Project Documentation:
E-Waste Feedback Loop
Mono Channel Installation
Ambient Afternoon Festival
Wimborne Minster UK

This artistic output is the result of the artist exchange hosted by Outlands network between Sound Art Brighton and Wimborne Arts in 2025. This work is contributed by sound artist and researcher, Chris Sciacca, representing Sound Art Brighton. Thank you to Outlands network, Sound Art Brighton, Adrian Newton and Wimborne Arts.

Synopsis:

A feedback loop is created with two Sony speakers found next to a waste collection bin as potential Waste Electrical and Electronic Equipment (WEEE) by UK law. One speaker has been converted into a microphone. Field recordings are played, previously produced from household-scrap microphones, taken at various industrial waste sites the UK. These sounds are picked up by the converted speaker-microphone and fed back into the system. These "lo-fideltiy" microphone recordings can be heard as the result of "waste listening to waste". The recordings in turn blend with an ambient layer of feedback mitigated by two Zoom H6 recording devices that sit atop the various sonic WEEE material accumulated and collected by the artist. The works addresses the problematic entanglement of field

recording practice with the global waste crisis and the complicit involvement of the artist within it.

Background:

This work evolved from a practice-based research inquiry into field recording practice as it relates to the global waste crisis. Electronic waste, particularly, has been recognized as one of the fastest and largest growing waste streams (Lundgren, 2012). Much of the focus in Sound Studies has revolved around the invisible and silent problems embedded within the technical act of producing and consuming "field recordings". This includes ecological devastation from mineral extraction, labor exploitation, and unsustainable energy consumption from digital storage. Field recordists must grapple with the problematic nature of their practice since there is an insufficient circular economy model for electronics. The rise of massive toxic e-waste sites in places like Agbogbloshie, Ghana and Guiyu, China, is a shocking testament to the incomprehensible volume of discarded objects. The rise of these global e-waste nodes can be traced to their legal and often illegal trajectories as second hand scrap in the Global South. From there they are disposed of improperly, left to leach toxins into the soil, or burned to extract precious metals for miniscule profit as an economic necessity. The consequence is the toxification of the local populace, indicative of Nixon's theory of "slow violence".

Figure 1: Photo of Agbogbloshie by Muntaka Chasant www.chasant.com

In the Global North, however, the household consumer relationship with waste is far removed from any personal impact, leading to the implication that as a pressing problem it is "out of sight, out of mind". As new technology evolves, more techno-objects quickly

become obsolete, and the ever-mounting e-waste problem becomes untenable. As many ecologists have understood, and especially the workers from toxic nodes of waste accumulation, there is truly no “away” when it comes to waste.

Development of work:

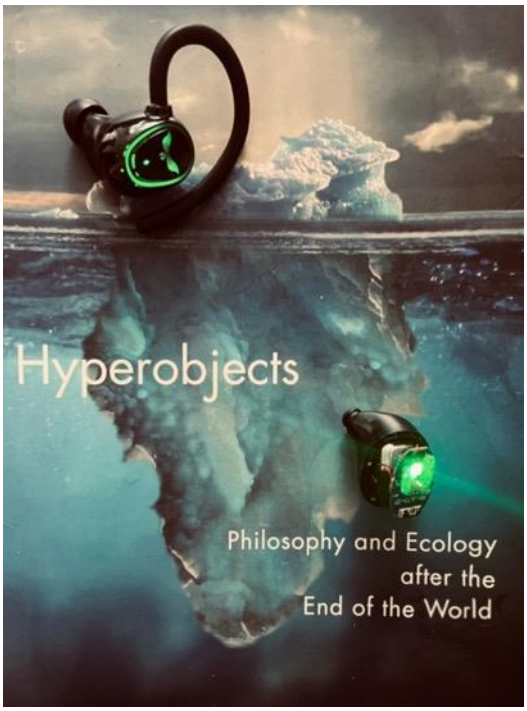


Figure 2: photo montage of Hyperobjects (2013) with broken earbuds provided by Chris Sciacca

Field recorders, music media (current and legacy), and digital storage are indicative of the problems illustrated above. As a sound artist attempting to document the crisis from my position in the Global North, how do I reconcile the use of such problematic materials? For myself, the practice of field recording is wrought with hypocrisies as asymmetrical relationships. As ecophilosopher Timorthy Morton details in *Hyperobjects: Philosophy and Ecology after the End of the World*, these problematic characteristics are innate when attempting to deal with overwhelmingly immense objects distributed throughout time and space, such as global warming or plastic pollution. Field recording equipment and its energy requirements contribute to both. It is a practice filled with contradiction and conflicted with ethical dilemmas that have no immediate solution.

My approach to field recording has been influenced by a relatively new vein of research termed “sonic thinking”. For Bernard Herzogenrath, “sound is not a knowledge about the world, coming to you only in retrospective reflection, but a thinking of and in the world, a part of the world we live in, intervening in the world directly (2017, p.1). It is not a thinking *about* sound but occurs *through* the physicality of sound itself (Meelberg, 2022). Sonic thinking applies a new materialist conception of matter, contending that it is not simply static material. As Jane Bennet suggests, its assemblages are imbued with their own

vibrant “thing power”, subject to autonomous flows and trajectories outside of human control. Sonic thinking is a stance against an Anthropocene era that places human beings at the centre of significance and influence on planet earth. It is an attempt to recognize the agency of numerous nonhuman elements within the environment that exert an increasingly substantial, reciprocal force back upon humans. Attuning to the nonhuman is intended with the hope that it may foster a deeper connection and respect for all things.

