BAKER RIVER RESTORATION PROJECT

WARREN, NEW HAMPSHIRE

DECEMBER 2004

PREPARED FOR:
TOWN OF WARREN
P.O. BOX 66
WARREN, NH 03279

PREPARED BY:
SEAN SWEENEY, P.E., CWS
434 FOX RIDGE ROAD
LITTLETON, NH 03561

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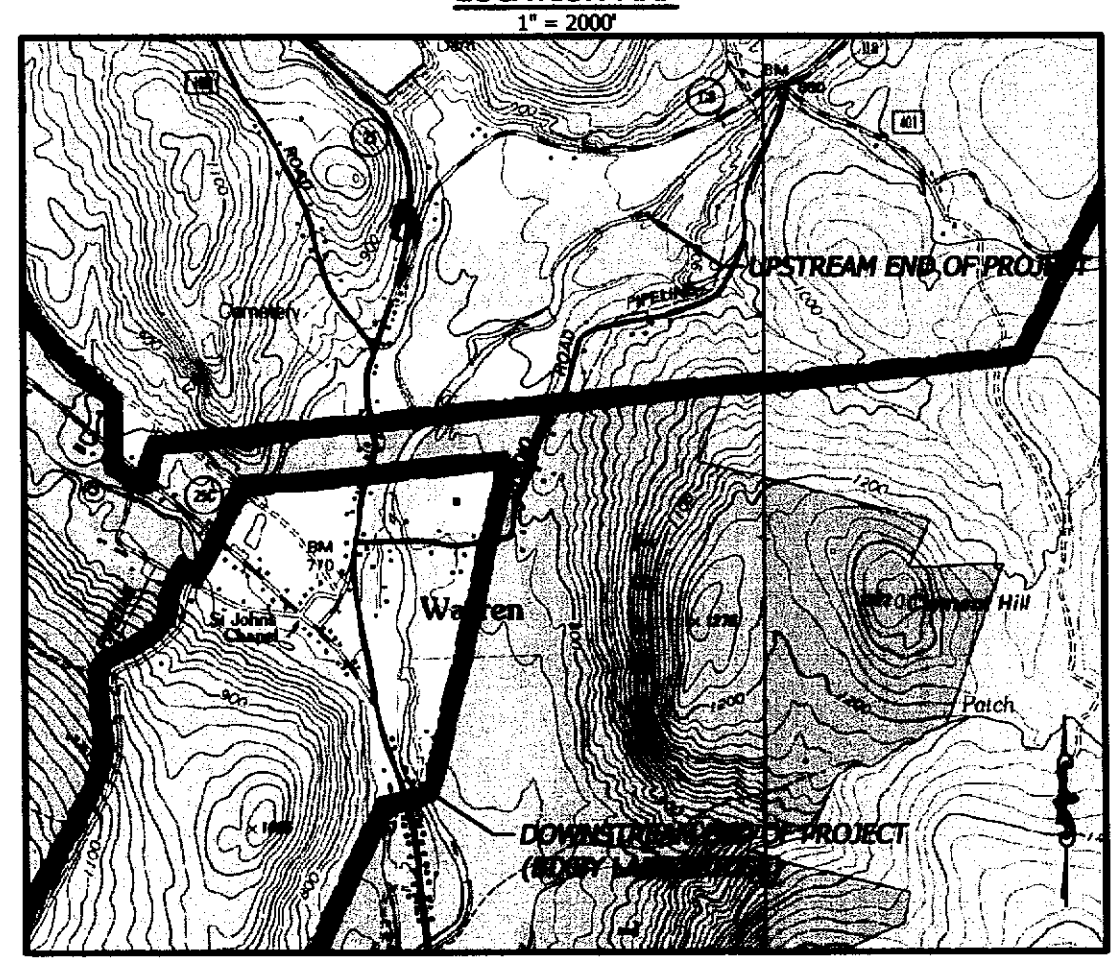
LOCATION MAP
1" = 2000'



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PROPOSED RIFFLE X-SECTIONAL GEOMETRY

BANKFULL WIDTH = 75 FT
BANKFULL X-SECTIONAL AREA = 225 SQ FT
MEAN BANKFULL DEPTH = 3.0 FT
WIDTH-TO-DEPTH RATIO = 25
MAX. BANKFULL DEPTH = 4.0 FT

PROPOSED PLAN VIEW GEOMETRY

$$\text{PROPOSED SINUOSITY} = \frac{\text{PROPOSED CHANNEL LENGTH}}{\text{VALLEY LENGTH}} = \frac{8175\ \text{FT}}{6900\ \text{FT}} = 1.185$$

(CHANNEL AND VALLEY LENGTHS MEASURED TO END OF POOL/TOP RIFFLE BELOW BIXBY LANE BRIDGE)

AVERAGE MEANDER LENGTH = 825 FT (11 BANKFULL WIDTHS)
- RANGE OF MEANDER LENGTH VALUES = 720 FT - 1120 FT (9.6 - 14.9 BANKFULL WIDTHS)

AVERAGE MEANDER BELT WIDTH ~ 270 FT (3.6 BANKFULL WIDTHS)
- RANGE OF BELT WIDTH VALUES = 170 FT - 375 FT (2.3 - 5.0 BANKFULL WIDTHS)

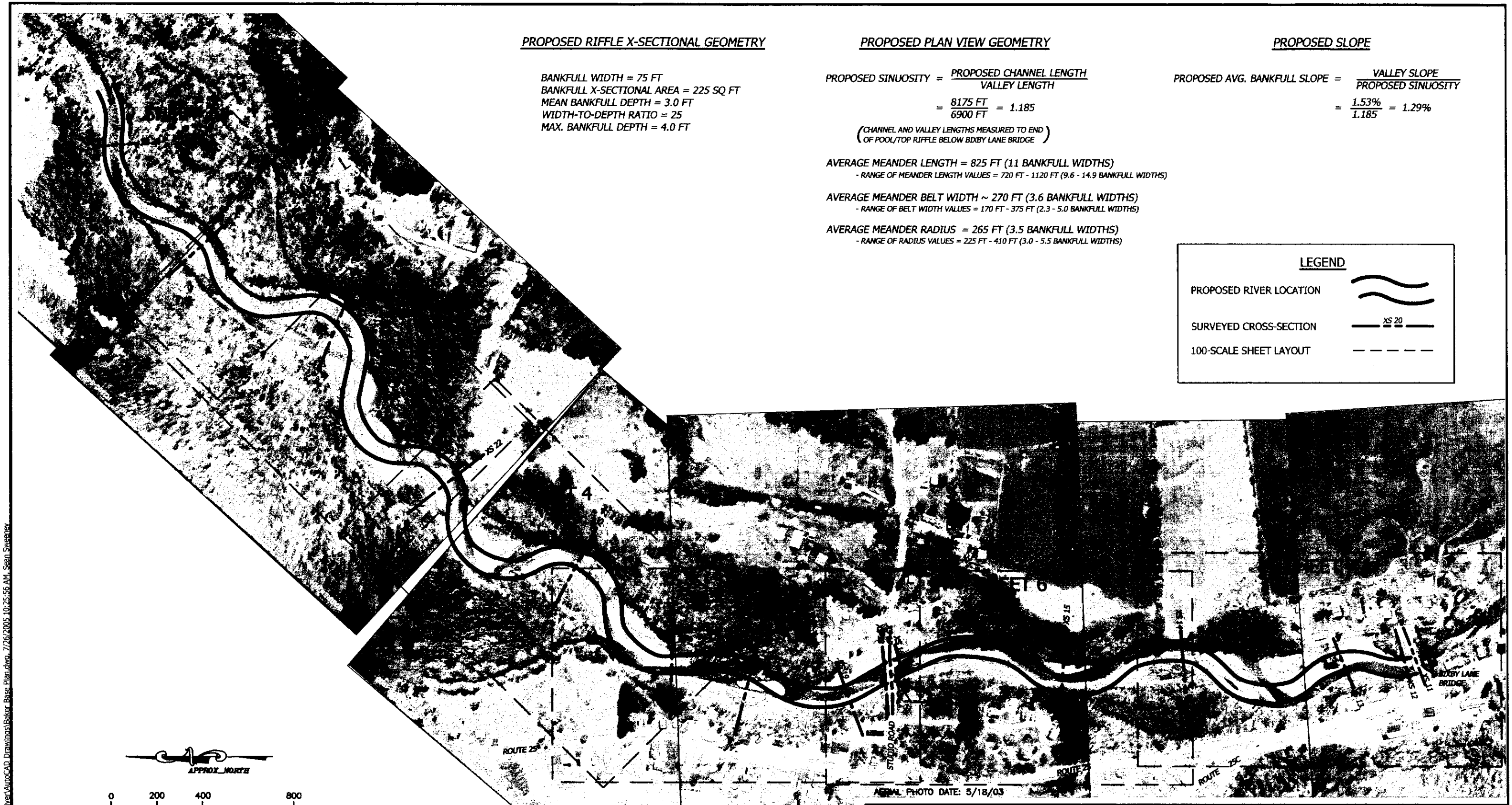
AVERAGE MEANDER RADIUS = 265 FT (3.5 BANKFULL WIDTHS)
- RANGE OF RADIUS VALUES = 225 FT - 410 FT (3.0 - 5.5 BANKFULL WIDTHS)

PROPOSED SLOPE

$$\text{PROPOSED AVG. BANKFULL SLOPE} = \frac{\text{VALLEY SLOPE}}{\text{PROPOSED SINUOSITY}} = \frac{1.53\%}{1.185} = 1.29\%$$

LEGEND

PROPOSED RIVER LOCATION
SURVEYED CROSS-SECTION (XS 20)
100-SCALE SHEET LAYOUT



BAKER RIVER RESTORATION PROJECT WARREN, NH OVERALL PROPOSED SITE PLAN AND SHEET LAYOUT	DESIGNED BY: SEAN SWEENEY	DRAWN BY: SEAN SWEENEY
	DATE: DECEMBER 2004	SHEET 1 OF 30

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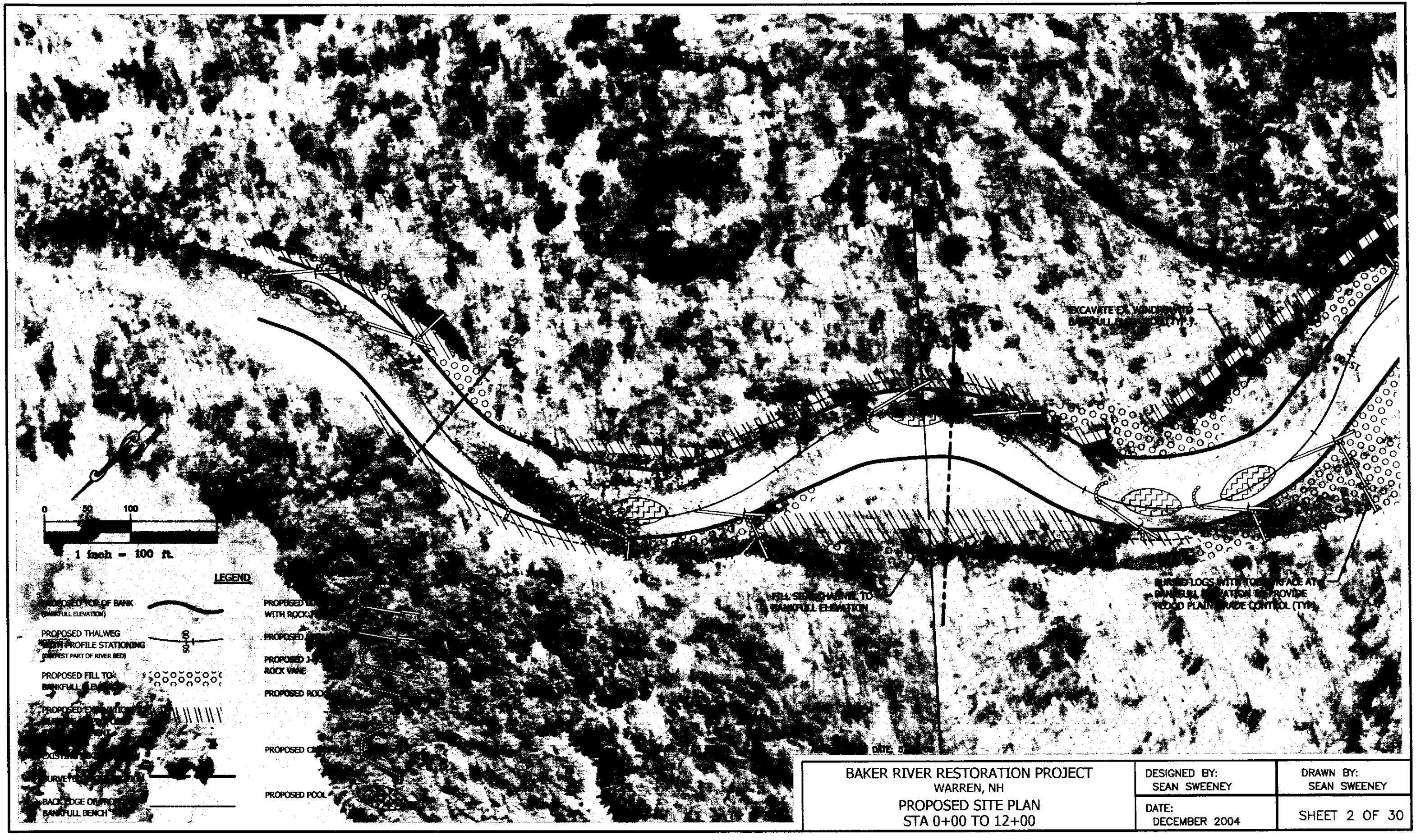

BAKER RIVER RESTORATION PROJECT WARREN, NH PROPOSED SITE PLAN STA 0+00 TO 12+00	DESIGNED BY: SEAN SWEENEY	DRAWN BY: SEAN SWEENEY
	DATE: DECEMBER 2004	SHEET 2 OF 30

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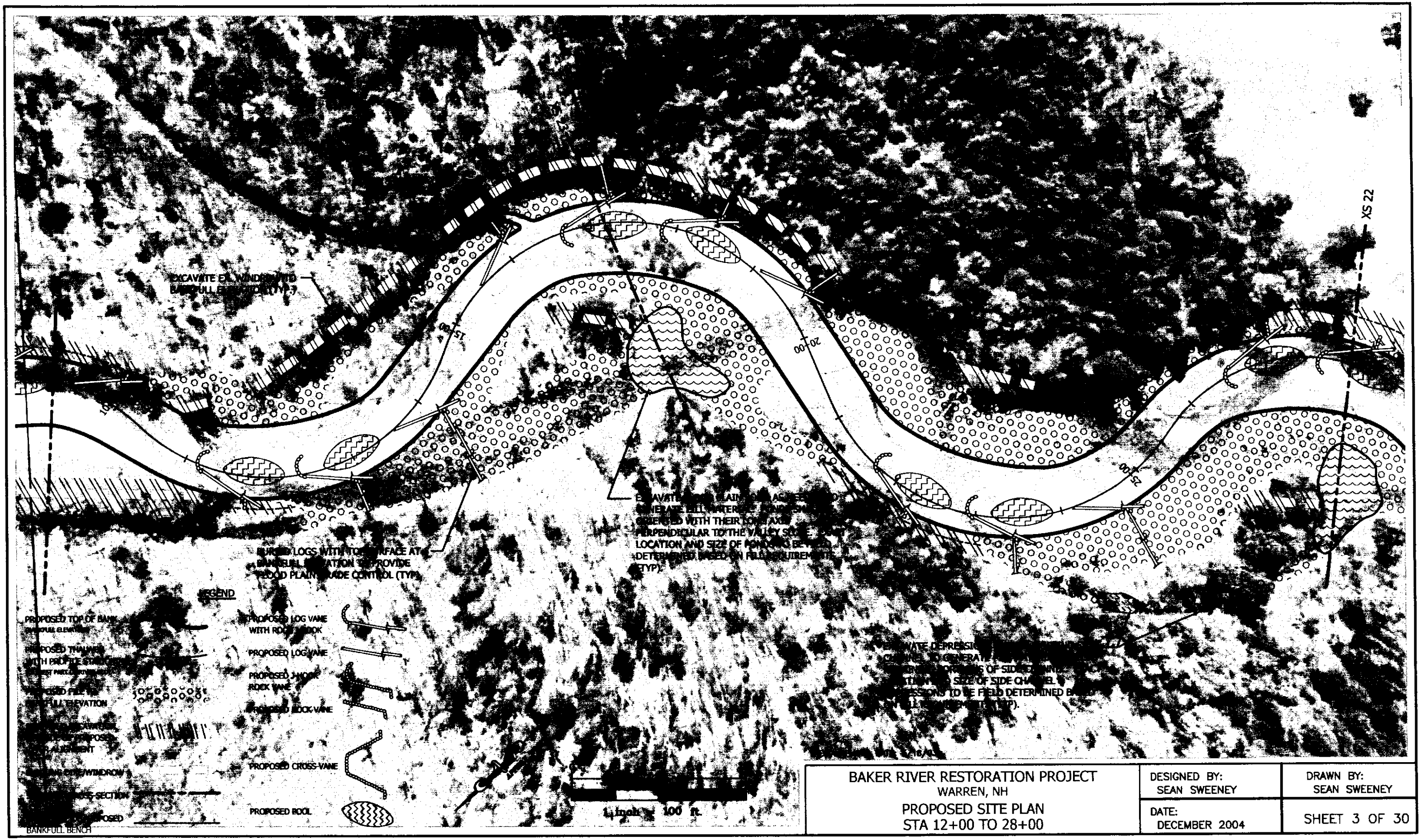

