

APPENDIX 1:
Cross-section Photos and Cross-sections

Figure A1. Photo Location Map. The numbers on the following photos correspond to the location numbers identified in yellow on the above Index Map for the Bonne Femme Watershed.

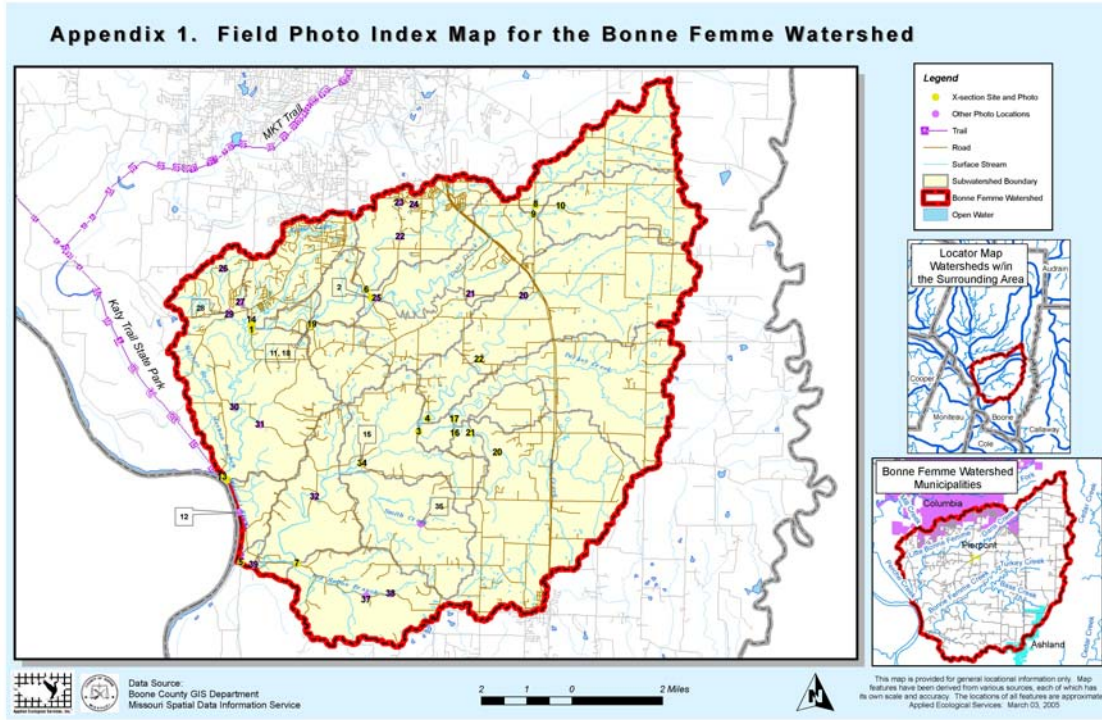


Photo 1A. N. Branch Little Bonne Femme from the bridge. Looking downstream.



Photo 1B. N. Branch Little Bonne Femme. Looking upstream.



Figure A2. Cross-section: 1. N. Branch Little Bonne Femme.

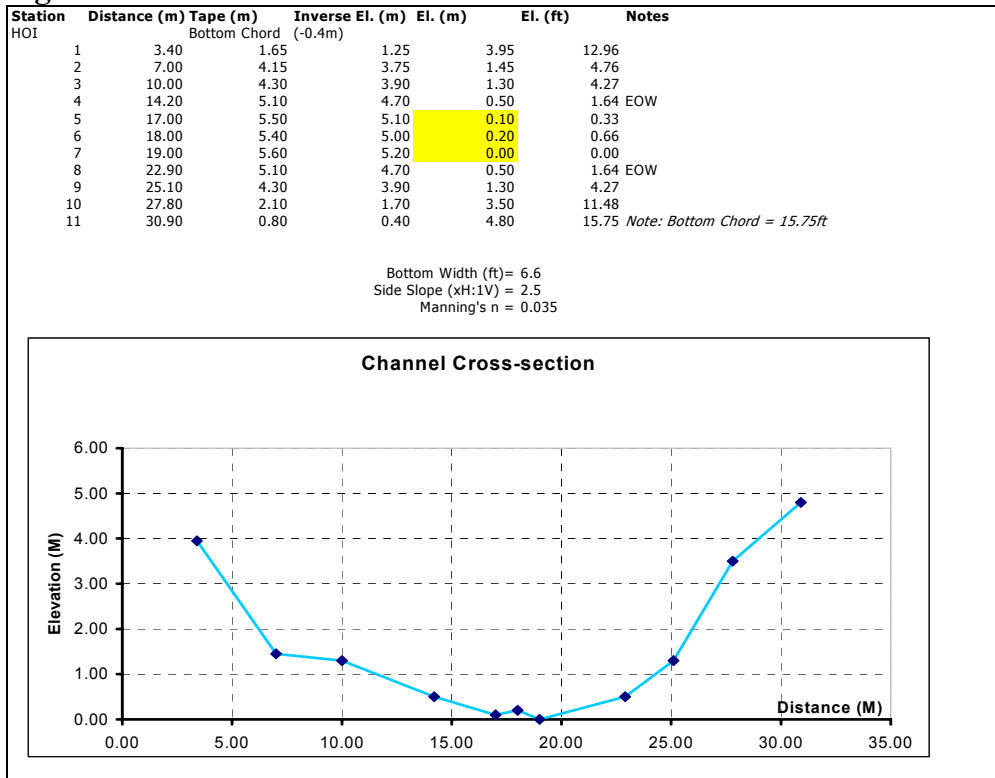


Photo 2A. Gans Creek Main about 125 meters upstream from pedestrian bridge under forest cover. Upstream looking at cross section.



Photo 2B. Gans Creek Main. Downstream looking at cross section.



Figure A3. Cross-section: 2. Gans Creek Main.

Station	Distance (m)	Rod (ft)	El. (M)	El. (ft)	Notes
HOI			5.40		
1	0.00		5.30	2.13	7.00
2	1.80		8.00	1.31	4.30 BF
3	2.90		11.00	0.40	1.30 TOE
4	7.20		11.90	0.12	0.40 EOW
5	8.70		12.30	0.00	0.00 THAL
6	11.30		12.00	0.09	0.30 EOW
7	14.50		11.00	0.40	1.30 TOE
8	16.10		6.00	1.92	6.30 TOB
9	19.00		5.10	2.20	7.20

Bottom Width (ft) = 38.1
 Side Slope (xH:1V) = 3.6
 Manning's n = 0.040

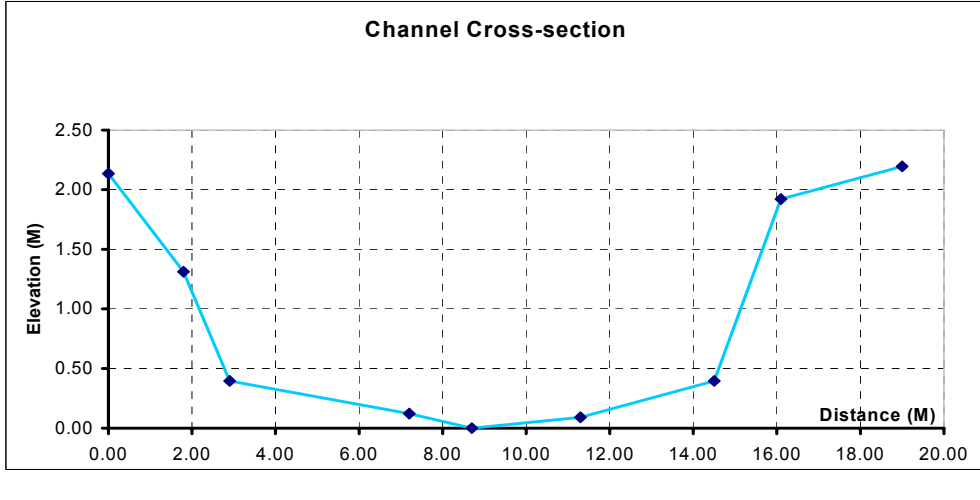


Photo 3A. Turkey/Bass Creek, 300 feet upstream of the confluence of Upper Bonne Femme with forest cover, bottomland, and forest slope. Downstream.



