Itimbwe Ranch
mid1949 - mid1951
Part 3
Building the House

Thoughts about the building

Orne Gliemann, the owner and the person who built the ranch house at Itimbwe is not someone I know much about. However, it would be fair to say, judging by this building, he must have been a man of some taste with very deep pockets. The skilled workmanship evident in the house was of a very high standard and could only have been executed by expert tradesmen.

Architecture: I once believed that the design and execution of this build indicated the input of an architect. Now I think that may not necessarily been the case. The work could just as well have been the product of a very skilful and experienced builder with or without direction.

I base my change of opinion to some extent on this photograph. The aim must have been to disguise the utilitarian nature of the house to make an impression. This is more than adequately achieved by the long veranda with its white columns and wide arches. But it will be noted from the roof line on the left of the photograph above that the columns and arches have little work to do. The veranda roof is supported equally by the columns and the lounge/dining room wall. So the veranda is a facade; a misdirection of the viewers attention. But the addition of the French windows and the elaborate glass fronted entrance double door serve to integrate it well with the main building so that it achieves its purpose. A grand impression is made. But the veranda is not integral to the building.

My other reasons for thinking no architect was involved have more to do with the actual design itself. The first is the inclusion of a ‘dressing room’ rather than a private bedroom. This was a large room which was used by residents and guests as a pathway to the bathrooms and toilets almost as often as they used the west wing covered walkway. No architect would make that mistake. The second is the built-in lack of security. Every room, except the dressing room, could be accessed directly from the outside. A great asset if the house is on fire but very convenient for burglars or worse!

Position: This was on the hillside close to roads beside a gently sloping area with a water from the western stream a short distance away. Water was critical to the build being required for the concrete and bricklaying as well as for human consumption. The roads allowed men, equipment, materials and other goods easy access. The near level area—say from the tennis courts to the Workshop—must have been used for accommodation, stacking of materials and preparing of timber work.

Foundations: The building was to be on a slope so it was necessary to excavate and level a section of hillside on the western side of the site. All work had to be done by hand, there were no machines available. Only when the surveyor was satisfied with this the building could be pegged out and the foundation pits dug.

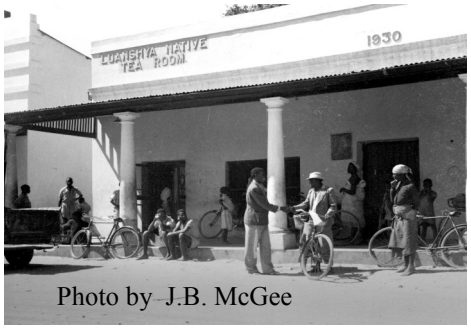
Concrete: requires cement or lime, sand, gravel and water to be made. Itimbwe ranch house had some quite large areas of concrete flooring and cement rendered walls. The main ingredient, cement or lime, had at that time to come from out of the country. No one can be sure where it came from only that, for at least part of the journey, it must have involved human porterage. Sand and gravel were available from the local river and gravel from crushed rock nearby. Again porterage was be required. Water may have been readily available but, as suggested all of the ingredients involved labour, time and reliable organisation. Managing a large multi lingual, multinational workforce on a project like this one was an impressive feat.

It is clear from some of the photographs taken by my sister-in-law Joanne and brother Neil in about 2004 of the Itimbwe ruins that some quite large pieces of cast concrete were used in the structure. The span covered by the main arch for example most likely required a concrete lintel. This indicates work by men used to creating the formwork, consistency of mix and supply rate were employed. It seems some steel reinforcement was added but not a great deal by our standards today.

Picture above: Neil standing in ruins of the barn. Note the large block of concrete and steel protrusion from wall section above it.

The most obvious use of concrete at Itimbwe is to be seen in the arches and columns. The arches look to have been constructed on site.

Curiously, it seems that concrete columns were not difficult to source in the Congo and Copperbelt between the Wars. I visited Lubumbashi in 1965 and noticed how extensively they were used in the CBD there but the photograph (below) of a native township Tearoom in Luanshya, also built in 1930, as Itimbwe was, suggests a popularity for columns as a building 'statement' even there. It certainly suggests the possibly they were made locally.



Use of columns in Luanshya Native Township 1930

Picture left:
This photograph of Neil Glynn standing on one of the arches in the ruins of Itimbwe Ranch C2004. This illustrates the strength of the arches and how well they were made seventy to eighty years ago in outback Africa.

Bricks: these were most likely made on the ranch. The puzzle is how it was done.

There were literally thousands of bricks used at Itimbwe. Apart from the main homestead all the other substantial buildings were built from brick; the dairy, chicken house and the work shed. The only exception was the milking shed but even it had one brick wall and another half wall housing a brick fireplace.

