Big Blue River

BBR 33

Marshall County, Kansas

SW 1/4, Sec. 30, T3S, R7E

Marshall County Map
NTS

Sheet Index

Sheet No.	Sheet Title
1	Cover Sheet
2	Overall Plan View
3–4	Plan View
5	Details
6–7	Cross Sections

Site Location Map
NTS

Quantities

Item	Unit	Total
Rock 12"	Tons	826
Rock 18"	Tons	2085
Rock 24"	Tons	1314
Gravel	Tons	667
Soil Moving	C.Y.	6316
Bare Root Trees	Each	1050
Live Stakes	Each	1740
Temporary Seeding	Acres	2.09
Native Grass Seeding	Acres	2.09
Mulching	Acres	2.09
Riparian Buffer	Acres	2.80

(For specific detailed information on tree, shrub, temporary and native seeding, see NRCS Forms ECS–4 and ECS–5)

Wildhorse Riverworks Inc.
11821 NW 13th Street – Topeka, Kansas 66615
785–213–3778

Water Resources Solutions
3515 W 75th St, Suite 208, Prairie Village, Kansas 66208
913–302–1030

DONALD W. BAKER
LICENSED
14258
KANSAS
PROFESSIONAL ENGINEER
2-8-2019

Project Location
Summerfield
Oketo
Hanover
Marysville
Beattie
Axtell
WASHINGTON
MARSHALL
NEMAHA
Barnes
Waterville
Blue Rapids
Frankfort
RILEY
POTTAWATOMIE
Mission Cr
Horseshoe Cr
Spring Cr
Rapidbux Cr
Manley Cr
Little Blue R
Black Vermillion R N Fk
Black Vermillion R
Black Vermillion R S Fk
Goon Cr
K233
K243
K148
K9
K99
K110
K87
K88
77
36
0
6mi
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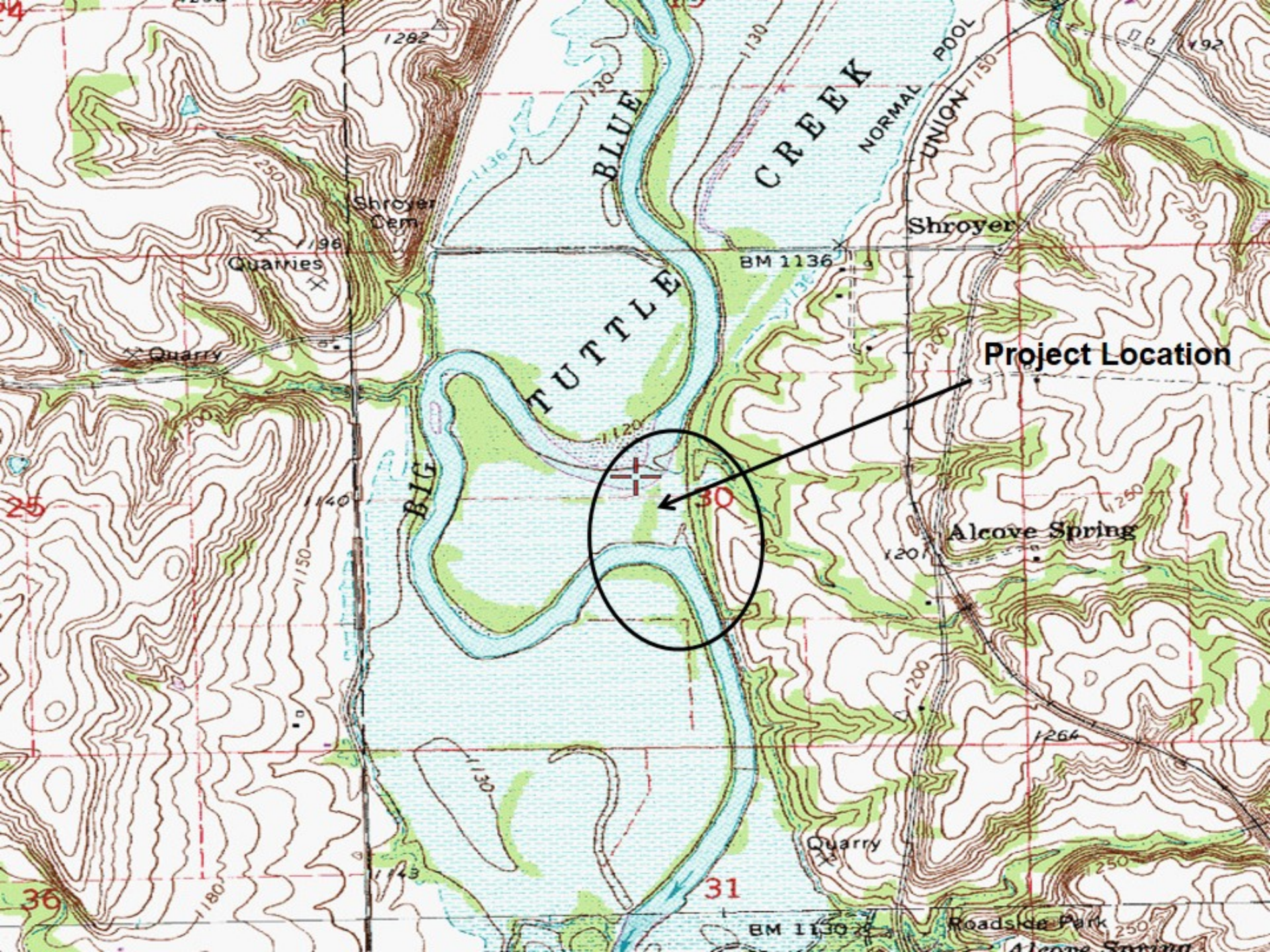

