

**OFFICE****REQUIRED WORKSHEET: OFFICE PREPARATION*****Minimum Submittal Requirements for an HGM Functional Assessment Report***

*Identify the documents that were collected and reviewed by the assessment team. Include a detailed description of each document (e.g., citation, date, scale, quadrangle name, etc.). If possible, attach copies of each document.*

- USGS survey, state, county, and other maps (at various scales):

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

- Air photos and other imagery:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

- Relevant geotechnical, soils, or environmental reports:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

- Correspondence, construction plans and specifications, *etc.* on the proposed project:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

- Relevant published literature:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

- Other documents:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**OFFICE AND FIELD**

**REQUIRED WORKSHEET: BOUNDING OF PROPOSED PROJECT AREA AND GEOGRAPHIC EXTENT OF WATERS/WETLANDS**

*Minimum Submittal Requirements for an HGM Functional Assessment Report*

Bound, stratify, and complete mapping of the proposed project area. Confirm and refine all preliminary mapping in the field. This includes:

- a. Delineation of the proposed project boundaries.
- b. Delineation of the geographic extent of waters/wetlands within the proposed project area.
- c. Determination of the proportion(s) and type(s) of waters/wetlands within the project area.
- d. Determination of the proportion of waters/wetlands that fall into the subclasses of waters/wetlands addressed by and not addressed by this Draft Guidebook.
- e. Estimation of the geographic extent and type of proposed project impact(s) (i.e., preliminary, secondary, and/or cumulative effects).

	<i>Preliminary (Office) Measurements</i>		<i>Field Measurements</i>	
	(sq. feet)	(acres)	(sq. feet)	(acres)
1. Area of proposed project area:				
2. Area of waters/wetlands within the proposed project area:				
3. Area of waters/wetlands within the proposed project area that ARE addressed by this Draft Guidebook:				
4. Area of water/wetlands within proposed project area that ARE NOT addressed by this Draft Guidebook:				
5. Total estimated area within proposed project impacts to waters/wetlands addressed by this Draft Guidebook:				

**PRE-FIELD MEASUREMENTS:**

- 6. General description of the type of impacts to waters/wetlands in the proposed project area expected as a result of the proposed project: \_\_\_\_\_

**POST-FIELD MEASUREMENTS:**

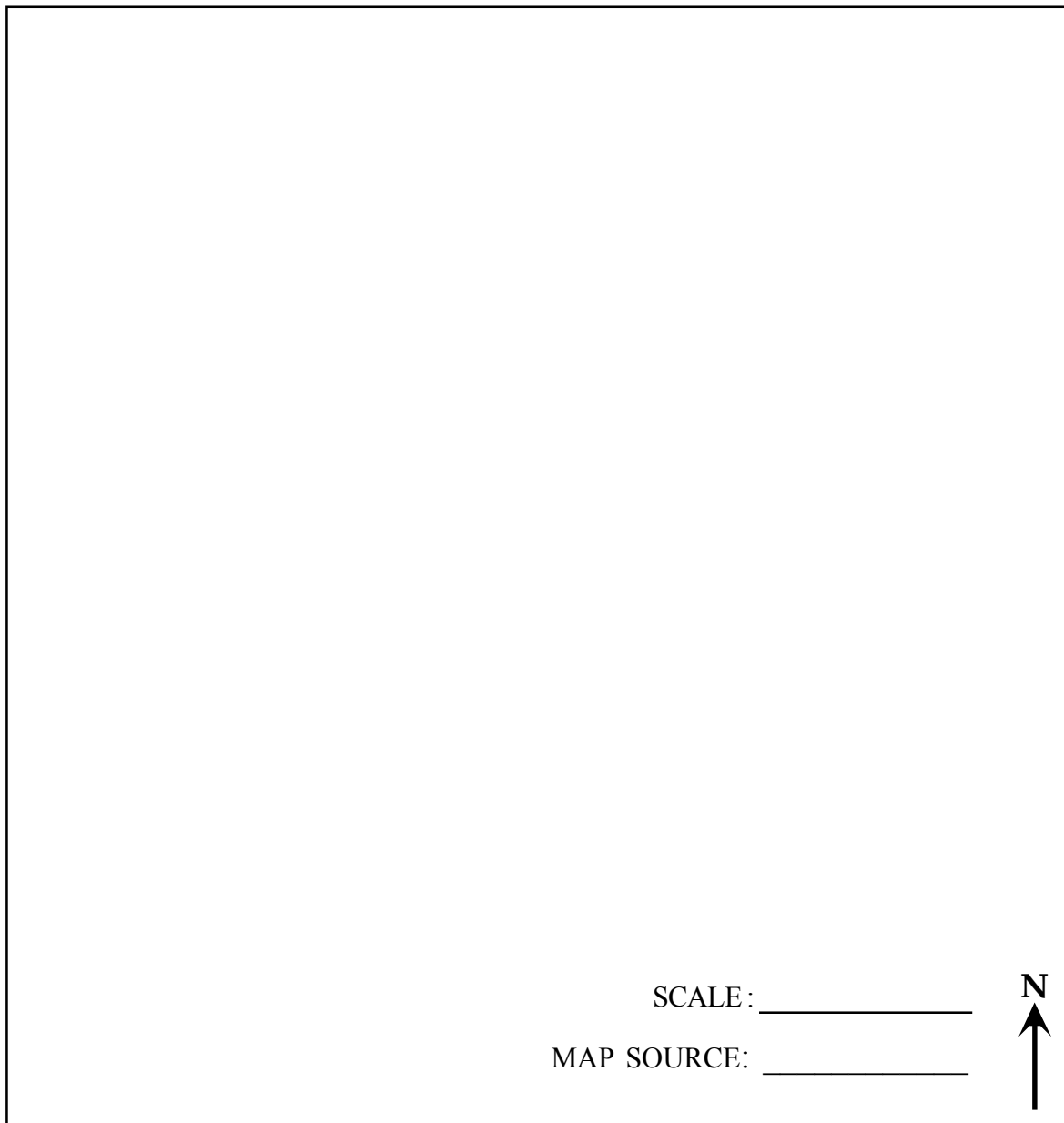
- 7. Provide Rationale/Criteria for Identification and Delineation of Waters/Wetlands identified above: \_\_\_\_\_

