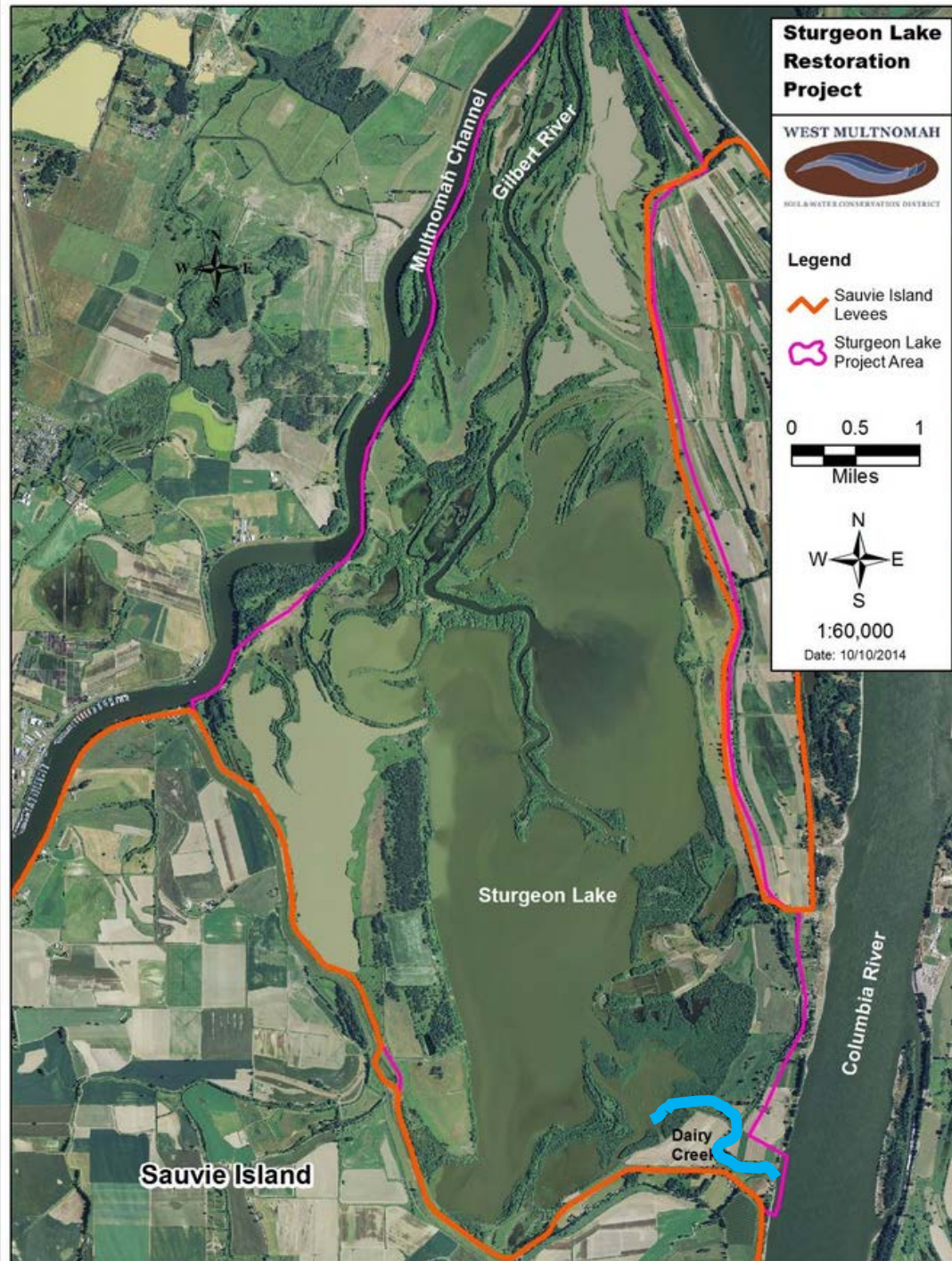


Sturgeon Lake/Dairy Creek Restoration Project





Pre-Project Conditions

- Disconnected tidal channel between Columbia River and Sturgeon Lake
- Failing culverts and roadway
- Debris throughout the channel
- Potential fish stranding













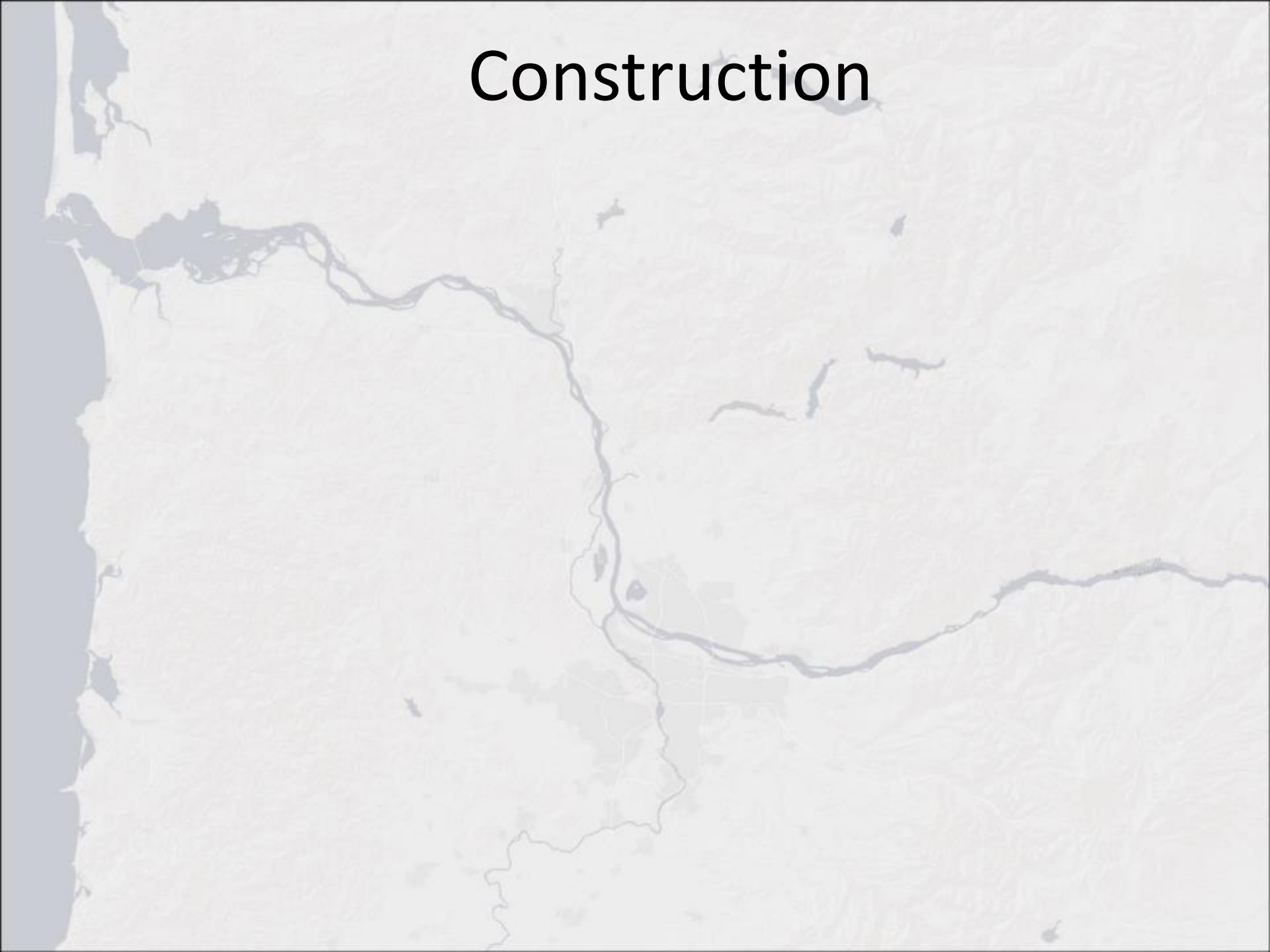




Restoration Actions

- Replaced failing culverts with 96' channel spanning bridge
- Excavated over ½ mile of new channel (low flow and marshplain bench)
- Removed 22,000 cubic yards of material from channel
- Installed debris boom at channel mouth
- Replanted 15,000 trees and shrubs

Construction































Google

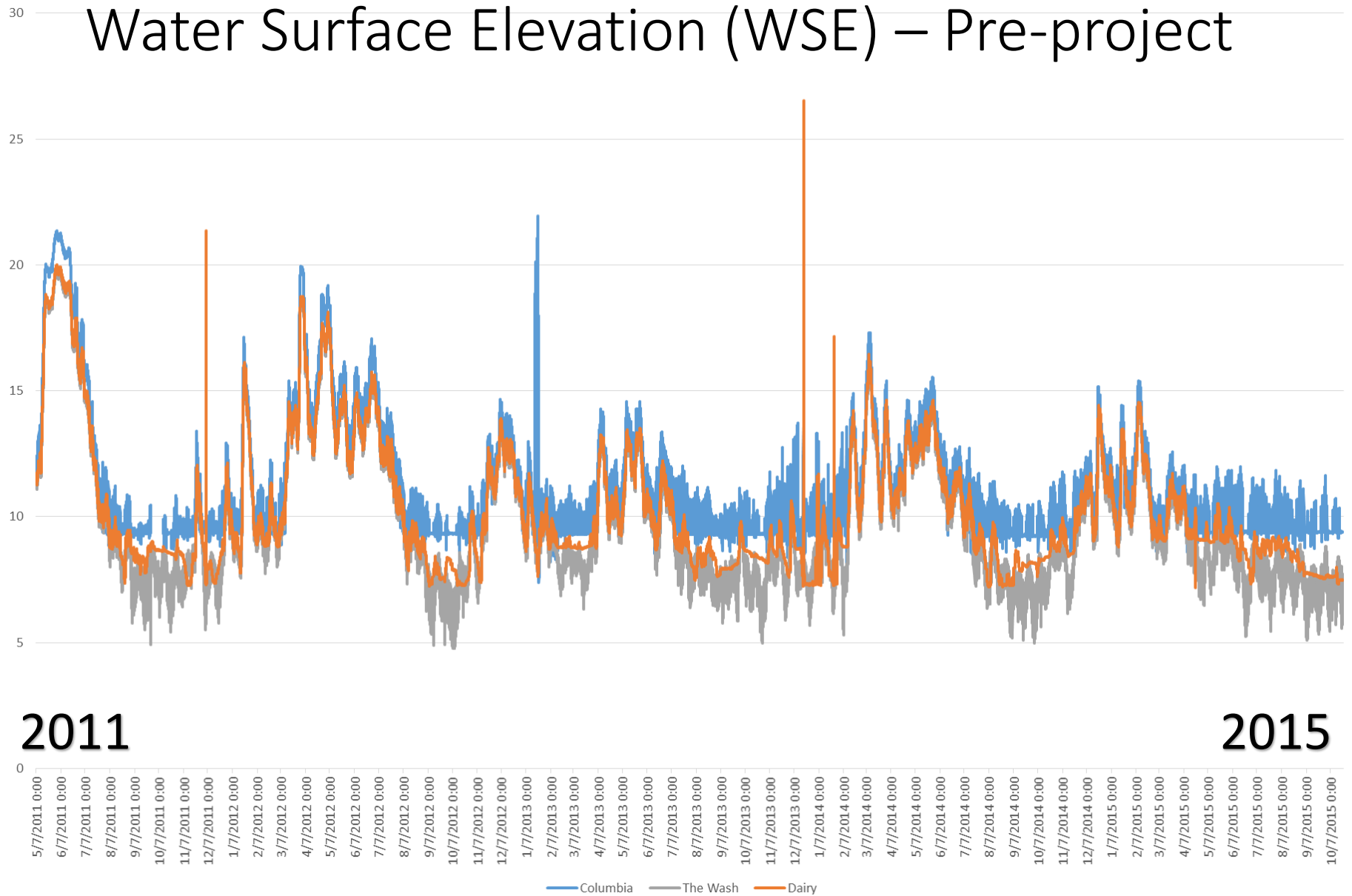
Ongoing Monitoring

- Water Surface Elevation
- Channel Cross Sections
- Aerial imagery of Sturgeon Lake
- Veg surveys (emergent & riparian vegetation)
- Pit Tag Array