Photo 3B. Turkey/Bass Creek. Upstream northern braid.



Photo 3C. Turkey/Bass Creek. Upstream south braid.



Figure A4. Cross-section: 3. Turkey/Bass Creek Confluence.

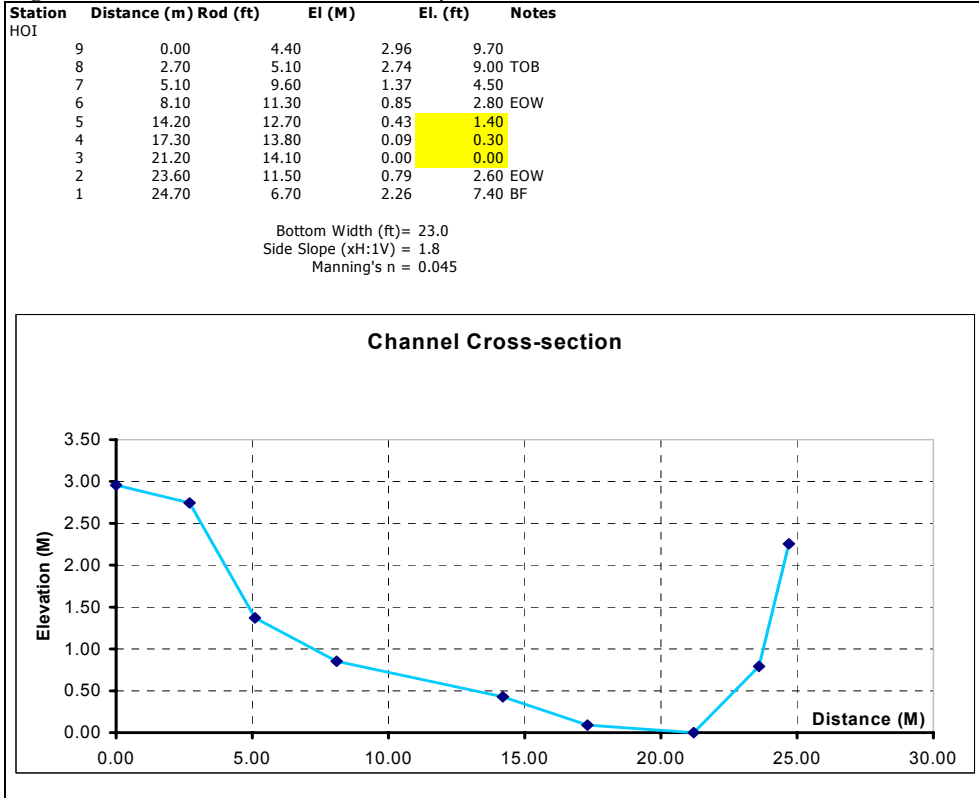


Photo 4A. Upper Bonne Femme Lower, 300 feet upstream of the confluence of Bonne of Turkey Creek in forest cover. Upstream.



Photo 4B. Upper Bonne Femme Lower. Downstream.



Figure A5. Cross-section: 4. Upper Bonne Femme Lower.

Station	Distance (m)	Rod (ft)	El. (M)	El. (ft)	Notes
HOI			5.40		
1	0.00		5.40	1.40	4.60 BF
2	5.50		7.20	0.85	2.80
3	16.80		10.00	0.00	0.00 THAL & EOW
4	19.90		10.00	0.00	0.00 EOW
5	23.80		8.70	0.40	1.30 TOE
6	25.20		5.80	1.28	4.20 TOP OF BANK
7	27.50		5.40	1.40	4.60

Bottom Width (ft)= 23.0
 Side Slope (xH:1V) = 8.7
 Manning's n = 0.055

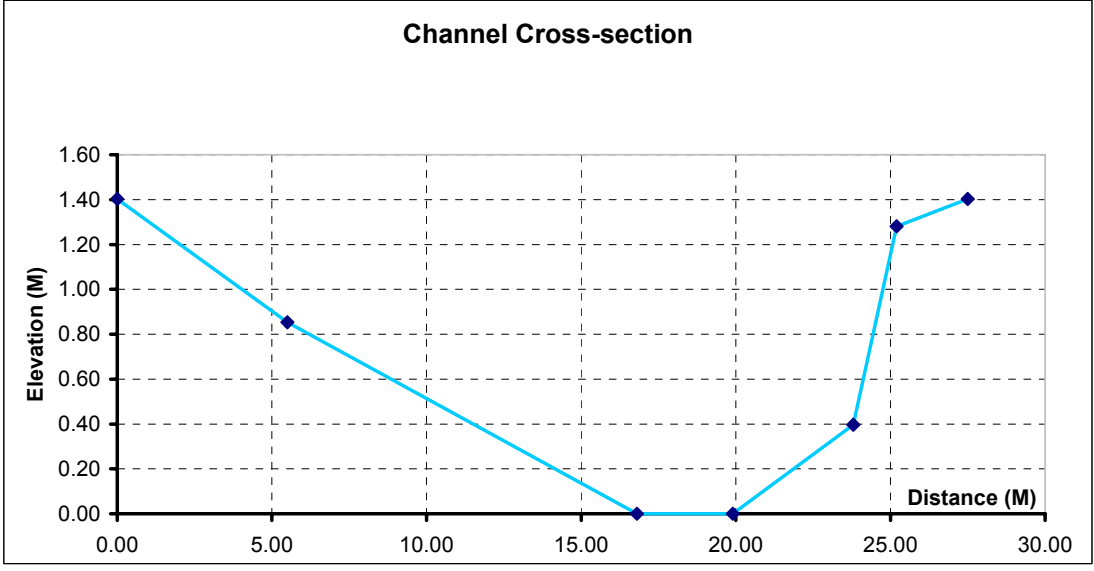


Photo 5A. Mouth of the Bonne Femme & Missouri Rivers at walking bridge where the survey was taken. Looking at cross-section surveying technique of locations only accessible via a bridge locations. See Excel Spreadsheet under Photo 5, “Location.”



Photo 5B. Mouth of the Bonne Femme & Missouri Rivers in narrow strip of silver maple, ash, and dogwood habitat. Downstream.



Photo 5C. Mouth of the Bonne Femme & Missouri Rivers. Upstream.



Photo 5D. Mouth of the Bonne Femme & Missouri Rivers. Bridge.



Photo 5E. Mouth of the Bonne Femme & Missouri Rivers. Looking at the North bluffs overlooking the Missouri River.



Figure A6. Cross-section: 5. Bonne Femme Lower II.

