EPA Submittal - Blackfoot Headwaters Planning Area Water Quality and Habitat Restoration Plan and TMDL Addendum for Sediment – Sandbar Creek

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Steve Bullock, Governor
Tracy Stone-Manning, Director DEQ

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Prepared by:
Water Quality Planning Bureau
Watershed Management Section

Contributors:
Water Quality Planning Bureau
Watershed Management Section
Paul Kusnierz, Sediment Project Manager
Dean Yashan, Section Supervisor

Information Management and Technical Services Section
Eric Regensburger, Project Model Support

Montana Department of Environmental Quality
Water Quality Planning Bureau
1520 E. Sixth Avenue
P.O. Box 200901
Helena, MT 59620-0901

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ACRONYM LIST

Acronym	Definition
DEQ	Department of Environmental Quality (Montana)
EPA	Environmental Protection Agency (U.S.)
HRU	Hydrologic Response Units
SWAT	Soil & Water Assessment Tool
TMDL	Total Maximum Daily Load
TPA	TMDL Planning Area

1.0 INTRODUCTION

This addendum provides a sediment total maximum daily load (TMDL) for Sandbar Creek. In 2004 the Montana Department of Environmental Quality (DEQ) developed sediment TMDLs for four streams in the Blackfoot Headwaters TMDL Planning area (TPA). These streams included the Blackfoot River from Landers Fork to Nevada Creek, Willow Creek, Arrastra Creek, and Poorman Creek. All TMDL information for these four streams is contained within the document entitled *Blackfoot Headwaters Planning Area Water Quality and Habitat Restoration Plan and TMDL for Sediment* (Montana Department of Environmental Quality et al., 2004). Although DEQ (2004) includes discussion of Sandbar Creek impairment conditions and restoration planning objectives, the sediment TMDL targets and allocations were not explicitly defined as required for Environmental Protection Agency (EPA) TMDL approval.

This addendum builds off information presented in DEQ (2004). The goal of this addendum is to provide the information required of a sediment TMDL for Sandbar Creek to obtain EPA approval and subsequently assist with water quality protection and restoration work linked to sediment reductions in Sandbar Creek. General information about TMDL development can be found within Section 1.0 (Introduction, pages 1 through 4) of DEQ (2004).

1.1 SANDBAR CREEK IMPAIRMENT CAUSES AND TMDL DEVELOPMENT STATUS

The Sandbar Creek assessment unit (segment) information and list of impairment causes are identified in **Table 1-1**. In addition to the sedimentation/siltation impairment cause addressed within this addendum, there are four existing metals impairment causes (manganese, iron, copper, and aluminum) on Sandbar Creek. TMDLs addressing these four metals were completed within the document entitled *Water Quality Restoration Plan for Metals in the Blackfoot Headwaters TMDL Planning Area* (Montana Department of Environmental Quality, 2003). Note that the Sandbar Creek segment begins at the tributary forks and extends 1.67 miles to the mouth at Willow Creek (**Figure 1-1**). Also note that the sedimentation/siltation impairment is addressed via a sediment TMDL in this document. Therefore, throughout this addendum the term sediment will be used in place of sedimentation/siltation when defining or discussing the sedimentation/siltation impairment condition.

Table 1-1. Sandbar Creek Impairment Causes and TMDL Development Status

Waterbody & Location Description	Waterbody ID	Impairment Cause	Pollutant Group	Status
SANDBAR CREEK, forks to mouth (Willow Creek)	MT76F002_060	Sedimentation/Siltation	Sediment	Sediment TMDL completed within this addendum
		Manganese	Metals	TMDL completed in 2003 metals TMDL document
		Iron	Metals	TMDL completed in 2003 metals TMDL document
		Copper	Metals	TMDL completed in 2003 metals TMDL document
		Aluminum	Metals	TMDL completed in 2003 metals TMDL document

