So Your Project's in a Floodplain… a Scoping Case Study

Dan March, P.E., CFM

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Project Scoping Process

What type of project are you planning, and where is it located?

- Determine if project is located in a Special Flood Hazard Area (SFHA) and, if so, in what type of flood zone designation.
  - FEMA Flood Zone Designations (A, AE, B, D, X …… etc.)
  - Project in Flood Fringe or Floodway?

Information Sources: **FEMA Map Service Center (http://msc.fema.gov), DNRC website (http://montanadfirm.com), local floodplain administrators or city/county planning departments**

- What type of project?
  - Projects that don't require a permit: **most agricultural practices, fences**
  - Projects that are prohibited: ***new*** **individual sewage systems**
  - Projects that are allowed but require a permit: **placement of most physical structures (e.g., house, bridge, culvert)**

Information Sources: **State and local floodplain ordinances (city/county planning depts.)**

Project Scoping Process

Data Needs and Availability for your Project

- Base Mapping
  - Topographic/Survey Data, Cross-sections
  - FEMA Data (FIRMs, FIS, and supporting data)
- Aerial Imagery
  - Statewide NAIP coverage (2009)
- Flow Data
  - Stream gage data (USGS)
- Hydraulic Models
  - HEC-RAS, HEC-2, WSP2 (older NRCS studies)
- Other Relevant Information
  - Soils and Vegetation Data
  - Resident Fish Species (spawning periods and construction windows)

Project Scoping Process

Permitting Requirements for your Project

- Which permits are required?
  - Joint Permit Application
    - 310 Permit (local conservation district)
    - 404 Permit (Corps of Engineers)
    - 318 Permit * (MT-DEQ)
    - Navigable River Land Use License or Easement* (MT-DNRC, Trust Lands Mgmt. Div.)
    - Floodplain Development Permit (local planning dept./floodplain administrator)
- Permitting Timeframes
  - Make sure to submit permit applications far enough in advance to allow for published review times and public notice periods (if applicable)
  - Consider arranging a pre-project consultation with permitting agencies to discuss the nature of your project and to determine specific items they will require

Case Study: Bitterroot River (south of Hamilton) bank stabilization project

- Overview
  - Significant shift in channel alignment in early 2000's threatened a home
  - Proposed bank stabilization project located in floodway
  - Detailed hydraulic modeling effort required to demonstrate that the project would not cause a rise in the Base Flood Elevation (BFE)

