



Responses to FERC Additional Information Request S-1

Sediment Transport

Final Report Part 2a Figures G-1 thru G-52

Shaun K. Parkinson, P.E.
Engineering Leader

Kelvin Anderson, P.E.
Engineer II

Jeff Conner, P.E.
Engineer II

Hells Canyon Project
FERC No. P-1971-079

February 2005

Copyright © 2005 by Idaho Power Company

LIST OF FIGURES

Figure G-1.	River mile map for the Snake River in Hells Canyon—RM 248.4 to RM 246.6.....	1
Figure G-2.	River mile map for the Snake River in Hells Canyon—RM 246.5 to RM 244.4.....	2
Figure G-3.	River mile map for the Snake River in Hells Canyon—RM 244.3 to RM 242.6.....	3
Figure G-4.	River mile map for the Snake River in Hells Canyon—RM 242.5 to RM 240.8.....	4
Figure G-5.	River mile map for the Snake River in Hells Canyon—RM 240.8 to RM 239.....	5
Figure G-6.	River mile map for the Snake River in Hells Canyon—RM 238.9 to RM 237.....	6
Figure G-7.	River mile map for the Snake River in Hells Canyon—RM 236.9 to RM 234.8.....	7
Figure G-8.	River mile map for the Snake River in Hells Canyon—RM 234.7 to RM 232.8.....	8
Figure G-9.	River mile map for the Snake River in Hells Canyon—RM 232.8 to RM 230.6.....	9
Figure G-10.	River mile map for the Snake River in Hells Canyon—RM 230.5 to RM 228.5.....	10
Figure G-11.	River mile map for the Snake River in Hells Canyon—RM 228.5 to RM 226.8.....	11
Figure G-12.	River mile map for the Snake River in Hells Canyon—RM 226.7 to RM 224.5.....	12
Figure G-13.	River mile map for the Snake River in Hells Canyon—RM 224.4 to RM 222.3.....	13
Figure G-14.	River mile map for the Snake River in Hells Canyon—RM 222.2 to RM 220.6.....	14
Figure G-15.	River mile map for the Snake River in Hells Canyon—RM 220.5 to RM 218.3.....	15
Figure G-16.	River mile map for the Snake River in Hells Canyon—RM 218.2 to RM 216.4.....	16
Figure G-17.	River mile map for the Snake River in Hells Canyon—RM 216.3 to RM 214.2.....	17
Figure G-18.	River mile map for the Snake River in Hells Canyon—RM 214.1 to RM 211.9.....	18
Figure G-19.	River mile map for the Snake River in Hells Canyon—RM 211.8 to RM 209.8.....	19
Figure G-20.	River mile map for the Snake River in Hells Canyon—RM 209.7 to RM 208.....	20
Figure G-21.	River mile map for the Snake River in Hells Canyon—RM 207.9 to RM 206.2.....	21
Figure G-22.	River mile map for the Snake River in Hells Canyon—RM 206.2 to RM 204.3.....	22
Figure G-23.	River mile map for the Snake River in Hells Canyon—RM 204.2 to RM 202.6.....	23
Figure G-24.	River mile map for the Snake River in Hells Canyon—RM 202.5 to RM 201.2.....	24
Figure G-25.	River mile map for the Snake River in Hells Canyon—RM 201.2 to RM 199.8.....	25
Figure G-26.	River mile map for the Snake River in Hells Canyon—RM 199.7 to RM 198.4.....	26
Figure G-27.	River mile map for the Snake River in Hells Canyon—RM 198.4 to RM 196.4.....	27
Figure G-28.	River mile map for the Snake River in Hells Canyon—RM 196.3 to RM 194.4.....	28
Figure G-29.	River mile map for the Snake River in Hells Canyon—RM 194.3 to RM 193.1.....	29
Figure G-30.	River mile map for the Snake River in Hells Canyon—RM 193 to RM 191.6.....	30
Figure G-31.	River mile map for the Snake River in Hells Canyon—RM 191.6 to RM 189.5.....	31
Figure G-32.	River mile map for the Snake River in Hells Canyon—RM 189.4 to RM 187.6.....	32
Figure G-33.	Adjusted (to 12,000 cfs) and unadjusted (raw data) sandbar counts from HCD downstream to the Salmon River confluence.....	33

Figure G-34. Sandbar counts (adjusted to 12,000 cfs) for three reaches in Hells Canyon.	34
Figure G-35. Pine Bar Transect A.	35
Figure G-36. Pine Bar Transect B.....	36
Figure G-37. Pine Bar Transect C.....	37
Figure G-38. Pine Bar Transect D.	38
Figure G-39. Pine Bar plan view.	39
Figure G-40. Salt Creek Bar plan view.....	41
Figure G-41. Salt Creek Transect A.	43
Figure G-42. Salt Creek Transect B.....	44
Figure G-43. Salt Creek Transect C.....	45
Figure G-44. Fish Trap Bar plan view.....	47
Figure G-45. Fish Trap Bar Transect A.	49
Figure G-46. Fish Trap Bar Transect B.	50
Figure G-47. Fish Trap Bar Transect C.	51
Figure G-48. Fish Trap Bar Transect D.....	52
Figure G-49. China Bar plan view.....	53
Figure G-50. China Bar Transect A.....	55
Figure G-51. China Bar Transect B.....	56
Figure G-52. China Bar Transect C.....	57

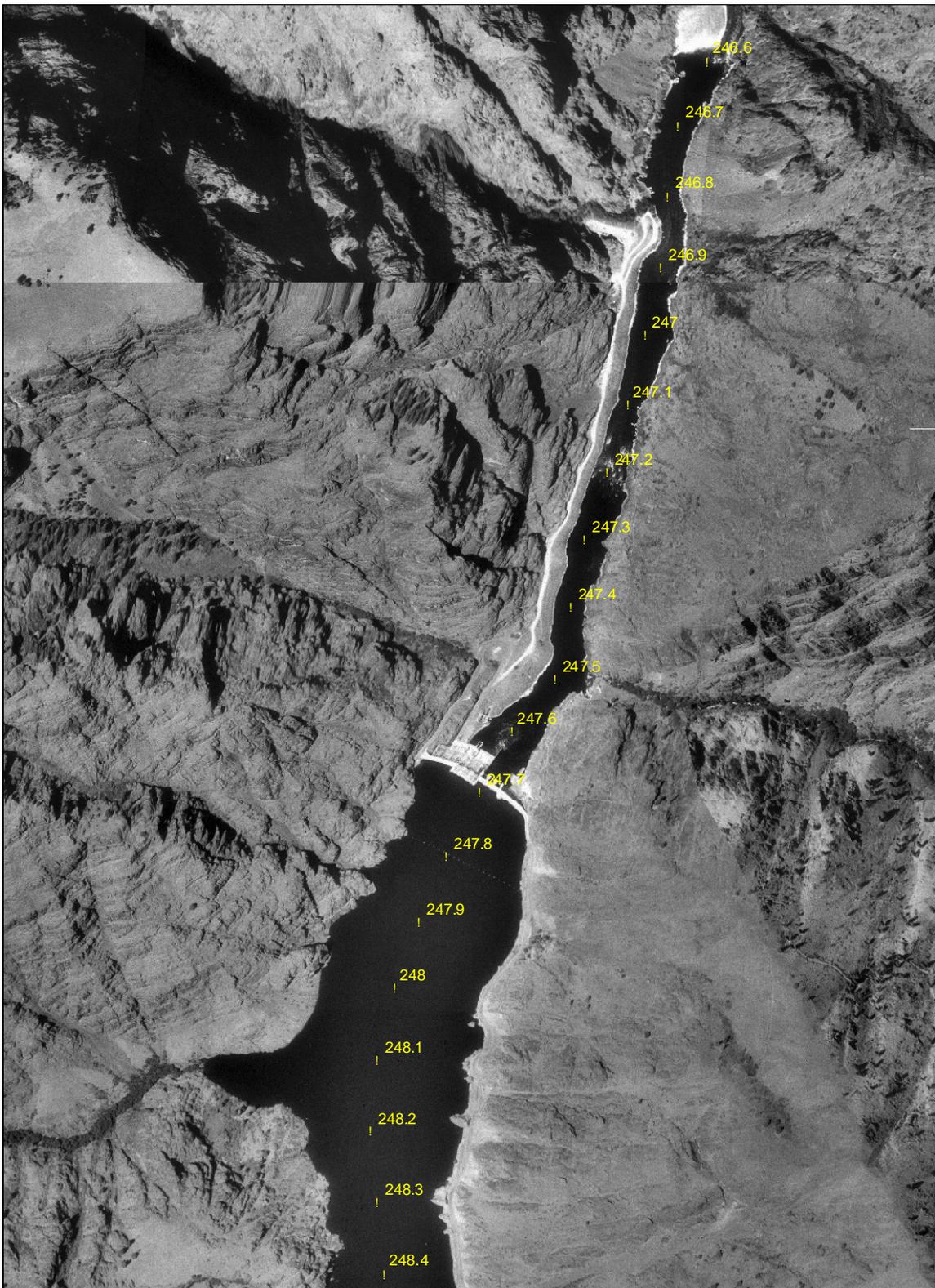


Figure G-1. River mile map for the Snake River in Hells Canyon—RM 248.4 to RM 246.6.

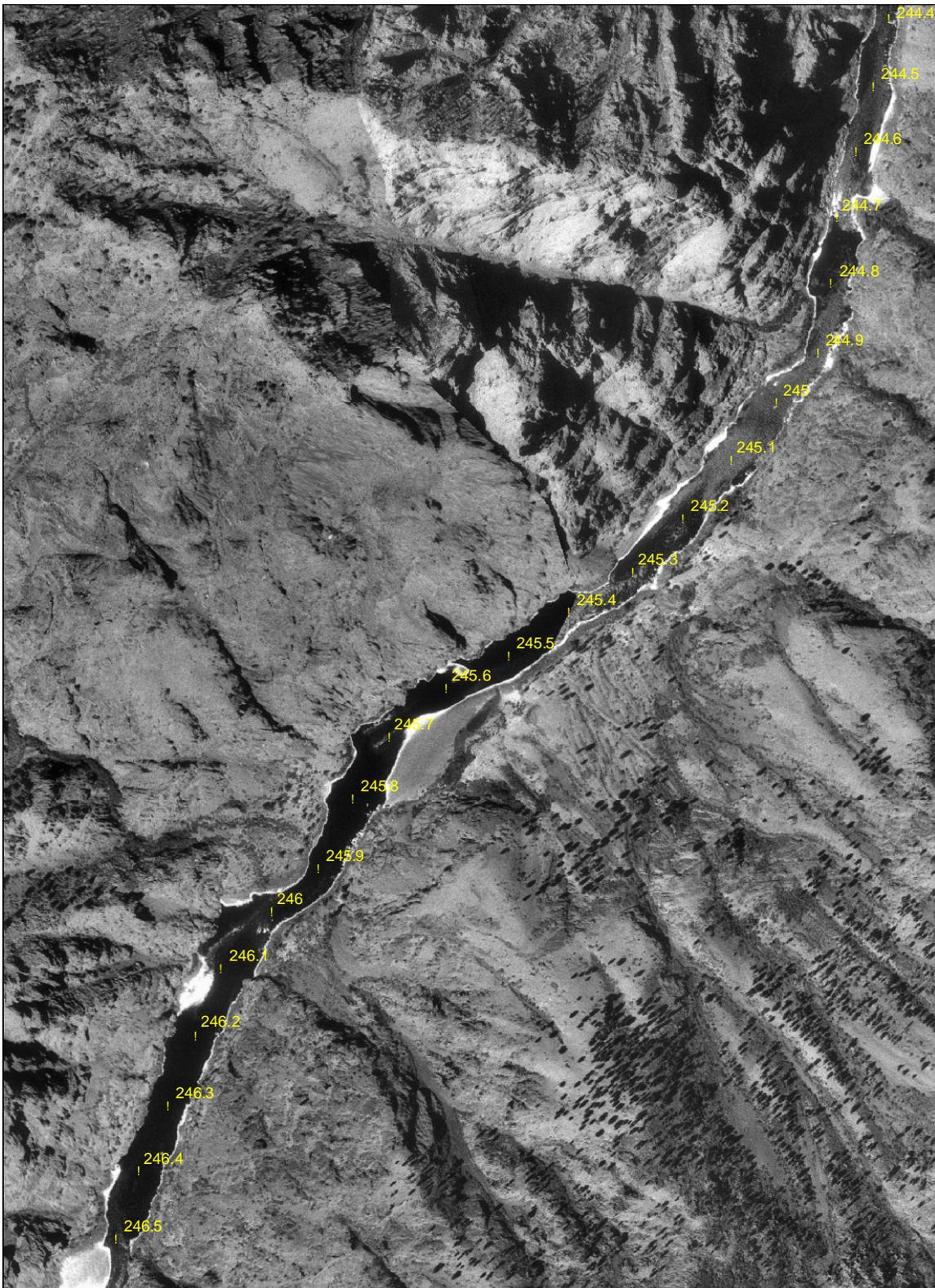


Figure G-2. River mile map for the Snake River in Hells Canyon—RM 246.5 to RM 244.4.

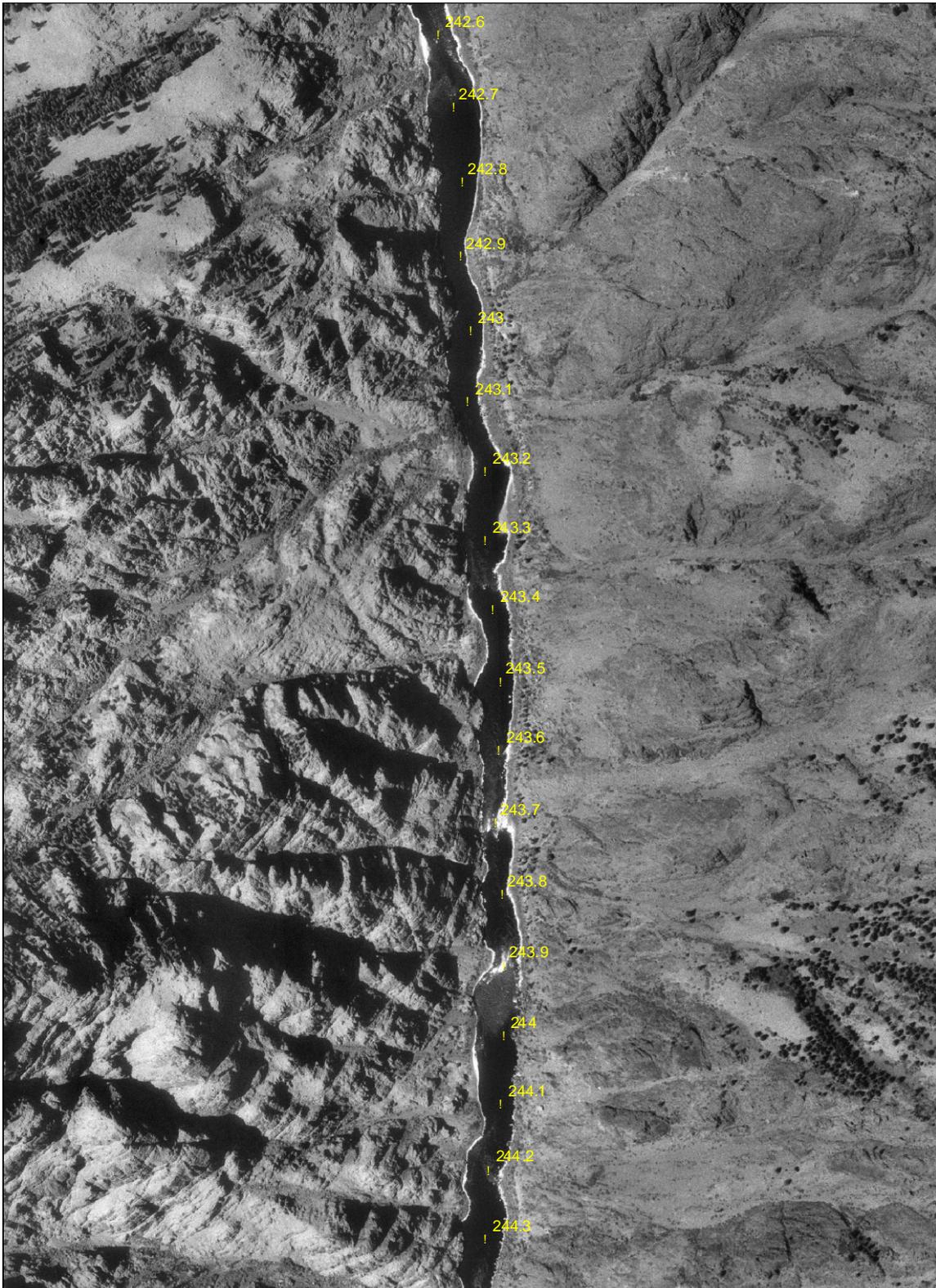


Figure G-3. River mile map for the Snake River in Hells Canyon—RM 244.3 to RM 242.6.



Figure G-4. River mile map for the Snake River in Hells Canyon—RM 242.5 to RM 240.8.

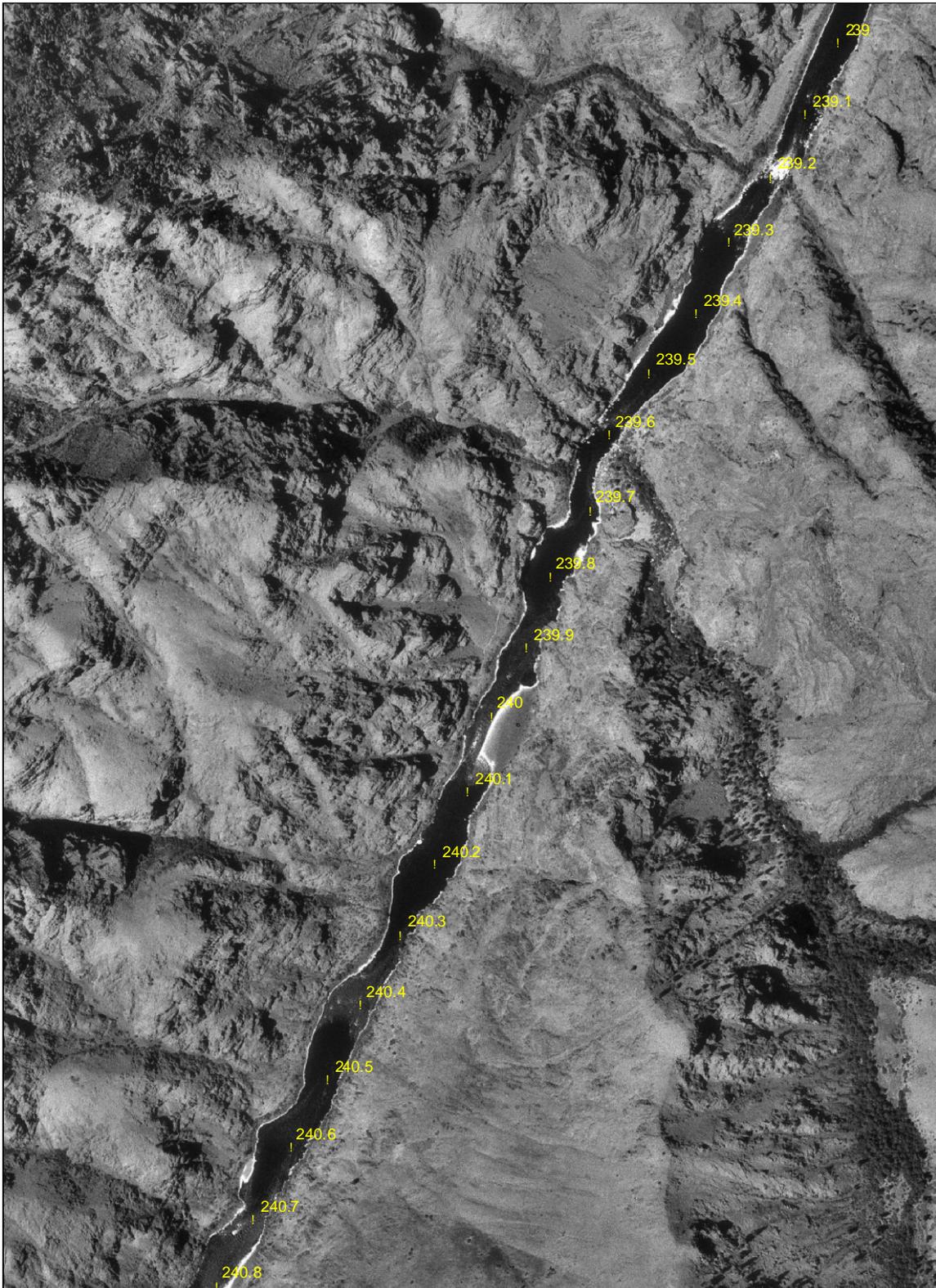


Figure G-5. River mile map for the Snake River in Hells Canyon—RM 240.8 to RM 239.