> “I believe that encounters with lively matter can chasten my fantasies of human mastery, highlight the common materiality of all that is, expose a wider distribution of agency, and reshape the self and its interests” (Bennett, 2010, p.122).

With sonic thinking, this connection can be achieved when sound is experienced as a material force: a physical, vibrational process that reverberates through and between the elements of an ecosystem. This ecological, interconnected sounding, or *soundscape*, is not an academic, intellectual pursuit that seeks to understand place in afterthought, but a *direct,* participatory knowledge that results from attuned listening to *sound itself*. Therefore, it has been my practice to produce soundscapes that attempt to express sonic thinking in the same way as sound artists such as Alvin Lucier and Steve Reich have illustrated through “process music”, where sound art can be understood directly through its processual flux of rhythm, pitch, tone and frequency. This process can be gleaned in the act of listening in the environment as well. It is what musician, academic, and anthropologist, Georgina Born describes in her essay *On Nonhuman Sound – Sound as Relation,* allowing her to “move into and out of awareness of, attunement to, the sounds – as a companion entity, or process” (2019, p.186).

Methodology:

The material elements of the work include a personal collection of e-waste accumulated over several years. It was either discovered and collected on city streets before improper disposal by waste collection or received in donation from acquaintances. It is not legal to

reclaim recycled electronics from tips or recycling facilities, therefore most of everything I used was either donated to me or found. This is the case for the two principal components featured in the work: used Sony Speakers I happened to come across on Bath Street in Brighton.

Figure 3: Bath Street, Brighton WEEE speakers

Figure 4: Greenwich University lab: early construction of loop

Next, I had to determine whether they were functional. I brought them into the lab at Greenwich University and they were both working. I converted one speaker into a microphone. To do this, I reversed the positive and negative ends of the speaker wire to the back terminals of the one speaker and secured the other end with a 6.35mm TRS plug. From here, colleagues of mine, Reid Dudley Pierson and Liam Frizell, helped me create a rudimentary feedback loop using a recording device and a preamp (other elements in the loop cannot be seen here). It is important to note that producing a sound art sculpture ned Waste Electrical and Electronic Equipment (WEEE by UK regulations). This was one of the dilemmas I spoke of earlier, in the fact that to make a work that challenges e-waste practice, I needed to buy newly manufactured tech equipment. The same can be said for the audio material I produced to play through one of the speakers.

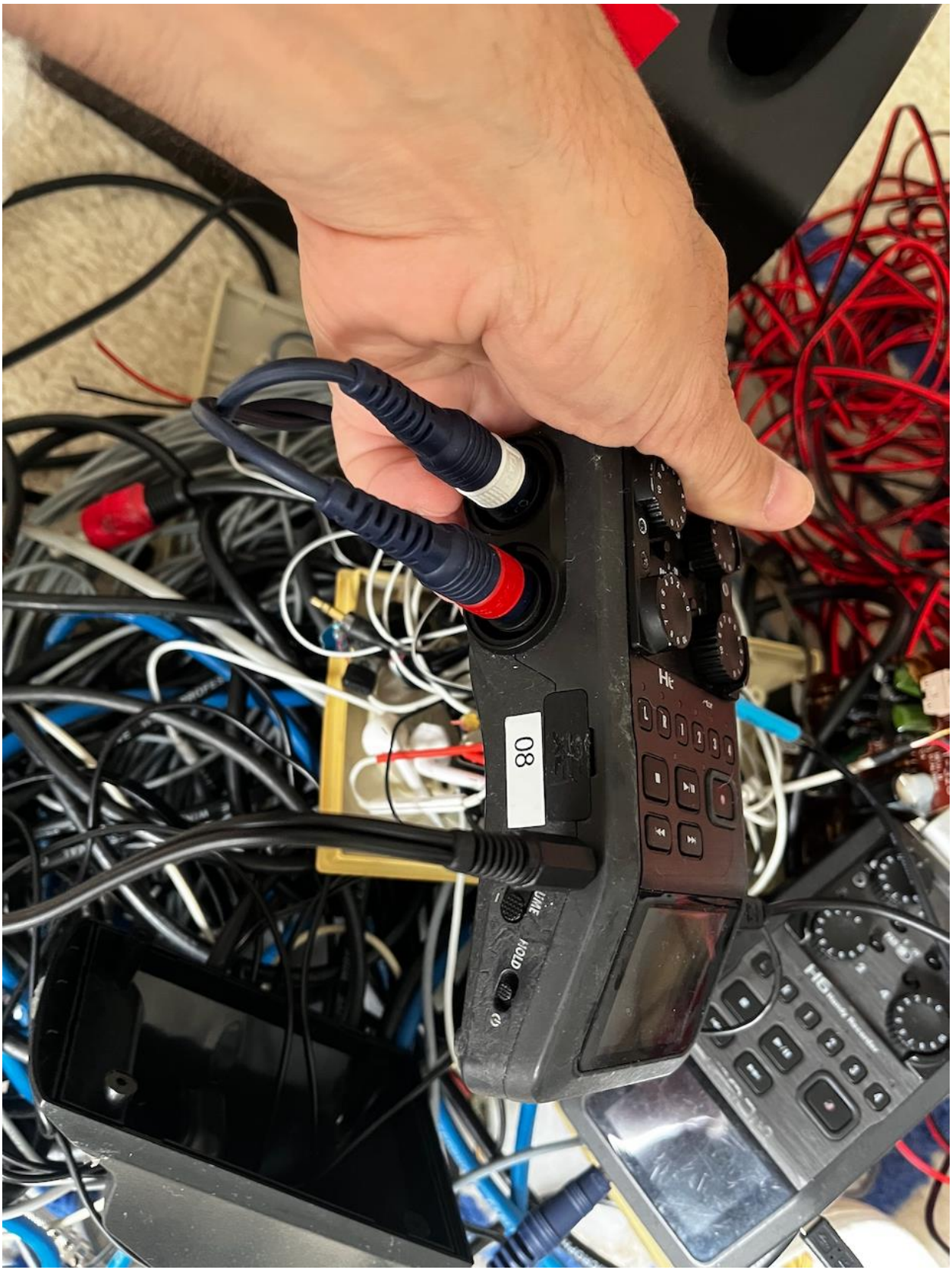
A rudimentary feedback loop was constructed in my home workspace that illustrates the types of connections and material components involved. Placing microphones themselves on top of the speaker cones added extra modulation to the feedback.

