

EXHIBIT 1

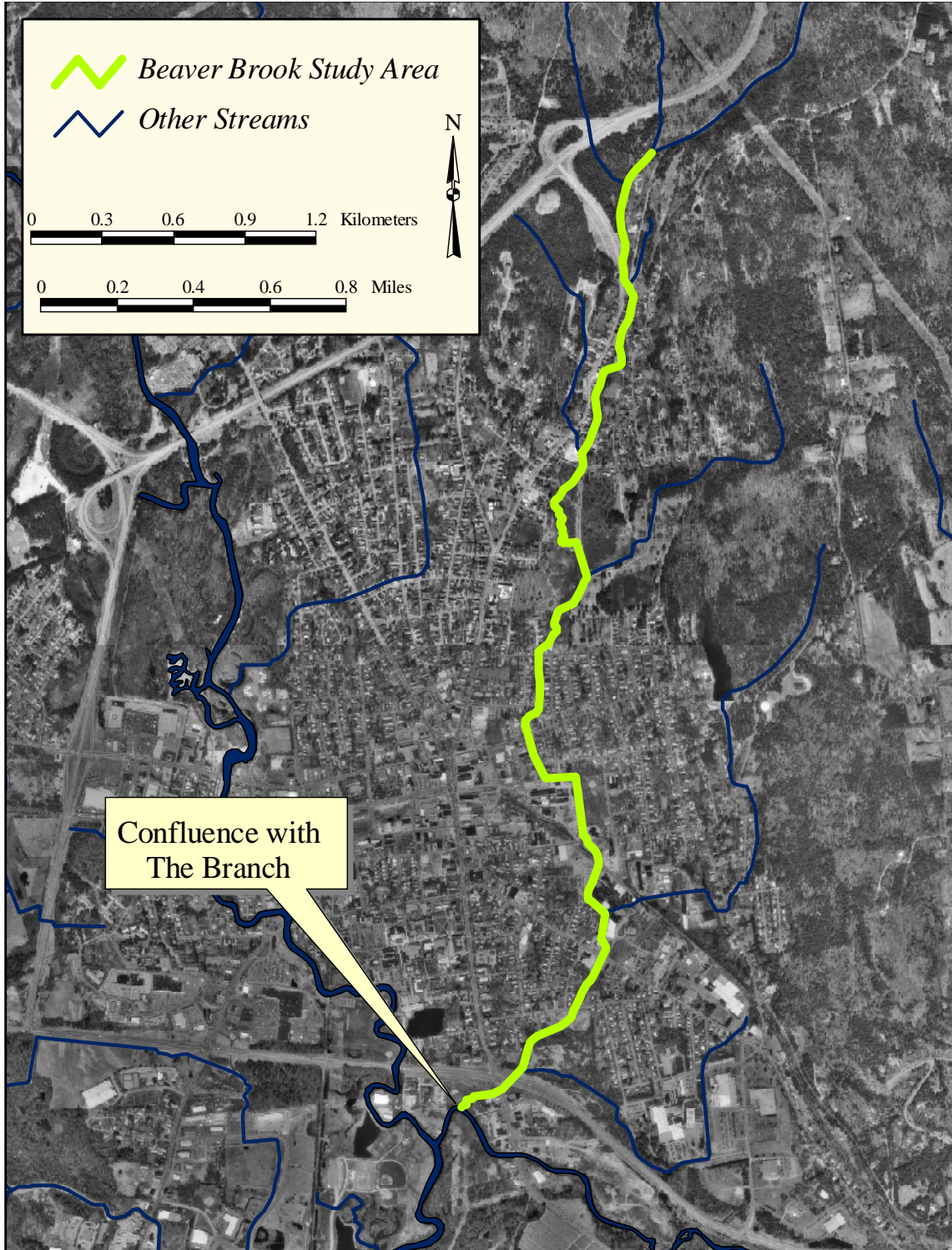
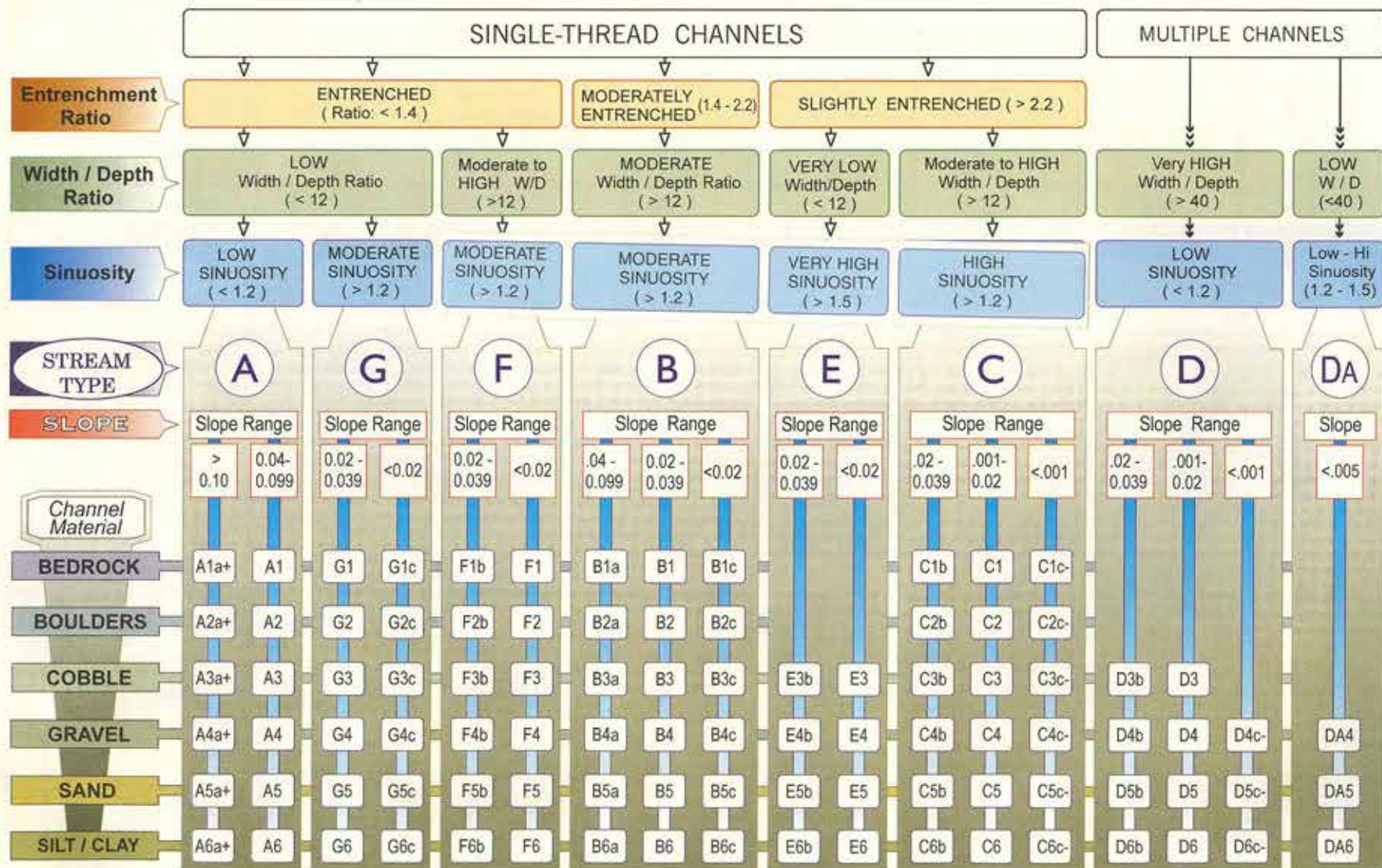


EXHIBIT 2



KEY to the **ROSGEN** CLASSIFICATION of NATURAL RIVERS. As a function of the "continuum of physical variables" within stream reaches, values of **Entrenchment** and **Sinuosity** ratios can vary by +/- 0.2 units; while values for **Width / Depth** ratios can vary by +/- 2.0 units.

FIGURE 5-3. Classification key for natural rivers.

EXHIBIT 3

BEAVER BROOK HABITAT ASSESSMENT WATERSHED DELINEATION

DRAINAGE AREA = 10.4 SQ MI

BEAVER BROOK
WATERSHED BOUNDARY

DRAINAGE AREA AT
UPSTREAM END OF
STUDY AREA: 7.1 SQ MI

BANKFULL HYDRAULIC GEOMETRY ESTIMATES

FOR 10.4 SQ MI DRAINAGE AREA :

<u>NH CURVES</u>	<u>VT CURVES</u>
A = 90 SF	A = 72 SF
W = 38 FT	W = 37 FT
D = 2.4 FT	D = 1.9 FT

FOR 7.1 SQ MI DRAINAGE AREA :

<u>NH CURVES</u>	<u>VT CURVES</u>
A = 67 SF	A = 54 SF
W = 32 FT	W = 31 FT
D = 2.1 FT	D = 1.7 FT

NOTE: "NH CURVES" REFERS TO THE 2005 NH REGIONAL HYDRAULIC GEOMETRY CURVES (PROVISIONAL) AND "VT CURVES" REFERS TO THE 2006 VERMONT REGIONAL HYDRAULIC GEOMETRY CURVES.

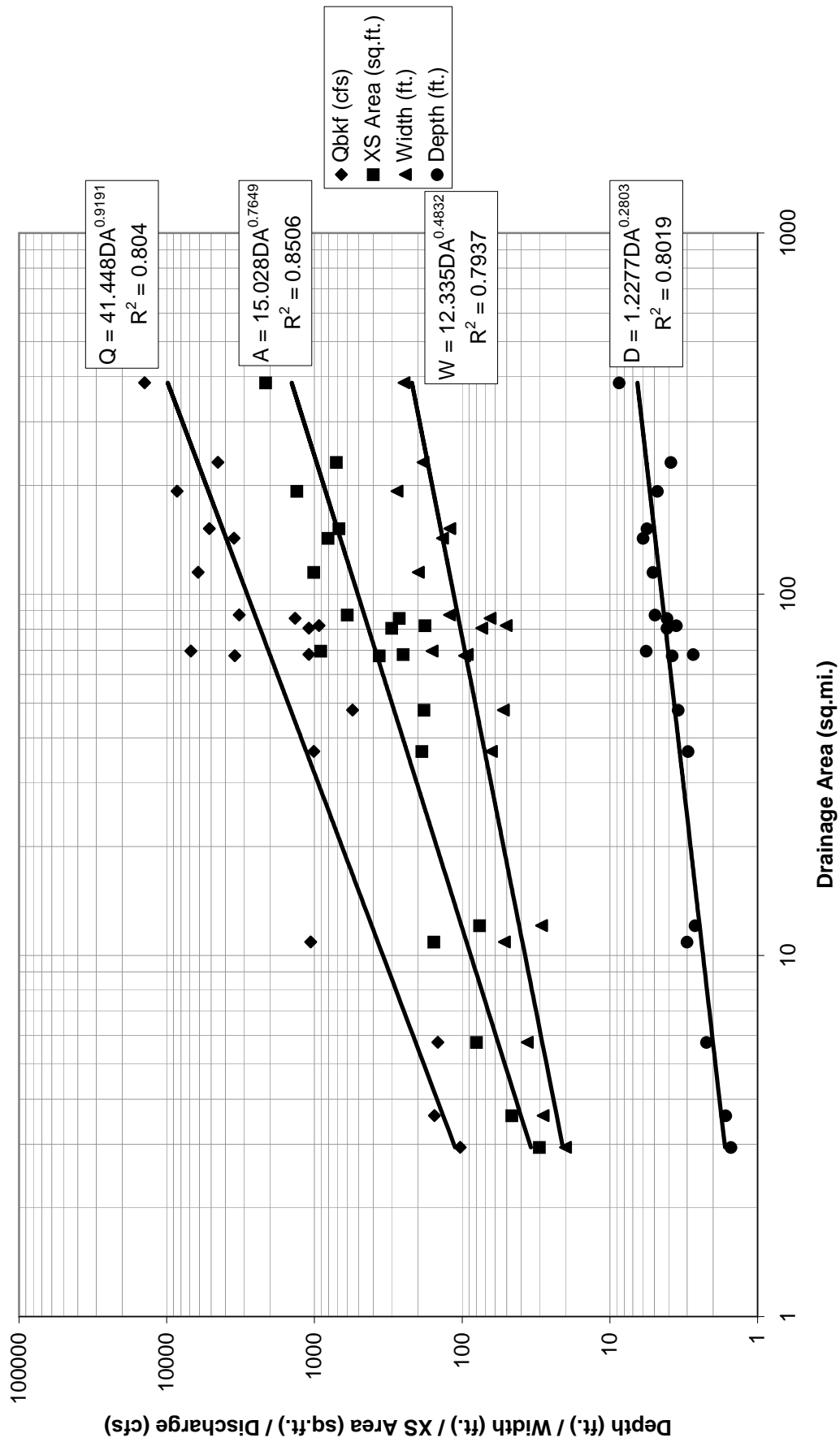
0 2000 4000 8000

SCALE IN FEET



EXHIBIT 4

New Hampshire 2005 Regional Hydraulic Geometry Curves (provisional)



Addition of the 2006 data to the 2001 VT Hydraulic Geometry Curves resulted in a rise in r-squared values for each curve. R-squared values increased from:

- 0.85 to 0.95 for the area regression,
- 0.78 to 0.91 for the width regression and
- 0.59 to 0.87 for the depth regression.

