

23-1296M	STATE	BRIDGE NO.	YEAR	SHEET NO.	TOTAL SHEETS
	Kansas	OS-2	2024	1	29

BROWN COUNTY, KS

2024 BRIDGE REPLACEMENT

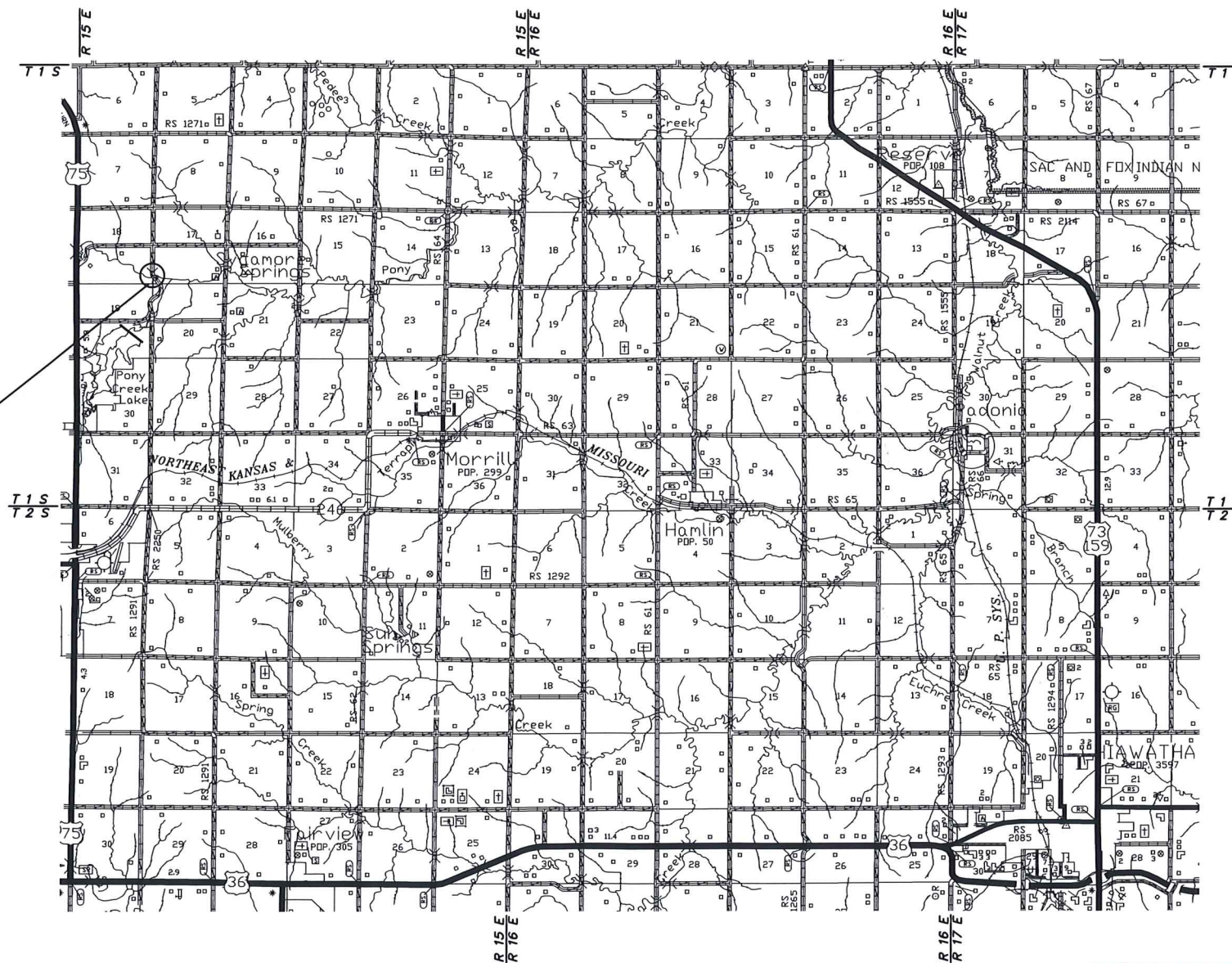
ANTELOPE ROAD BRIDGE OS-2

PROJECT 23-1296M

GRADING
BRIDGE
SEEDING
TRAFFIC CONTROL

INDEX OF SHEETS

1. Title Sheet
2. Plan and Profile
3. Guardrail Layout & Guardrail End Terminal
4. Construction Layout
- 5-6. Bridge Details
7. Bridge Excavation
8. Standard Pile Details
- 9-17. Temporary Erosion and Pollution Control
18. Project Seeding
- 19-24. Traffic Control
- 25-29. Cross Sections



Project Location
51'-2" PBMS (45° Skew Rt.)
(22'-2" Roadway)
Br. No. 00007098710XXXX

Note: Road will be closed to thru traffic during the construction of this structure.

Note: Work and materials for this project shall be in conformance with the KDOT "Standard Specifications for the State Road and Bridge Construction", unless otherwise noted.

SUMMARY OF QUANTITIES		
Item	Qty.	Unit
Mobilization	1	L.S.
Removal of Existing Structures	1	L.S.
Clearing and Grubbing	1	L.S.
Earthwork	1	L.S.
Bridge 51'-2" PBMS (25'-6" Rdwy.)	1	L.S.
Signing Object Marker (Type 3)	4	Ea.
Construction Staking	1	L.S.
Slope Protection (Shot Rock)	83	Cu.Yds.
Temporary Erosion & Pollution Control	1	L.S.
Erosion Control (Class I, Type C)	1	L.S.
Traffic Control	1	L.S.
*Pre-Drilled Pile Holes	80	L.F.

*If the elevation of 1067.00 cannot be attained by driving on the first pile of each abutment, pre-drilling will be required.

WATER RESOURCES
RECEIVED
MAY 06 2024



SCALE: 1" = 1 mi.

KS DEPT OF AGRICULTURE

Permit Set

PROJECT ENGINEER

BG CONSULTANTS, INC.
ENGINEERS-ARCHITECTS-SURVEYORS
MANHATTAN, KANSAS
HUTCHINSON, KANSAS
LAWRENCE, KANSAS
EMPORA, KANSAS



Vertical Datum: NAVD88
 P.O.T. 203 = 2.06' Rt. of C Sta. 9+47.85 = 0.37' Rt. of TW Sta. 9+47.79

Vertical Basis:
 OPUS-Processed Static GNSS Observation
 OPUS Point: BM101
 Monument Description: METAL T-POST
 Elevation: 1093.11

Horizontal Control:
 Kansas Regional Coordinate System Zone 10 (Atchison)
 NAD83 (2011)

Horizontal Basis:
 OPUS-Processed Static GNSS Observation
 Opus Point: BM101
 Monument Description: METAL T-POST
 Northing: 818360.82
 Easting: 10495027.68

1. Set Cotton Gin Spindle 6" Deep in L. of Antelope Rd. 29.8' N
2. Set Mag Nail & Wshr. in W. Face 60" Tree. 24.9' ENE
3. Set Mag Nail & 2 Wshrs. in S. Face 30" Tree. 109.9' SSE
4. Set Metal T Post 4" Deep (BM 101)
5. In Travel Way of Antelope Road.
6. N. 818450.13 E. 10494963.98

1. Set Cotton Gin Spindle 6" Deep in L. of Antelope Rd. 82.6' NNE
2. Set RR Spk. in W. Face of Power Pole (BM100). 35.0' W
3. Set Mag Nail & Wshr. in S. Face of Abandoned Sign Post. 82.9' S
4. Set Mag Nail & Wshr. in E. Face 30" Tree.
5. In Travel Way of Antelope Road.
6. N. 818803.03 E. 10494965.41

23-1296M	STATE	BRIDGE NO.	YEAR	SHEET NO.	TOTAL SHEETS
	Kansas	OS-2	2024	2	29

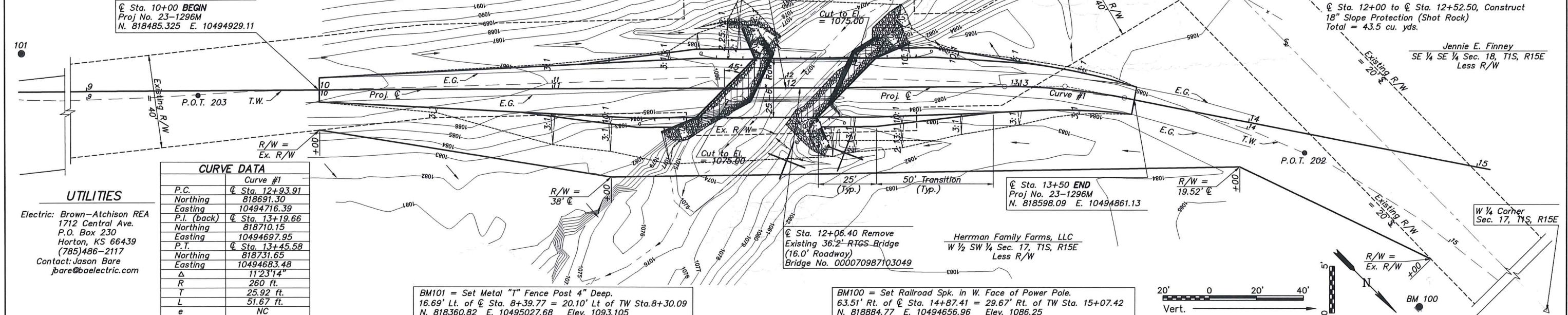
Note: Construction of embankment and channel widening at the bridge shall be completed before construction of bridge begins.

Note: All material obtained from removal of existing structure shall become the property of the Contractor and removed from the site.

Sta. 11+47 to Sta. 11+96.50, Construct 18" Slope Protection (Shot Rock). Total = 30 cu. yds.

Sta. 11+47 to Sta. 11+96.50 Lt., Construct 18" Slope Protection (Shot Rock). Total = 9.5 cu. yds.

Sta. 12+00 to Sta. 12+52.50, Construct 18" Slope Protection (Shot Rock). Total = 43.5 cu. yds.



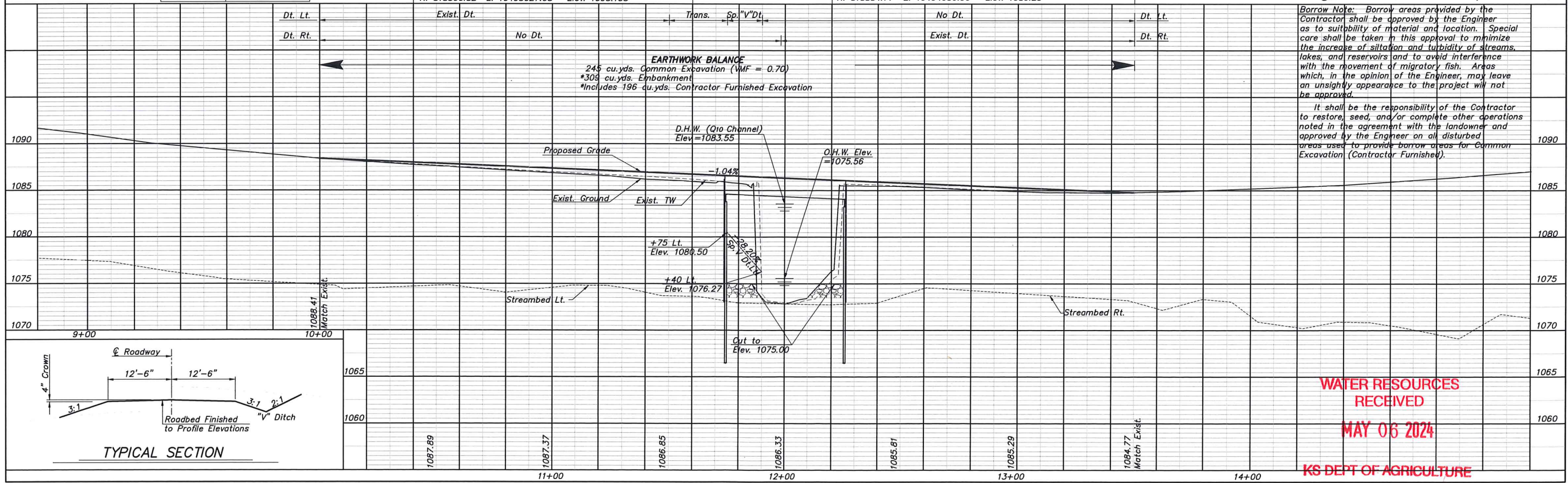
CURVE DATA	
Curve #1	
P.C.	Sta. 12+93.91
Northing	818691.30
Easting	10494716.39
P.I. (back)	Sta. 13+19.66
Northing	818710.15
Easting	10494697.95
P.T.	Sta. 13+45.58
Northing	818731.65
Easting	10494683.48
Δ	11°23'14"
R	260 ft.
T	25.92 ft.
L	51.67 ft.
e	NC

UTILITIES

Electric: Brown-Atchison REA
 1712 Central Ave.
 P.O. Box 230
 Horton, KS 66439
 (785)486-2117
 Contact: Jason Bare
 jbare@baelectric.com

BM101 = Set Metal "T" Fence Post 4" Deep.
 16.69' Lt. of C Sta. 8+39.77 = 20.10' Lt. of TW Sta. 8+30.09
 N. 818360.82 E. 10495027.68 Elev. 1093.105

BM100 = Set Railroad Spk. in W. Face of Power Pole.
 63.51' Rt. of C Sta. 14+87.41 = 29.67' Rt. of TW Sta. 15+07.42
 N. 818884.77 E. 10494656.96 Elev. 1086.25

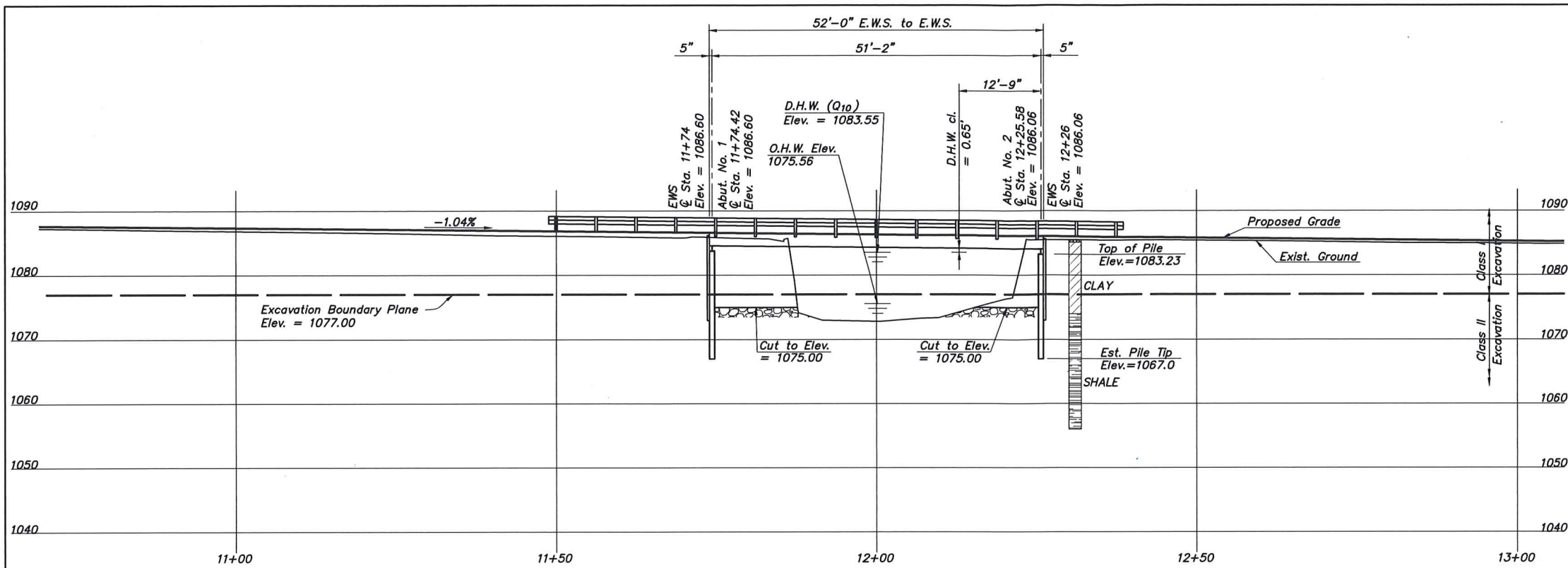


Borrow Note: Borrow areas provided by the Contractor shall be approved by the Engineer as to suitability of material and location. Special care shall be taken in this approval to minimize the increase of siltation and turbidity of streams, lakes, and reservoirs and to avoid interference with the movement of migratory fish. Areas which, in the opinion of the Engineer, may leave an unsightly appearance to the project will not be approved.

