BUR. PUB. RDS. DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR
5	KANSAS	54-87 U 038-3(17)	195

STATE OF KANSAS
STATE HIGHWAY COMMISSION

BRIDGE
CONCRETE PAVEMENT
ELECTRIC LIGHTING

PLAN AND PROFILE OF PROPOSED
STATE HIGHWAY
FEDERAL AID PROJECT
54-87 U 038-3(17)

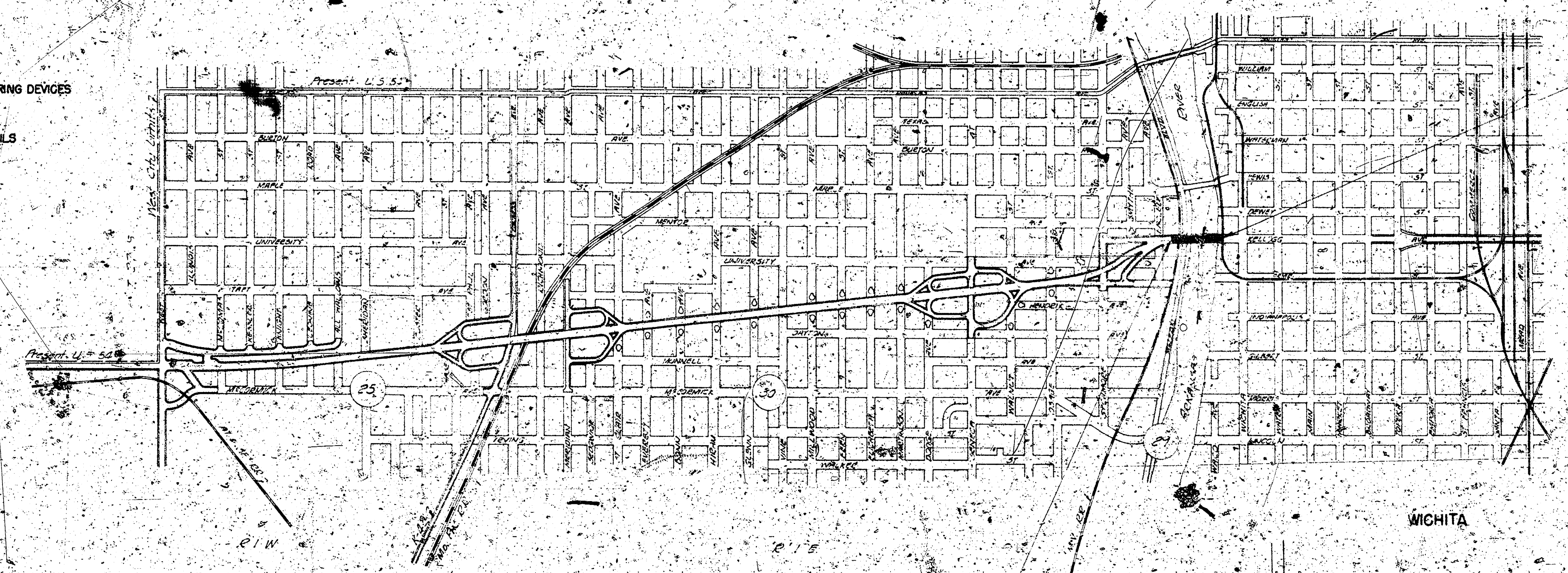
INDEX OF SHEETS

SHEET NO. 1 TITLE SHEET
" " 2 PAVING DETAILS & QUANTITIES
" " 3 PLAN & PROFILE
" " 4 CONCRETE PAVEMENT
" " 5 SPECIAL CONCRETE PAVEMENT AT BRIDGE APPROACH
" " 6 DOWELED EXPANSION JOINT & INSTALLING DEVICE FOR EXPANSION JOINTS
" " 7 STEEL PLATE GUARD FENCE
" " 8 ENGINEERING GEOLOGY
" " 9 CONSTRUCTION LAYOUT - UNIT NO. 1
" " 10-11 ABUTMENT DETAILS
" " 12-13 PIER NO. 1 DETAILS
" " 14-15 PIER NO. 2 DETAILS
" " 16-17 PIER NO. 3 DETAILS
" " 18 BENDING DIAGRAMS - SUBSTRUCTURE
" " 19 SLAB ELEVATIONS & COORDINATES
" " 20 SUPERSTRUCTURE REINFORCING DETAILS
" " 21 REINFORCING DETAILS - GIRDER WEB
" " 22-23 GIRDER SECTIONS
" " 24 BENDING DIAGRAMS - SUPERSTRUCTURE
" " 25 EXPANSION DEVICE DETAILS
" " 26 EXPANSION DEVICE DETAILS & BEARING DEVICE DETAILS
" " 27 HANDRAIL & LIGHTING DETAILS
" " 28 CONSTRUCTION LAYOUT - UNIT NO. 2
" " 29 PIER NO. 4 & 8 DETAILS
" " 30 PIER NO. 5, 6, & 7 DETAILS
" " 31 PIER NO. 9 DETAILS
" " 32 PIER REINFORCING DETAILS
" " 33-34 SLAB & GIRDER REINFORCING
" " 35 SLAB & GIRDER REINFORCING & BEARING DEVICES
" " 36 WEB & DIAPHRAGM DETAILS
" " 37 TYPICAL SECTIONS & ELEVATIONS
" " 38 SUPERSTRUCTURE REINFORCING DETAILS
" " 39 EXPANSION DEVICE DETAILS
" " 40 HANDRAIL & LIGHTING DETAILS
" " 41 ALTERNATE PILE DETAILS
" " 42 BAR SUPPORTS & SPACERS
" " 43 BRIDGE EXCAVATION

Sta. 101+34.00 Construct Bridge No. 54-87-25.6 40'-50'-54' (Unit #1) &
63'-80'-80'-80'-80'-69' (Unit #2) Cont. P.C. Box Girder Spans
Pedestal Type Piers on Piles - One Pile Bent Abutment - 2-28'-0"
Roadways & 4'-0" Median - Unit No. 1 on Horizontal Curve
Unit No. 2 Skewed 70°-00' Rt.

TRAFFIC CENSUS 35000 VEHICLES PER DAY - SEE SKETCH

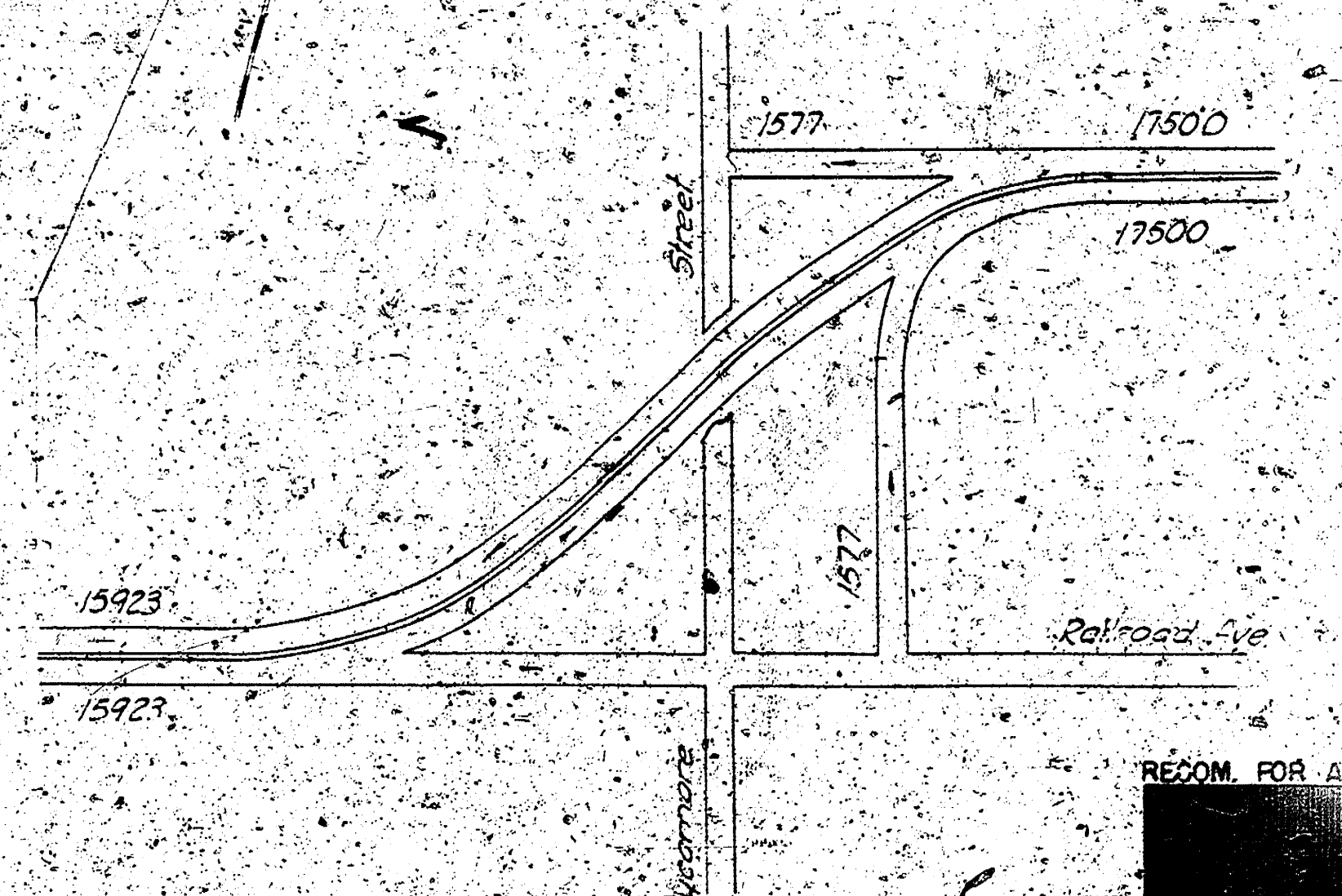
STA. 104+33.87 END
Proj. No. 54-87 U 038-3(17)



NOTE: TRAFFIC SHALL BE CARRIED THRU CONSTRUCTION ON McLEAN BLVD.

