

Appendix E
Rock Creek Channel Slope Calculations

| <u>Topic</u> | <u>Page Number</u> |
|---|--------------------|
| Rock Creek Channel Slope Calculations | 139-150 |

Interpolated HEC-RAS Channel Bottoms - Main US

| Station | New Station Name (in final geometry) | Reach Name | Has Survey Data? | Survey Channel Bottom | Projected Survey section | Approximated Channel Bottom | LIDAR Channel Bottom | Survey Channel Slope | LIDAR Channel Slope | HEC-RAS Channel Bottom | Adjusted HEC RAS Channel Bottom | Difference from Adjusted to Original | HEC-RAS Channel Slope | Survey Channel CL | Interpolated Channel CL | Channel Horizontal Shift for Merge | Channel Vertical Shift for Merge |
|---------|--------------------------------------|------------|------------------|-----------------------|--------------------------|-----------------------------|----------------------|----------------------|---------------------|------------------------|---------------------------------|--------------------------------------|-----------------------|-------------------|-------------------------|------------------------------------|----------------------------------|
| 169 | 9967 | Main | No | | 3042 | | 713.69 | ----- | 0.09% | 710.86 | 710.86 | 0.00 | ---- | 1254 | 1706 | 452.00 | -4.60 |
| 436 | 10234 | Main | No | | 3042 | | 713.92 | ----- | 0.09% | 711.09 | 711.09 | 0.00 | 0.09% | 1254 | 1956 | 702.00 | -4.37 |
| 847 | 10645 | Main | No | | 3042 | | 713.85 | ----- | -0.02% | 711.44 | 711.44 | 0.00 | 0.09% | 1254 | 1784 | 530.00 | -4.02 |
| 1103 | 10901 | Main | No | | 3042 | 711.89 | 714.71 | ----- | 0.34% | 711.40 | 711.89 | 0.49 | -0.02% | 1254 | 1641 | 387.00 | -4.06 |
| 1534 | 11332 | Main | No | | 3042 | | 715.00 | ----- | 0.07% | 712.85 | 712.85 | 0.00 | 0.34% | 1254 | 1409 | 155.00 | -2.61 |
| 1835 | 11633 | Main | No | | 3042 | | 715.50 | ----- | 0.17% | 713.05 | 713.05 | 0.00 | 0.07% | 1254 | 1219 | -35.00 | -2.41 |
| 2284 | 12082 | Main | No | | 3042 | | 716.59 | ----- | 0.24% | 713.79 | 713.79 | 0.00 | 0.17% | 1254 | 812 | -442.00 | -1.67 |
| 2811 | 12609 | Main | No | | 3042 | | 717.47 | ----- | 0.17% | 715.07 | 715.07 | 0.00 | 0.24% | 1254 | 1200 | -54.00 | -0.39 |
| 3042 | 12840 | Main | Yes | 715.46 | 3042 | | 717.54 | ----- | 0.03% | 715.46 | 715.46 | 0.00 | 0.17% | 1254 | 1254 | 0.00 | 0.00 |
| 3256 | 13054 | Main | No | | 3042 | | 718.00 | 0.23% | 0.21% | 715.95 | 715.95 | 0.00 | 0.23% | 1254 | 1139 | -115.00 | 0.49 |
| 3537 | 13335 | Main | No | | 3042 | | 720.13 | 0.23% | 0.76% | 716.60 | 716.60 | 0.00 | 0.23% | 1254 | 1110 | -144.00 | 1.14 |
| 4302 | 14100 | Main | No | | 3042 | | 720.37 | 0.23% | 0.03% | 718.36 | 718.36 | 0.00 | 0.23% | 1254 | 469 | -785.00 | 2.90 |
| 4541 | 14339 | Main | No | | 3042 | | 721.77 | 0.23% | 0.59% | 718.91 | 718.91 | 0.00 | 0.23% | 1254 | 609 | -645.00 | 3.45 |
| 4725 | 14523 | Main | No | | 3042 | | 721.61 | 0.23% | -0.09% | 719.33 | 719.33 | 0.00 | 0.23% | 1254 | 472 | -782.00 | 3.87 |
| 4882 | 14680 | Main | No | | 3042 | | 721.59 | 0.23% | -0.01% | 719.69 | 719.69 | 0.00 | 0.23% | 1254 | 804 | -450.00 | 4.23 |
| 5242 | 15040 | Main | No | | 3042 | | 723.24 | 0.23% | 0.46% | 720.52 | 720.52 | 0.00 | 0.23% | 1254 | 776 | -478.00 | 5.06 |
| 5498 | 15296 | Main | No | | 3042 | | 723.56 | 0.23% | 0.12% | 721.11 | 721.11 | 0.00 | 0.23% | 1254 | 726 | -528.00 | 5.65 |
| 5630 | 15428 | Main | No | | 3042 | | 723.61 | 0.23% | 0.04% | 721.41 | 721.41 | 0.00 | 0.23% | 1254 | 651 | -603.00 | 5.95 |
| 5780 | 15578 | Main | Yes | 721.76 | 5780 | | 724.62 | 0.23% | 0.67% | 721.76 | 721.76 | 0.00 | 0.23% | 63 | 63 | 0.00 | 0.00 |
| | | | | | | | | | | | | | | | | | |

LIDAR
minus
Survey

2.08

723.61

Avg. LiDar elev above survey elev @ channel invert =

362.85

I:\02jobs\02S2021\Admin\3160-H&H\14-Reports\Report Appendices\Appendix F - Channel Slope Calcs\Main-US_SlopeEstimations.xlsx

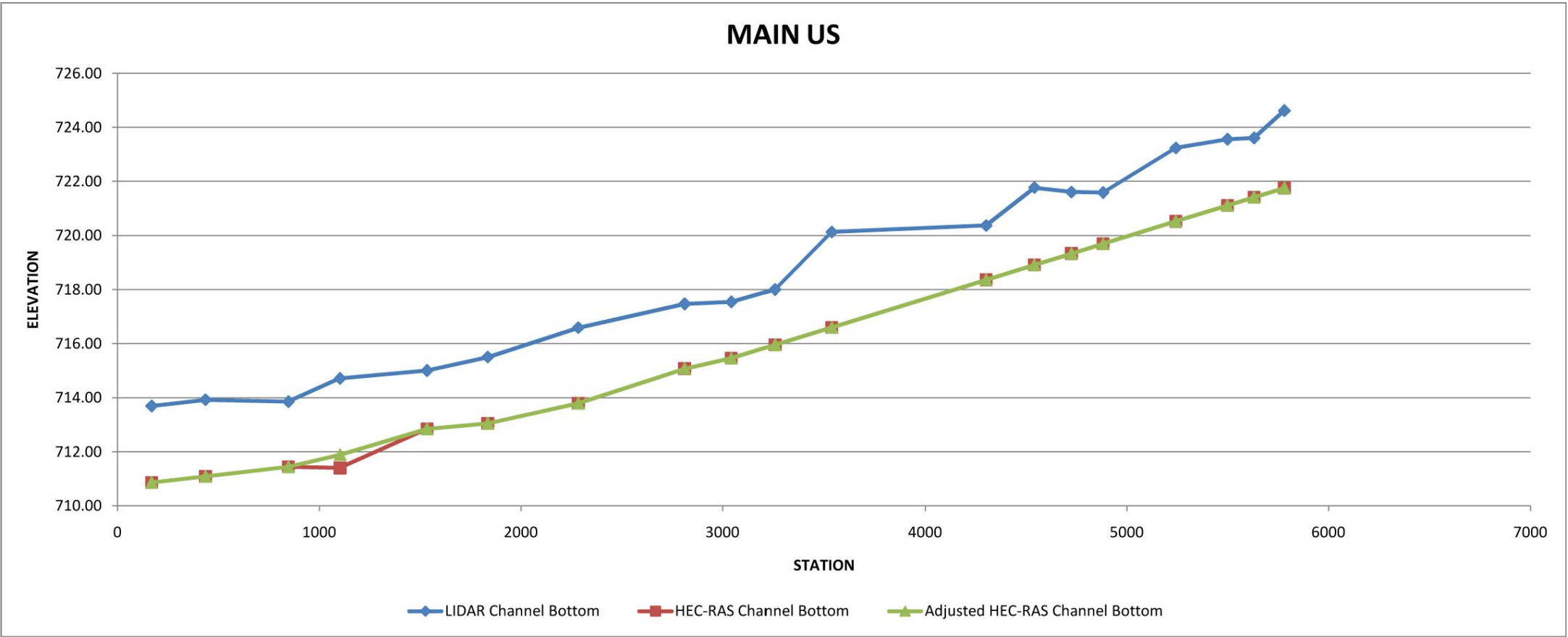
| DATE | SOURCE |
|------|--------|
| | |
| | |
| | |
| | |
| | |