It shall be the responsibility of the Contractor to restore, seed, and/or complete other operations noted in the agreement with the landowner and approved by the Engineer on all disturbed areas used to provide borrow areas for Common Excavation (Contractor Furnished).

WATER RESOURCES RECEIVED
 MAY 06 2024
 KS DEPT OF AGRICULTURE

23-1298M	STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
	Kansas	OS-2	2024	4	29



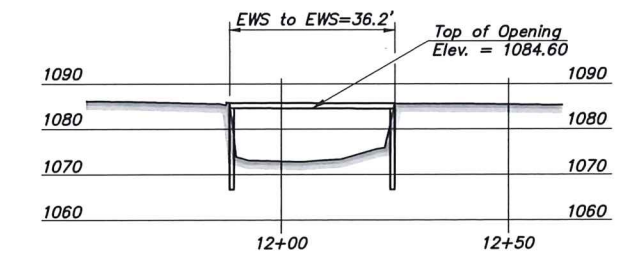
ELEVATION
 @ Sta. 12+00 Construct
 51'-2" PBMS Span Bridge
 (Skewed 45° Rt.)(25'-6" Roadway)

DRAINAGE DATA

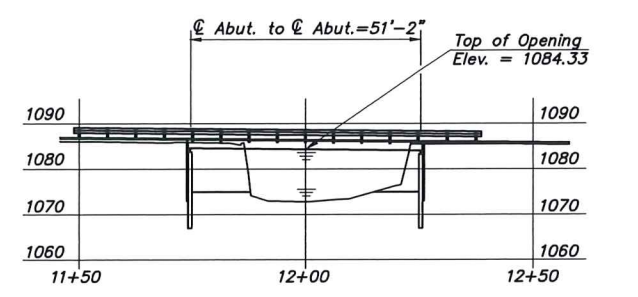
Drainage Area	5.1 Sq. Mi.
Design Frequency (Q10)	10 Years
Design Discharge (Q10)	1,840 cfs
Design High Water Elevation	1083.55
Design Backwater	0.00 ft.
Design Backwater Elevation	1083.55
Overtopping Elevation (Sta. 13+50)	1084.78
Overtopping Discharge	3,339 cfs
Overtopping Frequency	>25 Years
Ordinary High Water Discharge (QOHW)	122 cfs
Discharge at Q100	4,320 cfs
Backwater at Q100	-0.55 Ft.
Backwater Elevation at Q100	1087.24
Historic High Water Elevation	Unknown
Ordinary High Water Elevation	1075.56
Total Waterway Provided	362 Sq. Ft.
Design Waterway Provided	337 Sq. Ft.

WATER RESOURCES RECEIVED
MAY 06 2024

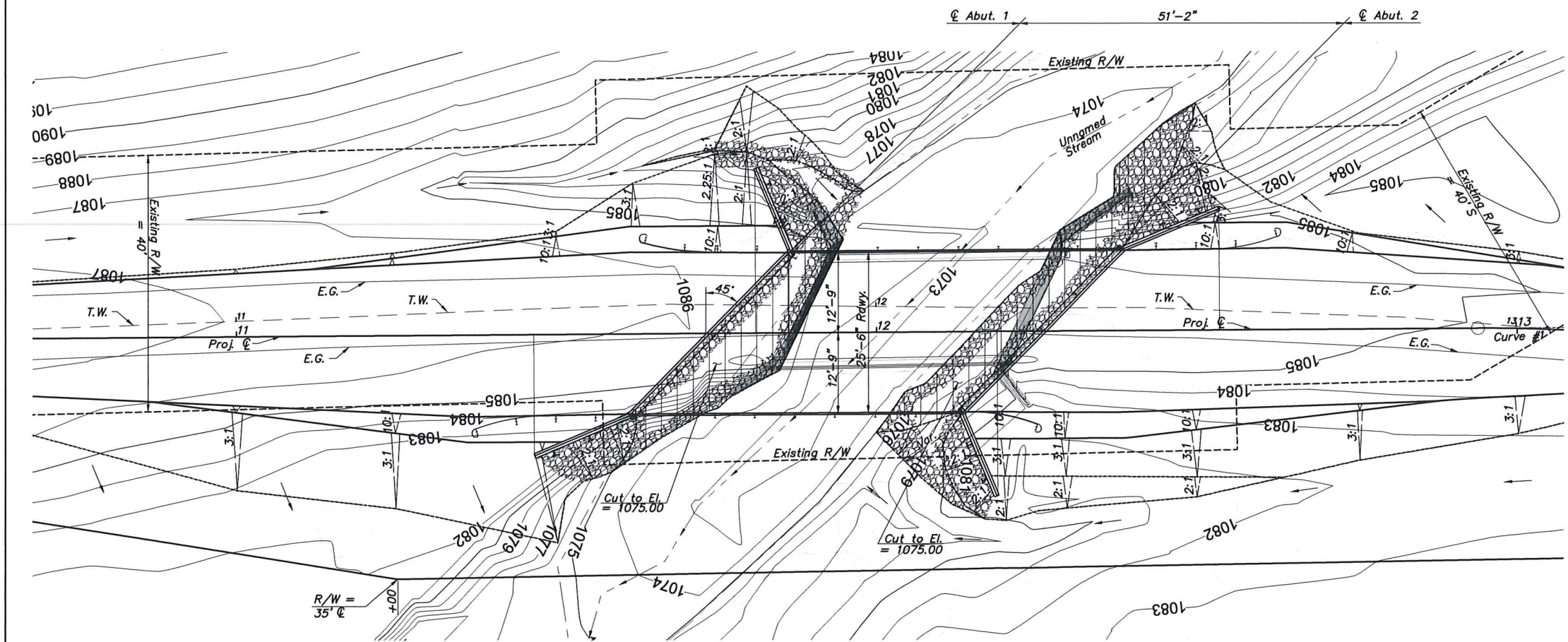
KS DEPT OF AGRICULTURE



EXISTING WATERWAY OPENING
 Area = 361 sq.ft.
 Scale: 1" = 20'



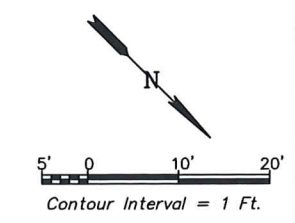
PROPOSED WATERWAY OPENING
 Area = 362 Sq. Ft.
 Scale: 1" = 20'



PLAN

BM101 = Set Metal "T" Fence Post 4" Deep.
 16.69' Lt. of @ Sta. 8+39.77 = 20.10' Lt of TW Sta. 8+30.00
 N. 818360.82 E. 10495027.68 Elev. 1093.105

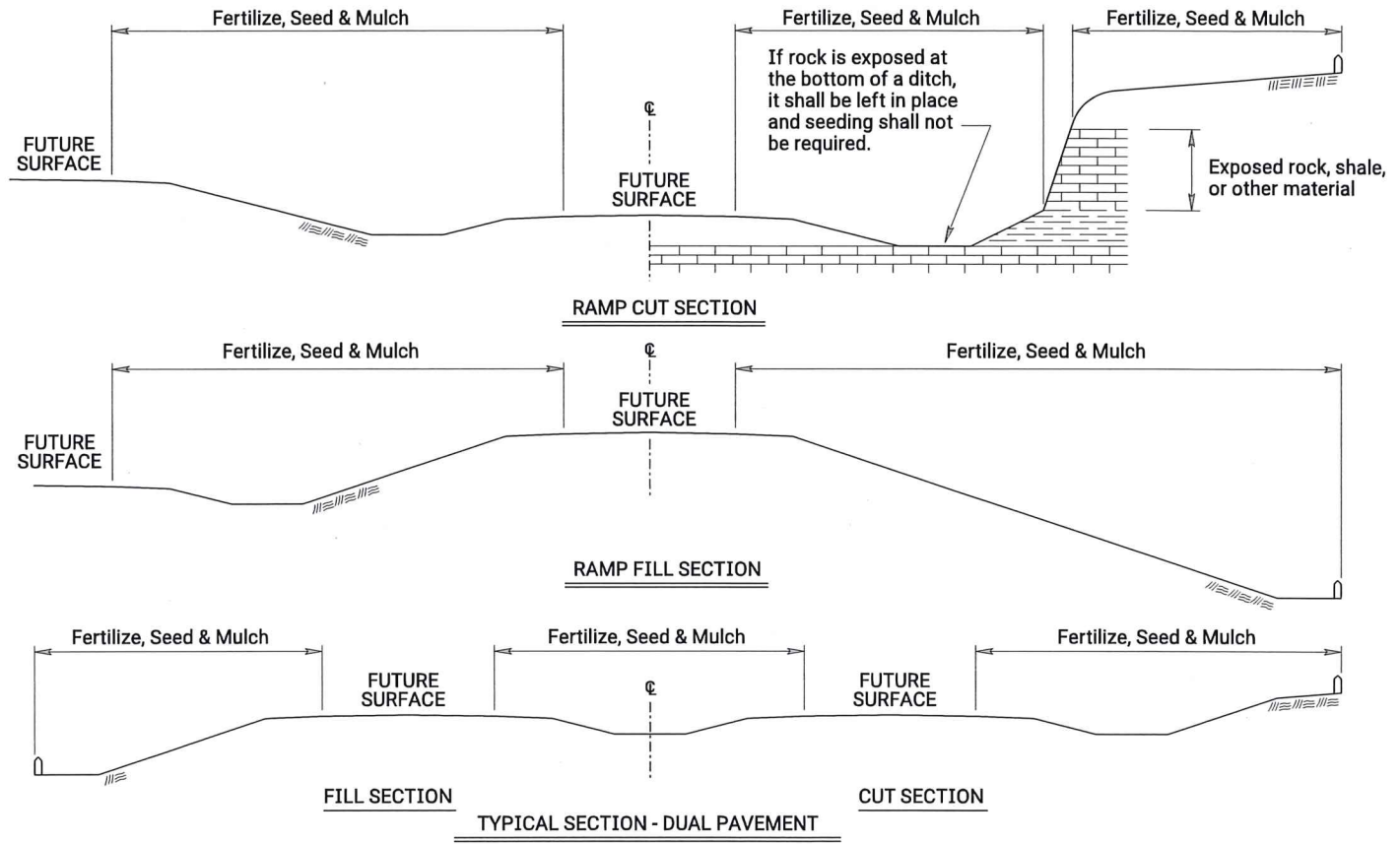
BM100 = Set Railroad Spk. in W. Face of Power Pole.
 63.51' Rt. of @ Sta. 14+87.41 = 29.67' Rt. of TW Sta. 15+07.42
 N. 818884.77 E. 10494656.96 Elev. 1086.25



BROWN COUNTY HIGHWAY DEPARTMENT

CONSTRUCTION LAYOUT

BG CONSULTANTS
 ENGINEERS ARCHITECTS SURVEYORS



SUMMARY OF SEEDING / EROSION CONTROL QUANTITIES

P.L.S. RATE/ ACRE		ACRES		BID ITEM	QUANTITY	UNIT
CLT	SL/CH	CLT	SL/CH			
	200		0.075	Temporary Fertilizer (13 - 13 - 13)	15	LB
				Temporary Seed (Canada Wildrye)		LB
				Temporary Seed (Grain Oats)		LB
				Temporary Seed (Sterile Wheatgrass)		LB
	129.9		0.075	Soil Erosion Mix	9.7	LB
				Erosion Control (Class 1, Type C)	353.1	SQ YD
				Erosion Control (Class 2, Type Y)		SQ YD
				Sediment Removal (Set Price)	1	CU YD
				Synthetic Sediment Barrier		LF
				Temporary Berm (Set Price)	1	LF
				Temporary Ditch Check (Rock)		CU YD
				Temporary Inlet Sediment Barrier		EACH
				Temporary Sediment Basin		CU YD
				Temporary Slope Drain		LF
				Temporary Stream Crossing		EACH
				Biodegradable Log (9")	18	LF
				Biodegradable Log (12")	18	LF
				Biodegradable Log (20")	35	LF
				Filter Sock (****)		LF
				Geotextile (Erosion Control)	500	SQ YD
				Silt Fence	35	LF
				SWPPP Design †		LS
				SWPPP Inspection †		EACH
				Water Pollution Control Manager †		EACH
	900 lbs / acre			Mulch Tacking Slurry		LB
	2 tons / acre			Mulching		TON
				Water (Erosion Control) (Set Price)	1	MGAL

NOTE: When seeding less than 1 acre, temporary and permanent seeding shall be combined and seeded at the same time. There is no seasonal restriction for seeding projects less than 1 acre.

NOTE: Projects less than 1 acre shall be bid as "Seeding" by the lump sum. See Permanent Seeding Summary of Seeding Quantities sheet LA850 for further details.

Geotextile (Erosion Control) shall be removed prior to placement of permanent slope protection.

Regreen and Quick Guard are the approved sterile wheatgrass products.

† If the total disturbed area of the project, not just the seeding area, is 1 acre or more, then these bid items must be included.

***** List size of material.

The amount of mulch and mulch tacking slurry in the bid quantities is estimated. (Acres of Seeding X 1.5 X 2 Tons/Acre). The estimated quantity includes mulching associated with both temporary and permanent seeding operations. The total mulch and mulch tacking slurry required shall be determined in the field. The bid item for mulching and mulch tacking slurry shall be paid for according to the Standard Specifications.

Quantities for all erosion control items are estimated to give full flexibility for compliance with the NPDES permit. Final quantities will be determined in the field.

SOIL EROSION MIX		
PLS RATE	NAME	QTY (lb)
200	Fertilizer (13-13-13)	*
0.5	Seed (Blue Grama Grass) (Lovington)	0.004
4.5	Seed (Buffalograss) (Treated)	0.338
20	Seed (Canada Wildrye Grass)	1,500
45	Seed (Perennial Ryegrass)	3,375
2.6	Seed (Prairie Junegrass)	0.195
6.3	Seed (Side Oats Grama Grass) (ElReno)	0.473
45	Seed (Tall Fescue) (Endophyte Free)	3,375
6	Seed (Western Wheatgrass) (Barton)	0.450
	Total (lb)	9,710

*Fertilizer quantity for Soil Erosion Mix is included in the Recap Table above.

The Soil Erosion Mix is to be placed under the Class 1 and/or Class 2 erosion control material.

The Soil Erosion Mix consists of the Shoulder Area of the Permanent Seed Mix used on the project.

FERTILIZER: A ratio and application rate that equals or exceeds the required minimum rate per acre of N, P₂O₅, K₂O listed in Summary of Quantities will be acceptable.

- * - N = Nitrogen Rate of Application
- ** - P₂O₅ = Phosphorous Rate of Application
- *** - K₂O = Potassium Rate of Application

The Contractor will be required to finish areas of excavation, borrow and embankment in accordance with the specifications. Areas that require installation or construction of temporary water pollution control items will be finished in reasonable close conformity to the alignment, grade and cross section shown on the plans or as established by the Engineer.

CLT = Construction Limit Tract. This area is defined by the entire disturbed area of the project that requires seeding and erosion control measures to be placed. Any impervious areas (i.e. pavement, gravel, riprap, etc.) shall not be included in this measurement.

Slope = Defined by the area of the project that requires Class 1 erosion control material to be placed. This area shall be seeded using the Soil Erosion Mix prior to placement of the material. Drilling seed is preferred, however, broadcasting is acceptable if drilling is not possible.

Channel = Defined by the area of the project that requires Class 2 erosion control material to be placed. This area shall be seeded using the Soil Erosion Mix prior to placement of the material. Drilling seed is preferred, however, broadcasting is acceptable if drilling is not possible.

GENERAL NOTES

The entire disturbed area, excepting the paved or surfaced areas, steep rocky slopes and areas of undisturbed native sod or other desirable vegetation shall be fertilized (limed when required), seeded, and mulched. Soil preparation shall conform to the Standard Specifications.