These high r^2 values reveal that drainage area is a very good predictor of bankfull width, depth and cross-sectional area.

To quantify the effect of the 2006 data on bankfull dimension predictions, an analysis of prediction difference was conducted. The results of the analysis are presented in Table 5.

- The difference in predicted cross sectional area, ranges from 0.57 square feet at five square miles to 6.16 square feet at 120 square miles.
- The difference in predicted width decreases from 3.83 feet at five square miles to zero at 66 square miles and then increases to 3.84 feet at 120 square miles.
- The difference in predicted depth decreases from 0.27 feet at five square miles to zero at 120 square miles.

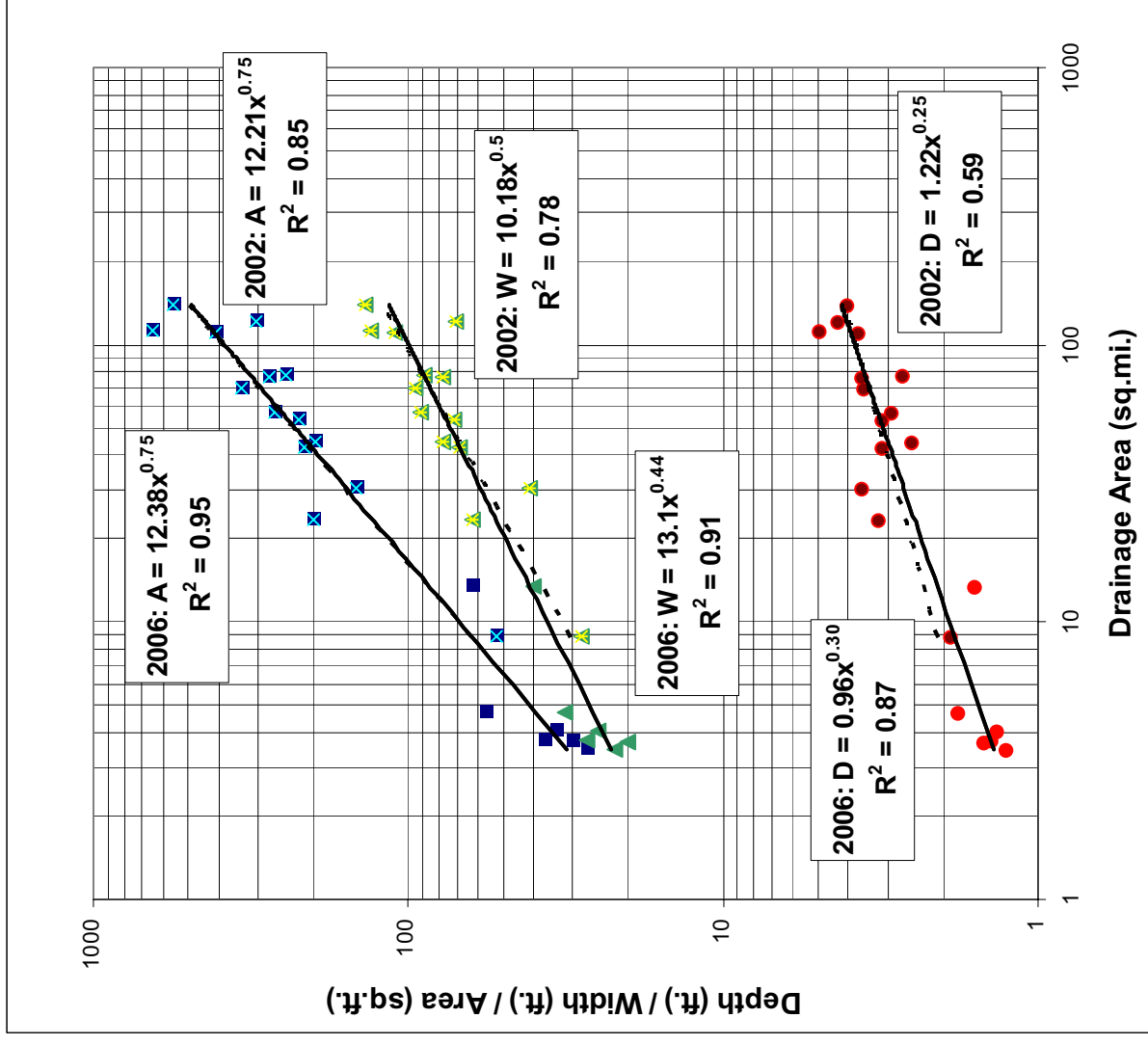


Figure 2. 2001 and 2006 Vermont Hydraulic Geometry Curves. The 2001 curves are presented as dashed lines and 2006 curves as solid lines. 2001 data are presented as dual-colored points and 2006 data as mono-colored points.

EXHIBIT 5

BEHI Form

Stream:

Reach:

Cross Section:

Date:

Crew:

Erodibility Variable/Value	Index	Bank Erosion Potential
----------------------------	-------	------------------------

Bank Height/Bankfull Height

Bank Height (ft) A	Bankfull Height (ft) B	A/B		

Root Depth/Bank Height

Root Depth (ft) C	C/A			

Weighted Root Density

Root Density (%) D	D*(C/A)			

Bank Angle

Bank Angle (degrees)				

Surface Protection

Surface Protection (%)				

Materials: Upper-sandy loam.

Lower-gravel with sand matrix

Stratification: Boundary between sandy loam and gravel

TOTAL SCORE:

Bank Erosion Hazard Index

		Bank Erosion Potential						
		Very Low	Low	Moderate	High	Very High	Extreme	
Erodibility Variable	<i>Bank Height/Bankfull Height</i>	Value	1.0 - 1.1	1.11 - 1.19	1.2 - 1.5	1.6 - 2.0	2.1 - 2.8	>2.8
		Index	1.0 - 1.9	2.0 - 3.9	4.0 - 5.9	6.0 - 7.9	8.0 - 9.0	10
	<i>Root Depth/Bank Height</i>	Value	1.0 - 0.9	0.89 - 0.5	0.49 - 0.3	0.29 - 0.15	0.14 - 0.05	<0.05
		Index	1.0 - 1.9	2.0 - 3.9	4.0 - 5.9	6.0 - 7.9	8.0 - 9.0	10
	<i>Weighted Root Density</i>	Value	100 - 80	79 - 55	54 - 30	29 - 15	14 - 5.0	<5.0
		Index	1.0 - 1.9	2.0 - 3.9	4.0 - 5.9	6.0 - 7.9	8.0 - 9.0	10
	<i>Bank Angle</i>	Value	0 - 20	21 - 60	61 - 80	81 - 90	91 - 119	>119
		Index	1.0 - 1.9	2.0 - 3.9	4.0 - 5.9	6.0 - 7.9	8.0 - 9.0	10
	<i>Surface Protection</i>	Value	100 - 80	79 - 55	54 - 30	29 - 15	14 - 10	<10
		Index	1.0 - 1.9	2.0 - 3.9	4.0 - 5.9	6.0 - 7.9	8.0 - 9.0	10

Bank Materials

- Bedrock (Bedrock banks have very low bank erosion potential)
- Boulders (Banks composed of boulders have low bank erosion potential)
- Cobble (Subtract 10 points. If sand/gravel matrix greater than 50% of bank material, then do not adjust)
- Gravel (Add 5-10 points depending on percentage of bank material that is composed of sand)
- Sand (Add 10 points if sand is exposed to erosional processes)
- Silt/Clay (+ 0: no adjustment)

Stratification

Add 5-10 points depending on position of unstable layers in relation to bankfull stage

Total Score

<i>Very Low</i>	<i>Low</i>	<i>Moderate</i>	<i>High</i>	<i>Very High</i>	<i>Extreme</i>
5-9.5	10-19.5	20-29.5	30-39.5	40-45	46-50

EXHIBIT 6

**BEAVER BROOK HABITAT ASSESSMENT
STREAM REACH AND SEGMENT PLAN**

UPSTREAM LIMITS OF STUDY AREA
(OLD CONCORD ROAD)