Project Location
BLUE
CREEK
NORMAL POOL
UNION
TUTTLE
BIG
Shroyer Cem
Quarries
Quarry
Shroyer
BM 1136
Alcove Spring
Quarry
BM 1130
Roadside Park
Alcove Spring
25
30
31
36

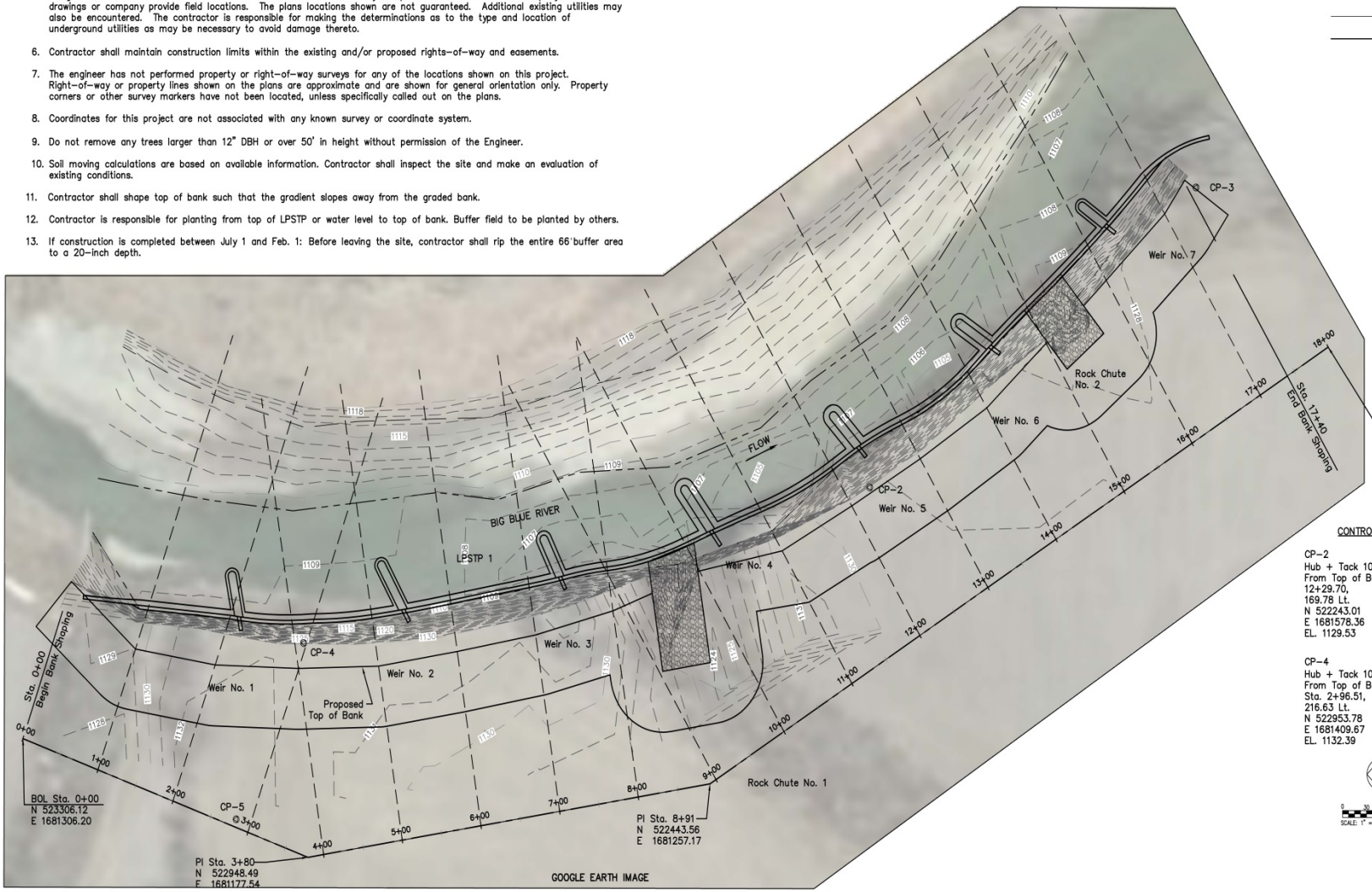
KJP Farms BBR 46
Legend
W-River-Rd
Pheasant-Rd
7th-Rd
E-River-Rd
Project Location
Google Earth
©2016 Google
N
2000 ft

