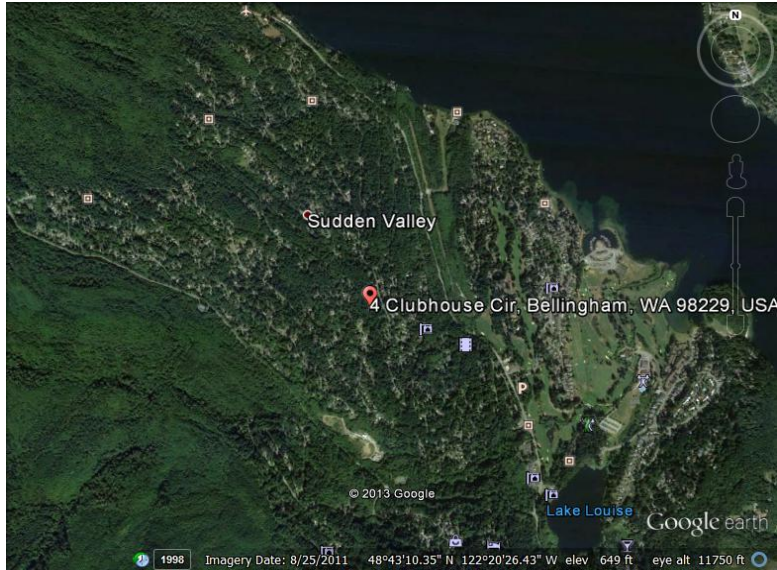




## Property Condition Assessment



of

### Sudden Valley Community Association Common Area Buildings

4 Clubhouse Circle  
Bellingham, WA 98229

October 14, 2013

for

Sudden Valley Community Association  
4 Clubhouse Circle  
Bellingham, WA 98229

by

**AIRO-LLC**

Architectural Investigative Reports & Opinions

1



October 14, 2013

Sudden Valley Community Association  
C/o Larry Brown, President  
4 Clubhouse Circle  
Bellingham, WA 98229

***Re: Phase I Property Condition Assessment of Common Area Buildings at  
Sudden Valley Community Association, Bellingham, WA***

Dear Sudden Valley Board of Directors:

In response to your request, *Architectural Investigative Reports & Opinions (AIRO)* performed inspections of 24, Common Area Buildings at Sudden Valley Community Association on September 4–6 and 9–11, 2013. This Report is Phase I of a two–phase project and Phase I will consist of the 8–divisions listed below. It is anticipated that Phase II will be conducted after Phase I work in the field is completed, the scope of which will be determined later.

The intent of our investigation was to describe, evaluate and record the condition of the exterior envelope enclosure systems including the superstructures, foundations, roofing, exterior walls, exterior doors, exterior windows, exterior openings and any Health, Safety and Welfare (HSW) Issues to aid in the establishment of a Reserve Study, Maintenance Plan, and/or operating Budgets, to be completed by others.

Original building plans were not available for review; only preliminary and some partial plans. The project was not reviewed for conformance with the Americans with Disabilities Act of 1990, or its updates, for conformance with Federal, State, County, or Municipal codes, or for any existing environmental conditions, including the possible presence of asbestos, lead or PCB containing materials, detrimental or not, that may have been present or that may be currently present, on or adjacent to the Subject Property, or for the presence of any pest



infestations or mold growth. No quantity take-offs or estimates were performed.

Statements of building components Remaining Useful Life indicated in the body of the report are derived from industry standards and Expected Useful Life (EUL) tables published by the Federal National Mortgage Association (FNMA) and may be modified from direct visual observation by our inspectors. Remaining Useful Life (RUL) of building components may be extended by a variety of conditions found on site including 1) evidence of routine maintenance procedures, 2) quality of materials utilized, 3) current material condition, 4) quality of construction detailing, and 5) quality of equipment utilized, among others. Therefore, it is possible that the life of various components may be extended repetitively and may exceed that noted in the tables and by industry standards for the material or equipment in question, if conditions found on-site warrant it.

Our inspector employed no *invasive* techniques (removing siding, trim boards under windows, etc.) during this assessment; such techniques are utilized to better determine the extent of any suspected damage or underlying defects and were not part of this review. Criteria for creation of this report are based upon applicable industry standards for weatherproofing and construction.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Samuel R. Sampson", with a horizontal line drawn through it.

Samuel R. Sampson, Owner  
Licensed Architect  
Oregon  
Washington



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- Volume I - Clubhouse
- Volume II - Rotunda Meeting & Rotunda Shelter/Post Office
- Volume III - Barn #6, Barn #7 - Recreation Center & Barn #8
- Volume IV - Adult Center, Adult Center Pool Equipment, Security Office, Golf Maintenance Shop - Sand Shed & Storage Building, Maintenance Shop, Tall Shed & Lean-To
- Volume V - AM/PM Restroom, AM/PM Picnic Shelter, Marina Restroom, Marina Picnic Shelter, Golf Restroom #1 (7<sup>th</sup> Tee), Golf Restroom #2 (14<sup>th</sup> Tee), Gate #3 School Shelter, Gate #5 Bus Stop Shelter, Tree House, Main Pool Life Guard, Gate #9 Bus Stop Shelter



## **Executive Summary**

There is a term in the construction industry known as “dried-in”. It represents a significant milestone indicating a building has been sufficiently completed to resist the elements and allow the remaining elements to be constructed without incurring damage. At the Sudden Valley Common Area buildings, this milestone has to be reestablished, as the first line of protection against the elements has been breached with impending or outright failure of many roofing systems. The supporting structures of several buildings have been affected as dry-rot has transferred from roofs to superstructures. Foundations have been challenged through inadequate structural design and construction methods. Siding has suffered rot damage as a result of being in contact with grade and has been compromised by numerous penetrations and incorrect assemblies. As buildings are “dried-in” again, Phase II work may proceed on interior systems and components needing maintenance without fear of incurring further damage from weathering.

## **Property Description**

**Identification/Data:** Sudden Valley Community Association

**Address:** 4 Clubhouse Circle  
Bellingham, Washington 98229

**Number of Buildings:** 24, common area buildings, including the Adult Center, Adult Center Pool Equipment, AM/PM Picnic Shelter, AM/PM Restroom, Barn #6, Barn #7, Barn #8, Clubhouse, Gate #3 School Shelter, Gate #5 Bus Stop Shelter, Gate #9 Bus Stop Shelter, Golf Maintenance



Shop, Golf Restroom #1, Golf Restroom #2, Main Pool Life Guard, Maintenance Shop, Maintenance Tall Shed, Marina Picnic Shelter, Marina Restroom, Rotunda Meeting, Rotunda Shelter/Post Office, Sand Storage Lean-To, Security Office, and Tree House.

- Gross Square Feet:** 92,566 GSF, according to Management data.
- Date of Construction:** Adult Center-1993; Adult Center Pool Equipment, AM/PM Picnic Shelter, and AM/PM Restroom-Unknown; Barn #6-1974; Barn #7-1982; Barn #8-1982; Clubhouse-1978; Gate #3 School Shelter, Gate #5 Bus Stop Shelter, Gate #9 Bus Stop Shelter-Unknown; Golf Maintenance Shop-1971; Golf Restroom #1, Golf Restroom #2, Main Pool Life Guard-Unknown; Maintenance Shop-1984; Maintenance Tall Shed, Marina Picnic Shelter, Marina Restroom-Unknown; Rotunda Meeting, Rotunda Shelter/Post Office-1974; Sand Storage Lean-To-Unknown; Security Office-1974 (roof structure-1979); Tree House-Unknown.
- Date of Survey:** September 4- 6 and 9-11, 2013
- Weather Condition:** Cloudy and overcast with periods of rainfall and partly sunny conditions, 55°-60° F
- Previous Reports:** None submitted.
- On-site Contact:** Mr. Jeff Schlaack, General Manager, Sudden Valley Community Association (SVCA).
- Site:** *Note: We received and will use for location reference a Sudden Valley Street Address Land Use Map, created by the SVCA*



*Community and Environmental Services Staff, dated March 2013.*

The SVCA site consists of 24-common area structures, scattered over 116-acres of common area land containing 740-lots. Additionally, the entire development is situated on 1,576-acres containing 423-acres of Greenbelt Parks, 110-acres of Mixed Use Property, 483-acres of Developed Lots, 111-acres of Privately Owned Vacant Lots, and 10-acres of SCVA Owned Vacant Lots. The development is located on the south shore of Lake Whatcom, Whatcom County, Washington. The property contains approximately 55-miles of paved roadways that service single family residences, multi-family residences, the golf course and recreation facilities and common area buildings with asphalt driveway and surface parking located adjacent to the buildings they serve. There are no public parking structures provided; however, an unknown number of open surface parking stalls service the common area buildings. Most parking stalls were not delineated. Some accessible stalls were observed. Landscape materials on site are primarily comprised of lawn or planted areas with planted and natural deciduous and evergreen trees dispersed between the buildings and throughout the site. Two decks are provided at the Clubhouse 2<sup>nd</sup> story; there are numerous common area concrete paved walkways and surfaces at grade.

**Buildings:**

The Subject Property common area buildings consist of 3, two-story, and 21, one-story structures that house approximately 92,566 Gross Square Feet (GSF) according to data supplied by Management.





## Building Improvements

### Adult Center

*Superstructure:* Stick-built 2x wood stud wall framing with manufactured wood roof trusses, with continuous screened soffits.

*Foundations:* Concrete perimeter foundation walls with low-height interior frame bearing wall, both set on continuous concrete strip footings, or interior concrete spot footings supporting wood columns with vented crawl space.

*Roofing:* Composition shingles over water resistant membrane on plywood or oriented strand board (OSB) sheathing with sheet metal gutters and tight-lined downspouts at perimeter overhangs. Roof valleys are interlaced composition shingles.

*Exterior Walls:* 1x4 bevel wood siding over water resistant membrane on plywood or OSB sheathing. There is painted wood trim and fascias. Surface-mounted equipment on stand-off wood blocking is caulked and painted, but without sheet metal “z” flashings.

*Exterior Doors:* Doors are solid core rail and full glass lites with painted wood, vinyl or metal skins, set in painted wood frames surrounded with painted wood trim.

*Exterior Windows:* Windows are single-hung, sliding or fixed vinyl frames with double-insulating glazing set into a perimeter self-flashing surround that is caulked to the wood siding; there are no trim boards.

*Exterior Openings:* Crawl space access is a hinged, painted wood door set in the west façade foundation wall; there is a split and broken siding board immediately above the door. Other openings or penetrations include hose bibs, shower controls and heads, convenience outlets, gas



pipe penetrations, surface-mounted electrical and miscellaneous equipment, light fixtures and foundation vents.

*HSW Issues (Health, Safety and Welfare):* There are shrinkage cracks in the swimming pool deck pavement and in some concrete walkways; the cracks appear to be cosmetic in nature and there is no differential settlement.

**Condition:** The superstructure and foundation appear to be in good condition. The roofing is in fair condition and no leaks were observed or reported by management; however, many shingles are beginning to lift up at corners and edges. Sheet metal gutters and downspouts appear to be in fair condition, but several gutter corners are leaking onto fascias and destroying the painted finish. Fascia ends adjacent to composition shingles have faded paint and are beginning to split. Siding and trim appears to be in good condition, but paint is fading in many locations and the building needs to be repainted. All stand-off wood blocking and all caulked components need to be recaulked with each whole building repainting. All doors and windows are in good condition, but doors, frames, and trim need to be repainted. The crawl space access door has a split and broken siding board immediately above it and needs to be replaced. All penetrations through the siding need to be caulked as a part of routine maintenance. Shrinkage cracks in the concrete paving need to be caulked when the cracks exceed 1/8-inch in width; there is a spalled concrete corner edge at the east entry door staircase that is a potential tripping hazard.

**Recommended Action:** Immediate Repairs are required for correcting the tripping hazard at the east entry door; for recaulking the sheet metal gutters at the leaking corners; and for replacing the damaged wood siding above the crawl space access door.

Replacement Reserves are required for replacing the composition shingle roofing; for periodic repainting of the entire building; for recaulking siding, trim, wood stand-off blocking and all other exterior wall



penetrations; for replacing all wood trim and siding; for replacing the vinyl windows; for replacing the wood doors and frames; and for periodic filling of shrinkage cracks in the concrete flatwork.

**Remaining Useful Life:** 5–years for replacing the sheet metal gutters, 20–years thereafter; 5–years for replacing the composition shingle roofing, 20–years thereafter; 2–years for repainting and recaulking the building, 5–years thereafter; 20–years for replacing all wood trim and siding, 40–years thereafter; 10–years for replacing the vinyl window frames, 20–years thereafter; 10–years for replacing the wood doors and frames, 20–years thereafter; and annual filling of cosmetic shrinkage cracks should be a part of routine maintenance activities; assuming Immediate Repairs and Replacement Reserves are completed and routine maintenance is performed.

## **Adult Center Pool Equipment**

*Superstructure:* Stick–built 2x wood wall and roof framing.

*Foundations:* Concrete perimeter foundation walls, with concrete slab–on–grade floor.

*Roofing:* Composition shingles over water resistant membrane on plywood or oriented strand board (OSB) sheathing; there are no sheet metal gutters, downspouts or fascias at perimeter overhangs; there is a sheet metal chimney stack that vents the pool heater.