STA. 98+33.71 BEGIN
Proj. No. 54-87 U 038-3(17)
STA. 98+33.71 END
Proj. No. 54-87 U 038-3(15)

WICHITA



SKETCH SHOWING
1975 TRAFFIC FORECAST

PLANS PREPARED BY
FINNEY & TURNIPSEED
CONSULTING ENGINEERS
TOPEKA, KANSAS

DATE 19

APPROVED

CITY ENGINEER

DATE 19

CONVENTIONAL SIGNS

COUNTY LINE
CITY, VILLAGE OR BOROUGH
STATE OR NATIONAL LINE
TOWNSHIP LINE
SECTION LINE
GRANT LINE
FENCE LINE
GUARD FENCE
UNFENCED PROPERTY
RIGHT OF WAY LINE
TRAVELLED WAY
RAILROADS

RETAINING WALL
BASE OR SURVEY LINE
LEVEE
CULVERTS
DROP INLETS
TROLLEY POLE
POWER LINE
TELEPHONE OR TELEGRAPH LINE
MARSH
HEDGE
TREES
GRADE ELEVATION

GROSS LENGTH OF PROJECT	600.16	FT.		
EXCEPTIONS	0	FT.		
ADDITIONS	0	FT.		
NET LENGTH OF PROJECT	600.16	FT.	0.113	MILES
NET LENGTH OF BRIDGES	600.16	FT.	0.113	MILES
NET LENGTH OF ROAD	0	FT.	0	MILES

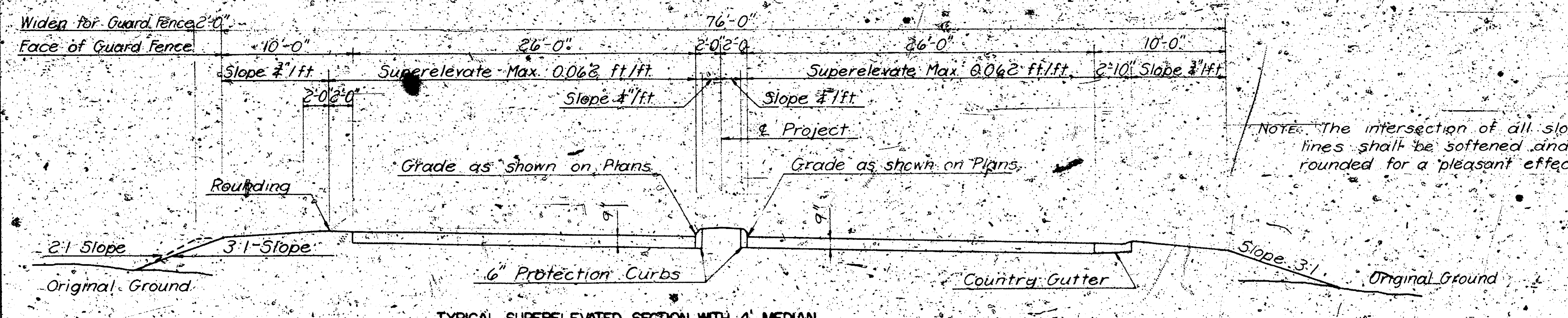
RECOM. FOR APPROVAL DATE
[redacted]
ENGINEER OF DESIGN
STATE HIGHWAY COMMISSION OF KANSAS

APPROVED DATE
[redacted]
STATE HIGHWAY ENGINEER
STATE HIGHWAY COMMISSION OF KANSAS

RECOM. FOR APPROVAL
[redacted]
ENGINEER
BUREAU OF PUBLIC ROADS
DEPARTMENT OF COMMERCE

APPROVED
[redacted]
ENGINEER
BUREAU OF PUBLIC ROADS
DEPARTMENT OF COMMERCE

Bur. Pub. Rds. Div. No.	State	Project No.	Fiscal Year	Sheet No.	Total Sheets
5	Kansas	54-87U038-3(17)	195	2	[illegible]



NOTE: The intersection of all slope lines shall be softened and rounded for a pleasant effect.

TYPICAL SUPERELEVATED SECTION WITH 4' MEDIAN

GENERAL NOTES

All additional Right of Way required shall be furnished by the City of Wichita, Sedgwick County, Kansas.

Encroachments such as buildings, fences, telegraph and power lines shall be moved by the owners.

In the interest of Public Safety, all gas, gasoline, and oil lines shall be moved beyond the limits of the roadbed by the owner unless special provision for their retention has been made.

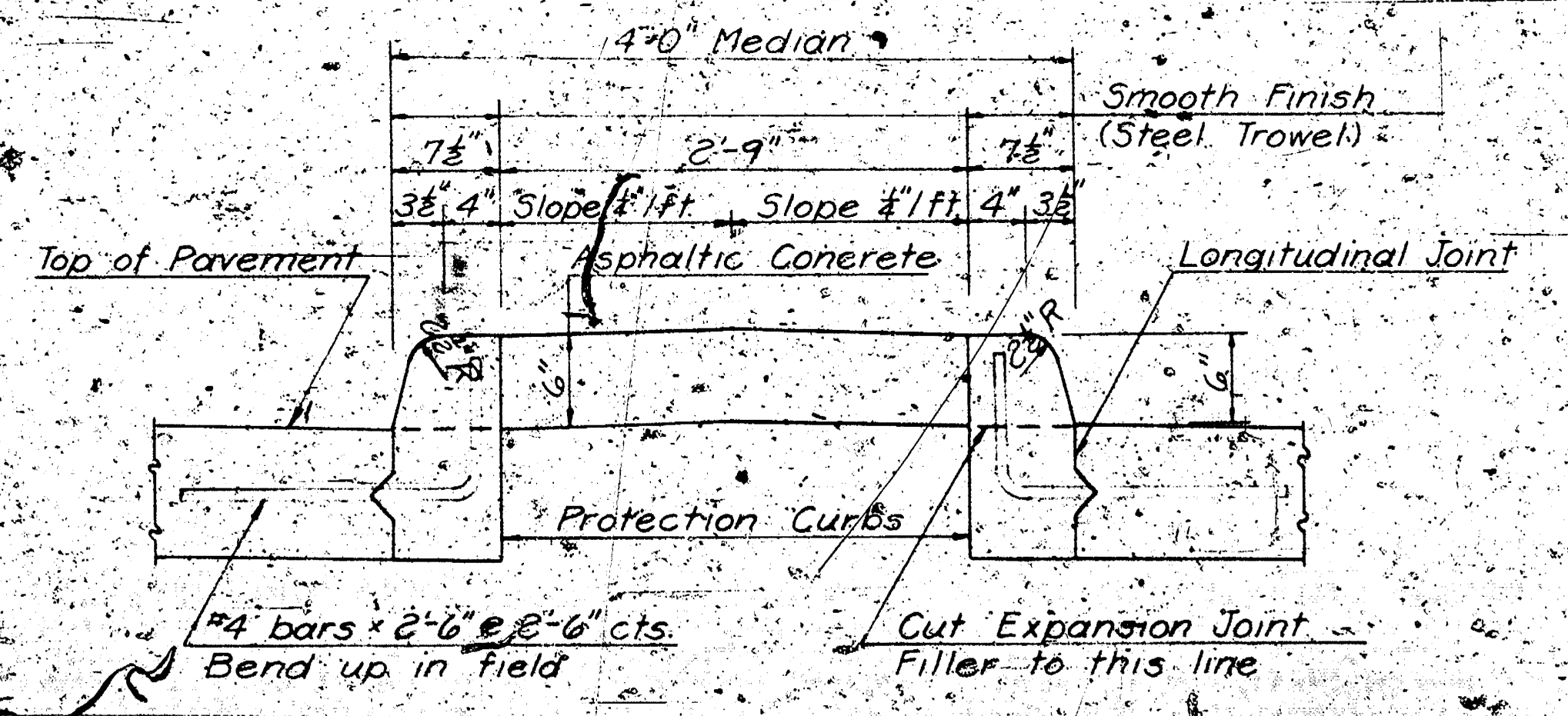
All water lines less than three feet below the surface of the proposed grade or lines not constructed of lead, copper, cast iron or wrought iron, or lines not in good condition shall be lowered, replaced or removed beyond the limits of the roadbed by the owners.

All other underground utilities shall be placed in good condition and adjusted to fit the new construction by the owners.

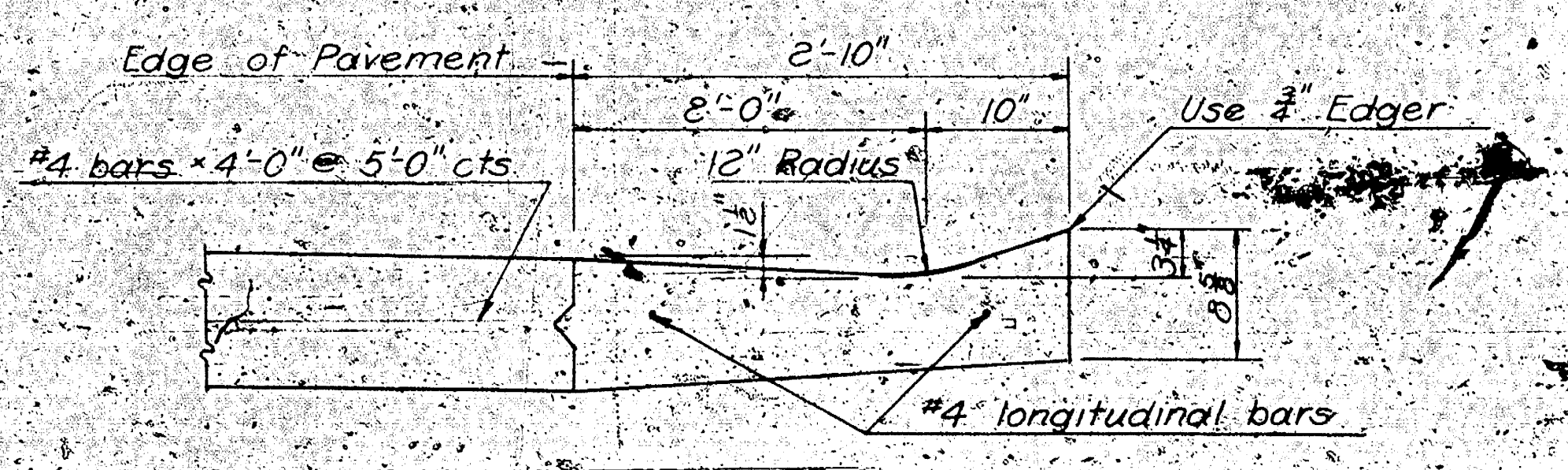
All valves, meter boxes, hydrants, manholes, etc. shall be moved or adjusted to the new construction by the owners unless otherwise noted on the plans.

The geological information shown on the plans is from studies made in the field and represents the best information available to the Kansas Highway Commission.

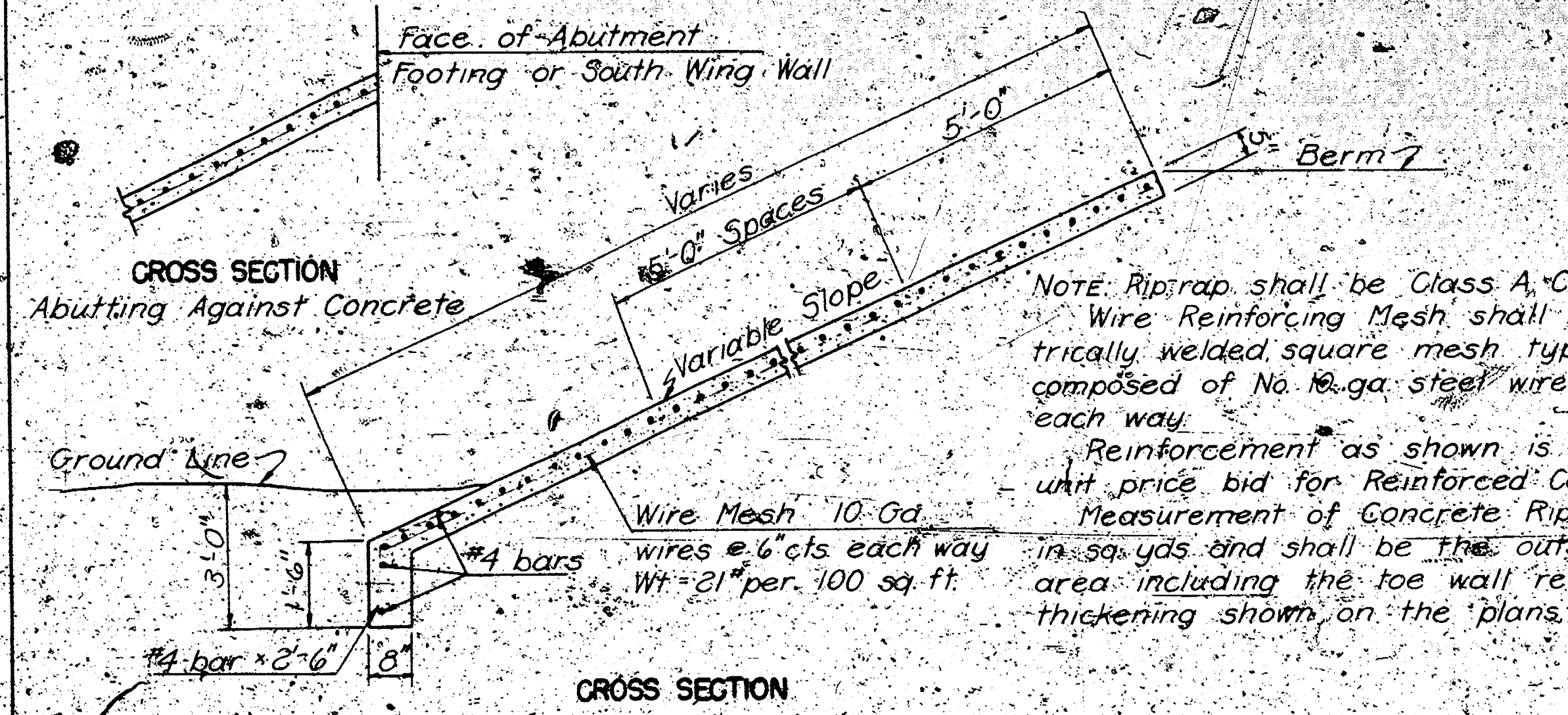
Channels shall be cut at all culverts (unless otherwise noted) to the flow line elevation and to a width of one foot outside of each outside wall and with slopes of 2:1 prior to construction of the culvert. Quantities are included in the excavation totals.



