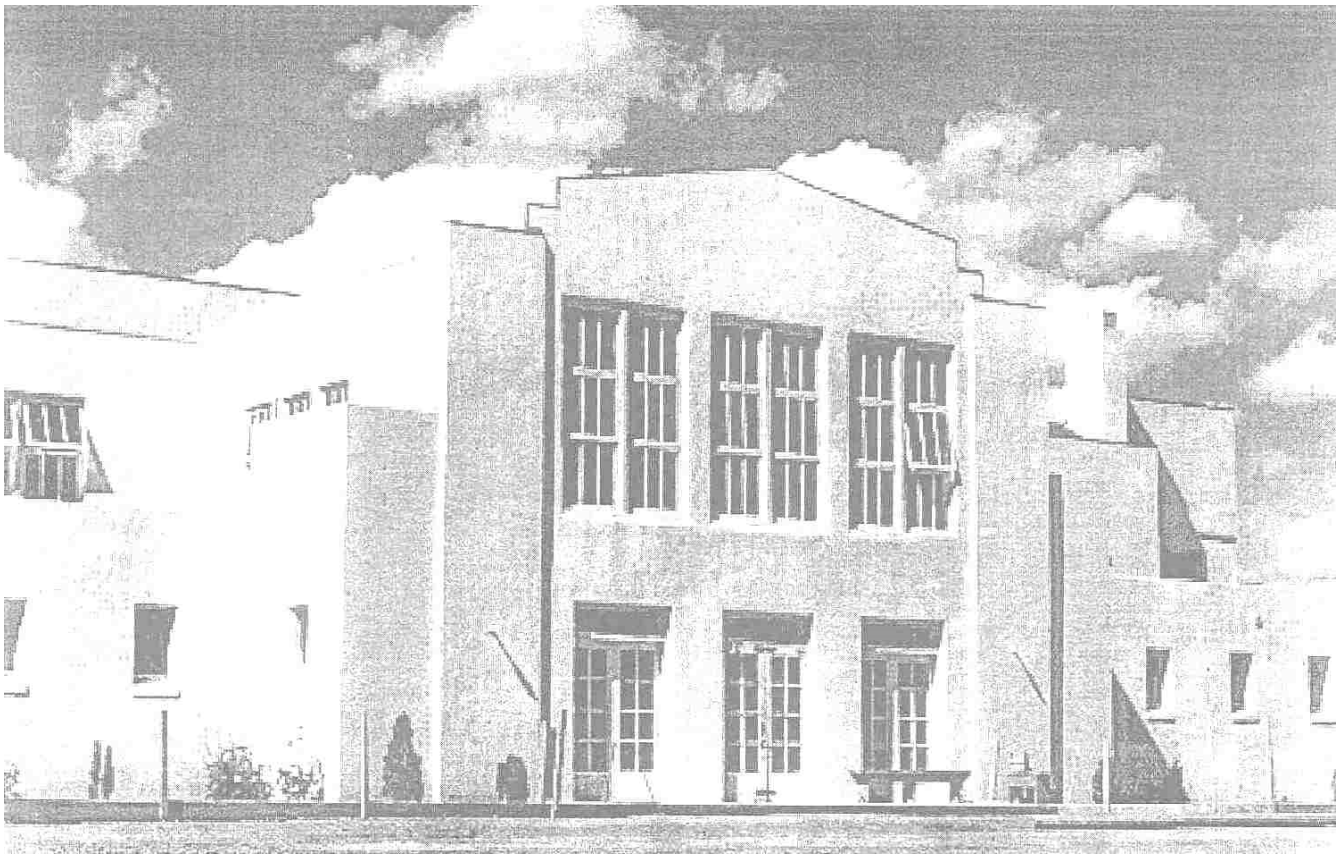

ROOSEVELT SWIMMING POOL
Susanville, California

REHABILITATION / RENOVATION
FEASIBILITY REPORT

May 23, 2014

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I. INTRODUCTION / EXECUTIVE SUMMARY

This feasibility study was requested by the Honey Lake Valley Recreation Authority to present analysis and preliminary estimates of construction costs for three alternate approaches to the rehabilitation of the Roosevelt Swimming Pool. The Authority has defined the alternate approaches as follows:

Scenario 1: to rehabilitate the entire facility with the equivalent square footage of conditioned space;

Scenario 2: to rehabilitate all conditioned space excluding the natatorium (the structural elements over the existing pool) and any unsafe roof structure, with analysis of suitability of reuse of support columns and cost to provide an open air cover over the pool.

Scenario 3: removal of all structural elements and rehabilitation of existing in ground pool for operation as an outdoor facility.

Scenario 4: (added by Siegfried): removal of all structural elements and the existing pool, replaced by a new and complete open air facility.

This feasibility study is intended to supplement, but not alter, the findings presented in the NCCSIF *Pool Inspection Report* prepared by Mr. Jack Kastorff, dated November 29, 2004, and the *Structural Investigation and Report* prepared by Mr. Robert F. Harp, dated January 18, 2005.

Seigfried and its consultant team performed a site observation visit on April 9, 2014 with Jared Hancock and Heidi Whitlock of the Honey Lake Valley Recreation Authority to document existing conditions as a basis to evaluate the Authority's desired three alternate approaches. Basement sections of the facility were lighted with a portable generator. Protective masks were provided to all in attendance.

Siegfried's team includes the following:

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Many of the conditions identified in reports referenced above were confirmed during Siegfried's site observation visit.