- 8. Method used to estimate areas listed above: \_\_\_\_\_

**OFFICE**

**REQUIRED WORKSHEET: BOUNDING OF PROPOSED PROJECT AREA AND GEOGRAPHIC EXTENT OF WATERS/WETLANDS**  
*Minimum Submittal Requirements for an HGM Functional Assessment Report*

*Map or cartoon that includes preliminary delineation of the proposed project area, areal extent of waters/wetlands that **ARE** and **ARE NOT** identified within this Draft Guidebook, and estimated areas that will be impacted by the proposed project.*



SCALE: \_\_\_\_\_

MAP SOURCE: \_\_\_\_\_

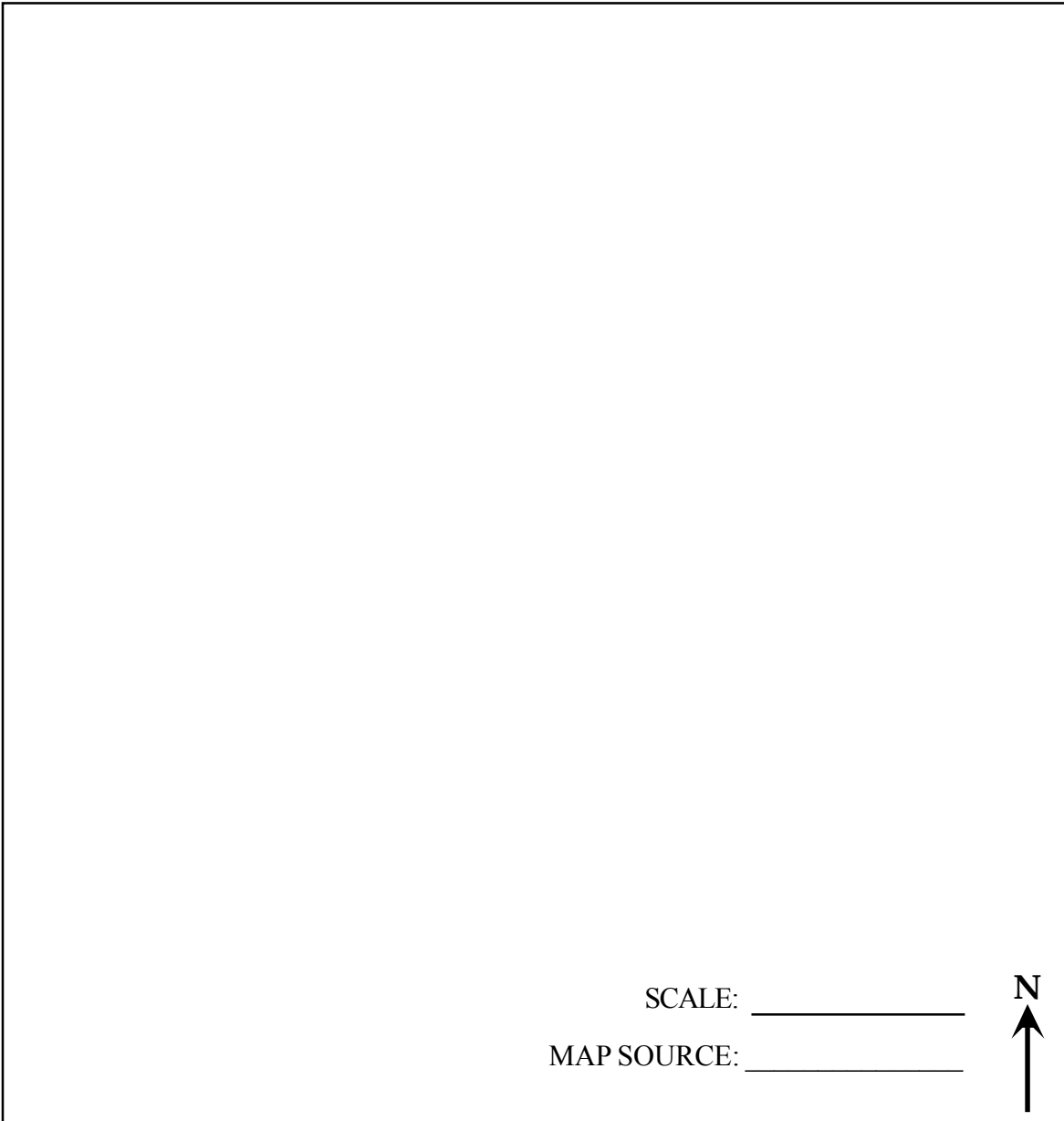
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**FIELD**

