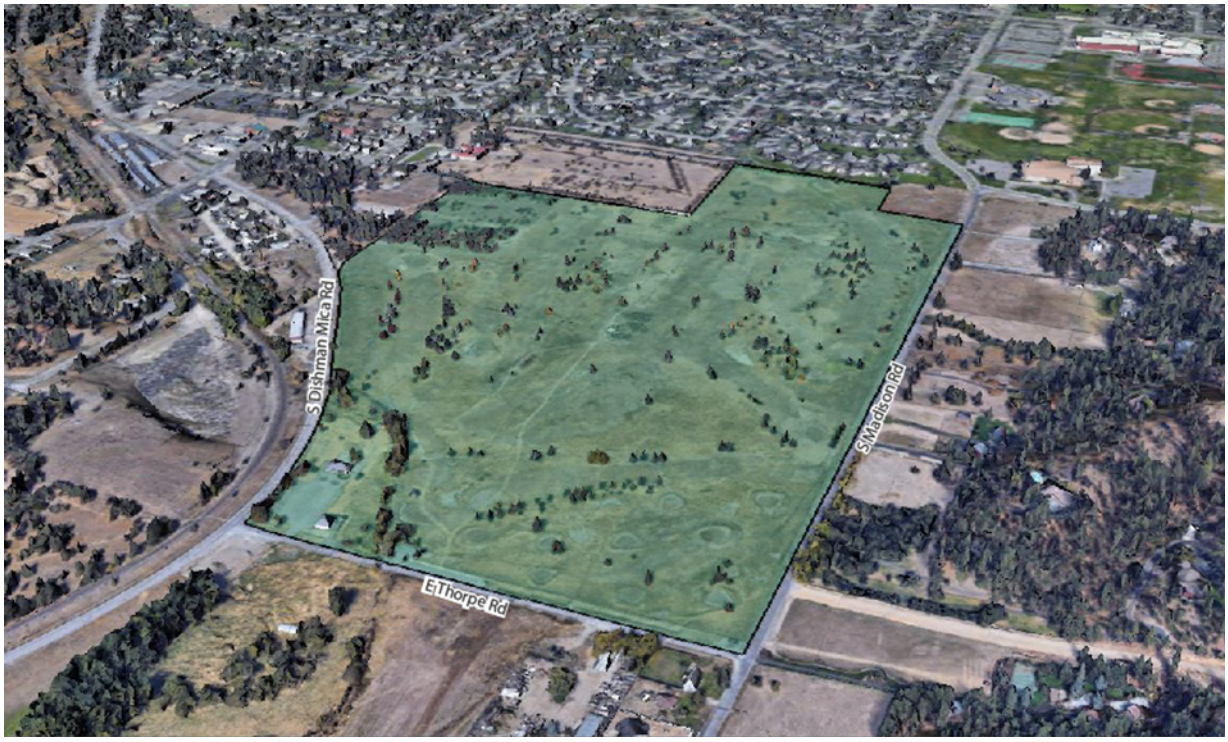
PAINTED HILLS DEVELOPMENT
DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS)

SPOKANE VALLEY, WASHINGTON



November 2020

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SECTION 1. INTRODUCTION

1.1 INTRODUCTION

The subject site of this Draft Environmental Impact Statement (DEIS) is an approximately 99.3-acre former golf course located in the City of Spokane Valley, referred to herein as the "Painted Hills site." The Painted Hills site can be generally described as within the southeast (SE) quadrant of Section 33, Township 25 North. Range 44 East, Willamette Meridian. (See Figure 1-1: Vicinity Map). The site is primarily vacant. Although no longer in operation and no longer maintained, the former golf course use is evident by the presence of former fairways, greens and other golf course features. Table 1-1 identifies the tax lots that compose the subject site, along with the ownership and current zoning designation of the site. The golf course use terminated in 2013 when the site was purchased by the current owner.

Table 1-1: Painted Hills Site Tax Lots

Tax Lot	Owner	Zoning	Size (Acres)
45334.0109	Black Realty, Inc.	R3	0.87
45334.0108	Black Realty, Inc.	R3	0.87
45334.0113	Northwest Renovators Inc.	R3	0.27
45334.0110	Black Realty, Inc.	R3	0.87
44041.9144	Black Realty, Inc.	R3	8.24
45334.9135	Northwest Renovators Inc.	R3	1.68
45334.0114	Northwest Renovators Inc.	R3	0.60
45336.9191	Black Realty, Inc.	R3	85.07
45334.0106	Northwest Renovators Inc.	R3	0.87
TOTAL			99.34

1.2 BACKGROUND

On July 24, 2015, NAI Black, herein identified as the "applicant" submitted a Planned Residential Development (PRD) application request to the City of Spokane Valley to construct a new mixed-use development that would include single family residential estate lots, standard single-family lots, cottage or townhome units, multi-family units, commercial development, and open space on the 99.3-acre former golf course site. In its review of the application, the City determined that probable significant adverse impacts could result from stormwater and floodwater improvements and traffic generated by the project.

1.3 PUBLIC SCOPING PROCESS

On September 8, 2017, the City issued a determination of significance (DS) for the proposed action that identified that an Environmental Impact Statement (EIS) should be prepared to evaluate the effects of the project on the natural environment (ground and surface water), the built environment and transportation.

Legend

Residential Development Boundary

Spokane Valley Boundary

Source: GIS data provided by the City of Spokane Valley and Spokane County.

Figure 1-1
Vicinity Map

Painted Hills Residential Development DEIS

0 0.2 0.4 Miles

Following the September 8, 2017 issuance of the DS, a public scoping period was held including a public scoping meeting on September 25, 2017. From this public scoping comment period, 251 comments were received. In the weeks following this meeting it was determined that certain project modifications could be made that would improve the design of floodwater improvements on the site and simplify the long-term management responsibility for these improvements. Between the Fall of 2017 and July 2018, the applicant refined the design of the PRD alternative (Alternative 2a in this DEIS document) and, on August 20, 2018 submitted a supplemental State Environmental Policy Act (SEPA) Checklist that described the refined project design and included additional environmental documentation regarding the environmental effects of the applicant's proposed action (See Appendix A). After review of this supplemental SEPA Checklist, the City issued a revised DS, dated October 26, 2018. 124 public comments were received in response to the reissued DS. Comments issued in response to the 2017 and 2018 DS documents are summarized in a table included in Appendix B Public Comment Index. Since the time of the 2018 DS, the applicant has been conducting additional analysis and design refinements for the preferred alternative. These refinements include updates and modifications to the stormwater and floodwater management system to ensure that the project design satisfies City and FEMA requirements.

1.4 SCOPE OF THE DRAFT ENVIRONMENTAL IMPACT STATEMENT

The DS stated that an EIS should be prepared for the revised project that addresses the natural environment (ground and surface water); built environment (land use, including relationship to land use plans regarding flood hazard areas); and transportation, including importation of fill. The DS further stated that the alternatives to be analyzed in the EIS should include a "No Action" alternative, the applicant's Preferred Alternative and an "Alternative 2 Alternative Configuration." The DS stated that this Alternative 2 Alternative Configuration was intended to evaluate "other reasonable alternatives for achieving the proposal's objective on the same site according to the existing development regulations."

As discussed further in this document, alternative configurations were considered for the project consistent with the DS. These alternative configurations included a "low impact alternative" that substantially avoided development within designated 100-year floodplain areas and a "standard subdivision" alternative that provided standard single family detached lots throughout the site. After considering these alternatives, it was determined that the low-impact alternative did not sufficiently meet the Purpose and Need for the project which, as a private development, includes the need for a reasonable economic return to the owner and project investors. Further, it was determined that the standard subdivision proposal resulted in marginally increased environmental effects and therefore did not sufficiently meet the criteria for a reasonable alternative consistent with WAC 197-11-440(5)(b). Consequently, these alternatives were eliminated from further consideration. A summary of these alternatives that were considered and subsequently eliminated from further consideration is included in Section 2.2 of the EIS.

This document is focused on evaluating the environmental impacts of two alternatives as noted below:

Alternative 1 (No Action Alternative): This alternative assumes no development of the site.

Alternative 2 (PRD): This alternative represents development of the site through a PRD as permitted under section 19.50 of the Spokane Valley Municipal Code and includes significant stormwater management improvements including a gallery of infiltration dry wells.

Because a design infiltration rate within the planned ponds/drywells will not be known until a drywell is installed per City Standard Plans and tested, the precise design infiltration rate cannot be determined at this time. As a consequence, the applicant has developed two PRD scenarios for analysis in this document. These two PRD scenarios are referenced in this document as Scenario 2a and Scenario 2b. Scenario 2a assumes high infiltration rates and therefore a smaller (1.4-acre) stormwater management facility and a Scenario 2b assumes lower infiltration rates and therefore a larger (9.3-acre) stormwater management facility.

Due to the fact that these scenarios are very similar in design and intended land uses, they have been combined into one alternative and the environmental effects of the alternative are presented as a range throughout this document.

After receiving additional public comments in response to the second DS issuance, the City determined that additional environmental elements would be addressed in the document but to a lesser degree than the primary environmental elements listed in the DS. Those additional elements are included in this document and include:

- Air Quality
- Aesthetics
- Biological Resources
- Environmental Health
- Geology
- Historic, Cultural and Archaeological Resources
- Noise
- Public Services
- Recreation

SECTION 2. DRAFT ENVIRONMENTAL IMPACT STATEMENT

FACT SHEET

Proposal/Title:	Painted Hills Development Draft Environmental Impact Statement
Description of Proposal:	Planned development of the former Painted Hills golf course site to include a mix of residential and commercial uses integrated with open space areas.
Description of Alternatives:	Two primary alternatives are analyzed: the No Action Alternative (Alternative 1) and the Planned Residential Development (PRD) Alternative, which includes two variations, a "High Infiltration Alternative" (Alternative 2a) and a "Low Infiltration Alternative" (Alternative 2b).
Location:	99.3 acres located at Section 33, Township 25 North. Range 44 East, West Meridian
Project Proponent:	City of Spokane Valley
Tentative Date of Implementation:	July 2020
Name and Address of Lead Agency and Contact:	City of Spokane Valley, Contact: Lori Barlow
Responsible Official:	Lori Barlow
Required Local Approvals:	1. Preliminary Plat/ Planned Residential Development (PRD) 2. Transportation Concurrency Certificate 3. Street Plan Approval, ROW Permits (COSV) 4. Sanitary Sewer Plan Approval (Spokane County) 5. Water Plan Approval (Water District 3) 6. Building Permits (COSV) 7. Landscape Plans (COSV) 8. Grading and Erosion Control Permit (COSV) 9. Spokane Regional Clean Air Agency (SRCAA) & Washington Department of Ecology (WDOE) Air Quality Permits (as applicable) 10. City Floodplain Development Permit & Land Disturbance Permit (COSV) 11. Floodplain Development Permit & Land Disturbance Permit (Spokane County)

Project Manager and Principal Contributors to Final EIS:

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Date of Issuance of Final EIS: TBD
Scheduled Date of Final Action:

Location of Copies of Final EIS for Public Review:

PENDING CONFIRMATION FROM CITY

Location of Copies of Final EIS for Purchase and Cost of Copy to Public:

PENDING CONFIRMATION FROM CITY

2.1 PURPOSE AND NEED

The purpose of the proposed action is to relieve the under-supply of housing in the Spokane Valley area by implementing a mixed use residential development that furthers the goals and policies of the City of Spokane Valley Comprehensive Plan and satisfies the owner's investment return requirement.

According to Rob Higgins Executive Vice President of the Spokane Association of Realtors, Spokane County has limited housing inventory; current inventory as of November 2020 is 74 new construction single family residential properties, and 337 existing single-family residential properties, for a total of 411 properties currently on the market. This represents a supply of approximately one week of housing inventory.

The City of Spokane Valley has long recognized the site of the proposed action as being subject to more intense development. The site is currently designated as Single Family Residential and zoned as R-3. R-3 is the City's "urban residential" category which allows a potential density of up to 6 units per acre "provides flexibility and promotes reinvestment in existing single-family neighborhoods." (SVMC 19.20.015(C)). The City zoned the property R-3 to enable maximum residential buildout of the site while recognizing the potential limiting environmental factors. Consistent with the planning goals of the Growth Management Act (GMA) codified in Revised Code of Washington (RCW) 36.70A.020, development should be encouraged "in urban areas where adequate public facilities and services exist or can be provided in an efficient manner." Local plans and policies implement the GMA and limit new urban development to areas within the Urban Growth Area (UGA) and constrain the supply of available land.

Further, Spokane County is subject to explicit limitations on UGA expansions as stipulated in Section 10 of a 2016 Settlement Agreement with parties who appealed the county's 2013 UGA expansion. Given the limited ability of Spokane County to expand UGAs and the fact that the proposed development site is one of the largest contiguously owned buildable tracts of residential land in Spokane Valley, the Painted Hills site represents a unique opportunity to provide needed housing supply. Because the UGA constrains potential development in other areas in the region and other environmental or infrastructure limiting factors may restrict developable sites within the UGA, there are few, if any, tracts within Spokane County that allow development to occur on the same scale as the Painted Hills site.

The proposed action also satisfies the reasonable investment backed expectations of the applicant. The applicant acquired the property for the purpose of redevelopment after a long-tenured golf facility became financially unfeasible. The need for the use of the planned residential overlay aspect allows for the applicant to develop the site in the manner preferred by the City of Spokane Valley while providing for floodwater facilities that enhance the open space and recreational value of the project. As discussed further in the DEIS, the expense of the facilities required to develop the project are financially significant and can only be offset by the development of the proposed action at the scale provided for by the applicant. The contemplated land uses and density of the proposed action are not subject to review because it fits within the adopted development regulations of the City. See RCW 36.70B.030(3).

This DEIS has been prepared in accordance with the Washington State Environmental Policy Act (SEPA, RCW 43.21C). This DEIS is not a decision document. The primary purpose of this DEIS is to disclose the potential environmental impacts of implementing the proposed action.

2.2 LAND DEVELOPMENT ALTERNATIVES

This section describes and compares alternatives evaluated in this DEIS and alternatives that were considered for evaluation but ultimately eliminated.

This DEIS analyzes a no-action alternative and one action alternative with two variations. It presents a discussion of the potential impacts of Alternative 1: No-Action Alternative and Alternatives 2a and 2b, variations of a PRD on the site.

Additional alternatives were initially considered for evaluation in this DEIS. These included a "Low Impact Standard Subdivision" alternative that would have avoided development within most of the 100-year floodplain areas within the site and a "Standard Residential Subdivision Alternative" with similar stormwater and floodwater management features as the PRD alternative. These alternatives and the reasons for their exclusion from more detailed analysis in this DEIS are discussed further below.

This document includes a detailed discussion of impacts to environmental elements identified as a potential concern in the DS. The primary environmental categories analyzed in detail in this EIS include natural environment (ground and surface water); built environment (land use, including relationship to land use plans regarding flood hazard areas); and transportation. Secondary environmental elements that were not addressed in the DS are addressed in brief summaries in this document. These environmental elements include air quality, aesthetics, biological resources, environmental health, geology, historic, cultural and archaeological resources, noise, public services, and recreation.

2.2.1 Alternatives Analysis in this DEIS

This DEIS analysis evaluates and summarizes the anticipated environmental effects of two primary alternatives: a No Action alternative and a PRD alternative with two design variations. These alternatives are described further below.

2.2.1.1 Alternative 1: No Action

The No Action Alternative provides a baseline for comparing the effects of the action alternatives. The No Action Alternative assumes that no on-site or off-site improvements occur in conjunction with or as a result of a project on the Painted Hills site.

2.2.1.2 Alternative 2a: Planned Residential Development—High Infiltration

Alternative 2a involves the redevelopment of a 99.3-acre former golf course into a PRD within the City of Spokane Valley. The site will consist of approximately 42 estate single family residential lots, 206 standard single-family residential lots, 52 cottage-style single family residential lots, 228 multi-family residential units, 52 mixed use multi-family residential units integrated with approximately 13,400 square feet of retail/commercial use, 9,000 square feet of future stand-alone retail commercial use and the preservation of the club house and associated parking as a commercial area. Additionally, the site will include greenspace totaling approximately 30 acres including a 10-acre park and wildlife travel corridor. A network of asphalt trails will also be provided. The project will include the construction of streets and sidewalks to access the lots, as well as water, sanitary sewer and dry utility facilities to serve each lot. Off-site and on-site storm drainage and channel improvements will be made that will result in the removal of approximately 48 acres of the site from the Federal Emergency Management Agency (FEMA) one percent annual-chance-floodplain (100-year floodplain). Stormwater improvements occurring on the site and on the site frontages will include the replacement of existing culverts under Thorpe Road with a box culvert structure, installation of a concrete lined channel to a pipe system leading to treatment and infiltration facilities; and routing and disposal of flood and seasonal flows that cross Madison Road into a new Painted Hills floodwater management system.

In addition to on-site improvements, Alternative 2a includes replacing a ditch northeast of the project site (referred to herein as the "Gustin Ditch") with a 36-inch pipe. Additionally, the proposal would deepen an off-site pond detention basin and install 18 drywells in the pond bottom to increase the infiltration capacity of the pond receiving flows from the Gustin Ditch. This pond is referred to herein and in supporting materials as the "triangle pond." These improvements to the Gustin Ditch and to the triangle pond will eliminate the possibility of the floodwater inflows to the site from the east as modeled in the current FEMA floodplain insurance study for the area. Further details regarding the design and impacts of the floodwater management improvements with the two PRD variations are provided in the individual environmental element sections of this EIS.

Street frontage improvements along Dishman-Mica Road, Thorpe Road and Madison Road will include curb, gutter, landscape planter strips and/or swales, and sidewalks and/or trails. It is expected that, upon the completion of site grading activities that a FEMA Letter of Map Revision (LOMR) will be completed that would also result in the removal of approximately 44 acres of off-site properties from the FEMA 100-year floodplain. Upon completion of the project, approximately 92 acres will be removed from the FEMA 100-year floodplain on the project site and on off-site properties.

2.2.1.3 Alternative 2b: Planned Residential Development-- Low Infiltration

Alternative 2b, like Alternative 2a, involves the redevelopment of the 99.3-acre former golf course into a PRD within the City of Spokane Valley. The primary difference between the two alternatives is that Alternative 2b includes a significantly increased floodwater infiltration pond adjacent to the gravel drywell infiltration gallery at the northern limits of the site. The infiltration pond is larger in Alternative 2b to address recent (January 2020) infiltration testing that indicates slower infiltration might occur on the site when compared to infiltration testing conducted on the site in May of 2016. Therefore, the two variations of the PRD alternative (Alternatives 2a and 2b) provide an analysis of two floodwater storage scenarios on the site (a high infiltration rate scenario and a lower infiltration rate scenario) and the minor PRD refinements that occur on the site around the floodwater storage area.

The Alternative 2b development plan consists of 48 estate single family residential lots, 224 standard single-family residential lots, 273 multi-family residential units, 52 mixed use multi-family residential units integrated with approximately 13,400 square feet of retail/commercial use, 9,000 square feet of future stand-alone retail commercial use and the preservation of the club house and associated parking as a commercial area. Additionally, the site will include open space areas totaling approximately 30 acres including a 10-acre park and wildlife travel corridor. The same off-site stormwater infrastructure improvements completed under Alternative 2a would also be constructed under Alternative 2b. Further details regarding the design and impacts of Alternative 2b are provided in the individual environmental element sections of this EIS.

2.2.2 Alternatives Eliminated from Consideration

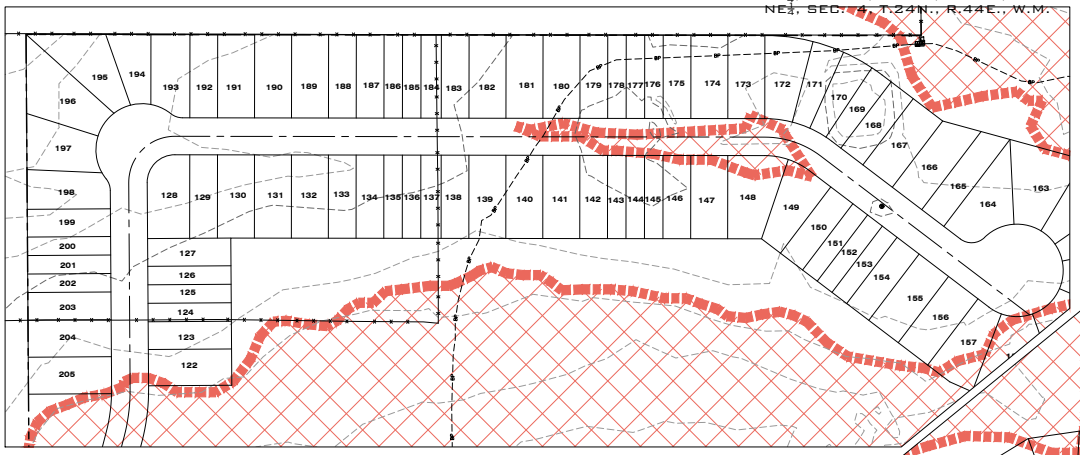
Through the process of considering alternatives to the applicant's preferred alternative, the development team considered two other possible alternatives for review and discussion in the DEIS. These alternatives are discussed further below.

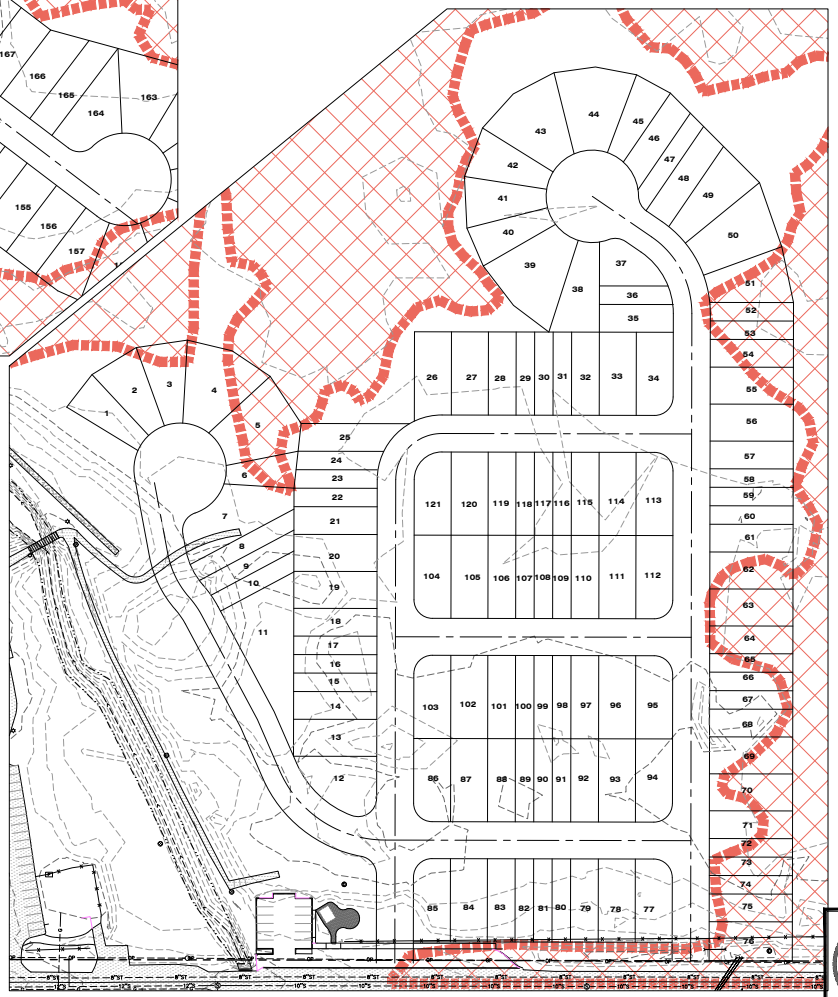
2.2.2.1 Low Impact Subdivision Alternative

In considering alternatives to the preferred alternative—PRD Alternatives 2a and 2b—the applicant considered a residential development on the site that would effectively avoid development within nearly all mapped 100-year floodplain areas. This alternative is reflected in Figure 2-1. This Lowe Impact Subdivision Alternative would allow the development of approximately 205 small single family residential "cottage" lots with widths varying between 20 and 40 feet. After considering this alternative it was determined that the alternative failed to meet the objectives (purpose and need) of the proposal, as is required under WAC 197-11-440(5)(b). Specifically, Table 2-1 below provides an analysis of the Low Impact Subdivision Alternative relative to the project purpose and need.

SE¼, SEC.33, T.25N., R.44E., W.M.
SW¼, SEC.34, T.25N., R.44E., W.M.
NE¼, SEC.4, T.24N., R.44E., W.M.

UNDERGROUND SERVICE ALERT
ONE-CALL NUMBER
811
CALL TWO BUSINESS DAYS BEFORE YOU DIG





SITE DATA

COTTAGE LOTS	205
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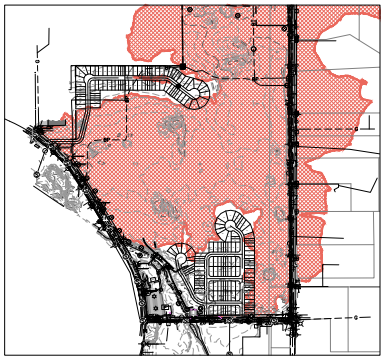
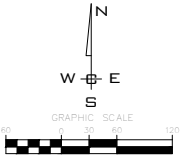
30'± WIDTH	56
40± WIDTH	76





DATUM: NAVD - 88
TBM S-5 OF THE SOUTH PONDEROSA SEWER PROJECT WITH AN ELEVATION OF 2005.87 (NAVD29)=2009.67 (NAVD88) WAS USED FOR THE VERTICAL DATUM FOR THIS MAP.

NO.	DATE	BY	REVISIONS

SCALE:
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VERTICAL: N/A

PROJ #: 13-1166
DATE: 09/14/20
DRAWN: SLS
REVIEWED: TRW

CIVIL
STRUCTURAL
SURVEYING
TRAFFIC
X PLANNING
LANDSCAPE
OTHER

WCE
WHIPPLE CONSULTING ENGINEERS
2528 NORTH SULLIVAN ROAD
SPOKANE VALLEY, WA 99216
PH: 509-893-2617 FAX: 509-926-0227

PAINTED HILLS
COTTAGE LOT LAYOUT
DISHMAN-MICA RD.
SPOKANE VALLEY,WA

TODD R. WHIPPLE
STATE OF WASHINGTON
25462
REGISTERED
PROFESSIONAL ENGINEER

SHEET
1 OF 1

JOB NUMBER
13-1166

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Figure 2-1
Low Impact Residential Subdivision

Painted Hills Residential Development DEIS

Table 2-1. Project Purpose and Need v. Low Impact Subdivision

Project Purpose and Need Elements	Low Impact Subdivision
Improve regional undersupply of housing and fulfill the City's plan for residential development at urban densities of 6 units per acre.	205 residential units over the 99.3 acres site fails to realize the development potential on the site as designated by the City and as needed to fulfill a regional undersupply of housing. Development of the Low Impact Subdivision alternative would only achieve a gross density of approximately two units per acre, far below the plan-designated capacity of six units per acre. Therefore, this alternative fails to adequately address the housing need within Spokane Valley and the greater Spokane metropolitan area.
Satisfy investment backed expectations of the applicant.	The proposed project is a private development funded by private investment and, as such, requires that the developer can attain financial returns necessary to satisfy investor obligations and to fund the public infrastructure required for the project. These infrastructure investments include water, sanitary sewer, road and stormwater infrastructure improvements, including improvements to Thorpe Road water passages that regularly flood. The financial return gained from the development of 205 cottage lots is insufficient to satisfy these investment-backed expectations for the project.

2.2.2.2 Standard Subdivision Alternative

The applicant also considered the development of the site as a standard subdivision. This alternative is illustrated on Figure 2-2 and would involve the same general improvements and fill requirements associated with Alternative 2a. Further, because it would be developed under the City's standard subdivision requirements and not through a PRD, this alternative would not require setting aside 30 percent of the site for open space. A thorough analysis of this alternative was conducted and the conclusion was reached that this alternative resulted in marginally greater environmental impacts when compared to Alternatives 2a and 2b. Consequently, the alternative failed to meet the standard under WAC 197-11-440(5)(b) which requires that reasonable alternatives should have a "lower environmental cost or decreased level of environmental degradation." This alternative was therefore eliminated from further discussion and analysis in the DEIS. A summary comparison of the environmental impacts associated with the Standard Subdivision alternative is included in Appendix C and an unabridged version of the environmental analysis conducted for the standard subdivision is included as Appendix D.

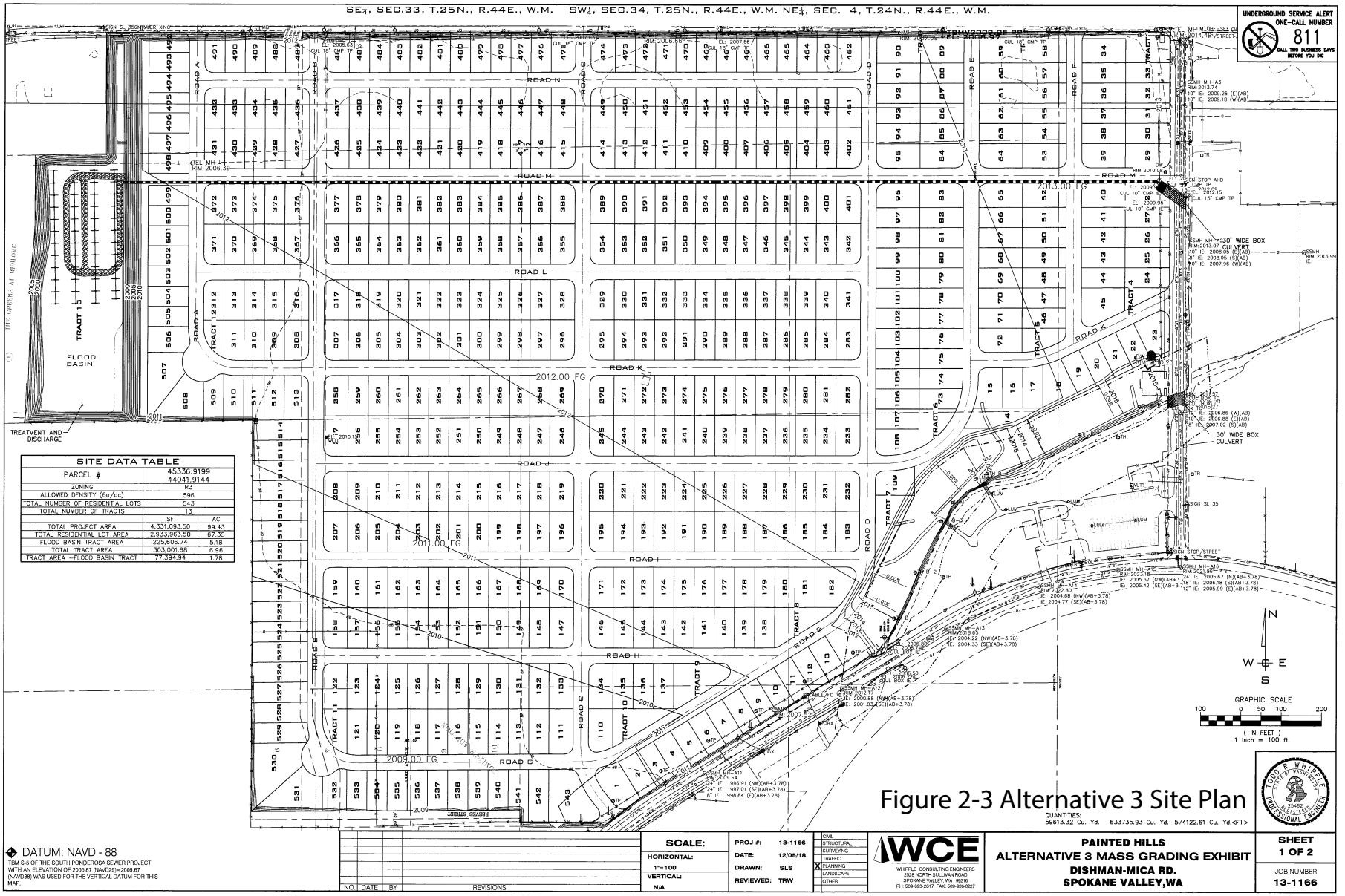

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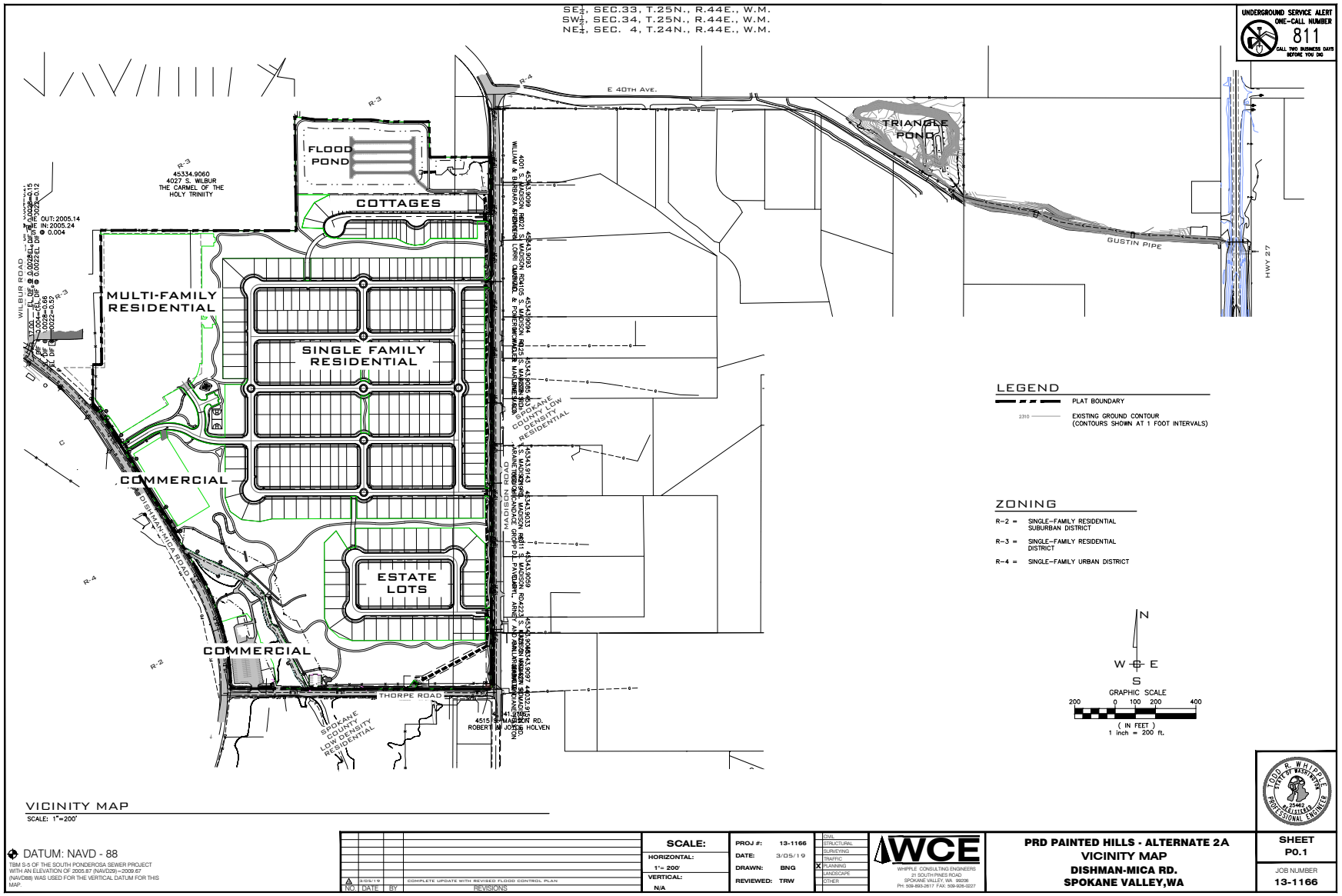
Figure 2-2
Standard Subdivision

Painted Hills Residential Development DEIS



VICINITY MAP

SCALE: 1"=200'

DATUM: NAVD - 88

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NO	DATE	BY	REVISIONS
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VERTICAL:	N/A
PROJ #:	13-1166
DATE:	3/05/19
DRAWN:	BNG
REVIEWED:	TRW

- CIVIL
- STRUCTURAL
- SURVEYING
- TRAFFIC
- X PLANNING
- LANDSCAPE
- OTHER

WCE
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SPOKANE VALLEY, WA 99206
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PRD PAINTED HILLS - ALTERNATE 2A
VICINITY MAP
DISHMAN-MICA RD.
SPOKANE VALLEY,WA

SHEET P0.1

JOB NUMBER 13-1166

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Figure 2-3
Alternative 2a

Painted Hills Residential Development DEIS

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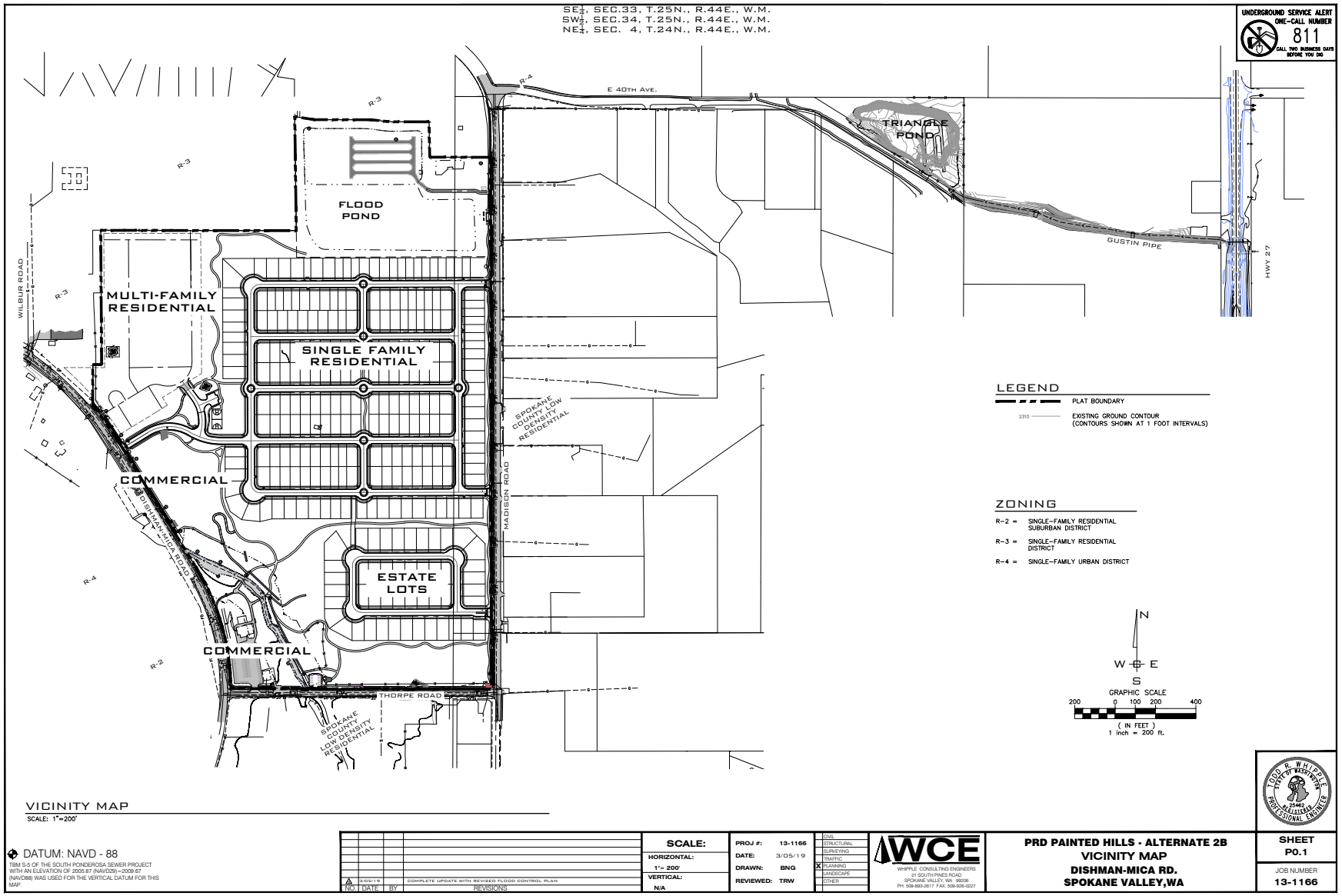

VICINITY MAP

SCALE: 1"=200'

DATUM: NAVD - 88

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HORIZONTAL: 1"= 200'
VERTICAL: N/A

PROJ #: 13-1166
DATE: 3/05/19
DRAWN: BNG
REVIEWED: TRW

CIVIL
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SURVEYING
TRAFFIC
X PLANNING
LANDSCAPE
OTHER

WCE
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21 SOUTH PINES ROAD
SPOKANE VALLEY, WA 99206
PH: 509-893-2617 FAX: 509-926-0227

PRD PAINTED HILLS - ALTERNATE 2B
VICINITY MAP
DISHMAN-MICA RD.
SPOKANE VALLEY,WA

SHEET P0.1

JOB NUMBER 13-1166

TODD R. WHIPPLE STATE OF WASHINGTON 25462 REGISTERED PROFESSIONAL ENGINEER

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Figure 2-4
Alternative 2b

Painted Hills Residential Development DEIS

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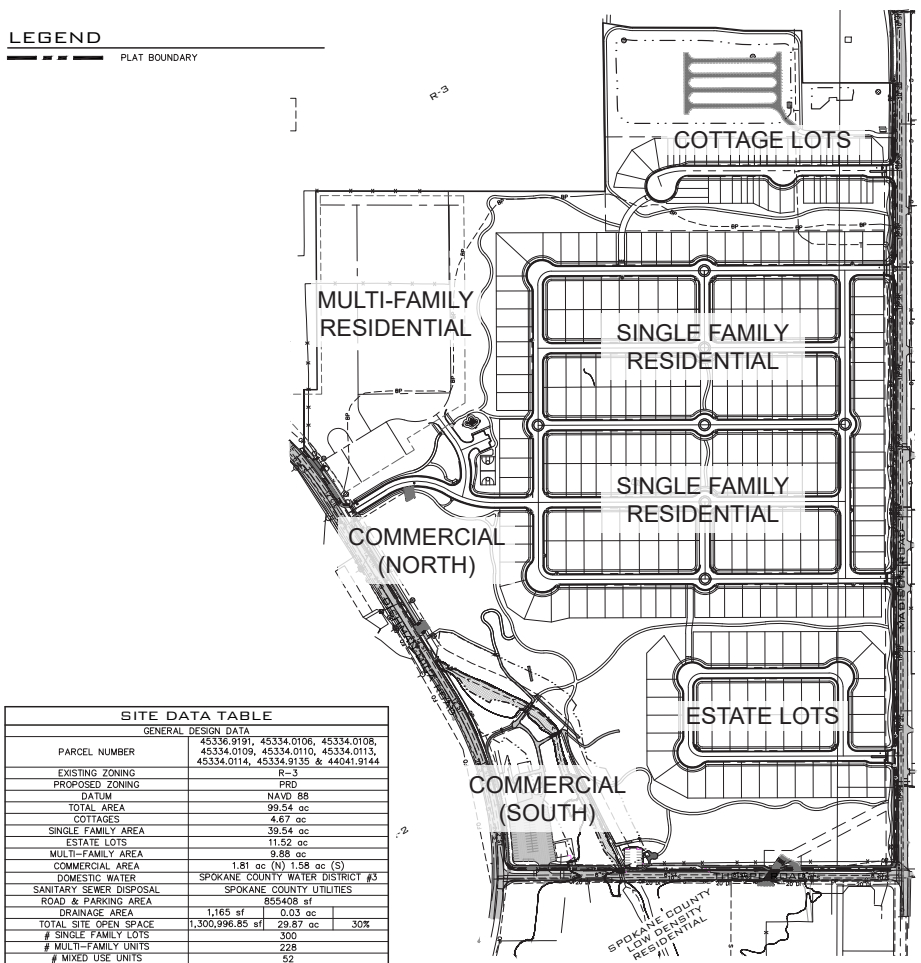

SITE DATA TABLE			
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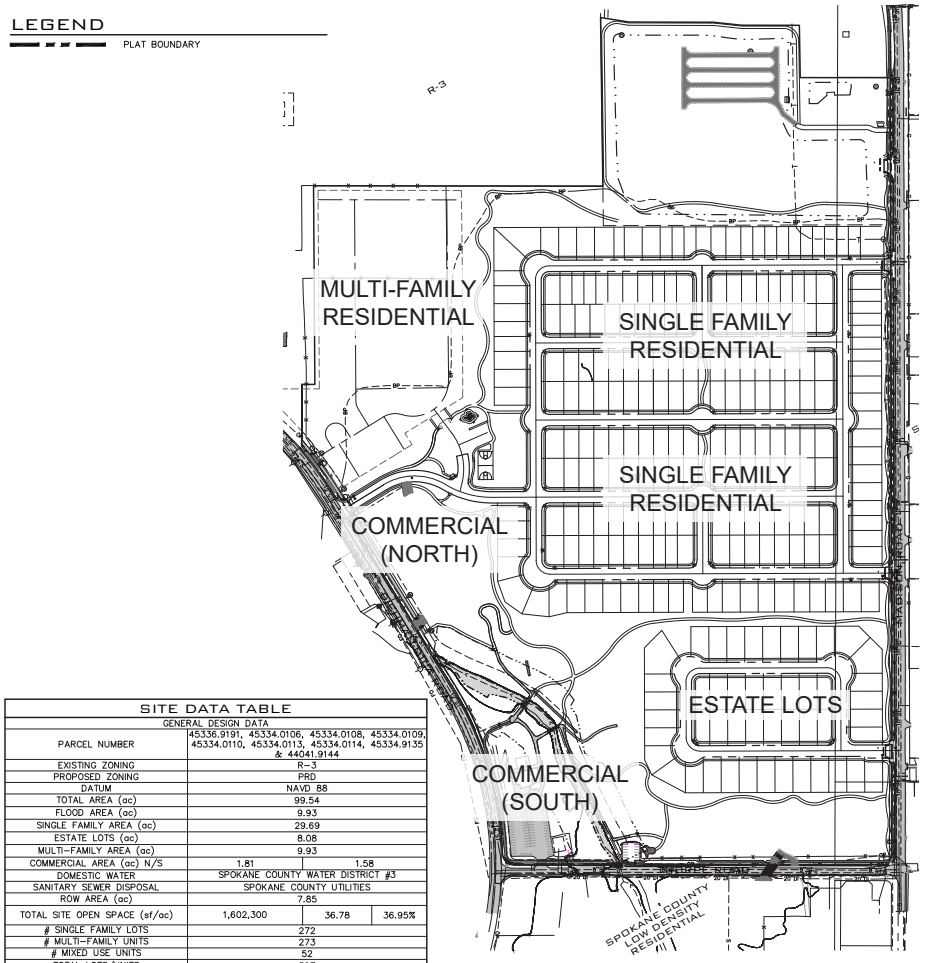
EXISTING ZONING	R-3		
PROPOSED ZONING	PRD		
DATUM	NAVD 88		
TOTAL AREA	99.54 ac		
COTTAGES	4.67 ac		
SINGLE FAMILY AREA	39.54 ac		
ESTATE LOTS	11.52 ac		
MULTI-FAMILY AREA	9.88 ac		
COMMERCIAL AREA	1.81 ac (N) 1.58 ac (S)		
DOMESTIC WATER	SPOKANE COUNTY WATER DISTRICT #3		
SANITARY SEWER DISPOSAL	SPOKANE COUNTY UTILITIES		
ROAD & PARKING AREA	855408 sf		
DRAINAGE AREA	1,165 sf	0.03 ac	
TOTAL SITE OPEN SPACE	1,300,996.85 sf	29.87 ac	30%
# SINGLE FAMILY LOTS	300		
# MULTI-FAMILY UNITS	228		
# MIXED USE UNITS	52		
TOTAL LOTS/UNITS	580		
SINGLE FAMILY DENSITY (UNITS/ACRE)	5		
MULTI-FAMILY DENSITY (UNITS/ACRE)	19		
TOTAL SITE DENSITY (UNITS/ACRE)	5		
BUILDING AREA	136660 sf	N/A	

Alternative 2A Site Overview

1" = 400'



SITE DATA TABLE			
GENERAL DESIGN DATA			
PARCEL NUMBER	45336.9191, 45334.0106, 45334.0108, 45334.0109, 45334.0110, 45334.0113, 45334.0114, 45334.9135 & 44041.9144		
EXISTING ZONING	R-3		
PROPOSED ZONING	PRD		
DATUM	NAVD 88		
TOTAL AREA (ac)	99.54		
FLOOD AREA (ac)	9.93		
SINGLE FAMILY AREA (ac)	29.69		
ESTATE LOTS (ac)	8.08		
MULTI-FAMILY AREA (ac)	9.93		
COMMERCIAL AREA (ac) N/S	1.81	1.58	
DOMESTIC WATER	SPOKANE COUNTY WATER DISTRICT #3		
SANITARY SEWER DISPOSAL	SPOKANE COUNTY UTILITIES		
ROW AREA (ac)	7.85		
TOTAL SITE OPEN SPACE (sf/ac)	1,602,300	36.78	36.95%
# SINGLE FAMILY LOTS	272		
# MULTI-FAMILY UNITS	273		
# MIXED USE UNITS	52		
TOTAL LOTS/UNITS	597		
SINGLE FAMILY DENSITY (UNITS/ACRE)	7.08		
MULTI-FAMILY DENSITY (UNITS/ACRE)	27.49		
TOTAL NET SITE DENSITY (UNITS/ACRE)	6.00		
BUILDING AREA	136660 sf	N/A	

Alternative 2B Site Overview

1" = 400'

Drawing not to scale.

Figure 2-5
Alternatives 2a & 2b Comparison

Painted Hills Residential Development DEIS

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2.2.3 Mitigation Measures

Mitigation is intended to avoid or to minimize the potential environmental impacts related to the action alternatives that are proposed. The definition of mitigation under SEPA, that will be used for the purposes of this analysis can be found in WAC 197-11-768 where:

> *"Mitigation" means:*
>
> *(1) Avoiding the impact altogether by not taking a certain action or parts of an action;*
>
> *(2) Minimizing impacts by limiting the degree or magnitude of the action and its implementation, by using appropriate technology, or by taking affirmative steps to avoid or reduce impacts;*
>
> *(3) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;*
>
> *(4) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action;*
>
> *(5) Compensating for the impact by replacing, enhancing, or providing substitute resources or environments; and/or*
>
> *(6) Monitoring the impact and taking appropriate corrective measures.*

Mitigation measures are addressed in the individual chapter sections devoted to the environmental elements considered in this document.

2.2.4 Permits and Approvals Required for Implementation

It is anticipated that the following local, state and federal permits will be required to implement the development contemplated under Alternative 2.

Local Permits/Authorizations

- Preliminary Plat/ PRD
- Transportation Concurrency Certificate (Complete dated 2-23-17)
- Street Plan Approval, ROW Permits (COSV)
- Sanitary Sewer Plan Approval (Spokane County)
- Water Plan Approval (Water District 3)
- Building Permits (COSV)
- Landscape Plans (COSV)
- Grading and Erosion Control Permit (COSV)
- Spokane Regional Clean Air Agency (SRCAA) & Washington Department of Ecology (WDOE) Air Quality Permits (as applicable)
- City Floodplain Development Permit & Land Disturbance Permit (COSV)
- Floodplain Development Permit & Land Disturbance Permit (Spokane County)

State Permits/Authorizations

- Construction Stormwater General Permit (CSWGP)

Federal Permits/Authorizations

- FEMA Conditional Letter of Map Revision (CLOMR) and LOMR

SECTION 3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 NATURAL ENVIRONMENT (GROUND AND SURFACE WATER)

The following section provides a description of the existing conditions of ground and surface waters within the study area and the potential for the project alternatives to affect ground and surface water quality. The ecological features of Chester Creek including habitat functions of the creek and the associated riparian buffer are described in Section 3.4.3.1 Biological Resources.

3.1.1 Affected Environment

3.1.1.1 Existing Hydrologic Conditions

The project site is in the Chester Creek basin in the southeastern portion of Water Resource Inventory Area (WRIA) 57. Chester Creek originates south of the project site in an area dominated by agricultural lands and rural home sites. The creek flows generally northward, crosses through the southwest corner of the project site through a concrete box culvert and terminates in an infiltration basin located approximately four miles south of the Spokane River and northwest of the project site adjacent to Dishman-Mica Road. Peak flooding in the Chester Creek basin typically occurs in winter, unlike the Spokane River system where flooding typically occurs in early spring. Warm winds and rain can melt snow rapidly, leading to short-duration runoff flooding during winter storms (Michael Baker Inc. 1990). During flood events, Chester Creek has been noted to overtop its banks south of the project site and floodwaters collect in topographically low areas east of the main channel (See Figure 3-1, Chester Creek 1997 Flood Event - Aerial Photo). These floodwaters from south of Thorpe Road eventually reach the project site through three 15-inch culverts located under Thorpe Road approximately 500 feet east of where the main channel of Chester Creek crosses Thorpe Road. Under higher flow conditions water also flows over the road and onto the project site at this same location as shown in Figures 3-1, 3-2, and 3-3.

Figure 3-1: Chester Creek 1997 Flood Event – Aerial Photo[1]

Figure 3-2: Flooding West of Chester Main Channel (Viewing Eastward on Thorpe)[2]

[1] Photo source: WEST Consultants, Inc.; Originally provided by Spokane County. Photo date and flood event type unknown.
[2] Photo taken by Whipple Engineering on March 14, 2017.

Figure 3-3: Flooding East of Chester Main Channel (Viewing Westward on Thorpe)[3]

Spokane Rathdrum Prairie Aquifer

The Spokane Valley-Rathdrum Prairie Sole Source Aquifer, which is the primary water source for over 700,000 people in the Spokane region, underlies the project site. The aquifer is a large underground formation consisting of gravels, cobbles, and boulders and is reported to store 10 trillion gallons of water (MacInnis et al 2009). The aquifer extends from western Idaho to the eastern area of Washington State. This underground formation extends south from near the Bonner County-Kootenai County line in Idaho west of Lake Pend Oreille. From there it extends south toward Coeur d'Alene Lake and then west into Washington through the Spokane River Valley as shown in Figure 3-5. The aquifer follows the valley and terminates near the confluence of the Spokane and Little Spokane Rivers west of the City of Spokane. Water is contributed to the aquifer by adjacent lakes, streams, the Spokane River, and precipitation. This highly permeable area of deposits is covered in many locations by a relatively thin topsoil layer and is therefore susceptible to pollution. The Spokane Valley-Rathdrum Prairie Aquifer was designated a Sole Source Aquifer in 1978.

On the project site the aquifer is overlain by a relatively slow-draining topsoil layer. Groundwater depths vary on the site. Multiple geotechnical borings have been conducted on the site by Inland Pacific Engineering Company (IPEC). Field investigations and borings have been taken in different locations and at different times of the year. Geotechnical borings were

[3] Photo taken by Whipple Engineering on February 17, 2017.

taken at multiple times between April and October 2014 at locations immediately adjacent to Chester Creek along the site. These borings found groundwater depths ranging from 7.5 to 18 feet, with shallower depths closer to Thorpe Road. (IPEC, Feb 12, 2015 / Revised Aug 29, 2016) Borings taken up to a depth of 25 feet near the Chester Creek crossing of Dishman-Mica failed to reach the water table. Geotechnical borings taken in January 2015 found groundwater depths ranging from 11 to 47 feet throughout the south-central portion of the site. (IPEC, July 23, 2016). Additional borings taken in March 2016 at the north end near the planned stormwater infiltration facility found depths of 71 feet and deeper. Therefore, the composite of investigations completed for the site indicate a moderately deep to very deep groundwater table profile across the site, with the deepest locations at the north end of the site near the location of the planned stormwater infiltration facility.

It should be noted that multiple infiltration tests have been conducted on the site. These include both full-scale drywell tests and bore hole infiltration tests to determine the potential infiltration rates expected from the proposed drywell facilities.

IPEC completed a full-scale drywell test on the site on May 6, 2016 and the results from this analysis were documented in an August 21, 2017 report. This test determined that each drywell should be assumed to have a design "outflow" rate of 1.05 cfs after applying a safety factor of safety of 1.1. For a gravel gallery design the design outflow rate is divided by 600 square feet. The 600 sf of surface area represents the interface surface of an inverted cone. The interface surface is between the native soil and the drywell rock placed around each drywell. This calculation results in a design infiltration rate of 1.8×10^{-3} cfs/square foot.

A full-scale drywell test, as conducted with the IPEC study, is considered the best method to determine the actual operation or outflow rate that a drywell would have. The installation method involves first excavating the native soil, then lining the area with a geofabric material, covering all exposed native material, installing drywell barrels and then backfilling the voids with drain rock. Once the drain rock is placed, geofabric is installed over the top of the drain rock up to the cone of the drywell and then backfilled. This method ensures the highest infiltration rates into the native soil material and best replicates the function of the proposed drywells.

In a 2019 review of the Whipple Consulting Engineers infiltration design for the preferred alternative, the City of Spokane Valley's third-party engineering consultant, Stantec, recommended additional infiltration testing, within the site area where the proposed infiltration pond will be located. This was due to the fact that the full-scale drywell that was tested was 230 feet from the location of the gravel/drywell gallery in Alternative 2a to avoid impacts within the 100-year floodplain. In response to this request, the applicant hired Budinger & Associates, Inc. to perform additional infiltration testing within the location of the gravel/drywell gallery. Because the future gravel/drywell gallery is within the 100-year floodplain, the City determined that the installation of a drywell in this location would exceed minimum SEPA review thresholds. Therefore, a full-scale drywell test was not conducted in this location, as was done with the May 2016 IPEC test, and instead Budinger & Associates conducted infiltration testing using bore holes.

The bore hole testing utilized an 8-inch diameter steel casing drilled down to a depth of 60 feet. For the infiltration test the bottom 30 feet of a bore hole was filled with pea gravel. The casing pipe was then lifted 30 feet exposing the pea gravel to the native soil. It has been noted

by the engineers that this method introduces a layer of fine silty material against the casing pipe. With the removal of the casing pipe the layer of silty material remains between the interface of the native soil and the pea gravel and can inhibit infiltration. Once established the bore holes were filled with water and a constant hydraulic head was maintained. The measured water provided an outflow rate for the bore hole. An average of the observed rates from three bore hole tests resulted in an infiltration rate of 4.6296×10^{-6} cfs/square foot, which is less than the IPEC full scale drywell test. This result is documented in the June 1, 2020 Budinger report.

While the results of the two infiltration tests vary considerably, WCE believes that the true design infiltration rate lies somewhere in between. As a result, the applicant has prepared two alternatives under the preferred development. Alternative 2a has been designed with stormwater management facilities assuming high infiltration rates per the May 2016 IPEC study and Alternative 2b was developed to reflect the much slower infiltration rates of the Budinger & Associates, Inc. study. These two variations of Alternative 2 are discussed in greater detail throughout this document.

Current Drainage Features

- Triangle Pond
- Painted Hills Site
- Culvert
- Stream/ Stormwater Flow
- Direction of Flow

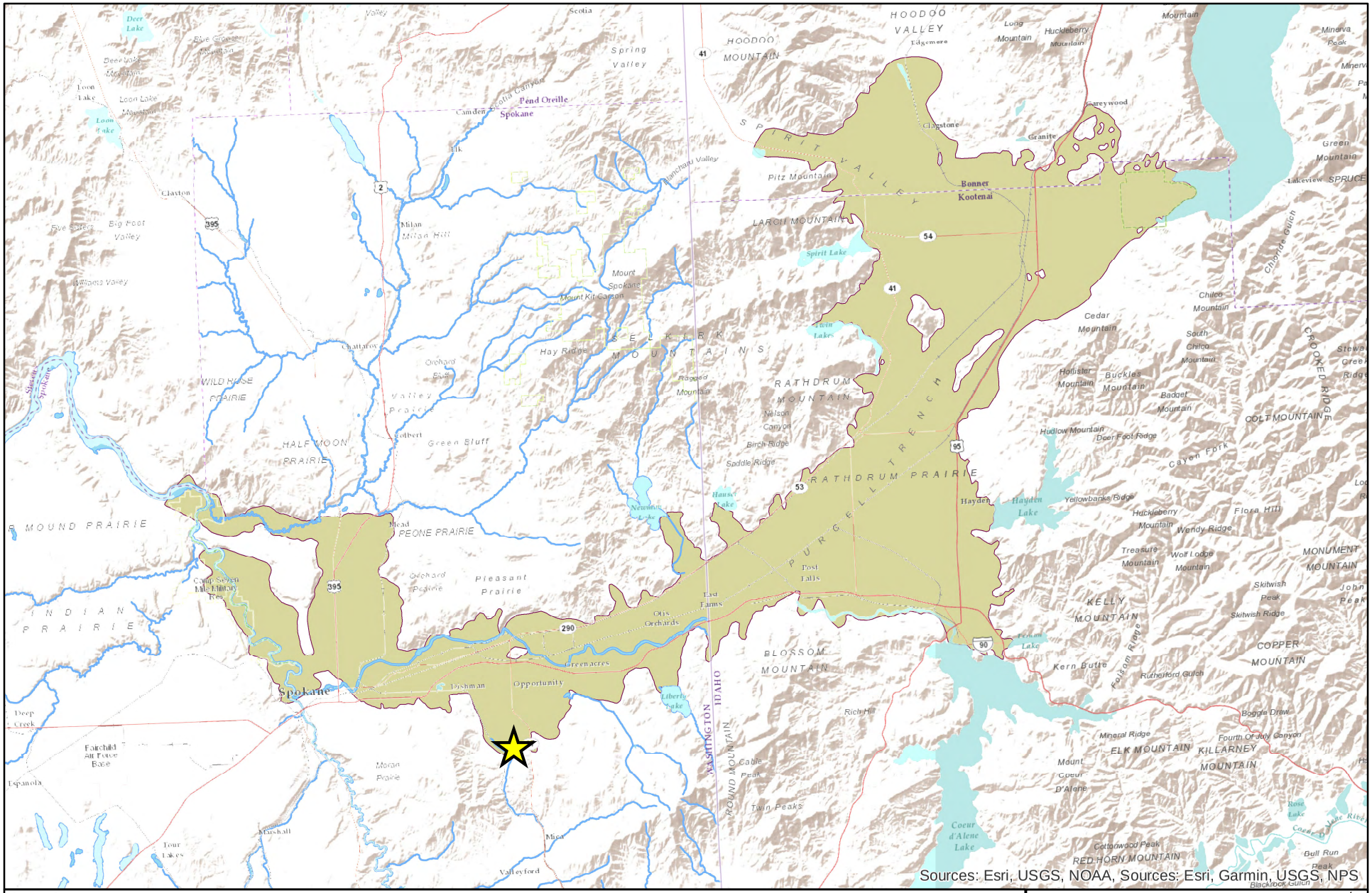
Source: GIS data provided by Whipple Consulting, the City of Spokane Valley, and Spokane County.

Figure 3-4
Existing Drainage Features- Site & Off-site

Painted Hills Residential Development DEIS

0 1,000 2,000 Feet

N



Legend

- Water Bodies
- Aquifer Boundary
- Painted Hills Site

Source: GIS data provided by Spokane County and USGS, NOAA, ESRI, and NPS.

Figure 3-5
Spokane Valley - Rathdrum Prairie Aquifer

Painted Hills Residential Development DEIS

0 5 10 Miles

3.1.2 Environmental Consequences

3.1.2.1 Alternative 1 – No Action

Under Alternative 1, there will be no physical improvements on-site or off-site that would affect stormwater flows or change ground conditions. Floodwaters that currently reach the project site will continue to reach the site and will remain on site until they are able to infiltrate to the aquifer.

Under Alternative 1, there would be no impacts to the channel of Chester Creek. Floodwaters would continue to reach the site as they currently do and would remain onsite until they are able to infiltrate naturally to the underlying Spokane Valley-Rathdrum Prairie Aquifer. Because no change to ground conditions would occur, Alternative 1 would not result in any effects on the Spokane Rathdrum Prairie Aquifer.

3.1.2.2 Alternative 2a – Planned Residential Development—High Infiltration

Under Alternative 2a, the widening of Thorpe Road to meet City road standards would require a 15-foot extension of the Chester Creek bridge. Additionally, a new box culvert would be installed at Thorpe Road in the location where three 15-inch pipes currently convey stormwaters onto the Painted Hills site from the property to the south. Floodwater that enters the project site under this alternative would be collected in a series of pipes and swales and would infiltrate into the Spokane Valley-Rathdrum Prairie aquifer via an engineered infiltration basin. No change in volumes of water that reach the aquifer via the project site are anticipated to occur under Alternative 2a.