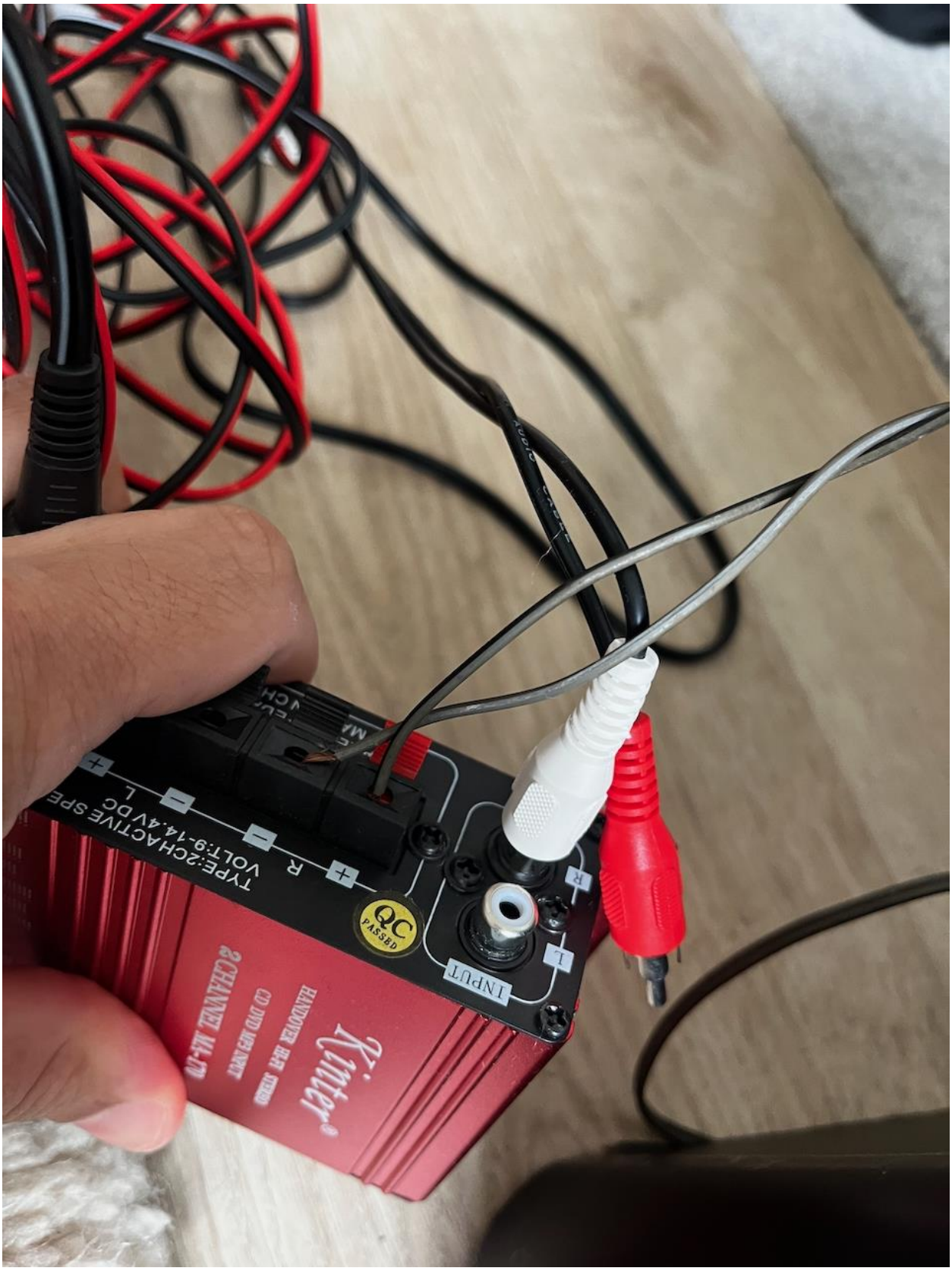
Figure 5: home experiments connecting two Zoom H6 field recorders.