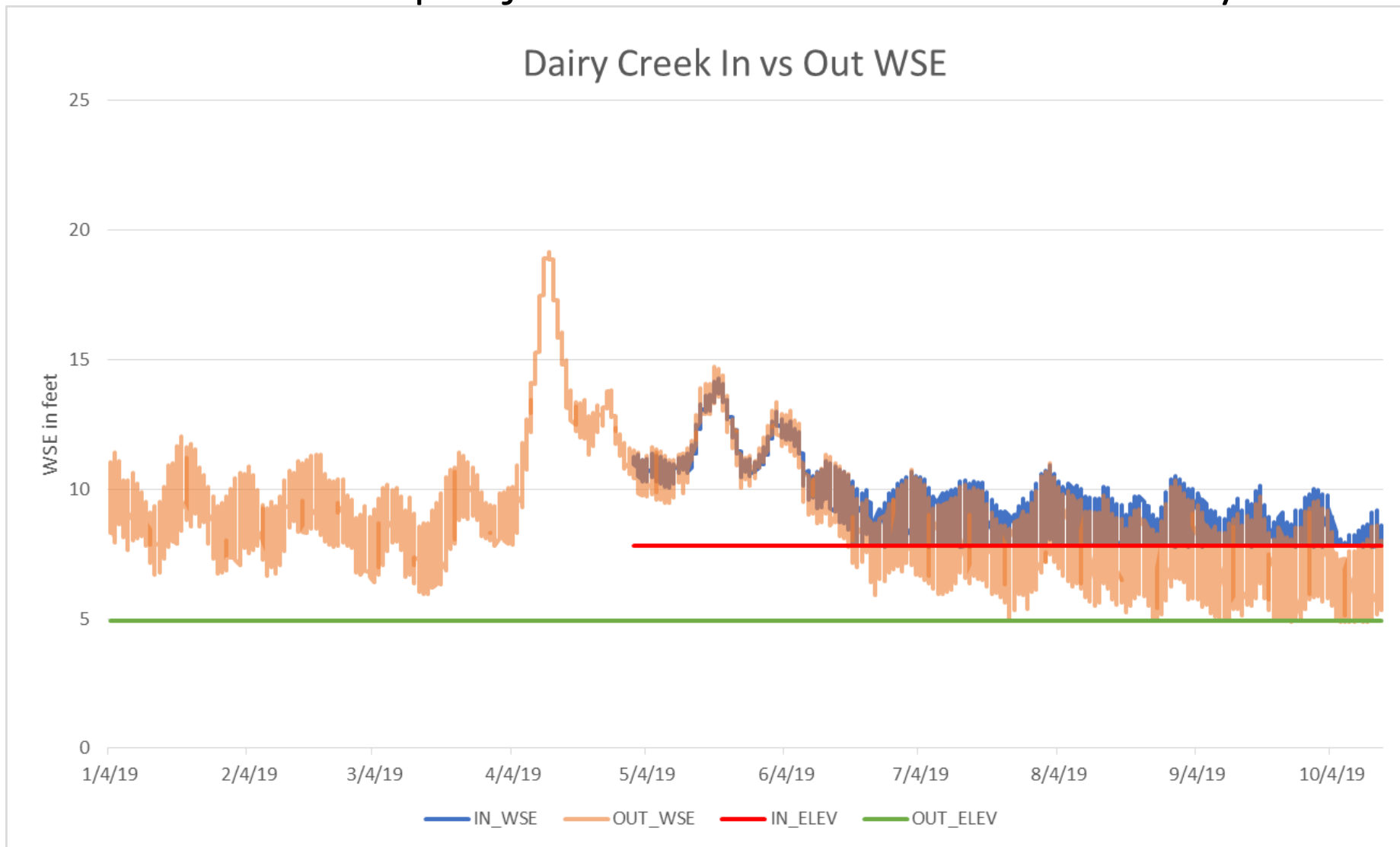


Columbia River, Dairy Creek and The Wash Gages

Water Surface Elevation (WSE) – Pre-project



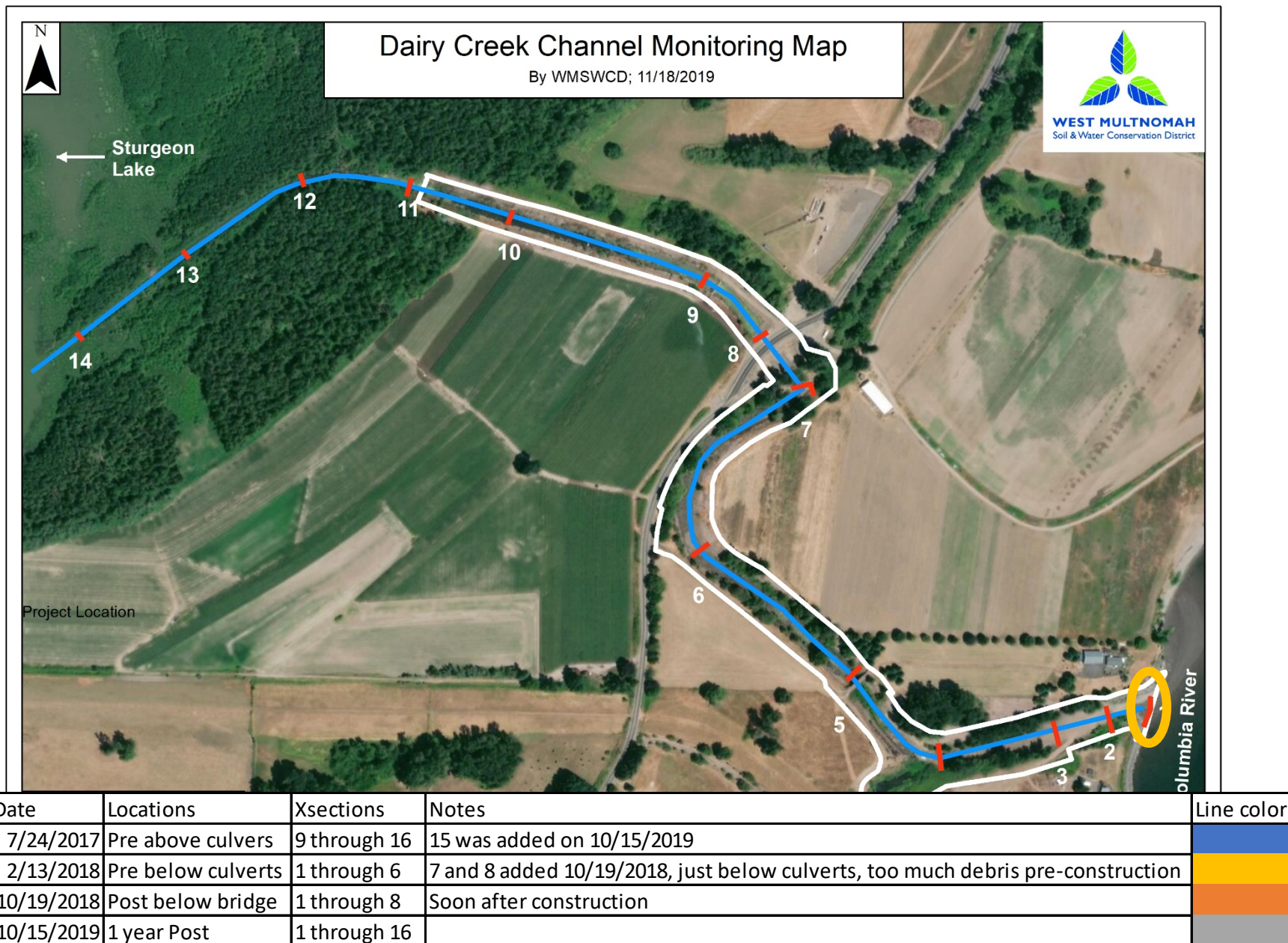
WSE – Post-project – 2019 – No lake data yet