Illinois Department of Transportation
Division of Aeronautics



SSA MASTER PLAN - FLOODPLAINS REPORT
APPENDIX E
ROCK CREEK CHANNEL SLOPE CALCULATIONS



I:\02jobs\02S2021\Admin\3160-H&H\14-Reports\Report Appendices\Appendix F - Channel Slope Calcs\Main-US_SlopeEstimations.xlsx

JUN 22, 2013 1:52 PM SCH00827

| DATE | SOURCE |
|------|--------|
| | |
| | |
| | |
| | |
| | |



Illinois Department of Transportation
Division of Aeronautics



SSA MASTER PLAN - FLOODPLAINS REPORT
APPENDIX E (CONT.)
ROCK CREEK CHANNEL SLOPE CALCULATIONS



Hanson Professional Services Inc.
1525 S. Sixth Street, Springfield, IL 62703
Phone: (217) 788-2450 Fax: (217) 788-2503

Job: 02S2021 - S.Suburban Airport
Sheet No. 1 of 1
Calc By: AJM Date: 4/21/2011
Check By: SJB Date: 5/9/2011
Description: Interpolated HEC-RAS Channel

Interpolated HEC-RAS Channel Bottoms - Main DS

| Station | Reach Name | Has Survey Data? | Survey Channel Bottom | Projected Survey Section | Approximated Channel Bottom | LIDAR Channel Bottom | Survey Channel Slope | LIDAR Channel Slope | HEC-RAS Channel Bottom | Adjusted HEC-RAS Channel Bottom | Difference from Adjusted to Original | HEC-RAS Channel Slope | Survey Channel CL | Interpolated Channel CL | Channel Horizontal Shift for Merge | Channel Vertical Shift for Merge | LIDAR minus Survey |
|---|------------|------------------|-----------------------|--------------------------|-----------------------------|----------------------|----------------------|---------------------|------------------------|---------------------------------|--------------------------------------|-----------------------|-------------------|-------------------------|------------------------------------|----------------------------------|--------------------|
| 35 | Main DS | No | | 1632 | 692.05 | 696.03 | ---- | 0.29% | 693.09 | 692.05 | -1.04 | 0.29% | 1011 | 861 | -150.00 | -2.80 | |
| 557 | Main DS | No | | 1632 | 693.56 | 697.54 | ---- | 0.29% | 694.60 | 693.56 | -1.04 | 0.29% | 1011 | 1209 | 198.00 | -1.29 | |
| 1054 | Main DS | No | | 1632 | 695.00 | 697.41 | ---- | -0.03% | 696.04 | 695.00 | -1.04 | 0.29% | 1011 | 960 | -51.00 | 0.15 | |
| 1632 | Main DS | Yes | 695.89 | 1632 | | 698.12 | ---- | ---- | 695.89 | 695.89 | 0.00 | -0.03% | 1011 | 1011 | 0.00 | 0.00 | 2.23 |
| 2071 | Main DS | No | | 1632 | | 698.10 | 0.16% | 0.00% | 696.58 | 696.58 | 0.00 | 0.16% | 1011 | 919 | 92.00 | 0.69 | |
| 2622 | Main DS | No | | 1632 | | 698.99 | 0.16% | 0.16% | 697.44 | 697.44 | 0.00 | 0.16% | 1011 | 846 | 165.00 | 1.55 | |
| 3022 | Main DS | Yes | 698.06 | 3022 | | 700.19 | 0.16% | ---- | 698.06 | 698.06 | 0.00 | 0.16% | 944 | 944 | 0.00 | 0.00 | 2.13 |
| 3308 | Main DS | Yes | 699.35 | 3308 | | 703.62 | 0.45% | ---- | 699.35 | 699.35 | 0.00 | 0.45% | 781 | 781 | 0.00 | 0.00 | 4.27 |
| 3494 | Main DS | No | | 3308 | | 703.26 | 0.11% | -0.19% | 699.56 | 699.56 | 0.00 | 0.11% | 781 | 943 | 162.00 | 0.21 | |
| 3897 | Main DS | No | | 3308 | | 702.82 | 0.11% | -0.11% | 700.02 | 700.02 | 0.00 | 0.11% | 781 | 1154 | 373.00 | 0.67 | |
| 4398 | Main DS | No | | 3308 | | 705.40 | 0.11% | 0.51% | 700.60 | 700.60 | 0.00 | 0.11% | 781 | 1528 | 747.00 | 1.25 | |
| 4793 | Main DS | No | | 3308 | | 706.12 | 0.11% | 0.18% | 701.05 | 701.05 | 0.00 | 0.11% | 781 | 1336 | 555.00 | 1.70 | |
| 5387 | Main DS | No | | 3308 | | 706.05 | 0.11% | -0.01% | 701.73 | 701.73 | 0.00 | 0.11% | 781 | 1054 | 273.00 | 2.38 | |
| 5639 | Main DS | No | | 3308 | | 706.05 | 0.11% | 0.00% | 702.02 | 702.02 | 0.00 | 0.11% | 781 | 856 | 75.00 | 2.67 | |
| 5980 | Main DS | No | | 3308 | | 706.38 | 0.11% | 0.10% | 702.41 | 702.41 | 0.00 | 0.11% | 781 | 803 | 22.00 | 3.06 | |
| 6250 | Main DS | Yes | 702.72 | 6250 | | 707.03 | 0.11% | ---- | 702.72 | 702.72 | 0.00 | 0.11% | 871 | 871 | 0.00 | 0.00 | 4.31 |
| 6564 | Main DS | No | | 6250 | | 707.53 | 0.10% | | 703.03 | 703.03 | 0.00 | 0.10% | 871 | 1036 | 165.00 | 0.31 | |
| 7009 | Main DS | No | | 6250 | | 707.25 | 0.10% | -0.06% | 703.46 | 703.46 | 0.00 | 0.10% | 871 | 1080 | 209.00 | 0.74 | |
| 7200 | Main DS | Yes | 703.65 | 7200 | | 707.30 | 0.10% | ---- | 703.65 | 703.65 | 0.00 | 0.10% | 950 | 950 | 0.00 | 0.00 | 3.65 |
| 7402 | Main DS | No | | 7200 | | 709.87 | 0.28% | 1.27% | 704.22 | 704.22 | 0.00 | 0.28% | 950 | 861 | -89.00 | 0.57 | |
| 7647 | Main DS | No | | 7200 | | 709.19 | 0.28% | -0.28% | 704.92 | 704.92 | 0.00 | 0.28% | 950 | 756 | -194.00 | 1.27 | |
| 7826 | Main DS | No | | 7200 | | 709.36 | 0.28% | 0.09% | 705.43 | 705.43 | 0.00 | 0.28% | 950 | 450 | -500.00 | 1.78 | |
| 8220 | Main DS | No | | 7200 | | 708.76 | 0.28% | -0.15% | 706.55 | 706.55 | 0.00 | 0.28% | 950 | 79 | -871.00 | 2.90 | |
| 8697 | Main DS | Yes | 707.90 | 8697 | | 710.10 | 0.28% | ---- | 707.90 | 707.90 | 0.00 | 0.28% | 950 | 950 | 0.00 | 0.00 | 2.20 |
| 8822 | Main DS | No | | 8697 | | 714.14 | 0.83% | | 708.93 | 708.93 | 0.00 | 0.83% | 950 | 862 | -88.00 | 1.03 | |
| 8911 | Main DS | No | | 8697 | | 710.11 | 0.83% | -4.53% | 709.67 | 709.67 | 0.00 | 0.83% | 950 | 313 | 190.00 | 1.77 | |
| 8932 | Main DS | Yes | 709.84 | 8932 | | 710.85 | 0.83% | ---- | 709.84 | 709.84 | 0.00 | 0.83% | 575 | 575 | 0.00 | 0.00 | 1.01 |
| 8956 | Main DS | No | | 8932 | | 711.13 | 0.83% | 1.17% | 710.04 | 710.04 | 0.00 | 0.83% | 584 | 584 | 0.00 | 0.20 | |
| 8965 | Main DS | No | | 8932 | | 711.33 | 0.83% | 2.22% | 710.11 | 710.11 | 0.00 | 0.83% | 575 | 574 | 5.00 | 0.27 | |
| 9082 | Main DS | Yes | 709.63 | 9082 | | 712.44 | -0.14% | ---- | 709.63 | 709.63 | 0.00 | -0.41% | 1264 | 1264 | 0.00 | 0.00 | 2.81 |
| 9268 | Main DS | No | | 9082 | | 712.93 | ---- | 0.26% | 710.12 | 710.12 | 0.00 | 0.26% | 1264 | 1204 | -52.00 | 0.49 | |
| 9795 | Main DS | No | | 9082 | | 713.52 | ---- | 0.11% | 710.71 | 710.71 | 0.00 | 0.11% | 1264 | 1531 | 260.00 | 1.08 | |
| Avg. LiDar elev above survey elev @ channel invert = 2.83 | | | | | | | | | | | | | | | | | |

I:\02jobs\02S2021\Admin\3160-H&H\14-Reports\Report Appendices\Appendix F - Channel Slope Calcs\Main-DS_SlopeEstimations.xlsx