TYPICAL SECTION
PAVED MEDIAN (ASPHALTIC CONCRETE CLASS F-HM)



TYPICAL SECTION OF GUTTER



Face of Abutment
Footing or South Wing Wall
5'-0"
Varies
@ 6'-0" Spaces
Variable Slope
Berm
CROSS SECTION
Abutting Against Concrete
Ground Line
Wire Mesh 10 Ga. wires @ 6" cts each way Wt = 21# per 100 sq. ft.
#4 bars
#4 bar @ 2'-6"
3'-0"

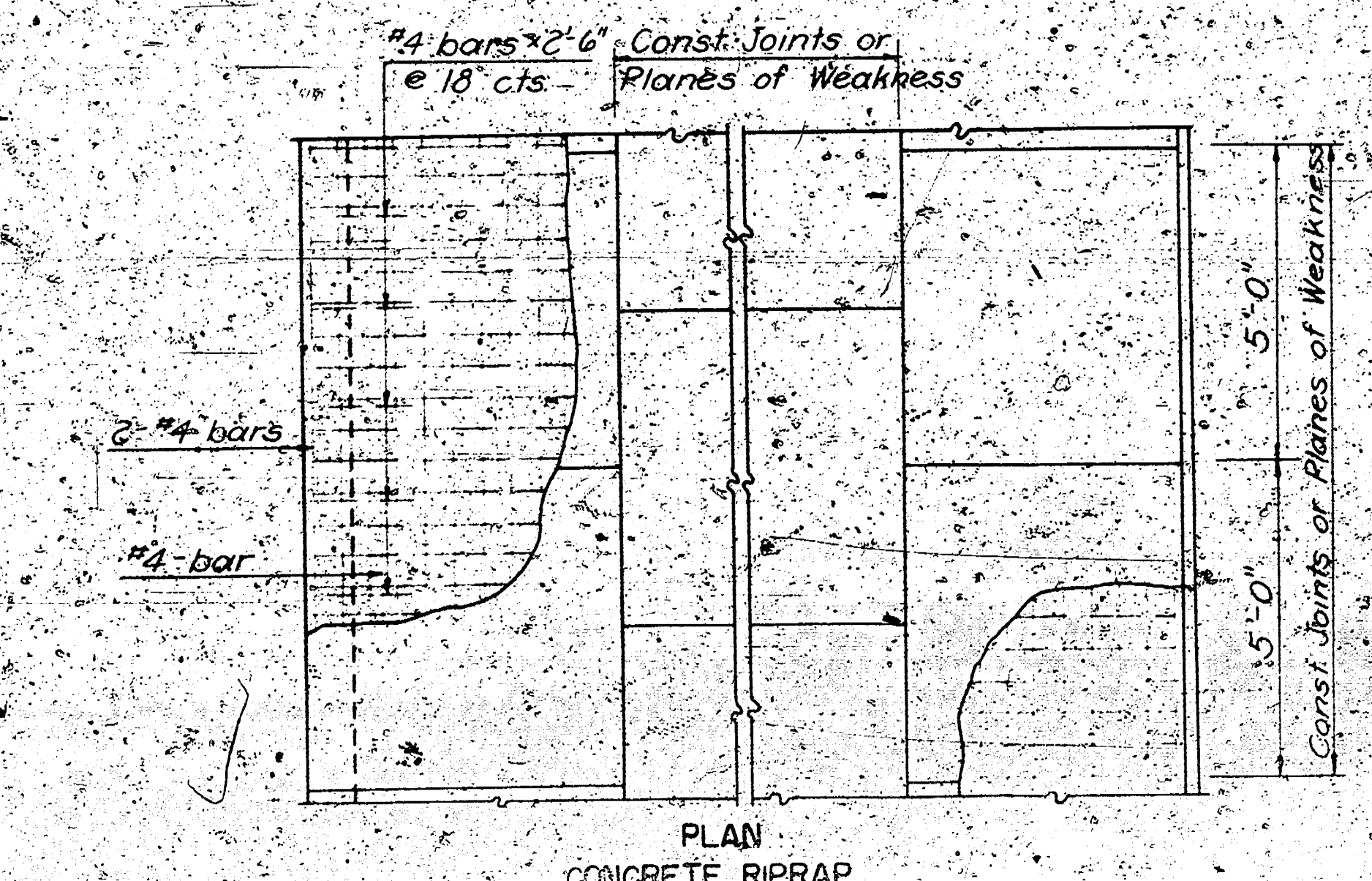
NOTE: Rip-rap shall be Class A Concrete.

Wire Reinforcing Mesh shall be of the electrically welded square mesh type and shall be composed of No. 10 ga. steel wire spaced @ 6" cts each way.

Reinforcement as shown is included in the unit price bid for Reinforced Concrete Rip-rap.

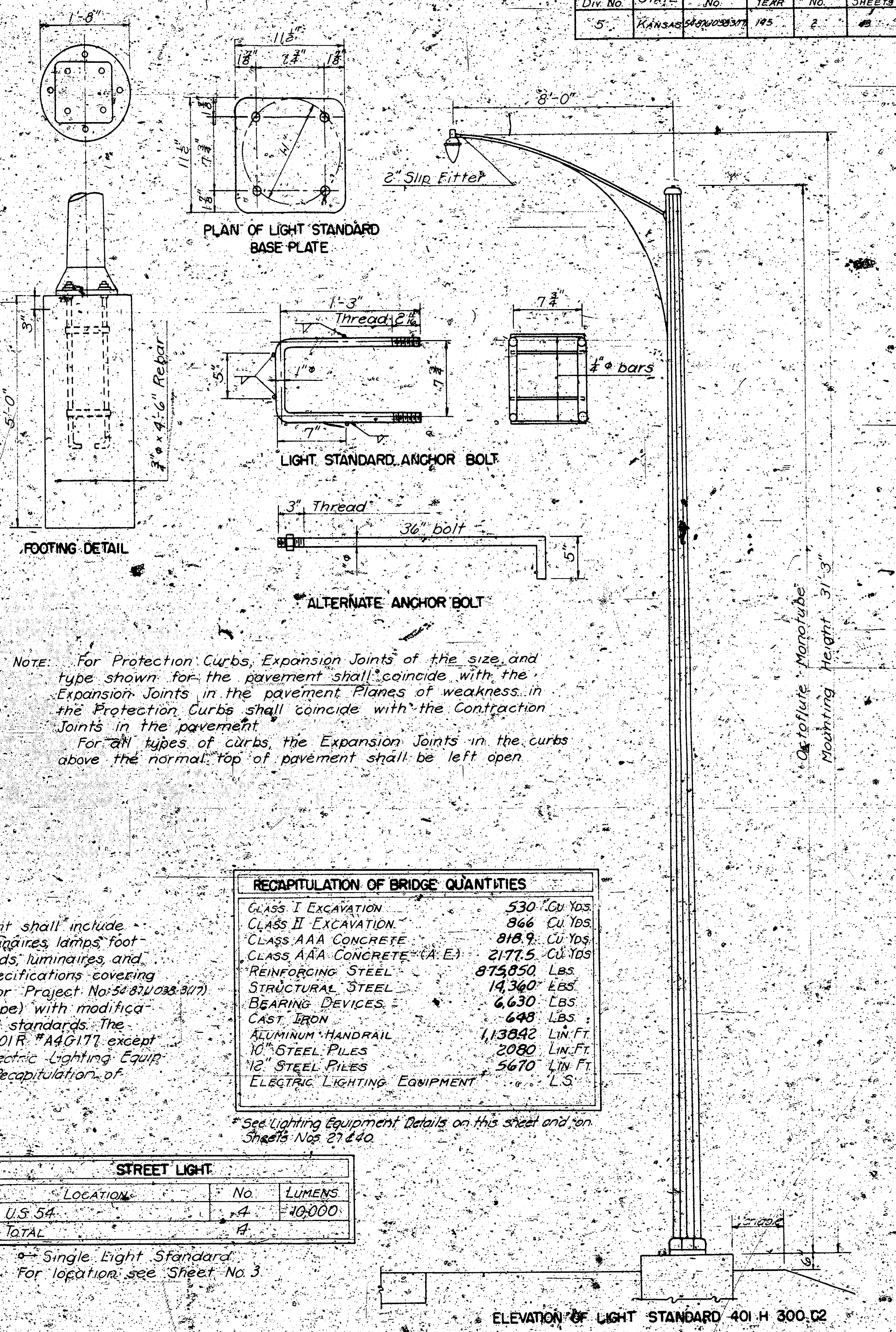
Measurement of Concrete Rip-rap shall be in sq. yds and shall be the outside surface area including the toe wall regardless of the thickening shown on the plans.

CROSS SECTION



#4 bars @ 2'-6" @ 18" cts
Const. Joints or Planes of Weakness
2-#4 bars
#4 bar
5'-0"
5'-0"
Const. Joints or Planes of Weakness

PLAN
CONCRETE RIPRAP



NOTE: For Protection Curbs, Expansion Joints of the size and type shown for the pavement shall coincide with the Expansion Joints in the pavement. Planes of weakness in the Protection Curbs shall coincide with the Contraction Joints in the pavement.

For all types of curbs, the Expansion Joints in the curbs above the normal top of pavement shall be left open.

ELEVATION OF LIGHT STANDARD 401 H 300 C2

NOTE: The bid item Electric Lighting Equipment shall include furnishing and placing all standards, luminaires, lamps, footings, anchor bolts, and base plates. Standards, luminaires, and lamps shall conform to Supplemental Specifications covering Details of Electric Lighting Equipment for Project No. 54-87 U 038-3(17). The standards are 401 H300 C2 (11 ga. type) with modification 14. Footings shall be required at all standards. The luminaires shall be similar to G.E. form 101R #A4G177 except with 2" slip fitter mountings or equal. Electric Lighting Equipment shown on this sheet is included in Recapitulation of Bridge Quantities.

