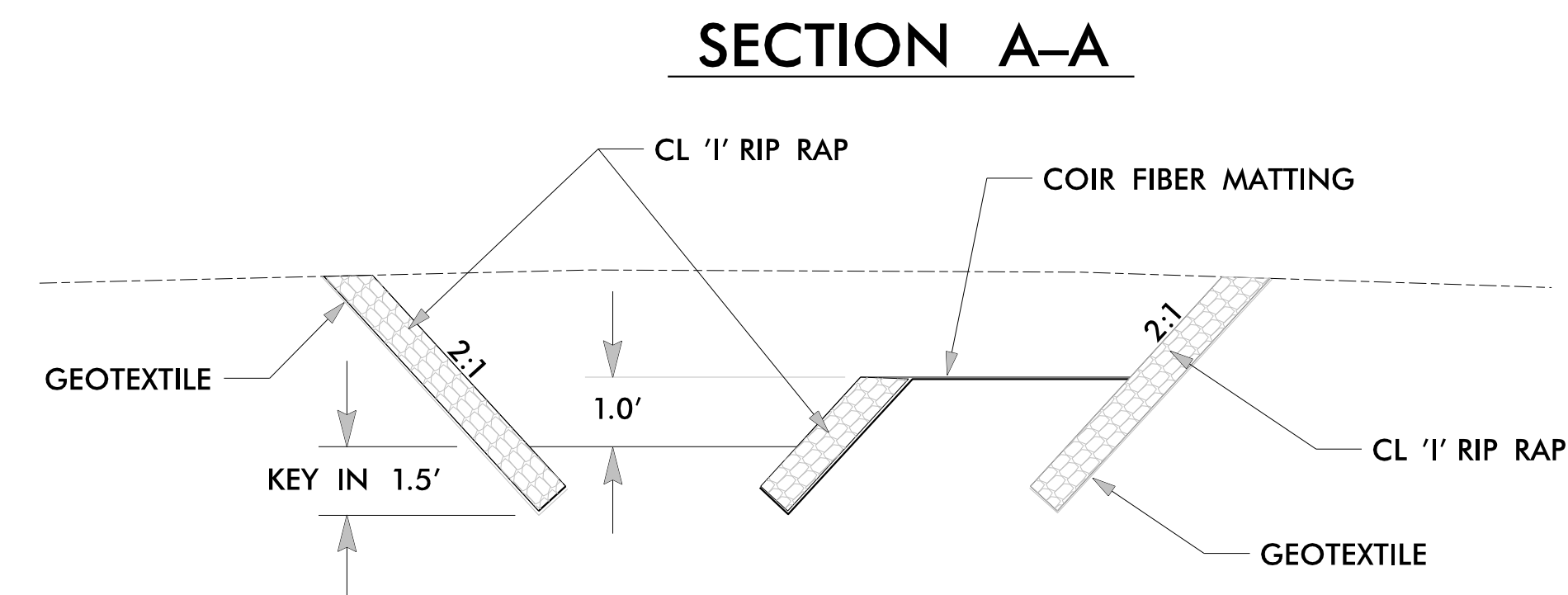
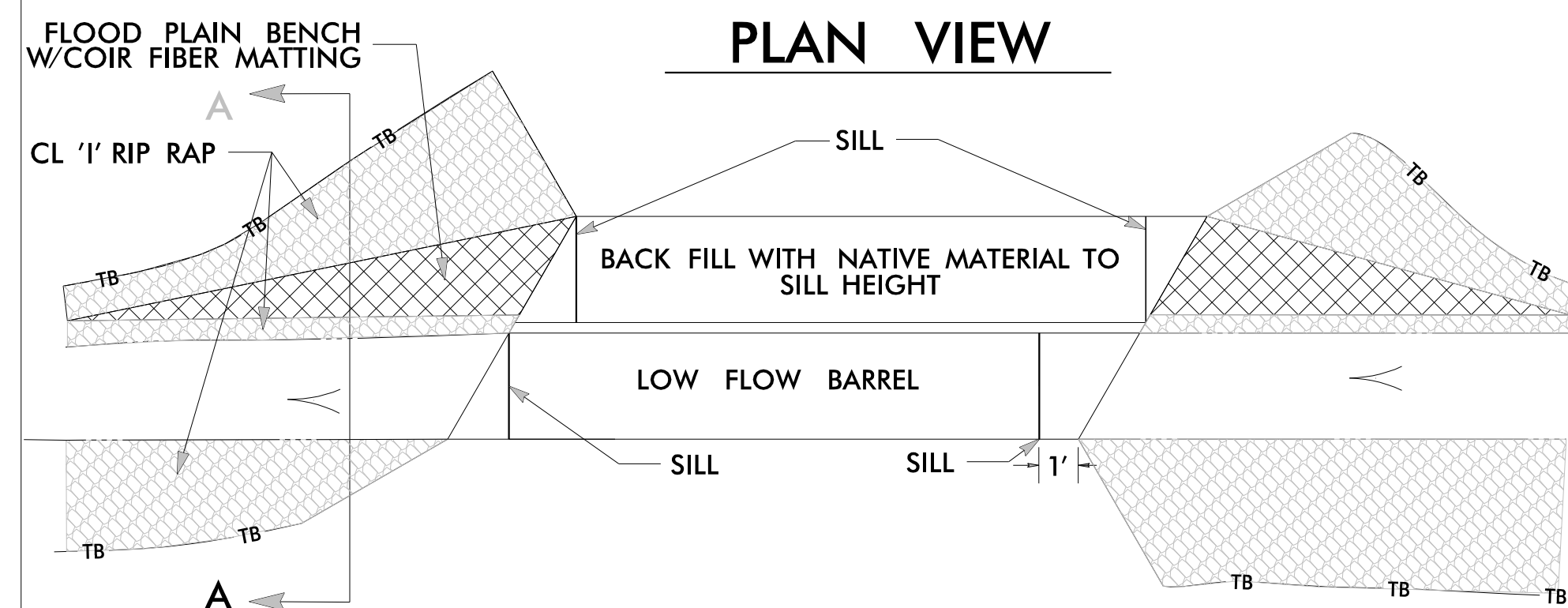
