

Copper River Delta Bridge #339

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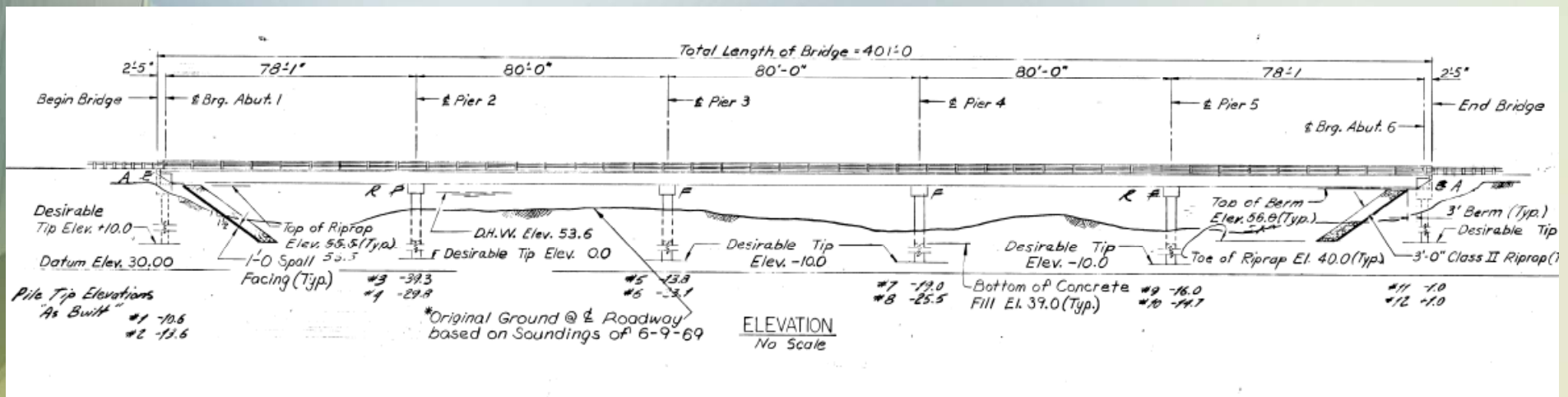
Bridge Section





Bridge Background

- Originally built around 1977
- Five spans of 80-ft each ~ 401-ft total length



Bridge Background



- Two piles per pier = “non-redundant”
- Precast concrete girders spans



Recent Hydraulic Events



- Natural realignment of the Copper River
- Water flow considerations:

HYDROLOGIC and HYDRAULIC SUMMARY	
<u>DRAINAGE AREA:</u>	Portion of entire Copper River drainage, consisting of 23,000 sq.mi.
<u>DESIGN FLOOD FREQUENCY:</u>	50 years 100 years
<u>DESIGN DISCHARGE:</u>	18,500 cfs 21,300 cfs
<u>DESIGN HIGHWATER:</u>	Elev. 53.6 54.0
<u>OTHER FACTORS:</u>	See "COPPER RIVER HYDRAULIC STUDY" report prepared by Hydraulic Branch, dated April 1970.