My father briefly had a partnership in a brick making enterprise in Lusaka after leaving the Ranch. He was not a supporter of the theory that the Itimbwe bricks were kiln baked though he thought that some could have been used on the south face of the building. He recalled that he and a party tracking game had come across some pits that someone had suggested were brick making excavations. There were no kiln remains visible but they would have been long since covered by vegetation so the jury is still out on whether the bricks used were kiln fired or even if they were made on Itimbwe.

Dad listed a number of factors to be counted against making kiln fired bricks on the Ranch. First was the numbers required. He felt that the weather restricted the time available to make bricks out in the open. To make so many was unlikely. Bricks need a low moisture content before they can be fired. Secondly; the kilns required a sustained heat for the full length of each tunnel in the kiln (5 usually) for a number of days; a process really only possible by using charcoal and a great deal of it. This item alone would take time to make on site or import. Thirdly; at every stage of a fired brick's creation, from the pit to the hand of the brick layer, there is the potential for breakages. In short; kiln baked bricks are likely to have little appeal to the builder of Itimbwe Ranch.

So what was used to make the bricks there?

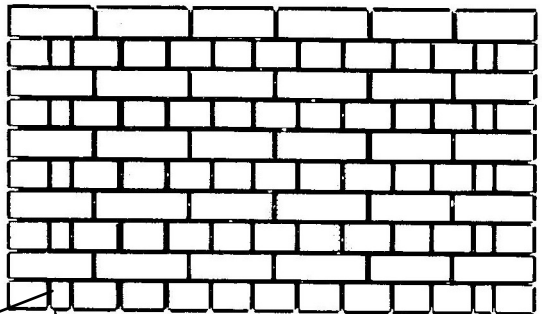
Frankly there is no one to ask in the case of Itimbwe. But a reasonable alternative I have been given might be that laterite clay was mixed with small quantities of cement. Laterite soils and rocks are often red because they are rich in iron oxide and aluminium. When these clays are mixed with water and cement and allowed to dry they harden into very serviceable bricks.

In the photograph section (left) from the photo on the previous page note the colour of bricks. Also the use of a cement render to seal them. On external walls an additional sealant over the render was usually a 'whitewash' paint which is made from slaked lime and chalk. Sealing would not be necessary for kiln fired bricks. Note also how the bricks have broken showing a crumbling texture of the laterite. Kiln baked bricks usually shear when broken leaving even textured surfaces on the pieces though obviously the quality of the clay input is an important factor.

Brickwork: What is visible in the photographs of the brickwork shows that it was done by proficient bricklayers. The clues are obvious. The best face of the individual bricks has been selected and the mortar levels strictly followed. The work is raked and clean. Most significant is the choice of English Bond, also called ¼ bond - for the patterning (see Fig. 1). This is considered to be the strongest bond by some because of the absence of straight joints. It is designed to take stress.

The price paid for the extra strength of the walls made in this way is the time it adds to the project. The caveat on the strength of English bond, as in any bond, is that the mortar used must be good and joints properly filled.

Figure 1. English Bond (or English 1/4 Bond)



This was shown to be the case at Itimbwe because we experienced an earthquake one night. It may not have been very severe but it was enough to wake everyone up and scare us. It was our first. The aftershocks went on for about an hour, with decreasing intensity. In the morning my father went looking for structural damage and failed to find any.

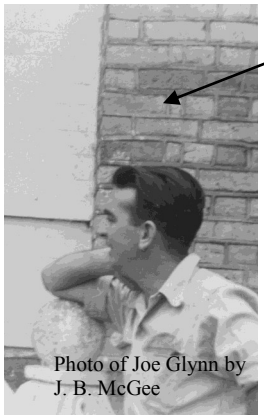


Photo of Joe Glynn by J. B. McGee

Pictures of the front bedroom wall showing the use of English 1/4 Bond. No straight joints. Note the distinctive use of 1/4 brick 'closers' at the ends in alternate rows.

The structural integrity of the building was insured by the very walls themselves. Common practice in Africa where bricks were used to build with was to double the brick thickness to deter termites. However building walls that cope well with the stresses due to earthquake activity was a smart move and certainly not the norm. A common sense precaution so close to the Rift valley though.

