

RUDGEAR ESTATES HOMEOWNERS ASSOCIATION

c/o Homeowner Association Services
3160 Crow Canyon Place, Suite #150
San Ramon, CA 94583
(925) 830-4848-Office/(925) 830-0252-FAX
bdawson@hoaservices.net

September 23, 2010

Dear Rudgear Estates Neighbors:

The attached document constitutes the Needs Assessment Report by pool architect Aquatic Design Group (ADG) which was commissioned by the board to help define the issues our association should consider in establishing a master plan for our pool. ADG is a highly-respected commercial pool architectural firm that was retained by the City of Walnut Creek to complete its recent aquatic needs assessment. ADG also assisted with the pool renovation at Acalanes High School, among other projects in the Bay Area.

Note that the report is organized with a discussion of (1) code violations, (2) maintenance and operation issues, and (3) potential enhancements. Because past reserves studies have not identified the extent of needed repairs or allocated any money for improvements, this delineation can help guide our discussion of how the reserve funds should be allocated, and provide a quantitative baseline for comparing the costs and benefits for the various items.

The board has carefully reviewed this report in context with the association's present resources, needs and legal obligations. We have identified six items which we believe should be accomplished as soon as possible:

1. Install additional Depth Safety Markers
2. Install Handicapped Lift
3. Replaster Pool
4. Install Walk-In Stairs (at least one set)
5. Replace Chemical Controller
6. Install Vapor Controller

The board majority believes it may be possible to pay for this work exclusively with funds presently available in our reserves. However, the association's ability to perform this work independent of other 'code violation' and 'maintenance and operation' items is contingent upon approvals from Contra Costa County, as well as other regulatory authorities. This fact complicates estimates of financial impact. Furthermore, the total cost of performing these actions is still in the process of being established through quotes obtained from local contractors, assuming approvals are granted. In spite of these issues, the board feels that by identifying these priority items now, we can provide a useful starting point for homeowners to engage in conversation about what is most important for our association. Ultimately, a master plan is

needed that will establish a path forward to, at minimum, address all code violations and maintenance issues, and provide for the long-term needs of our facility.

The board invites all homeowners to be part of this conversation. Useful first steps for homeowners would be to read the ADG report in its entirety, jot down questions, and bring these to the upcoming question and answer meeting with the board and the primary author of the ADG Needs Assessment Report, Dennis Berkshire. This meeting will be held at 7:30 PM on Thursday, October 14th, in the Fellowship Hall of St. Luke's Lutheran Church, 2491 San Miguel Drive in Walnut Creek.

The board looks forward to hearing your views and answering your questions at this meeting, and in the future as plans for next year and future years are developed. We recognize that there will be widely divergent views on the best path forward, and we thank all homeowners in advance for their sincere efforts to communicate in positive ways with the board and especially with other homeowners who may not share their views. Our goal in this process is to build consensus and develop a plan that will best meet our common needs in the years ahead. The board is optimistic that we can meet this goal while maintaining, and even strengthening, the ties that join us as neighbors in this beautiful community.

Sincerely,

The Rudgear Estates Board of Directors
Chris DeBoer Shari Santos
Dan Lawrence Doug Switzer
Bill Leech Joe Tringe
Jim Rusk

NEEDS ASSESSMENT STUDY:

**RUDGEAR ESTATES
SWIMMING POOL**

Walnut Creek
California

27 September 2010

Submitted By:

Aquatic Design Group, Inc.
2226 Faraday Avenue
Carlsbad, CA 92008
760.438.8400
www.aquaticdesigngroup.com

TABLE OF CONTENTS

A.	SCOPE	3
B.	CODES	5
C.	FACILITY DATA	6
D.	POOL DATA	8
E.	PROGRAMMING	10
F.	OPERATIONAL ISSUES	12
G.	CODE VIOLATIONS	13
H.	ADDITIONAL SUGGESTED IMPROVEMENT	20
I.	SUGGESTED ENHANCEMENTS	25
J.	SUMMARY	37

A. SCOPE

Aquatic Design Group visited the Rudgear Estates Homeowners Association Pool located in Walnut Creek, California to perform a Needs Assessment Study of the swimming pools (including the wading pool) and their systems and equipment. The Swimming Pools were not open for use during our visit. The Rudgear Estates Homeowners Association Pool consists of a swimming pool, a wading pool, a bathhouse building, a storage/concession building, and an outdoor recreation area. This report is commissioned by the Rudgear Estates Homeowners Association. During our site visits we met with several HOA members and an agent of the property management company serving the HOA.

The following report is a summary of the existing conditions, code violations, deficiencies and proposed improvements for rehabilitation of the Rudgear Estates Homeowners Association Pools and equipment. The scope of this report includes the swimming pool, pool deck area, bathhouse building and pool mechanical equipment, but excludes the structural integrity of the pool shell or buildings. It also excludes handicap accessibility path of travel from the street to the property. A property or site survey is not a part of the scope of this study.

This report identifies any violations of codes that were found. Some of these violations may currently be operating on a grandfathered exemption. It is important to note that though some grandfatherable exemptions by the County Environmental Health Services department may allow the pool to legally operate in non-compliance of current Title 24 state and county standards, the liability of any health and safety risks to the public may still remain. We therefore recommend that these issues should be reviewed on an individual basis to determine the disposition and possible remedies for each violation.

Certain violations of the State of California Administrative Code may be due to deterioration and material failures in which the code requires that these violations be rectified immediately or the facility is to be shut down. Other violations may be due to modifications to the code over the years. Providing that the violation is not deemed an immediate health or safety risk, the Environmental Health Department may allow the violation to exist as a "grandfatherable condition". These grandfathered conditions are normally allowed to exist until such time as when the facility is having work done in which the scope of the work will allow for the violation to be remedied. If such work were going to take place, then the Environmental Health Department would demand that the violations be brought into compliance. California code requires that the county environmental health department review any renovation plans or documents for approval. It is possible that the county health department may require certain, or even all, grandfathered conditions be brought into compliance as part of a renovation project.

In addition to the code violations being of concern to the Environmental Health Department, they may also be of concern to the HOA's Risk Manager as well. If a facility is in violation of the current State Code, the liability exposure alone may warrant the remedy of the violation. Given the subjective nature of the interpretation of the code, violations that may be deemed grandfathered at one point may not be allowed at another time or by a different inspector.

The estimated opinion of costs identified in the itemized sections of "G" thru "I" of this report includes materials and labor for the repair, but they do not include any architectural or engineering costs that may occur. Structural analysis of the pool structures, pool mechanical

spaces, or other spaces will require destructive testing which is not included in the scope of this report.



EXHIBIT I: SWIMMING POOL SITE

B. CODES

The Rudgear Estates Homeowners Association Pools were constructed between 1972 to 1974. There are no construction or as-built plans available for our review as part of this study. Facilities are typically expected to comply with the codes that were in use at the time of the facility's construction. For the purpose of this report the facilities' compliance with current codes will be examined. The current codes that apply are:

- 2007 Uniform Building code
- 2007 California Building Code
- 2007 California Electric Code – Article 680
- 2007 Uniform Fire Code – Article 80
- 2007 California Fire Code – Article 80
- 2007 Uniform Mechanical Code
- 2007 California Mechanical Code
- Title 24 of the California Administrative Code
- Title 22 of the California Health and Safety Code

Article 680 of the CEC is the electric code that pertains to swimming pools. Article 80 of the UFC & CFC is the article that pertains to hazardous material storage and use. Title 24 of the CA Administrative code, chapter 31B provides the regulations for the design and operation of public swimming pools. Title 22 of the CA Health and Safety Code provides health and safety regulations for swimming pools. The Uniform Building Code, California Building Code, and Uniform Plumbing Code all have portions that pertain to public swimming pools



EXHIBIT 2: POOL LAYOUT

C. FACILITY DATA

The Rudgear Estates Homeowners Association Pool facility consists of a swimming pool, wading pool bath/mechanical building, storage/concession building, and outdoor recreation areas. The assumptions and conclusions in this report are based solely on the visual evidence found during our site visit and comments provided by the staff. Neither construction plans nor as-built plans were available for our review in preparation of this report. No destructive testing was conducted to determine structural viability of the pools or other structures.

The swimming pool is a "T" shaped pool that has a swim area that is 75-feet long and 42-feet wide. This lap area features 6 marked lanes for lap swim and competitive use. These lap lanes have a water depth of 3'-6" at both ends and 5'-0" in the middle. The "T" portion of the pool has a diving area that supports a 24" above water diving board. The pool has water depths ranging from 3'-6" to 8'-6". The swimming pool has a plaster and tile finish that is delaminating. The swimming pool has six sets of recessed steps and grab rails as points of egress from the pool. The pool has eight surface skimmers for surface water collection. The pool also has two main drains for bottom water collection. The drains are marked with a VGB (Virginia Graemme Baker Pool and Spa Safety Act) decal as a tested and compliant VGB drain fitting. The HOA members report that the VGB drains are compliant with California AB1020. The pool deck has a broom finish natural color concrete. The original fixed lifeguard chairs have been removed and a moveable lifeguard chair is now used. The staff reports that they are not aware of any pool water leaks that might bring suspicion to the viability of the pool shell or structure.

The wading pool is a 20-foot diameter pool in an area adjacent to the swimming pool. The wading pool and swimming pool were originally built with a single pool mechanical system that filtered and chlorinated the two pools as a single body of water. A previous renovation of the wading pool separated the wading pool to provide an independent mechanical filtration system. This previous renovation has been reported by the Rudgear Estates management staff to have been updated to comply with and satisfy all public health department issues.

