DIGITAL MAPPING TECHNIQUES 2025

The following was presented at DMT'25
May 18 - 21, 2025

The contents of this document are provisional

See Presentations and Proceedings
from the DMT Meetings (1997-2025)
http://ngmdb.usgs.gov/info/dmt/

WASHINGTON STATE DEPT OF
NATURAL RESOURCES
WASHINGTON GEOLOGICAL SURVEY

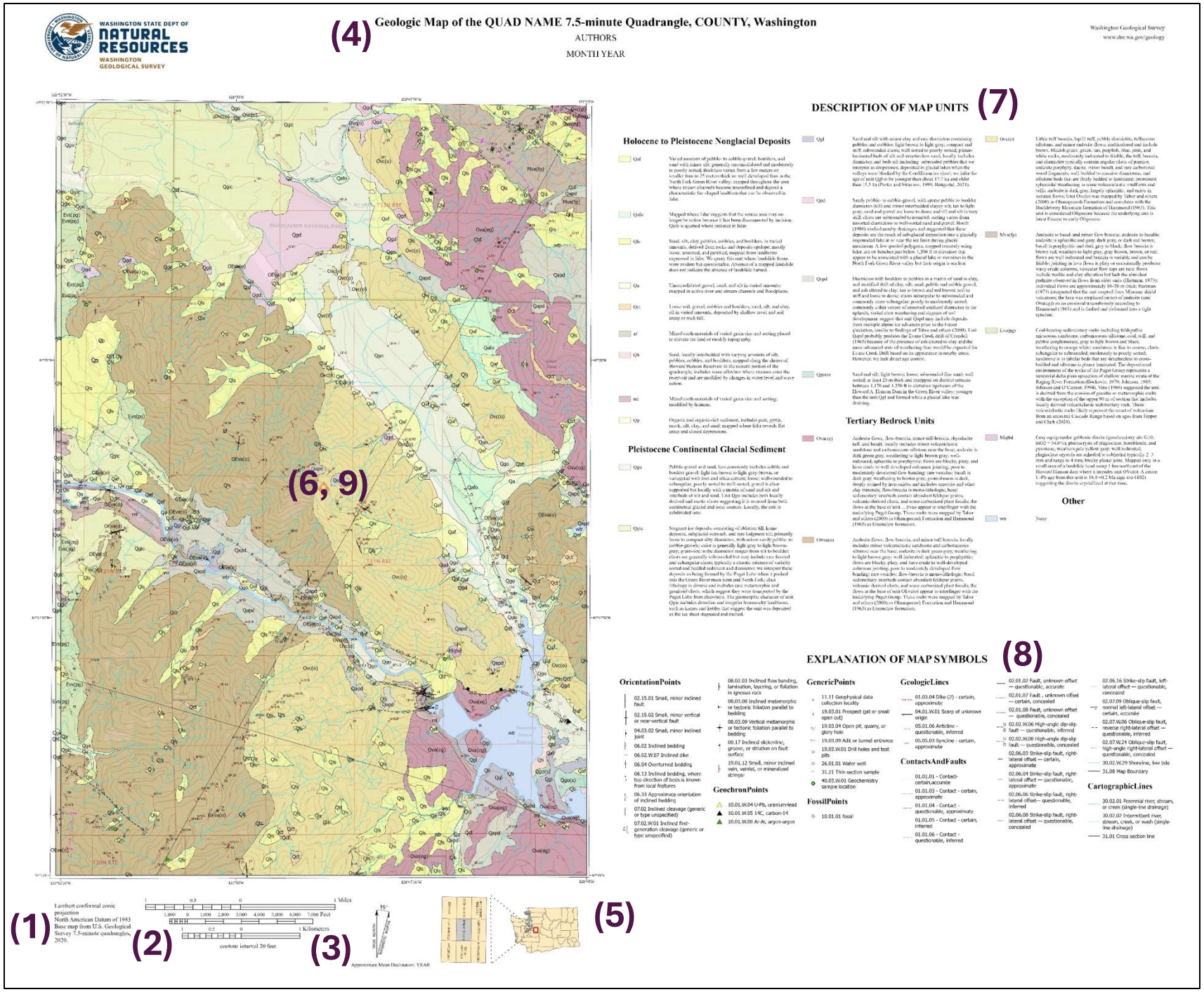
Automating A STATEMAP Compliant Geologic Map Product

