mathrm{Recovery} = \frac{analyticalresult}{truevalue} \times 100\%$$

% Recovery (MS):

$$\%\,\mathrm{Recovery} = \frac{(spikedsampleresult - sampleresult)}{amountspiked} \times 100\%$$

The accuracy of field equipment for the measurement of temperature, DO, conductivity, salinity, and pH will be determined at a minimum of two points that span the expected range of values for these parameters. Instruments used and procedures for determining accuracy include the following:

Temperature sensors:

The accuracy of temperature sensors used in this project will be checked using a standard thermometer.

DO sensors:

The accuracy of DO sensors and methods used in this project will have higher standards based on performance of the optical probes. The LDO (luminescent dissolved oxygen) sensor uses luminescent technology that results in the lowest level of drift over continuous use. Calibration is completed using air-saturated water equilibrated over a 12-24 hour period. Determination of dissolved oxygen concentration is adjusted according to barometric pressure at the time of calibration and the probe meter adjusted to the calculated dissolved oxygen concentration.

Conductivity sensors:

The accuracy of the salinity and conductivity sensor used in this project will be checked using the autocal solution provided by the manufacturer. The conductivity sensor is calibrated from the autocal solution, which contains a certified 0.449 µS/cm solution (or other low-level conductivity solution).

pH sensors:

The accuracy of pH sensors used in this project will be checked using calibration solution provided by the manufacturer (or equivalent quality), which contains any two of three buffer solutions (pH 4, pH 7, pH 10). These solutions will be low-ionic strength with meter calibration accounting for temperature of the solution at the time of meter adjustment.

8.3 Representativeness

Data representativeness is defined as the degree to which data accurately and precisely represents a characteristic of a population, parameter, and variations at a sampling point, a process condition, or an environmental condition. It therefore addresses the natural variability or the spatial and temporal heterogeneity of a population. The number of sampling points and their location within the study area will be examined to ensure that representative sample collection of each area of the watersheds and each target analyte series occurs. Multiple sampling episodes will be conducted over a period of 6 months to obtain sufficient data to determine analyte concentration variability.

8.4 Completeness

Completeness is defined as the percentage of measurements made that are judged to be valid according to specific criteria and entered into the data management system. To achieve this objective, every effort is made to avoid accidental or inadvertent sample or data loss. Accidents during sample transport or lab activities that cause the loss of the original samples will result in irreparable loss of data. Lack of data entry into the database will reduce the ability to perform analyses, integrate results, and prepare reports. Samples will be stored and transported in unbreakable (plastic) containers wherever possible. All sample processing (sub-sampling, sorting, identification, and enumeration) will occur in a controlled environment within the laboratory. Field personnel will assign a set of continuous identifiers to a batch of samples.

Percent completeness (*%C*) for measurement parameters can be defined as follows:

$$\%C = \frac{V}{T} \times 100\%$$

where V = the number of measurements judged valid and T = the total number of measurements planned. For this project, sampling will be considered complete when no less than 90 percent of the samples collected during a particular sampling event are judged valid.

8.5 Comparability

Two data sets are considered to be comparable when there is confidence that the two sets can be considered equivalent with respect to the measurement of a specific variable or group of variables. Comparability is dependent on the proper design of the sampling program and on adherence to accepted sampling techniques, SOPs, and QA guidelines.

Table 8.5-1. Quality Control samples; sample types and frequency.

	Matrix	**Field**		**Laboratory (%)**			
Parameter		**Blanks**	**Replicates**	**Check Standards**	**Method Blanks**	**Analytical Duplicates**	**Matrix Spikes**
Total Phosphorus	Water	1	1	Minimum once per quarter	One per analysis batch of 20 samples	Minimum 10% of samples	Minimum 10% of samples
Soluble Reactive Phosphorus	Water	1	1	Minimum once per quarter	One per analysis batch of 20 samples	Minimum 10% of samples	Minimum 10% of samples

9.0 Data Management Procedures

Samples will be documented and tracked on Field Data Record forms, Sample Identification labels, and Chain of Custody records (Appendix A). The Field Task Leader will be responsible for ensuring that these forms are completed and reviewed for correctness and completeness by the designated field QC Officer. Triad Associates, Inc. will maintain copies of these forms in the project files. A sampling report will be prepared following each sampling event. Another person will manually check data entered into any spreadsheet or other format against the original source to ensure accurate data entry. If there is any indication that requirements for sample integrity or data quality have not been met (for samples or measurements collected by Triad Associates, Inc. or contractors), the Triad Associates Project Manager will be notified immediately (with an accompanying explanation of the problems encountered).

Laboratory data will be managed in accordance with established protocols. The data will be submitted to Triad Associates and shared with Yarrow Bay Development Company in hard copy and in electronic database format, as well as scanned data recorded on CD-ROM. The electronic data will be submitted in a format to be negotiated with the lab. At a minimum, the electronic data files will include the date and time of sample collection, date received, date of preparation or analysis, requested parameter, analytical batch ID, results, and data qualifiers. Electronic data will be provided for all samples and QC, including laboratory blanks, control samples, duplicates, and spiked samples analyzed in a format compatible with the requirements ofTriad Associate's (or Contractor) statistical and modeling software routines. Hard copy data packages will be paginated, fully validated raw data packages that include an analytical narrative with a signed certification of compliance with this QAPP and all method requirements; copies of Chain of Custody forms; sample inspection records; laboratory sample and QC results; calibration summaries; example calculations by parameter; and copies of all sample preparation, analysis, and standards logs adequate to reconstruct the entire analysis. The CD-ROM data will include a full copy of the paginated report scanned and stored in portable document format (PDF) for potential future submission to the client, if requested, and for long-term storage in the project files. Initially, the full raw data package will be submitted to the Triad Associates and Tetra Tech QAO for assessment of compliance with the program goals and guidance.

All computer files associated with the project will be stored in a project sub-directory by Tetra Tech and Triad Associates (subject to regular system backups) and will be copied to disk for archive for 5 years subsequent to project completion (unless otherwise directed).

Data obtained during sampling activities will be entered into field notebooks.
The following is a list of data information that will be kept at Tetra Tech and Triad Associates or the contract laboratory for review upon request:

- Field equipment and chemicals maintenance, cleaning and calibration records;
- Field notebooks;
- Sample Data Sheets;
- Photographs of sampling stations and events;
- Chain-of-Custody forms;
- Laboratory equipment maintenance, cleaning and calibration records;

- Laboratory bench sheets, control charts, and SOPs;
- Records of QA/QC problems and corrective actions (field and/or laboratory);
- Laboratory data QC records;
- Records of data review sheets;
- Duplicate, performance evaluation records and other QA/QC control records (field and laboratory); and
- Data review, verification and validation records.

Data handling equipment will include computer software applications Microsoft Excel® and Access®. Data will be entered into the Access® database in a form compatible with requirements specified by the developer.

Field notebooks will be filled out using *Write in the Rain*® ink or pencil, and will not be erased. Changes will be made by crossing out errors, initialing, and adding correct information. Field notebooks will be bound with numbered pages.

Laboratory data results will be recorded on laboratory data sheets, bench sheets and/or in laboratory logbooks for each sampling event. These records as well as control charts, logbook records of equipment maintenance records, calibration and quality control checks, such as preparation and use of standard solutions, inventory of supplies and consumables, check-in of equipment, equipment parts and chemicals will be kept on file at the laboratory.

Any procedural or equipment problems will be recorded in the field notebooks. Any deviation from this Quality Assurance Project Plan will also be noted in the field notebooks. Data results will include information on field and/or laboratory QA/QC problems and corrective actions.

Standard turnaround time for the analytical samples taken to the contract laboratory will be seven to ten working days.

Chain-of-custody forms will be kept with the sample during transport and will accompany data results back toTetra Tech. Training records and data review records will be kept on file at Tetra Tech and be available on request. All sample analysis records and documents are kept at the contract laboratory and will be available for inspection at any time. In addition to any written report, data collected for the project will be provided electronically via a CD-ROM or e-mail ZIP file.

All records will be retained by the contract laboratory for five years. All project records at Tetra Tech and Triad Associates should be retained permanently.

A Microsoft Access data management system should be developed for use in analyzing and interpreting results. The system should be a relational database that enables the analyst to aggregate data from a variety of tables and identify correlates among media and settings in each study reach.

10.0 Audits and Reports

Upon completion of periodic sampling activities, the Project Leader will summarize sampling team progress. Following completion of field sampling, the Project Leader will prepare a field sample collection summary (detailed listing of all sampling participants, sampling locations, and specimens collected) for review by the Project Manager.

Following the completion of each data quality assessment, the Project Manager or designee will prepare a Data Quality Assessment Report and submit copies to the Project Manager for inclusion in project records. The data quality assessment will include any required qualification of data based on observations, relevant laboratory or field QC analyses, or other observations that might affect data quality. The laboratory data can then be incorporated into final sampling event reports to consolidate the information corresponding to each event.

When required, reports summarizing incidents of technical direction requests from laboratory or field staff, required corrective actions, and any other issues affecting data quality or usability will be submitted to the Project Leader. These observations will be compiled and submitted in interim QA reports where warranted, in informal file memoranda to the Project Manager for inclusion in the project files. These regular QA reports and memoranda, along with routine data quality assessments performed throughout the data collection will be the basis of the final QA report for this collection effort.

10.1 Audits

Should the sampling staff, laboratory personnel or Project Manager find errors in sampling or analysis, the Project Manager will notify the party responsible for the error or deficiency and recommend methods of correcting the deficiency. The responsible party will then take action to correct the problem and will report corrections to the Project Manager.

The Project Manager will review the QA/QC procedures used for the sampling and analytical program. Procedures for this review, included in Section 8, will meet the data quality criteria specified in Section 4. The Project Manager will ensure the documentation of these assessment records in the Draft and Final Reports.

10.2 Reports to Management

Sampling results will be summarized in the draft and final reports completed for this project. These reports will include the field and laboratory results of project assessments listed above. Reports will be submitted to the Project Manager at Triad Associates. Email updates will be submitted to the Project Manager after each sampling event providing notification of any issues or problems for which corrective actions have been taken. The results of all corrective actions or data quality assessments will be reported to the Project Manager from Triad Associates upon completion.

Standard reporting formats will be developed and approved by Triad Associates Managers. These will be used to produce interim and final reports following completion of this study.

Consistency in reporting of progress, data generation, and interpretations will be maintained in order to improve comparability between related studies and where data-sharing is needed between monitoring efforts that address each of the project tasks (*e.g.*, mass loading analysis, stormwater runoff, etc.).

11.0 Data Verification and Validation

Data validation and review services provide a method for determining the usability and limitations of data and provide a standardized data quality assessment. All Field Data forms and Chain of Custody forms will be reviewed by the Project Leader (assisted by the Project Manager, as needed) for completeness and correctness. The Project Leader will be responsible for reviewing data entries and transmissions for completeness and adherence to QA requirements. Data quality will be assessed by comparing entered data to original data or by comparing results to the measurement performance criteria summarized in Section 4.2 to determine whether to accept, reject, or qualify the data. Results of the review and validation processes will be reported to the Program Manager. Analytical data provided by the laboratories will be reviewed before its release by the laboratory QAO, and laboratory manager, and will include a certifying statement that the data included have been reviewed for compliance with the reference methods and this QAPP.

The Project Lead or designee will review all Field Data Record forms and Chain of Custody forms. The Project QAO will review a minimum of 5 percent of the Field Data Record forms and other records. Any discrepancies in the records will be reconciled with the appropriate associated field personnel and will be reported to the Project Lead. Laboratory validation and verification methods are outside the scope of this QAPP; however, it is expected that the laboratory validation and verification will include an assessment of completeness and method compliance, including verification of sample calculations and of any required manual data entry. The analytical narrative reports will include discussions of attainment of the program goals as established herein. Samples submitted to the sample analysis laboratory will include Chain of Custody forms documenting sampling time and date. This information will be checked by the analytical laboratory to ensure that holding times have not been exceeded. Violations of holding times will be reported (by the laboratory) to the Project Lead, who will consult with the Project QAO to develop corrective action recommendations and define any recommended technical directives. Finally, the Project Manager will be consulted with deficiencies, observations, and findings, as well as with corrective action and technical directive recommendations for consideration and approval.

Data verification and validation includes completeness of data entry into a data management system, correctness of data entry, and assurance that entries fall within the expected range for each analyte. These exercises prevent generation of poor results when analyzing data for cause-and-effect relationships or for status of environmental resources. Missing or incorrect data can bias description of environmental resources and result in false conclusions.

11.1 Data Review, Validation & Verification Requirements

Analytical results will be reviewed and validated in accordance with EPA documents, including the *USEPA Guidance on Environmental Data Verification and Validation* (EPA QA/G-8), 2002b; the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (EPA 540/R-94/012), 1999; and the *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (EPA 540/R-94/013), 1994b. Tetra Tech will conduct data review and validation using the following methods on 10% of the

primary project samples, including their associated quality control duplicates and laboratory quality control samples.

- A review of sample handling and analytical and field data for completeness, accuracy, holding time compliance, and quality control (QC) sample frequency compliance.
- Evaluation of laboratory blank samples.
- Evaluation of the accuracy and precision of field duplicate samples, laboratory control samples (LCS), and matrix spike/spike duplicate (MS/MSD) samples.
- Assignment of data qualifiers, when necessary, to reflect limitations identified in the data assessment process.
- Estimation of completeness.

11.2 Validation and Verification Methods

The following procedures will be used to determine if data meets the measurement and data quality objectives and criteria specified in Section 4. If data QA/QC procedures do not meet the specified criteria, the Quality Assurance Officer will review all field and laboratory records to determine the cause. If equipment failures are limiting the usability of the data, calibration and maintenance procedures will be reviewed and changed as needed. If sampling or analytical procedures are the source of failures, methods will be reviewed to resolve the errors. Any changes or modifications to quality control procedures will be approved by the Project Manager prior to inclusion in the QAPP.

Review of Sample Handling

Proper sample handling techniques are required to ensure sample integrity. During data review, the sample handling procedures identified below are evaluated to determine potential effects on data quality.

- Review of field sample collection and preservation procedures to determine whether they were completed in accordance with the requirements specified by the analytical methods.
- Review of chain-of-custody documentation to ensure control and custody of the samples was maintained.
- Review of sample holding times between sample collection, extraction, and analysis (see Table 6.2-1 in Section 6).
- Review of sample conditions upon receipt at the contract laboratory.
- Review of Quality Assurance/Quality Control (QA/QC) Samples. Specific procedures for review of QA/QC samples are included in the sections below.

Laboratory Blank Samples

Laboratory blank samples (method and instrument blanks) are laboratory-prepared, analyte-free samples used to detect the introduction of contamination or other artifacts into the laboratory sample handling and analytical process. These blanks play an especially important role in sampling programs involving trace-level analyses or analytes that are common solvents found in a laboratory. None of the analytes of concern for this project are common laboratory contaminants. If a contaminant is discovered in the analytical sample at less than five times the concentration it is found in the laboratory blank, it will be considered a laboratory contaminant. Otherwise, it will be reported as an environmental contaminant.

Laboratory Control Samples

Laboratory control samples are used to assess analytical performance under a given set of standard conditions. Synthetic samples, containing some or all of the analytes of interest at known concentrations, are prepared independently from calibration standards. The samples consist of laboratory control samples (LCS) and laboratory control sample duplicates (LCSD). Laboratory control samples will be analyzed with each analytical batch. LCS may be used to estimate analytical accuracy and precision by comparing measured results to actual concentrations. LCS/LCSD percent recoveries will be checked on laboratory reports to ensure they are within the limits set by the EPA methods listed in Table 4.0-3.

LCS are also duplicated in the laboratory and then analyzed in an identical manner by the laboratory to assess the laboratory's internal precision. The analytical precision is expressed by the relative percent difference (RPD) (equation 11.2-1). Analytical precision and accuracy should meet the method criteria listed in Table 4.0-3 in Section 4.

$$\frac{X_1 - X_2}{X_{ave}} x100 = RPD$$

X_1 = duplicate no. 1
X_2 = duplicate no. 2
X_{ave} = mean of two sample duplicates
RPD = relative percent difference

Matrix Spike and Matrix Spike Duplicates

Matrix spike samples are actual field samples to which known amounts of select compounds (one, or more, of the analytes of interest) are added. Both spiked and unspiked aliquots (sample portions) are analyzed. The difference between the concentration of the spike compound(s) in the spiked and unspiked aliquots is compared to the amount of spike added before the extraction process. Since actual samples are used for the recovery determination, the matrix effects can be evaluated. Usually expressed as a percentage of the mass of the spiked amount, spike recovery is the measurement of accuracy anticipated for the sample matrix. Percent recoveries will be compared to EPA method specific recoveries listed in Table 4.0-3.

Matrix spike samples are also duplicated in the laboratory and then analyzed in an identical manner by the laboratory to assess sample reproducibility and the laboratory's internal precision. The analytical precision is expressed by the RPD between the measurement results of the two duplicate samples. Analytical precision and accuracy should meet the criteria provided in Table 4.0-3. MS/MSD samples will be run on each batch of samples.

