Lady's Slipper Repeater repair work list

The fire that swept through the Van Stadens area in 2017 caused a lot of damage to the PEARS Repeater infrastructure on Lady's Slipper. The Isobodies equipment shelter, along with most coaxes and antennas were damaged by the searing heat. In order to begin the slow road to recovery, a list of chunk sized work items has been drawn up, in order to elicit volunteer support in tackling one task at a time. This follows the instruction of "how to eat an elephant" :)

The access gate at Ladies Slipper is currently no longer locked, so any PEARS member can get onto the mountain to tackle a job. Some duplicates of the container keys have been made, to allow collection and thus access to the housing too.

1. Cabin floor

The leaking roof meant that the floorboards eventually rotted and when the fire happened, huge holes were burnt in the floor, exposing the cabin to wind and dust and a LOT of fire ash etc. The flooring is currently shutterply, but the plan is to remove the battery stand, strip out the remaining floor, lift the equipment racks slightly and slot in 1.795 x 120mm pre-treated tongue and groove floorboards, one at a time, crossways to the steel girders (i.e. planks running from front to back, door entrance to back wall). These can be slid under the equipment racks, with them lifted by crowbar. 15 of these are required to make up the 1.795x1.795m floor area. If necessary, make the racks lighter by removing all repeater modules

It is essential that the underside of the new planks be treated with bitumen or varnish sealer of sorts as the site gets a lot of sea breeze and the underside is open to the elements. Once all inserted, a vinyl covering could be placed on top inside, to finish it off.

2. Cabin walls

The container walls are constructed of 3CR12 sheeting sandwiching a polystyrene layer of some 40mm, similar to a caravan material. The heat of the fire has melted the middle polystyrene layer of the sandwich walls such that they are now hollow. It is envisaged that these can be refilled using polyurethane foam, but care will need to be taken that not too much is poured into the cavity and the walls puff out… Cut holes into the inside walls near the top to allow the foam to be poured. Fill in multiple applications rather than try to do the whole wall in one go.

Only once this is done can the cabin walls be re-sealed at the corners.

3. Cabin Roof

Some historic crane damage caused the room seams to be stretched. Ensure the roof is sealed with "pap and lap" along all seams as the leaks up there cause the floor to rot. Suggest material and Everbond white roof sealer be applied.

4. Exterior fittings

1. The outside light fitting was melted away, a new fitting and LED bulb to be mounted and wired above the door.
2. A new alarm contact that CLOSES on opening the door is required – propose a limit switch be purchased from Rubicon for this job.
3. A new 24V DC fan has been sourced and needs to be fitted into the louvre

4. Check the workings of the AC DB lights switch, generator plug and ext AC working socket.
5. Fit air filter element into the rear air vent to ensure no dust and sand enters the cabin

5. Antenna and feeders

By far the largest task – all feeders to be removed, antennas to be tested and removed if faulty. See the antenna diagram for reference as to what each antenna does, and where the feeder terminates. These tasks to be done over multiple days.

1. Add 2x East-West stay wires and secure them to the HF antenna end points and make tower safe. This is to be able to remove the HF antenna which acts as an East-West stay wire system.
2. Remove VHF receive antenna which is to be replaced. Do not fit the new one yet.
3. Test the UHF collinear at its connector up top and if faulty, remove.
4. Now Remove HF dipole as this needs to be lifted over the remaining wifi omni. This will need extensive repair work, which ZS2BK may offer to do for us, as he makes use of the HF set on Slipper…
5. Remove the HF balun and lower to ground for rebuilding
6. Remove all remaining feeders and bandit strapping around the pole to lower them to the ground for disposal.
7. Remove the 438.275 duplex UHF Packet 3 el yagi (decommissioned)
8. Test remaining UHF 3el & 8el yagis and UHF APRS Folded dipole. Leave in place if OK, replace if not.
9. Remove both VHF folded dipoles. (one is VHF Rept TX, the other is the discontinued VHF Packet 144.625, both are melted)
10. Fit a new VHF dipole at the upper level position.
11. Install the 40m HF dipole at the lower crossarm position. This will be in a North-South orientation, secured to the N-S stay wires
12. Measure, prepare and run new heliax feeders with correct N-Type connectors for the top ends, seal and secure.
13. Make off onto bulkhead N-Type connectors and seal
14. Re-apply bandit strapping to all feeders on the tower

15. Wifi

1. The wifi box needs to be removed and brought to ground for testing and rebuilding.
2. The Slipper AP31 omni right at the top needs to be tested and retained if OK. Check the heliax feeder for signs of heat damage
3. The gridpack towards Mount Road is to be swung towards Longmore if it is still in an operational condition
4. The new link dish towards Mount Road is to be installed
5. New Cat5 outdoor cable was already run, but a new additional run is required for the new Mount Road link dish.
6. All dish bracing conduit pipes (20mm white) to be replaced. Replace mounting clamps too if necessary
7. Brace the new Mount Rd dish in a similar way, with conduit.
8. Add power over Ethernet injector and power supply on modem track in equipment rack
9. Couple to Ethernet switch

16. APRS/HRD/Skype PC

1. The HP PC to be installed and connected via inverter to the DC system
2. Re-commission the UHF 9k6 packet 439.850MHz, UHF APRS 434.800MHz ports
3. Check internet visibility and APRS server connectivity
4. Skype voice connections to coastal repeater network
5. Skype voice connections to HF remote set
6. Webcam on temperature display of fan controller
7. Webcam on HF rig display.