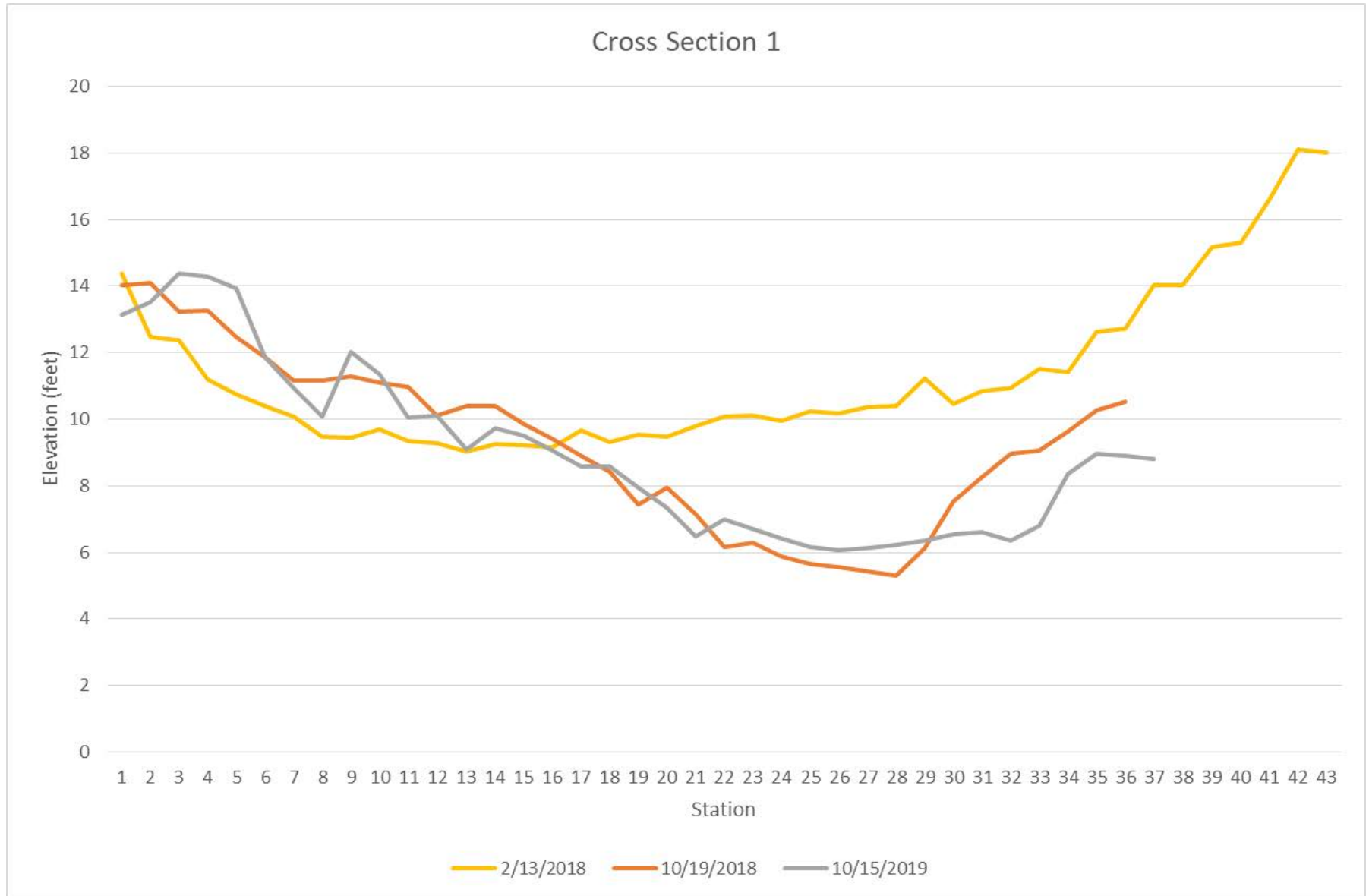
High water! April 2019



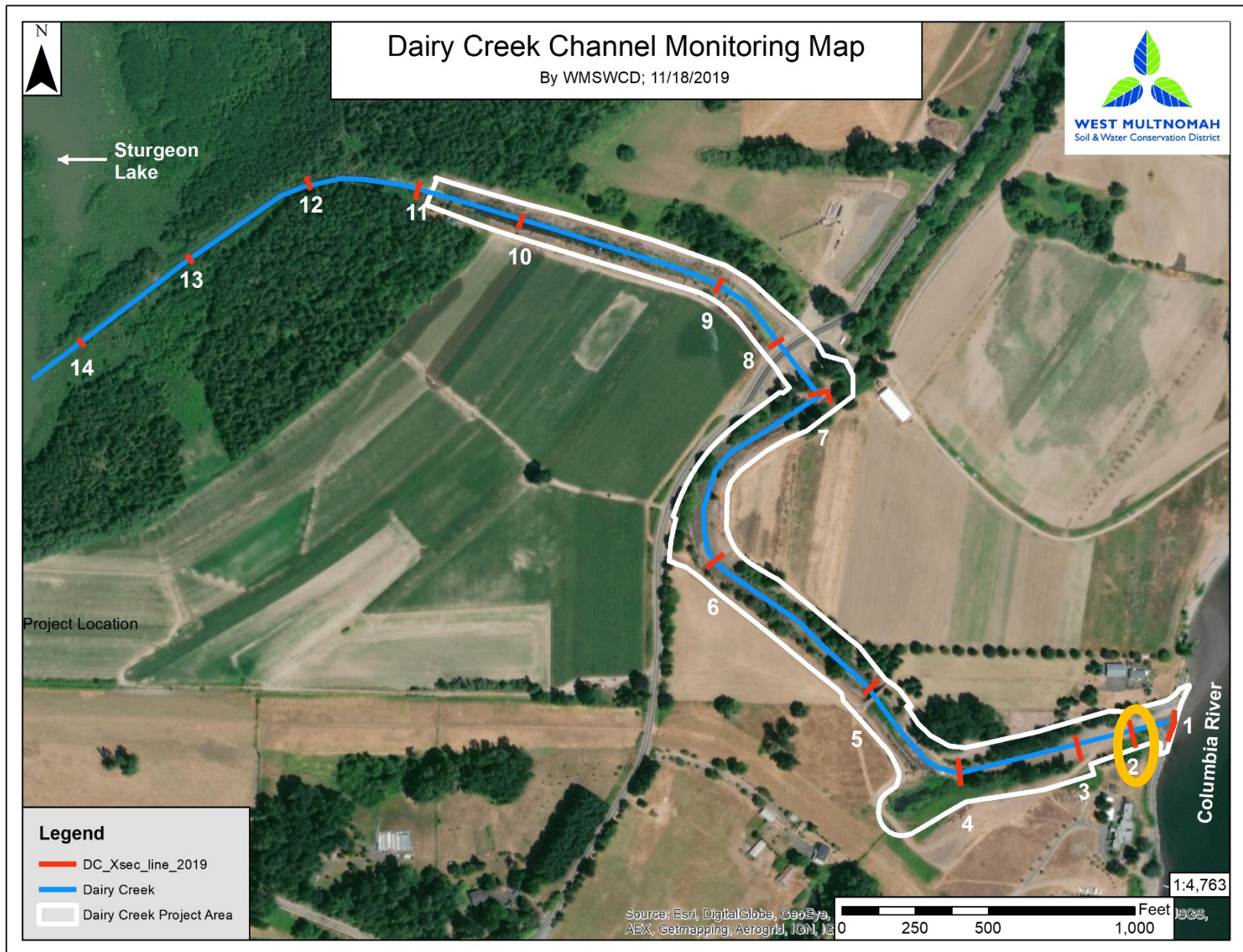
Channel Cross Sections



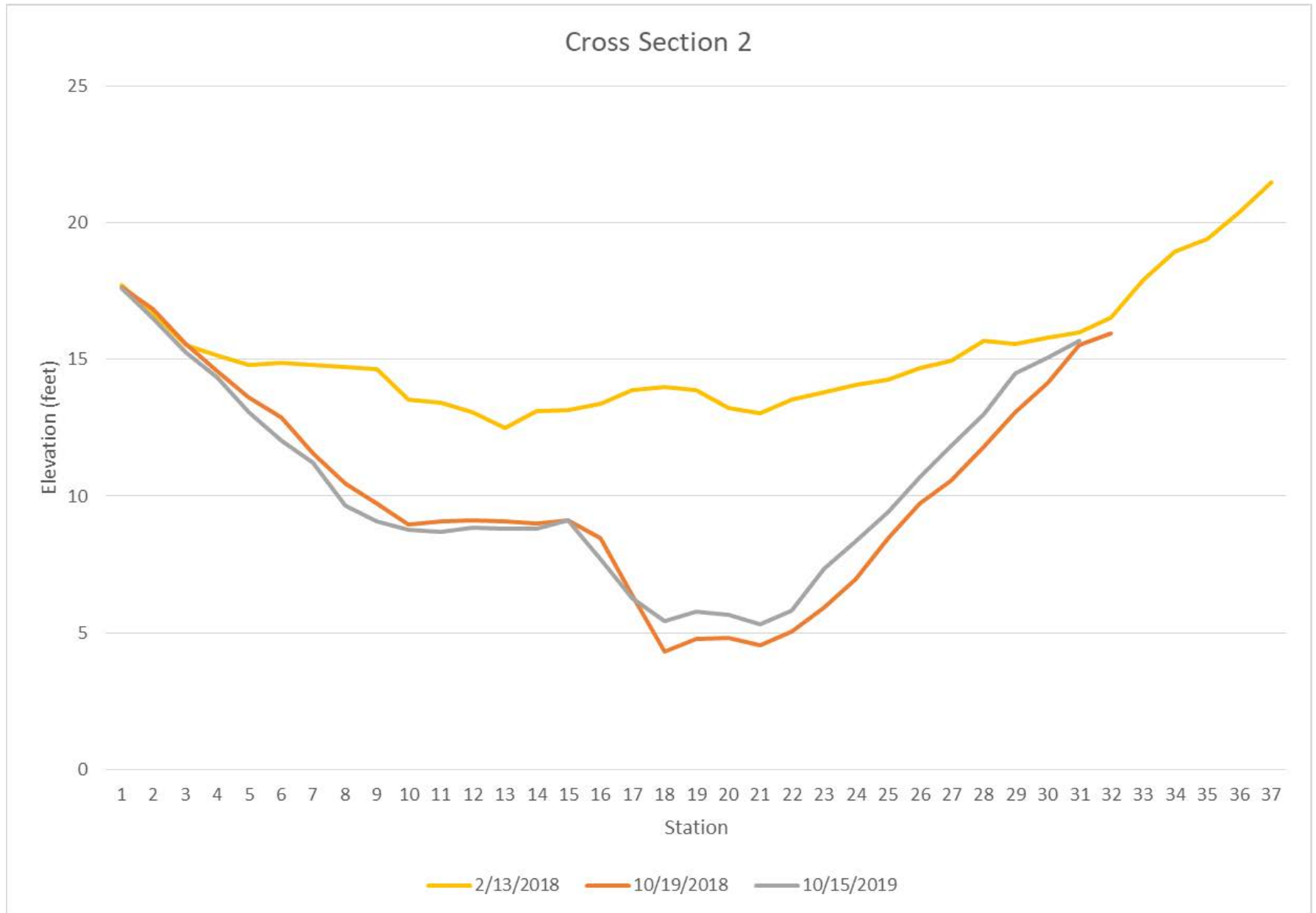
Channel Cross Sections – X1 - Mouth



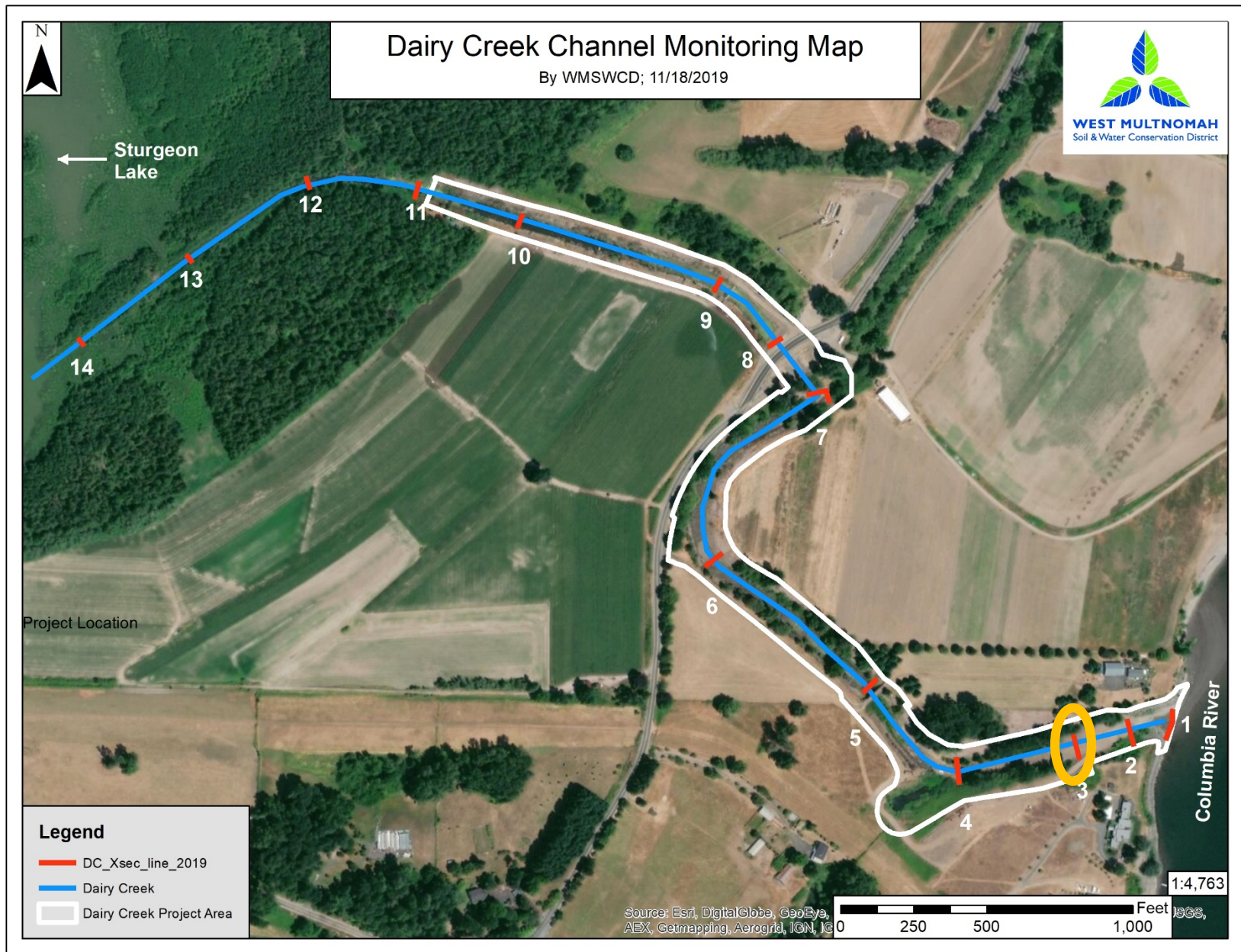
Channel Cross Section 2



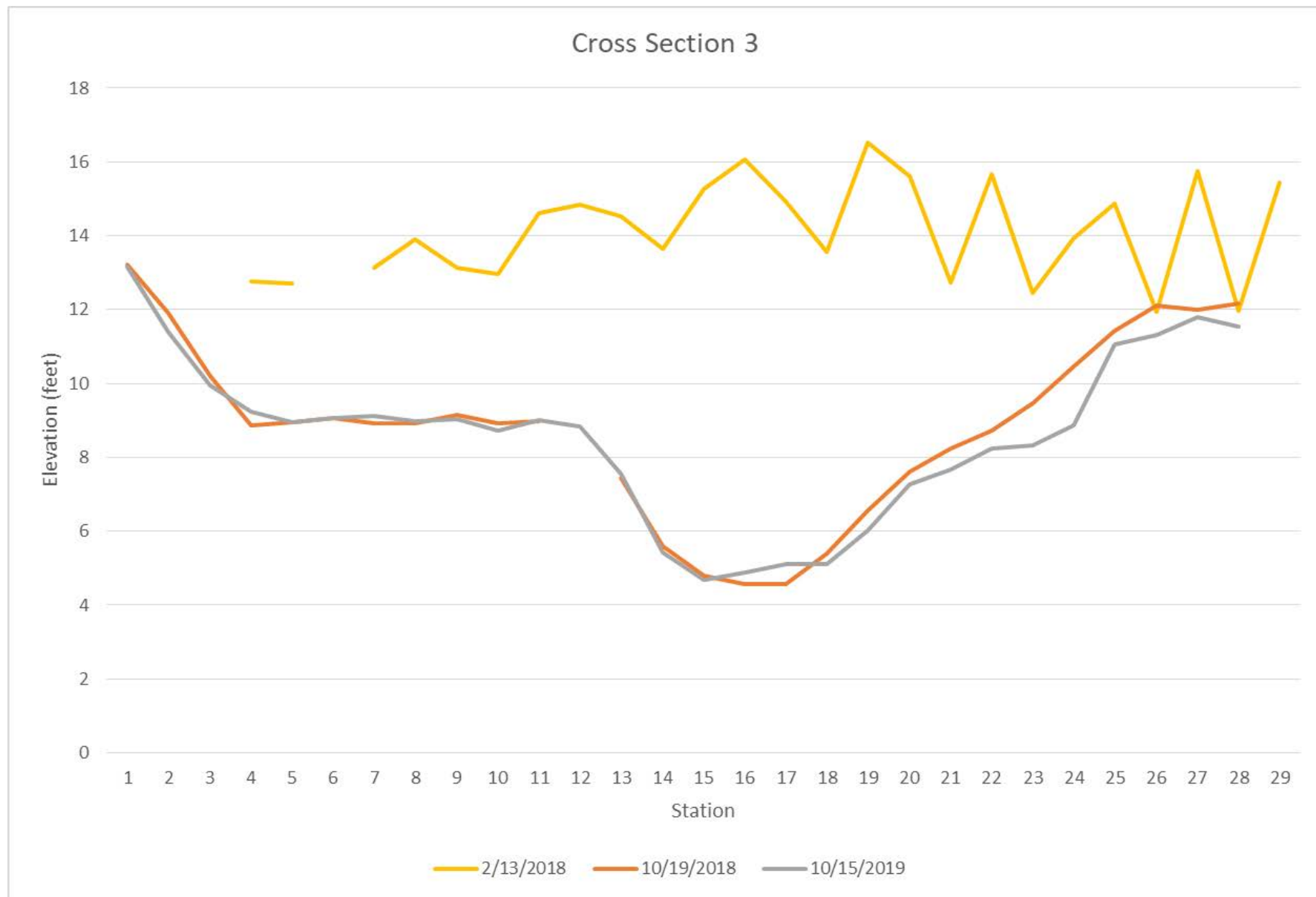
Channel Cross Sections



