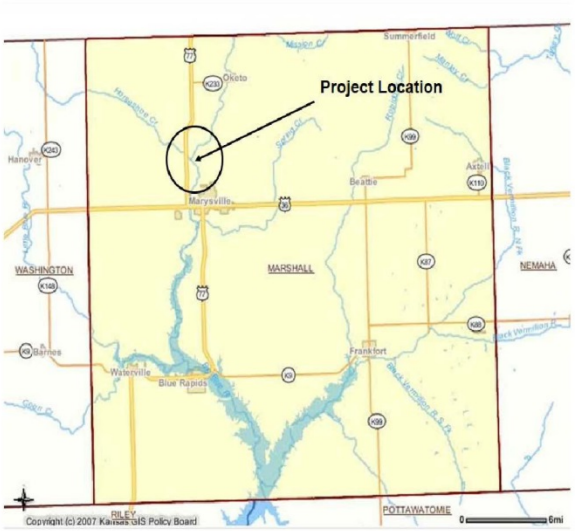
Big Blue River

BBR 49

Marshall County, Kansas

NW 1/4, Sec. 16, T2S, R7E



Marshall County Map
NTS

Sheet Index

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

Site Location Map
NTS

Quantities

Item	Unit	Total
Rock 18"	Tons	3509
Rock 24"	Tons	2321
Soil Moving	C.Y.	16804
Bare Root Trees	Each	1150
Live Stakes	Each	1785
Temporary Seeding	Acres	2.85
Native Grass Seeding	Acres	2.85
Mulching	Acres	2.85
Buffer Ripping Area	Acres	2.74