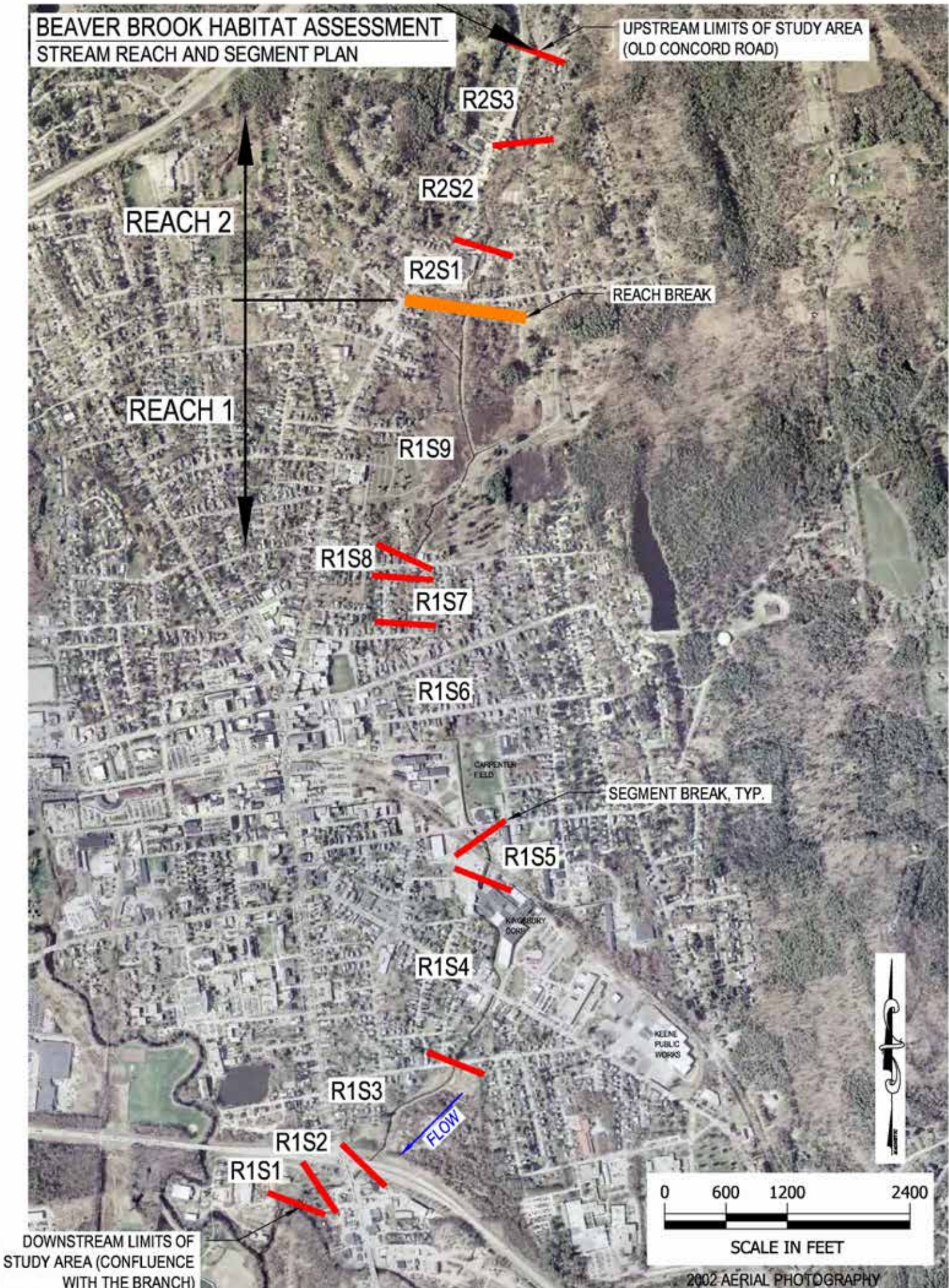
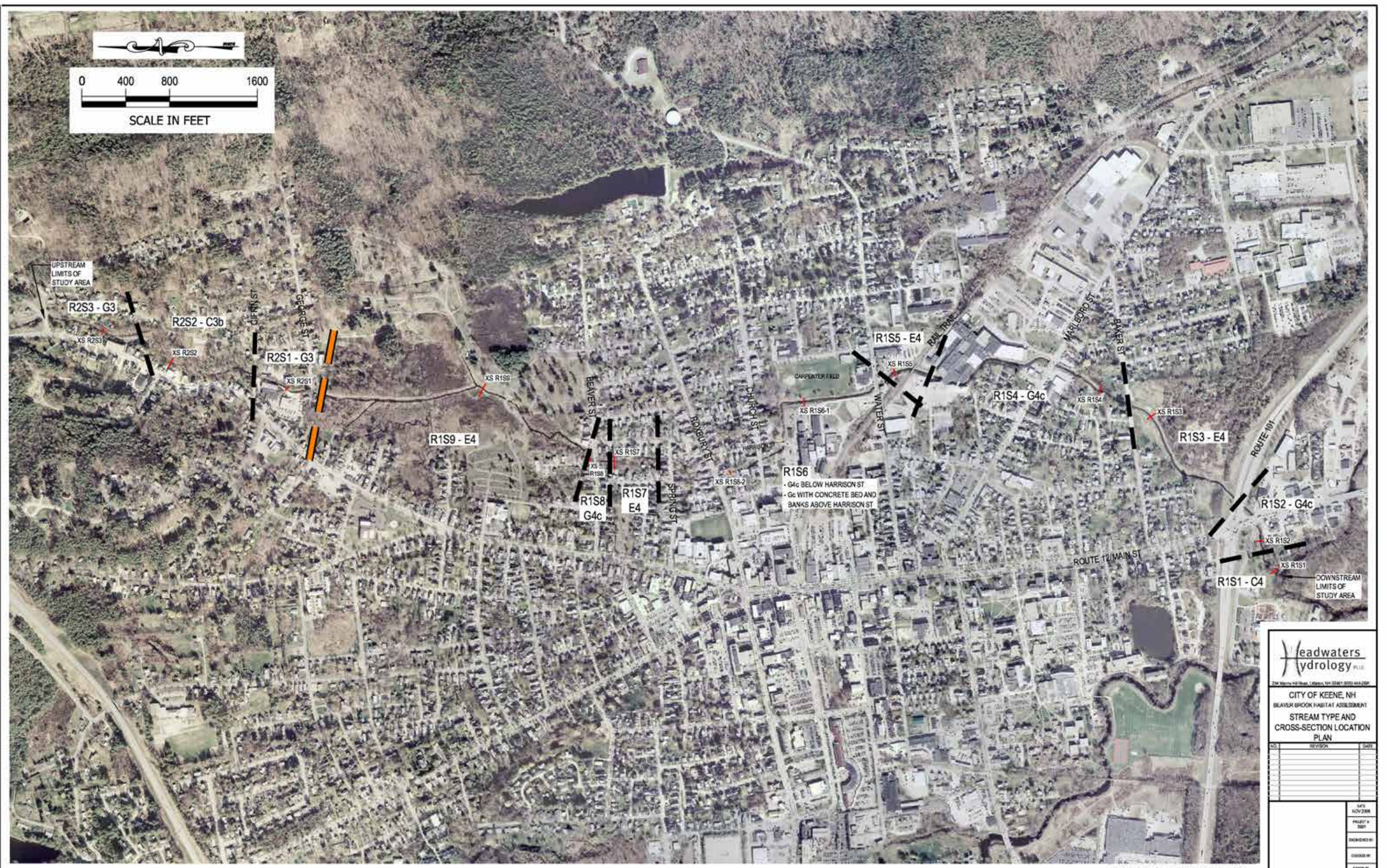
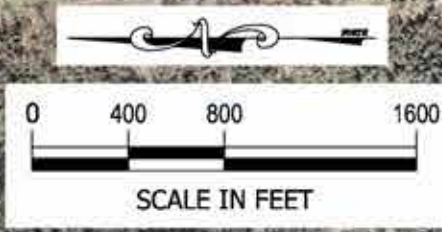


EXHIBIT 7

EXHIBIT 8



R1S6
 - G4c BELOW HARRISON ST
 - Gc WITH CONCRETE BED AND BANKS ABOVE HARRISON ST

Headwaters Hydrology P.L.L.C.
204 North Hill Street, Keene, NH 03501-0000, 603.351.4444

CITY OF KEENE, NH
 BEAVER BROOK HABITAT ASSESSMENT
 STREAM TYPE AND CROSS-SECTION LOCATION PLAN

NO.	REVISION	DATE

DATE	NOV 2006
PROJECT #	
ENGINEER #	
DRAWN #	
CHECKED BY	SPS

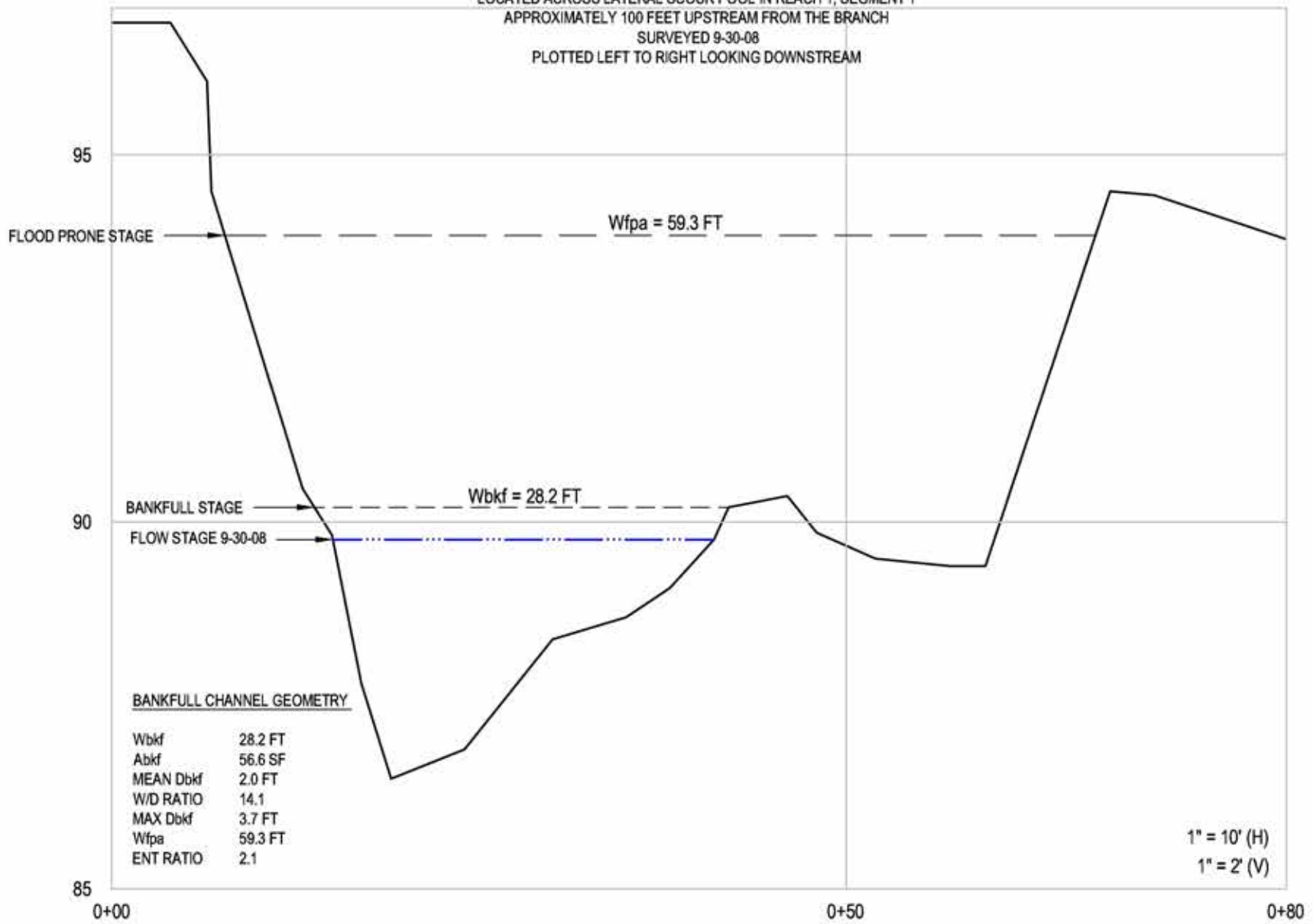
SHEET 1 OF 1

2002 AERIAL PHOTOGRAPHY

EXHIBIT 9

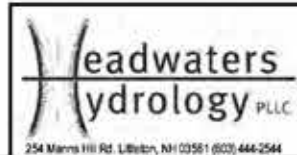
CROSS-SECTION R1S1

LOCATED ACROSS LATERAL SCOUR POOL IN REACH 1, SEGMENT 1
 APPROXIMATELY 100 FEET UPSTREAM FROM THE BRANCH
 SURVEYED 9-30-08
 PLOTTED LEFT TO RIGHT LOOKING DOWNSTREAM



CHANNEL SLOPE ~ 0.12% (REACH AVERAGE ESTIMATED FROM USGS MAP)
 CHANNEL MATERIALS D50: GRAVEL
 STREAM TYPE: C4

NOTE:
 1. ELEVATIONS ARE BASED ON AN ASSUMED DATUM.