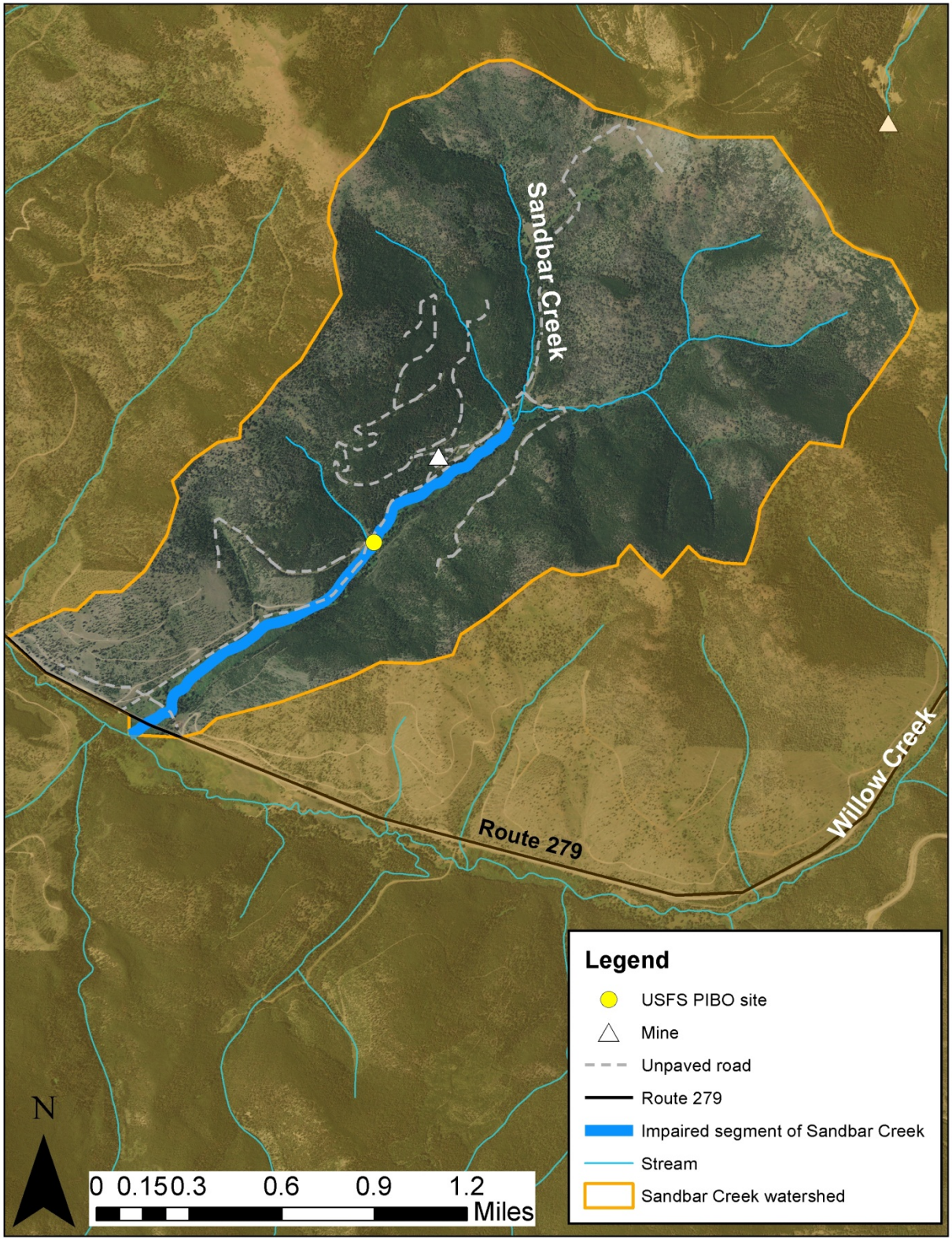

Figure 1-1. Sandbar Creek watershed

1.2 SANDBAR CREEK WATERSHED CHARACTERIZATION

Sandbar Creek is a small perennial stream with a drainage area of 3.24 square miles located within the Blackfoot Headwaters TMDL Planning Area (TPA). Section 1.1 and Figures 1 through 9 of DEQ (2004) provide a watershed description for the Blackfoot Headwaters TPA. Figure 1 of DEQ (2004) shows the location of Sandbar Creek within the Blackfoot Headwaters TPA. Note that Sandbar Creek flows into Willow Creek, which then flows into the Blackfoot River upstream of the town of Lincoln.

The geology of Sandbar Creek is Paleozoic Sedimentary Rocks (Figure 2 of DEQ 2004), and the major vegetation types in the Sandbar Creek include coniferous forest and mixed forest and shrub (Figure 4 of DEQ 2004). The majority of the watershed is administered by the Helena National Forest, with private land ownership in the lower portion of the watershed along the lower 0.75 miles of Sandbar Creek (Figure 5 of DEQ 2004). Land management activities include timber harvest, cattle grazing, and forest recreational (Figure 6 of DEQ 2004). There is unpaved forest road access parallel to Sandbar Creek in the lower half of the watershed, and Route 279 crosses Sandbar Creek a few hundred yards upstream of the confluence with Willow Creek. The area between Route 279 and Willow Creek and upstream portions of Sandbar Creek contain beaver pond complexes.

2.0 IMPAIRMENT DESCRIPTION AND TMDL TARGETS

This section of the addendum describes the information used to define the sediment (sedimentation/siltation) impairment and also presents the sediment TMDL targets for Sandbar Creek. New data was not collected by DEQ as part of this sediment TMDL development. Instead this section is based on information collected for the 2001 Sandbar Creek assessment, data from the US Forest Service in 2004 and 2009, and target information contained within the Blackfoot Headwaters Sediment (Montana Department of Environmental Quality et al., 2004) and Middle Blackfoot-Nevada (Montana Department of Environmental Quality, 2008) TMDL documents.

