

OPERATIONS AND MAINTENANCE PLAN FOR GUSTIN DITCH FLOOD CONTROL SYSTEM

Owner: Bar 4 Bar, Inc. & Timothy and Joanne Comer
Party responsible for Operations & Maintenance: Painted Hills PRD Homeowners Assn.
Parent Parcel Number(s): 45344.9108, 45343.9052
LOCATED IN SECTION 34, T25N, R44E, W.M.
SPOKANE COUNTY, WASHINGTON

The above parent parcels contain the Gustin ditch and levee drainage system.

The residents of Painted Hills PRD are benefitting from these flood control facilities. The homeowners association of the Painted Hills PRD project is responsible for (details described later):

- The continued operation and maintenance, including repair and replacement as needed, of these facilities,
- Providing funds to finance the continued operation and maintenance of these facilities,
- The administration of this agreement with each resident being bound by this agreement and with the responsibilities to be shared equally between each Painted Hills PRD property owner, and,
- Establishing a maintenance committee and designating a member to be responsible for the administration of this plan.

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 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.

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 Gustin ditch and levee drainage system is intended to collect and discharge stormwater runoff generated by upstream basins and, possibly, stormwater from adjacent properties that has historically flowed into this ditch. The drainage facilities consist primarily of a 36" culvert outfall, a 3 foot bottom width ditch, a levee along the south side of the ditch, an existing gravel (borrow) pit (pond) and 18 drywells. Stormwater runoff from the upstream basins is routed under Hwy 27 through a 36" culvert into the ditch where the storm water flows to the west. At the west end of the ditch the storm water flows into the bottom of the existing borrow pit and infiltrates through the bottom of the pit. During larger storms the storm water will overflow into the drywells and infiltrate into the ground. 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 the levee. Maintenance details are discussed below in Section 3.0.

3.00 MAINTENANCE REQUIREMENTS AND SCHEDULES

Drainage Facilities

The drainage facilities consist of a 36" culvert outfall, a 3 foot bottom width ditch, a levee along the south side of the ditch, an existing borrow pit (pond) and 18 drywells and are located as shown in the attached exhibit. The following describes these facilities and the recommended maintenance.

A visual inspection of the drainage facilities should be conducted each biennial. 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.

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 ditch's and pond's function for stormwater storage volume as well as the ability of the drywells to discharge stormwater. Should these facilities fill up or become clogged, the only remedy would be to remove the material. Therefore, periodic maintenance is a must.

Ditch with Levee:

The culvert outfall needs to be maintained to ensure there is no debris or vegetation blocking the flow out of the culvert. 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 about 2-4 inches in height,
- 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 or on the levee side slopes,
- Repairing any holes caused by animals on the levee side slopes,
- Inspecting the ditch side slopes, levee side slopes and bottom making sure there are no breaches or breaks or erosion. Immediately repair with a sandy loess soil, compacted in place and follow up after the storm event with seeding or sodding of the repair 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.

Pond & Drywells:

At the borrow pit 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 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 so as to not 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.**

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:

$$FV = PV * 1.8061, \text{ where: } \begin{array}{l} FV = \text{future value} \\ PV = \text{present value} \end{array}$$

- 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.

$$A = FV * 0.0412, \text{ where: } \begin{array}{l} A = \text{annual payment (or deposit)} \\ FV = \text{future value (from step 1, above)} \end{array}$$

Sinking Fund Calculation Results:

- The following values are the results of the calculations which are shown on the following page.

Annual cost for regular operation and maintenance	\$10,500
Annual cost for replacements	\$7,076
Total annual costs	\$17,576
Total monthly costs (= total annual costs /12)	\$1,465
Number of units	580
Monthly cost per unit (= total monthly costs /# units)	\$2.53

Sinking Fund Calculations

REGULAR OPERATION AND MAINTENANCE COSTS

<u>Description</u>	<u>Units</u>	<u>Annual</u> <u>Quantity</u> x	<u>Unit</u> <u>Price</u> =	<u>Annual</u> <u>Cost</u>
Drywell Cleaning	EA	18	\$250	\$4,500
Mowing	EA	4	\$500	\$2,000
Debris removal	EA	4	\$1,000	\$4,000
			Total	\$10,500

REPLACEMENT COSTS (for more information on calculations in this table see Appendix A)

	<u>Units</u>	<u>Quantity</u> x	<u>Unit</u> <u>Price</u> =	<u>Present Value,</u> <u>PV</u>	<u>n</u>	<u>Inflation</u> <u>Rate, i₁</u>	<u>Future Value,</u> <u>FV</u>	<u>Interest</u> <u>Rate, i₂</u>	<u>Annual</u> <u>Payment, A</u>
Drainage Structures	LS	18	\$4,000	\$72,000	20	0.03	\$130,040	0.02	\$5,358
6" CSTC Access Rd	CY	221	\$40	\$8,840	20	0.03	\$15,966	0.02	\$658
Grading Access Rd	SF	11,400	\$1.25	\$14,250	20	0.03	\$25,737	0.02	\$1,060
								Total	\$7,076

Notes:

n = number of years to replacement

LS means Lump Sum, EA means Each, SY means square yard

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:

$$FV = PV * (1 + i_1)^n, \text{ where:}$$

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:

$$A = FV * i_2 / [(1 + i_2)^n - 1], \text{ where:}$$

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