Riparian Management Area Design and Management Guidelines

Management of the Riparian Management Areas established under this Agreement will seek to maintain viable agricultural operations, and to the extent practicable based on site potential, re-establish and/or maintain the full expression of successional dynamics of the riparian plant community, thereby improving and maintaining water quality and fish habitat.

1. Riparian Management Area design and management guidelines and criteria

1.1 Riparian Management Areas are associated with active channels of perennial streams, and springs including associated ponds with surface channel connections to perennial streams.

1.2 These guidelines are intended to be generally applicable to the Off Project Area, but certain locations may require mutually agreeable deviation from these guidelines to accommodate complexities in water features in a practical manner. Such locations may include, without limitation, portions of Fishhole Creek, portions of Whisky Creek, and Beatty Gap spring complexes.

1.3 Riparian Management Area design guidelines determine how the boundaries of each Riparian Management Area will be established in Riparian Management Agreements. Adaptive management will apply only to management practices within the established Riparian Management Areas, but not to how the boundaries of the Riparian Management Areas are determined.

Width criteria below refer to the distance from the water’s edge. For rivers and streams, this means the width on one side of the waterway. Riparian Management Area widths are to be measured from the edge of the water visible in the National Agricultural Inventory Program (NAIP) imagery for July 15 – August 1, 2012. NAIP imagery is typically acquired every few years in the July-August period. Parties agree to use the most current year of NAIP imagery, or other mutually agreed upon remote sensing product, as the basis for measuring Riparian Management Area widths.

1.4 Parties agree that moving the Riparian Management Area as the stream moves is an important large-scale design element of the Riparian Management Area. To address stream movement the following measures apply:

1.4.1 A Riparian Management Area fence must be moved to meet the appropriate criteria when a river or stream moves in a manner that reduces the Riparian Management Area width at a location to 70% of the appropriate criterion for that site. If a landowner voluntarily exceeds the width criterion, none of the additional width beyond the criterion will be included in this calculation.

1.4.2 A Riparian Management Area fence may be moved according to the appropriate criteria when a river or stream moves in a manner that increases the Riparian Management Area width at a location to 130% of the appropriate criterion for that site.

1.4.3 Different fence types have different management and construction considerations including efficiency, available funding, and topography, which should be considered when designing the layout.
1.5 Riparian Management Corridor lengths will be measured along the centerline of channels with flowing water from a riverine source in 2012 NAIP imagery. Length will be re-evaluated every 10 years, or after large floods events (e.g. 30 – 50 year events) that may cause significant channel change. Where the main channel splits, length of each channel will be measured and added together to calculate the total channel length denominator for the Sufficient Participation calculation.

1.6 In order to qualify under Sufficient Participation criteria, landowners can choose either to include an island in the Riparian Management Area, or to limit the Riparian Management Area to the channels that define the island. Grazing on an island would be conducted under grazing management plans for Riparian Management Areas or for portions of fields adjacent to Riparian Management Areas, as specified in the Riparian Management Agreement (see Section 3 below).

1.7 Riparian Management Area fences should be designed to work smoothly and efficiently with ranch operations. Changes in the layout of fences to enhance ranch operations are not restricted so long as the changed layout complies with the criteria specified in the Riparian Management Agreement.

1.8 The layout of an existing Riparian Management Area fence that provides significant ecosystem benefit but does not fully meet the criteria in this agreement can be grandfathered for a mutually agreeable time period (not to exceed the lifetime of the fence) if the adjacent transition area is managed according to a mutually agreeable field management plan, and the riparian area is managed according to grazing strategies specified in the Riparian Management Agreement. When the time period expires, or when the fence is replaced, then the layout will be re-designed to fully comply with the criteria. In general, the intent of this provision is to accommodate fence types that cannot be easily moved but are providing an acceptable level of benefit outweighing the costs of moving the fence immediately.

