GENERAL NOTES

Galvanize all steel parts 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 guardrail splices, including terminal connector, in the direction of traffic.

Use galvanized 12 gauge steel rail elements unless otherwise noted. Use galvanized anchor bolts and post rail fittings.

Supply guard rail parts that are interchangeable with similar parts regardless of source of manufacturer.

The contractor has the option of providing either standard wood or steel posts. See Standard Drawing RD611 for details.

Where traffic is temporarily carried in the opposite direction of final configuration, the outside bridge slabs. Blocks are required for the thrie beam transition and the end terminals. The guardrail shall meet NCHRP 350 TL-2 requirements. All labor, materials, and incidentals necessary to install the guardrail shall be subsidiary to the bid item "Guardrail, Steel Plate."

The Guardrail layout will be symmetric for all quadrants of the bridge.

SUMMARY OF STEEL PLATE GUARDRAIL

<table>
<thead>
<tr>
<th>Location</th>
<th>Thrie Beam Guardrail</th>
<th>Thrie Beam Transition</th>
<th>Total</th>
<th>Co.Rail</th>
<th>Co. Rail</th>
<th>Total LS</th>
<th>Reflect.</th>
</tr>
</thead>
<tbody>
<tr>
<td>NE Quad.</td>
<td>48</td>
<td>6'-3&quot;</td>
<td>6'-3&quot;</td>
<td>1</td>
<td>1</td>
<td>6'-3&quot;</td>
<td>4</td>
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<tr>
<td>SW Quad.</td>
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<td>6'-3&quot;</td>
<td>1</td>
<td>1</td>
<td>6'-3&quot;</td>
<td>4</td>
</tr>
<tr>
<td>NW Quad.</td>
<td>48</td>
<td>6'-3&quot;</td>
<td>6'-3&quot;</td>
<td>1</td>
<td>1</td>
<td>6'-3&quot;</td>
<td>4</td>
</tr>
<tr>
<td>SE Quad.</td>
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<td>1</td>
<td>6'-3&quot;</td>
<td>4</td>
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<tr>
<td>TOTAL</td>
<td>192</td>
<td>6'-3&quot;</td>
<td>6'-3&quot;</td>
<td>4</td>
<td>4</td>
<td>6'-3&quot;</td>
<td>16</td>
</tr>
</tbody>
</table>
ELEVATION AT LAP
1'-8"
Roadway
BOLT & NUT DETAILS
2"33
2020"2

Notes to Designer: For posts in installed in pavement thicker than 8" or posts in installed in rock formations refer to

Drawn By:
jb jecman

File:

for erection of Guardrail is subsidiary to various bid items for which payment is made. Where guardrail posts are installed in pavement, form openings in the pavement for the guardrail posts.

excludes the guardrail end terminals. Set guardrail posts by digging or by driving. Use post caps to protect the post from crushing during driving operations. Contractor must notify

wood or steel

INTERMEDIATE POST
Post

" Lap guardrail splices, including terminal connector, in the direction of traffic. Where traffic is temporarily

curb, measure the height of
elevations at the curb/pavement joint as

are aligned with the face of a
curb. Note: When face of guardrail is

INTEGRATE ID (Steel Posts)

STEELE POST DETAILS

Note: Low Strength Grout must have a 28-day

REFERENCES (Wood Posts)

GENERAL NOTES (Steel Posts)

STEEL POSTS

GUARDRAIL POST DETAILS

the grout and terminate unless notified by the manufacturer. All dimensions are nominal and are subject to manufacturing tolerances. Specifications including curls, shears, and other materials for section of Guardrail are subject to the contract drawings.

Transition Section Details. See Standard Drawing RD613 for Thrie-Beam Transition Section Details.
PRECAST REINFORCED CONCRETE BRIDGE SLABS: The Contractor shall provide shop drawings showing steel straps, stainless steel plates, or stress-plates as required. The LRFR inventory rating factor for HL-93 loading shall be a minimum of 1.0. 17th Edition AASHTO Truck Loadings are included in the bid item "Reinforcing Steel (Gr. 60)".  All labor, materials, and incidentals necessary to fabricate and install the precast reinforced concrete bridge slabs shall be included in the bid item "Precast Reinforced Concrete Bridge Slabs".

