STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	KA-2285-01	2014	1	130

STATE OF KANSAS

DEPARTMENT OF TRANSPORTATION

PLAN AND PROFILE OF PROPOSED (US-54) SOUTH FRONTAGE ROAD 151ST ST. W. TO 135TH ST. W. KA-2285-01

CITY OF WICHITA PROJECT NO. 472-84841 O.C.A. NO. 760621

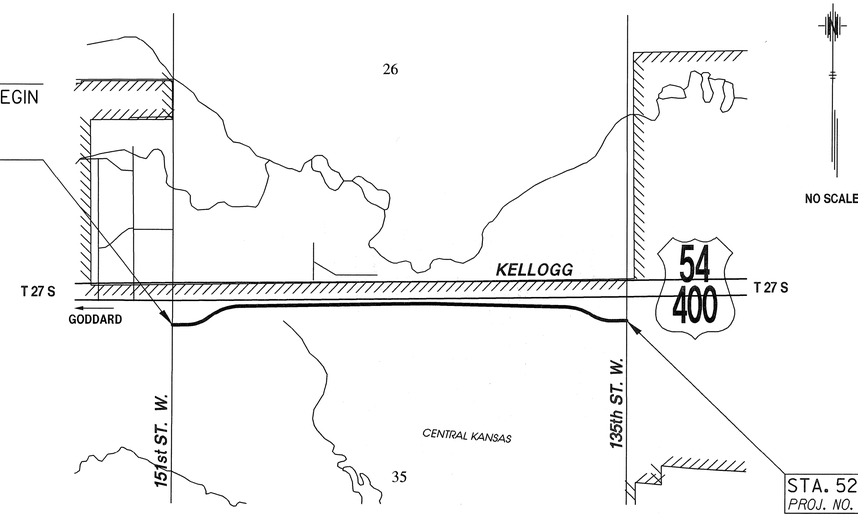
SEDGWICK COUNTY
CITY OF WICHITA

GRADING & CONCRETE PAVEMENT **760621**
SURFACING
FENCING
SEEDING
SIGNING
PAVEMENT MARKING
LIGHTING

INDEX OF SHEETS

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STA. 473+23.72 BEGIN
PROJ. NO. KA-2285-01=
STA. 473+31.02
PROJ. NO. KA-2289-01



NO SCALE

STA. 525+14.99 END
PROJ. NO. KA-2285-01

GENERAL NOTES

ALL CONSTRUCTION WORK AND MATERIAL IN THIS PROJECT SHALL COMPLY WITH CITY OF WICHITA STANDARD SPECIFICATIONS FOR THE CONSTRUCTION OF CITY PROJECTS UNLESS OTHERWISE NOTED IN THE PLANS OR SPECIAL PROVISIONS.

UNDERGROUND UTILITY SERVICE LINES AND OVERHEAD UTILITY POLE LINES ARE TO BE ADJUSTED AS NECESSARY BY OTHERS PRIOR TO CONSTRUCTION UNLESS THE PLANS SPECIFICALLY CALL FOR THEIR ADJUSTMENT BY THE CONTRACTOR. EXISTING UTILITIES AND THEIR LOCATION, AS SHOWN ON THE PLANS, REPRESENT THE BEST INFORMATION OBTAINABLE FOR DESIGN. LOCATION INFORMATION HAS BEEN OBTAINED FROM THE VARIOUS UTILITY COMPANIES AND IS EITHER FROM COMPANY RECORD DRAWINGS OR COMPANY PROVIDED FIELD LOCATIONS. THE CONTRACTOR WILL BE REQUIRED TO WORK AROUND EXISTING UTILITIES WITHIN THE RIGHT-OF-WAY WHICH DO NOT CONFLICT WITH PROPOSED CONSTRUCTION.

TREES AND SHRUBS IN PUBLIC RIGHT-OF-WAY WHICH ARE IN DIRECT CONFLICT WITH PROPOSED NEW CONSTRUCTION SHALL BE REMOVED BY THE CONTRACTOR WITH THE ENGINEER'S APPROVAL. TREES AND SHRUBS WHICH ARE NOT IN DIRECT CONFLICT WITH PROPOSED NEW CONSTRUCTION SHALL BE SAVED AND PROTECTED FROM DAMAGE.

RUBBLE FROM THE REMOVAL OF MISCELLANEOUS STRUCTURES SHALL BE DISPOSED OF ON SITES TO BE PROVIDED BY THE CONTRACTOR AND APPROVED AS NOTED BELOW.

ALL DISPOSAL SITES MUST BE APPROVED BY THE KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT. MATERIAL EITHER STOCKPILED OR DISPOSED OF IN A FLOOD PLAIN WOULD REQUIRE A KANSAS STATE BOARD OF AGRICULTURE PERMIT. ANY MATERIAL DUMPED IN WATERS OF THE UNITED STATES OR WETLANDS IS SUBJECT TO U.S. CORPS OF ENGINEERS PERMITTING REGULATIONS. ANY MATERIAL BURIED OR STOCKPILED BEYOND APPROVED CONSTRUCTION LIMITS WOULD REQUIRE ADDITIONAL ARCHEOLOGICAL INVESTIGATIONS UNLESS BURIED IN A PREVIOUSLY APPROVED BORROW LOCATION.

CONTRACTOR SHALL SATISFY HIMSELF OF SURFACE AND SUBSURFACE CONDITIONS PRIOR TO BIDDING.

FIELD LOCATE ALL EXISTING UTILITIES PRIOR TO BEGINNING ANY EXCAVATION WORK. CONTACT THE KANSAS ONE-CALL SYSTEM AT 316-687-2470 AT LEAST 48 HOURS IN ADVANCE TO REQUEST FIELD LOCATES. FOR UTILITIES THAT ARE NOT MEMBERS OF THE KANSAS ONE-CALL SYSTEM, CONTACT THOSE COMPANIES DIRECTLY.

CONTRACTOR IS RESPONSIBLE FOR PRESERVING EXISTING PROPERTY IRONS. RE-ESTABLISH ANY EXISTING PROPERTY IRONS WHICH ARE DAMAGED OR DESTROYED BY CONSTRUCTION OPERATIONS, OR WHICH ARE COVERED BY 12" OR MORE OF FILL MATERIAL BY THIS PROJECT. SUCH IRONS SHALL BE RE-ESTABLISHED BY A LICENSED LAND SURVEYOR IN ACCORDANCE WITH STATE LAWS AND AT NO ADDITIONAL COST TO THE CITY.

THE WATER DEPARTMENT SHALL FIELD LOCATE WATER VALVES ONE TIME DURING CONSTRUCTION WHEN REQUESTED BY THE CONTRACTOR. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PRESERVE SUCH FIELD LOCATIONS DURING THE CONSTRUCTION PROCESS. WATER VALVES, WATER METER BOXES OR FIRE HYDRANTS DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED BY THE CONTRACTOR AT HIS OWN EXPENSE.

WATER VALVES, METERS AND FIRE HYDRANTS SHALL BE ADJUSTED BY THE CONTRACTOR TO MEET FINAL GRADES, AS DIRECTED BY THE ENGINEER.

THE CONTRACTOR SHALL REMOVE EXISTING ROAD SIGNS THAT INTERFERE WITH CONSTRUCTION. SIGNS DAMAGED THRU NEGLIGENCE OF THE CONTRACTOR SHALL BE REPLACED BY THE CONTRACTOR AT NO COST TO THE CITY. THE CONTRACTOR SHALL STOCKPILE THE SIGNS ALONG THE R/W (AT A CENTRAL LOCATION) FOR REMOVAL BY CITY FORCES.

ALL EXISTING PAVEMENT AND CURB AND GUTTER WITHIN THE CONSTRUCTION LIMITS SHALL BE SAW CUT, FULL DEPTH, TO THE NEAT LINES SHOWN ON THE PLANS, OR TO THE NEAREST JOINT, AND REMOVED, UNLESS OTHERWISE NOTED. SAW CUTTING SHALL BE SUBSIDIARY TO THE BID ITEM "PAVEMENT REMOVAL".

ALL RCB, STORM SEWER, WATERLINE AND SANITARY SEWER EXCAVATION UNDER PROPOSED PAVEMENT SHALL BE SAND FILLED AND FLUSHED (JETTED AND VIBRATED) WITH WATER PER THE REQUIREMENTS LISTED IN THE STANDARD SPECIFICATIONS FOR THE CITY OF WICHITA, UNLESS FLOWABLE FILL OR OTHER IMPROVED BACKFILL MATERIAL IS OTHERWISE SPECIFIED. THE SAND FILL SHALL START AT THE TOP OF IMPROVED BEDDING (PER STANDARD SPECIFICATIONS) AND BE BROUGHT UP UNIFORMLY TO AN ELEVATION 12 INCHES ABOVE THE TOP OF PIPE OR 2 FEET BELOW THE BOTTOM OF PROPOSED PAVEMENT, WHICHEVER IS HIGHER. HOWEVER, IN NO INSTANCE SHALL THE SAND FILL BE BROUGHT UP TO LESS THAN 6 INCHES BELOW THE PAVEMENT SUB-BASE MATERIAL. STORM SEWER ADJACENT TO THE BACK OF CURB SHALL ALSO BE SAND FILLED PER THIS PROVISION, TO WITHIN 2 FEET OF FINAL GRADE.

ALL LABOR, MATERIALS, AND EQUIPMENT NECESSARY TO MAKE CONNECTIONS TO EXISTING PIPE OR EXISTING SMALL STRUCTURES SHALL NOT BE PAID FOR DIRECTLY; BUT SHALL BE SUBSIDIARY TO OTHER ITEMS OF THE CONTRACT.

DESIGN DESIGNATION

AADT (2012)	= 600
AADT (2035)	= 1300
DHV	= 11.0%
D	= 65%/35%
T	= 5%
V	= 40 MPH
C of A	= PARTIAL
Clear Zone	= 6'

CONVENTIONAL SIGNS

COUNTY LINE
CITY LIMITS
STATE OR NATIONAL LINE
TOWNSHIP, SECTION or GRANT LINE
PROPERTY LINE
HIGHWAY FENCE
EXISTING FENCE
GUARDRAIL
CONSTRUCTION LIMITS
RIGHT OF WAY LINE
TRAVELED WAY
RAILROADS

CENTER LINE OF PROJECT
TERRACE
CULVERTS
DROP INLET & STORM SEWER
ACCESS CONTROL
POWER POLE
TELEPHONE POLE
MARSH
HEDGE
TREES
PROFILE ELEVATION
STREAM or CREEK

GROSS LENGTH OF PROJECT	5290.80 FT.	
EXCEPTIONS	0.00 FT.	
ADDITIONS	0.00 FT.	
NET LENGTH OF PROJECT	5290.80 FT.	1.00 MILES
NET LENGTH OF BRIDGES	0.00 FT.	0.00 MILES
NET LENGTH OF ROAD	5290.80 FT.	1.00 MILES

Construction Traffic Notes

TRAFFIC TO BE CARRIED THROUGH CONSTRUCTION ON US-54. FOR TRAFFIC HANDLING AND CONSTRUCTION SEQUENCE SEE SH. NO. 91

KEVIN K. COSTNEY — NO. 19762 — KANSAS PROFESSIONAL ENGINEER

PLANS PREPARED BY:

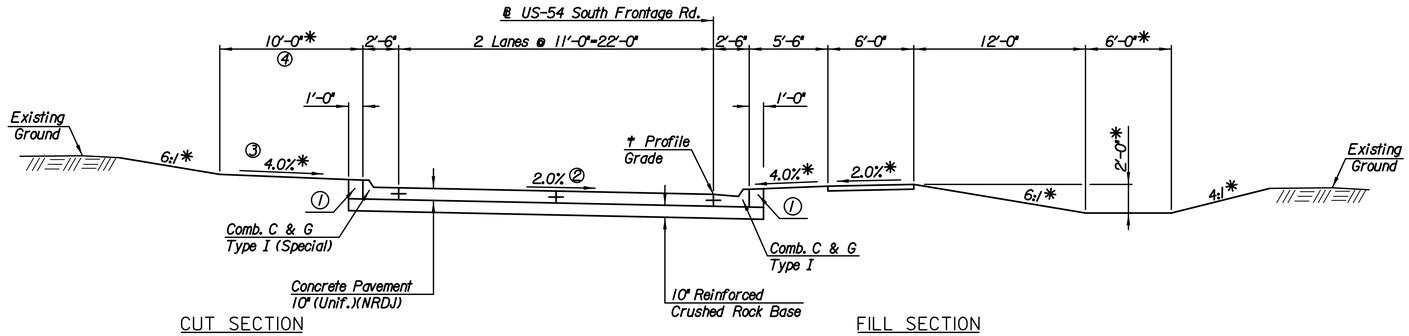
PEC — PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
303 SOUTH TOPEKA WICHITA, KS 67202
316-262-2691 www.pec1.com

RECOM. FOR APPROVAL-DATE
07/15/14
LOCAL PUBLIC OFFICIAL

KANSAS DEPARTMENT OF TRANSPORTATION

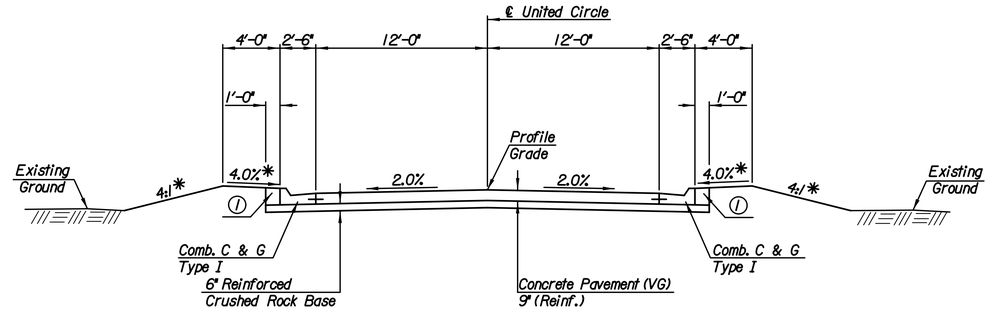
BY	DATE
SURVEY	
CADD TECHNICIAN	
DESIGNERS	
SQUAD	

Plotted : 14-JUL-2014 14:30
Drawn By : drp
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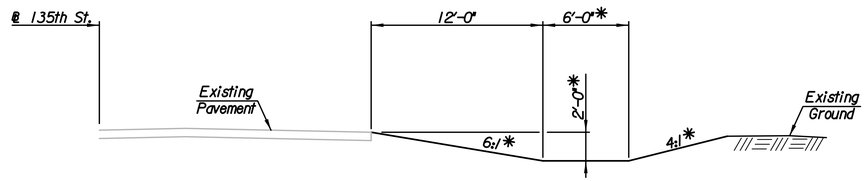


US-54 SOUTH FRONTAGE ROAD TYPICAL SECTION

Sta. 473+23.72 to Sta. 524+73.99

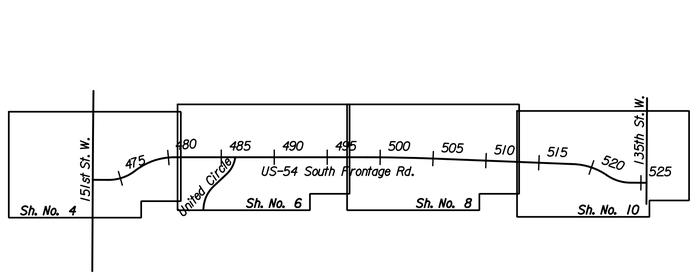


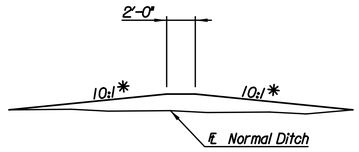
UNITED CIRCLE TYPICAL SECTION



135TH STREET WEST TYPICAL SECTION

Sta. 30+00 to Sta. 35+00





DITCH PLUG

① Backfill behind Curb. Quantities for this work are included in the Earthwork Summary Table.

② -2.0% from Sta. 473+23.72 to Sta. 475+75.
Varies from -2.0% @ Sta. 475+75 to 2.0% @ Sta. 477+50.
Varies from 2.0% @ Sta. 520+75 to -2.0% @ Sta. 522+50.

③ Varies from 4.0% @ Sta. 482+00 to -4.0% @ Sta. 482+50.
Varies from -4.0% @ Sta. 485+00 to 4.0% @ Sta. 485+50.
Varies from 4.0% @ Sta. 498+00 to -4.0% @ Sta. 498+50.
Varies from -4.0% @ Sta. 501+00 to 4.0% @ Sta. 501+50.

④ Varies from 10'-0" @ Sta. 481+00 to 5'-0" @ Sta. 482+00.
Varies from 5'-0" @ Sta. 485+00 to 10'-0" @ Sta. 486+00.
Varies from 10'-0" @ Sta. 497+50 to 5'-0" @ Sta. 498+50.
Varies from 5'-0" @ Sta. 500+00 to 10'-0" @ Sta. 501+00.

* Dimensions and slopes for standard ditches and fills. See plan and cross-sections for variations.

† Point of Superelevation Rotation.

No.	Revision	By	Date

CITY OF WICHITA

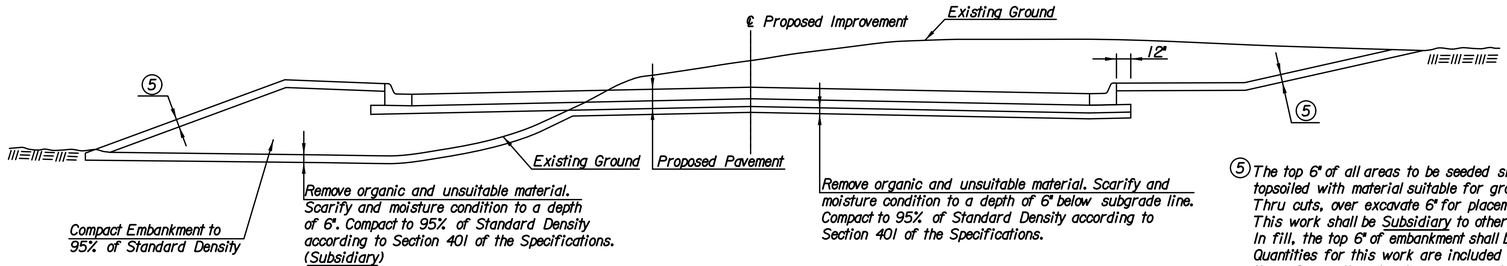
TYPICAL SECTIONS

PROJECT NO. 472-84841 SEDGWICK CO.

PEC PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
303 SOUTH TOPEKA WICHITA, KS 67202
316-262-2691 www.pec1.com

Designed by	CKC	Job No.	08313	Sht. 2 of 130
Drawn by	DRP	Date	June, 2014	

Plotted By: drp Date: 7/14/2014 11:42:35 AM
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IN FILL

COMPACTION DIAGRAM

IN CUT

Note: All embankment, including sideroads and driveways shall be compacted.

(5) *The top 6" of all areas to be seeded shall be topsoiled with material suitable for growth of vegetation. Thru cuts, over excavate 6" for placement of topsoil. This work shall be Subsidiary to other earthwork items. In fill, the top 6" of embankment shall be topsoil. Quantities for this work are included in the contract bid items for earthwork. No measurement or payment will be made for material required to replace material excavated during stripping operations.*

No.	Revision	By	Date

CITY OF WICHITA

FOUNDATION TREATMENT & COMPACTION OF EARTHWORK

PROJECT NO. 472-84841 SEDGWICK CO.

PEC
PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
303 SOUTH TOPEKA WICHITA, KS 67202
316-262-2691 www.pec1.com

Designed by	CKC	Job No.	08313	Sht. 3 of 130
Drawn by	DRP	Date	June, 2014	

Plotted By: drp Date: 7/14/2014 11:42:35 AM
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UTILITIES

AT&T
Wichita Central Unit
154 N. Broadway, Rm. 210
Wichita, ks. 67202
John Fagan (316) 268-2102

Black Hills Energy
1611 S. Hoover Rd.
Wichita, Ks. 67209
Calvin Briggs (316) 941-1608

City of Goddard
118 N. Main St.
Goddard, Ks. 67052
City Clerk Office (316) 794-2441
Spanky Brooks

Cox Communications
901 George Washington Blvd.
Wichita, Ks. 67211
Marc Henderson (316) 260-7745

Kansas Gas Service
1021 E. 26th St. N.
Wichita, Ks. 67219
Jim Coe (316) 832-3126

Oneok Field Services
30317 N. US HWY 281
Pratt, Ks. 67124-7931
Clay Robertson (620) 672-9425
Ext. 14

Westar Energy
1900 E. Central (3rd Floor)
Wichita, Ks. 67201
Miles Capps (316) 261-6824

Wichita Public Schools
U.S.D. 259
3850 N. Hydraulic
Wichita, Ks. 67219
Mark Blackwell (316) 973-4241

Wichita Water Utilities
455 N. Main (8th Floor - City Hall)
Wichita, Ks. 67202
Bill Perkins (316) 268-4555 (San. Sewer)
Greg Lolley (316) 268-4555 (Water)

OFFICE LOCATION
@ P.I. Sta. 475+27.31 (Bk.)-
@ P.I Sta. 475+16.74 (Ahd.)
1. Not Set

OFFICE LOCATION
@ P.I. Sta. 478+63.90 (Bk.)-
@ P.I Sta. 478+48.44 (Ahd.)
1. Not Set

STA. 473+23.72 BEGIN
PROJ. NO. KA 2285-01-
STA. 473+31.02
PROJ. NO. KA-2289-01

Sta. 478+14 Remove Comm. Entrance, 2-24" CMP and End Sections

Sta. 478+89, 20' Rt. Plug Water Well

@ US-54 South Frontage Rd. Sta. 472+37.72=
@ 151st St. W. Sta. 23+40
(2004)

Proj. KA 2289-01

C121 Curve Data
P.I. Sta. 475+27.31 (Bk.)-
P.I. Sta. 475+16.74 (Ahd.)
Δ=38° 28' 25" (Lt.)
R=400.00'
T=139.58'
L=268.60'
E=23.65'
Super=R.C.

C122 Curve Data
P.I. Sta. 478+63.90 (Bk.)-
P.I. Sta. 478+48.44 (Ahd.)
Δ=38° 10' 06" (Rt.)
R=600.00'
T=207.58'
L=399.70'
E=34.89'
Super=N.A.

LEGEND

Pavement Removal

Crushed Rock Hookup

UTILITIES

Power	Westar Energy
Telephone	AT&T
Gas	Kansas Gas Service
Cable TV	Cox Communications
Water	City of Goddard Water Dept.
Sanitary Sewer	Wichita Water Utilities
Pipeline	Oneok

PROJECT SURVEY CONTROL

Datum Bench Mark: BM#9
Chisled "+" cut on ℄ south concrete headwall on 4' x 4' RCB, 60.5' Rt. Sta. 442+59.5, Elev. 1414.91 NGVD 29 on 1992 KDOT Proj. 54-87 K-3388-01. Located 3,029.20' W. of 151st St. W., 60.37' S. of ℄ US-54.

E1/4Cor. Sec. 27, T27S, R2W (2760)
1. Found ¾" iron pipe
2. 3 nails south face fence corner post 32.93' E
3. 3 nails west face fence line post 52.69' NE
4. 3 nails west face power pole 83.76' NNE
5. ½" rebar with Baughman cap 50.05' W

BM#12 Chis. "C" center W edge ditch inlet in median of Kellogg, 75'± W of ℄ 151st St. W.
℄ 151st St. W. Sta. 19+95.09, 70.35' Rt. Elev. 1399.72

E1/4Cor. Sec. 34, T27S, R2W (3460)
1. Found ½" rebar
2. 3 nails south face guy pole 28.82' W
3. 3 nails south face power pole 30.84' E
4. 3 nails west face power pole 117.28' NNW
5. Ctr. drive to house #1951 61.02' N

NE Cor. Sec. 34, T27S, R2W (3450)
1. Found ⅝" rebar in thimble
2. Ctr. west bound lanes 10.32' S
3. Ctr. east bound lanes 64.46' SW
4. Ctr. R/W monument 120.38' SW
5. Ctr. R/W monument 130.61' SE
6. Ctr. R/W monument 59.14' NE
7. Ctr. R/W monument 51.57' NW

SCALE
50' 0 50' 100'
PLAN: Lat. & Long.
PROFILE: Horiz. same as above
Vert. 5' 0

① Future 40' A/C break upon 151st St. W. Interchange construction.

BM#12A RR Spike W face power pole @ San. Sewer Lift Station E side 151st St. W. Just S of Woodbine Lane.
℄ 151st St. W. Sta. 15+89.68, 27.63' Lt. Elev. 1394.78

No.	Revision	By	Date

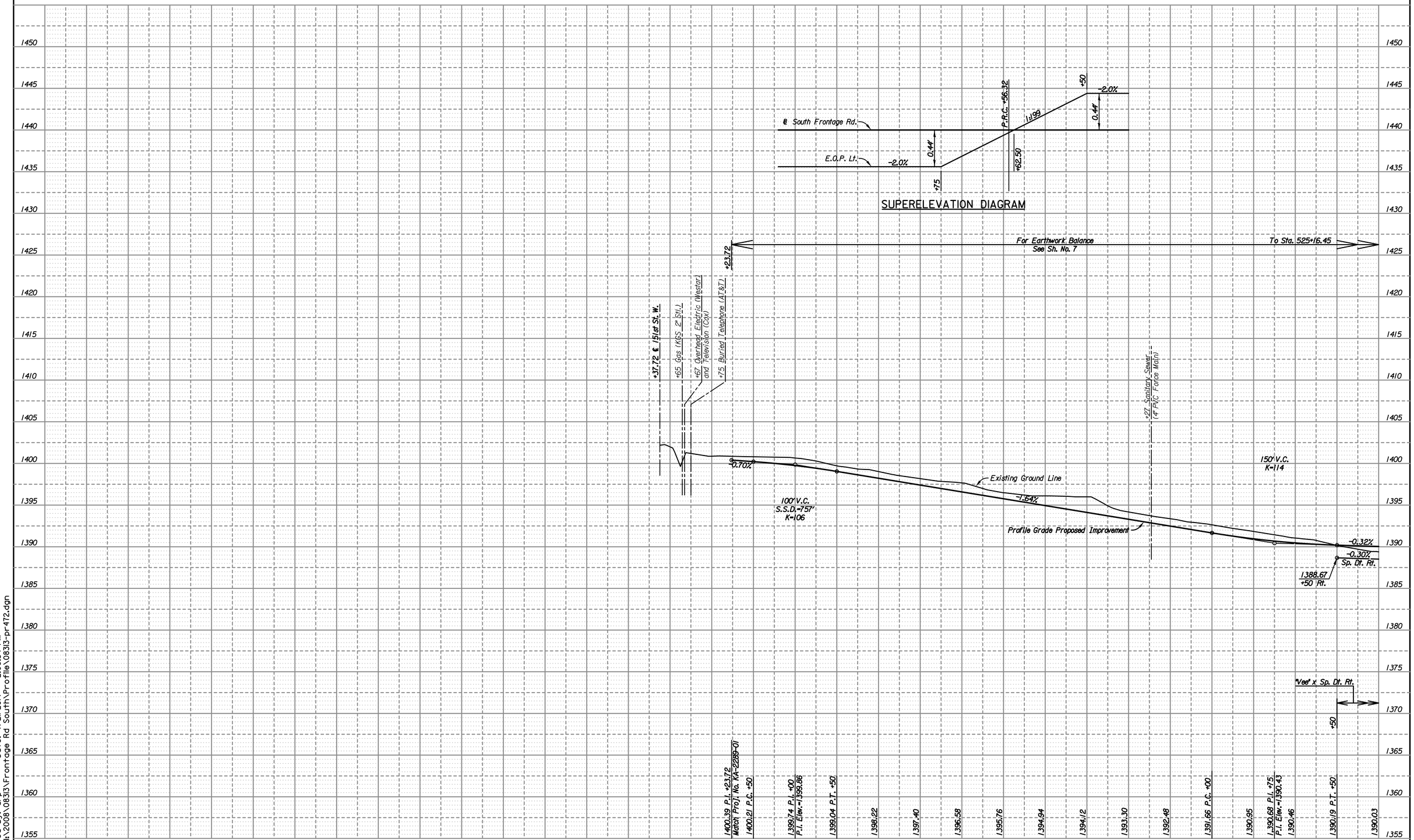
CITY OF WICHITA
PLAN
US-54 SOUTH FRONTAGE ROAD
STA. 472+37.72 TO STA. 481+00
PROJECT NO. 472-84841 SEDGWICK CO.

PEC PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
303 SOUTH TOPEKA WICHITA, KS 67202
316-262-2691 www.pec1.com

Designed by	CKC	Job No.	08313
Drawn by	DRP	Date	June, 2014

Sht. 4 of 130

Plotted By: drp Date: 7/25/2014 7:46:47 AM
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Plotted By: drp Date: 7/21/2014 2:06:54 PM
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US-54 South Frontage Rd. Sta. 472+61.72 to Sta. 481+00.00

Wichita Friends School, Inc.
D-1009-UP

10' Utility Esmt.

Exist. R/W

Fawnwood Dr.

SW 1/4, Sec. 26, T27S, R2W

D-53444

Drainage Esmt.

℄ 20' Utility Esmt.

FAWNWOOD ADDITION

Sand

Wichita Friends School, Inc.
D-53445

Conc.

Chain Link

D-53446

D-1004-UP

Doris W. Riebel Trust
D-1002-UP

Jerry C., Jr. & Sal.
D-1052-

Gravel

Temp. Esmt.

R/W=Exist. R/W

A/C

R/W & A/C

Gravel

WW

AT&T

Drainage Esmt.

RESERVE A

Sedgwick County
AT-790

Kellogg Dr.

Asphalt

GM

4 Strand Barb Wire

Cultivated Field

5 Strand Barb Wire

Chain Link

FWM

8" KGS Gas (St.)

24"x48" CMP

MB

2-MB

Concrete

Exist. W.Bd. Lanes US-54

Section Line

℄ Exist. US-54

Exist. E.Bd. Lanes US-54

15" RCP

BM#13

Sta. 486+38 Remove
Comm. Entrance

Sta. 486+50 Const.
Ditch Plug Lt.

Sta. 496+43 Remove
Entrance, 24" RCP
and End Sections

Const. Limits

10' Waterline Esmt.

12" Water

Barb Wire

2-Fiber Optics Tel.

4 Strand Barb Wire

Sign

485

490

495

22

+99.25 A/C

+69.25 A/C

+24.49 A/C

+64.39 A/C

Exist. R/W

R/W & A/C

30' Drainage Esmt.

6' Sidewalk

+98.56 R/W & A/C
34.48' ℄

+97.71 R/W & A/C
47.48' ℄

+83.54 R/W & A/C-
Exist. R/W 47.49' ℄

+61.40 R/W & A/C-
Exist. R/W 31.55' ℄

℄ US-54 South Frontage Rd.

+22.93 A/C

+72.91 R/W
38.93' ℄

+45
30' Ent.

+97.43 R/W
49.93' ℄

Proposed
Duct Bank

UNITED INDUSTRIAL
ADDITION

United Auto Parts, Inc.
D-53792

Grass

Concrete

20' Utility Esmt.

℄ United Circle

Exist. R/W

Cultivated Field

Waterway

WV

℄ US-54 South Frontage Rd. Sta. 486+31.65=
℄ United Circle Sta. 50+00

United Auto Parts, Inc., etal
AT-187

NW 1/4, Sec. 35, T27S, R2W

BM#13 Chis."D" W edge ditch inlet in Kellogg median, 90' ± W of drive to Bldg. #14820.
@ Sta. 485+48.75, 127.21' Lt. Elev. 1387.89

† Wheelchair Ramp with Detectable Warning

UTILITIES

Power	Westar Energy
Telephone	AT&T
Gas	Kansas Gas Service
Cable TV	Cox Communications
Water	City of Goddard Water Dept.

No.	Revision	By	Date

CITY OF WICHITA

PLAN
US-54 SOUTH FRONTAGE ROAD
STA. 481+00 TO STA. 497+00

PROJECT NO. 472-84841 SEDGWICK CO.

PEC
PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
303 SOUTH TOPEKA WICHITA, KS 67202
316-262-2691 www.pec1.com

Designed by	CKC	Job No.	08313
Drawn by	DRP	Date	June, 2014

Sht. 6 of 130

Plotted By: drp Date: 7/14/2014 11:42:39 AM
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From Sta. 473+23.72

South Fr. Rd. Balance Sta. 473+23.72 to Sta. 525+16.45

To Sta. 525+16.45

* 20113 Cu. Yds. Common Excavation (VMF=0.80)

5798 Cu. Yds. Embankment

* Includes 2609 Cu. Yds. To be hauled to North Fr. Rd. Balance Sta. 473+17.44 to Sta. 518+00 (City of Wichita Proj. No. 472-84840)

* Includes 10254 Cu. Yds. To be wasted on site provided by the Contractor

+98 Buried Telephone (AT&T)

+07 Gas (KGS 2" St.)

+31.65 ℄ United Circle

+45 Entrance Rt.

Ditch Plug
El. 1388.22

-0.32%

-0.30% Sp. Dt. Rt.

-2.90% Sp. Dt. Rt.

1387.92
+00 Rt.

1383.57
+50 Rt.

-1.08%

Existing Ground Line

Profile Grade Proposed Improvement

-1.44%

100' V.C.
S.S.D.=924'
K=132

100' V.C.
S.S.D.=1896'
K=278

1377.75
+75 Rt.

-2.40%
Sp. Dt. Rt.

"Vee" x Sp. Dt. Rt.

+50

6' x Sp. Dt. Rt.

+75

1390.03	1389.87	1389.71	1389.55	1389.39	1389.23	1389.07	1388.91	1388.75	1388.59	1388.43	1388.27	1388.11	1387.95	1387.79	1387.63	1387.47	1387.31	1387.15 P.C. +00	1386.90 P.I. +50 P.I. Elev.=1386.59	1386.45 P.T. +00	1385.91	1385.37	1384.83	1384.29 P.C. +00	1383.71 P.I. +50 P.I. Elev.=1383.75	1383.03 P.T. +00	1382.31	1381.59	1380.87	1380.15	1379.43	1378.71
1	2	3	4	485	6	7	8	9	490	1	2	3	4	495	6	7																

South Frontage Rd. Sta. 481+00.00 to Sta. 497+00.00

Plotted By: drp Date: 7/14/2014 11:42:40 AM
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OFFICE LOCATION
@ P.I. Sta. 501+85.95 (Bk.)=
@ P.I. Sta. 501+85.87 (Ahd.)
I. Not Set

2600

Conc. Pool

& Sally J. Goodwin
1052-UP

SW 1/4, Sec. 26, T27S, R2W

1/4 Section Line

Cage

Cage

LP

R/W

RR Ties

Rebah J. Hubbard Revocable Inter Vivos Trust
D-996-UP

SE 1/4, Sec. 26, T27S, R2W

Temp. Esmt.

CattyMark Colorado Investments, LLC, etal
D-997-UP

AUBURN

20' Drainage & Utility Esmt.

West W

Temp. Esmt.

R/W & A/C

R/W

24" Oak

15" Ced

30" Oak

WW Vault

Exist. R/W

TR

AT&T

BM#14

2 - Barb Wire

8" KGS Gas (Stl.)

RR ℄

2 - Barb Wire

8" KGS Gas (Stl.)

5 Strand Barb Wire

Exist. R/W

BM#15

Stone Fence

20" GRT

Stone Fence

Bar

AT&T

WB

3540

Concrete

Exist. W.Bd. Lanes US-54

Sta. 504+16 Remove Entrance, 24" CMP and End Sections

℄ Exist. US-54

Concrete

Sta. 511+92 Remove Entrance, 24" CMP and End Sections

7 8 9 500 1 2 3 4 505 6 7 8 9 510 1 2 3

Concrete

Exist. E.Bd. Lanes US-54

3'x3' RCB

15" RCP

15" RCP

24" RCP

Concrete

Sta. 500+95 Const. Ditch Plug Lt.

AT&T Const. Limits

2-Fiber Optics Tel.

DM

Woven Wire Fence

Exist. R/W

12" Water

WM

Woven Wire Fence

MB Asphalt

AT&T

49 CMP

+23.09 A/C

+32.95 A/C

12" Water

Cultivated Field

DM

5 Strand Barb Wire

Exist. R/W

24"x50' CMP

12" Water

WM

+12.16 A/C

+12.16 A/C

7 8 9 500 1 2 3 4 505 6 7 8 9 510 1 2 3

C123

Const. Limits

Chain Link

Chain Link

Chain Link

@ US-54 South Frontage Rd.

Const. Limits

+69.31 A/C

Proposed Duct Bank

P.C. Sta. 498+74.24

Barb Wire

+97.50 R/W=
1/4℄ 51.53' ℄

Lagoon

CO

CO

Concrete

House

Conc.

Shed

LP

Gravel

Concrete

+50
℄ 24' Ent.

P.T. Sta. 504+97.58

R/W

+24.31 R/W
42.11' ℄

6' Sidewalk

Proposed Duct Bank

Cultivated Field

United Auto Parts, Inc., etal
AT-187

NW 1/4, Sec. 35, T27S, R2W

1/4 Section Line

Barb Wire

Barb Wire

Rebah J. Hubbard
Revocable Inter Vivos Trust
AT-184

Sta. 504+50 Install
18" x 43' E.P. Rt. (ACSP, PEP, PVC and RCP) with End Sections
See Sh. No. 44, 45, 47-50

Ctr. Sec. 26, T27S, R2W (2600)
1. Found 3/4" iron pipe
2. 3 nails north face 20" osage orange 7.23' WSW
3. 3 nails south face 18" osage orange 8.30' SE
4. 3 nails east face 20" mulberry 32.81' NE

NE 1/4, Sec. 35, T27S, R2W

N1/4Cor. Sec. 35, T27S, R2W (3540)
1. Found 5/8" rebar in thimble
2. Ctr. west bound lanes 10.76' N
3. Ctr. east bound lanes 43.57' S
4. Nail & shiner north face power pole 109.43' SSE
5. 3 nails SE face power pole 154.38' NW

Ctr. Sec. 35, T27S, R2W (3500)
1. Not Found

3500

BM#14 Chis. "□" center N hubguard RCB, 135' ± E of S1/4Cor. Sec. 26, T27S, R2W.
@ Sta. 500+33.29, 201.61' Lt. Elev. 1369.94

C123 Curve Data
P.I. Sta. 501+85.95 (Bk.)=
P.I. Sta. 501+85.87 (Ahd.)
Δ=02°15'00" (Rt.)
R=15,873.00'
T=311.71'
L=623.33'
E=3.06'
Super=N.C.

BM#15 Chis. "□" E corner RCB Headwall, 100' ± W of drive to house #13728.
@ Sta. 509+83.48, 225.61' Lt. Elev. 1370.57

UTILITIES

Power	Westar Energy
Telephone	AT&T
Gas	Kansas Gas Service
Cable TV	Cox Communications
Water	City of Goddard Water Dept.

No.	Revision	By	Date

CITY OF WICHITA
PLAN
US-54 SOUTH FRONTAGE ROAD
STA. 497+00 TO STA. 513+00
PROJECT NO. 472-84841 SEDGWICK CO.

PEC
PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
303 SOUTH TOPEKA WICHITA, KS 67202
316-262-2691 www.pec1.com

Designed by	CKC	Job No.	08313
Drawn by	DRP	Date	June, 2014

Sht. 8 of 130

Plotted By: drp Date: 7/14/2014 11:42:41 AM
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From Sta. 473+23.72

For Earthwork Balance
See Sh. No. 7

To Sta. 525+16.45

+95 Prop. 6'x6'x315'-4" RCB
CDW Proj. No. 412-84840

+64 Overhead Telephone

+64 Overhead Electric

+50 Entrance Rt.

150' V.C.
K=85

-1.44%

Profile Grade Proposed Improvement

-2.40% Sp. Dt. Rt.

1374.15
+25 Rt.

-0.30% Sp. Dt. Rt.

Ditch Plug
1373.10

1373.33
+00 Rt.

Existing Ground Line

+0.32%

+0.40% Sp. Dt. Rt.

1376.13
+00 Rt.

100' V.C.
S.S.D.=654'
K=91

-0.78%

-0.44% Sp. Dt. Rt.

1374.15
+50 Rt.

6' x Sp. Dt. Rt.

+50

| | | |

OFFICE LOCATION
@ P.I. Sta. 518+11.19 (Bk.)=
@ P.I. Sta. 518+11.19 (Ahd.)
I. Not Set

OFFICE LOCATION
@ P.I. Sta. 519+98.59 (Bk.)=
@ P.I. Sta. 519+89.19 (Ahd.)
I. Not Set

OFFICE LOCATION
@ P.I. Sta. 522+87.11 (Bk.)=
@ P.I. Sta. 522+79.73 (Ahd.)
I. Not Set

JRN HILLS 15TH ADDITION
(B)
51
RESERVE
est Wichita Development, Inc.
D-59309
Irrigation Valve
6" Ced
Valve
6" Ced
8" Ced
20" Cot
Brush
6" Jun
WV
6" Jun
6" Jun
20" Elm
Sign
24" Oak
WV
Fountain
8" Oak and Planter
15" Oak
Sign
15" RCP
20" Pine
12" Cot
20" Loc
Exist. R/W
R/W & A/C
R/W & A/C
Building
Crosses
Asphalt
Asphalt
Sign
ELR
ELR
Barb Wire
Chain Link
Exist. R/W
Sign
2-24" RCP
R/W=Exist. R/W
SE 1/4, Sec. 26, T27S, R2W
Exist. R/W
Temp. Esmt.
CMP
R/W=Exist. R/W
Sedgwick County
5-DM
A/C
A/C
3-DM
Asphalt
AT&T
Chain Link
RM*16D
8" KGS Gas (Stl.)
3-DM
Concrete
Traffic Camera
Exist. W.Bd. Lanes US-54
Concrete
Exist. E.Bd. Lanes US-54
Concrete
30" RCP
Sign
Traffic Camera
AT&T
DM
12" Water
Const. Limits
Exist. R/W
Cultivated Field
12" Water
2-Fiber Optic Tel.
2-DM
5 Strand Barb Wire
Traffic Elec. Box
30" RCP
(Plugged & Filled)
2-30"x19" RCP
Sign
TMRR
5 Strand Barb Wire
12" Water
Sc
2660
Exist. R/W
Section Line
8" KGS Gas (Stl.)
2-DM
4" RCP
Sedgwick County
SW 1/4, Sec. 25, T27S, R2W
AT&T
2-DM
3550
85°04'27"
88°55'33"
L1,804.16
30
Concrete
Traffic Camera
Concrete
Concrete
3560
Concrete
35
Section Line
135th St. W.
Const. Limits
R/W=Exist. R/W
@ US-54 South Frontage Rd. Sta. 525+52.99=
@ 135th St. W. Sta. 33+00
2005
Sedgwick County
NW 1/4, Sec. 36, T27S, R2W
18" RCP
LP
R/W=Exist. R/W
Exist. R/W
LP
STA. 525+20.55 END
CONSTRUCTION
STA. 525+14.99 END
PROJ. NO. KA-2285-01

3 4 515 6 7 8 9 520 1 2 3 4 5 6 7 8 9
@ US-54 South Frontage Rd.
Const. Limits
R/W & A/C
6' Sidewalk
Proposed
Duct Bank
C124
C125
C126
P.C. Sta. 517+98.45
P.R.C. Sta. 518+23.93
+41.88 R/W & A/C
34.04' @
02.36'
A/C
+40.50
A/C
+77.34
A/C
+21.48
A/C
Future R/W & A/C
+17.99 R/W & A/C
122.42' @
Const. Limits
+67.99 R/W & A/C=
Exist. R/W 72.16' @
Const. Limits
R/W & A/C
P.R.C. Sta. 521+63.85
C126
3-DM
+83.09 R/W & A/C
57.18' @
NE 1/4, Sec. 35, T27S, R2W
P.T. Sta. 524+02.99
+57.99 Temp. Esmt.=
Prop. R/W & A/C 37.79' @
+67.99 R/W & A/C=
Exist. R/W 37.84' @
Temp. Esmt.
R/W=Exist. R/W
Sta. 524+92 Install
18" x 60' (CRP) (RCP)
w/End Sections
See Sh. No. 45
+72.99 Temp. Esmt.
274.87' @
+82.99 Temp. Esmt.=
Exist. R/W 274.93' @
3560

C126 Curve Data
P.I. Sta. 522+87.11 (Bk.)=
P.I. Sta. 522+79.73 (Ahd.)
Δ=34° 15' 13" (Lt.)
R=400.00'
T=123.26'
L=239.14'
E=18.56'
Super=R.C.

C124 Curve Data
P.I. Sta. 518+11.19 (Bk.)=
P.I. Sta. 518+11.19 (Ahd.)
Δ=00° 08' 45" (Lt.)
R=10,000.00'
T=12.74'
L=25.48'
E=0.01'
Super=N.C.

C125 Curve Data
P.I. Sta. 519+98.59 (Bk.)=
P.I. Sta. 519+89.19 (Ahd.)
Δ=32° 27' 38" (Rt.)
R=600.00'
T=174.66'
L=339.93'
E=24.91'
Super=N.C.

E1/4Cor. Sec. 26, T27S, R2W (2660)
1. Found 1" iron pipe
2. Chis. "+" east hdwl. RCB 15.01' SE
3. Chis. "+" west hdwl. RCB 15.03' SW
4. 60d nail NE face 10" Elm 34.32' NW
5. Nail/shiner NW face power pole 59.52' NE

NE Cor. Sec. 35, T27S, R2W (3550)
1. Found 5/8" rebar in thimble
2. Ctr. east bound lanes 6.46' S
3. Ctr. west bound lanes 47.93' N
4. KDOT nail/washer east face power pole 70.26' SW
5. KDOT nail/washer west face power pole 96.67' SE
6. 3 nails south face power pole 114.20' NW

E1/4Cor. Sec. 35, T27S, R2W (3560)
1. Found 1" iron pipe
2. 3 nails south face power pole 43.64' NW
3. Chain link fence to east 40.03' N
4. RR crossing sign 43.96' SSE
5. Ctr. drive to house #1940 78.08' N

BM#16D RR Spike in N face power pole, 80' ± N of ℄ Kellogg, 460' W of ℄ 135th St. W. @ Sta. 519+73.83, 322.99' Lt. Elev. 1372.52

BM#16R Chis. "D" center front curb inlet on W side 135th St. W., 350' ± N of ℄ Kellogg. @ Sta. 525+14.90, 727.56' Lt. Elev. 1358.48

UTILITIES

Power	Westar Energy
Telephone	AT&T
Gas	Kansas Gas Service
Cable TV	Cox Communications
Water	City of Goddard Water Dept.

No.	Revision	By	Date

CITY OF WICHITA
PLAN
US-54 SOUTH FRONTAGE ROAD
STA. 513+00 TO STA. 525+16.45
PROJECT NO. 472-84841 SEDGWICK CO.

PEC
PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
303 SOUTH TOPEKA WICHITA, KS 67202
316-262-2691 www.pec1.com

Designed by	CKC	Job No.	08313
Drawn by	DRP	Date	June, 2014

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Plotted By: drp Date: 7/25/2014 7:54:03 AM
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135th St. West Balance Sta. 30+00 to Sta. 35+00
* 1154 Cu. Yds. Common Excavation (VMF-0.80)
0 Cu. Yds. Embankment
* Includes 1154 Cu. Yds. To be wasted on site provided by the Contractor

@ US-54 South Frontage Rd. Sta. 524+92

Existing Ground Line
1-18"x60" @ +1.80%
+0.50% Sp. Dt. Rt.
+2.50% Sp. Dt. Rt.
1363.95 +00 Rt.
1365.15 +40 Rt.
1366.68 +25 Rt.
1371.06 +00 Rt.
6' x Sp. Dt. Rt.
No Dt. Rt.
6' x Sp. Dt. Rt.
+00 +40 +25 +00

135TH ST. W.

30 1 2 3 4 35

E.O.P. Lt. -2.0% +75 P.R.C. +63.85 1:198 @ North Frontage Rd. 0.44' +62.50 +50 0.44' -2.0%

SUPERELEVATION DIAGRAM

From Sta. 473+23.72
For Earthwork Balance See Sh. No. 7

100' V.C. K=83
100' V.C. S.S.D.=471' K=63
100' V.C. K=66

-0.78% +0.42% -1.16% +0.35%
Existing Ground Line
Profile Grade Proposed Improvement

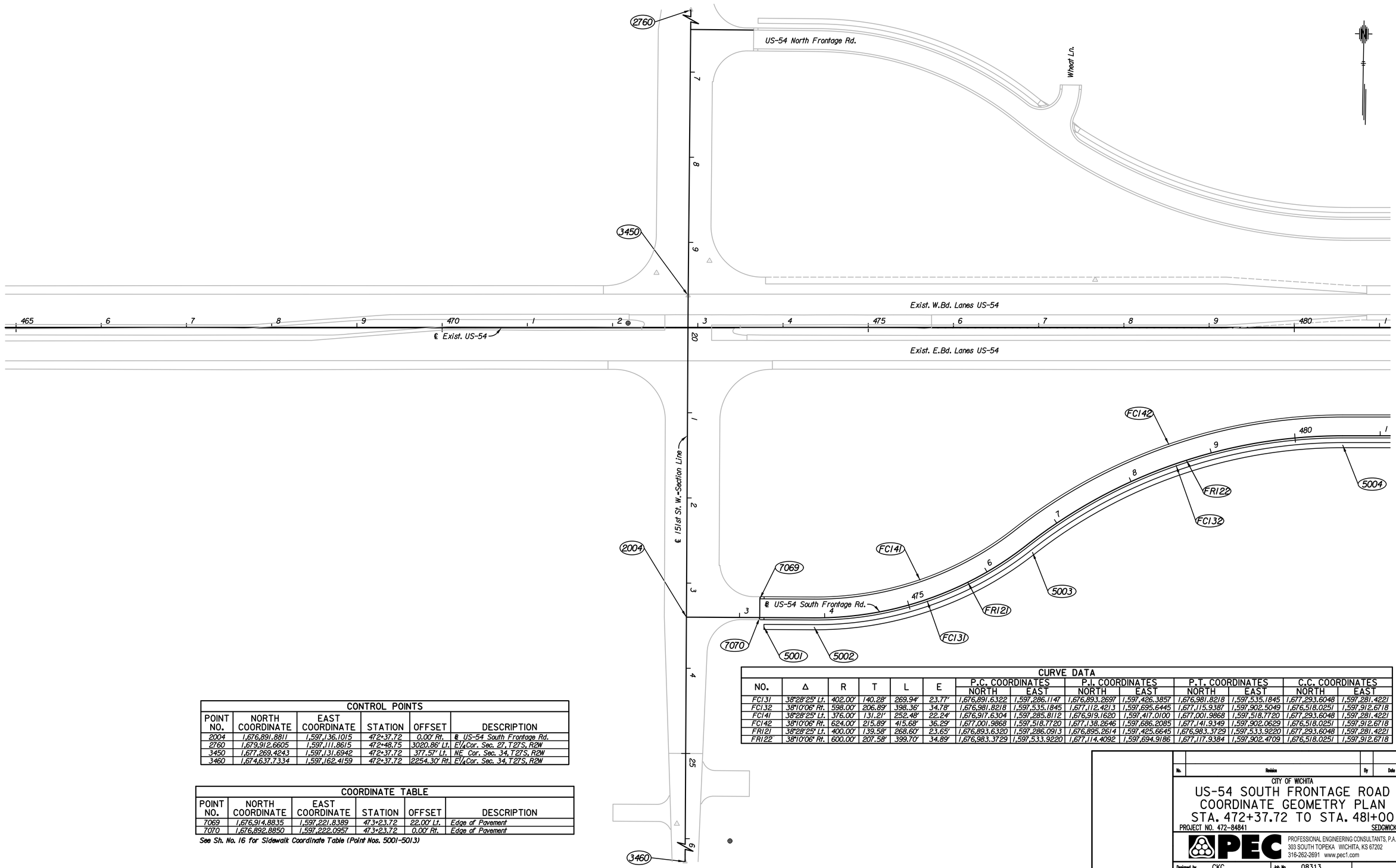
+63 Waterline (Goddard)
+73 Overhead Electric (Westar)
+92 18" CMP (RCP)
+16.45
+52.99 135st St. W.

Pr. Gr.=1370.40
Proposed ℄ Lt.=1365.43
Proposed ℄ Rt.=1366.60

374.59 374.20 373.81 373.42 373.03 372.64 372.45 P.C. +75 372.29 372.21 P.I. +25 P.I. Elev.=372.06 372.20 372.27 P.T. +75 372.37 372.58 372.79 373.00 373.21 373.42 373.63 373.74 P.C. +25 373.79 373.75 P.I. +75 P.I. Elev.=373.95 373.61 373.37 P.T. +25 373.08 372.50 371.92 371.34 370.76 370.18 P.C. +00 369.78 P.I. +50 P.I. Elev.=369.60 369.77 P.T. +00 369.82 P.I. +5.11 Match Existing

3 4 5\5 6 7 8 9 520 1 2 3 4 525

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CONTROL POINTS					
POINT NO.	NORTH COORDINATE	EAST COORDINATE	STATION	OFFSET	DESCRIPTION
2004	1,676,891.8811	1,597,136.1015	472+37.72	0.00' Rt.	℄ US-54 South Frontage Rd.
2760	1,679,912.6605	1,597,111.8615	472+48.75	3020.86' Lt.	E1/4Cor. Sec. 27, T27S, R2W
3450	1,677,269.4243	1,597,131.6942	472+37.72	377.57' Lt.	NE Cor. Sec. 34, T27S, R2W
3460	1,674,637.7334	1,597,162.4159	472+37.72	2254.30' Rt.	E1/4Cor. Sec. 34, T27S, R2W

COORDINATE TABLE					
POINT NO.	NORTH COORDINATE	EAST COORDINATE	STATION	OFFSET	DESCRIPTION
7069	1,676,914.8835	1,597,221.8389	473+23.72	22.00' Lt.	Edge of Pavement
7070	1,676,892.8850	1,597,222.0957	473+23.72	0.00' Rt.	Edge of Pavement

See Sh. No. 16 for Sidewalk Coordinate Table (Point Nos. 5001-5013)

CURVE DATA											
NO.	Δ	R	T	L	E	P.C. COORDINATES		P.I. COORDINATES		P.T. COORDINATES		C.C. COORDINATES	
						NORTH	EAST	NORTH	EAST	NORTH	EAST	NORTH	EAST
FC131	38°28'25" Lt.	402.00'	140.28'	269.94'	23.77'	1,676,891.6322	1,597,286.1147	1,676,893.2697	1,597,426.3857	1,676,981.8218	1,597,535.1845	1,677,293.6048	1,597,281.4221
FC132	38°10'06" Rt.	598.00'	206.89'	398.36'	34.78'	1,676,981.8218	1,597,535.1845	1,677,112.4213	1,597,695.6445	1,677,115.9387	1,597,902.5049	1,676,518.0251	1,597,912.6718
FC141	38°28'25" Lt.	376.00'	131.21'	252.48'	22.24'	1,676,917.6304	1,597,285.8112	1,676,919.1620	1,597,417.0100	1,677,001.9868	1,597,518.7720	1,677,293.6048	1,597,281.4221
FC142	38°10'06" Rt.	624.00'	215.89'	415.68'	36.29'	1,677,001.9868	1,597,518.7720	1,677,138.2646	1,597,686.2085	1,677,141.9349	1,597,902.0629	1,676,518.0251	1,597,912.6718
FR121	38°28'25" Lt.	400.00'	139.58'	268.60'	23.65'	1,676,893.6320	1,597,286.0913	1,676,895.2614	1,597,425.6645	1,676,983.3729	1,597,533.9220	1,677,293.6048	1,597,281.4221
FR122	38°10'06" Rt.	600.00'	207.58'	399.70'	34.89'	1,676,983.3729	1,597,533.9220	1,677,114.4092	1,597,694.9186	1,677,117.9384	1,597,902.4709	1,676,518.0251	1,597,912.6718

No.	Revision	By	Date

CITY OF WICHITA

US-54 SOUTH FRONTAGE ROAD COORDINATE GEOMETRY PLAN STA. 472+37.72 TO STA. 481+00

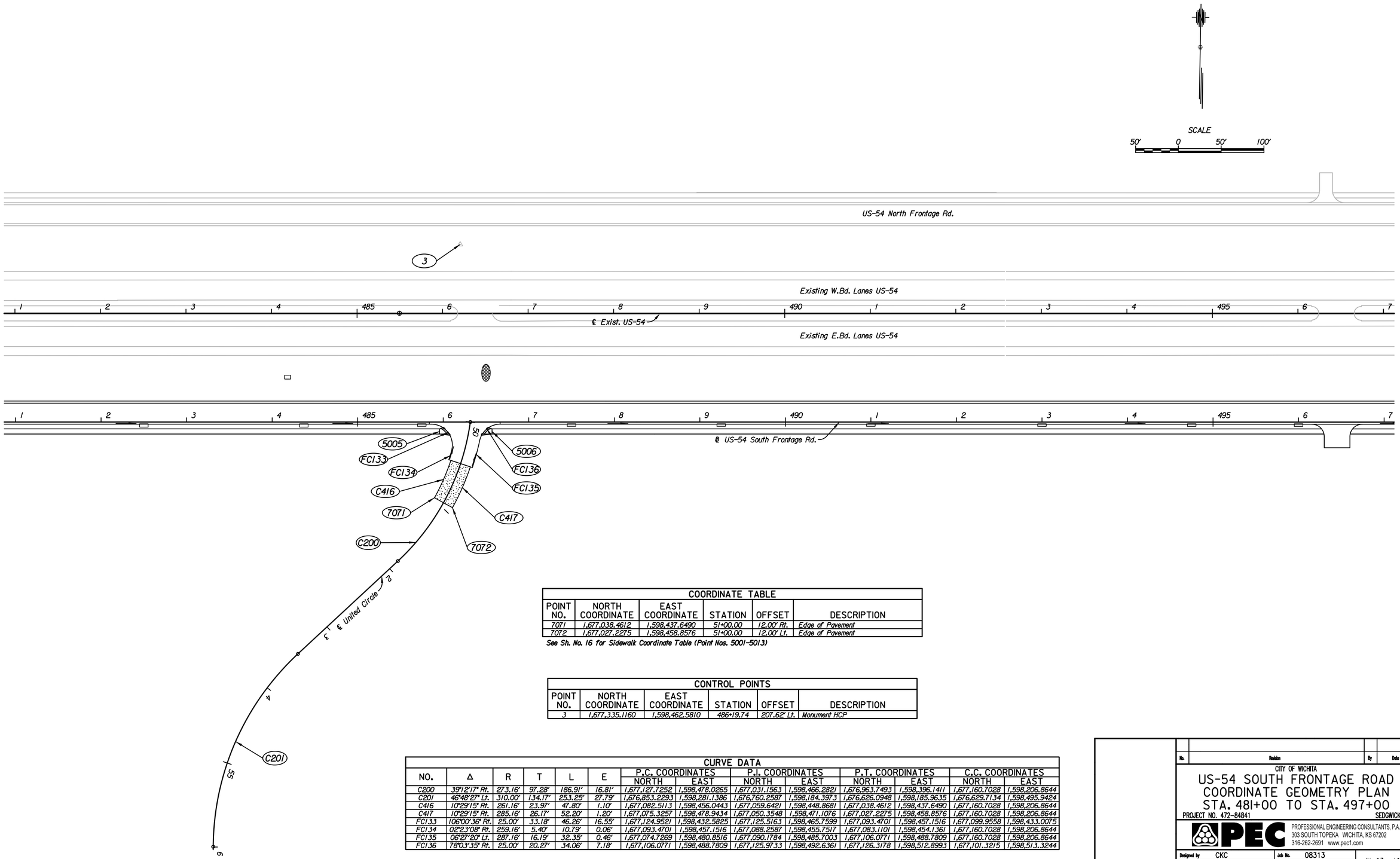
PROJECT NO. 472-84841 SEDGWICK CO.

PEC PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
303 SOUTH TOPEKA WICHITA, KS 67202
316-262-2691 www.pec1.com

Designed by	CKC	Job No.	08313
Drawn by	DRP	Date	June, 2014

Sht. 12 of 130

Plotted By: drp Date: 7/25/2014 7:46:48 AM
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COORDINATE TABLE					
POINT NO.	NORTH COORDINATE	EAST COORDINATE	STATION	OFFSET	DESCRIPTION
7071	1,677,038.4612	1,598,437.6490	51+00.00	12.00' Rt.	Edge of Pavement
7072	1,677,027.2275	1,598,458.8576	51+00.00	12.00' Lt.	Edge of Pavement

See Sh. No. 16 for Sidewalk Coordinate Table (Point Nos. 5001-5013)

CONTROL POINTS					
POINT NO.	NORTH COORDINATE	EAST COORDINATE	STATION	OFFSET	DESCRIPTION
3	1,677,335.1160	1,598,462.5810	486+19.74	207.62' Lt.	Monument HCP

CURVE DATA													
NO.	Δ	R	T	L	E	P.C. COORDINATES		P.I. COORDINATES		P.T. COORDINATES		C.C. COORDINATES	
						NORTH	EAST	NORTH	EAST	NORTH	EAST	NORTH	EAST
C200	39°12'17" Rt.	273.16'	97.28'	186.91'	16.81'	1,677,127.7252	1,598,478.0265	1,677,031.1563	1,598,466.2821	1,676,963.7493	1,598,396.1411	1,677,160.7028	1,598,206.8644
C201	46°48'27" Lt.	310.00'	134.17'	253.25'	27.79'	1,676,853.2293	1,598,281.1386	1,676,760.2587	1,598,184.3973	1,676,626.0948	1,598,185.9635	1,676,629.7134	1,598,495.9424
C416	10°29'15" Rt.	261.16'	23.97'	47.80'	1.10'	1,677,082.5113	1,598,456.0443	1,677,059.6421	1,598,448.8681	1,677,038.4612	1,598,437.6490	1,677,160.7028	1,598,206.8644
C417	10°29'15" Rt.	285.16'	26.17'	52.20'	1.20'	1,677,075.3257	1,598,478.9434	1,677,050.3548	1,598,471.1076	1,677,027.2275	1,598,458.8576	1,677,160.7028	1,598,206.8644
FC133	106°00'36" Rt.	25.00'	33.18'	46.26'	16.55'	1,677,124.9521	1,598,432.5825	1,677,125.5163	1,598,465.7599	1,677,093.4701	1,598,457.1516	1,677,099.9558	1,598,433.0075
FC134	02°23'08" Rt.	259.16'	5.40'	10.79'	0.06'	1,677,093.4701	1,598,457.1516	1,677,088.2587	1,598,455.7517	1,677,083.1101	1,598,454.1361	1,677,160.7028	1,598,206.8644
FC135	06°27'20" Lt.	287.16'	16.19'	32.35'	0.46'	1,677,074.7269	1,598,480.8516	1,677,090.1784	1,598,485.7003	1,677,106.0771	1,598,488.7809	1,677,160.7028	1,598,206.8644
FC136	78°03'35" Rt.	25.00'	20.27'	34.06'	7.18'	1,677,106.0771	1,598,488.7809	1,677,125.9733	1,598,492.6361	1,677,126.3178	1,598,512.8993	1,677,101.3215	1,598,513.3244

No.	Revision	By	Date

CITY OF WICHITA

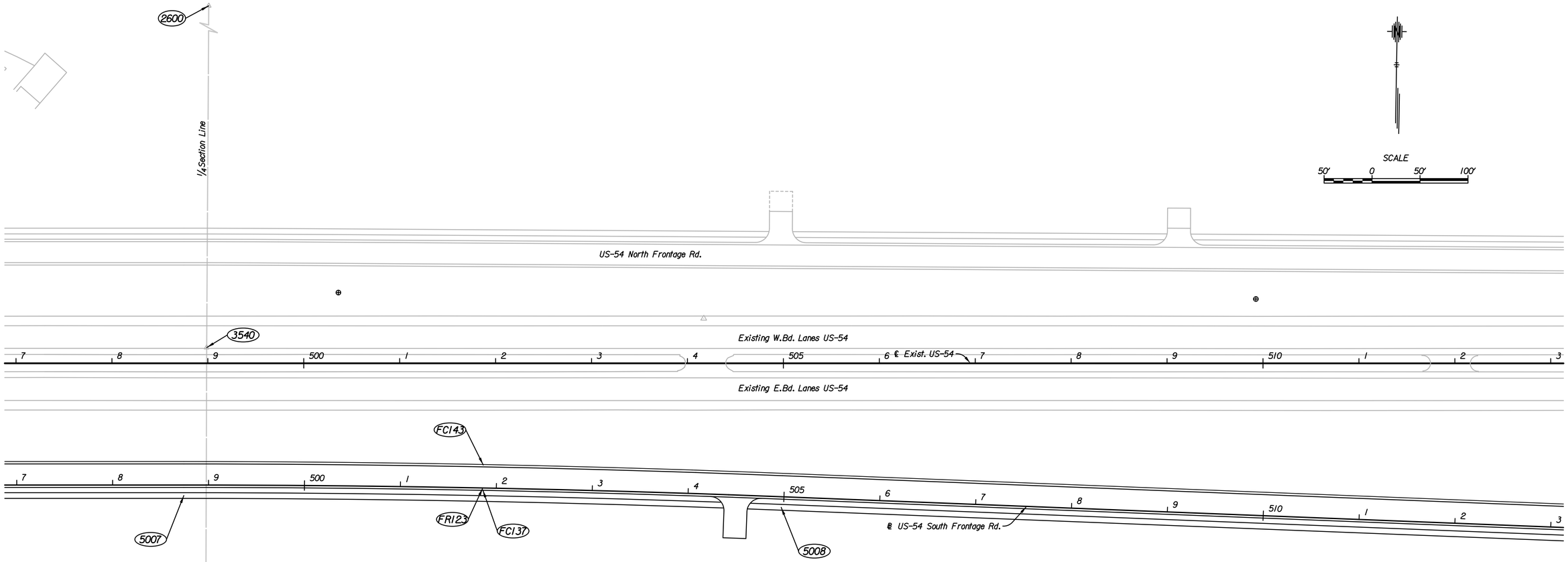
US-54 SOUTH FRONTAGE ROAD COORDINATE GEOMETRY PLAN STA. 481+00 TO STA. 497+00

PROJECT NO. 472-84841 SEDGWICK CO.

PEC
PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
303 SOUTH TOPEKA WICHITA, KS 67202
316-262-2691 www.pec1.com

Designed by	CKC	Job No.	08313	Sht. 13 of 130
Drawn by	DRP	Date	June, 2014	

Plotted By: drp Date: 7/14/2014 11:42:45 AM
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CONTROL POINTS					
POINT NO.	NORTH COORDINATE	EAST COORDINATE	STATION	OFFSET	DESCRIPTION
2600	1,679,925.1867	1,599,713.0473	499+08.13	2776.10' Lt.	Ctr. Sec. 26, T27S, R2W
3500	1,674,650.9781	1,599,778.6049	498+92.87	2498.49' Rt.	Ctr. Sec. 35, T27S, R2W
3540	1,677,292.6822	1,599,741.7677	498+97.80	143.47' Rt.	N¼Cor. Sec. 35, T27S, R2W

See Sh. No. 16 for Sidewalk Coordinate Table (Point Nos. 5001-5013)

CURVE DATA													
NO.	Δ	R	T	L	E	P.C. COORDINATES		P.I. COORDINATES		P.T. COORDINATES		C.C. COORDINATES	
						NORTH	EAST	NORTH	EAST	NORTH	EAST	NORTH	EAST
FCI37	02°15'00" Rt.	15871.00'	311.67'	623.25'	3.06'	1,677,146.8514	1,599,720.4709	1,677,152.1502	1,600,032.0923	1,677,145.2107	1,600,343.6814	1,661,278.1453	1,599,990.3022
FCI43	02°15'00" Rt.	15897.00'	312.18'	624.27'	3.06'	1,677,172.8476	1,599,720.0289	1,677,178.1551	1,600,032.1607	1,677,171.2043	1,600,344.2603	1,661,278.1453	1,599,990.3022
FRI23	02°15'00" Rt.	15873.00'	311.71'	623.33'	3.06'	1,677,148.8511	1,599,720.4369	1,677,154.1506	1,600,032.0975	1,677,147.2102	1,600,343.7259	1,661,278.1453	1,599,990.3022

No.	Revision	By	Date

CITY OF WICHITA

US-54 SOUTH FRONTAGE ROAD COORDINATE GEOMETRY PLAN STA. 497+00 TO STA. 513+00

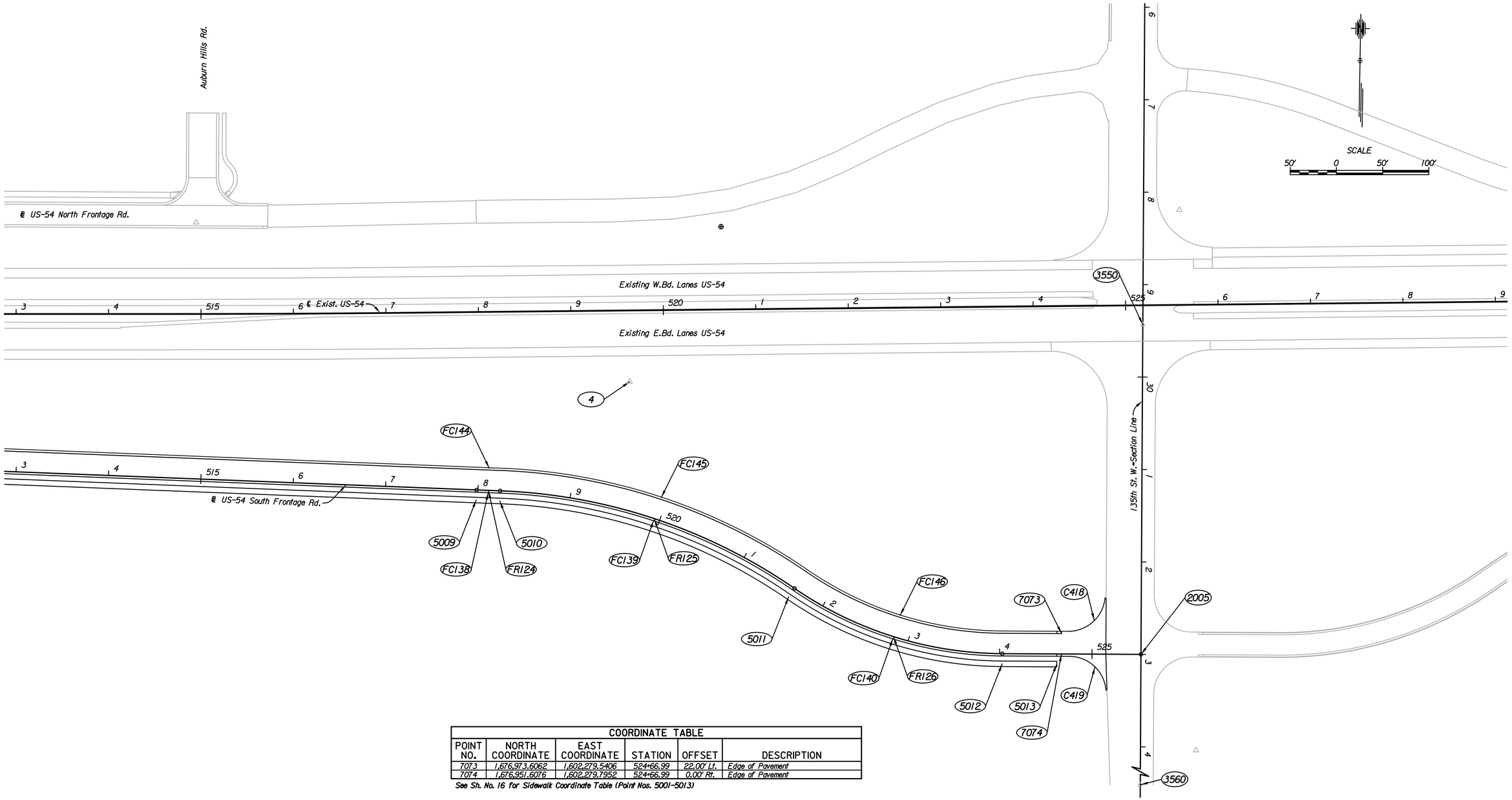
PROJECT NO. 472-84841 SEDGWICK CO.

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PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
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316-262-2691 www.pec1.com

Designed by	CKC	Job No.	08313
Drawn by	DRP	Date	June, 2014

Sht. 14 of 130

Plotted By: drp Date: 7/14/2014 11:42:45 AM
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COORDINATE TABLE					
POINT NO.	NORTH COORDINATE	EAST COORDINATE	STATION	OFFSET	DESCRIPTION
7073	1,676,973.6062	1,602,279.5406	524+66.99	22.00' Lt.	Edge of Pavement
7074	1,676,951.6076	1,602,279.7952	524+66.99	0.00' Rt.	Edge of Pavement

See Sh. No. 16 for Sidewalk Coordinate Table (Point Nos. 5001-5013)

CONTROL POINTS					
POINT NO.	NORTH COORDINATE	EAST COORDINATE	STATION	OFFSET	DESCRIPTION
4	1,677,238.1770	1,601,807.8730	519+35.24	135.79' Lt.	Monument HCP
2005	1,676,952.6030	1,602,365.7895	525+52.99	0.00' Rt.	℄ US-54 South Frontage Rd.
3550	1,677,309.2963	1,602,361.6608	525+52.99	356.72' Lt.	NE Cor. Sec. 35, T27S, R2W
3560	1,674,664.2097	1,602,392.2775	525+52.99	2288.55' Rt.	E/4Cor. Sec. 35, T27S, R2W

CURVE DATA													
NO.	Δ	R	T	L	E	P.C. COORDINATES NORTH	P.C. COORDINATES EAST	P.I. COORDINATES NORTH	P.I. COORDINATES EAST	P.T. COORDINATES NORTH	P.T. COORDINATES EAST	C.C. COORDINATES NORTH	C.C. COORDINATES EAST
C418	84°58'49" Lt.	40.00'	36.64'	59.33'	14.25'	1,676,976.1870	1,602,286.5112	1,676,976.6111	1,602,323.1493	1,677,013.1458	1,602,325.9326	1,677,016.1843	1,602,286.0482
C419	84°58'49" Rt.	40.00'	36.64'	59.33'	14.25'	1,676,949.2069	1,602,288.3885	1,676,949.6310	1,602,325.0266	1,676,913.1706	1,602,328.6549	1,676,909.2096	1,602,288.8515
FC138	00°08'45" Lt.	10002.00'	12.74'	25.48'	0.01'	1,677,116.2458	1,601,644.2332	1,677,115.9621	1,601,656.9703	1,677,115.7109	1,601,669.7081	1,687,115.7662	1,601,866.9349
FC139	32°27'38" Rt.	598.00'	174.08'	338.79'	24.82'	1,677,115.7109	1,601,669.7081	1,677,112.2783	1,601,843.7525	1,677,015.9689	1,601,988.7619	1,676,517.8272	1,601,657.9163
FC140	34°15'13" Lt.	402.00'	123.88'	240.33'	18.65'	1,677,015.9689	1,601,988.7619	1,676,947.4333	1,602,091.9535	1,676,948.8670	1,602,215.8227	1,677,350.8401	1,602,211.1698
FC144	00°08'45" Lt.	9976.00'	12.71'	25.41'	0.01'	1,677,142.2394	1,601,644.8121	1,677,141.9564	1,601,657.5161	1,677,141.7058	1,601,670.2208	1,687,115.7662	1,601,866.9349
FC145	32°27'38" Rt.	624.00'	181.65'	353.52'	25.90'	1,677,141.7058	1,601,670.2208	1,677,138.1240	1,601,851.8323	1,677,037.6272	1,602,003.1465	1,676,517.8272	1,601,657.9163
FC146	34°15'13" Lt.	376.00'	115.87'	224.79'	17.45'	1,677,037.6272	1,602,003.1465	1,676,973.5242	1,602,099.6640	1,676,974.8653	1,602,215.5217	1,677,350.8401	1,602,211.1698
FR124	00°08'45" Lt.	10000.00'	12.74'	25.48'	0.01'	1,677,118.2453	1,601,644.2777	1,677,117.9617	1,601,657.0123	1,677,117.7105	1,601,669.7476	1,687,115.7662	1,601,866.9349
FR125	32°27'38" Rt.	600.00'	174.66'	399.93'	24.91'	1,677,117.7105	1,601,669.7476	1,677,114.2664	1,601,844.3740	1,677,017.6349	1,601,989.8684	1,676,517.8272	1,601,657.9163
FR126	34°15'13" Lt.	400.00'	123.26'	239.14'	18.56'	1,677,017.6349	1,601,989.8684	1,676,949.4403	1,602,092.5466	1,676,950.8669	1,602,215.7995	1,677,350.8401	1,602,211.1698

No.	Revision	By	Date

CITY OF WICHITA

US-54 SOUTH FRONTAGE ROAD COORDINATE GEOMETRY PLAN STA. 513+00 TO STA. 525+16.45

PROJECT NO. 472-84841 SEDGWICK CO.

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Designed by	CKC	Job No.	08313
Drawn by	DRP	Date	June, 2014

Sht. 15 of 130

Plotted By: drp Date: 7/25/2014 7:46:49 AM
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SIDEWALK COORDINATE TABLE					
POINT NO.	NORTH COORDINATE	EAST COORDINATE	STATION	OFFSET	DESCRIPTION
5001	1,676,881.9441	1,597,227.2237	473+28.72	11.00' Rt.	℄ Sidewalk P.I. (Begin Sidewalk)
5002	1,676,882.6328	1,597,286.2197	473+87.72	11.00' Rt.	℄ Sidewalk P.C. (411' R.)
5003	1,676,974.8416	1,597,540.8658	476+56.32	11.00' Rt.	℄ Sidewalk P.R.C. (411' R., 589' R.)
5004	1,677,106.9400	1,597,902.6579	480+56.02	11.00' Rt.	℄ Sidewalk P.T. (589' R.)
5005	1,677,116.1144	1,598,442.2018	485+95.64	11.00' Rt.	℄ Sidewalk P.I. (WCR)
5006	1,677,117.1582	1,598,503.5860	486+57.03	11.00' Rt.	℄ Sidewalk P.I. (WCR)
5007	1,677,137.8527	1,599,720.6239	498+74.24	11.00' Rt.	℄ Sidewalk P.C. (15862' R.)
5008	1,677,136.2129	1,600,343.4810	504+97.58	11.00' Rt.	℄ Sidewalk P.T. (15862' R.)
5009	1,677,107.2480	1,601,644.0328	517+98.45	11.00' Rt.	℄ Sidewalk P.C. (10011' R.)
5010	1,677,106.7127	1,601,669.5307	518+23.93	11.00' Rt.	℄ Sidewalk P.R.C. (10011' R., 589' R.)
5011	1,677,008.4718	1,601,983.7826	521+63.85	11.00' Rt.	℄ Sidewalk P.R.C. (589' R., 411' R.)
5012	1,676,939.8676	1,602,215.9268	524+02.99	11.00' Rt.	℄ Sidewalk P.T. (411' R.)
5013	1,676,940.5505	1,602,274.9229	524+61.99	11.00' Rt.	℄ Sidewalk P.I. (End Sidewalk)

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No.	Revision	By	Date

CITY OF WICHITA

US-54 SOUTH FRONTAGE ROAD SIDEWALK COORDINATE TABLE

PROJECT NO. 472-84841 SEDGWICK CO.

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316-262-2691 www.pec1.com

Designed by	CKC	Job No.	08313	Sht. 16 of 130
Drawn by	DRP	Date	June, 2014	

Curve No. FC131

POINT NO.	STATION	OFFSET	ON CURVE		8' OFFSET		COMMENT
			NORTH	EAST	NORTH	EAST	
8055	473+87.72	2.00' Rt.	1,676,891.6322	1,597,286.1147	1,676,883.6327	1,597,286.2080	P.C.
8056	475+22.02	2.00' Rt.	1,676,915.6224	1,597,418.2917	1,676,908.1003	1,597,421.0155	½ Pt.
8057	476+56.32	2.00' Rt.	1,676,981.8218	1,597,535.1845	1,676,975.6171	1,597,540.2345	P.T.

Curve No. FC132

POINT NO.	STATION	OFFSET	ON CURVE		8' OFFSET		COMMENT
			NORTH	EAST	NORTH	EAST	
8057	476+56.32	2.00' Rt.	1,676,981.8218	1,597,535.1845	1,676,975.6171	1,597,540.2345	P.C.
8058	478+56.17	2.00' Rt.	1,677,079.7530	1,597,707.5724	1,677,072.2383	1,597,710.3162	½ Pt.
8059	480+56.02	2.00' Rt.	1,677,115.9387	1,597,902.5049	1,677,107.9399	1,597,902.6409	P.T.

Curve No. FC133

POINT NO.	STATION	OFFSET	ON CURVE		8' OFFSET		COMMENT
			NORTH	EAST	NORTH	EAST	
8060	485+86.17	2.00' Rt.	1,677,124.9521	1,598,432.5825	1,677,116.9533	1,598,432.7185	P.C.
8061	501+16.79	23.16' Rt.	1,677,115.3367	1,598,452.7161	1,677,110.4148	1,598,446.4093	½ Pt.
8062	501+38.63	14.00' Rt.	1,677,093.4701	1,598,457.1516	1,677,095.5455	1,598,449.4255	P.T.

Curve No. FC134

POINT NO.	STATION	OFFSET	ON CURVE		8' OFFSET		COMMENT
			NORTH	EAST	NORTH	EAST	
8062	501+38.63	14.00' Rt.	1,677,093.4701	1,598,457.1516	1,677,095.5455	1,598,449.4255	P.C.
8063	501+44.31	14.00' Rt.	1,677,088.2744	1,598,455.6977	1,677,090.5102	1,598,448.0165	½ Pt.
8064	501+50.00	14.00' Rt.	1,677,083.1101	1,598,454.1361	1,677,085.5053	1,598,446.5030	P.T.

Curve No. FC135

POINT NO.	STATION	OFFSET	ON CURVE		8' OFFSET		COMMENT
			NORTH	EAST	NORTH	EAST	
8065	501+50.00	14.00' Lt.	1,677,074.7269	1,598,480.8516	1,677,072.3317	1,598,488.4846	P.C.
8066	501+34.61	14.00' Lt.	1,677,090.2903	1,598,485.2579	1,677,088.3287	1,598,493.0137	½ Pt.
8067	501+19.22	14.00' Lt.	1,677,106.0771	1,598,488.7809	1,677,104.5553	1,598,496.6348	P.T.

Curve No. FC136

POINT NO.	STATION	OFFSET	ON CURVE		8' OFFSET		COMMENT
			NORTH	EAST	NORTH	EAST	
8067	501+19.22	14.00' Lt.	1,677,106.0771	1,598,488.7809	1,677,104.5553	1,598,496.6348	P.C.
8068	501+04.55	20.00' Lt.	1,677,120.4714	1,598,497.2533	1,677,114.3434	1,598,502.3961	½ Pt.
8069	486+66.50	2.00' Rt.	1,677,126.3178	1,598,512.8993	1,677,118.3190	1,598,513.0354	P.T.

Curve No. FC137

POINT NO.	STATION	OFFSET	ON CURVE		8' OFFSET		COMMENT
			NORTH	EAST	NORTH	EAST	
8070	498+74.24	2.00' Rt.	1,677,146.8514	1,599,720.4709	1,677,138.8525	1,599,720.6069	P.C.
8071	501+85.91	2.00' Rt.	1,677,149.0903	1,600,032.0842	1,677,141.0903	1,600,032.0631	½ Pt.
8072	504+97.58	2.00' Rt.	1,677,145.2107	1,600,343.6814	1,677,137.2127	1,600,343.5033	P.T.

Curve No. FC138

POINT NO.	STATION	OFFSET	ON CURVE		8' OFFSET		COMMENT
			NORTH	EAST	NORTH	EAST	
8073	517+98.45	2.00' Rt.	1,677,116.2458	1,601,644.2332	1,677,108.2478	1,601,644.0550	P.C.
8074	518+11.19	2.00' Rt.	1,677,115.9702	1,601,656.9705	1,677,107.9720	1,601,656.8025	½ Pt.
8075	518+23.93	2.00' Rt.	1,677,115.7109	1,601,669.7081	1,677,107.7125	1,601,669.5504	P.T.

Curve No. FC139

POINT NO.	STATION	OFFSET	ON CURVE		8' OFFSET		COMMENT
			NORTH	EAST	NORTH	EAST	
8075	518+23.93	2.00' Rt.	1,677,115.7109	1,601,669.7081	1,677,107.7125	1,601,669.5504	P.C.
8076	519+93.89	2.00' Rt.	1,677,088.5870	1,601,836.3462	1,677,080.9514	1,601,833.9592	½ Pt.
8077	521+63.85	2.00' Rt.	1,677,015.9689	1,601,988.7619	1,677,009.3048	1,601,984.3359	P.T.

Curve No. FC140

POINT NO.	STATION	OFFSET	ON CURVE		8' OFFSET		COMMENT
			NORTH	EAST	NORTH	EAST	
8077	521+63.85	2.00' Rt.	1,677,015.9689	1,601,988.7619	1,677,009.3048	1,601,984.3359	P.C.
8078	522+83.42	2.00' Rt.	1,676,965.3223	1,602,097.2401	1,676,957.6503	1,602,094.9728	½ Pt.
8079	524+02.99	2.00' Rt.	1,676,948.8670	1,602,215.8227	1,676,940.8676	1,602,215.9153	P.T.

Curve No. FC141

POINT NO.	STATION	OFFSET	ON CURVE		8' OFFSET		COMMENT
			NORTH	EAST	NORTH	EAST	
8080	473+87.72	24.00' Lt.	1,676,917.6304	1,597,285.8112	1,676,925.6299	1,597,285.7178	P.C.
8081	475+22.02	24.00' Lt.	1,676,940.0690	1,597,409.4394	1,676,947.5910	1,597,406.7157	½ Pt.
8082	476+56.32	24.00' Lt.	1,677,001.9868	1,597,518.7720	1,677,008.1915	1,597,513.7220	P.T.

Curve No. FC142

POINT NO.	STATION	OFFSET	ON CURVE		8' OFFSET		COMMENT
			NORTH	EAST	NORTH	EAST	
8082	476+56.32	24.00' Lt.	1,677,001.9868	1,597,518.7720	1,677,008.1915	1,597,513.7220	P.C.
8083	478+56.17	24.00' Lt.	1,677,104.1760	1,597,698.6550	1,677,111.6907	1,597,695.9112	½ Pt.
8084	480+56.02	24.00' Lt.	1,677,141.9349	1,597,902.0629	1,677,149.9338	1,597,901.9269	P.T.

Curve No. FC143

POINT NO.	STATION	OFFSET	ON CURVE		8' OFFSET		COMMENT
			NORTH	EAST	NORTH	EAST	
8085	498+74.24	24.00' Lt.	1,677,172.8476	1,599,720.0289	1,677,180.8465	1,599,719.8928	P.C.
8086	501+85.91	24.00' Lt.	1,677,175.0902	1,600,032.1527	1,677,183.0902	1,600,032.1737	½ Pt.
8087	504+97.58	24.00' Lt.	1,677,171.2043	1,600,344.2603	1,677,179.2023	1,600,344.4384	P.T.

Curve No. FC144

POINT NO.	STATION	OFFSET	ON CURVE		8' OFFSET		COMMENT
			NORTH	EAST	NORTH	EAST	
8088	517+98.45	24.00' Lt.	1,677,142.2394	1,601,644.8121	1,677,150.2374	1,601,644.9902	P.C.
8089	518+11.19	24.00' Lt.	1,677,141.9645	1,601,657.5163	1,677,149.9627	1,601,657.6842	½ Pt.
8090	518+23.93	24.00' Lt.	1,677,141.7058	1,601,670.2208	1,677,149.7043	1,601,670.3786	P.T.

Curve No. FC145

POINT NO.	STATION	OFFSET	ON CURVE		8' OFFSET		COMMENT
			NORTH	EAST	NORTH	EAST	
8090	518+23.93	24.00' Lt.	1,677,141.7058	1,601,670.2208	1,677,149.7043	1,601,670.3786	P.C.
8091	519+93.89	24.00' Lt.	1,677,113.4027	1,601,844.1040	1,677,121.0382	1,601,846.4910	½ Pt.
8092	521+63.85	24.00' Lt.	1,677,037.6272	1,602,003.1465	1,677,044.2913	1,602,007.5725	P.T.

Curve No. FC146

POINT NO.	STATION	OFFSET	ON CURVE		8' OFFSET		COMMENT
			NORTH	EAST	NORTH	EAST	
8092	521+63.85	24.00' Lt.	1,677,037.6272	1,602,003.1465	1,677,044.2913	1,602,007.5725	P.C.
8093	522+83.42	24.00' Lt.	1,676,990.2562	1,602,104.6087	1,676,997.9282	1,602,106.8759	½ Pt.
8094	524+02.99	24.00' Lt.	1,676,974.8653	1,602,215.5217	1,676,982.8648	1,602,215.4291	P.T.

No.	Revision	By	Date

CITY OF WICHITA

CURVE STAKE-OUT TABLES

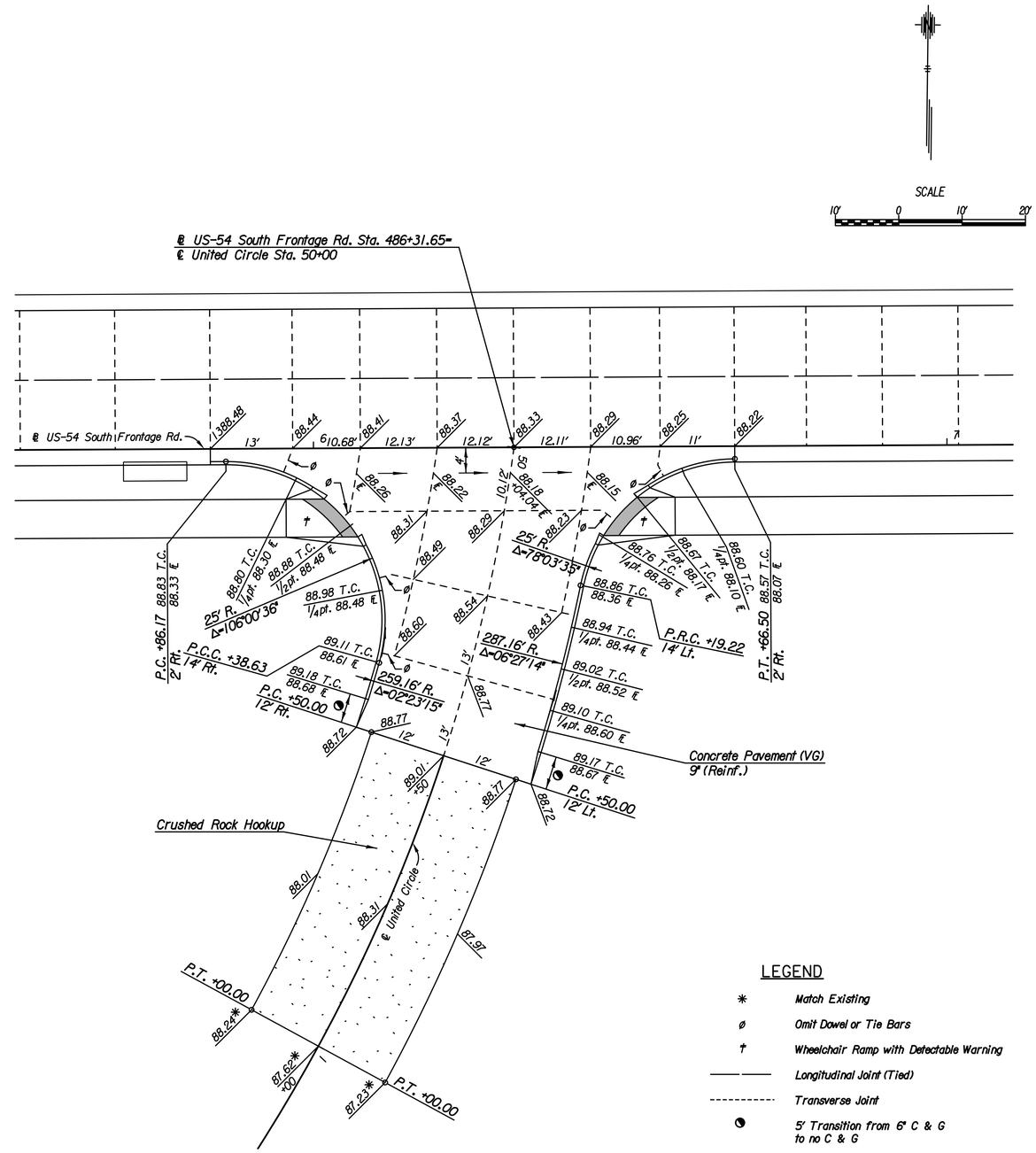
PROJECT NO. 472-84841 SEDGWICK CO.

