**Typical Intersection Details**

**Typical Section Surface**

**Profile Showing Method of Attaining Super-elevation**

**Typical Roadway Section**

**Typical Grading Section**

**Preliminary Design Drawings**

**Foundation Treatment**

**Compaunction of Earthwork**

**Normal Width of Finished Roadbed**

**Width of Finished Roadbed**

**Cross Slope 1.60%**

**Compaction Type-B MR-90**

**Superelevation**

**Drainage Structure**

**Public and Private Utility Facilities**
TYPICAL ALIGNMENT OF GUARDRAIL AT CULVERTS & BOX BRIDGES

ALLOWABLE END TERMINALS

<table>
<thead>
<tr>
<th>TYPE</th>
<th>Layout</th>
<th>Allowed Standard Drawing</th>
</tr>
</thead>
<tbody>
<tr>
<td>SRT</td>
<td>x</td>
<td>x</td>
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<tr>
<td>FLEAT</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>RT</td>
<td>x</td>
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</tbody>
</table>

SUMMARY OF STEEL PLATE GUARDRAIL

<table>
<thead>
<tr>
<th>Location</th>
<th>Layout</th>
<th>Additional Measurements (in.); Guardrail Position</th>
<th>Guardrail Length (ft.); GUARDRAIL DETAIL</th>
<th>Guardrail Length (in.); GUARDRAIL DETAIL</th>
<th>Layout</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
</tbody>
</table>

TOTAL LENGTH 100

*See Guardrail Auxiliary Details (RD606) for Measurement Details. Does Not Include End Terminals.
W-Beam Post Details

- Lapped 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.

Wood Posts

- General Notes (Wood Posts)

- Note: When face of guardrail is aligned with the face of a curb, measure the height of rail from the pavement surface to the curb/pavement joint as shown. Use a level or taut wire to establish a straight line of alignment. The face of the guardrail is not located at the face of the curb.

Steel Posts

- General Notes (Steel Posts)

- Note: Low Strength Guardrail must have a 28-day compressive strength of 120 psi or less. All work and materials related to posts in pavement are subsidiary to other guardrail bid items. Rectangular geometry shown in Posts in Pavement detail. Circular geometry, as shown on this sheet, may be used at the Contractor’s option.
CONSTRUCTION SPECIFICATIONS:


CONTRACTOR CONSTRUCTION STAKING: Contractor Construction

REMOVAL OF EXISTING STRUCTURE: The contractor shall remove the original structure. All items of the existing structure shall become property of the State. All items of the structure that are subsidiary to other items in the proposal are listed on the Bridge Excavation sheet prior to driving the abutment piling or commencing with the abutment footing excavation.

PILING: Drive all piling to penetrate or bear upon the natural rock below the plane, Class || below the plane. See the Bridge Excavation sheet for the limits of pay excavation.

AFTER COATING, STEEL-ALIGNED reinforcement steel dimensions are defined as the centerline of bar unless otherwise noted. All reinforcing bars cast into the superstructure shall conform to the requirements of ASTM A615 (Grade 60) or A82, and are included in the bid.

PARK A/L: COMPACTION: Compaction shall be on the berm and berm slopes and centered on the drip lines of the abutments.

Driveway Final Grades: Horizontal dimensions unless otherwise noted. Alignments, slope, or details required for the transient alignment or roadway grade and cross slope should be as shown, or the Contractor may suggest on alternate placing sequence for review. Submit the alternate placing sequence to the Engineer at the Preconstruction Conference.

Camber: Provide camber as shown on the Camber Diagram unless specified by the Engineer. Include the proposed rate of concrete placement in C.Y./h, the plant capacity, proposed admixtures, and construction joint locations.

Concrete Placing Sequence: The sequence of placing concrete, the plant capacity, and construction joint locations shall be as shown or suggested by the Contractor, but shall be submitted for review to the Engineer. If the sequence of placing concrete, the plant capacity, or construction joint locations are suggested, the Contractor shall notify the Engineer in writing. The Contractor shall discuss the proposed rate of concrete placement in C.Y./h, the plant capacity, and construction joint locations with the Engineer before the placing of concrete.