BAKER RIVER RESTORATION PROJECT WARREN, NH PROPOSED SITE PLAN STA 12+00 TO 28+00	DESIGNED BY: SEAN SWEENEY	DRAWN BY: SEAN SWEENEY
	DATE: DECEMBER 2004	SHEET 3 OF 30

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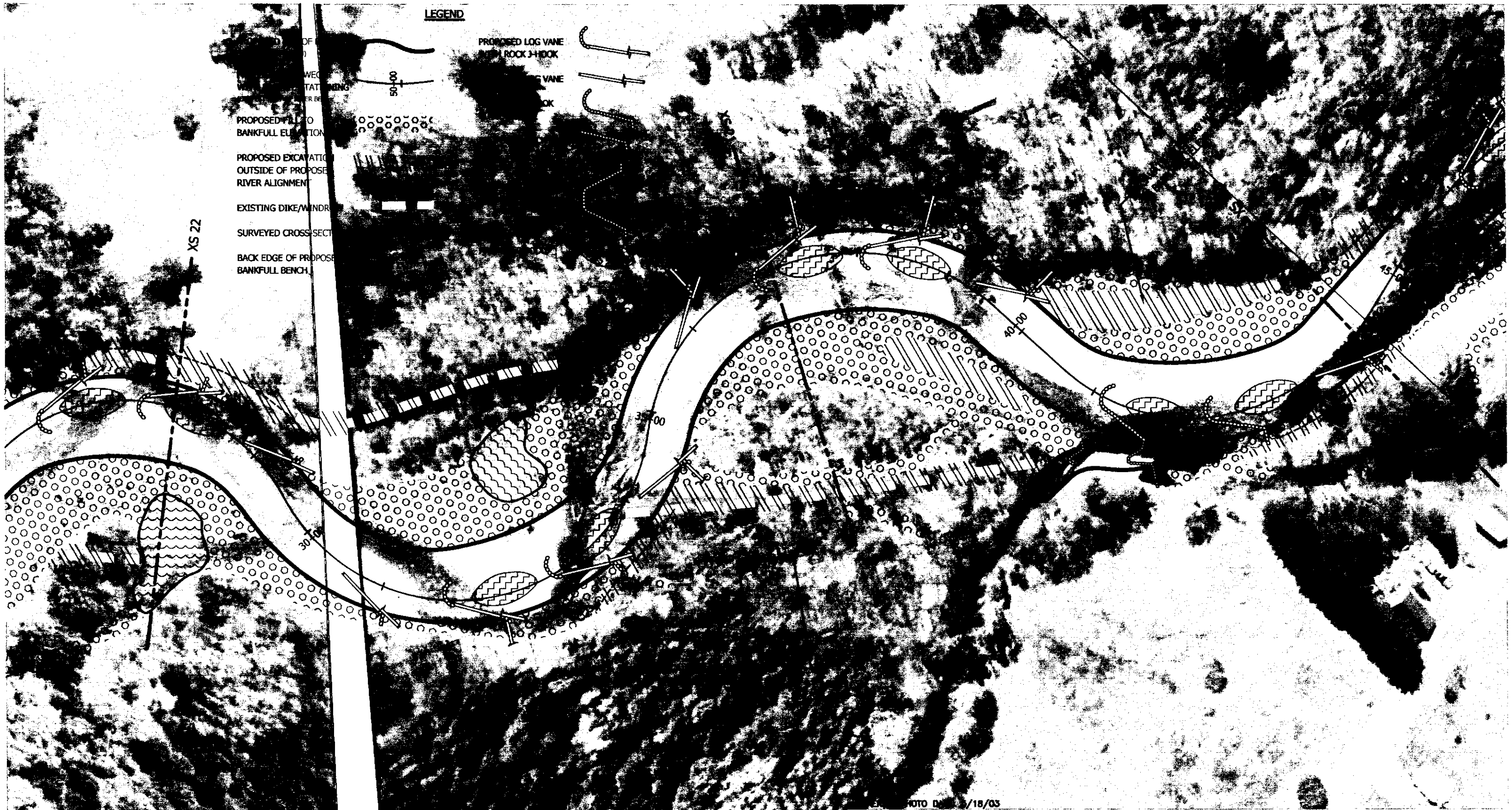

BAKER RIVER RESTORATION PROJECT WARREN, NH PROPOSED SITE PLAN STA 28+00 TO 42+00	DESIGNED BY: SEAN SWEENEY	DRAWN BY: SEAN SWEENEY
	DATE: DECEMBER 2004	SHEET 4 OF 30

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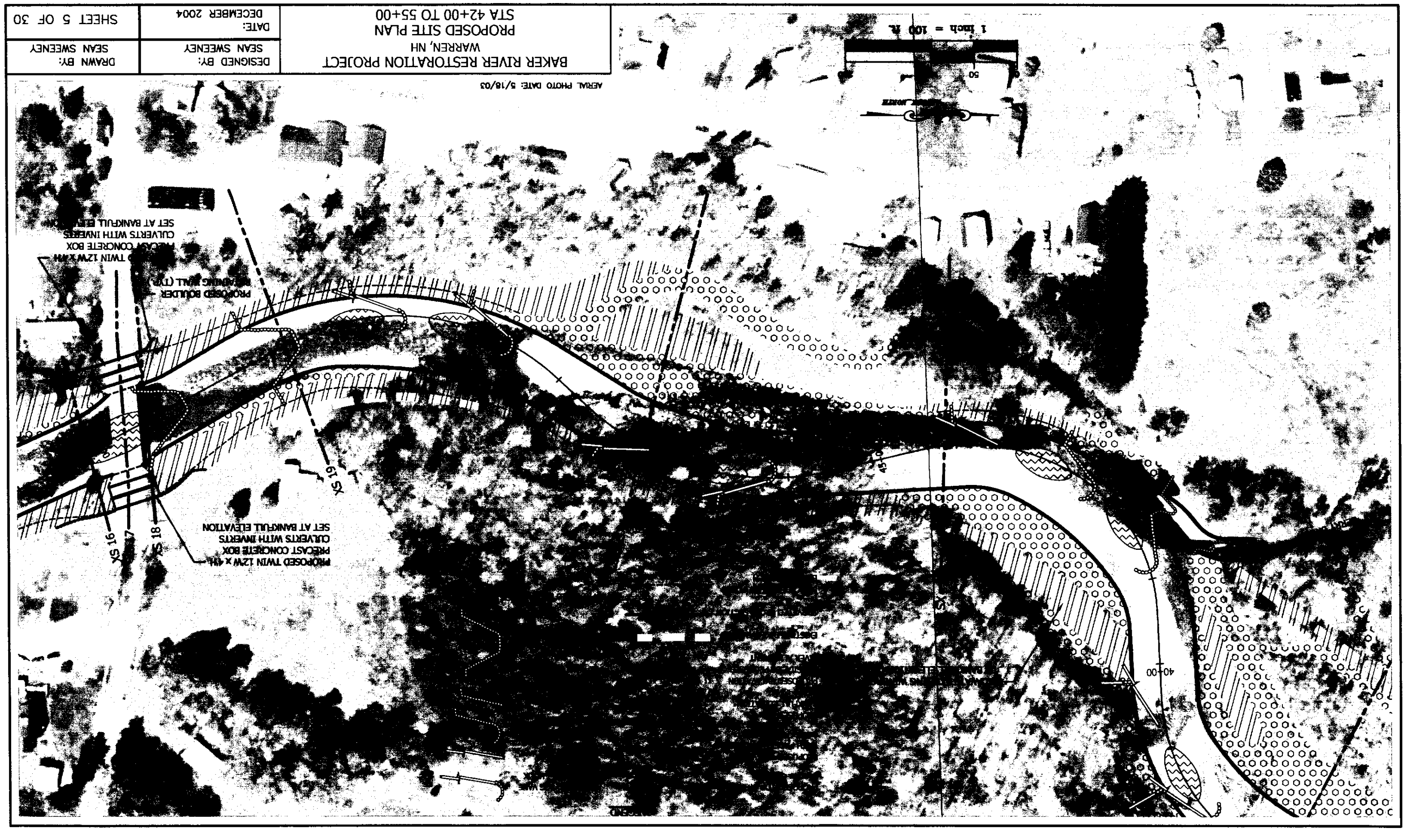

BAKER RIVER RESTORATION PROJECT WARREN, NH PROPOSED SITE PLAN STA 42+00 TO 55+00	DESIGNED BY: SEAN SWEENEY	DRAWN BY: SEAN SWEENEY
	DATE: DECEMBER 2004	SHEET 5 OF 30

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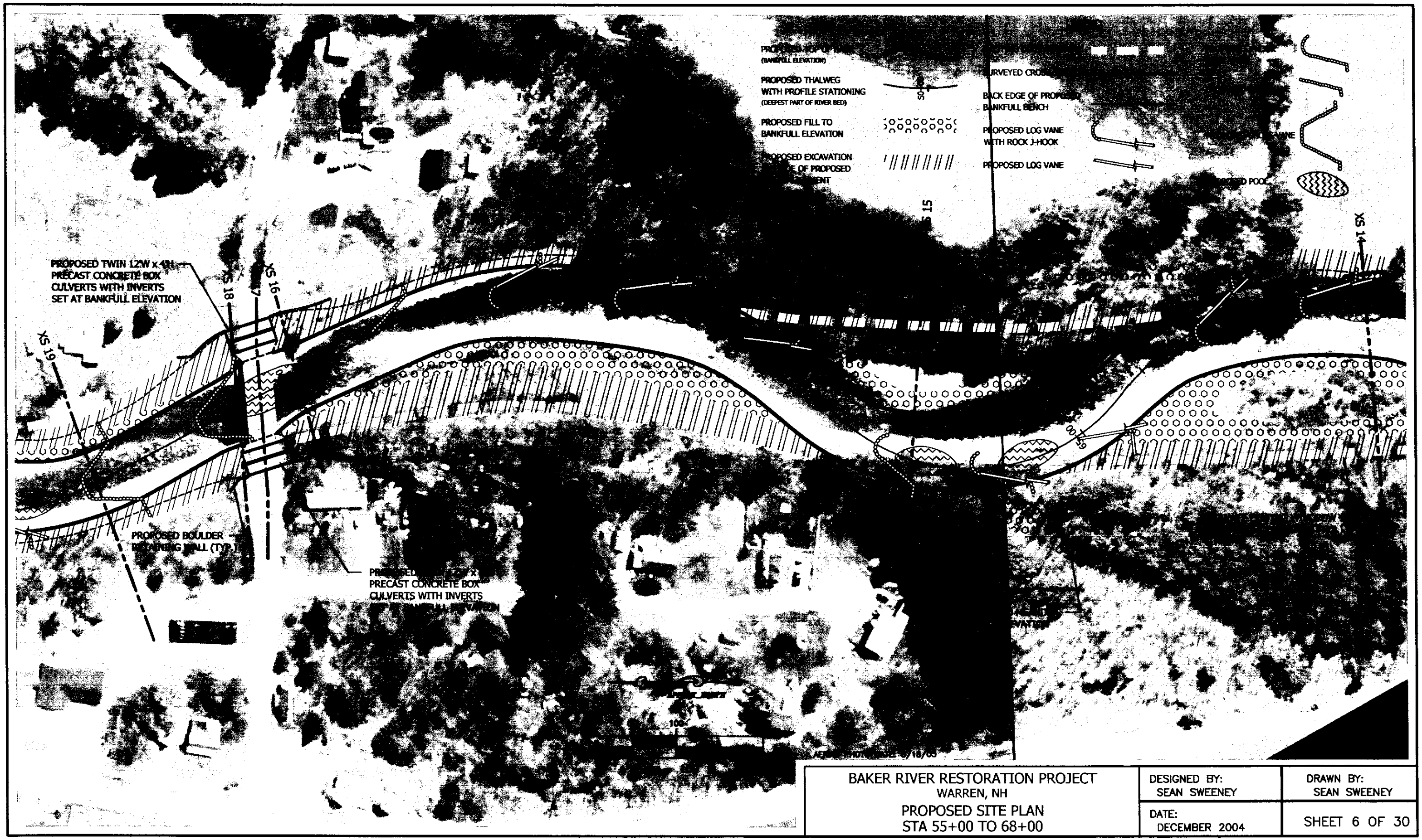

BAKER RIVER RESTORATION PROJECT WARREN, NH PROPOSED SITE PLAN STA 55+00 TO 68+00	DESIGNED BY: SEAN SWEENEY	DRAWN BY: SEAN SWEENEY
	DATE: DECEMBER 2004	SHEET 6 OF 30

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BAKER RIVER RESTORATION PROJECT WARREN, NH PROPOSED SITE PLAN STA 68+00 TO 81+75	DESIGNED BY: SEAN SWEENEY	DRAWN BY: SEAN SWEENEY
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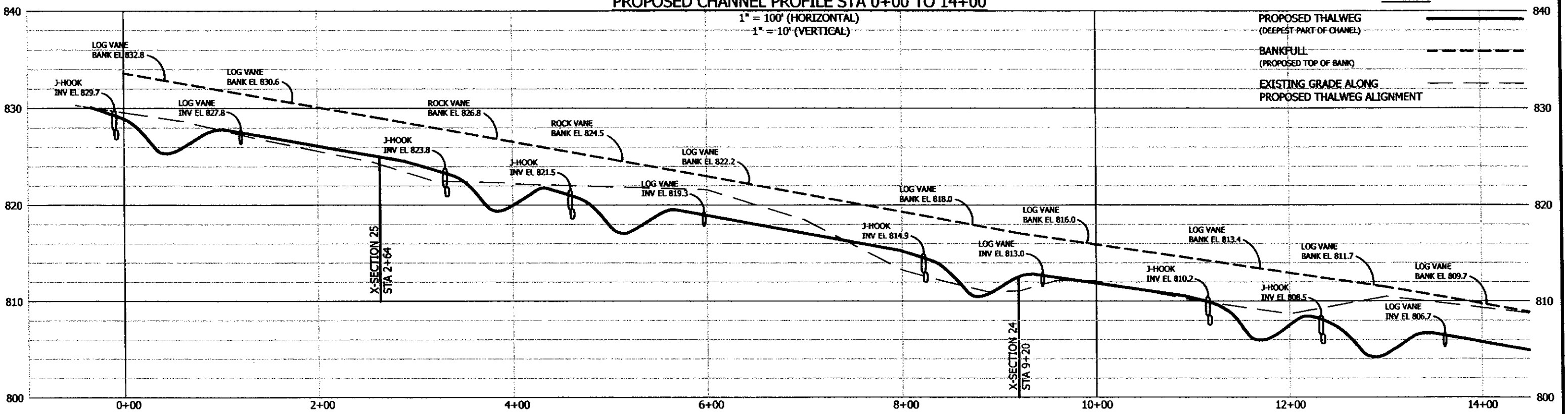
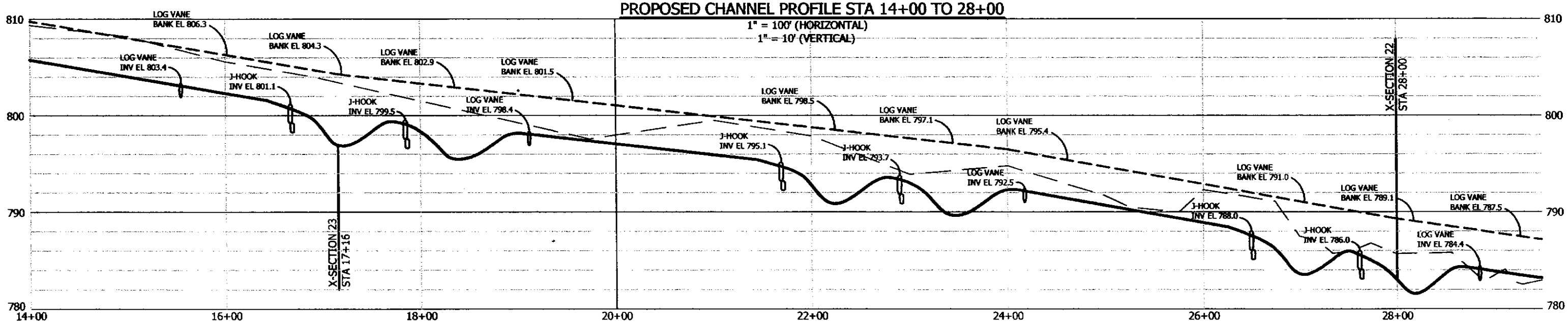
PROPOSED CHANNEL PROFILE STA 0+00 TO 14+00