(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. BARKER
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
Copyright (c) 2007 Kansas GIS Policy Board
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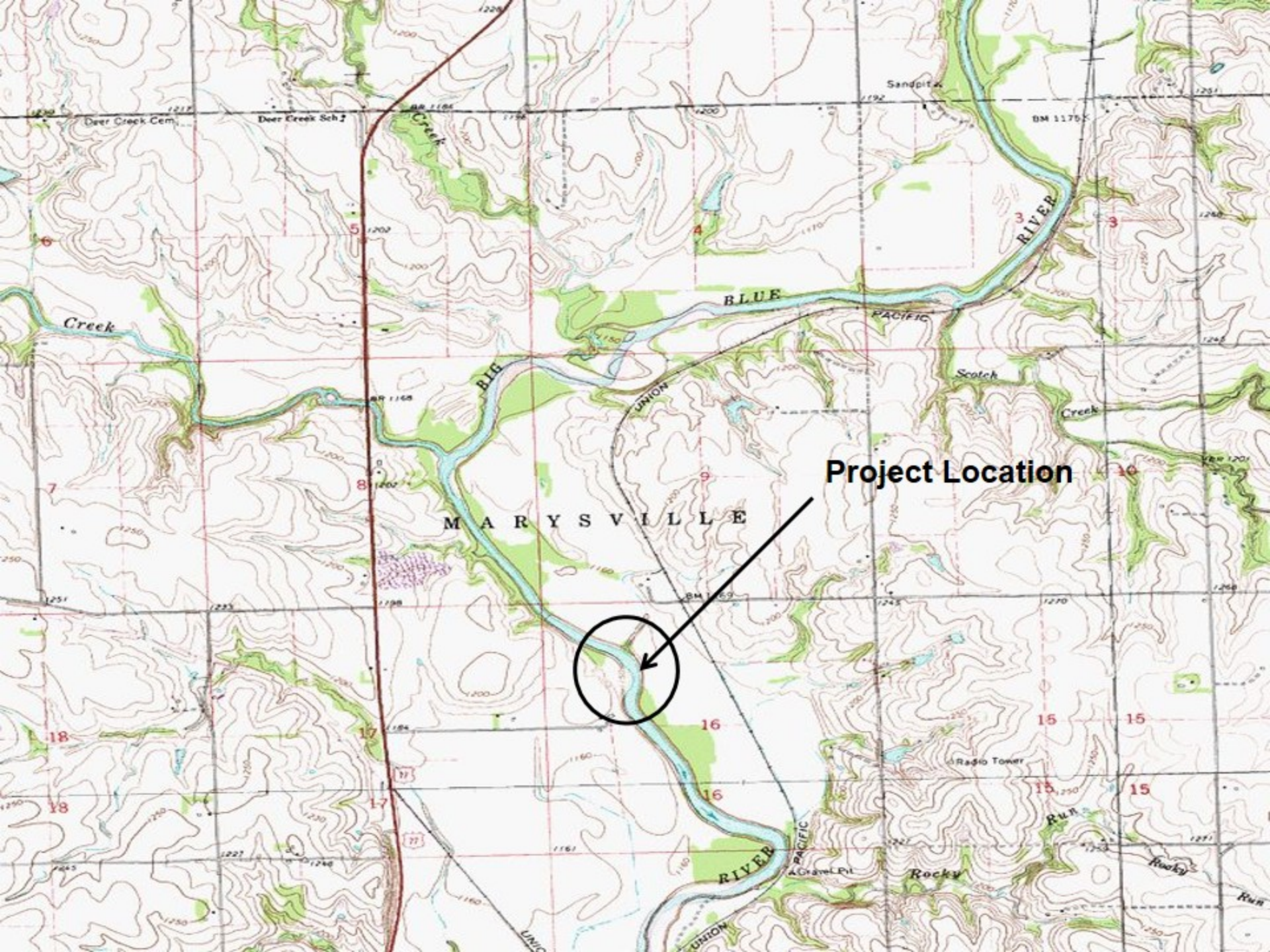
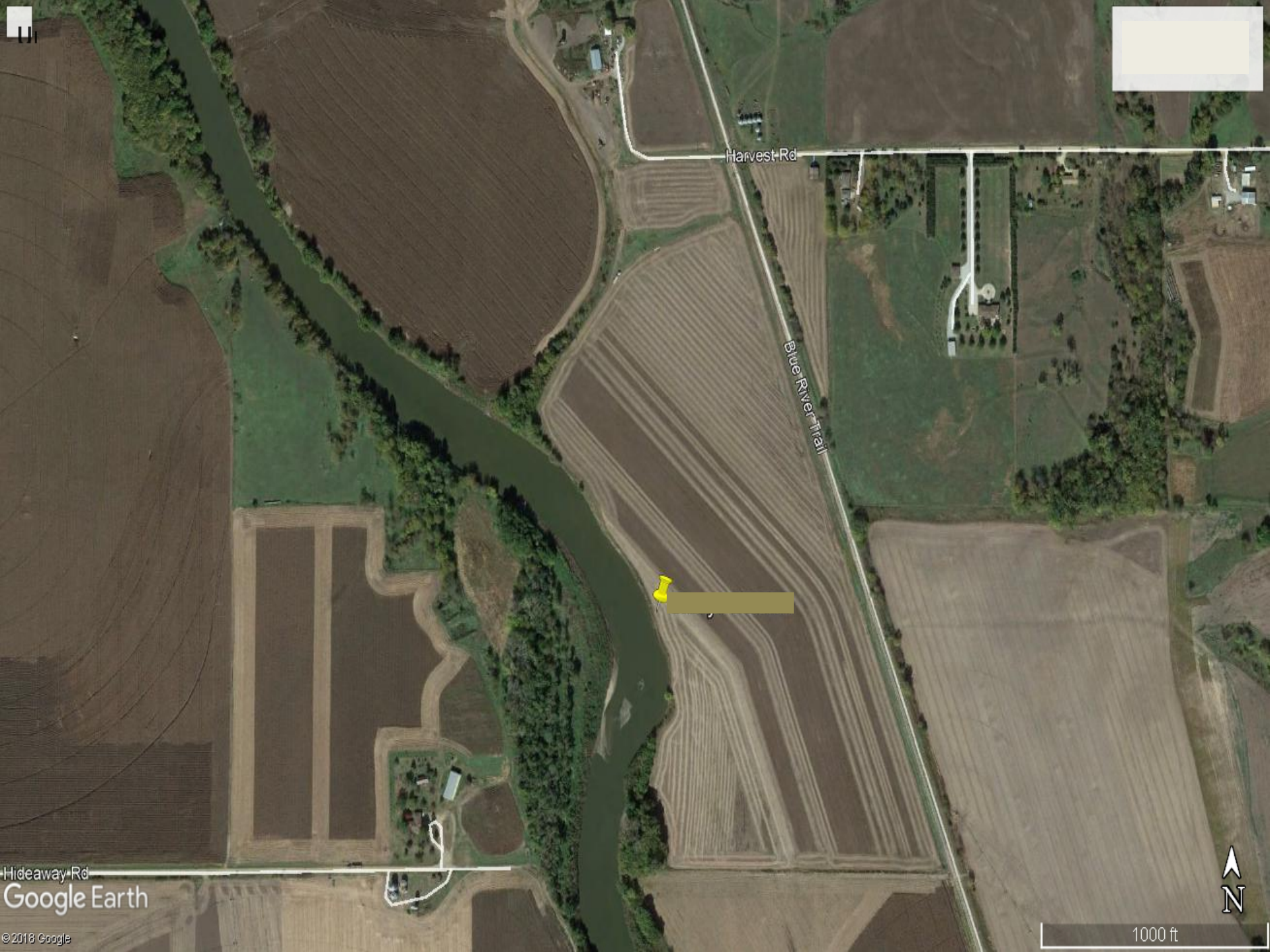
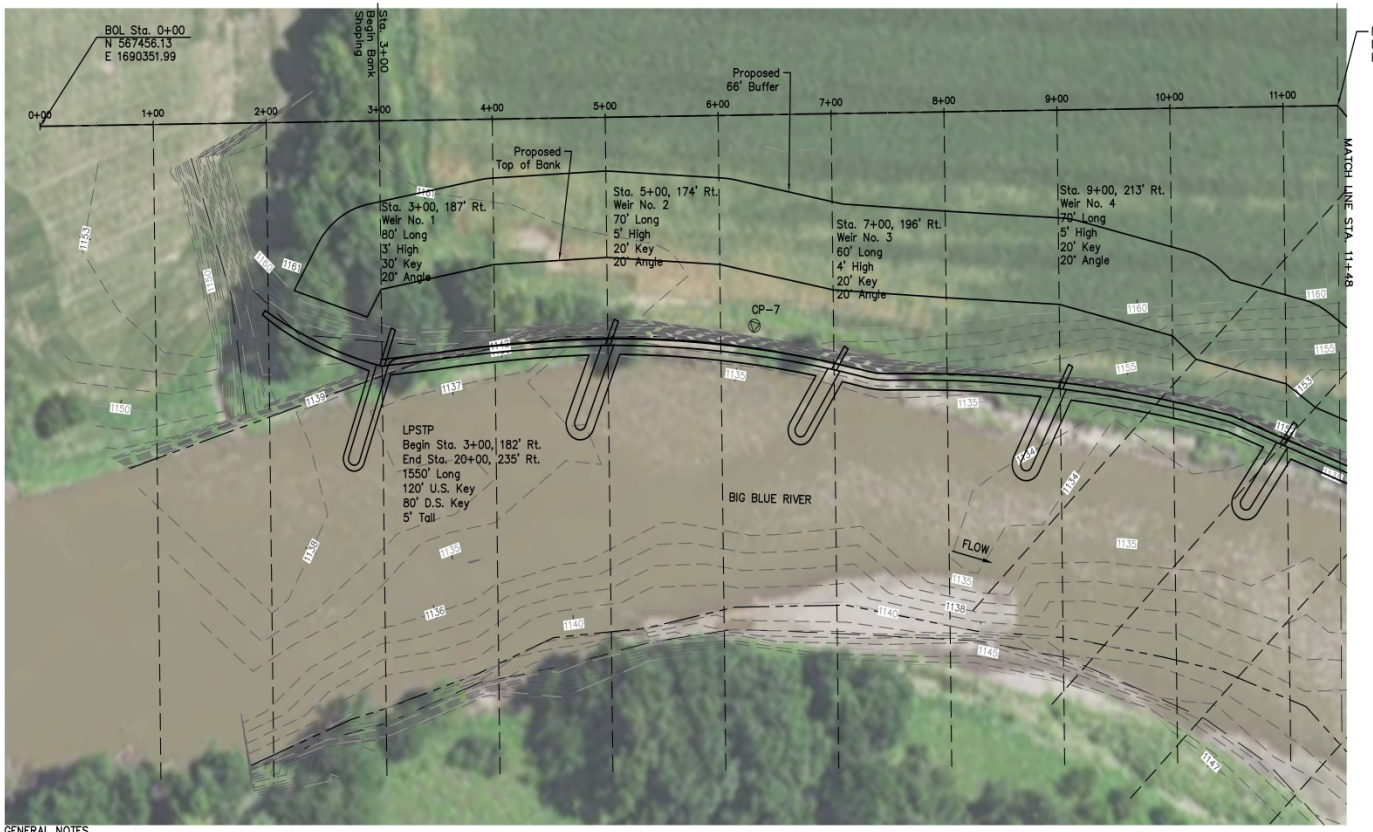

