SR 87 Curve Realignment Slope Stabilization Using High Strength Steel Wire Mesh

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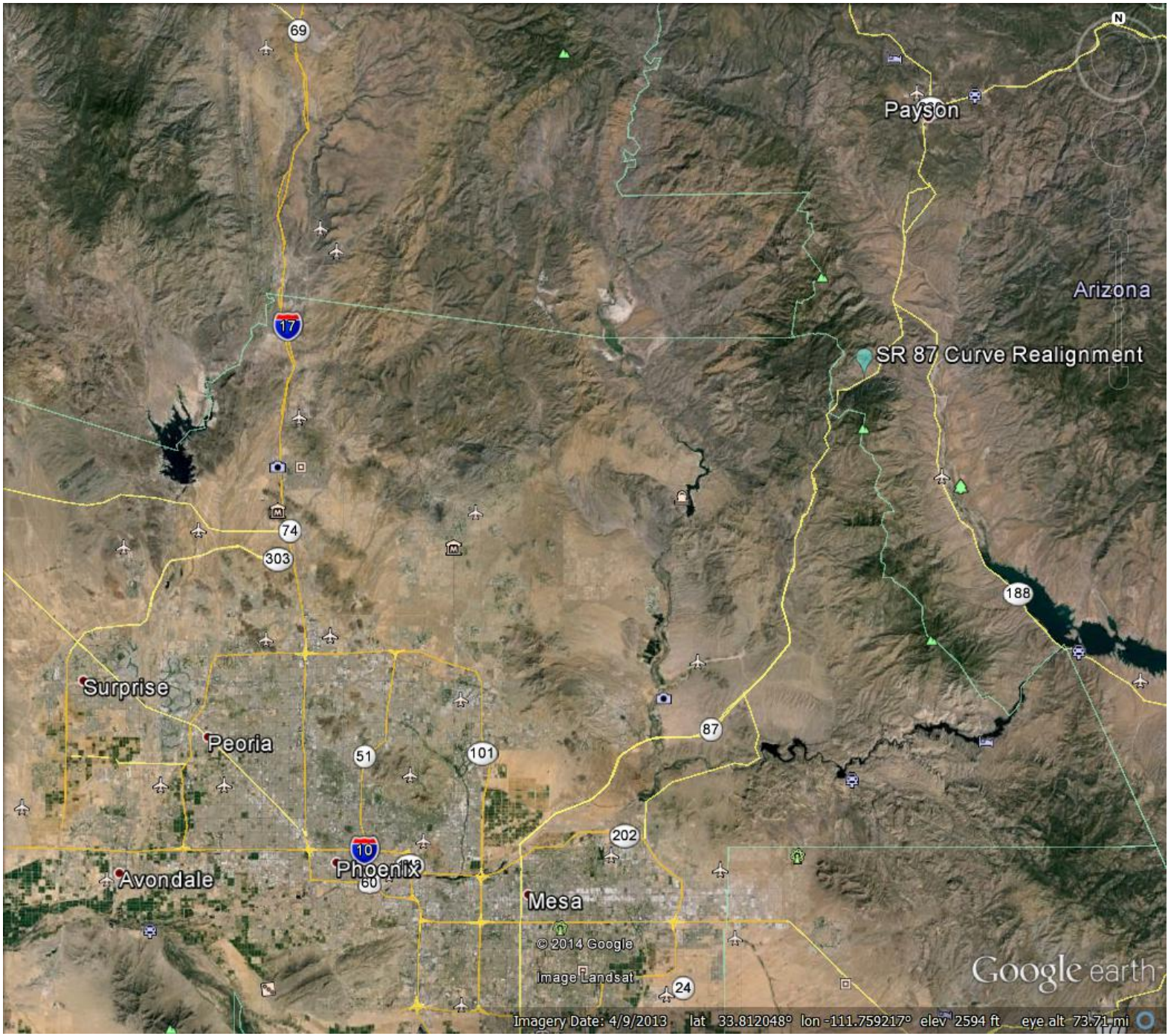
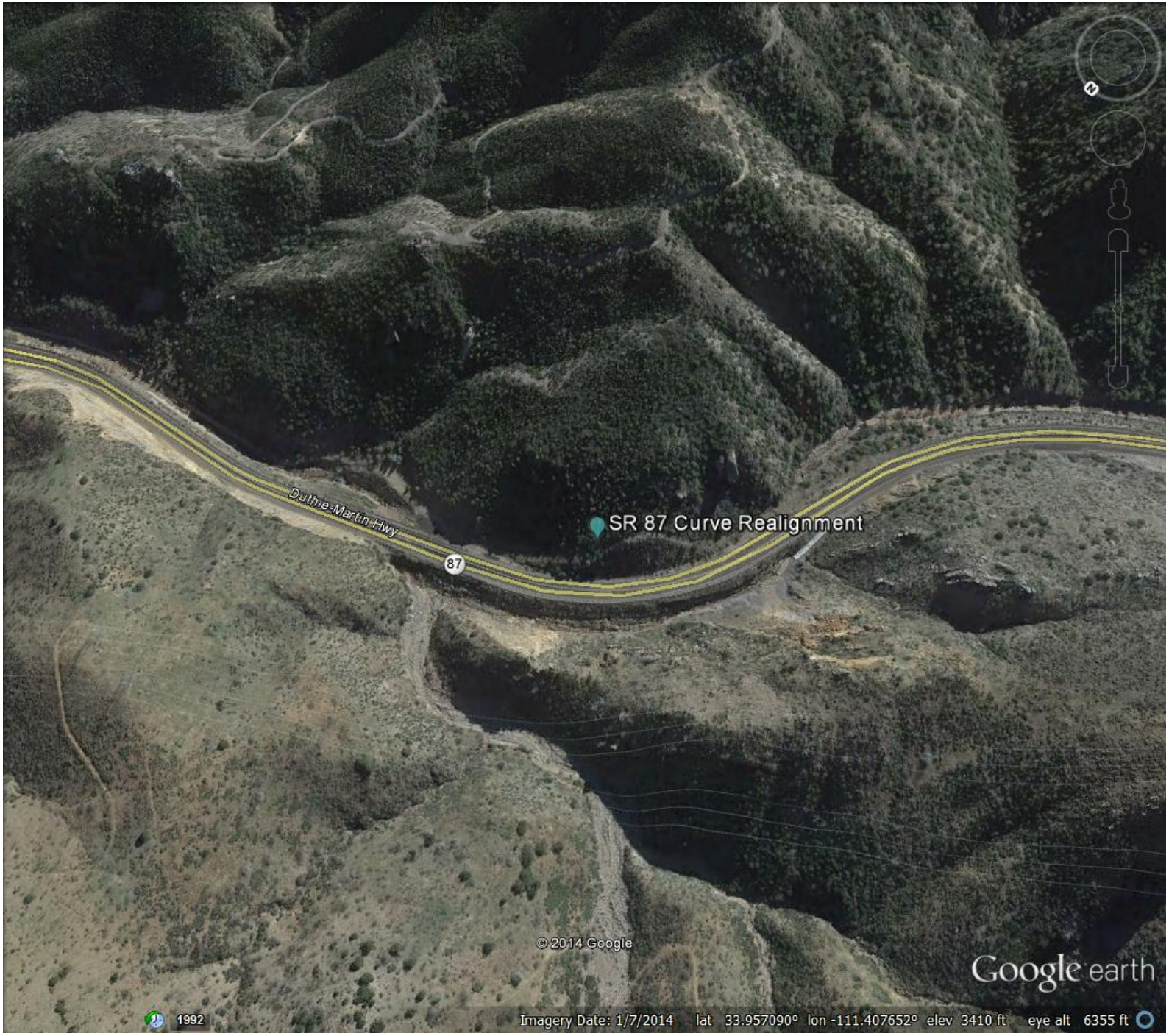
OUTLINE