GUARDRAIL, STEEL PLATE: The Contractor shall provide shop drawings showing steel plates and shop drawings showing the connection of the steel plates to the precast bridge slab.  The connection shall be detailed by the engineer.  The Bridge slabs shall be anchored to the abutment piling or sheet piling, as directed by the engineer.  Blocks are required for the thrie beam guardrail on the outside bridge slabs.  Guardrail shall begin without approved Demolition Plans.  A Licensed Professional Engineer is not required.  The bridge slabs shall be anchored to the abutment piling or sheet piling, as directed by the engineer.  Blocks are required for the thrie beam guardrail on the outside bridge slabs.  Grade 50 reinforcing steel is required.  All labor, concrete, reinforcing steel, and incidentals necessary to fabricate and install the precast reinforced concrete bridge slabs shall be included in the bid item "Precast Reinforced Concrete Bridge Slabs".

STRENGTH: The Contractor shall provide shop drawings showing the connection of the steel plates to the precast bridge slab.  The connection shall be detailed by the engineer.  The Bridge slabs shall be anchored to the abutment piling or sheet piling, as directed by the engineer.  Blocks are required for the thrie beam guardrail on the outside bridge slabs.  Grade 50 reinforcing steel is required.  All labor, concrete, reinforcing steel, and incidentals necessary to fabricate and install the precast reinforced concrete bridge slabs shall be included in the bid item "Precast Reinforced Concrete Bridge Slabs".

GENERAL NOTES:

1. As a minimum, the bridge shall be designed to meet the requirements of the following at the pre-construction conference.  Drive all sheet piling at or below the shown tip elevation.  See the Bridge Excavation plan at the pre-construction conference.  Drive all sheet piling at or below the shown tip elevation.  See the Bridge Excavation plan at the pre-construction conference.

2. All labor, materials, and incidentals necessary to fabricate and install the precast reinforced concrete bridge slabs shall be included in the bid item "Precast Reinforced Concrete Bridge Slabs".

3. The Bridge slabs shall be anchored to the abutment piling or sheet piling, as directed by the engineer.  Blocks are required for the thrie beam guardrail on the outside bridge slabs.  Grade 50 reinforcing steel is required.  All labor, concrete, reinforcing steel, and incidentals necessary to fabricate and install the precast reinforced concrete bridge slabs shall be included in the bid item "Precast Reinforced Concrete Bridge Slabs".

4. The Bridge slabs shall be anchored to the abutment piling or sheet piling, as directed by the engineer.  Blocks are required for the thrie beam guardrail on the outside bridge slabs.  Grade 50 reinforcing steel is required.  All labor, concrete, reinforcing steel, and incidentals necessary to fabricate and install the precast reinforced concrete bridge slabs shall be included in the bid item "Precast Reinforced Concrete Bridge Slabs".

5. The Bridge slabs shall be anchored to the abutment piling or sheet piling, as directed by the engineer.  Blocks are required for the thrie beam guardrail on the outside bridge slabs.  Grade 50 reinforcing steel is required.  All labor, concrete, reinforcing steel, and incidentals necessary to fabricate and install the precast reinforced concrete bridge slabs shall be included in the bid item "Precast Reinforced Concrete Bridge Slabs".
The County will remove cribbing prior to removal of the bridge. The Contractor shall remove the existing two span 47' steel beam bridge with timber piling and concrete deck (Br. 000040681806900). The existing structure may contain lead paint. All items of the existing structure shall become property of the Contractor and shall be removed from the site.

The Contractor shall excavate the channel at the bridge site to the limits shown prior to construction of the bridge.

The Contractor shall complete the Embankment as shown on the bridge excavation sheet prior to the driving of the downstream piling.

All trees, hedge rows, shelterbelts, and woody shrubs not shown to be removed and located between the construction limits and the right-of-way line or easement line shall be spared unless directed by the Engineer to be removed.

EXISTING WATERWAY OPENING

See Sheet No. 6-13

28'-0" Roadway
Concrete Beam Bridge (YBMS)
50'-0" Precast Reinforced
Br. No. 000040681906900
Sta. 120+00.00 Const.
Notes:
1. Geological information was obtained from a Small Area Assessment (SAA) and a Geotechnical Soil Profile (GSP) report.
2. A subsurface exploration was performed at the site to determine the subsurface conditions.
3. The subsurface conditions include:
   - Alluvium: Lean Clay, Fat Clay, Silty Clay
   - Nippewalla Group Bedrock: Yellowish red to reddish yellow, slightly to moderately weathered, soft rock

4. All subsurface conditions were observed during construction to ensure the integrity of the proposed structure.
5. The recommended backfill material should be placed using a tremie pipe.
6. Any changes in the design or location of the proposed structure should be assumed to modify our conclusions and recommendations accordingly.
7. If subsurface conditions different from those encountered in the explorations are observed during construction or appear to be present beneath excavations, GSI should be advised at once so that the conditions can be reviewed and recommended accordingly.