Field Duplicate Samples

Field duplicate samples will be collected simultaneously with a primary project sample. Duplicates are treated in the same manner as the primary sample during all phases of sample collection, handling, and analysis. Duplicate sample results are used to assess precision, including variability associated with both the laboratory analysis and the sample collection process (i.e., QC purposes). At least one duplicate field sample will be collected and submitted blind to the laboratory during each sampling date for this program.

Analytical results will be reviewed for agreement with each other or their respective reporting limits and evaluated for comparability. Estimated results quantified below the reporting limit and qualified with a "J" flag are not considered significant for the purpose of data agreement. The comparison between project and field duplicate sample results should meet RSD (relative standard deviation) criteria for each method listed in Table 4.0-3.

Reporting Limits

The reporting limits are the lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory conditions. For many analytes, the reporting limit analyte concentration is selected by the laboratory as the lowest non-zero standard in the calibration curve. Sample reporting limits vary based on sample matrix and dilution of the samples during analysis. Reporting limits should be equal to or below the PQLs (Practical Quantitation Limits) provided in Table 7.0-1 for each method.

Data Qualification

Qualifiers will be applied to QC samples when acceptance criteria are not met and corrective action is not performed or is unsuccessful. These same qualifiers will be applied to the associated sample data, as defined in the following table.

Table 11.2-1. Data Qualifiers.

Qualifier	Description
J	The analyte was positively identified, the quantitation is estimated.
U	The analyte was analyzed for, but not detected. The associated numerical value is at or below the method detection limit (MDL).
F	The analyte was positively identified but the associated numerical value is below the reporting limit (RL).
R	The data are unusable due to deficiencies in the ability to analyze the sample and meet QC criteria.
B	The analyte was found in an associated blank, as well as in the sample.
M	A matrix effect was present.
H	Analysis was performed outside of the recommended holding time.

Completeness

Completeness is calculated after the QC data have been evaluated, and the qualifiers have been applied to the sample data. Invalid results, broken or spilled samples, and samples that are unable to be analyzed for other reasons are included in the assessment of completeness. The criteria and calculation to determine completeness are provided in Section 5. If data cannot be qualified to meet completeness goals, Tetra Tech will consult with the Project Manager to determine if additional sampling should be performed to accomplish data quality objectives.

11.3 Reconciliation with User Requirements

The Project Manager will review all data deliverables upon receipt from the lab. Laboratory results will be checked for data qualifiers entered by the lab to ensure that sample collection and preservation procedures were adequate and that laboratory analysis procedures met quality assurance objectives. Any outstanding issues will be addressed immediately with the lab and/or sampling staff to ensure that project quality assurance objectives are met.

The Project Manager will review and validate the data during interim reporting to management and final reporting stages of the project. If there are any problems with quality sampling and analysis, these issues will be addressed immediately and methods will be modified to ensure that data quality objectives are being met. Modifications to monitoring will require notification to the Project Manager and subsequent edits to the approved QAPP.

12.0 Data Quality (Usability) Assessment

As soon as possible following completion of the sample collection and analyses, Tetra Tech and Triad Associates will assess the precision, accuracy, and completeness measures and compare them with the criteria discussed in Section 4.0. This will be the final determination of whether the data collected are of the correct type, quantity, and quality to support their intended use for this project. Any problems encountered in meeting the performance criteria (or uncertainties and limitations in the use of the data) will be discussed with the project QA personnel and will be reconciled if possible.

12.1 Interpreting Data

Task 1
Total phosphorus loads will be calculated (inflow and outflow of Wet Pond #1) and compared against the performance goal of 50% removal. This goal for removal applies to influent concentration ranges from 0.1 – 0.5 mg/L total phosphorus.

Task 2
Total phosphorus concentrations and loads will be compared between upstream and downstream of the treated stormwater input location to Lawson Creek. Continuous temperature monitoring data generated for each of the monitoring periods (October 1st, 2010 - March 31st, 2011 and April 1st, 2011 – September 30th, 2011) will be compared (upstream to downstream of the point of entry of stormwater), especially during the warmer months, for influence, if any, on temperature of the receiving water (Lawson Creek).

13.0 References

APHA. 2005. Standard Methods for the Examination of Water and Wastewater, 21st Edition. American Public Health Association Press, Washington, D.C.

Kindig, A.C. 2008. The Villages MPD Water Quality Technical Analysis Evaluation. Appendix M in the Villages FEIS. September 10, 2008.

King County. 2000. Lake Sawyer Management Plan. King County Surface Water Management. July 2000.

The Lawson Hills Master Planned Development Permit: Conditions of Development Approval. Exhibit C: Conditions #16, #81, and #85.

United States Environmental Protection Agency (USEPA). 1990. Recommended Protocols for Measuring Conventional Water Quality Variables and Metals in Fresh Water of the Puget Sound Region. Prepared by Tetra Tech, Inc. Bellevue, WA for the USEPA Region X Office of Puget Sound, Seattle, WA.

EPA (U.S Environmental Protection Agency). 1998. EPA Guidance for Quality Assurance Project Plans (EPA QA/G-5). Office of Research and Development, EPA/600/R-98/018. Washington, D.C. 136p.

USEPA (U.S. Environmental Protection Agency). 2002. *USEPA Contract Laboratory Program, National Functional Guidelines for Inorganic Data Review*, OSWER 9240.1-35, EPA 540-R-01-008. U.S. Environmental Protection Agency, Office of Environmental Information, Washington, DC.

Washington State Department of Ecology (WSDOE). 2001. Guidelines for Preparing Quality Assurance Project Plans for Environmental Studies. February 2001. No. 01-03-003. Olympia, WA.

Washington State Department of Ecology (WSDOE). 2009. Lake Sawyer Total Phosphorus Total Maximum Daily Load: Water Quality Implementation Plan. Publication No. 09-10-053. Olympia, WA. 75p.

Appendix A

Chain-of-Custody Form
Field Data Report Form
Meter Calibration Log Form

Aquatic Research Inc.
3927 Aurora Avenue N, Seattle, WA 98103
P 206.632.2715 | F 206.632.2417

www.aquaticresearchinc.com

SHEET _____ OF _____

CHAIN-OF-CUSTODY RECORD

CLIENT: _____
SAMPLING DATE: _____
SAMPLERS: _____

PROJECT ID: _____
CASE FILE NO.: _____
DATA RECORDED BY: _____

SAMPLE INFORMATION

SAMPLE ID	DATE/TIME COLLECTED	PARAMETERS																			BOTT #	NOTES

	Relinquished By	Date/Time	Received By	Date/Time
Printed Name				
Signature				
Affiliation				

	Relinquished By	Date/Time	Received By	Date/Time
Printed Name				
Signature				
Affiliation				

Miscellaneous Notes (Hazardous Materials, Quick turn-around time, etc.): _____

3927 Aurora Ave. N | Seattle, WA 98103 | 206.632.2715

TETRA TECH

FIELD DATA REPORT FORM

Y M M D D
0

SURVEY ..... SAMPLER ..... PAGE ..... OF .....

STATION NO.	STATION NAME	TIME	TEMP ºC	DO mg/L	DO #	pH	TRUE pH / METER	COND. µMHOS/CM	REDOX POTENTIAL	*L/M/R	DEPTH (meters)	COMMENTS

WEATHER:

ADDITIONAL COMMENTS:

Tt (Rev. 11/07)

* L = Left Bank; M = Middle Bank; R = Right Bank

Project: _____ Date: _____

Meter Calibration Log Form

Cond Meter# _____ Initial Cell Constant _____ Standard _____ µmhos/cm Meter _____ µmhos/cm

pH Meter # _____ pH Probe # _____

Thermistor # _____ Thermistor _____ °C Thermometer _____ °C Correction _____

DAY 1

Slope _____ 92-102%
mv @ pH 7 _____ ± 30 mv
mv @ pH 4/10 _____ Difference between mv @ pH7 160-180
Response Time _____ < 90 seconds
Time of Day _____

Low Ionic Strength pH Value vs. Temp. °C

	7	**10**
10	7.01	9.27
15	6.99/7.00	9.23
20	6.98	9.19

	true pH	meter	time of day		
QA Check #1	_____	_____	_____	Recalibrated	Y / N
QA Check #2	_____	_____	_____	Recalibrated	Y / N
QA Check #3	_____	_____	_____	Recalibrated	Y / N

If meter pH is not within 0.10 pH units of true value in pH 7 buffer, then recalibrate & re-read sample.

Conductivity Standard _____ µmhos/cm Meter _____ µmhos/cm

DAY 2

Initial Cell Constant _____ Standard _____ µmhos/cm Meter _____ µmhos/cm

Slope _____ 92-102%
mv @ pH 7 _____ ± 30 mv
mv @ pH 4/10 _____ Difference between mv @ pH7 160-180
Response Time _____ < 90 seconds
Time of Day _____

	true pH	meter	time of day		
QA Check #1	_____	_____	_____	Recalibrated	Y / N
QA Check #2	_____	_____	_____	Recalibrated	Y / N
QA Check #3	_____	_____	_____	Recalibrated	Y / N

If meter pH is not within 0.10 pH units of true value in pH 7 buffer, then recalibrate & re-read sample.

Conductivity Standard _____ µmhos/cm Meter _____ µmhos/cm

DAY 3

Initial Cell Constant _____ Standard _____ µmhos/cm Meter _____ µmhos/cm

Slope _____ 92-102%
mv @ pH 7 _____ ± 30 mv
mv @ pH 4/10 _____ Difference between mv @ pH7 160-180
Response Time _____ < 90 seconds
Time of Day _____

	true pH	meter	time of day		
QA Check #1	_____	_____	_____	Recalibrated	Y / N
QA Check #2	_____	_____	_____	Recalibrated	Y / N
QA Check #3	_____	_____	_____	Recalibrated	Y / N

If meter pH is not within 0.10 pH units of true value in pH 7 buffer, then recalibrate & re-read sample.

Conductivity Standard _____ µmhos/cm Meter _____ µmhos/cm

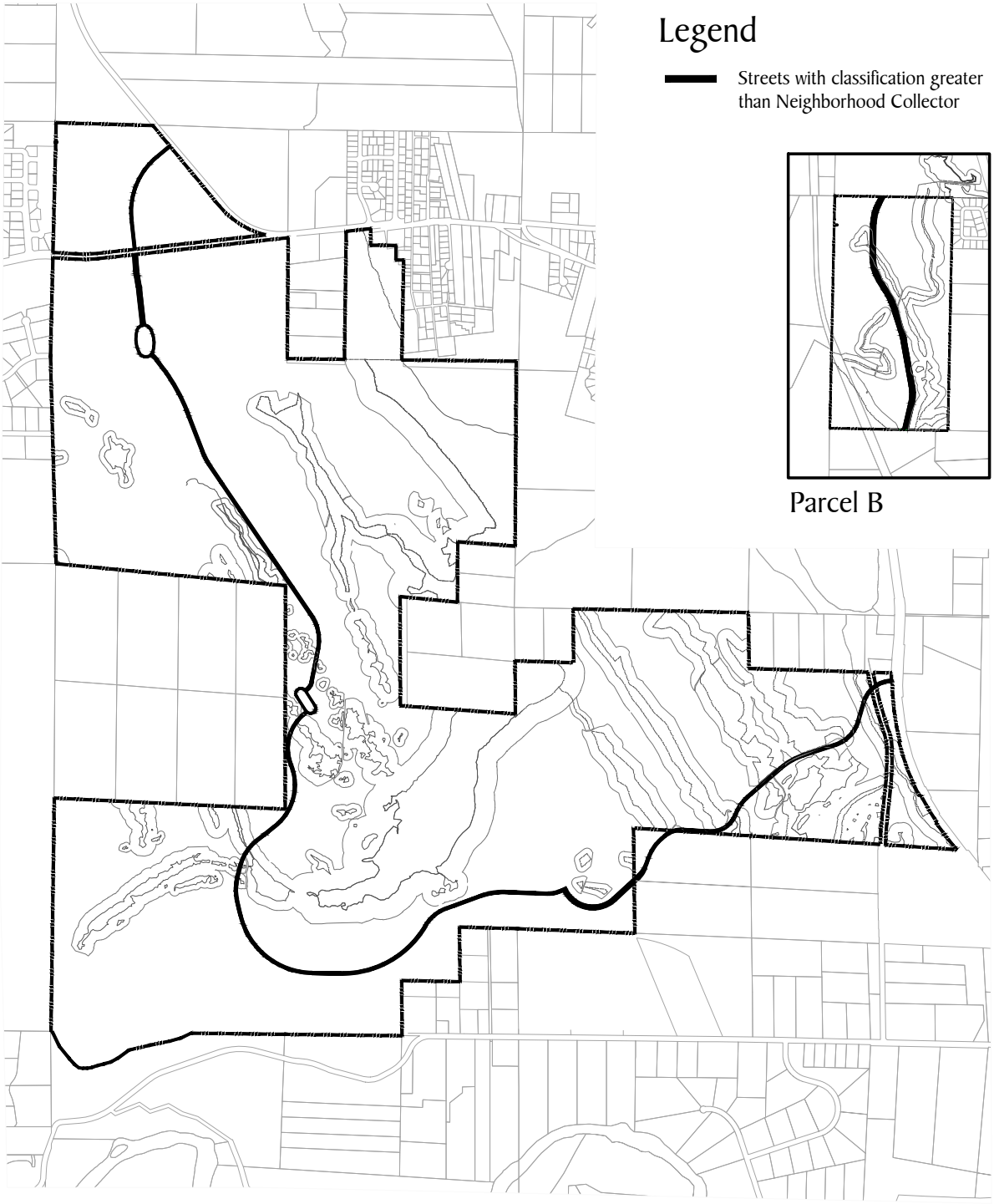


Figure 6-4
Streets With Classification Greater Than Neighborhood Collector

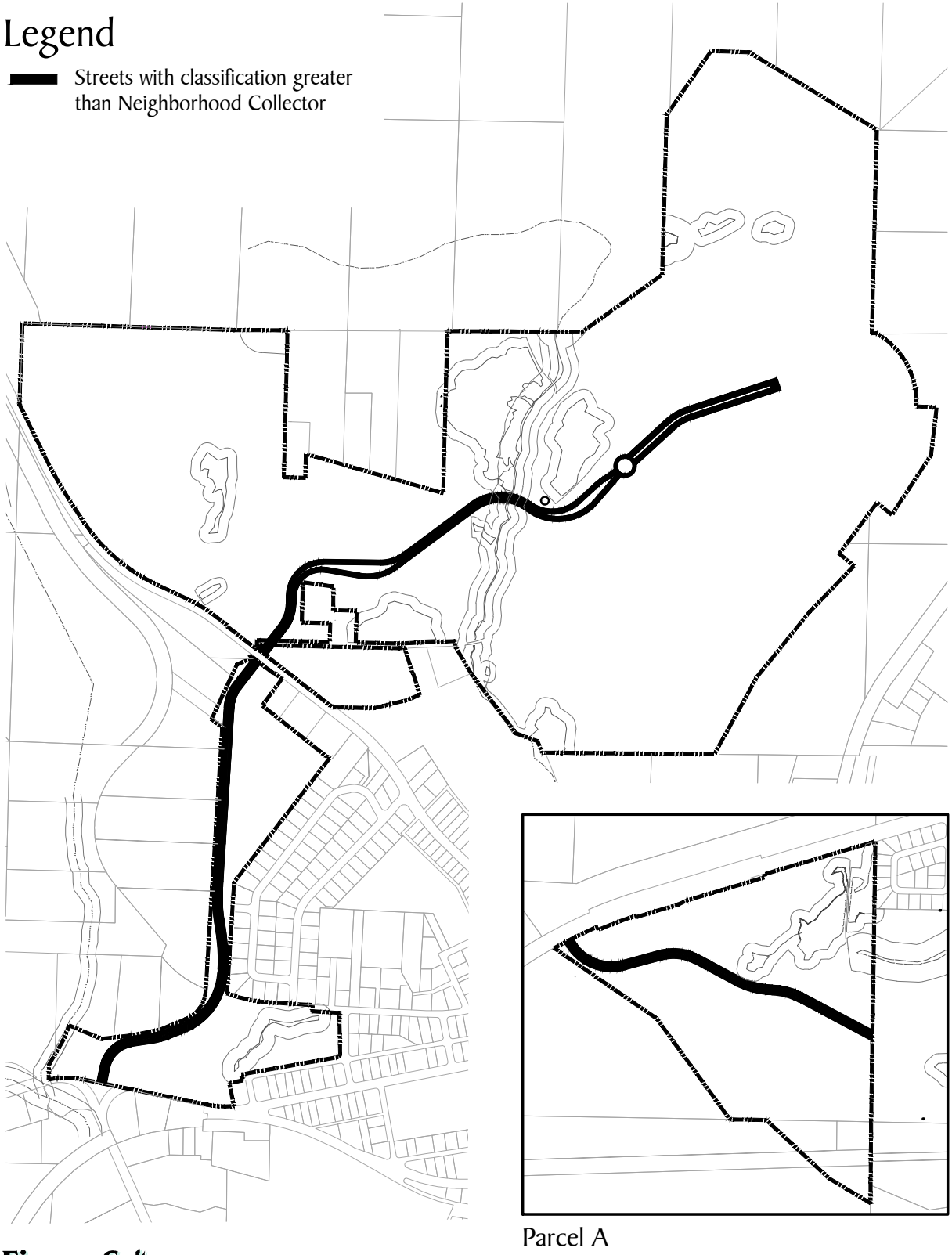


Figure 6-4
Streets With Classification Greater Than Neighborhood Collector

Exhibit A

Project Boundaries and MPD Site Plan

(Removed Pursuant to Examiner's Recommended Implementing Conditions. Please see Exhibit "U")

Exhibit A

Project Boundaries and MPD Site Plan

(Removed Pursuant to Examiner's Recommended Implementing Conditions. Please see Exhibit "U")

Exhibit U

Project Boundaries and MPD Site Plan

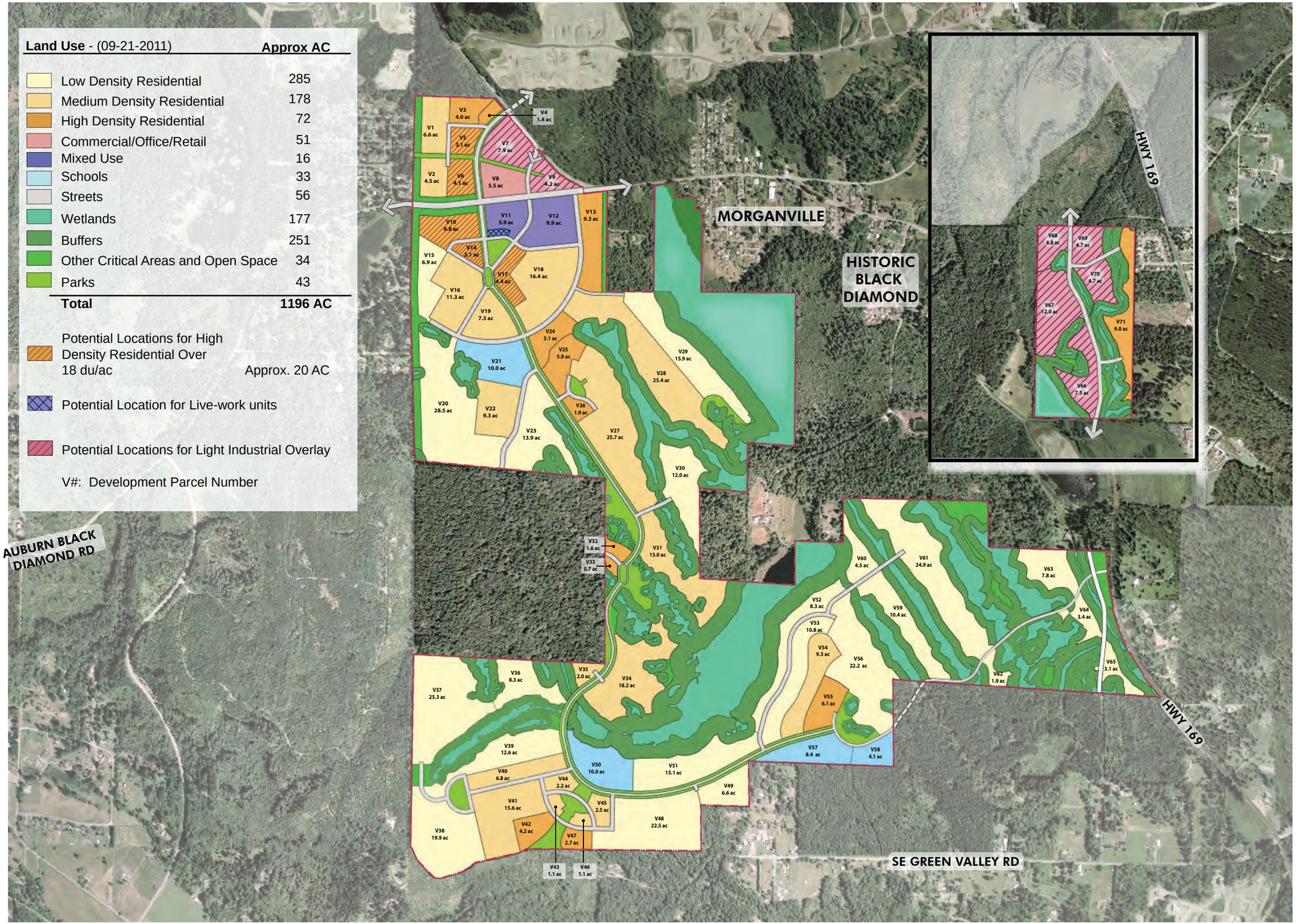

Land Use - (09-21-2011) Approx AC
Low Density Residential 285
Medium Density Residential 178
High Density Residential 72
Commercial/Office/Retail 51
Mixed Use 16
Schools 33
Streets 56
Wetlands 177
Buffers 251
Other Critical Areas and Open Space 34
Parks 43
Total 1196 AC
Potential Locations for High Density Residential Over 18 du/ac Approx. 20 AC
Potential Location for Live-work units
Potential Locations for Light Industrial Overlay
V#: Development Parcel Number
AUBURN BLACK DIAMOND RD
MORGANVILLE
HISTORIC BLACK DIAMOND
HWY 169
SE GREEN VALLEY RD
NORTH
0 400 800 1600

Exhibit U

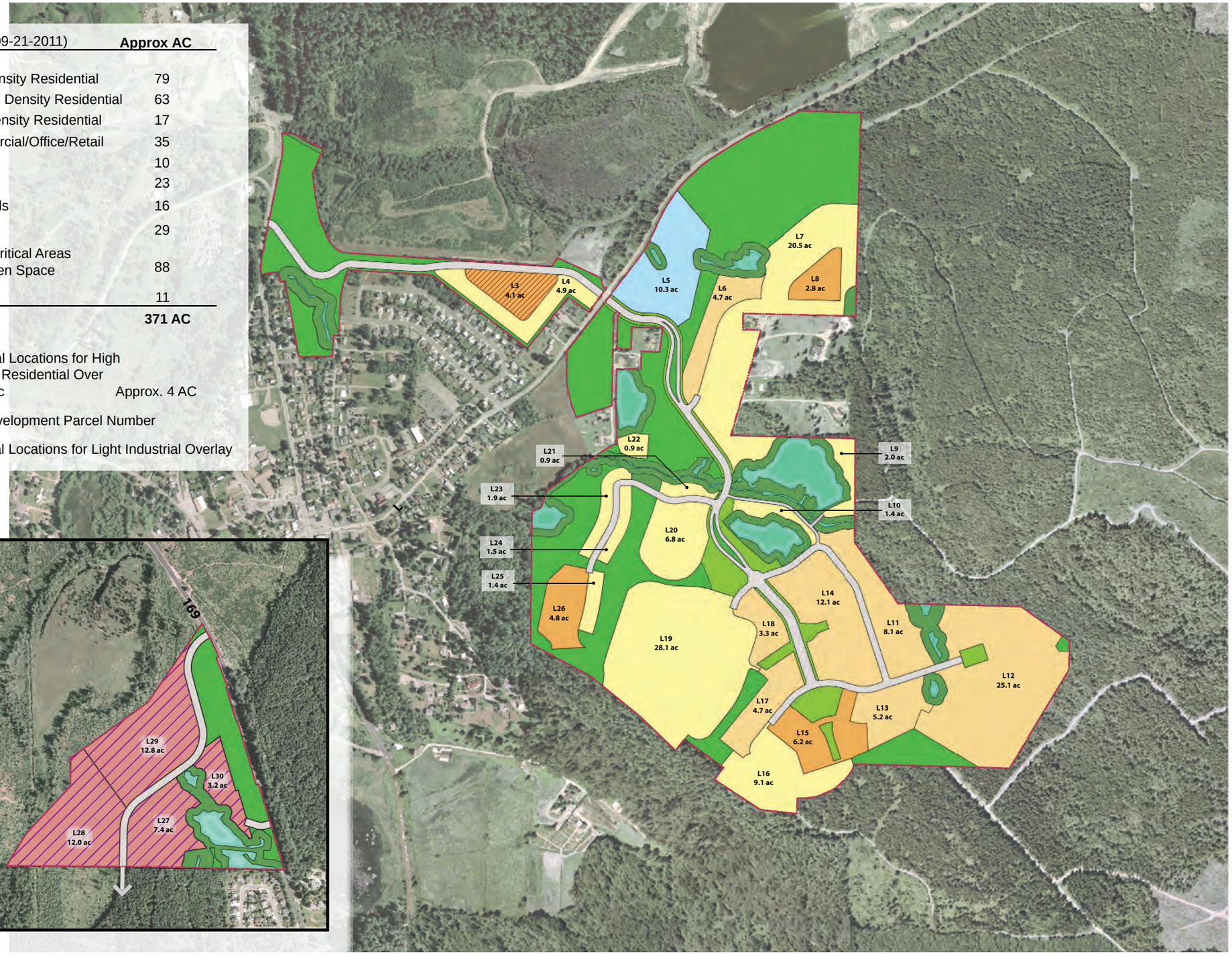
Project Boundaries and MPD Site Plan

Land Use - (09-21-2011)	**Approx AC**
Low Density Residential	79
Medium Density Residential	63
High Density Residential	17
Commercial/Office/Retail	35
Schools	10
Streets	23
Wetlands	16
Buffers	29
Other Critical Areas and Open Space	88
Parks	11
Total	**371 AC**

Potential Locations for High Density Residential Over 18 du/ac — Approx. 4 AC

L#: Development Parcel Number

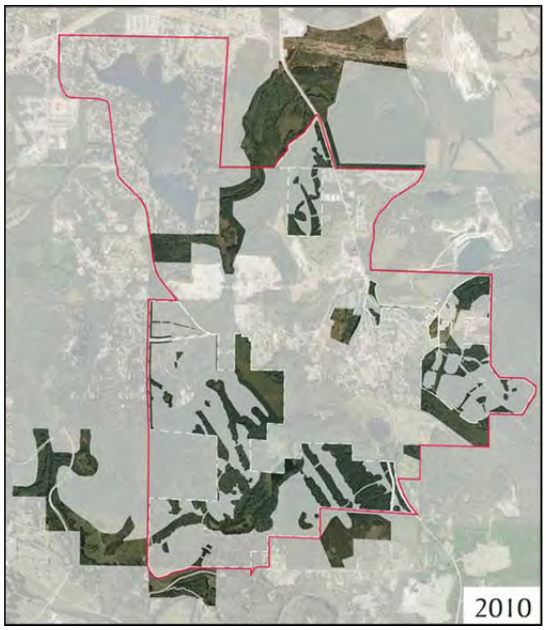
Potential Locations for Light Industrial Overlay



III. Topical Discussion:

a. History of Black Diamond City Council Action & Scope of Current and Future Council Authority

1. The History of MPD Development at The Villages and Lawson Hills



The Development Agreements pending before the City Council are the culmination of almost 20 years of work to bring new development and economic vitality to the City, while also protecting substantial areas of open space. The City began this process in the early 1990s with the annexation of almost 800 acres of land. Next, in 1996, the City, King County, and property owners Plum Creek Timber and Palmer Coking Coal, entered into the Black Diamond Urban Growth Area Agreement ("BDUGAA"). The BDUGAA anticipated annexation of additional lands now included within each MPD site, for purposes of future urban development. The BDUGAA, followed by the Black Diamond Open Space Protection Agreement, also assured permanent protection of almost 2,000 acres of land as open space in and around the City of Black Diamond. The additional BDUGAA annexations for lands inside The Villages and Lawson Hills were completed in 2005 and in 2009.

To prevent piecemeal development, the City imposed a moratorium on the submittal and processing of land use permit applications. The City spent many years with the moratorium in place, while the City developed a new Comprehensive Plan and set of development regulations. Those items included the adoption of the 2009 Comprehensive Plan. The Future Land Use Map in the 2009 Comprehensive Plan designated large areas of the City for Master Planned Developments by mapping lands with an "MPD Overlay." The Comprehensive Plan also revealed the significant future growth anticipated for the City by providing for mixed use commercial and residential development, including urban residential densities of a minimum of four dwelling units per gross acre on all of those lands mapped MPD Overlay. In 2005, the City Council adopted, and then in 2009, the City Council amended Chapter 18.98 of the Black Diamond Municipal Code ("BDMC"), creating a MPD Zone, a "MPD Permit," an MPD Permit process, and setting flexible permit standards so as to implement the adopted Comprehensive Plan MPD policies for all of the lands mapped with the "MPD Overlay." The City also adopted Ch. 18.08 BDMC which set procedures for processing permits. In addition, the City adopted MPD Framework Design Standards and Guidelines to set additional standards to be met by any proposed Master Planned Development project.

As described in the Ordinance that eliminated the moratorium, the City did so only after working "for many years" to adopt the policies and plans that would "make the City a model city,

demonstrating excellent small city comprehensive urban land planning and development." With those policies and plans in place, Yarrow Bay's MPD Permit applications for The Villages and the Lawson Hills projects were able to be processed, and were processed using the quasi-judicial process required by both BDMC 18.98 and BDMC 18.08.030 and .070. As the City Council knows, over the course of more than five months, extensive public hearings were held before the City's Hearing Examiner and then the City Council. On September 20, 2010, a unanimous Council vote resulted in the MPD Permit Approval Ordinances for both projects. As the City Council is also aware, there is litigation pending on multiple fronts about the MPD Permit Approval Ordinances for The Villages and Lawson Hills. However, under the State Growth Management Act and City Codes, YarrowBay is allowed to continue filing applications for development, and the City is obligated to process those applications. As Brian Ross described to the Council in a letter dated June 2, 2011, YarrowBay did agree and committed to not submit any further residential subdivision applications while that litigation is pending provided the City efficiently processes the Development Agreements.

2. <u>What is required in the Development Agreements?</u>

Now, development agreements for The Villages and Lawson Hills are required. Pursuant to BDMC 18.66.020.E and BDMC 18.08.070, the hearing on the development agreements also is required to be quasi-judicial.

The development agreements are contracts between a landowner and the City of Black Diamond. Under BDMC 18.98.090, the purpose of the MPD development agreements is to ensure that the "MPD conditions of approval shall be incorporated" into a development agreement that is "binding on all MPD property owners and their successors," to ensure that the MPD lands are developed "only in accordance with the terms of the MPD approval." Under State law, a development agreement "shall be consistent with applicable development regulations," and "must set forth the development standards and other provisions that shall apply to and govern and vest the development, use, and mitigation of the development of the real property for the duration specified in the agreement."

The Council's mandatory review of The Villages and Lawson Hills Development Agreements is limited to assuring that each development agreement appropriately incorporates the conditions of each MPD Approval, as adopted in Ord. Nos. 10-946 and 10-947, each development agreement is consistent with applicable development regulations, and that the matters set forth in the development agreements are within the scope of development standards and provisions authorized to be included in a development agreement by RCW 36.70B.170 *et seq*. and BDMC 18.66.020. As described in the Hearing Examiner's Recommendation, the Council might choose to ask YarrowBay to agree to additional Development Agreement terms, but will need to negotiate for such items.

3. <u>Once the Development Agreements are finalized and recorded, what is the future role for the City Council, City Staff, and Citizen Involvement under the terms of the Development Agreement?</u>

The Villages and Lawson Hills Build-Out will be achieved through future additional Implementing Permits. As described in Exhibit 8, pp. 42 – 44, there are two essential steps: first, the land must be subdivided into buildable lots, and, second, building permits must be obtained. City Staff is obligated to review all of the Implementing Permits, and there are many opportunities for Citizen Involvement during review of those Implementing Permits.

The City Council will continue to be involved as the Build-Out of The Villages and Lawson Hills proceeds. For example, the various Citizen Committees (for water quality, for noise, and for Green Valley Road) will prepare reports back to the City Council in the process described in MPD Conditions of Approval for each Committee.

Another example of Council involvement falls under Section 7.1.9 of The Villages Development Agreement and Section 7.1.9 of the Lawson Hills Development Agreement. There, the Council must decide whether to exempt Implementing Projects from Capital Facility Charges, or to collect those charges, while Yarrow Bay builds up a substantial credit owed by the City due to the costs of infrastructure construction.

In the event of any Major Amendment to the Development Agreement (or to one of the MPD permits), the Council will be involved in the same way they were involved during the prior MPD Permit review and in this Development Agreement process. As described in Section 4.4.2 of The Villages Development Agreement and Section 4.4.2 of the Lawson Hills Development Agreement, one example of a Major Amendment would be an increase in the density range for a Development Parcel that abuts the perimeter of the MPD Project Site.

On the more mundane front, the City Council also has the obligation under City Codes to accept all infrastructure into the City's system; this process is referenced in Sections 7.1.5, 7.1.6 and 7.1.7 of The Villages Development Agreement, and Sections 7.1.5, 7.1.6 and 7.1.7 of the Lawson Hills Development Agreement.

As described below, under The Villages MPD Condition of Approval No. 17 (and Lawson Hills No. 16), the City Council also has the important responsibility to set the timing for Periodic Reviews as to whether the MPDs' transportation mitigation is sufficient.

b. Fiscal Analysis & Funding Agreement

1. <u>How are the City's fiscal interests protected within the Development Agreements?</u>

As outlined on pages 47-50 of YarrowBay's *Guide to MPD Design and Build-Out as Envisioned by the Development Agreements* (Exhibit 8), YarrowBay has designed the MPDs to generate positive economic growth in the City of Black Diamond. To ensure positive economic development and fiscal neutrality, the Development Agreements include several fiscal-related conditions.