Temporary seeding shall be done during any time of the year that the soil can be cultivated. After the temporary seeding has been completed on the entire project, permanent seeding shall be done during the normal seeding season.

MULCHING: Mulch shall be spread uniformly over all disturbed areas and punched in the soil, unless otherwise noted on the plans. The rate of application per acre, thickness in place, for the mulching materials is generally as follows:

1¼ - 2¼ Tons per Acre = 1½" loose depth spread uniformly over acre.

Agricultural products, such as native prairie hay, used for mulching and erosion control practices, excluding wood based mulch, shall meet the North American Weed Free Forage Standards. Other vegetative mulches are acceptable only with the Engineer's concurrence.

The above rate is a guide. It will be at the discretion of the Engineer to determine what rate is sufficient for adequate protection of newly seeded areas.

WATER RESOURCES RECEIVED
MAY 06 2024

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 Plotted: 5/1/2024

03	08-03-20	Added Note	M.R.D.	M.L.
02	12-01-17	Revised Standard	M.R.D.	S.H.S.
01	06-01-17	Revised Standard	M.R.D.	S.H.S.
NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

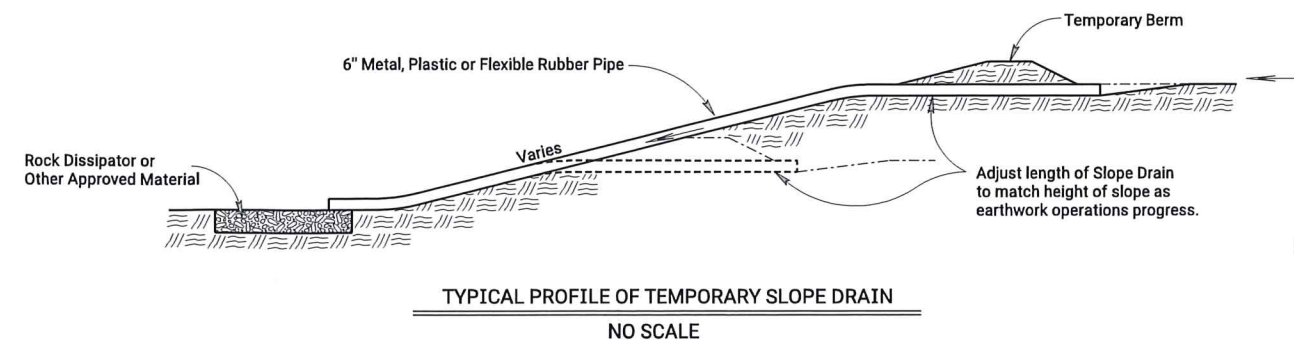
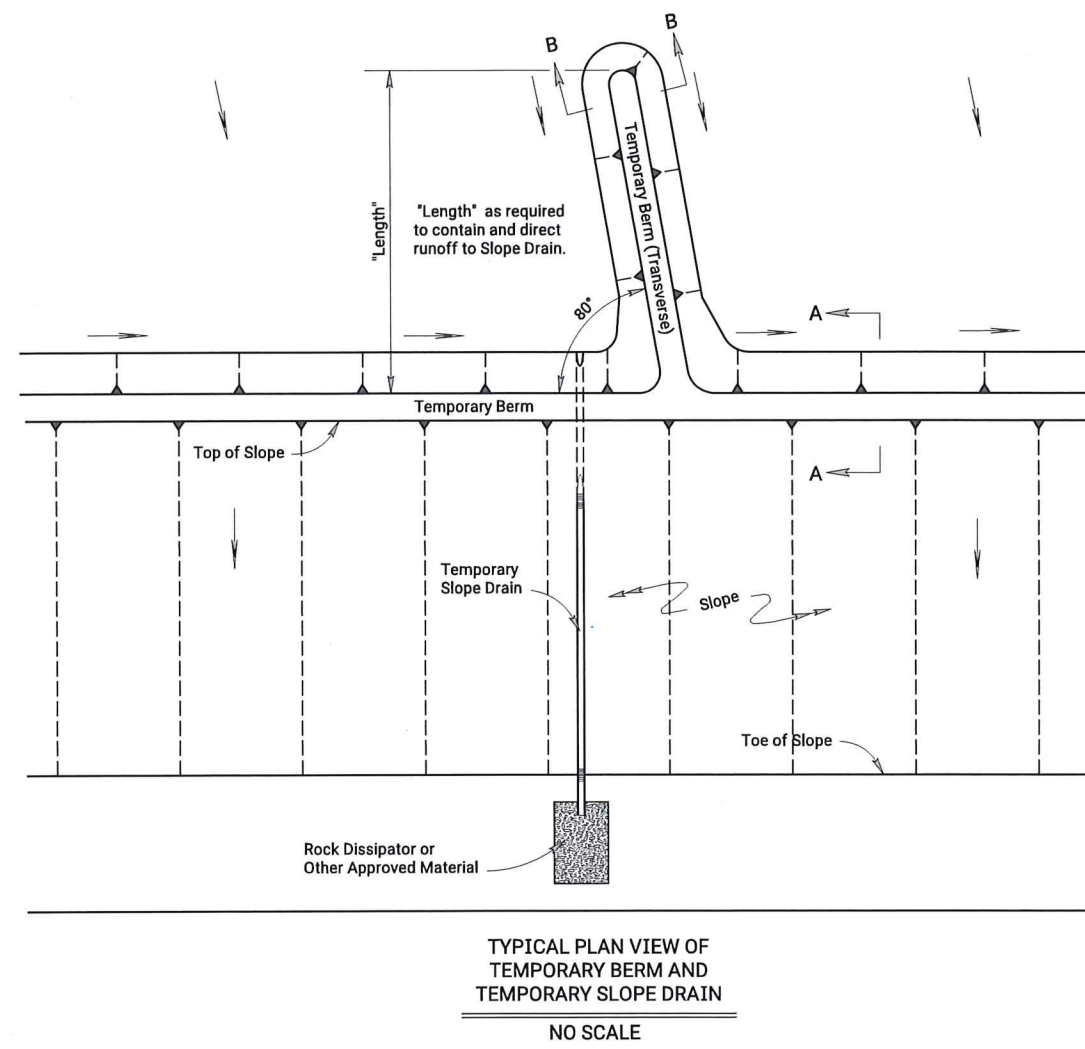
TEMPORARY EROSION AND POLLUTION CONTROL

LA852A

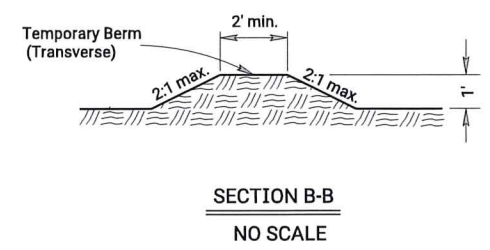
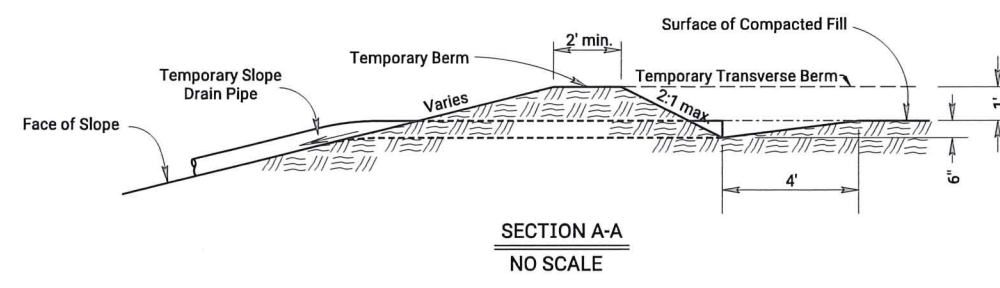
DESIGNED	M.R.D.	DETAIL	M.R.D.	QUANTITIES	TRACED
DESIGN CK.	S.H.S.	DETAIL CK.	S.H.S.	QUAN. CK.	TRACE CK.

Scott H. Shields
 01-26-18 | APP'D.
 FHWA APPROVAL

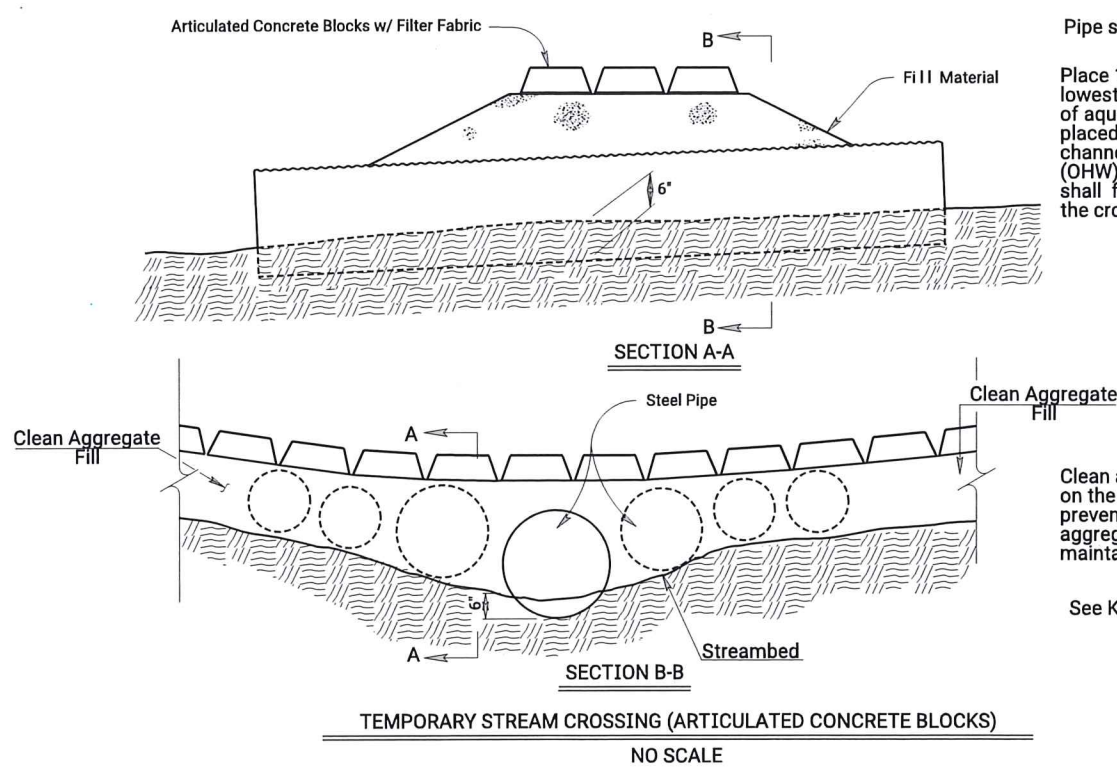
23-1296M	STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS		OS-2	2024	11	29



- NOTES:**
- 1) Temporary Slope Drain and Temporary Berm may be used on either project foreslopes or project backslopes.
 - 2) Discharge of Slope Drains shall be into stabilized ditch or area, or into Sediment Basin.
 - 3) Pipe shall be secured in place as approved by Engineer.
 - 4) Temporary Berms under 2,000 feet shall be bid by Set Price.



TYPICAL PROFILE OF TEMPORARY BERM
NO SCALE

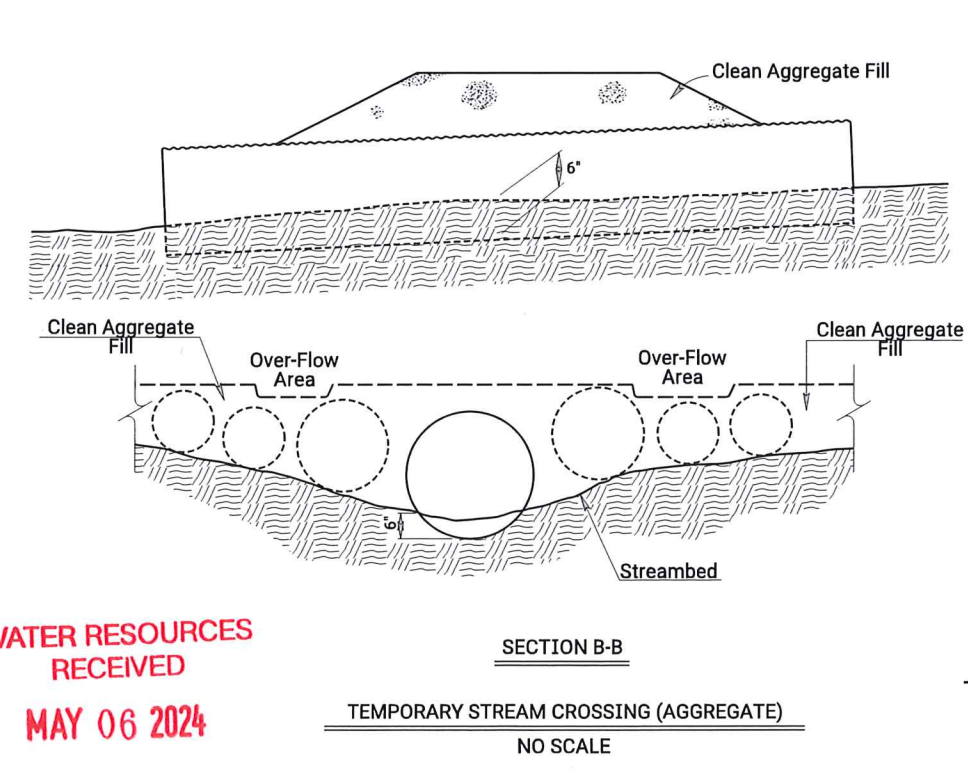


Pipe size may vary.

Place 1 pipe buried 6" into stream bottom, in the lowest point of the channel to allow the passage of aquatic organisms, with additional pipes placed along the remainder of the stream channel bottom such that ordinary high water (OHW) flows designated in the Contract Documents shall flow through the pipes without overtopping the crossing.

Clean aggregate fill will extend a minimum of 50' on the entrance and exit side of the crossing to prevent tracking. The aggregate shall be clean aggregate and a minimum of 6" thick and will be maintained through the use of the crossing.

See KDOT Specifications for more information.



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Place 1 pipe buried 6" into stream bottom, in the lowest point of the channel to allow the passage of aquatic organisms, with additional pipes placed along the remainder of the stream channel bottom such that ordinary high water (OHW) flows designated in the Contract Documents shall flow through the pipes without overtopping the crossing.

Clean aggregate fill will extend a minimum of 50' on the entrance and exit side of the crossing to prevent tracking. The aggregate shall be clean aggregate and a minimum of 6" thick and will be maintained through the use of the crossing.

See KDOT Specifications for more information.

WATER RESOURCES RECEIVED
MAY 06 2024

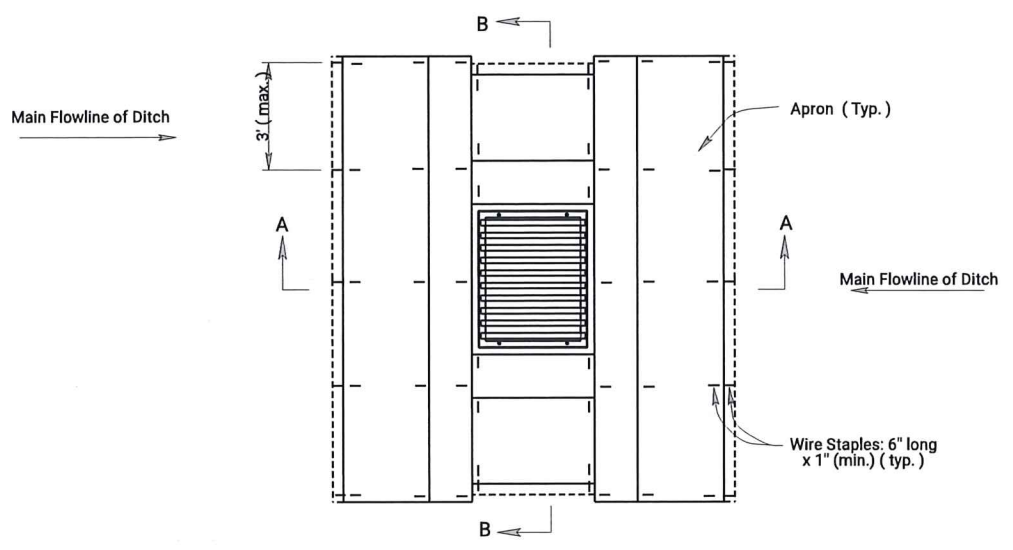
NO.	DATE	REVISIONS	BY	APP'D
03	01-21-22	Temp Stream Crossing - Clean Aggregate Fill Note Added	M.B.D.	J.M.L.
02	08-24-21	Temp Stream Crossing - Clean Aggregate Fill Note Added	M.B.D.	J.M.L.
01	06-11-23	Revised Standard	M.B.M.	S.H.S.