RECAPITULATION OF BRIDGE QUANTITIES		
Class I Excavation	530	Cu. Yds.
Class II Excavation	866	Cu. Yds.
Class AAA Concrete	818.9	Cu. Yds.
Class AAA Concrete (A.E.)	2177.5	Cu. Yds.
Reinforcing Steel	875,850	Lbs.
Structural Steel	14,360	Lbs.
Bearing Devices	6,630	Lbs.
Cast Iron	648	Lbs.
Aluminum Handrail	1,138.42	Lin. Ft.
10" Steel Piles	2080	Lin. Ft.
12" Steel Piles	5670	Lin. Ft.
Electric Lighting Equipment*		L.S.

*See Lighting Equipment Details on this sheet and on Sheets Nos. 27 & 40.

CONCRETE PAVEMENT (9" UNIFORM)

Sta.	To Sta.	Width	Sq. Yds.	Remarks
97+50	98+33	Var.	233.5	U.S. 54 Eastbound
97+50	98+33	Var.	257.6	U.S. 54 Westbound
Total			491.1	

GUARD FENCE

Sta.	To Sta.	Side	Lin. Ft.	Remarks
96+94	98+19	Rt.	125	Eastbound
96+95	98+45.92	Lt.	150	Westbound
Total			275	

STREET LIGHT

Location	No.	Lumens
U.S. 54	4	10,000
Total	4	

o→ Single Light Standard
For location see Sheet No. 3

REINFORCED CONCRETE RIPRAP

Location	Bridge No.	Sq. Yds.
West Berm	54-87-25.6	1046
Total		1046

GUTTER

Sta.	To Sta.	Side	Lin. Ft.	Remarks
97+50	98+16.10	Rt.	66.10	U.S. 54 Eastbound
Total			66.10	

ASPHALTIC CONCRETE - CLASS F HOT MIX

	Amount	Unit
Aggregate (H.M. 4, 5 or 6)	8	Tons
Asphaltic Cement (AC5)	154	Gals.

Quantities are based on the following:
1. Aggregate — 140 lb/cu ft
2. Asphaltic Cement — 8.3%

6" PROTECTION CURB

Sta.	To Sta.	Side	Lin. Ft.	Remarks
98+16.10	98+26.10	Lt.	10	Eastbound
97+50	98+33	Lt.	83	Eastbound
97+50	98+33	Rt.	83	Westbound
98+29.26	98+39.62	Rt.	10	Westbound
Total			186	

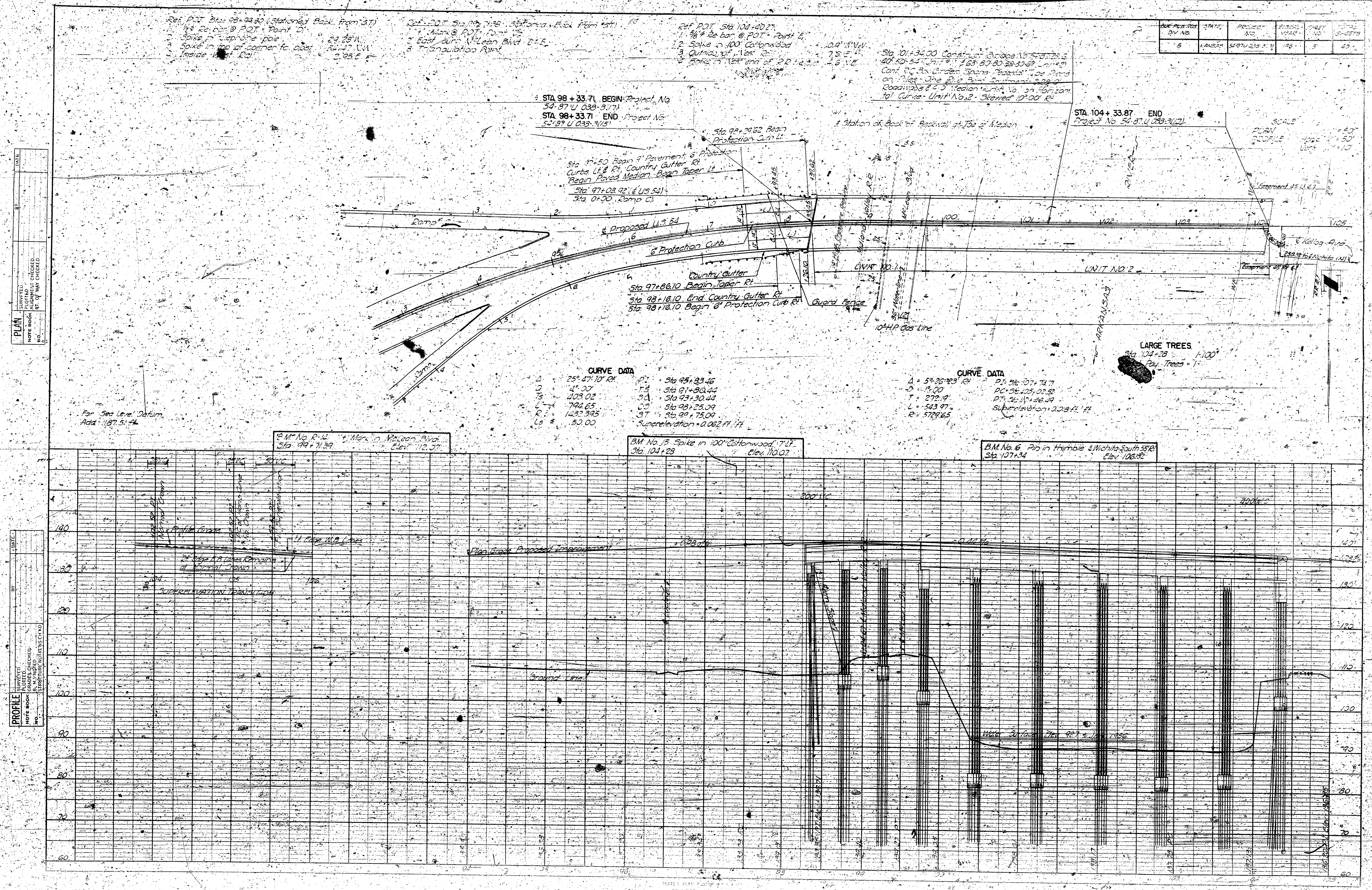
RECAPITULATION OF ROAD QUANTITIES

Large Trees	1	Each
Concrete Pavement (9" Uniform)(Var.)	491	Sq. Yds.
6" Protection Curb	186	Lin. Ft.
Gutter	66	Lin. Ft.
Steel Plate Guard Fence	275	Lin. Ft.
Reinforced Concrete Riprap	1046	Sq. Yds.
Asphaltic Concrete (AC5)	154	Gals.
Aggregate for Surface Course (HM 4, 5 or 6)	8	Tons

PAVING DETAILS & QUANTITIES
US 54 THRU WICHITA
PROJECT NO. 54-87 U 038-3(17) SEDGWICK CO.

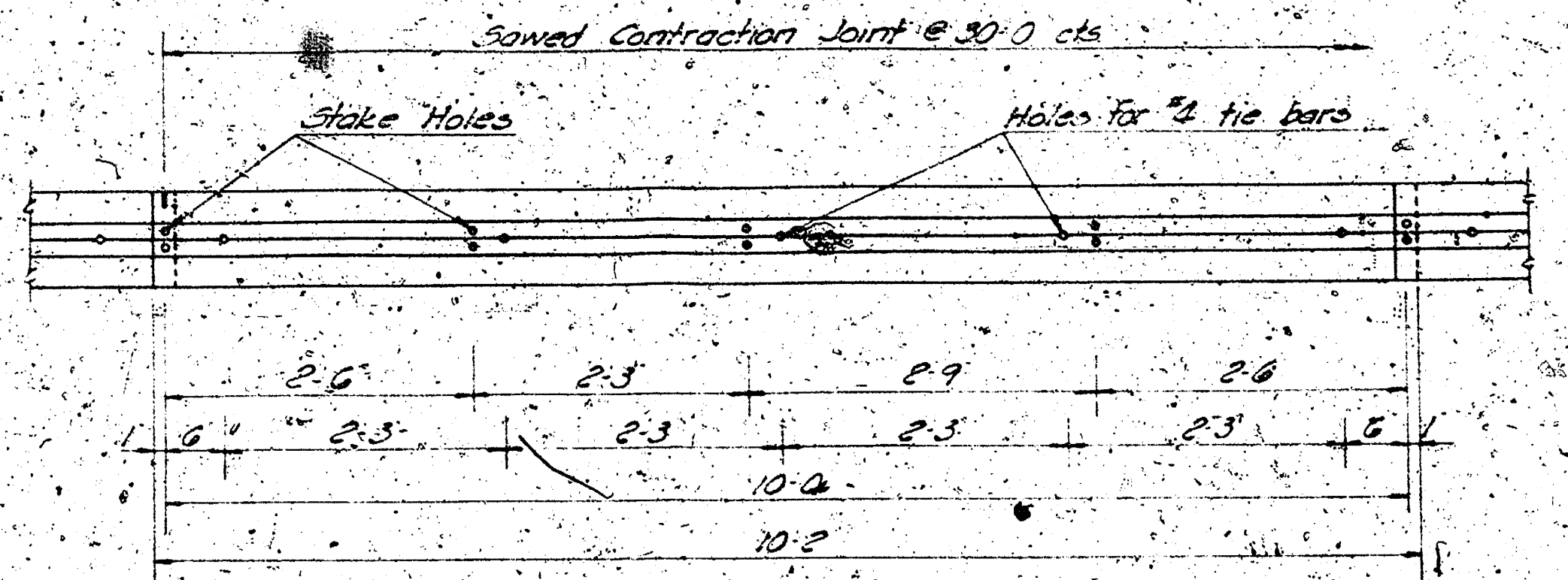
FINNEY & TURNIPSEED
CONSULTING ENGINEERS
TOPEKA, KANSAS

BUR. PUB. ROS. DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	KANSAS	54-87 U 233-3(12)	195	3	43