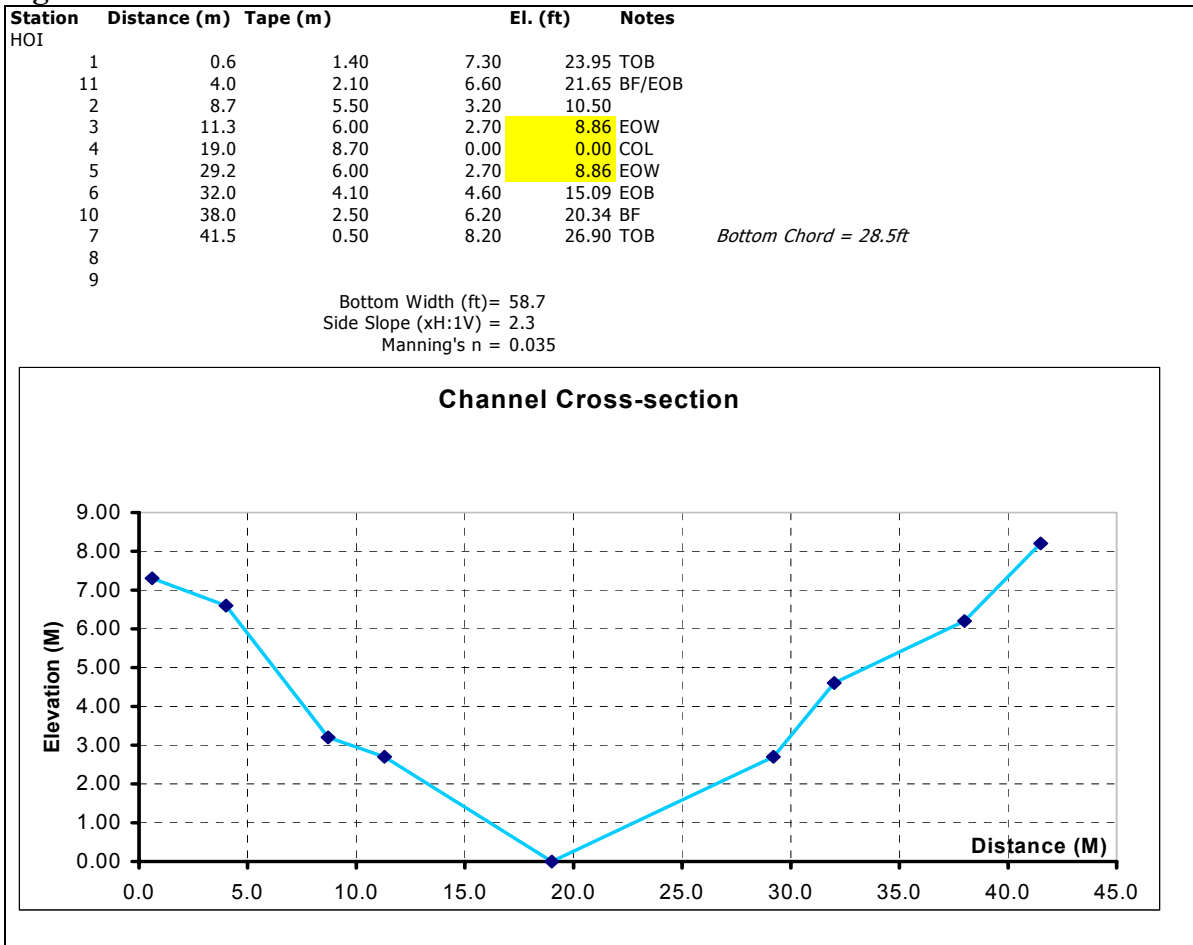


Photo 6A. View of Clear Creek between bridge and confluence through bottomland forest including sycamore, honey locust, hackberry, oak, and *Elymus virginicus*. Looking upstream at cross section.



Photo 6B. Clear Creek. Looking downstream at cross section.



Photo 6C. Clear Creek. Exposed pipe.



Photo 6D. Clear/Gans Creek Confluence.



Photo 6E. Clear Creek. Upstream of bridge.



Photo 6F. Clear Creek. Downstream of bridge looking at cross section.



Figure A7. Cross-section: 6. Clear Creek.

Station	Distance (m)	Rod (ft)	El. (m)	El. (ft)	Notes
HOI			5.40		
1	0.00	3.00	2.13	7.00	
2	0.60	3.50	1.98	6.50	TOB
3	1.40	7.00	0.91	3.00	BF
4	5.60	8.50	0.46	1.50	
5	11.60	9.60	0.12	0.40	EOW
6	13.10	10.00	0.00	0.00	THAL
7	14.20	9.50	0.15	0.50	EOW
8	16.30	8.60	0.43	1.40	
9	16.80	5.00	1.52	5.00	TOB
10	20.40	4.00	1.83	6.00	

Bottom Width (ft)= 8.5
 Side Slope (xH:1V) = 3.9
 Manning's n = 0.045

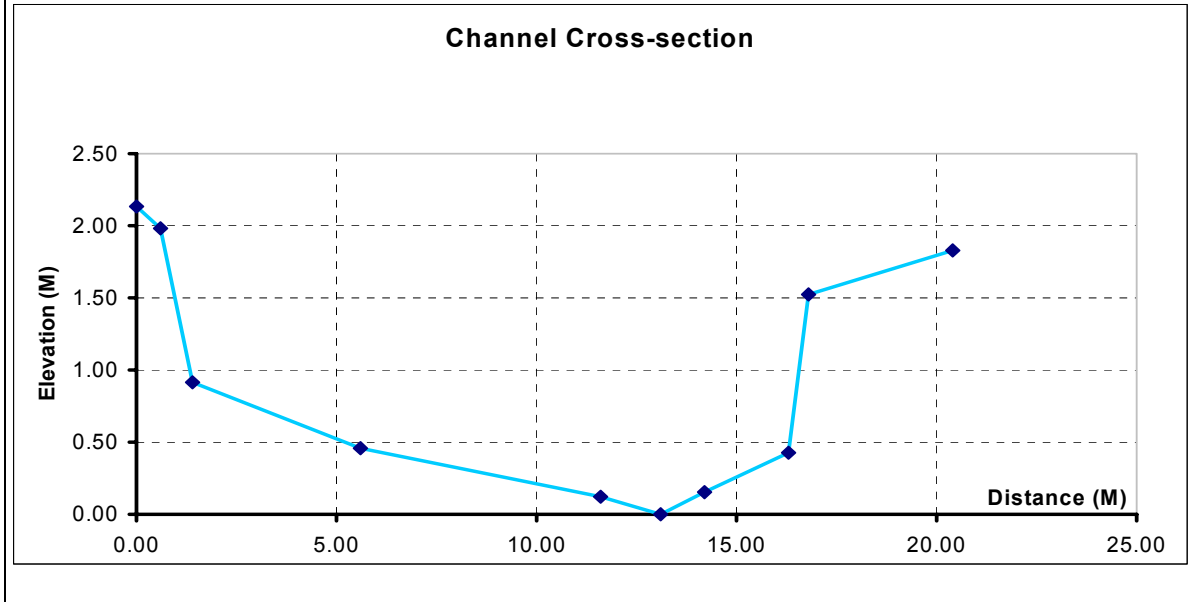


Photo 7A. Fox Hollow Branch 50 meters downstream of bridge through silver maple, elm, sycamore, hackberry, honey locust and rye. Looking downstream at cross section.



Photo 7B. Fox Hollow Branch. Looking upstream at bridge.



Photo 7C. Fox Hollow Branch. Ground swale seepage area.



Figure A8. Cross-section: 7. Fox Hollow Branch.

Station	Distance (m)	Rod (ft)	El. (m)	El. (ft)	Notes
HOI					
1	0.50	0.00	4.30	14.10	TOB
2	4.10	13.70	0.12	0.40	EW
3	5.00	14.10	0.00	0.00	THAL
4	6.30	13.00	0.34	1.10	EW
5	9.00	11.40	0.82	2.70	
6	20.00	4.40	2.96	9.70	BF
7	30.00	0.00	4.30	14.10	

Bottom Width (ft)= 7.2
 Side Slope (xH:1V) = 3.4
 Manning's n = 0.050

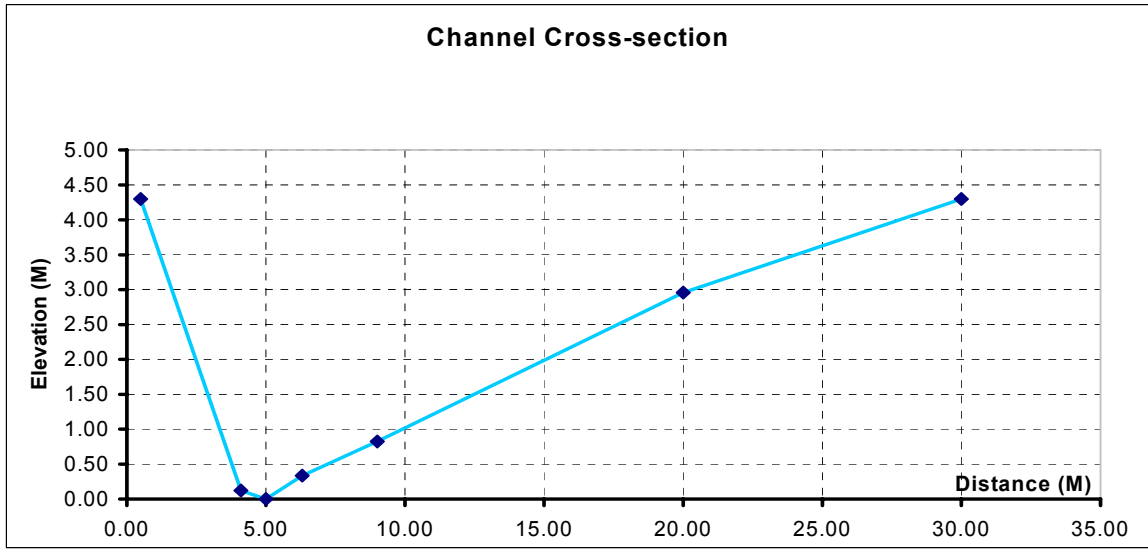


Photo 8A. Gans North about 50 meters downstream from bridge in wooded habitat. Looking downstream at cross section.