JUN 22, 2013 1:53 PM SCHIED0827

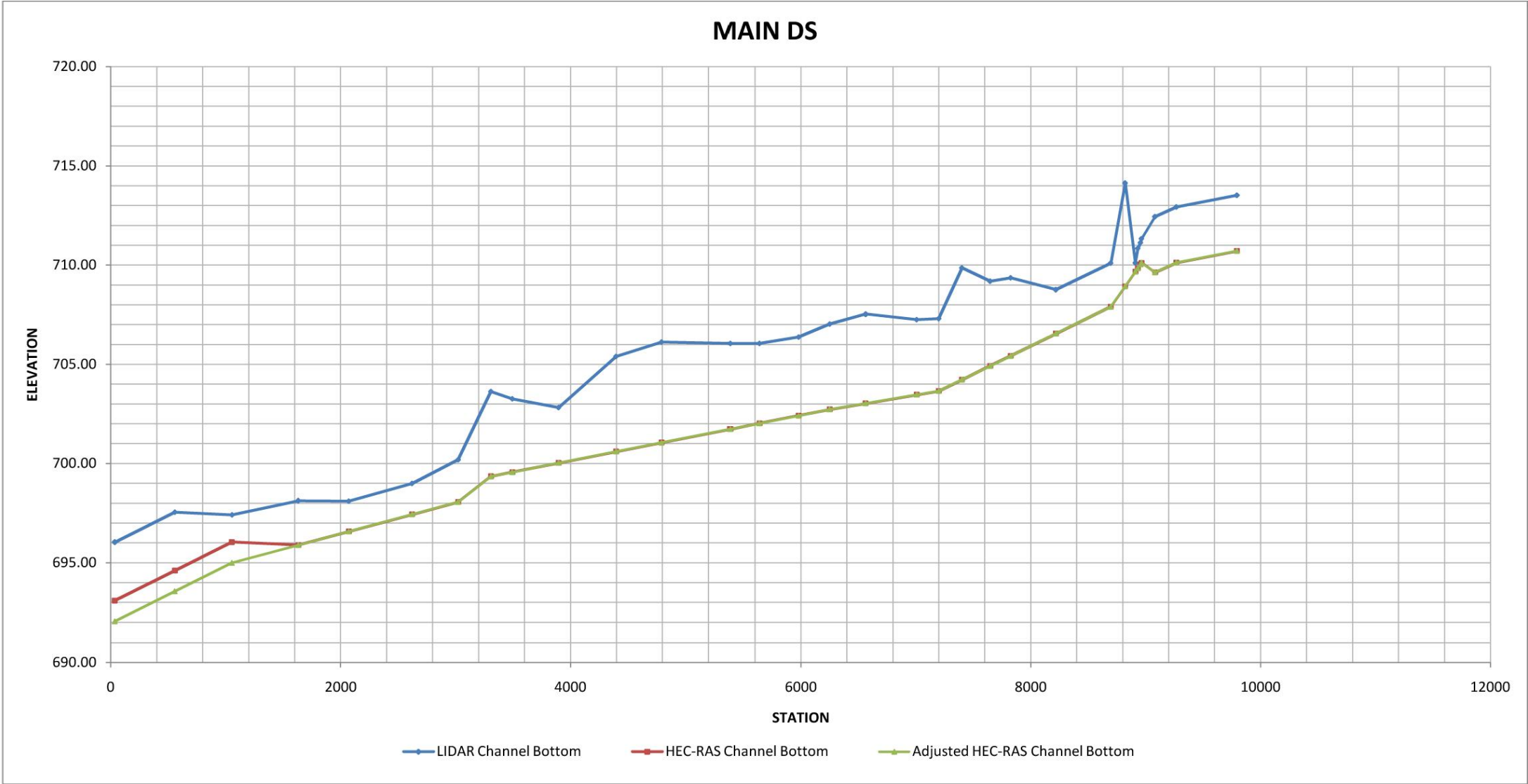
| DATE | SOURCE |
|------|--------|
| | |
| | |
| | |
| | |
| | |



Illinois Department of Transportation
Division of Aeronautics



SSA MASTER PLAN - FLOODPLAINS REPORT
APPENDIX E (CONT.)
ROCK CREEK CHANNEL SLOPE CALCULATIONS



I:\02jobs\02S2021\Admin\3160-H&H\14-Reports\Report Appendices\Appendix F - Channel Slope Calcs\Main-DS_SlopeEstimations.xlsx

| DATE | SOURCE |
|------|--------|
| | |
| | |
| | |
| | |
| | |



SSA MASTER PLAN - FLOODPLAINS REPORT
APPENDIX E (CONT.)
ROCK CREEK CHANNEL SLOPE CALCULATIONS

Interpolated HEC-RAS Channel Bottoms - Trib. A

| Station | Reach Name | Has Survey Data? | Survey Channel Bottom | Projected Survey section | Approximated Channel Bottom | LIDAR Channel Bottom | Survey Channel Slope | LIDAR Channel Slope | HEC-RAS Channel Bottom | Adjusted HEC-RAS Channel Bottom | Difference from Adjusted to Original | HEC-RAS Channel Slope | Survey Channel CL | Interpolated Channel CL | Channel Horizontal Shift for Merge | Channel Vertical Shift for Merge |
|---------|------------|------------------|-----------------------|--------------------------|-----------------------------|----------------------|----------------------|---------------------|------------------------|---------------------------------|--------------------------------------|-----------------------|-------------------|-------------------------|------------------------------------|----------------------------------|
| 80 | Trib A | Yes | 703.03 | 80 | | 706.62 | ---- | ---- | 703.03 | 703.03 | 0.00 | ---- | 275.00 | 275.00 | 0.00 | 0.00 |
| 457 | Trib A | No | -- | 80 | | 708.19 | 0.75% | 0.69% | 705.85 | 705.85 | 0.00 | 0.75% | 275.00 | 935.00 | 660.00 | 2.82 |
| 938 | Trib A | No | -- | 80 | 707.70 | 711.53 | 0.75% | 0.26% | 709.45 | 707.70 | -1.75 | 0.38% | 275.00 | 648.00 | 373.00 | 6.42 |
| 1447 | Trib A | No | -- | 80 | 709.10 | 712.85 | 0.75% | 0.66% | 713.25 | 709.10 | -4.15 | 0.28% | 275.00 | 415.00 | 140.00 | 10.22 |
| 1734 | Trib A | No | -- | 80 | | 714.74 | 0.75% | 0.10% | 715.40 | 711.25 | -4.15 | 0.75% | 275.00 | 489.00 | 214.00 | 12.37 |
| 1938 | Trib A | No | -- | 80 | | 714.95 | 0.75% | 0.10% | 716.93 | 712.77 | -4.15 | 0.75% | 275.00 | 641.00 | 366.00 | 13.90 |
| 2163 | Trib A | No | -- | 80 | 715.00 | 717.56 | 0.75% | 1.16% | 718.61 | 715.00 | -3.61 | 0.99% | 275.00 | 603.00 | 328.00 | 15.58 |
| 2410 | Trib A | No | -- | 80 | | 718.78 | 0.75% | 0.49% | 720.46 | 716.85 | -3.61 | 0.75% | 275.00 | 383.00 | 108.00 | 17.43 |
| 2675 | Trib A | No | -- | 80 | | 722.57 | 0.75% | 1.43% | 722.44 | 718.83 | -3.61 | 0.75% | 275.00 | 553.00 | 278.00 | 19.41 |
| 2968 | Trib A | No | -- | 80 | | 727.45 | 0.75% | 1.67% | 724.63 | 721.02 | -3.61 | 0.75% | 275.00 | 121.00 | -154.00 | 21.60 |
| 3170 | Trib A | No | -- | 80 | 723.70 | 729.00 | 0.75% | 0.77% | 726.14 | 723.70 | -2.44 | 1.33% | 275.00 | 795.00 | 520.00 | 23.11 |
| 3373 | Trib A | No | -- | 80 | | 729.95 | 0.75% | 0.47% | 727.66 | 725.22 | -2.44 | 0.75% | 275.00 | 504.00 | 229.00 | 24.63 |
| 3479 | Trib A | Yes | 728.45 | 3479 | | 730.45 | 0.75% | 0.47% | 728.45 | 728.45 | 0.00 | 3.05% | 293.00 | 293.00 | 0.00 | 0.00 |
| 3823 | Trib A | No | -- | 3479 | 730.00 | 730.24 | 1.09% | -0.06% | 732.21 | 730.00 | -2.21 | 0.45% | 293.00 | 561.00 | 268.00 | 3.76 |
| 3967 | Trib A | No | -- | 3479 | 730.56 | 732.26 | 1.09% | 1.40% | 733.79 | 730.56 | -3.23 | 0.39% | 293.00 | 331.00 | 38.00 | 5.34 |
| 4148 | Trib A | No | -- | 3479 | | 733.96 | 1.09% | 0.94% | 735.76 | 732.54 | -3.23 | 1.09% | 293.00 | 273.00 | -20.00 | 7.31 |
| 4231 | Trib A | No | -- | 3479 | | 734.35 | 1.09% | 0.47% | 736.67 | 733.45 | -3.23 | 1.09% | 293.00 | 185.00 | -108.00 | 8.22 |
| 4382 | Trib A | No | -- | 3479 | 735.81 | 738.04 | 1.09% | 2.44% | 738.32 | 735.81 | -2.51 | 1.57% | 293.00 | 241.00 | -52.00 | 9.87 |
| 4440 | Trib A | No | -- | 3479 | 736.76 | 739.36 | 1.09% | 2.28% | 738.96 | 736.76 | -2.20 | 1.64% | 293.00 | 237.00 | -56.00 | 10.51 |
| 4604 | Trib A | No | -- | 3479 | 739.25 | 743.37 | 1.09% | 2.45% | 740.75 | 739.25 | -1.50 | 1.52% | 293.00 | 369.00 | 76.00 | 12.30 |
| 4863 | Trib A | No | -- | 3479 | | 744.78 | 1.09% | 0.54% | 743.58 | 742.08 | -1.50 | 1.09% | 293.00 | 465.00 | 172.00 | 15.13 |
| 5179 | Trib A | No | -- | 3479 | | 747.76 | 1.09% | 0.94% | 747.04 | 745.54 | -1.50 | 1.09% | 293.00 | 821.00 | 528.00 | 18.59 |
| 5445 | Trib A | No | -- | 3479 | | 751.18 | 1.09% | 1.29% | 749.94 | 748.44 | -1.50 | 1.09% | 293.00 | 583.00 | 290.00 | 21.49 |
| 5665 | Trib A | No | -- | 3479 | | 753.59 | 1.09% | 1.10% | 752.35 | 750.85 | -1.50 | 1.09% | 293.00 | 585.00 | 292.00 | 23.90 |
| 5858 | Trib A | Yes | 754.46 | 5858 | | 754.48 | 1.09% | 0.46% | 754.46 | 754.46 | 0.00 | 1.87% | 285.00 | 285.00 | 0.00 | 0.00 |
| 6242 | Trib A | No | -- | 5858 | | 757.22 | ---- | 0.71% | 757.20 | 757.20 | 0.00 | 0.71% | 285.00 | 367.00 | 82.00 | 2.74 |
| 6791 | Trib A | No | -- | 5858 | 761.18 | 760.88 | ---- | 0.67% | 760.86 | 761.18 | 0.32 | 0.72% | 285.00 | 408.00 | 123.00 | 6.40 |
| 7259 | Trib A | No | -- | 5858 | 764.56 | 765.44 | ---- | 0.97% | 765.42 | 764.56 | -0.86 | 0.72% | 285.00 | 396.00 | 111.00 | 10.96 |
| 7719 | Trib A | No | -- | 5858 | | 767.55 | ---- | 0.46% | 767.53 | 766.67 | -0.86 | 0.46% | 285.00 | 630.00 | 345.00 | 13.07 |
| 8294 | Trib A | No | -- | 5858 | | 769.11 | ---- | 0.27% | 769.09 | 768.23 | -0.86 | 0.27% | 285.00 | 499.00 | 214.00 | 14.63 |
| 118 | Trib A_2 | Yes | 755.14 | 118 | | 755.65 | ---- | 0.87% | 755.14 | ---- | ---- | ---- | 529.00 | 534.00 | 5 | 0 |
| 632 | Trib A_2 | No | -- | 118 | | 760.14 | ---- | 0.63% | 758.40 | ---- | ---- | ---- | 529.00 | 407.00 | -122 | 3.26 |
| 1159 | Trib A_2 | No | -- | 118 | | 763.48 | ---- | 0.63% | 761.74 | ---- | ---- | ---- | 529.00 | 479.00 | -50 | 6.60 |