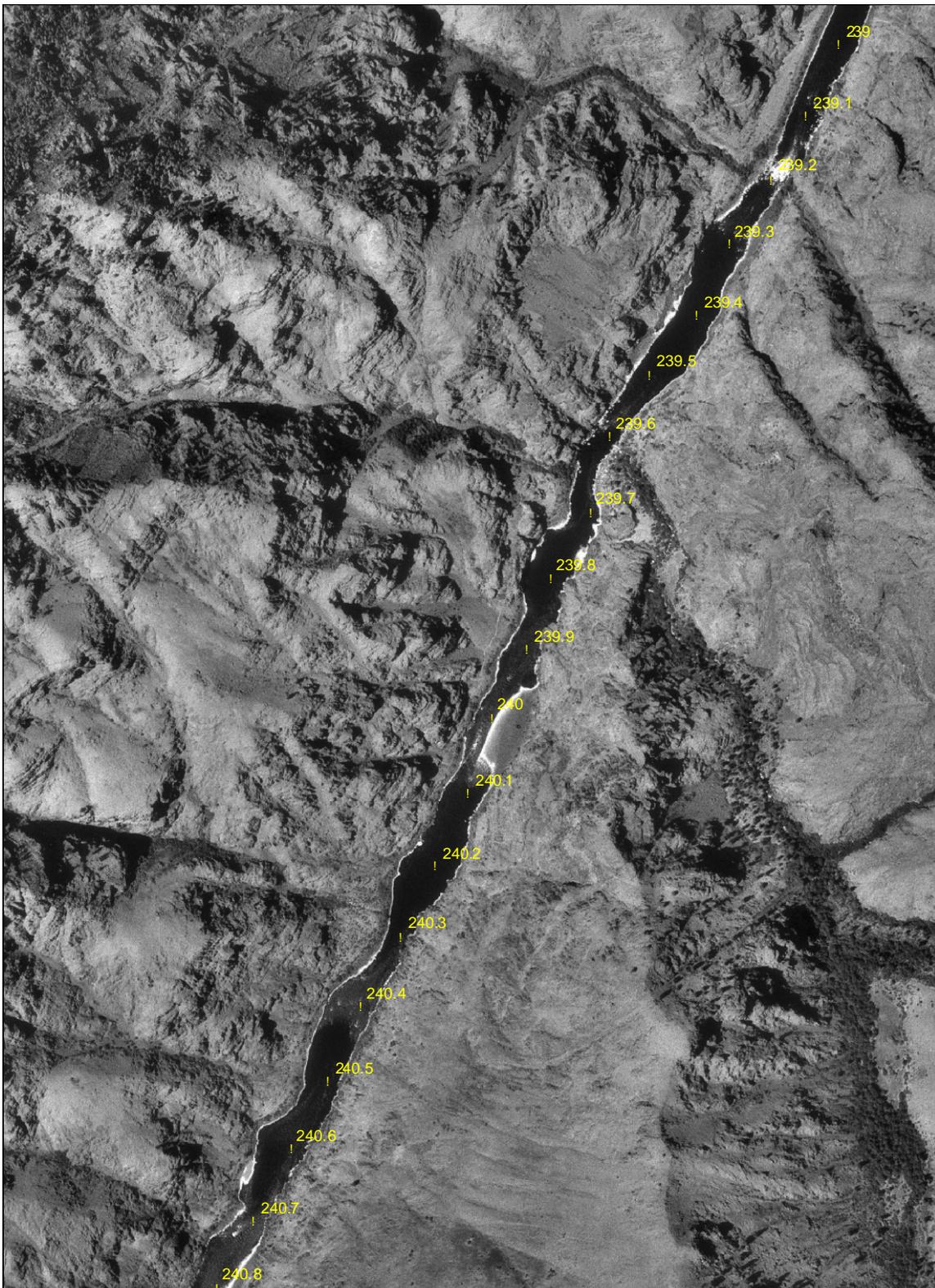


Figure G-6. River mile map for the Snake River in Hells Canyon—RM 238.9 to RM 237.

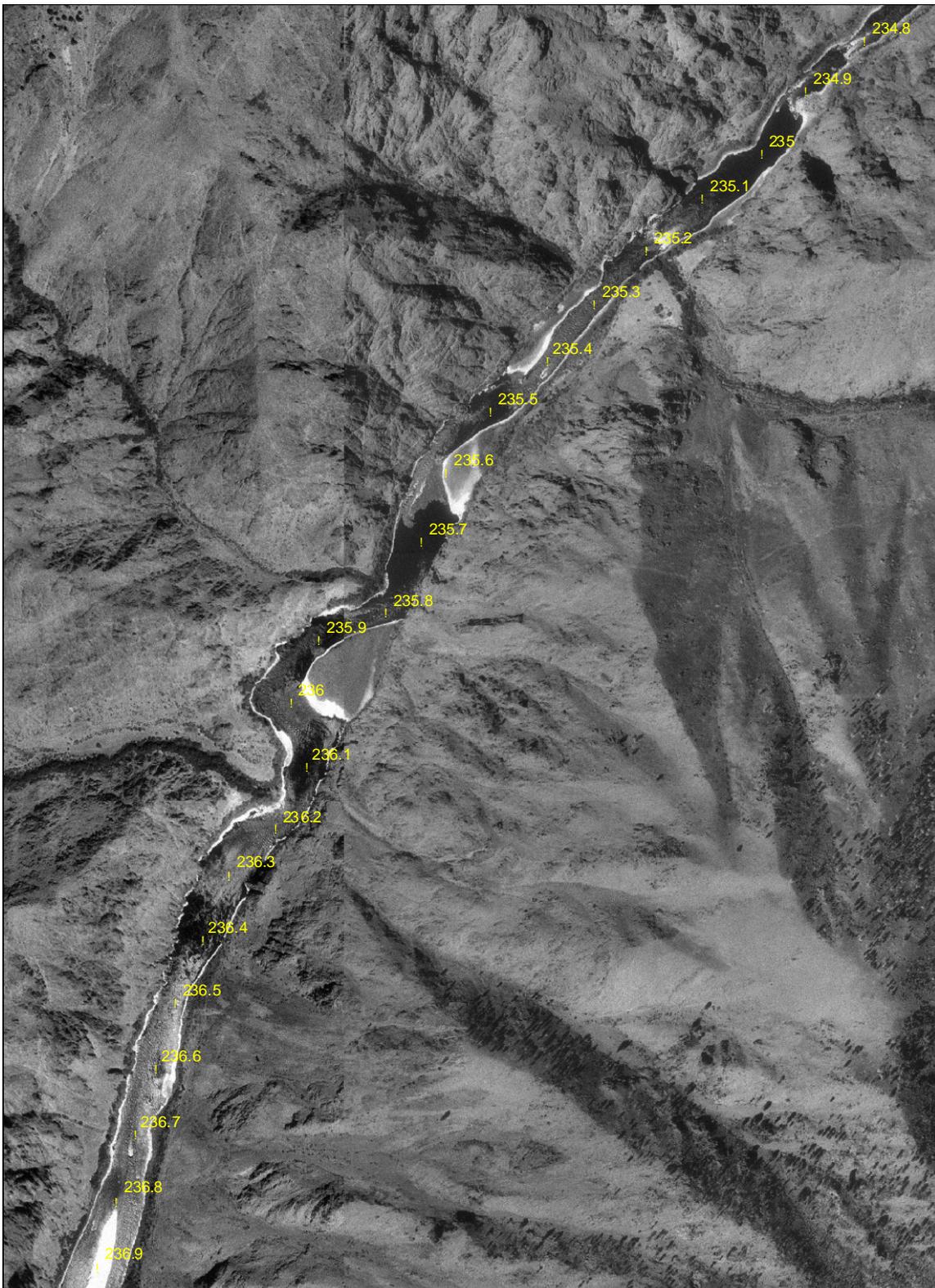


Figure G-7. River mile map for the Snake River in Hells Canyon—RM 236.9 to RM 234.8.

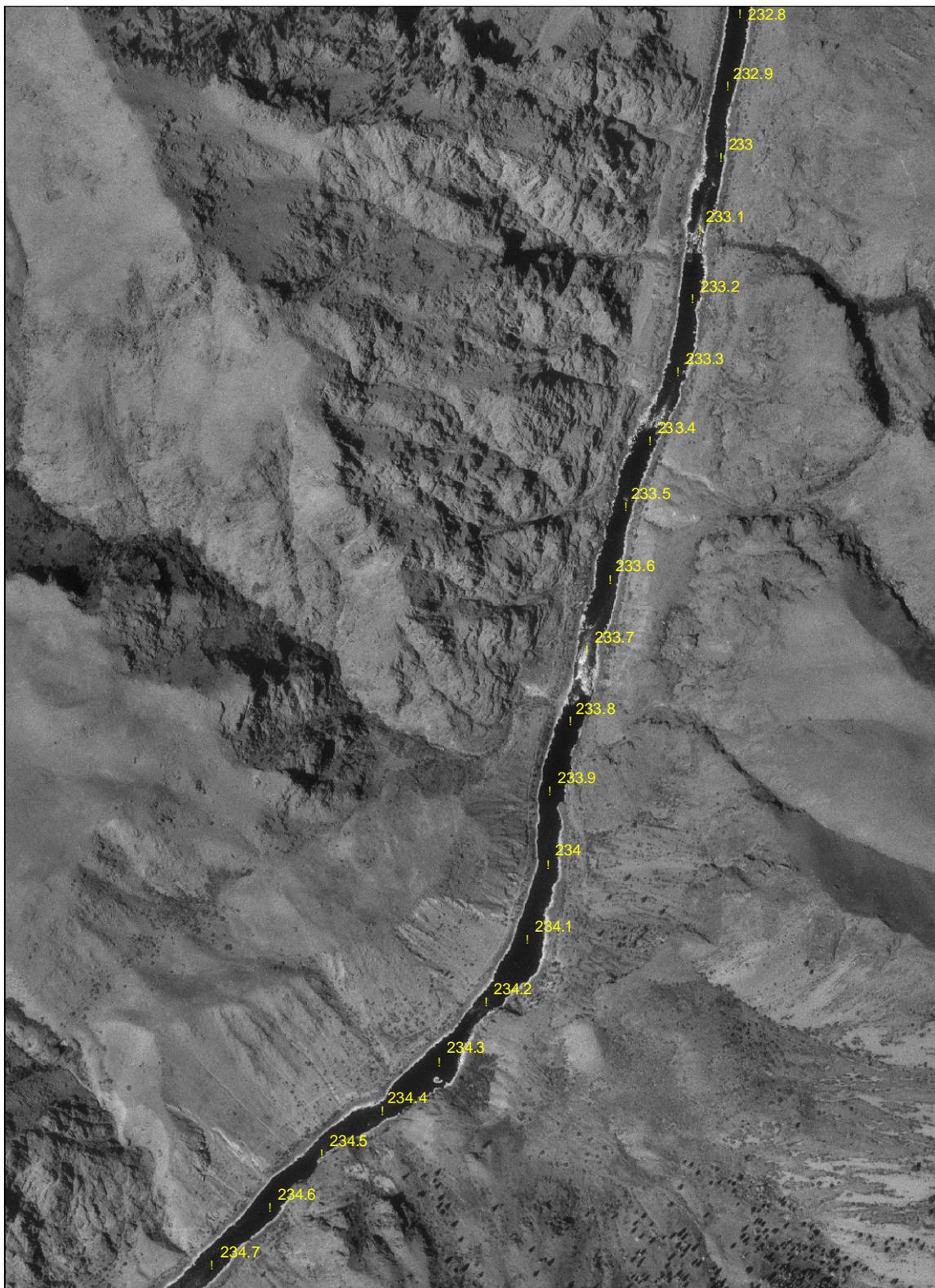


Figure G-8. River mile map for the Snake River in Hells Canyon—RM 234.7 to RM 232.8.



Figure G-9. River mile map for the Snake River in Hells Canyon—RM 232.8 to RM 230.6.

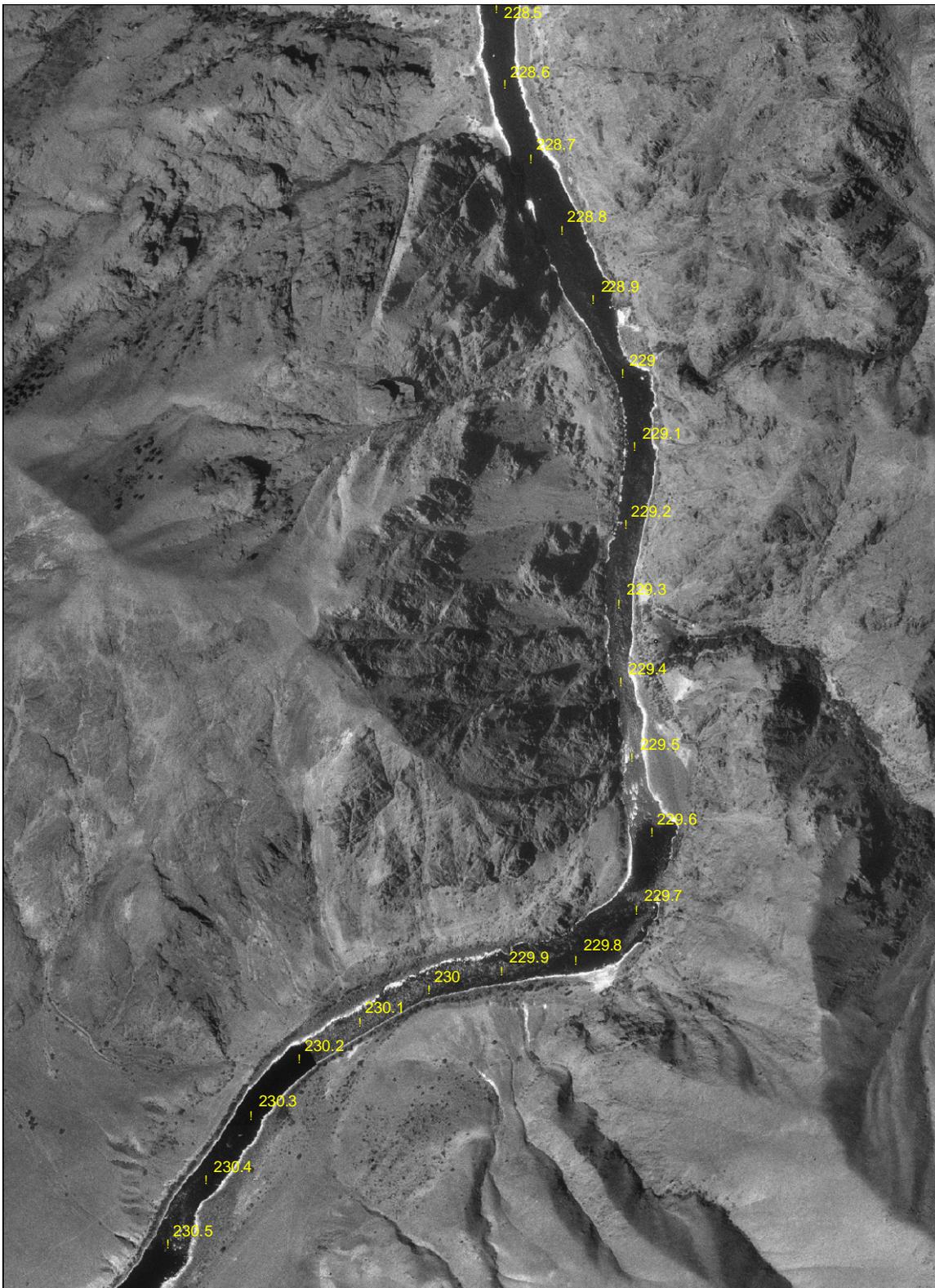


Figure G-10. River mile map for the Snake River in Hells Canyon—RM 230.5 to RM 228.5.

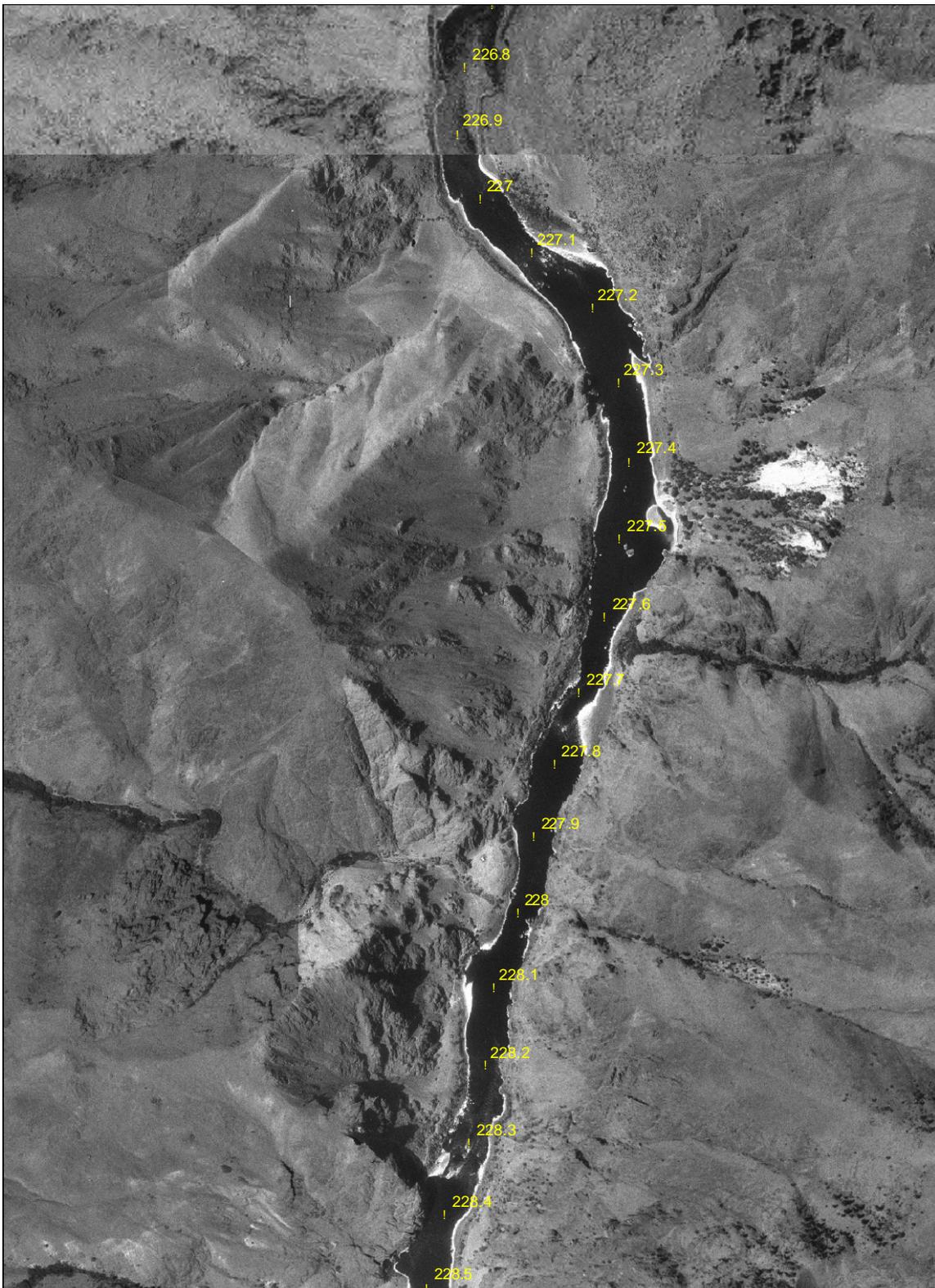


Figure G-11. River mile map for the Snake River in Hells Canyon—RM 228.5 to RM 226.8.