Under Alternative 2a, there would be no direct impact to the channel of Chester Creek from the widening of Thorpe Road.

Under Alternative 2a, there would be no impact to the volume of the Spokane Valley-Rathdrum Prairie aquifer. Water that currently recharges the aquifer would continue to recharge the aquifer through permeable areas on-site including the infiltration pond installed in the northeast corner of the development and therefore no impacts to the existing groundwater levels are anticipated.

3.1.2.3 Alternative 2b – Planned Residential Development—Low Infiltration

Under Alternative 2b, as with Alternative 2a, the widening of Thorpe Road to meet City road standards would result in an additional 15 feet of the main channel of Chester Creek being bridged by the new roadway surface.

As described for Alternative 2a, under Alternative 2b, floodwater that enters the project site would be collected in a series of pipes and swales and would infiltrate into the underlying aquifer via an engineered infiltration basin. The volumes of water that convey through the project site to planned stormwater management and infiltration facilities under Alternative 2b would be identical to Alternative 2a.

As described for Alternative 2a, under Alternative 2b, there would be no direct impact to the channel of Chester Creek from the widening of Thorpe Road; and there would be no impact to the Spokane Valley-Rathdrum Prairie aquifer. Water that currently recharges the aquifer would continue to recharge through the permeable floor of the infiltration basin proposed in the northeast corner of the site.

3.1.3 Mitigation Measures

3.1.3.1 Alternative 1

No mitigation measures would be employed with Alternative 1 as no impacts would result.

3.1.3.2 Alternative 2a

Stormwater quality and quantity management methods would be consistent with the Spokane Regional Stormwater Manual (SRSM). These may include the installation of grassed percolation areas, evaporation ponds, drywells, and gravel galleries depending upon soil types at the locations of the proposed facilities. Stormwater management methods from the Eastern Washington Low Impact Design (LID) manual or LID ponds may be employed to minimize the extent of runoff from new on-site impervious surfaces created with the on-site development.

3.1.3.3 Alternative 2b

Under Alternative 2b, stormwater quality and quantity management methods would be the same as those described for Alternative 2a, except that under Alternative 2b the permeable infiltration basin adjacent to the dry wells would be larger.

3.1.4 Cumulative Effects

Because on-site and regional development would be required to employ stormwater quality and quantity management measures consistent with the SRSM, no cumulative effects are anticipated.

3.2 BUILT ENVIRONMENT (LAND USE AND FLOOD HAZARD AREAS)

3.2.1 Affected Environment

Land Use/Zoning

The current land uses adjacent to the site include a mix of dense residential development on former agricultural land, remaining undeveloped small tracts of agricultural land, and forested land with varying densities of residential development. The site is currently a non-operating golf course, and the former club house has been repurposed as a commercial restaurant.

The current zoning classification is R-3, Single Family Residential, and the current Comprehensive Plan designation of the Painted Hills site is Low Density Residential (LDR).

From the north property line, dense residential development extends northward into the City. A church and residential development border the Painted Hills site at the northwest (NW) corner. A Central Valley School district campus including University High school, Chester

Elementary School and Horizon Middle School is located northeast (NE) of the site. From the east property line (S. Madison Road) hay fields and pasture extend 250 to 500 feet toward the toe of the surrounding forested slopes. Low density rural residential development extends east up the forested hillsides. Commercial and single-family residential development extends south from Thorpe Road except for the Chester Creek drainage and associated flood plain areas which are mainly forested and small tract agriculture. Undeveloped forested hillsides extend about 1,200 feet east to the densely developed Ponderosa neighborhood. A mixture of commercial and residential land uses extends NW along Dishman-Mica Road.

Sources of Flooding

Floodwaters have been known to enter the project site from two separate locations: 1) from a split flow path originating from the main channel of Chester Creek south of the project site (known as the Golf Course Overflow Reach), and 2) from the hills to the east of Madison Road which borders the eastern boundary of the subject property. The effective FEMA Flood Insurance Study (FIS), as shown on Figure 3-6, indicates that floodwater could enter the site from a third location during the 1% annual-chance-flood event (100-year flood). Based on the FIS, floodwaters originating from an unnamed tributary to Chester Creek near State Route (SR) 27 could potentially reach the project site from the northeast.

Floodwater enters the project site from the south when the main channel of Chester Creek overflows its banks approximately 3,000 feet upstream (south) of Thorpe Road. This floodwater flows north along a topographically low area east of the main channel of the creek and reaches the project site through three 15-inch culverts located under Thorpe Road approximately 500 feet east of where the main channel of Chester Creek crosses Thorpe Road. Under higher flow conditions water also flows over the road and onto the project site at this same location.

The floodwater originating from south of the project site does not rejoin the mainstem of Chester Creek due to topography and the presence of a small on-site levee system located along the right bank of the main channel, as well as the Dishman-Mica Road embankment located north of the levee. Instead, the floodwater remains on the site until it infiltrates (WEST 2016).

Runoff also reaches the project site from the east. Water from the hillside above and east of Madison Road flows to a flat area adjacent to the east side of Madison Road and is conveyed onto the project site through four 15-inch culverts (a fifth culvert exists but does not convey water onto the site because the outlet is buried), (Personal Communication with Ken Puhn, WEST Consultants 2018). The area east of Madison Road is included in the mapped FEMA 100-year floodplain as shown on Figure 3-6.

There are no natural outlets for flood water once it reaches the project site. Once the site is inundated, water remains until it can infiltrate to the aquifer below. Depending upon the amount of floodwater present, the southern portion of the project site can remain flooded for up to 40 days. (Biology, Soil & Water 2019)

Existing Floodplain

- Floodway
- 1% Annual Chance Flood Hazard (100-year Floodplain)
- 0.2% Annual Chance Flood Hazard (500-year Floodplain)

Source: GIS data provided by West Consultants, Inc., the City of Spokane Valley, and Spokane County.

Figure 3-6
Existing FEMA Mapped Floodplain Areas

Painted Hills Residential Development DEIS

0 1,000 2,000 Feet

N

An unnamed tributary to Chester Creek near Highway 27 east of the site currently conveys stormwater flows towards the site via a 36-inch culvert (which currently limits flow volume capacity) and this culvert empties into a perched ditch that flows west across the Gustin property (Parcel Number 45344.9108). The floodwater flows through the ditch and into the old borrow pit (triangle detention pond) within the triangular parcel located northeast of E 40th Avenue (Parcel Number 45343.9052). The existing ditch has been maintained over the years by the property owner (Gustin) to ensure that any floodwater that comes out of the culvert under Highway 27 will be conveyed to the existing triangle detention pond. This off-site area is included in the mapped FEMA 100-year floodplain. The south embankment of the perched ditch is considered by FEMA to be a levee that is not certified to contain the 100-year flood, therefore the FEMA FIS also includes mapping that represents a failure of the south bank during in which floodwaters move south to a lower elevation and then flow west to the project site, bypassing the triangle parcel pit.

FEMA Floodplain Designation

FEMA's 100-year floodplain designation has both regulatory and financial implications that affect development. From a regulatory perspective, any development within the 100-year floodplain in Spokane Valley triggers review under Spokane Valley Municipal Code (SVMC) Section 21.30 (Floodplain Regulations). For properties within unincorporated Spokane County, floodplain development triggers review under Spokane County Code (SCC) Section 3.20 (Flood Damage Protection). These regulations stipulate measures that must be taken in order to change site grades within a floodplain, including compensatory measures to mitigate potential off-site flooding if fill is proposed within a floodplain. The regulations also include floodproofing measures for new structures in the floodplain and other development standards. Adoption of these local standards is necessary for a community to participate in FEMA's National Flood Insurance Program (NFIP) which enables a community to have access to flood insurance. If a property can successfully be removed from FEMA's mapped 100-year floodplain through FEMA's LOMR process, it can be relieved of both the regulatory burden of compliance with the local floodplain ordinance and also of the financial burden of the requirement to obtain flood insurance, which is a requirement of any Federal Housing Authority (FHA)-insured mortgage.

Due to the lack of an outlet, and the potential for floodwaters to enter the site from two separate locations, the project site is designated by FEMA as a compensatory storage area in the 2010 Flood Insurance Study (FEMA 2010). Additionally, much of the project site is included in the mapped FEMA 100-year floodplain. See Figure 3-6, Existing Mapped FEMA Floodplain Areas.

The overall purpose of the "compensatory" designation is to ensure that development activities do not cause an adverse impact on flood elevations within the designated compensatory storage area, or upstream or downstream of the development. The designation is intended to ensure that there is no increase in the volume of water reaching the downstream sites due to reduced infiltration capacity or due to fill within the area that could cause an increase to flood elevations on neighboring properties.

Under the compensatory storage area designation, any loss of flood storage capacity on the site due to placement of fill must be mitigated with an equivalent compensatory volume of storage or through a reduction in flows such that the net condition causes no adverse impact to the base flood or floodway elevations within the storage area. In addition, loss of infiltration capacity due to placement of fill or impervious surfaces must be mitigated in such a way that the decrease in infiltration capacity will cause no adverse impact to the base flood or floodway elevations within or upstream or downstream of the storage area. In summary, development activities within a compensatory storage area must be compensated or mitigated to ensure no adverse impacts to flood levels.

3.2.2 Environmental Consequences

3.2.2.1 Alternative 1 – No Action

Under Alternative 1, there would be no modifications to the existing system of culverts and ditches that convey floodwater onto the project site. There would be no change in the mapping of the 100-year flood plain on-site or off-site and the project site would maintain its FEMA compensatory storage area designation. Under this alternative when Chester Creek overtops its banks south of the project site, floodwaters would potentially inundate the property south of Thorpe Road and flow under, and potentially over Thorpe Road to reach the project site. Floodwaters that reach the site from the south would reside on the project site and on the property to the south, and naturally infiltrate to the Spokane Valley-Rathdrum Prairie aquifer.

No impacts to land use or the extent of the 100-year floodplain are anticipated under Alternative 1 because no alterations would be implemented on or adjacent to the project site. Therefore, all properties that are currently subject to the floodplain regulations and the NFIP would remain as currently mapped by FEMA.

3.2.2.2 Alternative 2a – Planned Residential Development-High Infiltration

Sources of Floodwater

Under Alternative 2a the Chester Creek floodwaters will continue to reach the site and will be received and managed through a series of conveyance and recharge improvements. The potential source of floodwater from the unnamed tributary to Chester Creek NE of the project site will be eliminated due to placement of the existing Gustin Ditch into a pipe that connects directly to the triangle pond detention basin where stormwaters will infiltrate.

Floodplain Map Modifications and Floodwater Management Improvements

Under Alternative 2a the project proposes to address the FEMA requirements associated with the compensatory storage area designation through obtaining a CLOMR which will seek to remove most of the floodplain from the project site based on the proposed flood control facilities and fill. The CLOMR process involves FEMA's evaluation of the hydrologic or hydraulic characteristics of a flooding source on a site or sites and the result of modifications of the existing regulatory floodway, the effective Base Flood Elevations (BFEs), or the Special Flood Hazard Area (SFHA). The letter is a conditional authorization to amend the NFIP map. The CLOMR allows FEMA to recognize specific areas as above the 100-year base flood

elevation through applicant-completed fill and grading activities. Once land modifications are completed, the applicant must request a LOMR to the Flood Insurance Rate Map (FIRM) to finalize the removal of specific areas from the 100-year floodplain designation. "As-built" certification and other data must be submitted to support the revision request.

Under both Alternative 2a and 2b, the floodplain map revision process would result in the removal of approximately 48 acres of FEMA-designated 100-year floodplain from the Painted Hills site, and another 44 acres of 100-year floodplain from off-site properties. See Figure 3-8, Alternatives 2a and 2b - Existing and Future Floodplain Areas. As noted on this figure, the entire off-site area immediately east of Madison Road currently designated as 100-year floodplain would lose its floodplain designation and the potential for ponding in that area from riverine flood flows would be effectively eliminated. Alterative 2a (as well as 2b) would also remove currently designated floodplain between the northeast corner of the project site and SR 27, including the Gustin property.

Under Alternative 2a, floodwaters would be controlled and managed, and compensatory storage requirements would be addressed on-site through a combination of enhanced conveyance facilities (culverts and pipes), infiltration galleries, and imported fill.

Overflows from the Chester Creek channel on the south side of Thorpe Road would be conveyed north under the road through a new 30-foot by 3-foot deep box culvert with capacity to pass 500-year flood flows along the Golf Course Overflow Path without overtopping Thorpe Road. This new box culvert would replace the existing set of three, undersized 15-inch culverts. On the north side of the new box culvert, floodwater would enter an open channel that connects to a sloped headwall holding two 48-inch concrete pipes. These pipes would have capacity to convey flood volumes up to the 500-year flood. The two 48-inch pipes would extend north for approximately 2,100 feet along Madison Road, and connect to each of the existing 18-inch culverts in Madison Road. These connections would allow the design flow rate of 15 cfs from the Madison Hills to be added to the 91 cfs, for a total design flow rate of 106 cfs.

The two 48-inch pipes would end at a vertical headwall where the floodwater would be released onto a concrete pad and flow across a level spreader into a sloped, 269 cfs capacity biofiltration swale. Suspended solids in the floodwater would be filtered out by tall grasses planted in the biofiltration swale. At the end of the biofiltration swale, the water would enter a settling pond where additional suspended sediments would precipitate to the floor of the pond. Water would be retained in the settling pond until the pond depth exceeds 1 foot, at which point the water would flow over a 20-foot-wide rock weir into either a 1.4 or 9.3-acre infiltration pond that would be 2 feet below the elevation of the rock weir.

The floodwater infiltration system is designed to ensure that floodwater can infiltrate on-site under normal ground conditions as well as in situations where the ground is frozen and infiltration through the ground is not possible or is extremely limited. Under normal conditions, floodwater will have the opportunity to infiltrate through all permeable surfaces after exiting the two 48-inch pipes, including the biofiltration swale, the settling pond, the infiltration pond, and the gravel infiltration gallery containing the dry wells.

When the ground is frozen and infiltration through the ground surface is restricted, and water levels within the gravel gallery rises by 1 foot in elevation, the water would crest over the rims of the 48 planned drywells and infiltrate into the native soils. The infiltration trenches would have a design capacity of 162 cfs, per the IPEC infiltration rate.

Under Alternative 2a, the flood control system would have the capacity to handle the peak 100-yr event in the flood modeling scenario in which existing non-certified levees fail and a flow rate of 106 cfs multiplied by a "factor of safety" of approximately 1.5 reaches the system (Whipple 2018).

In addition to managing the floodwater from off-site that enters the project site, Alternative 2a would also modify the Gustin Ditch located off-site to the northeast of the project site, from an open ditch to a 36-inch pipe, to eliminate floodwaters from entering the site from sources to the east. The piping of the Gustin Ditch would remove the future possibility of the ditch flooding the lowlands to the south if the south embankment were to fail as depicted in the FEMA FIS. Alternative 2a would also deepen the triangle pond detention basin and install 18 new drywells in the pond bottom to increase the infiltration capacity of the pond and to further protect against potential flooding of the area west of SR 27 and east of the project site.

The implementation of Alternative 2a will require the flood hazard management system to remain in optimal condition in perpetuity. For conservative planning purposes, each element of the system has been designed to accommodate more water than the design storm.

The functioning of the 48-inch pipes that capture and convey Chester Creek overflow water to the infiltration basin at the north end of the site, and the infiltration basin itself are of particular importance because of the potential consequences of their failure. Due to their importance in preventing on-site flooding, the conveyance pipes have been designed to accommodate a "factor of safety" that assumes that 1.5 times more water (145 cfs) would reach the facility than the modeled design storm (106 cfs). In addition, the facilities have been designed for a 100-year lifespan. The infiltration pond installed with both Alternatives 2a and 2b has been designed to infiltrate 290.76 ac – ft over a period of weeks, and the dry well galleries have been included in the design to effectively infiltrate the peak flow rate of the 100-year storm for when the infiltration capacity of the infiltration pond is compromised due to frozen ground conditions. The gravel gallery and dry wells will continue to function when the surrounding native soils are frozen to ensure that floodwater will not back up into surrounding areas.

Specific guidance for maintaining each element and the overall system operating optimally is presented in Operations & Maintenance (O&M) Manual (Appendix E).

It is anticipated that the maintenance of the flood control system will be the responsibility of a homeowner's association (HOA) formed for the Painted Hills project. The HOA's designated contractor would mow the pond, visually inspect for debris and the buildup of silts in the bottom of catch basins and manholes, and have the debris removed by a vactor truck to ensure that the system and its infiltration capacity is adequately maintained.

Phasing

Under Alternative 2a the flood management improvements would be constructed in the first phase of development before any new residential or commercial development would be initiated. The initial phase would include all improvements for managing floodwaters that enter the site from off-site sources. Specifically, it is expected that the following improvements would occur in Phase 1:

- Excavate the park area and north pond area and use the excavated material to fill against the existing levee adjacent to the Chester Creek channel. Fill will be placed by special inspection to the compaction requirements of the geotechnical engineer.
- Excavate gravel gallery and place fabric, rock and drywells
- Form final contours of the park area, north pond, settling pond, and bioswale. Seed and establish proposed grasses on the bottom of these features and on sloped surfaces.
- Install a 30-foot by 45-foot by 3-foot depth box culvert in Thorpe Road.
- Form concrete open channel and headwall.
- Install two (2) 48-inch pipes along the west side of Madison Road with manholes at connection points to 18-inch culverts that will receive stormwater flows coming from the east side of Madison Road.

In addition to these improvements, it is anticipated that Phase 1 would include the clearing and grubbing of future development areas, including the removal of the existing organic soil layer in the northeast corner of the site to expose the more-permeable gravel layer located immediately below it.

The cleared soil will be stockpiled on site and erosion control measures would be implemented consistent with the local grading and National Pollutant Discharge Elimination System (NPDES) construction stormwater permitting requirements for the project.

Under Alternative 2a, once the site has been cleared, the southern open space area would be excavated, creating a depression that would serve as a temporary repository to capture any floodwater that enters the project site during this initial construction phase. Following the excavation of the southern open space depression, excavation of the infiltration basin on the north end of the project site would be completed. The capacity of these two basins would be designed to capture and infiltrate a 100-year storm event, should such an event occur while the project is under construction The material excavated to create the two basins would be evaluated for its suitability as fill material and if it is deemed suitable, would be placed along the existing on-site levee east of the main channel of Chester Creek to bolster the flood protection capacity of this existing non-certified levee and begin the overall filling of the site.

Flood Management Facilities and Maintenance

Critical flood management facilities include the on-site infiltration basin and dry well galleries, the two 48-inch pipes that would convey floodwaters from off site to the infiltration facilities at the north end of the site, the off-site pipe that would convey water that currently flows through Gustin ditch, and the off-site Gustin pond and associated drywells.

According to the manufacturers' specifications, the anticipated useful life of the conveyance pipes is 100 years and the anticipated useful lifespan of the dry wells, because they will be mostly underground and will not be exposed to the effects of weathering, is likely greater than 100 years.

The Homeowners Association (HOA), consisting of the owners of each residential, multi-family, and commercial lot within the Painted Hills PRD project would be responsible for the continued operation and maintenance, including repair and replacement as needed, of these facilities.

The Operations and Maintenance Plan for Painted Hills Residential Development Flood Control System & Plat Amenities (O&M Plan) includes detailed descriptions of how the facilities would be maintained, and includes provisions for a Sinking Fund to be set up to receive regular HOA member deposits to be used for paying future costs and debts. Future costs could include planned and unplanned operation and maintenance costs along with future replacement costs for the storm drainage facilities.

Per the O & M Manual, the developer will initiate the sinking fund with a deposit value that represents the future cost to replace the flood control system and a year of the annual cost for maintenance, and operation of all open space and common facilities (at full build-out) throughout the project. This also includes the off-site improvements at the Gustin Ditch and Triangle Pond. In addition to the developer's initial contribution, the fund would be fulfilled and grown through monthly or yearly HOA fees from lot owners within the PRD.

Per the O & M Manual the HOA would be required to provide an annual report to the Spokane Valley Public Works Department describing the general status of the sinking fund account, and describing specific inspections, findings, and maintenance performed. A detailed summary of the estimated operation, maintenance and replacement costs for common areas and storm and floodwater management facilities is provided in the O&M Manual in Appendix E.

Spokane County and the City of Spokane Valley and their authorized agents would be granted access rights for routine inspection and emergency repairs of the flood control facilities but would not incur the responsibility to perform these functions at any time.

3.2.2.3 Alternative 2b – Planned Residential Development-Low Infiltration

Sources and Extent of Floodwater

The sources and extent of floodwater that have been known to enter the project site in the past will be the same for Alternative 2b as 2a.

Floodplain Map Modifications and Floodwater Management Improvements

The floodplain map revision for on-site and off-site areas for Alternative 2b would be identical to Alternative 2a. Under Alternative 2b, the floodplain map revision process would eventually result in the removal of approximately 48 acres of FEMA-designated 100-year floodplain from the Painted Hills site, and another 44 acres of 100-year floodplain from off-site properties.

Under Alternative 2b, as with Alternative 2a floodwaters would be controlled and managed, and compensatory storage requirements would be addressed on-site through a combination of enhanced conveyance facilities (culverts and pipes), infiltration galleries, and imported fill.

The only difference between the floodwater management systems associated with the two PRD scenarios is that under Alternative 2b, in order to accommodate the lower infiltration capacity of the native soils, the infiltration pond would occupy 9.3 acres, 7.9 acres more than the Alternative 2a infiltration pond

Phasing

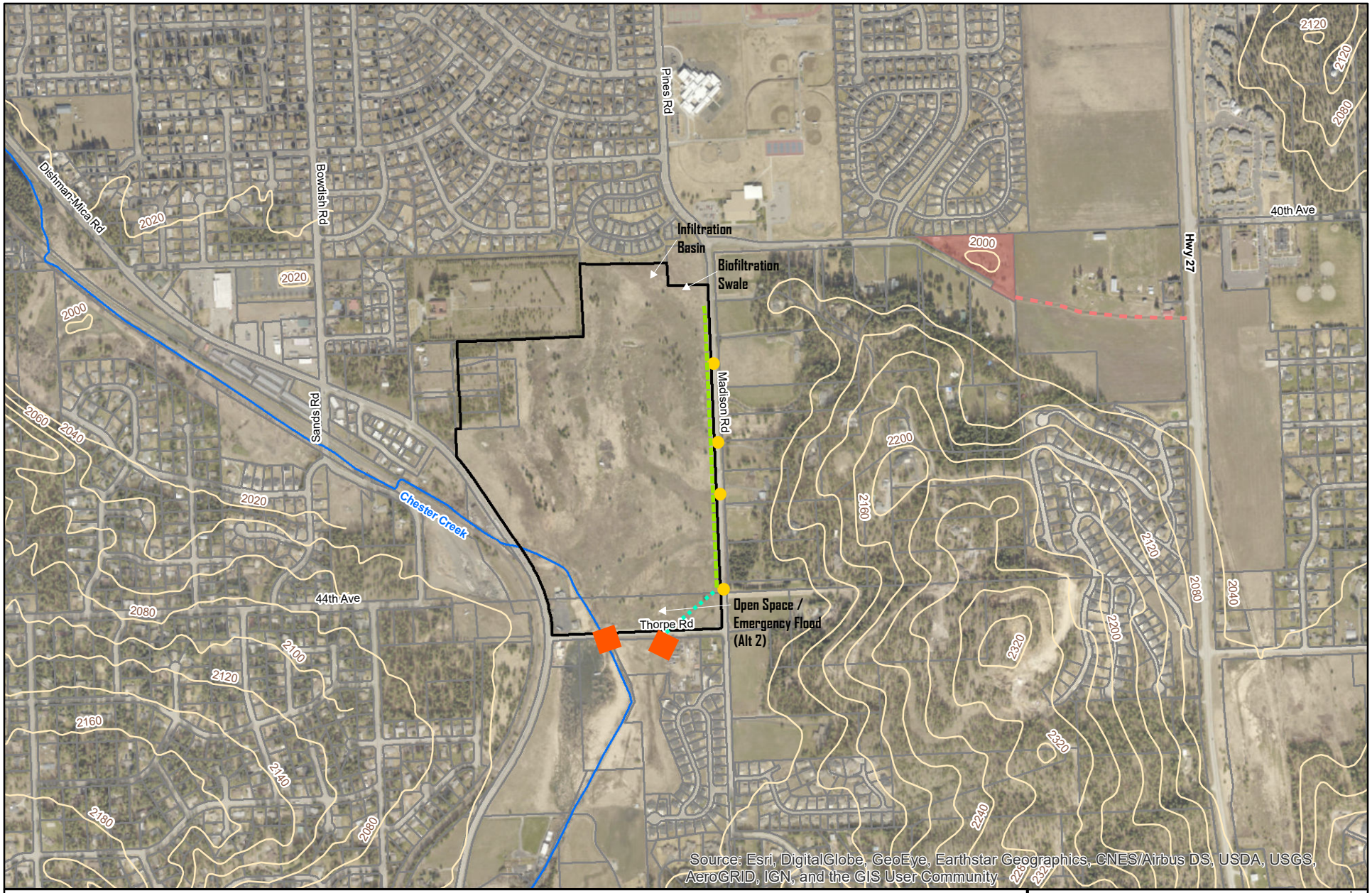
As described for Alternative 2a, under Alternative 2b the flood management improvements would be constructed in the first phase of development. This initial phase would include all improvements for managing floodwaters that enter the site from off-site sources. As described for Alternative 2a, under Alterative 2b it is expected that the following improvements would occur in Phase 1:

- Excavate the north settling pond area and use the excavated material to fill against the existing levee adjacent to the Chester Creek channel. Fill will be placed by special inspection to the compaction requirements of the geotechnical engineer.
- Excavate gravel gallery and place fabric, rock and drywells.
- Form final contours of the park area, north pond, settling pond, and bioswale. Seed and establish proposed grasses on the bottom of these features and on sloped surfaces.
- Install a 30-foot by 45-foot by 3-foot deep box culvert in Thorpe Road.
- Form concrete open channel and headwall.
- Install two (2) 48-inch pipes along the west side of Madison Road with manholes at connection points to 18-inch culverts that will receive stormwater flows coming from and the east side of Madison Road.
- The Gustin Pipe and Triangle Pond construction as an offsite improvement can be constructed at any point during the first construction phase.

If the construction of the flood control system has to be phased over a winter season, and a flood occurs during construction, the first steps of construction will provide a great deal of mitigation for that flood event. As the north pond is located in the regional low point, whatever level of flood event occurs will continue to gravity flow to the excavated pond. The floodwaters would travel as they currently do or within portions of the completed construction. It is not anticipated that construction activities will redirect floodwater where it has not been currently mapped.

Flood Management Facilities and Maintenance

The flood management facilities installed with Alternative 2b and the maintenance requirements for these facilities are identical to those of Alternative 2a.



Proposed Drainage Features

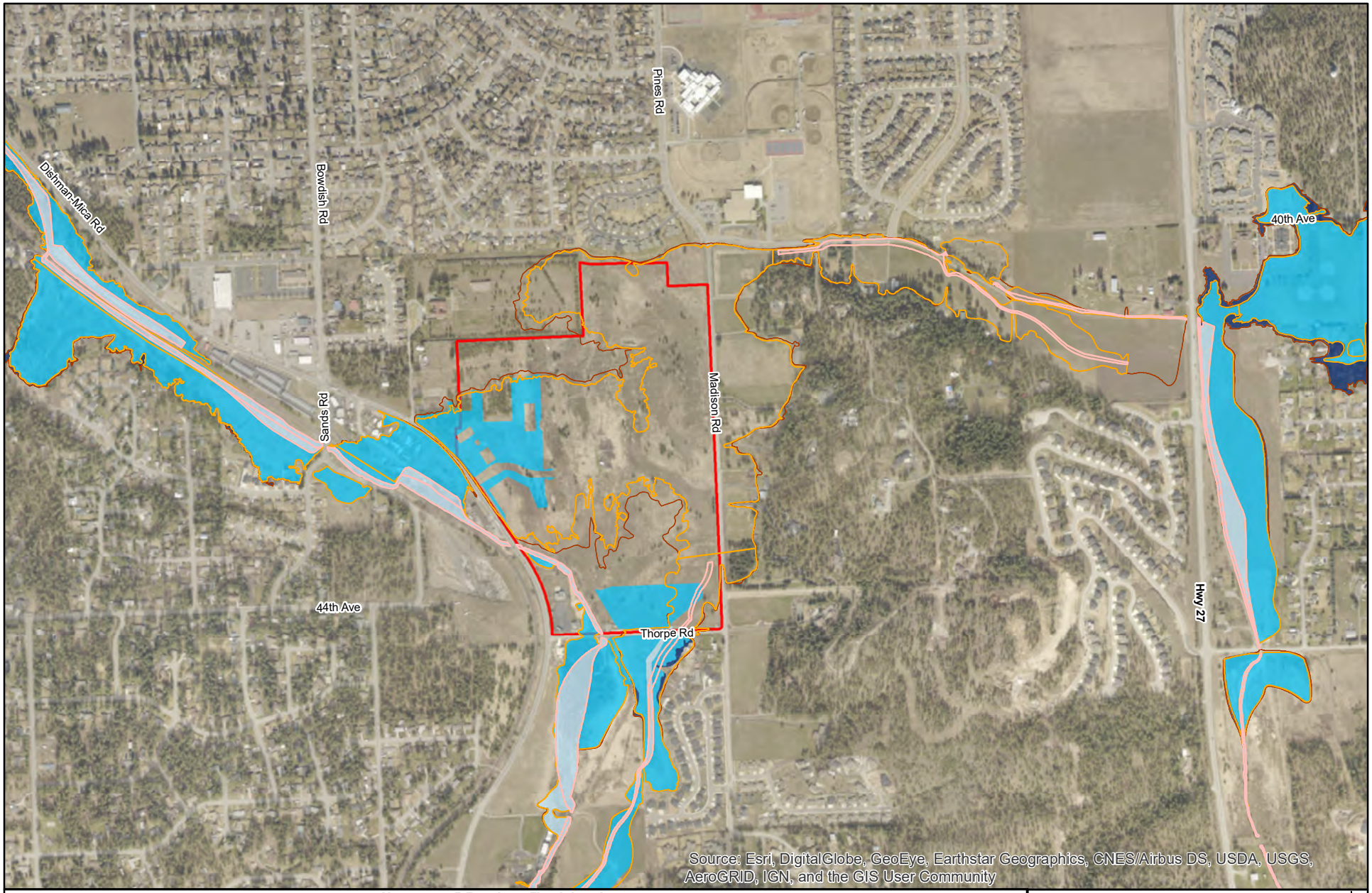
- Triangle Pond Property
- Residential Development Boundary
- Open Trench
- Replace 18" Culvert
- Box Culvert
- 2-48" Pipes
- Pipe Containing Gustin Ditch

Source: GIS data provided by Whipple Consulting, the City of Spokane Valley, and Spokane County.

Figure 3-7
Alternative 2A/2B Proposed Drainage & Floodwater Management Features
Painted Hills Residential Development DEIS

0 1,000 2,000 Feet

N



Existing Floodplain Areas

- Floodway
- 1 % Annual Chance Flood Hazard (100-year Floodplain)
- 0.2 % Annual Chance Flood Hazard (500-year Floodplain)

Alternative 2 Resulting Floodplain Areas

- Floodway
- 1 % Annual Chance Flood Hazard (100-year Floodplain)
- 0.2 % Annual Chance Flood Hazard (500-year Floodplain)

Source: GIS data provided by West Consultants, Inc., the City of Spokane Valley, and Spokane County.

Figure 3-8
Alternative 2A/2B- Existing & Future Floodplain Areas
Painted Hills Residential Development DEIS

0 0.2 0.4 Miles

N

3.2.3 Mitigation Measures

Under Alternatives 2a and 2b, the following mitigation measures will be required to control potential impacts from floodwaters on the built environment.

- An HOA would be established for the purpose of managing a maintenance program for open spaces and infrastructure throughout the project, including the on-site flood and stormwater infrastructure.
- An O&M Manual will be established for the HOA and will govern the management and maintenance of all stormwater and floodwater management facilities (See Appendix E. Operation and Maintenance Manual). This O&M Manual provides detailed maintenance requirements for all critical storm and flood water infrastructure elements, which include:
    - Vegetation and erosion control maintenance of all on-site open space areas
    - Catch basins and stormwater manholes throughout the project
    - Cross culverts (18-inch) and flap gates from Madison Road
    - Bio-infiltration swale
    - Roadside swales
    - Settling pond
    - Infiltration field and drywells
    - Access roads and parking pads (to allow for the parking of maintenance vehicles)
    - 36-inch storm pipe within the Gustin Ditch (off-site improvement)
    - Triangle pond improvements including drywells and gravel access maintenance road

- The HOA will be responsible for securing a "contracted entity" (CE) for long-term maintenance of critical infrastructure. Responsibilities of the CE will include:
    - Annually inspecting the pipe openings on each end to ensure there is no blockage or damage to the ends;
    - Every three years or after substantial runoff, performing a TV inspection of the pipe looking for blockages, damage, etc. Visual inspection can be made at pipe manhole locations by authorized maintenance personnel.
    - Removing sediment build-up from the 48-inch pipes installed with the project.
    - Repairing any sections of damaged pipe,
    - Visually inspecting the concrete channel, headwalls, and trash racks for damage or corrosion that would compromise the trash rack integrity twice per year.
    - In August or September, prior to each rainy season, inspect each trash rack to ensure that there is no debris present and, if so, clear the debris.
    - Following large storm events or rapid snow melt events perform a visual inspection and remove any deleterious debris and trash.

- A sinking fund for the repair and maintenance of critical floodwater management infrastructure will be established and maintained in perpetuity to ensure the long-term viability and capacity of the HOA to maintain the critical flood infrastructure. The required maintenance and replacement items for floodwater infrastructure are included in detail in the O&M Manual in Appendix E.

- A performance surety bond will be required by the City of Spokane Valley during the construction of the facility, to ensure its completion.

3.2.4 Indirect Effects

Potential indirect effects could result from the removal of the 100-year floodplain designation from approximately 44 acres of off-site properties. By reducing regulatory and financial barriers to development of these off-site properties, Alternatives 2a and 2b could indirectly enhance and facilitate the development of these off-site properties, which are predominantly zoned for low density residential use by the City and County. Environmental impacts of those off-site developments would be addressed through individual local regulatory and SEPA reviews.

3.2.5 Cumulative Effects

No cumulative effects are anticipated when considering the proposed action alternatives and other activities in the project vicinity.

3.3 TRANSPORTATION

In conjunction with the land use application that was submitted to the City for the Painted Hills PRD project (Alternative 2a), a traffic impact analysis (TIA) was completed on September 14, 2016 by Whipple. The TIA is incorporated into this DEIS by reference and includes detailed information regarding existing (2015) and future (2025) traffic conditions surrounding the Painted Hills site. (See Appendix F)

Future traffic conditions were reported both *with and without* implementation of the PRD project to determine the extent to which the PRD project might be responsible for any level-of-service (LOS) deficiencies on the local transportation network. The TIA uses trip generation estimates for the project based on specific land use code categories from the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 9th Edition.* From those estimates, the TIA evaluates how study intersections perform under current and future conditions relative to city-adopted LOS standards. The land uses designated for the project in the TIA and the corresponding ITE codes are provided in Table 3-1.

Table 3-1: Transportation Impact Analysis Land Use Types (TIA Table 5)

Description	Number of Units / KSF	ITE Land Use Code
Cottage Style Single Family Lots	52 Units	Residential Townhouses — 230
Single Family Residential	206 Units	Single Family Residential — 210
Single Family Residential Estate Type	42 Units	Single Family Residential — 210
Apartments	228 Units	Apartments — 220
Apartments (mixed use) (North)	52 units	Apartments — 220
Commercial Development (North)	13.4 KSF	Shopping Center — 820
Commercial Development (South)	9.0 KSF	Shopping Center — 820
Existing Restaurant (South)	4.0 KSF	Quality Restaurant — 931

To supplement the 2016 TIA, Whipple prepared a letter, dated November 13, 2018, addressed to Ray Wright at the City of Spokane Valley, which concludes that the traffic volumes recorded for the Painted Hills PRD in the 2016 TIA remain reasonably accurate (with a variation of approximately one percent or less in volume) based on recent traffic counts collected. Therefore, the findings from the 2016 TIA continue to present a reasonable assessment of the expected impacts of the Painted Hills PRD on the surrounding road network. A summary of the 2016 TIA findings is described further below.

The standards below are established by the City consistent with Chapter 5 of the Spokane Valley Comprehensive Plan and Chapter 3 of the Spokane Valley Street Standards. LOS designations provide a means for evaluating operational performance of intersections. As identified in Figure 29 of the Spokane Valley Comprehensive Plan, LOS designations are described as noted in Table 3-2.

Table 3-2: Level of Service Descriptions

Level of Service	Description
A	Free-flowing conditions
B	Stable operating conditions
C	Stable operating conditions, but individual motorists are affected by the interaction with other motorists
D	High density of motorists, but stable flow
E	Near-capacity operations with speeds reduced to a low but uniform speed
F	Over capacity with long delays

As noted on page 5-85 of the Spokane Valley Comprehensive Plan, the City requires the following minimum LOS within the City:

- A minimum of LOS D is required for major arterial corridors.
- A minimum of LOS D is required for signalized intersections not on major arterial corridors.
- A minimum of LOS E is required for unsignalized intersections (LOS F is acceptable if the peak hour traffic signal warrant is not met).

3.3.1 Affected Environment

3.3.1.1 Study Area

The overall transportation network in the vicinity of the Painted Hills site consists of a state route, urban principal arterials, collectors, and local access roads as described further below.

Dishman-Mica Road extends south and southeast from Sprague Avenue to SR 27, for approximately 7.4 miles. Dishman-Mica Road is a northwest/southeast two-way, two-and five-lane minor-principal arterial. Dishman-Mica Road is an arterial that serves the residential neighborhoods extending from Sprague Avenue to Bowdish Road. Dishman-Mica Road intersects with 8th Avenue, 16th Avenue, 32nd Avenue, University/Schafer Road and Bowdish Road with small commercial uses located at or near the intersections of 16th Avenue, University Road and Bowdish Road. Dishman-Mica Road then winds through a rural area before intersecting with SR 27. Within the study area the posted speed limit on Dishman-Mica Road is 45 miles per hour (MPH).

University Road is a north/south, two-way minor arterial, ranging from two to five lanes, that serves a large residential area south of Interstate 90. It runs south from Nora Avenue, and crosses several major arterials, until it intersects with Dishman-Mica Road. University Road, between Mission Avenue and Sprague Avenue, is a three-lane roadway. From Sprague Avenue to 4th Avenue, it transitions to a five-lane roadway. South of 4th Avenue to Dishman-Mica Road, it reduces to a four-lane roadway and continues to Dishman-Mica Road where the roadway transitions into Schafer Road. University Road is posted at a 35 MPH speed limit

within the study area. The University Road section includes bike lanes from 16th Avenue to Mission Avenue, and sidewalks from Dishman-Mica Road to Mission Avenue.

Schafer Road is a north/south, two-way, two-lane, collector that serves a large residential area south of Dishman-Mica Road. Schafer Road runs south from Dishman-Mica Road to 44th Avenue. Schafer Road, between Dishman-Mica Road and 44th Avenue is a two-lane roadway with shoulders, but no sidewalk or bike lanes. Schafer Road is posted at 35 MPH within the study area.

Bowdish Road is a north/south, two-way, two-lane, minor arterial serving a large residential area south of Interstate 90. Bowdish Road runs south from Mission Avenue, and crosses several major arterials, until it intersects with Sands Road. Bowdish Road, between Mission Avenue and Dishman-Mica Road is a two-lane roadway. South of Dishman-Mica Road, Bowdish Road crosses the Union Pacific Railway and becomes a local access roadway. Sands Road branches off Bowdish Road and continues to 44th Avenue. Bowdish Road is posted at 25 MPH on the local access portion, and is posted on the minor arterial as 35 MPH.

SR 27 is a north/south, two-way State Highway ranging from two to five lanes. SR 27 extends south from Spokane Valley to Pullman, Washington and serves the many small farming communities of the Palouse. Within the City of Spokane Valley, SR 27 follows the Pines Road alignment between Trent Avenue and 16th Avenue. South of 16th Avenue, SR 27 shifts to the Blake Road alignment and serves the surrounding urban residential uses and a small cluster of commercial uses at the intersection of SR 27 and 32nd Avenue. From Trent Avenue to 16th Avenue, the posted speed limit is 35 MPH. From 16th Avenue to the 41st Avenue alignment, the posted speed limit is 45 MPH. Beyond 41st Avenue, SR 27 generally has a speed limit of 55 MPH.

16th Avenue is an east/west, two-way, two- and three-lane minor arterial that extends east from Bluff Drive (west of Dishman-Mica Road) through the City of Spokane Valley to Shamrock Street (South of Shelley Lake). 16th Avenue generally serves residential land uses as well as commercial land uses located at the intersections of arterials. The posted speed limit on 16th Avenue is 35 MPH with the exception of the University Elementary, McDonald Elementary, and Evergreen Jr. High School zones where the posted speed limit is 20 MPH with beacons. The 16th Avenue Road section from Dishman-Mica Road to Sullivan Road includes sidewalks and bike lanes.

32nd Avenue is an east/west, two-way principle arterial ranging from two to four lanes. 32nd Avenue extends east from Dishman-Mica Road to Sullivan Road and serves mostly urban residential uses, but also provides access for commercial uses and University High School. The posted speed limit is 35 MPH with the exception of University High School zone where the speed limit is 20 MPH when children are present. The 32nd Avenue road section has sidewalks from Dishman-Mica Road to SR 27, and bike lanes from University Road to SR 27. Additional sidewalks and bike lanes are present from Evergreen Road to Best Road.

Pines Road is a north/south two-way, two-, three-, and five-lane state route and collector that extends south from Trent Avenue to 40th Avenue. From 16th Avenue to 32nd Avenue, Pines Road is a proposed collector. From 32nd Avenue to 40th Avenue, Pines Road is a collector.

Pines Road serves residential uses and a commercial land use located on the northwest corner of Pines Road and 32nd Avenue. The speed limit on Pines Road is 35 MPH, with the exception of the South Pines Elementary school zone, where the speed limit is 20 MPH with flashing beacons. The Pines Road roadway section includes sidewalks along its entire length and includes bike lanes from 22nd Avenue to 32nd Avenue.

Evergreen Road is a north/south, two-way urban principle arterial ranging from two to six lanes. Evergreen Road extends south from Indiana Avenue to 32nd Avenue and intersects with eight other minor and major arterials in the City of Spokane Valley. From Indiana Avenue to Interstate 90, Evergreen Road has six lanes. From Interstate 90 to 4th Avenue, Evergreen Road is a five-lane road. From 4th Avenue to 16th Avenue, Evergreen is a three-lane road. From 16th Avenue to 32nd Avenue, Evergreen Road is a two-lane roadway. The area surrounding Evergreen Road is generally single-family residential uses and small pockets of commercial uses located at or near the arterial intersections. The posted speed limit on Evergreen Road is 35 MPH. Evergreen Road includes sidewalk from 32nd Avenue to 24th Avenue and from 16th to Indiana. Evergreen Road has a bike lane from 32nd Avenue to Sprague Avenue.

Sullivan Road is a north/south, two-way, two-, three- and five-lane urban principal arterial that extends south from Wellesley Avenue to just beyond 32nd Avenue. Sullivan Road serves East Valley High School and Central Valley High School, residential, and commercial uses. The posted speed limit is 35 MPH. The Sullivan Road roadway section includes sidewalks and bike lanes from 16th Avenue to 32nd Avenue, and sidewalks from 16th Avenue to Wellesley Avenue.

Madison Road is a north/south, two-way, two-lane collector road that extends south from the intersection of Pines Road and 40th Avenue, which is northeast of the site, through Thorpe Road, until eventually changing into Mohawk Drive. Madison Road is posted at 35 MPH and provides access to residential roads on its east and west side. Madison Road has no sidewalks or bike lanes.

Thorpe Road is an east/west, two-way, two-lane collector that extends east from Dishman-Mica Road to Madison Road. Thorpe Road generally serves commercial land uses. The posted speed limit on Thorpe Road is 35 MPH.

3.3.1.2 Existing Conditions

Consistent with City procedures, the scope of the TIA was determined after meetings with Public Works staff, the Washington Department of Transportation (WSDOT), Spokane County transportation staff and the public. As determined through this scoping process, the applicant studied both AM and PM peak hour operations. The AM peak hour data was generally collected between 7:00 AM and 9:00 AM, and PM peak hour data was collected between 4:00 PM and 6:00 PM. For the TIA, the following intersections were studied. See Figure 3-9 for a map illustrating the Traffic Study Intersections relative to the Painted Hills site.

- 32nd Avenue & University Road
- Dishman-Mica Road & University/Schafer Road
- 32nd Avenue & Bowdish Road
- Dishman-Mica Road & Bowdish

- Dishman-Mica Road & Apartment. Access (Proposed)
- Dishman-Mica Road & Sundown Drive (Proposed)
- Dishman-Mica Road & S. Commercial. Access (Proposed)
- Dishman-Mica Road & Thorpe Road
- Thorpe Road & Commercial. Access (Proposed)
- 16th Avenue & Pines Road
- 16th Avenue & SR 27
- 32nd Avenue & Pines Road
- Madison Road & Painted Hills Avenue (Proposed)
- Madison Road & 41st Avenue (Proposed)
- Madison Road & 43rd Avenue (Proposed)
- Madison Road & 44th Avenue (Proposed)
- Madison Road & Thorpe Road
- 32nd Avenue & SR 27
- 32nd Avenue & Evergreen Road
- 32nd Avenue & Sullivan Road

Figure 3-9: Study Area Intersections

Using methods from the *2010 Highway Capacity Manual* as implemented in Synchro, *version 9 – Build 902,* the TIA reported existing operational conditions as noted in Table 3-3. Because some of the study intersections do not yet exist and would be constructed as a part of the Painted Hills PRD project, those intersections are not included in Table 3-3.

Table 3-3: Year 2015 Existing Intersections Levels of Service (Table 2 of TIA)

INTERSECTION **(S) signalized** **(U) unsignalized**		**AM Peak Hour**		**PM Peak Hour**	
		Delay (sec)	**LOS**	**Delay (sec)**	**LOS**
32nd Avenue & University Road	S	11.5	B	11.4	B
Dishman-Mica Road &University/Schafer Road	S	15.7	B	16.5	B
32nd Avenue & Bowdish Road	S	13.1	B	11.7	B
Dishman-Mica Road & Bowdish Road	S	12.0	B	11.1	B
Dishman-Mica Road & Thorpe Road	U	10.7	B	10.4	B
16th Avenue & Pines Road	U	20.2	C	32.4	D
16th Avenue & SR 27	S	27.7	C	25.5	C
32nd Avenue & Pines Road	S	23.5	C	17.7	B
Madison Road & Thorpe Road	U	11.0	B	9.5	A
32nd Avenue & SR 27	S	19.6	B	23.0	C
32nd Avenue & Evergreen Road	U	10.6	B	17.7	C
32nd Avenue & Sullivan Road	U	11.1	B	12.1	B

3.3.2 Environmental Consequences

3.3.2.1 Alternative 1 – No Action

As a part of the 2016 TIA, Whipple evaluated traffic operations at the study intersections in the year 2025 without implementation of the Painted Hills PRD project. This 2025 no-build scenario reflects the anticipated conditions that would occur under Alternative 1.

In order to approximate traffic volumes under this no-build scenario, Whipple assumed that regional traffic volumes would grow over the 10-year evaluation period (from 2015 to 2025) at a rate of 1.1 percent per year. In addition to this general 1.1 percent growth factor, the TIA also incorporated traffic volumes from other development projects that had not been built but had been approved by the City and Spokane County for development.

These approved and vested projects, and their associated traffic volumes are identified in Table 3-4.

Table 3-4: Background Projects and Vested AM & PM Trips Table 4 of TIA)

Background Project	Remaining Lots/ units	AM Peak. Hour Trips			PM Peak Hour Trips		
		Total	In	Out	Total	In	Out
Paxton Addition	13 lots	10	3	7	13	8	9
The Creek at Chester	44 lots	33	9	24	44	29	15
Pine Valley Ranch Apts.	132 units	69	14	55	90	59	31
Elk Ridge Heights	78 lots	59	15	44	79	51	28
Total Vested	**-**	**171**	**41**	**130**	**226**	**147**	**83**

As noted in Table 3-5, acceptable LOS were projected for all study intersections in the year 2025 for Alternative 1, except the intersection of 16th Avenue and Pines Road. At this intersection, the southbound approach experienced delays that exceeded the City's level of service threshold for the PM peak hour. However, it is anticipated that paired signalized intersections will be installed at this location that will improve conditions to an LOS C in this location. No other system deficiencies were identified under Alternative 1.

Table 3-5: 2025 Levels of Service, without the Project, with the Background Projects (Table 7 of TIA)

INTERSECTION (S) signalized (U) unsignalized		AM Peak Hour		PM Peak Hour	
		Delay (sec)	LOS	Delay (sec)	LOS
32nd Avenue & University Road	S	12.2	B	11.9	B
Dishman-Mica Road & University/Schafer Road	S	16.4	B	17.2	B
32nd Avenue & Bowdish Road	S	15.2	B	13.5	B
Dishman-Mica Road & Bowdish Road	S	12.8	B	11.8	B
Dishman-Mica Road & Thorpe Road	U	11.3	B	10.9	B
16th Avenue & Pines Road ▪ Paired Signalized Intersections	U (S)	26.2 (30.5)	D (C)	66.4 (33.7)	F (C)
16th Avenue & SR 27 ▪ Paired Signalized Intersections	S	33.6 (42.3)	C (D)	30.3 (28.4)	C (C)
32nd Avenue & Pines Road	S	27.0	C	21.9	C
Madison Road & Thorpe Road	U	12.1	B	9.9	A
32nd Avenue & SR 27	S	22.3	C	28.2	C
32nd Avenue & Evergreen Road	U	11.2	B	23.6	C
32nd Avenue & Sullivan Road	U	12.0	B	13.2	B

Construction-Related Project Impacts

As no construction would occur under Alternative 1, there would be no construction-related traffic impacts that could result from this alternative.

3.3.2.2 Alternative 2a – Planned Residential Development High Infiltration Rate

The TIA analyzes the ability of the scoped intersections to meet adopted LOS standards in the year 2025 after incorporating the background growth rate, background projects, and the anticipated project trips, including the conversion of the clubhouse into a 4,000 square feet (SF) restaurant facility.

It is anticipated that the Painted Hills PRD Alternatives 2a would generate new trip volumes as noted in Table 3-6, which is a copy of Table 14 from the TIA). It should be noted that, while the 4,000 SF restaurant trips were *forecasted* in the 2016 TIA, the restaurant use has now occupied the clubhouse structure and is in operation (Whipple, 2016).

The proposed development new trips generated on the transportation system are shown in the table below.

Table 3-6: Estimated Trip Generation – Alternative 2a

Land Use Code (LUC)	AM Peak Hour Trips			PM Peak Hour Trips		
	Vol. per LUC	Directional Distribution		Vol. per LUC	Directional Distribution	
		In	Out		In	Out
LUC #230 Townhouses (Cottage Style) (Table 6)	23	4	19	28	19	9
LUC #210 Single Family Residential (Table 7)	155	39	116	201	127	74
LUC #210 SFR (Estate Lots) (Table 8)	32	8	24	42	26	16
LUC #220 Apartment (Table 9)	117	23	94	138	90	48
LUC #220 Apartment (mixed use) (Table 10)	27	5	22	32	20	12
LUC #820 Shopping Center (Table 11)	13	8	5	40	20	20
LUC #820 Shopping Center (Table 12)	9	6	3	34	16	18
LUC #931 Quality Restaurant (Table 13)	4	2	2	30	20	10
Total	380	95	285	545	338	207

Average Daily Trip Ends (ADT)		
Land Use Code (LUC)	Rate	ADT
LUC #230 Townhouses (Cottage Style) (Table 6)	-	303
LUC #210 Single Family Residential (Table 7)	-	1,962
LUC #210 SFR (Estate Lots) (Table 8)	-	400
LUC #220 Apartment (Table 9)	-	1,517
LUC #220 Apartment (mixed use) (Table 10)	-	346
LUC #820 Shopping Center (Table 11)	-	573
LUC #820 Shopping Center (Table 12)		385
LUC #931 Quality Restaurant (Table 13)		360
Total	-	5,846

It should also be noted that, because of the mixed-use nature of Alternative 2a, a trip internalization factor is applied to the trip generation rates of the residential uses that would occur under this alternative. That internalization factor applies a reduction or discount factor on the typical generation rate for the residential uses to address the fact that some of the retail

and service needs of the residents of the PRD project will be satisfied by the 22,400 SF of commercial space located within the project. This internalization factor varies by residential use type but ranges between approximately 2.4 and 3.0 percent of the PM peak hour trip generation for the residential uses. Based on these assumptions and application of the ITE manual, Alternative 2 is estimated to generate vehicular trips consistent with the figures represented in Table 3-6.

As shown above, Alternative 2a is anticipated to generate 380 new AM peak hour trips, with 95 new trips entering the site, and 285 new trips exiting the site via the eight access opportunities previously noted. In the PM peak hour, the project is anticipated to generate 545 new trips, with 338 new trips entering the site, and 207 new trips existing the site.

When adding the trips generated from Alternative 2a to the local road system, considering background traffic volumes and vested project trips, the TIA determined that all intersections can meet City-adopted LOS standards, except for the intersection of 16th Avenue and Pines Road, which also failed to meet LOS standards in the no-build scenario (Alternative 1).

Table 3-7: Year 2025 Levels of Service, with the Project, with the Background Projects (Table 19 of the TIA)

INTERSECTION (S) signalized (U) unsignalized		AM Peak Hour		PM Peak Hour	
		Delay (sec)	LOS	Delay (sec)	LOS
32nd Avenue & University Road	S	12.4	B	12.4	B
Dishman-Mica Road & University/Schafer Road	S	16.9	B	18.3	B
32nd Avenue & Bowdish Road	S	15.6	B	14.7	B
Dishman-Mica Road & Bowdish Road	S	15.7	B	13.3	B
Dishman-Mica Road & Apt. Access	U	13.2	B	10.4	B
Dishman-Mica Road & Sundown Drive	U	12.6	B	10.8	B
Dishman- Mica Road & S. Comm. Access	U	11.5	B	11.3	B
Dishman-Mica Road & Thorpe Road	U	11.9	B	11.9	B
Thorpe Road & Comm. Access	U	9.0	A	9.1	A
16th Avenue & Pines Road • Paired Signalized Intersections	U (S)	27.3 (31.1)	D (C)	**99.2** (34.8)	**F** (C)
16th Avenue & SR 27 • Paired Signalized Intersections	S	35.9 (44.6)	D (D)	31.3 (28.6)	C (C)
32nd Avenue & Pines Road • NB Right Turn	S	32.3 (27.6)	C (C)	26.0 (24.7)	C (C)
Madison Road & Painted Hills Avenue	U	11.1	B	10.8	B
Madison Road & 41' Avenue	U	10.7	B	10.5	B
Madison Road & 43rd Avenue	U	10.5	B	10.2	B
Madison Road & 44th Avenue	U	9.7	A	9.6	A
Madison Road & Thorpe Road	U	12.4	B	10.4	B
32nd Avenue & SR 27	S	23.2	C	29.8	C
32nd Avenue & Evergreen Road	U	11.6	B	26.1	D
32nd Avenue & Sullivan Road	U	12.3	B	13.5	B

Alternative 2a extends the delay experienced at this intersection from 66.4 seconds during the PM peak hour under background conditions to 99.2 seconds. These results are noted in Table 3-7 above. Therefore, the addition of trips from Alternative 2a does not create any new LOS failures, but does result in additional delays at the intersection of 16th Avenue and Pines Road.

In addition to the LOS failure at the intersection of 16th and Pines Road, the TIA found that there are three instances in the 2025 forecast in which the stacking queues at intersections exceed allowable City standards. These are described in detail on Page 54 of the 2016 TIA and are as follows:

16th Avenue & SR 27

- The eastbound through approach is expected to go from a queue length of 586 feet to 645 feet, an increase of 59 feet. This reported queue exceeds the available space by 526 feet.
- The westbound through approach is expected to go from a queue length of 310 feet to 319 feet, an increase of 9 feet. This reported queue exceeds the available space by 149 feet.

32nd Avenue & Pines Road

- The eastbound through approach is expected to go from a queue length of 562 feet to 708 feet, an increase of 146 feet. This reported queue exceeds the available space by 218 feet.

32nd Avenue & SR 27

- The westbound through approach is expected to go from a queue length of 470 feet to 497 feet, an increase of 27 feet. This reported queue exceeds the available space by 305 feet.
- The westbound left turn approach is expected to go from a queue length of 246 feet to 238 feet, a decrease of 8 feet. This reported queue exceeds the available space by 88 feet.

As noted on Page 72 of the TIA, the study also considered traffic operations in the year 2030, which was considered "buildout plus 5 years" at the time of the study. The TIA included the following findings regarding traffic operations in 2030 resulting from the Painted Hills PRD project, including background growth and vested projects.

- There is a LOS deficiency identified at the intersection of 16th Avenue & Pines Road, as the southbound approach is estimated to have 133.7 seconds of average delay.
- The LOS deficiency identified at the intersection of 16th Avenue & Pines Road, originally caused by the background trips and worsened by this project, can be brought back to an acceptable LOS by signalizing the intersection and pairing the signal timing with the signal at the intersection of 16th Avenue & SR 27.
- There are five future queue deficiencies at three intersections with two of those intersections operating at acceptable LOS. These deficiencies were the result of the background growth rate and the background projects as identified within this study and are only incrementally worsened or kept the same by this project. A review of the City of Spokane Valley Transportation Improvement Plan (TIP), shows that there are no public improvement projects identified to mitigate the discrepancies at the following intersections and movements:
    - 16th Avenue & SR 27, Eastbound Thru, Westbound Thru
    - 32nd Avenue & Pines Road, Eastbound Thru
- 32nd Avenue & SR 27, WB Thru, Westbound Left Turn

- ***Construction-Related Project Impacts (Alternative 2a)***

It is anticipated that the project will result in construction-related traffic associated with site grading and site development activities. These impacts are discussed in a November 13, 2018 memorandum prepared by Whipple. As noted in the memorandum, it is anticipated that mass grading activities will require the placement and compaction of 328,289 cubic yards (CY) of material. This material will need to be imported to the site as "loose" dirt which will require compaction on the site. Whipple estimates that, due to a 15 percent shrink/swell factor, the required loose fill import volume is approximately 377,532 CY.

It is assumed that site grading will occur over an approximately four-year period and that the material will be delivered via dump trucks that carry a volume of approximately 30 CY. Based on these assumptions, it is estimated that approximately 12,584 dump trucks will be required to fill the site over a four-year period. This equates to 25,168 truck trips to and from the site.

Below is a more detailed analysis of potential impacts of the fill material.

Truck Volumes, Traffic Operations and Phasing

Dump truck trips to the site could occur at any time throughout the year during the initial mass grading period of the project, which is assumed to occur over an approximately four year period at the onset of the project.[4] During this period, fill material could be accepted year round and stockpiled when/as necessary Accordingly, if truck trips were to occur consistently during work days over this four-year period approximately 11.24 trucks per day would arrive at the site or approximately 22.47 truck trips per day, assuming 280 work days per year.

If truck trips to the site were significantly curtailed or limited during the cold weather months, then a more conservative annual work window of between April 1st and November 15th could be considered when estimating truck volumes. In this scenario, an approximately 31-week annual mass grading period could occur with approximately 155 business days. In that scenario, it is estimated that the project fill activities will result in approximately 20.3 trucks per day / 40.59 truck trips per day during the initial four-year annual work window.

As a consequence, it can be reasonably deducted that truck volumes over the initial fill period for the project would be between approximately 11.24 and 22.3 trucks per day and between approximately 22.47 and 40.59 truck trips per day.

The haul route for these dump trucks will be via Dishman-Mica Road, a Principal Arterial that experiences a total Average Daily Traffic (ADT) of approximately 22,700 trips near Appleway Avenue and 4,800 ADT near Thorpe Road. Therefore, the dump truck-related trips are estimated to represent less than one percent of the ADT of this facility on average. Dishman-Mica Road has been designated by the City as a Principal Arterial.

[4] The first year improvements will include the establishment of stormwater / floodwater conveyance and management facilities to ensure that stormwaters and floodwaters are managed and recharge on site. The four-year initial rough grading period is different than the full buildout period of the project, which is estimated occur over a period of 10-years, including the final construction of buildings on the site.

If the mass grading schedule for the project were prolonged beyond the estimated four-year window, the approximate number of truck trips per day would decrease respective to the mass grading time period.

It is anticipated that truck deliveries would occur during daylight hours and within the City of Spokane Valley's allowed construction window of 7 AM to 10 PM, per SVMC 7.05.040(k)(3).

Safety

Truck trips will enter and exit the site through controlled accesses from Dishman-Mica Road. These accesses will be designed with stabilized entrances to reduce the potential for dirt and construction debris to occur on the road that could pose as a hazard to motorists and bicyclists. Access points on Dishman-Mica Road will be designed to ensure safe sight distances per the American Association of State Highway and Transportation Officials (AASHTO) and local standards to ensure that turning movements into and out of the site will have adequate vision clearance.

3.3.2.3 Alternative 2b – Planned Residential Development—Low Infiltration Scenario

The total traffic generation resulting from the land uses of Alternative 2b is nearly identical to Alternative 2a, with a slight overall decreased number of trips. Table 3-8 illustrates the land use differences between these two PRD variations. As a consequence, the impacts and necessary mitigation for Alternative 2b are assumed to be identical to Alternative 2a.

Table 3-8: Alternative 2A and 2B ADT Comparison – PM Peak Hour Trips[5]

Land Use	Alternative 2a		Alternative 2b		Net Difference
	Units / ksf	PM Peak Hr Trips	Units / ksf	PM Peak Hr Trips	
Cottages	52	52	0	0	-52
SFR – Standard	206	201	224	217	+16
SFR – Estate	42	42	48	48	+6
MFR	228	138	273	174	+36
MFR–Mixed Use	52	32	52	32	0
Commercial N	13.4	26	13.4	26	0
Commercial S	9	34	9	34	0
Commercial S	4	30	4	30	0
Total		**555**		**531**	**-24**

Construction Related Impacts

Alternative 2b would generate significantly fewer construction related trips than Alternative 2a due to the greater floodplain storage volume required on the site and the reduced need for imported fill. Specifically, Alternative 2b would require approximately 104,630 CY of

[5] **Note:** All trip generation rates included in this table are from the Institute of Transportation Engineers (ITE) Trip Generation Manual, 9th edition, the manual in place on February 23, 2017 when the traffic concurrency approval for the PRD Alternative 2a was issued by the City. The ITE 10th edition has reduced the trip generation rate for multi-family residential from 0.65 to 0.45 PM peak hour trips per unit. This is the only ITE manual change for planned uses within the PRD.

imported fill material on the site compared to 328,289 CY of imported fill material for Alternative 2a.

Because the total net fill volume for Alternative 2b is only approximately 31% of the total net fill volume anticipated with Alternative 2a, it is calculated that the truck trips associated with Alternative 2b will be approximately 8,022 total truck trips.

As with Alternative 2a, the haul route truck trips under Alternative 2b will be via Dishman-Mica Road, an arterial facility.

Construction-related Impacts

Like Alternative 2a, Alternative 2b would also require a substantial amount of fill material to bring development areas above the 100-year base flood elevation. Alternative 2b would require less fill to be brought in from off-site than Alternative 2a, because material excavated to create the much larger Alternative 2b infiltration pond would be used elsewhere on the site. The total required imported fill with Alternative 2b is approximately 104,630 CY. Using the same 15 percent shrink/swell factor applied to determine the amount of "loose" material that would need to be imported to the site under Alternative 2a, it is estimated that a total of approximately 117,697 CY of fill material would need to be imported under Alternative 2b.

Truck Volumes, Traffic Operations and Phasing

Based on an average dump truck volume of approximately 30 CY, it is estimated that 3,923 dump trucks will be required to bring the material to the site or 7,846 dump truck trips to and from the site. Assuming this material is delivered to the site over a four-year period, with 280 workdays per year, it is assumed that approximately 3.5 trucks per day would arrive at the site, or approximately seven truck trips per day over this period.

If the mass grading period each year is condensed to the April 1 to November 15th time frame, then the estimated number of trips per day in each of the first four years of development is approximately 6.3 trucks per day or 12.6 truck trips per day.

As with Alternative 2a, the haul route for these dump trucks will be via Dishman-Mica Road, a Principal Arterial that experiences a total ADT of approximately 22,700 trips near Appleway Avenue and 4,800 ADT near Thorpe Road. Therefore, the dump truck-related trips are estimated to be less than one percent of the ADT of this facility on average.