LIDAR
minus
Survey

3.59

2.00

0.02

0.51

1.53

Avg. LiDar elev above survey elev @ channel invert =

I:\02jobs\02S2021\Admin\3160-H&H\14-Reports\Report Appendices\Appendix F - Channel Slope Calcs\Trib-A_SlopeEstimations.xlsx

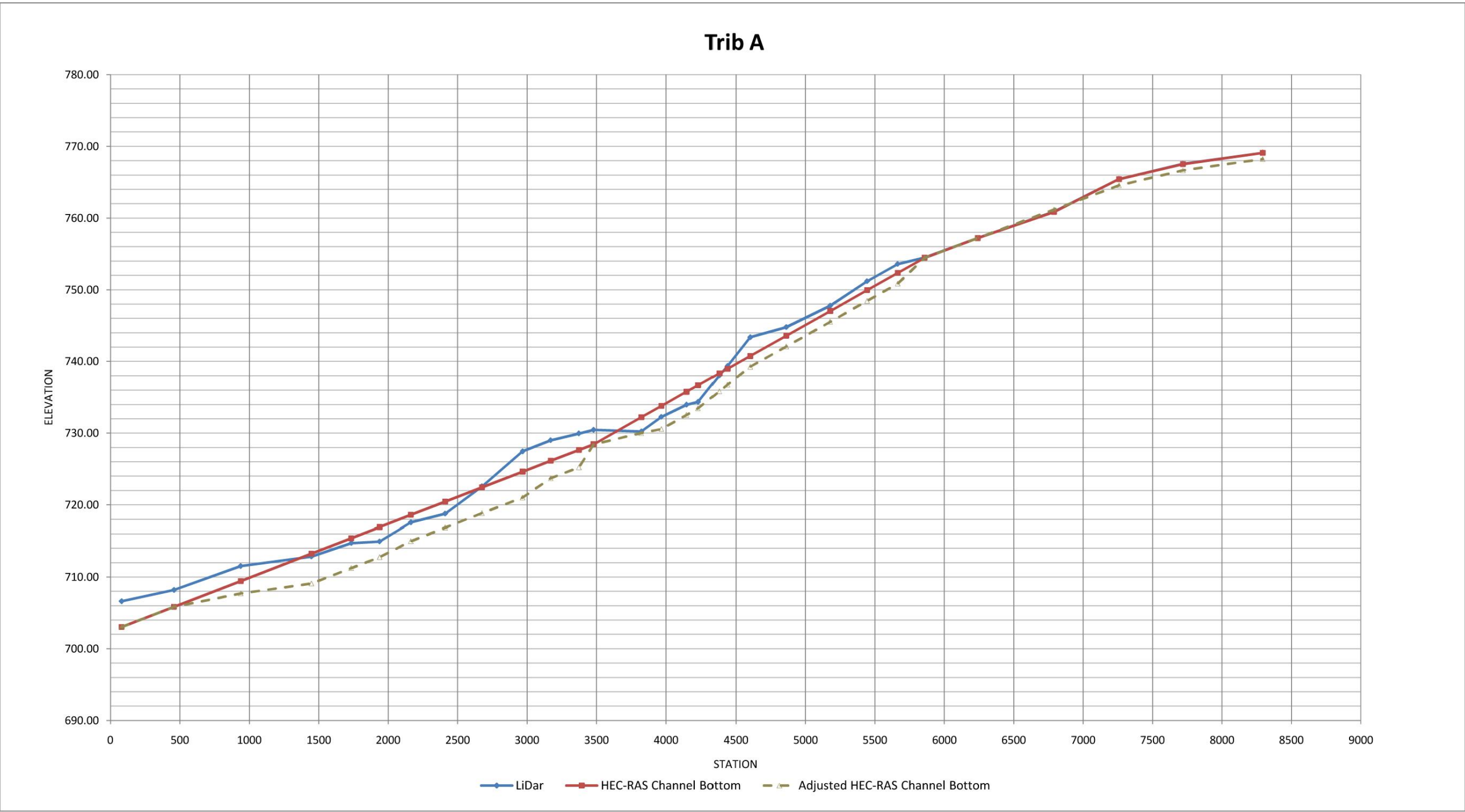
| DATE | SOURCE |
|------|--------|
| | |
| | |
| | |
| | |
| | |