Figure 6: Closeup Zoom H6 recorder

Figure 7: Stereo preamp component

Figure 8: Modulation of sound on 5" speaker cone with a homemade WEEE microphone


08
HOLD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In the final work, field recordings I produced from household scrap microphones play from one speaker. I have manufactured these myself from the various e-waste I was given and from sourcing components online I could not find. For instance, I could not find WEEE piezo elements as this would be extremely rare to come across in a discarded form in an urban environment. It was by sheer luck that I happened to be in the right place and the right time to find the speakers pictured above. I purchased piezo elements online and created microphones from household waste materials such as Styrofoam, aluminium, PET 4,5 plastic, and converted miniature desktop computed speakers. While some microphones were made of one single 50mm piezo element, further experiments led to producing microphones by chaining a 50mm and 25mm piezo element in a *parallel series,* amplifying the signal and frequency spectrum. The reason for using piezo elements is because they sit on the surface of materials to *transduce* sound through a different material membrane that imbues the recordings with a unique sonic, material characteristic. The body of the microphone is also a factor, for instance. Creating stereo microphones from open ended rusted cans produces a loud, metallic resonance that colours the recordings. For me there is no distinction between lo-fidelity and hi-fidelity as terms because fidelity has more to do with the authenticity of the microphone *itself.* In other words, a Styrofoam bodied microphone, sounds as a Styrofoam microphone, with its specific dimensions, does. It happens to pick up more "noise" in the environment; however, this term is also problematic. The noise captured by the microphones is purposeful for several reasons. For one, it highlights the fact that technology and field recording practice is not neutral. For traditional or commercial field recording practice, both the noise of the human using it and the inherent noise of the microphone are obscured and obfuscated to present a soundscape of pristine "Nature" that is either clean or not sullied by sources of anthropogenic noise (cars, construction, traffic etc). In my case, I took the scrap microphones to a sampling of waste sites in the Southeast of England. This essentially creates a mode of working that I like to frame as "waste listening to waste". It does not, however mean to completely remove myself from the recordings. In fact, handling noise is often left in, or breathing, and on other occasions I have used the

mics to transduce the sounds of fencing around sites of waste meant to keep me safely at a distance, by physically tapping and recording the reverberations the fence myself. My work is aimed to make field recording a transparent practice.
The source material for E-waste Feedback Loop includes recording taken at:

- Newhaven Energy Recovery Facility, Newhaven UK
- Rainham Landfill, London UK (to be completed by Sept 15th)
- Lakeside Energy From Waste Facility, London UK
- Greatmoor Energy From Waste Facility, Aylesbury UK
- River Test International Cargo Shipping Lanes – Southampton UK. (revisited in May 2025 with newly constructed parallel series microphones) (Note* this is where Adrian Newton and I met to record the podcast Sound mosaics for a broken world: Listening through Waste together)

The other notable thing about creating microphones embodied through an assemblage of household waste is that they interact directly with the elements in an ecosystem in ways traditional microphones do not. For instance, placing Styrofoam microphones in tall grass with wind produces a scratch-like high frequency response that highlights the materiality of the Styrofoam as well as the interconnected processes that created the sound (grass grown in summer sun and wind patterns). In particular, the Styrofoam microphones (pictured below) capture rainfall in interesting drum like patterns that were eventually used to create a sound piece played at the Wimborne Arts Ambient Afternoon Festival. The other interesting feature of these mics is their light-weight materiality allows them to float on calm water. This essentially seals off the bottom of the speaker cone with water, producing a resonant chamber that amplifies the signal power and low frequency spectrum of the microphone. In this way the bodies of the microphones are interconnected elements of the environment, as sound is transduced through water and then the greater assemblage of the microphones. This is embedded and can be intuited through the sound itself in the final recordings.

