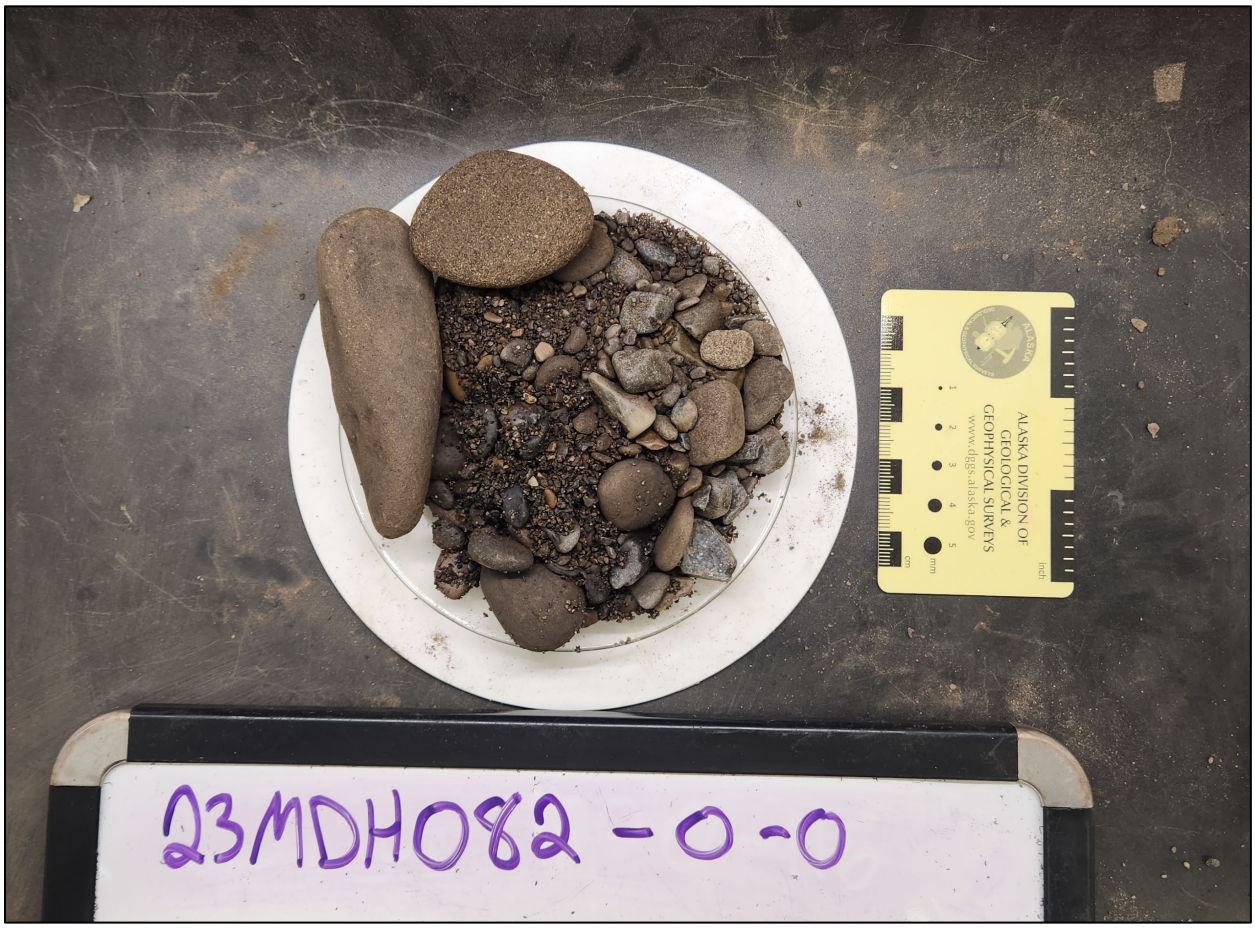
2023 ARCTIC STRATEGIC TRANSPORTATION AND RESOURCES (ASTAR) PROJECT GEOTECHNICAL DATA AND SAMPLE DESCRIPTIONS: POINT LAY, NORTH SLOPE, ALASKA

Trent D. Hubbard, Aleena M. Jose, Nick E. Crawford, Sandra L. Walser, Marlee D. Haralson, and Robin M. Carbaugh

Raw Data File 2026-2



2023 ASTAR project sediment sample collected near Point Lay, Alaska.

This report has not been reviewed for technical content or for conformity to the editorial standards of DGGS.