The pool decks are a natural color concrete with a medium broom finish. The pool area also has lawn areas and shaded picnic table areas. The pool area is enclosed by the pool building and perimeter fence. The pool area has limited overhead lighting to complement the underwater pool lights which support events after dark. The pool area has an expansive area of deck around both pools. To the east of the pools is an elevated turf area that is used for other recreation.

The pool mechanical equipment is stored in a mechanical room on the street side of the bathhouse building. The pool chemicals are installed in this same space. The pool electrical panels are located in the chemical storage area. The pool bathhouse building houses the pool mechanical and chemical equipment, men's and women's bathrooms, a storage room and a storage closet. The building is a concrete masonry wall structure with concrete floors. Each bathroom has toilets, sinks and a small changing area. The two showers are located on an outdoor wall between the two bathroom entrance doors adjacent to the pool deck.

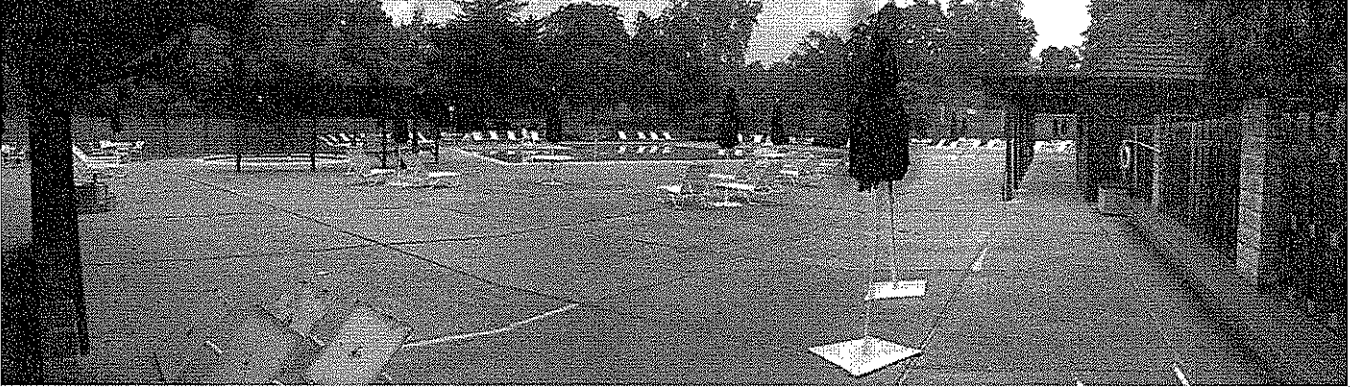


EXHIBIT 3: SWIMMING POOL LAYOUT

D. POOL DATA

I. SWIMMING POOL DATA

- **Perimeter:** 282 feet
- **Pool Depth:** 3'-6" to 8'-6"
- **Pool Surface Area:** 3,870 square feet
- **Pool Volume:** 135,411 gallons
- **Surface Water Collection:** Eight (8) Surface Skimmers
- **Bottom Water Collection:** Two (2) 12" x 12" Frame and Grates
- **Pool Water Inlets:** Fourteen (14) Floor Inlets (2 are reported to be non-functioning)
- **Pool Ingress/Egress:** Six (6) Sets of Recessed Steps with Grab Rails
- **6-Hour Turnover Rate:** Code Required Maximum 6-hours
- **6-Hour TOR Flow Rate:** 376 gallons per minute
- **Actual Turnover Rate:** 8.2 Hours
- **Actual Flow Rate:** 275
- **Circulation Pump:** One (1) 7.5-HP Centrifugal Pump Sta-Rite
- **Filtration:** Three (3) High Rate Sand Filters Triton model TR140C
- **Sanitation:** Liquid Chlorine, Sodium Hypochlorite, with 50-gallon drums and a Stenner peristaltic feed pump model 45M
- **pH Feed:** Muriatic Acid stored in a 15 gallon drums a Rola-Chem peristaltic feed pump
- **Chemical Control:** Strantrol Model System 3
- **Pool Water Heating:** Teledyne Laars natural gas pool heater model API20 with a rated BTU input of 1,200,000 and a BTU output of 972,300
- **Main Drain Grate Velocity:** Unknown

2. WADING POOL DATA

- **Perimeter:** 63 feet
- **Pool Depth:** 1'-0" to 1'-6"
- **Pool Surface Area:** 314 square feet
- **Pool Volume:** 2,940 gallons
- **Surface Water Collection:** Surface Skimmer
- **Bottom Water Collection:** Two (2) 12" x 12" Frame and Grates
- **Pool Water Inlets:** Wall Inlets
- **Pool Ingress/Egress:** Pool perimeter
- **Design Turnover Rate:** 1 Hour (based upon pump size and flow meter)
- **Design Flow Rate:** 50 GPM
- **Actual Turnover Rate:** 1 Hour
- **Actual Flow Rate:** 50 GPM
- **Circulation Pump:** One (1) 3/4-HP Centrifugal Pump Pentair Whisper-Flo model WFE-12
- **Filtration:** One (1) Diatomaceous Earth (DE) Filter with 48 Sq. Ft. filter area
- **Sanitation:** Liquid Chlorine, Sodium Hypochlorite, with 50-gallon drums and a Rola-Chem peristaltic feed pump model
- **pH Feed:** Muriatic Acid stored in a 15 gallon drums a Rola-Chem peristaltic feed pump
- **Chemical Control:** None
- **Pool Water Heating:** None
- **Main Drain Grate Velocity:** Unknown

E. PROGRAMMING

Aquatic Design Group met with HOA members to identify the current and desired programs offered at the Rudgear Estates Homeowners Association Pool. The swimming pools are used seasonally from approximately May 1st to the end of September each year. The pool supports both Rudgear Estates Homeowners Association as well as paying members that live outside the area. The Rudgear Estates pools serve 429 homes which includes two condo complexes, plus additional paying members. The pool members are interested in providing the best recreational and athletic facilities at the most economical means providing the best value to the HOA and paying members. The pool shares uses between swim team use, general recreation use and fitness programs. The swim team is typically allowed exclusive use of the swimming pool from 7:00 AM to noon each day for practice. The pool is then open for all other swim programs from noon to 8:00 PM. The swim team averages about 165 members and has had a maximum membership of 185 swimmers. The swim team averages approximately 40 children each morning at any given time sharing the pool's six lanes, which averages approximately 7 swimmers per lane. Industry standards are typically a maximum of 4-6 swimmers per lane.

The following is a list of the existing programs that the pool is supporting:

- Recreation Swim
- Resident Use
- Paying Member Use
- Host of 6 Swim Meets per year
- Lap Swimming
- Water Exercise
- Swim Lessons

The facility currently experiences some programming conflicts with different user groups vying for water use at the same time. In the afternoons there can be conflicts between swim lessons, team use and lap swimmers. Another noted operational concern is the use of portable stairs for water exercise or learn to swim groups. The county environmental health department will not allow the portable stairs to remain in the pool when the user group is not actively using the stairs as they are concerned about body entrapment and potential drowning of young swimmers. At the same time these portable stairs are not designed for such frequent handling and can result in damage to the fiberglass stairs or the handlers trying to move the stairs in and out of the pool.

Other areas of the facility are underutilized. The raised lawn area is reported as not used by many patrons. The pool area has a large amount of concrete deck space that is also underutilized. The bathrooms are minimalistic and will be discussed in greater detail in the code compliance section of this study.