Siegfried's analysis of the Authority's three defined scenarios indicates that attempts to rehabilitate the existing bathhouse and natatorium as outlined in Scenario 1 would be significantly more costly than Scenarios 2 or 3, or an entire brand new facility.

Siegfried is pleased to have had the opportunity to provide this feasibility study to the Honey Lake Valley Recreation Authority.

II. DEFINITIONS

For the purposes of this study, the following terms and definitions will apply:

Code: Applicable jurisdictional codes current at the time of design, permit issuance, and construction.

Bathhouse: That portion of the building which houses offices, locker rooms, meeting rooms, storage rooms, etc. as well as pool pump, heating and filtration equipment.

Natatorium: That portion of the building which provides a weatherproof enclosure of the pool and pool deck areas.

III. BACKGROUND

The Roosevelt Swimming Pool was built in 1937 as a product of the Works Progress Administration. The existing building area is approximately 15,400 square feet. The pool went through a limited renovation in 1985 to upgrade its heating system. Over the years, however, leaks throughout both the pool and building have compromised the structural integrity and healthfulness of the facility. The facility was closed in 2004 due to concerns with the building's structural integrity, accessibility compliance, and various health code violations.

An inspection was conducted in 2004 by the Northern California Cities of Self Insurance Fund (NCCSIF). An asbestos and lead based paint evaluation as it pertained to the demolition of the building was also performed in 2012. A structural investigation was conducted in 2005 on the existing building and deemed unsafe to occupy. Based on the analysis of the structural investigation, it was determined the cost of repairs and bringing the building into code compliance would equal or exceed the cost of a new construction replacement building.

IV. PROJECT OBJECTIVE

It is the Authority's Project objective to determine an appropriate approach to reopen the facility to the community. The Authority intends to select one of the three stated options described above to renovate the facility.

V. FACILITY ANALYSIS

A. As Built Description

The Roosevelt Swimming Pool was constructed in 1937 to the construction standards and regulations in place at that time, most likely the first Uniform Building Code, published in 1927.

1. Site Observations:

The facility is located on an approximately 1.8 acre, mostly level site at 800 South Street. The building is generally located in the center of the site, with on grade parking on the east side and generous outdoor space on the south and west sides.

Mature trees provide screening along the east, south, and west property lines. Additional mature trees grace the street side setback.

The existing parking lot appears to be able to accommodate approximately 45 automobiles.

2. Bathhouse and Natatorium:

a. Architectural Layout and Features:

1) The main entry to the facility is into the bathhouse on the east side of the building, where user check-in, offices and locker rooms are located. Above the offices is a second floor activity room, open to a balcony which extends along a majority of the length of the east side of the natatorium. *(See photo 1.)*

2) The locker rooms provide areas for changing, as well as toilets and showers.

3) Entry to the pool is through the men's and women's locker rooms, respectively. *(See photo 2.)*

4) The natatorium portion of the building provides concrete decks approximately 8 feet wide on the east and west sides of the pool, and decks approximately 12 feet wide on the north and south ends of the pool. The ceiling height in the natatorium is approximately 20 feet above the pool deck. *(See photos 3, 4.)*

5) Large windows on the south and west sides of the natatorium provide natural light. Five (5) wall-pack type fixtures were observed mounted high on the west wall. Roof mounted skylights provide natural light in the locker rooms. *(See photo 5.)*

b. Building Structure:

1) The largest area of the facility is the single story natatorium, comprising the entire west side portion of the facility. The concrete pool deck is near exterior grade levels. The natatorium has a varying height basement space around the perimeter of the pool. The basement area consists of reinforced

concrete pool walls, pool deck and exterior retaining walls. The exterior walls are wood stud framed with stucco exterior finish founded on top of a five foot high concrete stem wall. The roof consists of east west spanning gabled wood trusses supported by reinforced concrete columns. The columns are tied along their tops by a perimeter concrete spandrel beam. The trusses support roof and ceiling sub-framing which are sheathed with boarded sheathing. *(See photo 6.)*

2) The locker room areas of the building are single story structures with concrete exterior walls, wood framed interior walls, and wood framed roofs. *(See photo 2.)*

3) A second story balcony extending the length of the east side of the natatorium is also framed back into this roof area. *(See photos 3, 7.)*

4) The central entry area has a full wood framed full second floor and a wood framed roof.

5) A small electrical room is on the northwest corner of the building and consists of exterior masonry walls and a wood framed roof. This appears to be a later addition and not a part of the original structure. *(See photo 8.)*

3. Swimming Pool:

a. The pool was designed as a typical foundation below grade structure with a narrow perimeter "basement" around the pool shell where the pool's filtration and heating equipment is located. This was the common school-of-thought during that era. *(See photo 6.)*

b. The swimming pool is a concrete poured in-place shell, 100'-0" long by 50'-0" wide. There is a continuous construction joint across the floor and up each side wall at the 5'-0" depth and two other construction joints across the floor of the pool. It is highly probable that these construction joints have been a likely cause of reported water loss.

c. The shallow end water depth is marked as 2'-0" deep. The pool floor slopes at approximately 1:16 to 3'-0" at which point it slopes at approximately 1:16 to 5'-0" over a length of approximately 30 feet. There is a painted line across the pool at 5'-0" in depth before the slope increases to approximately 1:8 and drops to 9'-0" deep at the deepest portion of the pool, where the main drains are located. *(See photos 9, 10.)*

d. There are two (2) sets of steps at the shallow end of the pool, located at each corner of the pool. There are four (4) sets of recessed step and grab rails, two (2) at the 5'-0" depth and two (2) at the deep end. (See photo 9.)

e. The pool circulation was designed with a perimeter scum gutter and wall return inlets. *(See photo 11.)*

1) A scum gutter is an unprotected shallow gutter with drop outs at periodic intervals, usually between 8 and 12 feet. They pose a safety risk from being

a slippery surface and prevent sure footing when entering or exiting the pool from other points than ladders or steps provided).