**REQUIRED WORKSHEET: BOUNDING OF PROPOSED PROJECT AREA AND GEOGRAPHIC EXTENT OF WATERS/WETLANDS**

*Minimum Submittal Requirements for an HGM Functional Assessment Report*

*Based on field observations and/or measurements, edit original map or cartoon. The map or cartoon should include a delineation of the proposed project area, areal extent of waters/wetlands that **ARE** and **ARE NOT** identified within this Draft Guidebook, and estimated areas that will be impacted by the proposed project.*



SCALE: \_\_\_\_\_

MAP SOURCE: \_\_\_\_\_

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**OFFICE**

**REQUIRED WORKSHEET: PRELIMINARY HGM CLASSIFICATION**  
**Minimum Submittal Requirements for an HGM Functional Assessment Report**

*Identify and document the rationale used for recognizing HGM subclasses of riparian ecosystems in southern Santa Barbara County within the proposed project area. Show how the project assessment area satisfies the subclass definition provided in the Profile (Chapter IV) and the Dichotomous Key to Santa Barbara Riverine Wetland Types (Chapter VI). Specifically, include a discussion of the site characteristics and show how they are consistent with the dominant characteristics of the subclass. The table below summarizes the dominant characteristics of the subclasses*

SUBCLASS	GENERAL DESCRIPTION
High Gradient Stream on the Santa Ynez Mountain Front	High gradient streams are generally 1 <sup>st</sup> or 2 <sup>nd</sup> order streams that characteristically are in narrow channels with little or no residual bed sediments, and steep longitudinal gradients (>6%) at the thalweg depth. Characteristic high gradient reaches have steep-pool or alternate fall and run reaches that carry run-off during and immediately after precipitation events. They have no perennial flow and are recognized as the headward-most extent of the stream channel systems. A mixed evergreen/deciduous forest dominates the plant communities. Indicator faunal species are most commonly found in the high gradient systems that allow movement in and out of waters/wetlands provide cover for escape, thermal regulation, reproduction, etc.
Moderate Gradient Steams on Dissected and Undissected Debris and Alluvial Fan Surfaces	Moderate gradient streams are most commonly found on a dissected and undissected debris flow and alluvial fan surfaces with a longitudinal gradient (at thalweg depth) that ranges from 2 to 6 percent. They are commonly 2 <sup>nd</sup> or 3 <sup>rd</sup> order streams. Boulders, stones, and cobbles that alternate with pools dominate the channel reaches. Springs, seeps and residual pools are found to occur in the streambed or along the sides of incised canyons. Channel reaches are relatively confined and cannot meander except in their lower reaches. Predominant plant communities are either oak woodland, oak/sycamore woodland, or willow scrub community types.
Low Gradient Streams on Marine Terraces and Filled Coastal Basin Surfaces	Low gradient streams are generally 3 <sup>rd</sup> , 4 <sup>th</sup> , or 5 <sup>th</sup> order streams most commonly found on marine terraces or coastal basin surfaces. The longitudinal gradient of these stream beds (at thalweg depth) ranges from 0 to 2 percent. Channel reaches are dominated by sand and silt size particles transported from higher gradients. Active floodplains are rare in low gradient systems due to historic flood control practices that have artificially constrained many channel reaches. In the lower reaches, streams can include tidally-influences freshwater or brackish water, or can flow directly into tidally influenced estuarine systems. Typical plant communities are highly variable, but include riparian forests, scrub/shrub, or persistent and non-persistent emergent wetland plant community types.