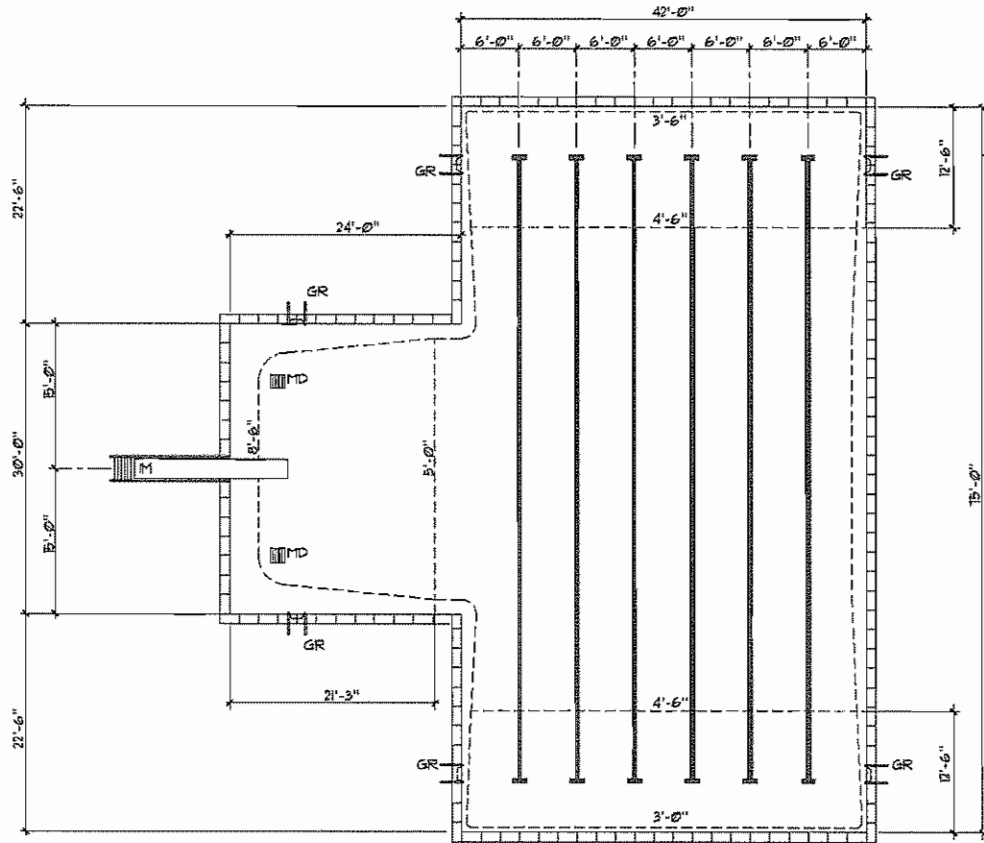


EXHIBIT 4: SWIMMING POOL LANE CONFIGURATION

F. OPERATIONAL ISSUES

Aquatic Design Group met with members and had conversations with the contracted pool service company, East Bay Pool Service, to determine the current means of operation of the facility and to target issues and desired changes to the Rudgear Estates Homeowners Association Pool. In general, the facility was found to be in typical shape for a facility of its age and nature. The members and pool service company both report that they are not aware of any swimming pool water leaks or other conditions that could give us concern about the viability of the pool structure itself. The pool concrete decking is showing signs of vertical separations and delaminating that can start to pose a slip trip or fall concern. There have been previously known issues with the existing electrical system with outlets tripping breakers when used during swim meets or parties. The members noted that they were most concerned with identifying options to provide better services in the most efficient and economical way.

The following matrix is a summary of the pool mechanical conditions found and identified by the Aquatic Design Group staff:

ITEM	SWIMMING POOL	WADING POOL
Hair & Lint Strainer	Average	Average
Recirculation Pump/Motor	Poor	Average
Filter System	Average	Average
Heater	Poor	None
Chemical Controller	Average	None
Plumbing Valves	Average	Average
Chlorine Pump	Average	Average
Chlorine Storage	Poor	Poor
pH Feed	Average	Average
pH Storage	Poor	Poor
Pool Vacuum	Unknown	Unknown
Electrical	Poor	Poor

G. CODE VIOLATIONS

Aquatic Design Group has determined that the following five items do not comply with current code standards. A description of the condition is given along with a reference to the code that applies. An opinion of probable cost is given for each individual item. These itemized estimates do not include general condition costs that are typically added to any construction project. At the end of this report the itemized costs are totaled and a proforma construction estimate is given.

ITEM	DESCRIPTION
1.1	POOL PLASTER FINISH
1.2	SWIMMING POOL TURNOVER RATE
1.3	DECK DEPTH AND SAFETY MARKERS
1.4	DISABLED ACCESS INTO POOL
1.5	BATHROOMS

I.1 Pool Plaster Finish:

The swimming pool plaster finish is delaminating leaving rough edges and voids that can create hazards in violation of Title 24, Chapter 31B:

3106B.2 Finish. The finished pool shell shall be lined with a smooth waterproof interior finish that will withstand repeated brushing, scrubbing, and cleaning procedures. The interior pool finish shall completely line the pool to the tile lines, coping, or cantilevered deck.

3106B.4 Projections and Recessed Areas. The surfaces of the pool shall not have any projections or recessed areas except for: handholds, recessed treads, steps, ladders, stairs, pool inlets and outlets, skimmers, and perimeter overflow systems.

The swimming pool plaster and tile finish should be replaced. To ensure that the new plaster finish will have a long life equivalent to a new pool finish it is important that the contractor remove all of the existing plaster or previous finishes to bare gunite so that the new plaster has a rough porous surface to bond to. The following estimate includes removal of all existing previous pool finishes to bare concrete and the installation of a new plaster and tile finish for the swimming pool. The wading pool finish appears to be satisfactory and is not included in the following estimate as part of the renovation work. (SEE EXHIBIT 5)

(Estimated Cost \$85,000.00)

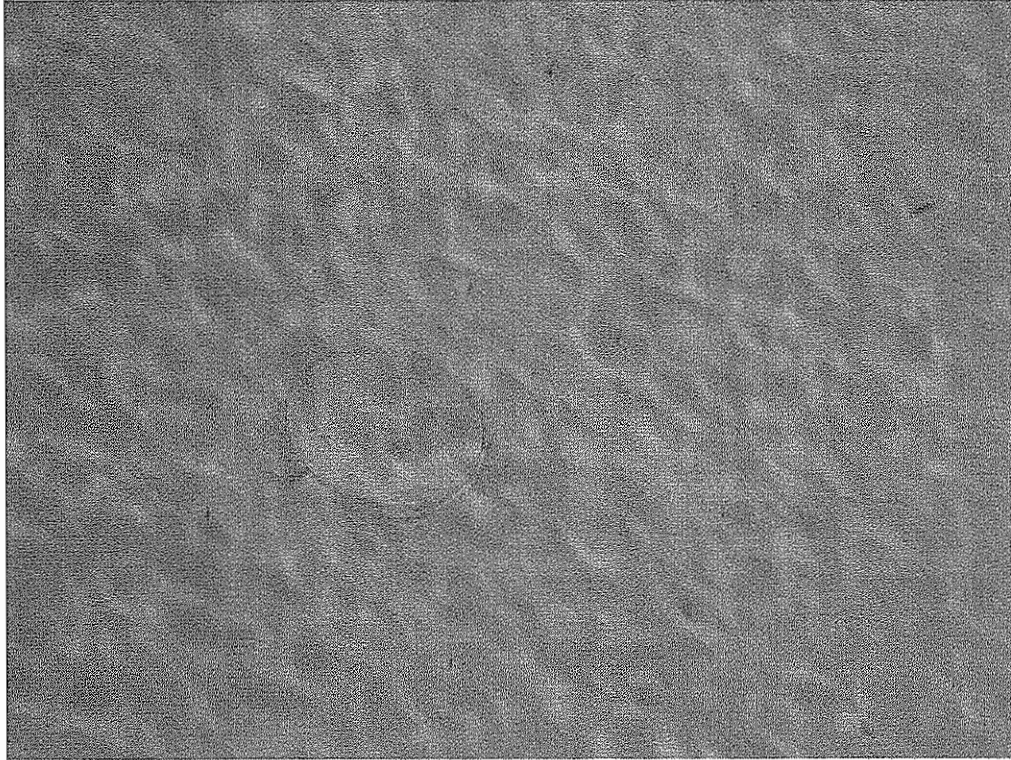


EXHIBIT 5: POOL FINISH FAILING

1.2 Pool Turnover Rate:

As noted previously we do not have any construction plans or as-built plans to determine the designed pool flow rate and turnover rate. Based upon the installed pump and the actual flow meter reading during our site visit the pool is currently operating at a flow rate of 275 gallons per minute, which equates to an 8-hour turnover rate in violation of Title 24, Chapter 31B:

3124B Turnover Time.

The recirculation and purification system shall have sufficient capacity to provide a complete turnover of pool water in:

- 1. One-half hour or less for a spa.*
- 2. One hour or less for a wading pool.*
- 3. Two hours or less for a temporary training pool.*
- 4. Six hours or less for all other types of public pools.*

The swimming pool is currently operating at an 8-hour turnover rate. This condition is apparently operating under a grandfathered approval from the county health department. This means that since the pool was likely originally approved at this turnover rate and since the pool has not had any significant health or safety problems

operating at this rate the health department has allowed the pool to continue to operate at this rate. The real test for this turnover rate is the pool system's ability to maintain clean, clear and sanitized water. Clean water is typically defined as free of any mold, mildew or biological growths. Clear water is typically defined as water in which the edges of the main drain can clearly viewed and therefore any swimmer under the water can be viewed by a lifeguard or other person. Sanitized water is typically defined as water that is free of pathogens or other harmful agents and maintains proper water chemistry. As long as the pool water can continue to meet this standard the health department is likely to allow the pool to continue at the 8 hour turnover rate. If a major renovation were to occur at this pool it is likely that the health department will require that the pool turnover rate be increased to a six hour or less turnover rate compliant with code. If minor improvements to the pool such as a new plaster finish were to occur than it is likely that the county health department will not require that the turnover rate be increased. To upgrade the turnover rate we would have to replace the existing underground pool piping to larger piping that could convey the higher flow rates required. In addition, a new pool circulation pump would be required and the filter system will have to be enlarged. To access the underground piping the pool decking will have to be removed. The estimate below includes the various components to upgrade the turnover rate but does not include the cost to remove and replace the pool deck. The estimate for the pool deck is provided in a later section of this study.

(Estimated Cost: \$ 110,000.00)

1.3 Deck Depth and Safety Markers:

The wading pool and portions of the swimming pool lack deck depth markings and no-running or no-diving safety markings in violation of Title 24, Chapter 31B:

3109B.4 Water Depth Markers.

3109B.4.1 General. The water depth shall be clearly marked at the following locations.

- (1) maximum depth,*
- (2) minimum depth,*
- (3) each end,*
- (4) at the break in the bottom slope between the shallow and deep portions of the pool,*
- (5) on the perimeter of the pool at distances not to exceed 25 feet.*

3109B.4.2 Location. Depth markers shall be located on the vertical pool walls at each end and side of the pool at or above the pool water level. If a pool exceeds 20 feet in width, additional markers shall be located on the edge of the deck next to the pool.

Additional deck markers should be installed to comply with code. (SEE EXHIBIT 6)

(Estimated Cost \$5,000.00)



EXHIBIT 6: NO DECK DEPTH MARKERS

1.4 Disabled Access into the Swimming Pool:

The swimming pool lacks disabled access in violation of Title 24, Chapter 31B:

3104B Accessibility to the physically handicapped person. Swimming pools and their appurtenances shall be in compliance with the requirements of the state architect for access to public accommodations by physically handicapped persons. See also Chapter 11A.