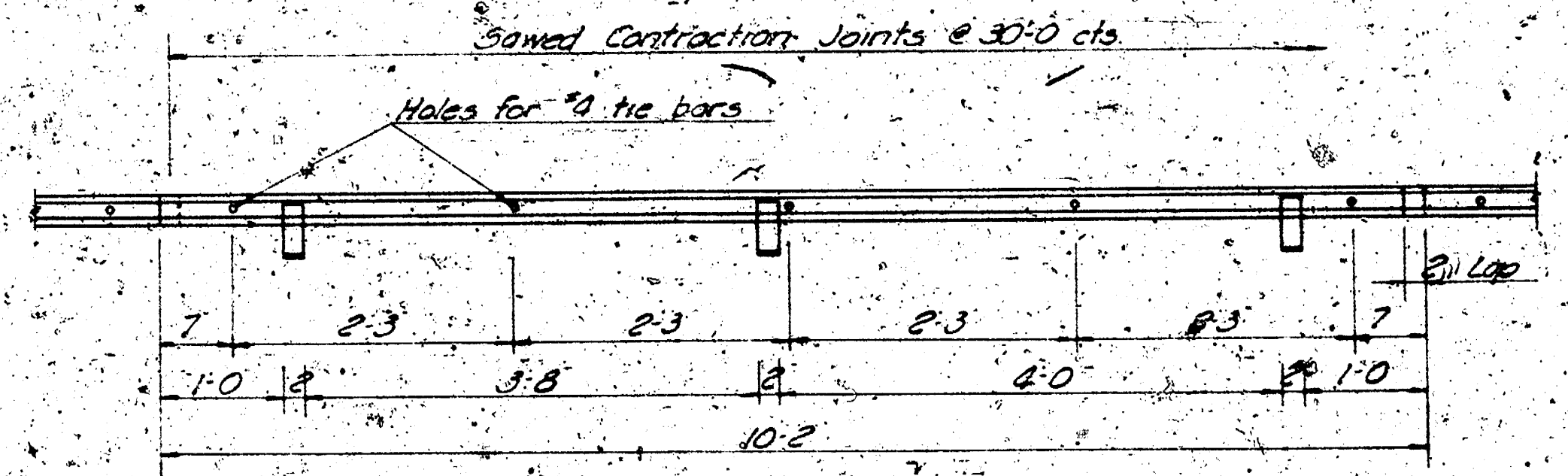


Ref. POT Sta. 98+93.30 (Stationed Back from S.T.)
1. ½" Re-bar @ POT = Point "D"
2. Spike in telephone pole 29.28' W
3. Spike in top of corner fc. post 54.47' N.W.
4. Inside West Rail 3.95' E
Ref. POT Sta. 99+71.38 (Stationed Back from S.T.)
1. + Mark @ POT = Point "C"
2. East curb McLean Blvd 21.5
3. Triangulation Point
Ref. POT Sta. 104+40.27
1. 5/8" φ Re-bar @ POT = Point E
2. Spike in 100" Cottonwood 10.9' N.N.W.
3. Outside of West Rail 7.5' E
4. Spike in West end of R.R. tie 4.6' N.E.
Sta. 101+34.00 Construct Bridge No. 54-87-25.6 40-50-54 (Unit #1) & 63-80-80-80-80-69 (Unit #2) Cont. R.C. Box Girder Spans, Pedestal Type Piers on Piles - One Pile Bent Abutment - 2-28.0 Roadways & 6.0 Median - Unit No. 1 on Horizontal Curve - Unit No. 2 - Skewed 10°00' Rt.
STA. 98 + 33.71 BEGIN Project No. 54-87 U 033-3(17)
STA. 98 + 33.71 END Project No. 54-87 U 033-3(15)
Sta. 98+29.62 Begin Protection Curb Lt.
Sta. 97+50 Begin 9' Pavement, 6" Protection Curbs Lt. & Rt., Country Gutter Rt. Begin Paved Median, Begin Taper Lt.
Sta. 97+03.92 (℄ US 54)
Sta. 0+00 Ramp C.
℄ Station of Back of Backwall at Toe of Median
STA. 104 + 33.87 END Project No. 54-87 U 033-3(12)
SCALE
PLAN 1" = 50'
PROFILE Horiz. 1" = 50'
Vert. 1" = 10'
Ramp
℄ Proposed U.S. 54
6" Protection Curb
Country Gutter
Sta. 97+86.10 Begin Taper Rt.
Sta. 98+16.10 End Country Gutter Rt.
Sta. 98+16.10 Begin 6" Protection Curb Rt.
Guard Fence
14" High Pressure Gas Line
Midland Valley R.R.
McLean Blvd.
36" Waterline
10" H.P. Gas Line
UNIT NO. 1
UNIT NO. 2
RIVER
ARKANSAS
Easement 45' Lt. ℄
Easement 45' Rt. ℄
℄ Kellog Ave.
238.32 to ℄ Wichita (N)
R.R.
+93.45
+39.62
33.45
+26.10
95
100
101
102
103
104
105
LARGE TREES
Sta. 104+28 1-100"
Pay Trees = 1
CURVE DATA
Δ = 25°47'10" Rt.
D = 4°00'
Ts = 403.02
L = 794.65
R = 1432.395
Ls = 50.00
P.I. = Sta. 95+83.46
T.S. = Sta. 91+80.44
S.C. = Sta. 93+30.44
C.S. = Sta. 98+25.09
S.T. = Sta. 99+75.09
Superelevation = 0.062 ft./ft.
CURVE DATA
Δ = 5°26'23" Rt.
D = 1°00'
T = 272.19
L = 543.97
R = 5729.65
P.I. = Sta. 107+74.71
P.C. = Sta. 105+02.52
P.T. = Sta. 110+46.49
Superelevation = 0.018 ft./ft.
For Sea Level Datum Add 1187.51 ft.
B.M. No. R-14 + Mark in McLean Blvd. Sta. 99+71.39 Elev. 112.37
B.M. No. 15 Spike in 100" Cottonwood 7' Lt. Sta. 104+28 Elev. 110.07
B.M. No. 16 Pin in thimble ℄ Wichita-South 55 R.R. Sta. 107+34 Elev. 106.32
25' V.C.
25' V.C.
50' V.C.
200' V.C.
400' V.C.
Profile Grade
Normal Crown
P.C. of Horiz. Curve No Crown
Full Superelevation
Lt. Edge W.B. Lanes
Rt. Edge E.B. Lanes Remains at Normal Crown
SUPERELEVATION TRANSITION
Plan Grade Proposed Improvement
+5.98%
-0.40%
Ground Line
Water Surface Elev. 92.7 ± Jan. 1956
Midland Valley R.R.
McLean Blvd.
Berm Slope
140
130
120
110
100
90
80
70
60
PLAN
PROFILE
SURVEYED
PLOTTED
NOTE BOOK
ALIGNMENT CHECKED
GRADE CHECKED
NOTATIONS CH'KD
BY
DATE

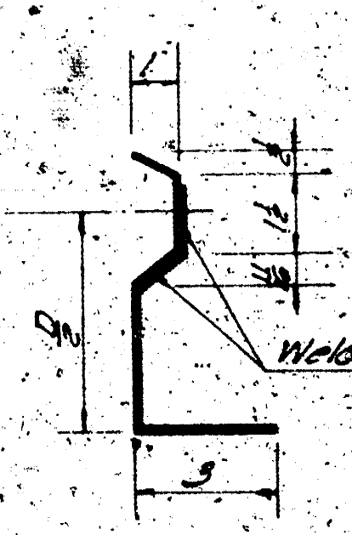
Fed. Rd. Div. No.	State	
5	Kansas	[illegible]



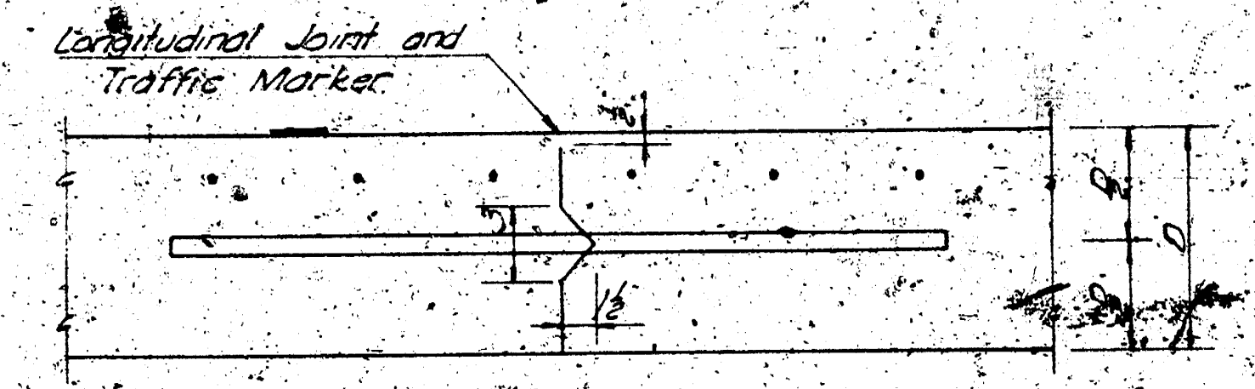
**METAL CENTER STRIP
FOR LONGITUDINAL JOINT**



**METAL CENTER STRIP
FOR LONGITUDINAL JOINT**
Alternate Type. To be used only against forms

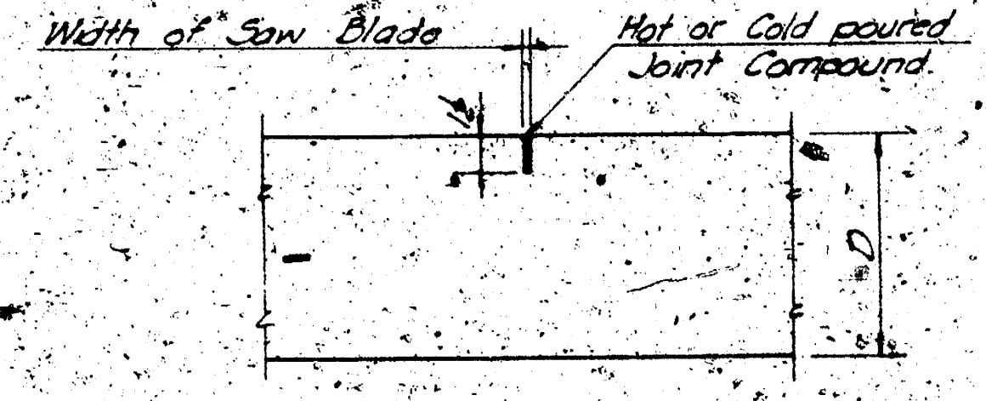


SECTION

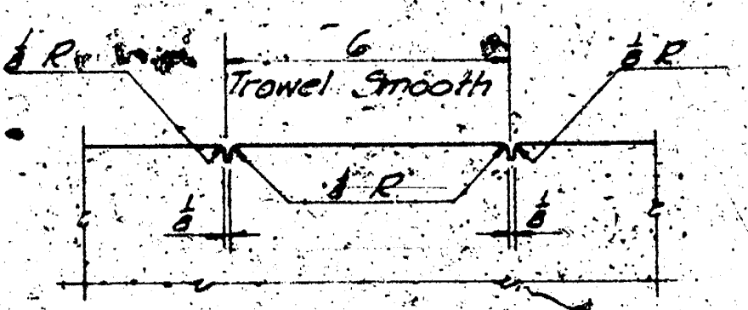


**LONGITUDINAL JOINT DETAIL
TRANSVERSE SECTION**

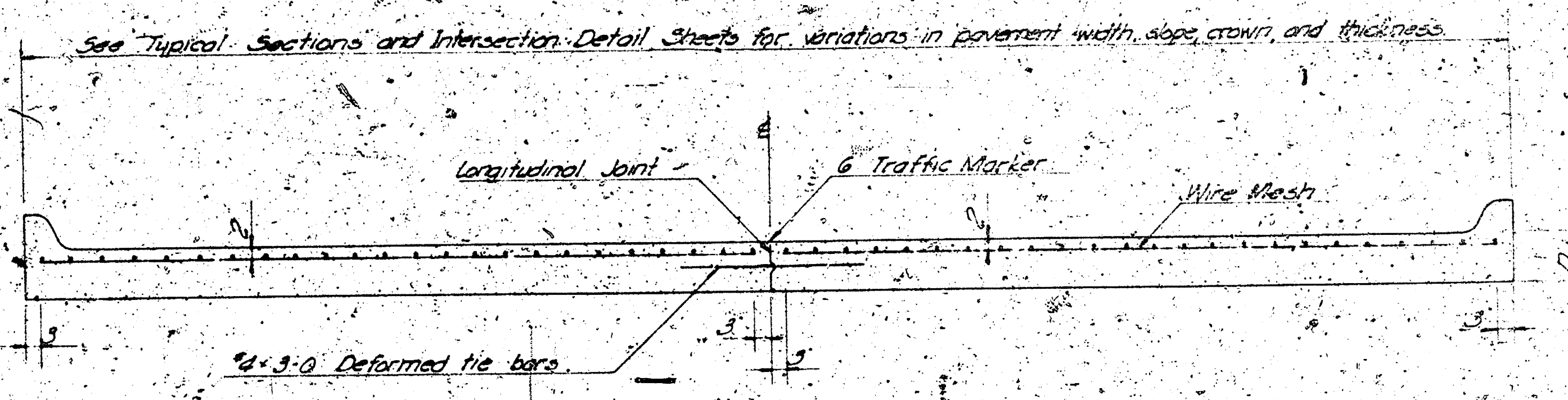
Note: Only metal center strip may be used, except that at the contractors option, metal strip may be omitted and the joint formed by sawing 2 1/2 deep and poured as specified for contraction joints.