Photo 8B. Gans North. Looking upstream at bridge.



Figure A9. Cross-section: 8. Gans North.

Station	Distance (m)	Rod (ft)	El. (ft)	Notes
HOI				
1	0.00	0.00	2.65	8.7
2	0.60	0.00	2.65	8.7 TOB
3	1.00	1.80	2.10	6.9
12	3.30	6.60	0.64	2.1 BF
4	4.50	8.50	0.06	0.2 EOW
5	6.00	8.70	0.00	0.0 THAL
6	8.30	7.00	0.52	1.7 EOW
7	8.70	6.50	0.67	2.2
13	9.20	6.40	0.70	2.3 BF
8	14.00	1.00	2.35	7.7
9	25.00	0.00	2.65	8.7 TOB
10				
11				

Bottom Width (ft)= 12.5
 Side Slope (xH:1V) = 4.9
 Manning's n = 0.040

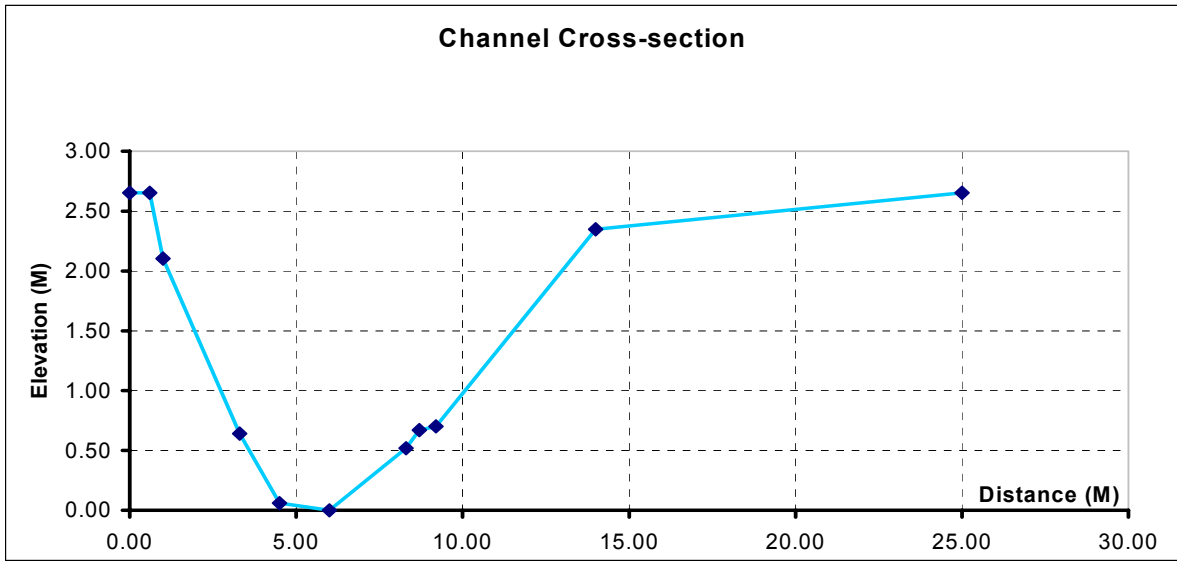


Photo 9A. Gans Main Branch about 50 meters downstream from bridge into sycamore, river birch, ash and Elm woods with willow and sand habitat on side slopes. Downstream at cross section.



Photo 9B. Gans Main Branch. Looking upstream at bridge.



Photo 9C. Gans Main Branch. Looking upstream at confluence from bridge.



Figure A10. Cross-section: 9. Gans Main Branch.

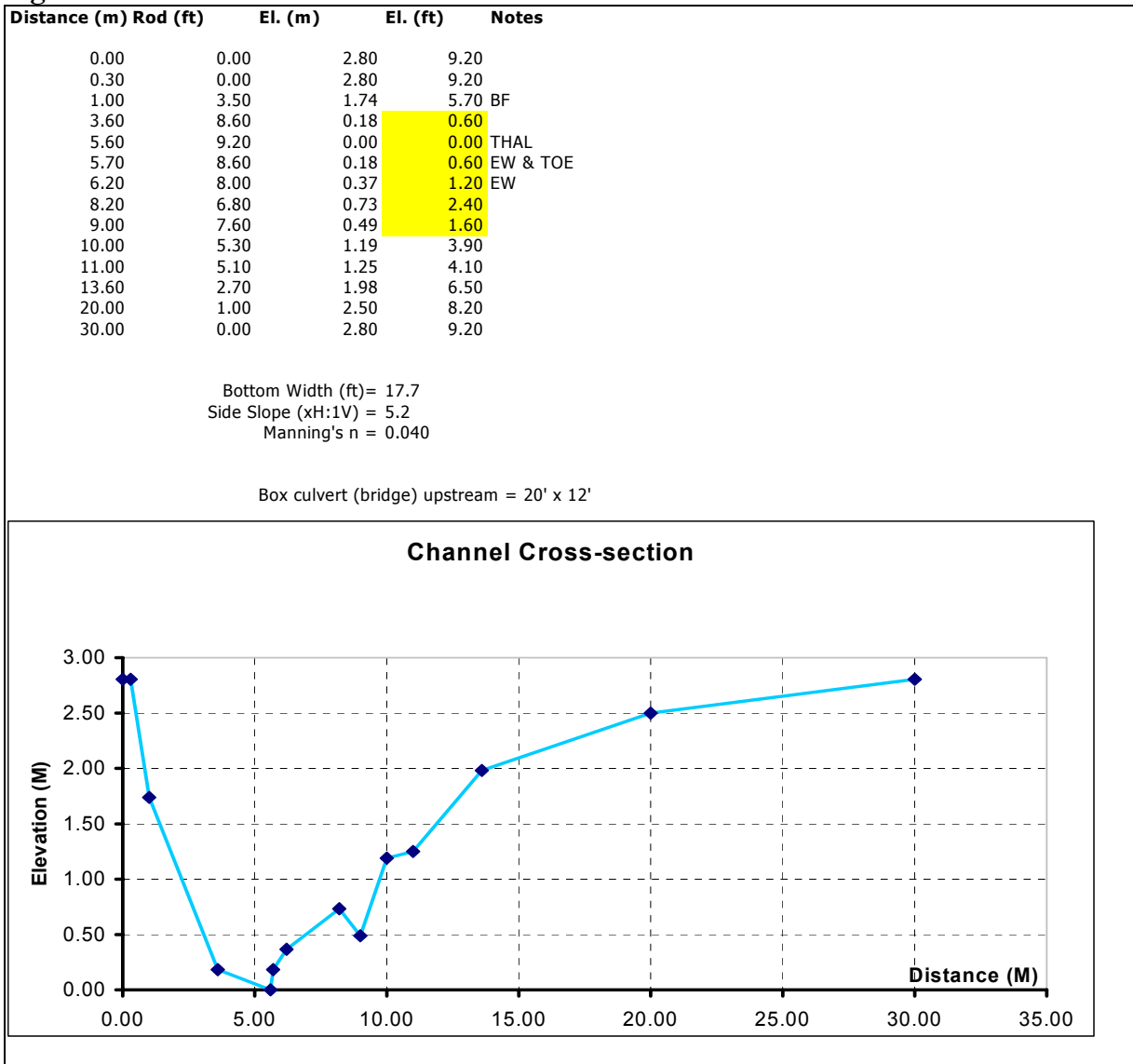


Photo 10A. Gans South in elm, honey locust, sycamore, ash, sweet gum, oak, *Elymus virginicus*, and *Maclura pomifera* woods. Looking downstream at transect.