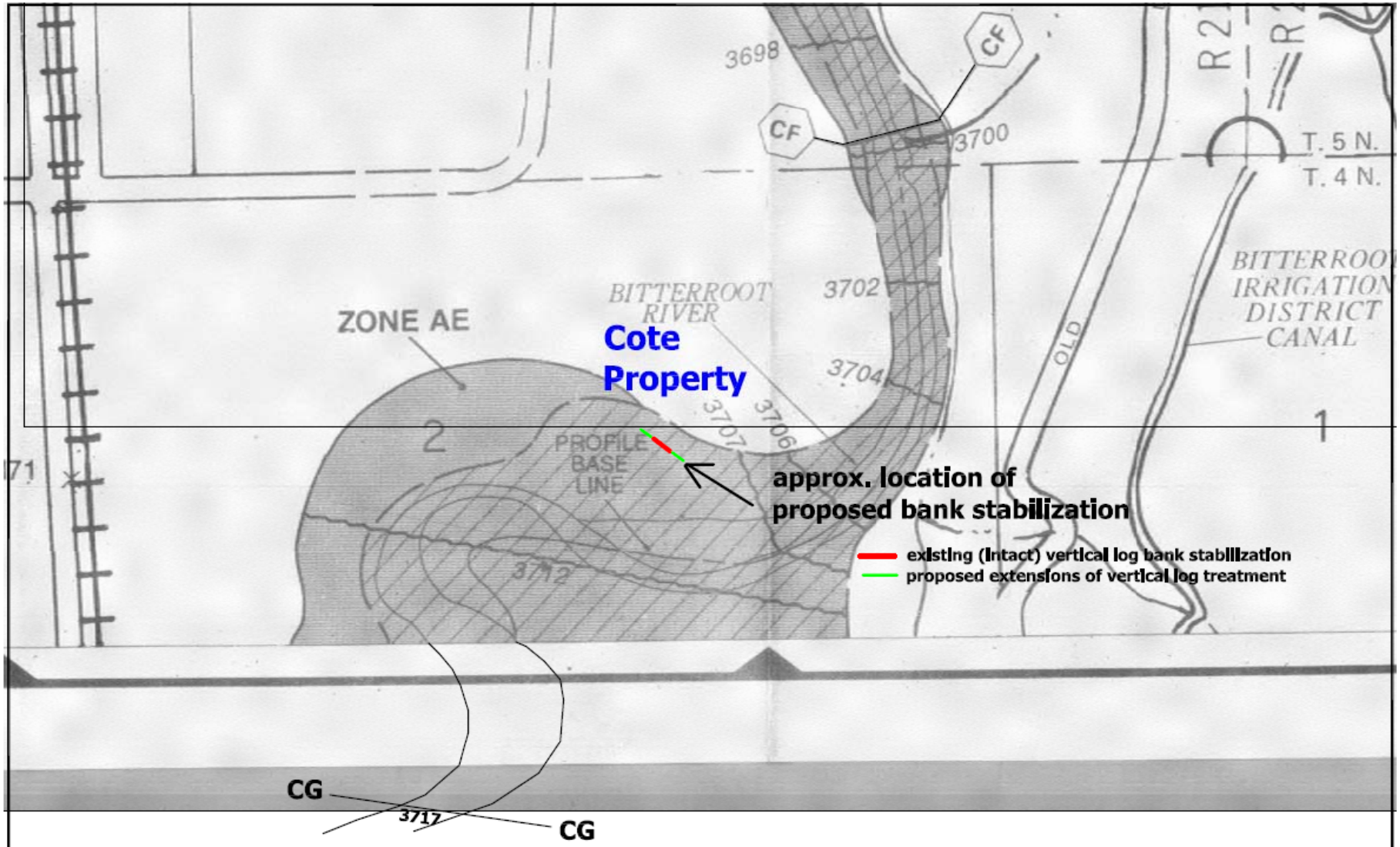

FIGURE 3 OF -	PBSJ 3810 Valley Commons Drive, Suite 4 Bozeman, MT 59718	PROJ NO: B200XX	DRAWN: SH
REVISION: - 12/22/08		LOCATION: Hamilton, MT	CHECKED: MR APPVD: MR
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PROJECT NAME
COTE PROPERTY

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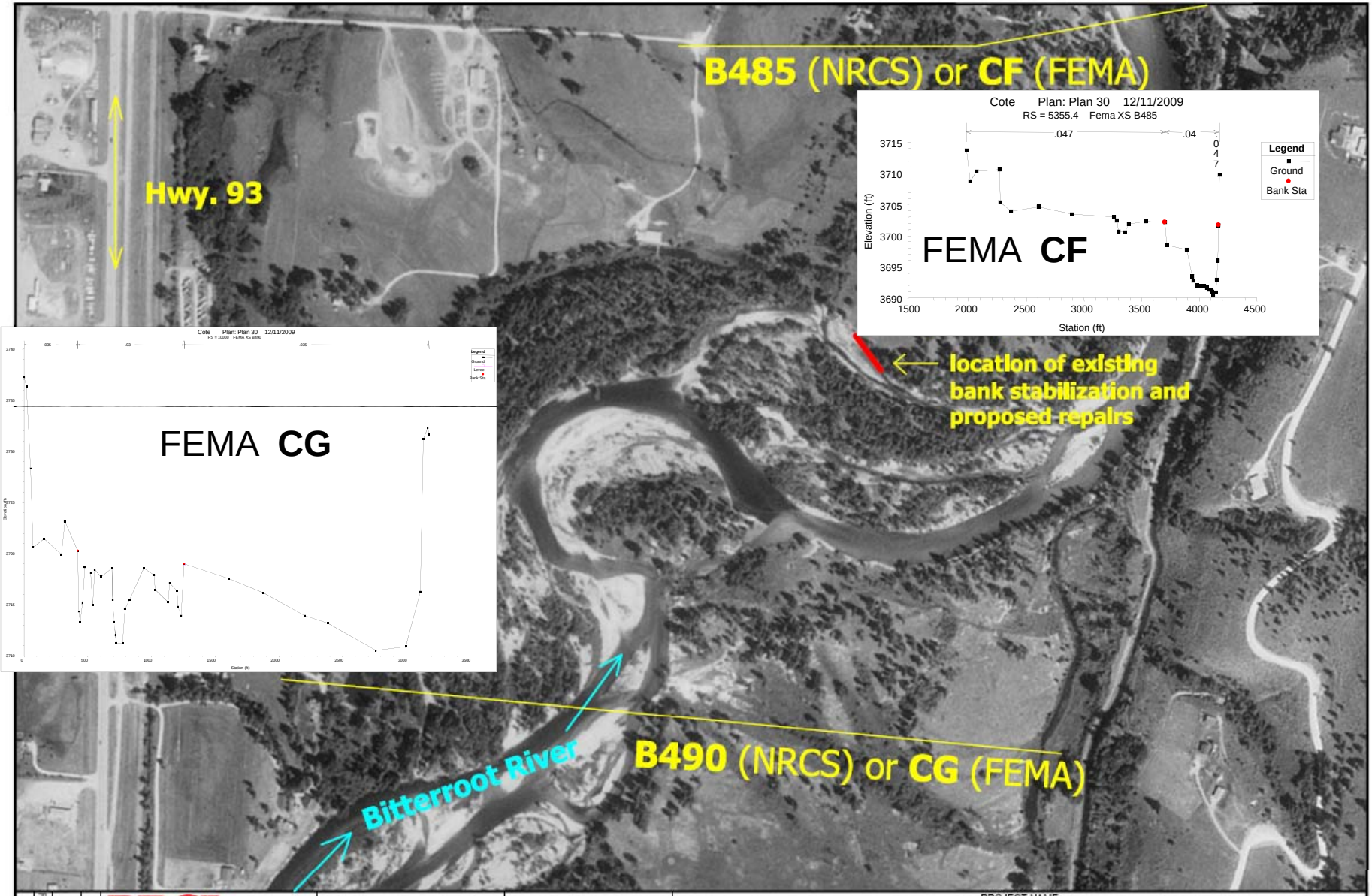
FEMA - FIRM (1998)



