



# Road Assessment

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# Road Assessment

What are road assessments?

Why assess your roads?

How to assess your roads?

What methods exist?



# Road Assessment

What tools to use?

How to manage the data?

What data to collect?





# Methods

- Fish orientated approach
- Sediment orientated approach
- Fish and sediment orientated approach
- Condition assessment approach



# Methods

- Viewing existing geographic data helps to:
  - Pre-identify features of interest
    - Watercourse crossings
    - Unstable areas
    - Sensitive areas



# Methods

- Viewing existing geographic data helps to:
  - Provide quality control comparisons
  - Augment the dataset
  - Improve understanding of field relationships



# Methods - Homework



Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAM, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), Swisstopo, and the GIS User Community, Sources: Esri, DigitalGlobe, GeoEye, IGN, USDA, USGS, AEX, Geomapping, AeroGRID, IGN, IGP, and the GIS User Community



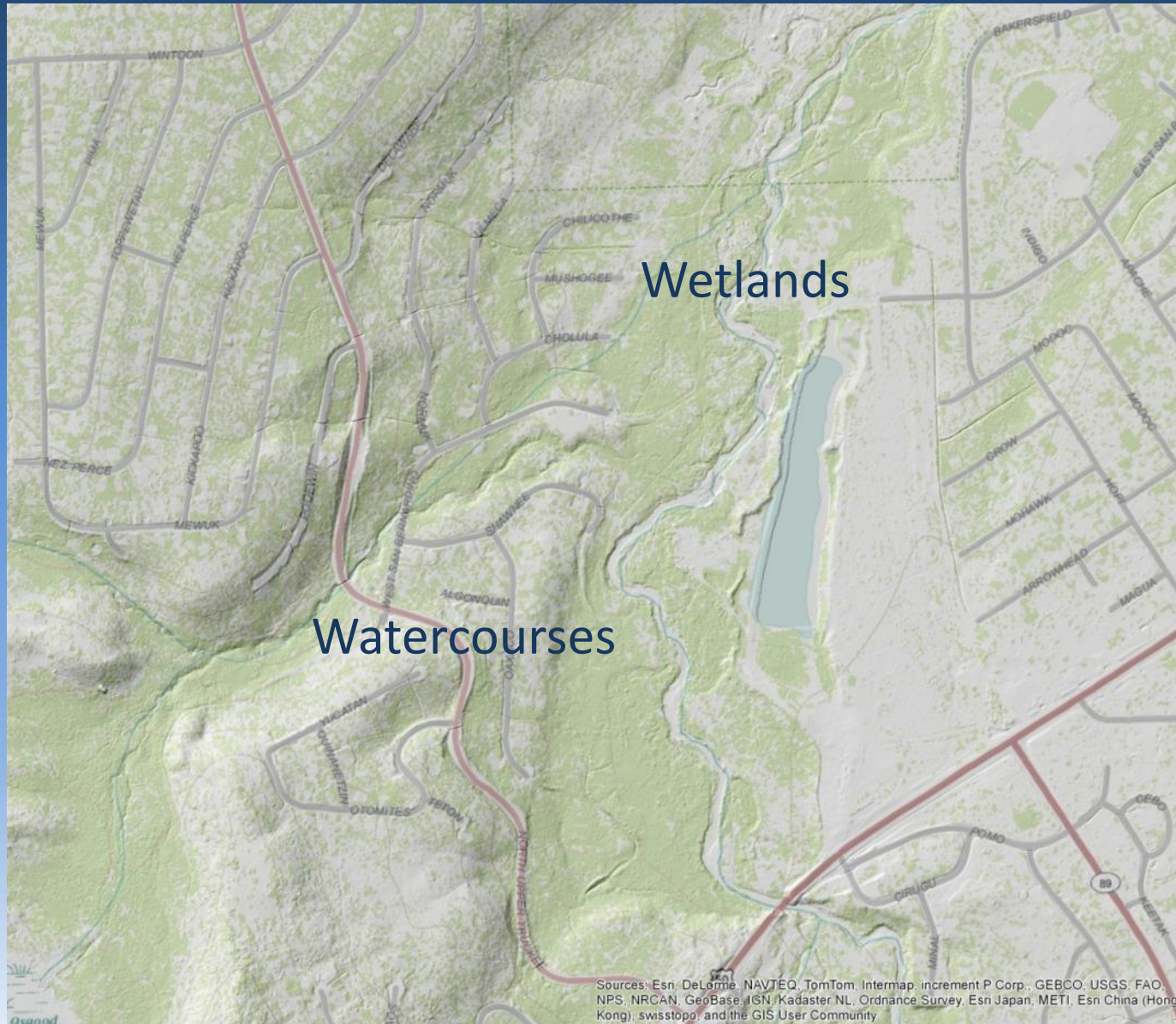


# Methods - Homework



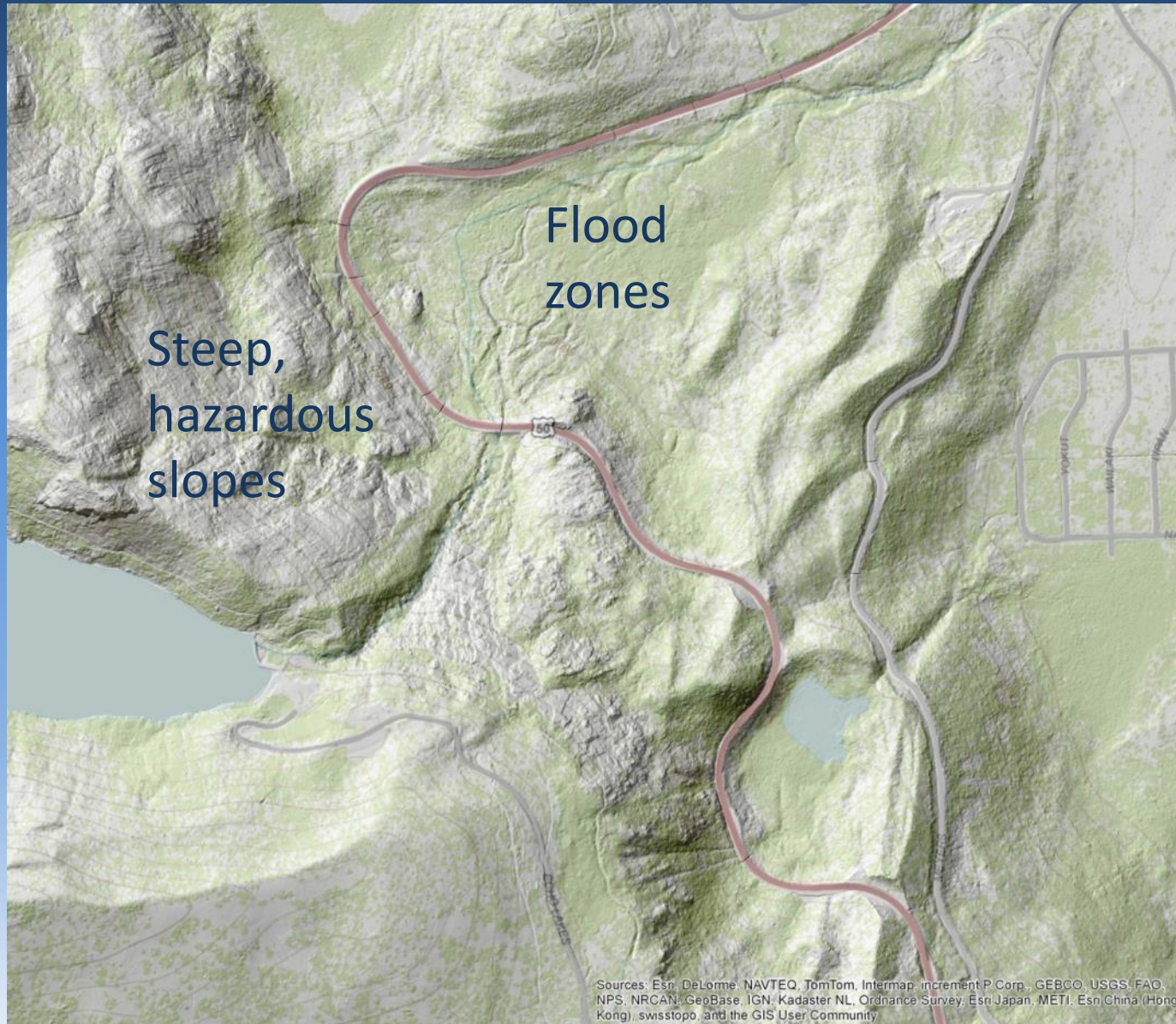


# Methods - Homework





# Methods - Homework



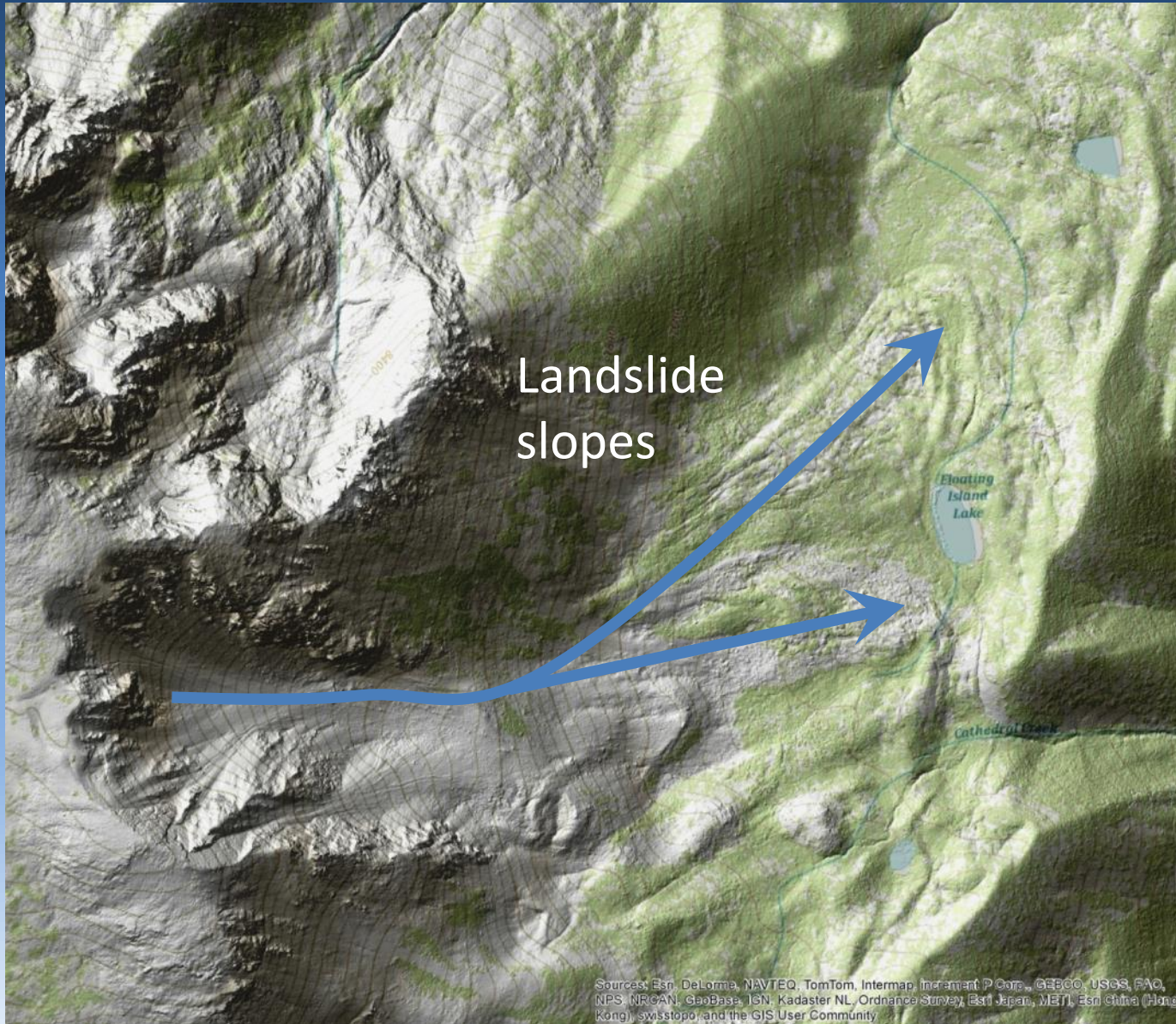
# Methods - Homework

Steep,  
hazardous  
slopes





# Methods - Homework





# Methods - Homework



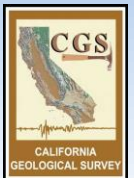
# Database

- Database design
  - A profession all by itself
  - Needs to be product orientated



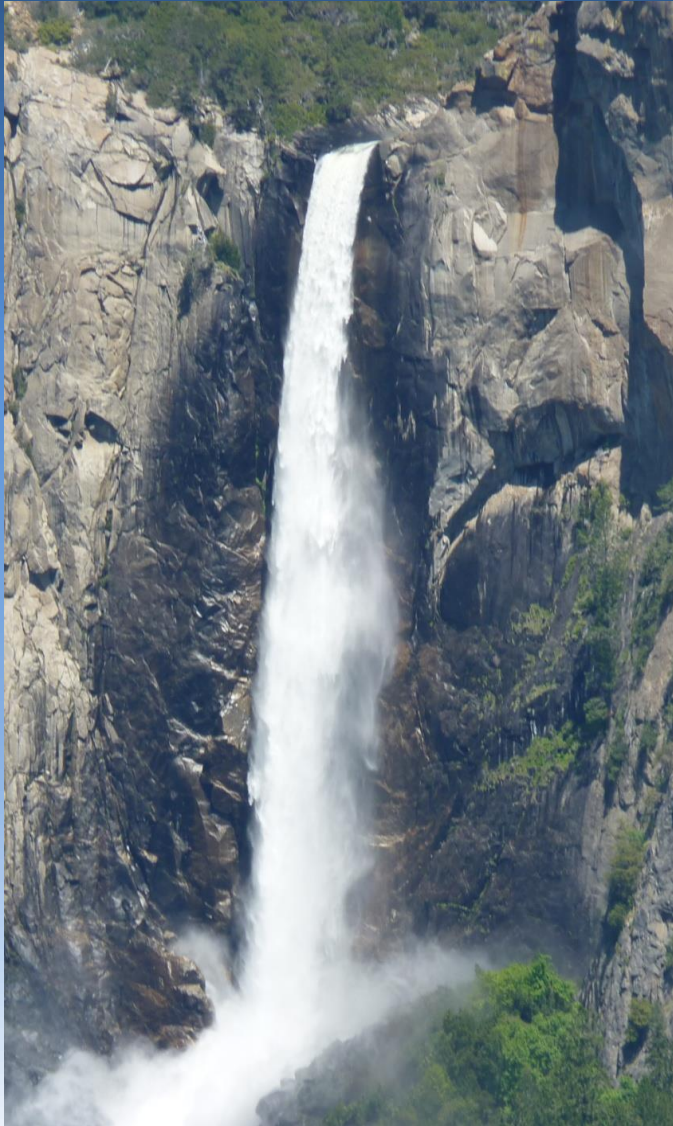
# Database

- Database design
  - Structured terminology
    - Need a data dictionary
    - Everyone needs to call things by the same name
    - The size of the data dictionary will vary with the size and complexity of roads or networks of roads.