2) Scum gutters are not designed for continual overflow as integral to the circulation system, instead capturing a limited amount of surge and the lines are often on the suction side of the pump or to waste without use of a surge tank.

3) A perimeter overflow gutter captures surface water continually as an integral part of the circulation system. It continually takes gutter water back into the system via a surge tank. The perimeter overflow gutter will also capture surge water via two large gravity lines from the base of the gutter.

f. There are several 12" x 12" recesses in the side walls, but it is not known if these recesses were for underwater lighting. There is no underwater pool lighting at this time. The top deck area and scum gutter appears to be an integral part of the pool shell structural design. *(See photo 12.)*

g. The pool has a white paint finish over the poured-in-place concrete shell, with six (6) lane markers painted in black on the floor of the pool and corresponding lines as targets painted in black on each end wall.

h. Pumping, filtration, and heating equipment are located below deck at the north end of the pool. Such equipment includes: two (2) steel tank EPD high rate sand filters; Paco horizontal close coupled LC-40957 circulation pump with bulk tank bleach for sanitization and acid for pH control; Strantol, Stranco Model #720 chemcial control monitor. *(See photos 13, 14.)*

4. Mechanical:

a. The building is not air conditioned and does not have any means of space heating.

b. The natatorium is ventilated by three wall mounted exhaust fans, located within the existing windows on the west wall. The fans appear to be non-functional. It is unknown the sequence of operation of these fans and how they were activated. *(See photos 15, 16.)*

c. It was observed the ceiling had extensive damage and water condensation stains. This is due to high concentration of water vapor in the natatorium and lack of ventilation.

d. Current exhaust design draws air from adjacent windows, making room ventilation inefficient. The remainder of the building relies on open windows for natural ventilation. Ventilation grilles were observed on the ceilings of the locker rooms, but it was not possible to verify actual mechanical ventilation. An existing blower in the basement is assumed to provide air to the locker rooms, however, it was not possible to confirm this assumption at the time of the survey.

5. Electrical:

The lighting and power systems are non-functional. The majority of light fixtures were damaged, and every electrical panel is in poor condition. It is assumed that the main electrical service is approximately 600 amps. Access to the main switchgear closet was unavailable at the time of our site observation visit. The overhead wiring for the main electrical and telephone services have been disconnected. *(See photo 17.)*

6. Plumbing:

At the time of the survey, it was not possible to verify the size and/or routing of the sewer pipe. Domestic water is provided via a 2" city water service. Pool water is provided at 100 degrees by an on-site (in the bathhouse) well. (The well's location makes it impossible to properly service.) No gas is provided for the building. The building receives city geothermal water, with a heat exchanger to heat water for pool and domestic uses. A second water heater is also provided.

B. Current Condition Analysis

The following information is from Siegfried's April 9 site observation visit:

1. Architectural:

   a. The facility is in a state of complete disrepair. Every observable component is in need of replacement.

      1) Roofing and roofing accessories;
      2) Doors, door frames and hardware;
      3) Windows, glazing and hardware;
      4) Wall finishes (exterior and interior) and finish substrates;
      5) Floor finishes and finish substrates;
      6) Interior and exterior lighting fixtures;
      7) All plumbing fixtures;
      8) All non-pool mechanical equipment;

   b. The existing facility is non-compliant with accessibility requirements.

   c. The existing locker rooms are non-functional and do not provide privacy protection desired by present day users. *(See photo 2.)*

   d. The facility is, by current code, non-compliant with the quantity of sanitary fixtures required (toilets, showers, lavatories).

   e. The guardrail at the upper level balcony is not compliant with current code. *(See photo 7.)*

2. Roof Structure:

   Siegfried observed evidence of roof leaks which have resulted in the deterioration of wood framing and sheathing throughout the entire facility. This condition was identified in both the Harp and NCCSIF reports. There appears to have been no remedial work to prevent further deterioration of the building since the publication of those reports.

   As a result of this ongoing deterioration, we found evidence of potential framing failures in a number of areas. The following are some of our observations and concerns:

   a. The ceilings in the locker rooms are sagging severely and appear to be in danger of collapse in several locations. This visual sagging is in part the result of ceiling plaster pulling away from the ceiling joists, however, we also observed rotting of some joists. *(See photo 18.)*

   b. The second floor area and balcony are very "soft" and dangerous to walk on due to the rotting of the floor sheathing. Some of the exposed framing in this area also revealed deterioration. *(See photo 7.)*

   c. The ceiling board sheathing between roof trusses over the natatorium revealed moisture damage. Our access into the attic for further examination was limited;

however, the observations of framing deterioration as reported in the Harp Report seem to be accurate based on our observations. *(See photo 19.)*

In summary, a substantial majority of the roof and floor framing in this facility would require substantial repair, strengthening or replacement in order to reuse this facility. The removal of all sheathing materials would provide for further examination and enable us to better quantify the extent of these modifications.