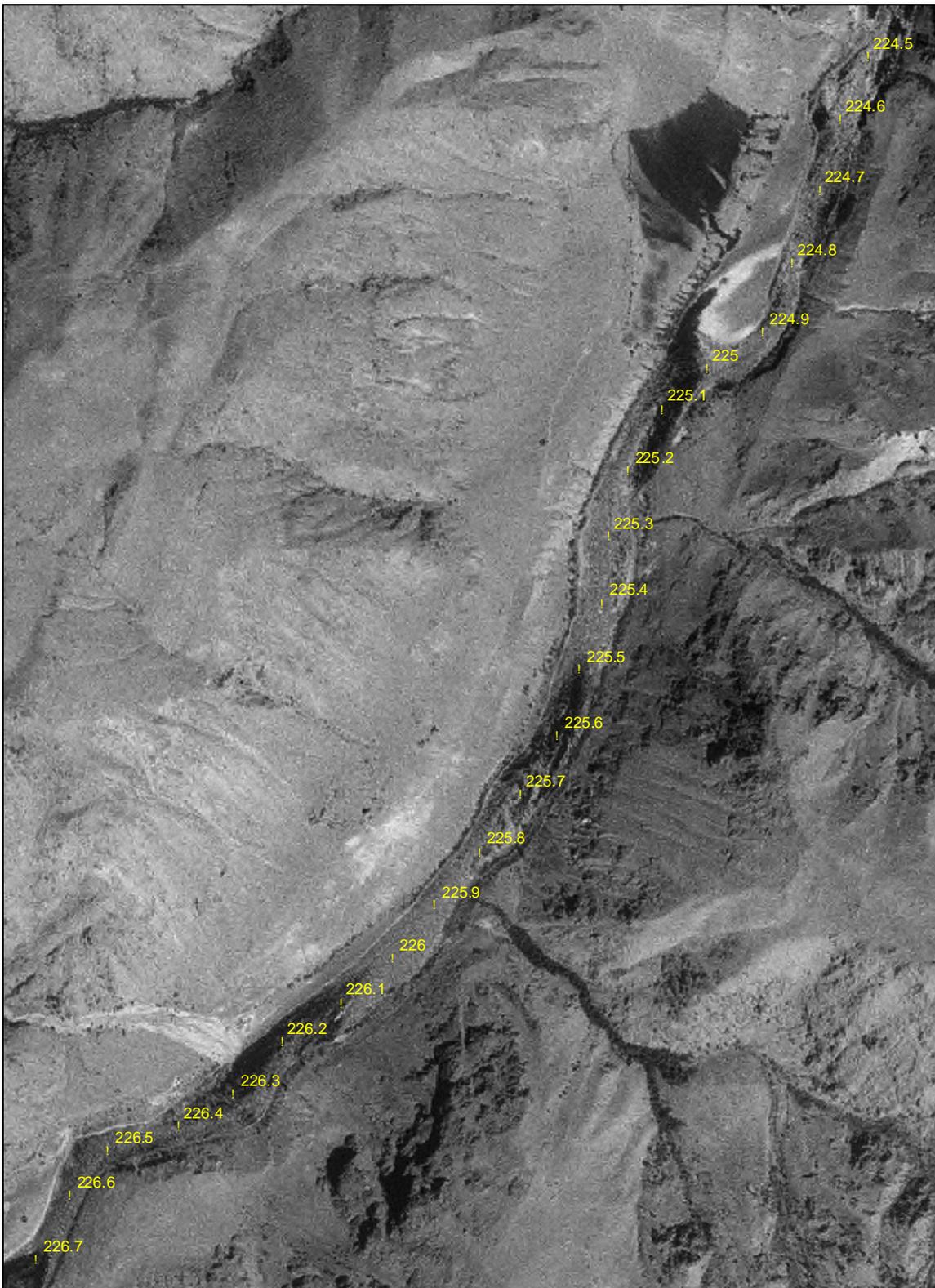


Figure G-12. River mile map for the Snake River in Hells Canyon—RM 226.7 to RM 224.5.

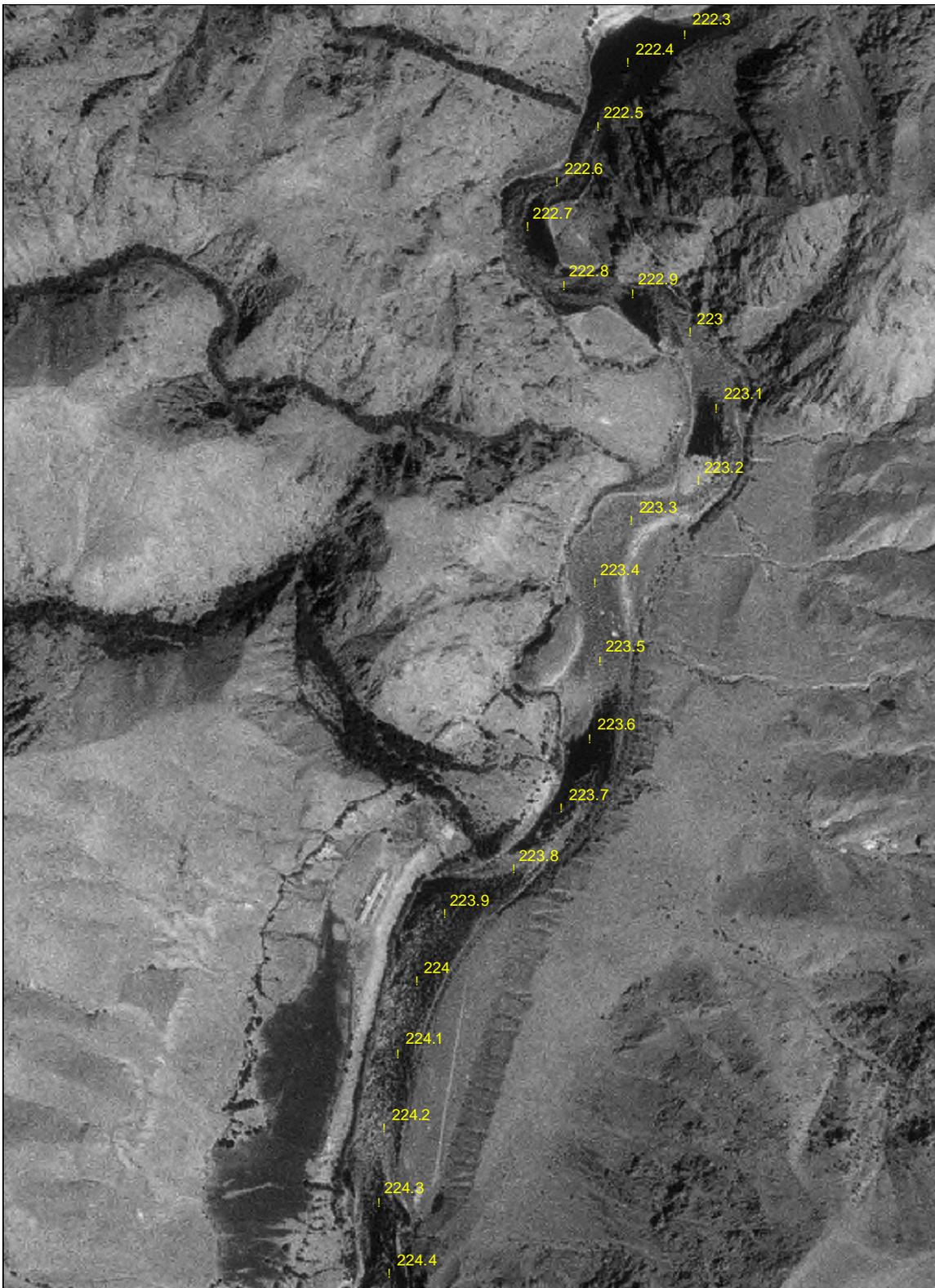


Figure G-13. River mile map for the Snake River in Hells Canyon—RM 224.4 to RM 222.3.



Figure G-14. River mile map for the Snake River in Hells Canyon—RM 222.2 to RM 220.6.

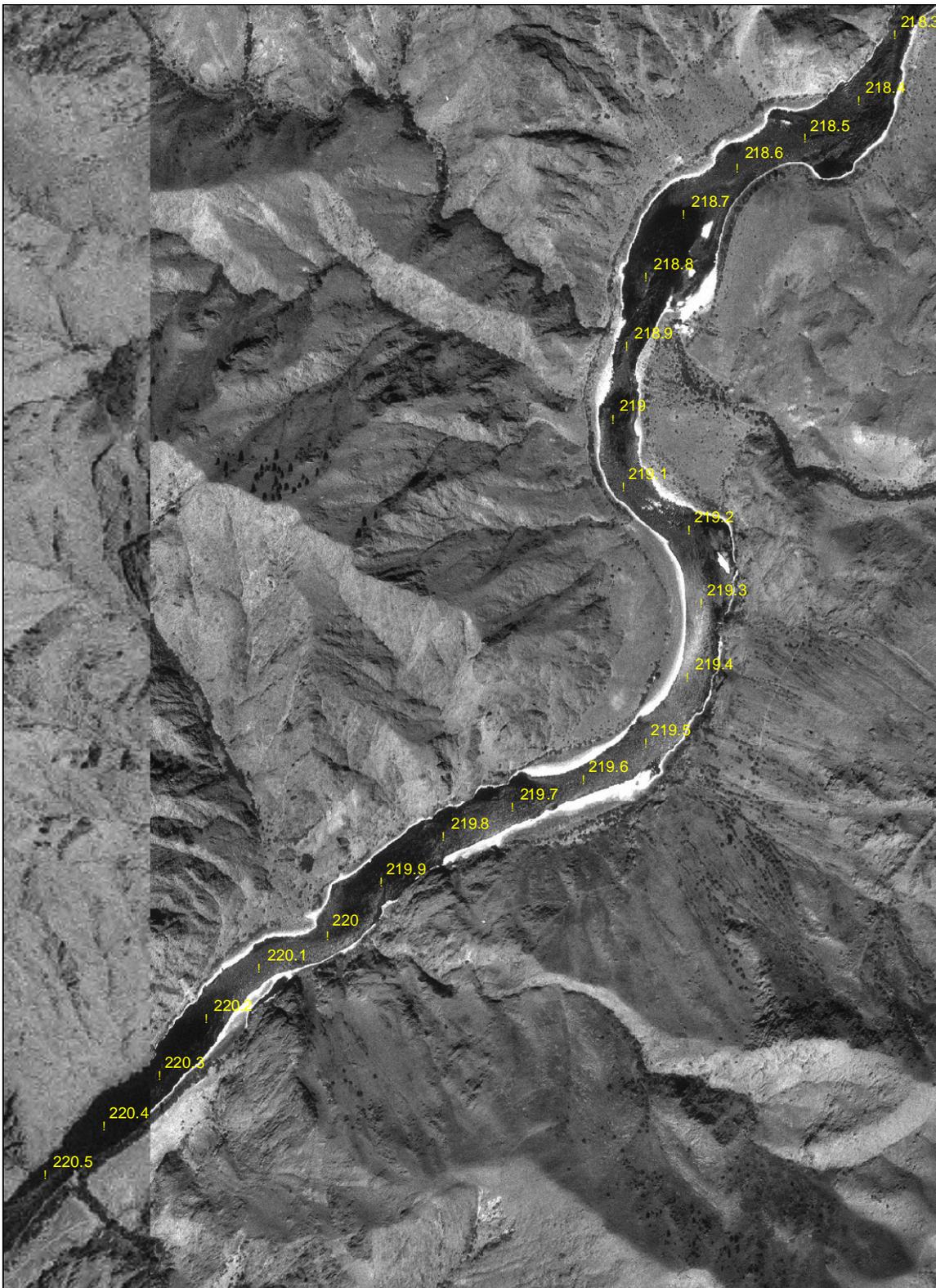


Figure G-15. River mile map for the Snake River in Hells Canyon—RM 220.5 to RM 218.3.

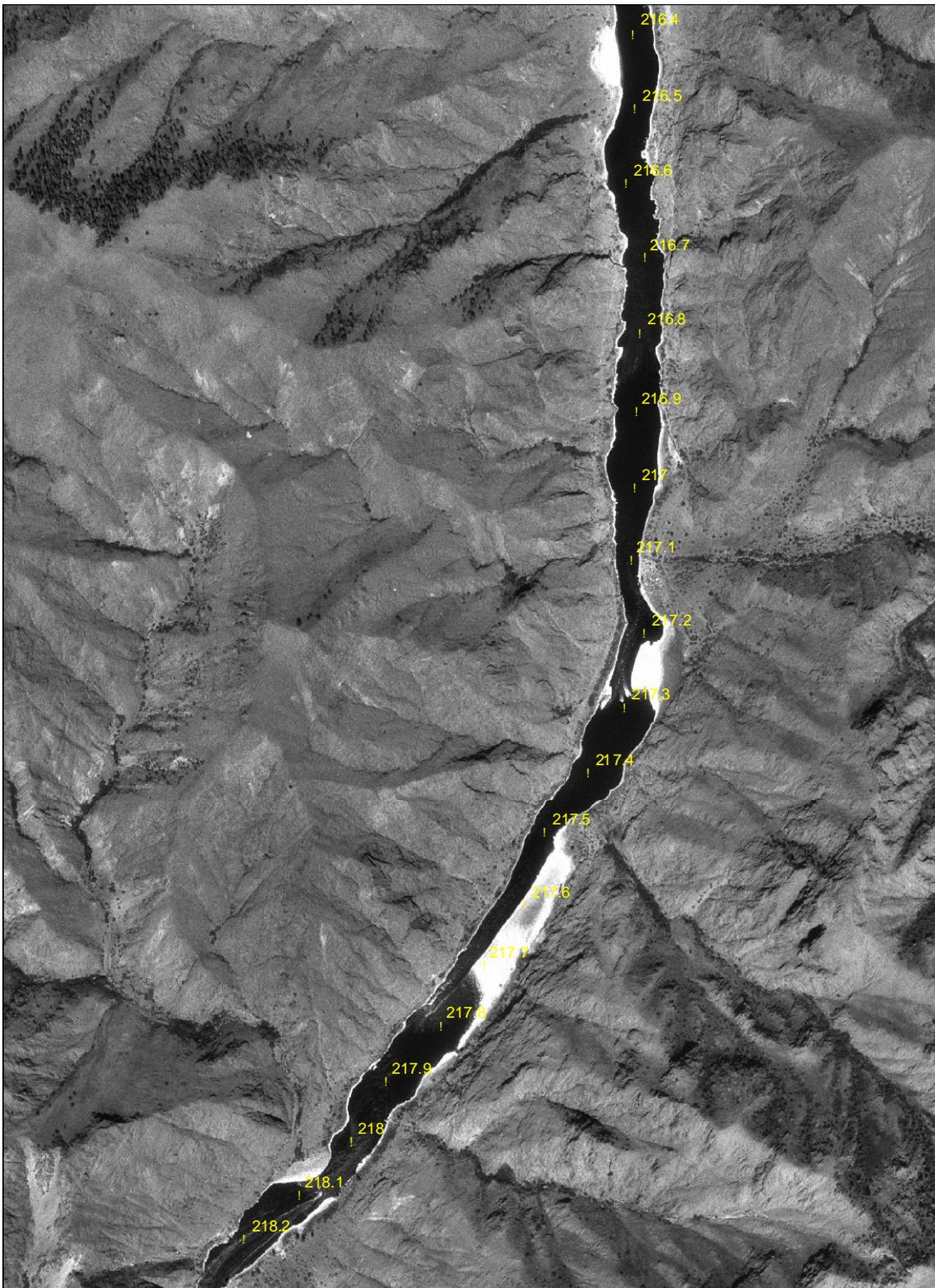


Figure G-16. River mile map for the Snake River in Hells Canyon—RM 218.2 to RM 216.4.

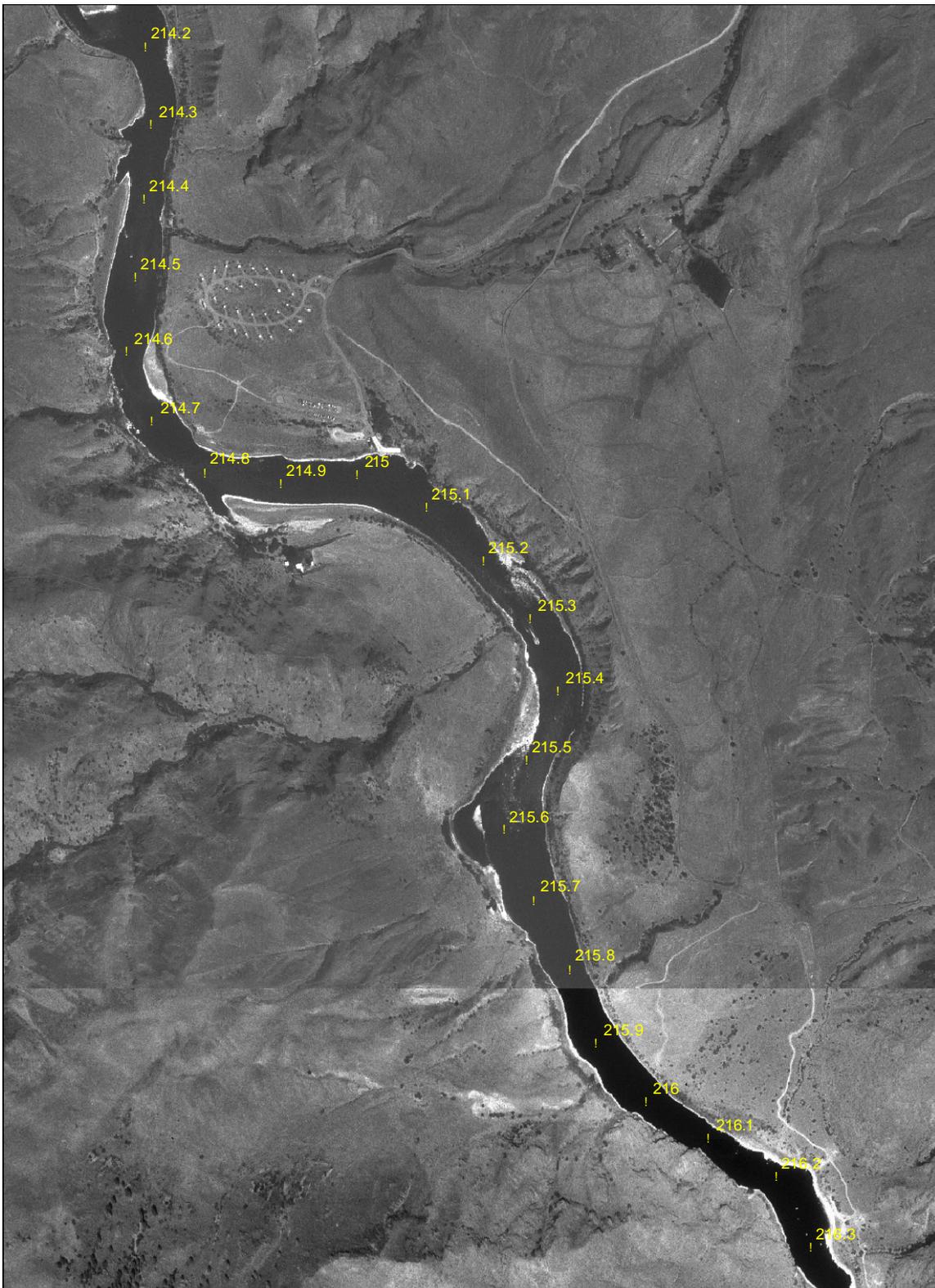


Figure G-17. River mile map for the Snake River in Hells Canyon—RM 216.3 to RM 214.2.

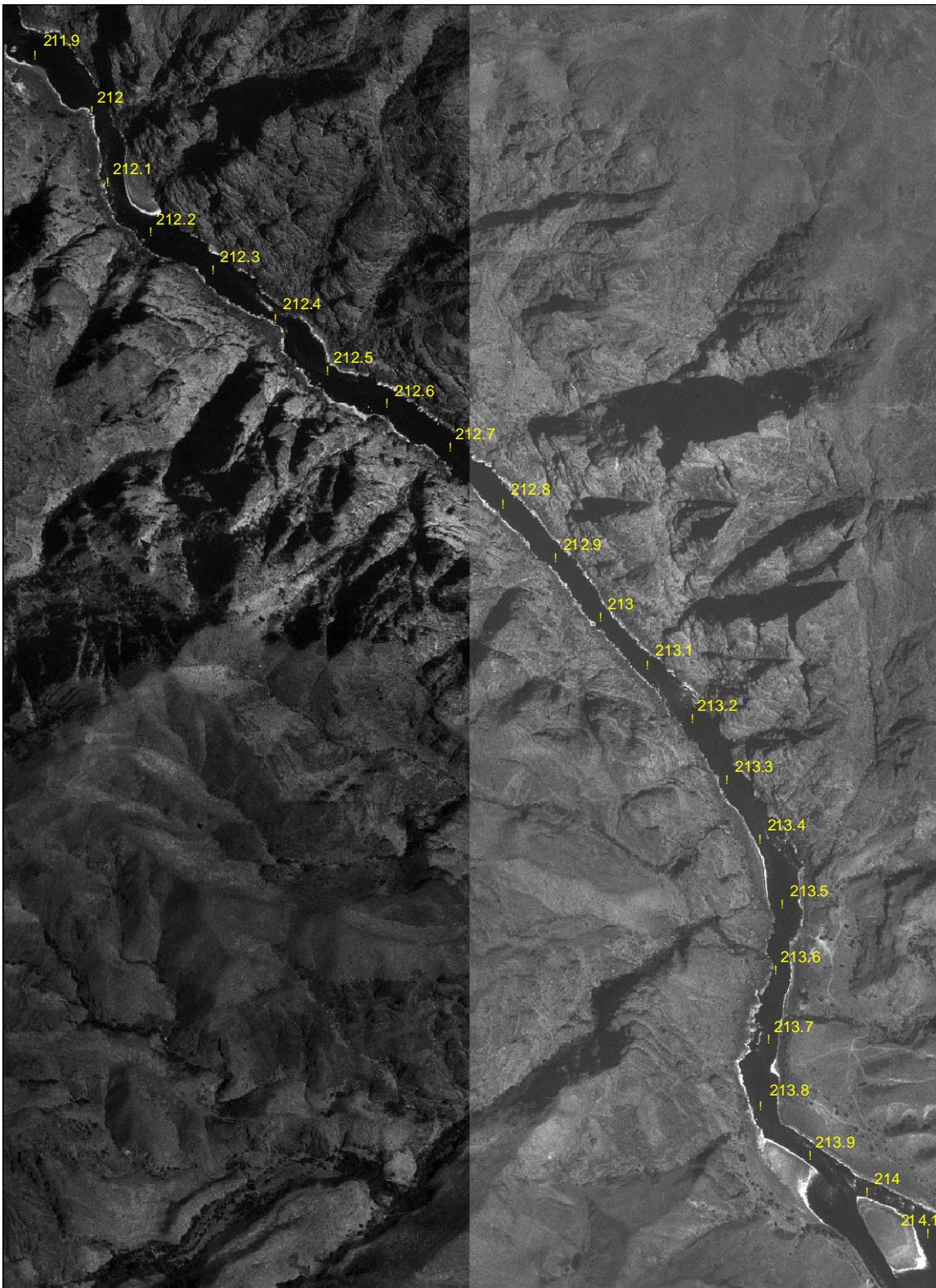


Figure G-18. River mile map for the Snake River in Hells Canyon—RM 214.1 to RM 211.9.