# Database

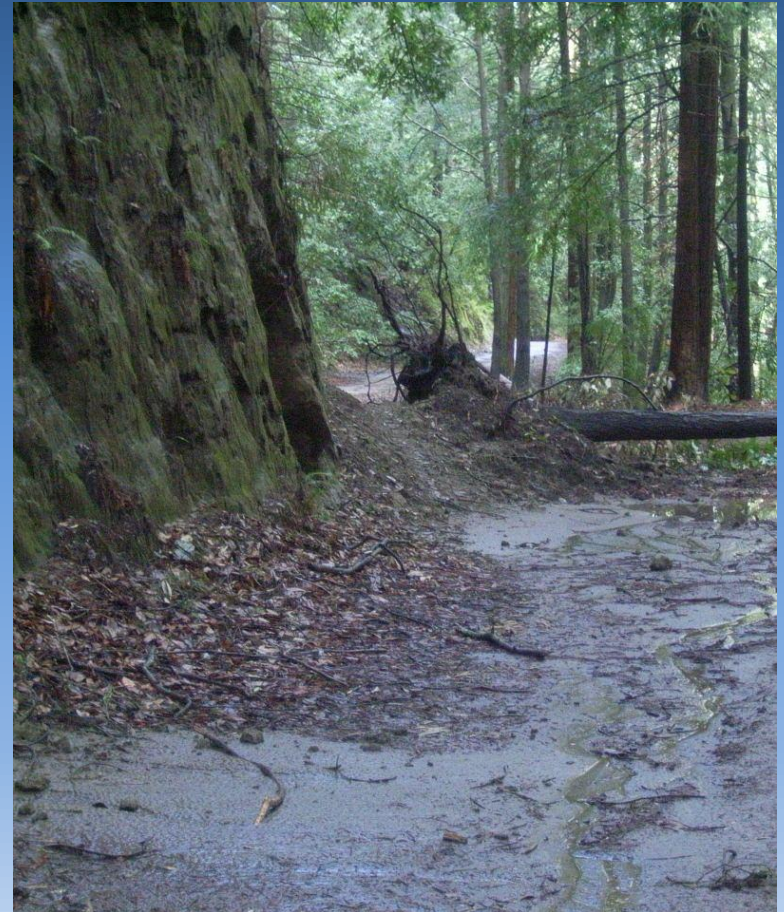


Define your terms – rock fall

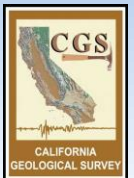




# Database



Define your terms - slough







Define your terms –  
Infrequent encounters



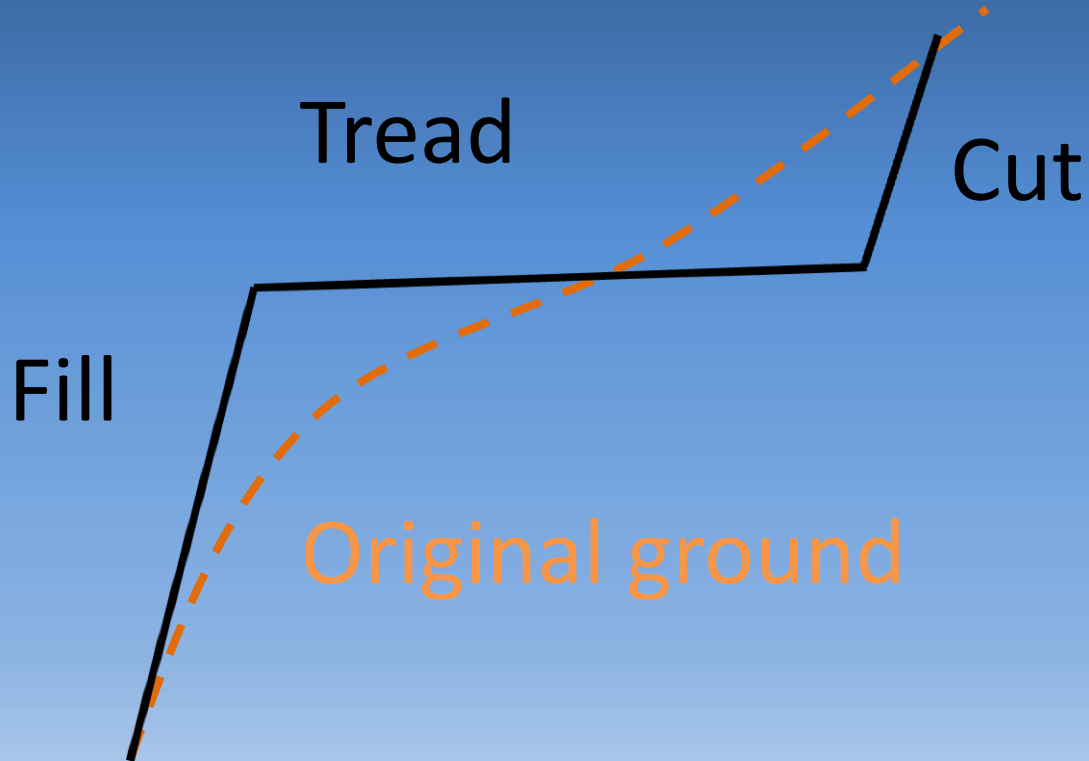
# Observations

## What to observe?

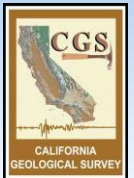




