

USING TECHNOLOGY TO PRESERVE HISTORIC SITES



Fig 1. The Blue Heron Paper Mill was an important business in Oregon City since 1865. The land was reclaimed by the The Grande Ronde Tribe, and the buildings were preserved as 3D digital artifacts.

- The Blue Heron Paper Mill was built in 1865 and worked by many of the relatives and ancestors of the city's current residents.
- In 2019, the site then was reclaimed by the Confederated Tribes of the Grande Ronde.
- The Tribe wished to honor the value of the site to the community.
- Our challenge was to turn scans of the Blue Heron Paper Mill, which is now being demolished, into 3D building models to preserve the mill in Oregon City's history.

3D ANIMATION FOR HISTORIC PRESERVATION

Creating a Virtual Visit to the Blue Heron Paper Mill



Fig 2. LiDAR scan data was collected by our project partners. (stock photo: americangeosciences.org)



Fig 3. View of LiDAR scan data brought directly into Unreal Engine

HOW WE CREATED A PLACE TO VISIT FROM DATA POINTS

- Our team separated each building scan from the site as individual scan files from the larger set to produce an initial image of the site (Figure 3).
- The scans hold GPS coordinate (XYZ) and color (RGB) data for each LiDAR scan point, and when viewed in modeling software it replicates the building in an unusable format.
- Using these scans, our team used Agisoft Metashape to turn these .LAZ files into .FBX textured meshes, which reduced overall polygon count and file size while still preserving the shape and texture quality of the original scans as close as possible.
- Finally, we combined the meshes of each building back together in Blender (Figure 4), then bringing this into Unreal Engine (Figure 5), our team then positioned these buildings into their proper places for a full 3D rendition of the site with accurate lighting rendering.

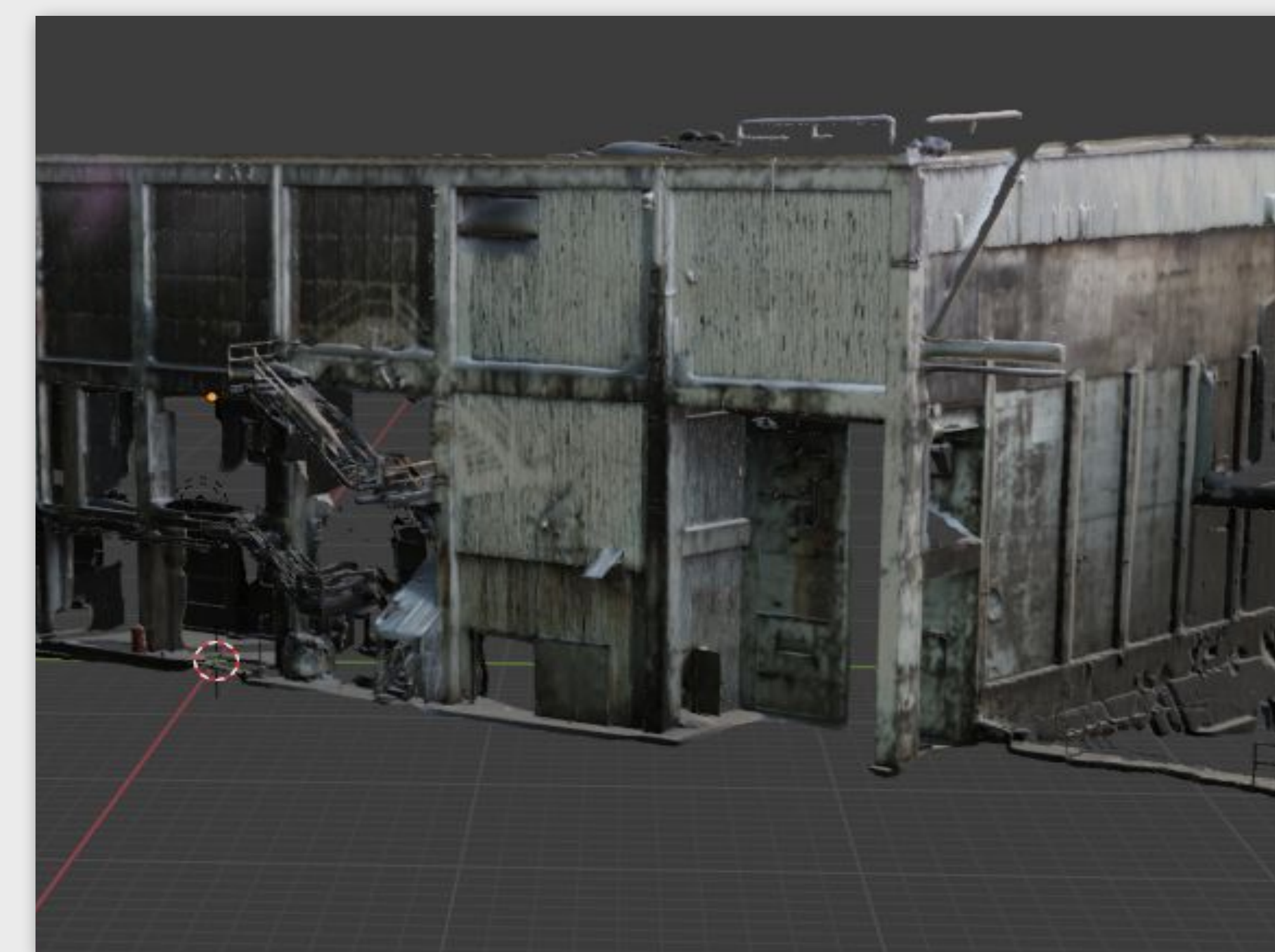


Fig 4. View of assembled building data in Blender

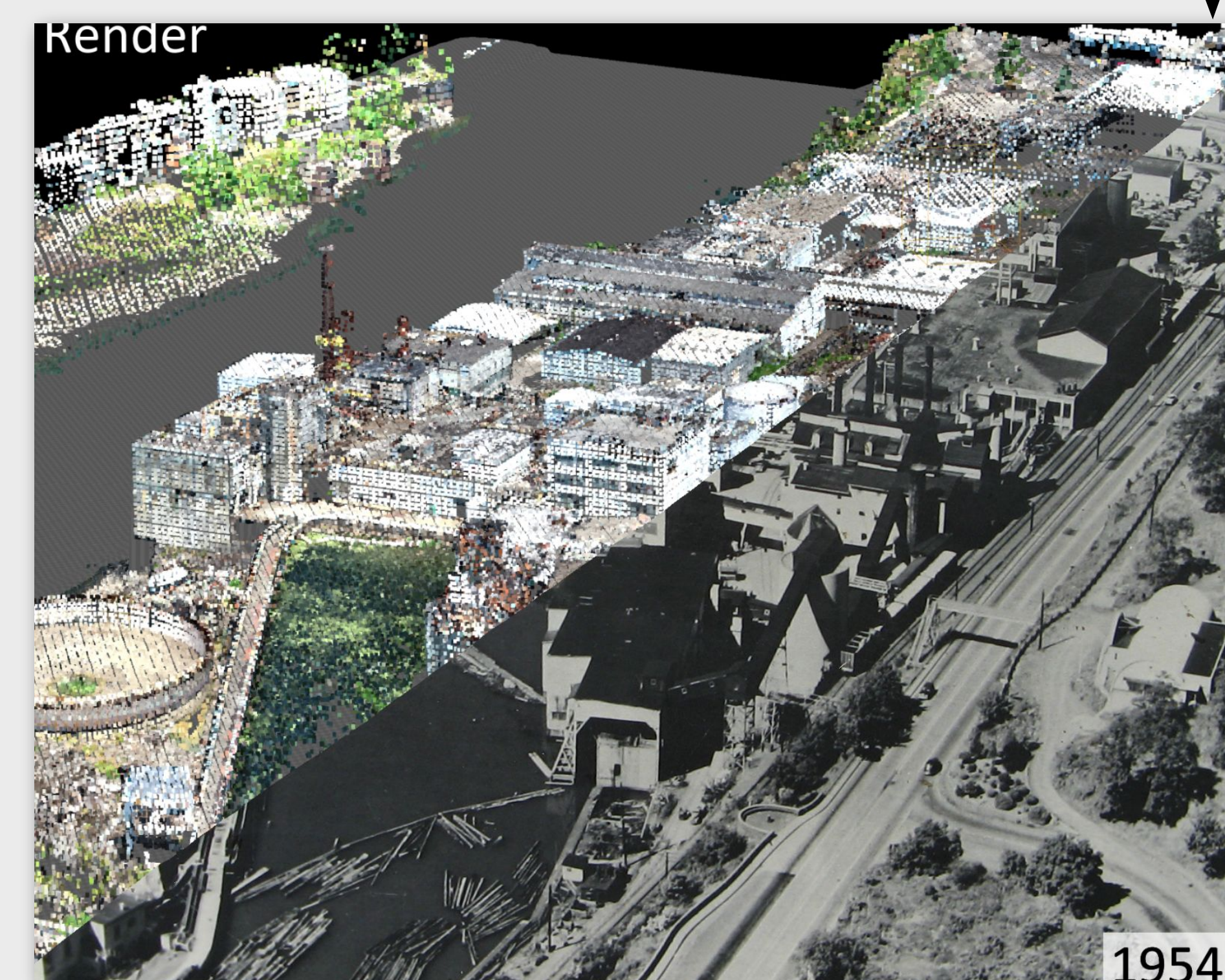


Fig 5. View of assembled site data in Unreal Engine

ACKNOWLEDGEMENTS

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Our team at the Blue Heron Paper Mill Site