Illinois Department of Transportation
Division of Aeronautics



SSA MASTER PLAN - FLOODPLAINS REPORT
APPENDIX E (CONT.)
ROCK CREEK CHANNEL SLOPE CALCULATIONS



I:\02jobs\02S2021\Admin\3160-H&H\14-Reports\Report Appendices\Appendix F - Channel Slope Calcs\Trib-A_SlopeEstimations.xlsx

| DATE | SOURCE |
|------|--------|
| | |
| | |
| | |
| | |
| | |



SSA MASTER PLAN - FLOODPLAINS REPORT
APPENDIX E (CONT.)
ROCK CREEK CHANNEL SLOPE CALCULATIONS

Interpolated HEC-RAS Channel Bottoms - Trib. B

| Station | Has Survey Data? | Survey Channel Bottom | Projected Survey section | LIDAR Channel Bottom | Survey Channel Slope | LIDAR Channel Slope | HEC-RAS Channel Bottom | HEC-RAS Channel Slope | Survey Channel CL | Interpolated Channel CL | Channel Horizontal Shift for Merge | Channel Vertical Shift for Merge | LIDAR minus Survey |
|---------|------------------|-----------------------|--------------------------|----------------------|----------------------|---------------------|------------------------|-----------------------|-------------------|-------------------------|------------------------------------|----------------------------------|--------------------|
| 49 | Yes | 716.18 | 49 | 717.68 | -- | -- | 716.18 | -- | 34 | 34 | 0 | 0.00 | 1.50 |
| 119 | No | | 49 | 717.59 | 0.12% | -0.13% | 716.26 | 0.12% | 34 | 121 | 87 | 0.08 | |
| 328 | No | | 49 | 717.61 | 0.12% | 0.01% | 716.51 | 0.12% | 34 | 955 | 921 | 0.33 | |
| 616 | No | | 814 | 717.25 | 0.12% | -0.13% | 716.84 | 0.12% | 679 | 741 | 62 | 0.18 | |
| 749 | Invert Only | 717.00 | 814 | 720.01 | 0.12% | 2.08% | 717.00 | 0.12% | 679 | 688 | 9 | 0.34 | 3.01 |
| 788 | Invert Only | 716.86 | 814 | | -0.36% | | 716.86 | -0.36% | 679 | | | 0.20 | |
| 814 | Yes | 716.66 | 814 | 718.15 | -0.77% | -2.86% | 716.66 | -0.77% | 679 | 679 | 0 | 0.00 | 1.49 |
| 1123 | No | | 1309 | 719.02 | 0.27% | 0.28% | 717.50 | 0.27% | 669 | 719 | 50 | -0.71 | |
| 1264 | Invert Only | 717.89 | 1309 | | 0.27% | | 717.89 | 0.27% | 669 | | | -0.32 | |
| 1301 | Invert Only | 718.14 | 1309 | | 0.68% | | 718.14 | 0.68% | 669 | | | -0.07 | |
| 1309 | Yes | 718.21 | 1309 | 719.65 | 0.88% | 0.34% | 718.21 | 0.88% | 669 | 669 | 0 | 0.00 | 1.44 |
| 1368 | Invert Only | 718.25 | 1418 | | 0.07% | | 718.25 | 0.07% | 820 | | | 0.04 | |
| 1412 | Invert Only | 717.73 | 1418 | | -1.18% | | 717.73 | -1.18% | 820 | | | -0.48 | |
| 1418 | Yes | 718.21 | 1418 | 719.58 | 8.00% | -0.06% | 718.21 | 8.00% | 820 | 820 | 0 | 0.00 | 1.37 |
| 1523 | No | | 1418 | 719.43 | 0.55% | -0.14% | 718.79 | 0.55% | 820 | 820 | 0 | 0.58 | |
| 1666 | Yes | 719.57 | 1666 | 719.97 | 0.55% | 0.38% | 719.57 | 0.55% | 794 | 794 | 0 | 0.00 | 0.40 |
| 2030 | No | | 1666 | 720.96 | 0.04% | 0.27% | 719.72 | 0.04% | 794 | 824 | 30 | 0.15 | |
| 2549 | No | | 2655 | 722.90 | 0.04% | 0.37% | 719.93 | 0.04% | 550 | 718 | 168 | -2.21 | |
| 2605 | Invert Only | 719.95 | 2655 | | 0.04% | | 719.95 | 0.04% | 550 | | | -2.19 | |
| 2646 | Invert Only | 720.69 | 2655 | | 1.80% | | 720.69 | 1.80% | 550 | | | -1.45 | |
| 2655 | Yes | 722.14 | 2655 | 722.74 | 16.11% | -0.15% | 722.14 | 16.11% | 550 | 550 | 0 | 0.00 | 0.60 |
| 3123 | No | | 2655 | 726.01 | 0.50% | 0.70% | 724.46 | 0.50% | 550 | 614 | 64 | 2.32 | |
| 3571 | No | | 4019 | 728.85 | 0.50% | 0.63% | 726.68 | 0.50% | 279 | 586 | 307 | -2.22 | |
| 4019 | Yes | 728.90 | 4019 | 731.13 | 0.50% | 0.51% | 728.90 | 0.50% | 279 | 279 | 0 | 0.00 | 2.23 |
| 4557 | No | | 4019 | 732.02 | 0.40% | 0.17% | 731.04 | 0.40% | 279 | 381 | 102 | 2.14 | |
| 5088 | No | | 4019 | 734.63 | 0.40% | 0.49% | 733.14 | 0.40% | 279 | 329 | 50 | 4.24 | |
| 5435 | Yes | 734.52 | 5435 | 738.63 | 0.40% | 1.15% | 734.52 | 0.40% | 488 | 488 | 0 | 0.00 | 4.11 |
| 5475 | Invert Only | 734.67 | 5497 | | 0.37% | | 734.67 | 0.37% | 824 | | | 0.25 | |
| 5497 | Yes | 734.42 | 5497 | 738.09 | -1.14% | -0.87% | 734.42 | -1.14% | 824 | 824 | 0 | 0.00 | 3.67 |
| 5576 | No | | 5497 | 738.49 | 0.13% | 0.51% | 734.52 | 0.13% | 824 | 783 | -41 | 0.10 | |
| 5803 | No | | 5497 | 739.93 | 0.13% | 0.63% | 734.82 | 0.13% | 824 | 574 | -250 | 0.40 | |
| 6082 | No | | 5497 | 739.57 | 0.13% | -0.13% | 735.18 | 0.13% | 824 | 439 | -385 | 0.76 | |
| 6575 | No | | 5497 | 740.17 | 0.13% | 0.12% | 735.83 | 0.13% | 824 | 501 | -323 | 1.41 | |
| 6784 | No | | 5497 | 740.72 | 0.13% | 0.26% | 736.10 | 0.13% | 824 | 607 | -217 | 1.68 | |
| 7111 | No | | 5497 | 742.07 | 0.13% | 0.41% | 736.53 | 0.13% | 824 | 747 | -77 | 2.11 | |
| 7727 | No | | 9350 | 744.54 | 0.13% | 0.40% | 737.34 | 0.13% | 590 | 909 | 319 | -3.84 | |
| 8056 | No | | 9350 | 744.24 | 0.13% | -0.09% | 737.77 | 0.13% | 590 | 487 | -103 | -3.41 | |
| 8569 | No | | 9350 | 744.41 | 0.13% | 0.03% | 738.44 | 0.13% | 590 | 662 | 72 | -2.74 | |
| 9076 | No | | 9350 | 744.50 | 0.13% | 0.02% | 739.10 | 0.13% | 590 | 707 | 117 | -2.08 | |
| 9283 | Invert Only | 739.37 | 9350 | 744.27 | 0.13% | -0.11% | 739.37 | 0.13% | 590 | 537 | -53 | -1.81 | 4.90 |
| 9335 | Invert Only | 740.23 | 9350 | | 1.65% | | 740.23 | 1.65% | 590 | 590 | 0 | -0.95 | |
| 9350 | Yes | 741.18 | 9350 | 744.23 | 6.33% | -0.06% | 741.18 | 6.33% | 590 | 590 | 0 | 0.00 | 3.05 |
| 9573 | No | | 9350 | 744.37 | -- | 0.06% | 741.32 | 0.06% | 590 | 539 | -51 | 0.14 | |
| 10074 | No | | 9350 | 744.01 | -- | -0.07% | 740.96 | -0.07% | 590 | 350 | -240 | -0.22 | |
| 10511 | No | | 9350 | 744.76 | -- | 0.17% | 741.71 | 0.17% | 590 | 294 | -296 | 0.53 | |
| 11056 | No | | 9350 | 747.18 | -- | 0.44% | 744.13 | 0.44% | 590 | 573 | -17 | 2.95 | |
| 11618 | No | | 9350 | 750.64 | -- | 0.62% | 747.59 | 0.62% | 590 | 1031 | 441 | 6.41 | |
| 12176 | No | | 9350 | 754.60 | -- | 0.71% | 751.55 | 0.71% | 590 | 905 | 315 | 10.37 | |

