NOTE: WHEN USING RUBRAIL, ATTACH STD. DRAWINGS NO. RD611, RD616 AND RD615 (PARALLEL) OR RD615A (FLARED).

WHEN USING THRIE BEAM, ATTACH STD. DRAWINGS NO. RD611 AND RD608 OR RD613.

RADIUS = 625.08'
MIDWEST GUARDRAIL SYSTEM (MGS) END TERMINALS

End Terminals  | Steel Post Design Available | Wood Post Design Available | Energy Absorbing | Manufacturer | Division | Length
--- | --- | --- | --- | --- | --- | ---
Guardrail End Terminal (MGS-FLAT) | Yes | Yes | Yes | Road Systems | 40'-7" | 37'-6"
Guardrail End Terminal (MGS-BRT) | Yes | Yes | No | Trinity Industries | 48'-3" | 48'-3"
Guardrail End Terminal (MGS-STOP) | Yes | No | Yes | Road Systems | 40'-10" | 50'-9"

CONVENTIONAL GUARDRAIL SYSTEM (CGS) END TERMINALS

End Terminals  | Steel Post Design Available | Wood Post Design Available | Energy Absorbing | Manufacturer | Design Length | Manufacturer System Length
--- | --- | --- | --- | --- | --- | ---
Guardrail End Terminal (CGS) | Yes | Yes | No | Trinity Industries | 37'-6" | 37'-6"
Install flexible markers on a post behind the guardrail bolt head on the traffic side of the guardrail post. For guardrail installations at a spacing not to exceed 25', no marker is installed between the head of the guardrail post bolt and the toe of the girder. Always install flexible markers on the top of the guardrail post. For long bridges (greater than 200' long), where spacing may be increased to 100', install flexible markers on the top of the guardrail post and at a spacing equal to the smallest bridge rail or concrete safety barrier located in the median, use flexible markers with reflective sheathing installed on both sides of the bracket only. For guardrail located on one-way or divided roadways, use flexible markers with reflective sheathing installed on the approach traffic side of the bracket only. For bridge rail or concrete safety barrier located on the outside edge of one-way or divided roadways, use flexible markers with reflective sheathing installed on both sides of the bracket only. For guardrail, bridge rail, or concrete safety barrier located on two-way roadways, use flexible markers with reflective sheathing installed on the approach traffic side of the bracket only. For bridge rail or concrete safety barrier located on the outside edge of one-way or divided roadways, use flexible markers with reflective sheathing installed on both sides of the bracket only. Use high impact polycarbonate flexible guardrail marker, with high intensity reflective sheathing on an approved substrate, see Standard Specifications. See also or addition related figures that comply with Standard Specifications. See also or addition related figures that comply with Standard Specifications. See also or addition related figures that comply with Standard Specifications. See also or addition related figures that comply with Standard Specifications. See also or addition related figures that comply with Standard Specifications. See also or addition related figures that comply with Standard Specifications. See also or addition related figures that comply with Standard Specifications. See also or addition related figures that comply with Standard Specifications. See also or addition related figures that comply with Standard Specifications. See also or addition related figures that comply with Standard Specifications. See also or addition related figures that comply with Standard Specifications. See also or addition related figures that comply with Standard Specifications. See also or addition related figures that comply with Standard Specifications. See also or addition related figures that comply with Standard Specifications. See also or addition related figures that comply with Standard Specifications. See also or addition related figures that comply with Standard Specifications. See also or addition related figures that comply with Standard Specifications. See also or addition related figures that comply with Standard Specifications. See also or addition related figures that comply with Standard Specifications. See also or addition related figures that comply with Standard Specifications. See also or addition related figures that comply with Standard Specifications. See also or addition related figures that comply with Standard Specifications. See also or addition related figures that comply with Standard Specifications. See also or addition related figures that comply with Standard Specifications. See also or addition related figures that comply with Standard Specifications. See also or addition related figures that comply with Standard Specifications. See also or addition related figures that comply with Standard Specifications. See also or addition related figures that comply with Standard Specifications. See also or addition related figures that comply with Standard Specifications. See also or addition related figures that comply with Standard Specifications. See also or addition related figures that comply with Standard Specifications.
**General Notes (Wood Posts):**

- All wood posts and wood blocks are preservative treated and are nominal dimensions. See KDOT's Standard Specifications for wood preservatives and blockouts.

- All holes are for bolts unless noted otherwise. See Standard Drawing RD613 for Thrie-Beam Post Details.

**Steel Posts:**

- Use grade of steel for steel posts that meets the requirements of the steel manufacturers. See Standard Drawing RD613 for Thrie-Beam Post Details.

- All wood and materials related to posts in pavement are subject to other guardrail list items. Rectangular geometry shown in Posts in Pavement detail.

- Circular geometry, as shown on this sheet, may be used at the Contractor's option.

---

**Steel Post Details:**

- See Standard Drawing RD613 for Thrie-Beam Transition Section Details.

---

**Wood Post Details:**

- Lap guardrail splices, including terminal connector, in the direction of traffic. Where traffic is temporarily carried in the opposite direction of final configuration, lap rail splices in the direction of permanent traffic.

---

**Thrie Beam Post Details:**

- Lap guardrail splices, including terminal connector, in the direction of traffic. Where traffic is temporarily carried in the opposite direction of final configuration, lap rail splices in the direction of permanent traffic.

---

**W-Beam Post Details:**

- Lap guardrail splices, including terminal connector, in the direction of traffic. Where traffic is temporarily carried in the opposite direction of final configuration, lap rail splices in the direction of permanent traffic.
The Special End Shoe has the same section as guardrail and is

where feasible a

bridge rail

Fabricate Special End Shoe from 10 gauge steel in accordance with standard specifications.

The Special End Shoe has the same section as guardrail and is fabricated to be interchangeable with similar components.

Fabricate Special End Shoe from 10 gauge steel in accordance with standard specifications. The Special End Shoe has the same section as guardrail and is fabricated to be interchangeable with similar components.

Bridge rail transition consists of one 12'-6" W-beam section nested in back of one

transition from 27' rail height at bridge attachment to 26' rail height in 29'.

Department of Transportation

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See Std. Drawing RD611 for additional details of posts not shown on this sheet.

Galvanized rail elements, post fittings, bolts, nuts, washers and anchor bolts after fabrication in accordance with the standard specifications.

Welded rail splice is temporarily carried in the opposite direction of final configuration, lap rail splices in the direction of permanent traffic.

Fabricate Special End Shoe from 10 gauge steel in accordance with standard specifications. The Special End Shoe has the same section as guardrail and is fabricated to be interchangeable with similar components.

Rectangular washer to be used at bridge connections only.

Use 10 or 12 gauge steel guardrail elements unless otherwise called out, see standard specifications.
Special note: Install reflective sheeting to the buffer end of terminal after installation. Thoroughly clean and dry steel prior to installation. Locate sheeting to provide maximum visibility to approaching traffic.

GENERAL NOTE

Terminal end posts consist of a wood post (measured) into a steel tube see details on this sheet.