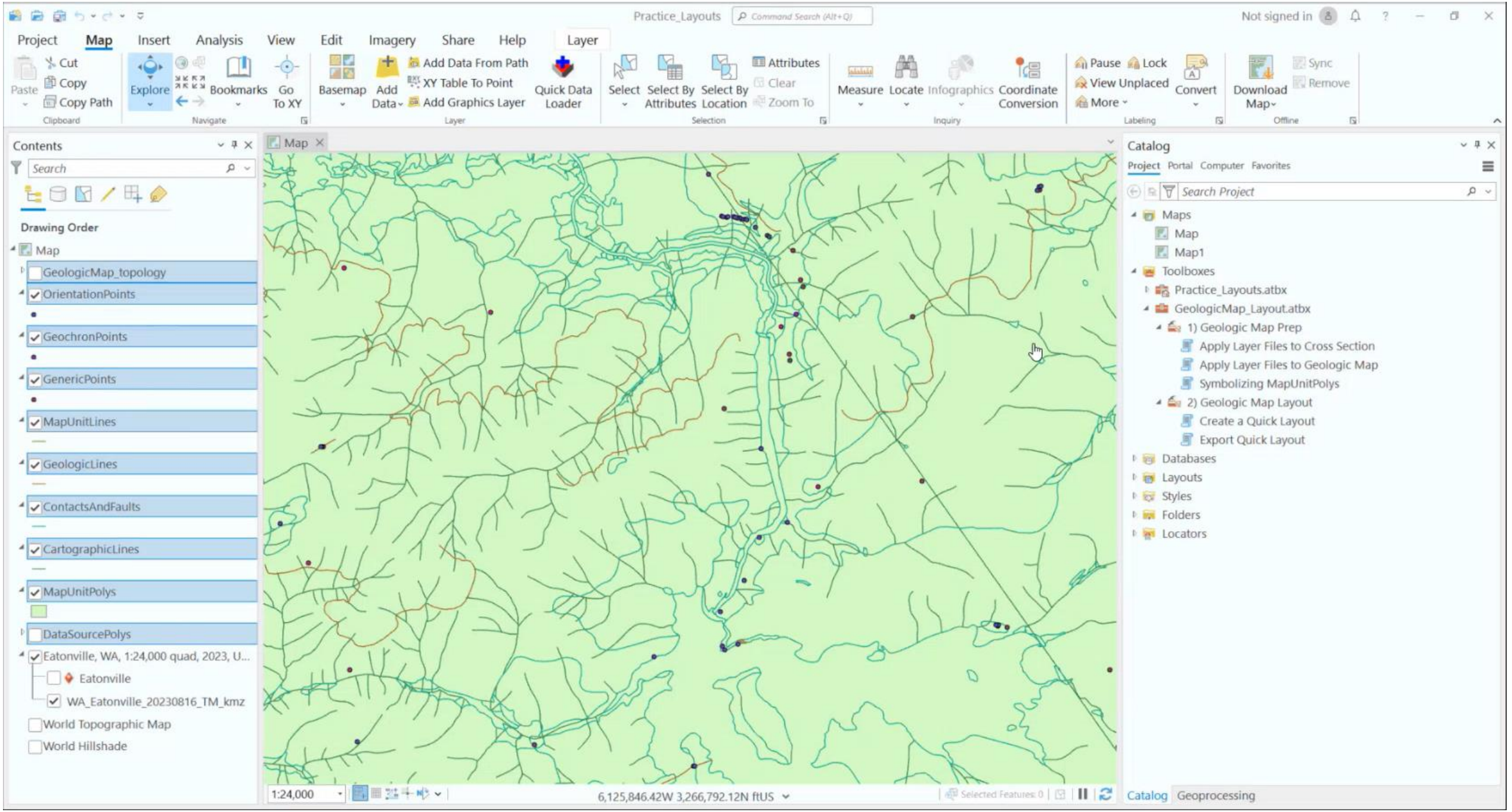
Blair Stuhlmuller

DMT'25

Minimum Geologic Map Product Requirements:

1. Base Map and Projection
2. Scale Bar and Contour Interval
3. North Arrow and Magnetic Declination
4. Title, Authorship, Publisher and Date
5. Location Index Map
6. Field Data
7. Description of Map Units
8. Explanation of May Symbols
9. Unit Symbols on the Map