3. Structural Framing and Wall Elements:

   a. Most of the upper level exterior stucco on the south and west wood framed natatorium walls has been stripped leaving exposed wood sheathing. Most of the remaining stucco on these walls as well as the stucco on other framed exterior walls is cracked and spalled at numerous locations throughout. This condition has enabled moisture to deteriorate the underlying wood framing and sheathing and has resulted in the corrosion of sill anchor bolts. *(See photos 20, 21.)*

   b. The deterioration of wall framing does not appear to be as extensive as the roof framing. Wall framing repair would likely be needed in isolated areas, especially next to sill plates and window openings. However, removal of all exterior sheathing, which will be required in any scenario, is needed to better quantify the extent of wall framing repairs. *(See photo 22.)*

   c. Most of the concrete framing, columns, beams and walls, appeared to be in relatively good condition, given the age of the structure. We observed cracking in a number of walls which will require routing and pressure grout injection repairs. A couple of cracks observed in the upper spandrel beam require further analysis and may require more extensive repairs.

4. Glazing: The existing window systems are based on steel sash openable units with a variety of glazing types. Tempered glazing is required by code where it occurs within 60 inches of the pool edge. *(See photo 23.)*

5. Ventilation / Air Handling Systems: No cooling systems were observed. All exhaust fans are in poor condition. Evidence of mold/mildew was observed in the attic space above the natatorium.

6. Plumbing: All observable plumbing elements are in poor condition.

7. Geothermal Well: Further testing is required to determine the condition of the geothermal well.

8. Geothermal Heat Exchanger: The geothermal heat exchanger is in poor condition.

9. Area Lighting, Pool Lighting, and Electrical Equipment: The quantity and type of light fixtures provided in the natatorium as well as the bathhouse for non-daylight hours operation appear to be insufficient. All light fixtures and electrical equipment are either in poor condition or missing. *(See photo 15.)*

10. Locker Rooms:

    a. Both locker rooms are non-functional, nor do they provide privacy protection desired by present day users.

    b. Both locker rooms, by current code, are non-compliant with the number of sanitary fixtures required (toilets, showers, lavatories).

11. Occupant Loads: The occupant load of a renovated facility (respective pool and room sizes unchanged) would be approximately 500* compiled as follows:

Area	Occupant Load Factor	Occupant Load
Pool	(1 occ / 15 sf)	334
Offices / Lobby	(1 occ/100 sf)	4
Locker Rooms **	(1 occ/50 sf)	20
Activity Room	(1 occ/7 sf)	30
Balcony	(1 occ/5 sf)	50
Total		438

    ** The April 9 site observation visit prioritized the structural and operational condition of the facility, and did not include the taking of measurements taken to confirm or quantify any building areas, thus the approximation of occupant load shown above.*

    *** The occupant load approximated for the locker room is included in calculations of exiting requirements, but is not included in the calculation of the quantity of sanitary fixtures required.*

12. Common Areas: The bathhouse common areas (main entry, lobby, staff offices, and stairs) all are in need of complete renovation, including finish materials, electrical provisions and lighting, etc. The stairs are no longer compliant with code (required rise and run, required width, etc.). *(See photo 24.)*

13. Activity Room: The second floor Activity Room is in need of complete renovation, including finish materials, windows, air conditioning, electrical provisions and lighting. See also comments under Accessibility Compliance below. *(See photo 25.)*

14. Balcony: The balcony area is in need of complete renovation, including floor framing as discussed above, and a new guardrail as discussed below. *(See photo 7.)*

15. Flooring: The floor finishes and their respective substrates throughout the facility are in need of complete replacement.

16. Pool Decks and Drainage:

    a. The pool deck consists of reinforced concrete slab spanning between concrete floor beams, the pool wall and perimeter basement walls. Overall, the deck appeared to be in relatively good condition. We did find some isolated cracking that will require routing and pressure grout injection to repair the deck for future use.

b. We also observed some minor isolated cases of exposed, rusted reinforcing on the bottom of the deck that will require further repairs. A more detailed examination of the entire basement perimeter is needed to further quantify the extent of these repairs.

c. The pool decks slope towards the pool for drainage. There are no area drains.

17. Water Circulation and Filtration: The former system for the pool was high rate sand with two (2) steel tank EPD sand filters, a Paco horizontal close coupled LC-40957 circulation pump with bulk tank bleach for sanitization and acid for pH control. The system was monitored by a Strantol, Stranco Model # 720 chemcial control monitor.

18. Pool Shell: Based on our limited observations, the pool shell appeared to be in good condition. We did not observe any significant cracking or evidence of historical leaking. The two transverse expansion joints will likely require resealing.

19. Accessibility Compliance to Pool and Structure: The pool design predates Americans with Disabilities Act by over 50 years. There is little evidence of attempts to comply with ADA requirements between its enactment in 1990 and the pool closure in 2004. The ADA was amended in 2009; the CBC accessibility requirements were updated in its 2013 edition.

a. Site:

At the time of our site observation visit on April 9, the parking lot was being used as a storage site of cinder materials for snow removal activities, thus the parking lot surface was unobservable. However, the site appears relatively level, with little grade change between the parking lot elevation and the building entry finish floor elevation. It is our opinion that accessibility from the parking lot to the pool building entrance can be easily achieved.

b. Building:

1) Virtually no accessibility features are in place. Examples of design corrections and features needed for accessibility compliance include: accessible parking stalls and path of travel; required accessibility signage; detectable warnings; required door and landing widths and clearances; corridor, passageway and stairway widths; door and window hardware; elevator; required locker room and toilet room features and accessories; accessible workspaces (built in desks and counters); assistive listening systems; drinking fountains; lighting and equipment controls; fire alarm equipment; pool lifts or ramps; picnic areas.