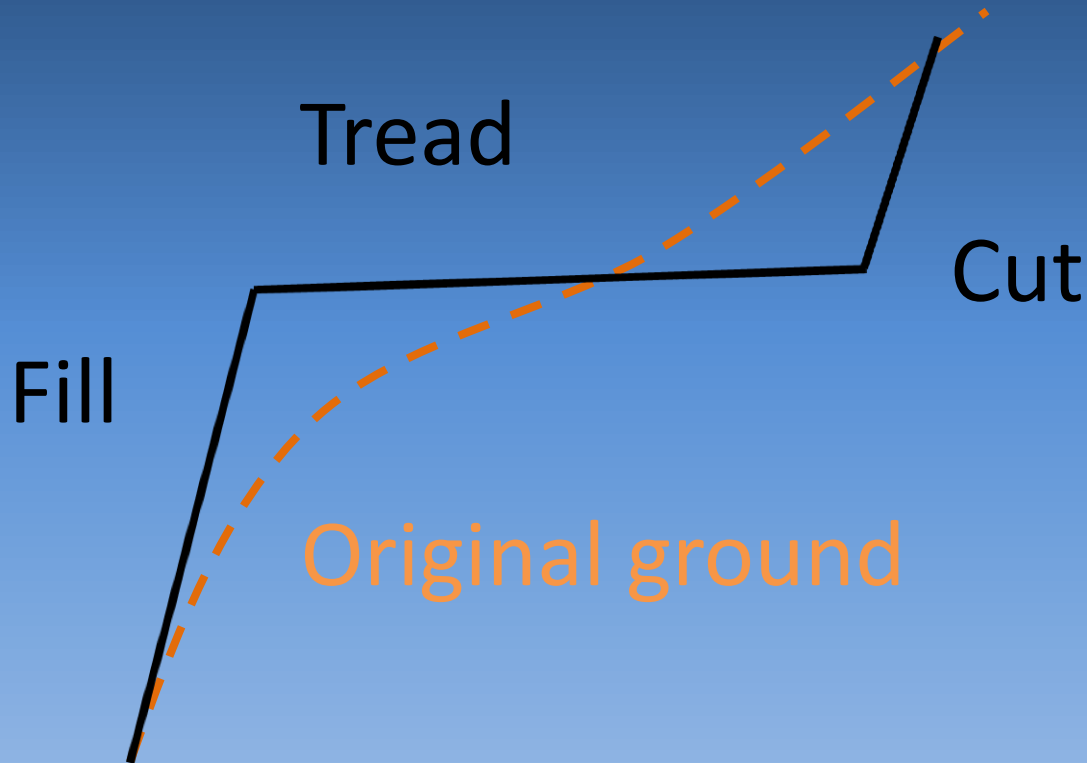
# Observations



Components of a cross-section



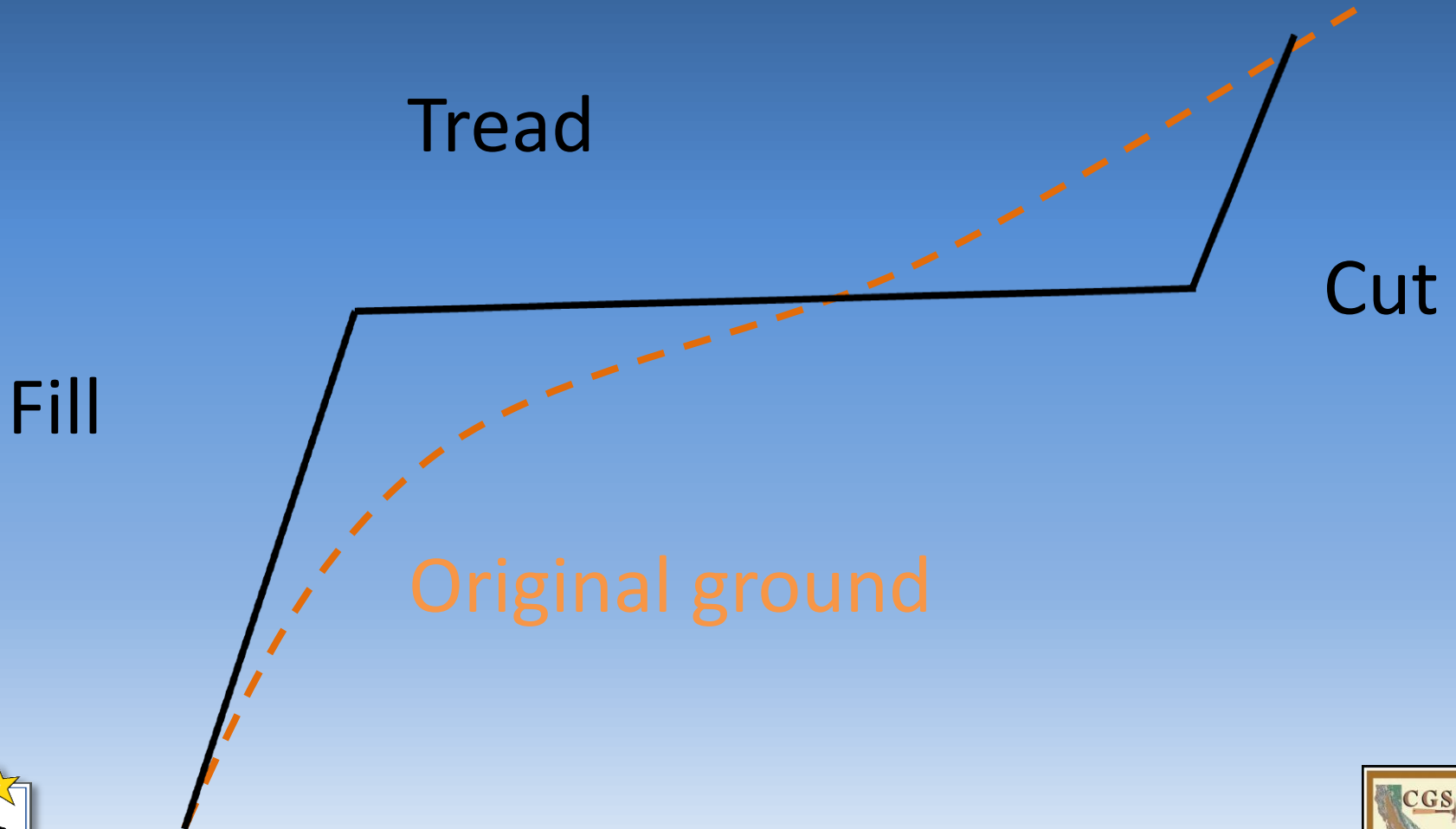
# Observations



Observe the entire road/trail prism and its environment

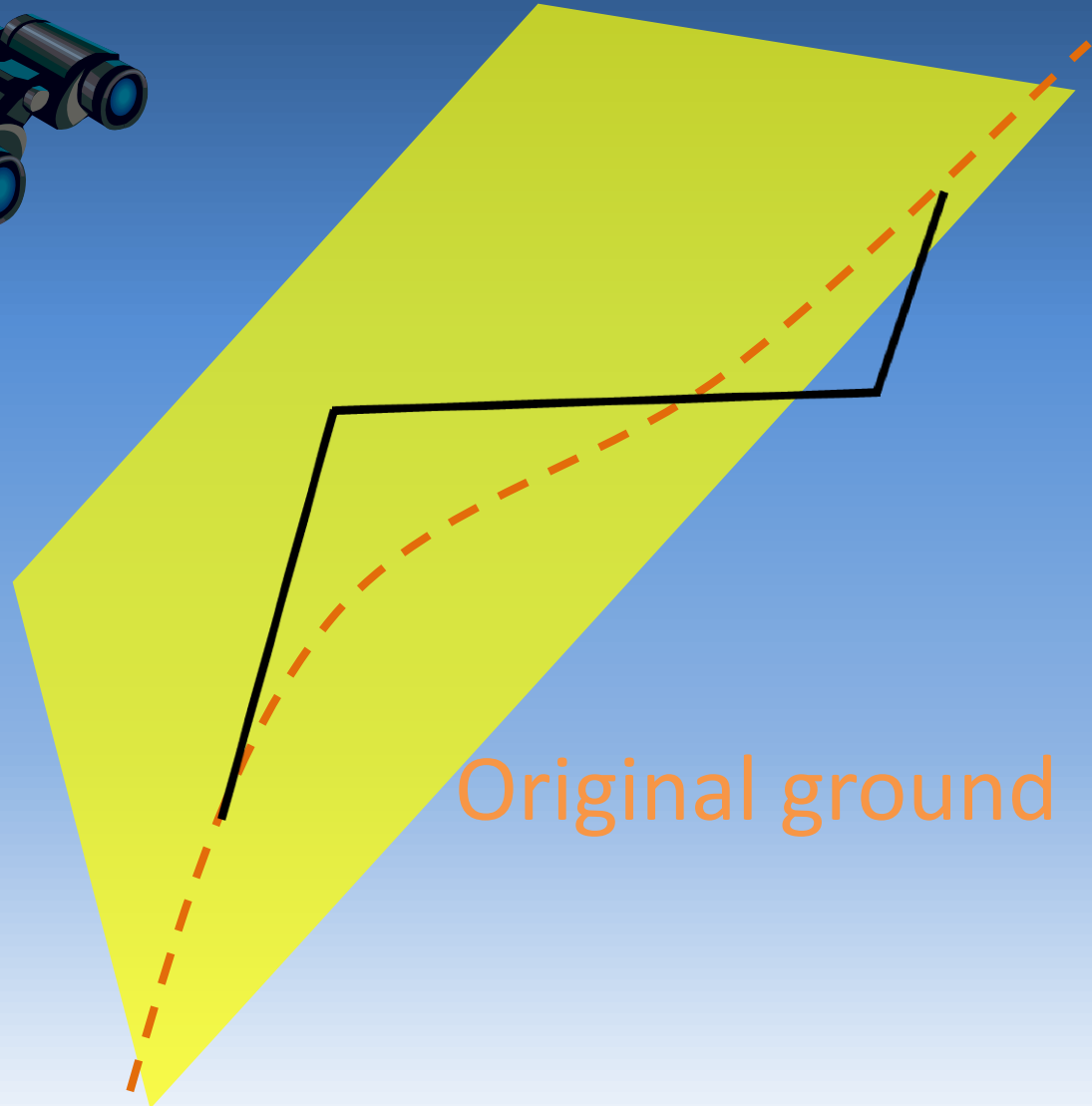
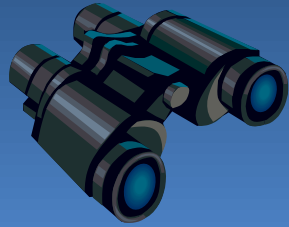


## System of Surfaces



# Observations

## Observe the landscape

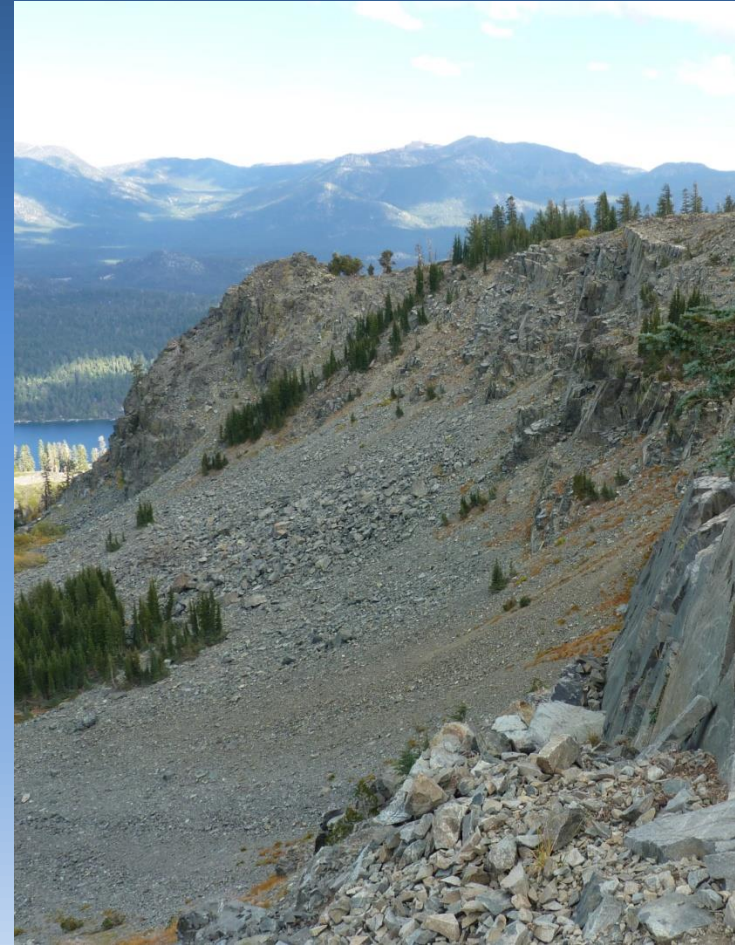
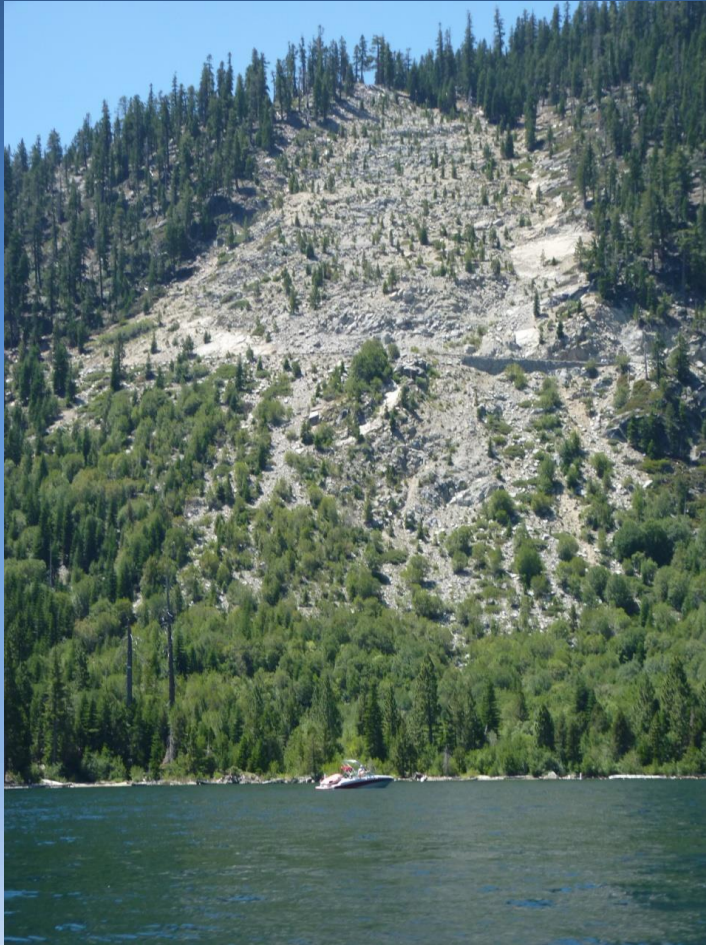


Original ground



# Observations

## Unstable slopes





# Observations

## Floodplain



# Observations

## Watercourse

single  
channel



braided

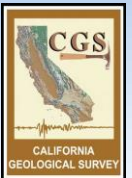




# Observations



Problem - Incised

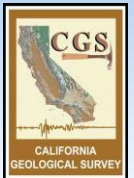




# Observations

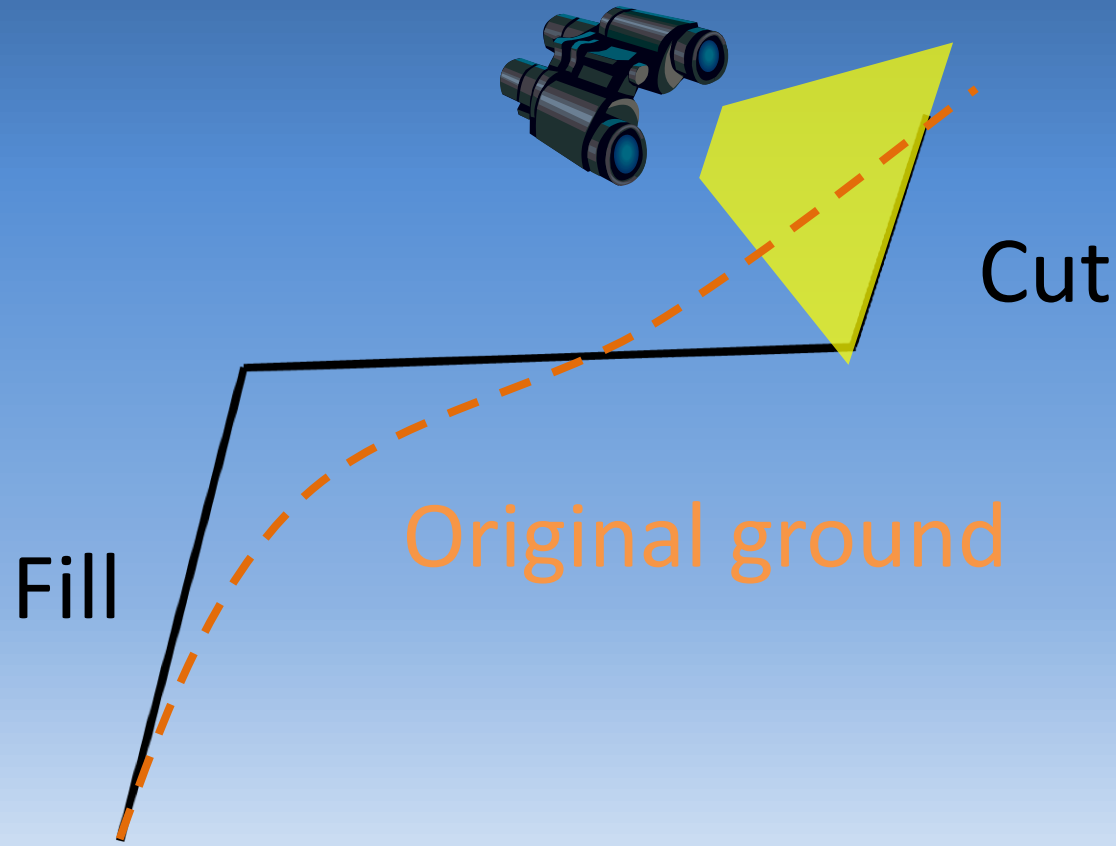


Problem - Aggraded



# Observations

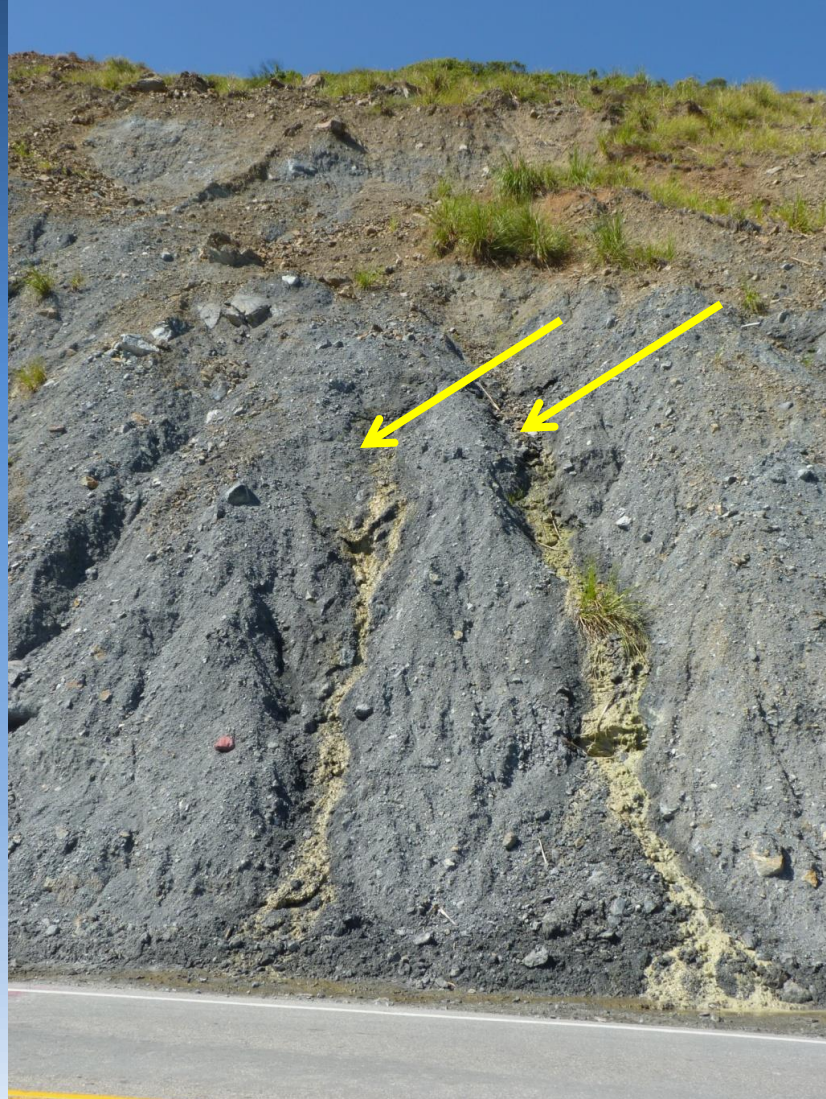
## Observe the cut slope





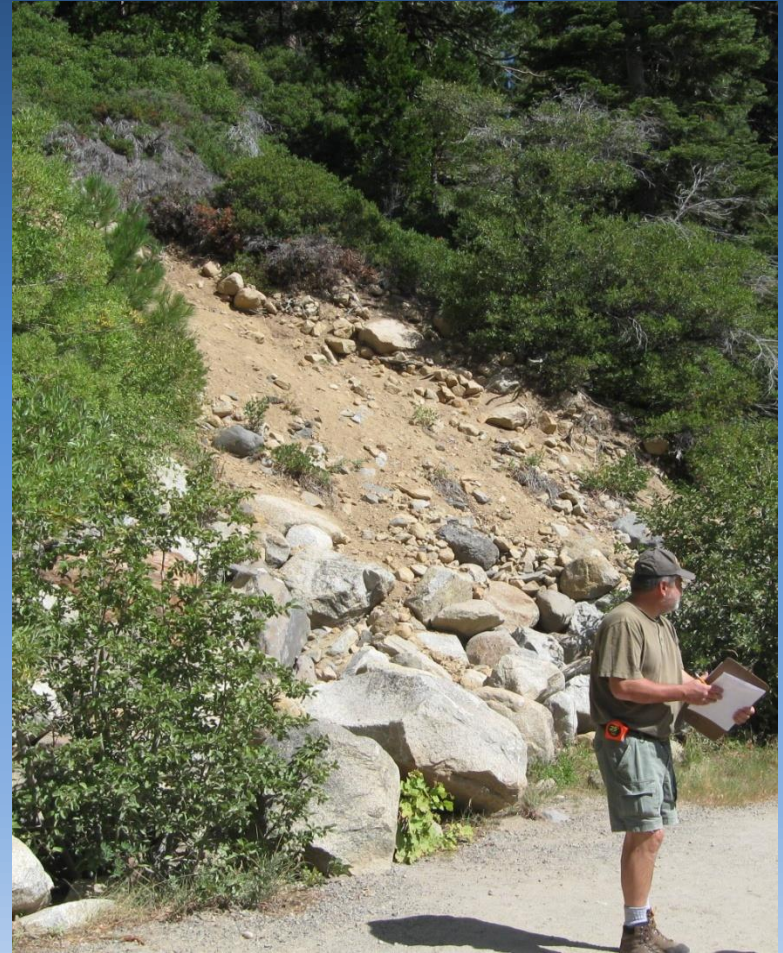
# Observations

Problem –  
seepage





# Observations



Problem – slough/ravel





# Observations



Problem – unstable



Soils is  
unstable and  
ravels

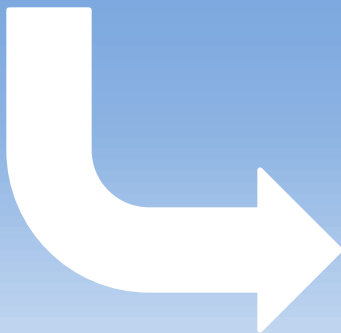
Plants cannot grow

Lack of moisture  
and shade dries the  
soil

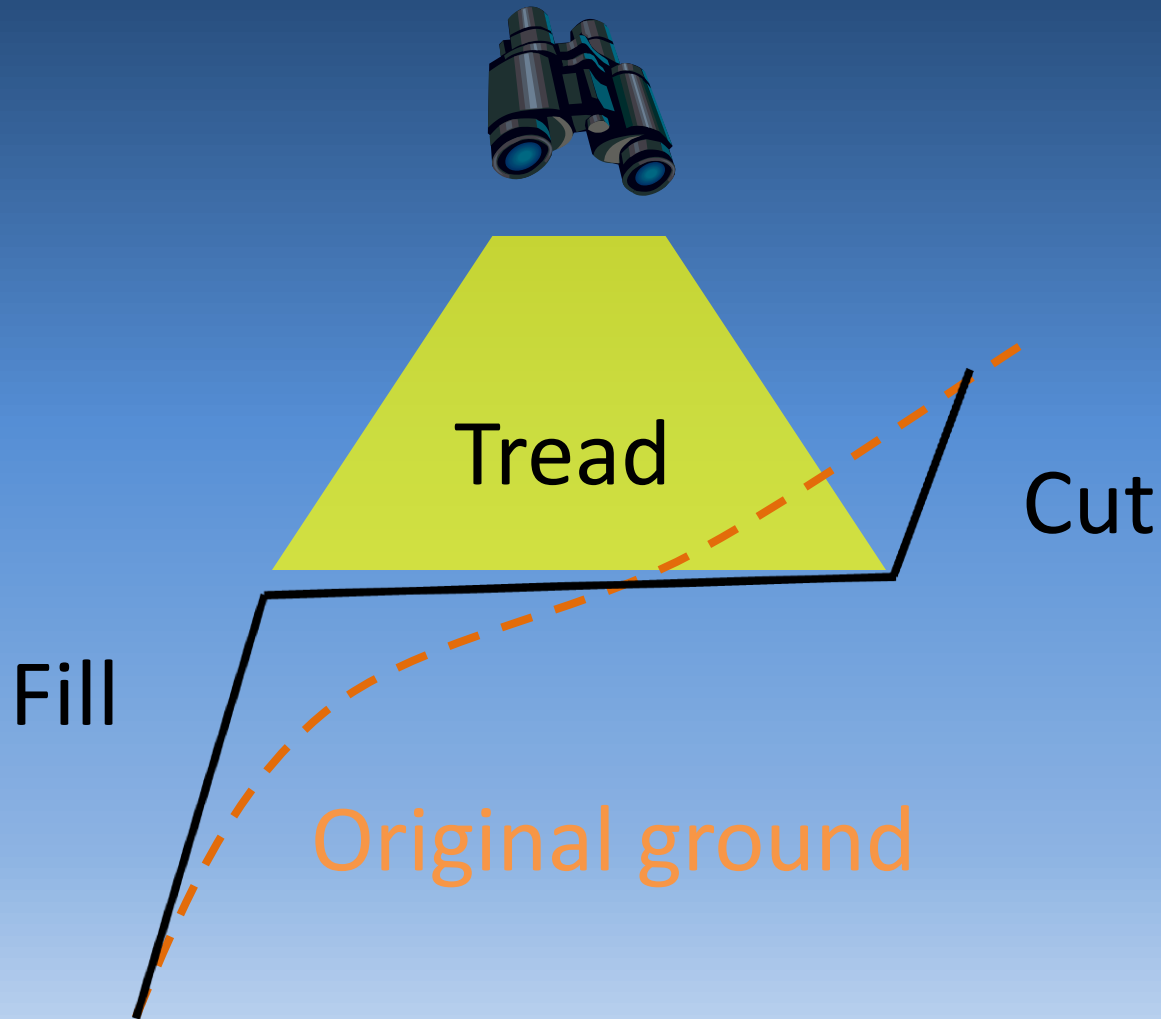
Ravel buttresses  
slope but blocks  
ditch

Ravel  
accumulates

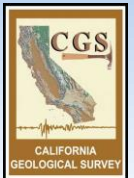
Ravel is  
removed



# Observations



Observe the tread





# Observations



Design- Insloped





# Observations



Design- Outsloped

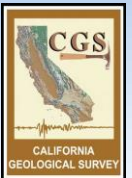


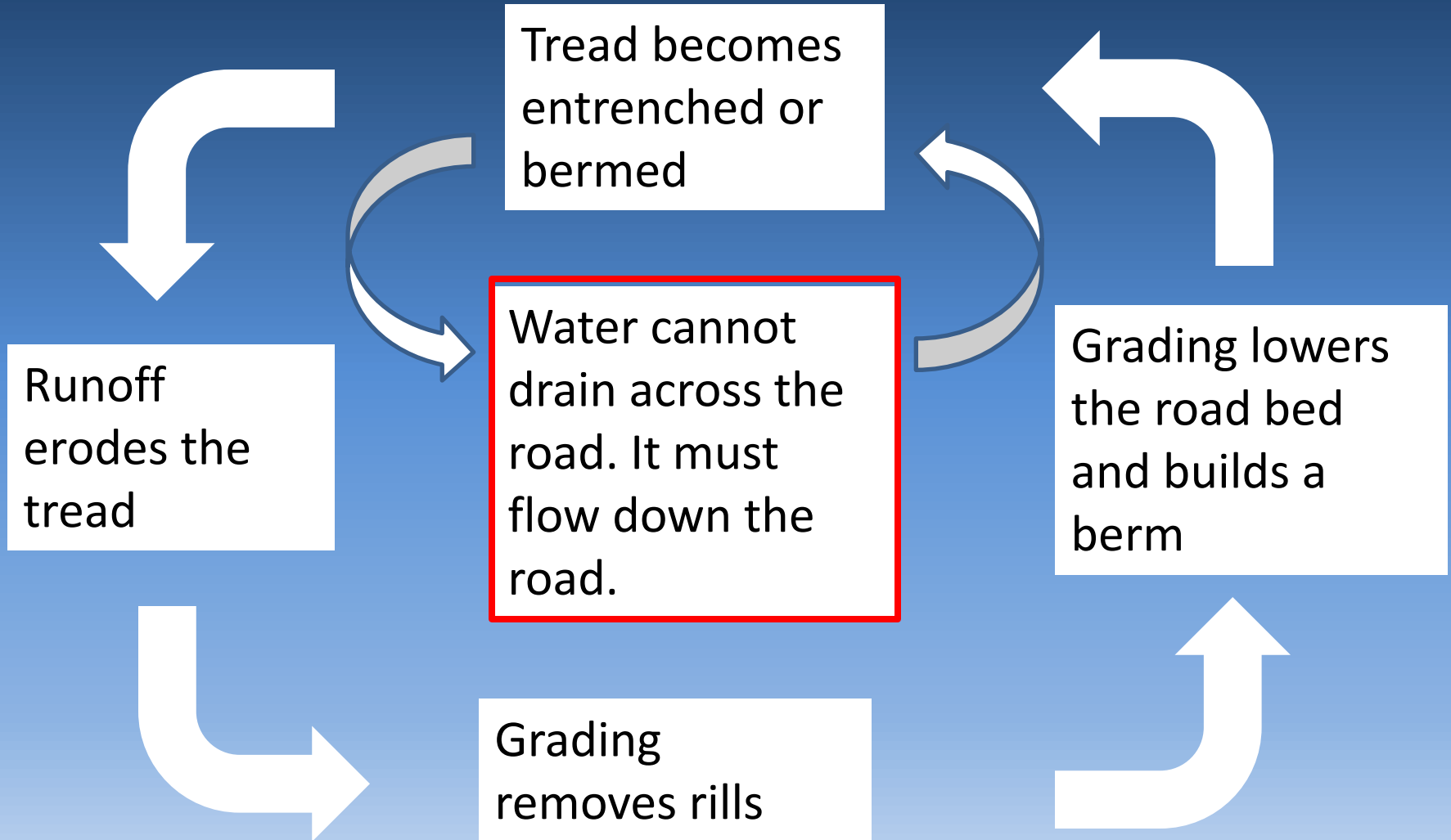


# Observations



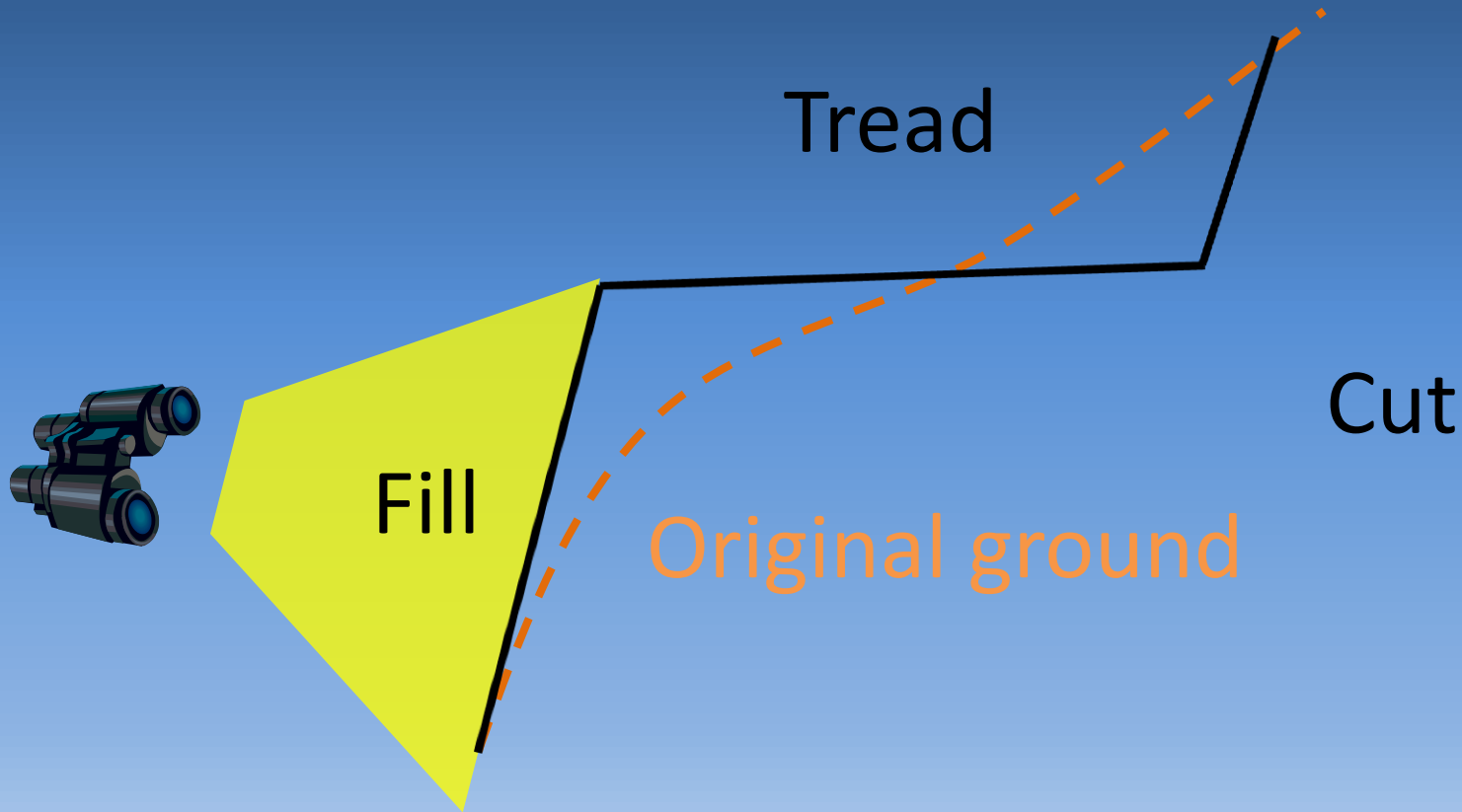
Problem- Channelized Erosion



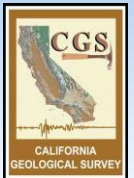