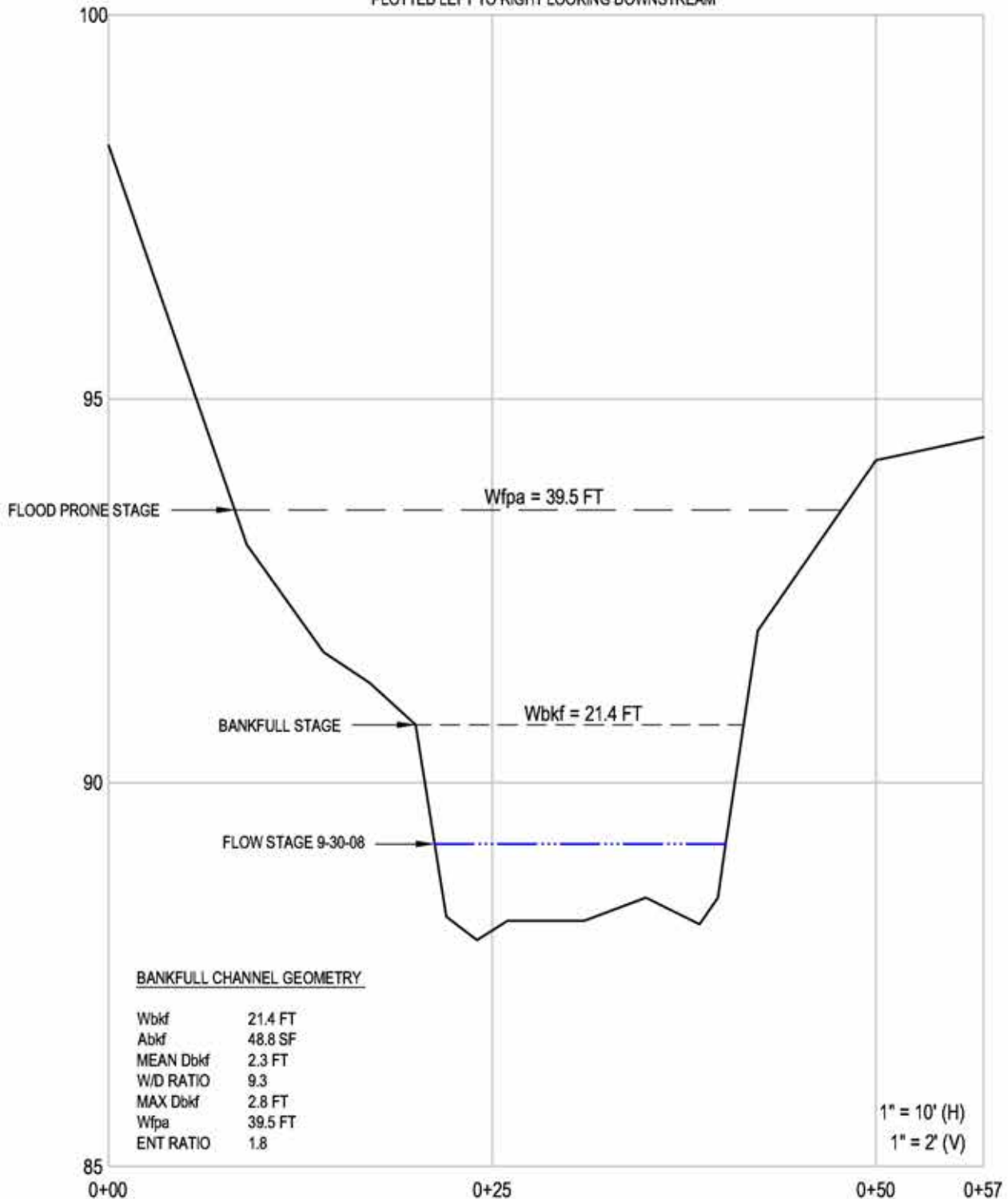


CITY OF KEENE, NH
 BEAVER BROOK HABITAT ASSESSMENT
 CROSS-SECTION R1S1

PROJECT NO:
 0801
 DATE:
 NOV 08
 PREPARED BY:
 SPS

CROSS-SECTION R1S2

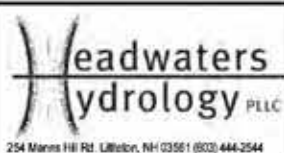
LOCATED ACROSS A RIFFLE IN REACH 1, SEGMENT 5
 APPROXIMATELY 200 FEET DOWNSTREAM FROM ROUTE 12
 SURVEYED 9-30-08
 PLOTTED LEFT TO RIGHT LOOKING DOWNSTREAM



NOTES:

- ELEVATIONS ARE BASED ON AN ASSUMED DATUM.
- THE ENTRENCHMENT RATIO IS GREATER THAN THAT FOR G STREAM TYPES AND THE WIDTH-TO-DEPTH RATIO IS LESS THAN THAT FOR B OR F STREAM TYPES. IT WAS DECIDED THAT THE MORPHOLOGY OF THIS STREAM SEGMENT MORE CLOSELY RESEMBLES A G STREAM TYPE AND THAT CLASSIFICATION HAS BEEN ASSIGNED.

CHANNEL SLOPE ~ 0.12% (REACH AVERAGE ESTIMATED FROM USGS MAP)
 CHANNEL MATERIALS D50: GRAVEL
 STREAM TYPE: G4

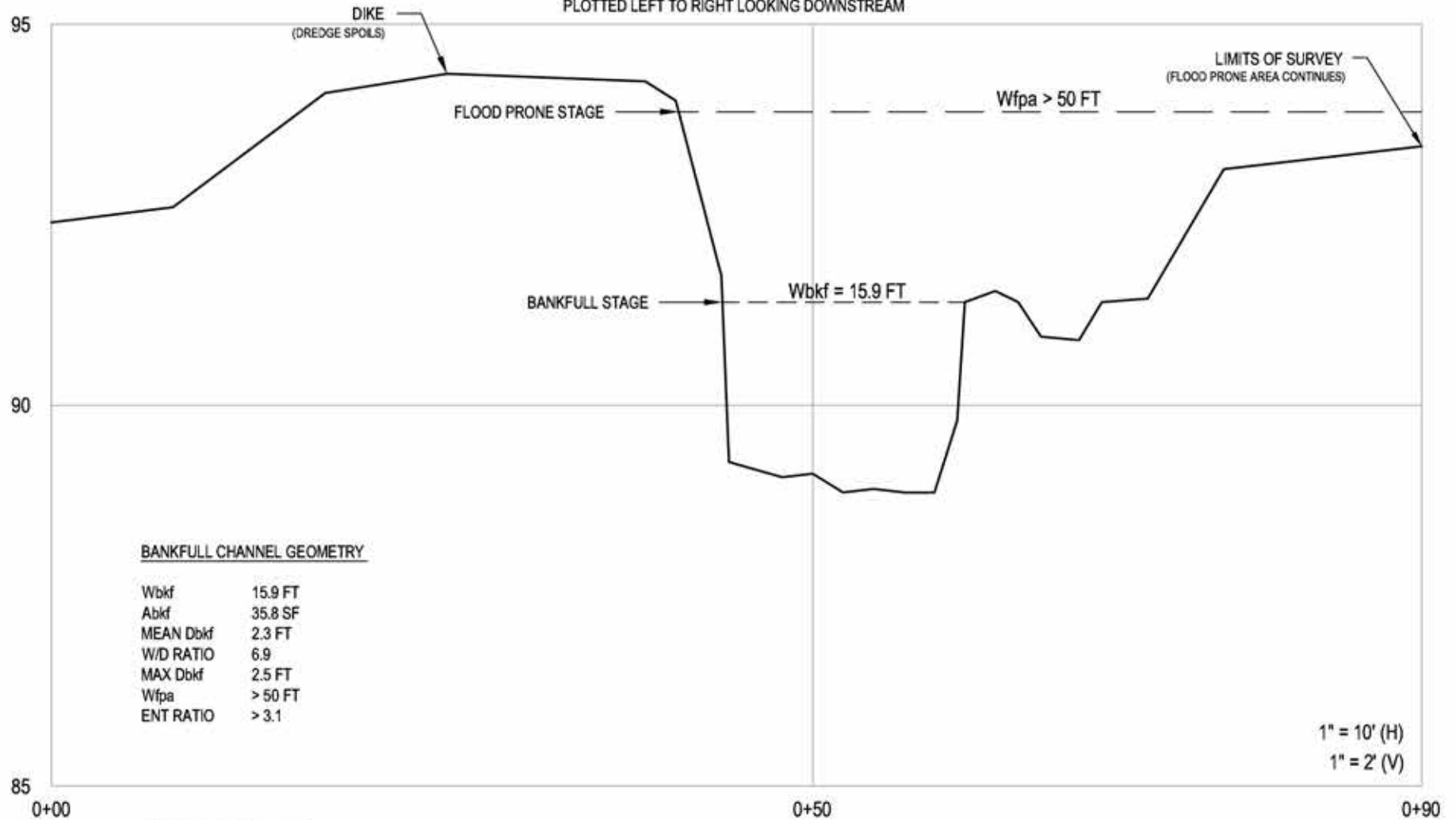


CITY OF KEENE, NH
BEAVER BROOK HABITAT ASSESSMENT
CROSS-SECTION R1S2

PROJECT NO:	0801
DATE:	NOV 08
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CROSS-SECTION R1S3

LOCATED ACROSS RIFFLE IN REACH 1, SEGMENT 3
 APPROXIMATELY 220 FEET DOWNSTREAM FROM BAKER STREET
 SURVEYED 9-30-08
 PLOTTED LEFT TO RIGHT LOOKING DOWNSTREAM



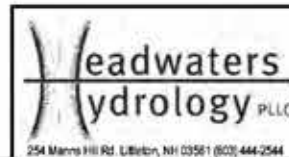
BANKFULL CHANNEL GEOMETRY

Wbpf	15.9 FT
Abkf	35.8 SF
MEAN Dbkf	2.3 FT
W/D RATIO	6.9
MAX Dbkf	2.5 FT
Wfpa	> 50 FT
ENT RATIO	> 3.1

1" = 10' (H)
 1" = 2' (V)

CHANNEL SLOPE ~ 0.12% (REACH AVERAGE ESTIMATED FROM USGS MAP)
 CHANNEL MATERIALS D50: GRAVEL
 STREAM TYPE: E4

NOTE:
 1. ELEVATIONS ARE BASED ON AN ASSUMED DATUM.



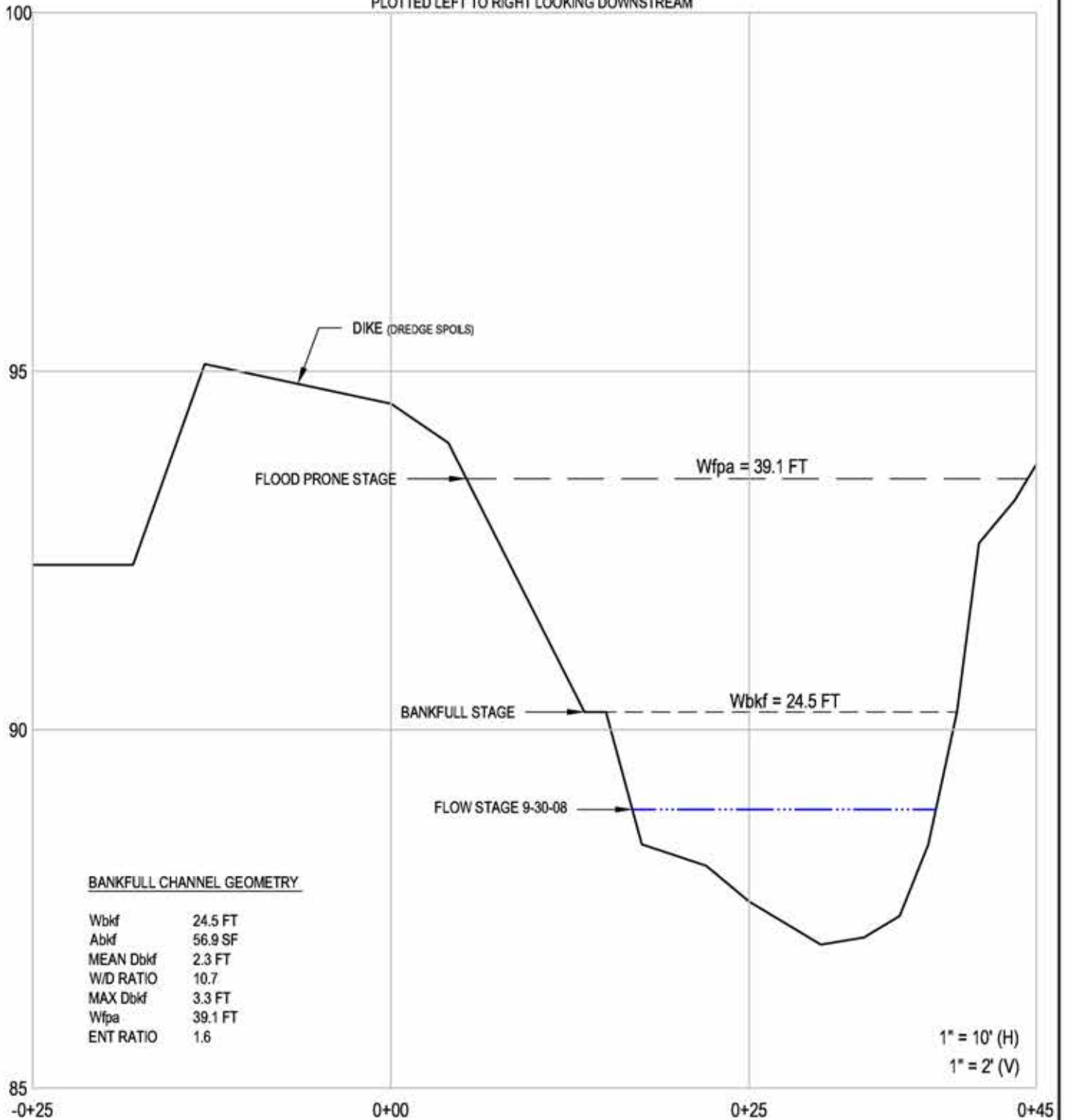
CITY OF KEENE, NH
 BEAVER BROOK HABITAT ASSESSMENT
 CROSS-SECTION R1S3

PROJECT NO:
 0801
 DATE:
 NOV 08
 PREPARED BY:
 SPS

CROSS-SECTION R1S4

LOCATED ACROSS A RUN BED FEATURE IN REACH 1, SEGMENT 4 APPROXIMATELY 480 FEET DOWNSTREAM
FROM MARLBORO STREET AND APPROXIMATELY 30 FEET DOWNSTREAM FROM A BEAVER DAM
SURVEYED 9-30-08

PLOTTED LEFT TO RIGHT LOOKING DOWNSTREAM



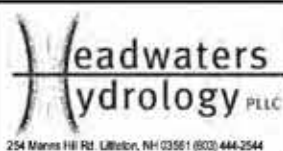
BANKFULL CHANNEL GEOMETRY

Wbkf	24.5 FT
Abkf	56.9 SF
MEAN Dbkf	2.3 FT
W/D RATIO	10.7
MAX Dbkf	3.3 FT
Wfpa	39.1 FT
ENT RATIO	1.6

1" = 10' (H)
1" = 2' (V)

CHANNEL SLOPE ~ 0.12% (REACH AVERAGE ESTIMATED FROM USGS MAP)
CHANNEL MATERIALS D50: GRAVEL
STREAM TYPE: G4c

NOTE:
1. ELEVATIONS ARE BASED
ON AN ASSUMED DATUM.