Avg. LiDar elev above survey elev @ channel invert = 2.31

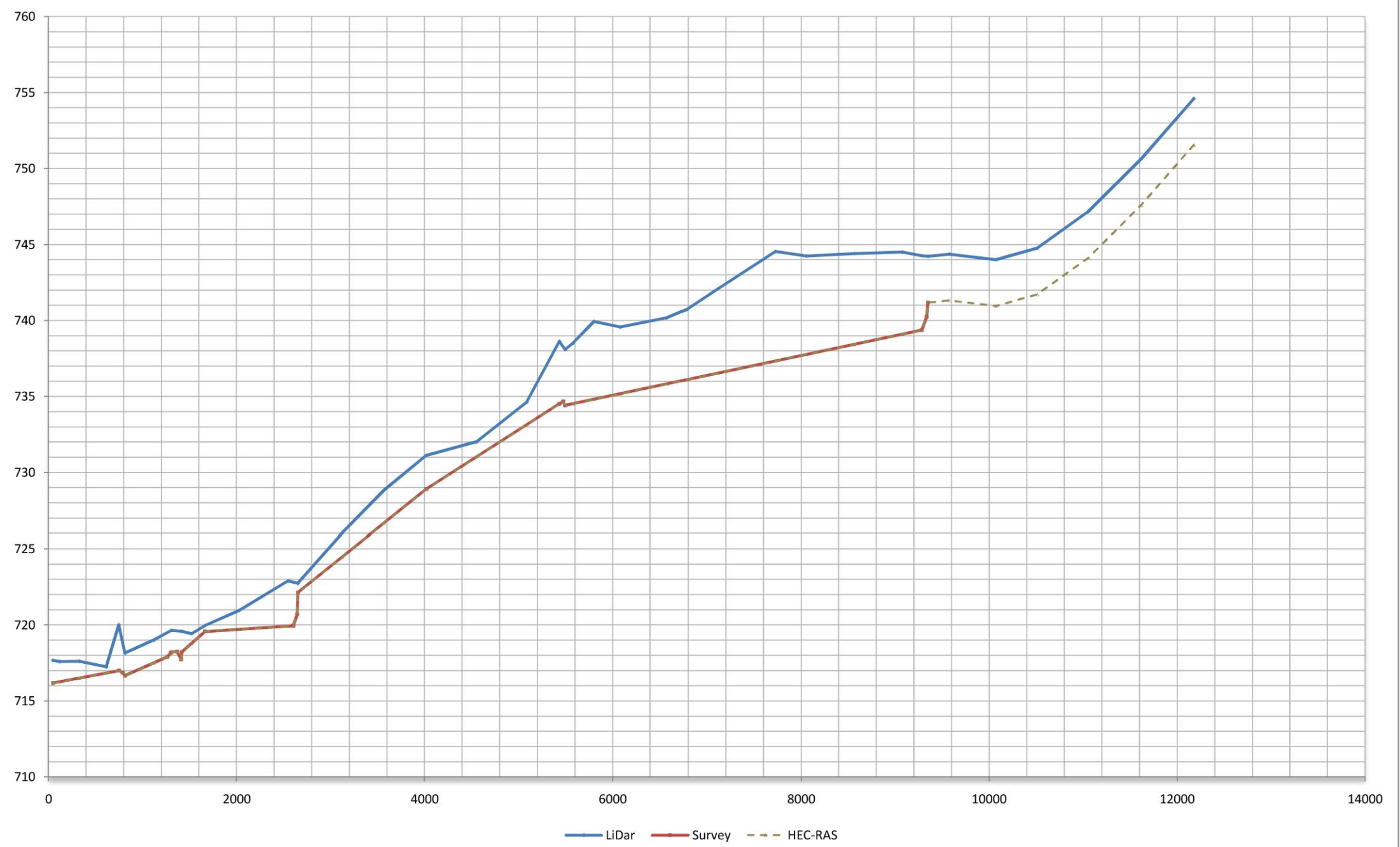
I:\02jobs\02S2021\Admin\3160-H&H\14-Reports\Report Appendices\Appendix F - Channel Slope Calcs\Trib-B_SlopeEstimations.xls

JUN 22, 2013 1:58 PM SCHIED0827

| DATE | SOURCE |
|------|--------|
| | |
| | |
| | |
| | |



TRIB B



I:\02jobs\02S2021\Admin\3160-H&H\14-Reports\Report Appendices\Appendix F - Channel Slope Calcs\Trib-B_SlopeEstimations.xls