1" = 100' (HORIZONTAL)
1" = 10' (VERTICAL)



PROPOSED CHANNEL PROFILE STA 14+00 TO 28+00

1" = 100' (HORIZONTAL)
1" = 10' (VERTICAL)



BAKER RIVER RESTORATION PROJECT WARREN, NH PROPOSED CHANNEL PROFILE STA 0+00 TO 28+00	DESIGNED BY: SEAN SWEENEY	DRAWN BY: SEAN SWEENEY
	DATE: DECEMBER 2004	SHEET 8 OF 30

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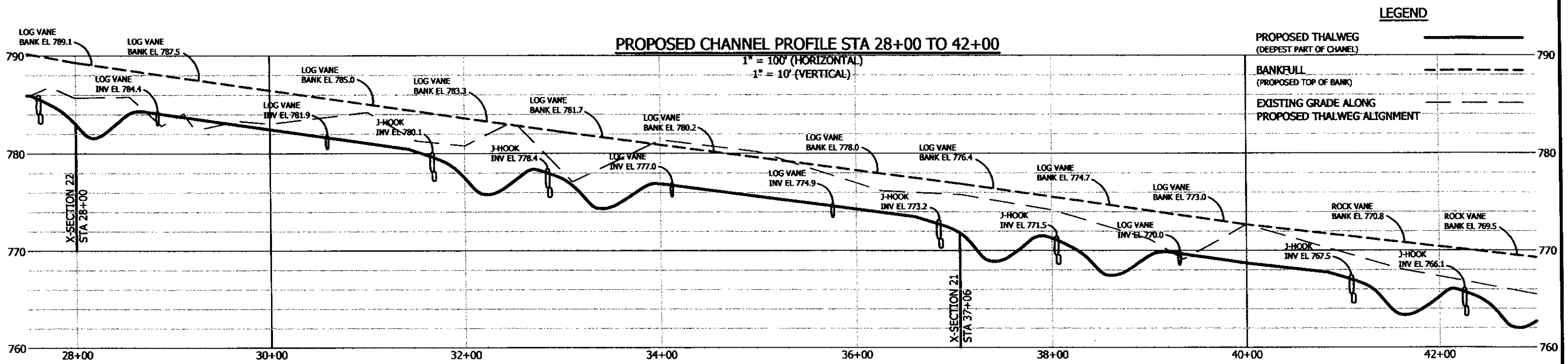

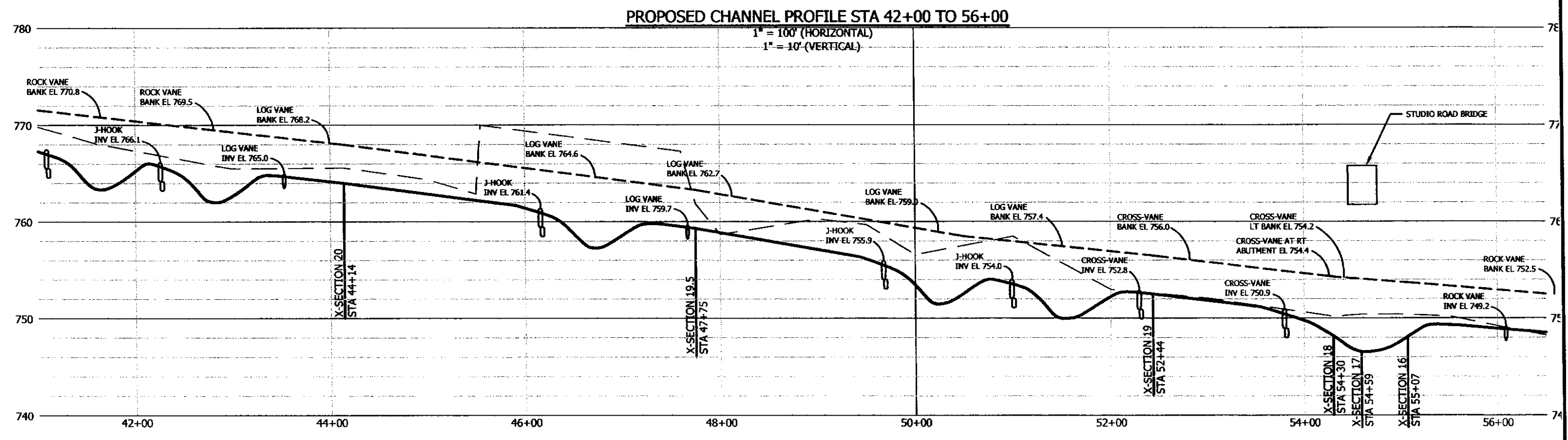

BAKER RIVER RESTORATION PROJECT WARREN, NH PROPOSED CHANNEL PROFILE STA 28+00 TO 56+00	DESIGNED BY: SEAN SWEENEY	DRAWN BY: SEAN SWEENEY
	DATE: DECEMBER 2004	SHEET 9 OF 30

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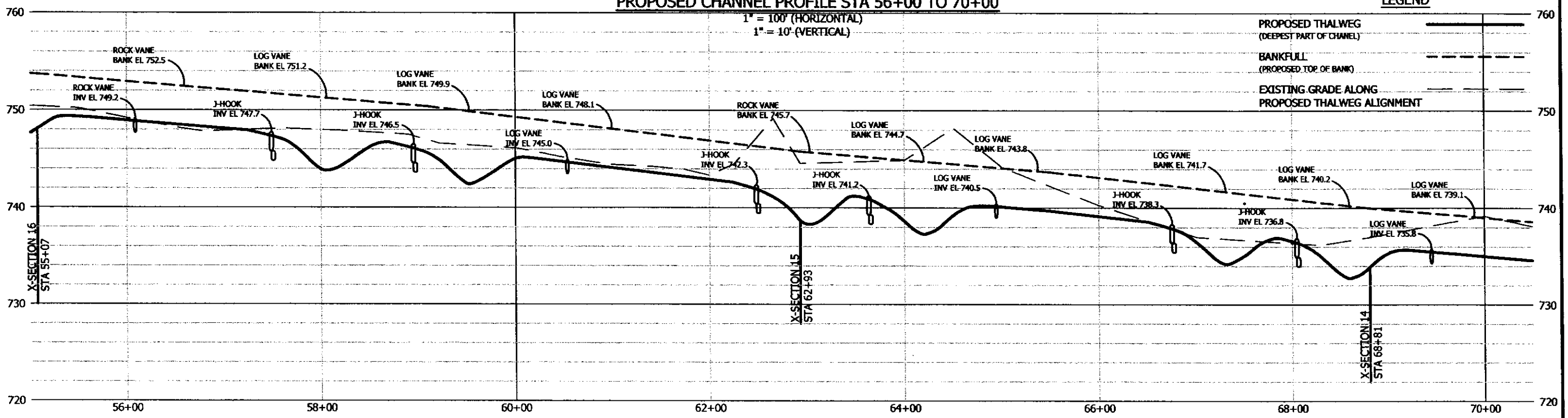
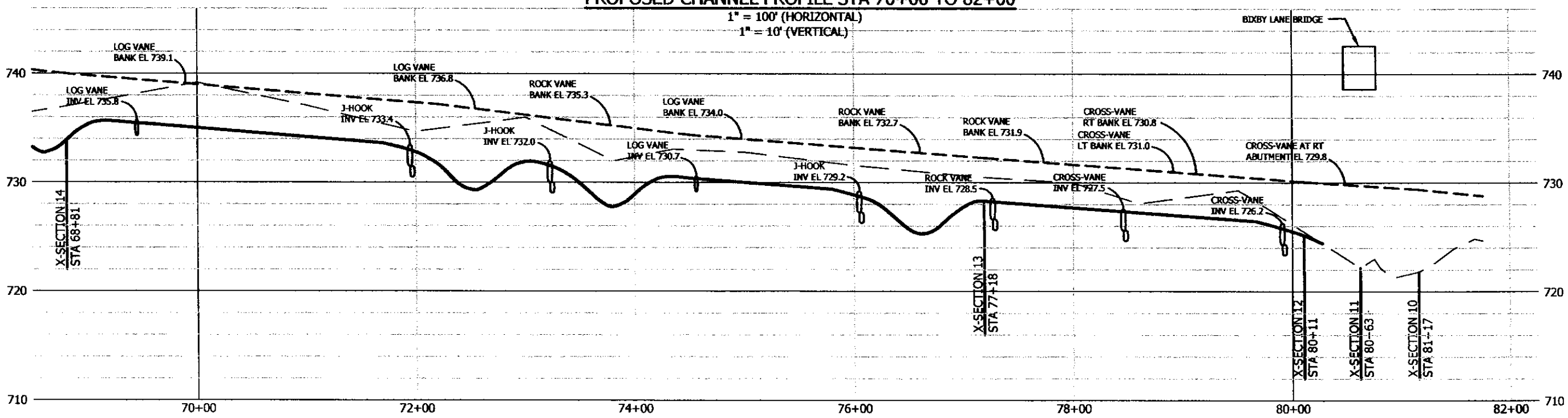
PROPOSED CHANNEL PROFILE STA 56+00 TO 70+00

1" = 100' (HORIZONTAL)
1" = 10' (VERTICAL)



PROPOSED CHANNEL PROFILE STA 70+00 TO 82+00

1" = 100' (HORIZONTAL)
1" = 10' (VERTICAL)



BAKER RIVER RESTORATION PROJECT WARREN, NH PROPOSED CHANNEL PROFILE STA 56+00 TO 81+75	DESIGNED BY: SEAN SWEENEY	DRAWN BY: SEAN SWEENEY
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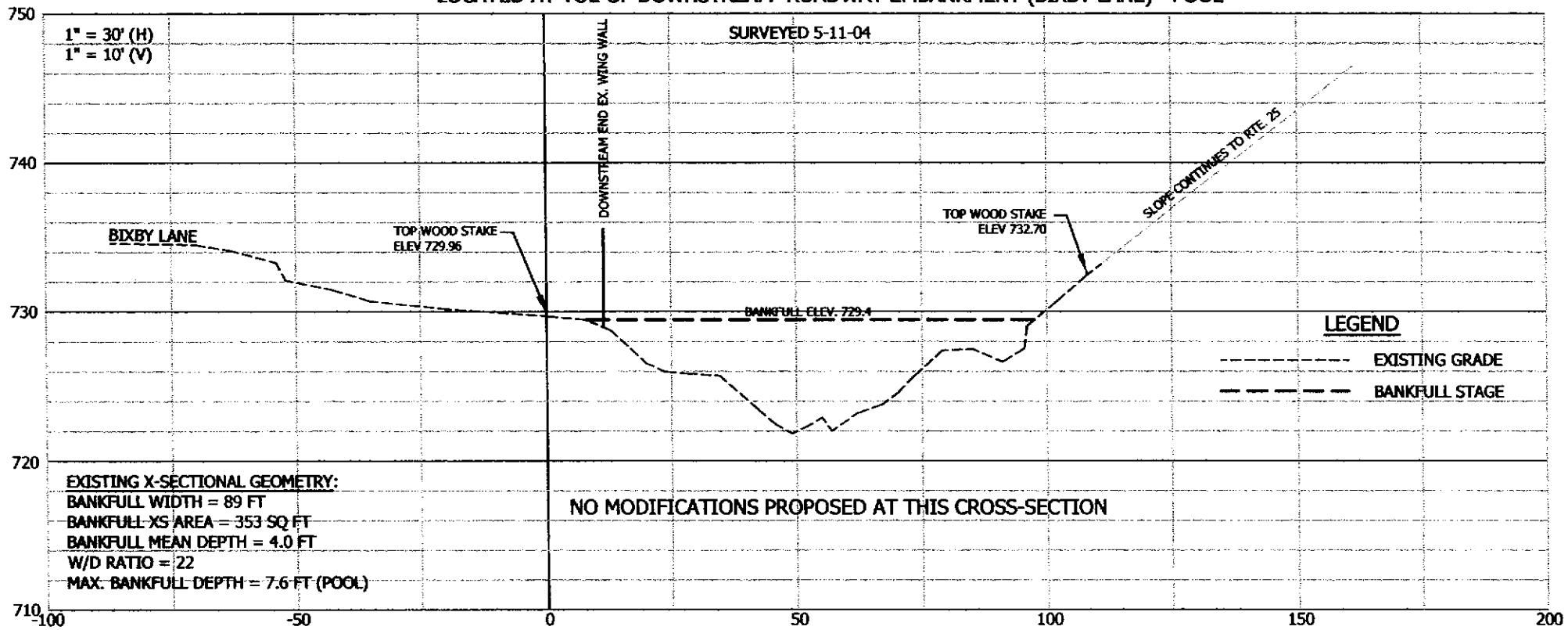
X-SECTION 10

LOCATED AT TOE OF DOWNSTREAM ROADWAY EMBANKMENT (BIXBY LANE) - POOL



EXISTING X-SECTIONAL GEOMETRY:
BANKFULL WIDTH = 89 FT
BANKFULL XS AREA = 353 SQ FT
BANKFULL MEAN DEPTH = 4.0 FT
W/D RATIO = 22
MAX. BANKFULL DEPTH = 7.6 FT (POOL)

NO MODIFICATIONS PROPOSED AT THIS CROSS-SECTION

BAKER RIVER RESTORATION PROJECT WARREN, NH	DESIGNED BY: SEAN SWEENEY	DRAWN BY: SEAN SWEENEY
PROPOSED CROSS-SECTION 10	DATE: DECEMBER 2004	SHEET 11 OF 30

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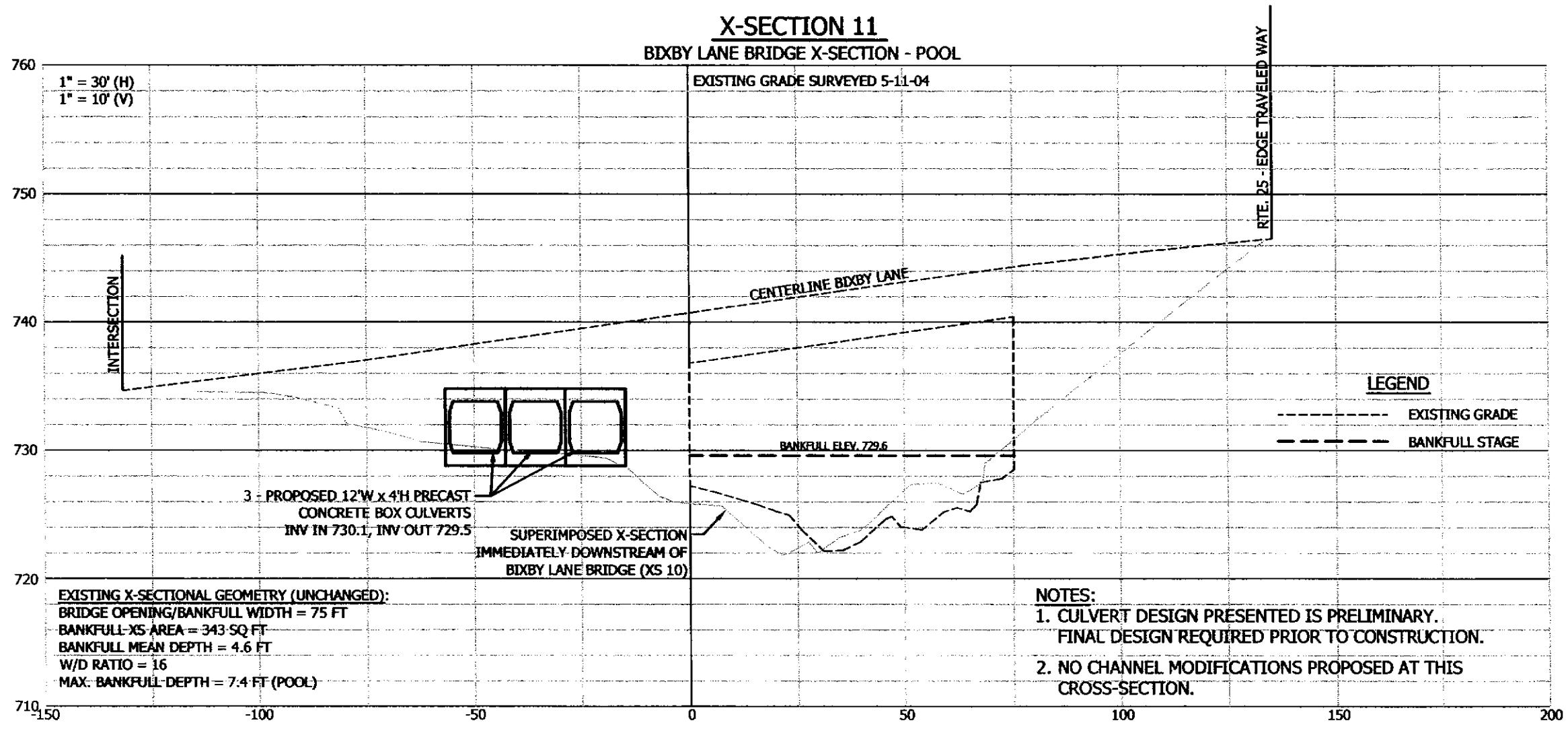
X-SECTION 11

BIXBY LANE BRIDGE X-SECTION - POOL



EXISTING X-SECTIONAL GEOMETRY (UNCHANGED):
BRIDGE OPENING/BANKFULL WIDTH = 75 FT
BANKFULL XS AREA = 343 SQ FT
BANKFULL MEAN DEPTH = 4.6 FT
W/D RATIO = 16
MAX. BANKFULL DEPTH = 7.4 FT (POOL)

NOTES:
1. CULVERT DESIGN PRESENTED IS PRELIMINARY. FINAL DESIGN REQUIRED PRIOR TO CONSTRUCTION.
2. NO CHANNEL MODIFICATIONS PROPOSED AT THIS CROSS-SECTION.