- Section 13.6 of the Development Agreements, which was authored and reviewed by the City's fiscal consultant, details the many requirements for each fiscal analysis that is required to be prepared by Conditions of Approval Nos. 156 and 160 of The Villages

and Lawson Hills MPD Permits. Exhibit 217 includes a declaration of the City's fiscal consultant summarizing the merits of the Development Agreements' proposed Section 13.6.

- A new MPD Funding Agreement is proposed in Exhibit "N" of each Development Agreement to fund City Staff as necessary to implement The Villages and Lawson Hills through full build-out and to foster a system under which the City can ultimately fund staff through City revenues. An extensive discussion of Exhibit "N" is included is also included in Exhibits 139, 209, and 245.
- A general government mitigation fee (Section 13.9).

The City's fiscal interest is also protected through Section 11 requiring YarrowBay to build all major infrastructure that will serve the MPDs at no cost to the City; new tax revenue generated by the MPD development; the security provisions outlined in Section 10 of the new MPD Funding Agreement (Exhibit "N"); and the City's strict bonding requirements as referenced in Sections 7.1.4 and 12.9. Finally, the Hearing Examiner recognized the financial protection provided to the City by the MPD Funding Agreement (Exhibit "N") finding that the agreement "assures compliance with the [MPD Condition of Approval} 'no adverse impact' requirement."

2. What is the MDRT outlined in the MPD Funding Agreement (Exhibit "N")?

As outlined on pages 48-49 of YarrowBay's *Guide to MPD Design and Build-Out as Envisioned by the Development Agreements* (Exhibit 8), as well as Exhibits 139 (pp. 65-68), 209, and 245 (pp. 39-42), the MDRT or Master Development Review Team is a concept, borrowed from the City of Issaquah, through which a team comprised of City Staff and the City's consultants review MPD Implementing Projects and implement the Development Agreements. The City then bills the costs of the entire MDRT to the Master Developers. During the Hearing Examiner hearings, the benefits of using Issaquah's MDRT-approach were lauded by a third party – not funded by the City or YarrowBay – who was in fact one of Save Black Diamond's own experts, Dr. Chris Breeds. See Exhibit 45. And, despite testimony to the contrary, the Hearing Examiner concluded in his Recommendation that any conflict of interest created by the MDRT is "minimal" because the City "retains full authority over all personnel decision".

3. What is the Building Permit Surcharge outlined in the MPD Funding Agreement (Exhibit "N")?

As summarized on page 49 of YarrowBay's *Guide to MPD Design and Build-Out as Envisioned by the Development Agreements* (Exhibit 8), as well as in Exhibits 139 (pp. 65-68) and 245 (pp. 39-42), the building permit surcharge in the proposed new MPD Funding Agreement (Exhibit "N") is the result of an agreement reached with the City in the existing Black Diamond Staff and Facilities Funding Agreement. The building permit surcharge proposed in Exhibit "N" is narrower than the existing contemplated surcharge in that it only applies to building permits for new construction inside the MPDs, and will only come into effect if and only if the City Council adopts an authorizing resolution subsequent to its approval of the Development Agreements. While the Council need not make the ultimate decision as to whether to approve the surcharge right now, it is important to note that the effect of the changes that were negotiated by City Staff is that only the MPD lands and YarrowBay will have paid for the

development of legislation such as the Sensitive Areas Ordinance even though such legislation provides City-wide benefit.

c. Infrastructure Financing

1. How are the infrastructure projects outlined in the Development Agreements going to be paid for?

As summarized on page 49 of YarrowBay's *Guide to MPD Design and Build-Out as Envisioned by the Development Agreements* (Exhibit 8) and described within Section 11 of the Development Agreements, infrastructure improvements inside the City will be paid for and constructed by YarrowBay. There are a few exceptions associated with the WSFFA and King County wastewater storage facility. Most critically, however, the Development Agreements do not require the City to incur any cost associated with the construction of infrastructure for the MPDs. Road and intersection improvements outside the City may be constructed by YarrowBay or by those other jurisdictions. As to improvements within the Cities of Maple Valley and Covington, YarrowBay's share of the cost of those road and intersection improvements will be paid per the terms of the Mitigation Agreements in Exhibits "Q" and "R" of the Development Agreements.

For all qualifying improvements, Community Facility Districts (CFDs) are one of YarrowBay's preferred methods of financing. However, CFDs can only be used to finance the portions of improvements that specially benefit the MPDs. Therefore, YarrowBay cannot rely on CFDs exclusively to finance the required infrastructure improvements and will instead rely on multiple sources of financing for construction. For further discussion of CFDs, see pages 36-40 of Exhibit 209 and page 25 of Exhibit 245.

d. Transportation

Since the time of the MPD hearings, YarrowBay and the City of Maple Valley were able to reach agreement (Exhibit "Q") that satisfied Maple Valley that transportation impacts would be mitigated.

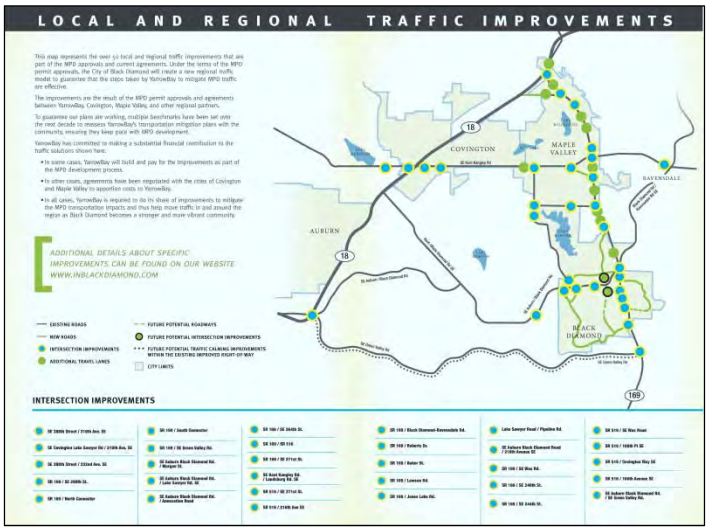
YarrowBay listened carefully to the large amount of public testimony regarding transportation issues still presented in the open-record hearing before the Examiner. There are simply hundreds and hundreds of pages of testimony that the Council will be reviewing. A convenient summary of the issues raised most often together with YarrowBay's response is found in the Traffic-Signal Analysis Table of YarrowBay, Exhibit 208.

The Examiner also listened carefully to all the public testimony, and at pp. 77 - 89 of the

Recommendation, the Examiner concluded as follows:

- that the timing of the model was set by the MPD Conditions of Approval;
- that adopting "further modeling assumptions are unwarranted at this time;"
- that two aspects of the Traffic Monitoring Plan should be modified (and YarrowBay agrees, as described below);
- that the location of the South Connector roadway will be subject to additional review, including environmental review in the future where public concerns can be addressed;
- that Implementing Project review for the MPDs provides the appropriate opportunity to evaluate construction traffic impacts;
- that the MPDs must meet City requirements for bicyclists and that the City lacks jurisdiction to require improvements outside the City borders;
- that the MPDs include many vehicle trip reduction strategies and that it is to YarrowBay's advantage to "encourage as much transit use as possible," because doing so will reduce the amount of future traffic mitigation.

As described in greater detail in Exhibit 139, 208, and 245, The Villages and Lawson Hills MPDs are required to construct or fund the MPDs share of numerous local and regional transportation improvements so as to maintain the Level of Service standards set by the governing jurisdiction for any particular road or intersection project. The mitigation projects include improvements at existing intersections, adding lanes to existing roadways, and building brand new intersections and roadways. There are over 50 of these transportation mitigation projects in the area. Those projects were graphically depicted on a color map following page 28 of the Guide (Exhibit 8).



In addition to those 50-plus mitigation projects, The Villages MPD Condition of Approval No. 17 and the corresponding condition in Lawson Hills mandates that the City conduct Periodic Review of the MPD development to identify whether that list of transportation mitigation is enough. The first Periodic Review will occur when building permits are issued for 850 dwelling units. The first Periodic Review will test the MPDs' traffic impacts using a new transportation model. After the first Periodic Review, the City Council determines the next phase or interval at which Periodic Review will be conducted, as well as the timing for each additional Periodic Review.

In addition to the Periodic Reviews, a Traffic Monitoring Plan will be used to evaluate the potential traffic impacts of an entire phase of development before any land use applications for that phase are submitted. The Traffic Monitoring Plan therefore, determines when

necessary transportation improvements need to be built, to set that timing before land use applications are submitted. That way, the construction of the required transportation mitigation will be scheduled to proceed hand-in-hand with the MPD Build-Out itself.

The Hearing Examiner raised two concerns about the Traffic Monitoring Plan. First, he was concerned that it would not be subject to City review and approval. In fact, Section 11.4 of each Development Agreement required that the City's Designated Official approve each Traffic Monitoring report; so that requirement is now also clearly reflected in the terms of the Traffic Monitoring Plan itself. Second, the Examiner was concerned that the Traffic Monitoring Plan did not assure that GMA transportation concurrency would be achieved. Here, again, YarrowBays' intent and YarrowBay's understanding of The Villages MPD Condition of Approval No. 10 and the corresponding condition in Lawson Hills, was that the Condition assured that transportation improvements themselves would be built on a schedule that was better than the transportation concurrency program, which would allow "strategies" or "funding" to be in place rather than actual projects. However, to alleviate the Examiner's concerns, YarrowBay has now revised the Traffic Monitoring Plan to clearly reference the City's GMA Transportation concurrency program.

The Hearing Examiner deemed the composition of the Green Valley Road Committee to be "well suited for deferred decision-making on project mitigation," because if YarrowBay and the community disagree on traffic calming measures, the City has the final tie-breaking vote and it is the City who is held accountable for mitigation. The Committee will review whether traffic calming measures along Green Valley Road should be built. Because traffic calming measures may make the road corridor feel more "urban," it may be the case that the Committee decides against their construction. However, if the Committee decides in favor of construction of some traffic calming measures, then Yarrow Bay will be required to seek permits from King County to construct those improvements.

e. Amendments to the MPD Permits and Development Agreements

1. <u>What are Major & Minor Amendments?</u>

There are two types of Major and Minor Amendments contemplated in the Development Agreements: (1) MPD Permit Approval amendments and (2) Development Agreement amendments. MPD Permit Approval amendments are described in Sections 10.4.1 and 12.8.14 of the Development Agreements. Per these sections and BDMC 18.98.100, "[a]ll applications for [MPD Permit Approval] amendments shall be deemed either 'minor' or 'major'." This BDMC provision also sets forth the criteria for a Minor MPD Permit Approval amendment. Thus, Minor Amendments to MPD Permit Approvals are established by City Code and are reviewed and noticed as a Type 2 decision under BDMC Ch. 18.08.

BDMC 18.66.020(B)(11) suggests that development agreements the City enters into include a "process for amending the development agreement." Pursuant to this authority, City Staff and YarrowBay drafted Section 10.4.2 of the Development Agreements which describes Major Development Agreement Amendments as those amendments that "materially modify the intent and policy of the" agreement and that must be reviewed by the same procedures

applicable to a new development agreement request. Minor Development Agreement Amendments, on the other hand, are those amendments that do not materially modify the intent and policy of agreement and may be approved by the Mayor.

Under the proposed Development Agreements, the final determination regarding whether a Development Agreement and/or MPD Permit Approval amendment is "Major" or "Minor" is made by the Designated Official subject to appeal to the Hearing Examiner. This final determination process is set forth in BDMC 18.98.100(I).

2. Please describe the MPD Site Plan Amendment Process in the Development Agreements.

The MPD Site Plan Amendment Process is described in Section 4.4 of each Development Agreement. The process describes certain amendments to the MPD Site Plan, contained in Exhibit "U" of each Development Agreement, which qualify as "Minor" Amendments to the MPD Permit Approval. The Mi nor Amendments to the MPD Site Plans described in Section 4.4 include the adjustment of residential density ranges up or down only one category; conversion of Mixed Use-designated Development Parcels to Live/Work Units; and conversion of any Development Parcel to School use. Like other Minor Amendments to the MPD Permit Approvals, amendments to the MPD Site Plan set forth in Section 4.4 require an application, notice and include an appeal process. See Sections 12.6.1(D). Each of these Minor Amendments was defined after careful review to assure they met the definition of "minor amendment" criteria found in BDMC 18.98.100.

The MPD Site Plan Amendment Process also describes certain modifications to the MPD Site Plans of The Villages and Lawson Hills that do not require a Minor Amendment but instead may be accomplished pursuant to a MPD Implementing Project application. These modifications include roadway alignments and Development Parcel acreage changes that are less than 5% of a parcel's total acreage. However, because an Implementing Permit Application is required, such MPD Site Plan modifications will still be subject to notice and appeal processes under the City Code.

Most critically, MPD Site Plan Amendments cannot authorize more dwelling units or commercial square footage that the total amounts approved by the City Council in the MPD Permits. The MPD Site Plan Amendment Process is further described in Exhibit 139 (pp. 8-11), Exhibit 209 (pp. 5-8) and Exhibit 245 (pp. 9-12).

3. Please describe the Expansion Parcel Review Process outlined in the Development Agreements.

As required by MPD Conditions of Approval Nos. 134 and 162 (The Villages) and 166 (Lawson Hills), the Expansion Parcel Review Process is described in Section 10.5 of the Development Agreements. This proposed process includes, but is not limited to, written notice to the City (the "Expansion Proposal"), compliance with SEPA, and updated fiscal analyses, constraint maps, phasing plan, and infrastructure and open space figures. After submitting a complete Expansion Proposal package, the City will review it against the Minor and Major Amendment

criteria set forth in Section 12.8.14 and BDMC 18.98.100 to determine which process will be followed. Per BDMC 18.98.100(A), if the Master Developer seeks an amendment that would "increase the total number of dwelling units in an MPD above the maximum number set forth in the approved MPD permit," it must be considered a Major Amendment. Stated differently, if the Master Developer seeks to add more dwelling units to a MPD pursuant to the inclusion of an Expansion Parcel (i.e., above the total dwelling unit count set forth in Section 4.2 of each Development Agreement), the proposal will be considered a Major Amendment of the MPD Permit Approval and be reviewed by the same procedures applicable to new MPD Permit requests. See BDMC 18.98.100(I).

Moreover, pursuant to the provisions of this section: "If a defined Expansion Parcel is neither designated with a MPD Overlay on the City's Comprehensive Plan Future Land Use Map nor is zoned MPD, then a Comprehensive Plan Amendment and rezone shall be required." In fact, the Hearing Examiner reviewed the Expansion Parcel Review Process in his Recommendation at page 63 and found that "no additional protections appear necessary at this time."

For more information regarding the Expansion Parcel process, see pages 41-42 of Exhibit 139 and pages 20-21 of Exhibit 209.

f. Environmental Impacts and SEPA Review for MPD Implementing Projects

1. Will the potential environmental impacts of future MPD Implementing Projects be analyzed and mitigated?

Yes, environmental impacts of future MPD Implementing Projects be analyzed and mitigated. BDMC 18.98.070(C) requires that Implementing Projects within an MPD be subject to SEPA. As described in the final clause of Section 4.10 of The Villages Development Agreement and Section 4.10 of the Lawson Hills Development Agreement, Implementing Projects within each MPD, including residential subdivisions and binding site plans to create buildable lots for new dwellings and businesses, as well as permits for infrastructure such as the South Connector roadway, will undergo further environmental review under the State Environmental Policy Act (SEPA).

For example, under Section 12.8.2 of The Villages Development Agreement, and Section 12.8.2 of the Lawson Hills Development Agreement, every subdivision is required to be consistent with the terms of Title 17 BDMC, the City's subdivision code. Under BDMC 17.12.010(C), each subdivision application is to include a "completed environmental checklist, together with applicable environmental studies and SEPA documents." Under BDMC 17.16.010(C), a SEPA threshold determination will be issued for each subdivision application. Accordingly, SEPA review will be conducted to evaluate impacts and impose mitigation for those impacts.

g. MPD Housing and Design

1. What are the MPD Project Specific Design Standards and Guidelines (Exhibit "H") and how are they governed?

MPD Permit Conditions of Approval Nos. 135 (The Villages) and 139 (Lawson Hills) require that project specific design standards be incorporated into the Development Agreements. To meet these conditions, YarrowBay proposed and City Staff approved the inclusion of Exhibit "H" in each Development Agreement entitled "The Villages and Lawson Hills Design Standards & Guidelines". These standards comply with the City's MPD Framework Design Standards and Guidelines.

The MPD Project Specific Design Standards and Guidelines will be enforced by the Design Review Committee (DRC) established by the Master Developer for each MPD. Each MPD Implementing Project application must be reviewed by the DRC before it is submitted to the City. Any such application submitted to the City without written document of the DRC's approval can be rejected by the City as incomplete. Moreover, and most critically, by including Exhibit "H" within the Development Agreements, City Staff may also independently review each MPD Implementing Application for compliance with the MPD Project Specific Design Standards and Guidelines. The DRC process is further described in each Development Agreement at Section 12.3.

