APPENDIX A:
BLANK FORMS

FORM 1-1: STREAM ASSESSMENT FIELD FORM

Project # :   Date:

Reach Name: Team:

A   Man-Made Channels. (Use the assigned RCI)

  1. Piped Channel   0
  2. Open Channel - concrete   0.25
  3. Open Channel - gabions, riprap   0.50
  4. Open Channel - naturalized   *apply Natural Channel Methodology*

B   Natural Channel Methodology
Evaluate the following parameters using the definitions provided in Sections 1.2.1 - 1.2.4.

1. Channel Condition
  ○ *Severe*
  ○ *Poor*
  ○ *Marginal*
  ○ *Suboptimal*
  ○ *Optimal*

2. Riparian Buffer
  ○ *Poor*
  ○ *Marginal*
  ○ *Suboptimal*
  ○ *Optimal*

3. In-Stream Habitat
  ○ *Poor*
  ○ *Marginal*
  ○ *Optimal*

4. Benthic Condition
  ○ *Poor*
  ○ *Fair*
  ○ *Good*
  Benthic Condition Source
  ○ *Default*
  ○ *Site Observation (refer to benthic condition worksheet)*

5. Channel Alteration
  ○ *Severe*
  ○ *Moderate*
  ○ *Minor*
  ○ *Negligible/ None*

C   Reach Condition Index (RCI)
After evaluating the parameters, use the Reach Flow Charts (pages 48 - 67) to determine the RCI.

Reach Condition Index (RCI) (0 - 6) =_____

D   Other Required Information

Reach Length: _____ (feet)

Drainage Area : _____   (acres)

Summarize the RCI information for each assessment reach in FORM 1-2.

FORM B-1: BENTHIC MACROINVERTEBRATE WORKSHEET

Project # : _____   Date: _____

Stream Name/Reach No.: _____ Team: _____

_____

Taxa	Number	Taxa	Number

Total Number of Taxa (T) _____

Total Number of Benthic
Macroinvertebrates (N) _____

Test Metrics/Indices:

_____

_____

_____

_____

In-Stream Habitat   *Benthic Condition*

○ *Poor* _____ ○ *Poor*

○ *Marginal* _____ ○ *Fair*

○ *Optimal* _____ ○ *Good*

If benthic condition parameter is other than default
(i.e. corresponding in-stream habitat parameter), explain here:

_____

_____

_____

_____

_____

FORM 1-2: SUMMARY OF STREAM ASSESSMENTS

Project # : _____   Date: _____

Team: _____

Stream Name	Reach Name	Drainage Area DA	Length L	RCI
		(acres)	(feet)	

TABLE 2-1: IMPACT FACTORS (IF)

SEVERE Non-countersunk culvert or piped system. Concrete, riprap or gabion-lined stream bed Bottomless culvert with scour protection in stream bed and/or banks Filled, relocated or re-aligned stream	**1.0**
SIGNIFICANT Countersunk culverts or piped system. Non-countersunk culvert or piped system causing permanent impacts to Waters of the U.S., with additional floodplain culverts, with capacity equal to floodplain conveyance.	**0.75**
MODERATE Bridge with piers, multiple Con/Span or multiple bottomless culverts causing permanent impacts to the Waters of the U.S. Riprap or gabion-lined banks, one or both, with <u>no</u> impact to Waters of the U.S. Countersunk culvert with additional floodplain culverts with capacity equal to floodplain conveyance	**0.50**
MINOR Bridge, Con/Span or Bottomless Culvert causing only temporary (no permanent) impacts to Waters of the U.S.	**0.25**
NONE / NEGLIGIBLE Bridge, Con/Span or bottomless culvert that does not permanently or temporarily impact Waters of the U.S. Bridge, Con/Span or bottomless culvert that only requires temporary impacts during construction <u>and</u> provides floodplain culverts with capacity equal to floodplain conveyance.	**0**

FORM 2-1: IMPACT ASSESSMENT WORKSHEET

Project # : _____ Date: _____

Team : _____

Impact #	Drainage Area DA	RCI	Impact Factor IF	Length L_I	Impacts I
		(A)	(B)	(C)	I = A * B * C
	(acres)			(feet)	(SCUs)
			TOTAL IMPACTS (I_T) [1] =		

[1] Total Impacts (I_T) = Total Required Mitigation Credits.