1. Order of Stream Channel (1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup>, or 5<sup>th</sup>) (Strahler 1:24,000): \_\_\_\_\_

2. Landforms (*circle one*):

*Mountain Front*

*Alluvial Fan/Debris Flow*

*Coastal Plain*

3. Approximate Longitudinal Channel Slope (at thalweg depth) (*circle one*):

*0 – 2 %*

*2 – 6%*

*> 6%*

**REQUIRED WORKSHEET: PRELIMINARY HGM CLASSIFICATION  
(cont.)**

**Minimum Submittal Requirements for an HGM Functional Assessment Report**

4. Vegetative Communities (please cite source of classification): \_\_\_\_\_

\_\_\_\_\_

5. Surface and/or Subsurface Water Connections: \_\_\_\_\_

\_\_\_\_\_

6. Other Observations Useful in Recognizing Subclass(es): \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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**FIELD**

**REQUIRED WORKSHEET: HGM CLASSIFICATION**  
**Minimum Submittal Requirements for an HGM Functional Assessment Report**

*Verify, and document the rationale used for recognizing HGM subclasses of riparian ecosystems in southern Santa Barbara County within the proposed project area. Show how the project assessment area satisfies the subclass definition provided in the Profile (Chapter IV) and the Dichotomous Key to Santa Barbara Riverine Wetland Types (Chapter VI). Specifically, include a discussion of the site characteristics and show how they are consistent with the dominant characteristics of the subclass. The table below summarizes the dominant characteristics of the subclasses*

1. Field Verification of Order of Stream Channel (1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup>, or 5<sup>th</sup>) (Strahler 1:24,000): \_\_\_\_\_ Yes \_\_\_\_\_ No  
*If no, explain:* \_\_\_\_\_
2. Field Verification of Landforms (e.g., Mountain Front, Alluvial Fan/ Debris Flow, Coastal basin, etc.): \_\_\_\_\_ Yes \_\_\_\_\_ No  
*If no, explain:* \_\_\_\_\_
3. Field Verification of Longitudinal Channel Slope (at thalweg depth): \_\_\_\_\_ Yes \_\_\_\_\_ No  
*If no, explain:* \_\_\_\_\_
4. Field Verification of Vegetative Communities: \_\_\_\_\_ Yes \_\_\_\_\_ No  
*If no, explain:* \_\_\_\_\_
5. Field Verification of Surface and/or Subsurface Water Connections: \_\_\_\_\_ Yes \_\_\_\_\_ No  
*If no, explain:* \_\_\_\_\_

Other Observations Useful in Recognizing Subclass(es): \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**FIELD**

**REQUIRED WORKSHEET: VARIABLE SCORE SHEET**  
**Minimum Submittal Requirements for an HGM Functional Assessment Report**

Score each of the variables listed on the attached variable score sheet. Separate field forms should be completed for different site conditions (i.e., existing site conditions, proposed site conditions, etc.). On each variable score field form, identify the site conditions that the variable scores are based on. If the scores are based on proposed site conditions, provide a detailed description of the proposed conditions and/or assumptions that were made. Be sure to record rationale or comments on the decision for each variable score.

Site Name: \_\_\_\_\_ Date: \_\_\_\_\_  
 HGM Subclass: \_\_\_\_\_ Team: \_\_\_\_\_  
 UTM Coordinates: \_\_\_\_\_ Northing \_\_\_\_\_ Easting \_\_\_\_\_

Variable scores based on (circle one):      *Existing Site Conditions*      *Proposed Site Conditions*

Variable	Measurement	Variable Score Index	Rationale / Comments for Scoring Variable Score Index
V <sub>ASIGN</sub>			
V <sub>BUFFCOND</sub>			
V <sub>BUFFCONT</sub>			
V <sub>BUFFWIDTH</sub>			
V <sub>CHANROUGH</sub>			
V <sub>DECOMP</sub>			
V <sub>EMBED</sub>			
V <sub>HERBCC</sub>			
V <sub>INCWD</sub>			
V <sub>LANDUSE</sub>			
V <sub>LONGPROF</sub>			
V <sub>OFFCWD</sub>			
V <sub>PATCHAREA</sub>			
V <sub>PATCHCONTIG</sub>			
V <sub>PATCHNUM</sub>			
V <sub>RATIO</sub>			
V <sub>REGEN</sub>			
V <sub>RESIDPOOL</sub>			
V <sub>SED</sub>			
V <sub>SHADE</sub>			
V <sub>SHRUBCC</sub>			
V <sub>SNAGS</sub>			
V <sub>SOILINT</sub>			
V <sub>STRATA</sub>			
V <sub>SURFIN</sub>			
V <sub>TREEBA</sub>			
V <sub>TREECC</sub>			
V <sub>VINECC</sub>			