GENERAL NOTES

1. Structure locations to be field located and staked by Wildhorse Riverworks, Inc.
2. Before any construction activity, the contractor is responsible for calling Kansas One Call at 800-344-7233 (800-DIG-SAFE)
3. Accepted Erosion Control practices shall be applied to all disturbed areas.
4. All applicable permits will be obtained by others prior to project construction.
5. The information shown in these plans concerning type and location of underground utilities is not guaranteed to be accurate or all inclusive. Existing utilities and their locations, as shown on the plans, represent the best information obtained for the design. Location information has been obtained from the various utility companies and is either from company record drawings or company provide field locations. The plans locations shown are not guaranteed. Additional existing utilities may also be encountered. The contractor is responsible for making the determinations as to the type and location of underground utilities as may be necessary to avoid damage thereto.
6. Contractor shall maintain construction limits within the existing and/or proposed rights-of-way and easements.
7. The engineer has not performed property or right-of-way surveys for any of the locations shown on this project. Right-of-way or property lines shown on the plans are approximate and are shown for general orientation only. Property corners or other survey markers have not been located, unless specifically called out on the plans.
8. Coordinates for this project are not associated with any known survey or coordinate system.
9. Do not remove any trees larger than 12" DBH or over 50' in height without permission of the Engineer.
10. Soil moving calculations are based on available information. Contractor shall inspect the site and make an evaluation of existing conditions.
11. Contractor shall shape top of bank such that the gradient slopes away from the graded bank.
12. Contractor is responsible for planting from top of LPSTP or water level to top of bank. Buffer field to be planted by others.
13. If construction is completed between July 1 and Feb. 1: Before leaving the site, contractor shall rip the entire 66'buffer area to a 20-inch depth.

LEGEND

- Benchmark
- Existing Edge of Water
- Existing 1' Contour
- Existing 5' Contour
- Proposed 5' Contour
- Proposed 1' Contour
- New Improvements



CONTROL POINTS

CP-2	CP-3
Hub + Tack 10' From Top of Bank 12+29.70, 169.78 Lt. N 522243.01 E 1681578.36 EL. 1129.53	1/2x30 Rebar W/PC Sta. 17+48.41 233.97 Lt. N 521833.58 E 1681903.25 EL. 1128.57
CP-4	**CP-5**
Hub + Tack 10' From Top of Bank Sta. 2+96.51, 216.63 Lt. N 522953.78 E 1681409.67 EL. 1132.39	1/2x30 Rebar W/PC 10' From Top of Bank Sta. 2+81.32, 8.35 Lt. N 523038.59 E 1681218.82 EL. 1132.58

SCALE: 1" = 60'-0"

Date	Comment	No.	BY	CK	APP
		4			
		3			
		2			
		1			

Designed By: PGB
Drawn By: MEM
Checked By: DWB
Date: 7/29/18
Scale: 1"=60'

Wildhorse Riverworks Inc.
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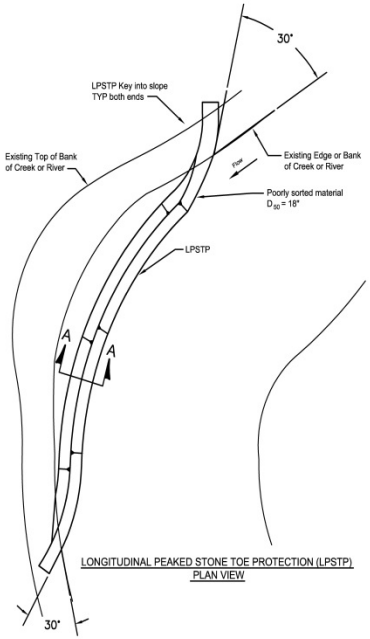
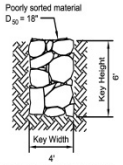
Site BBR46, Big Blue River
Marshall County, Kansas