Figure G-19. River mile map for the Snake River in Hells Canyon—RM 211.8 to RM 209.8.



Figure G-20. River mile map for the Snake River in Hells Canyon—RM 209.7 to RM 208.

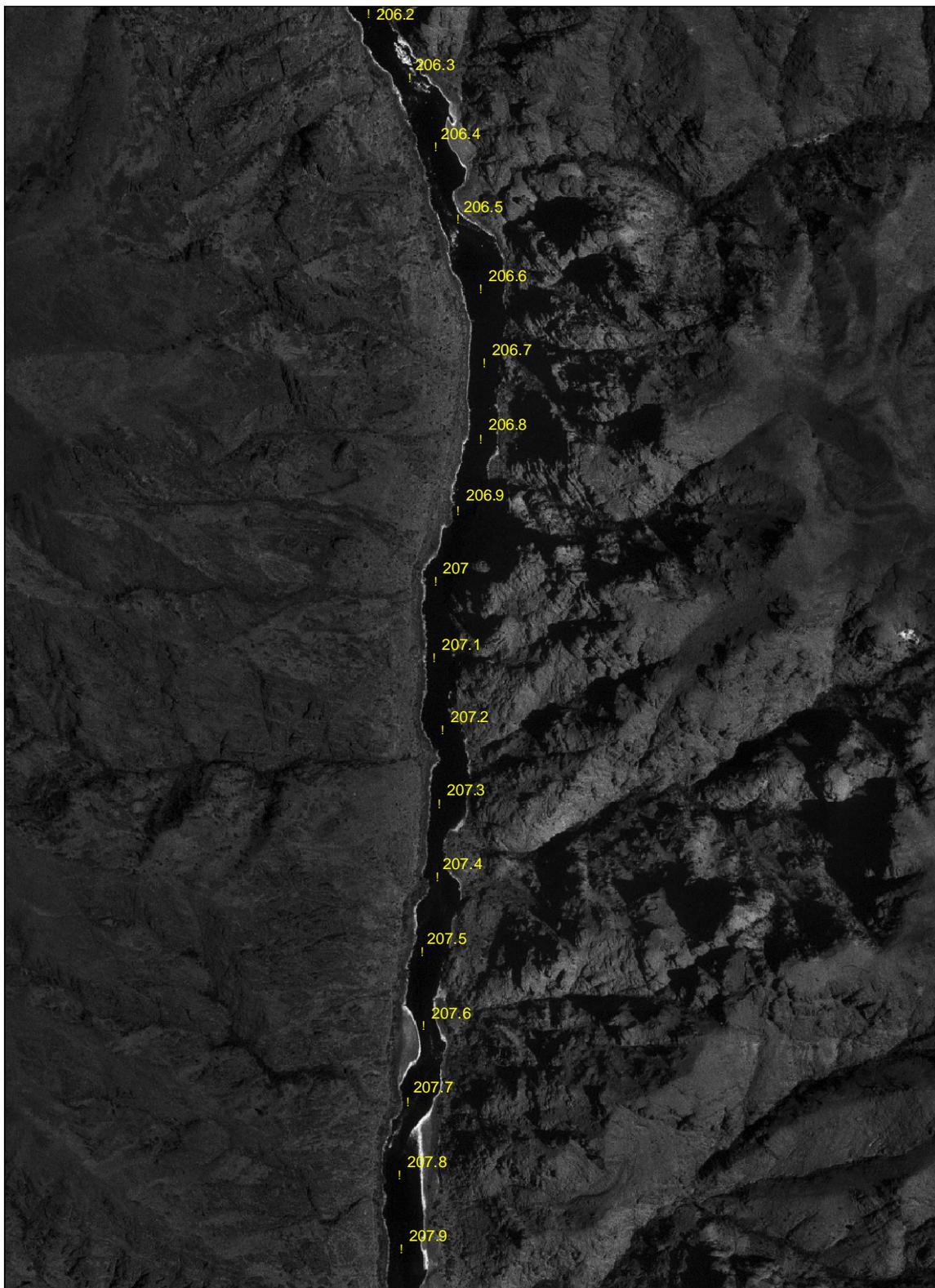


Figure G-21. River mile map for the Snake River in Hells Canyon—RM 207.9 to RM 206.2.

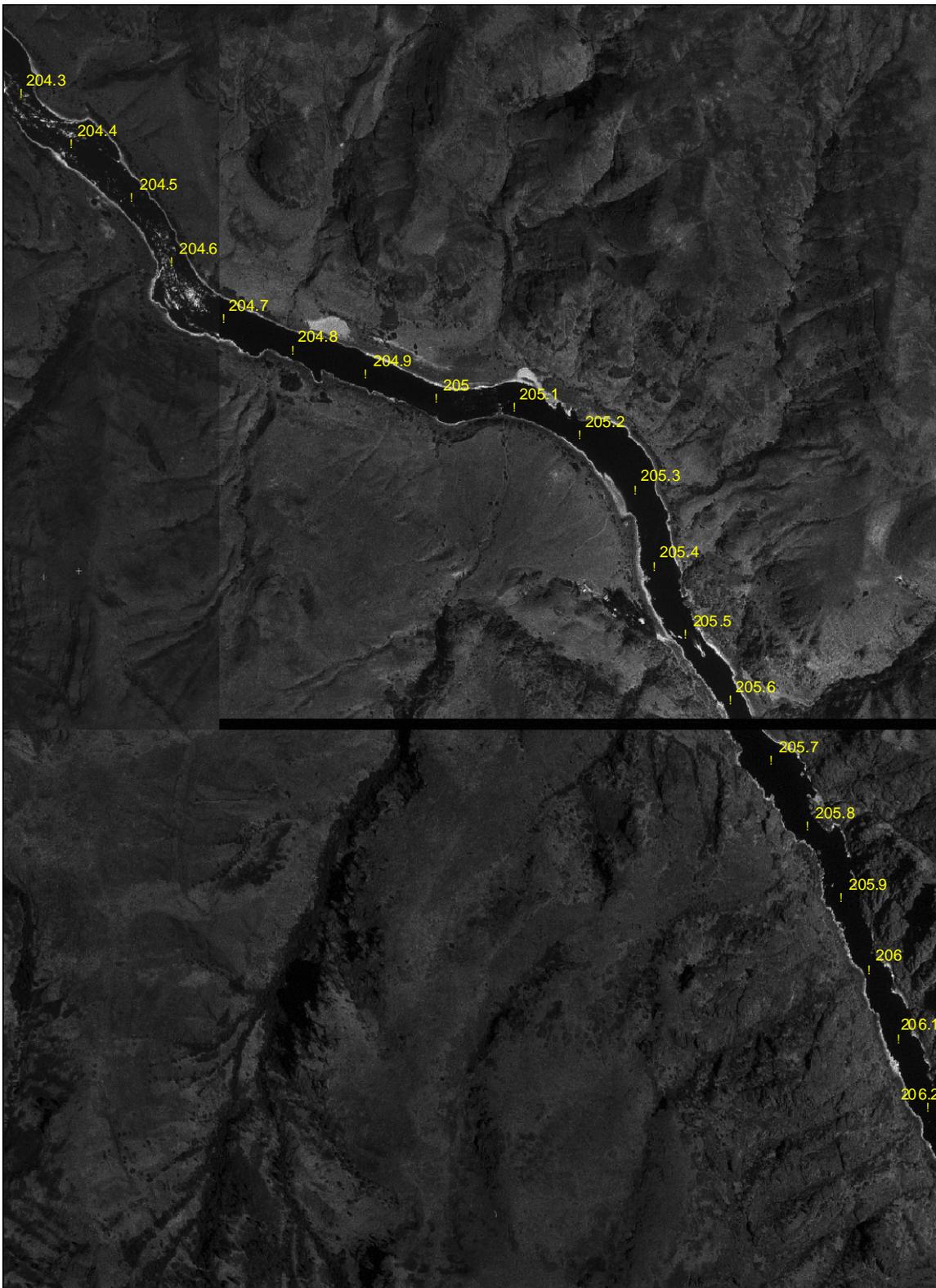


Figure G-22. River mile map for the Snake River in Hells Canyon—RM 206.2 to RM 204.3.

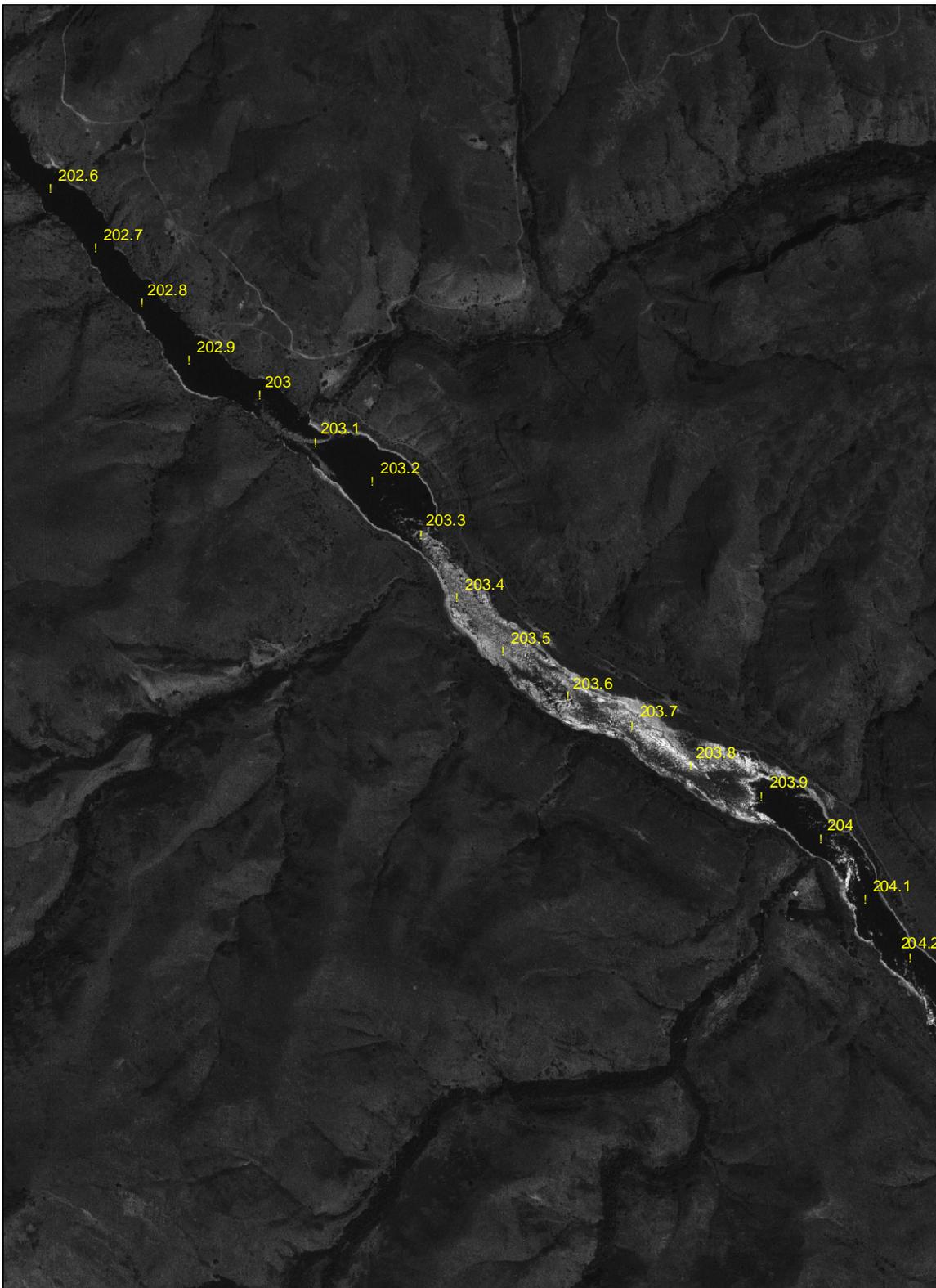


Figure G-23. River mile map for the Snake River in Hells Canyon—RM 204.2 to RM 202.6.



Figure G-24. River mile map for the Snake River in Hells Canyon—RM 202.5 to RM 201.2.

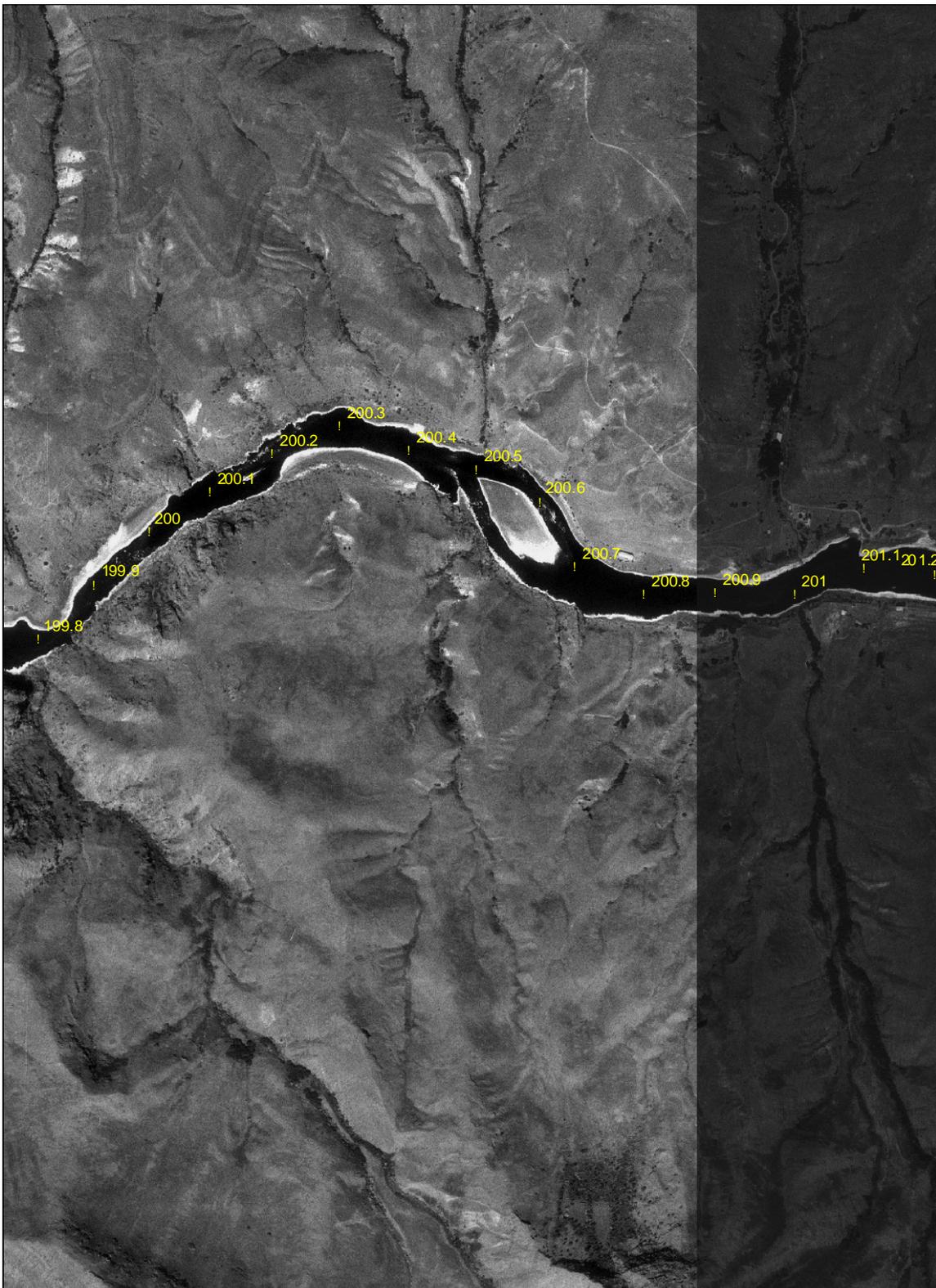


Figure G-25. River mile map for the Snake River in Hells Canyon—RM 201.2 to RM 199.8.

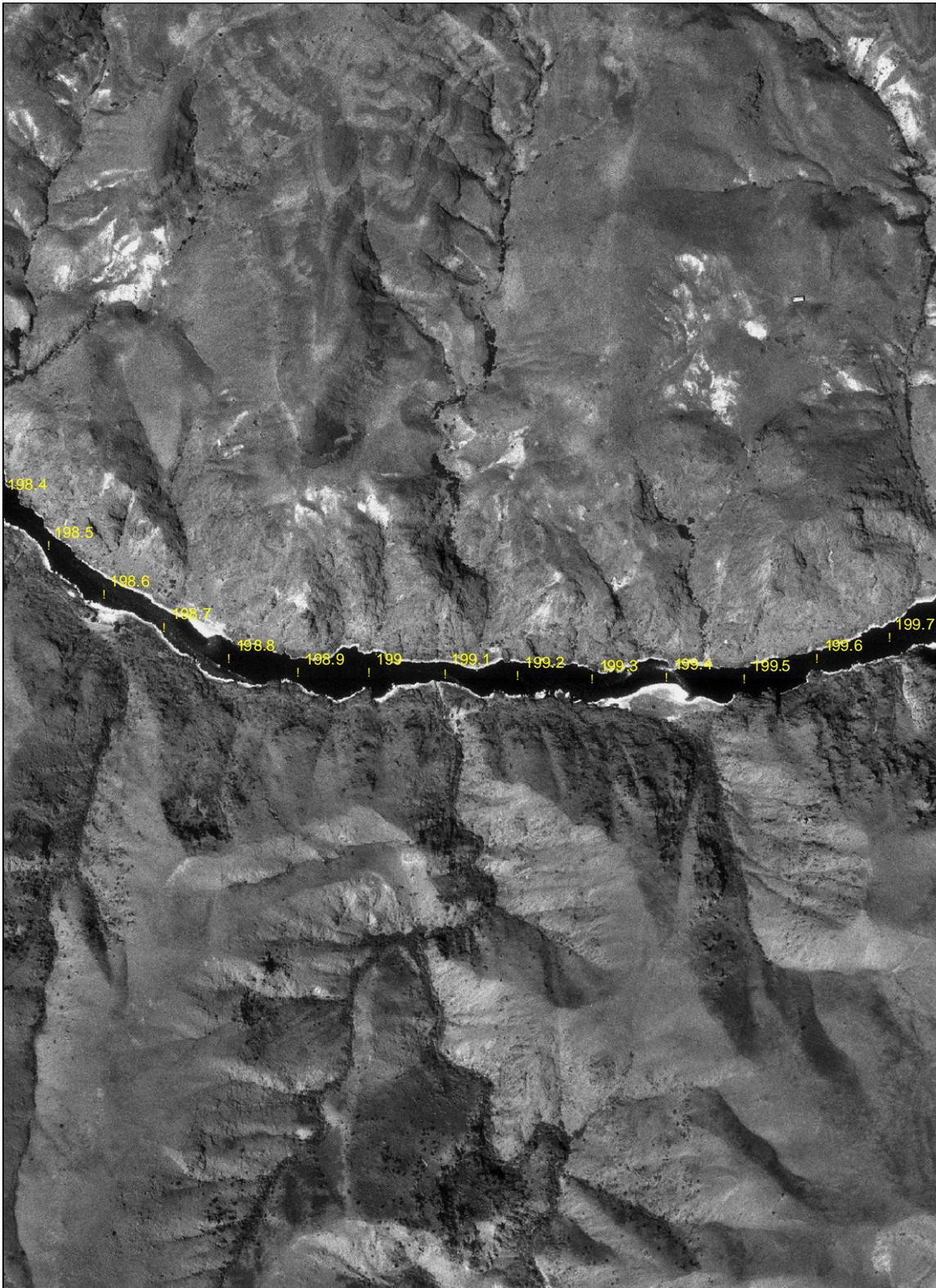


Figure G-26. River mile map for the Snake River in Hells Canyon—RM 199.7 to RM 198.4.

