North Fork Grindstone Creek (1010)

Use Attainability Analysis

Boone County Regional Sewer District
1314 North 7th Street
Columbia, MO 65201-3902

Prepared by
Barr Engineering Company
July 2005

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Use Attainability Analysis

Boone County Regional Sewer District
1314 North 7th Street
Columbia, MO 65201-3902

July 2005

Barr Engineering Company
3236 Emerald Lane
Jefferson City, MO 65109
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JUL 13 2005
WATER PROTECTION PROGRAM

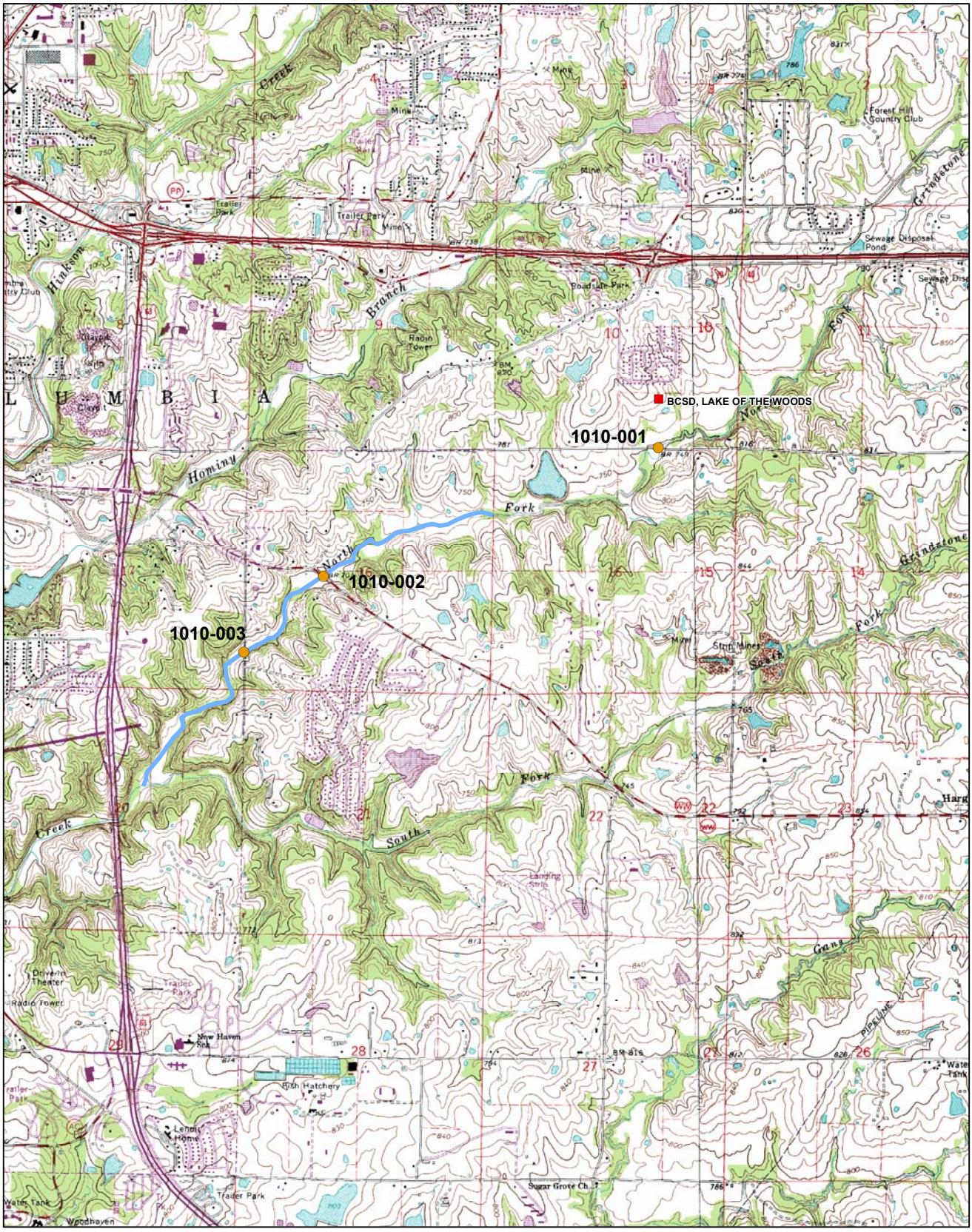
Field Data Sheets for Recreational Use Stream Surveys