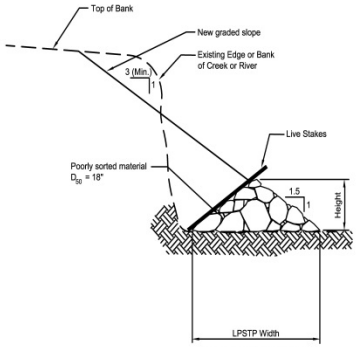
Overall Plan View



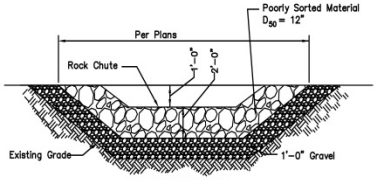
LONGITUDINAL PEAKED STONE TOE PROTECTION (LPSTP)
PLAN VIEW



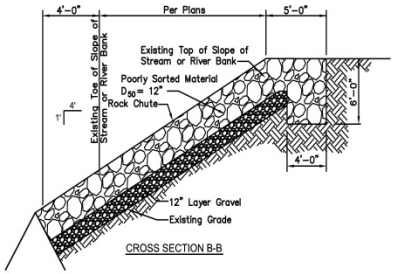
ROCK KEY SECTION VIEW
LPSTP



LPSTP CROSS SECTION A-A

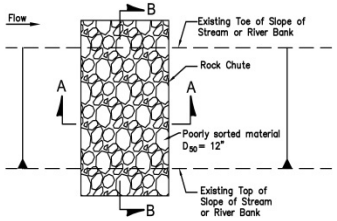


CROSS SECTION A-A

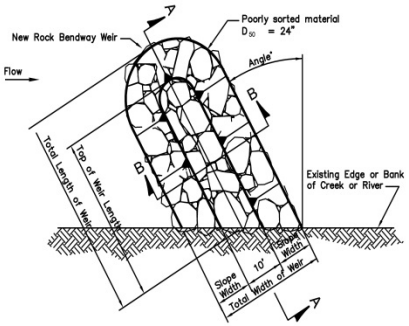


CROSS SECTION B-B

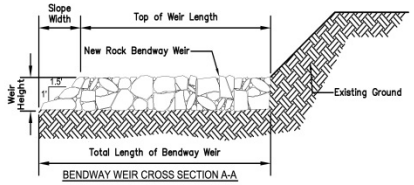
LPSTP



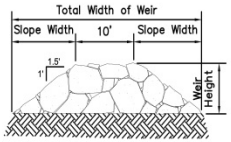
ROCK CHUTE PLAN VIEW



BENDWAY WEIR PLAN VIEW



BENDWAY WEIR CROSS SECTION A-A



BENDWAY WEIR CROSS SECTION B-B

Structure Specification Sheet Phil Balch, 2002 - revised 3/2006

Project Name	Stream	County	State	Bank	
KJP Farms BBR 46	Big Blue River	Marshall	Kansas	Length	Height
				Shaped / Total	19
				1,740 / 1,800	

#	Type	Spacing ft.	Angle (Degrees)	Area sq. ft.	Height ft.	Length ft.	Key Length ft.	Yards3	Key yds3	Tons	Material Specifications
1	LPSTP	N/A	N/A	16800	4	1400	130	1260	130	2085.0	Poorly Sorted Limestone Rock D50=18"
1	Weir	200	15	800	2	50	15	48	15	94.5	Poorly Sorted Limestone Rock D50=24"
2	Weir	200	15	960	2	60	20	58	20	117.0	Poorly Sorted Limestone Rock D50=24"
3	Weir	200	15	950	3	50	15	81	15	144.0	Poorly Sorted Limestone Rock D50=24"
1	Chute	N/A	N/A	N/A	1	120	4	266.7	53	479.6	Poorly Sorted Limestone Rock D50=12"
	Chute	N/A	N/A	N/A	1	120	0	266.7	0	400.1	Clean Gravel - D50 = 1"
4	Weir	200	15	1680	6	60	20	253	20	409.5	Poorly Sorted Limestone Rock D50=24"
5	Weir	200	15	1250	5	50	15	163	15	267.0	Poorly Sorted Limestone Rock D50=24"
6	Weir	200	15	1100	4	50	15	119	15	201.0	Poorly Sorted Limestone Rock D50=24"
2	Chute	N/A	N/A	N/A	1	80	4	177.8	53	346.2	Poorly Sorted Limestone Rock D50=12"
	Chute	N/A	N/A	N/A	1	80	0	177.8	0	266.7	Clean Gravel - D50 = 1"
7	Weir	N/A	10	640	2	40	15	39	15	81.0	Poorly Sorted Limestone Rock D50=24"
				24180				**2910**	**351**	**4892**	
							Total yds3	**3261**			