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	SCALE: NOT TO SCALE	PROJ MGR: MR	DRAWING TITLE: 1995 AERIAL PHOTOGRAPHY
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FIGURE 1 OF -

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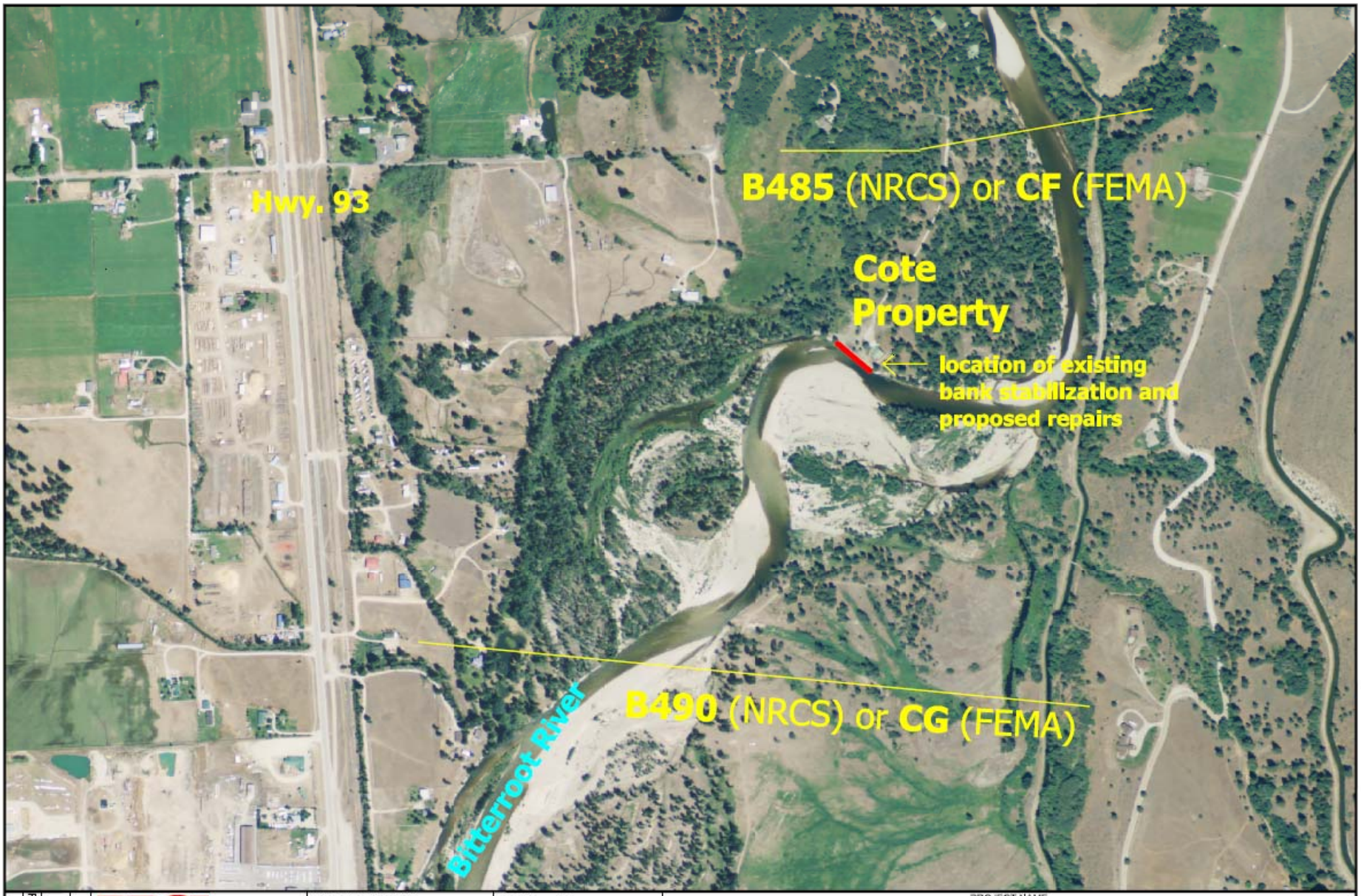