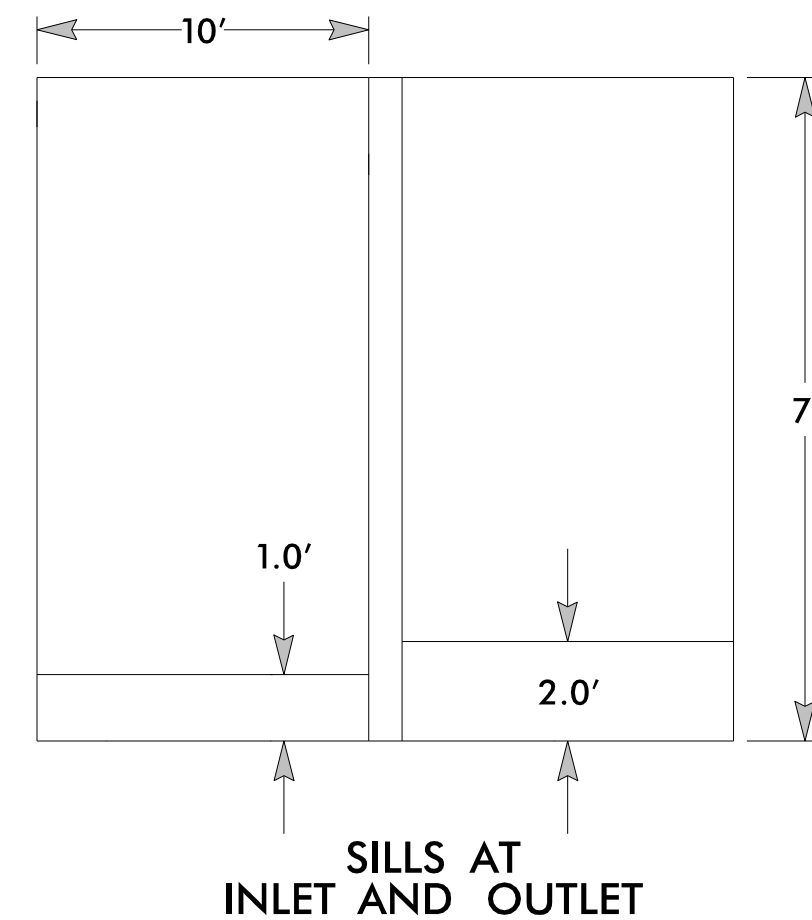