Site Information					
Structure Height / ft.	Variable	Cord Length / ft.	1475.5		
Crest Width / ft.	10	Mid Ord / ft.	220		
Finished Slope Grade/H:V	3.00	BkF Elev	1119	At Station	6+00
Schumm Channel Stage	5	Rosgen Classification	C5c-		
Radius of Curvature / ft.	1,346.989	Channel Width / ft.	235.00		
Max. Structure Spacing/ ft.	555.767	Tortuousity	5.732		
Reg. Structure Spacing / ft.	190.576	Critical Shear Stress	0.293	lbs./sq.ft.	
Hydraulic Radius / ft.	7.476	Slope = ft./ ft.	0	3.32	ft./mile
Cross Sectional Area / sq. ft.	1,781.60	Wetted Perimeter/ ft.	238.3		
Bank Full Discharge / cfs	12,753	Manning's n	0.029	Calculated	
		Mean Velocity / fps	5.02		

Quantities List	
Shot Rock Rock / Cubic Yards	2,817
Shot Rock 12" D50/ Tons	826
Shot Rock 18" D50/ Tons	2,085
Shot Rock 24" D50/ Tons	1,314
Clean Gravel/ Tons	667
Soil moving/ Cubic Yds.	6,316
Bare Root Trees	1,050
Live Stakes	1,740
Temporary Seeding / acres	2.09
Native Grass Seeding / acres	2.09
Mulching / acres	2.09
Riparian Buffer Area / acres	2.80

Channel Bank Vegetation - Practice Code 322	
Vegetation Type	**Quantity**
Bare Root Seedlings / ea.	1,050
Live Stakes / ea.	1,740
Seeding/ acres	2.09
Mulching - Practice Code 484	
Mulching / acres	2.09

Five Year Flood Frequency -		
Discharge / cfs	32,910	
4,980.46	Sq. Mi.	

Landowner	Kim Spaulding
DBA	KJP Farms, LLC
Address	8209 S. Albion St.
City, State Zip	Centennial, CO 80122
Phone	303-521-7602 - kjps990@aol.com
Legal	SW 1/4, Section 30, T3S, R7E
Date	8/16/2018

Date	Comment	No.	BY	CK	APP
		4			
		3			
		2			
		1			

Designed By: PGB
Drawn By: MEM
Checked By: DWB
Date: 7/29/18
Scale: None

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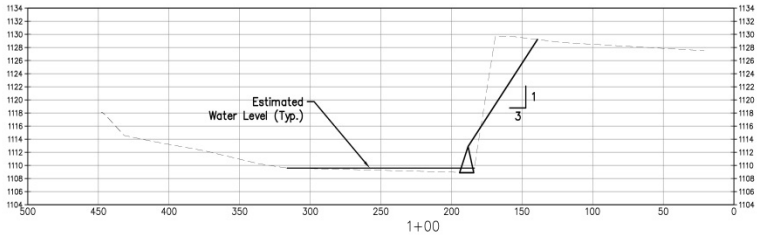
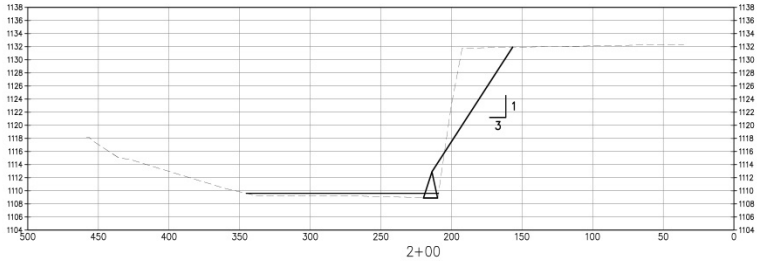
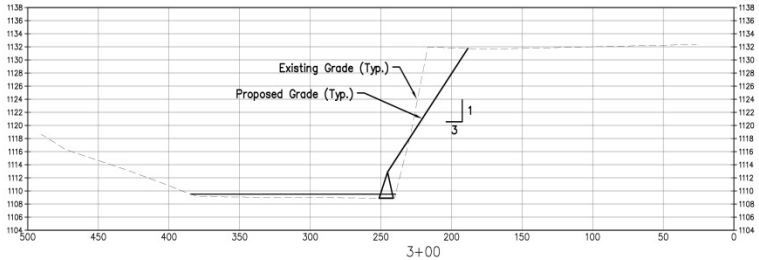
Water Resources Solutions
8800 Linden Drive Prairie Village, Kansas 66207
913–302–1030