| DATE | SOURCE |
|------|--------|
| | |
| | |
| | |
| | |
| | |



SSA MASTER PLAN - FLOODPLAINS REPORT
APPENDIX E (CONT.)
ROCK CREEK CHANNEL SLOPE CALCULATIONS

JUN 22, 2013 2:00 PM SCH00827

Interpolated HEC-RAS Channel Bottoms - Trib. C

| Station | Reach Name | Has Survey Data? | Survey Channel Bottom | Projected Survey section | Approximated Channel Bottom | LIDAR Channel Bottom | Survey Channel Slope | LIDAR Channel Slope | HEC-RAS Channel Bottom | Adjusted HEC-RAS Channel Bottom | Difference from Adjusted to Original | HEC-RAS Channel Slope | Survey Channel CL | Interpolated Channel CL | Channel Horizontal Shift for Merge | Channel Vertical Shift for Merge | LIDAR minus Survey |
|---------|------------|------------------|-----------------------|--------------------------|-----------------------------|----------------------|----------------------|---------------------|------------------------|---------------------------------|--------------------------------------|-----------------------|-------------------|-------------------------|------------------------------------|----------------------------------|--------------------|
| 48 | Trib C | Yes | 704.18 | 48 | | 705.37 | -- | -- | 704.18 | 704.18 | 0.00 | -- | 300.47 | 188.97 | -111.50 | 0.00 | |
| 421 | Trib C | Yes | 705.94 | 421 | | 706.60 | 0.47% | 0.33% | 705.94 | 705.94 | 0.00 | 0.47% | 255.86 | 430.86 | 175.00 | 0.00 | 0.66 |
| 502 | Trib C | Yes | 708.63 | 502 | | 708.97 | 3.32% | 2.93% | 708.63 | 708.63 | 0.00 | 3.32% | 635.31 | 673.31 | 38.00 | 0.00 | 0.34 |
| 730 | Trib C | No | -- | 502 | | 710.91 | 0.41% | 0.85% | 709.56 | 709.56 | 0.00 | 0.41% | 635.31 | 674.31 | 39.00 | 0.93 | |
| 1059 | Trib C | No | -- | 502 | | 711.58 | 0.41% | 0.20% | 710.90 | 710.90 | 0.00 | 0.41% | 635.31 | 317.31 | -318.00 | 2.27 | |
| 1335 | Trib C | No | -- | 502 | | 712.92 | 0.41% | 0.49% | 712.03 | 712.03 | 0.00 | 0.41% | 635.31 | 498.31 | -137.00 | 3.40 | |
| 1530 | Trib C | Yes | 712.82 | 1530 | | 713.92 | 0.41% | 0.51% | 712.82 | 712.82 | 0.00 | 0.41% | 94.70 | 94.70 | 0.00 | 0.00 | 1.10 |
| 1720 | Trib C | Yes | 714.76 | 1720 | | 715.43 | 1.02% | 0.79% | 714.76 | 714.76 | 0.00 | 1.02% | 89.45 | 89.45 | 0.00 | 0.00 | 0.67 |
| 1764 | Trib C | No | -- | 1720 | | 715.98 | 0.88% | 1.25% | 715.15 | 715.15 | 0.00 | 0.88% | 89.45 | 175.45 | 86.00 | 0.39 | |
| 1821 | Trib C | No | -- | 1720 | | 728.67 | 0.88% | 13.11% | 715.65 | 715.65 | 0.00 | 0.88% | 89.45 | 117.45 | 28.00 | 0.89 | |
| 1866 | Trib C | No | -- | 1720 | | 720.33 | 0.88% | -18.53% | 716.05 | 716.05 | 0.00 | 0.88% | 89.45 | 344.45 | 255.00 | 1.29 | |
| 1883 | Trib C | Yes | 716.20 | 1883 | | 716.82 | 0.88% | -19.11% | 716.20 | 716.20 | 0.00 | 0.88% | 70.00 | 70.00 | 0.00 | 0.00 | 0.62 |
| 1966 | Trib C | No | -- | 1883 | | 716.42 | 0.37% | -0.48% | 716.51 | 716.51 | 0.00 | 0.37% | 70.00 | 62.00 | -8.00 | 0.31 | |
| 2139 | Trib C | No | -- | 1883 | | 717.92 | 0.37% | 0.87% | 717.15 | 717.15 | 0.00 | 0.37% | 70.00 | 45.00 | -25.00 | 0.95 | |
| 2260 | Trib C | Yes | 717.60 | 2260 | | 719.07 | 0.37% | 0.95% | 717.60 | 717.60 | 0.00 | 0.37% | 30.70 | 30.70 | 0.00 | 0.00 | 1.47 |
| 2295 | Trib C | No | -- | 2260 | | 720.07 | -0.30% | 2.86% | 717.50 | 717.50 | 0.00 | -0.30% | 30.70 | 810.70 | 780.00 | -0.10 | |
| 2375 | Trib C | Yes | 717.26 | 2375 | | 718.64 | -0.30% | -0.37% | 717.26 | 717.26 | 0.00 | -0.30% | 497.70 | 701.70 | 204.00 | 0.00 | 1.38 |
| 2666 | Trib C | No | -- | 2375 | | 719.98 | 0.18% | 0.46% | 717.78 | 717.78 | 0.00 | 0.18% | 497.70 | 692.70 | 195.00 | 0.52 | |
| 2997 | Trib C | No | -- | 2375 | | 720.48 | 0.18% | 0.15% | 718.37 | 718.37 | 0.00 | 0.18% | 497.70 | 773.70 | 276.00 | 1.11 | |
| 3385 | Trib C | Yes | 719.07 | 3385 | | 720.42 | 0.18% | -0.02% | 719.07 | 719.07 | 0.00 | 0.18% | 545.00 | 545.00 | 0.00 | 0.00 | 1.35 |
| 3459 | Trib C | Yes | 720.46 | 3459 | | 720.79 | 1.88% | 0.50% | 720.46 | 720.46 | 0.00 | 1.88% | 546.00 | 540.00 | -6.00 | 0.00 | 0.33 |
| 3550 | Trib C | No | -- | 3459 | | 721.45 | 0.47% | 0.73% | 720.89 | 720.89 | 0.00 | 0.47% | 546.00 | 496.00 | -50.00 | 0.43 | |
| 3680 | Trib C | No | -- | 3459 | | 722.02 | 0.47% | 0.44% | 721.50 | 721.50 | 0.00 | 0.47% | 546.00 | 502.00 | -44.00 | 1.04 | |
| 3955 | Trib C | Yes | 722.80 | 3955 | | 722.58 | 0.47% | 0.20% | 722.80 | 722.80 | 0.00 | 0.47% | 419.00 | 434.00 | 15.00 | 0.00 | -0.22 |
| 4042 | Trib C | Yes | 722.91 | 4042 | | 723.60 | 0.13% | 1.17% | 722.91 | 722.91 | 0.00 | 0.13% | 296.00 | 296.00 | 0.00 | 0.00 | 0.69 |
| 4261 | Trib C | No | -- | 4042 | | 724.47 | 0.40% | 0.40% | 723.79 | 723.79 | 0.00 | 0.40% | 296.00 | 475.00 | 179.00 | 0.88 | |
| 4604 | Trib C | No | -- | 4042 | | 725.39 | 0.40% | 0.27% | 725.18 | 725.18 | 0.00 | 0.40% | 296.00 | 569.00 | 273.00 | 2.27 | |
| 4776 | Trib C | Yes | 725.87 | 4776 | | 726.74 | 0.40% | 0.78% | 725.87 | 725.87 | 0.00 | 0.40% | 585.00 | 609.50 | 24.50 | 0.00 | 0.87 |
| 5035 | Trib C | No | -- | 4776 | | 727.44 | 0.41% | 0.27% | 726.93 | 726.93 | 0.00 | 0.41% | 585.00 | 714.00 | 129.00 | 1.06 | |
| 5089 | Trib C | No | -- | 4776 | | 728.08 | 0.41% | 1.19% | 727.15 | 727.15 | 0.00 | 0.41% | 585.00 | 733.00 | 148.00 | 1.28 | |
| 5202 | Trib C | No | -- | 4776 | | 728.08 | 0.41% | 0.00% | 727.61 | 727.61 | 0.00 | 0.41% | 585.00 | 661.00 | 76.00 | 1.74 | |
| 5349 | Trib C | No | -- | 4776 | 727.89 | 727.08 | 0.41% | -0.68% | 728.21 | 727.89 | -0.32 | 0.41% | 585.00 | 900.00 | 315.00 | 2.34 | |
| 5418 | Trib C | No | -- | 4776 | 728.18 | 727.89 | 0.41% | 1.17% | 728.49 | 728.18 | -0.31 | 0.41% | 585.00 | 863.00 | 278.00 | 2.62 | |
| 5468 | Trib C | No | -- | 4776 | 728.28 | 728.03 | 0.41% | 0.28% | 728.69 | 728.28 | -0.41 | 0.41% | 585.00 | 750.00 | 165.00 | 2.82 | |
| 5499 | Trib C | No | -- | 4776 | | 728.04 | 0.41% | 0.03% | 728.82 | 728.51 | -0.31 | 0.41% | 585.00 | 880.00 | 295.00 | 2.95 | |
| 5623 | Trib C | No | -- | 4776 | 728.79 | 728.38 | 0.41% | 0.07% | 729.32 | 728.79 | -0.53 | 0.41% | 585.00 | 427.00 | -158.00 | 3.45 | |
| 5986 | Trib C | No | -- | 4776 | | 728.99 | 0.41% | 0.17% | 730.80 | 730.27 | -0.53 | 0.41% | 585.00 | 525.00 | -60.00 | 4.93 | |
| 6191 | Trib C | No | -- | 4776 | | 729.81 | 0.41% | 0.40% | 731.64 | 731.10 | -0.53 | 0.41% | 585.00 | 413.00 | -172.00 | 5.77 | |
| 6443 | Trib C | No | -- | 4776 | | 731.10 | 0.41% | 0.51% | 732.66 | 732.13 | -0.53 | 0.41% | 585.00 | 427.00 | -158.00 | 6.79 | |
| 6628 | Trib C | No | -- | 4776 | 732.40 | 731.90 | 0.41% | 0.43% | 733.42 | 732.40 | -1.02 | 0.41% | 585.00 | 564.00 | -21.00 | 7.55 | |
| 6739 | Trib C | Yes | 733.55 | 6739 | | 733.24 | 0.41% | 1.21% | 733.55 | 733.55 | 0.00 | 0.41% | 585.00 | 600.00 | 15.00 | 7.68 | |
| 6827 | Trib C | Yes | 734.23 | 6827 | | 737.40 | 0.41% | 4.73% | 733.91 | 734.23 | 0.32 | 0.41% | 346.15 | 346.15 | 0.00 | | |
| 6839 | Trib C | Yes | 737.36 | 6839 | | 738.16 | 0.56% | 4.92% | 737.36 | 737.36 | 0.00 | 0.56% | 477.00 | 473.00 | -4.00 | 0.00 | 0.80 |
| 7034 | Trib C | No | -- | 6839 | | 739.21 | -- | 0.54% | 738.41 | 738.41 | 0.00 | 0.54% | 477.00 | 531.00 | 54.00 | 1.05 | |
| | | | | | | | | | | | | | | | | | |

Avg. LiDar elev above survey elev @ channel invert = 0.77

I:\02\jobs\02S2021\Admin\3160-H&H\14-Reports\Report Appendices\Appendix F - Channel Slope Calcs\Trib-C_SlopeEstimations.xlsx