If variable scores are based on proposed site conditions, describe conditions and/or assumptions made \_\_\_\_\_  
 \_\_\_\_\_



**FIELD**

**Data Collection Worksheets**

**Minimum Submittal Requirements for an HGM Functional Assessment Report**

- Step 1. Set-up main cross-section.
- Step 2. Mark off 3.5x and 7x OHW; upstream and downstream.
- Step 3. Thoroughly walk this bounded area. Take note of animals, signs of animals, manipulation (anthropogenic disturbance) of channel, banks, and/or buffers, surface flow into channel (below OHW), and sources of sediment.
- Step 4. Take the necessary measurements to score  $V_{chanrough}$ ,  $V_{embed}$ ,  $V_{incwd}$ ,  $V_{residpool}$ .

**1. Channel Roughness**

Percent of channel cross section occupied by roughness elements (*circle one*):

> 25 %                      5 - 25 %                      < 5%

Roughness a result of (circle one):

*natural processes*

*anthropogenic disturbance*

**2. Embeddedness**

Most frequently occurring size class of streambed materials (*circle one*):

>23.6"                      10 - 23.6"                      3-10"                      0.08-3"                      .002-.08"                      diameter

Proportion (%) of vertical axis that was embedded in and below the surrounding sediment:

Upstream		Downstream	
1 _____	6 _____	1 _____	6 _____
2 _____	7 _____	2 _____	7 _____
3 _____	8 _____	3 _____	8 _____
4 _____	9 _____	4 _____	9 _____
5 _____	10 _____	5 _____	10 _____

Average Percent Embeddedness: \_\_\_\_\_ %

Vertical axis of channel bed material embedded in what type of matrix:

Boulder \_\_\_\_% Stones \_\_\_\_% Cobbles \_\_\_\_% Gravels \_\_\_\_% Sand \_\_\_\_%

**3. In-channel CWD and Decomposition**

	Midpoint Radius (feet)	Length (feet)	Volume (cubic feet)	Decomposition Class
Π *	$\frac{2}{2}$ *	_____ =	_____	_____
Π *	$\frac{2}{2}$ *	_____ =	_____	_____
Π *	$\frac{2}{2}$ *	_____ =	_____	_____
Π *	$\frac{2}{2}$ *	_____ =	_____	_____
Π *	$\frac{2}{2}$ *	_____ =	_____	_____
Π *	$\frac{2}{2}$ *	_____ =	_____	_____
Π *	$\frac{2}{2}$ *	_____ =	_____	_____
Π *	$\frac{2}{2}$ *	_____ =	_____	_____
Π *	$\frac{2}{2}$ *	_____ =	_____	_____
Π *	$\frac{2}{2}$ *	_____ =	_____	_____

Average Volume of CWD below OHW: \_\_\_\_\_ cubic ft.

Range of Decomposition Classes: \_\_\_\_\_

Mode of Decomposition Classes: \_\_\_\_\_

**FIELD**

**Data Collection Worksheets (page 2)**  
**Minimum Submittal Requirements for an HGM Functional Assessment Report**

**4. Residual Pools**

Distance (feet) between residual pools:

1 --> 2	_____	4 --> 5	_____
2 --> 3	_____	5 --> 6	_____
3 --> 4	_____	6 --> 7	_____

Number of pools: \_\_\_\_\_  
 Average distance between residual pools: \_\_\_\_\_

**Step 4.** Take measurements necessary to scale Plant Community Variables, in addition to  $V_{shade}$  &  $V_{offwd}$

**5. Herb CC, Seedling/Sapling CC, Shrub CC, Tree CC, and Vine CC**

Make six ocular estimates of the percent cover class for each stratum at six, variable-sized, circular plots along the two transects.