PROJECT REFERENCE NO. 1-4729A	SHEET NO. STRM 02B
RW SHEET NO. ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

DETAIL #13 (NOT TO SCALE) SKEWED MULTI-BARREL CULVERT LOW FLOW CHANNEL, SILLS AND FLOOD PLAIN

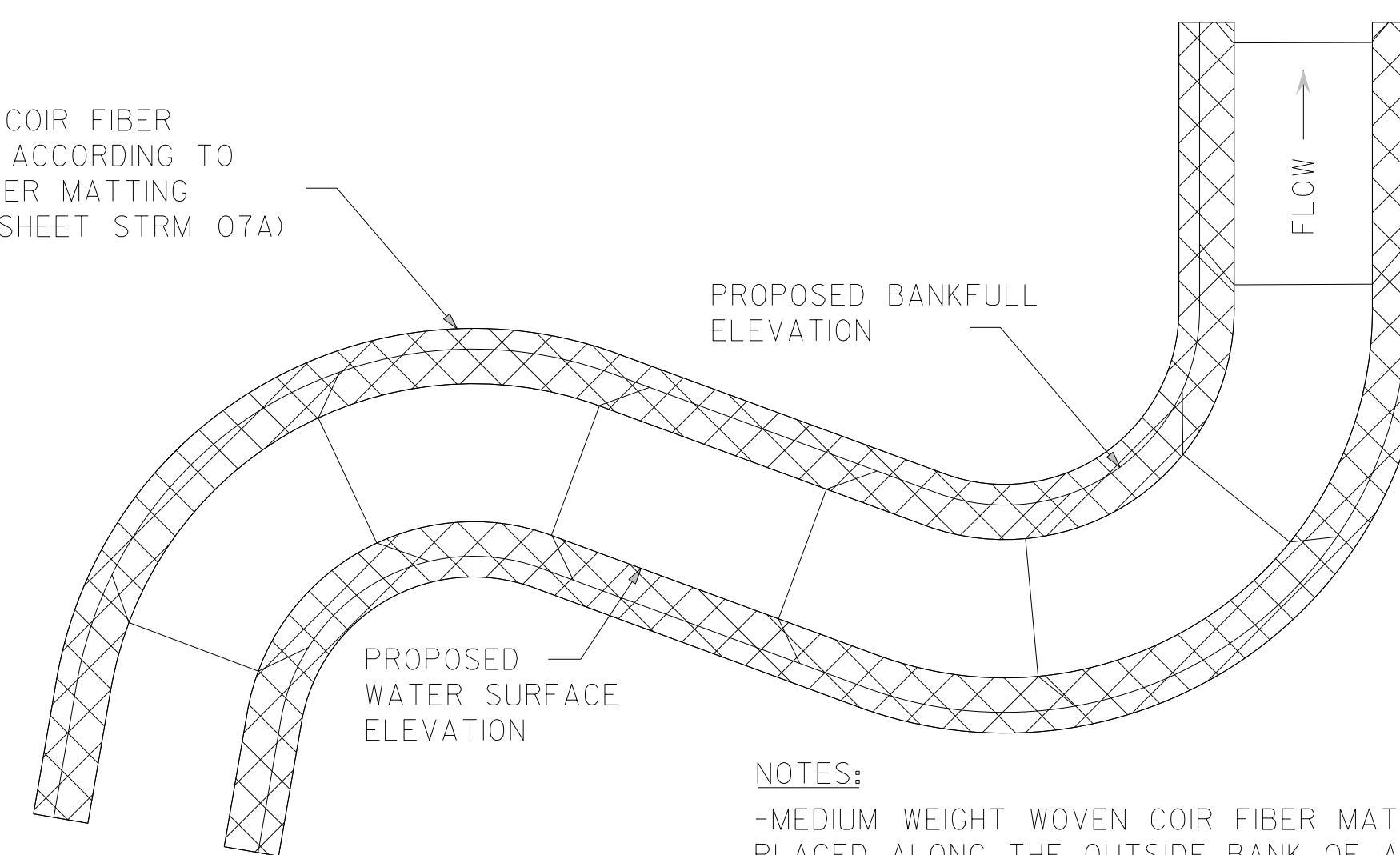
***NOTES:**

- 1) NATIVE MATERIAL BETWEEN SILLS IN THE CULVERT SHALL PROVIDE A CONTINUOUS LOW FLOW CHANNEL. NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE THE STREAM OR FLOODPLAIN AT THE PROJECT SITE DURING CONSTRUCTION. ONLY MATERIAL THAT IS EXCAVATED FROM THE STREAM BED MAY BE USED TO LINE THE LOW FLOW CULVERT BARREL. RIP-RAP MAY BE USED TO SUPPLEMENT THE NATIVE MATERIAL IN THE HIGH FLOW CULVERT BARREL(S). IF RIP-RAP IS USED TO LINE THE HIGH FLOW CULVERT BARREL(S), NATIVE MATERIAL SHOULD BE PLACED ON TOP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.
- 2) SILLS ARE TO BE 1.0 FT. WIDE, CAST SEPARATELY AND ATTACHED BY DOWELS.
- 3) TOP OF LOW FLOW SILLS SHOULD MATCH STREAM BED ELEVATION IN LOW FLOW CHANNEL OF STREAM. (THALWEG)
- 4) DO NOT SET ELEVATION OF HIGH SILLS ABOVE BANK FULL.
- 5) COIR FIBER MATTING SHALL BE SECURED ON THE BENCHES AND PLACED BEHIND RIP RAP TO PREVENT WASHOUT OF SEDIMENT THROUGH GAPS.