2.1 SANDBAR CREEK SEDIMENT IMPAIRMENT

Several factors were considered when making the 2001 Sandbar Creek sediment impairment determination. These are documented within DEQ's assessment files (http://deq.mt.gov/wqinfo/CWAIC/default.mcpx) and include:

- Twelve macroinvertebrate clinger taxa show the possibility of extensive fine sediment impacts.
- Mine tailings border the banks, iron hydroxide covers much of the stream substrate, and mine waste has been used to make stream crossings for the road.
- At an upstream location the pebble counts have 27.4% of the substrate as being 2 mm or less.
- Near the mouth the pebble counts have 41.6% of the substrate as being 2 mm or less.
- The headwaters area has minor habitat problems associated with older logging activities.
- Near the mouth, stream channelization was observed along Route 279. Extensive bank erosion and collapsing banks are present along this reach.

Additional data (**Table 2-1**) was collected from Sandbar Creek by the US Forest Service at one site (47.00050; -112.39645) in 2004 and 2009. This data included fine sediment measured in pool tails and can be compared to TMDL targets.

Table 2-1. US Forest Service Data from Sandbar Creek

Year	Width to depth ratio	Slope	Sinuosity	Rosgen stream type[1]	Percent fines < 6 mm in pool tails	Pool frequency (Pools per mile)	Residual pool depth (ft)
2004	No data	1.4%	1.3	Gc	62%	213	0.9
2009	6.7[2]	1.4%	1.3	Gc	26%	210	0.9

[1]Entrenchment ratio was not collected and therefore not used to determine stream type
[2]This value was used to estimate the stream type for the 2004 sampling

2.2 SANDBAR CREEK TMDL TARGET DEVELOPMENT

Sediment targets for Sandbar Creek (**Table 2-2**) are defined within Section 5.4.1 and Table 5-10 of DEQ (2004) and Table 5-2 of DEQ (Montana Department of Environmental Quality, 2008). Because the 2001 assessment includes pebble count data, targets for percent substrate fines < 2 mm and < 6 mm in riffles measured via Wolman pebble count are applied. Since this parameter was not used for target development in DEQ (2004), target values from Table 5-2 of the Middle Blackfoot-Nevada document (Montana Department of Environmental Quality, 2008) are used. In addition, Table 5-2 of DEQ (2008) is used to define the targets for pool frequency and residual pool depth.

Consistent with Table 5-10 of DEQ (2004), biology targets for macroinvertebrate and periphyton also apply to Sandbar Creek, although they are updated in this addendum based on improved DEQ assessment methodologies (Montana Department of Environmental Quality, 2011; 2012).

Table 2-2. Sediment Targets for Sandbar Creek

Water Quality End Point/Target	Target Value(s) and Source	Existing Condition[1]
The median percent fines < 6.35 mm in pool tails measured with a 49-point grid	≤ 6% Source: DEQ (2004)	No DEQ data; US Forest Service data indicate the target is not met: **62**% in 2004 **26**% in 2009
McNeil Core percent fines < 6.35 mm	≤ 29% Source: DEQ (2004)	No data available
McNeil Core percent fines < 2.38 mm	≤ 15% Source: DEQ (2004)	No data available
Substrate: Percent < 6 mm in riffles measured by Pebble Count	Rosgen B channel: ≤ 20% Rosgen C channel: ≤ 22% Rosgen E channel: ≤ 36% Source: DEQ (2008)	No data available
Substrate: Percent < 2 mm in riffles measured by Pebble Count	Rosgen B channel: ≤ 10% Rosgen C channel: ≤ 7% Rosgen E channel: ≤ 20% Source: DEQ (2008)	In 2001 assessment the target was not met: **27**% (upper reach; likely a potential B/C channel) **42**% (lower reach; likely a potential B/C channel)
Minimum Pool Frequency (pools/mile)	Rosgen B channel: ≥ 20 Rosgen C channel: ≥ 55 for < 40 feet topwidth; ≥ 33 for > 40 feet topwidth Source: DEQ (2008)	No DEQ data; US Forest Service data indicate the target is being met: 213 in 2004 210 in 2009
Minimum Residual Pool Depth (feet)	Rosgen B channel: ≥ 0.6 Rosgen C channel: ≥ 2.0 for < 40 feet topwidth; ≥ 4.1 > 40 feet topwidth Source: DEQ (2008)	No DEQ data; US Forest Service data indicate the target is being met: 0.9 in 2004 0.9 in 2009 The site is likely a potential B channel
Biological Indicator: Periphyton (diatom)	Probability of Impairment ≤ 51% Source: DEQ (2004; 2011)	Older biological assessment indicated potential problems
Biological Indicator: Macroinvertebrate O/E score	O/E ≥ 0.90 Source: DEQ (2004; 2012)	Older biological assessment indicated fine sediment problem