Concrete Placing Sequence: The sequence of placing concrete, the plant capacity, and construction joint locations shall be as shown or suggested by the Contractor, but shall be submitted for review to the Engineer. If the sequence of placing concrete, the plant capacity, or construction joint locations are suggested, the Contractor shall notify the Engineer in writing. The Contractor shall discuss the proposed rate of concrete placement in C.Y./h, the plant capacity, and construction joint locations with the Engineer before the placing of concrete.

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The Contractor shall remove the existing 20.5'-10@20'-20.5' (241') continuous timber structural slab pylon bridge with timber deck and piles. ID. #50000000205210.

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 of 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 counter piling.

All trees, hedge rows, shrubets, and woody plants 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**

1779 Sq. Ft.
Abutment Details

Abutment No. 1 = 4'-9" 
Abutment No. 2 = 4'-9" 

E.W.S. & { Abut. = Symm. About { Bridge

Pilling Embedment

2'-0" Max. 
1'-6" Min. 

6 Eq. Spa. 
4-#8A1

#8A1 & #5A3

1'-2" C.l. 

1'-4" 

3 Equal Spa.
4-#8A1

6" Elev. @ { Abut.

4-#5A3

(10 pairs) 

2'-2" Min.

5'-6"

4-#8A1

1'-3"

5'-9"

4'-6"

#4A4 Stirrup

3" Spa. @ 1'-0" = 7'-0"

7 Spa. @ 1'-0" = 7'-0"

32'-4" Roadway 
16'-2"

16'-2" 

2'-6"

9'-0"

4'-6"

#8A1 Stirrup Spa.

(10 pairs)

1'-3"

30°

3 Eq. Spa.

7-#4A7

#5A3 (EF)

5'-9" 

21'-11"

8'-5"

21'-11"

8'-5"

E.W.S. 

Long. Slab Steel 

3 Eq. Spa.
7-#4A7

#5A3 (EF)

Adjust stirrup to avoid conflict with rail bars.

1'-2" C.l. 

3" C.l.

2'-0" Max.

1'-6" Min.

4" Elev. @ { of Bridge

1'-1"‡

1'-4"

2'-6"

1.60% Slope

3 Eq. Spa.
7-#4A7

#5A3 (EF)

5'-9"

21'-11"

8'-5"

21'-11"

8'-5"

Adjust stirrup to avoid conflict with rail bars.

1'-1"‡

1'-4"

2'-6"

1.60% Slope

3 Eq. Spa.
7-#4A7

#5A3 (EF)

5'-9"

21'-11"

8'-5"

21'-11"

8'-5"

Adjust stirrup to avoid conflict with rail bars.

1'-1"‡

1'-4"

2'-6"

1.60% Slope

3 Eq. Spa.
7-#4A7

#5A3 (EF)

5'-9"

21'-11"

8'-5"

21'-11"

8'-5"

Adjust stirrup to avoid conflict with rail bars.

1'-1"‡

1'-4"

2'-6"

1.60% Slope

3 Eq. Spa.
7-#4A7

#5A3 (EF)

5'-9"

21'-11"

8'-5"

21'-11"

8'-5"
When long span steel beams having a concrete dead load deflection greater than 1/5 are used or when timber falsework with greater than 12'-0" clear span is used, follow the placing sequence shown. Segmental, combined or continuous pours are allowed; but stop a 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 control rail continuously from one end of the bridge to the other.
GENERAL NOTES

1. Line posts shall be steel "T" posts or wood posts.
2. If steel "T" posts are used, every 4th post shall be wood.
3. All posts for channel crossings shall be steel "T" posts.
4. Temporary fence shall be barbed wire constructed with either steel "T" posts or wood posts.

LEGEND

- Corner Post
- End Post
- Existing Fence
- Proposed Fence

SCALE 1"=50'

FENCING PLAN
Wood posts and braces shall be given a preservative treatment as provided in the KDOT Standard Specifications.

Steel posts shall be provided with fasteners prevent slippage of sleeves and/or coated in accordance with the Standard Specifications.

#9 ga. tension wire, should be singing or without barbs top & bottom. Bars 3'-6" maximum (typ.) all panels top & bottom.

Alternate gate designs may be submitted for approval. Lighter weight galvanized Ring-shank staples 1/2" long. Minimum (typ.) all panels top & bottom.