Data Sheet A - Water Body Identification

Water Body Name (from USGS 7.5' quad): North Fork Grindstone Creek
8-digit HUC: 10300102
Missouri WBID #: 1010
County: Boone
Upstream Legal Description: East Line Section 16, T48N, R12W
Downstream Legal Description: Confluence with South Fork Grindstone Creek (located in NE 1/4 Section 20, T48N, R12W)
Upstream Coordinates: UTM (Z15N) 563674E; 4310695N
Downstream Coordinates: UTM (Z15N) 561357E; 4308906N
Discharger Facility Name(s): BCSD, Lake of the Woods, Permit # MO0034444
Discharger Permit Number(s): See Above.
Number of Sites Evaluated: 3
Name of Surveyor and Telephone Number: Alan Fandrey (573-638-5013)
Organization: Barr Engineering Company
Position: Civil Engineer

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed: Alan Fandrey **Date:** 7-1-05



Assessment Site

Stream Reach

Facility Location

Feet

2,000 0 2,000 4,000

Meters

500 0 500 1,000 1,500

Figure 1

NORTH FORK
GRINDSTONE CREEK REACH

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(A separate data sheet must be completed for each site)

Missouri WBID #: 1010-001		Site Location Description: North Fork Grindstone Creek at road crossing on north line Section 15, T48N, R13W - Boone County
Site GPS Coordinates: 564758E; 4311131N		
Date & Time: 06/26/05; 2 p.m.		Facility Name: BCRSD - Lake of the Woods
Personnel: Alan J. Fandrey		Permit Number: MO00034444
Current Weather Conditions: Clear - 90s		Weather Conditions for Past 7 days: Last rain June 13
Photo Ids: Upstream: 1US1 & 1US2	Downstream: 1DS1& 1DS2	Other:

Uses Observed*:

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☐ Fishing	☒ None of the above	☐ Other:
Describe: (include number of individuals recreating, frequency of use, photo-documentation of evidence of recreational uses, etc.)				

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

☐ City/county parks	☐ Playgrounds	☐ MDC conservation lands	☐ Urban areas	☐ Campgrounds
☐ Boating accesses	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ No trespass sign	☐ Fence	☐ Steep slopes	☒ Other: Agriculture suburban	

Evidence of Human Use*:

☒ Roads	☐ Foot paths/prints	☐ Dock/platform	☐ Livestock Watering	☐ RV / ATV Tracks
☐ Rope swings	☐ Camping Sites	☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle
☐ Other:				

Site Locations Map(s): Attach a map of entire segment with assessment sites clearly labeled. Mark any other items that may be of interest. (Include photographs)

*Some of this information is not intended to directly influence a decision on any one particular recreational use analysis but may point to conditions that need further analysis or that effect another use.

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

Page Two – WBID #1010-001:

Stream Morphology:

Upstream View Physical Dimensions:

☐ Riffle	Width (ft):	Length (ft):	Avg. Depth (ft):	Max. Depth (ft):
☐ Run	Width (ft):	Length (ft):	Avg. Depth (ft):	Max. Depth (ft):
☒ Pool	Width (ft): 20-40	Length (ft): 100	Avg. Depth (ft): 1.4	Max. Depth (ft): 2.1
☒ Flow	Present? ☒ Yes ☐ No		Estimated (ft^3/sec): < 0.1	

Downstream View Physical Dimensions:

☒ Riffle	Width (ft): 3	Length (ft): 15	Avg. Depth (ft): 0.1	Max. Depth (ft): 0.2
☐ Run	Width (ft):	Length (ft):	Avg. Depth (ft):	Max. Depth (ft):
☒ Pool	Width (ft): 25	Length (ft): 50	Avg. Depth (ft): 1.2	Max. Depth (ft): 1.6
☒ Flow	Present? ☒ Yes ☐ No		Estimated (ft^3/sec): see above	

Substrate*: (These values should add up to 100%.)

20% Cobble	% Gravel	% Sand	% Silt	80% Mud/Clay	% Bedrock

Aquatic Vegetation*: (note amount of vegetation or algal growth at the assessment site)

Algae on surface.