The steel soil tubes may be driven with an approved driving head. Set steel tube and wood plate before installing wood anchor post assembly. Do not drive steel soil tubes with wood post in the tube. Drill and compactly placed in the steel soil tubes placed in drilled holes to prevent tube settlement.

Guards all safety measures after fabrication.

Lap guardrail splices, including terminal connector, in the direction of traffic. Where traffic is temporarily carried in the opposite direction of final configuration, lap guardrails in the direction of permanent traffic.

All work and materials required for the installation of Barrier Terminal Type II are considered supplementary to the bid item "Steel Plate Guardrail."

Include Type II end terminal in pay length of "Steel Plate Guardrail."

1½" x 1½" Machine bolt with Hex nut and two (2) washers.

1" x 2" Stud with lock washer and wrench.

1½" x ½" Bolt holes.

3/4" Steel plate x 1" x 8" Tack welded to 3/4" steel plate.

Tack plate to wood post with #8 x 2" shank plated screw similar to detail shown on steel breakaway post.

Screw as section through element.

1" x 2" Stud with lock washer and wrench.

2½" x 3½" Machine bolt with Hex nut and two (2) washers.

3/4" Steel plate x 1" x 8" Tack welded to 3/4" steel plate.

40,000 lbs. min breaking strength. Tighten cable to suit tension.

SUBJECT TO BID ITEM "G86-204.105".
**GENERAL NOTES AND QUANTITIES**

- Summary of Piling
  - Plan No. 1: 6 @ 60' & 1 @ 70'
  - Plan No. 2: 3 @ 60' & 1 @ 70'

- Reinforcing Steel details shall be per KDOT Specifications.

**FALSEWORK PLANS**

- Lincoln Professional Engineer shall design the falsework plan.

**FAHSWORK INSPECTION**

- The falsework plan must be reviewed and approved by the Engineer.

**FAHSWORK PROCESSING**

- The sequence of placing concrete is as follows: form and stirrup shall be lifted, or, in the case of the Contractor, the sequence shall be as per KDOT Specifications. No additional cost shall be paid directly, but will be subcontracted to the Contractor.

**CONCRETE PLACING**

- The sequence of placing concrete is as follows: form and stirrup shall be lifted, or, in the case of the Contractor, the sequence shall be as per KDOT Specifications. No additional cost shall be paid directly, but will be subcontracted to the Contractor.

**DESIGN DATA**

- Design loading for additional driving damage by the piling.

**REINFORCING STEEL**

- All reinforcing steel is to be installed normal to the centerline of bars unless otherwise noted.

**CONCRETE**

- Superstructure concrete is bid as Concrete (Grade 60). Substructure concrete is bid as Concrete (Grade 4.0). Concrete (Grade 60). Substructure concrete is bid as Concrete (Grade 4.0).

**TEMPERATURE**

- The design temperature for all dimensions is 60°F.

**REINFORCEMENT**

- All reinforcing steel dimensions are to be installed normal to the centerline of bars unless otherwise noted.

**DECK FINISHING**

- Set the finishing machine normal to the centerline of bars unless otherwise noted.

**CONSTRUCTION JONCTIONS**

- The construction joints are placed as shown or at the location of the structure for striking off and screeding the concrete.

**TYPICAL PLACEMENT**

- Driving shall stop when in the opinion of the Engineer additional driving damage may be required.

**CONTRACTOR RESPONSIBILITIES**

- All reinforcing steel shall be subcontracted to the requirements of AMS 3124, Grade 60.

**CONCRETE SPECIFICATIONS**

- See KDOT Specifications for all concrete specifications.

**CONCRETE PLACING SEQUENCE**

- The sequence of placing concrete is as follows: form and stirrup shall be lifted, or, in the case of the Contractor, the sequence shall be as per KDOT Specifications. No additional cost shall be paid directly, but will be subcontracted to the Contractor.

**DESIGN SPECIFICATIONS**

- See KDOT Specifications for all concrete specifications.

**UNIT STRESSES**

- Concrete (Grade 4.0)(AE) (Grade 60). (Grade 4.0)(AE) (Grade 60).

**BILL OF REINFORCING STEEL**

- For the limits of pay excavation.

**BILL OF MATERIALS**

- The design temperature for all dimensions is 60°F.

**BILL OF REINFORCEMENT**

- All reinforcing steel dimensions are to be installed normal to the centerline of bars unless otherwise noted.

**BILL OF CONCRETE**

- Superstructure concrete is bid as Concrete (Grade 60). Substructure concrete is bid as Concrete (Grade 4.0).

**INDEX TO BRIDGE DRAWINGS**

- Each plan shall be used on the project.

**BILL OF MATERIALS**

- The design temperature for all dimensions is 60°F.

**BILL OF CONCRETE**

- Superstructure concrete is bid as Concrete (Grade 60). Substructure concrete is bid as Concrete (Grade 4.0). Concrete (Grade 60). Substructure concrete is bid as Concrete (Grade 4.0).

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**BILL OF REINFORCEMENT**

- All reinforcing steel dimensions are to be installed normal to the centerline of bars unless otherwise noted.
File: 15.14' Rt., Sta. 37+72.13, Elev. = 1027.10
BM #1 "T" Post Lt. and Rt. of Sta. 36+98

CONTOUR MAP

SCALE: 1" = 30'

EXISTING WATERWAY OPENING SKETCH

NEW WATERWAY OPENING SKETCH

TYPICAL CHANNEL SPACING SECTION

KANSAS DEPARTMENT OF TRANSPORTATION

CONTOUR MAP

EXISTING E ffective WATERWAY Opening = 660 sq. ft.

Timber

Project

KENDALL CONSTRUCTION

TRADE ORIGIN

54'-10" Span SteeI Truss (SLTS) with a 15' Roadway.

1. Set #2x24" rebar 0.5' below gravel road
2. Spike East face 30" dia. cottonwood tree
3. Spike South face 48" dia. cottonwood tree
4. Spike North face #3x3 face cottonwood tree

Ray R. & Lynn T. Kirby Sec. 38, T60N,R18E

NOTE: 30'-4" Steel Truss (SLTS) with a 15' Roadway.

42.7' E.

200' Span Steam Truss (FGTS) with a 15' Roadway.

Timber

NOTE: 30'-4" Steel Truss (SLTS) with a 15' Roadway.

42.7' E.
The Subsurface Exploration and Geotechnical Report, prepared by Subsurface, Inc., on file at the office of Edward Ellis, was submitted to the contractor.

KANSAS DEPARTMENT OF TRANSPORTATION

CONSTRUCTION LAYOUT

NATIVE SCALE (1"=20')

For Transmittal to Abut. Standards

TOTAL

80' x 120' 46.06 ft. = (24.2' x 26.2')

DESIGN DATA

Drainage Area

Design Freeway

Design Culverts @ Q200

Design Culverts @ Q500

Drainage at Q200

Drainage at Q500

Drainage at Q1000

Drainage at Q1000

Drainage at Q5000

Drainage at Q5000

Drainage at Q10000

Drainage at Q10000

Drainage at Q50000

Drainage at Q50000

Drainage at Q100000

Drainage at Q100000

Drainage at Q500000

Drainage at Q500000

Drainage at Q1000000

Drainage at Q1000000

Drainage at Q5000000

Drainage at Q5000000

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Drainage at Q10000000000000

Drainage at Q10000000000000

Drainage at Q50000000000000

Drainage at Q50000000000000

Drainage at Q100000000000000

Drainage at Q100000000000000
When long span steel trusses having a concrete deck have a deflection greater than 1/32 in used, or when timber falsework with greater than 12'-0" cover span is used, follow the placing sequence shown. Segments, combined or continuous pours are allowed, but slabs are discontinuous pour at a construction joint short of a pier.