Pool Lifts. 3.2 clear space: A minimum clear deck space of at least 60 x 56 inches to one side and to the front of the lift seat must be provided. The space under the lift seat could be included as part of the clear space as long as the area is unobstructed.

Public swimming pools with a perimeter of less than 300 perimeter feet are required to have one means of ADA access into the swimming pool. The swimming pool has a perimeter of 282 linear feet. A deck flush anchor can be installed that has a threaded cap to leave a flush surface in the pool deck when a disabled lift is not in place or use. A battery operated lift can be purchased to provide a compliant access into the pool. These battery operated lifts have the capacity to lift up to a 500-pound patron into the pool. The lift comes with a remote control that allows the patron to use the lift unassisted from a lifeguard or other person if they choose. To comply with ADA standards the pool must be equipped with a primary means of ADA access, which includes a lift as noted above or a ramp. A ramp is not appropriate for the Rudgear swimming pool as it would require aqua wheel chairs and attendants to assist patrons in

and out of the pool. Whereas a lift as noted above will allow a patron to use it unassisted. Walk-out stairs noted later in this report are a secondary means of ADA access, but they do not serve as a primary means and cannot be used in lieu of a lift. The following estimate includes the disabled lift, the deck anchor, installation of the deck anchor, a spare rechargeable battery, a battery charger station, and a lift cart that allows the lift to be removed when not in use and stored in a convenient location.

(Estimated Cost \$9,500.00)

1.5 Bathrooms:

The swimming pool lacks minimum number of bathroom fixtures as required by code. The bathrooms are constructed with square wall to floor transitions in violation of title 24, Chapter 31B:

- 3115B.2 *Number of Sanitary Facilities. For the purposes of this subsection, one bather shall be considered for every 15 square feet of pool water surface area.*
- 3115B.2.1 *Showers. One shower shall be provided for every 50 bathers.*
- 3115B.2.2 *Toilets. Separate toilet facilities shall be provided for each sex. One toilet shall be provided for every 60 women; one toilet plus one urinal for every 75 men.*
- 3115B.2.3 *Lavatories. One lavatory shall be provided for every 80 bathers.*
- 3115B.3.1 *Floors. Floors shall have a hard nonabsorbent surface, such as Portland cement concrete, ceramic tile or other approved material, which extends upwards onto the wall at least 5 inches with a coved base. Floors which may be walked on by a wet bather shall be slip resistant. Floors shall be sloped not less than ¼ inch per foot to floor drains or other approved surface water disposal areas.*

The swimming pool and wading pool have a total water surface area of 4,184 square feet. At a ratio of 1 bather for every 15 square feet the total number of bathes for the bathroom fixture count is 278 patrons. The following table shows the existing fixtures and the minimum code required.

ITEM	WOMEN'S TOILET	WOMEN'S LAVATORY	SHOWERS	MEN'S TOILET	MEN'S URINAL	MEN'S LAVATORY
Existing	2	1	2	1	1	1
Required	2.3	1.75	6	1.9	1.9	1.75

The existing bathrooms are constructed with a concrete floor and concrete masonry block walls. This construction does not have a coved transition as required by code. Both the floor cove and the number of fixtures are currently operating on a grandfathered approval from the county health department. Baring some unforeseen event it is likely that the health department is likely to allow the facility to continue to operate with these conditions. If a major renovation is conducted, or if the swimming pool is expanded in size then it is likely that the health department will require that this space be brought into compliance with code. In addition the bathrooms do not provide any ADA accessible facilities. To provide the minimum number of fixtures for the current amount of pool water surface area or to make the bathrooms ADA compliant each bathroom area will require a minimum square footage of approximately 235 square feet. This assumes one ADA complaint toilet and shower in each room. The remaining

4 showers required by code are assumed to be outdoor. The existing women's bathroom has a total square footage of 192 square feet. Based upon this evaluation the existing bathroom building cannot be reconfigured to meet code. The following is an assumed minimal building of 500 square feet. The first option is to build a new bathroom to support these fixtures. As second less expensive option is to renovate the existing bathhouse using the pool mechanical space and possible the storage space to create new bathrooms with the fixture count required. A new separate mechanical equipment storage area can then be constructed with less expensive materials. The new equipment area can be a fenced in enclosure or a concrete block enclosure much like trash enclosures. It assumes that the existing building may remain to support the mechanical area and other uses. (SEE EXHIBIT 7 & 8)

(New Bathhouse Estimated Cost \$200,000.00)

(Renovated Bathhouse Estimated Cost \$100,000.00)

(New Pool Mechanical Equipment Area Estimated Cost \$40,000.00)



EXHIBIT 7: BATHHOUSE



EXHIBIT 8: BATHROOM

H. ADDITIONAL SUGGESTED IMPROVEMENTS

The following five items are suggested improvements for maintenance and operations at the Rudgear Estates Homeowners Association Pool. An estimate of probable costs is given for each individual item. These itemized estimates do not include general condition costs that are typically added to any construction project. At the end of this report the itemized costs are totaled and a proforma construction estimate is given. This proforma estimate does provide an estimate of what the general condition costs might be.

ITEM	DESCRIPTION
2.1	CHEMICAL STORAGE
2.2	NEW POOL DECKING
2.3	UPGRADE ELECTRICAL
2.4	NEW POOL HEATER
2.5	UPGRADE CHEMICAL CONTROLLER

EXHIBIT 18: EXISTING FILTER TANKS

2.1 Chemical Storage:

The swimming pool operates with liquid chlorine (12% sodium hypochlorite) and muriatic acid (30% hydrochloric acid). These chemicals are stored in vendor provided drums in a room connected and open to the pool mechanical equipment. The pool electrical panels are located in the chemical storage area. The chlorine and acid are stored in the same place without any means of separating the two chemicals. There are several concerns about this method of storage of the chemicals. The first is that lack of separation of the chlorine and acid. If the tanks were to leak or if the two chemicals were allowed to combine they can form poisonous gases such as chlorine gas or mustard gas. Secondly the chemicals, especially the muriatic acid, emit fumes while stored in the drums. The muriatic acid fumes will mix with the humidity in the room to form hydrochloric acid condensate. There is evidence of this occurrence by the rust and corrosion on the electrical panels and other metal components. Such exposure can shorten the life of the metallic components or equipment in the mechanical space. There are several ways this condition can be improved. The first is to create separate chemical storage spaces to separate the chemicals from the mechanical and electrical equipment. This separate space can be outdoor fenced in enclosures or new building spaces. The second option is to eliminate the muriatic acid and switch to carbon dioxide (CO₂) which does not emit corrosive fumes. A third option is to store the acid in a tank connected to a vapor recovery system to prevent the off-gassing of corrosive fumes into the mechanical room. In addition the chemical tanks for both the chlorine and the acid can be double contained to prevent the inadvertent mixing of the two chemicals. A discussion with members and operators will need to be conducted to determine which option is best for the facility. (SEE EXHIBIT 9)

(Option 1 Estimated Cost \$70,000.00)

(Option 2 Estimated Cost \$14,000.00)

(Option 3 Estimated Cost \$4,000.00)



EXHIBIT 9: CHEMICAL STORAGE

2.2 New Pool Decking:

The existing concrete pool decking is deteriorating. There are portions of the deck that are heaving creating potential trip and fall hazards. Some of the redwood expansion joint filers have been replaced around the pool deck. There are also areas of the pool deck that are spalling, which can create porous surfaces that can trap and collect water allowing mold or biofilms to form, which can be tracked into the pool water and swallowed by swimmers. The condition of the deck has not yet deteriorated to the point that the health department has deemed it a health or safety risk, but it will only continue to worsen. The question is the time it will take until the deck must be replaced. As noted previously in this study, to accomplish some renovations to the pool a portion if not all of the deck will have to be removed to provide access to underground plumbing. The use of a topping material to refinish the existing pool deck surface is not a viable option. First a topping coat will not resolve the vertical differential spaces. Secondly, topping coats are typically a temporary fix with an expected life span of between 2-5 years. The existing pool deck is slightly larger than 21,000 square feet. This is an extremely large volume of concrete paved area. In lieu of replacement of all of the concrete some of the areas can be renovated with less expensive materials including grass. Additional investigation will be required to determine what other viable options could be considered. The following is an estimate to remove and replace the entire pool deck and reconfigure the deck drainage system. It is possible to remove and replace a portion of the pool deck or to replace a portion of the pool deck with a new material other than concrete. The detailed evaluation of these options are outside the scope of this report. (SEE EXHIBIT 10)

(Estimated Cost \$360,000.00)



EXHIBIT 10: EXISTING POOL DECK

2.3 Electrical Upgrade:

There are reports of electrical breakers tripping during swim meets and member parties. The electrical panels appear to be the original equipment. The electrical service has recently been upgraded at the BBQ area, though it is not known at this time if this is adequate to meet all user group needs. As noted previously much of this equipment in the chemical storage area is corroded due to time and exposure to pool chemicals. The following is an estimate to upgrade the existing electrical equipment in its existing locations. (SEE EXHIBIT 11)

(Estimated Cost \$18,000.00)

