GEOLOGIC STABILITY MAPS
QUICK REFERENCE

LANDSLIDE INVENTORY MAP shows all known landslide features in the area. It is made up of both ancient evidence of past landslides and modern-day landslides.

See page 2 for more details

ACCUMULATED LANDSLIDE DEPOSITS are significant volumes of landslide debris that have accumulated as a result of past landslides. These landslide deposits are made up of loose soil and rock fragments from multiple landslide events of various ages from prehistoric to modern times.

LANDSLIDE LOCATIONS are the locations where known landslides have started. These include all types of landslides: fast/slow, large/small, old/new, active/inactive, rock/soil. These landslides may have started on natural, unmodified ground or from areas modified by humans in the form of road cuts, road embankments, house pads, etc.

LANDSLIDE OUTLINES are the areas affected by relatively recent landslides. Most of these outlines are of debris flow tracks, but some define the extent of active, slow-moving landslides.

GROUND SUBSIDENCE LOCATIONS show signs of potential instability (usually along roads) and are included in the inventory so that action can be taken to prevent landsliding in the future.

LANDSLIDE SUSCEPTIBILITY MAP shows areas that might be more susceptible to landslides during **extreme** rain events.

See page 3 for more details

NATURAL DEBRIS FLOW CAUTION AREAS

WHERE NATURAL DEBRIS FLOWS MIGHT START during extreme rain events. These slopes have similar characteristics to those where natural debris flows have initiated in the past. However, it takes very specific weather conditions to trigger landslides in these areas, therefore the likelihood of occurrence is relatively small. Since these slopes are marginally stable in their natural condition, extra care should be taken when modifying these slopes.

WHERE NATURAL DEBRIS FLOWS MIGHT GO during heavy rainfall events. Debris flows generally flow down existing drainages similar to streams, but they can fan out when they reach less steep ground and impact an area wider than shown here.

SLOPE CONSTRUCTION CAUTION AREAS have greater than 20 degree slope angles (36.4%, 2.7:1), which is the original, pre-construction slope angle where over 97% of landslides on modified slopes have started. Proper evaluation, design, construction, and maintenance of development in these areas are important.

Appalachian Landslide Consultants, PLLC

Southwestern NC RC&D

Haywood Waterways Association, Inc.

GEOLOGIC STABILITY MAPS
LANDSLIDE INVENTORY GUIDE

The LANDSLIDE INVENTORY MAP shows all known landslide features in the area. It is made up of both ancient evidence of past landslides and modern-day landslides. Use this guide to find out **what it means** and **what to do** if you have a landslide feature on your property.

Is there a Landslide Inventory FEATURE in the area you are interested in?

NO

WHAT DOES IT MEAN?

This means there are not any **known** landslide features in your area. Landslides could have happened after the map was completed or a landslide could have been missed in the mapping effort.

WHAT TO DO?

Now take a look at the LANDSLIDE SUSCEPTIBILITY MAPS. If you still have concerns about the area, contact a **qualified** geologist or geotechnical engineer.

YES

Is it an ACCUMULATED LANDSLIDE DEPOSIT?

This area is made up of landslide debris (usually loose soil and rocks) and has been impacted by landslides in the **distant past**. It means that the mountains upslope have had significant landslide activity in prehistoric times.

Look at the LANDSLIDE SUSCEPTIBILITY MAPS to see if there is landslide potential in the area. **Be careful** when constructing homes, driveways, or roads in landslide deposits because the loose soil and boulders can become unstable when cut into and these deposits often have abundant groundwater and springs.

Is it a LANDSLIDE LOCATION?

There is a **known** landslide in your area. The location of the point is at the starting point or highest point of the landslide. Most of these are relatively small cut slope or fill slope failures, however, even a small landslide can cause major damage.

Look at the information provided with the landslide location to find out more about what is known about this particular landslide. If it is ACTIVE or has a HIGH POTENTIAL for future movement, you might want to contact a **qualified** geologist or geotechnical engineer. Refer to the LANDSLIDE OUTLINE to see the area impacted by this landslide (if available). Also look at the LANDSLIDE SUSCEPTIBILITY MAPS to see if there is additional landslide potential in the area.