	Cover Class Midpoint				
	Herb	Seedling	Shrub	Tree	Vine
Main Cross-section:					
River Right	_____	_____	_____	_____	_____
River Left	_____	_____	_____	_____	_____
Upstream:					
River Right	_____	_____	_____	_____	_____
River Left	_____	_____	_____	_____	_____
Downstream:					
River Right	_____	_____	_____	_____	_____
River Left	_____	_____	_____	_____	_____
<i>Avg. Cover Class:</i>	_____	_____	_____	_____	_____

**6. Basal Area of Trees and Snags**

Basal Area of Trees

River Right	_____	x 10 =	_____	sq. ft./acre
River Left	_____	x 10 =	_____	sq. ft./acre
<i>Average Basal Area:</i>			_____	sq. ft./acre

Basal Area of Snags

River Right	_____	x 10 =	_____	sq. ft./acre
River Left	_____	x 10 =	_____	sq. ft./acre
<i>Average Basal Area:</i>			_____	sq. ft./acre

**7. Strata**

Determine the total number of strata along a 100 foot transect at 10 foot intervals

River Right	$\frac{1}{6}$	$\frac{2}{7}$	$\frac{3}{8}$	$\frac{4}{9}$	$\frac{5}{10}$
River Left	$\frac{1}{6}$	$\frac{2}{7}$	$\frac{3}{8}$	$\frac{4}{9}$	$\frac{5}{10}$
<i>Average number of Strata:</i>	_____				

**FIELD**

**Data Collection Worksheets (page 3)**  
**Minimum Submittal Requirements for an HGM Functional Assessment Report**

Step 4 (continued). Take measurements necessary to scale Plant Community Variables, in addition to  $V_{shade}$  and  $V_{offcwd}$

**8. Ratio of Natives:Exotics**

List the three dominant species for the four stratum (i.e., herb, vine, shrub, and tree) and their respective indigenous (e.g., native, exotic, or cultivated) status.

	Herb	N/E/C
1		
2		
3		

	Vine	N/E/C
1		
2		
3		

	Shrub	N/E/C
1		
2		
3		

	Tree	N/E/C
1		
2		
3		

Ratio of Native : Exotic: \_\_\_\_\_

**9. Off-channel CWD**

Measure all off-channel CWD that falls within the two 0.1 acre veg. plots along the main cross section

	Midpoint Diameter (feet)		Length (feet)		Volume (cubic ft)
$\Pi * \frac{\quad}{2}$		*	_____	=	_____
$\Pi * \frac{\quad}{2}$		*	_____	=	_____
$\Pi * \frac{\quad}{2}$		*	_____	=	_____
$\Pi * \frac{\quad}{2}$		*	_____	=	_____
$\Pi * \frac{\quad}{2}$		*	_____	=	_____
$\Pi * \frac{\quad}{2}$		*	_____	=	_____
$\Pi * \frac{\quad}{2}$		*	_____	=	_____
$\Pi * \frac{\quad}{2}$		*	_____	=	_____
$\Pi * \frac{\quad}{2}$		*	_____	=	_____
$\Pi * \frac{\quad}{2}$		*	_____	=	_____

Total Volume of off-channel CWD: \_\_\_\_\_ cubic ft.

**10. Shade**

Determine Percent Canopy Coverage in the middle of the stream channel at the main cross section

	Percent Cover		Overhang Distance		Shade Index
Upstream					
River Right	_____	*	_____	=	_____
River Left	_____	*	_____	=	_____
Downstream					
River Right	_____	*	_____	=	_____
River Left	_____	*	_____	=	_____
Avg. Shade Index:	_____				

**FIELD**

**Data Collection Worksheets (page 4)**

**Minimum Submittal Requirements for an HGM Functional Assessment Report**

*Step 5.* Take measurements necessary to scale the remaining hydrologic, biogeochemical, landscape, and faunal support/habitat variables. If necessary, walk the bounded project and variable assessment area.

**11. Soil Profile Integrity**

<b>Soil Pit 1</b>			
Horizon	Depth (inches)	Soil Color	Texture
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

<b>Soil Pit 2</b>			
Horizon	Depth (inches)	Soil Color	Texture
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

**12. Sediment Inputs into Channel**

Identify the sources of sediment delivery into the stream channel:

	Description	Up- or Downstream?	Natural?
1	_____	_____	_____
2	_____	_____	_____
3	_____	_____	_____
4	_____	_____	_____
5	_____	_____	_____

**13. Surface Water Into Channel**

Identify the surface water connections into the stream channel:

	Description	Up- or Downstream?	Natural?
1	_____	_____	_____
2	_____	_____	_____
3	_____	_____	_____
4	_____	_____	_____
5	_____	_____	_____

**14. Longitudinal Profile**

Activities below OHW impacting the longitudinal channel slope:

1	_____
2	_____
3	_____
4	_____
5	_____

Grade control activities upstream or downstream of proposed project area:

_____
_____

**FIELD**

**Data Collection Worksheets (page 5)**

**Minimum Submittal Requirements for an HGM Functional Assessment Report**

*Step 5 (continued).* Take measurements necessary to scale the remaining hydrologic, biogeochemical, landscape, and faunal support/habitat variables. If necessary, walk the bounded project and variable assessment area.