Project Location
MARYSVILLE
BLUE
RIVER
BIG
Creek
Deer Creek Cem.
Deer Creek Sch.
Sandpit
BM 1175
Scotch
Creek
UNION
PACIFIC
Radio Tower
Gravel Pit
Rocky
Run
RIVER

Legend
Project Location
Harvest Rd
Hideaway Rd
US Hwy 77
77
Blue River Trail
10th Rd
N
3000 ft
Google Earth
©2017 Google


Harvest Rd
Blue River Trail
Hideaway Rd
Google Earth
© 2018 Google
N
1000 ft

Legend
Blue River Trail
Google Earth
© 2018 Google
N
800 ft



LEGEND

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

BENCHMARKS LOCATIONS
Scale: 1"=1000'

2015 Farm Service Agency (FSA)
National Agriculture Imagery Program (NAIP)

0 25 50 100
SCALE: 1" = 50'-0"

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.

BENCHMARKS

BM-1	BM-2
1/2x30 Rebar W/PC	NE 16-2-7, 1/2"
15 Ft SW Spk + BC	IP 0.3 Deep
in PP + 12 Ft	Sta. 11+48.34
w/Guy	3578.10 Lt.
Sta. -1+86.73,	N 568261.41
85653 Lt.	E 1694372.54
N 568200.29	EL. 1245.76
E 1690815.40	
EL. 1159.69	

CONTROL POINTS

CP-7	CP-8
Hub + Tack, 10 Ft	Hub + Tack, 10 Ft
From Top of Bank	From Top of Bank
Sta. 6+30.03	Sta. 19+92.60
160.96 Rt.	201.97 Rt.
N 566901.44	N 565814.19
E 1690691.35	E 169061.23

