

## TECHNICAL INFORMATION 45400 BLUE STAR HWY

### Structural: Interior and Exterior

- New snack bar and office cabinets—full pull drawers with dove-tail construction, solid surface counter tops and hanging file drawers (2008)
- Vinyl windows—low “E” insulated glass on the first floor (1997)
- The large basement windows are 1” thick high-security glass
- The attic has 6” R-19 fiber-glass insulation (2000)
- Eave trough all 4 sides with covers
- Roof was replaced in 2012
  - All questionable boards were replaced
  - Tar paper was not used on this roof
  - The whole roof is covered with snow and ice guard to protect it from the elements
  - A new attic exhaust fan was installed
  - Owens Corning 240LB/SQ dimensional shingles (Sierra Gray)

### Decks, Stairs, and Drive

- Decks, stairs, boat ramp, walls and posts are all pressure treated lumber
- Replaced stairs to beach (1983)
  - The 6 foot x 12 foot stair landing has permanent summertime shade.
- Boat ramp with cart installed in 1987. It needs new strapping and hardware (not used since 1995)
- A 12ft x 16ft privacy deck was built in 1987. Half-inch stainless steel bolts were used for the floor joists. The overhead beam supports swings or hanging chairs. The deck was coated in 2015.
- The driveway was newly paved in 2014

### Handicap amenities

- Composite graspable hand railing caps on almost all railings outside
- Front and back door stairs have a 4” rise and 16” run (step)
- All other steps outside are 11.5” run
- First floor bathroom contains a stainless steel pull bar in front of a chair-height toilet

### Electrical

- 150AMP Square D “QO” breaker panel and service entrance (1998)
- All of the original wiring in the attic (outside lights on all 4 sides and first floor lights), kitchen and both bathrooms have been replaced (1999)
- House contains a fire and smoke detection system (4 detectors) installed in 2000
- Temperature-controlled attic exhaust fan (with bypass override on switch) installed in 2012
- Fully vented roof soffit (3 sides)
- Pre-wired for a security system (2000)

### Mechanical

- Heated outside shower
- Tempered water feeding the first floor toilet (to prevent the toilet tank from sweating in the summer)
- City water service—South Haven (2004)
- 2 fire hydrants, both within 150 feet of the dwelling (2004)

- All "underground" Orangeburg (clay tile) waste line has been replaced with 4" PVC pipe (with 2 extra outside cleanouts) (1981)
- The septic tank has two chambers and two lids with stainless steel handles
- The dry well was replaced in 1981
- The kitchen has its own septic tank and drain field and both were replaced in 2002
- New copper water supply lines (1981)
- All water supply lines are pitched with 8 extra drain cocks for easy draining
- Propane gas system (1995) with service valves for: furnace, hot water heater (40gal), first floor emergency light, gas grill, "future" stove and "future" clothes dryer
- Forced air heating system (1995)
- Replaced furnace (2013)

**ROGER'S CREEK AND THE VALLEY ROAD (FIRE DRIVE 13)  
45400 BLUE STAR HWY**

Roger's Creek exits the forest and enters Lake Michigan 400 feet north of the cottage. Standing on the beach next to the creek you can see the interesting changes that occur to the delta area throughout the year. Leaving the beach and following the path back into the woods reveals a whole different dimension of the creek's beauty (see photo C1)

Roger's Creek parallels the Valley Road (Fire Drive 13) for over one third of a mile (see map). The Valley Road is gated at both ends to prevent public access. All of our members have keys. Thunder Mountain Heights Assoc. maintains the roadway in a drivable condition throughout the year even though it is seldom used (see photo C2). On occasion, the Valley Road is opened to through traffic when road work requires the closing of Fire Drive 14.

There is one bridge over Roger's Creek in the gated part near the middle of the Valley Road. North of the bridge you will find Thunder Mountain, a 385 feet high mountain of pure sand (see photo C3). The view from the top is worth the climb (if you are in good health). On a clear day, Coloma and St. Joe are visible from the top (see photo C4).

For the most part the Valley Road is used for nature walks (see photo C5). Stepping off of the roadway anywhere along the Valley Road, you can view Roger's Creek serpentine through the forest-covered valley.

## **THE BUILDING SITE 45400 BLUE STAR HWY**

The building site at 45400 Blue Star Hwy is well positioned within the topography of the area:

- This building site is at the very best elevation at approximately 40 feet above the lake level. Dwellings built at or below 25 feet above the lake level often run into problems with drifting and blowing sand, or encounter beach erosion whether or not a sea wall is present. Building sites on high bluff locations above 50 feet have wonderful views of the sunset, but rarely have a view of the beach area from inside the house. Additionally, many high bluff building sites have long steep stairs leading to the beach. At 40 feet, this dwelling avoids some of the problems associated with beach-front properties while maintaining beautiful views of the beach area from inside of the house.
- The views from this location are such that you can see both the St. Joe and South Haven light houses from both the beach and the stair landing. The cottage itself is close enough to the tree line to provide views of the beach, and a 6ft x 12ft covered landing in front of the tree line offers a panoramic view.
- Lot 15, along with all of the lots on Fire Drive 14, are sand dune lots, which are much better long term building sites. As the photos demonstrate, most sand bluffs settle at a 45 degree angle over time. Many high bluff building sites are located over a clay bank. Clay bluffs do not self-level to 45 degrees, but remain at around 60 degrees until a landslide occurs, making clay banks poor long-term building sites.
- Lot 15 is located at a very safe set-back distance that provides protection from any future erosion from high water levels in Lake Michigan. Additionally, as the building site is located between hill tops, it is sheltered from high winds.
- The forest surrounding the building site provides ample mature shade trees to enjoy during the summer months. The trees and vegetation on the front bank are kept trimmed for an open view of the beach, lake, and sky.
- Those who are interested in building should note that the 112.5 foot wide lot can easily accommodate a new dwelling of up to 3,000 square feet (per floor).