**15. Animal Sign**

Animal sightings and/or indicators of animal use of the VAA

1	_____	6	_____
2	_____	7	_____
3	_____	8	_____
4	_____	9	_____
5	_____	10	_____

Number of animal classes represented: \_\_\_\_\_

Number of indicator species observed: \_\_\_\_\_

**16. Buffer Condition**

Identify Land-use(s) in buffer:

Upstream

River Right \_\_\_\_\_

River Left \_\_\_\_\_

Downstream

River Right \_\_\_\_\_

River Left \_\_\_\_\_

Dominant Land-use in buffer: \_\_\_\_\_

\_\_\_\_\_ % of VAA cleared of native vegetation

**17. Buffer Width**

Zoning (urban or rural): \_\_\_\_\_

Bufferwidth (ft) from TOB to outer edge of buffer:

Main Cross-section:

River Right \_\_\_\_\_

River Left \_\_\_\_\_

7.0x OHW Upstream

River Right \_\_\_\_\_

River Left \_\_\_\_\_

7.0x OHW Downstream

River Right \_\_\_\_\_

River Left \_\_\_\_\_

Average Bufferwidth: \_\_\_\_\_

**18. Buffer Continuity**

Identify the breaks in the buffer (e.g. , roads, powerlines, agriculture, etc.)

River Right

River Left

1 \_\_\_\_\_

2 \_\_\_\_\_

3 \_\_\_\_\_

4 \_\_\_\_\_

5 \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

*Step 6.* Use printed GIS maps to scale the remaining four landscape variables (patch number, area, and contiguity, and land use.

**FIELD**

**Data Collection Worksheets (page 6)**

**Minimum Submittal Requirements for an HGM Functional Assessment Report**

*Step 6.* Use printed GIS maps to scale the remaining four landscape variables (patch number, area, contiguity, and land use).

**19. Land Use**

Determine the percent coverage (%) of each land use type found within the project site subwatershed.

Ocean/Open Water	_____
Urban / Impervious	_____
Irrigated agriculture / Golf Course / Lawns	_____
Scrub / Shrub	_____
Woodland / Chaparral	_____
Forested / Riparian / Chaparral	_____
Grassland	_____
Disturbed Soils / Heavily Grazed / Bedrock	_____
<i>Sum</i>	= 100%

**20. Patch Area**

Determine the area of high-, moderate-, and low habitat structure and functioning habitat patches within the 1000 ft. VAA ring.

<i>Habitat Patch (structure and functioning)</i>	<i>square feet</i>		<i>ft<sup>2</sup></i>	<i>%</i>
high habitat	_____ /		3,140,000 * 100 =	_____
moderate habitat	_____ /		3,140,000 * 100 =	_____
low habitat	_____ /		3,140,000 * 100 =	_____
			<i>Sum</i>	= 100%

**21. Patch Contiguity**

Determine the number of DLG stream arcs classified as "unsuitable" habitat between the VAA and the "core" wilderness habitat patch: \_\_\_\_\_

**21. Patch Number**

Determine the number of high and moderate habitat structure and function habitat patches within the 1000 ft. VAA ring.

	<b># of Habitat Patches</b>
High habitat structure and function	_____
Moderate habitat structure and function	_____

**OFFICE OR FIELD**

**REQUIRED WORKSHEET: FUNCTIONAL SCORE SHEETS**

***Minimum Submittal Requirements for an HGM Functional Assessment Report***

*Calculate the Functional Capacity Indexes (FCI's) for each of the functions listed on the attached functional score field forms. The assessment team members, in the field, should review the calculations and preliminary assessment results. Separate functional score field forms should be completed for each set of scored variables (i.e., based on existing site conditions, proposed site conditions, etc.). Be sure to record rationale or comments on the FCI for each function.*