8. The proposed improvement includes:
   - Backfill material should be placed using a tremie pipe.
   - Any changes in the design or location of the proposed structure should be assumed to modify our conclusions and recommendations accordingly.
   - If subsurface conditions different from those encountered in the explorations are observed during construction or appear to be present beneath excavations, GSI should be advised at once so that the conditions can be reviewed and recommendations reconsidered when necessary.
NOTE: Bridge slabs are assumed to be 2'-0" thick. The Contractor shall adjust the top of pile elevations for the final design bridge slab thickness.

Each wingwall shall be constructed with HP12x53 plus 120" each. Wingwall top shall be sloped so that the end of the wing is 6" lower than the edge of roadway elevation. The wingwall top shall be capped with channel iron C5x6.7.

Wingwalls and backwalls shall be interlocking galvanized 7 ga. corrugated metal sheet piling driven to a minimum elevation of 1404.20. The abutment and wingwall sheet piling shall be tight against the whaler supports. The sheet piling shall be welded to the whalers, end plates and wing caps.

Concrete Bridge Slabs
Precast Reinforced
6'-10"
14'-6" @ 29'-0" Caps
29'-0" Pile Cap
HP 12x53

Precast Concrete Beams
6" Cap C5x6.7
Channel Wing
Precast Concrete Beams

Stiffener Spacing:
6'-10"
6'-10"
6'-10"
6'-10"
14'-6"
2'-0" (Assumed)

Pipe Spacing:
3 Eq. Spa.=6'-10"
3 Eq. Spa.=6'-10"
3 Eq. Spa.=6'-10"

Whaler Spacing:
HP 12x53
HP 12x53

ABUTMENT SECTION
(Along 6 of Abutment)
NOTE: Bridge slabs are assumed to be 2'-0" thick.
The Contractor shall adjust the top of pile elevations for the final design bridge slab thickness.

Dimensions shown at outside faces of bridge slab.

MINIMUM FILLET WELD SIZES

<table>
<thead>
<tr>
<th>Material Thickness of Thicker Part Joined</th>
<th>Minimum Size of Fillet Weld</th>
</tr>
</thead>
<tbody>
<tr>
<td>To 3/4&quot; inclusive</td>
<td>1/8&quot;</td>
</tr>
<tr>
<td>3/4&quot; Over 3/4&quot;</td>
<td>5/32&quot;</td>
</tr>
</tbody>
</table>

Note: The Contractor shall adjust the top of pile elevations for the final design bridge slab thickness.

The Contractor shall provide shop drawings to install thrie beam guardrail on the outside bridge slabs. Guardrail posts shall be steel and shall be bolted to the outside bridge slabs. Blocks are required between the steel posts and the thrie beam guardrail across the bridge.

Thrie Beam Guardrail

Welding Details

Terminated Fillet Weld

Typical stiffeners and connection plates top & btm.

Stiffeners shall be placed on the bridge opening side of the abutment pile caps only. Stiffeners to be spaced perpendicular to direction of abutment.

NOTE: Bridge slabs shall be anchored to the abutment.
The Contractor shall provide shop drawings detailing the connection of the bridge slabs to the pile caps.

ABUTMENT DETAILS

GUARDRAIL POST SPACING

Welding to Sheeting

Welded to Sheeting

E 27-0"
PRESTRESSED PILES: Fail-safe prestressed concrete pipe splices are incorporated as the manufacturer's recommendations subject to the approval of the Engineer.

Method of attachment of pile to build-up may be by any of the methods given in the notes on "Alternate Methods." If mild reinforcing steel is used for attachment, the area shall be less than that used in the build-up.

**Alternate Method**

Method of attachment of a pile to build-up may be by any of the following methods:

1. Cut off at least 2'-0" of pile and expose a minimum of 2'-3" of strands.
2. Cast 6" or 8" bars (heavily lapped) into pile head. Allow minimum embedment of 3" of bars into pile head and project from pile head a minimum of 2'-0".
3. Drive 6" or larger diameter holes in pile head (use auger for installation if gritted soil is available). Insert strand in the same length as in 2. Drive core bar into pile cap unless approved by the Engineer.

**TEST PILES**

Drive test piles where called for on the bridge project. The test piles located within the limits of the substructure will be part of the bridge pile system.

**DRIVING FORMULA**

Driving formulas shall conform to the Standard Specifications.

### MEASUREMENT AND PAYMENT

Measurement and payment for all piles shall comply with the Standard Specifications.

The following items are covered in Division 1000 of the Standard Specifications.

REINFORCEMENT: Use reinforcing steel conforming to ASTM A615, Grade 60. Hoops and spirals may be either plain or prestressed wires.