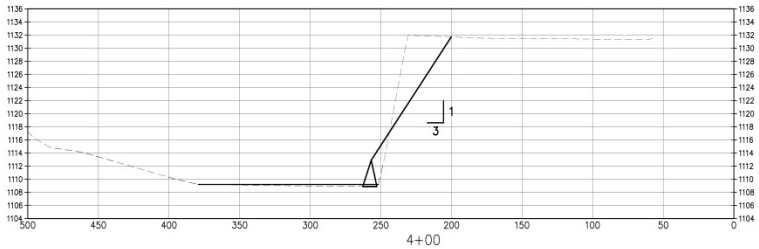
Site BBR46, Big Blue River
Marshall County, Kansas

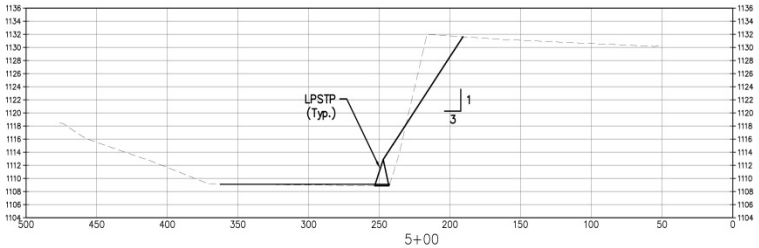
Details

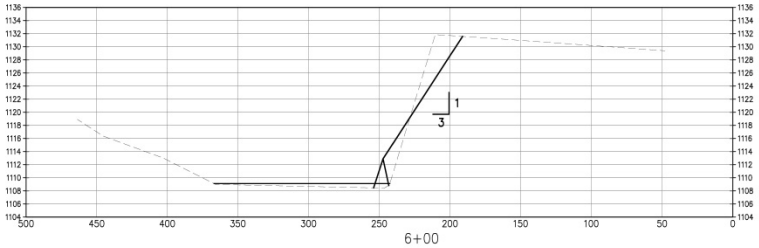


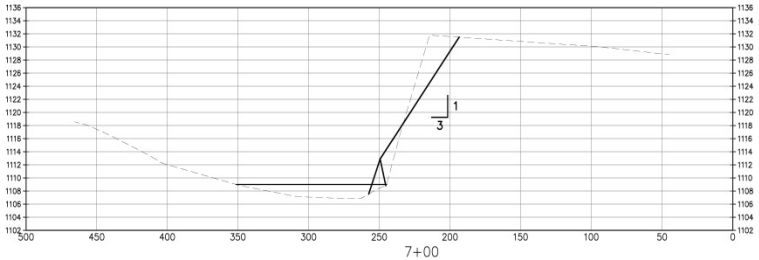


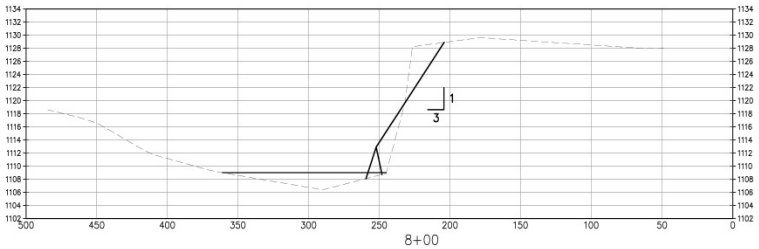












SCALE:
1"=10' VERT.
1"=40' HORZ.

Date	Comment	No.	BY	CK	APP
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		3			
		2			
		1			

Designed By: PGB
Drawn By: MEM
Checked By: DWB
Date: 7/29/18
Scale: 1"=40'

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2-8-2019

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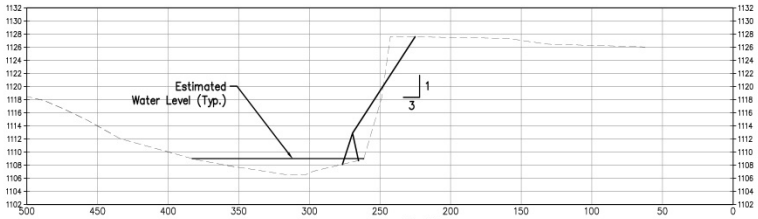
Site BBR46, Big Blue River
Marshall County, Kansas

Cross Sections

6 SHEET OF 7



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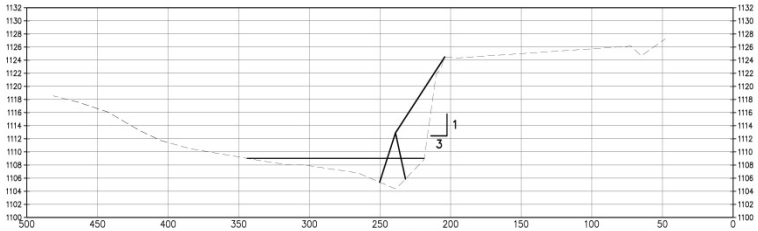