[1]Bold values indicate they are exceeding the target

The target for fine sediment < 6.35 mm in pool tails was exceeded in both 2004 and 2009 at the United States Forest Service sampling site. The percent fine sediment < 2 mm in riffles was exceeded at both sites in 2001. Although there are a number of targets provided within this document and a limited amount of Sandbar Creek data to compare to the targets, the percent fines results represent an excess fine sediment problem in Sandbar Creek consistent with the existing sediment impairment determination. Sandbar Creek is impaired for sediment and a TMDL will be written.

2.3 Future Sediment Target Development and Assessment Data Collection for Sandbar Creek

DEQ has continuously improved Montana's TMDL development process for sediment since development of the sediment TMDLs presented within DEQ (2004; 2012). This includes an increased suite of target parameters and associated target values, improved biological indicators, and an improved stream habitat and sediment sampling and assessment methodology. **Table 2-2** reflects some of these improvements via incorporation of updated biological indicators and application of the Wolman pebble count, pool frequency, and residual pool depth targets from the Middle Blackfoot - Nevada Creek TMDL document (Montana Department of Environmental Quality, 2008).

DEQ routinely assesses the status of TMDL implementation as required by state law (Montana Code Annotated 75-5-703(9)). DEQ currently has an updated assessment method for sediment impairment determination (Kusnierz, 2013), and recent sediment TMDLs have involved an expanded list of targets similar to those developed for the Middle Blackfoot-Nevada sediment TMDLs (Montana Department of Environmental Quality, 2008). Future sediment impairment assessment work will use the methods defined in Kusnierz et al. (2013) to collect data that will be compared to the targets in **Table 2-2**.

3.0 SOURCE ASSESSMENT AND ALLOCATIONS FOR SANDBAR CREEK

This section of the addendum describes the sources of the sediment (sedimentation/siltation) impairment for Sandbar Creek and presents the allocations for each source. New data was not collected by DEQ as part of this sediment TMDL development. Instead, this section is based on source assessment information compiled for the 2001 Sandbar Creek assessment, data from the US Forest Service in 2004 and 2009, loading, and allocation information contained within DEQ (2004; 2008), and the watershed model Soil and Water Assessment Tool (SWAT) used for the Middle Blackfoot-Nevada document (Appendix I of DEQ, 2008).

3.1 SOURCE ASSESSMENT

This section describes the specific sources of sediment loading to Sandbar Creek and provides estimates for loading from unpaved roads, streambanks, and hillslope erosion.

3.1.1 Unpaved Road Erosion

Road sediment delivery is the result of current and historical impacts to the Sandbar Creek stream channel. Unpaved road sediment delivery to Sandbar Creek was estimated using the methods described in Appendix J of DEQ (2004). **Table 3-1** provides summary road data for Sandbar Creek and the estimated annual unpaved road delivery to the creek of 1.8 tons. This estimate does not account for failing culverts such as the one shown in **Figure 3-1**.

Table 3-1. Estimated road sediment delivery to Sandbar Creek

Miles of Road	Road density (length of road in miles/mi²)	Average sediment delivery rate (tons/mile)	Sediment Delivery (tons/yr)
7.04	2.17	0.26[1]	1.8

[1]Based on Appendix J of DEQ (2004)

Figure 3-1. Failing culvert (pipe indicated by the black arrow) in the Sandbar Creek watershed

3.1.2 Streambank Erosion

To estimate sediment delivery from bank erosion in Sandbar Creek, the total loading rate and the percentage of load that is human-induced for the upper segment of the Blackfoot River (MT76F001_010; headwaters to Landers Fork) were used (Appendix F of DEQ, 2004). Sandbar Creek and this segment of the Blackfoot River are in the same watershed within close proximity and have experienced similar historical land use (i.e., road construction, mining, and timber harvest). Bankfull width data was used to account for the difference in size between Sandbar Creek and the upper segment of the Blackfoot River when estimating the loading rate. Sandbar Creek has an average bankfull width of 5.8 feet at the PIBO sampling site. The upper segment of the Blackfoot River has a bankfull width of approximately 45 feet (Appendix E of Montana Department of Environmental Quality et al., 2004). Because the bankfull width of Sandbar Creek is 13% of the bankfull width measured in the upper segment of the Blackfoot River, the loading rate used to estimate streambank erosion to Sandbar Creek is 13% of the rate for the upper segment of the Blackfoot River (**Table 3-2**). Using this information, the estimated annual streambank load to Sandbar Creek is 18.5 tons (**Table 3-2**). Applying the same percentage of the load that is from human-caused bank erosion in the upper Blackfoot River (21%), about 3.9 tons of the streambank load to Sandbar Creek is from human-induced erosion. **Figure 3-2** shows an example of human-induced bank erosion on Sandbar Creek where the channel has been straightened.

