

The Villages of Garrison Creek

CREEK WATER

IRRIGATION

System Description/Map  
Operating Guide

System installed by:

Dunning Irrigation  
11979 Hwy 12  
Lowden, WA 99360  
(509) 529-6043  
(509) 529-6044 (fax)

## VGC Irrigation

### General Description of Water Supply

All irrigation water in the Villages of Garrison Creek comes from three different sources.

- 1) City of College Place (used for all front and back yards and a few common areas)
- 2) The Creek
- 3) A Deep Well

The purpose of this document is to describe only the creek/deep well irrigation system that is used exclusively to water most of the common areas.

The water used from the creek and the deep well is used in accordance with the provisions of a water right. The primary source of water authorized by the water right is from Garrison Creek. The secondary (backup) water right is from a deep well located just inside the east edge of the clock tower circle.

The creek supply pump and pressure tank are situated in a pump house located in an easement in the critical setback area north of the creek behind 990 SE Creekside Drive. Irrigation water provided from this system flows via a 3" or 4" main line that forms, essentially, a loop. This loop, along with the necessary spurs tapped into it, provides water to the clock tower circle, along both sides of Garrison Village Way, up to (and including) the gazebo circle, around the ponds, and along all three walking trails. In addition, the pocket parks in phase VI and phase VII are supplied with water from this source.

With the screen and filters clean the creek pump will maintain a system pressure of 65psi while providing 100gpm. (The rated capacity of the creek drive is 120gpm. In accordance with the provisions outlined in the water right, the intake screen in the creek is sized to accommodate 130gpm).

The backup pump in the well is operated by a 10hp single speed motor. This pump will sustain a flow of 100gpm at 53 psi. A cycle stop is incorporated into the line near the discharge of the deep well pump. The pressure tank, with a bleed valve, is located inside the clock tower. There is a shutoff valve near the well. There is also a bleed valve located near the south edge of the circle. There is no filter installed on the output of this backup pump.

With the system operating properly (and with adequate water in the creek) all of the needed irrigation water may be supplied from the creek. When there is no demand for water the pump will enter a 'sleep' mode. The system will remain in sleep mode until there is a demand for water, at which time the pump will automatically 'awaken' and speed up as needed to meet the demand. Varying pump speeds are not reason for alarm and power to the pump should be not be turned off when this is observed.

C:\Data\VGC Irrigation Creek Pump\Dropbox\System recap revised July 2015.doc

Since the creek pump normally supplies all of the water the backup pump in the well may be left OFF during normal operation. If the backup pump in the well is set to AUTO it will start if the system pressure drops below 50psi and will automatically shut off once the system pressure again exceeds 60psi.

Common areas watered by the creek pump are:

1. Clock tower circle
  2. Along both sides of Garrison Village Way
  3. Around both ponds
  4. Along both sides of all walking trails
  5. Around the gazebo
  6. Phase VI pocket park
  7. Phase VII pocket park
  8. South of the creek along the walking trail
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### **Distribution System**

Water is distributed to 43 separate zones throughout the watering areas using 21 controllers located at 19 different stations. The two controllers (in the clock tower and in the NEMA-12 enclosure near the edge of the circle east of the gazebo) operate on 120 volts. The remaining 19 controllers are located in various places in the ground (see map) and are battery operated. The location of all stations and description of the watering zones can be found on the map and spread sheet accompanying this document.

### **Water control**

When there is adequate water in the creek the VFD in the pump house at the creek is capable of supplying all of the needed water. While the creek pump can supply up to 120gpm without a problem, the watering schedule has been designed to limit the flow rate to no more than 100gpm at any time. This is because the backup pump can only maintain 53psi at 100gpm. And should there be a need to use the backup pump proper watering could then continue without the need to reschedule each individual timer.

A spreadsheet is included with this document that details each controller and zone. It should be used to record flow rates and assist a system manager in developing a proper watering schedule that optimizes pump operation. Proper water management will result all water being supplied from the creek (no water from the deep well) during normal operation.

Watering is scheduled to occur precisely at certain times to load the pump properly. To maintain proper watering sequence it is imperative to **only add or delete days** when making water adjustments throughout the season. **NEVER change the watering times or watering percentage.** To do so would result in excessive overlap or dead times between the watering of each zone. If it is determined that watering times need to be changed ALL zones will have to be rescheduled to maintain proper (continuous) water flow.