PRESTRESSING STEEL: Use smooth or ribbed reinforcement stress relieved treated or the low carbon prestressing strand conforming to ASTM A416, 60.

### SPECIFICATIONS

**MATERIALS**


**WELDING**

All welding shall meet the requirements of the Standard Specifications.

Use only the 280 electrodes and 7016 or 7018 series welding rods. All welds shall be made in accordance with the "Alternate Methods." If mild reinforcing steel is used for attachment, the area shall be less than that used in the build-up. All welds shall comply with the requirements of the Standard Specifications.

The following items are covered in Division 1000 of the Standard Specifications.

**GENERAL NOTES**

1. Cut off at least 2'-0" of pile and expose a minimum of 2'-3" of strands.
2. Cast 6" or 8" bars (heavily lapped) into pile head. Allow minimum embedment of 3" of bars into pile head and project from pile head a minimum of 2'-0".
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3. Drive 6" or larger diameter holes in pile head (use auger for installation if gritted soil is available). Insert strand in the same length as in 2. Drive core bar into pile cap unless approved by the Engineer.

**TEST PILES**

Drive test piles where called for on the bridge project. The test piles located within the limits of the substructure will be part of the bridge pile system.

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### Earthwork Recapitulation

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<thead>
<tr>
<th>STATION</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>DESCRIPTION</th>
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</thead>
<tbody>
<tr>
<td>12</td>
<td>72</td>
<td></td>
<td>Common Excavation</td>
</tr>
<tr>
<td>13</td>
<td>72</td>
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</tr>
<tr>
<td>14</td>
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</tr>
<tr>
<td>16</td>
<td>72</td>
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<td>Common Excavation</td>
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### Bridge Recapitulation

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### Road Recapitulation

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### Removal of Existing Structures

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<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>12000</td>
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</table>

For Summary of Quantities See Sheet No. 4 for Traffic Control Quantities See Sheet No. 14 for Guardrail End Terminal (SRT) Alt. #1, Guardrail End Terminal (FLEAT) Alt. #2, and Contractor Furnished Rock Excavation See Sheet No. 12.
The base course shall be constructed to the thickness as shown. Thicknesses indicated for all construction which is paid for on a weight or volume basis are approximate and may vary to correct for unevenness in the foundations or for other normal irregularities encountered in field operations.

A tack coat of SS-1HP shall be provided between each lift of all base courses and surface courses and shall be calculated at the rate of 0.05 gal./sq. yd. Normal Slope (but not steeper than 6:1) shoulder rumble strips will not be constructed as part of this project.

Asphalt material quantities are calculated on the basis of 8.328 lbs. per gal. TYPICAL PROFILE AT GRADE CONTROL POINTS

The Contractor shall cut the surfacing in accordance with this profile of grade control points, with nothing excavated, grade bridges and fills, and shoulders, and at such locations of other street structures, corresponding deviations of 1'-0" shall be given in the table below. The work of cutting the subgrade and excavating as necessary to construct located shoulder shall be subsidiary to other items in the contract.

TABLE OF UNDERTAKEN:

<table>
<thead>
<tr>
<th>Task</th>
<th>Unit</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</table>

COMPUTED AT THE RATE OF 4.9 TONS

SUMMARY OF QUANTITIES

<table>
<thead>
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<th>Task</th>
<th>Unit</th>
<th>Description</th>
</tr>
</thead>
<tbody>
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RECAPITULATION OF QUANTITIES

<table>
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GEOSYNTHETIC REINFORCEMENT (FOR BASE)

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<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tbody>
</table>

DETAIL FOR SURFACING OF SIDE ROADS

THE FILL HEIGHT FOR SIDE ROADS AND ENTRANCES MAY BE INCREASED TO THE APPROPRIATE CLEAR ZONE WIDTH.

SUMMARY OF QUANTITIES (Surfacing)
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 reinstallation of temporary water pollution control measures will be finished in reasonable time conforming to the alignment, grades and areas section shown on the plans or as established by the Engineer.

GENERAL NOTES:
The entire disturbed area, excepting the paved or surfaced areas, steep rocky slopes and areas of ungrazed native sod or other desirable vegetation area to be fertilized if required, seeded, and mulched. Soil preparation shall conform to the Standard Specifications recommended by the Engineer at a cost and in a manner consistent with the project.

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:

1½ × 2½, 1½ × 5 tons per acre. 1½" base spread uniformly per acre.

Agricultural products, such as native prairie hay, used for mulching and erosion control practices, excluding wood based mulches, 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.

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

Geotextile (Erosion Control) shall be removed prior to placement of permanent slope protection. Regrowth and Storm Guard are the approved shrub/wheatgrass products.