KANSAS DEPARTMENT OF TRANSPORTATION
TEMPORARY EROSION AND POLLUTION CONTROL
TEMPORARY SLOPE DRAIN, TEMPORARY STREAM CROSSING (AGGREGATE)
LA852B

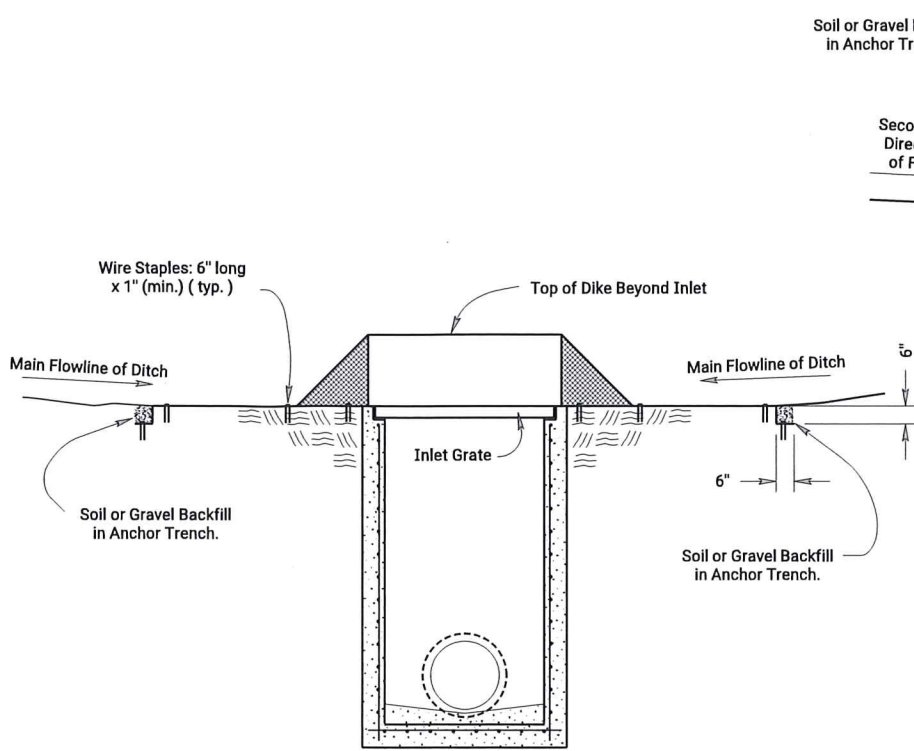
DESIGNED	DETAILER	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN. CK.	TRACE CK.

FIWA APPROVAL: 01-21-22 APP'D: Mervin Lata
KDOT Graphics Certified 06-17-2022

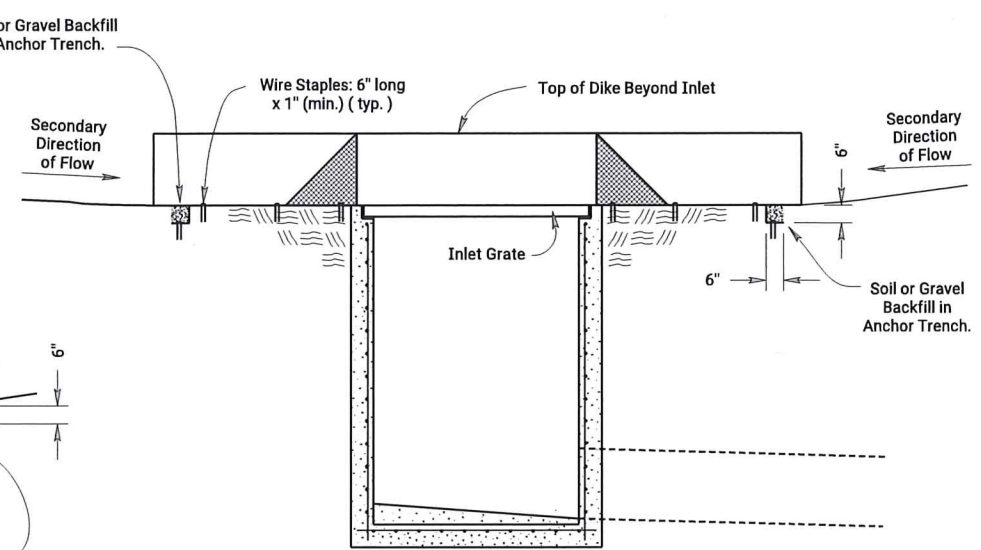
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 Plotted : 5/1/2024
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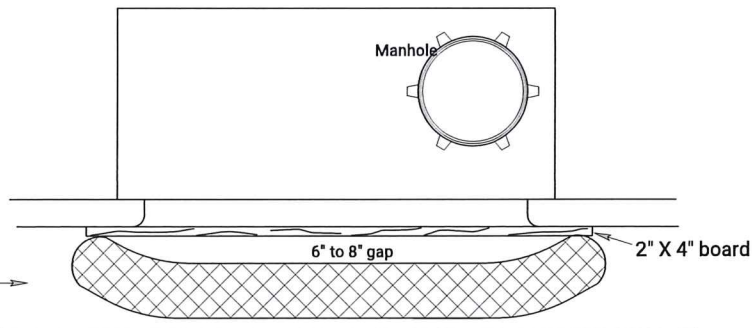
PLAN
TEMPORARY INLET SEDIMENT BARRIER
(TRIANGULAR SILT DIKE METHOD)
 NO SCALE



SECTION A - A



SECTION B - B

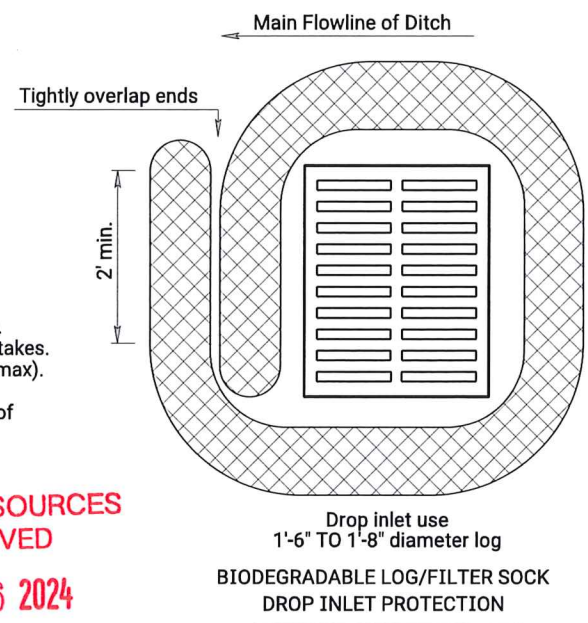


CURB INLET PROTECTION

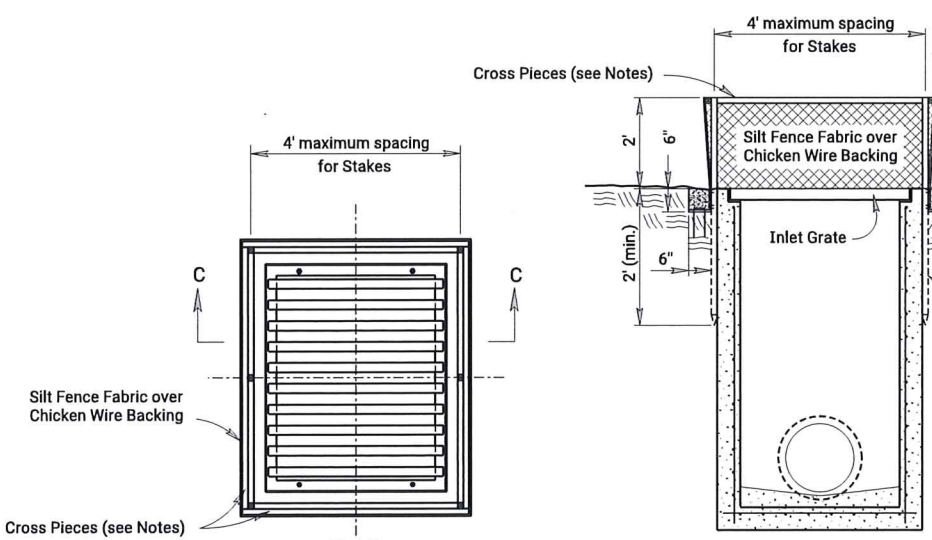
1. If multiple gravel bags are required, place them in such a way that no gaps are evident.
2. Height of bags (8" minimum diameter) must not be above top of curb.
3. Alternative products may be used other than gravel bags such as the "Gutter Buddy". Products must be approved by the Engineer.
4. Curb inlet protection will be measured and paid for as Filter Sock.

Note: 25% of log shall be keyed into ground during installation.
 Stake every 4'

Material Requirements	
Use 100% shredded mulch or other non-compost biodegradable material as fill for logs.	
No compost or fines.	
No hay or straw.	
Do not use material which prohibits water infiltration.	
Log Mesh:	
Use mesh with 1/4" openings or larger. Mesh must allow water infiltration but also hold fill material in place.	



Drop inlet use
 1'-6" TO 1'-8" diameter log
BIODEGRADABLE LOG/FILTER SOCK
DROP INLET PROTECTION



PLAN
TEMPORARY INLET SEDIMENT BARRIER
(SILT FENCE METHOD)
 NO SCALE

- SILT FENCE:**
1. Stakes shall be 4' (min.) long and of one of the following materials:
 - a. Hardwood - 1 3/16" x 1 3/16";
 - b. Southern Pine (No. 2) - 2 5/8" x 2 5/8";
 - c. Steel U, T, L, or C Section - .95 lbs. per 1'-0"; or
 - d. Synthetic - same strength as wood stakes.
 2. Cross pieces shall be of same material as stakes.
 3. Attach fence fabric securely on 6" centers (max).
 4. Use of high flow material is acceptable.
 5. Refer to plan sheets to estimate the length of silt fence required.

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WATER RESOURCES
RECEIVED
MAY 06 2024

KS DEPT OF AGRICULTURE

NO.	DATE	REVISIONS	BY	APP'D
03	09-26-19	Changed Direction of Main Flowline of Ditch Arrow	M.R.D.	S.H.S.
02	03-10-15	Revised Standard	R.A.	S.H.S.
01	06-01-13	Revised Standard	M.R.M.	S.H.S.

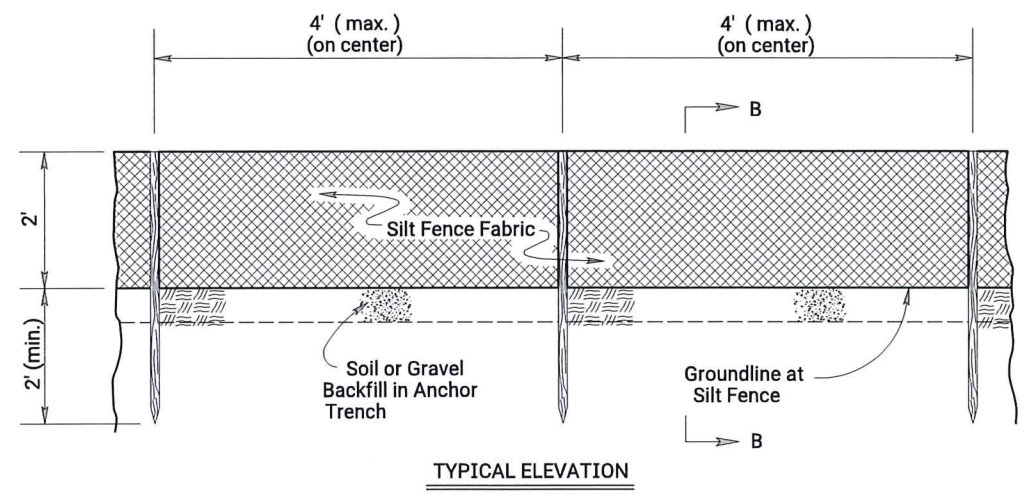
KANSAS DEPARTMENT OF TRANSPORTATION				
TEMPORARY EROSION AND POLLUTION CONTROL, TEMPORARY INLET SEDIMENT BARRIER (SILT FENCE)				
TEMP. INLET SEDIMENT BARRIER (T.S.D.)				
LA852C				
FHWA APPROVAL	03-10-15	APP'D.	Scott H. Shields	
DESIGNED	R.A.	DETAILED	R.A.	QUANTITIES
DESIGN CK.	S.H.S.	DETAIL CK.	S.H.S.	QUAN. CK.
				TRACED
				TRACE CK.

KDOT Graphics Certified 07-14-2022

INSTALLATION NOTES

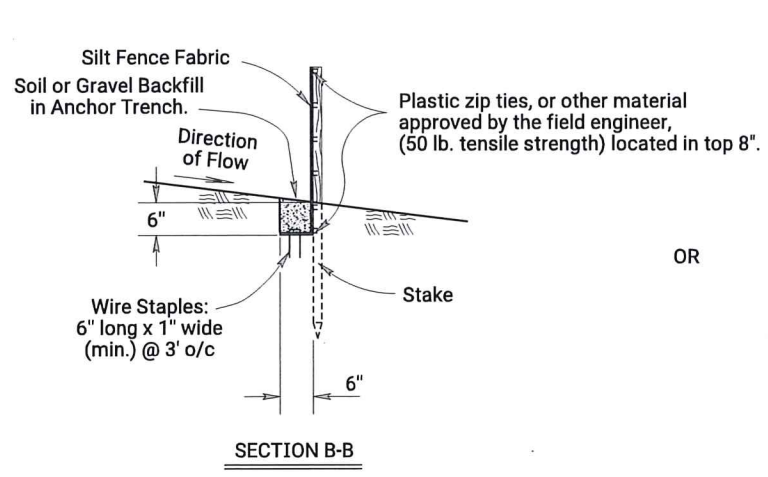
- SILT FENCE:**
- Stakes shall be 4' (min.) long and of one of the following materials:
 - Hardwood - 1 3/16" x 1 3/16";
 - Southern Pine (No. 2) - 2 5/8" x 2 5/8";
 - Steel U, T, L, or C Section - .95 lbs. per 1'-0"; or
 - Synthetic - same strength as wood stakes.
 - Attach fence fabric with 3 zip ties within the top 8" of the fence. Alternate attachment methods may be approved by the Engineer on a performance basis.
 - Use of high flow material is acceptable.
 - Refer to plan sheets to estimate the length of silt fence required.

- BIODEGRADABLE LOG OR FILTER SOCK**
- Place biodegradable logs or filter sock tightly together minimum overlap of 18".
 - Wood stakes shall be 2" x 2" (nom.).
 - Refer to plan sheets to estimate length of biodegradable log and filter sock required.
 - Each log or sock (except compost filter socks) should be keyed into the ground at a minimum of 25% of its height. Compost filter socks should be placed on smooth prepared ground with no gaps between the sock and soil.
 - Length of stakes should be 2 times the height of the log at a minimum with minimum ground embedment equal to the height of the log / sock.