When wood posts are used, both ends of all tension wires shall be twisted around the posts twice and stapled in place.

Approach, corner, or end post assembly shall be set in the center of the hole and the soil tamped securely on back on itself at alternate wires and posts. Wrap wire 2 turns around post and 6 turns tight before twisting.

Concrete used in fence installation shall conform to the requirements of the KDOT Standard Specifications.

Steel post assembly designs are to be submitted to the State Road Office, installations on the State Highway System. Shop drawings for steel gate post assembly designs are to be submitted to the State Road Office, Bureau of Design for approval prior to construction.

When wood posts are used, both ends of all tension wires shall be wrapped around the posts twice and stapled in place.

Approach, corner, or end post assembly shall be set in the center of the hole and the soil tamped securely on back on itself at alternate wires and posts. Wrap wire 2 turns around post and 6 turns tight before twisting.

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**ALTERNATE CHAIN LINK DETAILS**

**FENCE DETAILS AT DRAINAGE STRUCTURES**
- Type A, B, or Barbed wire fence

**FIT DETAILS AT BRIDGE ABUTMENTS**
- Steel post (Alternate)

---

**BRACE RAIL SECTION**
- Brace band
- 1/4" x 1-1/4" brace rail
- Two 3/8" dia. holes for 2-1/2" dia. x 1/2" machine bolts

**END POST TORQUE BAR**
- 15° Diagonal brace (steel)
- 1.660" O.D. 0.140" Th. @ 2.27#/lin.ft. pipe (Group 1A)
- 1.660" O.D. 0.140" Th. @ 2.728#/lin.ft. pipe (Group 1C)

---

**FENCE ALIGNMENT AT UNDERPASS OR BOX DRAINAGE STRUCTURE**
- Alternate alignment may be used at deep underfill cutouts, as directed by the Engineer.

---

**GENERAL NOTE**
- A line post shall be used at each private cross fence, and the contractor shall make a temporary connection.
- This work shall be submitted to other bid items.
- In general, where necessary, use small channel crossing as shown. Type I and Type II floodgates will be used very seldom.
SUMMARY OF SEEDING / EROSION CONTROL QUANTITIES

<table>
<thead>
<tr>
<th>BID ITEM</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soil Erosion Mix</td>
<td>2 tons/acre</td>
</tr>
<tr>
<td>Fertilizer (15-30-15)</td>
<td>25 lbs/acre</td>
</tr>
<tr>
<td>Mulch Tacking Slurry</td>
<td>279 cu yd/acre</td>
</tr>
<tr>
<td>Temporary Sediment Basin</td>
<td>279 cu yd/acre</td>
</tr>
<tr>
<td>Temporary Inlet Sediment Barrier</td>
<td>372 cu yd/acre</td>
</tr>
<tr>
<td>Temporary Ditch Check (Rock)</td>
<td>120 cu yd/acre</td>
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<tr>
<td>Filter Sock (18&quot;)</td>
<td>45 ft/acre</td>
</tr>
<tr>
<td>Biodegradable Log (20&quot;)</td>
<td>25 ft/acre</td>
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<tr>
<td>Biodegradable Log (12&quot;)</td>
<td>34 ft/acre</td>
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<tr>
<td>Biodegradable Log (9&quot;)</td>
<td>25 ft/acre</td>
</tr>
<tr>
<td>Erosion Control (Class 2, Type Y)</td>
<td>70 ft/acre</td>
</tr>
<tr>
<td>Erosion Control (Class 1, Type Y)</td>
<td>37 ft/acre</td>
</tr>
<tr>
<td>Soil Erosion Mix</td>
<td>1 acre</td>
</tr>
<tr>
<td>Temporary Fertilizer (15-30-15)</td>
<td>1 acre</td>
</tr>
</tbody>
</table>

NOTES: Projects less than 1 acre shall be bid as "Seeding" by the lump sum. See Permanent Seeding Summary of Seeding Quantities sheet LA852A for further details.

Geotechnical Erosion Control shall be removed prior to placement of permanent slope protection.

Regreen and Quick Guard are the approved sterile wheatgrass products.

