STATE OF KANSAS
DEPARTMENT OF TRANSPORTATION
PLAN AND PROFILE OF PROPOSED
12th STREET BRIDGE REPLACEMENT
81 U-2361-01
FEDERAL AID PROJECT
RILEY COUNTY
CITY OF OGDEN

INDEX OF SHEETS
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12-19. TEMPORARY EROSION AND FLOODPLAIN CONTROL
20-25. PERMANENT EROSION AND FLOODPLANE CONTROL
26-31. CROSS SECTIONS

DESIGN DESIGNATION
AADT (2020) 50
AADT (2040) 50
DHV 10%
D 60%
T 2%
V 20 mph
C of A None
Clear Zone 7 ft

HMA SURFACING
SEEDING

RECOMMENDED FOR APPROVAL
DEPARTMENT OF TRANSPORTATION
KANSAS DEPARTMENT OF TRANSPORTATION

NOTE: 12TH STREET WILL BE CLOSED TO TRAFFIC DURING CONSTRUCTION.

PROJECT IS LOCATED IN SECTION 2
TOWNSHIP 11 SOUTH, RANGE 2 EAST

CONVENTIONAL SIGNS

Riley County

KODT Project No. 81 U-2361-01
GRADING
HMA SURFACING
CULVERT
SEEDING

Adovated: Jul 15, 2020

KANSAS DEPARTMENT OF TRANSPORTATION

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KANSAS DEPARTMENT OF TRANSPORTATION
TYPICAL SECTION NOTES

- For pavement width and taper locations, see plan sheets.
- For width and slopes, see cross sections.

In cut areas, Composition of this layer shall be considered similar to Foundation Treatment and shall be:

A base of 15" shall be provided between each lift of all base courses and surface course and under the final lift of base or surface course when they are placed on an existing asphalt, brick, or concrete surface, when so ordered by the Engineer and at the rate designated by him.

Shoulder rumble strips will not be constructed as a part of this project.

CONSTRUCTION FENCE DETAIL

- When the horizontal clear dimension "H/C" between the construction and the existing right-of-way is less than 5 feet and there is no temporary construction easement, Contractor shall install construction fencing.
- Construction fencing is intended to prevent and/or discourage the Contractor's construction operations from encroaching onto private property.

CITY OF OGDEN, KANSAS
TYPICAL SECTIONS
**General Note**

The entire area of the Slope Drain shall be placed monolithic.

Concrete Grade 3.0 (32) shall be used in Slope Drain and Curb and Gutter.

All exposed edges shall be finished with an edging tool.

Aggregate for the Slope Drain (Stone) shall meet the requirements of stone for Aggregate Ditch (living and drain @ 6") and 6" of the Contrastor shall close stone from bottom to the top of the slope to produce a well-graded mass without segregation or material loss. Placement, measurement, and payment shall conform to AGIP Standard Specifications.

Slope Drain (Stone) shall be underlaid with geoweb fabric that meets the AGIP Standard Specifications. All work and materials for the geoweb fabric shall be considered subject to the Slope Drain (STONE).

Where Curb and Gutter abuts Asphalt Pavement, Construction joints shall be placed at 12 centers unless directed otherwise by the Engineer.
**WING WALL JOIN DETAIL**

**SECTION A-A**


**ELEVATION OF WINGWALL**

**View D-D**

- End of RCB Wingwall
- Const. Joint

**VIEW D-D**

- End of RCB Wingwall
- Const. Joint

**SECTION E-E**


**SECTION C-C**


**NOTES**

- Each Face
- NS = Near Side
- EF = Each Face
- Const. Joint

**MINERAL QUANTITIES**

- (All dimensions are out to out of bars.)
- Clear reinforcing steel.

**CONCRETE**

- Grade 4.0 Concrete shall be used throughout. Bevel reinforcing bars; $f_y = 60,000$ p.s.i.

**UNIT STRESSES**

- Grade 4.0 Concrete; $f_c' = 4,000$ p.s.i.

**REINFORCING**

- All reinforcing shall conform to ASTM A615, Grade 60. Welded Wire Fabric shall conform to ASTM A185. Minimum overlap shall be $1'-3"$. No increase in quantities or cost shall be allowed when Contractor elects this option.

**ENVELOPMENT SHEET**

- Reinforcing Bar List is for both wings at one end of box only.
- Mesh reinforcing is for transition.

**BENDING DIAGRAM**

- See Bending Diagram

**MINERAL QUANTITIES**

- See RCB Aux. Details for additional requirements.

**GENERAL NOTES**

- Design and construction standards and codes to be the same as those contained in the Kansas Department of Transportation Specifications and other applicable Codes and Standards.

**End of Sheet**
ELEVATION AT HEADWALL

Minimum barrel length of cast-in-place end unit and shall equal the RCB Rise of 2'-0" or indifference is less. This length can be used when the joint between the cast-in-place end unit and the precast section is reinforced as shown.

Minimum barrel length of cast-in-place end unit shall be 18'-0" when used on an unreinforced open joint at the end of the precast section.

ELEVATION AT PRECAST END SECTION

(Precast End Sections are performed where straight wings are shown in the plans or at the contact surface for single cell RCB with a rise of six feet or less.)

NOTE: See the Complete section sheet (USO 3B880), for sectional details and basis of approval.

Minimum length of precast section shall be 4'-2".

A single cell box of equivalent area may be substituted for a double cell box with cell spans less than 6'-0" to 6'-4". Any reposition in the cell box that shows on the plan will not be permitted unless approved by the Engineer. Two single cell boxes may be substituted for a double cell box, when approved by the Engineer.

NOTE: See respective RCB Standard Sheets for cost of place details.

When the fill height is 6'-4" or less, Bridge Backwall Protection is required.

Bridge Backwall Protection not shown for stability.

CAST IN PLACE DISTRIBUTION SLAB

(Distribution slab is extended to accommodate double wall culverts)

PLAN AT HEADWALL

Foundation sections and wingwalls, except as noted on this sheet. The Engineer may complete the installation.

Unless otherwise approved by the Engineer, use cast-in-place collars at connections shown on the plans and according to the requirement shown on this sheet. When approved by the Engineer, precast box culverts may be used in lieu of cast-in-place box culverts. If the Contractor chooses the precast option, use the cost-in-place quantities as the cost basis. This cost includes all labor, equipment, material and incidentals necessary to complete the installation.

GENERAL NOTES

(All items on this sheet are mandatory)

PRECAST BOX CULVERTS: If precast box culverts are specified, construct them in the indicated size and according to the requirements shown on this sheet. When approved by the Engineer, precast box culverts may be used in lieu of cast-in-place box culverts. If the Contractor chooses the precast option, use the cost-in-place quantities as the cost basis. This cost includes all labor, equipment, material and incidentals necessary to complete the installation.

Unless otherwise approved by the Engineer, use cost-in-place collars at connections shown on the plans and according to the requirement shown on this sheet. The Engineer may require cost-in-place sections of additional framing structures.

Cost-in-place construction work shall conform to the requirements of the KDOT Specifications and KDOT's Guidelines for Structural Design and Details of Reinforced Concrete Box Culverts. Use Grade 42 concrete and Grade 60 reinforcing steel conforming to ASTM A615 for cost-in-place construction.

If the fill height is greater than one foot then:

- A distribution slab shall be a minimum of 6 inches thick, reinforced with #4 @ 18" (min.) transverse reinforcement as noted in the KDOT Specifications. (See Appendix of AASHTO LRFD Specifications.)
- A distribution slab shall be a minimum of 6 inches thick, reinforced with #4 @ 18" (min.) transverse reinforcement as noted in the KDOT Specifications. (See Appendix of AASHTO LRFD Specifications.)

If the fill height is less than or equal to one foot then:

- A distribution slab shall be a minimum of 6 inches thick, reinforced with #4 @ 18" (min.) transverse reinforcement as noted in the KDOT Specifications. (See Appendix of AASHTO LRFD Specifications.)
- A distribution slab shall be a minimum of 6 inches thick, reinforced with #4 @ 18" (min.) transverse reinforcement as noted in the KDOT Specifications. (See Appendix of AASHTO LRFD Specifications.)

1) Use the cast-in-place criteria above.
2) Use precast distribution slabs with transverse criteria as the cast-in-place slabs. Elevation bars in slabs over the box segments. Provide a minimum of 3 inches of granular material between the box and slab.
3) Reinforced concrete pavement (6 inches thick) will meet the requirements of a distribution slab. Reinforce as noted above.
4) A distribution slab shall be a minimum of 6 inches thick, reinforced with #4 @ 18" (min.) transverse reinforcement as noted in the KDOT Specifications. (See Appendix of AASHTO LRFD Specifications.)
5) A distribution slab shall be a minimum of 6 inches thick, reinforced with #4 @ 18" (min.) transverse reinforcement as noted in the KDOT Specifications. (See Appendix of AASHTO LRFD Specifications.)

A special design will be required when the above options are not geometrically possible.

GENERAL NOTES

FOUNDATION

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A special design will be required when the above options are not geometrically possible.
**EXCAVATION DETAILS FOR REINFORCED CONCRETE BOX CULVERT**

Note: Excavation for culverts less than bridge length and the additional excavation for "Extended Structure" shall not be paid for or included in the "Excavation Boundary Plane", within the limits noted on the plans.

- **EXCAVATION DETAILS FOR TYPICAL PIERS**
  - Note: Class II Excavation includes the entire volume of whatever nature found below the "Excavation Boundary Plane" within the limits specified for measurement. This may include water, air, or rock.
  - Note: Class III Excavation shall be subsidiary to Grade 4.0 Concrete.
  - Note: Any sheeting required shall be subsidiary to "Foundation Stabilization".
  - Note: Bridge Contractor shall finish the embankment and berms after the excavation for box bridges and/or wingwalls is subsidiary to "Foundation Stabilization".

- **EXCAVATION DETAILS FOR TYPICAL ABUTMENTS**
  - Note: Excavation for box bridges shall be subsidiary to "Excavation Boundary Plane", within the limits noted on the plans.
  - Note: Bridge Contractor shall finish the embankment to this profile and/or wingwalls.
  - Note: The Grading Contractor shall excavate the channel to original ground line unless otherwise noted.

- **EXCAVATION DETAILS FOR REINFORCED CONCRETE BOX CULVERT**
  - Note: Drilled shaft shall be subsidiary to "Foundation Stabilization".

- **DRILLED SHAFT DETAILS**
  - Notes: Drilled shaft shall be subsidiary to "Foundation Stabilization" unless otherwise indicated on the general plans.
  - Dimension "D" shall be 2'-0" unless indicated otherwise on the general plans.

**Bridge Excavation**

- **Bridge Contractor**
  - Shall complete to the limits of the drilled shaft construction prior to proceeding with construction of the embankment.
  - Shall complete in accordance with plans.

- **Grading Contractor**
  - Shall complete the excavation boundary plane to the limits of the drilled shaft construction.
  - Shall complete the excavation boundary plane to the limits of the drilled shaft construction.

- **Construction**
  - Shall complete in accordance with plans.
  - Shall complete the excavation boundary plane to the limits of the drilled shaft construction.

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- Shall complete to the limits of the drilled shaft construction prior to proceeding with construction of the embankment.
- Shall complete in accordance with plans.
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- Shall complete in accordance with plans.

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- Shall complete in accordance with plans.
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**GENERAL NOTES**


Use only the following types of bar supports:

1. Wire Bar Supports
   a) Epoxy coated reinforcing: Class 1 Protection
   b) Non-epoxy coated reinforcing: Class 1, 2, or 3 Protection

2. Plastic Bar Supports

3. Supplementary bars

When securing epoxy coated reinforcing, use ties wires or metal clips that are epoxy or plastic coated.

Do not weld reinforcing steel to bar supports or to other reinforcing steel. Stop weld spacer frames for haunched slabs.

Tie bars at all intersections around the perimeter of each mat and at all intersections of all other reinforcement. Stop weld spacer frames for haunched slabs.

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

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

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

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

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

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### SUMMARY OF SEEDING / EROSION CONTROL QUANTITIES

<table>
<thead>
<tr>
<th>BID ITEM</th>
<th>QUANTITY</th>
<th>UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fertilize, Seed &amp; Mulch</td>
<td></td>
<td></td>
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<tr>
<td>Temporary Seed (Sterile Wheatgrass)</td>
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<td></td>
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<tr>
<td>Temporary Seed (Grain Oats)</td>
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<td></td>
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<tr>
<td>Temporary Seed (Canada Wildrye)</td>
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<tr>
<td>Biodegradable Log (20&quot;)</td>
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<td>Biodegradable Log (12&quot;)</td>
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<tr>
<td>Biodegradable Log (9&quot;)</td>
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<tr>
<td>Silt Fence</td>
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<tr>
<td>Fertilize, Seed &amp; Mulch</td>
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<tr>
<td>Mulching</td>
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<tr>
<td>Mulch Tacking Slurry</td>
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<tr>
<td>Sediment Removal (Set Price)</td>
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<tr>
<td>Temporary Berm (Set Price)</td>
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<tr>
<td>Temporary Inlet Sediment Barrier</td>
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<td></td>
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<tr>
<td>Temporary Ditch Check (Rock)</td>
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<tr>
<td>Temporary Sediment Control Basin</td>
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<tr>
<td>Temporary Waterway Control</td>
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</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 LADS for further details.

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

Regen and Seed Guard are the approved sterile wheatgrass products.

Must be included.

* List size of material.

The amount of mulch and mulch tacking slurry in the bid quantities is estimated. 1 Acres of Seeding X 1.5 X 2 Tons/Acre. The estimated quantity includesmulching associated with both temporary and permanent seeding operations.  The term mulch and mulch tacking slurry are not included in the Bid. The bid item for mulching and mulch tacking slurry shall be paid for according to the Standard Specifications.

### SOIL EROSION MIX

<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>QUANTITY</th>
<th>UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clay</td>
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<tr>
<td>Silt</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sand</td>
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<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Left</th>
<th>Center</th>
<th>Right</th>
</tr>
</thead>
<tbody>
<tr>
<td>10+75 to 12+90</td>
<td>10+75 to 12+90</td>
<td>10+75 to 12+90</td>
</tr>
</tbody>
</table>

Note: Erosion Control Blanket is estimated based on the area of ground disturbed by the project to be seeded.

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**Note:**
- CADconform Certify This File
- Kansas Department of Transportation
- Date: 1/04/2006
- Revisions by: Scott H. Shields
NOTES:
1) Temporary Slope Drain and Temporary Berm may be used on either project foreshores or project backslopes.
2) Discharge of Slope Drains shall be piped to designated 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.

TYPICAL PROFILE OF TEMPORARY SLOPE DRAIN

TYPICAL PROFILE OF TEMPORARY BERM

SECTION A-A

SECTION B-B

Pipe size may vary

NOTES:
1) Temporary Slope Drain and Temporary Berm may be used on either project foreshores or project backslopes.
2) Discharge of Slope Drains shall be piped to designated 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.
SILT FENCE:
1. Stakes shall be 4' long and one of the following materials:
   a. Hardwood - 1 3/4" x 2 1/2" x 2';
   b. Southern Pine - 2 1/4" x 2 1/2';
   c. Steel U, T, L, or C Section - 85 lbs, per each one.
2. Synthetic - same strength as wood stakes.
3. Attach fence fabric with 3 zip ties within the top 8' of the fence.
4. Additional attachment methods may be approved by the engineer on a performance basis.
5. Use of high flow material is acceptable.
6. Refer to plan sheets to estimate the length of the fence required.

SLOPE INTERRUPTIONS:
1. Place biodegradable log or filter sock tightly together minimum overlap of 36''.
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) shall be keyed into the ground at a minimum of 25% of its height. Compost filter socks should be placed on an even prepared 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.

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 300', and the barrier ends need to be staggered.
3. Slope 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 mulches, shall meet the North American Weed Free Forage Standards.

BIODEGRADABLE LOG MATERIAL

<table>
<thead>
<tr>
<th>Product</th>
<th>Low Flow</th>
<th>Medium Flow</th>
<th>High Flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Straw/Compost</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Excelsior / Wood Chips / Coconut Fiber</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Sediment Log (20'')</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Sediment Log (12'')</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Sediment Log (9'')</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
</tr>
<tr>
<td>Or 12'' Filter Sock</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
</tr>
<tr>
<td>Or 12'' Filter Sock</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
</tbody>
</table>

Decisions should be approved by the Field Engineer.
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.
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 over excavated soil to ditch grade.

5. Aggregate excavated on site may be used as an alternative to the D6 rock, if approved by the Engineer.

6. The Engineer may approve the use of larger aggregates for the downstream portion of the check when conditions warrant their use.

7. When the use of larger rock is approved, the upstream portion of the check should be constructed of D50 = 6" or smaller.

BIODEGRADABLE LOG DITCH CHECK NOTES

1. Use as many biodegradable log sections as necessary to ensure water does not flow over, not around 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 2 x the diameter of the log.

4. Use Erosion Control (Class 1) (Type C) as the downstream apron when required.

5. A downstream apron is required when directed by the Engineer. Apron material will be paid at 25% of its height. Compost filter socks should be placed on smooth prepared ground with no gaps between the sock and soil.

6. Each log or sock (except compost filter socks) should be keyed into the ground at a minimum of 6" from the end of ditch check.

7. The Engineer may approve the use of larger aggregates for the downstream portion of the check when conditions warrant their use.

8. When the use of larger rock is approved, the upstream portion of the check should be constructed of D50 = 6" or smaller.
The design must be approved by the engineer.

4. Other skimmer designs maybe used that dewaters the surface at a controlled rate.

3. The orifice shall be sized to provide drawdown time to 2 to 5 days and approved by the engineer.

1. All P.V.C. pipes are to be schedule 40.

2. HDPE flexible drain pipes is to be attached to the pipe outlet structure with water-tight connections.

Notes:

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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 materials 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>

Sediment Storage Basin Plan

CROSS SECTION (EMERGENCY SPILLWAY)

CONCRETE ANTI-SEEP COLLAR

SECTION A-A

Sediment Storage Basin Elevation

Notes:

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SECTION A-A

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Installation Details for Erosion Control Class I

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

1. Anchor Slot(s): The top of the blanket should be "notched" off at the top of the slope and anchored in place with anchors 6 inches apart. The slots should be 6 inches wide x 6 inches deep with the blanket anchored in the bottom of the slope, then backfilled, tamped and seeded.

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

3. Splice Seam: When splices are necessary, overlap a minimum of 8 inches in direction of water flow. Slugger splice area.

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

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

The bottom edge of the blanket shall be 15' min. Width and anchors 9 inches apart.

The top of the blanket should be turned under a minimum of 4 inches, then anchored in place with anchors 9 inches apart.

NOTE: Staples may be omitted if the area is immediately covered by permanent slope protection (where directed by the plans).

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 stake staple is acceptable.
**GENERAL NOTES**

The desert disturbed areas, occupying the power of any given areas, reveal a great value and are comparable to that in the desert. The desert is often the result of the desertification process, where the desert is actively changing and evolving.

Soil preparation and maintenance are critical to the success of the desertification process. Soil preparation involves techniques that are designed to prevent erosion, such as the use of mulch and the addition of organic matter.

**FERTILIZER**

A ratio of application rates that equals or exceeds the required minimum rates per acre of A.P.K. (includes mulching and erosion control practices) shall be acceptable.

1. **PERMANENT SEEDING**

When seeding is less than 1 acre, Temporary and Permanent Seeding shall be combined and seeded at the same time. There is no seasonal restriction for seeding projects less than 1 acre.

**WILDFLOWER SEEDS**

The following mixtures are recommended for use in the desertification process:

- **NATIVE WILDFLOWER MIX 1**
- **NATIVE WILDFLOWER MIX 2**

**FILL SECTION**

Stabilized Shoulders

Agricultural products, such as native prairie hay, used for mulching and erosion control practices, excluding wood mulch, shall be used in the desertification process. However, each enterprise has its own set of requirements.

**SOIL PREPARATION**

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

- **SUMMARY OF SEEDING QUANTITIES**

<table>
<thead>
<tr>
<th>QUANTITY</th>
<th>DESCRIPTION</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>180</td>
<td>Fertilizer (15-30-15)</td>
<td>Tons</td>
</tr>
<tr>
<td>180</td>
<td>Seed (Fescue)(Tall Turf Type Blend)</td>
<td>Acres</td>
</tr>
<tr>
<td>100</td>
<td>SHLDR</td>
<td>Square Yards</td>
</tr>
<tr>
<td>180</td>
<td>Seeding (Temporary)</td>
<td>Pounds</td>
</tr>
<tr>
<td>100</td>
<td>Seed (Wildflower Mixes)</td>
<td>Pounds</td>
</tr>
</tbody>
</table>

**ANNUAL SEEDING**

When seeding is less than 1 acre, Temporary and Permanent Seeding shall be combined and seeded at the same time. There is no seasonal restriction for seeding projects less than 1 acre.

**PERMANENT SEEDING**

When seeding is less than 1 acre, Temporary and Permanent Seeding shall be combined and seeded at the same time. There is no seasonal restriction for seeding projects less than 1 acre.
WORK ZONE TRAFFIC CONTROL NOTES

1. This Work Zone Traffic Control plan covers most of the major items of work included in the project. The Contractor must read and understand the proposed traffic control plan prior to construction. The Contractor has the option of developing their own traffic control plan and submitting it to the Engineer for review and approval (at least two weeks prior to proposed implementation).

2. All traffic control devices (signs, barricades, drums, construction trucks, etc.) must be provided, inspected and maintained. The Contractor is responsible for maintaining all traffic control devices and ensuring compliance with the Kansas Department of Transportation’s TE Standards and the most recent edition of Uniform Traffic Control Devices (UTCD) and the AASHTO Roadway Design Guide. The Contractor shall be responsible for maintaining in position, cleaning, and replacing damaged traffic control devices.

3. Contractor shall maintain access to existing emergency/intersections during construction (unless noted otherwise) to the extent possible during construction.

4. The Engineer shall determine the final location of all traffic control devices.

* Residences Northeast of the Project on 13th Street will be provided direct access to 13th Street via City of Ogden property. This temporary access will be provided by others (City of Ogden).
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 signage that encourages them to cross to the opposite side of the roadway. In urban and suburban areas with high vehicular traffic volumes, these signs should be placed at intersections (other than midblock locations) so that pedestrians are not confronted with midblock work sites that will induce them to attempt skirting the work site or making a midblock crossing.

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

5) When the driving surface is open to traffic, or a temporary surface is made of loose material, or when directed by the engineer a WB-15 (Grooved Pavement) or WB-7 (Loose Gravel) sign shall be used on mainline approaches. This sign should be placed a "C" distance after the W20-1 (Road Work Ahead) sign. A WB-15 motorcycle placard shall be used to supplement the WB-15 or WB-7 signs. All signs shall be displayed as long as the condition is present.

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

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>70</td>
<td>30</td>
</tr>
<tr>
<td>URBAN (45 MPH OR HIGHER)</td>
<td>250</td>
<td>150</td>
<td>75</td>
</tr>
<tr>
<td>RURAL (55 MPH OR LOWER)</td>
<td>300</td>
<td>150</td>
<td>75</td>
</tr>
<tr>
<td>RURAL (60 MPH OR HIGHER)</td>
<td>750</td>
<td>375</td>
<td>375</td>
</tr>
<tr>
<td>EXPRESSWAY/FREeway</td>
<td>1000</td>
<td>1000</td>
<td>2600</td>
</tr>
</tbody>
</table>

Taper Formulas:

- L = WS for speeds of 45 MPH or more
- L = WS/2.65 for speeds of 40 MPH or less

Where:

- W = Numerical value of posted speed prior to work starting in MPH
- L = Width in offset feet

Shifting Taper: 1.5 L

Shoulder Taper: 1.0 L

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) 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.

Buffer Space

<table>
<thead>
<tr>
<th>SPEED (MPH)</th>
<th>20</th>
<th>25</th>
<th>30</th>
<th>35</th>
<th>40</th>
<th>45</th>
<th>50</th>
<th>55</th>
<th>60</th>
<th>65</th>
<th>70</th>
<th>75</th>
</tr>
</thead>
<tbody>
<tr>
<td>LENGTH (ft)</td>
<td>115</td>
<td>135</td>
<td>200</td>
<td>230</td>
<td>250</td>
<td>305</td>
<td>360</td>
<td>425</td>
<td>490</td>
<td>570</td>
<td>645</td>
<td>730</td>
</tr>
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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. Use alternating orange/white on interconnected devices.

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 1:12 or flatter and having a width equal to the alternate path.

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

3. Interconnect pedestrian channelizers to prevent displacement into the pathway.

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

1. Support device shall not project beyond the detection plate into the pathway.
The words "BRIDGE OUT" (or "BRIDGE CLOSED") may be substituted for the words "ROAD CLOSED" on closures used when the distance to the point of complete closure of the roadway is less than 1 mile.

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) 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 the location where the roadway is completely closed, the R11-3a (ROAD CLOSED 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 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.
FIGURE 1: SIDE ROAD OR ENTRANCE CLOSED THROUGH WORK AREA

FIGURE 2: SIDE ROAD OR ENTRANCE OPEN THROUGH WORK AREA

FIGURE 3: LOW VOLUME ENTRANCE CONSTRUCTED HALF AT A TIME

Note: Consider large vehicles making right turns into and out of entrance and use figure 4 as needed

FIGURE 4: SIDE ROAD OR ENTRANCE CONSTRUCTED HALF AT A TIME: TWO WAY TRAFFIC REQUIRED

FIGURE 5: SIDE ROAD OPEN THROUGH WORK AREA ON DIVIDED ROADWAY
Notes:

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 high-intensity rotating, flashing, oscillating, or strobe lights is used.

