# Con Ops: Mission: Inhabit the Moon: Phase 1: Landing Pad

• Mission Goal: Phase 1: Landing Pad with Thrust Blast Deflection
Microwave Interferometric 3D Structural Bonding Wands, Pavers and Sided Augers:

1. Microwave units based upon Ground Penetrating Radar, GPR, a type of machine that commonly use magnetrons with marks for timing with an interest in transparency of the dirt for resolving strata nuances to bedrock.
2. This is a continuous process specifically to leverage Taylor et al's data and insights to create structures in–situ, excavating them as they are made the dirt shot back over paving to maintain the Debye Sheath reducing the anodic potential of a insulator vs the raw dirt.
3. These two on–site machines integrate the size–weight constraints demanded by cost–weight as well for a customization that can supply the variety of powered bandwidths needed for the deepest structures cited in papers that can be created using microwaves aimed directly into the ground on the Moon.
4. Magnetrons cannot vary bandwidths much, the cavity is physically designed for a centered output frequency that's fairly wide with the unused portion creating waste heat and that makes differential melting harder to control.
5. The use of tunable CMOS now available allows variance of power and frequency to handle melt–point differentiation in the composition of the in–situ mineral assortment being processed under the tool.
6. These also are bias components regulating the power amps to attain bonding without melt for a strata, magnetrons essentially are noise generators, biasing allows controlled interference, a functional need to do structures.
7. There are no customized machines specific to the lunar environment that can leverage its dielectric qualities to produce earthen structures stronger than concrete and steel, anhydrous glass and ceramics, if properly done in a continuous process by the autonomous rovers.
8. The known metrics to do so allow fast evaluations to a basis for a production quality design ready for flights prior to Coral in scheduling.
9. A first model for simulation leads to how to time and mix inputs with bench tests & oscilloscopic software guiding things to the spec, an example for paving: 1.2m/4' to ½ heat for a 66cm/26" deep structure as wide as required, a dozen pavers can set a 8m/26' wide road at 1–1.5cm/second.
10. Biasing concurrent frequencies into broadcast patterns is precise, using trough reflectors for antenna length, ½ & ¼ wave and folded for compactness, dipoles are OTS.

First Flight Goal, Thrust Blast Protected Landing Pad:

1. Structure and excavate the thrust protection directing it upwards, openings for transport to the base, the excavation method high speed sided–augers, they shoot it to piles to  have it on paving later.
2. Lastly excavate the core using wands for circular bricks, store the bricks as portable shields.
3. Pave the road back to the lander.

- **Thrust Protection, Paved, Vortex  Ring Design Reduces Dispersion**
  - **Subtractive Methods**
    - **Microwave Surface Down Structures Below Grade**
      - **Est. Time to Construct: 1440hr Constraints, Rover & Tool Specs**
        - **CMOS Isolated Biasing**
          - **Freq's For Interference Power Depth Focusing**
        - **Tools–Machines**
          - **Antenna Design: Wands, 6x6mm  Parabolic, 1watt Peak, 1024/ wand**
          - **White Spider: Science, Digging, Support**
            - **Wand Designs**
            - **Sided–Auger Support**
          - **Antennas: Parabolic Trough,  1500w Peak, Footprint: 30x75cm 1/2 Power Design Depth: 1.25m**
            - **Paver–Sider 6–Leg Rover**
              - **Sided–Auger Design**
              - **Spar Parts**
              - **Wifi–Autonomy**
              - **Structural Thrust Tunnel CAD**
              - **Paver CAD**
              - **Ramp CAD**
  - **Additive Methods**
    - **3D Print Paver Brick**
    - **3D Print Other Forms**