Table 3-2. Estimated bank erosion sediment delivery and associated data applicable to Sandbar Creek

Waterbody Segment	Total loading rate per mile (tons/yr)	Stream miles in segment[1]	Total (tons/yr)	Percentage of load that is human-induced	Human-induced load (tons/yr)	Natural load (tons/yr)
Blackfoot River (Upper Listed Reach; MT76F001_010), Headwaters to Landers Fork	85	16.11	1,369	21%	284	1,085
Sandbar Creek (MT76F002_060), forks to mouth (Willow Creek)	11.05[2]	1.67	18.5	21%	3.9	14.6

[1]From DEQ Assessment Records (http://deq.mt.gov/wqinfo/CWAIC/default.mcpx)
[2] The loading rate for Sandbar Creek is 13% of the loading rate for the upper segment of the Blackfoot River based on the bankfull widths of the two segments
Note: Values were rounded

Figure 3-2. Streambank erosion near the mouth

3.1.3 Hillslope Erosion

The SWAT model previously developed for the Middle Blackfoot-Nevada Creek watershed (Appendix I of DEQ, 2008) was used to estimate edge-of-field sediment loading (i.e., loading to the channel) from the land uses in the Sandbar Creek watershed. Because the Sandbar Creek watershed is part of a larger sub-basin (Blackfoot River Headwaters) in the SWAT model, a representative value of sediment delivery for the land uses within Sandbar Creek had to be estimated from hydrologic response units (HRUs) within the larger modeled sub-basin (**Figure 3-3**). HRUs in the SWAT model are based on the 2001 national land cover dataset (United States Geological Survey, 2007) and the STATSGO soil type (Natural Resources

Conservation Service, 1994). The average sediment delivery rate estimated in the SWAT model from all of the HRUs in the Blackfoot River Headwaters sub-basin that have the same land use and soil type as in the Sandbar Creek watershed were used to approximate the hillslope sediment load to Sandbar Creek. The only exception to this was the range brush land use; the sediment delivery rate for this land use was estimated from an adjacent model sub-basin (Keep Cool Creek) because there was no corresponding HRU in the Blackfoot River Headwaters sub-basin. To be consistent with how the model was used in Appendix J of DEQ (2008), only the lands with greater than 3% slope and within 350 feet of the stream channel were assumed to contribute sediment to the surface waters (**Figure 3-4**). Using these methods the estimated annual sediment load to Sandbar Creek from hillslope erosion is 0.24 tons (**Table 3-3)**.