PEC PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
303 SOUTH TOPEKA WICHITA, KS 67202
316-262-2691 www.pec1.com

Designed by	CKC	Job No.	08313
Drawn by	DRP	Date	June, 2014

Sht. 17 of 130

Plotted By: drp Date: 7/14/2014 11:42:47 AM
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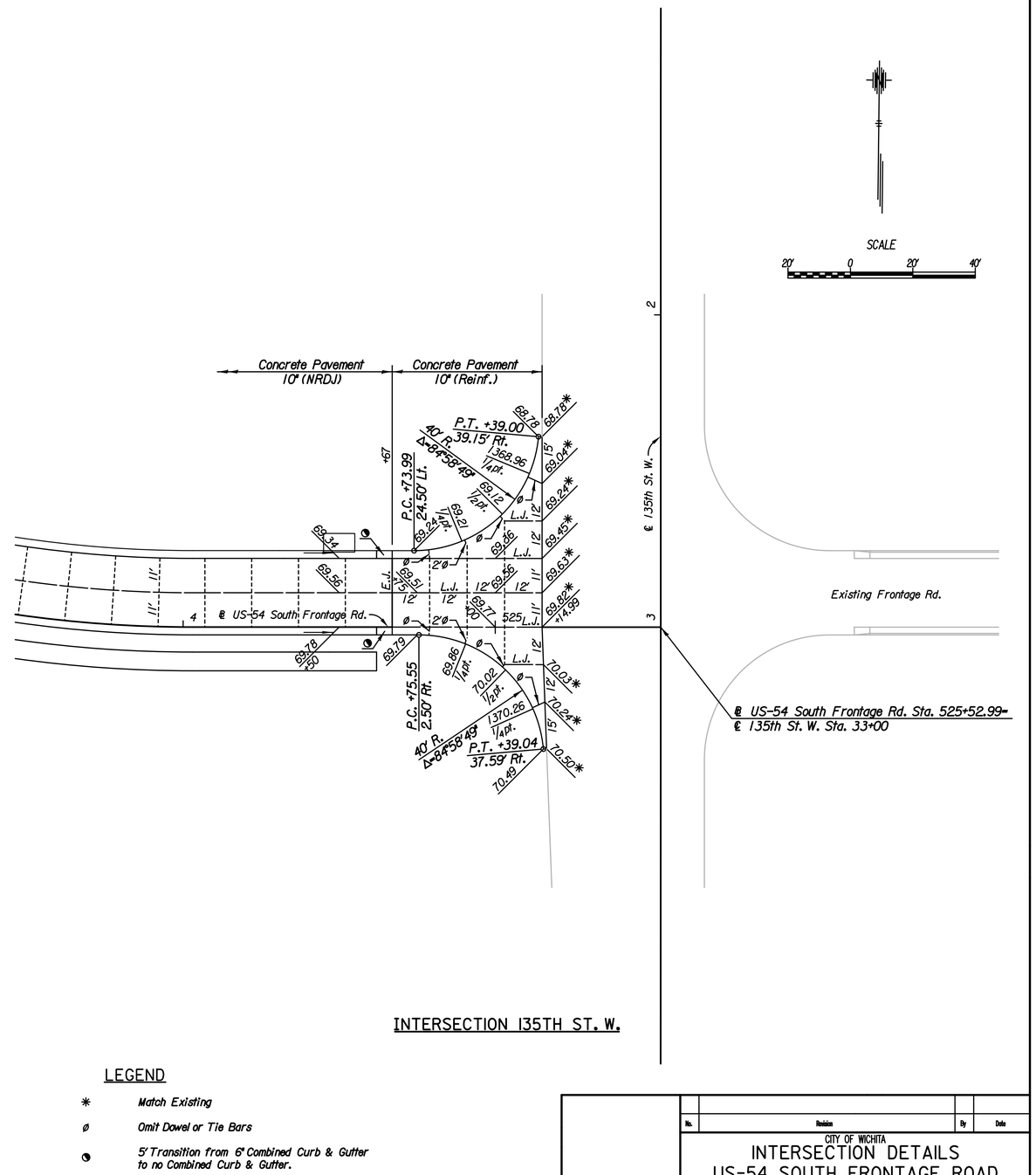


INTERSECTION UNITED CIRCLE

LEGEND

- ✳ Match Existing
- ø Omit Dowel or Tie Bars
- † Wheelchair Ramp with Detectable Warning
- ——— Longitudinal Joint (Tied)
- ---------- Transverse Joint
- ◔ 5' Transition from 6" C & G to no C & G

See Sh. No. 28 for Valley Gutter Details



INTERSECTION 135TH ST. W.

LEGEND

- ✳ Match Existing
- ø Omit Dowel or Tie Bars
- ◔ 5' Transition from 6" Combined Curb & Gutter to no Combined Curb & Gutter.
- ——— Longitudinal Joint (Tied)
- ---------- Transverse Joint
- ——————— Expansion Joint

See Sh. No. 24 for Joint Details

No.	Revision	By	Date

CITY OF WICHITA

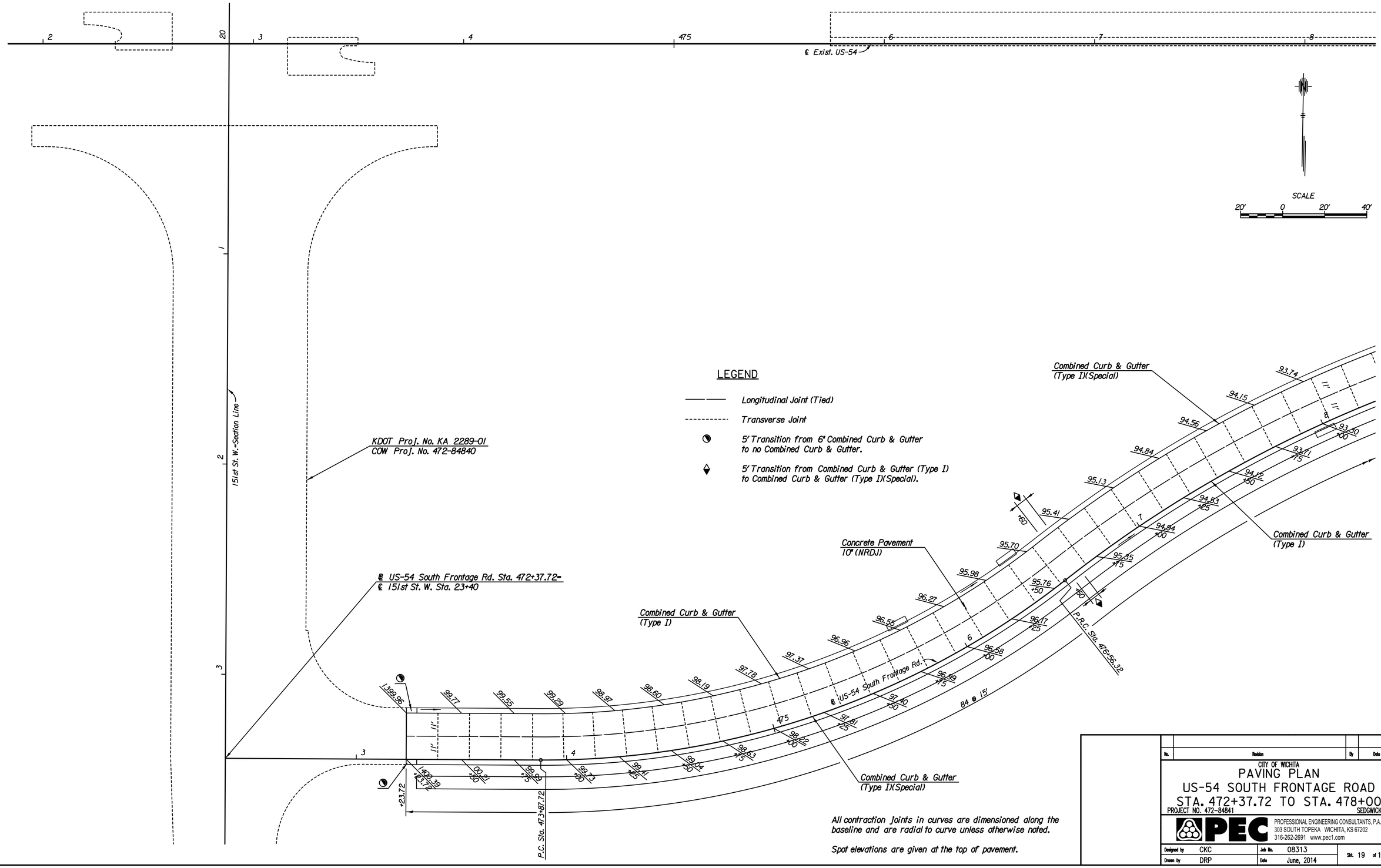
INTERSECTION DETAILS US-54 SOUTH FRONTAGE ROAD 135TH AND UNITED CIRCLE

PROJECT NO. 472-84841 SEDGWICK CO.

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Designed by	CKC	Job No.	08313	Sht. 18 of 130
Drawn by	DRP	Date	June, 2014	

Plotted By: drp Date: 7/14/2014 11:42:47 AM
FILE: i:\2008\08313\Frontage Rd South\Intersection\08313-135istSt.dgn



All contraction joints in curves are dimensioned along the baseline and are radial to curve unless otherwise noted.

Spot elevations are given at the top of pavement.

No.	Revision	By	Date

CITY OF WICHITA

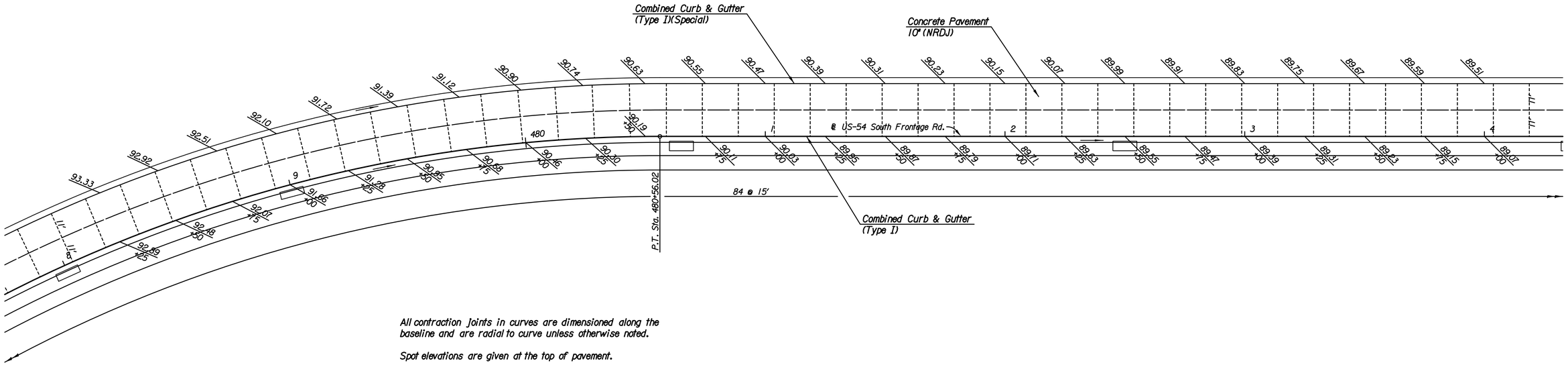
PAVING PLAN
US-54 SOUTH FRONTAGE ROAD
STA. 472+37.72 TO STA. 478+00

PROJECT NO. 472-84841 SEDGWICK CO.

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Designed by	CKC	Job No.	08313	Sht. 19 of 130
Drawn by	DRP	Date	June, 2014	

Plotted By: drp Date: 7/14/2014 11:42:48 AM
FILE: i:\2008\08313\Frontage Rd South\Paving\08313-paving467.dgn



All contraction joints in curves are dimensioned along the baseline and are radial to curve unless otherwise noted.

Spot elevations are given at the top of pavement.

LEGEND

——— Longitudinal Joint (Tied)

---------- Transverse Joint

No.	Revision	By	Date

CITY OF WICHITA

PAVING PLAN
US-54 SOUTH FRONTAGE ROAD
STA. 478+00 TO STA. 490+00

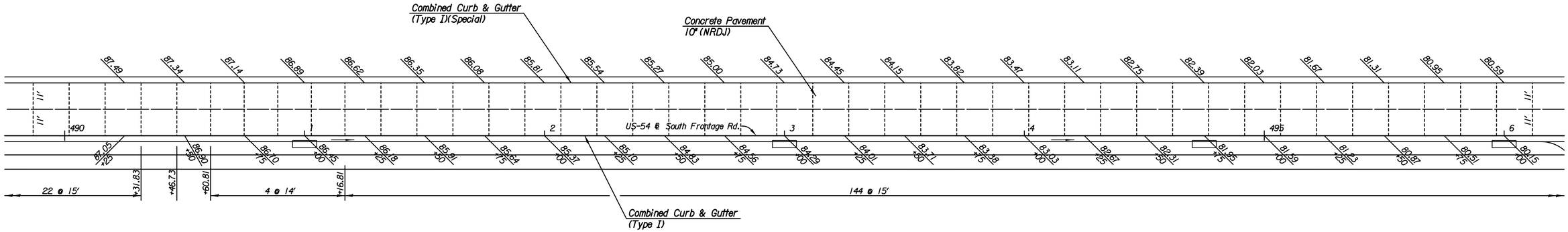
PROJECT NO. 472-84841 SEDGWICK CO.

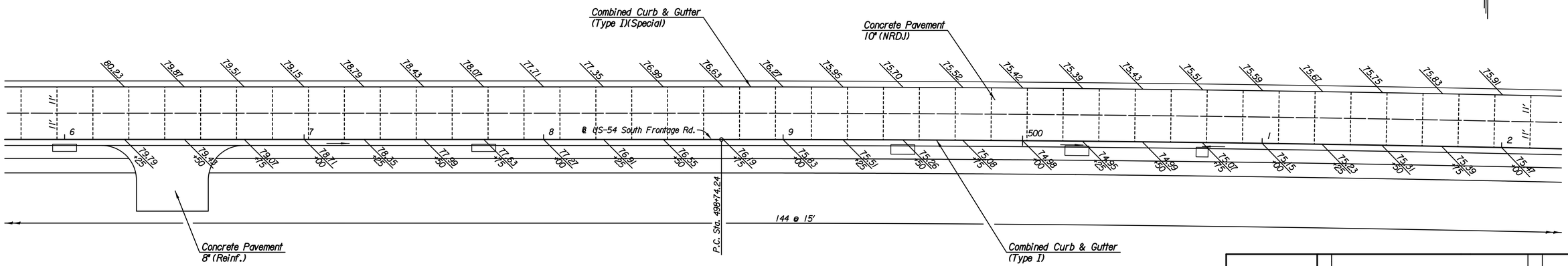
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Designed by	CKC	Job No.	08313
Drawn by	DRP	Date	June, 2014

Sht. 20 of 130

Plotted By: drp Date: 7/14/2014 11:42:48 AM
FILE: I:\2008\08313\Frontage Rd South\Paving\08313-paving478.dgn





LEGEND

——— Longitudinal Joint (Tied)

---------- Transverse Joint

All contraction joints in curves are dimensioned along the baseline and are radial to curve unless otherwise noted.

Spot elevations are given at the top of pavement.

No.	Revision	By	Date

CITY OF WICHITA

PAVING PLAN
US-54 SOUTH FRONTAGE ROAD
STA. 490+00 TO STA. 502+00

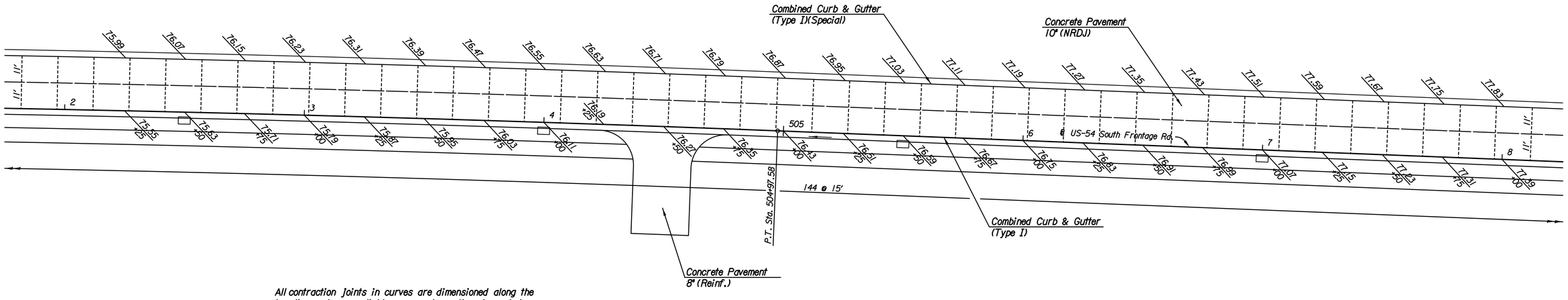
PROJECT NO. 472-84841 SEDGWICK CO.

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Designed by	CKC	Job No.	08313
Drawn by	DRP	Date	June, 2014

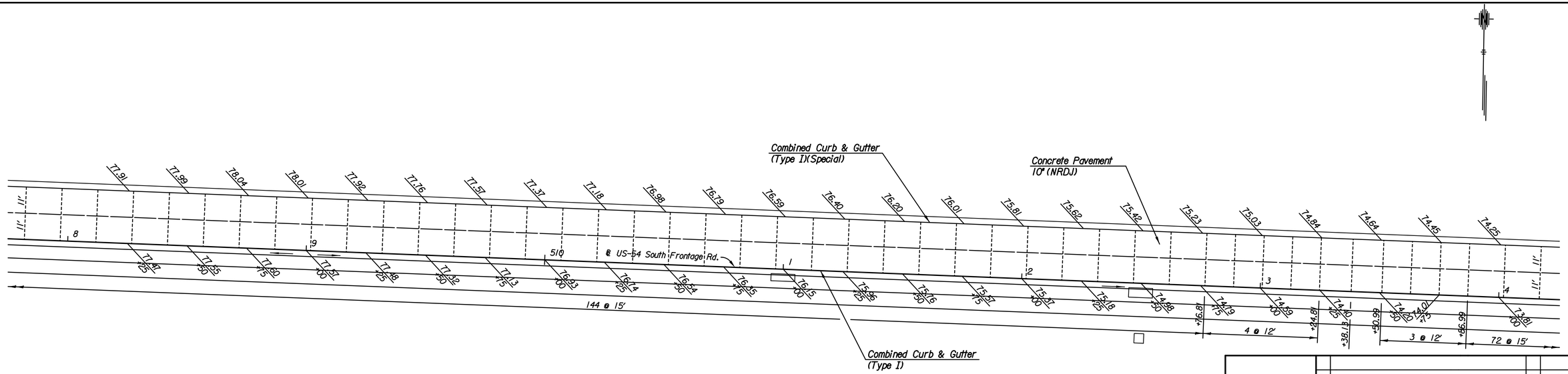
Sht. 21 of 130

Plotted By: drp Date: 7/14/2014 11:42:49 AM
FILE: I:\2008\08313\Frontage Rd South\Paving\08313-paving490.dgn



All contraction joints in curves are dimensioned along the baseline and are radial to curve unless otherwise noted.

Spot elevations are given at the top of pavement.



LEGEND

——— Longitudinal Joint (Tied)

---------- Transverse Joint

No.	Revision	By	Date

CITY OF WICHITA

PAVING PLAN
US-54 SOUTH FRONTAGE ROAD
STA. 502+00 TO STA. 514+00

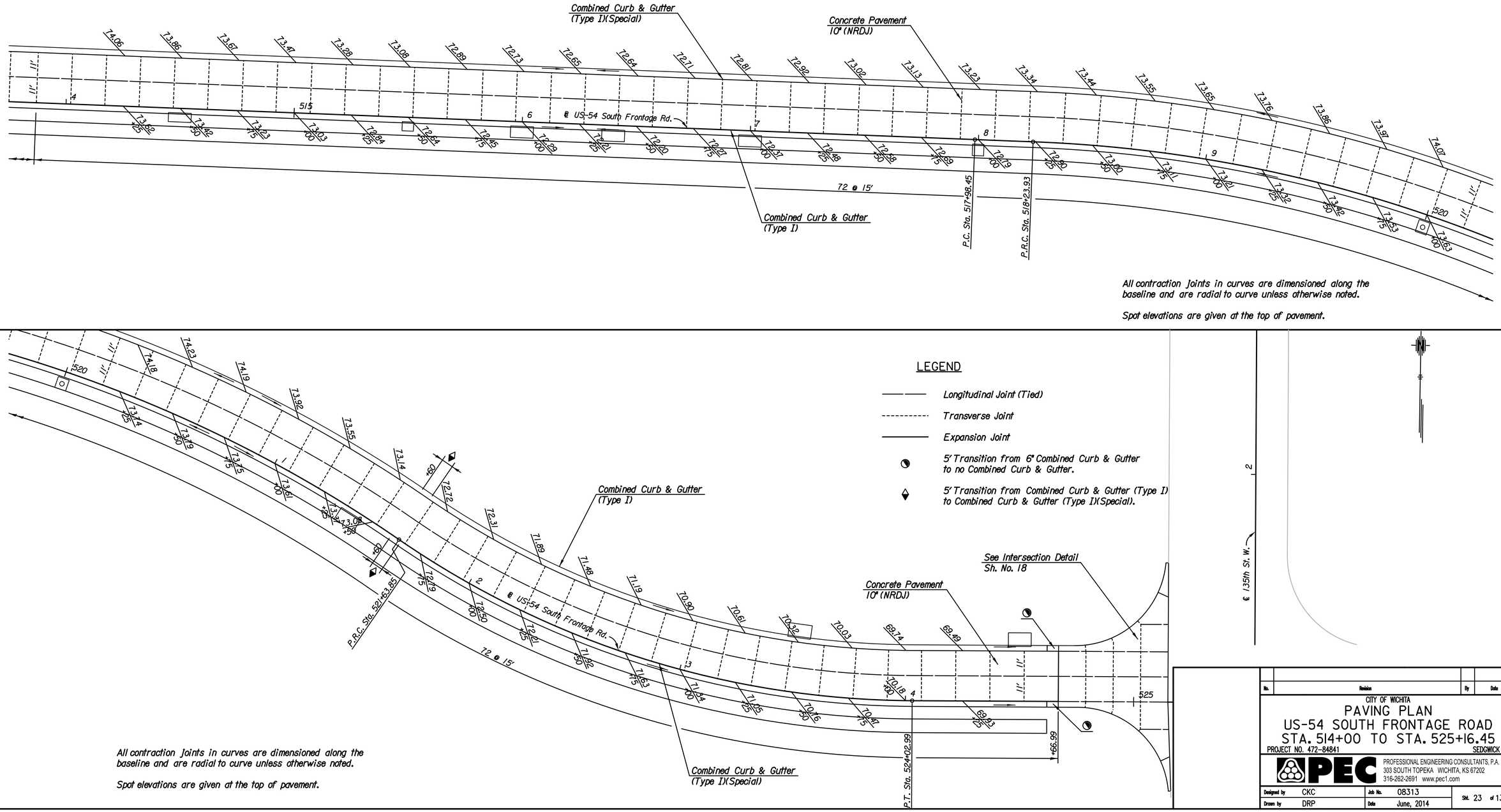
PROJECT NO. 472-84841 SEDGWICK CO.

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Designed by	CKC	Job No.	08313
Drawn by	DRP	Date	June, 2014

Sht. 22 of 130

Plotted By: drp Date: 7/14/2014 11:42:49 AM
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Plotted By: drp Date: 7/14/2014 11:42:49 AM
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No.	Revision	By	Date

CITY OF WICHITA

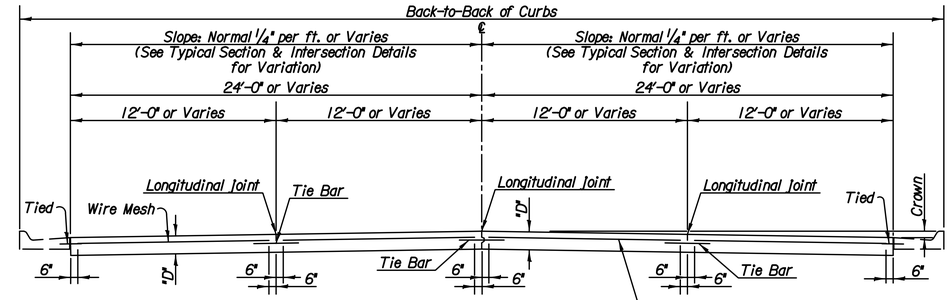
PAVING PLAN
US-54 SOUTH FRONTAGE ROAD
STA. 514+00 TO STA. 525+16.45

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Designed by	CKC	Job No.	08313
Drawn by	DRP	Date	June, 2014

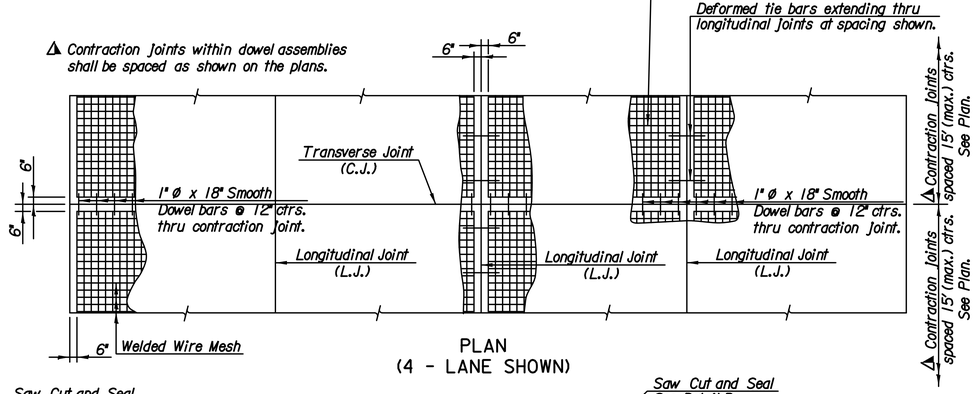
Sht. 23 of 130



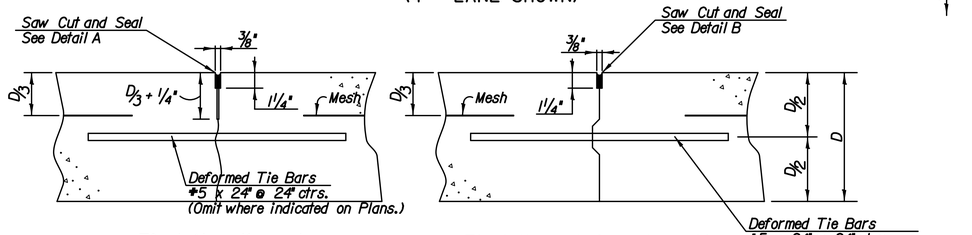
For Curb & Gutter details
See Sh. No. 26, 27

TRANSVERSE SECTION
(4 - LANE SHOWN)

Omit Wire Mesh in Pavement Designated (NRDJ)

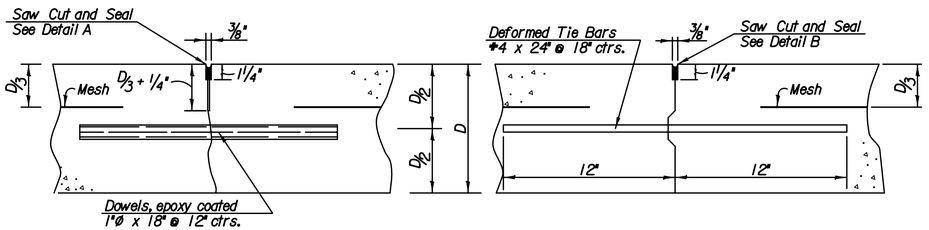


PLAN
(4 - LANE SHOWN)



Tied Non-Keyed Tied Keyed Construction

LONGITUDINAL JOINT DETAILS
(L.J.)

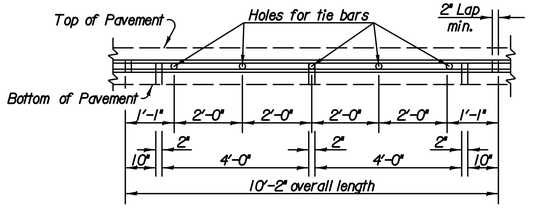


Contraction Construction

TRANSVERSE JOINT DETAILS
(C.J.)

Note: Contraction joints will be constructed at the planned location or as directed by the Engineer. No transverse construction joint shall be placed within ten (10) feet of a contraction joint.

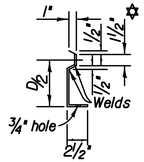
Note: A construction joint is required when the concrete placement has been interrupted for a substantial length of time or at the end of a days placement.



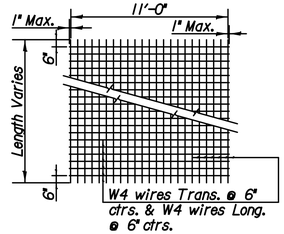
METAL STRIP FOR
LONGITUDINAL CONSTRUCTION JOINT

To be used only against forms. Shall not extend through contraction joints

✡ *Snap-in leg or other approved designs may be used in lieu of welded leg.*



SECTION OF
RECESSED
FORM LEG



TYPICAL SHEET OF WELDED WIRE MESH
(NOT TO SCALE)
(12' Lane Width Shown)



DETAIL OF LAP FOR WIRE MESH

The lap shall extend beyond the first transverse or longitudinal 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 weigtht of wire mesh = 58 lbs. per 100 sq. ft. Other methods for fastening the sheets of wire mesh at the laps may be used with the approval of the Engineer.

GENERAL NOTE

All deformed tie bars shall be epoxy coated. Any damage to the epoxy coating shall be patched in accordance with the Standard Specifications.

Deformed tie bars which require bending shall be billet steel reinforcing bars, Grade 40 and may or may not be epoxy coated.

Tie bars shall be placed parallel to the pavement surface with a tolerance of 1/2" in 18" in the vertical direction. Care should be taken to assure that tie bars are placed approximately perpendicular to the joint in the horizontal plane.

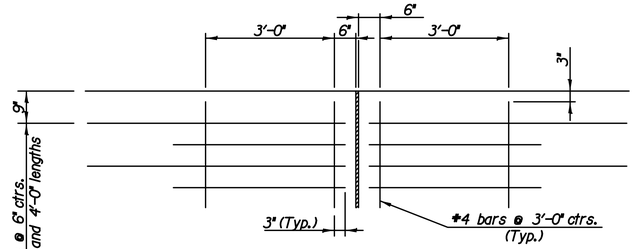
Unless otherwise noted, load transfer devices as shown in detail shall be used at all contraction joints.

Unless otherwise noted, all joints shall have either dowels or tie bars.

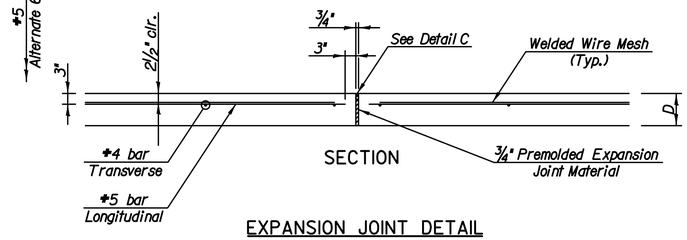
All joints on this project shall be sawed and filled with hot pour type sealant.

Shape of all keyed joints shall be similar to the section of recessed form leg as shown on this sheet.

At each transverse joint location, a 4" to 6" wide strip of pavement surface shall be protected from the texturing operation to provied a transverse textureless surface centered over the joint saw cut.



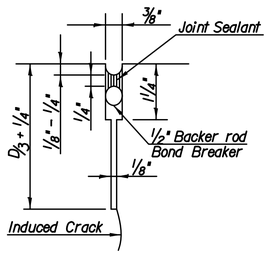
PLAN



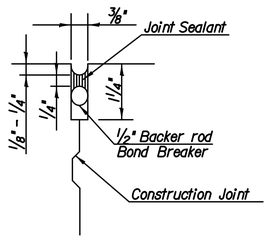
SECTION

EXPANSION JOINT DETAIL
(E.J.)

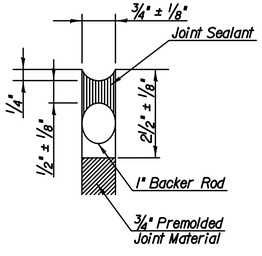
DOWEL SIZE	
D (in.)	Diameter
8	1"
9	1 1/8"
10	1 1/4"
11	1 3/8"
12	1 1/2"



DETAIL A



DETAIL B



DETAIL C

This Sheet is adapted from KDOT Standard Sheet RD708.

The 1/8" saw cut (D/3 + 1/4" depth) shall be done initially; the 3/8" saw cut shall be accomplished in a separate operation after concrete has attained sufficient strength to avoid spalling as determined by the Engineer.

Note: Joint Sealant shall be Hot Pour Type unless otherwise approved by the Engineer

Note: All sealant shall be 1/8" - 1/4" below surface and a minimum 1/4" thick.

No.	Revision	By	Date

CITY OF WICHITA

CONCRETE PAVEMENT

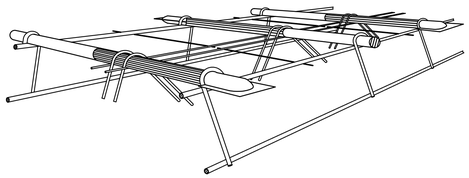
PROJECT NO. 472-84841 SEDGWICK CO.

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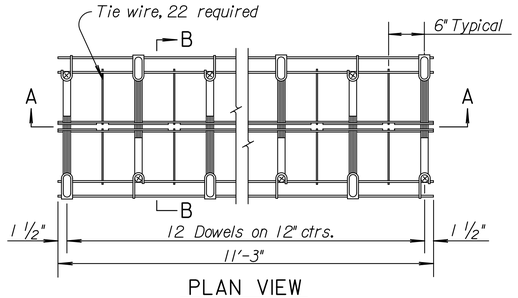
Designed by	CKC	Job No.	08313	Sht. 24 of 130
Drawn by	DRP	Date	June, 2014	

Plotted By: drp Date: 7/14/2014 11:42:50 AM
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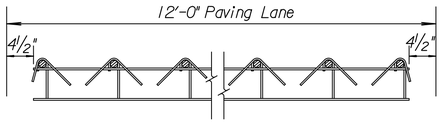
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	KA 2285-01	2014	25	130



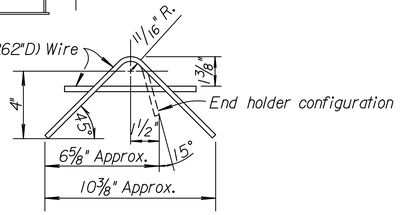
PERSPECTIVE VIEW

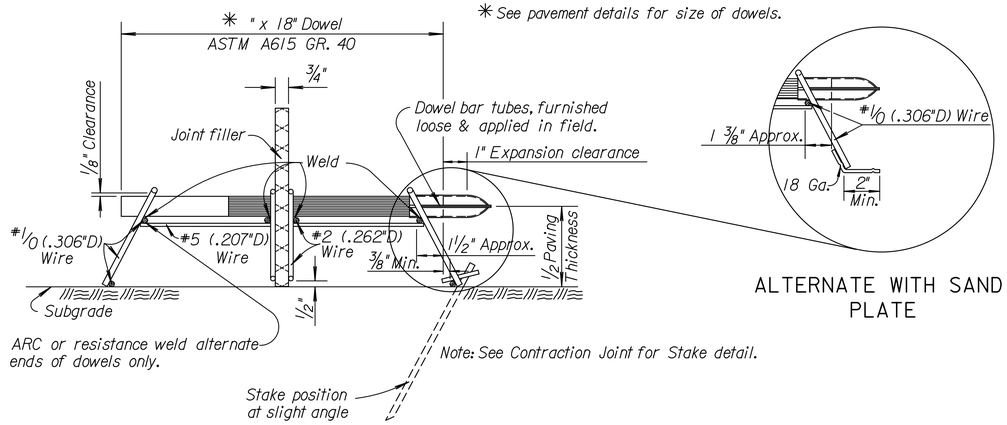


PLAN VIEW



SEC. A-A



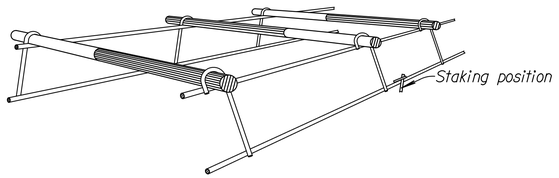


SEC. B-B

* See pavement details for size of dowels.

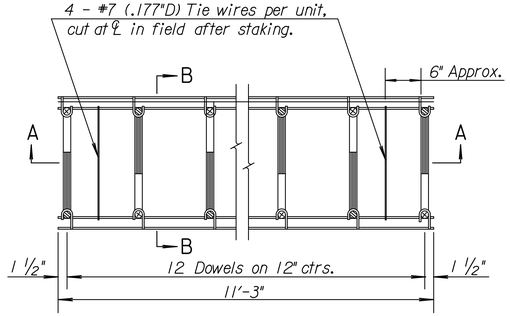
ALTERNATE WITH SAND PLATE

EXPANSION JOINT

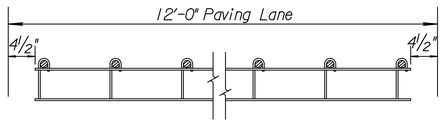


Staking position

PERSPECTIVE VIEW

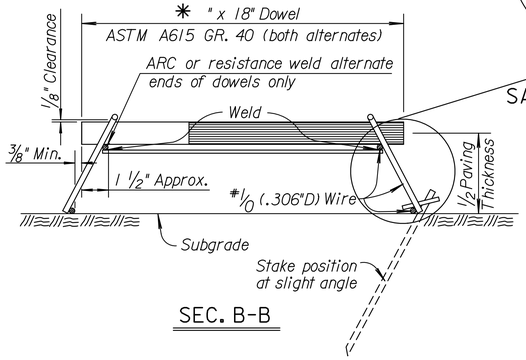


PLAN VIEW

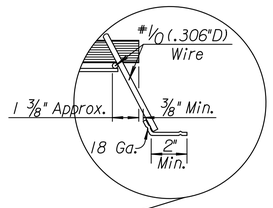


SEC. A-A

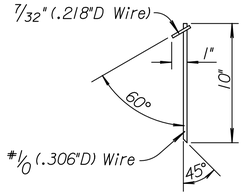
* See pavement details for size of dowels.



SEC. B-B



SAND PLATE (Alt. 1)



STAKE DETAIL

(6 Pieces minimum required)

CONTRACTION JOINT

Note: Wire sizes shown are minimum required.

Sides held together with tie wire, allowing quick separation of sides & insertion of expansion material, provided in field.

One length of Preformed Expansion Joint filler (Type B), or other approved material, cut to fit crown and subgrade shall be used for each lane of pavement as expansion joint filler.

A string line shall be stretched between the pavement forms along the center line of the joint.

Each dowel bar shall be coated with an epoxy coating that meets the standard specifications. The coating material shall be a powdered epoxy resin approved by the Chief, Bureau of Materials and Research and shall be uniformly applied according to accepted practices and the resin manufacturer's recommendations. For Alt. I the coating need not be applied to the end faces of the bars and will not be required within 2" of the end which will be fixed in the supporting basket by welding.

In order to identify the location of the bond breaker application, the working end of dowel and the supporting leg shall receive a light application of red paint at the place of fabrication. The bond breaker to be applied in the field prior to concrete placement shall consist of coating approximately three-fifths of the length of each dowel bar with hard grease at the working end identified by the red paint.

The cutting to length of the dowel bars shall be done in such a manner to result in no appreciable deformation of the ends.

The entire joint assembly shall be carefully leveled up so that the dowels are parallel to the slab surface and free to slide in the dowel holders. Any grease scraped off the dowels in assembling the joint shall be replaced. Any excess grease on the dowel holders shall be removed.

After the complete expansion joint is assembled, it shall be checked to be certain that the vertical plane of the joint will be perpendicular to the finished surface of the slab and at a right angle with the center line of the slab. The dowels shall be checked to be certain that they are level and will remain in a position parallel with the finished surface of the slab.

Concrete shall be placed over and adjacent to the joint in accordance with the requirements of the Specifications.

To finish the joint after completion of machine finishing, floating and straight edging of the surface. the concrete over the filler shall be carefully removed and the joint edged with an edger of the proper size.

Expansion Joint material is to be installed in the field.

Other approved designs may be used in lieu of the type shown.

GENERAL NOTE

Dowel bar insertion may be by mechanical dowel placers regardless of the joint spacing.

Each dowel bar shall be coated with an epoxy coating that meets the standard specifications. The coating material shall be a powdered epoxy resin approved by the Chief, Bureau of Materials and Research and shall be uniformly applied according to accepted practices and the resin manufacturer's recommendations. For Alt. I the coating need not be applied to the end faces of the bars and will not be required within 2" of the end which will be fixed in the supporting basket by welding.

The cutting to length of the dowel bars shall be done in such a manner to result in no appreciable deformation of the ends.

Alt. 1 (Baskets)

Wire sizes shown are minimum required.

Basket to be staked to sub-grade, as shown. Ramset or similar type fastener with clip to be used when subgrade condition requires it.

A string line shall be stretched between the pavement forms along the center line of the joint. The position of the joint shall be carefully marked so that the saw cut will coincide with the center line of the joint.

In order to identify the location of the bond breaker application, the working end of dowel and the supporting leg shall receive a light application of red paint at the place of fabrication. The bond breaker to be applied in the field prior to concrete placement shall consist of coating approximately three-fifths of the length of each dowel bar with hard grease at the working end identified by the red paint.

The entire joint assembly shall be carefully leveled so that the dowels are parallel to the slab surface and free to slide in the dowel holders. Any coating scraped off the dowels in assembling the joint shall be replaced.

After the complete contraction joint is assembled, it shall be checked to be certain that the vertical plane of the joint will be perpendicular to the finished surface of the slab and at a right angle with the center line of the slab unless shown otherwise on the plans. The dowels shall be checked to be certain that they are level and will remain in a position parallel with the finished surface of the slab.

Concrete shall be placed over and adjacent to the joint in accordance with the requirements of the Specifications.

Other approved designs may be used in lieu of the type shown.

Alt. 2 (Mechanical placement)

Joint spacing shall be normal to centerline.

The pavement shall be placed and consolidated to full depth prior to insertion of the dowel bars.

The dowel bars shall be coated with a bond breaking agent prior to insertion into the plastic concrete.

The dowel bars shall be inserted into the plastic concrete ahead of the finishing beam or screed.

The installing device shall consolidate the concrete around the dowel bars such that no voids exist, without the supplemental use of hand held vibrators.

The dowel bars shall be located within one inch of the planned transverse location and within the range of depth of D/2 ± 0.1 D measured from mid depth and mid length of the bar where D represents the pavement thickness.

The dowel bars shall be located within two inches of the planned longitudinal location.

The dowel bars shall be parallel to the pavement surface and centerline within a tolerance of one half inch in 18 inches in both the vertical and horizontal direction.

The forward movement of the finishing beam or screed shall not be interrupted by the inserting of the dowel bars.

A positive method of marking the locations of the transverse joints shall be provided.

NO.	DATE	REVISIONS	BY	APP'D
8	2-15-06	Chg. Grade 60 to Grade 40 Steel	S.W.K.	J.O.B.
7	5- 5-04	Revision on Epoxy coating	S.W.K.	J.O.B.
6	4- 9-03	Rev. General Note on Epoxy coating	S.W.K.	J.O.B.
5	4-24-90	Revised notes, added Alt. 1&2 Cont.Jt.	R.J.S.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

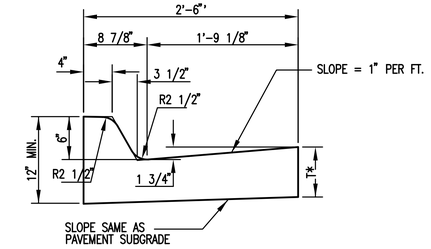
CONTRACTION & EXPANSION JT. DOWEL ASSEMBLIES

RD735

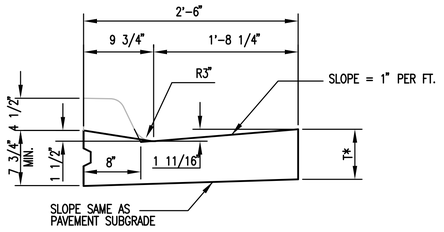
FHWA APPROVAL	4-20-06	APP'D. James O. Brewer	
DESIGNED	DETAILED	QUANTITIES	TRACED Bowser
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK. Hecht

Drawn By : drp
Plotted : 14-JUL-2014 11:47
File : I:\2008\08313\Frontage Rd South\Standards\08313-rd735.dgn

TYPE 1
(ARTERIAL CURB)

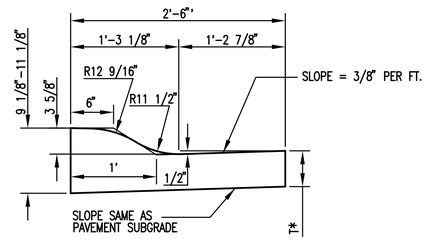


COMBINED CURB & GUTTER (6")

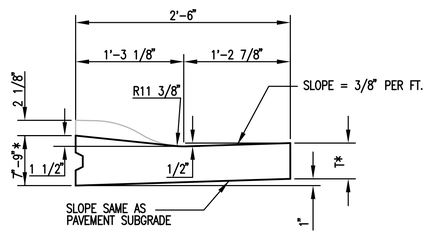


COMBINED CURB & GUTTER (1 1/2")

TYPE 2
(ROLL CURB)

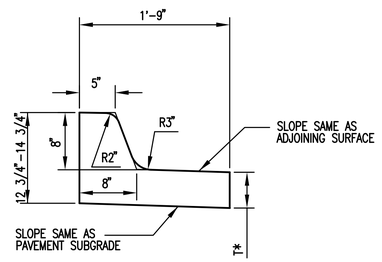


COMBINED CURB & GUTTER (3 5/8")

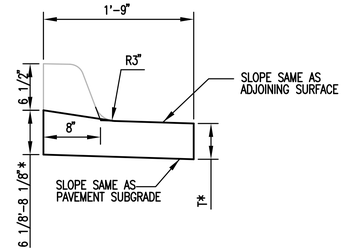


COMBINED CURB & GUTTER (1 1/2")

TYPE 3
(MEDIAN CURB)

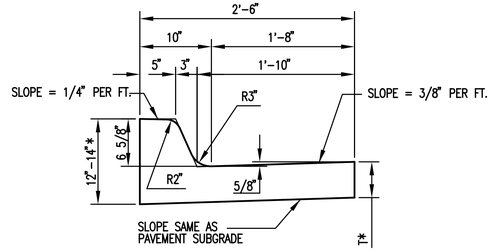


COMBINED CURB & GUTTER (8")

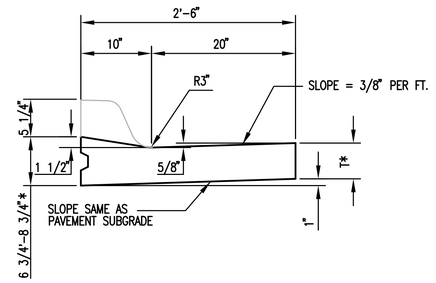


COMBINED CURB & GUTTER (1 1/2")

TYPE 4
(RESIDENTIAL CURB)

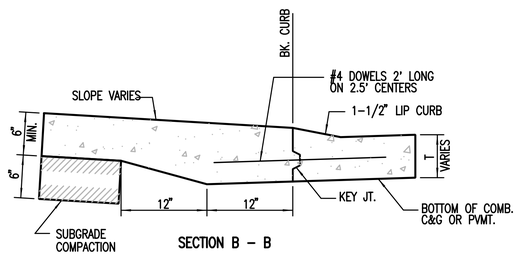


COMBINED CURB & GUTTER (6 5/8")

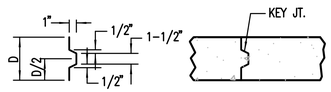


COMBINED CURB & GUTTER (1 1/2")

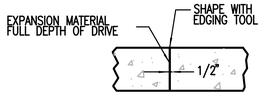
T* = THICKNESS OF CURB TO ADJUST WITH PAVEMENT THICKNESS



BACK OF CURB DETAIL



ALT. LONGITUDINAL CONSTRUCTION JOINT



EXPANSION JOINT (E.J.)

GENERAL NOTES

1. EXPANSION (ISOLATION) JOINTS SHALL BE CONSTRUCTED A MAXIMUM OF 300' APART AND AT ALL PIS, PCS, CUL-DE-SAC QUADRANTS, AND ENDS OF RETURNS.

2. CONTRACTION JOINTS SHALL BE CONSTRUCTED A MINIMUM OF 12' APART.

3. JOINT SEALER SHALL BE REQUIRED AT ALL JOINTS ON ARTERIAL AND INDUSTRIAL STREETS AND AT INTERSECTIONS ON RESIDENTIAL STREETS.

CITY OF WICHITA
PUBLIC WORKS & UTILITIES
ENGINEERING DIVISION

CURB & GUTTER DETAILS

CITY ENGINEER
GARY JANZEN, P.E.

PROJECT NUMBER	OCA NUMBER	DATE
472-84841	760621	12/2010

CITY ENGINEER'S OFFICE
CITY HALL - SEVENTH FLOOR
455 NORTH MAIN STREET
WICHITA, KANSAS 67202-1620
(316) 268-4501

DESIGN | DRAWN

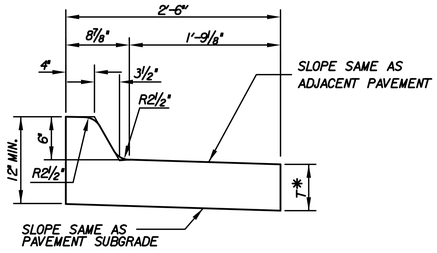
SHEET
26 of 130

PV-101

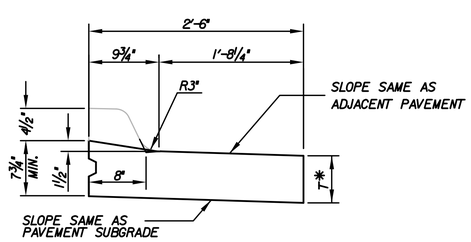
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TYPE I (SPECIAL)

(ARTERIAL CURB)



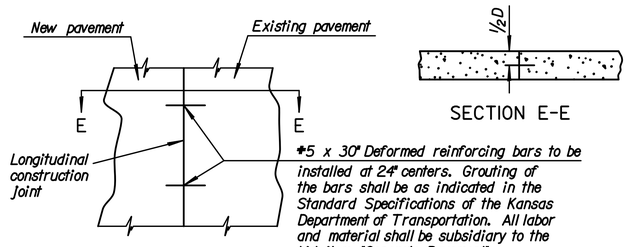
COMBINED CURB & GUTTER (6")



COMBINED CURB & GUTTER (11/2")

T* - THICKNESS OF CURB TO ADJUST WITH PAVEMENT THICKNESS

See Sheet No. 26 for additional curb and gutter notes and details.



#5 x 30" Deformed reinforcing bars to be installed at 24" centers. Grouting of the bars shall be as indicated in the Standard Specifications of the Kansas Department of Transportation. All labor and material shall be subsidiary to the bid item "Concrete Pavement".

METHOD OF TYING PAVEMENT TO EXISTING PAVEMENT

PAVEMENT WIDENING

No.	Revision	By	Date

CITY OF WICHITA

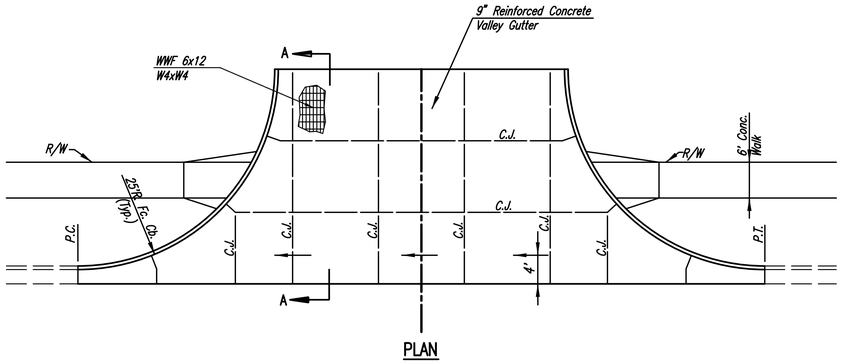
CURB AND GUTTER AND MISCELLANEOUS DETAILS

PROJECT NO. 472-84841 SEDGWICK CO.

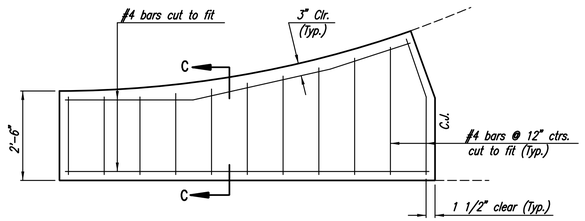
PEC
PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
303 SOUTH TOPEKA WICHITA, KS 67202
316-262-2691 www.pec1.com

Designed by	CKC	Job No.	08313	Sht. 27 of 130
Drawn by	DRP	Date	June, 2014	

Plotted By: drp Date: 7/14/2014 11:42:50 AM
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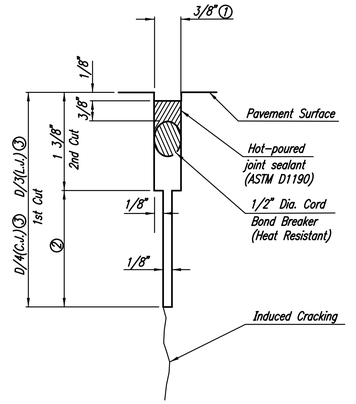


PLAN



WING REINFORCING DETAIL

NOTE: OMIT WIRE FABRIC REINFORCING IN THIS SECTION.

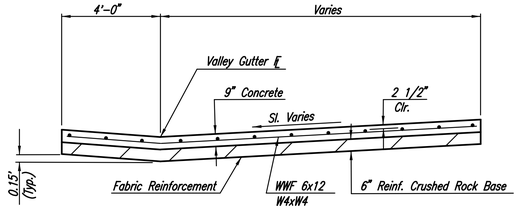


DETAIL A

① To be accomplished in 2 cuts for Longitudinal Joints and Contraction Joints. Initial cut to be 1/8" wide.

② Eliminate bottom of cut when metal keyway is used as part of Longitudinal or Transverse Construction Joint and at Doweled Construction Joint Locations.

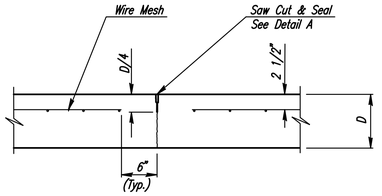
③ 1 1/2" Minimum



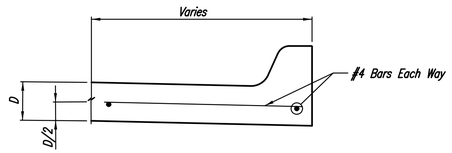
SECTION A-A

NOTE: OMIT REINFORCING MESH AT ALL JOINTS

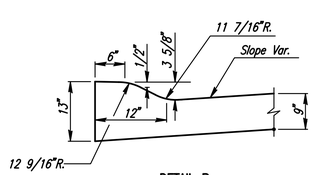
NOTE: ALL CONCRETE VALLEY GUTTER REINFORCEMENT SHALL BE ADEQUATELY SUPPORTED BY BAR CHAIRS IN THE REQUIRED POSITION UNLESS APPROVED OTHERWISE BY THE ENGINEER.



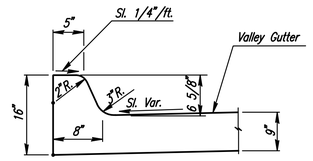
CONTRACTION JOINT DETAIL
REINFORCED PAVEMENT
(C.J.)



SECTION C-C



DETAIL B
(ROLL-TYPE CURB)(3 5/8")



DETAIL C
(STANDARD CURB)(6 5/8")

MONOLITHIC EDGE CURB

No.	Revision	By	Date

CITY OF WICHITA

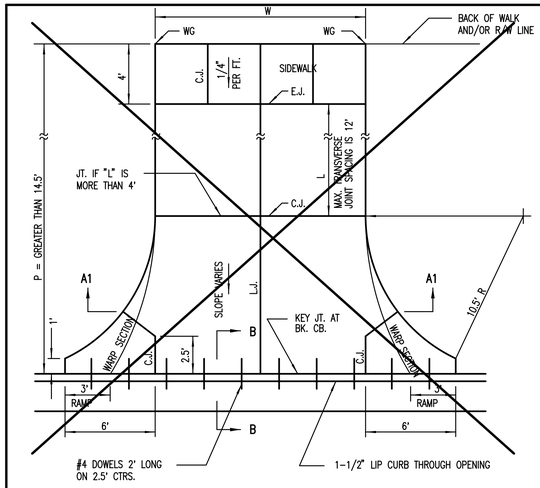
VALLEY GUTTER DETAILS

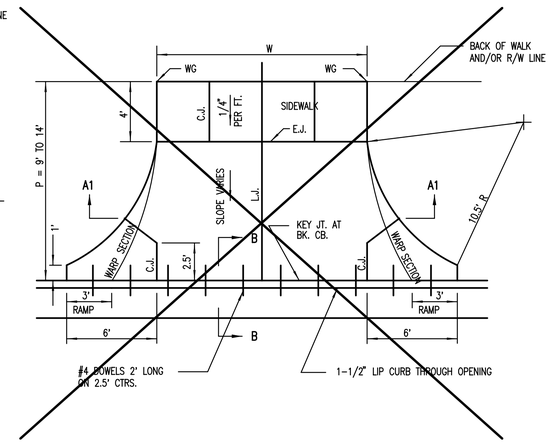
PROJECT NO. 472-84841 SEDGWICK CO.

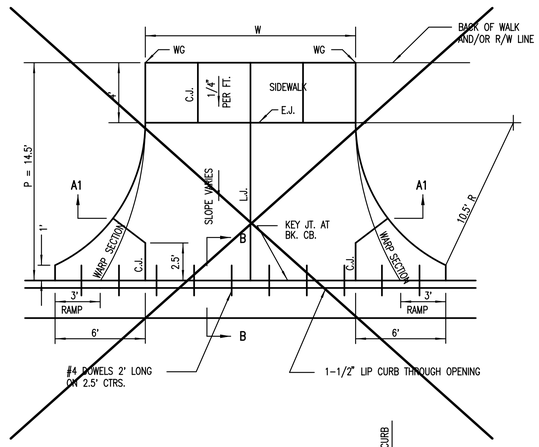
PEC
PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
303 SOUTH TOPEKA WICHITA, KS 67202
316-262-2691 www.pec1.com

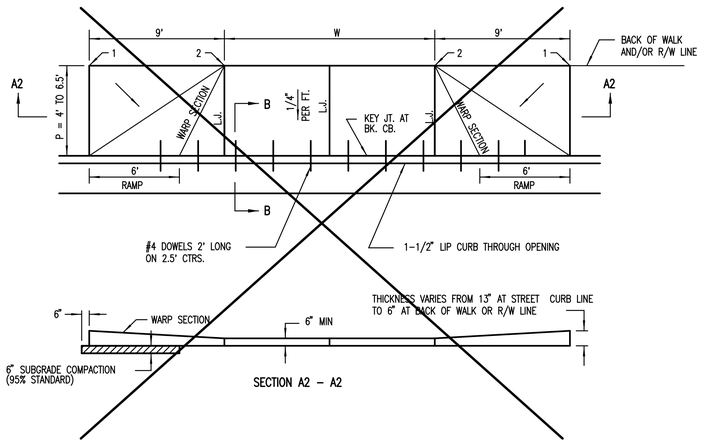
Designed by	CKC	Job No.	08313	Sht. 28 of 130
Drawn by	DRP	Date	June, 2014	

Plotted By: drp Date: 7/14/2014 11:42:51 AM
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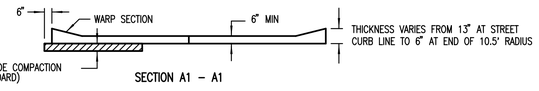




SECTION A2 – A2

PARKING WIDTH "P"	4'	4.5'	5'	5.5'	6'	6.5'
DIST. OF PT. "1" ABOVE TOP OF FULL CURB	–.08'	0.02'	0.18'	0.22'	0.18'	0.22'
DIST. OF PT. "2" BELOW TOP OF FULL CURB	–.08'	0.02'	0.18'	0.22'	0.18'	0.22'

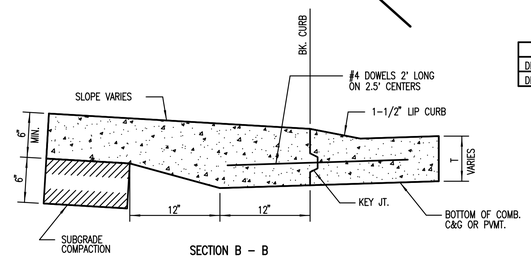
FULL RAMP DRIVE (P = 4.0' TO 6.5')



SECTION A1 – A1

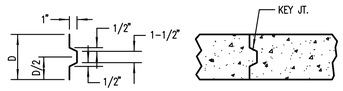
PARKING WIDTH "P"	9'	10'	11'	12'	13'	14.5'	20'	25'	30'	35'	40'	45'	50'
ABSOLUTE MAX. DIST. OF PT. "WG" ABOVE OR BELOW TOP OF FULL CURB	0.27'	0.27'	0.32'	0.37'	0.52'	0.80'	1.35'	1.85'	2.35'	2.85'	3.35'	3.85'	4.35'
OPTIMUM MAX. DIST. OF PT. "WG" ABOVE OR BELOW TOP OF FULL CURB	0.27'	0.27'	0.32'	0.37'	0.52'	0.62'	0.96'	1.22'	1.48'	1.74'	2.00'	2.26'	2.52'
OPTIMUM MIN. DIST. OF PT. "WG" ABOVE OR BELOW TOP OF FULL CURB	0.19'	0.21'	0.23'	0.25'	0.30'	0.30'	0.42'	0.52'	0.62'	0.72'	0.82'	0.92'	1.02'
ABSOLUTE MIN. DIST. OF PT. "WG" ABOVE OR BELOW TOP OF FULL CURB	–.19'	–.16'	–.13'	–.10'	–.06'	0.00'	0.00'	0.15'	0.25'	0.35'	0.45'	0.55'	0.65'

RADIUS RAMP DRIVES (P = 9.0' & GREATER)

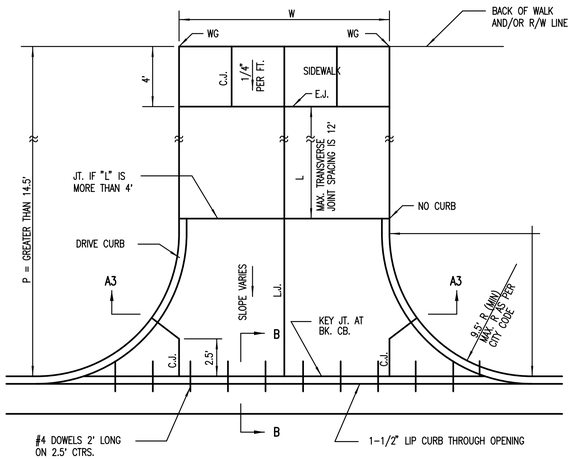


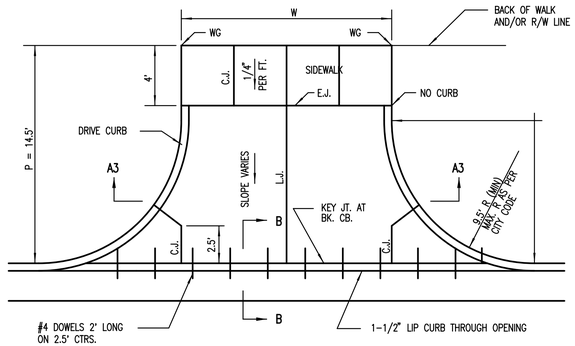
SECTION B – B

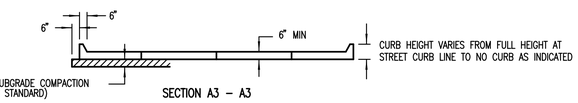
BACK OF CURB DETAIL



ALT. LONGITUDINAL CONSTRUCTION JOINT



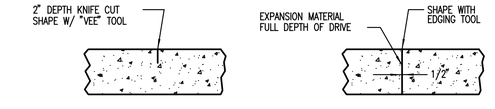


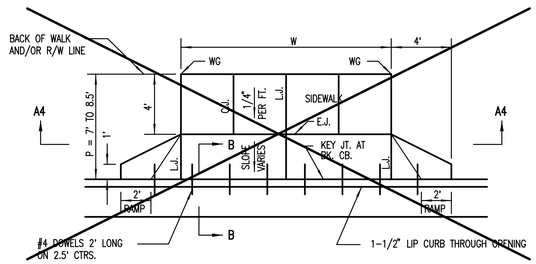


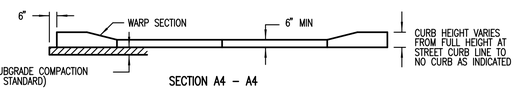
SECTION A3 – A3

PARKING WIDTH "P"	14.5'	20'	25'	30'	35'	40'	45'	50'
ABSOLUTE MAX. DIST. OF PT. "WG" ABOVE OR BELOW TOP OF FULL CURB	0.72'	1.27'	1.77'	2.27'	2.77'	3.27'	3.77'	4.27'
OPTIMUM MAX. DIST. OF PT. "WG" ABOVE OR BELOW TOP OF FULL CURB	0.70'	1.04'	1.30'	1.56'	1.82'	2.08'	2.34'	2.60'
OPTIMUM MIN. DIST. OF PT. "WG" ABOVE OR BELOW TOP OF FULL CURB	0.30'	0.42'	0.52'	0.62'	0.72'	0.82'	0.92'	1.02'
ABSOLUTE MIN. DIST. OF PT. "WG" ABOVE OR BELOW TOP OF FULL CURB	0.00'	0.00'	0.15'	0.25'	0.35'	0.45'	0.55'	0.65'

FULL RADIUS DRIVES (P = 14.5' & GREATER)







SECTION A4 – A4

PARKING WIDTH "P"	7'	7.5'	8'	8.5'
ABSOLUTE MAX. DIST. OF PT. "WG" ABOVE OR BELOW TOP OF FULL CURB	–.08'	0.02'	0.18'	0.22'
OPTIMUM MAX. DIST. OF PT. "WG" ABOVE OR BELOW TOP OF FULL CURB	–.08'	0.02'	0.18'	0.22'
OPTIMUM MIN. DIST. OF PT. "WG" ABOVE OR BELOW TOP OF FULL CURB	–.15'	–.16'	–.17'	–.17'
ABSOLUTE MIN. DIST. OF PT. "WG" ABOVE OR BELOW TOP OF FULL CURB	–.25'	–.20'	–.20'	–.20'

FULL RAMP DRIVE (P = 7.0' TO 8.5')

1. DRIVEWAY CONSTRUCTION DETAILED ON THIS SHEET IS FOR USE WITH FULL HEIGHT STREET CURBS AND IN AREAS WITHOUT FULL WALK CONSTRUCTION IN THE PARKING. SEE OTHER DETAIL SHEETS FOR DRIVEWAY CONSTRUCTION WITH FULL WALK.
2. ONE LONGITUDINAL JOINT SHALL BE CONSTRUCTED ALONG THE CENTERLINE OF DRIVES HAVING A "W" DIMENSION OF 24' OR LESS. TWO LONGITUDINAL JOINTS SHALL BE CONSTRUCTED WITH EQUAL SPACINGS NOT TO EXCEED 10' FOR DRIVES WITH A "W" DIMENSION GREATER THAN 24'.
3. DRIVEWAY WIDTH DENOTED AS "W" ON THE DETAIL DRAWINGS SHALL BE A MINIMUM OF 10' AND A MAXIMUM OF 30'. THE MAXIMUM OPENING FOR RADIUS TYPE DRIVES WITH CURBS THROUGH THE RADIUS SHALL NOT EXCEED 52' AT THE STREET CURB LINE.
4. CONTRACTION JOINT SPACING IN THE DRIVEWAY WALK SECTION SHALL BE A MINIMUM OF 3' AND A MAXIMUM OF 6' AND ARE TO BE EQUALLY SPACED WITHIN THIS RANGE. WALK SECTION SHALL BE CONSTRUCTED TO THE SAME THICKNESS AS THE DRIVEWAY.
5. DOWEL BARS SHALL BE OMITTED FROM THE KEYED CONSTRUCTION JOINT ALONG THE BACK OF THE STREET CURB LINE WHEN DRIVEWAYS ARE CONSTRUCTED IN CONJUNCTION WITH NEW CONCRETE PAVEMENT CONSTRUCTION.
6. ADDITIONAL THICKNESS OF DRIVE AS INDICATED IN THE DRAWINGS WILL NOT BE PAID FOR DIRECTLY AND THIS COST SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE DRIVEWAY CONSTRUCTION.
7. ONE HALF INCH EXPANSION JOINTS SHALL BE INSTALLED WHEREVER DRIVE CONSTRUCTION ABUTS SIDEWALK. ONE HALF INCH EXPANSION JOINTS SHALL ALSO BE INSTALLED ALONG THE PROPERTY LINE AND/OR BACK OF WALK LINE WHEN DRIVE CONSTRUCTION ALONG THIS LINE ABUTS CONCRETE PARKING LOTS OR CONCRETE DRIVE EXTENSION.
8. ALL DRIVEWAYS SHALL BE A MINIMUM OF 6" IN THICKNESS AND SHALL BE WITHOUT REINFORCEMENT. DRIVEWAYS MAY BE CONSTRUCTED THICKER THAN 6" AND THEY MAY BE REINFORCED WITH 6"X12" W4–W4 WELDED WIRE FABRIC WHEN PROPERLY AUTHORIZED BY THE PROPERTY OWNER WITH THE ENGINEER'S CONCURRENCE.
9. OPTIMUM DRIVEWAY ELEVATIONS SHOWN IN THE TABLES ARE TO BE USED WHEREVER POSSIBLE. ABSOLUTE MAXIMUM AND MINIMUM ELEVATIONS ARE TO BE USED ONLY WHEN THESE VALUES WILL PERMIT NEW CONSTRUCTION TO MATCH EXISTING DRIVES OR PARKING LOTS. VALUES SHOWN IN THE TABLES ARE BASED ON A FULL CURB HEIGHT ELEVATION OF 0.55' ABOVE THE GUTTER FLOW LINE AND MUST BE ADJUSTED ACCORDINGLY FOR OTHER CURB HEIGHTS. VALUES SHOWN IN THE TABLES WITH MINUS SIGNS INDICATE ELEVATIONS BELOW TOP OF FULL HEIGHT CURB.

THE CITY OF WICHITA

CITY ENGINEER'S OFFICE
CITY HALL – SEVENTH FLOOR
455 NORTH MAIN STREET
WICHITA, KANSAS 67202
(316) 268-4501
(316) 268-4184 FAX

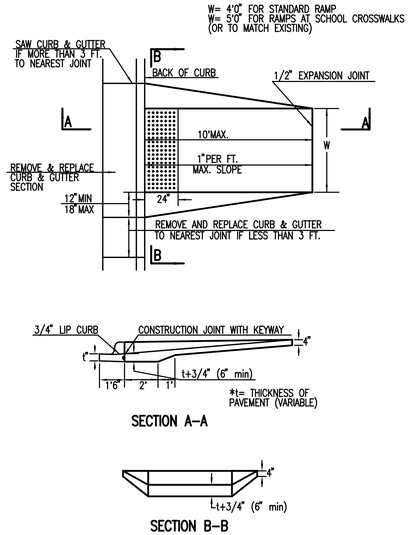
STANDARD DRIVE ENTRANCES FULL HEIGHT CURB

JAMES L. ARMOUR, P.E. – CITY ENGINEER

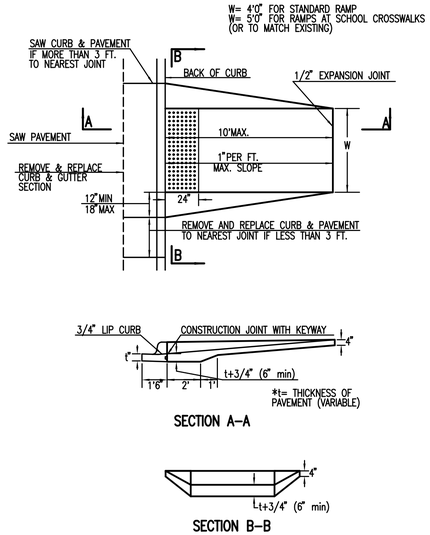
PROJECT NUMBER	INDEX CODE
472-84841	760621
DATE: MAR 96	SHEET 29 OF 130

Plotted By: drp Date: 7/14/2014 11:42:51 AM
FILE: I:\2008\0833\Frontage Rd South\Standards\0833-driveway.dgn

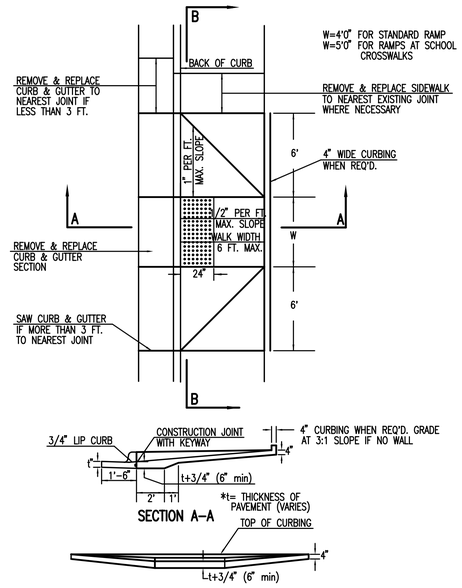
STANDARD WHEELCHAIR RAMP CONSTRUCTION DETAIL FOR STREETS WITH COMBINED CURB & GUTTER (TYPE A)



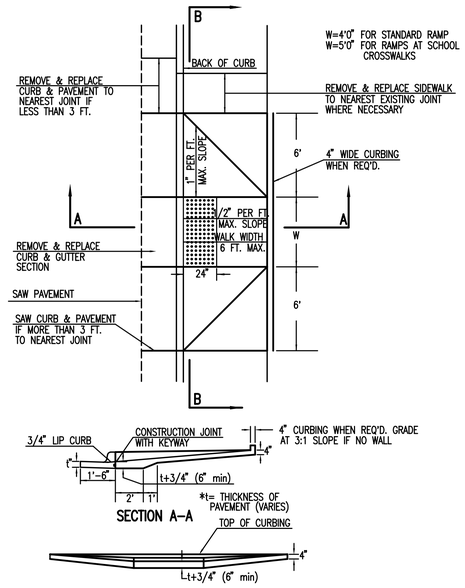
STANDARD WHEELCHAIR RAMP CONSTRUCTION DETAIL FOR CONCRETE STREETS WITH MONOLITHIC CURB (TYPE A)



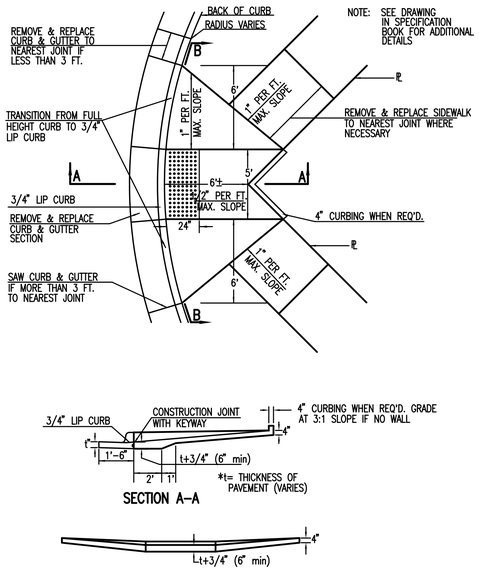
STANDARD WHEELCHAIR RAMP CONSTRUCTION DETAIL FOR STREETS WITH COMBINED CURB & GUTTER AND FULL WALK (TYPE B)



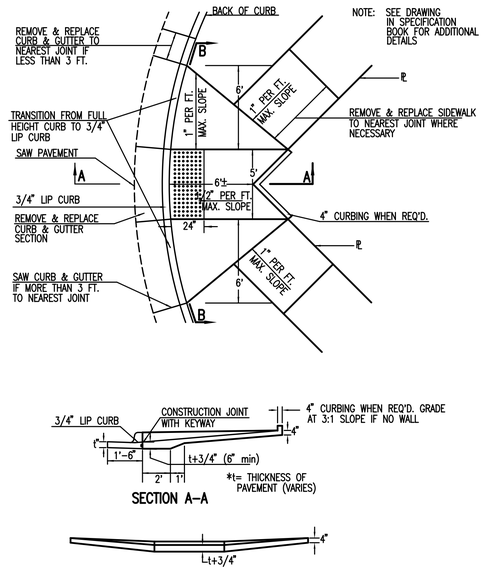
STANDARD WHEELCHAIR RAMP CONSTRUCTION DETAIL FOR STREETS WITH MONOLITHIC CURB AND FULL WALK (TYPE B)



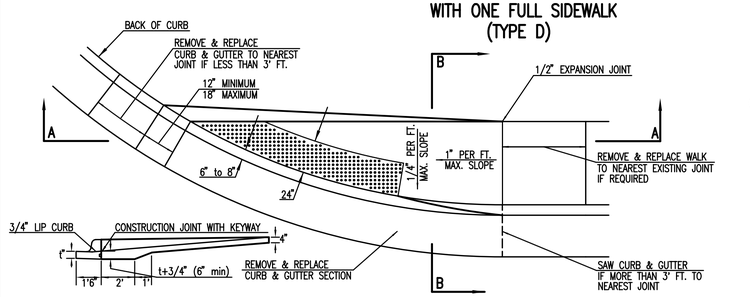
STANDARD WHEELCHAIR RAMP CONSTRUCTION DEAIL FOR STREET WITH COMBINED CURB AND GUTTER ON RADIUS WITH 6'± FROM BACK OF CURB TO PROPERTY CORNER (TYPE C)



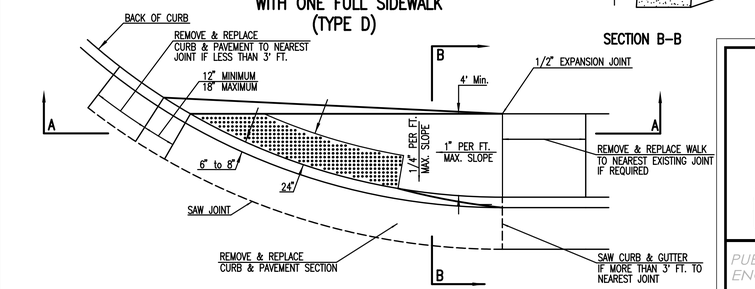
STANDARD WHEELCHAIR RAMP CONSTRUCTION DETAIL FOR STREET WITH MONOLITHIC CURB ON RADIUS WITH 6'± FROM BACK OF CURB TO PROPERTY CORNER (TYPE C)

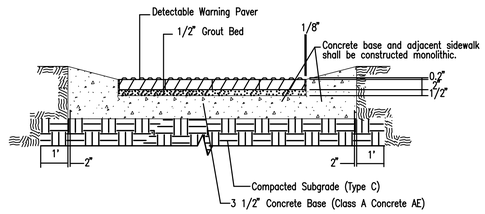


STANDARD WHEELCHAIR RAMP CONSTRUCTION DETAIL FOR STREETS WITH COMBINED CURB & GUTTER WITH ONE FULL SIDEWALK (TYPE D)



STANDARD WHEELCHAIR RAMP CONSTRUCTION DETAIL FOR STREETS WITH MONOLITHIC CURB WITH ONE FULL SIDEWALK (TYPE D)

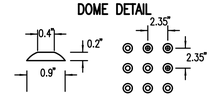




TYPICAL SECTION DETECTABLE WARNING PAVER
SECTION A-A

NOTE: HANOVER DETECTABLE WARNING PAVERS (OR AN APPROVED ALTERNATE) SHALL BE USED IN ALL WHEELCHAIR RAMPS. THE 11 3/4" 'RED 15' PAVER SHALL BE USED IN ALL APPLICATIONS.
HANOVER ARCHITECTURAL PRODUCTS
240 BENDER ROAD
HANOVER, PA 17331
1-717-637-0500
www.hanoverpavers.com

DOME DETAIL



CITY OF WICHITA
PUBLIC WORKS & UTILITIES ENGINEERING DIVISION

WHEELCHAIR RAMP DETAILS WITH DETECTABLE WARNING

CITY ENGINEER
GARY JANZEN, P.E.

PROJECT NUMBER	OCA NUMBER	DATE
472-84841	760621	08/2013

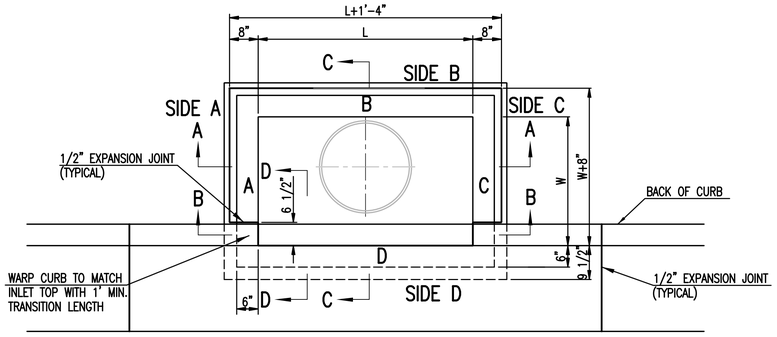
CITY ENGINEER'S OFFICE
CITY HALL - SEVENTH FLOOR
455 NORTH MAIN STREET
WICHITA, KANSAS 67202-1620
(316) 268-4501

DESIGN | DRAWN

SHEET
30 of 130

PV-110

Plotted By: drp Date: 7/14/2014 1:37:24 PM
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TOP VIEW

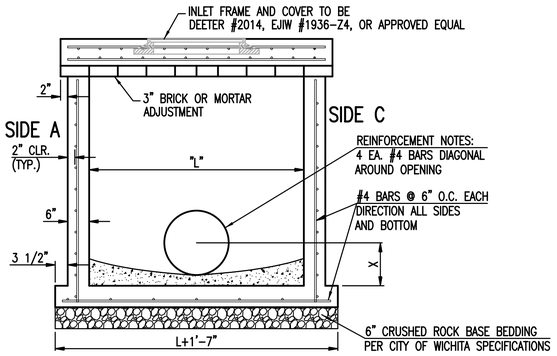
BAR SCHEDULE		
INLET OPENING	B1 BARS	SPACING
5'-0"	#4	4"
10'-0"	#6	3.5"

PRECAST CURB INLET WIDTHS				
W	PRE-CAST TOP SIZE			PIPE DIA.**
	WIDTH	LENGTH	TOP	
3'-0"	W+8"	L+1'-4"	7 1/2"	21" & SMALLER
4'-0"	W+8"	L+1'-4"	7 1/2"	24" & 30"
5'-0"	W+8"	L+1'-4"	7 1/2"	36" & 42"
6'-0"	W+8"	L+1'-4"	7 1/2"	48" & 54"
7'-0"	W+8"	L+1'-4"	7 1/2"	60" & 66"

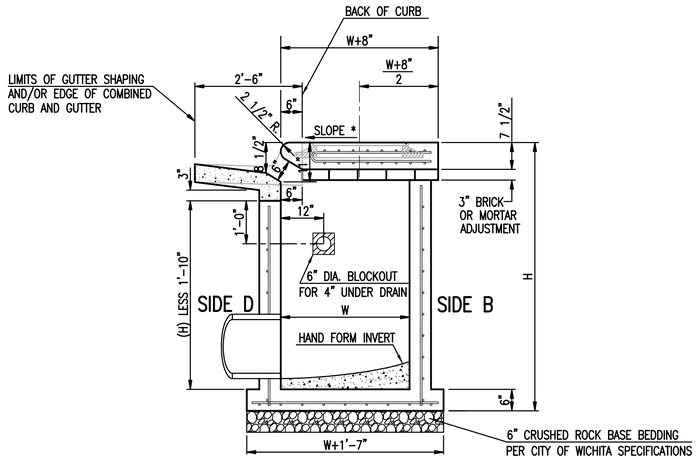
** FOR PIPES PERPENDICULAR TO INLET WALL

GENERAL NOTES

1. CONCRETE TOPS TO BE INSTALLED ON THIN MORTAR CUSHION TO INSURE FULL SUPPORT ALONG BRICK. CONCRETE TOPS MAY BE CAST IN PLACE OR PRECAST. CONCRETE USED FOR INLET CONSTRUCTION SHALL CONFORM TO CITY OF WICHITA SPECIFICATIONS FOR CONCRETE PAVEMENT MIX.
2. CONTRACTOR SHALL HAVE THE OPTION OF CONSTRUCTING 8" BRICK MASONRY WALLS BETWEEN THE CONCRETE INLET BASE AND TOP OF THIS INLET WHEN W=5'-0" AND H=7'-0" OR LESS.
3. INLET INVERT SHALL BE SHAPED WITH 8 SACK SAND MIX CONCRETE TO CREATE FLOW CHANNELS AND TO INCREASE HYDRAULIC EFFICIENCY SUCH THAT THE INLET WILL BE SELF CLEANING BETWEEN ALL INLET AND/OR OUTLET PIPES.
4. THE ENDS OF ALL PIPES INSTALLED IN INLETS SHALL BE CUT OFF FLUSH WITH THE INSIDE FACE OF THE INLET WALL.
5. INLET FRAME AND COVER TO BE DEETER #2014, EJIW #1936 Z4, OR APPROVED EQUAL, SEE SW-303.
6. CONTRACTOR SHALL REMOVE LIFTING HOOKS AFTER INSTALLATION. RECESSES IN INLET WALL SHALL BE GROUTED FLUSH TO THE INLET WALL WITH HYDRAULIC CEMENT AFTER THE INLET IS IN PLACE. LIFTING HOLES THRU THE INLET WALL WILL NOT BE ACCEPTED.

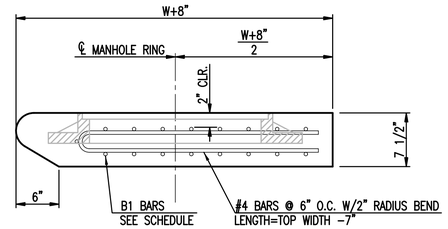


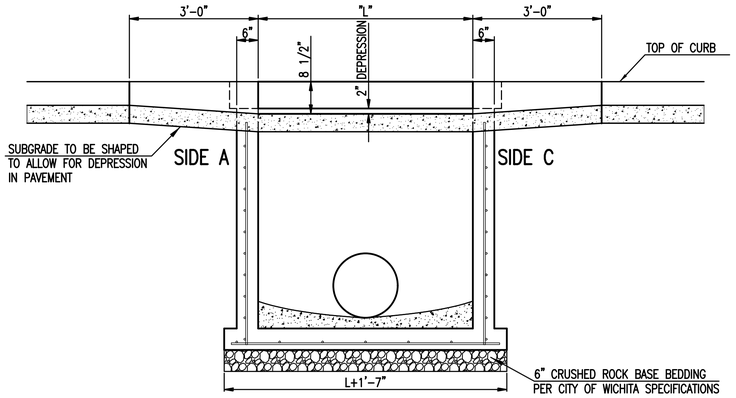
SECTION "A-A"



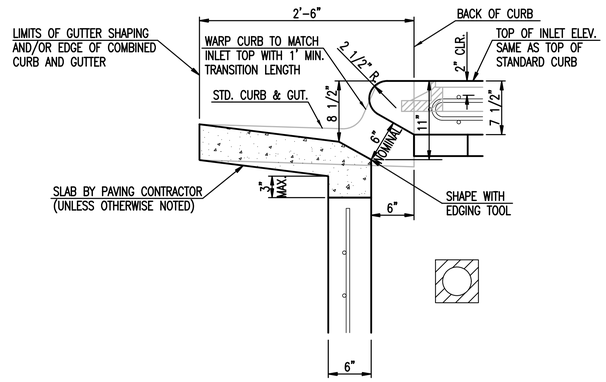
SECTION "C-C"

NOTES:
* SLOPE OF INLET TOP TO MATCH SIDEWALK OR PARKING SLOPES WITHIN LIMITS INDICATED.





SECTION "B-B"



SECTION "D-D"

CITY OF WICHITA
PUBLIC WORKS & UTILITIES
ENGINEERING DIVISION

STANDARD TYPE 1
CURB INLET
5'-0" OR 10'-0" OPENING

CITY ENGINEER
GARY JANZEN, P.E.

PROJECT NUMBER	OCA NUMBER	DATE
472-84841	760621	11/2010

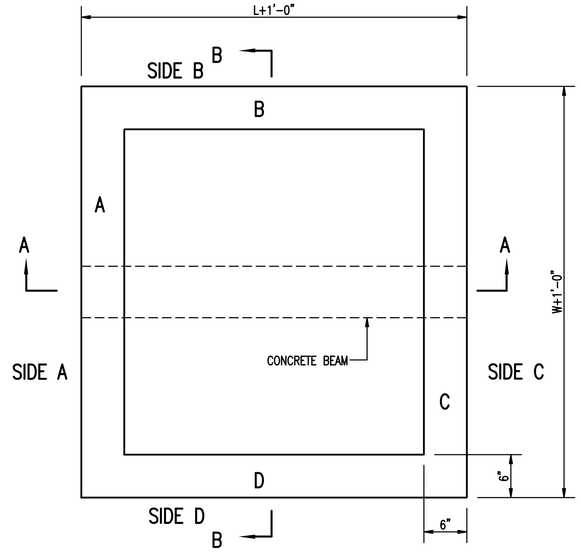
CITY ENGINEER'S OFFICE
CITY HALL - SEVENTH FLOOR
455 NORTH MAIN STREET
WICHITA, KANSAS 67202-1620
(316) 268-4501

DESIGN | DRAWN

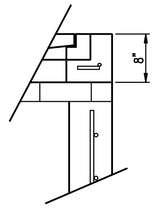
SHEET
31 of 130

SW-101

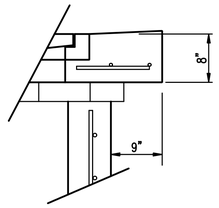
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FILE: i:\2008\08313\Frontage Rd South\Standards\08313-SW-101-Type I Inlet L=5' and 10'.dwg



TOP VIEW

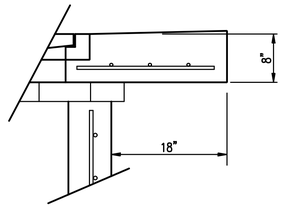


FLUSH STYLE TOP
NO APRON



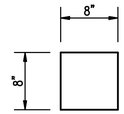
9" APRON

* APRON TO EXTEND ON ALL 4 SIDES OF INLET. DESIGNER TO DESIGNATE APRON SIZE.

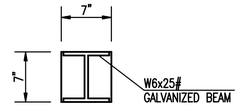


18" APRON

BEAM REQUIRED FOR THIS INLET



CONCRETE BEAM POCKET



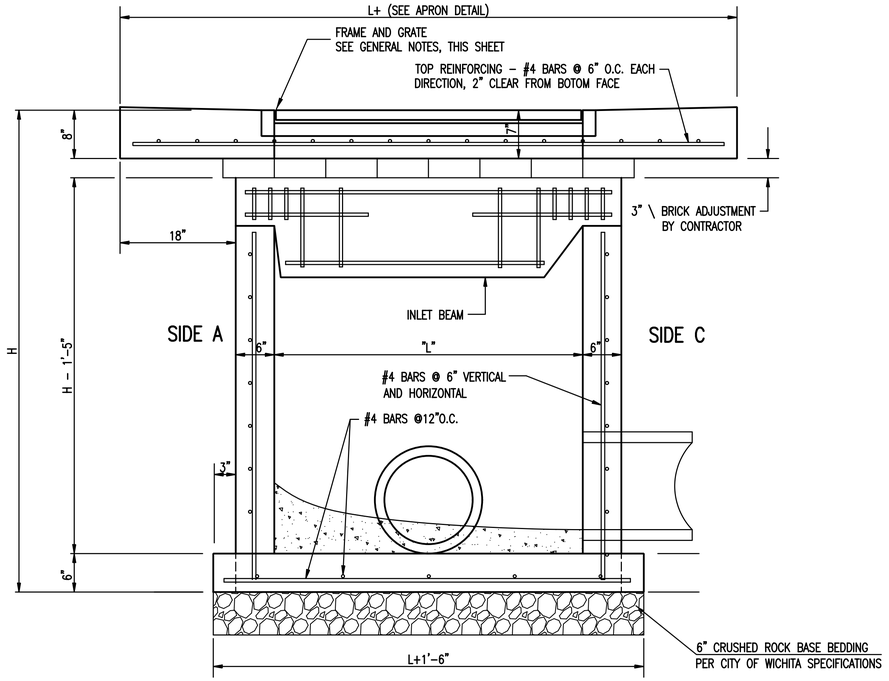
GALV. STEEL BEAM POCKET

W=4'-4" and L=4' for DOUBLE DROP INLET

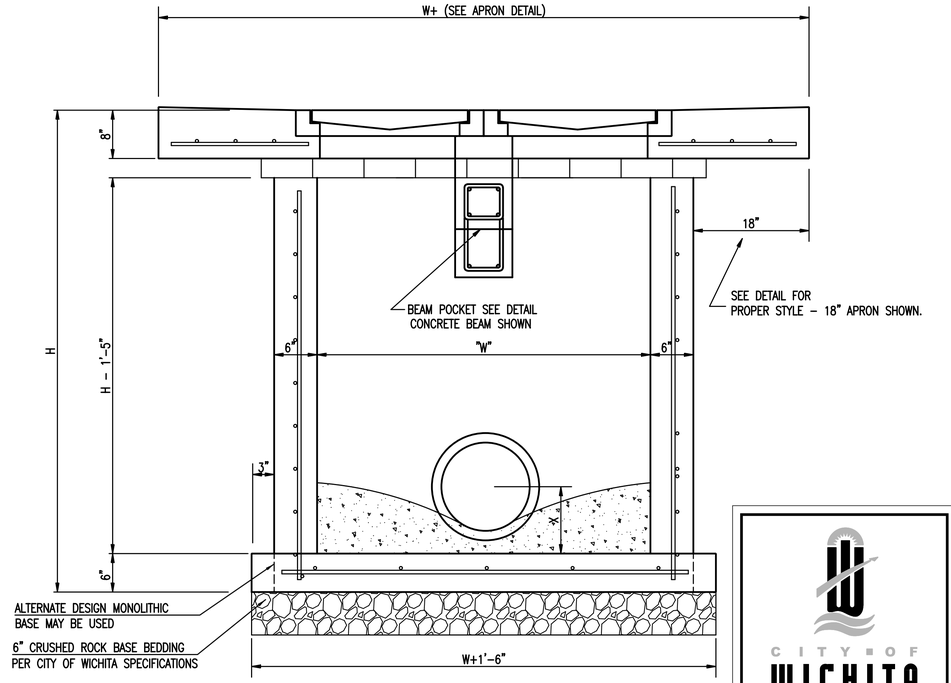
The structure(s) on this detail sheet are designed for HS-20 loading at these specific dimensions only. If larger dimensions are required, the ENGINEER shall provide a project specific structure design for approval by the City Engineer's office.

