

# Culture and Communities Committee

10.00am, Tuesday, 1 February 2022

## Meadows Jawbone Arch Conservation Project

Executive/routine  
Wards  
Council Commitments

### 1. Recommendations

---

- 1.1 It is recommended that Committee agree:
  - 1.1.1 To commission and install a high quality, sustainable replica of the Jawbone Arch in the Meadows (utilising recently made 3D scans);
  - 1.1.2 That a suitable, free and publicly accessible indoor space should be identified to display the original bones, with costs to be met from the original fundraising exercise;
  - 1.1.3 That officers should progress discussions with stakeholders and potential funders on the proposed approach and to report back to Committee once these discussions are concluded.

**Paul Lawrence**

Executive Director of Place

Contact: David Patterson, Curatorial and Conservation Manager

E-mail: [david.patterson@edinburgh.gov.uk](mailto:david.patterson@edinburgh.gov.uk) | Tel: 0131 529 3955

## Meadows Jawbone Arch Conservation Project

### 2. Executive Summary

---

- 2.1 The Meadows Jawbone Arch Conservation project has reached a critical stage, financially and technically, and cannot proceed without approval of the recommendations of this report.

### 3. Background

---

- 3.1 The Meadows Jawbone Arch was dismantled in May 2014 to allow essential conservation work to be undertaken. The bones have been conserved twice since then and relocated several times (see Section 4).
- 3.2 Due to their fragility, the risks and cost of erecting the Arch may now make reinstatement in its original outdoor location unviable.
- 3.3 There is significant public interest in the Jawbone Arch, and the project is part-funded by personal donations and external grants.

### 4. Main report

---

- 4.1 The bones were initially conserved in 2014/15 by an accredited conservator who subsequently went into administration. This conservation work was subsequently changed, without the consent of the City of Edinburgh Council, by the structural engineer attached to the project at that time. From a conservation perspective the repairs were removed from the bones and the surface coating removed with a coarse brush. The bones were then stored in several locations for circa three years while the project was reassessed due to financial and legal considerations as well as a change in personnel.
- 4.2 In 2018 another accredited conservator, a whalebone specialist, was appointed to conduct a new condition survey and provide a treatment proposal. This work was undertaken in 2019/20. 3D scans were made at the same time.

- 4.3 The bones were returned to Edinburgh in October 2020 and stored in a partially external site to allow acclimatisation to outside conditions, having been under cover for a significant period. A structural engineering company, David Narro, was appointed in 2020 to provide safe mounting and display options.
- 4.4 The bones were relocated to Powderhall Bronze in June 2021. An initial attempt to lift one bone into a vertical orientation, as it would be mounted at the Meadows, resulted in flexing of the bone, cracks and losses. The conservator was consulted and confirmed that this was anticipated and that further repairs once the bones were fully erected in situ would be required, as well as regular ongoing maintenance.
- 4.5 Powderhall Bronze has paused activity on this project to allow a reassessment of options. They are currently storing the bones but have had to move them, covered, to an outdoor area. They are also pressing for an update on how to proceed and are not currently being remunerated for storing the bones.
- 4.6 Funding was initially provided by the City of Edinburgh Council and Edinburgh World Heritage Trust (EWHT), with EWHT sourcing public funding via a crowd funding campaign and a grant from a Shetland-based trust due to the connection with the original gifting of the bones to the city by the people of Shetland in 1887.
- 4.7 If the project is not completed in some form, the City of Edinburgh Council may be required to repay the funds supplied by EWHT (as per the contract agreed with them) which could amount to approximately £60,000.
- 4.8 Due to the instability of the bones when manipulated into an upright position, the project team and new structural engineers recommended a full armature or frame is created to support them, as opposed to fixings at the base and the top where the bones meet. Any armature made would need to be sensitive to the appearance of the bones, taking into account their load and height, potential for movement, and the bronze commemorative bands near the base of each bone.
- 4.9 The cost for this was estimated by Powderhall Bronze at £60,000 plus VAT. Total structural engineering costs for installation are not yet known. The total Asset Management fee has not yet been taken from the budget.
- 4.10 Even with the armature, no guarantee of the safety of the bones themselves can be given. The organic nature of the original material and the volume of repairs, coupled with the risks posed by an outdoor setting and the effects of the weather, mean that losses are likely. This poses a potential risk to the safety of park users.
- 4.11 As it stands, the bones are expected to require annual maintenance including patching of cracks and infills for areas of loss. This cost is estimated at £3,000-£5,000 at time of writing (dependent on extent of weathering and repairs; new casein wash required at minimum each time; includes access equipment).
- 4.12 The remaining lifespan of the jawbones (time period for which they can remain outdoors in a public setting before irreversible deterioration) is unlikely to exceed 15 years with regular maintenance. If regular maintenance is not undertaken this will be significantly less.