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FIGURE 1 OF -

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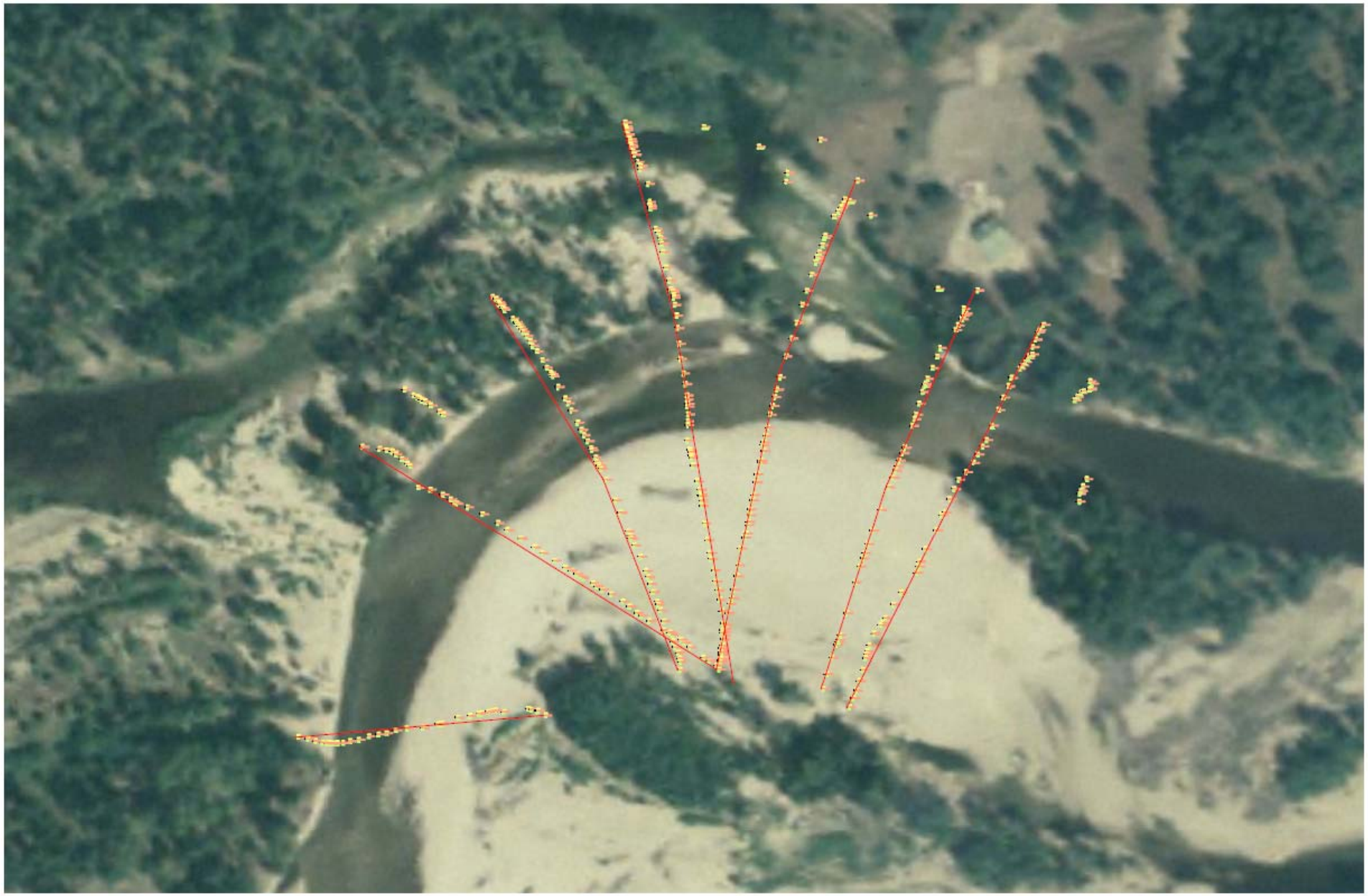