When timber falsework with 12'-0" or less clear span is used, the Contractor, subject to the approval of the Engineer, may use a continuous pour or may discontinue the pour at any construction joint shown.

The Contractor may place the corral rail continuously from one end of the bridge to the other.
### Bending Diagrams

(All dimensions are out to out of bars.)

#### 18 Through T26 Welded Spacer Frames

<table>
<thead>
<tr>
<th>Mark</th>
<th>Size</th>
<th>Number</th>
<th>Length</th>
<th>Mark</th>
<th>Size</th>
<th>Number</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>P3</td>
<td>6</td>
<td>4</td>
<td>24&quot;</td>
<td>P5</td>
<td>4</td>
<td>40&quot;</td>
<td>9'-6&quot;</td>
</tr>
<tr>
<td>P1</td>
<td>6</td>
<td>104</td>
<td>16'-7&quot;</td>
<td>P2</td>
<td>4</td>
<td>36&quot;</td>
<td>9'-6&quot;</td>
</tr>
</tbody>
</table>

#### 19 Through T27 Welded Spacer Frames

<table>
<thead>
<tr>
<th>Mark</th>
<th>Size</th>
<th>Number</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>P4</td>
<td>4</td>
<td>60&quot;</td>
<td></td>
</tr>
<tr>
<td>P5</td>
<td>4</td>
<td>60&quot;</td>
<td></td>
</tr>
</tbody>
</table>

### Spacers Frames

Note: All bent bars are out to out and is an exact dim. See Detail A.

#### Top of Spacer Frames

- Bent Bars
- Non-Epoxy Coated - Grade 60

#### Bottom of Spacer Frames

- Bent Bars
- Non-Epoxy Coated - Grade 60

### Bill of Reinforcing Steel

#### Non-Epoxy Coated - Grade 60

<table>
<thead>
<tr>
<th>Mark</th>
<th>Size</th>
<th>Number</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>8</td>
<td>8</td>
<td>19'-7&quot;</td>
</tr>
<tr>
<td>A2</td>
<td>6</td>
<td>10</td>
<td>18'</td>
</tr>
</tbody>
</table>

### Designation Diagram

See Detail Diagram

### Dimensions

- All dimensions are out to out of bars.
GENERAL NOTES


Use only the following types of bar supports:

1) Wire Bar Supports
   - Epoxy coating, reinforcing- Class 1 Protection
   - Non-epoxy coated reinforcing- Class 1, 2, or 3 Protection

2) Plastic Bar Supports

3) Supplementary bars

When securing epoxy coated reinforcement, use tie wires or metal clips that are epoxy or plastic coated.

Do not weld reinforcing steel to bar supports or to other reinforcing steel. Snap weld spacers frames for haunched slabs.

Tie bars at all intersections around the perimeter of each mat and at all less than 2'-0" centers or at every intersection, whichever is greater.

Where more than one length of our support is required, lap the ends so they are locked or tied together.

Use proper height supports to maintain the distance between the reinforcing and the formed surface or the top surface of deck slabs within 1/4" of that indicated on the plans.

Spacings shown are minimums. Use sufficient supports, as determined by the Engineer, to retain the reinforcing steel in position.

Construct any platforms, required for the support of workers and/or equipment during concrete placement, directly on the forms and not on the reinforcing steel. Use proper height supports to maintain the distance between the reinforcing and the formed surface or the top surface of deck slabs within 1/4" of that indicated on the plans.

Spacings shown are minimums. Use sufficient supports, as determined by the Engineer, to retain the reinforcing steel in position.

Designs and arrangements of Supports or Spacers other than as shown on this sheet, may be used with the permission of the Engineer.

A support spacing of 10'-0" vertical spacing. Use bolted clip frames for haunched slabs.

Tie bars at a minimum of 75% of the reinforcing at a minimum of 75% of the reinforcing and the formed surface or the top surface of deck slabs within 1/4" of that indicated on the plans.

Spacings shown are minimums. Use sufficient supports, as determined by the Engineer, to retain the reinforcing steel in position.

Construct any platforms, required for the support of workers and/or equipment during concrete placement, directly on the forms and not the reinforcing steel. Use proper height supports to maintain the distance between the reinforcing and the formed surface or the top surface of deck slabs within 1/4" of that indicated on the plans.

Spacings shown are minimums. Use sufficient supports, as determined by the Engineer, to retain the reinforcing steel in position.

Designs and arrangements of Supports or Spacers other than as shown on this sheet, may be used with the permission of the Engineer.

TABLE

<table>
<thead>
<tr>
<th>Bolt Diameter</th>
<th>Circumference</th>
<th>No. of Bolts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2&quot;</td>
<td>56</td>
<td>3</td>
</tr>
<tr>
<td>9/16&quot;</td>
<td>46</td>
<td>4</td>
</tr>
<tr>
<td>5/8&quot;</td>
<td>96</td>
<td>6</td>
</tr>
<tr>
<td>3/4&quot;</td>
<td>144</td>
<td>8</td>
</tr>
<tr>
<td>1&quot;</td>
<td>192</td>
<td>10</td>
</tr>
<tr>
<td>1 1/4&quot;</td>
<td>256</td>
<td>12</td>
</tr>
<tr>
<td>1 1/2&quot;</td>
<td>320</td>
<td>14</td>
</tr>
</tbody>
</table>

Note: Longitudinal reinforcing steel is placed on the bottom of the rock socket. Maintain 3" clearance from the bottom of the rock socket to the first spiral or tie bar.
### Recaptulation of Bridge Quantities

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guardrail Steel Plate (GSP)</td>
<td>31.25 Lin. Ft.</td>
</tr>
<tr>
<td>Concrete Foundation (CFT)</td>
<td>31.25 Lin. Ft.</td>
</tr>
<tr>
<td>Concrete for Seal Course (CFT)</td>
<td>31.25 Lin. Ft.</td>
</tr>
<tr>
<td>Object Marker (OM)</td>
<td>1 Each</td>
</tr>
<tr>
<td>Guardrail Steel Plate (GSP)</td>
<td>1 Each</td>
</tr>
<tr>
<td>Temporary Surfacing Material (Aggregate) (TSMA)</td>
<td>801 Cu. Yd.</td>
</tr>
<tr>
<td>Surfacing Material (AB-3)</td>
<td>801 Cu. Yd.</td>
</tr>
<tr>
<td>Compaction of Earthwork (Type B) (MR-90)</td>
<td>801 Cu. Yd.</td>
</tr>
<tr>
<td>Common Excavation (Rural Small)</td>
<td>801 Cu. Yd.</td>
</tr>
<tr>
<td>Clearing and Grubbing</td>
<td>801 Cu. Yd.</td>
</tr>
<tr>
<td>Removal of Existing Structures</td>
<td>801 Cu. Yd.</td>
</tr>
<tr>
<td>Mobilization (DBE)</td>
<td>801 Cu. Yd.</td>
</tr>
<tr>
<td>Field Office and Laboratory (Type C)</td>
<td>801 Cu. Yd.</td>
</tr>
<tr>
<td>Contractor Construction Staking</td>
<td>801 Cu. Yd.</td>
</tr>
</tbody>
</table>