## 5. Next Steps

---

- 5.1 The project team recommends that a replica of the jawbone arch is cast in bronze and installed in the Meadows using the detailed 3D scans recently produced. This would ensure a memorial to a much-loved local feature, while providing a solution to the current outstanding concerns:
- 5.1.1 Possible risk to public safety from losses from the jawbones once erected;
  - 5.1.2 Expensive ongoing maintenance (costs also likely to increase year on year);
  - 5.1.3 Cost of armature is high, for a relatively short remaining display lifespan, making this option unsustainable; and
  - 5.1.4 Project has lasted longer than anticipated due to a variety of unforeseeable factors, meaning that a satisfactory alternative must be provided for the local community.

- 5.2 Cost to produce replica cast bronze whalebones are as follows:

Moulding in silicon rubber and resin	£32,000
Bronze casting (lost wax)	£80,000
Installation (not including foundations)	£8,000
Total	£120,000+VAT
Associated maintenance costs	Ongoing three to five yearly repatination and maintenance c. £2,100 (at time of writing)

- 5.3 The project team proposes reaching out to partner heritage organisations based in Edinburgh to identify a suitable, freely accessible, indoor public space for display of the original Jawbone Arch.
- 5.4 There will be financial outlay to mount and secure the bones indoors, but this will enable the jawbones to continue to be publicly accessible in a managed environment and extend their displayable lifespan beyond what it would be otherwise.
- 5.5 Officers will progress discussions with stakeholder and potential funders on the proposed approach and will report back to Committee on the outcome of these discussions in due course.

## 6. Financial impact

---

- 6.1 Public donations have been invested in this project. It is proposed that the City of Edinburgh Council provides an assurance to EWHT that the value of their contribution will be spent on displaying the original bones indoors.

- 6.2 Insufficient funds remain for either creating a bronze replica or mounting the bones indoors.
- 6.3 Projected costs:
  - 6.3.1 Production and installation of bronze replica:
    - 6.3.1.1 Casting and production (see 5.2 for breakdown) £120,000;
    - 6.3.1.2 Electrical work (lighting installation, luminaries already purchased): c. £3,000;
    - 6.3.1.3 Civil engineering costs (likely to include e.g. stone sets, railings, plaque): c. £2,000; and
    - 6.1.3.4 Transport to site and install cost £6,000 (estimate only).
  - 6.3.2 Storage, movement and installation of original bones indoors £30,000 (estimate dependent on final display location and duration of storage period).
- 6.4 Confirmed expenditure to date (other costs expected) totals £87,827.74.
- 6.5 In terms of remaining funds, there are outstanding and expected costs covering storage, structural engineering and asset management costs incurred but not yet invoiced.

## **7. Stakeholder/Community Impact**

---

- 7.1 There is significant local interest in the fate of the Jawbones. Friends of the Meadows and Bruntsfield Links (FoMBL) have shown an active interest in the project and requested updates from Elected Members, EWHT and Council staff over its duration. Recommendation 1.2 offers an opportunity to collaborate with partner organisation(s) and community groups to display the bones, while recommendation 1.1 returns an important feature to the Meadows in a safe and more sustainable form.
- 7.2 The Council and EWHT are required to ensure that the crowdfunding and Shetland trust grants accepted to fund the project are used appropriately.
- 7.3 Health and safety, governance, compliance or regulatory implications. Risk of falling sections of bone or repairs. No external contractors attached to the project can offer a guarantee of safety.
- 7.4 Carbon impacts, adaptation to climate change and sustainable development. The projected lifespan of the original bones if displayed outdoors is short and does not offer good value for money when considering the expense and risk to both the bones and the public.

## **8. Background reading/external references**

---

- 8.1 Digital 3-D imaging of whale bones <https://www.thinksee3d.com/edinburgh-whale-bone-arch.>

## 9. Appendices

---

9.1 None.