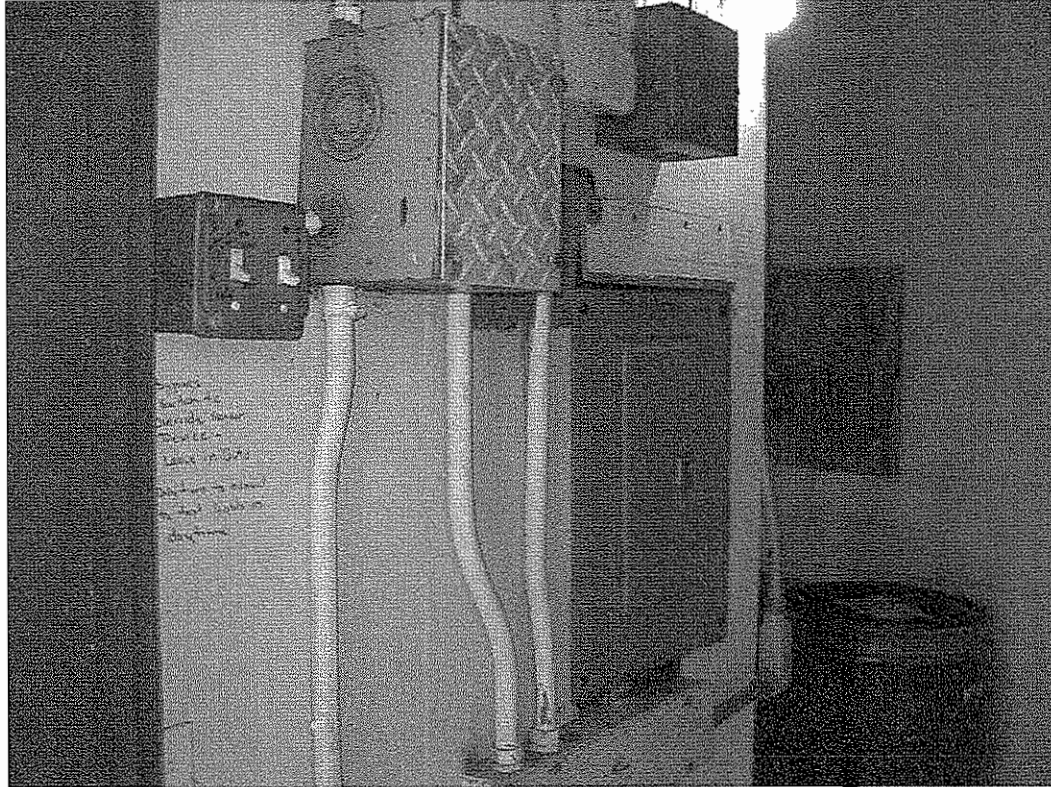


EXHIBIT 11: EXISTING ELECTRICAL

2.4 New Pool Heater:

The swimming pool heater appears to be original equipment. The existing heater is a gas fired atmospheric heater with 1,200,000 BTU input. The heater label indicates that this heater is 81% thermal efficient. This heater shows signs of wear and corrosion due to time and exposure to pool chemicals. The current industry standard for pool heaters is a fan assisted heater that is a minimum of 89% thermal efficiency. These new higher efficient heaters will also comply with the Air Quality Control Board's requirements for a low polluting low NOx output, which the existing does not comply with. If pool covers are used every night and with the heating season being from May 1st to September 30th the total heating cost for the swimming pool is estimated at \$10,000.00 per year. This is assuming an average cost of \$1.25 per therm for natural gas. The increase in thermal efficiency of a new heater can result in an approximate

\$1,000.00 saving per year in gas costs. The following estimates assumes that a new (smaller vent stack is installed at the same time. (SEE EXHIBIT 12)

(Estimated Cost \$17,000.00)

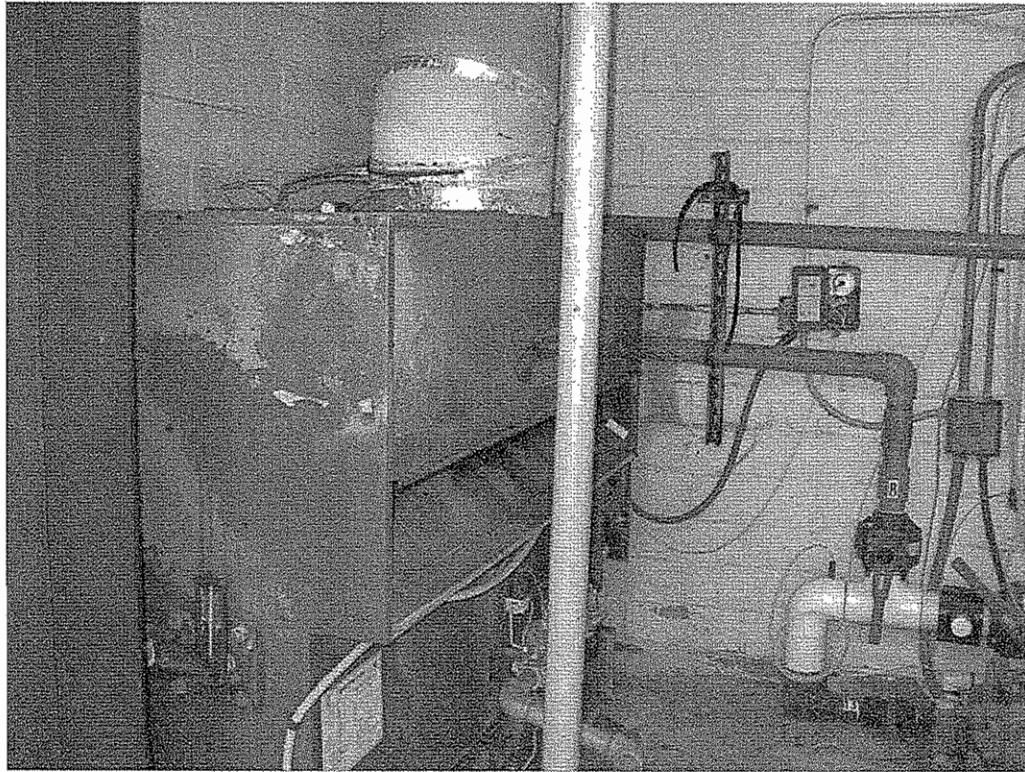


EXHIBIT 12: EXISTING POOL HEATER

2.5 Upgrade Chemical Controller:

The existing chemical controller is a Siemens Strantrol System 3 controller. The controller lacks a safety flow switch. Such a safety switch is used to protect against chemicals from being fed into the pool water if there is a failure in the system and it loses flow. Such a failure can cause the chlorine and acid to combine and form potentially toxic gases. A rotary flow switch should be added to the control system.

(Estimated Cost \$800.00)

I. SUGGESTED ENHANCEMENTS

The following six items are potential enhancements that may be considered for the Rudgear Estates Homeowners Association Pool. These enhancements are based upon industry standards, staff comments and Aquatic Design Group's experience. An estimate of cost is given for each item.

ITEM	DESCRIPTION
3.1	SOLAR POOL HEATING
3.2	POOL WALK-OUT STAIRS
3.3	RACING PLATFORM DEPTH
3.4	INCREASED POOL PLAY AREA
3.5	WET PLAY AREA
3.6	NEW REPLACEMENT POOL
3.7	BASKETBALL AREA
3.8	OUTDOOR BBQ AREA

3.1 Pool Heat and Energy Issues:

One area of interest to the members was any potential for energy savings or reductions in resource consumption in the operation of the facility. Fortunately, the pools are currently operated during the time of the year that requires the least amount of heat. This also means that alternative types of heat such as passive solar and co-generation are not as cost effective as they would be for a facility that operates 12 months per year. However, these technologies may be considered as a better source of heat given their renewable or green energy forms. A cost benefit analysis would have to be conducted of any alternative energy sources to determine if it is in the best interest for the City and its constituencies. Below is a payback analysis for the use of thermal solar to assist in heating the swimming pool. This solar heat is in addition to the gas fired heater. If a solar pool heating system were to be used then the gas fired heater would be used to supplement the solar heat to maintain temperature. A solar system could be used as a shade structure over a portion of the pool deck. For this evaluation we assumed a 3,000 square foot solar shade structure. Such a solar system would cost approximately \$60,000 to be installed. The pool deck would have to be removed to allow for the installation of the underground piping to and from the mechanical equipment area. A thermal solar system has a life expectancy of approximately 15 years. With an estimated 8 year payback the solar system will can provide a return on investment.

It is reported that pool covers are used every night during the swim season when the pool is not in use. The use of pool covers as shown in the table below is the single most cost effective measure that can be taken.

The following tables are an estimate of the heat loads and losses of the two pools based upon consumption modeling provided by the U.S. Department of Energy. These loads are provided with and without the use of swimming pool covers. It is assumed that the pool covers are used each night when the pool is not in use. Assumptions used for this model include: (1) That the swimming pool is only open from May 1st to September 30th. (2) The pools are open for use and uncovered from 7:00 am to 9:00 pm. (3) The

cost for natural gas is \$1.25 therm. (4) The swimming pool water temperature is 82 degrees and the.