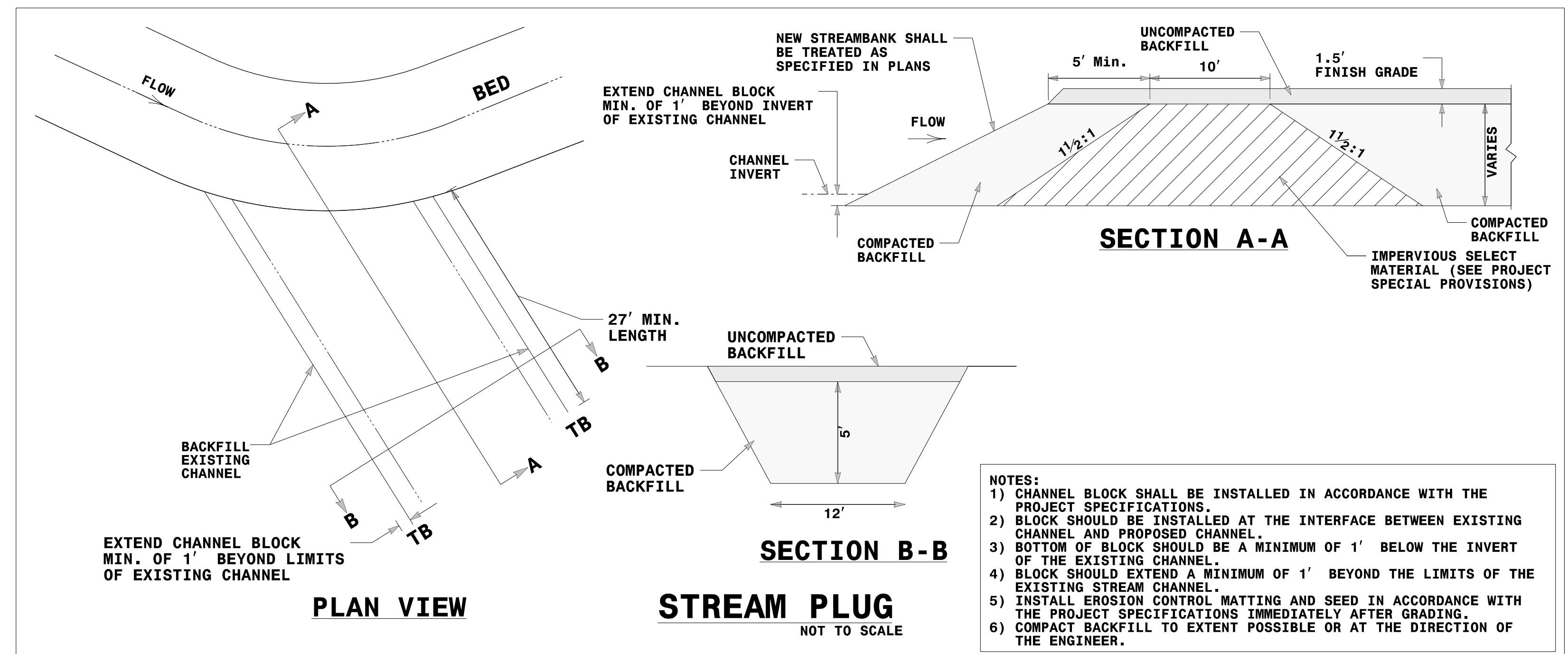
TYPICAL MATTING LOCATION

INSTALL COIR FIBER MATTING ACCORDING TO 'COIR FIBER MATTING DETAIL' (SHEET STRM 07A)



NOTES:

- MEDIUM WEIGHT WOVEN COIR FIBER MATTING SHALL BE PLACED ALONG THE OUTSIDE BANK OF ALL BENDS AND ALONG BOTH SIDES OF THE CHANNEL IN TANGENT AREAS.
- FIELD ADJUSTMENTS TO MATTING LOCATION MAY BE MADE AT THE DESIGNERS OR CONTRACTORS DISCRETION AS NECESSARY.



NOTES:

- 1) CHANNEL BLOCK SHALL BE INSTALLED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
- 2) BLOCK SHOULD BE INSTALLED AT THE INTERFACE BETWEEN EXISTING CHANNEL AND PROPOSED CHANNEL.
- 3) BOTTOM OF BLOCK SHOULD BE A MINIMUM OF 1' BELOW THE INVERT OF THE EXISTING CHANNEL.
- 4) BLOCK SHOULD EXTEND A MINIMUM OF 1' BEYOND THE LIMITS OF THE EXISTING STREAM CHANNEL.
- 5) INSTALL EROSION CONTROL MATTING AND SEED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS IMMEDIATELY AFTER GRADING.
- 6) COMPACT BACKFILL TO EXTENT POSSIBLE OR AT THE DIRECTION OF THE ENGINEER.

8/17/99

REVISIONS

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