Figure 9: Aluminium alloy piezo mic

Figure 10: Parallel seires piezo, plastic

Figure 11: Styrofoam takeaway container microphones

Figure 12: Candy "tin" unknown alloy, piezo

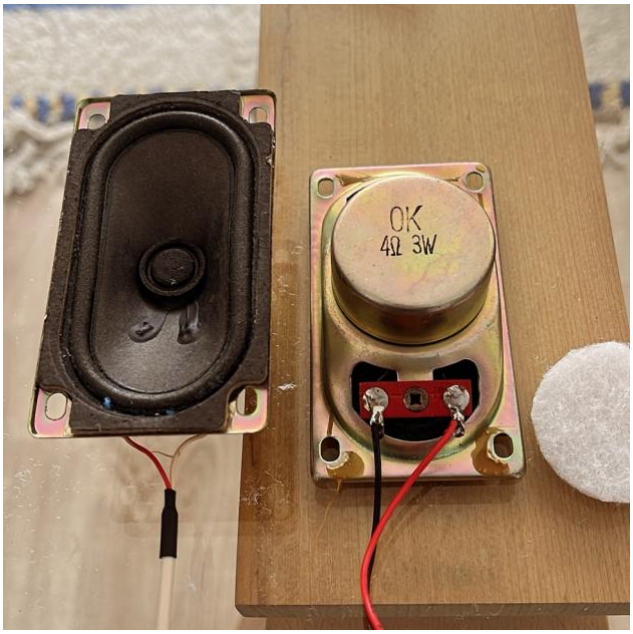


Figure 13: Converted desktop comoputer speakers

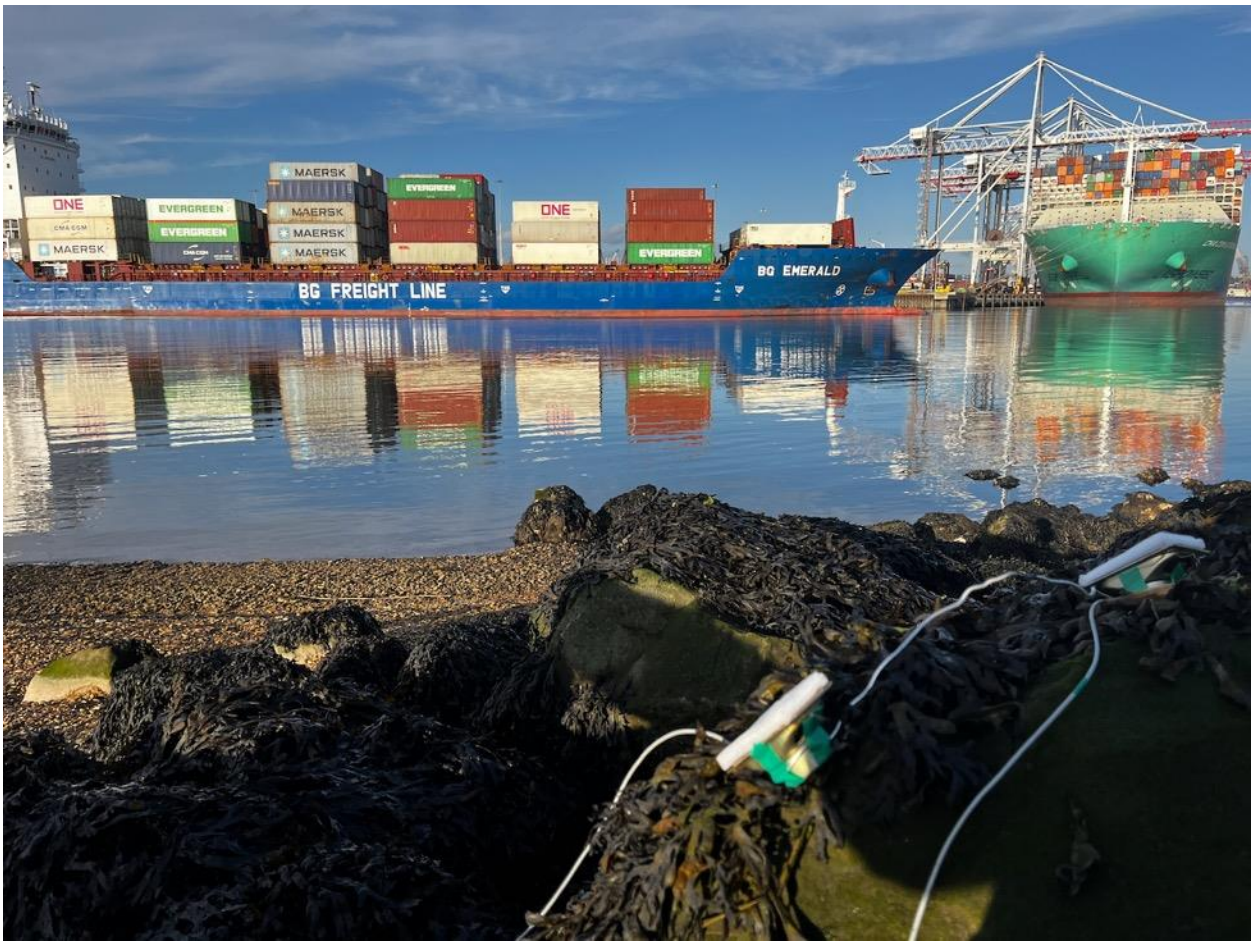


Figure 14: Southampton shipping lanes, Marchwood beach