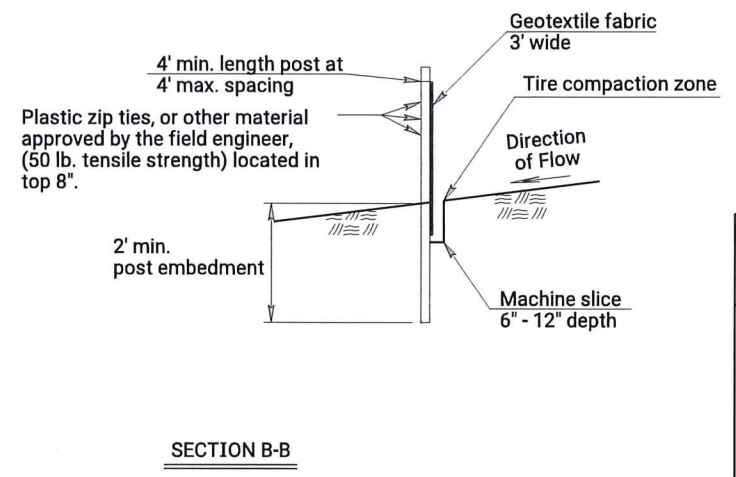


TYPICAL ELEVATION

SILT FENCE BARRIER
NO SCALE



SECTION B-B



SECTION B-B

Biodegradable Log or Filter Sock Slope Interruptions

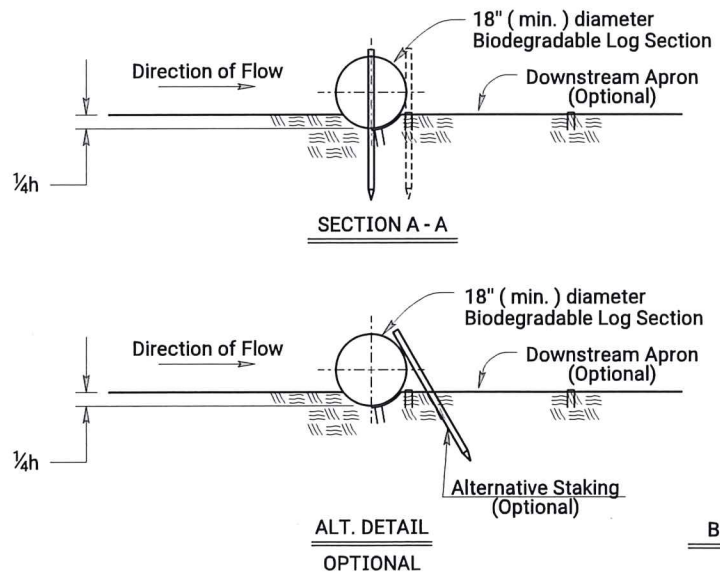
Slope Gradient	PRODUCT		
	9" Sediment Log or 8" Filter Sock (ft)	12" Sediment Log or 12" Filter Sock (ft)	20" Sediment Log or 18" Filter Sock (ft)
≤4H:1V	40	60	80
3H:1V	30	45	60

BIODEGRADABLE LOG MATERIAL		
	LOW FLOW	HIGH FLOW
9"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber
12"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber
18"-20"	Straw/Compost	Excelsior / Wood Chips / Coconut Fiber

Deviations should be approved by the Field Engineer.

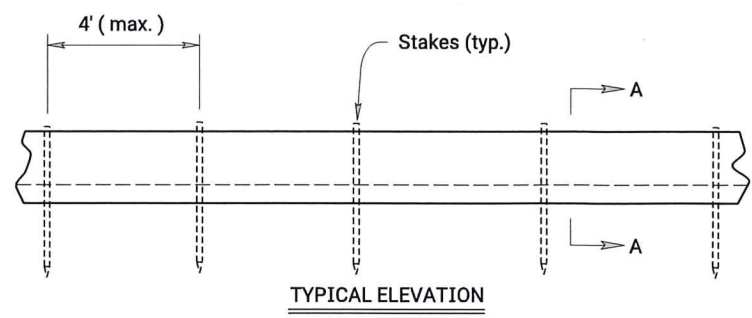
GENERAL NOTES

- Slope interruptions shall be placed along contour lines, with a short section turned upgrade at each end of the barrier.
- The maximum length of the slope interruptions shall not exceed 250 feet, and the barrier ends need to be staggered.
- Interruptions damaged by Contractor's negligence, including improper maintenance or lack of maintenance, shall be repaired immediately by Contractor at no additional cost to KDOT.
- Agricultural products, such as native prairie hay, used for mulching and erosion control practices, excluding wood based mulch, shall meet the North American Weed Free Forage Standards.



SECTION A - A

ALT. DETAIL
OPTIONAL



TYPICAL ELEVATION

BIODEGRADABLE LOG SLOPE INTERRUPTIONS
OR Filter Sock

**WATER RESOURCES
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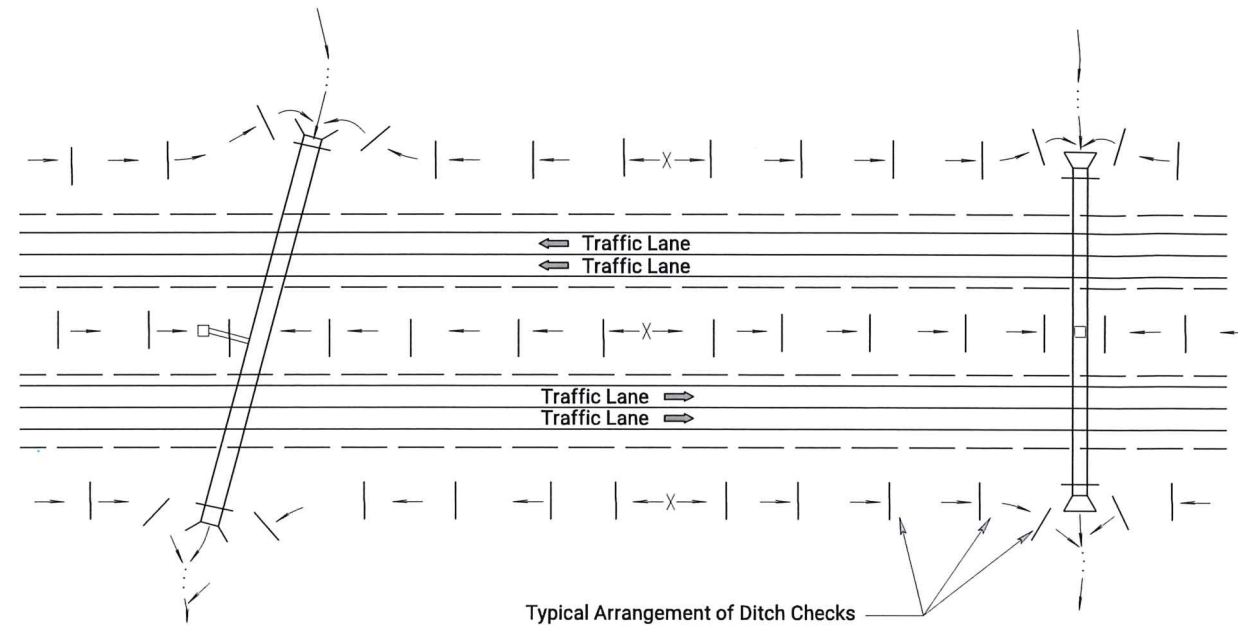
NO.	DATE	REVISIONS	BY	APPD.
03	06-28-16	Revised Standard	R.A.	S.H.S.
02	03-01-15	Revised Standard	R.A.	S.H.S.
01	06-01-13	Revised Standard	M.R.M.	S.H.S.

KANSAS DEPARTMENT OF TRANSPORTATION
**TEMPORARY EROSION AND
POLLUTION CONTROL
SLOPE INTERRUPTIONS
BIODEGRADABLE LOG / SILT FENCE**
LA852D

DESIGNED	S.H.S.	DESIGNED	R.A.	QUANTITIES	TRACED
DESIGN CK.	S.H.S.	DETAIL CK.	QUAN. CK.	TRACE CK.	

FHWA APPROVAL: 09-14-16 / APPD. Scott H. Shields

Drawn By: unutilted
 File: \\BGC\CONSULTANTS\Projects\2023\23-1296\CAD\Drawing Set\13-la852d.dgn
 Plotted: 5/1/2024



TYPICAL DITCH CHECK LAYOUT PLAN
NO SCALE

20" BIOLOG CHECK SPACING	
DITCH @ SLOPE (%)	SPACING INTERVAL (FEET)
1.0	125
2.0	60
3.0	40
4.0	30
5.0	25

NOTE: Use this spacing for all except Rock Ditch Checks.

18" FILTER SOCK CHECK SPACING	
DITCH @ SLOPE (%)	SPACING INTERVAL (FEET)
1.0	110
2.0	55
3.0	35
4.0	25
5.0	20

NOTE: Use this spacing for all except Rock Ditch Checks.

GENERAL NOTES

- 1) The choice of ditch check methods is at the option of the Contractor.
- 2) Use only rock checks in situations where the ditch slope is 6 percent or greater.
- 2) Ditch checks damaged by Contractor's negligence, including improper maintenance or lack of maintenance, shall be repaired by Contractor at no extra cost to KDOT.

**WATER RESOURCES
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MAY 06 2024**

KS DEPT OF AGRICULTURE

NO.	DATE	REVISIONS	BY	APPD
03	09-10-16	Revised Standard	R.A.A.	S.H.S.
02	06-28-16	Revised Standard	R.A.A.	S.H.S.
01	06-01-13	Revised Standard	M.R.M.	S.H.S.

KANSAS DEPARTMENT OF TRANSPORTATION

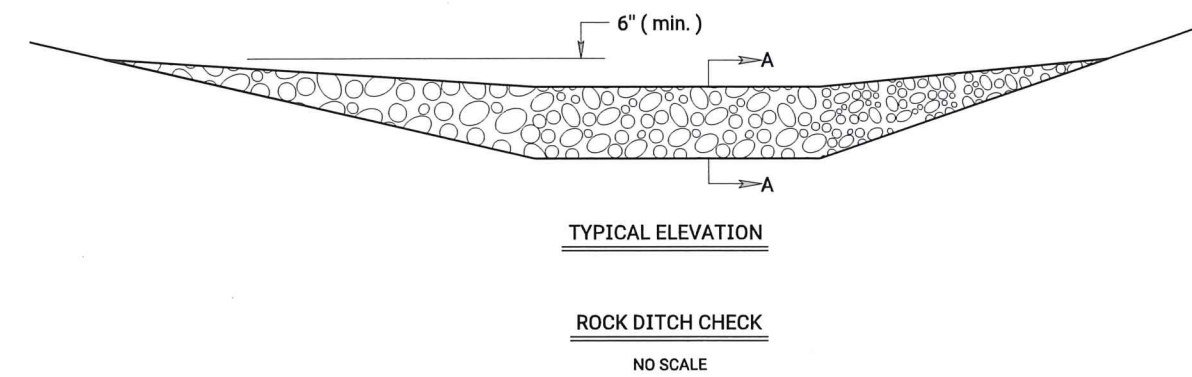
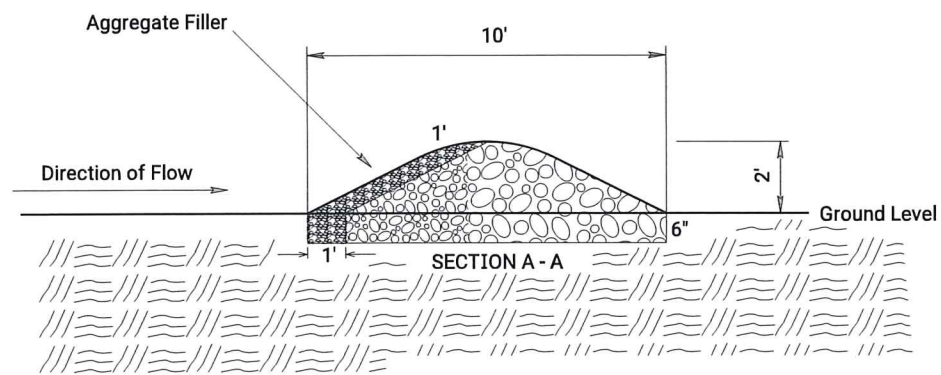
TEMPORARY EROSION AND POLLUTION CONTROL DITCH CHECKS

LA852E

DESIGNED	S.H.S.	DETAILED	R.A.A.	QUANTITIES	TRACED	R.A.A.
DESIGN CK.	S.H.S.	DETAIL CK.	S.H.S.	QUAN.CK.	TRACE CK.	S.H.S.

FHWA APPROVAL 09-14-16 APPD. Scott H. Shields

KDOT Graphics Certified 06-18-2022



TEMPORARY ROCK DITCH CHECK SPACING	
DITCH @ SLOPE (%)	SPACING INTERVAL (FEET)
5.0	60
6.0	50
7.0	43
8.0	36
9.0	33
10.0	29

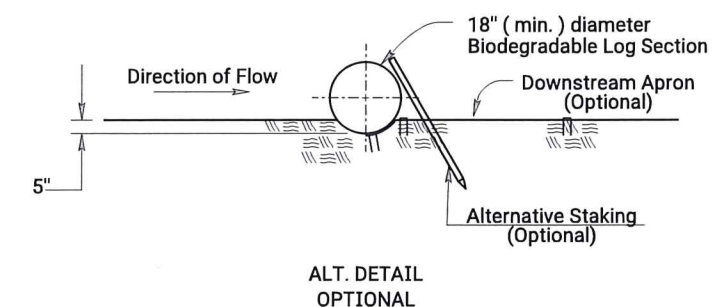
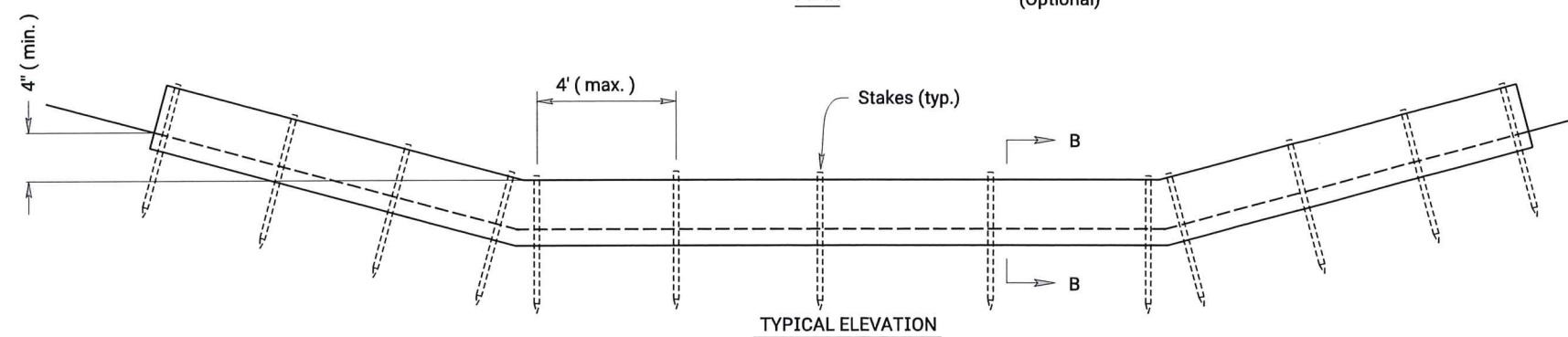
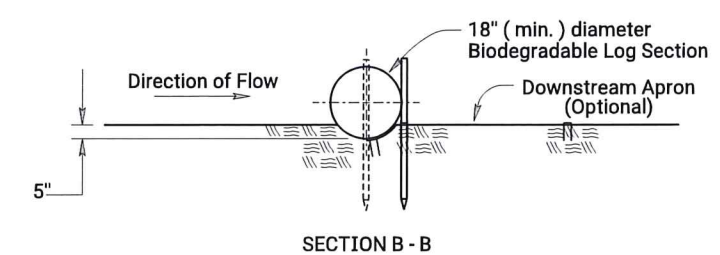
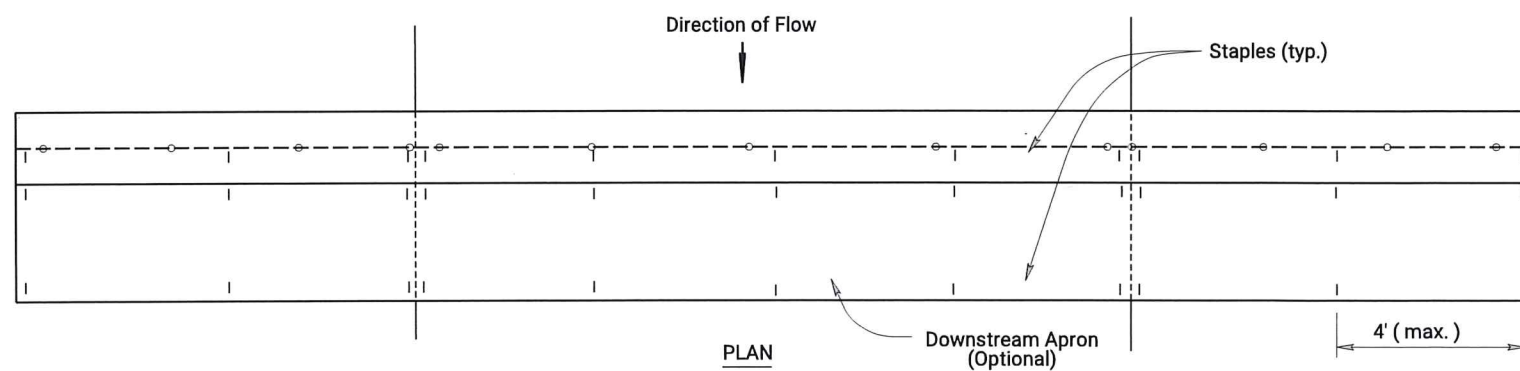
NOTE: Use this spacing for Rock Ditch Checks only.

