



Sept. 9, 2024

Double R Ranch Homeowners Association, 4407 Masterson Rd. Blaine, WA

Attn: Amy Ashby General Manager & Board Members

From: Dan Hyatt, President, Hot Tubs Northwest, LLC

RE: Assessment of pool for VGB Status and Current WAC Code 246-260 of WA State Health Department "Water Recreation Facilities"

Dear Amy,

The following information is an assessment on your facilities Swimming Pool main drain, along with the current state of your facility as it pertains to both the State Health Department (current guidelines) and the Virginia Graeme Baker Pool & Spa Safety Act.

Please note: this information, all calculations, and subsequent upgrades to the pool & equipment are only usable if Hot Tubs Northwest, LLC completes this work.

Sincerely,

Dan Hyatt
Hot Tubs Northwest, LLC

DH:ch

Enclosures

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Pool Assessment page 1

Swimming Pool Information

1.	Gallons (by my measurements)	62,000.00
2.	Flow Rate (flowmeters questionable) 90ish #1, 60ish #2	150 GPM
3.	2- Pumps-Sta-Rite	1.5 HP
4.	Number of Main Drains	1-10"
5.	Size of drain, depth of sump, brand of grate?	Unknown
6.	Skimmers: Brand unknown	5 total
7.	Skimmer equalizers	none
8.	Pentair TR 100 4.5 Cu Ft.	2
9.	Heater: Raypac LP 253,000	1
10.	Chlorinator: Pentair 300 29X	2
11.	SVRS Device: Stingel (not operational)	1

1. Electrical status: I brought in John Lohrer, Owner of Lightning Electric to view the electrical panel and overall condition of the equipment room Panel, conduits and wiring. It was noted that someone had installed a newer electrical panel within say the last 10 years. At that time the original main 4 awg aluminum feed wires (from the 200-amp panel at the “Canopy” covered picnic area east of the pool) had been cut off and left within the panel with bare exposed ends. 6 awg copper wires were likely ran at that time to feed the pool equipment house. That wire is very small considering the extreme long run from the canopy picnic shelter main panel to the pool equipment house. His determination was that no correct electrical permits were obtained at that time...The metal conduits coming up through the slab could be original. They are rusted and likely in very poor shape underground. Bond wires inside the panel are likely not to code. Old electric pool lights are still in the pool but have not worked in years and can pose a safety hazard
2. Note electrical: Electrolysis can occur on pools improperly “Bonded” Bonding means all metal components including rebar in the pool structure, must be bonded with a continuous bond wire of at least 8 awg solid copper. If the pool is not bonded properly, electrolysis can cause corrosion within/on any metal part including the pool rebar (in the pool structure). I do see some rusting rebar stains within the pool finish currently, and in rare situations this can be caused by the above-mentioned electrolysis.
3. Additionally: the existing slope of concrete in the SW corner of the pool deck allows rain to flow directly into the pool equipment room wall, and above-mentioned conduits. It has rotted out the bottom (wood) plate of the structure causing structural failure, and the plywood sheeting is rotting.
4. Structure: Based on the above I’m proposing building a new equipment room with new concrete floor raised to be above the pool deck.
5. Electrical: Based on my consultation with Lighting Electric. I propose a new electrical service from the main panel to the equipment room and a new correct panel on the exterior of the new building. Note: Electrical Code now calls for Electrical panels to be on the outside of pool equipment rooms.

Pool and related equipment assessment:

Pool Equipment: listed on page 1.

Pool Structure: Consists likely of #4 steel rebar 12" on center, PVC Piping to main drain, returns, and skimmers. Shotcrete Concrete places to form the pool shape as seen, 6" ceramic waterline tile, and Plaster finish (although shallow swim-deck area at NE Corner has a pebble plaster finish.

Pool plaster finish has numerous areas of rust showing along the long south floor near south wall. See Note 2 page 2.

Pool Concrete Deck: Consists of rebar at 12" on center then likely 5-6 sack concrete deck. Major areas of concrete deck have had an overlay applied with a poor finish with cracking throughout the pool decks.

There are numerous cracks and tripping hazards based on the poor condition of the concrete and where it meets the poured in place coping.

There are radical slopes of the concrete deck specifically in the SW corner, Code calls for minimum ¼ to ½ inch slope per foot on all commercial pool decks

1. Main Drain:

The main drain cover and SVRS device listed on page 1 has been installed by someone

other than us. Because of the single main drain an additional means of protection is required per the VGB

Act. Someone had installed a Stingle Brand SVRS device, but that device is not intended to manage 2 pumps with shared suction piping.

The main drain is required to be able to handle 100% of the flow rate if the skimmers are clogged/plugged or unintentionally left off (via existing skimmer line gate valve). The design flow rate is unknown (see above and page 1).

So, the status is, the Main Drain is VGB non-compliant, and the pool should not be occupied.

Note: a copy of the VGB Main Drain Federal Act is attached.

Skimmers:

2. 5 skimmers (I believe old swimquip brand) are placed along the west side of the pool at equal intervals. These skimmers are not equipped with a Skimmer Equalizer Line and correct equalizer float mechanism and because there is no water autofill valve system on pool the skimmers do not meet WAC Code. In addition, the concrete has been sloped up to the skimmer frame and lids greater than the allowed ¼ to ½ inch slope rate thereby causing a tripping hazard. Note: a potable water autofill will need to be installed in the existing configuration to assure the water level is correct and correct skimmer operation is maintained.
3. The 5 skimmers have been originally plumbed on a common manifold line, so it is unknown if the skimmers are truly operating from an equal hydraulic perspective (likely not). It is unknown if the skimmers are performing from a correct design flow of 60% of the total flow of the pool.
4. Pool Returns 6: placed around pool (somewhat) equally.