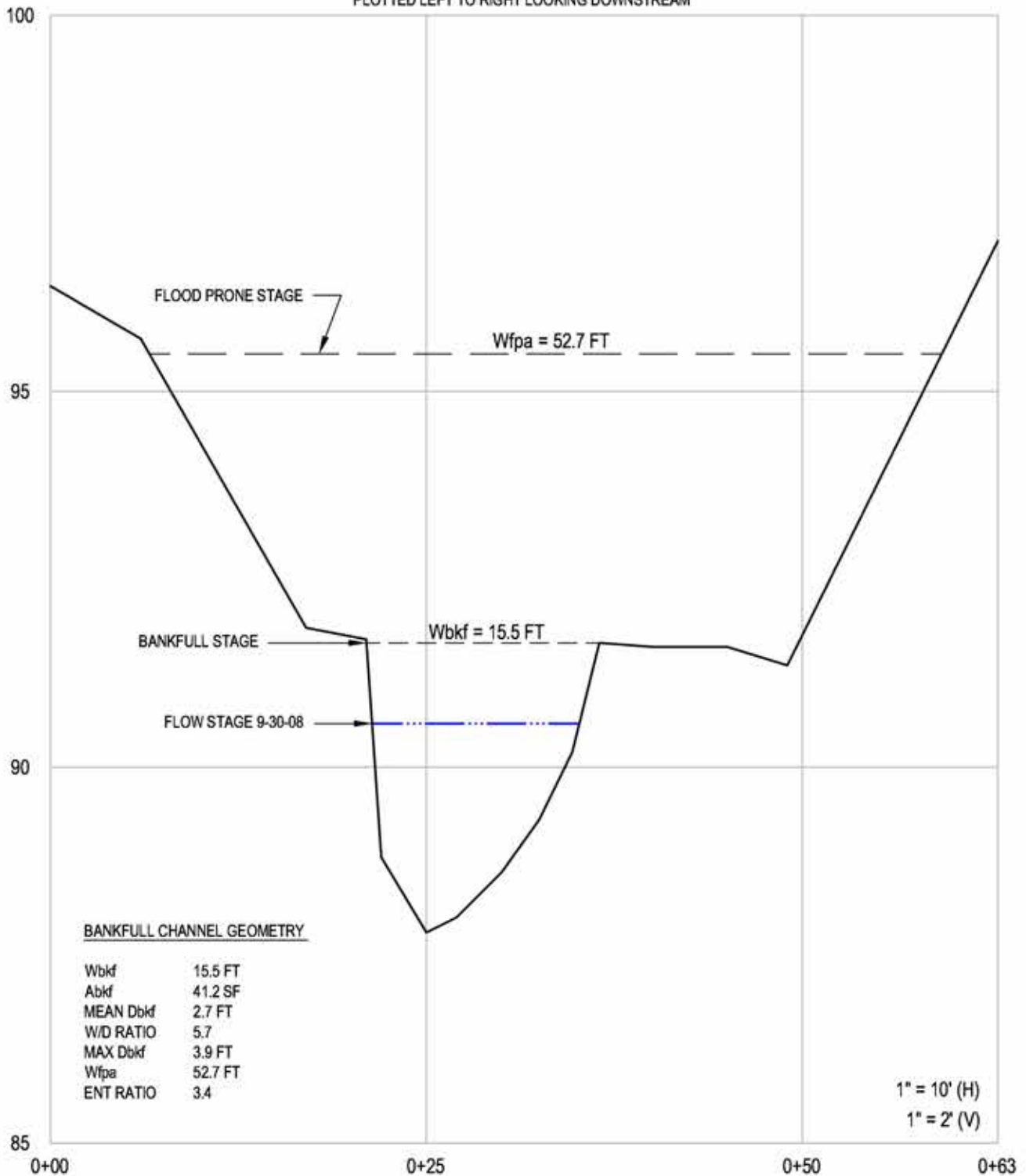


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CROSS-SECTION R1S4

PROJECT NO:
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NOV 08
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CROSS-SECTION R1S5

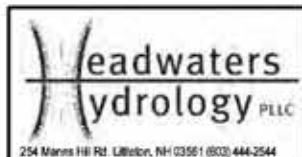
LOCATED ACROSS A GLIDE BED FEATURE IN REACH 1, SEGMENT 5
 APPROXIMATELY 200 FEET DOWNSTREAM FROM WATER STREET
 SURVEYED 9-30-08
 PLOTTED LEFT TO RIGHT LOOKING DOWNSTREAM



CHANNEL SLOPE ~ 0.12% (REACH AVERAGE ESTIMATED FROM USGS MAP)
 CHANNEL MATERIALS D50: GRAVEL
 STREAM TYPE: E4

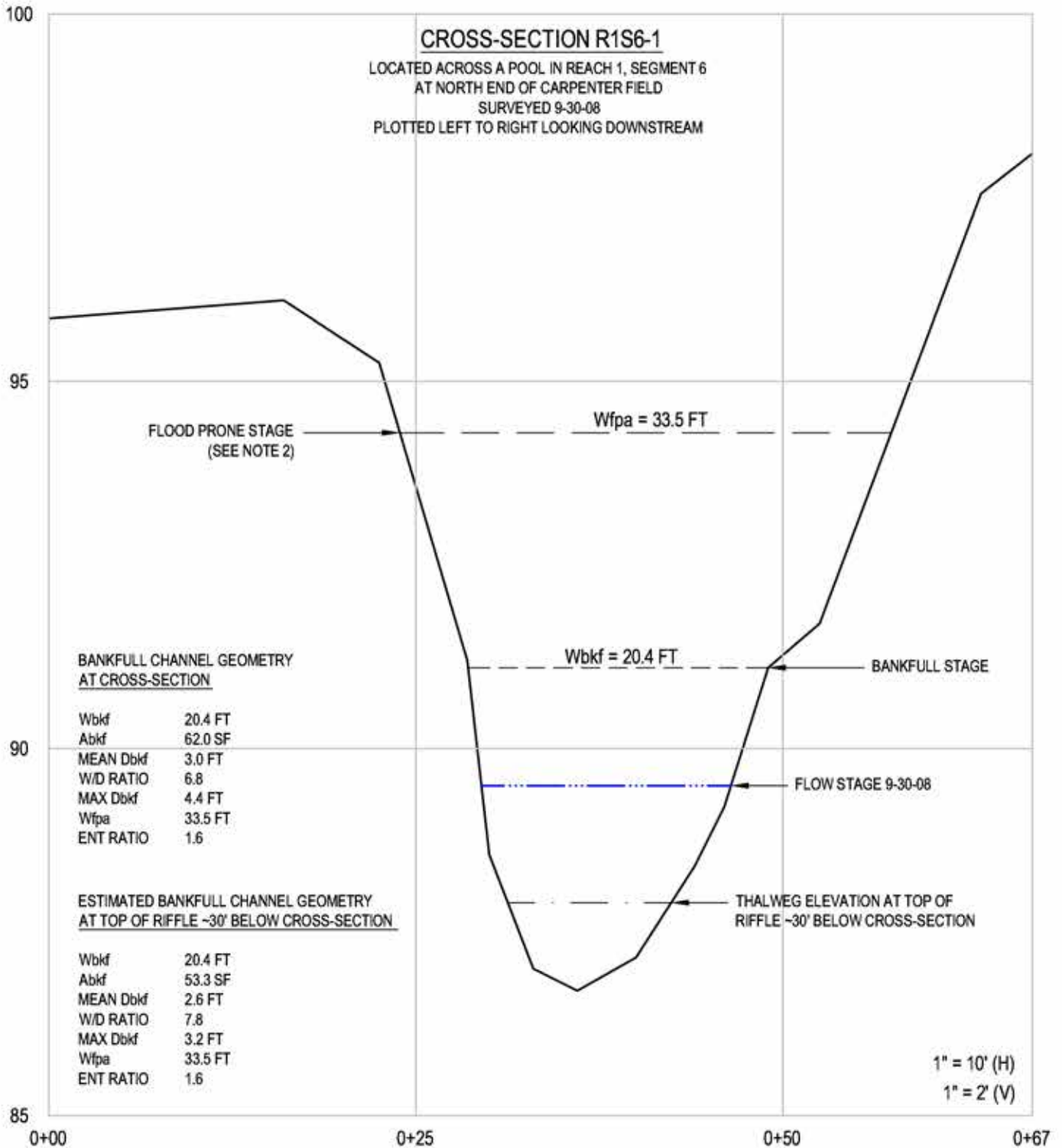
1" = 10' (H)
 1" = 2' (V)

NOTE:
 1. ELEVATIONS ARE BASED
 ON AN ASSUMED DATUM.



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CROSS-SECTION R1S5

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BANKFULL CHANNEL GEOMETRY AT CROSS-SECTION

Wbkf	20.4 FT
Abkf	62.0 SF
MEAN Dbkf	3.0 FT
W/D RATIO	6.8
MAX Dbkf	4.4 FT
Wfpa	33.5 FT
ENT RATIO	1.6

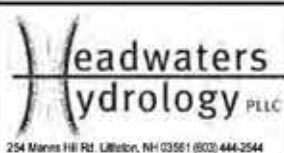
ESTIMATED BANKFULL CHANNEL GEOMETRY AT TOP OF RIFFLE -30' BELOW CROSS-SECTION

Wbkf	20.4 FT
Abkf	53.3 SF
MEAN Dbkf	2.6 FT
W/D RATIO	7.8
MAX Dbkf	3.2 FT
Wfpa	33.5 FT
ENT RATIO	1.6

NOTES:

- ELEVATIONS ARE BASED ON AN ASSUMED DATUM.
- BECAUSE THIS CROSS-SECTION IS AT A POOL BED FEATURE, THE FLOOD PRONE STAGE HAS BEEN ESTIMATED BY ADDING THE MAXIMUM BANKFULL DEPTH MEASURED AT THE TOP OF A RIFFLE -30' BELOW THE CROSS-SECTION TO THE BANKFULL STAGE AT THE CROSS-SECTION.
- STREAM TYPE HAS BEEN DETERMINED USING THE ESTIMATED CROSS-SECTIONAL GEOMETRY AT THE TOP OF RIFFLE -30' BELOW THE CROSS-SECTION.