Date	Comment	No.	BY	CK	APP
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		3			
		2			
		1			

Designed By: PGB
Drawn By: MEM
Checked By: DWB
Date: 6/30/18
Scale: 1"=50'

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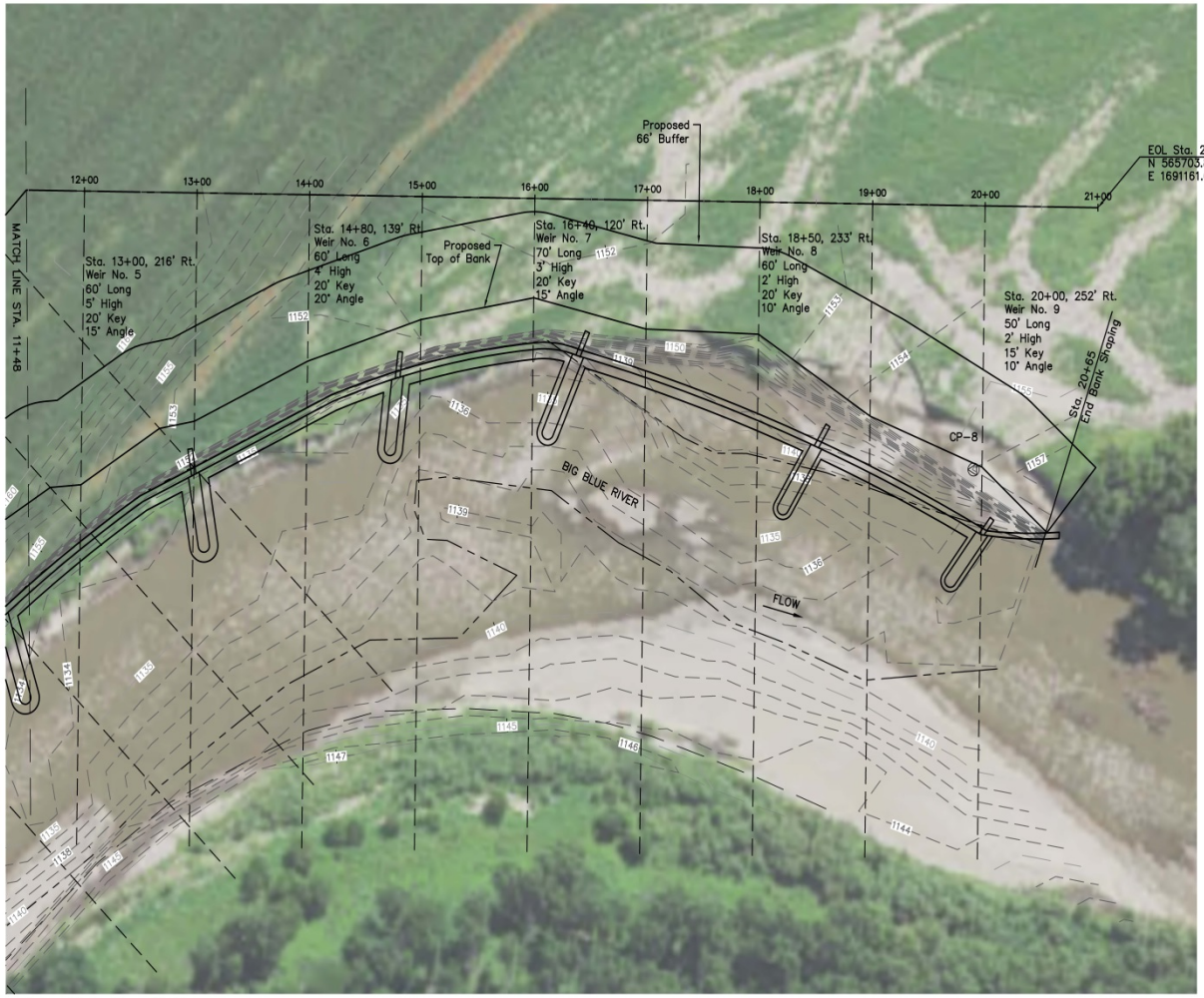
913-302-1030

Site BBR62, Big Blue River

Marshall County, Kansas

Plan View



2015 Farm Service Agency (FSA)
National Agriculture Imagery Program (NAIP)

LEGEND

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

BENCHMARKS LOCATIONS
Scale: 1"=1000'

SCALE: 1" = 50'-0"

BENCHMARKS

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1/2x30 Rebar W/PC
15 Ft SW Spk + BC
in PP + 12 Ft
w/Guy
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IP 0.3 Deep
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N 565814.19
E 169061.23

