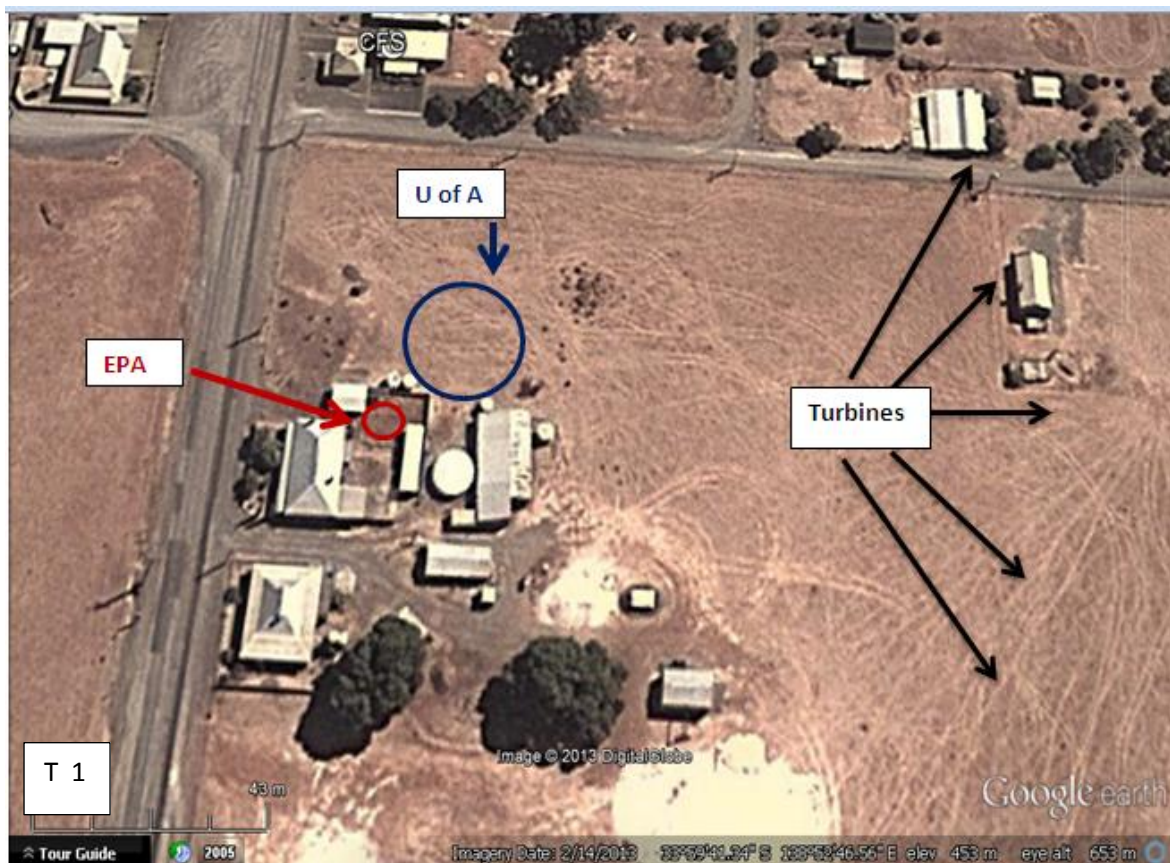


## Placement of EPA Monitoring gear at TOWNSHIP Site and how this relates to their own guidelines



**Figure T1: layout of EPA monitoring gear at the TOWNSHIP site .**

This Google Earth Image shows the infrastructure and layout at the EPA TOWNSHIP site.

Note that the EPA have sited their equipment within an area enclosed on all sides by a corrugated iron fence 1.4 m high, an iron shed, tanks, a shade structure, a metal ATCO hut and the masonry and weatherboard home. There is a latticed tower supporting a tv antenna within the enclosed area.

The EPA microphones are less than 5 m from any reflective surface and are screened from the turbines by infrastructure. Yard infrastructure - lattice tower, barbed wire loosely wrapped around metal drain pipe and shade structure could contribute to the local noise near the microphone..

Outside the 1.4 m high corrugated iron fence and sited between the turbines and the EPA monitoring gear there is also a large iron shed and water tanks.

In contrast to this, the University of Adelaide gear is sited in an open paddock outside of the fence. There is open ground on 3 sides and between the Adelaide Uni monitoring gear and the turbines.

**The SA EPA Guidelines for placement of microphones state:**

*Background noise levels can be significantly affected by local conditions, such as the presence of trees nearby.*

*Photographs from multiple directions are to be taken showing the noise measurement position and associated surroundings, such as buildings, trees and topography. This will ensure that no significant physical changes have been made to the locations since the time of the initial background noise measurements.*

*Care must be taken when using a measurement position to represent other receivers in the locality. Trees, grass and shrubs should be representative of the local area that is being assessed. Background noise measurements should represent the natural background in the immediate vicinity of the relevant receiver; extraneous noise sources (water pumps, air conditioning units, electrical transformers, etc) should not influence the data. In case selection of the representative point is not straightforward a conservative approach should be taken by placing the microphone in the quieter location.*

***The microphone should be positioned 1.2–1.5 metres above the ground and at least 5 metres from any reflecting surface (other than the ground).***

In general, any area within 30 metres of a house and in the direction of the wind farm would be a valid measuring position.

*Care should be taken to ensure that the area is not screened from the wind farm by house, shelter or other elements.*



Figure T2: EPA Township site – Google earth image – shows measurements within yard



Figure T3: EPA Township site - photo taken over corrugated iron fence looking East towards turbines (not visible in low cloud). EPA equipment is enclosed on all sides by iron fence, sheds and the residence. Lattice tower in the enclosed area.



Figure T4: EPA Township site - photo taken over corrugated iron fence looking East towards turbines (not visible in low cloud). Microphones and wind monitor in enclosed area EPA equipment enclosed on all sides by iron fence, sheds and the residence. Lattice tower in the enclosed area. . Shed between the turbines and the microphone.





Figure T5: EPA Township site - photo taken over corrugated iron fence looking South West. Turbines are behind the photographer.



Figure T6 Photo taken over fence looking South West



Figure T7: Township site - photo taken over corrugated iron fence looking East towards turbines (turbines not visible in low cloud). The distance between the ATCO hut and the garage is 9.4 m hence microphone is less than 5 m from any reflective surface – contrary to EPA guidelines.



Figure T8: Township site: Adelaide University microphones looking East toward turbines. There is an open paddock between microphones and turbines. Enclosed Backyard where EPA microphones are located is adjacent to the right of the photograph. See figure T1 to compare.





Figure T9. Township site: Adelaide University microphones positioned correctly in open space. Photo taken looking East toward turbines. Note there is an open paddock between the microphones and the turbines.