### Recaptulation of Road Quantities

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>See Sheet No. 33 For Seeding Quantities</td>
<td></td>
</tr>
<tr>
<td>See Sheet No. 39 For Temporary Erosion and Pollution Control Quantities</td>
<td></td>
</tr>
<tr>
<td>See Sheet No. 23 For Temporary Erosion and Pollution Control Quantities</td>
<td></td>
</tr>
<tr>
<td>See Sheet No. 35 For Traffic Control Quantities</td>
<td></td>
</tr>
</tbody>
</table>

### Summary of Quantities

- **Lump Sum**
  - 125.0 Cu. Yd.
  - 1 M. Gal.
  - 4 Each
  - 502.0 Ton
  - 360 Lin. Ft.
  - 502.0 Lin. Ft.

- **Not Submittal**
  - 4807.0 Cu. Yd.
  - 360 Lin. Ft.

- **Embedded**
  - 4807.0 Cu. Yd.
  - 360 Lin. Ft.

- **Not Acceptable**
  - 4807.0 Cu. Yd.
  - 360 Lin. Ft.
SUMMARY OF SEEDING / EROSION CONTROL QUANTITIES

<table>
<thead>
<tr>
<th>UNIT</th>
<th>QUANTITY</th>
<th>MATERIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>TON</td>
<td>2</td>
<td>Mulching</td>
</tr>
<tr>
<td>LB</td>
<td>900</td>
<td>Tack Slurry</td>
</tr>
</tbody>
</table>

**GENERAL NOTES**

The entire disturbed areas, excepting the paved or surfaced areas, steep rocky slopes and areas of undisturbed native soil or other desirable vegetation, may be fertilized, 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 and seeding shall not be disturbed by any other construction activity. Seeds shall be planted in accordance with the Standard Specifications. Areas that require installation or construction of temporary water pollution control measures shall be mulched in accordance with the specifications.

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 furnish areas of excavation, borrow, and embankment in accordance with the specifications. Areas that require installation or construction of temporary water pollution control measures shall be mulched in accordance with the specifications. Areas that require installation or construction of temporary water pollution control measures shall be mulched in accordance with the specifications.

**SOIL EROSION MIX**

- Endophyte Free Tall Fescue
- Perennial Ryegrass
- Blue Grama Grass Seed (Lovington)
- Blue Grama Grass Seed (Treated)
- Buffalograss Seed (Treated)
- Buffalograss Seed (Treated)
- Side Oats Grama Grass Seed (El Reno)
- Prairie Junegrass

The estimated quantity includes mulching associated with both temporary and permanent seeding operations. The total mulch and silt fence area shall be above ground level of the project, not just the seeding area, is 1 acre or more, then these bid items must be included.

**NOTES:** Projects less than 1 acre shall be bid as "Seeding" by the lump sum. See Permanent Seeding Summary of Seeding Quatities sheet LASO 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 seed disturbed area of the project, not just the seeding area, is 1 acre or more, then these bid items may be included.

<table>
<thead>
<tr>
<th>UNIT</th>
<th>QUANTITY</th>
<th>MATERIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>TYP</td>
<td>145</td>
<td>Soil Erosion Mix</td>
</tr>
</tbody>
</table>

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.
### Erosion Control - Class 1, Type C

<table>
<thead>
<tr>
<th>Station to Station</th>
<th>Side Length</th>
<th>Width</th>
<th>PEEM</th>
<th>SQ Yards</th>
</tr>
</thead>
<tbody>
<tr>
<td>35+00 to 36+59</td>
<td>159.0</td>
<td>4.9</td>
<td></td>
<td>87.0</td>
</tr>
<tr>
<td>35+00 to 36+73</td>
<td>173.0</td>
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<td>121.0</td>
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<tr>
<td>37+33 to 39+50</td>
<td>217.0</td>
<td>9.0</td>
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<td>37+38 to 39+50</td>
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<td>9.7</td>
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<td>35+00 to 36+59</td>
<td>169.0</td>
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<tr>
<td>35+00 to 36+73</td>
<td>173.0</td>
<td>6.0</td>
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<td>115.0</td>
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<tr>
<td>37+75 to 39+50</td>
<td>175.0</td>
<td>6.0</td>
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<td>117.0</td>
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<td>37+33 to 39+50</td>
<td>217.0</td>
<td>6.0</td>
<td></td>
<td>145.0</td>
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</table>

**Total Erosion Control - Class 1, Type C**

### Erosion Control - Class 2, Type E

<table>
<thead>
<tr>
<th>Station to Station</th>
<th>Side Length</th>
<th>Width</th>
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</tr>
</thead>
<tbody>
<tr>
<td>35+00 to 36+59</td>
<td>159.0</td>
<td>6.0</td>
<td></td>
<td>121.0</td>
</tr>
<tr>
<td>35+00 to 36+73</td>
<td>173.0</td>
<td>6.0</td>
<td></td>
<td>115.0</td>
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<tr>
<td>37+33 to 39+50</td>
<td>217.0</td>
<td>6.0</td>
<td></td>
<td>117.0</td>
</tr>
<tr>
<td>37+38 to 39+50</td>
<td>212.0</td>
<td>6.0</td>
<td></td>
<td>145.0</td>
</tr>
</tbody>
</table>

**Total Erosion Control - Class 2, Type E**
NOTES:
1) Temporary Slope Drain and Temporary Berm may be used on either project forstrees or project forstrees.
2) Discharge of Slope Drains shall be per approved plan or area or into Saltwater 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.

Fill Material
Articulated Concrete Blocks w/ Filter Fabric

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.
See KDOT Specifications for more information

Temporary Stream Crossing (Articulated Concrete Blocks)

SECTION A-A NO SCALE
SECTION B-B
NO SCALE
**Plan**

**Temporary Inlet Sediment Barrier**

**Triangular Silt Dike Method**

*No Scale*

---

**Detail C - C**

- **Soil or Gravel Backfill** in Anchor Trench.
- **Wire Staples:** 6'' long
- **Wire Shaped 6'' long** in Anchor Trench.
- **Chicken Wire Backing** (Typ. 2' x 4'' board)
- **Pipe Inlet Protection**
  - 4'' x 4'' board

---

**Temporary Inlet Sediment Barrier**

*Silt Fence Method*

*No Scale*

---

**Material Requirements**

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

---

**Notes:**

1. If multiple gravel bags are required, place them in 6'' centers (max).
2. Height of bags (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.