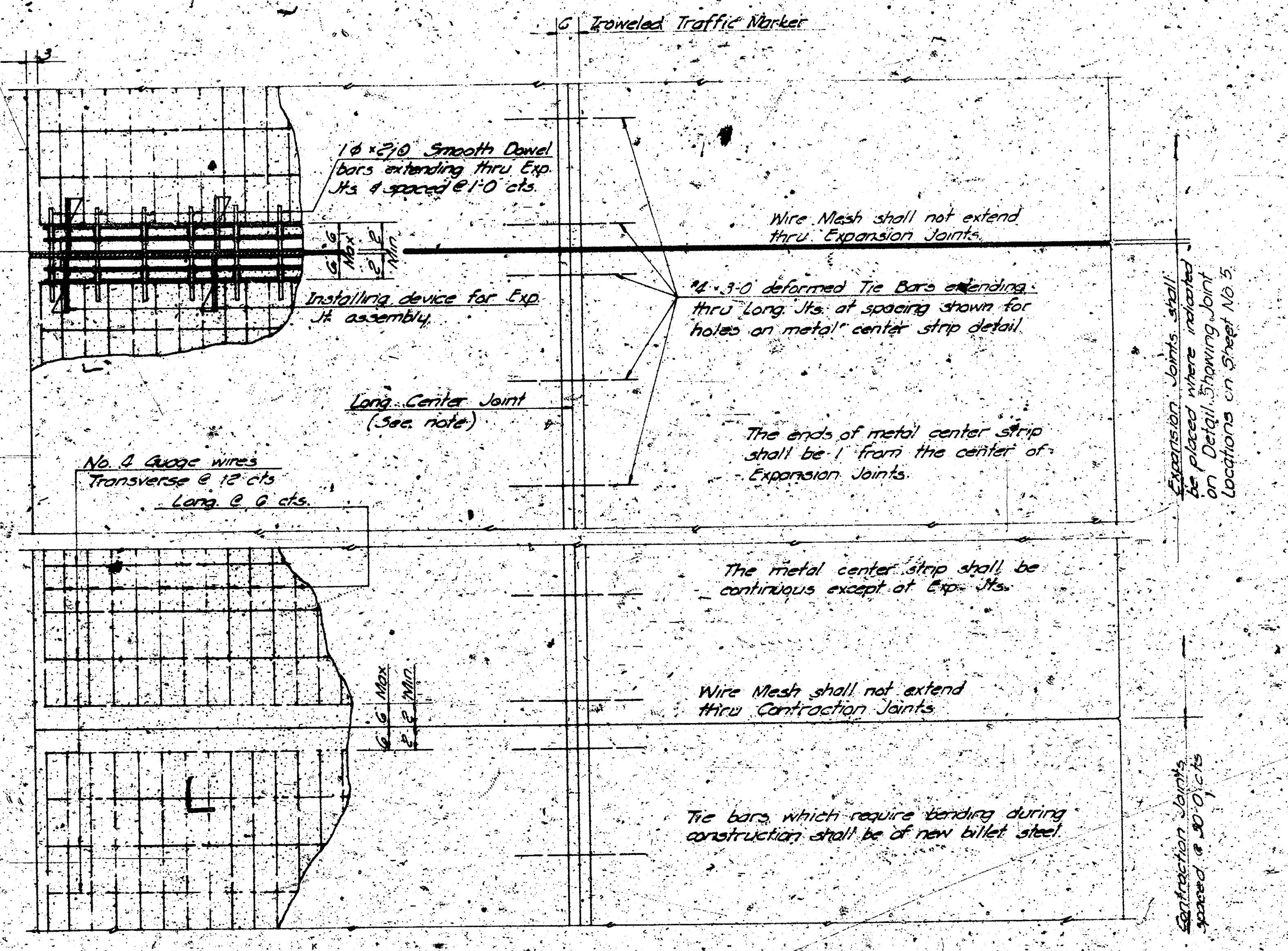
SAWED CONTRACTION JOINT DETAIL



TROWELED TRAFFIC MARKER DETAIL


See Typical Sections and Intersection Detail Sheets for variations in pavement width, slope, crown, and thickness.
Longitudinal Joint
℄
6 Traffic Marker
Wire Mesh
#4 × 3-0 Deformed tie bars
D
3
3
3
3

TYPICAL TRANSVERSE SECTION



1 φ × 2/0 Smooth Dowel bars extending thru Exp. Jts. & spaced @ 1-0 cts.

Installing device for Exp. Jt. assembly.

Wire Mesh shall not extend thru Expansion Joints.

#4 × 3-0 deformed Tie Bars extending thru Long. Jts. at spacing shown for holes on metal center strip detail.

The ends of metal center strip shall be 1 from the center of Expansion Joints.

The metal center strip shall be continuous except at Exp. Jts.

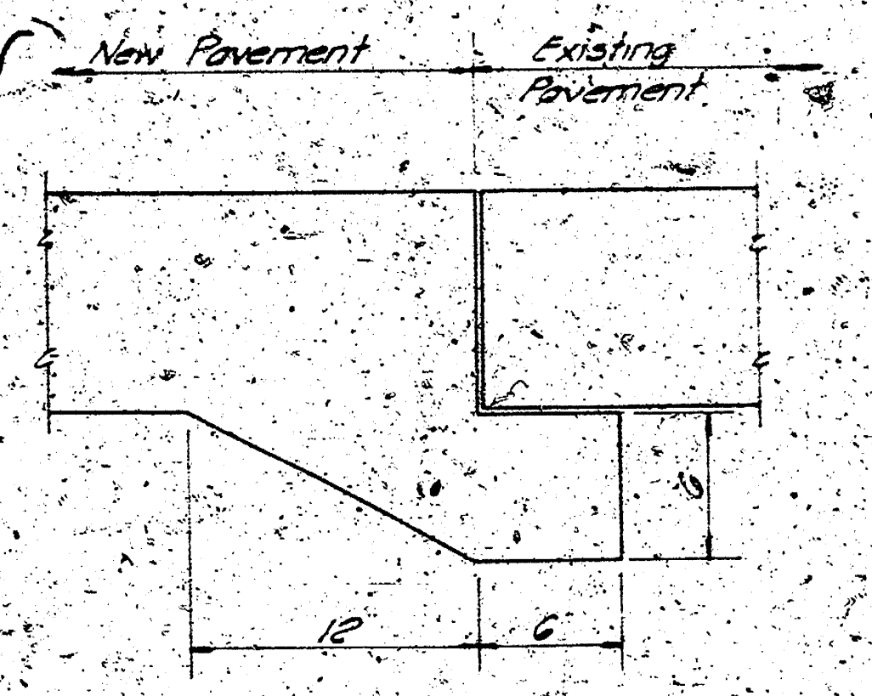
Wire Mesh shall not extend thru Contraction Joints.

Tie bars which require bending during construction shall be of new billet steel.

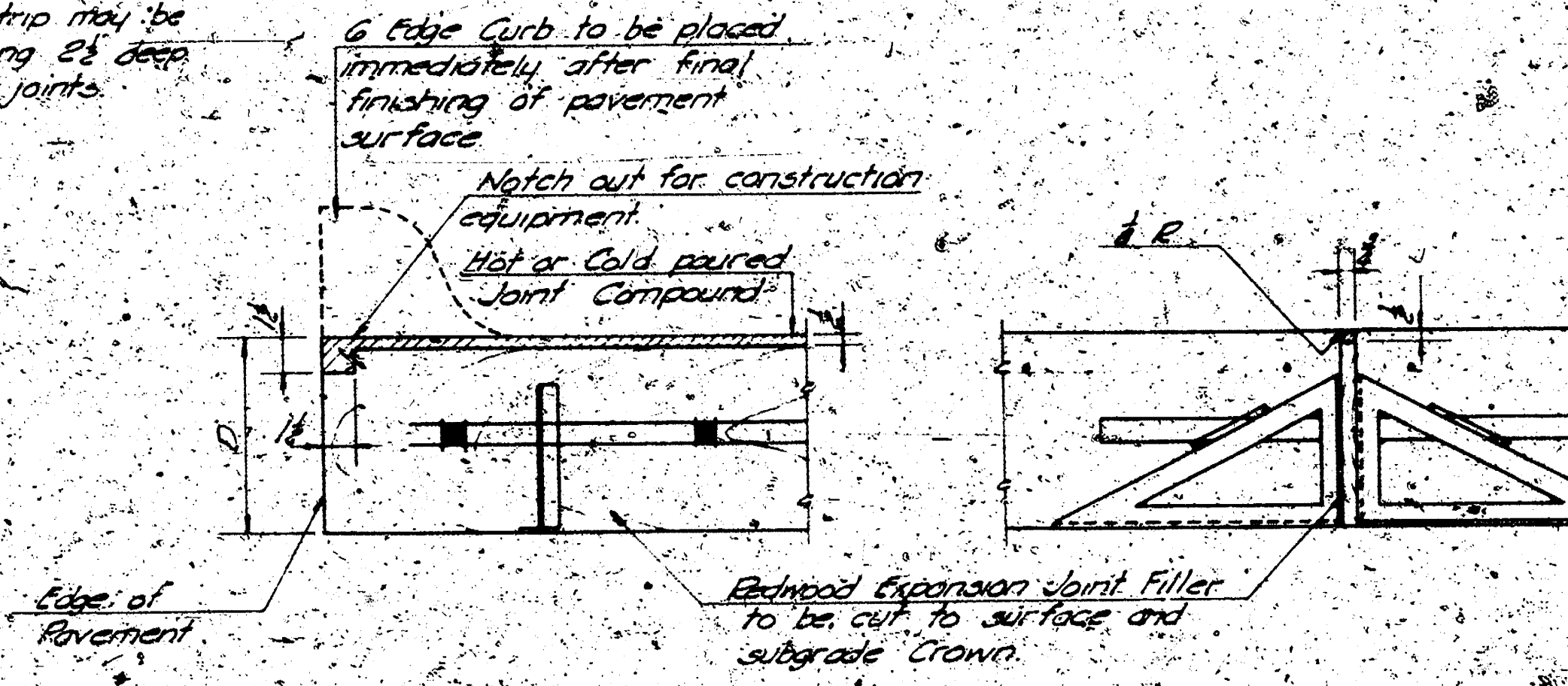
Expansion Joints shall be placed where indicated on Detail Showing Joint Locations on Sheet No. 5

Contraction Joints spaced @ 30-0 cts

PLAN



**DETAIL FOR UNDERPINNING
CONCRETE PAVEMENT**

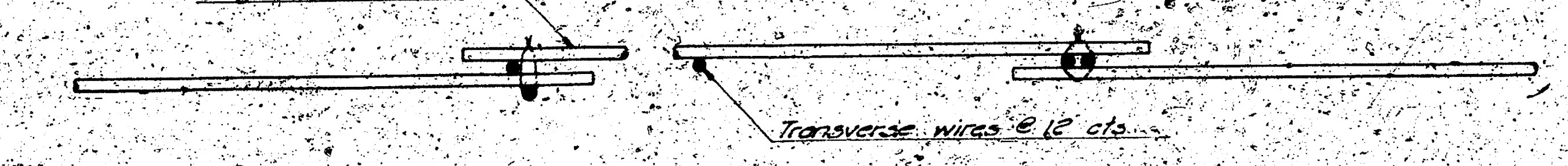

6 Edge Curb to be placed immediately after final finishing of pavement surface
Notch out for construction equipment.
Hot or Cold poured
Joint Compound
1/2
1/2
D
1/2
Edge of
Pavement
Redwood Expansion Joint Filler
to be cut to surface and
subgrade Crown.
1/4 R
3/4

PART LONGITUDINAL SECTION

TRANSVERSE SECTION

EXPANSION JOINT DETAIL
(Except for load transfer devices)

Note: An Expansion Joint (without load transfer devices) shall be placed at the ends of the pavement slab where the new pavement abuts the ends of bridges or other rigid structures.