2026
STATE OF ALASKA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS

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2023 ARCTIC STRATEGIC TRANSPORTATION AND RESOURCES (ASTAR) PROJECT GEOTECHNICAL DATA AND SAMPLE DESCRIPTIONS: POINT LAY, NORTH SLOPE, ALASKA

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INTRODUCTION

This report presents geotechnical descriptions of 160 sediment and material samples collected between July 24 and August 5, 2023, in the Point Lay and Wainwright 1:250,000-scale quadrangles in northwestern Alaska (fig. 1), across an approximately 21,187 km^2 (8,180 mi^2) area. Geologists from the Alaska Division of Geological & Geophysical Surveys (DGGS) and ASRC Consulting & Environmental Services, LLC (ACES) documented the character of bedrock and unconsolidated surface materials and collected sediment samples to investigate the distribution of landforms and shallow subsurface rock and sediment in the region. This work was completed in support of a sand and gravel resource assessment for the Arctic Strategic Transportation and Resources (ASTAR) project.

Sample descriptions, presented here, constitute one of two data products produced for the 2023 field season and support a reconnaissance-level evaluation of potential construction material resources on the North Slope. The dataset complements Hubbard and others (2026), which provides field station locations and site descriptions for the 478 stations visited during the same campaign. Because information on local construction material resources is limited, sample descriptions offer useful insight into the quality, quantity, and distribution of potential material sources for community planning and land-use decision-making.

These data are provided as a Raw Data File under an open end-user license and are available on the DGGS website https://doi.org/10.14509/31806. In addition to our geologic material descriptions, this data release also provides links to photos taken while in the field, which have been added to the DGGS photo database (https://maps.dggs.alaska.gov/photodb/#search="RDF+2026-2", Athey and others, 2017).

BACKGROUND

The ASTAR project is a collaborative initiative led by the Alaska Department of Natural Resources (DNR) in partnership with the North Slope Borough. The project aims to identify, evaluate, and advance opportunities that enhance quality of life and economic resilience in North Slope communities through responsible infrastructure development. Working with communities and regional stakeholders, ASTAR prioritizes projects that strengthen cultural and community connectivity, increase regional support, reduce the cost of living, improve safety, and promote sustainable development.

