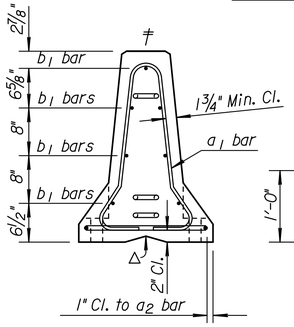
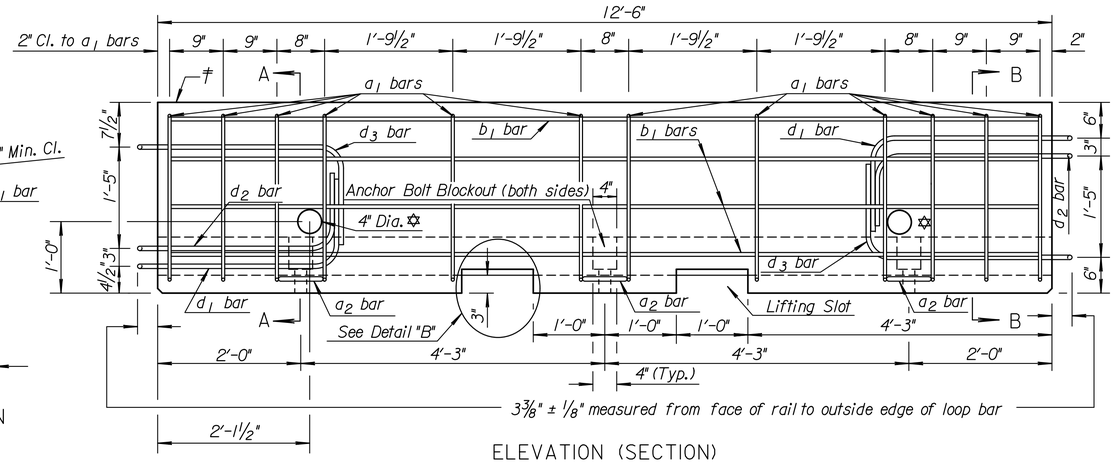
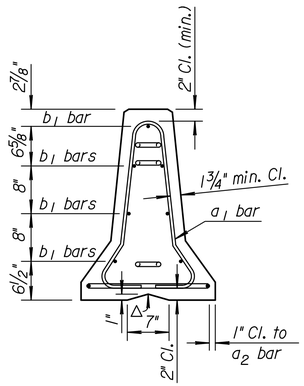
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS				



SECTION A-A
TYPICAL SECTION
(Stirrup Placement)

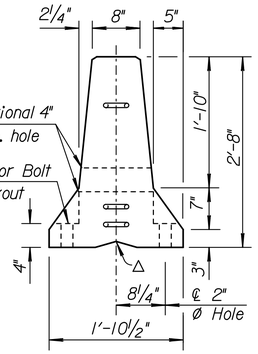


ELEVATION (SECTION)

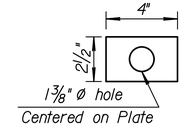


SECTION B-B
TYPICAL SECTION
(Stirrup Placement)

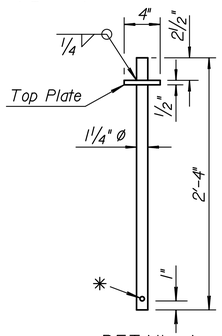
‡ *Marked End*
✡ *4" diameter - 11 gauge steel round mechanical tubing sleeve. These holes are optional.*
△ *V Notch is optional*



END VIEW

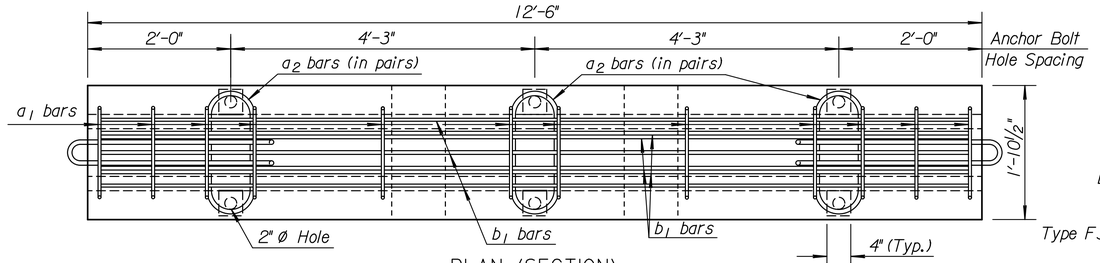


(1/2" Top Plate Detail)

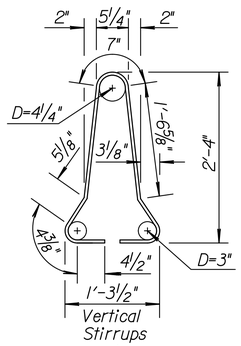


DETAIL A
CONNECTION PIN
(A36 Steel) 10.9 lbs. each

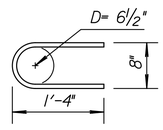
✳ *5/8" Ø hole for retainer bolt. The retainer bolt & nut are installed at Contractor's option.*
Note: Retainer bolt & nut required with Tie Down Strap.



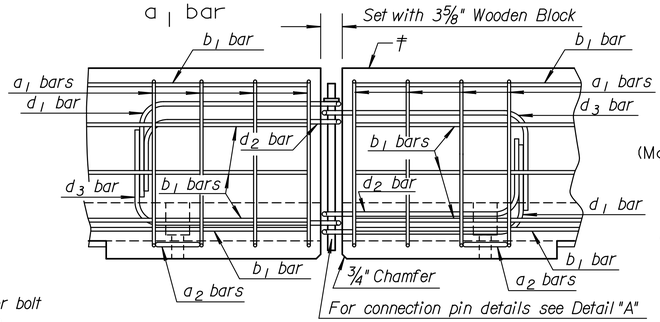
PLAN (SECTION)



a1 bar

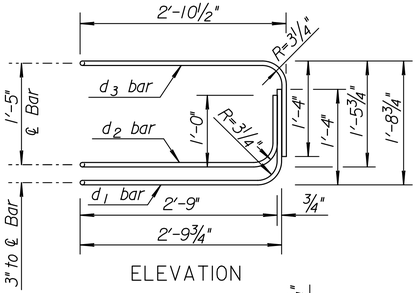


a2 bar

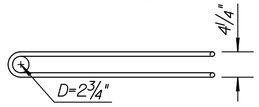


For connection pin details see Detail "A"

DETAILS OF BARRIER CONNECTION

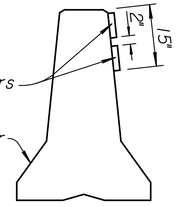


ELEVATION



PLAN
LOOP BAR ASSEMBLY
(Marked end shown, invert for other end)
(Material as stated in General Notes)

NOTE: At no time shall the barriers be lifted, moved, etc. by use of the loop bars: d_1, d_2 or d_3.