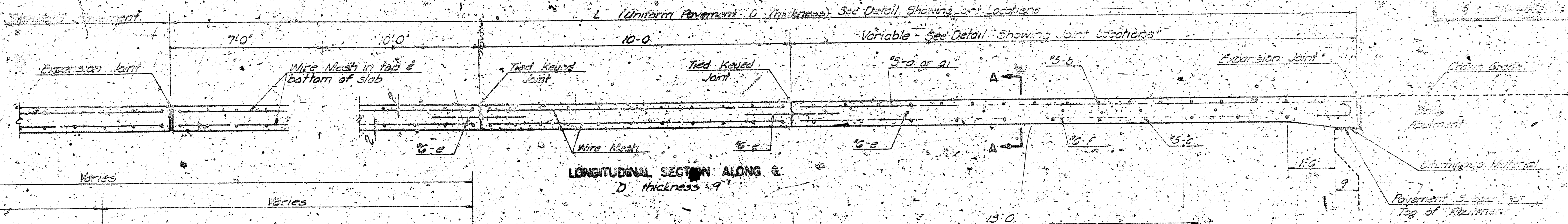
DETAIL OF LAP FOR WIRE MESH

Note: The lap shall extend beyond the first transverse wire of each sheet.
The sheet shall be wired securely at the edges and at intervals not to exceed 2-6 for the full width of the sheet.
Approximate weight of wire mesh = 44 lbs per 100 sq. feet

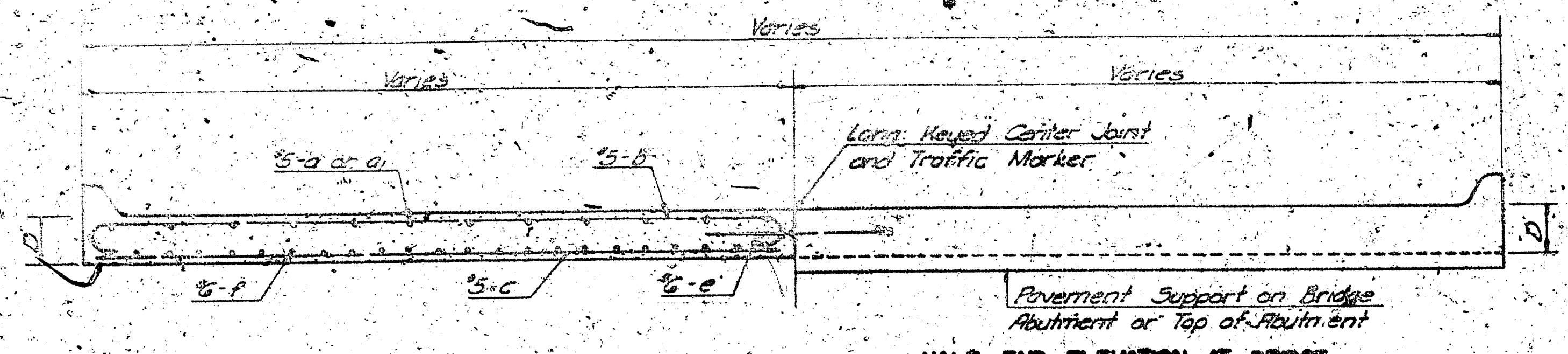
CONCRETE PAVEMENT

U.S. 54 THRU WICHITA

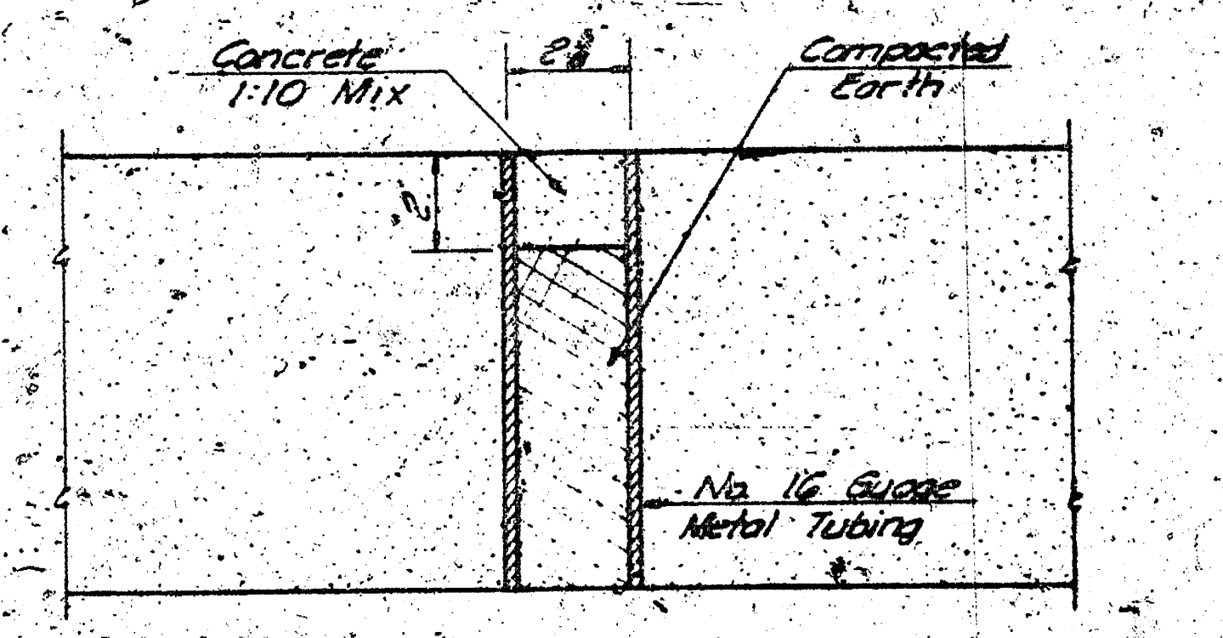
PROJ. NO. 54-87 U038-3(17) SEDGWICK COUNTY
FINNEY & TURNIPSEED
CONSULTING ENGINEERS
TOPEKA, KANSAS



LONGITUDINAL SECTION ALONG ℄
'D' thickness 9"

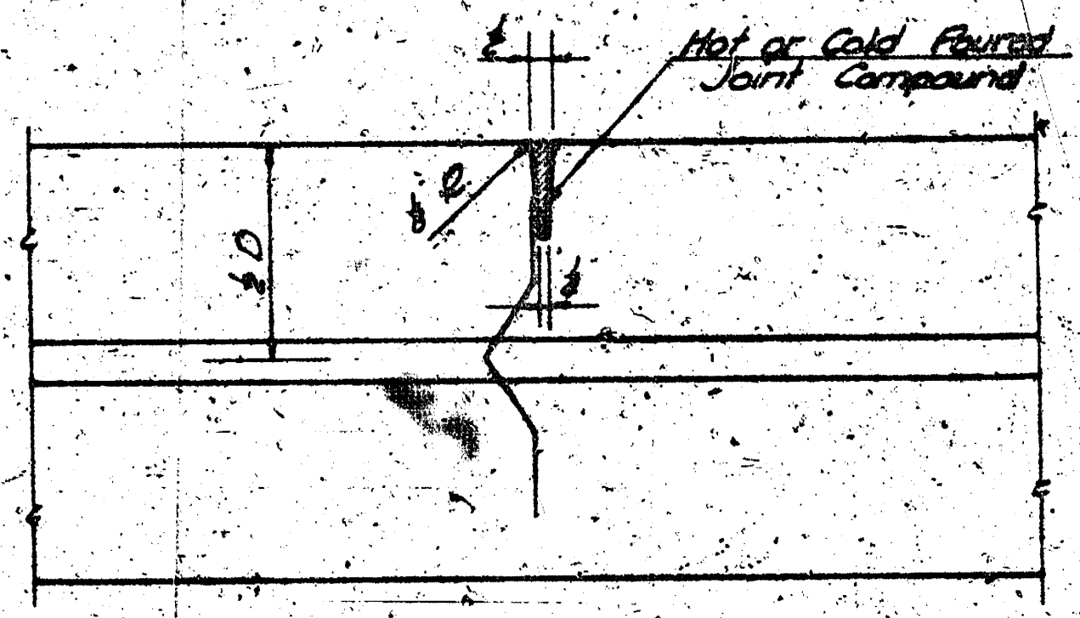

Varies
Varies
Varies
#5-a or a1
#5-b
Long. Keyed Center Joint and Traffic Marker
D
#6-f
#5-c
#6-e
Pavement Support on Bridge Abutment or Top of Abutment