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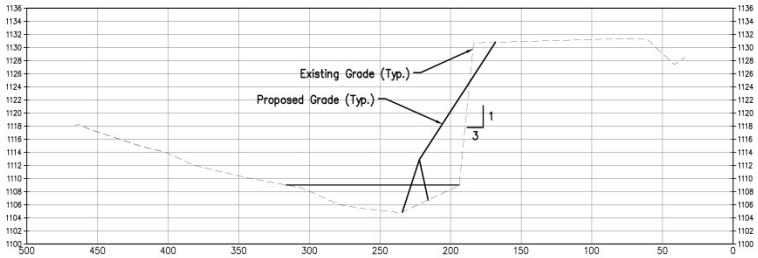

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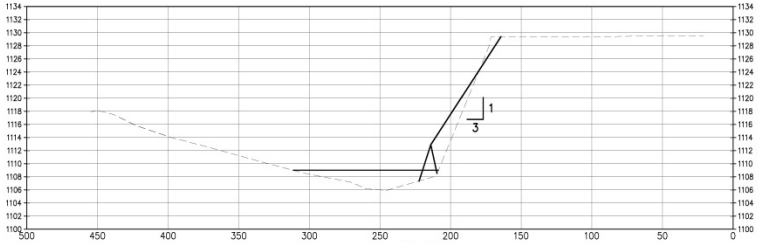

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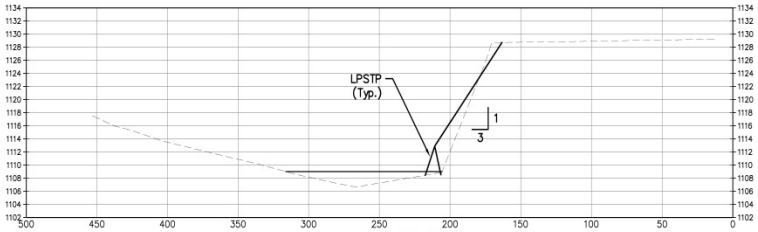

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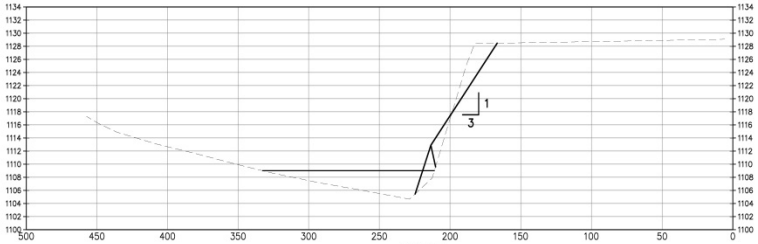

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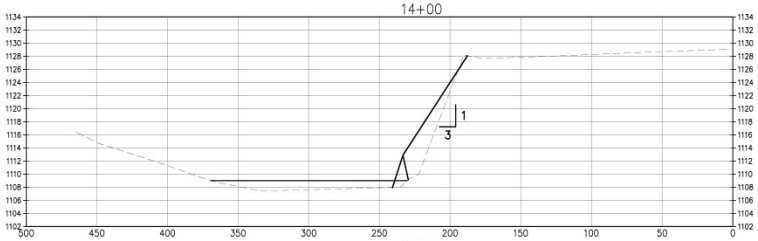

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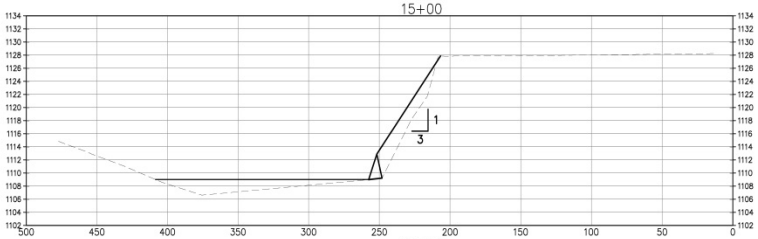

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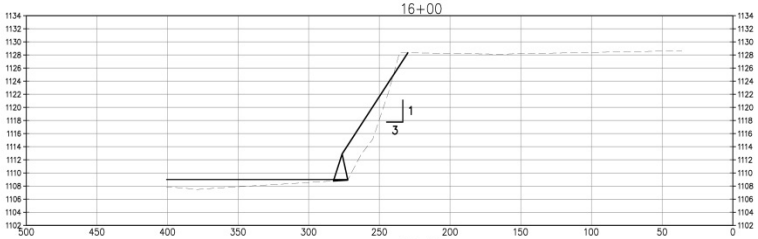

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SCALE:
1"=10' VERT.
1"=40' HORZ.