CHANNEL SLOPE ~ 0.12% (REACH AVERAGE ESTIMATED FROM USGS MAP)
 CHANNEL MATERIALS D50: GRAVEL
 STREAM TYPE: G4c (SEE NOTE 3)



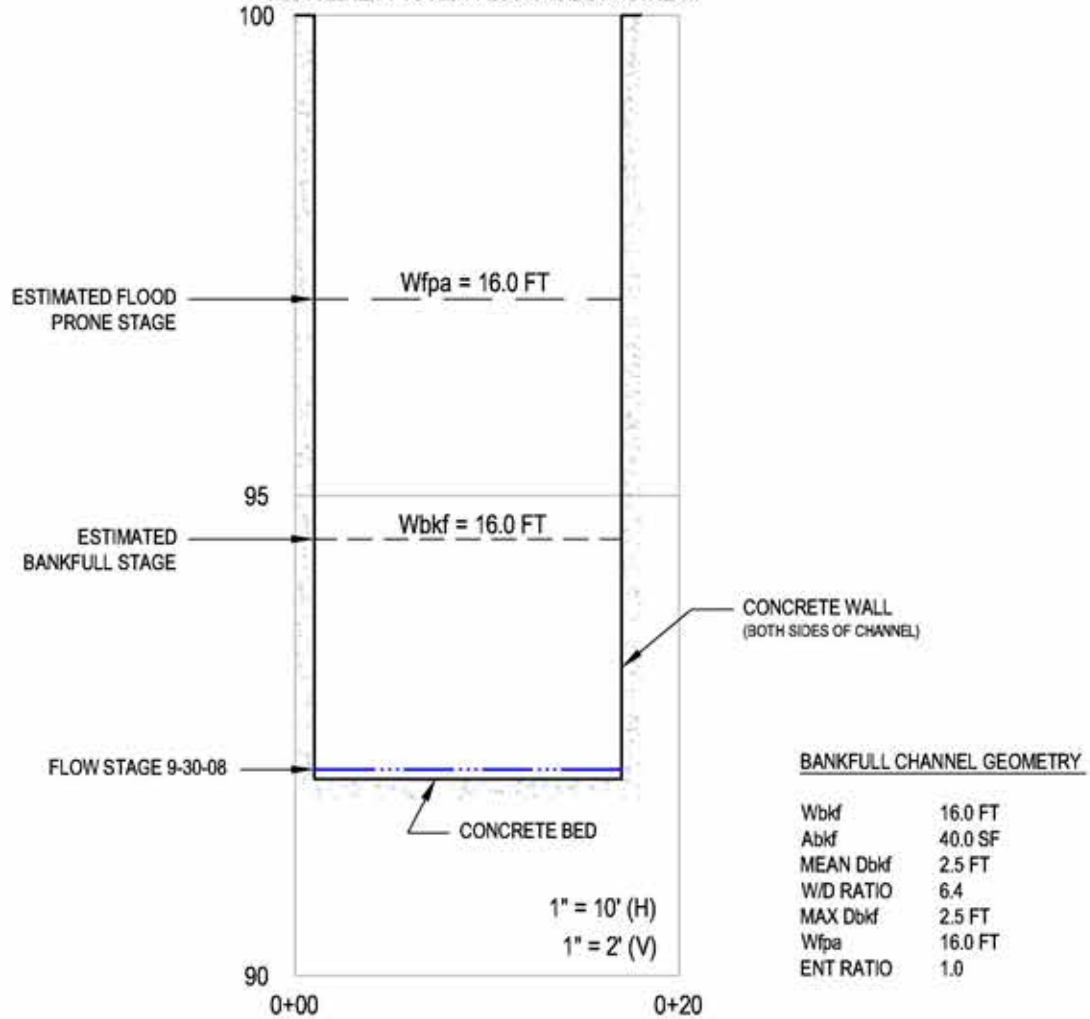
CITY OF KEENE, NH
BEAVER BROOK HABITAT ASSESSMENT
CROSS-SECTION R1S6-1

PROJECT NO:	0801
DATE:	NOV 08
PREPARED BY:	SPS

CROSS-SECTION R1S6-2

LOCATED ACROSS CONCRETE CHANNEL BELOW
ROXBURY STREET IN REACH 1, SEGMENT 6
SURVEYED 9-30-08

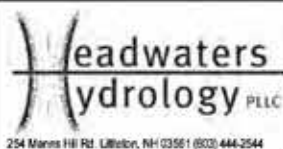
PLOTTED LEFT TO RIGHT LOOKING DOWNSTREAM



CHANNEL SLOPE ~ 0.12% (REACH AVERAGE ESTIMATED FROM USGS MAP)
CHANNEL MATERIALS: CONCRETE
STREAM TYPE: Gc

NOTES:

1. ELEVATIONS ARE BASED ON AN ASSUMED DATUM.
2. BANKFULL STAGE ESTIMATED AS THE HEIGHT OF A STAIN LINE ON THE CONCRETE CHANNEL WALLS



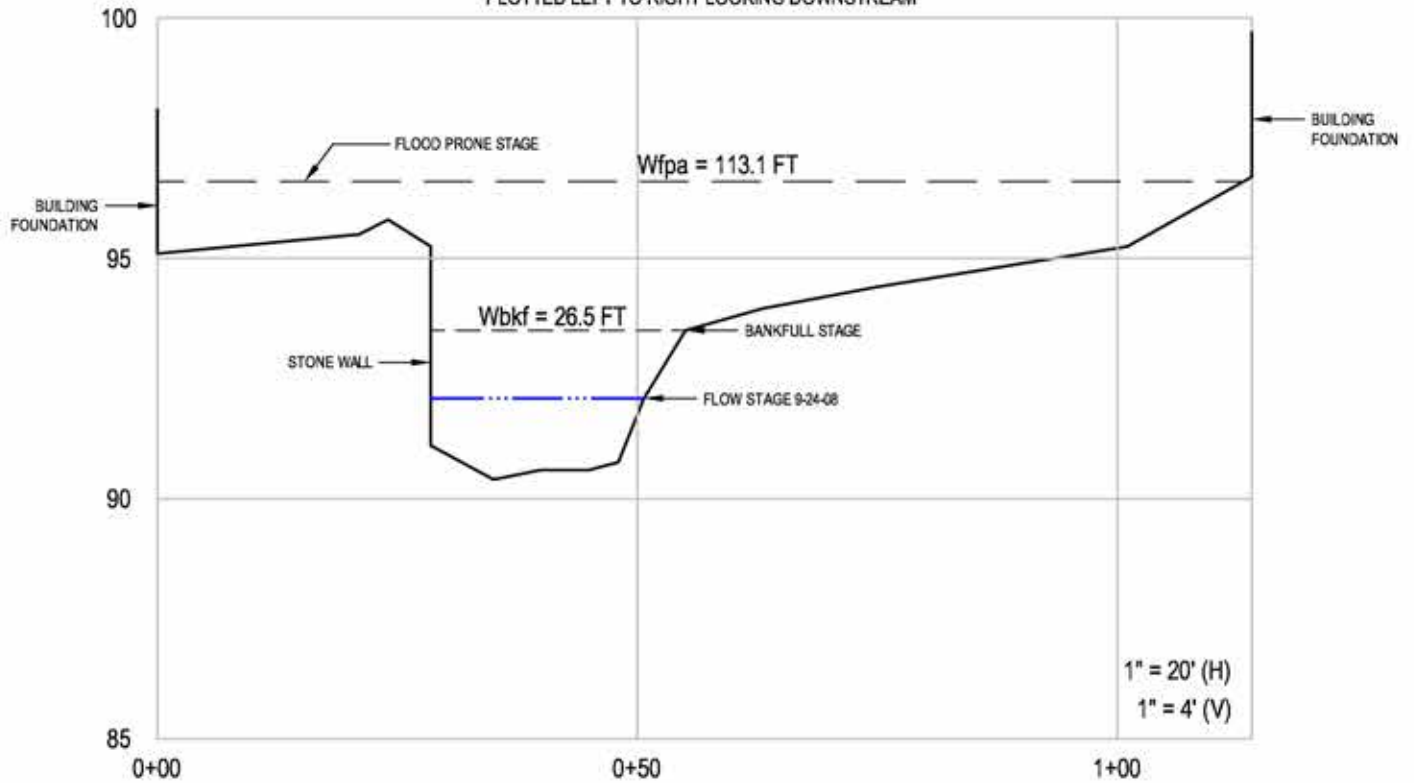
254 Main St Hill Rd, Littleton, NH 03581 (603) 444-2544

CITY OF KEENE, NH
BEAVER BROOK HABITAT ASSESSMENT
CROSS-SECTION R1S6-2

PROJECT NO:	0801
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PREPARED BY:	SPS

CROSS-SECTION R1S7

LOCATED ACROSS A GLIDE APPROXIMATELY 160 FEET
DOWNSTREAM FROM BEAVER STREET
SURVEYED 9-24-08
PLOTTED LEFT TO RIGHT LOOKING DOWNSTREAM



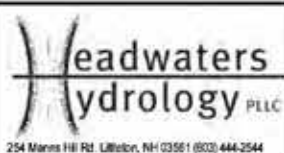
BANKFULL CHANNEL GEOMETRY

Wbkf	26.5 FT
Abkf	64.5 SF
MEAN Dbkf	2.4 FT
W/D RATIO	11.0
MAX Dbkf	3.1 FT
Wfpa	113.1 FT
ENT RATIO	4.3

CHANNEL SLOPE ~ 0.12% (REACH AVERAGE ESTIMATED FROM USGS MAP)
CHANNEL MATERIALS D50: GRAVEL
STREAM TYPE: E4

NOTE:

1. ELEVATIONS ARE BASED ON AN ASSUMED DATUM.

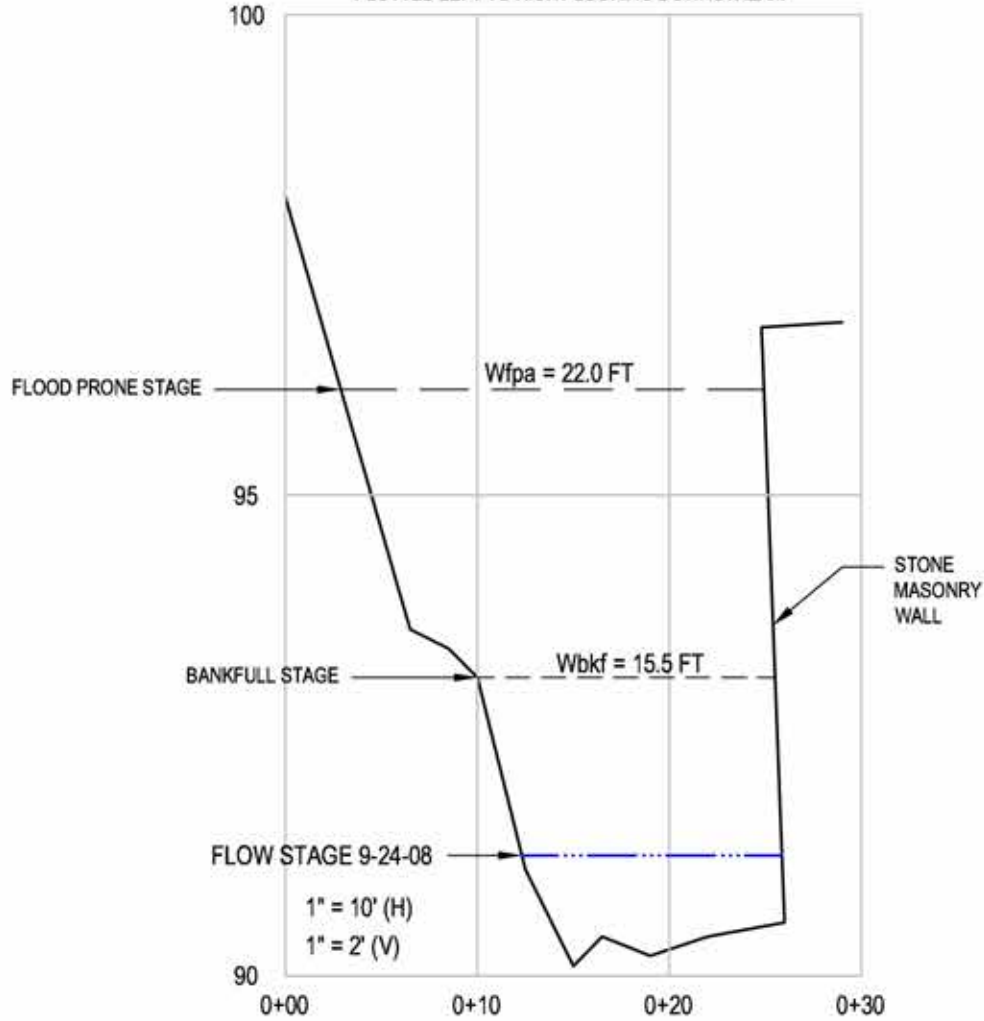


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CROSS-SECTION R1S7

PROJECT NO:	0801
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CROSS-SECTION R1S8

LOCATED ACROSS RIFFLE IN REACH 1, SEGMENT 8
 APPROXIMATELY 30' UPSTREAM FROM BEAVER STREET
 SURVEYED 9-24-08
 PLOTTED LEFT TO RIGHT LOOKING DOWNSTREAM

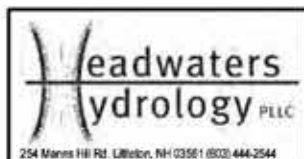


BANKFULL CHANNEL GEOMETRY

Wbkf	15.5 FT
Abkf	38.3 SF
MEAN Dbkf	2.5 FT
W/D RATIO	6.2
MAX Dbkf	3.0 FT
Wfpa	22.0 FT
ENT RATIO	1.4

CHANNEL SLOPE ~ 0.12% (REACH AVERAGE ESTIMATED FROM USGS MAP)
 CHANNEL MATERIALS D50: GRAVEL
 STREAM TYPE: G4c

NOTES:
 1. ELEVATIONS ARE BASED ON AN ASSUMED DATUM.