2) Accessibility guidelines address “equivalent facilities” on floors of multi-story buildings. With respect to the bathhouse, there is an Activity Room on the second floor, but no activity room on the ground floor. As such, the CBC would require an elevator for access to the second floor Activity Room.

c. Pool:

The pool would require chair-type lifts for persons with disabilities to be able to enter and exit the pool.

VI. CODE ANALYSIS

For the purposes of this report, it is assumed that the original project was designed to conform to the first Uniform Building Code, published in 1927. Should the project be redesigned today, the applicable codes would include the following:

2013 California Building Code
2013 California Fire Code
2013 California Electrical Code
2013 California Mechanical Code
2013 California Plumbing Code
2013 California Green Building Standard Code
2013 California Energy Code
City of Susanville Municipal Code
Lassen County Environmental Health Code

A. Swimming Pool

The existing swimming pool does not meet all current requirements of CBC Chapter 24, Title 31B for Public Swimming Pool Operations. Violations of note are:

1. Deck Drainage. The pool deck surface shall be sloped a minimum of 1-1/4 inch per foot to deck drains or other approved surface water disposal areas. The pool deck surface shall not drain into the pool, its perimeter overflow channel, nor be connected to the recirculation system.

2. Occupant Load Signs. Required pool signage is missing.

3. Pool Floor Slope: no greater than 1:10 slope to 4'-6" of depth and no greater than 1:3 slope to deepest portion. Per the description of the existing pool on page 6 above, a portion of the pool floor is not in compliance.

4. Circulation: Pools 5,000 square feet or greater must have a perimeter overflow gutter system. Pool greater than 40'-0" wide require floor return inlets. A perimeter overflow system shall comply with all of the following provisions.

    a. Channel Detail: The overflow channel shall be not less than 3 inches deep, the section shall not diverge with depth, and the width of the bottom shall be not less than 3 inches. The opening beneath the coping into the overflow system shall be a minimum of 4 inches beneath the coping in any direction measured radially from the inner edge of the overflow channel lip.

    b. Channel Lip: The overflow channel lip shall not be more than 12 inches below the level of the deck. The lip edge shall be rounded and shall not be thicker than 2-1/2, inches nor thinner than 1 inch from the top 2 inches.

    c. Channel Covering: Covered overflow channels shall be permitted providing a bather cannot enter it or get his arms or legs caught in the cover.

d. Channel Outlets: Overflow channel outlets shall be not less than 2-1/2 inches in diameter, spaced not more than 15 feet apart, and the channel bottom slope to the drain shall be not less than ¼" inch per foot (1 in 48).

e. Exception: Other drain spacing or channel bottom slope shall be permitted if hydraulically designed in accordance with acceptable engineering principles.

f. Channel Outlet Covers: Overflow channel outlets shall be provided with a clear opening area in the grating not less than 1.5 times the cross-sectional area of the outlet required in California Building Coded Section 3134B.2 5.

g. Overflow Drain Piping: Overflow drain piping shall provide drainage of the overflow system, shall carry overflow water to a surge storage chamber, and shall establish hydraulic equilibrium in the pool and return to skimming within 10 minutes after being flooded by a sudden large use of the pool by bathers.

h. Surge Storage Capacity: A perimeter overflow system shall be provided with a minimum surge storage of not less than I gallon per square foot of pool water surface area. Surge storage shall be permitted in the perimeter overflow channel, the overflow water drain piping returning to the surge chamber, and in the surge chamber.

i. Surge Flow Control. Automatic make-up (fresh) water flow controls with a manual override provision shall be provided to maintain the proper operating pool water level.

5. Drinking Fountains: one guarded jet drinking fountain shall be provided for the first 250 bathers.

6. Hose bibbs shall be provided for each pool and located so that any portions of the pool deck may be reached with a 75 foot length of hose and shall be protected against backflow.

7. Water Depth Markers: Five (5) on the perimeter of the pool at distances not to exceed 25 feet. Depth markers shall be located on the vertical pool walls at each end and side of the pool at or above the 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.

B. Bathhouse, Dressing, Shower, and Toilet Facilities

Shower and dressing facilities shall be provided for users of a pool. One bather shall be considered for every 15 square feet of pool water surface area.

1. Showers: One shower shall be provided for every 50 bathers.

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.

3. One lavatory shall be provided for every 80 bathers.

4. For a facility with a 5,000 square foot pool, the sanitary fixtures required would be as follows:

5,000 sf Pool = 334 bathers
Total Occupant Load = 438

Men	219	Women	219
Men Showers	5	Women Showers	5
Men Toilets	3	Women Toilets	4
Men Urinals	3	Women Lavatories	3
Men Lavatories	3		

5. Family changing rooms are considered a community asset in a new or renovated facility, but are not a specific code requirement.

C. Bathhouse and Natatorium Structure

1. Future use of this structure, based on structural performance, is currently governed by the 2013 California Building Code (CBC). Chapter 34 of the CBC describes the structural performance requirements when evaluating the modification or repair of existing structures. Given the level of repairs required to re-use this building, CBC Section 3405 requires the building be "evaluated by a registered design professional" using current code prescribed wind loads and 75% of earthquake loads. Based on this criteria and our preliminary evaluation, this building is "noncompliant." Therefore, all repairs and modifications must meet current building code criteria as described and amended in CBC Section 3405.2.3.