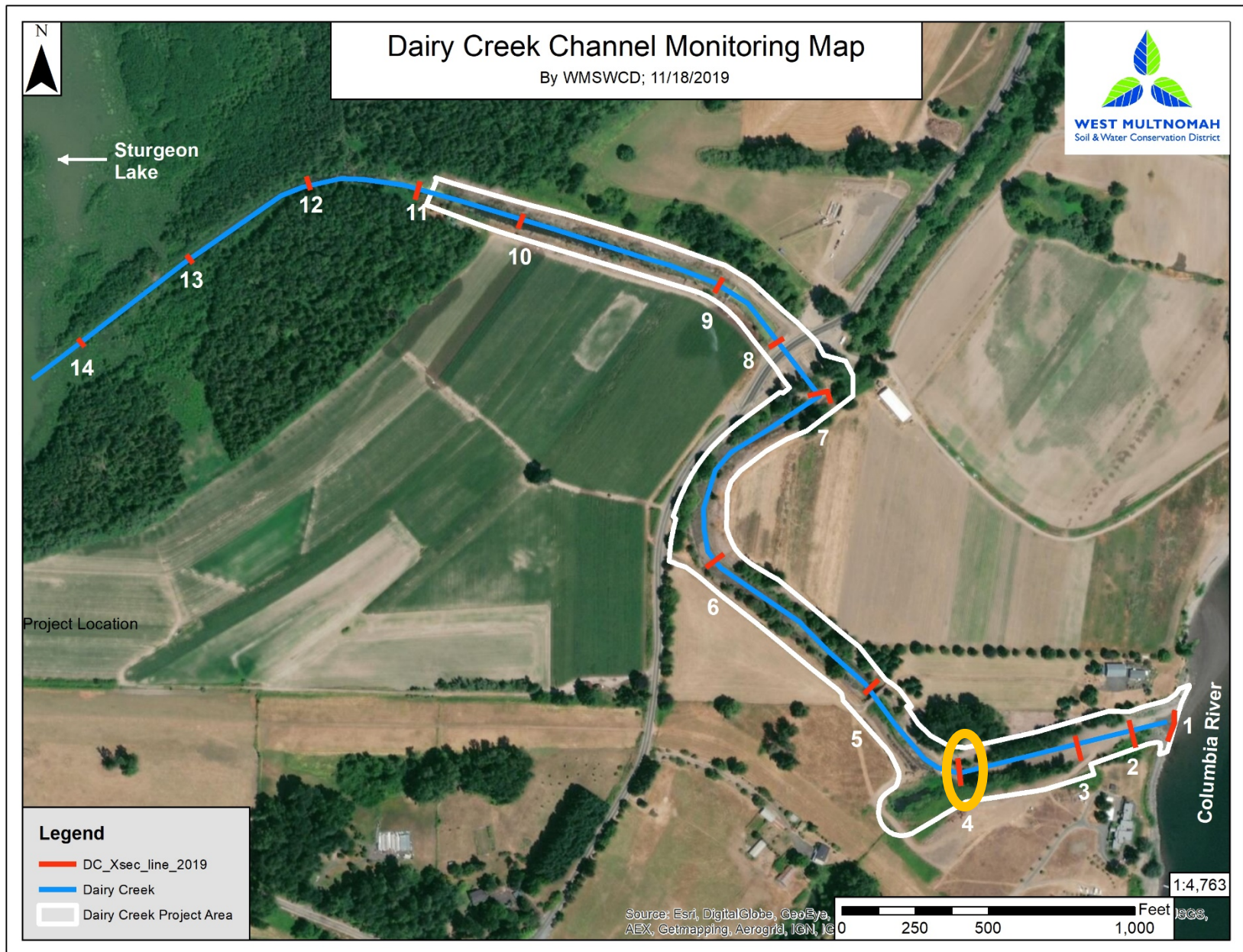
Channel Cross Section 3



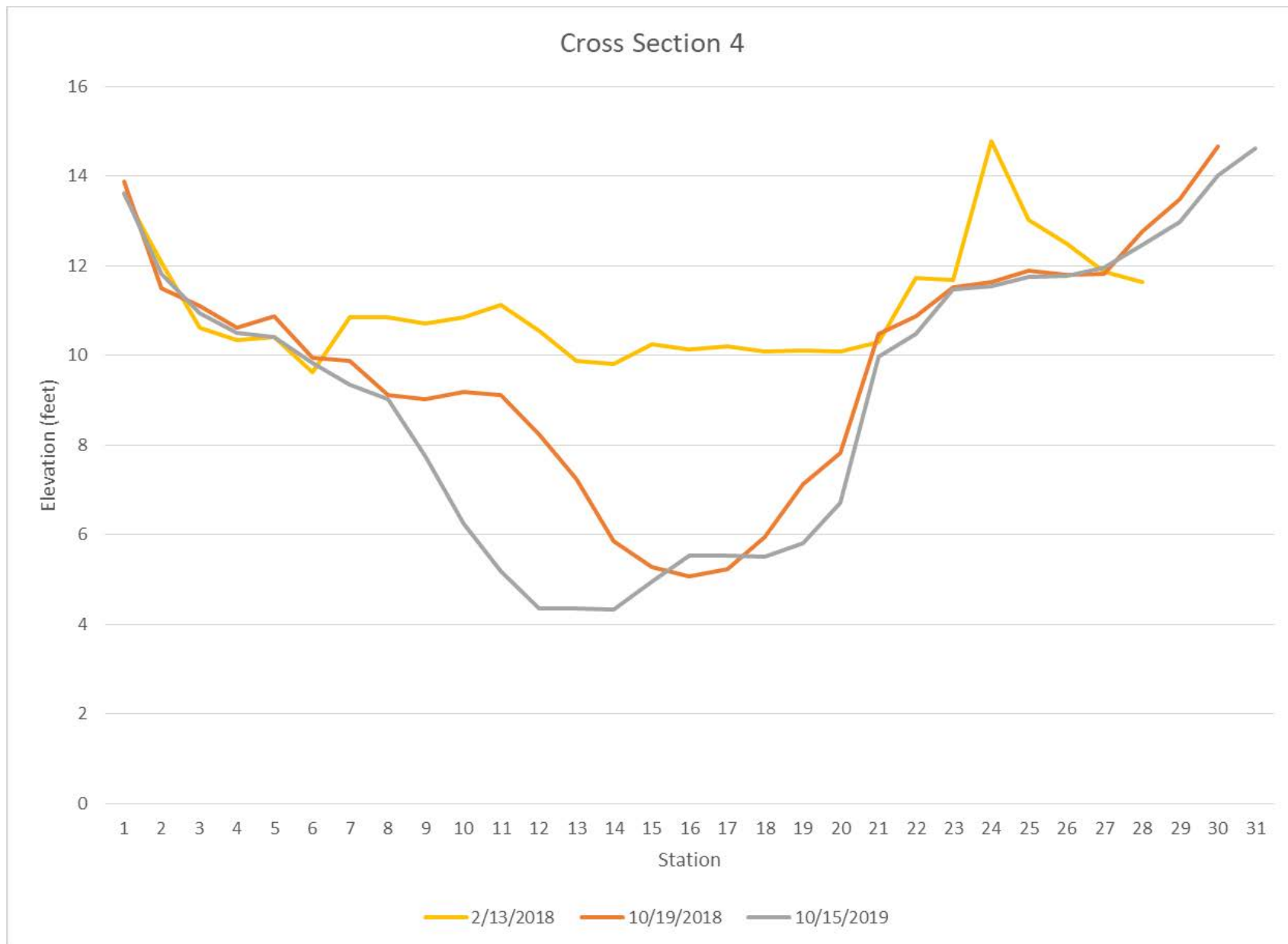
Channel Cross Sections



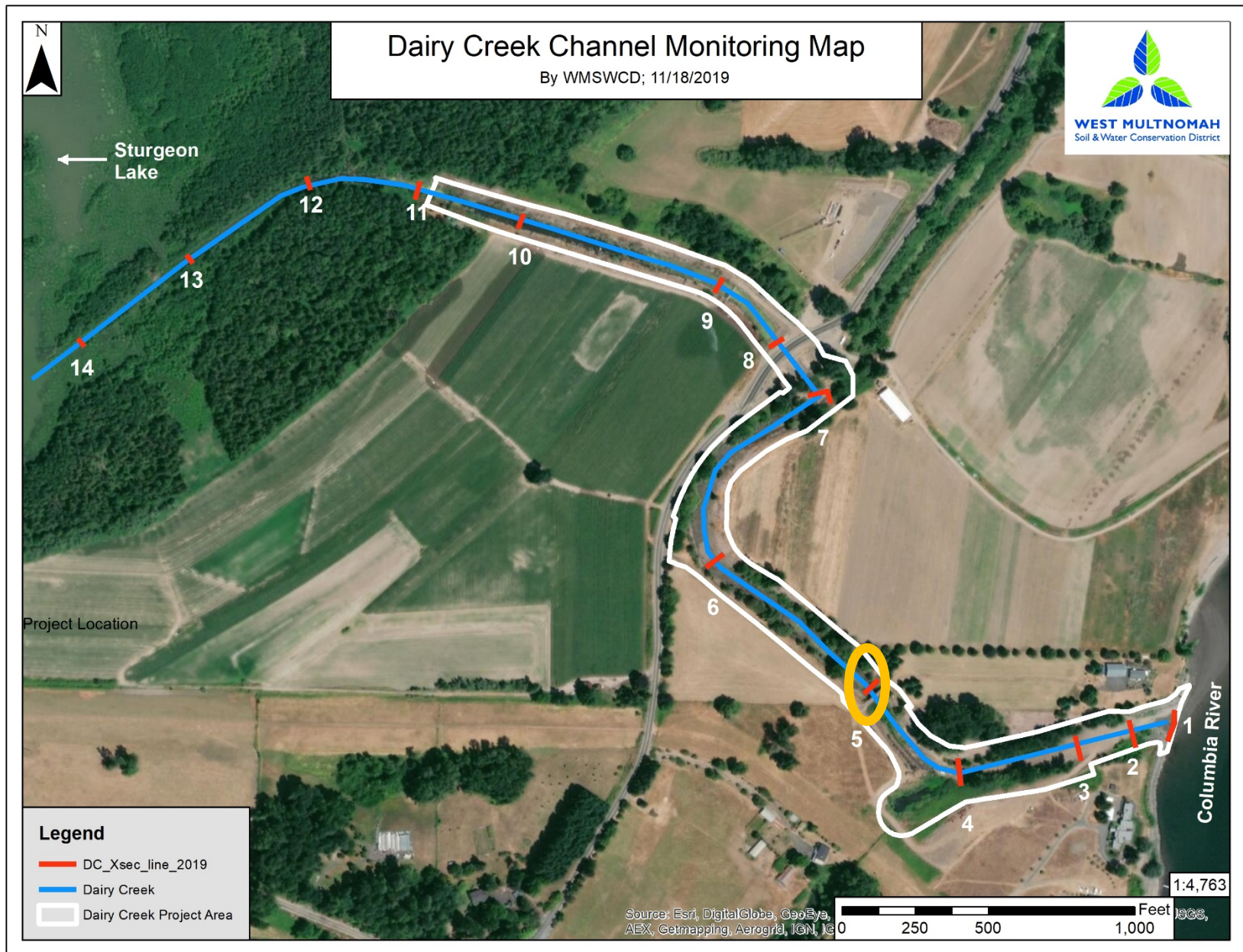
Channel Cross Section 4



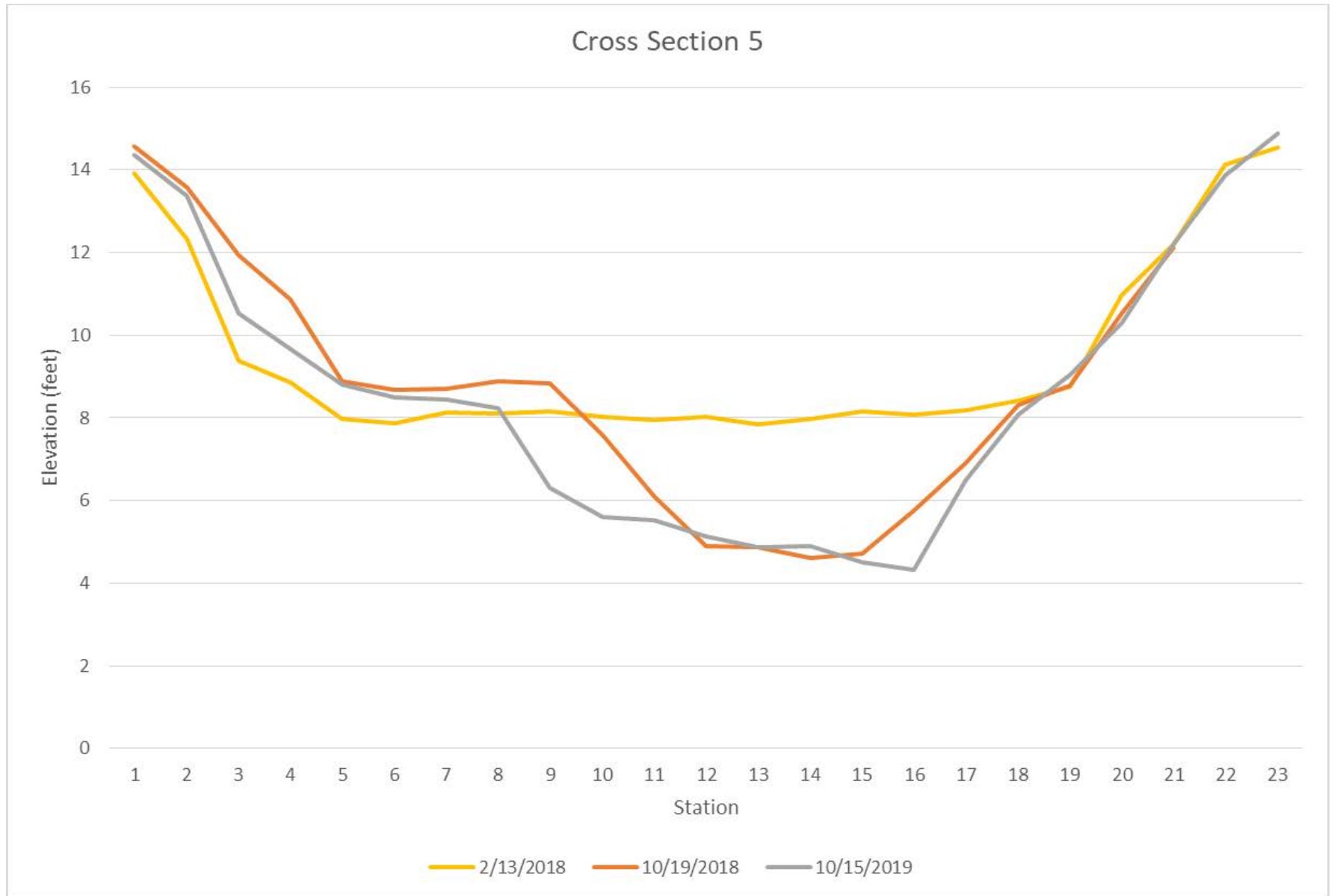
Channel Cross Sections



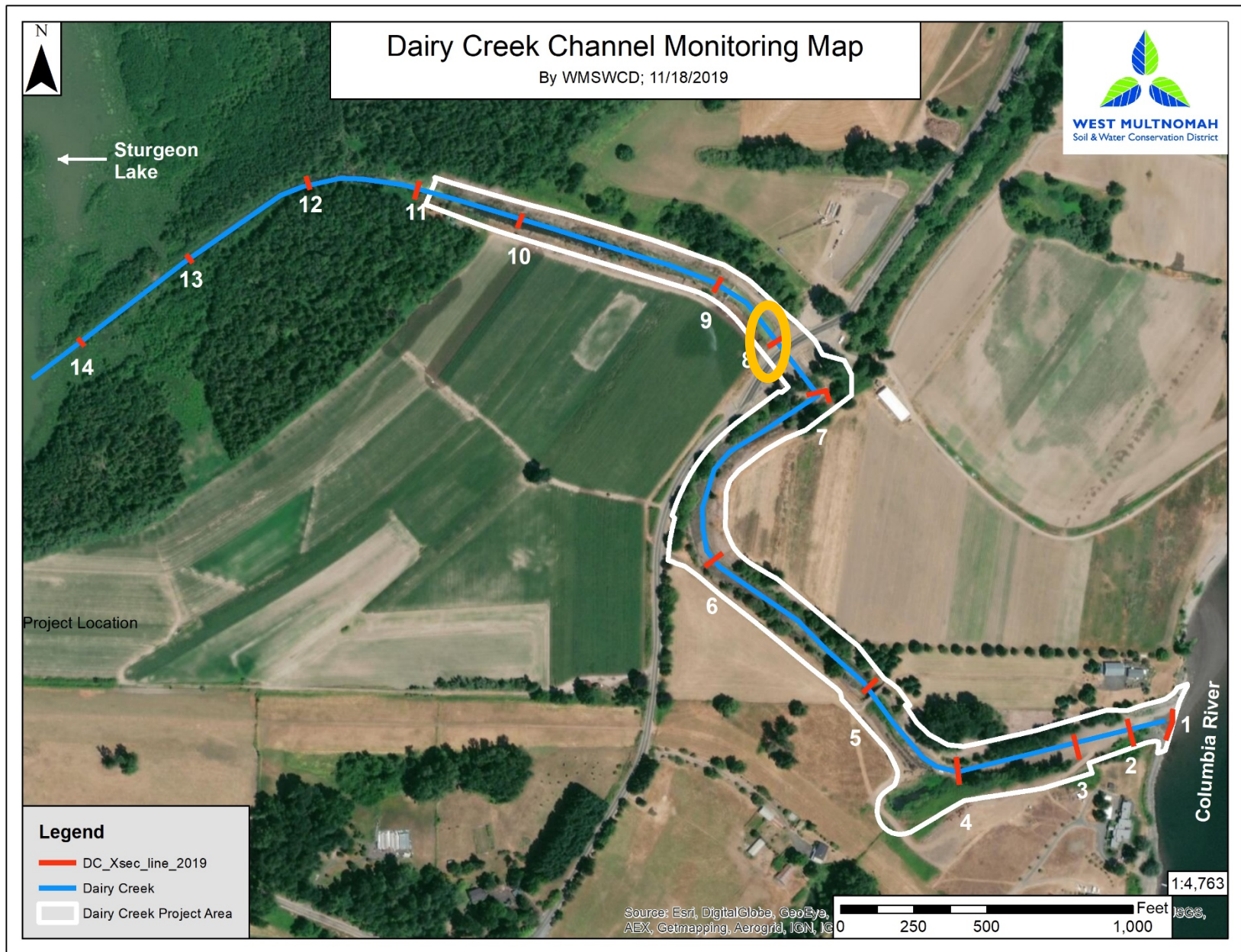
Channel Cross Section 5



Channel Cross Sections