Date	Comment	No.	BY	CK	APP
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		3			
		2			
		1			

Designed By: PGB
Drawn By: MEM
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Scale: 1"=40'

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Site BBR46, Big Blue River
Marshall County, Kansas

Cross Sections

Structure Specification Sheet

Phil Balch, 2002 - revised 3/2006

Stream	County	State	Bank Length Shaped	Bank Length Total	Bank Height
Big Blue River	Marshall	Kansas	1,740	1,800	19

#	Type	Spacing	Angle	Area	Height	Length	Key Length	Yards3	Key yds3	Tons	Material Specifications
		ft.	(Degrees)	sq. ft.	ft.	ft.	ft.				
1	LPSTP	N/A	N/A	16800	4	1400	130	1260	130	2085.0	Poorly Sorted Limestone Rock D50=18"
1	Weir	200	15	800	2	50	15	48	15	94.5	Poorly Sorted Limestone Rock D50=24"
2	Weir	200	15	960	2	60	20	58	20	117.0	Poorly Sorted Limestone Rock D50=24"
3	Weir	200	15	950	3	50	15	81	15	144.0	Poorly Sorted Limestone Rock D50=24"
1	Chute	N/A	N/A	N/A	1	120	4	266.7	53	479.6	Poorly Sorted Limestone Rock D50=12"
	Chute	N/A	N/A	N/A	1	120	0	266.7	0	400.1	Clean Gravel - D50 = 1"
4	Weir	200	15	1680	6	60	20	253	20	409.5	Poorly Sorted Limestone Rock D50=24"
5	Weir	200	15	1250	5	50	15	163	15	267.0	Poorly Sorted Limestone Rock D50=24"
6	Weir	200	15	1100	4	50	15	119	15	201.0	Poorly Sorted Limestone Rock D50=24"
2	Chute	N/A	N/A	N/A	1	80	4	177.8	53	346.2	Poorly Sorted Limestone Rock D50=12"
	Chute	N/A	N/A	N/A	1	80	0	177.8	0	266.7	Clean Gravel - D50 = 1"
7	Weir	N/A	10	640	2	40	15	39	15	81.0	Poorly Sorted Limestone Rock D50=24"
				24180				**2910**	**351**	**4892**	
							Total yds3	**3261**			

Site Information						
Structure Height / ft.	Variable	Cord Length / ft.		1475.5		
Crest Width / ft.	10	Mid Ord / ft.		220		
Finished Slope Grade/H:V	3.00	BkF Elev	1119	At Station	6+00	
Schumm Channel Stage	5	Rosgen Classification		C5c-		
Radius of Curvature / ft.	1,346.989	Channel Width / ft.		235.00		
Max. Structure Spacing/ ft.	555.767	Tortuousity		5.732		
Reg. Structure Spacing / ft.	190.576	Critical Shear Stress		0.293	lbs./sq.ft.	
Hydraulic Radius / ft.	7.476	Slope = ft./ ft.		0.00062879	3.32	ft./mile
Cross Sectional Area / sq. ft.	1,781.60	Wetted Perimeter/ ft.		238.3		
Bank Full Discharge / cfs	12,753	Manning's n		0.029	Calculated	
		Mean Velocity / fps		5.02		

Quantities List	
Shot Rock Rock / Cubic Yards	2,817
Shot Rock 12" D50/ Tons	826
Shot Rock 18" D50/ Tons	2,085
Shot Rock 24" D50/ Tons	1,314
Clean Gravel/ Tons	667
Soil moving/ Cubic Yds.	6,316
Bare Root Trees	1,050
Live Stakes	1,740
Temporary Seeding / acres	2.09
Native Grass Seeding / acres	2.09
Mulching / acres	2.09
Riparian Buffer Area / acres	2.80

Channel Bank Vegetation - Practice Code 322	
Vegetation Type	**Quantity**
Bare Root Seedlings / ea.	1,050
Live Stakes / ea.	1,740
Seeding/ acres	2.09
Mulching - Practice Code 484	
Mulching / acres	2.09

Five Year Flood Frequency -	
Discharge / cfs	32,910
4,980.46	Sq. Mi.

Landowner	[redacted]
DBA	[redacted]
Address	[redacted]
City, State Zip	[redacted]
Phone	[redacted]
Legal	SW 1/4, Section 30, T3S, R7E
Date	8/16/2018