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

**** List sizes of material.

The amount of mulch and mulch tacking slurry in the bid quantities is estimated. (Acres of Seeding X 1.5 X 2 Tons/Acre).

The estimated quantity includes mulching associated with both temporary and permanent seeding operations. The final mulch and mulch tacking slurry required is determined in the field. The bid item for mulching and mulch tacking slurry shall be paid for according to the Standard 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 fit aeration holes, excavate, and fill in accordance with the specifications. Areas that require temporary installation or construction of temporary water retention structures shall be filled in reasonable sequence conformity to the alignment, grades and areas section shown on the plans or as established by the Engineer.

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

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

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

GENERAL NOTES:
The entire disturbed area, excluding the paved or surfaced areas, steep rocky slopes and areas of unplanted native soil or other desirable vegetation area to be fertilized or treated with class 1 and/or class 2 controls annually, as necessary to ensure adequate protection of newly seeded areas.

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.

WATER (Erosion Control) (Set Price)

SOIL EROSION MIX

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

The Soil Erosion Mix consists of the Shoulder Area of the Permanent Seed Mix used on the project.
Pipe size may vary

1) Temporary Slope Drain and Temporary Berm may be used on either project forelocks or project backlocks.

2) Discharge of Slope Drains shall be into stabilized ditches or areas or into sediment basins.

3) Pipe shall be secured in place as approved by Engineer.

4) Temporary Berms under 2,000 feet shall be bid by SME Prices.

NOTES:

TYPICAL PROFILE OF TEMPORARY SLOPE DRAIN

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 overlapping the crossing.

See KDOT Specifications for more information

TYPICAL PROFILE OF TEMPORARY BERM

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 sizes 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 overlapping the crossing.

See KDOT Specifications for more information
**Material Requirements**

- **Silt Fence:**
  1. Stakes shall be 4' (min.) long and of one of the following materials:
     a. Hardwood - 1" x 1"; or
     b. Southern Pine (No. 2) - 2" x 2"; or
     c. Steel U, T, L, or C Section - 0.95 lbs. per linear foot.
     d. Synthetic - same strength as wood stakes.
  2. Cross pieces shall be of same material as stakes.
  3. Attach fence fabric securely on 6" centers (max.)
  4. Use of high flow material is acceptable.
  5. Refer to plan sheets to estimate the length of silt fence required.

- **Drop Inlet Protection:**
  1. If multiple gravel bags are required, place them in such a way that no gaps are evident.
  2. Height of bags (1' minimum diameter) must not be more than 4' 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.

- **Inlet Grate:**
  - Frame / Grate
  - Manhole
  - 6'' to 8'' gap
  - Soil or Gravel backfill

- **Rock:**
  - Approximately 1'' to 2'' diameter
  - 2" x 4" board

**Notes:**

- Cross Pieces (see Notes)
- Stakes (see Notes)
- Inlet Grate
- Top of Dike Beyond Inlet
- Soil or Gravel backfill
- Wire Staples: 6" long

**Temporary Inlet Sediment Barrier (Silt Fence Method):**

1. Silt fence shall be of 4" (min.) long and of one of the following materials:
   a. Hardwood - 1" x 1"; or
   b. Southern Pine (No. 2) - 2" x 2"; or
   c. Steel U, T, L, or C Section - 0.95 lbs. per linear foot.
   d. Synthetic - same strength as wood stakes.
2. Cross pieces shall be of same material as stakes.
3. Attach fence fabric securely on 6" centers (max.).
4. Use of high flow material is acceptable.
5. Refer to plan sheets to estimate the length of silt fence required.
6. Note: 25% of log shall be x 1" (min.) @ 3' o/c

**Temporary Inlet Sediment Barrier (Triangular Silt Dike Method):**

- Soil or Gravel backfill in Anchor Trench.
- Wire Staples: 6" long
- Tightly overlap ends

**Silt Fence:**

- Shown as Filter sock.