### **System startup**

1. Assemble the inlet screen/foot valve in the creek
2. Place the drain plugs in the pump (removed for winterization)
3. Assemble the filter housing (assuring the filter is clean)
4. Open all supply valves.
5. Program the electric timer for the solenoid flush valve on the filter.
6. Assure all watering zones are off (this should have been done when the system was winterized and all batteries removed from the controllers)
7. Turn on the well pump to pressurize the system. (This will provide the water needed to bleed the air from the VFD in the creek pump house).
8. Install new batteries in all controllers and schedule each zone sequentially as required.
9. Bleed the air from the VFD in the creek pump house.

10. Verify adequate system pressure (at least 60 psi).
11. Start the VFD and, once up to speed (60Hz) observe the flow meter to verify water flow.
12. The VFD controller will likely automatically shut the drive off when reaching 60hz and inadequate pump loading is sensed. If this happens the pump will shut off and a 'LOP' (loss of prime) message will appear on the controller. This probably means the pump still has air in it that will need to be bled out using the small bleed valve on top of the pump.
13. To restart the pump press the 'RESET' button, followed by the 'AUTO' button. The pump will restart once the pressure has dropped to around 50psi. (The operator may close the two isolation valves on just inside the west wall of the pump house and then open the bleed valve to momentarily drop the pressure and allow the VFD to start. Once the pump exits the 'Sleep Active' mode and begins to spool up again assure that the isolation valves in the main line are fully open again).
14. Repeat this process as many times as necessary to assure the VFD will supply water to the system without shutting down. This may take several attempts before successful. Once the unit is properly primed it will slow down and go into the standby mode only when the VFD has attained a system pressure of about 65psi. All air must be bled out before the pump will operate properly.
15. Assure power is on for the pump house cooling fan.

#### **Routine system maintenance**

Required system maintenance will include at least the following: (recommended interval)

1. Cleaning the inlet screen in the creek as needed to prevent occlusion. (Weekly)
2. Cleaning of the in line filter in the pump house. The need for this will vary, depending on the turbidity of the creek water. Knowing when this is needed can be assisted by monitoring of the differential pressure gauges on the inlet and output side of the filter. Differential pressure should not exceed 15psi at any time. (As needed)
3. Using a portable air tank, blow the dust out of the wall mounted controller. THIS IS IMPORTANT. EXCESSIVE DUST BUILDUP WILL CAUSE THE UNIT TO OVERHEAT and can permanently damage the unit. The dust should be thoroughly blown out at least at the beginning or end of each watering season using pressurized air. (At least once each season)
4. During hot weather the pump house temperature should be monitored to assure that the maximum operating temperature limits for the controller are not exceeded. If temperature are too high check the exhaust fan and vents for proper operation/function.
5. At least once each season the water usage should be recorded on the log sheet hanging on the clipboard inside the pump house.

C:\Data\VGC Irrigation Creek Pump\Dropbox\System recap revised July 2015.doc

Note: A backwash system has been installed on the in-line filter in the pump house. The timer mounted on the filter flush line cycles a valve periodically to back flush the filter 2 minutes each hour. The back flushed water discharges back into the creek.

**Winterization**

Winterization of the system will include:

1. Turn off and secure electrical power to the well head.
2. Turn off all electrical power to the controller in the pump house at the creek.
1. Remove the drain plug from the pump housing.
2. Disassemble the filter and clean it. Leave the housing open.
3. Remove the inlet screen/foot valve in the creek and secure it to the tree.
4. Blow out the system.
5. Using pressurized air, blow out the controller until all signs of dust are gone.
6. Grease the drive motor bearings
7. Lock/secure the pump house
8. Double check that electrical power can not be turned on at the well head.
9. Remove batteries from all controllers and assure the controllers are sealed to prevent moisture damage.

**Controller and watering zone location detail**  
**(See map for controller locations)**

There 21 watering stations throughout the VGC (see map for details). These stations control the water to 43 different watering zones. Each station contains a controller that cycles each valve (zone) as scheduled. This allows water to be turned on and off for each zone as scheduled in the controller settings. The following pages detail the location of each watering station and also provide descriptions of the watering zones. Refer to the system map for the general location of each station/controller.