*Exterior Walls:* Exterior painted plywood or OSB siding with vertical grooves and joints over assumed water resistant membrane and 2x wood studs (access was not gained inside this building); rafters are exposed painted wood.

*Exterior Doors:* A single wood door set in wood frame.

*Exterior Windows:* N/A



*Exterior Openings:* Limited to the 1–door, with several penetrations for surface–mounted equipment and services.

*HSW Issues (Health, Safety and Welfare):* There is a concrete and paver staircase on the north side of the building that accesses the service door; there is no handrail and the staircase is quite narrow.

**Condition:** The superstructure and foundation appear to be in good condition. The roofing is in good to fair condition and no leaks were observed or reported by management; there is a small amount of moss growth on the north side and shingles are beginning to deteriorate at the eave due to there being no fascia board to support the cantilevered shingles. The painted siding appears to be in good condition, but painted rafter tips are exposed to weathering. The wood entry utility door has a natural wood finish, is set in a wood frame and appears to be in good condition. There are no windows. All penetrations through the siding need to be caulked as a part of routine maintenance. The narrow staircase does not service a public interface, but a handrail should be added for workman safety.

**Recommended Action:** Immediate Repairs are required for adding a handrail at the staircase; for removal of the moss growth on the north side of the roof; and for removing the junk and debris at the west façade of the building.

Replacement Reserves are required for replacing the composition shingle roofing; for periodic repainting of the entire building; for recaulking siding, trim, any wood stand–off blocking and all other exterior wall penetrations; for replacing all wood trim and siding; for replacing the wood door and frame.

**Remaining Useful Life:** 5–years for replacing the composition shingle roofing, 20–years thereafter; 2–years for repainting and recaulking the building, 5–years thereafter; 10–years for replacing all wood trim and siding, 20–years thereafter; 10–years for replacing the wood door and



frame, 20–years thereafter; assuming Immediate Repairs and Replacement Reserves are completed and routine maintenance is performed.

## **AM/PM Picnic Shelter**

*Superstructure:* Wood log columns buried directly into grade supporting 4x wood primary and secondary beams, 4x wood posts, and 2x roof joists. It appears that concrete masonry unit (CMU) fireplaces partially carry the load of secondary roof beams. There are temporary 4x4 wood posts that redirect beam point loads from CMU beam pockets to 4x4 wood surrounds on the fireplace face at each end; 4x4 wood surrounds are founded on fireplace hearth CMU.

*Foundations:* Wood log columns are set directly into grade. Fireplaces are set on concrete pad foundations and partially carry roof loads of secondary roof beams.

*Roofing:* Composition shingles over assumed water resistant membrane on oriented strand board (OSB) sheathing on wood stripping; there are no sheet metal gutters or downspouts at perimeter overhangs. Roof valleys are interlaced composition shingles. Sheet metal “L” flashings are present at rakes only.

*Exterior Walls:* N/A

*Exterior Doors:* N/A

*Exterior Windows:* N/A

*Exterior Openings:* N/A

*HSW Issues (Health, Safety and Welfare):* The temporary 4x4 wood posts that redirect roof loads to the 4x4 wood surrounds on the Fireplace CMU appear to be toe-nailed into the beam above and the wood surrounds below; the wood surrounds bear on the CMU hearth. The temporary



posts and connections should be evaluated for adequacy and made permanent.

**Condition:** The superstructure and foundation appear to be in fair to poor condition; the wood log columns have up to ½-inch of rot in the outer fibers due to the direct burial in grade and the fireplace CMU is cracked on all faces; the hearth has cracked CMU blocks and CMU hearth pavers. The cracking in the CMU indicates the foundation is settling. The roofing is in fair to poor condition and water staining on the underside of roof sheathing and on stripping and joists indicate the roof is leaking; there is a substantial amount of moss growth and deleterious organic material on all roof surfaces. The fascias have butt joints at corners and end grain is absorbing water from wind-driven rain and the fascias are warping; all fascia joints should be mitered at the corners and running butt joints should be weather-cut. The lack of sheet metal “L” flashings at the fascia boards is allowing water intrusion to wet the fascias and the rafter tips setting the stage for rot. The flashing on the fireplace chimney has apparently been repaired since beam ends rotted in beam socket seats. The concrete floor slab has many settlement cracks, several of which exceed ½-inch in width.

**Recommended Action:** *Further Investigation Is Warranted.* Immediate Repairs are required for hiring a structural engineer to evaluate conditions of structural adequacy of the CMU fireplace, foundation and temporary wood 4x4 posts for structural adequacy and for recommendations making connections permanent so they cannot be dislodged by impact; and for the engineer’s evaluation of the current and on-going structural adequacy of the wood log columns. Immediate Repairs are also required for replacement of the composition shingles, and for filling and grinding smooth the cracks in the concrete slabs (alternatively, concrete slabs could be replaced under Immediate Repairs; the structural engineer may report that the CMU fireplaces need to be replaced, if so, the fireplace and slab could be replaced concurrently).



Replacement Reserves are required for the composition shingles; for the replacement of the warped fascia boards; and for repainting the entire structure. Periodic removal of the moss and deleterious organic debris from the composition shingles should be completed as a part of routine maintenance.

**Remaining Useful Life:** 15-years for replacing the composition shingle roofing, 15-years thereafter; 2-years for repainting/restaining the structure, 5-years thereafter; 2-years for replacing the fascias, 15-years thereafter; assuming Immediate Repairs and Replacement Reserves are completed and routine maintenance is performed.

## **AM/PM Restroom**

*Superstructure:* Stick-built 2x wood wall framing with stick-built or manufactured wood roof trusses, with continuous screened soffits.

*Foundations:* Concrete slab-on-grade set on continuous concrete turned-down strip footings, with interior concrete spread footings supporting wood columns, bearing walls and/or point loads.

*Roofing:* Composition shingles over water resistant membrane on plywood or oriented strand board (OSB) sheathing with sheet metal gutters and tight-lined downspouts at perimeter overhangs.

*Exterior Walls:* 1x6 tight-knot western red cedar horizontal wood drop siding over assumed water resistant membrane on plywood or OSB sheathing. There is stained or painted wood trim and fascias. Surface-mounted equipment is mounted directly on the siding without stand-off wood blocking; however, there is an ample overhang protecting the walls at the perimeter except at the east end of the south façade where the building volume increases to within 6-inches of the fascia above. At that location, there are three wall-mounted equipment items whose penetrations could compromise the water resistant integrity of the siding. There two roof-mounted skylights, one on each end of the roof that are wood-sided and appear similar to chimney boxes; the siding on both



skylight boxes appear to be making contact with the composition shingles although sheet metal flashing appears to be present. Both boxes are topped with sheet metal caps and wood trimmed sheet metal vents are located on the box sidewalls adjacent to the skylights.

*Exterior Doors:* Doors are solid core rail with ½-glass lites or metal grille vents with painted metal skins, set in painted metal frames surrounded with stained wood trim.

*Exterior Windows:* N/A; glass lites occur in the top half of one set of double doors at the north façade, otherwise there are no windows.

*Exterior Openings:* Other openings include a large metal ventilation, intake, or exhaust grille on the north façade and a smaller one on the south façade.

*HSW Issues (Health, Safety and Welfare):* N/A

**Condition:** The superstructure and foundation appear to be in good condition. The roofing is in good to fair condition and no leaks were observed or reported by management; there is a moderate amount of moss growth on the south side and a greater amount on the hip roof at the southeast facade. The stained siding appears to be in good condition, but siding is beginning to show signs of deterioration at the skylight boxes where the siding is too close to the shingled roof surface and is beginning to show signs of deterioration (a gap of 3" is preferred). The metal entry utility and restroom doors appear to be in good condition. There are no windows. All penetrations through the siding and trim need to be caulked as a part of routine maintenance; although it is difficult to access utility company installations without the utility present.

**Recommended Action:** Immediate Repairs are required for removal of moss growth on the south and east sides of the roof. Replacement Reserves are required for replacing the composition shingle roofing; for periodic repainting and restaining of the entire building; for recaulking





siding, trim, any wood stand-off blocking and all other exterior wall penetrations; for replacing all wood trim and siding; and for replacing the metal doors, frames and grilles.

**Remaining Useful Life:** 5-years for replacing the composition shingle roofing, 20-years thereafter; 2-years for repainting/restaining and recaulking the building, 5-years thereafter; 20-years for replacing all wood trim and siding, 20-years thereafter; 20-years for replacing the metal doors, frames and grilles, 20-years thereafter; assuming Immediate Repairs and Replacement Reserves are completed and routine maintenance is performed.

## **Barn #6**

*Superstructure:* Heavy timber post and beam construction with horizontal wood ledgers, and 2x wood stud walls, with heavy built-up wood trusses with plywood gusset plates, diagonal cross bracing, knee braces, beams, purlins and rafters.

*Foundations:* Heavy timber posts are buried directly in grade and have concrete foundation walls poured contiguous to two sides at the west and east walls; other interior posts are also directly buried in grade. Recent improvements include a new concrete floor poured over the original natural grade (dirt) floor; interior columns originally set into grade were covered at the base by the new concrete floor.

*Roofing:* Wood shakes over wood stripping, over wood sleepers, over metal roofing panels, over a second layer of wood stripping set on edge, on wood roof trusses, joists and purlins with sheet metal gutters at building perimeter overhangs and downspouts dispersing rainwater to daylight. Sheet metal roof vents have been installed at the gable roof ridge line.

*Exterior Walls:* 1x8 Western Red Cedar boards with 1x2 Western Red Cedar battens on wood stud ledger walls and column superstructure. Some wall sections and porch roofs and fascias have been covered with



Western Red Cedar wood shingles. High gable ends on the east and west facades have been sheathed with horizontal 1x8 wood lap siding.

*Exterior Doors:* Wood sliding barn doors hung on steel rails; a metal sectional overhead garage door on lifting hardware set in wood framed opening; 6-panel solid core metal skin man-doors set in wood frames; solid core wood flush panel doors set in wood frames.

*Exterior Windows:* Aluminum frame sliding type set in wood rough openings with single-sheet glazing; corrugated translucent plastic panels applied over structural wall framing; single sheet glazing set in wood frames with wood stops (several of these windows have been covered with plywood sheets affixed to the exterior face).

*Exterior Openings:* Man-door entries into the building have been protected with wood post and beam porches and gable roofs with Western Red Cedar wood shingles. Other openings include sheet metal grille/vents set in wood rough openings.

*HSW Issues (Health, Safety and Welfare):* The rotted columns at the west façade represent a structural issue that should be reviewed by a structural engineer. The lack of shear walls in the structure renders it dangerous during a seismic event.

**Condition:** The superstructure and foundation appear to be in poor to fair condition. Wood columns were apparently placed directly into grade and although probably made of Western Red Cedar, a rot resistant wood, now show signs of rot adjacent to grade. Interior columns stood in rainwater pools, introduced into the building by leaking through walls and the roof annually, until a concrete slab on grade was poured to improve the interior for storage of equipment and materials; the condition of these columns at grade were apparently not recorded prior to the floor slab being poured and significant rot may be present at these columns as well. At the west perimeter wall, columns were placed in grade then concrete foundation walls were poured adjacent and contiguous to them,



encapsulating the columns on two sides and promoting rot; the west face of the west columns are significantly rotted and some appear to be rotted off completely where they penetrate grade.

As reroofing work proceeds on the building as noted below, it is anticipated that at least partial repair and/or replacement of some structural elements will be required due to contamination from roof stripping made wet from penetrations in the shake roof and metal roofing that is nailed to the top chords of truss, joist, purlins or rafters.

The roofing is in poor condition and many leaks were reported by management; there is an enormous amount of moss growth on both sides of the roof and shakes are loose and laying on the roof in various locations. Metal roof panels were affixed directly to 2x4 stripping set on edge at 2'-0" on center and the long span between rafters is deflecting; this condition accounts for, in part, the ribbon-like appearance of the roof, east to west. Later, wood sleepers were nailed over the metal panels and wood stripping was nailed to the sleepers and wood shakes were nailed to the stripping. The wood shakes are long past their effective useful life (EUL), have deteriorated and no longer protect the roof effectively. These failures are now imperiling the structural frame by transferring wet- and dry-rot conditions from the shake stripping.

Exterior walls are in fair to poor condition. 1x8 Western Red Cedar boards with 1x2 Western Red Cedar battens are affixed to wood stud ledger walls on the column superstructure. Much of the wood siding remains in good condition, but a 12-18-inch section at the bottom of the siding boards is rotted around the perimeter of the building. Also, some of the boards and battens are split or missing which allows penetration of wind-driven rainwater. The painted/stained finish is badly faded and the building needs to be repainted. Plywood sheets have been nailed over wood window frames that are rotted on the east wall and the window frames at the west façade are rotted. Wood columns at the south façade stalls have been subjected to impact damage through the years and parking in this area should be terminated until posts have been



refurbished and protected. Posts are also set directly into grade and have rot at the base. Some wall sections and porch roofs (at man-doors) and fascias have been covered with Western Red Cedar wood shingles; the north wood porch, handrails and roof are of unpainted, treated and non-treated wood and wood shingles have been applied as siding, roofing and fascia; the roof and fascia shingles are in poor condition. The south porch roof is cantilevered and the shingles are in fair condition. High gable ends have been sheathed with horizontal 1x8 wood lap siding that appears to be in fair condition but needs repainting, particularly on the east side where paint is flaking off badly.