BAKER RIVER RESTORATION PROJECT WARREN, NH	DESIGNED BY: SEAN SWEENEY	DRAWN BY: SEAN SWEENEY
PROPOSED CROSS-SECTION 11	DATE: DECEMBER 2004	SHEET 12 OF 30

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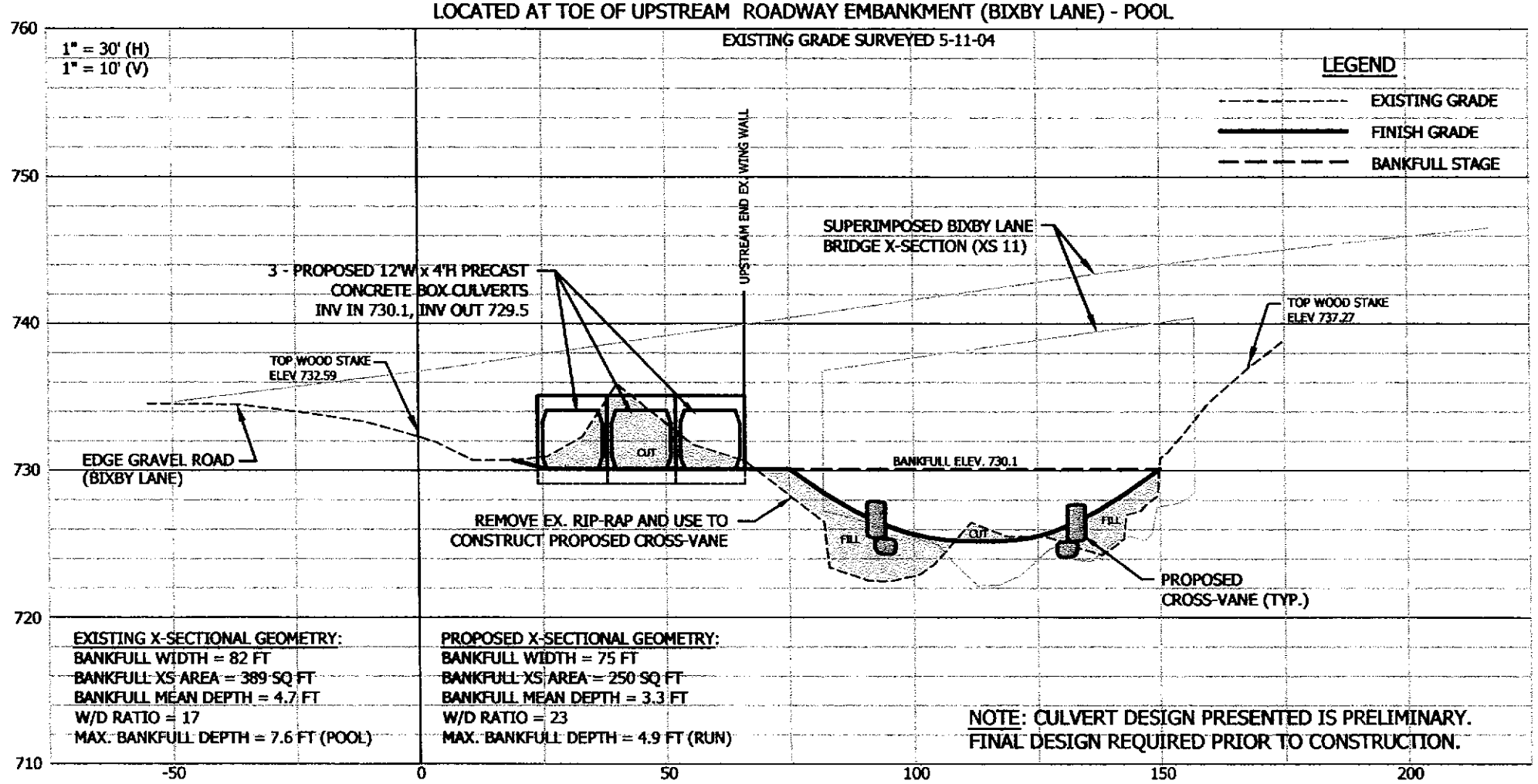
X-SECTION 12

LOCATED AT TOE OF UPSTREAM ROADWAY EMBANKMENT (BIXBY LANE) - POOL



BAKER RIVER RESTORATION PROJECT WARREN, NH	DESIGNED BY: SEAN SWEENEY	DRAWN BY: SEAN SWEENEY
PROPOSED CROSS-SECTION 12	DATE: DECEMBER 2004	SHEET 13 OF 30

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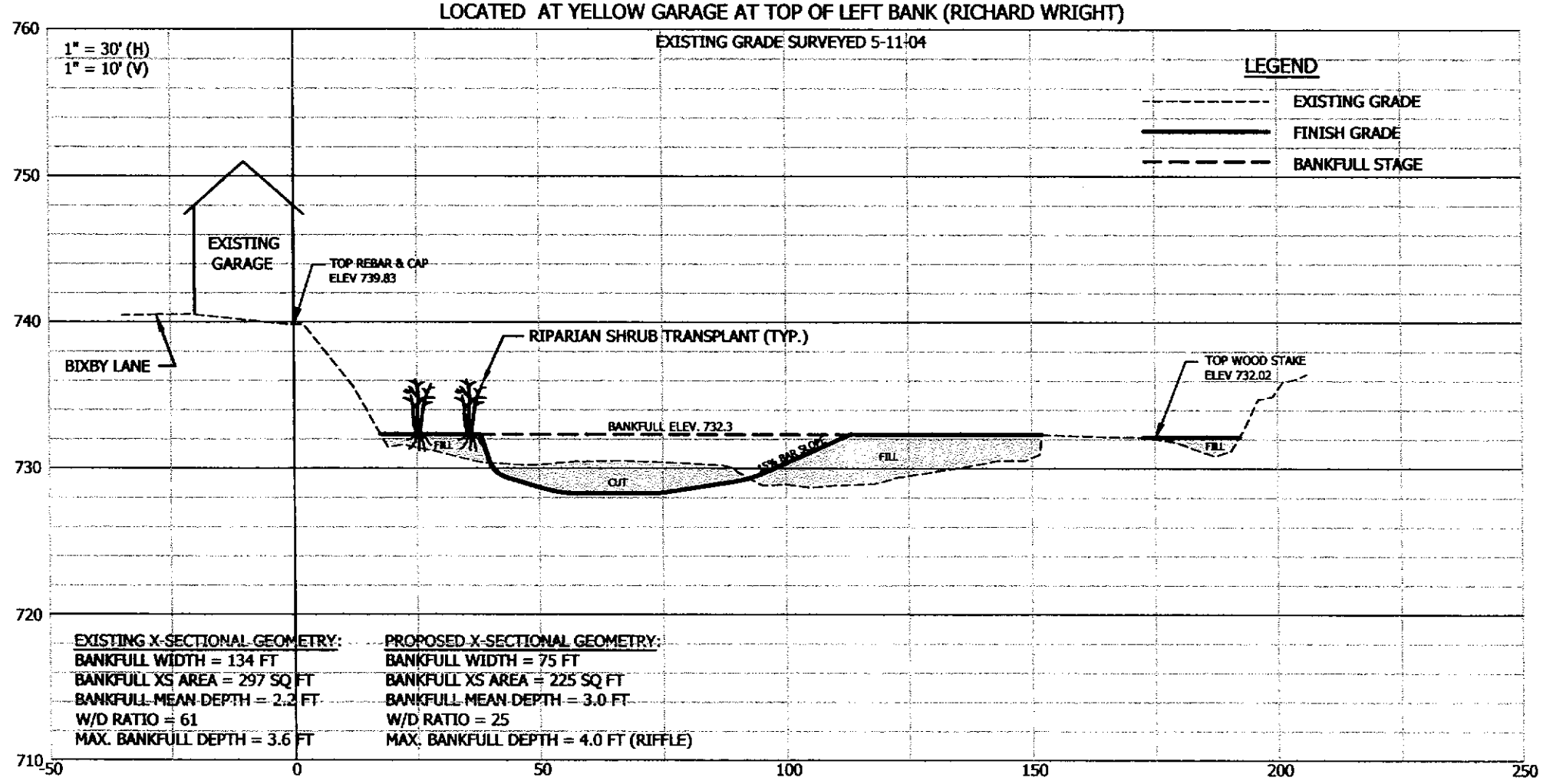
X-SECTION 13

LOCATED AT YELLOW GARAGE AT TOP OF LEFT BANK (RICHARD WRIGHT)



EXISTING X-SECTIONAL GEOMETRY:	PROPOSED X-SECTIONAL GEOMETRY:
BANKFULL WIDTH = 134 FT	BANKFULL WIDTH = 75 FT
BANKFULL XS AREA = 297 SQ FT	BANKFULL XS AREA = 225 SQ FT
BANKFULL MEAN DEPTH = 2.2 FT	BANKFULL MEAN DEPTH = 3.0 FT
W/D RATIO = 61	W/D RATIO = 25
MAX. BANKFULL DEPTH = 3.6 FT	MAX. BANKFULL DEPTH = 4.0 FT (RIFFLE)

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PROPOSED CROSS-SECTION 13	DATE: DECEMBER 2004	SHEET 14 OF 30

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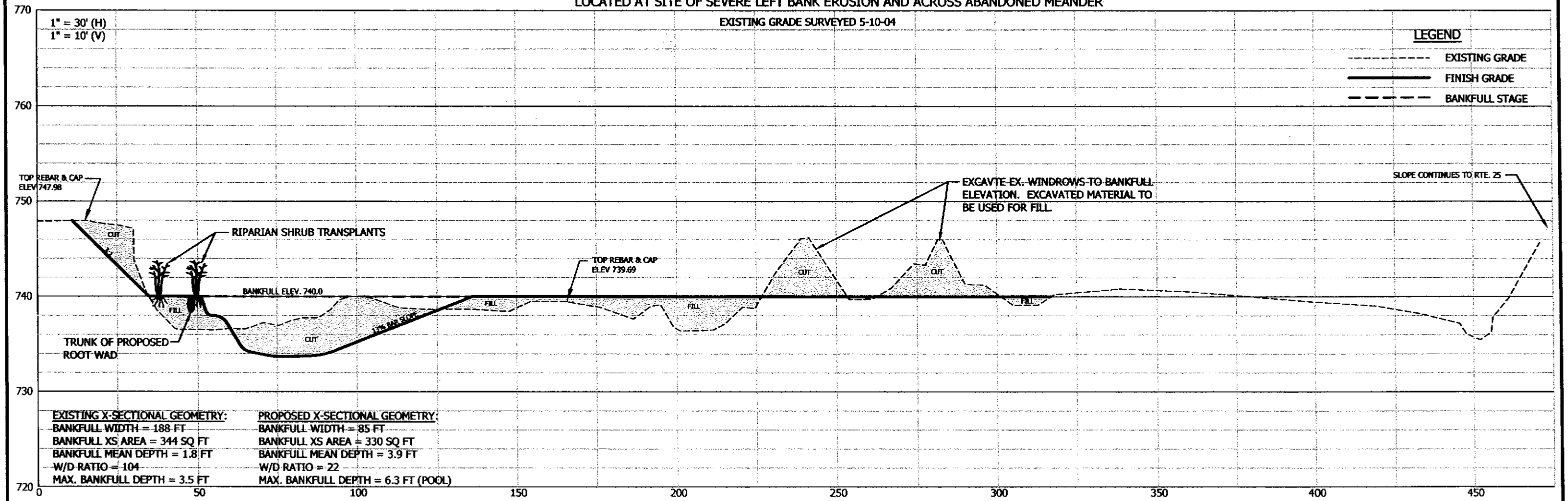
X-SECTION 14

LOCATED AT SITE OF SEVERE LEFT BANK EROSION AND ACROSS ABANDONED MEANDER



EXISTING X-SECTIONAL GEOMETRY:	PROPOSED X-SECTIONAL GEOMETRY:
BANKFULL WIDTH = 188 FT	BANKFULL WIDTH = 85 FT
BANKFULL XS AREA = 344 SQ FT	BANKFULL XS AREA = 330 SQ FT
BANKFULL MEAN DEPTH = 1.8 FT	BANKFULL MEAN DEPTH = 3.9 FT
W/D RATIO = 104	W/D RATIO = 22
MAX. BANKFULL DEPTH = 3.5 FT	MAX. BANKFULL DEPTH = 6.3 FT (POOL)

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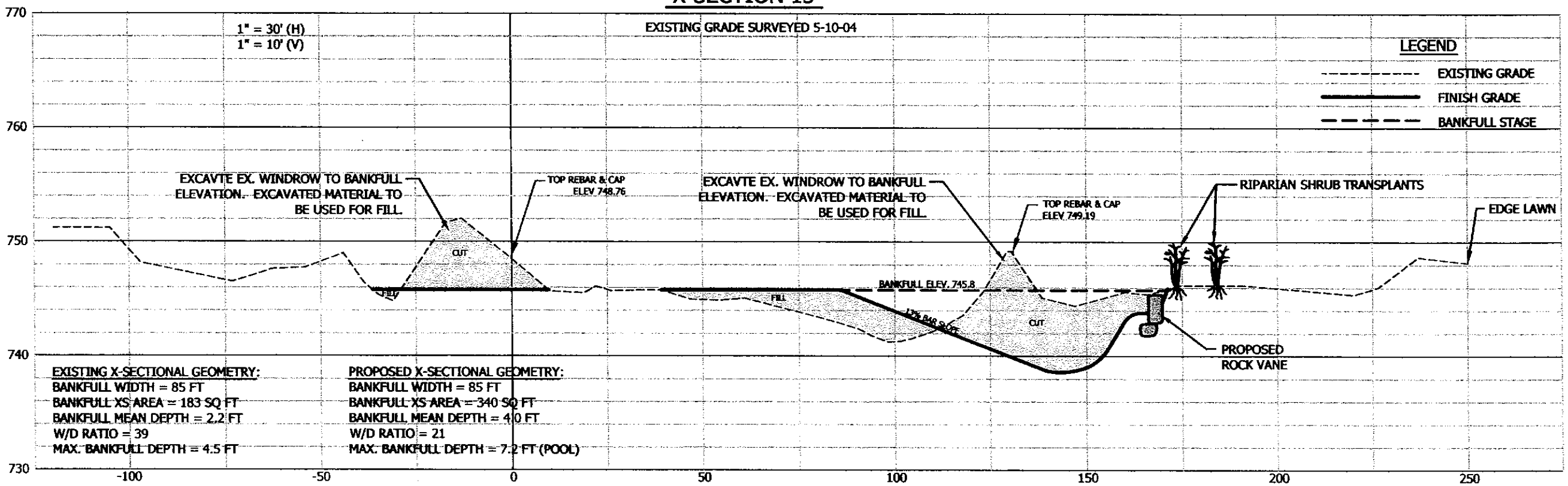
BAKER RIVER RESTORATION PROJECT WARREN, NH	DESIGNED BY: SEAN SWEENEY	DRAWN BY: SEAN SWEENEY
PROPOSED CROSS-SECTION 14	DATE: DECEMBER 2004	SHEET 15 OF 30