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GeochronPoints
GenericPoints
MapUnitLines
GeologicLines
ContactsAndFaults
CartographicLines
MapUnitPolys
DataSourcePolys
Eatonville, WA, 1:24,000 quad, 2023, U...
Eatonville
WA_Eatonville_20230816_TM_kmz
World Topographic Map
World Hillshade
Map
1:24,000
6,125,846.42W 3,266,792.12N ftUS
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Catalog
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Map
Map1
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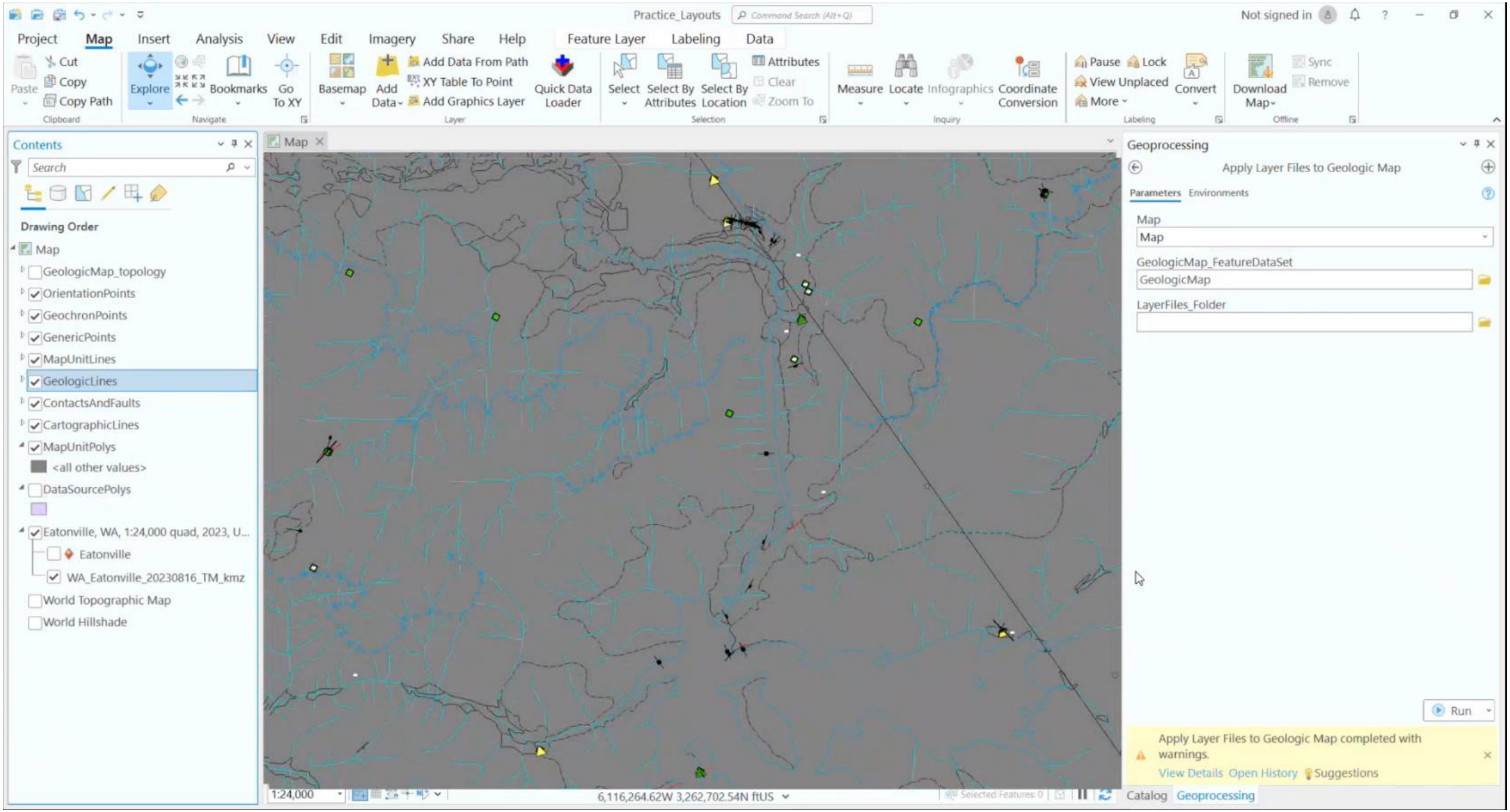