1.9 The landowner has a choice of two different standards for management and layout of a Riparian Management Area, each of which carries different guidelines for Riparian Management Area width. Width of the Riparian Management Area is flexible within the guidelines in 1.10, depending on adjacent transition area management and site specific conditions. Management protocols for adjacent fields that complement Riparian Management Area functions allow for narrower Riparian Management Area width. Conversely, wider Riparian Management Areas enable more flexible management in adjacent fields.

1.10 Guidelines for Riparian Management Areas and adjacent transition areas (the portion of the field adjacent to the Riparian Management Area).

1.10.1 The guidelines below are intended to direct the initial layout of the Riparian Management Area, but the final layout must be based on an on-site interaction with the landowner. The final layout can deviate from these guidelines by Major Decision of the JME, but once agreed to they become the criteria for that location.

1.10.2 Option 1 Riparian Management Area guidelines apply when Adjacent Transition Areas are managed according to Option 1 guidelines.

1.10.2.1 Minimum Riparian Management Area width is the lesser of 50 ft or a reasonably consistent contour 2 ft above the surface water elevation of the
2005 LiDAR digital elevation model (or other mutually agreeable elevation baseline criterion). The absolute minimum absent major constraints is 30 ft. The minimum does not apply when constrained by major, unchangeable features like highways. When determining the minimum, interaction with existing irrigation infrastructure, fences, and other structures will be considered on a case by case basis. Generally speaking, deviations over short distances may be acceptable depending on topography and layout of the Riparian Management Area nearby. Future assessments of Riparian Management Area width will be based on mutually agreeable mapping products (e.g. updated LiDAR or the equivalent).

1.10.2.2 Maximum Riparian Management Area width is 100 ft, under Option 1. In areas capable of providing more extensive riparian area, greater width than the maximum is desirable, but not required. The maximum is not intended to constrain the maximum width of a Riparian Management Area, if a landowner is willing to do more.

1.10.2.3 Initial Riparian Management Area width is 75 ft, under Option 1.

1.10.2.4 Start at the Initial Riparian Management Area width and then deviate according to the following rules:

Rule 1 (Elevation Rule): Establish the Riparian Management Area edge at 2 ft above water surface in 2005 LiDAR digital elevation model if it is encountered before the maximum width. This elevation rule will be unclear in areas with complex topography, in general do not establish elevation limit unless the 2 ft demarcation is a non-chaotic, relatively well-defined feature. If this places the edge within the minimum width, then the minimum width constraint applies.

Rule 2 (Reductions from Initial Width): Reduce the Riparian Management Area edge to the minimum width where the edge of the geomorphic floodplain is encountered, or reduce incrementally where small area contributes to runoff (i.e. significant overland flow is unlikely).

Rule 3 (Increases from Initial Width): Increase the Riparian Management Area edge from initial width incrementally where larger area contributes to runoff, especially where drainage channels flow towards a river, stream, or spring. Springs including associated ponds with surface channel connections to perennial streams should be incorporated within the Riparian Management Area, even if it increases width beyond maximum at the location of the spring.

1.10.3 Option 1 adjacent transition area (the portion of the field adjacent to the Riparian Management Area) management guidelines apply to the adjacent transition areas to provide outcome-based management intended to benefit Riparian Management Area function. The adjacent transition area width will be 130 ft less the Riparian Management Area width.

1.10.4 Guidelines for outcomes of Option 1.
1.10.4.1 Fields will exhibit the average absolute percent cover of bare ground within the herbaceous stratum no greater than 20\% and a height of herbaceous vegetation no less than 4 inches.

1.10.4.2 Wetland features within the geomorphic floodplain are features that support wetland vegetation, regardless of the water source (irrigation return flow, shallow groundwater, etc.). Commonly, such features are depressions that are remnants of old river channels. In order to protect the important ecological functions that these areas provide (for example, nutrient and sediment retention, cooling of return flows, wildlife habitat, etc.), grazing management strategies should include measures to ensure that wetland features support robust wetland plant communities. Generally speaking, the expectation is that because the emergent wetland vegetation communities commonly growing in these areas are less palatable for livestock than pasture grasses, significant grazing impacts would occur only if the adjacent field is overused to the extent that livestock turn to the emergent wetland vegetation. Therefore, fencing is usually not necessary to properly manage for these areas. Instead, managing livestock densities and duration of use can adequately protect these wetland features. Wetland features will exhibit emergent wetland and bank stabilizing vegetation utilization by stock no greater than 20\% and wetland seedling, sapling and young shrub utilization by stock no greater than 20\%.