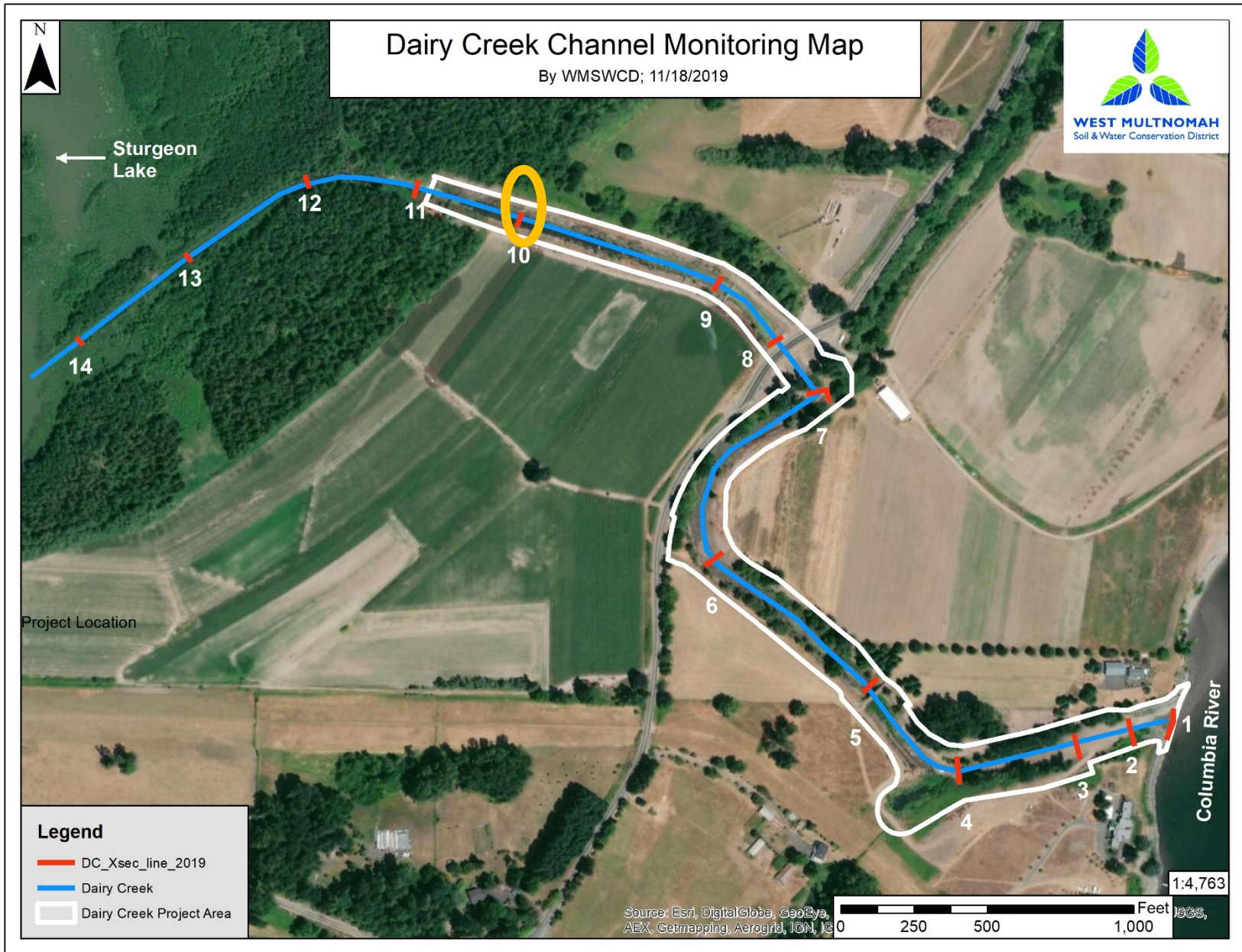
Channel Cross Section 8



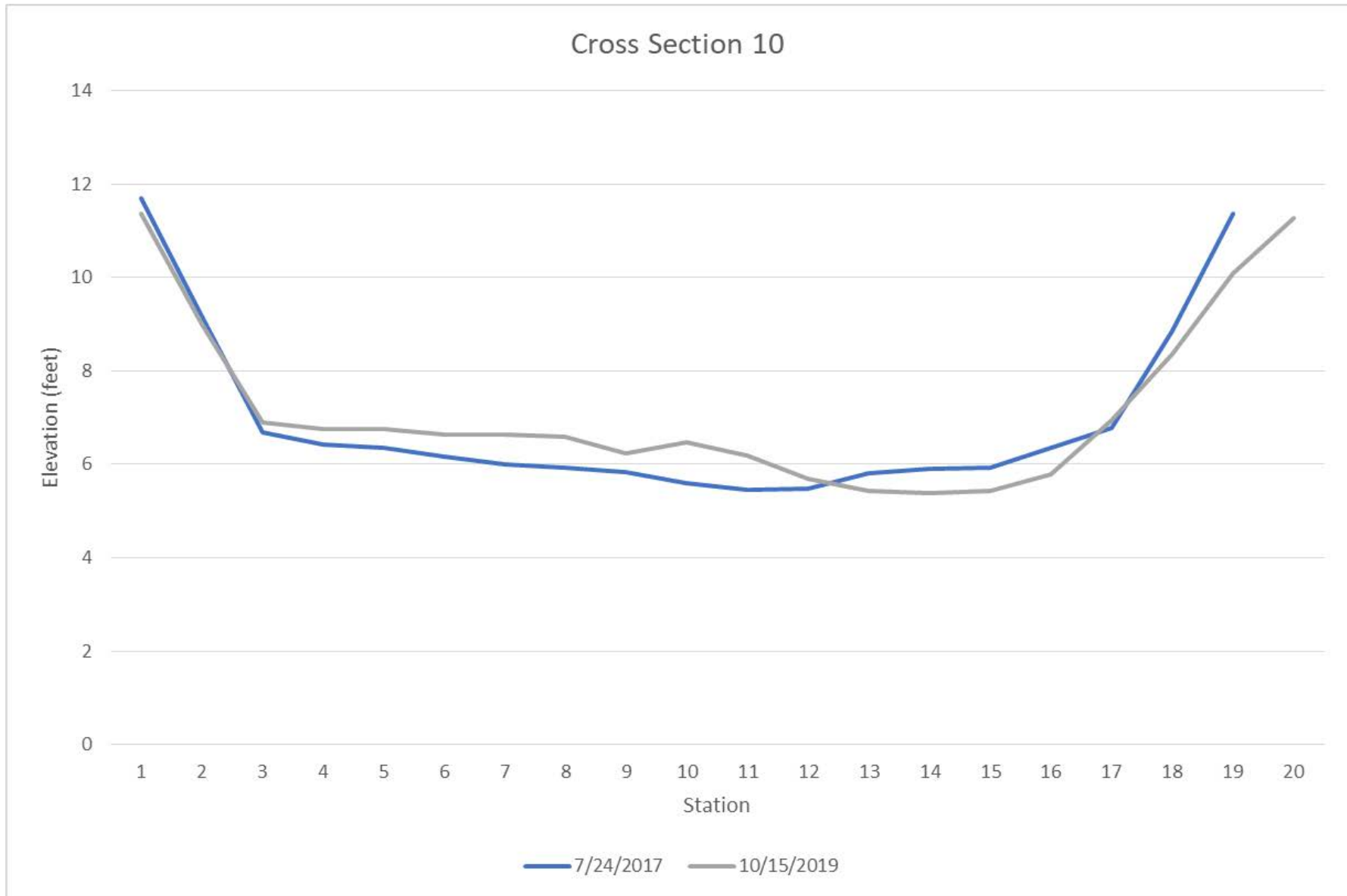
Channel Cross Sections



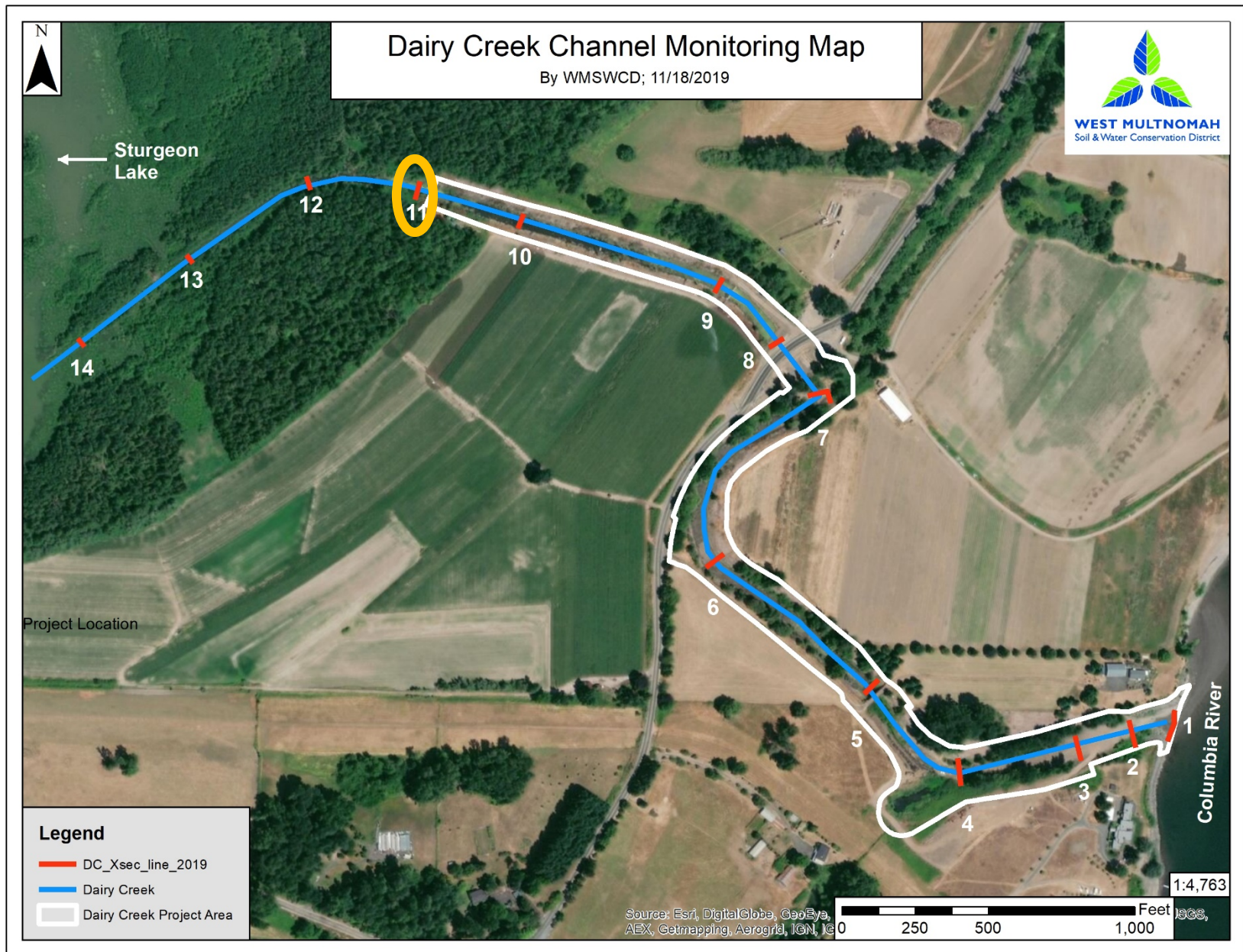
Channel Cross Section 10



Channel Cross Sections

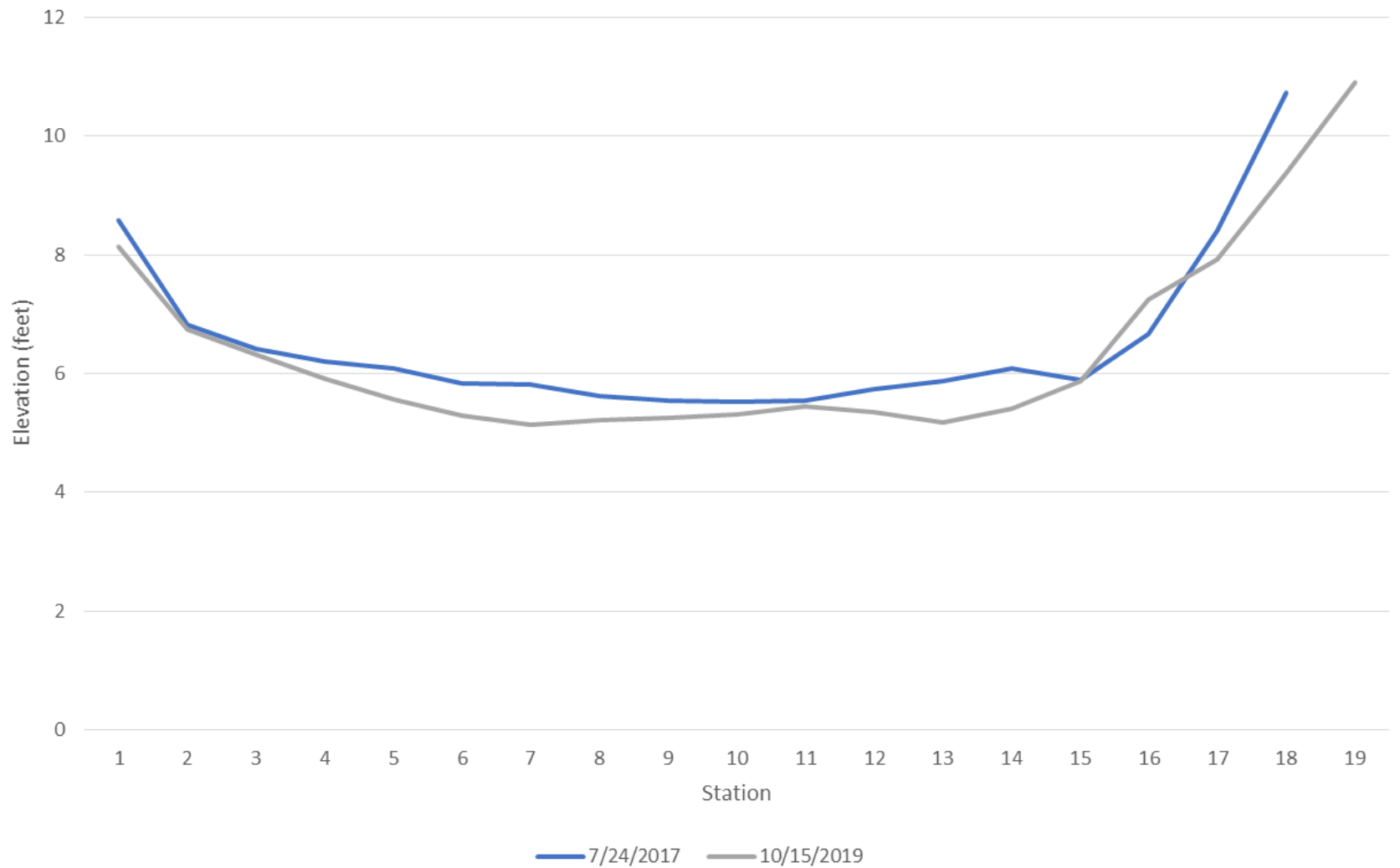


Channel Cross Section 11

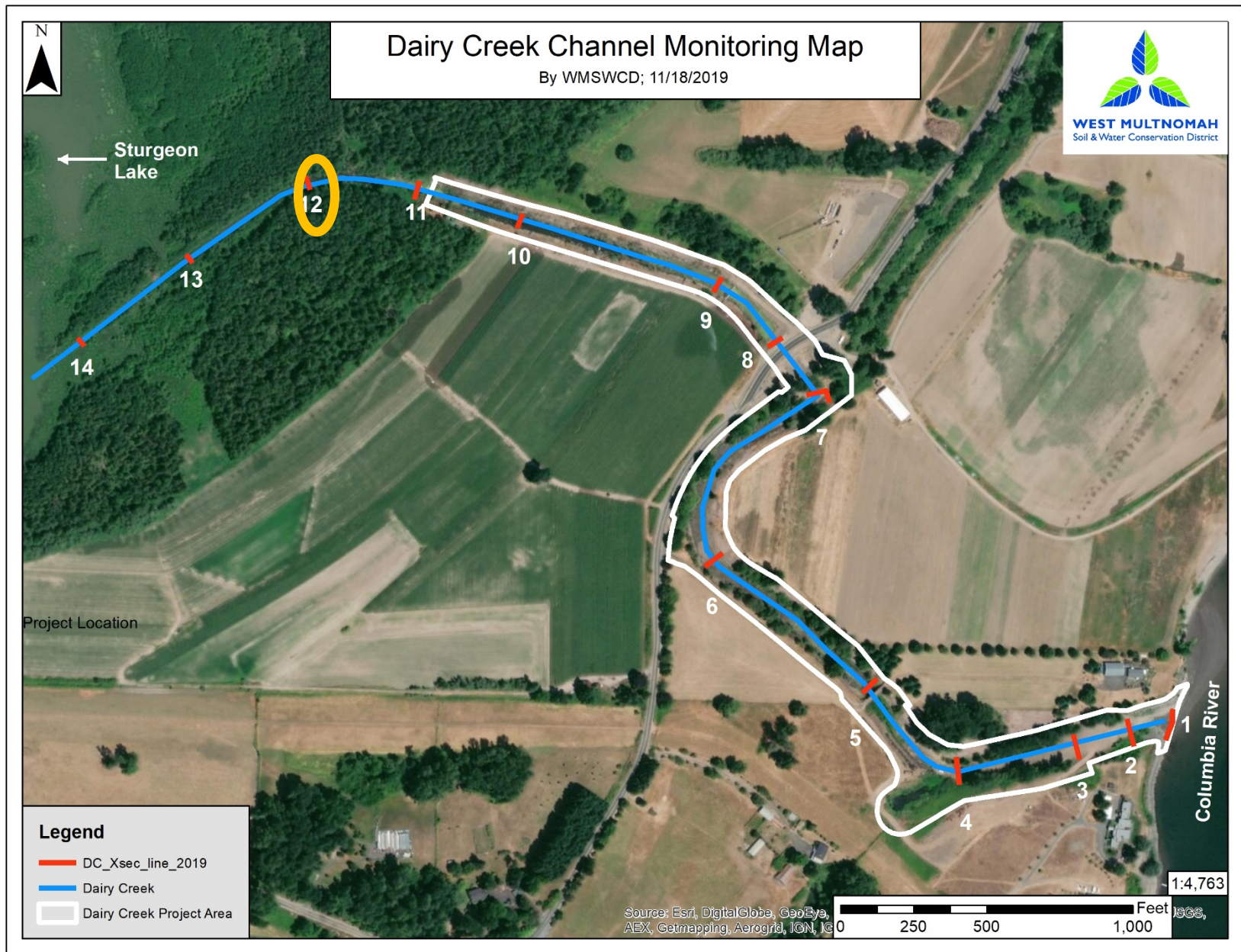


Channel Cross Sections