Is it a LANDSLIDE OUTLINE?

This is the area impacted by a known landslide. It can range from a narrow debris flow track from a past landslide to a large area affected by a slow moving active landslide. The area impacted is not available for all landslides.

Look at the associated LANDSLIDE LOCATION for more information about the landslide. If you plan on building in this area, it would be a good idea to contact a **qualified** geologist or geotechnical engineer. Also look at the LANDSLIDE SUSCEPTIBILITY MAPS to see if there is additional landslide potential in the area.

Is it a GROUND SUBSIDENCE LOCATION?

This area is showing signs of excessive ground subsidence, meaning the ground has moved downhill a small amount but hasn't failed catastrophically. Subsidence can be an indication that the ground is unstable and could potentially turn into a landslide during a heavy rain event. These locations are usually in road or driveway fill slopes.

These are areas where potential landslides can be **prevented** by maintenance or repair. Make sure road drainage does not flow over these areas and all ditches and culverts are clean. Monitor the area for any signs of continued subsidence and call a **qualified** geologist or geotechnical engineer if you have concerns. Subsidence locations marked with a HIGH POTENTIAL for future movement should be given priority.

GEOLOGIC STABILITY MAPS
LANDSLIDE SUSCEPTIBILITY GUIDE

The LANDSLIDE SUSCEPTIBILITY MAP shows areas that might be more susceptible to landslides during extreme rain events. Use this guide to find out **what it means** and **what to do** if you have a landslide caution area on your property.

Is there a Landslide CAUTION AREA near the area you are interested in?

NO

WHAT DOES IT MEAN?

This area is unlikely to be impacted by the most common types of landslides (debris flows and slides) that affect Western North Carolina. However, certain types of bedrock or poor construction techniques can still lead to landslides outside of a caution area.

WHAT TO DO?

Now take a look at the LANDSLIDE INVENTORY MAPS to see if there is a known landslide in the area. If you still have concerns about the area, contact a **qualified** geologist or geotechnical engineer.

YES

Is it WHERE NATURAL DEBRIS FLOWS MIGHT START?

These areas are more likely to become unstable during **extreme** rain events and form a debris flow (a fast moving landslide made up of a slurry of mud, rock, and trees). It usually takes a **rare** combination of soil saturation plus a long period of intense rainfall to trigger natural debris flows. Since these conditions vary greatly from one mountain cove to another, most of these areas will not form a debris flow in any given storm.

These areas are **marginally stable** in their natural condition. Be **extremely careful** when building homes, roads, or driveways here; contact a qualified geologist or geotechnical engineer. Look at WHERE NATURAL DEBRIS FLOWS MIGHT GO to see the path of a potential debris flow from this area.

Is it WHERE NATURAL DEBRIS FLOWS MIGHT GO?

These are the areas that could be in the path of a debris flow that forms WHERE NATURAL DEBRIS FLOWS MIGHT START during an extreme rain event. These paths are estimates, the widths and lengths of actual debris flows will vary. The closer you are to the starting point, the higher the chance of being impacted by a debris flow.

If you live near one of these potential paths, be aware of the **weather** and be prepared to **evacuate** to safer ground during extreme rain events or a sudden rise is creek level. Avoid siting homes in these areas and minimize driveway and road crossings. Contact a **qualified** geologist if you have additional concerns.

Is it a SLOPE CONSTRUCTION CAUTION AREA?

These areas have an average ground slope over 20 degrees (36.4%, 2.7:1). Almost all landslides on cut slopes or fill slopes happen within these areas.

If you are building within this area, make sure cut and fill slopes are designed and constructed adequately. If there are existing cut or fill slopes in this area, look for signs of instability and make sure storm runoff is properly contained. If you have concerns, have the site assessed by a qualified geologist or geotechnical engineer.