- Project location and background
- Project Instigation
- Geological setting
- Why Stabilize
- Why Mesh Slope Stabilization
- Details of the System
- Lessons Learned


Payson
Arizona
SR 87 Curve Realignment
69
17
74
303
188
87
101
51
202
10
60
Surprise
Peoria
Avondale
Phoenix
Mesa
© 2014 Google
Image Landsat
24
Google earth
Imagery Date: 4/9/2013 lat 33.812048° lon -111.759217° elev 2594 ft eye alt 73.71 mi


N
S Beeline Hwy
SR-87 Curve Realignment
Dutch-Apache Trail
87
© 2014 Google
Google earth
1992
Imagery Date: 1/7/2014 lat 33.953097° lon -111.414604° elev 3718 ft eye alt 25227 ft

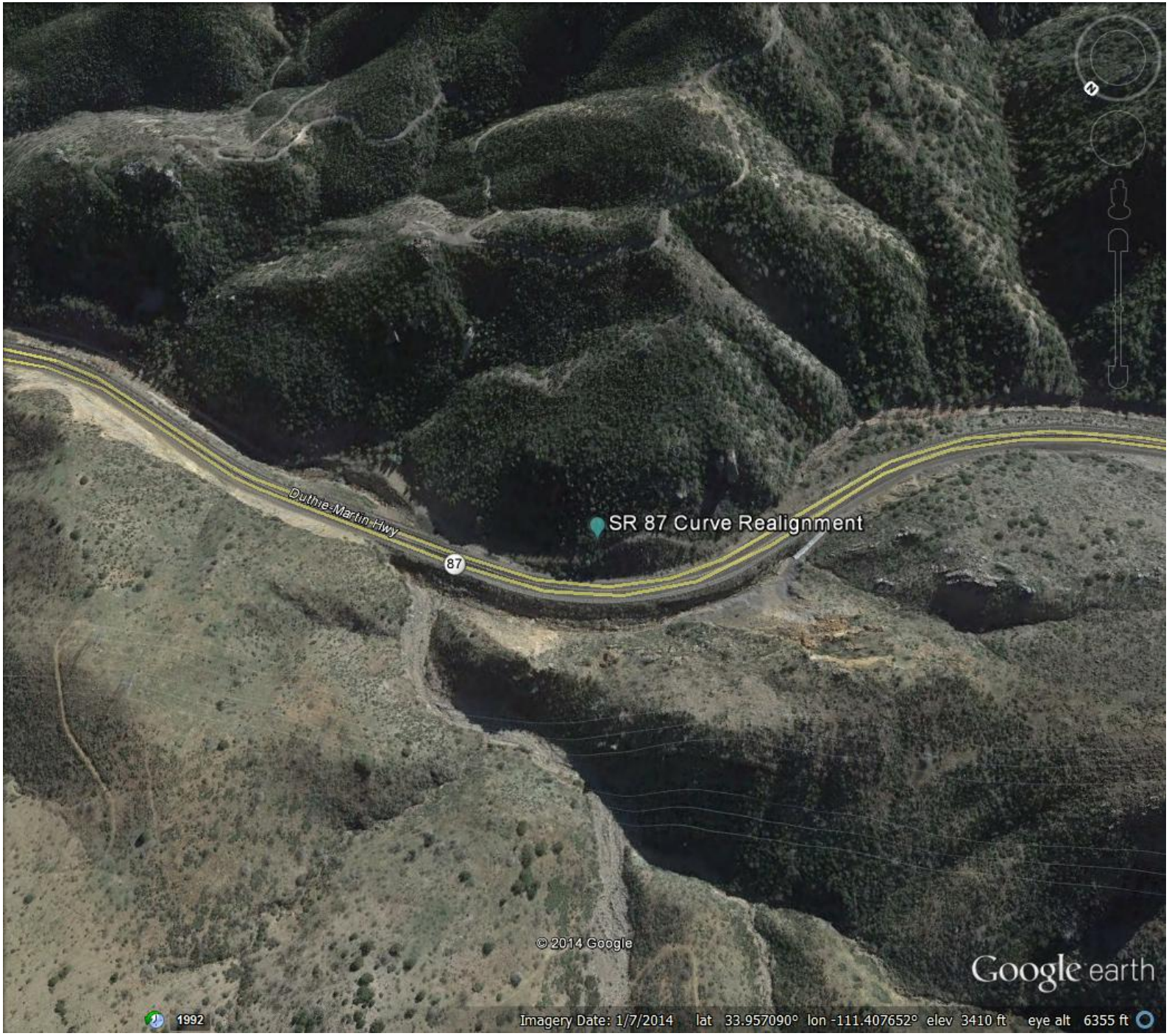

SR 87 Curve Realignment
Duthie-Martin Hwy
87
© 2014 Google
Google earth
1992
Imagery Date: 1/7/2014 lat 33.957090° lon -111.407652° elev 3410 ft eye alt 6355 ft

PROJECT INSTIGATION

Safety of the traveling public

In 8 yr. period:

- 45 reported crashes
- 3 Incapacitating
- 4 Fatal crashes


SR 87 Curve Realignment
Duthie-Martin Hwy
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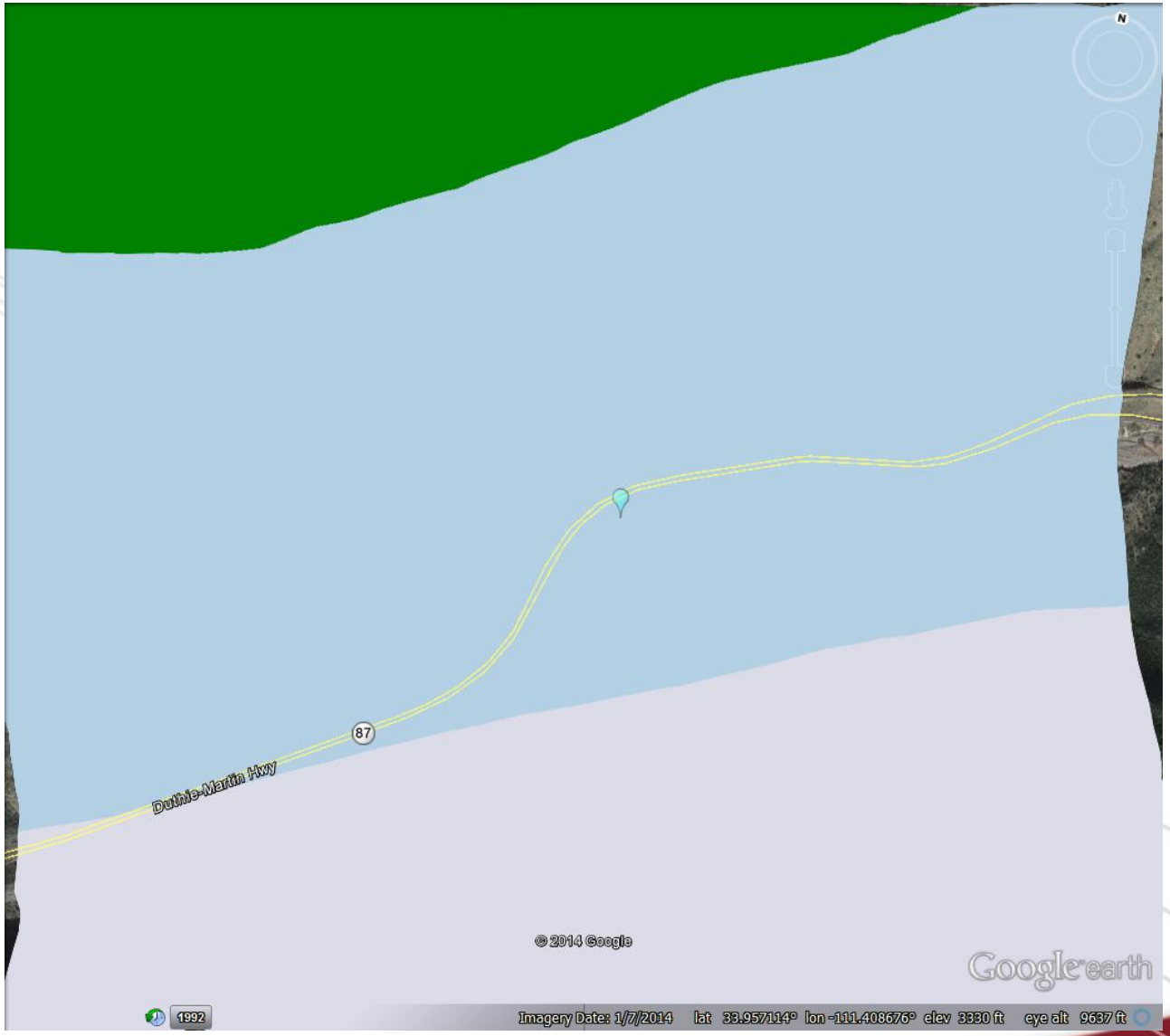
Imagery Date: 1/7/2014 lat 33.957090° lon -111.407652° elev 3410 ft eye alt 6355 ft

GEOLOGICAL SETTING



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Paleo-Stream Deposits overlying Phyllite