SWIMMING POOL Average Evaporation Losses (10⁶ BTU's)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Total
Covered	0	0	0	0	195	161	154	165	152	0	0	0	829
Uncovered	0	0	0	0	293	236	233	246	226	0	0	0	1,235

SWIMMING POOL Average Convection Losses (10⁶ BTU's)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Total
Covered	0	0	0	0	50	40	31	31	29	0	0	0	183
Uncovered	0	0	0	0	84	67	55	53	51	0	0	0	311

SWIMMING POOL Average Radiation Losses (10⁶ BTU's)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Total
Covered	0	0	0	0	93	85	79	77	77	0	0	0	412
Uncovered	0	0	0	0	102	93	87	84	84	0	0	0	453

SWIMMING POOL Total Monthly Losses (10⁶ BTU's)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Total
Covered	0	0	0	0	339	287	266	274	259	0	0	0	1,426
Uncovered	0	0	0	0	479	397	376	384	362	0	0	0	2,000

SWIMMING POOL Average Direct Solar Gain (10⁶ BTU's)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Total
Covered	0	0	0	0	163	159	200	185	143	0	0	0	851
Uncovered	0	0	0	0	163	159	200	185	143	0	0	0	851

SWIMMING POOL NET TOTAL MONTHLY POOL LOAD (10⁶ BTU's)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Total
Covered	0	0	0	0	175	128	65	88	116	0	0	0	574
Uncovered	0	0	0	0	316	238	175	199	219	0	0	0	1,148

SWIMMING POOL ANNUAL SYSTEM TOTALS (COVERED)

	Htg. Loads (10 ⁶ BTU's)	Energy Use (10 ⁶ BTU's)	Htg. Fuel Use therms	Cost
Evaporation	0	1,105	11,059	\$13,824
Convection	183	245	2,452	\$3,065
Radiation	0	550	5,506	\$6,882
Solar Gain	0	-1,135	-11,359	-\$14,199
Totals	0	762	7,658	\$9,573

SWIMMING POOL ANNUAL SYSTEM TOTALS (UNCOVERED)

	Htg. Loads (10 ⁶ BTU's)	Energy Use (10 ⁶ BTU's)	Htg. Fuel Use therms	Cost
Evaporation	1,235	1,647	16,478	\$20,598
Convection	311	415	4,156	\$5,195
Radiation	453	604	6,041	\$7,551
Solar Gain	-851	-1,531	-11,359	-\$14,199
Totals	1,148	813	177,549	\$19,145

THERMAL SOLAR COST RECOVERY ANALYSIS

ITEM	MAY	JUNE	JULY	AUG	SEPT	TOTAL
BTU Pool Water Load 10 ⁶	175	128	65	88	116	572
Solar Panel BTU Input 10 ⁶	81	81	81	81	81	405
Natural Gas Heat Supplement 10 ⁶	94	47	-16	7	35	167
Operating Expense	\$ 1,175	\$ 588	\$ (200)	\$ 88	\$ 438	\$ 2,088
Solar System Surface Area (Sq. Ft.)	3,000					
Solar System Install Cost	\$ 60,000.00					
Total Install Cost	\$ 60,000.00					
Heating Cost Without Solar	\$ 9,573.00					
Heating Cost With Solar	\$ 2,088.00					
Annual Savings	\$ 7,485.00					
Solar Payback (Years)	8					

The following is the estimated cost for a 3,000 square foot thermal solar pool heating system installed.

(Estimated Cost \$60,000.00)

3.2 Pool Walk-Out Stairs:

The swimming pool currently has six sets of recessed steps with grab rails as means of entering or exiting the swimming pool. These recessed steps require that a bather climb a vertical wall using these steps. This can be difficult or impossible for certain members. A portable fiberglass stair case is used to drop into the pool to allow such patrons to use the swimming pool. The challenge with these portable stairs is that the county health department is concerned that they may pose a life and safety risk in the pool. As such the health department will only allow the portable stairs to be used when the water fitness group is using the pool. When this group is done the portable stairs must be removed from the pool and stored on the deck. Such frequent movement shortens the life of the fiberglass stairs as they get knocked around. Secondly these stairs are heavy and may result in a workman's compensation claim if a lifeguard is injured moving these around. A permanent set of walk-out stairs can be added to the pool. These stairs would be constructed of concrete and plaster the same as the pool itself. This work can be done at the same time the pool plaster is being replaced to provide access to the pool concrete shell. These stairs are shown in exhibit I3, with a set of handrails that serves as a secondary means of ADA access into the pool and a third handrail for other patrons. This stair area can also be used for small children for recreation or swim lessons. The following illustration of the swimming pool in exhibit I3, shows four potential locations "A thru D" that such a set of stairs can be added. The members could choose to add one to four of these stairs as they see fit. The following cost estimate is for each stair added to the pool. (See Exhibit I3)

(Estimated Cost \$50,000.00)

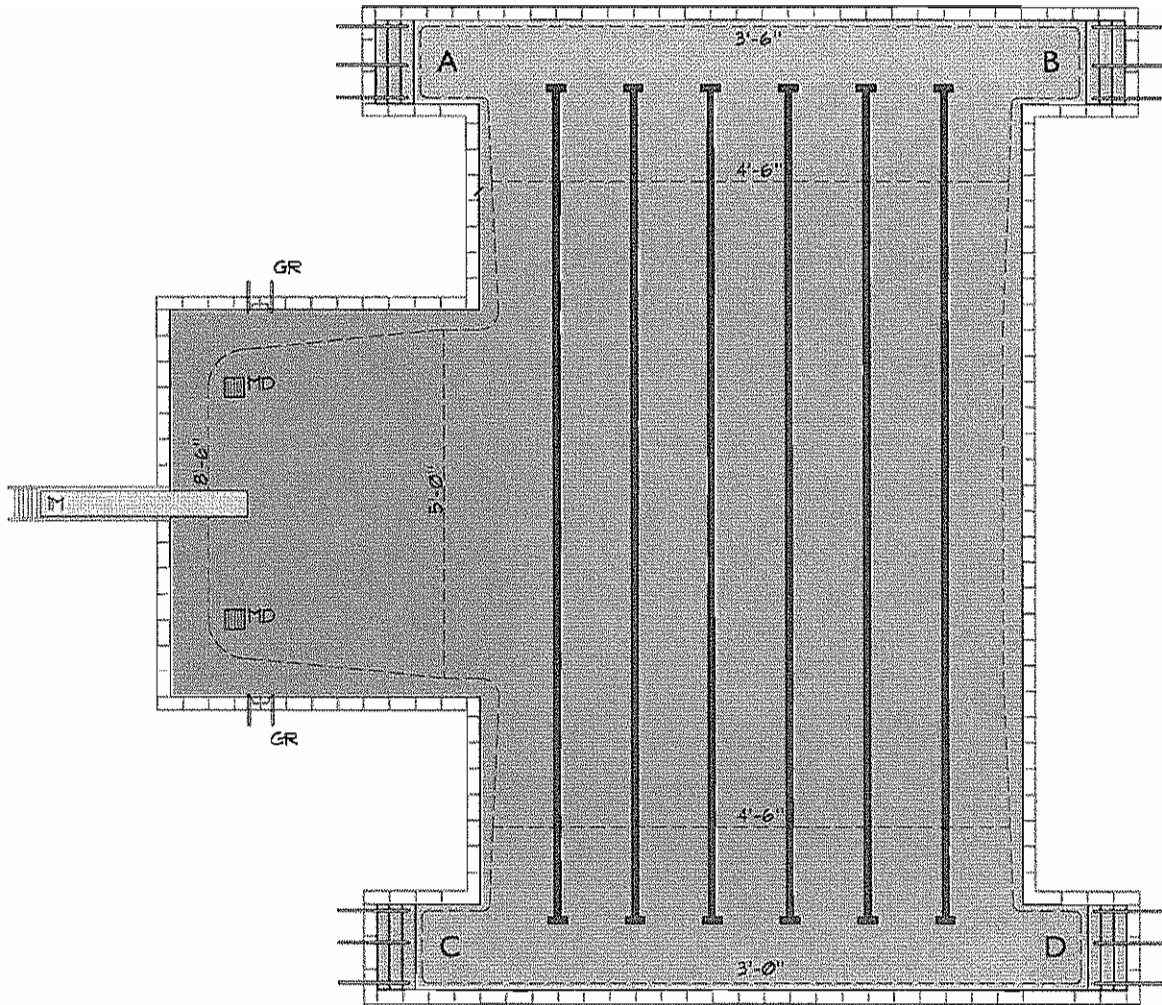


EXHIBIT 13: SWIMMING POOL WALK-OUT STAIRS

3.3 Racing Platform Depth:

The swimming pool is used for the swim team which includes the hosting of six swim meets per year. The pool is configured so that the water depth at either end of the competition lanes is 3'-6". This water depth is now considered too shallow for racing platform diving entries into the swimming pool. USA Swimming is the governing body for the swim team and swim meets that are held at the swimming pool. USA Swimming Rule 103.2 states:

- .1 National Championship meets shall have a minimum water depth of 2 meters (6 feet 7 inches) throughout the course.
- .2 Teach Racing Starts – Minimum water depth for teaching racing starts in any setting from any height starting blocks or the deck shall be 6-feet measured for a distance of 3'-3.5" to 16'-5" from the end wall. (effective February 15, 2007)

- .3 Racing Starts – Minimum water depth for racing starts during practice and competition shall be measured for a distance of 3'-3.5" to 16'-5" from the end wall. Starting requirements and height of starting block shall be:
- A. In Pools with water depth less than 4' or more at the starting end, the swimmer must start from within the water.
 - B. In pools with water depth 4' or more at the starting end, starting blocks shall meet the height requirements of section 103.12.1.