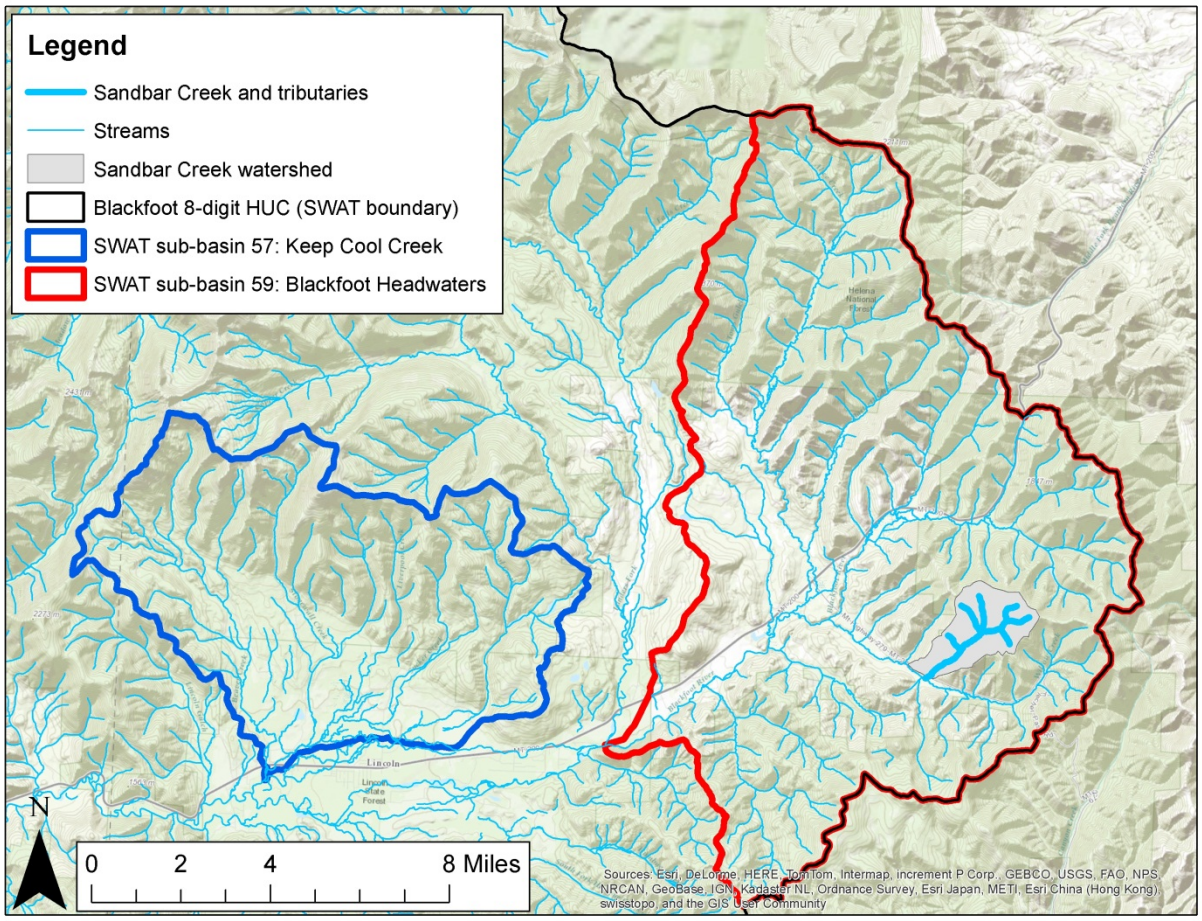

Figure 3-3. Sub-basins within the Blackfoot SWAT model (Montana Department of Environmental Quality, 2008) used to derive hillslope sediment delivery rates to Sandbar Creek

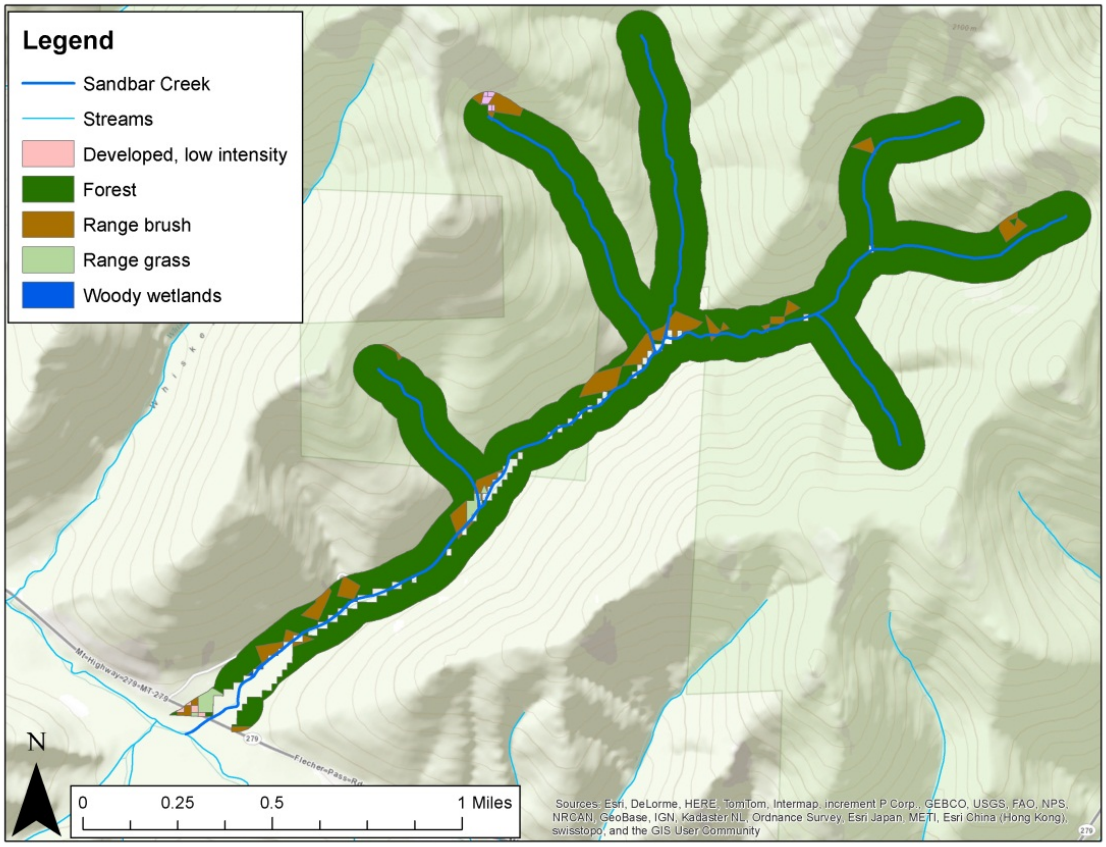

Figure 3-4. Land use along Sandbar Creek within 350 ft of the channel and greater than 3% slope (i.e., lands contributing hillslope sediment)