JUN 22, 2013 2:01 PM SCHER0827

| DATE | SOURCE |
|------|--------|
| | |
| | |
| | |
| | |
| | |



Illinois Department of Transportation
Division of Aeronautics



SSA MASTER PLAN - FLOODPLAINS REPORT
APPENDIX E (CONT.)
ROCK CREEK CHANNEL SLOPE CALCULATIONS

JUN 22, 2013 2:03 PM SCHIE00827

| DATE | SOURCE |
|------|--------|
| | |
| | |
| | |
| | |
| | |

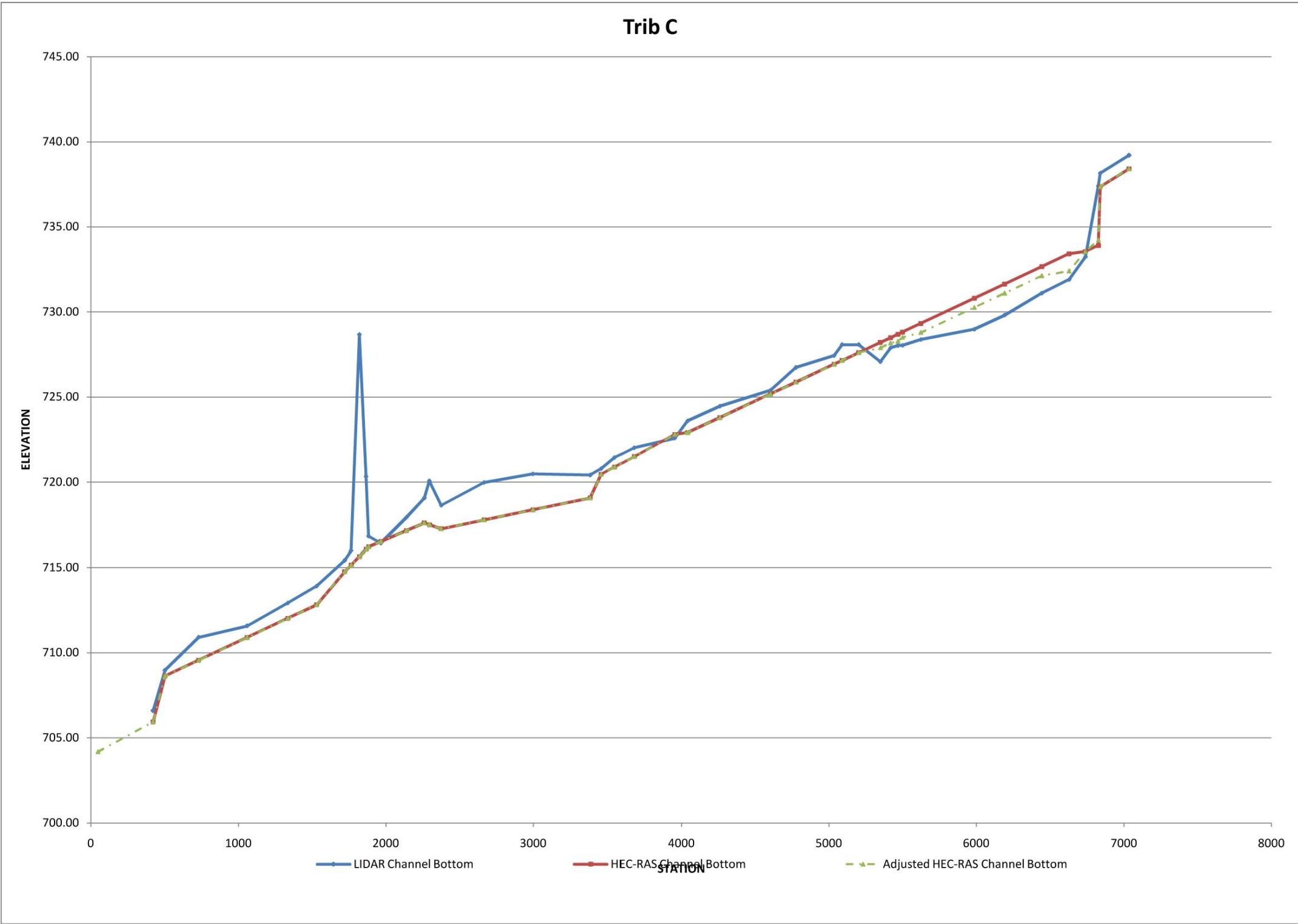


Illinois Department of Transportation
Division of Aeronautics



SSA MASTER PLAN - FLOODPLAINS REPORT
APPENDIX E (CONT.)
ROCK CREEK CHANNEL SLOPE CALCULATIONS

I:\02jobs\02S2021\Admin\3160-H&H\14-Reports\Report Appendices\Appendix F - Channel Slope Calcs\Trib-C_SlopeEstimations.xlsx





Hanson Professional Services Inc.
1525 S. Sixth Street, Springfield, IL 62703
Phone: (217) 788-2450 Fax: (217) 788-2503

Job: 02S2021 - S.Suburban Airport
Sheet No. 1 of 1
Calc By: JJW Date: 4/21/2011
Check By: SJB Date: 6/7/2011
Description: Interpolated HEC-RAS Channel

Interpolated HEC-RAS Channel Bottoms - Trib. D

| Station | Reach Name | Has Survey Data? | Survey Channel Bottom | Projected Survey Section | LIDAR Channel Bottom | Survey Channel Slope | LIDAR Channel Slope | HEC-RAS Channel Bottom | HEC-RAS Channel Slope | Survey Channel CL | Interpolated Channel CL | Channel Horizontal Shift for Merge | Channel Vertical Shift for Merge |
|---------|------------|------------------|-----------------------|--------------------------|----------------------|----------------------|---------------------|------------------------|-----------------------|-------------------|-------------------------|------------------------------------|----------------------------------|
| 169 | Trib D | Yes | 710.66 | 169 | 711.49 | -- | -- | 710.66 | -- | 475.00 | 475.00 | 0.00 | 0.00 |
| 569 | Trib D | No | -- | 169 | 716.56 | 1.32% | 1.27% | 715.96 | 1.32% | 475.00 | 532.00 | 57.00 | 5.30 |
| 1093 | Trib D | No | -- | 169 | 723.75 | 1.32% | 1.37% | 722.89 | 1.32% | 475.00 | 385.00 | -90.00 | 12.23 |
| 1587 | Trib D | No | -- | 169 | 731.50 | 1.32% | 1.57% | 729.43 | 1.32% | 475.00 | 485.00 | 10.00 | 18.77 |
| 2064 | Trib D | No | -- | 169 | 738.74 | 1.32% | 1.52% | 735.75 | 1.32% | 475.00 | 649.00 | 174.00 | 25.09 |
| 2346 | Trib D | Yes | 740.38 | 2346 | 741.86 | 1.32% | 0.79% | 740.38 | 1.64% | 475.00 | 675.00 | 200.00 | 29.72 |
| 2457 | Trib D | Yes | 740.95 | 2457 | 741.86 | 1.32% | 0.79% | 740.95 | 0.51% | 637.00 | 637.00 | 0.00 | 0.00 |
| 2564 | Trib D | No | -- | 2457 | 742.06 | -- | 0.19% | 741.15 | 0.19% | 637.00 | 936.00 | 299.00 | 0.20 |
| 2936 | Trib D | No | -- | 2457 | 742.82 | -- | 0.20% | 741.91 | 0.20% | 637.00 | 750.00 | 113.00 | 0.96 |

LIDAR
minus
Survey

0.83

0.91

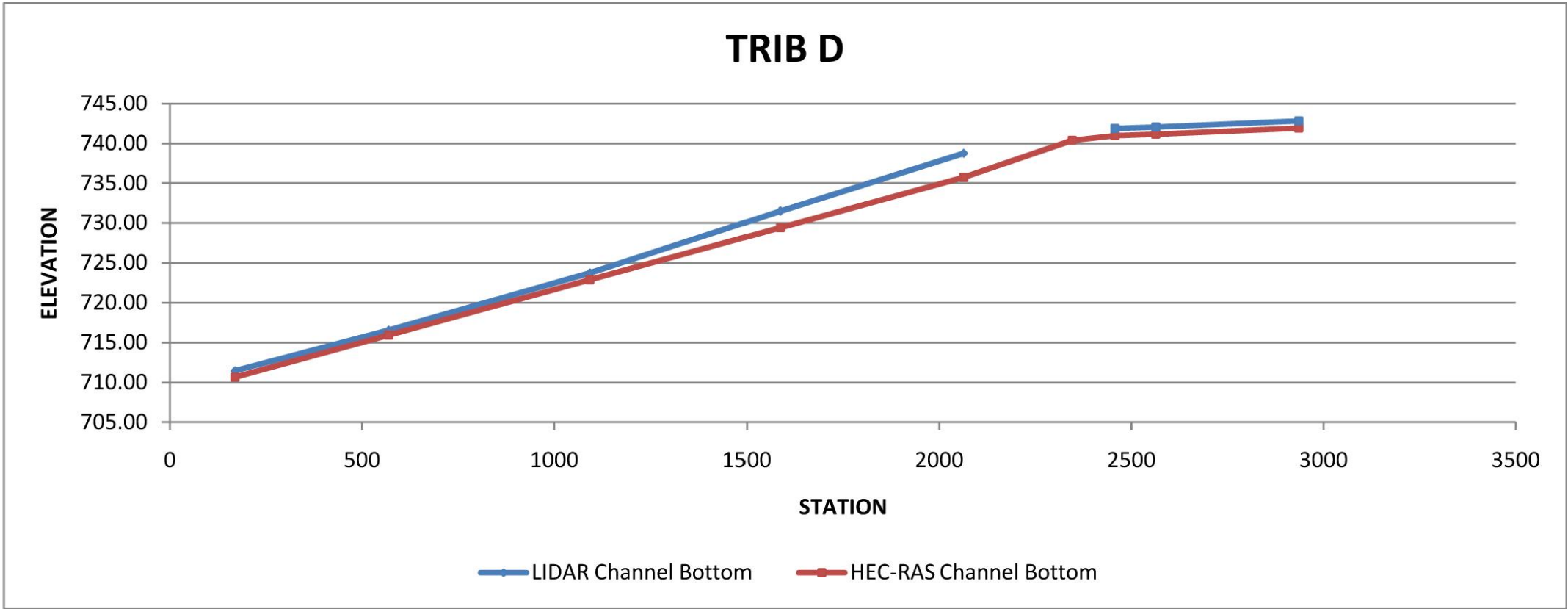
Avg. LiDar elev above survey elev @ channel invert = 0.87

I:\02jobs\02S2021\Admin\3160-H&H\14-Reports\Report Appendices\Appendix F - Channel Slope Calcs\Trib-D_SlopeEstimations.xlsx

| DATE | SOURCE |
|------|--------|
| | |
| | |
| | |
| | |
| | |



SSA MASTER PLAN - FLOODPLAINS REPORT
APPENDIX E (CONT.)
ROCK CREEK CHANNEL SLOPE CALCULATIONS



I:\02jobs\02S2021\Admin\3160-H&H\14-Reports\Report Appendices\Appendix F - Channel Slope Calcs\Trib-D_SlopeEstimations.xlsx

| DATE | SOURCE |
|------|--------|
| | |
| | |
| | |
| | |
| | |



Illinois Department of Transportation
Division of Aeronautics



SSA MASTER PLAN - FLOODPLAINS REPORT
APPENDIX E (CONT.)
ROCK CREEK CHANNEL SLOPE CALCULATIONS