Photo 10B. Gans South. Looking downstream at culvert.



Photo 10C. Gans South. Looking downstream from culvert.



Figure A11. Cross-section: 10. Gans South.

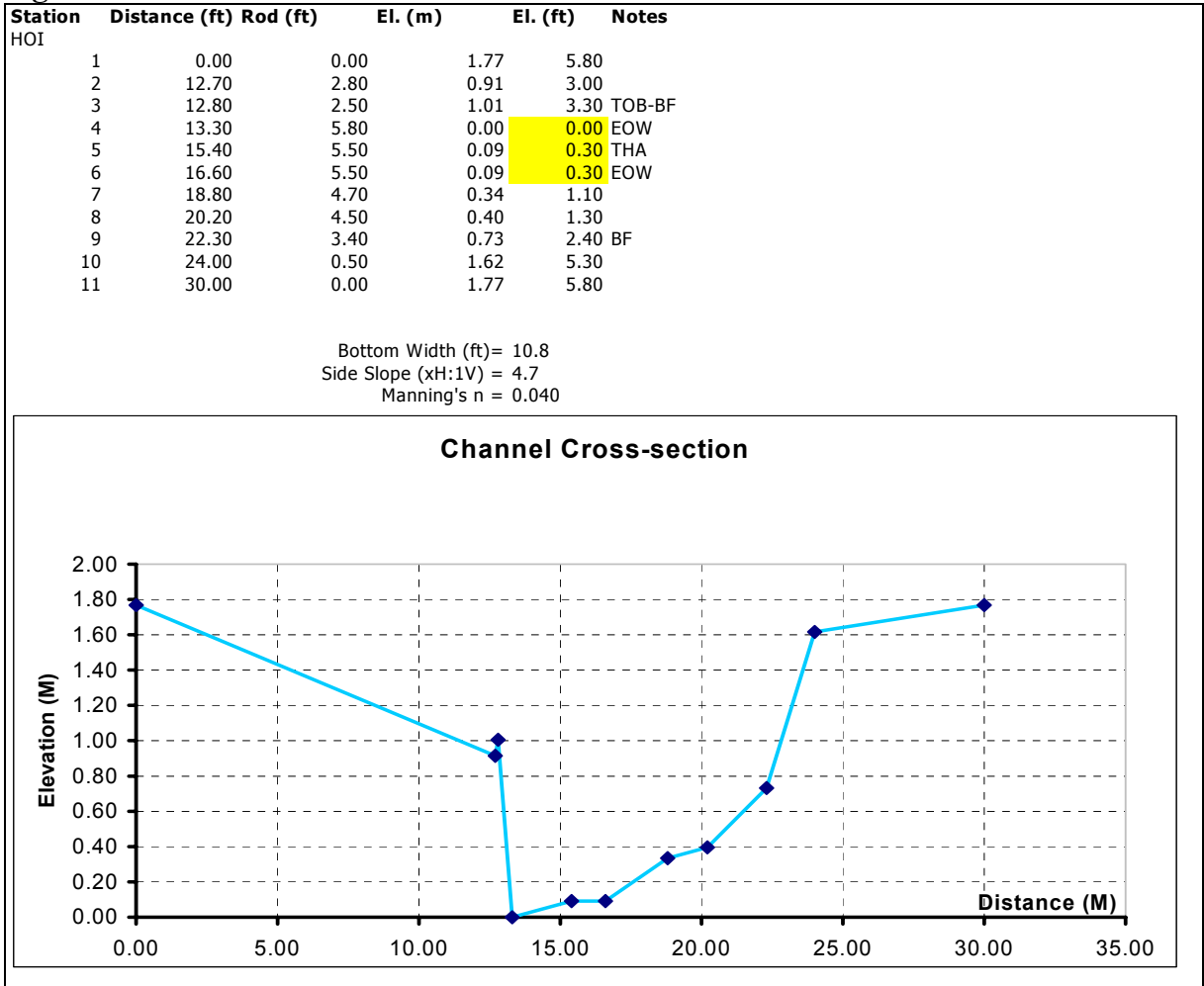


Photo 11. Upper Little Bonne Femme from bridge with turf, pasture and woodland downstream.



Figure A12. Cross-section: 11. Upper Little Bonne Femme.

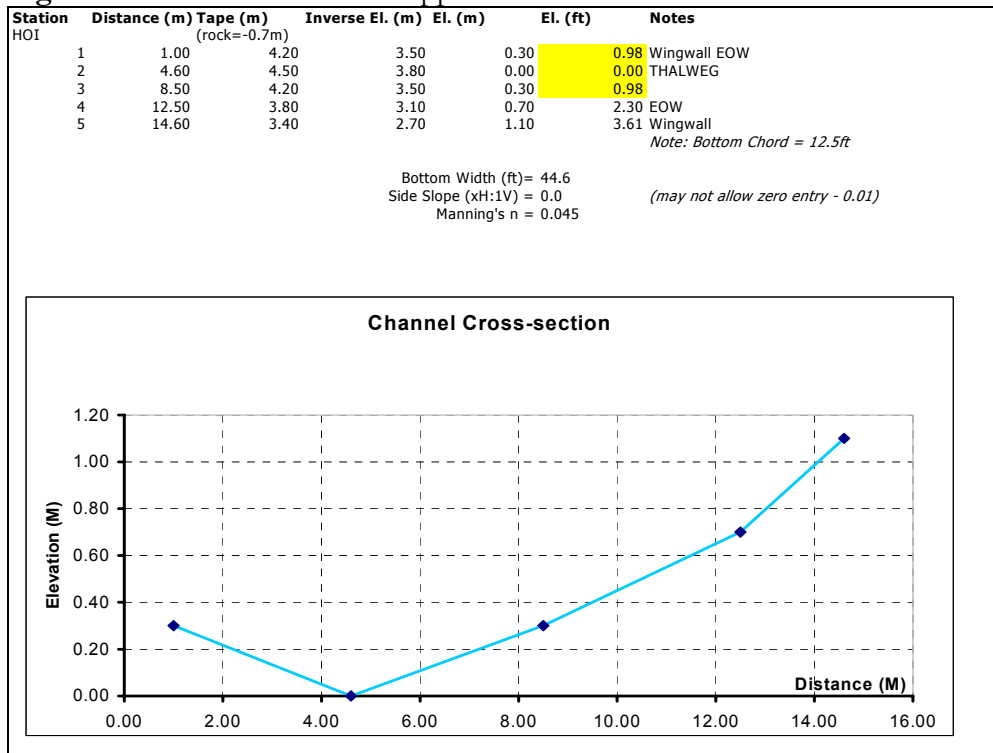


Photo 12A. Missouri River Tributary. Looking upstream at transect.



Photo 12B Missouri River Tributary. Buried culvert.



Photo 12C. Tributary connecting through to Missouri River.



Photo 12D. Missouri River Tributary. Culvert.



Photo 13A. Mayham Branch from the bridge through silver maples. Upstream from bridge.



Photo 13B. Mayham Branch. Upstream from bridge.



Photo 13C. Mayham Branch. Downstream of bide bridge.



Photo 13D. Mayham Branch. Bridge.



Figure A13. Cross-section: 13. Mayham Branch/Lower Little Bonne Femme.