As with Alternative 2a, truck trips would occur generally between 7 AM to 10 PM, per SVMC 7.05.040(k)(3), consistent with City of Spokane Valley allowed construction work windows. Therefore it is estimated that between approximately 3.5 and 6.3 trucks per day and between approximately seven and 12.6 truck trips per day would result from Alternative 2b.

Safety

As with Alternative 2a, truck trips will enter and exit the site through controlled accesses from Dishman-Mica Road. These accesses will be designed with stabilized rock entrances to reduce the potential for dirt and construction debris to occur on the road that could pose as a hazard to motorists and bicyclists. Access points on Dishman-Mica Road will be designed to ensure safe sight distances per the American Association of State Highway and Transportation Officials (AASHTO) and local standards to ensure that turning movements into and out of the site will have adequate vision clearance.

3.3.3 Mitigation Measures

Alternative 1

No mitigation would occur under Alternative 1, as no action would occur on the site. However, it is assumed that background conditions on the site would result in a LOS failure at 16th Avenue and Pines Road that would require the city or others to signalize the intersection and pair the signal timing with the signal at 16th Avenue and SR 27.

Alternative 2a

Based upon the conclusions within the TIA, it is recommended that the following mitigation measures would be implemented in conjunction with the construction of Alternative 2a.

- Frontage improvements to Dishman-Mica Road, Thorpe Road, and Madison Road shall be completed in conjunction with site development.
- A two-way, left-turn lane will be installed on Dishman-Mica Road north of the Chester Creek Bridge.
- Bicycle and pedestrian facilities per the City of Spokane Valley Bicycle and Pedestrian Master Plan will be completed along the site frontages.
- A northbound right-turn lane should be considered at the intersection of 32nd Avenue & Pines Road. Coordination with the City of Spokane Valley and the Central Valley School District will be required.
- When warranted by the development conditions, the project should contribute its participating percentage in a project to signalize the intersection of 16th Avenue & Pines Road.
- A haul route plan will be developed and managed to ensure that truck trips to and from the site during construction use Dishman-Mica Road for site access over the duration of site construction.
- Stabilized construction entrances will be provided to minimize the potential for dirt and debris to be carried onto the road by exiting construction vehicles.

Alternative 2b

It is anticipated that the mitigation measures required with the implementation of Alternative 2b would be the same as those listed in Alternative 2a above.

3.3.4 Cumulative Effects

Vested and unbuilt projects were considered in the background traffic volumes that were incorporated into the TIA, thereby addressing the potential cumulative transportation effects of the action alternatives when concerned with other on-going developments. The other regional projects that were considered in the TIA and their associated traffic volumes are noted in Table 3-9.

Table 3-9: Background Projects and Vested AM & PM Trips

Background Project	Remaining Lots/ units	AM Peak. Hour Trips			PM Peak Hour Trips		
		Total	In	Out	Total	In	Out
Paxton Addition	13 lots	10	3	7	13	8	9
The Creek at Chester	44 lots	33	9	24	44	29	15
Pine Valley Ranch Apts.	132 units	69	14	55	90	59	31
Elk Ridge Heights	78 lots	59	15	44	79	51	28
Total Vested	**-**	**171**	**41**	**130**	**226**	**147**	**83**

3.4 ENVIRONMENTAL ELEMENTS NOT ANALYZED IN DETAIL

3.4.1 Air Quality

3.4.1.1 Affected Environment

Air quality can directly affect human health with cardiovascular and other health complications resulting from exposure to air pollutants. These can include human-generated pollutants (carbon monoxide, carbon dioxide[CO2], and lead, from automobiles and industrial sources); naturally generated pollutants (fine particulate matter in forest fire smoke), or a combination of both. Dust and non-toxic nuisance odors are also a component of air quality.

The U.S. Environmental Protection Agency (EPA) sets National Ambient Air Quality Standards (NAAQS) for six criteria pollutants known to impact human health. The six criteria pollutants include carbon monoxide (CO), particulate matter (PM), ozone (O3), sulfur dioxide (SO2), lead (Pb), and nitrogen oxide (NOx). In the past, Spokane has been in nonattainment for both carbon monoxide (CO) and Particulate Matter (PM10).

In the Spokane region currently, there are two pollutants of primary concern, fine particulate matter (PM2.5) and ground-level ozone[6]. While industry contributes about 20 percent of the PM2.5 and ground-level ozone air pollution, most of the pollution in the Spokane area results from transportation (vehicle emissions) and home heating.

Ground-level ozone is not emitted directly into the air like other pollutants but is produced when NOx formed by combustion processes, and volatile organic compounds (VOCs) from many sources, combine. These ozone-producing pollutants come from local sources, such as cars, trucks, industrial boilers, power plants, paints, solvents, and other commercial and consumer products.

[6] https://www.spokanecleanair.org/air-quality

According to the Spokane Regional Clean Air Agency (SRCAA), during the winter months wood heating is the largest source of fine particle pollution (SRCAA 2019). Stable weather patterns typical of the winter in Spokane Valley trap smoke near the ground, intensifying the problem. SRCAA may restrict outdoor burning during periods of poor air quality. In addition, local fire officials issue outdoor burn restrictions during fire safety season.

Air quality in the Spokane region generally becomes worse during the winter heating season due to the presence of fine particles from wood fires and during the hot, summer months in which ozone levels increase and (in recent years) regional forest fires occur. The Spokane area is not currently in non-attainment for ozone, PM2.5 or PM10; however, over the past 10 years ozone concentrations have approached non-attainment levels[7].

Spokane Clean Air began monitoring for PM2.5 in 1999, shortly after the PM2.5 health-based standard was established by EPA8. The health-based standard for PM2.5 has been exceeded during the winter months due to wood stove smoke in 9 of the past 19 years, including 2013, 2014, 2015, and 2017. The health-based standard for PM2.5 has been exceeded in July, August, and/or September due to forest fire smoke in 2014, 2015, 2017 (16 days), and 2018 (13 days) (SRCAA, 2016, 2019).

In recognition of the effect of wood heating on air quality, Washington State has several laws addressing wood stoves including:

- RCW 70.94.450, which establishes the policy of the state to control, reduce, and prevent air pollution caused by wood stove emissions; encourages Ecology to educate the public about the effects of wood stove emissions and other heating alternatives; and promotes the desirability of achieving better emission performance and heating efficiency from wood stoves.
- RCW 70.94.455, which establishes standards for solid fuel burning devices and provides for the state building code to require an adequate source of heat other than wood stoves in all new and substantially remodeled residential and commercial construction.
- RCW 70.94.473, which provides that, during an air pollution episode, alternatives to wood burning will be used in buildings with alternative sources of heat, and for those without alternatives, only certified wood stoves can be used.

The City of Spokane Valley Municipal Code (Section 7.05.040 Nuisances Prohibited) requires the control of dust that could potentially cause a nuisance to City residents.

[7] https://www.spokanecleanair.org/documents/our_air/Ozone%20Trends%20Chart%20Jun%202017.jpg

[8] The PM2.5 health-based standard is 35 micrograms per cubic meter of air (equivalent to 100 on the AQI) averaged over 24 hours, midnight to midnight. Prior to 1999, monitoring was done for smoke and dust particles combined (PM10- Particulate Matter 10 microns in diameter and smaller). Particulate matter (PM) has been measured by Spokane Clean Air since health-based air quality standards were established in 1971. The first standard was for Total Suspended Particulates, then revised in 1987 to Particulate Matter 10 microns and smaller (PM10). In 1997, EPA established an additional standard for Fine Particles (PM2.5).

Under the current vegetated, undeveloped conditions, minimal air pollutants are generated from the site.

3.4.1.2 Environmental Consequences

3.4.1.2.1 Alternative 1 – No Action

Under Alternative 1, no changes to current air quality conditions are anticipated. The existing on-site vegetation would continue to function as a carbon "sink" rather than a source of atmospheric carbon.

3.4.1.2.2 Alternative 2a – Planned Residential Development—High Infiltration

Under Alternative 2a, impacts to air quality would occur both during construction and during the operational lifetime of the project following construction.

During construction, there would be tailpipe emissions from on-site construction equipment, and construction-related on-road vehicles including dump trucks, delivery trucks and the personal vehicles belonging to construction workers. These tailpipe emissions will add VOCs, NOx, CO, CO2, and ground-level ozone to the air.

During construction, some fugitive dust could be expected, although wind-erosion control prevention measures will be implemented to minimize these effects.

In addition, some construction elements, such as asphalt paving operations may cause odors detectible to some people away from the project site. The effect of such odors would be short-term.

Once the project has been constructed, the additional approximately 300 single family residential units, 280 multi-family units, and 26,400 SF of commercial use would generate air emissions that could include carbon dioxide, CO, NOx, and VOCs. Sources of these emissions could include natural gas and electricity-powered home appliances and space-heating systems, gasoline or electricity-powered yard maintenance equipment, gasoline or electricity-powered vehicles generated by the project. Additionally, wood stoves, if used within the project site, could also be a source of fine particulate (PM2.5) emissions.

It is unlikely these emissions would cause ambient concentrations to exceed the NAAQS for NOx, CO, SO2, and Pb because historically these pollutants have not approached non-attainment levels in the Spokane area. Emissions associated with the project could potentially result in ozone and PM 2.5 concentrations that exceed NAAQS because the area has had concentrations of ozone that approach non-attainment concentrations for the past 10 years and has exceeded the health-based standard for PM 2.5 for 9 of the past 19 years, including 2017 and 2018. The emissions associated with a residential development would be consistent with the planned intent of the project site, which is designated for residential development by the City of Spokane Valley and for urban development within the Spokane County UGA.

3.4.1.2.3 Alternative 2b – Planned Residential Development—Low Infiltration

Impacts to air quality under Alternative 2b will be similar to those described for Alternative 2a with the following exceptions:

- Alternative 2b provides 18 more single-family residences than Alternative 2a, and the additional single-family residences may result in the production of slightly more fine particulates from wood burning stoves than under Alternative 2a.
- Construction-related impacts to air quality will likely be less with Alternative 2b due to the reduced amount of imported fill material required and the few number of truck trips to and from the site.

3.4.1.3 Mitigation Measures

Construction: During construction, the following best management practices will be followed to ensure that air quality effects are minimized to the extent possible:

- Well-maintained construction equipment and trucks will be used to reduce emissions; vehicles and equipment will be fitted with emission-controlling components such as air filters and catalytic convertors.
- Prolonged periods of idling vehicles and other engine-powered equipment will be avoided.
- During construction, areas of exposed soils will be regularly sprayed with water or other dust suppressants.
- Cleared area that will be exposed for prolonged periods will be paved, planted with a vegetation ground cover, or covered with gravel.
- Loads in trucks will be covered to ensure that dust and soil does not fly off and pollute the air.
- A program and schedule for road sweeping will be submitted concurrent with submittal of an application for the first phase or sub-phase of development.
- Woody vegetation cleared from the site will not be burned but will instead be ground or chipped on-site or hauled to an off-site location.

Operations: The following measures could reduce air quality effects associated with either Alternative 2a or 2b:

- Implementation and enforcement of Spokane Clean Air burn bans/restrictions by the HOA to minimize the length and intensity of poor air quality conditions during the winter months.
- Incorporation of open spaces, such as in Alternatives 2a and 2b, and retention of vegetation and planting of trees within the project can help mitigate atmospheric carbon indirectly generated as a result of the project.
- Revegetation of open space areas and other areas of the site disturbed by construction, and the planting of street trees.

3.4.1.4 Cumulative Effects

Local air quality, which is already compromised at times during the winter months in most years due to current levels of wood smoke-generated pollution would likely be further diminished for potentially longer periods of time during the winter months due to the added emissions from the project. The incremental air quality impacts of the project are consistent with the anticipated implementation of the City's comprehensive plan, which designates the site for residential development.

3.4.2 Aesthetics

3.4.2.1 Affected Environment

The Painted Hills site, which was previously a golf course, is currently a vacant field with scattered trees associated with the former golf course. The former golf course clubhouse located at the southwest corner of the site remains and is currently operated as a restaurant with associated parking. Vegetation on the site is primarily field grasses with intermittent deciduous and evergreen trees that line the former fairway areas.

Uses surrounding the site include:

- Low density residences located to the east and on the east side of South Madison Road;
- A single-family residential subdivision located adjacent to the northern limits of the site;
- A convent, the "Carmel of the Holy Trinity", located adjacent to the northwest boundary of the property;
- A church, owned by the Chester Community Church, also adjacent to the northwest limits of the site; and
- Vacant land, zoned Corridor Mixed Use, located west of the site on the opposite side of South Dishman-Mica Road.

In addition to the views from these surrounding properties, the site can be viewed by passing motorists from the surrounding roads: South Madison Road (Figure 3-10), East Thorpe Road (Figure 3-11) and South Dishman-Mica Road (Figure 3-12). The site is not designated as a scenic resource and there are no scenic by-ways or other scenic areas designated on or adjacent to the site.

There are currently no sources of noise or light on the site, except for the commercial use of the former clubhouse and the parking lot area, which includes overhead parking lot lighting.

Figure 3-10: View of the Site from S. Madison Road

Figure 3-11: View of the Site from E. Thorpe Road

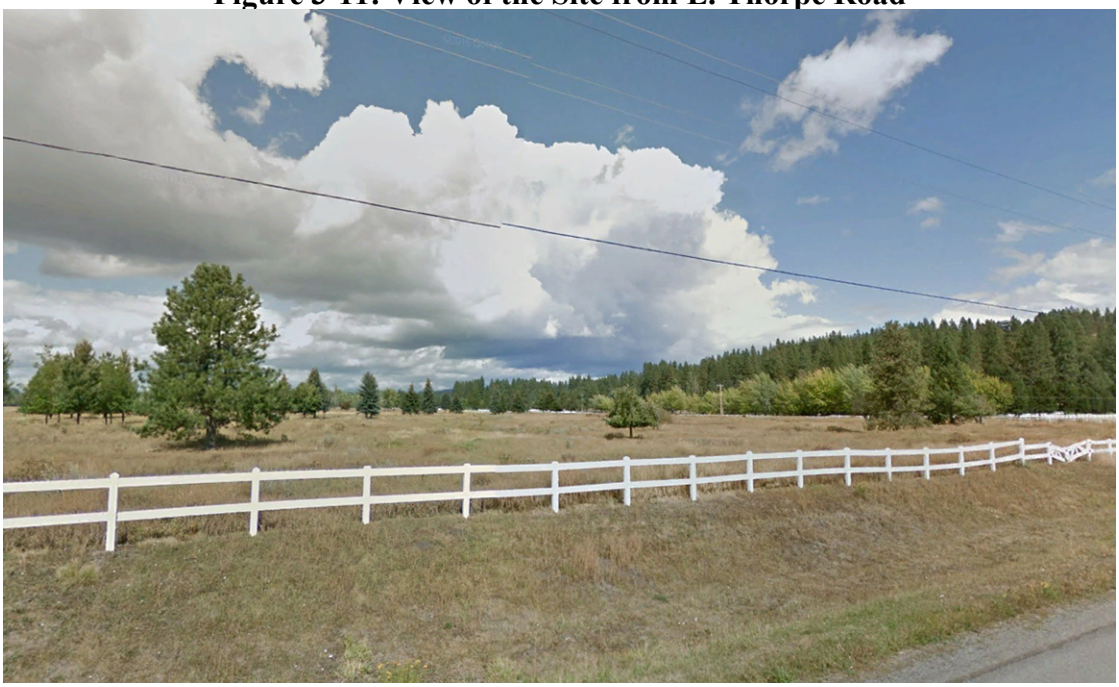


Figure 3-12: View of the Site from S. Dishman-Mica Road

Figure 3-13: Former Clubhouse and Associated Parking

3.4.2.2 Environmental Consequences

3.4.2.2.1 Alternative 1 – No Action

Because Alternative 1 would not result in any changes to the site, no aesthetic impacts are expected to result from this alternative.

3.4.2.2.2 Alternative 2a – Planned Residential Development—High Infiltration

Development of the site under Alternative 2a would convert most of the central, east, and northwest areas of the site into a mixed-use community. Remaining undeveloped areas of the property would be retained as community open space. Under the City's development standards for the R-3 zone, the maximum height of a residence is 35 feet. It is anticipated that new homes within the community would adhere to this maximum height standard. Open space areas would be landscaped and would include community amenities such as trails, benches, playground equipment and other features. Streetlights conforming to the City's public works standards would be incorporated into the development along perimeter public routes and new local roads. Parking lot lighting in the commercial area at the southwest corner of the site would be designed to meet City requirements.

No aesthetic impacts are anticipated from off-site stormwater infrastructure improvements because these improvements will be at or below the existing ground surface and are not anticipated to result in any significant change in the character of these affected areas.

During the initial public review of the PRD application, representatives of the Carmel of the Holy Trinity convent reviewed and commented on the application. As noted in their November 15, 2018 letter addressed to the City of Spokane Valley, convent representatives indicated a concern regarding a potential "influx of noise, traffic and other disturbances that are likely to arise both during construction of the project and upon its completion." As noted in the November 15, 2018 letter, the project applicant has met with representatives of the convent to come to an agreement regarding specific measures that will be implemented to minimize and reduce aesthetic impacts of the project on this neighboring property.

3.4.2.2.3 Alternative 2b – Planned Residential Development—Low Infiltration

As described for Alternative 2a, under Alternative 2b, most of the central, east, and northwest areas of the site would be converted into a mixed-use community. Remaining undeveloped areas of the property would be retained as community open space. As with Alternative 2a, under Alternative 2b, building heights, and streetlighting site would be designed to meet City requirements, and no aesthetic impacts are anticipated from off-site stormwater infrastructure improvements.

3.4.2.3 Mitigation Measures

Alternative 1

No mitigation measures would be necessary under the no action alternative.

Alternatives 2a and 2b

- Streetlights and parking lot light fixtures would incorporate shields to ensure compliance with City foot-candle lighting requirements, mounting heights, and wattage.
- Mitigation measures would be implemented consistent with those listed in the November 15, 2018 letter received from the Carmel of the Holy Trinity convent.

3.4.2.4 Cumulative Effects

City and County development standards governing screening, setbacks, landscaping, light, glare, building height, and other provisions are expected to adequately address the aesthetic effects of individual development projects. Therefore, no significant cumulative aesthetic effects are expected to result when considering the action alternatives in conjunction with other potential development in the project vicinity.

3.4.3 Biological Resources

3.4.3.1 Affected Environment

The affected biological environment of the Painted Hills site is defined in the February 28, 2019 Biological Evaluation (BE), Critical Areas Report and Habitat Management Plan, prepared by Biology, Soil & Water, Inc. (Biology, Soil, and Water Inc. 2019) The BE study area evaluated the biological resources within a half mile radius of the Painted Hills site and the potential impacts from Alternatives 2a and 2b.

As identified in the BE, the subject property is located within the Chester Creek valley with forested foothills on the east and west sides of the valley. The BE describes the habitats within the study area as a "mosaic of urban developed, fragments of conifer forest, and small tract agriculture." As described in the BE, undeveloped forested hillsides extend about 1,200 feet east of the densely developed Ponderosa neighborhood. The BE notes that "large mammals that are willing to cross highways and residential developments interspersed with open farmland will find connectivity to a few hundred acres of wooded and sparsely populated foothills extending south and west from the Painted Hills site to Dishman Hills."

When the Painted Hills site operated as a golf course, the entire property was planted in non-native turf grasses with sparse conifer and deciduous trees lining some of the fairways. The turf grass was maintained by treatment with herbicides and regular mowing and maintenance of the golf course grounds. These practices virtually eliminated the native herbaceous plant community. Since the golf course operations and maintenance have ceased, noxious weeds have invaded the site.

Honey willows were planted inside the Ordinary High Water Mark (OHWM) of Chester Creek whose channel was historically dredged and maintained for flood control. The banks of the channel are covered with Reed canarygrass. Outside the OHWM of the stream channel where the vegetation was not mowed or maintained, the vegetative community is dominated by Canarygrass. Teasel, tansy, thistle, wormwood, and lettuce.

Threatened or Endangered Species

As identified in the BE, listed threatened and endangered species that occur in Spokane County include the Yellow-billed Cuckoo (*Coccyzus americanus*), Canada Lynx (*Lynx canadensis*), Bull trout (*Salvelinus confluentus*), Water Howellia (*Howellia auqatilis*) and Spalding's Silene (*Silene spaldingii*). The BE presented the following findings regarding the potential presence of these species on the site:

- **Yellow-billed Cuckoo (*Coccyzus americanus*)**: These birds nest in areas with at least 25 acres of contiguous riparian woodland. Because the largest area of this habitat type on the site is less than one tenth of the minimum size suitable for the Yellow-billed Cuckoo, the BE concluded that there is no suitable habitat for the yellow billed cuckoo existing on the site.
- **Bull Trout (*Salvelinus confluentus*)**: Waterfalls and dams prevent the upstream and downstream migration of bull trout into the Spokane River and its tributaries in the vicinity of the Painted Hills site. There is no known population of bull trout in the project area; therefore, no Bull Trout habitat exists**.**
- **Canada lynx (*Lynx canadensis*)**: Typical lynx habitat is dense coniferous forest areas with sapling/pole thickets, rock outcrops and wetlands at elevations of around 4,000 to 4,500 feet. The Painted Hills site is at an elevation of approximately 2,015 feet. Lynx dens typically occur in mature old growth stands with substantial deadfall and in areas where they can predate on snowshoe hare. No lynx on the site were observed in the field visits to the site and the Painted Hills site does not provide lynx habitat conditions.
- **Spalding's catchfly (*Silene spaldingii*):** Spalding's catchfly is a plant species that is listed by the U.S. Fish and Wildlife Service (USFWS) as threatened in Washington State. Field studies conducted in support of the BE for the project failed to identify the presence of this plant on the site and the BE notes that "previous years of cultivation, followed by the planting of turf grasses, years of mowing and herbicide applications" have likely impacted the ability of the plant to grow on the site.
- **Water Howellia (*Howellia aquatilis*)**: Howellia is an aquatic plant that is often found in seasonal wetlands, ponds and lakes. No evidence of this plant was observed through field visits conducted to support the preparation of the BE.

Species of Concern

The project BE also evaluated the presence of USFWS-listed species of concern on the site and evaluated the site for the presence and/or habitat of the following species that are listed in Spokane County.

- **Bald Eagle (*Haliaeetus leucocephalus*)**: The BE found that bald eagles do not routinely forage in the Action Area and no nest sites were observed on the Painted Hills site.
- **Western Burrowing Owl (*Athene cunicularia*):** No historical observations have occurred in the project vicinity and no individuals, nests, or other signs were observed during the site survey.
- **California Floater (*Anodonta californiensis*):** This is a freshwater mussel and there are no instances on the site.

- **Ferruginous Hawk (*Buteo regalis*):** This raptor nests on rocky ledges or high ground vantage points and would not occur on the site.
- **Giant Columbia Spire snail (*Fluminicola Columbiana*):** This species occurs in cold, unpolluted medium to large streams, which do not occur within the project area.
- **Loggerhead Shrike (*Lanius ludovicianus*):** This robin-sized gray, black and white bird prefers nesting in big sagebrush and antelope bitterbrush. The BE determined that development at the Painted Hills site would not have an effect on this species.
- **Longeared Myotis (*Myotis evotis*):** This species of vesper bat is sometimes found in crevices in small basalt rock formations. This species often roosts in Ponderosa pine trees over 30 centimeters (cm) in diameter and over 12 meters high. The BE identified that no significant effect would occur to this species.
- **Northern Goshawk (*Accipiter gentilis*):** Goshawks select relatively closed canopy coniferous/boreal forest habitat for nesting. Therefore, the Painted Hills site does not provide nesting goshawk habitat.
- **Olivesided Flycatcher (*Contopus cooperi*):** This species is found in boreal and western coniferous forests and the Painted Hill site does not provide this habitat.
- **Pallid Townsend's Bigeared Bat (*Corynorhinus townsendii pallescens*)**: This species is found in eastside mixed conifer forest, shrub-steppe areas and riparian-wetland areas. In Washington, old buildings, silos, concrete bunkers, barns, caves, and mines are common roost structures. The Painted Hills site does not provide this habitat.
- **Peregrine Falcon (*Falco peregrinus*):** Two subspecies of peregrine falcons occur in Washington state at present, *Falco peregrinus pealei* (Peale's peregrine falcon) and *Falco peregrinus anatum* (Continental peregrine falcon). Peale's peregrine falcon is a coastal subspecies and are not found in eastern Washington. Therefore, the BE evaluated the potential presence of Continental peregrine falcon on the site. Historic use of Dichlorodiphenyltrichloroethane, more commonly known as "DDT", throughout eastern Washington eliminated this subspecies from former breeding sites in eastern Washington. Since the ban of the use of DDT in 1972, attempts have been made to re-establish the Continental peregrine falcon in eastern Washington and captive-reared young birds have been released at several sites in Spokane County. The process of re-introducing falcons into the wild is called "hacking". Washington Department of Fish and Wildlife (WDFW) does not currently use any hack sites in the vicinity that could be impacted by the project. Further, because Peregrine falcons nest on cliffs or even man-made structures such as buildings or bridges, the Painted Hills site does not provide nesting habitat.
- **Redband Trout (*Oncorhynchus mykiss*):** There are no fish-bearing streams on the Painted Hills site or in the project action area; therefore, the project action area does not provide redband trout habitat.
- **Sagebrush Lizard (*Sceloporus graciosus*):** As suggested by its name, the Sagebrush lizard occupies habitats where sagebrush is prevalent, and the Painted Hills site does not provide such habitat.
- **Westslope Cutthroat trout (*Oncorhynchus clarki lewisi*):** There are no fish-bearing streams on the Painted Hills site or in the project action area and therefore, the project action area does not provide Redband trout habitat.

- **Palouse Goldenweed (*Haplopappus liatriformis*):** The Palouse goldenweed is a perennial grassland forb found in the Palouse bioregion of Idaho and southeastern Washington and does not occur on the Painted Hills site.

WDFW Priority Species

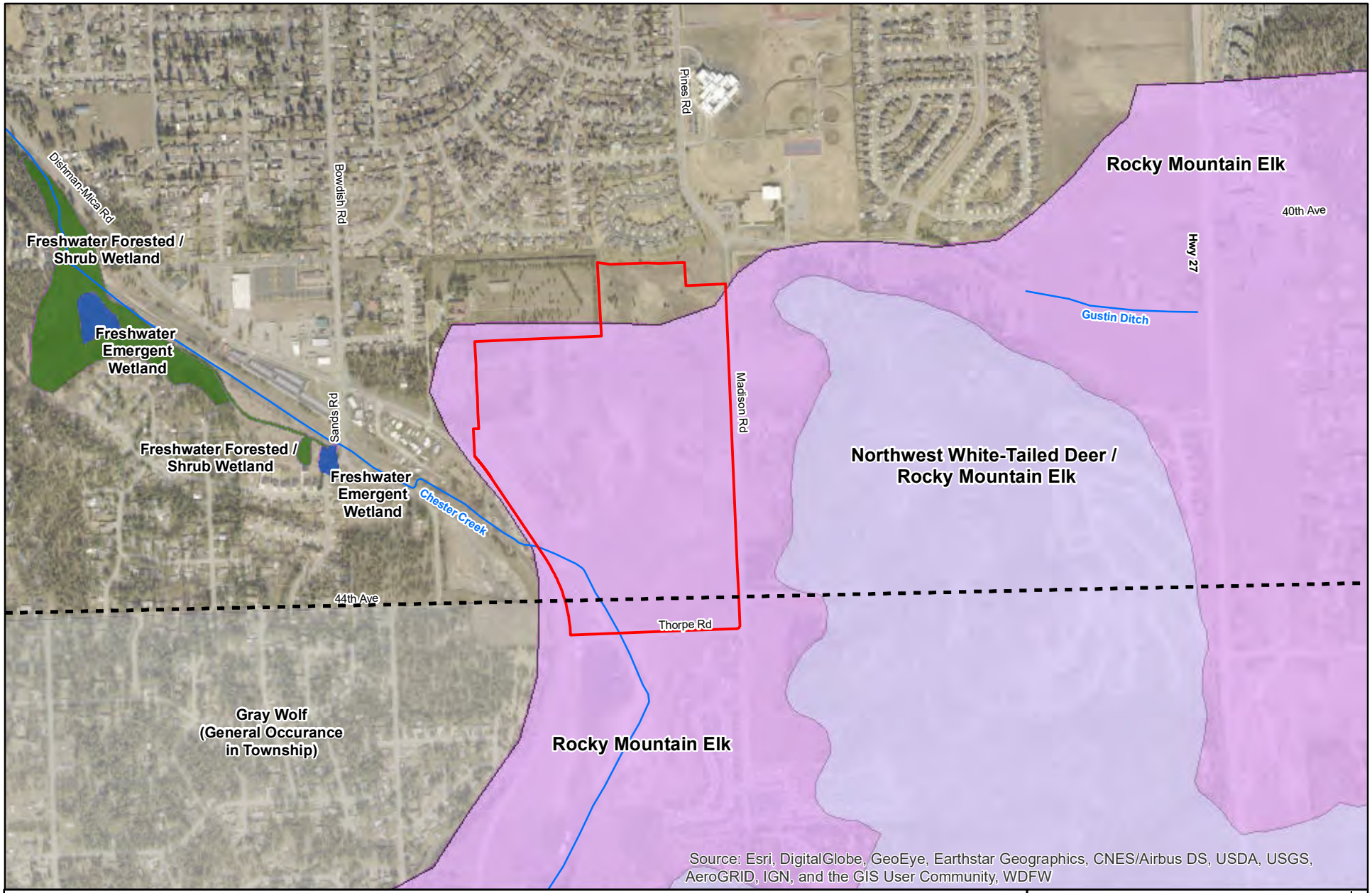
- **White-tailed deer (*Odocoileus virginianus*)**: As illustrated on Figure 3-15, the Painted Hills site is not mapped by WDFW as White-tailed deer habitat, which is mapped to occur on wooded lands to the east and south. However, deer utilize the site as they do with all undeveloped parcels in the area.
- **Elk (*Cervus canadensis*)**: The Painted Hill site falls within the northern extent of the mapped Elk Habitat polygon in the Spokane Valley. The site does not provide cover or refugia required by elk and is therefore not elk habitat, but elk moving through the general area between Mica Peak and Dishman Hills could potentially cross the Painted Hills site to travel between these habitats. However, there is no documented record of regular use of the site by elk.
- **Gray Wolf (*Canis lupus*)**: The Painted Hills site is mapped as Gray wolf habitat and it is possible that wolves could travel through the site in search of prey. Because of the presence of small domesticated mammals in the residential areas proximal to the site, the wolves could present a hazard to these neighboring residences. On May 5, 2011, wolves were delisted from the federally endangered species list in the eastern one-third of Washington state.

Wetlands

National Wetland Inventory (NWI) maps indicate the possible presence of two wetlands on the Painted Hills site. Field studies evaluated these sites and included seasonal hydrologic monitoring at test pits in these locations. The results of the on site evaluation were that, although seasonal high-water conditions occur in the winter when snow or frozen ground conditions occur, wetland hydrologic conditions do not occur during the growing season and these sites therefore did not meet the hydrologic conditions necessary for these areas to be considered jurisdictional wetlands. This determination was verified by the Washington Department of Ecology (DOE), who conducted a field visit on June 8, 2016.

Riparian Areas

The Washington Department of Natural Resources (DNR) Water Type Map defines Chester Creek as a Type F waterway—a stream used by fish or that could potentially be used by fish. The Type F designation for Chester Creek is a result of fish presence at specific upstream locations. However, the onsite reach of Chester Creek does not provide fish habitat (Dawes, Larry. Personal comms. April 10, 2019).



Freshwater Emergent Wetland
Freshwater Forested / Shrub Wetland
Northwest White-Tailed Deer / Rocky Mountain Elk
Rocky Mountain Elk
Gray Wolf (General Occurance in Township)

Source: GIS data provided by the Washington Department of Fish and Wildlife, the City of Spokane Valley, and Spokane County.

Figure 3-14
Washington Department of Fish & Wildlife Priority Habitats & Species
Painted Hills Residential Development DEIS

0 1,000 2,000 Feet

N

Chapter 21.40 of the City of Spokane Valley Municipal Code designates Chester Creek, as a Type F stream with a width of greater than 15 feet at bankfull stage, requires a standard riparian buffer or "riparian management zone" of 100 feet. Biology, Soil & Water, Inc. (2019) delineated the Chester Creek OHWM in the field on March 31, 2015, to establish the extent of this buffer. OHWM flags were surveyed and plotted on the site plan map by Whipple Consulting Engineers.

3.4.3.2 Environmental Consequences

Calculation of the extent of impacts to the Chester Creek riparian buffer was completed in 2019 and was based on the proposed lot configuration that was presented as Alternative 2 in the 2019 DEIS submittal. As described in Section 2.2 Land Development Alternatives, the 2019 Alternative 2 has been replaced by Alternatives 2a and 2b in this current SEPA documentation. The extent of permanent impacts to the riparian buffer resulting from Alternatives 2a or 2b would be less than those calculated for the 2019 Alternative 2. Once an alternative is selected, the exact extent of riparian buffer impact and required mitigation would be calculated for that alternative prior to the submittal of permit documents to the City of Spokane Valley.

3.4.3.2.1 Alternative 1 – No Action

Under Alternative 1, there would be no physical changes to the site. Vegetation established and maintained under the former golf course use would continue to exist on the site but would not receive the extent of grounds maintenance that occurred under golf course operation. Existing built features on the site, including the restaurant, maintenance building, former cart paths and two cart path bridges would continue to occupy the regulated riparian buffer of Chester Creek. No other impacts to biological resources are anticipated to occur under Alternative 1.

3.4.3.2.2 Alternative 2a – Planned Residential Development—High Infiltration

Under Alternative 2a, portions of the existing cart path that currently occupy the regulated riparian buffer would be demolished, removed from the buffer area, and revegetated, resulting in an increase in the areal extent of vegetated riparian buffer. New permanent riparian buffer impacts would occur as a result of a planned expansion of the restaurant parking area and for the required expansion of Thorpe Road. These improvements would result in approximately 3,665 SF and 1,383 SF of permanent buffer loss, respectively.

Permanent impacts to the riparian buffer would be allowed under the SVMC through a combination of buffer averaging and buffer reduction. All impacts to riparian buffers due either to permanent removal or through buffer averaging would be mitigated at ratios either equal to or greater than what is required in the SV critical areas ordinance to ensure that these impacts do not result in a reduction in the ecological function and values of the riparian area.

3.4.3.2.3 Alternative 2b – Planned Residential Development—Low Infiltration

Impacts to riparian buffers under Alternative 2b would be the same as those described under Alternative 2a and would be mitigated as described for Alternative 2a.

3.4.3.3 Mitigation Measures

- Impacts to City-regulated riparian buffers shall be mitigated to ensure no net loss of overall buffer area consistent with the applicable City critical areas ordinance.
- Disturbed buffer areas and buffer replacement areas shall be mitigated with plantings installed at the industry standard rate of 350 stems per acre or 837 total plants. These will include a mixture of native grasses, trees, and shrubs.

3.4.3.4 Cumulative Effects

No cumulative effects on biological resources are expected to result from the project.

3.4.4 Environmental Health

3.4.4.1 Affected Environment

Because the site has primarily been used as open space as a golf course, the site does not have a known history that would indicate the presence of environmental health hazards. Further, no evidence exists of environmental health risks on the site. Ecology's online "What's in My Neighborhood" mapping tool indicates that there are no designated clean-up sites on the site or in the immediate vicinity of the project (DOE, 2018).[9] The nearest site is approximately 1.5-miles to the north. Further, the Ecology Spills Map does not indicate any history of hazardous spills on the site.[10] Lastly, the U.S. Department of Health & Human Services TOXMAP Environmental Health Maps (2018) doesn't show any other toxic chemicals in the area and indicates that the nearest landfill to the site is approximately 2.25-miles to the southeast.

Site surveys have not revealed any past septic fields on the property. There is one known well on the site. Well logs from the Washington State Department of Conservation and Development indicate that this well was dug in 1950. It is expected that this well will be decommissioned and capped with future site development.

3.4.4.2 Environmental Consequences

3.4.4.2.1 Alternative 1 – No Action

The No Action alternative is not anticipated to have any environmental health impacts as no changes would occur.

3.4.4.2.2 Alternative 2a – Planned Residential Development—High Infiltration

[9] https://fortress.wa.gov/ecy/neighborhood/
[10] https://fortress.wa.gov/ecy/coastalatlas/storymaps/spills/spills_sm.html

Alternative 2a would have the potential to cause environmental health effects due to the following:

- Dust and construction equipment emissions during site construction
- Noise from construction equipment.

3.4.4.2.3 Alternative 2b – Planned Residential Development—Low Infiltration

Similar to Alternative 2a, Alternative 2b would have the potential to generate environmental health effects from dust and construction equipment emissions and from construction noise.

3.4.4.3 Mitigation Measures

It is anticipated that environmental health effects from Alternatives 2a and 2b would be mitigated through the following measures:

- Site construction will be conducted consistent with SVMC Section 7.05.040 (Nuisances Prohibited) which includes limits on smoke, soot, toxic substances, noise, and other public health hazards.
- Site construction will abide by the maximum allowable levels for environmental noise related to site construction as governed by Washington Administrative Code (WAC) Section 173-60.

3.4.4.4 Cumulative Effects

No cumulative effects on environmental health are anticipated to result from the project.

3.4.5 Geology

3.4.5.1 Affected Environment

The Painted Hills site is generally flat, sloping less than one percent from south to north with some localized short, steeper slopes associated with remnant golf course features including tee boxes, greens, and road embankments.

The majority of the site is mapped by the Natural Resources Conservation Service (NRCS) as Narcisse silt loam, zero to three percent slopes, prime farmland. The edges of the site are mapped as Hardesty ashy silt loam, zero to three percent slopes, prime farmland; Urban land-Springdale, disturbed complex zero to three percent slopes; Endoaquolis and Fluvaquents, zero to three percent slopes, prime farmland if drained; and Phoebe shay sandy loam, zero to three percent slopes, prime farmland if irrigated.

Across most of the project site beneath the topsoil, there is a layer of somewhat poorly drained alluvial soils, and below this layer are glacially deposited sands and gravels.

There is no known history of unstable soils on the site or within the immediate vicinity.

3.4.5.2 Environmental Consequences

3.4.5.2.1 Alternative 1 – No Action

No impacts to surface soils are proposed under Alternative 1.

3.4.5.2.2 Alternative 2a – Planned Residential Development—High Infiltration

Under Alternative 2a the native soils will be covered by imported fill and developed for residential or residential and commercial uses. The property will be graded to create the streets, drainage ponds/swales, building pads, parking lots and park features. Grading may require up to 377,532 cubic yards of imported material after accounting for a 15 percent shrink factor. This material will come from the nearest source approved per City and County standards and brought to the site following City guidelines.

Approximately 30 percent of the site would be covered with impervious surfaces after completion of the project.

Due to the placement of fill and the site development features proposed under Alternative 2a, the opportunity for surface water and precipitation to recharge the underlying aquifer will be limited to the proposed infiltration basin, roadside swales, and dry wells.

Some erosion from wind and minor erosion from rain could occur on-site during construction. Because of the flatness of the site, the potential for erosion caused by surface water is limited and would be localized to the area of work.

3.4.5.2.3 Alternative 2b – Planned Residential Development—Low Infiltration

As described for Alternative 2a, site grading activities associated with Alternative 2b would cover most of the site with imported fill. The property would be graded to create the streets, drainage ponds/swales, and areas future residences. Alternative 2b is expected to require the import of approximately 117,697 CY of "loose" fill material prior to compaction on the site.

Approximately 25 percent of the site would be covered with impervious surfaces after completion of the project.

As described for Alternative 2a, due to the placement of fill and site development features under Alternative 2b, the opportunity for surface water and precipitation to recharge the underlying aquifer will be limited to the proposed infiltration basin, roadside swales, and dry wells.

Some erosion from wind and minor erosion from rain could occur on-site during construction. Because of the flatness of the site, the potential for surface water erosion is limited and would be localized to the area of work.

3.4.5.3 Mitigation Measures

The following mitigation measures will be implemented to reduce or control erosion under the two action alternatives, Alternatives 2 and 3.

- Measures as required by the SRCAA and WDOE permits would be followed.

- An erosion control plan that complies with the Eastern Washington Stormwater Management Manual (EWSWMM) and SRSM would be developed for the project and will be implanted during construction.
- Erosion control measures to be implemented during construction may include using silt fences, wattles, sediment basins, inlet protection, watering and hydro-seeding as allowed/required by the SRSM and the EWSWMM.
- Following construction, soils would be stabilized by paving, building, and landscaping/vegetation.

3.4.5.4 Cumulative Effects

Alternatives 2a and 2b are not expected to result in cumulative effects to surface geology, as there are no known on-going or concurrent projects that, when considered in conjunction with the action alternatives, could generate cumulate effects.

3.4.6 Historic, Cultural, and Archaeological Resources

3.4.6.1 Affected Environment

The affected environment of the Painted Hills site is described in detail in an April 2018 Cultural Resource Survey, prepared by Plateau Archaeological Investigations, LLC (PAI) and incorporated into this DEIS by reference (PAI, 2018). As described in the study, PAI conducted an intensive pedestrian survey over the Painted Hills site and supplemented that with desktop research. Upon completion of the study, PAI concluded that development of the Painted Hills PRD project (Alternatives 2a and 2b) "will result in No Historic Properties Affected, and no further archaeological investigations are recommended prior to, or during, execution of this project."

Although this survey revealed no indication that cultural or historic materials would be encountered during construction, PAI recommended that all ground-disturbing activities associated with the project be conducted under the guidance of an Inadvertent Discovery Plan (IDP) due to interest expressed in the project by the Spokane Tribe of Indians. The IDP is included with the cultural resources survey, which is included with this DEIS as Appendix H.

3.4.6.2 Environmental Consequences

3.4.6.2.1 Alternative 1 – No Action

No potential impacts to historic, cultural or archaeological resources would result from Alternative 1 as no site disturbance would occur.

3.4.1.2.2 Alternative 2a--Planned Residential Development—High Infiltration

As noted in the cultural resource survey, subsurface probing on the Painted Hills site revealed irregular sediments that "generally did not fit those predicted by the NRCS model" due to the extensive landscaping and site grading that occurred with the construction of the Painted Hills Golf Course. Due to the site disturbance that has occurred on the site and the lack of evidence of any Native American or historic-era cultural materials or features, no impacts are anticipated to result from the construction activities associated with Alternative 2a. However, site construction activities will occur under the guidance of an IDP as outlined in the Cultural Resources Survey included in Appendix H of the Cultural Resources Survey to ensure that any potential inadvertent discovery is promptly addressed.

3.4.6.2.3 Alternative 2b – Planned Residential Development—Low Infiltration

As described for Alternative 2a, areas of site disturbance for Alternative 2b would occur within the same site limits as those evaluated in the cultural resources survey. As a consequence, no impacts to Native American or historic-era cultural materials would be expected to result from Alternative 2b. However, site construction activities would occur under the guidance of an IDP as outlined in the Cultural Resources Survey in Appendix H to ensure that any potential inadvertent discovery is promptly addressed.

3.4.6.3 Mitigation Measures

On-site and off-site ground disturbance activities would follow the inadvertent discovery plan included in the April 2018 Cultural Resource Survey document. This inadvertent discovery plan includes the following measures:

- If ground-disturbing activities reveal potential Native American or historic-era cultural materials or features, a professional archaeologist shall be contacted immediately. The archaeologist shall meet the Secretary of the Interior's standards for a professional archaeologist as defined at 36CFR61 (See Appendix H). Construction within 200 feet (60 meters) of the discovery will stop, and the area will be secured to protect the find from additional damage. The archaeologist will document the find, prepare a brief written statement, and take photographs of the find for submission to the lead agency and the State Historic Preservation Officer (SHPO) at the Department of Archaeology and Historic Preservation (DAHP). The find will also be reported to the Tribal Historic Preservation Officer (THPO) of the Spokane Tribe of Indians. It is the responsibility of the lead agency, Washington State Department of Archaeology and Historic Preservation, to contact the affected Tribes. This consultation process will take place even if the pre-contact or historic-era cultural materials appear to have lost their depositional integrity. Work within 200 feet (60 meters) of the find will not

resume until a plan for management or preservation of the materials has been approved. Following the project, the archaeologist will provide a report detailing the procedures and results of the investigation.

- During the investigation, the archaeologist will observe rules of safety and will comply with any safety requirements of the excavation contractor and project engineers. Entry into any excavation will only be done under the direct supervision and approval of the construction foreman (or his or her agent) and verification that entry and exit is safe.
- If a burial, human remains, suspected human remains, funerary objects, sacred objects, or items of cultural patrimony are encountered during any aspect of this project, operations will cease in accordance with the RCW Chapters 27.44, 68.50, and 68.60. All work within 200 feet (60 meters) of the find will cease, the area around the discovery will be secured, and any requirements of the lead agency shall be followed. Work within 200 feet (60 meters) of the find will not resume until a plan for management or preservation of the materials has been agreed upon by all parties.
    - If the lead agency does not explicitly state procedures, the Spokane Valley Police Department, the Spokane County Medical Examiner, and the SHPO at the DAHP will be notified in the most expeditious manner possible. The find will also be reported to the THPO of the Spokane Tribe of Indians. Reporting is to be done by the lead agency (DAHP), or a federal or state funding or permitting agency. The find will be treated with dignity. People who have contact with the find will not take photographs, contact the press, call 911, or discuss the find with the public in any manner. The find will be covered, and the location kept secure.
    - The coroner and law enforcement agency with jurisdiction will evaluate the find to determine whether it is a crime scene or a burial. If human remains are determined to be associated with an archaeological site (burial), and if there is any question of the cultural affiliation of the burial, or whether the burial is prehistoric, the DAHP and any affected tribes will be notified to assist in the determination prior to beginning any extensive excavations.

3.4.6.4 Cumulative Effects

No on-going or future activities are expected to occur on-site that would result in cumulative effects when considered in conjunction with any of the project alternatives.

3.4.7 Noise

3.4.7.1 Affected Environment

Noise levels in the project area are relatively low, as would be expected in a low-density semi-rural setting. Noise in the area is typically generated by vehicular traffic on the surrounding roads, and residential equipment such as lawn mowers and chain saws. Noise from recreational vehicles and snowmobiles, in season, may also be present.

The proposed project is subject to State of Washington and City of Spokane Valley noise standards and regulations.

State of Washington noise regulations are found in WAC 173-60. Traffic traveling on public roadways is exempt from the State of Washington's maximum allowable noise levels, as is construction noise that occurs between the hours of 7:00 a.m. and 10:00 p.m.

Section 7.05.40 K. of the SVMC provides thresholds and standards for controlling the nuisance impacts of noise within the community. This section includes exemptions regardless of time of day for normal use of public rights-of-way, sounds created by motor vehicles when regulated by Chapter 173-62 WAC (noise emission standards for new motor vehicles and noise emission standards for the operation of motor vehicles on public highways), sounds created by surface carriers engaged in commerce or passenger travel by railroad, and sounds created by safety and protective devices where noise suppression would defeat the intent of the device or is not economically feasible. In addition, sounds originating from temporary construction sites as a result of construction activity are exempt from the provisions of SVMC 7.05.040(K)(1) between the hours of 7:00 a.m. and 10:00 p.m., or when conducted beyond 1,000 feet of any residence where human beings reside and sleep at any hour:

3.4.7.2 Environmental Consequences

3.4.7.2.1 Alternative 1 – No Action

Under Alternative 1 noise levels on and near the project site would remain at current low levels typical of rural residential areas.

3.4.7.2.2 Alternative 2a – Planned Residential Development—High Infiltration

Under Alternative 2a noise levels would increase beyond current noise levels both during the construction phase and indefinitely once the project construction is completed.

During the construction phase noise from construction, land clearing, and fill delivery and placement equipment as well as structure construction would increase for the short term. Following completion of construction, noise would be generated by residential traffic and other residential sources including yard maintenance equipment, domestic pets, occupants, and park use for the long term.

The increase in population under Alternative 2a would likely lead to noise levels that are higher than current levels. It is unlikely that the increase would be measurable, but it may be perceived by residents in terms of the frequency to which they experience noise disturbance.

3.4.7.2.3 Alternative 2b– Planned Residential Development—Low Infiltration

Under Alternative 2b, noise levels would increase beyond current noise levels both during the construction phase and indefinitely once the project construction is completed, to approximately the same degree as described for Alternative 2a.

3.4.7.3 Mitigation Measures

Under either Alternative 2a or 2b, construction will be limited to times prescribed in City code.

3.4.7.4 Cumulative Effects

There are no known off-site sources of noise that could present cumulative effects when considered in conjunction with the action alternatives.

3.4.8 Public Services

The location of service districts, including schools, irrigation, water currently serving the project vicinity are identified on Figure 3-15 Service District Boundaries.

3.4.8.2.1 Alternative 1 – No Action

No impacts to public services are anticipated to result from the no-action alternative as no additional demand on services would occur.

3.4.8.2.2 Alternative 2a – Planned Residential Development—High Infiltration

Alternative 2a would result in approximately 300 single-family residential units, 228 multi-family units and 52 mixed-use residential units. Approximately 13,400 SF of commercial use will occur within the mixed-use buildings and approximately 9,000 SF of new retail use will occur within a newly created 92,865 SF lot located along Dishman-Mica Road. The 4,000 SF former clubhouse building will be retained in restaurant use and, as a result, would not represent a change in impact on public services.

Based on current demographics, it is expected that approximately 1,377 people would reside in the project at full project buildout. Further, it is anticipated that approximately 45 employees would work in the 22,400 SF of new retail space that would result with Alternative 2 .[11] Similar to the projected schedule of residential development, it is anticipated that development of the commercial retail uses will be market-driven and would occur over the approximately 10-year buildout period of the project.

The following paragraphs summarize the anticipated effects of these uses and the new residents and employees on schools, parks, fire, public safety, water and sanitary sewer services.

Schools

Based on the U.S. Census Bureau American Community Survey (ACS) 5-year estimate data, approximately 15.2 percent of Spokane Valley's population is between the ages of 5 and 17 years old. Extrapolating this number to the Painted Hills project results in an estimated 209 students who would reside within the project upon completion of Alternative 2a.

While the precise cohort of elementary school, middle school and high school students is not known, if general student population were proportionately distributed to the number of grades in elementary (six grades), middle school (three grades), and high school (four grades), it is

[11] Assumes approximately 1,000 square feet of retail space per employee and two shifts per day, or approximately 500 square feet of retail area per employee. (U.S. Energy Information Administration (2016) - https://www.eia.gov/consumption/commercial/data/2012/bc/cfm/b2.php)

assumed that the development of Alternative 2a would result in the following increases in student population:

- *Elementary School* – Approximately 10 new students per year or 96 total students over the approximately 10-year buildout of the project.
- *Middle School* – Approximately five new students per year or 48 total students over the approximately 10-year buildout of the project.
- *High School* – Approximately six new students per year or 64 total students over the approximately 10-year buildout of the project.

It is expected that the residential and retail uses included under Alternative 2a would represent a net benefit to the school system as new property taxes from the 22,400 SF created would add revenue to the current tax base.

During the public comment period for the Painted Hills PRD project, the school district reviewed and commented on the application. In their comment letter, the district notes that, due to school capacity issues, it is likely that students from the Painted Hills site would likely not attend schools within the boundary area that includes the site. The comment letter also indicates that students from the area will likely not attend Chester Elementary. The school district has provided no objection to the project.

Fire

In response to the submittal of the Painted Hills PRD application, the Spokane Valley Fire District submitted a letter, dated August 31, 2015, that provides development-specific recommendations for ensuring adequate access provisions are made for the fire department to access the site.

Public Safety

It is expected that additional service calls will occur from future residences and businesses within the site, but these uses are not anticipated to create a significant increased demand for public safety services. Per communications with City of Spokane Valley staff, it is not anticipated that Alternative 2a would generate a significant impact to City services.12 The City regularly reviews large development proposals and, in instances where a significant new user, such as a big-box retail project, creates enough demand to warrant special adjustments in service, the City will make those adjustments to its service contract with Spokane County. It is anticipated that the gradual increase in population, employment and business activity on the site can be commensurately addressed through adjusted service levels.

Water

In conjunction with the Painted Hills PRD submittal, a Certificate of Water Availability was filed with the Spokane Valley Planning Department on July 24, 2015. This certificate, signed by the site's water purveyor, Spokane County Water District #3, acknowledges that the

[12] Pers comms with Morgan Koudelka, City of Spokane Valley, January 14, 2019.

proposed project is consistent with the district's Department of Health (DOH) approved water system plan.

Sanitary Sewer

Service to the site is provided by Spokane County Environmental Services. As noted in the July 24, 2015 certificate of sewer availability letter provided by the county, the district acknowledges that sanitary sewer service is available and can be provided to serve the project.

3.4.8.2.3 Alternative 2b – Planned Residential Development – Low Infiltration

Alternative 2b would result in approximately 272 single-family residential units, 273 multi-family units and 52 mixed-use residential units. Approximately 13,400 SF of commercial use will occur within the mixed-use buildings and approximately 9,000 SF of new retail use will occur within a newly created 92,865 SF lot located along Dishman-Mica Road. The 4,000 SF former clubhouse building will be retained in restaurant use and, as a result, would not represent a change in impact on public services.

Based on the 2013 to 2017 American Community Survey 5-Year Estimates, it is anticipated that each single-family unit would be occupied by approximately 2.5 residents, and that each of the 280 multi-family units would be occupied by approximately 2.24 residents. As such, it is expected that approximately 1,408 people would reside Alternative 2b at full project buildout. The number of employees who would work within the project would be identical to Alternative 2a.

The following paragraphs summarize the anticipated effects of the uses and residents of Alternative 2b on schools, parks, fire, public safety, water and sanitary sewer services.

Schools

Based on the U.S. Census Bureau ACS 5-year estimate data, approximately 15.2 percent of Spokane Valley's population is between the ages of 5 and 17 years old. Extrapolating this number to Alternative 2b results in an estimated 214 students who would reside within the project upon completion of Alternative 2b.

While the precise cohort of elementary school, middle school and high school students is not known, if general student population were proportionately distributed to the number of grades in elementary (six grades), middle school (three grades), and high school (four grades), it is assumed that the development Alternative 2b would result in the following increases in student population:

- *Elementary School* – Approximately 10 new students per year or 98 total students over the approximately 10-year buildout of the project.
- *Middle School* – Approximately five new students per year or 46 total students over the approximately 10-year buildout of the project.
- *High School* – Approximately seven new students per year or 70 total students over the approximately 10-year buildout of the project.

As such, the total forecasted increase and effects of the Alternative 2b is substantially similar to Alternative 2a.

Fire

In response to the submittal of the Painted Hills PRD application, the Spokane Valley Fire District submitted a letter, dated August 31, 2015, that provides development-specific recommendations for ensuring adequate access provisions are made for the fire department to access the site. These recommendations would not be substantially altered by the design modifications of Alternative 2b.

Public Safety

It is expected that additional service calls will occur from future residences and businesses within the Alternative 2b development scenario, but these uses are not anticipated to create a significant increased demand for public safety services similar to Alternative 2a.

Water

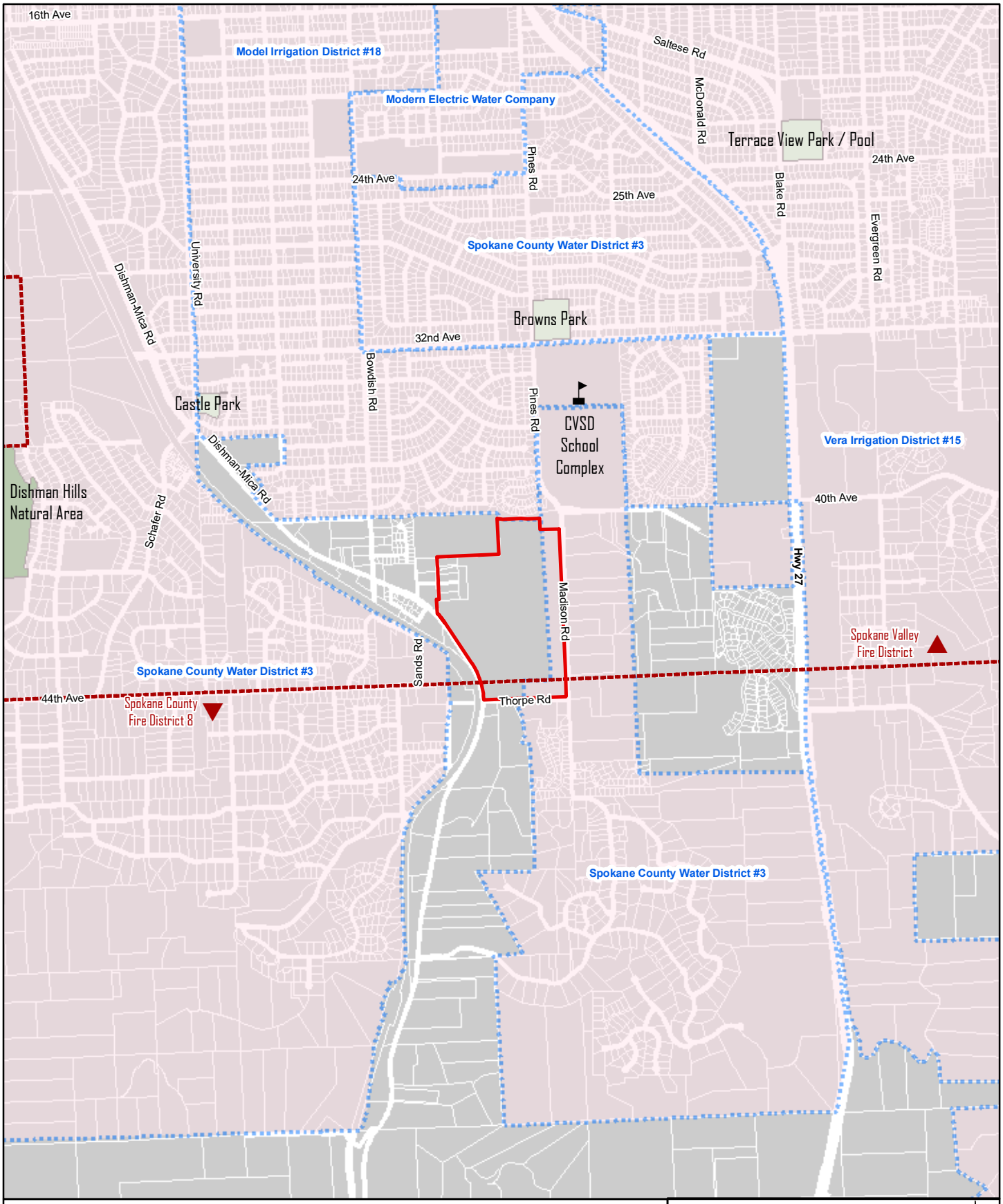
In conjunction with the Painted Hills PRD submittal, a Certificate of Water Availability was filed with the Spokane Valley Planning Department on July 24, 2015. This certificate, signed by the site's water purveyor, Spokane County Water District #3, acknowledges that the proposed project is consistent with the district's department of health (DOH) approved water system plan. The project changes proposed under Alternative 2b do not alter the scale of a development in a significant manner to suggest any concerns regarding water serviceability.

Sanitary Sewer

Because the scale of development under Alternative 2b is approximately the same as Alternative 2a, no additional impacts on sanitary sewer service are anticipated and the certificate of service availability received for Alternative 2a represents a reasonable assurance that the Alternative 2b can be developed without significant impacts on sanitary sewer service.

3.4.8.4 Cumulative Effects

There are no known cumulative effects from other on-going projects or activities that, when considered in conjunction with the action alternatives, could result in any discernible effects on public services.



Legend

- Painted Hills Boundary
- Fire Districts
- Water Districts

Notes: Central Valley School District #356, Spokane County Sherrif, Spokane County Environmental Services, and Spokane County Library District cover the entire extent of this map.
There is no park district in Spokane Valley.

Source: GIS data provided by the City of Spokane Valley and Spokane County.

Figure 3-15
Service District Boundaries

Painted Hills Residential Development DEIS

0 2,000 4,000 Feet

N

3.4.9 Recreation

3.4.9.1 Affected Environment

While the Painted Hills site is a former golf course, it has not been in operation since 2012 and the site is not designated for public recreation purposes. In the interim period and before site development would begin for the proposed PRD application, the applicant plans to re-open the former driving range from the golf course as an interim source of revenue from the site. It is expected that the driving range operation would cease once the PRD site is under construction.

Public recreational opportunities near the Painted Hills site include two city parks, Browns Park (8.2 acres) and Castle Park (2.7 acres), both of which are within one mile of the site. Per the City of Spokane Valley Comprehensive Plan, these parks are categorized as neighborhood parks, which are intended to generally serve residents within a half-mile radius, provide ample recreational opportunities for children, and be accessible by walking and bicycling. As noted in Figure 50 of the City's comprehensive plan, Browns Park offers sports fields, sand volleyball courts, playgrounds, picnic areas, shelters, and restrooms, while Castle Park provides open space.

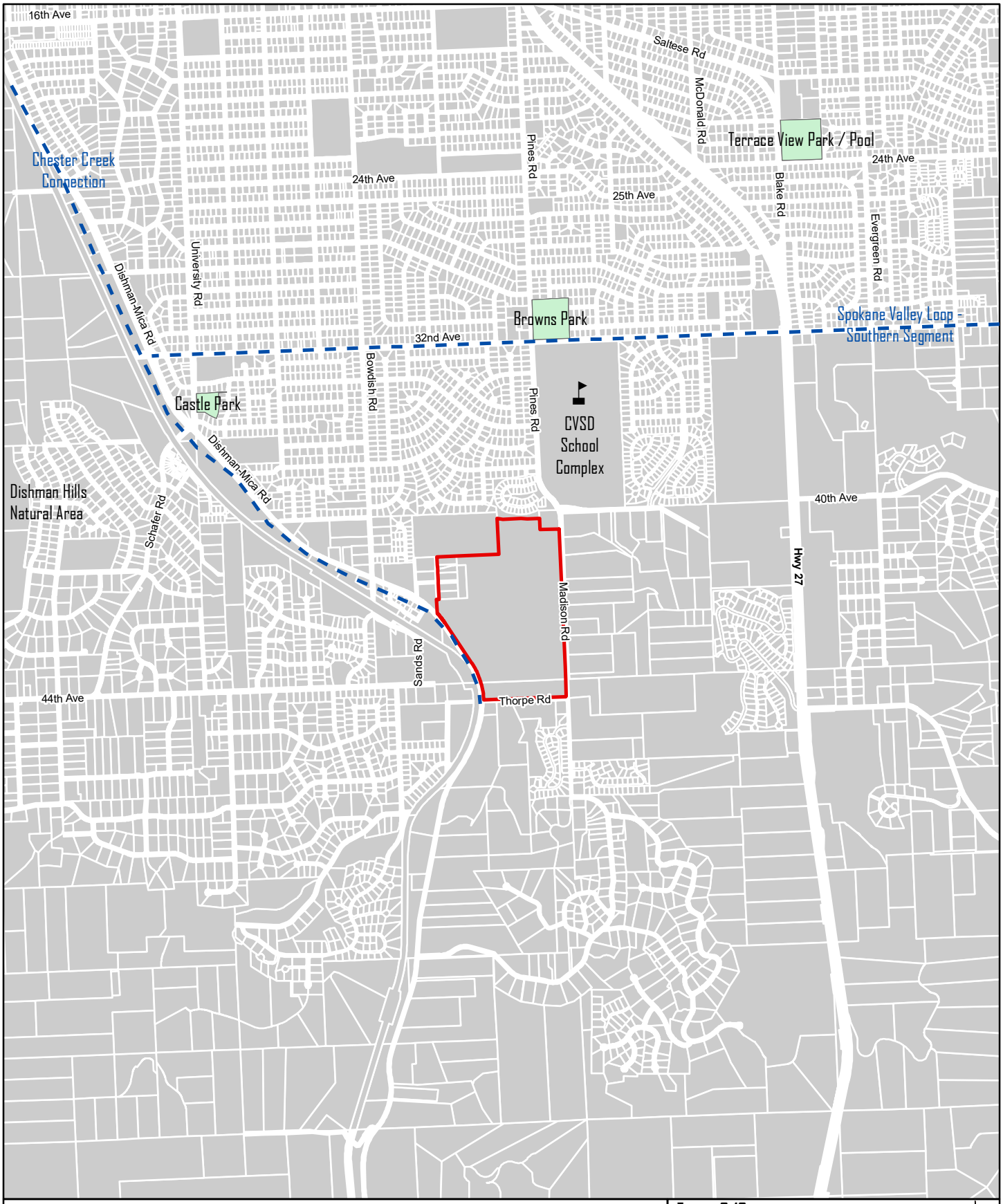
In addition to these city-managed neighborhood parks, additional recreational open space areas are located at the school complex immediately northeast of the Painted Hills site, where University High school, Chester Elementary School, and Horizon Middle School are located. This complex occupies approximately 76.7 acres and includes a large outdoor recreation area with tennis courts, multiple baseball/softball fields, and soccer and football fields.