GENERAL NOTES

1. GRATE FRAME TO BE INSTALLED ON THIN MORTAR CUSHION TO INSURE FULL SUPPORT ALONG BRICK. CONCRETE USED FOR INLET CONSTRUCTION SHALL CONFORM TO CITY OF WICHITA SPECIFICATIONS FOR CONCRETE PAVEMENT MIX.
2. INLET INVERT SHALL BE SHAPED WITH 8 SACK SAND MIX CONCRETE TO CREATE FLOW CHANNELS AND TO INCREASE HYDRAULIC EFFICIENCY SUCH THAT THE INLET WILL BE SELF CLEANING BETWEEN ALL INLET AND/OR OUTLET PIPES.
3. THE ENDS OF ALL PIPES INSTALLED IN INLETS SHALL BE CUT OFF FLUSH WITH THE INSIDE FACE OF THE INLET WALL.
4. INLET FRAME AND GRATE TO BE DEETER #2433, EJIW #5391-Z1 OR APPROVED EQUAL FOR 2'x2' SINGLE DROP INLET AND DEETER #2434, EJIW #5391 Z3 OR APPROVED EQUAL FOR 2'x4' DOUBLE DROP INLET.
5. CONTRACTOR SHALL REMOVE LIFTING HOOKS AFTER INSTALLATION. RECESSES IN INLET WALL SHALL BE GROUTED FLUSH TO THE INLET WALL WITH HYDRAULIC CEMENT AFTER THE INLET IS IN PLACE. LIFTING HOLES THRU THE INLET WALL WILL NOT BE ACCEPTED.



SECTION "A-A"



SECTION "B-B"

REVISED 05/10/2011 - GJ

CITY OF WICHITA
PUBLIC WORKS & UTILITIES ENGINEERING DIVISION

DOUBLE DOUBLE DROP INLET WITH BEAM

CITY ENGINEER
GARY JANZEN, P.E.

PROJECT NUMBER	OCA NUMBER	DATE
472-84841	760621	11/2010

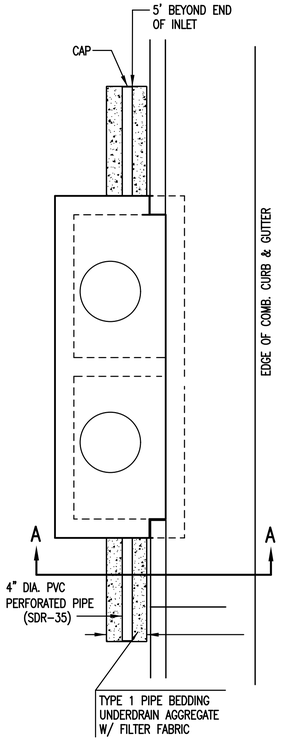
CITY ENGINEER'S OFFICE
CITY HALL - SEVENTH FLOOR
455 NORTH MAIN STREET
WICHITA, KANSAS 67202-1620
(316) 268-4501

SHEET
32 of 130

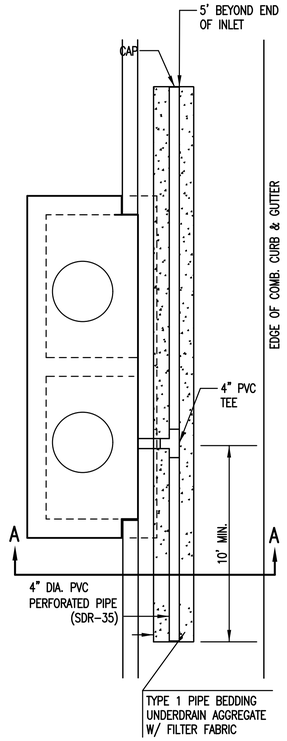
SW-202

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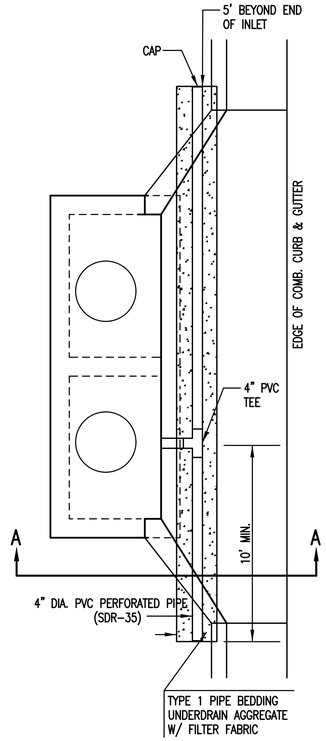
PAVEMENT UNDERDRAIN SHALL BE INSTALLED ON ALL CURB INLETS.



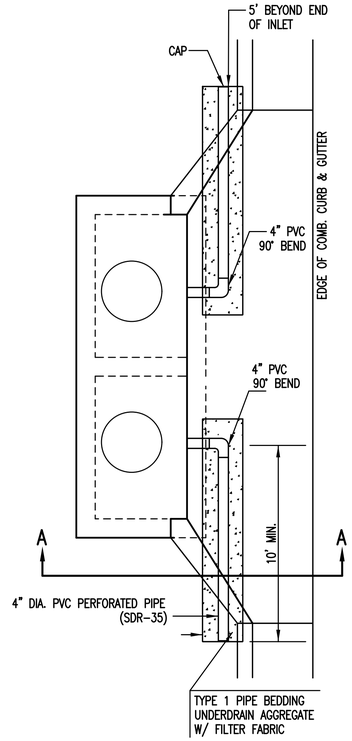
TYPE 1
OPTION 1



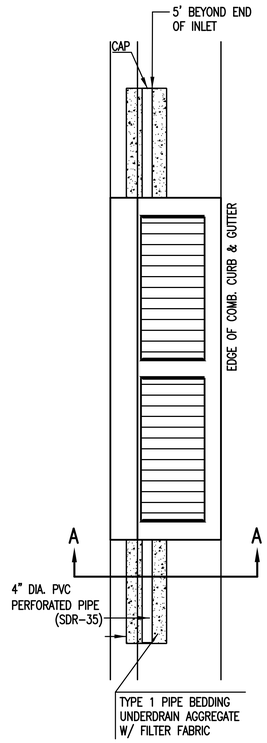
TYPE 1
OPTION 2



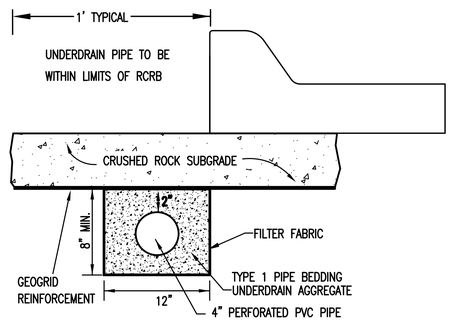
TYPE 1-A INLET
OPTION 1



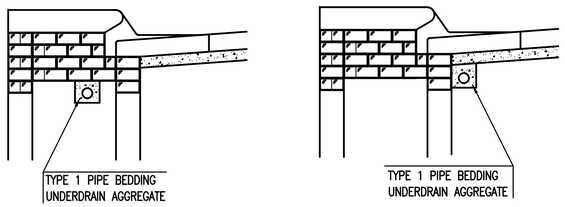
TYPE 1-A INLET
OPTION 2



TYPE 2

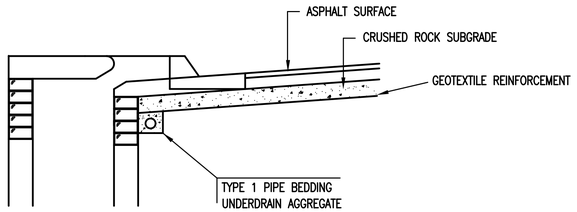


SECTION A-A (TYPICAL)



(MIN. 16 PERFORATIONS PER LIN. FT. @ 1/4" DIA.)
PERFORATIONS TO BE ON BOTTOM HALF

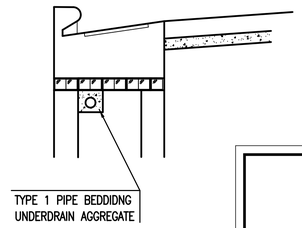
SECTION A-A



SECTION A-A

PAVEMENT UNDERDRAIN DETAIL

BID ITEM TO BE PROVIDED PER 4" PERFORATED UNDERDRAIN PIPE.



SECTION A-A

GENERAL NOTES

1. PAVEMENT CONTRACTOR WILL BE REQUIRED TO INSTALL SDR 35, 4" PERFORATED DRAIN PIPE AND TEE AS INDICATED IN THE DETAILS.
2. WHEN SWS CONSTRUCTED BY SEPARATE PROJECT, SWS CONTRACTOR SHALL INSTALL SDR 35, 4" DRAIN PIPE STUB ONLY THROUGH WALLS OF CURB INLETS AND CAP TO ALLOW FUTURE CONNECTION OF TEE AND ADDITIONAL DRAIN PIPE BY OTHERS.
2. UNDERDRAIN PIPE SHALL BE PAID AS A MEASURED QUANTITY BY THE LINEAL FOOT.

CITY OF WICHITA
PUBLIC WORKS & UTILITIES
ENGINEERING DIVISION

CURB INLET
PAVEMENT UNDERDRAIN
DETAIL

CITY ENGINEER
GARY JANZEN, P.E.

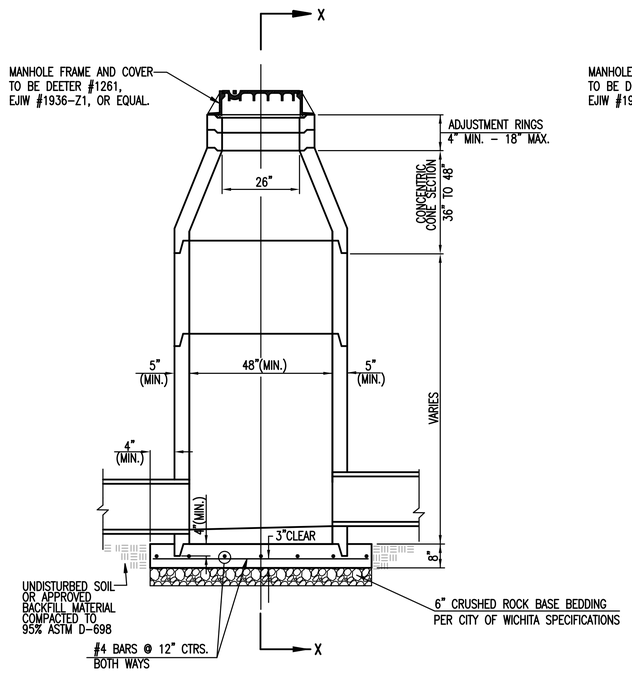
PROJECT NUMBER	OCA NUMBER	DATE
472-84841	760621	10/2012

CITY ENGINEER'S OFFICE
CITY HALL - SEVENTH FLOOR
455 NORTH MAIN STREET
WICHITA, KANSAS 67202-1620
(316) 268-4501

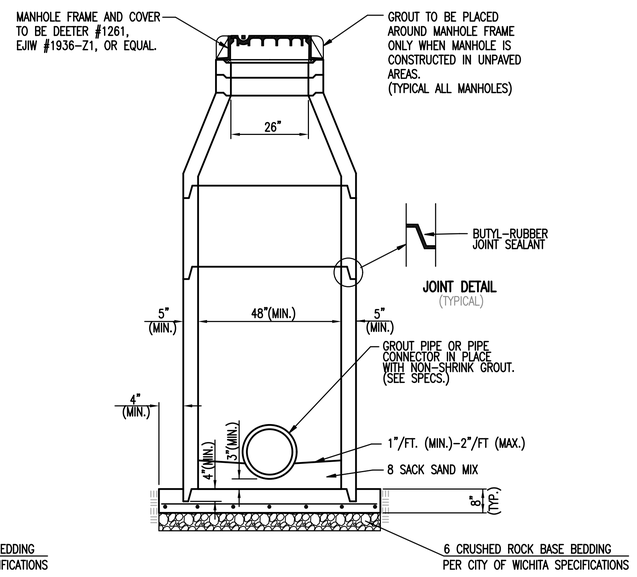
SHEET
33 of 130

SW-111

Plotted By: drp Date: 7/14/2014 1:39:09 PM
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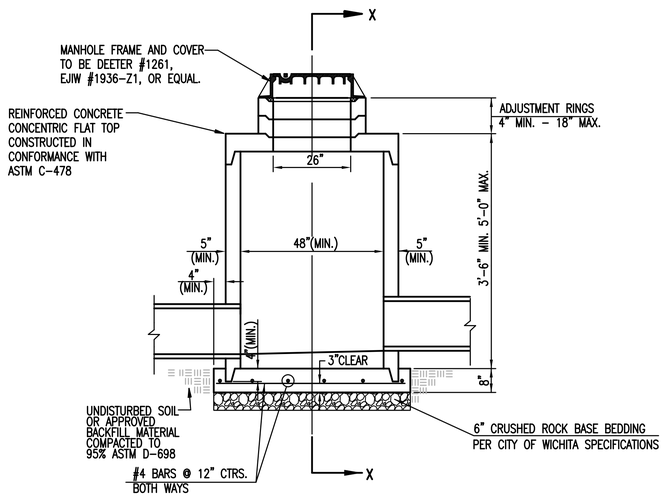
PRECAST
STANDARD MANHOLE
TYPE "A"



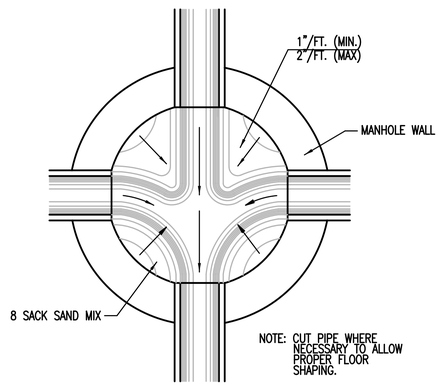
SECTION X-X
(TYPICAL)

GENERAL NOTES

1. IF, IN THE OPINION OF THE ENGINEER, THE MANHOLE SUBGRADE APPEARS UNSTABLE, THE CONTRACTOR WILL HAVE THE OPTION TO COMPACT SUBGRADE AS SHOWN OR INCREASE THE THICKNESS OF THE MANHOLE BASE AS DIRECTED BY THE ENGINEER.
2. STEEL REINFORCING WILL BE REQUIRED IN ALL MANHOLE BASES.
3. ALL MANHOLE CONSTRUCTION SHALL BE WATER TIGHT.
4. TOP OF MANHOLE FLOOR SLAB SHALL BE AT LEAST 3 INCHES BELOW THE FLOW LINE OF THE OUTLET PIPE TO INSURE SUFFICIENT MINIMUM THICKNESS OF SHAPED INVERT.
5. ALL PRECAST CONCRETE MANHOLE SECTIONS SHALL CONFORM TO THE LATEST REVISION OF ASTM C-478 AS MODIFIED BY THE SPECIFICATIONS.
6. CONCRETE USED FOR MANHOLE CONSTRUCTION SHALL CONFORM TO CITY OF WICHITA SPECIFICATIONS FOR CONCRETE PAVEMENT MIX.
7. PRECAST MANHOLES SHALL BE SET AT LEAST 4 INCHES INTO MANHOLE BASE.
8. MANHOLES WITH PIPE SIZES 24" AND LARGER SHALL HAVE 5 FOOT INSIDE DIAMETER (MIN.)
9. MANHOLES WITH PRECAST BASES MAY BE USED AT THE CONTRACTORS OPTION. THESE MANHOLES SHALL HAVE AN 8" MINIMUM BASE THICKNESS AND SHALL BE PLACED ON AN 8" MIN. CRUSHED ROCK BASE. PIPES SHALL BE ENCASED WITH CRUSHED ROCK TO AT LEAST 3 FEET FROM THE MANHOLE WALL.
10. CONTRACTOR SHALL REMOVE LIFTING HOOKS AFTER INSTALLATION. RECESSES IN MANHOLE WALL SHALL BE GROUTED FLUSH TO THE MANHOLE WALL WITH HYDRAULIC CEMENT AFTER THE MANHOLE IS IN PLACE. LIFTING HOLES THRU THE MANHOLE WALL WILL NOT BE ACCEPTED.
11. THE ENDS OF ALL PIPES IN MANHOLES SHALL BE CUT OFF FLUSH WITH THE INSIDE FACE OF THE MANHOLE WALL.
12. MANHOLE INVERT SHALL BE SHAPED WITH 8 SACK SAND MIX CONCRETE TO CREATE FLOW CHANNELS AND TO INCREASE HYDRAULIC EFFICIENCY SUCH THAT THE MANHOLE WILL BE SELF CLEANING BETWEEN ALL INLET AND/OR OUTLET PIPES.
13. MANHOLE FRAME AND COVER TO BE DEETER #1261, EJIW #1936-Z1, OR APPROVED EQUAL, SEE SW-303.
14. FOR FLAT GRATED INLET APPLICATION, GRATE TO BE DEETER #1933, EJIW #1205 MDI, OR APPROVED EQUAL.
15. FOR BEEHIVE GRATE APPLICATION, GRATE TO BE DEETER #4495, EJIW #120545, OR APPROVED EQUAL.



PRECAST
SHALLOW MANHOLE
TYPE "B"



TYPICAL MANHOLE
FLOOR SHAPING

CITY OF WICHITA
PUBLIC WORKS & UTILITIES
ENGINEERING DIVISION

PRECAST CONCRETE MANHOLE (STORM SEWER)

CITY ENGINEER
GARY JANZEN, P.E.

PROJECT NUMBER	OCA NUMBER	DATE
472-84841	760621	11/2010

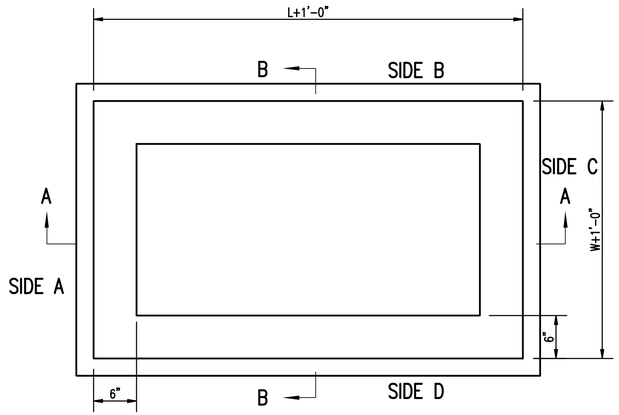
CITY ENGINEER'S OFFICE
CITY HALL - SEVENTH FLOOR
455 NORTH MAIN STREET
WICHITA, KANSAS 67202-1620
(316) 268-4501

DESIGN | DRAWN

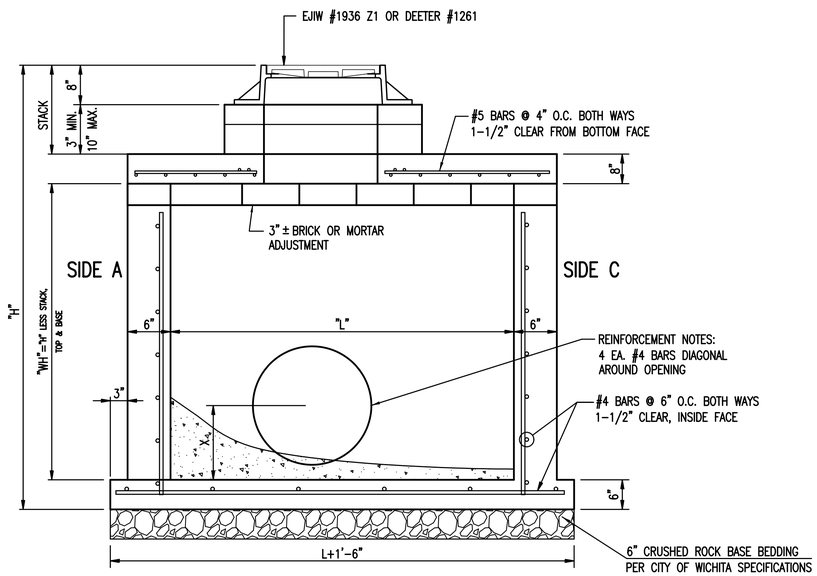
SHEET
34 of 130

SW-301

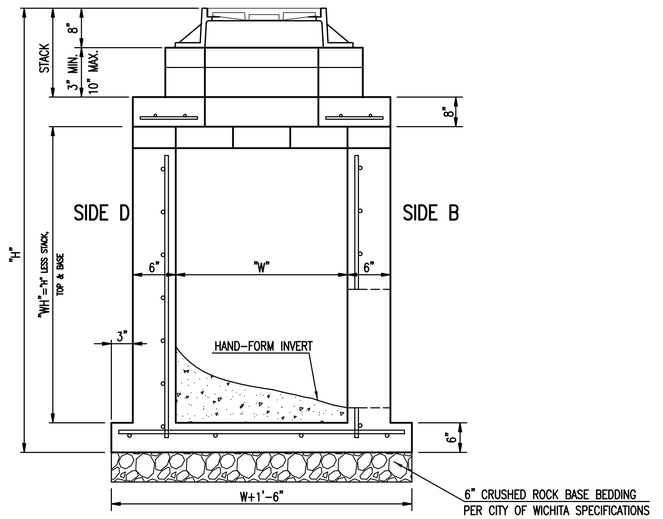
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TOP VIEW



SECTION "A-A"



SECTION "B-B"

GENERAL NOTES

1. GRATE FRAME TO BE INSTALLED ON THIN MORTAR CUSHION TO INSURE FULL SUPPORT ALONG BRICK. CONCRETE USED FOR INLET CONSTRUCTION SHALL CONFORM TO CITY OF WICHITA SPECIFICATIONS FOR CONCRETE PAVEMENT MIX.
2. INLET INVERT SHALL BE SHAPED WITH 8 SACK SAND MIX CONCRETE TO CREATE FLOW CHANNELS AND TO INCREASE HYDRAULIC EFFICIENCY SUCH THAT THE INLET WILL BE SELF CLEANING BETWEEN ALL INLET AND/OR OUTLET PIPES.
3. THE ENDS OF ALL PIPES INSTALLED IN INLETS SHALL BE CUT OFF FLUSH WITH THE INSIDE FACE OF THE INLET WALL.
4. INLET FRAME AND GRATE TO BE DEETER #1261, EJIW #1936-Z1 OR APPROVED EQUAL, SEE SW-303.
5. CONTRACTOR SHALL REMOVE LIFTING HOOKS AFTER INSTALLATION. RECESSES IN MANHOLE WALL SHALL BE GROUTED FLUSH TO THE MANHOLE WALL WITH HYDRAULIC CEMENT AFTER THE MANHOLE IS IN PLACE. LIFTING HOLES THRU THE MANHOLE WALL WILL NOT BE ACCEPTED.

CITY OF WICHITA
PUBLIC WORKS & UTILITIES
ENGINEERING DIVISION

REINFORCED CONCRETE MANHOLE (STORM SEWER)

CITY ENGINEER
GARY JANZEN, P.E.

PROJECT NUMBER	OCA NUMBER	DATE
472-84841	760621	11/2010

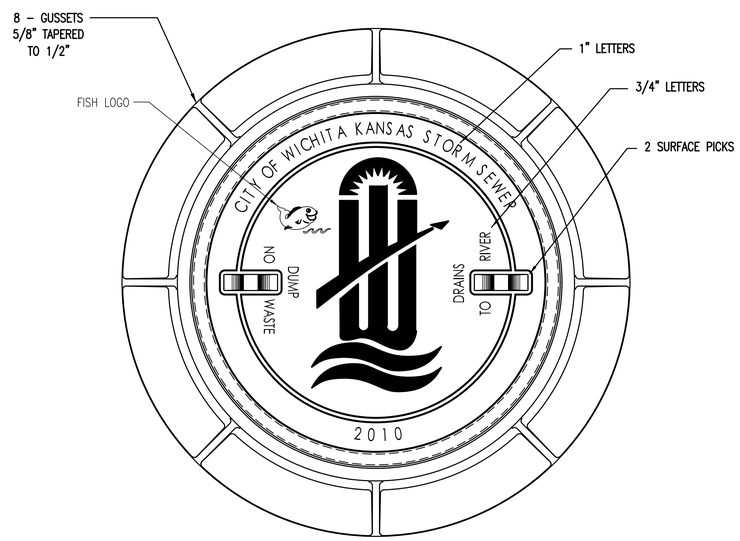
CITY ENGINEER'S OFFICE
CITY HALL - SEVENTH FLOOR
455 NORTH MAIN STREET
WICHITA, KANSAS 67202-1620
(316) 268-4501

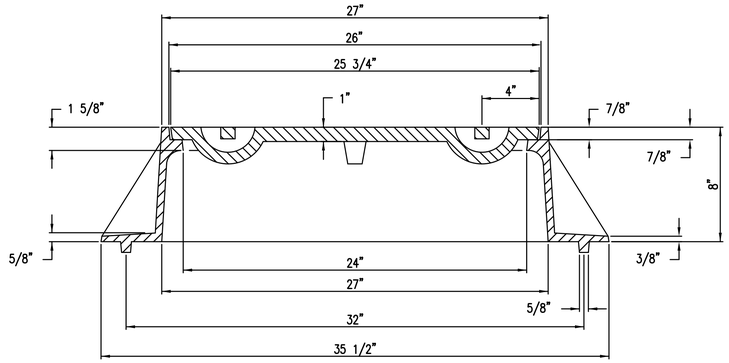
DESIGN	DRAWN

SHEET
35 of 130

SW-302

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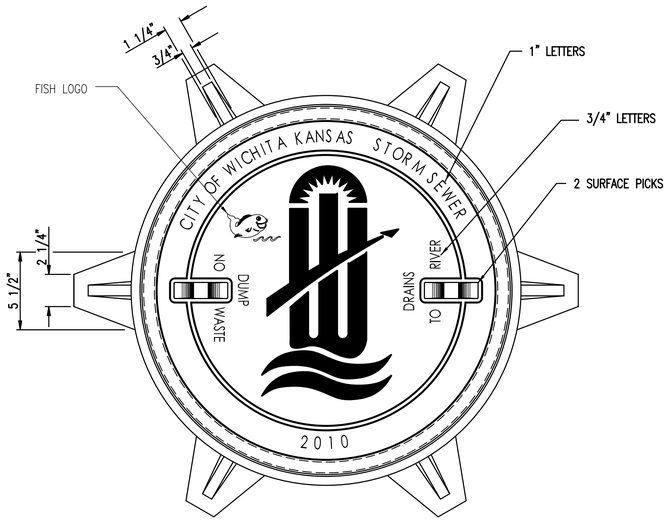


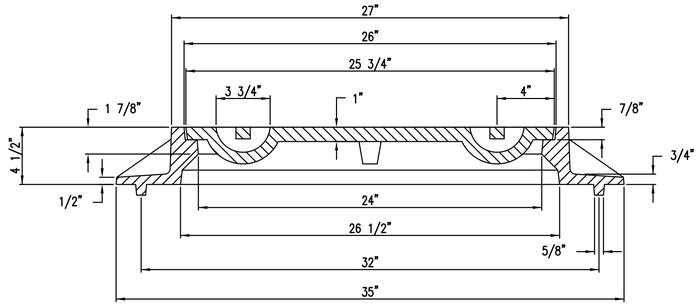


MANHOLE FRAME

DEETER #1261 OR EJIW #1936-Z1

NOTE:
1. FURNISHED WITH MACHINED HORIZONTAL BEARING SURFACE.
2. COVER TO BE DEETER #1261 OR EJIW #1936A.





INLET FRAME

DEETER #2014 OR EJIW #1936-Z4

NOTE:
1. FURNISHED WITH MACHINED HORIZONTAL BEARING SURFACES.
2. NOT TO BE USED UNDER PAVEMENT.
3. COVER TO BE DEETER #1261 OR EJIW #1936A.

CITY OF WICHITA
PUBLIC WORKS & UTILITIES
ENGINEERING DIVISION

MANHOLE/INLET FRAME AND COVER (STORM SEWER)

CITY ENGINEER
GARY JANZEN, P.E.

PROJECT NUMBER	OCA NUMBER	DATE
472-84841	760621	11/2010

CITY ENGINEER'S OFFICE
CITY HALL - SEVENTH FLOOR
455 NORTH MAIN STREET
WICHITA, KANSAS 67202-1620
(316) 268-4501

DESIGN | DRAWN

SHEET
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SW-303

Plotted By: drp Date: 7/14/2014 1:47:25 PM
FILE: i:\2008\08313\Frontage Rd South\Standards\08313-SW-303-MH-Inlet Frame & Cover.dwg

Sta. 398+62 SWS Line 400=
Sta. 485+75, 3.5' Rt. @ US-54 S. Fr. Rd.
Construct Std. Curb Inlet (Type I)
L=10'-0" W=3'-0"
See Sh. No. 31, 42, 43

409

Sta. 400+00 SWS Line 400=
Sta. 5+32.04 SWS Line 405=
Sta. 484+37, 4' Rt. @ US-54 S. Fr. Rd.
Construct Std. Curb Inlet (Type I)
L=10'-0" W=4'-0"
Install 24" x 187.0' SWS (RCP)(W)
Install 15" x 138.0' SWS (RCP)(E)
Install 34" x 53" x 32.0' SWS (RCPHE)(SE)
w/End Section (40)
Install 34" x 53" x 59.6' SWS (RCPHE)(NW)
See Sh. No. 31, 41-43, 46

402

Sta. 401+87 SWS Line 400=
Sta. 482+50, 4' Rt. @ US-54 S. Fr. Rd.
Construct Std. Curb Inlet (Type I)
L=10'-0" W=4'-0"
Install 24" x 185.0' SWS (RCP)(W)
See Sh. No. 31, 42, 43

403

Sta. 403+72 SWS Line 400=
Sta. 480+65, 4' Rt. @ US-54 S. Fr. Rd.
Construct Std. Curb Inlet (Type I)
L=10'-0" W=4'-0"
Install 18" x 163.5' SWS (RCP)(SW)
See Sh. No. 31, 42, 43

404

Sta. 405+35.52 SWS Line 400=
Sta. 479+00, 3.5' Rt. @ US-54 S. Fr. Rd.
Construct Std. Curb Inlet (Type I)
L=10'-0" W=3'-0"
Install 15" x 99.3' SWS (RCP)(SW)
See Sh. No. 31, 42, 43

405

Sta. 406+34.82 SWS Line 400=
Sta. 478+00, 3.5' Rt. @ US-54 S. Fr. Rd.
Construct Std. Curb Inlet (Type I)
L=10'-0" W=3'-0"
Install 15" x 163.5' SWS (RCP)(SW)
See Sh. No. 31, 42, 43

406

Sta. 408+59.07 SWS Line 400=
Sta. 475+75, 25.5' Lt. @ US-54 S. Fr. Rd.
Construct Std. Curb Inlet (Type I)
L=10'-0" W=3'-0"
See Sh. No. 31, 42, 43

408

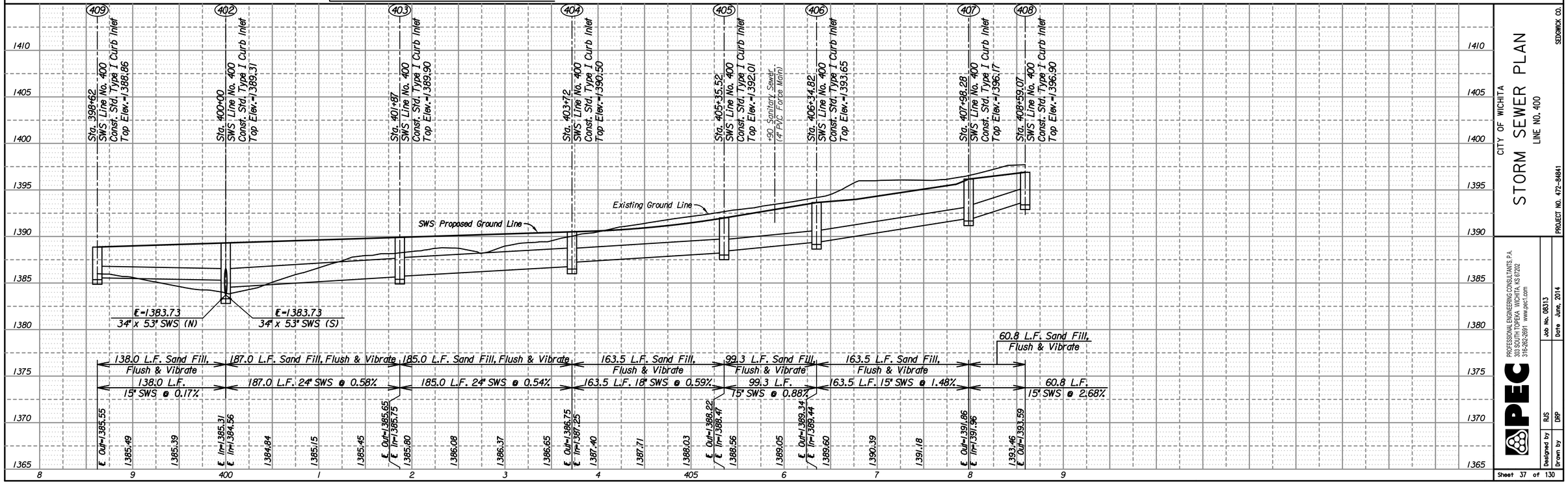
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Sta. 476+40, 25.5' Lt. @ US-54 S. Fr. Rd.
Construct Std. Curb Inlet (Type I)
L=10'-0" W=3'-0"
Install 15" x 60.8' SWS (RCP)(SW)
See Sh. No. 31, 42, 43

407

Sta. 5+00 SWS Line 410=
Sta. 5+91.65 SWS Line 405=
Sta. 484+18, 52.5' Lt. @ US-54 S. Fr. Rd.
Construct R.C. Manhole
L=7'-0" W=4'-6"
Install 30" x 15.3' SWS (RCP, ACSP, PEP, PVCP)(W)
w/End Section
Install 18" x 20.2' SWS (RCP, ACSP, PEP, PVCP)(E)
w/End Section
Connect to Exist. 24" SWS (RCP)(N)
See Sh. No. 35, 41-43, 44-50

410

Line 400 — @ US-54 South Frontage Rd.
Line 405
Line 410
411
412
401
Section Line
Exist. E.Bd. Lanes US-54
Exist. W.Bd. Lanes US-54
@ Exist. US-54
R/W & A/C
Future R/W & A/C
Temp. Esmt.
Septic Tank
David A. & Cheryl A. Calvin AT-18T-1A
City of Wichita 8" VCP
10' SS (PVC) 20' Utility Esmt.
8" PVC Force Main
Chain Link
Gravel
Asphalt
Concrete
Drive
Sign
Ditch
Creek
Overhead Elec. & TV
2-Fiber Optics Tel.
10' Waterline Esmt.
30' Drainage Esmt.
20' Utility Esmt.
Cultivated Field
United Auto Ports, Inc. D-53792
UNITED INDUSTRIAL ADDITION
NW 1/4, Sec. 35, T27S, R2W
NE 1/4, Sec. 34, T27S, R2W
@ 15/16 St. W.-Section Line
24"x46" CMP
24"x67" CMP
24"x18" CMP
15" RCP
30" RCP
2-24"x45° CMP
2-DM
2-KGS Gas (STL)
12" Water
AT&T
TMH
TMH-DM
Post
Gate
Chain Link
Fence
Future R/W & A/C
Future Rivers



CITY OF WICHITA
STORM SEWER PLAN
LINE NO. 400
SEDGWICK CO.
PROJECT NO. 472-84841

PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
303 SOUTH TOPEKA WICHITA, KS 67202
316-262-2691 www.pec1.com

PEC

Job No. 08313	
Date June, 2014	
Designed by	RJS
Drawn by	DRP

Sheet 37 of 130

Plotted By: drp Date: 7/14/2014 11:55:26 PM
FILE: I:\2008\08313\Frontage Rd South\SWS\08313-SWS400-pl-pr.dgn

Sta. 500+20.08 SWS Line 500=
Sta. 500+75, 4' Rt. @ US-54 S. Fr. Rd.
Construct Std. Curb Inlet (Type I)
L=5'-0" W=4'-0"
Install 24" x 52' SWS (RCP)(W)
See Sh. No. 31, 42, 43
502

Sta. 500+72.07 SWS Line 500=
Sta. 500+23, 4' Rt. @ US-54 S. Fr. Rd.
Construct Std. Curb Inlet (Type I)
L=10'-0" W=4'-0"
Install 24" x 73' SWS (RCP)(W)
See Sh. No. 31, 42, 43
503

Sta. 503+20.03 SWS Line 500=
Sta. 497+75, 3.5' Rt. @ US-54 S. Fr. Rd.
Construct Std. Curb Inlet (Type I)
L=10'-0" W=3'-0"
Install 18" x 175.0' SWS (RCP)(W)
See Sh. No. 31, 42, 43
505

Sta. 506+20.03 SWS Line 500=
Sta. 494+75, 3.5' Rt. @ US-54 S. Fr. Rd.
Construct Std. Curb Inlet (Type I)
L=10'-0" W=3'-0"
Install 18" x 175.0' SWS (RCP)(W)
See Sh. No. 31, 42, 43
507

Sta. 509+95.03 SWS Line 500=
Sta. 491+00, 3.5' Rt. @ US-54 S. Fr. Rd.
Construct Std. Curb Inlet (Type I)
L=10'-0" W=3'-0"
Install 15" x 175.0' SWS (RCP)(W)
See Sh. No. 31, 42, 43
509

Sta. 513+45.03 SWS Line 500=
Sta. 487+50, 3.5' Rt. @ US-54 S. Fr. Rd.
Construct Std. Curb Inlet (Type I)
L=10'-0" W=3'-0"
See Sh. No. 31, 42, 43
511

Sta. 500+00 SWS Line 500=
Sta. 600+00 SWS Line 600=
Sta. 500+95.02, 5.5' Rt. @ US-54 S. Fr. Rd.
Manhole Opening in RCB (Proj. No. 472-84840)
Install 24" x 20.1' SWS (RCP)(W)
Install 15" x 154.9' SWS (RCP)(E)
See Sh. No. 42, 43
501

Sta. 501+45.05 SWS Line 500=
Sta. 499+50, 4' Rt. @ US-54 S. Fr. Rd.
Construct Std. Curb Inlet (Type I)
L=10'-0" W=4'-0"
Install 18" x 175.0' SWS (RCP)(W)
See Sh. No. 31, 42, 43
504

Sta. 504+95.03 SWS Line 500=
Sta. 496+00, 3.5' Rt. @ US-54 S. Fr. Rd.
Construct Std. Curb Inlet (Type I)
L=10'-0" W=3'-0"
Install 18" x 125.0' SWS (RCP)(W)
See Sh. No. 31, 42, 43
506

Sta. 507+95.03 SWS Line 500=
Sta. 493+00, 3.5' Rt. @ US-54 S. Fr. Rd.
Construct Std. Curb Inlet (Type I)
L=10'-0" W=3'-0"
Install 15" x 200.0' SWS (RCP)(W)
See Sh. No. 31, 42, 43
508

Sta. 511+70.03 SWS Line 500=
Sta. 489+25, 3.5' Rt. @ US-54 S. Fr. Rd.
Construct Std. Curb Inlet (Type I)
L=10'-0" W=3'-0"
Install 15" x 175.0' SWS (RCP)(W)
See Sh. No. 31, 42, 43
510

Line 600 · Line 500 · R/W · R/W & A/C · ℄ US-54 South Frontage Rd. · ℄ Future US-54 · ℄ Exist. US-54 · Exist. E.Bd. Lanes US-54 · Exist. W.Bd. Lanes US-54 · Section Line · 1/4 Section Line · United Circle · Sedgwick County AT-790 · Chain Link · Barb Wire · Woven Wire Fence · Lagoon · Concrete · Asphalt · Gravel · Cultivated Field · 4 Strand Barb Wire · 2-Fiber Optics Tel. · 12" Water · 24"x44" CMP · 24"x48" CMP · 3'x3' RCB · 15" RCP · 8" KGS Gas (Stl.) · 2-MB · 4 Strand Barb Wire · United Auto Parts, Inc., etal AT-187

Sta. 500+20.08 SWS Line 500
SWS Line No. 500
Manhole Opening in RCB
Top Elev.=1375.64

Sta. 500+72.07 SWS Line No. 500
Const. Std. Type I Curb Inlet
Top Elev.=1375.42

Sta. 500+12.07 SWS Line No. 500
Const. Std. Type I Curb Inlet
Top Elev.=1375.30

Sta. 501+45.05 SWS Line No. 500
Const. Std. Type I Curb Inlet
Top Elev.=1375.61

Sta. 503+20.03 SWS Line No. 500
Const. Std. Type I Curb Inlet
Top Elev.=1377.98

Sta. 504+95.03 SWS Line No. 500
Const. Std. Type I Curb Inlet
Top Elev.=1380.50

Sta. 506+20.03 SWS Line No. 500
Const. Std. Type I Curb Inlet
Top Elev.=1382.30

Sta. 507+95.03 SWS Line No. 500
Const. Std. Type I Curb Inlet
Top Elev.=1384.64

Sta. 509+95.03 SWS Line No. 500
Const. Std. Type I Curb Inlet
Top Elev.=1386.80

Sta. 511+70.03 SWS Line No. 500
Const. Std. Type I Curb Inlet
Top Elev.=1387.74

Sta. 513+45.03 SWS Line No. 500
Const. Std. Type I Curb Inlet
Top Elev.=1388.30

Existing Ground Line · SWS Proposed Ground Line

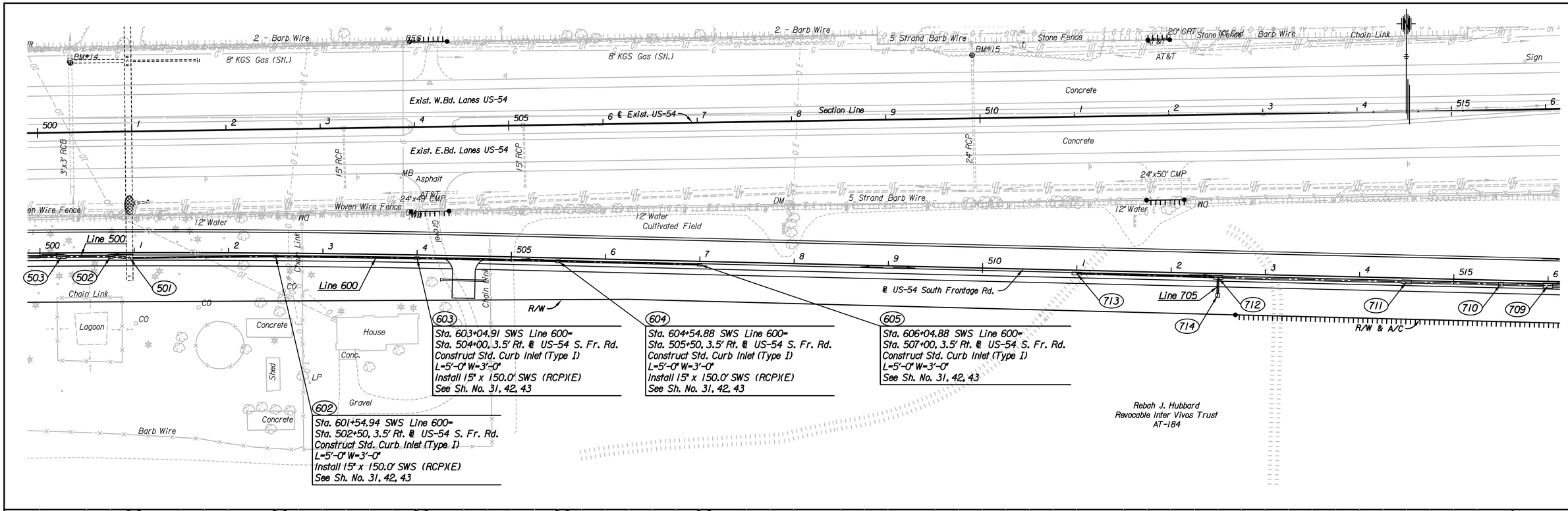
	20.1 L.F. Sand Fill, Flush & Vibrate	52.0 L.F. Sand Fill, Flush & Vibrate	73.0 L.F. Sand Fill, Flush & Vibrate	175.0 L.F. Sand Fill, Flush & Vibrate	175.0 L.F. Sand Fill, Flush & Vibrate	125.0 L.F. Sand Fill, Flush & Vibrate	175.0 L.F. Sand Fill, Flush & Vibrate	200.0 L.F. Sand Fill, Flush & Vibrate	175.0 L.F. Sand Fill, Flush & Vibrate	175.0 L.F. Sand Fill, Flush & Vibrate
	20.1 L.F.	52.0 L.F.	73.0 L.F.	175.0 L.F.	175.0 L.F.	125.0 L.F.	175.0 L.F.	200.0 L.F.	175.0 L.F.	175.0 L.F.
	24" SWS @ 5.82%	24" SWS @ 0.54%	24" SWS @ 0.29%	18" SWS @ 2.19%	18" SWS @ 1.38%	18" SWS @ 1.36%	18" SWS @ 1.28%	15" SWS @ 1.20%	15" SWS @ 0.48%	15" SWS @ 0.41%
	E Inv.=1368.00	E Inv.=1368.00	E Out=1369.55	E Out=1369.86	E Out=1374.19	E Out=1376.71	E Out=1378.51	E Out=1380.85	E Out=1383.49	E Out=1384.43
	E Out=1369.17	E Inv.=1369.27	E Inv.=1369.65	E Inv.=1370.36	E Inv.=1374.29	E Inv.=1376.81	E Inv.=1378.61	E Inv.=1381.10	E Inv.=1383.59	E Inv.=1384.53
	1369.44	1369.73	1371.52	1372.68	1373.84	1374.66	1375.39	1376.12	1376.86	1377.55
	1378.29	1378.95	1379.63	1380.31	1381.10	1381.73	1382.36	1382.99	1383.59	1383.85
	1384.10	1384.35	1384.64	1384.85	1385.07	E Out=1385.24				

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CITY OF WICHITA
STORM SEWER PLAN
LINE NO. 500

SEDGWICK CO.
PROJECT NO. 472-84841
Job No. 08313
Date June, 2014
Designed by RJS
Drawn by DRP
Sheet 38 of 130

Plotted By: drp Date: 7/14/2014 11:42:53 AM
FILE: I:\2008\08313\Frontage Rd South\SWS\08313-SWS500-pl-pr.dgn



CITY OF WICHITA

STORM SEWER PLAN

LINE NO. 600

SEDGWICK CO.

PROJECT NO. 472-84841

PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
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Job No.	08313
Date	June, 2014
Designed by	RJS
Drawn by	DRP

Plotted By: drp Date: 7/14/2014 11:42:54 AM
FILE: I:\2008\08313\Frontage Rd South\SWS\08313-SWS600-pl-pr.dgn

Sta. 703+45.91 SWS Line 700=
Sta. 521+40, 5' Rt. @ US-54 S. Fr. Rd.
Construct Std. Curb Inlet (Type I)
L=10'-0" W=6'-0"
Install 36" x 138.5' SWS (RCP)(NW)
See Sh. No. 31, 42, 43

Sta. 706+82.05 SWS Line 700=
Sta. 518+00, 4.5' Rt. @ US-54 S. Fr. Rd.
Construct Std. Curb Inlet (Type I)
L=5'-0" W=5'-0"
Install 36" x 100.0' SWS (RCP)(W)
See Sh. No. 31, 42, 43

Sta. 708+82.06 SWS Line 700=
Sta. 516+00, 4.5' Rt. @ US-54 S. Fr. Rd.
Construct Std. Curb Inlet (Type I)
L=10'-0" W=5'-0"
Install 30" x 50.0' SWS (RCP)(W)
See Sh. No. 31, 42, 43

Sta. 712+32.06 SWS Line 700=
Sta. 5+00 SWS Line 705=
Sta. 512+50, 4' Rt. @ US-54 S. Fr. Rd.
Construct Std. Curb Inlet (Type I)
L=10'-0" W=4'-0"
Install 15" x 150.0' SWS (RCP)(W)
Install 24" x 19.0' SWS (RCP, ACSP, PEP, or PVCP)(S)
See Sh. No. 31, 42, 43

Sta. 5+19 SWS Line 700=
Sta. 512+50, 23' Rt. @ US-54 S. Fr. Rd.
Construct Double Double Drop Inlet
L=4'-0" W=4'-0"
See Sh. No. 32, 41-43

Sta. 704+84.37 SWS Line 700=
Sta. 520+00, 5.5' Rt. @ US-54 S. Frt. Rd.
Construct R.C. Manhole
L=5'-0" W=5'-0" H_T=2'-3"
Install 36" x 197.7' SWS (RCP)(W)
See Sh. No. 35, 42, 43

Sta. 708+42.06 SWS Line 700=
Sta. 516+40, 4.5' Rt. @ US-54 S. Fr. Rd.
Construct Std. Curb Inlet (Type I)
L=10'-0" W=5'-0"
Install 36" x 40.0' SWS (RCP)(W)
See Sh. No. 31, 42, 43

Sta. 710+32.06 SWS Line 700=
Sta. 514+50, 4' Rt. @ US-54 S. Fr. Rd.
Construct Std. Curb Inlet (Type I)
L=10'-0" W=4'-0"
Install 30" x 200.0' SWS (RCP)(W)
See Sh. No. 31, 42, 43

Sta. 713+82.06 SWS Line 700=
Sta. 511+00, 3.5' Rt. @ US-54 S. Fr. Rd.
Construct Std. Curb Inlet (Type I)
L=10'-0" W=3'-0"
See Sh. No. 31, 42, 43

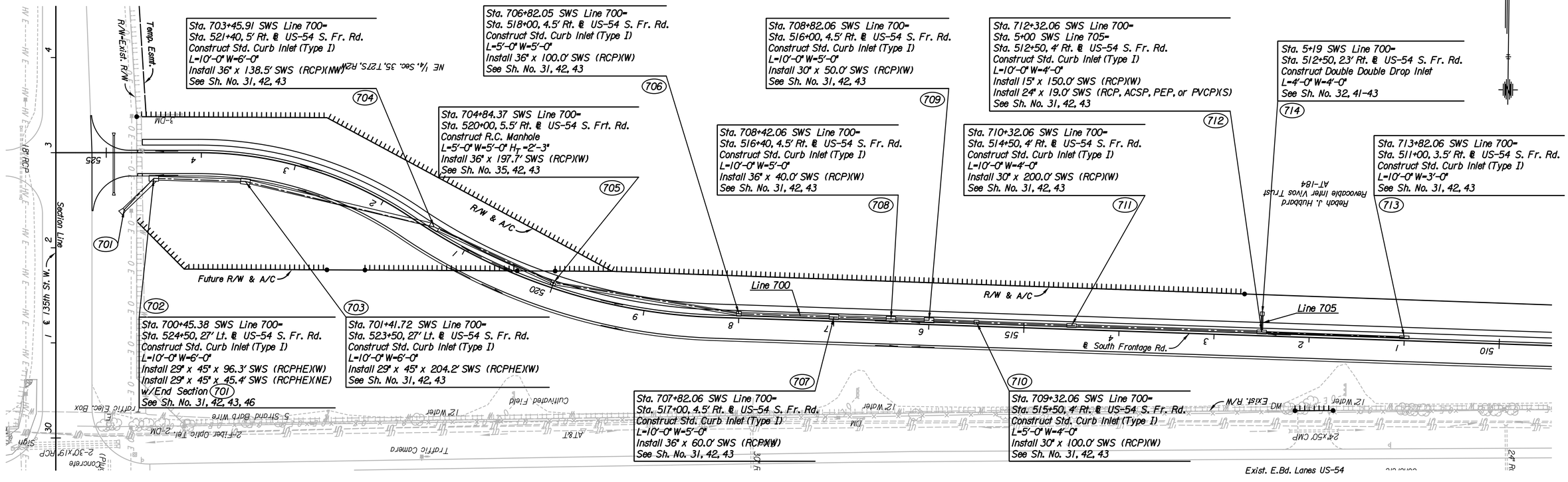
Rebah J. Hubbard
Revocable Inter Vivos Trust
AT-184

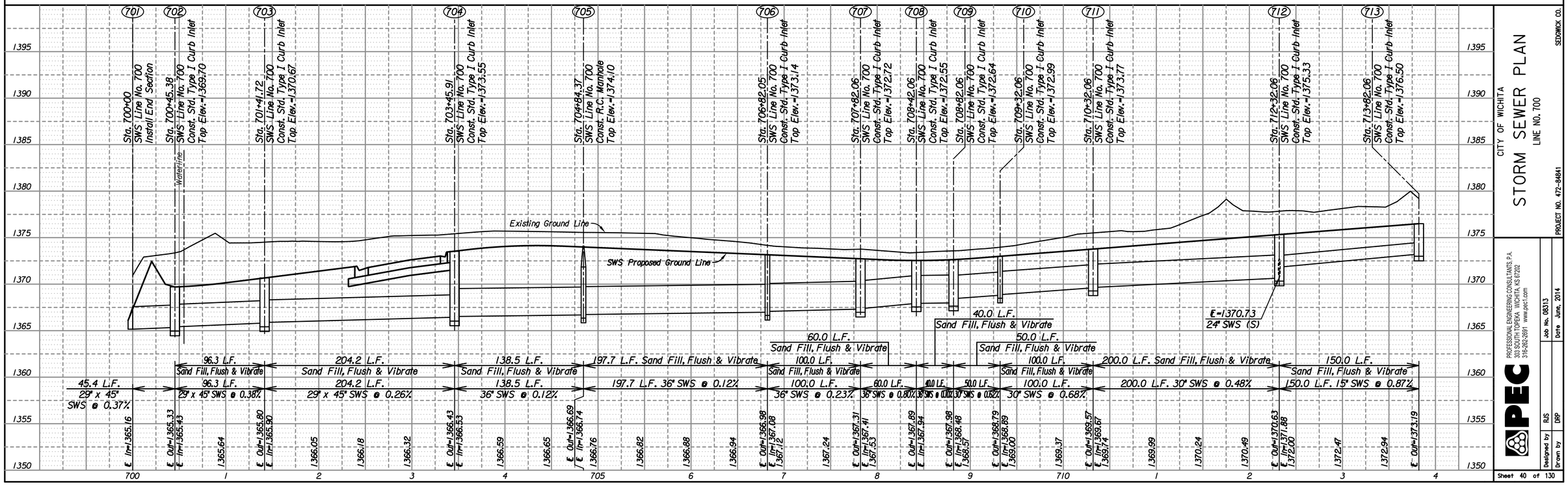
Sta. 700+45.38 SWS Line 700=
Sta. 524+50, 27' Lt. @ US-54 S. Fr. Rd.
Construct Std. Curb Inlet (Type I)
L=10'-0" W=6'-0"
Install 29" x 45" x 96.3' SWS (RCPHE)(W)
Install 29" x 45" x 45.4' SWS (RCPHE)(NE)
w/End Section (701)
See Sh. No. 31, 42, 43, 46

Sta. 701+41.72 SWS Line 700=
Sta. 523+50, 27' Lt. @ US-54 S. Fr. Rd.
Construct Std. Curb Inlet (Type I)
L=10'-0" W=6'-0"
Install 29" x 45" x 204.2' SWS (RCPHE)(W)
See Sh. No. 31, 42, 43

Sta. 707+82.06 SWS Line 700=
Sta. 517+00, 4.5' Rt. @ US-54 S. Fr. Rd.
Construct Std. Curb Inlet (Type I)
L=10'-0" W=5'-0"
Install 36" x 60.0' SWS (RCP)(W)
See Sh. No. 31, 42, 43

Sta. 709+32.06 SWS Line 700=
Sta. 515+50, 4' Rt. @ US-54 S. Fr. Rd.
Construct Std. Curb Inlet (Type I)
L=5'-0" W=4'-0"
Install 30" x 100.0' SWS (RCP)(W)
See Sh. No. 31, 42, 43





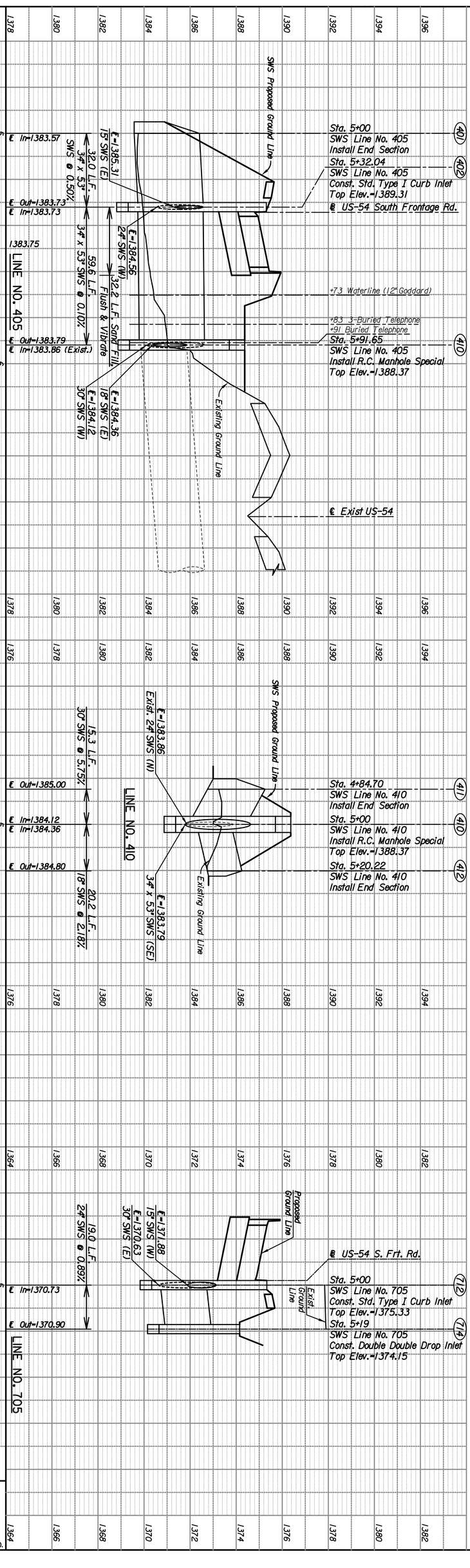
CITY OF WICHITA
STORM SEWER PLAN
LINE NO. 700
SEDGWICK CO.
PROJECT NO. 472-84841

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Job No. 08313
Date June, 2014
Designed by RJS
Drawn by DRP

Plotted By: drp Date: 7/14/2014 11:42:55 AM
FILE: I:\2008\08313\Frontage Rd South\SWS\08313-SWS700-pl-pr.dgn

Plotted By: drp Date: 7/14/2014 11:42:56 AM
FILE: I:\2008\08313\Frontage Rd South\SWS\08313-SWS-X-Road.dgn



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316-262-2691 www.pec1.com

Designed by	RJS	Job No. 08313
Drawn by	DRP	Date June, 2014

CITY OF WICHITA

STORM SEWER PLAN

LINE NO. 405, 410, 705

PROJECT NO. 472-84841 SEDGWICK CO.

Sheet 41 of 130

INLET AND MANHOLE DATA

ROUTING SEQUENCE		LOCATIONS OF INSTALLATIONS					CONSTRUCT OR INSTALL							DIMENSIONS				ELEVATIONS		INFLOW CONDUITS						OUTFLOW CONDUIT		FOR INFORMATION ONLY					REMARKS
FROM	TO	STATION	ROUTE IDENTIFICATION	DISTANCE LEFT/RIGHT	NORTH COORDINATE	EAST COORDINATE	INLET (TYPE I)	RCB MANHOLE OPENING	RC MANHOLE	DOUBLE DOUBLE DROP INLET	END SECTION			L (FT.)	W (FT.)	H (FT.)	H_T (FT.)	TOP⊛	FLOOR	SIZE DIRECT.	FLOWLINE ELEV.	SIZE DIRECT.	FLOWLINE ELEV.	SIZE DIRECT.	FLOWLINE ELEV.	SIZE DIRECTION	FLOWLINE ELEV.	CLASS III EXC. (CU. YD.)	CAST IRON (LBS.)	STRUCT. STEEL (LBS.)	REINF. STEEL (LBS.)	CONC. (MISC.) GRADE 3.0 (CU. YD.)	
401	—	484+46.00	South Fr. Rd.	34.75' Rt.	1,677,089.8238	1,598,292.9900					✳									34" x 53" (NW)	1383.57											
402	401	484+37.00	South Fr. Rd.	4.00' Rt.	1,677,120.4163	1,598,283.4685	1							10.00	4.00	6.50		1389.31	1383.31	15" (E)	1385.31	24" (W)	1384.56	34" x 53" (NW)	1383.73	34" x 53" (SE)	1383.73						
403	402	482+50.00	South Fr. Rd.	4.00' Rt.	1,677,117.2370	1,598,096.4955	1							10.00	4.00	5.00		1389.90	1385.40	24" (W)	1385.75					24" (E)	1385.65						
404	403	480+65.00	South Fr. Rd.	4.00' Rt.	1,677,114.0917	1,597,911.5223	1							10.00	4.00	4.50		1390.50	1386.50	18" (SW)	1387.25					24" (E)	1386.75						
405	404	479+00.00	South Fr. Rd.	3.50' Rt.	1,677,091.7821	1,597,749.5302	1							10.00	3.00	4.50		1392.01	1388.01	15" (SW)	1388.47					18" (NE)	1388.22						
406	405	478+00.00	South Fr. Rd.	3.50' Rt.	1,677,056.7671	1,597,656.6068	1							10.00	3.00	5.00		1393.65	1389.15	15" (SW)	1389.44					15" (NE)	1389.34						
407	406	476+40.00	South Fr. Rd.	25.50' Lt.	1,676,993.7501	1,597,505.7821	1							10.00	3.00	5.00		1396.17	1391.67	15" (SW)	1391.96					15" (NE)	1391.86						
408	407	475+75.00	South Fr. Rd.	25.50' Lt.	1,676,961.4022	1,597,454.3141	1							10.00	3.00	4.00		1396.90	1393.40							15" (NE)	1393.59						
409	402	485+75.00	South Fr. Rd.	3.50' Rt.	1,677,123.2624	1,598,421.4400	1							10.00	3.00	4.00		1388.86	1385.36							15" (W)	1385.55						
410	402	484+18.00	South Fr. Rd.	52.50' Lt.	1,677,176.5851	1,598,263.5107			Ⓣ 1					7.00	4.50	5.50	0.00	1388.37	1383.37	18" (E)	1384.36	Ex 24" (N)	1383.86	30" (W)	1384.12	34" x 53" (SE)	1383.79						Connect to Exist. RCP
411	410	484+03.00	South Fr. Rd.	49.50' Lt.	1,677,173.3305	1,598,248.5638					✳															30" (E)	1385.00						
412	410	484+38.00	South Fr. Rd.	49.50' Lt.	1,677,173.9256	1,598,283.5588					✳															18" (W)	1384.80						
501	—	500+95.02	South Fr. Rd.	5.50' Rt.	1,677,145.5694	1,599,941.2264		† 1						2.17	2.17	3.50	2.33	1375.64	—	15" (E)	1368.75	24" (W)	1368.00										MH Opening in RCB
502	501	500+75.00	South Fr. Rd.	4.00' Rt.	1,677,146.9949	1,599,921.1974	1							5.00	4.00	7.00		1375.42	1368.92	24" (W)	1369.27					24" (E)	1369.17						
503	502	500+23.00	South Fr. Rd.	4.00' Rt.	1,677,146.6833	1,599,869.2114	1							10.00	4.00	6.50		1375.30	1369.30	24" (W)	1369.65					24" (E)	1369.55						
504	503	499+50.00	South Fr. Rd.	4.00' Rt.	1,677,145.9586	1,599,796.2335	1							10.00	4.00	6.50		1375.61	1369.61	18" (W)	1370.36					24" (E)	1369.86						
505	504	497+75.00	South Fr. Rd.	3.50' Rt.	1,677,143.6643	1,599,621.2666	1							10.00	3.00	4.50		1377.98	1373.98	18" (W)	1374.29					18" (E)	1374.19						
506	505	496+00.00	South Fr. Rd.	3.50' Rt.	1,677,140.6890	1,599,446.2919	1							10.00	3.00	4.50		1380.50	1376.50	18" (W)	1376.81					18" (E)	1376.71						
507	506	494+75.00	South Fr. Rd.	3.50' Rt.	1,677,138.5638	1,599,321.3100	1							10.00	3.00	4.50		1382.30	1378.30	18" (W)	1378.61					18" (E)	1378.51						
508	507	493+00.00	South Fr. Rd.	3.50' Rt.	1,677,135.5886	1,599,146.3353	1							10.00	3.00	4.50		1384.64	1380.64	15" (W)	1381.10					18" (E)	1380.85						
509	508	491+00.00	South Fr. Rd.	3.50' Rt.	1,677,132.1883	1,598,946.3642	1							10.00	3.00	4.00		1386.80	1383.30	15" (W)	1383.59					15" (E)	1383.49						
510	509	489+25.00	South Fr. Rd.	3.50' Rt.	1,677,129.2130	1,598,771.3895	1							10.00	3.00	4.00		1387.74	1384.24	15" (W)	1384.53					15" (E)	1384.43						
511	510	487+50.00	South Fr. Rd.	3.50' Rt.	1,677,126.2377	1,598,596.4148	1							10.00	3.00	3.75		1388.30	1385.05							15" (E)	1385.24						
602	501	502+50.00	South Fr. Rd.	3.50' Rt.	1,677,147.2923	1,600,096.1556	1							5.00	3.00	5.00		1375.98	1371.48	15" (E)	1371.77					15" (W)	1371.67						
603	602	504+00.00	South Fr. Rd.	3.50' Rt.	1,677,145.5834	1,600,246.1122	1							5.00	3.00	4.50		1376.46	1372.46	15" (E)	1372.75					15" (W)	1372.65						
604	603	505+50.00	South Fr. Rd.	3.50' Rt.	1,677,142.5438	1,600,396.0596	1							5.00	3.00	4.00		1376.94	1373.44	15" (E)	1373.73					15" (W)	1373.63						
605	604	507+00.00	South Fr. Rd.	3.50' Rt.	1,677,139.2039	1,600,546.0224	1							5.00	3.00	3.75		1377.42	1374.17							15" (W)	1374.36						
701	—	524+81.15	South Fr. Rd.	60.00' Lt.	1,677,011.7676	1,602,293.2634					✳									29" x 45" (SW)	1365.16											
702	701	524+50.00	South Fr. Rd.	27.00' Lt.	1,676,978.4092	1,602,262.4960	1							10.00	6.00	5.25		1369.70	1364.95	29" x 45" (W)	1365.43					29" x 45" (NE)	1365.33						
703	702	523+50.00	South Fr. Rd.	27.00' Lt.	1,676,980.5626	1,602,166.1857	1							10.00	6.00	5.75		1370.67	1365.42	29" x 45" (W)	1365.90					29" x 45" (E)	1365.80						
704	703	521+40.00	South Fr. Rd.	5.00' Rt.	1,677,026.1611	1,601,967.1438	1							10.00	6.00	8.00		1373.55	1366.05	36" (NW)	1366.53					29" x 45" (E)	1366.43						
705	704	520+00.00	South Fr. Rd.	5.50' Rt.	1,677,083.4103	1,601,841.0721			1					5.00	5.00	8.25	2.25	1374.10	1366.35	36" (NW)	1366.74					36" (SE)	1366.69						
706	705	518+00.00	South Fr. Rd.	4.50' Rt.	1,677,113.7120	1,601,645.7282	1							5.00	5.00	7.00		1373.14	1366.64	36" (W)	1367.08					36" (SE)	1366.98						
707	706	517+00.00	South Fr. Rd.	4.50' Rt.	1,677,115.9385	1,601,545.7522	1							10.00	5.00	6.25		1372.72	1366.97	36" (W)	1367.41					36" (E)	1367.31						
708	707	516+40.00	South Fr. Rd.	4.50' Rt.	1,677,117.2744	1,601,485.7671	1							10.00	5.00	5.50		1372.55	1367.55	36" (W)	1367.94					36" (E)	1367.89						
709	708	516+00.00	South Fr. Rd.	4.50' Rt.	1,677,118.1650	1,601,445.7770	1							10.00	5.00	5.50		1372.64	1367.64	30" (W)	1368.48					36" (E)	1367.98						
710	709	515+50.00	South Fr. Rd.	4.00' Rt.	1,677,119.7782	1,601,395.8006	1							5.00	4.00	5.00		1372.99	1368.49	30" (W)	1368.89					30" (E)	1368.79						
711	710	514+50.00	South Fr. Rd.	4.00' Rt.	1,677,122.0048	1,601,295.8254	1							10.00	4.00	5.00		1373.77	1369.27	30" (W)	1369.67					30" (E)	1369.57						
712	711	512+50.00	South Fr. Rd.	4.00' Rt.	1,677,126.4579	1,601,095.8749	1							10.00	4.00	5.50		1375.33	1370.33	15" (W)	1371.88	24" (S)	1370.73			30" (E)	1370.63						
713	712	511+00.00	South Fr. Rd.	3.50' Rt.	1,677,130.2977	1,600,945.9233	1							10.00	3.00	4.00		1376.50	1373.00							15" (E)	1373.19						
714	712	512+50.00	South Fr. Rd.	23.00' Rt.	1,677,107.4626	1,601,095.4519				1				4.00	4.00	4.00		1374.15	1370.65							24" (N)	1370.90						
TOTALS							33	1	2	1	✳	✳ End Sections are recapitulated with the conduits on Sh. No. 43																				

† RCB Manhole Opening Installed with City of Wichita Proj. No. 472-84840

Ⓣ No Stack. Frame (Deeter #2014 or EJW #1936-Z4) shall be cast in the top slab of manhole.

⊛ Note: Top Elevation is located as follows:
1. Manhole - Top of Manhole Ring.
2. Curb Inlet - Top of Curb
3. Area Inlet - Top of Grate

GENERAL NOTE:
The quantities, dimensions, and flowlines given on this sheet are to be used if the following types of "SMOOTH PIPES" are furnished: RCP, VCP - ES, BCCMP - FP, RCPHE.

No.	Revision	By	Date

CITY OF WICHITA

SCHEDULE OF INLETS AND MANHOLES

PROJECT NO. 472-84841 SEDGWICK CO.

PEC PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
303 SOUTH TOPEKA WICHITA, KS 67202
316-262-2691 www.pec1.com

Designed by	RJS	Job No.	08313	Sht. 42 of 130
Drawn by	DRP	Date	June, 2014	

Plotted By: drp Date: 7/14/2014 11:42:57 AM
FILE: i:\2008\08313\Frontage Rd South\SWS\08313-Schedule1.dgn

CONDUIT DATA

ROUTING SEQUENCE		LOCATIONS OF INSTALLATIONS			CONSTRUCT OR INSTALL			CONDUIT FLOWLINES		SEWER EXCAVATION		STORM SEWER (LIN. FT.)								END SECTIONS (EACH)					CONC. HEADWALLS (EACH)						AASHTO CONC. CLASS	SAND FILL, FLUSH, AND VIBRATE (L.F.)	REMARKS
FROM	TO	STATION	ROUTE IDENTIFICATION	DISTANCE LEFT/RIGHT	TYPE OF CONDUIT SIZE	TYPE OF CONDUIT MATERIAL	LENGTH (L.F.)	INFLOW ELEV.	OUTFLOW ELEV.	ROCK (CU. YD.)	COMMON (CU. YD.)	15"	18"	24"	30"	36"	29"x45"	34"x53"		18"	30"	29"X45"	34"X53"										
402	401	484+37.00	South Fr. Rd.	4.00' Rt.	34" x 53"	RCPHE	32.0	1383.73	1383.57									32.0					1									
403	402	482+50.00	South Fr. Rd.	4.00' Rt.	24"	RCP	187.0	1385.65	1384.56					187.0																	187.0	
404	403	480+65.00	South Fr. Rd.	4.00' Rt.	24"	RCP	185.0	1386.75	1385.75					185.0																	185.0	
405	404	479+00.00	South Fr. Rd.	3.50' Rt.	18"	RCP	163.5	1388.22	1387.25				163.5																		163.5	
406	405	478+00.00	South Fr. Rd.	3.50' Rt.	15"	RCP	99.3	1389.34	1388.47			99.3																			99.3	
407	406	476+40.00	South Fr. Rd.	25.50' Lt.	15"	RCP	163.5	1391.86	1389.44			163.5																			163.5	
408	407	475+75.00	South Fr. Rd.	25.50' Lt.	15"	RCP	60.8	1393.53	1391.96			60.8																			60.8	
409	402	485+75.00	South Fr. Rd.	3.50' Rt.	15"	RCP	138.0	1385.55	1385.31			138.0																			138.0	
410	402	484+18.00	South Fr. Rd.	52.50' Lt.	34" x 53"	RCPHE	59.6	1383.79	1383.73									59.6													32.2	
411	410	484+03.00	South Fr. Rd.	49.50' Lt.	30"	ACSP,PEP,PVCP,RCP	15.3	1385.00	1384.12						15.3						1											
412	410	484+38.00	South Fr. Rd.	49.50' Lt.	18"	ACSP,PEP,PVCP,RCP	20.2	1384.80	1384.36				20.2							1												
502	501	500+75.00	South Fr. Rd.	4.00' Rt.	24"	RCP	20.1	1369.17	1368.00					20.1																	20.1	Connect to RCB
503	502	500+23.00	South Fr. Rd.	4.00' Rt.	24"	RCP	52.0	1369.55	1369.27					52.0																	52.0	
504	503	499+50.00	South Fr. Rd.	4.00' Rt.	24"	RCP	73.0	1369.86	1369.65					73.0																	73.0	
505	504	497+75.00	South Fr. Rd.	3.50' Rt.	18"	RCP	175.0	1374.19	1370.36				175.0																		175.0	
506	505	496+00.00	South Fr. Rd.	3.50' Rt.	18"	RCP	175.0	1376.71	1374.29				175.0																		175.0	
507	506	494+75.00	South Fr. Rd.	3.50' Rt.	18"	RCP	125.0	1378.51	1376.81				125.0																		125.0	
508	507	493+00.00	South Fr. Rd.	3.50' Rt.	18"	RCP	175.0	1380.85	1378.61				175.0																		175.0	
509	508	491+00.00	South Fr. Rd.	3.50' Rt.	15"	RCP	200.0	1383.49	1381.10			200.0																			200.0	
510	509	489+25.00	South Fr. Rd.	3.50' Rt.	15"	RCP	175.0	1384.43	1383.59			175.0																			175.0	
511	510	487+50.00	South Fr. Rd.	3.50' Rt.	15"	RCP	175.0	1385.24	1384.53			175.0																			175.0	
602	501	502+50.00	South Fr. Rd.	3.50' Rt.	15"	RCP	154.9	1371.67	1368.75			154.9																			154.9	Connect to RCB
603	602	504+00.00	South Fr. Rd.	3.50' Rt.	15"	RCP	150.0	1372.65	1371.77			150.0																			150.0	
604	603	505+50.00	South Fr. Rd.	3.50' Rt.	15"	RCP	150.0	1373.63	1372.75			150.0																			150.0	
605	604	507+00.00	South Fr. Rd.	3.50' Rt.	15"	RCP	150.0	1374.36	1373.73			150.0																			150.0	
702	701	524+50.00	South Fr. Rd.	27.00' Lt.	29" x 45"	RCPHE	45.4	1365.33	1365.16								45.4					1										
703	702	523+50.00	South Fr. Rd.	27.00' Lt.	29" x 45"	RCPHE	96.3	1365.80	1365.43								96.3														96.3	
704	703	521+40.00	South Fr. Rd.	5.00' Rt.	29" x 45"	RCPHE	204.2	1366.43	1365.90								204.2														204.2	
705	704	520+00.00	South Fr. Rd.	5.50' Rt.	36"	RCP	138.5	1366.69	1366.53							138.5															138.5	
706	705	518+00.00	South Fr. Rd.	4.50' Rt.	36"	RCP	197.7	1366.98	1366.74							197.7															197.7	
707	706	517+00.00	South Fr. Rd.	4.50' Rt.	36"	RCP	100.0	1367.31	1367.08							100.0															100.0	
708	707	516+40.00	South Fr. Rd.	4.50' Rt.	36"	RCP	60.0	1367.89	1367.41							60.0															60.0	
709	708	516+00.00	South Fr. Rd.	4.50' Rt.	36"	RCP	40.0	1367.98	1367.94							40.0															40.0	
710	709	515+50.00	South Fr. Rd.	4.00' Rt.	30"	RCP	50.0	1368.79	1368.48						50.0																50.0	
711	710	514+50.00	South Fr. Rd.	4.00' Rt.	30"	RCP	100.0	1369.57	1368.89						100.0																100.0	
712	711	512+50.00	South Fr. Rd.	4.00' Rt.	30"	RCP	200.0	1370.63	1369.67						200.0																200.0	
713	712	511+00.00	South Fr. Rd.	3.50' Rt.	15"	RCP	150.0	1373.19	1371.88			150.0																			150.0	
714	712	512+50.00	South Fr. Rd.	23.00' Rt.	24"	ACSP,PEP,PVCP,RCP	19.0	1370.90	1370.73					19.0																		
TOTALS												1766.5	833.7	536.1	365.3	536.2	345.9	91.6		1	1	1	1								4316.0	

The use of Aluminized Corrugated Steel Pipe (ACSP) will only be approved after the Contractor submits verification that ACSP meets KDOT Pipe Policy service life criteria. Prior to using ACSP on this project, the Contractor will need to submit to the Engineer the certified lab reports for the soil and water ph and resistivity values as well as determine the resulting service life value based on instructions in the KDOT Pipe Policy for each pipe location. All work, labor, materials and incidentals for this evaluation shall be subsidiary.

THE PIPES ON THIS PROJECT ARE IN ACCORDANCE WITH THE CURRENT KDOT PIPE POLICY OR LOCAL PIPE POLICY THAT HAS BEEN APPROVED BY KDOT. ALL PIPES SHALL BE INSTALLED PER THE MANUFACTURER'S SPECIFICATIONS.

GENERAL NOTE:
The quantities, dimensions, and flowlines given on this sheet are to be used if the following types of "SMOOTH PIPES" are furnished: RCP,VCP - ES, BCCMP - FP, RCPHE.

No.	Revision	By	Date

CITY OF WICHITA

SCHEDULE OF INLETS AND MANHOLES

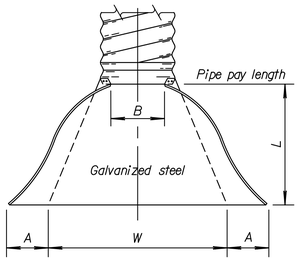
PROJECT NO. 472-84841 SEDGWICK CO.

PEC
PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
303 SOUTH TOPEKA WICHITA, KS 67202
316-262-2691 www.pec1.com

Designed by	RJS	Job No.	08313	Sht. 43 of 130
Drawn by	DRP	Date	June, 2014	

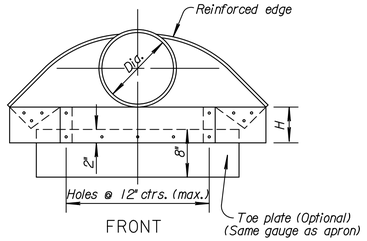
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STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	KA 2285-01	2014	44	130

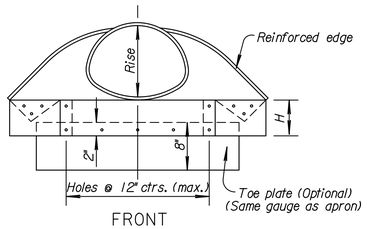


PLAN

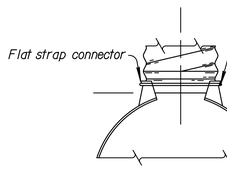
(Illustrated with Type #3 Connection)



FRONT

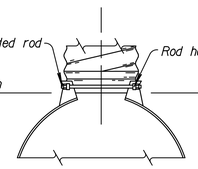


FRONT



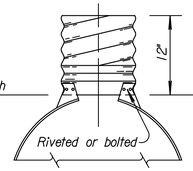
TYPE 1

Available in sizes 12" through 24" only.



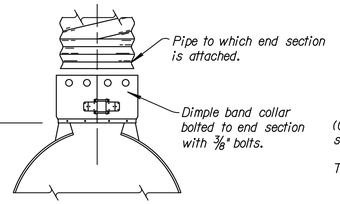
TYPE 2

Available in sizes 30" and 36" Round and 17"x13" through 57"x38" Pipe-Arches.



TYPE 3

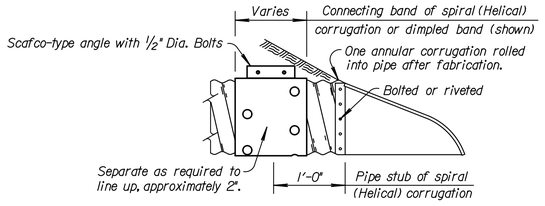
Available in sizes 42" through 96" Round and 60"x46" through 81"x59" Pipe-Arches.



TYPE 5

Available for all Round and equivalent Pipe-Arch sizes, (Type 1 and Type 2 connections are recommended for the smaller sizes with annular ends).

Note: Type 3 connection may be furnished instead of Type 1 or Type 2 for smaller round or arch pipe.



SPIRAL (HELICAL) CORRUGATION

For all sizes of round and arch culvert pipes having Spiral (Helical) corrugations, the end sections and connecting bands shall be as shown above.

Thickness CSP/ACSP	Thickness CAP	Gauge
0.064"	0.060"	16 ga.
0.079"	0.075"	14 ga.
0.109"	0.105"	12 ga.
0.138"	0.135"	10 ga.
0.168"	0.164"	8 ga.

Pipe Dia. (In.)	CS,ACS or CA Gauge	Dimensions in Inches A (min.)	B (max.)	H (min.)	L (+/-2")	W (min.)	Approx. Slope
12"	16	5	7	6	21	22	2½:1
15"	16	6	8	6	26	28	2½:1
18"	16	7	10	6	31	34	2½:1
21"	16	8	12	6	36	40	2½:1
24"	16	9	13	6	41	46	2½:1
30"	14	11	16	8	51	55	2½:1
36"	14	13	19	9	60	70	2½:1
42"	12	15	25	10	69	82	2½:1
48"	12	17	29	12	78	88	2¼:1
54"	12	17	33	12	84	100	2¼:1
60"	12/10	17	36	12	87	112	2:1
66"	12/10	17	39	12	87	118	2:1
72"	12/10	17	44	12	87	120	2:1
78"	12/10	17	48	12	87	130	1½:1
84"	12/10	17	52	12	87	136	1½:1
90"	12/10	17	58	12	87	142	1½:1
96"	12/10	17	58	12	87	144	1½:1

Bid Designation Sq. Ft.	Nom. W.W. Area Sq. Ft.	Pipe Arch Span & Rise	Dimensions in Inches 2⅔"x ½" Corrugations CS,ACS or CA Gauge	A (min.)	B (max.)	H (min.)	L (+/-2")	W (min.)	Dimensions in Inches 3" x 1" or 5" x 1" Corr. CS,ACS or CA Gauge	A (min.)	B (max.)	H (min.)	L (+/-2")	W (min.)	Approx. Slope
1.0	1.1	17" x 13"	16	5	9	6	20	28							2½:1
1.5	1.6	21" x 15"	16	6	11	6	24	34							2½:1
2.0	2.2	24" x 18"	16	7	12	6	28	40							2½:1
2.5	2.9	28" x 20"	16	7	16	6	32	46							2½:1
3.0 or 4.0	4.5	35" x 24"	14	9	16	6	39	58							2½:1
5.0 or 6.0	6.5	42" x 29"	14	11	18	7	46	73							2½:1
7.0 or 8.5	8.9	49" x 33"	12	12	21	9	53	82							2½:1
10.0 or 11.0	11.7	53" x 41"							12	17	26	12	63	88	2 :1
10.0 or 11.0	11.6	57" x 38"	12	16	26	12	62	88							2 :1
12.5 or 14.0	15.6	60" x 46"							12	17	36	12	70	100	2 :1
12.5 or 14.0	14.7	64" x 43"	12	17	30	12	69	100							2 :1
16.5	19.3	66" x 51"							12/10	17	36	12	70	112	1½:1
16.5	18.1	71" x 47"	12/10	17	36	12	77	112							1½:1
21.0	23.2	73" x 55"							12/10	17	36	12	77	124	1½:1
21.0	21.9	77" x 52"	12/10	17	36	12	77	124							1½:1
25.0	27.4	81" x 59"							12/10	17	44	12	77	136	1½:1
25.0	26.0	83" x 57"	12/10	17	44	12	77	130							1½:1
32.0	32.1	87" x 63"							12/10	17	44	12	77	136	1½:1
36.0	37.0	95" x 67"							12/10	17	44	12	87	160	1½:1
42.0	42.4	103" x 71"							12/10	17	44	12	87	172	1½:1
47.0	48.0	112" x 75"							12/10	17	44	12	87	172	1½:1

(Information listed in these tables are nominal and may vary by manufacturer.)

GENERAL NOTE for END SECTIONS

End section material shall follow KDOT Pipe Policy for geographic location. Location shall govern use of CS (Galvanized), ACS (Aluminized) or CA (Aluminum) (Type I) End Section. Pipe material and End Section material shall be the same with no mixing of types per location.

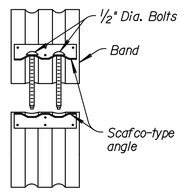
Toe plate extension, when specified, is an accessory and shall be the same gauge and metal as end section. Toe plate shall be punched to match holes in apron lip and attached with furnished ⅜" diameter nuts & bolts.

W + 10" for 12" to 30" diameter pipes inclusive.
W + 20" for 36" to 84" diameter pipes inclusive.
W + 10" for pipe-arches with a rise of 13" to 29" inclusive.
W + 20" for pipe-arches with a rise of 33" to 59" inclusive.

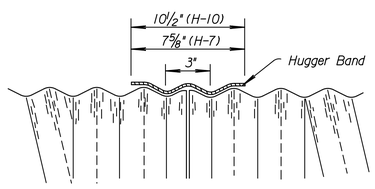
Multiple panel end sections may contain dual gauges of like metal and shall have lap seams which are tightly joined with rivets or bolts. For 60" and larger diameter round pipe end sections and 77"x52" arch pipe end sections, the reinforced edges are supplemented with stiffener angles. The angles are attached with nuts and bolts. Angle reinforcement may be required uder the center panel seams of 73"x55" and larger arch pipe end sections depending on manufacturer.

Other approved designs may be used in lieu of type shown.

Connection of end sections by welding will not be permitted.

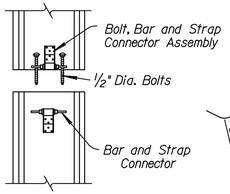


CONNECTION DETAIL
H-7 or H-10 BAND

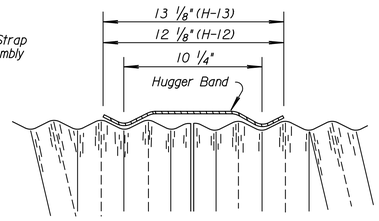


UNIVERSAL REFORMED END with
H-7 or H-10 HUGGER BAND

DETAILS FOR H-7 HUGGER BAND (12" thru 36")
or H-10 HUGGER BAND (12" thru 120")

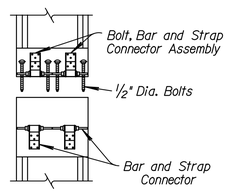


CONNECTION DETAIL
SINGLE HARNESS



UNIVERSAL REFORMED END with
HUGGER BAND

DETAILS FOR H-12 or H-13 HUGGER BAND



CONNECTION DETAIL
DOUBLE HARNESS

Pipe Dia. Inches	Minimum Gauge of Round Pipe 2⅔"x ½" Corr. CSP or ACSP	3" x 1" Corr. CSP or ACSP	5" x 1" Corr. CSP or ACSP	2⅔"x ½" Corr. CAP	3" x 1" Corr. CAP
12"	14			16	
15"	14			16	
18"	14			16	
21"	14			16	
24"	14			16	
30"	14			14	
36"	14			14	16
42"	14			12	16
48"	12	14 16	14 16	12	16
54"	12	14 16	14 16	12	16
60"	10	14 16	14 16	10	16
66"	10	14 16	14 16	8	16
72"	10	14 16	14 16	8	16
78"	8	14 14	14 14		14
84"	8	14 14	14 14		12
90"		14 14	14 14		12
96"		12 12	12 12		12
102"		12 12	12 12		10
108"		12 12	12 12		10
114"		12 12	12 12		8
120"		10 10	10 10		8

Bid Designation Sq. Ft.	Pipe Dimension Span & Rise	Sq. Ft.	Equiv. Round Pipe Diameter	Minimum Gauge of Arch Pipe 2⅔"x ½" Corr. CSP or ACSP	3" x 1" Corr. CSP or ACSP	5" x 1" Corr. CSP or ACSP	2⅔"x ½" Corr. CAP	3" x 1" Corr. CAP
1.0	17" x 13"	1.1	15"	14			16	
1.5	21" x 15"	1.6	18"	14			16	
2.0	24" x 18"	2.2	21"	14			16	
2.5	28" x 20"	2.9	24"	14			14	
3.0 or 4.0	35" x 24"	4.5	30"	14			14	
5.0 or 6.0	42" x 29"	6.5	36"	14			12	
7.0 or 8.5	49" x 33"	8.9	42"	14			12	
10.0 or 11.0	53" x 41"	11.7	48"		14			
10.0 or 11.0	57" x 38"	11.6	48"	12			10	
12.5 or 14.0	60" x 46"	15.6	54"		14			14
12.5 or 14.0	64" x 43"	14.7	54"	12			10	
16.5	66" x 51"	19.3	60"		14			14
16.5	71" x 47"	18.1	60"	10			8	
21.0	73" x 55"	23.2	66"		14			14
21.0	77" x 52"	21.9	66"	8				
25.0	81" x 59"	27.4	72"		14	12		12
25.0	83" x 57"	26.0	72"	8				
32.0	87" x 63"	32.1	78"		12	12		12
36.0	95" x 67"	37.0	84"		12	12		12
42.0	103" x 71"	42.4	90"		12	12		10
47.0	112" x 75"	48.0	96"		12	12		8
54.0	117" x 79"	54.2	102"		10	10		
60.0	128" x 83"	60.5	108"		10	10		
67.0	137" x 87"	67.4	114"		10	10		
74.0	142" x 91"	74.5	120"		8	8		

GENERAL NOTE for METAL PIPE

Culvert "Type" listed may be CSP, ACSP, CAP, RCP, PVCP & PEP within guidelines of KDOT Pipe Policy for geographic location. More than one pipe "Type" may be acceptable for a design location with allowable types listed for each site.

There shall be no payment for gain in pipe length due to fit of pipe at connecting band.

When Hugger Bands are used, the H-7 Hugger Band may be used on circular pipes 36" diameter and smaller or pipe arches 42"x 29" and smaller. The H-10 Hugger Band may be used on 12" thru 120" pipe. The H-12 or H-13 Hugger Band are for pipe sizes larger than 36" diameter or 42"x29" arch pipe.

Pipe gauge listed in the tables on this sheet are minimum for E'=750 p.s.i. soil. Pipe gauge will be determined for each site based on the Design Manual Volume I- Part C Fill Height Tables and shall shall be listed in the Pipe Culvert Summary. Gauges shown on this Standard Drawing are KDOT minimum and may not be industry minimum gauge.

In geographic areas that allow CSP (24" or smaller arched or round pipe) for entrance and side road installation with less than 3,000 AADT, 16 gauge ACSP may be substituted for 14 gauge CSP.

Aluminum or aluminized pipes or end sections shall be coated with an asphaltic paint when in contact with fresh concrete in accordance with the Standard Specifications.