ROCK DITCH CHECK NOTES

1. Rock shall be clean aggregate, D50-6" and aggregate filler.
2. Place rock in such manner that water will flow over, not around ditch check.
3. Do not use rock ditch checks in clear zone.
4. Excavation: The ditch area shall be reshaped to fill any eroded areas. Prior to placement of the rock, the ditch shall be excavated to the dimensions of the Rock Ditch Check and to a minimum depth of 6" (150mm). After placement of the rock, backfill and compact any over-excavated soil to ditch grade. This work shall be subsidiary to the bid item Temporary Ditch Check (Rock).
5. Aggregate excavated on site may be used as an alternate to the 6" rock, if approved by the Engineer.
6. The Engineer may approve the use of larger aggregates for the downstream portion of the check when conditions warrant their use.
7. When the use of larger rock is approved, D50-6" rock will be placed between the larger aggregate and the aggregate filler.
8. Aggregate filler will be placed on the upstream face of the ditch check. Aggregate filler will comply with Filter Course Type I, Division 1114.

BIODEGRADABLE LOG DITCH CHECK NOTES

1. Use as many biodegradable log sections as necessary to ensure water does not flow around end of ditch check.
2. Overlap sections a minimum of 18".
3. Stakes shall be wood or steel according to Section 2114 of the Standard Specifications. Length of stakes shall be a minimum of 2 x the diameter of the log.
4. Use Erosion Control (Class 1) (Type C) as the downstream apron when required.
5. A downstream apron is required when directed by the Engineer. Apron material will be paid at the contract unit price.
6. Each log or sock (except compost filter socks) should be keyed into the ground at a minimum of 25% of its height. Compost filter socks should be placed on smooth prepared ground with no gaps between the sock and soil.



BIODEGRADABLE LOG DITCH CHECK
OR Filter Sock Ditch Check
NO SCALE

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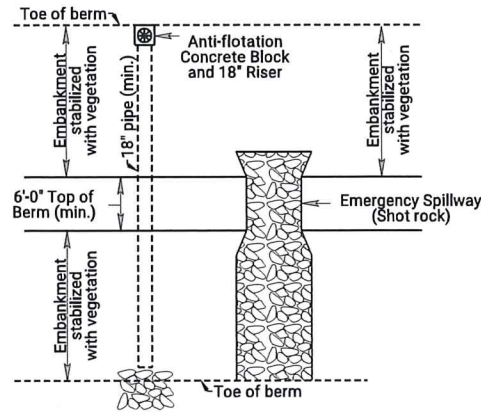
NO.	DATE	REVISIONS	BY	APP'D
03	11-19-20	Revised Standard	M.R.D.	M.L.
02	08-10-16	Revised Standard	R.A.A.	S.H.S.
01	10-21-15	Revised Standard	R.A.A.	S.H.S.

KANSAS DEPARTMENT OF TRANSPORTATION
TEMPORARY EROSION AND POLLUTION CONTROL
ROCK DITCH CHECKS
BIODEGRADABLE LOG DITCH CHECKS
LA852G

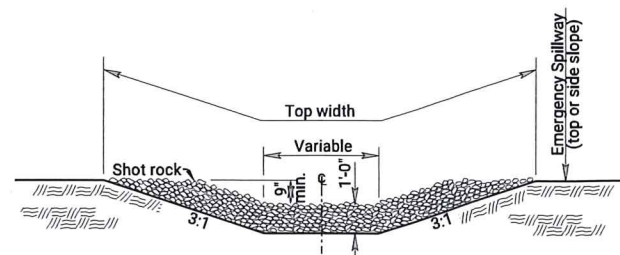
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DESIGN CK.	M.L.	DETAIL CK.	M.L.	QUAN. CK.	TRACE CK.	R.A.A.

11-19-20 APP'D. Mervin Lare

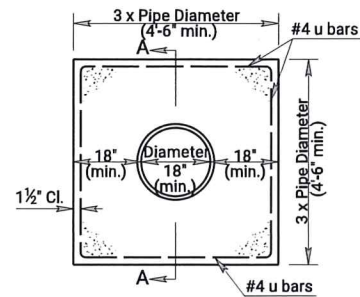
Drawn By : untitle
 File : \\BGC\CONSULTANTS\Projects\2023-1296\CAD\Drawing Set\15-la852g.dgn
 Plotted : 5/1/2024



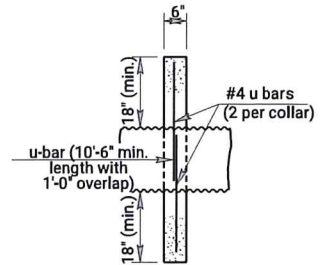
SEDIMENT STORAGE BASIN (PLAN)



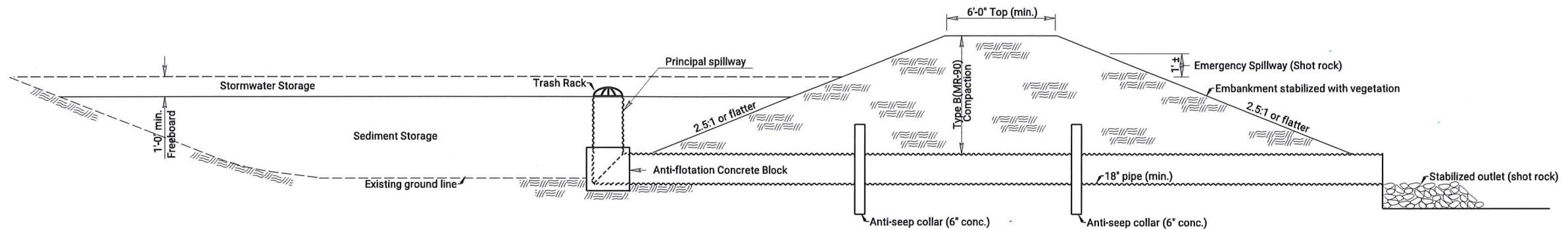
CROSS SECTION (EMERGENCY SPILLWAY)



CONCRETE ANTI-SEEP COLLAR



SECTION A-A

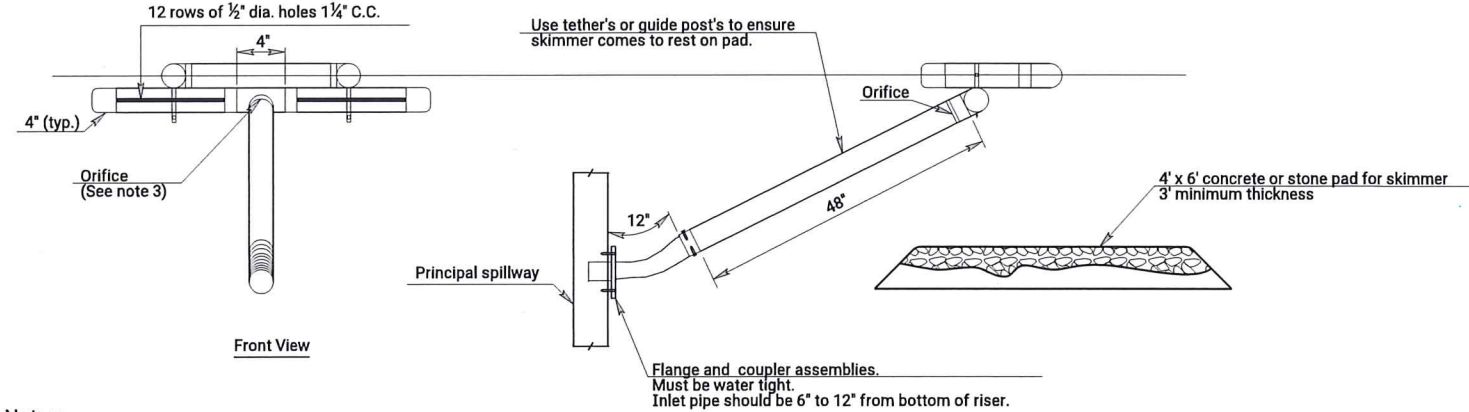


SEDIMENT STORAGE BASIN (ELEVATION)

NOTES:

- 1) Temporary Sediment Basins shall be constructed at locations as directed by the Engineer or as approved in the SWPPP Schedule. All work and materials necessary, including but not limited to, the fill material, compaction, drainage pipes, aggregates and all other incidentals necessary to construct the basin, shall be paid as "Temporary Sediment Basin".
- 2) Lengths and top dimensions shall be determined in the field by the Engineer.
- 3) Skimmer dewatering device required and must be used regardless of the size of the drainage area.

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SKIMMER DEWATERING DEVICE

- Notes:
1. All P.V.C. pipes are to be schedule 40.
 2. HDPE flexible drain pipes is to be attached to the pond outlet structure with water-tight connections.
 3. The orifice shall be sized of to provide drawdown time to 2 to 5 days and approved by the engineer.
 4. Other skimmer designs maybe used that dewater from the surface at a controlled rate. The design must be approved by the engineer.

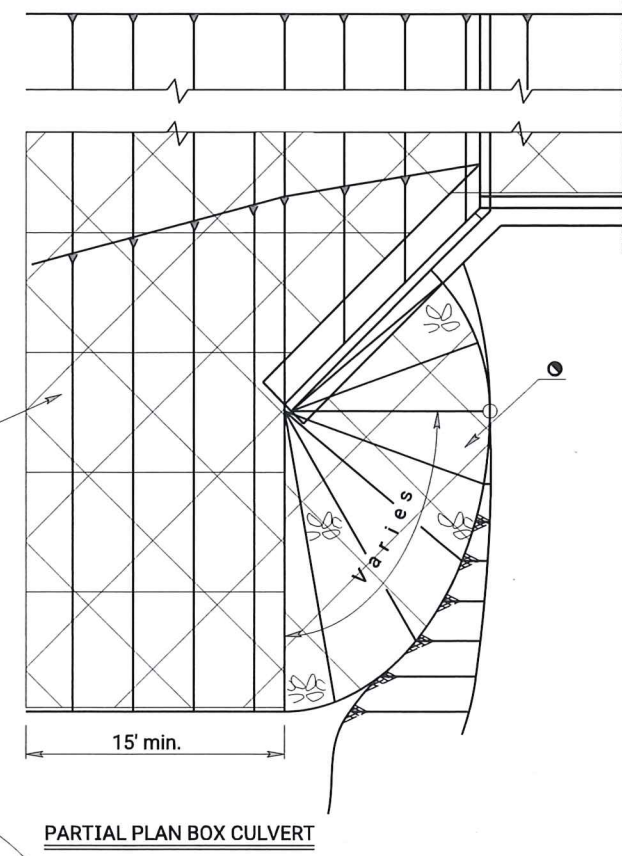
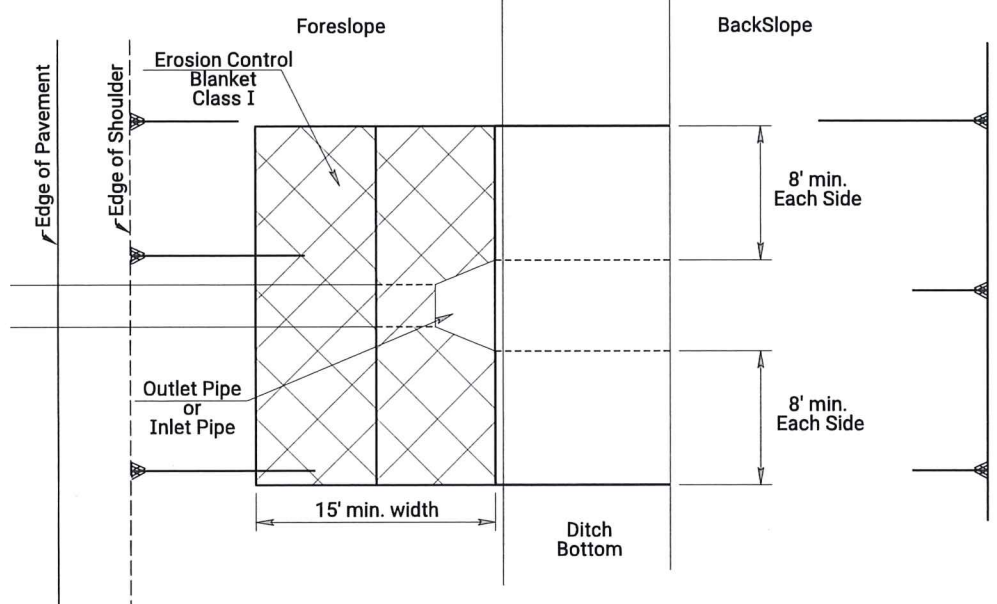
SEDIMENT STORAGE BASIN LOCATIONS		
STATION TO STATION	SIDE	REQUIRED STORAGE CAPACITY

02	09-03-13	Added Skimmer Dewatering Device	M.R.M.	S.H.S.
01	07-17-13	Revised Standard	M.R.M.	S.H.S.
REVISIONS				
NO.	DATE	BY	APPD	

KANSAS DEPARTMENT OF TRANSPORTATION
**TEMPORARY EROSION AND POLLUTION CONTROL
SEDIMENT STORAGE BASIN**
LA852H

FHWA APPROVAL	09-24-13	APP'D.		
DESIGNED	B.B.	DETAILED	B.B.	QUANTITIES
DESIGN CK.	S.H.S.	DETAIL CK.	S.H.S.	QUAN. CK.
			TRACED	B.B.
			TRACE CK.	S.H.S.

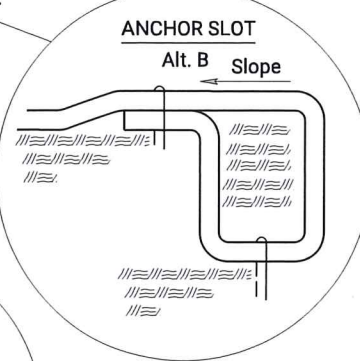
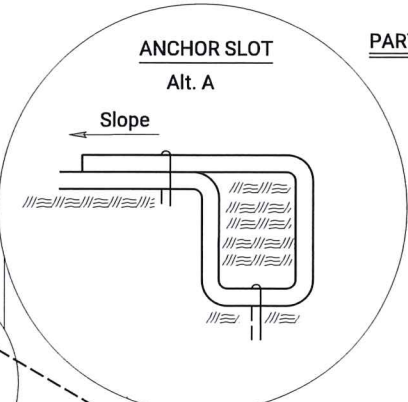
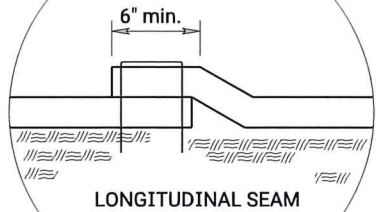
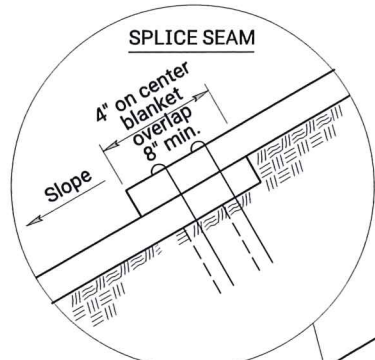
KDOT Graphics Certified 06-20-2022



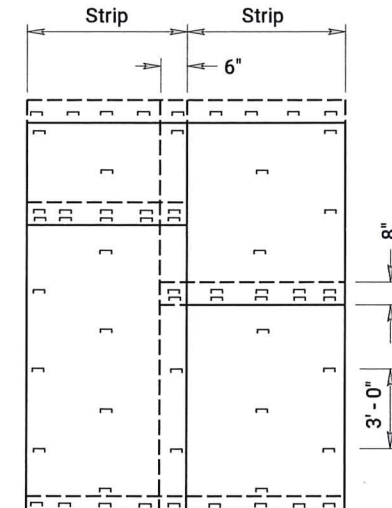
INSTALLATION DETAILS FOR EROSION CONTROL CLASS 1

Erosion Control Blankets shall be laid loosely in the direction of the slope, beginning at the bottom of the slope. In order for blanket to be in contact with the soil, lay blanket loosely, avoiding stretching.