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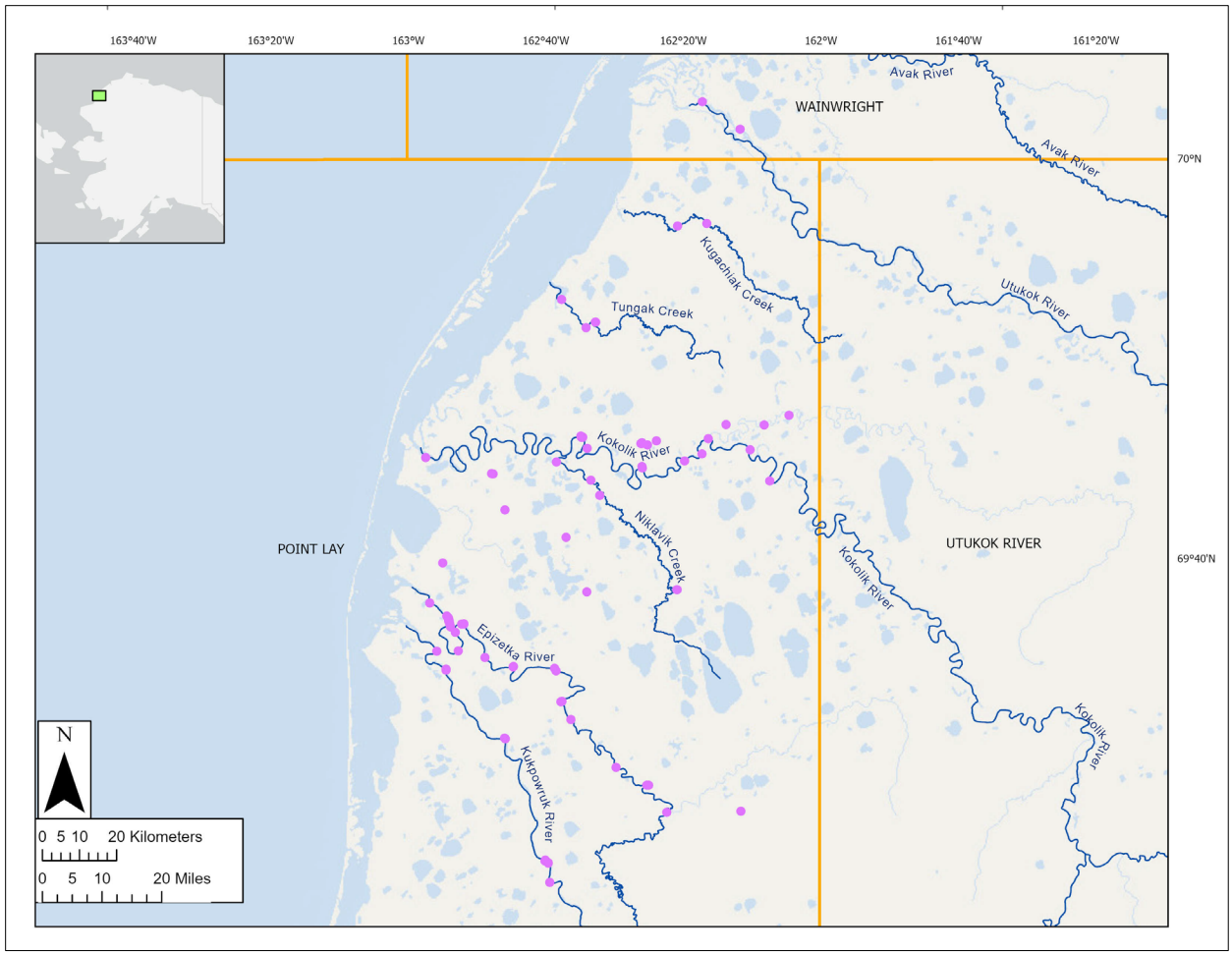

Figure 1. Map showing field station locations (purple circles) where samples were collected during the 2023 field season.

METHODS

Between July 24 and August 5, 2023, DGGS staff and contractors collected geologic data and samples at 478 field sites. Field site data include location, field station number, method used to collect data (e.g., surface or outcrop observation, test pit, probe, or auger hole), site observations, and a description of the field station and its surrounding area. We used GPS-enabled tablets running the ESRI ArcGIS Field Maps app, which reported a mean horizontal accuracy of approximately 10 meters, to record location information and collect data. Latitude and longitude were recorded in the WGS84 datum. The samples were then transported to Fairbanks, where they were described and photographed.

The data in this report provide geotechnical information, material descriptions, and links to photographs of the samples. Where appropriate, we follow the conventions used in the Alaska Geotechnical Field Manual (Alaska Department of Transportation and Public Facilities [AKDOT&PF], 2007). Samples were categorized into three categories: rock samples, unconsolidated samples, and clasts. Rock samples were collected from in situ bedrock. Unconsolidated samples contain sediment collected within a defined interval. Clasts are generally gravel-size samples, selectively collected from a field site, that represent the composition of the materials present at the site. The recorded attribute

information varies by sample category. The data have not been reviewed for technical content and should be considered preliminary.

ACKNOWLEDGMENTS

The State of Alaska funded this work as part of the ASTAR capital improvement project. We appreciate the guidance provided by the Native Village of Point Lay and the Cully Corporation during field planning and data collection, which helped us minimize our impact on the community and the surrounding landscape. We are grateful to the employees and subcontractors of the Arctic Slope Regional Corporation (ASRC), the North Slope Borough, the North Slope Borough Planning Authority, the North Slope Borough Port Authority, Horst Expediting, Alpine Air, and the Kali School, whose logistical support and guidance were essential during field preparation and data collection. We also valued interacting with Point Lay residents and sharing our work.

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