The building site is also located 400 feet south of Roger's Creek, which provides additional benefits:

- Prevailing northwest winds and the flow of the creek continuously reshapes the beach area and redistributes the sand in front of our beach. This provides interesting sand bars and wading pools.
- High lake levels, strong winds, and spring rains can cause the creek to cut into the face of the fore dune. This creates even more clear beach and re-deposits sand into the lake, making our swimming area flat compared to non-creek beaches.
- Roger's Creek is a designated trout stream with good water purity.

**THUNDER MOUNTAIN HEIGHTS (FIRE DRIVE 14)  
45400 BLUE STAR HWY**

Thunder Mountain Heights Association offers a number of amenities which make it a wonderful location in all four seasons.

- Enjoy privacy and quiet in a forested setting. Over a quarter mile of forest and hills separate the cottage from any road noise on Blue Star Hwy and I-196. The automated security gate keeps unwanted traffic out, and in addition there are no camps, condos, marinas, group-owned properties or public access points nearby.
- The beach is private and secluded. The nearest marinas are located 12 miles away, which minimizes boat traffic near the shore, boats anchored off shore in front of the beach, and squatters on the beach itself. In addition, of the 27 families that make up the Thunder Mountain Heights Assoc., currently only 5 owners live here throughout the summer. Most week days it seems as though you have the beach all to yourself.
- We enjoy more than just the summer season. Our beautiful forest contains 36 acres of non build-able land. In 2008, all of the forest was placed into the Southwest Land Conservancy. In the spring and fall, birds and ducks stop on our beach to rest during their migration. The fall colors are beautiful along the shore line and back in the woods, where we frequently observe wild turkeys and white tail deer.
- Lot 15 is located in the geographical center of the Thunder Mountain Heights Assoc.; any future development south or north of Fire Drive 13-14 will have minimal impact on the property or on the beach. Fire Drive 14 has been continuously improved over the past 30 years. All improvements to the infrastructure of Fire Drive 14 were designed to have the least amount of impact on the forest as possible.

## THE HISTORY AND TOPOGRAPHY OF THUNDER MOUNTAIN HEIGHTS ASSOC. 45400 BLUE STAR HWY

The location and unique topography of Lot 15 within the Thunder Mountain Association makes it the most desirable lot along the shoreline. The saying: "location, location, location" truly applies to Lot 15 of Thunder Mountain Heights Assoc.

For hundreds of years, Roger's Creek cut its way through the forested sand dunes to a delta on the beach of Lake Michigan. The original path of Roger's Creek near the shore of Lake Michigan was north of its current location (see pre-1950 map and photo H1). When Roger's Creek exited the woods it was redirected south-ward due to blowing sand. The path was parallel with the shoreline. When the lake level was high, during the yearly "Storms of November," powerful waves pushed the creek east, up against the base of the hill (the permanent high bluff). In the spring, the creek's high volume would erode the base of the hill, causing the cut face to keep moving eastward. This new cut face of the hill became our permanent high bluff, where our beach stairs are now located (see photos H2 and H3).

By the 1940s, the cut face on our high bluff (lots 14-20) had become a tree-covered dune, similar to the other hills in the area (see photos H4-H5). Prior to 1950 when the land (Thunder Mountain Heights) was surveyed for development, the bluff south of the creek was 50 feet inland of all other lots.

When the Thunder Mountain Heights lots were sold off in the 1950s, the new owner of the south portion of lot 112 (north of the creek) changed the path of the creek to gain better access to his lot (see maps). The neighbors also installed an oak seawall to help direct the flow of Roger's Creek straight out into the lake. These permanent changes helped to protect the lots south of the creek from any future erosion. From 1950 to 1985 the "fore dune" (the grass-covered short bluff) came and went as the lake levels changed.

In 1986, Lake Michigan set its all time High Water Mark (H.W.M.), caused by the eruption of Mount St. Helens. No one had noticed the significance of the 1950s topographical changes until lots 14-20 (south of the creek) were spared any erosion during this event due to the 50 foot set back of our high bluff (see photos H2-H5). Almost all of the homes near the Lake Michigan shore line lost their stairs to the beach (see photo H6). Some sea walls were breached or destroyed, and in some cases homes were lost as well (see photos H7-H8). However, the changes made in the 1950s to Roger's Creek protected Lot 15 from any damage during this time.