2. Given the order of magnitude of repairs required, this criterion will render the entire natatorium portion of the building structure and much of the bathhouse structures unusable. *Essentially, it will be easier and more economical to construct new structures than trying to salvage the existing structure.*

3. The pool structure, basement walls and adjacent decking can likely be salvaged with minimal repairs and other modifications to make them code compliant.

D. Mechanical / Electrical / Plumbing

Any remodel or new development will be subject to current codes and CalGreen requirements.

1. State of California will enforce new energy code (Title 24) starting July 1, 2014. We anticipate all new lighting will be LED and dimmable.

2. All plumbing fixtures shall meet CalGreen water saving requirements.

3. All interior spaces intended for human occupancy will be required to be heated and ventilated (natatorium inclusive).

VII. ALTERNATIVE APPROACHES

Scenario 1

Rehabilitate the entire facility with the equivalent square footage of conditioned space.

Notes: *Siegfried interprets "equivalent square footage" to include additional building area needed to satisfy applicable code required dimensional clearances for ingress, egress, quantity of sanitary fixture requirements, accessibility requirements, pool and HVAC equipment, etc.*

As discussed above, significant damage is evident throughout the building shell, and not all areas or structural components of the shell were observable.

It is our professional opinion that in order to fully quantify the repairs needed and implementation of code required structural upgrades, the building will need to be stripped to its basic structural elements for further observation, testing and evaluation.

A. Description

Siegfried's building renovation and aquatic center experience allows us to anticipate the Project scope of Scenario 1 to include the following:

1. Dismantle / strip the finishes, finish substrate and all mechanical, electrical and plumbing equipment from existing building to its bare structure, which could be as minimal as the concrete foundations, pool shell, and concrete columns. The "bathhouse" portion of the building would be demolished in its entirety.

2. Reconstruct the bathhouse with all steel framing in a layout that is more efficient as well as being compliant with all current codes. Bathhouse to include pool filtration equipment rooms at grade level. (A cost saving option would be to utilize a pre-engineered metal building for the bathhouse shell.)

3. Re-use the existing pool structure: We suggest making alterations to the existing pool shell to meet all current code and programming requirements of USA short course swimming, including overflow channel replacement to meet code requirements with a fixed bulkhead at 25-yards with all new system equipment.
   a. Suggested dimensions: 75'-0" x 50'-0" with six (6) swimming lanes. The four middle lanes would be 8'-3" in width and the two side lanes would be 8'-6" in width. (To host USA Swimming sanctioned events, minimum lane width is 8'-2.5".)
   b. Replace perimeter decks with new to slope away from the pool, with deck drainage.
   c. Provide a new ground level equipment room outside the north end of the natatorium.

4. Reconstruct the natatorium walls with appropriate metal stud framing, finishes and insulation; incorporate fully openable, tempered glazed doors along the east and south walls.

5. Reconstruct the natatorium roof with prefabricated steel, open web trusses, and a diaphragm which incorporates as much natural light penetration as is feasible (e.g. Kalwall units).

6. Incorporate new mechanical, electrical, and plumbing infrastructure.

7. Renovate the areas outside the building (added deck areas, picnic areas, etc.) appropriate to enhance family recreational use when doors proposed in #4 above are open.

8. Reseal and restripe existing parking lot; refurbish east side landscaping.

B. Scenario 1 Advantages

1. General: Would provide as close to the original layout and aesthetics of the existing facility, should such be a priority objective.

2. Swimming Pool: Cost savings.

3. Natatorium:
   a. Structure: no advantages.
   b. Mechanical / Electrical / Plumbing Equipment: no advantages.

C. Scenario 1 Disadvantages

1. General: Foregoes implementation of an improved bathhouse layout.

2. Swimming Pool: Major remodel work is required, including:
   a. Deck replacement costs;
   b. Existing decks stabilize pool walls; removal of existing decks will require additional measures to re-stabilize pool walls;
   c. decks remain narrow.
   d. Gutter replacement costs;
   e. Construction joint removal costs;
   f. Main drain grates and sump replacement costs;
   g. New Floor return inlets costs;
   h. New waterline tile and tile markings, plaster finish for year round operation.

3. Bathhouse and Natatorium:
   a. Structure:
      1) The unknown condition and capacities of the existing building structure.
      2) The very high probability that the measures required to bring the existing structure into compliance with current codes for the intended use and occupancy will be significantly higher than the costs to demolish and build a new structure.
   b. Mechanical / Electrical / Plumbing Equipment:
      1) Our site observation of the existing equipment, in conjunction with the known age of the building and the construction methods and materials used at that time, allow us to conclude that every component of mechanical equipment and distribution, electrical equipment and related conductors (wiring), and pluming equipment and piping should be replaced.
      2) Replacement of these items (many of which require different dimensional allowances) within the confines of an existing structure is anticipated to be significantly more costly that if incorporated into new construction.

Scenario 2

Rehabilitate all conditioned space excluding the natatorium (the structural elements over the existing pool) and any unsafe roof structure. Analyze the reuse of the existing concrete columns and respective costs to provide an open air cover over the pool.

A. Description

Siegfried anticipates the scope of Scenario 2 to include the following:

1. Demolish the existing building, including the entire bathhouse and natatorium walls and roof to its bare structure, which would be the concrete foundations, pool shell, and concrete columns.

2. Construct a new bathhouse with all steel framing in a layout and site location that is more efficient as well as being compliant with all current codes. Bathhouse to include pool filtration equipment rooms at grade level. (Option: utilize a pre-engineered metal building for the bathhouse shell.)