For examples of types of housing products that comply with the MPD Project Specific Design Standards and Guidelines and for further discussion of Exhibit "H", please see Exhibits 7F, 7G, and 7H, pages 13-14 of Exhibit 8, and Attachment 12 to Exhibit 139.

2. Explain the relationship between the MPDs' total unit count and density.

The Villages and Lawson Hills MPD Permit Approvals passed unanimously by the City Council in September 2010 capped the total number of units for each MPD – 4,800 dwelling units for The Villages and 1,250 dwelling units for Lawson Hills. Density can be calculated many ways. For example, as described in Exhibit 8 at p. 38, there is a grand total of 2,804 acres associated with the MPDs in Black Diamond, including 1,895.3 acres of open space already set aside both inside and outside the MPD Project Sites. If density calculated using the full 2,804 acres, the result is 2.15 dwellings/gross acre. The smaller that land area used as the denominator in the formula, the higher the density that will result. For example, whether or not school or stormwater facilities serving the MPDs are built inside or outside the MPD boundaries has no effect on this total dwelling unit count, but may affect density. YarrowBay can build its total number of housing units regardless. However, the location of school and stormwater facilities does affect density. If such facilities are constructed within the MPD boundaries, the developments will be "more dense" because there is less land available for residential development. If the facilities are located outside the MPDs, there will be the same number of dwelling units but the housing will be "less dense" because there is more acreage upon which to site the homes.

3. What is Single Family Attached Housing?

Single family attached housing is specifically included within the MPD Framework Design Standards & Guidelines at page 7, Section E.1.b as one of the types of housing that an MPD should include. Each of the Development Agreements defines Single Family Attached Housing as "buildings containing four units or less" and includes such housing in the total number of single family units that the Master Developer may build within the MPD.

For representative photographs of single family attached housing that could be built in The Villages and Lawson Hills consistent with the City's MPD Framework Design Standards and Guidelines and the MPD Project Specific Design Standards and Guidelines (Exhibit "H") see Exhibit 261. For further discussion of single family attached housing, please see pages 7-8 of Exhibit 245.

4. Why are Accessory Dwelling Units (ADUs) referenced in the Development Agreements?

ADUs are authorized under the Black Diamond Municipal Code (Chapter 18.56 BDMC) on any lot developed with a detached single-family structure, when the owner of the property lives on the lot in either the principal residence or the ADU. The City's MPD Framework Design Standards & Guidelines at page 7, Section E.1.e expressly include "accessory dwelling units" as one of types of housing that an MPD should include. The existing City Code would allow YarrowBay, and subsequent homeowners, to build an ADU for every detached single-family dwelling within the MPD sites. Instead, YarrowBay agreed to voluntarily limit the number of ADUs in each MPD at Section 4.7.3 of each Development Agreement. The Village MPD is limited to 300 ADUs and the Lawson Hills MPD is limited to 150 ADUs.

For further discussion of ADUs provided to the Examiner, please see Exhibit 139 (page 13), Exhibit 209 (pp. 3-5), and Exhibit 245 (pp. 4-6).

In the Recommendation, the Hearing Examiner construed ADUs differently, and felt that ADUs should count against the total number of dwelling units allowed in each MPD. YarrowBay believes that interpretation is unfair and contrary to the City's code. Homeowners inside the MPDs should have the same rights that homeowners outside the MPDs possess, to provide an ADU to house an elderly parent, a caregiver (whether a nanny, or a health care provider), or an adult child in need of additional support. ADUs are also a way to provide affordable housing opportunities without necessitating more multi-family development. Despite these arguments, as detailed in YarrowBay's offer to the City Council, we will accept the Examiner's recommended limitation on unit count, so long as the City Council is willing to accept YarrowBay's agreement as detailed in YarrowBay's recital of the Examiner's Recommended Implementing Conditions.

h. Relationship to Other Agreements

1. Please describe Section 3 of the Development Agreements.

Section 3.0 is intended for users and readers of the Development Agreements ten or even fifteen years down the road. Given the numerous prior agreements affecting the MPD sites, City Staff and YarrowBay felt it was appropriate to consolidate the rights and obligations set forth in the identified prior agreements in one document. That way a City planner, ten years from now, will not have to locate the referenced prior agreements and decipher their meaning thereby avoiding conflicting interpretations of obligations.

It is important to note that no party to these proceedings has identified any provision of the prior agreements listed in Section 3 that the Development Agreements are inconsistent with. The Development Agreements do not supersede, repeal, or amend the cited prior agreements but instead merely implement their provisions. City Staff agrees with this. Third parties to the Prior Agreements will have the same rights before and after execution of the Development Agreements whether or not Section 3.0 is included. As such, there is no impairment of the rights of third parties.

For further discussion of Section 3, please see Exhibit 139 (pp. 4-6), Exhibit 209 (pp. 3-5), and Exhibit 245 (pp. 4-6).

2. What is the relationship between the Comprehensive School Mitigation Agreement and the Development Agreements?

Section 13.3 of each Development Agreement incorporates by reference the Comprehensive School Mitigation Agreement executed by the Enumclaw School District, the City of Black Diamond, and YarrowBay as required by MPD Conditions of Approval Nos. 98 (The Villages) and 99 (Lawson Hills). The Comprehensive School Mitigation Agreement cannot be revised or amended by The Villages and Lawson Hills Development Agreements because the Enumclaw School District is not a party to these agreements.

MPD Conditions of Approval Nos. 98 (Villages) and 99 (Lawson Hills) specifically provide that:

> The Applicant shall enter into a separate school mitigation agreement, with substantially the same key terms as the agreement in the record as Exhibit 6, so long as such agreement is approved by the City and the Enumclaw School District which approval provides adequate mitigation of impacts to school facilities. If approved, such agreement shall be incorporated into the Development Agreement by reference. Alternatively, school mitigation may be addressed in the Development Agreement, using terms similar to those contained in Exhibit 6, or through a combination of (1) school impact fees under a City-wide school impact fee program for new development or a voluntary mitigation fees agreement and (2) the dedication of land for school facilities (subject to credit under State impact fee laws). The agreed number of school sites and associated minimum acreage, both as set forth in Exhibit 6, shall be used to guide any school mitigation alternative. To the extent reasonable and practical, elementary schools shall be located within a half-

mile walk of residential areas. All school sites shall be located either within the MPDs or within one mile of the MPDs.

Exhibit 6 referenced in MPD Condition Nos. 98 and 99 is a draft copy of the Comprehensive School Mitigation Agreement that is substantially similar to the final executed copy incorporated by reference in Section 13.3 of the Development Agreements. Between the version contained in the referenced Exhibit 6 and the final executed version, no changes were made to the number of school sites and associated minimum acreage in the School Agreement.

Therefore, the MPD Conditions do not require some additional "adequate mitigation of impacts to schools" in the Development Agreements. Rather, the MPD Conditions are an announcement of the Black Diamond City Council's determination that, for the MPDs the School Agreement is adequate mitigation. In his Recommendation, the Hearing Examiner concurred that the School Agreement constitutes adequate school mitigation. *See* Recommendation at page 92. Most critically, the Enumclaw School District also believes that the Comprehensive School Mitigation Agreement constitutes adequate mitigation for The Villages and Lawson Hills MPDs. See the Testimony of Chris Van Hoof.

For further discussion on the Comprehensive School Mitigation Agreement, please see pages 45-46 of Exhibit 8, pages 49-52 and 89-90 of Exhibit 139, pages 41-42 of Exhibit 209, and pages 29-32 of Exhibit 254.

IV. Other issues

a. Covington Water District

YarrowBay currently has two water purveyors – the City of Black Diamond and Covington Water District (CWD) – that would both like to serve the same 98 acre portion of the Villages MPD. City Staff, the CWD and YarrowBay are working to resolve this water service issue. In the meantime, however, the revisions to The Villages Sections 7.2.1 and the new Section 7.2.7 proposed by YarrowBay in Exhibit 139 (pages 25-26) approved by City Staff, together with the Examiner's Recommended Implementing Conditions to further revise Section 7.2 accommodate the potential for two water purveyors. The City Council does not have the authority to actually decide the water service issue in the context of the Development Agreement Hearings. With the addition of references to the CWD in The Villages Development Agreement, there is no need for further revisions to Section 7. For additional information regarding CWD water service, please see page 44 of Exhibit 209.

b. Lake Sawyer Flooding

During the open record hearing before the Hearing Examiner, Mr. Jack Sperry testified regarding potential impacts from the MPDs on Lake Sawyer water levels. See page 87-88 of Exhibit 139. Contrary to Mr. Jack Sperry's testimony, however, both the City's and YarrowBay's experts conclude that in their professional opinion The Villages and Lawson Hills MPDs will have no noticeable impact on potential Lake Sawyer flooding. For the ease of the City Council's review, the City's expert testimony on Lake Sawyer water levels is located within Exhibit 215 and YarrowBay's expert testimony is located within Attachment 9 to Exhibit 139 and Attachment 2 to Exhibit 245. At p. 43 of his Recommendation, the Examiner confirmed that the materials submitted to him during the Development Agreement hearings did "not provide a compelling reason to seek supplemental conditions to address Lake Sawyer flooding."

c. Phosphorus

Both YarrowBay and the Black Diamond community are concerned about the effect of increased phosphorus to Lake Sawyer. Given these concerns, YarrowBay agreed to include a voluntary commitment in the Development Agreements to "no net increase in phosphorus" flowing to Lake Sawyer from the developed areas of the MPDs. Exhibit "O" of each Development Agreement contains a memo from Triad Associates describing how YarrowBay will meet, monitor, and evaluate its satisfaction of its "no net increase" commitment. For addition information regarding YarrowBay's voluntary commitment to "no net increase in phosphorus" to Lake Sawyer from the MPDs' developed areas, see page 31 of Exhibit 8, page 68 of Exhibit 139 and pages 42-43 of Exhibit 245. At pp. 40 – 41 of the Recommendation, the Hearing Examiner agreed that the "no net increase" of phosphorus to Lake Sawyer commitment "exceeds the TMDL required by DOE." The Examiner did propose Recommended Implementing Conditions which include additional monitoring and those matters are included within YarrowBay's offer to the Council.

d. Rural Facilities

During the open record hearings before the Hearing Examiner, several individuals testified regarding the regional stormwater facility and the three Enumclaw School District school sites within unincorporated King County. As discussed by the Examiner's Recommendation at pp. 37 – 38 and at p. 94, King County may permit a stormwater pond in the rural area, and County

Code currently allows schools in the rural area, pursuant to a permitting process. In regards to the regional stormwater facility, expert testimony in the record supports the conclusion that the proposed location in unincorporated King County is the best site for such a facility on property owned by YarrowBay based on topographic, geographic, geologic, and hydrologic considerations. See Exhibit 212. While such a facility is currently permitted under the King County Code (KCC 21A.08.060 and 21A.06.1350), if the County fails to approve the construction of the regional stormwater facility, Section 11 of the Development Agreements grants the City and YarrowBay sufficient flexibility to site smaller stormwater detention facilities inside the boundaries of the MPDs.

As for the three school sites located within unincorporated King County, if, in the future, the Enumclaw School District determines it is unable to get permits for the construction of schools on any of the sites shown in the Comprehensive School Mitigation Agreement, the agreement itself includes alternative site identification processes to ensure that school sites are ultimately provided to serve Black Diamond students. For additional discussion regarding rural school sites, please see page 46 of Exhibit 8, page 85 of Exhibit 139, pages 41-42 of Exhibit 209, and pages 31-32 of Exhibit 245.

e. MPD Committees

As summarized on pages 41-42 of *The Villages and Lawson Hills Guide to MPD Design and Build-Out as Envisioned by the Development Agreements*, YarrowBay has a plan for the commencement of the three community committees anticipated by the MPD Permit Approvals – (1) Water Quality, (2) Noise, and (3) Green Valley Road. The first meeting of the Water Quality Committee and Green Valley Road Committee will be convened within thirty days after approval of the Development Agreements. Because The Villages and Lawson Hills Noise Committees are intended to evaluate the effectiveness of the noise conditions imposed by the City Council in the MPD Permit Approvals, the first meeting of each committee will be convened by YarrowBay for a date two weeks following the beginning of on-site construction for each MPD. While YarrowBay will be initially responsible for sending out written notices of committee meetings and organizing meeting space, we anticipate that ultimately the committees' agendas and meeting times will be driven and governed by the membership. For further discussion regarding the MPD Committees, please also see page 88 of Exhibit 139. The Examiner's Recommendation confirmed that the Committees were not required to be formed prior to review of the Development Agreements, and that the Committee composition of 2 members from the community, 2 members from YarrowBay and a tie-breaking member from the City was appropriate since it is the City that possesses authority to enforce project mitigation.

f. Private Water System Impacts

During the open record hearing before the Hearing Examiner, public testimony was given regarding potential impacts to private water systems from The Villages MPD. Impacts to private water systems from the MPDs were analyzed and addressed, however, in The Villages and Lawson Hills EISs at Appendix D. The Hearing Examiner deemed the EISs adequate. Subsequent to this finding of adequacy, the Black Diamond City Council included the following finding of fact in the MPD Permit Approvals: "The project has also been designed . . . to avoid any risk of adverse impact to private wells and springs . . . . There is no evidence to suggest that the use of these water sources will impact or impair existing water rights of other residents." To further confirm this finding, YarrowBay had its geologic hydrologist, Curtis Koger, prepare a response to the testimony given to the Hearing Examiner. See Exhibit 211. In his response, Mr. Koger concludes that no adverse impacts to ground water resources from

The Villages MPD can be reasonably anticipated and that The Villages MPD has no potential to influence water quantity or quality of the Diamond Springs Wellhead Protection Area. For further discussion regarding the absence of private water system impacts from the MPDs, please see page 88 of Exhibit 139 and Exhibit 211. The Examiner's Recommendation confirmed this expert analysis.

V. Compliance Matrices.

The following compliance matrices for The Villages and Lawson Hills Development Agreements (Attachment 6 to Exhibit 3 (Staff report)) have been updated to include the following revisions:

- Revisions from Staff errata (Exhibit 4);
- YarrowBay revisions submitted to the Hearing Examiner (Exhibit 139); and
- Revisions recommended by Hearing Examiner.

The matrices have also been updated to include, where applicable, which "Recommended Implementing Conditions" from the Hearing Examiner's Recommendation apply. They are provided here for ease of reference.

The Villages MPD Conclusions and Conditions Required in the Development Agreement
Pursuant to City of Black Diamond Ordinance No. 10-946
~~06/08/2011~~

Conclusion of Law ("COL")/Condition of Approval # / HE Condition	**Condition Language or Summary**	**Response and Status**	**DA Section**	**Condition/ Conclusion fulfilled**
COL 7 COL 93E	Establish some of the street design features/standards internal to the MPD in the Development Agreement	Internal street standards are detailed in Section 6 of the Development Agreement. Other deviations shall rely on the process in the City's Engineering Design and Construction Standards.	6	✓
COL 62	Specifics as they pertain to development right use and timing shall be included within the Development Agreement.	A TDR phasing plan is included in the Development Agreement, and TDR use shall be as required in BDMC Ch. 19.24.	4.9	✓
COL 30C Condition #4	The Development Agreement shall specify the following additional details: which infrastructure projects from the Phasing Plan and other mitigation obligations the applicant will build; which projects the City will build; and for which projects the applicant will be eligible for either credits or cost recovery and by what mechanisms this shall occur.	Tables in Section 11 include lists of infrastructure improvements and identifies timing and funding requirements.	11.0; see also Exhibit K	✓
COL 30B COL 55 Condition #5 Condition #152 Condition #157	The DA shall include language that specifically defines when the various components of permitting and construction must be approved, completed or terminated. For example; when must open space be dedicated, plats recorded and utility improvements accepted by the City.	Permitting and construction approval timing is based on City standards. Table 9-5 includes a timing schedule for park improvements associated with implementing projects.	12; 9.5	✓

The Villages MPD Conclusions and Conditions Required in the Development Agreement
Pursuant to City of Black Diamond Ordinance No. 10-946
~~06/08/2011~~

Conclusion of Law ("COL")/Condition of Approval # / HE Condition	**Condition Language or Summary**	**Response and Status**	**DA Section**	**Condition/ Conclusion fulfilled**
Condition #6	The DA shall include language that defines and identifies a "Master Developer". A single Master Developer shall be maintained through the life of the Development Agreement. The duties of the Master Developer include……	Section 15.2 defines who the Master Developer is and what its~~their~~ roles and responsibilities are.	15.2	✓
COL 74 Condition #8	The applicant shall submit a construction waste management plan for inclusion in the DA	Exhibit J includes a construction ~~water~~ waste management plan for the MPD.	Exhibit J	✓
Condition #10	Construct transportation improvements shown on the City's 2025 Transportation element of the 2009 Comprehensive plan – the DA shall specify for which projects the applicant will be eligible for either credits or cost recovery and by what mechanism this shall occur. Any "functionally equivalent" realignments that results in a connection of MPD roads to Green Valley Road shall be processed as a major amendment to the MPD	Required transportation improvements and funding responsibility is included in 11.5. In addition, the transportation monitoring plan in Exhibit F describes the timing of the improvements.	11.5; Exhibit F	✓
Condition #15	Intersection improvements outside the City limits may be mitigated through measures set forth in an agreement between the developer and the applicable agency. Where agreement is possible….the agreement shall be incorporated into the DA.	Approved mitigation agreements with neighboring agencies will be incorporated into the final version of the DA.	See Exhibits Q and R.	✓