---

**SECTION B - B**

- **Soil or Gravel Backfill** in Anchor Trench.
- **Silt Fence Fabric over Cross Pieces**
- **Main Flowline of Ditch**
- **Apron** (Typ.)
- **Top of Dike Beyond Inlet**
- **Main Flowline of Ditch**

---

**SECTION A - A**

- **Top of Dike Beyond Inlet**
- **Main Flowline of Ditch**
- **Cross Pieces**
- **Stake every 4'**

---

**Curb Inlet Protection**

- **Rock** = approximately 1" to 2" diameter
- **Bags** = synthetic net 3mm mesh or burlap bags
- **Top** = approximately 1' to 2' diameter

---

**Notes:**

- *Silt Fence* of log shall be keyed into ground during installation. Use 100% shredded mulch or other biodegradable material (no compost or fines).
- Use gravel bags for 1-1/4'' to 1-2/8'' diameter log. Synthetic bags are preferred.
- Use 100% shredded mulch or other biodegradable material.
BIODEGRADABLE LOG OR FILTER SOCK

1. Place biodegradable logs or filter sock tightly together minimum overlap of 18".
2. Wood stakes shall be 2" x 2" (nom.).
3. Use of high flow material is acceptable.
4. 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.

INSTALLATION NOTES

1. Stakes shall be 4' (min.) long and of one of the following materials:
   a. Hardwood - 1" x 1"
   b. Southern Pine (No. 2) - 2" x 2"
   c. Steel U, T, L, or C Section - .95 lbs. per 1'-0"; or
   d. Synthetic - same strength as wood stakes.

2. Attach fence fabric with 3 zip ties within the top 8" of the fence:
   a. Plastic - 18' long x 1" wide
   b. Excelsior / Wood Chips / Coconut Fiber
   c. Straw/Compost

3. Length of stakes should be 2 times the height of the log at a minimum. 
4. Refer to plan sheets to estimate the length of silt fence required.
5. Plastic zip ties, or other material approved by the field engineer, may be used in lieu of the above. 

SILT FENCE BARRIER

1) Slope interruptions shall be placed along contour lines, with 1) Interruptions damaged by Contractor's negligence, including improper maintenance or lack of maintenance, shall be repaired
2) The maximum length of the slope interruptions shall not exceed
3) Slope interruptions shall be placed along contour lines, with
4) The maximum length of the slope interruptions shall not exceed

GENERAL NOTES

1. Slope interruptions should be approved by the field engineer.
2. A slurry portion should always overlap at least 25% with the barrier.
3. Additional materials, such as rebar, flexible material, or other, may be approved by the Engineer on a performance basis. Alternate attachment methods may be approved by the Engineer on a
4. Plastic zip ties, or other material approved by the field engineer, may be used in lieu of the above.
TYPICAL DITCH CHECK LAYOUT PLAN

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.

3) 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.
ROCK DITCH CHECK NOTES

1. Rock shall be clean aggregate, D50 = 6'.
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. Exception: 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' (1500mm). After placement of the rock, backfill and compact any over excavated soil to ditch grade. This work shall be subsidiary to the Old Temporary Ditch Check (Rock).
5. Aggregate excavated on site may be used as an alternative 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, the upstream portion of the check should be constructed of D50 = 6' or smaller.

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 1/2.
3. Logs shall be wood or steel according to Section 5(14) 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 25% of its length. Compost filter socks should be placed on smooth prepared ground with no gaps between the sock and soil.
6. Each log or sock (except compost filter socks) should be keyed into the ground at a minimum of 16". Compost filter socks should be placed on smooth prepared ground with no gaps between the sock and soil.

TYPICAL ELEVATION

ROCK DITCH CHECK

NO SCALE

TEMPORARY ROCK DITCH CHECK SPACING

DITCH & SLOPE (FT) | SPACING (FT)
---|---
2 | 1.5
3 | 3.0
4 | 4.5
5 | 6.0

NOT TO SCALE

NO SCALE

TYPICAL ELEVATION

ROCK DITCH CHECK

NO SCALE

TYPICAL ELEVATION

BIODEGRADABLE LOG DITCH CHECK (Optional)

OR FILTER SOCK DITCH CHECK

NO SCALE

TYPICAL ELEVATION

BIODEGRADABLE LOG DITCH CHECK

NO SCALE
The design must be approved by the engineer.

### Quantities

<table>
<thead>
<tr>
<th>BB</th>
<th>BB</th>
<th>Detailed Designed</th>
<th>APP'D 09/24/2013</th>
</tr>
</thead>
</table>

### Design

1. All P.V.C. pipes are to be schedule 40.
2. HDPE flexible drain pipe is to be attached to the pond outlet structure with watertight connections.
3. The orifice shall be sized to provide drawdown time to 2 to 5 days and approved by the engineer.
4. Other skimmer designs maybe used that dewaters sediment storage basin time to 2 to 5 days and approved by the engineer.

### Notes

- Anti-seep collar (6" conc.)
- Stabilized outlet (shot rock)
- 18" pipe (min.)
- Embankment stabilized with vegetation
- 1'-0" overlap
- 1'-0" and 1'-0" riser
- 6'-0" Top (min.)
- Principal spillway
- 3 rows of 1" dia. holes 1' C.C.

### Table: Sediment Storage Basin Locations

<table>
<thead>
<tr>
<th>Station to Station</th>
<th>Side</th>
<th>Required Storage Capacity</th>
</tr>
</thead>
</table>

### Diagrams

- Sediment Storage Basin (Plan)
- Cross Section (Emergency Spillway)
- Concrete Anti-Deep Collar
- Section A-A

### Notes (cont.)

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 the size of the drainage area.
4) Principal spillway should be the drainage area.
5) Toe of berm (min.)
6) 6'-0" Top (min.)
7) 12 rows of 1" dia. holes 1' C.C.
8) Flanged and coupler assemblies.
9) Anti-seep collar (6" conc.)
10) Stabilized outlet (shot rock)
11) 18" pipe (min.)
12) Embankment stabilized with vegetation
13) 1'-0" overlap
14) 1'-0" and 1'-0" riser
15) 6'-0" Top (min.)
16) Principal spillway
17) 3 rows of 1" dia. holes 1' C.C.
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, and anchored tightly, avoiding stretching.

1. **ANCHOR SLOT**: The top of the blanket should be overlapped 1' 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 slot opened on the top of the soil, then backfilled, tamped and seeded.

2. **LONGITUDINAL SEAMS**: The edges of the blanket should overlap each other a minimum of 6 inches, with anchors catching the edges of both blankets.

3. **SPLICE SEAM**: When splices are necessary, overlapped a minimum of 8 inches in direction of water flow. Slap over splice seams.

4. **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.

5. **TYPICAL ANCHORS**: Anchor design shall be as recommended by the manufacturer.

6. **STAPLE CHECK**: Establish Staples in 2 rows 4" on center apart. Staple Checks - shall be 30' apart.

**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. and erosion control practices, excluding wood based mulch, shall be laid loosely in the direction of water flow. Staple Checks - shall be 30' apart. Staple Checks - shall be 30' apart.

**Erosion Control Blankets** may be omitted if the area is immediately covered by permanent slope protection (where directed by the plans).
PLAN VIEW - ANCHORING DIAGRAM

CROSS SECTION (Ditch Lining)

PLAN VIEW - ANCHORING DIAGRAM

INSTALLATION DETAILS FOR EROSION CONTROL CLASS 2

Erosion Control Mats shall be laid loosely in the direction of the flow, with the first course at the centerline of channel, where applicable. In order for the mat to be in contact with the soil, lay the mat loosely avoiding stretching.