Exterior wood sliding barn doors hung on steel rails are in poor condition at the north façade with rot and deteriorated painted finishes. A metal sectional overhead garage door at the east façade is in good condition. The 6-panel solid core metal skin man-doors set in wood frames are in fair condition but need repainting and the ones on the west façade need repair. The solid core wood flush panel doors set in wood frames are in fair condition, but also need repainting.

Exterior windows are in poor to fair condition. Aluminum frame sliding type set in wood rough openings with single-sheet glazing are functional and in fair condition. The corrugated translucent plastic panels applied over structural wall framing appear to be in fair condition. The wood frame windows at the east and west walls are in poor condition; several of these windows have been covered with plywood sheets affixed to the rotted exterior face frame.

Exterior openings with sheet metal grille/vents set in wood rough openings at the high end gables at the west and east facades appear to be in fair condition, but due to their height and the lack of an appropriate lift, close-up access was not gained.

**Recommended Action:** *Further Investigation Is Warranted.* Immediate Repairs are required for hiring a structural engineer to evaluate the condition of the structural frame including the roof, column and wall



framing and make recommendations to eliminate any deficiencies; for repairing the rotted wood columns along the west wall, the battered or rotted columns in the open stalls at the south façade, and where found to be rotted at all interior locations; for removal of the roofing down to the structural frame and replacement of the roofing; for replacement of the sheet metal gutters and downspouts and for tight-lining the downspouts away from the building; for partial replacement of the structural frame where damaged from rotted conditions; for replacing/repairing rotted or missing board and batten siding; for repainting the entire structure; for replacing the rotted wood window frames on the east and west walls; for replacing the roof and fascia shingles on the north wood porch; for repairing the wood sliding barn doors hung on steel rails at the north façade; and for repainting all exterior doors and frames.

Replacement Reserves are required for repainting and restaining the entire structure; for periodically removing organic build-up from the roof; for replacing all wood trim and siding; and for replacing the wood and metal doors, frames and grilles. If a new standing seam metal roof is installed as a part of Immediate Repairs, Replacement Reserves for roofing could be extended for a period of 30-50-years

**Remaining Useful Life:** 5-years for repainting/restaining the building, 5-years thereafter; 20-years for replacing all wood trim and siding, 20-years thereafter; 20-years for replacing the metal doors, frames and grilles, 20-years thereafter; 30-50-years for replacing the metal roofing; assuming Immediate Repairs and Replacement Reserves are completed and routine maintenance is performed.

## **Barn #7- Recreation Center**

*Superstructure:* Heavy timber post and beam construction with 2x horizontal wood wall ledgers, 2x wood stud walls, with lightweight 2x built-up wood trusses, 2x roof framing at the Recreation Center, diagonal cross bracing, knee braces, beams, purlins and rafters; later additions to the structural system appear to have been made and include double steel



angles with threaded tie-rods and diagonal wood member bracing affixed to the bottom side of roof rafters.

*Foundations:* Heavy timber column posts are founded on raised concrete foundation walls with enlarged concrete plinths, poured in place, supporting the columns. There is a concrete slab-on-grade at the first floor. Footings are continuous at the perimeter with assumed spread spot footings at interior point loads.

*Roofing:* Composition shingles over an assumed water resistant membrane, over 1x tongue and groove (T & G) wood sheathing (or 2x car decking), on wood roof trusses, joists and purlins with sheet metal gutters at building perimeter overhangs and downspouts dispersing rainwater to daylight at the north side, a tight-line system at the south side, or an adjacent flat roof to the south. Sheet metal roof vents and exhaust stacks have been installed at the south shed roof with one at the north shed roof. There is a single ply roofing membrane that appears to be a single ply torch-down or synthetic rubber ethylene propylene diene monomer (EPDM) membrane located on the flat roof over the Recreation Center.

*Exterior Walls:* 1x8 Western Red Cedar boards with 1x2 Western Red Cedar battens on wood stud ledger walls and beam and column superstructure. The west high gable end has been sheathed with horizontal 1x8 wood lap siding and translucent corrugated plastic siding. Some wall sections of board and batten siding have been previously replaced with painted plywood or OSB panels. Various penetrations have been made and are currently occurring with the installation of the new Library at the first floor; the current penetrations are being filled with plywood, so far unfinished.

*Exterior Doors:* 4-wood sliding barn doors hung on steel rails; 1-pair of hinged wood doors fashioned with vertical board and batten finish; 1-pair of hinged wood doors fashioned to match sliding barn doors; 1-pair of hinged flush panel wood doors; 3-large flush panel wood doors set in



wood frames; 1-flush panel man door; 1-small second level access door fashioned to look like a sliding barn door; 1- solid core 6-panel metal skin man-door set in wood frame; 1-pair of solid core wood flush panel doors with small glass relite set in wood frames. Also, a threshold in the Recreation Center on the east side is leaking under heavy rainfall conditions.

*Exterior Windows:* Vinyl frame sliding type set in wood rough openings with double-sheet insulating glazing; corrugated translucent plastic panels applied over structural wall framing.

*Exterior Openings:* Some new openings have been created connected with the Library project but as yet are unfinished; other openings have been closed with painted plywood or OSB panels. Still other openings include sheet metal grille/vents set in wood rough openings; there are 2- wood frame openings that appear to be past windows, now covered with a fabric screen material; there is a single round opening on the second story west facade that appears to be open.

*HSW Issues (Health, Safety and Welfare):* The structural frame appears to have moved to the north, perhaps during construction (there is a vertical siding board cut in a wedge shape at the northeast corner of the building, presumably to cover the shifted frame). Also, the structural frame appears to have moved to the west; the frame is visible at the second floor and is noticeably listing toward the west side. See Immediate Repairs section below for information and recommendations on this issue. The lack of shear walls in the structure renders it dangerous during a seismic event. Also, the entry bridge at the east façade is rotten and management indicates it will be replaced with a railcar bed under a separate contract (review of this element is not a part of this Report).

**Condition:** The superstructure and foundation appear to be in fair to poor condition. The heavy timber post and beam construction appears to have undergone movement during or shortly after construction; the lightweight frame lists significantly to the west and the north wall has



been thrust to the north; the siding board at the northeast corner of the building appears to have been cut wedge-like to account for the outward angle. Later additions to the structural system appear to have been made to account for this movement and include double steel angles with threaded tie-rods to resist the northerly thrust and diagonal wood member bracing affixed to the bottom side of roof rafters to resist the listing to the west. The north concrete foundation wall has a run of approximately 40-feet on the west end and is broken in two in the middle; both ends of this foundation wall are lower than the middle, hence the crack. This may account for the listing of the building frame to the west; the soil bearing pressure under the west foundation wall may be of less value than that under the cracked north wall, hence the list. Additionally, the top fibers of some of the rafters supporting the roof are contaminated from the rot in the 1x sheathing (or 2x wood car decking) created by the leaking roof and present a structural safety issue.

The composition shingle roofing appears to be failing and leaking onto the supporting 1x sheathing (or 2x wood car decking) which is rotted in numerous locations and now transferring the rot into the structural frame. The wood decking becomes damp from only light rain showers and at areas accessed, both decking and structural frame members show signs of rot and fungus growth; the efficacy of the choice of composition shingles for this type of structure is inappropriate as differential-pressures and wind-driven rain, particularly on the lower sloped portions, is forcing rainwater through the shingles and into the interior. Also, some of the shingles on the south face are beginning to curl from UV exposure and shingle uplift from high winds is also occurring adding to the ease of water intrusion. Ghosts of past pools of water are evident on the second floor sub-floor surfaces and areas of the floor sheathing are warped and mushy; the building's first floor is the site of the new Library currently under construction and nearing completion, so it is paramount to correct the leaking roof conditions to protect the Library investment. The Recreation Center roofing membrane (perhaps EPDM or single ply torch-down) is leaking according to management, has folds and creases in the membrane at the southwest corner and at the adjacent parapet wall (folds





and wrinkles lead to cracks in the membrane and subsequent leaking); the acoustic ceiling tiles inside the Recreation Center have several water stains verifying the roofing membrane is leaking.

The 1x8 Western Red Cedar siding boards with 1x2 Western Red Cedar battens are in fair to poor condition. The north wall siding is damaged with rot up to as high as 18-inches above grade; the siding is in contact with grade which is promoting the rotted conditions. Along the east wall, there is a gap below the siding where the edge of the concrete slab is exposed, together with the wood sill plate and wood studs; this gap needs to be sealed against water intrusion. The roadway along the east facade is either graded flat or to drain into the building; this condition is adding to the wet condition of the bottom of the wall and siding adjacent to a downspout and partially exposed drainline is rotted at the bottom. There is a leaking threshold to the man-door on the east side of the building. The east façade also has areas of replacement plywood or OSB painted panels in a barn style; the details of water-proofing between the various siding types is unknown, but it appears that none or few sheet metal “z” flashings have been installed at horizontal transitions.

The siding on the barn doors at the west façade is rotten along the bottom edge. The west façade siding is 1x8 Western Red Cedar siding boards, but much of the siding does not have the 1x2 Western Red Cedar battens; it is unclear how this siding is providing a water tight barrier, since there appears to be gaps between the boards. Unless there is a water-resistant membrane under this siding, water intrusion into this assembly is likely. The west façade also has areas of replacement plywood or OSB painted panels in a barn style; the details of water-proofing between the various siding types is unknown, but it appears here too that none or few sheet metal “z” flashings have been installed at horizontal transitions. Additionally, there are many penetrations that appear open and others that are new due to the on-going installation of the Library space at the first floor on both the east and west facades. It is imperative that all openings be closed and that all transitions between dissimilar materials be sealed. There are wood shingles on the west



façade sidewall of the flat roofed area (Recreation Center) between Barns #7 & #8; there is a shingled cantilevered overhang that has several shingles that have come loose and need to be reattached. Also, lower wall shingles make contact with grade and should have a gap of 3-inches above grade; contact with grade will lead to premature degradation of the shingles.

The high gable end of the east wall has been sheathed with painted plywood or OSB replacement panels. The high gable end of the west wall has been sheathed with painted horizontal 1x8 wood lap siding and translucent corrugated plastic siding. Transition details between both of these siding treatments are unknown. Some wall sections of board and batten or board siding have been previously replaced with painted plywood or OSB panels. Various penetrations have been made and are currently occurring with the installation of the new Library at the first floor; the current penetrations are being filled with plywood, so far unfinished.

The wood sliding barn doors hung on steel rails are in poor condition and rotted at the bottom and need to be repaired; the second floor barn door on the west façade is in poor condition and needs to be refurbished. The pair of hinged wood doors fashioned with vertical board and batten finish are in good condition. The pair of hinged wood doors fashioned to match sliding barn doors at the Library are in good condition. The pair of hinged flush panel wood doors, the large flush panel wood doors set in wood frames, the flush panel man-door, the solid core 6-panel metal skin man-door set in wood frame, and the pair of solid core wood flush panel doors with small glass relite set in wood frames are all in good to fair condition but all doors and frames need to be repainted.

The replacement sliding vinyl window frames at the east façade are in good condition, but it appears that the frames are dependent on caulking for weather resistance as no sheet metal “z” flashings appear to be present; however, the window frames at the flat roofed extension (Recreation Center) are protected by the slight overhang on the east side



and the more generous shingled overhang on the west facade. The corrugated translucent plastic panels applied over structural wall framing at the west façade are in fair to poor condition and appear to have a butt joint with a continuous wood 2x4 at the head; there does not appear to be a sheet metal “L” flashing and the 2x4 appears to have come loose and if so, is allowing water intrusion into the assembly.

Some new exterior openings have been created in connection with the Library project, but as yet are unfinished. Other openings that have been closed with painted plywood or OSB panels are in fair condition but appropriate weatherboard installation details could not be verified. The sheet metal grille/vents openings appear to be in fair condition but appropriate weatherboard installation details could not be verified here either. The wood frame openings that appear to be past windows, now covered with a fabric screen material, do not appear to provide protection from the elements and should be revised or replaced to reflect industry standard installation details. The round opening on the second story west facade that appears to be open needs to be closed and sealed, again in compliance with, and to, industry standard installation details.

The structural frame has been compromised and the north outside wall appears to have thrust to the north, while the roof framing has listed to the west. Both conditions render the frame and foundation in poor condition and represent a HSW (Health, Safety and Welfare) issue. See Immediate Repairs section below for information and recommendations on this issue. Also, the lack of shear walls in the structure renders the building dangerous during a seismic event. Also, the entry bridge at the east façade is rotten and management indicates it will be replaced with a railcar bed under a separate contract (review of this element is not in contract (NIC) nor part of this Report).