T临时 Berm (Set Price)
Temporary Slope Drain
Temporary Stream Crossing
Temporary Sediment Basin
Geotextile (Erosion Control)
Biodegradable Log (9"
Sediment Removal (Set Price)
Erosion Control (Class 2, Type Y)
Silt Fence
Water Pollution Control Manager
SWPPP Inspection
Water (Erosion Control) (Set Price)
Mulching
Mulch Tacking Slurry
Temporary Seed (Sterile Wheatgrass)
Temporary Seed (Grain Oats)

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

SOIL EROSION MIX

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

The Soil Erosion Mix consists of the Shoulder Area of the Permanent Seed Mix used on the project.
**TYPICAL PROFILE OF TEMPORARY SLOPE DRAIN**

- Fill Material: Articulated Concrete Blocks with Filter Fabric

**TYPICAL PROFILE OF TEMPORARY BERM**

- Pipe Size: May vary

**TYPICAL PLAN VIEW OF TEMPORARY SLOPE DRAIN AND TEMPORARY SLOPE DRAIN**

1. **Temporary Slope Drain and Temporary Berm**
   - May be used on either project forelands or project embankments.

2. **Discharge of Slope Drains**
   - Should flow through the pipes without overtopping

3. **Temporary Berms under 2,000 feet**
   - Shall be approved by the Engineer.

4. **Temporary Berms under 2,000 feet**
   - Shall be bid by Set Price.

**NOTES:**

- See KDOT Specifications for more information.

**TEMPORARY STREAM CROSSING (ARTICULATED CONCRETE BLOCKS)**

- Pipe size may vary

**TEMPORARY STREAM CROSSING (AGGREGATE)**

- Pipe size may vary

See KDOT Specifications for more information.
**SILT FENCE**

1. Stakes shall be 4' (min.) long and of one of the following materials:
   a. Hardwood – 1-1/4" x 1-1/2".
   b. Southern Pine No. 2 – 2" x 2" x 1/4".
   c. Steel U, T, L, or C Section – .95 lbs. per 1'-0".
   d. Synthetic – same strength as wood stakes.
   e. Attach fence fabric with 3 zip ties within the top 8" of the fence.

Alternative attachment methods may be approved by the Engineer on a performance basis.

2. Use of high flow material is acceptable.

3. Refer to plan sheets to estimate the length of silt fence required.

**INSTALLATION NOTES**

1. Place biodegradable logs or filter sock tightly together minimum overlap of 18".

2. Wood stakes shall be 2" x 2" (nom).

3. Each log or sock (except compost filter socks) should be held in the ground at a minimum of 20% of its height. Compost filter socks should be placed on smooth prepared ground with no gaps between the sock and soil.

4. Alternate attachment methods may be approved by the Engineer on a performance basis.

5. Length of stakes should be 2 times the height of the log or 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 OR FILTER SOCK**

1. Wood stakes shall be 2" x 2" (nom).

2. Each log or sock (except compost filter socks) should be held in the ground at a minimum of 20% of its height. Compost filter socks should be placed on smooth prepared ground with no gaps between the sock and soil.

3. Place biodegradable logs or filter sock tightly together minimum overlap of 18".

4. Refer to plan sheets to estimate the length of biodegradable log and filter sock required.

**GENERAL NOTES**

1. Slope interruptions shall be placed along contour lines, with a short section turned upgrade at each end of the barrier.

2. The maximum length of the slope interruptions shall not exceed 250 feet, and the barrier ends need to be staggered.

3. 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.

4. 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.
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. 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 final Temporary Ditch Check (Rocks).
5. Aggregate excavated on site may be used as an alternate to the #8 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 = 8'' 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 1/3.
3. Stakes shall be wood or steel according to Section 2114 of the Standard Specifications. Length of stakes shall be a minimum of 1/2 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.

EXCEPTIONS: 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 final Temporary Ditch Check (Rocks).
Sediment Storage Basin (Plan and Elevation)

**Sediment Storage Basin Locations**

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

**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 to provide drawdown time to 2 to 5 days and approved by the engineer.
4. Other skimmer designs maybe used that dewaters from the surface at a controlled rate. The design must be approved by the engineer.