NO.	DATE	REVISIONS	BY	APP'D
4	9-10-09	Rev. Round and Arch tables, add. Alum	S.W.K.	J.O.B.
3	1-20-09	Rev. Round Pipe Gauges	S.W.K	J.O.B.
2	4-18-08	Rev. layout, details, tables and notes	S.W.K.	J.O.B.
1	4-27-98	Added pipe corrugation option note	R.J.S.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

METAL END SECTION FOR ROUND & ARCH METAL CULVERTS (TYPE I) & PIPE GAUGE TABLES

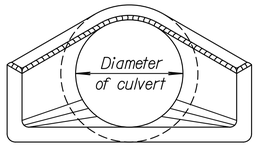
RD660

FHWA APPROVAL	12-16-09	APP'D. James O. Brewer	
DESIGNED	DETAILED	QUANTITIES	TRACED Bowser
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK. King

Note to Designer: KDOT Pipe Policy provides guidance in identifying the prohibited and/or restricted uses of CSP, ACSP, PEP, PVCP, CAP & RCP. Provide end sections of the same type and coating as the pipe. Exceptions to this are noted in the Standard Specifications. Refer to the KDOT Design Manual, Volume I (Part C), Road Section, "Elements of Drainage & Culvert Design" for structural pipe design information which includes: corrugations, sizes, gauges, maximum/minimum fill heights and classes of pipe.

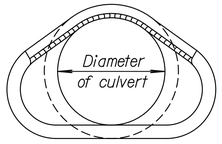
Drawn By: drp
File: I:\2008\08313\Frontage Rd South\Standards\08313-rd660.dgn
Plotted: 14-JUL-2014 11:47

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	KA 2285-01	2014	45	130



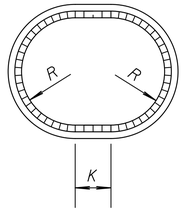
END ELEVATION (TYPE I)



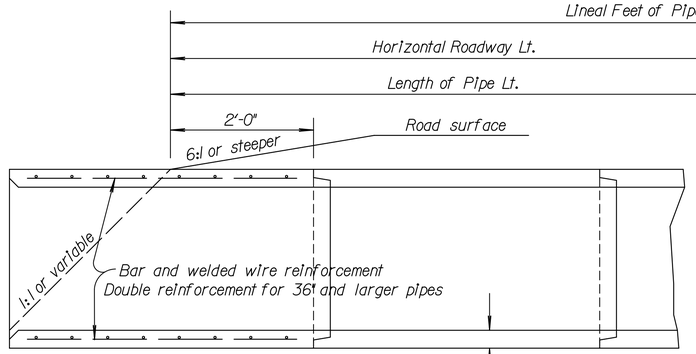


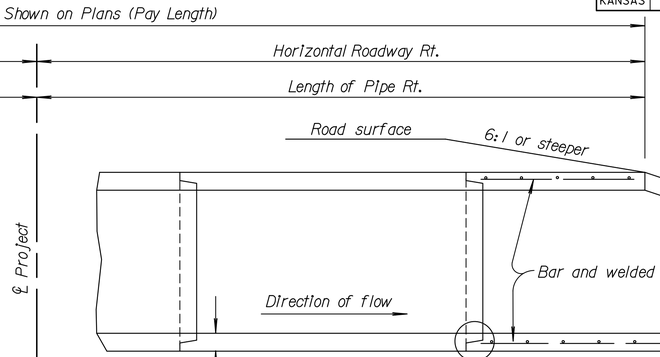
SECTION A-A

Showing rounding of inside edge of end section.



END ELEVATION (TYPE III)

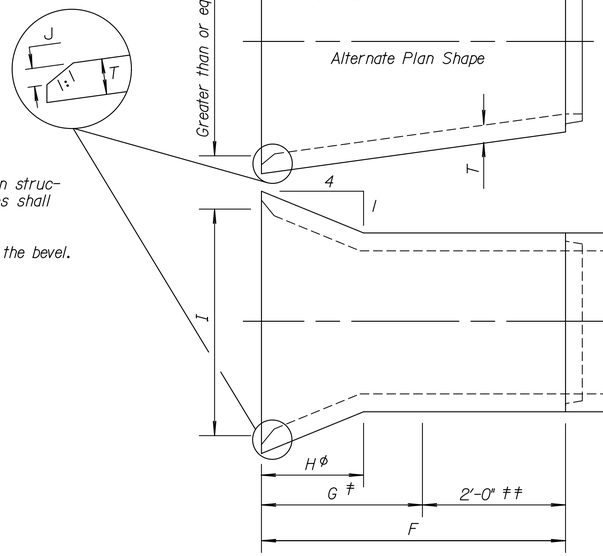




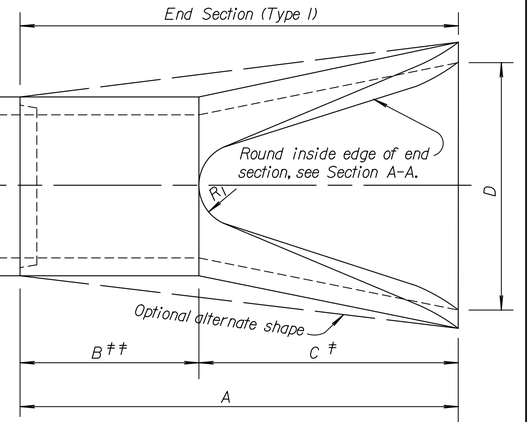


ELEVATION SECTION

Note: There shall be no payment for gain in length due to joint fit tolerance.



PLAN VIEW



ø *Transition to round pipe.*

ǂ *Paid for as separate item of End Section, except when structures shall bid as alternates. In that case End Sections shall be subsidiary to bid item. "Drainage Structure No. ".*

ǂǂ *Included in pay length of pipe.*

⚹ *Minimum waterway area is calculated at the inside of the bevel.*

END SECTION (TYPE I) NOMINAL DIMENSIONS								
Diam.	A	B ǂǂ	C ǂ	D	E	R_1	Slope	T
12"	6'-0 7/8"	4'-0 7/8"	2'-0"	2'-0"	4"	9	3:1	2"
15"	6'-1"	3'-10"	2'-3"	2'-6"	6"	11	3:1	2 1/4"
18"	6'-1"	3'-10"	2'-3"	3'-0"	9"	12	3:1	2 1/2"
24"	6'-1 1/2"	2'-6"	3'-7 1/2"	4'-0"	9 1/2"	14	3:1	3"
30"	6'-1 3/4"	1'-7 3/4"	4'-6"	5'-0"	1'-0"	15	3:1	3 1/2"
36"	8'-1 3/4"	2'-10 3/4"	5'-3"	6'-0"	1'-3"	20	3:1	4"
42"	8'-2"	2'-11"	5'-3"	6'-6"	1'-9"	22	3:1	4 1/2"
48"	8'-2"	2'-2"	6'-0"	7'-0"	2'-0"	22	3:1	5"
54"	8'-2 1/4"	2'-9 1/4"	5'-5"	7'-6"	2'-3"	24	2.4 :1	5 1/2"
60"	8'-3"	3'-3"	5'-0"	8'-0"	2'-11"	24	2:1	6"
72"	8'-3"	1'-9"	6'-6"	9'-0"	3'-0"	24	1.86 :1	7"
84"	9'-3 1/2"	1'-9"	7'-6 1/2"	10'-0"	3'-0"	24	1.6 :1	8"

SIDE TAPERED INLET SECTION (TYPE III)-NOMINAL DIMENSIONS									
Diam.	Min. W.W. ⚹ Area Sq.Ft.	F	G	H	I	J	K	R	T
24"	4.5	4'-3"	2'-3"	1'-5 1/8"	2'-8"	1 1/2"	8"	1'-0"	3"
30"	7.0	4'-9 1/2"	2'-9 1/2"	1'-9 1/2"	3'-4"	2"	10"	1'-3"	3 1/2"
36"	10.1	5'-4"	3'-4"	2'-1 1/2"	4'-0"	2"	1'-0"	1'-6"	4"
42"	13.7	5'-10 1/2"	3'-10 1/2"	2'-5 7/8"	4'-8"	2 1/2"	1'-2"	1'-9"	4 1/2"
48"	17.9	6'-5"	4'-5"	2'-10 1/8"	5'-4"	3"	1'-4"	2'-0"	5"
54"	22.7	6'-11 1/2"	4'-11 1/2"	3'-2 1/2"	6'-0"	3 1/2"	1'-6"	2'-3"	5 1/2"
60"	28.0	7'-6"	5'-6"	3'-6 7/8"	6'-8"	4"	1'-8"	2'-6"	6"
72"	40.3	8'-7"	6'-7"	4'-3 5/8"	8'-0"	5"	2'-0"	3'-0"	7"
84"	54.8	9'-8"	7'-8"	5'-0 3/8"	9'-4"	6"	2'-4"	3'-6"	8"

Dimensions for alternate shapes shall be equal to or greater than those shown in the table, unless otherwise shown.

NO.	DATE	REVISIONS	BY	APP'D
2	4-18-08	Added ref. to KDOT Pipe Policy	S.W.K.	J.O.B.
1	4- 5-05	Revised reinforcement callout	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

CONCRETE END SECTIONS FOR CONCRETE PIPES TYPE I & SIDE TAPERED INLET SECTION (TYPE III)

RD662

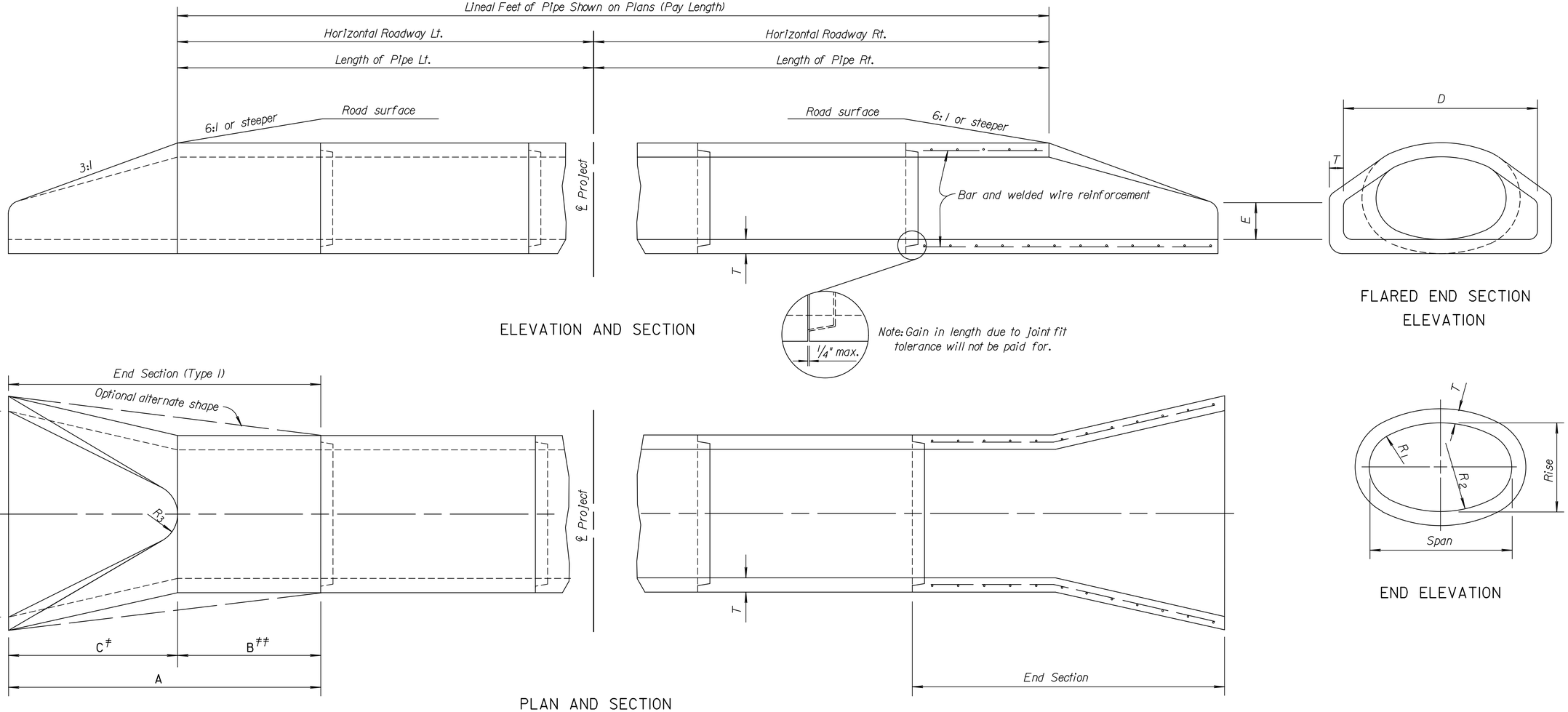
FHWA APPROVAL	6-27-08	APP'D. James O. Brewer	
DESIGNED	DETAILED	QUANTITIES	TRACED Bowser
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK. King

Note to Designer: KDOT Pipe Policy provides guidance in identifying the prohibited and/or restricted uses of CSP, ACSP, PEP, PVCP, CAP & RCP. Provide end sections of the same type and coating as the pipe. Exceptions to this are noted in the Standard Specifications. Refer to the KDOT Design Manual, Volume I (Part C), Road Section, "Elements of Drainage & Culvert Design" for structural pipe design information which includes: corrugations, sizes, gauges, maximum/ minimum fill heights and classes of pipe.

Drawn By : drp
Plotted : 14-JUL-2014 11:47
File : I:\2008\08313\Frontage Rd South\Standards\08313-rd662.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	KA 2285-01	2014	46	130

Note to Designer: KDOT Pipe Policy provides guidance in identifying the prohibited and/or restricted uses of CSP, ACSP, PEP, PVCP, CAP & RCP. Provide end sections of the same type and coating as the pipe. Exceptions to this are noted in the Standard Specifications. Refer to the KDOT Design Manual, Volume I (Part C), Road Section, "Elements of Drainage & Culvert Design" for structural pipe design information which includes: corrugations, sizes, gauges, maximum/minimum fill heights and classes of pipe.



ELEVATION AND SECTION

FLARED END SECTION ELEVATION

END ELEVATION

PLAN AND SECTION

END SECTION (TYPE I) NOMINAL DIMENSIONS

Bid Designation Sq. Ft.	Min. W.W. Area Sq. Ft.	Span	Rise	Overall Length A	Barrel Length B ‡‡	C ‡	D	E	R_1	R_2	R_3	T
1.0 or 1.5	1.8	23"	14"	6'-0"	3'-9"	2'-3"	3'-0"	8"	6"	20"	6"	2 3/4"
2.0,2.5 or 3.0	3.3	30"	19"	6'-0"	2'-9"	3'-3"	4'-0"	8 1/2"	8 1/4"	26 1/4"	7"	3 1/4"
4.0	4.1	34"	22"	6'-0"	2'-2"	3'-10"	4'-6"	9"	9 1/4"	29 17/32"	8"	3 1/2"
5.0	5.1	38"	24"	6'-0"	1'-6"	4'-6"	5'-0"	9 1/2"	10 1/4"	32 3/4"	9"	3 3/4"
6.0	6.3	42"	27"	6'-0"	1'-3"	4'-9"	5'-6"	10 3/8"	11 7/16"	36 3/16"	10 1/2"	3 3/4"
7.0	7.4	45"	29"	8'-0"	3'-0"	5'-0"	6'-0"	11 1/4"	12 1/4"	39 1/4"	12"	4 1/2"
8.5	8.8	49"	32"	8'-0"	3'-0"	5'-0"	6'-3"	12"	13 9/16"	42 21/32"	12 1/2"	4 3/4"
10.0	10.2	53"	34"	8'-0"	3'-0"	5'-0"	6'-6"	15 3/4"	14 3/4"	46"	13"	5"
11.0 or 12.5	12.9	60"	38"	8'-0"	3'-0"	5'-0"	7'-0"	21"	16 1/2"	51 3/4"	14"	5 1/2"
14.0 or 16.5	16.6	68"	43"	8'-0"	3'-0"	5'-0"	7'-6"	25 1/2"	18 21/32"	58 13/32"	16"	6"

‡ Paid for as separate item of "End Sections".

‡‡ Included in pay length of pipe.

Design of end section shall conform to standard reinforced concrete horizontal elliptical pipe. Slight variations in the dimensions specified will be allowed.

NO.	DATE	REVISIONS	BY	APP'D
3	4-18-08	Added ref. to KDOT Pipe Policy	S.W.K.	J.O.B.
2	4- 6-05	Revised reinforcement callout	S.W.K.	J.O.B.
1	6-16-95	Revised table & labeling	R.J.S.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

CONCRETE END SECTION FOR REINFORCED CONCRETE HORIZONTAL ELLIPTICAL PIPE TYPE I

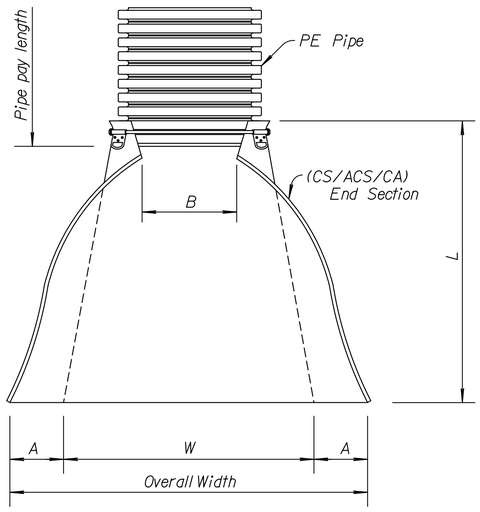
RD663

FHWA APPROVAL	6-27-08	APP'D. James O. Brewer	
DESIGNED	DETAILED	QUANTITIES	TRACED Bowser
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK. King

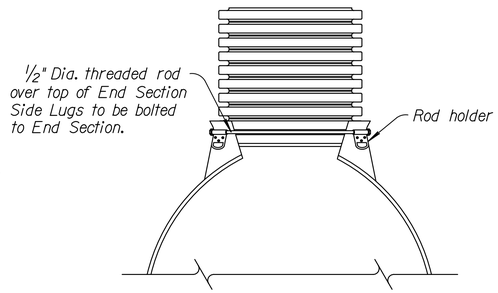
Drawn By : drp
Plotted : 14-JUL-2014 11:47
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STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	KA 2285-01	2014	47	130

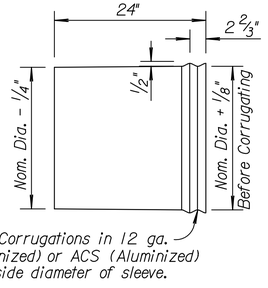
Note to Designer: KDOT Pipe Policy provides guidance in identifying the prohibited and/or restricted uses of CSP, ACSP, PEP, PVCP, CAP & RCP. Provide end sections of the same type and coating as the pipe. Exceptions to this are noted in the Standard Specifications. Refer to the KDOT Design Manual, Volume I (Part C), Road Section, "Elements of Drainage & Culvert Design" for structural pipe design information which includes: corrugations, sizes, gauges, maximum/minimum fill heights and classes of pipe.



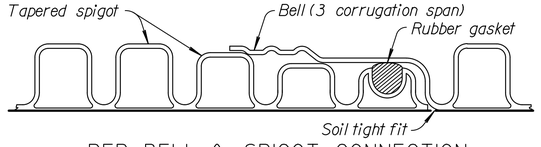
PLAN
(Illustrated with Type 2 Connector)



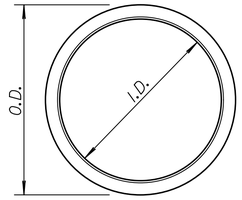
TYPE 2 CONNECTOR
(12" & Larger)



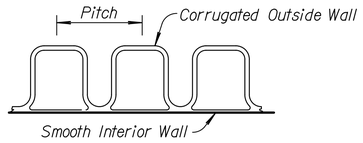
SMOOTH TAPERED SLEEVE DETAIL
(Optional)



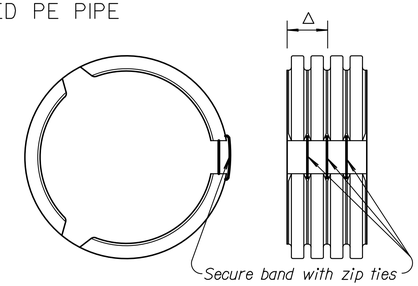
PEP BELL & SPIGOT CONNECTION
SOIL TIGHT JOINT



DETAILS OF
CORRUGATED PE PIPE

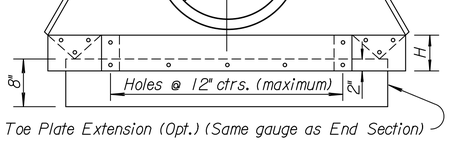


TYPICAL SECTION
CORRUGATED PE PIPE

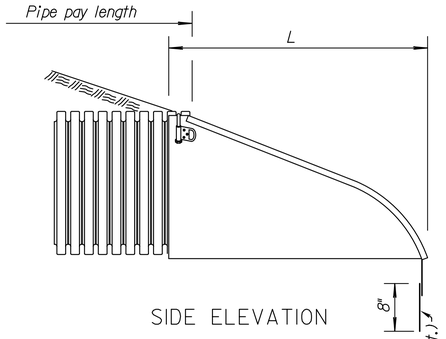


△ Two Full Corrugations (Minimum Overlap)

PEP SPLIT BAND COUPLER
SOIL TIGHT JOINT
This band is used for (Field Splice Construction Joint)

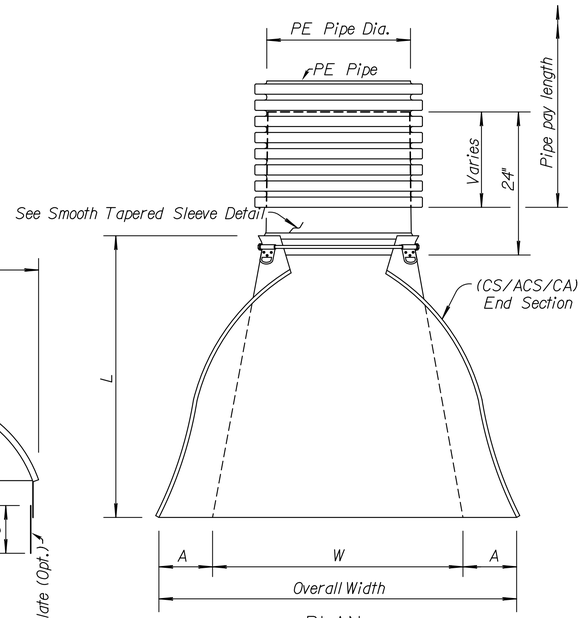


FRONT ELEVATION



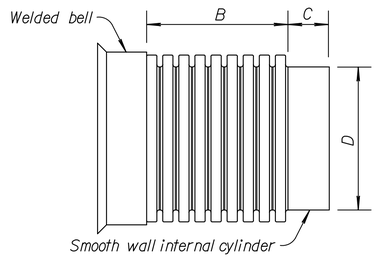
SIDE ELEVATION

✻ Toe plate extensions where specified, to be punched to match holes in apron lip and bolted with 3/8" dia. bolts. The length of toe plate to be as follows:
W + 10" for 12" to 30" diameter pipe inclusive.
W + 20" for 36" to 60" diameter pipe inclusive.



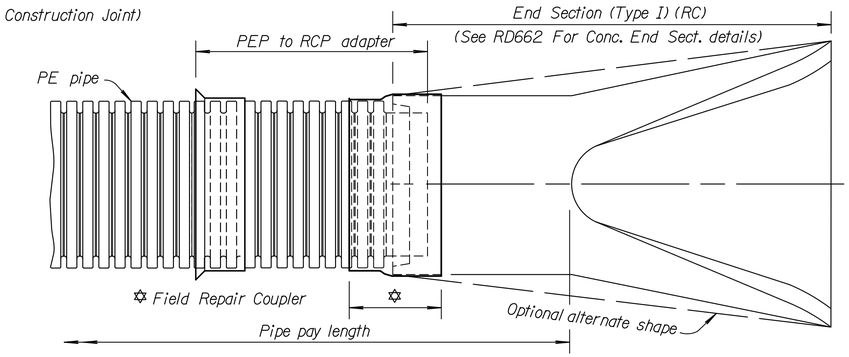
PLAN

TAPERED SLEEVE FOR ATTACHING
METAL END SECTION TO PE PIPE
(Illustrated with Type 2 Connector)



PEP to RCP ADAPTER

PEP TO RCP ADAPTER			
Pipe Dia. (In.)	B	C	D
18"	18 1/4"	6"	18"
24"	25"	6"	24"
30"	32 3/16"	6"	30"
36"	36 3/4"	6"	36"
42"	36"	6"	41 1/4"
48"	36 3/4"	6"	41 1/4"
60"	36"	6"	59"



PEP to RCP ADAPTER to CONCRETE END SECTION
(This installation is for Acidic Soil Conditions)

GENERAL NOTES

The culvert type shall meet the KDOT Pipe Policy & Standard Specifications.

The size of pipe designated on the plan shall be the nominal inside diameter of a two wall corrugated PE pipe (Type S).

PE pipe couplings shall be designed to cover at least two full corrugations on each side of a joint.

No additional payment shall be made for any gain in length due to the fit of the pipe at connections.

All corrugated PE pipe, end sections, couplings, and fittings shall conform with the Standard Specifications.

See Standard Specifications for PE Pipe bedding and backfill.

Multiple panel end sections shall have lap seams which are to be tightly joined by bolts & nuts. Corner plate and toe plate to be same gauge and material as end section. When required optional toe plate extension shall be overall width less 6" x 8" high.

Attachment to PE pipe 12" diameter and up shall be made with Type 2 Connector.

All work and materials required for construction and installation of end section shall be included in the bid item "End Section".

(CS/ACS/CA) END SECTION FOR PE PIPE							
Pipe Dia. (In.)	Min. Gauge Ends	Dimensions in Inches					Slope
		A (min.)	B (max.)	H (min.)	L (+/-2")	W (min.)	
12"	16	6	7	6	21	24	2 1/2:1
15"	16	7	8	6	26	30	2 1/2:1
18"	16	8	10	6	31	36	2 1/2:1
21"	16	9	12	6	36	42	2 1/2:1
24"	16	10	13	6	41	48	2 1/2:1
30"	14	12	16	8	51	60	2 1/2:1
36"	14	14	19	9	60	72	2 1/2:1
42"	12	16	25	11	69	84	2 1/2:1
48"	12	18	29	12	78	90	2 1/4:1
54"	12	18	33	12	84	102	2 1/4:1
60"	12/10	18	36	12	87	114	2:1

NO.	DATE	REVISIONS	BY	APP'D
1	2-8-08	Added ref. to KDOT pipe policy	S.W.K	J.O.B

KANSAS DEPARTMENT OF TRANSPORTATION

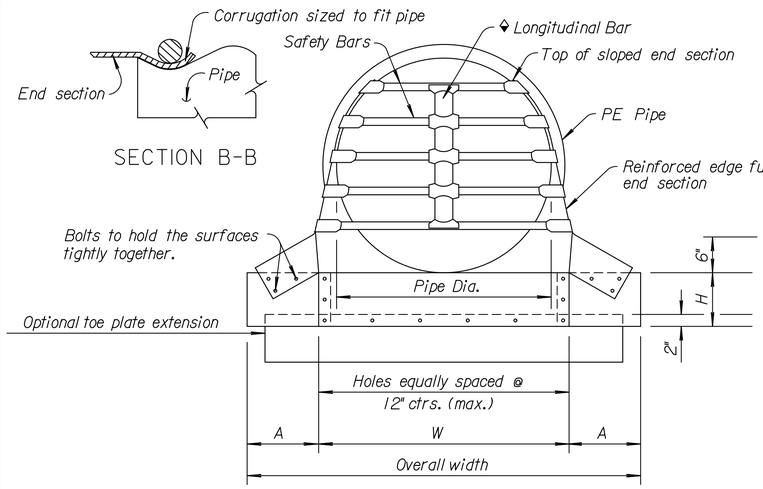
METAL/CONCRETE END SECTION (TYPE I) for PE PIPE

RD667

FHWA APPROVAL	6-27-08	APP'D. James O. Brewer	
DESIGNED	DETAILED	QUANTITIES	TRACED Bowser
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK. King

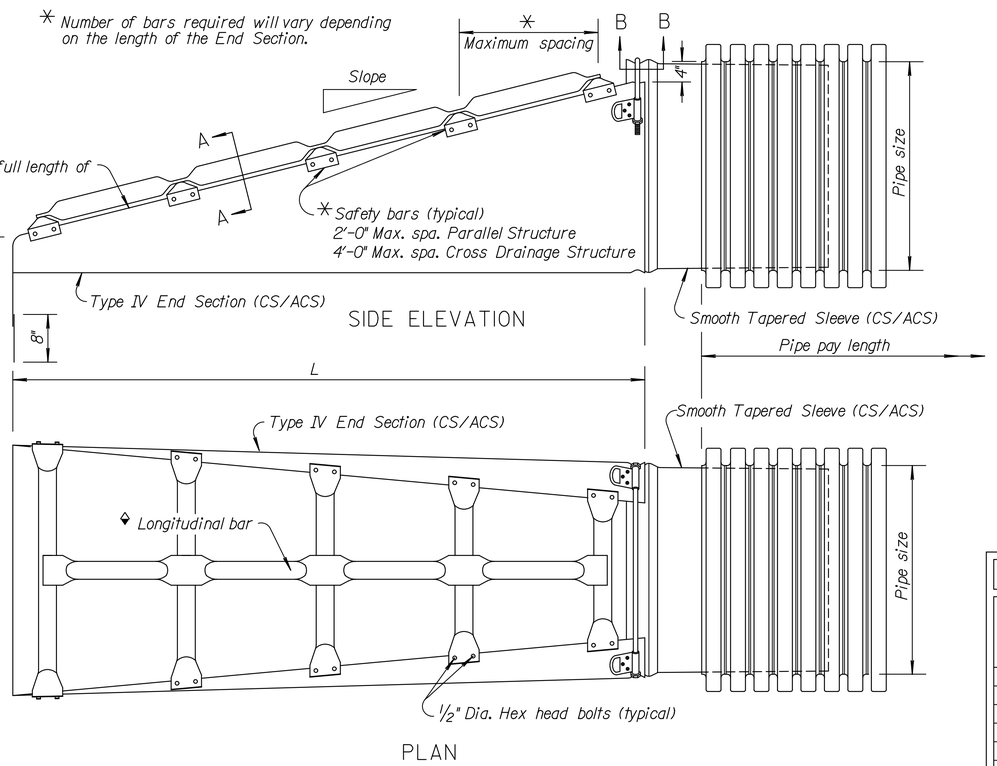
Drawn By : drp
Plotted : 14-JUL-2014 11:47
File : I:\2008\08313\Frontage Rd South\Standards\08313-rd667.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	KA 2285-01	2014	48	130



SECTION B-B

FRONT ELEVATION PE PIPE



SIDE ELEVATION

PLAN

GENERAL NOTES

The culvert type shall meet the KDOT Pipe Policy & Standard Specifications.

The size of pipe designated on the plan shall be the nominal inside diameter of a two wall corrugated PE pipe (Type S).

Couplings shall be designed to cover at least two full corrugation on each side of a joint.

No additional payment shall be made for any gain in length due to the fit of the pipe at connections.

All corrugated PE pipe, end sections, couplings, and fittings shall conform with the Standard Specifications.

See Standard Specifications for PE Pipe bedding and backfill.

Multiple panel end sections shall have lap seams which are to be tightly joined by bolts & nuts. Corner plate and toe plate to be same gauge and material as end section. When required optional toe plate extension shall be overall width less 6" x 8" high.

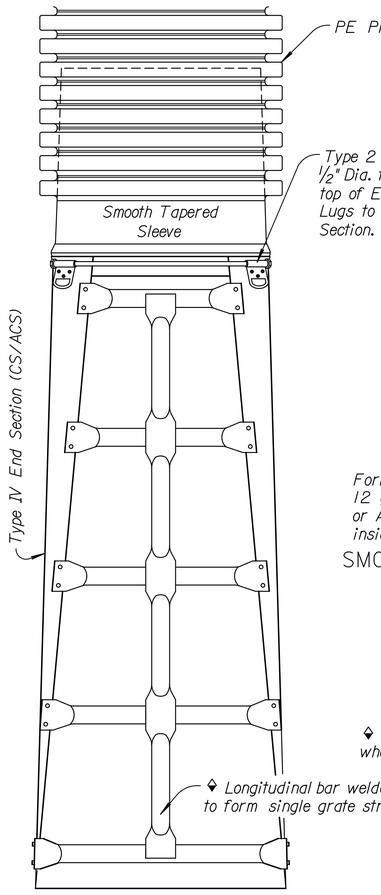
Safety bars shall be fabricated from steel pipe meeting the requirements of ASTM A-53 Schedule 40 Specifications. Safety bars shall be hot dipped galvanized after fabrication.

Attachment to PE pipe shall be made with Smooth Tapered Sleeve.

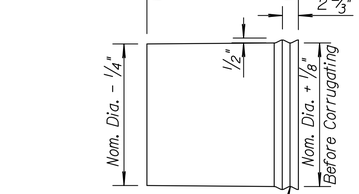
All work and materials required for construction and installation of safety slope end section shall be included in the bid item "End Section (Type IV)".

TYPE IV END SECTIONS (CS or ACS) FOR PE PIPE

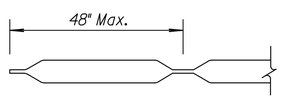
Pipe Dia. (In.)	Min. Gauge Ends	Dimensions + or - 2"				L Dimensions + or - 2"			
		A	H	W	Overall Width	Slope	Length (In.)	Slope	Length (In.)
30"	12	12	9	36	60	4:1	80	6:1	120
36"	12	12	9	42	66	4:1	104	6:1	156
42"	12	16	12	48	80	4:1	128	6:1	192
48"	12	16	12	54	86	4:1	152	6:1	228
54"	12	16	12	60	92	4:1	176	6:1	264
60"	12	16	12	66	98	4:1	200	6:1	300



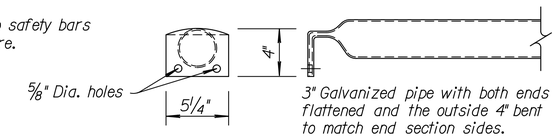
TYPE 2 CONNECTOR DETAILS
(For 30" and larger pipe)



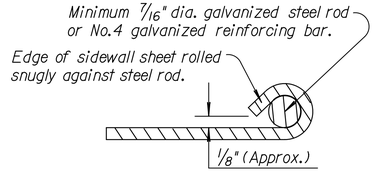
SMOOTH TAPERED SLEEVE DETAIL
(Required with Type IV on PE Pipe)



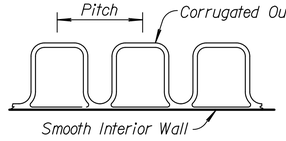
LONGITUDINAL BAR DETAIL
Longitudinal bar required for cross drainage structures when span is greater than 30".



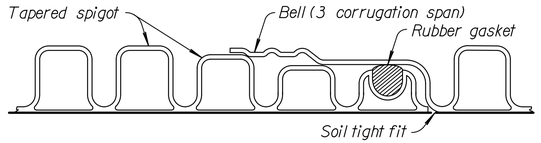
DETAIL OF SAFETY BAR
(Optional)



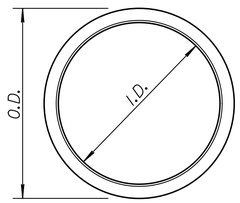
SECTION A-A



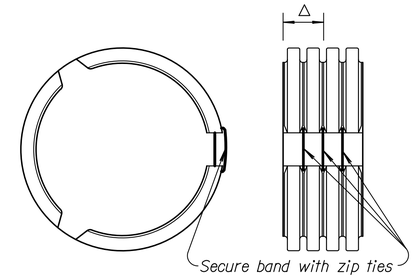
TYPICAL SECTION
CORRUGATED PE PIPE



PEP BELL & SPIGOT CONNECTION
SOIL TIGHT JOINT



DETAILS OF
CORRUGATED PE PIPE



Δ Two Full Corrugations (Minimum Overlap)

PEP SPLIT BAND COUPLER
SOIL TIGHT JOINT
This band is used for (Field Splice Construction Joint)

NO.	DATE	REVISIONS	BY	APP'D
1	2-8-08	Add ref. to KDOT pipe policy	S.W.K	J.O.B

KANSAS DEPARTMENT OF TRANSPORTATION

TYPE IV END SECTION FOR PE PIPE

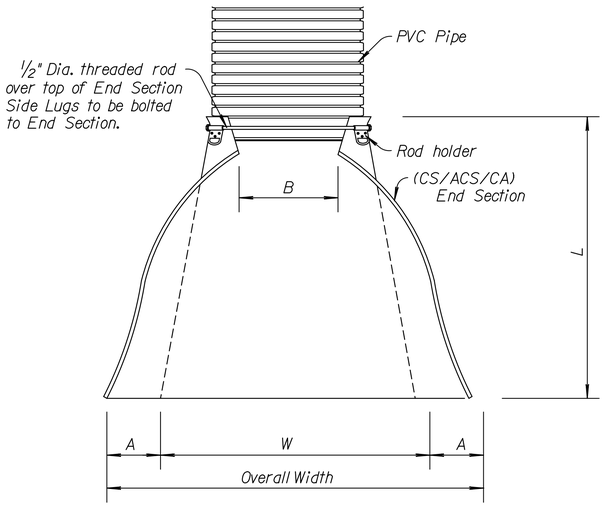
RD667 A

FHWA APPROVAL	6-27-08	APP'D. James O. Brewer	
DESIGNED	DETAILED	QUANTITIES	TRACED Bowser
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK. King

Note to Designer: KDOT Pipe Policy provides guidance in identifying the prohibited and/or restricted uses of CSP, ACSP, PEP, PVCP, CAP & RCP. Provide end sections of the same type and coating as the pipe. Exceptions to this are noted in the Standard Specifications. Refer to the KDOT Design Manual, Volume I (Part C), Road Section, "Elements of Drainage & Culvert Design" for structural pipe design information which includes: corrugations, sizes, gauges, maximum/minimum fill heights and classes of pipe.

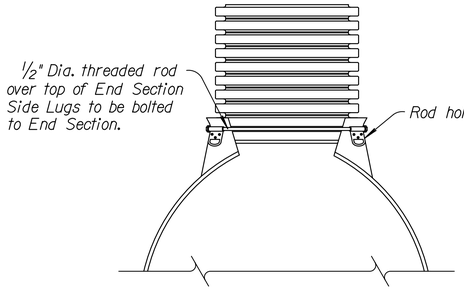
Drawn By : drp
Plotted : 14-JUL-2014 11:48
File : I:\2008\08313\Frontage Rd South\Standards\08313-rd667a.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	KA 2285-01	2014	49	130



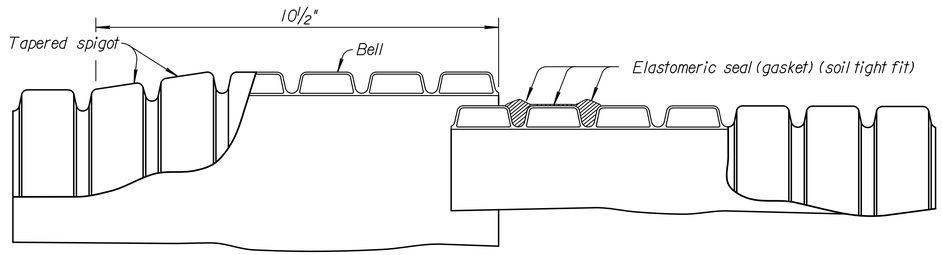
PLAN

(Illustrated with Type 2 Connector on 12" or larger)

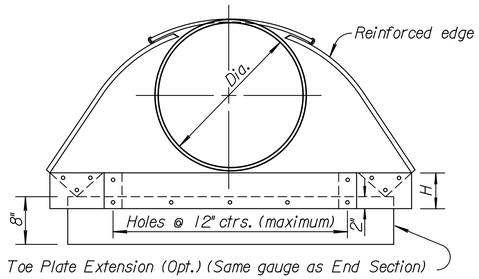


TYPE 2 CONNECTOR

(12" & Larger)

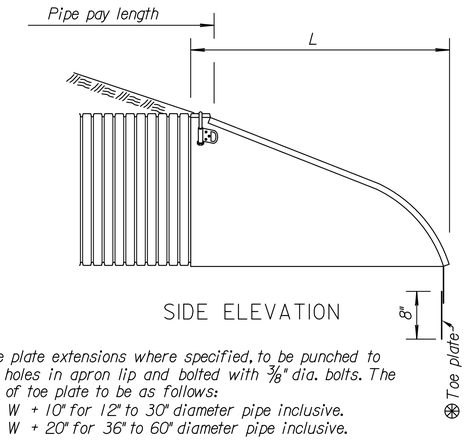


PVC BELL & SPIGOT CONNECTION
SOIL TIGHT JOINT



Toe Plate Extension (Opt.) (Same gauge as End Section)

FRONT ELEVATION

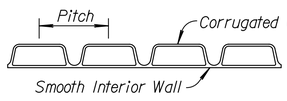


SIDE ELEVATION

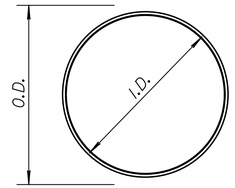
⊛ *Toe plate extensions where specified, to be punched to match holes in apron lip and bolted with 3/8" dia. bolts. The length of toe plate to be as follows:*

W + 10" for 12" to 30" diameter pipe inclusive.

W + 20" for 36" to 60" diameter pipe inclusive.



TYPICAL SECTION
CORRUGATED PVC PIPE



DETAILS OF
CORRUGATED PVC PIPE

GENERAL NOTES

The culvert type shall meet the KDOT Pipe Policy & Standard Specifications.

The size of pipe designated on the plan shall be the nominal inside diameter of a two wall corrugated PVC pipe.

PVC pipe shall be joined with an integral bell gasket joint and Flexible Elastomeric Seals. PVC Pipe is available in lengths of 2.5' to 20'. PVC pipe can be field cut to length, cut through a corrugation valley using a hand or power saw. Gaskets are shipped loose and fitted on spigot/cut pipe end following Manufacturer's installation instructions.

No additional payment shall be made for any gain in length due to the fit of the pipe at connections.

All corrugated PVC pipe, end sections and fittings shall conform with the Standard Specifications.

See Standard Specifications for PVC Pipe bedding and backfill.

Multiple panel end sections shall have lap seams which are to be tightly joined by bolts & nuts. Corner plate and toe plate to be same gauge and material as end section. When required optional toe plate extension shall be overall width less 6" x 8" high.

The End Section attachment to PVC pipe shall be made with a Type 2 Connector for 12" or greater pipe size.

All work and materials required for construction and installation of end section shall be included in the bid item "End Section".

(CS/ACS/CA) END SECTION FOR PVC PIPE

Pipe Dia. (In.)	Min. Gauge Ends	Dimensions in Inches					Slope
		A ±" Tol.	B (max.)	H (min.)	L (+/- 2")	W (min.)	
12"	16	6	7	6	21	24	2 1/2:1
15"	16	7	8	6	26	30	2 1/2:1
18"	16	8	10	6	31	36	2 1/2:1
21"	16	9	12	6	36	42	2 1/2:1
24"	16	10	13	6	41	48	2 1/2:1
30"	14	12	16	8	51	60	2 1/2:1
36"	14	14	19	9	60	72	2 1/2:1

NO.	DATE	REVISIONS	BY	APP'D
	2-8-08	Added ref. to KDOT Pipe Policy	S.W.K	J.O.B

KANSAS DEPARTMENT OF TRANSPORTATION

METAL END SECTION (TYPE I) for PVC PIPE

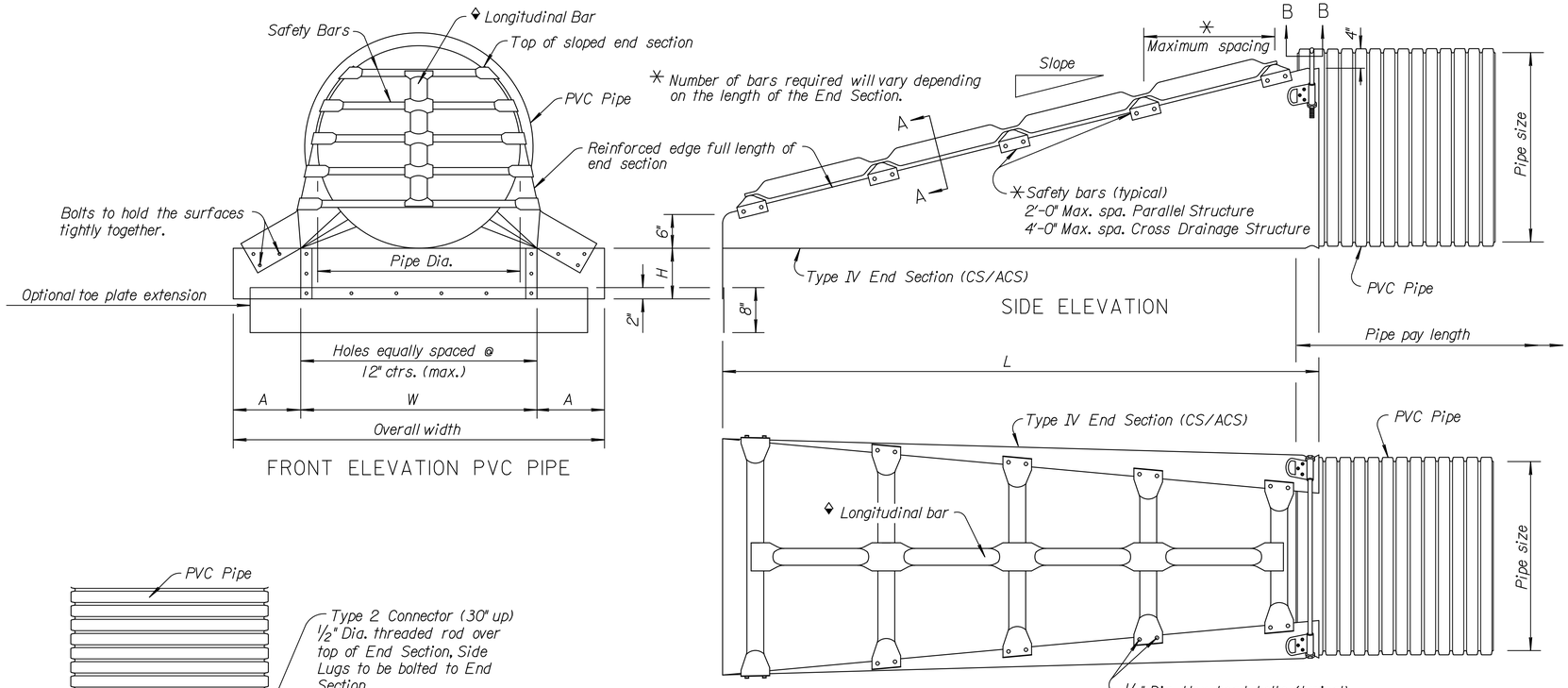
RD667 B

FHWA APPROVAL	6-27-08	APP'D. James O. Brewer	
DESIGNED	DETAILED	QUANTITIES	TRACED Bowser
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK. King

Note to Designer: KDOT Pipe Policy provides guidance in identifying the prohibited and/or restricted uses of CSP, ACSP, PEP, PVCP, CAP & RCP. Provide end sections of the same type and coating as the pipe. Exceptions to this are noted in the Standard Specifications. Refer to the KDOT Design Manual, Volume I (Part C), Road Section, "Elements of Drainage & Culvert Design" for structural pipe design information which includes: corrugations, sizes, gauges, maximum/minimum fill heights and classes of pipe.

Drawn By : drp
Plotted :14-JUL-2014 11:48
File : I:\2008\08313\Frontage Rd South\Standards\08313-rd667b.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
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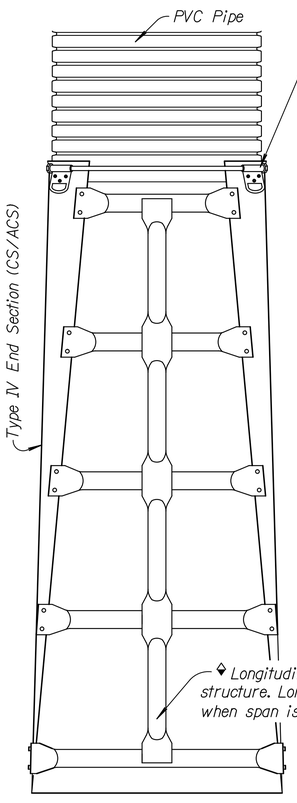


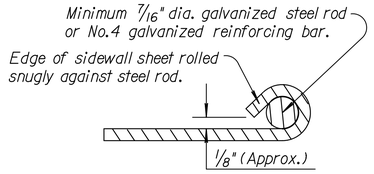
FRONT ELEVATION PVC PIPE

* Number of bars required will vary depending on the length of the End Section.

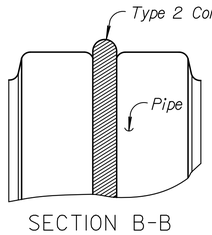
SIDE ELEVATION

PLAN

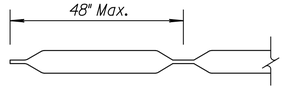




SECTION A-A

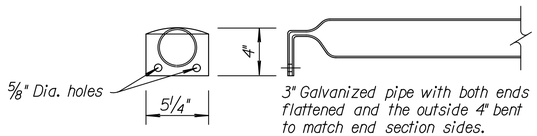


SECTION B-B

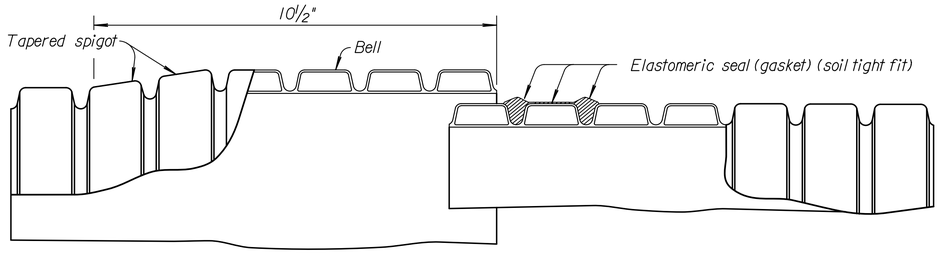


LONGITUDINAL BAR DETAIL

◆ Longitudinal bar required for cross drainage structures when span is greater than 30".



DETAIL OF SAFETY BAR
(Optional)



PVCP BELL & SPIGOT CONNECTION
SOIL TIGHT JOINT

◆ Longitudinal bar welded to safety bars to form a single grate structure. Longitudinal bar required for Cross Drainage Structures when span is greater than 30".

TYPE 2 CONNECTOR DETAILS

Note: Bars shown are for Cross Drainage Structures.

GENERAL NOTES

The culvert type shall meet the KDOT Pipe Policy & Standard Specifications.

The size of pipe designated on the plan shall be the nominal inside diameter of a two wall corrugated PVC pipe.

PVC pipe shall be joined with an integral bell gasket joint and Flexible Elastomeric Seals. PVC Pipe is available in lengths of 2.5' to 20'. PVC pipe can be field cut to length, cut through a corrugation valley using a hand or power saw. Gaskets are shipped loose and fitted on spigot/cut pipe end following Manufacturer's installation instructions.

No additional payment shall be made for any gain in length due to the fit of the pipe at connections.

All corrugated PVC pipe, end sections and fittings shall conform with the Standard Specifications.

See Standard Specifications for PVC Pipe bedding and backfill.

Multiple panel end sections shall have lap seams which are to be tightly joined by bolts & nuts. Corner plate and toe plate to be same gauge and material as end section. When required optional toe plate extension shall be overall width less 6" x 8" high.

Safety bars shall be fabricated from steel pipe meeting the requirements of ASTM A-53 Schedule 40 Specifications. Safety bars shall be hot dipped galvanized after fabrication.

Type IV End Section attachment to PVC pipe shall be made with Type 2 Connector.

All work and materials required for construction and installation of safety slope end section shall be included in the bid item "End Section (Type IV)".

TYPE IV END SECTIONS (CS or ACS) FOR PVC PIPE

Pipe Dia. (In.)	Min. Gauge Ends	Dimensions + or - 2"				L Dimensions + or - 2"			
		A	H	W	Overall Width	Slope	Length (In.)	Slope	Length (In.)
30"	12	12	9	36	60	4:1	80	6:1	120
36"	12	12	9	42	66	4:1	104	6:1	156

Note to Designer: KDOT Pipe Policy provides guidance in identifying the prohibited and/or restricted uses of CSP, ACSP, PEP, PVCP, CAP & RCP. Provide end sections of the same type and coating as the pipe. Exceptions to this are noted in the Standard Specifications. Refer to the KDOT Design Manual, Volume I (Part C), Road Section, "Elements of Drainage & Culvert Design" for structural pipe design information which includes: corrugations, sizes, gauges, maximum/minimum fill heights and classes of pipe.

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Drawn By : drp
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NO.	DATE	REVISIONS	BY	APP'D
1	2-8-08	Added ref. to KDOT pipe policy	S.W.K	J.O.B

KANSAS DEPARTMENT OF TRANSPORTATION

TYPE IV END SECTION FOR PVC PIPE

RD667 C

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

Asphalt
Section Line
Concrete
Asphalt
Asphalt
Section Line
Concrete
Existing W. Bd. Lanes US-54
465 6 7 8 9 470 1 2 3 4 475 6 7 8 9 480 1
℄ Exist. US-54
Concrete
15' RCP
20
Concrete
Begin Chain Link Fence
Concrete
Existing E. Bd. Lanes US-54
Asphalt
30" RCP
Asphalt
Chain Link Fence
:56' CMP
Existing US-54 R/W
Existing US-54 R/W
+46' CMP
Existing US-54 R/W
2-24"x45' CMP
+00 40.33' Lt.
+56 34.50' Lt.
+00 34.50' Lt.
Gravel
Gravel
Mobile Home (Typ.)
Asphalt
+50 ℄ S. Frt. Rd. 241.18' Lt.
+50 238.66' Lt.
SIGN
Gravel
480 1
Future R/W
Gravel
9
8
24"x19' RCP
℄ 151st St. W.-Section Line
2
24"x18' CMP
Gravel
David A. & Cheryl A. Calvin
AT-187-1A
7
R/W
P.T. ℄ Sta. 480+56.02
℄ US-54 South Frontage Road Sta. 472+37.72=
℄ 151st St. W. Sta. 23+40
6
4" PVC (Force Main)
R/W
P.R.C. ℄ Sta. 476+56.32
Southborough Partners
D-1061-UP
3
℄ US-54 South Frontage Rd.
4
475
R/W
R/W
Gravel
18" CMP
Asphalt
4
City of Wichita
D-1057-UP
7
NE 1/4, Sec. 34, T27S, R2W
P.C. ℄ Sta. 473+87.72
NW 1/4, Sec. 35, T27S, R2W
10' SS (PVC)
20' Utility Esmt.

Existing W. Bd. Lanes US-54
Concrete
Concrete
Section Line
1 2 3 4' RCP 4 485 6 7 8 9 490 1 2 3 4 495 6 7
℄ Exist. US-54
15' RCP
Concrete
Existing E. Bd. Lanes US-54
Concrete
15' RCP
+00 30.50' Lt.
+00 30.50' Lt.
+00 34.50' Lt.
Asphalt
Chain Link Fence
24"x44' CMP
Existing US-54 R/W
10' Waterline Esmt.
Existing US-54 R/W
1 2 3 4 485 6 7 8 9 490 1 2 3 4 495 6 7
05
30' Drainage Esmt.
℄ US-54 South Frontage Rd.
R/W
R/W
UNITED INDUSTRIAL ADDITION
℄ US-54 South Frontage Rd. Sta. 486+31.65=
℄ United Circle Sta. 50+00
United Auto Parts, Inc.
D-53792
Exist. R/W
Gravel
Concrete
20' Utility Esmt.
℄ United Circle
2
Exist. R/W
United

SCALE
50' 0 50' 100'

LEGEND
Ⓒ Corner Post
Ⓔ End Post

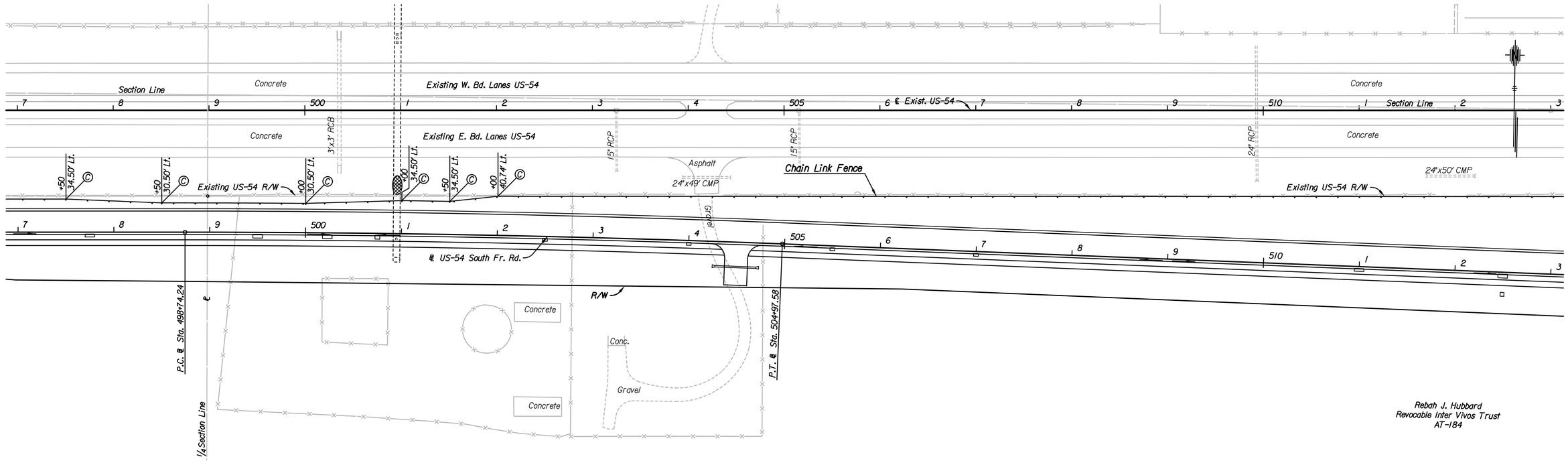
No.	Revision	By	Date

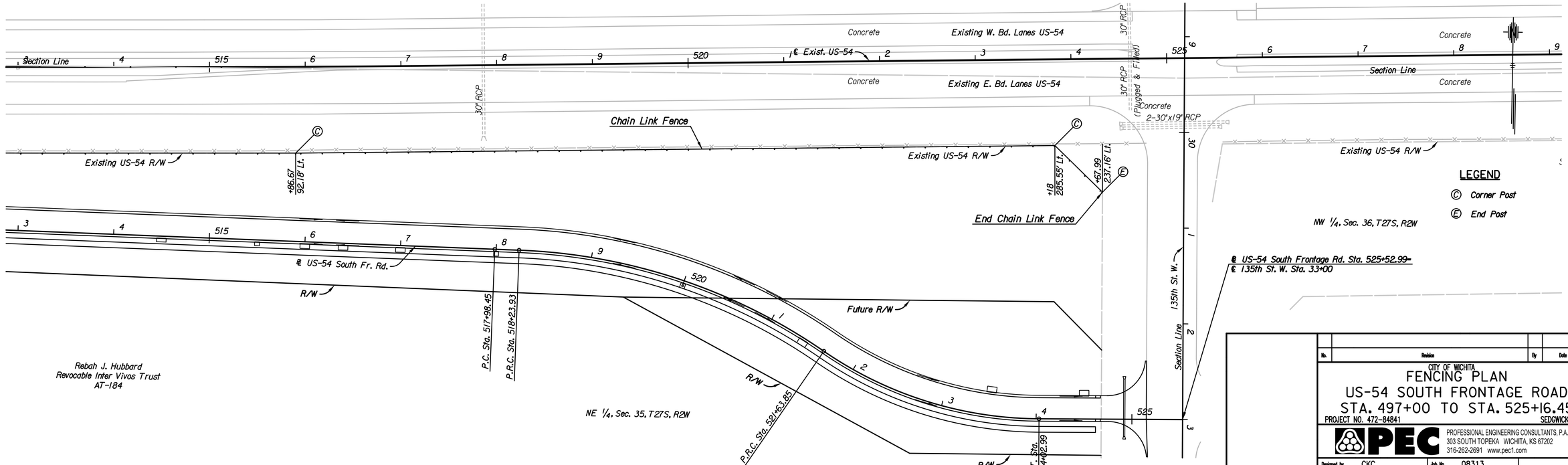
CITY OF WICHITA
FENCING PLAN
US-54 SOUTH FRONTAGE ROAD
STA. 472+37.22 TO STA. 497+00
PROJECT NO. 472-84841 SEDGWICK CO.

PEC
PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
303 SOUTH TOPEKA WICHITA, KS 67202
316-262-2691 www.pec1.com

Designed by	CKC	Job No.	08313	Sht. 51 of 130
Drawn by	NRS	Date	June, 2014	

Plotted By: drp Date: 7/14/2014 11:42:59 AM
FILE: i:\2008\08313\Frontage Rd South\Fencing\08313-fc472.dgn





LEGEND

Ⓒ Corner Post

Ⓔ End Post

No.	Revision	By	Date

CITY OF WICHITA

FENCING PLAN
US-54 SOUTH FRONTAGE ROAD
STA. 497+00 TO STA. 525+16.45

PROJECT NO. 472-84841 SEDGWICK CO.

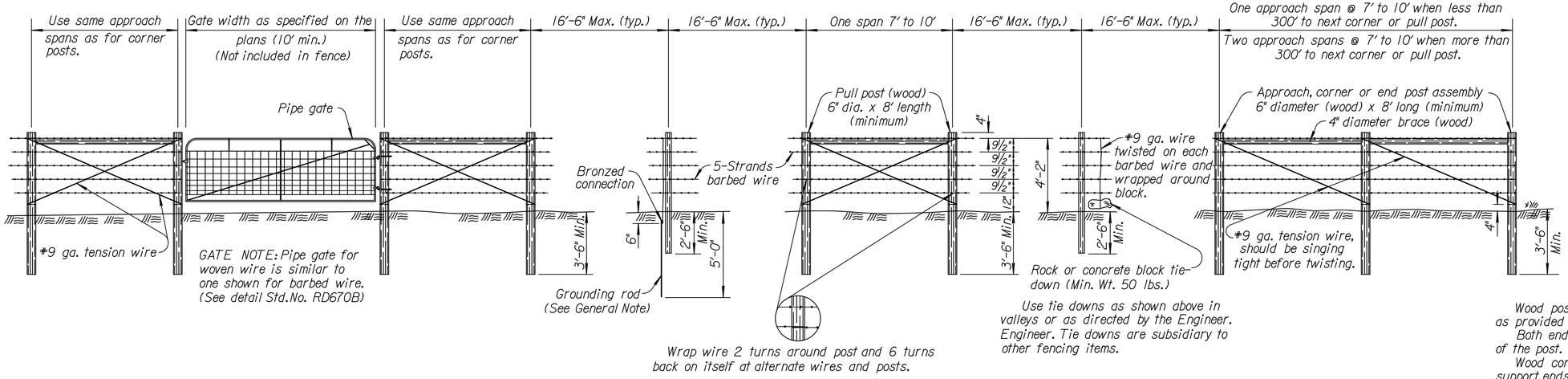
PEC
PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
303 SOUTH TOPEKA WICHITA, KS 67202
316-262-2691 www.pec1.com

Designed by	CKC	Job No.	08313
Drawn by	NRS	Date	June, 2014

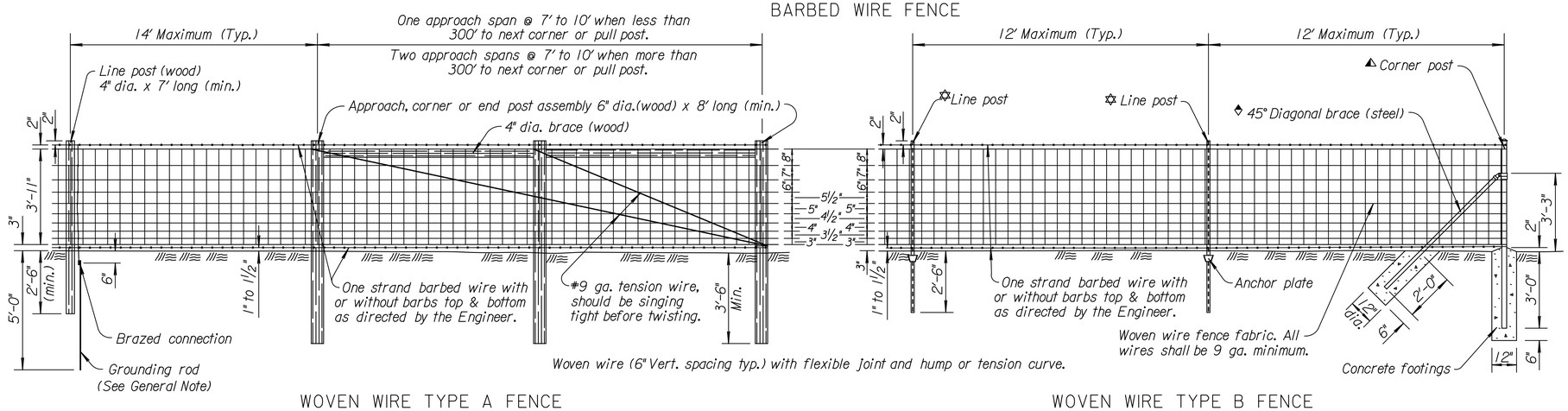
Sht. 52 of 130

Plotted By: drp Date: 7/14/2014 11:42:59 AM
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STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	KA 2285-01	2014	53	130



BARBED WIRE FENCE

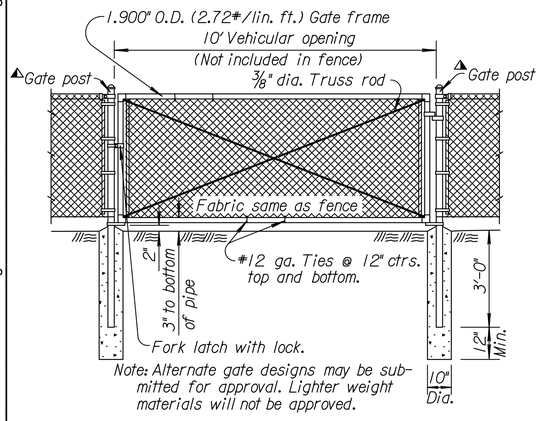


Woven wire (6" Vert. spacing typ.) with flexible joint and hump or tension curve.

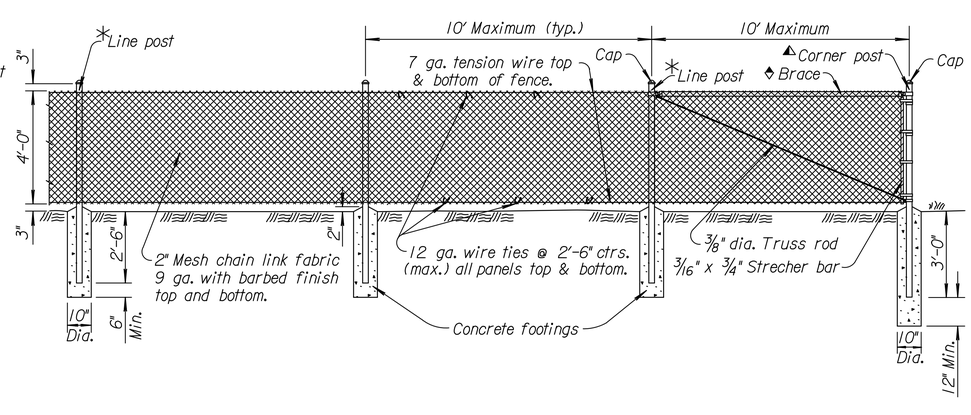
WOVEN WIRE TYPE A FENCE

WOVEN WIRE TYPE B FENCE

Pull post assembly for woven wire with wood posts is similar to barbed wire pull post assembly detail.



DETAIL of GATE, HINGE & SPECIFICATIONS



CHAIN LINK FENCE

(STEEL)

✡ Steel line post 7'-0" length
Studded T (1.33#/lin. ft.)
U (1.33#/lin. ft.)
H (2.27#/lin. ft.)

♦ Brace
1.660" O.D., 0.111" Th. (1.84#/lin. ft.) pipe (Group 1C) or 1.660" O.D., 0.140" Th. (2.27#/lin. ft.) pipe (Group 1A) or 1⅝"x1¼" Brace rail (See Alt. Details)

✳ Line post 7'-0" length.
2.375" O.D., 0.154" Th. (3.65#/lin. ft.) pipe (Group 1A) or 2.375" O.D., 0.130" Th. (3.12#/lin. ft.) pipe (Group 1C) or 1⅝"x1⅞" C Post (2.28#/lin. ft.)

▲ End, corner, gate, or pull post 7'-6" length.
(A120) 2.875" O.D., 0.203" Th. (5.79#/lin. ft.) pipe (Group 1A) or 2.875" O.D., 0.160" Th. (4.64#/lin.ft.) pipe (Group 1C)

GENERAL NOTE

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

Both ends of all wood posts shall be cut normal to the axis of the post. Pointed posts will not be permitted.

Wood corner, end, pull and approach posts shall be notched to support ends of wood braces. Wood braces shall be toenailed to the posts with 2-10d nails in each end of the brace.

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

When wood posts are used the fence shall be grounded by a ⅝" diameter galvanized or copper coated rod five feet long, driven vertically until the top is six inches below the ground surface. A #6 solid copper conductor shall be securely fastened to each element of the fence by use of clamps or other suitable device. Grounding rod shall be installed at intervals of 175' maximum.

In lieu of using the galvanized or copper coated rod as described above the contractor may, at his option, use a steel line post at intervals not to exceed each eighth post.

The galvanized or copper coated rod shall be used where power lines pass over the fence.

All steel posts, braces, fittings, and gate frames shall be galvanized and/or coated in accordance with the Standard Specifications.

Steel posts shall be provided with fasteners prevent slippage of the wire strands.

Outside diameters shown for tubular steel posts, bracing and gate frames are nominal. Weight tolerances shall be as shown in the KDOT Standard Specifications.

Posts may be set by driving or digging. If by digging, the posts shall be set in the center of the hole and the soil tamped securely on all sides.

Pull post assembly shall be used at sharp breaks in vertical grade or at approximately 330' centers (Woven & Chain link) or 1320' centers (Barbed wire) on straight runs or as directed by the Engineer.

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

Woven wire, chain link fabric, barbed wire and tension wire shall be either zinc coated (galvanized) or aluminum coated.

Minimum strength of barbed wire and tension wire shall be as provided in the KDOT Standard Specifications.

Use #9 gauge galvanized staples 1½" to 1¾" long, or #9 gauge galvanized Ring-shank staples 1½" to 1¾" long.

Alternate gate designs may be submitted for approval. Lighter weight materials will not be approved.

Padlocks for gates shall be furnished by the State.

No Wood Posts are allowed for new or reconstruction fence installations on the State Highway System. Shop drawings for steel gate post assembly designs are to be submitted to the State Road Office, Bureau of Design for approval prior to construction.

NO.	DATE	REVISIONS	BY	APP'D
9	11-30-09	Rev. post listing, wood po. restrict.	S.W.K.	J.O.B.
8	11-08-05	Revised brace dimension	S.W.K.	J.O.B.
7	11-02-04	Added assembly to end post label	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

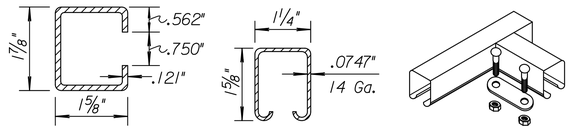
HIGHWAY FENCE BARBED, WOVEN, & CHAIN LINK

RD670A

FHWA APPROVAL	12-16-09	APP'D. James O. Brewer	
DESIGNED	DETAILED	QUANTITIES	TRACED Bowser
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK. King

Plotted : 14-JUL-2014 11:48
Drawn By : drp
File : I:\2008\08313\Frontage Rd South\Standards\08313-rd670a.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	KA 2285-01	2014	54	130



LINE POST (C)
2.28#/Lin. Ft.

BRACE RAIL SECTION

CORNER CONNECTOR
for BRACE RAILS

BRACE & TRUSS CONNECTION
at BRACE POST

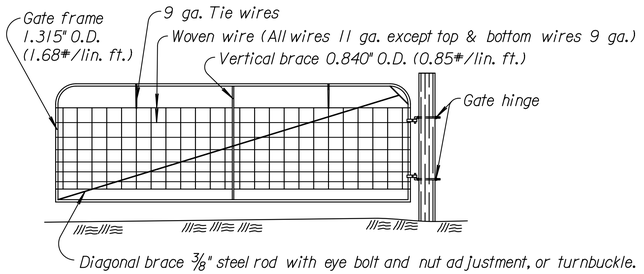
END POST TORQUE BAR

ALTERNATE CHAIN LINK DETAILS

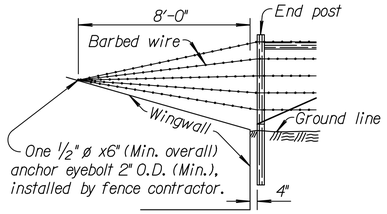
GENERAL NOTE

A line post shall be used in the KDOT fence at each private cross fence, and the contractor shall make a temporary connection. This work shall be subsidiary to other bid items.

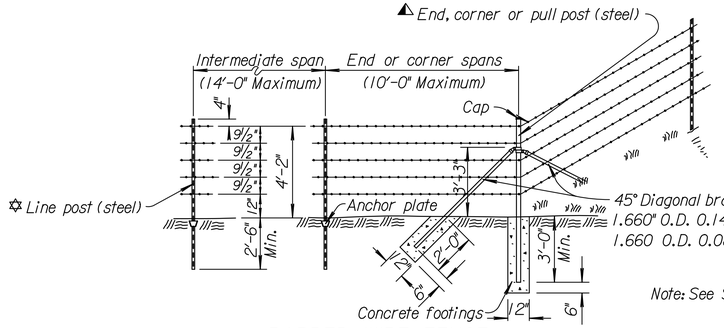
In general, where needed, use small channel crossing as shown. Type I and Type II Floodgates will be used very seldom.



DETAIL of GATE, HINGE & SPECIFICATIONS
(for Barbed & Woven Fence)

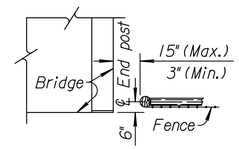


FENCE DETAILS
AT DRAINAGE STRUCTURES
(Type A, B, or Barbed wire fence.)

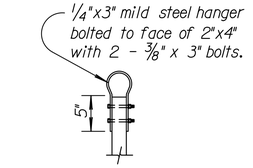


BARBED WIRE FENCE
STEEL POST (ALTERNATE)
Steel posts may be used in lieu of wood posts as shown above.

Note: See Standard Drawing RD670A for steel post requirements.

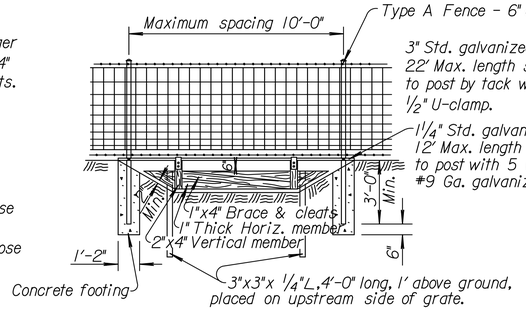


FENCE DETAILS
AT BRIDGE ABUTMENTS
(Use appropriate post and brace for fence type, dimensions are common for all fence types.)

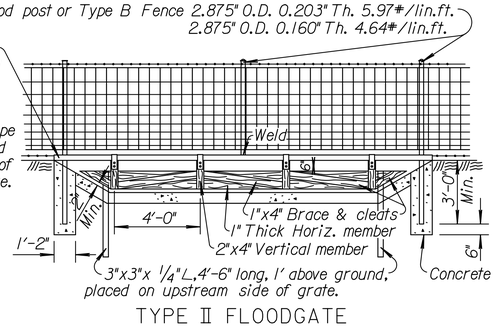


Type I bend hanger for loose fit on 1 1/4" dia. std. galv. pipe.
Type II bend hanger for loose fit on 3" dia. std. galv. pipe.

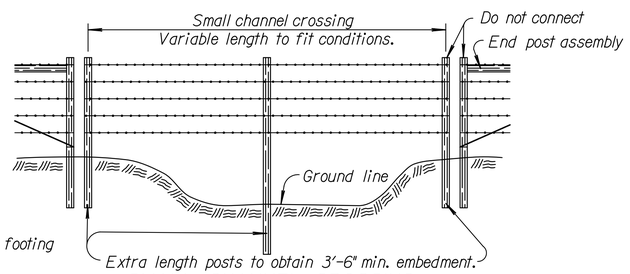
FLOODGATE
HANGER DETAIL



TYPE I FLOODGATE

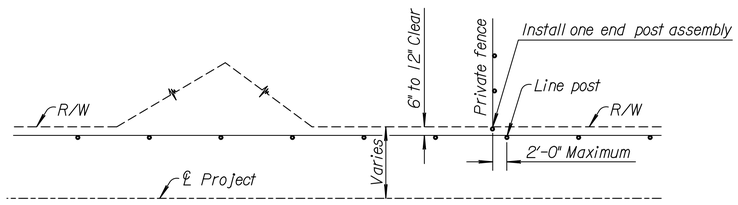


TYPE II FLOODGATE
(Grouted stone or concrete lined ditch.



SMALL CHANNEL CROSSING

The above sketch is typical only and can be varied to fit existing conditions. Small channel crossings shall be included in lin. ft. of fence. All extra materials and labor within the small channel crossing shall be subsidiary to lin. ft. of fence.

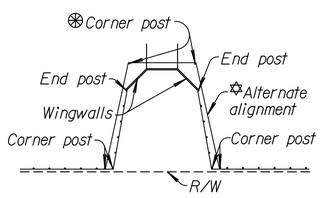


TYPICAL INSTALLATION DIAGRAM

Note: Right of Way fence shall generally be set parallel to and 6" to 12" clear from the Right of Way line.

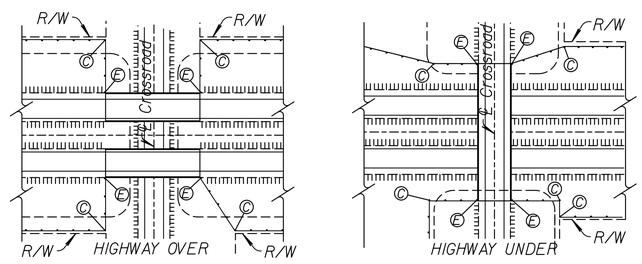
The alignment layouts as shown are typical, but are not representative of all situations that may occur. Construction may be varied, as required to meet field conditions and/or as directed by the Engineer.

The access control fence shall be attached to the private fence end post assembly using leader wires or staples.



FENCE ALIGNMENT
AT UNDERPASS OR
BOX DRAINAGE STRUCTURE

Alternate alignment may be used at deep underfill culverts, as directed by the Engineer.



FENCE ALIGNMENT AT BRIDGE ABUTMENTS

Where fence installation over a drainage structure is located within the clear zone, horizontal bracing at the corner posts will not be permitted. An alternate design utilizing diagonal bracing shall be provided.

NO.	DATE	REVISIONS	BY	APP'D
7	7-28-09	Revised Steel size listing	S.W.K.	J.O.B.
6	11-02-04	Revised General Note	S.W.K.	J.O.B.
5	5-30-02	Removed KDOT ownership sign.	S.W.K.	J.O.B.
4	12-30-97	Connect to Private Fence End Post	R.J.S.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

INSTALLATION DETAILS
BARBED, WOVEN, & CHAIN LINK

RD670B

FHWA APPROVAL	12-16-09	APP'D. James O. Brewer	
DESIGNED	DETAILED	QUANTITIES	TRACED Bowser
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK. King

Drawn By : drp
Plotted : 14-JUL-2014 11:48
File : I:\2008\08313\Frontage Rd South\Standards\08313-rd670b.dgn

CONCRETE PAVEMENT 10" (NRDJ)

LOCATION	STATION TO STATION		QUANTITY (S.Y.)
South Fr. Rd.	473+23.72	481+00.00	1897.42
South Fr. Rd.	481+00.00	497+00.00	3911.11
South Fr. Rd.	497+00.00	513+00.00	3912.17
South Fr. Rd.	513+00.00	524+66.99	2851.73
Total			12572.43

CONCRETE PAVEMENT 10" (REINF.)

LOCATION	STATION TO STATION		QUANTITY (S.Y.)
South Fr. Rd.	524+66.99	525+16.45	225.20
Total			225.20

CRUSHED ROCK HOOKUP (MEASURED QUANTITY)

LOCATION	STATION TO STATION		QUANTITY (S.Y.)
United Circle	50+50.00	51+00.00	133.33
Total			133.33

REINFORCED CRUSHED ROCK BASE

LOCATION	STATION TO STATION		6" RCRB QUANTITY (S.Y.)	10" RCRB QUANTITY (S.Y.)
South Fr. Rd.	473+23.72	481+00.00		2501.15
South Fr. Rd.	481+00.00	497+00.00		5155.56
South Fr. Rd.	497+00.00	513+00.00		5156.95
South Fr. Rd.	513+00.00	525+16.45		3999.04
United Circle	50+00.00	50+50.00	190.97	
Total			190.97	16812.70

VALLEY GUTTERS

LOCATION	STATION TO STATION		CONC. PVMT. (VG) 9" (S.Y.)	EDGE CURB (L.F.)
United Circle	50+00.00	50+50.00	209.52	125.91
Total			209.52	125.91

DRIVEWAY ENTRANCES (MEASURED QUANTITY)

LOCATION	STATION	SIDE	RADIUS (FT.)	W (FT.)	P (FT.)	CONC. PVMT. 8" (REINF.) (S.F.)
South Fr. Rd.	496+45.00	Rt.	14.50	30	27.50	915.24
South Fr. Rd.	504+50.00	Rt.	14.50	24	42.50	1110.49
Total						2025.73

PIPE CULVERT SUMMARY

LOCATION	STATION	SIDE	TYPE	MATERIAL	SIZE	CROWN GRADE	FLOWLINE LT.	FLOWLINE RT.	HORIZ. ROADWAY LT.	HORIZ. ROADWAY RT.	DEGREE OF ROTATION	PIPE LENGTH LT.	PIPE LENGTH RT.	LINEAR FT. OF PIPE	END SECTIONS LT.	END SECTIONS RT.
South Fr. Rd.	504+50.00	Rt.	EP	ACSP,PEP,PVCP, OR RCP	18"	1377.36	1374.82	1374.63	21.00	22.00	0°	21.00	22.00	43	1	1
South Fr. Rd.	524+92.00	℄	CRP	RCP	18"	1369.75	1365.43	1366.60	42.00	18.00	0°	42.00	18.00	60	1	1

The use of Aluminized Corrugated Steel Pipe (ACSP) will only be approved after the Contractor submits verification that ACSP meets KDOT Pipe Policy service life criteria. Prior to using ACSP on this project, the Contractor will need to submit to the Engineer the certified lab reports for the soil and water ph and resistivity values as well as determine the resulting service life value based on instructions in the KDOT Pipe Policy for each pipe location. All work, labor, materials and incidentals for this evaluation shall be subsidiary.

THE PIPES ON THIS PROJECT ARE IN ACCORDANCE WITH THE CURRENT KDOT PIPE POLICY OR LOCAL PIPE POLICY THAT HAS BEEN APPROVED BY KDOT. ALL PIPES SHALL BE INSTALLED PER THE MANUFACTURER'S SPECIFICATIONS.

CURB AND GUTTER

LOCATION	STATION TO STATION		SIDE	TYPE I 6" (L.F.)	TYPE I 1-½" (L.F.)	TYPE I (SPEC.) 6" (L.F.)
South Fr. Rd.	473+23.72	476+60.00	Rt.			337.61
South Fr. Rd.	473+23.72	476+65.00	Lt.	325.51		
South Fr. Rd.	476+60.00	481+00.00	Rt.	438.68		
South Fr. Rd.	476+65.00	481+00.00	Lt.			450.64
South Fr. Rd.	481+00.00	485+83.72	Rt.	483.72		
South Fr. Rd.	481+00.00	497+00.00	Lt.			1600.00
South Fr. Rd.	486+66.50	496+15.50	Rt.	949.00		
South Fr. Rd.	496+15.50	496+74.50	Rt.		59.00	
South Fr. Rd.	496+74.50	497+00.00	Rt.	25.50		
South Fr. Rd.	497+00.00	504+23.47	Rt.	723.40		
South Fr. Rd.	497+00.00	513+00.00	Lt.			1600.94
South Fr. Rd.	504+23.47	504+76.53	Rt.		53.05	
South Fr. Rd.	504+76.53	513+00.00	Rt.	823.47		
South Fr. Rd.	513+00.00	521+60.00	Lt.			873.38
South Fr. Rd.	513+00.00	521+65.00	Rt.	863.88		
South Fr. Rd.	521+60.00	524+66.99	Rt.			303.18
South Fr. Rd.	521+65.00	524+66.99	Lt.	292.79		
Total				4925.95	112.05	5165.75

4" SIDEWALK PAVEMENT (MEASURED QUANTITY)

LOCATION	STATION TO STATION		SIDE	WIDTH (FT.)	QUANTITY (S.F.)
South Fr. Rd.	473+28.72	481+00.00	Rt.	6	4628.02
South Fr. Rd.	481+00.00	485+95.64	Rt.	6	297.3.82
South Fr. Rd.	486+57.03	496+29.69	Rt.	6	5829.18
South Fr. Rd.	496+60.31	497+00.00	Rt.	6	231.37
South Fr. Rd.	497+00.00	504+37.67	Rt.	6	4416.93
South Fr. Rd.	504+62.33	513+00.00	Rt.	6	5019.12
South Fr. Rd.	513+00.00	524+61.99	Rt.	6	6974.16
Total					30072.60

PERMANENT FENCING (MEASURED QUANTITY)

LOCATION	STATION TO STATION		SIDE	CHAIN LINK LENGTH (FT.)	POSTS CORNER	POSTS END	POSTS PULL
South Fr. Rd.	473+50.00	524+67.99	Lt.	5053.72	15	2	10
Total				5053.72	15	2	10

REMOVAL OF EXISTING FENCE (MEASURED QTY)

LOCATION	STATION TO STATION		SIDE	LENGTH (FT.)
South Fr. Rd.	472+69	477+84	Lt.	426.76
South Fr. Rd.	478+31	478+74	Lt.	53.67
South Fr. Rd.	486+54	503+94	Lt.	1741.29
South Fr. Rd.	504+35	511+76	Lt.	742.41
South Fr. Rd.	512+09	525+13	Lt.	1266.18
Total				4230.31

WHEELCHAIR RAMPS

LOCATION	STATION	SIDE	QUANTITY (EACH)
South Fr. Rd.	485+95.64	Rt.	1
South Fr. Rd.	486+57.03	Rt.	1
Total			2

PLUGGING (WATER) WELLS

LOCATION	STATION	OFFSET (FT.)	SIDE	QUANTITY (EACH)
South Fr. Rd.	478+89	20	Rt.	1
Total				1

REMOVAL OF EXISTING STRUCTURES (FOR INFORMATION ONLY)

LOCATION	STATION	SIDE	REMARKS
South Fr. Rd.	477+00	Lt.	Sign Structure with Footing
South Fr. Rd.	478+14	Lt.	Comm. Ent., 2-24" CMP w/ End Sections
South Fr. Rd.	486+38	Lt.	Comm. Entrance
South Fr. Rd.	496+43	Lt.	Entrance and 24" CMP and End Sections
South Fr. Rd.	504+16	Lt.	Entrance and 24" CMP and End Sections
South Fr. Rd.	511+92	Lt.	Entrance and 24" CMP and End Sections

STORM SEWER CONDUIT DATA SUMMARY (L.F.)

SWS LINE NO.	RCP 18"	RCP 24"	RCP 30"	RCPHE 15"	RCPHE 18"	RCPHE 24"	RCPHE 30"	RCPHE 36"	RCPHE 29"x45"	RCPHE 34"x53"	FILL, SAND (FLUSHED & VIBRATE) (L.F.)
400				461.6	163.5	372.0					997.1
405										91.6	32.2
410	20.2		15.3								
500				550.0	650.0	145.1					1345.1
600				604.9							604.9
700				150.0			350.0	536.2	345.9		1336.7
705		19.0									
Total	20.2	19.0	15.3	1766.5	813.5	517.1	350.0	536.2	345.9	91.6	4316.0

INLET SUMMARY (EACH)

SWS LINE NO.	CURB INLET TYPE I 5'x3'	5'x4'	5'x5'	10'x3'	10'x4'	10'x5'	10'x6'	DROP INLET (DOUBLE DOUBLE)	UNDERDRAIN 4" PVC (L.F.)
400				5	3				88
500		1		7	2				110
600	4								44
700		1	1	1	2	3	3		121
705								1	
Total	4	2	1	13	7	3	3	1	363

MANHOLE SUMMARY (EACH)

SWS LINE NO.	MH, REINFORCED CONCRETE LENGTH	WIDTH	QUANTITY
410	7'-0"	4'-6"	1
700	5'-0"	5'-0"	1
Total			2

SUMMARY OF EARTHWORK QUANTITIES

STAGE	LOCATION	STATION TO STATION		EXCAVATION (C.Y.)	EXCAVATION (V.M.F.)	BORROW EXCAVATION (CONTRACTOR FURNISHED) (C.Y.)	BORROW EXCAVATION (CONTRACTOR FURNISHED) (V.M.F.)	FILL (C.Y.)	FILL (BEHIND CURBS) (C.Y.)	THRU EARTH CUTS EXCAVATION (C.Y.)	THRU EARTH CUTS FILL (C.Y.)	WASTE (C.Y.)
1	135th St. West	30+00.00	35+00.00	1154	0.80	—	0.80	0	0	49	49	1154
	South Fr. Rd.	473+23.72	525+16.45	①20113	0.80	—	0.80	5310	488	2537	2537	10254
Total				①21267		—		5310	488	2586	2586	11408

Note: Fill, Fill Behind Curbs, and Compaction Thru Cuts are paid for as "Fill, Compacted (95% Density)". Total Amount = 8384 Cu.Yds.

①2609 Cu. Yds. to be hauled to North Fr. Rd. Balance Sta. 473+17.44 to Sta. 518+00 (City of Wichita Proj. No. 472-84840)

END SECTION SUMMARY (EACH)

SWS LINE NO.	18"	30"	RCHE 29"x45"	RCHE 34"x53"
405				1
410	1	1		
700			1	
Total	1	1	1	1

No.	Revision	By	Date

CITY OF WICHITA

SUMMARY OF QUANTITIES

PROJECT NO. 472-84841 SEDGWICK CO.