Table 3-3. Estimated hillslope erosion sediment delivery to Sandbar Creek

Land Use	Area (ha)	Loading Rate (tons/ha/yr)	Annual Load (tons/yr)
Developed	0.2	0.0413	0.009
Forest	180.1	0.0000	0.000
Range brush	9.9	0.0074	0.073
Range grass	1.2	0.1320	0.154
Woody wetlands	0.1	0.0000	0.000
		Total:	**0.24**

3.1.4 Mining Waste Rock Piles

Mining waste rock piles are a historical impact and are found at various locations along Sandbar Creek (Montana Department of Environmental Quality, 2003). Some of these piles are adjacent to Sandbar Creek (**Figure 3-5**) while others define the stream channel and were used in road construction (**Figure 3-6**). It is likely that these piles erode in a manner that would classify them as road, streambank, and/or hillslope sediment sources. As such, the allocation for mining waste rock piles in the Sandbar Creek watershed is addressed by the allocations for unpaved road, streambank, and hillslope erosion.

Figure 3-5. Mining waste rock pile adjacent to Sandbar Creek

Figure 3-6. Mining waste rock pile and collapsed bridge on Sandbar Creek

3.1.5 Road Traction Sand

Route 279 crosses Sandbar Creek about 500 feet upstream of the confluence with Willow Creek. As a result only a limited portion of Sandbar Creek has sediment input from traction sand. No data has been collected to evaluate the potential loading from this source on the lower 500 feet of Sandbar Creek. However, controlling this source is consistent with achieving the sediment TMDL for Willow Creek (Montana Department of Environmental Quality et al., 2004).

3.2 ALLOCATIONS

There are no point sources within the segment described in this document. As a result, reasonable assurance considerations were not required for wasteload allocations. Nevertheless, nonpoint source load allocations were developed in a way that, if implemented, will achieve water quality standards. Additionally, the nonpoint source load allocations represent achievable implementation of water quality protection and improvement practices.

The allocations for the Sandbar Creek sediment TMDL are presented in **Table 3-4**. These allocations are derived from those found in Table 5-12 of DEQ (2004) for the Willow Creek TMDL. The allocation for sediment delivery from roads is the 30% reduction applied to roads in other portions of the watershed to meet the Blackfoot River TMDL (Section 5.1.2 of DEQ, 2004). The allocation applied to accelerated bank erosion from human activities is a 75% reduction. As discussed in DEQ (2004), this reduction is not based on the total bank erosion load since the assessment results for the Willow Creek watershed did not provide this type of value. It is instead consistent with the percentage of human related bank erosion considered controllable along the Blackfoot River mainstem (Appendix F of DEQ, 2004). Following the implementation strategy in Section 6.0 of DEQ (2004) is expected to reduce bank erosion and satisfy the intent of this allocation.

To be consistent with DEQ (2004) and the allocations applicable to the Willow Creek watershed, the two remaining allocations are performance based. With regards to these allocations, it is expected that as BMPs are implemented, sediment loading from these sources will decrease and instream fine sediment measurements will approach the targets. The performance-based road sanding allocation is based on efforts by the Montana Department of Transportation to incorporate BMPs.

Table 3-4. Allocations for Sandbar Creek

Sediment Source Category	Allocations
Sediment Delivery from Roads	30% reduction of sediment loading from all roads in the watershed
Accelerated Streambank Erosion from Human Impacts	75% reduction in eroding banks load associated with human impacts
Accelerated (Controllable) Hillslope Sediment Delivery from Human Impacts	Performance-based: Implementation and evaluation of BMPs for timber harvest, grazing, and historical mining waste rock piles
Road Traction Sanding	Performance-based: Development and implementation of road sanding BMPs

4.0 TOTAL MAXIMUM DAILY LOAD

The sediment TMDL for Sandbar Creek is the result of the overall percent reduction that can be achieved based on the sum of the current annual loading and the sum of the individual annual source allocations using the following equation:

Overall percent reduction = ((Total current annual load – Total annual allocation load)/Total current annual load)*100

EPA encourages TMDLs to be expressed in the most applicable timescale but also requires TMDLs to be presented as daily loads (Grumbles, Benjamin, personal communication 2006). The daily load is provided along with the annual load allocations as sediment generally has a cumulative effect on aquatic life and other designated uses and all sources in the watershed are associated with periodic loading.