Conclusion of Law ("COL")/Condition of Approval # / HE Condition	**Condition Language or Summary**	**Response and Status**	**DA Section**	**Condition/ Conclusion fulfilled**
Condition #18	The responsibilities and pro-rata shares of the cumulative transportation mitigation projects shall be established in the two DAs which must cover the complete mitigation list and be consistent with each other.	Section 11.5 discusses payment of proportionate share for off-site regional infrastructure improvements. Exhibit F includes the transportation monitoring plan that is intended to implement this condition of approval for all off-site improvements.	11.5; Exhibit F; see also Exhibits Q & R	✓
COL 12 Condition #20 HE Condition "T" HE Condition "U"	A transportation monitoring plan shall be established as part of the Development Agreement using the in-City projects listed in Condition 15, and including trigger mechanisms acceptable to the City. The monitoring plan shall ensure that construction of improvements commences before the impacted street or intersection falls below the applicable level of service.	Transportation Monitoring Plan is located in Exhibit F. The plan has been updated to reflect the Hearing Examiner's findings in Implementing Conditions "T" and "U".	Exhibit F	✓
COL 66 Condition #21	Implementing projects shall be designed to foster the development of a street grid system throughout the project.	This design requirement is included within Section 6.	6.1	✓
Condition #22	Auto courts serving 20 units or less shall be private and maintained by the HOA. The Development Agreement shall provide that, in the event that the Applicant or future Homeowners' Association(s) fails to maintain…	Section 6.5 identifies all autocourts serving less than 20 units as private streets and addresses a Homeowners' Association failure to maintain.	6.5	✓

Conclusion of Law ("COL")/Condition of Approval # / HE Condition	**Condition Language or Summary**	**Response and Status**	**DA Section**	**Condition/ Conclusion fulfilled**
Condition #23	Applicant or HOA to maintain all street side landscaping. The Development Agreement shall provide that, in the event that the Applicant or future Homeowners' Association(s) fails to maintain…	Language provided in Section 5.5.7 discusses HOA's maintenance of street side landscaping and any future failures to maintain.	5.5.7	✓
COL 12 Condition #25	Specifics of Transportation Monitoring Plan	Included in the Transportation Monitoring Plan.	Exhibit F	✓
COL 27D Condition #28	The DA shall define a development parcel(s) beyond which no further development will be allowed without complete construction of the South Connector	Section 6.4.1 states that no development beyond Development Parcel V48 will be allowed without extension of the South Connector Road to SR 169.	6.4.1	✓
COL 30E Condition #31	The timing of the design and alignment of Pipeline Road shall be included as part of the Development Agreement	Section 6.4.3 describes the timing and design standards for the Pipeline Road improvement; alignment identified in Section 11 and Exhibit K.	6.4.3; 11; Exhibit K	✓
COL 30G, 78, 83, 95 Condition #32	Provide construction timing for off-site walkway on Roberts Drive to Morganville sidewalk	Section 11.6 states that if feasible, the sidewalk connection will be completed prior to the 200th dwelling unit.	11.6	✓
Condition #33	Green Valley Road traffic calming study measures to be incorporated into the DA including process and timing of improvements	Recommendations from the City's Green Valley Road Study are included in Exhibit P.	Exhibit P	✓
Condition #34	The DA shall address which traffic projects will be built by the developer, which project will be built by the City and what project will qualify for cost recovery	Section 11.5 (Tables 11-5-1 and 11-5-2) describes what transportation projects will be constructed by the Master Developer.	11.5	✓

Conclusion of Law ("COL")/Condition of Approval # / HE Condition	**Condition Language or Summary**	**Response and Status**	**DA Section**	**Condition/ Conclusion fulfilled**
Condition #43	Work hours of operation shall be established and made part of the DA	Section 12.8.13 describes the MPD's work hours	12.8.13	✓
COL 76 Condition #53 HE Condition "G"	The Development Agreement shall include details about the responsibility for water conservation, the basis and methods for measuring conservation savings, and the impacts if the required savings targets of 10% less than the average water use in the City by residential uses at the time the MPD was submitted are not achieved	As revised pursuant to the Hearing Examiner's Implementing Condition "G", Section 7.2.5 describes the water conservation plan's intent to create a 10% reduction of water compared to current existing city use of 187 GPD~~230 GPD. Failure to achieve at least the 10% reduction, or the goal of 180 GPD/ERU could result in limiting build out of construction~~.	7.2.5	✓
Condition #54	The proposed water conservation plan shall be evaluated for its effectiveness after 500 units	The DA identifies 500 units as the appropriate time to evaluate the effectiveness of the water conservation plan, including "a plan to offset excess water usage if the plan is not met" pursuant to YarrowBay's proposed revisions in Exhibit 139.	7.2.5	✓
COL 76, 93I Condition #64 Condition #122	Native plants shall be primarily used as part of the planting palette within the MPD. Lawn planting shall be reduced wherever practical.	BDMC Ch 18.72.020 requires native plants, and as noted in Section 5.5.3, an additional requirement is added related to drought tolerant plantings.	5.5.3	✓
COL 11A, 18C, 73 Condition #67	Mechanisms shall be identified to integrate LID technologies into the overall design of the MPD and incorporated in the DA	Section 7.4.4 includes a list of potential LID features for inclusion in the site design.	7.4.4	✓

Conclusion of Law ("COL")/Condition of Approval # / HE Condition	**Condition Language or Summary**	**Response and Status**	**DA Section**	**Condition/ Conclusion fulfilled**
COL 18D(vi) Condition #68	The DA shall include restrictions on roof types (no galvanized, copper, etc.) and roof treatments (no chemical moss killers, etc.) to ensure that stormwater discharged from roof downspouts is suitable for direct entry into wetlands and streams without treatment. The applicant shall develop related public education materials for home owners and implement an enforcement process for HOA.	Section 7.4.4 complies with this condition.	7.4.4	✔
COL 52 Condition #69	Stormwater ponds to be considered as part of required open space shall be designed as an amenity per the Public Works and Natural Resources Directors.	Specific design criteria are outlined in order for stormwater ponds to be considered as open space.	9.4	✔

Conclusion of Law ("COL")/Condition of Approval # / HE Condition	**Condition Language or Summary**	**Response and Status**	**DA Section**	**Condition/ Conclusion fulfilled**
Condition #70	The Development Agreement shall include language that binds future developers and contractors to a requirement to comply with any NPDES permits issued by the Washington State Department of Ecology and acknowledge that although permit conditions imposed by NPDES permits are not administered by the City, staff reserves the right to enforce the conditions of the NPDES permit. Since the city has a high interest in protecting receiving waters under the city storm water permit, the developer shall fund necessary costs for training related to inspection services.	Section 7.4.4 requires compliance with the current NPDES standards.	7.4.4	✓
COL 18D(iii) Condition #71	Provide a proactive, responsive temporary erosion and sediment control plan to be used during construction.	The Development Agreement requires this to be provided for each implementing project.	7.4.3	✓
COL 18D(iv) Condition #72	Construct a stormwater system that does not burden the City with excessive maintenance costs.	The Development Agreement requires the Master Developer to maintain landscape features within stormwater ponds.	5.5.7	✓
COL 18D(v), 55 Condition #73 HE Condition "I"	Include a tabular list of stormwater monitoring requirements. The list should include the term of monitoring, the allowable deviation from design objectives or standards and the items necessary as a result of excess deviation.	As revised pursuant to the Hearing Examiner's Implementing Condition "I", Exhibit O describes the MPDs' proposed stormwater monitoring requirements including timelines and enforcement mechanisms.	Exhibit O	✓

Conclusion of Law ("COL")/Condition of Approval # / HE Condition	**Condition Language or Summary**	**Response and Status**	**DA Section**	**Condition/ Conclusion fulfilled**
COL 18D(vii), 28H Condition #74	The stormwater plan shall include the ability to adaptively manage detention and discharge rates and redirect stormwater overflows when environmental advantages become apparent.	The Development Agreement requires stormwater facilities to be designed to adaptive management.	7.4.3	✓
COL 18D(i) Condition #76	If new phosphorous treatment technologies are available, or "AKART", incorporate into future implementing projects.	Section 7.4.4 includes using new phosphorous treatment technologies as certified by DOE, or described as "AKART".	7.4.4	✓
Condition #77	The DA shall include language to allow deviations from the stormwater facilities listed in the FEIS when justified by a technical analysis and risk assessment.	Section 7.4.4 notes that stormwater facilities not specifically identified in the 2005 DOE Manual or the FEIS may be allowed with a deviation when justified by technical engineering analysis and risk assessment.	7.4.4	✓
Condition #79	The City shall determine whether the Applicants reasonable proportionate share participation in a watershed wide implementation measures identified in Exhibit H-9 would be incorporated into the DA. The DA shall also integrate the phosphorus monitoring plan proposed by the applicant in Ex NR-TV-7 as well as a temperature monitoring plan identical to the plan proposed for Lawson Hills in Exhibit NR-LH-5	The Applicant's reasonable proportionate share participation in watershed wide implementation measures is set forth in Section 7.4.4 and Exhibit O includes the storm water monitoring plan for the MPD.	7.4.4; Exhibit O	✓

Conclusion of Law ("COL")/Condition of Approval # / HE Condition	**Condition Language or Summary**	**Response and Status**	**DA Section**	**Condition/ Conclusion fulfilled**
COL 18D(ii) Condition #81	Prior to approval of the DA, the Applicant shall identify to the City the estimated maximum annual volume of total phosphorus that will be discharged in runoff from the MPD	See Exhibit O. A report containing the calculation and analysis of estimated maximum volume of ~~TMDL~~ phosphorus ~~will be~~ was submitted separately and reviewed by Staff.	7.4.5; Exhibit O	✓
COL 53B Condition #86	The Development Agreement shall include a narrative of the process and basis for selectively removing hazard trees within sensitive areas. The intent of this section will be to leave the majority of the sensitive areas as designated passive open space but to have it appear and function as native forest.	Section 8.4 addresses hazardous tree removal.	8.4	✓
COL 53B Condition #87 Condition #121	The Development Agreement shall define when and under what conditions a development parcel may be logged for timber revenue…	Section 13.2 addresses logging that generates timber revenue. This section has been further updated to reflect the Hearing Examiner's Recommendation at pages 90-91.	13.2	✓
Condition #88	If a school site is developed and the proponent proposes to build a joint-use facility, the proponent shall provide one or more youth/adult/softball fields, soccer fields, tennis courts, or basketball courts in conjunction with the school site(s) or at an alternative location.	Section 9.5.2 includes language that complies with this condition of approval.	9.5.2	✓

Conclusion of Law ("COL")/Condition of Approval # / HE Condition	**Condition Language or Summary**	**Response and Status**	**DA Section**	**Condition/ Conclusion fulfilled**
Condition #89	The details of the park and recreation facilities to serve the new demand from the MPD shall be set in the required Development Agreement, including whether such facilities may be constructed on- or off-site.	Table 9-5 describes the parks and recreation improvement plan including timing and funding mechanisms.	9.5.5	✓
Condition #91	As part of the DA, the fee-in-lieu values for park facilities shall be re-evaluated to ensure appropriate levels of funding and to include a mechanism to account for inflationary rises in construction costs and potentially, the costs of maintaining these types of facilities in the future. The City shall maintain discretion concerning when and if a lump sum payment will be accepted in lieu of constructing the off-site recreational facilities.	Section 9.5.3 establishes a process for establishing fee-in-lieu rates for each recreational facility improvement.	9.5.3	✓
Condition #92	The details regarding the timing of construction and optional off-site construction or payment of fee in lieu of construction included in Table 5.2 of the MPD application (Recreation Facilities) shall be specified in the Development Agreement.	Table 9-5 includes timing for all proposed park improvements.	9.5.-5	✓

Conclusion of Law ("COL")/Condition of Approval # / HE Condition	**Condition Language or Summary**	**Response and Status**	**DA Section**	**Condition/ Conclusion fulfilled**
Condition #93	Dependant on the availability of land, the adequacy of funds to construct city-approved recreational facilities and an ability to maintain these facilities, the City shall retain the sole discretion to determine when and if the applicant will be allowed to provide a lump sum payment in lieu of constructing off-site recreational facilities. This condition may be further defined within the DA.	Section 9.5.3 describes the process of when the Master Developer may request that the Designated Official accept a lump sum payment in-lieu of construction of recreation facilities.	9.5.3	✓
COL 56 Condition #94	The DA shall include language authorizing public access to parks and trails facilities.	Section 9.9.3 provides public access to all developer constructed parks and trails.	9.9.3	✓
COL 59B Condition #95	On site trails shall be constructed or bonded prior to occupancy, final site plan or final plat approval of any portion of the phase, whichever occurs first.	Timing of trails is described in Section 9.6.	9.6	✓
COL 55 Condition #97 Condition #151	The DA shall contain a tabular list of the characteristics of passive open space and active open space and permitted activities thereon so that future land use applications can accurately track the type and character of open space that is provided.	Section 9.10 describes the characteristics of the different types of proposed parks.	9.10	✓
COL 40C Condition #98	Reference school mitigation agreement in the DA	Section 13.3 references the final school agreement.	13.3	✓

Conclusion of Law ("COL")/Condition of Approval # / HE Condition	**Condition Language or Summary**	**Response and Status**	**DA Section**	**Condition/ Conclusion fulfilled**
Condition #100	The DA shall include specific provisions for providing both fire station sites and funding for future fire facilities and equipment to ensure protection concurrent with build out.	Section 13.4 describes the fire mitigation standards for the project.	13.4	✓
COL 28D Condition #116	All houses that are sold in classified or declassified coal mine hazard areas shall require a liability release from the homeowner to the City. The release must recognize that the City is not liable for actual or perceived damage or impact from the min hazard area. The release form shall be developed and included in the Development Agreement.	Section 13.5 describes the mine hazard release process and the release language is included in Exhibit M.	Exhibit M; 13.5	✓
Condition #124	Mast-producing species …The DA shall specify a process by which landscape plans are reviewed by the Director of Natural Resources for compliance with the mitigation requirements	The Director of Natural Resources' review of landscape plans is discussed in Section 5.5.2.	5.5.2	✓
Condition #128	Corner store style neighborhood commercial within the residential land use shall be defined in the DA and shall only be allowed through minor amendment of the MPD. All other specifics shall be identified in the DA.	Section 4.7.2 describes the standards and requirements associated with corner store location. Further design standards for development is located in Exhibit H.	4.7.2; Exhibit H	✓

Conclusion of Law ("COL")/Condition of Approval # / HE Condition	**Condition Language or Summary**	**Response and Status**	**DA Section**	**Condition/ Conclusion fulfilled**
COL 14B, 32A, 45, 86 Condition #129	The project shall provide a mix of housing types in conformance with the MPD Design Guidelines. The DA shall set target for various types of housing for each phase of development.	Table 4-8-4 identifies proposed housing types per phase.	Table 4-8-4	✓
Condition #130	Identification of specific areas where live/work units can be permitted shall be done as part of the Development agreement or through a MPD minor amendment.	The location proposed for live/work units is included within Exhibit L.	Exhibit L	✓
Condition #132 Condition #161	If the applicant requests to increase a residential category that abuts the perimeter of the MPD, it shall be processed as a Major Amendment to the MPD	Section 4.4.2 includes language that complies with this condition.	4.4.2	✓
COL 8C Condition #133	Reclassification of development parcels shall occur no more frequently than once per calendar year.	Section 4.4 provides language limiting change of category to once a year.	4.4	✓
Condition #134 Condition #162	The Expansion Area process shall be clarified in the Development Agreement.	Expansion Parcels are addressed in Sections 4.6, 10.5 and 12.6.1.	4.6; 10.5; 12.6.1	✓
COL 10B, 51B Condition #135	Project specific design standards shall be incorporated into the DA. These design standards must comply with the MPD Framework Design Standards and Guidelines.	Project specific design standards are included in Section 5 and Exhibit H.	5; Exhibit H	✓
COL 10B Condition #136	A unit split (percentage of SF and MF) and commercial use split (commercial, office and industrial) shall be incorporated into the DA.	Unit split information is provided in Sections 2.2, 4.1 and 4.2.	2.2; 4.1; 4.2	✓

Conclusion of Law ("COL")/Condition of Approval # / HE Condition	**Condition Language or Summary**	**Response and Status**	**DA Section**	**Condition/ Conclusion fulfilled**
COL 14C, 32B Condition #138	The project shall include a mix of housing types that contribute to the affordable housing goals of the City. The Development Agreement shall provide for a phase-by-phase analysis of affordable housing Citywide to ensure that housing is being provided at affordable prices. Specifications for affordable housing needs within the project shall be determined as a result of the phase-by-phase analysis. ~~referenced in condition 121.~~	Affordable housing is addressed in Section 11.8. This section has been further updated to reflect the Hearing Examiner's Recommendation on page 18.	11.8	✓
Condition #139	Exact specifications for the housing described in paragraph 122 shall be included in the Development Agreement.	~~Needs further discussion with City to clarify what paragraph 122 refers to.~~This condition relates to how affordable housing will be provided and that process is described in the Section 11.8. See comments regarding the Hearing Examiner's Recommendation in the above cell.	11.8	✓
COL 47F Condition #140	A distinct land use category shall be created to recognize potential light industrial uses or the office category shall be renamed to properly indicate the range of potential uses. Areas intended to have light industrial type uses shall be identified on the Land Use Map that is made part of the DA.	Exhibit L details a Light Industrial overlay where those uses are allowed.	Exhibit L	✓