DELINEATOR DETAILS

GENERAL NOTES:

MATERIAL: Use ASTM A615, Grade 60 reinforcing bars, except for the loop bars (d_1, d_2 and d_3).

The loop bars (d_1, d_2 and d_3) shall be 3/4" smooth steel bars with a minimum yield of 60 ksi, a tensile strength of not less than 1.25 times the yield strength but a minimum of 80 ksi, a minimum 14% elongation in 8 inches, and passing a 180 degree bend test using a 3.5 D pin bend diameter. The loops shall be installed within 1/8" of the plan dimensions.

Use air-entrained concrete with f'c = 5,000 p.s.i.

SECTION: The section furnished must generally comply with dimensions shown. Requests for minor variations in section geometry and attachments may be submitted to the Engineer for approval.

LIFTING SLOTS: Lifting slots shall be constructed where specified on the plans to facilitate the drainage of water after installation on the roadway.

TEMPORARY CONCRETE SAFETY BARRIER: Furnishing and placing of all materials when required and all labor and equipment required to position the temporary barrier shall be included in the Contract unit price bid for "Concrete Safety Barrier (Type F3)(Temporary)". Any relocation of the barrier required for the project shall be paid in accordance with the Special Provisions under the bid item "Concrete Safety Barrier (Type F3) (Temporary-Relocate)". Unless otherwise noted on the Plans, the Temporary Concrete Safety Barrier shall become the property of the Contractor and shall be removed from the site upon acceptance of the completed project. Approximate weight of one unit equals 2.7 tons.

SURFACE PREPARATION: Barrier shall be placed on a paved surface. All loose dirt and sand shall be removed from the roadway surface just prior to placement of the barrier.

MARKING: The left end (‡) of each barrier shall be permanently marked by stamping or forming into the barrier the following information:

- *Type F3*
- *Manufacturer code (as specified by KDOT Bureau of Const. & Maint.)*
- *Date manufactured (month and year)*

DELINEATION: Delineators shall be spaced on 50' centers, except through curves having 1900' or greater curvature where they shall be spaced on 25' centers.

The delineation shall be mounted on the side of the Temporary Concrete Safety Barrier with two delineators at each location. Each delineator shall have a minimum height-to-width ratio of 1.75, and a minimum reflective surface area of 7 sq. in.. The delineators shall be affixed to the Temporary Concrete Safety Barrier as recommended by the manufacturer.

Delineators shall be attached to bridge rail or other structures in construction zones when roadway is narrowed and traffic is adjacent to the structure. The method and location of placement shall be similar to permanent barrier delineation.

When traffic flow is in one direction, the delineators shall be yellow when used on the left, white when used on the right. When traffic flow is in both directions delineators shall be placed back-to-back, and shall correspond to the color of the edge line.

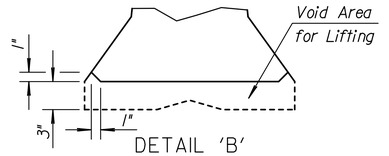
The work and materials required for the installation of delineators as mentioned shall be subsidiary to the bid item "Concrete Safety Barrier (Type F3) (Temporary).

Note: If necessary, include Standard Drawing RD622A for Taper Section, Standard drawing RD622B for anchor and tie down details, Standard Drawing RD622C for Bridges with thermal expansion of 1 1/2" or greater and Standard Drawing RD622D for Barrier Layouts.

Per 12'-6" Barrier Section

REINFORCING A615 Gr. 60					
Bar	*Bar Size*	*Shape*	*No. of Bars*	*Length Ft.*	*Weight Lbs.*
a_1	#4		12	6'-0"	48.1
a_2	#6		6	2'-11"	26.3
b_1	#5		7	12'-2"	88.8
LOOP ASSEMBLY					
d_1	#6		2	8'-5"	25.3
d_2	#6		2	7'-7"	22.8
d_3	#6		2	8'-6"	25.5

Concrete Quantity = 1.3 C.Y.
(Dimensions are out to out of bars unless otherwise noted.)



DETAIL 'B'
LIFTING SLOT DETAIL
(1" Chamfer to prevent spalling)

NO.	DATE	REVISIONS	BY	APP'D
3				
2	02-06-07	Revised additional sheets note	S.W.K.	J.O.B.
1	01-10-07	Rev. layout & notes, add. Delineation	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

TEMPORARY CONCRETE SAFETY BARRIER TYPE F3

RD622

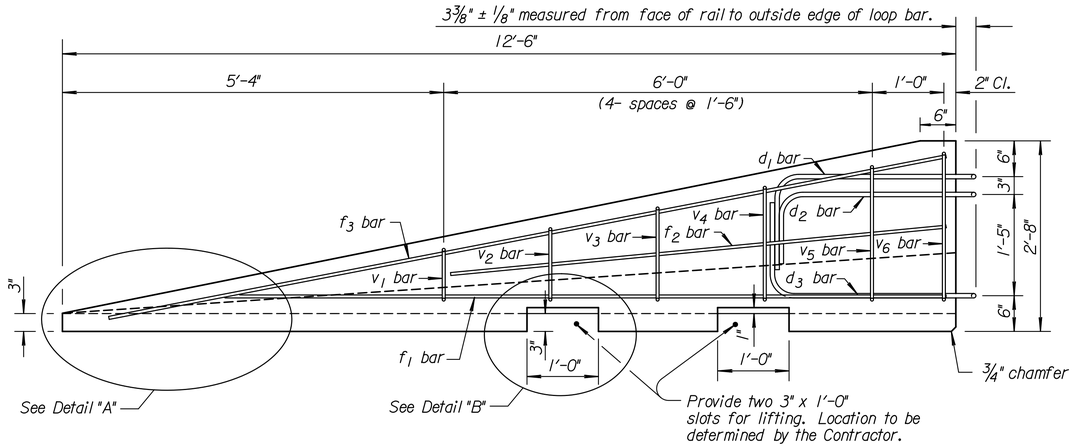
FHWA APPROVAL	01-19-07	APP'D. James O. Brewer	
DESIGNED	DETAILED	QUANTITIES	TRACED Bowser
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK. King

KDOT Graphics Certified 07-22-2010

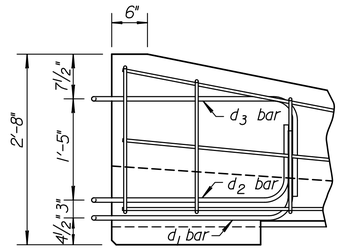
KDOT Graphics Certified

Plotted : 22-JUL-2010 18:23
Drawn By : marks
File : rd622.dgn (rd622)

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS				



ELEVATION (SECTION)
(For connection to left end of Barrier)



ELEVATION (SECTION)
(For connection to right end of Barrier)

GENERAL NOTES:

MATERIAL: Use ASTM A615, Grade 60 reinforcing bars, except for the loop bars (d_1, d_2 and d_3). The loop bars (d_1, d_2 and d_3) shall be ¾" smooth steel bars with a minimum yield of 60 ksi, a tensile strength of not less than 1.25 times the yield strength but a minimum of 80 ksi, a minimum 14% elongation in 8 inches, and passing a 180 degree bend test using a 3.5" D pin bend diameter. The loops shall be installed within ⅛" of the plan dimensions.
Use air-entrained concrete with f'c = 5,000 p.s.i.

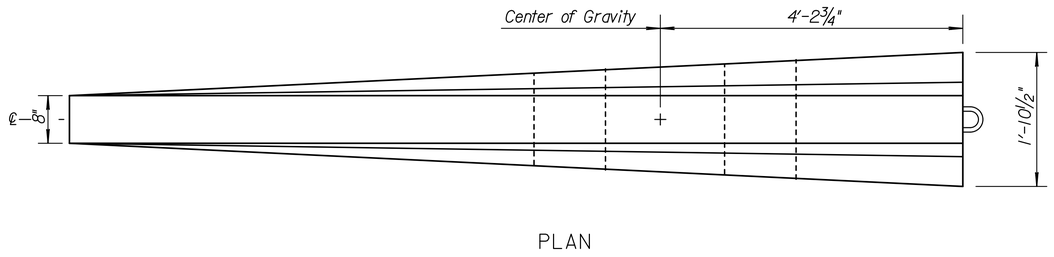
SECTION: The section furnished must generally comply with dimensions shown. Requests for minor variations in section geometry and attachments may be submitted to the Engineer for approval.

LIFTING SLOTS: Lifting slots shall be constructed where specified on the plans to facilitate the drainage of water after installation on the roadway.

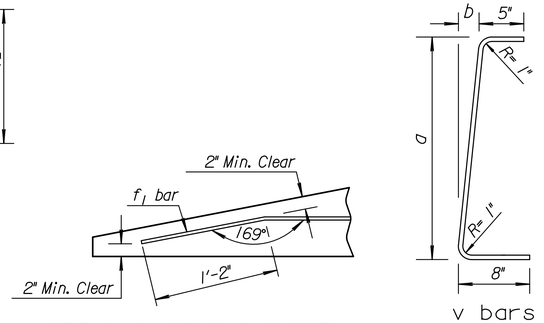
TEMPORARY CONCRETE SAFETY BARRIER: One section of Taper Barrier shall be bid as one section of Type F3 Barrier. Type F3 barrier taper sections shall be used only for low speed (40 mph or less) applications or where a barrier terminates beyond the roadway clear zone. Where a barrier terminates within the clear zone of a high speed roadway, an appropriate impact attenuator shall be installed on the approach end. Furnishing and placing of all materials when required and all labor and equipment required to position the temporary barrier shall be included in the Contract unit price bid for "Concrete Safety Barrier (Type F3)(Temporary)". Any relocation of the barrier required for the project shall be paid in accordance with the Special Provisions under the bid item "Concrete Safety Barrier (Type F3)(Temporary-Relocate)". Unless otherwise noted on the Plans, the Temporary Concrete Safety Barrier shall become the property of the Contractor and shall be removed from the site upon acceptance of the completed project. Approximate weight of one unit equals 1.3 tons.

SURFACE PREPARATION: Barrier shall be placed on a paved surface. All loose dirt and sand shall be removed from the roadway surface just prior to placement of the barrier.

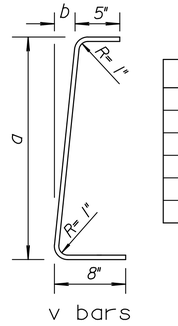
MARKING: Each barrier shall be permanently marked by stamping or forming into the barrier the following information:
- Type F3
- Manufacturer code (as specified by KDOT Bureau of Const. & Maint.)
- Date manufactured (month and year)



PLAN

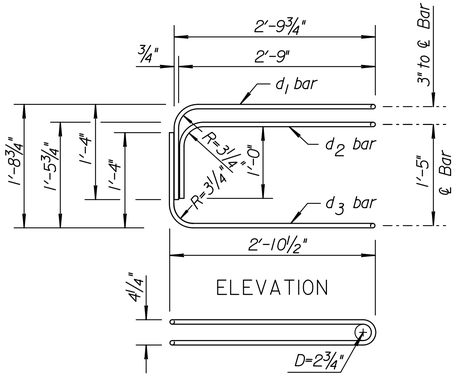


DETAIL "A" BENT BAR DETAIL

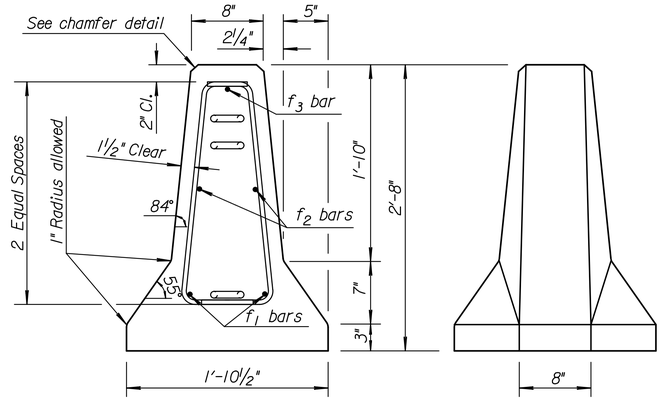


v bars
2 at each size required for stirrup assembly

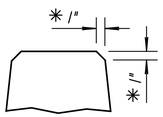
Bar	a	b
v_1	10"	1"
v_2	1'-1"	1¼"
v_3	1'-5"	1⅝"
v_4	1'-8"	1⅞"
v_5	2'-0½"	2⅜"
v_6	2'-3"	2¾"



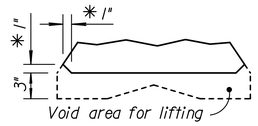
PLAN
LOOP BAR ASSEMBLY
(Left Barrier Connection shown, invert for other end)



END SECTION END VIEW



CHAMFER DETAIL



DETAIL "B" LIFTING SLOT DETAIL
*1" Chamfer to prevent spalling

Per 12'-6" Barrier Taper Section

REINFORCING A615 Gr. 60					
Bar	Bar Size	Shape	No. of Bars	Length ft.	Weight lbs.
v_1	#4	[	2	1'-11"	2.6
v_2	#4	[	2	2'-2"	2.9
v_3	#4	[	2	2'-6"	3.3
v_4	#4	[	2	2'-9"	3.7
v_5	#4	[	2	3'-2"	4.2
v_6	#4	[	2	3'-4"	4.5
f_1	#4	——	2	12'-0"	16.0
f_2	#4	——	2	7'-6"	10.0
f_3	#5	——	1	11'-9"	12.3
LOOP ASSEMBLY					
d_1	#6	⌐¬	1	8'-5"	12.6
d_2	#6	⌐¬	1	7'-7"	11.4
d_3	#6	⌐¬	1	8'-6"	12.8

Concrete Quantity = 0.6 C.Y.

Note: At no time shall the barriers be lifted, moved, etc. by use of the loop bars: d_1, d_2 or d_3.

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1	1-10-07	Revised layout & notes	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

TEMPORARY CONCRETE SAFETY BARRIER TAPER SECTION TYPE F3

RD622A

FHWA APPROVAL	01-19-07	APP'D. James O. Brewer	
DESIGNED	DETAILED	QUANTITIES	TRACED B.N.B.
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK. S.W.K.

KDOT Graphics Certified 07-22-2010

KDOT Graphics Certified

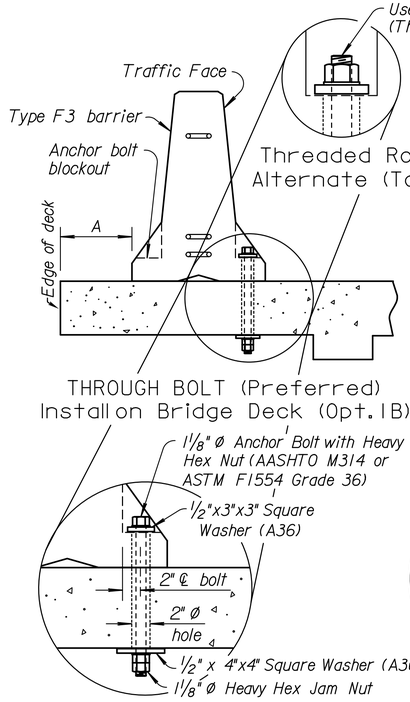
Plotted : 22-JUL-2010 18:23
Drawn By : marks
File : rd622a.dgn (rd622a)

Option	BRIDGE DECK APPLICATION	
1 B	0′ ≤ A < 2′	Anchor each barrier with 3 bolts on traffic face
2 B	△2′ ≤ A < 4′	Anchor with Tie-down strap connector
3 B	A ≥ 4′	No anchorage required unless shown on plans

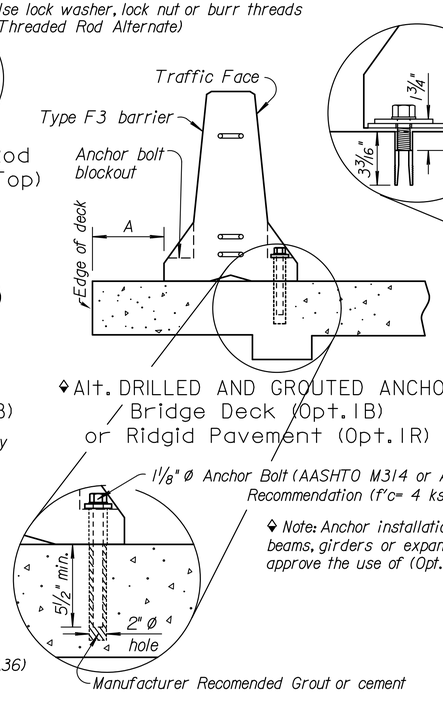
Option	ROAD PAVEMENT APPLICATION	
1 R	0" ≤ A < 2′	Anchor each barrier with 3-bolts on traffic face
2 R	6" ≤ A < 2′	Anchor with Tie-down Strap or Staked Down (flexible)
3 R	A ≥ 2′	No anchorage required

△ *This dimension may be reduced to 1′ on a newly constructed Bridge Deck.*

Note: BRIDGE APPLICATION (Opt. 1 B) may be used in lieu of (Opt. 2 B) with prior approval from the State Bridge Office.

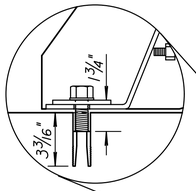


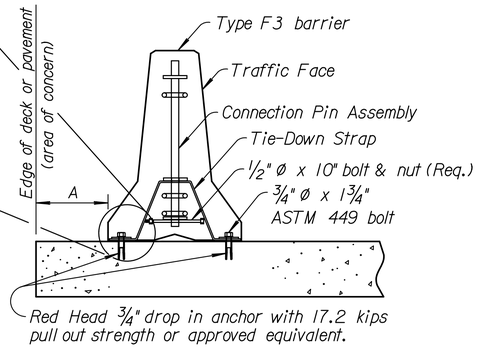
THROUGH BOLT (Preferred)
Install on Bridge Deck (Opt. 1B)



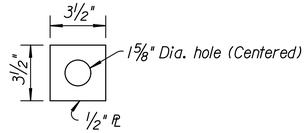
◆Alt. DRILLED AND GROUTED ANCHOR
Bridge Deck (Opt. 1B)
or Ridgid Pavement (Opt. 1R)

◆ *Note: Anchor installation (Opt. 1 B) avoids damage to the support beams, girders or expansion joint. The State Bridge Office shall approve the use of (Opt. 1 B).*

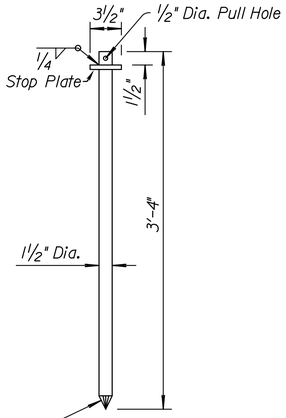




TIE-DOWN STRAP
Rigid Pavement (Opt. 2 R) or
Bridge Deck (Opt. 2 B)



STOP PLATE DETAIL



STAKE DETAIL

GENERAL NOTES:

INSTALLATION: Holes into the pavement to anchor the concrete safety barrier may be drilled after positioning barrier. Barrier units may be installed with Through Anchor Bolt where possible. Grouted Anchor bolts may be used where Through Anchor Bolt isn't possible. Do not drill into or otherwise damage support beams, girders, or expansion joints. All work and materials required for the installation of the anchors shall be subsidiary to the bid item "Concrete Safety Barrier".

UTILITIES & STRUCTURES (Stakes) Verify buried utilities and structures within stake depth. If conflicts between stake and buried elements exist, up to 2 stakes maximum in a single barrier may be omitted if adjacent barriers have 3 stakes each.

ANCHORAGE: Grouted Anchor Bolts, Through Anchor Bolts, Nuts & Washers shall be Galvanized and meet Standard Specifications.

Install three Anchor Bolts or Asphalt Pins per Barrier on the Traffic side except on Transition Barrier as shown.

BARRIER REMOVAL: Remove Grouted or Wedge Anchor System by drilling the anchor with a core barrel 2x the diameter of the insert. Core to a depth equal to the installed depth and remove the core. Prepare the hole by removing any dust and debris. Follow the manufacture procedures for mixing, hole preparation and curing. Use materials which meet KDOT Pre-qualified "Non-Shrink Grouts for Grouting Anchor Bolts and Reinforcing into Previously Poured Concrete".

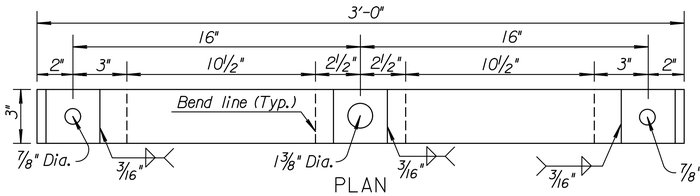
Remove Through Bolt Anchor and completely fill the hole with approved grout using instructions for Drop-In Anchors above except no coring is required of through deck hole.

Remove all Stakes completely on removed or relocated barrier, fill holes completely in flexible pavement with hot or cold asphalt patch material. Work and materials required to remove and patch anchor holes shall be subsidiary to the bid item "Concrete Safety Barrier".

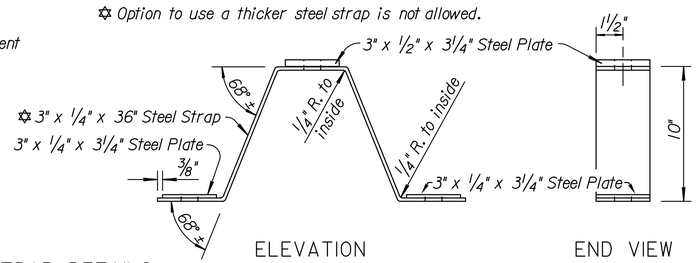
SIGNING: For sign spacing, details of other traffic control devices and reference notes, see Index of Sheets for location.

TEMPORARY BARRIERS: Barriers constructed to the details of this drawing shall not be used in permanent installations.

Note: See Std. Drawing No. RD622 for details and quantities not shown on this sheet.



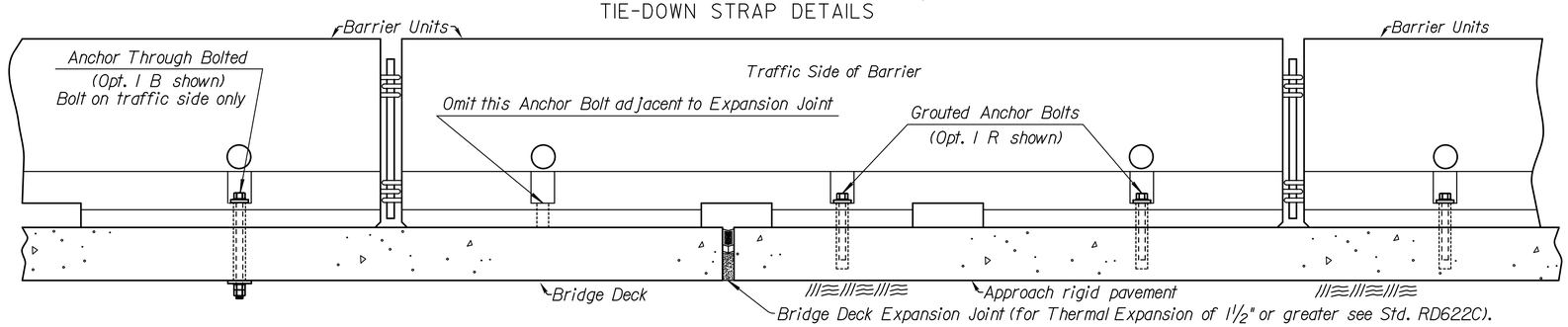
PLAN



ELEVATION

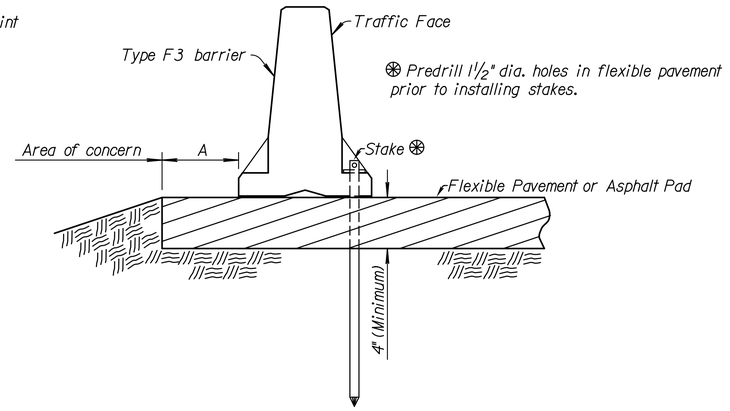
END VIEW

TIE-DOWN STRAP DETAILS



ELEVATION

TREATMENT AT BRIDGE DECK EXPANSION JOINT SCHEMATIC (Expansion < 1½")



FLEXIBLE PAVEMENT ROAD APPLICATION
ELEVATION - STAKED DOWN (Opt. 2 R)

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS				

NO.	DATE	REVISIONS	BY	APP'D
3	2-2-10	Rev. Anchor to Tie-down callout	S.W.K.	J.O.B.
2	10-2-07	Rev. anchor bolt call-out	S.W.K.	J.O.B.
1	1-30-07	Rev. traffic face location call-out	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

TEMPORARY CONCRETE SAFETY BARRIER TYPE F3 ANCHORAGE

RD622B

FHWA APPROVAL	4-7-10	APP'D. James O. Brewerr	
DESIGNED	DETAILED	QUANTITIES	TRACED Bowser
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK. King

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Note to Designer: For use on Haunched slab bridges, the Road Designer shall coordinate with the Bridge Designer for "corridor in the reinforcing steel layout to accomodate barrier anchoring". Road Designer shall coordinate barrier layout with Bridge Designer to accomodate for expansion during construction.

Plotted :22-JUL-2010 18:23

Drawn By : marks
File : rd622b.dgn (rd622b)

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS				

Note to Designer: This F3 Barrier Anchorage at Expansion Joint is only for use on bridges with thermal expansion of 1½" or greater at the recommendation and review of Bridge Designer. Bridges longer than 1,000 feet require a Special Design.

Plotted : 22-JUL-2010 18:23

Drawn By : marks
File : rd622c.dgn (rd622c)

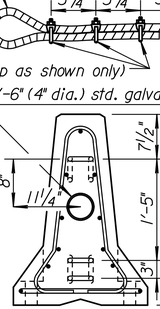
Ψ 25'-9" (out to out) of 5/8" 6x36 Steel Core EEIP RL (ASTM A-1023) Insert Wire Rope thru 4" dia. Galvanized Pipe and secured with Connection Pin.

3¾" 3¾" 3- 5/8" Drop Forged Cable Clamps

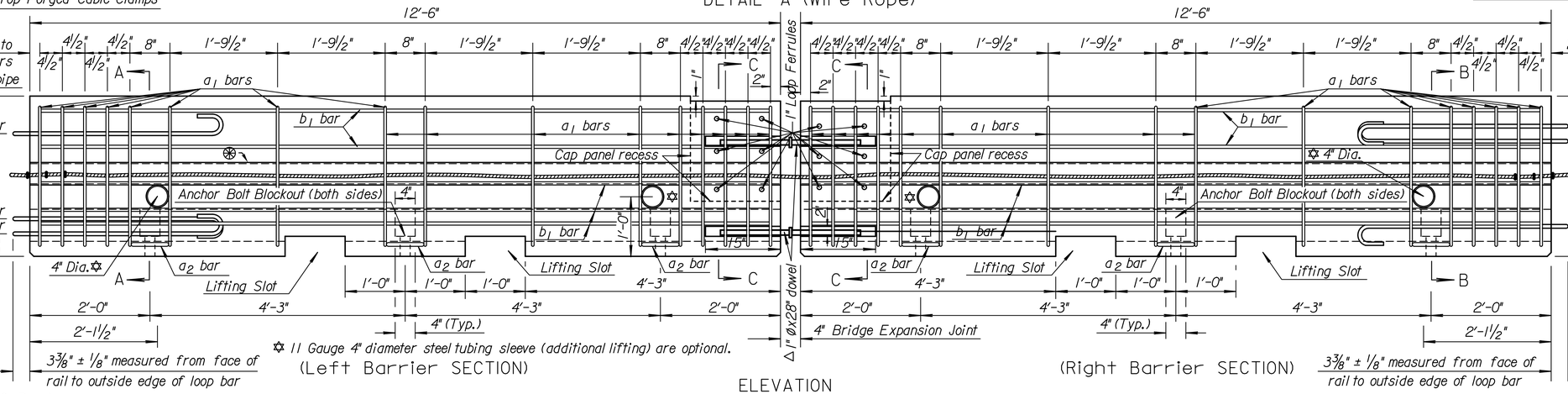
(Clamp as shown only)

⊛ 12'-6" (4" dia.) std. galvanized pipe

DETAIL "A" (Wire Rope)



SECTION A-A
TYPICAL SECTION
(Left Barrier Stirrup Placement)



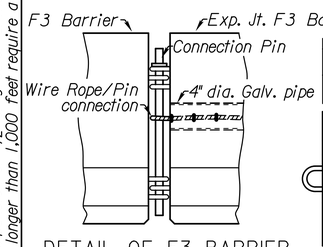
⊛ 11 Gauge 4" diameter steel tubing sleeve (additional lifting) are optional.

(Left Barrier SECTION)

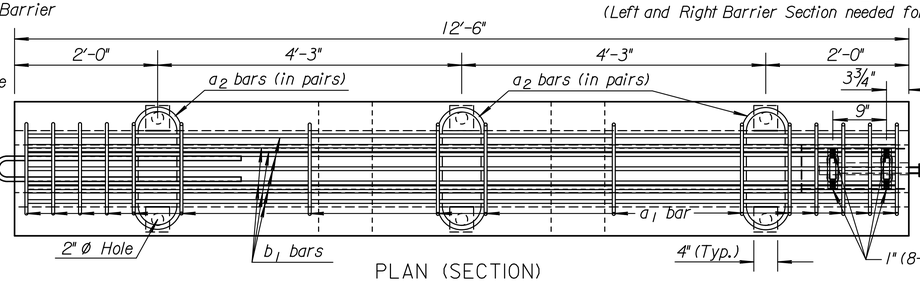
(Right Barrier SECTION)

SECTION B-B
TYPICAL SECTION
(Right Barrier Stirrup Placement)

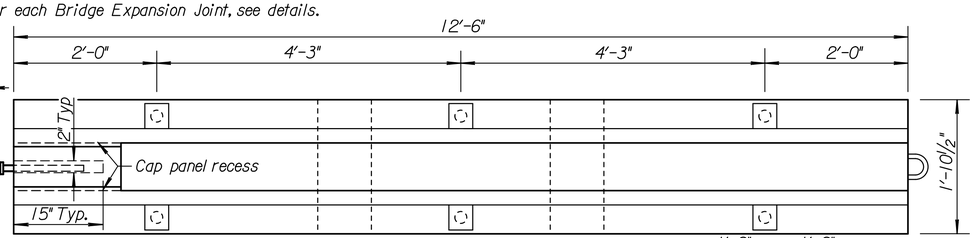
ELEVATION
(Left and Right Barrier Section needed for each Bridge Expansion Joint, see details.



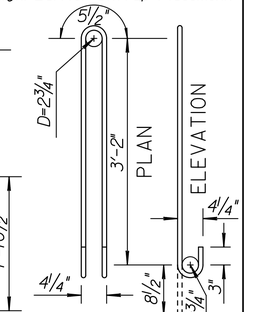
DETAIL OF F3 BARRIER & EXP. JT. F3 BARRIER WIRE ROPE CONNECTION



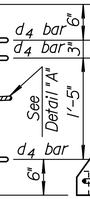
PLAN (SECTION)



PLAN

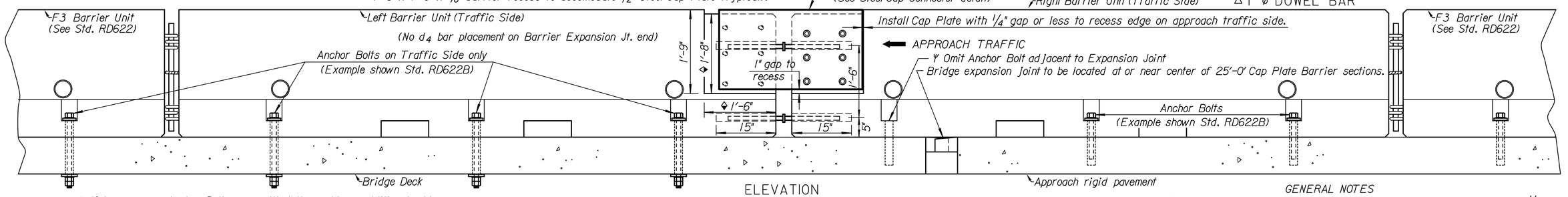


d4 Bending Diagram



Δ 1" ø DOWEL BAR

◈ 1'-6" x 1'-9" x 5/8" barrier recess to accomodate ½" Steel Cap Plate (Typical).



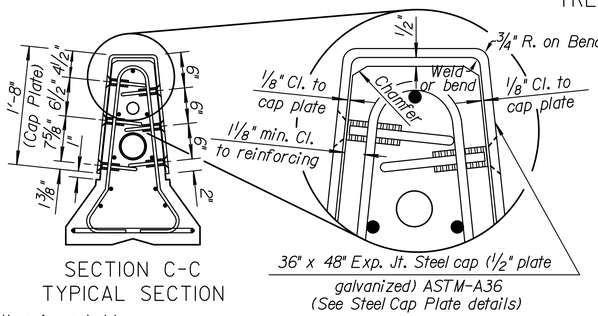
ELEVATION
TREATMENT AT BRIDGE DECK EXPANSION JOINT SCHEMATIC

Ψ If two or more Anchor Bolts are omitted, then add an additional cable.

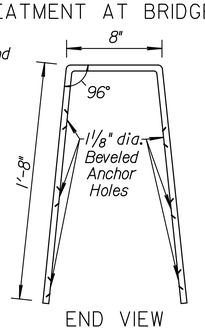
Per 12'-6" Barrier Section

REINFORCING A615 Gr. 60					
Bar	Bar Size	Shape	No. of Bars	Length Ft.	Weight Lbs.
a_1	#4		16	6'-0"	64.1
a_2	#6		6	2'-11"	26.3
b_1	#5		9	12'-2"	114.2
LOOP ASSEMBLY					
d_4	#6		3	8'-2"	36.8
½" Structural Steel Cap Plate					201.3

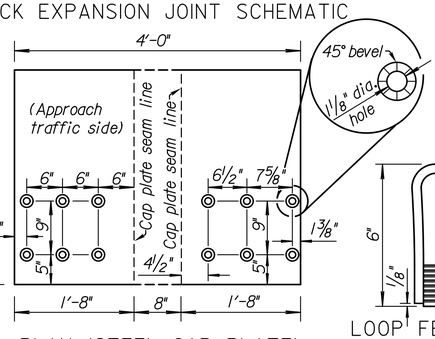
Concrete Quantity = 1.3 C.Y.
(Dimensions are out to out of bars unless otherwise noted.)
Reinf., Struct. and Concrete quanitities are for "Information Only".



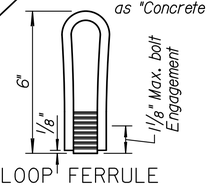
SECTION C-C
TYPICAL SECTION



END VIEW
STEEL CAP PLATE



PLAN (STEEL CAP PLATE)



LOOP FERRULE
(1" Galvanized)

(1" Ø-8 NC x 1¾" ASTM 307 galvanized bolt)

FLAT HEAD
SOCKET CAP
SCREW-Coarse

GENERAL NOTES

Installation of F3 Barrier with Steel Cap Plate is for thermal expansion joint with ≥ 1½". This two barrier system (25'-0") is reversible to match with regular F3 Barrier layout. The Cap Plate sections are installed with no greater than 4" gap and pinned as shown in Expansion Jt. schematic. Install Cap Plate flush to recess on Traffic Approach side and bolt in place front and back of barrier with attachment types shown.

See Standard Drawing RD622 for reinforcing bending diagrams and additional details not shown on this sheet.

The State Bridge Office will review shop details before fabrication begins.

All materials, labor and equiptment needed for (Type F3) (25' Expansion Joint Unit) shall be bid as "Concrete Safety Barrier (Type F3) (Temporary)".

NO.	DATE	REVISIONS	BY	APP'D
3	7-26-07	Chg. flat head screw & ferrul to 1" ø	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

TEMPORARY CONCRETE SAFETY BARRIER TYPE F3 ANCHORAGE at EXPANSION JT.

RD622C

FHWA APPROVAL	10-05-07	APP'D. James O. Brewer	
DESIGNED J.P.J.	DETAILED	QUANTITIES	TRACED B.N.B.
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK. S.W.K.