The Sandbar Creek sediment TMDL is consistent with the Willow Creek sediment TMDL since roads and eroding banks are likely significant sources of excess fine sediment loading from human activities. Therefore, the Sandbar Creek sediment TMDL is expressed as a 30% decrease in sediment delivery from roads (including Route 279) and a 75% reduction in bank erosion associated with human impacts. **Table 4-1** provides estimated loading from sediment sources in the Sandbar Creek watershed, the allocations for each source, and the TMDL based on these estimates and allocations.

Table 4-1. Example TMDL and Allocations for Sandbar Creek

Sediment Source Category	Current loading (tons/yr)	Allocation (tons/yr)	Reduction
Sediment Delivery from Roads	1.8	1.26	30%
Natural Streambank Erosion	14.6	14.6	0%
Accelerated Streambank Erosion from Human Impacts	3.9	1.0	75%
Hillslope Sediment Delivery	0.24	0.24	0%
Total	20.54	17.1	17%
	TMDL =	**93.7 lbs/day**	

Note: Values were rounded

The sum of the annual sediment allocations (annual expression of the TMDL) to Sandbar Creek is 17.1 tons, based on a 17% reduction to the total sediment load. This results in an average daily TMDL of 93.7 lbs/day. Achieving the allocations and ultimately the TMDL for Sandbar Creek is dependent on implementing all reasonable land, soil, and water conservation practices within the watershed. This includes reducing road sediment delivery to the stream via BMPs, fixing failing culverts, avoiding timber harvest on hillslopes with a high potential for erosion, and removal and/or stabilization of mining waste rock piles.

5.0 IMPLEMENTATION

Implementation and monitoring recommendations presented in Section 6.4 of DEQ (2003) and Sections 6.3.4 and 6.3.5 of DEQ (2004) provide a basic framework for achieving the Sandbar Creek sediment TMDL in this addendum. Implementation should focus on the application of BMPs that improve channel and streambank stability and reduce sediment input from unpaved roads and mining waste rock piles. In 2012, the US Forest Service replaced an undersized (and failed) culvert with a bottomless arch in the Sandbar Creek watershed (**Figure 5-1**). The proposed action for the Sandbar Creek watershed in the U.S. Forest Service Blackfoot Travel Plan includes putting 2.0 miles of roads into storage (i.e., pulling stream culverts and restoring bank/valley contours, stabilizing surfaces) and obliterating 2.7 miles of roads (i.e., restoring to original landform/conditions, including any crossings) (Callery, Dave, personal communication 2014[1]).

Figure 5-1. Culvert replaced by the US Forest Service in 2012

Specific to the historical impacts to the Sandbar Creek channel, it is recommended that beaver colonization be allowed where feasible. Beaver dams may contribute to grade recovery and help restore floodplain and groundwater levels, which would assist with riparian recovery and redevelopment of natural channel dimensions. Because the sources of sediment are nonpoint, implementation of this

[1] E-mail between Paul Kusnierz, DEQ and Dave Callery, Helena and Lewis and Clark National Forests on 6/5/14

TMDL is voluntary. As such, stakeholders can work cooperatively to determine where, when, and how they will implement and maintain BMPs and achieve the sediment allocations.

6.0 STAKEHOLDER AND PUBLIC PARTICIPATION

Stakeholder and public involvement is a component of TMDL planning supported by EPA guidelines and required by Montana state law. MCA 75-5-703 and 75-5-704 direct DEQ to consult with watershed advisory groups and local conservation districts during the TMDL development process. For this addendum project, DEQ partnered with the Blackfoot Challenge, a local watershed group representing private landowners, corporate landowners, and various government officials. The Blackfoot Challenge assisted DEQ by soliciting its members for input throughout the TMDL process and hosting advisory group meetings to discuss project progress.

Upon completion of the draft TMDL document, and prior to submittal to EPA, DEQ issues a press release and enters into a public comment period. During this timeframe, the draft TMDL document is made available for general public comment, and DEQ addresses and responds to all formal public comments. The public review period began on August 18, 2014, and ended on September 19, 2014. DEQ made the draft document available to the public through the DEQ website; the Blackfoot Challenge office in Ovando; the Lincoln, Seeley Lake, and Missoula Public Libraries; and the Montana State Library in Helena. The opportunity to comment on the document and attend a public meeting was announced in notices to the Missoulian (Missoula), the Seeley Swan Pathfinder (Seeley Lake), and the Blackfoot Valley Dispatch (Lincoln) newspapers. Outreach efforts also included e-mails to advisory group members and other interested parties. DEQ held a public meeting in Helmville on September 10, 2014 to provide an overview of the project and field questions. No formal public comments were submitted to DEQ.

7.0 REFERENCES

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