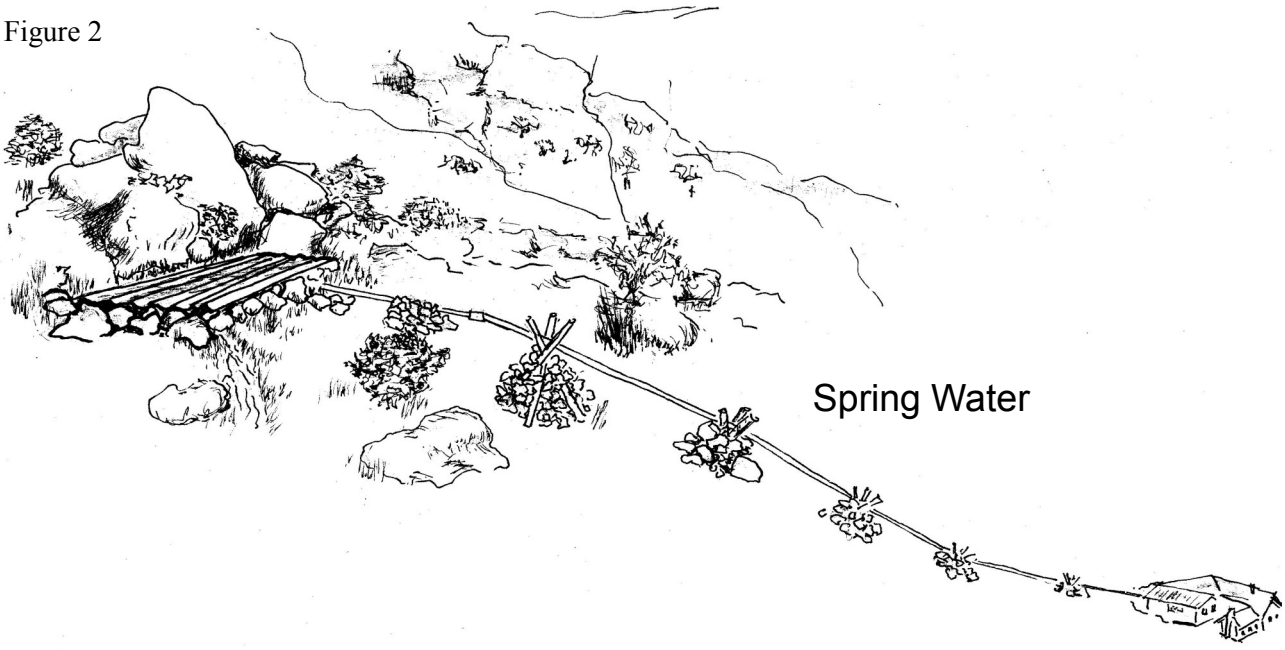
Image from Abercornucopia

Paving materials: Three different materials were used to pave the floor spaces. Almost all of the building had concrete floors with two notable exceptions being the dining room which had a timber floor and the front veranda where large grey slate tiles had been laid. We had no idea what the tiles were laid upon or where they came from. All this work being done expertly. The long timber beams supporting the dining room floor were in turn supported by thick brick pillars. My father believed that the machine finishing of the timber beams indicated they had been imported but that may not have been the case.

Water: Work done on the site probably used water taken from the stream running beside the gorge road. Aquifers on the western side of the gorge contributed to a small but consistent year round flow. A small spring from one of these midway up the hillside bubbled water into a little rock pool about a metre long and much less wide with only about 30 centimetres of depth at its deepest. The pool was covered as closely as possible by small sheet of corrugated iron and rocks to discourage animals from drinking from it. The overflow was allowed to spill into a tiny stream and trickle away down the hill to join the small watercourse beside the Gorge road. A small, 30mm (1 1/2 inch), galvanized iron pipe had been set into the pool with a wire gauze 'filter' over its open end. This pipe was then joined to other lengths of pipe supported at intervals by simple wood, metal and rock structures to keep the line straight and the pipes off the ground. Although no Roman aqueduct to look at it certainly did the work it was meant to do.

Itimbwe House Water System

Figure 2



Fresh Water Supply

Clean Water In
The water was collected at the house in an iron tank on the roof near the bathrooms. This probably only held about three or four hundred litres but was regulated by a weighted arm and floating ball system (like a toilet cistern). The pressure was always good. I only remember once going up with Dad to clear the gauze filter of the intake pipe at the spring.