- ANCHOR SLOTS:** The top of the blanket should be "slotted in" at the top of the slope and anchored in place with anchors 6 inches apart. The slots should be 6 inches wide x 6 inches deep with the blanket anchored in the bottom of the slot, then backfilled, tamped and seeded.
- LONGITUDINAL SEAMS:** The edges of the blanket should overlap each other a minimum of 6 inches, with anchors catching the edges of both blankets.
- SPLICE SEAM:** When splices are necessary, overlap end a minimum of 8 inches in direction of water flow. Stagger splice seams.
- TERMINAL FOLD:** The bottom edge of the blanket shall be turned under a minimum of 4 inches, then anchored in place with anchors 9 inches apart.
- TYPICAL ANCHORS:** Anchor design shall be as recommended by the manufacturer.
- STAPLE CHECK:** Establish Staples in 2 rows 4" on center apart. Staple Checks - shall be 30' apart.



⊙ Erosion Control Class I may be omitted if the area is immediately covered by permanent slope protection (where directed by the plans).



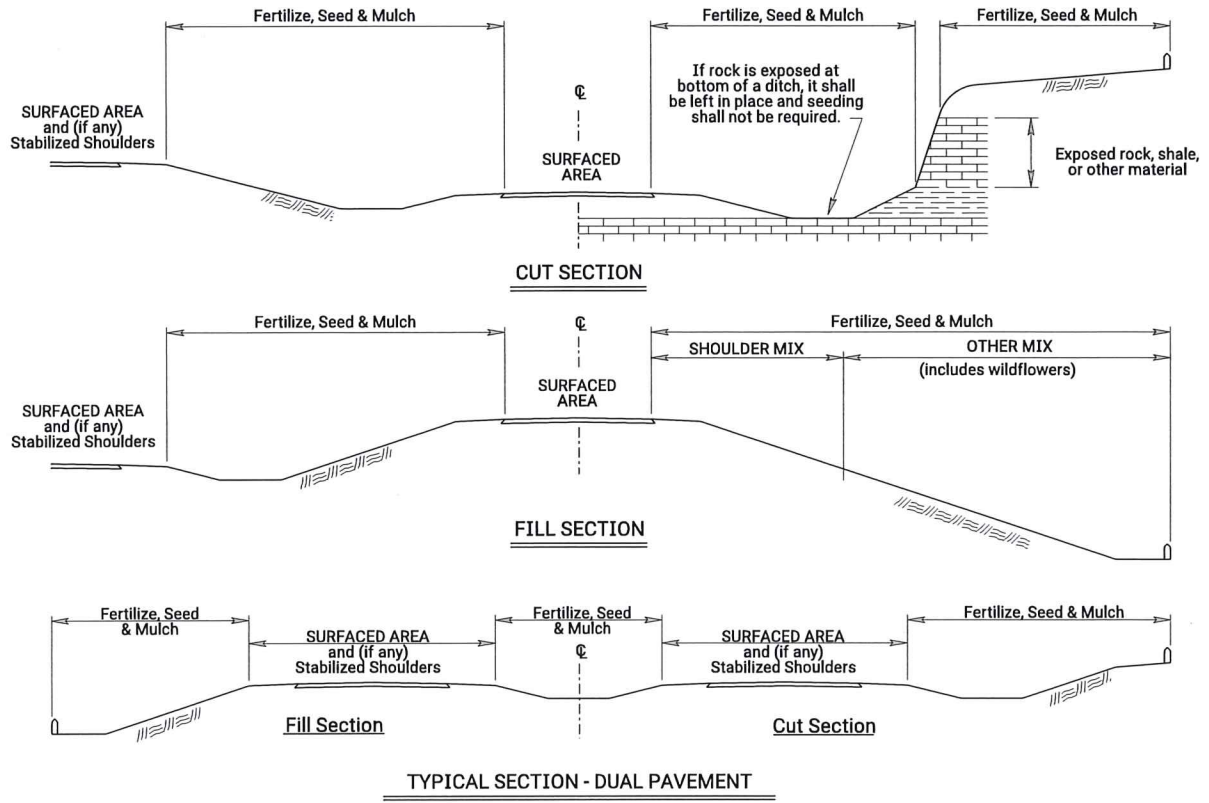
NOTE:
Agricultural products, such as native prairie hay, used for mulching and erosion control practices, excluding wood based mulch, shall meet the North American Weed Free Forage Standards.
Single post ring and shank staple is acceptable.

**WATER RESOURCES RECEIVED
MAY 06 2024
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04	03-01-15	Revised Standard	R.A.A.	S.H.S.
03	02-23-15	Revised Standard	R.A.A.	S.H.S.
02	09-15-14	Revised Standard	M.R.M.	S.H.S.
NO.	DATE	REVISIONS	BY	APPD

KANSAS DEPARTMENT OF TRANSPORTATION				
INSTALLATION DETAIL EROSION CONTROL CLASS 1 SLOPE PROTECTION				
LA855				
FHWA APPROVAL	DESIGNED	DESIGN CK.	03-10-15	APP'D. Scott H. Shields
DESIGNED	R.A.A.	DETAIL CK.	R.A.A.	QUANTITIES
DESIGN CK.				TRACED R.A.A.
				TRACE CK. R.A.A.

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 Plotted: 5/1/2024



GRASS & WILDFLOWER SEEDING SEASONS

COOL SEASON GRASSES February 15 thru April 20 August 15 thru September 30	WARM SEASON GRASSES & WILDFLOWERS November 15 thru June 1
Bluegrasses	Bermuda Grass
Brome Grasses	Big Bluestem
Canada Wildrye	Blue Grama
Fescues	Buffalo Grass
Prairie Junegrass	Indiangrass
Ryegrasses	Little Bluestem
Sterile Wheatgrass	Sand Bluestem
Tall Dropseed	Sand Dropseed
Western Wheatgrass	Sand Lovegrass
	Side Oats Grama
	Switchgrass
	Wildflower Mixes

When the area to be seeded is 1 acre or more, if Cool Season grasses are mixed with Warm Season grasses, seed the area during the Warm Season.
 When the area to be seeded is less than 1 acre, seed the area any time of the year.

SODDING SEASONS

COOL SEASON GRASSES March 1 thru April 15 September 1 thru November 15	WARM SEASON GRASSES May 15 thru September 1
Bluegrass Sod	Buffalo Grass Sod
Fescue Sod	

If the soil is workable, the Engineer may allow placement of sod between November 15 and March 1. If sod is placed during this time, maintain the sod until 20 days after the beginning of the spring sodding season.

GENERAL NOTES

The entire disturbed area, excepting the paved or surfaced areas, steep rocky slopes and areas of undisturbed native sod or other desirable vegetation shall be fertilized (limed when required), seeded and mulched. Soil preparation shall conform to the Standard Specifications except as noted below.

All borrow areas shown on the plans are to be fertilized, seeded, and mulched. However, operation in borrow areas where crops are growing may be omitted when requested by the owner.

If temporary cover has provided stable slopes with no erosion, seed the permanent grasses into the existing cover. If there has been erosion that requires repair prior to seeding, then it may be necessary to regrade the area, resulting in bare ground.

FERTILIZER: A ratio and application rate that equals or exceeds the required minimum rate per acre of N, P₂O₅, K₂O listed in Summary of Seeding Quantities will be acceptable.

MULCHING: Mulch shall be spread uniformly over all disturbed areas and punched in the soil, unless otherwise noted on the plans. The rate of application per acre, thickness in place, for the mulching material is generally as follows:

1 3/4 - 2 1/4 Tons per Acre = 1 1/2" loose depth spread uniformly over acre.

Agricultural products, such as native prairie hay, used for mulching and erosion control practices, excluding wood based mulch, shall meet the North American Weed Free Forage Standards.

Other vegetative mulches are acceptable only with the Engineer's concurrence.

The above rate is a guide. It will be at the discretion of the Engineer to determine what rate is sufficient for adequate protection of newly seeded areas.

When seeding is less than 1 acre, temporary and permanent seeding shall be combined and seeded at the same time.

There is no seasonal restriction when seeding projects less than one acre.

SUMMARY OF SEEDING QUANTITIES

P.L.S. RATE/ACRE		ACRES		BID ITEM	QUANTITY	UNIT
SHLDR	OTHER	SHLDR	OTHER			
				See LA852A for Soil Erosion Mix to be used as Permanent Seeding Mix		
WATER RESOURCES RECEIVED						
MAY 06 2024						
KS DEPT OF AGRICULTURE						
				Mulching *		

NATIVE WILDFLOWER MIX 1

PLS RATE	NAME	QTY (lb)
0.3	Butterfly Milkweed	
0.3	Common Milkweed	
0.3	Black Eyed Susan	
0.5	Blanket Flower	
0.5	False Sunflower	
0.5	Lance-Leaf Coreopsis	
0.2	Maximilian Sunflower	
0.1	New England Aster	
0.2	Pinnate Prairie Coneflower	
0.2	Plains Coreopsis	
0.3	Purple Coneflower	
0.3	Upright Prairie Coneflower	
0.3	Dames Rocket	
0.3	Lemon Mint	
0.2	Pitcher Sage	
0.2	Wild Bergamot	
1.0	Illinois Bundleflower	
0.2	Common Evening Primrose	
0.1	Hoary Verbena	
0.8	Purple Prairie Clover	
0.3	Roundhead Lespedeza	
3.0	Showy Partridge Pea	
0.2	White Prairie Clover	
10.3	Total (lb)	

NATIVE WILDFLOWER MIX 2

PLS RATE	NAME	QTY (lb)
0.3	Butterfly Milkweed	
0.3	Black Eyed Susan	
0.5	Black Sampson Coneflower	
1.0	Blanket Flower	
0.2	Maximilian Sunflower	
0.2	Plains Coreopsis	
0.2	Upright Prairie Coneflower	
0.2	Western Yarrow	
0.3	Lemon Mint	
0.4	Pitcher Sage	
1.5	Illinois Bundleflower	
0.2	Common Evening Primrose	
1.0	Blue Wild Indigo	
0.4	Leadplant	
0.4	Purple Prairie Clover	
0.3	White Prairie Clover	
7.4	Total (lb)	

Package and deliver the wildflower seed separately from the grass seed mix. Package and deliver the Tall Drop Seed separately from the grass seed and the wildflower mix. Place the grass seed (except Tall Drop Seed) in the large seed box and drill (cover) seed 1/8" - 1/4". Place the wildflower seed in a separate seed box and drill (cover) seed 1/8" maximum. Place the Tall Drop Seed in a separate (third) seed box and place the seed (using the seed drill) on the soil surface.

OPTION: Broadcast Tall Drop Seed on the soil surface.

SHLDR = Seeded with the Shoulder Mix. Typically 15 feet for 2-lane roads and 30 feet for 4-lane roads. Includes outside roadsides, turfed portions of shoulders, and turfed portion of the median.
 OTHER = Seeded with the "Other" Mix. Designated as all other turf areas, except the Shoulder. Usually includes a Native Wildflower Mix.
 NOTE: Projects less than 1 acre shall be bid as "Seeding" by the lump sum. All disturbed areas shall be seeded, fertilized and mulched at the listed rate per acre. The acres are estimated.
 Refer to the Standard Specifications, Division 900, Section 904 'Seeding', and Section 907 'Sodding', for the seeding and sodding seasons.
 * See LA852A for mulching quantity. The quantity of mulch is estimated (Acres of Seeding X 1.5 X 2 Tons/Acre). The total mulch required shall be determined in the field. The bid item for mulching shall be paid for according to the Standard Specifications.

NO.	DATE	REVISIONS	BY	APPD
02	11-25-20	Updated Seeding / Sodding Periods Charts	M.R.D.	M.L.
01	08-03-20	Revised Standard	M.R.D.	S.H.S.