PEC PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
303 SOUTH TOPEKA WICHITA, KS 67202
316-262-2691 www.pec1.com

Designed by	CKC	Job No.	08313	Sht. 55 of 130
Drawn by	DRP	Date	June, 2014	

Plotted By: drp Date: 7/15/2014 10:46:38 AM
FILE: i:\2008\08313\Frontage Rd South\Quantities\08313-Sum0ty.dgn

RECAPITULATION OF QUANTITIES

ITEM	QUANTITY	UNIT
LUMP SUM BID ITEMS (760621)		
Mobilization	1	Lump Sum
Mobilization (DBE)	1	Lump Sum
Field Office & Laboratory (Type A)	1	Each
Site Clearing	1	Lump Sum
Site Restoration	1	Lump Sum
Removal of Existing Structures	1	Lump Sum
Concrete &/or Asphalt Pavement Removed	445	Sq. Yd.
Excavation	23853	Cu. Yd.
Fill, Compacted (95% Density)	8384	Cu. Yd.
Concrete Pavement (VG) 9" (Reinf)	210	Sq. Yd.
Concrete Pavement 10" (NRDJ)	12572	Sq. Yd.
Concrete Pavement 10" (Reinf)	225	Sq. Yd.
Crushed Rock Base 6", Reinforced	191	Sq. Yd.
Crushed Rock Base 10", Reinforced	16813	Sq. Yd.
Concrete C & G, Comb. Type 1 (6" & 1-1/2")	5038	L.F.
Concrete C & G, Comb. Type 1 (Special) (6" & 1-1/2")	5166	L.F.
Concrete Curb, Mono Edge (6" & 1-1/2")	126	L.F.
Wheelchair Ramp w/ Detectable Warnings	2	Each
Signing, Except Street Name Signs	1	Lump Sum
Pavement Marking	1	Lump Sum
Traffic Control	1	Lump Sum
Communications Duct Bank	3739	L.F.
Electric Lighting System	1	Lump Sum
Plugging (Water) Wells	1	Each
LUMP SUM BID ITEMS - DRAINAGE (760621)		
Inlet, Curb (Type 1) (L=5' W=3')	4	Each
Inlet, Curb (Type 1) (L=5' W=4')	2	Each
Inlet, Curb (Type 1) (L=5' W=5')	1	Each
Inlet, Curb (Type 1) (L=10' W=3')	13	Each
Inlet, Curb (Type 1) (L=10' W=4')	7	Each
Inlet, Curb (Type 1) (L=10' W=5')	3	Each
Inlet, Curb (Type 1) (L=10' W=6')	3	Each
Inlet, Curb (Type 1) (Double Double) (L=4' W=4')	1	Each
MH, Reinforced Concrete (L=5' W=5')	1	Each
MH, Reinforced Concrete (L=7' W=4'-6")	1	Each
Inlet Hookup	33	Each
Pipe, PVC 4", Perforated	363	L.F.
Pipe, Cross Road 18" (RCP)	60	L.F.
Pipe, Entrance 18"	43	L.F.
Pipe, 18" End Section	3	Each
Pipe, 18" End Section (RC)	2	Each
Pipe, 30" End Section	1	Each
Pipe, 29" X 45" End Section (RCPHE)	1	Each
Pipe, 34" X 53" End Section (RCPHE)	1	Each
Pipe, SWS 15" (RCP)	1767	L.F.
Pipe, SWS 18"	20	L.F.
Pipe, SWS 18" (RCP)	814	L.F.
Pipe, SWS 24"	19	L.F.
Pipe, SWS 24" (RCP)	517	L.F.
Pipe, SWS 30"	15	L.F.
Pipe, SWS 30" (RCP)	350	L.F.
Pipe, SWS 36" (RCP)	536	L.F.
Pipe, SWS 29" X 45" (RCPHE)	346	L.F.
Pipe, SWS 34" X 53" (RCPHE)	92	L.F.
Fill, Sand (Flushed & Vibrated)	4384	L.F.
LUMP SUM BID ITEMS - NON-PARTICIPATING (760621)		
Transportation of Salvaged Material	1	Lump Sum
Signing, Street Name Signs Only	1	Lump Sum
LUMP SUM BID ITEMS - LANDSCAPE (760621)		
Seeding	1	Lump Sum
MEASURED QUANTITY BID ITEMS - PAVING (760621)		
Concrete Sidewalk 4"	30073	Sq. Ft.
Concrete Driveway 8" (Reinforced)	2026	Sq. Ft.
Crushed Rock Hookup	133	Sq. Yd.
Fence, Chain Link	5054	L.F.
Posts (Corner)(Chain Link)	15	Each
Posts (Ends)(Chain Link)	2	Each
Posts (Pull)(Chain Link)	10	Each
Fence Removed	4230	L.F.
Fence (Temporary Construction)	50	L.F.
Sign, Electronic Portable Message	100	Day
MEASURED QUANTITY BID ITEMS - LANDSCAPING (760621)		
Tree, Bur Oak - 2" caliper	18	Each
Tree, Chinese Pistache - 2" caliper	24	Each
Tree, Prairie Pride Hackberry - 2" caliper	7	Each
Tree, Oklahoma Redbud - 1.5" caliper	19	Each
Tree, Goldenrain Tree - 1.5" caliper	17	Each
Tree, Canaert Juniper - 1.5" caliper	21	Each
MEASURED QUANTITY BID ITEMS - BMP'S (760621)		
BMP, Curb Inlet Protection	33	Each
BMP, Back of Curb Protection	10330	L.F.
BMP, Silt Fence	16335	L.F.
BMP, Construction Entrance	2	Each

See Sh. No. 77 for Summary of Electric Lighting System and Ductbank.
See Sh. No. 86 for Summary of Pavement Markings.
See Sh. No. 90 for Sign Assembly Table.
See Sh. No. 94 for Traffic Control.

No.	Revision	By	Date

CITY OF WICHITA

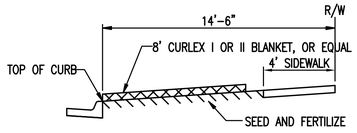
RECAPITULATION OF QUANTITIES

PROJECT NO. 472-84841 SEDGWICK CO.

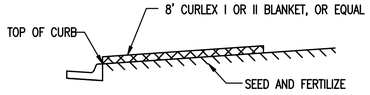
PEC PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
303 SOUTH TOPEKA WICHITA, KS 67202
316-262-2691 www.pec1.com

Designed by	CKC	Job No.	08313	Sht. 56 of 130
Drawn by	DRP	Date	June, 2014	

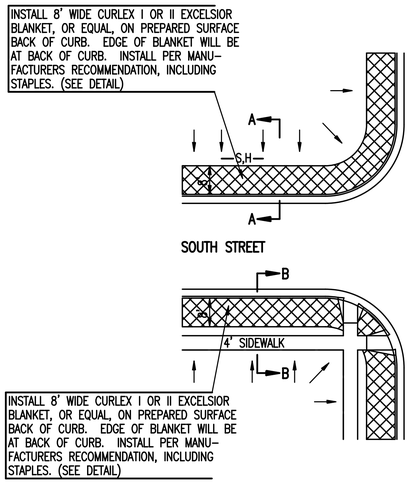
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SECTION B-B



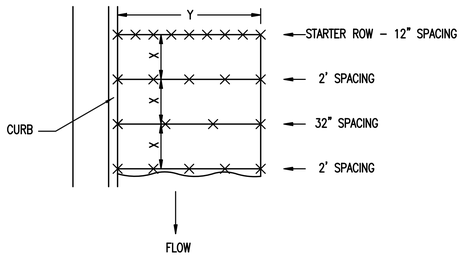
SECTION A-A



GENERAL NOTES

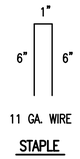
1. EXCELSIOR MAT TO BE INSTALLED WHEN SOD IS NOT SPECIFIED ON PROJECT.
2. EXCELSIOR BLANKET TO BE INSTALLED OVER SEED AND FERTILIZER, AS SPECIFIED IN THE PROJECT SPECIFICATIONS.
3. AFTER INSTALLATION OF EXCELSIOR BLANKET, AT LOCATIONS WHERE CONCENTRATED FLOW CARRIES SEDIMENT OVER THE CURB AND INTO THE GUTTER, SUPPLEMENTAL EROSION CONTROL DEVICES WILL BE INSTALLED BY THE CONTRACTOR AS NEEDED, TO FIX THE PROBLEM.

BACK OF CURB PROTECTION DETAIL



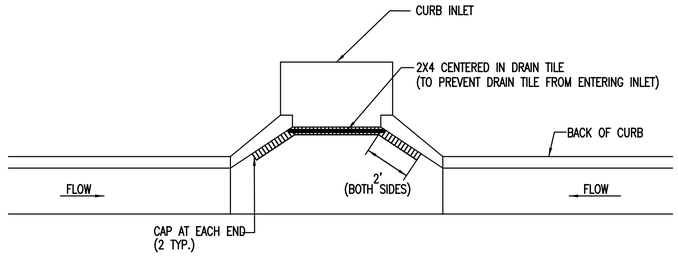
STAPLE PATTERN

NOTES: USE 6" SEAM OVERLAP
(X & Y = RECOMMENDED BY MANUFACTURE)



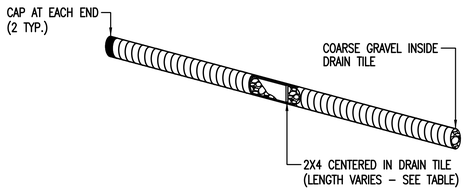
STAPLE

DETAILS FOR APPROVED EROSION CONTROL MAT

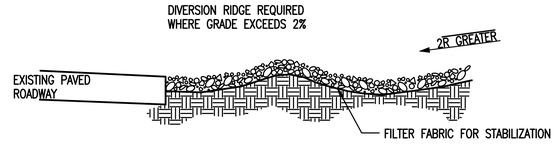


NOTE:
PLACE 4" PERFORATED PVC PIPE, FILLED WITH 1/2"-1" DIA. GRAVEL, IN FRONT OF CURB INLET AS SHOWN.

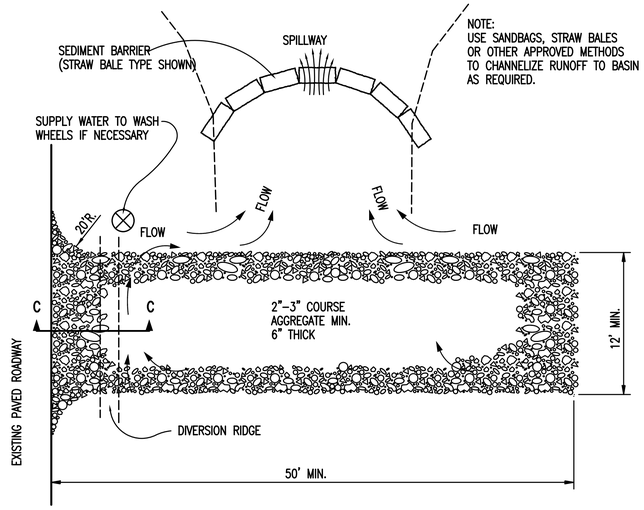
2X4 LENGTH	INLET TYPE	INLET OPENING
5'-6"	1-A	5'-0"
10'-6"	1-A	10'-0"
15'-6"	1-A	15'-0"



CURB INLET PROTECTION
4" PERFORATED PIPE W/ GRAVEL



SECTION C-C



STABILIZED CONSTRUCTION ENTRANCE

GENERAL NOTES

1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN, AS SHOWN ABOVE.
4. DRIVE ENTRANCES ONTO RESIDENTIAL LOTS WILL NOT BE REQUIRED TO HAVE THE SEDIMENT BARRIER SHOWN, BUT WHEEL WASHING MAY BE REQUIRED IF STABILIZED ENTRANCE IS NOT SUFFICIENT TO KEEP MUD FROM BEING TRACKED ONTO ADJACENT STREET. ENTRANCE SHALL EXTEND FROM BACK OF CURB TO DWELLING.

CITY OF WICHITA
PUBLIC WORKS & UTILITIES
ENGINEERING DIVISION

BACK OF CURB PROTECTION, CURB INLET PROTECTION AND CONSTRUCTION ENTRANCE

CITY ENGINEER
GARY JANZEN, P.E.

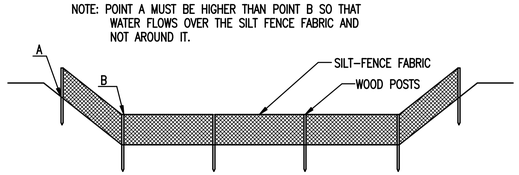
PROJECT NUMBER	OCA NUMBER	DATE
472-84841	760621	08/2012

DESIGN	DRAWN

SHEET
57 of 130

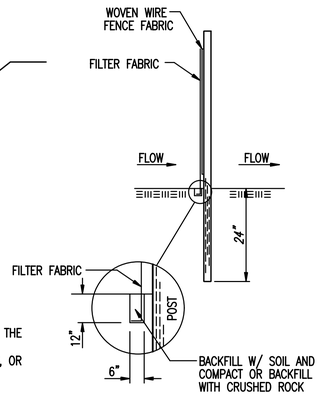
CITY ENGINEER'S OFFICE
CITY HALL - SEVENTH FLOOR
455 NORTH MAIN STREET
WICHITA, KANSAS 67202-1620
(316) 268-4501

SW-501



ELEVATION

SILT FENCE DITCH CHECKS
(STREAM PROTECTION)



ANCHOR TRENCH DETAIL

MATERIAL SPECIFICATION:

SILT FENCE FABRIC SHOULD CONFORM TO THE AASHTO M288 96 SILT FENCE SPECIFICATION.
THE POSTS USED TO SUPPORT THE SILT FENCE FABRIC SHOULD BE A HARDWOOD MATERIAL WITH THE FOLLOWING MINIMUM DIMENSIONS: 2" SQUARE (NOMINAL) BY 4' LONG.
SILT FENCE FABRIC SHOULD BE ATTACHED TO THE WOODEN POSTS WITH STAPLES, WIRE, ZIP TIES, OR NAILS.

PLACEMENT:

PLACE SILT FENCE IN DITCHES WHERE IT IS UNLIKELY THAT IT WILL BE OVERTOPPED.
WATER SHOULD FLOW THROUGH A SILT FENCE DITCH CHECK, NOT OVER IT. SILT FENCE DITCH CHECKS OFTEN FAIL WHEN OVERTOPPED.
SILT FENCE DITCH CHECKS SHOULD BE PLACED PERPENDICULAR TO THE FLOWLINE OF THE DITCH.
THE SILT FENCE SHOULD EXTEND FAR ENOUGH SO THAT THE GROUND LEVEL AT THE ENDS OF THE FENCE IS HIGHER THAN THE TOP OF THE LOW POINT OF THE FENCE. THIS PREVENTS WATER FROM FLOWING AROUND THE CHECK.
SILT FENCE DITCH CHECKS SHOULD NOT BE PLACED IN DITCHES WHERE HIGH FLOWS ARE EXPECTED. ROCK CHECKS SHOULD BE USED INSTEAD.
SILT FENCE SHOULD BE PLACED IN DITCHES WITH SLOPES OF 6R LESS. FOR SLOPES STEEPER THAN 6%, ROCK CHECKS SHOULD BE USED.

THE FOLLOWING TABLE PROVIDES CHECK SPACING FOR A GIVEN DITCH GRADE:

DITCH CHECK DITCH GRADE (%)	SPACING CHECK SPACING (FEET)
0.5	200
1.0	200
2.0	100
3.0	65
4.0	50
5.0	40
6.0	30

PROPER INSTALLATION METHOD:

EXCAVATE A TRENCH PERPENDICULAR TO THE DITCH FLOWLINE THAT IS AT LEAST 12" DEEP BY 6" WIDE.
EXTEND THE TRENCH IN A STRAIGHT LINE ALONG THE ENTIRE LENGTH OF THE PROPOSED DITCH CHECK.
PLACE THE SOIL ON THE UPSTREAM SIDE OF THE TRENCH FOR LATER USE.
ROLL OUT A CONTINUOUS LENGTH OF SILT FENCE FABRIC ON THE DOWNSTREAM SIDE OF THE TRENCH.
PLACE THE EDGE OF THE FABRIC IN THE TRENCH STARTING AT THE TOP UPSTREAM EDGE OF THE TRENCH.
LINE TWO SIDES OF THE TRENCH WITH THE FABRIC AS SHOWN ON DETAIL. BACKFILL OVER THE FABRIC IN THE TRENCH WITH THE EXCAVATED SOIL AND COMPACT. AFTER FILLING THE TRENCH, APPROXIMATELY 24" TO 36" OF SILT FENCE FABRIC SHOULD REMAIN EXPOSED.
LAY THE EXPOSED SILT FENCE ON THE UPSTREAM SIDE OF THE TRENCH TO CLEAR AN AREA FOR DRIVING IN THE POSTS. JUST DOWNSTREAM OF THE TRENCH, DRIVE POSTS INTO THE GROUND TO A DEPTH OF AT LEAST 24". PLACE POSTS NO MORE THAN 4' APART.
ATTACH THE SILT FENCE TO THE ANCHORED POST WITH STAPLES, WIRE, ZIP TIES, OR NAILS.

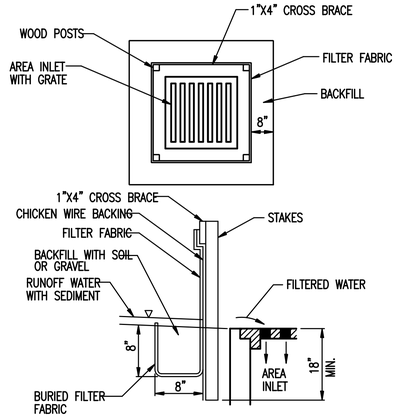
LIST OF COMMON PLACEMENT/INSTALLATION MISTAKES TO AVOID:

WATER SHOULD FLOW THROUGH A SILT FENCE DITCH CHECK-NOT OVER IT. PLACE SILT FENCE IN DITCHES WHERE IT IS UNLIKELY THAT IT WILL BE OVERTOPPED. SILT FENCE INSTALLATIONS QUICKLY DETERIORATE WHEN WATER OVERTOPS THEM.
DO NOT PLACE SILT FENCE POSTS ON THE UPSTREAM SIDE OF THE SILT FENCE FABRIC. IN THIS CONFIGURATION, THE FORCE OF THE WATER IS NOT RESTRICTED BY THE POSTS, BUT ONLY BY THE STAPLES (WIRE, ZIP TIES, NAILS, ETC.). THE SILT FENCE WILL RIP AND FAIL.
DO NOT PLACE A SILT FENCE DITCH CHECK DIRECTLY IN FRONT OF A CULVERT OUTLET. IT WILL NOT STAND UP TO THE CONCENTRATED FLOW.
DO NOT PLACE SILT FENCE DITCH CHECKS IN DITCHES THAT WILL LIKELY EXPERIENCE HIGH FLOWS. THEY WILL NOT STAND UP TO CONCENTRATED FLOW.
FOLLOW PRESCRIBED DITCH CHECK SPACING GUIDELINES. IF SPACING GUIDELINES ARE EXCEEDED, EROSION WILL OCCUR BETWEEN THE DITCH CHECKS.
DO NOT ALLOW WATER TO FLOW AROUND THE DITCH CHECK. MAKE SURE THAT THE DITCH CHECK IS LONG ENOUGH SO THAT THE GROUND LEVEL AT THE ENDS OF THE FENCE IS HIGHER THAN THE LOW POINT ON THE TOP OF THE FENCE.
DO NOT PLACE SILT FENCE DITCH CHECKS IN CHANNELS WITH SHALLOW SOILS UNDERLAIN BY ROCK. IF THE CHECK IS NOT ANCHORED SUFFICIENTLY, IT WILL WASH OUT.

INSPECTION AND MAINTENANCE:

SILT FENCE DITCH CHECKS SHOULD BE INSPECTED EVERY 7 DAYS AND WITHIN 24 HOURS OF A RAINFALL OF 1/2" OR MORE. THE FOLLOWING IS A LIST OF QUESTIONS THAT SHOULD BE ADDRESSED DURING EACH INSPECTION:

DOES WATER FLOW AROUND THE DITCH CHECK?
DOES WATER FLOW UNDER THE DITCH CHECK?
DOES THE SILT FENCE SAG EXCESSIVELY?
HAS THE SILT FENCE TORN OR BECOME DETACHED FROM THE POSTS?
DOES SEDIMENT NEED TO BE REMOVED FROM BEHIND THE DITCH CHECK?



SILT FENCE BARRIERS FOR AREA INLETS
(INLET PROTECTION)

MATERIAL SPECIFICATION:

SILT FENCE FABRIC SHOULD CONFORM TO THE AASHTO M288 96 SILT FENCE SPECIFICATION.
THE WIRE OR POLYMERIC MESH BACKING USED TO HELP SUPPORT THE SILT FENCE FABRIC SHOULD CONFORM TO THE AASHTO M288 96 SILT FENCE SPECIFICATION.
THE POSTS USED TO SUPPORT THE SILT FENCE FABRIC SHOULD BE A HARDWOOD MATERIAL WITH THE FOLLOWING MINIMUM DIMENSIONS: 2" SQUARE (NOMINAL) BY 4' LONG.
THE MATERIAL USED TO FRAME THE TOPS OF THE POSTS SHOULD BE 1" BY 4" BOARDS.
SILT FENCE FABRIC AND SUPPORT BACKING SHOULD BE ATTACHED TO THE WOODEN POSTS AND FRAME WITH STAPLES, WIRE, ZIP TIES, OR NAILS.

PLACEMENT:

PLACE A SILT FENCE DROP INLET BARRIER IN A LOCATION WHERE IT IS UNLIKELY TO BE OVERTOPPED. WATER SHOULD FLOW THROUGH SILT FENCE, NOT OVER IT. SILT FENCE BARRIERS FOR AREA INLETS OFTEN FAIL WHEN REPEATEDLY OVERTOPPED.
WHEN USED AS A BARRIER FOR AREA INLETS, SILT FENCE FABRIC AND POSTS MUST BE SUPPORTED AT THE TOP BY A WOODEN FRAME.
WHEN A SILT FENCE BARRIER FOR AREA INLETS IS LOCATED NEAR AN INLET THAT HAS STEEP APPROACH SLOPES, THE STORAGE CAPACITY BEHIND THE BARRIER IS DRASTICALLY REDUCED. TIMELY REMOVAL OF SEDIMENT MUST OCCUR FOR A BARRIER TO OPERATE PROPERLY IN THIS LOCATION.

PROPER INSTALLATION METHOD:

EXCAVATE A TRENCH AROUND THE PERIMETER OF THE AREA INLET THAT IS AT LEAST 8" DEEP BY 8" WIDE.
DRIVE POSTS TO A DEPTH OF AT LEAST 18" AROUND THE PERIMETER OF THE AREA INLET.
THE DISTANCE BETWEEN POSTS SHOULD BE 4' OR LESS. IF THE DISTANCE BETWEEN TWO ADJACENT CORNER POSTS IS MORE THAN 4', ADD ANOTHER POST(S) BETWEEN THEM.
CONNECT THE TOPS OF ALL THE POSTS WITH A WOODEN FRAME MADE OF 1" BY 4" BOARDS. USE NAILS OR SCREWS FOR FASTENING.
ATTACH THE WIRE OR POLYMERIC-MESH BACKING TO THE OUTSIDE OF THE POST/FRAME STRUCTURE WITH STAPLES, WIRE, ZIP TIES, OR NAILS.
ROLL OUT A CONTINUOUS LENGTH OF SILT FENCE FABRIC LONG ENOUGH TO WRAP AROUND THE PERIMETER OF THE AREA INLET. ADD MORE LENGTH FOR OVERLAPPING THE FABRIC JOINT. PLACE THE EDGE OF THE FABRIC IN THE TRENCH, STARTING AT THE OUTSIDE EDGE OF THE TRENCH. LINE ALL THREE SIDES OF THE TRENCH WITH THE FABRIC. BACKFILL OVER THE FABRIC IN THE TRENCH WITH THE EXCAVATED SOIL AND COMPACT. AFTER FILLING THE TRENCH, APPROXIMATELY 24" TO 36" OF SILT FENCE FABRIC SHOULD REMAIN EXPOSED.
ATTACH THE SILT FENCE TO THE OUTSIDE OF THE POST/FRAME STRUCTURE WITH STAPLES, WIRE, ZIP TIES, OR NAILS. THE JOINT SHOULD BE OVERLAPPED TO THE NEXT POST.

NOTE: WHEN A SILT FENCE BARRIER FOR AREA INLET IS PLACED IN A SHALLOW MEDIAN DITCH, MAKE SURE THAT THE TOP OF THE BARRIER IS NOT HIGHER THAN THE PAVED ROAD. IN THIS CONFIGURATION, WATER MAY SPREAD ONTO THE ROADWAY CAUSING A HAZARDOUS CONDITION.

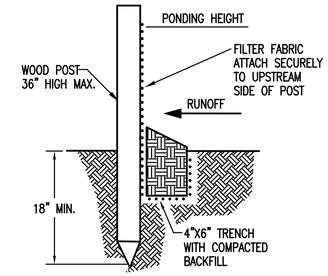
LIST OF COMMON PLACEMENT/INSTALLATION MISTAKES TO AVOID:

WATER SHOULD FLOW THROUGH A SILT FENCE BARRIER FOR AREA INLET-NOT OVER IT. PLACE A SILT FENCE BARRIER FOR AREA INLET IN A LOCATION WHERE IT IS UNLIKELY TO BE OVERTOPPED. SILT FENCE BARRIER FOR AREA INLETS OFTEN FAIL WHEN REPEATEDLY OVERTOPPED.
DO NOT PLACE POSTS ON THE OUTSIDE OF THE SILT FENCE BARRIER FOR AREA INLET. IN THIS CONFIGURATION, THE FORCE OF THE WATER IS NOT RESISTED BY THE POSTS, BUT ONLY BY THE STAPLES (WIRE, ZIP TIES, NAILS, ETC.). THE SILT FENCE WILL RIP AND FAIL.
DO NOT INSTALL SILT FENCE BARRIER FOR AREA INLETS WITHOUT FRAMING THE TOP OF THE POSTS. THE CORNER POSTS AROUND AREA INLETS ARE STRESSED IN TWO DIRECTIONS WHEREAS A NORMAL SILT FENCE IS ONLY STRESSED IN ONE DIRECTION. THIS ADDED STRESS REQUIRES MORE SUPPORT.

INSPECTION AND MAINTENANCE:

SILT FENCE BARRIER FOR AREA INLETS SHOULD BE INSPECTED EVERY 7 DAYS AND WITHIN 24 HOURS OF A RAINFALL OF 1/2" OR MORE. THE FOLLOWING IS A LIST OF QUESTIONS THAT SHOULD BE ADDRESSED DURING EACH INSPECTION:

DOES WATER FLOW UNDER THE SILT FENCE?
DOES THE SILT FENCE SAG EXCESSIVELY?
HAS THE SILT FENCE TORN OR BECOME DETACHED FROM THE POSTS?
DOES SEDIMENT NEED TO BE REMOVED FROM BEHIND THE AREA INLET BARRIER?



SILT FENCE BARRIERS

MATERIAL SPECIFICATION:

SILT FENCE FABRIC SHOULD CONFORM TO THE AASHTO M288 96 SILT FENCE SPECIFICATION.
THE POSTS USED TO SUPPORT THE SILT FENCE FABRIC SHOULD BE A HARDWOOD MATERIAL WITH THE FOLLOWING MINIMUM DIMENSIONS: 2" SQUARE (NOMINAL) BY 4' LONG.
SILT FENCE FABRIC SHOULD BE ATTACHED TO THE WOODEN POSTS WITH STAPLES, WIRE, ZIP TIES, OR NAILS.

PLACEMENT:

A SLOPE BARRIER SHOULD BE USED AT THE TOE OF A SLOPE WHEN A DITCH DOES NOT EXIST. THE SLOPE BARRIER SHOULD BE PLACED ON NEARLY LEVEL GROUND 5' TO 10' AWAY FROM THE TOE OF A SLOPE. THE BARRIER IS PLACED AWAY FROM THE TOE OF THE SLOPE TO PROVIDE ADEQUATE STORAGE FOR SETTLING OUT SEDIMENT.
WHEN PRACTICABLE, SILT FENCE SLOPE BARRIERS SHOULD BE PLACED ALONG CONTOURS TO AVOID A CONCENTRATION OF FLOW.
SILT FENCE SLOPE BARRIERS CAN ALSO BE PLACED ALONG RIGHT-OF-WAY FENCE LINES TO KEEP SEDIMENT FROM CROSSING ONTO ADJACENT PROPERTY. WHEN PLACED IN THIS MANNER, THE SLOPE BARRIER WILL NOT LIKELY FOLLOW CONTOURS.

PROPER INSTALLATION METHOD:

EXCAVATE A TRENCH THE LENGTH OF THE PLANNED SLOPE BARRIER THAT IS 6" DEEP BY 4" WIDE.
MAKE SURE THAT THE TRENCH IS EXCAVATED ALONG A SINGLE CONTOUR. WHEN PRACTICABLE, SLOPE BARRIERS SHOULD BE PLACED ALONG CONTOURS TO AVOID A CONCENTRATION OF FLOW. PLACE THE SOIL ON THE UPSLOPE SIDE OF THE TRENCH FOR LATER USE.
ROLL OUT A CONTINUOUS LENGTH OF SILT FENCE FABRIC ON THE DOWNSLOPE SIDE OF THE TRENCH.
PLACE THE EDGE OF THE FABRIC IN THE TRENCH STARTING AT THE TOP UPSLOPE EDGE. LINE ALL THREE SIDES OF THE TRENCH WITH THE FABRIC. BACKFILL OVER THE FABRIC IN THE TRENCH WITH THE EXCAVATED SOIL AND COMPACT. AFTER FILLING THE TRENCH, APPROXIMATELY 24" TO 36" OF SILT-FENCE FABRIC SHOULD REMAIN EXPOSED.
LAY THE EXPOSED SILT FENCE UPSLOPE OF THE TRENCH TO CLEAR AN AREA FOR DRIVING IN THE POSTS. JUST DOWNSLOPE OF THE TRENCH, DRIVE POSTS INTO THE GROUND TO A DEPTH OF AT LEAST 18". PLACE POSTS NO MORE THAN 4' APART.
ATTACH THE SILT FENCE TO THE ANCHORED POST WITH STAPLES, WIRE, ZIP TIES, OR NAILS.

LIST OF COMMON PLACEMENT/INSTALLATION MISTAKES TO AVOID:

WHEN PRACTICABLE, DO NOT PLACE SILT FENCE SLOPE BARRIERS ACROSS CONTOURS. SLOPE BARRIERS SHOULD BE PLACED ALONG CONTOURS TO AVOID A CONCENTRATION OF FLOW. WHEN THE FLOW CONCENTRATES, IT OVERTOPS THE BARRIER AND THE SILT FENCE SLOPE BARRIER QUICKLY DETERIORATES.
DO NOT PLACE SILT-FENCE POSTS ON THE UPSLOPE SIDE OF THE SILT FENCE FABRIC. IN THIS CONFIGURATION, THE FORCE OF THE WATER IS NOT RESTRICTED BY THE POSTS, BUT ONLY BY THE STAPLES (WIRE, ZIP TIES, NAILS, ETC.). THE SILT FENCE WILL RIP AND FAIL.
DO NOT PLACE SILT FENCE SLOPE BARRIERS IN AREAS WITH SHALLOW SOILS UNDERLAIN BY ROCK. IF THE BARRIER IS NOT SUFFICIENTLY ANCHORED, IT WILL WASH OUT.
SILT FENCE SLOPE BARRIERS MUST BE DUG INTO THE GROUND-SILT FENCE AT GROUND LEVEL DOES NOT WORK BECAUSE WATER WILL FLOW UNDERNEATH.

INSPECTION AND MAINTENANCE:

SILT FENCE SLOPE BARRIERS SHOULD BE INSPECTED EVERY 7 DAYS AND WITHIN 24 HOURS OF A RAINFALL OF 1/2" OR MORE. THE FOLLOWING IS A LIST OF QUESTIONS THAT SHOULD BE ADDRESSED DURING EACH INSPECTION:

ARE THERE ANY POINTS ALONG THE SLOPE BARRIER WHERE WATER IS CONCENTRATING?
DOES WATER FLOW UNDER THE SLOPE BARRIER?
DO THE SILT FENCES SAG EXCESSIVELY?
HAS THE SILT FENCE TORN OR BECOME DETACHED FROM THE POSTS?
DOES SEDIMENT NEED TO BE REMOVED FROM BEHIND THE SLOPE BARRIER?

CITY OF WICHITA
PUBLIC WORKS & UTILITIES ENGINEERING DIVISION

SILT FENCE DITCH CHECK AND BARRIER DETAILS

CITY ENGINEER
JAMES L. ARMOUR, P.E., L.S.

PROJECT NUMBER	OCA NUMBER	DATE
472-84841	760621	11/2010

DESIGN | DRAWN

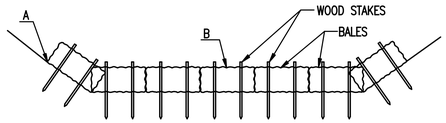
CITY ENGINEER'S OFFICE
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SHEET
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SW-502

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NOTE: POINT A MUST BE HIGHER THAN POINT B
SO THAT WATER FLOWS OVER THE BALES AND
NOT AROUND THEM.



STRAW BALE DITCH CHECKS

MATERIAL SPECIFICATION:

BALE DITCH CHECKS MAY BE CONSTRUCTED OF WHEAT STRAW, OAT STRAW, PRAIRIE HAY, OR BROMEGRASS HAY THAT IS FREE OF WEEDS DECLARED NOXIOUS BY THE KANSAS STATE BOARD OF AGRICULTURE.
THE STAKES USED TO ANCHOR THE BALES SHOULD BE A HARDWOOD MATERIAL WITH THE FOLLOWING MINIMUM DIMENSIONS: 2" SQUARE (NOMINAL) BY 4' LONG.
OPTIONAL: THE DOWNSTREAM SCOUR APRON SHOULD BE CONSTRUCTED OF A DOUBLE-NETTED STRAW EROSION-CONTROL BLANKET AT LEAST 6' WIDE.
OPTIONAL: THE METAL LANDSCAPE STAPLES USED TO ANCHOR THE EROSION-CONTROL BLANKET SHOULD BE AT LEAST 8" LONG.

PLACEMENT:

BALE DITCH CHECKS SHOULD BE PLACED PERPENDICULAR TO THE FLOWLINE OF THE DITCH.
THE DITCH CHECK SHOULD EXTEND FAR ENOUGH SO THAT THE GROUND LEVEL AT THE ENDS OF THE CHECK IS HIGHER THAN THE TOP OF THE LOWEST CENTER BALE. THIS PREVENTS WATER FROM FLOWING AROUND THE CHECK.
STRAW BALE DITCH CHECKS SHOULD NOT BE PLACED IN DITCHES WHERE HIGH FLOWS ARE EXPECTED. ROCK CHECKS SHOULD BE USED INSTEAD.
BALES SHOULD BE PLACED IN DITCHES WITH SLOPES OF 6R LESS. FOR SLOPES STEEPER THAN 6%, ROCK CHECKS SHOULD BE USED.
THE FOLLOWING TABLE PROVIDES CHECK SPACING FOR A GIVEN DITCH GRADE:

DITCH CHECK SPACING

DITCH GRADE (%)	CHECK SPACING (FEET)
0.5	200
1.0	200
2.0	100
3.0	65
4.0	50
5.0	40
6.0	30

PROPER INSTALLATION METHOD:

EXCAVATE A TRENCH PERPENDICULAR TO THE DITCH FLOWLINE THAT IS 4" DEEP AND A BALE'S WIDTH WIDE. EXTEND THE TRENCH IN A STRAIGHT LINE ALONG THE ENTIRE LENGTH OF THE PROPOSED DITCH CHECK. PLACE THE SOIL ON THE UPSTREAM SIDE OF THE TRENCH-IT WILL BE USED LATER.
OPTIONAL: ON THE DOWNSTREAM SIDE OF THE TRENCH, ROLL OUT A LENGTH OF EROSION-CONTROL BLANKET (SCOUR APRON) EQUAL TO THE LENGTH OF THE TRENCH. PLACE THE UPSTREAM EDGE OF THE EROSION-CONTROL BLANKET ALONG THE BOTTOM UPSTREAM EDGE OF THE TRENCH. THE EROSION CONTROL BLANKET SHOULD BE ANCHORED IN THE TRENCH WITH ONE ROW OF 8" LANDSCAPE STAPLES PLACED ON 18" CENTERS. THE REMAINDER OF THE EROSION-CONTROL BLANKET (THE PORTION THAT IS NOT LYING IN THE TRENCH) WILL SERVE AS THE DOWNSTREAM SCOUR APRON. THIS SECTION OF THE BLANKET SHOULD BE ANCHORED TO THE GROUND WITH 8" LANDSCAPE STAPLES PLACED AROUND THE PERIMETER OF THE BLANKET ON 18" CENTERS. THE REMAINDER OF THE BLANKET SHOULD BE ANCHORED USING TWO EVENLY SPACED ROWS OF 8" LANDSCAPE STAPLES ON 18" CENTERS PLACED PERPENDICULAR TO THE FLOWLINE OF THE DITCH.
PLACE THE BALES IN THE TRENCH, MAKING SURE THAT THEY ARE BUTTED TIGHTLY. TWO STAKES SHOULD BE DRIVEN THROUGH EACH BALE ALONG THE CENTERLINE OF THE DITCH CHECK, APPROXIMATELY 6" TO 8" IN FROM THE BALE ENDS. STAKES SHOULD BE DRIVEN AT LEAST 12" INTO THE GROUND.
ONCE ALL THE BALES HAVE BEEN INSTALLED AND ANCHORED, PLACE THE EXCAVATED SOIL AGAINST THE UPSTREAM SIDE OF THE CHECK AND COMPACT IT. THE COMPACTED SOIL SHOULD BE NO MORE THAN 3" TO 4" DEEP AND EXTEND UPSTREAM NO MORE THAN 24".

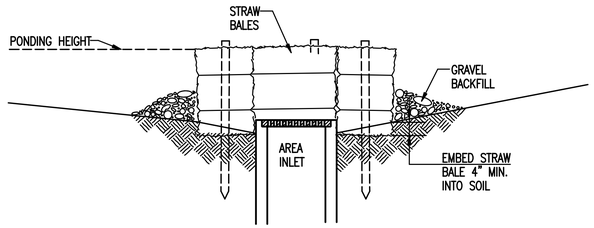
LIST OF COMMON PLACEMENT/INSTALLATION MISTAKES TO AVOID:

DO NOT PLACE A BALE DITCH CHECK DIRECTLY IN FRONT OF A CULVERT OUTLET. IT WILL NOT STAND UP TO THE CONCENTRATED FLOW.
DO NOT PLACE BALE DITCH CHECKS IN DITCHES THAT WILL LIKELY EXPERIENCE HIGH FLOWS. THEY WILL NOT STAND UP TO CONCENTRATED FLOW.
FOLLOW PRESCRIBED DITCH-CHECK SPACING GUIDELINES. IF SPACING GUIDELINES ARE EXCEEDED, EROSION WILL OCCUR BETWEEN THE DITCH CHECKS.
DO NOT ALLOW WATER TO FLOW AROUND THE DITCH CHECK. MAKE SURE THAT THE DITCH CHECK IS LONG ENOUGH SO THAT THE GROUND LEVEL AT THE ENDS OF THE CHECK IS HIGHER THAN THE TOP OF THE LOWEST CENTER BALE.
DO NOT PLACE BALE DITCH CHECKS IN CHANNELS WITH SHALLOW SOILS UNDERLAIN BY ROCK. IF THE CHECK IS NOT ANCHORED SUFFICIENTLY, IT WILL WASH OUT.
BALE DITCH CHECKS MUST BE DUG INTO THE GROUND. BALES AT GROUND LEVEL DO NOT WORK BECAUSE THEY ALLOW WATER TO FLOW UNDER THE CHECK.

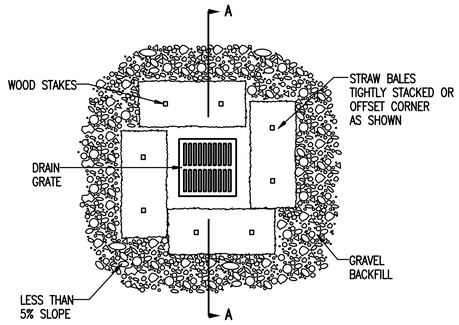
INSPECTION AND MAINTENANCE:

BALE DITCH CHECKS SHOULD BE INSPECTED EVERY 7 DAYS AND WITHIN 24 HOURS OF A RAINFALL OF 1/2" OR MORE. THE FOLLOWING IS A LIST OF QUESTIONS THAT SHOULD BE ADDRESSED DURING EACH INSPECTION:

DOES WATER FLOW AROUND THE DITCH CHECK?
DOES WATER FLOW UNDER THE DITCH CHECK?
DOES WATER FLOW THROUGH SPACES BETWEEN ABUTTING BALES?
ARE ANY BALES AND/OR SCOUR APRONS (OPTIONAL) DISLODGED?
ARE BALES DECOMPOSING DUE TO AGE AND/OR WATER DAMAGE?
DOES SEDIMENT NEED TO BE REMOVED FROM BEHIND THE DITCH CHECK?



SECTION A-A



STRAW BALE BARRIERS FOR AREA INLETS
(INLET PROTECTION)

MATERIAL SPECIFICATION:

BALE AREA INLET BARRIERS SHOULD BE CONSTRUCTED OF WHEAT STRAW, OAT STRAW, PRAIRIE HAY, OR BROMEGRASS HAY THAT IS FREE OF WEEDS DECLARED NOXIOUS BY THE KANSAS STATE BOARD OF AGRICULTURE.
THE STAKES USED TO ANCHOR THE BALES SHOULD BE A HARDWOOD MATERIAL WITH THE FOLLOWING MINIMUM DIMENSIONS: 2" SQUARE (NOMINAL) BY 4' LONG.
TWINE SHOULD BE USED TO BIND BALES. THE USE OF WIRE BINDING IS PROHIBITED BECAUSE IT DOES NOT BIODEGRADE READILY.

PLACEMENT:

BALE AREA INLET BARRIERS SHOULD BE PLACED DIRECTLY AROUND THE PERIMETER OF A DROP INLET. WHEN A BALE AREA INLET BARRIER IS LOCATED NEAR AN INLET THAT HAS STEEP APPROACH SLOPES, THE STORAGE CAPACITY BEHIND THE BARRIER IS DRASTICALLY REDUCED. TIMELY REMOVAL OF SEDIMENT MUST OCCUR FOR A BARRIER TO OPERATE PROPERLY IN THIS LOCATION.

PROPER INSTALLATION METHOD:

EXCAVATE A TRENCH AROUND THE PERIMETER OF THE AREA INLET THAT IS AT LEAST 4" DEEP BY A BALE'S WIDTH WIDE.
PLACE THE BALES IN THE TRENCH, MAKING SURE THAT THEY ARE BUTTED TIGHTLY. SOME BALES MAY NEED TO BE SHORTENED TO FIT INTO THE TRENCH AROUND THE AREA INLET. TWO STAKES SHOULD BE DRIVEN THROUGH EACH BALE, APPROXIMATELY 6" TO 8" IN FROM THE BALE ENDS.
STAKES SHOULD BE DRIVEN AT LEAST 12" INTO THE GROUND.
ONCE ALL THE BALES HAVE BEEN INSTALLED AND ANCHORED, PLACE THE EXCAVATED SOIL AGAINST THE RECEIVING SIDE OF THE BARRIER AND COMPACT IT. THE COMPACTED SOIL SHOULD BE NO MORE THAN 3" TO 4" DEEP.
NOTE: WHEN A BALE AREA INLET BARRIER IS PLACED IN A SHALLOW MEDIAN DITCH, MAKE SURE THAT THE TOP OF THE BARRIER IS NOT HIGHER THAN THE PAVED ROAD. IN THIS CONFIGURATION, WATER MAY SPREAD ONTO THE ROADWAY CAUSING A HAZARDOUS CONDITION.

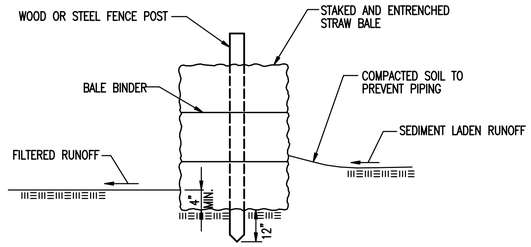
LIST OF COMMON PLACEMENT INSTALLATION MISTAKES TO AVOID:

BALES SHOULD BE PLACED DIRECTLY AGAINST THE PERIMETER OF THE AREA INLET. THIS ALLOWS OVERTOPPING WATER TO FLOW DIRECTLY INTO THE INLET INSTEAD OF ONTO NEARBY SOIL CAUSING SCOUR.
BALE AREA INLET BARRIERS MUST BE DUG INTO THE GROUND. BALES AT GROUND LEVEL DO NOT WORK BECAUSE THEY ALLOW WATER TO FLOW UNDER THE BARRIER.

INSPECTION AND MAINTENANCE:

BALE AREA INLET BARRIERS SHOULD BE INSPECTED EVERY 7 DAYS AND WITHIN 24 HOURS OF A RAINFALL 1/2" OR MORE. THE FOLLOWING IS A LIST OF QUESTIONS THAT SHOULD BE ADDRESSED DURING EACH INSPECTION:

DOES WATER FLOW UNDER THE AREA INLET BARRIER?
DOES WATER FLOW THROUGH SPACES BETWEEN ABUTTING BALES?
ARE ANY BALES DISLODGED?
ARE BALES DECOMPOSING DUE TO AGE AND/OR WATER DAMAGE?
DOES SEDIMENT NEED TO BE REMOVED FROM BEHIND THE AREA INLET BARRIER?



STRAW BALE BARRIERS

MATERIAL SPECIFICATION:

BALE SLOPE BARRIERS MAY BE CONSTRUCTED OF WHEAT STRAW, OAT STRAW, PRAIRIE HAY, OR BROMEGRASS HAY THAT IS FREE OF WEEDS DECLARED NOXIOUS BY THE KANSAS STATE BOARD OF AGRICULTURE.
THE STAKES USED TO ANCHOR THE BALES SHOULD BE A HARDWOOD MATERIAL WITH THE FOLLOWING MINIMUM DIMENSIONS: 2" SQUARE (NOMINAL) BY 4' LONG.
TWINE SHOULD BE USED TO BIND BALES. THE USE OF WIRE BINDING IS PROHIBITED BECAUSE IT DOES NOT BIODEGRADE READILY.

PLACEMENT:

A SLOPE BARRIER SHOULD BE USED AT THE TOE OF A SLOPE WHEN A DITCH DOES NOT EXIST. THE SLOPE BARRIER SHOULD BE PLACED ON NEARLY LEVEL GROUND 5' TO 10' AWAY FROM THE TOE OF A SLOPE. THE BARRIER IS PLACED AWAY FROM THE TOE OF THE SLOPE TO PROVIDE ADEQUATE STORAGE FOR SETTLING OUT SEDIMENT.
WHEN PRACTICABLE, BALE SLOPE BARRIERS SHOULD BE PLACED ALONG CONTOURS TO AVOID A CONCENTRATION OF FLOW.
BALE SLOPE BARRIERS CAN ALSO BE PLACED ALONG RIGHT-OF-WAY FENCE LINES TO KEEP SEDIMENT FROM CROSSING ONTO ADJACENT PROPERTY. WHEN PLACED IN THIS MANNER, THE SLOPE BARRIER WILL NOT LIKELY FOLLOW CONTOURS.

PROPER INSTALLATION METHOD:

EXCAVATE A TRENCH THE LENGTH OF THE PLANNED SLOPE BARRIER THAT IS 4" DEEP AND A BALE'S WIDTH WIDE. MAKE SURE THAT THE TRENCH IS EXCAVATED ALONG A SINGLE CONTOUR. WHEN PRACTICABLE, SLOPE BARRIERS SHOULD BE PLACED ALONG CONTOURS TO AVOID A CONCENTRATION OF FLOW. PLACE THE SOIL ON THE UPSLOPE SIDE OF THE TRENCH FOR LATER USE.
PLACE THE BALES IN THE TRENCH, MAKING SURE THAT THEY ARE BUTTED TIGHTLY. TWO STAKES SHOULD BE DRIVEN THROUGH EACH BALE ALONG THE CENTERLINE OF THE DITCH CHECK, APPROXIMATELY 6" TO 8" IN FROM THE BALE ENDS. STAKES SHOULD BE DRIVEN AT LEAST 12" INTO THE GROUND.
ONCE ALL THE BALES HAVE BEEN INSTALLED AND ANCHORED, PLACE THE EXCAVATED SOIL AGAINST THE UPSLOPE SIDE OF THE CHECK AND COMPACT IT. THE COMPACTED SOIL SHOULD BE NO MORE THAN 3" TO 4" DEEP.

LIST OF COMMON PLACEMENT/INSTALLATION MISTAKES TO AVOID:

WHEN PRACTICAL, DO NOT PLACE BALE SLOPE BARRIERS ACROSS CONTOURS. SLOPE BARRIERS SHOULD BE PLACED ALONG CONTOURS TO AVOID A CONCENTRATION OF FLOW. CONCENTRATED FLOW OVER A SLOPE BARRIER CREATES A SCOUR HOLE ON THE DOWNSLOPE SIDE OF THE BARRIER. THE SCOUR HOLE EVENTUALLY UNDERMINES THE BALES AND THE BARRIER FAILS.
DO NOT PLACE BALE SLOPE BARRIERS IN AREAS WITH SHALLOW SOILS UNDERLAIN BY ROCK. IF THE BARRIER IS NOT ANCHORED SUFFICIENTLY, IT WILL WASH OUT.
BALE SLOPE BARRIERS MUST BE DUG INTO THE GROUND. BALES AT GROUND LEVEL DO NOT WORK BECAUSE THEY ALLOW WATER TO FLOW UNDER THE BARRIER.

INSPECTION AND MAINTENANCE:

BALE SLOPE BARRIERS SHOULD BE INSPECTED EVERY 7 DAYS AND WITHIN 24 HOURS OF A RAINFALL OF 1/2" OR MORE. THE FOLLOWING IS A LIST OF QUESTIONS THAT SHOULD BE ADDRESSED DURING EACH INSPECTION:

ARE THERE ANY POINTS ALONG THE SLOPE BARRIER WHERE WATER IS CONCENTRATING?
DOES WATER FLOW UNDER THE SLOPE BARRIER?
DOES WATER FLOW THROUGH SPACES BETWEEN ABUTTING BALES?
ARE ANY BALES DISLODGED?
ARE BALES DECOMPOSING DUE TO AGE AND/OR WATER DAMAGE?
DOES SEDIMENT NEED TO BE REMOVED FROM BEHIND THE SLOPE BARRIER?

CITY OF WICHITA
PUBLIC WORKS & UTILITIES
ENGINEERING DIVISION

STRAW BALE DITCH CHECK AND BARRIER DETAILS

CITY ENGINEER
GARY JANZEN, P.E.

PROJECT NUMBER	OCA NUMBER	DATE
472-84841	760621	11/2010

DESIGN | DRAWN

CITY ENGINEER'S OFFICE
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455 NORTH MAIN STREET
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SHEET
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SW-503

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GENERAL NOTES

1. THIS SHEET IS INTENDED TO PROVIDE GUIDELINES AS TO WHAT TYPES OF EROSION CONTROL DEVICES WILL BE INSTALLED DURING THE CONSTRUCTION PROCESS. CONTRACTORS ARE EXPECTED TO BID PROJECTS ACCORDINGLY.

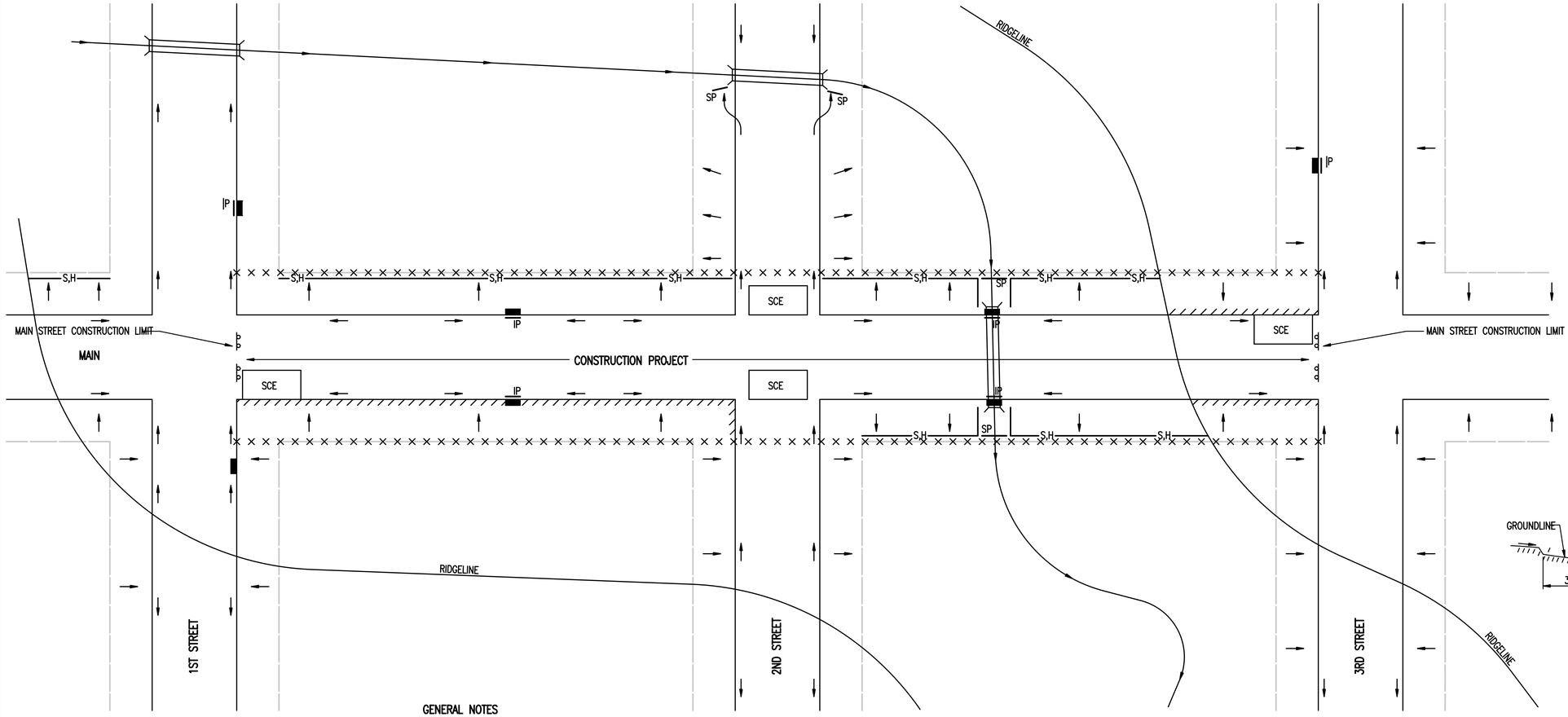
2. EROSION CONTROL DEVICES MUST BE MAINTAINED BY THE CONTRACTOR THROUGHOUT THE CONSTRUCTION PROCESS AND UNTIL THE DISTURBED EARTH IS RESTABILIZED.

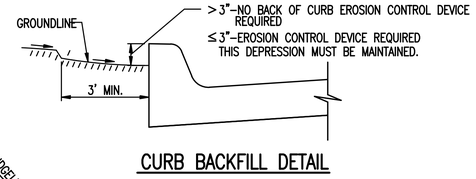
3. IF THE PROJECT WILL DISTURB 1 ACRE OR MORE, A FEDERAL/STATE NPDES STORMWATER PERMIT IS REQUIRED. A DETAILED STORMWATER POLLUTION PREVENTION PLAN, IS REQUIRED. THE EROSION CONTROL DEVICES SHOWN ON THIS SHEET ARE CONSIDERED TO BE THE MINIMUM TO BE SHOWN IN THE POLLUTION PREVENTION PLAN.

4. FOR PROJECTS DISTURBING LESS THAN 1 ACRE, CONTRACTORS ARE ENCOURAGED TO PREPARE STORMWATER POLLUTION PREVENTION PLANS PRIOR TO CONSTRUCTION. EROSION CONTROL DEVICES MUST BE USED ON ALL PROJECTS.

5. FAILURE TO USE AND MAINTAIN EROSION CONTROL DEVICES IS A VIOLATION OF SECTION 16.32 OF THE CITY CODE AND WILL SUBJECT THE CONTRACTOR TO THE PENALTIES PROVIDED FOR THEREIN.

6. THE APPLICATION OF EROSION CONTROL DEVICES SHOWN ON THIS SHEET IS FOR SITUATIONS NORMALLY ENCOUNTERED. FROM TIME TO TIME, SITUATIONS WILL ARISE THAT MAY REQUIRE A DIFFERENT DEVICE OTHER THAN THOSE SHOWN. EROSION CONTROL DEVICES, OTHER THAN THOSE SHOWN, MAY BE UTILIZED AS LONG AS THEY ARE EFFECTIVE AND MAINTAINED.





CURB BACKFILL DETAIL

LEGEND

- R-O-W LIMITS
- DRAINAGE FLOW PATH
- R/W LIMIT WITHIN CONSTRUCTION LIMIT
- STORM WATER INLETS
- IP — INLET PROTECTION
- S,H — SILT FENCE OR HAY BALE BARRIER
- SP — STREAM PROTECTION
- SCE — STABILIZED CONSTRUCTION ENTRANCE
- BACK OF CURB PROTECTION

GENERAL NOTES

1. THE INTENT OF ALL EROSION CONTROL DEVICES IS TO KEEP ALL SEDIMENT CONFINED TO THE CONSTRUCTION SITE, AND OUT OF ALL UNDERGROUND PIPES, DITCHES, LAKES, AND OTHER DRAINAGE FACILITIES, AND OFF OF STREETS.

2. THE POINT OF COMPLIANCE IS GENERALLY THE RIGHT-OF-WAY LINES WITHIN THE LIMITS OF CONSTRUCTION.

3. EROSION CONTROL DEVICES WILL BE REQUIRED AT ALL POINTS ALONG THE PROJECT WHERE DISTURBED EARTH CAN DRAIN ONTO PRIVATE PROPERTY.

4. INLET PROTECTION DEVICES WILL BE REQUIRED WHEREVER WATER CAN DRAIN OFF THE PROJECT SITE INTO AN INLET, INCLUDING ANY SIDE STREET INLETS.

5. EROSION CONTROL DEVICES SHALL BE INSTALLED AT CREEK CROSSINGS SO AS TO PREVENT SEDIMENT FROM ENTERING THEREIN.

6. STABILIZED CONSTRUCTION ENTRANCES SHALL BE PROVIDED, AS NEEDED, TO PREVENT MUD FROM TRACKING ONTO STREETS NOT UNDER CONSTRUCTION AND ON STREETS WITHIN THE PROJECT LIMITS IF TRAFFIC IS BEING MAINTAINED THROUGH THE PROJECT.

7. ANY MUD TRACKED ONTO STREETS MUST BE REMOVED AT THE END OF EACH WORK DAY.

8. THE CONTACTOR WILL BE REQUIRED TO PLACE EROSION CONTROL DEVICES BACK OF CURB, WHENEVER WATER CAN DRAIN OVER CURB, TO KEEP ERODED SOIL OUT OF THE GUTTERLINES, IN ACCORDANCE WITH THE FOLLOWING:
   A. THE DEVICE REQUIRED WILL BE APPROVED EROSION CONTROL MAT LISTED ON THE CITY'S APPROVED MATERIAL LIST. SAID BLANKET SHALL BE PLACED OVER THE APPROPRIATE SEED AND FERTILIZER, AS SPECIFIED IN THE PROJECT SPECIFICATIONS. (SEE SOIL EROSION BMPs – BACK OF CURB SEDIMENT BARRIER DETAILS)
   B. THIS DEVICE SHALL BE INSTALLED IMMEDIATELY WHENEVER THE CURB IS BACKFILLED TO WITHIN 3" OF THE TOP OF CURB. (SEE CURB BACKFILL DETAIL) OTHER BMP'S MAY BE REQUIRED AT LOCATIONS WHERE CONCENTRATED FLOW CARRIES SEDIMENT OVER THE CURB.
   C. ADDITIONALLY, OTHER EROSION CONTROL DEVICES (HAY BALES, SILT FENCE, ETC.) WILL BE INSTALLED AT LOCATIONS OF CONCENTRATED FLOW RESULTING IN SEDIMENT OVERRUNNING THE MAT.
   D. SHOULD THE PROJECT PLANS SPECIFY THAT THE RIGHT-OF-WAY IS TO BE SODDED, THE EXCELSIOR MAT WILL NOT BE REQUIRED SO LONG AS THE SOD IS PLACED WITHIN 48 HOURS AFTER CURB BACKFILL REACHES A HEIGHT OF 3" OR LESS FROM TOP OF CURB. (SEE CURB BACKFILL DETAIL)

CITY OF WICHITA
PUBLIC WORKS & UTILITIES
ENGINEERING DIVISION

STREET IMPROVEMENT PROJECTS

CITY ENGINEER
GARY JANZEN, P.E.

PROJECT NUMBER	OCA NUMBER	DATE
472-84841	760621	08/2012

CITY ENGINEER'S OFFICE
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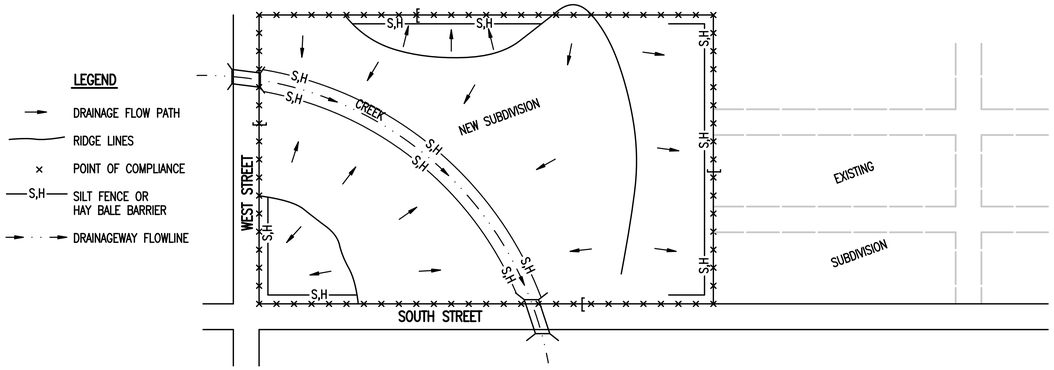
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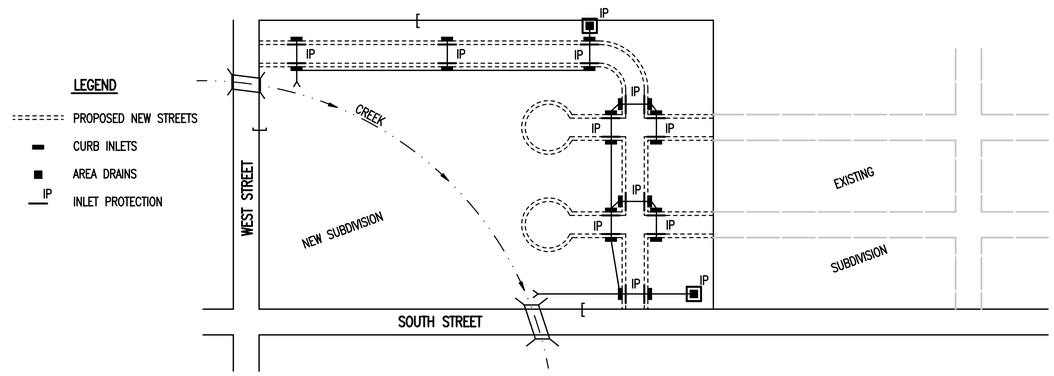
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PHASE 1 – INITIAL EARTHWORK AND UTILITIES (EXCEPT STORM SEWER)



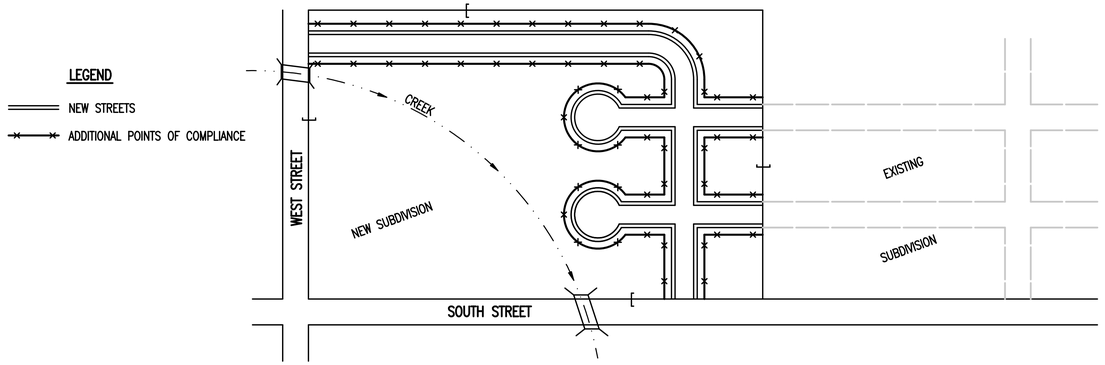
1. DURING THIS PHASE OF SUBDIVISION CONSTRUCTION, THE POINTS OF COMPLIANCE ARE THE PERIMETER BOUNDARIES AND ANY DRAINAGE WAYS OR STORM SEWERS DRAINING THROUGH OR FROM THE SITE. SHOULD LAKES BE CONSTRUCTED WITHIN THE SUBDIVISION THAT WILL DISCHARGE DURING STORMS, THEY ARE ALSO A POINT OF COMPLIANCE.
2. HAY BALES OR SILT FENCE MUST BE CONSTRUCTED ALONG THE PROPERTY LINE WHERE ON SITE WATER CAN DRAIN OFF THE PROPERTY. THESE EROSION CONTROL DEVICES WILL ALSO BE INSTALLED ALONG ANY DRAINAGE DITCH OR LAKE THAT CAN DISCHARGE.
3. SHOULD SILT OR SEDIMENT ENTER THE DITCHES OR STREETS ON THE ADJACENT BOUNDARY STREETS, APPROPRIATE EROSION CONTROL DEVICES WILL BE PLACED WITHIN THE SUBDIVISION TO PREVENT THIS.
4. ANY MUD TRACKED ONTO ADJACENT STREETS WILL BE REMOVED WITHIN 48 HOURS OR BY FRIDAY AT 6:00 PM, WHICHEVER IS EARLIER.
5. CONTRACTORS WORKING WITHIN THE SITE WILL NOT BE REQUIRED TO USE INDIVIDUAL EROSION CONTROL DEVICES AS LONG AS THOSE SPECIFIED ABOVE ARE IN PLACE AND EFFECTIVE. CONTRACTORS WORKING ON THE BOUNDARY LINE STREETS OR ON ADJACENT PROPERTIES TO EXTEND UTILITIES ARE EXPECTED TO USE EROSION CONTROL DEVICES AT THEIR WORK LOCATIONS, AS NEEDED.
6. UTILIZE STABILIZED CONSTRUCTION ENTRANCE AT ENTRANCE AND EXIT ONTO ANY EXISTING PUBLIC STREETS.
7. IF THE INITIAL EARTH WORK AND UTILITIES ARE DONE AS PART OF A PUBLIC IMPROVEMENT PROJECT, THESE EROSION CONTROL DEVICES WILL BE INSTALLED BY THE CONTRACTOR AS SPECIFIED IN THE INDIVIDUAL PROJECT CONTRACTS. THE CONTRACTOR WILL MAINTAIN THE DEVICES UNTIL COMPLETION OF THE CONTRACT, AT WHICH TIME THE DEVELOPER WILL ASSUME MAINTENANCE RESPONSIBILITIES. IF THESE CONTRACTS ARE NOT PUBLIC IMPROVEMENT PROJECTS, THE DEVELOPER WILL BE RESPONSIBLE FOR INSTALLING AND MAINTAINING THESE DEVICES.
8. WITHIN 14 DAYS OF COMPLETION OF EARTHWORK ACTIVITIES IN ANY GIVEN AREA, THAT AREA SHALL BE TEMPORARILY OR PERMANENTLY SEEDED AND MULCHED.

PHASE 2 – INSTALLATION OF STORM SEWER



1. DURING THIS PHASE OF SUBDIVISION DEVELOPMENT, ALL EROSION CONTROL DEVICES REQUIRED IN PHASE 1 SHALL REMAIN IN PLACE AND BE MAINTAINED.
2. AS NEW STORM SEWERS, WITH INLETS, ARE INSTALLED, THE STORM SEWERS MUST NOW BE PROTECTED SO ALL NEW INLETS BECOME POINTS OF COMPLIANCE.
3. AREA DRAINS – AS SOON AS WATER CAN FLOW INTO THESE DRAINS, HAY BALE OR SILT FENCE PROTECTION WILL BE INSTALLED AROUND THEM.
4. CURB OPENING INLETS – AS SOON AS WATER CAN FLOW INTO THESE DRAINS, INLET PROTECTION DEVICES MUST BE INSTALLED. IF WATER CANNOT FLOW INTO CURB INLETS UNTIL STREET CONSTRUCTION IS COMPLETE, THEN STREET CONTRACTOR WILL INSTALL INLET PROTECTION. SEE PHASE 3 – STREET CONSTRUCTION.
5. THE STORM SEWER CONTRACTOR WILL BE RESPONSIBLE FOR INSTALLING THESE DEVICES.
6. THE SUBDIVISION DEVELOPER WILL MAINTAIN THESE EROSION CONTROL DEVICES ONCE INSTALLED.
7. ALL DISTURBED GROUND WILL BE FINAL GRADED AND TEMPORARILY OR PERMANENTLY SEEDED WITHIN 14 DAYS IF COMPLETION OF WORK IN ANY GIVEN PART OF THE SUBDIVISION.
8. ONCE ALL DISTURBED GROUND DRAINING TO AN INLET HAS BEEN RESTABILIZED WITH GRASS OR SOD, THE SUBDIVISION DEVELOPER WILL BE RESPONSIBLE FOR PERMANENTLY REMOVING THE INLET PROTECTION.

PHASE 3 – STREET CONSTRUCTION

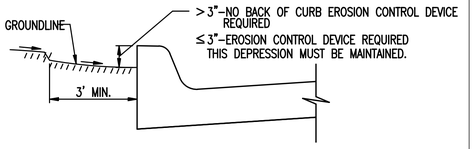


1. DURING THIS PHASE OF SUBDIVISION CONSTRUCTION, NEW STREETS ARE INSTALLED. ALL EROSION CONTROL DEVICES INSTALLED DURING PHASE 1 AND 2 MUST STILL BE MAINTAINED. THE POINT OF COMPLIANCE NOW SHIFTS TO THE BACK OF CURB ALONG EACH STREET.
2. CURB OPENING INLET PROTECTION:
   A. SUMP AREAS – INLET PROTECTION SHALL BE PROVIDED WHEN STREET SUBGRADE WORK IS COMPLETED.
   B. NON–SUMP LOCATIONS – PROVIDE INLET PROTECTION AS SOON AS BASE COURSE ASPHALT IS INSTALLED, BEFORE THE SURFACE COURSE LIFT.
3. EROSION CONTROL DEVICES WILL BE REQUIRED BACK OF CURB WHEREVER WATER CAN FLOW OVER THE CURB AND THE CURB HAS BEEN BACKFILLED TO WITHIN 3" OR LESS OF THE TOP OF CURB (SEE CURB BACKFILL DETAIL). FOR CURBS NOT YET ENTIRELY BACKFILLED (3" OR MORE BELOW TOP OF CURB), ADDITIONAL DEVICES WILL BE REQUIRED AT POINTS WHERE WATER BREAKS OVER CURB WHICH COULD RESULT IN THE PLACEMENT OF SEDIMENT IN THE GUTTER.
4. SEE DETAIL SHEET FOR BACK OF CURB PROTECTION.
5. THE BACK OF CURB PROTECTION SPECIFIED ON THIS PLAN MAY HAVE TO BE SUPPLEMENTED WITH HAY BALE OR SILT FENCE EROSION CONTROL DEVICES AT LOCATIONS WHERE CONCENTRATED FLOW RESULTS IN SEDIMENT BEING CARRIED OVER THE EXCELSIOR MATS.
6. THE STREET CONTRACTOR WILL BE RESPONSIBLE FOR INSTALLING BACK OF CURB EROSION CONTROL DEVICES.
7. THE INDIVIDUAL LOT OWNERS WILL BE RESPONSIBLE FOR MAINTAINING THE BACK OF CURB EROSION CONTROL DEVICES IN FRONT OF THEIR LOTS UNTIL SUCH TIME AS ADJACENT DISTURBED EARTH IS STABILIZED WITH GRASS OR SOD.

GENERAL NOTES

1. THE INTENT OF ALL EROSION CONTROL DEVICES IS TO PREVENT ERODED SOIL FROM ENTERING DITCHES, STORM SEWERS, LAKES, STREETS OR ANY OTHER OTHER DRAINAGE FEATURE.
2. THIS SHEET IS INTENDED TO PROVIDE GUIDELINES AS TO WHAT TYPE OF EROSION CONTROL DEVICES WILL BE INSTALLED DURING THE CONSTRUCTION PROCESS. CONTRACTORS ARE EXPECTED TO BID PROJECTS ACCORDINGLY.
3. EROSION CONTROL DEVICES SHALL BE MAINTAINED DURING THE CONSTRUCTION PROCESS TO REMAIN EFFECTIVE. MAINTENANCE SHALL BE AS INDICATED ON SOIL EROSION BMP'S DETAIL SHEETS.
4. PERSONS DESTROYING EROSION CONTROL DEVICES SHALL BE RESPONSIBLE FOR IMMEDIATELY REPAIRING THEM OR INSTALLING SUITABLE REPLACEMENT DEVICES.
5. THE DEVELOPMENT OF ANY SUBDIVISION THAT DISTURBS 1 ACRE OR MORE WILL REQUIRE A FEDERAL/STATE NPDES STORMWATER PERMIT. THE PREPARATION OF A STORMWATER POLLUTION PREVENTION PLAN IS REQUIRED. EROSION CONTROL DEVICES ARE REQUIRED. THE DETAILS SHOWN ON THIS SHEET ARE THE MINIMUM STANDARDS TO BE SHOWN ON POLLUTION PREVENTION PLANS.
6. FOR SUBDIVISIONS SMALLER THAN 1 ACRE, SOIL EROSION DEVICES ARE REQUIRED. ALSO, DEVELOPERS AND CONTRACTORS ARE ENCOURAGED TO DEVELOP POLLUTION PREVENTION PLANS FOR EACH PROJECT PRIOR TO CONSTRUCTION.
7. FAILURE TO USE AND MAINTAIN SOIL EROSION DEVICES IS A VIOLATION OF SECTION 16.32 OF THE CITY CODE AND WILL SUBJECT THE SUBDIVISION DEVELOPER AND CONTRACTORS TO THE PENALTIES PROVIDED THEREIN.
8. THE APPLICATION OF EROSION CONTROL DEVICES SHOWN ON THIS SHEET IS FOR SITUATIONS NORMALLY ENCOUNTERED. FROM TIME TO TIME, SITUATIONS WILL ARISE THAT MAY REQUIRE DEVICES OTHER THAN THAT SHOWN. EROSION CONTROL DEVICES, OTHER THAN THOSE SHOWN, MAY BE UTILIZED SO LONG AS THEY ARE EFFECTIVE AND MAINTAINED.
9. A STABILIZED EARTH SURFACE IS DEFINED AS ONE THAT IS HARD SURFACED WITH CONCRETE, ASPHALT, OR THE LIKE, OR ONE ON WHICH 70% OF THE GRASS HAS GERMINATED ON THE ENTIRE SURFACE.

SEE DETAIL SHEET FOR BACK OF CURB PROTECTION DETAIL



CURB BACKFILL DETAIL (STREET CONSTRUCTION ONLY)

THIS IS A TEMPORARY MEASURE ONLY, WHEN APPROVED BY THE PROJECT ENGINEER. THE DIRT GRADE BEHIND THE CURB SHALL BE BROUGHT TO THE TOP OF CURB, WITH TEMPORARY EROSION CONTROL MAT OR PERMANENT VEGETATION PLACED, PRIOR TO THE COMPLETION OF ALL PROJECTS.

CITY OF WICHITA
PUBLIC WORKS & UTILITIES ENGINEERING DIVISION

SUBDIVISION DEVELOPMENT PROCESS

INTERIM CITY ENGINEER
GARY JANZEN, P.E.

PROJECT NUMBER	OCA NUMBER	DATE
472-84841	760621	08/2012

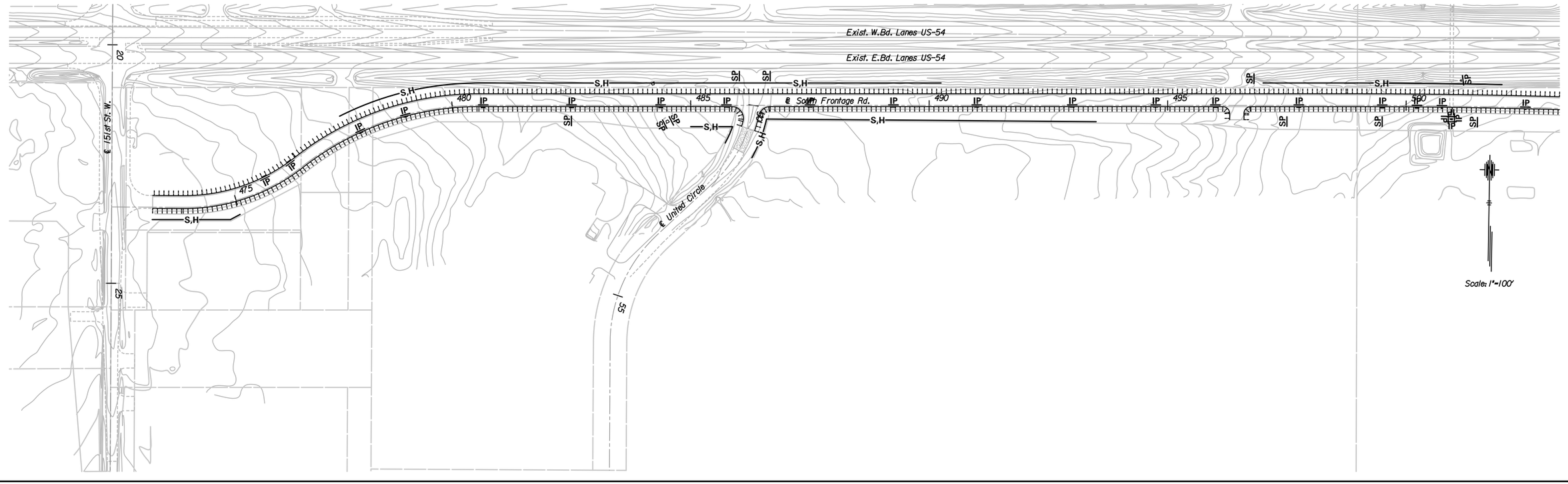
CITY ENGINEER'S OFFICE
CITY HALL - SEVENTH FLOOR
455 NORTH MAIN STREET
WICHITA, KANSAS 67202-1620
(316) 268-4501

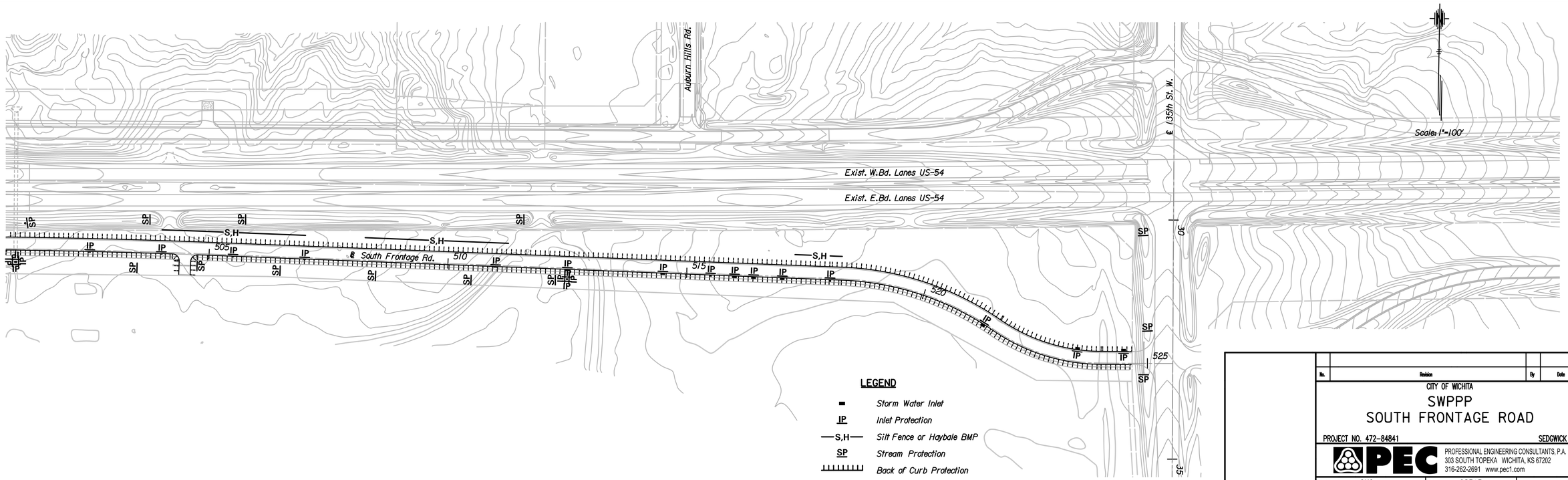
DESIGN	DRAWN

SHEET
61 of 130

SW–505

Plotted By: drp Date: 7/14/2014 1:51:38 PM
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No.	Revision	By	Date

CITY OF WICHITA

SWPPP
SOUTH FRONTAGE ROAD

PROJECT NO. 472-84841 SEDGWICK CO.

PEC
PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
303 SOUTH TOPEKA WICHITA, KS 67202
316-262-2691 www.pec1.com

Designed by	CKC	Job No.	08313	Sht. 62 of 130
Drawn by	DRP	Date	June, 2014	

Plotted By: drp Date: 7/14/2014 2:10:01PM
FILE: I:\2008\08313\Frontage Rd South\SWS\08313-SWPPP.dgn

WV RWD#4

Woodbine Ln.

Drainage Esmt.

RR Tie

RR Tie

RR Tie

Gary J. & Karen L. Babcock
D-55461

WW

Utility Esmt.

TAPESTRY MEADOWS SECOND
3
2

Daniel & DeeAnn J. Kasper
D-53462

50' Mid-Continent Marketing Center, LLC Easement

20' Sanitary Sewer Easement

10' Utility Esmt.

Freddie N. Booher
D-53463
3

GOOLSBY'S 2ND ADDITION
1

Coleman C. & Becky L. Lockett
D-52177

Sign

Future R/W & A/E

R/W & A/G

Exist. R/W

SE „ Sec. 27, T27S, R2W

Drainage Esmt.

20' Utility Esmt.

GTV

GM

Sign

WM

Sign

Section Line

465 6 7 8 9 470 1 2

{ Exist. US-54

BM#12

D-1048-UP

LP

Eugene J. Pelz, etal
D-1049-UP

Gene D. & Darlene F. Mullin
D-1050-UP

GM

SW „ Sec. 26, T27S, R2W

Future R/W & A/E

CC B-17272

Smith & Company, Inc.
D-1051-UP

Exist. R/W

Sign

LP

Post

Post

REG

DM

GM

Exist. R/W

Section Line

Exist. W.Bd. Lanes US-54

3 4 475 6 7 8 9 480 1

Exist. E.Bd. Lanes US-54

Lloyd G. Buess
D-1008-UP

SS

WW

James Perkins Trust
D-1007-UP

R/W & A/G

Future R/W & A/E

Temp. Esmt.

Exist. R/W

480 W

Wheat Ln.

475

SS

SS

Sign

Sign

Sign

WM

WW

Sign

Exist. R/W

10' Waterline Esmt.

SEED

SOD

SEED

480 1

9

{ US-54 South Frontage Rd.

R/W & A/G

Future R/W & A/E

UNITED INDUSTRIAL ADDITION
1

{ 151st St. W.=Section Line

Southborough Partners
D-1061-UP

Future R/W & A/G

R/W & A/G

NE „ Sec. 34, T27S, R2W

R/W & A/G

R/W

David A. & Cheryl A. Calvin
AT-187-1A

Septic Tank

SEED

475

4

R/W & A/G

Temp. Esmt.

NW „ Sec. 35, T27S, R2W

Homer Morgan
Revocable Trust
D-1057-UP

Harold M. & Marilyn J. Parry Trust
AT-187-2B

20' Utility Esmt.

SCALE

50' 0 50' 100'

PLAN: Lat. & Long

PROFILE: Horiz. same as above
Vert.

5
0

R/W

BM#R12B
Sign

AT-180-2H

LEGEND

APPROXIMATE LIMITS OF AREA TO BE SEEDED (BUFFALO / RYE SEED MIX) G.C. SHALL SEED ALL ADDITIONAL AREAS DISTURBED BY CONSTRUCTION ACTIVITIES

NEW TREES

GLMV Architecture
1525 E. Douglas, Wichita, KS 67211
Tel: (316) 265-9367
www.glmv.com

MARK L. DAVIS LICENSED 788 LANDSCAPE ARCHITECT 4/15/13

No.	Revision	By	Date

CITY OF WICHITA

LANDSCAPE PLAN
US-54 SOUTH FRONTAGE ROAD
STA. 472+37.72 TO STA. 481+00

PROJECT NO. KA 2285-01 SEDGWICK CO.

PEC
PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
303 SOUTH TOPEKA WICHITA, KS 67202
316-262-2691 www.pec1.com

Designed by	CKC	Job No.	08313
Drawn by	DRP	Date	May, 2013

Sht. 63 of 130

Plotted By: $USERNAME$ Date: $DATE$ $TIME$
FILE: $FILE$

Wichita Friends School, Inc.
D-1009-UP

10' Utility Esmt.

Exist. R/W

Exist. R/W

D-53444
1

Drainage Esmt.

10' Utility Esmt.

FAWNWOOD ADDITION
1

Wichita Friends School, Inc.
D-53445
2

20' Utility Esmt.

D-53446
3

D-1004-UP

Jesse C., Jr. & Sally J. Goodwin
D-1052-UP

Doris M. Rishel Trust
D-1002-UP

Temp. Esmt.

R/W=Exist. R/W

A/C

R/W & A/C

A/C

R/W=Exist. R/W

Temp. Esmt.

R/W

RESERVE A
Sedgwick County
AT-790

Drainage Esmt.

TWCP

WM

WW

GM

Exist. R/W

Exist. W.Bd. Lanes US-54

Section Line

Exist. US-54

Exist. E.Bd. Lanes US-54

1 2 3 4 485 BM#13 6 7 8 9 490 1 2 3 4 495 6 7

Const. Limits

SEED

SEED

Const. Limits

SEED

Exist. R/W

1 2 3 4 485 6 7 8 9 490 1 2 3 4 495 6 7

R/W & A/C

SEED

Const. Limits

30' Drainage Esmt.

50

SOD

SEED

Const. Limits

R/W & A/C

R/W

SEED

Const. Limits

(3) CHINESE PISTACHE
(1) BUR OAK
(1) HACKBERRY
(3) OKLAHOMA REDBUD
(3) CANAERT JUNIPER
(1) BUR OAK
(1) GOLDENRAIN TREE
(3) CHINESE PISTACHE
(1) HACKBERRY
(3) CANAERT JUNIPER
(3) GOLDENRAIN TREE
(3) OKLAHOMA REDBUD
(3) CHINESE PISTACHE
(2) BUR OAK
(3) CANAERT JUNIPER
(3) GOLDENRAIN TREE
(3) BUR OAK
(3) CHINESE PISTACHE
(1) OKLAHOMA REDBUD

UNITED INDUSTRIAL ADDITION
1

United Auto Parts, Inc.
D-53792
1

20' Utility Esmt.

Exist. R/W

℄ United Circle

Exist. R/W

MW

50

United Auto Parts, Inc., etal
AT-187

LEGEND

APPROXIMATE LIMITS OF AREA TO BE SEEDED (BUFFALO / RYE SEED MIX)
G.C. SHALL SEED ALL ADDITIONAL AREAS DISTURBED BY CONSTRUCTION ACTIVITIES

NEW TREES

GLMV Architecture
1525 E. Douglas, Wichita, KS 67211
Tel: (316) 265-9367
www.glmv.com

Plotted By: $USERNAME$ Date: $DATE$ $TIME$
FILE: $FILE$

MARK L. DAY KANSAS LICENSED 788 LANDSCAPE ARCHITECT
7/15/13

No.	Revision	By	Date

CITY OF WICHITA

LANDSCAPE PLAN
US-54 SOUTH FRONTAGE ROAD
STA. 481+00 TO STA. 497+00

PROJECT NO. KA 2285-01 SEDGWICK CO.

PEC PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
303 SOUTH TOPEKA WICHITA, KS 67202
316-262-2691 www.pec1.com

Designed by	CKC	Job No.	08313
Drawn by	DRP	Date	May, 2013

Sht. 64 of 130

SW ¼ Sec. 26, T27S, R2W

Jerry C., Jr. & Sally J. Goodwin
D–1052–UP

Section Line

Rebah J. Hubbard Revocable Inter Vivos Trust
D–996–UP

SE ¼ Sec. 26, T27S, R2W

CathyMark Colorado Investments, LLC, etal
D–997–UP

20' Drainage & Utility Esmt.

Temp. Esmt.

R/W

Exist. R/W

Exist. W.Bd. Lanes US–54

Exist. US–54

Exist. E.Bd. Lanes US–54

BM#14

BM#15

SEED

Const. Limits

SOD

(2) OKLAHOMA REDBUD
(2) BUR OAK
(3) GOLDENRAIN TREE
(3) CANAERT JUNIPER
(1) BUR OAK
(1) HACKBERRY
(1) BUR OAK
(2) OKLAHOMA REDBUD
(3) CHINESE PISTACHE
(3) CANAERT JUNIPER
(2) GOLDENRAIN TREE
(3) OKLAHOMA REDBUD
(1) HACKBERRY
(3) BUR OAK
(3) CHINESE PISTACHE
(2) HACKBERRY
(3) CANAERT JUNIPER
(3) GOLDENRAIN TREE
(2) OKLAHOMA REDBUD
(1) BUR OAK

NW ¼ Sec. 35, T27S, R2W

Section Line

NE ¼ Sec. 35, T27S, R2W

Rebah J. Hubbard
Revocable Inter Vivos Trust
AT–184

LEGEND

APPROXIMATE LIMITS OF AREA TO BE SEEDED (BUFFALO / RYE SEED MIX) G.C. SHALL SEED ALL ADDITIONAL AREAS DISTURBED BY CONSTRUCTION ACTIVITIES

NEW TREES

GLMV Architecture
1525 E. Douglas, Wichita, KS 67211
Tel: (316) 265-9367
www.glmv.com

Plotted By: $USERNAME$ Date: $DATE$ $TIME$
FILE: $FILE$

No.	Revision	By	Date

CITY OF WICHITA

LANDSCAPE PLAN
US–54 SOUTH FRONTAGE ROAD
STA. 497+00 TO STA. 513+00

PROJECT NO. KA 2285–01 SEDGWICK CO.

DARYL DAVIS LICENSED 788 LANDSCAPE ARCHITECT 7/15/11

PEC
PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
303 SOUTH TOPEKA WICHITA, KS 67202
316-262-2691 www.pec1.com

Designed by	CKC	Job No.	08313	Sht. 65 of 130
Drawn by	DRP	Date	Feb., 2011	

AUBURN HILLS 15TH ADDITION
B
51
West Wichita Development, Inc.
D-59309
6" Cedar
Irrigation Valve
Ced
20" Cot
24" Oak
15" Oak
12" Oak
R/W
WV
Sign
Exist. R/W
A/C
515
520
525
R/W=Exist. R/W
US-54 North Frontage Rd.
BM#16D
Exist. W.Bd. Lanes US-54
Exist. US-54
Exist. E.Bd. Lanes US-54
Traffic Camera
SE „ Sec. 26, T27S, R2W
Sedgwick County
SW „ Sec. 25, T27S, R2W
Section Line
135th St. W.
SEED
SOD
US-54 South Frontage Rd.
(3) OKLAHOMA REDBUD
(2) GOLDENRAIN TREE
(3) CHINESE PISTACHE
(3) CANAERT JUNIPER
(1) BUR OAK
(1) HACKBERRY
(1) BUR OAK
(3) CHINESE PISTACHE
NE „ Sec. 35, T27S, R2W
NW „ Sec. 36, T27S, R2W
Traffic Ctrl. Box
MHR
LP
2-DM
3-DM
AT&T
UT
HV E
W

LEGEND

APPROXIMATE LIMITS OF AREA TO BE SEEDED (BUFFALO / RYE SEED MIX) G.C. SHALL SEED ALL ADDITIONAL AREAS DISTURBED BY CONSTRUCTION ACTIVITIES

NEW TREES

GLMV Architecture
1525 E. Douglas, Wichita, KS 67211
Tel: (316) 265-9367
www.glmv.com

Plotted By: $USERNAME$ Date: $DATE$ $TIME$
FILE: $FILE$

No.	Revision	By	Date

CITY OF WICHITA

LANDSCAPE PLAN
US-54 SOUTH FRONTAGE ROAD
STA. 513+00 TO STA. 525+16.45

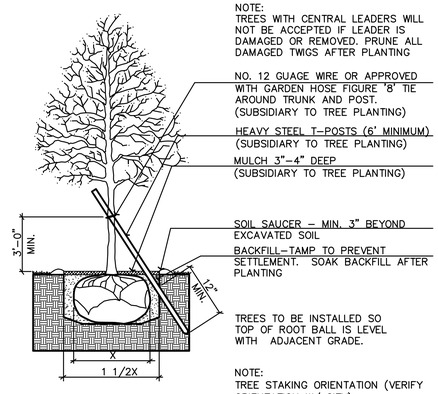
PROJECT NO. KA 2285-01 SEDGWICK CO.