TABLE 3-1: PRESERVATION FACTOR (PF)	
RCI	PF
0	0
1	0
2	0
3	0.03
4	0.04
5	0.05
6	0.06

FORM 3-1: STREAM PRESERVATION WORKSHEET

Project # :_____   Date _____

Team : _____

Stream/Reach Name	Drainage Area DA (acres)	RCI	PF	Length L_P (feet)	Mitigation Credits $P_R = RCI \times PF \times L_P$ (SCU)
TOTAL PRESERVATION MITIGATION CREDITS (P_T) =					

TABLE 3-2a: BUFFER RESTORATION - RESTORATION FACTOR (RF)

RF	Restoration Description
0.25	Fence installation (only applies if grazing threat)
0.75	Planting Trees and Shrubs in accordance with DEQ and COE specs.
1.25	Remove non-native species, deep-disk or plow, seed and plant native trees and shrubs.
*	Amenities (trails, pedestrian bridges, etc)

*Consult Regulatory Agencies for RF determination of Restoration Amenities

TABLE 3-2b: RURAL STREAMS - RESTORATION FACTOR (RF)

RF	Restoration Description
2.5	Bioengineered bank stabilization with regrading and toe protection and planting to Top of Bank on both banks (1.25 if only one bank)
3.0	Natural channel design without installation of grade control structures
3.5	Natural channel design with grade control structures

TABLE 3-2c: URBAN /SUBURBAN STREAMS - RESTORATION FACTOR (RF)

RF	Restoration Description
4.5	Bioengineered bank stabilization with regrading and toe protection on both banks (2.25 if only one bank)
6.0	Natural channel design without installation of grade control structures
7.0	Natural channel design with grade control structures
8.5	Natural channel design with grade control structures and bed reinforcement

FORM 3-2: RESTORATION COMPENSATION SUMMARY WORKSHEET

Project # : _____   Date: _____

Team : _____

Stream/Reach Name	Restoration Type	Drainage Area DA	RF_T	Length L_R	Restoration Credits $S_R = RF_T \times L_R$
		(acres)		*(feet)*	*(SCU)*

TOTAL RESTORATION (S_T) =

Project #: _____   Date: _____

FORM 3-3a: WEIGHTED DRAINAGE AREA FOR IMPACTED STREAMS (DA_{WI}) - CALCULATION WORKSHEET

Stream/Reach Name	Impact #	Length L_I	Drainage Area DA	$DA * L_I$
		(feet)	(acres)	(ft-ac)
	$\Sigma (L_I) =$			↓
		$\Sigma (DA * L_I) =$		

$$DA_{WI} = \frac{\Sigma (DA * L_I)}{\Sigma L_I} = \underline{\hspace{3cm}} \text{ acres}$$

FORM 3-3b: WEIGHTED DRAINAGE AREA FOR STREAM COMPENSATION (DA_{WC}) - CALCULATION WORKSHEET

Stream/Reach Name	Restoration Type	Length [a] L_P or L_R	Drainage Area DA	$DA* L$
		(feet)	(acres)	(ft-ac)
	$\Sigma (L) =$			↓
		$\Sigma (DA * L) =$		

$$DA_{WC} = \frac{\Sigma (DA * L)}{\Sigma L} = \underline{\hspace{3cm}} \text{ acres}$$

[a] Use applicable Length of Restoration or Length of Preservation

FORM 3-4:   STREAM COMPENSATION
WORKSHEET - PIEDMONT REGION

Project #: _____ Date: _____

Stream Name: _____ Reach: _____

A   Un-weighted Stream Compensation Total

Total Preservation Credits, $P_T =$ _____ SCUs (Form 3-1)

Total Restoration Credits, $S_T =$ _____ SCUs (Form 3-2)

Total Unweighted Compensation, $C_T =$ _____ SCUs ($C_T = P_T + S_T$)

B   Weighted Stream Compensation Total

Weighted Drainage Area for Impacted Streams, (DA_{WI})

$DA_{WI} =$ _____ acres (Form 3-3a)

Weighted Drainage Area for Stream Compensation, (DA_{WC})

$DA_{WC} =$ _____ acres (Form 3-3b)

$$CF = \begin{cases} 0.53, & \text{for} \quad (DA_{WI}/DA_{WC}) < 0.2 \\ (DA_{WI}/DA_{WC})^{0.39}, & \text{for} \quad 0.2 \leq (DA_{WI}/DA_{WC}) \leq 3.0 \\ 1.53, & \text{for} \quad (DA_{WI}/DA_{WC}) > 3.0 \end{cases}$$

Piedmont streams

$CF =$ _____

Total Weighted Compensation, $C_{WT} = C_T / CF =$ _____ SCUs

C   Compensation Requirements

Compensation Required, $I_T =$ _____ SCUs (Form 2-1)

Compensation Provided, $C_{WT} =$ _____ SCUs (Form 3-4, Section B)

- If TOTAL Compensation Provided $\geq$ Compensation Required,
  Compensation Requirements are satisfied.

- If TOTAL Compensation Provided is < Compensation, additional
  Compensation is Required. Record below:

  Additional SCUs Required _____ SCUs (if $C_{WT} - I_T < 0$)

  Surplus SCUs Provided: _____ SCUs (if $C_{WT} - I_T > 0$)

NOTES:

NOTES: