QUANTITIES & GENERAL NOTES

INDEX

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---
1 Title Sheet
2 Quantities and General Notes
3 - 22 Plan and Cross Sections
23 - 31 Guardrail Standards
32 - 39 Temporary Erosion & Pollution Control
40 Seeding
41 - 48 Traffic Control

SUMMARY OF QUANTITIES

<table>
<thead>
<tr>
<th>ITEM</th>
<th>UNITS</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contractor Construction Staking</td>
<td>Lump Sum</td>
<td>Lump Sum</td>
</tr>
<tr>
<td>Mobilization</td>
<td>Lump Sum</td>
<td>Lump Sum</td>
</tr>
<tr>
<td>Mobilization (DBE)</td>
<td>Lump Sum</td>
<td>Lump Sum</td>
</tr>
<tr>
<td>Common Excavation</td>
<td>Cu. Yd.</td>
<td>155</td>
</tr>
<tr>
<td>Water (Grading) (Set Price)</td>
<td>M. Gal.</td>
<td>1</td>
</tr>
<tr>
<td>Guardrail, Steel Plate (MGS)</td>
<td>Lin. Ft.</td>
<td>2790.63</td>
</tr>
<tr>
<td>Guardrail, Removal of Steel Plate</td>
<td>Lin. Ft.</td>
<td>2975</td>
</tr>
<tr>
<td>Guardrail End Terminal (MGS-FLEAT)</td>
<td>Each</td>
<td>6</td>
</tr>
<tr>
<td>Guardrail End Terminal (MGS-SRT)</td>
<td>Each</td>
<td>6</td>
</tr>
<tr>
<td>Pavement Edge Wedge (Rock)</td>
<td>Ton</td>
<td>265</td>
</tr>
<tr>
<td>Water (Earthwork Compaction) (Set Price)</td>
<td>M. Gal.</td>
<td>1</td>
</tr>
</tbody>
</table>

For Seeding Quantities, See Sheet No. 40
For Traffic Control Quantities, See Sheet No. 48

GENERAL NOTES

REPAIR OF EXISTING SLOPES: All Contractor generated rutting or other damage to foreslopes or other areas outside of the pavement shall be repaired and seeded by the Contractor at their expense.

TRAFFIC CONTROL: The Contractor shall submit a traffic control plan to the Engineer for review and approval prior to work starting. Ramps may be closed to traffic to facilitate completion of work on said ramps. Three day minimum advanced notice to the Engineer will be required for each occurrence. Changeable Message Signs shall be placed a minimum of two days prior to and during the ramp's closure. Lane closures and shoulder closures are prohibited from 5:00 AM to 9:00 AM and 3:00 PM to 8:00 PM Monday through Friday. The Contractor shall not leave the work zone with a blunt end of barrier or guardrail facing oncoming traffic when no lane closure is in place. The Contractor shall only remove existing guardrail to the extent that it can be replaced during the same lane closure period. Should a run of guardrail not be replaced during a single lane closure period, it shall be temporarily spliced with existing so as to avoid leaving a blunt end in place after the lane closure period has ended. The work zone shall be limited to one guardrail location at any given time for the duration of construction.

GUARDRAIL AND END TERMINALS: All guardrail and terminals shall be replaced with new end terminals unless specifically noted on the plans. Guardrail runs 5, 6, 7, and 9 to Remain in Place.

SEEDING: The project is considered "routine maintenance that disturbs less than 5 acres" according to section 1.1a of the NPDES General Permit. The Contractor is required to follow Section 901.3a(2) of standard specifications. Stabilization is required before moving to the next location.

SALVAGEABLE MATERIAL: Prior to removal of all existing guardrail, posts, and terminals and hardware, KDOT will inspect and have the option to salvage any material removed from the project. Material to be salvaged for KDOT will be stockpiled on the project as determined by the Engineer to be removed by KDOT forces. Material not salvaged by KDOT will become the property of the Contractor for removal and disposal from the project site.

QUANTITIES: Items not listed separately in the Summary of Quantities are subsidiary to other items in the proposal.
ST. 141+79.00 TO ST. 143+07.05
SOUTHBOUND I-35

STEEL PLATE GUARDRAIL, REMOVAL (CGS)

<table>
<thead>
<tr>
<th>STATION TO STATION</th>
<th>LANES/SIDE</th>
<th>LENGTH (FT.)</th>
<th>FLARE RATE</th>
<th>TERMINAL TYPE</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>141+86.29</td>
<td>SB / Outside</td>
<td>100</td>
<td></td>
<td></td>
<td>Remove CGS Rail &amp; End Terminal</td>
</tr>
<tr>
<td>TOTALS</td>
<td></td>
<td>100</td>
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</tbody>
</table>

STEEL PLATE GUARDRAIL (MGS)

<table>
<thead>
<tr>
<th>STATION TO STATION</th>
<th>LANES/SIDE</th>
<th>LENGTH (FT.)</th>
<th>FLARE RATE</th>
<th>TERMINAL TYPE</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>141+79.00</td>
<td>SB / Outside</td>
<td>30.625</td>
<td></td>
<td></td>
<td>New Rail &amp; End Terminal</td>
</tr>
<tr>
<td>TOTALS</td>
<td></td>
<td>30.625</td>
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</tbody>
</table>

NOTES:
1) Guardrail lengths are measured along the face of the guardrail.
2) Existing guardrail to be removed. Paid for as linear feet of "Guardrail, Removal of Steel Plate."
3) 10:1 guardrail grading with Rock Edge Wedge installed previously by others.
4) Minimal grading required for guardrail placement shall be SUBSIDIARY to the bid item "Guardrail, Steel Plate (MGS)."

Legend:
- MGS-FLEAT End Terminal= 37'-6" or MGS-SRT End Terminal= 37'-6"
- MGS-Type II End Terminal= 15'-7.5"
- R Curve Radius= 375.14'

^ Exit 218 to Santa Fe Exit Sign

Southbound I-35

Legends:
- E.O.S.
- Existing Median Barrier
NORTHBOUND I-35
PLAN - GUARDRAIL #2

STA. 229+86.96 TO STA. 231+15.57

69.37' RT
+24.62
E.O.S.
4'
6'
10:1 or flatter
32.5'
à 100'

PLAN: Lat. & Long.
SCALE

MGS-Type II End Terminal= 15'-7.5"
MGS-SRT End Terminal= 37'-6"
MGS-FLEAT End Terminal= 37'-6" or 2.4'
Curve Radius= 375.14'

STATION TO STATION | LANES/SIDE | LENGTH (FT.) | REMARKS
---------------------|------------|-------------|---------------------
229+86.96 | 231+15.57 | 90.625 | Remove CGS Rail & End Terminal

TOTALS | 90.625

NOTES:
1) Guardrail lengths are measured along the face of the guardrail
2) Existing guardrail to be removed. Paid for as linear feet of "Guardrail, Removal of Steel Plate."
3) 10:1 guardrail grading with Rock Edge Wedge installed previously by others.
4) Minimal grading required for guardrail placement shall be SUBSIDIARY to the bid item "Guardrail, Steel Plate (MGS)."
### STEEL PLATE GUARDRAIL, REMOVAL (CGS)

<table>
<thead>
<tr>
<th>STATION TO STATION</th>
<th>LANES/SIDE</th>
<th>LENGTH (FT.)</th>
<th>FLARE RATE</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>248+10.28 to 249+02</td>
<td>SB / Outside</td>
<td>87.5</td>
<td></td>
<td>Replace CGS Rail &amp; End Terminal</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td></td>
<td><strong>87.5</strong></td>
<td></td>
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</tr>
</tbody>
</table>

### STEEL PLATE GUARDRAIL (MGS)

<table>
<thead>
<tr>
<th>STATION TO STATION</th>
<th>LANES/SIDE</th>
<th>LENGTH (FT.)</th>
<th>FLARE RATE</th>
<th>TERMINAL TYPE</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>248+14.88 to 249+56</td>
<td>NB / Outside</td>
<td>65.625</td>
<td>15υ</td>
<td>MGS-FLAT (ALT. A)</td>
<td>New Rail &amp; End Terminal</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td></td>
<td><strong>65.625</strong></td>
<td></td>
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</tr>
</tbody>
</table>

**NOTES:**
1) Guardrail lengths are measured along the face of the guardrail.
2) Existing guardrail to be removed. Paid for as linear feet of "Guardrail, Removal of Steel Plate."
3) 10:1 guardrail grading with Rock Edge Wedge installed previously by others.
4) Minimal grading required for guardrail placement shall be SUBSIDIARY to the bid item "Guardrail, Steel Plate (MGS)."

Legend:
- MGS-FLEAT End Terminal: 37'-6" or MGS-SRT End Terminal: 37'-6"
- MGS-Type II End Terminal: 15'-7.5"
- Curve Radius: 375.55'

For Information Only
KANSAS DEPARTMENT
OF TRANSPORTATION

DATE

REVISIONS

BY

APP'D

3

2

1

Plotted By: user

Plot Location: c:\pwworking\central01\d1385350\ka512602rpl-04.dgn

File:

Plot Date: 02-06-20

035-046 KA-5126-02

JOHNSON CO.

STA. 252+33.81 TO STA. 253+37.09

SOUTHBOUND I-35

100'

10:1 or flatter

E.O.S.

SCALE

PLAN: Lat. & Long.

20'

40'

61.45' LT

+42.10

65.04' LT

+37.09

63.18' LT

+99.54

Legend

à

32.5'

61.06' LT

+33.81

6'

3.8'

61.13' LT

+49.48

61.89' LT

+74.52

25'

15:1

15:1

25'

15:1

25'

Southbound I-35

Exist. Median Barrier

E.O.S. -

Southbound I-35

Exist. Median Barrier

STEEL PLATE GUARDRAIL, REMOVAL (CGS)

STATION TO STATION  | LANES/SIDE  | LENGTH (FT.)  | REMARKS
252+22.67 / 253+2.00  | SB / Outside  | 87.5          | Remove CGS Rail & End Terminal

TOTA LS  | 87.5 |

STEEL PLATE GUARDRAIL (MGS)

STATION TO STATION  | LANES/SIDE  | LENGTH (FT.)  | FLARE RATE Δ  | MGS- FLEAT (ALT. A)  | MGS- SRT (ALT. B)  | MGS -II Δ  | REMARKS
252+13.81 / 253+37.09  | SB / Outside  | 65.625        | 15l           | 1                        | 1                        | 1                   | New Rail & End Terminal

TOTA LS  | 65.625 |

Δ For Information Only

NOTES:

1) Guardrail lengths are measured along the face of the guardrail
2) Existing guardrail to be removed, Paid for as linear feet of
   "Guardrail, Removal of Steel Plate."
3) 10:1 guardrail grading with Rock Edge Wedge installed
   previously by others.
4) Minimal grading required for guardrail placement shall be
   SUBSIDIARY to the bid item "Guardrail, Steel Plate (MGS)."

Legend

T MGS-FLEAT End Terminal = 37'-6" or
MGS-SRT End Terminal = 37'-6"
Ω MGS-Type II End Terminal = 15'-7.5"
R Curve Radiua = 375.55'

For Information Only
**STEEL PLATE GUARDRAIL, REMOVAL (CGS)**

<table>
<thead>
<tr>
<th>STATION TO STATION</th>
<th>LANES/SIDE</th>
<th>LENGTH (FT.)</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>359+90.51 to 360+91.87</td>
<td>SB / Outside</td>
<td>112.5</td>
<td>Remove CGS Rail &amp; End Terminal</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td></td>
<td><strong>112.5</strong></td>
<td></td>
</tr>
</tbody>
</table>

*NOTES:
1) Guardrail lengths are measured along the face of the guardrail
2) Existing guardrail to be removed. Paid for as linear feet of "Guardrail, Removal of Steel Plate."
3) 10:1 guardrail grading with Rock Edge Wedge installed previously by others.
4) Minimal grading required for guardrail placement shall be SUBSIDIARY to the bid item "Guardrail, Steel Plate (MGS)."*

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**STEEL PLATE GUARDRAIL (MGS)**

<table>
<thead>
<tr>
<th>STATION TO STATION</th>
<th>LANES/SIDE</th>
<th>LENGTH (FT.)</th>
<th>FLARE RATE</th>
<th>TERMINAL TYPE</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>359+90.66 to 360+93.61</td>
<td>SB / Outside</td>
<td>65.625</td>
<td>15:1</td>
<td>MGS-FLET (ALT. A)</td>
<td>New Rail &amp; End Terminal</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td></td>
<td><strong>65.625</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Δ For Information Only*
STATION TO STATION         LANES/SIDE         LENGTH (FT.) | TERMINAL TYPE
398+26.64 | SB / Outside | 2500 | REMOVE CGS Rail & End Terminal
TOTALS | | | 2500

STEEL PLATE GUARDRAIL, REMOVAL (CGS)

STEEL PLATE GUARDRAIL (MGS)

STATION TO STATION         LANES/SIDE         LENGTH (FT.) | FLARE RATE | TERMINAL TYPE
398+26.64 | SB / Outside | 2412.5 | 15u | RS-11
TOTALS | | | 2412.5

NOTES:
1) Flare lengths are measured along the face of the guardrail.
2) Existing guardrail to be removed. Paid for as linear feet of "Guardrail, Removal of Steel Plate."

Legend:
- Thrie Beam Transition= 25'
- Curve Radius= 375.55'
- Curve Length= 25'
- Flare Rate= 15u
- Section Length= 12.5'
- MGS-FLET End Terminal= 37'-6" or MGS-SRT End Terminal= 37'-6"

For Information Only
SOUTHBOUND I-35

STA. 403+50.00 TO STA. 409+50.00

MATCHLINE STA. 403+50.00

2.350'

Const. Limit

Adjacent to Shoulder - Zero Flare

E.O.S.

Southbound I-35

Matchline STA. 409+50.00

Northbound I-35

Exist. Median Barrier

NOTES:

1) Guardrail lengths are measured along the face of the guardrail.
STA. 409+50.00 TO STA. 415+50.00

SOUTHBOUND I-35

MATCHLINE STA. 415+50.00
MATCHLINE STA. 409+50.00

E.O.S.

2350'

Matchline

2.5' Adjacent to Shoulder - Zero Flare

Northbound I-35

2.5' Const. Limit

Exist. Median Barrier

Southbound I-35

Plan - Guardrail #10

NOTES:

1) Guardrail lengths are measured along the face of the guardrail.

SCALE

PLAN: Lat. & Long. 0 50' 100'
NOTES:
1) Guardrail lengths are measured along the face of the guardrail.
MATCHLINE STA. 421+50.00 TO STA. 422+75.09

SOuthBOUND I-35

EXIST. MEDIAN BARRIER

Legend

† MGS-FRET End Terminal= 37'-6" or
MGS-SRT End Terminal= 37'-6"

R Curve Radii= 375.55'

NOTES:
1) Guardrail lengths are measured along the face of the guardrail.
CROSS SECTION - GUARDRAIL #10

STA. 398 + 26.64 TO STA. 400 + 50.00
**Typical Grading Section Along Guardrail #10**

- Excess excavated material to be wasted off-site or in locations approved by the Engineer.
- Type B MR-90 Compaction is for information only and is SUBSIDIARY to the bid item "Common Excavation."

Note: Positive drainage to be maintained from edge of shoulder to toe of embankment slope with a minimum grade of 2%.
Flared or parallel guardrail installations are preferred over 'parallel' or 'zero flare' installations. Where 'flared' or 'parallel' installations are used, the flare rate of the guardrail end terminal typically matches the flare rate of the remaining guardrail end terminals. Flared guardrails are used as close as 26:1 or flatter in order to offset the end terminal head as far as possible. This ensures a smooth transition of the guardrail through the W-beam portion of the installation as shown in the Guardrail Clear Area detail on this sheet. Normal project side slope. Deflection distance for normal post spacing.

CGS Posts AND Blockouts (Typ.)

5'-0" from Face of Guardrail

15'-7½" W-Beam Guardrail

5' Flared W-Beam

MGS Guardrail (Typ.)

F lared W-Beam

MGS Posts AND Blockouts (Typ.)

CGS Guardrail (Typ.)

5'-1½" Height Transition from 28" to 31" (MGS Posts AND Blockouts) (Post Embedment Varies)

Splice at Post

Mid Span Spike

Ground Line

50'-0" (Min.) between Omitted Post Location and End Terminal Post No. 1

100'-0" (Min.) between Omitted Post Location and End Terminal Post No. 1

CGS OMITTED POST DETAIL

MGS OMITTED POST DETAIL

MIDWEST GUARDRAIL SYSTEM (MGS) END TERMINALS

END TERMINAL ID ITEM

FLARED OR PARALLEL

MOUNTING HEIGHT

CRASH TESTING CRITERIA

SELECTED POST DESIGN AVAILABLE

WOOD POST DESIGN AVAILABLE

ENERGY ABSORBING MANUFACTURER

DESIGN LENGTH

MANUFACTURER SYSTEM LENGTH

Guardrail End Terminal (MGS-FLAT)

Flared

31'

NCHRP-356

Yes

Yes

Yes

Road Systems

40'-7½"

37'-4"

Guardrail End Terminal (MGS-THREE)

Flared

31'

NCHRP-356

Yes

Yes

No

Trinity Industries

40'-7½"

37'-4"

Guardrail End Terminal (MGS-MIX)

Parallel

31'

MASH

No

Yes

Yes

Road Systems

46'-10½"

46'-10½"

Guardrail End Terminal (MGS-SHORT)

Parallel

31'

MASH

No

Yes

Yes

Trinity Industries

46'-10½"

50'-0"

CONVENTIONAL GUARDRAIL SYSTEM (CGS) END TERMINALS

END TERMINAL ID ITEM

FLARED OR PARALLEL

MOUNTING HEIGHT

CRASH TESTING CRITERIA

SELECTED POST DESIGN AVAILABLE

WOOD POST DESIGN AVAILABLE

ENERGY ABSORBING MANUFACTURER

DESIGN LENGTH

MANUFACTURER SYSTEM LENGTH

Guardrail End Terminal (CGS-FLAT)

Flared

28'

NCHRP-350

Yes

Yes

Yes

Road Systems

37'-6"

37'-6"

Guardrail End Terminal (CGS-SRT)

Flared

28'

NCHRP-350

Yes

Yes

No

Trinity Industries

37'-6"

37'-6"

Guardrail End Terminal (CGS-SAT)

Parallel

28'

NCHRP-350

Yes

Yes

No

Trinity Industries

50'-0"

50'-0"

GUARDRAIL AUXILIARY DETAILS

NEW PRICE

X

X

X

X

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**General Notes**

Install flexible markers on a post behind the guardrail bolt head on the traffic side of guardrail installations at a spacing not to exceed 25'. No marker is installed when the head guardrail post is 32" or less in height.

Install flexible markers on the top of bridge rails at a spacing not to exceed 25', except for bridges greater than 200' long, where spacing may be increased to 50'.

Flexible markers on the top of concrete safety barrier at a spacing not to exceed 25' are not required for use when installing any of the following:

- Installing another flexible marker on the same side of the bridge rail or concrete safety barrier.
- Installing a flexible marker on the outside edge of one-way or divided roadways.
- Installing a flexible marker on the opposite side of the bridge rail or concrete safety barrier.

Where the height of the bridge rail or concrete barrier is greater than 32", mount the flexible marker on the side of the barrier at a height of 32", as shown on this sheet.

Flexible markers with reflective sheeting installed on both sides of the bracket. Match the color of the marker (yellow/amber or white/silver) to the color of the pavement marking adjacent to the traffic lane.

For guardrail located on one-way or divided roadways, use flexible markers with reflective sheeting installed on the approach traffic side of the bracket only. For bridge rail or concrete safety barrier located in the median, use flexible markers with reflective sheeting installed on both sides of the bracket. Match the color of the marker (yellow/amber or white/silver) to the color of the pavement marking adjacent to the traffic lane.

Module units and expansion anchors are not used in the installation of flexible markers. Use high-intensity reflective markers with reflective sheeting installed on both sides of the bracket. The color of the marker (yellow/amber or white/silver) is matched to the color of the pavement marking adjacent to the traffic lane.

For long bridges (greater than 200' long), where spacing may be increased to 50', except for barrier along a horizontal curve or along ramps and ramp tapers, where spacing is not to exceed 25'.

Construct flexible markers for the final (permanent) traffic configuration.

**Flexible Markers Details for Guardrail, Barrier, and Bridge Rails**

- **Typical Mounting on W Beam**: Pop rivet attachment to guardrail when necessary.
- **Typical Placement**:
  - Corral Rail
  - Type I CSB
  - Type II CSB
  - Type III CSB
  - Type IV CSB

**Typical Barrier/Bridge Rail Mounting Details**

- **Bracket**
- **Pop rivet** attachment to Guardrail when necessary.
WOOD POSTS

GENERAL NOTES (Wood Posts)

Give all wood posts a preservative treatment, as standard specifications. Thoroughly secure all cut, injuries and bolt holes on wood posts and blocks with preservative. Use only one type of preservative treatment on a project. Use S80 galvanized steel and wood blocks, as standard specifications. Use only one post/alternation type per post section, this includes the guardrail end terminals. Steel guardrail pieces are being driven or by driving the post ends to protect this post from crushing during driving operations. Contractor must notify Engineer at the earliest time when a non-removable manmade object (footing, pipe, etc.) is encountered and prevents installation of a full length post. Contractor must obtain Engineer approval prior to cutting post shorter than 6'-6" except as allowed on Standard Drawing RD617. All dimensions are nominal and are subject to manufacturing tolerances. Excavation including rock, shale, and other materials for erection of Guardrail is subsidiary to various bid items for all wood/polymer blockout requirements see standard specifications. Approved polymer blockouts may be substituted for wood blockouts. Only one type of blockout is permitted on each guardrail. Where a guardrail post is not located at the face of a curb, measure the height of rail from the pavement surface at the curb/pavement joint as shown. Use a two-inch type curb. The face of the guardrail is not located at the face of the curb.

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STEEL POSTS

GENERAL NOTES (Steel Posts)

Use grade of steel for steel posts that meets the requirements of the standard specification. Wherever galvanized posts are being driven, use standard specifications. Use only one post/alternation type per post section, this includes the guardrail end terminals. Steel guardrail pieces are being driven or by driving the post ends to protect this post from crushing during driving operations. Contractor must notify Engineer at the earliest time when a non-removable manmade object (footing, pipe, etc.) is encountered and prevents installation of a full length post. Contractor must obtain Engineer approval prior to cutting post shorter than 6'-6" except as allowed on Standard Drawing RD617. All dimensions are nominal and are subject to manufacturing tolerances. Excavation including rock, shale, and other materials 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 post. Galvanize all bolts, nuts, and washers in accordance with the KDOT's Standard Specifications.
GENERAL NOTE

Terminal end posts consist of a wood post inserted into a steel tube see details on this sheet.
Steel soil tubes may be driven with an approved driving head. Set steel tube and soil plate before installing wood anchor post assembly. Do not drive steel soil tubes with wood post in the tube. Backfill and satisfactorily compact around steel soil tubes placed in drilled holes to prevent tube settlement.

1. Use guardrail splices, including terminal connector, in the direction of traffic.
2. where traffic is temporarily carried in the opposite direction of final configuration, lap guardrail splices, including terminal connector, in the direction of traffic.
3. All work and materials required for the installation of MGS Terminal Type II are considered subsidiary to the bid item "Guardrail, Steel Plate (MGS)". Include MGS Type II End terminal in pay length of "Guardrail, Steel Plate (MGS)".

Steel soil tubes are placed in drilled holes to prevent tube settlement. Place soil tubes placed in drilled holes to prevent tube settlement.

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NOTES:
1) Temporary Slope Drains and Temporary Berm may be used on either project
   foreslopes or project backwalls.
2) Discharge of Slope Drain 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 Set Price.

Pipe sizes may vary

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Temporary Berms under 2,000 feet shall be bid by Set Price.
SILT FENCE:
1. Stakes shall be 4' (min.) long and of one of the following materials:
   a. Hardwood - 1 ½" x 1 ½".
   b. Southern Pine (No. 2) - 2" x 2".
   c. Steel U, T, L, or C Section - .95 lbs. per 1'-0".
   d. Synthetic - same strength as wood stakes.
2. Attach fence fabric with 3 zip ties within the top 8" of the fence.
3. Each log or sock (except compost filter sock) should be keyed into the ground at a
   minimum of 25% of its height. Compost filter sock should be placed on smooth
   prepared ground with no gaps between the sock and soil.
4. Length of stakes should be 2 times the height of the log at a minimum
   with minimum ground embedment equal to the height of the log / sock.

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" (from 1 ½" to 2").
3. Refer to plan sheets to estimate length of biodegradable log and filter sock required.
4. Wood or sock (except compost filter sock) should be keyed into the ground at a
   minimum of 25% of its height. Compost filter sock should be placed on smooth
   prepared ground with no gaps between the sock and soil.
5. Length of stakes should be 2 times the height of the log at a minimum
   with minimum ground embedment equal to the height of the log / sock.

GENERAL NOTES
1) Slope interruptions shall be placed along contour lines, with
   a short section turned upward 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) Intermittent damage 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
   mulch, shall meet the North American Weed Free Forage
   Standards.
5) Slope interruptions shall be placed along contour lines, with
   a short section turned upward at each end of the barrier.

INSTALLATION NOTES
1. Refer to plan sheets to estimate the length of silt fence required.
2. Attach fence fabric with 3 zip ties within the top 8" of the fence.
3. Each log or sock (except compost filter sock) should be keyed into the ground at a
   minimum of 25% of its height. Compost filter sock should be placed on smooth
   prepared ground with no gaps between the sock and soil.
4. Length of stakes should be 2 times the height of the log at a minimum
   with minimum ground embedment equal to the height of the log / sock.

SECTION A - A
4' (max.) long (center)

SECTION B - B
Direction of Flow
18" (min.) diameter
Biodegradable Log Section
Direction of Flow
Biodegradable Log Section

Biodegradable Log or Filter Sock Slope Interruptions

Biodegradable Log Material

LOW FLOW
HIGH FLOW

9" Sediment Log (ft) 30
12" Sediment Log (ft) 40
18" Sediment Log (ft) 50

9" Filter Sock (ft) 40
12" Filter Sock (ft) 60
18" Filter Sock (ft) 80

Straw/Compost Excelsior / Wood Chips / Coconut Fiber

Deviations should be approved by the Field Engineer.
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.

2. Ditch checks damaged by Contractor's negligence, including improper maintenance or lack of maintenance, shall be repaired by Contractor at no extra cost to KDOT.

NOTE: Use this spacing for all except Rock Ditch Checks.
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, compact any over excavated soil to ditch grade. This work shall be subsidiary to the bid item Temporary Ditch Check (Rocks).
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 CHECKS

1. Use as many biodegradable log sections as necessary to ensure water does not flow around end of ditch check.
2. Overlap sections a minimum of 18".
3. Stakes shall be wood or steel according to Section 2114 of the Standard Specifications. Length of stakes shall be at least 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 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.

NOTE: Use this spacing only for Rock Ditch Checks.
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.

Sediment Storage Basin Locations

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

Front View

Jacket and concrete collar for skimmer.

6" (min.)

18" pipe (min.)

Principal heads.

18", 3:1 slope.

Tight fit.

Concrete anti-seep collar.

18" pipe (min.)

18" pipe (min.)

48" Diameter

12 rows of 1/2" dia. holes 1" C.C.

3' minimum thickness

4' x 6' concrete or stone pad for skimmer

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 dewater with the pond outlet structure with water-tight connections.

Principal heads.

48" Diameter

12 rows of 1/2" dia. holes 1" C.C.

3' minimum thickness

4' x 6' concrete or stone pad for skimmer

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 dewater with the pond outlet structure with water-tight connections.
The top of the blanket should be "slotted" at the top of the slope and anchored in place with anchors when splices are necessary, overlap each other a minimum of 6 inches, with anchors 9 inches apart. The slots should be 6 inches wide x 6 inches deep with the blanket anchored in the bottom of the slot, then backfilled, tamped and seeded.

1. **ANCHOR SLOTS**: The top of the blanket should be fastened to the top of the slope and anchored in place with anchors 6 inches apart. The slots should be 6 inches wide x 6 inches deep with the blanket anchored in the bottom of the slot, then backfilled, tamped and seeded.

2. **LONGITUDINAL SEAMS**: The edges of the blanket should overlap each other a minimum of 4 inches, with anchors catching the edges of both blankets.

3. **SPLICE SEAM**: When splices are necessary, overlap end to end of Stagger 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**: Staples shall be 30' apart.

**NOTES:**

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

The work on this project is considered to be a dual pavement project, requiring seedings, soil amendments, and seeding on the same area.

There is a recommendation for seeding No. 1 species.

The Preliminary Drawings are on file.

*See LA852A for mulching quantity. The quantity of mulch is estimated (Acres of Seeding X 1.5 X 2 Tons/Acre).*

**SUMMARY OF SEEDING QUANTITIES**

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fertilizer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seeds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mulch</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The plan shall be submitted on the approved form, along with the specifications for this project.

The work on this project is considered to be a dual pavement project, requiring seedings, soil amendments, and seeding on the same area.

There is a recommendation for seeding No. 1 species.

The Preliminary Drawings are on file.

*See LA852A for mulching quantity. The quantity of mulch is estimated (Acres of Seeding X 1.5 X 2 Tons/Acre).*
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 centerlines 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 the opposite side of the roadway. In urban and suburban areas with high vehicular traffic volumes, these signs should be placed at intersections (rather than midblock locations) so that pedestrians are not confronted with roadblock work sites that will induce them to attempt crossing the roadway.

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

5) When the driving surface is milled or is a temporary surface made of loose material, or when directed by the engineer a W8-15 (Grooved Trench Bar) 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 motorcycle plate 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 785-296-1183.

7) Lane closures and shoulder closures are prohibited from 5:00 AM to 9:00 AM and 3:00 PM to 8:00 PM Monday through Friday.

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**TYPICAL WORK ZONE COMPONENTS**

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

**Channelizer Placement:**

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. Plane 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 normally at right angles to the traffic flow.

**Buffer Space**

- Posted speed prior to work starting

```
SPEED (MPH) | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75
```

Where:
- L = WS for speeds of 45 MPH or more
- WS = Speed limit in mph prior to work starting
- W = Width in offset feet
- S = Minimum length of taper in feet

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

<table>
<thead>
<tr>
<th>SPEED (MPH)</th>
<th>100</th>
<th>150</th>
<th>200</th>
</tr>
</thead>
<tbody>
<tr>
<td>URBAN (45 MPH OR LESS)</td>
<td>100</td>
<td>150</td>
<td>200</td>
</tr>
<tr>
<td>URBAN (45 MPH OR HIGHER)</td>
<td>150</td>
<td>225</td>
<td>300</td>
</tr>
<tr>
<td>RURAL (35 MPH OR LESS)</td>
<td>150</td>
<td>225</td>
<td>300</td>
</tr>
<tr>
<td>RURAL (35 MPH OR HIGHER)</td>
<td>200</td>
<td>300</td>
<td>400</td>
</tr>
</tbody>
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**Taper Formulas:**

- L = WS for speeds of 45 MPH or more
- W = Width in offset feet

Where:
- L = Minimum length of taper in feet
- WS = Numerical value of posted speed prior to work starting in MPH
- W = Width in offset feet

Channelizer Placement:

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. Plane 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 normally at right angles to the traffic flow.
The stripes shall slope downward in the direction traffic is to pass.

For rails less than 36" long, 4" wide stripes may be used.

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

6. Use alternating orange/white on interconnected devices.

3. Interconnect pedestrian channelizers to prevent displacement and to provide continuous guidance through or around work.

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

2. Hand trailing edges and detection plates are optional for continuous walls.

Alternate pathways shall be firm, stable, and slip resistant.

Treat height differentials > 1/2" in the surfaces of alternate pathways 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.

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

FIGURE 2: TYPICAL SIGNING FOR SIDE ROAD OPEN

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

ROAD CLOSED GENERAL NOTES
As shown in Figure 1, at the point where thru traffic must detour and local traffic can proceed in the location where the roadway is completely closed, the R11-3a (ROAD CLOSED # MILES AHEAD LOCAL TRAFFIC ONLY) or R11-4 (ROAD CLOSED # 0 MILES AHEAD LOCAL TRAFFIC ONLY or ROAD CLOSED TO THRU TRAFFIC) sign shall be used. As shown in Figure 3, when local traffic must be allowed access into the work zone, Type 3 barricades shall be placed end-to-end or staggered at a distance to prevent the appearance of a closed roadway. A second line of end-to-end Type 3 barricades shall be placed beyond the last access point in the work zone, to completely close the roadway.

The R11-4 (ROAD CLOSED TO THRU TRAFFIC) sign shall be used when the distance to the point of complete closure of the roadway is less than 1 mile.

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**PERFORATED SQUARE STEEL TUBE (P.S.S.T.) POST SETUP**

**WOOD POST SETUP**

- **Sign Post**
- **Post Anchor**
- **Undisturbed Earth**
- **Compacted Fill**

**PERFORATED SQUARE STEEL TUBE (P.S.S.T.) 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.

**TE712 TRAFFIC CONTROL SIGN POSTS**
Notes:

For work in the median, install signs and channelizing devices for each direction of traffic according to the applicable typical drawing.

No traffic control is required if the Work Space is located outside of the clear zone.

For operations of 60 minutes or less, all signs and channelizing devices may be eliminated if a vehicle with a high-intensity rotating, flashing, oscillating, or arrow light is used.

Omit taper if paved shoulder is less than 8' wide.

Eliminate W7-3a if shoulder is closed for less than 2 miles.
SHIFTING TAPER DETAIL

Add signs and devices as shown for work inside a closed lane that extends near to (or into) the open traffic lane.

- For left lane closures use W4-2L and yellow edge line along channelizing devices.
- The W20-5 (Lane Closed) and W7-3A (Next X Miles) signs should be placed at 2 mile increments on a project of 4 miles or longer.
- Left-side signs shall be omitted for a four-lane undivided highway.

Note: The double reverse curve (W24-1, W24-1a or W24-1b) should be used if the tangent distance between the two reverse curves is less than 600 ft. Only one W24-1 is required to be placed at an 'A' distance in advance of the shifting taper.

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Left-side signs shall be omitted for a four-lane undivided highway.
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Note:
Traffic control quantities are provided for information only. Traffic control to be paid for as 'Traffic Control' Lump Sum.