1.10.4.3 The preferred outcome for livestock watering is off-site stock watering facilities located to minimize use of wetland features or streams. If streams or wetland features are used for livestock watering, use is restricted to discrete hardened sites (F. Berg, 2001. Livestock water access and ford stream crossings. Engineering Technical Note No. MT-13, NRCS, Bozeman, MT).

1.10.5 Option 2 Riparian Management Area width guidelines are the same as Option 1 guidelines, except the maximum Riparian Management Area width is 130 ft; the initial Riparian Management Area width is 90 ft; and there is not an adjacent transition area requirement.

2. Grazing management in Riparian Management Areas

2.1 The JME Technical Team will establish mutually agreeable grazing alternatives for Riparian Management Areas. The number and nature of the alternatives may vary depending on, but not limited to, the following: riparian plant community composition, soils, initial condition of the corridor, access to other irrigated or dry-land pasture alternatives. Grazing must be managed to re-establish and/or maintain the full expression of successional dynamics of the riparian plant community. Generally speaking, flash grazing is likely to be a primary tool. Flash grazing is the practice of briefly grazing a pasture, typically not more than 10-14 days with a high concentration of livestock to capitalize on an atypical forage resource.

2.2 Whereas fences will be commonly used to facilitate management of Riparian Management Areas, they are not always needed or appropriate. Fences will be utilized where needed and appropriate to meet management objectives.
2.3 Mutually agreeable management practices can be developed and added to the Riparian Management Agreements in the future through amendments (for example, integrated weed management plans).

2.4 In non-irrigated areas owned by Eligible Riparian Landowners, livestock will be managed to limit adverse impacts to the Riparian Management Corridor through the use of off-site livestock watering, salt/mineral placement, and other management tools. Grazing management provisions to this effect will be included in the Riparian Management Agreement pertaining to the irrigated land associated with this ownership. The non-irrigated Riparian Management Corridor will not be included in the Riparian Management Agreement, and will not be included in the calculation of Sufficient Participation.

3 Assessment and Monitoring

3.1 Irrigated Riparian Management Area

3.1.1 Initial assessments will be done using the Proper Functioning Condition (PFC) technique. Subsequently, monitoring techniques like Green Line (Winward 2000) and MIM (Burton et.al. 2011) that are compatible with the Proper Functioning Condition (PFC) technique will be used to monitor trend and condition of riparian corridor plant communities.

3.1.2 The PFC methodology evaluates hydrologic, vegetative, and erosional/deposition conditions in a stream reach, and produces ratings that express the stream’s resiliency to relatively high flow events. Possible ratings include:

3.1.2.1 Proper Functioning Condition (PFC) – the stream reach is likely able to dissipate energy of relatively high flow events, filter sediment, aid floodplain development, improve recharge, and provide other functions important to providing water quality and fish habitat benefits.

3.1.2.2 Functional-at-risk (FAR) – one or more of the key attributes or processes is impaired to the extent that conditions will likely degrade when relatively high flow events occur. A FAR rating is accompanied by an assessment of trend. A “downward trend” indicates that the reach is moving away from PFC. An “upward trend” indicates movement towards PFC. If information is insufficient to identify a trend, it is “non-apparent”.

3.1.2.3 Non-functional (NF) – key attributes and processes are clearly absent or impaired to the extent that the stream reach lacks resilience.

3.1.2.4 Factors affecting stream conditions that are outside of the control of the Eligible Riparian Landowner are explicitly identified as part of the PFC evaluation.