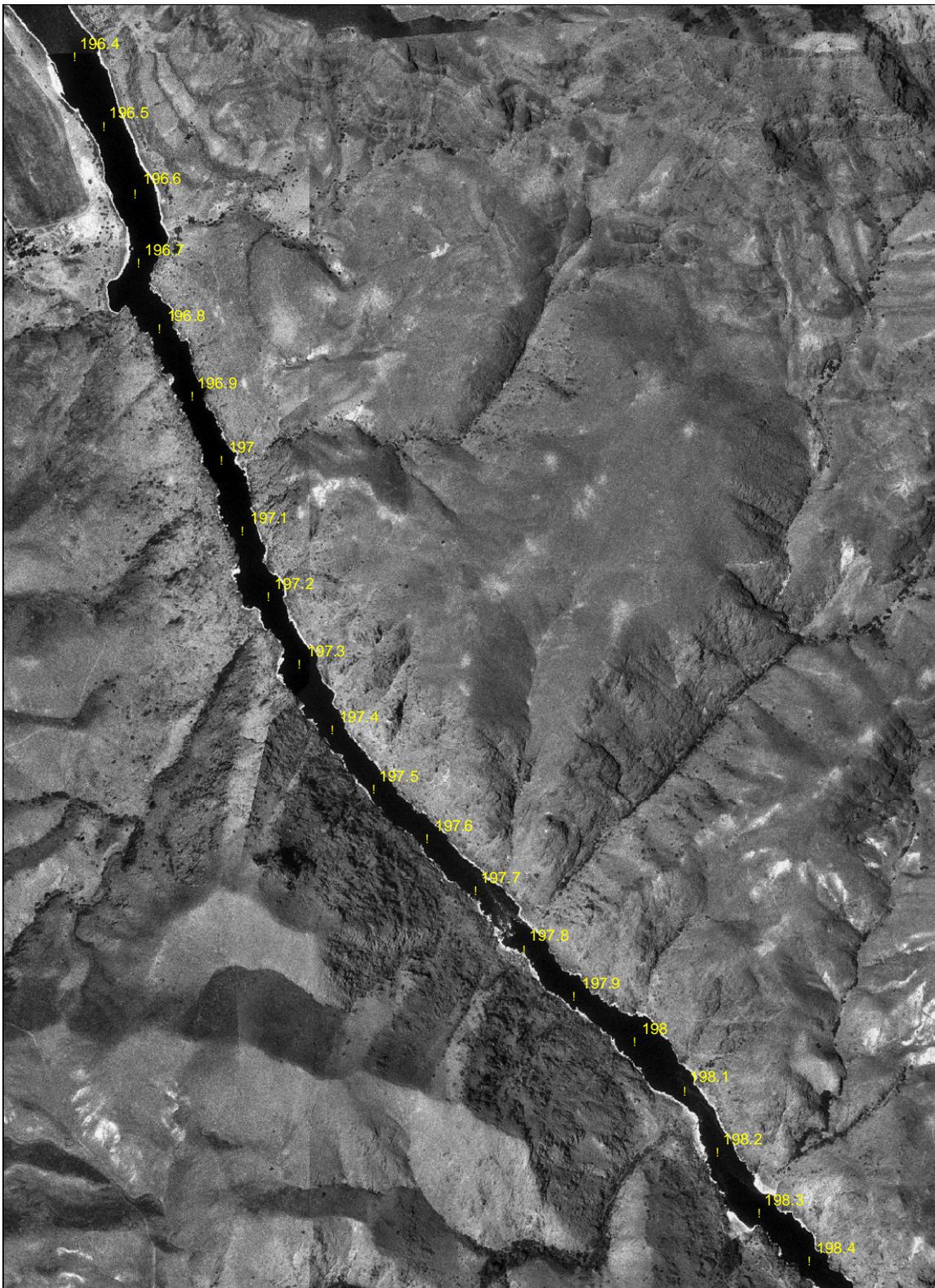


Figure G-27. River mile map for the Snake River in Hells Canyon—RM 198.4 to RM 196.4.

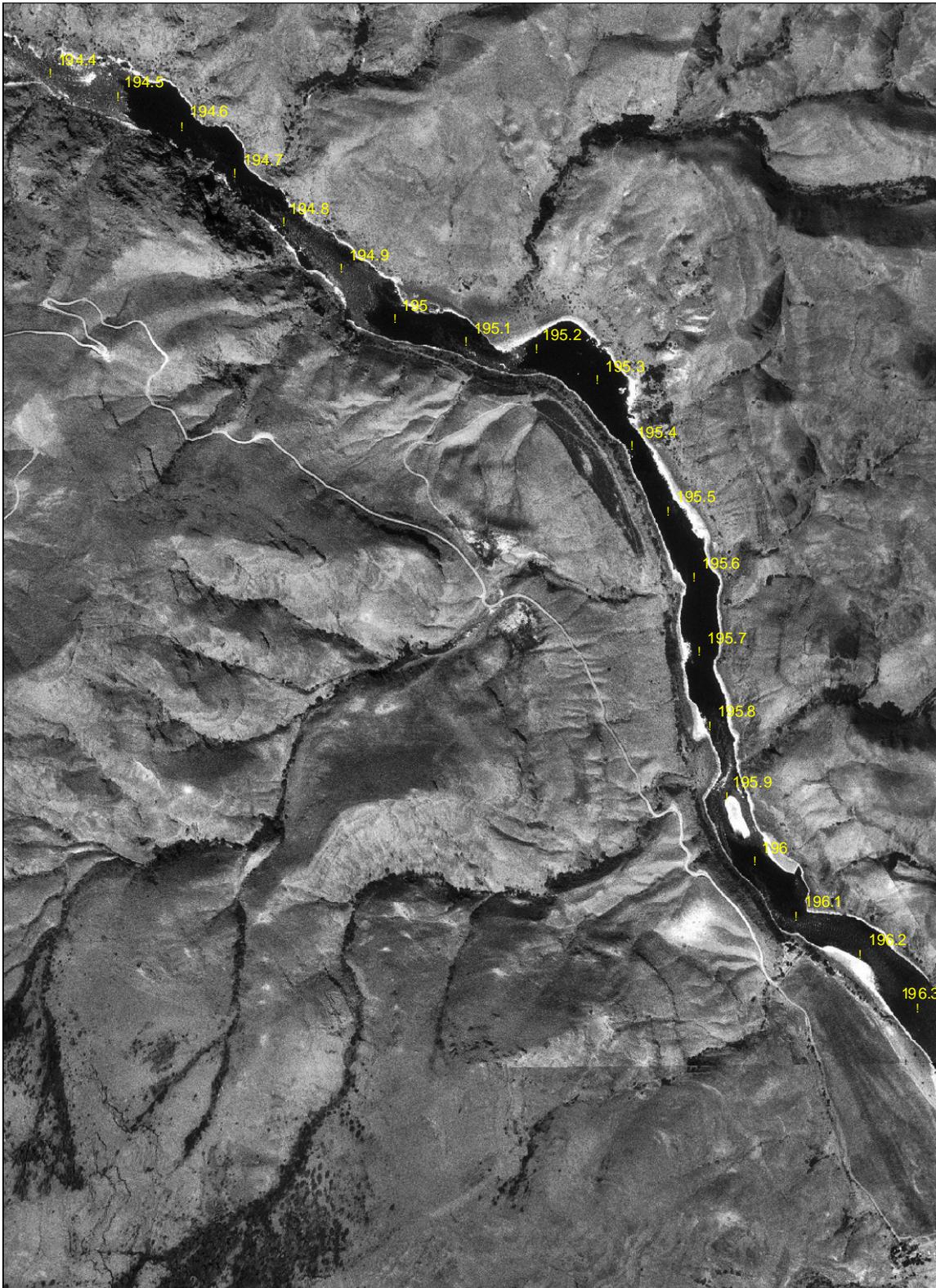


Figure G-28. River mile map for the Snake River in Hells Canyon—RM 196.3 to RM 194.4.



Figure G-29. River mile map for the Snake River in Hells Canyon—RM 194.3 to RM 193.1.

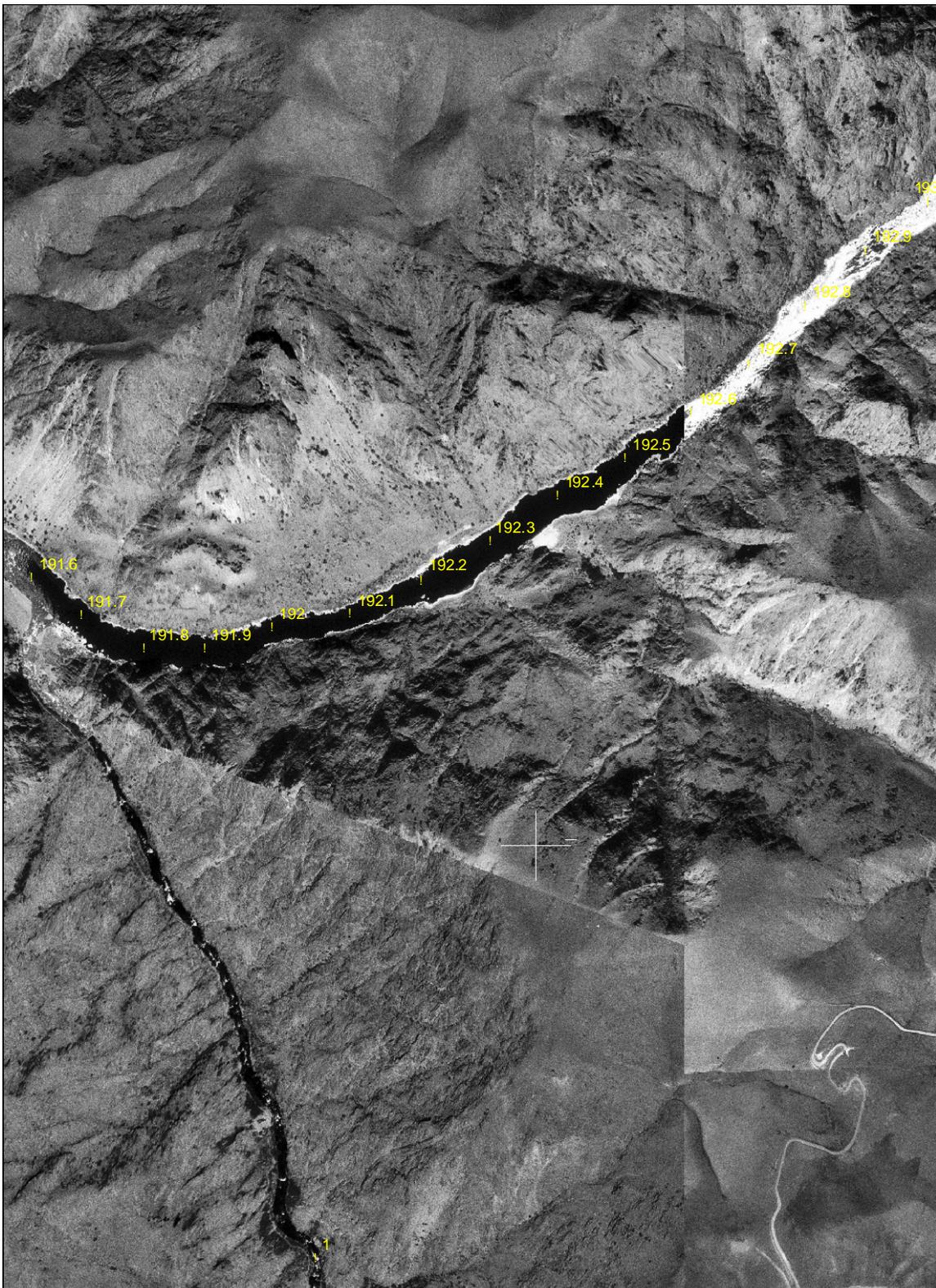


Figure G-30. River mile map for the Snake River in Hells Canyon—RM 193 to RM 191.6.

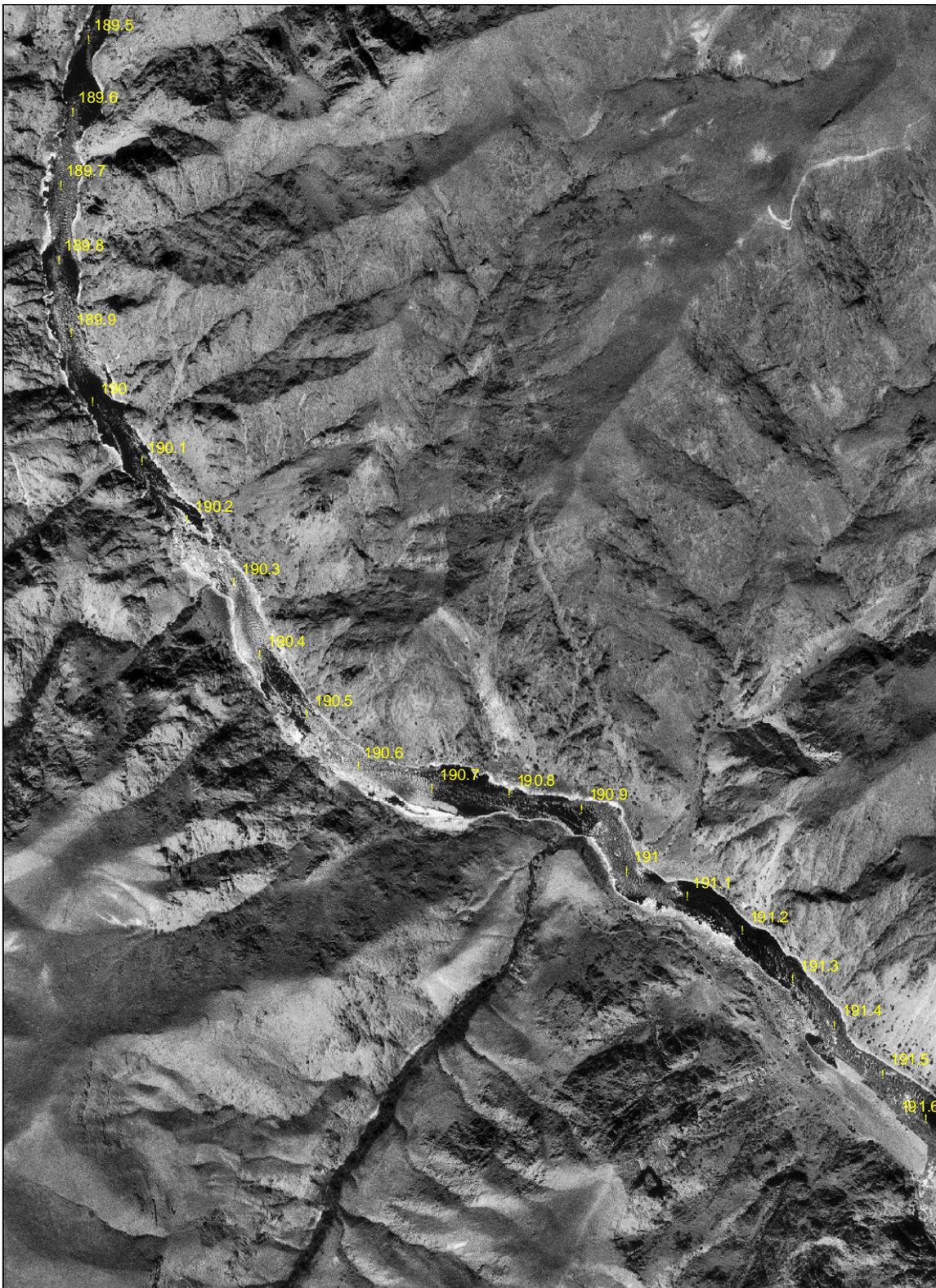


Figure G-31. River mile map for the Snake River in Hells Canyon—RM 191.6 to RM 189.5.

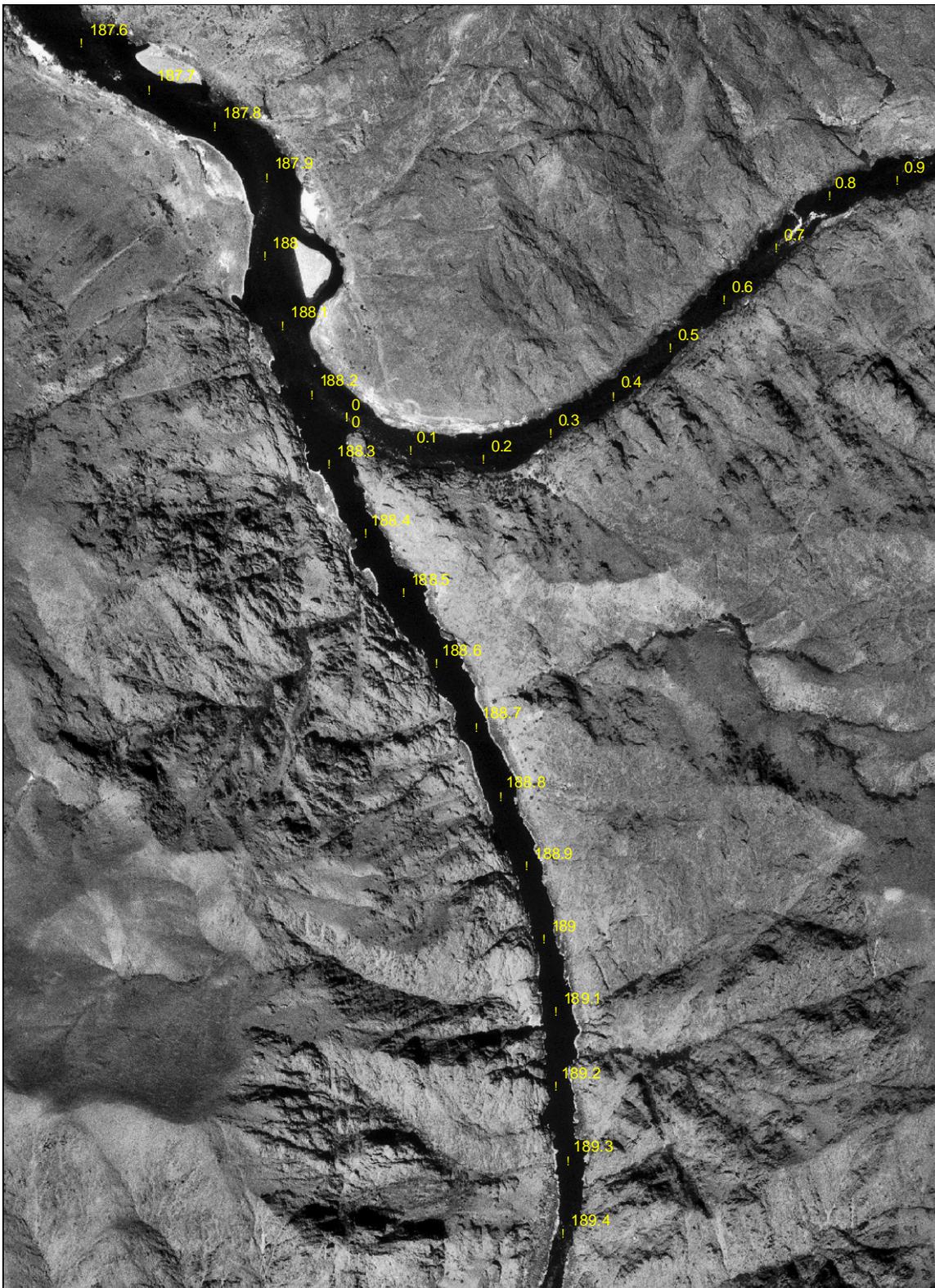


Figure G-32. River mile map for the Snake River in Hells Canyon—RM 189.4 to RM 187.6.