Per the Parks and Recreation Master Plan 2013 Update, Table 5-2, the City has adopted a level of service standard for public parks to achieve an equivalent of 1.92 acres of park land per 1,000 residents. According to the 2013-2017 ACS 5-Year Estimates, the average household size in Spokane Valley is 2.50 people for owner-occupied households and 2.24 people for renter-occupied households13.

Proposed Trails

Per the City of Spokane Valley Parks and Recreation Master Plan 2013 Update, there are two trails proposed near the site (Figure 3-16). The Spokane Valley Loop – Southern Segment is a 3.5-mile segment that runs east-west from Sullivan Road to Dishman Road along 32nd Avenue. The Chester Creek Connection is a proposed one-mile segment connecting the Spokane Valley Loop at 32nd Avenue with Chester Creek.

[13] U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates



Legend

- Painted Hills Site
- City Parks
- County Parks
- Proposed Trail

Source: GIS data provided by the City of Spokane Valley and Spokane County.

Figure 3-16
Public Recreation Opportunities

Painted Hills Residential Development DEIS

0 2,000 4,000 Feet

N

3.4.9.2 Environmental Consequences

3.4.9.2.1 Alternative 1 – No Action

Under Alternative 1, no site development would occur that would generate new residents. Therefore, no additional demands would be placed on parks and recreation facilities in the community.

3.4.9.2.2 Alternative 2a – Planned Residential Development—High Infiltration

Alternative 2a is anticipated to generate approximately 300 single-family residential units, 228 multi-family units, and 52 mixed-use residential units. Based on the 2013-2017 ACS 5-Year Estimates, it is anticipated that each single-family unit would be occupied by approximately 2.5 residents, and that each of the 280 multi-family units would be occupied by approximately 2.24 residents. This would result in a total population of approximately 1,377 residents upon completion of the project, which is anticipated to occur over a period of approximately 10 years or longer as the housing market dictates. Based on the City's comprehensive plan level-of-service target of 1.92-acres of park space per 1,000 residents, the project would create demand for approximately 2.64 acres of park space in the community. As noted in the site plan included on Figure 3-18 of this document, Alternative 2a incorporates approximately 30 acres of open space, including a 10-acre park which will fulfill the recreational demands of the new development.

3.4.9.2.3 Alternative 2b – Planned Residential Development—Low Infiltration

Based on the 2013 to 2017 American Community Survey 5-Year Estimates, it is anticipated that each single-family unit would be occupied by approximately 2.5 residents, and that each of the 280 multi-family units would be occupied by approximately 2.24 residents. As such, it is expected that approximately 1,408 people would reside Alternative 2b at full project buildout.

Based on the City's comprehensive plan level-of-service target of 1.92-acres of park space per 1,000 residents, the project would create demand for approximately 2.70 acres of park space in the community. Alternative 2b incorporates approximately 30 acres of open space, including a 10-acre park which will fulfill the recreational demands of the new development.

3.4.9.3 Mitigation Measures

As a Planned Residential Development, Alternative 2b must comply with SVMC Section 19.50.060, which requires at least 30 percent of the gross land area be dedicated for "common space for the use of its residents."

3.4.9.4 Cumulative Effects

The City conducts periodic reviews of its parks and recreation needs for the broader community and last updated its Parks and Recreation Master Plan in 2013. Through regular review and update of the community plan, the City anticipates and plans for necessary recreational needs throughout the community. Therefore, any cumulative effects of population growth within the broader community have been considered and integrated with the City's parks and recreation system planning efforts.

ACRONYMS AND ABBREVIATIONS

AASHTO	American Association of State Highway and Transportation Officials
ACS	American Community Survey
ADT	Average daily traffic
BE	Biological evaluation
BFE	Base flood elevation
CE	contract entity
cfs	Cubic feet per second
CLOMR	Conditional Letter of Map Revision
CM	Centimeter
CO	Carbon monoxide
CO2	Carbon dioxide
COSV	City of Spokane Valley
CSWGP	Construction Stormwater General Permit
CY	Cubic yards
DAHP	Department of Archaeology and Historic Preservation
DDT	Dichlorodiphenyltrichloroethane
DEIS	Draft Environmental Impact Statement
DNR	Washington Department of Natural Resources
DOE	Washington Department of Ecology
DOH	Department of Health
DS	Determination of significance
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
EWSWMM	Eastern Washington Stormwater Management Manual

FEMA	Federal Emergency Management Agency
FHA	Federal Housing Authority
FIRM	Flood Insurance Rate Map
FIS	FEMA Flood Insurance Study
GMA	Growth Management Act
GSF	Gross square feet
HOA	Homeowners' association
IDP	Inadvertent Discovery Plan
IPEC	Inland Pacific Engineering Company
ITE	Institute of Transportation Engineers
kWh	Kilowatt hours
LDR	Low Density Residential
LID	Low Impact Design
LOMR	FEMA Letter of Map Revision
LOS	Level of service
LUC	Land use code
MPH	miles per hour
NAAQS	National Ambient Air Quality Standards
NE	northeast
NFIP	National Flood Insurance Program
NOx	Nitrogen oxide
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NW	northwest
NWI	National Wetland Inventory

O3	Ozone
OHWM	Ordinary highwater mark
O&M	Operation and maintenance (manual)
PAI	Plateau Archaeological Investigations
Pb	Lead
PM2.5	Particulate matter, generally 2.5 micrometers in diameter (fine)
PM10	Particulate matter, generally 10 micrometers in diameter
PM	Particulate matter
PRD	Planned Residential Development
RCW	Revised Code of Washington
ROW	Right-of-way
SCC	Spokane County Code
SE	southeast
SEPA	Washington State Environmental Policy Act
SF	Square feet
SFHA	Special Flood Hazard Area
SFR	Single-family residential
SHPO	State Historic Preservation Officer
SO2	Sulfur dioxide
SR	State Route
SRCAA	Spokane Regional Clean Air Agency
SRSM	Spokane Regional Stormwater Manual
SVMC	Spokane Valley Municipal Code
THPO	Tribal Historic Preservation Officer
TIA	Traffic impact analysis

TIP	Transportation Improvement Plan
UGA	Urban Growth Area
USFWS	U.S. Fish and Wildlife Service
VOC	Volatile organic compounds
Vol.	Volume
WAC	Washington Administrative Code
WDFW	Washington Department of Fish and Wildlife
WDOE	Washington Department of Ecology
WRIA	Water Resource Inventory Area
WSDOT	Washington Department of Transportation

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APPENDIX A
SEPA Checklist

10210 E Sprague Avenue ♦ Spokane Valley WA 99206
Phone: (509) 720-5240 ♦ Fax: (509) 720-5070 ♦ permitcenter@spokanevalley.org

STAFF USE ONLY

Date Submitted:	**Received by:**	**Fee:**
PLUS #:	**File #:**	

PART I – REQUIRED MATERIAL

****THE APPLICATION WILL NOT BE ACCEPTED IF THE REQUIRED MATERIALS ARE NOT PROVIDED****

- ☐ **Completed SEPA Checklist**
- ☐ **Application Fee**
- ☐ **Reduced Site Plan of proposal in 8½" by 11" or 11" by 17" size**
- ☐ **Trip Distribution and Generation Letter, if requested by Development Engineering.**

PURPOSE OF CHECKLIST:

The State Environmental Policy Act (SEPA), chapter 43.21C RCW, requires all governmental agencies to consider the environmental impacts of a proposal before making decisions. An environmental impact statement (EIS) must be prepared for all proposals with probable significant adverse impacts on the quality of the environment. The purpose of this checklist is to provide information to help you and the agency identify impacts from your proposal (and to reduce or avoid impacts from the proposal, if it can be done) and to help the agency decide whether an EIS is required.

INSTRUCTIONS FOR APPLICANTS:

This environmental checklist asks you to describe some basic information about your proposal. Governmental agencies use this checklist to determine whether the environmental impacts of your proposal are significant, requiring preparation of an EIS. Answer the questions briefly, with the most precise information known, or give the best description you can.

You must answer each question accurately and carefully, to the best of your knowledge. In most cases, you should be able to answer the questions from your own observations or project plans without the need to hire experts. If you really do not know the answer, or if a question does not apply to your proposal, write "do not know" or "does not apply." Complete answers to the questions now may avoid unnecessary delays later.

Some questions ask about governmental regulations, such as zoning, shoreline, and landmark designations. Answer these questions if you can. If you have problems, the governmental agencies can assist you.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

USE OF CHECKLIST FOR NON-PROJECT PROPOSALS:

Complete this checklist for non-project proposals, even though questions may be answered "does not apply."
IN ADDITION, complete the SUPPLEMENTAL SHEET FOR NON-PROJECT ACTIONS (Part D).
For non-project actions, the references in the checklist to the words "project," "applicant," and "property or site" should be read as "proposal," "proposer," and "affected geographic area," respectively.

A. BACKGROUND

1. Name of proposed project, if applicable

Painted Hills PRD

2. Name of applicant:

Whipple Consulting Engineers, Inc.

3. Address and phone number of applicant and contact person:

21 S. Pines Road
Spokane Valley, WA 99206
Todd R. Whipple, P.E.

4. Date checklist prepared:

This SEPA checklist amends and restates the July 22, 2015 and September 2, 2016 checklists that were previously submitted to the City of Spokane Valley. This August 8, 2018 checklist is intended to clarify the project effects on archaeological and cultural resources, public services and schools and also to address flood management design refinements associated with the project.

5. Agency requesting checklist:

City of Spokane Valley, WA

6. Proposed timing or schedule (including phasing, if applicable):

It is anticipated that construction will begin in the Spring of 2019 with the placement and grading of fill material within the 100-year floodplain and future housing area. The project will be phased and the schedule will be market driven. It is anticipated that the phasing will be over a 10-year time period.

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? **No** If yes, explain.

There are no plans for future additions, expansions or further activity connected with this proposal.

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

- **Inland Pacific Engineering Company (IPEC) Geotechnical Reports:**

IPEC Geotechnical Evaluation Reports		
Document	Date	Number
Preliminary Geotechnical Evaluation, Phase I Revised	December 31, 2013 August 29, 2016	1
Geotechnical Evaluation, Proposed Stormwater Pond (Triangle Pond)	October 14, 2014	2
Geo-hazard Evaluation	March 11, 2015	3
Levee Evaluation and Certification, 4403 South Dishman-Mica Road Revised	February 12, 2015 August 29, 2016	4
Proposed Levee, 4403 South Dishman-Mica Road	July 17, 2015	5
Geotechnical Evaluation, Phase 2	July 23, 2015	6
Gustin Levee Evaluation Revised	July 23, 2015 August 29, 2016	7
Supplemental Geotechnical Evaluation (North Pond Borings)	April 19, 2016	8
Full-Scale Drywell Testing Revised	June 28, 2016 August 21, 2017	9
Proposed Street Improvements, Pavement Design	June 26, 2017	10
IPEC- Mounding Analysis	August 22, 2017	11

- **Biological Evaluation and Habitat Management Plan - Submitted July 2015, Revised August 30, 2016**
- **CLOMR (Levee) dated September 10, 2015 (No Longer Applies)**
- **Conditional Letter of Map Revision – Fill (CLOMR-F) to be completed by West Consultants**
- **Letter of Map Revision (LOMR) Request after completion of flood control and floodplain fill.**
- **Stream Typing on Gustin Property has been completed (years 2015-2016) Performed by BSW, Larry Dawes**
- **Cultural Resource Survey of the Painted Hills Residential Development project. Prepared by Plateau Archaeological Investigations, LLC. Dated April 2018**

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.

Grading and Floodplain Application Spokane County (Gustin Property)

10. List any government approvals or permits that will be needed for your proposal, if known.

Local

- **Preliminary Plat/ Planned Residential Development (PRD)**
- **Transportation Concurrency Certificate (Complete dated 2-23-17)**
- **Street Plan Approval, ROW Permits (COSV)**
- **Sanitary Sewer Plan Approval (Spokane County)**

- **Water Plan Approval (Water District 3)**
- **Building Permits (COSV)**
- **Landscape Plans (COSV)**
- **Grading and Erosion Control Permit (COSV)**
- **SRCAA & WDOE air Quality Permits (as applicable)**
- **City Floodplain Development Permit & Land Disturbance Permit (COSV)**
- **Floodplain Development Permit & Land Disturbance Permit (Spokane County)**

State

- **Construction Stormwater General Permit (CSWGP)**

Federal

- **Federal Emergency Management Agency (FEMA) CLOMR-F**
- **FEMA LOMR**

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)

The proposal is to redevelop a 99.5-acre former golf course into a Planned Residential Development within the City of Spokane Valley. The site will consist of approximately 42 estate type lots, 206 single family type lots, 52 cottage type lots, 228 multi-family units, 52 mixed use units included with retail/commercial uses and preservation of the club house area as a commercial area. Additionally, the site will have 30% greenspace totaling approximately 30 +/- acres with trails that includes a 10-acre park and wildlife travel corridor. The project will include the construction of streets and sidewalks to access the lots as well as water, sanitary sewer and dry utility facilities to serve each lot. Off-site and on-site storm drainage and channel improvements will be made to remove the project area from the compensatory floodplain storage. This includes replacing existing culverts under Thorpe Rd with a box culvert structure and a concrete lined channel to a pipe system leading to a treatment and disposal bed. Additionally, flood flows and seasonal flows along Madison Rd will be routed and disposed of within this system. Fronting street improvements along Dishman-Mica Rd, Thorpe Rd and Madison Rd will include curb, gutter, planting strips and/or swales, sidewalks and/or trails.

Additionally, offsite traffic improvements are anticipated with the project as described in section 14g of this checklist and discussed further in the September 14, 2016 traffic Impact analysis and addendums, prepared by Whipple Consulting Engineers, Inc.

Additional off-site improvements include floodwater piping that will be installed within the existing field ditch across the Gustin property (Parcel # 45343.9052) connecting to an existing excavated pit on 40th Avenue just

south of the Pine Rock Ridge Subdivision. These off-site stormwater improvements are designed to dispose of and remove flood flows originating along Highway 27.

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.

4403 S Dishman-Mica Rd, Spokane Valley, WA Sections 33 & 34, T25N, R44E, W.M. Parcel numbers 45336.9191, 45334.0106, 45334.0108, 453340109, 45334.0110, 45334.0113, 45334.0114, 45334.9135, & 44041.9144.

Off-site flood conveyance improvements in Spokane County are anticipated on parcel numbers 45343.9052 and 45344.9108.

13. Does the proposed action lie within the Aquifer Sensitive Area (ASA)? **Yes,** The general Sewer Service Area? **Yes,** Priority Sewer Service Area? **No** (See: Spokane County's ASA Overlay zone Atlas for boundaries).

The project site is listed within the high susceptibility area as shown in Critical Aquifer Recharge Areas (CARA) Map

14. The following questions supplement Part A.
    a. Critical Aquifer Recharge Area (CARA) / Aquifer Sensitive Area (ASA).
        1. Describe any systems, other than those designed for the disposal of sanitary waste, installed for the purpose of discharging fluids below the ground surface (includes systems such as those for the disposal of Stormwater or drainage from floor drains). Describe the type of system, the amount of material to be disposed of through the system and the types of material likely to be disposed of (including materials which may enter the system inadvertently through spill, or as a result of firefighting activities).

For the subdivision portion of the project, this proposal will use stormwater disposal methods consistent with the Spokane Regional Stormwater manual (SRSM), which may include grassed percolation areas, evaporation ponds, drywells and gravel galleries depending upon soil types at the locations of the proposed facilities. Anticipated rates will be appropriate for the design option chosen. The 10-year storm volume is anticipated to generate about 100 cfs. Because the system will follow SRSM, there will be a dead storage component of 0.5' in each swale or pond area that would limit direct discharge of items used in the home as well as firefighting activities.

The floodplain map modification will allow for the flood events to be disposed of in the open space at the north end of the site. This will involve collecting the flood flows in a concrete channel and pipe system, running through a bio-swale and infiltration ponds and gallery into the glacial sands

and gravels through drywells and/or gravel galleries. It may be that a portion of the flood discharge system may also be used for onsite stormwater runoff disposal.

2. Will any chemicals (especially organic solvents or petroleum fuels) be stored in aboveground or underground storage tanks? If so, what types and quantities of material will be stored?

No large quantities of chemicals are anticipated to be stored onsite after construction. Only household chemicals in appropriate "small" quantities are anticipated.

3. What protective measures will be taken to insure that leaks or spills of any chemicals stored or used on site will not be allowed to percolate to groundwater? This includes measures to keep chemicals out of disposal systems.

Any chemicals stored onsite would be inside commercial/retail buildings or residences with floor drains connected to the sanitary sewer system. These chemicals would be of small household/retail volumes. No bulk storage/use is planned. The project site will be served by public sewer, therefore, no contamination through septic tank disposal systems will occur.

4. Will any chemicals be stored, handled or used on the site in a location where a spill or leak will drain to surface or groundwater or to a Stormwater disposal system discharging to surface or groundwater?

No, chemicals are anticipated to be stored or handled adjacent to storm drainage facilities

b. Stormwater

1. What are the depths on the site to groundwater and to bedrock (if known)?

For the preliminary geotechnical investigations, 31 test pits were dug to a depth of 15 feet and no groundwater or bedrock were encountered. In a later investigation 10 borings were performed and groundwater was found at depths ranging from 11 to 47 feet. Well logs in the area indicate water depths at 50 to 80 feet. A third investigation of 3 borings was performed with groundwater encountered at 71 feet. Depth to bedrock is unknown.

2. Will stormwater be discharged into the ground? If so, describe any potential impacts.

Stormwater will be discharged into the ground per the SRSM. Because of the treatment requirements in the SRSM, no impacts are anticipated.

B. ENVIRONMENTAL ELEMENTS

1. **Earth**

a. General description of the site (Circle one):
(flat) rolling, hilly, steep slopes, mountainous, other

b. What is the steepest slope on the site (approximate percent slope)?

The site falls less than 1% from south to north. There are some localized steeper slopes due to golf course features such as tee boxes and greens, road embankments, etc. These may range up to 50% (2H:1V) within very short localized distances of 15 to 20 feet. Development grading will soften and remove these features.

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any prime farmland.

Based on the Natural Resources Conservation Service (NRCS) Soil Map, the majority of the site is Narcisse silt loam, 0 to 3 % slopes, prime farmland. Around the edges of the site there is Hardesty ashy silt loam, 0 to 3 % slopes, prime farmland; Urban land-Springdale, disturbed complex, 0 to 3 % slopes, not prime farmland; Endoaquolis and Fluvaquents, 0 to 3 % slopes, prime farmland if drained; and Phoebe shay sandy loam, 0 to 3 % slopes, prime farmland if irrigated. Based on the preliminary geotechnical investigation, under the topsoil there is a layer of alluvial soils and below this are glacially deposited sands and gravels. These soils will allow for infiltration of stormwater.

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.

There is no known history of unstable soils on the site or within the immediate vicinity.

e. Describe the purpose, type, and approximate quantities of any filling or grading proposed. Also indicate source of fill.

The property will be graded to create the streets, drainage ponds/swales, building pads, parking lots and park features. Final earthwork quantities are unknown at this time, but grading may require the movement of up to 450,000 cubic yards of material, with up to 330,000 cubic yards of import material. Which will be imported from the nearest source approved per City and County standards and brought to the site following City guidelines.

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.

Some erosion from wind and minor erosion from rain could occur on-site during construction elements. Because of the flatness of the site, the

potential for surface water erosion is limited and would be localized to the area of work.

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?

Approximately 25% of the site would be covered with impervious surfaces after completion of the project.

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:

Measures as required by the Spokane Regional Clean Air Authority (SRCAA) and Washington Department of Ecology (WDOE) permits will be followed, as will those measures noted in the erosion control plans. The appropriate best management practices found in the Eastern Washington Stormwater Management Manual (EWSWMM) and Spokane Regional Stormwater Manual (SRSM) will be followed. The appropriate erosion control measures to be implemented during construction may include using silt fences, wattles, sediment basins, inlet protection, watering and hydro-seeding. Following construction, soils will be stabilized by paving, building and landscaping/vegetation.

2. **Air**

a. What types of emissions to the air would result from the proposal (i.e., dust, automobile, odors, industrial wood smoke) during construction and when the project is completed? If any, generally describe and give approximate quantities if known.

During construction, some fugitive dust could be expected, although the erosion control prevention measures implemented in conjunction with erosion control permits would control these instances. Additionally, there will be exhaust fumes from construction equipment, during construction activities. At the completion of the project construction air emissions may be from home appliances such as dryers and gas furnaces, exhaust from yard maintenance equipment, home owner and delivery/service vehicles activities such as barbecuing and from additional vehicular trips generated by the project.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.

None known

c. Proposed measures to reduce or control emissions or other impacts to air, if any:

Use of best management practices, such as watering during grading operations, will be implemented to reduce short term impacts.

3. **Water**
   a. Surface:
      1. Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.

Chester Creek, an intermittent/seasonal stream, flows through the southwest portion of the site. The length of travel from Thorpe Rd to Dishman-Mica Rd is approximately 900 feet. The creek is adjacent to the existing commercial area and has two existing crossings (cart path bridges from the former golf course) that will remain.

The Washington DNR (WA DNR) Stream Map identifies the portion of Chester Creek in the vicinity of and on the project site as a Type F (fish-bearing) stream. This designation is likely inaccurate as the stream bed is dry most of the year and there is no upstream or downstream water body that would supply fish to the creek when there are flows.

A request will be made to the WA-DNR for stream retyping of Chester Creek to change the designation from F to Ns. The request for retyping will be made after the first phase has been completed.

Spokane County maps indicate there is a Type F stream across the Gustin property where the project proposes to pipe an existing agricultural ditch (Gustin Ditch). Application was made to the County/DNR to remove this designation as it does not apply. The County and DNR have approved the removal of the stream designation, thus allowing piping of the ditch.

Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans

Yes. Construction activities occurring within 200 feet of Chester Creek include the previously described roadway improvements to Dishman-Mica Road and Thorpe Road, filling the areas to the east to CLOMR-F elevations, and the extension of the existing cart paths as trails in open space areas, the construction of all or a portion of four (4) residential lots and a portion of a local access street, removal of existing vegetation and planting of new vegetation per a Biological Evaluation and Habitat Management Plan, installing a box culvert extension on Thorpe Road and installing storm drainage facilities, performing maintenance and enhancement, and constructing a portion of the commercial site development. A Biological Evaluation and Habitat Management Plan has been prepared and Chester Creek requires a 100-foot stream buffer. Work will occur to provide additional vegetation in the stream buffer and the stream buffer mitigation areas. A map of the affected areas is included within that report.

2. Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.

No fill or dredge material is proposed to be placed within the channel of Chester Creek as identified by West Consultants.

3. Will the proposal require surface water withdrawals or diversions? **YES,** Give general description, purpose, and approximate quantities if known.

The proposed development will redirect floodwaters that currently enter the site, to two separate storage, treatment and discharge facilities. Floodwaters currently enter the property from three separate off-site areas—from the south under Thorpe Road, from the east under Madison Road, and occasionally from the northwest from Highway 27.

Please see the Flood Control Narrative prepared by Whipple Consulting Engineers for a complete and detailed description of the area floodwaters, the diversion of the floodwaters into treatment, storage, and discharge facilities.

In general, the floodwaters to the south are collected at Thorpe Road and piped along Madison Road to the flood facilities located at the north end of the project. The flows from the east side of Madison Road are also collected and piped to the flood facilities. The floodwater that flows from a culvert under Highway 27 is captured within a manhole and piped to a storage, and discharge facility located at the east end of 40th Avenue.

In general, the proposed floodwater facilities have been designed to remove the project site as well as adjacent properties from the flood zones as indicated on the FEMA floodplain map. Submittal of the CLOMR- F will finalize that process.

4. Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.

Per FIRM Panel FM53063C0751D, four flood zone designations occur on the proposed development site:
Zone AE, base flood elevations
Zone AE, Regulatory Floodway;
Zone X, areas of 0.2% annual chance flood, areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile, and areas protected by levees from 1% annual chance flood; and
Zone X, Area of Minimal Flood Hazard, areas determined to be outside the 0.2% annual chance floodplain (.

The site contains a compensatory storage area as defined in SVMC 21.30.100 Per this designation, development must compensate for any loss of flood storage or infiltration capacity onsite. The intent behind the compensatory requirement is to ensure that post development conditions do not cause an increase to the 1% annual chance water surface elevations or increase downstream flood flows" Please see West Consultants CLOMR-F report for a detailed analysis of the proposed changes to the floodplain and compensatory storage.

In general, post-development, off-site floodwaters will be directed to one or more storage, treatment, and discharge facilities, thereby maintaining the compensatory storage consistent with the provisions under SVMC 21.30.100. Please see the Flood Control Narrative for details of the proposed facilities.

5. Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.

No production waste materials are proposed to be discharged to surface or ground waters.

b. Ground:
   1. Will ground water be withdrawn, or will water be discharged to ground water? Give general description, purpose, and approximate quantities if known.

No groundwater will be withdrawn from this site. Stormwater flows generated by the project will be discharged to the underlying soils and groundwater as allowed per SRSM. These flows have not yet been determined but will be consistent with other like and kind developments within the City of Spokane Valley. Additionally, the seasonal flow of water from the Chester Creek dike/bank breach upstream of the site and the basins east of the site will be captured and discharged via infiltration, consistent with the existing condition as described in Section 3) Water a. Surface 4) above. Approximate quantities are listed in that same section.

2. Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

No waste materials from septic tanks or other sources are anticipated as the development is to be connected to public sewer.

c. Water runoff (including stormwater):
   1. Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.

The source of runoff from this site after completion of the plat will be from the constructed elements of the plat including but not limited to homes, streets, sidewalks, driveways, lawns, open spaces, parking lots, commercial buildings, etc. Stormwater generated on site will not be discharged to other waters. Stormwater will be discharged to on-site catchments or pond areas where it will be treated and then discharged as required by the SRSM to the underlying soils via swale bottoms, pond bottoms, drywells, galleries, etc.

2. Could waste materials enter ground or surface waters? **NO** If so, generally describe.

d. Proposed measures to reduce or control surface, ground, and runoff water impacts, if any:

The Development proposes a flood control system that is designed to capture, treat, store and dispose of floodwaters. Please see the Painted Hills Flood Control Development Narrative, for more detail.

The project subdivision, apartments and commercial development will also be developed following the requirements for stormwater as outlined in the SRSM. Additional measures, if any, will be added if required during design and review as approved by the City.

4. **Plants**

a. Check or circle types of vegetation found on the site:

- ✓ deciduous tree: alder, maple, aspen, other
- ✓ evergreen tree: fir, cedar, pine, other
- ✓ shrubs
- ✓ grass
- ☐ pasture
- ☐ crop or grain
- ☐ wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other
- ☐ water plants: water lily, eelgrass, milfoil, other
- ☐ other types of vegetation_____

b. What kind and amount of vegetation will be removed or altered?

All vegetation will be removed except for that in the undisturbed open space areas such as the creek area.

c. List threatened or endangered species known to be on or near the site.

None known.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

A variety of grasses, shrubs and trees will be used throughout the open space and in the developed area landscaping including native plants where practicable.

5. **Animals**

a. Circle any birds and animals which have been observed on or near the site or are known to be on or near the site:

birds: hawk, heron, eagle, songbirds, other:
mammals: deer, bear, elk, beaver, other:
fish: bass, salmon, trout, herring, shellfish, other:

b. List any threatened or endangered species known to be on or near the site.

As documented in the Painted Hills PRD Biological Evaluation, Buffer Averaging and Habitat Mitigation Plan, dated July 20, 2015, revised August 30, 2016, completed by Biology, Soil, and Water, Inc., it was found that there are no National Marine Fisheries Service listed species in the project vicinity. The United States Fish and Wildlife Service (USFWS) has mapping indications of a "potential presence" of Bull Trout habitat on the site. However, per the findings of the Biology, Soil and Water, Inc. report, the project would have no impact on bull trout habitat because the Spokane River in the project vicinity has no documented population of bull trout downstream of the Post Falls dam.

City of Spokane Valley Priority Habitats Map indicates the golf course is elk habitat.

c. Is the site part of a migration route? **Yes,** If so, explain.

The proposed project site is part of the Pacific Flyway, a major north-south bird migration route through North America. Various raptors have been seen on or near the site. Elk may also follow an East-West travel path across the site.

d. Proposed measures to preserve or enhance wildlife, if any:

For any raptors onsite, care will be used at the time of site grading to not impact raptor nesting sites until the young birds have fledged. The park area across the south end of the project abutting Chester Creek provides an east-west travel path for elk. Stream buffer areas will receive additional vegetation to provide cover for various wildlife species.

6. **Energy and natural resources**

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

Public electricity and natural gas will be made available to each home site for heating and lighting of the houses. Additionally, solar, wind and other sources of power are available if individuals choose to develop their own generators. Wood stoves generally are not allowed without special permits and at this time it is not anticipated that wood heat will be implemented on this project.

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

The project is not anticipated to affect the potential use of solar energy.

c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any:

None at this time beyond those commonly found in "Energy Star" or equivalent appliances, building codes, etc.

7. **Environmental Health**
   a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe
      1. Describe special emergency services that might be required.

No special emergency services are required because the planned residential development will not require the irregular use of materials that would qualify as an environmental health hazard.

2. Proposed measures to reduce or control environmental health hazards, if any:

Coordination with local jurisdictions throughout the PRD and construction process.

b. Noise
   1. What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?

None known

2. What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.

Construction and land clearing equipment as well as structure construction noises for the short term. Residential traffic noise and other residential noises such as yard maintenance equipment, domestic pets, occupants, park use, etc. for the long term.

3. Proposed measures to reduce or control noise impacts, if any:

Construction will be limited to times prescribed in City code.

8. **Land and shoreline use**
   a. What is the current use of the site and adjacent properties?

The site is currently a non-operating golf course; however, the club house has been repurposed as a commercial restaurant. The area east of the site is zoned LDR and currently developed with rural residential lots. South of the site again the land is zoned LDR with single family residences, a landscape contracting business and open fields. Areas southwest of the site are zoned LDR and include an auto repair business, railroad line, and open space. Areas west of the site are zoned LDR and include two religious facilities and single-family residences. Areas north of the site are zoned LDR and include a religious facility and single-family residences

b. Has the site been used for agriculture? If so, describe.

Unknown. The site operated as a golf course between 1989 and 2012.

c. Describe any structures on the site.

There are three buildings on the site. The former clubhouse currently leased as a restaurant with lounge, the golf course maintenance building and the Par 3 play starter shack.

d. Will any structures be demolished? **Yes,** If so, what?

Underdetermined at this time, but perhaps the Par 3 starter shack will be demolished or the maintenance building.

e. What is the current zoning classification of the site?

R-3, Single Family Residential

f. What is the current comprehensive plan designation of the site?

LDR, Low Density Residential

g. If applicable, what is the current shoreline master program designation of the site?

This is not applicable as the project is not adjacent to any bodies of surface water.

h. Has any part of the site been classified as an "environmentally sensitive" area? If so, specify.

The following critical areas were identified by the City at a pre-application conference: wetlands, fish and wildlife habitat (elk), Chester Creek fish habitat, geologically hazardous areas (alluvium), floodplain. A biological assessment has been performed and there are no wetlands on the site. A stream buffer has been identified with mitigation area for buffer impacts, and the southernmost open space (referred to as park area) will function as a wildlife corridor for elk. A geohazard evaluation was performed and there is minimal risk of geotechnical failure of the alluvium soils. Floodplain impacts are addressed in several sections above in conjunction with storm water.

i. Approximately how many people would reside or work in the completed project?

It is expected that the project will house approximate 1,400 residents at project completion.

j. Approximately how many people would the completed project displace?

No people are proposed to be displaced by the project.

k. Proposed measures to avoid or reduce displacement impacts, if any:

As no people are proposed to be displaced no measures are proposed to offset impacts.

l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

The project will comply with SVMC 19.50 as well as all other applicable portions of the City municipal code and any conditions imposed with project approval as well as the City's Comprehensive Plan and pertinent portions of RCW 58.17 and RCW 36.702.

9. **Housing**

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

Approximately 580 to 600 units would be provided with the project and the price points would accommodate a range of income levels.

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

No units are proposed to be eliminated.

c. Proposed measures to reduce or control housing impacts, if any:

As no units are proposed to be eliminated, no measures are proposed to offset impacts.

10. **Aesthetics**

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

Heights of structures within the project are not expected to exceed the maximum building height of 35-feet in the R-3 zoning designation and building height as allowed by code. Exterior materials, may be one or a combination of the following: wood, brick, aluminum, lap siding (wood/concrete/vinyl) with cultured or natural stone, windows, doors, asphalt shingles, etc.

b. What views in the immediate vicinity would be altered or obstructed?

As the project is located in the lowest basin of the area and no views of the surrounding hills or mountains are anticipated to be obstructed.

c. Proposed measures to reduce or control aesthetic impacts, if any:

Consistent with the planned residential development requirements, 30% open space will be provided within the development and will provide a combination of passive and active recreational opportunities.

11. **Light and glare**
    a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

Street lighting, parking lot lighting and residential outside lighting is anticipated to occur from dusk to dawn.

    b. Could light or glare from the finished project be a safety hazard or interfere with views?

No light or glare is anticipated to occur that would be a safety hazard.

    c. What existing off-site sources of light or glare may affect your proposal?

None known.

    d. Proposed measures to reduce or control light and glare impacts, if any:

Street lights will have shielding to meet city foot candle lighting requirements, mounting heights & wattage.

12. **Recreation**
    a. What designated and informal recreational opportunities are in the immediate vicinity?

Dishman Hills Natural Area with associated trails is 3 miles to the northwest. Castle Park and Brown Park are about a mile from the site to the north. University High School, Horizon Middle School and Chester Elementary School with their associated play fields are within 0.5 miles of the site.

    b. Would the proposed project displace any existing recreational uses? If so, describe.

As the golf course has not been in operation since the year 2012 and the site is not formally designated for public recreation purposes, no recreational uses will be eliminated.

    c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:

The project will have open space areas between elements of the site with trails running through the open space areas. There is a 10-acre park and wildlife travel corridor proposed across the south end of the project per the planned residential development and open space plan which is a part of this application.

13. **Historic and Cultural Preservation**

a. Are there any places or objects listed on, or proposed for, national, state, or local preservation registers known to be on or next to the site? If so, generally describe.

There are no known landmarks or features located on the project site found on the WISAARD site. A Cultural Resource Survey has been completed on the project site by Plateau Archaeological Investigations, LLC and revealed no evidence of archaeological or historic resources on the site.

b. Generally, describe any landmarks or evidence of historic, archaeological, scientific, or cultural importance known to be on or next to the site.

Per the Cultural Resource Survey of the Painted Hills Residential Development Project, Spokane Valley, Washington prepared by Plateau Archaeological Investigations, LLC and dated April 2018, professional archaeologists conducted an intensive pedestrian survey with 28 subsurface probes and found no evidence of archaeological or historic resources on the site.

c. Proposed measures to reduce or control impacts, if any:

Consistent with the findings of the cultural resource survey, should ground-disturbing activities reveal any cultural materials (e.g., structural remains, Euroamerican artifacts, or Native American artifacts), activity will cease and the Washington State Historic Preservation Officer should be notified immediately of the discovery.

14. **Transportation**

a. Identify public streets and highways serving the site and describe proposed access to the existing street system. Show on site plans, if any.

Interstate 90 lies approximately 4 miles north of the site. Access from the interstate can be via Argonne Road/ Dishman-Mica Road or Pines Road/Madison Road. The site is bordered by Dishman-Mica Road, Thorpe Road and Madison Road. Interior project streets and parking lot driveways will tie into these roads.

b. Is site currently served by public transit? If not, what is the approximate distance to the nearest transit stop?

No, the nearest transit stop is approximately 0.5 miles north from the north end of the site and 1.0 mile from the south end of the site at the intersection of Pines Road and E 32nd Avenue., Spokane Transit Authority (STA) Route 97 serves the south and east portions of the City of Spokane Valley.

c. How many parking spaces would the completed project have? How many would the project eliminate?

Because of the variety of uses, this number is currently estimated based on approximately two parking spaces for each unit with an additional

allowance of 30% for visitors and other community parking opportunities. Based on City code for off-street parking requirements and using some approximate multi-family unit sizes and commercial use square footages, the total off-street parking may be in the range of 1200-1400 spaces. No parking spaces are proposed to be eliminated.

d. Will the proposal require any new roads or streets, or improvements to existing roads or streets, not including driveways? If so, generally describe (indicate whether public or private).

Yes, the proposal will require construction of a network of on-site public local access streets to provide access to the residential elements of the project. Access to commercial areas is planned from Dishman-Mica Road and Thorpe Road.

The following improvements to existing streets will be implemented:

- **Project Frontage improvements to Dishman-Mica Road, Thorpe Road, and Madison Road**
- **Southbound left turn lane at the intersection of Dishman-Mica Road & Thorpe Road**
- **Northbound Right Turn lane at the intersection of 32nd Avenue & Pines Road**
- **Participation in the 16th Avenue and Pines Road Improvement Project**

For more detail please see the Painted Hills Traffic Impact Analysis, The corresponding Addendum Letters and the Traffic Mitigation Threshold Letter.

e. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

No, the project site is not adjacent to water, rail or air transportation.

f. How many vehicular trips per day would be generated by the completed project? If known, indicate when peak volumes would occur.

Due to the multiple uses proposed in this project, each use produces different types of trips. The overall anticipated driveway Average Daily Trips will be approximately 5,655 vehicles with an AM peak hour trip total of 366 vehicles and a PM peak hour trip total of 482 vehicles. For a more detailed breakdown of trips see the Traffic Impact Analysis. Traffic counts indicated that peak hour volumes would generally occur between 6AM and 8AM and between 4PM and 6PM.

g. Proposed measures to reduce or control transportation impacts, if any:

See Traffic Impact Analysis and any associated mitigation, noted in that document specifically and the description of planned road improvements in Section 14d identified above.

15. **Public services**
    a. Would the project result in an increased need for public services (for example: fire protection, police protection, health care, schools, other)? If so, generally describe.

Yes, an increase in area population resulting from the development of the site will have a net increase in the requirement for use of public services. However, the increase in the project area population may not be significant enough to result necessarily in the construction of additional service facilities. As this area is within the City limits and is planned for low density residential in the Comprehensive Plan, additional service needs would have been anticipated with the Comprehensive Plan which addresses goals and policies for facilities and services.

The Comprehensive Plan covers water (site has water transmission mains in surrounding roads and a public well site adjacent to site), sewer (site is bounded by an interceptor on the west side and collectors west and south to transmit sewage to centralized treatment), stormwater (onsite facilities will handle disposal), police (no City level of service adopted), parks (onsite park/open space exceeds City Comp Plan requirements), libraries (Library District sets Level of Service and has one library in the City), solid waste (transfer station and Waste Management collection satisfies regional level of service), public transit (STA sets service levels and routes), fire and EMS (fire station within a mile of the site meeting regional level of service) and public schools (level of service set by school districts, K-12 schools located within a mile of the site). Notice of the proposed application has been provided to these service providers in conjunction with the land use application and environmental review. The school district has not commented on the application to date.

The City of Spokane Valley is served by four school districts—East Valley, Central Valley, West Valley, and Spokane School District 81. In 2018 the Central Valley School District passed a $129.9 million school construction bond to fund build a new high school to serve 1,600 additional students, renovate Horizon Middle School to increase capacity by 120 students, and to build a new middle school to serve an additional 600 students. The Spokane School District is currently in the process of early planning for a 2021 new facility construction bond. The added capacity provided by upcoming school construction projects funded by bond measures will help provide additional capacity for students from the project.

While it is anticipated that the project could ultimately house approximately 1,400 residents, it is anticipated that the population of the development will grow with site buildout and will occur over a 10-year period or longer as the housing market dictates. This period will allow for the measured increase of provision of public services in conjunction with increased demand and

with the collection of development revenues that will help fund capital facilities and operational costs of services.

b. Proposed measures to reduce or control direct impacts on public services, if any.

The proposed project will be developing at a scale and intensity generally consistent with the planned land use designation for the site which would serve as the basis for regional capital facility and service planning for public service providers. It is anticipated that the development will occur over a 10-year period and that the steady increase in demand for public services will be compensated by increased property taxes and system development charges collected over this measured growth period. As a result, no mitigation measures for public service effects are proposed.

16. **Utilities**

a. Check utilities currently available at the site:

- ✓ Electricity
- ✓ Natural gas
- ✓ Water
- ✓ Refuse service
- ✓ Telephone
- ✓ Sanitary sewer
- ☐ Septic
- ✓ Other Cable TV

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

Electric - Inland Power & Light
Natural gas - Avista Utilities
Water - Water District #3
Refuse service - Waste Management
Telephone - CenturyLink
Sanitary Sewer - Spokane County Utilities
CableTV - Comcast

The general construction activities will consist of trenches and/or pole modifications/relocations in the rights of way to install the utilities. Enclosures for waste receptacles will likely be constructed in the multi-family and commercial areas.

C. SIGNATURE

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature: _____ Date: 8-16-18

D. SUPPLEMENTAL SHEET FOR NON-PROJECT ACTIONS

(Do not use this sheet for project actions)

Because these questions are very general, it may be helpful to read them in conjunction with the list of the elements of the environment.

When answering these questions, be aware of the extent the proposal, or the types of activities likely to result from the proposal, would affect the item at a greater intensity or at a faster rate than if the proposal were not implemented. Respond briefly and in general terms.

1. How would the proposal be likely to increase discharge to water; emissions to air; production, storage, or release of toxic or hazardous substances; or production of noise?

   a. Proposed measures to avoid or reduce such increases are:

2. How would the proposal be likely to affect plants, animals, fish, or marine life?

   a. Proposed measures to protect or conserve plants, animals, fish, or marine life are:

3. How would the proposal be likely to deplete energy or natural resources?

   a. Proposed measures to protect or conserve energy and natural resources are:

4. How would the proposal be likely to use or affect environmentally sensitive areas or areas designated (or eligible or under study) for governmental protection; such as parks, wilderness, wild and scenic rivers, threatened or endangered species habitat, historic or cultural sites, wetlands, floodplains, or prime farmlands?

   a. Proposed measures to protect such resources or to avoid or reduce impacts are:

5. How would the proposal be likely to affect land and shoreline use, including whether it would allow or encourage land or shoreline uses incompatible with existing plans?

   a. Proposed measures to avoid or reduce shoreline and land use impacts are

6. How would the proposal be likely to increase demands on transportation or public services and utilities?

   a. Proposed measures to reduce or respond to such demand(s) are:

7. Identify, if possible, whether the proposal may conflict with local, state, or federal laws or requirements for the protection of the environment.

E. SIGNATURE

I, the undersigned, swear under penalty of perjury that the above responses are made truthfully and to the best of my knowledge. I also understand that, should there be any willful misrepresentation or willful lack of full disclosure on my part, the agency may withdraw any Determination of Nonsignificance that it might issue in reliance upon this check list.

Date: _____ Signature: _____

Please print or type:

Proponent: _____

Address: _____

Phone: _____

Person completing form (if different from proponent):

Name: _____

Address: _____

Phone: _____

APPENDIX B
Public Comment Index

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APPENDIX C

Impact Comparison Table – Alternative 2a v. Standard Subdivision

Appendix C. Alternative 2a (Planned Residential Subdivision) v. Standard Subdivision Impacts Summary

	Alternative 2a—PRD Impact Summary	Standard Subdivision Alternative Impact Summary	Comparative Analysis Finding
Natural Environment			
Ground water	A series of pipes, swales and basins for treatment and management of surface water are installed to manage stormwater before it reaches the aquifer. No change is anticipated in volumes of water that reach the aquifer via the project site. No impact to the Spokane Rathdrum Prairie aquifer. Water that currently recharges the aquifer would continue to recharge through permeable areas and through the infiltration pond installed at the northern limits of the site.	Same treatment and management of surface water before it reaches aquifer as under Alternative 2a. No change in volumes of water that reach the aquifer via the project site are anticipated under the Standard Subdivision Alternative. No impact to the Spokane Rathdrum Prairie aquifer. Water that currently recharges the aquifer would continue to recharge through permeable areas and through the infiltration pond installed at the northern limits of the site.	Similar level of impact between Alternative 2a and the Standard Subdivision Alternative.
Surface water	Addition of culverts and creation of swales and ponds to manage floodwater that enters the site There would be no direct impact to the channel of Chester Creek from the widening of Thorpe Road. Includes 30-acre +/- undeveloped park area in southern portion of the site available to store floodwaters	Same addition of culverts and creation of swales and ponds as under Alternative 2a There would be no direct impact to the channel of Chester Creek from the widening of Thorpe Road. No 30-acre park is provided to store floodwaters.	Similar level of impact between Alternative 2a and the Standard Subdivision Alternative.
Built Environment			
Land use	• 42 estate single family residential lots, • 206 standard single-family residential lots • 52 cottage-style single family residential lots, • 228 multi-family residential units, • 52 mixed use multi-family residential units integrated with • approximately 13,400 square feet of retail/commercial use, • 9,000 square feet of future stand-alone retail commercial use • 30% greenspace totaling approximately 30 acres with trails that include a 10-acre park and wildlife travel corridor	The southern portion of the site will be filled for residential lots and would not be available to receive floodwater because the park in this area would be omitted from the design— • 543-lot subdivision • No *new* commercial or multifamily residential development • No greenspace or trails	The Standard Subdivision Alternative has a greater impact on site land use due to a reduction in open space (30 fewer acres)

Flood hazard areas	The required loose fill import volume is approximately 377,532 CY 48 on-site acres and 44 off-site acres will be removed from 100-year floodplain	Approximately 660,240 CY of fill material would need to be imported under the Standard Subdivision Alternative.	Considerably more fill under the Standard Subdivision Alternative
Transportation	Construction-related truck trips: over a four-year period or approximately 22.47 truck trips per day Alternative 2a is anticipated to generate 380 new AM peak hour trips, with 95 new trips entering the site, and 285 new trips exiting the site via the eight access opportunities previously noted. In the PM peak hour, the project is anticipated to generate 545 new trips, with 338 new trips entering the site, and 207 new trips exiting the site. 5,846 ADT and 545 PM Peak Hour Trips	Approximately 40 truck trips (one trip to the site and one return trip) would occur per day over the duration of the site grading activities over a 4-year period. The Standard Subdivision Alternative would require more fill than Alternative 2a, primarily due to the filling of the open space area located just north of East Thorpe Road. The total required fill volume with the Standard Subdivision Alternative is approximately 574,122 CY. 5,529 ADT and 573 PM Peak Hour Trips The Standard Subdivision Alternative generates approximately 317 fewer average daily trips but generates approximately 28 more PM peak hour trips. This is due to the higher PM peak hour trip generation of the single-family residential units and the fact that no internalization trip reduction factor is applied with the Standard Subdivision Alternative because no commercial uses would be included.	More construction (fill) generated truck trips under the Standard Subdivision Alternative The Standard Subdivision Alternative generates approximately 317 fewer average daily trips but generates approximately 28 more PM peak hour trips.
Environmental Elements Not Analyzed in Detail			
Air quality		Impacts to air quality under the Standard Subdivision Alternative will be similar to those described for Alternative 2a with the following exceptions: The Standard Subdivision Alternative provides a greater number of single-family residences than Alternative 2a, with 543 total single-family residences compared to 300 single family residences in Alternative 2a. The additional single-family residences are more likely to be a source of fine particulates from wood burning stoves. The Standard Subdivision Alternative does not incorporate 30% of the gross site area to public open space, therefore providing less area that can serve as a “carbon sink.” Construction-related impacts to air quality will likely be greater with the Standard Subdivision Alternative	The Standard Subdivision Alternative is likely to generate more smoke from wood stoves because it provides more single-family residences. The Standard Subdivision Alternative would also result in greater impacts to air quality from construction-related exhaust.

		due to the greater degree of imported fill material required.	
Aesthetics	Alternative 2a will convert most of the central, east and northwest areas of the site into a mixed-use community. Remaining areas of the property will be retained as community open space.	Most of the field and open space areas on the site would be converted to urban development.	The Standard Subdivision Alternative will have somewhat greater impact on local aesthetics
Biological Resources	The combined buffer impacts equal approximately 15,619 SF. Buffer averaging, and enhancement plantings are proposed to ensure that these impacts do not result in a reduction in the ecological function and values of the riparian area.	Fill material placed on the east stream bank will cover an approximately 104,132 SF of area. This area will be replanted with native grasses, trees and shrubs, representing a significant enhancement over existing conditions.	The Standard Subdivision Alternative has considerably more impact to critical area buffers
Environmental Health	Dust, noise, and exhaust from construction	Dust, noise, and exhaust from construction	Similar level of impact between Alternative 2a and the Standard Subdivision Alternative.
Geology	Grading may require the movement of up to 450,000 cubic yards of material, with up to 330,000 cubic yards of imported material Due to the placement of fill and site development features proposed under Alternative 2a the opportunity for surface water and precipitation to recharge the underlying aquifer will be limited to the proposed infiltration basin, roadside swales, and dry wells.	574,122 CY of fill material, which will require the import of approximately 660,240 CY of "loose" fill material prior to compaction on the site. Due to the placement of fill and site development features proposed under Alternative 2a the opportunity for surface water and precipitation to recharge the underlying aquifer will be limited to the proposed infiltration basin, roadside swales, and dry wells.	Considerably more fill under the Standard Subdivision Alternative
Historic, Cultural & Archaeological	Essentially no impacts	Essentially no impacts	Similar level of (non) impact between Alternative 2a and the Standard Subdivision Alternative.
Noise	During the construction phase noise from construction, land clearing, and fill delivery and placement equipment as well as structure construction will increase for the short term. Following completion of construction, noise will be generated by residential traffic and other residential sources including yard maintenance equipment, domestic pets, occupants, and park use for the long term. The increase in population under the Standard Subdivision Alternative would likely lead to noise levels that are higher than current levels. It is unlikely that the increase would be measurable, but it may be perceived by	During the construction phase noise from construction, land clearing, and fill delivery and placement equipment as well as structure construction will increase for the short term. Following completion of construction, noise will be generated by residential traffic and other residential sources including yard maintenance equipment, domestic pets, occupants, and park use for the long term. The increase in population under the Standard Subdivision Alternative would likely lead to noise levels that are higher than current levels. It is unlikely that the increase would be measurable, but it may be	Similar level of impact between Alternative 2a and the Standard Subdivision Alternative.

	residents in terms of the frequency to which they experience noise disturbance.	perceived by residents in terms of the frequency to which they experience noise disturbance.	
Public Services	Based on current demographics, it is expected that approximately 1,377 people would reside in the project at full project buildout. Further, it is anticipated that approximately 45 employees would work in the 22,400 SF of new retail space that would result with Alternative	The Standard Subdivision Alternative is anticipated to create 543 single-family residential units, which would result in approximately 1,358 new residents at full buildout of the community.	Slightly fewer individuals under the Standard Subdivision Alternative but all in Single-family units—more impacts under the Standard Subdivision Alternative due to more single-family units
Recreation	Alternative 2a is anticipated to generate approximately 300 single-family residential units, 228 multi-family units and 52 mixed-use residential units. Based on the 2013-2017 American Community Survey 5-Year Estimates, it is anticipated that each single-family unit would be occupied by approximately 2.5 residents, and that each of the 280 multi-family units would be occupied by approximately 2.24 residents. This would result in a total population of approximately 1,377 residents upon completion of the project, which is anticipated to occur over a period of approximately 10 years or longer as the housing market dictates. Based on the City's comprehensive plan level-of-service target of 1.92-acres of park space per 1,000 residents, the project would create demand for approximately 2.64 acres of park space in the community. As noted in the site plan included on Figure 3-15 of this document, Alternative 2a incorporates approximately 30 acres of open space, including a 10-acre park which will fulfill the recreational demands of the new development.	The Standard Subdivision Alternative is anticipated to create 543 single-family residential units, which would result in approximately 1,358 new residents at full buildout of the community. Based on the City's comprehensive plan target of 1.92-acres of parks area per 1,000 residents, the Standard Subdivision Alternative would generate the need for approximately 2.61 acres of park area.	The Standard Subdivision Alternative would generate need for park areas that Alternative 2a would not; the Standard Subdivision Alternative would result in greater impact than Alternative 2aa

APPENDIX D

Standard Subdivision Alternative Environmental Review

APPENDIX D – STANDARD SUBDIVISION ENVIRONMENTAL EFFECTS ANALYSIS

NATURAL ENVIRONMENT (GROUND AND SURFACE WATER)

Under the Standard Subdivision Alternative, as with Alternative 2a, the widening of Thorpe Road to meet City road standards will result in an additional 15 feet of the main channel of Chester Creek to be bridged by the new roadway surface.

As described for Alternative 2a, under the Standard Subdivision Alternative floodwater that enters the project site will be collected in a series of pipes and swales and will infiltrate into the Spokane Rathdrum Prairie aquifer via an engineered infiltration basin. No change in volumes of water that reach the aquifer via the project site are anticipated to change under the Standard Subdivision Alternative.

As described for Alternative 2a, under the Standard Subdivision Alternative there would be no direct impact to the channel of Chester Creek from the widening of Thorpe Road.

Under the Standard Subdivision Alternative there would be no impact to the Spokane Rathdrum Prairie aquifer. Water that currently recharges the aquifer would continue to recharge through permeable areas and through the infiltration pond installed at the northern limits of the site.

Stormwater quality and quantity management methods consistent with those identified for Alternative 2a would be employed with be employed.

Because on-site and regional development will be required to employ stormwater quality and quantity management measures consistent with the SRSM, no cumulative effects are anticipated.

BUILT ENVIRONMENT (LAND USE AND FLOOD HAZARD AREAS)

Under the Standard Subdivision Alternative, the approach to controlling and managing floodwaters, and meeting compensatory storage requirements will be the same as the approach proposed under Alternative 2a. Management and control of floodwaters will be achieved on-site through a combination of enhanced conveyance facilities (culverts) and infiltration galleries. Development areas where future roads and buildings will be located will be elevated above the 100-year floodplain through the placement of imported fill.

As proposed under Alternative 2a, The Standard Subdivision Alternative proposes to modify existing floodplain areas through a CLOMR, the preliminary FEMA remap authorization before a LOMR is finalized.

As described for Alternative 2a, the sources of floodwater under The Standard Subdivision Alternative remain unchanged. The potential for floodwater to enter the site from the unnamed tributary to Chester Creek northeast of the project site will be eliminated due to the placement of the existing Gustin Ditch into a pipe that connects directly to the triangle pond which would serve as a detention basin.

Under the Standard Subdivision Alternative, as under Alternative 2a, floodwaters that leave the Chester Creek channel south of the site will no longer flow over Thorpe Road or inundate the southern portion of the project site.

Under this alternative, unlike under Alternative 2a, the southern portion of the project site would be filled for residential lots and would not be available to receive floodwater because the park in this vicinity would be omitted from the design.

As described for Alternative 2a, on-site and off-site flood conveyance and storage improvements completed under The Standard Subdivision Alternative would also remove off-site areas from the 100-year floodplain. The area east of Madison Road currently designated as 100-year floodplain would lose its floodplain designation and the potential for ponding in that area would be significantly reduced. Similarly, the potential for flooding on the property to the northeast of the project site from the unnamed tributary to Chester Creek near SR 27 due to replacement of the Gustin Ditch with a 36-inch pipe, and the deepening and addition of drywells to the bottom of the triangle pond. The 100-year floodplain designation would be removed from the currently designated floodplain between the northeast corner of the project site and SR 27, including the Gustin property.

The changes in floodplain designation proposed under the Standard Subdivision Alternative would allow new development in areas, both on-site and off-site, that had been previously subject to development restrictions due to 100-year flood mapping.

TRANSPORTATION

The Standard Subdivision Alternative proposes the development of 543 residential lots and would not include any *new* commercial retail or multi-family uses within the project. The Alternative would, however, continue to include the operation of the former golf course clubhouse as a 4,000 SF restaurant.

Using the ITE Trip Generation Manual, 9th Edition designation (Land Use Code #210) for single family residential units, an average of 9.52 vehicular trips per day and one PM peak hour trip per unit is assumed. Therefore, a total of 5,169 ADT and 543 PM peak hour trips are assumed to occur from the residential use under the Standard Subdivision Alternative.

Because the 2016 TIA included trips estimated from re-use of the golf course clubhouse, those trips have also been added to the estimated trip generation of the standard subdivision to ensure that the baseline assumptions of traffic impacts of Alternatives 2a and 3 are consistent. As noted in Table 3-8 below, The Standard Subdivision Alternative generates approximately 317 fewer average daily trips, but generates approximately 28 more PM peak hour trips. This is due to the higher PM peak hour trip generation of the single-family residential units and the fact that no internalization trip reduction factor is applied with The Standard Subdivision Alternative because no commercial uses would be included.

Table 1: ADT and PM Peak Hour Trip Comparison – Alternatives 2a and 3

Alternative	ADT	PM Peak Hour Trips
Alternative 2a – PRD (inc. 4,000 GSF restaurant)	5,846	545
Standard Subdivision Alternative – Standard Subdivision (inc. 4,000 GSF restaurant)	5,529	573

**Trip counts include 360 ADT and 30 PM peak hour trips associated with the 4,000 square foot restaurant operating at the former golf clubhouse.*

Construction-related Impacts

Like Alternative 2a, the Standard Subdivision Alternative would also require a substantial amount of fill material to bring development areas above the 100-year base flood elevation. The Standard Subdivision Alternative would require more fill than Alternative 2a, primarily due to the filling of the open space area located just north East Thorpe Road. The total required fill volume with The Standard Subdivision Alternative is approximately 574,122 CY. Using the same 15 percent shrink/swell factor applied to

determine the amount of "loose" material that would need to be imported to the site under the Standard Subdivision Alternative, it is estimated that a total of approximately 660,240 CY of fill material would need to be imported under The Standard Subdivision Alternative. Based on an average dump truck volume of approximately 30 CY, it is estimated that 22,008 dump truck deliveries would be required to bring this fill material to the site. Assuming this material is delivered to the site over a four-year period, with 280 work days per year, it is assumed that approximately 20 truck deliveries would occur per day or approximately 40 truck trips (one trip to the site and one return trip) would occur per day over the duration of the site grading activities. The haul route for these dump trucks will be via Dishman-Mica Road, a Principal and Minor Arterial, that experiences a total ADT of approximately 22,700 trips near Appleway Avenue and 4,800 ADT near Thorpe Road. Therefore, the dump truck-related trips are estimated to represent less than one percent of the ADT of this facility.

ENVIRONMENTAL ELEMENTS NOT ANALYZED IN DETAIL

Air Quality

Impacts to air quality under The Standard Subdivision Alternative will be similar to those described for Alternative 2a with the following exceptions:

- The Standard Subdivision Alternative provides a greater number of single-family residences than Alternative 2a, with 543 total single-family residences compared to 300 single family residences in Alternative 2a. The additional single-family residences are more likely to be a source of fine particulates from wood burning stoves.
- The Standard Subdivision Alternative does not incorporate 30% of the gross site area to public open space, therefore providing less area that can serve as a "carbon sink."
- Construction-related impacts to air quality will likely be greater with the Standard Subdivision Alternative due to the greater degree of imported fill material required.

Aesthetics

Under the Standard Subdivision Alternative, most of the field and open space areas on the site would be converted to urban development. As a standard subdivision, the project would not be subject to the 30 percent open space requirement found in SVMC Section 19.50.060, and therefore resulting open spaces would primarily be limited to the riparian buffer along Chester Creek, landscape areas and the flood basin located on the north side of the site.

Cumulative Effects

City and County development standards governing screening, setbacks, landscaping, light, glare, building height and other provisions are expected to adequately address the aesthetic effects of individual development projects. Therefore, no significant cumulative aesthetic effects are expected to result when considering the action alternatives in conjunction with other potential development in the project vicinity.

Biological Resources

Environmental Consequences

Riparian buffer impacts would occur with the Standard Subdivision Alternative. The riparian buffer adjacent to the restaurant parking lot will be reduced by up to 25% (for a minimum buffer of 75-feet) in the location of a proposed parking lot expansion. This would result in an approximately 3,665 SF buffer reduction/impact. Like Alternative 2a, the Standard Subdivision Alternative also includes a 1,383 SF impact area resulting from the Thorpe Road expansion. These are the only two areas of permanent

riparian buffer impacts under the Standard Subdivision Alternative and result in a total impact area of approximately 5,048 SF.

The Standard Subdivision Alternative would also involve temporary riparian impacts resulting from the placement of fill material on the east side of the streambank to bring land areas farther to the east above the 100-year base flood elevation and suitable for residential development. The buffer in this area is currently planted non-native golf course turf grass and is almost totally devoid of woody vegetation. No permanent loss of buffer would occur in this area. Existing cart paths would be removed and new trails of approximately the same width would be constructed as a replacement and for community use. Fill material placed on the east stream bank will cover an approximately 104,132 SF of area. This area will be replanted with native grasses, trees and shrubs, representing a significant enhancement over existing conditions.

Environmental Health

Similar to Alternative 2a, the Standard Subdivision Alternative has the potential to generate environmental health effects from dust and construction equipment emissions and from construction noise.

Geology

As described for Alternative 2a, site grading activities associated with the Standard Subdivision Alternative will cover most of the site with imported fill. The property will be graded to create the streets, drainage ponds/swales, and areas future residences. The Standard Subdivision Alternative is expected to require 574,122 CY of fill material, which will require the import of approximately 660,240 CY of “loose” fill material prior to compaction on the site.

Approximately 25% of the site would be covered with impervious surfaces after completion of the project.

As described for Alternative 2a, due to the placement of fill and site development features under the Standard Subdivision Alternative the opportunity for surface water and precipitation to recharge the underlying aquifer will be limited to the proposed infiltration basin, roadside swales, and dry wells.

Some erosion from wind and minor erosion from rain could occur on-site during construction elements. Because of the flatness of the site, the potential for surface water erosion is limited and would be localized to the area of work.

Historic, Cultural, and Archaeological Resources

Areas of site disturbance for the Standard Subdivision Alternative would occur within the same site limits as those evaluated in the cultural resources survey. As a consequence, no impacts to Native American or historic-era cultural materials are expected to result from the Standard Subdivision Alternative. However, site construction activities will occur under the guidance of an IDP as outlined in Appendix A of the Cultural Resources Survey to ensure that any potential inadvertent discovery is promptly addressed.

Noise

The Standard Subdivision Alternative noise levels will increase beyond current noise levels both during the construction phase and indefinitely once the project construction is completed.

During the construction phase noise from construction, land clearing, and fill delivery and placement equipment as well as structure construction will increase for the short term. Following completion of construction, noise will be generated by residential traffic and other residential sources including yard maintenance equipment, domestic pets, occupants, and park use for the long term.

The increase in population under the Standard Subdivision Alternative would likely lead to noise levels that are higher than current levels. It is unlikely that the increase would be measurable, but it may be perceived by residents in terms of the frequency to which they experience noise disturbance.

Public Services

The Standard Subdivision Alternative is anticipated to create 543 single-family residential units, which would result in approximately 1,358 new residents at full buildout of the community. This alternative would not include any new commercial uses and no change would occur at the clubhouse building, which is assumed to continue to operate as a restaurant. As the use of the clubhouse would not change, the use of the clubhouse is not expected to have a change in impact on public services.

The following paragraphs summarize the anticipated effects of the Standard Subdivision Alternative on schools, parks, fire, public safety, water and sanitary sewer services.

Schools

Based on the U.S. Census Bureau American Community Survey (ACS) 5-year estimate data, approximately 15.2% of Spokane Valley's population is between the ages of 5 and 17 years old. Extrapolating this number to the Standard Subdivision Alternative, an estimated 206 students would reside within the project upon the completion of the Standard Subdivision Alternative.

While the precise cohort of elementary school, middle school and high school students is not known, if general student population were proportionately distributed to the number of grades in elementary (six grades), middle school (three grades), and high school (four grades), it is assumed that the development of the Standard Subdivision Alternative would result in the following increases in student population:

- *Elementary School* – Approximately 9.5 new students per year or 95 total students over the approximately 10-year buildout of the project.
- *Middle School* – Approximately 4.7 new students per year or 47 total students over the approximately 10-year buildout of the project.
- *High School* - Approximately 6.4 new students per year or 64 total students over the approximately 10-year buildout of the project.

Fire

Because the demands for fire service would be similar to Alternative 2a and the fire district has provided specific development and design requirements for that alternative, there are no anticipated challenges with obtaining fire district service for the Standard Subdivision Alternative.