Function	Formulae	Functional Capacity Index	Rationale / Comments for Scoring Functional Capacity Index
<b>Hydrology</b>			
Energy Dissipation	$[(V_{INCWD}) + (V_{HERBCC} + V_{SHRUBCC} + V_{TREEBA})/3 + (V_{BUFFCONT} + V_{BUFFCOND} + V_{BUFFWIDTH})/3 + (V_{CHANROUGH})]/4$		
Surface and Subsurface Water Storage and Exchange.	$(V_{SED} + V_{SOILINT} + V_{RESIDPOOL})/3$		
Landscape Hydrologic Connections	$[V_{LONGPROF} + V_{SOILINT} + V_{SURFIN} + V_{LANDUSE} + (V_{BUFFCONT} + V_{BUFFCOND} + V_{BUFFWIDTH})/3]/5$		
Sediment Mobilization, Storage, Transport, and Deposition	$[(V_{HERBCC} + V_{SHRUBCC} + V_{TREEBA})/3 + (V_{BUFFCONT} + V_{BUFFCOND} + V_{BUFFWIDTH})/3 + V_{EMBED} + V_{SED} + V_{CHANROUGH}]/5$		
<b>Biogeochemical</b>			
Cycling of Elements and Compounds	$[(V_{SOILINT} + V_{SED})/2 + (V_{INCWD} + V_{OFFCWD})/2 + (V_{HERBCC} + V_{SHRUBCC} + V_{TREEBA})/3 + (V_{BUFFCONT} + V_{BUFFCOND} + V_{BUFFWIDTH})/3 + (V_{DECOMP})]/5$		
Removal of Imported Elements and Compounds	$[(V_{HERBCC} + V_{SHRUBCC} + V_{TREEBA})/3 + (V_{BUFFCONT} + V_{BUFFCOND} + V_{BUFFWIDTH})/3 + (V_{SOILINT} + V_{SED})/2 + V_{LONGPROF}]/4$		
Particulate Detention	$[(V_{HERBCC} + V_{SHRUBCC} + V_{TREEBA})/3 + (V_{BUFFCONT} + V_{BUFFCOND} + V_{BUFFWIDTH})/3 + (V_{CHANROUGH}) + (V_{SED}) + (V_{EMBED})]/5$		
Organic Matter Transport	$[(V_{INCWD}) + (V_{DECOMP}) + (V_{HERBCC} + V_{SHRUBCC} + V_{TREEBA})/3 + (V_{BUFFCONT} + V_{BUFFCOND} + V_{BUFFWIDTH})/3 + (V_{LONGPROF})]/5$		

**REQUIRED WORKSHEET: FUNCTIONAL SCORE**  
*Minimum Submittal Requirements for an HGM Functional*

Function	Formulae	Functional Capacity Index
<b>Plant Communities</b>		
Maintain Characteristic Plant Community	$\frac{[(V_{TREECC} + V_{SHRUBCC} + V_{VINECC} + V_{HERBCC} + V_{REGEN})/5 + V_{RATIO} + V_{STRATA} + V_{TREEBA}]/4}$	
Maintain Detrital Biomass	$(V_{SNAGS} + [(V_{OFFCWD} + V_{INCWD})/2] + V_{DECOMP})/3$	
<b>Faunal Support / Habitat</b>		
Spatial Structure of Habitats	$\frac{[(V_{SIGN} + (V_{BUFFCOND} + V_{BUFFCONT} + V_{BUFFWIDTH})/3 + (V_{SHADE} + V_{RESID} + V_{SNAG} + V_{STRATA})/4] / 3}$	
Interspersion and Connectivity of Habitats	$[ V_{LANDUSE} + (V_{PATCHNUM} + V_{PATCHAREA} + V_{PATCHCONTIG})/3] / 2$	
Distribution and Abundance of Invertebrate Taxa	<b>NA</b>	
Distribution and Abundance of Vertebrate Taxa	<b>NA</b>	



## OFFICE

### **REQUIRED WORKSHEET : PRELIMINARY PROFILE** **Minimum Submittal Requirements for an HGM Functional Assessment Report**

*Develop a narrative presenting a general description of the existing conditions within the project assessment area. This description will serve as a preliminary profile of the project assessment area and will allow the assessment team the opportunity to describe the site conditions with respect to the subclass profile and reference standard conditions presented in the Draft Guidebook. The following table is taken from the Recommended Table of Contents (Chapter 7) for an Assessment Report, and provides an outline for the narrative.*

#### **Description of the Project Assessment Area And Relevant Landscape Context**

*Paragraph 1: Geographic extent of jurisdiction in waters/wetlands*

*Paragraph 2: Historical and current land uses and conditions*

1. Hydrology
2. Soils
3. Vegetation
4. Faunal Support/Habitat

*Paragraph 3: Geographic extent of jurisdiction in waters/wetlands*

*Paragraph 4: Regulatory Context*

1. Federal
2. State
3. Local (*i.e.*, County)

*Paragraph 5: Proposed project activities and resulting conditions*

1. Area and volume of fill to waters/wetlands
2. Anticipated changes to:
  - a. Hydrology
  - b. Soils
  - c. Vegetation
  - d. Faunal Support/Habitat