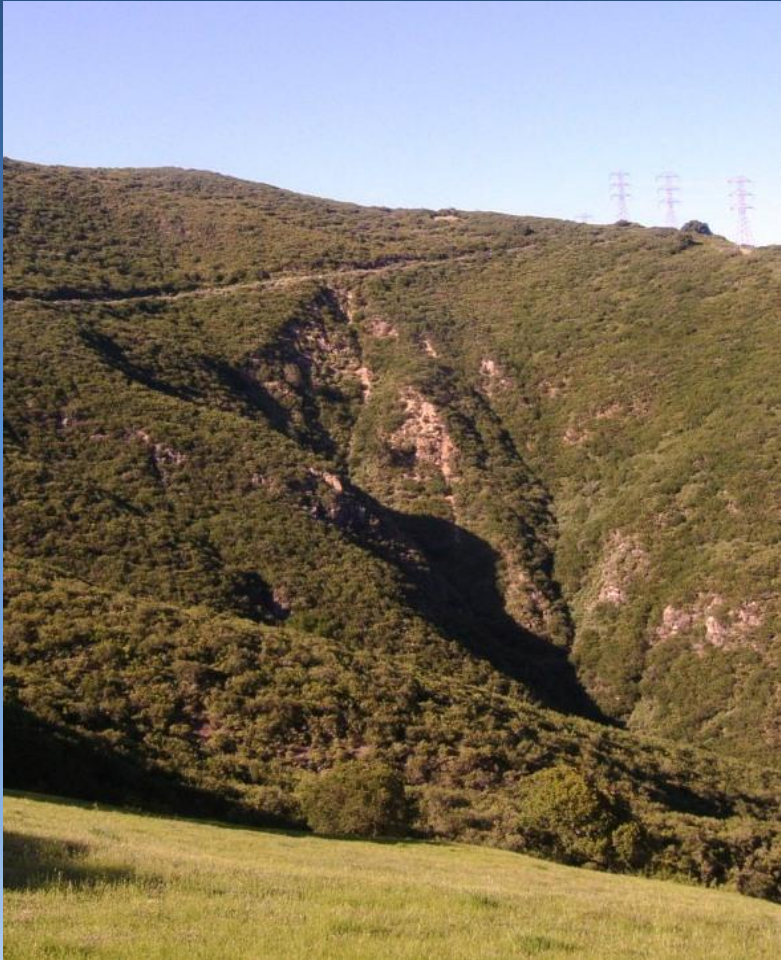
# Observations



Observe the fill slope



# Observations



Problem – Gully

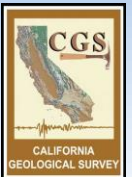




# Observations



Problem – Bank erosion





# Observations



Problem – Unstable



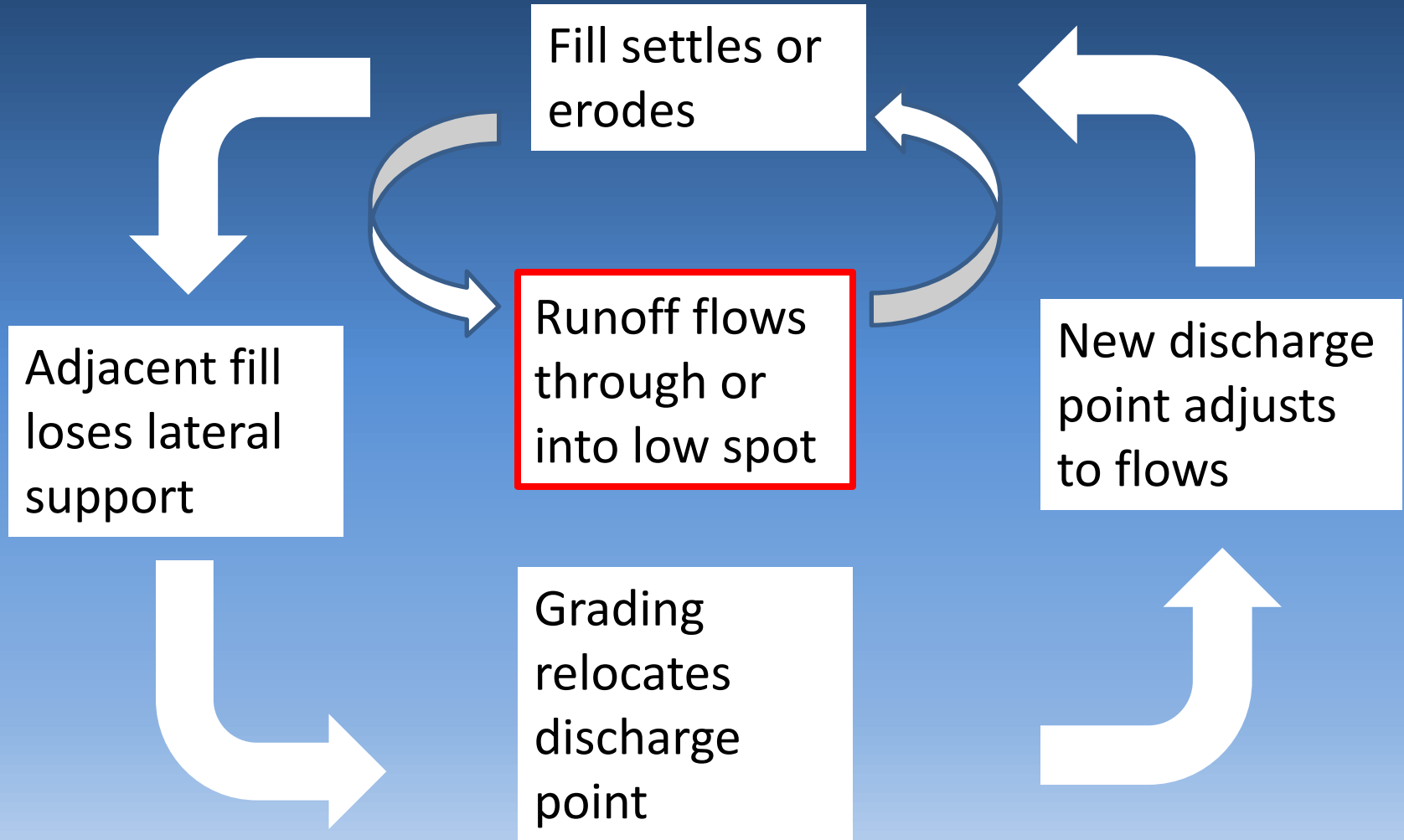
Fill settles or  
erodes

Runoff flows  
through or  
into low spot

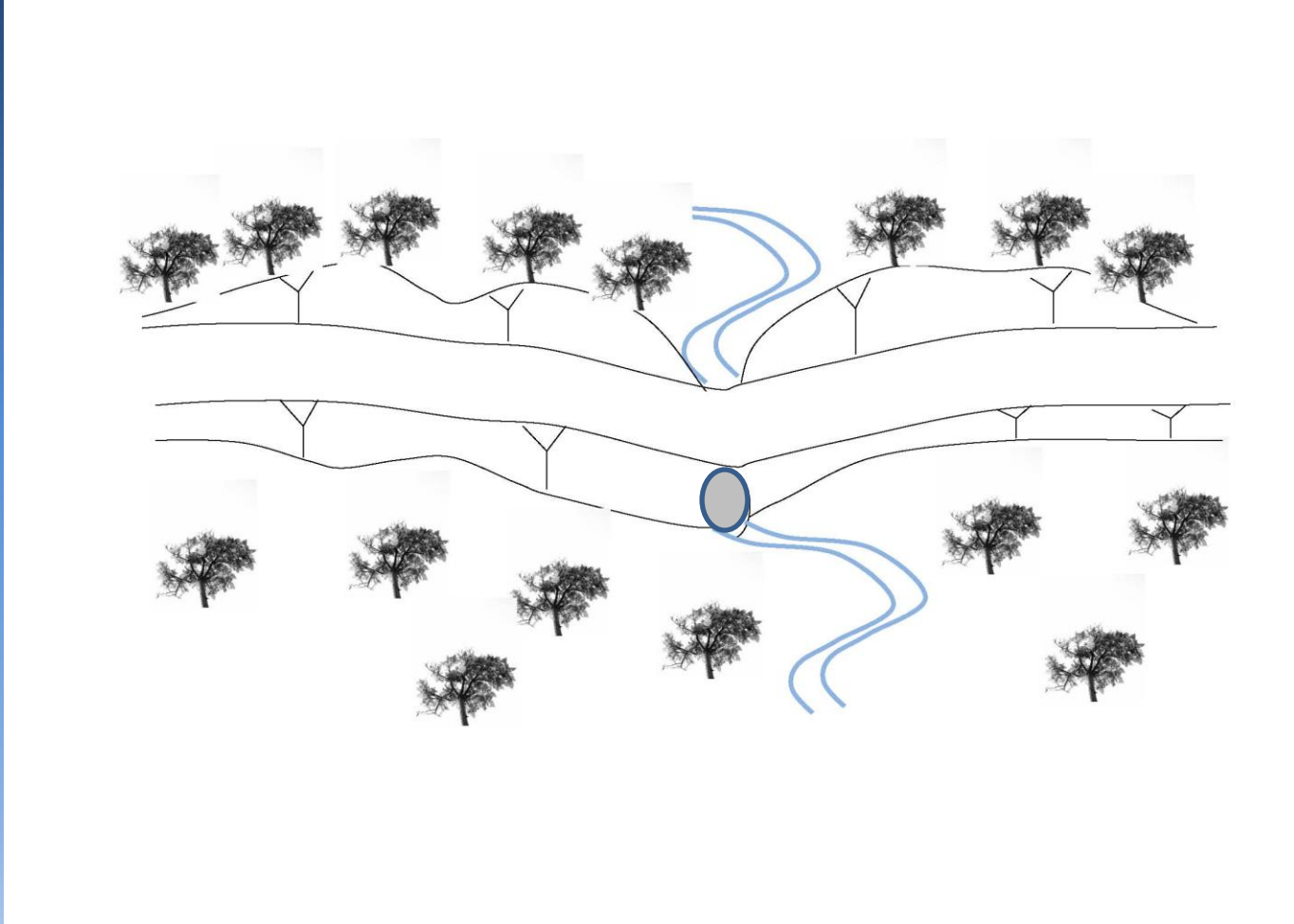
New discharge  
point adjusts  
to flows