Design value = 21,300 cfs

2011 measured = 89,000 cfs

Predicted future = 119,000 to 235,000 cfs

- Flow under the Million Dollar Bridge is about 205,600 cfs

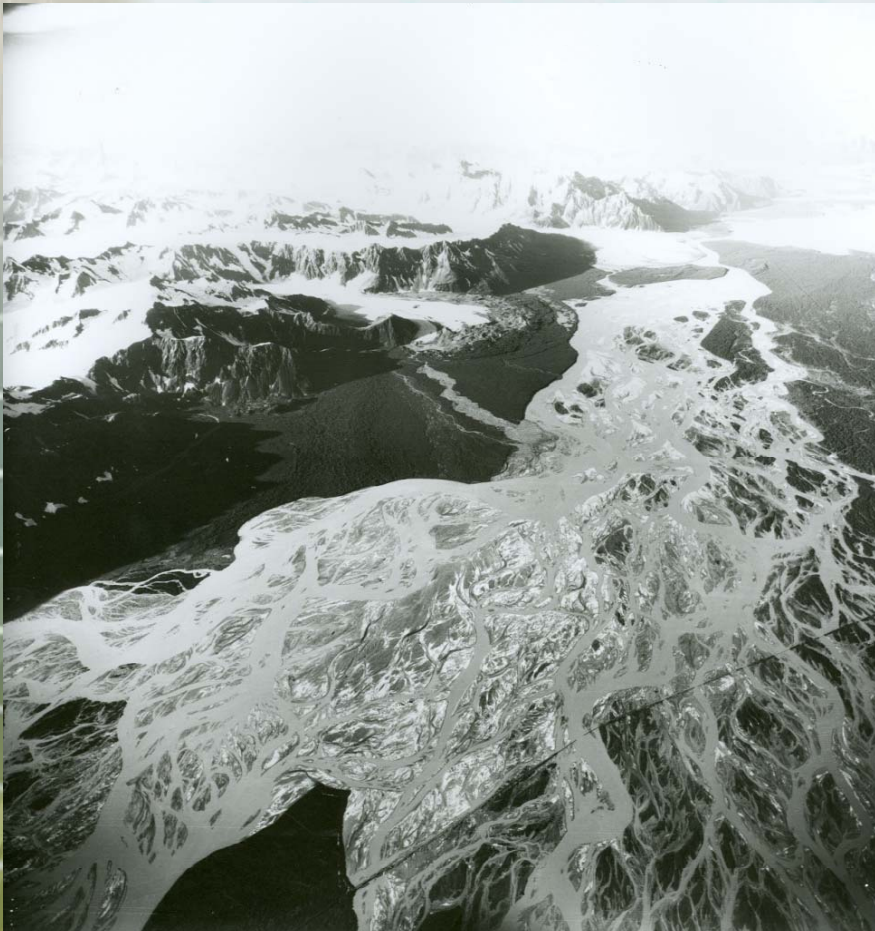
Recent Hydraulic Events #339



Recent Hydraulic Events #339



Recent Hydraulic Events #339



Recent Hydraulic Events #339



Recent Hydraulic Events #342

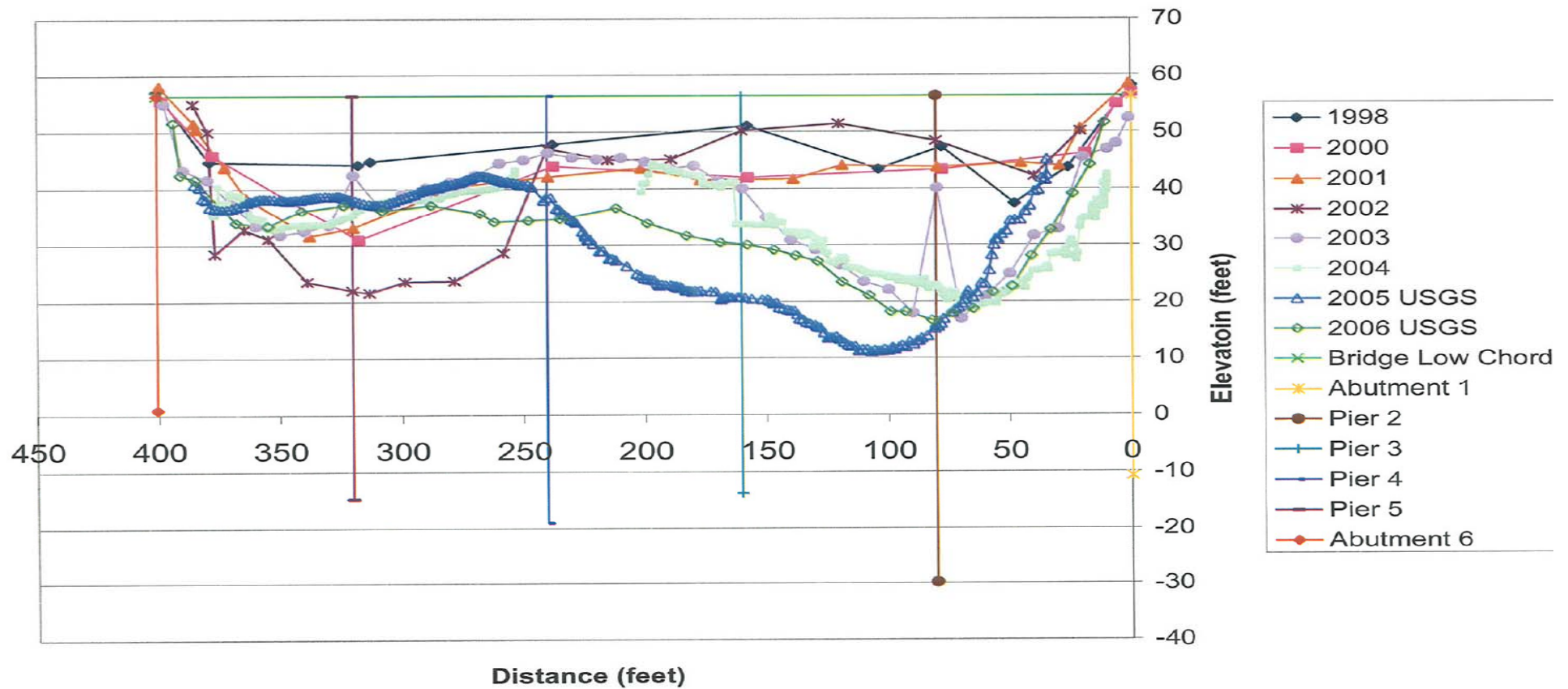


Recent Hydraulic Events



- Channel soundings 1998 to 2006