Conclusion of Law ("COL")/Condition of Approval # / HE Condition	**Condition Language or Summary**	**Response and Status**	**DA Section**	**Condition/ Conclusion fulfilled**
COL 49E, 88 Condition #141	The high density residential supplemental design standards and guidelines (MPD application appendix E) shall become part of the DA.	Exhibit I contains the high density design standards approved in the MPD Permit Approval, Black Diamond Ordinance No. 10-946.	Exhibit I	✓
Condition #144	Front yard setbacks and other specific lot standards shall be determined as part of the DA.	Project specific setbacks are defined in Table 5-2-1.	Table 5-2-1	✓
COL 47F Condition #145	A FAR standard shall be established through the DA process.	Section 5.2.7 describes the proposed FAR for the project.	5.2.7	✓
COL 47F, 64 Condition #148	Applicant request for reduced parking standards in the Town Center Mixed Use area is granted. All other deviations are denied except for those deviations, mostly utility and streets, that are identified in the recommendation pursuant to further review.	Village Center parking is specifically set out in the Development Agreement, all other parking standards per City code. Street standards are identified in Section 6.	5.3; 6	✓
COL 56 Condition #153 HE Condition "N"	Specific details on which open space shall be dedicated to the City, protected by conservation easements or protected and maintained by other mechanisms shall be established as part of the DA.	Sections 9.4, 9.5, and 9.9 describe the ownership and maintenance plan for open spaces. Pursuant to the Hearing Examiner's Implementing Condition "N", Sections 9.2 and 9.9.1 have been modified to include a more detailed park and open space dedication plan.	9.4; 9.5; 9.9	✓
COL 38B Condition #154 HE Condition "N"	Once acreages have been finalized, phasing of open space (which includes parks and is identified within the MPD Application) shall be defined and articulated for timing of final designation within the DA.	Parks shall be phased per Table 9-5, other open space phased per final plat/site plan approval, and as required by conservation easements. See also revisions to Sections 9.2 and 9.9.1 per the above cell.	Table 9-5	✓

Conclusion of Law ("COL")/Condition of Approval # / HE Condition	**Condition Language or Summary**	**Response and Status**	**DA Section**	**Condition/ Conclusion fulfilled**
COL 60 Condition #155 HE Condition "K"	Once the mapped boundaries of the sensitive areas have been agreed to, the DA shall include text that identifies that these areas are fixed. If during construction it is discovered that the actual boundary is smaller or larger than what was mapped, the mapped boundary shall prevail. The applicant shall neither benefit nor be penalized by errors or changes in the sensitive area boundaries as the projects are developed.	Consistent with the Hearing Examiner's Implementing Condition "K", Section 8.2 has been revised to clarify~~includes language reflecting~~ that all mapped sensitive areas are final but buffers will be established on an Implementing Project-by-Implementing Project basis.	8.2	✓
Condition #156 HE Condition "Q" HE Condition "W"	The applicant shall be responsible for addressing any projected city fiscal shortfall that a fiscal analysis, prepared at each phase, shows is a result of the Villages MPD. The exact terms and process for performing the fiscal analysis and evaluating fiscal impacts shall be outlined in the Development Agreement, and shall include a specific "MPD Funding Agreement," which shall replace the existing City of Black Diamond Staff and Facilities Funding Agreement.	Section 13.6 identifies a process and framework for the fiscal analysis. In addition, ~~a draft~~ Exhibit N includes a specific "MPD Funding Agreement". Per Hearing Examiner Implementing Condition "Q", ~~will be given to~~ the fiscal analysis has been updated to include maintenance of the City's fire and police LOS and per Implementing Condition "W" the Development Agreement has been modified to require approval of the Funding Agreement prior to approval of the Development Agreement itself~~City under separate cover~~.	13.6; Exhibit N	✓

Conclusion of Law ("COL")/Condition of Approval # / HE Condition	**Condition Language or Summary**	**Response and Status**	**DA Section**	**Condition/ Conclusion fulfilled**
Condition #158	The DA shall document a collaborative design/review/permitting process that allows City staff to participate in the conceptual stage…	Section 12.1 describes a collaborative design process.	12.1	✓
Condition #159	The DA shall specifically identify which rights and entitlements are vested with each level of permitting, including but not limited to the MPD Application approval, the DA approval, and Utility permit approvals.	Section 15.1 specifically addresses the issue of vesting.	15.1	✓
COL 23A Condition #163	The DA shall define the proposed phasing plan for the various matters (utility, street, parks, transferred development rights etc) subject to phasing standards.	Section 11 describes infrastructure improvement phasing including timing and funding responsibility and Exhibit K includes all phasing plans and maps.	11; Exhibit K	✓

The Lawson Hills MPD Conclusions and Conditions Required in the Development Agreement
Pursuant to City of Black Diamond Ordinance No. 10-947
~~06/08/2011~~

Conclusion of Law ("COL")/Condition of Approval # / HE Condition	**Condition Language or Summary**	**Response and Status**	**DA Section**	**Condition/ Conclusion fulfilled**
COL 7 COL 93E	Establish some of the street design features/standards internal to the MPD in the Development Agreement	Internal street standards are detailed in Section 6 of the Development Agreement. Other deviations shall rely on the process in the City's Engineering Design and Construction Standards.	6	✓
COL 62	Specifics as they pertain to development right use and timing shall be included within the Development Agreement.	The Lawson Hills MPD will implement the BDUGAA by preserving the City's 50-acre In-City Forest Land and annexing the 50-acre East Annexation Area, thus applying 100 Transfer Development Rights ("TDR") to the East Annexation Area. These 100 TDRs are the only TDRs being applied in the Lawson Hills MPD and, thus, a TDR phasing plan is not required for the DA.	1.4.5	✓
COL 30C Condition #3	The Development Agreement shall specify the following additional details: which infrastructure projects from the Phasing Plan and other mitigation obligations the applicant will build; which projects the City will build; and for which projects the applicant will be eligible for either credits or cost recovery and by what mechanisms this shall occur.	Tables in Section 11 include lists of infrastructure improvements and identifies timing and funding requirements	11.0; see also Exhibit K	✓

The Lawson Hills MPD Conclusions and Conditions Required in the Development Agreement
Pursuant to City of Black Diamond Ordinance No. 10-947
~~06/08/2011~~

Conclusion of Law ("COL")/Condition of Approval # / HE Condition	**Condition Language or Summary**	**Response and Status**	**DA Section**	**Condition/ Conclusion fulfilled**
COL 30B COL 55 Condition #4 Condition #156 Condition #162	The DA shall include language that specifically defines when the various components of permitting and construction must be approved, completed or terminated. For example; when must open space be dedicated, plats recorded and utility improvements accepted by the City.	Permitting and construction approval timing is based on City standards. Table 9-5 includes a timing schedule for park improvements associated with implementing projects	12.4; 9.5	✓
Condition #5	The DA shall include language that defines and identifies a "Master Developer". A single Master Developer shall be maintained through the life of the Development Agreement. The duties of the Master Developer include……	Section 15.2 defines who the Master Developer is and what its~~their~~ roles and responsibilities are.	15.2	✓
COL 74 Condition #7	The applicant shall submit a construction waste management plan for inclusion in the DA	Exhibit J includes a construction ~~water~~ waste management plan for the MPD.	Exhibit J	✓
Condition #9	Construct transportation improvements shown on the City's 2025 Transportation element of the 2009 Comprehensive plan – the DA shall specify for which projects the applicant will be eligible for either credits or cost recovery and by what mechanism this shall occur. Any "functionally equivalent" realignments that results in a connection of MPD roads to Green Valley Road shall be processed as a major amendment to the MPD	Required transportation improvements and funding responsibility is included in 11.4. In addition, the transportation monitoring plan in Exhibit F describes the timing of the improvements.	11.4 & Exhibit F	✓

Conclusion of Law ("COL")/Condition of Approval # / HE Condition	**Condition Language or Summary**	**Response and Status**	**DA Section**	**Condition/ Conclusion fulfilled**
Condition #14	Intersection improvements outside the City limits may be mitigated through measures set forth in an agreement between the developer and the applicable agency. Where agreement is possible….the agreement shall be incorporated into the DA.	Approved mitigation agreements with neighboring agencies will be incorporated into the final version of the DA.	See Exhibits Q and R.	✓
Condition #17	The responsibilities and pro-rata shares of the cumulative transportation mitigation projects shall be established in the two DAs which must cover the complete mitigation list and be consistent with each other.	Section 11.5(B) discusses payment of proportionate share for off-site regional infrastructure improvements. Exhibit F includes the transportation monitoring plan that is intended to implement this condition of approval for all off-site improvements.	11.5(B); Exhibit F; see also Exhibits Q & R	✓
COL 12 Condition #19 HE Condition "T" HE Condition "U"	A transportation monitoring plan shall be established as part of the Development Agreement using the in-City projects listed in Condition 15, and including trigger mechanisms acceptable to the City. The monitoring plan shall ensure that construction of improvements commences before the impacted street or intersection falls below the applicable level of service.	Transportation Monitoring Plan located in Exhibit F. The plan has been updated to reflect the Hearing Examiner's findings in Implementing Conditions "T" and "U".	Exhibit F	✓
COL 66 Condition #20	Implementing projects shall be designed to foster the development of a street grid system throughout the project.	This design requirement is included within Section 6.	6.1	✓

Conclusion of Law ("COL")/Condition of Approval # / HE Condition	**Condition Language or Summary**	**Response and Status**	**DA Section**	**Condition/ Conclusion fulfilled**
Condition #21	Auto courts serving 20 units or less shall be private and maintained by the HOA. The Development Agreement shall provide that, in the event that the Applicant or future Homeowners' Association(s) fails to maintain…	Section 6.5 identifies all auto courts serving less than 20 units as private streets and addresses a~~an~~ Homeowners' Association failure to maintain.	6.5	✓
Condition #22	Applicant or HOA to maintain all street side landscaping. The Development Agreement shall provide that, in the event that the Applicant or future Homeowners' Association(s) fails to maintain…	Language provided in Section 5.5.7 discusses HOA's maintenance of street side landscaping and any future failures to maintain.	5.5.7	✓
COL 12 Condition #24	Specifics of Transportation Monitoring Plan	Included in Transportation Monitoring Plan	Ex. F	✓
COL 27D Condition #25	No more than 150 residential units shall be permitted to the area southwest of Lawson Street . . . No more than 300 residential units shall be permitted in this area…	Section 6.4.1 states: "As required by the MPD Approval, no more than 150 Dwelling Units shall be permitted in the area southeast of Lawson Street until a second general purpose access route to this area is approved. Approval shall occur through a Major Amendment to the MPD Approval if a connection other than the SE Connector is proposed. No more than 300 Dwelling Units shall be permitted in the area southeast of Lawson Street until an identified second general purpose access route is constructed."	6.4.1	✓

Conclusion of Law ("COL")/Condition of Approval # / HE Condition	**Condition Language or Summary**	**Response and Status**	**DA Section**	**Condition/ Conclusion fulfilled**
Condition #29	Green Valley Road traffic calming study measures to be incorporated into the DA including process and timing of improvements	Recommendations from the City's Green Valley Road Study are included in Exhibit P	Exhibit P	✓
Condition #40	Work hours of operation shall be established and made part of the DA	Section 12.8.13 describes the MPD's work hours	12.8.13	✓
COL 76 Condition #55 HE Condition "G"	The Development Agreement shall include details about the responsibility for water conservation, the basis and methods for measuring conservation savings, and the impacts if the required savings targets of 10% less than the average water use in the City by residential uses at the time the MPD was submitted are not achieved	As revised pursuant to the Hearing Examiner's Implementing Condition "G", Section 7.2.5 describes the water conservation plan's intent to create a 10% reduction of water compared to current existing city use of 18 GPD~~230 GPD. Failure to achieve at least the 10% reduction, or the goal of 180 GPD/ERU could result in limiting build out of construction~~.	7.2.5	✓
Condition #56	The proposed water conservation plan shall be evaluated for its effectiveness after 500 units	The DA identifies 500 units as the appropriate time to evaluate the effectiveness of the water conservation plan, including "a plan to offset excess water usage if the plan is not met" pursuant to YarrowBay's proposed revisions in Exhibit 139.~~.~~	7.2.5	✓
COL 76, 93I Condition #67 Condition #125	Native plants shall be primarily used as part of the planting palette within the MPD. Lawn planting shall be reduced wherever practical.	BDMC Ch 18.72.020 requires native plants, and as noted in Section 5.5.3, an additional requirement is added related to drought tolerant plantings.	5.5.3	✓
COL 11A, 18C, 73 Condition #69	Mechanisms shall be identified to integrate LID technologies into the overall design of the MPD and incorporated in the DA	Section 7.4.4 includes a list of potential LID features for inclusion in the site design	7.4.4	✓

Conclusion of Law ("COL")/Condition of Approval # / HE Condition	**Condition Language or Summary**	**Response and Status**	**DA Section**	**Condition/ Conclusion fulfilled**
COL 18D(vi) Condition #70	The DA shall include restrictions on roof types (no galvanized, copper, etc.) and roof treatments (no chemical moss killers, etc.) to ensure that stormwater discharged from roof downspouts is suitable for direct entry into wetlands and streams without treatment. The applicant shall develop related public education materials for home owners and implement an enforcement process for HOA.	Section 7.4.4 complies with this condition	7.4.4	✔
COL 52 Condition 69	Stormwater ponds to be considered as part of required open space shall be designed as an amenity per the Public Works and Natural Resources Directors.	Specific design criteria are outlined in order for stormwater ponds to be considered as open space.	9.4	✔
Condition #73	The Development Agreement shall include language that binds future developers and contractors to a requirement to comply with any NPDES permits issued by the Washington State Department of Ecology and acknowledge that although permit conditions imposed by NPDES permits are not administered by the City, staff reserves the right to enforce the conditions of the NPDES permit. Since the city has a high interest in protecting receiving waters under the city storm water permit, the developer shall fund necessary costs for training related to inspection services.	Section 7.4.4 requires compliance with the current NPDES standards	7.4.4	✔

Conclusion of Law ("COL")/Condition of Approval # / HE Condition	**Condition Language or Summary**	**Response and Status**	**DA Section**	**Condition/ Conclusion fulfilled**
COL 18D(iv) Condition #75	Construct a stormwater system that does not burden the City with excessive maintenance costs.	The Development Agreement requires the Master Developer to maintain landscape features within stormwater ponds.	5.4.7	✓
COL 18D(v), 55 Condition #76 HE Condition "T"	Include a tabular list of stormwater monitoring requirements. The list should include the term of monitoring, the allowable deviation from design objectives or standards and the items necessary as a result of excess deviation	As revised pursuant to the Hearing Examiner's Implementing Condition "I", Exhibit O describes the MPDs' proposed stormwater monitoring requirements including timelines and enforcement mechanisms.~~.~~	Exhibit O	✓
COL 18D(i) Condition #79	If new phosphorous treatment technologies are available, or "AKART", incorporate into future implementing projects.	Section 7.4.4 includes using new phosphorous treatment technologies as certified by DOE, or described as "AKART".	7.4.4	✓
Condition #80	The DA shall include language to allow deviations from the stormwater facilities listed in the FEIS when justified by a technical analysis and risk assessment.	Section 7.4.4 notes that stormwater facilities not specifically identified in the 2005 DOE Manual or the FEIS may be allowed with a deviation when justified by technical engineering analysis and risk assessment.	7.4.4	✓
Condition #82	The City shall determine whether the Applicant's reasonable proportionate share participation in a watershed wide implementation measures identified in Exhibit H-9 would be incorporated into the DA. The DA shall also integrate the phosphorus and temperature monitoring plan proposed by the Applicant in Exhibit NR-LH-5	The Applicant's reasonable proportionate share participation in watershed wide implementation measures is set forth in Section 7.4.4 and Exhibit O includes the stormwater monitoring plan for the MPD.	7.4.4; Exhibit O	✓

Conclusion of Law ("COL")/Condition of Approval # / HE Condition	**Condition Language or Summary**	**Response and Status**	**DA Section**	**Condition/ Conclusion fulfilled**
COL 18D(ii) Condition #85	Prior to approval of the DA, the Applicant shall identify to the City the estimated maximum annual volume of total phosphorus that will be discharged in runoff from the MPD	See Exhibit O. A report containing the calculation and analysis of estimated maximum volume of ~~TMDL~~ phosphorus ~~will be~~ was submitted separately and reviewed by Staff.	7.4.5; Exhibit O	✓
COL 53B Condition #87	The Development Agreement shall include a narrative of the process and basis for selectively removing hazard trees within sensitive areas. The intent of this section will be to leave the majority of the sensitive areas as designated passive open space but to have it appear and function as native forest.	Section 8.4 addresses hazardous tree removal.	8.4	✓
COL 53B Condition #88 Condition #124	The Development Agreement shall define when and under what conditions a development parcel may be logged for timber revenue…	Section 13.2 addresses logging that generates timber revenue. This section has been further updated to reflect the Hearing Examiner's Recommendation at pages 90-91.	13.2	✓
Condition #91	If a school site is developed and the proponent proposes to build a joint-use facility, the proponent shall provide one or more youth/adult/softball fields, soccer fields, tennis courts, or basketball courts in conjunction with the school site(s) or at an alternative location.	Section 9.5.2 includes language that complies with this condition of approval.	9.5.2	✓