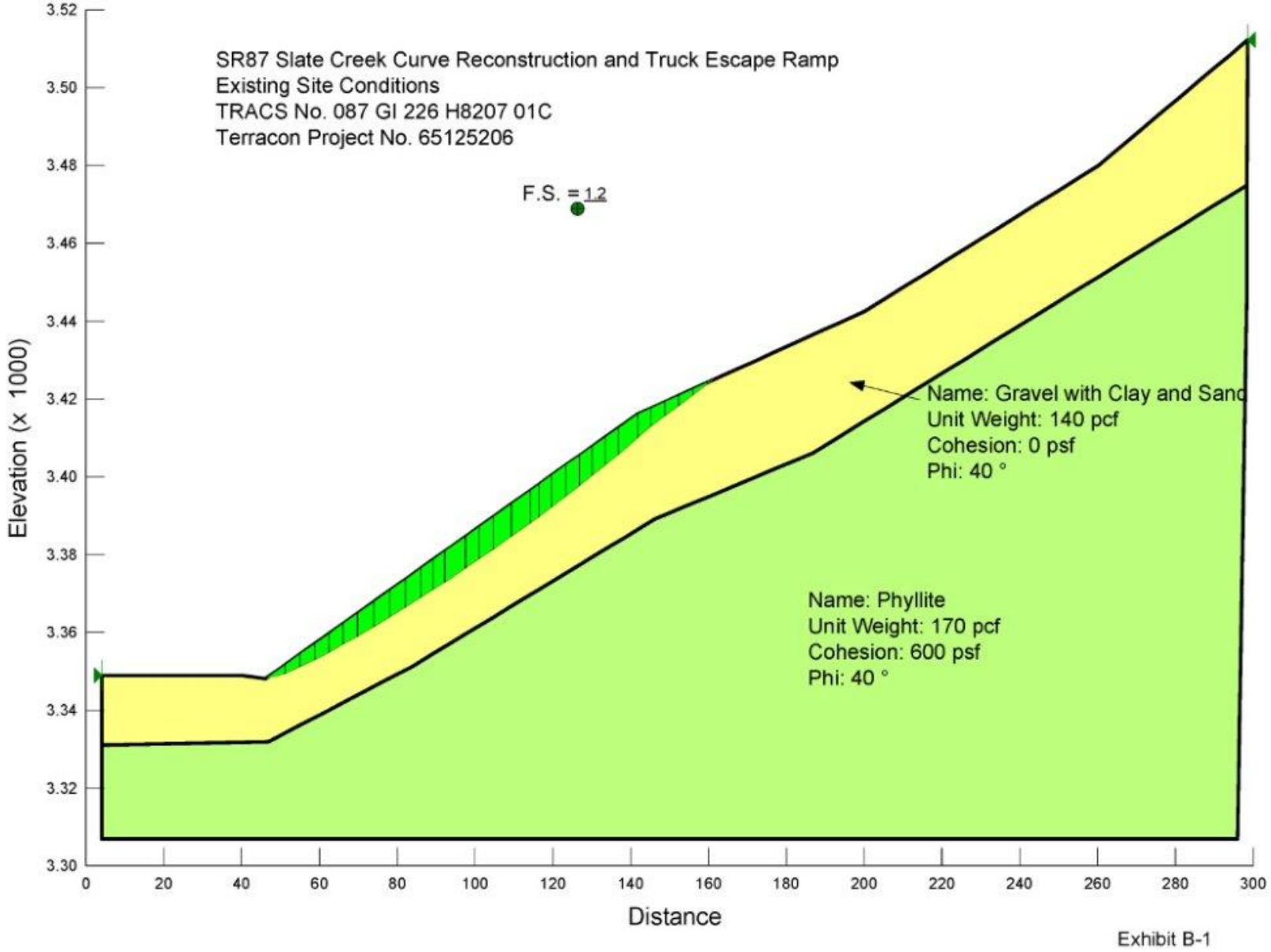
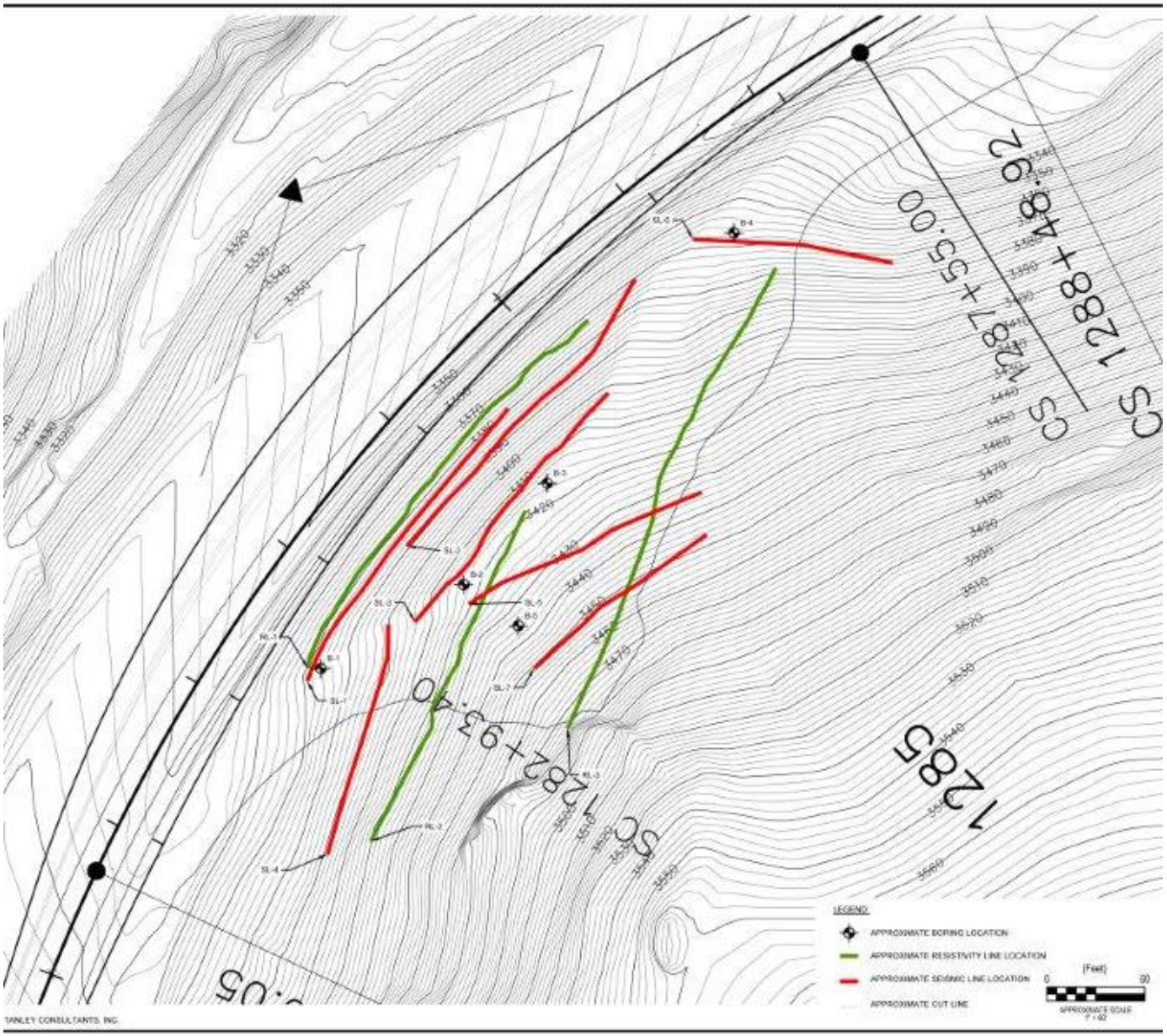