**Other:**

- Bags = synthetic net 1.5mm mesh or burlap bags
- Fabric over Chicken Wire Backing
- Bags = approximately 1' to 2' diameter
- Note: 25% of log shall be x 1" (min.) @ 3' o/c
- Wire Staples: 6" long

**Material Requirements:**

- Bags: synthetic net 1.5mm mesh or burlap bags
- Rock = approximately 1" to 2" diameter
- Chicken Wire Backing
- Silt Fence Fabric over Chicken Wire Backing
- Tops of Dike Beyond Inlet
- Soil or Gravel backfill
- Wire Staples: 6" long

**Notes:**

- Chicken Wire Backing
- Silt Fence Fabric over Chicken Wire Backing
- Attach Fence Fabric securely on 6" centers (max.).
- Soil or Gravel backfill
- Wire Staples: 6" long

**Temporary Erosion and Pollution Control:**

- TEMPORARY INLET SEDIMENT BARRIER (SILT FENCE METHOD)
- TEMPORARY INLET SEDIMENT BARRIER (TRIANGULAR SILT DIKE METHOD)
- CURB INLET PROTECTION
- DROP INLET PROTECTION
- Material Requirements
- No gap or fines.
- No hay or straw.
- No compost or fines.
- Log Mesh:
  - Material must allow water infiltration but also hold fill material in place.
  - Mesh must allow water infiltration but also hold fill material in place.
  - Use mesh with 0.5" openings or larger.

**Construction:**

- Use 100% shredded mulch or other non-compost biodegradable material
- Do not use material which prohibits water infiltration.
- Use of high flow material is acceptable.
SILT FENCE:

1. Stakes shall be 4' (min.) long and of one of the following materials:
   a. Hardwood - 1 3/4" x 1 3/4"
   b. Southern Pine No. 2 - 2" x 2" x 3'
   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.
   Attachment methods may be approved by the Engineer on a
   performance basis.
3. Use of high flow material is acceptable.
4. Refer to plan sheets to estimate the length of silt fence required.

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. Refer to plan sheets to estimate length of biodegradable log and filter sock required.
4. Each log or sock (except compost filter socks) should be keyed into the ground at a
   minimum of 20" of its length. Compost filter socks should be placed on an
   approved ground with no gaps between the sock and soil.
5. Length of stakes should be 2 times the height of the log or a minimum
   with minimum ground embedment equal to the height of the log / sock.

SILT FENCE BARRIER

4. Refer to plan sheets to estimate the length of silt fence required.
3. Use of high flow material is acceptable.
2. Attach fence fabric with 3 zip ties within the top 8" of the fence.
1. Stakes shall be 4' (min.) long and of one of the following materials:
   a. Hardwood - 1 3/4" x 1 3/4"
   b. Southern Pine No. 2 - 2" x 2" x 3'
   c. Steel U, T, L, or C Section - .95 lbs. per 1'-0" or
   d. Synthetic - same strength as wood stakes.

INSTALLATION NOTES

Geotextile fabric

4' (max.)

Geotextile fabric

4' (max.)

TYPICAL ELEVATION

INSTALLATION NOTES

TYPICAL ELEVATION

BIODEGRADABLE LOG OR FILTER SOCK

1. Place biodegradable logs or filter sock tightly together minimum overlap of 18".
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   approved ground with no gaps between the sock and soil.
5. Length of stakes should be 2 times the height of the log or a minimum
   with minimum ground embedment equal to the height of the log / sock.

Typical Arrangement of Ditch Checks

**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.

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

<table>
<thead>
<tr>
<th>DITCH &amp; SPACING</th>
<th>INTERVAL (FT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLOPE (FT)</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>60</td>
</tr>
<tr>
<td>25</td>
<td>55</td>
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<td>40</td>
<td>35</td>
</tr>
<tr>
<td>50</td>
<td>25</td>
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</tbody>
</table>

Temporary Erosion and Pollution Control

Ditch Checks

KS DEPARTMENT OF TRANSPORTATION

STATE KANSAS

PROJECT NO. 13 C-4945-01

YEAR 2020

REVISIONS

6/01/13 MRM

DESIGNED

DESIGN CK. SHS

DETAILED

DETAIL CK. SHS

QUANTITIES

QUAN. CK. SHS

APP'D

FHWA APPROVAL

CADD

CADD CK.