3. Re-use the existing pool structure as described in Scenario 1.

4. Augment the existing concrete columns as necessary to comply with current codes.

5. Design a pool cover structure of lightweight materials, including the use of appropriate fabric.

6. Incorporate new mechanical, electrical, and plumbing infrastructure.

7. Renovate the site to provide larger deck areas, picnic areas, etc. appropriate to enhance family recreational use.

8. Reseal and restripe existing parking lot; refurbish east side landscaping.

B. Scenario 2 Advantages

1. General:
   a. Provides opportunities for improved site layout, access, recreation complementing the pool.
   b. Provides opportunities for improved bathhouse features and layout, variety of architectural design solutions (including replication of the 1937 design, if so desired).

2. Swimming Pool: Cost savings.

3. Pool Cover: Cost savings vs. complete enclosed natatorium.

4. Mechanical / Electrical / Plumbing Equipment: Cost savings vs. complete enclosed natatorium.

C. Scenario 2 Disadvantages

1. General: Outdoor with limited seasonal use and additional maintenance due to season operation and winterization. Some winterization activities may include:

    a. If drained of water:
        1) all equipment requires draining and winterizing.
        2) all pool plumbing requires flushing and winterizing.
        3) pool requires acid wash each season and repaint prior to opening.
        4) pool shell prone to winter damage from severe temperature changes causing expansion and contraction of the concrete.
    b. If kept full of water:
        1) continual circulation and monitoring for breach of fences.

2. Swimming Pool: Major pool remodel work required, including:
    a. Deck replacement costs;
    b. Existing decks stabilize pool walls; removal of existing decks will require additional measures to stabilize pool walls;
    c. Gutter replacement costs;
    d. Construction joint removal costs;
    e. Main drain grates and sump replacement costs;
    f. New Floor return inlets costs;
    g. New waterline tile and tile markings, plaster finish for year round operation.

3. Pool Cover:
    a. The unknown condition and capacities of the existing concrete columns.
    b. The very high probability that the measures required to bring the existing concrete columns into compliance with current codes for the intended use will be significantly higher than the costs to utilize a new cover support system.

Scenario 3

Removal of all structural elements and rehabilitation of in ground pool for operation as an outdoor facility.

A. Description

Siegfried anticipates the scope of Scenario 3 to include the following:

1. Demolish and remove the entire existing building, as well as the existing pool decks. Natatorium perimeter wall foundations and below grade walls to remain.

2. Construct a new bathhouse as described in Scenario 2.

3. Re-use the existing pool structure as described in Scenarios 1 and 2.

4. Incorporate new mechanical, electrical, and plumbing infrastructure.

5. Renovate the site to provide larger deck areas, picnic areas, etc. appropriate to enhance family recreational use.

6. Reseal and restripe existing parking lot; refurbish east side landscaping.

B. Scenario 3 Advantages

1. General: Provides opportunities for improved site layout, access, recreation activities complementing the pool.

2. Swimming Pool: Cost savings.

3. Bathhouse: All new bathhouse building with appropriate user and operator facilities and features to support the swimming pool's recreational uses and align with current codes.

C. Scenario 3 Disadvantages

1. General: Outdoor with limited seasonal use and additional maintenance due to season operation and winterization. Some winterization activities may include:

    a. If drained of water:
        1) all equipment requires draining and winterizing.
        2) all pool plumbing requires flushing and winterizing.
        3) pool requires acid wash each season and repaint prior to opening.
        4) pool shell prone to winter damage from severe temperature changes causing expansion and contraction of the concrete.
    b. If kept full of water:
        1) continual circulation and monitoring for breach of fences.

2. Swimming Pool: Major pool remodel work required, including:
    a. Deck replacement costs;

b. Existing decks stabilize pool walls; removal of existing decks will require additional measures to stabilize pool walls;
c. Gutter replacement costs;
d. Construction joint removal costs;
e. Main drain grates and sump replacement costs;
f. New Floor return inlets costs;
g. New waterline tile and tile markings, plaster finish for year round operation.

Scenario 4

Demolish entire facility and reconstruct all new outdoor facility.

A. Description

Siegfried proposes, for consideration, the scope of Scenario 4 to include the following:

1. Demolish and remove the entire existing building and pool.

2. Construct a new bathhouse as described in Scenarios 2 and 3.

3. Construct a new free form pool with 6-lap lanes, zero depth entry, interactive water features and water slide.

4. Renovate the site to provide larger deck areas, picnic areas, etc. appropriate to enhance family recreational use.

5. Reseal and restripe existing parking lot; refurbish east side landscaping.

B. Scenario 4 Advantages

1. General: Provides opportunities for improved site layout, access, recreation activities complementing the pool.

2. Swimming Pool: Provides opportunity for an all new multi-use community swimming pool facility designed with multiple programming opportunities, including lap swimming, lesson programming and which would also provide recreation value and greater potential for cost recovery.

3. Bathhouse: All new bathhouse building with appropriate user and operator facilities and features to support the swimming pool's recreational uses and align with current user demands.

C. Scenario 4 Disadvantages

1. General: Slightly higher cost vs. Scenarios 2 or 3.

2. Swimming Pool: Outdoor with limited seasonal use and additional maintenance due to seasonal operation and winterization. Some winterization activities may include:

   a. If drained of water:
      1) all equipment requires draining and winterizing.
      2) all pool plumbing requires flushing and winterizing.
      3) pool requires acid wash each season and repaint prior to opening.
      4) pool shell prone to winter damage from severe temperature changes and resultant expansion and contraction of the concrete.
   b. If kept full of water:
      1) continual circulation and monitoring for breach of fences.