Practice_Layouts.atbx
GeologicMap_Layout.atbx
1) Geologic Map Prep
Apply Layer Files to Cross Section
Apply Layer Files to Geologic Map
Symbolizing MapUnitPolys
2) Geologic Map Layout
Create a Quick Layout
Export Quick Layout
Databases
Layouts
Styles
Folders
Locators
Catalog
Geoprocessing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CartographicLines
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Eatonville, WA, 1:24,000 quad, 2023, U...
Eatonville
WA_Eatonville_20230816_TM_kmz
World Topographic Map
World Hillshade
Map
Geoprocessing
Apply Layer Files to Geologic Map
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Environments
Map
Map
GeologicMap_FeatureDataSet
GeologicMap
LayerFiles_Folder
Run
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View Details
Open History
Suggestions
1:24,000
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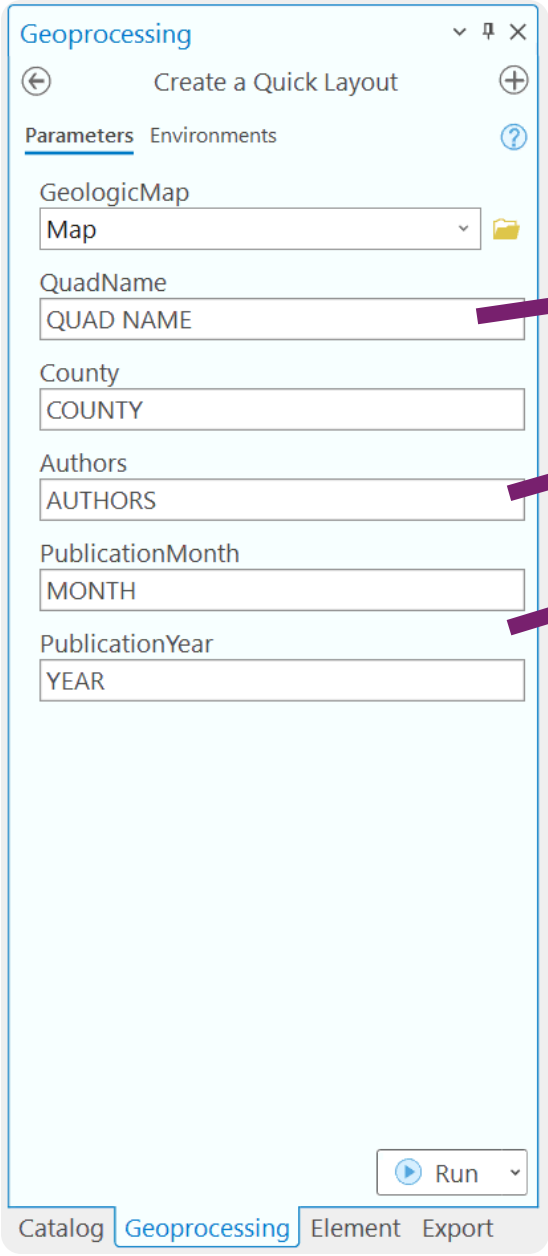
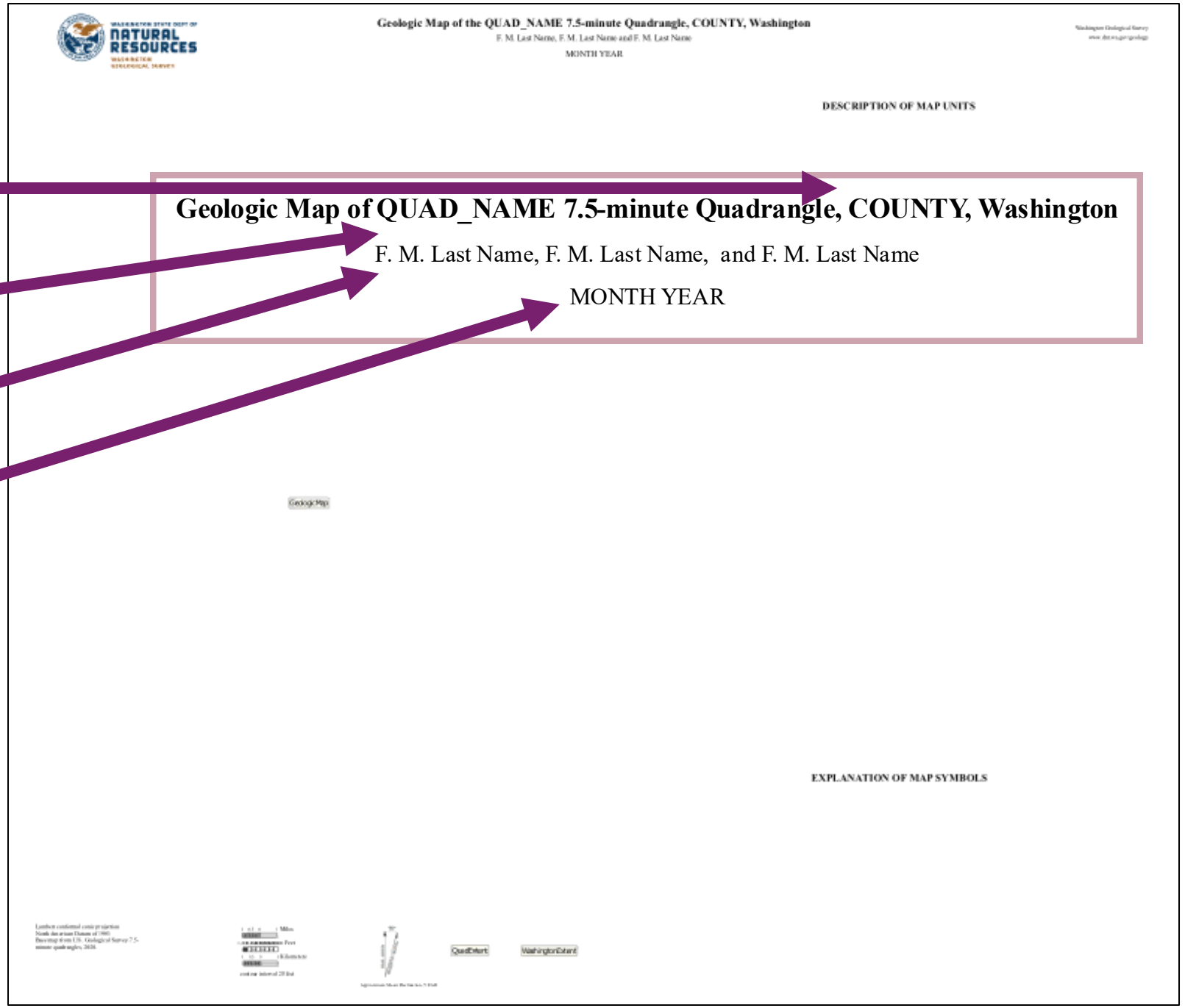
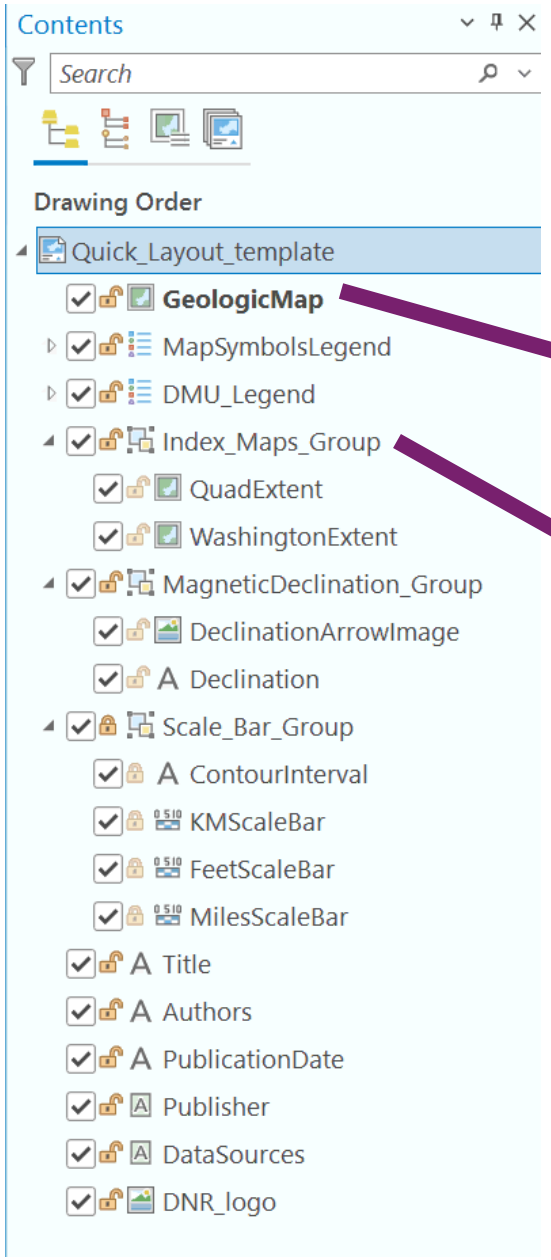
Catalog
Geoprocessing