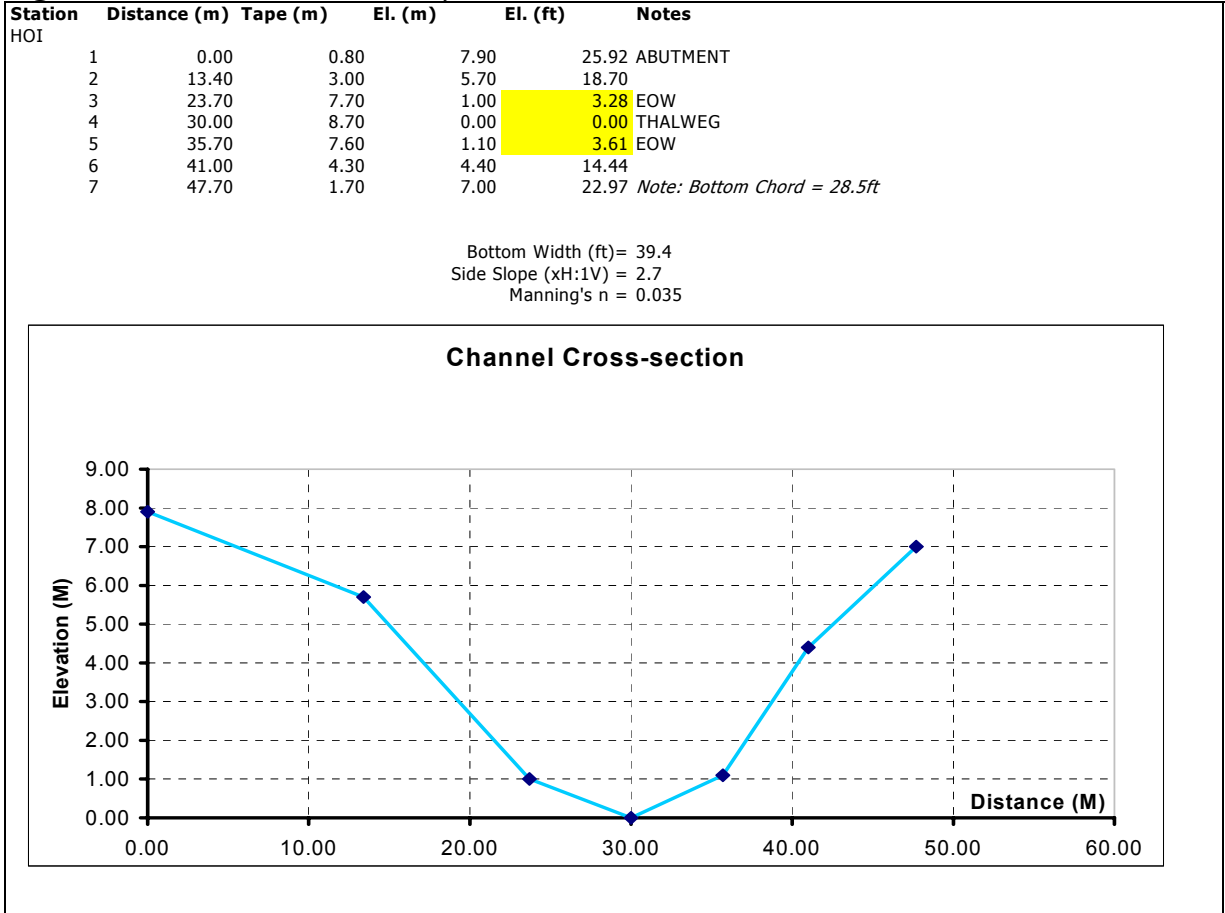


Photo 14A. North Branch of Little Bonne Femme 60 feet downstream of bridge in woodland/degraded meadow floodplain. Looking upstream to bridge.



Photo 14B. North Branch of Little Bonne. Upstream.



Photo 14C. North Branch of Little Bonne. Upstream of bridge.



Figure A14 Cross-section: 14. North Branch of Little Bonne.

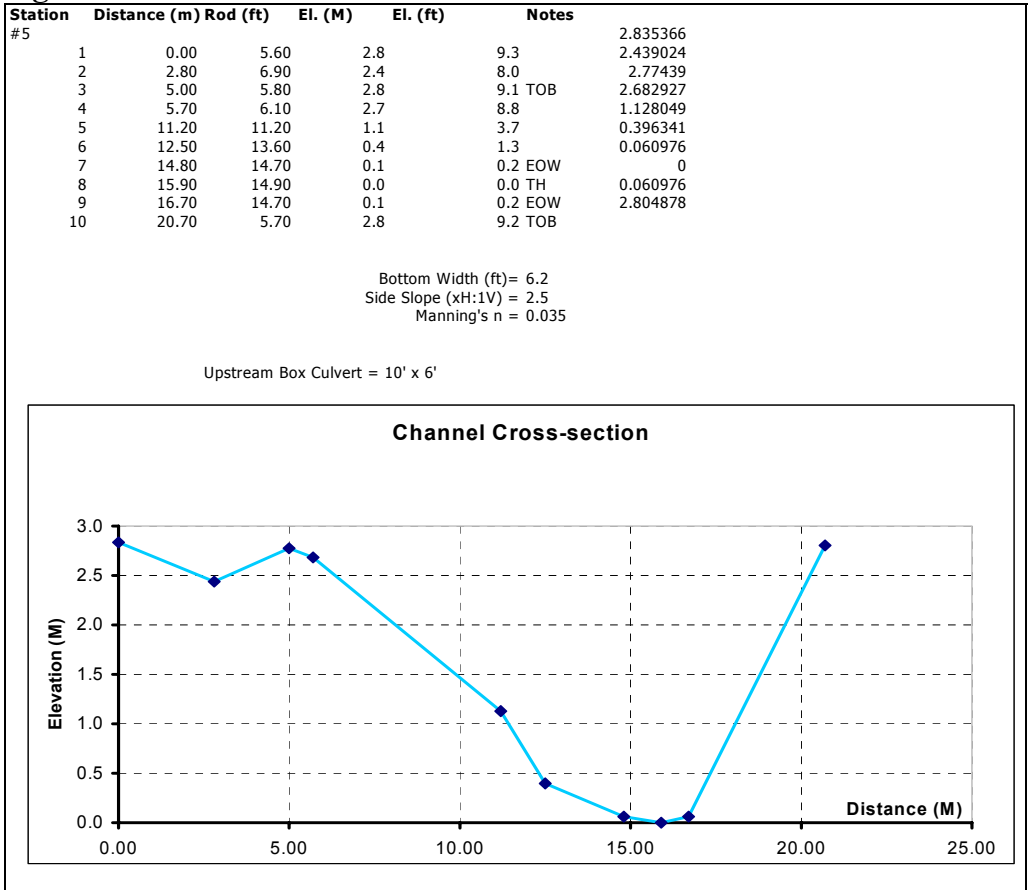


Photo 15A. Bonne Femme Middle #6 at bridge in forest and agricultural landcover. Looking upstream.



Photo 15B. Bonne Femme Middle #6. Looking downstream.