It should be noted that many of the stations along Garrison Village Way include valves that originally supplied water to the soaker lines for the trees. These valves have all been disconnected from the controllers to prevent watering of the trees via the soaker lines. (The soakers are no longer maintained. If the valves are turned on manually water will flow to the broken soaker lines).



### **Station 1 – Clock Tower**

The clock tower station is powered by 120V controller and is located on the south wall inside of the clock tower. This station controls the watering of three zones within the clock tower circle with a total of 42 heads.

The well is located near the edge of the circle east of the clock tower.

Beside the well is a shutoff valve. Just downstream from the shutoff valve is a cycle stop.

There is also an isolation valve just outside the east wall of the clock tower, as well as a bleed valve near the south edge of the circle.

The pressure tank for the well is located in the clock tower. The tank has a valve for draining during winterization.

Note:

The clock tower must be kept locked each night to prevent unwanted guests from taking up residence inside the building. Do not leave the clock tower unlocked over night.

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## **Station 2**

Station number is located in the ground in the grass strip on the north side of Garrison Village Way across from the entrance to the Cottages (Creekside Drive). This station uses a battery operated controller. It controls the watering of two rows of sprinkler heads along the sidewalk and along the street, extending from the end of the grass strip on the north side of Garrison Village Way (where it ends at the clock tower circle) westward to Crestlane Drive. This station also has a shutoff valve and a bleed valve.

### **Station 3**

Station number three is located in the ground just outside of the lower gate to Hawk Hill on the east side of the north-south sidewalk. It is a battery operated controller. It controls the water to three zones: the sprinkler heads in the grass on the east side of Crestlane Drive outside of the Hawk Hill gate, the soaker line in the plant bed in the same location, and the (sidewalk) bed along the east side of SE Crestlane Drive extending from Garrison Village Way northward to include the bed inside the gate in front of 1097 SE Crestlane Drive.

**Station 4**

Station four is located in the ground on the south side of Garrison Village Way across from the lower Hawk Hill gate. This is a battery operated controller that regulates two valves that provide water to the grass area around the smaller (east) pond and along the walking trail south to Creekside Drive. This station also includes an isolation valve.

**Station 5**

Station five is located in the ground just north of the east-west sidewalk on the west side of Crestlane Drive outside of the lower Hawk Hill gate. It is a battery operated controller that regulates two valves which provide water to the plant beds on the west side of the Hawk Hill gate (via drip lines) and to the grass areas on the inside and outside of the gate. This station includes an isolation valve and a filter.

**Station 6**

Station six is located in grass strip in the ground on the south side of Garrison Village Way east of Pheasant Run. This is a battery operated controller that regulates two zones that water the grass strip from the intersection of Creekside Drive and Garrison Village Way west to Pheasant Run.

**Station 7**

Station seven is located in (two) adjacent boxes in the grass strip in the ground on the north side of Garrison Village Way approximately half way between Pheasant Run and Swainson. One battery operated controller controls four zones of water - the watering heads along both sides of the grass strip on the north side of Garrison Village Way from Crestlane Drive west to Quail Run. There is an unused valve in this station that originally supplied water to the (now unused) soaker lines to the trees. This station also includes a bleed valve.

**Station 8**

Station number eight is located in the ground in the grass strip on the south side of Garrison Village Way just east of Swainson. It is a battery operated controller that controls that watering along both sides of the grass strip on the south side of Garrison Village Way running west from Pheasant to the trail on the west side of the larger (west) pond. This timer has two zones.



**Station 9**

Station number 9 is located in the ground on the south side of the east-west Garrison Village Way sidewalk. This is a battery operated controller that regulates the water to three zones around the pond and in the beds along both sides of the north south sidewalks (on both the east and west side of the pond) and along both sides of the north – south sidewalk south to Creekside Drive.

Note: There is also a water faucet at this station that is used for bleeding the system as well as providing supplemental water when needed.

This station includes a filter and an isolation valve.