**Recommended Action:** *Further Investigation Is Warranted.* Immediate Repairs are required for hiring a structural engineer to evaluate the condition of the structural frame including the roof, column and wall framing and make recommendations to eliminate any deficiencies ; for



removing the existing composition shingle roofing, rotted components of the 1x T&G sheathing (or 2x T&G wood car decking) and for repair or replacement of any damaged structural framing components; for repair or replacement of the single ply (EPDM or single ply torch-down) roofing membrane over the Recreation Center; for repairing the cracked north concrete foundation wall; for repair and replacement of rotted, missing or otherwise damaged siding, boards or battens; for sealing any openings in the siding systems including gaps between vertical siding boards where battens are missing; for repairing and sealing any transitions between siding materials; for sealing the bottom of the siding at the east wall where the siding is exposing the sill plate and wood wall studs above the concrete slab; for caulking and sealing the leaking threshold on the east side of the building; for closing and sealing any openings where left after Library construction is completed; for reattaching loose shingles at the cantilevered overhang at the flat roof extension on the west façade; for repairing the corrugated translucent plastic panels at the west façade that appears to have a butt joint with a continuous wood 2x4 at the head that has come loose; for repairing the rotted wood sliding barn doors on the west façade; for repairing, replacing or sealing the frame openings that appear to be past windows now covered with a fabric screen material with new industry standard installations; and for sealing the round opening on the second story west facade that appears to be open. Alternatively, the entire siding system for Barn #7 could be replaced under Immediate Repairs.

Replacement Reserves are required for regrading the roadway along the east facade to effect positive drainage away from the building wall; for repainting and restaining the entire building including doors, frames and trim; for replacing all doors, frames and grilles; for replacing all window frames and trim; for replacing all siding materials; for replacement of the sheet metal gutters and downspouts and for tight-lining the downspouts away from the building; for replacing the single ply (or EPDM) roof membrane at the Recreation Center; and for periodically removing organic build-up from the roof and gutters. If a new standing seam metal roof is installed as a part of Immediate Repairs, Replacement



Reserves for sloped roofing could be extended for a period of 30–50–years

**Remaining Useful Life:** 2–years for repainting/restaining the building, 5–years thereafter; 20–years for replacing all wood trim and siding, 20–years thereafter; 20–years for replacing the metal doors, frames and grilles, 20–years thereafter; 20–years for replacing the metal and/or vinyl windows, 20–years thereafter; 30–50–years for replacing the metal roofing, 30–50–years thereafter; 5–years for replacing the current single ply roof membrane at the flat roof Recreation Center, 20–years thereafter; assuming Immediate Repairs and Replacement Reserves are completed and routine maintenance is performed.

## **Barn #8**

*Superstructure:* Lightweight timber post and beam construction with 2x horizontal wood wall ledgers, 2x wood stud walls, with lightweight 2x built–up wood trusses, knee braces, beams, purlins and rafters.

*Foundations:* Heavy timber column posts are founded on raised concrete foundation walls with enlarged concrete plinths poured in place. There is a concrete slab–on–grade at the first floor. Footings are continuous at the perimeter with assumed spread spot footings at interior point loads.

*Roofing:* Standing seam metal roofing over an assumed assembly including a water resistant membrane, over plywood or 1x tongue and groove (T&G) sheathing (or 2x T & G wood car decking), on wood roof trusses, joists and purlins with a sheet metal gutter at the north overhang and a downspout dispersing rainwater to a tight–line system at the east side; the south overhang has no gutter or fascia and runoff is to grade at the south side. Plumbing roof vents and exhaust stacks have been installed at both the north and south shed roofs.

*Exterior Walls:* Original siding is 1x8 Western Red Cedar boards with 1x2 Western Red Cedar battens on wood stud ledger walls and beam and column superstructure; there also appears to large areas of replacement



resawn or T-111 plywood siding on the building. The west high gable end has been sheathed with horizontal 1x8 wood lap siding. Some wall sections of board and batten siding have been previously replaced with painted resawn or T-111 plywood or OSB panels. Various penetrations have been made and are patched with the painted plywood.

*Exterior Doors:* 2-pair of hinged flush panel wood doors; 2-flush panel man doors; 3- solid core 6-panel metal/vinyl skin man-doors set in wood frames.

*Exterior Windows:* Replacement vinyl frame sliding type set in wood rough openings with double-sheet insulating glazing; the bath house service window is covered over with painted T-111 plywood.

*Exterior Openings:* Various wall penetrations have been closed with painted T-111 plywood or OSB panels; on the east wall, there is a doorway that has been patched with unpainted particle board. Still other openings include sheet metal grille/vents set in wood rough openings; there are also various penetrations for sidewall mounted equipment; several penetrations are weathered and need to be repaired.

*HSW Issues (Health, Safety and Welfare):* N/A

**Condition:**

The superstructure and foundation appear to be in good condition.

The standing seam sheet metal roofing appears to be in good condition. There is a finished cedar ceiling inside the second floor that obscures the framing but no signs of leaks on the ceiling were apparent. The sheet metal gutter on the north side of the building is undersized and overflows onto the flat roof of the adjacent building to the north under even light showers; there is only one downspout servicing the gutter at the east façade for a run of approximately 90-feet. Additionally, snow build-up is tearing the gutter from its anchors during winter conditions. The lack of gutters at the south side is creating splash-back onto the



siding and contributing to dry-rot in the siding and trim adjacent to grade (gutters and fascias protect rafter tips from absorbing rainwater into end grain and prevent rot in rafter tips).

The 1x8 Western Red Cedar siding boards with 1x2 Western Red Cedar battens are in good to poor condition. There are many patches and repairs with resawn or T-111 plywood or OSB board; some of the patch-work is becoming weathered and needs to be repaired again. The siding is rotting in many locations due to its close proximity to grade. The roadway along the east facade is either graded flat or to drain into the building; this condition is adding to the wet condition of the bottom of the wall and siding adjacent to a downspout and partially exposed drainline is rotted at the bottom. The east façade also has areas of replacement plywood or OSB painted panels in a barn style; the details of water-proofing between the various siding types is unknown, but it appears that few sheet metal “z” flashings have been installed at horizontal transitions.

The siding on the west façade is beginning to rot along the bottom edge. The west façade siding is 1x8 Western Red Cedar siding boards; there are a few missing or broken 1x2 Western Red Cedar battens. The west façade also has areas of replacement plywood or OSB painted panels in a barn style; the details of water-proofing between the various siding types is unknown; it appears there are places where sheet metal “z” flashings have been installed at horizontal transitions. Additionally, there are many previous penetrations that are beginning to weather and now need to be repaired. It is imperative that all openings be closed and that all transitions between dissimilar materials be sealed.

The high gable end of the east wall has been sheathed with what appears to be original board and batten siding. The high gable end of the west wall has been sheathed with painted horizontal 1x8 wood lap siding. Proper weatherboard transition details between both of these siding treatments could not be verified.



All doors and frames appear to be in good condition and should be recaulked and repainted with each building painting.

The replacement vinyl frame sliding windows are in good condition, but it appears that the frames are dependent on caulking for weather resistance as no sheet metal “z” flashings appear to be present at head openings; the work still appears to be incomplete above and below some of the frames since painting was not matched with siding (white paint is used on siding patches).

Other openings that have been closed with painted plywood or OSB panels are in fair condition but appropriate weatherboard installation details could not be verified. The sheet metal grille/vents openings appear to be in good to fair condition but appropriate weatherboard installation details could not be verified here either.

No HSW (Health, Safety and Welfare) issues were noted.

**Recommended Action:** Immediate Repairs are required for resizing and installing a new sheet metal gutter on the north side of the building and for adding a downspout at the west facade; for installing a fascia and gutter at the south side; for adding snow clips to the standing metal roofing seams to prevent snow build-up on the sheet metal gutter along the entire length of the north wall; for regrading the roadway along the east facade to effect positive drainage away from the building wall; for repair and replacement of rotted, missing or otherwise damaged siding, boards and/or battens; for sealing any openings in the siding systems including gaps between vertical siding boards where battens are missing; and for repairing and sealing any transitions between siding materials.

Replacement Reserves are required for repainting and restaining the entire building including doors, frames and trim; for replacing all doors, frames and grilles; for replacing all window frames and trim; for replacement of the sheet metal gutters and downspouts and for tight-lining the downspouts away from the building; for periodically removing





organic build-up from the roof and gutters; and for replacing all siding materials..

**Remaining Useful Life:** 2-years for repainting and restaining the entire building including doors, frames, grilles and trim, 5-years thereafter; 20-years for replacing fascias and gutters, 20-years thereafter; 20-years for replacing all wood trim and siding, 20-years thereafter; 20-years for replacing the metal doors, frames and grilles, 20-years thereafter; 20-years for replacing the metal and/or vinyl windows, 20-years thereafter; 30-50-years for replacing the metal roofing; assuming Immediate Repairs and Replacement Reserves are completed and routine maintenance is performed.

## Clubhouse

*Superstructure:* Heavy timber post and beam construction with glue laminated primary beams, sawn secondary beams, purlins, and rafters with 2x wood stick stud wall framing, with exposed wood roof decking at the second level.

*Foundations:* Concrete perimeter foundation walls on continuous concrete strip and interior spot spread footings at point loads, with concrete slab-on-grade.

*Roofing:* Composition shingles over water resistant membrane on assumed rigid insulation, plywood, oriented strand board (OSB) sheathing, or exposed wood decking with sheet metal gutters and tight-lined downspouts at perimeter overhangs. Roof valleys are interlaced composition shingles.

*Exterior Walls:* 1x6 original horizontal tongue and groove (T&G) Western Red Cedar siding over water resistant membrane on plywood sheathing; newer replacement siding is comprised of vertical groove or resawn T-111 plywood or OSB panels. There is stained/painted wood trim and fascias; heavy fascias are glue laminated beams. Surface-mounted



equipment is without stand-off wood blocking but generous overhangs protect most walls.

*Exterior Doors:* Original wood doors have solid core rail with full glass lites and stained/painted face frames, set in stained/painted wood frames surrounded with stained/painted wood trim. There are also original bronze anodized metal storefront entry doors with full glass lites set in bronze anodized metal frames with full glass head- and side-lites set in bronze anodized metal frames.

*Exterior Windows:* Original windows are fixed or casement type sash with wood stained/painted frames and stops with single sheet glazing. Wood siding is butted and caulked to wood frames; there are no trim boards. Newer replacement frames are vinyl with fixed double-insulating glazing set in the wood rough openings; currently, plywood sheathing is placed above and/or between the frames, is unfinished and it is unclear how the siding is to be finished.

*Exterior Openings:* Other openings or penetrations include hose bibs, convenience outlets, gas pipe penetrations, surface-mounted electrical, mechanical and miscellaneous equipment, and light fixtures; equipment is not mounted on stand-off wood blocking. Penetrations are direct through the siding or siding is butted and caulked to equipment flanges.

*HSW Issues (Health, Safety and Welfare):* There is a damaged glue-laminated beam that functions as a load-bearing member and fascia on the south side of the rooftop clerestory; the damage is thought to be primarily cosmetic in nature since the roof loads it carries are quite small and the beam likely owes its sizing primarily to the architectural style employed in the design. Nonetheless, it is a structural element and rot damage at the western end where it intersects with adjacent roof surfaces and a wood-sided chimney stack needs to be corrected immediately. The depth of the rot at this location is unknown and when revealed should be reviewed by a Structural Engineer to determine whether patch and repair of the beam is feasible or if replacement is required.



Additionally, many tripping hazards exist in the surrounding concrete and asphalt paved walkway and apron surfaces adjacent to the building; cracks greater than ½-inch in width exist in many locations and differential settlement between surfaces creates a danger to the public health, safety and welfare. Such hazards are easily removed through filling cracks with grout or other compound and leveling or grinding them smooth.

**Condition:**

The superstructure and foundation appear to be in generally good condition. However, there are many cracks in the concrete floor slab in the kitchen storage areas at the southwest corner of the building. The cracks appear to be of the shrinkage variety, as little but some differential settlement has occurred. All cracks exceeding 1/8-inch in width should be filled and struck off smooth; cracks with differential settlement need to be filled and ground-off smooth. There are also what appear to be shrinkage cracks in the concrete foundation/retaining wall at the building's exterior wall also at the southwest corner; one of the cracks has already been repaired and another requires it. Additionally, there are wet mortar joints in the tile at the ground floor concrete slab in the Men's Restroom indicating that water appears to be entering the slab from hydrostatic conditions below grade; the floor should be resealed. This condition bears monitoring and if leaks become worse, excavation to correct the problem may be required.

Also, the damaged glue-laminated beam that functions as a load-bearing member and fascia on the south side of the rooftop clerestory has dry-rot at the western end where it intersects with adjacent roof surfaces and a wood-sided chimney stack; the damage is thought to be primarily cosmetic in nature since the roof loads it carries are quite small and the beam likely owes its sizing primarily to the architectural style employed in the design. However, the beam is a structural element and rot damage needs to be corrected immediately. The depth of the rot at this location is unknown and when revealed should be reviewed by a Structural Engineer



to determine whether patch and repair of the beam is feasible or if replacement is required.

The glue laminated fascia beams have deteriorated badly at the hybrid lap/interlocking corner joints and also at the butted running joints; in some cases, the joints are so badly deteriorated they will have to be checked for adequate bearing surfaces at steel connectors before being reconstructed cosmetically. Any beams found to be deteriorated at the structural connections need to be reviewed by a structural engineer for adequacy. Consideration should be given to installing a sheet metal end cap to prevent future water intrusion into the joints at all such corners.