CITY OF KEENE, NH
 BEAVER BROOK HABITAT ASSESSMENT
 CROSS-SECTION R1S8

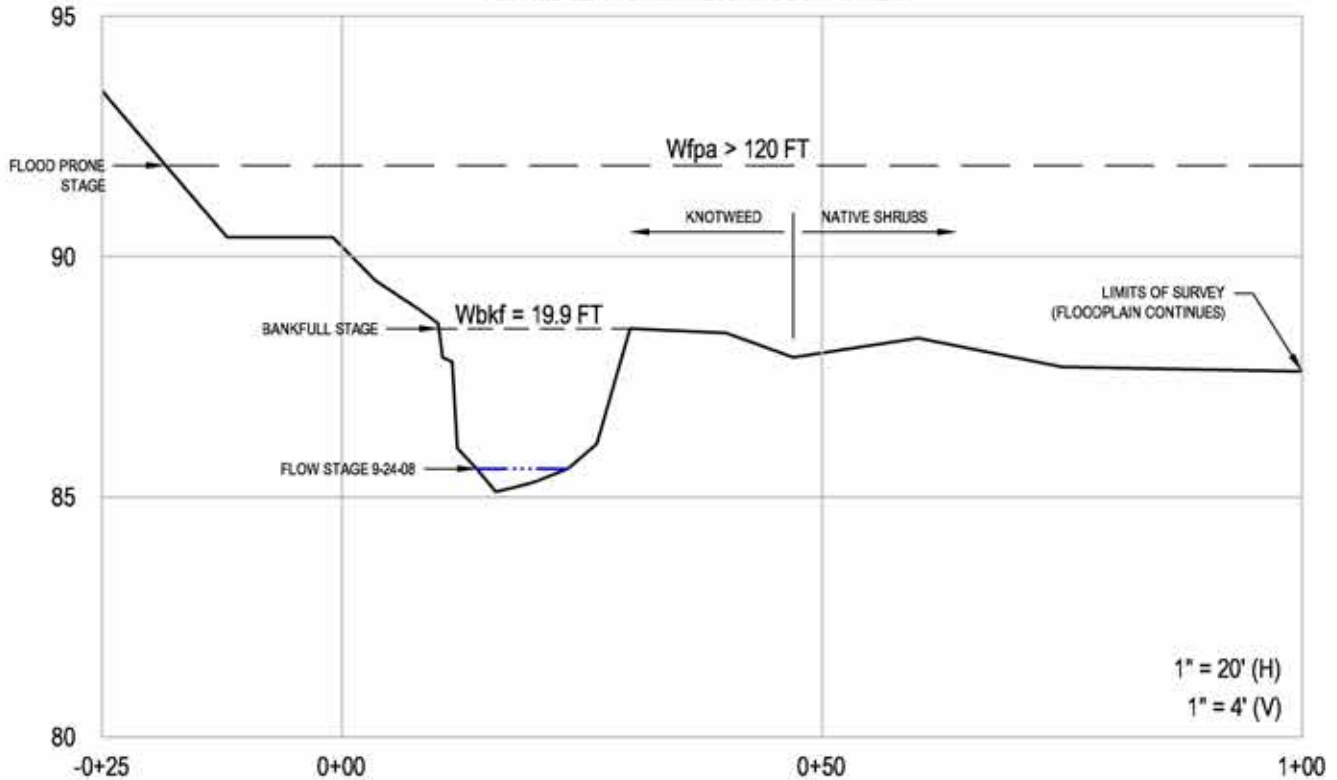
PROJECT NO:	0801
DATE:	NOV 08
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CROSS-SECTION R1S9

LOCATED ACROSS RIFFLE IN CEMETERY

SURVEYED 9-24-08

PLOTTED LEFT TO RIGHT LOOKING DOWNSTREAM



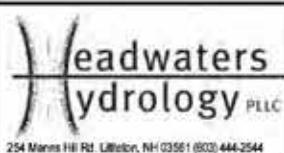
BANKFULL CHANNEL GEOMETRY

Wbpf 19.9 FT
 Abkf 49.4 SF
 MEAN Dbkf 2.5 FT
 W/D RATIO 8.0
 MAX Dbkf 3.4 FT
 Wfpa > 120 FT
 ENT RATIO > 6

CHANNEL SLOPE MEASURED OVER 300 FEET: 0.10%
 CHANNEL MATERIALS D50: GRAVEL
 STREAM TYPE: E4

NOTE:

1. ELEVATIONS ARE BASED ON AN ASSUMED DATUM.

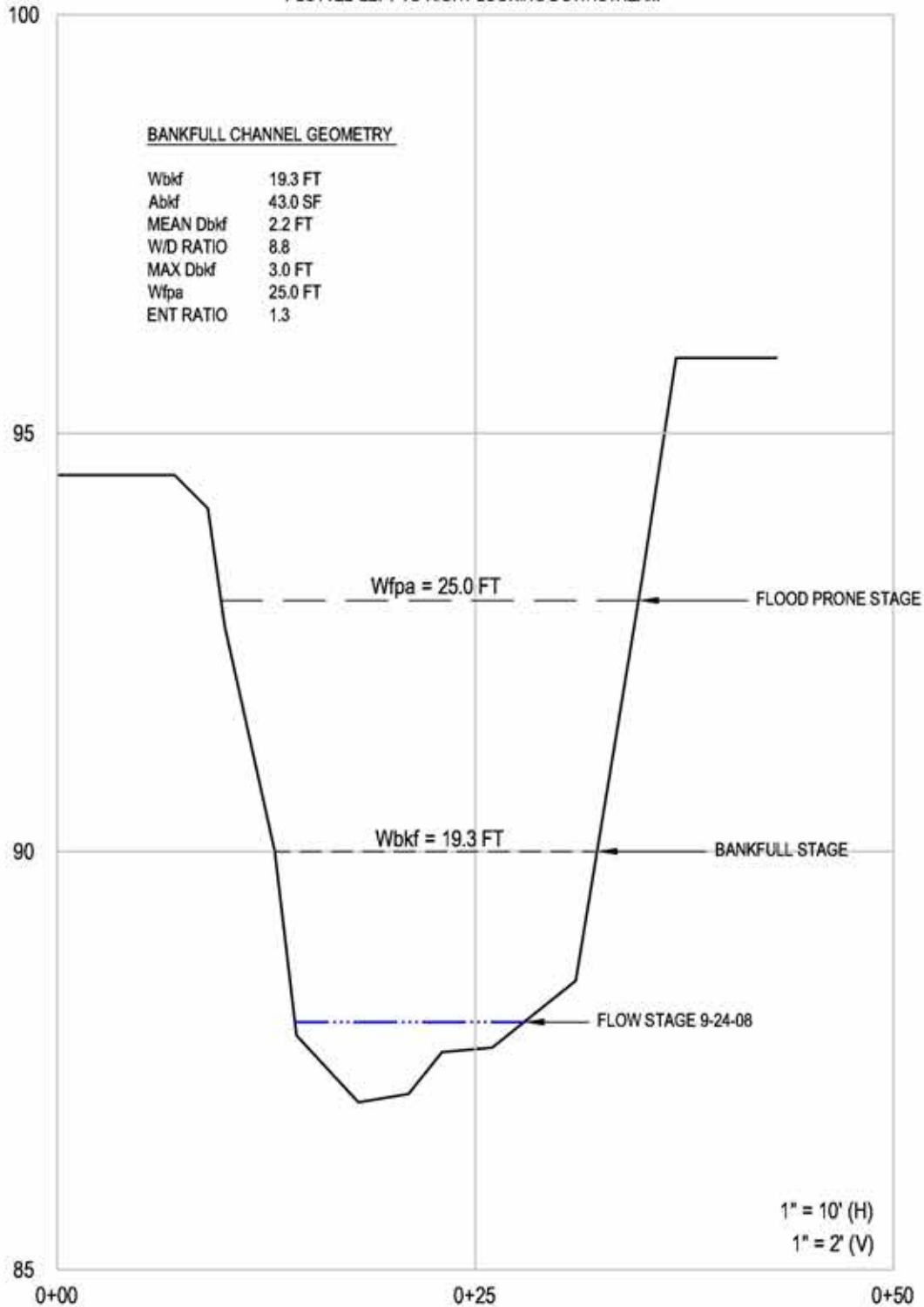


CITY OF KEENE, NH
 BEAVER BROOK HABITAT ASSESSMENT
 CROSS-SECTION R1S9

PROJECT NO:
0801
 DATE:
NOV 08
 PREPARED BY:
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CROSS-SECTION R2S1

LOCATED ACROSS RIFFLE IN REACH 2, SEGMENT 1
 APPROXIMATELY 25' UPSTREAM FROM CONCRETE-ENCASED SEWER MAIN
 SURVEYED 9-24-08
 PLOTTED LEFT TO RIGHT LOOKING DOWNSTREAM



NOTES:
 1. ELEVATIONS ARE BASED ON AN ASSUMED DATUM.
 2. 2.2-FOOT WATER SURFACE DROP MEASURED ACROSS EXPOSED SEWER MAIN ENCASEMENT.