Water Characteristics*: (Mark all that apply.)

Odor:	☐ Sewage	☐ Musky	☐ Chemical	☒ None	☐ Other:
Color:	☐ Clear	☐ Green	☐ Gray	☐ Milky	☒ Other: brown
Bottom Deposit:	☐ Sludge	☐ Solids	☐ Fine sediments	☐ None	☒ Other: construction debris
Surface Deposit:	☐ Oil	☒ Scum	☒ Foam	☐ None	☐ Other:

Comments: Please attach additional comments (including information from interviews) to this form.
Pool depth likely due to scour at bridge.

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I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed: Alan Fondriest **Date:** 7-06-05

Organization: BEC Position: Eng

Photo ID 1010-001US1: Upstream (North Fork Grindstone Creek)

Photo ID 1010-001US2: Upstream (North Fork Grindstone Creek)

Photo ID 1010-001DS1: Downstream (North Fork Grindstone Creek)

Photo ID 1010-001DS2: Downstream (North Fork Grindstone Creek)

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(A separate data sheet must be completed for each site)

Missouri WBID #: 1010-002		Site Location Description: North Fork Grindstone Creek at Highway WW crossing in West 1/2 Section 16, T48N, R12W; BID 10 - Boone County
Site GPS Coordinates: 562486E; 4310298N		
Date & Time: 5/25/05 - 4 p.m..		Facility Name: BCRSD - Lake of the Woods
Personnel: Tim J. Fandrey		Permit Number: MO0034444
Current Weather Conditions: Partly Cloudy - 70s		Weather Conditions for Past 7 days: Last rain on May 22
Photo Ids: Upstream: 2US1 & 2US2	Downstream: 2DS1 &2DS2	Other: 1010-002O1

Uses Observed*:

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☐ Fishing	☒ None of the above	☐ Other:
Describe: (include number of individuals recreating, frequency of use, photo-documentation of evidence of recreational uses, etc.)				

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

☐ City/county parks	☐ Playgrounds	☐ MDC conservation lands	☐ Urban areas	☐ Campgrounds
☐ Boating accesses	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ No trespass sign	☒ Fence	☐ Steep slopes	☐ Other:	

Evidence of Human Use*:

☒ Roads	☐ Foot paths/prints	☐ Dock/platform	☐ Livestock Watering	☐ RV / ATV Tracks
☐ Rope swings	☐ Camping Sites	☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle
☐ Other:				

Site Locations Map(s): Attach a map of entire segment with assessment sites clearly labeled. Mark any other items that may be of interest. (Include photographs)

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Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

Page Two – WBID #1010-002:

Stream Morphology:

Upstream View Physical Dimensions:

☒ Riffle	Width (ft): 5.0	Length (ft): 10	Avg. Depth (ft): 0.2	Max. Depth (ft): 0.3
☐ Run	Width (ft):	Length (ft):	Avg. Depth (ft):	Max. Depth (ft):
☐ Pool	Width (ft):	Length (ft):	Avg. Depth (ft):	Max. Depth (ft):
☒ Flow	Present? ☒ Yes ☐ No		Estimated (ft^3/sec): see below	

Downstream View Physical Dimensions:

☐ Riffle	Width (ft):	Length (ft):	Avg. Depth (ft):	Max. Depth (ft):
☒ Run	Width (ft): 2.0	Length (ft): 21	Avg. Depth (ft): 0.2	Max. Depth (ft): 0.25
☒ Pool	Width (ft): 5.0	Length (ft): 12	Avg. Depth (ft): 0.8	Max. Depth (ft): 1.6
☒ Flow	Present? ☒ Yes ☐ No		Estimated (ft^3/sec): less than 5	

Substrate*: (These values should add up to 100%.)

40% Cobble	40% Gravel	10% Sand	% Silt	% Mud/Clay	10% Bedrock

Aquatic Vegetation*: (note amount of vegetation or algal growth at the assessment site)

Vegetation on rocks.

Water Characteristics*: (Mark all that apply.)

Odor:	☐ Sewage	☐ Musky	☐ Chemical	☒ None	☐ Other:
Color:	☒ Clear	☐ Green	☐ Gray	☐ Milky	☐ Other:
Bottom Deposit:	☐ Sludge	☐ Solids	☐ Fine sediments	☒ None	☐ Other:
Surface Deposit:	☐ Oil	☐ Scum	☒ Foam	☐ None	☐ Other:

Comments: Please attach additional comments (including information from interviews) to this form.