HALF SECTION A-A **HALF END ELEVATION AT BRIDGE**



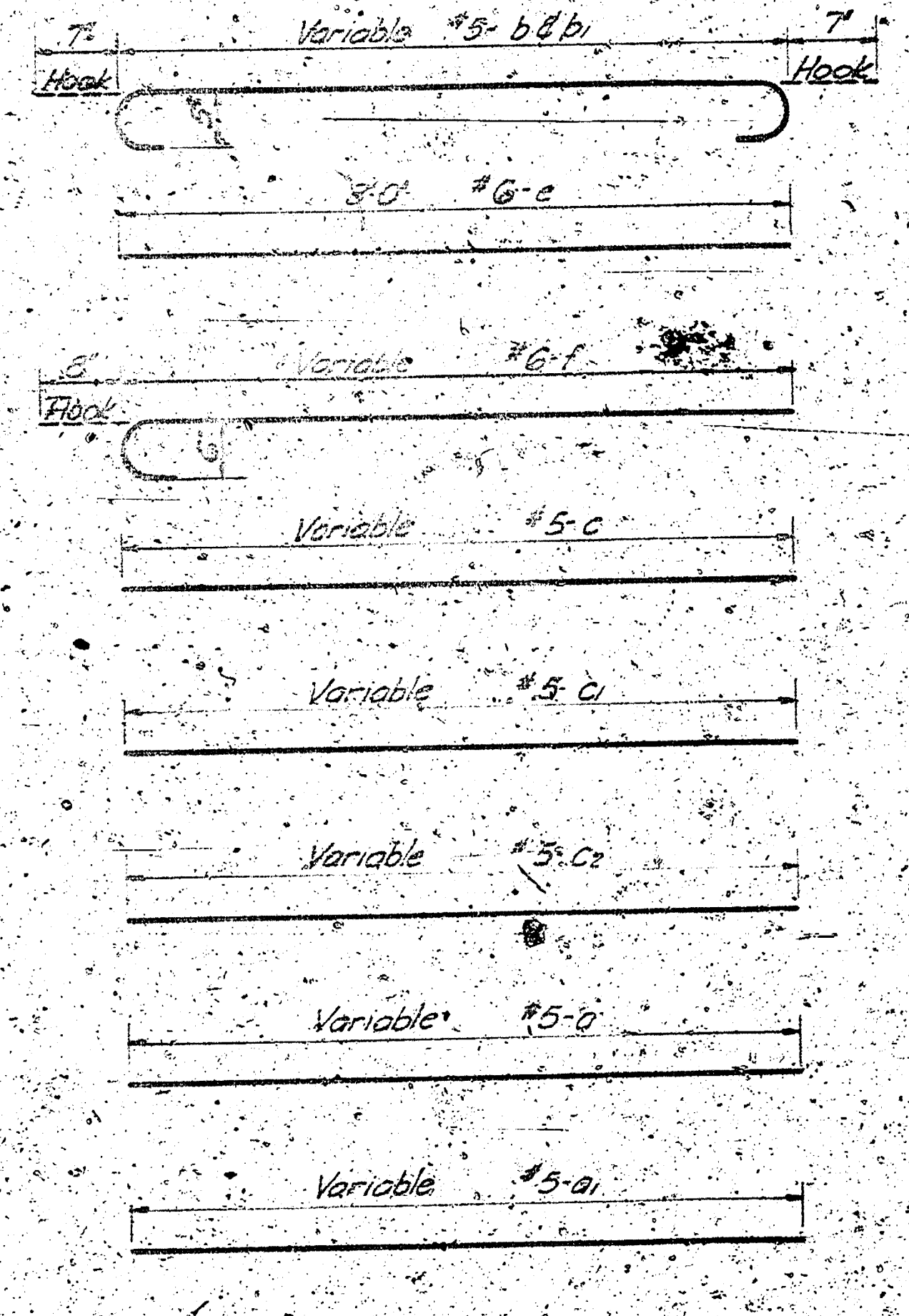
SECTION B-B

Note: Metal Tube to be 2⅜ in diameter. Any seams to be smooth on the inside. No material other than that shown shall be allowed inside the tube.



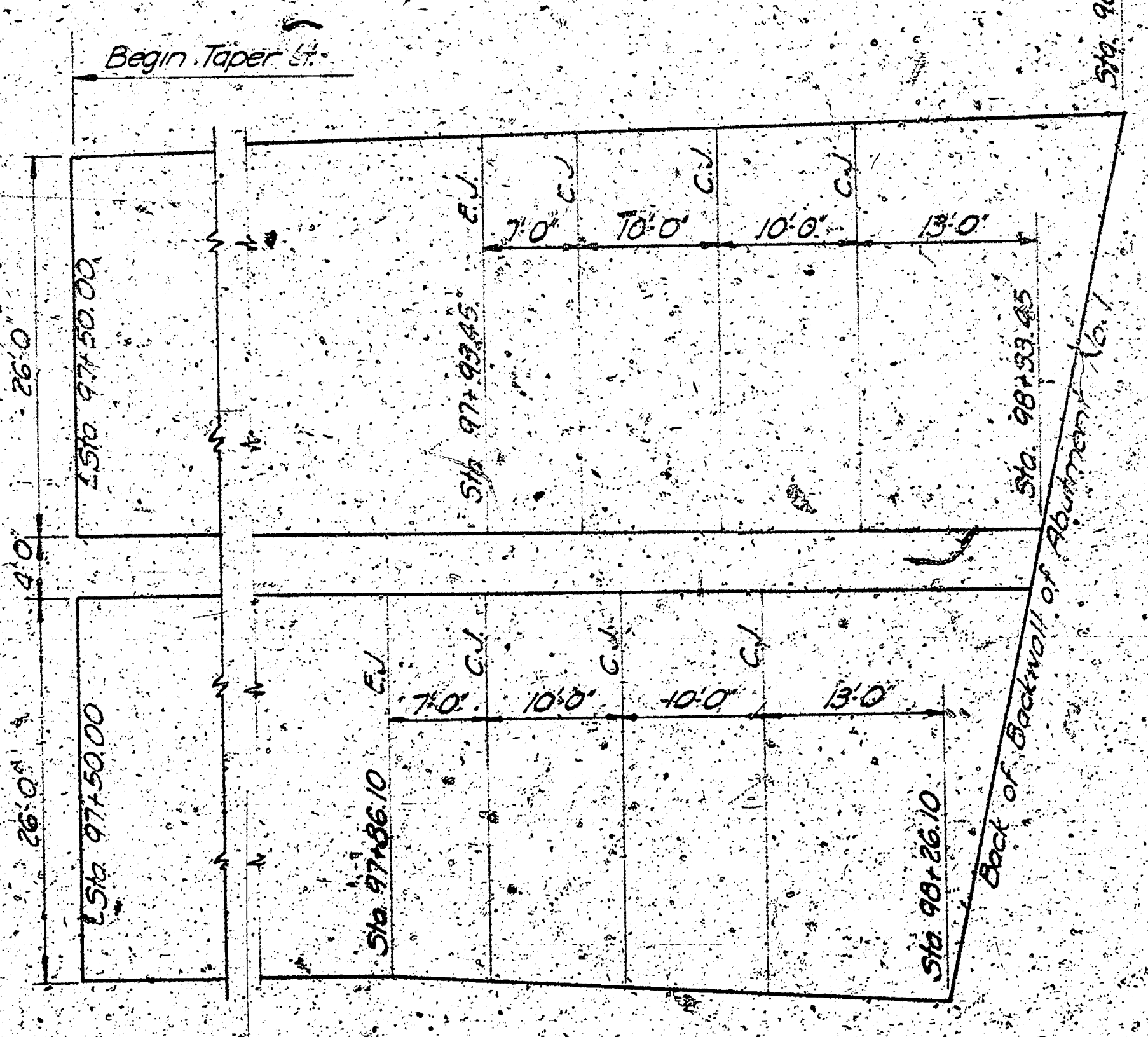
DETAIL OF TIED KEYED JOINT

Note: The deformed strip may be installed in two chords.

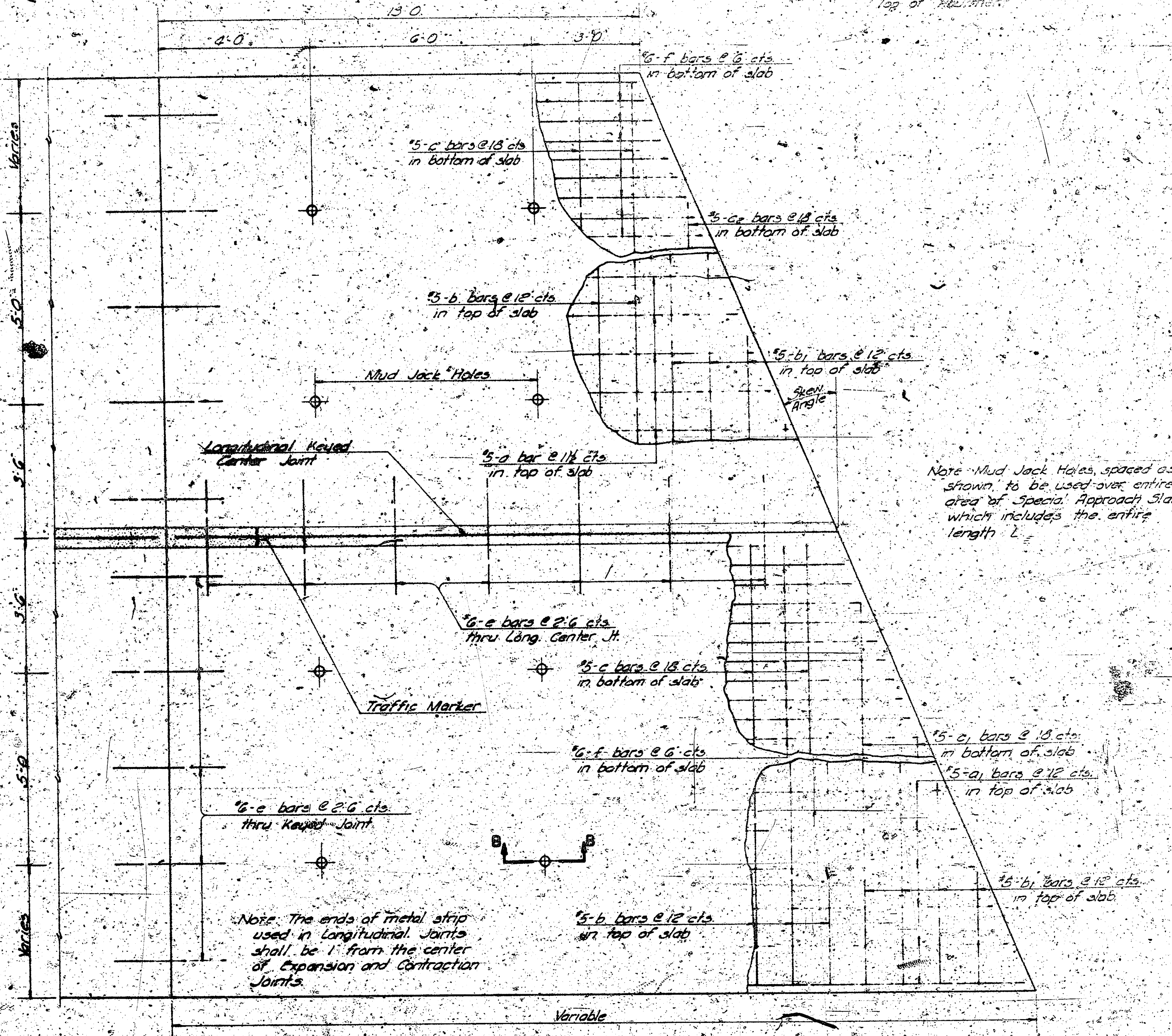


BENDING DIAGRAMS.

Note: Reinforcing Steel is subsidiary to Bid Item Concrete Pavement. Vary lengths to fit the skew angle at the Abutment.



DETAIL SHOWING JOINT LOCATIONS


13'0"
4'0"
6'0"
3'0"
#6-f bars @ 6" cts. in bottom of slab
#5-c bars @ 18" cts. in bottom of slab
#5-c2 bars @ 18" cts. in bottom of slab
#5-b bars @ 12" cts. in top of slab
#5-b1 bars @ 12" cts. in top of slab
Skew Angle
Mud Jack Holes
Longitudinal Keyed Center Joint
#5-a bar @ 1½" cts. in top of slab
#6-e bars @ 2'6" cts. thru Long. Center Jt.
#5-c bars @ 18" cts. in bottom of slab
Traffic Marker
#6-f bars @ 6" cts. in bottom of slab
#5-c1 bars @ 18" cts. in bottom of slab
#5-a1 bars @ 12" cts. in top of slab
#6-e bars @ 2'6" cts. thru Keyed Joint
B
B
#5-b bars @ 12" cts. in top of slab
#5-b1 bars @ 12" cts. in top of slab
Varies
5'0"
5'6"
5'6"
5'0"
Varies
Variable

Note: The ends of metal strip used in Longitudinal Joints shall be 1' from the center of Expansion and Contraction Joints.

Note: Mud Jack Holes, spaced as shown, to be used over entire area of Special Approach Slab, which includes the entire length L.

PLAN FOR SKEWED APPROACH
(Use at both ends of both bridges)

SPECIAL CONCRETE PAVEMENT
AT BRIDGE APPROACH
U.S. 54 THRU WICHITA
PROJ. NO. 54-87 U 038-3(17) **SEDGWICK COUNTY**
[illegible]
CONSULTING ENGINEERS
TOPEKA, KANSAS