Although fairly new, the wood deck construction at the northwest façade was left unfinished/unpainted and the wood is staining badly from water exposure and the wood members are supporting algae growth on exposed surfaces. All exposed end grain in wood members, including glue laminated beams, should have sheet metal caps installed at ends and at top edges to prevent water intrusion from damaging wood. The glue laminated staircase stringer at the west deck is in contact with concrete and asphalt surfaces and rot is beginning to damage the stringer; also, it appears the fiberglass covering at the treads and risers is delaminating from the stringers; this is allowing water intrusion into the stringer face behind the coating. Both conditions should be corrected and all woodwork should be painted/stained to prevent further damage. Also, at the east deck at the head of the staircase at the east end of the north façade, the deck membrane does not extend to the nosing (outside edge) of the landing and the post is not caulked. This condition will allow water intrusion into the deck assembly which will promote rot. Finally, the deck surface at the northwest end of the west deck collects standing water on the deck surface; unless the drainage is corrected, the water-resistant membrane will have to be maintained in top condition to prevent water intrusion into the supporting wood member assembly.

The composition shingles are in good condition except at the southwest corner where two shed roofs protect the kitchen storage area and at the



covered entry roof to the Administration area at the southwest facade; all three areas have moss growth and shingles appear to be substantially more worn at those locations with some damaged shingles. Also, sheet metal gutters are leaking at corners, are contributing significantly to rot at each fascia corner and need to be recaulked.

The original 1x6 horizontal tongue and groove (T&G) Western Red Cedar siding is in generally good condition; newer replacement siding at the kitchen storage area is comprised of vertical groove or resawn T-111 plywood or OSB panels. There are some loose siding boards at the north side of the southwest kitchen support/storage area and also at the chimney stack on the south side of the roof. The vertical groove or resawn T-111 plywood or OSB panels that have rot in the lower sections where adjacent to grade at the kitchen storage area needs to be replaced. Some of the adjacent cedar trim has rot and needs to be replaced.

Original wood doors and frames are in good condition, but need to be repainted with each building painting. Service doors and frames are marred, need repainting and in some cases, repair. The original bronze anodized metal storefront entry doors and bronze anodized metal frames are in good condition.

Original wood windows are generally in good condition, but need to be repainted with each building painting; the sill at the south clerestory and wood trim at the east clerestory are rotted badly and need to be replaced; the entire clerestory window frame should be inspected for rotted conditions. Newer vinyl replacement frames are in good condition, but surrounding finish work needs to be completed.

Other openings or penetrations, including hose bibs, convenience outlets, gas pipe penetrations, surface-mounted electrical, mechanical and miscellaneous equipment, and light fixtures are in generally good to fair condition due to the generous roof overhang; equipment is not mounted on stand-off wood blocking.



HSW (Health, Safety and Welfare) tripping hazards exist in the surrounding cracked concrete and asphalt paved walkway and apron surfaces adjacent to the building; crack hazards should be filled with grout or other compound and leveled or ground smooth.

**Recommended Action:** *Further Investigation Is Warranted.* Immediate Repairs are required for hiring a Structural Engineer to determine whether patch and repair of the glue laminated beam at the clerestory is feasible or if replacement is required and for checking for adequate bearing surfaces at steel connectors at glue laminated beam hybrid lap/interlocking corner joints and at running joints in the glue laminated fascias; for resealing the ground floor concrete slab in the Men's Restroom where water appears to be entering the slab from grade; for filling all cracks in the ground floor concrete slabs at the basement and kitchen storage rooms; for repairing the damaged glue-laminated beam at the south side of the rooftop clerestory; for repairing and refinishing all glue laminated fascia beam joints and connections; for installing sheet metal caps at beam ends and at beam top edges at decks; for recaulking the leaking sheet metal gutters at corners; for separating wood stair stringers from contact with grade; for repairing the fiberglass covering at the west stair treads and stringers; for repairing the east stair deck membrane and caulking the post; for removing the moss growth from the covered entry roof to the Administration area at the southwest façade and repairing the damaged shingles; for replacing the rotted vertical groove or resawn T-111 plywood or OSB panels and cedar trim at the kitchen storage area; for repairing the loose siding boards at the north side of the southwest kitchen support/storage area and also at the chimney stack on the south side of the roof; for replacing the sill at the south clerestory and wood trim at the east clerestory; and for eliminating the tripping hazards in the surrounding cracked concrete and asphalt paved walkway and apron surfaces adjacent to the building.

Replacement Reserves are required for repainting/restaining the entire building and all exterior woodwork, including the doors, windows and frames; for recoating the water-resistant membrane deck surfaces at



both decks; for replacing the composition shingles, sheet metal gutters and downspouts; for replacing the original wood doors and frames; for replacing the original wood window frames; for replacing the new vinyl frame windows; for replacing the original bronze anodized metal storefront entry doors and frames; for replacing the concrete and asphalt paved walkway and apron surfaces adjacent to the building; and for periodically removing organic build-up from the roof and gutters and for pruning trees and shrubbery making contact with the roof and walls as a part of routine maintenance.

**Remaining Useful Life:** 2-years for repainting and restaining the entire building including doors, frames, grilles and trim, 5-years thereafter; 2-years for recoating the water-resistant membrane deck surfaces at both decks, 10-years thereafter; 7-years for replacing the composition shingles, sheet metal gutters and downspouts, 15-years thereafter; 10-years for replacing the original wood doors and frames, 20-years thereafter; 10-years for replacing the original wood window frames, 20-years thereafter; 20-years for replacing the new vinyl frame windows, 20-years thereafter; 10-years for replacing the original bronze anodized metal storefront entry doors and frames, 30-years thereafter; 5-years for replacing the concrete and asphalt paved walkway and apron surfaces adjacent to the building, 30-years thereafter; for annually removing organic build-up from the roof and gutters, annually thereafter; assuming Immediate Repairs and Replacement Reserves are completed and routine maintenance is performed.

### **Gate #3 School Shelter**

*Superstructure:* Wood log columns buried directly into grade supporting 4x wood primary beams and 2x roof joists.

*Foundations:* Wood log columns are set directly into grade.

*Roofing:* Composition shingles over assumed water resistant membrane on plywood or oriented strand board (OSB) sheathing; there are no sheet



metal gutters or downspouts at perimeter overhangs. There are no sheet metal “L” flashings present at fascia and rakes.

*Exterior Walls:* N/A

*Exterior Doors:* N/A

*Exterior Windows:* N/A

*Exterior Openings:* N/A

*HSW Issues (Health, Safety and Welfare):* The wood log columns are slightly rotted at the base where entering grade; the outer fibers are rotted approximately 1–inch deep around the circumference of each column. Since the columns are approximately 16–inches in diameter, there is no danger of collapse at this time; however, the rot will continue to advance and the columns should be monitored until replacement occurs.

**Condition:** The superstructure and foundation appear to be in good to fair condition; the wood log columns have up to 1–inch of rot in the outer fibers due to the direct burial in grade. The roofing is in poor condition and water staining on the underside of roof sheathing indicates the roof is beginning to leak; there is a substantial amount of moss growth and deleterious organic material built up on the roof surfaces that will eventually destroy the shingles. There are rake fascias that appear to be in good to fair condition, but no fascias are present at the overhangs. The two roofs do not meet at the center of the structure and this condition allows rainwater direct access onto the top of the log columns where log column end grain will allow water intrusion into the top of the columns; the top of the columns should be monitored for rot since that is where the roof beams are connected to the columns.





**Recommended Action:** Immediate Repairs are required for removing the moss and organic material from the roofing; better evaluation of the shingles can be made when the roof is cleared of deleterious material.

Replacement Reserves are required for the composition shingles; and for repainting the entire structure. Periodic removal of the moss and deleterious organic debris from the composition shingles should be completed as a part of routine maintenance.

**Remaining Useful Life:** 2–years for replacing the composition shingle roofing, 15–years thereafter; 2–years for repainting/restaining the structure, 5–years thereafter; 3–years for replacing the fascias, 15–years thereafter; assuming Immediate Repairs and Replacement Reserves are completed and routine maintenance is performed.

## **Gate #5 Bus Stop Shelter**

*Superstructure:* Treated wood 6x6 posts buried directly into grade supporting 2x wood primary beams and 2x roof joists.

*Foundations:* Treated wood 6x6 posts are set directly into grade.

*Roofing:* Composition shingles over assumed water resistant membrane on oriented strand board (OSB) sheathing; there are no sheet metal gutters or downspouts at perimeter overhangs. There are sheet metal “L” flashings present at fascia and rakes.

*Exterior Walls:* N/A

*Exterior Doors:* N/A

*Exterior Windows:* N/A

*Exterior Openings:* N/A

*HSW Issues (Health, Safety and Welfare):* N/A



**Condition:** The superstructure and foundation appear to be in good condition; the wood 6x6 posts are pressure treated and as yet have no rot where entering grade due to direct burial in earth. The roofing is in good to fair condition and water staining on the underside of roof sheathing at the northwest corner indicates the roof is beginning to leak; this is probably due to wind-driven rain and shingles should be inspected to see if they are tight to the sheet metal edge. There is a small amount of moss growth and deleterious organic material built up on the roof surfaces that should be removed. There are overhang and rake fascias that appear to be in good condition. There are trees branches that are shading and touching the roof which will promote the accelerated growth of moss.

**Recommended Action:** Immediate Repairs are required for inspecting the shingles at the northwest corner to see if they are tight to the sheet metal edge; for removing the moss and organic material from the roofing; and for pruning the trees away from and off the roof.

Replacement Reserves are required for the composition shingles; and for repainting the entire structure. Periodic removal of the moss and deleterious organic debris from the composition shingles should be completed as a part of routine maintenance.

**Remaining Useful Life:** 10-years for replacing the composition shingle roofing, 15-years thereafter; 2-years for repainting/restaining the structure, 5-years thereafter; 10-years for replacing the fascias, 15-years thereafter; assuming Immediate Repairs and Replacement Reserves are completed and routine maintenance is performed.

## Gate #9 Bus Stop Shelter

*Superstructure:* Treated wood 6x6 posts buried directly into grade supporting 2x wood primary beams and 2x roof joists.

*Foundations:* Treated wood 6x6 posts are set directly into grade.



*Roofing:* Composition shingles over assumed water resistant membrane on oriented strand board (OSB) sheathing; there are no sheet metal gutters or downspouts at perimeter overhangs. There are sheet metal “L” flashings present at fascia and rakes.

*Exterior Walls:* N/A

*Exterior Doors:* N/A

*Exterior Windows:* N/A

*Exterior Openings:* N/A

*HSW Issues (Health, Safety and Welfare):* N/A

**Condition:** The superstructure and foundation appear to be in good condition; the wood 6x6 posts are pressure treated and as yet have no rot where entering grade due to direct burial in earth. The roofing is in fair condition and water staining on the underside of roof sheathing indicates the roof is beginning to leak. There is a substantial amount of moss growth and deleterious organic material built up on the roof surfaces that should be removed. There are fascias and rake boards that appear to be in good condition. There are trees branches that are shading and touching the roof which are promoting the accelerated growth of moss.

**Recommended Action:** Immediate Repairs are required for removing the moss and organic material from the roofing; and for pruning the trees away from and off the roof.

Replacement Reserves are required for the composition shingles; and for repainting the entire structure. Periodic removal of the moss and deleterious organic debris from the composition shingles should be completed as a part of routine maintenance.



**Remaining Useful Life:** 2–years for replacing the composition shingle roofing, 15–years thereafter; 2–years for repainting/restaining the structure, 5–years thereafter; 5–years for replacing the fascias, 15–years thereafter; assuming Immediate Repairs and Replacement Reserves are completed and routine maintenance is performed.

## **Golf Maintenance Shop – Sand Shed & Storage Building**

*Superstructure:* Stick–built 2x wood wall framing with manufactured wood roof trusses, with open soffits and gable sidewall vents.

*Foundations:* Concrete slab–on–grade with perimeter turned down foundation walls and concrete spread spot footings at interior point loads supporting wood columns and interior frame bearing walls.

*Roofing:* Composition shingles over water resistant membrane on plywood or oriented strand board (OSB) sheathing on 2x stripping with sheet metal gutters and downspouts to grade at perimeter overhangs. Roof valleys are interlaced composition shingles.

*Exterior Walls:* 1x4 vertical tongue and groove (T&G) Western Red Cedar wood siding over water resistant membrane on plywood or OSB sheathing. There is painted wood frames and fascias. Surface–mounted equipment is not mounted on stand–off wood blocking, but overhangs protect walls.

*Exterior Doors:* Doors are 6–panel solid core with painted wood, vinyl or metal skins, set in painted wood frames, with or without glass transom panels; garage doors are painted wood panel with or without glass panels set in painted wood frames.

*Exterior Windows:* Windows are sliding bronze anodized metal frames with double–insulating glazing set into a perimeter self–flashing surround that is caulked to the wood siding; there are no trim boards.



*Exterior Openings:* Other openings or penetrations include hose bibs, convenience outlets, surface-mounted electrical and miscellaneous equipment, light fixtures and gable vents.

*HSW Issues (Health, Safety and Welfare):* N/A

**Condition:** The superstructure and foundation appear to be in good condition. The roofing is in good condition and no leaks were observed or reported by management. Sheet metal gutters and downspouts appear to be in fair condition, but gutter corners should be recaulked to prevent leaking onto fascias and destroying the painted finish. Fascia ends adjacent to composition shingles have faded paint and are beginning to split. Siding and fascias appears to be in good condition, and paint is in good condition except at the north wall which was not repainted and is still the original color. All doors and windows are in good condition. The continuous overhang protects all openings.