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I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed: Alan Fendrup **Date:** 7-05-05

Organization: BEC Position: Eng.

Photo ID 1010-002US1: Upstream (North Fork Grindstone Creek)

Photo ID 1010-002US2: Upstream (North Fork Grindstone Creek)

Photo ID 1010-002DS1: Downstream (North Fork Grindstone Creek)

Photo ID 1010-002DS2: Downstream (North Fork Grindstone Creek)

Photo ID 1010-002O1: (North Fork Grindstone Creek)

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(A separate data sheet must be completed for each site)

Missouri WBID #: 1010-003		Site Location Description: North Fork Grindstone Creek at road crossing at east line Section 12, T48N, R12W; BID 11 - Boone County
Site GPS Coordinates: 562006E; 4309787N		
Date & Time: 5/25/05 - 4:30 p.m.		Facility Name: BCRSD - Lake of the Woods
Personnel: Tim J. Fandrey		Permit Number: MO0034444
Current Weather Conditions: Partly Cloudy - 70s		Weather Conditions for Past 7 days: Last rain on May 22
Photo Ids: Upstream: 1010-003US	Downstream: 1010-003DS	Other:

Uses Observed*:

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☐ Fishing	☒ None of the above	☐ Other:
Describe: (include number of individuals recreating, frequency of use, photo-documentation of evidence of recreational uses, etc.)				

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

☐ City/county parks	☐ Playgrounds	☐ MDC conservation lands	☐ Urban areas	☐ Campgrounds
☐ Boating accesses	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ No trespass sign	☒ Fence	☐ Steep slopes	☐ Other:	

Evidence of Human Use*:

☒ Roads	☐ Foot paths/prints	☐ Dock/platform	☐ Livestock Watering	☐ RV / ATV Tracks
☐ Rope swings	☐ Camping Sites	☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle
☐ Other:				

Site Locations Map(s): Attach a map of entire segment with assessment sites clearly labeled. Mark any other items that may be of interest. (Include photographs)

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Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

Page Two – WBID #1010-003:

Stream Morphology:

Upstream View Physical Dimensions:

☐ Riffle	Width (ft):	Length (ft):	Avg. Depth (ft):	Max. Depth (ft):
☐ Run	Width (ft):	Length (ft):	Avg. Depth (ft):	Max. Depth (ft):
☒ Pool	Width (ft): 5.0	Length (ft): 11	Avg. Depth (ft): 0.6	Max. Depth (ft): 0.7
☒ Flow	Present? ☒ Yes ☐ No		Estimated (ft^3/sec): < 5	

Downstream View Physical Dimensions:

☒ Riffle	Width (ft): 3.0	Length (ft): 8.0	Avg. Depth (ft): 0.2	Max. Depth (ft): 0.25
☐ Run	Width (ft):	Length (ft):	Avg. Depth (ft):	Max. Depth (ft):
☐ Pool	Width (ft):	Length (ft):	Avg. Depth (ft):	Max. Depth (ft):
☒ Flow	Present? ☒ Yes ☐ No		Estimated (ft^3/sec): same as above	

Substrate*: (These values should add up to 100%.)

20% Cobble	% Gravel	10% Sand	% Silt	15% Mud/Clay	55% Bedrock

Aquatic Vegetation*: (note amount of vegetation or algal growth at the assessment site)

Vegetation on rocks.

Water Characteristics*: (Mark all that apply.)

Odor:	☐ Sewage	☐ Musky	☐ Chemical	☒ None	☐ Other:
Color:	☒ Clear	☐ Green	☐ Gray	☐ Milky	☐ Other:
Bottom Deposit:	☐ Sludge	☐ Solids	☐ Fine sediments	☒ None	☐ Other:
Surface Deposit:	☐ Oil	☐ Scum	☐ Foam	☒ None	☐ Other:

Comments: Please attach additional comments (including information from interviews) to this form.

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I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed: Alan Fambrough **Date:** 7-1-05

Organization: BEC Position: Env

Photo ID 1010-003US: Upstream (North Fork Grindstone Creek)

Photo ID 1010-003DS: Downstream (North Fork Grindstone Creek)