1. ANCHOR FOLD: The top of the mat shall be folded under, buried and secured with approved anchors placed 6 inches apart. The top edge of the mat shall be buried in a slope, 6 inches wide x 6 inches deep, anchored in the bottom of the slot, backfilled and the mat folded over the top as shown in detail.

2. LONGITUDINAL SEAMS: The adjoined edges of the mat shall overlap a minimum of 6 inches, with anchors catching the edges of both mats.

3. SPLICE SEAM: When splices are necessary, overlap end to end a minimum of 12 inches in direction of water flow. Stagger splice seams.

4. STAPLE CHECK: Establish Staples in 2 rows 4" on center apart. Staple Checks - shall be 30" apart.

5. EDGE ANCHOR: Lay outside edge of mat into trench at top of side slope. Anchor at 3 foot intervals along trench.

6. TERMINUS: The bottom edge of the mat shall be anchored in place with anchors spaced at 9 inch intervals along the terminus edge.

7. TYPICAL ANCHORS: Anchor design shall be as recommended by the manufacturer.

INSTRUCTION DETAIL

EROSION CONTROL CLASS 2

FLEXIBLE CHANNEL LINER

LA856

INSTALLATION DETAIL

EROSION CONTROL CLASS 2

FLEXIBLE CHANNEL LINER

LA856
The total mulch required shall be determined in the field. The bid item for mulching shall be paid for according to *See LA852A for mulching quantity. The quantity of mulch is estimated (Acres of Seeding X 1.5 X 2 Tons/Acre). Plant seeds separately from the grass seed and the wildflower seed. Package and deliver the Tall Drop Seed in separate boxes.

**SCS** - Seeded with the Other mix. Designated as all other turf areas, except the Shoulder, usually includes a native Wildflower mix.

**SHLDR** - Seeded with the Shoulder mix. Typically 15 feet for 2-lane roads and 30 feet for 4-lane roads. Includes miscellaneous turf portions of shoulders and turf portion of the median.

Refer to the Seed Mix Specifications, Division 0030, Section 904 Seeding and Section 907 Stabilizing for the seeding and seeding materials.

**OTHER** - Seeded with the Other mix. The quantity of seed is estimated based on Acreage and 1.5 Tons/Acre. The seed mix selection shall be left in place and the bottom of a ditch, it shall be left in place and seeding shall not be required.

If temporary cover has provided stable slopes with no erosion, then 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. If there has been erosion that requires repair prior to seeding, then it may be necessary to regrade the area. If there has been erosion that requires repair prior to seeding, then it may be necessary to regrade the area.

**Dorothy** - Seeded with the Other Mix. Typically 15 feet for 2-lane roads and 30 feet for 4-lane roads. Includes miscellaneous turf portions of shoulders and turf portion of the median.

If there has been erosion that requires repair prior to seeding, then it may be necessary to regrade the area. If temporary cover has provided stable slopes with no erosion, then 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. If there has been erosion that requires repair prior to seeding, then it may be necessary to regrade the area.
1) **Design Speed:** Those items delegated to temporary traffic control should be designed and installed using the posted/legal speed of the roadway prior to work starting.

2) **Minimum Lane Width:** Lane widths shall be a minimum of 11' (measured between centres of pavement markings) or as shown on the plans, or as directed by the engineer. A lane width less than 11' may require restricted roadway width signing.

3) **Consideration should be made to separate pedestrian and, if needed, bicycle movements from both work site activity and vehicular traffic:** unless a reasonable safe route that does not involve crossing the roadway can be provided, pedestrians should be appropriately directed with advance signing that encourages them to cross to the opposite side of the roadway. In urban and suburban areas with high vehicular traffic volumes, these signs should be placed at intersections (other than midblock locations) so that pedestrians are not confronted with midblock work sites that will induce them to attempt skirting the work site or exiting a midblock crossing.

4) **When existing pedestrian facilities are designed, closed, or relocated, the temporary facilities shall be detectable and include accessibility features consistent with the features present in the existing pedestrian facility.**

5) **When the driving surface open to traffic is milled or is a temporary surface made of loose material, or when directed by the engineer a WB-15 (Grooved Pavement) or WB-7 (Loose Gravel) sign shall be used on multiple approaches.** This sign should be placed a 1/8" distance after the WB-20 (Steel Work Ahead) sign. A WB-15 motorcycle plaque shall be used to supplement the WB-15 or WB-7 signs. All signs shall be displayed as long as the condition is present.

6) **Alternative temporary rumble strip options may be available.** Please contact the Temporary Traffic Control Unit for more information at 785-296-1179 or 785-296-1183.

### TYPICAL WORK ZONE COMPONENTS

- When concrete barrier system is used, portable channelizing devices are not needed along the tangent barrier section.

#### Minimum advance warning sign spacing (in feet):

<table>
<thead>
<tr>
<th>SPEED (MPH)</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>URBAN (40 MPH OR LOWER)</td>
<td>100</td>
<td>700</td>
<td>700</td>
</tr>
<tr>
<td>URBAN (45 MPH OR LOWER)</td>
<td>350</td>
<td>350</td>
<td>350</td>
</tr>
<tr>
<td>RURAL (55 MPH OR LOWER)</td>
<td>500</td>
<td>500</td>
<td>500</td>
</tr>
<tr>
<td>RURAL (60 MPH OR HIGHER)</td>
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<td>750</td>
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<tr>
<td>EXPRESSWAY/FREEWAY</td>
<td>1000</td>
<td>1500</td>
<td>2640</td>
</tr>
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</table>

**Posted speed prior to work starting**

The minimum spacing between signs shall be no less than 100', unless directed by the engineer.

The spacing between any signs may be increased beyond the minimum values in the table above as approved by the engineer in order to maximize visibility.

**Taper Formula:**

\[
L = \frac{S}{60} \times W
\]

Where:

- \( L \) = Minimum length of taper in feet
- \( S \) = Numerical value of posted speed prior to work starting in MPH
- \( W \) = Width in offset feet

**Shifting Taper**:

1/2 L = Shoulder Taper

1/3 L = Shoulder Taper

**Channelizer Placement**:

1) **Design Speed:** Those items delegated to temporary traffic control should be designed and installed using the posted/legal speed of the roadway prior to work starting.

2) **Minimum Lane Width:** Lane widths shall be a minimum of 11' (measured between centres of pavement markings) or as shown on the plans, or as directed by the engineer. A lane width less than 11' may require restricted roadway width signing.

3) **Consideration should be made to separate pedestrian and, if needed, bicycle movements from both work site activity and vehicular traffic:** unless a reasonable safe route that does not involve crossing the roadway can be provided, pedestrians should be appropriately directed with advance signing that encourages them to cross to the opposite side of the roadway. In urban and suburban areas with high vehicular traffic volumes, these signs should be placed at intersections (other than midblock locations) so that pedestrians are not confronted with midblock work sites that will induce them to attempt skirting the work site or exiting a midblock crossing.