MARK L. DAYTON LICENSED LANDSCAPE ARCHITECT 788 KANSAS 12/15/11

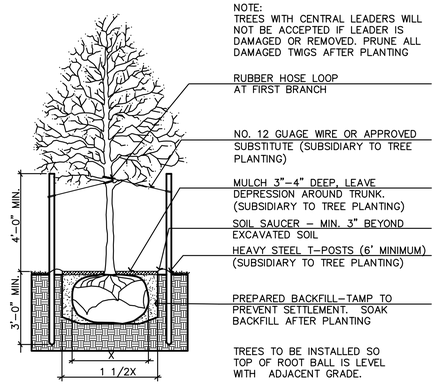
PEC
PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
303 SOUTH TOPEKA WICHITA, KS 67202
316-262-2691 www.pec1.com

Designed by	CKC	Job No.	08313
Drawn by	DRP	Date	Feb., 2011

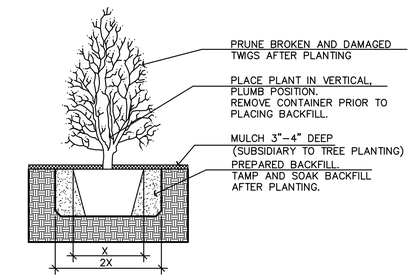
Sht. 66 of 130



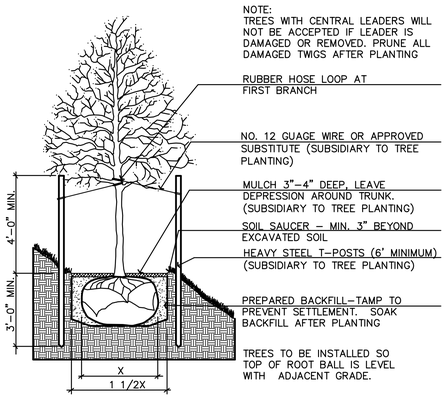
1 TREE PLANTING & STAKING DETAIL
1 3/4" CALIPER AND SMALLER — NOT TO SCALE



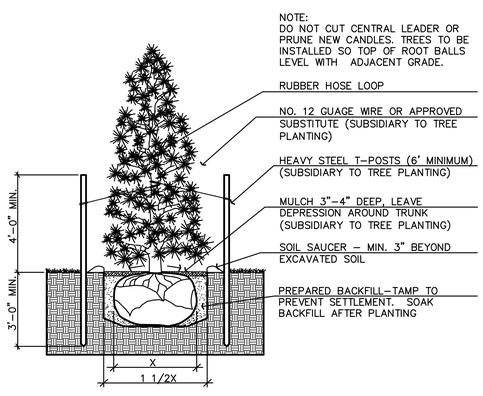
2 TREE PLANTING & STAKING DETAIL
2" CALIPER AND LARGER — NOT TO SCALE



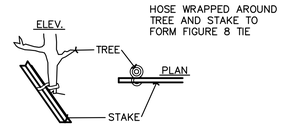
5 SHRUB PLANTING DETAIL
NOT TO SCALE



3 TREE PLANTING & STAKING DETAIL
SLOPE AREA PLANTING LARGER THAN 2" CALIPER — NOT TO SCALE



4 EVERGREEN PLANTING & STAKING DETAIL
NOT TO SCALE



6 FIGURE '8' DETAIL
NOT TO SCALE

PLANT LIST - FOR INFORMATION ONLY

QTY.	COMMON NAME	BOTANICAL NAME	SIZE	COND.
	TREES			
18	BUR OAK	QUERCUS MACROCARPA	2" CAL.	B & B
24	CHINESE PISTACHE	PISTACHE CHINENSIS	2" CAL.	B & B
7	PRAIRIE PRIDE HACKBERRY	CELTIS OCCIDENTALIS 'PRAIRIE PRIDE'	2" CAL.	B & B
	ORNAMENTAL TREES			
19	OKLAHOMA REDBUD	CERCIS RENIFORMIS 'OKLAHOMA'	1.5" CAL.	B & B
17	GOLDENRAIN TREE	KOELREUTERIA PANICULATA	1.5" CAL.	B & B
	EVERGREEN TREES			
21	CANAERT JUNIPER	JUNIPERUS VIRGINIANA 'CANAERTII'	1.5" CAL.	B & B

LANDSCAPE NOTES:

1. LANDSCAPE SPECIFICATIONS FOR THIS PROJECT SHALL BE STANDARD CITY OF WICHITA SPECIFICATIONS. REFERENCE SECTIONS 901-905 OF THE STANDARD SPECIFICATIONS. THE FOLOWING NOTES SHALL BE INCLUDED AS ADDITIONS TO THOSE SPECIFICATIONS.
2. GENERAL CONTRACTOR SHALL ENGAGE AN EXPERIENCED INSTALLER WHO HAS COMPLETED WORK SIMILAR IN MATERIAL, DESIGN AND EXTENT TO THAT INDICATED FOR THIS PROJECT WITH A RECORD OF SUCCESSFUL LANDSCAPE ESTABLISHMENT.
3. PROVIDE QUALITY, SIZE, GENUS, SPECIES, AND VARIETY OF TREES INDICATED, COMPLYING WITH APPLICABLE REQUIREMENTS OF ANSI Z60.1 "AMERICAN STANDARD FOR NURSERY STOCK"
4. GENERAL CONTRACTOR AND LANDSCAPE CONTRACTOR SHALL CONDUCT A PRE-INSTALLATION CONFERENCE ON SITE PRIOR TO ANY PLANTING OR SEEDING. CONFERENCE SHALL INCLUDE PROJECT ENGINEER, LANDSCAPE ARCHITECT, AND REPRESENTATIVES FROM THE CITY OF WICHITA. PROVIDE WRITTEN NOTIFICATION TO PROJECT ENGINEER AND LANDSCAPE ARCHITECT 7 DAYS PRIOR TO CONFERENCE.
5. LANDSCAPE CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS PRIOR TO INSTALLATION. COORDINATE WITH KANSAS ONE CALL.
6. LANDSCAPE CONTRACTOR SHALL PROVIDE SOIL CONDITIONERS TO TREE PITS AS FOLLOWS:
   BACKFILL WITH 1/3 COTTON BOLL COMPOST TO 2/3 EXISTING SOIL. COTTON BOLL COMPOST SHALL BE EQUAL TO BACK TO EARTH COTTON BOLL COMPOST AS MANUFACTURED BY BACK TO EARTH RESOURCES INC., DALLAS, TEXAS. DURING BACKFILLING INCLUDE MYCORRHIZAL FUNGI "MYCOR PLANT SAVER" AS MANUFACTURED BY PLANT HEALTH CARE INC. 440 WILLIAM WAY, PITTSBURGH, PA. 1-800-421-9051 APPLY PER MFR. RECOMENDATIONS. FOR TREES LOCATED IN NON-IRRIGATED AREAS INCLUDE TERRA-SORB HYDROGEL MEDIUM GRADE AS MANUFACTURED BY PLANT HEALTH CARE INC. MIX RATIO: 2LBS PER CUBIC YARD OF BACKFILL MIX OF 1 OZ. PER EACH CUBIC FOOT OF BACKFILL MIX. FERTILIZE AS PER CITY OF WICHITA STANDARD LANDSCAPE SPECIFICATIONS. FOR SHRUB PLANTING AREAS COTTON BOLL COMPOST AND FERTILIZER SHALL BE TILLED INTO SOIL OVER ENTIRE PLANTING AREA TO A DEPTH OF SIX INCHES PRIOR TO PLANTING.
7. LANDSCAPE CONTRACTOR SHALL SUBMIT A PROJECT SCHEDULE 2 WEEKS PRIOR TO BEGINNING INSTALLATION. SCHEDULE SHALL IDENTIFY AREAS TO BE PLANTED AND SEEDED AND WHEN THE WORK WILL BE PERFORMED.
8. NO SUBSTITUTIONS SHALL BE ALLOWED WITHOUT APPROVAL.
9. QUANTITIES IN THE PLANT LIST ARE FOR INFORMATION ONLY. CONTRACTOR SHALL VERIFY.
10. ALL PLANT LOCATIONS ARE APPROXIMATE, ADJUST AS NECESSARY TO AVOID CONFLICTS.
11. REFERENCE CITY OF WICHITA LANDSCAPE SPECIFICATION (AND KANSAS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATION) FOR MULCH TYPE.
12. WHEN CLAY SOIL IS ENCOUNTERED IN THE ESTABLISHMENT OF THE LAWN OR THE INSTALLATION OF PLANT MATERIAL, SOIL SHALL BE IMPROVED IN ACCORDANCE WITH STANDARD TRADE PRACTICE. i.e. ADDITION OF LIME, GYPSUM, ETC. THIS WORK SHALL BE SUBSIDIARY TO THE LUMP SUM PRICE BID FOR "FURNISHING & PLANTING PLANT MATERIALS."
13. THE PLANTING BEDS RECEIVING MULCH SHALL BE TREATED WITH A PRE-EMERGENT HERBICIDE PRIOR TO PLANTING AND MULCH PLACEMENT. APPLY IN ACCORDANCE WITH STANDARD TRADE PRACTICE.
14. ANY PLANTING BED ADJACENT TO WALKS OR CURBING SHALL HAVE THE GRADE LOWERED TO A SUFFICIENT DEPTH TO ALLOW THE TOP OF THE MULCH TO MATCH THE TOP OF WALK OR CURBING.
15. SEED TURF AREAS WITH SEED TYPE INDICATED ON DRAWINGS. REFERENCE CITY OF WICHITA LANDSCAPE SPECS FOR SEEDING SPECIFICATIONS.

NOTE:
UTILITIES INDICATED CONSIST OF EXISTING AND PROPOSED. CONTRACTOR SHALL FIELD VERIFY ALL UTILITY INFORMATION. COORDINATE THROUGH KANSAS ONE CALL.

ADDITIONAL LANDSCAPE QUANTITIES

ITEM	QUANTITY	NOTES
①SEEDING AND EROSION CONTROL MAT	② 65,640 SQ. YDS.	TO BE INSTALLED FROM BACK OF CURB TO LIMITS OF CONSTRUCTION AT LOCATIONS SHOWN ON PLANS.

①SEED SHALL BE A MIX OF RYEGRASS APPLIED AT A RATE OF 50 LBS. PER ACRE AND BUFFALO GRASS APPLIED AT A RATE OF 200 LBS PER ACRE. EROSION CONTROL MAT SHALL BE CURLEX I EXCELSIOR BLANKET, OR APPROVED EQUAL.

②QUANTITY SHOWN FOR INFORMATION ONLY. THE CONTRACTOR WILL BE REQUIRED TO SEED AND MAT OR SOD ALL NON-PAVED AREAS DISTURBED BY CONSTRUCTION.

GLMV Architecture
1525 E. Douglas, Wichita, KS 67211
Tel: (316) 265-9367
www.glmv.com

Plotted By: $USERNAME$ Date: $DATE$ $TIME$
FILE: $FILE$

No.	Revision	By	Date

MARK L. DAYTON LICENSED 788 KANSAS LANDSCAPE ARCHITECT 1/15/14

CITY OF WICHITA
LANDSCAPE PLAN INSTALLATION DETAILS, MATERIAL SCHEDULE, AND NOTES
PROJECT NO. KA 2285-01 SEDGWICK CO.

PEC PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
303 SOUTH TOPEKA WICHITA, KS 67202
316-262-2691 www.pec1.com

Designed by	JDS	Job No.	08313	Sht. 67 of 130
Drawn by	MLD	Date	MARCH, 2013	

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	KA 2285-01	2014	68	130

THE GENERAL NOTES:

THE GENERAL NOTES, REMOVAL NOTES AND NOTES ON THE PLAN SHEETS HAVE BEEN GENERALLY WRITTEN IN THE IMPERATIVE MOOD. THE SUBJECT ' THE CONTRACTOR' IS IMPLIED. ALSO IMPLIED IN THIS LANGUAGE ARE 'SHALL', 'SHALL BE', OR SIMILAR WORDS OR PHRASES. THE WORD 'WILL' GENERALLY PERTAINS TO DECISIONS OR ACTIONS OF THE KANSAS DEPARTMENT OF TRANSPORTATION (KDOT).

ALL WIRING AND WIRING METHODS SHALL COMPLY WITH THE MOST CURRENT NATIONAL ELECTRIC CODE STANDARDS, ANY CHANGES TO THESE STANDARDS SHALL BE APPROVED BY THE AUTHORITY HAVING JURISDICTION.

LOCATE ALL EXISTING UTILITES PRIOR TO BEGINNING WORK.

GROUND ALL METAL PARTS OF SWITCHES, CASES, POLES AND CONDUIT USED ABOVE GROUND WITH A NO. 6 BARE WIRE.

~~PROVIDE INSPECTION OF EACH TOWER BY A FACTORY REPRESENTATIVE OF THE RAISE AND LOWER DEVICE PRIOR TO FINAL ACCEPTANCE OF THE PROJECT BY THE KANSAS DEPARTMENT OF TRANSPORTATION.~~

MAKE SPLICES IN THE INDUCT SECONDARY CABLE INSIDE OF TOWER BASES, POLE BASES AND JUNCTION BOXES. CONTACT THE BUREAU OF TRANSPORTATION SAFETY & TECHNOLOGY FOR APPROVAL OF OTHER SPLICE LOCATIONS.

~~A REPRESENTATIVE FROM THE KANSAS DEPARTMENT OF TRANSPORTATION'S REGIONAL MATERIALS LAB WILL VISUALLY INSPECT ALL TOWERS AND COMPLETE A TEST REPORT PRIOR TO ASSEMBLY.~~

~~PROVIDE WELD PROCEDURE NUMBERS FOR THE DIFFERENT TYPES OF WELDS ON THE SHOP DRAWINGS FOR LIGHTING TOWERS. INCLUDE THE KDOT LAB NUMBER UNDER WHICH THESE WELD PROCEDURES HAVE BEEN APPROVED.~~

~~OZ EXPANSION JOINTS SHALL BE INSTALLED IN THE CONDUIT RUNS AT ALL BRIDGE EXPANSION JOINTS.~~

FURNISH AND INSTALL LIGHTING EQUIPMENT, INCLUDING ~~TOWERS, CONCRETE BASES FOR TOWERS,~~ ANCHOR BOLTS, LUMINAIRES, LAMPS, WIRING, CONDUIT, CONDUIT FITTINGS, SUPPORTS, INTERCONNECTIONS, GROUND RODS, AND ALL INCIDENTIALS NECCESSARY FOR THE COMPLETE INSTALLATION WITHIN THE LIMITS SHOWN ON THE PLANS. FURNISH AND INSTALL ALL EQUIPMENT NECESSARY FOR SATISFACTORY OPERATION, WHETHER SPECIFICALLY MENTIONED OR NOT.

PLOW OR TRENCH AND BACKFILL UNDERGROUND CONDUCTOR INDUCT APPROXIMATELY 2 FT. BELOW GROUNDLINE. BACKFILL IN ALL AREAS SHALL BE FREE OF RUBBLE AND ROCK.

FINAL LOCATION FOR ENCLOSURE INSTALLATION(S) IS/ARE TO BE DETERMINED BY THE ENGINEER IN CHARGE. POSITION THE ENCLOSURE(S) SO THAT THE PHOTOCELL(S) IS/ARE POINTED DUE NORTH.

~~THE FOLLOWING COMPANIES HAVE A RAISE AND LOWERING DEVICE THAT HAS BEEN ACCEPTED BY THE KANSAS DEPARTMENT OF TRANSPORTATION: AMERICAN HIGH MAST, EAGLE HIGH MAST LIGHTING CO., CAROLINA HIGH MAST, HALOPHANE, METROLUX AND STRATUS. ADDITIONAL COMPANIES DESIRING APPROVAL BY THE KDOT MUST INSTALL ONE RAISE AND LOWERING DEVICE ON A POLE PROVIDED BY THE KDOT IN TOPEKA, OR ON ANOTHER POLE AS APPROVED. THE INSTALLATION WILL BE REVIEWED AND TESTED BY KDOT PRIOR TO APPROVAL ON THIS PROJECT. ALL ASSOCIATED COSTS WILL BE THE RESPONSIBILITY OF THE MANUFACTURERS/CONTRACTORS.~~

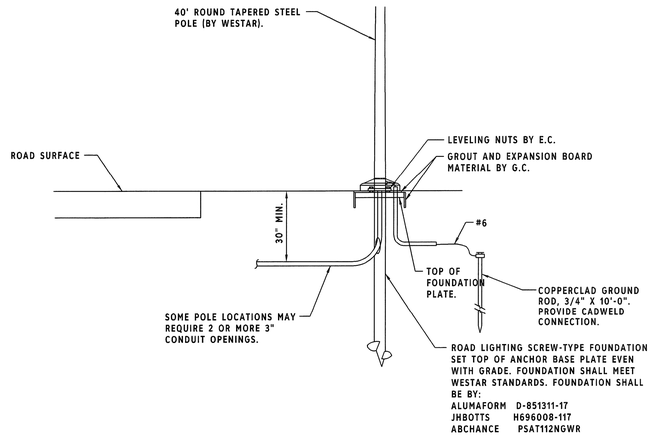
THE FOLLOWING COMPANIES HAVE SCREW-IN LIGHT POLE FOUNDATIONS THAT HAVE BEEN ACCEPTED BY THE KANSAS DEPARTMENT OF TRANSPORTATION : A.B. CHANCE COMPANY AND J.H. BOTTS, INC. ADDITIONAL COMPANIES DESIRING APPROVAL BY KDOT MUST SUBMIT DESIGN COMPUTATIONS AND CATALOG CUTS TO THE KANSAS DEPARTMENT OF TRANSPORTATION, BUREAU OF TRANSPORTATION SAFETY & TECHNOLOGY, EISENHOWER BUILDING, 700 SW HARRISON, 6TH FLOOR, TOPEKA, KS 66603-3754.

DUE TO SOIL CONDITIONS IN ALL OR PART OF THE FOLLOWING COUNTIES, SCREW-IN LIGHT POLE FOUNDATIONS MAY ONLY BE USED FOR ROADWAY LIGHTING UPON APPROVAL BY THE KANSAS DEPARTMENT OF TRANSPORTATION, BUREAU OF TRANSPORTATION SAFETY & TECHNOLOGY: BOURBON, CRAWFORD, CHEROKEE, LABETTE, MEADE, CLARK, COMANCHE, KIOWA, BARBER, HARPER, AND KINGMAN. SCREW-IN FOUNDATIONS SHALL NOT BE INSTALLED IN DISTRICT ONE.

~~ALL ATTACHMENTS TO BRIDGES SHALL HAVE A HIGHWAY RIGHT OF WAY PERMIT (DOT304) AND UTILITY ATTACHMENT PERMIT (DOT 310) APPROVED BEFORE WORK BEGINS, IN ACCORDANCE WITH CURRENT KANSAS DEPARTMENT OF TRANSPORTATION UTILITY ACCOMMODATION POLICY.~~

LEGEND

- 40 FT. GROUND MOUNTED LIGHTING STANDARD WITH (1) 250W HPS COBRA HEAD LUMINAIRE (PROVIDED BY OTHERS) SCREW-IN LIGHT POLE FOUNDATION BY CONTRACTOR
- ~~TOWER AND LUMINAIRE TO BE INSTALLED~~
- 3" SCHEDULE 80 PVC TO BE INSTALLED WITH PULL ROPE
- 3" METALLIC CONDUIT TO BE INSTALLED (UNDER ROAD/DRIVE)
- ENCLOSURE (PROVIED BY OTHERS)
- ~~JUNCTION BOX TO BE INSTALLED~~
- ~~SERVICE POLE TO BE INSTALLED~~
- POWER POLE WITH POLE MOUNTED TRANSFORMER
- SPLICE VAULT
- DUCTBANK



1 **LIGHTING POLE DETAIL**
NO SCALE

NO.	DATE	REVISIONS	BY	APP'D
3	1/12/12	Fixed Typo's	C.E.	B.D.G.
2	6/14/11	Changed to 3" Schedule 80 PVC	V.V.H.	V.V.H.
1	3/23/11	Current Release	V.V.H.	V.V.H.



KANSAS DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

~~TE200b~~

FHWA APPROVAL			APP'D	
DESIGNED	C.E.	DETAILED	C.E.	QUANTITIES	TRACED
DESIGN CK.	B.D.G.	DETAIL CK.	B.D.G.	QUAN. CK.	TRACE CK.

Drawn By: drp Plotted : 01-AUG-2014 10:36
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STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	KA 2285-01	2014	69	130

GENERAL NOTES

1. ALL WORK WILL BE CONFINED WITHIN THE EXISTING ROADWAY RIGHT-OF-WAY. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY AND KEEP INSTALLATION OF ALL EQUIPMENT AND DEVICES WITHIN THE EXISTING ROADWAY RIGHT-OF-WAY.

2. ~~CONTRACTOR SHALL MAINTAIN 2 FT CONDUIT CLEARANCE FROM ALL LANDSCAPED FEATURES EXISTING WITHIN THE RIGHT-OF-WAY. ANY LANDSCAPING DISTURBED DURING CONSTRUCTION ACTIVITIES SHALL BE RESTORED TO ORIGINAL CONDITION. NO ADDITIONAL PAYMENT WILL BE MADE.~~

3. ALL WORK SHALL INCLUDE THE RESTORATION OF ANY DISTURBED AREAS AS DIRECTED BY THE ENGINEER. ALL GRADING WORK SHALL SLOPE AWAY FROM FOUNDATIONS TO PREVENT PONDING.

4. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE ANY CONFLICTS WITH EXISTING UTILITIES INCLUDING KDOT LIGHTING AND FIBER IN THE FIELD PRIOR TO INITIATION OF CONSTRUCTION PER SITE. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE ENGINEER UPON DETERMINATION OF ANY UTILITY CONFLICTS. THE CONTRACTOR SHALL ADHERE TO KDOT'S UTILITIES ACCOMMODATION POLICY UNLESS OTHERWISE NOTED.

5. PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL CALL DIG SAFE AT 811 OR 1-800-344-7233 (1-800-DIG SAFE) TO REQUEST THE UTILITIES BE MARKED IN THAT AREA. THE CONTRACTOR SHALL CALL THE KDOT FIELD ENGINEER TO REQUEST THAT KDOT LIGHTING BE MARKED IN THAT AREA. THE CONTRACTOR SHALL ALSO CONTACT ANY AND ALL UTILITIES AND LOCAL GOVERNMENT AGENCIES NOT PARTICIPATING IN LOCATION SERVICES. ~~WHEN DIGGING IN THE KANSAS CITY AREA, JOHNSON COUNTY, OR WYANDOTTE COUNTY, CALL KC SCOUT AT (816) 622-6500. WHEN IN JOHNSON COUNTY, ALSO CALL WATER ONE LOCATE REQUEST SERVICES AT (913) 895-1806.~~

6. PLACEMENT OF ALL DMS AND CCTV FOUNDATIONS, CABINETS, TRANSFORMERS AND PULL BOXES MUST BE APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION AND BEFORE SURVEYORS LEAVE EACH SITE. ORIENTATION OF ALL CABINETS SHALL BE APPROVED BY THE ENGINEER PRIOR TO PLACEMENT. ANY RESTAKING NECESSITATED BY ADJUSTMENT IS CONSIDERED INCIDENTAL TO THE PROJECT AND NO ADDITIONAL PAYMENT WILL BE MADE.

7. THE PLANS DEPICT CONDUIT ROUTING IN SCHEMATIC FORM ONLY. THE CONTRACTOR SHALL DETERMINE FINAL ROUTING BASED ON ACTUAL FIELD CONDITIONS PRIOR TO CONSTRUCTION AT EACH SITE, INCLUDING UTILITY LOCATOR SERVICE MARKINGS, TO PREVENT CONFLICTS WITH EXISTING UTILITIES. WHERE POSSIBLE CONTRACTOR TO ROUTE CONDUIT ADJACENT TO RIGHT-OF-WAY LINE AND PERPENDICULAR TO RIGHT-OF-WAY LINE FOR LATERALS.

8. ~~THE CONTRACTOR SHALL FIELD REVIEW CONDUIT ON STRUCTURE FOR NECESSARY ROUTING, MOUNTING HARDWARE (INCLUDING BRIDGE HANGERS, FITTINGS, EXPANSION JOINTS AND JUNCTION BOXES) FOR ALL EXTERNALLY MOUNTED CONDUITS PRIOR TO SUBMITTAL OF BID TO DETERMINE THE TYPES AND EXTENT OF INCIDENTAL ITEMS TO BE INCLUDED IN THE UNIT PRICE OF CONDUIT.~~

9. ~~BRIDGE ATTACHMENTS REQUIRE A SEPARATE PERMIT FROM KDOT THAT SHALL BE OBTAINED BY THE CONTRACTOR PER KDOT'S UTILITY ACCOMMODATION POLICY.~~

10. ALL TRAFFIC CONTROL PLANS AND LANE CLOSURES SHALL BE PRE-APPROVED BY THE ENGINEER.

11. PROPOSED ITS EQUIPMENT LOCATIONS ARE APPROXIMATE AND MAY BE MODIFIED TO AVOID CONFLICTS WITH UNDERGROUND UTILITIES OR OTHER OBSTRUCTIONS. DMS, CCTV CAMERA, DETECTORS AND WIRELESS EQUIPMENT LOCATIONS ARE LOCATION SENSITIVE. THE CONTRACTOR AND ENGINEER SHALL RECEIVE APPROVAL FROM THE KDOT ITS ENGINEER PRIOR TO REVISING THE PLAN LOCATION OR ORIENTATION OF ANY OF THE ITS EQUIPMENT.

12. ~~KDOT WILL FURNISH HARDWARE AS DESCRIBED IN THE PLANS AND SPECIFICATIONS. CONTRACTOR SHALL CAREFULLY REVIEW PLANS AND SPECIFICATIONS FOR DETAILS ON KDOT FURNISHED ITEMS.~~

13. ~~ALL ITS EQUIPMENT CALLED OUT BY PLANS AND SPECIFICATIONS AS "INSTALL" OR KDOT FURNISHED, INCLUDING DMS, CCTV ASSEMBLIES, DETECTORS AND COMMUNICATIONS EQUIPMENT, SHALL INCLUDE ALL TRANSPORTATION FROM A DESIGNATED KDOT FACILITY, INSTALLATION, AND TESTING IN ACCORDANCE WITH THE SPECIFICATIONS. CONTRACTOR SHALL COORDINATE WITH ENGINEER AND MANUFACTURER FOR A STORAGE LOCATION AT A DESIGNATED KDOT FACILITY.~~

14. ~~INSTALLATION, TESTING AND INTEGRATION OF ALL ITS DEVICES INCLUDING KDOT FURNISHED ITEMS SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS.~~

15. ~~ITS EQUIPMENT POLE LOCATIONS AS SHOWN HAVE APPROPRIATE CLEAR ZONE PROTECTION. WHERE APPLICABLE, AND WHEN ITS POLES ARE TO BE PLACED NEAR EXISTING GUARDRAIL, ITS EQUIPMENT POLES SHALL BE LOCATED SUCH THAT THERE IS A MINIMUM OF 5 FT OF CLEARANCE FROM FACE OF GUARD RAIL TO FACE OF EQUIPMENT POLE. VARIATION FROM PLAN LOCATION MUST BE APPROVED BY ENGINEER.~~

16. ~~TRANSFORMER LOCATIONS AS SHOWN HAVE APPROPRIATE CLEAR ZONE PROTECTION. VARIATION FROM PLAN LOCATION MUST BE APPROVED BY ENGINEER. LOCATE TRANSFORMERS AND POWER SUPPLY POLES AT THE RIGHT-OF-WAY LINE/FENCE WHEN POSSIBLE.~~

17. ~~CONTRACTOR SHALL NOTIFY CENTURYLINK AND/OR KTA WHEN APPLICABLE TWO WEEKS AND AGAIN AT 72 HOURS PRIOR TO PERFORMING ANY WORK WITHIN 5 FT OF A CENTURYLINK OR KTA BACKBONE FIBER. A CENTURYLINK, KTA WHEN APPLICABLE, AND KDOT INSPECTOR MUST BE PRESENT FOR WORK WITHIN 5 FT OF FIBER OPTIC FACILITIES.~~

18. ~~AT NO TIME SHALL THE CONTRACTOR ACCESS A CENTURYLINK AND/OR KTA PULLBOX OR SPLICE VAULT FOR ANY REASON WITHOUT A CENTURYLINK AND/OR KTA INSPECTOR PRESENT.~~

19. ~~ALL WORK WITHIN 10 FT OF CENTURYLINK AND/OR KTA FIBER BACKBONE SHALL BE CARRIED OUT WITH HAND TOOLS ONLY. NO MECHANIZED EQUIPMENT SHALL BE ALLOWED IN THE ACCESS OF THE KDOT CONDUIT FROM THE CENTURYLINK AND / OR KTA CONDUIT ARRAY. HYDRO EXCAVATION IS ALLOWED.~~

20. CONTRACTOR TO MAINTAIN AT LEAST 20 FT OF CLEARANCE FROM ALL EXISTING GAS FACILITIES AND 5 FT OF CLEARANCE FROM AT&T AND / OR KTA FIBER. EXCEPTION ALLOWED WHEN PERFORMING WORK WITH AT&T WHILE KDOT AND AT&T INSPECTOR PRESENT.

21. WHEN WITHIN 5 FT OF KDOT LIGHTING FACILITIES, CONDUIT SHALL BE HAND DUG.

22. HIGH VOLTAGE POWER LINES MAY BE WITHIN THE PROJECT LIMITS. ALL WORK IS TO BE PERFORMED IN CONFORMANCE WITH ALL STATE, LOCAL, FEDERAL, UTILITY AND CONTRACT REQUIREMENTS. KDOT HAS NO CONTROL OVER THE MEANS, METHODS, CHOICE OF EQUIPMENT, SEQUENCING OF WORK, AND SAFETY PRACTICES USED WHEN WORKING IN, ON, OR AROUND HIGH VOLTAGE LINES OR OTHER UTILITY STRUCTURES AS THESE ITEMS ARE THE RESPONSIBILITY OF THE PARTIES CONTROLLING THE PHYSICAL PERFORMANCE OF THE WORK.

23. ALL GROUNDING SYSTEMS SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND MANUFACTURER SPECIFICATIONS. FOLLOW APPLICABLE NEC REQUIREMENTS FOR INSTALLATION OF ALL PROJECT MATERIALS. THE CONTRACTOR SHALL PROPERLY GROUND ALL EQUIPMENT, CABINET AND GROUND RODS PER APPLICABLE STANDARDS OR AS DIRECTED BY ENGINEER.

24. ~~THE CONTRACTOR SHALL BE RESPONSIBLE FOR ORDERING AND PAYING FOR THE ELECTRICAL SERVICE IN KDOT'S NAME AT THE LOCATIONS SHOWN ON THE PLANS. CONTRACTOR SHALL MAKE PAYMENT OF ALL POWER COMPANY FEES UNTIL KDOT ASSUMES OWNERSHIP. UTILITY COMPANIES, CONTACT NAME, AND PHONE NUMBER FOR EACH SITE IS LISTED ON THE ELECTRICAL SERVICE LOCATION SUMMARY SHEET.~~

25. WARNING TAPE IS REQUIRED IN ALL TRENCHES CONTAINING CONDUIT. MULTIPLE CONDUITS IN PARALLEL SHALL SHARE THE SAME TRENCH.

26. ~~CONTRACTOR TO INSPECT AND REPAIR EXISTING CONDUIT. SEE CONDUIT SPECIFICATIONS FOR ADDITIONAL DETAILS. REPAIRS PAID FOR UNDER ITS UNIT COST ITEM "CONDUIT REPAIR".~~

27. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR ANY EXISTING CONDUIT, REPLACE ANY EXISTING CONDUCTORS OR OTHER FACILITIES DAMAGED DURING CONSTRUCTION. ALL EXISTING IMPROVEMENTS REMOVED OR DAMAGED BY THE CONTRACTOR SHALL BE REPLACED IN KIND BY THE CONTRACTOR, WITH NO ADDITIONAL PAYMENT.

28. ~~PRIOR TO INSTALLING DMS SUPPORT STRUCTURES, THE CONTRACTOR SHALL VERIFY FINAL ELEVATIONS OF DMS FOUNDATIONS TO ENSURE THAT THEY WILL PROVIDE FOR THE CORRECT HEIGHT OF THE OVERALL DMS STRUCTURE WHEN INSTALLED.~~

29. ~~DMS SHALL NOT BE ATTACHED TO THE SUPPORT POSTS UNTIL THE SUPPORTING SYSTEMS OF CONDUIT, PULL BOXES, CONTROLLER ASSEMBLIES, POWER SUPPLY ASSEMBLIES AND ALL OTHER ITEMS NECESSARY ARE IN PLACE TO PROVIDE A FULLY FUNCTIONING DMS SYSTEM.~~

30. ~~CCTV POLES SHOULD BE ORIENTATED SO THAT POLE HANDHOLE USED FOR CAMERA LOWERING OPERATIONS IS: NOT ON THE DOWNHILL SIDE OF A SLOPE, NOT DIRECTLY BENEATH THE CAMERA AND WOULD NOT EXPOSE WORKERS TO TRAFFIC. POLE MOUNTED CABINETS SHALL BE INSTALLED SO THAT THEY ARE NOT DIRECTLY BENEATH THE CAMERA. THE AREA ENGINEER SHALL APPROVE PLACEMENT OF CAMERA POLES.~~

31. ~~CCTV CAMERAS AND DMS SHALL BE ORIENTATED ACCORDING TO THE CCTV ORIENTATION DETAIL AND THE DMS ORIENTATION DETAIL.~~

32. ~~THE CONTRACTOR SHALL INSTALL DETECTORS AND ANTENNAS SO AS TO NOT INTERFERE WITH THE CCTV LOWERING DEVICE.~~

33. THE CONTRACTOR SHALL PROVIDE KDOT AN ELECTRONIC LIST OF GPS READINGS (EXCEL FORMAT) FOR ALL INSTALLED DEVICES (DMS, CCTV, DET) PULL BOXES, SPLICE VAULTS, CABINETS, POWER METERS, TRANSFORMERS AND WIRELESS TOWERS. THE ACCURACY OF THE GPS READINGS SHALL BE WITHIN 3 FT. OBTAIN GPS AND THREE TIE-POINT MEASUREMENTS FOR EACH BURIED ELECTRICAL PULL BOX PRIOR TO PLACING BACKFILL MATERIAL.

34. IN ADDITION TO THESE GENERAL NOTES, CONTRACTOR SHALL CAREFULLY REVIEW EQUIPMENT DETAILS AND SPECIFICATIONS FOR ADDITIONAL NOTES AND REQUIREMENTS.

SHAWN M. SCHRODER
13340
8-1-14
KANSAS
PROFESSIONAL ENGINEER

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

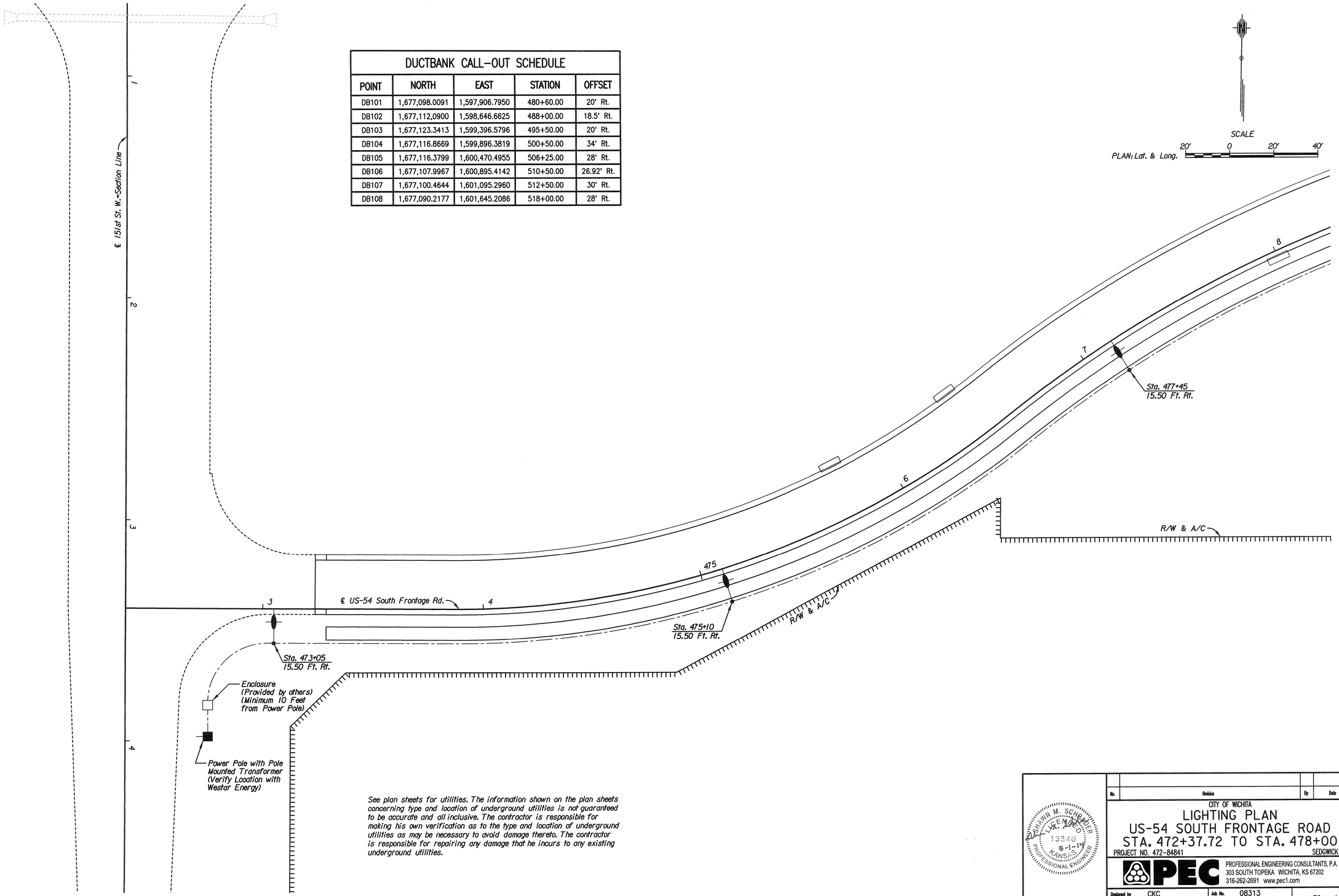
ITS GENERAL NOTES

~~ITS-D02~~ VERSION DATE: 01-03-13

APP'D			
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN. CK.	TRACE CK.

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DUCTBANK CALL-OUT SCHEDULE				
POINT	NORTH	EAST	STATION	OFFSET
DB101	1,677,098.0091	1,597,906.7950	480+60.00	20' Rt.
DB102	1,677,112.0900	1,598,646.6625	488+00.00	18.5' Rt.
DB103	1,677,123.3413	1,599,396.5796	495+50.00	20' Rt.
DB104	1,677,116.8669	1,599,896.3819	500+50.00	34' Rt.
DB105	1,677,116.3799	1,600,470.4955	506+25.00	28' Rt.
DB106	1,677,107.9967	1,600,895.4142	510+50.00	26.92' Rt.
DB107	1,677,100.4644	1,601,095.2960	512+50.00	30' Rt.
DB108	1,677,090.2177	1,601,645.2086	518+00.00	28' Rt.



See plan sheets for utilities. The information shown on the plan sheets concerning type and location of underground utilities is not guaranteed to be accurate and all inclusive. The contractor is responsible for making his own verification as to the type and location of underground utilities as may be necessary to avoid damage thereto. The contractor is responsible for repairing any damage that he incurs to any existing underground utilities.

SHAWN M. SCHRAUDER
LICENSED PROFESSIONAL ENGINEER
13340
8-1-14
KANSAS
PROFESSIONAL ENGINEER

No.	Revision	By	Date

CITY OF WICHITA

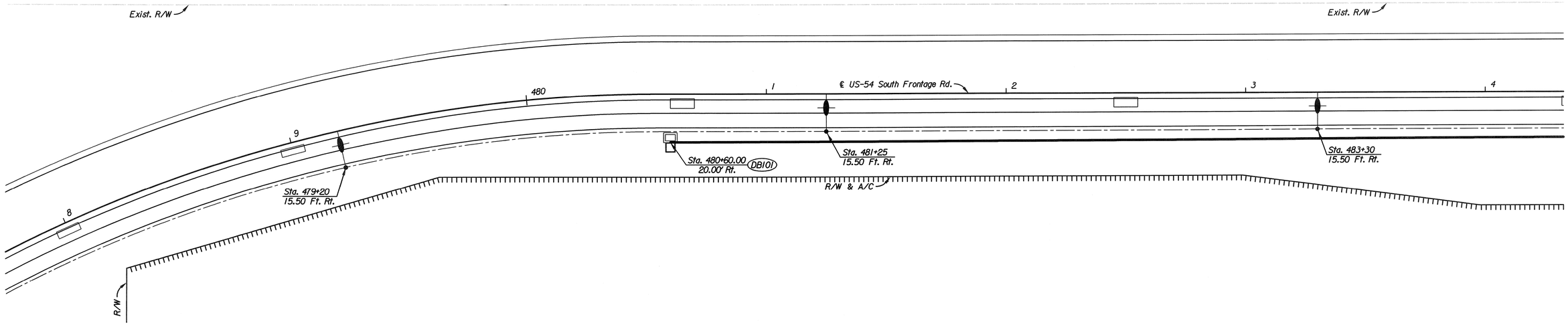
LIGHTING PLAN
US-54 SOUTH FRONTAGE ROAD
STA. 472+37.72 TO STA. 478+00

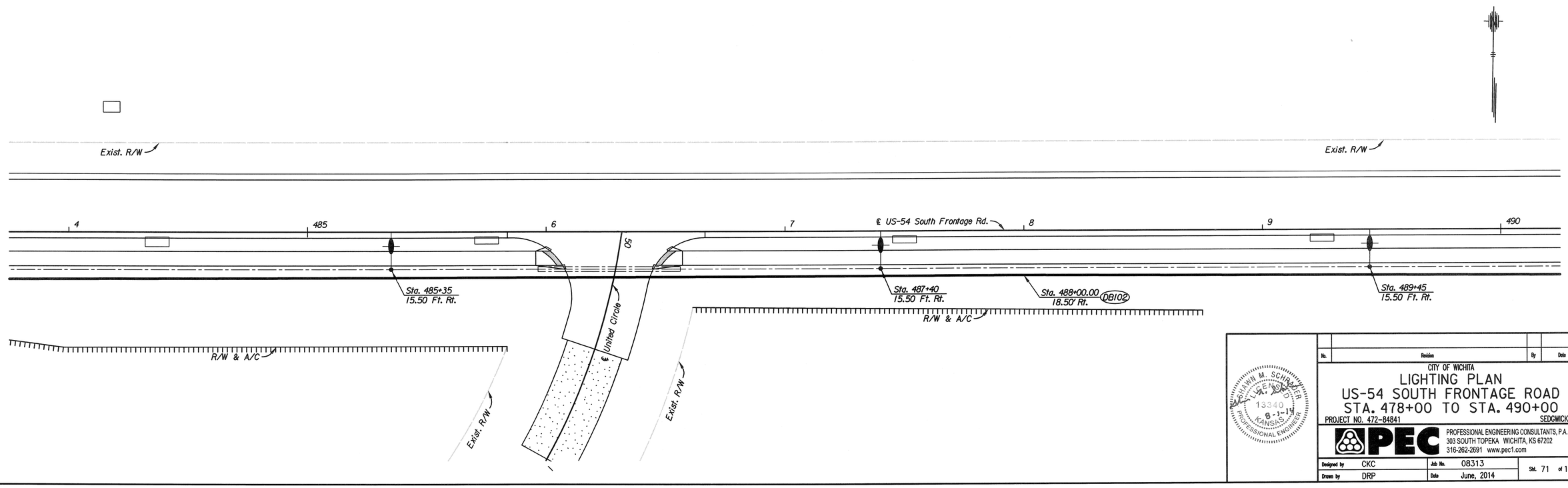
PROJECT NO. 472-84841 SEDGWICK CO.

PEC PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
303 SOUTH TOPEKA WICHITA, KS 67202
316-262-2691 www.pec1.com

Designed by	CKC	Job No.	08313	Sht. 70 of 130
Drawn by	DRP	Date	June, 2014	

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No.	Revision	By	Date

CITY OF WICHITA

LIGHTING PLAN
US-54 SOUTH FRONTAGE ROAD
STA. 478+00 TO STA. 490+00

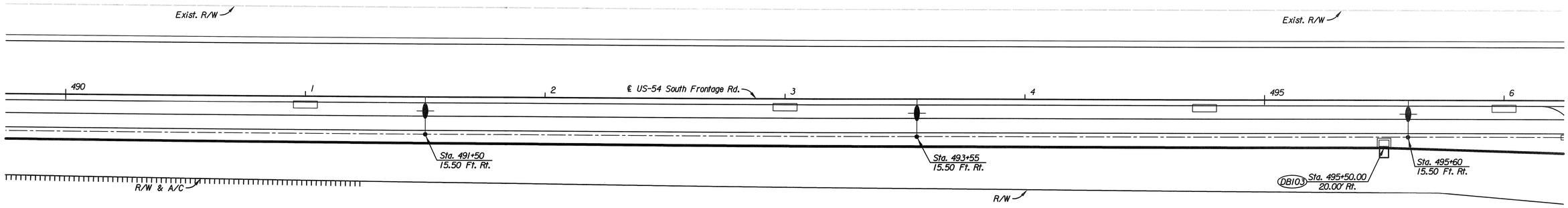
PROJECT NO. 472-84841 SEDGWICK CO.

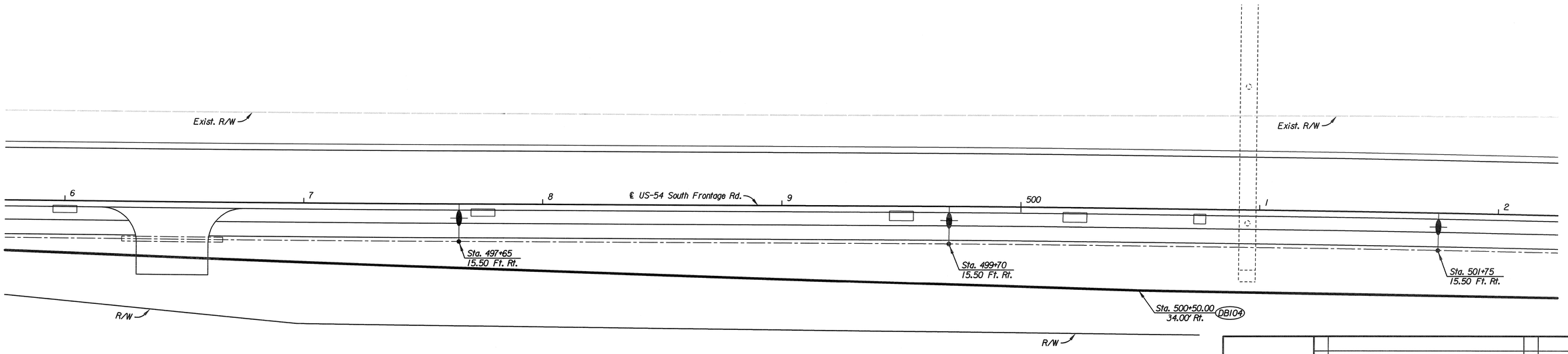
PEC PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
303 SOUTH TOPEKA WICHITA, KS 67202
316-262-2691 www.pec1.com

Designed by	CKC	Job No.	08313
Drawn by	DRP	Date	June, 2014

Sht. 71 of 130

SHAWN M. SCHRADER — LICENSED — 13340 — 8-1-14 — KANSAS — PROFESSIONAL ENGINEER





No.	Revision	By	Date

CITY OF WICHITA

LIGHTING PLAN
US-54 SOUTH FRONTAGE ROAD
STA. 490+00 TO STA. 502+00

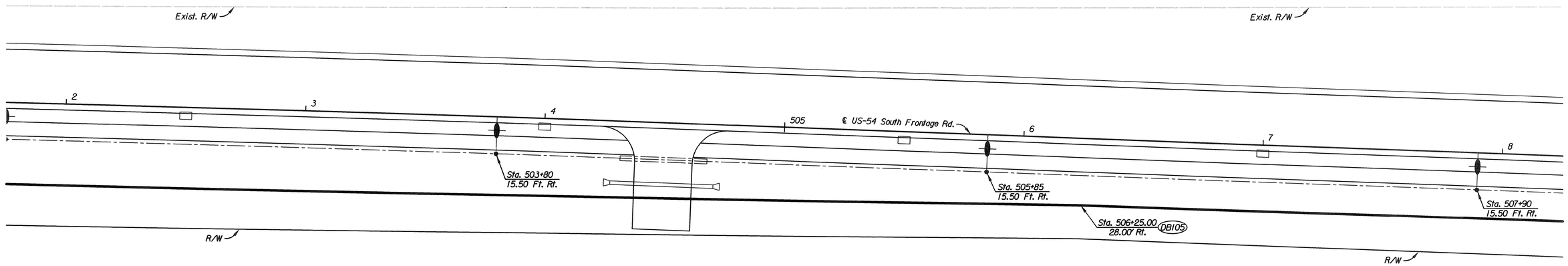
PROJECT NO. 472-84841 SEDGWICK CO.

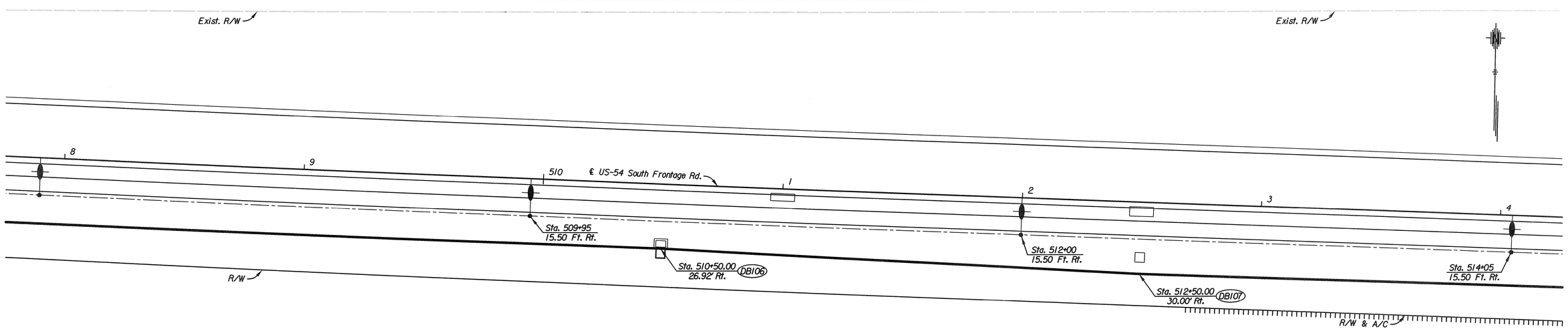
SHAWN M. SCHRADER LICENSED P.E. 13340 6-1-14 KANSAS PROFESSIONAL ENGINEER

PEC PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
303 SOUTH TOPEKA WICHITA, KS 67202
316-262-2691 www.pec1.com

Designed by	CKC	Job No.	08313	Sht. 72 of 130
Drawn by	DRP	Date	June, 2014	

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No.	Revision	By	Date

CITY OF WICHITA

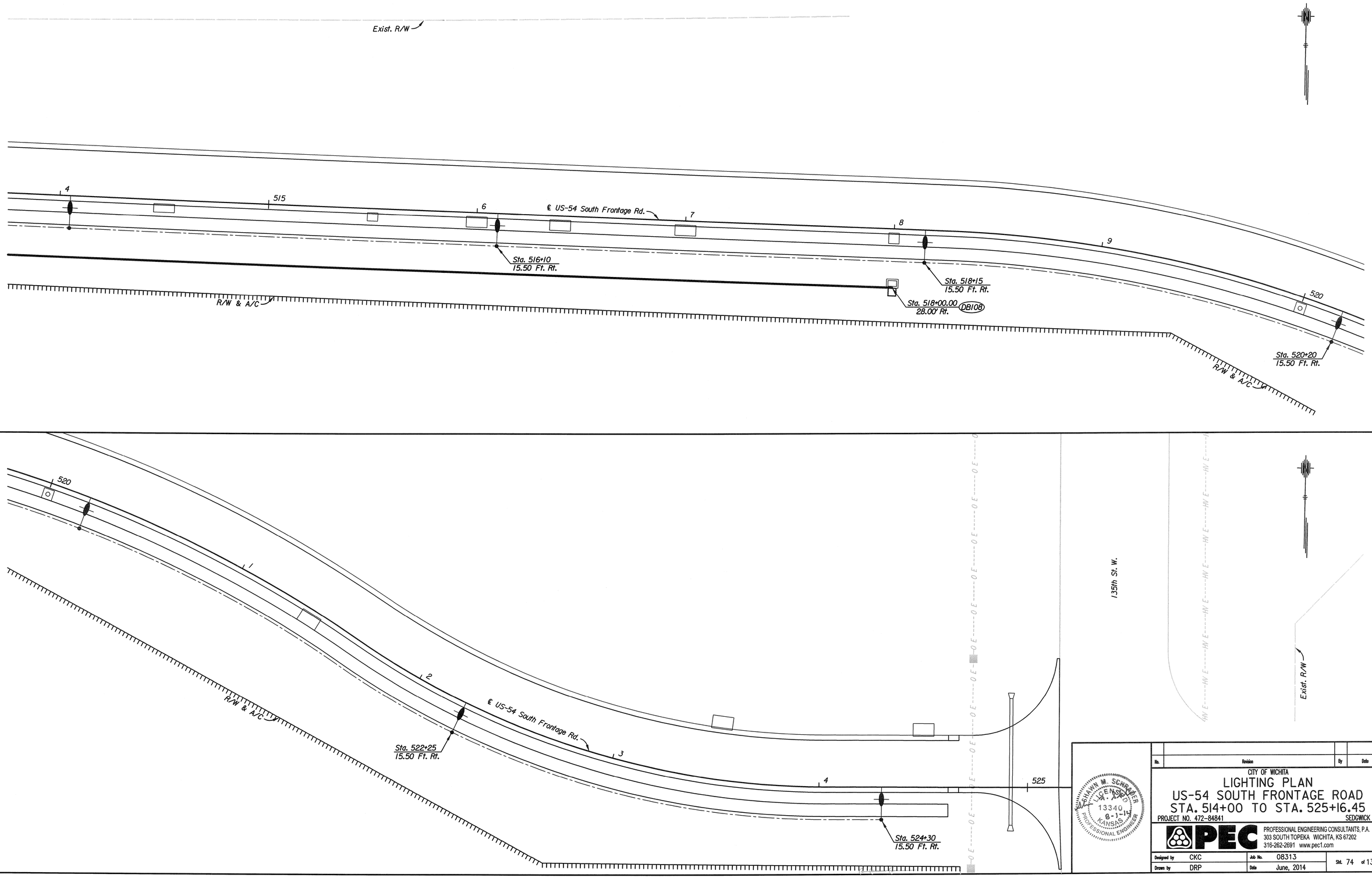
LIGHTING PLAN
US-54 SOUTH FRONTAGE ROAD
STA. 502+00 TO STA. 514+00

PROJECT NO. 472-84841 SEDGWICK CO.

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Designed by	CKC	Job No.	08313	Sht. 73 of 130
Drawn by	DRP	Date	June, 2014	



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No.	Revision	By	Date

CITY OF WICHITA

LIGHTING PLAN
US-54 SOUTH FRONTAGE ROAD
STA. 514+00 TO STA. 525+16.45

PROJECT NO. 472-84841 SEDGWICK CO.

SHAWN M. SCHRAUER LICENSED 13340 8-1-14 KANSAS PROFESSIONAL ENGINEER

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Designed by	CKC	Job No.	08313	Sht. 74 of 130
Drawn by	DRP	Date	June, 2014	

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	KA 2285-01	2014	75	130

NOTE:
WHENEVER THE PLAN SPECIFICATIONS CONFLICT WITH THE STANDARD KANSAS DEPARTMENT OF TRANSPORTATION SPECIFICATIONS, LATEST EDITION, THE PLAN SPECIFICATIONS SHALL GOVERN.

CONSTRUCTION:
LIGHT STANDARDS SHALL BE DESIGNED TO COMPLY WITH THE 2009 EDITION OF THE AASHTO PUBLICATION, STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR THE HIGHWAY SIGNS, LUMINAIRES, TRAFFIC SIGNALS, AND CURRENT INTERIMS. USE FATIGUE CATEGORY II. SEE STANDARD SPECIFICATIONS, LATEST EDITION, SECTION 814.

LIGHT STANDARDS:
(A) STEEL STANDARDS: THE LIGHT STANDARDS SHALL COMPLY WITH THE REQUIREMENTS OF ASTM 607 WITH THE EXCEPTIONS AND/OR ADDITIONS AS LISTED IN THE STANDARD KANSAS DEPARTMENT OF TRANSPORTATION SPECIFICATIONS, LATEST EDITION, SECTION 1608.2. THE LIGHT STANDARDS WITH 40' MOUNTING SHALL BE ONE (1) SECTION. THE DIAMETER OF THE STANDARDS SHALL BE SHOWN ON THE DETAIL SHEETS.

(a) BASE: THE BASE SHALL BE EITHER A ONE (1) PIECE STEEL BASE COMPLYING WITH THE REQUIREMENTS OF ASTM A-27, GRADE 65-35, A STEEL FORGED BASE COMPLYING WITH THE REQUIREMENTS OF ASTM A-668, CLASS C OR A PLATE BASE COMPLYING WITH THE REQUIREMENTS OF ASTM A 36-77A. THE BASE SHALL BE SECURED TO THE BOTTOM SECTION BY TWO (2) CONTINUOUS ELECTRIC ARC WELDS.

(b) MAST ARMS: THE MAST ARMS SHALL BE FABRICATED FROM 2" STANDARD PIPE MEETING THE REQUIREMENTS OF ASTM A-53 OR ASTM A-35.

(c) FINISH: THE BASE, MAST ARMS, AND LIGHT STANDARDS SHALL BE GALVANIZED ACCORDING TO ASTM A-123.

(B) ALUMINUM STANDARDS: STANDARDS SHALL CONFORM TO THE PLAN DRAWINGS AND SPECIFICATIONS. THE SHAFT SHALL BE SPUN FROM ONE PIECE OF SEAMLESS TUBING (ASTM B-429) ALUMINUM ASSOCIATION ALLOY 6063-T6, WITH MINIMUM NOMINAL WALL THICKNESS OF 0.312 INCH FOR 40' MOUNTING HEIGHT. AFTER FABRICATION IT SHALL HAVE MECHANICAL STRENGTH OF NOT LESS THAN T6 TEMPER. THE SHAFT SHALL HAVE NO LONGITUDINAL NOR CIRCUMFERENTIAL WELDS EXCEPT AT THE LOWER END JOINING THE SHAFT TO THE BASE.

(a) BASE: A ONE-PIECE CAST ALUMINUM (ASTM B-108 ALLOY S.G. 70A-T6) ANCHOR BASE OF ADEQUATE STRENGTH, SHAPE AND SIZE BE SECURED TO THE LOWER END OF THE SHAFT BY TWO (2) CONTINUOUS WELDS. THE BASE SHALL TELESCOPE THE SHAFT AND THE ONE WELD SHALL BE ON THE INSIDE OF THE BASE AT THE END OF THE SHAFT WHILE THE OTHER WELD SHALL BE ON THE OUTSIDE AT THE TOP OF THE BASE. (THE TWO (2) WELDS SHALL DEVELOP THE DESIGN STRENGTH OF THE POLE ASSEMBLY.)

(b) MAST ARMS: SINGLE MEMBER TYPE: THE BRACKET ARM ASSEMBLY SHALL CONSIST OF A TAPERED ALUMINUM ARM, ELLIPTICAL IN SHAPE AT THE POLE END AND TAPERING TO A MINIMUM OF 2 1/4" O.D. AT THE LUMINAIRE END, MADE OF (ASTM B-429) ALUMINUM ASSOCIATION ALLOY 6063-T6 TUBING.

TRUSS TYPE MEMBER: THE UPPER AND LOWER MEMBERS SHALL BE 2" IPS ALUMINUM PIPE, (ASTM B-429) ALUMINUM ASSOCIATION ALLOY 6063-T6.

(c) FINISH: ALL HARDWARE (BOLTS, NUTS, AND WASHERS - BUT NOT INCLUDING ANCHOR BOLTS) NOT OTHERWISE SPECIFICALLY DESIGNATED IN THE SPECIFICATIONS, SHALL BE ALUMINUM OR STAINLESS STEEL. ALL MATERIALS SHALL BE FURNISHED IN NATURAL ALUMINUM COLOR, POLE SHAFTS SHALL BE FURNISHED WITH A POLISHED SURFACE.

ELECTRICAL MATERIAL:

(A) PHOTO CELL: PHOTO-ELECTRIC CONTROL SHALL BE SOLID STATE TYPE, 1000 W/1800 VA, SINGLE POLE, SINGLE THROW, TWIST LOCK MOUNTING, 105 TO 300 VOLT OPERATION. THE OPERATING LEVELS SHALL BE 1.6 FT. C. ON AND 0.4 FT. C. OFF, WITH AN ALLOWABLE 0.5 FT. C. VARIANCE ON OR OFF. THE PHOTO-ELECTRIC CONTROL SHALL HAVE A MINIMUM OF 30 SECOND TIME DELAY AND FAIL IN THE ON MODE.

(B) DUCT: THE DUCT FOR SECONDARY CABLE UNDERGROUND SHALL BE POLYETHYLENE DUCT WITH MINIMUM TENSILE STRENGTH OF 3100 PSI DUCT TO PROVIDE FOR 40% MAXIMUM FILL. THE DUCT SIZED SHALL MEET ASTM D3485 (LATEST REVISION).

(C) CONDUCTOR: CONDUCTOR SHALL BE STRANDED ANNEALED COPPER MEETING THE REQUIREMENTS OF ASTM B-8 AND ASTM B-33.

(a) SECONDARY CABLE (INDUCT): SECONDARY CABLE SHALL BE COPPER SINGLE CONDUCTOR CABLE FOR OPERATION AT 600 VOLTS MAXIMUM. MATERIAL SHALL MEET THE APPLICABLE REQUIREMENTS OF ICEA STANDARD S-105-692 AND LISTED BY UL AS TYPE USE-2 FOR DIRECT BURIAL.

(D) LUMINAIRES: ALL LUMINAIRES SHALL BE SUPPLIED WITH HIGH POWER FACTOR BALLAST.

150 WATT LUMINAIRES: 150 WATT LUMINAIRES SHALL HAVE A HOUSING OF ALUMINUM ALLOY CASTING WITH AN INTEGRAL SLIPFITTER FOR A 2 INCH BRACKET MOUNTING WITH A NATURAL UNPAINTED ALZAK ALUMINUM REFLECTOR. THE BALLASTS SHALL BE A VOLTAGE AUTO-REGULATOR TYPE FOR HIGH PRESSURE SODIUM AT A VOLTAGE OF 480 VOLTS. THE REFRACTORS SHALL BE ACRYLIC WITH TYPE III LIGHT DISTRIBUTION.

(E) SODIUM LUMINAIRE IGNITORS: ALL HPS LUMINAIRES SHALL BE EQUIPPED WITH THE FOLLOWING:

HIGH PRESSURE SODIUM IGNITORS: ELECTRONIC IGNITOR FOR THE IGNITION OF HIGH PRESSURE SODIUM (HPS) VAPOR LAMPS. THE IGNITOR SHALL BE DESIGNED TO DIRECT THE HIGH VOLTAGE SPIKE DIRECTLY TO THE LAMP WITHOUT BEING DIRECTED TO THE LAMP THROUGH THE BALLAST WINDINGS. THE IGNITOR SHALL BE CAPABLE OF BEING USED WITH ALL BRANDS AND TYPES OF 60 HERTZ HPS BRANDS. THE IGNITOR SHALL BE DESIGNED SO THAT CYCLING OR EXTINGUISHED LAMP SHALL NOT ADVERSELY AFFECT THE IGNITOR OR BALLAST. THE IGNITOR SHALL BE BE TOTALLY EPOXY ENCAPSULATED IN A METAL CAN AND SHALL BE OPEN CIRCUIT TESTED FOR A PERIOD OF 48 HOURS WITH POWER APPLIED AT ELEVATED TEMPERATURES TO 100°C WITH CONSTANT MONITORING OF CASE TEMPERATURES. THE IGNITOR SHALL HAVE A TWO (2) MINUTE TIME DELAY. IF THE LAMP DOES NOT START, THE IGNITOR WILL BE SHUT OFF UNTIL THE POWER TO THE LUMINAIRES IS RESET BY THE PHOTO CONTROL. THE IGNITOR SHALL BE WARRANTED AGAINST DEFECTIVE MATERIALS AND WORKMANSHIP FOR A PERIOD OF NOT LESS THAN FIVE (5) YEARS FROM THE SHIPPING DATE.

(F) LAMPS: (a) 150 WATT LAMPS: 150 WATT LAMPS SHALL BE 16,000 LUMEN, HIGH PRESSURE SODIUM.

(G) ENCLOSURE: THE ENCLOSURE CABINET SHALL BE CONSTRUCTED OF 5052 ALLOY ALUMINUM 0.125" THICK. THE CABINET SHALL BE OF CLEAN CUT DESIGN HAVING NO SHARP EDGES, CORNERS OR PROJECTIONS. THE CIRCUITING SHALL BE SERVICEABLE BY MEANS OF A FULL LENGTH HINGED DOOR WITH PADLOCK PROVISIONS. THE ENCLOSURE SHALL HAVE 600 VOLT RATED MOLDED CASE MAIN AND SECONDARY BREAKERS, TWIST-LOCK PHOTO-CELL SOCKET, AND ELECTRICALLY HELD CONTACTORS. THE EQUIPMENT WITHIN THE ENCLOSURE SHALL BE WIRED PRIOR TO DELIVERY. THE ENCLOSURE SHALL HAVE A METER VIEW WINDOW AND A GLASS TO ALLOW LIGHT TO THE PHOTO-CELL.

(a) MAIN AND SECONDARY BREAKERS: THE MAIN AND SECONDARY BREAKERS SHALL HAVE A MOUNTING DIMENSIONS OF 1 3/8" WIDE X 4 1/2" HIGH MOUNTING HOLES SHALL BE POSITIONED TO ACCOMMODATE A BREAKER 2 3/4" WIDE SIDE BY SIDE. SEE ENCLOSURE DETAIL SHEET.

GENERAL MATERIALS AND NOTES:

(A) MISCELLANEOUS HARDWARE: MISCELLANEOUS HARDWARE THAT REQUIRES GALVANIZING OR ELECTROPLATING SHALL CONFORM TO THE STANDARD KANSAS DEPARTMENT OF TRANSPORTATION SPECIFICATIONS, LATEST EDITION, SECTION 1703.2 (c).

(B) METALLIC CONDUIT: METALLIC CONDUIT SHALL BE RIGID STEEL CONDUIT MEETING THE REQUIREMENTS OF AMERICAN STANDARD SPECIFICATION C-80.1. TRENCHING FOR CONDUIT WILL NOT BE PERMITTED THROUGH EXISTING PAVEMENT. JACKING WILL NOT BE PERMITTED IN DISTRICT ONE UNLESS APPROVED BY THE ENGINEER IN CHARGE OF CONSTRUCTION.

(C) METALLIC CONDUIT FITTINGS: METALLIC CONDUIT FITTINGS SHALL BE ZINC COATED AND SHALL MEET THE REQUIREMENTS OF AMERICAN STANDARD SPECIFICATION C-80.1.

(D) NON-METALLIC CONDUIT: D.1 RIGID POLYVINYL CHLORIDE MEETING THE REQUIREMENTS OF FEDERAL SPECIFICATIONS NO. LP 1036A, TYPE II, ELECTRICAL CLASS 2, GRADE C. EACH LENGTH SHALL BEAR THE UNDERWRITERS, INC. LABEL. NON-METALLIC CONDUIT FITTINGS SHALL BE FABRICATED FROM POLYVINYL CHLORIDE HAVING THE SAME CHEMICAL AND PHYSICAL PROPERITIES AS THE CONDUIT WITH WHICH IT IS TO BE USED. EACH SHALL BEAR THE UNDERWRITERS, INC. LABEL. THE JOINTS SHALL BE MADE IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.

D.2. HIGH DENSITY POLYETHYLENE (HDPE) MEETING THE REQUIREMENTS OF ASTM F 2160 AND ASTM F 2176. A LETTER OF CERTIFICATION (LOC) WILL BE REQUIRED FROM THE CONDUIT PRODUCER AND/OR RESIN PRODUCER. THE CONDUIT WILL NEED TO BE MARKED WITH ASTM F 2160 DESIGNATION ON THE PRINT LINE.

(E) GROUND: GROUND WIRE SHALL BE A #6 AWG SOLID BARE COPPER WIRE AND ARRANGEMENT SHALL BE AS NOTED ON PLANS.

(F) ANCHOR BOLTS: ANCHOR BOLTS SHALL CONFORM TO THE STANDARD KANSAS DEPARTMENT OF TRANSPORTATION SPECIFICATIONS, LATEST EDITION, SECTION 1600 (GRADE 55), WITH THE FOLLOWING EXCEPTION. DO NOT USE CUT THREADS, USE ROLLED THREADS.

(G) BREAK-AWAY CABLE CONNECTORS: THE CONNECTORS SHALL PROVIDE A FUSED WATERPROOF WIRING CONNECTION THAT WHEN SUBJECTED TO STRAIN CONSISTANT WITH A KNOCKDOWN WILL SEPARATE WITHOUT DAMAGE TO WIRING. WHEN SEPARATION OCCURS, THE CONNECTORS SHALL HAVE NO CONTACTS EXPOSED TO PRESENT A SHOCK HAZARD. THE CABLE CONNECTORS SHALL MEET AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS (LATEST EDITION), ARTICLE 12.5.3 (C). CONNECTOR INSTALLATION SHALL BE AS DIRECTED BY THE MANUFACTURER.

(H) FRANGIBLE BASE: FRANGIBLE BASE SHALL BE CAST ALUMINUM TO MEET THE STANDARDS OF THE LATEST AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, AND TRAFFIC SIGNALS. THE FRANGIBLE BASE SHALL ACCOMMODATE UP TO A 15" BOTTOM BOLT CIRCLE. THE FRANGIBLE BASE SHALL HAVE HIGH DENSITY PLASTIC DOORS. THE COLOR SHALL BE PIGMENTED THROUGHOUT TO GIVE THE APPEARANCE OF ALUMINUM. THE DOORS SHALL WITHSTAND TEMPERATURE EXTREMES OF -70° TO 150° F. AND ARE COMPOUNDED WITH U.V. INHIBITORS.

(I) JUNCTION BOXES (IN-GROUND): THE JUNCTION BOX SHALL BE OF SUFFICIENT SIZE TO FACILITATE THE CONDUIT AND WIRING AS INDICATED IN THE PLANS. JUNCTION BOXES SHALL HAVE THE MINIMUM NOMINAL DIMENSIONS OF 12 INCHES DEEP WITH A MINIMUM PHYSICAL OPENING OF 130 SQUARE INCHES. IN-GROUND JUNCTION BOXES MAY BE CONSTRUCTED OF ONE OF THE FOLLOWING METHODS:

PRE-CAST CONCRETE WITH A CAST IRON COVER; POLYMER CONCRETE WITH A POLYMER CONCRETE COVER; FIBERGLASS REINFORCED POLYMER BODY WITH A POLYMER CONCRETE RING AND COVER; HIGH DENSITY POLYETHYLENE BODY WITH POLYMER CONCRETE RING AND COVER. THE RING SHALL BE SECURELY ATTACHED TO THE BODY.

ENCLOSURES, BOXES AND COVERS ARE REQUIRED TO CONFORM TO ALL TEST PROVISIONS OF ANSI/SCTE 77 2002 "SPECIFICATION FOR UNDERGROUND INTEGRITY" FOR TIER 15 APPLICATIONS.

THE COVER SHALL BEAR THE LOGO "TRAFFIC SIGNAL" CLEARLY AND PERMANENTLY MOLDED OR ETCHED INTO THE COVER.

JUNCTION BOXES (ABOVE-GROUND): ABOVE GROUND JUNCTION BOXES SHALL HAVE THE NOMINAL DIMENSIONS OF 12 INCHES BY 12 INCHES BY 6 INCHES. THE JUNCTION BOX SHALL BE MADE OF 14 GAUGE SHEET METAL(STEEL) WITH WELDED SEAMS, KNOCKOUTS AND WEATHER PROOF SCREW COVER. BOXES SHALL BE HOT DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A-123 AFTER FABRICATION.

(J) WEDGE TYPE STUD BOLT ANCHORS: THE CONTRACTOR SHALL INSTALL TWO 3/8" X 3" WEDGE TYPE ANCHORS FOR CONDUIT CLAMPS. THE ANCHORS SHALL BE WEDGE TYPE MADE FROM CARBON STEEL MEETING AISI 12L14 STEEL. THE MINIMUM EMBEDDED DEPTH SHALL BE 1 3/4".

(K) CONDUIT CLAMPS WITH CLAMP BACKS: THE CONTRACTOR SHALL INSTALL 2" CONDUIT CLAMPS WITH A COMPATIBLE CLAMP BACK. CLAMPS SHALL BE HEAVY DUTY STEEL TO SECURE THE 2" RIGID CONDUIT TO STRUCTURE. CONDUIT CLAMPS ARE TO BE SPACED AT 6' INTERVALS.

(L) CABLE GRIP SUPPORTS: THE CONTRACTOR SHALL INSTALL ONE (1) CABLE SUPPORT GRIP IN EACH ROADWAY LIGHTING POLE. THE CABLE SUPPORT GRIP SHALL BE MADE OF HIGH GRADE, NON-MAGNETIC TIN COATED BRONZE STRAND. THE CABLE SUPPORT GRIP SHALL BE CAPABLE OF SECURING TWO (2) #10 AWG TYPE USE-2 CABLES IN A VERTICAL POSITION HOLDING THE WEIGHT OF THE CABLES AND CABLE CONNECTORS OFF THE LUMINAIRE ASSEMBLY. SEE ROADWAY LIGHTING DETAILS SHEET.

(M) ALL WELDS SHALL BE SMOOTH CLEAN DENSE DEPOSIT THAT WILL EXCLUDE MOISTURE AND CONFORM TO A.W.S. SPECIFICATION D1.1 (LATEST REVISION). FIELD WELDS WILL NOT BE ALLOWED.

(N) GROUND RODS SHALL BE COPPER CLAD STEEL, 3/4" DIAMETER BY 10' LONG.

NO.	DATE	REVISIONS	BY	APP'D
3	02/27/13	Modified LGT STD & (F), Add (D) D.2, Typos	C.E.	B.D.G.
2	7/14/11	Modify Note (F) chg 250 to 150 watt	V.H.	B.D.G.
1	6/27/11	Modify Note (F) chg 150 to 250 watt	V.H.	B.D.G.

SHAWN M. SCHNAIER LICENSED P.E. 13340 8-1-14 KANSAS PROFESSIONAL ENGINEER

KANSAS DEPARTMENT OF TRANSPORTATION
CONSTRUCTION AND MATERIAL REQUIREMENTS FOR HIGHWAY LIGHTING (CONVENTIONAL)

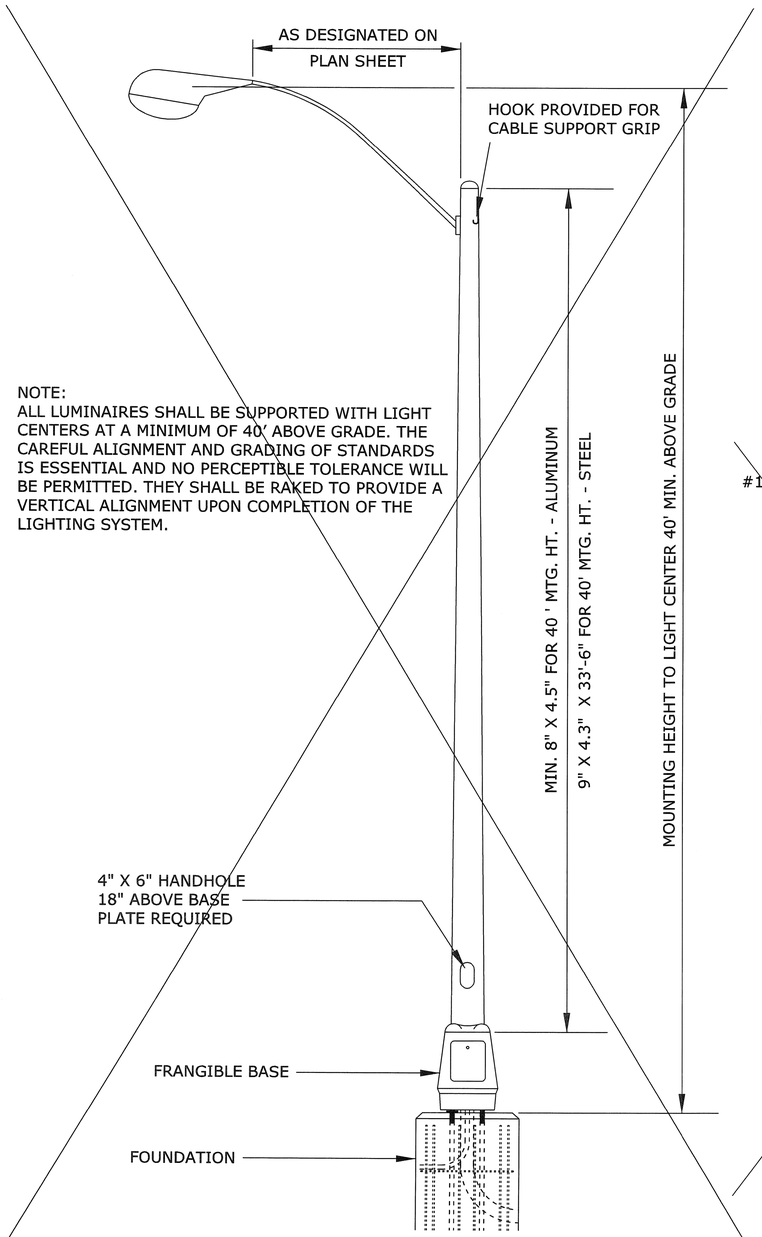
TE207

FHWA APPROVAL			04/29/2013	APP'D	Brian D. Gower
DESIGNED	V.H.	DETAILED	V.H.	QUANTITIES	TRACED
DESIGN CK.	C.A.L.	DETAIL CK.	C.A.L.	QUAN. CK.	TRACE CK.

Drawn By : drp
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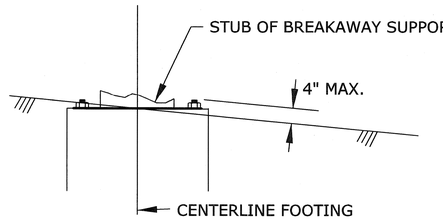
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	KA 2285-01	2014	76	130

GROUNDING NOTE:
LIGHT STANDARDS SHALL BE GROUNDED BY MEANS OF A NO.6 AWG SOLID BARE COPPER GROUND WIRE BOLTED TO THE INSIDE OF THE LIGHT STANDARD SHAFT WITH A 1½" GROUNDING NUT. GROUND WIRE SHALL BE CONNECTED TO THE COPPERCLAD GROUND ROD BY MEANS OF A GROUND ROD CLAMP WITH AN EXOTHERMIC CONNECTION.



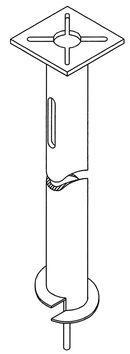
NOTE:
ALL LUMINAIRES SHALL BE SUPPORTED WITH LIGHT CENTERS AT A MINIMUM OF 40' ABOVE GRADE. THE CAREFUL ALIGNMENT AND GRADING OF STANDARDS IS ESSENTIAL AND NO PERCEPTIBLE TOLERANCE WILL BE PERMITTED. THEY SHALL BE RAKED TO PROVIDE A VERTICAL ALIGNMENT UPON COMPLETION OF THE LIGHTING SYSTEM.

THE 4" MAX. IS A REQUIREMENT OF THE BREAKAWAY CRITERIA IN THE LATEST EDITION OF AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS (NO. 12.5.3).

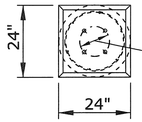


BREAKAWAY SUPPORT STUB CLEARANCE DIAGRAM

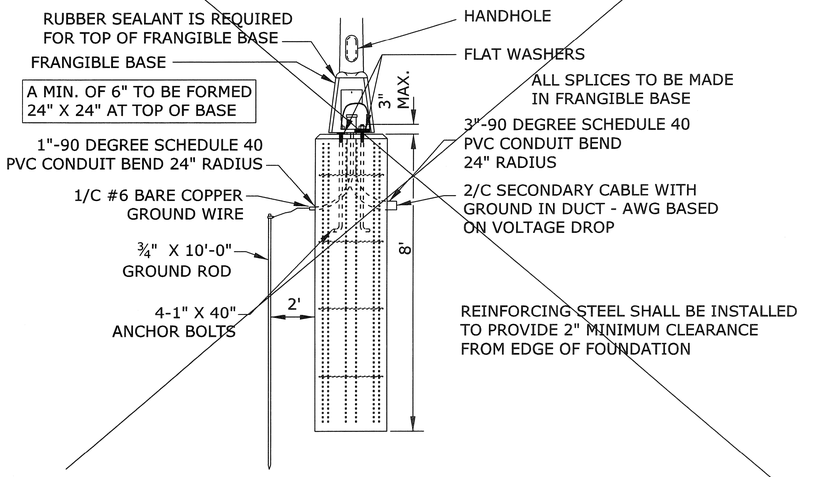
NOTE:
THE FOUNDATION SHALL BE INSTALLED TO MEET THE BREAKAWAY SUPPORT STUB CLEARANCE OF 4" MAXIMUM, TO INCLUDE ANCHOR BOLTS.



SCREW-IN BASE



TOP VIEW FOUNDATION

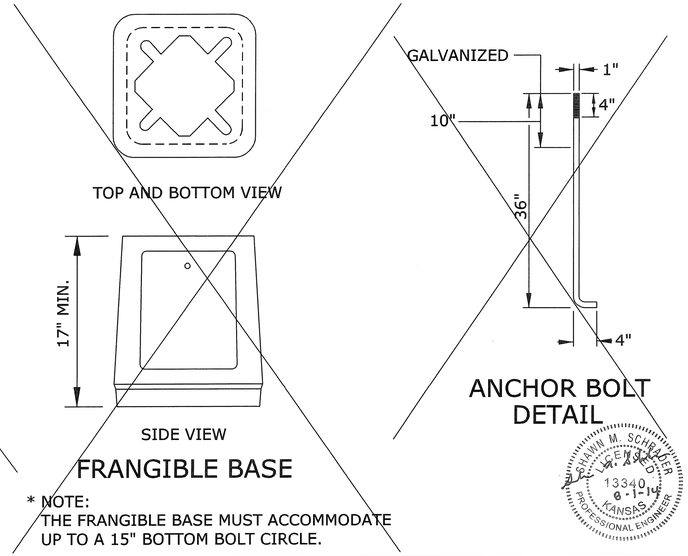


FOUNDATION DETAIL

CABLE SUPPORT GRIP

NOTE:
THE CABLE SUPPORT GRIP SHALL BE INSTALLED ON THE HOOK SUPPLIED WITHIN THE LIGHT POLE AS SHOWN ABOVE.

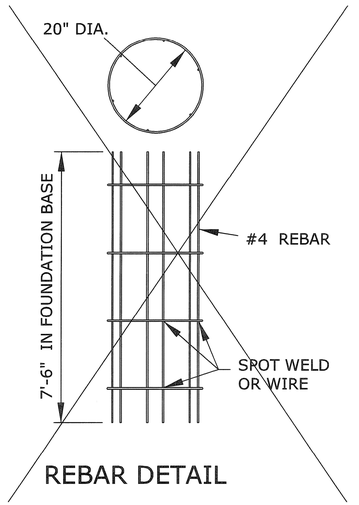
NOTE:
DUE TO SOIL CONDITIONS IN ALL OR PART OF THE FOLLOWING COUNTIES, SCREW-IN LIGHT POLE FOUNDATIONS MAY ONLY BE USED FOR ROADWAY LIGHTING UPON APPROVAL BY THE KANSAS DEPARTMENT OF TRANSPORTATION BUREAU OF TRANSPORTATION SAFETY & TECHNOLOGY: BOURBON, CRAWFORD, CHEROKEE, LABETTE, MEADE, CLARK, COMANCHE, KIOWA, BARBER, HARPER, AND KINGMAN. SCREW-IN FOUNDATIONS SHALL NOT BE INSTALLED IN DISTRICT ONE.



FRANGIBLE BASE

* NOTE:
THE FRANGIBLE BASE MUST ACCOMMODATE UP TO A 15" BOTTOM BOLT CIRCLE.

ANCHOR BOLT DETAIL



REBAR DETAIL

NO.	DATE	REVISIONS	BY	APP'D
3	1/12/12	Chg'd Foundation Detail to show 1" PVC Cond	C.E.	B.D.G.
2	2/25/11	Modify Bolt Circle Note	V.H.	B.D.G.
1	2/4/11	Chg'd Bolt Circle Diameter	V.H.	J.F.F.

KANSAS DEPARTMENT OF TRANSPORTATION

ROADWAY LIGHTING DETAILS

TE201

FHWA APPROVAL				12/15/2011	APP'D	Brian D. Gower	
DESIGNED	C.E.	DETAILED	C.E.	QUANTITIES		TRACED	
DESIGN CK.	B.D.G.	DETAIL CK.	B.D.G.	QUAN. CK.		TRACE CK.	

JOSHWIN M. SCHRAEDER 13340 0-1-14 KANSAS PROFESSIONAL ENGINEER

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STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	KA 2285-01	2014	77	130

SUMMARY OF ELECTRIC LIGHTING SYSTEM QUANTITIES (HARDWARE)

ITEM	UNIT	QUANTITY
SOLID STATE PHOTO CELL	EACH	
ENCLOSURE	EACH	
ABOVE GROUND JUNCTION BOX (12" X 12" X 6")	EACH	
CABLE CONNECTORS	EACH	
OZ EXPANSION JOINT	EACH	
CABLE SUPPORT GRIP	EACH	
600 VOLT 2/C SECONDARY CABLE WITH GROUND WIRE (IN DUCT) #4 A.W.G.	LIN FT	
600 VOLT 2/C SECONDARY CABLE WITH GROUND WIRE (IN DUCT) #6 A.W.G.	LIN FT	
600 VOLT 1/C SECONDARY CABLE WITH GROUND WIRE #6 A.W.G.	LIN FT	
600 VOLT 1/C SECONDARY CABLE WITH GROUND WIRE #8 A.W.G.	LIN FT	
600 VOLT 1/C SECONDARY CABLE #10 A.W.G.	LIN FT	
GROUNDWIRE, #6 A.W.G.SOLID BARE COPPER	LIN FT	156
1" METALLIC CONDUIT	LIN FT	
2" METALLIC CONDUIT	LIN FT	
3" METALLIC CONDUIT	LIN FT	138
3" 90 DEGREE PVC CONDUIT BENDS 24" RADIUS	EACH	52
2" SCHEDULE 40 PVC	LIN FT	
1½" SCHEDULE 80 PVC	LIN FT	44,868
3" SCHEDULE 80 PVC	LIN FT	5048
3" 90 DEGREE SCHEDULE 40 PVC CONDUIT BENDS 36" RADIUS	EACH	
1" 90 DEGREE SCHEDULE 40 PVC CONDUIT BENDS 24" RADIUS	EACH	26
3/8" x 3" WEDGE TYPE ANCHOR BOLTS	EACH	
ALUMINUM TRIPLEX #4 A.W.G. (AERIAL)	LIN FT	
2" CONDUIT CLAMPS W/ CLAMP BACKS	EACH	
GROUND RODS WITH CLAMPS 3/4" X 10'	EACH	26

SUMMARY OF ELECTRIC LIGHTING SYSTEM QUANTITIES (LIGHT STANDARDS)

ITEM	UNIT	QUANTITY
40' MOUNTING HEIGHT LIGHT STANDARD WITH 8' MASTARM	EACH	
40' MOUNTING HEIGHT LIGHT STANDARD WITH 10' MASTARM	EACH	
40' MOUNTING HEIGHT LIGHT STANDARD WITH 12' MASTARM	EACH	
40' MOUNTING HEIGHT LIGHT STANDARD WITH 15' MASTARM	EACH	
150 WATT LUMINAIRE, AUTO REGULATOR BALLAST, HIGH PRESSURE SODIUM	EACH	
150 WATT, 16,000 LUMEN, HIGH PRESSURE SODIUM, 24,000 LAMP HOUR	EACH	
FRANGIBLE BASE	EACH	
SCREW-IN BASE FOR LIGHT STANDARD	EACH	26
30" CONCRETE BASE FOR LIGHT STANDARD	EACH	
SPLICE VAULT FOR DUCTBANK	EACH	4

SUMMARY OF ELECTRIC LIGHTING SYSTEM QUANTITIES (MISCELLANEOUS ITEMS)

ITEM	UNIT	QUANTITY
TRENCH AND BACKFILL	LIN FT	5186
REMOVAL OF CONCRETE BASE	EACH	

THE FOLLOWING COMPANIES HAVE A RAISE AND LOWERING DEVICE THAT HAS BEEN ACCEPTED BY THE KANSAS DEPARTMENT OF TRANSPORTATION : AMERICAN HIGH MAST, EAGLE HIGH MAST LIGHTING CO., CAROLINA HIGH MAST, METROLUX AND HALOPHANE. ADDITIONAL COMPANIES DESIRING APPROVAL BY THE KDOT MUST INSTALL ONE RAISE AND LOWERING DEVISE ON A POLE PROVIDED BY THE KDOT IN TOPEKA, OR ON ANOTHER POLE AS APPROVED. THE INSTALLATION WILL BE REVIEWED AND TESTED BY KDOT PRIOR TO APPROVAL ON THIS PROJECT. ALL ASSOCIATED COSTS WILL BE THE RESPONSIBILITY OF THE MANUFACTURERS/CONTRACTORS.

* EACH TOWER SHALL BE INSPECTED BY A FACTORY REPRESENTATIVE OF THE RAISE AND LOWER DEVICE MANUFACTURER PRIOR TO FINAL ACCEPTANCE OF THE PROJECT BY THE KANSAS DEPARTMENT OF TRANSPORTATION.

SUMMARY OF ELECTRIC LIGHTING SYSTEM QUANTITIES (TOWER)

1000 WATT LUMINAIRE, PEAK LEAD AUTO TRANSFORMER BALLAST, METAL HALIDE, ASYMMETRIC	EACH	
1000 WATT LUMINAIRE, PEAK LEAD AUTO TRANSFORMER BALLAST, METAL HALIDE, SYMMETRIC	EACH	
1000 WATT, 110,00 LUMEN, METAL HALIDE, VERTICAL BURNING, 12,000 HOUR LAMP	EACH	
* RAISE AND LOWER DEVICE	EACH	
1/2" HEAVY DUTY REVERSIBLE DRILL	EACH	
STEP DOWN TRANSFORMER	EACH	

BID ITEM

ITEM	UNIT	QUANTITY
ELECTRIC LIGHTING SYSTEM	L.S.	Lump Sum
HIGH MAST LIGHT TOWER (100')(36" CONCRETE BASE)	EACH	
HIGH MAST LIGHT TOWER (110')(36" CONCRETE BASE)	EACH	
HIGH MAST LIGHT TOWER (120')(42" CONCRETE BASE)	EACH	
HIGH MAST LIGHT TOWER (100')	EACH	
HIGH MAST LIGHT TOWER (110')	EACH	
HIGH MAST LIGHT TOWER (120')	EACH	
COMMUNICATION DUCTBANK	L.F.	3739

NOTE: LINEAR QUANTITIES ARE APPROXIMATE AND INCLUDED FOR INFORMATION ONLY. THE CONTRACTOR SHALL CONDUCT ALL WORK, AND FURNISH AND INSTALL ALL EQUIPMENT NECESSARY, TO INSURE COMPLETE AND SATISFACTORY OPERATION OF THE ELECTRIC LIGHTING SYSTEM WHETHER SPECIFICALLY MENTIONED OR NOT.

NOTE: FOR ADDITIONAL CONSTRUCTION QUANTITES, SEE THE FOLLOWING SHEETS, AS APPLICABLE:
1. CONSTUCTION AND MATERIAL REQUIREMENTS AND QUANTITIES FOR SIGN LIGHTING
2. UNDERDECK LIGHTING DETAIL.
3. FOOTING DETAILS & ENGINEERING GEOLOGY FOR FOOTING LENGTHS.

THE BID ITEM "HIGH MAST LIGHT TOWER" INCLUDES ALL WORK PERSONS, TOOLS, EQUIPMENT AND NEW HARDWARE NECESSARY TO COMPLETE THE WORK.

ITEMS NOT SPECIFICALLY CALLED OUT ARE SUBSIDIARY TO OTHER BID ITEMS.

SHAWN M. SCHNEIDER — 13340 — 6-1-14 — KANSAS — PROFESSIONAL ENGINEER

NO.	DATE	REVISIONS	BY	APP'D
3	1/12/12	Chg'd Bid Items & Add 1" PVC Conduit	C.E.	B.D.G.
2	7/14/11	Change 250 Watts to 150 Watts	V.H.	B.D.G.
1	6/14/11	Changed 150 to 250 Watts	V.H.	B.D.G.

KANSAS DEPARTMENT OF TRANSPORTATION
CONSTRUCTION QUANTITIES FOR ELECTRIC LIGHTING SYSTEM

TE209

FHWA APPROVAL			12/15/2011	APP'D	Brian D. Gower
DESIGNED	V.H.	DETAILED	V.H.	QUANTITIES	TRACED
DESIGN CK.	B.D.G.	DETAIL CK.	B.D.G.	QUAN. CK.	TRACE CK.