The Sand Shed & Storage building adjacent to the Golf Maintenance building is of the same basic construction type and in good condition except the paint is faded and blackened with algae and fungus on the fascias and a vertical trim board has been dislodged; the composition roof is covered with moss growth. Also, portions of the roof sheathing have been replaced with OSB and the exposed soffits need to be painted when the building is repainted.

**Recommended Action:** Immediate Repairs are required for painting the north wall and fascia; for recaulking the sheet metal gutters at the leaking corners; and for pruning back foliage from roof and walls.

Immediate Repairs are also required at the Sand Shed & Storage Building for repairing the dislodged vertical trim board; and for removing the moss growth from the roof.

Replacement Reserves are required for replacing the composition shingle roofing and sheet metal gutters and downspouts; for periodic repainting



of the building; for recaulking siding, frames and all other exterior wall penetrations; for replacing all wood trim and siding; for replacing the metal windows; for replacing the vinyl clad doors and wood frames; for replacing the wood overhead doors and wood frames; and for periodic pruning of the foliage and removal of moss growth from the roof.

Replacement Reserves for the Sand Shed & Storage Building are required for replacing the composition shingle roofing; for periodic repainting of the building; for replacing all wood trim and siding; and for periodic pruning of the foliage and removal of moss growth from the roof.

**Remaining Useful Life:** 7–years for replacing the sheet metal gutters and downspouts, 20–years thereafter; 7–years for replacing the composition shingle roofing, 20–years thereafter; 5–years for repainting and recaulking the building, 7–years thereafter; 20–years for replacing all wood trim and siding, 40–years thereafter; 10–years for replacing the metal window frames, 20–years thereafter; 10–years for replacing the wood doors and frames, 20–years thereafter; 10–years for replacing the overhead wood doors and frames, 20–years thereafter; 10–years for replacing the vinyl clad doors and wood frames, 20–years thereafter; and for annual pruning of foliage from walls and roofs should be a part of routine maintenance activities; assuming Immediate Repairs and Replacement Reserves are completed and routine maintenance is performed.

**Remaining Useful Life for the Sand Shed & Storage building:** 5–years for replacing the composition shingle roofing, 20–years thereafter; 5–years for repainting and recaulking the building, 7–years thereafter; 20–years for replacing all wood trim and siding, 40–years thereafter; and for annual removal of organic material and moss growth roof that should be a part of routine maintenance activities; assuming Immediate Repairs and Replacement Reserves are completed and routine maintenance is performed.



## Golf Restroom #1 (7<sup>th</sup> Tee)

*Superstructure:* Concrete Masonry Unit (CMU) wall construction on concrete slab-on-grade with 2x stick-built wood roof framing.

*Foundations:* Concrete slab-on-grade with turned down perimeter footings.

*Roofing:* Composition shingles on assumed weather-resistant membrane on plywood or OSB roof sheathing.

*Exterior Walls:* Painted CMU.

*Exterior Doors:* Painted flush panel wood doors set in painted wood frames.

*Exterior Windows:* N/A

*Exterior Openings:* Entry doors are recessed into alcoves in the CMU exterior walls. Electric meters are wall mounted on the CMU.

*HSW Issues (Health, Safety and Welfare):* N/A

**Condition:** The superstructure and foundation appear to be in good condition; there is a vine clinging to the west CMU wall that should be removed. The roofing is in fair condition but there is a substantial amount of moss growth and deleterious organic material built up on the roof surfaces that should be removed. There are fascias and rake boards that appear to be in fair condition; there is a broken fascia at the southeast corner that needs replacement. There are trees branches that are shading and touching the roof which are promoting the accelerated growth of moss.

**Recommended Action:** Immediate Repairs are required for removing the moss and organic material from the roofing; for replacing the broken



fascia at the southeast corner; and for pruning the vines and trees away from and off the wall and roof.

Replacement Reserves are required for the composition shingles; for replacing the wood doors and frames; and for repainting the entire structure. Periodic removal of the moss and deleterious organic debris from the composition shingles should be completed as a part of routine maintenance.

**Remaining Useful Life:** 2–years for replacing the composition shingle roofing, 15–years thereafter; 7–years for replacing the wood doors and frames, 20–years thereafter; 2–years for repainting the structure, 5–years thereafter; 7–years for replacing the fascias, 15–years thereafter; assuming Immediate Repairs and Replacement Reserves are completed and routine maintenance is performed.

## **Golf Restroom #2 (14th Green)**

*Superstructure:* Concrete Masonry Unit (CMU) wall construction on concrete slab–on–grade with 2x stick–built wood roof framing.

*Foundations:* Concrete slab–on–grade with turned down perimeter footings.

*Roofing:* Composition shingles on weather–resistant membrane on plywood or OSB roof sheathing.

*Exterior Walls:* Painted CMU.

*Exterior Doors:* Painted flush panel wood doors set in painted wood frames.

*Exterior Windows:* N/A

*Exterior Openings:* Entry doors are recessed into alcoves in the CMU exterior walls. Electric meters are wall mounted on the CMU.





*HSW Issues (Health, Safety and Welfare):* N/A

**Condition:** The superstructure and foundation appear to be in good condition. The roofing is in good condition but there is a small amount of evergreen needles built up on the roof surfaces that should be removed periodically. There are fascias and rake boards that appear to be in good condition. There are huge trees with upper branches that are shading the roof which will promote moss growth.

**Recommended Action:** Immediate Repairs are N/A.

Replacement Reserves are required for the composition shingles; for replacing the wood doors and frames; and for repainting the entire structure. Periodic removal of the moss and deleterious organic debris from the composition shingles should be completed as a part of routine maintenance.

**Remaining Useful Life:** 5–years for replacing the composition shingle roofing, 15–years thereafter; 7–years for replacing the wood doors and frames, 20–years thereafter; 3–years for repainting the structure, 5–years thereafter; 5–years for replacing the fascias, 15–years thereafter; assuming Immediate Repairs and Replacement Reserves are completed and routine maintenance is performed.

## Main Pool Life Guard

*Superstructure:* 2x wood stick–built wall construction on concrete slab–on–grade with 2x stick–built wood roof framing.

*Foundations:* Concrete slab–on–grade with turned down perimeter footings.

*Roofing:* Composition shingles on weather–resistant membrane on plywood or OSB roof sheathing.



*Exterior Walls:* Painted 2x6 tongue and groove (T&G) painted horizontal wood siding over assumed weather-resistant membrane, plywood or OSB sheathing and 2x wood studs.

*Exterior Doors:* Painted custom fabricated 2x T&G wood door set in painted wood frames; the exterior door was partially obscured by an aluminum roll-down window screen.

*Exterior Windows:* Bronze anodized metal sliding windows with single sheet glazing set in rough wood openings; there are roll-down aluminum screens on two openings.

*Exterior Openings:* N/A

*HSW Issues (Health, Safety and Welfare):* N/A

**Condition:** The superstructure and foundation appear to be in good to fair condition. The roofing is in fair condition but there is a small area of shingle replacement on the west lowest three courses and a small amount of moss growth is accumulating on a few surfaces. There are no fascias which is exposing the rafter tips to increased weathering. The 2x6 wood T&G siding is rotting and in some cases extends to the bottom of the window rough openings, 6-courses up from the concrete deck.

**Recommended Action:** Immediate Repairs are required for replacing the bottom 6-courses of 2x T&G wood siding; for repainting the entire structure; and for removing the moss growth on the roof.

Replacement Reserves are required for the composition shingles; for replacing the wood door and frame; for replacing the metal window frames; and for repainting the entire structure. Periodic removal of the moss and deleterious organic debris from the composition shingles should be completed as a part of routine maintenance.



**Remaining Useful Life:** 3–years for replacing the composition shingle roofing, 15–years thereafter; 5–years for replacing the wood doors and frames, 20–years thereafter; 5–years for replacing the metal window frames, 20–years thereafter; 5–years for repainting the structure, 5–years thereafter; assuming Immediate Repairs and Replacement Reserves are completed and routine maintenance is performed.

## Maintenance Shop

*Superstructure:* Stick–built 2x wood wall framing with stick–built or manufactured wood roof trusses, with no soffits or vents. The primary building is rectangular with a gable roof and there is a shed extension on the west facade and on the north façade.

*Foundations:* Concrete slab–on–grade with perimeter turned down foundation walls and concrete spread spot footings at interior point loads supporting wood columns and interior frame bearing walls.

*Roofing:* Corrugated sheet metal panels on 2x stripping on wood roof framing with sheet metal gutters and downspouts to grade at perimeter.

*Exterior Walls:* Corrugated sheet metal panel siding over 2x wood framing. There are unpainted sheet metal fascias. There are corrugated translucent panels placed at intervals in the siding for the passage of natural light.

*Exterior Doors:* There is 1– flush panel solid core man door with painted wood, vinyl or metal skin, set in a painted wood frame; 1–pair of sliding metal doors hung on an exterior metal track; 1–single sliding metal door hung on an exterior metal track; and 2–painted corrugated metal access doors or panels at an shed roof extension at the west end.

*Exterior Windows:* There is 1– wood or vinyl window frame set in a corrugated wall panel in the west end of the south façade; there are corrugated translucent panels placed at intervals in the siding for the passage of natural light.



*Exterior Openings:* Other openings or penetrations include surface-mounted electrical and miscellaneous equipment, and light fixtures.

*HSW Issues (Health, Safety and Welfare):* N/A

**Condition:** Generally, this building is dilapidated and its residual value obviates any needed repairs. The superstructure and foundation appear to be in fair to poor condition. The roofing is in poor condition and management reported numerous leaks were active in the roof and walls. Sheet metal gutters and downspouts appear to be in fair to poor condition. Siding and fascias appears to be in poor condition, and paint is in poor condition except at the east wall which appears to be a recent replacement. The man-door is in fair condition and the window is in fair to poor condition. There are no overhangs.

**Recommended Action:** Immediate Repairs are required for replacing this building, and the Tall Shed & Lean-To structures with a new combined metal building together with any additional space determined to be needed for related storage purposes.

Replacement Reserves are required for maintenance of a new metal building with enclosed maintenance yard.

**Remaining Useful Life:** N/A

## **Maintenance Tall Shed & Lean-To**

*Superstructure:* Stick-built 2x wood wall and roof framing with stick-built or manufactured wood roof trusses, with no soffits or vents. The primary building is rectangular with a gable roof and there is a shed or “lean-to” extension on the west facade.

*Foundations:* Concrete slab-on-grade with perimeter turned down foundation walls and concrete spread spot footings at interior point loads supporting wood columns and interior frame bearing walls.



*Roofing:* Corrugated sheet metal panels over 2x wood roof framing with stick-built or manufactured wood roof trusses. Management indicates that both structures leak.

*Exterior Walls:* Corrugated sheet metal panel siding over 2x wood framing. There are unpainted sheet metal fascias. There are corrugated translucent panels placed at intervals in the siding for the passage of natural light. The west wall of the Tall Shed is dilapidated broken wood and battered sheet metal. The west all of the Lean-To is dilapidated and rusted out.

*Exterior Doors:* There is 1 – flush panel solid core man-door with painted wood or metal skin, set in a unpainted wood frame; 2 – pair of sliding metal doors hung on an exterior metal track, one pair at each end of the building; the shed roof extension at the west façade is open to the atmosphere at both ends.

*Exterior Windows:* There are no windows; there are corrugated translucent panels placed at intervals in the siding of the Tall Shed for the passage of natural light.

*Exterior Openings:* there are numerous intended and unintended openings in both buildings; the Lean-To is open at the north and south facades.

*HSW Issues (Health, Safety and Welfare):* N/A

**Condition:** Generally, these two buildings are dilapidated and their residual value obviates any needed repairs. The superstructure and foundation appear to be in fair to poor condition. The roofing is in poor condition and management reported numerous leaks were active in the roof and walls of both buildings. There are no sheet metal gutters and downspouts. Siding is in poor condition, and paint is in poor condition.



The man-door is in poor condition. There is an overhang on the west façade of the Lean-To building.

**Recommended Action:** Immediate Repairs are required for replacing these two buildings, and the Maintenance Shop structures with a new combined metal building together with any additional space determined to be needed for related storage purposes.

Replacement Reserves are required for construction and maintenance of a new metal building with enclosed maintenance yard.

## Marina Picnic Shelter

*Superstructure:* Wood log columns are buried directly into grade supporting 4x wood primary and secondary beams, 4x wood posts, and 2x roof joists. It appears that concrete masonry unit (CMU) fireplaces partially carried the load of primary roof beams, at least until replacement 4x4 wood posts were installed that now redirect beam point loads from CMU beam pockets to the concrete slab at each end (original primary wood beams set into beam pockets rotted, probably due to poor sheet metal flashing failing to protect the assembly from water intrusion, at the roof around the CMU chimney); 4x4 wood surrounds are founded on fireplace hearth CMU.

*Foundations:* Wood log columns are set directly into grade. Fireplaces are set on concrete pad foundations and originally carried partial roof loads of primary roof beams.