**Temporary Erosion and Pollution Control**

- **Emergency Spillway** (Shot rock)
- **Anti-flotation Concrete Block**
- **Concrete Anti-seep Collar**

**Cross Section (Emergency Spillway)**

- **Principal Spillway**
- **Principal Outlets**
- **Emergency Spillway (Shot rock)**

**Concrete Anti-seep Collar**

- **Anti-seep collar (6" conc.)**
- **#4 u bars**
- **1" Cl.**

**Emergency Spillway (Shot rock)**

- **18" pipe (min.)**
- **3:1** or flatter

**Embankment stabilized with vegetation**

**Trash Rack**

**Stormwater Storage**

**Sediment Storage**

**Truck Overlap**

**Cable and coupler assemblies**

**Water-tight connections**

**Guides**

**Emergency Spillway (Shot rock)**

- **Anti-seep collar (6" conc.)**
- **Anti-seep collar (12" conc.)**

**Front View**

**Side View**

**Skimmer Dewatering Device**

- **4" x 8" concrete or stone pad for skimmer**
- **3 inch 1" riser (10'-6" min.)**

**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 the size of the drainage area.
## GENERAL NOTES

1. All surfaces shown on the plans are to be fertilized, seeded, and mulched. However, operation in borrow areas where slopes are greater than 1:5 may be included in the contract.

2. Temporary cover has provided sufficient erosion control and the permanent season will proceed into the existing cover. In areas of 1 acre or more, if temporary cover is to be maintained, the permanent season may be delayed prior to seeding.

3. FERTILIZER: A ratio and application rate that equals or exceeds the required minimum rate per acre of N, P<sub>2</sub>O<sub>5</sub>, K<sub>2</sub>O shall be applied as follows:

   - All Cool Season species will be fertilized with 2 lbs. of 16-20-0 fertilizer per acre.
   - All Warm Season species will be fertilized with 2 lbs. of 16-20-0 fertilizer per acre.

4. Mulch shall be placed uniformly over all disturbed areas and punched in the soil, unless otherwise noted on the plans. The amount of mulch is generally as follows:

   - The mulch is estimated (Acres of Seeding X 1.5 X 2 Tons/Acre).
   - See LA852A for mulching quantities. The quantity of mulch is estimated (Acres of Seeding X 1.5 X 2 Tons/Acre). The bid item for mulching shall be paid for according to the Standard Specifications.

5. Other erosion control products are acceptable only with the Engineer's consent.

6. The above note is a guide, but not the direction of the Engineer to determine what works is sufficient for adequate protection of newly seeded areas.

## SUMMARY OF SEEDING QUANTITIES

### Cool Season Species

- **COOL SEASON SPECIES**
  - Prairie Junegrass
  - Ryegrasses
  - Canada Wildrye
  - Fescues
  - Prairie Blue Grass
  - Western Wheatgrass
  - Sand Bluestem
  - Buffalograss
  - Bluegrasses
  - Western Wheatgrass
  - Switchgrass
  - Side Oats Grama
  - Sand Lovegrass
  - New England Aster
  - Lance-Leaf Coreopsis
  - False Sunflower
  - Black Eyed Susan
  - Common Milkweed
  - Common Evening Primrose
  - Illinois Bundleflower
  - Wild Bergamot
  - Pitcher Sage
  - Lemon Mint
  - Plains Coreopsis
  - New England Aster
  - Lance-Leaf Coreopsis
  - False Sunflower

### Warm Season Species

- **WARM SEASON SPECIES**
  - Butterfly Milkweed
  - Purple Prairie Clover
  - Leadplant
  - Illinois Bundleflower
  - Pitcher Sage
  - Lemon Mint
  - Plains Coreopsis
  - New England Aster
  - Lance-Leaf Coreopsis
  - False Sunflower
  - Black Eyed Susan
  - Common Milkweed
  - Common Evening Primrose
  - Illinois Bundleflower
  - Wild Bergamot
  - Pitcher Sage
  - Lemon Mint
  - Plains Coreopsis
  - New England Aster
  - Lance-Leaf Coreopsis
  - False Sunflower

## Seeding Mixes

### Native Wildflower Mix 1

- **Seed (Native Wildflower Mix 1)**
  - Switchgrass
  - Prairie Junegrass
  - Wild Bergamot
  - Pitcher Sage
  - Lemon Mint
  - Plains Coreopsis

### Native Wildflower Mix 2

- **Seed (Native Wildflower Mix 2)**
  - Common Milkweed
  - Common Evening Primrose
  - Illinois Bundleflower
  - Wild Bergamot
  - Pitcher Sage
  - Lemon Mint
  - Plains Coreopsis

### Mulching

- **Mulch**
  - 1-2" lump sum

### Fertilizer

- **Fertilizer (16-20-0)**

### Seed (Other Mix)

- **Seeded with the "Other" Mix.**

### General Notes

- The entire disturbed area, excluding the paved or surfaced areas, steep rocky slopes and areas of undisturbed natural sod or other desirable vegetation, shall be fertilized (lime, 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 slopes are greater than 1:5 may be included in the contract.