4. Omit taper if paved shoulder is less than 8’ wide.
### Summary of Traffic Control Devices (Each Per Day)

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity Most Used on the Project at One Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work Zone Signs (0 to 9.25 Sq.Ft.)</td>
<td>Each Per Day</td>
</tr>
<tr>
<td>Work Zone Signs (9.26 to 16.25 Sq.Ft.)</td>
<td>Each Per Day</td>
</tr>
<tr>
<td>Work Zone Signs (16.26 &amp; Over)</td>
<td>Each Per Day</td>
</tr>
<tr>
<td>Work Zone Baricades (Fixed)</td>
<td>Each Day</td>
</tr>
<tr>
<td>Work Zone Baricades (Portable)</td>
<td>Each Day</td>
</tr>
<tr>
<td>Work Zone Warning Light (Type &quot;A&quot; Low Intensity)</td>
<td>Each Day</td>
</tr>
<tr>
<td>Work Zone Warning Light (Red Type &quot;B&quot; High Intensity)</td>
<td>Each Day</td>
</tr>
<tr>
<td>Arrow Display</td>
<td>Each Day</td>
</tr>
<tr>
<td>Portable Changeable Message Sign</td>
<td>Each Day</td>
</tr>
<tr>
<td>Pavement Marking (Temporary)</td>
<td>Each</td>
</tr>
<tr>
<td>Flexible Raised Pavement Marker (4&quot; Broken (8.0'))</td>
<td>Each</td>
</tr>
<tr>
<td>Flexible Raised Pavement Marker (4&quot; Broken (3.0'))</td>
<td>Each</td>
</tr>
<tr>
<td>Pavement Marking Removal</td>
<td>Each</td>
</tr>
<tr>
<td>Flexible Raised Pavement Marker (4&quot; Solid)</td>
<td>Each</td>
</tr>
<tr>
<td>Flexible Raised Pavement Marker (4&quot; Dotted Extension)</td>
<td>Each</td>
</tr>
<tr>
<td>Flexible Raised Pavement Marker (Solid) (Type I)</td>
<td>Each</td>
</tr>
<tr>
<td>Flexible Raised Pavement Marker (Solid) (Type II)</td>
<td>Each</td>
</tr>
<tr>
<td>Flexible Raised Pavement Marker (Broken (Type I))</td>
<td>Each</td>
</tr>
<tr>
<td>Flexible Raised Pavement Marker (Broken (Type II))</td>
<td>Each</td>
</tr>
<tr>
<td>Flexible Raised Pavement Marker (4&quot; Broken (8.0'))</td>
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</tr>
<tr>
<td>Flexible Raised Pavement Marker (4&quot; Broken (3.0'))</td>
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</tr>
<tr>
<td>Flexible Raised Pavement Marker (4&quot; Solid)</td>
<td>Each</td>
</tr>
<tr>
<td>Flexible Raised Pavement Marker (4&quot; Dotted Extension)</td>
<td>Each</td>
</tr>
<tr>
<td>Flexible Raised Pavement Marker (Solid) (Type I)</td>
<td>Each</td>
</tr>
<tr>
<td>Flexible Raised Pavement Marker (Solid) (Type II)</td>
<td>Each</td>
</tr>
<tr>
<td>Flexible Raised Pavement Marker (Broken) (Type I)</td>
<td>Each</td>
</tr>
<tr>
<td>Flexible Raised Pavement Marker (Broken) (Type II)</td>
<td>Each</td>
</tr>
<tr>
<td>Traffic Control Drivinal Set-Up</td>
<td>Lump Sum</td>
</tr>
<tr>
<td>Traffic Control Drivinal Set-Up (Type I)</td>
<td>Lump Sum</td>
</tr>
<tr>
<td>Traffic Control Drivinal Set-Up (Type II)</td>
<td>Lump Sum</td>
</tr>
<tr>
<td>Work Zone Warning Light (Type &quot;A&quot; Low Intensity)</td>
<td>6</td>
</tr>
<tr>
<td>Arrow Display</td>
<td>1</td>
</tr>
<tr>
<td>Portable Changeable Message Sign</td>
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