Public Safety

It is expected that additional service calls will occur from future residences and businesses within the site, but these uses are not anticipated to create a significant increased demand for public safety services. Per communications with City of Spokane Valley staff, the level of additional activity created under the

Standard Subdivision Alternative would not generate a significant impact to public safety services.[1] The City regularly reviews large development proposals and, in instances where a significant new user, such as a big-box retail project, creates enough demand to warrant special adjustments in service, the City will make those adjustments to its service contract with Spokane County. However, similar to Alternative 2a, the gradual increase in population resulting from the Standard Subdivision Alternative can be commensurately addressed through regular level-of-service adjustments occurring through the City's periodic review and adjustment of its public safety contract with the County.

Water

Due to the fact that the Standard Subdivision Alternative would have a water demand that is very similar to Alternative 2a and Spokane County Water District #3 has acknowledged their ability to serve the project, there are no anticipated impacts or unique challenges to provide water to the site under the Standard Subdivision Alternative.

Sanitary Sewer

Because the water demand under the Standard Subdivision Alternative would be similar to Alternative 2a and Spokane County Environmental Services has acknowledged their ability to serve Alterative 2, there are no anticipated impacts or unique challenges to provide sewer service under the Standard Subdivision Alternative.

Cumulative Effects

There are no known cumulative effects from other on-going projects or activities that, when considered in conjunction with the action alternatives, could result in any discernible effects on public services.

Recreation

Environmental Consequences

The Standard Subdivision Alternative is anticipated to create 543 single-family residential units, which would result in approximately 1,358 new residents at full buildout of the community. Based on the City's comprehensive plan target of 1.92-acres of parks area per 1,000 residents, the Standard Alternative would generate the need for approximately 2.61 acres of park area.

Cumulative Effects

The City conducts periodic reviews of its parks and recreation needs for the broader community and last updated its Parks and Recreation Master Plan in 2013. Through regular review and update of the community plan, the City anticipates and plans for necessary recreational needs throughout the community. Therefore, any cumulative effects of population growth within the broader community have been considered and integrated with the City's parks and recreation system planning efforts.

[1] Pers comms with Morgan Koudelka, City of Spokane Valley, January 14, 2019.

APPENDIX E
Operation and Maintenance Manual

OPERATIONS AND MAINTENANCE PLAN FOR PAINTED HILLS PLANNED RESIDENTIAL DEVELOPMENT FLOOD CONTROL SYSTEM & PLAT AMENITIES

Abbreviations

PRD – Planned Residential Development
HOA – Homeowner's Association
C.E.- Contracted Entity
COSV- City of Spokane Valley
OHWM- Ordinary High Water Mark
AHJ- Agency Having Jurisdiction
OSHA- Occupational Safety and Health Administration

Owner: Black Realty Inc.; or HOA as created via the Washington Secretary of State.

Party(s) responsible for Operations & Maintenance:

1) Black Realty Inc. until the formation of an HOA is complete.
2) Painted Hills PRD Homeowners Assn.
3) Contracted Maintenance Entity
4) Community Oversight – per CFR 65.6(a)(12) the City of Spokane Valley (COSV) Manager or designee, and Spokane County Manager or designee (offsite facilities) will be responsible for assuring that the maintenance activities are accomplished based on the governing jurisdictional boundary.

Parent Parcel Number(s)-COSV: 45336.9191, 45334.0106, .0108, .0109, .0110, .0113, .0114, .9135, 44040.9144
LOCATED IN SECTION 33 & 34, T25N, R44E & SECTION 4, T24N, R44E, W.M.
SPOKANE COUNTY, WASHINGTON

The above parent parcels contain the Painted Hills PRD flood control drainage system.

The residential lot owners, commercial property owners and multi-family property owners of Painted Hills PRD, are benefitting from these flood control facilities. The homeowner's association of this project, which is comprised of residential, multi-family and commercial lot owners, is responsible for (details described later):

- The continued operations and maintenance, including repair and replacement as needed, of these facilities, see PRD Flood Control Plans.
- Providing funds to finance the continued operation and maintenance of these facilities,
- The administration of this agreement with each property owner within the PRD being bound by this agreement and with the responsibilities to be shared equally between each Painted Hills PRD property owner, (see fee schedule for applicable percentages) or contracted entity.
- Establishing a maintenance committee and designating an HOA member to be responsible for the administration of this plan,
- Providing an annual report each October to Spokane Valley Public Works describing the general status of the sinking fund account, and

- Providing an annual report each October to Spokane Valley Public Works describing specific inspections, findings and maintenance performed, see checklist.

This operations and maintenance plan runs with the land and is binding upon the Painted Hills PRD Homeowners Association property owners, their heirs, successors and assigns.
The parties mentioned above are primarily responsible for all operations and maintenance of facilities mentioned herein and the administration of this plan.

Offsite Parcel Number(s)-County: 45336.9108 (Gustin Ditch), 45343.9052 (Triangle Pond)
LOCATED IN SECTION 34, T25N, R44E, W.M.
SPOKANE COUNTY, WASHINGTON

The above offsite County parcels are also a part of the Painted Hills PRD flood control drainage system.

The residential lot owners, commercial property owners and multi-family property owners of Painted Hills PRD, are benefitting from these flood control facilities. The homeowner's association of this project, which is comprised of residential, multi-family and commercial lot owners, is responsible for (details described later):

- The continued operations and maintenance, including repair and replacement as needed, of these facilities, see Gustin Pipe Plan set.
- Providing funds to finance the continued operation and maintenance of these facilities,
- The administration of this agreement with each property owner within the PRD being bound by this agreement and with the responsibilities to be shared equally between each Painted Hills PRD property owner, (see fee schedule for applicable percentages) or contracted entity.
- Establishing a maintenance committee and designating an HOA member to be responsible for the administration of this plan,
- Providing an annual report each October to Spokane County Public Works describing the general status of the sinking fund account, and
- Providing an annual report each October to Spokane County Public Works describing specific inspections, findings and maintenance performed, see checklist.

This operations and maintenance plan runs with the land and is binding upon the Painted Hills PRD Homeowners Association property owners, their heirs, successors and assigns until such time as the Gustin property (Parcel No. 45344.9108) develops and then the owner of that parcel will assume responsibility for this plan. Parcel No. 45343.9052 (triangle pond) is covered by a storm drainage easement granted to Spokane County as recorded in Book 659 Page 1803.

Spokane County assumes no responsibility at all for any operations or maintenance of the facilities mentioned herein or the administration of this plan. Spokane County and the City of Spokane Valley and their authorized agents are granted access rights for routine inspection and emergency repairs, but in doing so incur no responsibility to perform these functions at any time.

1.00 PURPOSE

This plan is to provide:

1. General operations and maintenance responsibilities for the facilities described herein, and

2. Cost estimates of the assessments to be paid by each property owner mentioned herein for the funding of this maintenance.

2.00 GENERAL OPERATIONAL CHARACTERISTICS

Parent Parcel(s) Drainage Facilities-COSV

The Painted Hills PRD flood control drainage and existing Chester Creek system is intended to collect and discharge stormwater runoff generated by upstream basins and stormwater from adjacent properties as is identified on FEMA panel (53063C0751D, effective date July 6, 2010) as compensatory storage or pass through storm flows. The PRD drainage facilities consist of a box culvert under Thorpe Road with a concrete channel, headwall and trash rack, two 48" pipe mainlines between the box culvert and discharge facility with another concrete headwall and trash rack at the outlet, WSDOT catch basins/manholes, a bio-infiltration swale, settling pond with two 48" pipe outlets, headwall and trash rack (upstream, and downstream), and a infiltration field/pond with associated drywells that receives runoff form the settling pond. The system also includes 4-18" cross culverts under Madison Road that connect easterly of to the two 48" pipe mainlines.

A portion of stormwater runoff from the upstream basins south of the project flows in the Chester Creek channel under Thorpe Road continuing northwesterly under Dishman-Mica Road. This channel is also a part of the system and will need to be maintained in conjunction with the City of Spokane Valley

The remainder of stormwater runoff from upstream basins south of the project flows under Thorpe Road via the PRD box culvert then flows into the pipe system, through the grassed bio-infiltration swale and into settling pond, until discharging into the infiltration pond at the north end of the site where the flow is stored and infiltrated into the ground.

Stormwater runoff from upstream basins east of the project flows under Madison Road into 18" culverts and outfalls into the two easterly 48" pipelines via WSDOT catch basins/manholes.

It is important to provide adequate maintenance activities to ensure that the flood control facilities remain silt and debris free, as this silt and debris will affect their performance. Additionally, vegetation must be maintained to prevent erosion of the system. Maintenance details are discussed below in Section 3.0.

Offsite Parcel(s) Drainage Facilities- County

The offsite County triangular pond located to the east of the Painted Hills project site (off of 40th Avenue and west of Hwy. 27) is a part of the Whipple Consulting Engineers (WCE) Gustin Pipe Plan set. This triangular pond and Gustin ditch are part of the County's existing stormwater and floodplain system. The improvements to this existing County storm system includes the addition of a 36" storm pipe running parallel and within the existing Gustin Ditch, stormwater drywells, and a gravel access/maintenance road to the pond bottom.

The existing Gustin Ditch (Parcel No. 45344.9108) is intended to collect and discharge stormwater runoff into the triangle pond (Parcel No. 45343.9052) that is generated by upstream basins and from adjacent properties as is identified on FEMA panel (53063C0751D, effective date July 6, 2010).

It is important to provide adequate maintenance activities to ensure that the flood control facilities remain silt and debris free, as this silt and debris will affect their performance. Additionally, vegetation must be maintained to prevent erosion of the system. Maintenance details are discussed below in Section 3.0.

3.00 MAINTENANCE REQUIREMENTS AND SCHEDULES

All inspections and repairs are to be performed by or directly overseen by qualified professionals and personnel (contracted entity) per this schedule and following major events. Maintenance tasks are to be performed soon after the need is identified and before the facility is to perform unless otherwise agreed to by the City or County for offsite drainage facilities. Repairs or replacements are to be completed immediately upon their identification unless otherwise agreed to by the City or County. Only qualified individuals may enter confined spaces and all OSHA rules must be followed. Major repairs or reconstruction will need to be designed, approved, and inspected by professional engineers and the City of Spokane Valley or Spokane County for applicable offsite facilities.

Parent Parcel(s) Drainage Facilities-COSV

The drainage facilities consist of several elements including: box culverts, existing Chester Creek channel, storm drain mainline, culverts, outlet structure, bio-infiltration swale, inlet structure, infiltration pond and associated drywells, manholes, catch basins, access roads, headwalls with trash racks, fencing, and plant material. These elements are located as shown on the attached exhibit. The following describes these facilities and the minimum required maintenance.

A comprehensive visual inspection of the complete PRD flood control drainage facilities should be conducted twice a year. More frequent inspections for various elements may be required as described below. For long duration storms, greater than 24 hours, the drainage facilities should be inspected during the storm event to identify any developing problems and safely correct them before they become major problems. Signs shall be posted notifying all residents to look for "potential" problems and to notify the homeowners' association of those observations.

In general, it is important to provide adequate maintenance activities to ensure that the vegetated areas and structures remain silt, dirt and debris free because accumulations of these will affect the facilities function for stormwater storage volume as well as the ability of the drywells and pond bottom to discharge stormwater. Should these facilities silt up or become clogged, the flood control system will not function as intended putting the PRD at risk of flooding. Therefore, periodic maintenance is a must.

Irrigation of Drainage Facilities-COSV

The Painted Hills PRD Homeowner's Association and qualified personnel (contracted entity) shall ensure that all drainage facilities are properly irrigated on a regular schedule to maintain and promote healthy vegetation. Proper irrigation of vegetation is imperative to help to prevent erosion of channels, slopes, and swale and pond bottoms. Personnel shall be careful not to overwater or erosion or excessive saturation may result. This includes the roadside swales and/or landscape strip along Dishman Mica Road, Thorpe Road, and Madison Road.

Box Culvert-COSV:

There are three box culvert crossings adjoining the project site; two are under Thorpe Road and one is under Dishman Mica Road. These box culverts are within the public road right of way and will be maintained by the agency having jurisdiction (AHJ) of the roadway. Any problems noticed while inspecting or maintaining other elements of the system should be reported to the AHJ.

LOCATION	AGENCY HAVING JURISDICTION (AHJ)
Thorpe Rd near Madison Rd-Proposed	City of Spokane Valley
Thorpe Rd near Dishman-Mica Rd-Existing	City of Spokane Valley
Dishman-Mica Rd-Existing	City of Spokane Valley

Chester Creek-COSV:

In addition to the instructions listed below, see Appendix B, Chester Creek, Operation & Maintenance Manual from "Geotechnical Evaluation, Levee Evaluation and Certification, 4403 South Dishman-Mica Road, Spokane County, Washington" prepared by Inland Pacific Engineering Company Project No. 14-037, dated February 12, 2015, Revised August 29, 2016. As part of the project, stream buffer mitigation impact areas are also necessary due to grading operations (fill) within the Chester Creek buffer area. Maintenance of the required buffer mitigation areas are essential to restore and enhance the disturbed riparian areas that provide a natural cover and provide food for native species; this will be accomplished by re-establishing vegetation and by noxious weed control/reduction, and providing adequate irrigation for healthy vegetative growth. For the complete report, including the planting schedule and guidelines for planting and maintaining healthy vegetation in these mitigated areas, see the see the Biological Evaluation, Critical Areas Report, and Habitat Management Plan for Painted Hills completed Larry Dawes of Biology Soil & Water, Inc. provided in the Appendix (dated 02/28/19). It should be noted, that some maintenance items listed below are taken directly from the above-mentioned report; mitigation requirements listed below are also required for a minimum of five years if performance goals are met, or until performance goals are met following the 5-year minimum requirement. The Performance goals are listed in the maintenance items below, and the City of Spokane Valley and Larry Dawes of Biology Soil & Water, Inc (or other professional Biologist) will determine if these goals have been satisfied after 5-years. Annual maintenance of the mitigation areas should still continue after the required performance goals are met, to ensure healthy vegetative growth and provide erosion control; however, the required amount of vegetation and monitoring reports will not be stipulated or required by the City of Spokane Valley.

Chester Creek extends across the southwest corner of the site from Thorpe Road northwesterly for approximately 900 feet where it crosses under Dishman-Mica Road. The creek carries seasonal flows from the foothills to the south. The site is protected from flood flows by an existing levee along the northerly side of the creek and along the north side of Dishman-Mica Rd to Wilbur Rd. The intent of the Painted Hills PRD fill project is to fill on the landward (north easterly) side existing levee, which will provide further protection from flooding on the interior landward side of the painted Hills Development. After the project is filled, the creek channel will need to be maintained to ensure flood carrying capacity is not diminished. Maintenance of the channel, up to the Ordinary High Water Mark (OHWM) shall be the responsibility of the City of Spokane Valley, while maintenance above the (OHWM) including obtaining permits to perform the maintenance, shall be the responsibility of the Painted Hills PRD Homeowner's Association in coordination with the City of Spokane Valley.

Maintenance items (above the OHWM) include:

- Regular mowing, grass should be kept at 3 inches or more in height but shall not exceed 12 inches, with the last mowing occurring to allow 8-10 inches of growth prior to winter
- Removing trash, debris, noxious weeds plus items that reduce the amount of vegetative cover,
- Removing any starts of woody vegetation that appear in the channel side slopes. Only native grasses shall be used in the channel,

- Repairing any holes caused by burrowing animals and human activity such as utility work, ORV's or vandalism on the channel side slopes, traps for burrowing animals shall be used if required,
- Inspecting the channel side slopes making sure there are no breaches or breaks or erosion and check for root and tree start invasion. Immediately repair with a sandy loess soil, compacted in place, or bentonite type soil, and follow up after the storm event with seeding or sodding the repair and more substantial maintenance activities if needed,
- Repairing mowing damage,
- Removing and replacing of the native grass and underlying soil if it becomes degraded to the extent that the grass is not healthy and/or wilted,
- Annually inspecting all mitigation areas to ensure re-establishment of vegetation in compliance with the Biological Evaluation Report mentioned above,
- Annually Inspecting the mitigation areas for noxious weed in the Spring to determine if the previous year's weed control measures were adequate, and to make preparations for the current year accordingly,
- Filling out the levee checklist and include the checklist in the annual report to the City.
- Providing adequate irrigation for all required vegetative growth, especially for the Chester Creek stream buffer mitigation impact areas,
- Performance Goal-Ensuring herbaceous vegetations reaches 80% areal cover with native grasses after five years, (year 1=20%, year 2=30%, year 3=50%, & year 5=80%) for buffer mitigation areas,
- Performance Goal -Ensuring a 100% survival of tree and shrub plantings and 80% survival every year after for five years until performance goals are met for buffer mitigation areas,
- Notifying the City of Spokane Valley (COSV) immediately if any observed functionality of the mitigation areas is failing (unhealthy looking or wilting vegetation),

<u>Storm Drain Mainline, Concrete Channel, Headwalls, and Trash Rack, and Outlet Pipes -COSV:</u>

The storm drain mainline consists of 5,251 linear feet of 48" pipe from the downstream end of the new box culvert at Thorpe Rd and Madison Rd, running parallel to Madison Rd and ending at the bio-infiltration swale at the north end of the site. The bio-infiltration swale further outlets to the settling pond that discharges to the large infiltration pond through (2)-48" outlet pipes that have concrete headwalls and trash racks on the upstream and downstream side if the outlet pipes. The pipes need to be maintained to prevent sediment and trash build-up in the bio-infiltration swale and the infiltration field/pond and associated drywells. The concrete channel and associated headwalls and trash racks located downstream of the Thorpe Road box culvert also needs to be inspected for physical integrity to prevent a breach/leak in the channel or headwall and to ensure no obstructions are blocking the passage for stormwater, and to prevent unauthorized entry into the storm system. Maintenance of the storm drain mainline shall be the responsibility of the Painted Hills PRD Homeowner's Association and/or the contracted entity (C.E.).

Maintenance items include:

- Annually inspecting the pipe openings on each end to ensure there is no blockage or damage to the ends,
- Every three years or after substantial storm runoff, performing a TV inspection of the pipe looking for blockages, damage, etc., visual inspection can be made at pipe manhole locations by authorized maintenance personnel,
- Removing sediment build-up from the pipe,
- Repairing any sections of damaged pipe,
- Visually inspecting twice a year the concrete channel, headwalls, and trash racks for damage or

corrosion that would compromise the trash rack integrity.

- Prior to each rainy season (August or September), inspecting each trash racks ensuring that there is no debris present,
- Following large storm events or rapid snow melt events performing a visual inspection and remove any deleterious debris and trash,
- Instructing those performing other maintenance functions on the system to report any observed damage to the trash rack.

Catch Basins-COSV:

The mainline pipe system has WSDOT Type II catch basins at pipe junctions and angle points. Along Madison Road there are catch basins connected by pipe to the mainline pipe system to drain overflow from the roadside swales. Catch basins need to be maintained to prevent blockage of flow within the system. Contact a professional or have the contracted entity remove the debris, trash and sediment buildup, such as AAA Sweeping LLC. HOMEOWNERS ARE NOT TO ENTER THE MANHOLES/CATCH BASINS. Maintenance of the catch basins shall be the responsibility of the Painted Hills PRD Homeowner's Association or the C.E.

Maintenance items include:

- During routine landscape maintenance of roadside swales, removing any debris from catch basin grates,
- Annually inspecting catch basins for trash and sediment build-up and removing trash,
- When sediment build-up fills ½ the depth of the sump (about 1 foot), removing the sediment,
- Annually inspecting catch basin grates and lids to ensure they are properly seated and are structurally sound,
- Every five years, inspecting the structure walls to ensure the concrete walls are in good condition and the joints remain sealed,
- Instructing those performing other maintenance functions on the system to report any missing lids or grates.

Cross Culverts (Flap Gates)-COSV:

The cross culverts consist of 18" CMP pipe crossing under Madison Road flowing from east to west in four locations. The culverts connect into WSDOT Type II catch basins on the 48" storm drain mainline. The cross culverts need to be maintained to prevent the reduction of seasonal flows within the pipes. The reduction in flow may be caused by sediment or trash build-up within the pipe or obstruction of the pipe entrance on the east side of Madison Rd. Maintenance of the cross culverts from the inlet up to, but not including the flap gates shall be the responsibility the City of Spokane Valley. However, the flap gates shall be the responsibility of the of the Painted Hills PRD Homeowner's Association or the C.E.

Maintenance items include:

- Annually inspecting the flap gates to ensure proper operation,
- Every three years performing a TV inspection of the flap gates looking for blockages, damage, corrosion, etc., and notifying the City of Spokane Valley if the pipes themselves need maintenance,
- Removing sediment build-up from the flap gates,
- Repairing any sections or components of the flap gates.

Bio-infiltration Swale/Channel, Roadside Swales, and Settling Pond-COSV:

The bio-infiltration swale/channel consists of a grass lined channel approximately 320 feet long with a 6-foot bottom width and 2:1 side slopes and approximately 6-feet in depth. The swale needs to be maintained to perform the function of removing any remaining contaminants including fugitive silts prior to storm water entering the infiltration pond, with adequate irrigation provided for vegetation establishment. Following the bio-infiltration channel is a settling pond to further reduce the sediment loading in the infiltration pond. The settling pond then discharges to the large infiltration pond through (2)-48" outlet pipes with headwalls and trash racks (see the Stormdrain Mainline Section on page 6 of this report for inclusion of the outlet pipes, headwalls and trash racks). Additionally, roadside swales along Dishman Mica Road, Thorpe Road, and Madison Road, require similar maintenance as the bio-infiltration swale/channel that includes removing any sediment buildup or debris from the swales, and adequately irrigating the swale to promote a heathy growth of grass. Maintenance of the bio-infiltration swale, roadside swales, and settling pond shall be the responsibility of the Painted Hills PRD Homeowner's Association or the C.E.

Maintenance items include:

- Annually inspecting the bio-infiltration swale/channel bottom and side slopes to ensure there is a covering of grass, grass can be mowed no shorter than 8 to 10 inches, once annually,
- Annually inspecting the settling pond bottom and side slopes to ensure there is a covering of grass, grass can be mowed no shorter than 8 to 10 inches,
- Removing accumulations of sediment that bury the grass cover for the channel, swales, and pond,
- Reseeding any bare or dead areas of grass for the channel, swales, and pond,
- Removing any noxious weeds within the channel, swales, and pond (spraying is acceptable),
- Providing adequate irrigation for the bio-infiltration channel, swale, and pond (including side slopes),
- Annually inspecting the roadside swale bottoms and side slopes to ensure there is a covering of grass, grass should be mowed in the same manner as residential home yards

Infiltration Field/Pond and Associated Drywells-COSV:

As previously mentioned, the infiltration pond receives runoff from the settling pond through (2)-48" outlet pipes. The infiltration pond is comprised of 48-double depth drywells, and the drywells need to be maintained to prevent or reduce sediment buildup in the drywell barrel so as to not reduce infiltration into the surrounding ground. The infiltration field/pond bottom also needs to remain free of debris and sediment build-up as it is the first point of infiltration. The Maintenance of the drywells and infiltration pond shall be the responsibility of the Painted Hills PRD Homeowner's Association or the C.E.

Maintenance items include:

- Visually inspecting twice a year the inside of the drywell barrel(s) by removing the grate to look into the structure. Have all debris and trash removed. Sediment must be removed before buildup reaches the bottom of the lowest slot out of the drywell in the barrel wall. Contact a professional to remove the debris, trash and sediment buildup. HOMEOWNERS ARE NOT TO ENTER THE DRYWELL, as these drywells are 12-feet in depth with no internal ladder system.
- Removing accumulations of sediment that bury the grass cover,

Fencing-COSV:

The fencing of various system elements needs to be maintained to restrict access to those elements and to protect the public. Maintenance of the fencing shall be the responsibility of the Painted Hills PRD Homeowner's Association or the C.E.

Maintenance items include:

- Visually inspect twice a year the entire fencing system for damaged fence fabric, posts, gates, signs, etc.
- Prior to each rainy season (August or September), inspecting each access point ensuring that locks and gates are functional.
- Instructing those performing other maintenance functions on the system to report any observed breaches or damage to the fencing.

Access Roads/Parking Pads-COSV:

The access roads/parking pads to various system elements need to be maintained to allow maintenance vehicles access to those elements for periodic maintenance and emergency repairs to protect the public. Maintenance of the access roads/parking pads shall be the responsibility of the Painted Hills PRD Homeowner's Association or the C.E.

Maintenance items include:

- Visually inspecting annually, the entire access road/parking pad system for rutting, potholes, etc. Regrade and repair with additional aggregate as needed.
- Removing vegetation from the aggregate surface.
- Instructing those performing other maintenance functions on the system to report any observed damage to the access roads/parking pads.

Interior Asphalt Pathway, exterior Asphalt Pathway, and Concrete Sidewalk-COSV:

The interior asphalt pathway, the exterior asphalt pathway (Madison Road & Dishman Mica Road), and concrete sidewalk (Dishman Mica Road & Thorpe Road) that provide pedestrian access around and through the project site need to be maintained to allow safe pedestrian travel. Maintenance of the asphalt pathways and concrete sidewalk shall be the responsibility of the Painted Hills PRD Homeowner's Association or the C.E.

Maintenance items include:

- Visually inspecting annually, the entire pathway and sidewalk for rutting, potholes, cracking of concrete or tree root intrusion, and repair or replace with additional asphalt or concrete as needed.
- Removing vegetation or debris from the surface.
- Instructing those performing other maintenance functions on the system to report any observed damage to the asphalt pathway or concrete sidewalk.

Offsite Parcel(s) Drainage Facilities-County

The existing Gustin Ditch (Parcel No. 45344.9108) is intended to collect and discharge stormwater runoff into the triangle pond (Parcel No. 45343.9052) that is generated by upstream basins and stormwater from adjacent properties as is identified on FEMA panel (53063C0751D, effective date July 6, 2010). Currently, stormwater runoff from the upstream basins is routed under Hwy 27 through a 36" culvert into

the Gustin Ditch where the storm water flows to the west to the exiting pond. The improved drainage system will consist of a 36" conveyance pipe running parallel and within the existing Gustin Ditch (Parcel No. 45344.9108) to intercept the upstream basin stormwater. This existing flow will continue to discharge to the existing triangle pond (Parcel No. 45343.9052) through the 36" storm outlet pipe. The triangle pond will also have 18- stormwater drywells and a gravel road installed to provide access for maintenance to the pond and stormwater drywells. These existing flows normally infiltrate into the existing pond bottom, however, during larger storms the stormwater will overflow into the drywells and infiltrate into the ground. The additional stormwater capacity provided by the drywells will capture and eliminate the existing FEMA designated 100-Year Storm Event that would have theoretically continue to West if these drywells were not installed.

A visual inspection of the drainage facilities should be conducted twice a year. For long duration storms, greater than 24 hours, the drainage facilities should be inspected during the storm event to identify any developing problems and safely correct them before they become major problems. It is important to provide adequate maintenance activities to ensure that the drainage facilities remain silt and dirt free, as this silt and dirt will affect their performance. Additionally, vegetation must be maintained to prevent erosion of ditch and/or pond sides and to prevent flow restrictions within the ditch and/or pond from the build-up of dead vegetation and tree and shrub invasion. Maintenance details are further discussed below.

Gustin Ditch with Pipe and Catch Basins-County:

The 36" PVC pipe needs to be maintained to ensure there is no debris or vegetation blocking the flow of stormwater through the pipe. The pipe mainline has two 12" PVC cross culverts near the end of the pipe mainline to further capture runoff from overland flow from the Gustin Ditch Property (Parcel No. 45344.9108). The ditch needs to be maintained to ensure a strong, healthy, dense vegetative cover and that it is free of debris. Maintenance of the ditch and outfall shall be the responsibility of the Painted Hills PRD Homeowner's Association until such time as the Gustin property (Parcel No. 45344.9108) is developed. At that time the owner(s) of the new development shall assume responsibility for maintenance of the ditch and levee.

Maintenance items include:

- Regular mowing, grass should be kept at 3 inches or more in height but shall not exceed 12 inches, with the last mowing occurring to allow 8-10 inches of growth prior to winter,
- Removing trash, debris, noxious weeds plus items that reduce the amount of vegetative cover,
- Removing any starts of woody vegetation that appear in the ditch. Only native grasses shall be used to repair at removal areas,
- Repairing any holes caused by burrowing animals and human activity such as utility work, ORV's or vandalism on the ditch side slopes,
- Inspecting the ditch side slopes, and bottom making sure there are no breaches or breaks or erosion and check for root and tree start invasion. Immediately repair with a sandy loess soil, compacted in place and follow up after the storm event with seeding of the repair with native grasses and more substantial maintenance activities if needed,
- Repairing mowing damage,
- Removal and replacement of the grass and underlying soil if it becomes contaminated to the extent that the grass is not healthy.
- Annually inspecting the pipe openings on each end to ensure there is no blockage or damage to the ends,
- Every three years or after substantial storm runoff, performing a TV inspection of the pipe(s) looking for blockages, damage, etc., visual inspection can be made at pipe manhole locations by

authorized maintenance personnel,
- Removing sediment build-up from the pipe,
- Repairing any sections of damaged pipe.

Catch Basins-County:

The Gustin Ditch pipe system has County Manholes (48" and 72" diameter) at pipe junctions and angle points. Catch basins need to be maintained to prevent blockage of flow within the system. Contact a professional or have the contracted entity remove the debris, trash and sediment buildup, such as AAA Sweeping LLC. HOMEOWNERS ARE NOT TO ENTER THE MANHOLES/CATCH BASINS. Maintenance of the catch basins shall be the responsibility of the Painted Hills PRD Homeowner's Association or the C.E.
Maintenance items include:

- During routine landscape maintenance of roadside swales, removing any debris from catch basin grates,
- Annually inspecting catch basins for trash and sediment build-up and removing trash,
- When sediment build-up fills ½ the depth of the sump (about 1 foot), removing the sediment,
- Annually inspecting catch basin grates and lids to ensure they are properly seated and are structurally sound,
- Every five years, inspecting the structure walls to ensure the concrete walls are in good condition and the joints remain sealed,
- Instructing those performing other maintenance functions on the system to report any missing lids or grates.

Triangle Pond & Drywells-County:

The pond bottom needs to be maintained to ensure there is no debris, vegetation or sediment preventing the infiltration of storm water through the bottom of the non-irrigated pond. Also, that no debris, vegetation or sediment buildup rise to a level that would allow it to enter into the drywells. Drywells need to be maintained to prevent or reduce sediment buildup in the drywell barrel that would reduce infiltration into the surrounding ground. Maintenance of the pond and drywells shall be the responsibility of the Painted Hills PRD Homeowner's Association until such time as the Gustin property (Parcel No. 45344.9108) is developed. At that time the owner(s) of the new development shall assume responsibility for maintenance.

Maintenance items include:

- Periodically visually inspect the grate and remove any deleterious debris and trash.
- Biennially visually inspect the inside of the drywell barrel(s) by removing the grate to look into the structure. Have all debris and trash removed. Sediment must be removed before buildup reaches the bottom of the lowest slot out of the drywell in the barrel wall. Contact a professional to vacuum out the debris, trash and sediment buildup. HOMEOWNERS ARE NOT TO ENTER THE DRYWELLS.

Fencing-County:
The fencing around the triangle pond needs to be maintained to restrict access to those elements and to protect the public. Maintenance of the fencing shall be the responsibility of the Painted Hills PRD Homeowner's Association or the C.E.

Maintenance items include:

- Visually inspect twice a year the entire fencing system for damaged fence fabric, posts, gates, signs, etc.
- Prior to each rainy season (August or September), inspecting each access point ensuring that locks and gates are functional.
- Instructing those performing other maintenance functions on the system to report any observed breaches or damage to the fencing.

Access Roads/Parking Pads-County:

The access roads/parking pads to the triangle pond need to be maintained to allow maintenance vehicles access to those elements for periodic maintenance and emergency repairs to protect the public. Maintenance of the access roads/parking pads shall be the responsibility of the Painted Hills PRD Homeowner's Association or the C.E.

Maintenance items include:

- Visually inspecting annually, the entire access road/parking pad system for rutting, potholes, etc. Regrade and repair with additional aggregate as needed.
- Removing vegetation from the aggregate surface.
- Instructing those performing other maintenance functions on the system to report any observed damage to the access roads/parking pads.

4.00 SINKING FUNDS

A sinking fund is an account that is set up to receive regular deposits which are to be used for paying off future costs and debts. The sinking fund monies will be used to pay for planned and unplanned operation and maintenance costs along with certain future replacement costs for the storm drainage facilities. The sinking fund calculation should be revised as necessary to account for actual expenses and changes in rates.

In setting up the fund, first the future replacement costs are estimated and then they are converted to annual costs (or deposits) by the following calculations. These calculations assume that the inflation rate is 3% (for estimating the future replacement costs), the typical interest rate is 2% (for estimating the annual costs) and the number of years before replacement is 20 (expect for buffer mitigation area replacement. Equations and guidance for using other rates and years can be found in Appendix A.

1) Estimate the value that the item will have in the future when it is time to replace it using the following equation:

   FV=PV*1.8061, where: FV = future value
   PV = present value

2) Estimate how much money will need to be deposited each year in a bank account in order to have enough money accumulated in time to pay for the replacement using the following equation.

   A=FV*0.0412, where: A = annual payment (or deposit)

   FV = future value (from step 1, above)

Sinking Fund Calculation Results:
The developer shall provide $95,000 to initiate the set-up of maintenance funds, and provide for one year of maintenance.

The following values are the results of the calculations which are shown on the following page. The fund calculations shall be updated once the actual cost of operation and maintenance items are contracted. As contracts are renewed, the costs shall be adjusted accordingly.

Annual cost for regular operation and maintenance	$152,392
Annual cost for replacements	$76,979
Total annual costs	$229,370
Total monthly costs (= total annual costs /12)	$19,114.18
*Number of units (SF lots +MF lots) +(Commercial)	596+(18,400sf/100SF)=615
Monthly cost per lot (= total monthly costs /# lots)	**$31.08**
Total annual cost per lot/unit	**$372.96**

*Note: Number of units is based on 255-single family lots, 49 cottage units/lots, 240 apartment units, 52 mixed use apartment units, and 18,400 square feet of commercial building area divided by 1,000 square feet (for an equivalent unit/lot).

Sinking Fund Calculations-Parent Parcel(s)-COSV

REGULAR OPERATION AND MAINTENANCE COSTS-COSV

Description	Units	Annual Quantity	x	Unit Price	=	Annual Cost
Comprehensive System Inspection	EA	2		$1,000		$2,000
Drywell Cleaning	EA	48		$500		$24,000
Catch Basin Cleaning	EA	23		$300		$6,900
Mowing Channel Embankments	EA	4		$2,000		$8,000
Mowing Roadside Swales	EA	4		$2,000		$8,000
Debris Removal – culverts, catch basins, bio-swale, channels, drywells, manholes	EA	4		$2,000		$8,000
Channel/Trash Rack Inspection	EA	9		$500		$4,500
Pipeline TV Inspection – mainline, culverts, (3 years)	LF	5,750		$3		$17,250
Manhole/Catch Basin Inspection	EA	23		$100		$2,300
Fence, Access Road, Parking Area, Sign Maintenance	EA	1		$500		$500
Swale & Pond Reseeding/Noxious Weed Removal	EA	1		$500		$500
Reseeding/Noxious Weed Removal for buffer mitigation area	EA	1		$5,000		$5,000
1st Year Monitoring Report + ASBUILT Report	LS	1		$6,500		$6,500
Annual Monitoring Report (after 1st year)	LS	1		$1,000		$1,000
Annual Report Preparation	EA	1		$1,500		$1,500
Contingency	LS	1		20%		$19,190
					Total	$115,140

REPLACEMENT COSTS-Parent Parcel(s)-COSV(for more information on calculations in this table see Appendix A)

	Units	Quantity x	Unit Price =	Present Value, PV	n	Inflation Rate, i_1	Future Value, FV	Interest Rate, i_2	Annual Payment, A
Drywell (48) (25%)	EA	12	$10,000	$120,000	20	0.03	$216,733	0.02	$8,920
48" ADS N-12 HDPE pipeline (5,251) (25%)	LF	1313	$150	$196,913	20	0.03	$355,646	0.02	$14,637
48" ADS N-12 HDPE culvert pipes (120 LF) (100%)	LF	120	$150	$18,000	20	0.03	$32,510	0.02	$1,338
24" CMP pipeline (136) (100%)	LF	136	$70	$9,520	20	0.03	$17,194	0.02	$708
18" PS46 ASTM F679 PVC (pipeline-future) (40) (100%)	LF	40	$40	$1,600	20	0.03	$2,890	0.02	$119
15" Perforated HDPE (underdrain) (40) (100%)	LF	40	$30	$1,200	20	0.03	$2,167	0.02	$89
12" SDR-35 ASTM D3034 PVC pipe to mainline(44)	LF	44	$24	$1,056	20	0.03	$1,907	0.02	$78
12" CMP pipe to outfall (119) (100%)	LF	119	$30	$3,570	20	0.03	$6,448	0.02	$265
WSDOT Catch basin, Type II (12)	EA	2	$4,500	$9,000	20	0.03	$16,255	0.02	$669
Catch basin, Type I (12)	EA	2	$1,500	$3,000	20	0.03	$5,418	0.02	$223
Infiltration & Settling Pond -seeding (189,644+7,172)+ Roadsides Swale Seeding (49,187) + Landscape Strip Seeding (2,471)	SF	248474	$0.10	$24,847	20	0.03	$44,877	0.02	$1,847
Trash Racks (8) (100%)	EA	8	$2,000	$16,000	20	0.03	$28,898	0.02	$1,189
Signs (4) (25%)	EA	1	$200	$200	20	0.03	$361	0.02	$15
Buffer Mitigation Area (25%) of total cost of Vegetation	LS	5	$6,785	$33,925	5	0.03	$39,328	0.02	$7,557
2" Asphalt pathway (9702 LF interor + 2,482 LF Madision Rd+ 822 LF Dishm. Rd)	SY	14501	$10	$145,013	20	0.03	$261,910	0.02	$10,779
6" CSTC Access Rd (1,113 LF) (25%)	CY	2087	$40	$83,480	20	0.03	$150,774	0.02	$6,205
Fencing (132 LF)	LF	132	$35	$4,620	20	0.03	$8,344	0.02	$343
PC Concrete Sidewalk (Dishm.-356 LF+ 1356 LF Thorpe)	SY	991	$36	$35,664	20	0.03	$64,413	0.02	$2,651
								Total	$57,635

Notes:
n = number of years to replacement
LS means Lump Sum, EA means Each, SY means square yard, LF means Linear Feet, CY means Cubic Yards
Quantity x is based on either a complete replacement (100%) or assumed 25% of the total rounded to the nearest whole number

Sinking Fund Calculations-Offsite Parcel(s)-County

REGULAR OPERATION AND MAINTENANCE COSTS-COUNTY

Description	Units	Annual Quantity	x	Unit Price	=	Annual Cost
Comprehensive System Inspection	EA	2		$500		$1,000
Drywell Cleaning	EA	18		$500		$9,000
Manhole Cleaning	EA	9		$300		$2,700
Mowing Ditch Embankments	EA	4		$2,000		$8,000
Debris Removal – culverts, catch basins, pond ditch, drywells, manholes	EA	4		$1,000		$4,000
Pipeline TV Inspection – mainline, culverts	LF	1,481		$3		$4,443
Manhole Inspection	EA	9		$100		$900
Fence, Access Road, Parking Area, Sign Maintenance	EA	1		$500		$500
Pond Reseeding/Noxious Weed Removal	EA	1		$500		$500
Contingency	LS	1		20%		$6,209
				Total		$37,252

REPLACEMENT COSTS Offsite Parcel(s)-County (for more information on calculations in this table see Appendix A)

	Units	Quantity x	Unit Price =	Present Value, PV	n	Inflation Rate, i_1	Future Value, FV	Interest Rate, i_2	Annual Payment, A
Drywell (12) (25%)	EA	12	$10,000	$120,000	20	0.03	$216,733	0.02	$8,920
36” PS46 ASTM F679 PVC pipeline (1441) (25%)	LF	361	$150	$54,150	20	0.03	$97,801	0.02	$4,025
12” SDR-35 ASTM D3034 PVC pipeline (136) (100%)	LF	136	$70	$9,520	20	0.03	$17,194	0.02	$708
Type I -48-County Manhole	EA	2	$4,500	$9,000	20	0.03	$16,255	0.02	$669
72" County Manhole	EA	5	$7,500	$37,500	20	0.03	$67,729	0.02	$2,788
Triangle Pond-seeding (17,060 SF) (100%)	SF	17060	$0.10	$1,706	20	0.03	$3,081	0.02	$127
Signs (4) (25%)	EA	1	$200	$200	20	0.03	$361	0.02	$15
6” CSTC Access Rd (770 LF) (25%)	CY	214	$40	$8,556	20	0.03	$15,452	0.02	$636
Fencing (560 LF) (100%)	LF	560	$35	$19,600	20	0.03	$35,400	0.02	$1,457
								Total	$19,344

IN WITNESS WHEREOF, the undersigned has reviewed the above information and determined it to be appropriate for the improvements proposed for this plan and has caused this instrument to be executed on this _____day of _____, 20____.

Signature: _____

Name (print): _____

Title: _____

STATE OF WASHINGTON)
COUNTY OF SPOKANE)
CITY OF SPOKANE VALLEY) ss

I certify that I know or have satisfactory evidence that _____is/are the individual(s) who personally appeared before me, and who acknowledged that he/she/they executed and signed this instrument and acknowledged it to be his/her/their free and voluntary act for the uses and purposes mentioned in this instrument.

Dated this _____ date of _____, 20____.

_____
NOTARY PUBLIC
In and for the State of Washington,
Residing at _____
My appointment expires: _____

Appendix A

The future replacement costs can be estimated and then converted to annual costs (or deposits) by the following calculations.

1) Estimate the value that the item will have in the future when it is time to replace it using an assumed (best estimate) inflation rate and the following equation:

   $FV=PV*(1+i_1)^n$, where:

   FV = future value — i_1 = inflation rate

   PV = present value — n = number of years to replacement

   Example values for the factor: $(1+i)^n$

		n, years			
		5	**10**	**15**	**20**
i_1	**0.02**	1.1041	1.2190	1.3459	1.4859
	0.03	1.1593	1.3439	1.5580	1.8061
	0.04	1.2167	1.4802	1.8009	2.1911
	0.05	1.2763	1.6289	2.0789	2.6533

2) Estimate how much money will need to be deposited each year in a bank account in order to have enough money accumulated in time to pay for the replacement using an assumed (best estimate) interest rate and the following equation:

   $A=FV* i_2 / [(1+i_2)^n-1]$, where:

   A = annual payment — i_2 = interest rate

   FV = future value — n = number of years to replacement

   Example values for the factor: $i_2/[(1+i_2)^n-1]$

		n, years			
		5	**10**	**15**	**20**
i_2	**0.02**	0.1922	0.0913	0.0578	0.0412
	0.03	0.1884	0.0872	0.0538	0.0372
	0.04	0.1846	0.0833	0.0499	0.0336
	0.05	0.1810	0.0795	0.0463	0.0302

Appendix B – Chester Creek Channel, Operation & Maintenance Manual

Modified from “Geotechnical Evaluation, Levee Evaluation and Certification, 4403 South Dishman-Mica Road, Spokane County, Washington” prepared by Inland Pacific Engineering Company Project No. 14-037, dated February 12, 2015, Revised August 29, 2016.

CHESTER CREEK CHANNEL ABOVE THE ORDINARY HIGH WATER MARK

OPERATION & MAINTENANCE MANUAL

FOR

OPERATION AND MAINTENANCE

Painted Hills PRD Homeowners Association

IPEC Project No. 14-037
WCE Project # 13-1166

Updated January 2020

By

Inland Pacific Engineering Company
3012 North Sullivan Road
Building S-5, Suite C
Spokane Valley, WA 99216

&

Whipple Consulting Engineers
21 S Pines Road
Spokane Valley, WA 99206

1.00 PURPOSE

This Operations and Maintenance manual is intended to provide general operations and maintenance guidelines for the Chester Creek channel located at 4403 South Dishman-Mica Road in Spokane County, Washington. The intent of the Painted Hills PRD project is to fill on the landward (north easterly) side existing levee, which will provide further protection from flooding on the interior landward side of the painted Hills Development. This O & M has been amended from the original Chester Creek Levee O & M provided by Inland Pacific Engineering Company. After the project is filled, the creek channel will need to be maintained to ensure flood carrying capacity is maintained. Maintenance of the channel, up to the Ordinary High Water Mark (OHWM) shall be the responsibility of the City of Spokane Valley. Maintenance above the (OHWM) including obtaining permits to perform the maintenance, shall be the responsibility of the Painted Hills PRD Homeowner's Association in coordination with the City of Spokane Valley. This general maintenance for the Chester Creek channel is inclusive whether in or out of Spokane County public road rights-of-ways. Implementation of these guidelines will ensure that the channel's flood carrying capacity is maintained.

2.00 INTRODUCTION

The east side of the channel is typically at a 2.3:1 to 3:1 (H:V) slope. The land side of the channel is also at a 3:1 slope from the Dishman-Mica Road bridge to approximately 300 feet southeast. Between this point and Thorpe Road, the land side slope is much less and, in some areas, relatively level with the crest. As mentioned above, the intent of the Painted Hills PRD project is to fill on the landward (north easterly) side existing levee. This existing levee was constructed by the previous landowner for the development of the golf course on the property and we believe it was constructed in the early 1990's by the property owner.

3.00 GENERAL OPERATION AND MAINTENANCE

3.10 Operation – During flood periods, the creek channel side slopes above the (OHWM) should be patrolled to locate possible sand boils, unusual wetness of the landward slope, or breaches. The inspector may look for indications of sliding or sloughing, that scouring action is not occurring, that the channel is not being overtopped, and that no other conditions exist that might adversely affect the integrity of the channel side slopes. Any damage or observed issues below the (OHWM) should be reported to the City of Spokane Valley immediately.

- Boils – A boil is a condition where enough pressure is produced by high water levels so that water is piped through or under the channel bottom and channel side slopes with sufficient velocity to carry earthen materials to the landward side of the channel. If not controlled, these particles of earthen materials will be eroded from within the channel, causing subsidence to the channel section. The continuation of this process

may result in a break in the channel side slopes, allowing flood waters to flow over the crest or through the channel side slopes.

- Scour – Careful observation should be made of the creek channel side slopes to detect potential erosion due to current action. Careful observation at the locations of bridge structures should be made. In general, current velocities in Chester Creek are not expected to cause significant scouring.

- Creek Channel Topping – If the anticipated high-water level will exceeds the top elevation of the channel , steps should be taken to provide emergency topping to raise the channel side slope above forecasted water levels. These steps could include sandbagging or hauling additional fill to raise the channel wall height.

3.11 A post-flood assessment of the creek channel side slopes above the (OHWM) should be completed within 24 hours of the event. The assessment should document any damage to the channel caused by flood waters. Any repairs necessary should then be completed after review and evaluation of options. Any damage or observed issues below the (OHWM) should be reported to the City of Spokane Valley immediately.

3.20 Maintenance – Maintenance activities for the creek channel above the (OHWM) are described in this section. Below is a maintenance description for each of the elements affecting channel conveyance performance.

- Inspections – channel inspection should include a visual inspection of the channel channel side slope sat a minimum of every 12 months for signs of erosion or settlement. Preferably, the inspection should be completed in the fall prior to the rainy season. The inspections should include the following:
    - Unusual settlement, sloughing, or material loss of grade.
    - Caving on both the creekside and landside of the channel which might affect stability of the channel section.
    - Seepage or saturated areas that may be occurring.
    - Drainage in the creek is in good working condition facilities are not being clogged.
    - That the channel is shaped to drain properly to onsite Painted Hills PRD drainage facilities.
    - Ensuring that no unauthorized vehicles are located on the channel bottom and channel side slopes.
    - Rodent damage along the channel side slopes.
- Erosion Protection – The channel side slope vegetation is a grass cover. The grass should be mowed to a minimum height no shorter than 8 inches.

No trees should be growing on the creek channel bottom or side slopes. No excavations, structures, or other obstructions should be on the creek channel bottom or side slopes.

Remove accumulation of drift, grass clippings, or other objectionable materials from the creek channel side slopes.

Attached is a checklist for the annual or post-flood inspection.

CHESTER CREEK CHANNEL
4403 SOUTH DISHMAN-MICA ROAD
SPOKANE COUNTY, WA

CREEK CHANNEL CHECKLIST (ABOVE THE OHWM ONLY)

Date: _____

Item	Location and Description	Action
Has the creek channel side slopes settled or lost cross section?		
Has stream action caused any slope washing or scouring?		
Has there been any seepage or saturated areas?		
Has vegetation been maintained?		
Have weeds been removed? Dates?		
Condition of any riprap?		
Have there been any authorized or unauthorized encroachments?		
Have burrowing animals been exterminated/removed and the creek channel channel side slopes repaired?		
Is the creek channel free of obstructions and/or debris?		
Are there any areas where the creek is affecting the channel side slopes?		
Has there been any recent high-water events?		
Miscellaneous conditions: _____ _____		

Note: Use additional sheets as necessary.

Signed:_____
Title:_____

Appendix C – Letter of Map Revision (LOMR)

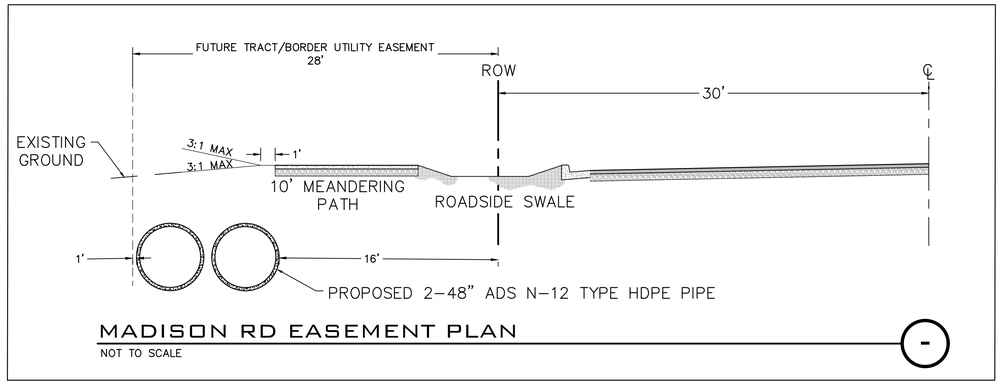
To be inserted once completed.

UNDERGROUND SERVICE ALERT
ONE-CALL NUMBER
811
CALL TWO BUSINESS DAYS BEFORE YOU DIG

2-48" ADS N-12 TYPE HDPE PIPE CULVERTS/OUTLETS
INFILTRATION POND
SETTLING POND
TEMPORARY ACCESS & DRAINAGE EASEMENT TO BE ALTERED AT FINAL PLAT
BIOSWALE
HEADWALL
ROADSIDE SWALE (TYPICAL)
HEADWALL AND TRASH RACK
ACCESS
18" CULVERT
STORAGE AREA #1
2-48" ADS N-12 TYPE HDPE PIPE CONVEYANCE
MADISON ROAD
18" CULVERT
2-48" ADS N-12 TYPE HDPE PIPE CONVEYANCE
TEMPORARY DRAINAGE EASEMENT
18" CULVERT
WILBER ROAD
DISHMAN-MICA ROAD
EXISTING LEVEE
CHESTER CREEK
100' STREAM BUFFER
EXISTING BOX CULVERT
EXISTING LEVEE
STREAM BUFFER IMPACT MITIGATION AREA
CHESTER CREEK
2-48" ADS N-12 TYPE HDPE PIPE CONVEYANCE
18" CULVERT
100' STREAM BUFFER
TEMP. DRAINAGE EASEMENT
CHESTER CR. BOX CULVERT EXTENSION
2-48" ADS N-12 TYPE HDPE PIPE CONVEYANCE
HEADWALL &TRASH RACK
THORPE ROAD
CONCRETE CHANNEL
3 EXISTING 15" CMP CULVERTS TO BE REMOVED
ROADSIDE SWALE (TYPICAL)
CHESTER CREEK
THORPE RD BOX CULVERT 30'W X 3'H BOX CULVERT

40TH AVENUE
STORAGE AREA #6
TRIANGLE POND INFILTRATION FIELD SEE GUSTIN PIPE PLAN SET FOR MORE DETAILS
HIGHWAY 27
36" PS46 ASTM F679 PVC CULVERT-SEE GUSTIN PIPE PLAN SET FOR MORE DETAILS
EXISTING 36"CULVERT

N
W E
S
GRAPHIC SCALE
200 0 100 200 400
(IN FEET)
1 inch = 200 ft.



MADISON RD EASEMENT PLAN
NOT TO SCALE

DATUM: NAVD - 88
TBM S-5 OF THE SOUTH PONDEROSA SEWER PROJECT WITH AN ELEVATION OF 2005.87 (NAVD29)=2009.67 (NAVD88) WAS USED FOR THE VERTICAL DATUM FOR THIS MAP.

NO.	DATE	BY	REVISIONS
3	01-03-20	JMH	REVISED PLANS
2	08-14-18	JPP	REVISED PLANS
1	08-12-16	JPP	ORIGINAL PREPARATION

SCALE:
HORIZONTAL: 1" = 200'
VERTICAL: N/A

PROJ #: 13-1166
DATE: 04/20/20
DRAWN: JPP
REVIEWED: TRW

X	CIVIL
	STRUCTURAL
	SURVEYING
	TRAFFIC
	PLANNING
	LANDSCAPE
	OTHER

WCE
WHIPPLE CONSULTING ENGINEERS
2528 NORTH SULLIVAN ROAD
SPOKANE VALLEY, WA 99216
PH: 509-893-2617 FAX: 509-926-0227

SPOKANE VALLEY PAINTED HILLS PRD
SITE ELEMENT PLAN
DISHMAN-MICA RD.
SPOKANE VALLEY,WA

SHEET C1.3
JOB NUMBER 13-1166

City of Spokane Valley Project/Permit No.:
SUB-2015-0001 (Subdivision)
FPD-2016-0007 (Flood Plain Development)
EGR-2016-0066 (Engineered Grading)

City of Spokane Valley Development Engineering
Reviewer: _____
New Street Miles – Public: _____
☐ Not Reviewed
☐ Reviewed for Conformance to Street Standards and Accepted per Chapter 1.2
Date Accepted _____
Acceptance Comments

TODD R. WHIPPLE STATE OF WASHINGTON 25462 REGISTERED PROFESSIONAL ENGINEER

PLANS NOT APPROVED BY AGENCY

APPENDIX F

Traffic Impact Analysis – Provided Under Separate Cover

APPENDIX G
Painted Hills PRD Biological Evaluation

PAINTED HILLS PRD

BIOLOGICAL EVALUATION, CRITICAL AREAS REPORT,
AND HABITAT MANAGEMENT PLAN
Spokane County Tax Parcels #45336.9191 and 44041.9144
February 28, 2019

Biology

Soil &

Water, Inc.

BIOLOGICAL EVALUATION, CRITICAL AREAS REPORT, AND HABITAT MANAGEMENT PLAN

for the

PAINTED HILLS PRD

Spokane County Tax Parcels #45336.9191 and 44041.9144
February 28, 2019

Retained by

NAI Black
Contact Person: Bryan Walker
107 S. Howard St., #500
Spokane, WA 99201
509.622.3593 (m)
509.623.1000 (o)
bwalker@naiblack.com

Investigated by

Biology Soil & Water, Inc.
Contact Person: Larry Dawes, Principal Biologist
3102 N. Girard Road
Spokane Valley, WA 99212-1529
Phone 509-327-2684
Email: bswinc@icehouse.net

LIST OF CONTACTS

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Spokane Valley, WA 99206
(509) 893-2617
(toddw@whipplece.com)

Larry Dawes
Biology Soil & Water, Inc
3102 N. Girard Road
Spokane Valley, WA 99212
Phone 509-327-2684
bswinc@icehouse.net

BIOLOGICAL EVALUATION, CRITICAL AREAS REPORT AND HABITAT MANAGEMENT PLAN for the PAINTED HILLS PRD Spokane County Tax Parcels #45336.9191 and 44041.9144 July 20, 2015 (Revised August 30, 2016, and February 2019)

1.0: Introduction

Biology Soil & Water, Inc. (BSW) was retained by Black Realty to complete a Biological Evaluation (BE) for the proposed Painted Hills Planned Residential Development (PRD) located in the City of Spokane Valley, WA. This BE also includes all of the Critical Areas Report and Habitat Management Plan (HMP) elements required by the City of Spokane Valley Municipal Code, Section 21.40 (SVMC 21.40).

South Dishman Mica Road defines the west boundary of the site, E. Thorpe Road defines the south boundary of the property, S. Madison Road defines the East boundary, and developed private property defines the north property boundary (Figures 1-3). The Painted Hills Golf Course formerly occupied this location. The former club house was renovated to expand the existing restaurant and the remainder of the site will become residential development and open space. The subject property is comprised of seven separate tax parcels totaling 99.5 acres (+/-) where 580 residential units are proposed, and a 10+ acre parcel on the south end of the site that will be designated as a wildlife travel corridor. The Action Area was defined as a half mile radius of the 99+ acre Project Area so the site investigation would characterize adjacent areas where listed species could live or be impacted by the project. This assessment addresses all Critical Areas and listed Priority Habitat and Species including Threatened, Endangered, Proposed, and Candidate Species in the Project Area.

The USFWS and NMFS species lists were accessed on their websites on 4/21/2015 and updated August 29, 2016 and January 29, 2019. No NMFS species are listed for the vicinity. The USF&W list indicated the potential presence of the species and critical habitat(s) shown in Table 1 (and in Appendix 1).

Table 1. USFWS listed species and critical habitats potentially present in the vicinity of

Species	ESU/DPS	Federal Status	Designated Critical Habitat
Bull trout *Salvelinus confluentus*	Columbia River DPS	*Threatened*	*Yes*
Water howellia, *Howellia aquatilis*		*Threatened*	*No*
Spalding's silene, *Silene spaldingii*		*Threatened*	*No*
Canada Lynx, *Lynx canadensis*		*Threatened*	*No*
Yellow-billed cuckoo, Coccyzus americanus,		*Threatened*	*No*

The undersigned investigated the Project and Action Areas on March 1, March 29, and April 19, 2015. The conclusions of this plan are based on an evaluation of habitat and species data for Spokane County compiled by State and Federal jurisdictions, an evaluation of construction plans and specifications for the project, a literature review, and field investigations by the author of this report. The project will have no effect on Bull Trout or proposed Bull Trout Critical Habitat. The project will not result in the destruction or adverse modification of potential, designated or proposed Critical Habitat or Essential Fish Habitat for any fish species. The project will have no effect on the threatened species Water howellia, Spalding's silene,

DeLORME

Topo USA® 8

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www.delorme.com

TN

MN (15.6°E)

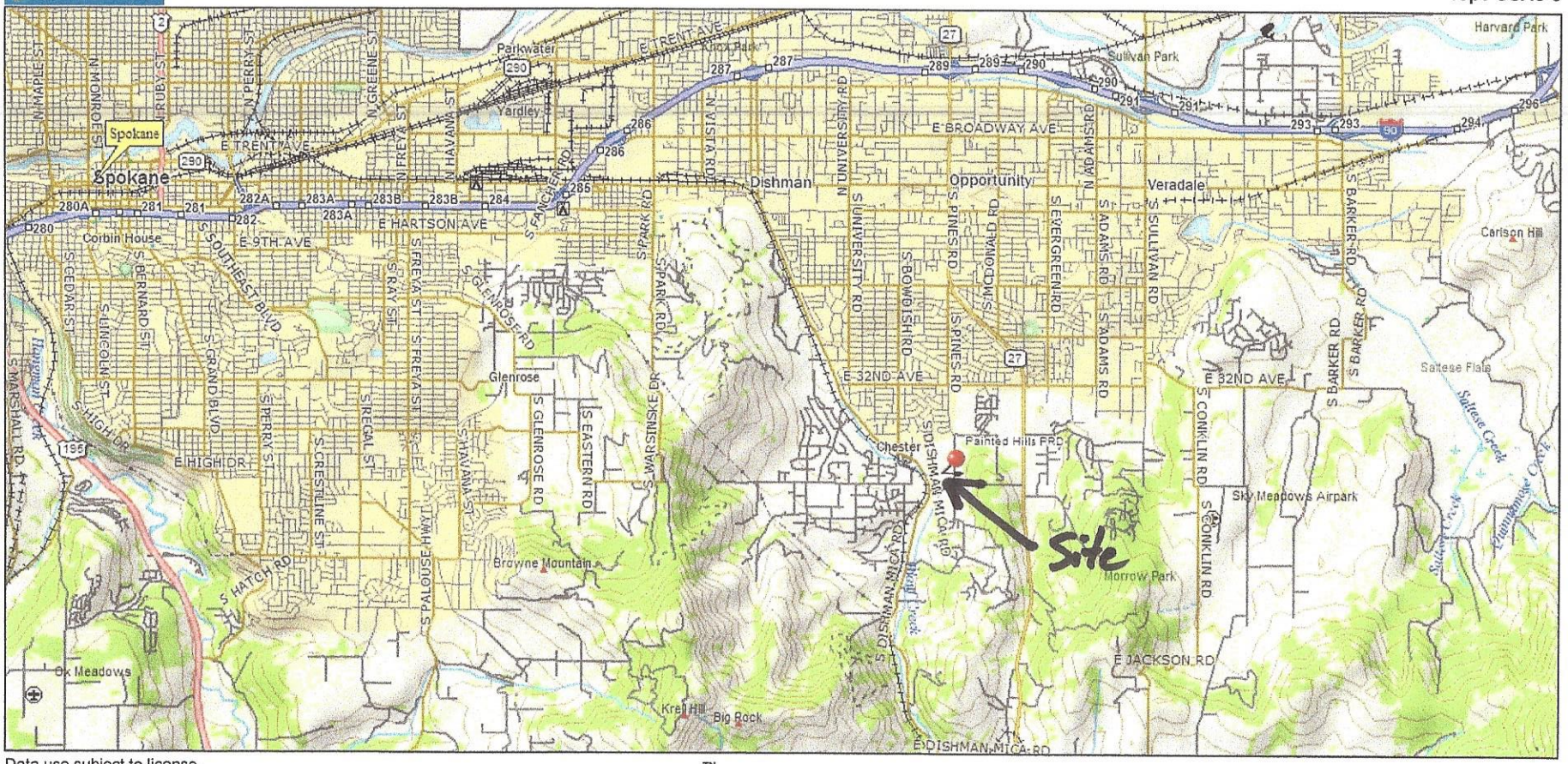
0 18 36 54 72 90 mi
0 30 60 90 120 150 km

Data Zoom 6-0

Figure 1: Site Location

DeLORME

Topo USA® 8



TN
MN (14.7°E)

0 1 2 3 mi
0 1 2 3 4 km

Data Zoom 11-0

Figure 2

SE¼, SEC.33, T.25N., R.44E., W.M.
SW¼, SEC.34, T.25N., R.44E., W.M.
NE¼, SEC. 4, T.24N., R.44E., W.M.