X-SECTION 15



EXISTING X-SECTIONAL GEOMETRY:
BANKFULL WIDTH = 85 FT
BANKFULL XS AREA = 183 SQ FT
BANKFULL MEAN DEPTH = 2.2 FT
W/D RATIO = 39
MAX. BANKFULL DEPTH = 4.5 FT

PROPOSED X-SECTIONAL GEOMETRY:
BANKFULL WIDTH = 85 FT
BANKFULL XS AREA = 340 SQ FT
BANKFULL MEAN DEPTH = 4.0 FT
W/D RATIO = 21
MAX. BANKFULL DEPTH = 7.2 FT (POOL)

BAKER RIVER RESTORATION PROJECT WARREN, NH	DESIGNED BY: SEAN SWEENEY	DRAWN BY: SEAN SWEENEY
PROPOSED CROSS-SECTION 15	DATE: DECEMBER 2004	SHEET 16 OF 30

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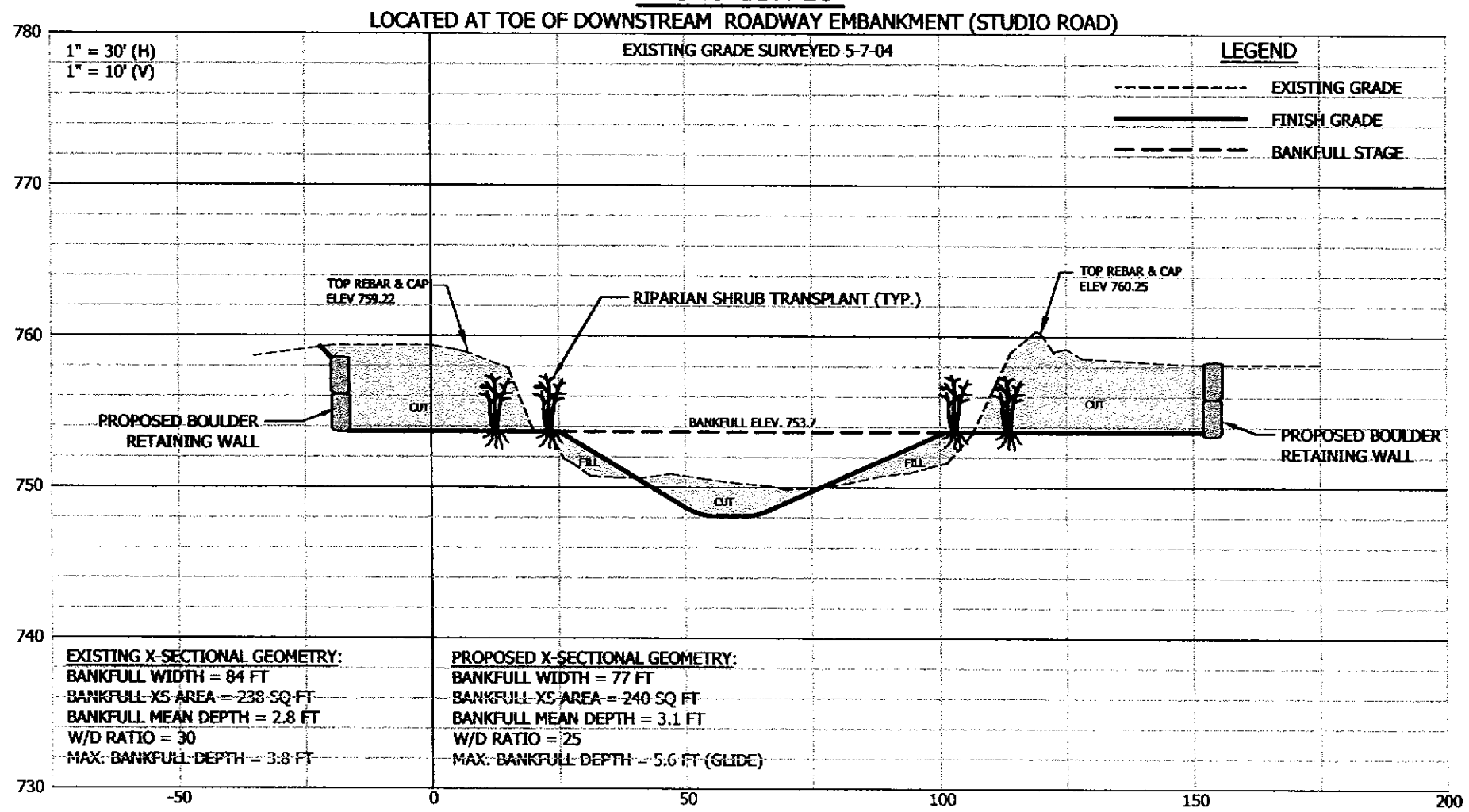
X-SECTION 16

LOCATED AT TOE OF DOWNSTREAM ROADWAY EMBANKMENT (STUDIO ROAD)



EXISTING X-SECTIONAL GEOMETRY:
BANKFULL WIDTH = 84 FT
BANKFULL XS AREA = 238 SQ FT
BANKFULL MEAN DEPTH = 2.8 FT
W/D RATIO = 30
MAX. BANKFULL DEPTH = 3.8 FT

PROPOSED X-SECTIONAL GEOMETRY:
BANKFULL WIDTH = 77 FT
BANKFULL XS AREA = 240 SQ FT
BANKFULL MEAN DEPTH = 3.1 FT
W/D RATIO = 25
MAX. BANKFULL DEPTH = 5.6 FT (GLIDE)

BAKER RIVER RESTORATION PROJECT WARREN, NH	DESIGNED BY: SEAN SWEENEY	DRAWN BY: SEAN SWEENEY
PROPOSED CROSS-SECTION 16	DATE: DECEMBER 2004	SHEET 17 OF 30

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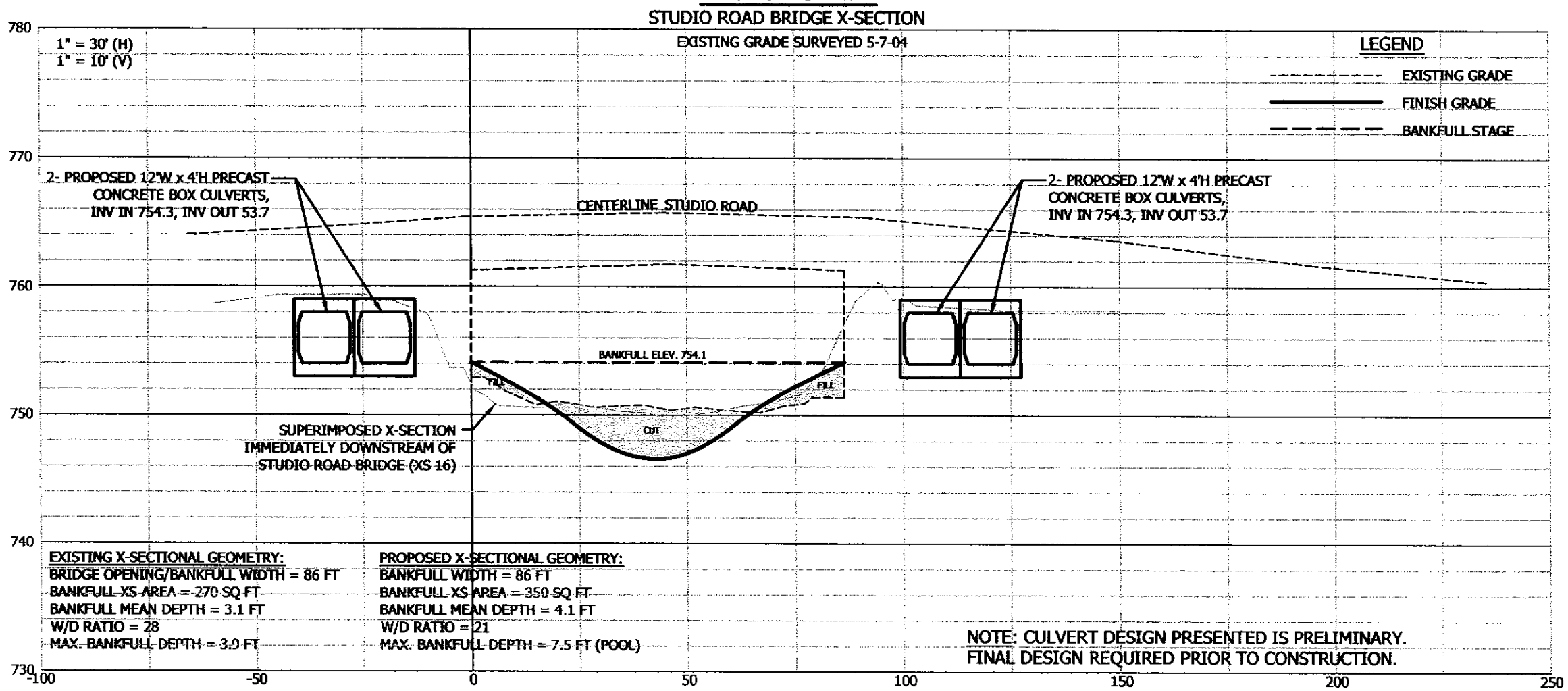
X-SECTION 17

STUDIO ROAD BRIDGE X-SECTION



EXISTING X-SECTIONAL GEOMETRY:	PROPOSED X-SECTIONAL GEOMETRY:
BRIDGE OPENING/BANKFULL WIDTH = 86 FT	BANKFULL WIDTH = 86 FT
BANKFULL XS AREA = 270 SQ FT	BANKFULL XS AREA = 350 SQ FT
BANKFULL MEAN DEPTH = 3.1 FT	BANKFULL MEAN DEPTH = 4.1 FT
W/D RATIO = 28	W/D RATIO = 21
MAX. BANKFULL DEPTH = 3.9 FT	MAX. BANKFULL DEPTH = 7.5 FT (POOL)

NOTE: CULVERT DESIGN PRESENTED IS PRELIMINARY.
FINAL DESIGN REQUIRED PRIOR TO CONSTRUCTION.

BAKER RIVER RESTORATION PROJECT WARREN, NH	DESIGNED BY: SEAN SWEENEY	DRAWN BY: SEAN SWEENEY
PROPOSED CROSS-SECTION 17	DATE: DECEMBER 2004	SHEET 18 OF 30

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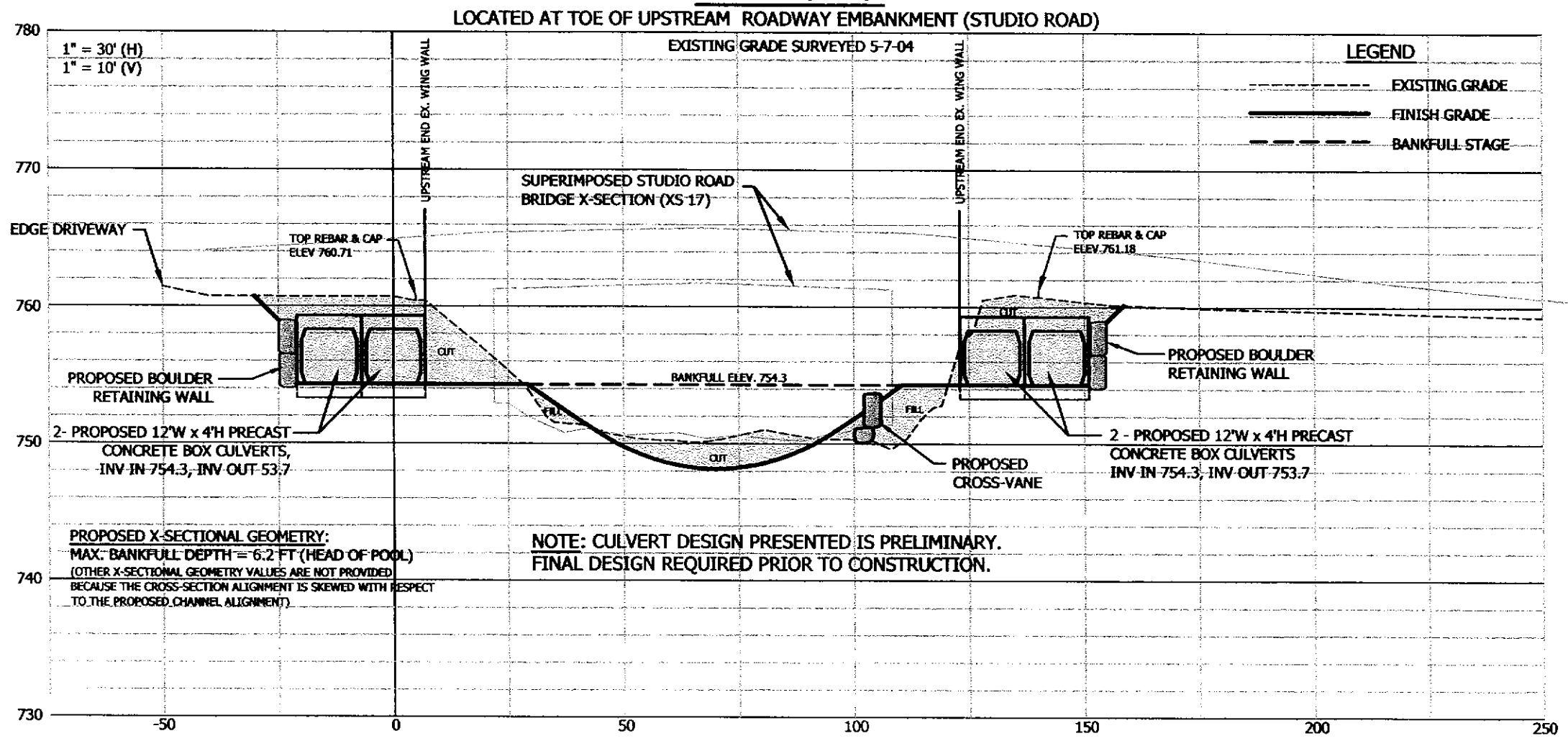
X-SECTION 18

LOCATED AT TOE OF UPSTREAM ROADWAY EMBANKMENT (STUDIO ROAD)



PROPOSED X-SECTIONAL GEOMETRY:
MAX. BANKFULL DEPTH = 6.2 FT (HEAD OF POOL)
(OTHER X-SECTIONAL GEOMETRY VALUES ARE NOT PROVIDED BECAUSE THE CROSS-SECTION ALIGNMENT IS SKEWED WITH RESPECT TO THE PROPOSED CHANNEL ALIGNMENT)

NOTE: CULVERT DESIGN PRESENTED IS PRELIMINARY.
FINAL DESIGN REQUIRED PRIOR TO CONSTRUCTION.