- Temporary cover has provided sufficient erosion control and the permanent season will proceed into the existing cover. In areas of 1 acre or more, if temporary cover is to be maintained, the permanent season may be delayed prior to seeding.

- FERTILIZER: A ratio and application rate that equals or exceeds the required minimum rate per acre of N, P<sub>2</sub>O<sub>5</sub>, K<sub>2</sub>O shall be applied as follows:

- All Cool Season species will be fertilized with 2 lbs. of 16-20-0 fertilizer per acre.
- All Warm Season species will be fertilized with 2 lbs. of 16-20-0 fertilizer per acre.

- Mulch shall be placed uniformly over all disturbed areas and punched in the soil, unless otherwise noted on the plans. The amount of mulch is generally as follows:

- The mulch is estimated (Acres of Seeding X 1.5 X 2 Tons/Acre).
- See LA852A for mulching quantities. The quantity of mulch is estimated (Acres of Seeding X 1.5 X 2 Tons/Acre). The bid item for mulching shall be paid for according to the Standard Specifications.

### Cutting Section

- **CUT SECTION**
  - SURFACED AREA:
    - 3.0 lbs.
    - 0.3 lbs.
    - 0.8 lbs.
    - 0.1 lbs.
  - SHOULDER MIX:
    - 0.3 lbs.
    - 0.2 lbs.
    - 0.2 lbs.
    - 0.2 lbs.
  - OTHER:
    - 0.3 lbs.
    - 0.3 lbs.

- **PLATE LOCATION**
  - LA850.dgn

- **PLOTTED BY**
  - jbeckman
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 centers of pavement markings) 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 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, this sign should be placed at intersections (other than midblock locations) so that pedestrians are not confronted with midpoint work sites that will induce them to attempt skirting the work site or making a midblock crossing.

4) When existing pedestrian facilities are disrupted, 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 W8-15 (Grooved Pavement) or W8-7 (Loose Gravel) sign shall be used on mainline approaches. This sign should be placed a "C" distance after the W20-1 (Road Work Ahead) sign. A W8-15p plaque shall be used to supplement the W8-15 or W8-7 sign. All signs shall be displayed as long as the condition is present.

6) 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 W8-15, W8-7, or W8-15p sign shall be used on mainline approaches. This sign should be placed a "C" distance after the W20-1 (Road Work Ahead) sign. A W8-15p plaque shall be used to supplement the W8-15 or W8-7 sign. All signs shall be displayed as long as the condition is present.

5) 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.

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.

7) Temporary Traffic Control Unit:

- The 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 HIGHER)</td>
<td>250</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>
<td>750</td>
<td>750</td>
<td>750</td>
</tr>
<tr>
<td>EXPRESSWAY/RECESSWAY</td>
<td>1000</td>
<td>1800</td>
<td>2860</td>
</tr>
</tbody>
</table>

4) Taper Formulas:

- Shoulder Tap:

<table>
<thead>
<tr>
<th>L</th>
<th>WS for speeds of 40 MPH or more</th>
</tr>
</thead>
<tbody>
<tr>
<td>s</td>
<td>WS(260 for speeds of 40 MPH or less</td>
</tr>
</tbody>
</table>

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

4) Post density and prior to work starting:

- The minimum spacing between signs shall be no less than 100', unless directed by the engineer.
- The spacing between signs may be increased beyond the minimum values in the table above as approved by the engineer in order to maximize visibility.

Channelizing Devices:

1) The spacing between devices in transition area (taper) should not exceed a distance in feet equal to 1/2 the posted speed limit in mph prior to work starting.

2) The spacing between devices in the advanced warning area and the activity area should not exceed a distance in feet equal to two times the posted speed limit in mph prior to work starting.

3) Channelizing devices shall be placed for optimum visibility, normally at right angles to the traffic flow.

4) Place directional indicator barricades in series to direct traffic onto the new path. The arrow sign should not be visible to opposing traffic.

5) Alternating diagonal orange and white striping must slope downward in the direction traffic is expected to pass.

6) Neither work activity nor storage of equipment, vehicles, or materials shall occur in the buffer space. When a protection vehicle is placed in advance of the work zone, the only space upstream of the vehicle constitutes the buffer space.

If temporary concrete safety barrier system is used to separate approaching traffic from the work space, the barrier system shall be considered part of the activity area. The full lane width should be available throughout the length of the buffer space. See typical work zone components above.
**TYPE 2 BARRICADE**
For rails less than 36" long, 4" wide stripes may be used. All stripes shall slope downward to the traffic side for channelization.