UNDERGROUND SERVICE ALERT
ONE-CALL NUMBER
811
CALL TWO BUSINESS DAYS BEFORE YOU DIG

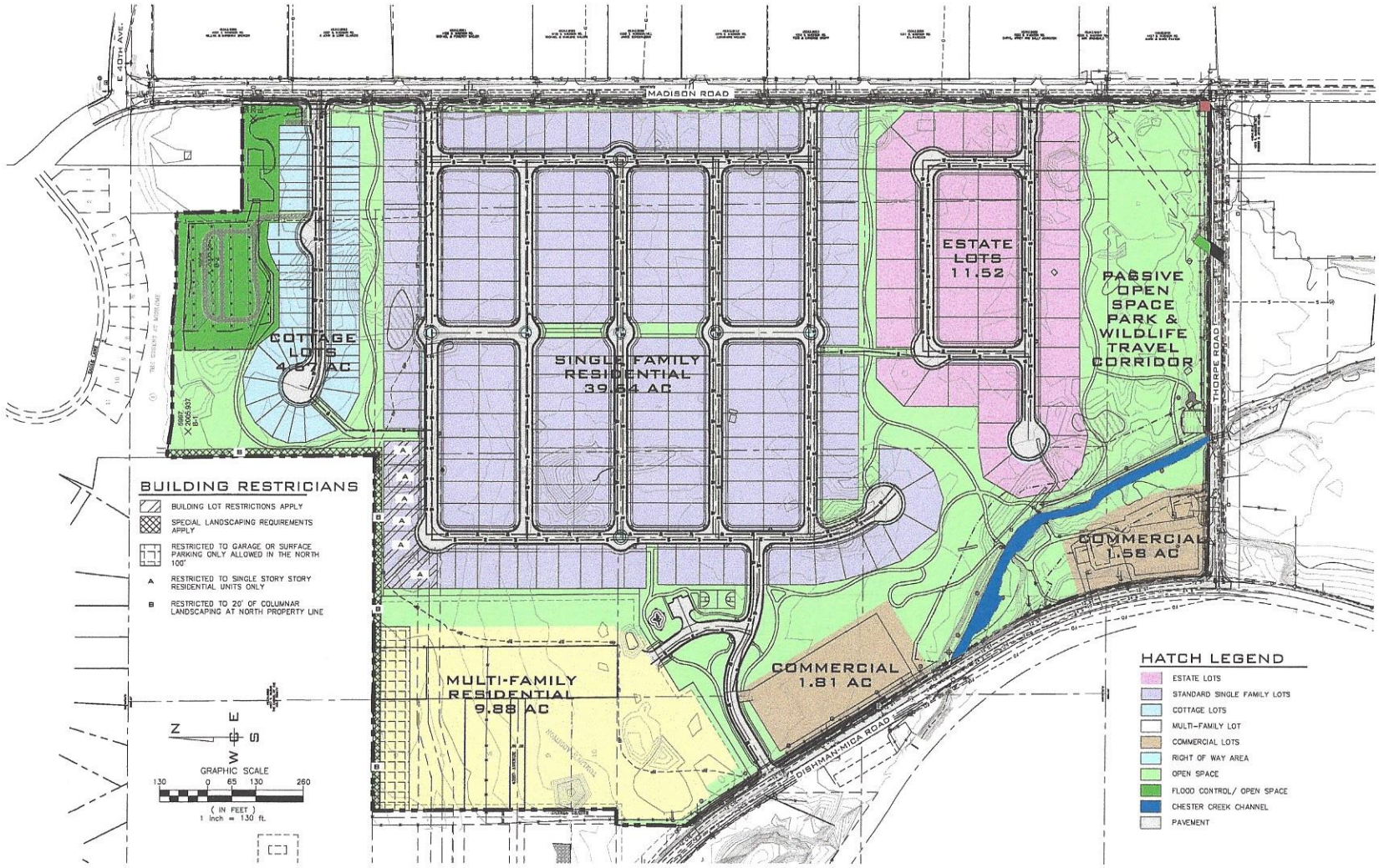


Figure 3

DEVELOPMENT FEATURES AND RESTRICTIONS

SCALE: 1"=130'

DATUM: NAVD - 88
TBM S-5 OF THE SOUTH PONDEROSA SEWER PROJECT WITH AN ELEVATION OF 2005.87 (NAVD28) =2009.67 (NAVD88) WAS USED FOR THE VERTICAL DATUM FOR THIS MAP.

NO.	DATE	BY	REVISIONS

SCALE:	
HORIZONTAL:	1"= 200'
VERTICAL:	N/A
PROJ #:	13-1166
DATE:	2/21/19
DRAWN:	BNG
REVIEWED:	TRW

CIVIL
STRUCTURAL
SURVEYING
TRAFFIC
X PLANNING
LANDSCAPE
OTHER

WCE
WHIPPLE CONSULTING ENGINEERS
2626 NORTH SULLIVAN ROAD
SPOKANE VALLEY, WA 99216
PH. 509-892-2517 FAX: 509-926-0227

PRD PAINTED HILLS
FEATURES AND RESTRICTIONS
DISHMAN-MICA RD.
SPOKANE VALLEY,WA

TODD R. WHIPPLE
STATE OF WASHINGTON
21402
REGISTERED
PROFESSIONAL ENGINEER

SHEET
P0.11

JOB NUMBER
13-1166

P:\WCE_WORK\2013 WCE PROJECTS\2013-1166 Walker - Painted Hills GCD\WG\1166 PPLAT-PKI-1-VICINITY MAP.dwg, 2/21/2019 2:33:47 PM, DWG To PDF.pc3

Canada lynx, or the Yellow-billed cuckoo. There will be no significant adverse effect on any listed Species of Concern. The site plan includes an 10+ acre wildlife travel corridor for deer and elk and over 30 acres of open space.

The Project Area does not meet any of the Department of Natural Resources (DNR) criteria for High Quality Terrestrial Habitat. Washington Department of Fish and Wildlife (WDF&W) maps (Appendix 2: Critical Areas Maps) indicate the subject property falls within an Elk polygon (WDF&W Priority Habitat). An 10+ acre wildlife travel corridor is proposed along the entire south end of the project and the corridor will be enhanced with vegetative plantings to accommodate animals traveling through the area.

Chester Creek and its associated 100-foot buffer bisects the SW corner of the property. Buffer Width Averaging is proposed to compensate for the encroachment of two lots and foot paths in the riparian buffer. The impact mitigation also includes riparian buffer enhancement. The existing buffer is almost totally devoid of woody vegetation because it was previously a driving range and/or maintained golf course fairway. An evaluation of streams and wetlands is included in this report.

2.0: Methods of Investigation

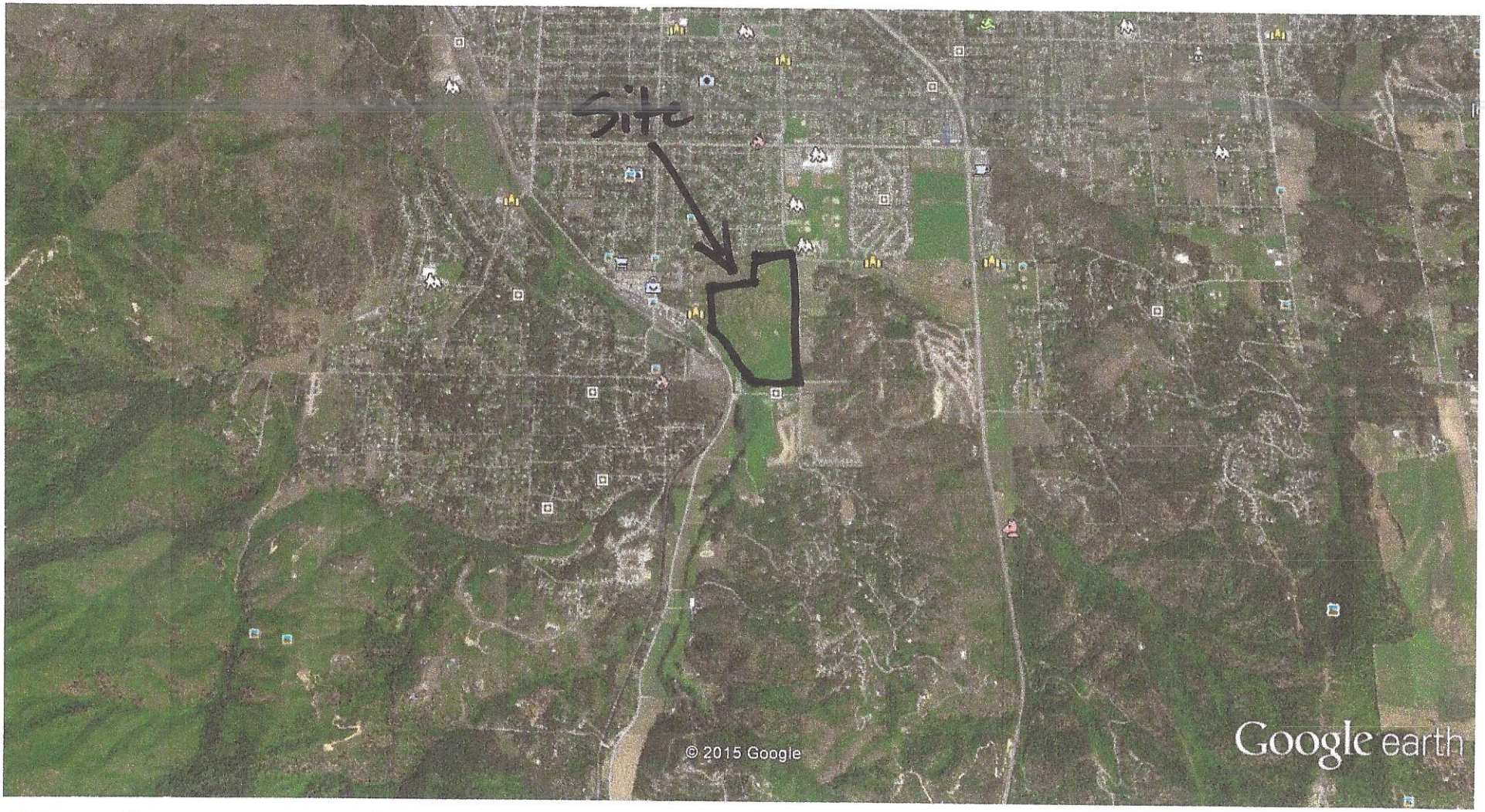
The north parcel of the Project Area is located in Sec. 33, T25N, R44E and the south parcel is located in Sec. 4, T24N, R44E of Spokane County, WA (Figures 1-3). Biology Soil & Water, Inc. (BSW) investigated the property on March 1 and 29, and April 19, 2015 for wetlands, riparian habitat, and species protected under the Federal, State, and local regulations. The undersigned is familiar with the soils, vegetation, and hydrologic characteristics of this property from previous investigations of adjacent properties in the immediate vicinity and throughout the drainage basin.

3.0: Description of the Action and Project Areas

Spokane is located in a valley at the westmost extent of the Rocky Mountains. From the north side of the Spokane River valley, the Selkirk Mountains extend north into Canada. On the south side of the Spokane River valley, a forested finger of the Bitterroot Mountains extends east from Lake Coeur d'Alene to Dishman Hills. The subject property is located in the Chester Creek valley with forested foothills on the east and west sides of the valley. The Painted Hills PRD is surrounded primarily by residential development with varying degrees of housing density, a few small undeveloped tracts of agricultural land in the Chester Creek valley, and forested land with varying densities of residential development (Figure 4).

3.1: Description of the Action Area

For purposes of describing habitat in the surrounding area, the Action Area is defined as a half mile radius of the project area. Habitat types in the Action Area would be described as a mosaic of urban developed, fragments of conifer forest, and small tract agriculture. From the north property line, dense residential development extends north into the City. A church and residential development border the painted Hills PRD at the NW corner. Horizon Middle School is located NE of the site. From the east property line (S. Madison Rd) hay fields and pasture extend 250-500 feet toward the toe of the surrounding forested slopes. Sparse residential extends east up the forested hillsides. Commercial and single family residential development extends south from Thorpe Road except for the Chester Creek drainage and associated flood plain that is mainly forested and small tract agriculture. Undeveloped forested hillsides extend about 1200



Google earth

miles 3
km 5

Figure 4

feet east to the densely developed Ponderosa neighborhood. A mixture of commercial and residential land uses extend NW along Dishman-Mica Road.

Land uses in the Action Area are a mosaic of dense residential development on former agricultural land, remaining undeveloped small tracts of agricultural land, and forested land with varying densities of residential development. Large mammals that are willing to cross highways and residential developments interspersed with open farm land will find connectivity to a few hundred acres of wooded and sparsely populated foothills extending south and west from the Painted Hills PRD site to Dishman Hills.

3.2: Description of the Project Area

The 99+ acre Painted Hills PRD property was formerly a golf course. Black Realty Inc. bought the property in a trustees auction in the fall of 2013 after the owners filed for bankruptcy in 2012. Except for cart paths, sand traps, and man-made water hazards, the entire property was planted in non-native turf grasses with sparse conifer and deciduous trees lining some of the fairways. The turf grass was maintained by treatment with herbicides and regular mowing of the greens, fairways and rough. These practices virtually eliminated the native herbaceous plant community. Since golf course maintenance ceased, noxious weeds have invaded the site.

Honey willows were planted inside the Ordinary High Water Mark (OHWM) of Chester Creek whose channel was historically dredged and maintained for flood control. The banks of the channel are covered with Reed canarygrass. Outside the OHWM of the stream channel where the vegetation was not mowed or maintained, the vegetative community is dominated by Canarygrass. Teasel, tansy, thistle, wormwood, and lettuce are also well represented.

3.3: Comparison of three Development Alternatives

An Environmental Impact Statement (EIS) was prepared for the project. The EIS provides a detailed analysis of three alternatives. Alternative #1 proposed no development. Alternative #2, the preferred development scenario, was for the Planned Residential Development proposed in this report. Alternative #3 was for a standard Residential Subdivision under the current zoning without PRD requirements and density. Alternative #2 was preferred because it provided a park, wildlife travel corridor, and all of the advantages offered by a mixed use community compared to the standard subdivision proposed in Alternative 3. A detailed comparison of the three alternatives is provided later in this report.

4.0: Project Risk Assessment and Impacts

Listed threatened and endangered species identified by jurisdictions for potential occurrence in Spokane County include the Yellow-billed Cuckoo (*Coccyzus americanus*), Canada Lynx (*Lynx canadensis*), Bull trout (Salvelinus confluentus), Water howellia (*Howellia aquatilis*) and Spalding's silene (*Silene spaldingii*). A BSW field investigation determined that the project would have NO EFFECT on any of the above listed species.

4.1: Yellow-billed Cuckoo (*Coccyzus americanus*), Federal Status: Threatened

The yellow-billed cuckoo was formerly a very rare summer visitor to western Washington, especially in the Puget Sound area (Roberson 1980). Jewitt et al. (1953) described the former breeding range in Washington as ranging north to Bellingham, east to Ellensburg, south to Vancouver, and west to Grays Harbor. There are only two published records of yellow-billed cuckoo in eastern Washington. Yellowbilled cuckoos were detected on July 21, 1956, 20

miles north of Grand Coulee Dam in Okanogan County (Weber and Larrison 1977) and in June 1978 at George, Grant County (Roberson 1980).

The March and April investigations occurred before the Yellow-billed cuckoo would have migrated into the Spokane County area if it seasonally utilized the area for breeding or nesting. The investigation for the Yellow-billed cuckoo focused on specific habitat requirements of that species. Cuckoos prefer to nest in areas with at least 10 hectares (ha) (25 acres) of contiguous (riparian) woodland (Laymon 1998). The typical patch size is 20 ha (50 acres) or greater, and the likelihood of occupancy increases dramatically with increasing patch size, but they have been found breeding in patch sizes as small as 4 ha (10 acres) along the Colorado River in southern California (Johnson, Matthew J., 2007). Yellow-billed cuckoo's nest in undisturbed stands of cottonwood/willow galleries greater than 10 acres in total area and greater than 100 meters wide along waterways.

The project area does not contain, and is not in close proximity to, adequate habitat patches for that species. The largest habitat patch consisting of species utilized by the yellow-billed cuckoo is less than one tenth of the minimum patch size utilized by this reclusive species. The yellow-billed cuckoo is known not to utilize any habitat with characteristics of those found along Chester Creek adjacent to this project. This project will not impact yellow-billed cuckoo populations or habitat components. There is no suitable habitat for the yellow billed cuckoo in the vicinity of this project. **The project will have NO EFFECT on the yellow-billed cuckoo.**

4.2: Bull Trout (*Salvelinus confluentus*) Threatened

The U.S. Fish and Wildlife Service (USF&WS) lists the Columbia River population of bull trout as threatened. Small pockets of bull trout are present in isolated habitat fragments in the main stem and tributaries of the Columbia River. One isolated fragment of the Columbia River segment includes Coeur d'Alene Lake, its tributaries in the drainage basin, and the Spokane River. Bull trout populations have been identified in Coeur d'Alene Lake and three tributaries in its sub-basin, but no bull trout populations are known to occur presently, or have been noted historically, in the Spokane River downstream from the Post Falls Hydroelectric Dam (PBTTAT, 1998).

The Post Falls dam stops the migration of fish out of the Coeur d'Alene basin downstream into the Spokane River. Waterfalls and dams prevents the upstream and downstream migration of bull trout into the segment of the Spokane River and its tributaries in the vicinity of the project area. No dam on the Spokane River has a fish passage facility and all dams create fish barriers for upstream and downstream migration. EPA fact sheets for 1999 NPDES permits for wastewater treatment plants discharging to the Spokane River state that bull trout cannot get past the Post Falls Dam (EPA 2008). There is no known population of bull trout in the Spokane River downstream of the Post Falls dam (FERC 2006). The USFWS does not include the Spokane River and its tributaries located downstream from the Post Falls dam in bull trout recovery planning efforts (Federal Register / Vol. 75, No. 200 / Monday, October 18, 2010). **The project will have No Effect on Bull Trout.**

Bull Trout Critical Habitat

Activities that may adversely modify critical habitat include those that alter the primary constituent elements to an extent that the value of critical habitat for both the survival and recovery of the bull trout is appreciably reduced. The proposed project will not destroy or adversely modify critical habitat by altering primary constituent elements. The value of critical

habitat for both the survival and recovery of the bull trout will not be reduced as a result of this project. The project will not alter the minimum flow or natural flow regime of the subject stream, alter any segment of the stream, riparian vegetation, or any chemical parameters so as to reduce water quality, alter channel morphology or create instream barriers to bull trout movement. No decrease in water quantity will occur because of the project. **The project will cause no significant and detrimental alterations to water quality and will have NO EFFECT on proposed Bull Trout Critical Habitat.**

4.3: Spalding's catchfly (*Silene spaldingii*), Federal Status: Threatened

The range of Spalding's silene (*Silene spaldingii*) includes eastern Washington, northeast Oregon, Idaho, and western Montana. Spalding's silene occurs primarily in open grasslands with minor shrub and/or (occasionally) scattered conifer components. Spalding's silene is found most commonly in Idaho fescue/snowberry associations at elevations of 1900-3050 feet. These sites are typically dominated by Idaho fescue and have sparse cover of snowberry where the total vegetative cover is greater than 100%. Some of these sites occur in a mosaic of grassland and ponderosa pine forest. Spalding's silene populations have been found on all aspects, although there seems to be a preference for slopes that face north. On drier sites, the species can be found on the bluebunch wheatgrass/Idaho fescue association.

Spalding's silene can occupy habitats that vary from sagebrush plains to mountain ridges. Spalding's silene generally occurs in native grasslands that are in reasonably good ecological condition, although populations have persisted in areas that have had moderate grazing pressure. Populations tend to be quite small and are currently quite fragmented, raising questions about their long-term viability. Fire may have historically played a role in maintaining habitat particularly in sites that are interspersed with ponderosa pine forest. Much of the historically suitable habitat has been lost through conversion or degradation.

The timing of the site investigation did not coincide with the flowering of listed plant species. The project biologist is a qualified botanist and wetland professional that routinely completes site investigations during all seasons when snow does not cover vegetation. Site investigations often occur when salient plant flowering parts are senescent or may not be sufficiently preserved to allow taxonomic identification beyond genus to the species level. Twenty years of experience in plant identification during all life history and seasonal growth habits has equipped the project biologist to conduct accurate plant identifications and wetland investigations in accordance with best available science and consistent with the accepted professional practices for the conditions at the time the work was performed.

Individual plants exhibit essential identification characteristics unique to their genera, but display sufficient variation so it is possible to categorize and differentiate each species within a genus using taxonomic keys. During plant senescence, individual characteristics often become blurred making it difficult or impossible for a botanist to differentiate among species within the genus. The sepals of the genus *Silene* form a bulbous calyx that is easily recognized and sufficient to identify the plant to genus. The Threatened species *Silene spaldingii* overlaps in range and is somewhat similar in appearance with some other species in the genus.

The field biologist is familiar with the species and has observed it at other locations. During the field investigation, the *Silene* genus was not identified in the Action or Project Areas. Previous years of cultivation, followed by the planting of turf grasses, years of mowing, and herbicide applications is sufficient grounds for discounting effects on Spalding's silene when considered alone. No populations of Spalding's silene were identified in the Project Area during

the field investigation. **The project will have NO EFFECT on Spalding's Silene and will not result in the destruction or adverse modification of potential, designated or proposed Spalding's silene Critical Habitat.**

4.4: Water howellia (Howellia aquatilis)

Howellia is found in seasonal wetlands, ponds and lakes because its seeds do not germinate under water. Since seeds germinate in the fall and over-winter as seedlings Howellia requires a dry autumn followed by a wet spring in order to establish for the year. In addition to seasonally fluctuating ponds, Howellia requires fertile, highly organic soils, which are generally maintained by deciduous trees surrounding the ponds. Research indicates that Howellia does not form a persistent seed bank, making this annual especially dependent on year to year reproductive success in order to persist.

No Howellia was observed in the Project Area. Howellia is found in seasonal wetlands, ponds and lakes. No Howellia habitat occurs in the Project Area. **The project will have NO EFFECT on the Howellia aquatilis species and will not result in the destruction or adverse modification of potential, designated or proposed Howellia Critical Habitat.**

4.5: Canada lynx (Lynx canadensis) Federal Status: Threatened

Lynx prefer dense coniferous forest with sapling/pole thickets, rock outcrops, and wetlands at elevations of around 4000' to 4500'. The elevation of the Action Area is around 2010-2015 feet. Denning usually occurs in mature old growth stands with lots of deadfall. These forested stands do not occur in the Action Area. Lynx prefer snowshoe hare habitat, as they are dependent on snowshoe hare as a staple food item. Snowshoe hare prefers dense lodgepole stands that do not occur in the Project or Action Areas. BSW did not find any evidence of Canada lynx in the low elevations associated with the Project Area. **The project will have NO EFFECT on the Canada lynx or Canada lynx habitat. The Canada lynx does not appear on the 1/29/2019 official USFW species list for the site.**

4.6: Species of Concern

The site was also investigated for the presence of species from the Species of Concern list for Spokane County published by the U.S. Fish and Wildlife Service. Most of these species are also included in the WDF&W list of priority species that was adopted by the City of Spokane Valley. Each species is listed below, followed by an evaluation of available habitat, observed habitat utilization, and potential project effects.

Bald eagle *(Haliaeetus leucocephalus)*

The Bald eagle is listed as a State Sensitive species. Eagles do not nest near the Project Area. Human activity associated with major roads and urban development are limiting factors for Bald eagles in the Action Area. At any location in Spokane County road kill can provide food for transient opportunist eagles. However, Bald eagles do not routinely forage in the Action Area and no nest sites were observed by BSW within one-half mile of the Project Area. BSW concludes that noise and human activity during construction will not impact eagle nesting as no nests were identified in the Action Area. Perching and foraging opportunities occur on the stream bank and eagles could utilize the stream corridor. **The project will have NO EFFECT on the Bald eagle.**

Western Burrowing Owl ***(Athene cunicularia)*** No historical observation in the vicinity. No individuals, nests, or sign observed during the site survey. **No Effect from project.**
California floater ***(Anodonta californiensis)*** freshwater mussel. **No Effect from project.**
Ferruginous hawk ***(Buteo regalis)*** nests on rocky ledge or high ground vantage on prairie. **No Effect from project.**
Giant Columbia spire snail ***(Fluminicola columbiana)*** cold, unpolluted, medium to large streams. **No Effect from project.**
Loggerhead shrike ***(Lanius ludovicianus)*** A robin sized gray, black, and white bird of open areas. Community types not dominated by shrubs, such as grasslands and riparian areas, are not used. Loggerhead Shrikes prefer nesting in big sagebrush and antelope bitterbrush, and avoid spiny hopsage, rabbitbrush, and green rabbitbrush (*Chrysothamnus viscidiflorus*). Nest shrubs are taller, closer to an edge, and contain denser cover and fewer main stems than unoccupied shrubs. Roost shrubs are large, dense live shrubs, whereas tall, dead shrubs that provide good visibility are used for perching. **No Effect from project.**
Longeared myotis ***(Myotis evotis)*** Roosts are sometimes found in crevices in small basalt rock formations. Compared to random plots, roosts are in more open, rocky habitats, closer to the edge of forest stands, and relatively distant from sources of permanent water. Often roost in Ponderosa pine trees >30 cm in diameter and >12 m high. Less use of grasslands and closed pine than expected. **No significant effect if present in vicinity.**
Northern goshawk ***(Accipiter gentilis)*** goshawks select relatively closed-canopy conifferous/boreal forest habitat for nesting - **No significant effect.**
Olivesided flycatcher ***(Contopus cooperi)*** found in boreal and western coniferous forests - **No Effect**
Pallid Townsend's bigeared bat (Corynorhinus townsendii pallescens) Eastside mixed conifer forest, shrub-steppe, and riparian-wetlands. In Washington, old buildings, silos, concrete bunkers, barns, caves, and mines are common roost structures. **No effect on roosting or hibernicula**
Peregrine falcon (Falco peregrinus) Two subspecies of peregrine falcons (Falco peregrinus) occur in Washington state at present, (F. p. pealei and F. p. anatum). Peale's peregrine falcon is a coastal subspecies so our concern in Spokane County is with F. p. anatum (Continental peregrine falcon). DDT exposure totally eliminated this subspecies from former breeding sites in eastern Washington. Following a ban on the use of DDT, captive-reared young birds have been released at several sites in Spokane County in an attempt to augment natural reintroductions by wild birds. There is no potential for degradation or loss of critical habitat for peregrine falcons in the project area. Peregrine falcons nest on cliffs or even man-made structures such as buildings or bridges that do not occur in the project area so no action is required to protect nest sites from human disturbance. The primary method used to reintroduce falcons to the wild is called "hacking". WDF&W does not currently use any hack sites in the vicinity. **No significant effect**
Redband trout (Oncorhynchus mykiss) No Effect from project.
Sagebrush lizard ***(Sceloporus graciosus)*** **No Effect from project.**
Westslope cutthroat trout ***(Oncorhynchus clarki lewisi)*** **No Effect from project.**
Palouse goldenweed ***(Haplopappus liatriformis)*** palouse, not in our area **No Effect**

4.7: WDF&W Priority Species Deer, Elk, and Gray Wolf

Impacts to the WDF&W Priority Species White-tailed deer and Elk will be minimized by protecting a travel corridor through the site. The subject property is not mapped as White-tailed

deer priority habitat. Wooded lands to the east and south are mapped as priority white-tailed deer habitat. However, deer utilize the site as they do all undeveloped parcels in the area. The site falls within the northern extent of the mapped Elk Habitat polygon in the Spokane Valley. The site does not provide cover or refugia required by elk and is not elk habitat, but Elk moving through the general area between Mica Peak and Dishman Hills could potentially cross the subject property on east/west treks. The developer will protect and enhance an east/west 10+ acre deer and elk travel corridor across the property. Woody vegetative plantings prescribed for the corridor will provide some habitat value and protective cover where none currently exists. Deer will continue to use the area set aside as a travel corridor.

The site is also mapped as Gray wolf habitat. It is possible that wolves could travel through the area in search of prey. There are deer and abundant small (domesticated) mammals available in this residential area so their presence would not be well received in the surrounding neighborhoods. Wolves could also utilize the 10+ acre travel corridor for safe east/west passage through the property. On May 5, 2011, wolves were federally delisted in the eastern one-third of Washington State.

4.8: Wetlands

Wetland Inventory Maps of the site show two wetlands on the property (Appendix 2). Both of the wetlands are shown to occur on the west side of Chester Creek. BSW investigated the mapped wetlands on March 1, 2015. In each mapped wetland, BSW dug a test hole on top of the creek bank in close proximity to the Chester Creek OHWM. On March 1, neither of the test holes had saturated soils in the top 16 inches of the soil profile. In Test Hole #1 the water table was at 21 inches and saturation occurred at 16 inches. In Test Hole 2, there was no saturation in the top 24 inches of the soil profile.

The test holes were inspected again on March 29th and the water level in test holes was lower than on March 1st. This result was expected due to the landscape position of the mapped wetlands. The year to date precipitation for Spokane was fluctuating between slightly above normal for the year to slightly below normal for the year to date making this year to date average in precipitation. Wetland hydrology should have been present in what was a normal year at the time of the investigation if the subject areas were wetlands. The argument that Spokane was below normal for the hydrologic year is also not valid for this drainage basin because it has a low elevation and runoff comes earlier in the year than many other drainages as will be explained in detail below.

The wetland hydrologic criteria was not met in either test hole at the start of the growing season when the water table should have been at its annual high. Stream high water conditions consistent with a high water table does not typically occur during the growing season on Chester Creek. Seasonal high water occurs in the winter during rain on snow and frozen ground conditions. During the growing season, wetland conditions do not occur outside of the stream OHWM where the National Wetland Inventory Map indicates the wetlands occur. David Moore, DOE, investigated the site on June 8, 2016 and concurred with that finding in the field and by phone after the site visit.

The hydrologic studies referenced in this report all conclude that Chester Creek is not influenced by a high water table so it loses water to the underlying sands and gravels. This prevents wetland conditions from occurring outside the area of flowing water in the channel. The author of this report concurs with those conclusions based on 20+ years of personal

observations of hydrologic conditions and numerous wetland investigations in the Chester Creek drainage basin.

Most streams occur in the lowest elevational contour of a drainage basin where bedrock, or some restricting layer, prohibits the infiltration of water and causes a seasonal high water table. Under those physical conditions, the water table influences, or contributes to the stream through the winter and spring portions of the hydrologic year. The key feature to wetland occurrence in riparian zones is a high water table that generally correlates to the surface elevation of the stream. Wetland conditions form when the water table comes in close proximity to the soil surface during the growing season. The water level in the stream generally corresponds to the top of the water table in the surrounding basin. During the growing season, evapotranspiration lowers the water table at the same time annual precipitation decreases. When the water table falls, isolated depressions remain full of water until the water table drops allowing the depressional wetlands to dry out. When these depressions remain inundated or saturated for sufficient duration, DOE considers them to be wetlands within the stream channel. At some point the water table falls below the bottom of the stream and no longer contributes to base flow in the stream. The above scenario does not occur in Chester Creek.

Chester Creek loses water to the underlying sands and gravels all year long. Chester Creek flood events occur during the winter when heavy rains on frozen ground and/or snow prevent infiltration of stormwater in the contributing basin. Flood events do not occur during the growing season. The extent and duration of occasional flood events depends on how long the above normal precipitation continues and how far downstream the flooding spreads before infiltration exceeds hydrologic input. The frequency, duration, and extent of flooding have been attenuated by flood control measures thoughtfully implemented downstream. The flood control measures proposed with this project are a continuation of that process.

In summary, Chester Creek is not influenced by a high water table that creates wetlands. Chester Creek loses water to the underlying sands and gravels so wetlands do not occur outside of the channel of flowing water. The test holes evaluated with a shovel by BSW in 2015 and again in 2016 support that conclusion. That conclusion is backed by 20+ years of personal experience in the basin, previous hydrologic studies of the basin, Bore Hole Logs taken within the area of interest on Chester Creek, Bore Hole Logs throughout the Painted Hills project area, well logs of proximate properties, and the Geotechnical and Hydrologic Analysis of the same Bore Hole Logs. No wetlands occur adjacent to Chester Creek because is not influenced by a high water table. This conclusion is supported by the Geotechnical Evaluation of the area. The author of the Geotechnical Evaluation report reached the same conclusion as BSW, that Chester Creek loses water to the underlying well drained sands and gravels all year long preventing wetlands from forming.

4.8.1: Chester Creek Flood Frequency

A hydrologic and hydraulic analysis for Chester Creek was completed by Michael Baker Jr., Inc. and approved by Spokane County in a letter to the Federal Emergency Management Agency dated August 6, 1990. There are no long-term gage records for Chester Creek. The limited gage measurements on Chester Creek were collected near the Dishman-Mica Road crossing of Chester Creek from December 1994 through March 1995 and November 1995 through February 1996 when no flood events occurred. In February 2006, the hydraulic analysis for Chester Creek was revised by West Consultants, Inc. under a FEMA contract. The analysis

established flood magnitude-frequency estimates for the watercourse. A steady flow model has been developed for Chester Creek.

The reports conclude that spring floods in the upper Spokane River basin are due to snowmelt runoff from high elevation watersheds. Such floods are of less significance on Chester Creek because the lower elevation of the watershed limits the size of the snowpack so spring runoff occurs about a month earlier and at more gradual rates than on the Spokane River. Nearly all maximum annual flood peaks on Chester Creek occur during the winter. Warm winds and rain can melt the snow rapidly. The May 1948 flood on Hangman Creek was a non-typical flood caused by a heavy snowpack, a late, cold spring, and heavy rains during the critical snow melting period. All other maximum annual flood peaks on Hangman Creek occurred during the winter. When winter rain causes snowmelt on frozen soil conditions, short-duration, intense runoff generates a flood peak during winter storms. During the more extreme events, Chester Creek runs over its banks filling depressions in the flood zone.

The duration of flooding is generally between 100 hours and 1000 hours, or between four days and forty days with smaller events occurring with greater frequency than large events. Hydric soils form under saturated soil conditions. Wetlands have to exhibit saturated soils during the growing season, but those conditions seldom occur outside of the stream channel on Chester Creek because flooding usually happens in the winter. Floods are typically of a small magnitude so when over bank flow fills depressions outside of the channel, the water has usually infiltrated before the growing season begins. The subject areas may have been exposed to more frequent flooding in the past, but good planning and flood control measures designed to minimize flooding have moderated those historical flood events to some degree. Chester Creek does not follow the same hydrograph as snowmelt dominated systems.

4.8.2: Flood Protection Measures

Channel geometry for Chester Creek were developed from surveys conducted in March 2003. Overbank geometry were developed from topography developed by TerraPoint (2003). Flood plain boundaries for Chester Creek and Unnamed Tributary to Chester Creek were delineated using 2 foot contour interval maps developed by TerraPoint from LiDAR data.

Previously, a watershed plan for Chester Creek was designed with management recommendations for drainage, flooding, water quality, and riparian habitat. As a result, flood control improvements have been implemented along Chester Creek. The improvement area began at the Painted Hills Golf Course. In 1998, a project to install new culverts and extensive dredging of the channel between Thorpe Road and Schaffer Road was implemented. Two large volume borrow pits were constructed downstream. Each pit was designed for the retention and infiltration of Chester Creek floodwaters up to a 25 year event. One borrow pit was constructed just north of E. 40th Avenue and the other just south of 28th Avenue.

The Chester Creek channel has been historically maintained as has been reported in the literature and supported by direct evidence of spoil piles on the channel banks. Dredging makes the channel deeper and the dredging spoil piles make the channel banks higher. As a result of channel dredging, the surrounding areas are dewatered faster and the water table falls a corresponding distance deeper below the soil surface. Soils in the areas mapped as wetland exhibit some relic hydric characteristics from infrequent historical flooding, but with the exception of rare flood events, the water table is too far below the soil surface at the start of the growing season to meet the wetland hydrologic criteria.

The two mapped wetlands do not meet the hydrologic criteria so they are not wetlands. They are low lying areas adjacent to Chester Creek that have been historically flooded, but flooding is far too infrequent for the subject areas to meet the wetland hydrologic criteria. Even if they were wetlands, they are on the opposite side of the creek from where development is proposed so the riparian buffer would be more restrictive and extend further east into the development than a wetland buffer. However, there are no wetlands on the subject property.

Additional flood control measures are being incorporated into the project design (see the Painted Hills Flood Control Plan). In the proposed Alternative #2, a thirty-foot wide by 3 foot deep box culvert will be installed in the Right of Way to prevent back up on the Haase property south of Thorpe. On the north side of Thorpe, water will proceed northeast in an open concrete channel and headwall for two 48 inch pipes. The pipes extend northeast across the park to Madison Road where it will be piped north to a headwall and bioswale. The bioswale is a long sloping reach that terminates in a settling pond. At the settling pond, water will rise one foot and crest over a weir into the infiltration pond located at the north end of the development. Inland Pacific Engineering Company (IPEC) developed an Operations and Maintenance Plan for the facility to ensure the flood control systems receive regular maintenance and inspections to minimize long term effects of sediments that may enter the system.

Other flood control measures will be required by the City of Spokane Valley who historically maintained the Chester Creek channel on an annual basis. To my knowledge, the channel was last dredged in 1998. The channel must be kept clear of deadfall that would impede flow in the channel. The property owners must implement the channel maintenance plan to insure flow in the channel is not impeded. WCE has also prepared a Chester Creek Levee Operation and Maintenance Manual for Level Operation and Maintenance for the Chester Creek Homeowners Association. This manual requires annual maintenance inspections and maintenance as required to maintain the integrity of the levee with additional inspections during all flood events.

Fill material shall be placed behind the existing levee so the levee disappears and there is no levee to fail during a flood event. Fill material will reinforce the creek bank and raise the bank elevation to a minimum height of one foot above the Base Flood Elevation. Raising the property to an elevation 1 foot above the base Flood Elevation ensure FEMA and the City that the property, and buildings on the property, will not be inundated by a flood event. The fill material will slope to the northeast through the proposed streets, with their own proposed storm drainage systems, and the ultimate low point where flood control ponds will be constructed at the north end of the project.

4.9: Riparian Areas

The DNR Water Type Map (Figure 5) defines Chester Creek as a Type F Water. Chapter 21.40 of the City of Spokane Valley Municipal Code, titled Critical Areas, bases stream buffer widths on the DNR Riparian Management Zones. Chester Creek is greater than 15 feet in width (bankfull) so the appropriate buffer width can be found in Table 21.40-10 of the City Code. The DNR guidance states that in Eastern Washington, if there is no site index information, as in this case, assume Site Class III unless site specific information indicates otherwise. The table indicates that a Type F Natural Water not classified as a Shoreline of the State, having a Site Class 3 designation, has a total buffer width of 100 feet. BSW delineated the Chester Creek OHWM in the field on March 31, 2015. The OHWM flags were surveyed and plotted on the site plan map along with the 100-foot riparian buffer by Whipple Consulting Engineers.

Figure 5: **FOREST PRACTICE WATER TYPE MAP**

TOWNSHIP 0 NORTH HALF undefined, RANGE 0 (W.M.) HALF undefined, SECTION 0

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NAD 83
Contour Interval: 40 Feet

The DNR Water Type Map also identified a Type F Water located about one mile east of the subject property. The map showed the stream crossing SR27 and running NW across a cultivated field before disappearing. There is no stream in that location so a Water Type Modification Form was submitted to Spokane County. The form was circulated to all appropriate agencies, the Water Type change was approved, and that stream segment was removed from the map. However, the FEMA map shows potential flood waters traveling toward the proposed development from that general direction. So additional work was required by FEMA to pipe the flood water to the borrow pit located on adjacent Gussman property to the north. Several years ago, the ditch was proposed, approved, and created to convey stormwater to a borrow pit. After the pipe improvements required by FEMA, floodwater will have the same fate as stormwater and be conveyed into the borrow pit where it will infiltrate and have no impact on the proposed development. No impacts are proposed to regulated waters by this FEMA requirement so no mitigation is required.

5.0: Analysis of Three Development Alternatives (Figures 6-8)

5.1: Alternative #1 (no development, Figure 6)

The existing conditions would be maintained under the no development scenario of Alternative #1 (Figure 6). The existing conditions are turf grasses and vegetation consistent with a golf course with sparse woody vegetation bordering some of the fairways. The open space is utilized by deer and provides a potential travel corridor for elk moving between Madison Hills and Dishman Hills. These conditions would remain exactly the same in the Alternative #1 no development scenario. The entire property, stream buffer, trails, and bridges would remain in the existing condition.

In the existing condition, the buffer on the right stream bank (N/E side of the creek) has an area of 104,131.93+/- sq. ft.. The buffer on the left stream bank (S/W side of the creek) has an area of 78,329.96 +/- sq. ft.. The total area of stream buffer is 182,461.89+/- sq. ft.. The existing buildings, trails, and bridges result in 18,604.23+/- sq. ft. of buffer impact. All of the existing impact areas would remain exactly the same if no development occurred.

5.2: Alternative #3 (standard residential development, Figure 7)

In Alternative #3, a 3665.18 sq. ft. polygon on the west side of the creek, east of the existing restaurant parking lot, would be impacted (green hatched area in Figure #7). The 100-foot buffer width would be reduced to the 75-foot minimum width allowed by the City Code so the restaurant parking lot could be expanded. Alternative #3 also proposes a 1383.16 sq. ft. buffer impact (green hatched area in Figure # 7) from the City required improvement (widening) of Thorpe Road. According to the buffer averaging provisions of the City Code, buffer impact areas must be replaced with an equal or larger buffer area that is contiguous with the existing buffer so there is no net loss of buffer area. The 3665.18 sq. ft. and 1383.16 sq. ft. buffer impact areas total 5048.34 sq. ft. and would be replaced with a 5096.06 ft. sq. replacement area on the opposite side of the creek as represented by the blue hatched polygon in Figure # 7. The proposed 5048.34 sq. ft. buffer impact area would be mitigated with buffer averaging but also with vegetative enhancement of the buffer replacement area. The proposed buffer averaging will result in a small net increase in buffer area and habitat quality.

On the right stream bank (N/E side of the creek) fill material will cover the entire 104,131.93+/- sq. ft. of riparian buffer to bring the land surface elevation to a height of one foot

SE¼, SEC.33, T.25N., R.44E., W.M.
SW¼, SEC.34, T.25N., R.44E., W.M.
NE¼, SEC. 4, T.24N., R.44E., W.M.

CHESTER CREEK EXISTING DELINEATION & IMPACT

UNDERGROUND SERVICE ALERT
ONE-CALL NUMBER
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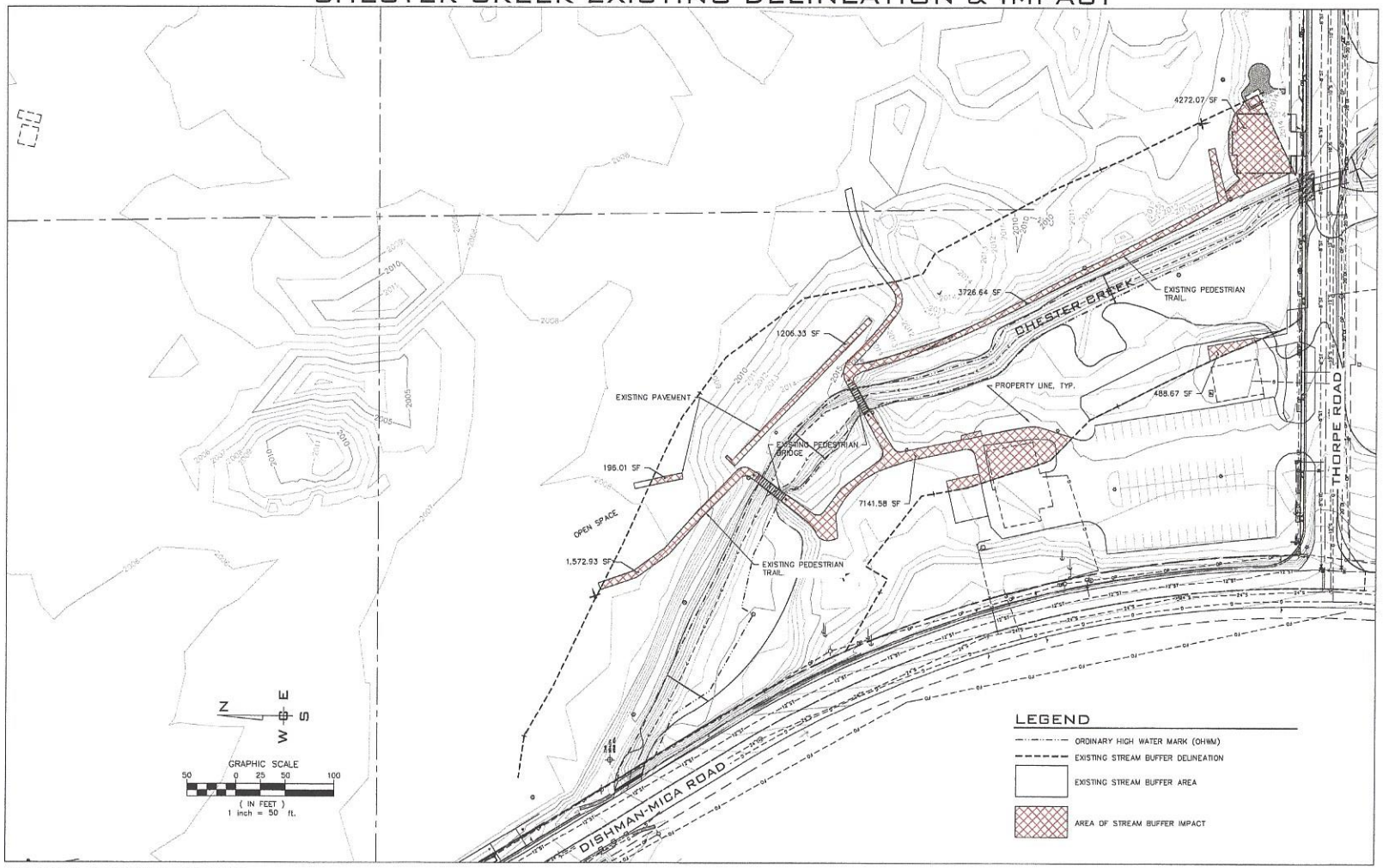
CALL TWO BUSINESS DAYS BEFORE YOU DIG



AREAS

NE STREAM BUFFER	104,131.93 SF ±
SW STREAM BUFFER	78,329.96 SF ±
TOTAL –	182,461.89 SF ±

EXISTING IMPACT AREA

	1,572.93 SF ±
	196.01 SF ±
	1,206.33 SF ±
	3,726.64 SF ±
	4,272.07 SF ±
	7,141.58 SF ±
	488.67 SF ±
TOTAL	18,604.23 SF ±

STREAM BUFFER EXHIBIT

SCALE: 1"=50'

Figure 6

DATUM: NAVD - 88
TBM S-5 OF THE SOUTH PONDEROSA SEWER PROJECT WITH AN ELEVATION OF 2005.87 (NAVD29) = 2005.67 (NAVD88) WAS USED FOR THE VERTICAL DATUM FOR THIS MAP.

NO	DATE	BY	REVISIONS
2	08-14-18	JPP	REVISED PLANS
1	08-12-18	JPP	ORIGINAL PREPARATION

SCALE:
HORIZONTAL: 1"=50'
VERTICAL: N/A

PROJ #: 13-1166
DATE: 08/14/18
DRAWN: BNG
REVIEWED: TRW

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STRUCTURAL
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TRAFFIC
X PLANNING
LANDSCAPE
OTHER

WCE
WHIPPLE CONSULTING ENGINEERS
2626 NORTH SULLIVAN ROAD
SPOKANE VALLEY, WA 99216
PH: 509-892-0517 FAX: 509-893-0227

SPOKANE VALLEY PAINTED HILLS PRD
EXIST. STREAM BUFFER EXHIBIT (ALT1)
DISHMAN-MICA RD.
SPOKANE VALLEY,WA

City of Spokane Valley Project/Permit No.:
SUB-2015-0001 (Subdivision)
FPD-2016-0007 (Flood Plain Development)
EGR-2016-0066 (Engineered Grading)

City of Spokane Valley Development Engineering
Reviewer: _____
New Street Nites – Public: _____
☐ Not Reviewed
☐ Reviewed for Conformance to Street Standards and Accepted per Chapter 1.2
Date Accepted _____
Acceptance Comments

TODD R. WHIPPLE
STATE OF WASHINGTON
21462
REGISTERED
PROFESSIONAL ENGINEER

PLANS NOT APPROVED BY AGENCY

SHEET 1 OF 3

JOB NUMBER 13-1166

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SW¼, SEC.34, T.25N., R.44E., W.M.
NE¼, SEC. 4, T.24N., R.44E., W.M.

CHESTER CREEK DELINEATION, IMPACT AND REMEDIATION

UNDERGROUND SERVICE ALERT
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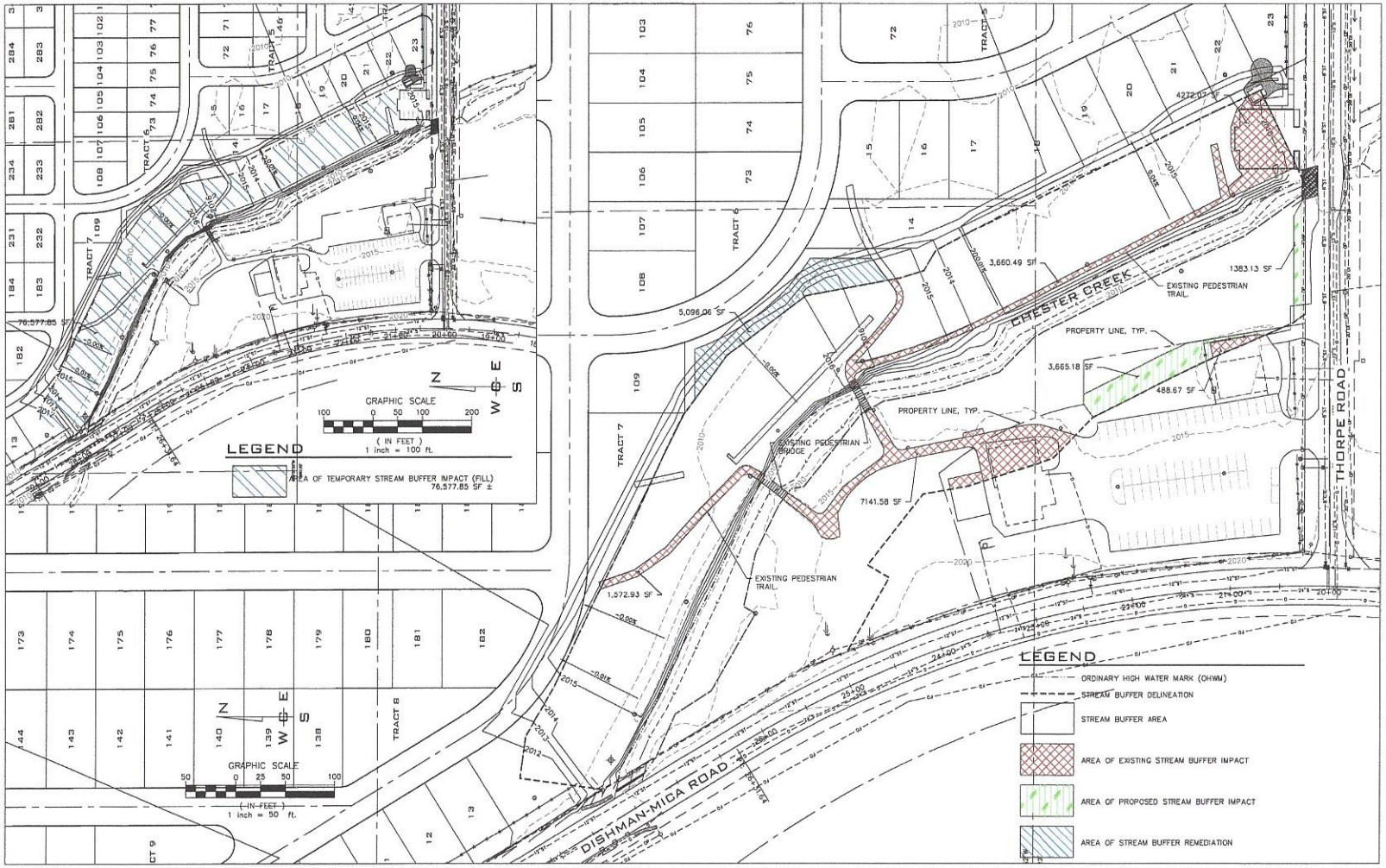

AREAS

NE STREAM BUFFER
104,131.93 SF ±
NE STREAM BUFFER REM.
5,096.06 SF ±
SW STREAM BUFFER
78,329.96 SF ±

TOTAL – 187,557.95 SF ±

IMPACTS

EXISTING IMPACTS:
1,572.93 SF ±
3,660.49 SF ±
4,272.07 SF ±
7,141.58 SF ±
+ 488.67 SF ±
17,135.74 SF ±

PROPOSED IMPACTS:
3,665.18 SF ±
+ 1,383.16 SF ±
5,048.34 SF ±

TOTAL IMPACTS:
22,184.08 SF ±

REMEDIATION

REMEDIATION:
5,096.06 SF ±

STREAM BUFFER REMEDIATION EXHIBIT

SCALE: 1"=50'

DATUM: NAVD - 88
TBM S-5 OF THE SOUTH PONDEROSA SEWER PROJECT WITH AN ELEVATION OF 2005.87 (NAVD29) – 2009.67 (NAVD88) WAS USED FOR THE VERTICAL DATUM FOR THIS MAP.

NO	DATE	BY	REVISIONS

SCALE:	
HORIZONTAL:	1"=50'/ =100'
VERTICAL:	N/A
PROJ #:	13-1166
DATE:	11/01/17
DRAWN:	BNQ
REVIEWED:	TRW

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2208 NORTH SULLIVAN ROAD
SPOKANE VALLEY, WA 99216
PH: 509-892-2517 FAX: 509-926-0227

TODD R. WHIPPLE
STATE OF WASHINGTON
23492
REGISTERED
PROFESSIONAL ENGINEER

PAINTED HILLS
PROP. STREAM BUFFER EXHIBIT (ALT 3)
DISHMAN-MICA RD.
SPOKANE VALLEY,WA

SHEET
3 OF 3

JOB NUMBER
13-1166

Figure 7

P:\WCE_WORK\2013 WCE PROJECTS\2013-1166 Walker - Painted Hills (CC)\DWG\XREF\FLOOD PLAIN FILL SCENARIOS\[]1166-DESIGN_REV112818_POTTERVILLE ALT3-EL SPECIFIED BY KP.dwg, 2/20/2019 8:04:29 AM, DWG To PDF.pc3

above the BFE (see blue hatched area in the upper left corner of Figure # 7). The buffer is currently planted in non-native golf course turf grass and is almost totally devoid of woody vegetation. Only a handful of trees and shrubs would be impacted by the fill. This is a temporary buffer impact that will be mitigated by vegetative enhancement. No loss of buffer area will occur as a result of temporary impact. Existing trails will be removed and new trails of the same width will be built to replace the existing trails in the same location. Compared to Alternative #1, the trail impact area will be slightly less in Alternative #3 because some of the existing trail area will be eliminated. Alternative #3 proposes no new permanent buffer impact on the right stream bank (N/E side of the creek).

The temporary buffer impact area on the right stream bank (N/E side of the creek) will be replanted with native grasses and native trees and shrubs at the industry standard rate of 350 stems per acre or 837 total plants. This represents a significant enhancement of wildlife habitat compared to the existing disturbed condition and previous land use as a golf course.

Due to the proposed buffer width averaging, the Alternative #3 buffer total area would increase slightly (47.72 sq. ft.) compared to the existing condition. In Alternative #3, two small trail segments in the buffer totaling 1468.49 sq. ft. will be eliminated and not replaced so the Riparian Buffer area will also increase by that small amount compared to the Alternative #1 no development scenario. The remainder of the property would be developed with residential lots. In Alternative #3, the 10+ acre vegetated park/wildlife corridor along the southern border of the site would not be established and that area would be developed.

Compared to the Alternative #1 no development scenario, Alternative #3 proposes 5048.34 sq. ft. of new buffer impact that would be replaced with a slightly larger 5096.06 sq. ft. replacement area as required for buffer width averaging. The proposed 5096.06 sq. ft. buffer replacement area would enhanced with woody vegetative plantings.

5.3: Alternative #2 (Planned Residential Development, Figure #8)

Alternative #2, a Planned Residential Development (PRD) is the preferred alternative due to the benefits of PRD mixed uses and the advantage of a 10+ acre park/wildlife corridor that is not offered in Alternative 3. Compared to Alternative #1, the Existing Buffer Impact Area is slightly smaller in Alternative #2 because some of the existing trail impacts in Alternative #1 are eliminated. The Alternative #2 and Alternative #3 scenarios both propose impacting the same 3665.18 sq. ft. buffer area polygon for expansion of the existing restaurant parking lot and the 1383.16 sq. ft. buffer impact from the required widening of Thorpe Road. Those two impacts are exactly the same as proposed in Alternative #3 and the impact area is included in the buffer averaging area.

In Alternative #2, a 3665.18 sq. ft. polygon on the west side of the creek, east of the existing restaurant parking lot, would be impacted (green hatched area in Figure #8). The 100-foot buffer width would be reduced to the 75-foot minimum width allowed by the City Code so the restaurant parking lot could be expanded. Alternative #2 also proposes a 1383.16 sq. ft. buffer impact (green hatched area in Figure #8) from the City required improvement (widening) of Thorpe Road. According to the buffer averaging provisions of the City Code, buffer impact areas must be replaced with an equal or larger buffer area that is contiguous with the existing buffer so there is no net loss of buffer area. The 3665.18 sq. ft. and 1383.16 sq. ft. buffer impact areas total 5048.34 sq. ft. and would be replaced with a 5096.06 ft. sq. replacement area on the opposite side of the creek as represented by the blue hatched polygon in Figure #8. The proposed 5048.34 sq. ft. buffer impact area would be mitigated with buffer averaging but also

SE¼, SEC.33, T.25N., R.44E., W.M.
SW¼, SEC.34, T.25N., R.44E., W.M.
NE¼, SEC. 4, T.24N., R.44E., W.M.

CHESTER CREEK DELINEATION, IMPACT AND REMEDIATION

UNDERGROUND SERVICE ALERT
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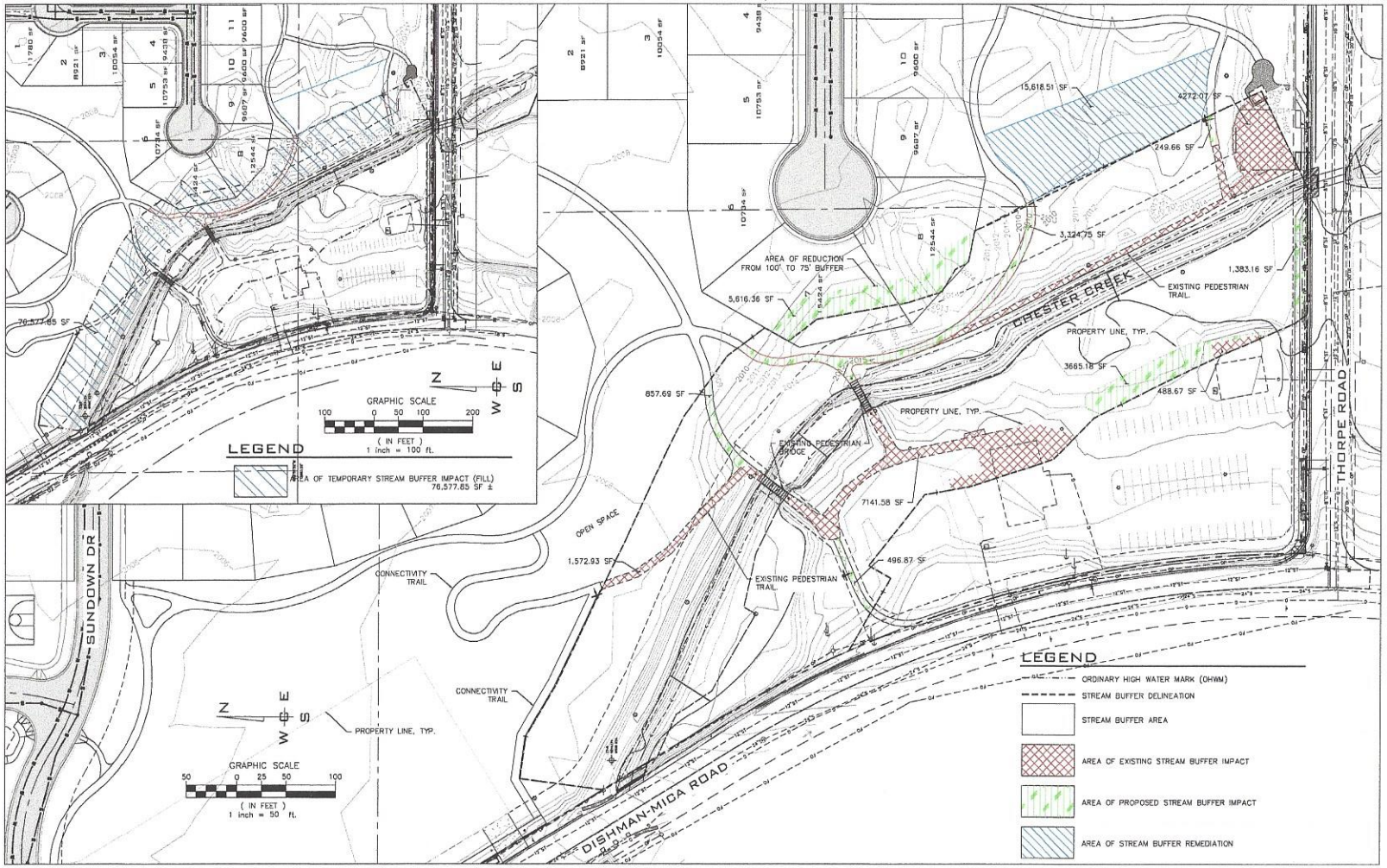

AREAS

NE STREAM BUFFER
98,803.32 SF ±
NE STREAM BUFFER REM.
15,618.51 SF ±
SW STREAM BUFFER
78,329.96 SF ±

TOTAL – 192,751.79 SF ±

IMPACTS

EXISTING IMPACTS:
1,572.93 SF ±
2,174.04 SF ±
4,272.07 SF ±
7,141.58 SF ±
+ 488.67 SF ±
15,649.29 SF ±

PROPOSED IMPACTS:
857.69 SF ±
5616.36 SF ±
3,324.75 SF ±
249.66 SF ±
496.87 SF ±
3,665.18 SF ±
+ 1,383.16 SF ±
15,593.67 SF ±

TOTAL IMPACTS:
31,242.96 SF ±

REMEDIATION

REMEDIATION:
15,618.51 SF ±

STREAM BUFFER REMEDIATION EXHIBIT

SCALE: 1"=50'

PLANS NOT APPROVED BY AGENCY

City of Spokane Valley Project/Permit No.:
SUB-2015-0001 (Subdivision)
FPD-2016-0007 (Flood Plain Development)
EGR-2016-0006 (Engineered Grading)

City of Spokane Valley Development Engineering

Reviewer: _____
New Street Nos – Public: _____

☐ Not Reviewed
☐ Reviewed for Conformance to Street Standards and Accepted per Chapter 1.2
Date Accepted _____
Acceptance Comments

TODD R. WHIPPLE STATE OF WASHINGTON 25402 REGISTERED PROFESSIONAL ENGINEER

DATUM: NAVD - 88
TBM S-5 OF THE SOUTH PONDEROSA SEWER PROJECT WITH AN ELEVATION OF 2009.87 (NAVD29) = 2009.67 (NAVD88) WAS USED FOR THE VERTICAL DATUM FOR THIS MAP.

NO	DATE	BY	REVISIONS
2	08-14-18	JPP	REVISED PLANS
1	08-10-18	JPP	ORIGINAL PREPARATION

SCALE:
HORIZONTAL: 1"=50' =100'
VERTICAL: N/A

PROJ #: 13-1166
DATE: 08/14/18
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REVIEWED: TRW

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SPOKANE VALLEY PAINTED HILLS PRD
PROP. STREAM BUFFER EXHIBIT (ALT 2)
DISHMAN-MICA RD.
SPOKANE VALLEY,WA

SHEET 2 OF 3

JOB NUMBER 13-1166

Figure 8

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with vegetative enhancement of the buffer replacement area. The proposed buffer averaging will result in a small net increase in buffer area and habitat quality. This proposed buffer impact and the proposed mitigation is exactly the same as in Alternative #3, but the proposed buffer replacement area is in a different location.

Compared to Alternative #3, the following additional 10,545.33 sq. ft. of buffer impacts are proposed in Alternative #2 on the right stream bank (N/E side of the creek). The additional impacts include three new trail segments and the extension of another trail segment. Some existing trail segments are eliminated in Alternative #2, and they offset part of the new trail impacts, but there will be a small net gain in trail impact area. The area of impact is included in the buffer replacement area proposed for impact mitigation.

Alternative #2 proposes using buffer width averaging to reduce the buffer width by 25% on two lots adjacent to the southmost bridge (Figure #8). This will result in a 5616.36 sq. ft. buffer impact that will be mitigated with buffer averaging. The Alternative #2 total combined buffer impact area is 15,593.67 sq. ft. Buffer Averaging is proposed for impact mitigation. The proposed Buffer Impact Replacement Area is 15,618.51 sq. ft. There will be no net loss of buffer area as a result of averaging. The Buffer Replacement Area is contiguous with the existing buffer. The mitigation area will be enhanced with the planting of trees and shrubs. The mitigation area is contiguous with the proposed 10+ acre Park/Wildlife Travel Corridor. Clusters of woody vegetative plantings will also be installed in this corridor to enhance wildlife habitat.

5.4: Summary of Alternative 1, 2, and 3 Buffer Impacts

The existing trail areas differ in all three alternatives because the trail segments that are both eliminated and added in Alternative #2 and Alternative #3 are different. The Thorpe Road improvement Area impacts are the same for Alternative 2 and 3. Buffer impacts from the proposed parking lot expansion area on the left (S/W) side of the creek are the same for Alternative 2 and 3. Buffer Averaging is proposed for mitigating those buffer impacts and the replacement areas have the same square footage in both Alternatives 2 and 3.