Pool Flow Rates/Pool Turnover:

1. Flowmeter operation is questionable but if we take the estimated 150 GPM then this 62,000-gallon pool would have a turnover rate of 6.88 hours. The current minimum turnover for a commercial pool is 6 hours.
2. Filters: the TR100 Filters have a maximum commercial flowrate of 15 GPM per sq. ft. or 67.5 GPM per filter if we follow the estimated flowmeter read rate of 90GPM on 1 and 60gpm on the other then 1 filter is just meeting maximum flow rate and the other is exceeding is by 30%
3. Plumbing configuration: 2 pumps sharing a common suction line is not allowed, I would assume this was not the original configuration. In this configuration if 1 pump fails then flow can be reversed in the failed pump causing incorrect backward flow through the pump-filter and chlorinator.
4. Pool Plumbing sizing: the existing 3-inch plumbing would not meet the maximum 6 ft per second water velocity through the plumbing allowed per WAC246-260 and Plumbing Code

Sand Filters Backwash:

1. The 2 TR100 Sand Filters are backwashing somewhere to the west of the equipment room. WHDOH and County Code considers pool backwash “wastewater”.
2. The wastewater needs to go to an approved infiltration trench or sewer system.
3. A wastewater plan must be drawn up and may need to be reviewed by a geo-tech. If sewer an adequate pvc line that can handle 150-200 GPM plumbed to sewer would need to be installed.
4. Sewer Line plumbing is done via an air gap to a 4” wastewater line with trap

Handrails:

1. 2 sets of in-wall insert steps at deep end both north and south walls, with on deck anchored handrail pairs. 1 handrail has been incorrectly replaced with a different brand (non-matching) causing an obvious safety problem.
2. Figure 4 Handrails condition are poor.
3. A short figure 4 handrail is placed at center of shallow swimdeck area centered on north wall, problem with this entry step is, the step from the floor to the deck is too high and does not meet correct riser heights, then “if” the correct new additional step is added, the handrail will be too short to provide the correct length out into the pool to assist a user of the steps.
4. The transition from the 14” depth swimdeck area to the main 3ft deep shallow end of the pool must be provided with an additional handrail to assist users transitioning down to the lower depth. This is done with a “2 bend handrail configuration”
5. Conclusion: The access both at the deep end of the pool and correct step and handrail at the 14” deep swimdeck area to the 3ft. deep shallow end of the main pool are both incorrect. Since this equates to safety violation, then the access points could not be used safely and would equate to non-use of pool until corrected.

Safety signage, depth markers, and no diving markers:

Currently there are some depthmarkers/no diving. Depthmarkers and no-Diving markers and pool rules/bather load signage should be brought up to correct location intervals described in WAC 246-260.

Fencing: some areas of fence do not meet 1.75" measure diagonal measurements this can be corrected with fence chain link inserts.

Fencing/Fire Code: Fire code requires an egress located 50 feet away from the main building structure. This is done by correct panic door hardware mounted on the interior poolside of a fence gate.

Fencing generally: WADOH WAC Code 246-260 clearly states the fence requirements for commercial pools.

Pool Lighting: Currently there are old original non-functioning pool lights in the pool. These lights pose a safety hazard because the light fixtures are held in place with old, corroded screws/hardware. Plus, the lights are still connected with conduit and wire to the pool equipment room. These conduits and wires pose a pathway for stray electricity. These light fixtures and light niches should be removed and filled with concrete. The wires should be removed, and any light controls/conduit/wiring should be completely removed from the electrical panel in the pool equipment room.

Pool Lighting fact: WAC Code 246-260 clearly defines a pool used after or before official daylight hours must have the correct lumens of light measured both in the pool and on the pool deck. Any use of this pool before and after official daylight hours should be stopped. (Pool deck lights would be like a public lighted tennis court).

Summary/Conclusion:

Double R Ranch Pool was built either in the late 60's or early 70's. I had zero luck attempting to find original plans from either the Whatcom Building dept. or WA State Health Dept.

Generally, the pool structure, decks, equipment house, electrical, fencing etc. has not had any type of work done to bring up to current WAC 246 260 Code from the original pool design.

There has been limited resurfacing of the pool deck, replastering of the swimdeck area and minor changes in the equipment and electrical configuration. I do not believe any of that work was permitted by Whatcom County Building dept., WA State LNI, and WA State DOH.

In my opinion this pool had been operating for years at a high level of liability risk to the Double R Ranch Homeowners Association. I have attempted to note those items out of WAC Code and Safety compliance in this assessment.

In the time frame that this pool was constructed, very large pools were the "norm" throughout greater NW

Back then energy was so cheap, that there was not a concern on the "shape" relative to covering the pool at night (to hold in the heat). Pools were heated with straight electricity-propane or oil.

Fast forward to the present day these costs to heat have gone way up. Most seasonal pools like yours are heated by propane or Electric heat pump (60 % cost savings) and include at least solar or insulated heat blankets on the surface at night (saving an additional 30-40% of your heating costs).



With the estimated cost being similar to “rebuild your existing pool structure” versus downsizing to a new 20 by 40 pool (common for your size of homeowners assn.) built within the existing pool you have.

I would highly suggest the new 20 by 40 pool -within the existing deep end area of your existing pool

This 20 by 40 size of pool will save half of your current heating and maintenance costs

WADOH bather load rules allow 1 person for every 15 sq. ft. of pool 5ft. and under so a 20 by 40 pool 3’10” to 5’ 10” deep would be able to accommodate 48 users at the same time.

I’m offering to be present at your next board/Assn meeting to go over this assessment in more detail.

Sincerely,

Dan Hyatt

President, Hot Tubs Northwest, CBP (Certified Building Professional) PHTA Pool and Hot Tubs Association