4) **When existing pedestrian facilities are designed, closed, or relocated, the temporary facilities shall be detectable and include accessibility features consistent with the features present in the existing pedestrian facility.**

5) **When the driving surface open to traffic is milled or is a temporary surface made of loose material, or when directed by the engineer a WB-15 (Grooved Pavement) or WB-7 (Loose Gravel) sign shall be used on multiple approaches.** This sign should be placed a 1/8" distance after the WB-20 (Steel Work Ahead) sign. A WB-15 motorcycle plaque shall be used to supplement the WB-15 or WB-7 signs. All signs shall be displayed as long as the condition is present.

6) **Alternative temporary rumble strip options may be available.** Please contact the Temporary Traffic Control Unit for more information at 785-296-1179 or 785-296-1183.
### PEDESTRIAN CHANNELIZER
1. Support device shall not project beyond the detection plate into the pathway.
2. Hand trailing edges and detection plates are optional for continuous walls.
3. Interconnect pedestrian channelizers to prevent displacement and to provide continuous guidance through or around work.
4. Alternate pathways shall be firm, stable, and slip resistant.
5. Treat height differentials > 1/2" in the surfaces of alternate paths with a firm, stable, and slip-resistant temporary ramp having a slope of 12:1 or flatter and having a width equal to the alternate path.
6. Use alternating orange/white on interconnected devices.

### TRAFFIC CONE
- **Height**: 12" Max.
- **Width**: 2" Max.

### TYPE 2 BARRICADE
- **Height**: 36" Min.
- **Width**: 36" Min.
- **45°**: 8" Min.

### DRUM
- **Height**: 48" Max.
- **Width**: 6" Min.
- **36" Max.**

### CONICAL DELINEATOR
- **Height**: 12" Max.
- **Width**: 2" Max.

### TUBULAR MARKER
- **Height**: 36" Min.
- **Width**: 8" Min.

### VERTICAL PANEL
- **Height**: 36" Min.
- **Width**: 12" Max.

### DIRECTION INDICATOR BARRICADE
- **Height**: 18" Min.

### TRAFFIC CONTROL

<table>
<thead>
<tr>
<th>Item</th>
<th>Location</th>
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<tbody>
<tr>
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<td>Drum</td>
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<tr>
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<tr>
<td>Vertical Panels</td>
<td>(2) Yes, (2) No, (2) Yes, (2) No, (2) No</td>
</tr>
</tbody>
</table>

(1) Not allowed on centerline delineation along freeways or expressways.
(2) The stripes shall slope downward to the traffic side for channelization.
(3) May be used upon the approval of the engineer.
(4) Daytime operations only.

**Figure Notes:**
- For rails less than 36" long, 4" wide stripes may be used.
- All stripes shall slope downward to the traffic side for channelization.
- The stripes shall slope downward in the direction traffic is to pass.
- The direction indicator barricade shall be used in series to direct the motorist into the intended lane of travel.
- Use alternating orange/white on interconnected devices.
FIGURE 1: TYPICAL SIGNING FOR ROAD CLOSURE (MAINLINE OR SIDE ROAD)

Note: Signs shown for one approach to work zone.

Complete Closure
Type 3 Barricades

NOTE:
The R11-3A and R11-4 signs should be accompanied with appropriate detour signing, as shown on project traffic control plans.

FIGURE 2: TYPICAL SIGNING FOR SIDE ROAD OPEN

Note: Sign shown for one approach to intersection (work zone)

Complete Closure
Type 3 Barricades

FIGURE 3: TYPICAL SIGNING FOR ROAD CLOSURE - LOCAL TRAFFIC ACCESS

Note: Signs shown for one approach to work zone.

Complete Closure
Type 3 Barricades

FIGURE 4: TYPICAL SIGNING FOR SIDEWALK CLOSED

Note: Signs shown for one approach to intersection (work zone).

Complete Closure
Type 3 Barricades

ROAD CLOSED GENERAL NOTES
As shown in Figure 1, at the point where thru traffic must detour and local traffic can proceed to the location where the roadway is completely closed, the R11-3a (ROAD CLOSED # MILES AHEAD LOCAL TRAFFIC ONLY) or R11-4 (ROAD CLOSED LOCAL TRAFFIC ONLY or ROAD CLOSED TO THRU TRAFFIC) sign shall be used with Type 3 barricades (winged position), placed on the shoulders of roadway.

As shown in Figure 3, when local traffic must be allowed access into the work zone, Type 3 barricades shall be longitudinally staggered to maintain the appearance of a closed roadway. A second line of Type 3 barricades shall be placed just beyond the last access point in the work zone to completely close the roadway.

The R11-4 (ROAD CLOSED TO THRU TRAFFIC or ROAD CLOSED LOCAL TRAFFIC ONLY) sign shall be used when the distance to the point of complete closure of the roadway is less than 1 mile. The R11-3a (ROAD CLOSED # MILES AHEAD LOCAL TRAFFIC ONLY) sign shall be used when the distance to the point of complete closure of the roadway is 1 mile or greater.

The words "BRIDGE OUT" (or BRIDGE CLOSED) may be substituted for the words "ROAD CLOSED" on the R11-3a or R11-4 sign where applicable.

Approved signs mounted on Type 3 barricades should not cover more than 50% of the top two rails or 33% of the total area of the three rails.

When barricades are placed end-to-end or staggered, a Type "A" low intensity warning light shall be mounted to the vertical post on the last barricade. Note: Signs shown for one approach to intersection (work zone).

Complete Closure
Type 3 Barricades

TRAFFIC CONTROL CLOSURES

TYPE 3 BARRICADE WITH LIGHTS

When Used

Approved signs mounted on Type 3 barricades should not cover more than 50% of the top two rails or 33% of the total area of the three rails.

When barricades are placed end-to-end or staggered, a Type "A" low intensity warning light shall be mounted to the vertical post on the last barricade.

Not: Sign shown for one approach to work zone.

Complete Closure
Type 3 Barricades

NOTE:

Support device shall not project beyond the detection plate into the pathway.

2. Barricades shall be used to close the entire width of the pathway.

3. Do not use warning lights on pedestrian barricades.

4. Do not use warning lights on audible devices.

When barricades are placed end-to-end or staggered, a Type "A" low intensity warning light shall be mounted to the vertical post on the last barricade.

Note: Signs shown for one approach to intersection (work zone).

Complete Closure
Type 3 Barricades

NOTE:

Support device shall not project beyond the detection plate into the pathway.

2. Barricades shall be used to close the entire width of the pathway.

3. Do not use warning lights on pedestrian barricades.

4. Do not use warning lights on audible devices.

When barricades are placed end-to-end or staggered, a Type "A" low intensity warning light shall be mounted to the vertical post on the last barricade.
SIGN LAYOUT INFORMATION

END ROAD WORK
KD20-2

WAIT FOR PILOT CAR
KD20-5

VICTIM POINT
KMA-2D

NEXT MILES
W7-3a

SHOULDER DROP-OFF
WS-1/P

NB US-75 CLOSED FOLLOW DETOUR
SP-01

US-75 CLOSED NORTH OF TOPEKA FOLLOW DETOUR
SP-02

END ROAD WORK

1) Signs shall be mounted at a minimum height of 7' measured from the bottom of sign to the near edge of the pavement.