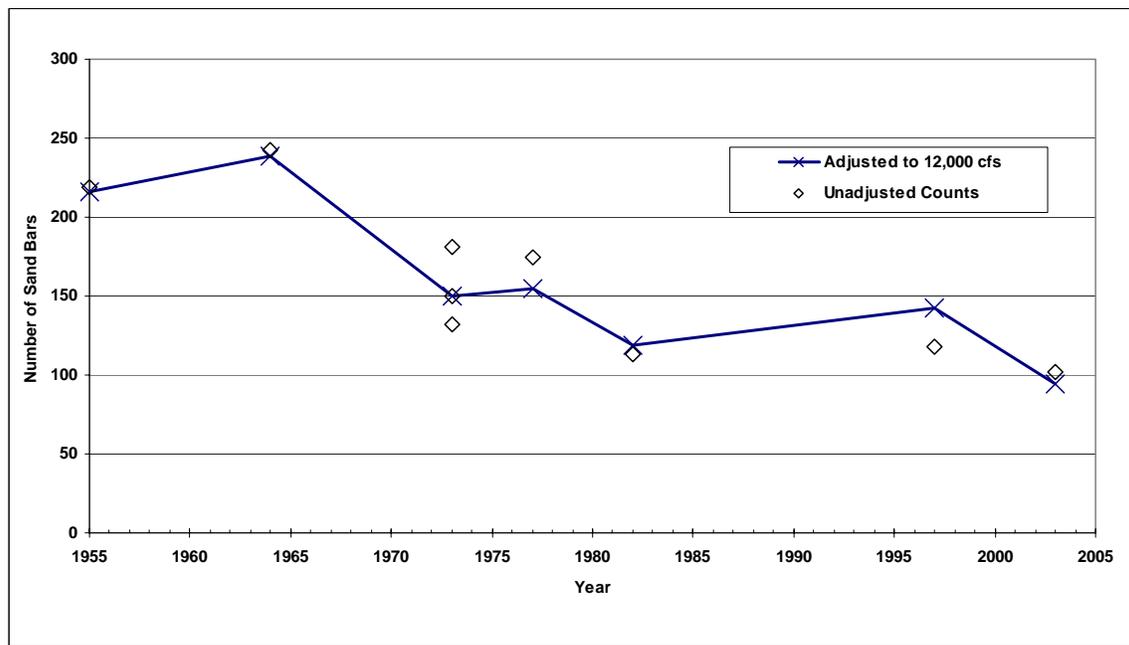


Figure G-33. Adjusted (to 12,000 cfs) and unadjusted (raw data) sandbar counts from HCD downstream to the Salmon River confluence.

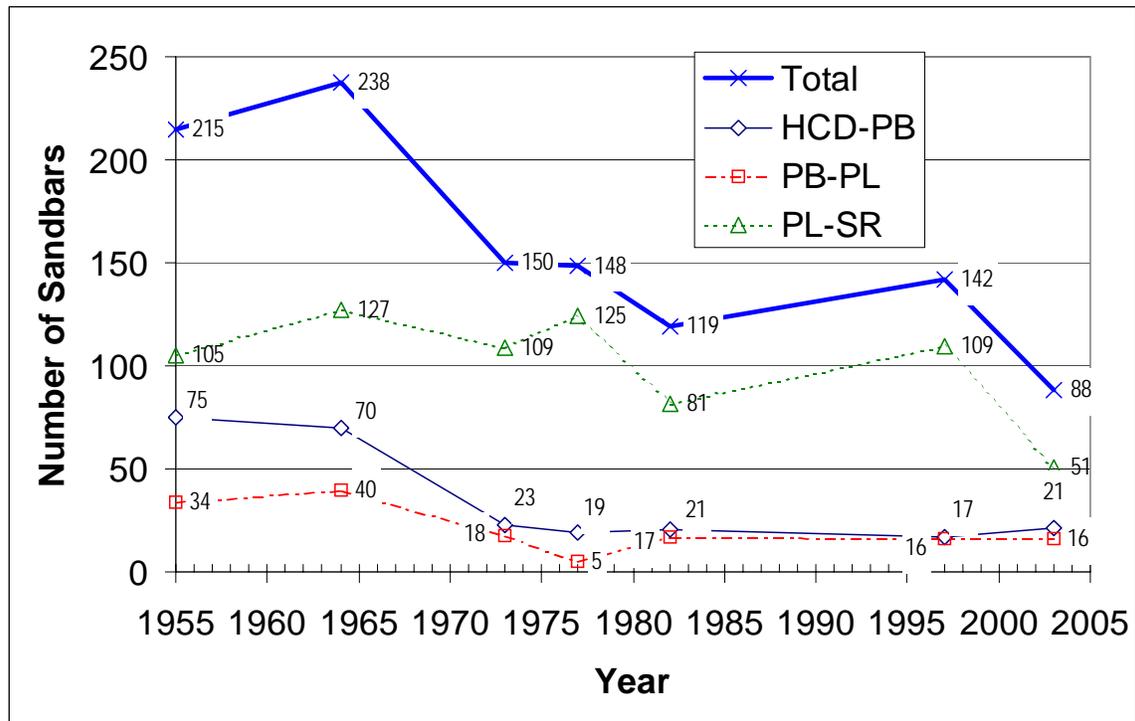


Figure G-34. Sandbar counts (adjusted to 12,000 cfs) for three reaches in Hells Canyon.

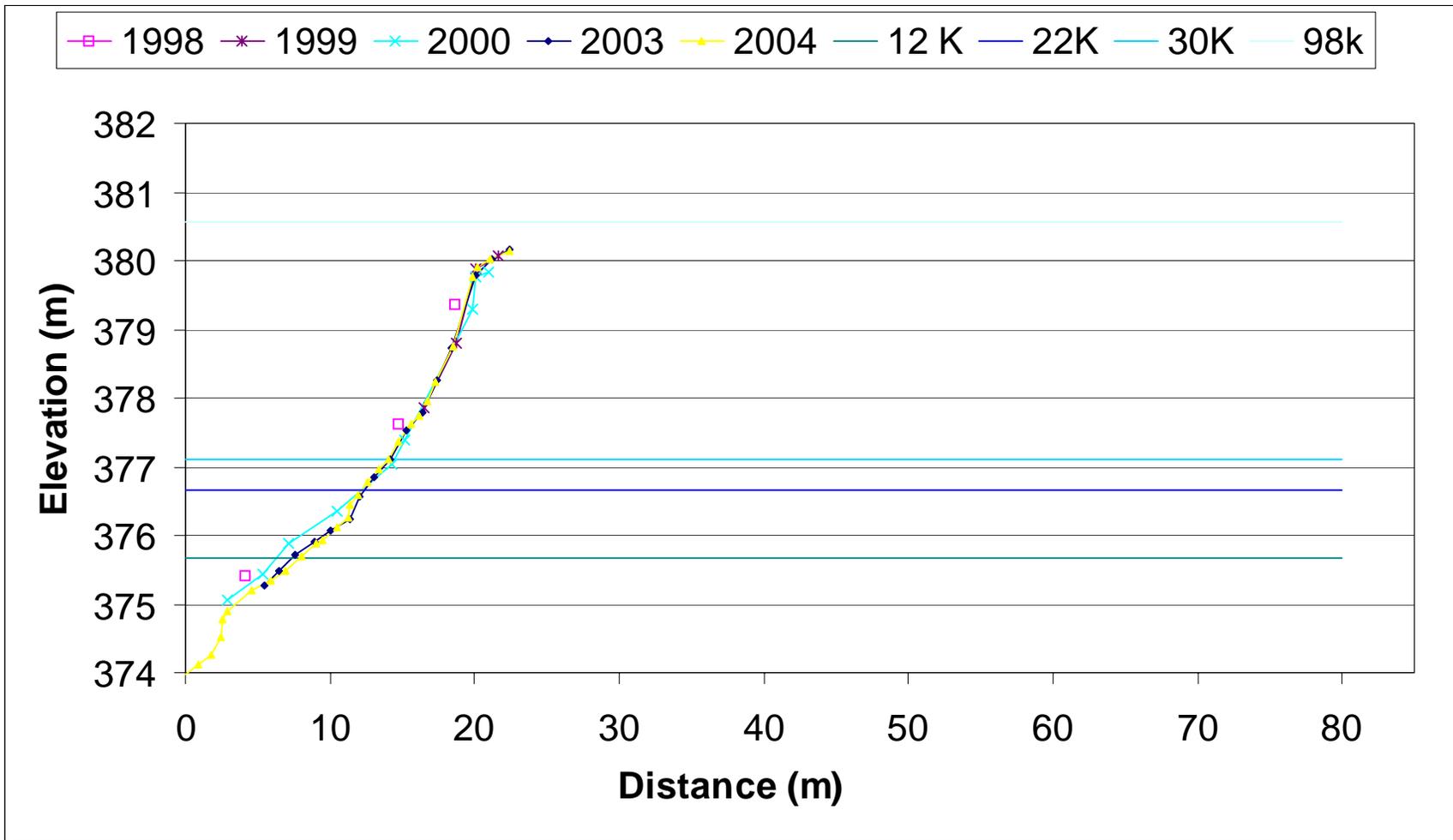


Figure G-35. Pine Bar Transect A.

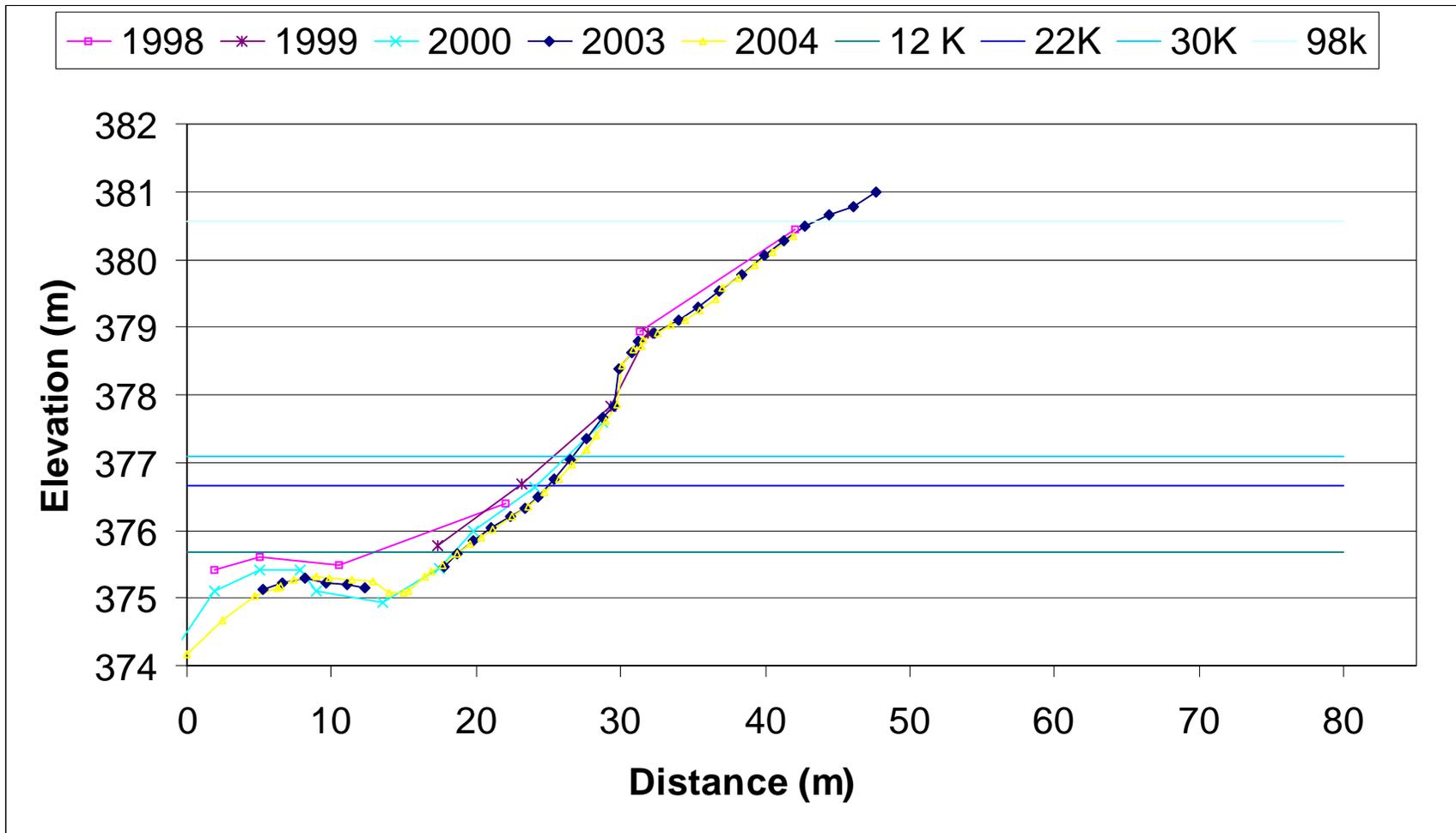


Figure G-36. Pine Bar Transect B.

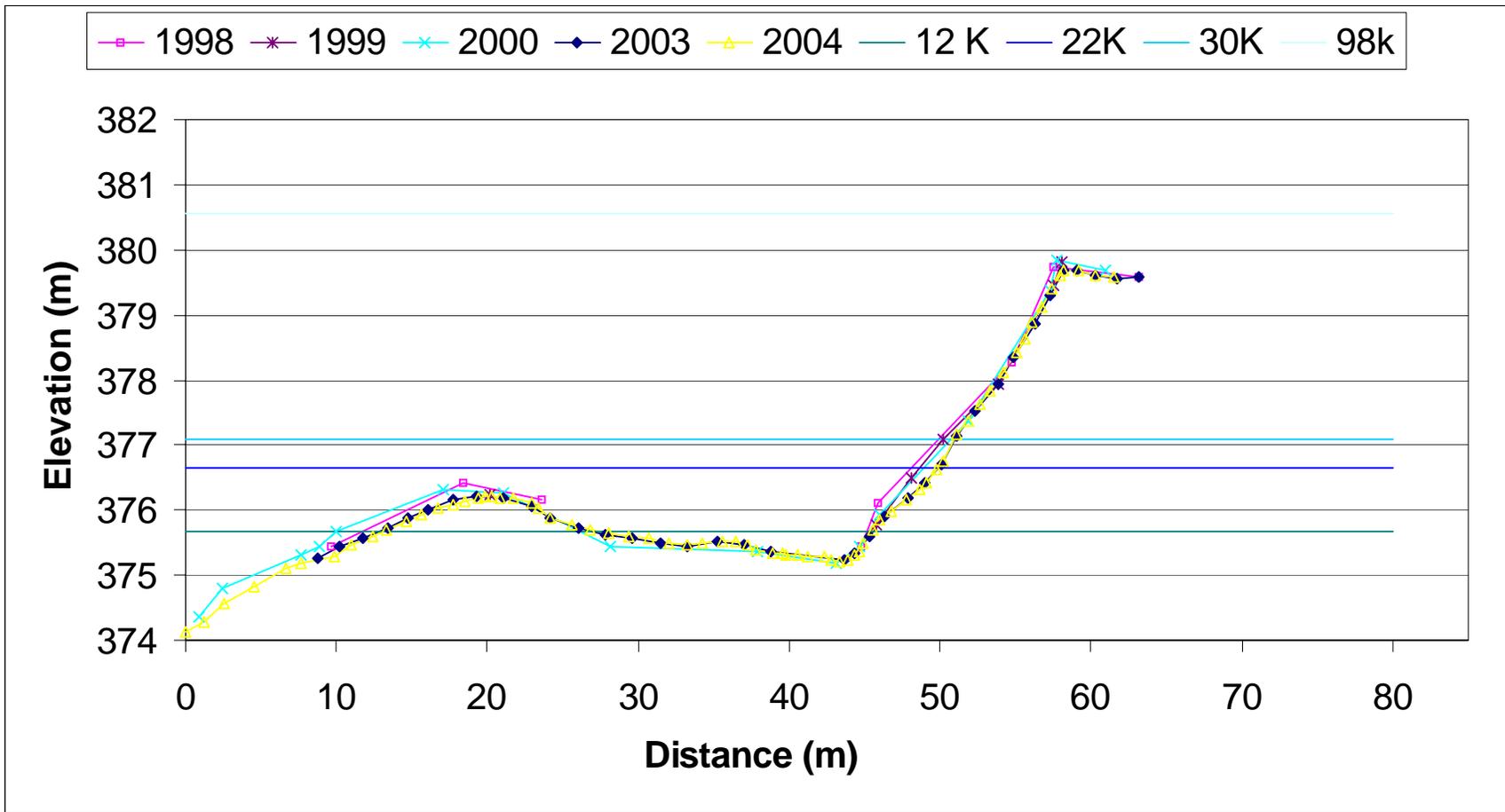


Figure G-37. Pine Bar Transect C.

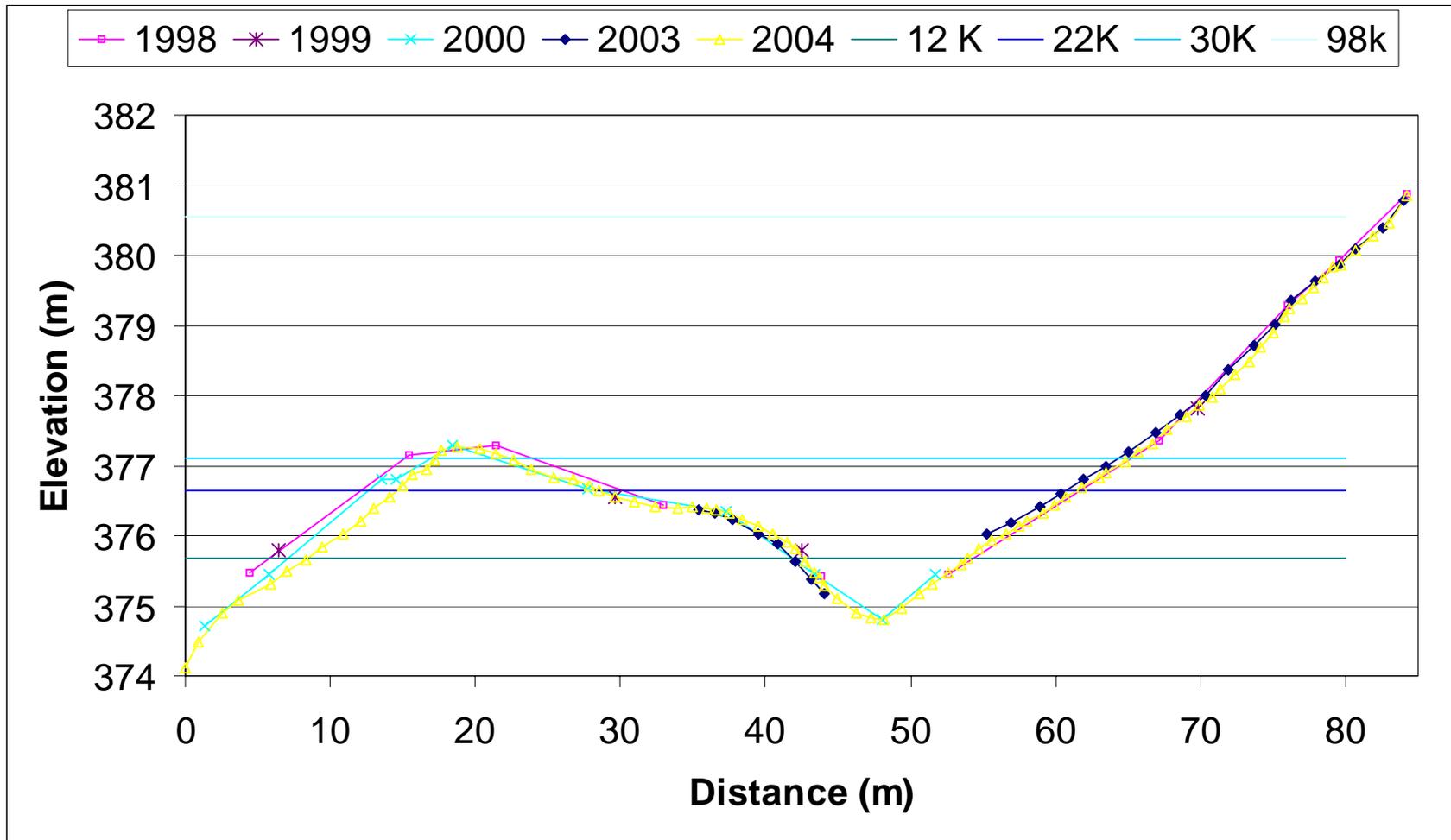
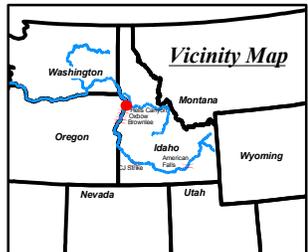


Figure G-38. Pine Bar Transect D.



Features Legend

- 2004 Snap Line
- Edge of Water



HELLS CANYON HYDROELECTRIC PROJECT - FERC NO. 1971
 IDAHO POWER COMPANY, BOISE, ID 2005

Response to AIR S1, Figure G-39

Pine Bar plan view



01/24/05

This page left blank intentionally.



Features Legend

- 2004 Snap Line
- Edge of Water



HELLS CANYON HYDROELECTRIC PROJECT - FERC NO. 1971
 IDAHO POWER COMPANY, BOISE, ID 2005

Response to AIR S1, Figure G-40

Salt Creek Bar plan view



01/24/05

This page left blank intentionally.