BAKER RIVER RESTORATION PROJECT WARREN, NH	DESIGNED BY: SEAN SWEENEY	DRAWN BY: SEAN SWEENEY
PROPOSED CROSS-SECTION 18	DATE: DECEMBER 2004	SHEET 19 OF 30

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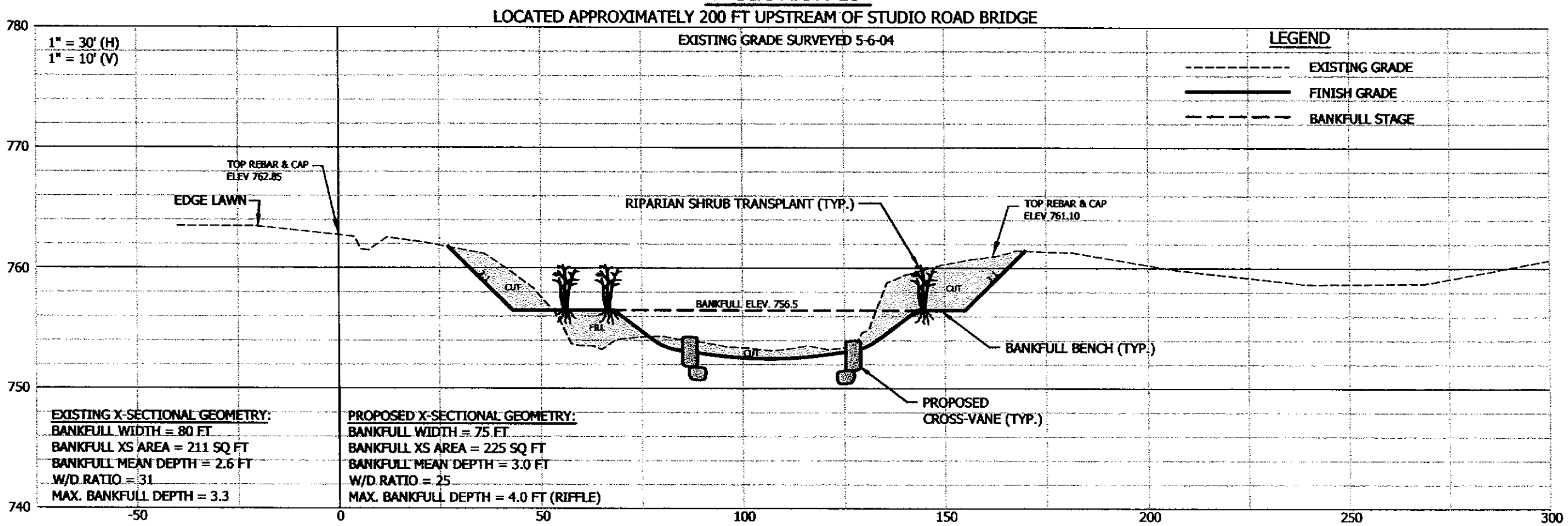
X-SECTION 19

LOCATED APPROXIMATELY 200 FT UPSTREAM OF STUDIO ROAD BRIDGE



EXISTING X-SECTIONAL GEOMETRY:
BANKFULL WIDTH = 80 FT
BANKFULL XS AREA = 211 SQ FT
BANKFULL MEAN DEPTH = 2.6 FT
W/D RATIO = 31
MAX. BANKFULL DEPTH = 3.3

PROPOSED X-SECTIONAL GEOMETRY:
BANKFULL WIDTH = 75 FT
BANKFULL XS AREA = 225 SQ FT
BANKFULL MEAN DEPTH = 3.0 FT
W/D RATIO = 25
MAX. BANKFULL DEPTH = 4.0 FT (RIFFLE)

BAKER RIVER RESTORATION PROJECT WARREN, NH	DESIGNED BY: SEAN SWEENEY	DRAWN BY: SEAN SWEENEY
PROPOSED CROSS-SECTION 19	DATE: DECEMBER 2004	SHEET 20 OF 30

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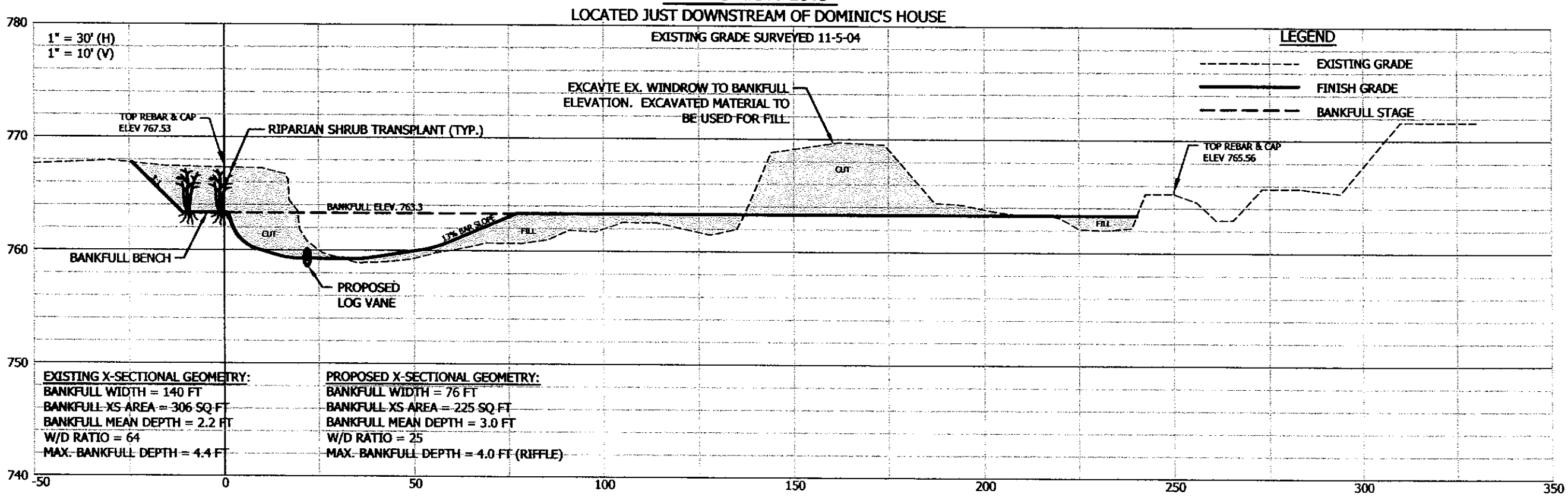
X-SECTION 19.5

LOCATED JUST DOWNSTREAM OF DOMINIC'S HOUSE



EXISTING X-SECTIONAL GEOMETRY:	PROPOSED X-SECTIONAL GEOMETRY:
BANKFULL WIDTH = 140 FT	BANKFULL WIDTH = 76 FT
BANKFULL XS AREA = 306 SQ FT	BANKFULL XS AREA = 225 SQ FT
BANKFULL MEAN DEPTH = 2.2 FT	BANKFULL MEAN DEPTH = 3.0 FT
W/D RATIO = 64	W/D RATIO = 25
MAX. BANKFULL DEPTH = 4.4 FT	MAX. BANKFULL DEPTH = 4.0 FT (RIFFLE)

BAKER RIVER RESTORATION PROJECT WARREN, NH	DESIGNED BY: SEAN SWEENEY	DRAWN BY: SEAN SWEENEY
PROPOSED CROSS-SECTION 19.5	DATE: DECEMBER 2004	SHEET 21 OF 30

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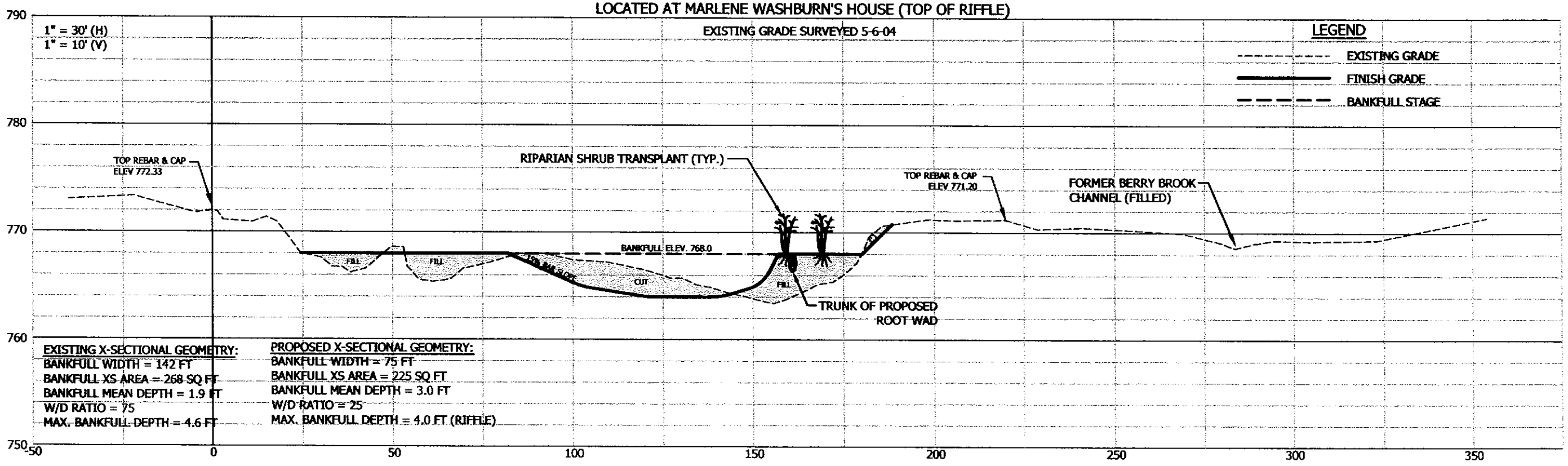
X-SECTION 20

LOCATED AT MARLENE WASHBURN'S HOUSE (TOP OF RIFFLE)



EXISTING X-SECTIONAL GEOMETRY:
BANKFULL WIDTH = 142 FT
BANKFULL XS AREA = 268 SQ FT
BANKFULL MEAN DEPTH = 1.9 FT
W/D RATIO = 75
MAX. BANKFULL DEPTH = 4.6 FT

PROPOSED X-SECTIONAL GEOMETRY:
BANKFULL WIDTH = 75 FT
BANKFULL XS AREA = 225 SQ FT
BANKFULL MEAN DEPTH = 3.0 FT
W/D RATIO = 25
MAX. BANKFULL DEPTH = 4.0 FT (RIFFLE)

BAKER RIVER RESTORATION PROJECT WARREN, NH	DESIGNED BY: SEAN SWEENEY	DRAWN BY: SEAN SWEENEY
PROPOSED CROSS-SECTION 20	DATE: DECEMBER 2004	SHEET 22 OF 30

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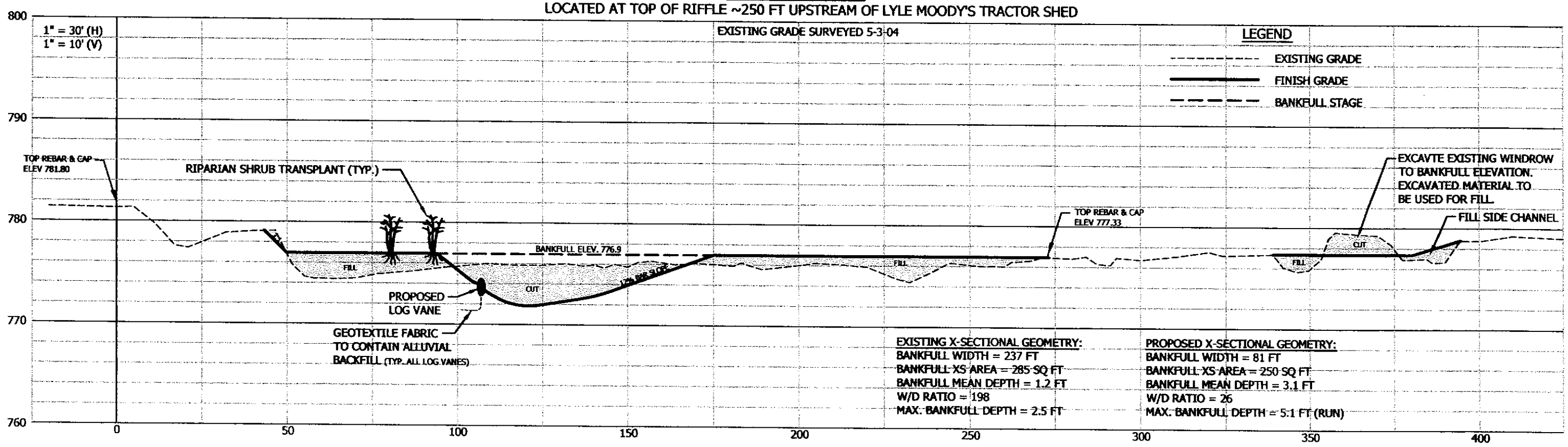
X-SECTION 21

LOCATED AT TOP OF RIFFLE ~250 FT UPSTREAM OF LYLE MOODY'S TRACTOR SHED



EXISTING X-SECTIONAL GEOMETRY:
BANKFULL WIDTH = 237 FT
BANKFULL XS AREA = 285 SQ FT
BANKFULL MEAN DEPTH = 1.2 FT
W/D RATIO = 198
MAX. BANKFULL DEPTH = 2.5 FT

PROPOSED X-SECTIONAL GEOMETRY:
BANKFULL WIDTH = 81 FT
BANKFULL XS AREA = 250 SQ FT
BANKFULL MEAN DEPTH = 3.1 FT
W/D RATIO = 26
MAX. BANKFULL DEPTH = 5.1 FT (RUN)

BAKER RIVER RESTORATION PROJECT WARREN, NH	DESIGNED BY: SEAN SWEENEY	DRAWN BY: SEAN SWEENEY
PROPOSED CROSS-SECTION 21	DATE: DECEMBER 2004	SHEET 23 OF 30

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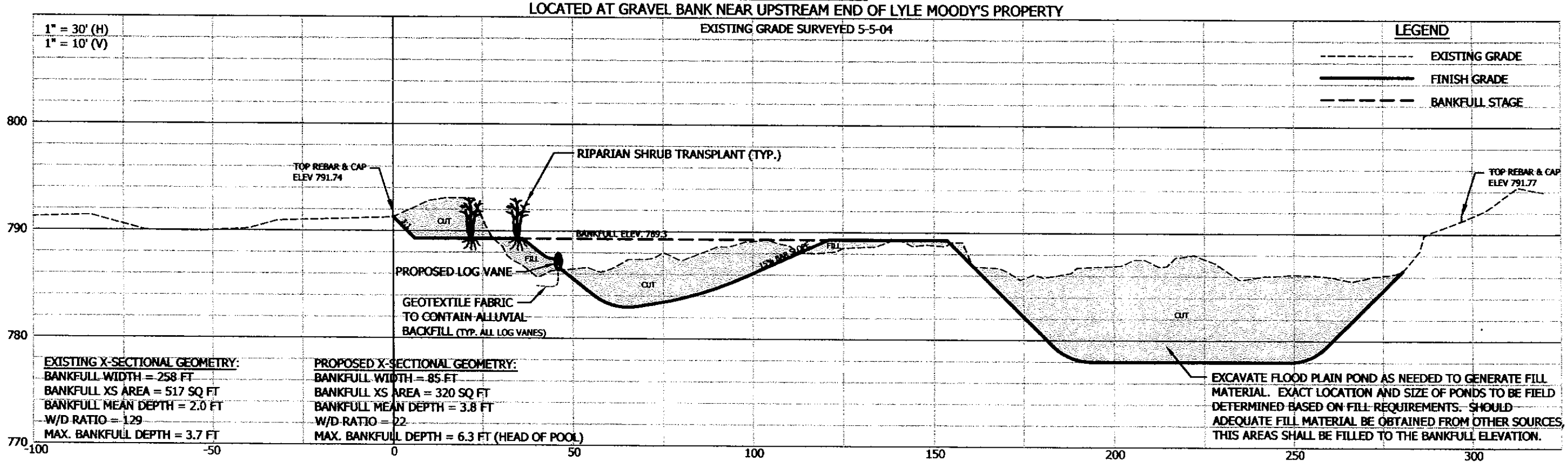
X-SECTION 22

LOCATED AT GRAVEL BANK NEAR UPSTREAM END OF LYLE MOODY'S PROPERTY



EXISTING X-SECTIONAL GEOMETRY:
BANKFULL WIDTH = 258 FT
BANKFULL XS AREA = 517 SQ FT
BANKFULL MEAN DEPTH = 2.0 FT
W/D RATIO = 129
MAX. BANKFULL DEPTH = 3.7 FT

PROPOSED X-SECTIONAL GEOMETRY:
BANKFULL WIDTH = 85 FT
BANKFULL XS AREA = 320 SQ FT
BANKFULL MEAN DEPTH = 3.8 FT
W/D RATIO = 22
MAX. BANKFULL DEPTH = 6.3 FT (HEAD OF POOL)

BAKER RIVER RESTORATION PROJECT WARREN, NH	DESIGNED BY: SEAN SWEENEY	DRAWN BY: SEAN SWEENEY
PROPOSED CROSS-SECTION 22	DATE: DECEMBER 2004	SHEET 24 OF 30