The National Swimming Pool Foundation states in their Aquatic Safety Compendium that spinal injuries from diving accidents in a swimming pool are non-existent when the water is 7' deep or deeper. California Health Code Title 24 Chapter 31B requires the installation of no diving signs where the water depth is less than 6'. Based upon this data the racing platforms at the Rudgear swimming pool should be discontinued in the 3'-6" water depth areas. The "T" portion of the pool has a water depth of 8'-6", which could support racing platforms, but the pool length is too short in this direction to be used for competition. The pool can continue to support swim meets with swimmers starting within the pool or the pool can be reconfigured to provide safe racing platform dives into the pool. Since a gunite swimming pool uses the adjacent soil as a form the pool floor cannot be removed to make the pool deeper without demolishing the pool walls as well, which would result in the complete demolition of the existing pool. Since there is no practical way to deepen the swim lane areas to support this program, alternative methods will have to be considered. The following illustration shows a possible pool renovation that could support a maximum of 5 swim lanes for competitive use without demolishing the entire pool. This option shows both the options for the 25-yard lanes in the same direction as the diving board. The water depth at the opposing end of the pool from the diving board can be 7' deep to meet all standards for racing platform diving. This option also shows the four potential sites for the walk-out stairs as well. This pool extension and stairs would be constructed of concrete and plaster the same as the pool itself. This work can be done at the same time the pool plaster is being replaced to provide access to the pool concrete shell. This scope will also require the removal of a portion of the pool deck at a minimum. This option will also create more pool water surface area which will require the renovation of the bathrooms to provide the minimum bathroom fixture count as well. The following cost estimate assumes that the pool is being replastered at the same time under a separate cost estimate. This estimate does not include the removal of the pool deck or remodel of the bathrooms. (SEE EXHIBIT 14)

(Estimated Cost \$125,000.00)

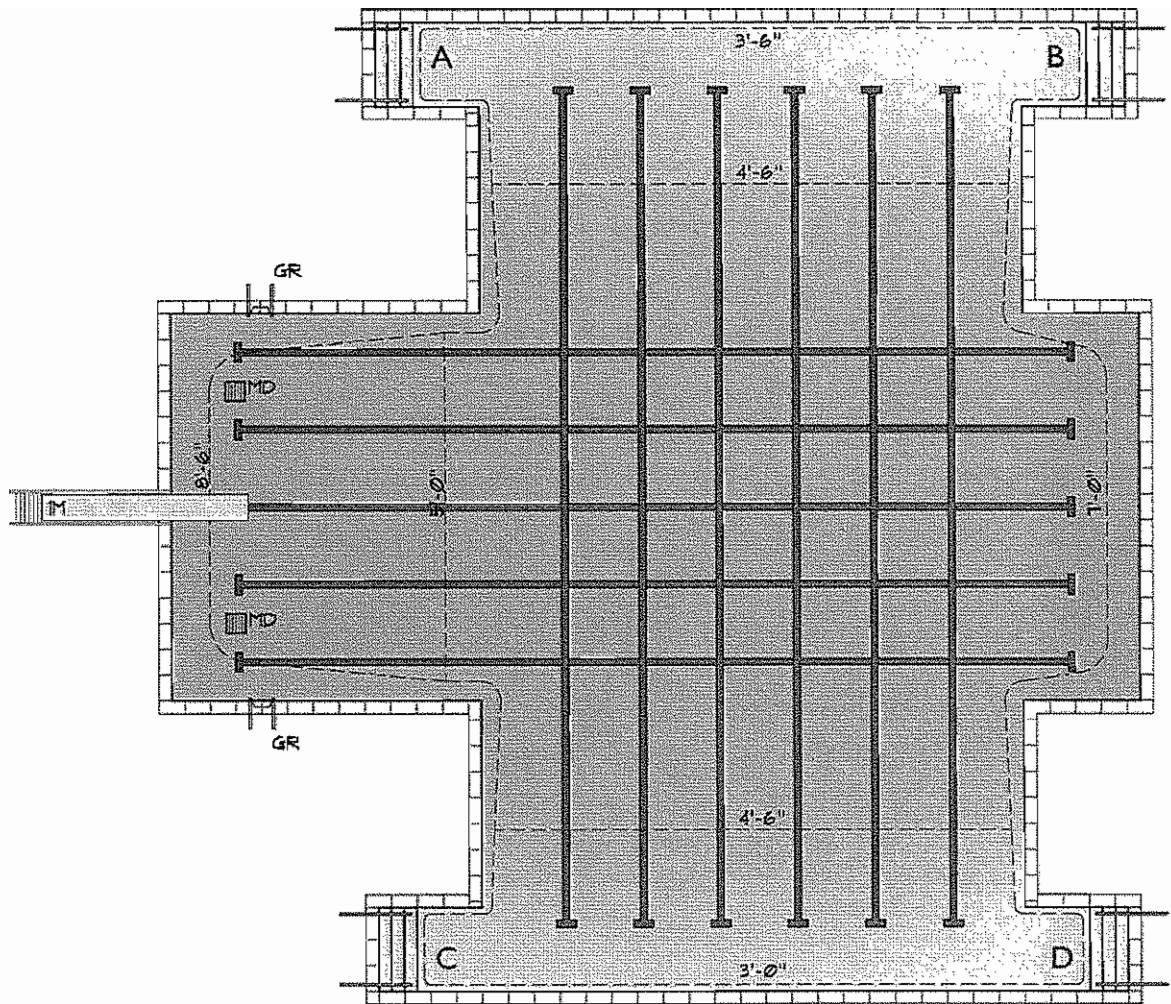


EXHIBIT 14: RACING DEPTH REMODEL

3.4 Increased Pool Play Area:

Another option to be considered in the renovation of the swimming pool is to extend the pool on the west side to create a play area for children that would allow lap swimming to occur simultaneously. In this option the pool stairs become a large area at the end of the renovated section. This will eliminate the need for walk-out stairs as previously presented. This option does not solve the problem of deeper water for competitive swimming as noted in section 3.3 above. The following cost estimate assumes that the pool is being replastered at the same time under a separate cost estimate. This estimate does not include the removal of the pool deck or remodel of the bathrooms. The chart below indicates the minimum bathroom fixtures required for this 4,590 square foot of pool water option. (SEE EXHIBIT 15)

(Estimated Cost \$130,000.00)

ITEM	WOMEN'S TOILET	WOMEN'S LAVATORY	SHOWERS	MEN'S TOILET	MEN'S URINAL	MEN'S LAVATORY
Existing	2	1	2	1	1	1
Required	2.7	2	6.4	2.1	2.1	2

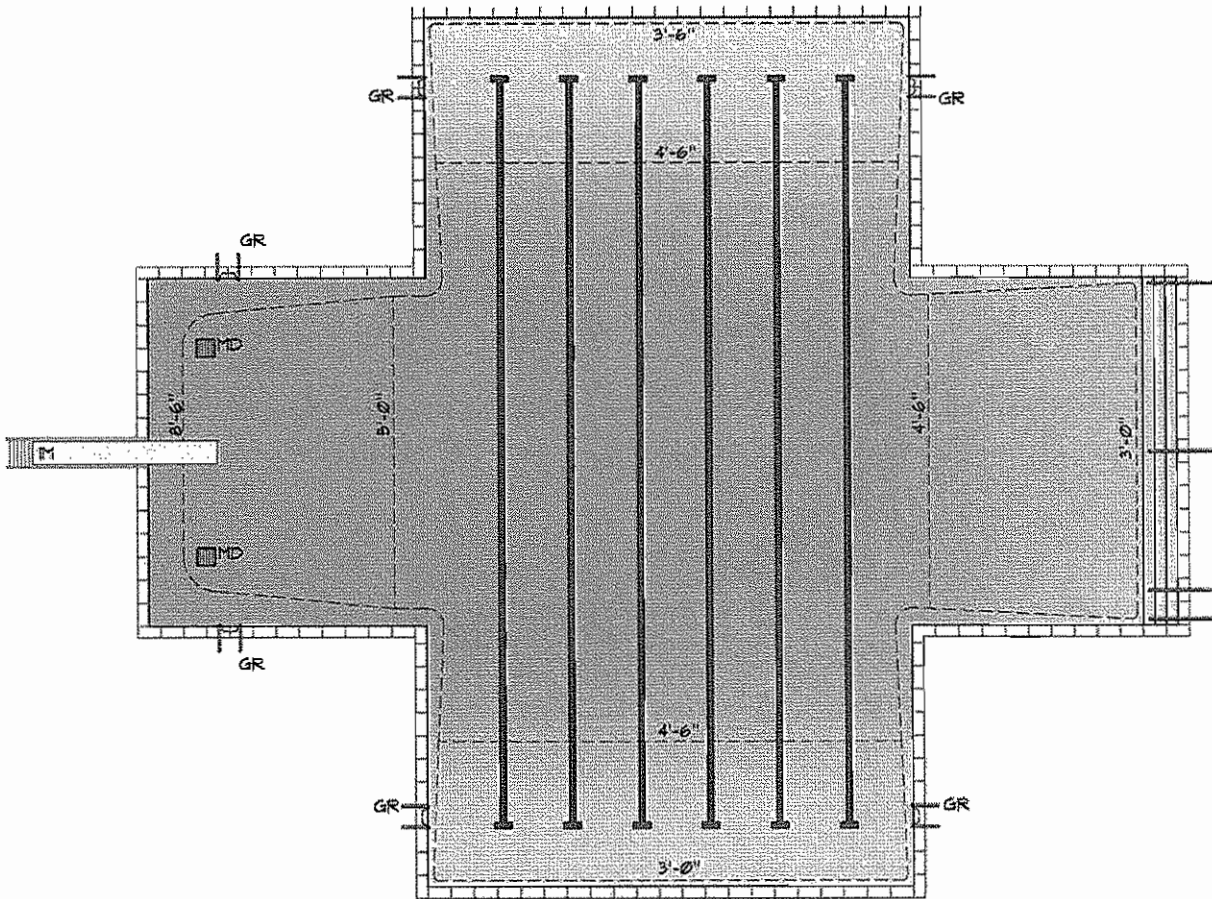


EXHIBIT 15: PLAY AREA REMODEL

3.5 New Wet Play Area:

In lieu of an increase of the swimming pool shallow area an independent wet play area can be created. Such an area creates a play area for children outside of the swimming pool or wading pool. These wet play areas have an underground vault that recirculates and filters the water similar to the swimming pool. This wet play area will be considered an independent water feature and will require its own mechanical equipment. This feature will also increase the required number of bathroom fixtures and will require the renovation of the existing bathrooms as noted previously. The

following estimate is for the wet play area play equipment and mechanical equipment both. It also includes the underground water tank and the new concrete for this area. It does not include the replacement of any of the existing pool deck nor the renovation of the bathrooms. The increase in bathroom fixtures for this option will depend on the square footage of play area created.