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Marshall County, Kansas

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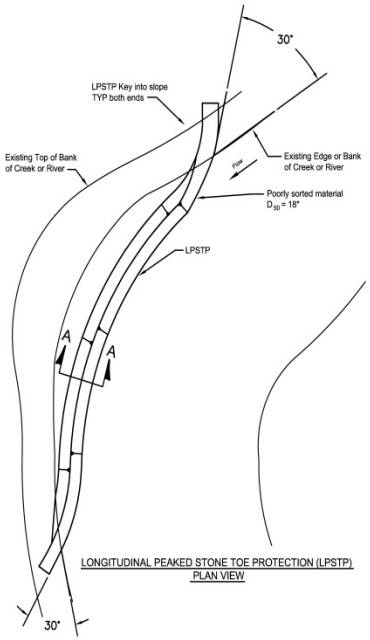
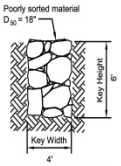
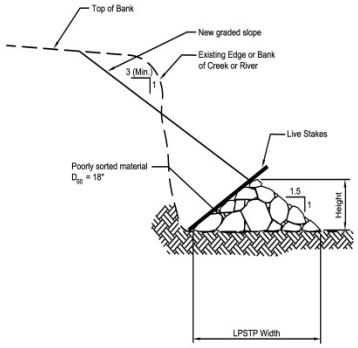


LONGITUDINAL PEAKED STONE TOE PROTECTION (LPSTP)
PLAN VIEW



ROCK KEY SECTION VIEW
LPSTP



LPSTP CROSS SECTION A-A

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

Project Name	Stream	County	State	Bank Length Shaped	Bank Length Total	Bank Height
Claeys Brothers BBR 62	Big Blue River	Marshall	Kansas	1,785	2,100	22

#	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	23250	5	1550	200	2,139	200	3508.5	Poorly Sorted Limestone Rock
1	Weir	200	20	1520	3	80	30	139	30	253.5	Poorly Sorted Limestone Rock
2	Weir	200	20	1750	5	70	20	241	20	391.5	Poorly Sorted Limestone Rock
3	Weir	200	20	1320	4	60	20	151	20	256.5	Poorly Sorted Limestone Rock
4	Weir	200	20	1750	5	70	20	241	20	391.5	Poorly Sorted Limestone Rock
5	Weir	200	15	1500	5	60	20	207	20	340.5	Poorly Sorted Limestone Rock
6	Weir	160	20	1320	4	60	20	151	20	256.5	Poorly Sorted Limestone Rock
7	Weir	180	15	1330	3	70	20	122	20	213.0	Poorly Sorted Limestone Rock
8	Weir	165	10	960	2	60	20	62	20	123.0	Poorly Sorted Limestone Rock
9	Weir	N/A	10	800	2	50	15	48	15	94.5	Poorly Sorted Limestone Rock
				11450				**3501**	**385**	**5829**	
							Total yds3	**3886**			

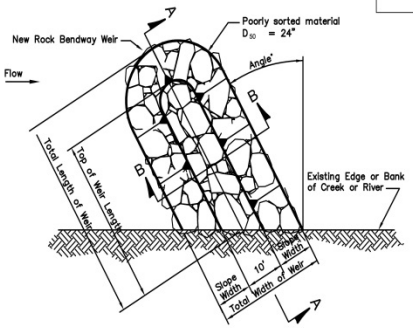
Site Information					
Structure Height / ft.	variable	Cord Length / ft.	1650		
Crest Width / ft.	10	Mid Ord / ft.	360		
Finished Slope Grade/H:V	3.00	BkF Elev	1152	At Station	3+00
Schumm Channel Stage	5	Rosgen Classification	C5c-		
Radius of Curvature / ft.	1,125.313	Channel Width / ft.	304.00		
Max. Structure Spacing/ ft.	390.696	Tortuousity	3.702		
Reg. Structure Spacing / ft.	157.596	Critical Shear Stress	0.542	lbs./sq.ft.	
Hydraulic Radius / ft.	12.918	Slope = ft./ ft.	0	3.55	ft./mile
Cross Sectional Area / sq. ft.	4146.8	Wetted Perimeter/ ft.	321		
Bank Full Discharge / cfs	12,467	Manning's n	0.071	Calculated	
		Mean Velocity / fps	3.01		

Quantities List	
Shot Rock Rock / Cubic Yards	3,886
Shotrock D50 = 18" / Tons	3,509
Shotrock D50 = 24" / Tons	2,321
Soil moving/ Cubic Yds.	16,804
Bare Root Trees	1,150
Live Stakes	1,785
Temporary Seeding / acres	2.85
Native Grass Seeding / acres	2.85
Mulching / acres	2.85
Buffer Ripping Area / acres	2.74

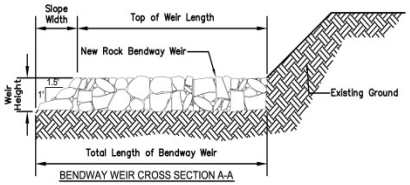
Channel Bank Vegetation - Practice Code 322	
Vegetation Type	**Quantity**
Bare Root Seedlings / ea.	1,150.00
Live Stakes / ea.	1,785.00
Seeding/ acres	2.85
Mulching - Practice Code 484	
Mulching / acres	2.85

Five Year Flood Frequency -	
Discharge / cfs	31,200
4,851.69	Sq. Mi.