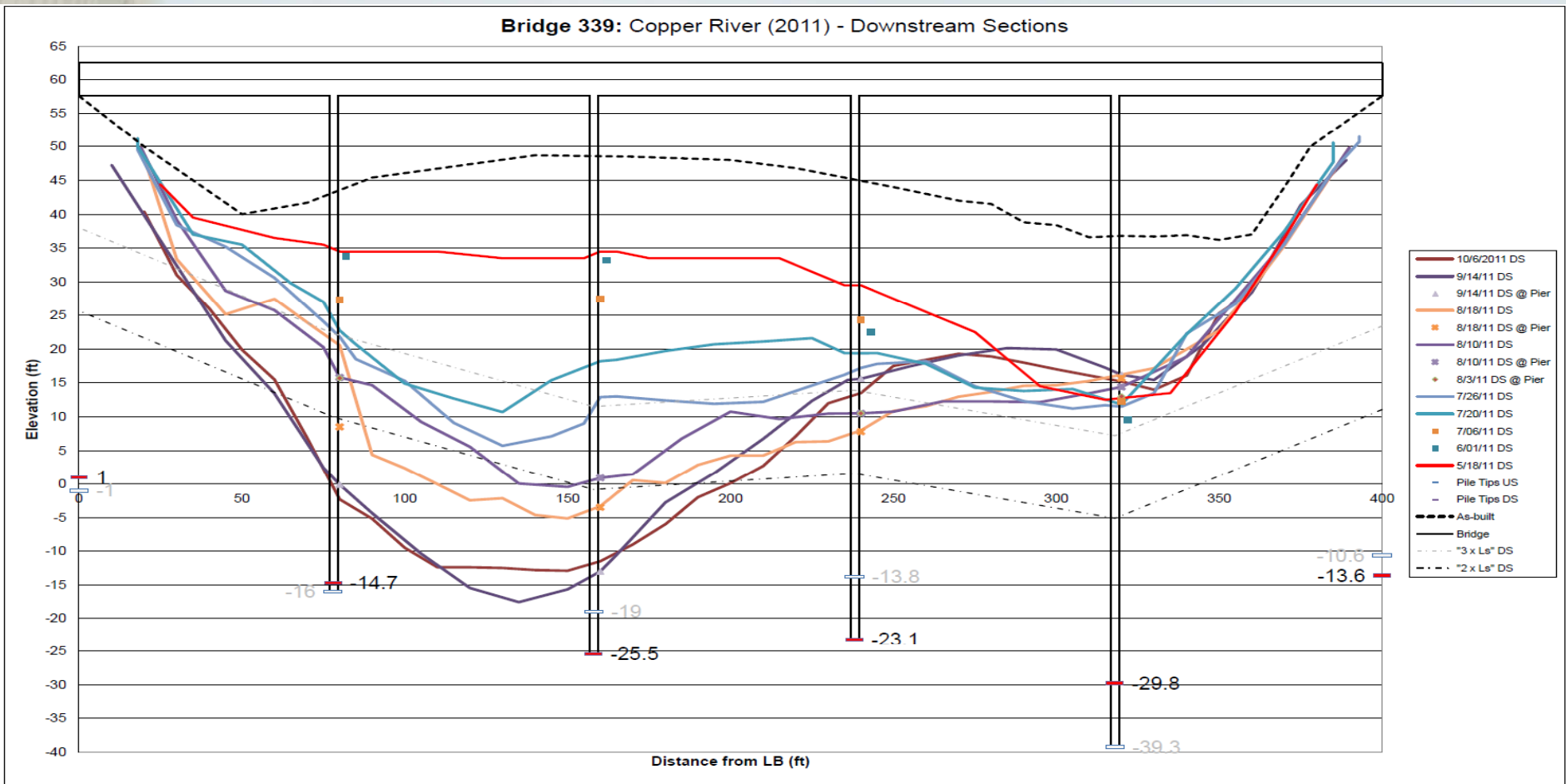
BN339 Copper River Soundings



Recent Hydraulic Events



- Channel soundings summer 2011



Ice Concerns



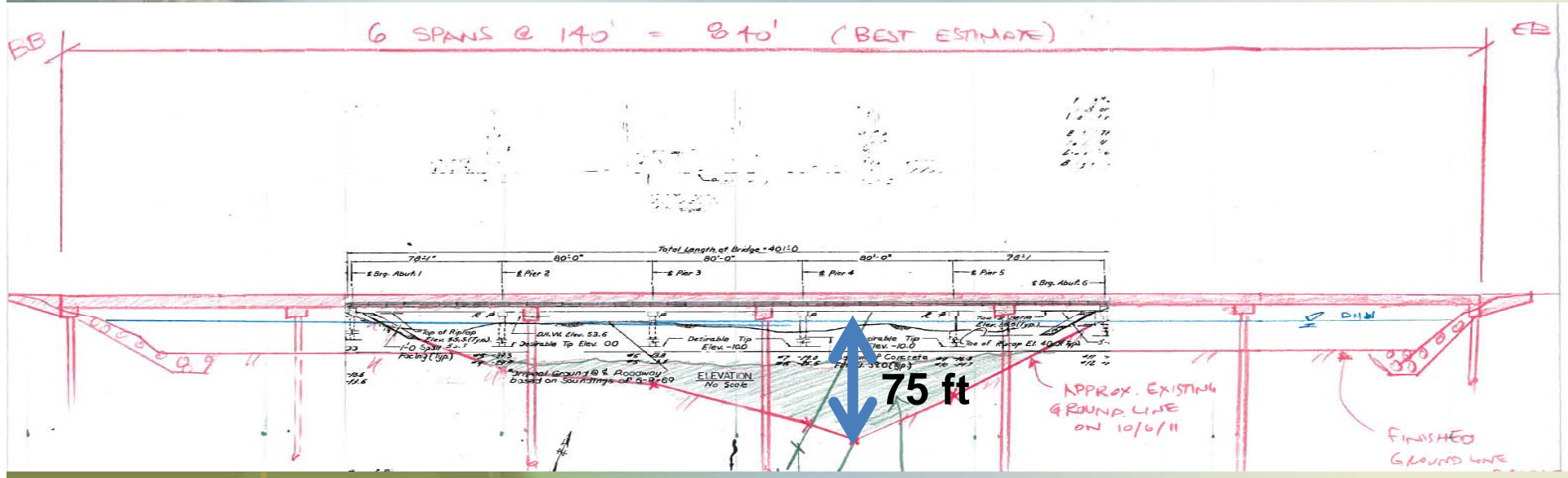
- Bridge failure due to ice loads is not unexpected





Proposed Bridge

- Increase spans to 140-ft each
- Approximately 840-ft long or more
- Deep, single drilled shaft foundations (\$) ...
- ... Or multiple 4-ft diameter pipe piles at piers



Proposed Bridge





Other hurdles

- Access to proposed piers
- Channel migration (see bridge #342)



Anticipated Schedule



- Spring / Summer 2012 – gather engineering field data
- Summer / Fall 2012 – develop hydraulic river model
- Fall / Winter 2012 – Develop preliminary bridge design
- Winter / Spring 2013 – Final environmental document
- Summer 2013 – Final design
- Fall 2013 to Winter 2014 – Permitting & possible ROW
- Spring 2015 - Construction