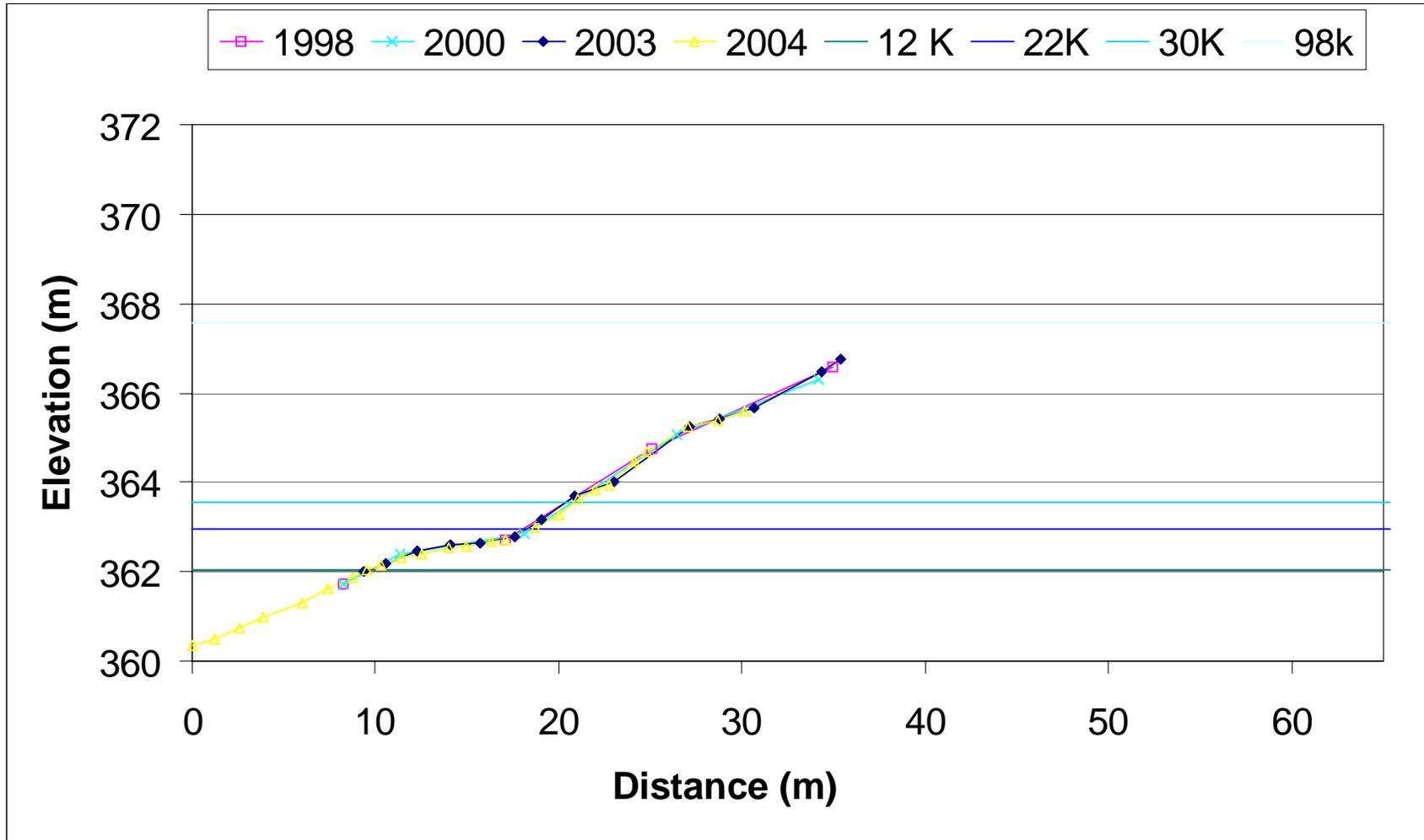


Figure G-41. Salt Creek Transect A.

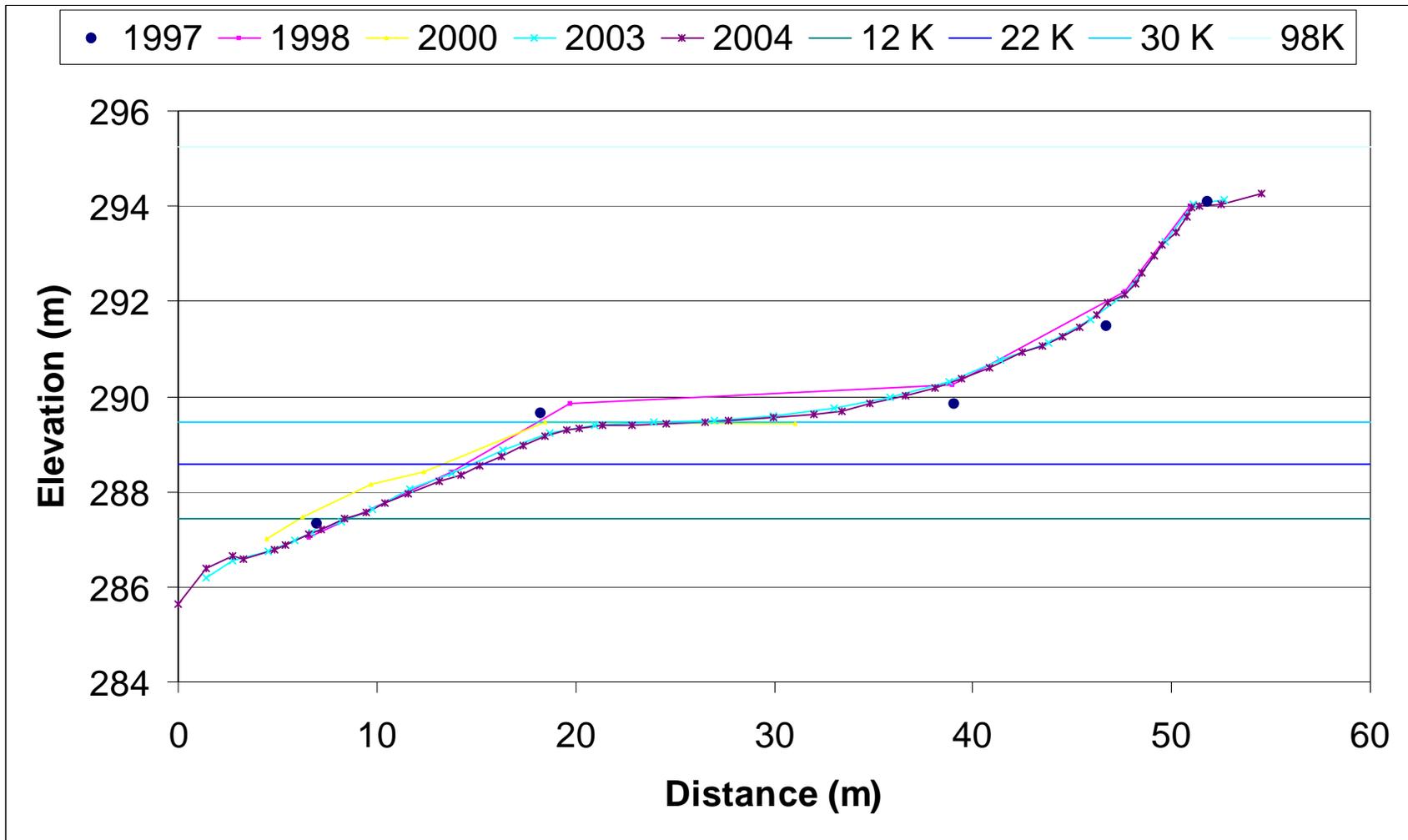


Figure G-42. Salt Creek Transect B.

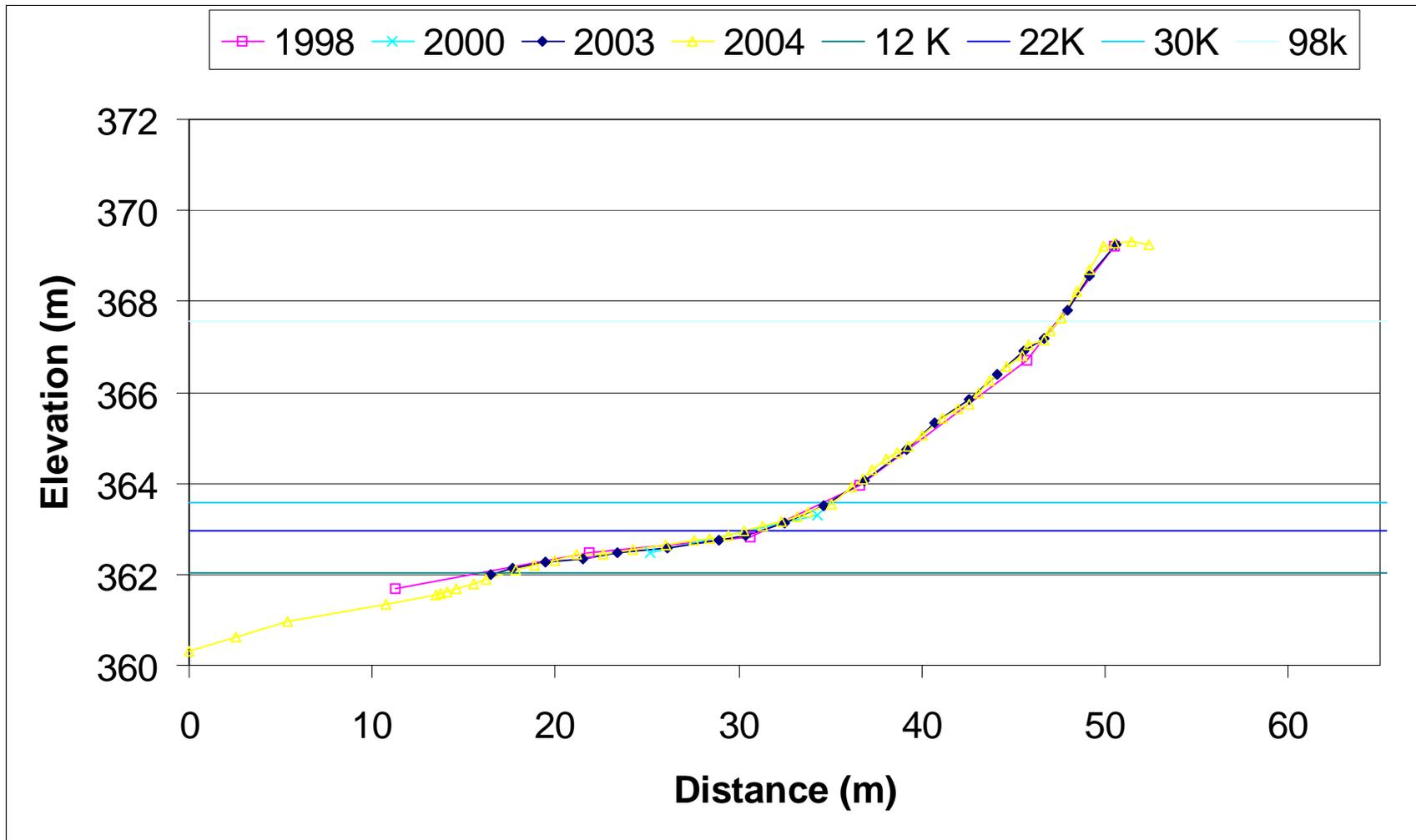
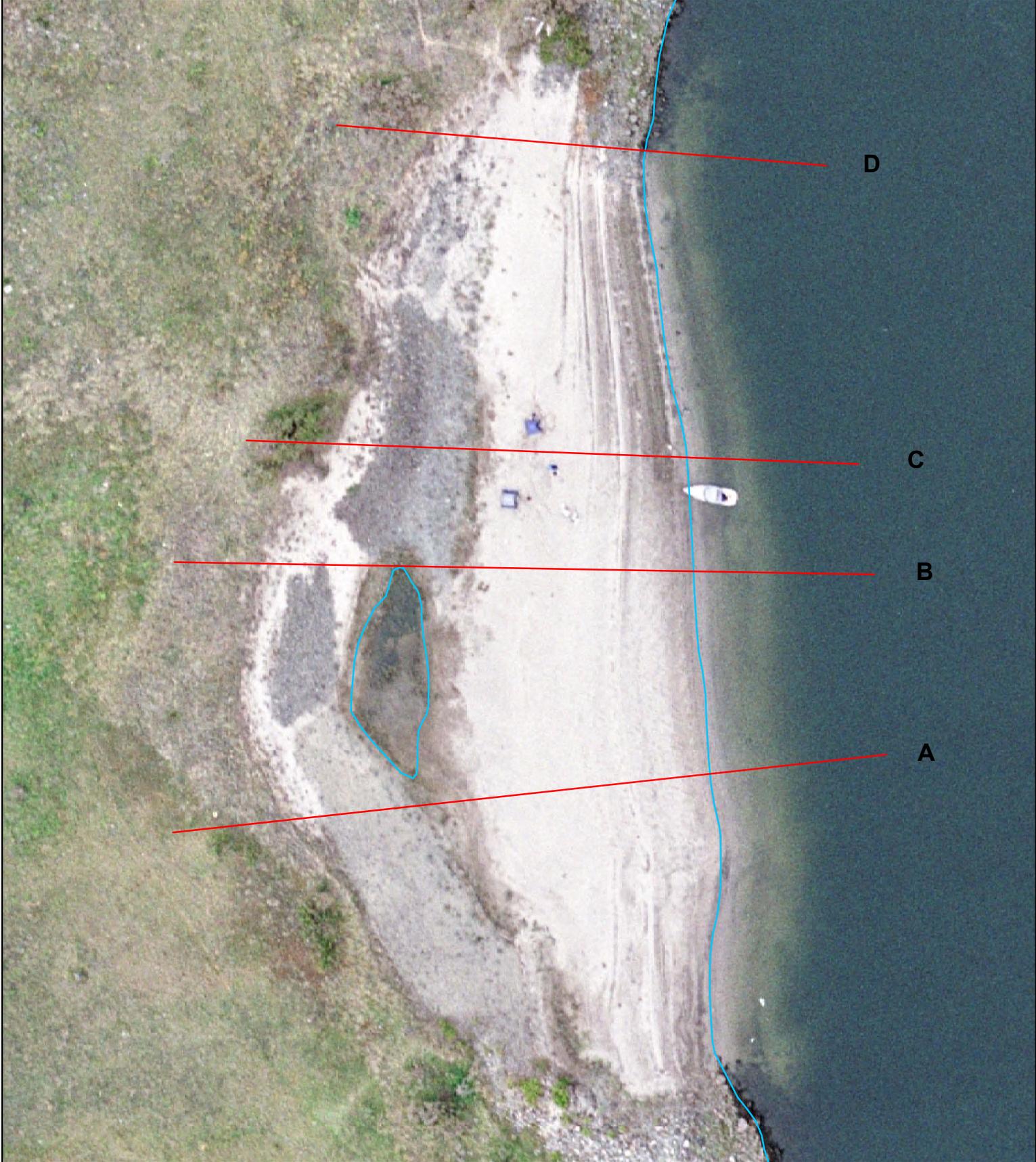


Figure G-43. Salt Creek Transect C.

This page left blank intentionally.



Features Legend

- 2004 Snap Line
- Edge of Water



HELLS CANYON HYDROELECTRIC PROJECT - FERC NO. 1971
 IDAHO POWER COMPANY, BOISE, ID 2005

Response to AIR S1, Figure G-44

Fish Trap Bar plan view



01/24/05

This page left blank intentionally.

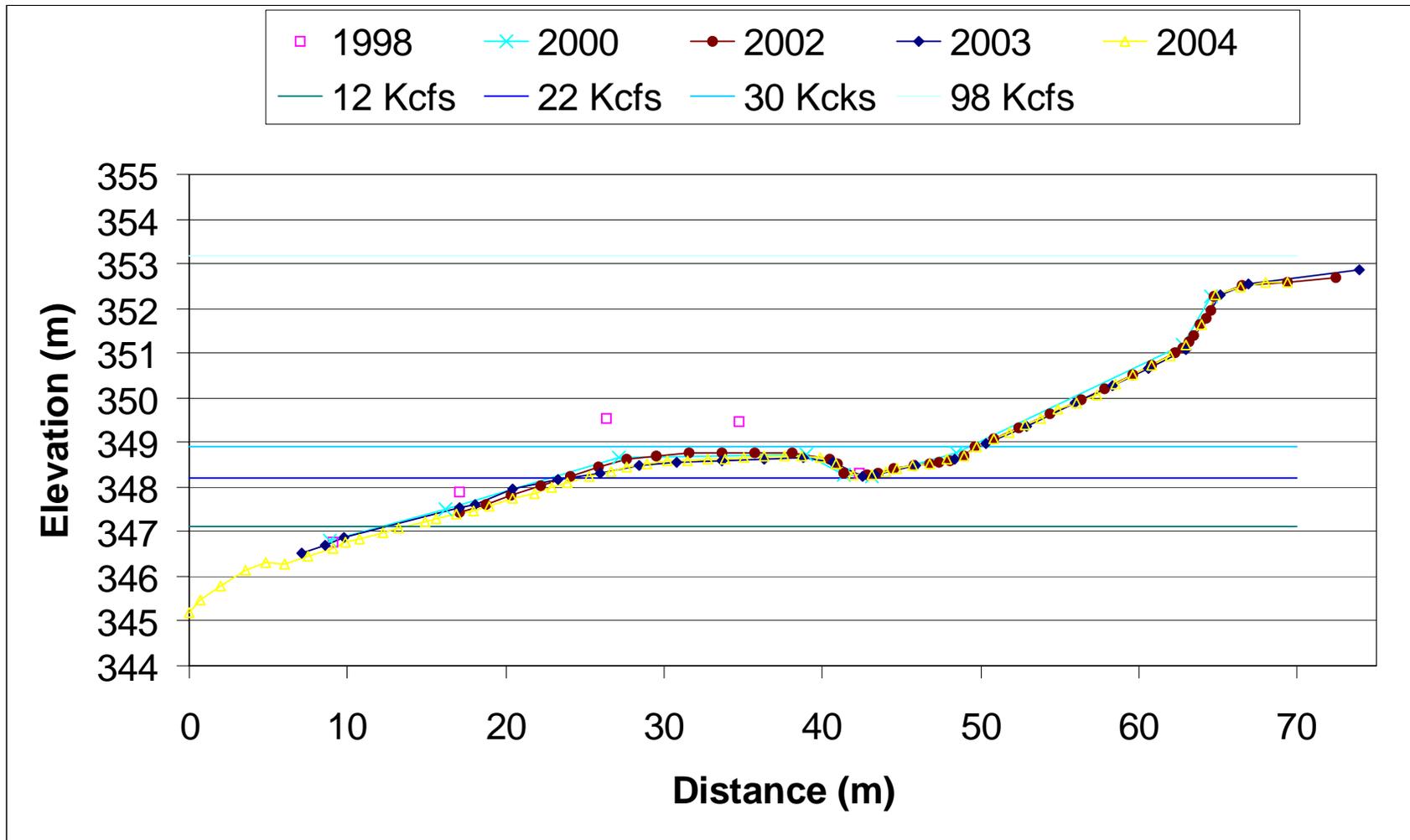


Figure G-45. Fish Trap Bar Transect A.

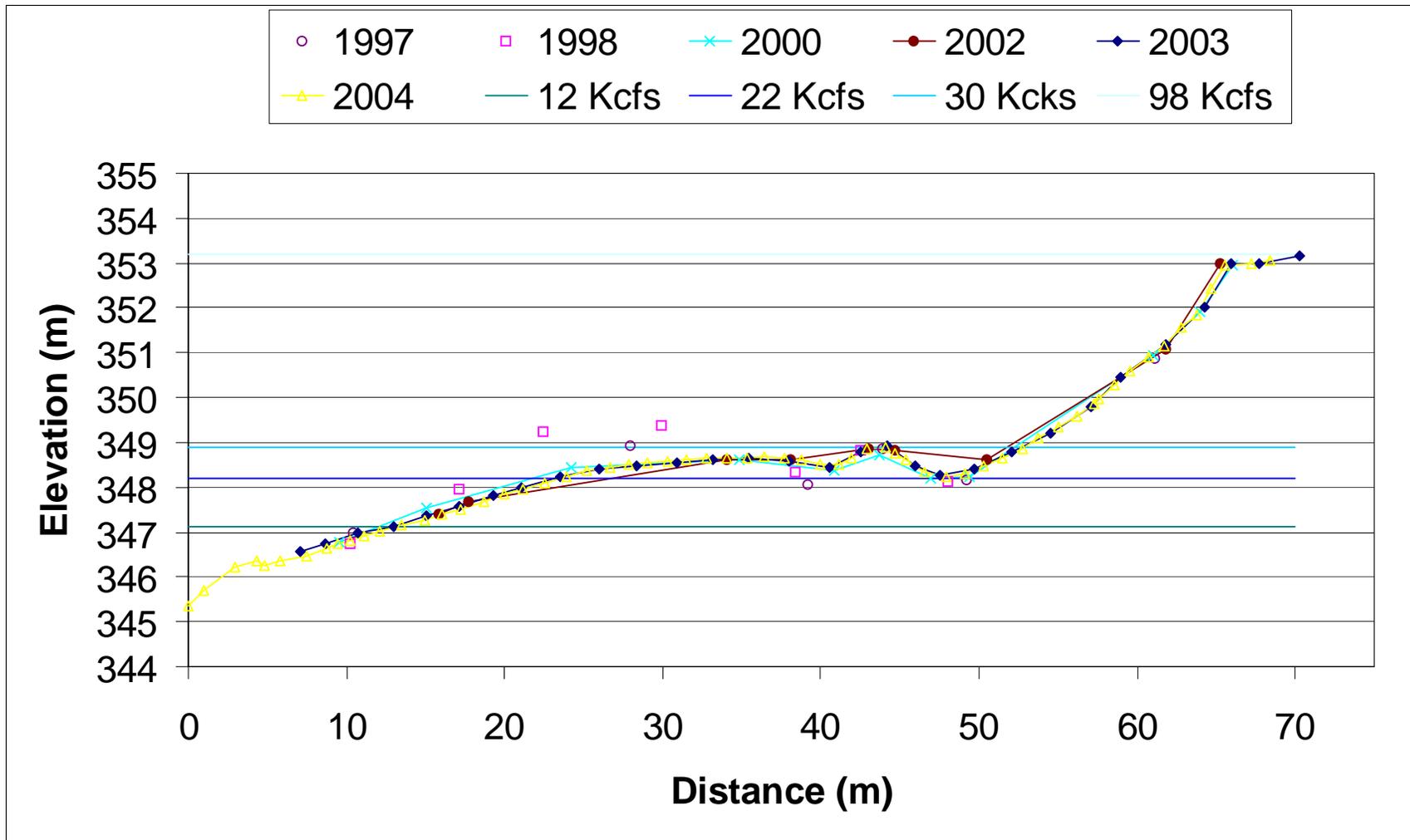


Figure G-46. Fish Trap Bar Transect B.