Text Elements:





Map Frames: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DMU_Legend
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WashingtonExtent
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DeclinationArrowImage
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Publisher
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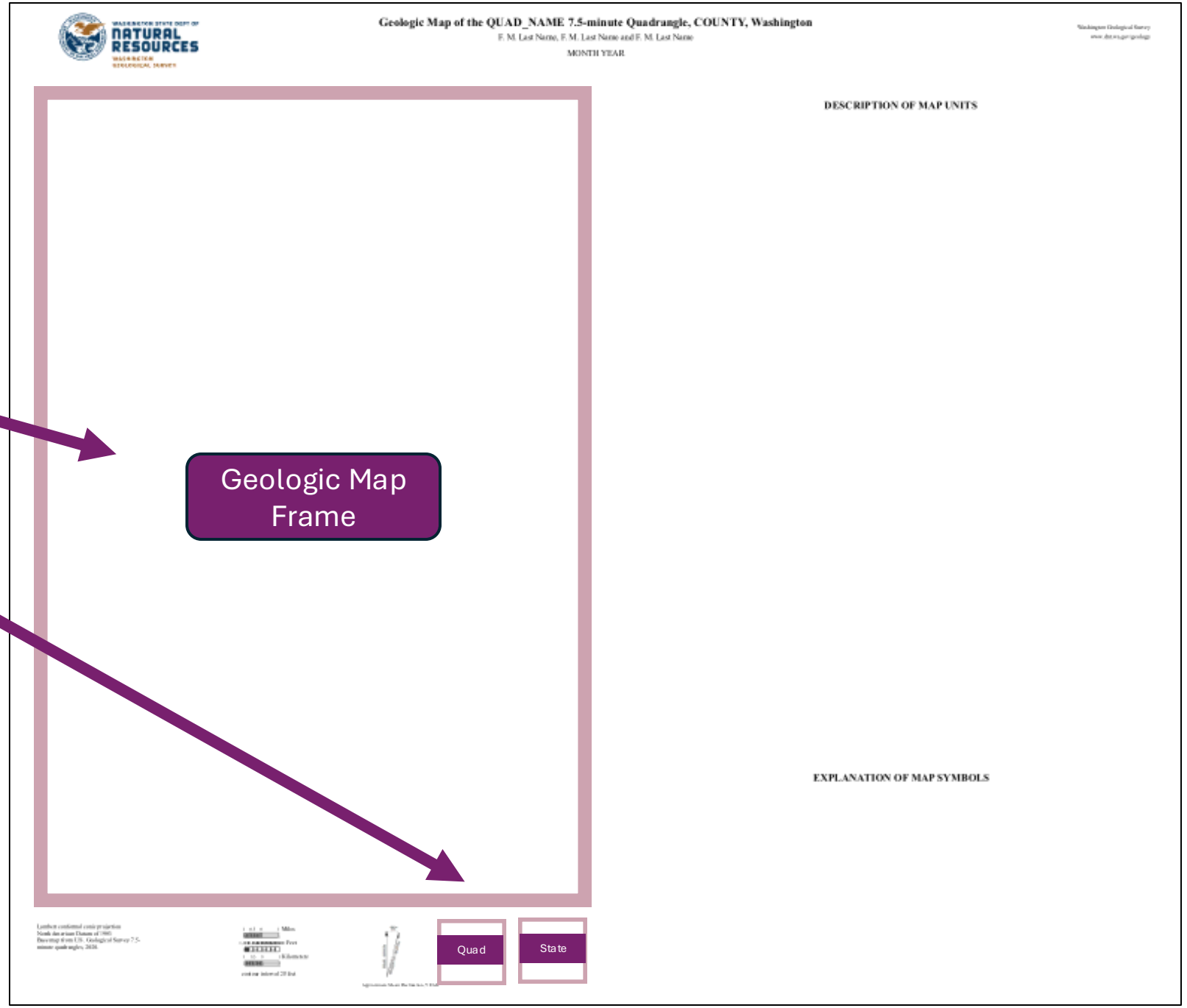
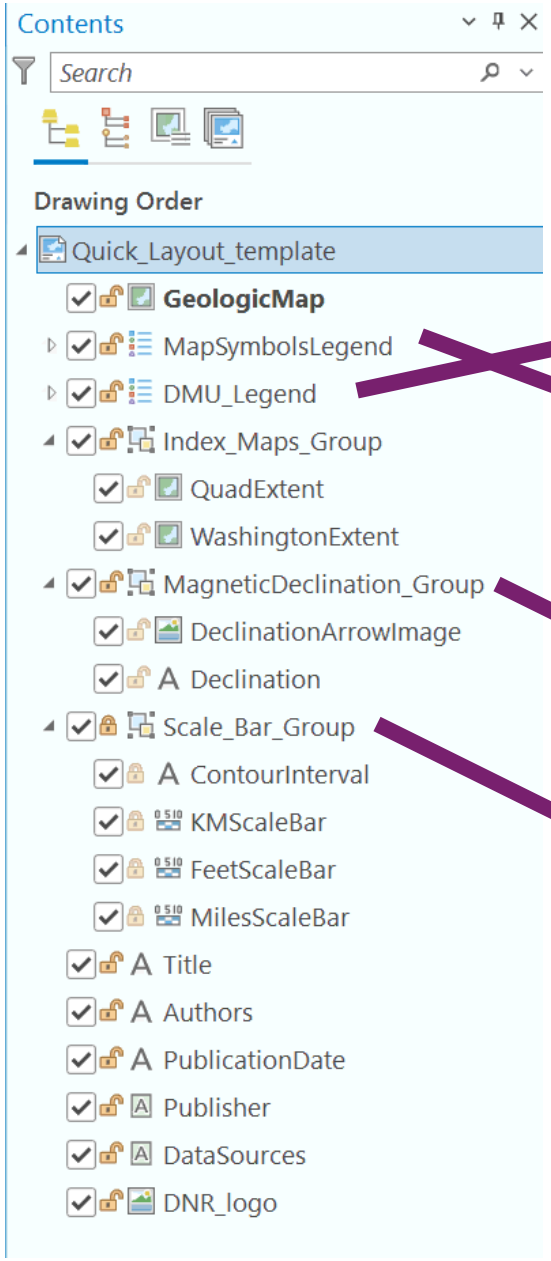
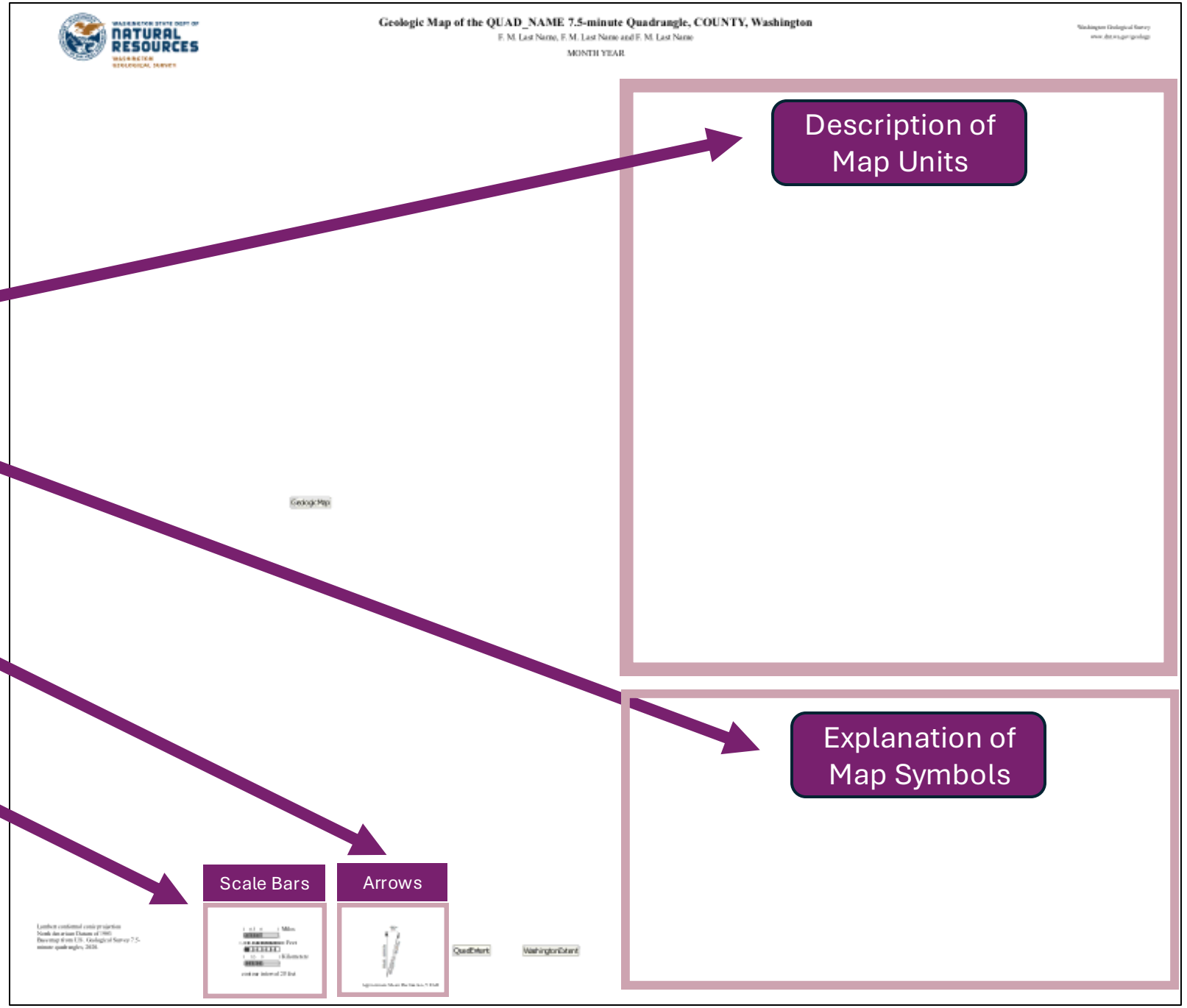