Figure A15. Cross-section:15. Bonne Femme Middle

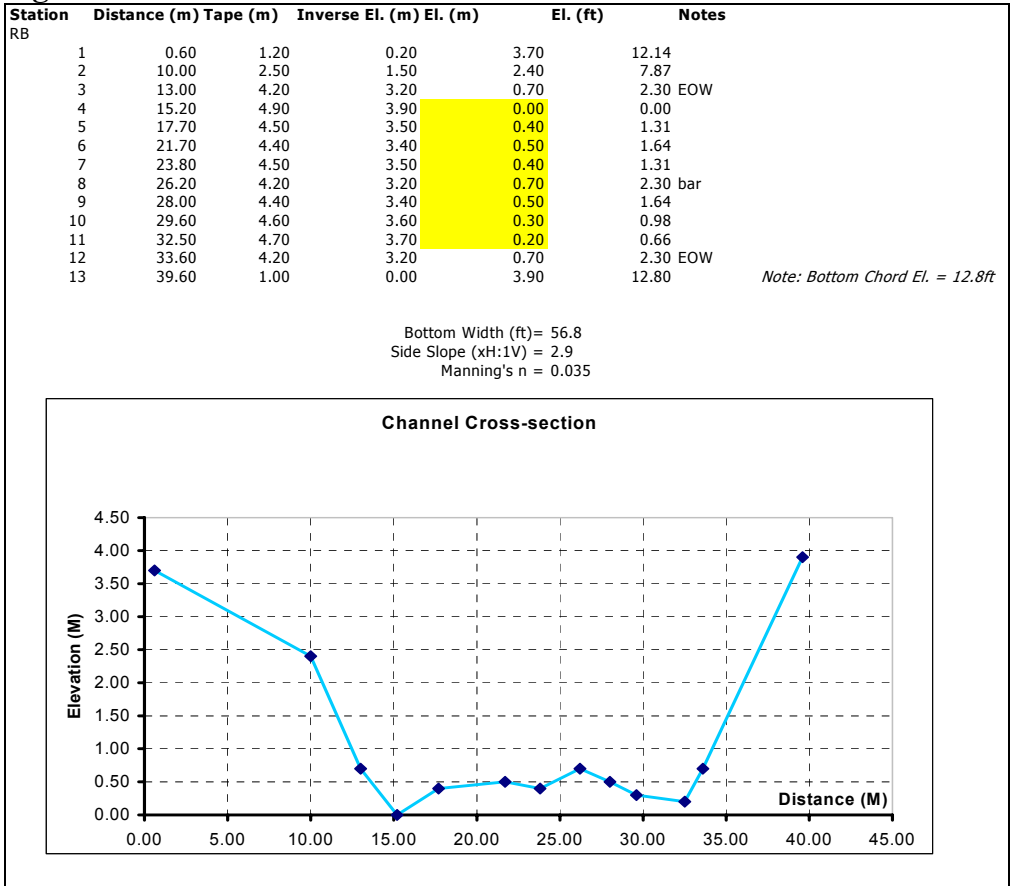


Photo 16A. Bass/Hunters confluence area in bottomland forest of *Platanus occidentalis*, honey locust, *Juglans nigra*, *Elymus virginicus*, *Ulmus americana*, persimmon, hackberry, vitus, *Carya cordiformis*, and *Acer negundo*. Looking at tape upstream.



Photo 16B. Bass/Hunters confluence area. Looking at tape downstream.



Figure A16. Cross-section: 16. Bass/Hunters confluence.

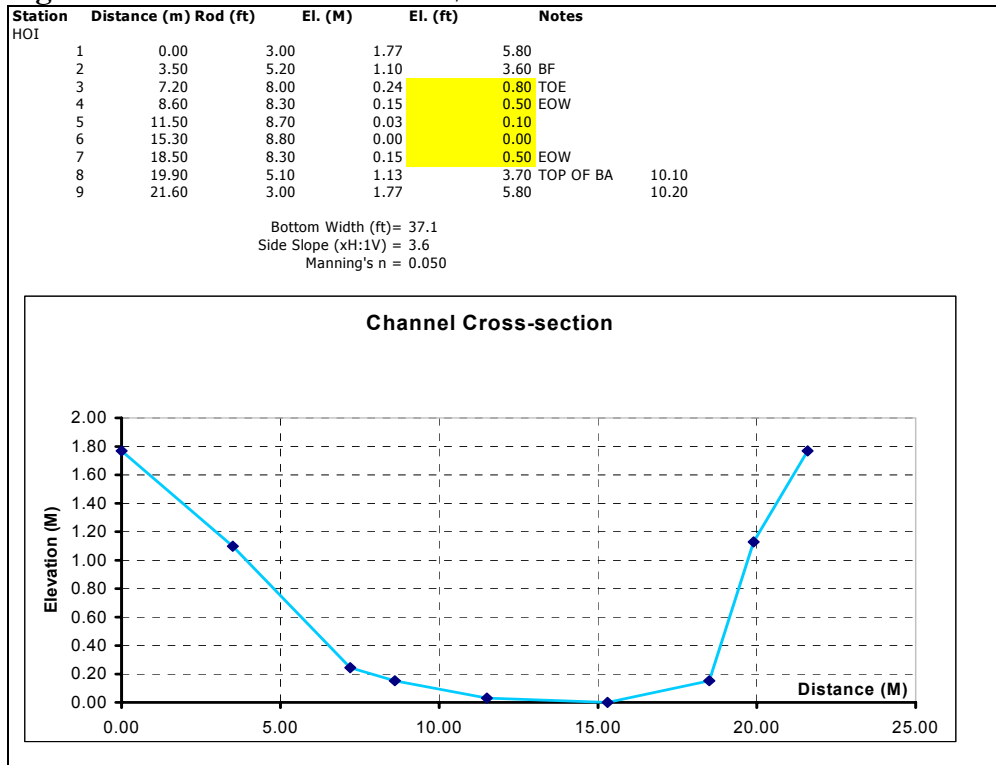


Photo 17A. Turkey/Bass confluence area about 300 meters upstream from confluence with floodplain forest on the right side and oak woods on the left. Looking upstream at cross section.



Photo 17B. Turkey/Bass confluence area. Looking downstream at cross section



Photo 17C. Turkey/Bass confluence area. Looking downstream from Bass at confluence with Turkey.



Photo 17D. Turkey/Bass confluence area. Looking downstream from Bass at confluence with Turkey.



Photo 17E. Turkey/Bass confluence area. Looking upstream at Bass from confluence with Turkey.



Photo 17F. Bass Creek. Looking upstream at Turkey from confluence.



Figure A17. Cross-section: 17. Turkey Creek.

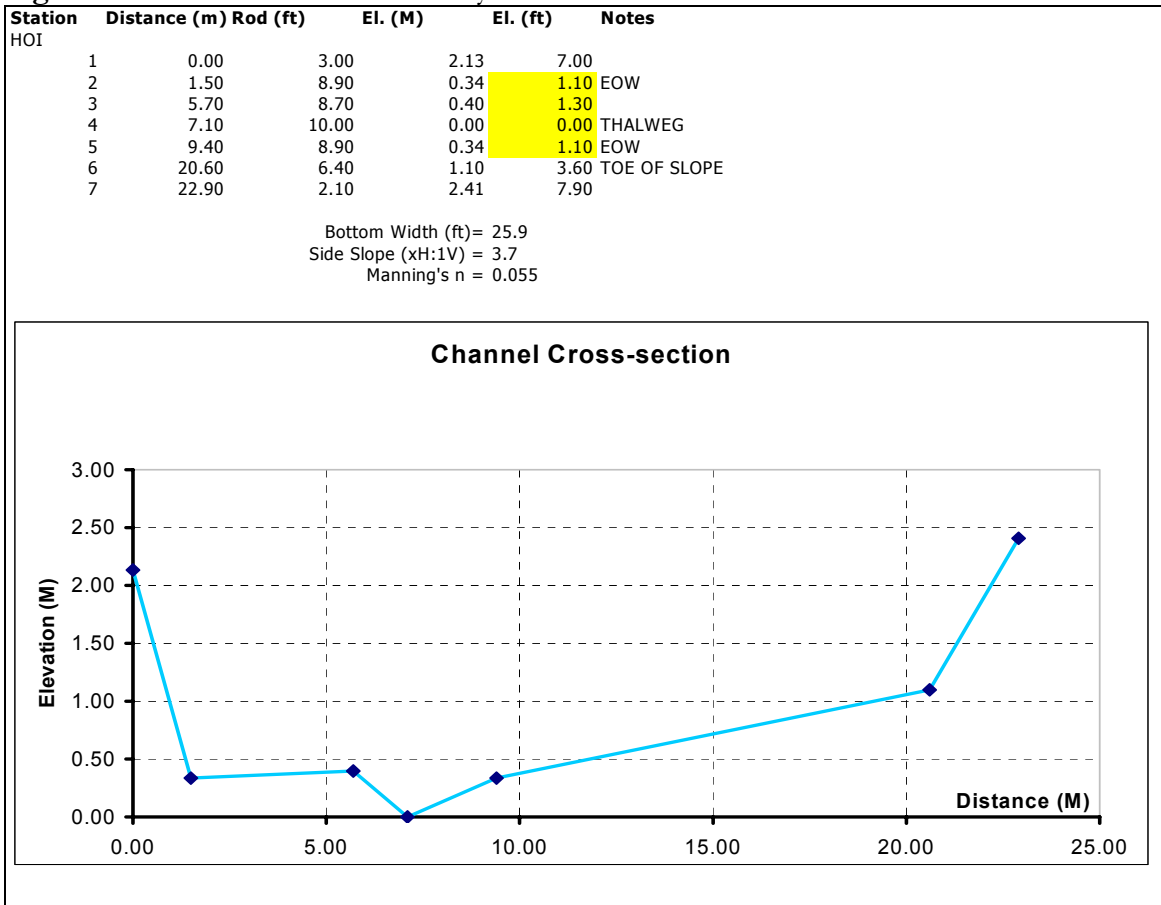


Photo 18A. South Branch Little Bonne Femme 100 feet upstream of bridge in turf/pasture upstream and sycamore/ash woodlands and steep banks downstream. Downstream.