KANSAS DEPARTMENT OF TRANSPORTATION

PERMANENT SEEDING SUMMARY OF SEEDING QUANTITIES

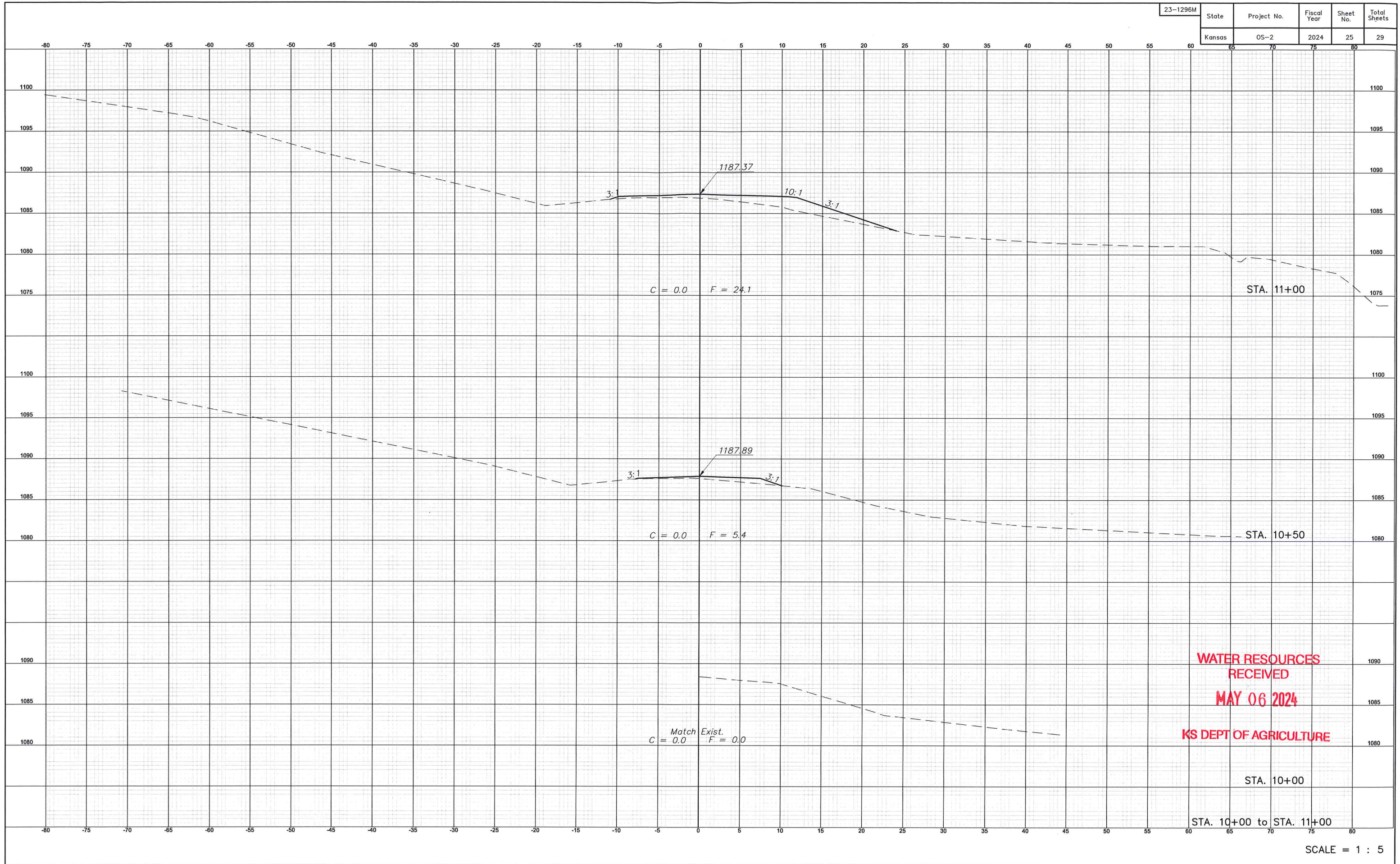
LA850

DESIGNED	QUANTITIES	TRACED
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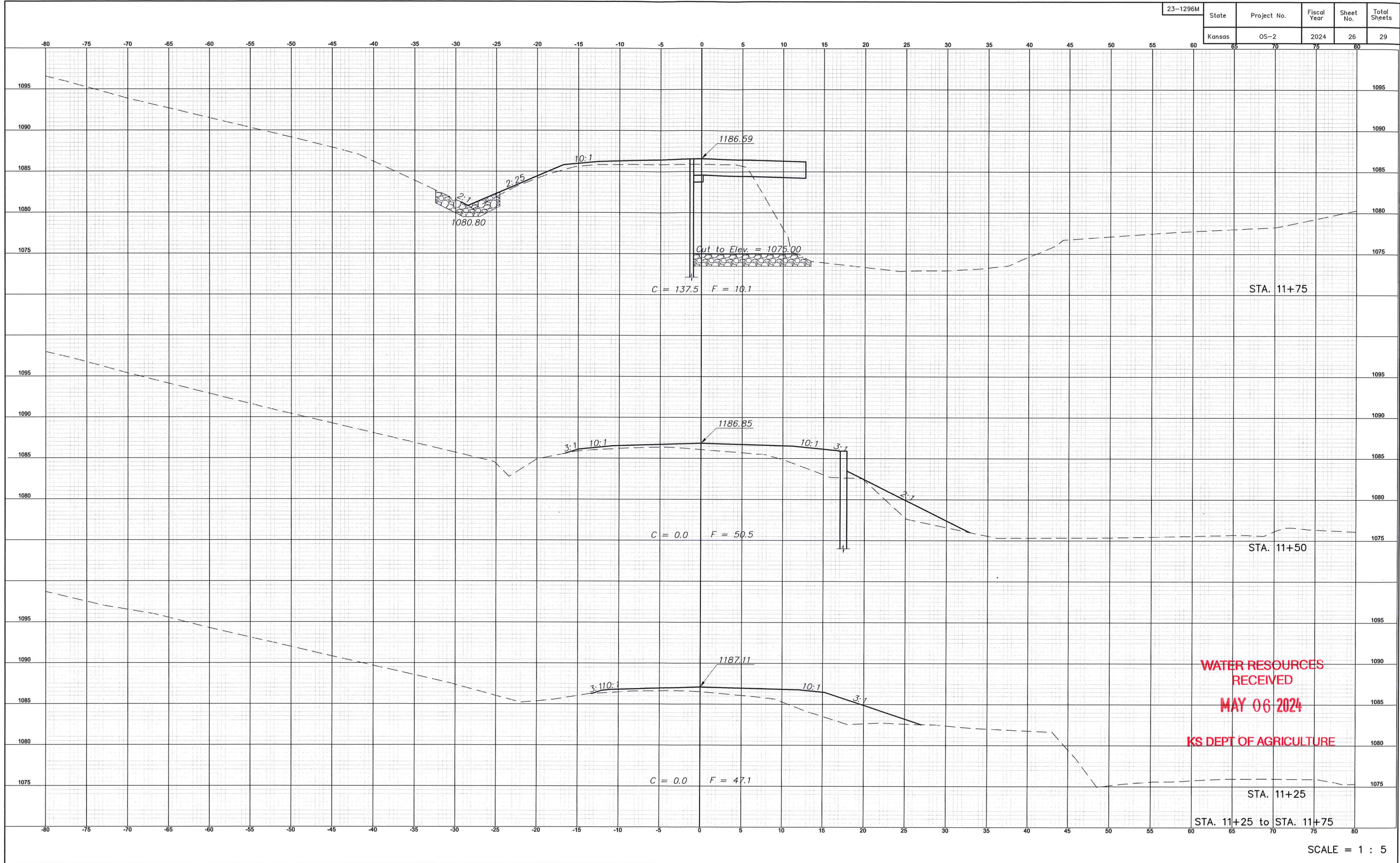
Mervin Lare

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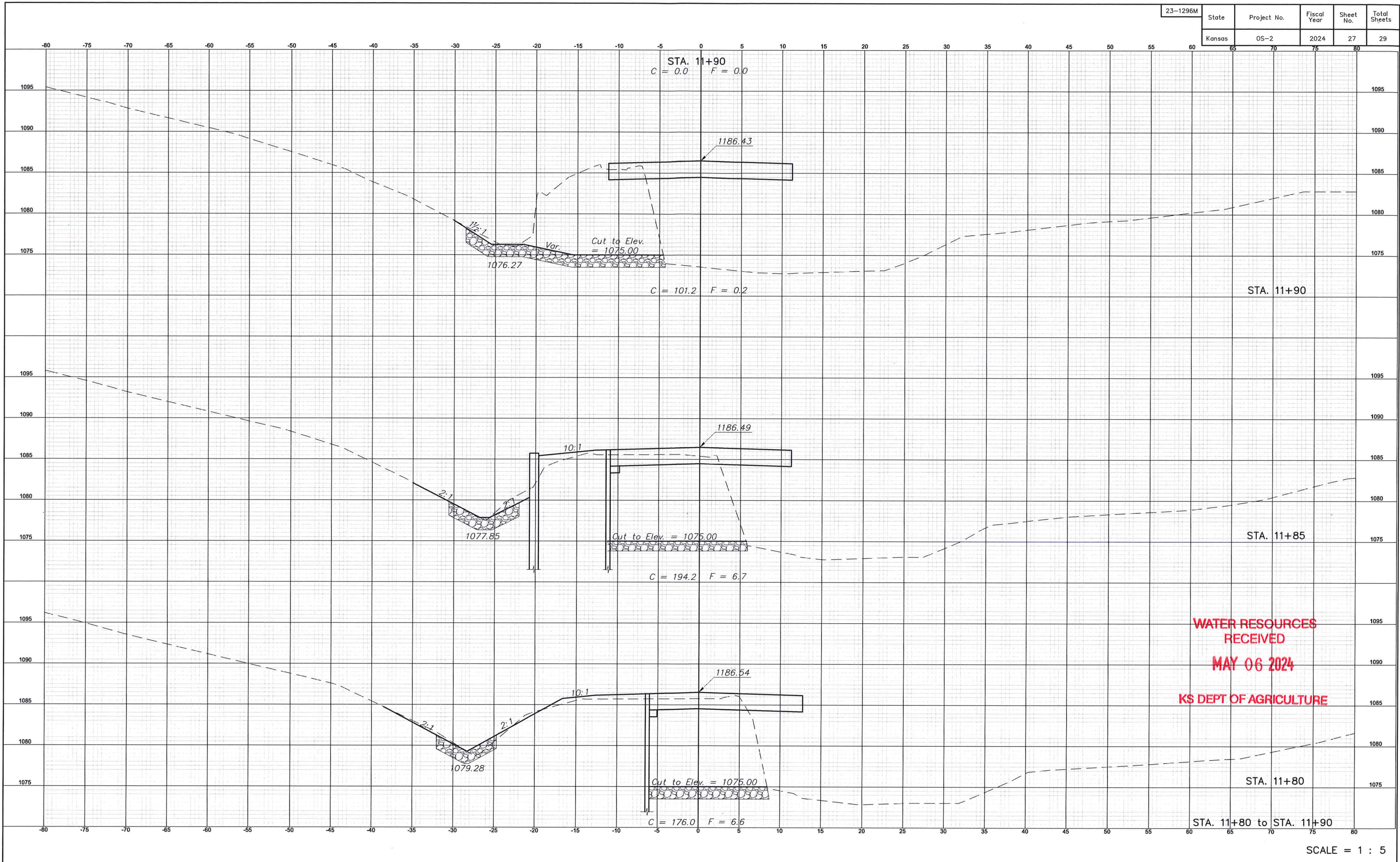
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Kansas	OS-2	2024	25	29



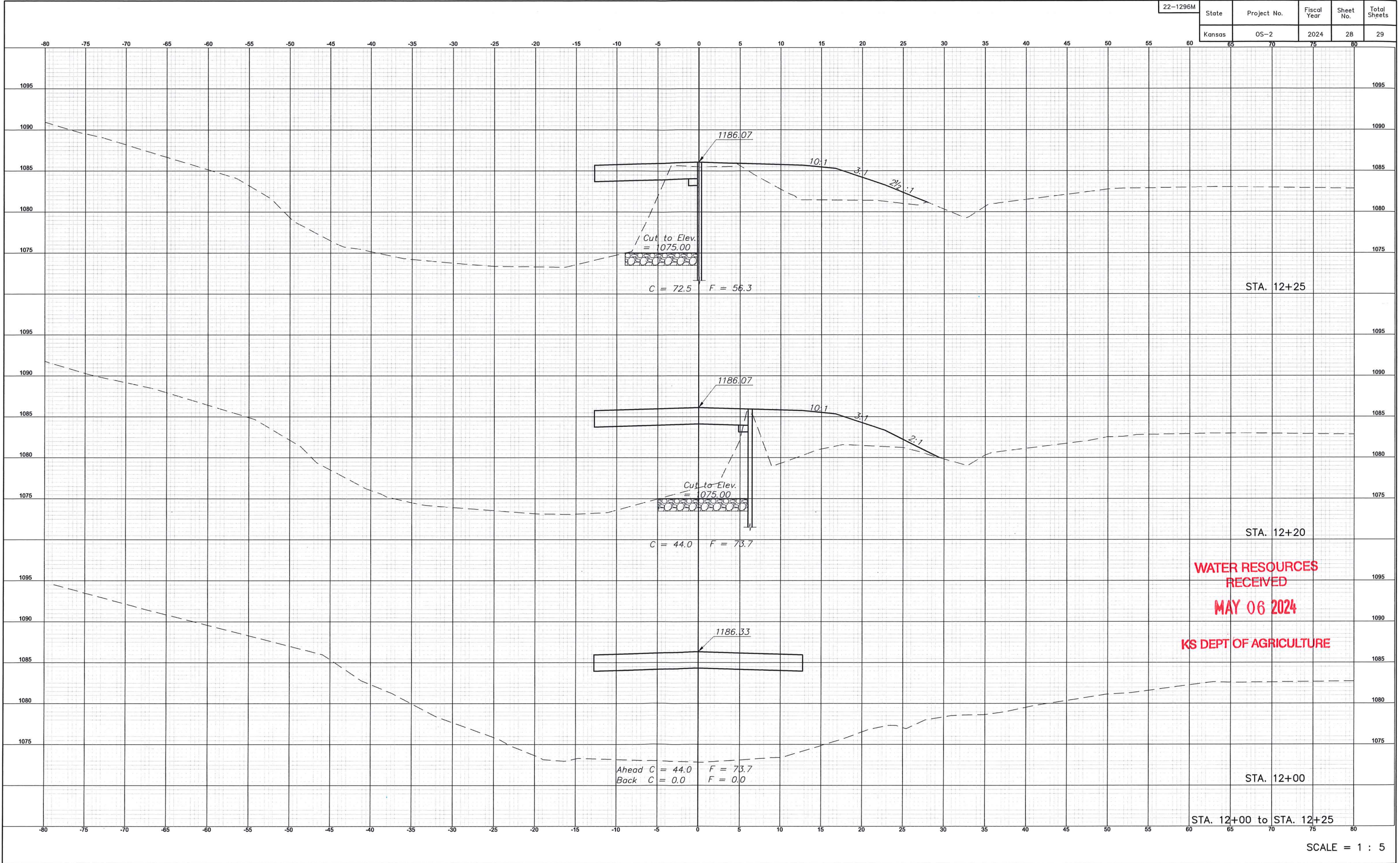
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Kansas	05-2	2024	26	29



State	Project No.	Fiscal Year	Sheet No.	Total Sheets
Kansas	05-2	2024	27	29



22-1296M	State	Project No.	Fiscal Year	Sheet No.	Total Sheets
	Kansas	OS-2	2024	28	29



STA. 12+25

STA. 12+20

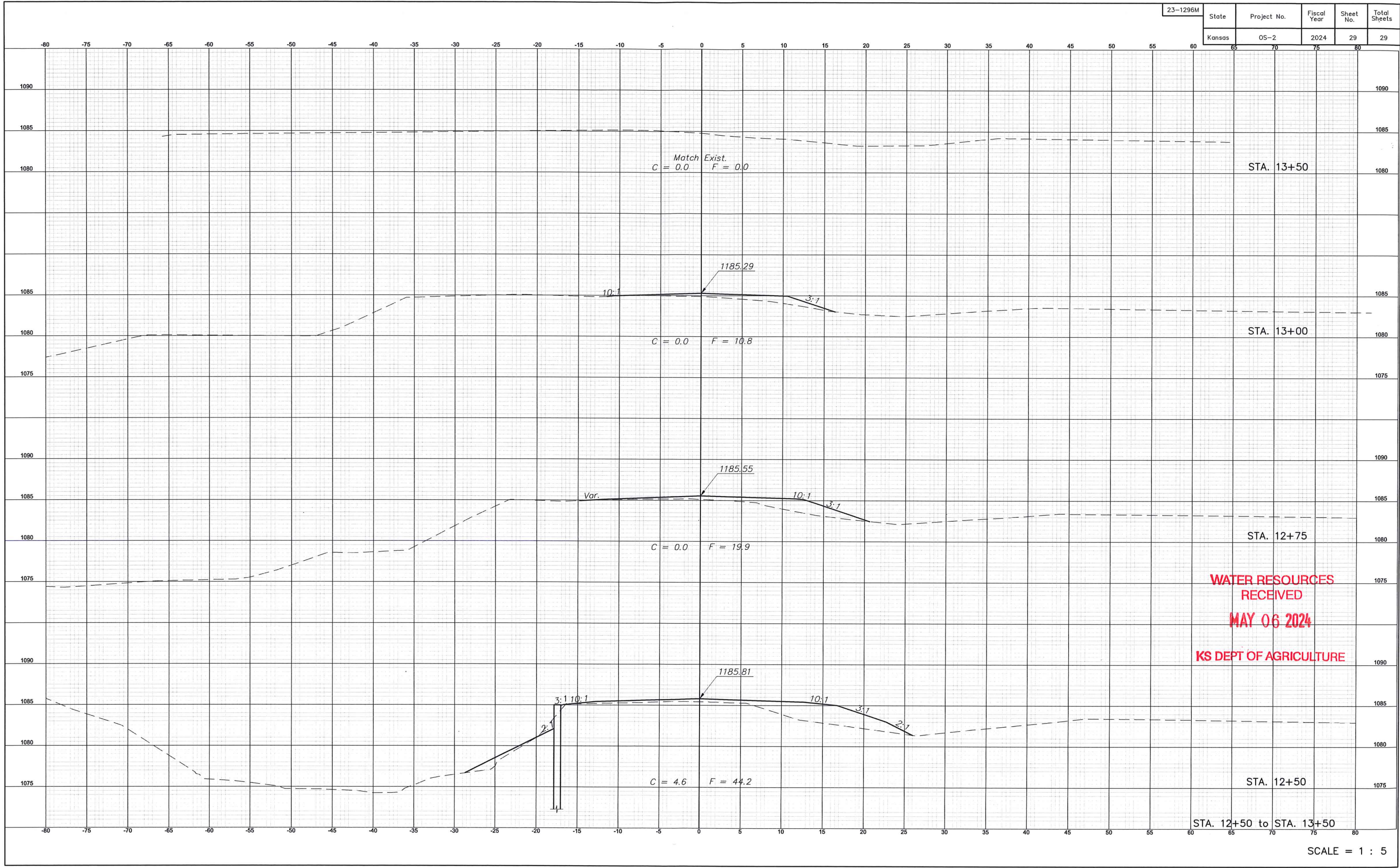
STA. 12+00

**WATER RESOURCES
RECEIVED
MAY 06 2024
KS DEPT OF AGRICULTURE**

STA. 12+00 to STA. 12+25

SCALE = 1 : 5

23-1296M	State	Project No.	Fiscal Year	Sheet No.	Total Sheets
	Kansas	OS-2	2024	29	29



WATER RESOURCES
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STA. 12+50 to STA. 13+50

SCALE = 1 : 5