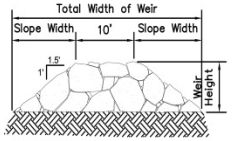
Landowner	Kenny and Dave Claeys
DBA	Claeys Brothers
Address	304 N. 17th St.
City, State Zip	Marysville, KS 66508
Phone	785-562-3304
Legal	NW 1/4, Sec. 16, T2S, R7E
Date	9/5/2018



BENDWAY WEIR PLAN VIEW



BENDWAY WEIR CROSS SECTION A-A



BENDWAY WEIR CROSS SECTION B-B

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Drawn By: MEM
Checked By: DWB
Date: 7/22/18
Scale: None

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

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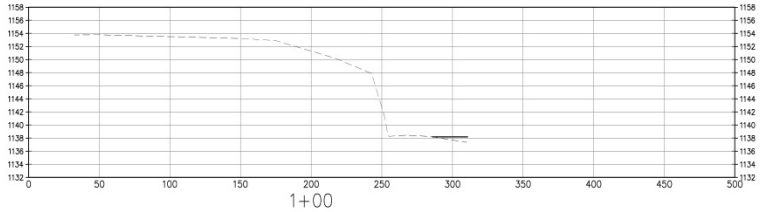
913-302-1030

Site BBR62, Big Blue River

Marshall County, Kansas

Details

4 SHEET OF 7



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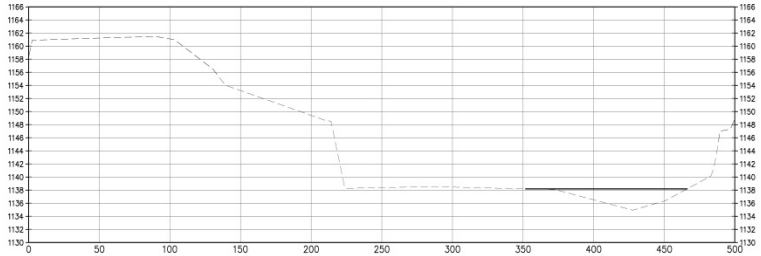

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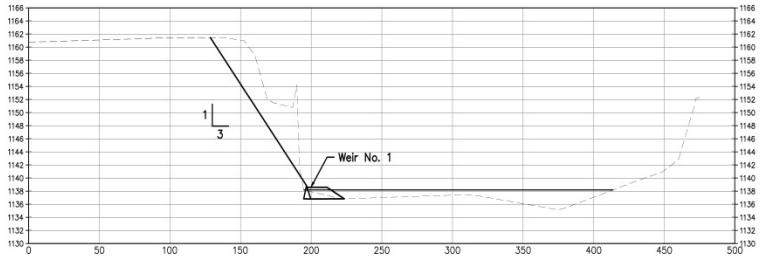

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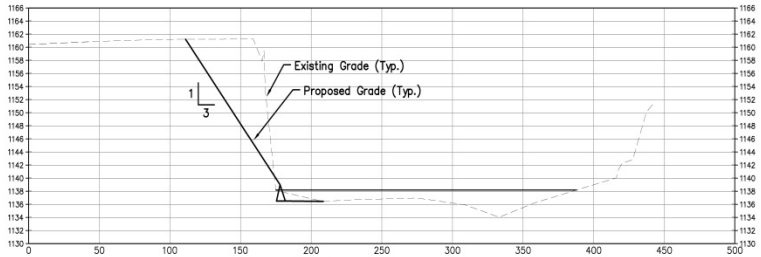

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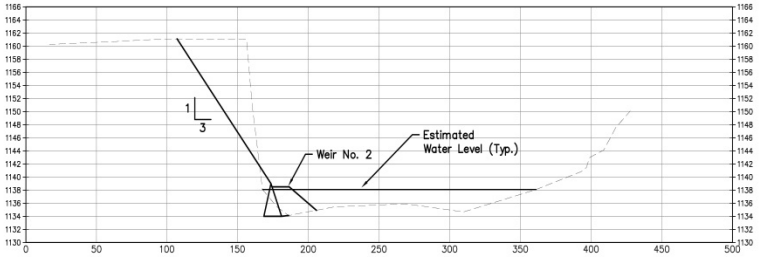

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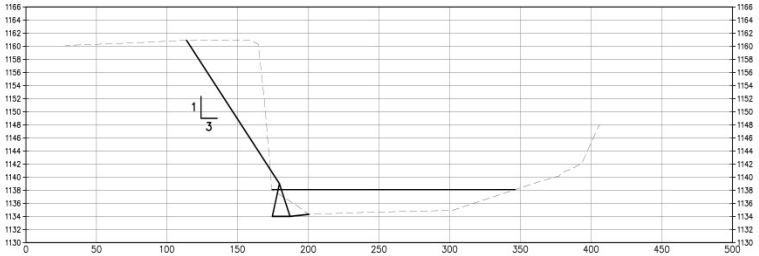