**Station 10**

Station 10 is located in the grass strip in the ground on the south side of Garrison Village Way just east of Swainson. It is single zone battery operated controller that regulates the watering of 13 heads in the grass strip running east from Swainson along Garrison Village Way.

**Station 11**

Station 11 is located in the ground in the grass strip on the south side of Garrison Village Way west of Swainson. It is a single zone battery operated controller that regulates water to 24 heads on the grass strip along the south side of Garrison Village Way.

**Station 12**

Station number twelve is located in the ground near the southeast corner of the temporary parking lot. It is a single zone battery operated controller that regulates the water to 18 heads along the north side of Garrison Village Way between Quail Run and the gazebo circle.

**Station 13**

Station number 13 is located in the grass strip in the ground on the south side of Garrison Village Way west of Quail Run. It is a 2-zone battery operated controller that regulates water to 13 watering heads in the grass strip just west of Quail Run along Garrison Village Way.

**Station 14**

Station 14 is located in the grass strip on the south side of Garrison Village Way just east of the gazebo circle. It is a 2-zone battery operated controller that regulates water to 15 watering heads in the grass strip just east of the gazebo circle along Garrison Village Way.

**Station 15**

Station number 15 is located in the NEMA-12 enclosure near the east side of the gazebo circle. It is a 120VAC powered controller that controls water to 6 separate zones – 5 zones in the gazebo circle (zones 1-4 and zone 6) plus a watering zone (zone 7) in the phase VI pocket park located across the road (east) of 910 SE Creekside Drive.

**Station 16**

Station 16 is located in the plant berm behind 900 SE Creekside Drive. It is a single zone battery operated controller that regulates the water along both sides of the north-south sidewalk all the way from the gazebo circle south to Garrison Creek.

There is an isolation valve located on the north side of the alley which shuts off the water to the north portion of the walking trail from the alley to the gazebo circle. With this valve off water will still flow to the southern half of the walking trail (from the alley to the creek).



**Station 17**

Station number 17 is located on the west side of the sidewalk in the plant bed next to Garrison Creek across from 1000 SE Creekside drive. This station contains two single zone battery operated controllers that regulate water to two areas. 1) The plants on both sides of the sidewalk from Garrison Creek north to Creekside Drive, and 2) the vertical riser irrigation heads on the south side of the creek from the bridge going east to a point behind 1048 SE Creekside Drive and also west, ending behind the residence at 920 SE Creekside Drive (at the west bridge).

**Station 18**

Station number 18 is located in the ground near the northeast corner of the pocket park in phase VII. This pocket park is located on the northwest corner of the intersection at Creekside Drive and Pheasant Run. This is a single zone battery operated controller that regulates the water to all of the watering heads in the pocket park.

**Station 19**

Station number 19 is located in the ground next to Garrison Creek just west of the sidewalk in front of the residence at 1096 SE Creekside Drive. This station contains two single zone battery operated controllers that regulates the water to two different areas: 1) Both sides of the sidewalk from the Garrison Creek bridge north to Creekside Drive, and 2) ) the vertical riser irrigation heads on the south side of the creek extending east from the bridge to the VGC property line and west from the bridge to a point south of the residence across the creek at 1048 SE Creekside Drive.