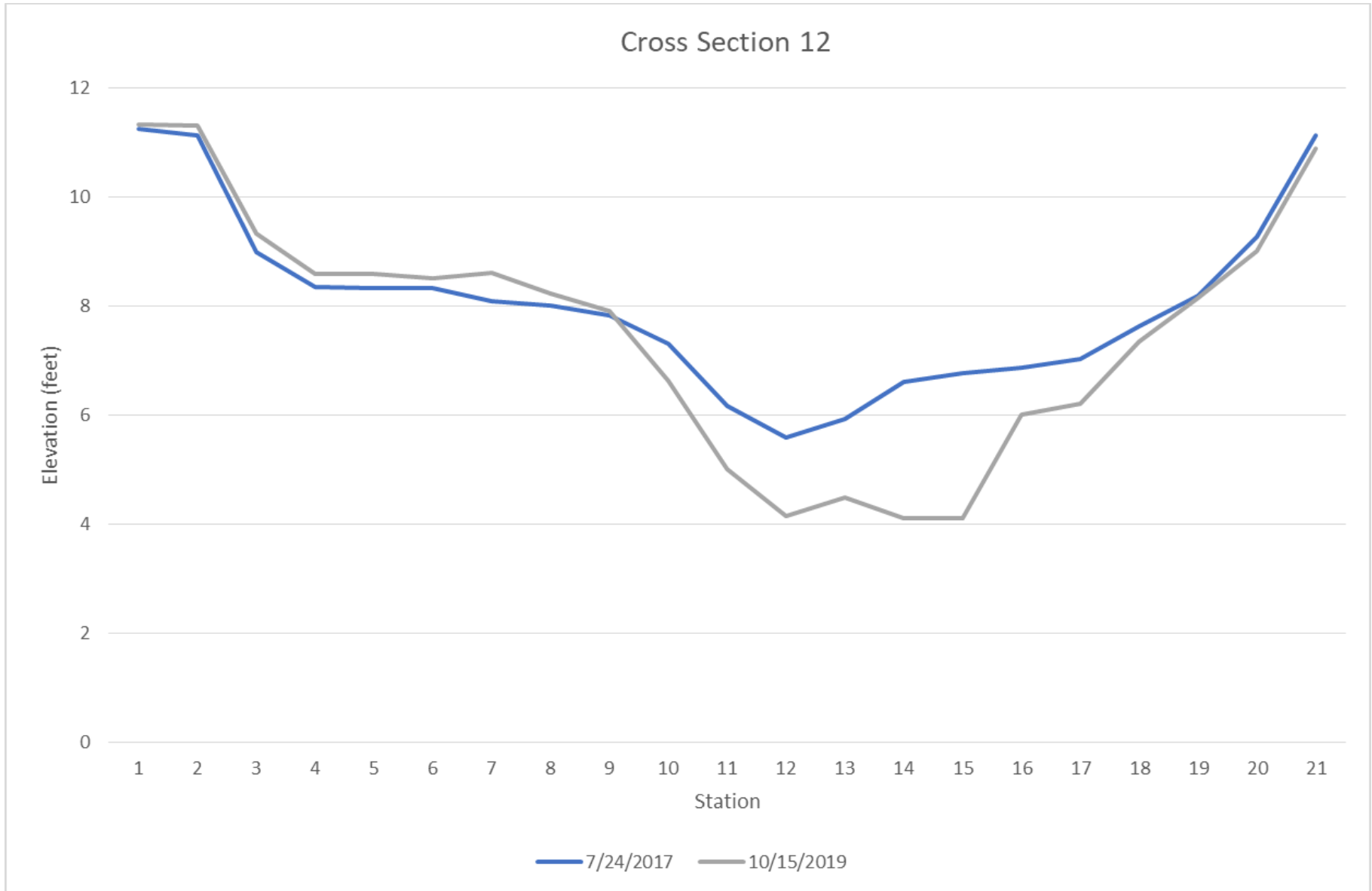
Cross Section 11



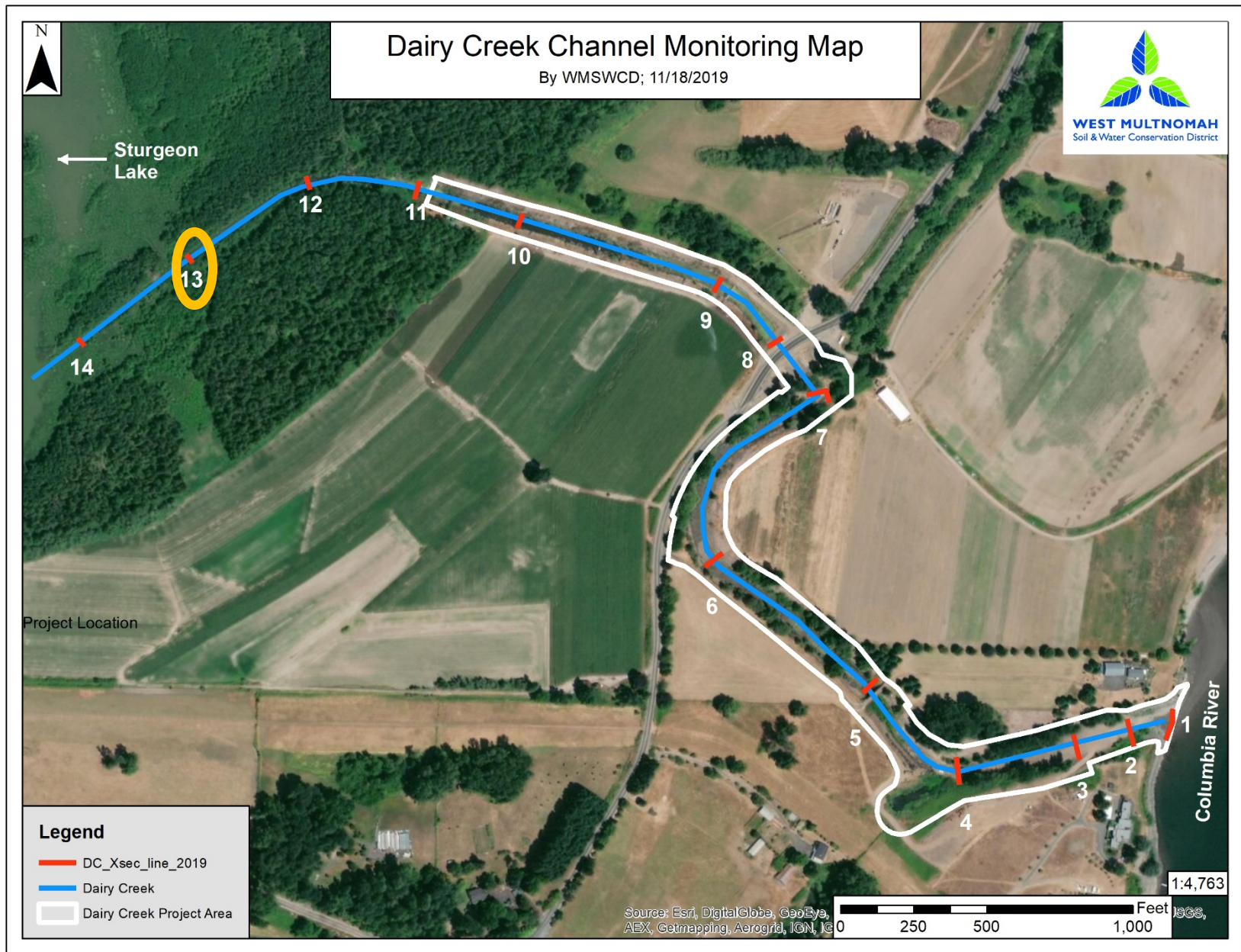
Channel Cross Section 12



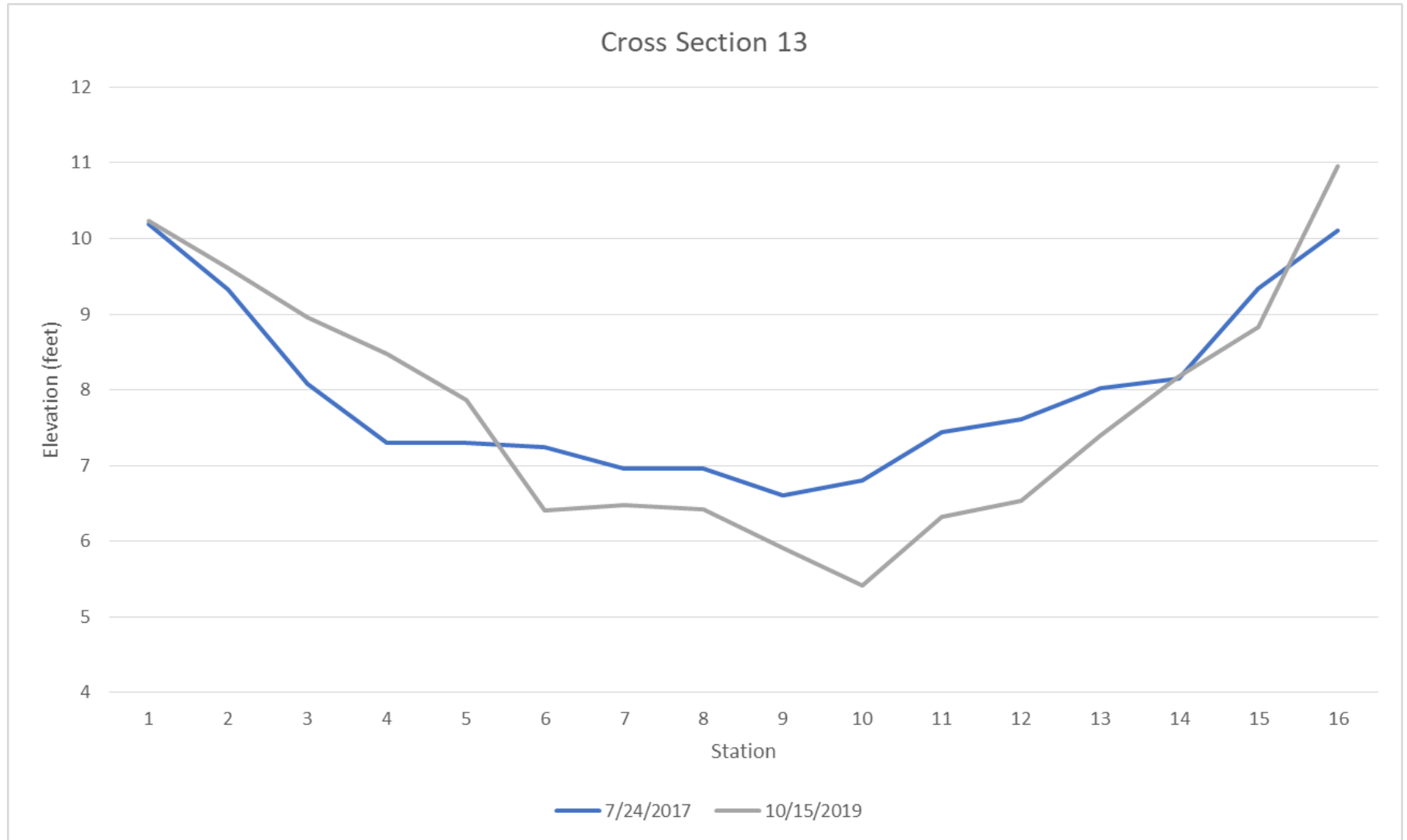
Channel Cross Sections



Channel Cross Section 13



Channel Cross Sections



Vegetation monitoring

- WMSWCD Plantings 80-90% survival rates
 - Thanks in large part to ample site prep
 - 1.5 additional areas in 2020
- Plantings in Construction areas less than 50% survival
 - Compacted soils, low OW, no mulch, etc
 - Replanting this winter paid for by BPA



Fish Monitoring

- 26 wild chinook July 2, 2018
- No post project data yet
- Install Passive Integrated Transponder (PIT) antennae
 - Install by ODFW
 - \$40,000 from USACE
 - PGE Power by WMSWCD
 - Data collection by CREST
- Timeline
 - ~Jan-Feb 2020



Summary



- Monitoring Data is still in coming
 - Lake WSE
 - Fish Monitoring
 - Aerial photos
- Currant data point to Project operating successfully
- Some accumulation at the mouth
- Net export of sediment closer to the lake
- Plantings survived their first dry season