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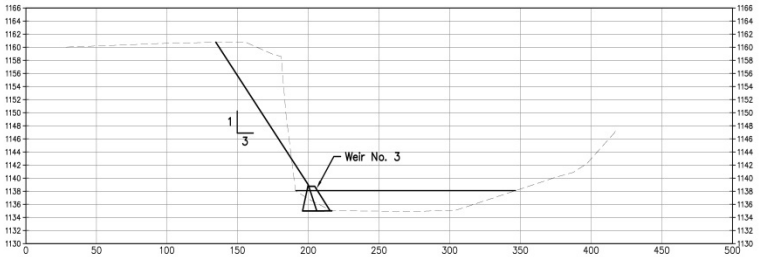

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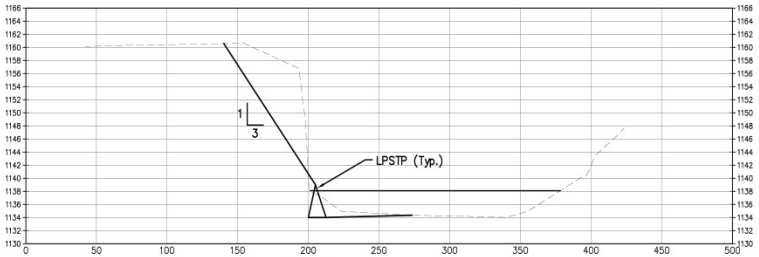

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SCALE:
1"=10' VERT.
1"=40' HORZ.

Date	Comment	No.	BY	CK	APP
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		3			
		2			
		1			

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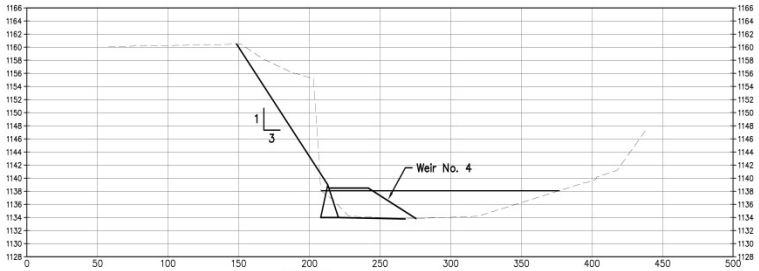
Marshall County, Kansas

Cross Sections



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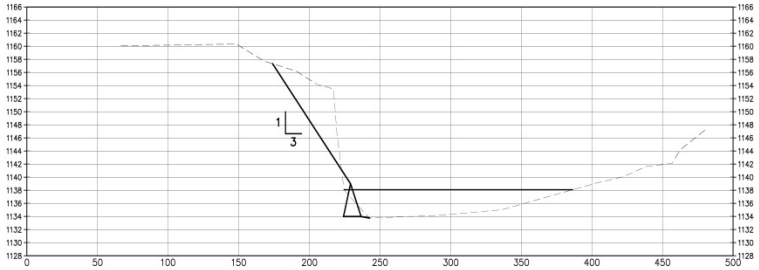

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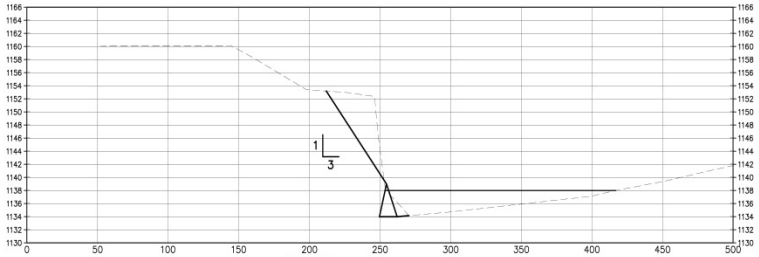

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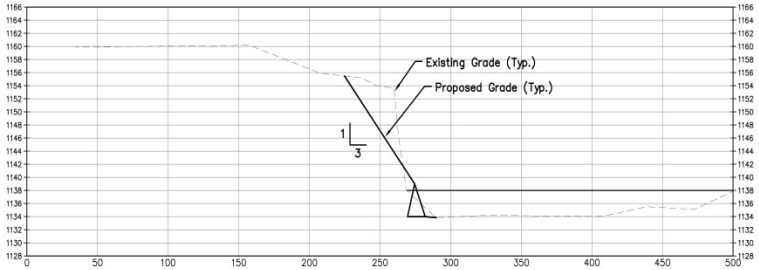

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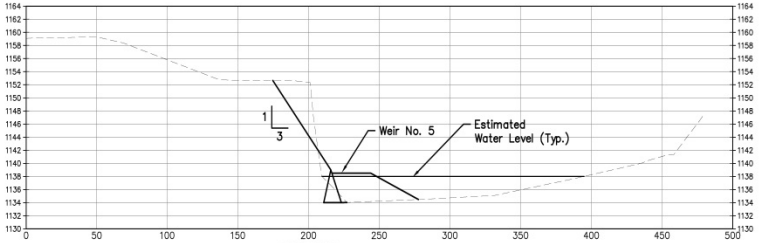