Grading  
relocates  
discharge  
point

Adjacent fill  
loses lateral  
support



# Observations



Observe how water drains across the road and the landscape





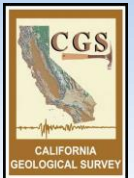
# Observations



Grade Dip



Waterbreak



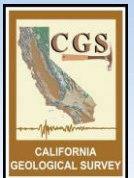
# Observations



Armored ford



Culvert





# Observations



Ditch, lead off

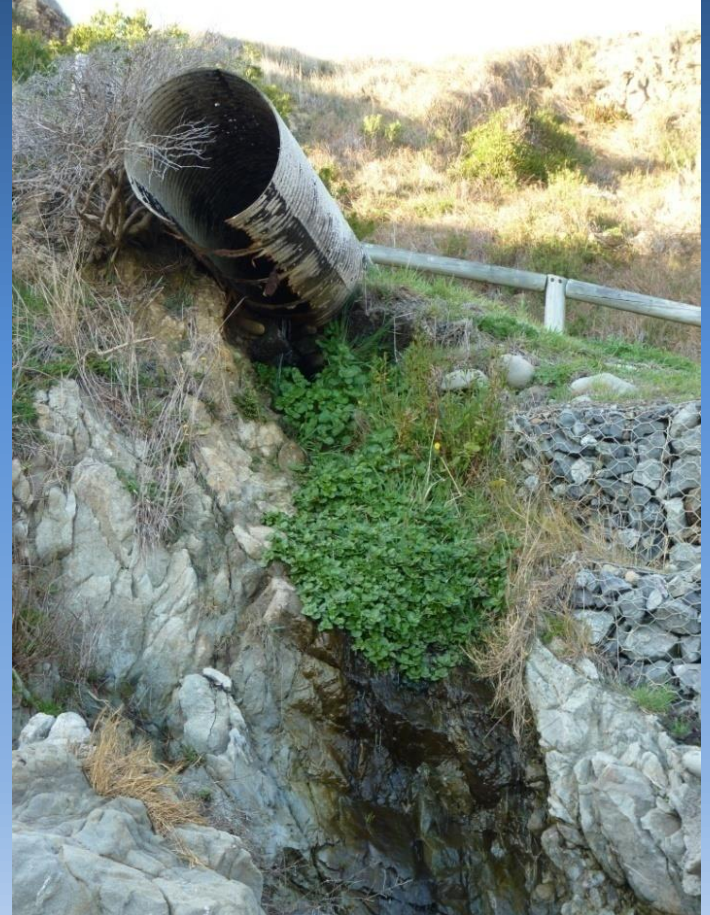


Ditch, inboard





# Observations



Problem -  
Corrosion





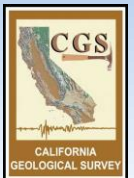
# Observations



Problem –  
Overgrown



Problem -  
Wash out



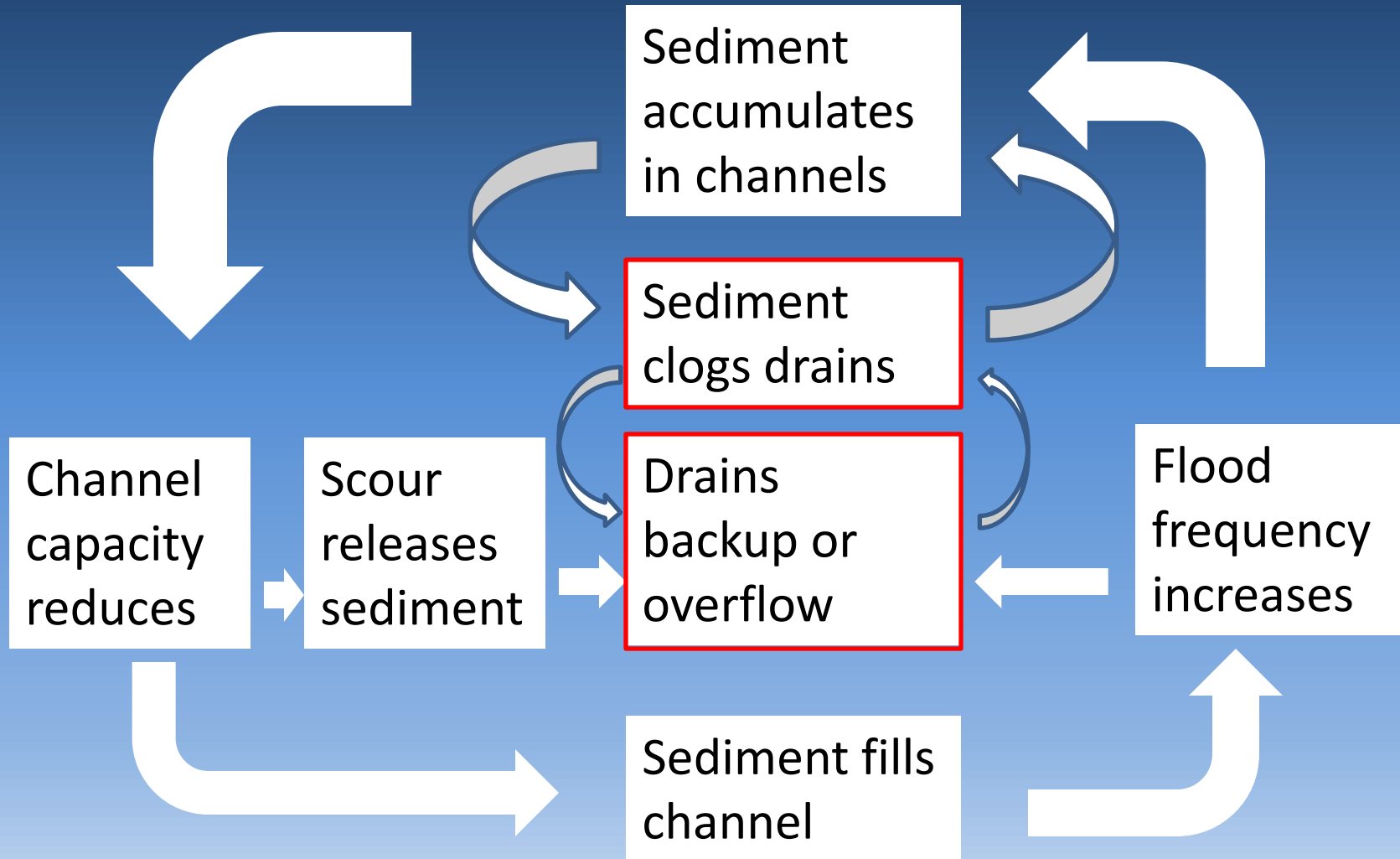


# Observations



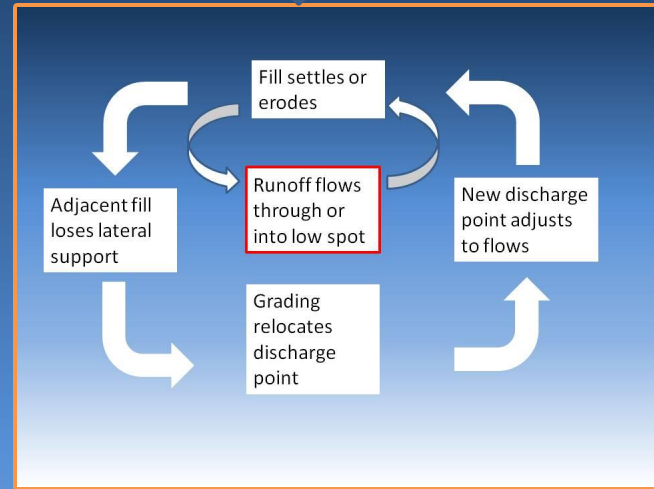
## Problem -Diversion



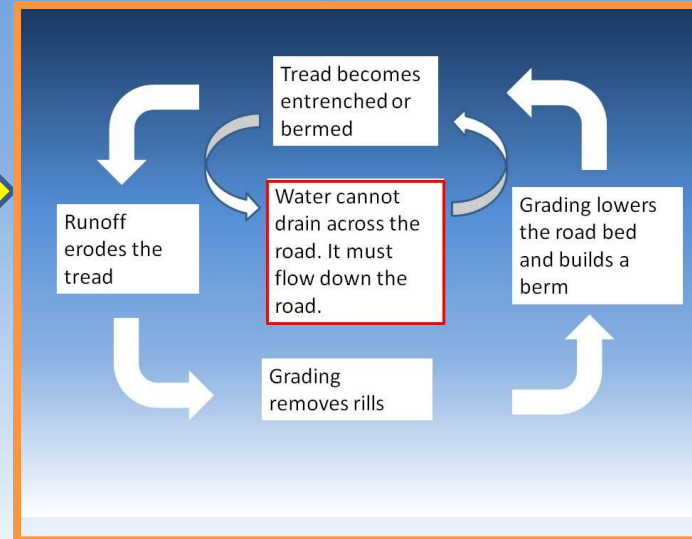




Fill slope

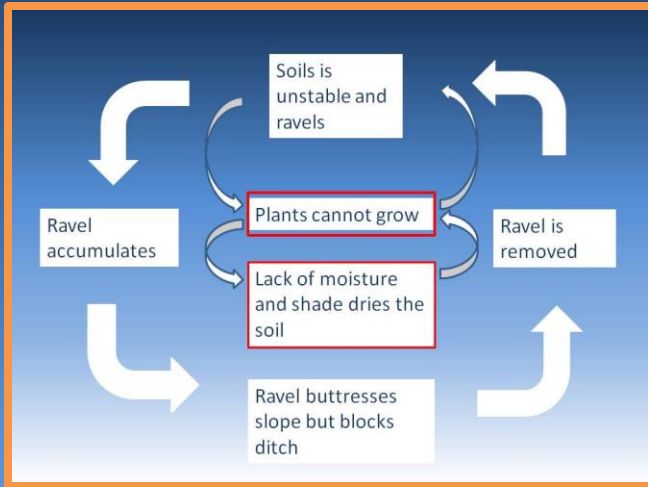


Tread

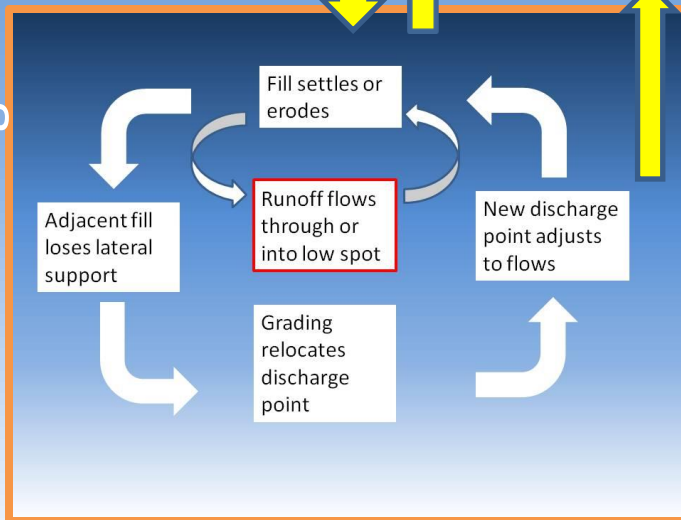


Flows divert

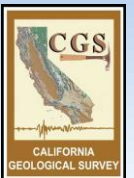
Cut slope



Drainage

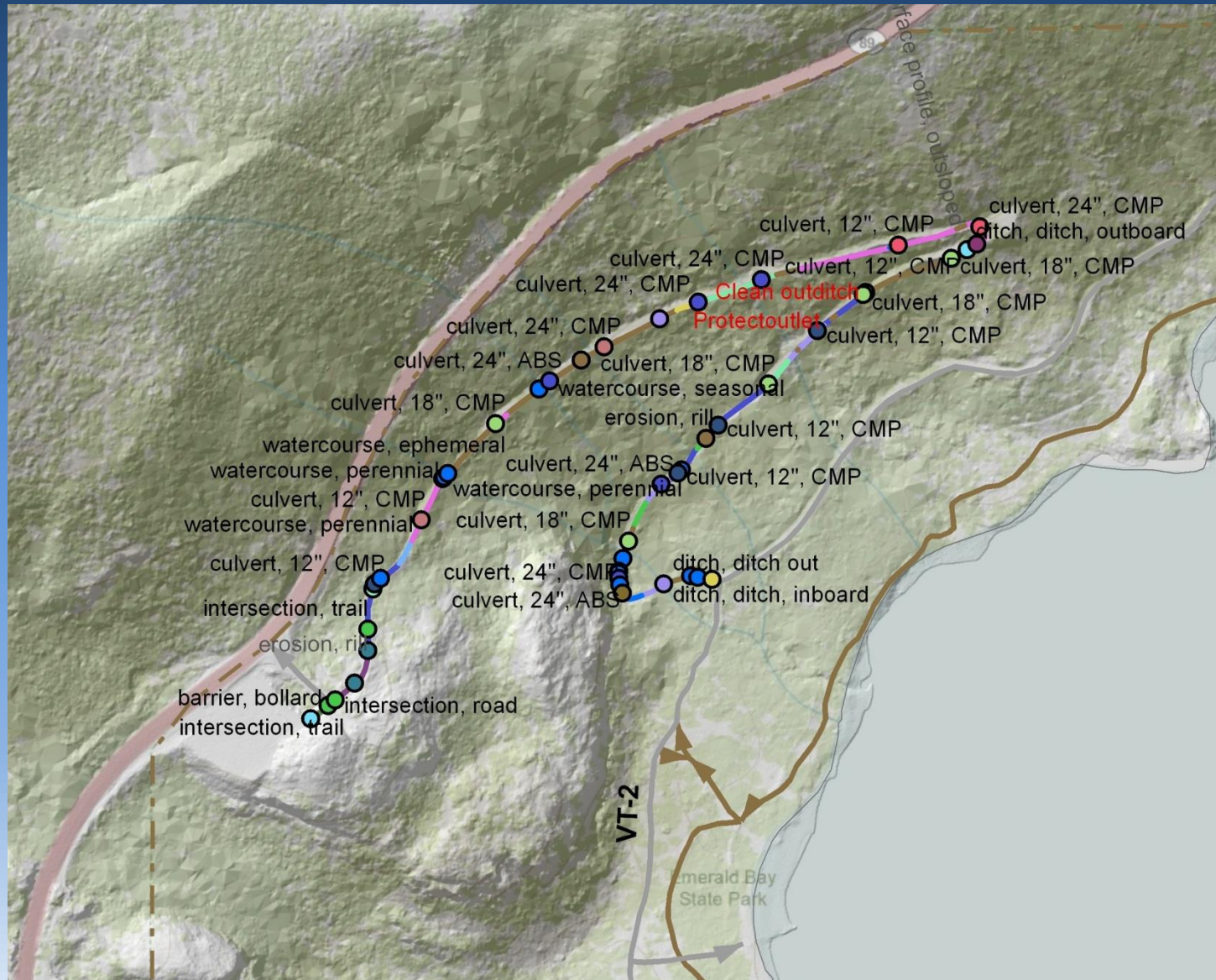


# Observations





# Observations





[www.conservation.ca.gov](http://www.conservation.ca.gov)