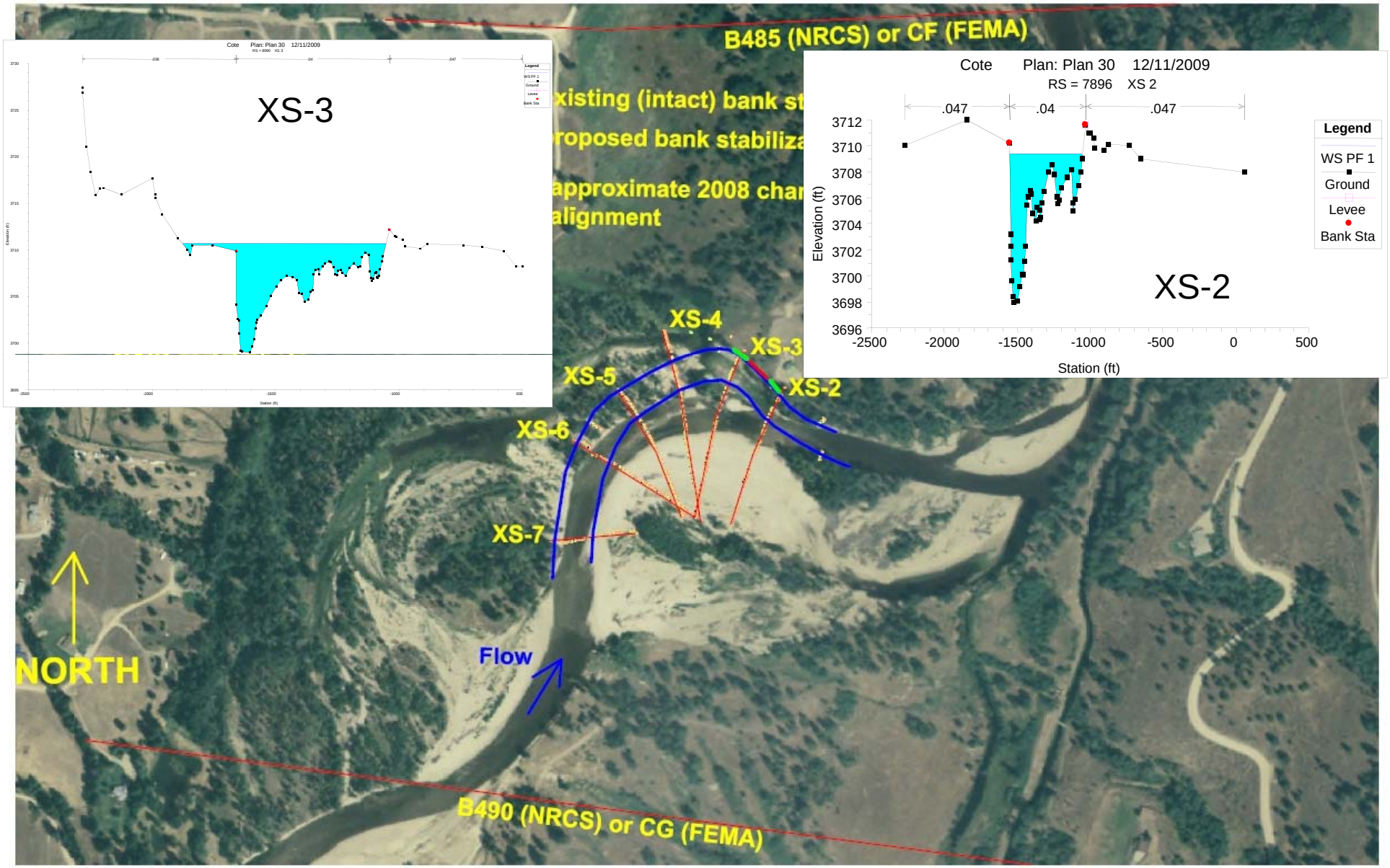
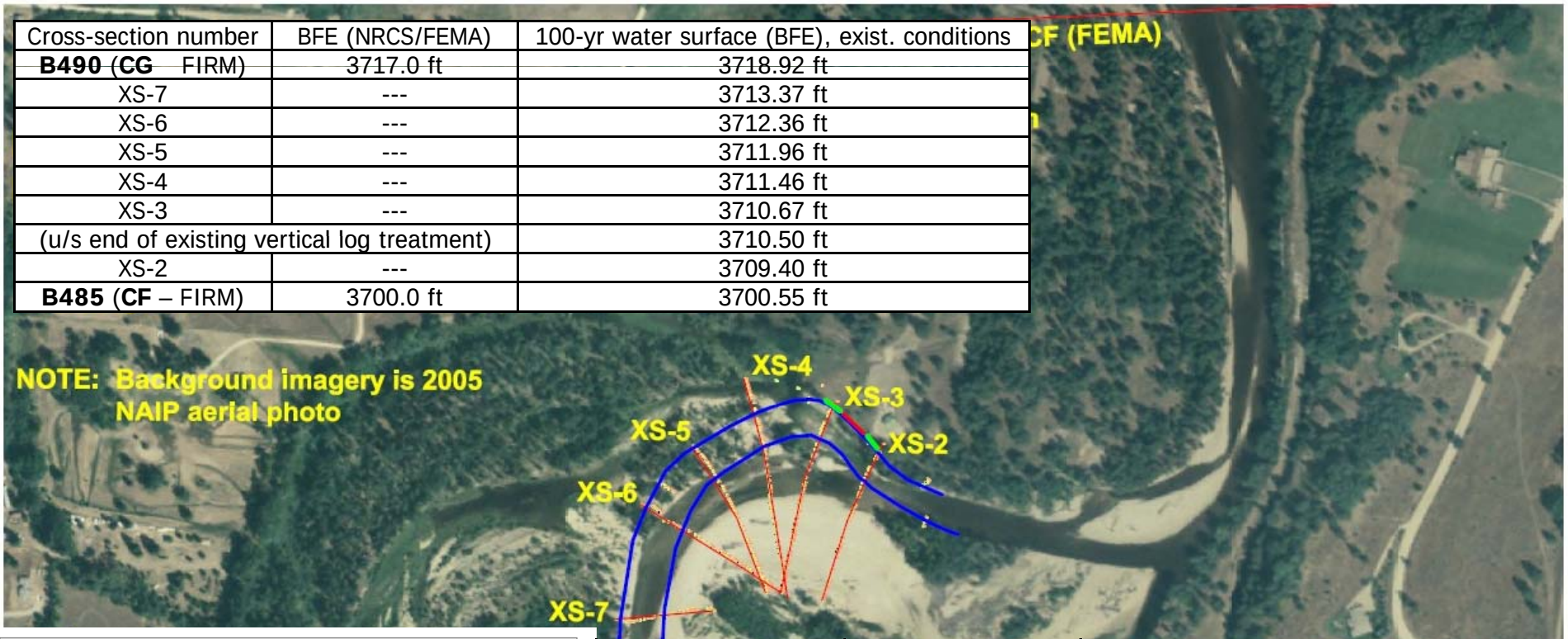
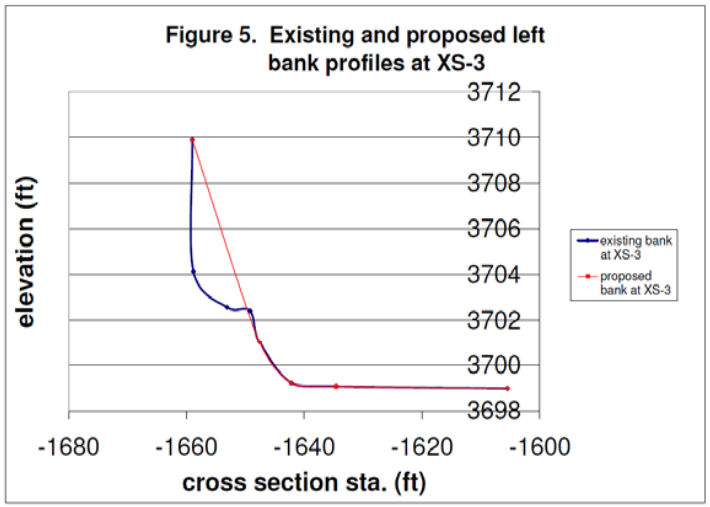