Drawn By : drp
File : I:\2008\08313\Frontage Rd South\Lighting\08313-te209.dgn
Plotted : 01-AUG-2014 10:36

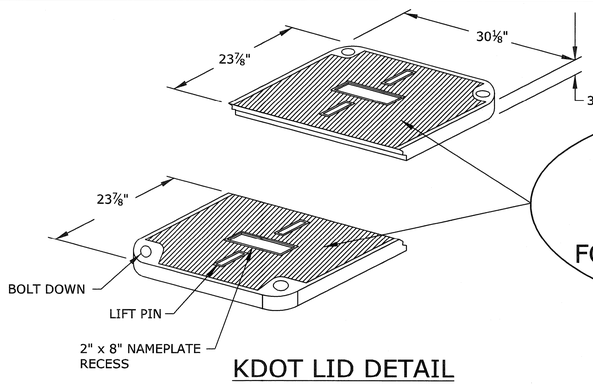
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	KA 2285-01	2014	78	130

GENERAL NOTES (KDOT):

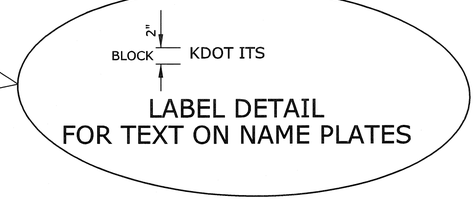
1. ALL DIMENSIONS SHOWN ARE IN INCHES UNLESS OTHERWISE NOTED.
2. PREFORMED BOX WALLS MAY BE EITHER FLARED OR VERTICAL.
3. IF AN EXTENSION IS USED WITH A PREFORMED BOX, THE LIP OF THE EXTENSION MAY BE INTERIOR OR EXTERIOR. THE EXTENSION SHALL BE COMPATIBLE AND FROM THE SAME MANUFACTURER.
4. CONDUIT SHALL ENTER THE PULL BOX FROM THE SIDE OF THE BOX OR FROM THE BOTTOM. IF USING SIDE ENTRY CONDUIT, ENSURE BEND RADIUS OF CABLE IS NOT EXCEEDED WHEN PULLING CABLE.
5. SIDE ENTRY CONDUIT SHALL ONLY BE USED FOR RMC, BRIDGE CONDUIT TRANSITION, OR SHORT SPLICE VAULT / PULL BOX CONNECTIONS.
6. COVER SHALL BE RATED FOR A MINIMUM OF 20,000 LB LOADING.
7. STONE DRIAN MATERIAL SHALL CONFORM TO THE STANDARD SPECIFICATION.

GENERAL NOTES (COW):

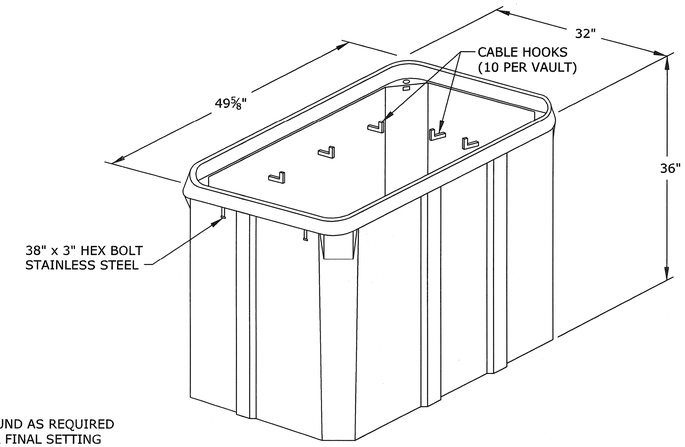
1. FOR PRECAST COMMUNICATION DUCT SERVICE BOX, SUBMIT DRAWINGS STAMPED BY A STRUCTURAL ENGINEER LICENSED IN KANSAS.
2. ON A WALL NEAR LID, FASTEN A 2" x 4" PLASTIC LABEL PLATE. SHOW MONTH AND YEAR INSTALLED.
3. CONCRETE - 4,000 PSI MINIMUM AT 28 DAYS, WITH 4% TO 6% AIR. REINFORCING - A615, GRADE 60 (FY= 60 KSI).
4. LID SECURITY BOLTS SHALL BE 1/2" DIAMETER STAINLESS STEEL. PROVIDE (1) WRENCH TO OWNER FOR LID SECURITY BOLTS.
5. CITY ELECTRICAL CODE REQUIRES 24" MINIMUM COVER OVER CONDUIT IN PAVED AREAS AND 30" MINIMUM COVER IN UNPAVED AREAS. WHERE CROSSING OBSTRUCTIONS, WARP DUCT BANK AS REQUIRED, ALSO PROVIDING 2" CLEARANCE AROUND ALL CONDUITS.
6. SEE STANDARD SPECIFIACTIONS FOR COMPACTION REQUIREMENTS. COMPACTION AROUND COMMUNICATION DUCT SERVICE BOX SHALL MEET THE SAME STANDARD COMPACTION REQUIREMENTS AS A STORM SEWER INLET.
7. LID SHALL BE THE SPRING ASSIST TYPE, EQUAL TO #R-6662-PS BY NEENAH.



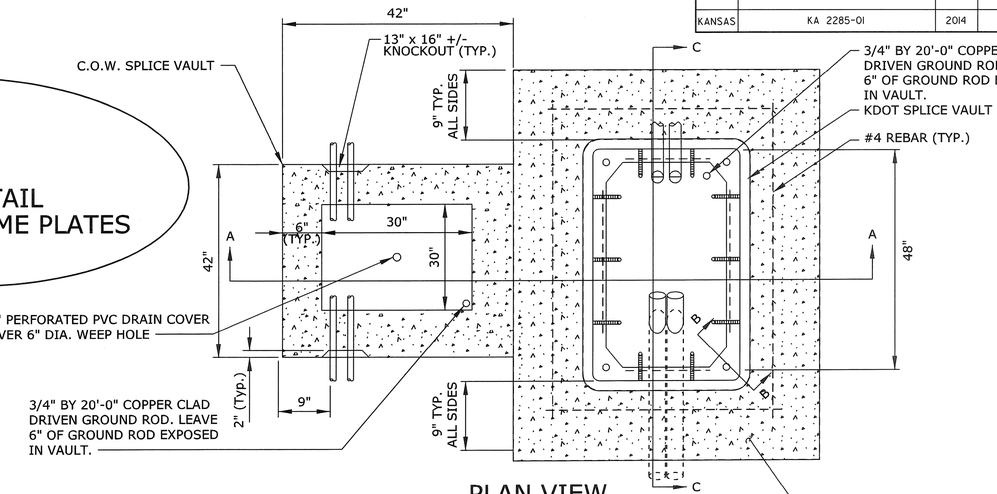
KDOT LID DETAIL



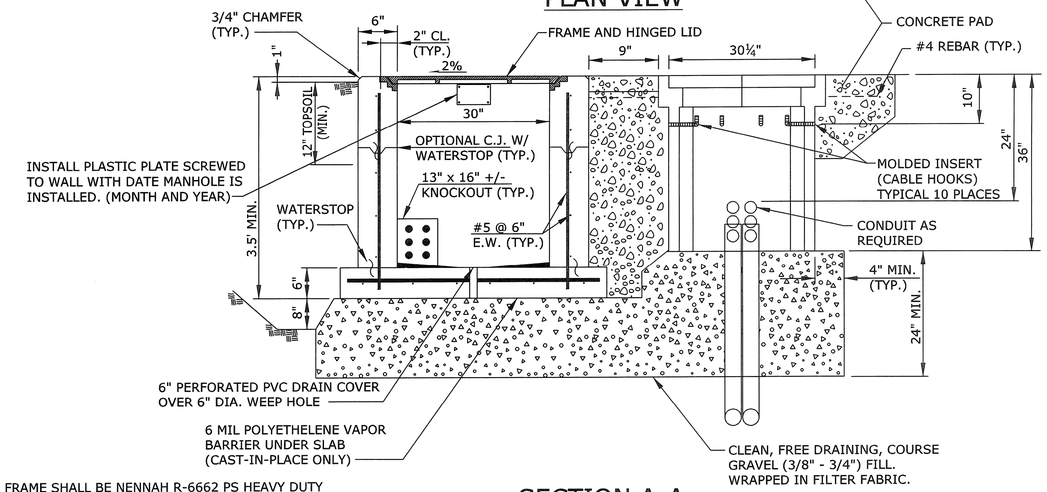
LABEL DETAIL
FOR TEXT ON NAME PLATES



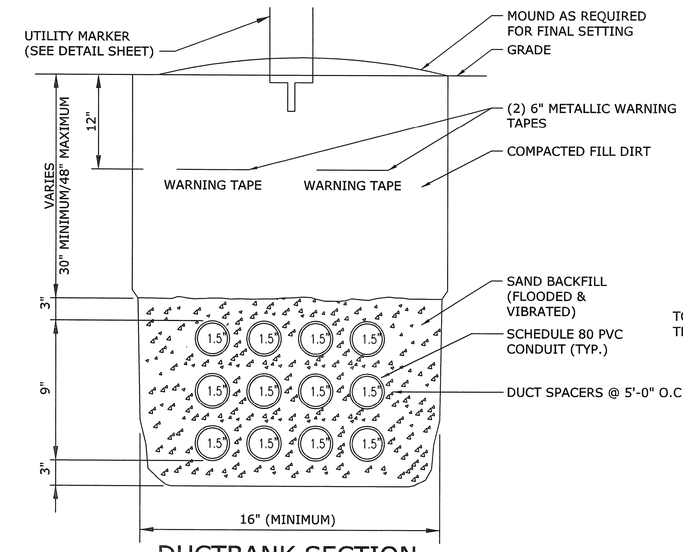
SPLICE VAULT - KDOT



PLAN VIEW

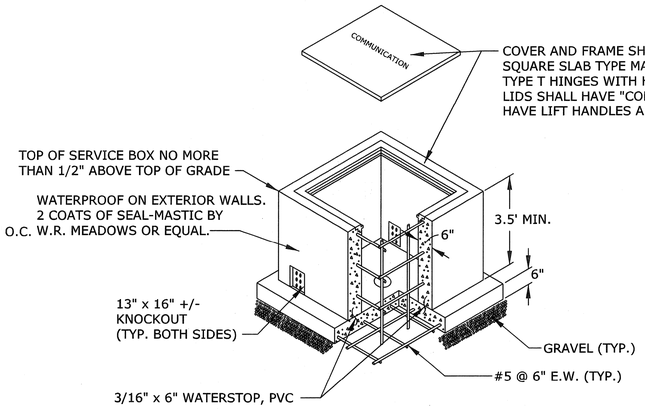


SECTION A-A

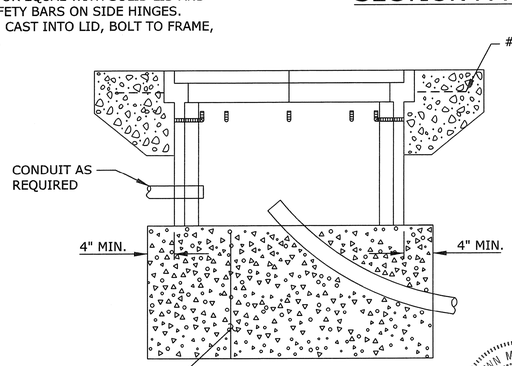


DUCTBANK SECTION

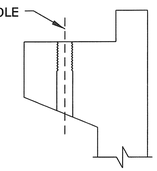
NOTE: THE CONTRACTOR SHALL CONSTRUCT THE 12-WAY DUCTBANK AT THE LOCATIONS SHOWN ON THE PLANS. THE VERTICAL ELEVATION OF THE DUCTBANK SHALL BE ADJUSTED BY THE CONTRACTOR AS APPROVED BY THE ENGINEER TO CLEAR STORM SEWERS AND UTILITIES. THIS WORK SHALL BE MEASURED AND PAID FOR AT THE CONTRACT UNIT BID PRICE PER FOOT FOR "COMMUNICATION DUCTBANK". THE BID PRICE SHALL INCLUDE ALL MATERIALS, TOOLS, LABOR, EQUIPMENT, EXCAVATION, BACKFILL, SPLICE VAULTS, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK. THE SUMMARY OF QUANTITIES INCLUDES QUANTITIES FOR CONDUIT.



SPLICE VAULT - COW



SECTION C-C



SECTION B-B
TYPICAL BOLT CLEANOUT

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

FIBER OPTIC RECTANGULAR SPLICE VAULT DETAIL

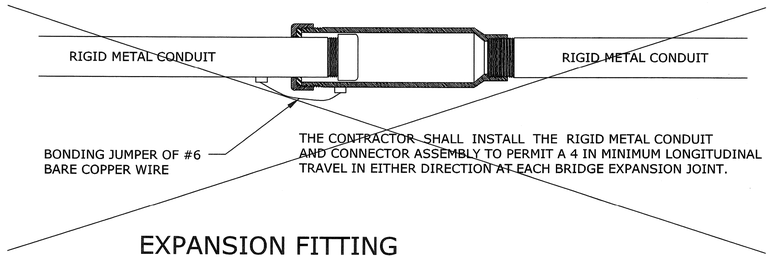
ITS-D08 06-07-12

APP'D			
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN. CK.	TRACE CK.

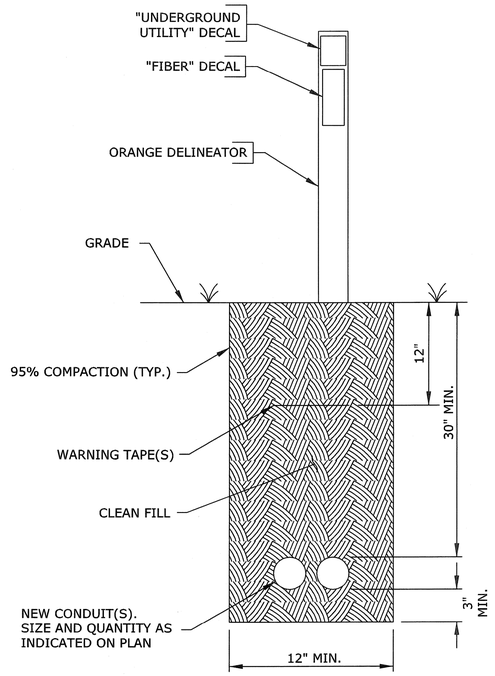
SHAWN M. SCHRADER 13340 KANSAS PROFESSIONAL ENGINEER

Drawn By : drp
Plotted : 01-AUG-2014 10:37
File : i:\2008\08313\Frontage Rd South\Lighting\08313-ITS-D08.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	KA 2285-01	2014	79	130



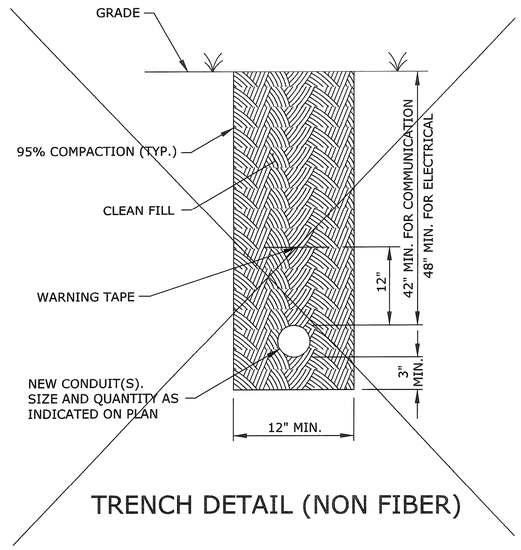
EXPANSION FITTING



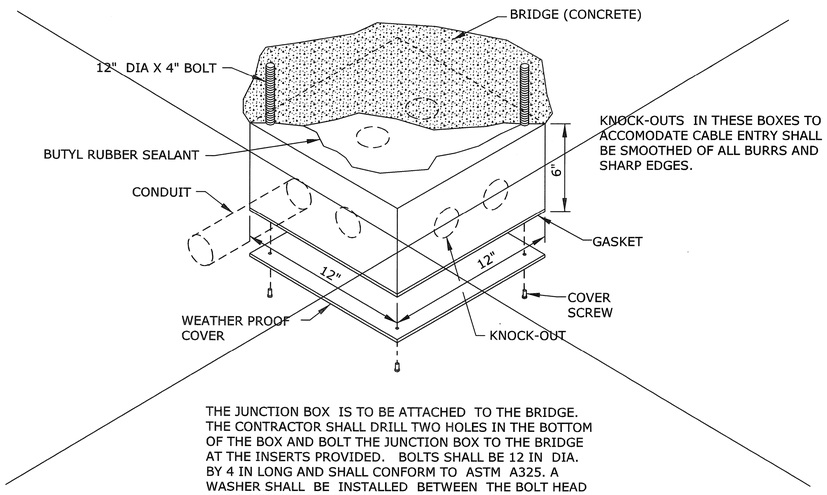
FIBER OPTIC TRENCH DETAIL

FIBER OPTIC CONDUIT MARKERS TO BE PLACED AT:

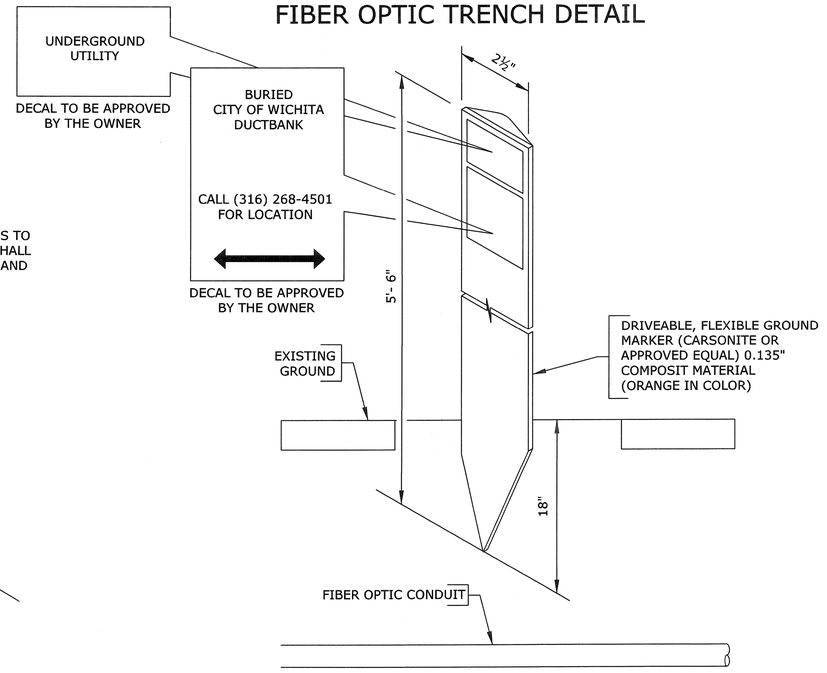
1. BEGIN AND END OF CONDUIT RUNS OVER 100 FT
2. EVERY 500 FT FOR CONDUIT RUNS ADJACENT TO R/W
3. AT BEGIN AND END OF CONDUIT RUNS ON STRUCTURE
4. AT SPLICE VAULTS (IF NOT A TERMINATION POINT ALREADY)
   a. ADD 1 STRIPE TO MARKER IF A SPLICE VAULT
   b. ADD 2 STRIPES TO MARKER IF A SPICE VAULT WITH A SPLICE ENCLOSURE



TRENCH DETAIL (NON FIBER)



ABOVE GROUND JUNCTION BOX



FIBER OPTIC CONDUIT ABOVE GROUND DELINEATOR DETAIL

GENERAL NOTES:

1. ALL UTILITY CROSSINGS UNDER ROADWAY SHOULD HAVE A MINIMUM OF 5 FT OF COVER BELOW CROWN GRADE OR 3 FT COVER BELOW DITCH GRADE.
2. REFER TO THE KDOT UTILITY ACCOMODATION POLICY FOR BRIDGE ATTACHMENT DETAILS.

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

CONDUIT STRUCTURAL ATTACHMENT AND TRENCH DETAILS

~~ITS DIO~~ 06-07-12

APP'D			
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN. CK.	TRACE CK.

SHAWN M. SCHRADER LICENSED PROFESSIONAL ENGINEER 13340 8-1-14 KANSAS

Drawn By : drp
Plotted : 01-AUG-2014 10:37
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STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	KA 2285-01	2014	80	130

CONSTRUCTION AND MATERIAL REQUIREMENTS FOR INTELLIGENT TRANSPORTATION SYSTEM (ITS) INSTALLATIONS

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4.0	SUBMITTALS	SHEET S01
5.0	CONDUITS	SHEET S02
6.0	PULL BOXES, SPLICE VAULTS AND JUNCTION BOXES	SHEET S03
7.0	WIRING	SHEET S03
8.0	POWER SUPPLY ASSEMBLY, POWER AND GROUNDING	SHEET S04
9.0	CONCRETE FOUNDATIONS	SHEET S04
10.0	ITS FIELD ELEMENTS	SHEET S05
11.0	DYNAMIC MESSAGE SIGN SYSTEM	SHEET S05
12.0	CLOSED CIRCUIT TELEVISION SYSTEM	SHEET S06
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18.0	POINT-TO-MULTIPOINT (P2M) ETHERNET RADIO	SHEET S12
19.0	ITS COMMUNICATIONS INTEGRATION	SHEET S12
20.0	ITS COMPONENT TESTING	SHEET S12
21.0	TRAINING	SHEET S14
22.0	BASIS OF ACCEPTANCE FOR ITS SYSTEM	SHEET S14
23.0	MAINTENANCE AND WARRANTY	SHEET S14

1.0 DESCRIPTION

These specifications describe the equipment, material, and construction requirements to complete the lump sum Intelligent Transportation System (ITS) bid item. Compliance by the Contractor with the Specifications, ITS special provision 07-08041, latest revision, and Plans does not relieve the Contractor of the responsibilities of furnishing equipment and materials of proper design and installation to meet operating warranties for all ITS related components.

2.0 BID PREPERATION

Confirm the existing conditions before preparing the bid. Topography as shown on the plans is derived from existing roadway plans. Visit the site of the work and make a determination of the amount of rock, unclassified, or other materials that might be encountered. No additional pay will be made for differences in material encountered. Review the locations of devices and conduits throughout the project area prior to submittal of bid to determine the types and extent of incidental installation, removal, relocation and replacement items to include in the price.

3.0 MATERIALS

All materials shall conform to the requirements for Individual Components of the ITS identified in these Specifications and the ITS special provision 07-08041, latest revision. All materials shall be as specified in the Summary of Quantities on the Plans.

3.1 BASIS OF ACCPTANCE

Acceptance of material furnished under these specifications will be based on satisfactory submittals that meet the requirements of section 4.0 and on the Engineer's approval of submittals where "no exceptions taken" or "exceptions as noted"is indicated.

~~3.2 KDOT SUPPLIED MATERIALS~~

~~KDOT may provide equipment such as Cisco equipment, VDS, DMS, DMS cabinet and analog CCTV cameras for installation by the Contractor, as noted in the plans. Refer to the Summary of Quantities in the plans for specific KDOT Supplied Items. When using KDOT furnished equipment, the KDOT furnished equipment shall become the Contractor's responsibility upon delivery of this equipment to the Contractor.~~

4.0 SUBMITTALS

Submit one electronic copy of each submittal group to the Engineer for review and approval. At the same time, submit an electronic version to the KDOT ITS unit and others as directed by the KDOT ITS unit. Include in each submittal sufficient information and details to permit full evaluation of each item. Submittals, which in the judgment of the Engineer are insufficient to permit proper evaluation, will not be reviewed. Take care to address all the requirements of the Contract Documents in the submittal data. Leave nothing to assumption. Address the functional and technical interrelationships among the various items in detail.

In each submittal group, state all relevant information regarding materials and equipment in order to procure exact replacements of any or all items on the project. To be acceptable, provide a material list for each submittal group containing all items supplied by the Contractor for the group. The Engineer reserves the right to reject an incomplete or unclear submittal. Identify the materials on the list by the contract project number, item description, catalog part numbers, catalog cuts, shop drawings, trade names, and schedules or other pertinent information. Clearly indicate the materials from any catalog cuts. Note any material designation used in the Contract Documents on the materials list. Submit all manufacturer product sheets for review and approval.

For each item, include in the documents all information necessary to determine product specification compliance. Clearly indicate, on the documentation, the exact model number, accessories, and options that are being proposed for use. If standard manufacturer documentation does not specifically address all the product requirements, then obtain a letter from the manufacturer certifying compliance with each referenced requirement that is not indicated on the standard documentation. If reprinted literature, such as catalog cut sheets, is used to satisfy some or all of the submittal data requirements, do not include any statements on the literature which conflict with the requirements of the Contract Documents. Cross off and initial any such statements. Give an explanation of how specifications shall be met pertaining to items changed from the literature.

4.1 SUBMITTAL SCHEDULE AND REVIEW PERIODS

Submit product data submittals and shop drawings in a timely manner to allow for job completion within the contract working days. Submit testing and training procedures a minimum of thirty (30) calendar days prior to performing the test and training. Submit all owner's manuals, installation guides, parts list and other informational literature available from the manufacturer for the provided equipment a minimum of thirty (30) calendar days prior to system acceptance.

For each submittal, plan for any given package of submittal information to be in the hands of the Engineer for up to 15 business days. Obtain final approval, in writing from the Engineer, on all items within the submitted documentation. No time extensions will be granted as a result of having to resubmit items for review or having to make any modifications necessary to any submitted documentation. Review of the submittal data by the Engineer will not relieve the Contractor from obligation to furnish and install the work in accordance with Contract Documents.

4.2 SUBMITTAL REQUIREMENTS

Certify, by stamp or letter, that the material has been reviewed and approved and that it conforms to the requirements of the Contract Documents. If this certification is not included, the submittal will be returned without action.

Submit shop drawing submittals for structural items in Group 6 such as CCTV poles and DMS structures as 11"x 17"created documents or larger. The intent of this requirement is to provide a legible set of shop drawing submittals to allow for a thorough shop drawing review.

At the time of each submittal, define and delineate in writing, separate from the certification, any deviations from the Contract Documents. If the Engineer accepts this deviation, the deviation will be authorized by issuing a change order or if the deviation is minor, by endorsement to the letter.

The Engineer review will be only for conformance with the design concept of the work and for compliance with the information contained in the Contract Documents. The review of a specified item, as such, will not indicate review of the assembly in which the item functions. Review by the Engineer will not relieve the Contractor from responsibility for any errors or omissions in the submittals nor from his responsibility for complying with the Contract Documents.

4.3 SUBMITTAL GROUPS

Submit the data for the items in each group together. In general, no items in any group will be accepted until all items in the group are accepted; however, the Engineer may accept some items in a group, at his discretion, prior to all items being approved. Submit all additional devices that are not specifically listed below with the appropriate group. For submittal purposes, submit the data for the following items in groups defined as follows:

Group 1 - Conduit, Pull Boxes, Wiring and Electrical
HDPE conduit
Rigid metallic conduit
Conduit couplings and/or reducers
Pull boxes
Splice vaults
~~Electrical conductors~~
~~Power service equipment~~
Fittings

~~Group 2 - Cabinet Assembly~~
~~Cabinet~~
~~Field traffic controller~~
~~Cabinet heater strip~~
~~Fluorescent cabinet lights and fixture~~
~~Fan and thermostat assembly~~
~~Power supply~~
~~Power strip~~
~~Detector cards~~
~~All other cabinet equipment except CCTV and communications equipment~~

~~Group 3 - Communications Equipment~~
~~Encoder~~
~~Cat 5E cable~~
~~Communication Switch~~
~~Ethernet transceiver~~
~~Data transceiver~~
~~Media converter~~
~~PoE Injector~~
~~Wireless point to multi-point IDU radio, ODU antenna, and radio cabling~~
~~Wireless point to point IDU radio, ODU antenna, and radio cabling~~
~~Other communications equipment or accessories~~

~~Group 4 - Fiber Optics~~
~~Fiber optic cable~~
~~Fiber optic patch cable~~
~~Fiber optic splice enclosure~~
~~Fiber distribution assembly~~
~~Fiber optic patch panels~~
~~Fiber connectors~~
~~Cable labels~~

~~Group 5 - Detection Equipment~~
~~Pavement sensors~~
~~Vehicle detector~~
~~Sensor mount~~
~~Detector cable~~
~~Bluetooth detection system~~

~~Group 6 CCTV, Detector, and DMS Support Structures (Send electronic submittal).~~
~~Structural shop drawings to be reviewed by design Engineer (or consultant of record) with final approval by KDOT.~~
~~Shop drawings for DMS structures, foundations, and DMS mounting details~~
~~Shop drawings for CCTV pole and foundation~~
~~Shop drawings for Detector pole and foundation~~
~~Shop drawings for CCTV camera lowering device, including composite cable for CCTV~~
~~Shop drawings and specification for IP CCTV cameras including EPA and weight~~
~~Orientation drawing for CCTV pole to include camera, handhole and antenna placement~~

~~Group 7 - Testing~~
~~Test equipment~~
~~Test procedures~~
~~Miscellaneous items that did not fall in any of the previous groups~~

~~Group 8 Other~~
~~Cisco certifications~~
~~Fiber optic cable installation and splicing resume~~
~~Cabinet wiring diagram~~

To aid in control of the submittal data process, transmit each group of submittal data to the Engineer using a transmittal sheet. The Engineer will date-stamp these transmittal sheets with the date received and will return a copy of the stamped transmittal sheet when returning the submittal data. List on the transmittal sheet specifically each item or element included in the transmittal. An element is one part of several parts of information related to the same item. Each drawing shall be listed separately. Furthermore, each drawing shall have a unique drawing number that can be referenced. The same drawing number shall not be used on more than one sheet.

4.4 STRUCTURAL AND FOUNDATION SHOP DRAWINGS

For all non-catalog or custom made items including the support structures and foundations for VDS, CCTV and DMS, submit shop drawings for approval along with other data necessary to permit full evaluation of the proposed product and/or material. Obtain approved submittals prior to purchase or fabrication of any support structures for use on this project.

Structural and foundation shop drawing and calculations shall be sealed and signed by a Professional Engineer licensed in the State of Kansas.

No additional payment will be made for Contractor geotechnical work. Historical boring log data may be provided by the Engineer.

Submit one (1) set of submittal documentation electronically (PDF) to the Engineer for review. If the Engineer requires modifications to the submitted documentation make the necessary modifications and resubmit the revised submittal sets. Structural shop drawings will be reviewed and approved by the Engineer.

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

ITS EQUIPMENT SPECIFICATIONS

~~ITS-S01~~ VERSION DATE: 01-03-13

APP'D			
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN. CK.	TRACE CK.

BENJAMIN M. SCHRADER 13340 8-1-14 KANSAS PROFESSIONAL ENGINEER

Drawn By : drp
File : I:\2008\08313\Frontage Rd South\Lighting\08313-ITS-S01.dgn
Plotted : 01-AUG-2014 10:37

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	KA 2285-01	2014	81	130

4.5 APPROVALS
Any work done prior to the Engineer's review and approval will be at the Contractor's risk and expense. Following review of the submittal data, the Engineer will mark the items in one of five ways:
1. "No Exceptions Taken";
2. "Exceptions As Noted";
3. "No Exceptions Taken, Resubmit With Complete Group Submittal";
4. "Corrections Required - Resubmit"; Or
5. "Rejected - Resubmit".

Proceed with any items marked "no exceptions taken" since the Engineer has taken no exception to the submittal. Proceed with any items marked "exceptions as noted", provided that the Contractor concurs with the notations. Items that are marked "corrections required - resubmit" are judged to be basically acceptable, they will have notations made on them about additional information required or corrections which are necessary before the items are acceptable. In such case, proceed immediately to correct said items and resubmit them for review. Items that are marked "rejected - resubmit" are judged to be unacceptable. Proceed immediately to identify new items or redesign said items and resubmit them for review.

Substitutions for any of the materials on the list are not acceptable without prior written approval by the Engineer. Submit in writing to the Engineer any changes to the approved materials list.

4.6 ORDER OF WORK
Provide a construction schedule (in MS Project or similar format) outlining the proposed order of work that shows a timely progression of ITS related construction. The Contractor will be allowed to construct footings and place concrete, install conduit and cables, and return at a later date to install the poles, controller assembly or closed circuit television systems. The construction schedule shall provide a detailed plan for connection to the existing KDOT system.

5.0 CONDUITS

5.1 DESCRIPTION
Construct and install conduits as per the KDOT Utility Accommodation Policy, ITS special provision 07-08041, latest revision, as detailed on the Plans, as noted below, or as directed by the Engineer. Provide conduits of the type and size as shown on the Plans. Provide all incidental items necessary to provide a complete and fully functional conduit system. If approved by Engineer, conduit may be installed by trenching, plowing, or directional bore; however, payment will be made by the method specified in the Plans for that conduit.

5.2 MATERIALS

5.2.1 RIGID METALLIC CONDUIT
Rigid metallic conduit (RMC) is a threaded metal raceway of circular cross section with a coupling, which can be either a standard straight tapped conduit coupling or the integral type. Cover threads on the uncoupled end by thread protectors prior to installation. Adhere to UL 6 standards and outdoor ratings for all RMC and fittings. Provide a primary coating of zinc, a combination of zinc and organic coatings, or a nonmetallic coating, such as PVC. You may apply supplementary coatings where additional corrosion protection is needed. Where RMC is installed underground, wrap with an approved PVC tape. For RMC conduits that transition from above ground to underground, the PVC tape shall be extended 6-inches above ground level. Provide a bushing to all metallic conduit ends to protect the electrical conductors or fiber optic cable from abrasion.

5.2.2 NON METALLIC CONDUIT/HDPE CONDUIT
Install HDPE conduit according to the manufacturer's instructions. The following requirements apply: UL listed, Schedule 80, color-coded red for electrical cables, green for communication cable and fiber optic cable, and black for the spare conduits.

5.2.3 CONDUIT REPAIR SPLICES
When conduit is used to repair a section of existing conduit to provide the required conduit pathway provide the same grade and size HDPE conduit as the existing conduit. Approval by the Engineer is required for mechanical conduit splices.

5.2.4 TRACER WIRE
Provide orange No. 12 AWG THHN stranded copper wire.

5.2.5 WARNING TAPE
Provide color durable and chemically resistant red reinforced 3 inch minimum wide, 4 mil thickness warning tape imprinted with "CAUTION BURIED CONDUIT BELOW" for conduits. Provide color durable and chemically resistant orange reinforced 3 inch wide warning tape imprinted with "CAUTION - FIBER OPTIC CABLE BURIED BELOW" for fiber optics.

5.2.6 PULL ROPES
Provide polypropylene pull ropes with a minimum tensile strength of 1,125 lbs.

5.2.7 CONCRETE ANCHORS
The following requirements apply: federal specification FF-S-325, Group II, Type 4, Class I and galvanized in accordance with ASTM A 153, B 695-91 Class 50 or constructed of stainless steel. Furnish a manufacturer's certification that the concrete anchors meet the required material and galvanizing specifications.

5.3 PROOF AND REPAIR OF EXISTING CONDUIT
Proof and repair as needed existing conduits to allow fiber optic backbone cable to be pulled or blown through existing conduit as shown on the Plans. In some instances the existing conduits are collocated with CenturyLink conduits. When accessing the KDOT conduits to repair or install a splice vault, care must be taken not to impact the CenturyLink conduits.

5.3.1 CONDUIT PROOFING
Provide a continuous conduit path for pulling or blowing of fiber backbone and fiber branch cables as shown in the Plans. The continuous path must be demonstrated through the conduit between existing pullboxes or newly installed splice vaults by passing a mandrel through the conduit.

5.3.2 CONDUIT REPAIR
Repair conduit where needed and as approved by the Engineer by installing a new conduit section connected to the existing conduits using a mechanical conduit splice. Request and receive approval from Engineer prior to any repair work. Conduit repair is defined based on a section. A section is considered a continuous length of conduit that is removed and replaced in order to provide a continuous conduit path. For purposes of bidding, each section shall be a maximum length of 50 feet. If a section is greater than 50 feet but less than 100 feet it shall be considered as two (2) sections.

The Contractor shall include five (5) sections of conduit repair in their ITS lump sum bid and shall provide a unit price per section in the Unit Cost List shown in the Required Contract Provision Furnishing Individual Components Necessary for the ITS System. KDOT makes no guarantee that this quantity will be utilized in the contract. The unit price quoted in this contract provision will be used to decrease the ITS lump sum bid through a change order for any sections of conduit repair that are not needed or to increase it if more than five sections are needed.

Seek approval from Engineer prior to use of discretionary splice vaults or pullboxes for conduit repair. Maintain detailed conduit repair records (including, but not limited to the date, time, exact location, quantity in feet, approval/authorization), then submit these records to the Engineer on a weekly basis. Conduit damaged by the Contractor during work performed by the Contractor under this contract shall be repaired at the Contractor's expense. The Engineer shall determine if the damaged conduit is a result of the Contractor's negligence.

5.4 CONSTRUCTION REQUIREMENTS

5.4.1 LOCATION OF CONDUIT
Prior to construction, field check the existing conditions at each site, including utility locator service markings, to assure no conflicts with existing utilities, including state-owned underground lighting, traffic signals, or cathodic protection facilities as well as drainage features. Upon written approval by the Engineer, you may alter the route of the conduit to avoid conflicts. Where possible, install trunk line conduit adjacent to the edge of the ROW or in the backslope of the ditch. Install conduit branch lines perpendicular to trunk line conduits. Slope conduit to a pull box at a minimum rate of 0.5 percent.

Unless otherwise shown on Plans accomplish a change in direction of conduit by bending the conduit uniformly to a radius that will fit the location or by the use of standard bends. The minimum bending radius of all conduits is the greater of the following: twenty (20) times the diameter of the fiber optic cable; six (6) times the internal diameter of a 2-inch conduit or smaller; ten (10) times the internal diameter of a 3-inch conduit or larger.

~~5.4.2 NOTIFICATION~~
~~Notify CenturyLink and/or KTA when applicable a minimum of two weeks in advance and again at 72 hours in advance to have an inspector on site prior to any planned work adjacent to their conduits. A CenturyLink and/or KTA inspector along with a KDOT representative must be present for work that is within five feet of CenturyLink conduit. Any adjacent work located within ten feet of any CenturyLink and/or KTA conduit, fiber optic pullbox or vault will all be done by hand trenching and digging. No mechanical equipment will be allowed.~~

5.4.3 THREADING
Use nipples to eliminate cutting and threading where short lengths of conduit are required. If it is necessary to cut and thread steel conduit, no exposed threads will be permitted.

5.4.4 CLEANING
Blow air through each conduit to remove debris and water. Clean and swab all conduits before cables are installed. Install expandable type dust plugs after cleaning on each end of individual conduits.

5.4.5 MANDREL TEST
Test conduit path by pulling a mandrel through the conduit. The mandrel shall have a diameter no less than 70% of the inside diameter of the conduit and a length of 2 inches. If the conduit does not allow the mandrel to be pulled through, clean and/or repair conduit to permit passage of the mandrel. When conduit run is an extended distance the Contractor may seek alternative methods as approved by the Engineer for this test.

5.4.6 END TREATMENT
Cut HDPE conduit inside pull boxes and splice vaults at a 90 degree angle with 8 inches to 12 inches exposed inside of the box. Be aware that long conduit pulls (installation) may stretch the HDPE conduit a given amount. If the conduit is slightly stretched during installation and placed among several adjacent boxes during the same conduit pull, then the conduit is cut to place the 10 to 12 inches of exposed conduit inside the box, the conduit may pull back into the soil and not leave any conduit exposed in the box. This problem can be avoided by pulling from one box to the adjacent box (minimize stretching), not pulling through several boxes at the same time (minimize stretching), and anticipating some conduit pullback therefore compensating for it by installing a small amount of extra conduit. Conduit installation may be rejected if conduit pullback occurs resulting in less than 10 to 12 inches of exposed conduit.

Sand all conduit ends smooth in order to eliminate any burrs on the inside or outside diameter of the HDPE conduit.

5.4.7 SPLICING
Use mechanical splices made in accordance with conduit and splice manufacturer's recommendations. Fusion conduit splices are not allowed. Submit materials to be used for conduit splices to the Engineer for review and approval along with the manufacturer's recommendations and installation procedures.

5.4.8 EMPTY CONDUITS
Cap or plug open ends of conduits placed for future use with water tight mechanical plugs. Do not cap or plug with tape. After cleaning and testing have been completed, place a pull rope in all empty conduits.

5.4.9 DEPTH
The following requirements apply: a minimum of 42 inches of cover for all underground conduit containing communication service; a minimum of 48 inches of cover for all underground conduit containing electrical service; a minimum of 5 feet of cover below crown grade or 3 feet below ditch grade for all utilities crossing under roadways. Encase conduit in concrete or other appropriate means as approved by the Engineer if this minimum conduit depth cannot be achieved at site-specific locations. The Engineer will determine if exceptions to meeting the depth requirements are necessary.

5.4.10 TRACER WIRE
Install tracer wire for locating purposes in all KDOT conduit containing fiber optic cable and spare conduits intended for future fiber optic cables installed as part of this project. When multiple conduits share the same trench or bore, only one conduit will be required to contain a tracer wire. Pull tracer wire into all cabinets and device bases. Terminate tracer wire inside cabinets or device bases. Terminate tracer wire on a protected terminal that is isolated from the cabinet or base ground and labeled "TRACER". Continuously connect tracer wire along the fiber backbone. Do not continuously connect the tracer wire in conduit containing fiber spurs that branch out to the individual controller cabinets. For all conduit carrying fiber spurs, the central point in which all tracer wires are electrically bonded to each other at an isolated terminal is the controller cabinet. Do not electrically bond tracer wires to any ground wire. Use connectors approved by the Engineer in a splice vault to electrically bond the tracer wires when continuous runs of tracer wire cannot be installed.
Insulate these connectors. Label all tracer wires ending in a splice vault "TRACER".

5.4.11 WARNING TAPE
Install warning tape at approximately 1/3 to 1/2 of the depth of cover over electrical conduits, fiber optic conduits and communications conduit.

5.4.12 CONDUIT IN TRENCH
Excavate trenches to the width and depth necessary for conduit installation as shown in the Plans. Do not use material which might cause mechanical damage to the conduit for backfilling below an elevation 6 inches above the conduit. Clean the bottom of the trench of such material before the conduit is placed. Obtain approval by the Engineer of the trench prior to conduit placement. Backfill all trenches according to the ITS special provision 07-08041, latest revision.

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

ITS EQUIPMENT SPECIFICATIONS

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SHAWN M. SCHULTE — 13340 — 8-1-14 — KANSAS — PROFESSIONAL ENGINEER

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File : I:\2008\08313\Frontage Rd SouthLighting\08313-ITS-S02.dgn
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STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	KA 2285-01	2014	82	130

5.4.13 BORED CONDUIT
Install bored conduit without disturbing the existing surface. Place bored conduit by boring or other approved means. Locate all bore pits and spoil piles a minimum of 4 feet from the edge of the paved roadway or shoulder surface and barricade, fence, or protect the pits by some other acceptable method from errant vehicles or pedestrians.

5.4.14 PLOWED CONDUIT
Conduits may be installed by plowing upon approval of the Engineer. Use a vibratory type plow which will place conduits at the minimum depths indicated above when installation is accomplished by plowing. Compact the soil over the installation to the original in-place density. Do not plow conduits in rocky areas.

5.4.15 EXTERNAL CONDUIT ON STRUCTURE
Obtain all permits and approval of all external conduits on structure according to the KDOT Utility Accommodation Policy. All permitting for attachments will go through the KDOT Bridge section for review.

Use RMC for all above ground external conduit. When HDPE conduit is installed inside a RMC raceway, install the HPDE conduit such that there are no splices. Use an approved expansion/contraction joint if a splice is necessary.

Use external conduit on structure for existing structures, or if provisions are not made in the Plans for providing a conduit raceway in new structures. Conduit on structure includes conduit on bridges, retaining walls or other structures. Adhere to the requirements in the KDOT Utility Accommodation Policy (latest edition) for all bridge/structure attachments, except as noted herein. Installed conduit based on the bridge type. Do not attach conduit to prestressed concrete girders or prestressed-precast concrete deck panels.

Securely fasten conduit within 3 feet of each transition box or other conduit termination. You may increase fastening to a distance of 5 feet where secured to the concrete with clamps or supported by openings through framing members at intervals no greater than 10 feet.

Install concrete anchors in concrete to a minimum embedment of 1.8 inches.

Do not use drilling, grinding or welding if it is necessary to anchor the conduit to steel bridge members. The Engineer shall approve attachment method to steel members. Install junction boxes as shown on the Plans or as directed by the Engineer. Surface mount junction boxes and install such that covers are easily accessible.

Use a conduit expansion fitting when the conduit crosses a bridge expansion joint. Ensure that minimum movement in either direction is provided in the expansion fitting as shown on the Plans or as specified by the Engineer.

Following installation of the cable in conduit, seal all conduit entrances in controller assemblies, pull boxes and splice vaults with a duct seal putty or a mechanical duct plug to prevent the ingress of moisture, foreign materials and rodents.

5.4.16 GROUNDING AND BONDING
In all conduits for electrical cables, except spare conduit, install a bare, solid copper wire of a gauge equal to the largest current carrying conductor in the conduit. Use a No. 6 AWG ground wire when the largest current carrying conductor is smaller than a No. 6 AWG. Bond the wire to the ground lugs in poles and cabinets and bond the wires to each other to form electrically continuous conductors over the full length of the conduit system.

6.0 PULL BOXES, SPLICE VAULTS AND JUNCTION BOXES

6.1 DESCRIPTION
Construct and install all pull boxes and fiber optic splice vaults provided for in this contract according to the ITS special provision 07-08041, latest revision, as noted below and as detailed in the plans, or as directed by the Engineer.

Install pull boxes and splice vaults according to the locations, lines, grades, and details shown on the Plans. Locations may be adjusted during installation to clear obstructions and to facilitate wiring as approved by the Engineer. The quantity of pull boxes, and splice vaults as shown in the Plans may not be reduced without the Engineer's approval. Install additional pull boxes and splice vaults at Contractor's expense and with Engineer's approval to facilitate the ease of construction and pulling of electrical conductors and fiber optic cables.

6.2 MATERIALS

6.2.1 PREFORMED PULL BOX AND SPLICE VAULT
Pull box and splice vault dimensions are shown on the Plans. Preformed pull boxes and splice vaults are composed of mortar consisting of sand, gravel and polyester resin reinforced by a woven glass fiber mat or of resin mortar and fiberglass. The pull box, or splice vault lid shall be rated for a minimum loading of 20,000 pounds. Equip each pull box and splice vault with a bolt down cover of the same material. Electrically bond metal conduits to one another when used in preformed pull boxes.

6.2.2 PREFORMED PULL BOX AND SPLICE VAULT COVER
Covers on pull boxes shown on the Plans that contain 480 volt or greater circuits shall be embossed with "KDOT CAUTION-HIGH VOLTAGE". Covers on pull boxes that contain electric cable (120V/240V) shall be embossed with "KDOT ELECTRIC". Covers on pull boxes that contain communication cable shall be embossed with "KDOT ITS". Covers on all other pull boxes or splice vaults shall be embossed with "KDOT ITS" unless otherwise directed by the Engineer. Each pull box shall be equipped with a bolt down cover. The threaded hole which receives the cover hold-down bolt shall be open at the bottom to allow cleanout of sand, dirt and other debris. Lock down bolts shall be stainless steel or brass with a penta-head.

6.2.3 STONE DRAIN
Comply with Section 1107.2 (e), use crushed stone.

6.3 CONSTRUCTION REQUIREMENTS

6.3.1 PREFORMED PULL BOXES AND SPLICE VAULTS
Install conduit to enter the pull box or splice vault in the side or from the bottom of the box and to extend a minimum of 8 inches and a maximum of 12 inches into the box as shown on the Plans. If it is necessary to increase the excavation depth and extend the pull box, no direct payment will be made. Excavate the opening outside the pull box wide enough to allow compaction of the backfill material. Do not use cinders, broken concrete, broken rock or other hard or undesirable material for backfilling. Backfill ITS pull boxes and splice vaults according to the ITS special provision 07-08041, latest revision.

Drill the holes for the conduit as recommended by the manufacturer. Drill round holes that are no more than 1/2 inch larger than the conduit. Seal all conduit entrances into pull boxes or splice vaults with an expandable foam sealer around the conduits to prevent the entering of foreign material into the pull boxes. Seal all conduits entering pull boxes or splice vaults with an approved mechanical duct plug. Clean all pull boxes and splice vaults so they are free of trash, conduit and wire scraps, etc.

Do not construct pull boxes and splice vaults in or near sidewalk handicap ramps or approaches.

When installing KDOT ITS pull boxes, construct a concrete pad around the perimeter of the pull box placed in a sod area or shoulder as shown on the Plans. Use Grade 3.0 concrete for the pad, or a commercial mixture approved by KDOT and in accordance with Section 401 of the KDOT Standard Specifications. Construct ITS pull boxes so the top surface is flush with surfaced areas and approximately 1 inch above earth or sod areas.

Construct all pull boxes and splice vaults with a stone drain that is 2 feet deeper than the bottom of the pull box. Pull boxes or splice vaults located in rock will require a 6 inch concrete floor with a 2 inch rigid conduit drain.

Install separate pull boxes for all power service cables and communications cables. No sharing of the pull boxes will be allowed.

Install all KDOT electrical pull boxes 6" below existing grade and cover with backfill material. Electrical pull boxes do not require a concrete pad. Receive approval from the Engineer for backfill type and compaction. Obtain GPS coordinates and 3 tie-point measurements for each buried electrical pull box prior to placing backfill material.

6.3.2 JUNCTION BOXES
Mount junction boxes to bridges with wedge anchor bolts of sufficient size and strength to safely secure the box to the structure. Cover the surface of the junction box which comes in contact with concrete with aluminum colored butyl rubber sealant (caulking compound).

6.3.3 SPLICE VAULT
Install discretionary splice vaults, at Contractor's expense, with approval by the Engineer, along the existing conduit to provide a conduit pathway along the existing conduit or to facilitate pulling or blowing of fiber optic cable. When installing a splice vault, both as shown on the Plans and discretionary, to intercept the KDOT conduits, offset the splice vault from the CenturyLink conduit by at least 36 inches. Excavate a new trench adjacent to the CenturyLink conduits to allow the KDOT conduits to be re-aligned to intercept the new splice vault offset from the CenturyLink conduits. Maintain minimum bending radius for the conduit. Contact CenturyLink two weeks in advance of excavation adjacent to CenturyLink conduits. Do not enter (open, cut into) CenturyLink's conduit at any time. Only a designated CenturyLink representative has access to a CenturyLink vault.

When rerouting an existing empty KDOT conduit into a new splice vault, propose a method to positively identify the empty KDOT and seek approved by the Engineer. Demonstrate this method of positively identifying the empty KDOT conduit demonstrated in the field while witnessed by the Engineer. Perform this demonstration prior to the Contractor performing field work on the existing conduit.

7.0 WIRING

7.1 DESCRIPTION
Comply with the requirements of ITS special provision 07-08041, latest revision, as detailed in the Plans and as described below. Provide wiring of the type and size as shown on the Plans. This section specifically does not include fiber optic cable.

7.2 MATERIALS

7.2.1 ELECTRICAL CONDUCTORS
Use electrical conductors and associated equipment that meet the requirements of ICEA, IMSA, NEMA, RETMA, NEC and the regulations of the national board of fire underwriters, as applicable, and meet the approval of the Engineer. Use soft drawn copper for all conductors except as noted. Solid conductors may be used only for grounding where connected to a ground rod.

Use copper cablings that conform to ASTM B 3 and B 8 with flame-retardant, moisture, and heat resistant cross-linked polyethylene or thermoplastic insulation rated 90ºC in dry locations and 75ºC in wet locations and listed by UL as Type XHHW. Use solid wire for No. 10 AWG and smaller and stranded wire for sizes No. 8 AWG and larger.

For all current carrying electrical conductor runs, use ground wire in run that matches AWG size of the largest conductor in a specified run.

Furnish all low voltage, control, and communications cables on reels. Use reels with continuous cable of sufficient length to permit the associated cable runs to be made without splices in between specified locations shown on the Plans. Utilize the appropriate sheath for the particular application. Comply with the requirements of ANSI/EIA/TIA-568 B or latest approved version of that standard.

7.2.2 CAT 5E CABLE
Use outdoor rated Cat 5E cable. Use a UV resistant and flame retardant outer jacket.

7.2.3 COMMUNICATION (CCTV) CABLE
Comply with manufacturers requirements for Communication CCTV cable. Use communication (CCTV) cable for analog cameras that are 75 ohm co-axial construction with copper center conductors and polyethylene dielectric material. Use co-axial shields that are braided with a 95% minimum coverage. Use outer jackets for cables that are UV resistant and flame retardant. Install CCTV cable connectors that are of the type appropriate for devices specified in the Plans (BNC, F, etc.). For IP based cameras, use communications CCTV cable that is a 10/100 Base-T Ethernet cable with RJ-45 connectors, gold plated and allow for power over Ethernet.

7.2.4 COMMUNICATION (RF) CABLE
Use communication (RF) cables that are 50 ohm co-axial construction with polyethylene dielectric material. Use co-axial shields that have 100% coverage. Use outer jackets for RF cables that are UV resistant and flame retardant. Use RF cables (excluding jumpers with lengths less than three feet) that have an attenuation of less than 6 dB per 100 feet at 1800 MHz. When using RF cables for jumpers of less than three feet, an attenuation of less than 18 dB per 100 feet is required. Install RF cable connectors or provide manufacture pre-installed RF cable connectors that are appropriate for the type of device as specified in the Plans.

7.3 CONSTRUCTION REQUIREMENTS
Install all wiring as described in the ITS special provision 07-08041, latest revision and as noted below.

7.3.1 PULLING
Use insulating types of pulling compounds containing no mineral oil. Follow the pulling tension limits recommended by the wire and cable manufacturer. Use a dynamometer where mechanical means are used. Cut off section subject to mechanical means.

7.3.2 BENDING RADIUS
Use a minimum bending radius for all cable, except fiber optic cable, that is greater than the manufacturer's minimum bending radius and greater than six times the overall cable diameter.

7.3.3 SPLICES
Use continuous low voltage power conductors from the power supply to the control cabinet and not spliced in pull boxes or junction boxes unless indicted on plan. Install all other cables continuous, without splices, from termination to termination. Where required, splice where shown on the Plans or as approved by the Engineer where required for cable installation. Receive pre-approved by the Engineer for all splices and locations.

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

ITS EQUIPMENT SPECIFICATIONS

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APP'D			
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SHAWN M. SCHRAMM — LICENSED — 13340 — 8-1-14 — KANSAS — PROFESSIONAL ENGINEER

Drawn By : drp
File : I:\2008\08313\Frontage Rd South\Lighting\08313-ITS-S03.dgn
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STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	KA 2285-01	2014	83	130

If splicing in power supply circuits where the voltage does not exceed 600 Volts AC, utilize splices made with approved spring-type wire connectors. Soldered connections will not be permitted. The insulation for the splice shall consist of two layers of electrical rubber tape, four layers of plastic electrical tape, and two layers of friction tape. Securely apply the tapes over the bare wire splice area and back onto the original insulation a minimum of one inch. Apply a minimum of three coats of approved liquid waterproof compound to the splice. The finished splices electrical and mechanical characteristics and insulation quality are required to be equal to those of the original cable.

Splice conductors only in pull boxes, terminal compartments, pedestals, or cabinets. Splices are not allowed in conduits. Where possible, install cable continuous, without splices, from termination to termination.

7.3.4 INSTALLATION
Install low voltage control and communications cables in conduit separate from power cables, unless otherwise noted on Plans. Ground the shield of shielded cables at one end only and as recommended by equipment manufacturer. Install and terminate vendor furnished cable in accordance with vendor equipment requirements.

Seal all conduit at cabinet entrances with a duct seal putty or a mechanical duct plug as approved by the Engineer to prevent ingress of water, dust or other foreign materials.

8.0 POWER SUPPLY ASSEMBLY, POWER AND GROUNDING

8.1 DESCRIPTION
Provide a complete interface between the project electrical distribution system and the utility company providing power service. New service points will be established as indicated on the Plans. As necessary, provide a service pole or pedestal, meter socket, circuit breakers, weatherproof enclosure for the breakers, risers, grounding materials, fittings, and adapters. Circuit breakers and disconnect switches required as indicated on the Plans. Any work to bring the power from outside of the right-of-way to the right-of-way will be completed by utility company providing power service. Comply with the National Electrical Code (NEC) for all work.

Perform the following: Process an application for electrical service for each location, coordinate with the Utility to ensure the proper location of electrical services provided by the utility, provide the Utility with the construction schedule so that power is available when needed. Coordinate with the Utility for installation of the power meter. Assume all fees until KDOT assumes ownership. Notify and coordinate with the Engineer when KDOT is to assume ownership of the proposed sources of power.

Utility companies, contact name and phone number for each site is listed on the Plans. Power coordination will be reviewed at the pre-construction meeting. All utility hookups are subsidiary.

8.2 MATERIALS
Comply with the details shown in the Plans. Consult the utility company providing power service regarding their service installation requirements and furnish the service equipment in compliance with codes and regulations, and their requirements.

8.2.1 POWER SUPPLY ASSEMBLY, TYPE 1.
Supply and install new type 1 power supply assemblies in accordance with the details shown on the Plans. Include meter socket and disconnect on a new Type 1 overhead service pole. Use conductor and disconnect size as indicated on the Plans.

8.2.2 POWER SUPPLY ASSEMBLY, TYPE 2.
Supply and install new Type 2 power supply assemblies in accordance with the details shown on the Plans. Provide power supply assemblies that contain a main circuit breaker frame and trip rating as indicated on the Plans. When breaker lugs are not large enough for the conductor size, provide and install a power distribution block in a NEMA 4 enclosure on the secondary side of the disconnect.

8.2.3 SERVICE POLE
Where service poles are required; either new, modification to existing or replacement of existing, use a service pole that is 35 feet minimum height made of Class 4 or 5 wood. Ground the pole with a ground rod per the utility company's requirements. Where conduit is attached to the pole include a service entrance cap on the top of the conduit run. Design this cap to prevent ingress of water into conduit. Include guy wires where requested by the utility company.

8.2.4 TRANSFORMERS
Provide and install step-down transformers (480 VAC to 120/240 VAC) and step-up transformers (120/240 VAC to 480 VAC) where indicated on the Plans. Use a transformer assembly in all instances where the control cabinet location requires a transformer to ensure that proper voltage is provided to the control cabinet being serviced by the transformer assembly. Use Jefferson Electric phase encapsulated transformers or approved equal that meet these following minimum requirements.

Step-down transformer: The transformer assembly shall consist of a NEMA 3R rated cabinet/enclosure and an appropriate 480 VAC to 120/240 VAC transformer, service disconnect (480 Volt side), and distribution panel (120/240 volt side). The transformer primary voltage shall be 480 VAC and the secondary voltage shall be 120/240 VAC single phase 0.5Hz, grounded neutral. The volt-ampere rating shall be as shown in the Plans.

Step-up transformer: The transformer assembly shall consist of a NEMA 3R rated cabinet/enclosure and an appropriate 120/240 VAC to 480 VAC transformer, service disconnect (120/240 volt side), and secondary over-current protection, via circuit breaker or fuse (480 volt side). The transformer primary voltage shall be 120/240 VAC and the secondary voltage shall be 480 VAC single phase 0.5Hz, grounded neutral. The volt-ampere rating shall be as shown in the Plans.

Construct the cabinet and door from 5052-H32 sheet aluminum alloy with a thickness of 0.125 inches. Form all welds neatly and free of cracks, blow holes, and other irregularities. Ensure that there are no burrs on all inside and outside edges of the cabinets/enclosures. Provide a sloped top on the cabinets/enclosures to prevent the accumulation of water on its top surface. Construct signs that are riveted to the access doors to the transformer and service disconnect stating "DANGER-HIGH VOLTAGE". The latching handle is to have a provision for padlocking in the closed position. Provide temporary padlock. KDOT will replace the padlock with a KDOT supplied padlock at final acceptance. The appropriate interconnections to the service pedestal and the control cabinets are to be designed by the Contractor.

Provide all transformer assembly equipment and accessories furnished on the project that is new and of prime quality, and has not have been used previously on other projects or in other locations. All items of the same type shall be identical and totally interchangeable.

Use transformers that include a fused service disconnect appropriately sized for the intended load and to safely clear a fault. Submit the size of the service disconnect for approval.

Use transformers that are single phase, dry type units with two 5% augmentation taps.

The mass of the transformer shall not exceed 250 pounds. Label the transformer (i.e. step-down or step-up) and identify on the exterior all incoming and outgoing voltages. Use transformers that are the quiet type. Do not use sound levels in excess of 45dB.

8.2.5 GROUNDING
Ensure that all equipment, devices, wiring, power supplies and service, antennas are protected from external and internal sources, including power surges, lightning, induced voltages, and static discharge. Ensure that ground rods are listed according to UL requirements as detailed in the standard UL 467, Grounding and Bonding Equipment. Use electrodes that are copper clad or solid copper. Use grounding rod attachments that are minimum #4 tin-plated bare copper wires.

8.2.6 FITTINGS AND ADAPTERS
Where large conductor sizes of 1/0 or greater are shown on the plans, Provide shop drawings that show the type of fitting/adapter being proposed and the locations in which these fittings/adapters are being proposed to accommodate proper termination (lugs/splices) within panels, pull boxes, and cabinets for a complete system assembly that can be installed in a tidy, professional manner. Utilize fitting/adapter with a set screw to secure the conductors. Do not use a crimp style fitting/adapter.

8.3 CONSTRUCTION REQUIREMENTS

8.3.1 POWER SUPPLY
The power service locations, as indicated on the drawings, are initial service points coordinated between KDOT and the utility company providing power service. Coordinate with the utility to verify the final point of service. Consult the utility company providing power service regarding their service installation requirements and furnish the service equipment in compliance with codes and regulations, and their requirements.

Notify the utility company providing power service for the need for service and coordinate the schedule for that service from the utility. Any power supply requiring modifications from what is shown on the Plans will require an additional service request form to be submitted by the Contractor.

Measure the resistance between the ground electrode and earth using the testing procedures as outlined in these Specifications.

Verify the power service voltage at the power service locations prior to installation of circuits at all locations indicated on the drawings. Label all circuits in all pull boxes, junction boxes and ITS cabinets by means of round aluminum identification tags with a minimum thickness of 2.5 micrometers attached to the cables with copper wire. Provide lightning arrestors of the rated voltage as shown on the Plans. Provide each constructed service drop with a phenolic nameplate indicating the following:
Project "KDOT ITS"
Service address: "_____"
Service voltage: "_____"
Coordinate with local City government to determine the appropriate service address for power supply if not otherwise shown on plans.

8.3.2 GROUNDING
Exothermically weld all grounding rod attachments at all connection points. Bond all metal components of the ITS device subsystem, such as the cabinets and steel poles, to the grounding system with a grounding cable that uses a mechanical connection on the equipment side and an exothermically welded connection at the down cable.

8.3.3 GROUND RESISTANCE TESTING AND CERTIFICATION
Achieve a resistance to ground measurement of 5 ohms or less between the grounding electrode and the soil (using multiple electrodes, if necessary). Make all connections to the grounding electrode using exothermic welds. Ensure that ground rods are listed according to UL requirements as detailed in the standard UL 467, Grounding and Bonding Equipment. Use electrodes that are copper clad or solid copper. Ensure that all grounding rod attachments use a minimum #4 tin-plated bare copper wire

Connect all grounding electrodes related to the ITS device and its subsystems, and any grounded electrical system within a 100 foot radius (but not beyond the right of way) of the ITS cabinet base, to a single point main grounding electrode, sometimes referred to as the ground window, which shall be driven a maximum of 3 feet from the base of the ITS cabinet. Provide for each grounding electrode an interfacing hemisphere, which is an imaginary cylinder with a radius and depth equal to the length of the electrode, so each additional electrode must be spaced two times the electrode length away from other electrodes. Bury the bonding wires a minimum of 2 feet below the grade.

Measure the ground resistance with an instrument designed specifically to measure and document earth/ground resistance, soil resistance, and current flow. Conduct the test by using the fall-of-potential method as described in the IEEE Standard 142-2007. Provide the Engineer with written test results for each testing location prior to backfilling the grounding electrode. Include in the test results the instrument model and date of calibration for the device used in the testing, the local environmental conditions at the time of testing, and a full fall-of-potential graph. Certify and sign the test results.

9.0 CONCRETE FOUNDATIONS

9.1 DESCRIPTION
Construct and install all foundations for ITS Field Equipment provided for in this contract per Division 700 of the KDOT Standard Specifications, as modified below, and as detailed in the plans.

9.2 MATERIALS

9.2.1 REINFORCING STEEL
Use reinforcing steel that meets the requirements of the KDOT Standard Specifications. Use reinforcing steel that is free of rust and dirt. Provide reinforcing steel of the size, number, shape and dimensions as shown in the Plans.

9.2.2 ANCHOR BOLTS
Provide anchor bolts of the size, number, and materials as shown in the Plans and meet the requirements of Section 1615 of the KDOT Standard Specifications, as described below, and as detailed in the plans.

9.3 CONSTRUCTION REQUIREMENTS

9.3.1 CONCRETE FOUNDATIONS
Before placement of the concrete for the foundation, ensure that the appropriate anchor bolts are placed in the proper orientation, in both the horizontal and vertical direction. This may be accomplished by using preformed bolt templates, positioning plates, and/or tying or welding the anchor bolt assembly to the reinforcing steel cage. Do not use "Stabbing" of anchor bolts. Protect all anchor bolt threads from concrete fouling when the foundation is poured.

9.3.2 ANCHOR BOLT INSTALLATION
Install anchor bolt installation in accordance with the most current version of the FHWA Guidelines for the Installation, Inspection, Maintenance and Repair of Structural Supports for Highway Signs, Luminaries, and Traffic Signals and the following:

Ship the anchor bolts, nuts, and washers pre-assembled and protected from dirt and moisture. Threads must be protected from damage during installation. Anchor bolts shall not be subjected to erection or service loads until the concrete has reached 75% of the design strength or as approved by the Engineer. Installation includes the following:

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

ITS EQUIPMENT SPECIFICATIONS

ITS-S04 VERSION DATE: 01-03-13

APP'D			
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN. CK.	TRACE CK.

SHAWN M. SCHAEFER — LICENSED — 13240 — 8-1-14 — KANSAS — PROFESSIONAL ENGINEER

Plotted : 01-AUG-2014 10:37
Drawn By : drp
File : I:\2008\08313\Frontage Rd South\Lighting\08313-ITS-S04.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	KA 2285-01	2014	84	130

1. Installation torque. Use the torque wrench tightening the nuts for final torque verification that has a torque indicator that is calibrated annually. Provide a certification of such calibration to the Engineer. The Engineer will specify the verification torque for the diameter and grade of anchor bolt.

2. Anchor bolt rotation capacity test. Prior to use, run an anchor bolt rotation capacity test with at least one anchor bolt from each lot. The test consists of two parts: Using the base plate or plate of equivalent grade, thickness, and finish; install anchor bolt and nuts as specified below to verify its adequacy to achieve the verification torque. The plate must be restrained to resist the torque during the test. Following completion of tightening, remove the anchor bolt and nuts and inspect for thread damage. The anchor bolt is restrained while the nuts are turned onto the bolts at least one bolt diameter past the location of the leveling nut, then backed off by one worker using an ordinary wrench (without a cheater bar). The threads are considered damaged if unusual effort is required to turn the nut. If the threads are damaged or the verification torque is not attained, the Engineer will reject the lot of anchor bolts. If there is no damage to the anchor bolt or nuts during this test, they may be used in the foundation.

3. Templates. Use templates as shown on the Plans to maintain the spacing and alignment of anchor bolts during placing and curing of the concrete. Bottom template shall be located as shown on the Plans. Top template shall be located above top of concrete. The template hole pattern shall match the base plate hole pattern. Receive approval by the Engineer for use of additional templates prior to use.

Install and tighten anchor bolts according to the following procedure:

1. Prior to and during concrete placement, adequately secured anchor bolts with templates in place.
2. After concrete placement, the misalignment from vertical shall not exceed 1:40.
3. After concrete placement, clean the exposed part of the anchor bolts with a wire brush and lubricated.
4. Turn the nuts onto the bolts well past the elevation of the leveling nut and backed off by one worker using an ordinary wrench without a cheater bar. Report thread damage requiring unusual effort to the Engineer.
5. Lubricate the exposed threads of the anchor bolts immediately prior to placing leveling nuts.
6. Clean leveling nuts and lubricate threads and bearing surfaces. Place on the anchor bolts.
7. Place leveling washers on the anchor bolts and brought to their proper elevation.
8. Place column or pole on foundation.
9. Place top washers.
10. Clean top nuts and lubricate threads and bearing surfaces. Place and tighten nuts to between 20 and 30 percent of the verification torque using tightening sequence shown on Plans. This is termed snug-tight.
11. Tighten leveling nuts to between 20 and 30 percent of the verification torque using tightening sequence shown on Plans. This is termed snug-tight.
12. Appropriately mark the position of the snug-tight top nuts on the base plate and nut at each bolt. Turn top nuts 1/6 turn for 1.5 inch diameter grade 36 anchor bolts beyond snug tight using tightening sequence shown on Plans and using at least two full tightening cycles. Verify proper nut rotation. Tolerance is plus 20 degrees.
13. Use a torque wrench to verify that a torque at least equal to the verification torque is required to additionally tighten the leveling nuts and the top nuts. Report to the Engineer any inability to achieve this torque.
14. Use the torque wrench again after at least 48 hours to verify that a torque at least equal to 110 percent of the verification torque is required to additionally tighten the leveling nuts and the top nuts. This verification is required at least 48 hours after erection of the remainder of the structure and after any heavy attachments to the structure.
15. Jam nuts shall be placed and installed to snug tight.
16. Rodent screens are required around the base of each pole.
17. Adjust anchor bolt nuts to plumb with the pole under load.

10.0 ITS FIELD ELEMENTS

10.1 DESCRIPTION

This work consists of furnishing equipment and material for, and installing ITS field elements in conformity with the locations and details shown on the Plans or established by the Engineer. ITS field elements include the controller assemblies, cabinets, communication equipment, closed circuit television (CCTV) systems, vehicle detection systems (VDS), and dynamic message sign (DMS) systems.

10.2 MATERIALS

Furnish all tools, labor, equipment, materials, supplies and manufactured articles and perform all operations necessary to construct the ITS field element installations as shown on the Plans and as specified herein. The hardware, construction services, and support services specified are intended to describe the minimum configuration that would be acceptable for these installations.

10.2.1 LABELING EQUIPMENT

Apply permanent external labeling on all communication equipment; including any required cross connects to communications equipment, according to these contract documents and information provided by the Engineer. Use self-laminating vinyl labels at least 1-inch wide and long enough that the translucent portion of the label completely covers the white area bearing the legend. Use vinyl with a layer of pressure sensitive acrylic adhesive. Use labels that resist oil, water, and solvents and are self-extinguishing. Use a machine to print the legend in letters at least 1/8 inch high.

10.2.2 INCIDENTALS

Furnish and install all incidental accessories necessary to make the system complete in all respects and ready for operation, even if not particularly specified; furnished, deliver and install all incidentals without additional expense. Include in the work and in the bid all minor details not usually shown or specified, but necessary for the proper installation and operation.

10.2.3 CABLES AND CONDUCTORS

Incidental items include all cables and conductors including but not limited to, serial cables, alarm ribbon cables, Cisco equipment power cables, DC power cables, AC power cables, power service conductors, fiber optic jumpers, signal cables, interface cables, and other cables and connectors located at the field element sites. No separate payment shall be made for incidental items.

10.2.4 MEDIA CONVERTER

Furnish and install a GE Security IFS Ethernet Optical Transceiver DE7200 or approved equal if specified in the plans with the following minimum requirements:

1. 10/100 Mbps Ethernet, auto-negotiating, full duplex or half duplex data. IEEE 802.3 compliant.
2. Auto network detection.
3. NTCIP Compatible
4. Optical: 1310/1550 nm, Single-mode fiber optic cabling support. SC optical connectors.
5. Minimum optical range of 10 miles.
6. Data: RJ-45 connector
7. Power: 12VDC @ 200mA
8. Power, Transmit, and Received LED indicators.
9. Physical Properties: 4.0in x 3.0in x 1.0in, 2.0 lbs maximum

10.3 CONSTRUCTION REQUIREMENTS

10.3.1 LABELING EQUIPMENT AND CABLES

Label all communication equipment and every cable immediately upon installation. Label all communication equipment and all cables at every point of access, including pull boxes, and termination points. Consult with the Engineer concerning the desired method of identifying each cable.

10.3.1.1 FIBER OPTIC CABLES OUTER JACKETS

1. Label each cable with permanent cable tags, with two integrated holes on each end for connecting tag to cable with cable ties.
2. Label each cable where it enters a cabinet, pull box, splice vault, splice closure, and termination points.
3. All cables shall be labeled within 12 inches of the conduit or other entry point. Label both ends as it comes in and out of a pull box or vault.
4. Label FO trunk cables with the following information:

a. The number of fiber strands in the cable by mode
b. Cable type (single mode "SM", Multi-mode "MM" or hybrid "SM/MM")
c. Owner
d. The item to which the cable travels (e.g. "TO PB 18-2", "To P.O.P.", etc.)
e. Example: "96 SM FIBER KDOT" "TO PB 18-2"

5. Label branch cables with same plus what device it is connecting to. Example: "12 SM FIBER KDOT" "TO CCTV10/DET 12"

10.3.1.2 SPLICE ENCLOSURE

1. Label splice closures indicating what fibers inside are spliced
2. Label splice trays within closures with cable and fiber strand numbers.
3. Example: "KDOT 96 SMFO Fibers 23-24 TO KDOT 12 SMFO BRANCH FIBERS 3-4 or CenturyLink-KDOT 12 SMFO Fibers 11-12 TO KDOT 12 SMFO BRANCH FIBERS 3-4".

10.3.1.3 POWER CABLES

1. Label each cable within 12 inches of where it enters a cabinet, pull box, meter pedestal, transformer or other termination point.
2. Label it "POWER XXX VOLTS" with a RED label
3. Label where it is coming from/going to (e.g. "POWER 120 VOLTS" "TO CA CCTV I-135/Central")
4. Label taps inside meter pedestals or transformers with "ITS POWER" tag.

10.3.1.4 ITS CABINETS

1. Inside cabinets, place a patch panel key/diagram of patch panel with port numbers.
2. On each diagram/key include the following:

a. Cable number for mainline fiber
b. What cabinet/shelter and device to which the fiber connects
c. The port on the IE 3000 to which a jumper/patch cable connects.

3. Label each port on the fiber optic patch panel with the designated port number.
4. Jumper cables need not be labeled in ITS cabinets as long as they are less than three meters in length.
5. Label each network device (CCTV encoders, DMS controllers, Vehicle Detectors, Media Converters, Power Distribution Devices and Uninterruptable Power Supplies) with IP addresses.
6. Label Cellular Modems with IP addresses and assigned phone numbers.
7. Label Cisco switches with IP address and site number. Label switch ports with Tx1, Rx1, Tx2, Rx2 and what port they connect to on the fiber optic patch panel. Label each port with its corresponding VLAN address.
8. Wireless network devices shall be labeled with the following items:

a. IP address
b. Programmed radio frequency/channel
c. Other wireless devices that link to the unit
d. e.g.: "AU, 10.8.32.25, 4.97 GHz, TO SU@CCTV 03, TO SU@DET 01, TO SU@DET 02" or "SU, 10.8.34.24, 4.95 GHz, TO AU@SG CO COURTHOUSE"

10.3.1.5 POP BUILDINGS

1. Label patch panels ports to indicate the origin of the fiber optic cable terminated.
2. Label jumper cables at each end with a tag that includes the destination patch panel and port number(s) (e.g. "TO Panel 1 Ports 11-12" and "TO Panel 2 Ports 3-4").
3. Label outer jackets of fiber cables entering patch panels/distribution frames as in section 1-d.
4. Label individual fibers entering back of patch panel with the corresponding strand number and origin.

10.3.1.6 TMC COMMUNICATION ROOM (IF UTILIZED)

1. Label patch panels to indicate the origin of the fiber optic cable terminated.
2. Label individual fibers entering back of patch panel with the corresponding strand number and origin.
3. Label jumper cables at each end with a tag that includes the destination patch panel and port number(s) (e.g. "TO: Panel 1 Ports 11-12" and "TO Panel 2 Ports 3-4").
4. Label jumpers from patch panel to Cisco SFPs with the fiber strand numbers, and origin to which they connect (e.g. Fiber #3, P.O.P. Building)
5. Provide Cisco switch port diagram denoting what fiber and Ring they are connected to.

10.3.1.7 CONDUITS

1. Label empty conduits noting to where they connect (e.g. "TO PB2-2 TO PB2-3").
2. If a conduit color is not per plans (Red for Power, Green for Communications), label it so it is clear what it is being used for, even if there are cables inside conduit.

10.3.2 MEDIA CONVERTER

Install in accordance with the manufacturer's recommended procedure.

11.0 DYNAMIC MESSAGE SIGN SYSTEM

11.1 DESCRIPTION

The purpose of this section is to provide general information for the installation of KDOT furnished dynamic message signs (DMS) systems as show on the Plans and specified herein.

11.2 MATERIALS

11.2.1 GENERAL

KDOT will supply the dynamic message sign systems. The equipment supplied by KDOT consists of a DMS case including contents, sign controller unit (SCU) and communication unit; cabling for between the DMS case and the sign controller unit, display modules, equipment cabinet; and DMS software and power supplies. Do not attach the DMS to the support posts until the supporting systems of conduits, pull boxes, controller assemblies, power supply assemblies and all other items necessary are in place to provide a fully functioning DMS system.

11.2.2 DELIVERY

Complete a pre-installation test of the DMS to verify that the DMS is fully functional and operating properly prior to transportation of the DMS to the site. This test shall include: a check for damage, an electrical check to verify all electrical connections are correct and verification that the DMS units are properly configured and fully functional.

The pre-installation test may be waived with the approval of the Contractor, Manufacturer and Engineer. If the test is waived include documentation to this effect as a test result in the Technical Reference Manual.

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

ITS EQUIPMENT SPECIFICATIONS

ITS-S05 VERSION DATE: 01-03-13

APP'D			
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN. CK.	TRACE CK.

SHAWN M. SCHMITT 13340 8-1-14 KANSAS PROFESSIONAL ENGINEER

Drawn By : drp
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Plotted : 01-AUG-2014 10:37

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	KA 2285-01	2014	85	130

~~20.8.10 WARRANTY INFORMATION~~
~~Include in this section a complete copy of all warranty information for Contractor and KDOT supplied equipment as specified in these specifications. Include complete documentation including verification of transfer of warranty to KDOT. Provide effective dates for all warranty transfer documentation. Warranty information will be verified by KDOT prior to final project acceptance.~~

~~20.8.11 CABLE AND CONDUCTOR CERTIFICATIONS~~
~~Include in this section all cable and conductor certifications from the supplier indication that the materials meet the requirements of these specifications; and that the cable furnished was from a lot manufactured by (manufacturer's name) whose test results indicate compliance with the specifications. Include packaging and shipping labels showing the manufacturer's name, the cable type, and actual length of cable on reel, contractor's name, contract number, and reel number. Also include the date of manufacture, cable characteristics (size, attenuation, bandwidth), factory test results, cable identification number and other pertinent information.~~

~~20.8.12 CABINET RACK ELEVATIONS~~
~~Include in this section all cabinet rack elevation drawings for each field cabinet assembly and all racks modified in a KDOT facility. Label each drawing with a title stating field cabinet name, location and mile post. Indicate on the drawings the placement of each piece of equipment, blank panels, and blank spaces. Show vertical dimensions in both inches and rack units (multiples of 1.75 inches). Indicate in the drawings blank space reserved for KDOT provided equipment.~~

~~20.8.13 AS-BUILT PLAN SET AND SHOP DRAWING~~
~~Keep and maintain at the job site half size contract Plans with shop drawings and submittals. Legibly mark these Plans in a contrasting, reproducible color to depict any changes or other deviations that have been made to the Plans or approved shop drawings including buried or concealed construction and utility features that are revealed during the course of construction. Record the locations of all buried utilities that differ from the location indicated or that were not indicated on the contract Plans. Record the tie-point measurements for each buried electrical pull box. Supplement the as-built documents by any detailed sketches as necessary or directed to indicate fully existing conditions and the work as actually constructed. Prior to final acceptance of the project, provide the Engineer with the original as-built plan set with shop drawings, two half-size copies of the complete as-built plan set and record drawings, and one electronic PDF copy.~~

~~Include in this section an electronic PDF of as-built plan set and shop drawings.~~

~~20.8.13.1 SPLICE VAULT DOCUMENTATION~~
~~Clearly record on the communications layout/plan sheets of the as-built plan set, the sequential fiber cable markings at all splice vaults, for each cable run entering into the splice vault.~~

~~20.8.14 GPS DOCUMENTATION, TIE-POINT MEASUREMENTS~~
~~Include in this section an electronic list of GPS readings in excel format for all installed devices including but not limited to DMS foundations, CCTV foundations, detection, cabinets, pullboxes, splices vaults, wireless towers and power supplies. Coordinate with KDOT on the current GPS format for coordinates. The accuracy of the GPS reading shall be within 3 feet. Also include in this section a sketch including the 3 tie-point measurements for each buried electrical pull box.~~

~~20.8.15 IN-CABINET DOCUMENTATION~~
~~Provide to the Engineer final in-cabinet documentations for review and acceptance. Provide documentation that is computer generated and use 8 1/2"by 11"paper size. Place approved documentation in each cabinet folder. Include at a minimum the following documentation in the cabinet: the maintenance log, cabinet elevation drawings, communication schematic drawings, and test results. If changes occur during construction provide to the cabinets the revised documentation.~~

~~Include in this section an electronic PDF of in-cabinet documentation.~~

~~21.0 TRAINING~~

~~21.1 DESCRIPTION~~
~~Conduct training courses for KDOT operations and maintenance staff on operating components of the ITS system if requested by KDOT. Design training courses to ensure that KDOT staff achieves a full knowledge and appreciation of the design, operation and maintenance of equipment. Training may consist of field device operations and maintenance training, field communications operations and maintenance training, and system (outside plant) operations and maintenance training.~~

~~21.2 MATERIALS~~
~~Provide all training documentation, and coordination with vendors to provide teaching staff. Provide the training to consist of lectures and demonstrations and shall provide practical (hands-on) training and experience.~~

~~Provide 5 hard copies of the training manuals and 1 electronic copy of the training manuals.~~

~~Provide a detailed training plan and a syllabus for each course for the approval of the Engineer. Include in the information tentative dates for courses, locations, and an outline of topics and names of instructors. Provide this information to the Engineer at least 30 days in advance of the training course.~~

~~21.3 CONSTRUCTION REQUIREMENTS~~
~~Provide up to a 2-day training class to train operations and field maintenance personnel at KDOT's request. Include with the training in-the-field demonstrations.~~

22.0 BASIS OF ACCEPTANCE FOR ITS SYSTEM

The ITS system will be accepted when all test results, documentation including but not limited to the TRM, and as-built plans are received and approved by the Engineer, all test periods are successfully completed, and all training is completed.

23.0 MAINTENANCE AND WARRANTY

23.1 MAINTENANCE
Maintain all equipment and cables installed in this project until the ITS system has passed all testing requirements specified here in and has been accepted by KDOT. Once the operational test period has successfully been completed, turn over the maintenance of the ITS system to KDOT.

23.2 WARRANTY
Equipment Warranty: Obtain, assign and furnish to the Engineer written manufacturer's warranties for all Contractor provided products and electronic equipment consistent with those provided as customary trade practice. Provide warranties to cover defect in assembly, fabrication, and materials for a minimum date of one year from the date of final acceptance. Provide warranties that require the manufacture to furnish replacements for any part or equipment found to be defective during the warranty period at no cost to KDOT. Provide warranties that are fully transferable from the Contractor to KDOT and transfer all warranties to KDOT's name at the time of final acceptance of the work.

Contractor Warranty: Provide a Contractor's warranty providing for satisfactory in-service operation of the ITS during the 60 day test period for each ITS component. Comply with the following for Contractor provided equipment: If defects develop during this period, replace or repair the provided equipment, at the expense of the Contractor, including all labor, material and associated costs, as necessary to restore required performance. Comply with the following for KDOT provided equipment: If defects develop in KDOT provided equipment, KDOT will provide a replacement and Contractor shall replace equipment, at the expense of the Contractor, including all labor, material and associated costs, as necessary to restore required performance. KDOT labor costs resulting from equipment replacement will not be charged to the manufacturer or the Contractor.

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

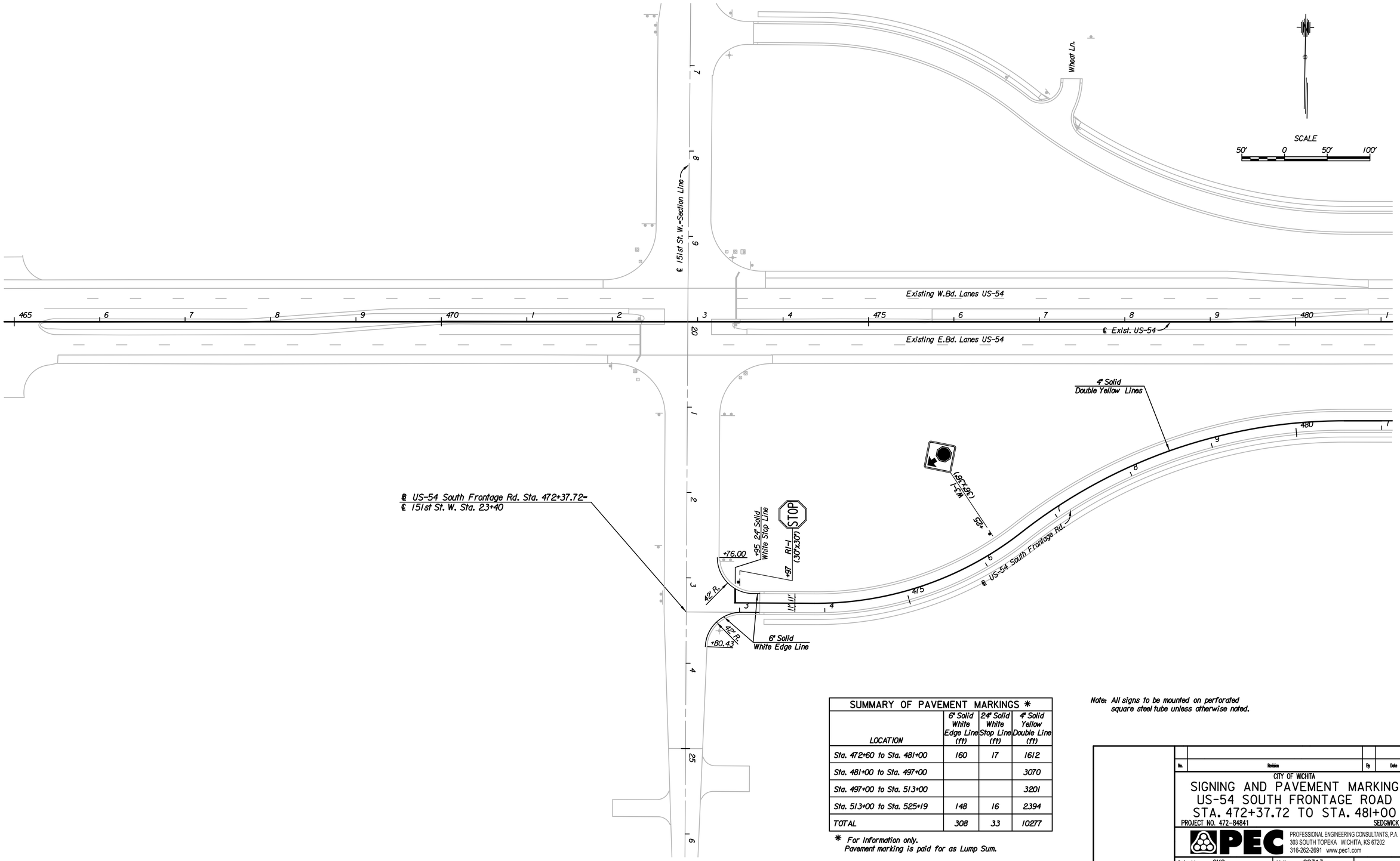
ITS EQUIPMENT SPECIFICATIONS

~~ITS-S14~~ VERSION DATE: 01-03-13

APP'D			
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN. CK.	TRACE CK.

SHAWN M. SCHRADER LICENSED 13340 6-1-14 KANSAS PROFESSIONAL ENGINEER

Drawn By : drp
Plotted : 01-AUG-2014 10:37
File : I:\2008\08313\Frontage Rd South\Lighting\08313-ITS-S14.dgn



SUMMARY OF PAVEMENT MARKINGS *			
LOCATION	6" Solid White Edge Line (ft)	24" Solid White Stop Line (ft)	4" Solid Yellow Double Line (ft)
Sta. 472+60 to Sta. 481+00	160	17	1612
Sta. 481+00 to Sta. 497+00			3070
Sta. 497+00 to Sta. 513+00			3201
Sta. 513+00 to Sta. 525+19	148	16	2394
TOTAL	308	33	10277

* For Information only.
Pavement marking is paid for as Lump Sum.

Note: All signs to be mounted on perforated square steel tube unless otherwise noted.

No.	Revision	By	Date

CITY OF WICHITA

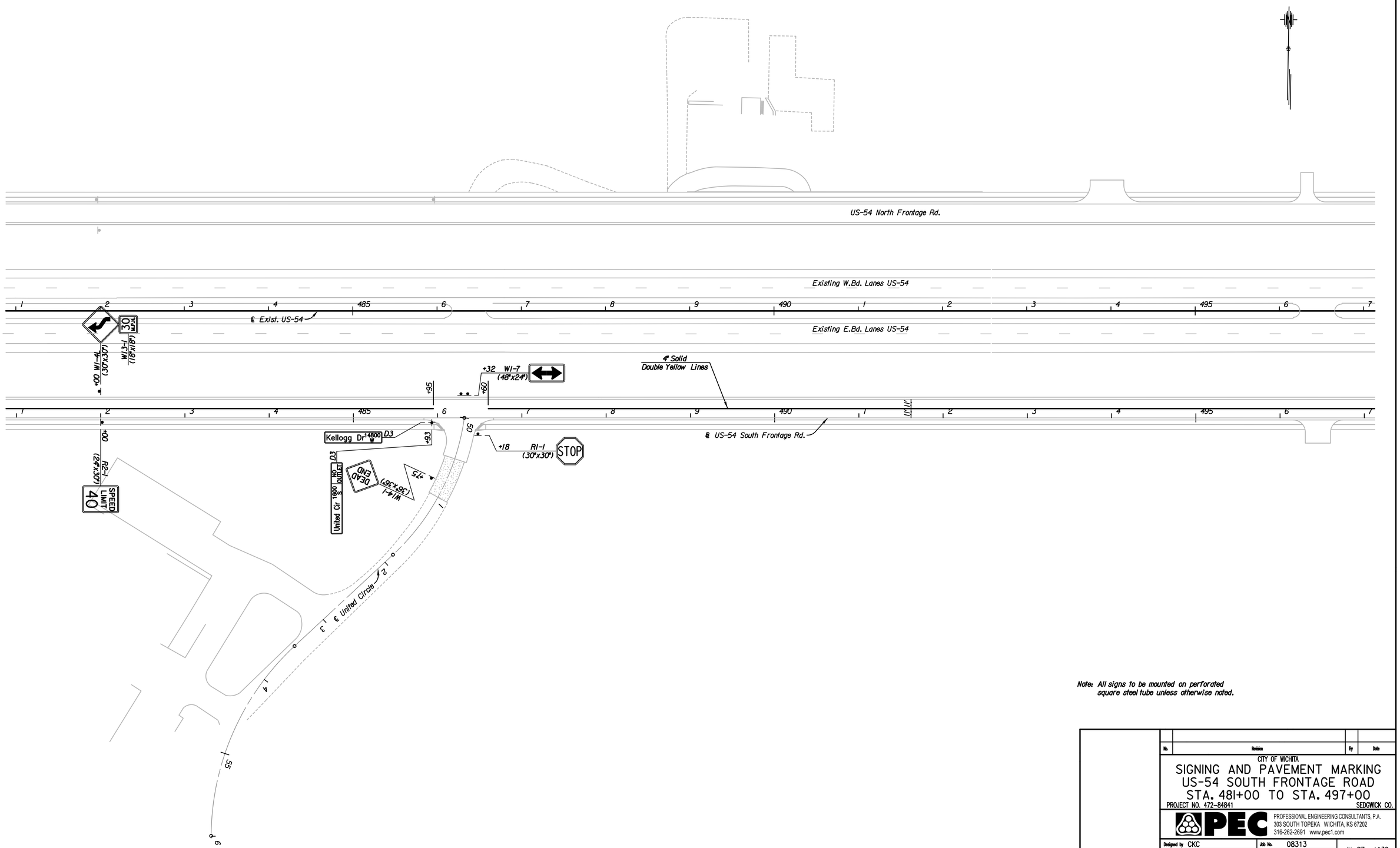
SIGNING AND PAVEMENT MARKING US-54 SOUTH FRONTAGE ROAD STA. 472+37.72 TO STA. 481+00

PROJECT NO. 472-84841 SEDGWICK CO.

PEC
PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
303 SOUTH TOPEKA WICHITA, KS 67202
316-262-2691 www.pec1.com

Designed by	CKC	Job No.	08313	Sht. 86 of 130
Drawn by	DRP	Date	June, 2014	

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Note: All signs to be mounted on perforated square steel tube unless otherwise noted.