Station	Zones	Start Time	Stop Time	Run Time	Flow Rate (GPM)	Notes
1	1	8:15:00 AM	9:15:00 AM	1:00	40	
	2	9:15:00 AM	10:15:00 AM	1:00		
	3	10:15:00 AM	11:15:00 AM	1:00		
2	1	6:15:00 AM	7:15:00 AM	1:00		
	2	7:15:00 AM	8:15:00 AM	1:00		
3	1	7:15:00 AM	8:15:00 AM	1:00		
	2	8:15:00 AM	9:15:00 AM	1:00		
4	1	2:15:00 AM	3:15:00 AM	1:00		
	2	3:15:00 AM	4:15:00 AM	1:00		
5	1	2:15:00 AM	3:15:00 AM	1:00		
	2	3:15:00 AM	4:15:00 AM	1:00		
6	1	5:15:00 AM	6:15:00 AM	1:00		
	2	6:15:00 AM	7:15:00 AM	1:00		
7	1	2:15:00 AM	3:15:00 AM	1:00		
	2	3:15:00 AM	4:15:00 AM	1:00		
	3	4:15:00 AM	5:15:00 AM	1:00		
	4	5:15:00 AM	6:15:00 AM	1:00		
8	1	4:15:00 AM	5:15:00 AM	1:00		
	2	5:15:00 AM	6:15:00 AM	1:00		
9	1	6:15:00 AM	7:15:00 AM	1:00		
	2	7:15:00 AM	8:15:00 AM	1:00		
	3	8:15:00 AM	10:15:00 AM	1:00		
10	1	12:15:00 AM	1:15:00 AM	1:00		
11	1	1:15:00 AM	2:15:00 AM	1:00		
12	1	1:15:00 AM	2:15:00 AM	1:00		
13	1	1:15:00 AM	2:15:00 AM	1:00		
	2	2:15:00 AM	3:15:00 AM	1:00		
14	1	12:15:00 AM	1:15:00 AM	1:00		
	2	1:15:00 AM	2:15:00 AM	1:00		
15	1	8:15:00 AM	9:15:00 AM	1:00		
	2	9:15:00 AM	10:15:00 AM	1:00		
	3	10:15:00 AM	11:15:00 AM	1:00		
	4	11:15:00 AM	12:15:00 PM	1:00		
	5	12:15:00 PM	1:15:00 PM	1:00		
16	1	12:15:00 PM	1:15:00 AM	1:00		West walking trail
				1:00		
17A	1	1:15:00 AM	2:15:00 AM	1:00		walking trail
17B	1	2:15:00 AM	3:15:00 AM	1:00		East half of Creek Trail
18	1	12:15:00 PM	1:15:00 PM	1:00		
				1:00		
19A	1	1:15:00 PM	2:15:00 PM	1:00		walking trail
19B	1	12:15:00 AM	1:15:00 AM	1:00		West half of Creek Trail



**For more information contact Dick Cook**  
529-1924 or 386-4118 or [cookpines@charter.net](mailto:cookpines@charter.net)

Sunday 14 March 2016

## **Phase 7 Mainline Irrigation Values & Timers**

**According to Kevin Smith three [3] mainline values control all Phase 7 irrigation water**

**Value 1** .. located at 705 Heron in John Erin's E side yard near NE section of wooden fence .. at times, this value box has been covered by a flowerpot

**Value 2** .. located in NE section of common area Rock Park at Creekside/Pheasant corner  
Consists of three [3] boxes total [one controls water and other two are connected to a filter system .. this filter periodically plugs]

**Value 3** .. is an in ground battery operated timer located on far west end of pocket park behind Anne Richman's house 727 Pheasant [controls Richman pocket park only]

**Master Timer Control Boxes** [control all Phase 7 Front Yards]

These 3 boxes are located at each end of Phase 7 Creekside Street boundaries

**PS .. Phase 7 back/side yard irrigation is controlled by individual owners** [or their irrigation company] .. these individual timers come in different models, shapes, etc and each have to be individually located, i.e. some are in garages, some outside garages, some are battery operated in ground timers ..

## BRODIE SUMP & POND CIRCULATION PUMPS

ISE  
4/29/16

January 20, 2010 ... Mark Jungman, Dick Cook Notes

From: Dick Cook

CONTACT Mark Jungman 520-3632 [for ALL Common Area Pump Problems]

NOTE .. this information is about the 3 pumps in the Brodie Sump

### MASTER ELECTRICAL CONTROL

.. must be ON for ALL [3] pumps to operate

### $\frac{3}{4}$ & 2 hp SUMP PUMPS

- ... pumps are wired together and alternate pumping excess sump water to creek
- ... both pumps are float controlled
- ... currently, both pumps must be ON for 1 hp pump to send water to west pond

### 1 hp POND PUMP @ Brodie Sump

- ... turns ON/OFF manually [raises pond level about 1" hour]  
Larry Dublinski, Dick Cook monitors pond level
- ... float controlled, shuts off when sump water level drops
- ... currently, ALL [3] pumps must be ON for water to be sent to west pond,
- ... 1 hp is BACKUP for  $\frac{3}{4}$  & 2 hp and can send sump water to CREEK or POND thru valve control