Figure 15: River Ouse, Newhaven, scrap metal recycling facility

Figure 16: Veolia Energy Recovery Facility, Newhaven

Figure 17: Veolia ERF from across the River Ouse, Newhaven

Figure 18: Styrofoam microphones in grass, River Ouse, Newhaven

Figure 19: Shipping Lanes, Southampton at Marchwood Beach

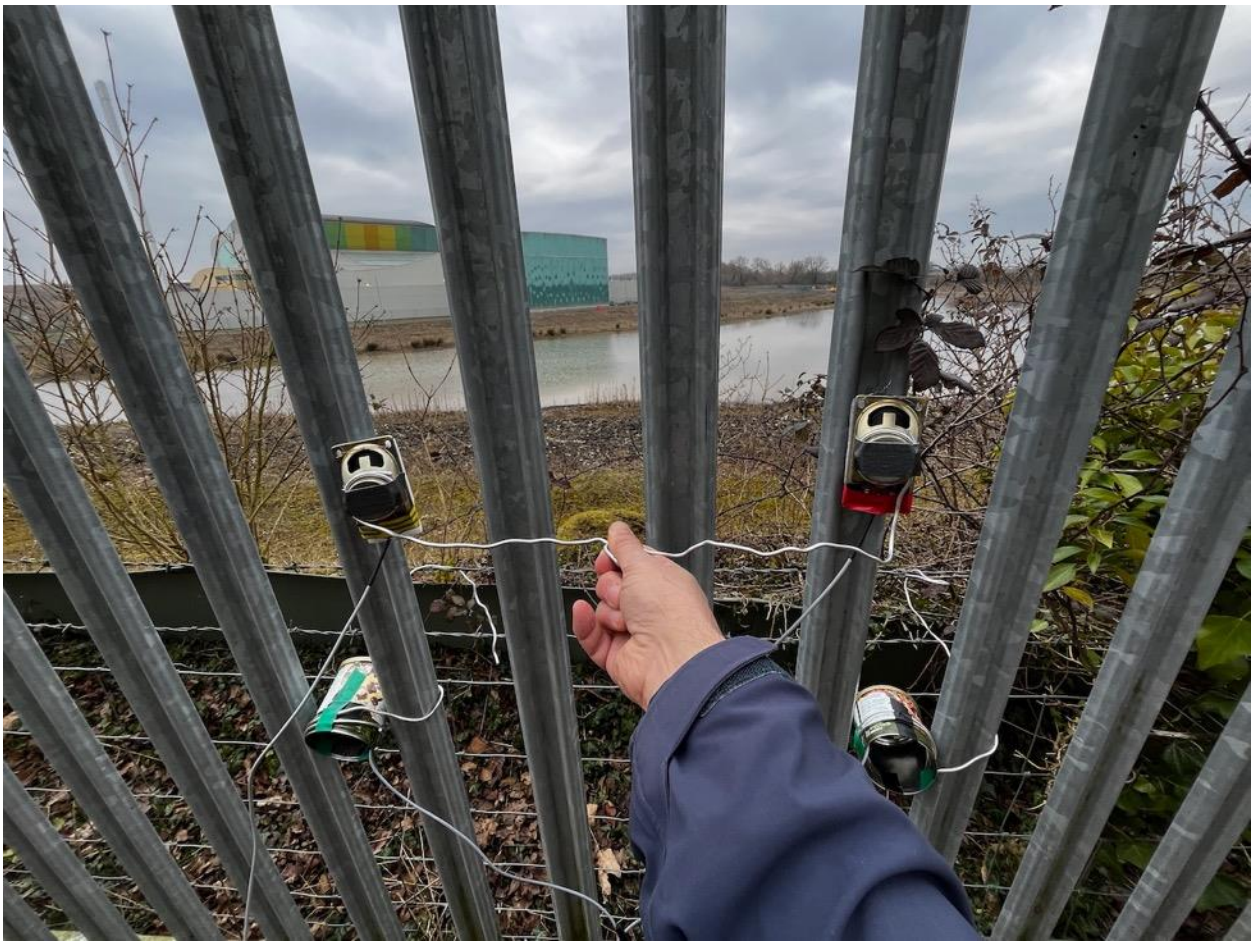
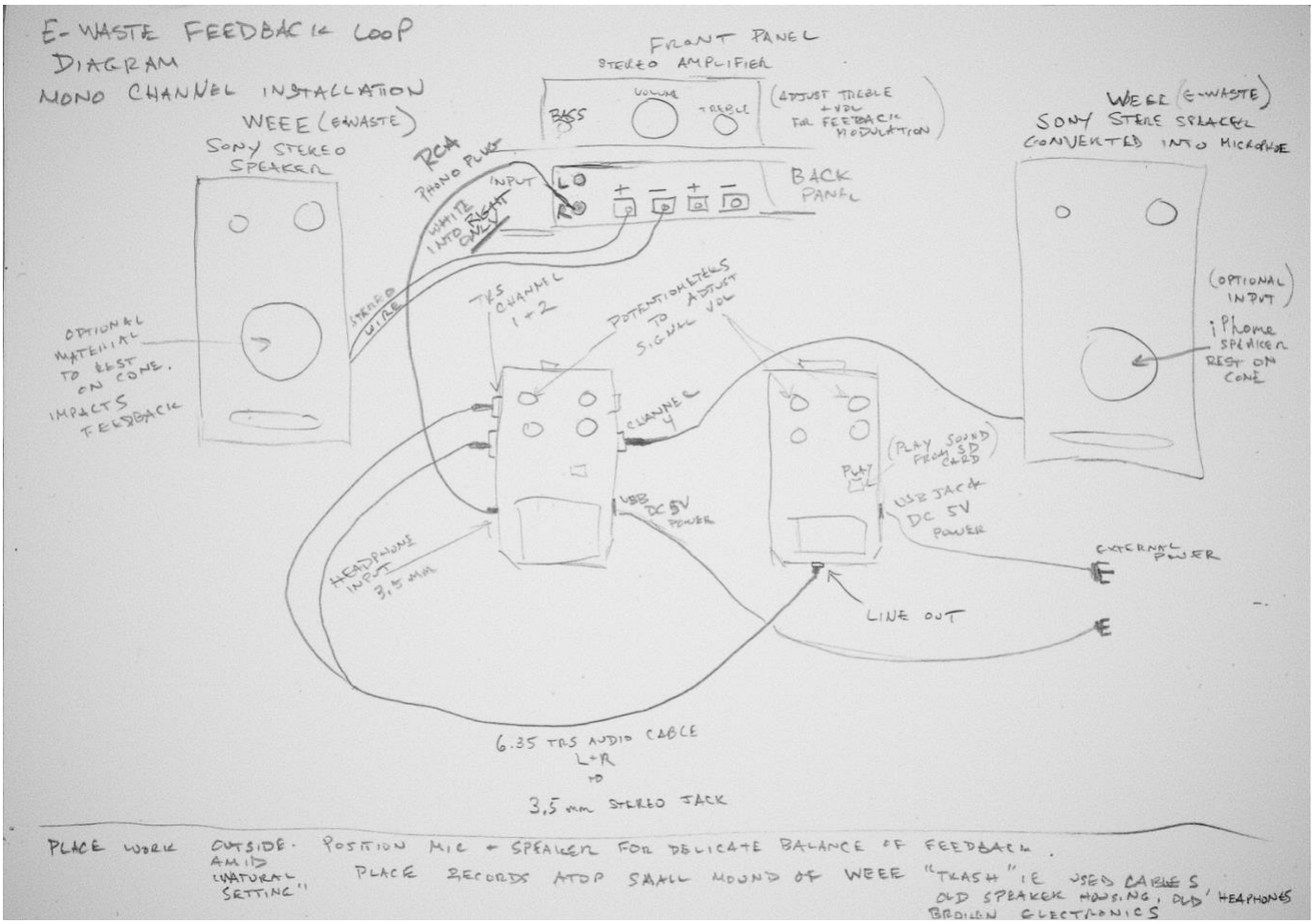