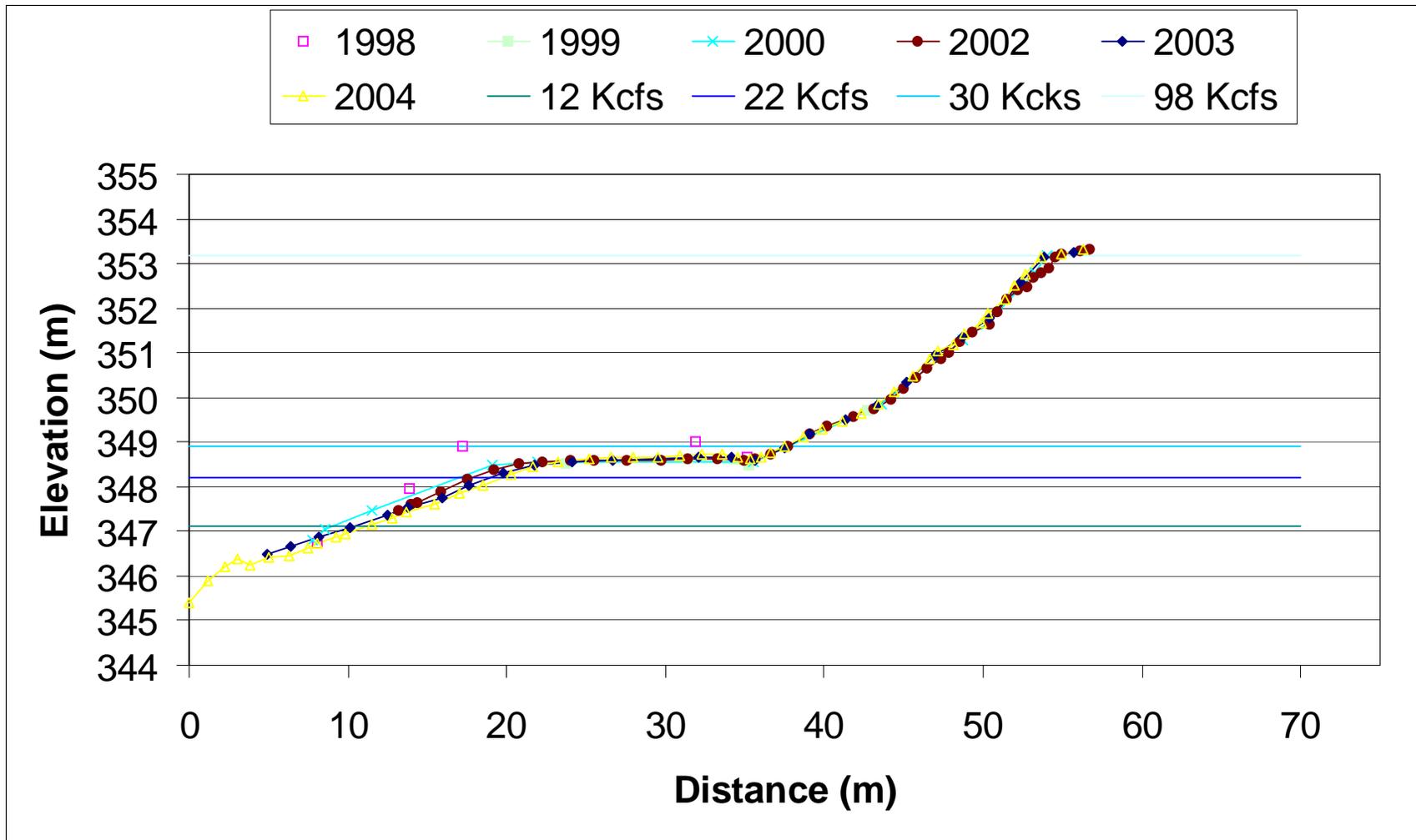


Figure G-47. Fish Trap Bar Transect C.

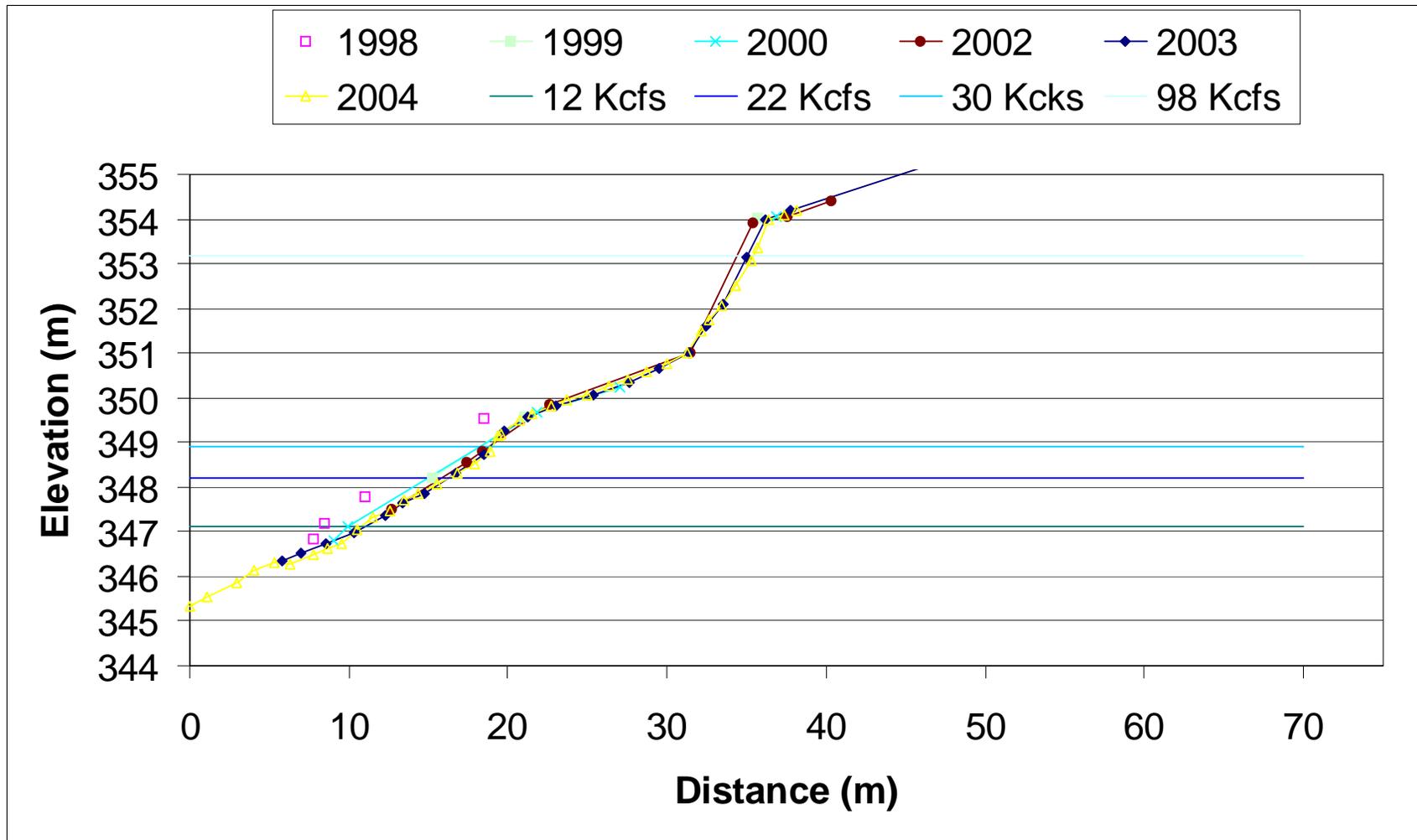


Figure G-48. Fish Trap Bar Transect D.



Features Legend

- 2004 Snap Line
- Edge of Water



HELLS CANYON HYDROELECTRIC PROJECT - FERC NO. 1971
IDAHO POWER COMPANY, BOISE, ID 2005

Response to AIR S1, Figure G-49

China Bar plan view



01/24/05

This page left blank intentionally.

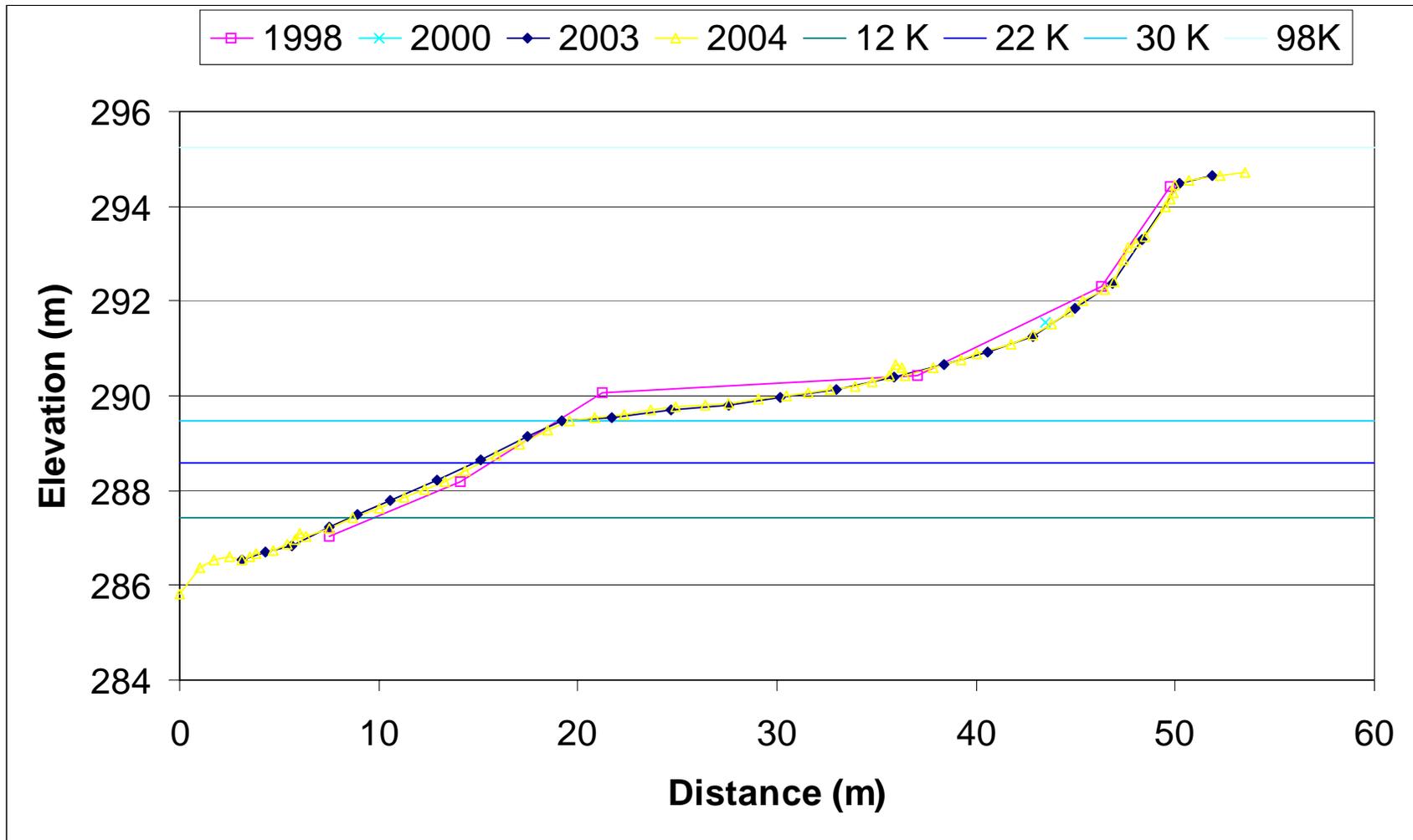


Figure G-50. China Bar Transect A.

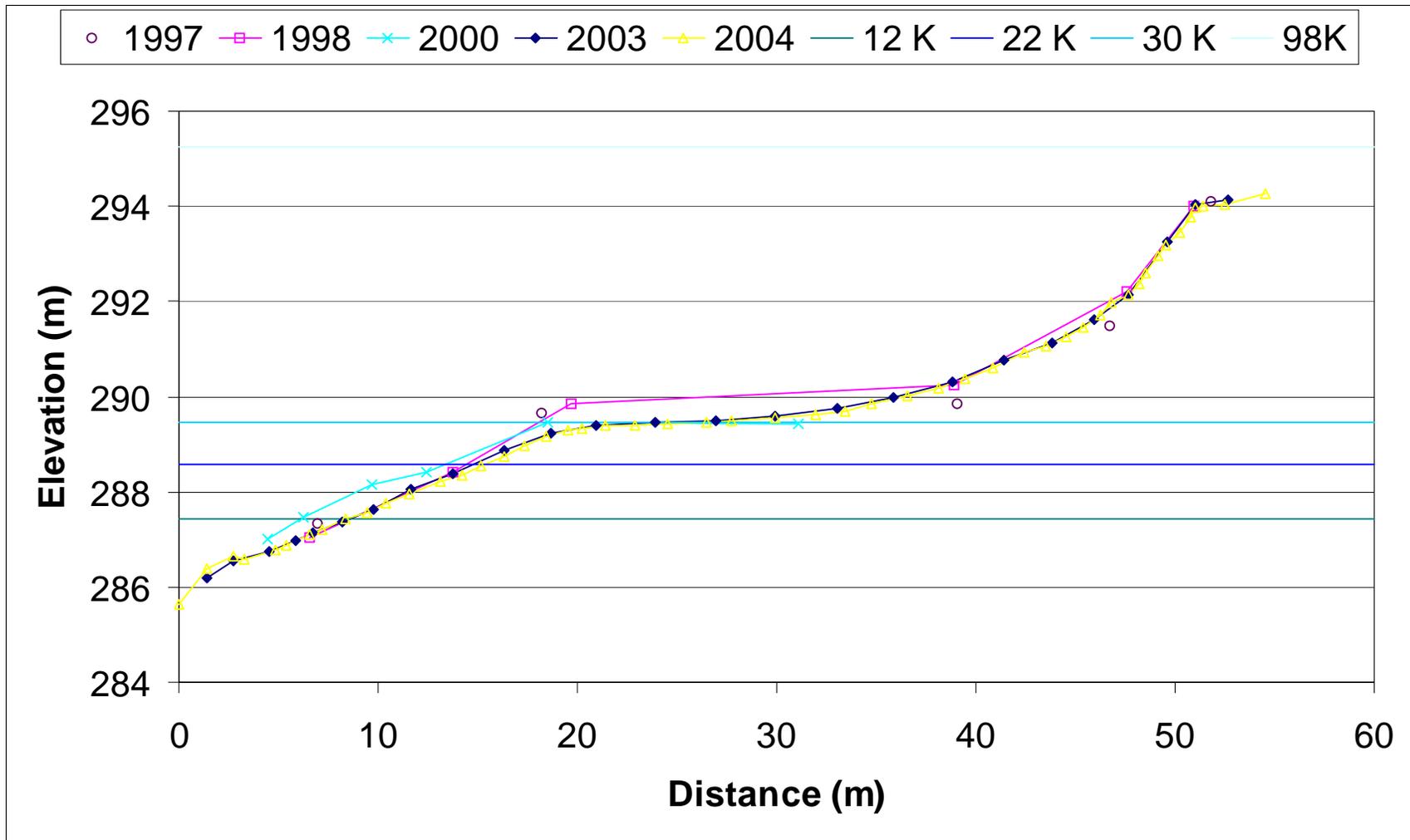


Figure G-51. China Bar Transect B.

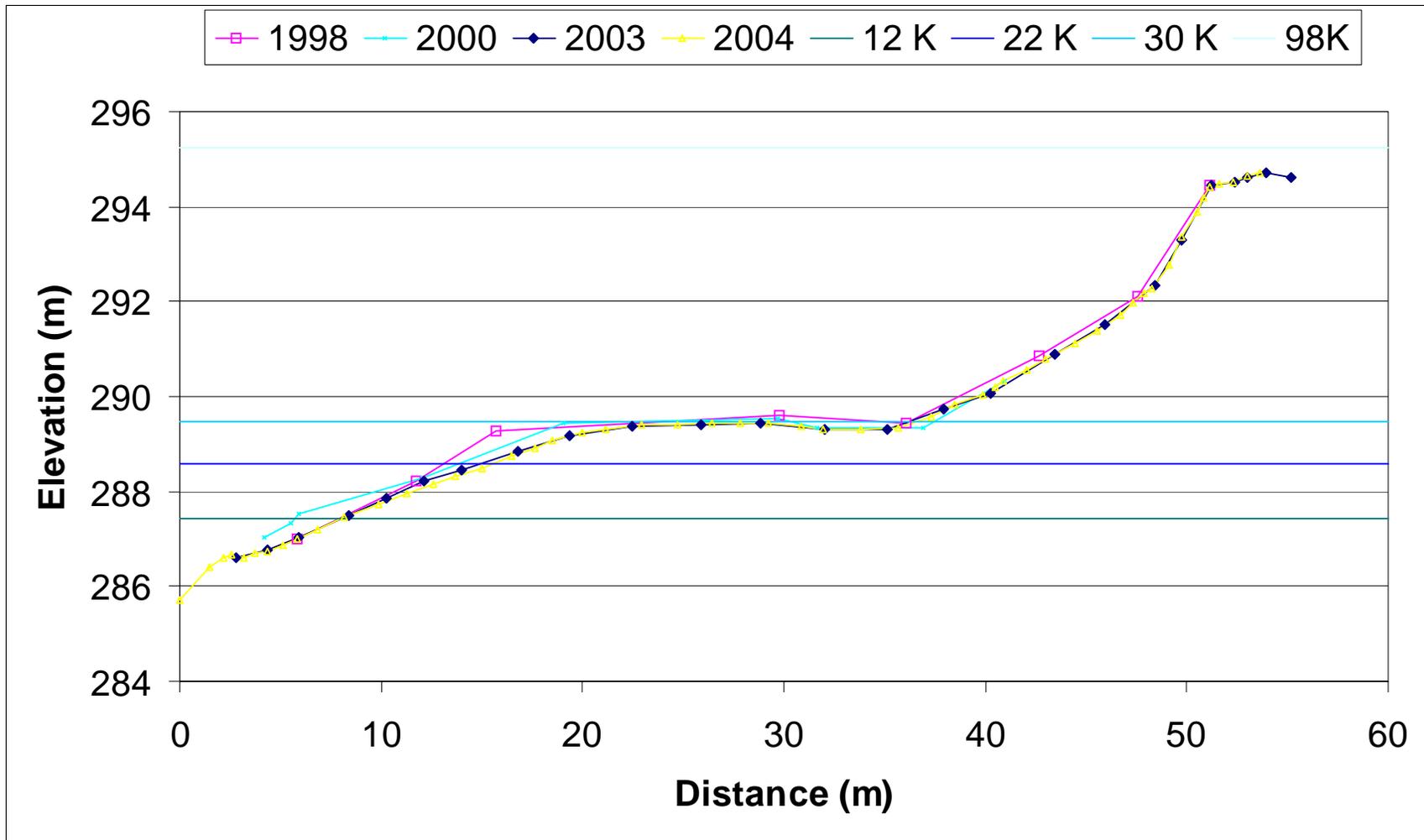


Figure G-52. China Bar Transect C.

This page left blank intentionally.