CHANNEL SLOPE ~ 2.8% (REACH AVERAGE ESTIMATED FROM USGS MAP)
 CHANNEL MATERIALS D50: COBBLE
 STREAM TYPE: G3

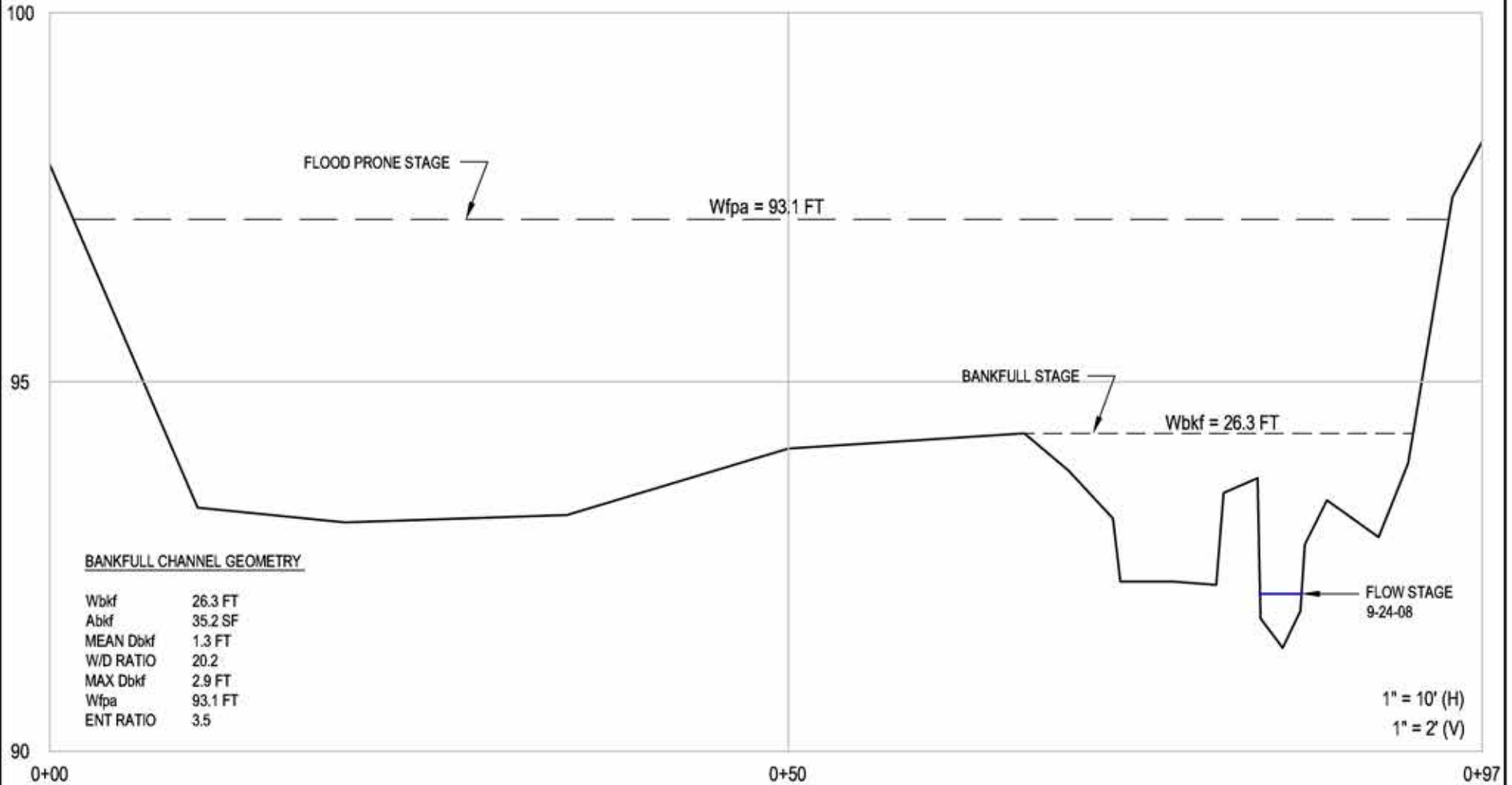


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 BEAVER BROOK HABITAT ASSESSMENT
 CROSS-SECTION R2S1

PROJECT NO:	0801
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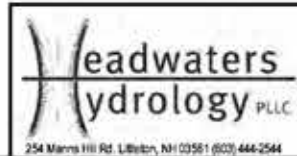
CROSS-SECTION R2S2

LOCATED ACROSS TOP OF STEP IN REACH 2, SEGMENT 2
 SURVEYED 9-24-08
 PLOTTED LEFT TO RIGHT LOOKING DOWNSTREAM



NOTE:
 1. ELEVATIONS ARE BASED ON AN ASSUMED DATUM.

CHANNEL SLOPE MEASURED OVER 205 FEET: 2.82%
 CHANNEL MATERIALS D50: COBBLE
 STREAM TYPE: C3b

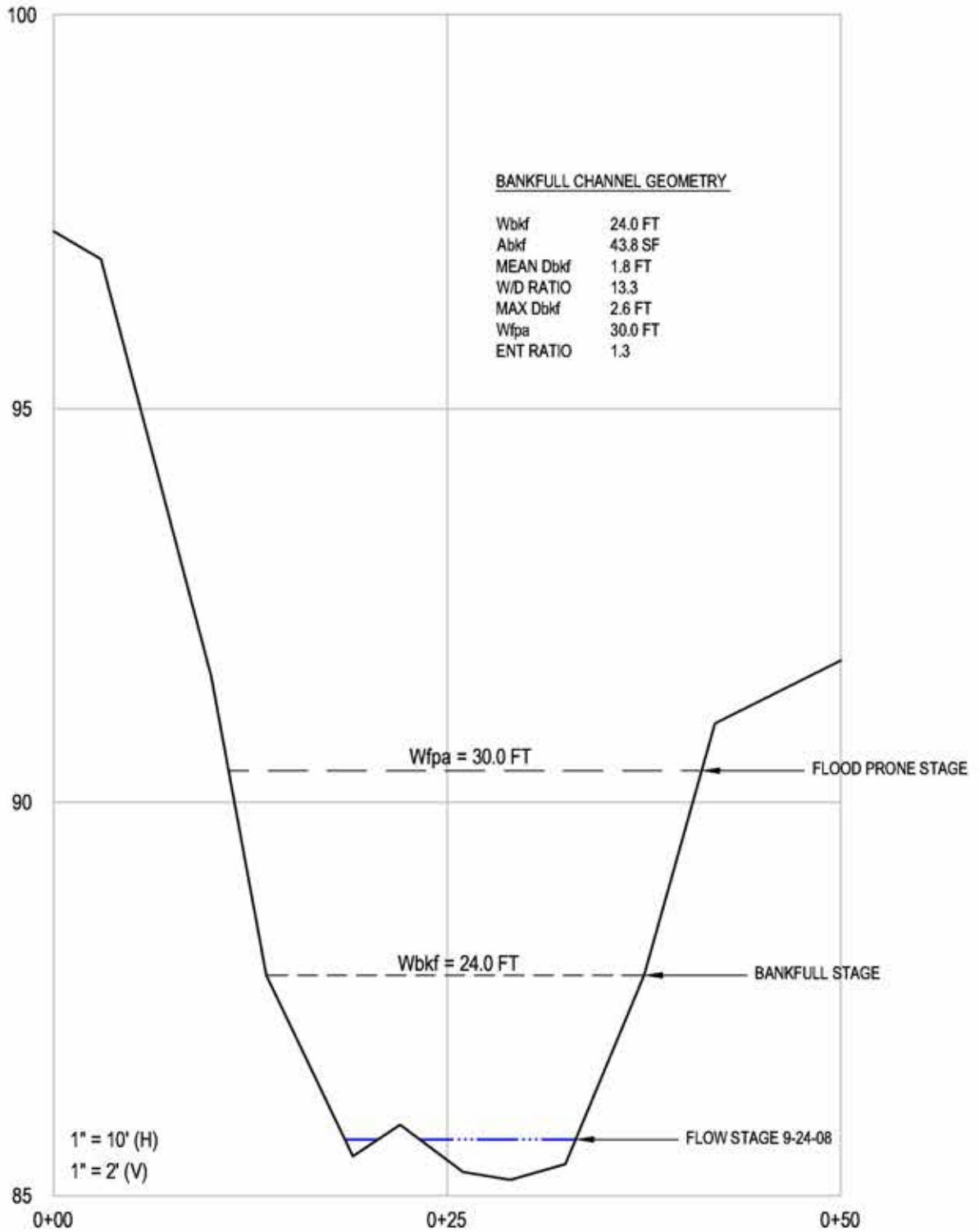


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 BEAVER BROOK HABITAT ASSESSMENT
 CROSS-SECTION R2S2

PROJECT NO:	0801
DATE:	NOV 08
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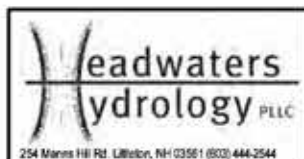
CROSS-SECTION R2S3

LOCATED ACROSS RIFFLE IN REACH 2, SEGMENT 3
 SURVEYED 9-24-08
 PLOTTED LEFT TO RIGHT LOOKING DOWNSTREAM



CHANNEL SLOPE MEASURED
 OVER 245 FEET: 2.44%
 CHANNEL MATERIALS D50: COBBLE
 STREAM TYPE: F3b OR G3

NOTE:
 1. ELEVATIONS ARE BASED ON AN ASSUMED DATUM.

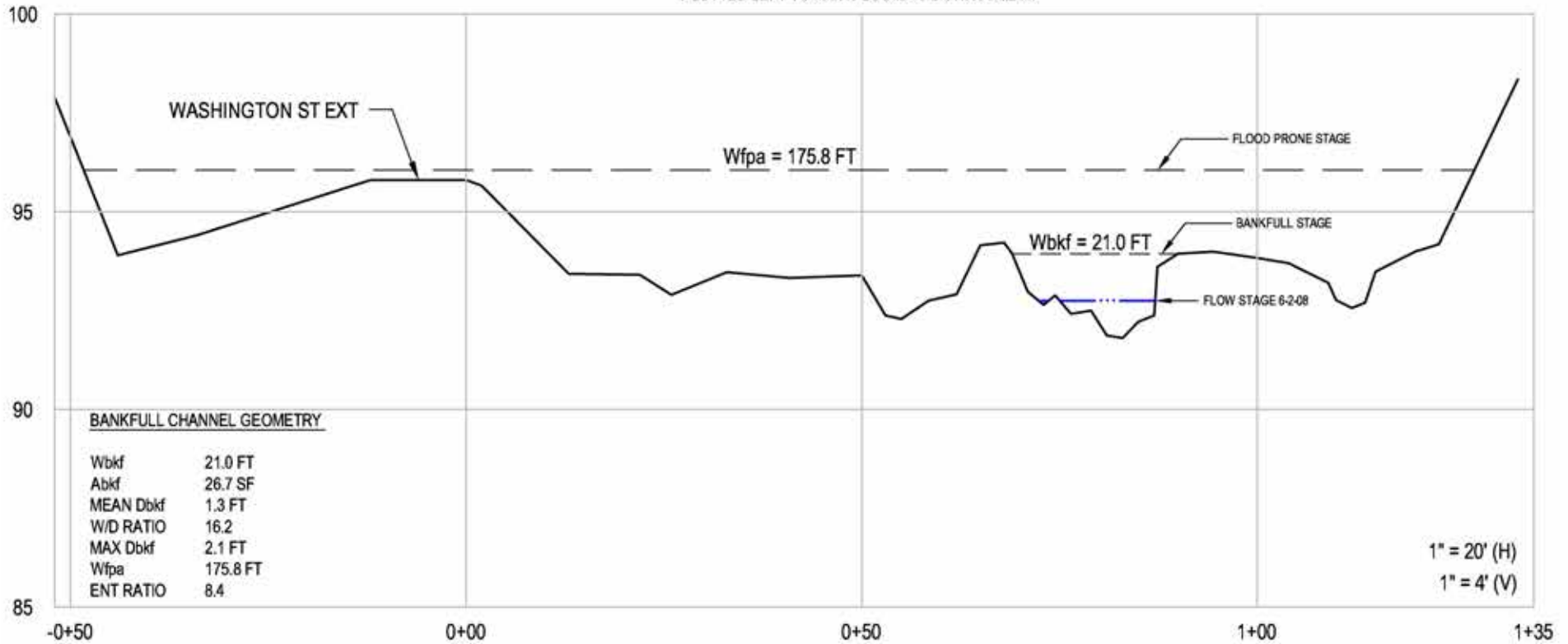


CITY OF KEENE, NH
 BEAVER BROOK HABITAT ASSESSMENT
 CROSS-SECTION R2S3

PROJECT NO:	0801
DATE:	NOV 08
PREPARED BY:	SPS

CROSS-SECTION IN WASHINGTON STREET EXTENSION PARK

LOCATED ACROSS RIFFLE
SURVEYED 6-2-08
PLOTTED LEFT TO RIGHT LOOKING DOWNSTREAM



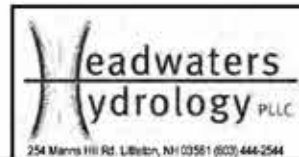
DRAINAGE AREA: 6.7 SQ MI
CHANNEL SLOPE MEASURED OVER 435 FEET: 2.33%
CHANNEL MATERIALS D50: COBBLE
STREAM TYPE: C3b

NOTES:

1. ELEVATIONS ARE BASED ON AN ASSUMED DATUM.
2. OVERBANK AREAS BELOW THE BANKFULL ELEVATION ARE NOT HYDRAULICALLY CONNECTED TO THE CHANNEL AT LEVELS BELOW BANKFULL STAGE.

BANKFULL CHANNEL DIMENSIONS ESTIMATED FROM REGIONAL CURVES FOR 6.7 SQ MI DRAINAGE AREA

NH CURVES	VT CURVES
A = 64 SF	A = 52 SF
W = 30.9 FT	W = 30.3 FT
D = 2.1 FT	D = 1.7 FT



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