VIII. PRELIMINARY ESTIMATES OF CONSTRUCTION COSTS

The preliminary construction cost estimates provided below are provided for the convenience of the Honey Lake Valley Recreation Authority in its effort to determine an appropriate course of action for the Roosevelt Swimming Pool. It is understood that neither the Authority nor Siegfried has control over the costs of labor, equipment or materials, or over a Contractor's methods of determining prices or bidding. This estimate is based on Siegfried's reasonable professional judgment and experience and does not constitute a warranty, expressed or implied, that a Contractor's bids or the negotiated price of the Work will not vary from the Authority's budget or these preliminary estimates.

A. Estimate Considerations

1. Bathhouse Size: The estimate size of a new bathhouse of 6,500 square feet is based on recent community and high school swimming pool facility experience, tailored to the Roosevelt pool water area of 5,000 square feet.

2. Construction Cost Basis: The per square foot cost factor of $350.00 for the bathhouse is based on 1) a recent similar prevailing wage project bid during the first quarter 2014, of which building costs bid at $300.00 per square foot, 2) allowing an increase of approximately 12% for an estimated bid period of first quarter 2016, and 3) an increase of approximately 5% for project location (totaling $351.00). The $350.00 is estimated to be comprised as follows:

Description	PSF Estimate	Percentage
Concrete	$ 35.00	10.0%
Exterior Wall Systems	28.00	8.0%
Interior Wall Systems	10.50	3.0%
Structural Framing	24.50	7.0%
Roof Systems	28.00	8.0%
Ceilings	7.00	2.0%
Doors & Windows	14.00	4.0%
Finishes	10.50	3.0%
Specialties	7.00	2.0%
Pool Specialties	24.50	7.0%
Plumbing	14.00	4.0%
Fire Sprinklers	7.00	2.0%
Pool Hydraulics	70.00	20.0%
HVAC	35.00	10.0%
Electrical	35.00	10.0%
Total Estimate	$ 350.00	100.0%

Scenario 1 - Rehabilitate Entire Existing Facility

HazMat Abatement:	$ 50,000
Demolition:	200,000
Swimming Pool:	1,000,000
Bathhouse: (6,500 sf x $350/sf)	2,275,000
Natatorium: (10,000 sf x $250/sf)	2,500,000
Site Improvements:	500,000
Subtotal:	6,525,000
Soft Costs (15%):	978,750
Total	$ 7,503,750

Scenario 2 - Rehabilitate Bathhouse, Pool; New Pool Cover

HazMat Abatement:	$ 50,000
Demolition:	250,000
Swimming Pool:	800,000
Bathhouse: (6,500 sf x $350/sf)	2,275,000
Pool Cover:	500,000
Site Improvements:	500,000
Subtotal:	4,375,000
Soft Costs (15%):	656,250
Total:	$ 5,635,000

Scenario 3 - Rehabilitate Pool as Outdoor; New Bathhouse

HazMat Abatement:	$ 50,000
Demolition:	250,000
Pool:	800,000
Bathhouse: (6,500 sf x $350/sf)	2,275,000
Site Improvements:	500,000
Subtotal:	3,875,000
Soft Costs (15%):	581,250
Total:	$ 4,456,250

Scenario 4 - New Outdoor Pool; New Bathhouse

HazMat Abatement:	$ 50,000
Demolition:	300,000
Pool:	1,200,000
Bathhouse: (6,500 sf x $350/sf)	2,275,000
Site Improvements:	500,000
Subtotal:	4,325,000
Soft Costs (15%):	648,750
Total:	$ 4,973,750

No. 1
Facility Entry

No. 2
Locker Room (Typical)

No. 3
Pool Side Deck (typical)

No. 4
Pool End Deck (typical)

No. 5
South and West Side Windows

No. 6
Pool (viewed from south / shallow end)

No. 7
Balcony

No. 8
Electrical Room

No. 9
Shallow End

No. 10
View Across Pool Toward Bathhouse

No. 11
Scum Gutter

No. 12
Pool Wall Recesses

No. 13
Pool Equipment

No. 14
Pool Equipment

No. 15
Natatorium Ventilation

No. 16
Natatorium Ventilation

No. 17
Lighting Fixtures

No. 18
Locker Room Ceilings

No. 19
Natatorium Ceiling

No. 20
Failed Exterior Stucco (west wall)

No. 21
Failed Exterior Stucco (south wall)

No. 22
Exterior Wall Framing

No. 23
Natatorium Glazing

No. 24
Lobby / Office

No. 25
Activity Room

Disclaimer:

Inasmuch as the physical review of an existing building for the purpose of developing alternative project programs and respective preliminary estimates of probable construction costs requires that certain assumptions be made regarding existing conditions, and because some of these assumptions may not be verifiable without expending additional sums of money, or destroying otherwise adequate or serviceable portions of the existing improvements, the Authority agrees that except for negligence on the part of the Consultant, the Authority will hold harmless and indemnify the Consultant from and against claims, damages, awards and costs of defense arising out of the information provided in this report.

References:

Structural Investigation Report: dated January 18, 2005 by Mr. Robert F. Harp, P.E (Harp Report). The report copy provided is unsigned.

Pool Inspection Report: dated November 29, 2004 by NCCSIF (NCCSIF Report), written by Mr. Jack Kastorff.