*Roofing:* Composition shingles over water resistant membrane on oriented strand board (OSB) sheathing on wood stripping; there are no sheet metal gutters or downspouts at perimeter overhangs. Roof valleys are interlaced composition shingles. Sheet metal "L" flashings are present at fascia and rakes.

*Exterior Walls:* N/A



*Exterior Doors:* N/A

*Exterior Windows:* N/A

*Exterior Openings:* N/A

*HSW Issues (Health, Safety and Welfare):* The temporary 4x4 wood posts that redirect roof loads to the concrete slab adjacent to the Fireplace CMU appear to be toe-nailed into the beam above; the connection at grade may be a friction fit since no means of attachment was visible; wood surrounds bear on the CMU hearth. The temporary posts and connections should be evaluated for adequacy, attachment and made permanent.

**Condition:** The superstructure and foundation appear to be in fair to poor condition; the wood log columns have up to ½-inch of rot in the outer fibers due to the direct burial in grade and the fireplace CMU is cracked on all faces; the hearth has cracked CMU blocks and CMU hearth pavers. The cracking in the CMU indicates the fireplace foundation and concrete slab are settling. The roofing is in fair condition and water staining on the underside of roof sheathing and on stripping indicate the roof is leaking slightly (there is some rotted stripping adjacent to a fascia); there is a moderate amount of moss growth on the northern roof exposures. The fascias have butt joints at corners and end grain is absorbing water from wind-driven rain and the fascias are warping; all fascia joinery should be mitered at corners and weather-cut at running butt joints. The flashing on the fireplace chimney has apparently been repaired since beam ends rotted in beam socket seats. The concrete floor slab has many settlement cracks, several of which exceed ½-inch in width.

**Recommended Action:** *Further Investigation Is Warranted.* Immediate Repairs are required for hiring a structural engineer to evaluate conditions and structural adequacy of the CMU fireplace, foundation and temporary wood 4x4 posts for structural adequacy and for recommendations making connections permanent so they cannot be



dislodged by impact; and for the engineer's evaluation of the current and on-going structural adequacy of the wood log columns. Immediate Repairs are also required for filling and grinding smooth the cracks in the concrete slabs (alternatively, concrete slabs could be replaced under Immediate Repairs; the structural engineer may report that the CMU fireplaces need to be replaced, if so, the fireplace and slabs could be replaced concurrently).

Replacement Reserves are required for the composition shingles; for the replacement of the warped fascia boards; and for repainting the entire structure. Periodic removal of the moss and deleterious organic debris from the composition shingles should be completed as a part of routine maintenance.

**Remaining Useful Life:** 5-years for replacing the composition shingle roofing, 15-years thereafter; 5-years for replacing the fascias, 15-years thereafter; 2-years for repainting/restaining the structure, 5-years thereafter; assuming Immediate Repairs and Replacement Reserves are completed and routine maintenance is performed.

## Marina Restroom

*Superstructure:* Stick-built 2x wood wall framing with stick-built or manufactured wood roof trusses, with continuous screened soffits.

*Foundations:* Concrete slab-on-grade set on continuous concrete turned-down strip footings, with interior concrete spread footings supporting wood columns, bearing walls and/or point loads.

*Roofing:* Pitched roofs have composition shingles over water resistant membrane, and plywood or oriented strand board (OSB) sheathing over wood rafters; pitched roofs drain directly onto flat roofs that surround them at the perimeter. Flat roofs have a white polyvinyl chloride (PVC) or thermoplastic polyolefin (TPO) welded seam single layer membrane on plywood or oriented strand board (OSB) sheathing with sheet metal





gutters and downspouts that disperse runoff to splash-blocks at grade at perimeter overhangs.

*Exterior Walls:* 1x8 cementitious synthetic wood horizontal lap siding over assumed water resistant membrane on plywood or OSB sheathing over 2x wood studs. There is painted wood trim and fascias. Surface-mounted equipment is mounted directly on the siding with stand-off wood blocking without sheet metal “z” flashings at the block head; however, there is an ample overhang protecting the walls at the perimeter except at the east and west facades where the building volume increases to within 6-inches or so of the fascia above, and above the flat roof where the pitched roofs have the synthetic wood siding on unprotected sidewalls. Above the roof at east and west facade locations, there are two wall-mounted equipment items that appear to be vents or light fixtures whose penetrations could compromise the water resistant integrity of the siding; they appear to not be mounted on stand-off wood blocking and are only caulked. All other penetrations appear to be mounted on stand-off wood blocking that has been caulked, but lack the sheet metal “z” flashing. Synthetic siding does not appear to have butt joint flashing and rely on caulking compound instead.

*Exterior Doors:* Doors are solid core flush panel with painted metal skins, set in painted wood frames surrounded with painted wood trim.

*Exterior Windows:* N/A; service window openings at the east and north facades painted wood sided closure panels set in the finished openings.

*Exterior Openings:* N/A

*HSW Issues (Health, Safety and Welfare):* There are tripping hazard cracks in the concrete flatwork surrounding the building and at entry concrete walkways.

**Condition:** The superstructure and foundation appear to be in good condition. The composition shingle and flat roof single membrane



roofing are in good condition and no leaks were observed or reported by management. The painted siding appears to be in good condition, but siding is beginning separate at butt joints and the caulking has failed opening the joints to wind-driven rain. All penetrations through the siding and trim need to be caulked as a part of routine maintenance, particularly at stand-off wood block mounts that have no sheet metal “z” flashing and are only caulked; also the butt joints in the siding lack the factory flashing at butt joint seams, so caulking at these joints must be maintained in good condition. The solid core utility and restroom doors and frames appear to be in good condition. There are no windows other than the closed service windows at the north and east facades. Cracks in the concrete flatwork surrounding the building and at entry concrete walkways need to be filled and struck off flush; any differential settlement between adjacent surfaces needs to be ground smooth.

**Recommended Action:** Immediate Repairs are required for caulking separated joints in the synthetic siding; and for filling any concrete flatwork cracks exceeding 1/8-inch in width and any differential settlement between adjacent surfaces need to be filled, leveled, and ground smooth.

Replacement Reserves are required for replacing the composition shingle roofing; for replacing the single ply roofing membranes; for periodic repainting and restaining of the entire building; for recaulking siding, trim, any wood stand-off blocking and all other exterior wall penetrations; for replacing all wood trim, siding and fascias; and for replacing the solid core doors and frames.

**Remaining Useful Life:** 10-years for replacing the composition shingle roofing, 20-years thereafter; 15-years for replacing the single ply roofing membranes, 20-years thereafter; 5-years for repainting/restaining and recaulking the building, 5-years thereafter; 15-years for replacing all wood trim and siding, 20-years thereafter; 15-years for replacing the metal doors, frames and grilles, 20-years thereafter; assuming



Immediate Repairs and Replacement Reserves are completed and routine maintenance is performed.

## Rotunda Meeting

*Superstructure:* Stick-built 2x wood wall and roof framing with open and screened ventilated soffits.

*Foundations:* Concrete pier foundation walls set on concrete strip footings with low-height interior frame bearing walls supporting floor is and roof framing; there is a small basement structure set on continuous foundation walls with concrete strip footings. Generally, the crawl space is open.

*Roofing:* Composition shingles over assumed water resistant membrane on oriented strand board (OSB) over 1x wood stripping at sloped roofs; there are no gutters or downspouts at perimeter overhangs. Roof valleys at composition roofs are interlaced composition shingles. Single-ply or built-up roofing on plywood roof sheathing at flat roofs. One enlarged sheet metal scupper drains the primary flat roof to daylight at the east façade; small sheet metal scuppers at roof edges allow runoff from small flat roofs at clerestories.

*Exterior Walls:* 1x4 T&G vertical Western Red Cedar wood siding over water resistant membrane on plywood sheathing. There is wood trim but no fascias, gutters or downspouts at sloped roofs (wood fascias are provided at flat roof edges); runoff from composition roofs disperses water to the flat roof surfaces or to daylight at the roof overhangs.

*Exterior Doors:* Doors are solid core wood rail with full glass lites with painted wood faces, set in painted/stained wood frames surrounded with painted/stained wood trim. A basement utility room door is fashioned from wood and clad with 1x4 T&G horizontal Western Red Cedar wood siding.



*Exterior Windows:* Windows are fixed wood frames with horizontal wood mullions and single-sheet glazing set into the rough opening and caulked to the wood siding; there are no perimeter trim boards. Some panels of the wood windows have operable awning or casement wood sashes.

*Exterior Openings:* Utility room access is a hinged, fabricated wood door clad with exterior siding set in a wood frame at the west façade basement foundation wall. There is a plywood box covered with a plywood sheet nailed to a former ventilation grille opening in the south clerestory window frame. Other openings or penetrations include surface-mounted equipment and is limited to utility installations; no stand-off wood blocking is provided or flashing is provided; however, these penetrations are protected due to ample roof overhangs. A small crawl space area is accessed by an unpainted hinged plywood door.

*HSW Issues (Health, Safety and Welfare):* There are shrinkage cracks in the concrete walkway pavement; the cracks appear to be both cosmetic in nature, and with substantial differential settlement at cracks in many locations; original wood grounds between walkway pours have rotted or settled. The former mold problem inside the building has been relieved by the removal of the sheetrock ceilings under the flat roof; however, mold growth will reappear if the roof and sheet metal flashings are not replaced. Mold is a significant health problem with potentially serious health ramifications, especially among the young and aged.

**Condition:** The superstructure and foundation appear to be in good condition.

The sloped roofing is in fair condition and no leaks were observed or reported by management; however, many shingle surfaces are supporting moss growth and need to be cleared off. Trees and ornamental bushes are in contact with the building roof and walls and are promoting the growth of the moss and algae throughout the project roof and walls. Sheet metal flashings on the clerestories appear to be in poor condition,



with nail holes and cracked caulking; in many cases, nails were driven through the sheet metal and the composition shingles below providing an avenue for wind-driven rain to enter the assemblies. The kitchen area ceiling had significant black mold on the sheetrock surfaces and the stripping, sheathing and framing should be checked for damage from dry rot.

The flat roofing has many leaks and the sheetrock ceilings underneath the roofing have been removed to eliminate moisture that supported heavy mold growth on the sheetrock surfaces inside the building; the northern flat roof section has 1/8- to 1/4-inch of dry-rot in the plywood sheathing that should be replaced and framing should be checked for contamination. The flat and sloped roof configuration and the many angles and interruptions in the flat roof membrane make it imperative to properly install the membranes up the sidewalls and under flashing components without penetration of the membranes. This is a particularly difficult set of circumstances to roof where sloping roofs converge obliquely with each other and the vertical walls; care must be taken to ensure positive runoff, with the appropriate flashing design installation properly layered in weatherboard fashion with the flat roof membrane and composition shingle roofs. Also, any reroofing effort should endeavor to create more sidewall scuppers to immediately drain water off flat roof surfaces to prevent standing water from accumulating; creating crickets in the flat roof surface will aid in the quick dispersal of rainwater runoff. Flat roofs at clerestories appear to be in good to fair condition; however, these roofs should also be reroofed when the primary flat roof is replaced. Trees and shrubs should be pruned off the building where touching the roof since this promotes the growth of moss which will compromise both types of roof and shorten their effective useful life (EUL.).

Generally, siding and trim appears to be in good condition, but paint is fading in many locations, has splotches where different colors have been tested, and the entire building needs to be repainted. There are areas where the siding has come in contact with grade and siding is damaged at those locations and should be replaced. Also, there are areas where



the siding has been shaded or touched by shrubbery and algae growth has established itself on the wall surfaces and should be scrubbed off and repainted. Finally, the tips of the roof beams are exposed and weathered badly, paint is fading and beams ends are drawing moisture into cracks where checking and splitting; any rot should be clipped off and beams ends should be covered with sheet metal caps at the top, edges and ends.

The double doors and frame at the main entry are in good condition but need to be repainted. The basement utility room door has been knocked off its hinges and needs to be reinstalled and the door and frame restrained.

The windows are in generally good condition, but some sills at the clerestories are encrusted with moss, and need to be cleaned off and restrained; when moss has been removed, damage to the wood may be revealed and some of the sills may need to be repaired or replaced. Window frames elsewhere have algae growth and need to be scrubbed off and restrained.

The exterior openings include a hinged plywood access door into the crawl space underneath the building on the east side that appears to be in good condition. The utility room access door is a hinged, fabricated wood door clad with exterior siding set in a wood frame at the west façade basement foundation wall; it has been knocked off its hinges and needs to be reset and refurbished. There is a plywood box covered with a plywood sheet nailed to a former ventilation grille opening in the south clerestory window frame; this vent needs to be reopened or the system needs to be replaced with alternative mechanical ventilation to prevent moisture build-up inside the building. Other openings or penetrations include surface-mounted equipment and is limited to utility installations; no stand-off wood blocking is provided or flashing is provided; however, these penetrations are protected due to ample roof overhangs and appear to be in good condition.



HSW issues include shrinkage cracks in the concrete walkway pavement; shrinkage cracks in the concrete paving need to be caulked when the cracks exceed 1/8-inch in width. Although many cracks appear to be cosmetic in nature, there is substantial differential settlement at cracks in many locations; differential settlement cracks pose tripping hazards and need to be filled and ground smooth. The former mold problem inside the building has been relieved by the removal of the sheetrock ceilings under the flat roof; however, mold growth will reappear if the flat roofing and sheet metal flashings are not replaced and ventilation is not restored. Mold is a significant health problem with potentially serious health ramifications, especially among the young and aged.