Figure 20: Viridor ERF, Ardley, located near Bicester in Oxfordshire

Figure 21: Plastic mics additionally transducing through hollow picnic bench along Southampton shipping lane

Construction Schematic:



Construction notes: E-waste Feedback Loop

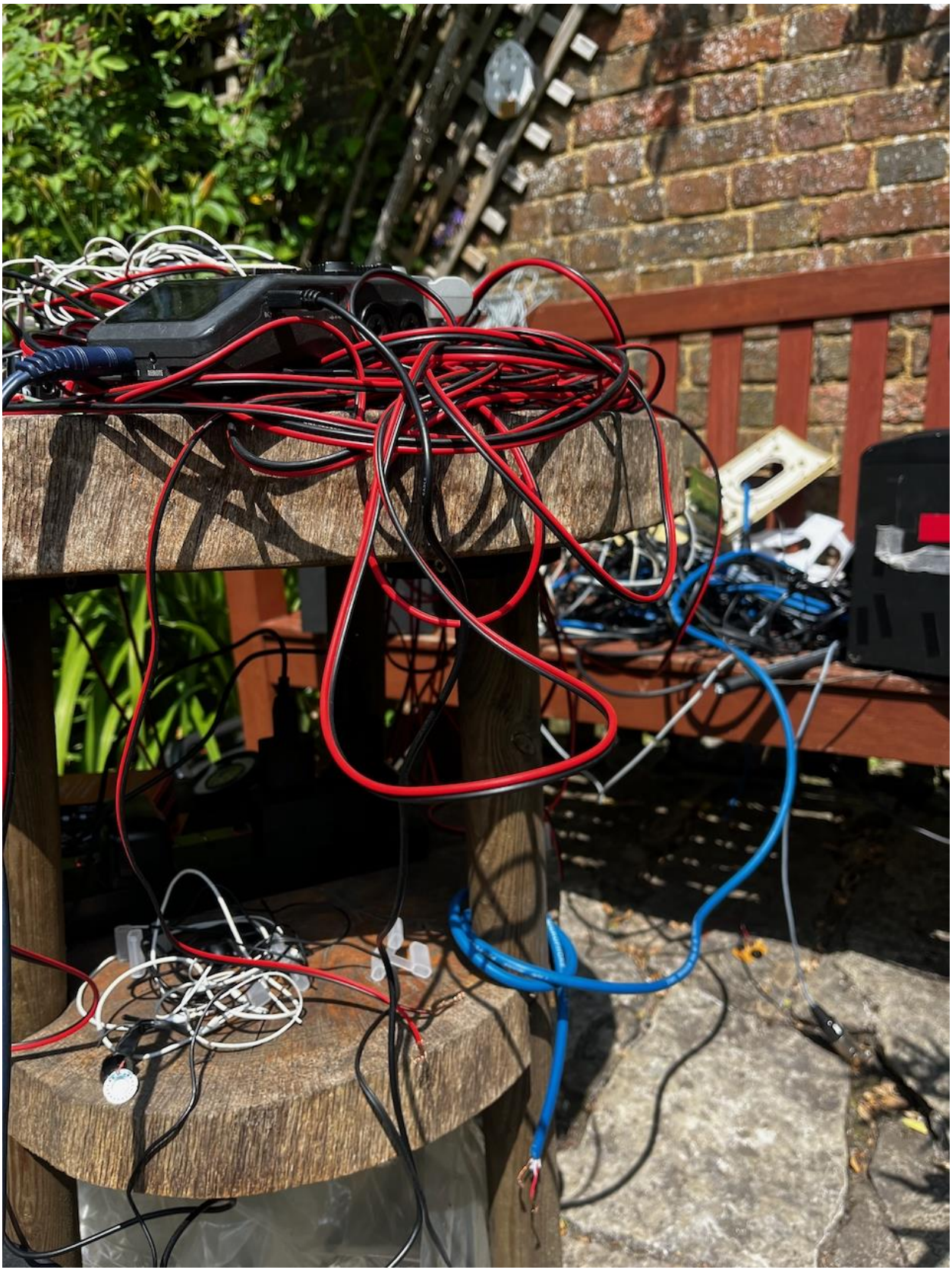
It was important to have two Zoom H6 recorders sit on top of a tangled heap of collected WEEE. It was also important to situate the sculpture outdoors in situ with an environment, as opposed to an indoor gallery space. This was to highlight the actuality of how we often encounter waste within "natural" environments. It is also indicative of industrial sites of waste being situated within larger plots of "nature" that are rarely traversed by people. A surprisingly healthy population of nonhuman beings such birds, insects, mammals, are often co-inhabiting such places. Having installed this instance of the work at the Wimborne Ambient Afternoon Festival, it was important to weave the wires through the tables and chair, suggestive of an inextricable entanglement with waste not only with field recording practice but with areas we designate as natural (the garden as a microcosm of the "outdoors"). This juxtaposition while potentially visually incongruent, chaotic, or starkly contrasting with the environment, is only a small reminder to the true super wicked problem encountered in places like Agbogbloshie.