In both Alternatives #2 and #3, the 104,131.93+/- sq. ft. riparian buffer on the right stream bank (N/E side of the creek) will be filled with soil to a height of one foot above the Base Flood Elevation (see blue hatched area depicted in inset at top left corner of Figures 7 and 8). The buffer is currently planted in golf course turf grasses and is nearly devoid of woody vegetation. This temporary impact area will be mitigated by reseeding the area in native grasses and planting clusters of native woody vegetation. This will result in a significant improvement in buffer quality.

Alternative #2 proposes additional buffer impacts by reducing the 100-foot buffer width to 75 feet on two lots adjacent to the southmost bridge on the right stream bank (N/E side of the creek). That 5616.36 sq. ft. buffer impact is not proposed in Alternative #3 so the buffer replacement area is proportionally larger in Alternative #2. The buffer replacement area will be enhanced by planting native trees and shrubs. Alternative #2 also proposes a 10+ acre Park/Wildlife Habitat Travel Corridor across the southern project boundary that is not proposed in Alternative #3. The 10+ acre Park/Wildlife Habitat Travel Corridor (Figure 3) will be enhanced by the planting of native trees and shrubs.

5.5: Temporary Buffer Impact Mitigation

Any peripheral buffer areas that are inadvertently disturbed during construction will be planted with the specified native seed mix to prevent erosion. This work will be completed in

strict accordance with the IPEC Operation and Maintenance Manual and Best Management Practices.

5.6: Buffer impact Area from the Chester Creek Culvert Extension

Thorpe Road will be made wider along its north side to meet City standards that require an additional 6.5 feet of pavement, a 2-foot curb, and 6-foot sidewalk. This will result in 1383.16 sq. ft. of riparian buffer impact. The impact area includes a new box culvert under the new road construction. A crane will install the concrete box culvert that will be capped and paved over. The culvert will be an extension of the existing culvert and will not cover or change the existing substrate on the stream bottom. All in-channel and over-channel work will occur during the summer/fall dry season so no over-water or in-water work will be required. The area of impact is counted in the total project buffer impact area calculations, buffer averaging replacement area calculations, and vegetative plantings are prescribed for the impact area as part of the proposed buffer impact mitigation for the project.

6.0: Rationale for Adjustment (Reductions) of Riparian Habitat Buffer

The City of Spokane Valley Municipal Code, Section 21.40.034 states that "the habitat buffer width may be averaged (reduced in width near a development but widened elsewhere to retain the overall area of the habitat buffer) if all of the following conditions are met. Each proposed buffer impact and reduction is discussed in the following section in the context of the conditions set forth in the City Code.

1) The FWHCA has significant differences in characteristics that affect its habitat functions, such as a native forested component adjacent to a degraded herbaceous component.

Alternative #2 Buffer Impacts from Two Lots

A proposed 25% buffer reduction resulting in 5616.36 sq. ft. of buffer impact is proposed on the right stream bank (N/E side of the creek). The proposed impact is in close proximity to the southmost bridge across Chester Creek. The proposed buffer impact area is planted in non-native golf course turf grasses. The turf grass was maintained by treatment with herbicides and regular mowing. The proposed impact area has no trees and only one shrub.

The 5616.36 sq. ft. area of proposed buffer impact experienced the highest intensity human activity on the property during the years of golf course operation. Foot and golf cart traffic from the club house was directed by cart paths over two bridges to the fairways, driving range, and practice areas across the creek where the buffer impact from two lots is proposed. In the Alternative #2 and #3 site plans, the existing bridges will be utilized and the golf cart paths will be extended east to connect the housing development on the east side of the creek to the bar and restaurant located in the former golf course clubhouse on the west side of the creek.

Due to the existing trails and bridges, the Alternative #2 proposed area of buffer width reduction from two lots will continue to experience the highest intensity human activity on the property. This part of the buffer experienced the highest degree of historical degradation and will continue to experience the greatest intensity of human activity and foot traffic on the existing trails and bridges. The proposed impact area occurs in an existing highly disturbed area that would benefit the least from protection because this area did not function as buffer historically and from a habitat perspective will not in the future due to the intensity of human traffic funneled through this corridor. Mitigation for the proposed buffer impact is proposed

where it will have the greatest benefit for wildlife and greatest habitat function.

If development is approved under Alternatives #2 or #3, then the buffer impact from Thorpe Road improvements is an unavoidable impact. The impact area immediately adjacent to the road provides the least habitat function on the property. The buffer replacement area will part of the best habitat on the property.

If development is approved under Alternatives #2 or #3, then the buffer impact from expanding the existing parking lot on the left (west) side of the creek is the same for both alternatives. The impact area is immediately adjacent to an existing parking lot and building. The historically disturbed, high human traffic area has only herbaceous vegetation with no trees or shrubs to provide wildlife cover or habitat. The area where the buffer reduction is proposed will be enhanced with native trees and shrubs as will the buffer replacement area. The buffer reduction is proposed in a degraded herbaceous habitat component. The buffer will be replaced adjacent to the proposed 10+ acre wildlife corridor that will be enhanced with clusters of native trees and shrubs.

2) The buffer is increased adjacent to the higher functioning area of habitat or more sensitive portion of the FWHCA and decreased adjacent to the lower functioning or less sensitive portion.

The area where a 25% buffer reduction is proposed for two lots is the most disturbed buffer area on the site and the area where intense human activity will occur due to the existing trails and bridges that link the development on the east side of the creek to the commercial area on the west side of the creek. The trails and bridges create a corridor that runs perpendicular to the creek. The corridor passes through the entire buffer on both sides of the creek and funnels all human activity through that corridor. This area of concentrated activity is the lowest functioning part of the buffer on the property. This corridor for human traffic did not historically function as a buffer and will not in the future under either Alternative #2 or #3 development scenarios.

North of the area proposed for buffer reduction is a large area of open space on the right stream bank (N/E side of the creek) that extends out away from the buffer and effectively widens the buffer in that area. This area will have a much lower level of human activity compared to the trail and bridge corridor. This is a higher functioning area of buffer compared to the proposed buffer reduction area.

The buffer addition area is located south of the buffer impact area and expands the buffer eastward to connect with the designated wildlife travel corridor where human activity will be reduced to a minimum. The buffer replacement area will be planted with native grasses and clusters of native trees and shrubs. The intent is to make the buffer wider where there is least human activity and provide the most benefit for wildlife. Habitat functions are lowest where the reduction is proposed and highest where the buffer replacement will occur in a proposed wildlife travel corridor where dense vegetative plantings will be installed to enhance the existing woody vegetation and wildlife habitat. The buffer width increase will occur in the higher functioning area of habitat as suggested by the City Code and decrease adjacent to the least sensitive buffer. The Park/Wildlife Travel Corridor covers the entire southern border of the property, is over 350 feet wide, and has an area of over 10 acres.

Variations in sensitivity are created by the existing physical characteristics (bridges and trails), historical land uses (vegetation removal and intense human activity), and the continued concentration of human activity on trails and bridges through that narrow corridor across the stream and buffer on both sides. That corridor has the least habitat function because it has the

least wildlife activity. The proposed buffer impact will occur in the least sensitive area from the perspective of wildlife presence, use, and function. Buffer enhancement will occur where there is the least human activity and the greatest benefit from the perspective of wildlife presence, use, and function. The total area contained within the buffer after averaging is greater than that contained within the standard buffer prior to averaging.

3) The total area of the buffer, after averaging, is equal or greater than the area required without averaging.

The buffer averaging proposed in Alternatives #2 and #3 result in a small increase in buffer area. Alternative #3 proposes a total buffer impact area of 5048.34 sq. ft. (0.116 acres). Alternative #3 proposes a total buffer impact replacement area of 5096.06 sq. ft.(0.117 acres). Alternative #2 proposes a total buffer impact area of 15,593.67 sq. ft. (0.358 acres). Alternative #2 proposes a total buffer impact replacement area of 15,618.51 sq. ft. (0.359 acres). No net loss of buffer will occur from Alternative #2 or Alternative #3.

4) The buffer at its narrowest point is never less than 75 percent of the original habitat buffer width.

Alternatives #2 and #3 propose buffer averaging. In each instance, the buffer will be reduced from 100 feet to 75 feet, so the buffer is not reduced to less than 75% of the original habitat buffer at any location.

Mitigation Rationale Summary

The continued use of the two bridges and trails crossing the stream and buffer has the effect of funneling, controlling, and limiting human access to this narrow corridor or choke point. Buffer reduction for two lots is proposed immediately adjacent to the high intensity human use corridor in the buffer. Three separate buffer impacts will occur from trails. Two of the impacts will result when the existing trails are extended from the bridges into the development and connected to a proposed trail in the 10+ acre wildlife travel corridor.

The proposed buffer mitigation provides adequate compensation for the proposed impacts as defined by the City Code. The areas of proposed buffer reduction will be enhanced by the planting of native tree and shrub patches. The remaining riparian buffer will also be enhanced by planting patches of native woody vegetation on both sides of the stream. The buffer replacement area will be enhanced by the planting of native tree and shrub patches. The buffer replacement area will be contiguous with the Wildlife Travel Corridor where additional tree and shrub plantings are proposed.

Alternative #2 is the preferred alternative because it provides the 10+ acre Park/Wildlife Travel Corridor not included in Alternative #3. The proposed vegetative enhancement of the remaining buffer areas, replacement buffer areas, and wildlife travel corridor provides generous mitigation to offset the impacts. The proposed vegetative enhancement represents a significant improvement compared to the existing condition and historical land uses of the last several decades.

Mitigation Sequencing

Several development plans have been scrutinized over the last three years by the City of Spokane Valley and various firms employed to certify the levee on the right (east) bank of Chester Creek. Numerous changes have been implemented to the stormwater and flood control

plans for the site in order to arrive at the preferred final site plan. The levee certification involved earthwork on the levee, removal of all vegetation in the stream channel, and other options required for development approval. Those plan were all abandoned in favor of the three development alternatives analyzed in this report. In the end, Alternative #2 was favored by the City and the developer. While the preferred alternative results in more buffer impact than the other two alternatives, it was determined that the buffer enhancements and vegetative plantings proposed to improve habitat, the advantages of a Planned Residential Development, and the creation of a 10+ acre Park/Wildlife Travel Corridor far outweighed the benefits of the other two alternatives. The preferred alternative was determined to avoid the most impacts, minimize impacts to the stream channel. and provide the most benefits.

7.0 Impact Mitigation Strategy

7.1: Noxious weed control

The dominant invasive species that were identified on the site include tumble mustard and knapweed. These species are known for their ability to propagate and spread rapidly with catastrophic impacts on native species. As required by Washington State Noxious Weed Control law, RCW 17.10, and the Spokane County Noxious Weed Board, invasive species will be managed through control measures that do not adversely impact native vegetation. Funds will be allocated for noxious weed monitoring and herbicide control as part of the proposed mitigation for this project. Black Realty or their designated Homeowners Association shall contract their preferred weed control specialist to monitor the site and provide weed control in the mitigation areas at appropriate intervals throughout the growing season to prevent seed set.

7.2: Revegetation with Woody Plants

In addition to noxious weed control, mitigation for buffer impacts will include the planting of native trees and shrubs. The buffer will be re-vegetated with native plants including species from the tree, shrub, and grass vegetative strata. The replication of natural spatial relationships, structural complexity, vertical stratification, and microhabitat diversity will be stressed in the planting design to achieve a mosaic of open areas and dense tree/shrub clusters. Vegetation will not be planted in a uniform manner. Shrubs will be planted in grouped patches and interspersed with other shrub species and height classes. Patch size will be variable with curving edges. The incorporation of these elements will increase landscape diversity and promote habitat elements that are often scarce or absent at sites that have been disturbed. Native species and endemic plant materials will be selected for site revegetation to help maintain ecotypes that are adapted to local climatic and soil conditions and preserve local genotypes.

7.3: Rationale

Structural complexity refers to the arrangement and degree of interspersion of plant community types throughout the system. Complex structural patterns (such as variable patch size, curving edges, and high degree of interspersion between species) increase the value of a system for wildlife. Good wildlife habitat consists of open areas interspersed with clusters of vegetation, several horizontal layers, and a variable structural pattern. **Vertical stratification** describes a community with good structural diversity and several horizontal layers (logs, woody debris, forbs, shrubs, and trees). Woody debris provides travel routes, perch sites, cover, and thermal refuge for a variety of small mammals and ground nesting birds. **Microhabitat diversity** refers to variety in microhabitat types. Examples of microhabitat types include

herbaceous cover and shrubs that provide food, habitat, and substrate for a variety of animals.

7.4: Objectives for the Restored Riparian Buffer

Restoration will be achieved by planting native trees, shrubs and grasses primarily to provide food and cover for wildlife. The Vegetation Plan will incorporate as many design features as possible for each function in order to increase the value for that function.

Objective a: Re-establish species diversity and structural diversity in the buffer by replanting native tree and shrub species from each vegetative class.

Objective b: Re-establish vegetative species and structural diversity to re-establish bird and mammal habitat values in the enhanced buffer areas.

Objective c: Re-establish vegetative density in the riparian buffer area.

8.0: Mitigation Planting Plan

Woody plant materials will be installed at the industry standard density of 360 stems per acre. The buffer replacement area is 15,618.51 (0.359 acres) X 360 stems/acre = 130 containers. The Buffer Replacement Area shall have 130 containers planted within that polygon. An additional 100 containers will be distributed throughout the east and west sides of the creek in the buffer reduction areas (Zone 1 and Zone 2, Figure 9). An additional 200 containers shall be planted in patches of 20 containers throughout the designated wildlife travel corridor. An additional 200 containers shall be planted in patches of 20 containers throughout the buffer on the right stream bank (N/E side of the creek) where fill material will create a temporary 104,131.93+/- sq. ft. (2.39 acres) buffer impact. The 2.39 acre area of temporary impact will also be seeded with the prescribed native upland grass seed mix.

Clusters of vegetation will be planted according to the guidelines prescribed above. The specified number of containers will be planted within each zone as shown in Figure 9.

Area Mitigated	Number of Plants	Zone
buffer reduction areas	100	1
right stream bank fill impact area	250	1
buffer replacement Area	130	2
wildlife travel corridor	150	3
total	630	

Zone 1: Riparian Buffer on East and West Sides of Chester Creek

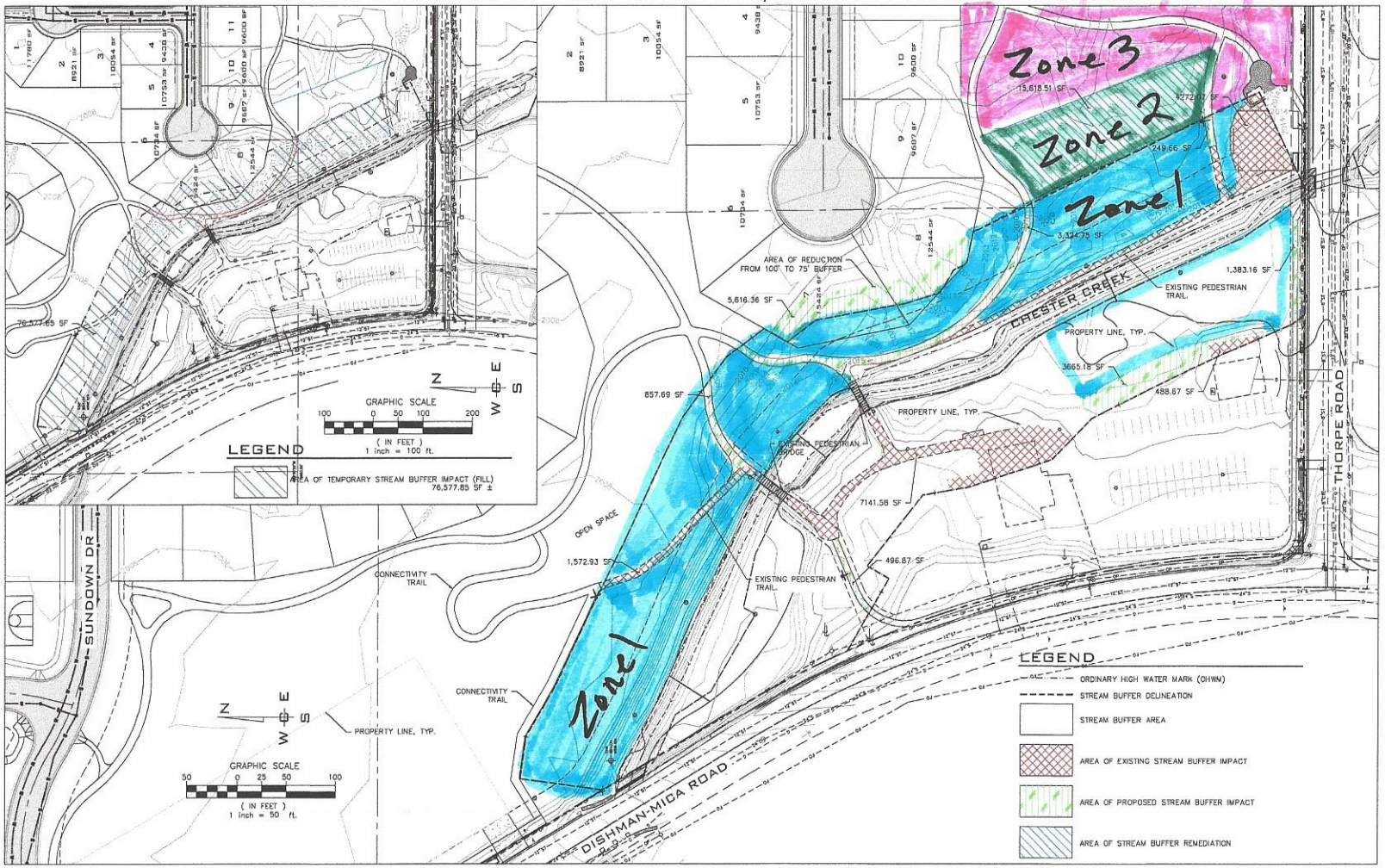
A total of 350 containers planted in existing buffer areas

	Common Name	Scientific Name	# Planted
Trees	Ponderosa pine	*Pinus ponderosa*	20
Large shrubs	serviceberry	*Amelanchier alnifoloia*	20
	Rocky mountain juniper	*Juniperous scopulorum*	30
	mock orange	*Philadelphus lewisii*	80
Small shrubs	Wood's rose	*Rosa woodsii*	60
	common snowberry	*Symphoricarpos albus*	60
	Phlox sp.	*Phlox speciosa or longifolia*	80
Total			350

SE¼, SEC.33, T.25N., R.44E., W.M.
SW¼, SEC.34, T.25N., R.44E., W.M.
NE¼, SEC. 4, T.24N., R.44E., W.M.

CHESTER CREEK DELINEATION, IMPACT AND REMEDIATION

UNDERGROUND SERVICE ALERT
ONE-CALL NUMBER
811
CALL TWO BUSINESS DAYS BEFORE YOU DIG



AREAS

NE STREAM BUFFER
98,803.32 SF ±
NE STREAM BUFFER REM.
15,618.51 SF ±
SW STREAM BUFFER
78,329.96 SF ±

TOTAL – 192,751.79 SF ±

IMPACTS

EXISTING IMPACTS:
1,572.93 SF ±
2,174.04 SF ±
4,272.07 SF ±
7,141.58 SF ±
+ 488.67 SF ±
15,649.29 SF ±

PROPOSED IMPACTS:
857.69 SF ±
5616.36 SF ±
3,324.75 SF ±
249.66 SF ±
496.87 SF ±
3,665.18 SF ±
+ 1,383.16 SF ±
15,593.67 SF ±

TOTAL IMPACTS:
31,242.96 SF ±

REMEDIATION

REMEDIATION:
15,618.51 SF ±

STREAM BUFFER REMEDIATION EXHIBIT

SCALE: 1"=50'

Zone 1
Zone 2
Zone 3

DATUM: NAVD - 88
TBM S-5 OF THE SOUTH PONDEROSA SEWER PROJECT WITH AN ELEVATION OF 2009.87 (NAVD29) = 2009.67 (NAVD88) WAS USED FOR THE VERTICAL DATUM FOR THIS MAP.

NO	DATE	BY	REVISIONS
2	08-14-18	JPP	REVISED PLANS
1	06-12-18	JPP	ORIGINAL PREPARATION

SCALE:
HORIZONTAL: 1"=50'/=100'
VERTICAL: N/A

PROJ #: 13-1166
DATE: 08/14/18
DRAWN: BNG
REVIEWED: TRW

CIVIL
STRUCTURAL
SURVEYING
TRAFFIC
X PLANNING
LANDSCAPE
OTHER

WCE
WHIPPLE CONSULTING ENGINEERS
2020 NORTH SULLIVAN ROAD
SPOKANE VALLEY, WA 99216
PH. 509-893-2617 FAX: 509-926-0227

SPOKANE VALLEY PAINTED HILLS PRD
PROP. STREAM BUFFER EXHIBIT (ALT 2)
DISHMAN-MICA RD.
SPOKANE VALLEY,WA

SHEET 2 OF 3
JOB NUMBER 13-1166

City of Spokane Valley Project/Permit No.:
SUB-2015-0001 (Subdivision)
FPD-2016-0007 (Flood Plain Development)
EGR-2016-0066 (Engineered Grading)

City of Spokane Valley Development Engineering
Reviewer:
New Street Miles – Public:
☐ Not Reviewed
☐ Reviewed for Conformance to Street Standards and Accepted per Chapter 1.2
Date Accepted
Acceptance Comments

TODD R. WHIPPLE STATE OF WASHINGTON 23462 REGISTERED PROFESSIONAL ENGINEER

PLANS NOT APPROVED BY AGENCY

Figure 9

P:\WCE_WORK\2013 WCE PROJECTS\2013-1166 Walker - Painted Hills (C)\DWG\1166-BSW EXHIBIT 2-11-19.dwg, 2/25/2019 8:04:40 AM, DWG To PDF.pc3

Zone 2 - Buffer Replacement Area on East Side of Chester Creek

130 plants in patches

	Common Name	Scientific Name	# Planted
Trees	Ponderosa pine	*Pinus ponderosa*	5
Large shrubs	serviceberry	*Amelanchier alnifoloia*	10
	Rocky mountain juniper	*Juniperous scopulorum*	10
	chokecherry	*Prunus virginiana*	10
	mock orange	*Philadelphus lewisii*	30
Small shrubs	Wood's rose	*Rosa woodsii*	20
	common snowberry	*Symphoricarpos albus*	25
	Phlox sp.	*Phlox speciosa or longifolia*	20
Total			130

Zone 3 - Wildlife Travel Corridor on East Side of Chester Creek

150 plants in patches

	Common Name	Scientific Name	# Planted
Trees	Ponderosa pine	*Pinus ponderosa*	20
Large shrubs	serviceberry	*Amelanchier alnifoloia*	20
	chokecherry	*Prunus virginiana*	10
	mock orange	*Philadelphus lewisii*	40
Small shrubs	Wood's rose	*Rosa woodsii*	30
	common snowberry	*Symphoricarpos albus*	30
Total			150

The minimum container size shall be one half gallon. Vegetation shall be planted at the landscapers discretion according to conditions on the ground and the location of existing vegetation. Plantings shall be interspersed around existing vegetation, and where possible, in patches of 15-25 plants of mixed size and species as indicated in the plan. Shrubs shall be planted in the approximate prescribed quantities depending on plant availability. Large shrubs should be planted in clusters on 10-foot centers. Small upland shrubs should be clustered on 3-6 foot centers around large shrubs.

Depending on availability, the mixture of grass species listed below should be drill seeded or hydroseeded at a density of 22 pounds PLS per acre in all disturbed areas. Grasses should be planted during the growing season when precipitation and temperature levels will insure germination and survival. Grasses should be planted early in the fall so that the crop is well established by October 15. If germination, growth, and root development are substantial before the end of the growing season, some degree of erosion control will be provided during the winter and spring months that follow. **It may be necessary to irrigate the soil surface to keep it in a moist condition for the first two weeks after seeding. Irrigation should supplement rainfall as required to achieve a total from combined sources of 2 inches per week and no more than 0.25 inches per hour.** Seed can also be installed to lie dormant over the winter and germinate in the spring.

Grasses

Common Name	Scientific Name	Bunch or Sod	PLS (lb/acre)
bluebunch wheatgrass	*Agropyron spicatum*	B	8.0
Idaho fescue	*Festuca idahoensis*	B	6.0
prairie junegrass	*Koeleria cristata*	B	8.0
Total			22.0

A list of suppliers who will prepare the prescribed grass seed mixtures and supply nursery stock specified in the vegetation plan follows.

Grass seed: Grassland West 1-800-582-2070
PO Box 489
908 Port Drive
Clarkston, WA 99403

Trees, & Shrubs: Plants of the Wild
PO Box 866
Tekoa, WA 99033
509-284-2848

Wildlife Habitat Institute
1025 East Hatter Creek Road
Princeton, ID 83857
208-875-8704

8.1: Ponderosa Pine Planting

ALWAYS plant after December 15 and before March 31. Plant ONLY conservation grade seedlings 20-24 feet from fast growing deciduous trees. Plant seedlings **on 30 foot centers** with no shrubs inter-planted close to the trees to prevent shading and competition that greatly reduces survival. A mulch of Ponderosa pine needles applied in a 3-6 foot radius around the tree trunk at planting will greatly reduce competition and increase tree survival.

Ponderosa pine out-planting survival following *Rhizopogon rubescens* inoculation is 2-3 times higher compared to non-inoculated. Numerous studies have shown that ectomycorrhizal fungi can profoundly affect conifer performance by facilitating nutrient and water uptake, maintaining soil structure, and protecting roots from pathogens and environmental extremes. A specific ectomycorrhizal fungus, *Rhizopogon rubescens*, inoculated onto the root systems of Ponderosa pine seedlings greatly increase survival. Irrigation options are being explored at this mitigation site, but the landscaper should buy plants that have been inoculated or dust the planting holes with this fungi if it is available.

8.2: Additional Planting Guidelines

Depending on availability, the mixture of grass species listed above should be seeded at a density of 22 pounds PLS per acre. Grasses should be planted during the growing season when precipitation and temperature levels will insure germination and survival. Grasses should be planted in early April so that the crop is well established before dry weather, in the fall so that the crop is well established before October 15, or dormant seeded late in the fall so the seed will not germinate until spring. Site preparation and planting should occur in the fall and winter.

Seeding rates of live, germinable seed or Live Pure Seed (LPS) are a product of seed lot purity and germination percentage. LPS calculations are based on the number of seeds per pound and the number of seeds per square foot at one pound per acre. A nursery will prepare a custom seed mix with the prescribed LPS for each species.

Trees and shrubs should be planted after the end of the growing season when the plants are dormant. The best time to plant is late winter when sub-zero temperatures are over but plants are still dormant. Plants may be planted any time during the growing season when the daytime high temperatures are 70F or cooler if irrigation is available from the time of planting through the rest of the growing season. Each tree or shrub planted should be clearly identified with an easy to identify tag that identifies the species. Without such identification it is impossible for the monitoring biologist to tell which plants are enhancement plantings and which are native to the site.

8.3: Additional Fish and Wildlife Habitat Mitigation Requirements

Area irrigation heads should be installed where native grasses are planted to insure germination and survival in the buffer enhancement areas. Drip irrigation should be installed for woody plantings where there is no coverage by area sprinkler heads. Irrigation shall continue until the plants are well established as determined by the project biologist.

Mitigation plantings should be installed no later than the next growing season after completion of the buffer impacts, unless otherwise approved by the City Manager or designee. The timing may also depend on the installation of utilities and water supply for irrigation and will proceed as soon as those amenities are available. Regardless of which year construction begins, it is known that the first construction phase will include the stormwater plan and fill on the east side of the stream. **The irrigation should be installed at the same time as the plantings.** BSW will monitor site impacts and mitigation work to insure the work is completed as specified in this plan. The five year monitoring requirement for each phase will be implemented as described below.

Mitigation areas shall be maintained to insure the mitigation and management plan objectives are successful. Maintenance shall include corrective actions to rectify problems, including rigorous, as-needed elimination of undesirable plants; protection of trees and shrubs from herbivory and competition by grasses and herbaceous plants; and repair and replacement of any dead woody plants.

People may drive, park and passively enjoy recreation in the area so the enhancement areas must be protected from human traffic after planting. Signs should be posted every 100 feet to explain the sensitivity of the newly planted areas and discourage foot traffic in newly seeded areas. Permanent signs with Riparian Buffer Area, Natural Area Do Not Disturb, or similar language should be posted around the protected areas.

8.4: Willow Monitoring and Maintenance of the Chester Creek Channel

Honey willows were planted in the channel about thirty years ago. All subsequent channel maintenance and dredging has avoided the willows that have now grown quite large. Honey willows are prone to dropping very large branches that catch additional debris and create channel obstructions, as will the trees themselves when they die and fall into the channel. The channel must be monitored regularly so potential obstructions may be identified and removed to eliminate potential problems as is required by the Inland Pacific Engineering Company (IPEC) Operation and Maintenance Manual.

If channel obstruction, erosion, or maintenance is required, Best Management Practices and spill control protocols will be strictly adhered to and peripheral impacts will be held to a minimum. The channel may be dry, but the equipment operators must respect the sensitivity of

the area, install construction fences to identify minimized work areas, and take all prudent measures to minimize impact in the buffer. All temporary impact areas will be restored at the earliest possible moment to prevent soil erosion. The replacement woody vegetation plantings cannot be placed in or within 15 feet of the stream channel all replacement planting will occur in the riparian buffer and wildlife travel corridor as detailed later in this report.

8.5: Timeline for Construction

Construction will begin as soon as permitted in 2019/2020 and continue is phases over the next few years.

8.6: ESA Compliance

The purpose of this report is to confirm that the project is in compliance with Sections 9 and 10 of the Endangered Species Act. The proposed project will have no effect on any listed species. Mitigation actions are enhancement of the existing facility and the proposed changes will have no effect on any listed habitat or species.

9.0 THE MONITORING PLAN

All monitoring plans require that a mitigation site be monitored annually to determine whether the goals and performance standards have been met. Monitoring typically lasts for 5 years or until the City of Spokane Valley is satisfied that the conditions of the mitigation plan have been met. The site should be monitored in the spring to evaluate the success of weed control from the previous year and prescribe weed control for the current year. The monitoring will also evaluate plant survival to insure that performance standards for percent ground cover of native vegetation are met. Planting of the original grass seed mixture will be repeated to fill in problem areas if they occur.

The City of Spokane Valley will be notified immediately after diagnosis of failing functions, hydrologic systems, or biological vitality and integrity of the plantings as determined through annual monitoring. The herbaceous vegetation will be managed to insure 80% areal cover with native grasses after five years (year 1=20%, year 2-30%, year 3=50%, year 4=70%, year 5=80%). Tree and shrub stock will be monitored to insure 100% survival after the first year and 80% for each subsequent year. Reinforcement plantings will be performed annually as necessary to insure performance standards are met at the end of five years.

If the final monitoring report clearly demonstrates that the site has achieved all of the goals and objectives set forth in this Habitat Management Plan, then the applicant shall be released from additional mitigation and reporting obligations. However, if performance objectives are not me at the end of five years, additional measures shall be implemented as required until the mitigation objectives are met.

10.0 Cost of Implementing Mitigation and Surety

The cost of purchasing and installing vegetation, weed control, replacement plantings, site monitoring, and reporting for 5 years is estimated below.

630 stems @ $28/stem =	**$17,640.00**
2 acres X 22/lbs per acre = 44lbs. X $80/lb =	**$3,500.00**
hydroseeding @ $3000 per acre X 2 acres =	**$6,000.00**
Annual weed control @ $10000/yr =	**$50,000.00**
Year 1 monitoring + as-built report	**$3,000.00**
5 years monitoring @ $800/year =	**$4,000.00**
5 years monitoring reports @ $1000/yr	**$5,000.00**
630 stems X 15% annual mortality replacement = 95 stems/yr X $28/stem = $2,660.00X 5 yrs =	**$13,300.00**
Total cost for 5 years	**$102,440.00**

10.0 LIMITATIONS

Within the limitations of scope, schedule, and budget, BSW services have been executed in accordance with best available science and generally accepted professional practices for the conditions at the time the work was performed. This report is not intended to represent a legal opinion. Specifically, there is no positive or negative recommendation towards the purchase, sale, lease, or construction on the subject property. No warrant, expressed or implied, is made.

Larry Dawes 2-28-2019

Larry Dawes Date

Principal Biologist
Biology Soil & Water, Inc.
3102 N. Girard Road
Spokane Valley, WA 99212-1529
Phone 509-327-2684
Email: bswinc@icehouse.net

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Appendix 1
U.S. Fish & Wildlife Service
SPOKANE COUNTY
Updated 8/29/2015

LISTED

Threatened
Salvelinus confluentus) (Bull trout) – Columbia River distinct population segment
Howellia aquatilis (Water howellia), plant
Silene spaldingii (Spalding's silene), plant
Spiranthes diluvialis (Ute ladies'-tresses), plant
Lynx canadensis (Canada lynx)
Coccyzus americanus (Yellow-billed cuckoo)

SPECIES OF CONCERN
Bald eagle *(Haliaeetus leucocephalus)* (delisted, monitor status)
Burrowing owl *(Athene cunicularia)*
California floater *(Anodonta californiensis)*, mussel
Ferruginous hawk *(Buteo regalis)*
Giant Columbia spire snail *(Fluminicola columbiana)*
Loggerhead shrike *(Lanius ludovicianus)*
Long-eared myotis (*Myotis evotis*)
Northern goshawk *(Accipiter gentilis)*
Olive-sided flycatcher *(Contopus cooperi)*
Pallid Townsend's big-eared bat *(Corynorhinus townsendii pallescens)*
Peregrine falcon (*Falco peregrinus*) (Delisted, monitor status)
Redband trout *(Oncorhynchus mykiss)*
Sagebrush lizard *(Sceloporus graciosus)*
Westslope cutthroat trout *(Oncorhynchus clarki lewisi)*

Vascular Plants
Haplopappus liatriformis (Palouse goldenweed)

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Washington Fish And Wildlife Office
510 Desmond Drive Se, Suite 102
Lacey, WA 98503-1263
Phone: (360) 753-9440 Fax: (360) 753-9405
http://www.fws.gov/wafwo/

In Reply Refer To:
Consultation Code: 01EWFW00-2019-SLI-0368
Event Code: 01EWFW00-2019-E-00756
Project Name: Painted Hills PRD

January 29, 2019

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, and proposed species, designated and proposed critical habitat, and candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. The species list is currently compiled at the county level. Additional information is available from the Washington Department of Fish and Wildlife, Priority Habitats and Species website: http://wdfw.wa.gov/mapping/phs/ or at our office website: http://www.fws.gov/wafwo/species_new.html. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether or not the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species, and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:
http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.). You may visit our website at http://www.fws.gov/pacific/eagle/for information on disturbance or take of the species and information on how to get a permit and what current guidelines and regulations are. Some projects affecting these species may require development of an eagle conservation plan: (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Also be aware that all marine mammals are protected under the Marine Mammal Protection Act (MMPA). The MMPA prohibits, with certain exceptions, the "take" of marine mammals in U.S. waters and by U.S. citizens on the high seas. The importation of marine mammals and marine mammal products into the U.S. is also prohibited. More information can be found on the MMPA website: http://www.nmfs.noaa.gov/pr/laws/mmpa/.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Related website:
National Marine Fisheries Service: http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Washington Fish And Wildlife Office
510 Desmond Drive Se, Suite 102
Lacey, WA 98503-1263
(360) 753-9440

Project Summary

Consultation Code: 01EWFW00-2019-SLI-0368

Event Code: 01EWFW00-2019-E-00756

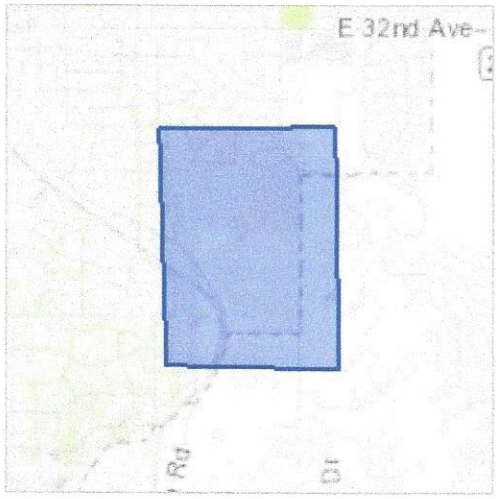
Project Name: Painted Hills PRD

Project Type: DEVELOPMENT

Project Description: The developer proposes constructing a 580 unit planned residential development. The project was planned for construction two years ago, and will be built as soon as permitted in 2019-2020.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/47.616722714208315N117.2421334615195W



Counties: Spokane, WA

Endangered Species Act Species

There is a total of 4 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Birds

NAME	STATUS
Yellow-billed Cuckoo *Coccyzus americanus* Population: Western U.S. DPS There is **proposed** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

Fishes

NAME	STATUS
Bull Trout *Salvelinus confluentus* Population: U.S.A., conterminous, lower 48 states There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8212	Threatened

Flowering Plants

NAME	STATUS
Spalding's Catchfly *Silene spaldingii* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/3681	Threatened
Water Howellia *Howellia aquatilis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7090	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Appendix 2
Critical Areas Maps

Soil Map—Spokane County, Washington

USDA **Natural Resources Conservation Service**

Web Soil Survey
National Cooperative Soil Survey

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Spokane County, Washington
Survey Area Data: Version 5, Sep 4, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 4, 2011—Jul 5, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Spokane County, Washington (WA063)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
1040	Hardesty ashy silt loam, 0 to 3 percent slopes	14.4	2.3%
1080	Narcisse silt loam, 0 to 3 percent slopes	108.4	17.7%
1200	Endoaquolls and Fluvaquents, 0 to 3 percent slopes	61.9	10.1%
3022	Bong ashy sandy loam, moist, 0 to 8 percent slopes	14.3	2.3%
3054	Clayton ashy fine sandy loam, 0 to 8 percent slopes	7.2	1.2%
3130	Phoebe ashy sandy loam, 0 to 3 percent slopes	29.2	4.8%
5040	Spokane-Swakane complex, 3 to 15 percent slopes	7.9	1.3%
5041	Spokane-Swakane complex, 15 to 30 percent slopes	43.1	7.0%
5073	Lenz-Rock outcrop complex, 15 to 30 percent slopes	37.6	6.1%
7101	Pits-Dumps complex	12.0	2.0%
7110	Urban land-Opportunity, disturbed complex, 0 to 3 percent slopes	11.4	1.9%
7122	Urban land-Marble, disturbed complex, 8 to 15 percent slopes	0.1	0.0%
7170	Urban land-Springdale, disturbed complex, 0 to 3 percent slopes	153.0	24.9%
7181	Urban land-Phoebe, disturbed complex, 3 to 8 percent slopes	112.9	18.4%
Totals for Area of Interest		**613.5**	**100.0%**

U.S. Fish and Wildlife Service

National Wetlands Inventory

May 14, 2015

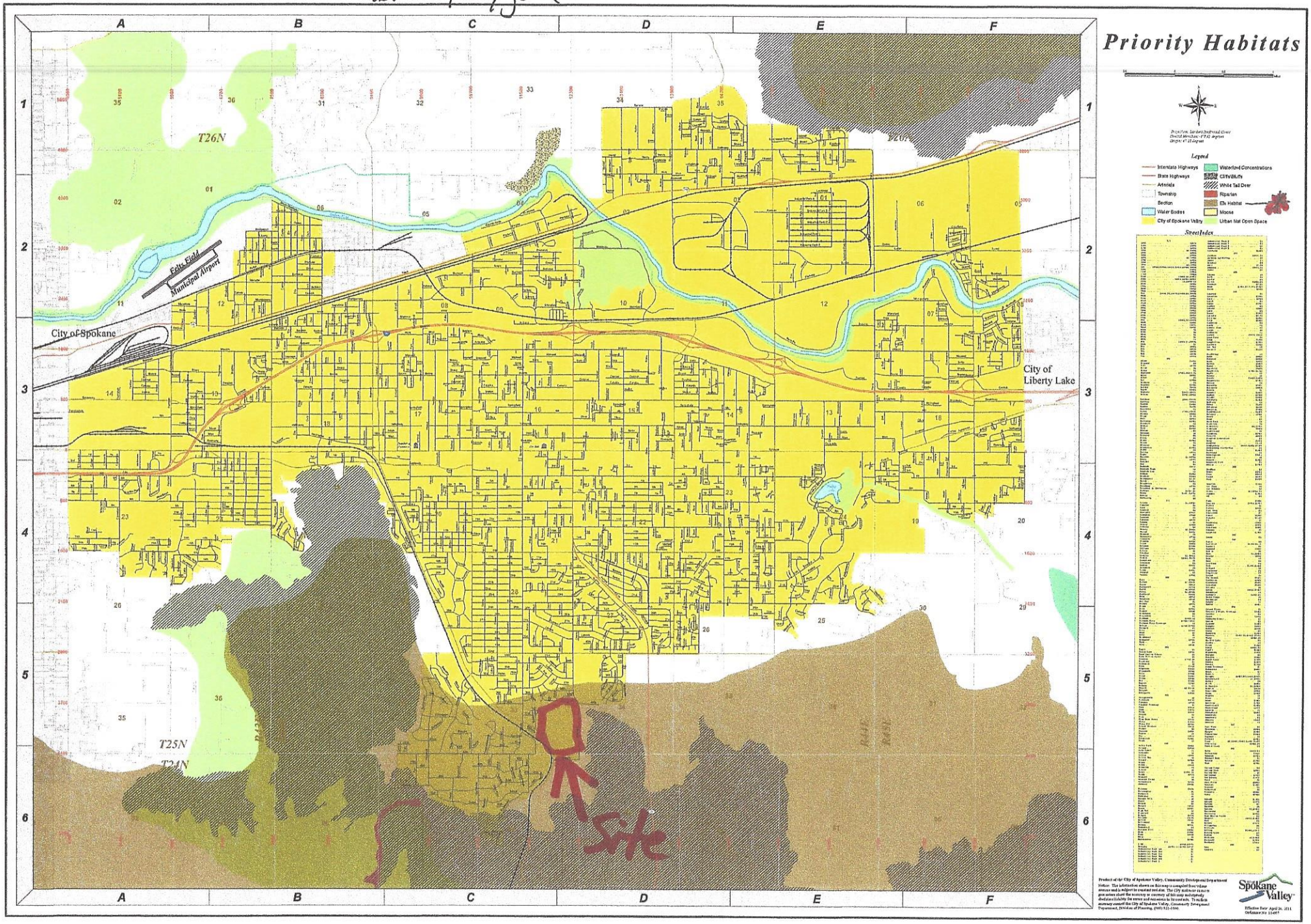
Wetlands

- Freshwater Emergent
- Freshwater Forested/Shrub
- Estuarine and Marine Deepwater
- Estuarine and Marine
- Freshwater Pond
- Lake
- Riverine
- Other

User Remarks:

No wetland hydrology at either location. NOT a wetland.

Elk habitat polygon



APPENDIX H
Cultural Resources Survey

CULTURAL RESOURCES REPORT COVER SHEET

Author: Adam J. Sackman and David A. Harder

Title of Report: Cultural Resource Survey of the Painted Hills Residential Development Project

Date of Report: April 2, 2018

County: Spokane Section: 04 Township: 24 North Range: 44 East
Section: 33 and 34 Township: 25 North Range: 44 East

Quad: Freeman Acres: 100

PDF of report submitted (REQUIRED) ☒ Yes

Historic Property Inventory Forms to be Approved Online? ☐ Yes ☒ No

Archaeological Site(s)/Isolate(s) Found or Amended? ☐ Yes ☒ No

TCP(s) found? ☐ Yes ☒ No

Replace a draft? ☐ Yes ☒ No

Satisfy a DAHP Archaeological Excavation Permit requirement? ☐ Yes # ☒ No

DAHP Archaeological Site #:

_____
_____
_____
_____
_____
_____
_____
_____
_____

- Submission of PDFs is required.
- Please be sure that any PDF submitted to DAHP has its cover sheet, figures, graphics, appendices, attachments, correspondence, etc., compiled into one single PDF file.
- Please check that the PDF displays correctly when opened.

Cultural Resource Survey of the Painted Hills Residential Development Project, Spokane Valley, Washington

By:
Adam J. Sackman and
David A. Harder

PLATEAU
Archaeological Investigations, LLC

April 2018

Cultural Resource Survey of the Painted Hills Residential Development Project, Spokane Valley, Washington

Prepared for:

Black Realty, Inc.

107 South Howard Street, Suite 500

Spokane, Washington 99201

By:

Adam J. Sackman and

David A. Harder

PLATEAU

ARCHAEOLOGICAL INVESTIGATIONS, LLC

P.O. Box 714, Pullman, Washington 99163

(509) 332-3830 VOICE/FAX

April 2018

ABSTRACT

Cultural Resource Survey of the Painted Hills Residential Development Project

Black Realty, Inc., Whipple Consulting Engineers, Inc., and Northwest Renovators, Inc. are making preparations to move forward with plans to construct 300 single family homes, 280 multifamily units, a neighborhood commercial center, and open space at the Painted Hills Residential Development. The area of potential effect (APE) covers 100.0acres and lies in Section 04 of Township 24 North, Range 44 East; and Sections 33 and 34 of Township 25 North, Range 44 East of the Willamette Meridian.

During permitting, the City of Spokane Valley received comments from Randy Abrahamson, Tribal Historic Preservation Officer of the Spokane Tribe of Indians, requesting a cultural resource survey and an Inadvertent Discovery Plan. Based on these requests, a cultural resource survey is required for State Environmental Policy Act compliance and to consider the potential impacts to historic properties prior to project execution. To that end, Black Realty, WCE, and NWR have retained Plateau Archaeological Investigations LLC (Plateau) to conduct the cultural resource survey of the proposed undertaking.

Pre-field research included the review of known archaeological resources within a 1.0-mile radius of the APE, as inventoried at the Washington State Department of Archaeology and Historic Preservation (DAHP). This review was completed using DAHP's secure electronic database known as the Washington Information System for Architectural and Archaeological Data (WISAARD). This database includes recorded archaeological resources, historic property inventories (HPIs), National Register of Historic Properties (NRHP) and Washington Heritage Register (WHR) properties, identified cemeteries, and previously conducted cultural resource surveys found throughout the state. The DAHP's predictive model places the APE in areas of "High Risk" and "Very High Risk" for encountering cultural resources, stating that "survey [is] highly advised" for this location.

The fieldwork was completed in a manner consistent with RCW 27.53.030, and included inspection techniques to identify both surface and subsurface archaeological resources. Plateau archaeologists conducted an intensive pedestrian survey over the entire APE and excavated 31 subsurface probes. The pedestrian survey and subsurface investigations for the project resulted in no newly recorded archaeological resources. Plateau recommends that the proposed undertaking will result in **No Historic Properties Affected**, and no further archaeological investigations are recommended prior to, or during, execution of this project.

Given concerns voiced by the Spokane Tribe of Indians during the permitting process, Plateau recommends all ground disturbing activities be conducted under the guidance of the attached Inadvertent Discover Plan.

KEY INFORMATION

PROJECT

Painted Hills Residential Development, Spokane Valley, Washington

LOCATION

East of Dishman Mica Road, north of Thorpe Road, and west of Madison Road

DAHP PROJECT NUMBER

2016-10-07132

USGS QUADS

Freeman, Washington 7.5 minute, 1973

LEGAL LOCATION OF PROJECT

Section 04 of T24N, R44E; and Sections 33 and 34 of T25N, R44E

ACREAGE

100 acres

PROJECT DATA

No previously recorded historic properties
No new cultural resources located and/or recorded

AUTHORS

Adam J. Sackman and David A. Harder

MANAGING AGENCY

Spokane County

PROJECT UNDERTAKEN AND REPORT PREPARED FOR

Black Realty, Inc.

FIELD NOTE DISPOSITION

Archived at the office of Plateau Archaeological Investigations LLC, Pullman.

PRINCIPAL INVESTIGATOR

David A. Harder, M.A.

DATE

April 2, 2018

CERTIFICATION OF RESULTS

I certify that this investigation was conducted and documented according to Secretary of Interior's Standards and Guidelines and that the report is complete and accurate to the best of my knowledge.

_____
Signature of Reporter

April 2, 2018
Date

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PROJECT DESCRIPTION AND LOCATION

Black Realty, Inc. (Black Realty), Whipple Consulting Engineers, Inc. (WCE), and Northwest Renovators, Inc. (NWR) are proceeding with plans for the development of Painted Hills Residential Development—a 100.0-acre site into 300 single family homes, 280 multifamily units, a neighborhood commercial center, and open space. The area of potential effect, (APE) is located east of, and adjacent to S. Dishman Mica Road, north of and adjacent to E. Thorpe Road, and west of and adjacent to S. Madison Road in Spokane Valley (Figure 1). Anticipated impacts include excavations, compaction of sediments, and other ground-disturbing construction activities. The APE is situated within Section 04 of Township 24 North, Range 44 East; and Sections 33 and 34 of Township 25 North, Range 44 East of the Willamette Meridian (Figure 2). The APE will be hereafter referred to as the "Project Area."

During permitting, the City of Spokane Valley received comments from Randy Abrahamson, Tribal Historic Preservation Officer of the Spokane Tribe of Indians, requesting a cultural resource survey and an Inadvertent Discovery Plan. Based on these requests, a cultural resource survey is required for State Environmental Policy Act compliance and to consider the potential impacts to historic properties prior to project execution. To that end, Black Realty, WCE, and NWR have retained Plateau Archaeological Investigations LLC (Plateau) to conduct the cultural resource survey of the proposed undertaking.

STATEMENT OF OBJECTIVES

The cultural resource survey of the Painted Hills Residential Development project is intended to identify potential archaeological resources and potential historic properties in the Project Area prior to the proposed construction. The pre-field research was designed to identify any known cultural properties located in or near the Project Area. Fieldwork procedures are intended to identify areas of moderate to high probability for Native American and European American cultural materials. This report describes the pre-field research, field efforts, results, and management plan for the project.

ENVIRONMENTAL SETTING

The Project Area is within the Columbia Basin, situated between the Rocky Mountain and Cascade Mountain ranges. The region consists of large open plains and gently rolling hills amidst the Channeled Scablands, which are features that resulted from Pleistocene-era mega-floods ranging in size from small stream-like trenches to large coulees measuring miles wide and hundreds of feet deep. Elevations in this region range between 200 feet (ft) (61 meters [m]) above mean sea level (AMSL) near the Columbia River to over 4,500 ft (1,372 m) AMSL in outlying ridges and low mountains (Fenneman 1946; Hunt 1967).

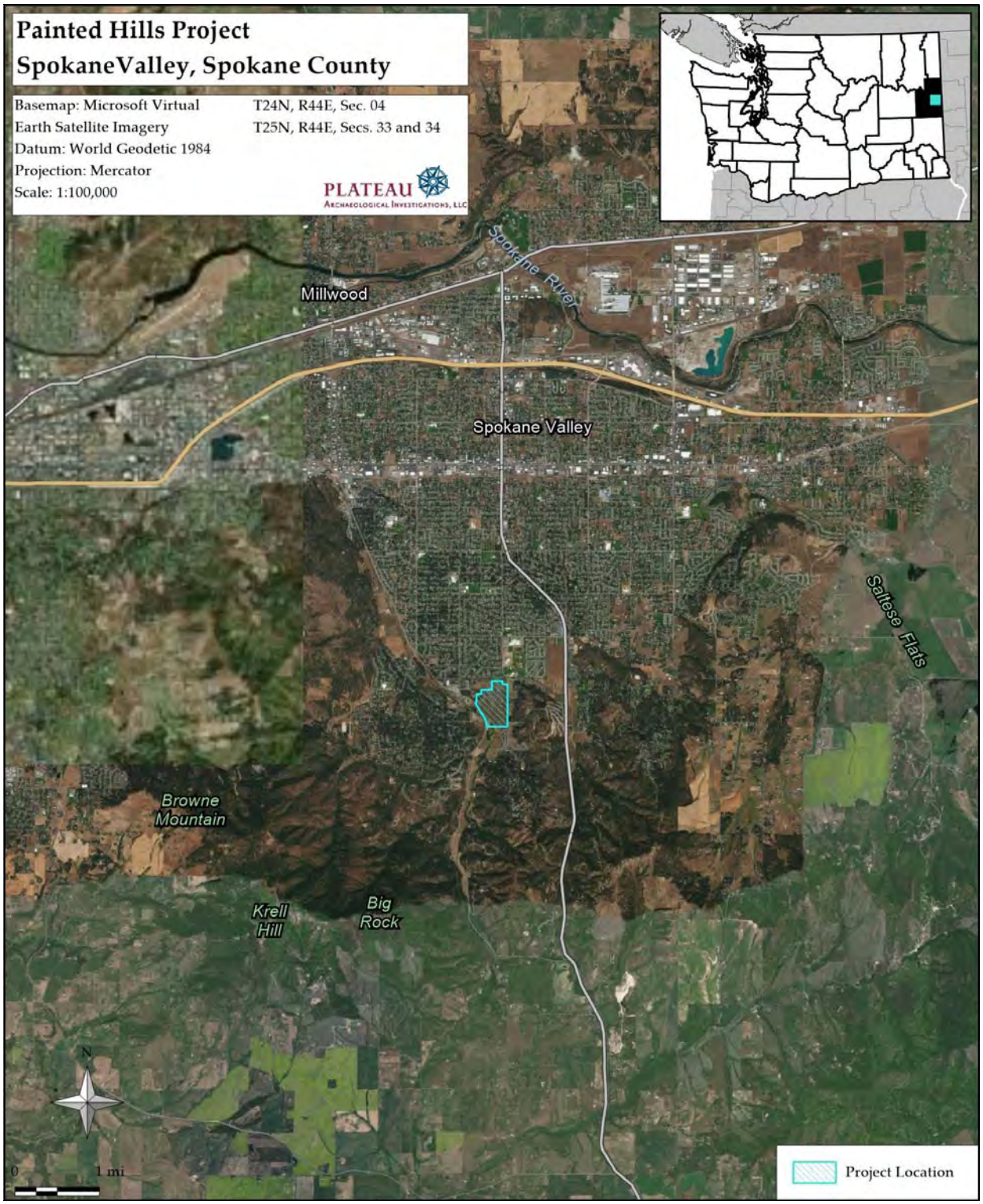

Figure 1. The project location within Spokane Valley.

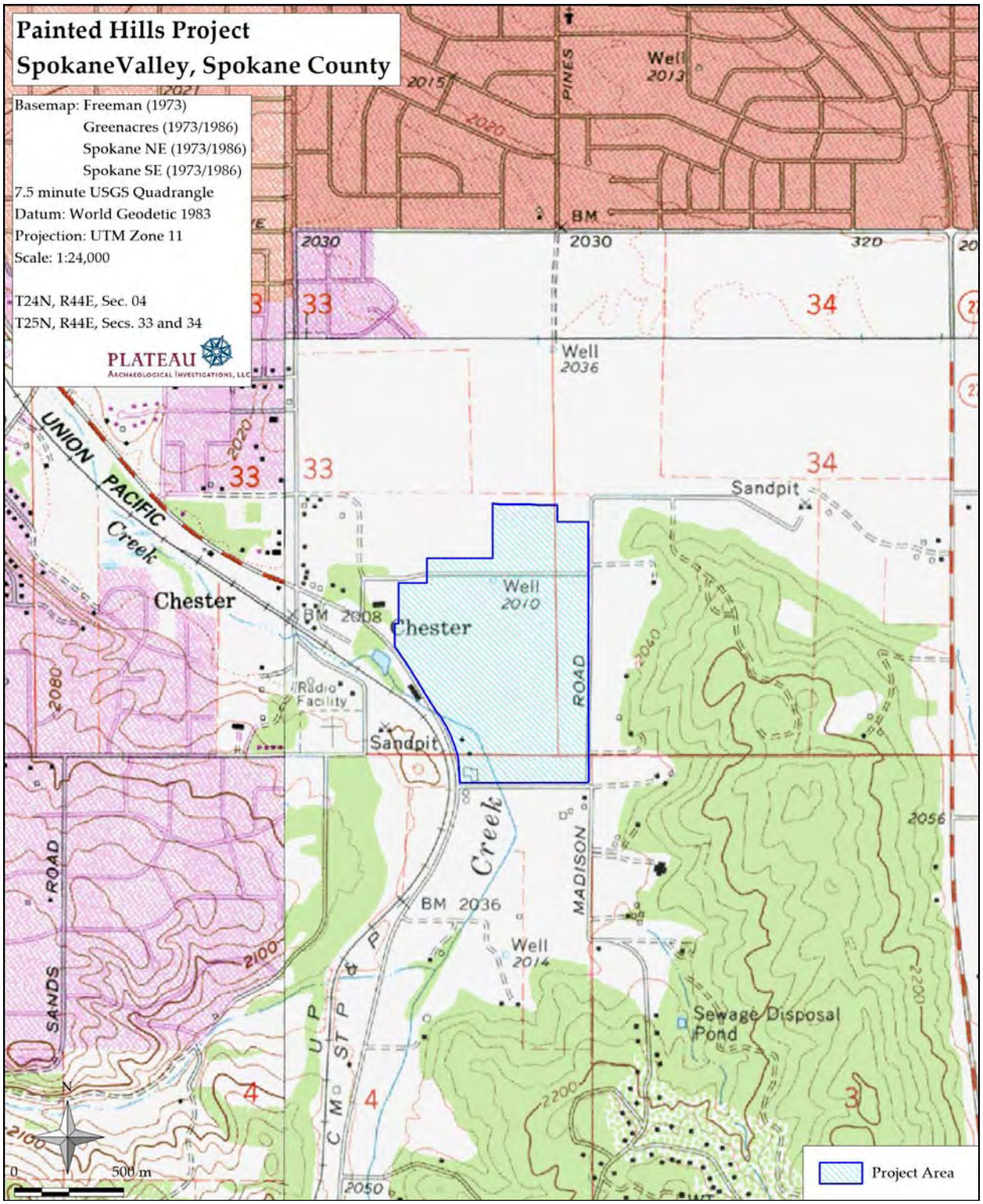

Figure 2. The Project Area on a portion of the Freeman USGS map.

According to the Natural Resources Conservation Service (2018), the Project Area contains a five soil types: Narcisse silt loam (72.3%), Endoaquolls and Fluvaquents (9.4%), Ubran land-Opportunity disturbed coplex (7.5%), Phoebe ashy sandy loam (6.7%), and Hardesty ashy silt loam (4.1%). The soils are primarily alluvially derived and typical of drainageways and flood plains.

Narcisse silt loam is found throughout the center of the Project Area, and represents the predominant soil type within the Project Area. It is an alluvium mixed with loess and ash, found within drainageways. It is stratigraphically characterized as silt loam (0-14 inches [in] [0-35.6 centimeters [cm]), atop loam (14-25 in [35.6-63.5 cm]), over very fine sandy loam (25-34 in [63.5-86.4 cm]). Endoaquolls and Fluvaquents is a mixed alluvium matrix, found in drainageways, stream terraces, and flood plains. It is located along the western extreme of the Project Area. It is a mixed alluvium found on flood plains, drainageways, and stream terraces. It is stratigraphically characterized as loam (0-11 in [0- 27.9 cm] over sandy and fine sandy loam (11-60 in [27.9-152.4 cm]). Phoebe ashy sandy loam is found in the eastern extreme of the Project Area. It is a sandy glaciofluvial deposit, with minor amounts of volcanic ash and loess, typically found in outwash plains. It is stratigraphically characterized as ashy sandy loam to an average depth of 16 in (40.6 cm), over varying quantities of sand and loam (16-44 in [40.6-111.8 cm]). Urban land-Opportunity, disturbed complex is characterized by sandy and gravelly glaciofluvial deposits with a minor amount of volcanic ash and loess in the upper part, and is found on outwash plains. This soil profile is typified by very gravelly ashy loam (0-7 in (0-17.8 cm) over extremely gravely ashy loam (7-13 in) atop a layer of extremely gravelly loam (19-43 in). Hardesty ashy silt loam is located in the northeastern portion of the project area. It is an alluvially derived, volcanic ash material, found in depressions, drainageways, and stream terraces. It is stratigraphically characterized as ashy silt loam, to an average depth of 32 in (81.3 cm), over ashy very fine sandy loam (32-39 in [81.3-99.1 cm]), atop ashy loamy very fine sand (39-60 in [99.1-152.4 cm]).

The predominant draw for Native American and Euroamerican populations in this region was, and still is, the extensive river systems. The most significant environmental feature is the Columbia River, which flows for more than 1,200 miles (mi) (2,000 kilometers [km]) from the base of the Canadian Rockies in southeastern British Columbia to the Pacific Ocean at Astoria, Oregon. Ten major tributaries—the Cowlitz, Deschutes, Kootenay, Lewis, Okanogan, Spokane, Snake, Wenatchee, Willamette, and Yakima—complete the drainage system. The Project Area lies4.0 mi (6.9 km) south of the Spokane River and 54.0 mi (86.9 km) east-southeast of the confluence of the Columbia and Spokane rivers. Liberty Lake is located approximately 7.3 mi (11.8 km) east-northeast of the Project Area. Several small and seasonal waterways also run near the Project Area, including Chester Creek, which runs through the southwest quadrant of the Project Area.

The vegetation around the Project Area falls within the *Artemisia tridentata—Agropyron spicatum* habitat type, characterized by arid sagebrush steppe (Daubenmire 1970; Taylor 1992). Big sagebrush *(Artemisia tridentata)* and bluebunch wheatgrass *(Agropyron spicatum)* are dominant in this environment. The plant community includes threetip sagebrush (*Artemisia tripartita*), gray horsebrush (*Tetradymia canescens*), spiny hopsage (*Grayia spinosa*), green rabbitbrush (*Chrysothamnus*

viscidiflorus), and gray rabbitbrush (*Chrysothamnus nauseosus*). Grasses and forbs include needle and thread (*Stipa comata*), *Stipa thurberana* (no common name known), bottlebrush squirreltail (*Sitanion hystrix*), Cusick's bluegrass (*Poa cusikii*), Indian paintbrush (*Castilleja* spp.), lupine (*Lupinus* spp.), plantain (*Plantago patagonica*), longleaf phlox (*Phlox longifolia*) and balsamroot (*Balsamorhiza sagittata*). Additional species of flora thrive along the shores of the Columbia River, including bitterbrush (*Purshia tridentata*), quaking aspen (*Populus tremuloides*), willow *(Salix* spp.) and currant (*Ribes* spp.) (Daubenmire 1970). Many of these plants have been incorporated in Native American use as medicinal plants, food sources, and other employment.

The Project Area lies within a region that historically contained an abundance of life. It is likely, though, that Native Americans had access to an even larger variety of creatures during the past that played a role in aboriginal use, settlement, and travel patterns in relation to the Project Area. Mammals include sagebrush voles (*Lemmiscus curtatus*), Great Basin pocket mice (*Perognathus parvus*), deer mice (*Peromyscus maniculatus*), bushy-tailed wood rat (*Neotoma cinerea*), Washington ground squirrel (*Spermophilus washingtoni*), northern pocket gopher (*Thomomys talpoides*), yellow bellied marmot (*Marmota flaviventris*), white-tailed hare (*Lepus townsendii*), Nuttal cottontail (*Sylvilagus nuttallii*), porcupine (*Erethizon dorsatum*), beaver (*Castor canadensis*), and muskrat (*Ondatra zibethica*) mountain sheep (*Ovis canadensis*), coyote (*Canis latrans*), bobcat (*Lynx rufus*), badger (*Taxidea taxus*), and long-tailed weasel (*Mustela frenata*). The occasional bison (*bison bison*) is also thought to be available prehistorically (Burt and Grossenheider 1961; Ingles 1965; Schroedl 1973).

Many types of fowl were also available in the past including Swarth blue grouse (*Dendragapus obscurus pallidus*), Columbian ruffed grouse (*Bonasa umbellus affinis*), Columbian sharp-tailed grouse (*Pedioecetes phasianellus*), western sage grouse *(Centrocercus urophasianus phaios*), mallard duck (*Anas platyrhynchos platyrhynchos*), western harlequin duck (*Histrionicus histrionicus pacificus*), American common merganser *(Mergus merganser americanus*), the lesser snow goose (*Chen hyperborea hyperborea*), and the Great Basin Canada goose (*Branta canadensis moffitti*). Seasonally available birds such as Gadwall (*Anas strepera*), wood duck (*Aix sponsa*), redhead (*Aythya americana*), and the northern ruddy duck (*Oxjura jamaicensis rubida*) resided in the region in the summer. Winter game birds of the region included canvasback (*Aythya valisineria*) and American greater scaup *(Aythya marila nearctica*) (Lothson 1977).