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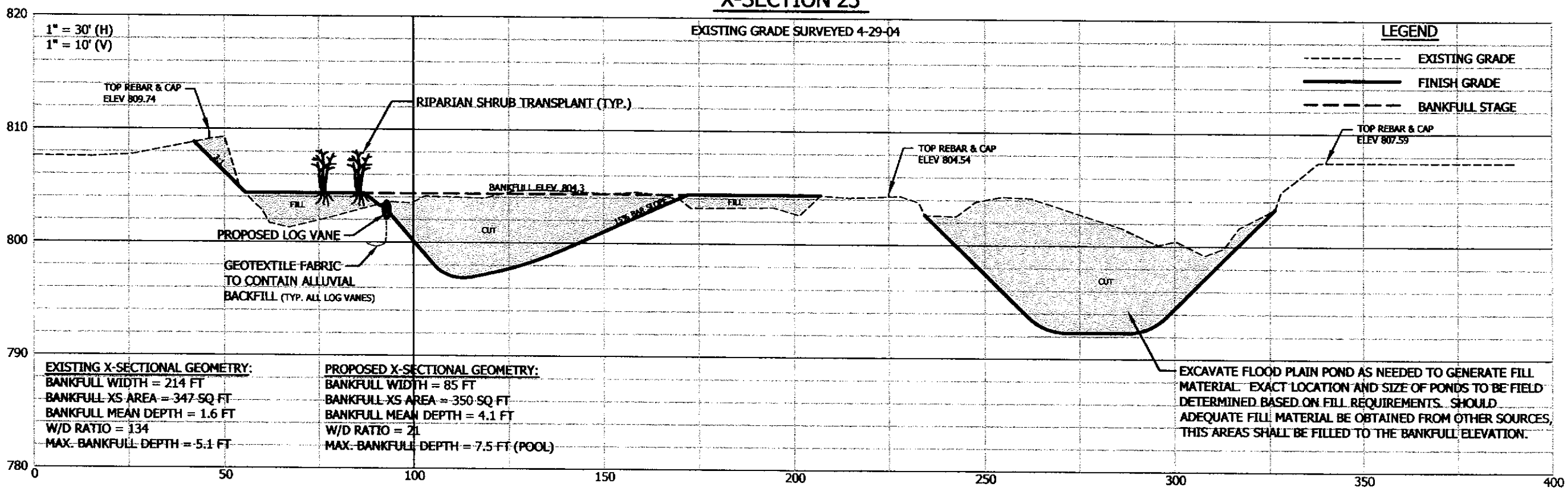
X-SECTION 23



EXISTING X-SECTIONAL GEOMETRY:
BANKFULL WIDTH = 214 FT
BANKFULL XS AREA = 347 SQ FT
BANKFULL MEAN DEPTH = 1.6 FT
W/D RATIO = 134
MAX. BANKFULL DEPTH = 5.1 FT

PROPOSED X-SECTIONAL GEOMETRY:
BANKFULL WIDTH = 85 FT
BANKFULL XS AREA = 350 SQ FT
BANKFULL MEAN DEPTH = 4.1 FT
W/D RATIO = 21
MAX. BANKFULL DEPTH = 7.5 FT (POOL)

BAKER RIVER RESTORATION PROJECT WARREN, NH	DESIGNED BY: SEAN SWEENEY	DRAWN BY: SEAN SWEENEY
PROPOSED CROSS-SECTION 23	DATE: DECEMBER 2004	SHEET 25 OF 30

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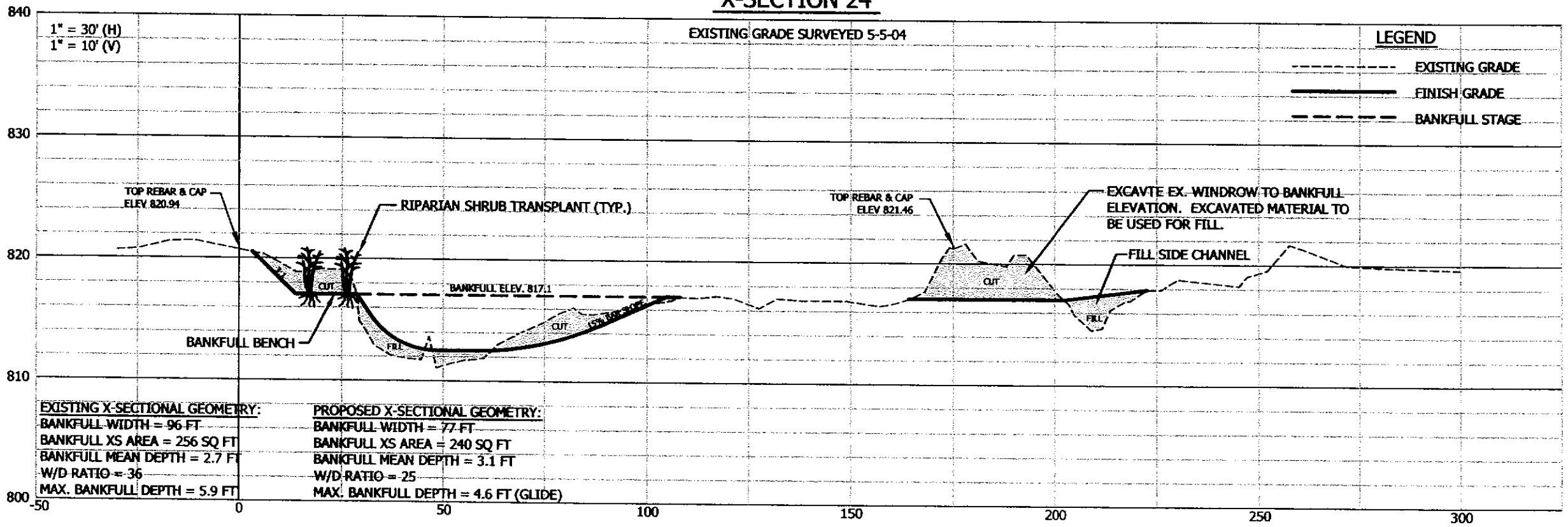
X-SECTION 24



BAKER RIVER RESTORATION PROJECT WARREN, NH PROPOSED CROSS-SECTION 24	DESIGNED BY: SEAN SWEENEY DATE: DECEMBER 2004	DRAWN BY: SEAN SWEENEY SHEET 26 OF 30

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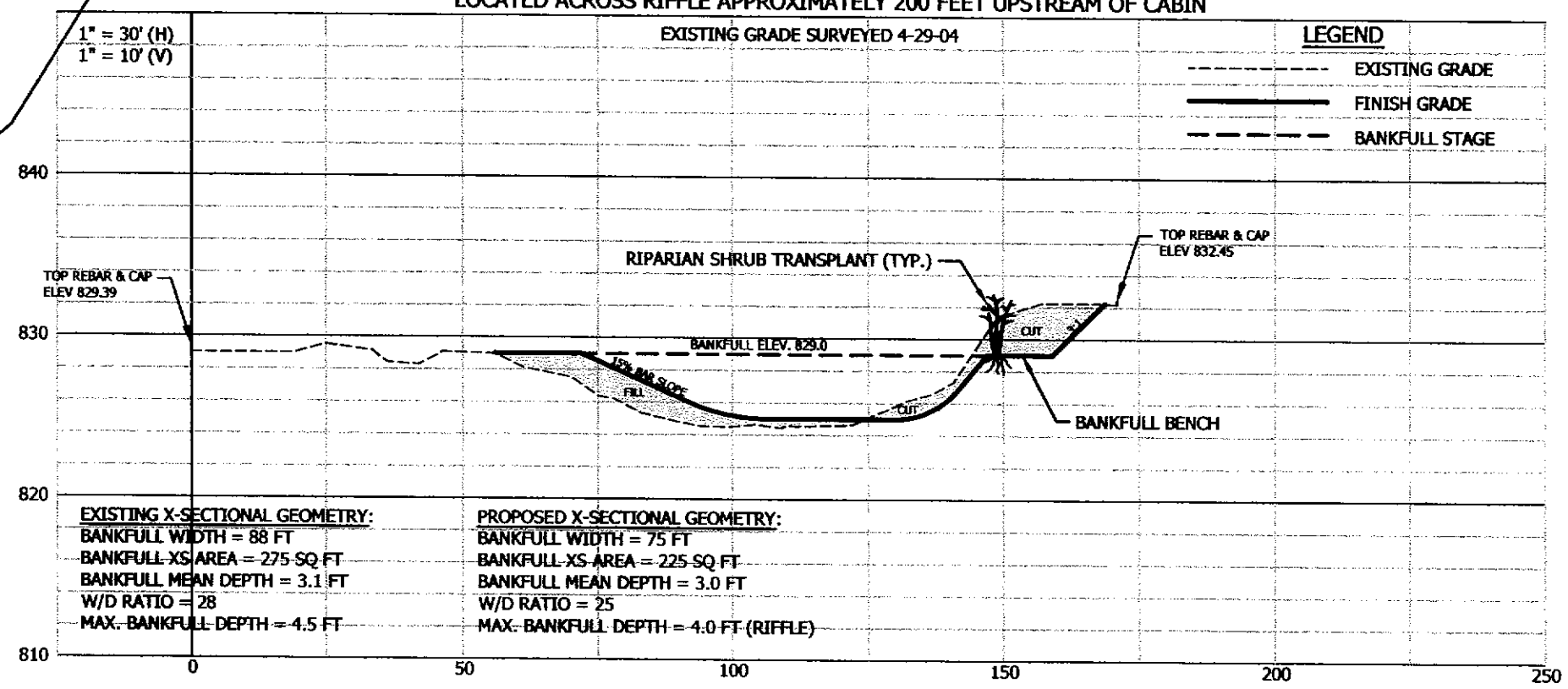
X-SECTION 25

LOCATED ACROSS RIFFLE APPROXIMATELY 200 FEET UPSTREAM OF CABIN



EXISTING X-SECTIONAL GEOMETRY:
BANKFULL WIDTH = 88 FT
BANKFULL XS AREA = 275 SQ FT
BANKFULL MEAN DEPTH = 3.1 FT
W/D RATIO = 28
MAX. BANKFULL DEPTH = 4.5 FT

PROPOSED X-SECTIONAL GEOMETRY:
BANKFULL WIDTH = 75 FT
BANKFULL XS AREA = 225 SQ FT
BANKFULL MEAN DEPTH = 3.0 FT
W/D RATIO = 25
MAX. BANKFULL DEPTH = 4.0 FT (RIFFLE)

BAKER RIVER RESTORATION PROJECT WARREN, NH	DESIGNED BY: SEAN SWEENEY	DRAWN BY: SEAN SWEENEY
PROPOSED CROSS-SECTION 25	DATE: DECEMBER 2004	SHEET 27 OF 30

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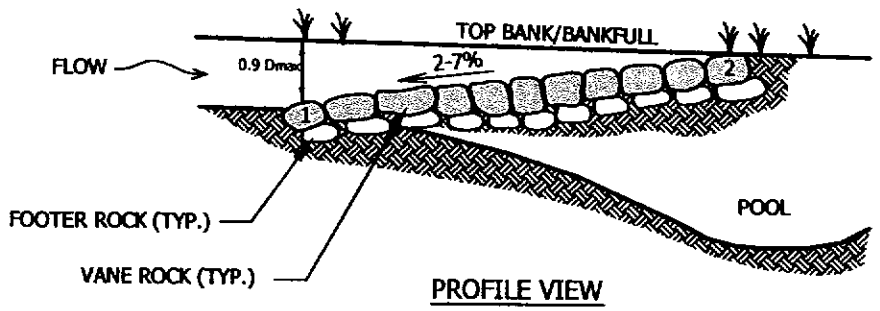
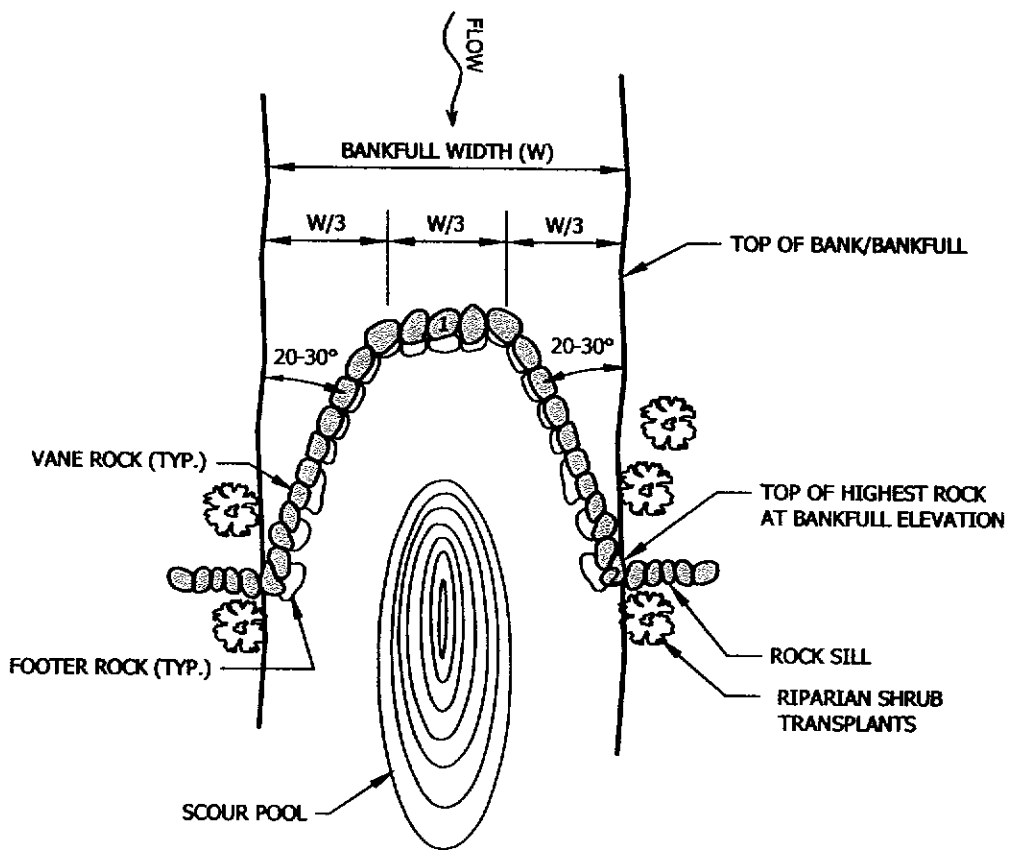


PROFILE VIEW



PLAN VIEW

NOTES:

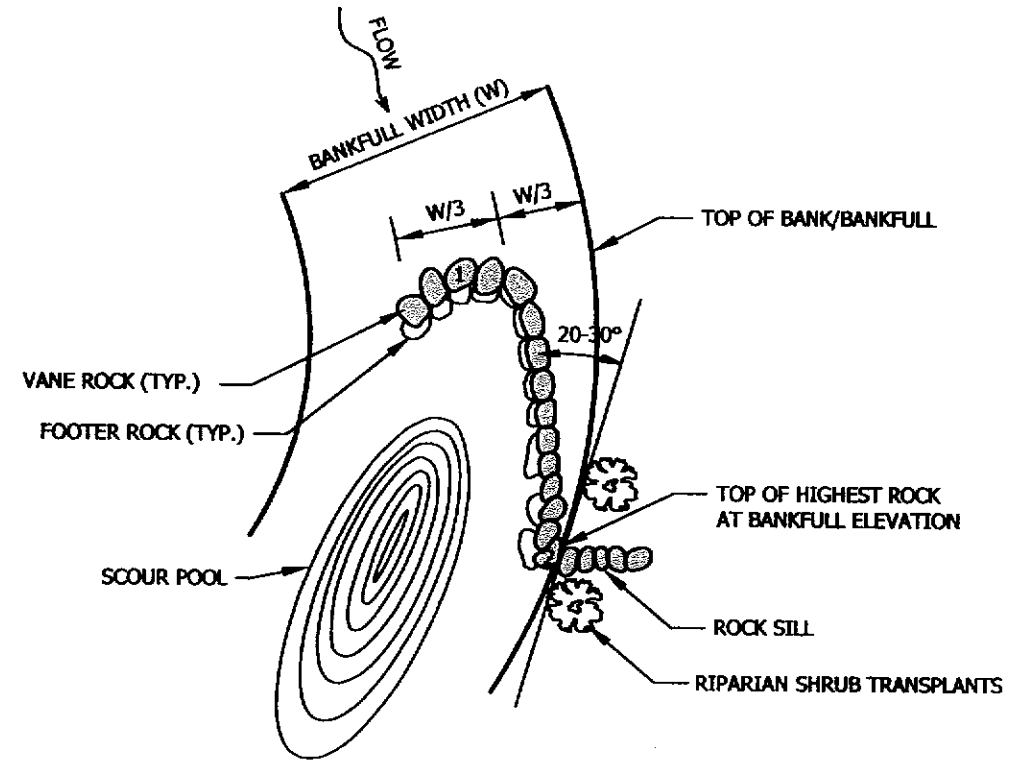
1. ALL VANE ROCKS AND FOOTER ROCKS SHALL HAVE AT LEAST TWO RELATIVELY FLAT FACES ON OPPOSING SIDES SO AS TO BE SUITABLE FOR STACKING. ROUND ROCKS ARE NOT ACCEPTABLE.

2. THE MINIMUM VANE ROCK THICKNESS SHALL BE 2 FT AND THE MINIMUM LARGEST DIMENSION (I.E. WIDTH OR LENGTH) SHALL BE 3.5 FT.