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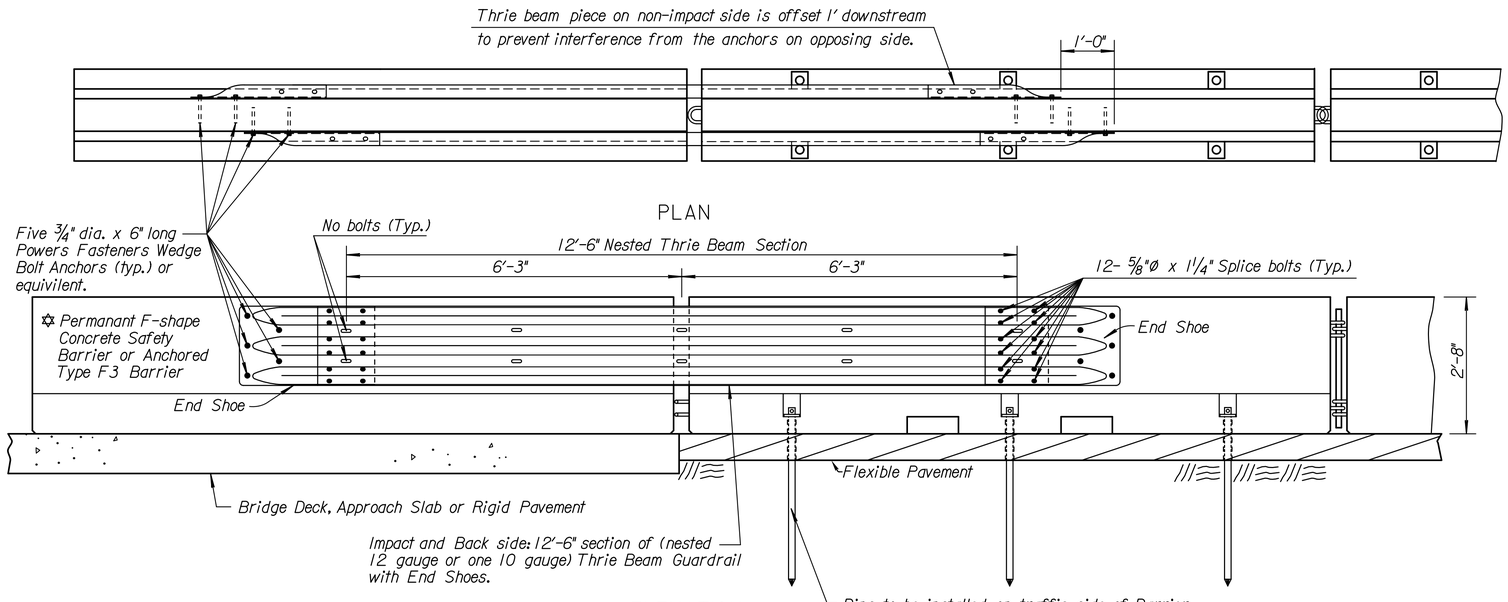
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS				



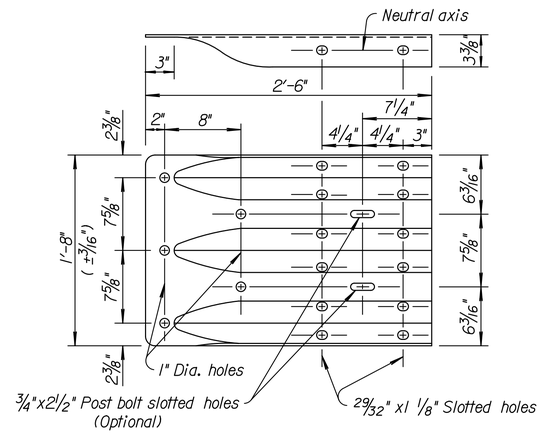
ELEVATION

✡ GUARDRAIL CONNECTION

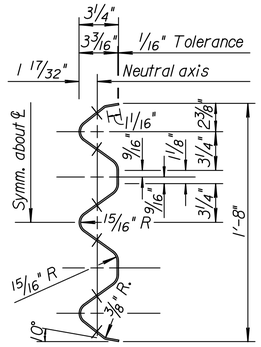
ANCHORED/RIGID BARRIER TO FREESTANDING BARRIER

GENERAL NOTES:

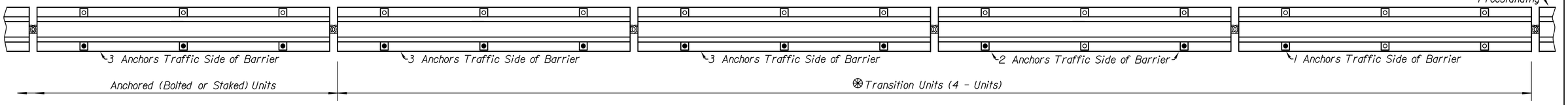
The work and materials required for the installation & removal of the guardrail connection and barrier anchors as shown on this sheet shall be subsidiary to the "Concrete Safety Barrier" bid item.



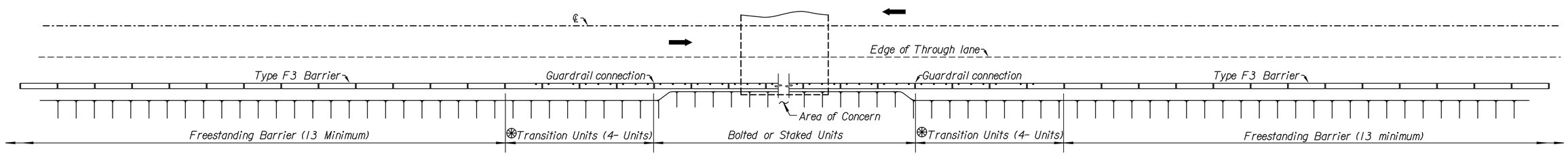
TERMINAL CONNECTOR



THRU RAIL ELEMENT
TYPICAL THRIE BEAM



PLAN (Transition Units)



✡ APPROACH TRANSITION FROM FREESTANDIING TO ANCHORED (BOLTED OR STAKED) TYPE F-3 CONCRETE BARRIER

✡ TYPICAL INSTALLATIONS

1) Type F3 barrier anchored to rigid pavement with bolted connection or bolted to a bridge deck.
   -the transtion between this anchored barrier and the freestanding needs the transition barriers plus guardrail as shown above.
2) Permanent F-shape barrier
   -the transtion between this permanent barrier and the freestanding Type F3 needs the transition barriers plus guardrail as shown above.
3) Type F3 barrier anchored with straps on rigid pavement or a bridge deck
   -the transtion between this anchored barrier and the freestanding needs NO transition barriers or NO guardrail.
4) Type F3 barrier pinned/staked to asphalt pavement
   -the transtion between this anchored barrier and the freestanding needs the transition barriers but NO guardrail.

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1	1-30-07	Rem. temp. details from perm. barrier	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

TEMPORARY CONCRETE SAFETY BARRIER TYPE F3 TRANSITION LAYOUTS

RD622D

FHWA APPROVAL	01-19-07	APP'D. James O. Brewer	
DESIGNED	DETAILED	QUANTITIES	TRACED Bowser
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK. King

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Plotted : 22-JUL-2010 18:24

Drawn By : marks
File : rd622d.dgn (rd622d)