OPERATIONS AND MAINTENANCE PLAN
FOR PAINTED HILLS PRD FLOOD CONTROL SYSTEM

Abbreviations

PRD – Planned Residential Development
HOA – Homeowner's Association

Responsible Official: Painted Hills HOA shall be the community official responsible for assuring maintenance activities are accomplished.

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

Party 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 – City of Spokane Valley, WA

Parent Parcel Number(s): 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, as well as a large area generally described as being west of Highway 27, east of Dishman Mica and south of Thorpe Road are benefitting from these flood control facilities. The homeowners association of this project 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.

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

Drainage Facilities

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, two 48" ADS HDPE N-12 type pipe mainline between the box culvert and discharge facility, WSDOT catch basins/manholes, a bio-infiltration swale and a drywell/gravel gallery infiltration field with associated pipe, manholes and headwalls. The system includes 4-18" culverts under Madison Road.

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 bio-infiltration swale into the drywell/gravel gallery infiltration field 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 in 18" culverts and outfalls into the 48" pipeline 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.

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. Repairs or replacements are to be completed immediately upon their identification unless otherwise agreed to by the City. Only qualified individuals may enter confined spaces. Major repairs or reconstruction will need to be designed, approved, and inspected by professional engineers and the City of Spokane Valley.

Drainage Facilities

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, drywell/gravel gallery infiltration field, 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/gravel galleries 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

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.

Box Culvert:

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:

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. 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 replace the easterly levee. After the project is filled, the creek channel will need to be maintained to ensure flood carrying capacity is maintained. Maintenance of the channel, and 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 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 bottom or 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 and the channel 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, 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,
- Filling out the levee checklist and include the checklist in the annual report to the City.

Storm Drain Mainline:

The storm drain mainline consists of 5,251 linear feet of 48" ADS HDPE N-12 type 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 pipes need to be maintained to prevent sediment and trash build-up in the bio-infiltration swale and the drywell/gravel gallery infiltration field. 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.

Catch Basins:

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:

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 shall be the responsibility of the Painted Hills PRD Homeowner's Association or the C.E.

Maintenance items include:

- Annually inspecting the culvert openings on the east side of Madison Rd to ensure there is no blockage or damage to the culvert end,
- Annually inspecting the flap gates to ensure proper operation,
- Every three years performing a TV inspection of the pipe looking for blockages, damage, corrosion, etc.,
- Removing sediment build-up from the pipe
- Repairing any sections of damaged or corroded pipe.

Bio-infiltration Swale:

The bio-infiltration swale 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 field. Maintenance of the bio-infiltration swale shall be the responsibility of the Painted Hills PRD Homeowner's Association or the C.E.

Maintenance items include:

- Annually inspecting the channel 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,
- Reseeding any bare or dead areas of grass,

- Removing any noxious weeds.

Drywells/Gravel Gallery Infiltration Field:

The drywell/gravel gallery infiltration field consists of five trenches for a total length of 1,460-feet (10' wide by 16' deep) filled with rock, 12" perforated pipe running the length of each trench with drywells located at each end and at the middle for a total of 48-drywells. 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/gravel gallery infiltration field 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 18-feet in depth with no internal ladder system.
- Inspecting by camera the infiltration pipeline for clogging and debris every ten years, or every year after a flooding event where floodwaters entered the drywells,
- Removing accumulations of sediment that bury the grass cover,

Headwalls/Trash Racks:

The trash racks at the headwalls need to be maintained to ensure there is no debris preventing the flow of storm water through the system. Additionally, the trash racks need to be inspected for physical integrity to ensure that no one can enter into the pipe system unless required for inspection/repair. Maintenance of the headwalls/trash racks 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 trash racks for damage or corrosion that would compromise the trash rack integrity.
- Prior to each rainy season (August or September), inspecting each trash rack 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.

Fencing:

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:

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.

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. 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	$91,044
Annual cost for replacements	$88,524
Total annual costs	$179,568
Total monthly costs (= total annual costs /12)	$14,964
*Number of units (SF lots +MF lots) +(Commercial)	584 +(24,400 sf/1000sf)=609
Monthly cost per lot (= total monthly costs /# lots)	**$24.57**
Total annual cost per lot/unit	**$294.86**

*Note: Number of units is based on 210-single family lots, 52 cottage units/lots, 228 mixed use/apartment units, plus 24,400 square feet of commercial building area divided by 1,000 square feet (for an equivalent unit/lot).

Sinking Fund Calculations

REGULAR OPERATION AND MAINTENANCE COSTS

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
Debris Removal – culverts, catch basins, bio-swale, channels, drywells, manholes	EA	4	$2,000	$8,000
Channel/Trash Rack Inspection	EA	5	$500	$2,500
Pipeline TV Inspection – mainline, culverts, infiltration field (3 years)	LF	7,090	$3	$21,270
Manhole/Catch Basin Inspection	EA	23	$100	$2,300
Fence, Access Road, Parking Area, Sign Maintenance	EA	1	$500	$500
Swale Reseeding/Noxious Weed Removal	EA	1	$500	$500
Annual Report Preparation	EA	1	$1,500	$1,500
Contingency	LS	1	20%	$13,574
			Total	$91,044

Replacement Costs-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" RCP pipeline (5,251 LF) (25%)	LF	1313	$150	$196,913	20	0.03	$355,646	0.02	$14,637
24" CMP pipeline (136 LF) (100%)	LF	136	$70	$9,520	20	0.03	$17,194	0.02	$708
18" PVC (pipeline-future) (40 LF) (100%)	LF	40	$40	$1,600	20	0.03	$2,890	0.02	$119
18" CMP culvert (280 LF) (100%)	LF	280	$50	$14,000	20	0.03	$25,286	0.02	$1,041
15" HDPE (underdrain) (40 LF) (100%)	LF	40	$30	$1,200	20	0.03	$2,167	0.02	$89
12" PVC pipe to mainline (44 LF)	LF	44	$24	$1,056	20	0.03	$1,907	0.02	$78
12" CMP pipe to outfall (119 LF) (100%)	LF	119	$30	$3,570	20	0.03	$6,448	0.02	$265
12" PVC (Perf) pipeline (2,330 LF) (25%)	LF	583	$20	$11,650	20	0.03	$21,041	0.02	$866
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
Bio-infiltration swale-seeding (22,585 SF) (100%) & 208-Swales	SF	22,585	$0.10	$2,259	20	0.03	$4,079	0.02	$168
Trash Racks (5) (25%)	EA	2	$2,000	$4,000	20	0.03	$7,224	0.02	$297
Signs (4) (25%)	EA	1	$200	$200	20	0.03	$361	0.02	$15
Gravel Gallery (10x16x L) (1460 LF) (25%)	CY	58,400	$13.92	$812,928	20	0.03	$1,468,238	0.02	$60,428
								Total	$88,524

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

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

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

&

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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 fill project is to replace the easterly Chester Creek levee and 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. The Homeowners Association and qualified personnel will maintain the drainage facilities. This includes general maintenance for the Chester Creek channel 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 fill project is to replace the easterly Chester Creek levee that 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 bottom and channel side slopes 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 bottom and channel side slopes.

- 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.

A post-flood assessment of the creek channel bottom and channel side slopes 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.

3.20 Maintenance – Maintenance activities for the creek channel 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 bottom and 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 bottom and channel side slopes.
- Erosion Protection – The channel bottom and 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 bottom and 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

Date: _____

Item	Location and Description	Action
Has the creek channel bottom and 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 bottom and 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.