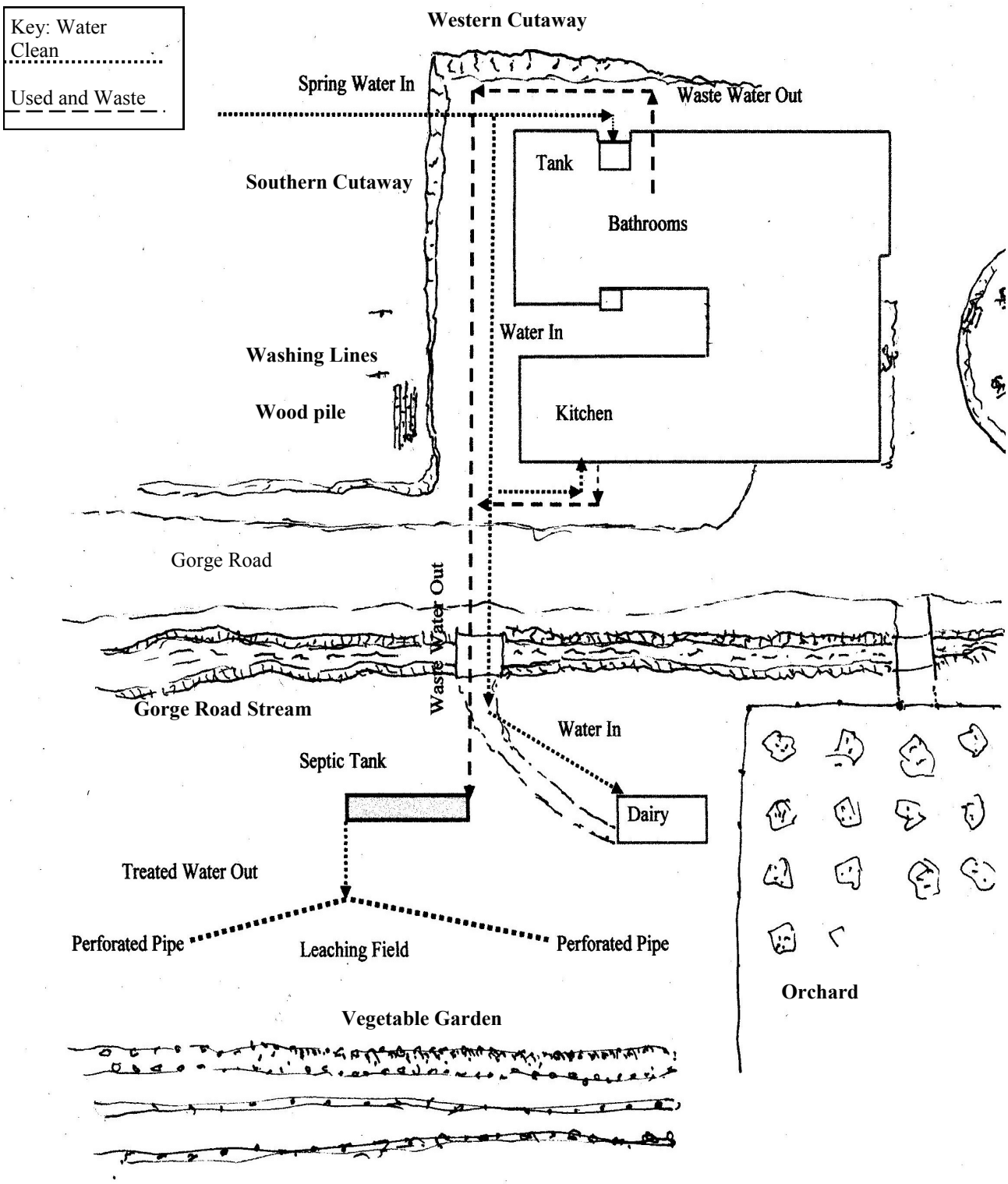
We were told that Gliemann had warned the natives not to use the Gorge Road and that periodically he fired a few rounds up the hillside from a lounge room window to reinforce his warning. My parents were a bit puzzled by this story for a while. The Gorge road was actually the better of the two access routes to Abercorn though longer. It was only later when they knew that the water supply to the house was fairly close to the road that they understood his concerns. Quite simply it was fear that thirsty travelers could contaminate the water or somehow damage the system and disrupt the supply to the house. They might even have made off with the iron pipes. So playing the tyrant for a while could have been designed to protect the 'Achilles' heel' of the homestead. Without clean water any home is in trouble.

In building a house getting clean water in is only half of the water problem. Getting it out after use is the other separate and more delicate one – due to its nature. Flushing pedestal toilets were by no means universal in Northern Rhodesia in the mid 20th century and even less so between the Wars when this house was built. Itimbwe was built with two! Luxury indeed!

Where did the wastewater go to? How was it treated? The answers to these questions are shown in a diagram Figure 3.

Waste Water Out
Used and waste water was piped out of the building into the cutaway on the west, then moved down through the south cutaway past the kitchen, under the Gorge road and a small bridge crossing the western stream to a septic tank. Once processed by the aerobic activity in the tank the water was distributed via perforated pipes into a septic drain field (or leaching field).

Figure 3



The genius of both water delivery and dispersal of the waste water was that it was all powered by gravity. Apart from occasional attention to maintenance of the systems they operated without human intervention. Yet another indication of the care with which the site of the house was chosen.

Now the leaching field was above and part of the market vegetable garden that sloped about 20° from the septic tank pit area down towards the milking sheds and the eastern gorge stream. The garden produced enormous cabbages, beans, potatoes etc. My mother was justifiably proud of both the quality and quantity. I am not sure how she would have felt if she had known why some of the soils there were so nutrition rich.