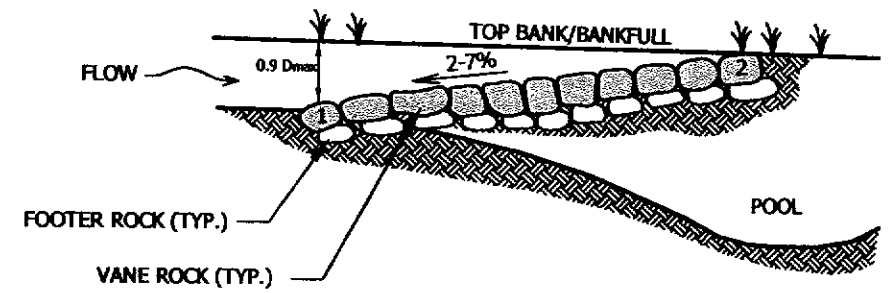
3. THE MINIMUM FOOTER ROCK THICKNESS SHALL BE 1 FT AND THE MINIMUM LARGEST DIMENSION (I.E. WIDTH OR LENGTH) SHALL BE 2.5 FT.

CROSS-VANE DETAIL

NOT TO SCALE



PLAN VIEW



PROFILE VIEW

NOTES:

1. A SEPARATE DETAIL FOR A ROCK VANE (I.E. WITHOUT THE J-HOOK) HAS NOT BEEN PROVIDED. THE ROCK VANE IS CONSTRUCTED IN THE SAME MANNER AS THE J-HOOK ROCK VANE WITH THE EXCEPTIONS THAT THE 'J-HOOK' OCCUPYING THE MIDDLE 1/3 OF THE CHANNEL AND THE SCOUR POOL DOWNSTREAM OF THE STRUCTURE ARE OMMITTED

2. ALL VANE ROCKS AND FOOTER ROCKS SHALL HAVE AT LEAST TWO RELATIVELY FLAT FACES ON OPPOSING SIDES SO AS TO BE SUITABLE FOR STACKING. ROUND ROCKS ARE NOT ACCEPTABLE.

3. THE MINIMUM VANE ROCK THICKNESS SHALL BE 2 FT AND THE MINIMUM LARGEST DIMENSION (I.E. WIDTH OR LENGTH) SHALL BE 3.5 FT.

4. THE MINIMUM FOOTER ROCK THICKNESS SHALL BE 1 FT AND THE MINIMUM LARGEST DIMENSION (I.E. WIDTH OR LENGTH) SHALL BE 2.5 FT.

J-HOOK ROCK VANE DETAIL

NOT TO SCALE

BAKER RIVER RESTORATION PROJECT WARREN, NH	DESIGNED BY: SEAN SWEENEY	DRAWN BY: SEAN SWEENEY
CROSS-VANE AND J-HOOK ROCK VANE DETAILS	DATE: DECEMBER 2004	SHEET 28 OF 30

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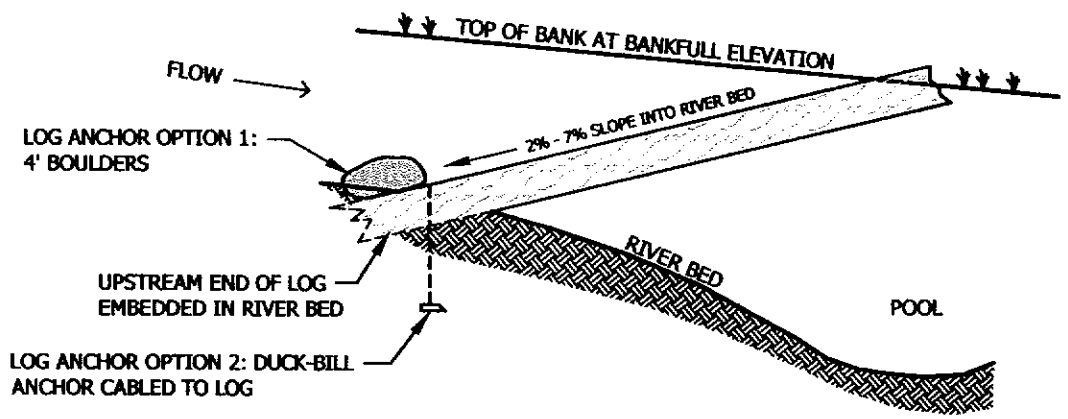
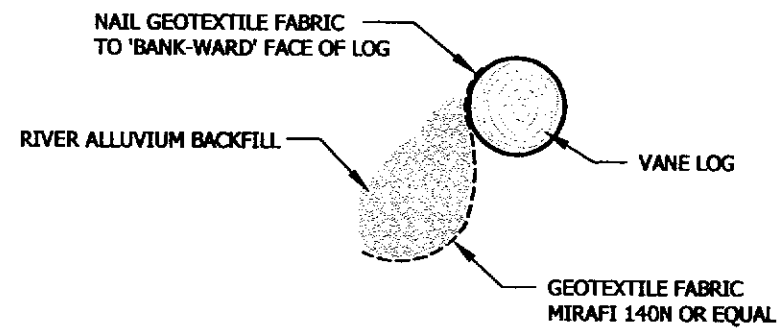
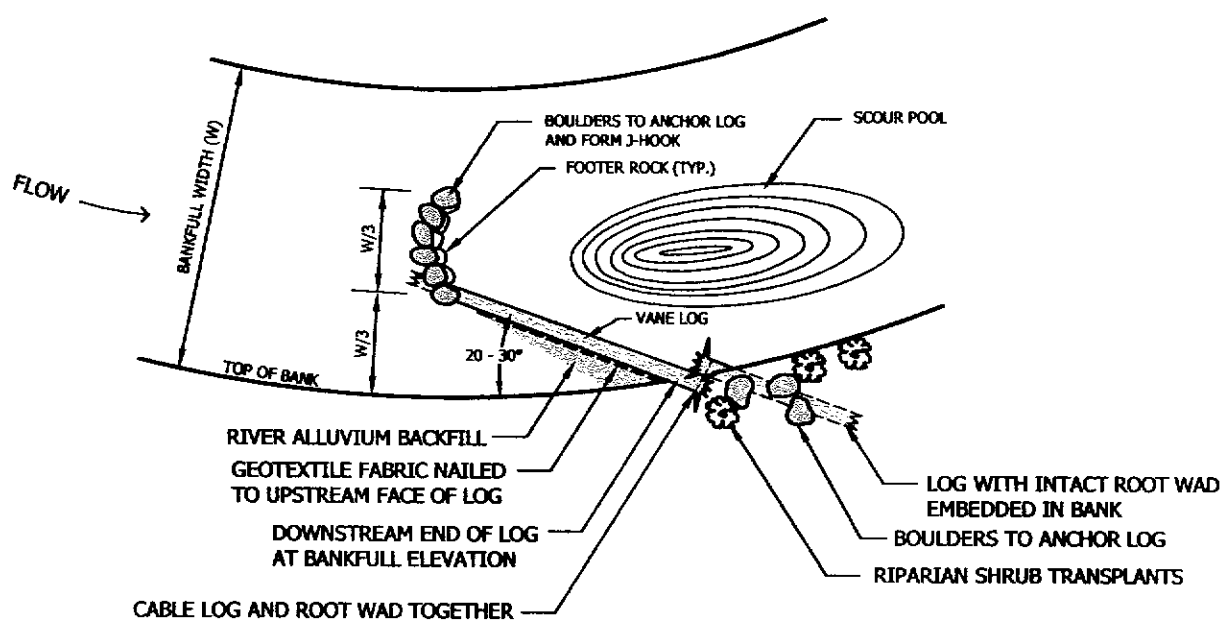


PROFILE VIEW



LOG WITH GEOTEXTILE



PLAN VIEW

LOG VANE WITH ROCK J-HOOK DETAIL

NOT TO SCALE

NOTES:

1. A SEPARATE DETAIL FOR A LOG VANE (I.E. WITHOUT THE J-HOOK) HAS NOT BEEN PROVIDED. THE LOG VANE IS CONSTRUCTED IN THE SAME MANNER AS THE LOG VANE WITH ROCK J-HOOK WITH THE EXCEPTIONS THAT THE ROCK J-HOOK OCCUPYING THE MIDDLE 1/3 OF THE CHANNEL AND THE SCOUR POOL DOWNSTREAM OF THE STRUCTURE ARE OMMITTED

2. THE MINIMUM LENGTH OF THE VANE LOG SHALL BE 55 FT. VANE LOGS SHALL BE RELATIVELY STRAIGHT. TWO LOGS MAY BE CABLED TOGETHER TO ACHIEVE THE REQUIRED LENGTH.

3. THE MINIMUM TRUNK LENGTH OF THE LOG WITH INTACT ROOT WAD SHALL BE 15 FT.

4. ALL J-HOOK ROCKS AND FOOTER ROCKS SHALL HAVE AT LEAST TWO RELATIVELY FLAT FACES ON OPPOSING SIDES SO AS TO BE SUITABLE FOR STACKING. ROUND ROCKS ARE NOT ACCEPTABLE.

5. THE MINIMUM J-HOOK ROCK THICKNESS SHALL BE 2 FT AND THE MINIMUM LARGEST DIMENSION (I.E. WIDTH OR LENGTH) SHALL BE 3.5 FT.

6. THE MINIMUM FOOTER ROCK THICKNESS SHALL BE 1 FT AND THE MINIMUM LARGEST DIMENSION (I.E. WIDTH OR LENGTH) SHALL BE 2.5 FT.

7. DUCK-BILL ANCHORS AND THE DRIVER REQUIRED FOR INSTALLATION MAY BE OBTAINED FROM FORESIGHT PRODUCTS, (303) 286-8955.

BAKER RIVER RESTORATION PROJECT WARREN, NH	DESIGNED BY: SEAN SWEENEY	DRAWN BY: SEAN SWEENEY
LOG VANE WITH ROCK J-HOOK DETAIL	DATE: DECEMBER 2004	SHEET 29 OF 30

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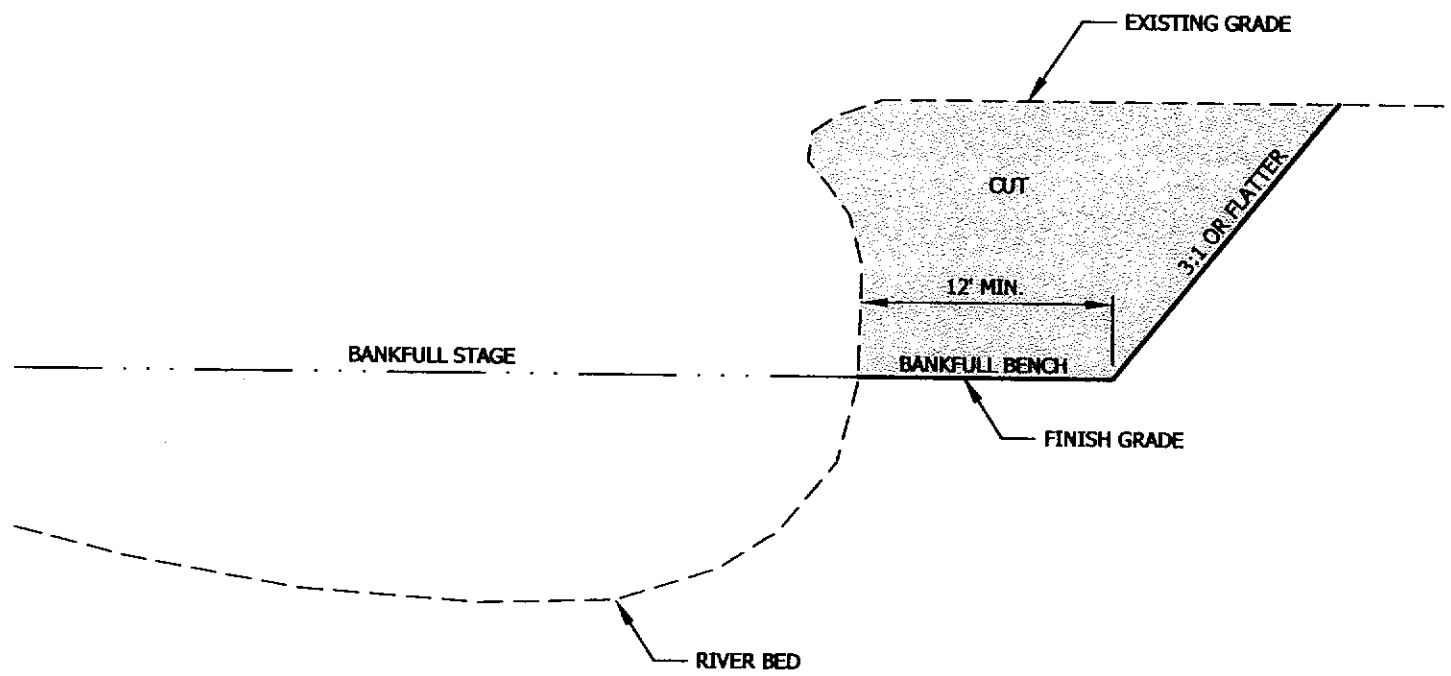

NOTES:

1. TOPSOIL SHALL BE SALVAGED FROM EXCAVATION AREAS AND APPLIED TO BANKFULL BENCH AND SLOPE. SEED AND MULCH TOPSOILED AREAS.

2. INSTALL RIPARIAN SHRUB TRANSPLANTS ON BANKFULL BENCH.

3. EXISTING TREES WITHIN EXCAVATION AREAS SHALL BE REMOVED. THOSE OF SUFFICIENT LENGTH SHALL BE USED FOR LOG VANE STRUCTURES OR EMBEDDED IN FILL AREAS FOR FLOOD PLAIN GRADE CONTROL. SAPLINGS AND OTHER SMALL TREES SHALL BE BURIED IN AREAS TO BE FILLED.

BANKFULL BENCH DETAIL

NOT TO SCALE

GENERAL NOTES:

1. THE INTENT OF THESE PLANS IS TO RESTORE A STABLE SINGLE THREAD CHANNEL WITH THE COMPETENCE TO TRANSPORT THE SEDIMENT AND BEDLOAD DELIVERED BY UPSTREAM SOURCES.

2. THESE PLANS HAVE BEEN PREPARED WITH THE INTENT THAT FULL TIME ON-SITE CONSTRUCTION SUPERVISION BE PROVIDED BY THE DESIGN ENGINEER OR SIMILARLY QUALIFIED INDIVIDUAL. UNDER NO CIRCUMSTANCES SHALL IMPLEMENTATION OF THESE PLANS OCCUR WITHOUT SAID SUPERVISION.

3. CONSTRUCTION SHALL ONLY PROCEED AFTER RECEIPT OF ALL REQUIRED STATE AND FEDERAL PERMITS. THE CONTRACTOR SHALL ABIDE BY THE SITE-SPECIFIC CONDITIONS OF THESE PERMITS.

5. CONSTRUCTION SHALL BE SCHEDULED FOR AN ICE-FREE PERIOD WHEN LOW FLOWS TYPICALLY OCCUR (I.E. NOT DURING WINTER OR SPRING RUNOFF).

6. CONSTRUCTION SHALL PROCEED IN A MANNER WHICH LIMITS THE AMOUNT OF IN-STREAM DISTURBANCE OCCURRING AT ANY ONE TIME.

7. TO THE GREATEST EXTENT PRACTICABLE, THE CONTRACTOR SHALL MINIMIZE THE TIME CONSTRUCTION EQUIPMENT WORKS IN FLOWING WATER.

8. THE TYPICAL CHANNEL CROSS-SECTION AT A RIFFLE BED FEATURE SHALL HAVE THE FOLLOWING DIMENSIONS:

BANKFULL WIDTH = 75 FT
BANKFULL X-SECTIONAL AREA = 225 SQ FT
MEAN BANKFULL DEPTH = 3.0 FT
MAXIMUM BANKFULL DEPTH = 4.0 FT
WIDTH TO DEPTH RATIO = 25

9. THE MAXIMUM BANKFULL DEPTH FOR POOLS SHALL BE 7.5 FT

10. OTHER BED FEATURES (I.E. RUNS AND GLIDES) SHALL BE SHAPED AS DIRECTED IN THE FIELD BY THE INDIVIDUAL RESPONSIBLE FOR CONSTRUCTION SUPERVISION.

BAKER RIVER RESTORATION PROJECT WARREN, NH	DESIGNED BY: SEAN SWEENEY	DRAWN BY: SEAN SWEENEY
BANKFULL BENCH DETAIL AND GENERAL NOTES	DATE: DECEMBER 2004	SHEET 30 OF 30

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