RED LIGHT alarm .. float controlled [1<sup>st</sup> warning for high sump water]

SIREN alarm .. float controlled [2<sup>nd</sup> "last" warning] .. siren OFF switch located outside alarm box

.. call Mark Jungman 520-3632

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## WEST POND CIRCULATION PUMP [circulates water between east & west ponds]

- ... information about this pump is NOT included above
- ... ON/OFF switch is located behind timer box in the metal pump house
- ... timer is set to run pump continuously
- ... pump screens & culvert [east pond & creek] need to be checked [cleaned] regularly

DRAFT .. January 11, 2013

## **EXCESS GROUND WATER PUMPING STATION & POND FILL SYSTEM**

The system [located near the intersection of Creekside Street and the Phase 6-7 Walking Trail] pumps excess ground water from an in ground sump to Garrison Creek and/or the W Pond. The system includes three pumps, electric panels, red light & siren alarm, and natural gas fired electric generator for emergency use during power outages.

Two of the pumps [3/4 & 2 hp] work together and have a capacity of about 300 gallons per minute [gpm]. These pumps alternate and are automatically activated by sump floats. During high ground water flows [in the wet season] it may be necessary for both pumps to run simultaneously. In early January 2013 the ground water inflow into the sump was measured by Doyle Electric at about 240 gpm. After heavy rains or snow melt the sump inflow could exceed 240 gpm.

Also, the system contains a manually operated third pump [1 hp] used to pump water to the W Pond and/or creek. This pump is used year around to fill the W Pond which may drop 2-3 inches per day through evaporation & leakage in the hot season.

### **Estimated PUMP CAPACITIES ..**

1 hp .. 180 gpm  
3/4 hp .. 50 gpm  
2 hp .. 250 gpm

### **Pump LOCATIONS [circular sump bottom]**

1 hp .. SW  
3/4 HP .. NW  
2 HP .. NE

### **Activation FLOATS [from bottom to top]**

1 .. stop for 1 hp  
2 .. lead for 3/4 hp & 2 hp [which alternate]  
3 .. lag for for 3/4 or 2 hp [activates second pump when necessary]  
4 .. alarm for red light & siren [activates when pumping system is overloaded]

### **January 2013 RECOMMENDATIONS**

- 1 .. install weather proof electric receptacle in the electric panel area .. to assist our repair people
- 2 .. update the manual on/off switch for the 1 hp pump .. current switch is worn out
- 3 .. provide on-going orientation for residents living near the pumping station ... including emergency phone & back-up numbers and training for select, physically able, volunteers in the use of the back-up generator, 1 hp third pump & water flow values
- 4 .. a back-up W Pond fill system should be created for use during the dry season connected to the GVW irrigation main line



**DRAFT #1 .. VGC Irrigation Practices WORKSHEET .. May 2018**

Phase	Phase Leader	Contractor	Front Yards	Homeowner Back Yards	ADJACENT Common Area
1	"Linda Morris" SB oversight only	Smith Brothers			1 CA Park .. SB
2	Linda Morris	Smith Brothers			2 CA Park .. SB
5	Allan Fisher	Diamond Cut			5 CA Park .. Diamond Cut CA 5-6 Trail .. I
6	? Bob Britian	IKE			CA 6 Park .. IKE
7	David Hernandez	IKE			IKE .. CA Park 5 pocket parks
8	Al McFadden	IKE			IKE .. 2 Parks 5 pocket parks
9	Darren Ezell Jeff Murphy [IKE]	IKE			IKE .. Hillside Walking Trail Phase 9 entrance
10	Sue Wright	?			? small area around both gar
ARC	Tom Emmerson Jim Murphy Dennis Olson				ARC decides on the "look"
WW Housing Authority	Renee Rooker, ADM	?			Bridge 4 Walking Trail + Su .. helped with S unsafe trees
Regents Nursing IIOME	Ms. Moon, ADM				
Master Board	Dick Cook	IKE			All Common Areas not inclu Phase Contracts .. including All area S of Creek

\*\* Irrigation Sources [shared CP Common Line Phases 1-2-5-6-7] .. separate /individual CP lines for Phases 8-9-10 .. houses with CP meters [Phase