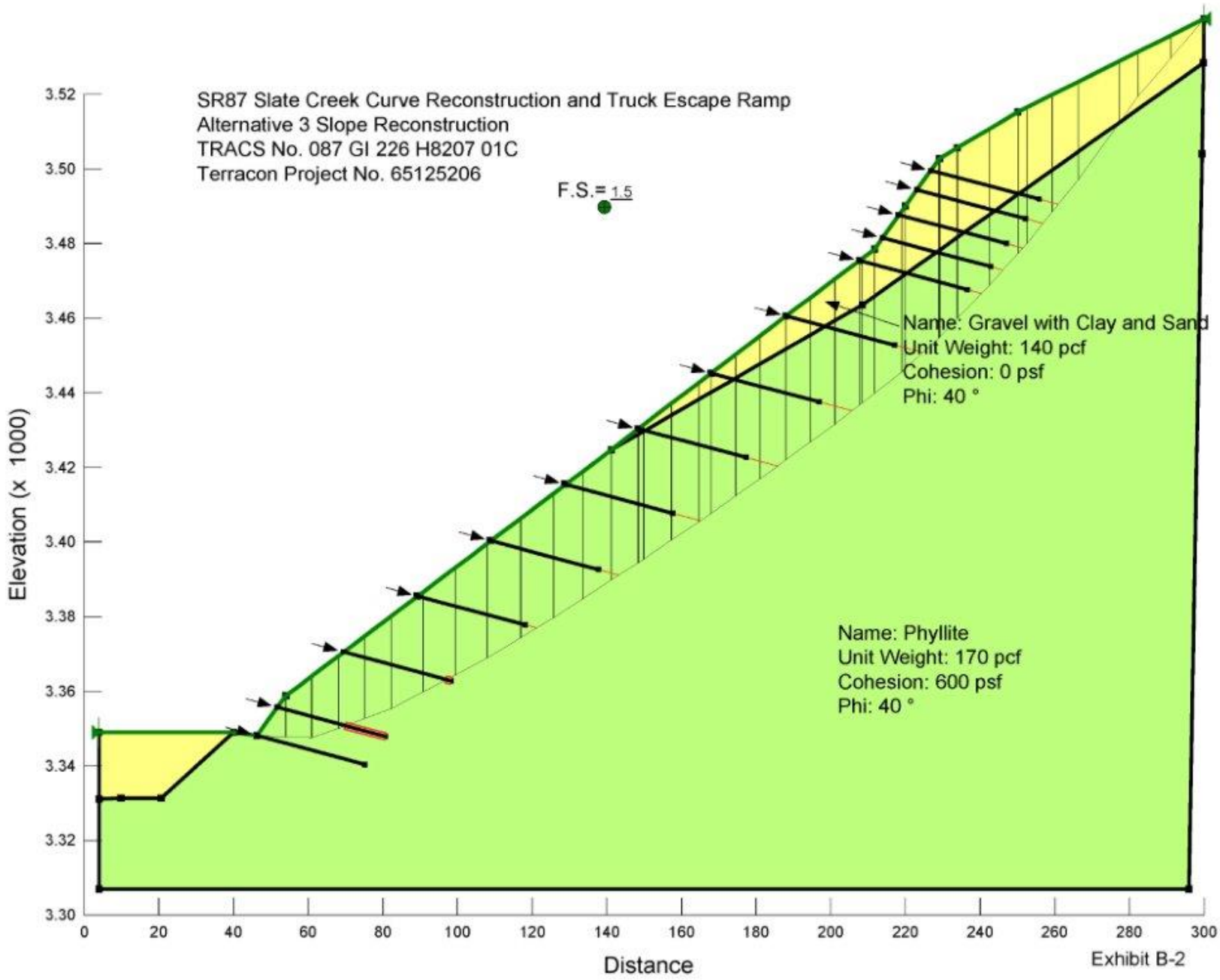


Exhibit B-1

Geophysical Line and Boring Locations



WHY STABILIZE



WHY MESH SLOPE STABILIZATION SYSTEM

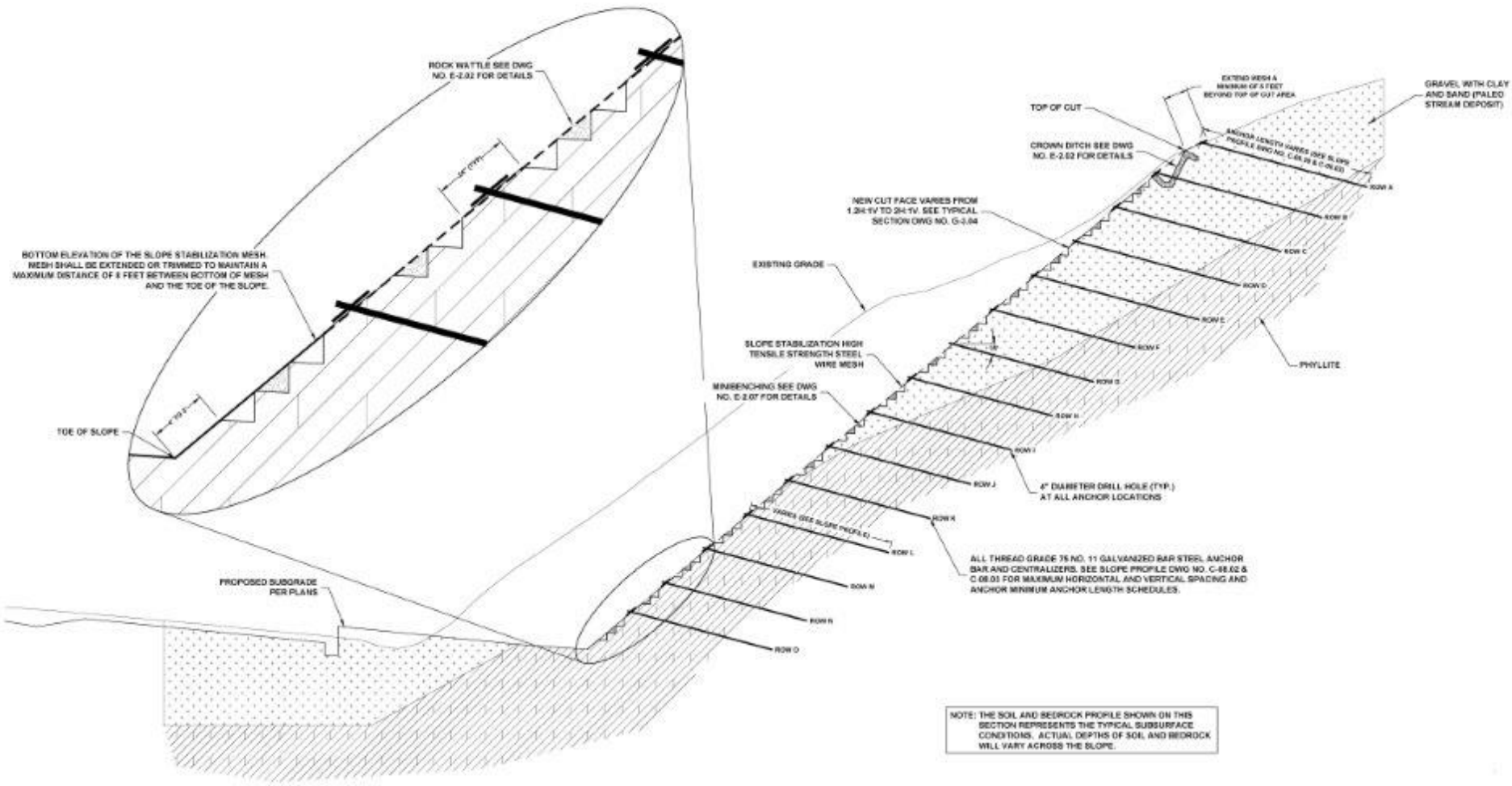
- Alternative 1 – Do nothing
- Alternative 2 – Remove Paleo-Stream deposits down to the Phyllite bedrock. After further geophysical exploration this option is not feasible.
- Alternative 3 – Mesh Slope Stabilization with steel bar anchors. Chosen due to aesthetics, cost and sustainability.

WHY MESH SLOPE STABILIZATION SYSTEM

- Alternative 4 – 8’ x 8’ concrete plates anchored with steel bar anchors. Not chosen due to aesthetics and costs.

- Alternative 5 – Soil Nail Walls; two tiers. Not chosen due to past history with soil nails in the area and cost.

MESH SLOPE STABILIZATION DETAILS



1 TYPICAL CROSS SECTION, GROUND ANCHOR AND MESH SLOPE STABILIZATION SYSTEM (N.T.S)

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ	087-B(210)T	45		
		087 MA 221			

	NAME	DATE
DESIGN	AMY	2/14
DRAWN	JET	2/14
CHECKED	SDM	2/14

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ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
ROADWAY DESIGN SERVICES

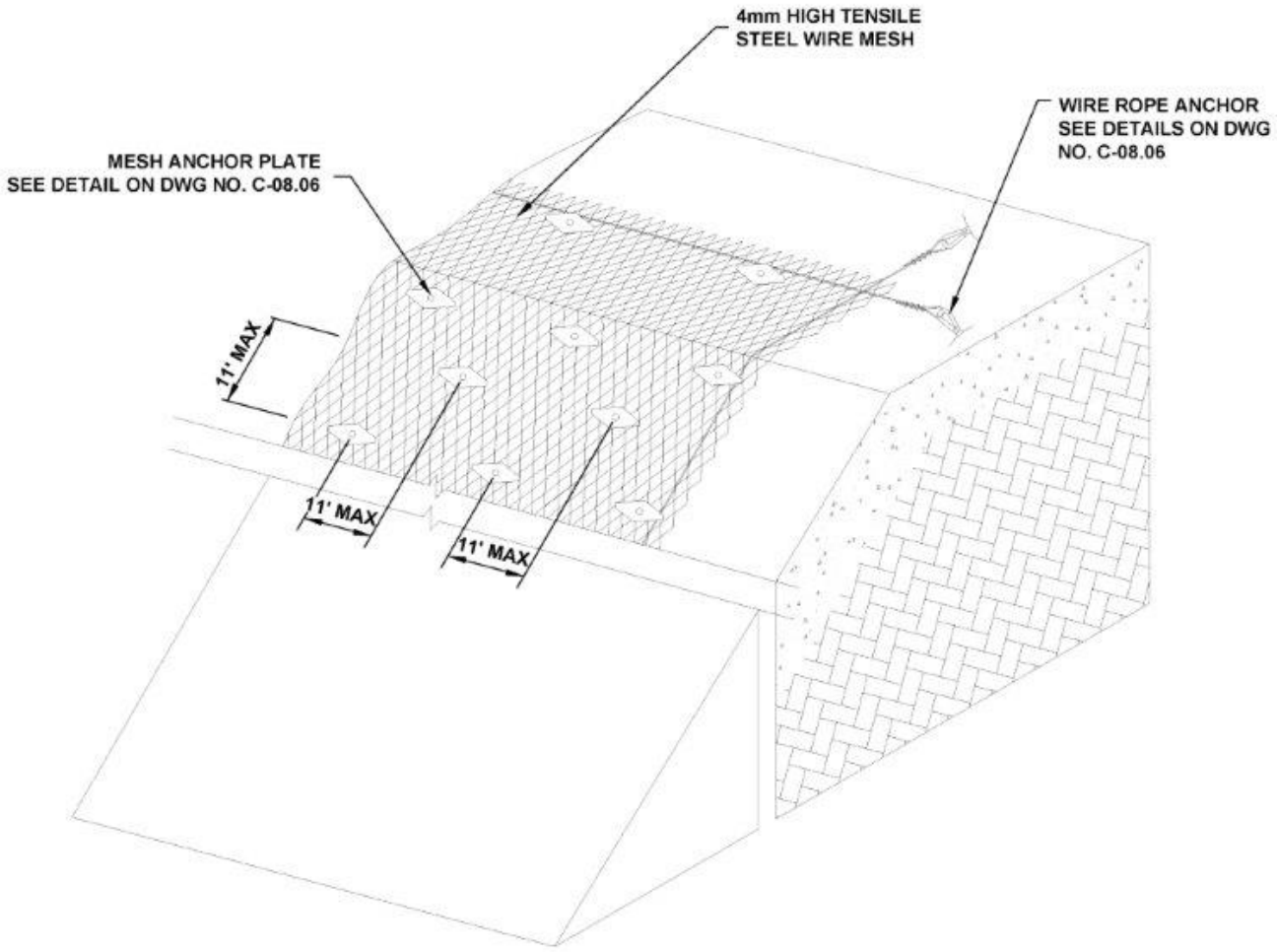
TYPICAL CROSS SECTION

PRELIMINARY
STAGE V
100% Review
NOT FOR CONSTRUCTION OR RECORDING

ROUTE	LOCATION		
SR 87	SLATE CREEK CURVE AND TRUCK ESCAPE RAMP		DWG NO. C-08.04
TRACS NO. H5207 01C		087-B(210)T	___ OF ___

eeeeeSYSTIMEeeeee eeeeeDGNeSPECIFICATIONeeeee

MESH SLOPE STABILIZATION DETAILS



TYPICAL ANCHOR ARRANGEMENT
N.T.S.

LESSONS LEARNED (reinforced)

- Performing site specific exploration is necessary.
- Geophysical exploration when calibrated with specific boring logs can be useful in difficult terrain.
- Use of new technologies can be beneficial.
- Use of new technologies is difficult to specify and remain generic for a public project.

Questions?

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