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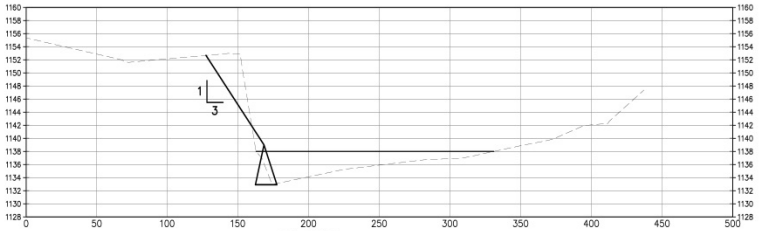

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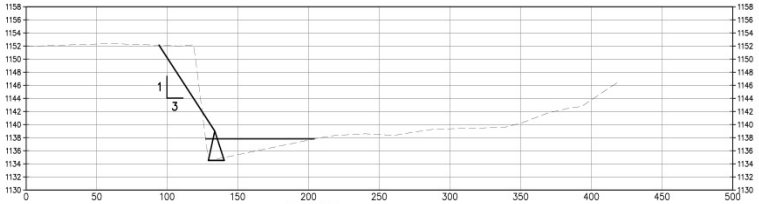

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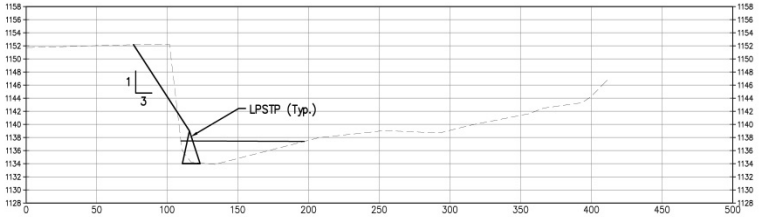

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1"=40' HORZ.

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Site BBR62, Big Blue River
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Cross Sections

Structure Specification Sheet

Phil Balch, 2002 - revised 3/2006

Project Name	Stream	County	State	Bank		
Claeys Brothers BBR 62	Big Blue River	Marshall	Kansas	Length		Height
				Shaped	Total	22
				1,785	2,100	

#	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	23250	5	1550	200	2,139	200	3508.5	Poorly Sorted Limestone Rock
1	Weir	200	20	1520	3	80	30	139	30	253.5	Poorly Sorted Limestone Rock
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5	Weir	200	15	1500	5	60	20	207	20	340.5	Poorly Sorted Limestone Rock
6	Weir	160	20	1320	4	60	20	151	20	256.5	Poorly Sorted Limestone Rock
7	Weir	180	15	1330	3	70	20	122	20	213.0	Poorly Sorted Limestone Rock
8	Weir	165	10	960	2	60	20	62	20	123.0	Poorly Sorted Limestone Rock
9	Weir	N/A	10	800	2	50	15	48	15	94.5	Poorly Sorted Limestone Rock
				11450				**3501**	**385**	**5829**	
							Total yds3	**3886**			

Site Information						
Structure Height / ft.	variable	Cord Length / ft.		1650		
Crest Width / ft.	10	Mid Ord / ft.		360		
Finished Slope Grade/H:V	3.00	BkF Elev	1152	At Station	3+00	
Schumm Channel Stage	5	Rosgen Classification		C5c-		
Radius of Curvature / ft.	1,125.313	Channel Width / ft.		304.00		
Max. Structure Spacing/ ft.	390.696	Tortuousity		3.702		
Reg. Structure Spacing / ft.	157.596	Critical Shear Stress		0.542	lbs./sq.ft.	
Hydraulic Radius / ft.	12.918	Slope = ft./ ft.		0.00067235		3.55 ft./mile
Cross Sectional Area / sq. ft.	4146.8	Wetted Perimeter/ ft.		321		
Bank Full Discharge / cfs	12,467	Manning's n		0.071	Calculated	
		Mean Velocity / fps		3.01		

Quantities List	
Shot Rock Rock / Cubic Yards	3,886
Shotrock D50 = 18" / Tons	3,509
Shotrock D50 = 24" / Tons	2,321
Soil moving/ Cubic Yds.	16,804
Bare Root Trees	1,150
Live Stakes	1,785
Temporary Seeding / acres	2.85
Native Grass Seeding / acres	2.85
Mulching / acres	2.85
Buffer Ripping Area / acres	2.74

Channel Bank Vegetation - Practice Code 322	
Vegetation Type	**Quantity**
Bare Root Seedlings / ea.	1,150.00
Live Stakes / ea.	1,785.00
Seeding/ acres	2.85
Mulching - Practice Code 484	
Mulching / acres	2.85

Five Year Flood Frequency -	
Discharge / cfs	31,200
4,851.69	Sq. Mi.

Landowner	Kenny and Dave Claeys
DBA	Claeys Brothers
Address	304 N. 17th St.
City, State Zip	Marysville, KS 66508
Phone	785-562-3304
Legal	NW 1/4, Sec. 16, T2S, R7E
Date	9/5/2018