B485 (NRCS) or CF (FEMA)
xisting (intact) bank st
roposed bank stabiliza
approximate 2008 char
alignment
XS-3
Cote Plan: Plan 30 12/11/2009
RS = 8890 XS 3
Legend
WS PF 1
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)
Cote Plan: Plan 30 12/11/2009
RS = 7896 XS 2
.047
.04
.047
Elevation (ft)
3712
3710
3708
3706
3704
3702
3700
3698
3696
-2500
-2000
-1500
-1000
-500
0
500
Station (ft)
Legend
WS PF 1
Ground
Levee
Bank Sta
XS-2
XS-4
XS-3
XS-5
XS-6
XS-7
Flow
NORTH
B490 (NRCS) or CG (FEMA)

Table 1. Summary of modeled 100-year water surface elevations for **existing** conditions.

Cross-section number	BFE (NRCS/FEMA)	100-yr water surface (BFE), exist. conditions
B490 (**CG** – FIRM)	3717.0 ft	3718.92 ft
XS-7	---	3713.37 ft
XS-6	---	3712.36 ft
XS-5	---	3711.96 ft
XS-4	---	3711.46 ft
XS-3	---	3710.67 ft
(u/s end of existing vertical log treatment)		3710.50 ft
XS-2	---	3709.40 ft
B485 (**CF** – FIRM)	3700.0 ft	3700.55 ft

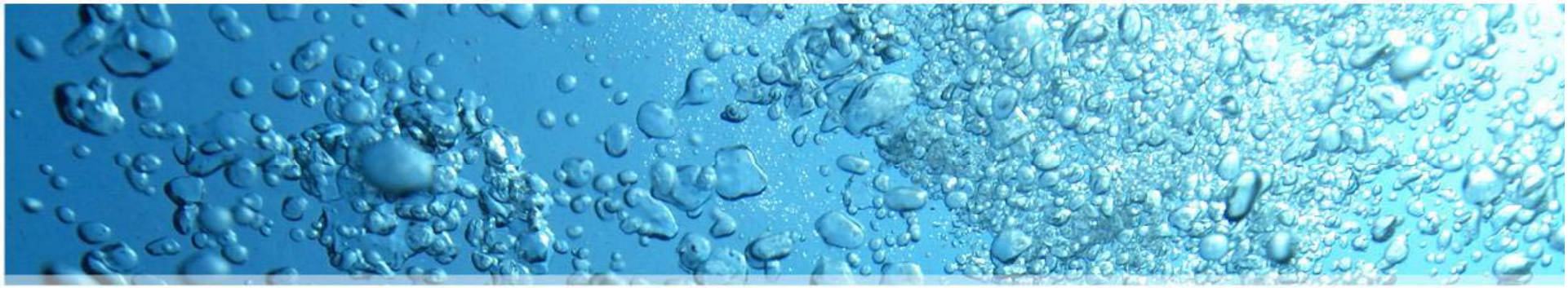




Cross-section number	BFE (NRCS/FEMA)	100-yr water surface (BFE), prop. conditions
B490 (**CG** – FIRM)	3717.0 ft	3718.92 ft
XS-7	---	3713.37 ft
XS-6	---	3712.38 ft *
XS-5	---	3711.98 ft *
XS-4	---	3711.49 ft *
XS-3	---	3710.67 ft
(u/s end of existing vertical logs treatment)		3710.52 ft *
XS-2	---	3709.40 ft
B485 (**CF** – FIRM)	3700.0 ft	3700.55 ft

Table 2. Summary of modeled 100-year water surface elevations for **proposed** conditions

* Denotes increase in modeled 100-year water surface elevation compared to exist. conditions.



Questions ???

THANK YOU FOR ATTENDING
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