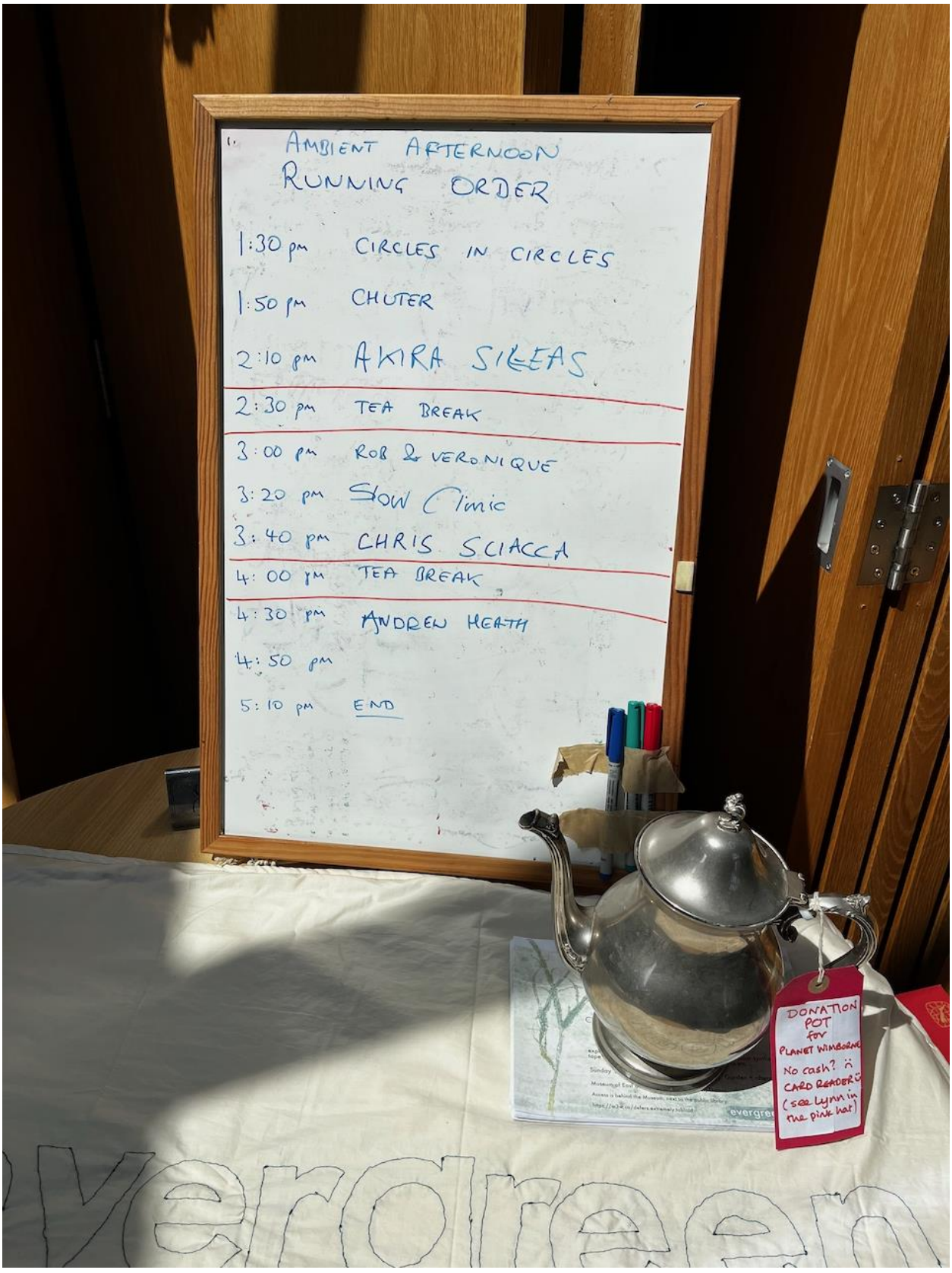
As the sound of the waste sites is playing from one Sony speaker, it is being picked up by the other speaker converted into a microphone. This is an extremely delicate balance that must be calculate in a distance that does not overpower the feedback into untenable noise. It was important to hear both the raw recording and the feedback it produced. Because the nature of the original recordings modulates in amplitude, the feedback patterns also shift. One particularly exciting outcome of the work was a robin perching on the bench, that seemed to curiously listen to the sound of a Southampton Cargo ship with other birds singing in the background. Although I did not capture it in photographs, I will not forget the way it craned its neck as if listening with intent and intelligent curiosity. To me this highlighted the idea of nonhuman agency and listening that are not just from the central perspective of humans.

Additionally, a performative aspect of the installation occurred when I played sound files of promotional videos detailing several global waste companies such as Veolia and Suez. The music and speech were played from an i-phone placed delicately on the microphone cone, adding another layer of modulated sound between audible sound and unintelligible feedback.

Photos from the Ambient Afternoon Wimborne Arts Festival

Figure 22: Robin investigating sculpture




AMBIENT AFTERNOON
RUNNING ORDER
1:30 pm CIRCLES IN CIRCLES
1:50 pm CHUTER
2:10 pm AKIRA SILEAS
2:30 pm TEA BREAK
3:00 pm ROB & VERONIQUE
3:20 pm Slow Clinic
3:40 pm CHRIS SCIACCA
4:00 pm TEA BREAK
4:30 pm ANDREW HEATH
4:50 pm
5:10 pm END
DONATION POT FOR PLANET WIMBORNE
No cash? CARD READER
(see Lynn in the pink hat)
Evergreen

Bibliography:

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