2) Neither portable nor permanent sign supports shall be located on sidewalks outside of areas designated for pedestrian or bicycle traffic.

3) Signs mounted lower than 7' should not project more than 4' into pedestrian facilities.

4) Signs mounted lower than 7' shall not overlap each other.

5) Large signs having an area exceeding 50 square feet installed on multiple breakaway posts shall be mounted a minimum of 7' above the ground.

6) Pedestrian detour signage shall be a minimum of 2' measured from the top of the pedestrian pathway to the bottom of the sign and shall not interfere with the walkway nor shall it project beyond the back of curb.

UBER

1) Signs shall be mounted at a minimum height of 7' measured from the bottom of sign to the near edge of the pavement.

2) Large signs having an area exceeding 50 square feet installed on multiple breakaway posts shall be mounted a minimum of 7' above the ground.

3) The height of the secondary sign mounted below another sign may be 4' measured from the bottom of the sign to the near edge of the pavement. Signs shall not overlap each other.

4) The height from of the secondary sign mounted below another sign may be 4' measured from the bottom of sign to the near edge of the pavement. Signs shall not overlap each other.

5) Large signs having an area exceeding 50 square feet installed on multiple breakaway posts shall be mounted a minimum of 7' above the ground.

6) Pedestrian detour signage shall be a minimum of 2' measured from the top of the pedestrian pathway to the bottom of the sign and shall not interfere with the walkway nor shall it project beyond the back of curb.
PERFORATED SQUARE STEEL TUBE (P.S.S.T.) POST SETUP

WOOD POST SETUP

See TE710 for Additional Details and Requirements

Notes:
Place two bolts at both ends of the splice through the holes nearest the ends of the splice.
Use manufacturer recommended spacers over the bolts between the spliced pieces of U-Channel.
### Recapitulation of Quantities

#### Traffic Control Devices

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work Zone Signs (0 to 9.25 Sq. Ft.)</td>
<td>Each Per Day</td>
<td></td>
</tr>
<tr>
<td>Work Zone Signs (10.26 to 16.25 Sq. Ft.)</td>
<td>Each Per Day</td>
<td></td>
</tr>
<tr>
<td>Work Zone Signs (16.26 to 25.25 Sq. Ft.)</td>
<td>Each Per Day</td>
<td></td>
</tr>
<tr>
<td>Work Zone Barriers (Type 3 - 4' to 12')</td>
<td>Each Per Day</td>
<td></td>
</tr>
<tr>
<td>Channelizer (Fixed)</td>
<td>Each Per Day</td>
<td></td>
</tr>
<tr>
<td>Channelizer (Portable)</td>
<td>Each Per Day</td>
<td></td>
</tr>
<tr>
<td>Channelizer (Pedestrian)</td>
<td>Each Per Day</td>
<td></td>
</tr>
<tr>
<td>Work Zone Warning Light (Type &quot;A&quot; Low Intensity)</td>
<td>Each Per Day</td>
<td></td>
</tr>
<tr>
<td>Work Zone Warning Light (Red Type &quot;B&quot; High Intensity)</td>
<td>Each Per Day</td>
<td></td>
</tr>
<tr>
<td>Arrow Display</td>
<td>Each Per Day</td>
<td></td>
</tr>
<tr>
<td>Portable Changeable Message Sign</td>
<td>Each Per Day</td>
<td></td>
</tr>
<tr>
<td>Pavement Marking (Temporary)</td>
<td>Each</td>
<td></td>
</tr>
<tr>
<td>4&quot; Solid (Type I)</td>
<td>Each</td>
<td></td>
</tr>
<tr>
<td>4&quot; Solid (Type II)</td>
<td>Each</td>
<td></td>
</tr>
<tr>
<td>4&quot; Broken (8&quot;) Type I)</td>
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<td></td>
</tr>
<tr>
<td>4&quot; Broken (8&quot;) Type II)</td>
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<td>4&quot; Broken (10&quot;) Type I)</td>
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<tr>
<td>4&quot; Broken (10&quot;) Type II)</td>
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</tr>
<tr>
<td>4&quot; Dotted Extension (Type I)</td>
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<td>4&quot; Dotted Extension (Type II)</td>
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<tr>
<td>Solid (Line Masking Tape)</td>
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<tr>
<td>Broken (Line Masking Tape)</td>
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</tr>
<tr>
<td>Symbol (Type I)</td>
<td>Each</td>
<td></td>
</tr>
<tr>
<td>Symbol (Type II)</td>
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<td>Flexible Raised Pavement Markers (4&quot; Broken (8.0'))</td>
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<tr>
<td>Flexible Raised Pavement Markers (4&quot; Broken (3.0'))</td>
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<td>Flexible Raised Pavement Markers (4&quot; Broken (2.0'))</td>
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<tr>
<td>Pavement Marking Removal</td>
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<tr>
<td>Work Zone Sign (Special) (16.25 Sq. Ft. &amp; Less)</td>
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<tr>
<td>Work Zone Signs (Special) (16.26 Sq. Ft. &amp; Over)</td>
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<td>Rigid Raised Pavement Markers (4&quot; Broken (3.0'))</td>
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<td>Rigid Raised Pavement Markers (4&quot; Broken (2.0'))</td>
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<td>Rigid Raised Pavement Markers (4&quot; Broken (1.0'))</td>
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<td>Traffic Signal Installation (Temporary)</td>
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<td>Traffic Control Device Set Up</td>
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#### Summary of Devices

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
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<tbody>
<tr>
<td>Portable Changeable Message Sign</td>
<td>1</td>
</tr>
<tr>
<td>Arrow Display</td>
<td>1</td>
</tr>
</tbody>
</table>

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**Notes:**
- All Traffic Control Signs shall be the responsibility of the Contractor.
- Portable Changeable Message Sign
- Arrow Display
- Traffic Control Devices

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**Diagram:**
- Work Zone Signs
- Barriers
- Channelizing Devices
- Lighted Devices

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**Tables:**
- Recapitulation of Quantities
- Summary of Traffic Control Devices

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**Figures:**
- Diagram of Traffic Control Devices
- Table of Quantities

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**References:**
- Kansas Department of Transportation
- Traffic Control Devices
- Recapitulation of Quantities
State: Kansas
Year: 2019
Project No.: 0 4 0
Sheet No.: 1025

Centerline STA. 34+50.00 TO STA. 36+00.00
Scale = 1:5

P.G. = 1027.39
C = 0    F = 0

P.G. = 1027.06
C = 16    F = 3

P.G. = 1027.38
10

P.G. = 1027.45
10

P.G. = 1027.54
10

Centerline STA. 34 + 50.00 TD STA. 36 + 00.00
Scale 1:50
STATE: KANSAS
PROJECT NO.: C-4959-01
YEAR: 2019
SHEET NO.: 48
TOTAL SHEETS: 48

FILE: Drawn By: Drafte 04 - Jun 2020
F: 50+85.00
SCALE = 1:5
STA. 50+58.00

Channel
STA. 50 + 58.00