3.1.3 PFC monitoring will be done by an interdisciplinary team of suitably qualified technical experts trained in accepted monitoring protocols, including at least one representative each for the Landowner Entity, the Klamath Tribes, and the United States.

3.1.4 The PFC interdisciplinary team (PFC Team) will interact with the National Riparian Service Team to obtain training, advice, and assistance with establishing PFC
protocols tailored to the Off-Project Restoration Area. For example, protocols for spring-dominated reaches that are unlikely to experience high flow events may differ from main stem river reaches that frequently experience high flow events. PFC protocols will be reviewed and approved by the JME prior to use.

3.1.5 The Landowner Entity will provide the primary management of the day to day logistics of the monitoring team, collaborating closely with the Klamath Tribes and the JME.

3.1.6 When land ownership changes, the Landowner Entity will request a meeting to help orient the new landowner to the Riparian Management Area management obligations associated with their property and with the larger agricultural community.

3.1.7 PFC monitoring frequency will be established in consultation with the National Riparian Service Team (NRST), using the following guidelines:

3.1.7.1 An initial PFC evaluation will be done as soon as practicable after a Riparian Management Agreement is finalized on a property.

3.1.7.2 If a PFC evaluation for a property results in a rating of PFC, then qualitative assessments conducted by the Landowner Entity will be relied upon thereafter to confirm maintenance. The PFC Team will develop the qualitative assessment protocol in consultation with the NRST.

3.1.7.3 The first time a PFC evaluation for a property results in a rating of FAR with an upward trend, then a monitoring plan for the site will be developed and implemented and an evaluation will be conducted within the next 3 years to confirm an upward trend or reasons for not achieving an upward trend. After the upward trend has been confirmed, monitoring evaluations will be conducted no less than once within each subsequent 5 year period until PFC is reached.

3.1.7.4 If a PFC evaluation for a property results in a rating of FAR with a downward or a non-apparent trend, then Green Line or similar monitoring will be conducted once within each subsequent 3 year period until the rating improves to FAR with an upward trend.

3.1.7.5 During the first 5 years, the PFC Team will do a PFC evaluation on 2 properties each year that have been subject to qualitative assessments by the Landowner Entity to confirm that the qualitative assessment protocols are functioning as intended by the Parties. For each 5 year period thereafter, PFC evaluations will be done on 2 properties that have been subject to qualitative assessments by the Landowner Entity. Changes to the qualitative protocols will be made as appropriate.

3.1.7.6 Upon recommendation by the PFC Team, and approval by the JME, this PFC monitoring frequency and protocol can be amended to enhance efficiency or effectiveness.

3.1.7.7 If a potential problem is identified, a request for PFC monitoring can be submitted to the JME by the Landowner Entity, the Klamath Tribes, or the
United States, and the monitoring will proceed if a majority of the JME approves the request.

3.1.7.8 The JME will fund PFC monitoring.

3.2 Non-irrigated Riparian Management Corridor

3.2.1 Qualitative assessment by Landowner Entity of non-irrigated Riparian Management Corridors will be relied upon to determine general condition. Criteria for qualitative assessments will be developed by the PFC Team, in consultation with the NRST. If the criteria are not met, then more quantitative monitoring is triggered.

3.2.2 If quantitative monitoring is triggered under 4.b.i, then a PFC evaluation will be conducted by the PFC team described in 4.a.ii.

3.3 Adjacent transition area (Option 1)

3.3.1 Qualitative assessment by Landowner Entity of adjacent transition areas to determine general condition; if the general condition appears to be below the criteria, then more quantitative monitoring is triggered.

3.3.2 The quantitative monitoring protocols will follow standard vegetative monitoring protocols.

3.3.3 Qualitative assessment by Landowner Entity of stock water system operational condition, and whether it is functioning to meet adjacent transition area management and riparian objectives.

3.4 Monitoring results will be communicated to the landowner, the Landowner Entity, the Klamath Tribes, and the JME. Any necessary corrective action will be implemented under the terms of the Riparian Management Agreement.