Stated Base File: la852e.dgn

Plotte By: Scott H. Shields 9/14/2016

Revised Standard

POLLUTION CONTROL

TEMPORARY EROSION AND DITCH CHECKS

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

Biodegradable Log Ditch Check Spacing Table

<table>
<thead>
<tr>
<th>Spacing</th>
<th>Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>6&quot;</td>
<td>6&quot;</td>
</tr>
<tr>
<td>8&quot;</td>
<td>8&quot;</td>
</tr>
<tr>
<td>10&quot;</td>
<td>10&quot;</td>
</tr>
</tbody>
</table>

NOTE: Use this spacing only for real ditch checks.

Temporary Rock Ditch Check Notes

1. Use as many biodegradable log sections as needed to ensure water does not flow around end of ditch check.
2. Place rock in such manner that water will flow over, not around ditch check.
3. Do not use rock ditch checks in clear zones.
POLLUTION CONTROL

TEMPORARY EROSION AND LAA52H

2.5 :1 or flatter

6'-0" Top (min.)

Embankment stabilized with vegetation

Existing ground line

Stormwater Storage

Sediment Storage

Trailer Rack

1'-0" min.

Freeboard

18" pipe (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, 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.

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 pipe 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 dewater from the surface at a controlled rate. The design must be approved by the engineer.

Sediment Storage Basin (Plan)

CROSS SECTION (EMERGENCY SPILLWAY)

CONCRETE ANTI-SEEP COLLAR

SECTION A-A

Sediment Storage Basin (Elevation)

NOTES:

1) Temporary Sediment Basins shall be constructed at locations as directed by the Engineer or as approved in the SWPPP Schedule. All work and materials necessary, including but not limited to, the fill materials, 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

The active disturbed areas, excepting the paved or surfaced areas, road cut and other areas excavated or cleared of underbrush and other vegetation, shall be fertilized, seeded and mulched. Soil preparation and seeding in the Standard Specifications shall be as follows:

- All before areas shown on the plans are to be fertilized, seeded, and mulched. However, mention in borrow areas where grass is growing may be specified when required by the Engineer.

- Temporary cover has provided, unless otherwise noted on the plans, the rate of application per unit thickness is shown in the plan. The rate of application per unit thickness is shown generally as follows:

  - For disturbed areas where sod is to be left in place and seeding is not required, regrade the area.
  - For disturbed areas where sod is to be left in place and seeding is required, regrade the area and apply seed 1" maximum. Place the seed (using the seed drill) on the soil surface.

- Option: Broadcast Tall Drop Seed on the soil surface.

- The total mulch required shall be determined in the field. The bid item for mulching shall be paid for according to the Standard Specifications.

- In areas of less than 1 acre, if Cool Season grasses are mixed with Warm Season grasses, seed the area during the Warm Season seeding period.

- When the area to be seeded is less than 1 acre, seed the area any time of the year.

- Refer to the Standard Specifications, Division 900, Section 904 'Seeding', and Section 907 'Sodding', for the seeding and mulching requirements.

- See Table 4 for seeding quantities. The quantity of seed is estimated based on planting 1.5 lbs. per acre.

- The bid item for mulching shall be paid for according to the Standard Specifications.

### SUMMARY OF SEEDING QUANTITIES

<table>
<thead>
<tr>
<th>Species</th>
<th>Mix</th>
<th>Seed Rate (lbs/acre)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cool Season Grasses</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grasses</td>
<td>Mix 1</td>
<td>1.5</td>
</tr>
<tr>
<td>Grasses</td>
<td>Mix 2</td>
<td>1.5</td>
</tr>
<tr>
<td><strong>Warm Season Grasses</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grasses</td>
<td>Mix 1</td>
<td>1.5</td>
</tr>
<tr>
<td>Grasses</td>
<td>Mix 2</td>
<td>1.5</td>
</tr>
<tr>
<td><strong>Wildflowers</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wildflowers</td>
<td>Mix 1</td>
<td>1.5</td>
</tr>
<tr>
<td>Wildflowers</td>
<td>Mix 2</td>
<td>1.5</td>
</tr>
</tbody>
</table>

### SEEDING

Ensure the area is thoroughly prepared before seeding. Soil preparation shall conform to the Standard Specifications except as noted below.

- If there has been erosion that requires repair prior to seeding, then it may be necessary to regrade the area.

- Soil preparation shall conform to the Standard Specifications except as noted below.