The climate in the Columbia Basin was cool and moist at the end of the last glacial period. Gradually, climatic conditions became markedly warmer and dryer by approximately 9,000 years before present (B.P.). The warm dry climatic trend reached its maximum around 6,500 B.P. and then conditions reverted to a cooler and moister regime (Fryxell and Daugherty 1962). Comparatively, the present climate is arid with mild moist winters and hot dry summers (Meining 1968). The mean seasonal temperatures recorded at the Spokane WSO Airport weather station (#457938) between 1889 and 2012 are 29.6° Fahrenheit (F) in winter and 66.9° F in the summer. Extreme temperatures of -25° F and 108° F have been recorded at the same station. Yearly precipitation averages 16.3 inches (Western Regional Climate Center 2018).

REGIONAL PRECONTACT BACKGROUND

The Project Area is included in the Plateau culture area, which corresponds roughly to the geographic region drained by the Fraser, Columbia, and Snake rivers. The Plateau culture area is bordered on the west by the Cascade Mountains and on the east by the Rocky Mountains. The northern border of the culture area is in Canada where it gives way to Arctic culture patterns. The southern border of the Plateau culture area mixes gradually with the Great Basin culture area (Walker and Sprague 1998:1-3).

A cultural chronology provides a time line describing the adaptation, material culture, subsistence, and sometimes settlement patterns of the people who inhabit a specific area. A cultural chronology for the Upper Columbia River region was developed by Goodale et al. (2004) which identifies four distinct cultural phases: the Upper Columbia Forager Period (6,200 to 4,200 B.P.), the Upper Columbia Collector I Period (3,799 to 2,000 B.P.), the Upper Columbia Collector II Period (1,999 to 600 B.P.), and the Upper Columbia Collector III Period (599 to 100 B.P.). The culture chronology of the Upper Columbia has been discussed at length in Goodale, Prentiss, and Kuijt (2004), and, if pertinent, will be discussed further within the results of this report.

Ethnography

The Project Area falls within lands traditionally occupied by the Upper Spokane and Coeur d'Alene Indians, both Interior Salishan groups of Native Americans, a language shared with neighboring Kalispel, Pend d'Oreille, and Flathead groups (Ross 1998). Three bands of Spokane lived in eastern Washington—Lower Spokane, with a principal settlement near Little Falls; Middle Spokane, occupying Hangman or Latah Creek; and Upper Spokane, who lived along the Little Spokane River and upriver from the junction of Hangman Creek. Ross (1998:271) notes that the Middle and Upper Spokane considered themselves "all one people." Traditional Coeur d'Alene territory extended over the drainage and headwaters of the Spokane River (Palmer 1998). Prior to Euroamerican settlement into the area, the Coeur d'Alene were subdivided into three divisions—the Spokane River-Coeur d'Alene Lake division, the Coeur d'Alene River division, and the Saint Joe River division.

Villages and food procurement followed the seasons. Winter habitation sites were occupied during the coldest months of the year. People probably settled in for the winter in mid- or late-October. During the next four or five months they relied upon stored foods and any game that could be taken. In early spring, winter supplies began to dwindle and people began making forays to gather emergent root crops (Nelson 1973). Spring, summer, and fall hunting and gathering took place at areas away from the winter villages as did berry collecting, root gathering, and processing. Task groups often went to specific areas to hunt, to quarry toolstone, to collect berries, or to gather other resources such as tules to make mats (Aikens 1993:90). Salmon runs took place at predictable times of the year and provided a valuable resource for immediate use and to store for winter provisions (Schalk 1977). By the end of summer, reserves of dried salmon and prepared roots were stocked for winter.

Ethnographically, the Spokane lived in three types of settlements: permanent winter villages, temporary summer and fall villages, and summer camps for hunting, plant gathering, and mineral and lithic exploitation (Ross 1998:272). Winter villages, located along the Spokane River, included hunting grounds, resource areas, burial grounds, and sacred sites. Conical semi-subterranean pit houses were constructed for winter villages using poles covered with layers of tule mats or a permanent double-apsidal lodge with inverted V pole construction with tule mats. Summer fishing villages supported relatively large polyglot populations that came together to fish, trade, and entertain. Temporary villages were comprised of many families and located in seasonal resource areas. Smaller temporary tule mat structures were used in summer villages and camps (Ross 1998).

The Coeur d'Alene also had different house constructions for the different seasons. Unlike the Spokane, they did not make use of the semisubterranean pit houses (Palmer 1998). Instead, a conical family house was used in the winter and summer gatherings. A communal single or double lean-to lodge was used for gatherings and training quarters for young men.

For the Spokane, fishing commenced in May at several major fisheries along the Spokane River (Ross 1998). Set nets, traps, leisters, harpoons, hooks, gaffs, and dip nets were used. In sections of narrow streams, crushed granite was used to line stream beds to afford better visibility. The Coeur d'Alene were skilled fishermen, using angling, gaffing, spearing, and netting techniques to catch trout, whitefish, and salmon (Palmer 1998:316). Traps, including screens, cylindrical traps, trap doors, large salmon traps, and weirs were also employed. While many fishing stations were near Lake Coeur d'Alene, along the Saint Joe River, and on Hangman Creek, the Coeur d'Alene would travel to Spokane Falls and parts of Spokane River for salmon. Others bought dried salmon from the Spokane.

Sprague (2005:41) notes that the Coeur d'Alene had the greatest variety of water craft of any Plateau group. Ethnographic accounts recognized several types of bark-covered canoes, including the flat keel sturgeon nose, curved keel sturgeon nose, and the Kalispel variant of the sturgeon-nose; the Kutenai "Eastern" type elk hide canoe; dugout canoe; tule rafts; and bull boats. Water craft were used for basic transportation, fishing, and hunting. Canoes were used as a base of operation when collecting the water potato (*Sagittaria latifolia*), which grows in soft mud underwater. Canoes were used in fun pastimes, such as canoe racing and tipping, which in turn strengthened "canoe fighting" (warfare) skills (Sprague 2005:52). Emphasizing the importance of the canoe in the Coeur d'Alene lifeway is its use in death, pounded on to announce a death, much like a church bell; fragments of canoes were used as burial markers; and the canoe makes an appearance in mythology, most notable is the star constellation called "the canoe" (Sprague 2005:53); and religion.

In the winter, the Spokane used snowshoes, toboggan, and frozen animal hides to transport heavy loads. The introduction of the horse in the mid-eighteenth century greatly increased their mobility and changed their socioeconomic patterns. Now they were able to travel greater distances and carry heavier loads, as well as having contact with remote Native American cultures.

REGIONAL HISTORIC BACKGROUND

Contact with peoples on the west coast of the continent was well established by the end of the eighteenth century by British, Spanish, and Russian trading vessels that made regular visits to the coastline. These trading expeditions began the first contact between aboriginal groups and outside cultures. Written historic accounts of the area, though, really begin when Lewis and Clark journeyed through the region in 1805.

In 1809, Oregon Territory saw an influx of trappers and fur traders, beginning with the Canadian owned North West Company as they made their way into the region and built Spokane House in 1810, located near the confluence of the Spokane River and Hangman Creek. Spokane House became the first permanent European settlement in the State of Washington (McCart and McCart 2000:213). For a time, Spokane House thrived as both a trading center and a gathering place for fur traders. Despite its successes, Spokane House was abandoned in 1816. By that time, trading routes had shifted largely to the Columbia River, leaving the Spokane house no longer logistically or economically important (Meinig 1968). In 1825, the Hudson Bay Company closed Spokane House and moved its local operations north to Fort Colvile at Kettle Falls.

Subsequent to the opening of the Oregon Trail in 1840, Euroamerican settlers flooded the area, bringing trade, religion, and disease into Native-occupied areas. In 1846, the United States took control of the Oregon territory in the Oregon Treaty. With increasing population, economic, and political pressures of emigrants and the Whitman massacre, the Territory of Oregon (Oregon Territory) was officially established in 1848. By 1850, nearly 12,000 emigrants had passed through the Plateau region along the Oregon Trail (Beckham 1998; Walker and Sprague 1998). With the establishment of the Oregon Territory in 1848 and Washington Territory in 1853, federal involvement proliferated. Treaties between Native tribes and the new state and federal governments were soon underway.

Washington Governor Isaac Stevens, also appointed as Superintendent of Indian Affairs by President Pierce, worked jointly with Joel Palmer, Superintendent of Indian Affairs in Oregon, to negotiate a series of treaties between 1854 and 1855. These treaties were difficult to maintain in light of the Chinook jargon used in negotiations, rapid influx of miners following the several "rushes," and settlers who were eager for property. Almost immediately after signing the Walla Walla Council Treaty of 1855, gold was discovered on several promised reservations in the Plateau, and miners began to confiscate the mineral-rich lands. The introduction of disease, treaty violations, and other stresses introduced by the new settlers caused mistrust and eventually, warfare. Several battles took place in the area between 1855 and 1858 during the Plateau Indian War.

Between 1853 and 1854 Lieutenant Mullan, who volunteered for the Northern Survey under Washington's Governor Isaac I. Stevens, passed through the Scabland area surveying land for an ideal military road. Mullan was aided by Indian guides in the exploration of over 3,000 square mi (5,000 square km)—from the headwaters of the Missouri River, through the Rocky and Bitterroot

mountains, and into southern Washington state (Mullan 1909:12a-14a). The 6,000 mi (10,000 km) oceanic ride around Cape Horn to the Pacific Ocean and the 2,000 mi (3,335 km) wagon route from the Midwest to Oregon state were secondary options over the newly proposed wagon and rail route. With the aide of the War Department's Corps of Topographical Engineers and Office of Exploration and Surveys, and the Interior Department's Pacific Wagon Road Office, funding of road construction began.

With the establishment of the Oregon Territory, federal involvement proliferated. Treaties between Indian tribes and the new state and federal governments were soon underway, but were difficult to maintain in light of the rapid influx of miners following the several "rushes" and settlers who were eager for property. The introduction of disease and other stresses introduced by the new settlers caused mistrust and, eventually, warfare. Several battles took place in the Oregon Territory between 1855 and 1858.

During this period of unrest, efforts were made to limit the incursion of emigrants and others into Indian territories. Prohibition of settlement was strictly maintained, and General Wool pointed out "the army cannot furnish guards to farm houses dotted among hostile tribes" (Meinig 1968:165). The settlement prohibition was only a temporary solution to an inevitability. People settled and volunteer militias attacked indiscriminately and fueled the fire under uncertain relations.

The unrest continued to culminate, leading to several battles throughout the region. The Steptoe Battlefield Site, located in Rosalia (approximately 45 mi [75 km]) southeast of the Project Area, and 3.0 mi (4.8 km) south of Steptoe Butte. Many historical accounts have been published telling various views of the event including those of Lieutenant John Mullan and Lieutenant Colonel Steptoe (United States War Department [USWD] 1859), Edith Erickson (1985), and James Estes (1974).

On May 8, 1858 Colonel Steptoe departed from Fort Walla Walla with the intention of going to Fort Colville. When the party reached the Palouse River, they were warned by members of the Spokane Tribe that they were not welcome and that any attempt to pass through the Spokane country would be resisted. On May 15, his command camped near present-day Rosalia, and reached present-day Four Lakes the following day. It was noted that the Indians were congregating in ever larger numbers and word was sent to Steptoe that the party must not advance further or the company would be attacked. Steptoe began the return journey toward Walla Walla early on the morning of May 17. As daylight broke, it became apparent that greater than 1,000 Spokane, Coeur d'Alene, Palouse, and Yakima warriors were surrounding the soldiers.

Steptoe's party continued to move south, but as it strung out, harassment by the Indians increased. The mayhem turned to a moving fire fight that was sometimes reduced to hand to hand combat with the flank of the company taking the brunt of the punishment. Before noon, the first soldier was killed and at about noon the first officer, Lieutenant Gaston, was killed. Within a half hour, Captain Taylor was mortally wounded. Soon thereafter, Steptoe and his command took control

of the hilltop on which the memorial is placed in Rosalia overlooking Ingossomen Creek (Pine Creek). The troops laid out a defensive circle and were able to maintain their position until nightfall. After nightfall, four men and the two howitzers were buried. Steptoe and his men abandoned their supplies and pack animals on the hilltop and stealthily slipped away. They moved at a very quick pace and arrived at the Snake River (about 90 mi [150 km] south) at about 10:00 PM on the night of May 18. Totaled, five men were killed, two mortally wounded, thirteen slightly or severely wounded, and one missing (USWD 1859:62-63). At least nine Indians were killed and an unknown number wounded.

Later that summer, Colonel George Wright led the Ninth Infantry (approximately 570 men) and 30 Nez Perce scouts along the route that Steptoe had followed to punish those involved in the killing of U.S. soldiers at the Battle of Steptoe (Mullan 1909:12a-14a). On August 31, 1858, they camped at Basset Spring, approximately halfway between the towns of present-day Medical Lake and Cheney (Stimson 1999:16; Trafzer and Scheuerman 1986). The next morning, the men awoke to spot the hills 2.0 mi (3.2 km) to the north dotted with Indians. Wright deployed his men, and initiated the Battle of Four Lakes. It was a bloody contest, with the Spokane and their allies being introduced to the minnié balls and long-range rifles, foes they were not prepared to meet (Ruby and Brown 1970).

The Spokane fled to the Spokane River where they nursed their wounded. After a three-day respite, Colonel Wright and his men pursued the Spokane and allied forces, meeting up with them on the Spokane Plains. As Wright's men entered the Plains on September 5 the Indians used the distraction of grass fires (on land now occupied by Fairchild Air Force Base) to get closer to the soldiers (Stimson 1999:16; Trafzer and Scheuerman 1986). Wright saw the ruse, and ordered his men to attack through the flames. Ruby and Brown (1970:133) note that the battle covered 25 mi (41.7 km) of "hills, ravines, coulees, woods, rocks, bare ground." The battle lasted one day and like the Battle of Four Lakes, the Spokane and their allies left behind the detritus of battle, with the bodies of the wounded and dead having been carried away, leaving Wright no idea to their casualties (Ruby and Brown 1970).

After the battles, Wright told Spokane Garry that the Indians needed to "...put your faith in me and trust to my mercy," this, of course, after delivering up their arms, women, and children. If not, the tribe would be "exterminated" (Stimson 1999:16). While Spokane Garry took this to his people, Wright continued east toward Coeur d'Alene territory. Near the Idaho border the men came across about 800 horses (considered both wealth and war machines to the Indians). The events of what happened next differ, but culminate in the destruction of horses and property, known as the Spokane Horse Massacre.

Some sources report that the army captured Indian horses after engaging the herders in a fire fight (Trafzer and Scheuerman 1986:89), while other sources note that the horses were being led by old women and children who fled at the sight of the army (Brown 1961:252). The horses, belonging to Palouse Indians, were corralled while soldiers set fire to wheat fields and lodges filled with stored

wheat and oats belonging to the Coeur d'Alene. On September 9, 1858, the slaughter of the horses began. The exact destruction is unknown. Of the lodges and food, Colonel Wright stated "many barns filled with wheat and oats, also several fields of grain with numerous caches of vegetables, dried berries and kamas, all destroyed or used by the troops" (USWD 1859:56). The estimate of horses killed ranges between 590 and 1,000 mares and colts.

The Spokane Horse Massacre (or Horse Slaughter Camp) site has an ambiguous location. Sources note that for some years after the massacre, the site of the Spokane Horse Massacre was marked by the presence of mounds of bleached horse bones (Brown 1961:258; Ruby and Brown 1970:137). GLO Cadastral surveys of this area took place in the 1870s; however, there is no specific mention of this area in the surveyors' notes regarding any evidence of the Spokane Horse Massacre. In 1965 a monument marked the location of the site less than 1.0 mi (1.6 km) west of the Washington/Idaho border along the southern banks of the Spokane River. The monument has since been relocated to a position approximately 1.0 mi (1.6 km) east (Larsen and Axton 2001b:6).

Following the Spokane Horse Massacre, the army headed east, leaving a band of destruction in their wake. The slaughter of horses and destruction of homes and fields was too much for the Coeur d'Alene, and they entered into a treaty with Wright on September 17, 1858. A week later, Wright held council with the Pend Oreilles, Kalispel, Colville, Palouse, Columbia, and San Poil at a pre-arranged location on Latah Creek, near present-day Waverly, looking for surrender terms, or a reprisal to Steptoe's defeat (Frey 2001:85). Wright was holding Owhi captive and used him to lure Qualchan into the camp. Upon his arrival to the camp, Qualchan was hung along with six others. Owhi was killed when he tried to escape a few days later (Beckham 1998; Patton 1979). This same day (September 24, 1858) the Spokane surrendered. These unfortunate turns brought about a new life for the Native American tribes of Washington—the reservation.

Major smallpox epidemics in 1846 and between 1852-1853 severely impacted the Spokane population. In 1881, the Spokane Reservation was established in a greatly reduced area of their traditional lands. A decrease in land meant a decrease in food resources. The installation of dams beginning in 1911 at Little Falls prevented salmon, a major food source, from coming upstream. Non-Native American settlement, disease, and other factors, have taken a toll on the Spokane population, and it was not until the mid-1920s that the population began to see a growth.

The Executive Order of 1873, signed by President Ulysses S. Grant, began a series of land relinquishments by the Coeur d'Alene. Reservation boundaries were delineated as 590,000 acres. Congress enacted an 1891 act further reducing sovereign lands to 400,000 acres. In 1894 the federal government reimbursed the Coeur d'Alene Tribe $15,000 for a one-mile strip of land east of Lake Coeur d'Alene, where squatters had formed the town of Harrison. In 1910, the Dawes Act, or General Allotment Act, of 1887 finally took hold in northern Idaho, reducing land ownership to some 104,000 acres. In 1908 and 1911, the Coeur d'Alene residents of southern Lake Coeur d'Alene

were evicted, and the $11,000 compensation was used by the state to develop Heyburn State Park. Currently 70,000 acres are owned by the Tribe and Tribal members within a reservation boundary of some 345,000 acres of sovereign land inclusive of the town centers of Benewah, DeSmet, Plummer, Sanders, Tensed, and Worley (Coeur d'Alene Tribe 2016).

Spokane Valley

The Spokane Valley Chamber of Commerce was established in 1921, tentatively uniting the unincorporated townships of Austin, Chester, Dishman, East Trent, Evergreen, Greenacres, Irwin, Opportunity, Trent, Trentwood, Orchard Park, Velox, Verdale, and Yardley. Apple farming was the primary industry of the region in early years. Competition from the Wenatchee and Yakima valleys, coupled with disease and adverse weather conditions would cause many local farmers to seek other opportunities, and by 1955 the apple industry in Spokane Valley had died. Apple production was replaced by timber-focused industries, such as wooden matches and paper. Residents of the valley resisted incorporation until 2002, when voters finally approved, by a margin of 51.3 percent to 48.7 percent (Kershner 2012).

Project Area

The 1878 General Land Office (GLO) survey plat of Township 24 North, Range 44 East depicts two roads, running north/south, and several trails cutting across the landscape. One of these roads is shown to be near the Project Area, roughly following the current alignment of the Dishman Mica Road, running through the center of Section 04 (McMicken 1878a). The GLO survey plat for Township 25 North, Range 44 East depicts several roads traversing across the region, both north and south of the Spokane River. Roads are shown near the Project Area, roughly following the current alignments of the Dishman Mica Road and WA-27. No built environments are depicted within the Project Area (McMicken 1878b).

The 1901 Spokane USGS topographic map shows the Oregon Railraod and Navigation Company railroad line running west of the Project Area, along the current alignment of the Union Pacific Railroad. An unnamed road runs parallel to the railroad, roughly following the modern alignment of Dishman Mica Road. Two structures are shown west of these roads, in the southwest corner of the Project Area. No other built environment are depicted in or near the Project Area. The 1949 Greenacres map shows E. Thorpe Road in its current alignment, south of the Project Area. No other changes are depicted from the previous map within the Project Area.

The Spokane County Assessor's SCOUT parcel explorer identifies that the golf course, club house, storage garage, and associated paving, located in the southwest portion of the Project Area, were constructed in 1988. A residential shed was added in 2000. Structures identified in the early USGS topographic maps were likely removed at this time. The golf course closed in 2012.

PLACES OF CULTURAL SIGNIFICANCE

Traditional Cultural Places (TCP) are important for the "role the property plays in a community's historically rooted beliefs, customs and practices" as stated in the *National Register Bulletin 38* (U.S. Department of the Interior 1990). Although these properties can be difficult to identify and evaluate, an initial search of pertinent publications can be helpful toward identifying the types of properties that may be expected. The *National Register Bulletin 38* goes on to state that "examples of properties possessing such significance include:

- a location associated with the traditional beliefs of a Native American group about its origins, its cultural history, or the nature of the world;
- a rural community whose organization, buildings and structures, or patterns of land use reflect the cultural traditions valued by its long-term residents;
- an urban neighborhood that is the traditional home of a particular cultural group, and that reflects its beliefs and practices;
- a location where Native American religious practitioners have historically gone, and are known or thought to go today, to perform ceremonial activities in accordance with traditional cultural rules of practice; and
- a location where a community has traditionally carried out economic, artistic, or other cultural practices important in maintaining its historic identity."

The Project Area falls within lands traditionally occupied by the Upper Spokane Indians and the Coeur d'Alene Indians (Palmer 1998; Ray 1936; Ross 1998). Three bands of Spokane lived in eastern Washington—Lower Spokane, with a principal settlement near Little Falls; Middle Spokane, occupying Latah (Hangman) Creek; and Upper Spokane, who lived along the Little Spokane River and upriver from the junction of Latah Creek. Ross (1998:271) notes that the Middle and Upper Spokane considered themselves "all one people." There were also three divisions of Coeur d'Alene—the Spokane River-Coeur d'Alene Lake Division, Coeur d'Alene River Division, and Saint Joe River Division (Palmer 1998).

Verne Ray (1936) records several camps, villages, and settlements near the Project Area. The small Upper Spokane winter camp of *sqami'n'* was located along the north side of the Spokane River, 6.3 mi (10.1 km) north of the Project Area (Ray 1936:136). The fall and winter Upper Spokane village of *simina'tculks* ("place where many crows are found") was located on the north side of the Spokane River, near the neighborhood of Hillyard, [7.0] mi (11.3 km) north of the Project Area. The village was an important location for fishing, hunting, and grazing (Ray 1936:136). The Coeur d'Alene camp of *mu 'lc* ("cottonwood") was located at the southern end of Liberty Lake, near a swamp. The camp was recorded to be home to about 30 people (Ray 1936:132) and lies7.6 mi (12.3 km) east of the Project Area. The important Upper Spokane fishing and hunting village of *qu'yu* ("place where the Oregon grape [*Berberis aquifolium*] grows") was situated along Latah Creek, 8.5 mi (13.6 km) west of the Project Area. Both salmon and trout were taken from the creek, and abundant deer,

antelope, and beaver were accessible in the surrounding lands (Ray 1936:136. A relatively small Coeur d'Alene camp, *tcana 'kwaqan* ("two inlets at an angle") was home to two families, located about 2.0 mi (3.2 km) south of Liberty Lake (Ray 1936:133) and 8.5 mi (13.7km)east of the Project Area. Situated on both sides of Spokane River, at the falls, *sqlaxa'łkʷ* (referring to the falls) was a large Upper Spokane permanent village located on both sides of the river, situated 8.6 mi (13.9 km)west of the Project Area. The location was used for spear and basket trapping fishing (Ray 1936:136). The Upper Spokane camp of *tcəłsi'uytsu m* ("place where many woodpeckers are found") was located along Latah Creek, 9.5 mi (15.3 km) southwest of the Project Area, and traditionally as a location for large deer drives (Ray 1936:137).

Numerous collections of published legends were consulted to identify points of mythological significance near the Project Area. These include publications by Franz Boas (1917), Ella Clark (1969), Richard Erdoes and Alfonso Ortiz (1984), Verne Ray (1933), M. Terry Thompson and Steven Egesdal (2008), and Deward Walker (1982). While no legends were found relating specifically to the Project Area, references to the Spokane River were recorded.

Clark (1969:116-117) relates *The Origin of the Spokane River*. It is said that the Spokane lived in terror of a huge monster that consumed all the fish and wildlife, was so strong as to uproot large trees with a single swipe of his hand, and no hunter could kill him. A Spokane girl was collecting berries near the location where the Spokane River now spills into the Columbia River. She came upon the monster sleeping on a hillside. She ran to her village and soon the people had the sleeping monster tied up and were beating him. The monster awoke angry, broke through his bindings, and ran eastward toward Lake Coeur d'Alene. As he did, he cut a deep channel and when he reached the lake the water rushed through this channel and into the Columbia River.

PRE-FIELD RESEARCH

Pre-field research included the review of known archaeological resources within a 1.0-mi (1.6-km) radius of the Project Area as inventoried at the Washington State Department of Archaeology and Historic Preservation (DAHP) in Olympia, Washington. This review was completed using DAHP's secure electronic database known as the Washington Information System for Architectural and Archaeological Data (WISAARD). This database includes recorded archaeological resources, historic property inventories (HPIs), National Register of Historic Properties (NRHP) and Washington Heritage Register (WHR) properties, identified cemeteries, and previously conducted cultural resource surveys found throughout the state.

Plateau also conducted cartographic analysis of landform, topography, proximity to water using topographic maps, and the United States Department of Agriculture (USDA) online soil survey. Secondary historic resources, on file at the DAHP and the Plateau office in Pullman, were consulted

to identify other potential historic resources. In addition, available survey and overview reports and ethnographic accounts of the region were consulted. This background review allows for the identification of previously recorded historic and archaeological resources within or near the Project Area.

Previous Archaeological Research

A review of previously recorded cultural resources and archaeological surveys was completed through the WISAARD on March 7, 2018. The review covered all or portions of Sections 03, 04, and 05 of Township 24 North, Range 44 East; and Sections 26, 27, 28, 29, 32, 33, 34, and 35 of Township 25 North, Range 44 East. This review revealed no cultural resources within 1.0 mi (1.6 km) of the Project Area. The closest cultural resource is 45SP240, located approximately 4.0 mi (6.4 km) north of the Project Area, along the south bank of the Spokane River. Site 45SP240, a precontact cairn, is constructed with a series of large boulders (Wyss 1989).

Two cemeteries are recorded within 1.0 mi (1.6 km) of the Project Area. The Chester Community Cemetery (45SP586), is located off of E. 44 Avenue and E. Sands Road. It is 6.4 acres in size and was established in 1908. It is located 0.1 mi west of the Project Area. The South Pines Cemetery (45SP641), located 0.5 mi northeast of the Project Area, at 13126 E. 32nd Avenue, was officially established in 2001, and is still active (DAHP 2018a).

There have been two previously conducted cultural resource surveys within 1.0 mi (1.6 km) of the Project Area. The cultural resource survey for the Dishman-Mica Road project, between 40th Avenue and Mohawk Drive was carried out in 1999. The survey covered a 1.6 mi portion of Dishman Mica Road, including a portion adjacent to the current Project Area. The survey resulted in no newly discovered cultural resources (Axton et al. 1999). The cultural resource survey for the Sun Acres Pump Station project was carried out in 2015, 0.5 mi northwest of the Project Area. The survey covered a 10.0-acre area, and resulted in no newly discovered cultural resources (Corley 2015).

Two HPIs have been recorded within 1.0 mi (1.6 km) of the Project Area. Property 163655, located at 12705 E. Apache Pass Road, is a single family house dating to 1964. The property lies 0.8 mi (1.3 km) southeast of the Project Area. No determination has been made regarding the property's eligibility for inclusion on the NRHP. Property 193075, located 0.9 mi (1.4 km) northwest of the Project Area, at 10817 E. 32nd Avenue, is a 1945 single family house. No determination has been made regarding the property's eligibility for inclusion on the NRHP (DAHP 2018a).

EXPECTED PROPERTIES

Previous archaeological investigations correlate Native American sites with areas that have relatively flat terrain, well drained soils, close proximity to water, and sweeping vistas. Major rivers, such as the Columbia, provided corridors where animals and people moved across the landscape. It is along these rivers that ethnographers and archaeologists have documented large

village sites. Residence and food procurement was tied to the seasons, with small creeks typically associated with seasonal hunting and plant gathering by relatively small, task-oriented groups of people. Task campsites might manifest themselves as low-to-moderate densities of stone tools which are concentrated in one or more loci, hearths, and middens.

Visits through this area may manifest themselves as isolated finds. Typically an item lost or discarded, an "isolate," provides important information about the types of areas exploited by past populations but is not considered eligible for listing on the NRHP.

The DAHP's predictive model places the Project Area in areas of "High Risk" and "Very High Risk" for encountering cultural resources, stating that "survey [is] highly advised" for this location (DAHP 2018a).

FIELD METHODS AND RESULTS

Survey work was completed in accordance with the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation (48 FR 44716, September 29, 1983) and under the supervision of Principal Investigator, David Harder. Plateau archaeologists Adam Sackman and Brandon McIntosh conducted the cultural resource survey over four days in March 2018. The limits of the Project Area were identified using parcel information provided by WCE and referenced using Spokane County's SCOUT parcel explorer (Spokane County 2018). Survey conditions were variable, with fluctuating cloud cover and scattered showers throughout the three days of survey.

The Project Area includes 100.0 acres of land situated at the former Painted Hills Golf Course. The land, although overgrown, is still recognizable as manicured parkland with non-native plant species throughout. Chester Creek flows through the southeast quadrant of the Project Area. The property lies east of S. Dishman Mica Road, north of E. Thorpe Road, and west of S. Madison Road. Prior to the field visit, a utility locate was requested under ticket #18086709. This locate identified numerous subsurface utilities along Thorpe Road and Madison Road, including electric, fiberoptic, and gas. No utilities were located within the previous golf course.

An intensive pedestrian survey was conducted over the entire Project Area (Figure 3). Transects oriented north/south, and spaced at distances no greater than 20 m (65.6 ft). Ground surface visibility was generally fair (approximately 40%), with sparse grasses and low-growing vegetation throughout the majority of the Project Area (Figure 4). Three structures are situated in the southwest of the Project Area, and associated paved parking spaces obstructed surface visibility in this area (Figure 5). A small stand of trees lies in the northwest portion of the Project Area, and surface visibility was reduced (approximately 20%) within this area (Figure 6).

No Native American or historic-era cultural materials or features were observed during the pedestrian survey.

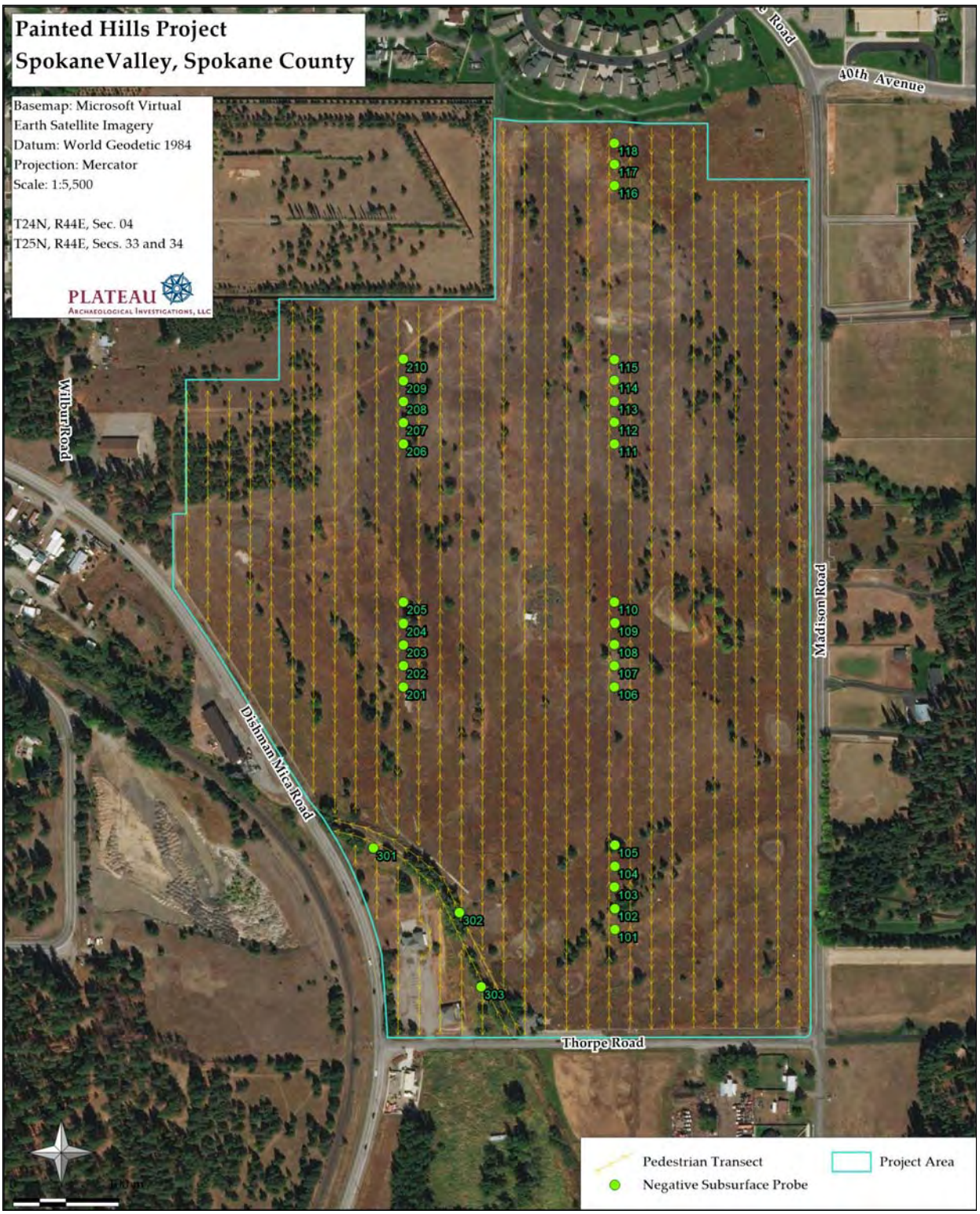

Figure 3. The Project Area and field investigation on an aerial photograph.

Figure 4. Overview of the Project Area. View to the south.

Figure 5. The Craft & Gather Café located in the southwest portion of the Project Area. View to the north.

Figure 6. The tree stand located in the western portion of the Project Area. View to the west.

The archaeologist excavated 31 subsurface shovel probes (SSPs) within the Project Area (Table 1). The SSPs were organized into two strings. The two strings were oriented north/south, with one string located in the eastern half of the Project Area (101-118) and one in the west (201-210). Three additional SSPs were excavated along Chester Creek in opportunistic locations (SSP 301-303). The 31 SSPs ranged in depth from 22-104 cm (8.7-40.9 in), and averaged 79.0 cm (31.1 in). Sediments exposed during subsurface probing were irregular, and generally did not fit those predicted by the NRCS model. This is likely due to extensive landscaping and associated soil turbation during the construction of the Painted Hills Golf Course.

No Native American or historic-era cultural materials or features were observed during excavations.

Table 1. Subsurface Probe Results

SSP	Easting	Northing	Depth (cm)	Stratigraphy	Cultural Material
101	481890	5273372	100	Strat I (0-95 cm), Strat II (95-100 cm)	None
102	481891	5273391	104	Strat I (0-70 cm), Strat II (70-104 cm)	None
103	481890	5273411	60	Strat I (0-35 cm), Strat II (35-60 cm)	None
104	481891	5273431	102	Strat I (0-90 cm), Start II (90-102 cm)	None
105	481891	5273451	50	Strat I (0-45 cm), Start II (45-50 cm)	None
106	481891	5273599	104	Strat I (0-35 cm), Start III (35-104 cm)	None
107	481891	5273619	102	Strat I (0-20 cm), Start III (20-102 cm)	None
108	481891	5273639	100	Strat I (0-35 cm), Start III (35-100 cm)	None
109	481891	5273659	65	Strat I (0-60 cm), Start III (60-65 cm)	None
110	481891	5273679	70	Strat I (0-40 cm), Start III (40-70 cm)	None
111	481892	5273827	40	Strat IV (0-40 cm)	None
112	481892	5273847	48	Strat IV (0-48 cm)	None
113	481892	5273867	51	Strat IV (0-51 cm)	None
114	481892	5273887	48	Strat IV (0-48 cm)	None
115	481892	5273906	33	Strat IV (0-33 cm)	None
116	481893	5274070	63	Strat V (0-63 cm)	None
117	481893	5274089	78	Strat I (0-18 cm), Strat V (18-78 cm)	None
118	481893	5274109	22	Strat II (0-22 cm)	None
201	481692	5273600	110	Strat I (0-110 cm)	None
202	481693	5273620	102	Strat I (0-32 cm), Strat II (32-102 cm)	None
203	481693	5273640	103	Strat I (0-35 cm), Strat II (35-103 cm)	None
204	481693	5273659	100	Strat I (0-40 cm), Strat II (40-100 cm)	None
205	481693	5273679	100	Strat I (0-42 cm), Strat II (42-100 cm)	None
206	481693	5273828	40	Strat VI (0-40 cm)	None
207	481693	5273848	41	Strat VI (0-41 cm)	None
208	481693	5273867	32	Strat VI (0-32 cm)	None
209	481693	5273887	38	Strat VI (0-38 cm)	None
210	481693	5273907	42	Strat VI (0-42 cm)	None
301	481664	5273449	100	Strat VII (0-15 cm), Strat VIII (15–40 cm), Strat I (40-100 cm)	None
302	481745	5273388	80	Strat VII (0-35 cm), Strat I (35-80 cm)	None
303	481765	5273318	83	Strat I (0-83 cm)	None

NAD83, UTM Zone 11

Stratigraphic Unit Descriptions:

Strata I: Very dark brown (10YR2/2) silt loam

Strata II: Dark yellowish brown (10YR4/4) gravelly (gravel>80%) loamy sand

Strata III: Dark brown (10YR3/3) sandy gravel (gravel=60%)

Strata IV: Very dark brown (10YR2/2) sandy gravel (gravel>80%)

Strata V: Dark yellowish brown(10YR4/6) silty loam (gravel=20%)

Strata VI: Dark yellowish brown (10YR4/4) sandy gravel (gravel>90%)

Strata VII: Very dark brown (10YR2/2) sandy loam

Strata VIII: 10YR4/4 course Sand

RECOMMENDATIONS AND MANAGEMENT PLAN

Plateau archaeologists conducted an intensive pedestrian survey over the entire Project Area, and excavated 28 subsurface probes. Subsurface probes ranged in depth from 22-104 cm (8.7-40.9 in). The pedestrian survey and subsurface investigations for the project resulted in no newly recorded archaeological resources. Plateau recommends that the proposed undertaking will result in **No Historic Properties Affected**, and no further archaeological investigations are recommended prior to, or during, execution of this project.

Given concerns voiced by the Spokane Tribe of Indians during the permitting process, Plateau recommends all ground disturbing activities be conducted under the guidance of the attached Inadvertent Discover Plan (Appendix A).

Should ground-disturbing activities reveal any cultural materials (e.g., structural remains, Euroamerican artifacts, or Native American artifacts), activity will cease and the Washington State Historic Preservation Officer should be notified immediately. The results and recommendations in this document concern the specified APE. The proponent is advised that the results and recommendations reported herein do not apply to areas of potential effect altered or expanded after the cultural resource survey. A supplementary cultural resource review will be necessary should the APE be altered or changed, as per 36 CFR 800.4.

If ground disturbing activities encounter human skeletal remains during the course of construction, then all activity ***will*** cease that may cause further disturbance to those remains. The area of the find will be secured and protected from further disturbance to those remains. The area of the find will be secured and protected from further disturbance until the State provides notice to proceed. The finding of human skeletal remains ***will*** be reported to the county medical examiner/coroner ***and*** local law enforcement in the most expeditious manner possible. The remains will not be touched, moved, or further disturbed. The county medical examiner/coroner will assume jurisdiction over the human skeletal remains and make a determination of whether those remains are forensic or non-forensic. If the county medical examiner/coroner determines the remains are non-forensic, then they will report that finding to the DAHP who will then take jurisdiction over the remains. The DAHP will notify any appropriate cemeteries and all affected tribes of the find. The State Physical Anthropologist will make a determination of whether the remains are Indian or Non-Indian and report that finding to any appropriate cemeteries and affected tribes. The DAHP will then handle all consultation with the affected parties as to the future preservation, excavation, and disposition of the remains.

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APPENDIX A:

Inadvertent Discover Plan
(IDP)

The Painted Hills Residential Development, Spokane Valley, Washington

Inadvertent Discovery Plan

Treatment of Archaeological Materials Discovered During Project Implementation

By:
Adam J. Sackman and David A. Harder

PLATEAU
ARCHAEOLOGICAL INVESTIGATIONS, LLC
P.O. Box 714, Pullman, Washington 99163
(509) 332-3830 VOICE/FAX

April 2018

The Painted Hills Residential Development, Spokane Valley, Washington
Inadvertent Discovery Plan and Treatment of Archaeological Materials

Black Realty, Inc. (Black Realty), Whipple Consulting Engineers, Inc. (WCE), and Northwest Renovators, Inc. (NWR) are proceeding with plans for the development of Painted Hills Residential Development—a 100.0-acre site into 300 single family homes, 280 multifamily units, a neighborhood commercial center, and open space. The area of potential effect, (APE) is located east of, and adjacent to S. Dishman Mica Road, north of and adjacent to E. Thorpe Road, and west of and adjacent to S. Madison Road in Spokane Valley (Figure 1).

Black Realty, WCE, and NWR retained Plateau Archaeological Investigations, LLC (Plateau) to complete the cultural resource survey and identify potential impacts to cultural and historical resources. The APE covers 100.0 acres and falls within Section 04 of Township 24 North, Range 44 East; and Sections 33 and 34 of Township 25 North, Range 44 East of the Willamette Meridian (Figure 2). The survey was subsequently reported in *Cultural Resource Survey of the Painted Hills Housing Development, Spokane Valley, Washington* (Sackman and Harder 2018).

Pre-field research consisted of a file review completed through the Washington Information System for Architectural and Archaeological Records Data (WISAARD) on December 19, 2017. The review covered all or portions of Sections 26, 27, 28, 29, 32, 33, 34, and 35 of Township 25 North, Range 44 East. This review revealed no cultural resources, two cemeteries, two previous cultural resource surveys, and two HPIs within 1.0 mi (1.6 km) of the Project Area. This database includes recorded archaeological resources, historic property inventories (HPIs), National Register of Historic Properties (NRHP) and Washington Heritage Register (WHR) properties, identified cemeteries, and previously conducted cultural resource surveys found throughout the state of Washington. Additionally, a review of Bureau of Land Management (BLM) records, both General Land Office (GLO) online records and land patent information, was completed. Topographic maps and aerial photos were reviewed to identify additional indicators of past land use.

A field investigation of the APE was conducted by Plateau in March of 2018 and included an intensive pedestrian survey and the excavation of 28 subsurface shovel probes. The field investigation identified no new cultural resources within the APE.

Given concerns voiced by the Spokane Tribe of Indians during the permitting process, Plateau recommended that all ground-disturbing activities be conducted under the guidance of this Inadvertent Discover Plan.

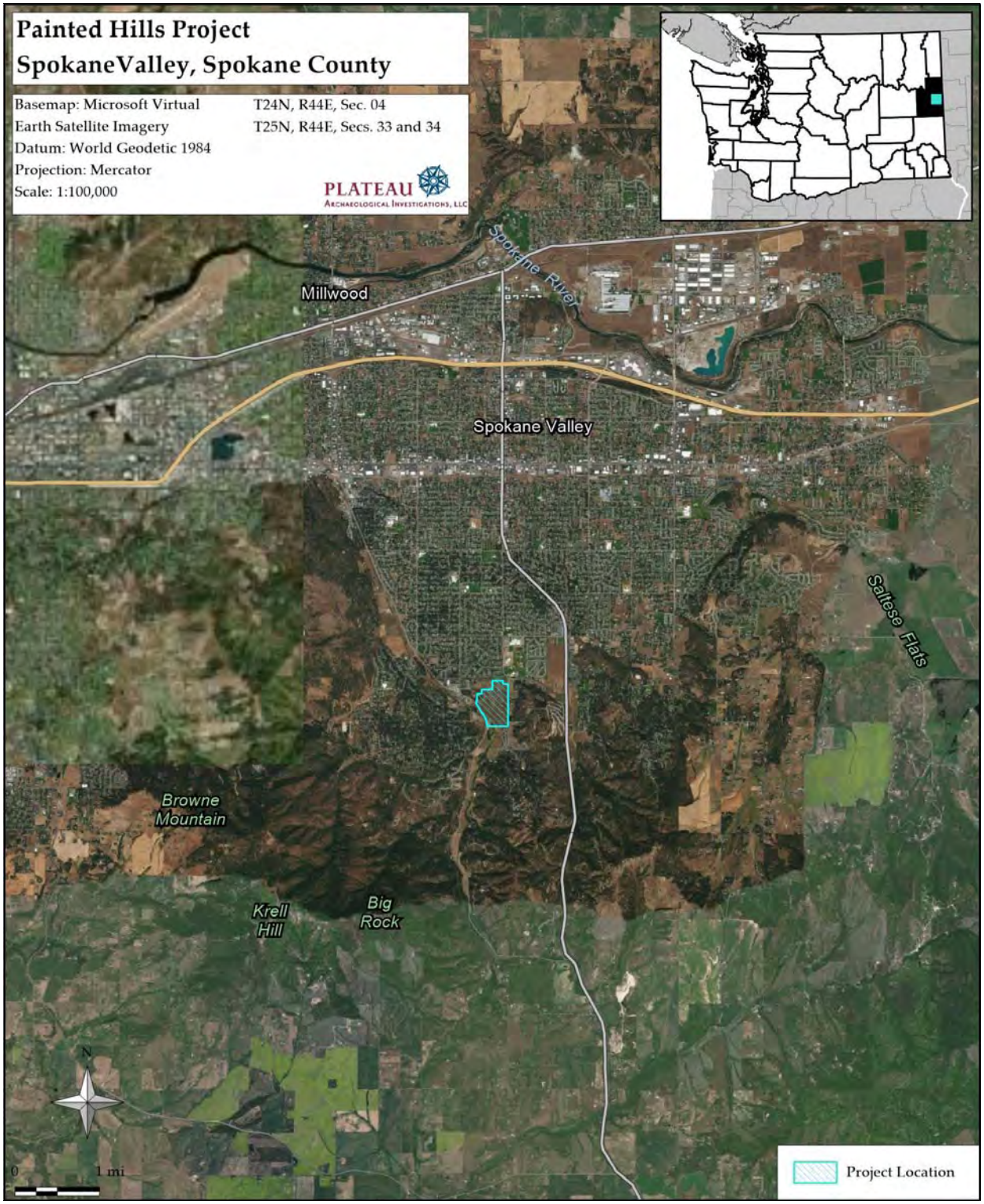

Figure 1. The project location in Spokane Valley.

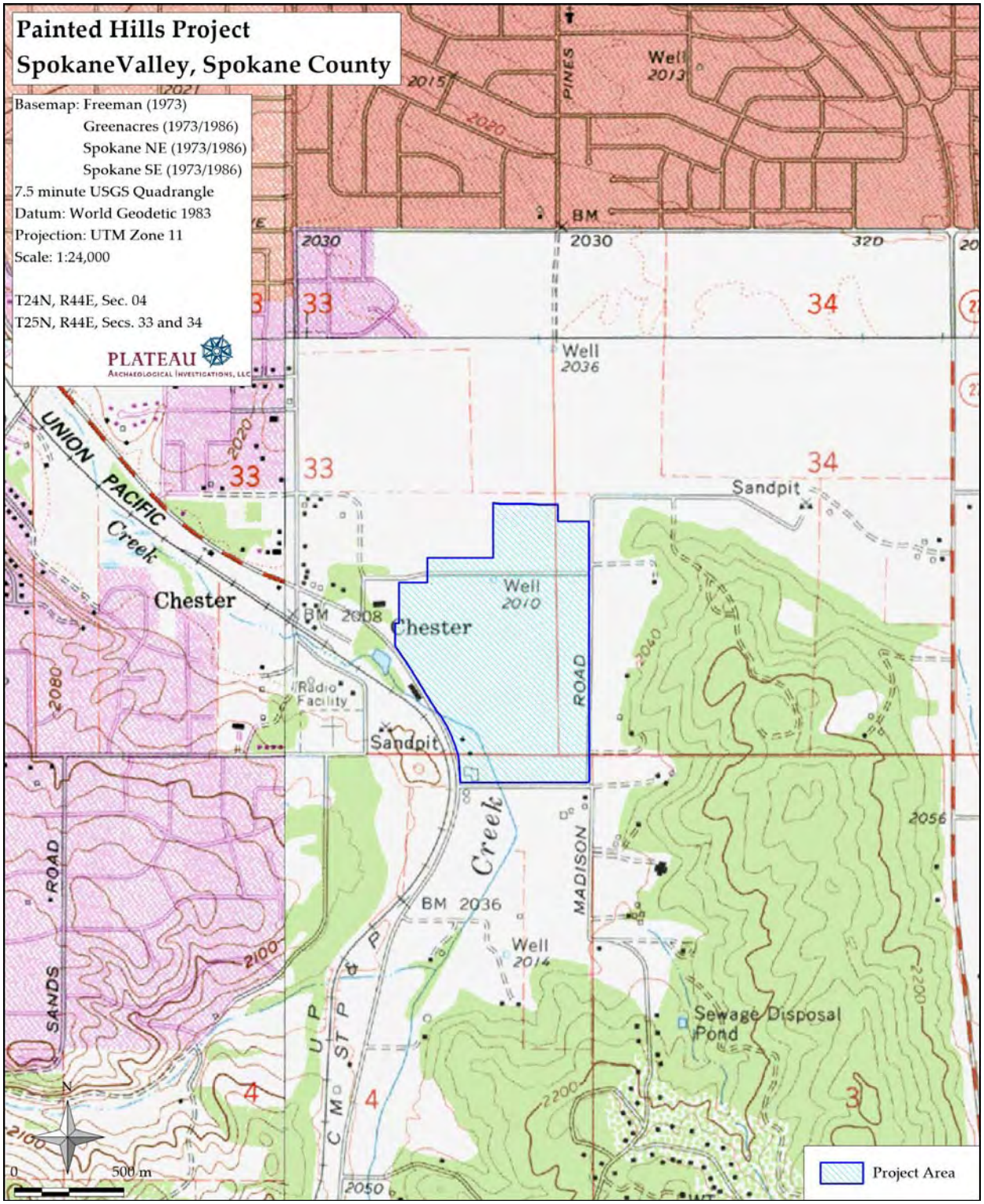

Figure 2. The Project Area on a portion of the Freeman USGS map.

Laws and Regulations Regarding Archaeological and Cultural Resources

Several laws and regulations, set forth on both federal and state levels, address concerns for burials, rock cairns, archaeological sites, historic structures, and other cultural resources. Those pertinent to this project are The State Environmental Policy Act, Chapter 27.44 of the Regulatory Code of Washington and Chapter 68.60 of the Regulatory Code of Washington.

The State Environmental Policy Act (SEPA) requires state agencies to consider the effects of undertakings on historic properties and consult with the State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Officer (THPO) as appropriate to help identify the APE and the level of effort necessary to comply. This is intended to be done prior to the expenditure of funds or issuance of a license or permit, although it is recognized that some properties may not be identified, recognized, or discovered until the project begins.

Chapter 27.44 of the Regulatory Code of Washington offers protection for Indian burials, cairns, glyptic markings, and historic graves on private and public property. This regulation provides civil and criminal penalties for the intentional disturbance or removal of these types of properties.

Chapter 68.60 of the Regulatory Code of Washington outlines protections for cemeteries, historic graves, and other human remains. This chapter further outlines procedures pertaining to the inadvertent discovery of human remains.

Inadvertent Discovery Plan

Proper application and management of this IDP requires that a professional archaeologist be contacted if ground-disturbing activities reveal potential Native American or historic-era cultural materials or features (Figure 3, Figure 4, and Figure 5). The archaeologist shall meet the Secretary of the Interior's standards for a professional archaeologist as defined at 36CFR61 Appendix A. Construction within 200 ft (60 m) of the discovery will stop, and the area will be secured to protect the find from additional damage. The archaeologist will document the find, prepare a brief written statement, and take photographs of the find for submission to the lead agency and the SHPO at the DAHP. The find will also be reported to the THPO of the Spokane Tribe of Indians. It is the responsibility of the lead agency, Washington State Department of Archaeology and Historic Preservation, to contact the affected Tribes. This consultation process will take place even if the pre-contact or historic-era cultural materials appear to have lost their depositional integrity. Work within 200 ft (60 m) of the find will not resume until a plan for management or preservation of the materials has been approved. Following the project, the archaeologist will provide a report detailing the procedures and results of the investigation.

During the investigation, the archaeologist will observe rules of safety and will comply with any safety requirements of the excavation contractor and project engineers. Entry into any excavation will only be done under the direct supervision and approval of the construction foreman (or his or her agent) and verification that entry and exit is safe.

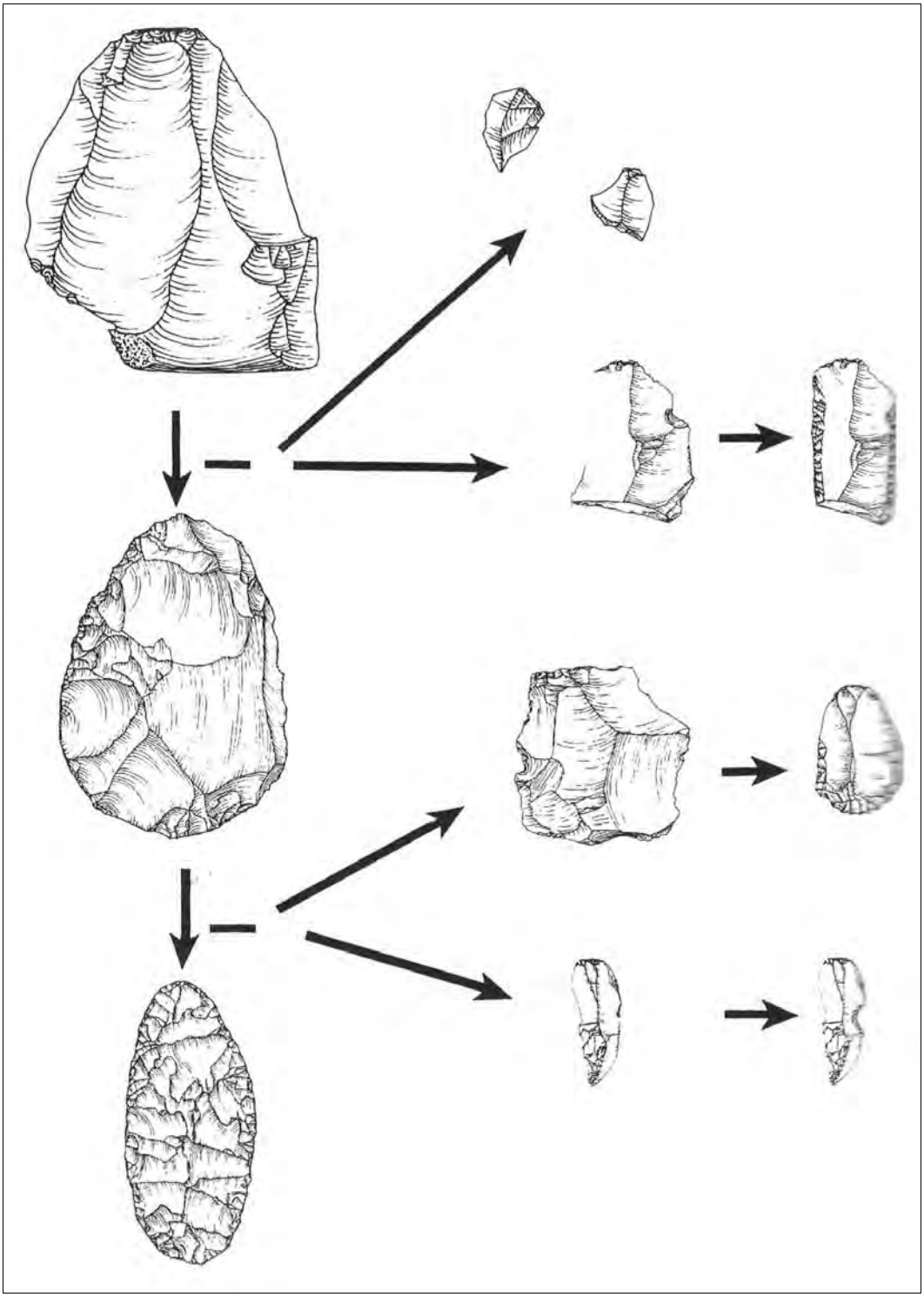

Figure 3. Reduction of a lithic blank to a tool (Andrefsky 1998:158)

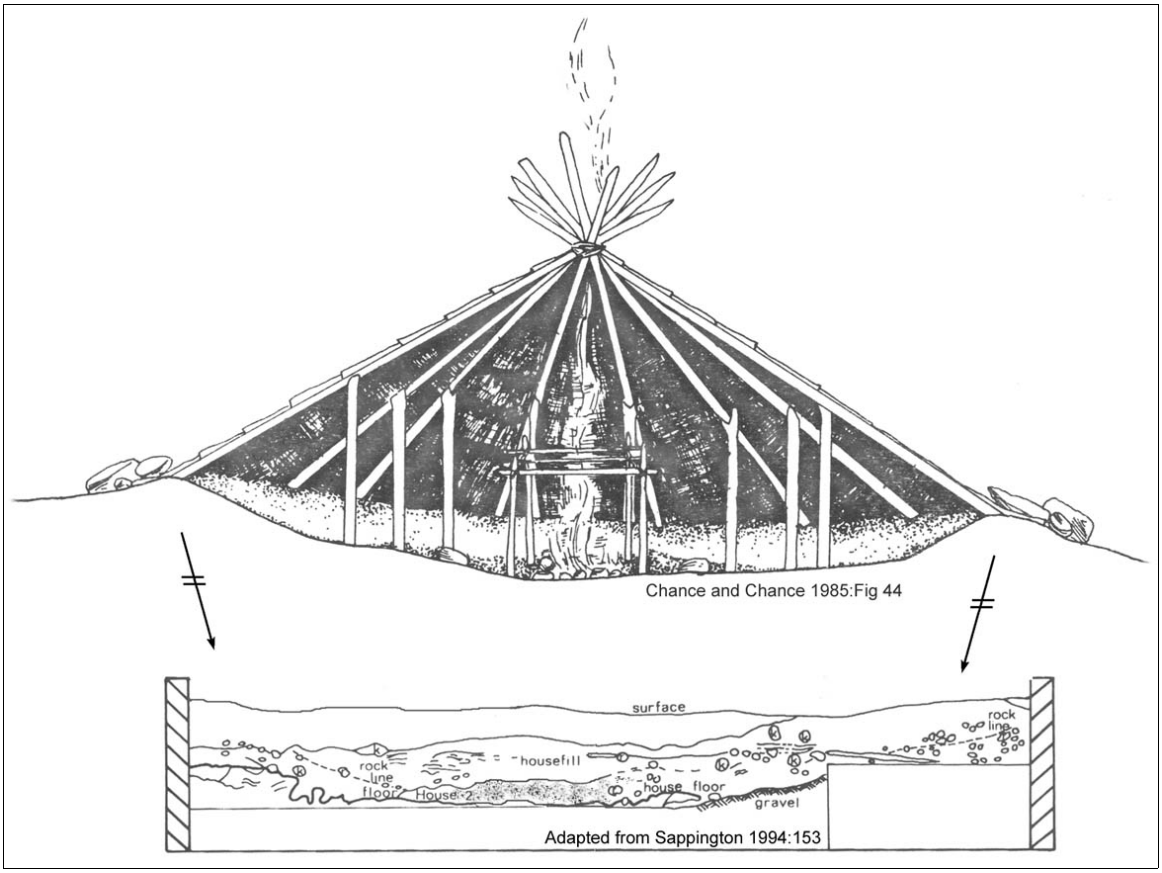

Figure 4. An illustration of a housepit and the resulting archaeological feature (Sappington 1994: 153).

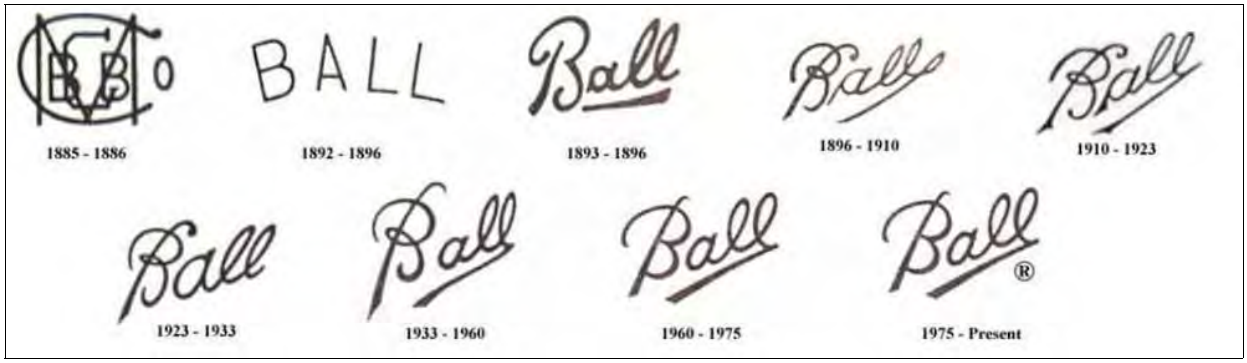

Figure 5. An example of logo changes over time, which can aid in determining the date of historic artifacts.

Discovery of Human Remains

If a burial, human remains, suspected human remains, funerary objects, sacred objects, or items of cultural patrimony are encountered during any aspect of this project, operations will cease in accordance with Regulatory Code of Washington 27.44, 68.50, and 68.60. All work within 200 ft (60 m) of the find will cease, the area around the discovery will be secured, and any requirements of the lead agency shall be followed. Work within 200 ft (60 m) of the find will not resume until a plan for management or preservation of the materials has been agreed upon by all parties.

If the lead agency does not explicitly state procedures the Spokane Valley Police Department, the Spokane County Medical Examiner, and the SHPO at the DAHP will be notified in the most expeditious manner possible. The find will also be reported to the THPO of the Spokane Tribe of Indians. Reporting is to be done by the lead agency (DAHP), or a federal or state funding or permitting agency. The find will be treated with dignity. Do not take photographs, contact the press, call 911, or discuss the find with the public in any manner. Cover the find and keep the location secure.

The coroner and law enforcement agency with jurisdiction will evaluate the find to determine whether it is a crime scene or a burial. If human remains are determined to be associated with an archaeological site (burial), and if there is any question of the cultural affiliation of the burial, or whether the burial is prehistoric, the DAHP and any affected tribes will be notified to assist in the determination prior to beginning any extensive excavations.

Protocol to Follow When No Archaeologist is Present

If an archaeologist is not on-site when cultural materials (e.g., pre-contact artifacts and/or features, historic-era artifacts and/or features) are uncovered, the following steps shall be followed:

Suspend work within 200 ft (60 m) of the find.
Take a photo of the artifact(s) or feature(s). Include a common object such as a quarter, a tape measure, a person, or a pickup as a scale to show the size of the find.
Take photos of the location of the find from several angles and distances.
Record a GPS point if possible.
Contact Plateau by telephone to notify us of the find.
Provide an email with photos and any additional information you are able to gather.

Precontact Artifacts Precontact artifacts can include stone, wood, or bone tools. Stone tools are the most common artifact encountered since they do not deteriorate over time.

Precontact Features Precontact features can include fire pits, hearths, burn deposits, ash, rock alignments, rock mounds, and midden deposits.

Historic-Era Artifacts Historic-era artifacts may include various items manufactured from metal, glass, or wood. If an individual identifiable historic artifact is encountered, the above protocol should be followed. "Historic-era artifacts" does not include "recent" items such as chip bags, styrofoam, modern beverage cans and bottles, or other typical roadside debris.

Historic-Era Features Any identifiable remains of buildings, foundations, rock alignments, or rock mounds might be historic-era features.

Human Remains Human remains, suspected human remains, burials, funerary objects, sacred objects, or items of cultural patrimony are to be treated in the manner outlined above. **Additionally, Plateau is to be notified by phone immediately**.

The Painted Hills Residential Development, Spokane Valley, Washington
Inadvertent Discovery Plan and Treatment of Archaeological Materials

Emergency Dispatch in Spokane County

Emergency Dispatch	911
Spokane Valley Police Department	509-477-3300
Sheriff, non-emergency	509-477-2240
Spokane County Coroner	509-477-2296
	509-447-0235 (fax)

Spokane Tribe of Indians

Randy Abrahamson, Tribal Historic Preservation Officer	509-258-4315
	509-258-6965 (fax)
	randya@spokanetribe.com

Department of Archaeology and Historic Preservation

DAHP Reception	360-586-3065
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Guy Tasa, State Physical Anthropologist	
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David Harder, Archaeologist	509-336-1525 (cell) dharder@plateau-crm.com

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