Photo 18B. South Branch Little Bonne Femme. Upstream, North tributary.



Photo 18C. South Branch Little Bonne Femme. Upstream, South tributary.



Photo 18D. South Branch Little Bonne Femme. Upstream.



Figure A18. Cross-section: 18. South Branch Little Bonne Femme.

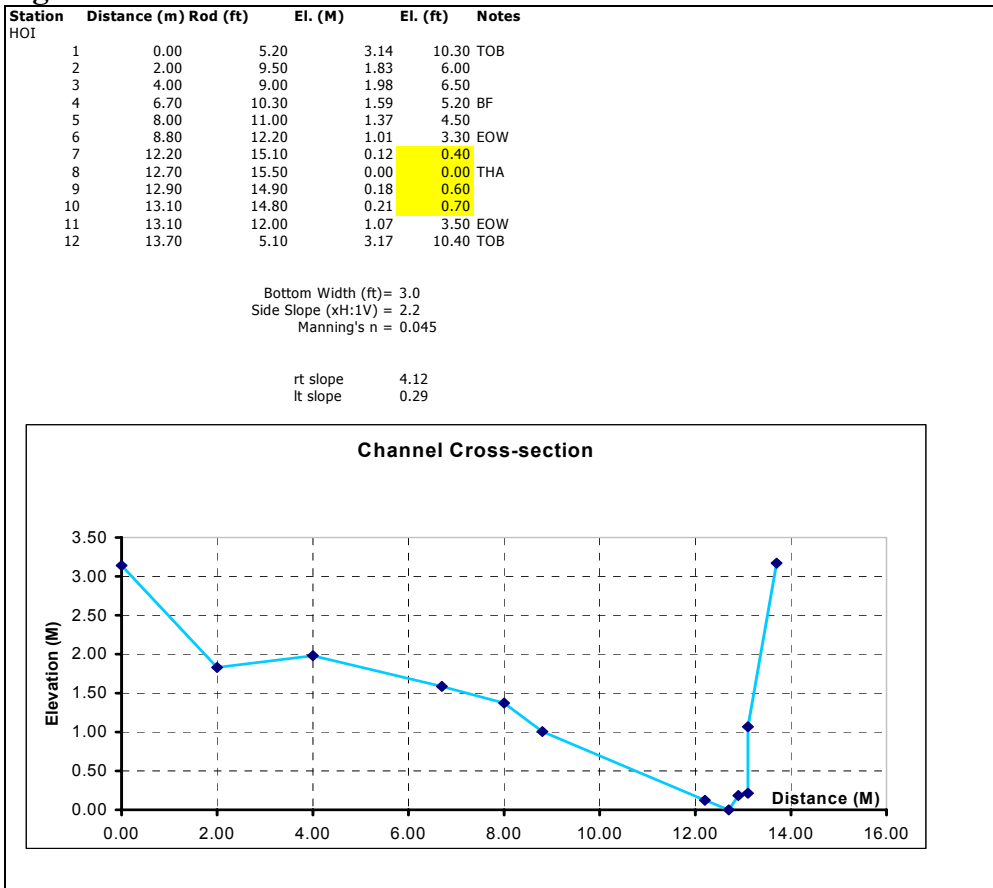


Photo 19A. Main Branch, Upper Little Bonne Femme 100 feet upstream of bridge. Turf/pasture landscapes upstream and sycamore/ash woodlands and steep bank downstream. Downstream.



Photo 19B. Main Branch, Upper Little Bonne Femme. Upstream.



Figure A19. Cross-section: 19. Main Branch, Upper Little Bonne Femme.

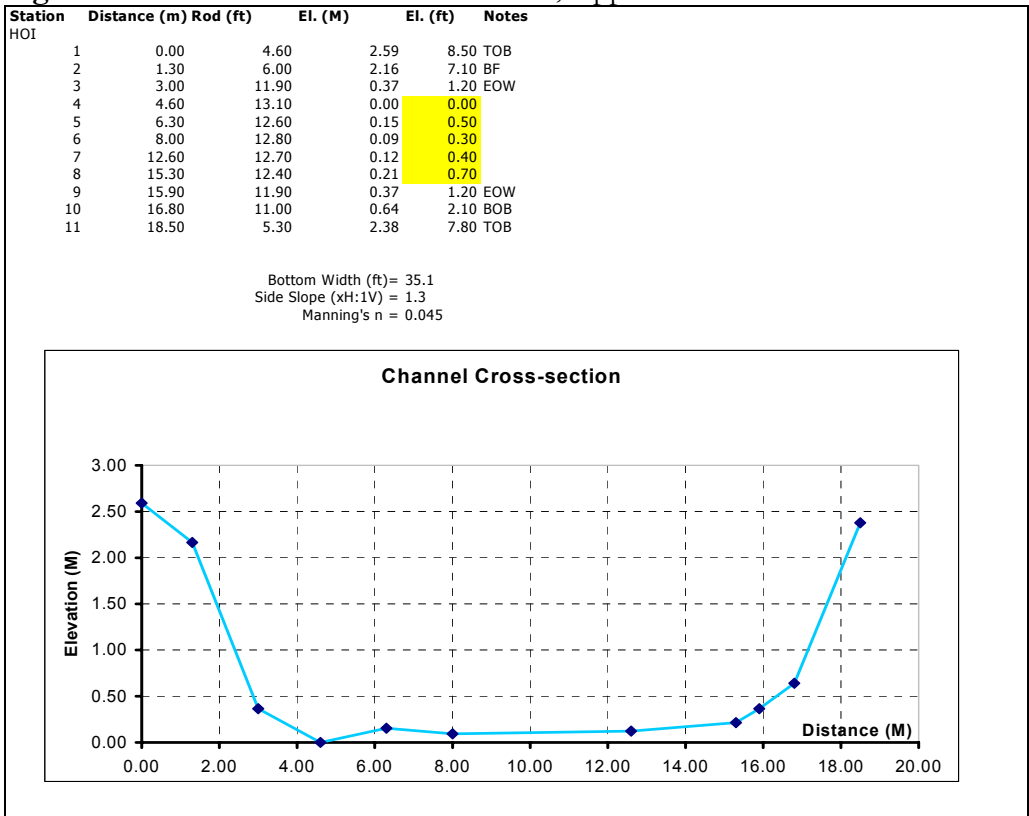


Photo 20A. Bass Creek, downstream of cross-section.



Photo 20B. Bass Creek, Left bank.



Photo 20C. Bass Creek, Looking across cross-section from right bank.



Photo 20D. Bass Creek, Right bank.



Photo 20E. Bass Creek, Upstream of cross-section



Photo 21A. Hunters Cave



Photo 21B. Hunters Cave, looking out.



Photo 22A. Upper Bonne Femme, downstream of cross-section.



Photo 22B. Upper Bonne Femme, left bank.



Photo 22B. Upper Bonne Femme, right bank.