(Estimated Cost \$250,000.00)

3.6 New Multi-Purpose Pool:

In lieu of renovating the existing swimming pool the Rudgear Estates members may choose to remove and replace the existing swimming pool with a new one. More investigation with the members is required to determine what configuration and size such a pool should be. For the purposes of comparison we have include a cost estimate for a new 8-lane pool, which could meet all of the programmatic needs noted above. This 8-lane pool would have a water surface area of 4,475 square feet so it is larger than the existing swimming pool. This estimate will require the removal and replace of the pool deck and includes it in the estimate. It does not include the renovation of the bathhouse.

ITEM	WOMEN'S TOILET	WOMEN'S LAVATORY	SHOWERS	MEN'S TOILET	MEN'S URINAL	MEN'S LAVATORY
Existing	2	1	2	1	1	1
Required	2.7	2	6.4	2.1	2.1	2

**RUDGEAR ESTATES NEW 8-LANE SWIMMING POOL OPTION
OPINION OF PROBABLE COST**

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>QTY</u>	<u>UNIT</u>	<u>UNIT PRICE</u>	<u>EXTENSIONS</u>
1.0	<u>CONSTRUCTION COSTS</u>				
1.1	Site Preparation/Demolition	1	LS	\$ 85,000.00	\$ 85,000.00
1.2	Utility Allowance	1	LS	\$ 20,000.00	\$ 20,000.00
1.3	New Pool & Mechanical Equipment	4,475	SF	\$ 135.00	\$ 604,125.00
1.4	Pool Decks	15,000	SF	\$ 17.00	\$ 255,000.00
1.5	Pool Area Fencing	0	LF	\$ 85.00	\$ -
1.6	Site Lighting	0	LS	\$ 75,000.00	\$ -
1.7	Pool Building	0	SF	\$ -	\$ -
1.8	TOTAL CONSTRUCTION COSTS				\$ 964,125.00
2.0	<u>EQUIPMENT COSTS (FF&E)</u>				
2.1	Deck Equipment	1	LS	Incl.	Incl.
2.2	Competitive Equipment	1	LS	\$ 18,000.00	\$ 18,000.00
2.3	TOTAL EQUIPMENT COSTS				\$ 18,000.00
3.0	<u>SOFT COSTS</u>				
3.1	Contingency Costs	15%			\$ 147,318.75
3.2	General Contractor Mark-up & Overhead	15%			\$ 147,318.75
3.3	Testing/Inspection	5%			\$ 49,106.25
3.4	Architecture & Engineering	12%			\$ 117,855.00
3.5	Escalation	0%			\$ -
3.6	TOTAL SOFT COSTS				\$ 314,280.00
4.0	TOTAL ESTIMATED PROJECT COST				\$ 1,296,405.00

3.7 New Basketball Area:

In addition to the swimming pool renovation some members noted that a additional outdoor recreation such as a basketball court could provide improved recreation to the club. The upper lawn area is currently underutilized. The upper lawn area has an available open space of approximately 150' by 80'. A new basketball court of 84' by 50' could fit easily in this space. The following illustration shows the needed dimensions for a basketball court. To prevent the court from cracking the concrete slab should be a post-tension slab which adds cost to the construction cost. The following estimate is for the post-tension slab concrete as well as the basketball equipment. Some of the modern outdoor basketball courts can be configured to provide a multitude of games or programs including volley ball, badminton, four square to name a few. (SEE EXHIBIT 16)

(Estimated Cost \$40,000.00)

3.8 New BBQ Area:

In addition to the swimming pool renovation some members noted that a new BBQ area could serve the members. There are numerous areas on the property that can be used for a BBQ area. The natural gas line can be run from the pool mechanical building to this area. The least expensive area is the area to the north of the wading pool. This location is the closest to the existing natural gas service. It will also require the least amount of pool deck to be removed if this is done independent of any pool renovation. Further investigation will need to be completed with members to determine the appropriate size of the BBQ and the best location. The following estimate is a range that a new BBQ could be expected to cost.

(Estimated Cost \$10,000.00 to \$50,000.00)

J. SUMMARY

SECTION TOTALS

ITEM	DESCRIPTION	ESTIMATE
1.0 CODE VIOLATIONS		
1.1	Pool Plaster Finish	\$ 85,000.00
1.2	Swimming Pool Turnover Rate	\$ 110,000.00
1.3	Deck Depth & Safety Markers	\$ 5,000.00
1.4	Disabled Access	\$ 9,500.00
1.5	Bathrooms	\$ 200,000.00
1.6	TOTAL CODE VIOLATIONS	\$ 409,500.00
2.0 MAINTENANCE & OPERATIONS		
2.1	Chemical Storage	\$ 4,000.00
2.2	New Pool Decking	\$ 360,000.00
2.3	Electrical Upgrade	\$ 18,000.00
2.4	New Pool Heater	\$ 17,000.00
2.5	Upgrade Chemical Controller	\$ 800.00
2.6	TOTAL MAINTENANCE AND OPERATIONS	\$ 399,800.00
3.0 ENHANCEMENTS		
3.1	Solar Pool Heating	\$ 60,000.00
3.2	Pool Walk-Out Stairs	\$ 50,000.00
3.3	Racing Platform Depth	\$ 125,000.00
3.4	Increased Pool Play Area	\$ 130,000.00
3.5	Wet Play Area	\$ 250,000.00
3.6	New Replacement Pool	\$ 1,296,405.00
3.7	Basketball Area	\$ 40,000.00
3.8	Outdoor BBQ Area	\$ 25,000.00

**RUDGEAR ESTATES HOMEOWNERS ASSOCIATION
SWIMMING POOL
NEEDS ASSESSMENT STUDY
RENOVATION OF EXISTING SWIMMING POOL
PROFORMA BUDGET ESTIMATE OPINION OF COST**

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>ESTIMATE</u>
1.0	<u>CODE VIOLATIONS</u>	
1.1	Pool Plaster Finish	\$ 85,000.00
1.2	Swimming Pool Turnover Rate	\$ 110,000.00
1.3	Deck Depth & Safety Markers	\$ 5,000.00
1.4	Disabled Access	\$ 9,500.00
1.5	Bathrooms	\$ 200,000.00
1.6	TOTAL CODE VIOLATIONS	\$ 409,500.00
2.0	<u>MAINTENANCE & OPERATIONS</u>	
2.1	Chemical Storage	\$ 70,000.00
2.2	New Pool Decking	\$ 360,000.00
2.3	Electrical Upgrade	\$ 18,000.00
2.4	New Pool Heater	\$ 17,000.00
2.5	Upgrade Chemical Controller	\$ 800.00
2.6	TOTAL MAINTENANCE AND OPERATIONS	\$ 465,800.00
3.0	<u>ENHANCEMENTS</u>	
3.2	Pool Walk-Out Stairs	\$ 100,000.00
3.5	Wet Play Area	\$ 250,000.00
3.6	New Replacement Pool	\$ -
3.7	Basketball Area	\$ 40,000.00
3.8	Outdoor BBQ Area	\$ 25,000.00
3.9	TOTAL MAINTENANCE AND OPERATIONS	\$ 415,000.00
4.0	<u>SOFT COSTS</u>	
4.1	Contingency Costs	\$ 193,545.00
4.2	General Contractor Mark-up & Overhead	\$ 193,545.00
4.3	Testing & Inspection	\$ 25,806.00
4.4	Architecture & Engineering	\$ 129,030.00
4.5	Escalation	\$ -
4.6	TOTAL SOFT COSTS	\$ 541,926.00
5.0	TOTAL ESTIMATED PROJECT COST	\$ 1,832,226.00

The cost estimate in the proforma spreadsheet above assumes that all options are included. The architectural and engineering (A&E) fees are the fees to design this scope of work. If portions of this scope are reduced these fees will also be reduced. The A&E fees include the design work including a limited number of site visits during construction to verify that work is being completed in accordance with the project plans and specifications. These A&E fees do not include construction management fees as these are duties provided by a third party if necessary.

The swimming pools at the Rudgear Estates Homeowners Association Pool have provided the residents and members with many years of service. Certain areas are worn and tired and in need of renovation. The pool structure is assumed to be sound as noted previously in this report without any destructive testing to confirm. With the correction of code violations and the suggested improvements the pool will and can be restored to its original condition. It must be kept in mind that even though the pool components meet current standards, the comparative cost to repair versus replace the pool and the risk associated with renovation work should be carefully evaluated. As such, a decision should be made as to whether the capital expenditure provides an acceptable return in a cost benefit analysis of any renovation versus replacement.

Sincerely,

AQUATIC DESIGN GROUP, INC.