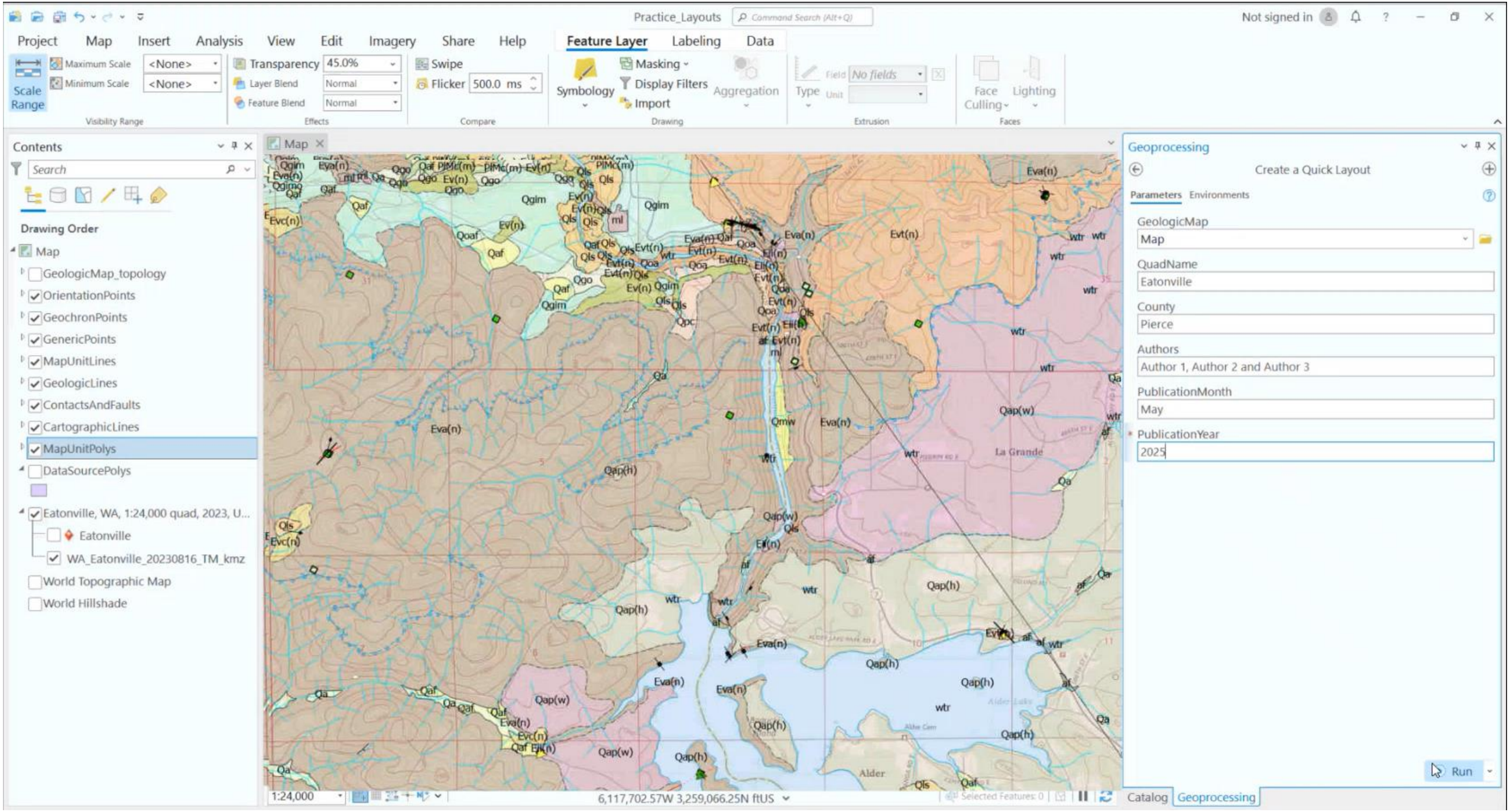

Geologic Map of the QUAD_NAME 7.5-minute Quadrangle, COUNTY, Washington
F. M. Last Name, F. M. Last Name and F. M. Last Name
MONTH YEAR
DESCRIPTION OF MAP UNITS
EXPLANATION OF MAP SYMBOLS
Geologic Map Frame
Quad
State

Dynamic Elements:



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Environments
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Eatonville
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Catalog
Geoprocessing

Future Improvements:

- Automating the **base map** set up
- Setting **specific CMYK adjustments** to better match FGDC color schemes
- Snapping the geologic map frame to the **current map view** automatically
- Creating a **dynamic North arrow and magnetic declination** in ArcGIS Pro

Key Takeaways:

- Creating a template layout the tool could call on really helped minimize how much coding was required.
- Using preset **style layer files** that set the symbols and labeling for each GeMS feature class

Thank you!