**Recommended Action:** Immediate Repairs are required for removing moss from shingle surfaces and for pruning back trees and ornamental bushes in contact with all roofs; for trimming rotten beam ends off, repainting, and installing sheet metal caps at top surfaces and at beam ends to prevent further destructive weathering; for replacing the flat roof membranes and flashings; for pruning back trees and shrubs where touching the building walls; for repairing/replacing all damaged siding; for resetting the basement utility room door that has been knocked off its hinges; for removing the encrusted moss from clerestory window sills and algae growth from building walls; for restoring the former ventilation grille opening in the south clerestory window frame; and for filling and grinding smooth, differential settlement cracks in the concrete flatwork.

Replacement Reserves are required for replacing the composition shingle roofing and flashing; for replacing the flat roof membrane roofing and flashing; for periodic repainting/staining and recaulking the entire building, including door and window frames, trim, siding and fascias; for replacing all wood trim and siding; for replacing the wood window frames; for replacing the wood doors and frames; and for periodic filling of shrinkage cracks in the concrete flatwork.

**Remaining Useful Life:** 7-years for replacing the composition shingle roofing and flashing, 20-years thereafter; 20-years for replacing the flat



roof membrane roofing and flashing, 20-years thereafter; 2-years for periodic repainting/staining and recaulking the entire building, including door and window frames, trim, siding and fascias, 7-years thereafter; 20-years for replacing all wood trim and siding, 40-years thereafter; 10-years for replacing the wood window frames, 20-years thereafter; 10-years for replacing the wood doors and frames, 20-years thereafter; and annual filling of cosmetic shrinkage and settlement cracks and pruning back of trees and shrubbery should be a part of routine maintenance activities; assuming Immediate Repairs and Replacement Reserves are completed and routine maintenance is performed.

## **Rotunda Shelter/Post Office**

*Superstructure:* Stick-built 2x wood wall and roof framing with perimeter roof beams spanning between wood log columns; no screened vents were installed at the eaves.

*Foundations:* Concrete slab-on-grade with turned-down perimeter footings and concrete plinth blocks set on concrete spread footings supporting wood log columns.

*Roofing:* Composition shingles over water resistant membrane on plywood or oriented strand board (OSB) sheathing over 1x wood stripping at sloped roofs; there are gutters and downspouts at perimeter overhangs. Roof valleys at composition roofs are interlaced composition shingles.

*Exterior Walls:* Vertical grooved OSB wood siding over 2x4 wood studs; there is no water resistant membrane on the exterior face of the studs under the OSB sheathing. There is wood trim, fascias, gutters and downspouts at sloped roofs; downspouts disperse water to daylight at grade.

*Exterior Doors:* The single door is a 6-panel, solid core, vinyl clad door set in a painted/stained wood frame surrounded with painted/stained wood trim.





*Exterior Windows:* N/A

*Exterior Openings:* Other openings or penetrations include surface-mounted equipment and is limited to utility installations; no stand-off wood blocking or flashing is provided; however, penetrations are protected due to ample roof overhangs.

*HSW Issues (Health, Safety and Welfare):* There are shrinkage cracks in the concrete walkway pavement; the cracks appear to be both cosmetic in nature, and with substantial differential settlement at cracks in many locations.

**Condition:** The superstructure and foundation appear to be in good condition. No screened vents were installed at the eaves and since the building is unheated, no insulation was installed and natural ventilation was provided by the crack method through perimeter openings for postal box units; since the postal boxes have been removed and the building is now enclosed, roof or wall vents should be installed to prevent condensation build-up leading to dry-rot.

The sloped roofing is in fair condition and no leaks were observed or reported by management; however, many shingle surfaces are supporting moss growth and need to be cleared off. The roof has leaked in the past, as several water stains were visible on the suspended ceiling tile. Trees are in contact with the building roof and should be pruned off the building where touching the roof since this promotes the growth of moss which will compromise the roof and shorten its effective useful life (EUL).

Generally, siding and trim appears to be in good condition, but paint is fading on fascias and trim and needs to be repainted. Since OSB siding was installed directly over wall studs without a protective water resistant membrane, the OSB siding panels should be repainted more often than normal as paint is the only line of defense against water intrusion other than the building overhangs. Finally, the tips of the roof beams are



exposed and weathered badly, paint is fading and beams ends are drawing moisture into cracks where checking and splitting.

The single door, frame and trim are in good condition but need to be repainted.

Exterior opening penetrations are protected due to ample roof overhangs and are in good condition.

HSW issues include shrinkage cracks in the concrete walkway pavement; shrinkage cracks in the concrete paving need to be caulked when the cracks exceed 1/8-inch in width. Although many cracks appear to be cosmetic in nature, there is substantial differential settlement at cracks in many locations; differential settlement cracks pose tripping hazards and need to be filled and ground smooth. Alternatively, due to its extensive poor condition, concrete flatwork could be demolished and replaced.

**Recommended Action:** Immediate Repairs are required for installing wall or roof vents to prevent condensation; for removing moss from shingle surfaces and for pruning back trees and ornamental bushes in contact with the roof; for trimming rotten beam ends off, repainting, and installing sheet metal caps at top surfaces and at beam ends to prevent further destructive weathering; and for filling and grinding smooth, differential settlement cracks in the concrete flatwork, or for its replacement.

Replacement Reserves are required for replacing the composition shingle roofing and flashing; for replacing the sheet metal gutters, downspouts and flashing; for periodic repainting/staining and recaulking the entire building, including the door frame, trim, siding and fascias; for replacing all wood trim and siding; for replacing the door and frame; and for periodic filling of shrinkage cracks in the concrete flatwork.

**Remaining Useful Life:** 3-years for replacing the composition shingle roofing and flashing, 20-years thereafter; 3-years for replacing the sheet



metal gutters, downspouts and flashing, 20–years thereafter; 3–years for periodic repainting/staining and recaulking the entire building, including door frame, trim, siding and fascias, 7–years thereafter; 20–years for replacing all wood trim and siding, 40–years thereafter; 10–years for replacing the doors and frame, 20–years thereafter; and annual filling of cosmetic shrinkage and settlement cracks and pruning back of trees and shrubbery should be a part of routine maintenance activities; assuming Immediate Repairs and Replacement Reserves are completed and routine maintenance is performed.

## Security Office

*Superstructure:* Stick–built 2x wood wall and ceiling framing, with perimeter roof beams spanning between wood log columns; building and roof framing are separate systems, as the roof spans over the interior construction that was built as a free–standing box with stick–built ceiling.

*Foundations:* Concrete slab–on–grade with turned–down perimeter footings and concrete plinth blocks set on concrete spread footings supporting wood log columns.

*Roofing:* Western Red Cedar wood shakes over 2x wood stripping at sloped roofs; there is a gutter and downspout at the perimeter overhang above the entry door. The one downspout has been rerouted to expel runoff away from the entry door.

*Exterior Walls:* 1x4 T&G vertical Western Red Cedar wood siding over assumed water resistant membrane on plywood sheathing. There is wood trim but no fascias, and a single gutter and downspout above the entry door. There is a mortared river rock wall on the south side of the building.

*Exterior Doors:* The one door is a solid core wood rail with full glass lite with painted wood face, set in painted/stained wood frame surrounded with painted/stained wood trim.



*Exterior Windows:* Windows are fixed wood box frames that project out from the building face, with vertical wood mullions and single-sheet glazing set into the rough opening and caulked to the wood siding.

*Exterior Openings:* Utility room access are hinged, fabricated wood doors clad with exterior siding set in a wood frame that are accessible from the exterior at the north and south façades. There is a custom plywood and sided telephone kiosk at the west end of the north façade. Other installations include surface-mounted equipment on the structural frame and is limited to utility installations; one hose bibb penetration was observed and has a caulked escutcheon plate; the penetration and the self-contained office box is protected due to ample roof overhangs.

*HSW Issues (Health, Safety and Welfare):* N/A

**Condition:** The superstructure and foundation appear to be in good condition.

The roof is in poor condition and leaks were observed as wet areas or stains on 2x4 wood stripping; shake surfaces are supporting heavy moss growth, especially on the north side. Trees are shading the building roof and are promoting the growth of the moss on the roof. Shakes and stripping have warped and separated from the secondary roof beams at the northeast corner. Many shakes are loose and some are disintegrating. The stripping is wet and appears to have at least some wet- and/or dry-rot present.

Generally, siding and trim appears to be in good condition, but paint is fading in many locations and the entire building needs to be repainted. Finally, the tips of the primary roof beams are exposed and weathered badly, paint is fading and beams ends are drawing moisture into cracks where checking and splitting and are rotting. Also, several river rocks have come loose at the west end of the north façade and need to be remortared into position.



The entry and utility service doors and frames appear to be in good to fair condition but need to be repainted.

The windows are in generally good condition, but need to be repainted/restained.

The exterior openings are in good condition; most equipment is mounted on the exposed structural wood frame; penetrations are protected by the ample roof overhangs.

HSW issues are N/A.

**Recommended Action:** Immediate Repairs are required for replacing the roof shakes; it is expected that some stripping will have to be replaced during reroofing activities (alternatively, moss could first be removed and the condition of the shakes could be further evaluated). Care should be taken to ensure that rot has not transferred from stripping to beams and that rot pockets are not present in the structural beams; for repointing mortar and resetting loose river rock in the south wall; and for trimming rotten primary beam ends off, repainting, and installing sheet metal caps at top surfaces and at beam ends to prevent further destructive weathering.

Replacement Reserves are required for replacing the shake roofing and flashing; for periodic repainting/staining and recaulking the entire building, including door and window frames, trim, and siding; for replacing all wood trim and siding; for replacing the wood window frames; for replacing the wood doors and frames; and for periodic removal of moss from the roof.

**Remaining Useful Life:** 20–years for replacing the shake roofing and flashing, 20–years thereafter; 2–years for periodic repainting/staining and recaulking the entire building, including door and window frames, trim, siding and fascias, 10–years thereafter; 20–years for replacing all wood trim and siding, 40–years thereafter; 10–years for replacing the



wood window frames, 20-years thereafter; 10-years for replacing the wood doors and frames, 20-years thereafter; and repetitive removal of moss from roof surfaces should be a part of routine maintenance activities; assuming Immediate Repairs and Replacement Reserves are completed and routine maintenance is performed

## Tree House

*Superstructure:* This unique play structure is constructed on the top of a living Western Red Cedar tree that has been topped approximately 20-feet above grade and has a stick built, open-air but roofed playhouse constructed on it. The structure has an approximately 8-inch diameter cedar log surround notched and bolted to the trunk that forms the supporting base for a square wood plank floor platform, with an open railing and covered roof that is comprised of a 2x wood roof structure supported by 4-log columns at the corners and by the cedar tree stump at the center. The structure is accessed by a wood staircase constructed with a combination of natural wood and saw-cut wood members consisting of natural wood branches and log stringers, posts, handrails, and pickets, with saw-cut wood treads and wood plank landings. Log posts have been set directly into grade and stair stringers have been notched into log posts. The structure has been roofed with both natural log beams and milled wood 2x framing for the rafters and fascias, sheathed with OSB panels and roofed with wood shingles. A small roofed square enclosure on top of the main roof protects the top of the cedar tree from the elements and closes the house from rainwater intrusion

*Foundations:* A Western Red Cedar tree has been topped at approximately 20-feet above grade; the tree appears to still be living.

*Roofing:* Western Red Cedar shingles over an assumed water resistant membrane over OSB sheathing.

*Exterior Walls:* N/A

*Exterior Doors:* N/A



*Exterior Windows:* N/A

*Exterior Openings:* N/A

*HSW Issues (Health, Safety and Welfare):* The structural members and staircase assembly is rotting at connections and there is a danger of falling through the staircase handrails and pickets.

**Condition:** The superstructure and foundation appear to be in good to poor condition. Although the cedar tree appears to be living and stable, there is much wet- and dry-rot in the supporting members of the tree house, particularly in the natural wood log beams, stringers, posts, handrails and pickets. Posts are rotting at the exterior fibers where penetrating grade, stringers are rotting at notched connections, and handrails and pickets have come loose from friction connections into log stringers and are hanging in space or altogether missing. There is a danger of falling through the hand- and guard-railings at staircases and from rotted structural member connections failing. The roofing is in poor condition, is covered with moss, and the OSB sheathing is wet and rotting in several locations. The shingle siding appears to be in good condition at the enclosure on top.

**Recommended Action:** Immediate Repairs are required for repairing the failed handrails and pickets and replacing stringers with wet-and dry-rotted notched connections; and for replacing the wood roof shingles and any rotted OSB roof sheathing at the roof.

Replacement Reserves are required for replacing the wood shingle roofing and siding.

**Remaining Useful Life:** 20-years for replacing the wood shingle roofing, 20-years thereafter; assuming Immediate Repairs and Replacement Reserves are completed and routine maintenance is performed



## **End of Report**

Note: Photo Volumes I-V documenting the written Report have been issued separately

### **CONSULTANT ROLE AND DISCLAIMER**

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