- For disturbed areas where sod is to be left in place and seeding is not required, regrade the area.

- For disturbed areas where sod is to be left in place and seeding is required, regrade the area and apply seed 1" maximum. Place the seed (using the seed drill) on the soil surface.

### NOTES

- The total mulch required shall be determined in the field. The bid item for mulching shall be paid for according to the Standard Specifications.

- In areas of less than 1 acre, if Cool Season grasses are mixed with Warm Season grasses, seed the area during the Warm Season seeding period.

- When the area to be seeded is less than 1 acre, seed the area any time of the year.

- Refer to the Standard Specifications, Division 900, Section 904 'Seeding', and Section 907 'Sodding', for the seeding and mulching requirements.

- See Table 4 for seeding quantities. The quantity of seed is estimated based on planting 1.5 lbs. per acre.

- The bid item for mulching shall be paid for according to the Standard Specifications.
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 vehicle 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 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 advance warning. This sign should be placed a "C" distance after the W20-1 (Road Work Ahead) sign. A W8-15p motorcycle plaque shall be used to supplement the W8-15 or W8-7 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 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.

- **Taper Formulas:**
  - **B** = \( \frac{L}{60} \) for speeds of 40 mph or less

- **Channelsizing:**

  - **A**
  - **B**
  - **C**

- **Buffer Space:**

  - **SPEED (MPH)**
  - **LENGTH (ft)**

- **EXPRESSWAY/FREeway**

- **URBAN (40 MPH OR LOWER)**

- **RURAL (55 MPH OR 60 MPH)**

- **RURAL (60 MPH OR HIGHER)**

- **Taper Formulas:**
  - \( L = \text{width of taper in feet} \)
  - \( S = \text{numerical value of posted speed prior to work starting in MPH} \)
  - \( W = \text{width in offset feet} \)

- **Channelizer Placement:**
  - (1) The spacing between devices in transition area (taper) should not exceed a distance in feet equal to \( \frac{1}{2} \) 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 baricades in series to direct traffic onto the new path. The arrow sign should not be visible to opposing traffic.
  - (5) Alternating orange and white striping must slope downward in the direction traffic is expected to pass.

- **Temporary Traffic Control Component:**

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

- **TYPICAL WORK ZONE COMPONENTS:**

  - When concrete barrier system is used, portable channelizing devices are not needed along the tangent barrier section.
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 to the traffic side for channelization.

The direction indicator barricade shall be used in series to direct the motorist into the intended lane of travel.

1. Support devices 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.
**Figure 1: Typical Signing for Side Road Open**

- **Type 3 barricades**: Complete closure 1 mile (no decimal mile).
- **Type 3 barricades**: Length to the nearest 0.1 mile (end-to-end).

**Figure 2: Typical Signing for Side Road Closed**

- **Complete Closure**: Type 3 barricades.
- **R11-2**: 48"x 24".
- **R11-3a or R11-4 sign**: Where applicable.

**Figure 3: Typical Signing for Side Road Closed - Local Traffic Access**

- **Complete Closure**: Type 3 barricades.
- **Last access for house or field entrance**.

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

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

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

**Text:**

- Complete closure Type 3 barricades
- Work space
- Type 3 barricade
- Complete closure
- Type 3 barricade
- One approach to work zone
- Type 3 barricade
- One approach to work zone

**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 SIDEWALK 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 SIDEWALK TRAFFIC) or R11-4 (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 signs where applicable.

**Audible Device Location when used**

- Type "A" low intensity warning light mounted to the vertical post (typ.).

**Detectable Baricade**

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.

**Figure 4: Typical Signing for Sidewalk Closed with Opposite Sidewalk Available**

- ** 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.

**DETECTABLE BARRICADE**

- White rail
- Orange rail
- Warnable device
- Support device
- White rail
- Orange rail
- Audible device

**White Rail**

- **White Rail**

**Orange Rail**

- **Orange Rail**

**Low Intensity Warning Light**

- **Low Intensity Warning Light**

**DETECTABLE BARRICADE WITH LIGHTS**

- 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.
Perforated square steel tube (P.S.S.T.) post setup

Wood post setup

3 lb/f U-Channel setup

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.