**CONICAL DELINEATOR**
The stripes shall slope downward to the traffic side for channelization.

**TUBULAR MARKER**
Striping as shown for up to 42".

**TRAFFIC CONE**

**VERTICAL PANEL**
The stripes shall slope downward to the traffic side for channelization.

**DIRECTION INDICATOR BARRICADE**
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.

**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.

---

<table>
<thead>
<tr>
<th>ITEM</th>
<th>LOCATION</th>
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</thead>
<tbody>
<tr>
<td></td>
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<tr>
<td>Vertical Panel</td>
<td>NO</td>
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<tr>
<td>Drum</td>
<td>NO</td>
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<tr>
<td>Traffic Cones</td>
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</tr>
<tr>
<td>Type 2 Barricade</td>
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</tr>
<tr>
<td>Divergence</td>
<td>NO</td>
</tr>
<tr>
<td>Cross-overs</td>
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<tr>
<td>Pedestrian Channelizer</td>
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<td>Shoofly</td>
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<tr>
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<td>NO</td>
</tr>
<tr>
<td>Tangents</td>
<td>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.

---

**TRAFFIC CONTROL CHANNELIZING DEVICES**

---

**TRAFFIC CONES**

**DIRECTION INDICATOR BARRICADE**

**PEDESTRIAN CHANNELIZER**

---

**TRAFFIC CONES**

**DIRECTION INDICATOR BARRICADE**

**PEDESTRIAN CHANNELIZER**

---

**TRAFFIC CONES**

**DIRECTION INDICATOR BARRICADE**

**PEDESTRIAN CHANNELIZER**

---

**TRAFFIC CONES**

**DIRECTION INDICATOR BARRICADE**

**PEDESTRIAN CHANNELIZER**
Note: Signs shown for one approach to work zone.

Complete closure
Type 3 barricades

FIGURE 1: TYPICAL SIGNING FOR ROAD CLOSURE (MAINLINE OR SIDE ROAD)

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

Complete closure
Type 3 barricades

FIGURE 2: TYPICAL SIGNING FOR SIDE ROAD OPEN

Note: Signs shown for one approach to work zone.

Complete closure
Type 3 barricades

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

FIGURE 4: TYPICAL SIGNING FOR SIDEWALK CLOSED WITH OPPOSITE SIDEWALK AVAILABLE

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 end-to-end 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.

Audible device location when used

1. 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.

DETECTABLE BARRICADE

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 near each outside corner of the end barricades.
1) Ground-mounted signs shall be mounted at a minimum height of 7' measured from the bottom of the sign to the near edge of the pavement.

2) Large signs having an area exceeding 50 square feet installed on medians, 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 the bottom of the secondary sign mounted below another sign may be 6' measured from the bottom of the 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 medians breakaway posts shall be mounted a minimum of 7' above the ground.

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

When the sign width is equal to or greater than 9', three or more wood posts may be used with a minimum of 4' between the centerlines of each post. All signs less than 9' in width shall use a maximum of two wood posts.

In the case of hitting rock when driving posts:
1. Shift the sign location. Do not violate minimum sign spacing.
2. With the engineer’s approval, use acceptable alternative sign stands.
Perforated square steel tube (P.S.S.T.) post setup

Wood post setup

Sign post

Direction of traffic

3 1/2" dia. holes at 6" centers

4" x 4" Wood post in soil

Undisturbed earth or compacted fill

P.S.S.T. detail

Telescoping P.S.S.T. detail

3 lb/f U-Channel setup

3 lb/f U-Channel

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.

Details for 2", 2 1/4", or 2 1/2" sign posts

Place bolts in the same corner along each sign post.

Post anchor

Sign post

Post anchor sleeve

5/16" Std. corner bolt

5/16" Hex jam nut

Section A-A

Section B-B

3 lb/f U-Channel

Sign post (splice post to non-impacting side of stub)

Top of stub

18" Min. lap splice

24" Min. from bottom of splice to ground line (impact side)

8" Min. gap

Post anchor sleeve

Sign post

P.S.S.T. detail

Telescoping P.S.S.T. detail

3 lb/f U-Channel

Sign post

Direction of traffic

3 1/2" dia. holes at 6" centers

4" x 4" Wood post in soil

Undisturbed earth or compacted fill

Bottom of sign post

Bottom of stub

84" Min. stub post length

3 lb/f U-Channel

Sign post

Direction of traffic

3 1/2" dia. holes at 6" centers

4" x 4" Wood post in soil

Undisturbed earth or compacted fill

Bottom of sign post

Bottom of stub

84" Min. stub post length

Section A-A

Section B-B

Details for 2", 2 1/4", or 2 1/2" sign posts

Place bolts in the same corner along each sign post.