Conclusion of Law ("COL")/Condition of Approval # / HE Condition	**Condition Language or Summary**	**Response and Status**	**DA Section**	**Condition/ Conclusion fulfilled**
Condition #93	As part of the DA, the fee-in-lieu values for park facilities shall be re-evaluated to ensure appropriate levels of funding and to include a mechanism to account for inflationary rises in construction costs and potentially, the costs of maintaining these types of facilities in the future. The City shall maintain discretion concerning when and if a lump sum payment will be accepted in lieu of constructing the off-site recreational facilities.	Section 9.5.3 establishes a process for establishing fee-in-lieu rates for each recreational facility improvement	9.5.3	✓
Condition #94	The details regarding the timing of construction and optional off-site construction or payment of fee in lieu of construction included in Table 5.2 of the MPD application (Recreation Facilities) shall be specified in the Development Agreement.	Table 9.5 includes timing for all proposed park improvements	9.5.5	✓
Condition #95	Dependant on the availability of land, the adequacy of funds to construct city-approved recreational facilities and an ability to maintain these facilities, the City shall retain the sole discretion to determine when and if the applicant will be allowed to provide a lump sum payment in lieu of constructing off-site recreational facilities. This condition may be further defined within the DA.	Section 9.5.3 describes the process of when the Master Developer may request that the Designated Official accept a lump sum payment in-lieu of construction of recreation facilities	9.5.3	✓

Conclusion of Law ("COL")/Condition of Approval # / HE Condition	**Condition Language or Summary**	**Response and Status**	**DA Section**	**Condition/ Conclusion fulfilled**
COL 56 Condition #92	The DA shall include provisions to define which parks and trails facilities will be public and which shall be private. The DA shall include language authorizing public access to parks and trails facilities.	Section 9.9 addresses ownership of open space and Section 9.9.3 provides public access to all developer constructed parks and trails.	9.9; 9.9.3	✓
COL 59B Condition #96	On site trails shall be constructed or bonded prior to occupancy, final site plan or final plat approval of any portion of the phase, whichever occurs first.	Timing of trails is described in Section 9.6.	9.6	✓
COL 55 Condition #98 Condition #155	The DA shall contain a tabular list of the characteristics of passive open space and active open space and permitted activities thereon so that future land use applications can accurately track the type and character of open space that is provided.	Section 9.10 describes the characteristics of the different types of proposed parks.	9.10	✓
COL 40C Condition #99	Reference school mitigation agreement in the DA	Section 13.3 references a final school agreement	13.3	✓
Condition #100	The DA shall include specific provisions for providing both fire station sites and funding for future fire facilities and equipment to ensure protection concurrent with build out.	Section 13.4 describes the fire mitigation standards for the project.	13.4	✓

Conclusion of Law ("COL")/Condition of Approval # / HE Condition	**Condition Language or Summary**	**Response and Status**	**DA Section**	**Condition/ Conclusion fulfilled**
COL 28D Condition #118	All houses that are sold in classified or declassified coal mine hazard areas shall require a liability release from the homeowner to the City. The release must recognize that the City is not liable for actual or perceived damage or impact from the min hazard area. The release form shall be developed and included in the Development Agreement.	Section 13.5 describes the mine hazard release process and the release language is included in Exhibit M.	Exhibit M; 13.5	✓
Condition #129	Mast-producing species …The DA shall specify a process by which landscape plans are reviewed by the Director of Natural Resources for compliance with the mitigation requirements	The Director of Natural Resources' review of landscape plans is discussed in Section 5.4.2.	5.4.2	✓
Condition #132	Corner store style neighborhood commercial within the residential land use shall be defined in the DA and shall only be allowed through minor amendment of the MPD. All other specifics shall be identified in the DA.	Section 4.7.2 describes the standards and requirements associated with corner store location. Further design standards for development is located in Exhibit H.	4.7.2; Exhibit H	✓
COL 14B, 32A, 45, 86 Condition #134	The project shall provide a mix of housing types in conformance with the MPD Design Guidelines. The DA shall set target for various types of housing for each phase of development.	Table 4-8-4 identifies proposed housing types per phase.	Table 4-8-4	✓

The Lawson Hills MPD Conclusions and Conditions Required in the Development Agreement
Pursuant to City of Black Diamond Ordinance No. 10-947
~~06/08/2011~~

Conclusion of Law ("COL")/Condition of Approval # / HE Condition	**Condition Language or Summary**	**Response and Status**	**DA Section**	**Condition/ Conclusion fulfilled**
Condition #135	Identification of specific areas where live/work units can be permitted shall be done as part of the Development agreement or through a MPD minor amendment.	The final Land Use Map (LUP) in Exhibit A identifies the location proposed for live/work units	Exhibit A	✓
Condition #137 Condition #167	If the applicant requests to increase a residential category that abuts the perimeter of the MPD, it shall be processed as a Major Amendment to the MPD	Section 4.4.2 includes language that complies with this condition	4.4.2	✓
COL 8C Condition #138	Reclassification of development parcels shall occur no more frequently than once per calendar year.	Section 4.4 provides language limiting change of category to once a year	4.4	✓
Condition #166	The Expansion Area process shall be clarified in the Development Agreement.	Expansion Parcels are addressed in Sections 4.6, 10.5 and 12.6.1.	4.6; 10.2; 10.5; 12.6.1	✓
COL 10B, 51B Condition #139	Project specific design standards shall be incorporated into the DA. These design standards must comply with the MPD Framework Design Standards and Guidelines.	Project specific design standards are included in Section 5 and Exhibit H	5; Exhibit H	✓
COL 10B Condition #140	A unit split (percentage of SF and MF) and commercial use split (commercial, office and industrial) shall be incorporated into the DA.	Unit split information is provided in Sections 2.2, 4.1 and 4.2	2.2; 4.1; 4.2	✓

Conclusion of Law ("COL")/Condition of Approval # / HE Condition	**Condition Language or Summary**	**Response and Status**	**DA Section**	**Condition/ Conclusion fulfilled**
COL 14C, 32B Condition #142	The project shall include a mix of housing types that contribute to the affordable housing goals of the City. The Development Agreement shall provide for a phase-by-phase analysis of affordable housing Citywide to ensure that housing is being provided at affordable prices. Specifications for affordable housing needs within the project shall be determined as a result of the phase-by-phase analysis.	Affordable housing is addressed in Section 11.8. This section has been further updated to reflect the Hearing Examiner's Recommendation on page 18.	11.8	✓
COL 47F Condition #144	A distinct land use category shall be created to recognize potential light industrial uses or the office category shall be renamed to properly indicate the range of potential uses. Areas intended to have light industrial type uses shall be identified on the Land Use Map that is made part of the DA.	Exhibit L details a Light Industrial overlay where those uses are allowed.	Exhibit L	✓
Condition #145 HE Condition "M"	An additional 14.8 acres of open space shall be provided….or a plan for providing the acreage shall be provided in the DA.	5.5 acres have already been identified by designating parcel L1 and L2 as open space. Section 9.1 addresses how the Master Developer will meet the remainder of its total open space requirement and has been updated pursuant to the Hearing Examiner's Implementing Condition "M" to enable the City to require that open space requirements be satisfied at an earlier stage of development.~~.~~	9.1	✓

The Lawson Hills MPD Conclusions and Conditions Required in the Development Agreement
Pursuant to City of Black Diamond Ordinance No. 10-947
~~06/08/2011~~

Conclusion of Law ("COL")/Condition of Approval # / HE Condition	**Condition Language or Summary**	**Response and Status**	**DA Section**	**Condition/ Conclusion fulfilled**
COL 49E, 88 Condition #146	The high density residential supplemental design standards and guidelines (MPD application appendix E) shall become part of the DA.	Exhibit I contains the high density design standards approved in the MPD Permit Approval, Black Diamond Ordinance 10-947	Exhibit I	✓
Condition #149	Front yard setbacks and other specific lot standards shall be determined as part of the DA.	Project specific setbacks are defined in Table 5-2-1	Table 5-2-1	✓
COL 47F Condition #150	A FAR standard shall be established through the DA process.	Section 5.2.7 describes the proposed FAR for the project	5.2.7	✓
COL 56 Condition #157 HE Condition "N"	Specific details on which open space shall be dedicated to the City, protected by conservation easements or protected and maintained by other mechanisms shall be established as part of the DA.	Sections 9.4, 9.5, and 9.9 describe the ownership and maintenance plan for open spaces. Pursuant to the Hearing Examiner's Implementing Condition "N", Sections 9.2 and 9.9.1 have been modified to include a more detailed park and open space dedication plan.	9.4; 9.5; 9.9	✓
COL 38B Condition #158 HE Condition "N"	Once acreages have been finalized, phasing of open space (which includes parks and is identified within the MPD Application) shall be defined and articulated for timing of final designation within the DA.	Parks shall be phased per Table 9-5, other open space phased per final plat/site plan approval, and as required by conservation easements. See also revisions to Sections 9.2 and 9.9.1 per the above cell.	Table 9-5	✓

Conclusion of Law ("COL")/Condition of Approval # / HE Condition	**Condition Language or Summary**	**Response and Status**	**DA Section**	**Condition/ Conclusion fulfilled**
COL 60 Condition #159 HE Condition "K"	Once the mapped boundaries of the sensitive areas have been agreed to, the DA shall include text that identifies that these areas are fixed. If during construction it is discovered that the actual boundary is smaller or larger than what was mapped, the mapped boundary shall prevail. The applicant shall neither benefit nor be penalized by errors or changes in the sensitive area boundaries as the projects are developed.	Consistent with the Hearing Examiner's Implementing Condition "K", Section 8.2 has been revised to clarify ~~includes language reflecting~~ that all mapped sensitive areas are final but buffers will be established on an Implementing Project-by-Implementing Project basis.	8	✓
Condition #160 HE Condition "Q" HE Condition "W"	The applicant shall be responsible for addressing any projected city fiscal shortfall that a fiscal analysis, prepared at each phase, shows is a result of the Lawson Hills MPD. The exact terms and process for performing the fiscal analysis and evaluating fiscal impacts shall be outlined in the Development Agreement, and shall include a specific "MPD Funding Agreement," which shall replace the existing City of Black Diamond Staff and Facilities Funding Agreement.	Section 13.6 identifies a process and framework for the fiscal analysis. In addition, ~~a draft~~ Exhibit N includes a specific "MPD Funding Agreement". Per Hearing Examiner Implementing Condition "Q", ~~will be given to~~ the fiscal analysis has been updated to include maintenance of the City's fire and police LOS and per Implementing Condition "W" the Development Agreement has been modified to require approval of the Funding Agreement prior to approval of the Development Agreement itself..~~City under separate cover.~~	13.6; Exhibit N	✓
Condition #163	The DA shall document a collaborative design/review/permitting process that allows City staff to participate in the conceptual stage…	Section 12.1 describes a collaborative design process	12.1	✓

Conclusion of Law ("COL")/Condition of Approval # / HE Condition	**Condition Language or Summary**	**Response and Status**	**DA Section**	**Condition/ Conclusion fulfilled**
Condition #164	The DA shall specifically identify which rights and entitlements are vested with each level of permitting, including but not limited to the MPD Application approval, the DA approval, and Utility permit approvals.	Section 15.1, specifically, addresses the issue of vesting.	15.1	✓
COL 23A Condition #168	The DA shall define the proposed phasing plan for the various matters (utility, street, parks, transferred development rights etc) subject to phasing standards.	Section 11 describes infrastructure improvement phasing including timing and funding responsibility and Exhibit K includes all phasing plans and maps	11; Exhibit K	✓

PRESENTATION TO THE BLACK DIAMOND CITY COUNCIL

DEVELOPMENT AGREEMENTS

Brian Ross, Colin Lund, & Nancy Bainbridge Rogers

September 29, 2011

YARROWBAY HOLDINGS

AGENDA

- Introduction – Colin Lund
- Development Agreement Update – Nancy Rogers
- Closing Remarks – Brian Ross

YARROWBAY HOLDINGS

HISTORY of NEGOTIATIONS

- We're proud of the Development Agreements
- We negotiated with the City to work through issues and reach an agreement
- YarrowBay agreed to <u>additional voluntary mitigation</u>
- We continue to seek feedback from the community

YARROWBAY HOLDINGS

THE VILLAGES PHASE 1A SITE PLAN

YARROWBAY HOLDINGS

THE VILLAGES PHASE 1A
A – FRONT LOADED HOMES

A - Front Loaded Homes

YARROWBAY HOLDINGS

THE VILLAGES PHASE 1A
B– ALLEY LOADED HOMES

B - Alley Loaded Homes

YARROWBAY HOLDINGS

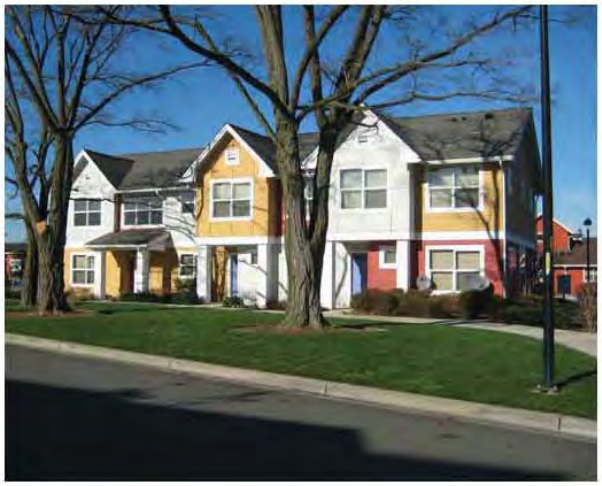
THE VILLAGES PHASE 1A
C – COTTAGE HOMES

C - Cottage Homes

YARROWBAY HOLDINGS

THE VILLAGES PHASE 1A
D – TOWNHOMES

D - Townhomes



YARROWBAY HOLDINGS

THE VILLAGES PHASE 1A
E – SENIOR LIVING

E - Senior Living

YARROWBAY HOLDINGS

THE VILLAGES PHASE 1A
F – MULTI-FAMILY HOMES

F - Multi-Family Homes

YARROWBAY HOLDINGS

THE VILLAGES PHASE 1A
G – COMMERCIAL / RETAIL

G - Commercial / Retail

YARROWBAY HOLDINGS

THE VILLAGES PHASE 1A
H – PARKS & OPEN SPACE

H - Parks & Open Space

YARROWBAY HOLDINGS

THE VILLAGES PHASE 1A
I – STORM FACILITIES

I - Storm Facilities

YARROWBAY HOLDINGS

YARROWBAY HOLDINGS

OVERVIEW OF DEVELOPMENT AGREEMENTS

- Review of Master Planned Development Code
- The Nature of Development Agreements
- Summary of Public Concerns
- Response to the Hearing Examiner's Recommendation

YARROWBAY HOLDINGS

BLACK DIAMOND MPD CODE

- Achieving the City's vision for planning and design
- Design developments for growth, while preserving small town feel
- Consulting with rural design experts like Randall Arendt to reach this vision

YARROWBAY HOLDINGS

NATURE OF DEVELOPMENT AGREEMENTS

- Development Agreements are required by City Code to incorporate the MPD Conditions of Approval

- Development, use and mitigation requirements are included in the Development Agreements

YARROWBAY HOLDINGS

ADDRESSING PUBLIC CONCERNS

- We've listened to the Public
- Public involvement is important and will continue

YARROWBAY HOLDINGS

ADDRESSING PUBLIC CONCERNS

- Growth pays for growth
- Opportunities for employment
- Transportation mitigation
- Unit counts and density
- Signed school agreement

YARROWBAY HOLDINGS

HEARING EXAMINER RECOMMENDATIONS

Development Agreement concepts:

1. Items that the Hearing Examiner felt the Development Agreements are required to include under the MPDs Conditions of Approval;
2. Items that the Hearing Examiner felt the Council could "compel" YarrowBay to agree to;
3. Items that the Council could include only with YarrowBay's voluntary agreement;
4. Items that the Council is prohibited from adding to the Development Agreements

YARROWBAY HOLDINGS

NEXT STEPS

- If the City Council approves the Development Agreements with the revisions called for by the Hearing Examiner's Recommended Implementing Conditions, <u>with no further modifications</u>, <u>YarrowBay is also willing to accept the Recommended Implementing Conditions.</u>

YARROWBAY HOLDINGS

YARROWBAY HOLDINGS

FURTHER INFORMATION

Please read YarrowBay's *Guide to MPD Design and Build-Out as Envisioned by the Development Agreements* (Exhibit 8)

YARROWBAY HOLDINGS

THANK YOU
QUESTIONS?

YARROWBAY HOLDINGS