No.	Revision	By	Date

CITY OF WICHITA

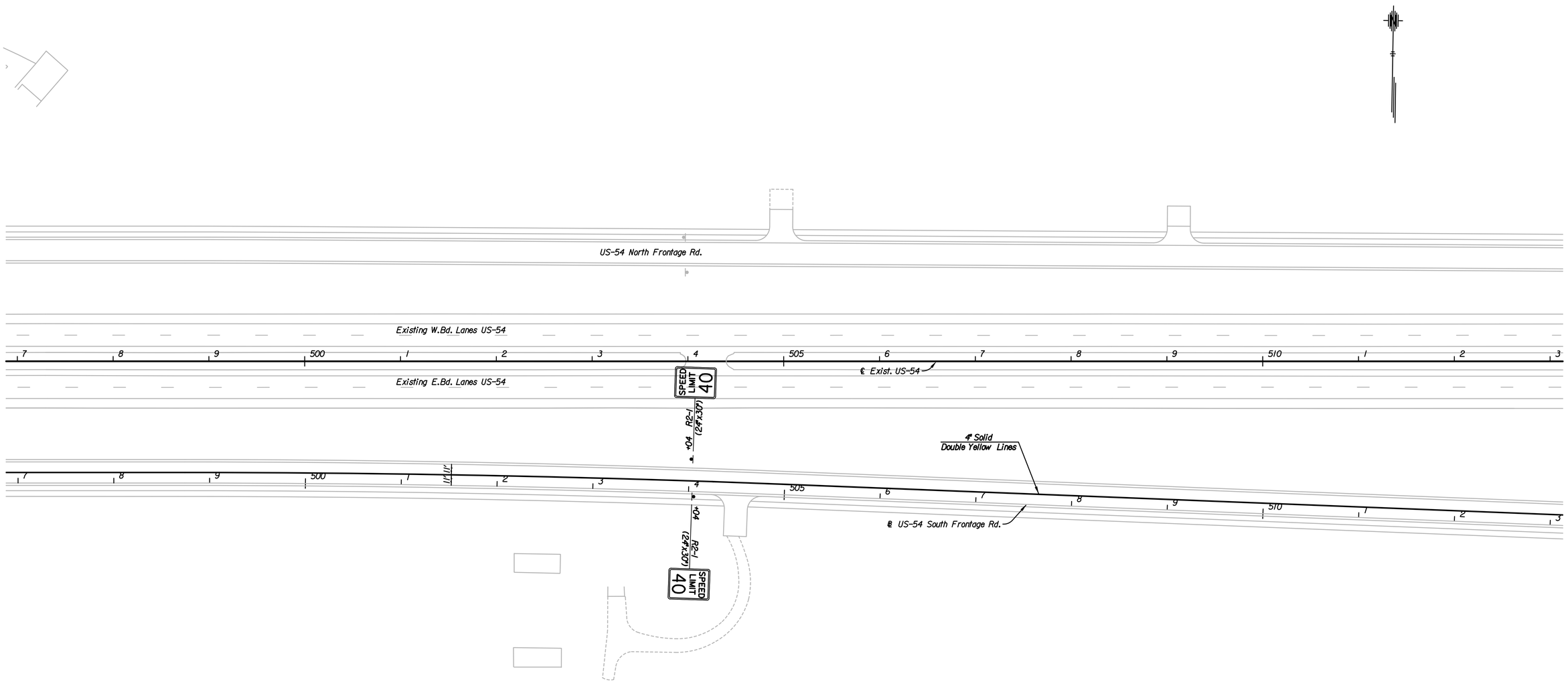
SIGNING AND PAVEMENT MARKING US-54 SOUTH FRONTAGE ROAD STA. 481+00 TO STA. 497+00

PROJECT NO. 472-84841 SEDGWICK CO.

PEC
PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
303 SOUTH TOPEKA WICHITA, KS 67202
316-262-2691 www.pec1.com

Designed by CKC	Job No. 08313	Sht. 87 of 130
Drawn by DRP	Date June, 2014	

Plotted By: drp Date: 7/22/2014 9:27:07 AM
FILE: i:\2008\08313\Frontage Rd South\Signing-Marking\08313-Signing-Marking481.dgn



Note: All signs to be mounted on perforated square steel tube unless otherwise noted.

No.	Revision	By	Date

CITY OF WICHITA

SIGNING AND PAVEMENT MARKING US-54 NORTH FRONTAGE ROAD STA. 497+00 TO STA. 513+00

PROJECT NO. 472-84841 SEDGWICK CO.

PEC
PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
303 SOUTH TOPEKA WICHITA, KS 67202
316-262-2691 www.pec1.com

Designed by	CKC	Job No.	08313	Sht. 88 of 130
Drawn by	DRP	Date	June, 2014	

Plotted By: drp Date: 7/14/2014 12:58:12 PM
FILE: I:\2008\08313\Frontage Rd South\Signing-Marking\08313-Signing-Marking497.dgn

Auburn Hills Rd.

℄ US-54 North Frontage Rd.

Existing W.Bd. Lanes US-54

Existing E.Bd. Lanes US-54

℄ Exist. US-54

℄ 135th St. W.-Section Line

4" Solid
Double Yellow Lines

SPEED LIMIT 40

+89 R2-1 (24"x30")

+89 W1-4R (30"x30")

W3-1 (18"x18")

+75 W3-1 (36"x36")

Kellogg Dr 4000 W D3

135th W 1600 S D3

6" Solid
White Edge Line

+96 4" Solid (Typ.)

+96 24" Solid White Stop Line

+94 R1-1 (30"x30") STOP

℄ US-54 South Frontage Rd. Sta. 525+52.99=
℄ 135th St. W. Sta. 33+00

Note: All signs to be mounted on perforated square steel tube unless otherwise noted.

No.	Revision	By	Date

CITY OF WICHITA

SIGNING AND PAVEMENT MARKING
US-54 NORTH FRONTAGE ROAD
STA. 513+00 TO STA. 525+16.45

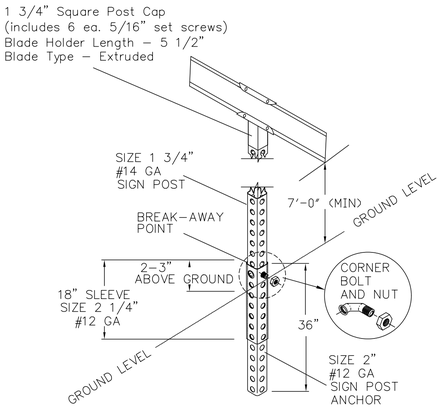
PROJECT NO. 472-84841 SEDGWICK CO.

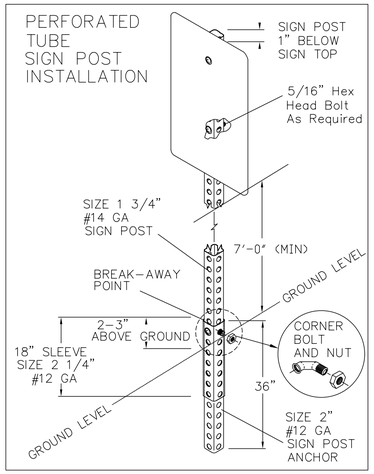
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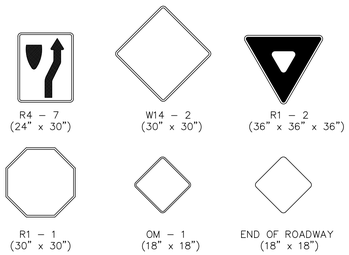
Designed by	CKC	Job No.	08313	Sht. 89 of 130
Drawn by	DRP	Date	June, 2014	

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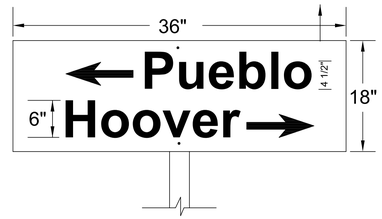
FHWA REG NO.	STATE	PROJECT NO.	YEAR	SHEET NO.	SHEETS
7	KANSAS	472-84841	2013	90	130



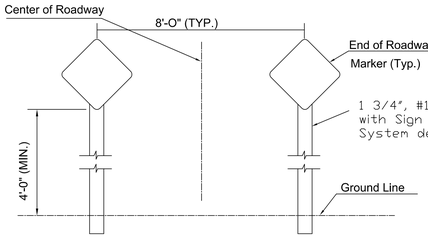




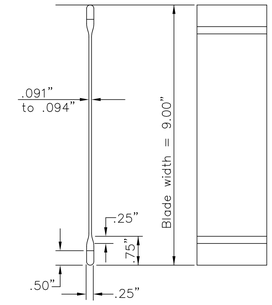
* IN NO CASE SHALL THE SPECIFICATIONS BE LESS THAN REQUIRED BY THE CURRENT MUTCD.



FLAT PLATE STREET NAME SIGN



TYPICAL END OF ROADWAY SIGN MOUNTING INSTALLATION



STREET NAME SIGN
BLADE DETAILS

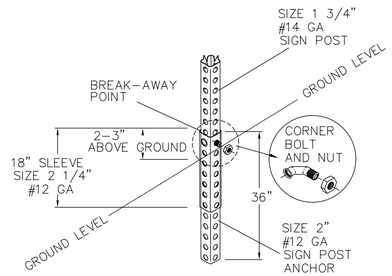
TYPICAL TRAFFIC CONTROL AND STREET NAME SIGN MOUNTING INSTALLATION

CURB AND GUTTER SECTION

DETAIL A
9" STANDARD

TYPE I BARRICADE DETAIL W/ E.O.R. MARKERS

DETAIL B
9" METRO



SIGN POST ANCHOR SYSTEM

SIGN ASSEMBLY TABLE

STATION	OFFSET	SIGN	QUANTITY*
R1-1	30"x30"	3	
R2-1	24"x30"	4	Speed Limit 40
W1-4L	30"x30"	1	
W1-4R	30"x30"	1	
W1-7	48"x24"	1	
W3-1	36"x36"	2	
W13-1	18"x18"	2	30 MPH
W14-1	36"x36"	1	
TOTAL		15	

STREET NAME*	NO. BLADES REQ'D	
	6 3/4" STD.	9" METRO
Kellogg Dr (14800 W)	-	1
United Cir (1600 S)	-	1
Kellogg Dr (14000 W)	-	1
135th W (1600 S)	-	1

* Street Name Signs are a non-participating bid item

NOTE: REFERENCES BELOW TO "STANDARD SPECIFICATIONS" DENOTE "STANDARD SPECIFICATION FOR STATE ROAD AND BRIDGE CONSTRUCTION EDITION 1990" BY THE KANSAS DEPARTMENT OF TRANSPORTATION.

* IN NO CASE SHALL THE SPECIFICATIONS BE LESS THAN REQUIRED BY THE CURRENT MUTCD.

1. POST ANCHORS: POSTS SHALL BE ANCHORED WITH A YIELDING BASE POST SUPPORT AS DETAILED.
2. POSTS FOR TRAFFIC CONTROL SIGNS: POSTS SHALL BE GALVANIZED AND CONFORM TO THE REQUIREMENTS OF SUBSECTION 1620 OF THE STANDARD SPECIFICATIONS, EXCEPT THAT ALL POSTS SHALL WEIGH 3 LBS./FT. MINIMUM.
3. POSTS FOR STREET NAME SIGNS (SNS): POSTS SHALL BE 9 FEET LONG, CONSTRUCTED FROM #14 GALVANIZED STEEL PIPE AND SHALL BE 1 3/4" SQUARE WEIGHING A MINIMUM OF 3 LBS/FT. POSTS SHALL BE POSITIONED SO THAT THE BOTTOM BLADE IS 7 FEET ABOVE GRADE.
4. POSTS FOR END OF ROADWAY SIGN TO BE 8' LONG AND INSTALLED A MINIMUM OF 4' FROM ROADWAY TO BOTTOM OF SIGN.
5. SIGN BLANKS FOR TRAFFIC CONTROL SIGNS: SIGN BLANKS SHALL BE FABRICATED FROM 0.080" ALUMINUM ALLOY 6063-T6 CONFORMING TO THE REQUIREMENTS OF SUBSECTION 1626 OF THE STANDARD SPECIFICATIONS.
6. SIGN BLADES FOR STREET NAME SIGNS: EXTRUDED ALUMINUM BLADES SHALL BE ALUMINUM ALLOY CONFORMING TO 6063-T6 OR 5052-H38 (ASTM SPECIFICATION B221, LATEST ISSUE). BLADES SHALL HAVE AN ALODINE OR PHOSPHATE ETCHED FINISH. BLADES SHALL HAVE SQUARE CORNERS AND NO HOLES.

   MINIMUM BLADE LENGTH SHALL BE 24". MAXIMUM BLADE LENGTH SHALL BE 48". LENGTH VARIES BY INCREMENTS OF 6".

   BLADES BEARING THE STREET NAMES SHALL BE FIRMLY ATTACHED TO THE MOUNTING BRACKETS USING ALLEN-TYPE CONICAL SET SCREWS. THE BLADES SHALL BE ORIENTED PARALLEL TO THE STREET.
7. MOUNTING BRACKETS FOR SIGNS: DIE-CAST ALUMINUM BRACKETS SHALL BE ALUMINUM ALLOY 360 HAVING A TENSILE STRENGTH OF 44,000 PSI. THE BRACKETS SHALL BE SMOOTHLY FINISHED FREE OF PITS, BURRS, AND FLAWS. EACH BRACKET SHALL BE TAPPED AND DRILLED FOR 5/16" ZINC-PLATED ALLEN-TYPE SET SCREWS HAVING SELF-LOCKING SAW-TOOTH ENDS.
8. FASTENERS: ALL STEEL FASTENERS FOR TRAFFIC CONTROL SIGNS SHALL BE GALVANIZED AND SHALL CONFORM TO THE REQUIREMENTS OF SUBSECTION 1614 OF THE STANDARD SPECIFICATIONS.
9. REFLECTIVE SHEETING: REFLECTIVE SHEETING SHALL BE A MINIMUM OF HIGH INTENSITY PRISMATIC.
10. PROCESS INK: ALL PROCESS INK SHALL CONFORM TO THE REQUIREMENTS OF SUBSECTION 2202 OF THE STANDARD SPECIFICATIONS.
11. FABRICATION AND INSTALLATION OF ALL SIGNS SHALL CONFORM TO THE LATEST ADDITION OF THE MUTCD.
12. DETAILS - SNS: THE REFLECTIVE SHEETING FOR THE 9" STANDARD SIZE SNS IS TO BE THE HIGHWAY GREEN BACKGOUND WITH SILVER-WHITE #2 COPY WITH 6" UPPER CASE AND 4 1/2" LOWER CASE PRIMARY COPY AND SUFFIX COPY. BOTH SERIES "C". FACES TO TRIM TO A 8 1/2". (SEE DETAIL A.)

    THE REFLECTIVE SHEETING FOR THE 9" METRO SIZE SNS IS TO BE THE HIGHWAY GREEN BACKGROUND WITH SILVERWHITE #2 COPY WITH 6" UPPER CASE AND 4 1/2" LOWER CASE PRIMARY COPY AND SUFFIX COPY, BOTH SERIES "C". THE CARDINAL DIRECTION CENTERED DIRECTLY BELOW THE BLOCK NUMBER SHALL BE AN UPPER CASE, 3" SERIES "C" LETTER. FACES TO TRIM TO A 8 1/2" WIDTH. (SEE DETAIL B.)

    FOR CUL-DE-SAC STREETS, A 9" METRO SIZE BLADE SHALL BE USED WITH THE BLOCK NUMBERS DISPLAYED BENEATH THE STREET NAME.

    IF BLOCK NUMBERS ARE NOT SHOWN ON THE PLANS THE CONTRACTOR SHALL CONTACT THE TRAFFIC ENGINEER AT 268-4501 PRIOR TO MANUFACTURING THE SIGN.

    SHOP DRAWINGS OF LAYOUT FOR SNS SHALL BE SUBMITTED TO THE TRAFFIC ENGINEERING DIVISION OF THE CITY OF WICHITA FOR APPROVAL PRIOR TO FABRICATION. THE FINISHED SIGNS AS SUPPLIED SHALL BE OF GOOD APPEARANCE, FREE FROM RAGGED EDGES, CRACKS SCALES OR BLISTERS AND SHALL BE CLEAN-CUT. SIGNS SHALL BE PACKED IN SUCH MANNER AS TO PREVENT DAMAGE OR DEFACEMENT DURING SHIPMENT OR STORAGE.
13. PERMANENT TRAFFIC CONTROL AND SNS: PERMANENT TRAFFIC CONTROL AND SNS SHALL BE MEASURED AND PAID FOR AT THE LUMP SUM PRICE FOR SIGNING. THE PAYMENT AS SET FORTH ABOVE SHALL BE CONSIDERED FULL COMPENSATION FOR ALL EXCAVATION, BACKFILLING, POSTS, ANCHORS, FASTENERS, MATERIALS, LABOR, TOOLS AND INCIDENTALS NECESSARY TO COMPLETE THIS WORK.

CITY OF WICHITA
PUBLIC WORKS & UTILITIES
ENGINEERING DIVISION

SIGN DETAILS

TRAFFIC ENGINEER
PAUL GUNZELMAN, P.E.

PROJECT NUMBER	OCA NUMBER	DATE
472-84841	760621	10/2012

CITY ENGINEER'S OFFICE
CITY HALL - SEVENTH FLOOR
455 NORTH MAIN STREET
WICHITA, KANSAS 67202-1620
(316) 268-4501

SHEET
90 of 130

TR-106

Plotted By: drp Date: 7/16/2014 3:4:6 PM
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GENERAL NOTES

THE SEQUENCE SHOWN IS INTENDED AS A GUIDE FOR MAJOR ITEMS ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF ALL MINOR ITEMS. VARIATIONS TO THE SEQUENCE SHOWN MAY BE USED AS APPROVED BY THE ENGINEER. REGARDLESS OF THE SEQUENCE USED, TRAFFIC HANDLING SHALL BE ESSENTIALLY IN ACCORDANCE WITH THAT SHOWN. PART OF THE WORK SHOWN FOR A SPECIFIC STAGE MAY BE ACCOMPLISHED IN OTHER STAGES. MAJOR WORK NOT CONSTRUCTED WITHIN THE INDICATED STAGE SHALL BE APPROVED BY THE ENGINEER. TRAFFIC CONTROL FOR CONSTRUCTION ACTIVITIES SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) FOR STREETS AND HIGHWAYS (LATEST EDITION).

TEMPORARY STRIPING SHOWN ON NEW ROADWAYS BEING USED TO CARRY DIVERTED TRAFFIC DURING CONSTRUCTION SHALL BE APPLIED BEFORE PLACEMENT OF THE FINAL SURFACE COURSE. PRIOR TO FINAL OPENING, THE SURFACE COURSE SHALL BE PLACED COVERING THE TEMPORARY STRIPING.

TEMPORARY PAVEMENT SHALL BE AC TEMPORARY PAVEMENT 6". THIS BID ITEM SHALL INCLUDE CONSTRUCTION OF PAVEMENT INCLUDING SUBGRADE PREPARATION, AC PLACEMENT, ALL COSTS INCURRED TO PROPERLY MAINTAIN THE TEMPORARY PAVEMENT WHILE IN USE, REMOVAL AND DISPOSAL OF TEMPORARY PAVEMENT WHEN NO LONGER NEEDED.

ADDITIONAL SIGNS, BARRICADES, AND ANY OTHER TRAFFIC CONTROL DEVICES NOT SHOWN ON THE PLANS WHICH MAY BE DEEMED NECESSARY BY THE ENGINEER FOR TRAFFIC CONTROL DURING CONSTRUCTION WILL NOT BE MEASURED OR PAID FOR SEPARATELY, BUT SHALL BE SUBSIDIARY TO THE CONTRACT LUMP SUM PRICE BID FOR "TRAFFIC CONTROL".

THE CONTRACTOR SHALL PROVIDE ALL WEATHER ACCESS DRIVES TO ALL PROPERTIES ADJACENT TO THE PROJECT. ALL COSTS ASSOCIATED WITH PROVIDING ACCESS TO ADJACENT PROPERTIES DURING CONSTRUCTION SHALL BE INCLUDED IN THE CONTRACT LUMP SUM PRICE BID FOR "TRAFFIC CONTROL".

IN THE EVENT THAT CITY OF WICHITA PROJECT 472-84840 (US-54 NORTH FRONTAGE ROAD - 151ST ST. WEST TO 135TH ST. WEST) IS CONSTRUCTED CONCURRENT WITH THIS PROJECT, THE CONTRACTOR SHALL COORDINATE ALL TRAFFIC HANDLING WITH THE CONTRACTOR FOR PROJECT 472-84840.

STAGE	MAJOR CONSTRUCTION ITEMS	HANDLING OF TRAFFIC	REMARKS
1	Construct US-54 South Frontage Road including S. Bd. 135th St. West ditch improvements.	Existing traffic configuration to be maintained on 135th St. West	Follow Traffic Control Standard TE720 for work performed on the shoulder when performing work along 135th St. West
5	Final seeding, marking and other miscellaneous items.	Open Frontage Road to traffic upon completion.	

No.	Revision	By	Date

CITY OF WICHITA

TRAFFIC HANDLING AND CONSTRUCTION SEQUENCE

PROJECT NO. 472-84841 SEDGWICK CO.

PEC
PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
303 SOUTH TOPEKA WICHITA, KS 67202
316-262-2691 www.pec1.com

Designed by	CKC	Job No.	08313
Drawn by	DRP	Date	June, 2014

Sht. 91 of 130

Plotted By: drp Date: 7/14/2014 11:43:03 AM
FILE: I:\2008\08313\Frontage Rd South\Traffic\08313-ConstSeq-South.dgn

Maple St.

167th St. W.

151st St. W.

135th St. W.

US-54

US-54 South Frontage Rd.

500'

500'

500'

W20-1 (48"x48")

ROAD WORK AHEAD

WICHITA WORKS

KANSAS DEPARTMENT OF TRANSPORTATION

R11-2* (48"x30")

ROAD CLOSED

W1-7 (48"x24")

K620-2 (48"x24")

END ROAD WORK

Pawnee Ave.

LEGEND

Type III Barricade

* Sign to be mounted on Type III Barricade

No.	Revision	By	Date

CITY OF WICHITA

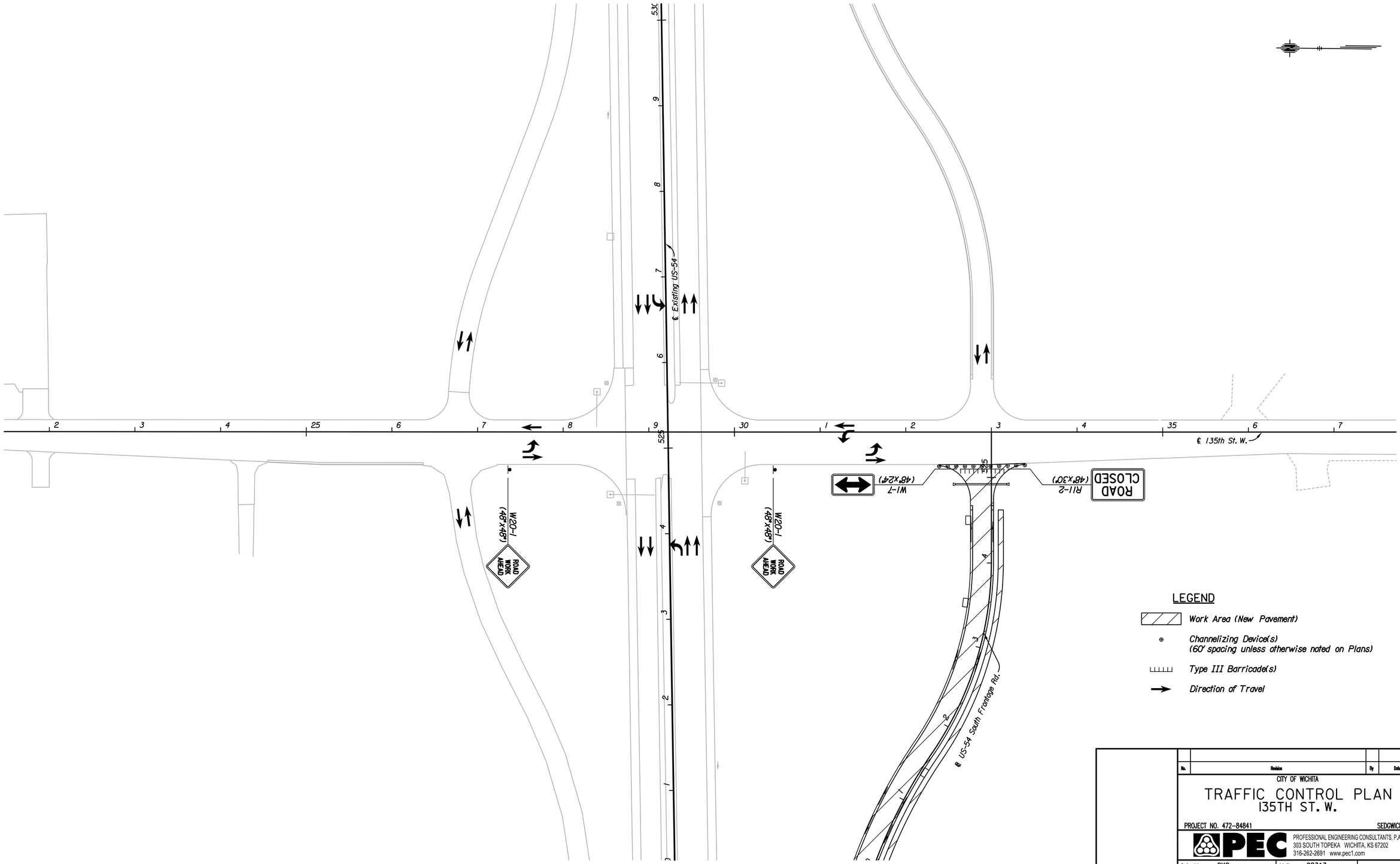
TRAFFIC CONTROL PLAN
US-54 SOUTH FRONTAGE ROAD

PROJECT NO. 472-84841 SEDGWICK CO.

PEC PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
303 SOUTH TOPEKA WICHITA, KS 67202
316-262-2691 www.pec1.com

Designed by	CKC	Job No.	08313	SN. 92 of 130
Drawn by	DRP	Date	June, 2014	

Plotted By: drp Date: 7/14/2014 11:43:04 AM
FILE: i:\2008\08313\Frontage Rd South\Traffic\08313-TCP.dgn



No.	Revision	By	Date

CITY OF WICHITA

TRAFFIC CONTROL PLAN
135TH ST. W.

PROJECT NO. 472-84841 SEDGWICK CO.

PEC PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
303 SOUTH TOPEKA WICHITA, KS 67202
316-262-2691 www.pec1.com

Designed by	CKC	Job No.	08313
Drawn by	DRP	Date	June, 2014

Sht. 93 of 130

Plotted By: drp Date: 7/14/2014 11:43:04 AM
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STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	KA-2285-01	2014	94	130

IBS REPLACEMENT MODULES	
REPLACEMENT MODULE SIZES	QUANTITY
REPLACEMENT MODULES (F2OO)	
REPLACEMENT MODULES (F4OO)	
REPLACEMENT MODULES (F7OO)	
REPLACEMENT MODULES (F14OO)	
REPLACEMENT MODULES (F21O0)	

SUMMARY OF TRAFFIC CONTROL DEVICES (EACH)

WORK ZONE SIGN (SPECIAL)		
SIGN NO.	16.25 SQ.FT. & LESS	16.26 SQ.FT. & OVER

SUMMARY OF TRAFFIC CONTROL DEVICES (EACH PER DAY)

✳ QUANTITY MOST USED ON THE PROJECT AT ANY ONE TIME

WORK ZONE SIGNS ✳			
SIGN NO.	SIZE - SQ.FT.		
	0-9.25	9.26-16.25	16.26 & OVER
KG20-2	2		
R11-2		2	
W1-7	2		
W20-1		3	

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	KA 2285-01	2014	95	130

1. MUTCD COMPLIANCE:

ALL TEMPORARY TRAFFIC CONTROL DEVICES AND THEIR INSTALLATION AND MAINTENANCE SHALL COMPLY WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) FOR STREETS AND HIGHWAYS WHICH HAS BEEN ADOPTED BY THE SECRETARY OF TRANSPORTATION. WHENEVER THE TEMPORARY TRAFFIC CONTROL STANDARDS CONFLICT WITH THE MUTCD, THE STANDARDS SHALL GOVERN.

2. 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.

3. CLEAR ZONE:

ALL CONSTRUCTION EQUIPMENT (INCLUDING VEHICLES), MATERIALS, AND DEBRIS SHALL BE STORED OUT OF THE CLEAR ZONE. WHERE THIS CANNOT BE ACHIEVED, THE CONTRACTOR SHALL PLACE APPROPRIATE SIGNS, OBJECT IDENTIFIERS, AND/OR BARRICADES AS DESIGNATED BY THE ENGINEER. TEMPORARY TRAFFIC CONTROL DEVICES NEEDED FOR THIS CONDITION SHALL BE CONSIDERED SUBSIDIARY TO OTHER BID ITEMS.

4. MINIMUM LANE WIDTHS:

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.

5. FLAGGER:

A MINIMUM OF ONE FLAGGER SHALL BE STATIONED WITHIN EACH MULTI-LANE ROADWAY ACTIVITY AREA WHERE WORK IS IN A CLOSED LANE ADJACENT TO TRAFFIC AND NOT SEPARATED BY A CONCRETE SAFETY BARRIER SYSTEM.

6. PAVEMENT MARKING:

WHEN THE WORK WILL OCCUPY A LOCATION MORE THAN THREE DAYS, ALL CONFLICTING PAVEMENT MARKINGS SHALL BE REMOVED OR MASKED AND ALL TRANSITION TAPERS, CROSSOVERS, AND EDGE LINES ALONG CHANNELIZING DEVICES SHALL BE MARKED WITH SOLID 4" WIDE PAVEMENT MARKING.

7. FIRST MODULE OF IBS:

THE FIRST MODULE OF EACH INERTIAL BARRIER SYSTEM (IBS) SHALL HAVE A MINIMUM OF 2 SQ. FT. OF FLUORESCENT ORANGE ASTM TYPE IV SHEETING FACING TRAFFIC. EITHER A VERTICAL RECTANGLE OR DIAMOND SHAPE MAY BE USED.

8. PEDESTRIAN / BICYCLE SAFETY:

WORK ZONE SIGNS SHALL NOT INHIBIT PEDESTRIAN AND BICYCLE TRAFFIC ON SIDEWALKS OR OTHER AREAS DESIGNATED FOR PEDESTRIAN OR BICYCLE USE.

CONSIDERATION SHOULD BE MADE TO SEPARATE PEDESTRIAN AND 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 AND BICYCLISTS SHOULD BE APPROPRIATELY DIRECTED WITH ADVANCE SIGNING THAT ENCOURAGES THEM TO CROSS TO THE OPPOSITE SIDE OF THE ROADWAY. IN URBAN AND SUBURBAN AREAS WITH HIGH VEHICULAR TRAFFIC VOLUMES, THESE SIGNS SHOULD BE PLACED AT INTERSECTIONS (RATHER THAN MIDBLOCK LOCATIONS) SO THAT PEDESTRIANS AND BICYCLISTS ARE NOT CONFRONTED WITH MIDBLOCK WORK SITES THAT WILL INDUCE THEM TO ATTEMPT SKIRTING THE WORK SITE OR MAKING A MIDBLOCK CROSSING.

WHEN EXISTING PEDESTRIAN FACILITIES ARE DISRUPTED, CLOSED, OR RELOCATED, THE TEMPORARY FACILITIES SHALL BE DETECTABLE AND INCLUDE ACCESSIBILITY FEATURES CONSISTENT WITH THE FEATURES PRESENT IN THE EXISTING PEDESTRIAN FACILITY.

9. CHANGED STOP CONDITIONS:

ATTACH TWO FLUORESCENT RED-ORANGE FLAGS AND A RED TYPE "B" HIGH INTENSITY WARNING LIGHT TO ANY STOP SIGN THAT CREATES A NEW STOP CONDITION OR MOVES THE STOP CONDITION TO A NEW LOCATION. LEAVE FLAGS AND LIGHTS IN PLACE FOR AT LEAST THE FIRST 30 DAYS. INSTALL W3-1 (SYMBOLIC STOP AHEAD) SIGN IN ADVANCE OF STOP SIGN IF STOP SIGN IS NOT VISIBLE FOR A MINIMUM OF DISTANCE 'A' (SEE CHART ON TE710) OR IF STOP CONDITION IS MOVED TO LESS THAN DISTANCE 'A' FROM AN EXISTING STOP AHEAD SIGN.

10. LUMP SUM BIDDING:

WHEN TRAFFIC CONTROL IS BID LUMP SUM, ADDITIONAL DEVICES WILL BE PAID FOR AS EXTRA WORK.

11. NIGHTTIME LIGHTING:

WHEN NIGHTTIME WORK IS REQUIRED, FLOODLIGHTS SHOULD BE USED TO ILLUMINATE FLAGGER STATIONS, EQUIPMENT CROSSINGS, AND OTHER AREAS WHERE EXISTING LIGHTING IS NOT ADEQUATE FOR THE WORK TO BE PERFORMED SAFELY.

IN NO CASE SHALL FLOODLIGHTS BE PERMITTED TO CREATE A DISABLING GLARE FOR THE DRIVER. THE ADEQUACY OF THE FLOODLIGHT PLACEMENT AND ELIMINATION OF POTENTIAL GLARE SHOULD BE CHECKED BY DRIVING THROUGH THE PROJECT.

12. NCHRP REPORT 350 CRASHWORTHY REQUIREMENTS:

TRAFFIC CONTROL DEVICES SHALL MEET THE EVALUATION CRITERIA IN NCHRP REPORT 350 OR IN MASH REPORT 2009 AS SUPPLEMENTED BY FHWA MEMORANDUM "IDENTIFYING ACCEPTABLE HIGHWAY SAFETY FEATURES," DATED JULY 25, 1997. AVAILABLE ON THE INTERNET AT http://safety.fhwa.dot.gov/roadway_dept/policy_guide/road_hardware/policy_memo/

ANY DEVICE NOT ADDRESSED BY THE TE STANDARDS MAY BE APPROVED ON A CASE BY CASE BASIS BY THE ENGINEER. THE DEVICE SHALL BE ACCOMPANIED BY AND INSTALLED ACCORDING TO MASH REPORT 2009. ANY DEVICE ACCEPTED PRIOR TO THE ADOPTION OF MASH REPORT 2009 USING CRITERIA FROM NCHRP REPORT 350 MAY REMAIN IN PLACE AND CONTINUE TO BE USED. ANY TRAFFIC CONTROL DEVICE ACCEPTED USING NCHRP REPORT 350 CRITERIA IS NOT REQUIRED TO BE TESTED UNDER MASH REPORT 2009. HOWEVER, NEW TRAFFIC CONTROL DEVICES NOT PREVIOUSLY EVALUATED MUST UTILIZE MASH REPORT 2009 FOR TESTING AND EVALUATION.

THE CONTRACTOR SHALL:

1) PROVIDE TO THE ENGINEER A COPY OF THE MANUFACTURER'S SELF-CERTIFICATION THAT ANY CATEGORY 1 (i.e. - PLASTIC CONICAL DELINEATORS, TUBULAR MARKERS, DRUMS WITHOUT ATTACHMENTS) AND CATEGORY 2 (i.e. - PORTABLE SIGN STANDS (WITH SIGNS), TYPE II AND III BARRICADES, AND VERTICAL PANELS) DEVICES USED ON THE PROJECT ARE NCHRP REPORT 350 OR MASH REPORT 2009 COMPLIANT.

2) PROVIDE TO THE ENGINEER A COPY OF THE ENTIRE FHWA ACCEPTANCE LETTER (WZ-xxx) FOR ANY CATEGORY 2 DEVICE (i.e. - PORTABLE SIGN STANDS (WITH SIGNS), TYPE II AND III BARRICADES, AND VERTICAL PANELS) USED ON THE PROJECT. WORK ZONE FHWA ACCEPTANCE LETTERS (WZ-xxx) ARE AVAILABLE ON THE INTERNET AT: http://safety.fhwa.dot.gov/roadway_dept/policy_guide/road_hardware/wzd/

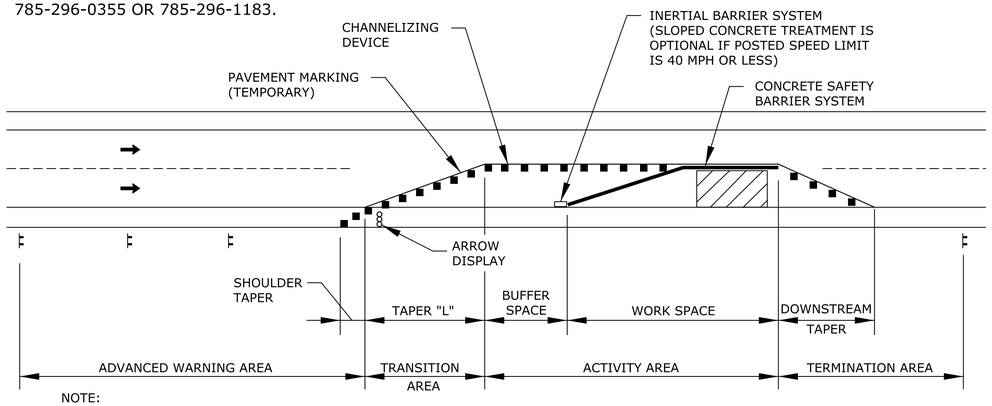
3) CERTIFY THAT THE TRUCK MOUNTED ATTENUATORS (TMA'S) (WHICH ARE DEFINED AS CATEGORY 3 DEVICES BY THE FHWA MEMORANDUM) MEET CURRENT CRASHWORTHY SPECIFICATIONS AS DEFINED ABOVE AND INCLUDE A COPY OF THE ENTIRE FHWA ACCEPTANCE LETTER. ALL CATEGORY 1 & 2 DEVICES SHALL BE NCHRP REPORT 350 OR MASH REPORT 2009 COMPLIANT.

13. LEAD IN CHANNELIZING DEVICES ON CENTERLINE:

TEMPORARY RUMBLE STRIPS MAY BE USED IN LIEU OF LEAD IN CENTERLINE CHANNELIZING DEVICES WHEN THE ROADWAY IS LESS THAN OR EQUAL TO 30' (FEET) INCLUDING PAVED SHOULDERS. WHEN EXTENUATING CIRCUMSTANCES EXIST, THE AREA ENGINEER MAY ELECT TO ELIMINATE BOTH THE LEAD IN CHANNELIZERS AND THE RUMBLE STRIPS.

14. TEMPORARY RUMBLE STRIPS:

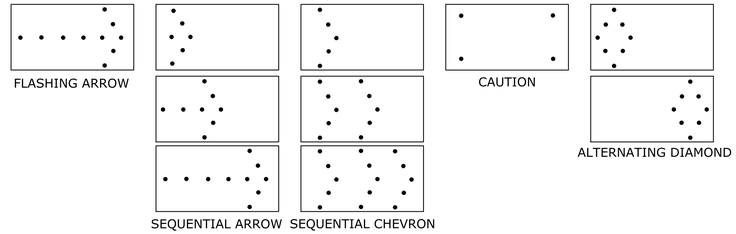
ALTERNATIVE TEMPORARY RUMBLE STRIP OPTIONS MAY BE AVAILABLE. PLEASE CONTACT THE TEMPORARY TRAFFIC CONTROL UNIT FOR MORE INFORMATION AT 785-296-0355 OR 785-296-1183.



NOTE:
REFER TO STD. TE702 FOR TAPER "L" FORMULA.

TYPICAL WORK ZONE COMPONENTS

ARROW DISPLAYS



ARROW DISPLAY ELEMENTS SHALL BE CAPABLE OF A MINIMUM 50 PERCENT DIMMING FROM THEIR FULL-RATED LAMP VOLTAGE. FULL LAMP VOLTAGE SHOULD BE USED DURING THE DAY AND DIMMED MODE SHALL BE USED AT NIGHT. FOR SHOULDER WORK, ROADSIDE WORK NEAR THE SHOULDER, BLOCKING THE SHOULDER, OR FOR TEMPORARY CLOSING ONE LANE ON A TWO-LANE, TWO-WAY ROADWAY, AN ARROW PANEL SHALL BE USED ONLY IN THE CAUTION MODE.

BUFFER SPACE

SPEED (MPH) ✳	*20*	*25*	*30*	*35*	*40*	*45*	*50*	*55*	*60*	*65*	*70*	*75*
LENGTH (ft)	*115*	*155*	*200*	*250*	*305*	*360*	*425*	*495*	*570*	*645*	*730*	*820*

✳ POSTED SPEED PRIOR TO WORK STARTING

NEITHER WORK ACTIVITY NOR STORAGE OF EQUIPMENT, VEHICLES, OR MATERIAL SHOULD OCCUR IN THE BUFFER SPACE. WHEN A PROTECTION VEHICLE IS PLACED IN ADVANCE OF THE WORK SPACE, ONLY THE SPACE UPSTREAM OF THE VEHICLE CONSTITUTES THE BUFFER SPACE.

IF TEMPORARY CONCRETE SAFETY BARRIER SYSTEM IS USED TO SEPARATE APPROACHING TRAFFIC FROM THE WORK SPACE, THE BARRIER SYSTEM SHALL BE CONSIDERED PART OF THE ACTIVITY AREA. A FULL LANE WIDTH SHOULD BE AVAILABLE THROUGHOUT THE LENGTH OF THE BUFFER SPACE. SEE TYPICAL WORK ZONE COMPONENTS.

NO.	DATE	REVISIONS	BY	APP'D
3	10/16/12	Removed Note 13. Added Alternating Diamonds	J.A.M.	K.P.
2	10/4/11	Modified Notes 9,12 & 15. Added Note 15	J.A.M.	K.P.
1	11/30/09	Added Note 14	J.A.M.	A.A.A.

KANSAS DEPARTMENT OF TRANSPORTATION

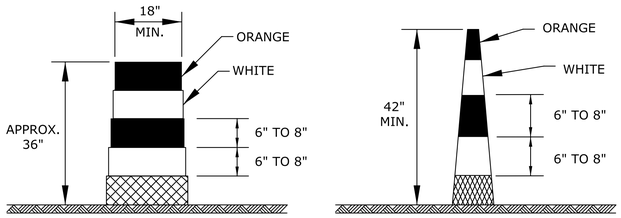
GENERAL TRAFFIC CONTROL

TE700

FHWA APPROVAL		10/16/12	APP'D	Kristina Pyle	
DESIGNED	B.A.H.	DETAILED	B.A.H.	QUANTITIES	TRACED
DESIGN CK.		DETAIL CK.		QUAN. CK.	TRACE CK.

Plotted : 14-JUL-2014 11:48
Drawn By : drp
File : I:\2008\08313\Frontage Rd South\Standards\08313-te700.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	KA 2285-01	2014	96	130

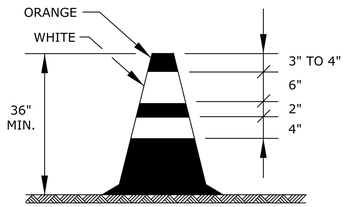


DRUM

CONICAL DELINEATOR

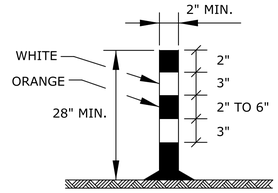
DRUMS AND CONICAL DELINEATORS SHALL HAVE AT LEAST TWO ORANGE AND TWO WHITE 6" TO 8" WIDE RETROREFLECTIVE STRIPES. ADDITIONAL STRIPES MAY BE NON-RETROREFLECTIVE. IF THERE ARE NON-RETROREFLECTIVE SPACES BETWEEN ADJACENT STRIPES, THEY SHALL BE NO MORE THAN 3" WIDE.

ALL RETROREFLECTIVE STRIPES ON DRUMS SHALL BE ASTM TYPE III SHEETING. THE WHITE STRIPES ON CONICAL DELINEATORS SHALL BE ASTM TYPE III SHEETING. ORANGE STRIPES ON ALL CONICAL DELINEATORS SHALL BE FLUORESCENT ORANGE ASTM TYPE IV SHEETING.



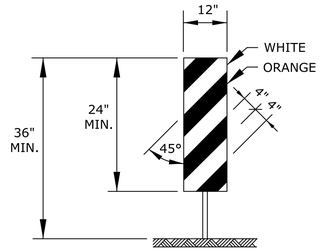
TRAFFIC CONE

TRAFFIC CONES MAY BE USED AS CHANNELIZING DEVICES FOR DAYTIME OPERATIONS ONLY. THEY WILL NOT BE PAID FOR SEPARATELY, BUT WILL BE SUBSIDIARY TO OTHER TRAFFIC CONTROL BID ITEMS. THE ENGINEER MAY REQUIRE THAT TRAFFIC CONES BE SUPPLEMENTED BY OTHER TRAFFIC CONTROL DEVICES IN CERTAIN SITUATIONS.



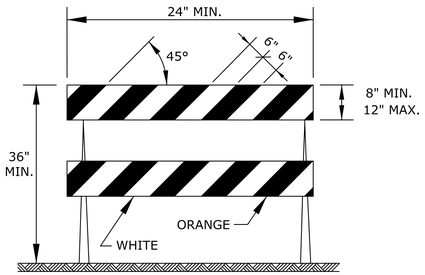
TUBULAR MARKER

THE TWO WHITE RETROREFLECTIVE STRIPES SHALL BE ASTM TYPE III SHEETING. STRIPING AS SHOWN FOR UP TO 42".



VERTICAL PANEL

THE ENTIRE AREA OF VERTICAL PANELS, BOTH FRONT AND BACK, SHALL HAVE ASTM TYPE III SHEETING. THE STRIPES SHALL SLOPE DOWNWARD TO THE TRAFFIC SIDE FOR CHANNELIZATION.

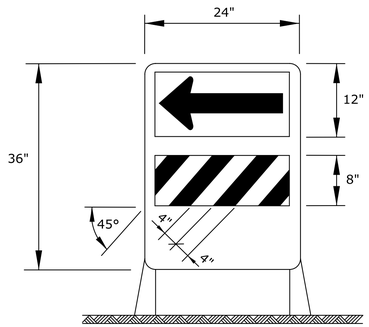


TYPE II BARRICADE

FOR RAILS LESS THAN 36" LONG, 4" WIDE STRIPES MAY BE USED.

THE ENTIRE AREA OF BARRICADE RAILS, BOTH FRONT AND BACK, SHALL BE ASTM TYPE III SHEETING.

THE STRIPES SHALL SLOPE DOWNWARD TO THE TRAFFIC SIDE FOR CHANNELIZATION.



DIRECTION INDICATOR BARRICADE

THE ARROW PANEL SHALL BE BLACK ON FLUORESCENT ORANGE ASTM TYPE IV SHEETING. THE STRIPES SHALL BE ORANGE AND WHITE ASTM TYPE III SHEETING SLOPING DOWNWARD IN THE DIRECTION TRAFFIC IS TO PASS.

THE DIRECTION INDICATOR BARRICADE SHALL BE USED IN SERIES TO DIRECT THE MOTORIST INTO THE INTENDED LANE OF TRAVEL.

THE ARROW PANEL SHOULD NOT BE VISIBLE TO OPPOSING TRAFFIC.

TAPER FORMULAS:

L = WS FOR SPEEDS OF 45 MPH OR MORE

$L = WS^2/60$ FOR SPEEDS OF 40 MPH OR LESS

WHERE: L = MINIMUM LENGTH OF TAPER IN FEET
S = NUMERICAL VALUE OF POSTED SPEED PRIOR TO WORK STARTING IN MPH
W = WIDTH OF OFFSET IN FEET

CHANNELIZER PLACEMENT:

(A) 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.

(B) 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.

(C) CHANNELIZING DEVICES SHALL BE PLACED FOR OPTIMUM VISIBILITY, NORMALLY AT RIGHT ANGLES TO THE TRAFFIC FLOW.

(D) CHANNELIZING DEVICES PLACED ALONG SHOULDER EDGES OR IN DROPOFFS SHALL HAVE A MINIMUM OF 24" FROM THE TOP OF THE CHANNELIZING DEVICE TO THE TOP OF THE PAVEMENT.

ITEM / LOCATION		CROSS-OVERS	SHOOFLY DIVERSIONS	TANGENTS	TAPERS	RAMPS	HEAD TO HEAD	OBJECT IDENTIFIER	LEAD IN DEVICES	GORES
PORTABLE										
	DRUMS	YES	YES	YES	YES	YES	(1)	YES	YES	YES
	CONICAL DELINEATORS	YES	YES	YES	YES	YES	(1)	YES	YES	YES
	VERTICAL PANELS	(2)	(2)	(2)	(2)	(2)	(1,2)	YES	(2)	(2)
	DIRECTION INDICATOR BARRICADE	NO	NO	NO	YES	NO	NO	NO	NO	NO
	TYPE II BARRICADE	(2)	(2)	(2)	(2)	NO	NO	YES	NO	NO
FIXED										
	TUBULAR MARKERS	(3)	(3)	(3)	NO	(3)	YES	NO	YES	YES
	VERTICAL PANELS	(3)	(3)	(3)	(3)	(3)	(3)	YES	(2,3)	(2)

(1) NOT ALLOWED ON CENTERLINE DELINEATION ALONG FREEWAYS OR EXPRESSWAYS.

(2) THE STRIPES SHALL SLOPE DOWNWARD TO THE TRAFFIC SIDE FOR CHANNELIZATION.

(3) MAY BE USED UPON THE APPROVAL OF THE ENGINEER.

NO.	DATE	REVISIONS	BY	APP'D
3	10/16/12	Added Lead In Devices Into Matrix Table	J.A.M.	K.P.
2	10/4/11	Added Dimension To Tubular Marker Detail	J.A.M.	K.P.
1	4/20/09	Channelizer Placement & Traffic Cone Detail	J.A.M.	A.A.A.

KANSAS DEPARTMENT OF TRANSPORTATION

CHANNELIZING DEVICES

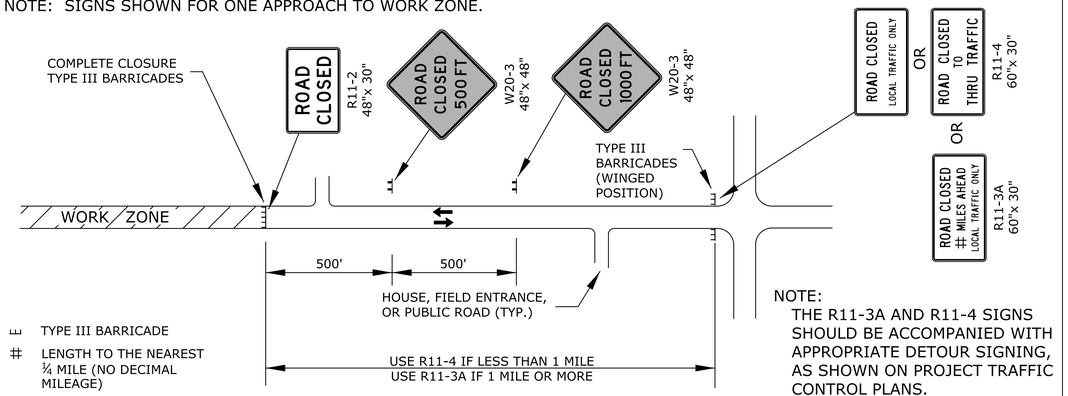
TE702

FHWA APPROVAL		10/16/12	APP'D	Kristina Pyle	
DESIGNED	L.E.R.	DETAILED	B.A.H.	QUANTITIES	TRACED
DESIGN CK.		DETAIL CK.		QUAN. CK.	TRACE CK.

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File : I:\2008\08313\Frontage Rd South\Standards\08313-te702.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	KA 2285-01	2014	97	130

NOTE: SIGNS SHOWN FOR ONE APPROACH TO WORK ZONE.



NOTE:
THE R11-3A AND R11-4 SIGNS SHOULD BE ACCOMPANIED WITH APPROPRIATE DETOUR SIGNING, AS SHOWN ON PROJECT TRAFFIC CONTROL PLANS.

FIGURE 1: TYPICAL SIGNING FOR ROAD CLOSURE

NOTE: SIGNS SHOWN FOR ONE APPROACH TO INTERSECTION (WORK ZONE).

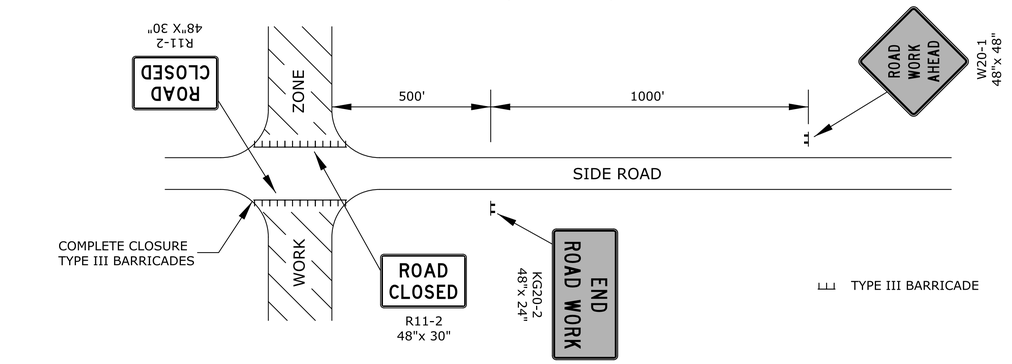


FIGURE 2: TYPICAL SIGNING FOR SIDE ROAD OPEN

NOTE: SIGNS SHOWN FOR ONE APPROACH TO INTERSECTION (WORK ZONE).

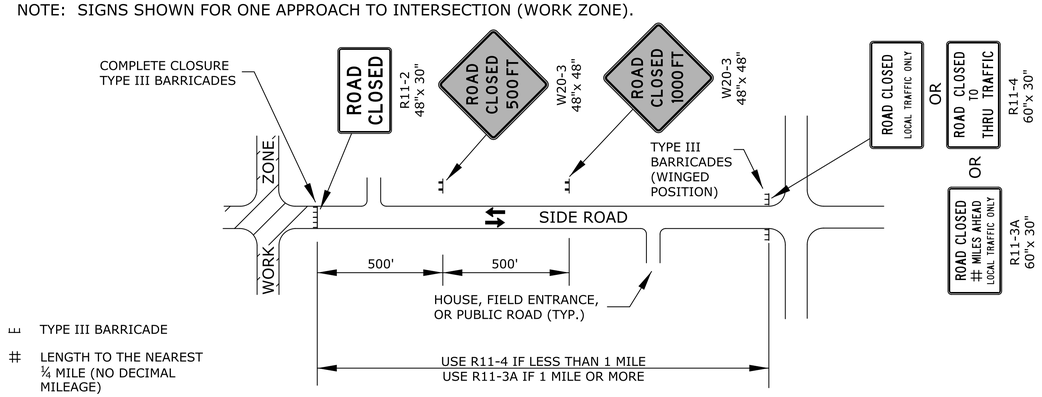


FIGURE 3: TYPICAL SIGNING FOR SIDE ROAD CLOSED

NOTE: SIGNS SHOWN FOR ONE APPROACH TO WORK ZONE.

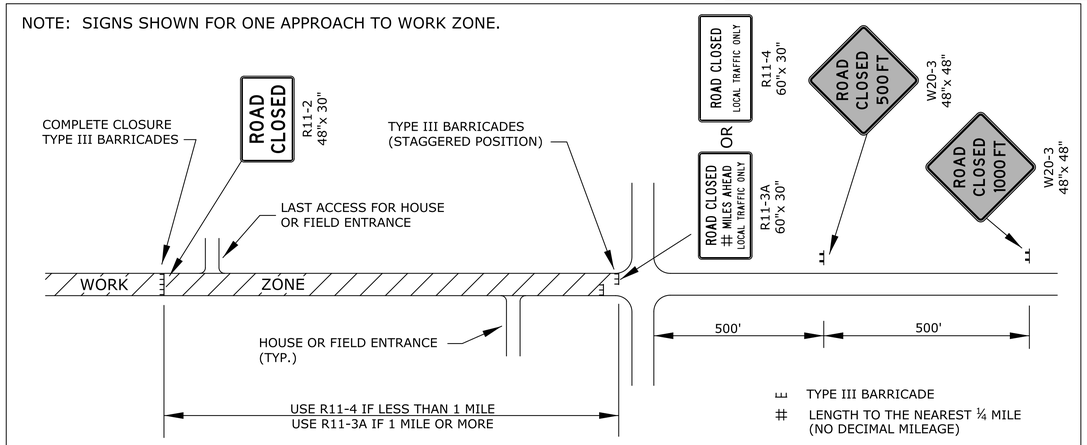


FIGURE 4: TYPICAL SIGNING FOR ROAD CLOSURE - LOCAL TRAFFIC ACCESS

NOTES:

1. SIGNS:

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.

2. BARRICADE PLACEMENT:

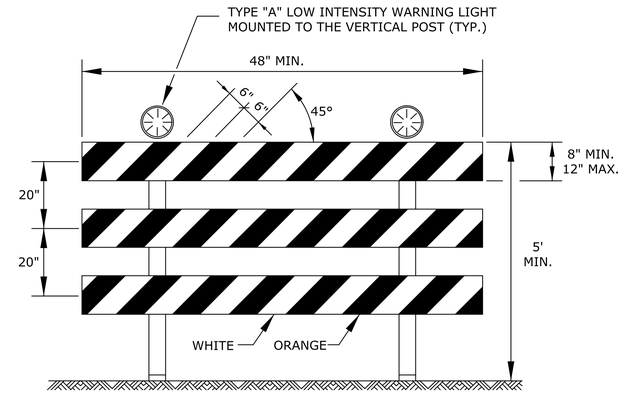
A) COMPLETE ROAD CLOSURE

WHEN A ROADWAY IS CLOSED, TYPE III BARRICADES SHALL BE PLACED END-TO-END TO COMPLETELY COVER THE ROADWAY AND SHOULDERS. WHEN ACCESS MUST BE ALLOWED FOR CONSTRUCTION OR OTHER OFFICIAL/GOVERNMENT VEHICLES, TYPE III BARRICADES SHALL BE LONGITUDINALLY STAGGERED FAR ENOUGH APART FROM ONE ANOTHER TO ALLOW SAFE PASSAGE OF VEHICLES AND MAINTAIN THE APPEARANCE OF A CLOSED ROADWAY. TYPE III BARRICADES SHALL BE REALIGNED AND PLACED END-TO-END TO DENY ANY ACCESS WHEN THE CONSTRUCTION ACTIVITY HAS CEASED FOR THE DAY.

B) ROAD CLOSED - LOCAL TRAFFIC

AS SHOWN IN FIGURE 4, WHEN LOCAL TRAFFIC MUST BE ALLOWED ACCESS INTO THE WORK ZONE, TYPE III BARRICADES SHALL BE LONGITUDINALLY STAGGERED TO MAINTAIN THE APPEARANCE OF A CLOSED ROADWAY. A SECOND LINE OF END-TO-END TYPE III BARRICADES SHALL BE PLACED JUST BEYOND THE LAST ACCESS POINT IN THE WORK ZONE, TO COMPLETELY CLOSE THE ROADWAY AS DESCRIBED IN NOTE 2-A.

AS SHOWN IN FIGURE 1 AND FIGURE 3, AT THE POINT WHERE THRU TRAFFIC MUST DETOUR AND LOCAL TRAFFIC CAN PROCEED TO THE LOCATION WHERE THE ROADWAY IS COMPLETELY CLOSED, THE R11-3A (ROAD CLOSED # MILES AHEAD LOCAL TRAFFIC ONLY) OR R11-4 (ROAD CLOSED LOCAL TRAFFIC ONLY OR ROAD CLOSED TO THRU TRAFFIC) SIGN SHALL BE USED WITH TYPE III BARRICADES (WINGED POSITION), PLACED ON THE SHOULDERS OF ROADWAY.



TYPE III BARRICADE WITH LIGHTS

THE ENTIRE AREA OF BARRICADE RAILS, BOTH FRONT AND BACK, SHALL HAVE ASTM TYPE III SHEETING.

THE STRIPES SHALL SLOPE DOWNWARD TO THE SIDE TRAFFIC IS TO PROCEED OR TOWARD THE CENTER OF THE ROADWAY AT ROAD CLOSURES.

APPROVED SIGNS MOUNTED ON TYPE III BARRICADES SHOULD NOT COVER MORE THAN 50% OF THE TOP TWO RAILS OR 33% OF THE TOTAL AREA OF THE THREE RAILS.

WHEN BARRICADES ARE PLACED END-TO-END OR STAGGERED, A TYPE "A" LOW INTENSITY WARNING LIGHT SHALL BE MOUNTED TO THE VERTICAL POST NEAR EACH OUTSIDE CORNER OF THE END BARRICADES.

NO.	DATE	REVISIONS	BY	APP'D
3	10/16/12	Modified Type III Barricade Note	J.A.M.	K.P.
2	8/8/07	Added Position To Type III Barricade	M.B.	A.A.A.
1	12/29/05	Note #1 Modified	M.B.	A.A.A.

KANSAS DEPARTMENT OF TRANSPORTATION

TYPICAL TRAFFIC CONTROL
ROAD CLOSURES

TE704

FHWA APPROVAL		10/16/12	APP'D	Kristina Pyle	
DESIGNED	B.A.H.	DETAILED	B.A.H.	QUANTITIES	TRACED
DESIGN CK.		DETAIL CK.		QUAN. CK.	TRACE CK.

Drawn By : drp
Plotted : 14-JUL-2014 11:48
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STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	KA 2285-01	2014	98	130

SIGN LAYOUT INFORMATION



KG20-2

STD. SIZE EXPWY/FREEWAY
6" C
48"x 24"



KG20-5

STD. SIZE EXPWY/FREEWAY
6" C
48"x 24"



KM4-2O

STD. SIZE	EXPWY/FREEWAY
3" C	6" C
24"x 6"	48"x 12"



W7-3a

MILEAGE TO BE DETERMINED BY THE ENGINEER.



W8-11

STD. SIZE EXPWY/FREEWAY
8" D
48"x 48"



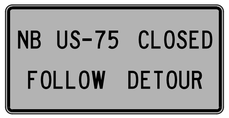
W8-17

STD. SIZE EXPWY/FREEWAY
48"x 48"



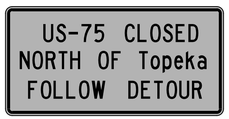
W8-17P
(OPTIONAL)

STD. SIZE EXPWY/FREEWAY
30"x 24"



SP-01
(SPECIAL SIGN)

STD. SIZE	EXPWY/FREEWAY
6" C	10" D



SP-02
(SPECIAL SIGN)

STD. SIZE	EXPWY/FREEWAY
UPPERCASE: 6" C	UPPERCASE: 10" D
LOWERCASE: 4.5" C	LOWERCASE: 8" D

ALL CITY NAMES AND STREET NAMES ON SPECIAL SIGNS AND DESTINATION SIGNS MUST HAVE UPPER AND LOWER CASE LETTERS.

ALL SIGNS SHALL BE BLACK ON ORANGE RETROREFLECTIVE SHEETING.

GENERAL NOTES

1. MAINTENANCE:

THE CONTRACTOR SHALL MAINTAIN ALL SIGNS AND DEVICES IN AN UPRIGHT POSITION. THE CONTRACTOR SHALL CLEAN OR REPLACE ANY DAMAGED OR ILLEGIBLE SIGN OR DEVICE AS DIRECTED BY THE ENGINEER.

2. EXISTING SIGNS:

IF EXISTING SIGNS THAT ARE TO REMAIN (WHETHER DENOTED ON THE PLANS OR NOT) INTERFERE WITH CONSTRUCTION WORK, THE CONTRACTOR SHALL REMOVE, STORE, AND RESET THE SIGNS. THIS SHALL BE SUBSIDIARY TO OTHER TRAFFIC CONTROL BID ITEMS. SIGNING DAMAGED BY THE CONTRACTOR SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

3. CONFLICTING SIGNS, SIGNS NOT IN USE, AND TRAFFIC SIGNALS:

SIGNS AND TRAFFIC SIGNALS THAT ARE IN CONFLICT WITH THE TRAFFIC CONTROL PLAN OR DO NOT APPLY TO THE TRAFFIC OPERATIONS SHALL BE IMMEDIATELY REMOVED, TURNED SO NOT VISIBLE TO TRAFFIC FROM ANY DIRECTION, OR COMPLETELY COVERED WITH ADEQUATE OPAQUE BREATHABLE MATERIAL. TAPE SHALL NOT BE APPLIED TO THE FACE OF THE SIGN.

4. PORTABLE AND POST MOUNTED SIGNS:

TEMPORARY TRAFFIC CONTROL SIGNS THAT ARE ANTICIPATED TO REMAIN IN PLACE FOR 3 DAYS OR LESS ARE CONSIDERED "PORTABLE." PORTABLE SIGNS SHALL BE MOUNTED ON AN APPROVED SUPPORT AT A MINIMUM HEIGHT OF 12" ABOVE THE TRAVELED WAY. TRAFFIC CONTROL SIGNS IN PLACE FOR OVER 3 DAYS ARE REQUIRED TO BE MOUNTED ON APPROVED POSTS. A MINIMUM OF 42" OF THE APPROVED POST MUST BE BELOW THE GROUND SURFACE WITH ADEQUATE BACKFILL AND COMPACTION. ALL POSTS AT MINIMUM SHALL EXTEND TO THE TOP EDGE OF THE SIGN AND NO GREATER THAN 6" ABOVE THE SIGN.

WHEN THE SIGN WIDTH IS EQUAL TO OR GREATER THAN 9', THREE OR MORE WOOD POSTS MAY BE USED WITH A MINIMUM OF 4' BETWEEN THE CENTERLINE OF EACH POST. ALL SIGNS LESS THAN 9' IN WIDTH SHALL USE A MAXIMUM OF TWO WOOD POSTS.

"ROLL-UP" SIGNS MAY BE USED FOR PORTABLE WARNING SIGNS. THEY MUST BE FLUORESCENT ORANGE ASTM TYPE IV SIGNS OF OPAQUE MATERIAL. MESH SIGNS ARE NOT ALLOWED.

IN THE CASE OF HITTING ROCK WHEN DRIVING POSTS
1. SHIFT THE SIGN LOCATION. DO NOT VIOLATE MINIMUM SIGN SPACING.
2. WITH THE ENGINEER'S APPROVAL, USE ACCEPTABLE ALTERNATIVE SIGN STANDS.

5. SHEETING:

ALL ORANGE SIGNS SHALL HAVE FLUORESCENT ORANGE ASTM TYPE IV SHEETING. ALL OTHER SIGNS SHALL HAVE ASTM TYPE III SHEETING OF STANDARD COLORS.

6. SIGNS INVOLVING SPEEDS:

THE W3-5 (SPEED REDUCTION) SHOULD BE USED ONLY IF THE ENGINEER DETERMINES THAT A REDUCED SPEED IS REQUIRED ON THE PROJECT.

THE KM4-20 (WORK ZONE) PLAQUE SHALL BE PLACED ABOVE ALL SPEED LIMIT SIGNS, (R2-1), EXISTING AND TEMPORARY. MOUNT THE WORK ZONE PLAQUES TO THE POST. DO NOT OVERLAP THE R2-1 AND KM4-20 SIGNS.

FOR SPEEDS OF 30 MPH OR LESS, THE W1-1(TURN) OR W1-3(REVERSE TURN) SHOULD BE USED. FOR SPEEDS OF 35 MPH OR MORE, THE W1-2(CURVE) OR W1-4(REVERSE CURVE) SHOULD BE USED. THE W13-1(MPH) IS TO BE ELIMINATED IF THE ADVISORY SPEED IS WITHIN 5 MPH OF THE SPEED LIMIT.

7. SIGNS CONTROLLING WORK ZONE:

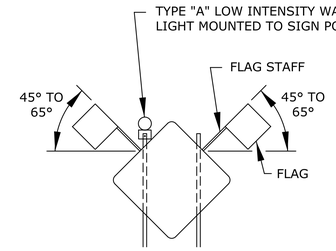
THE KG20-2(END ROAD WORK) SHOULD BE PLACED 500' FROM THE END OF THE ACTUAL WORK SPACE, NOT NECESSARILY AT THE EXTREME LIMITS OF THE PROJECT. THE KG20-2 SHOULD BE MOUNTED ON TWO POSTS. THE KG20-2 MAY BE MOUNTED ON ONE POST IF IN URBAN AREAS WHERE UTILITIES ARE A PROBLEM AND WIND LOADS ARE NOT AN ISSUE.

WHERE TWO WORK ZONES ARE LESS THAN 1 MILE APART IN RURAL AREAS OR ¼ MILE APART IN URBAN AREAS, THE KG20-2(END ROAD WORK) FOR THE FIRST WORK ZONE AND THE W20-1(ROAD WORK) FOR THE SECOND WORK ZONE SHOULD BE ELIMINATED.

8. WARNING LIGHTS ON SIGNS:

A TYPE "A" LOW INTENSITY WARNING LIGHT IS AN L.E.D. BI-DIRECTIONAL FLASHING WORK ZONE WARNING LIGHT. TYPE "A" LOW INTENSITY WARNING LIGHTS SHOULD BE USED WITH ALL CONSTRUCTION ACTION WARNING SIGNS AND SHALL NOT BE USED ON SIGNS MOUNTED LESS THAN 5' HIGH ON TEMPORARY SUPPORTS. ON ALL OTHER CONSTRUCTION WARNING SIGNS, TYPE "A" LOW INTENSITY WARNING LIGHTS ARE TO BE USED AS DIRECTED BY THE ENGINEER.

TYPE "A" LOW INTENSITY WARNING LIGHTS SHALL BE MAINTAINED SO AS TO BE CAPABLE OF BEING VISIBLE ON A CLEAR NIGHT FROM A DISTANCE OF 3000 FT. IF A TYPE "A" LOW INTENSITY WARNING LIGHT HAS A SEPARATE BATTERY CASE, THE BATTERY CASE SHALL BE MOUNTED NO HIGHER THAN 12" ABOVE THE GROUND AND MOUNTED BEHIND THE SIGN POST. A TYPE "A" LOW INTENSITY WARNING LIGHT WHERE THE LENS AND BATTERY ARE ONE UNIT SHALL BE MOUNTED ON THE TEMPORARY SIGN POST NEAREST TO THE TRAVELED WAY. FLAGS SHALL NOT INTERFERE WITH THE VISABILITY OF THE TYPE "A" LOW INTENSITY WARNING LIGHT.



TWO (2) 18" x 18" FLUORESCENT RED-ORANGE FLAGS SHALL BE ATTACHED (IN THE POSITION SHOWN) ON THE W20-2(DETOUR),W1-1(TURN), W1-2(CURVE), W1-3(REVERSE TURN), W1-4(REVERSE CURVE), W3-3(SIGNAL AHEAD), W4-2(LANE REDUCTION), W20-4(ONE LANE ROAD), W20-5(LANE CLOSED), W20-7A(FLAGGER), AND W3-4 (BE PREPARED TO STOP) SIGNS AND ANY OTHER ACTION SIGNS AS SHOWN ON THE PLANS OR DIRECTED BY THE ENGINEER. THE FLAGS AND STAFFS ARE TO BE ATTACHED IN SUCH A MANNER THAT THE SIGN WILL NOT BE OBSCURED. THE FLAGS MAY BE EITHER A CLOTH OR VINYL MATERIAL. THE FLAGS SHALL BE SUBSIDIARY TO THE CONSTRUCTION SIGN BID ITEMS.

MINIMUM ADVANCE WARNING SIGN SPACING (IN FEET):

	A	*B*	*C*
URBAN (40 MPH OR LOWER)	*100*	*100*	*100*
URBAN (45 MPH OR HIGHER)	*350*	*350*	*350*
RURAL (55 MPH OR LOWER)	*500*	*500*	*500*
RURAL (60 MPH OR HIGHER)	*750*	*750*	*750*
EXPRESSWAY/FREEWAY	*1000*	*1500*	*2640*

THE MINIMUM SPACING BETWEEN SIGNS SHALL BE NO LESS THAN 100', UNLESS DIRECTED BY THE ENGINEER.

THE SPACING BETWEEN ANY SIGNS MAY BE INCREASED BEYOND THE MINIMUM VALUES IN THE TABLE ABOVE AS APPROVED BY THE ENGINEER IN ORDER TO MAXIMIZE VISIBILITY.

NO.	DATE	REVISIONS	BY	APP'D
3	10/16/12	Removed Note 9, Modified Sign Layout Detail	J.A.M.	K.P.
2	10/4/11	Modified Note 3	J.A.M.	K.P.
1	2/24/10	Modified AFAD Note	J.A.M.	A.A.A.

KANSAS DEPARTMENT OF TRANSPORTATION

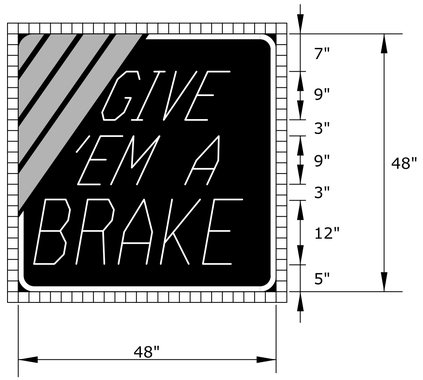
TRAFFIC CONTROL SIGNS

TE710

FHWA APPROVAL		10/16/12	APP'D	Kristina Pyle	
DESIGNED	B.A.H.	DETAILED	B.A.H.	QUANTITIES	TRACED
DESIGN CK.		DETAIL CK.		QUAN. CK.	TRACE CK.

Plotted : 14-JUL-2014 11:49
Drawn By : drp
File : I:\2008\08313\Frontage Rd South\Standards\08313-te710.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	KA 2285-01	2014	99	130

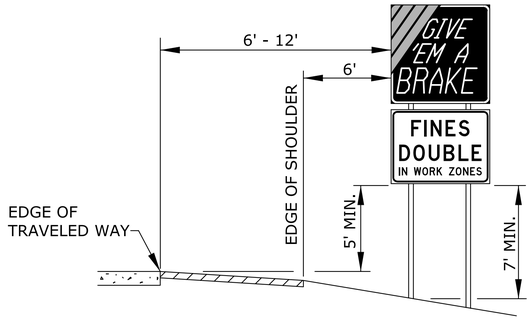


KI-104a

COLORS:
- BACKGROUND - BLACK
- BORDER - WHITE
- LEGEND - WHITE
- STRIPES - ORANGE

BORDER WIDTH - 1"
CORNER RADIUS - 4"
STRIPE WIDTH - 3"

LEGEND:
" GIVE " - DUTCH 801 ROMAN SWC - 25 DEGREE SLANT
" 'EM A " - DUTCH 801 ROMAN SWC - 25 DEGREE SLANT
" BRAKE " - DUTCH 801 ROMAN SWC - 10 DEGREE SLANT



HEIGHT AND LATERAL PLACEMENT

NOTE:
IF THERE IS NO SHOULDER, THE SIGN SHALL BE PLACED 6'- 12' FROM THE EDGE OF TRAVELED WAY AND NOT LESS THAN 6' FROM THE EDGE OF PAVED SHOULDER. SIGNS SHALL NOT OVERLAP EACH OTHER.

NOTES:

THE SIGN BLANK MATERIAL SHALL BE ALUMINUM, WOOD, OR FIBERGLASS REINFORCED PLASTIC.

THE ORANGE PORTION OF THE KI-104a SIGN SHALL BE ASTM TYPE IV SHEETING. THE WHITE PORTION SHALL BE ASTM TYPE III SHEETING.

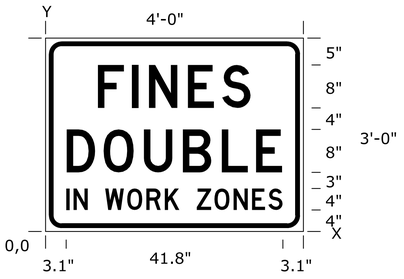
THE KI-105a SIGN FACE SHALL BE COVERED WITH ASTM TYPE III SHEETING.

THE SIGNS ARE TO BE MOUNTED ON CRASHWORTHY SUPPORTS, BRACING, GUY WIRES AND TIE-DOWNS ARE NOT ALLOWED.

TYPICALLY, THERE ARE TWO SETS OF INFORMATIONAL SIGNS INSTALLED PER PROJECT: ONE FOR EACH DIRECTION OF TRAFFIC.

INSTALL SIGNS A MINIMUM OF 250' IN ADVANCE OF THE ROAD WORK AHEAD SIGN. THE ENGINEER MAY DESIGNATE A MORE APPROPRIATE LOCATION IF CONDITIONS DICTATE.

THE INFORMATIONAL SIGNS ARE NOT TO INTERFERE WITH THE TRAFFIC CONTROL SIGNS FOR THE PROJECT.



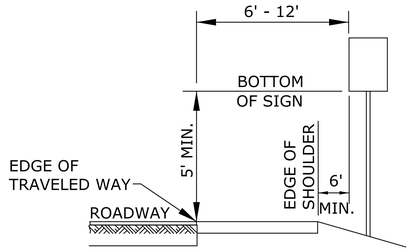
KI-105a

SIGN NUMBER	FINES DOUBLE
WIDTH x HEIGHT	4'-0" x 3'-0"
BORDER WIDTH	0.9"
CORNER RADIUS	3.0"
MOUNTING	GROUND
BACKGROUND	TYPE: REFLECTIVE
	COLOR: WHITE
LEGEND/BORDER	TYPE: NON-REFLECTIVE
	COLOR: BLACK

DIMENSIONS IN INCHES — SPACINGS ARE TO START OF NEXT LETTER

Y FONT	LETTER SPACINGS																					HT LEN
23.0 D		F	I	N	E	S																8.0
	9.7	6.4	3.2	7.3	6.4	5.4	9.7															28.6
11.0 D		D	O	U	B	L	E															8.0
	3.9	6.9	7.5	7.3	7.3	6.4	4.9	3.9														40.3
4.0 D		I	N		W	O	R	K		Z	O	N	E	S								4.0
	3.1	1.6	2.7	3.2	4.3	3.8	3.6	2.8	3.2	3.4	3.8	3.6	3.2	2.7	3.1							41.8

HEIGHT AND LATERAL DIMENSIONS FOR GROUND MOUNTED SIGNS (SIGNS LEFT IN PLACE OVER 3 DAYS)



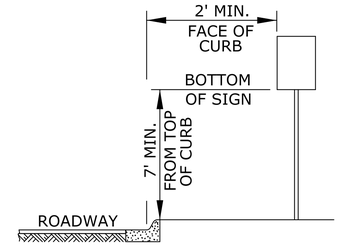
RURAL DISTRICT

RURAL:
1) GROUND-MOUNTED SIGNS SHALL BE MOUNTED AT A MINIMUM HEIGHT OF 5' MEASURED FROM THE BOTTOM OF SIGN TO THE NEAR EDGE OF THE PAVEMENT.

2) LARGE SIGNS HAVING AN AREA EXCEEDING 50 SQUARE FEET INSTALLED ON MULTIPLE BREAKAWAY POSTS SHALL BE MOUNTED A MINIMUM OF 7' ABOVE THE GROUND.

* 3) THE HEIGHT OF THE SECONDARY SIGN MOUNTED BELOW ANOTHER SIGN MAY BE 4' MEASURED FROM THE BOTTOM OF THE SIGN TO THE NEAR EDGE OF THE PAVEMENT. SIGNS SHALL NOT OVERLAP EACH OTHER.

4) SIGN SUPPORTS SHALL BE CRASHWORTHY.



URBAN DISTRICT

URBAN:
1) SIGNS SHALL BE MOUNTED AT A MINIMUM HEIGHT OF 7' MEASURED FROM THE BOTTOM OF SIGN TO THE NEAR EDGE OF THE PAVEMENT.

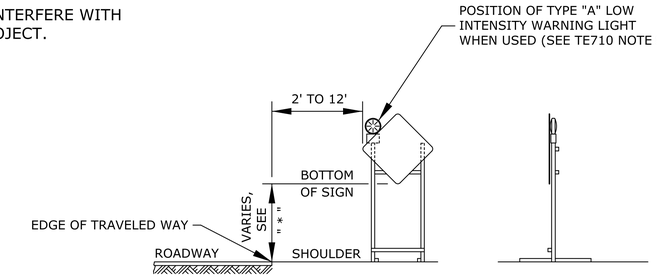
2) NEITHER PORTABLE NOR PERMANENT SIGN SUPPORTS SHOULD BE LOCATED ON SIDEWALKS OR AREAS DESIGNATED FOR PEDESTSRIAN OR BICYCLE TRAFFIC.

3) SIGNS MOUNTED LOWER THAN 7' SHOULD NOT PROJECT MORE THAN 4" INTO PEDESTRIAN FACILITIES.

* 4) THE HEIGHT FROM OF THE SECONDARY SIGN MOUNTED BELOW ANOTHER SIGN MAY BE 6' MEASURED FROM THE BOTTOM OF SIGN TO THE NEAR EDGE OF THE PAVEMENT. SIGNS SHALL NOT OVERLAP EACH OTHER.

5) LARGE SIGNS HAVING AN AREA EXCEEDING 50 SQUARE FEET INSTALLED ON MULTIPLE BREAKAWAY POSTS SHALL BE MOUNTED A MINIMUM OF 7' ABOVE THE GROUND.

6) SIGN SUPPORTS SHALL BE CRASHWORTHY.



(SEE NOTE 4 ON TE710 FOR "ROLL-UP" SIGNS OPTION)

HEIGHT AND LATERAL DIMENSIONS FOR SIGNS MOUNTED ON SKIDS OR OTHER SUPPORTS ON PAVEMENT

NO.	DATE	REVISIONS	BY	APP'D
3	10/16/12	Modified Note 3 & 4 On Ground Mounted Signs	J.A.M.	K.P.
2	10/4/11	Modified Note On Skid Mounted Detail	J.A.M.	K.P.
1	6/1/10	Changed Type A Warning Light Note	J.A.M.	A.A.A.

KANSAS DEPARTMENT OF TRANSPORTATION

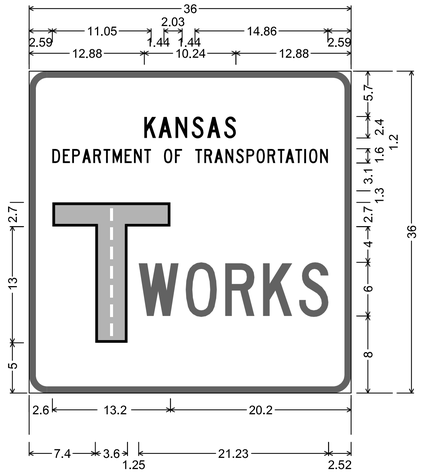
GROUND AND SKID MOUNTED DETAIL DETAILS FOR "GIVE 'EM A BRAKE" AND "FINES DOUBLE" SIGNS

TE714

FHWA APPROVAL		10/16/12	APP'D	Kristina Pyle	
DESIGNED	B.A.H.	DETAILED	B.A.H.	QUANTITIES	TRACED
DESIGN CK.		DETAIL CK.		QUAN. CK.	TRACE CK.

Plotted : 14-JUL-2014 11:49
Drawn By : drp
File : I:\2008\08313\Frontage Rd South\Standards\08313-te714.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	KA 2285-01	2014	100	130



TWORKS SIGN 8
2.00" RADIUS, 0.75" BORDER, BLUE ON WHITE;
[KANSAS] BLACK C;
[DEPARTMENT OF TRANSPORTATION] BLACK C 90% SPACING;
[T] ORANGE; 0.3" BLACK BORDER
LANE LINES: .3"X1.4" WHITE; 0.75" SPACING FROM BOTTOM
[WORKS] C 75% SPACING;
TABLE OF DISTANCES BETWEEN LETTER AND OBJECT LEFTS.

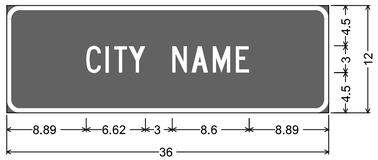
12.88	K 1.58	A 1.91	N 1.82	S 1.71	A 1.91	S 1.31	12.88

2.59	D 1.18	E 1.04	P 1.12	A 1.24	R 1.12	T 1.05	M 1.34	E 1.04	N 1.12	T 2.24	O 1.23	F 2.24

T 1.04	R 1.12	A 1.24	N 1.18	S 1.18	P 1.11	O 1.23	R 1.12	T 0.88	A 1.08	T 1.05	I 0.53	O 1.22	N 0.88	2.59

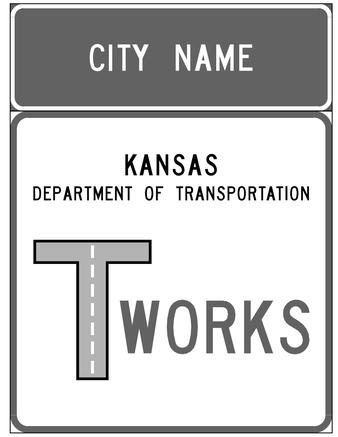
2.6	T 13.2	20.2

12.25	W 5.26	O 4.42	R 4.22	K 4.05	S 3.28	2.52	



TWORKS SIGN 7
1.50" RADIUS, 0.50" BORDER, WHITE ON BLUE;
[CITY NAME] C;
TABLE OF DISTANCES BETWEEN LETTER AND OBJECT LEFTS.

8.89	C 2.14	I 0.93	T 1.67	Y 4.88	N 2.14	A 2.39	M 2.57	E 1.50	8.89



TYPICAL SIGN ASSEMBLY

GENERAL NOTES

THE "TWORKS" SIGN BLANK MATERIAL SHALL BE ALUMINUM, WOOD, OR FIBERGLASS REINFORCED PLASTIC.

THE "TWORKS" SIGN FACES SHALL BE COVERED WITH TYPE IV HIGH INTENSITY RETROREFLECTIVE SHEETING.

THE "TWORKS" SIGNS SHOULD BE MOUNTED ON APPROVED POSTS, AS SHOWN ON TE712 WITHOUT THE USE OF BRACING, GUY WIRES, OR TIE-DOWNS. THE "TWORKS" SIGNS MAY ALSO BE MOUNTED ON SKIDS. THE MOUNTING HEIGHTS AND LATERAL OFFSETS ARE TO BE SHOWN ON TE714.

THE "TWORKS" SIGNS SHOULD BE INSTALLED IN ADVANCE OF THE FIRST TRAFFIC CONTROL SIGN A DISTANCE OF 500' FOR A TWO-WAY ROADWAY IN A RURAL LOCATION AND 100' TO 350' IN AN URBAN AREA DEPENDING UPON THE SPEED. THE FIRST TRAFFIC CONTROL SIGN IS EITHER THE "ROAD WORK AHEAD" OR THE "GIVE 'EM A BRAKE" SIGN. THE ENGINEER MAY DESIGNATE A MORE APPROPRIATE LOCATION IF CONDITIONS DICTATE.

THE "TWORKS" SIGNS SHALL NOT INTERFERE WITH THE TRAFFIC CONTROL SIGNS FOR THE PROJECT OR WITH ANY OTHER REGULATORY, WARNING, OR GUIDE SIGN THAT IS TO REMAIN IN PLACE DURING CONSTRUCTION.

THE TWORKS SIGN ASSEMBLY CONSISTS OF A TWORKS SIGN 7 AND AND TWORKS SIGN 8. THE BID ITEM FOR THIS ASSEMBLY IS "TWORKS SIGN ASSEMBLY" WITH A BID UNIT OF "EACH".

THE TWORKS SIGN ASSEMBLY SHOULD REMAIN IN PLACE FOR SIX (6) MONTHS FOLLOWING THE COMPLETION OF THE PROJECT AND BECOME THE PROPERTY OF KDOT OR THE LOCAL JURISDICTION.

NO.	DATE	REVISIONS	BY	APP'D
3	10/16/12	Modified General Note	J.A.M.	K.P.
2	10/4/11	Removed Swoosh From TWork Sign	J.A.M.	K.P.
1	9/1/10	Modified Bid Item	J.A.M.	K.P.

KANSAS DEPARTMENT OF TRANSPORTATION

DETAILS FOR THE TRANSPORTATION WORKS FOR THE KANSAS (TWORKS) SIGNS LOCAL PROJECTS

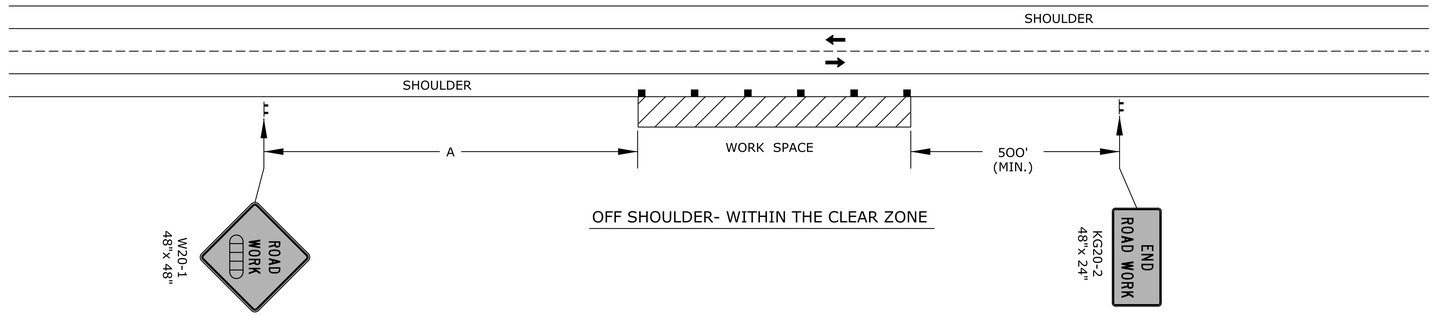
TE715C

FHWA APPROVAL		10/16/12	APP'D	Kristina Pyle	
DESIGNED	D.G.	DETAILED	D.G.	QUANTITIES	TRACED
DESIGN CK.	J.A.M.	DETAIL CK.	J.A.M.	QUAN. CK.	TRACE CK.

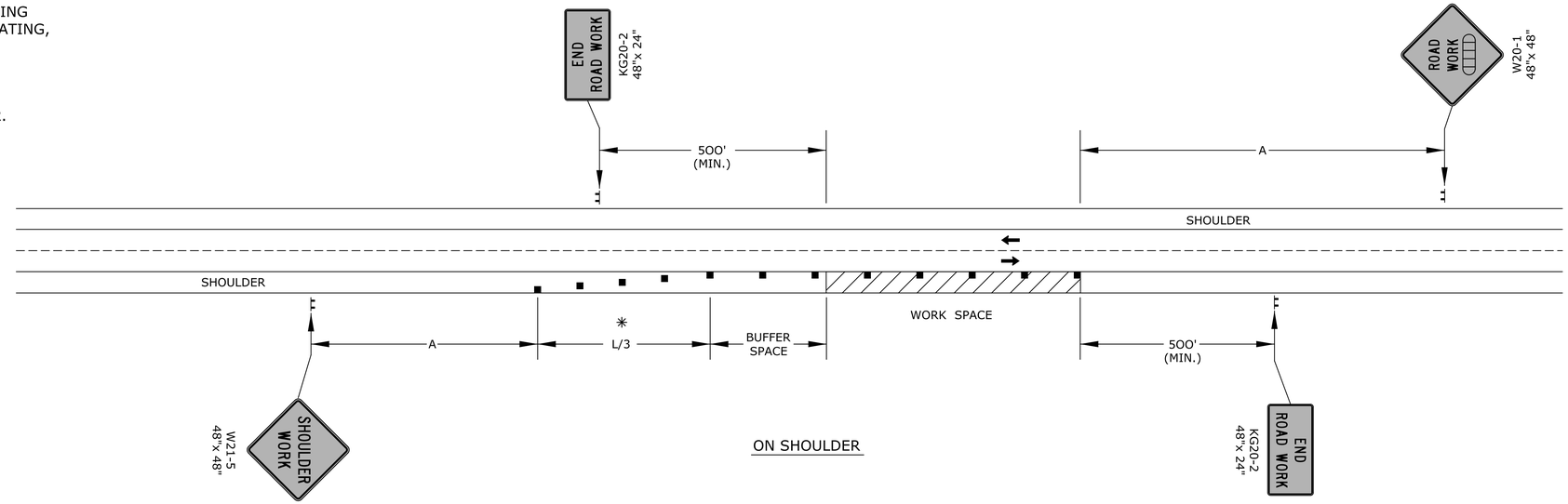
Drawn By : drp
Plotted : 14-JUL-2014 11:49
File : I:\2008\08313\Frontage Rd South\Standards\08313-te715c.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	KA 2285-01	2014	101	130

REFER TO STD. TE710 FOR ADDITIONAL INFORMATION ON TEMPORARY TRAFFIC CONTROL SIGNS AND SIGN SPACING.
REFER TO STD. TE702 FOR INFORMATION ON TAPERS AND CHANNELIZING DEVICES.
REFER TO STD. TE700 FOR LENGTH OF BUFFER SPACE.



OFF SHOULDER- WITHIN THE CLEAR ZONE



ON SHOULDER

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.

WHEN CONCRETE BARRIER SYSTEM IS USED, PORTABLE CHANNELIZING DEVICES ARE NOT NEEDED ALONG THE TANGENT BARRIER SECTION. DELINEATION ON THE BARRIER SYSTEM IS STILL REQUIRED. SEE RD622.

* OMIT TAPER IF PAVED SHOULDER IS LESS THAN 8' WIDE.

■ CHANNELIZING DEVICE
AHEAD, 1500 FT, OR 1 MILE

NO.	DATE	REVISIONS	BY	APP'D
3	10/16/12	Modified Shoulder Detail	J.A.M.	K.P.
2	4/20/09	Combined And Moved General Notes	J.A.M.	A.A.A.
1	8/8/07	G20-2 Changed To KG20-2	M.B.	A.A.A.

KANSAS DEPARTMENT OF TRANSPORTATION

TYPICAL TRAFFIC CONTROL WORK ON OR NEAR THE SHOULDER UNDIVIDED HIGHWAY (2 OR 4 LANE)

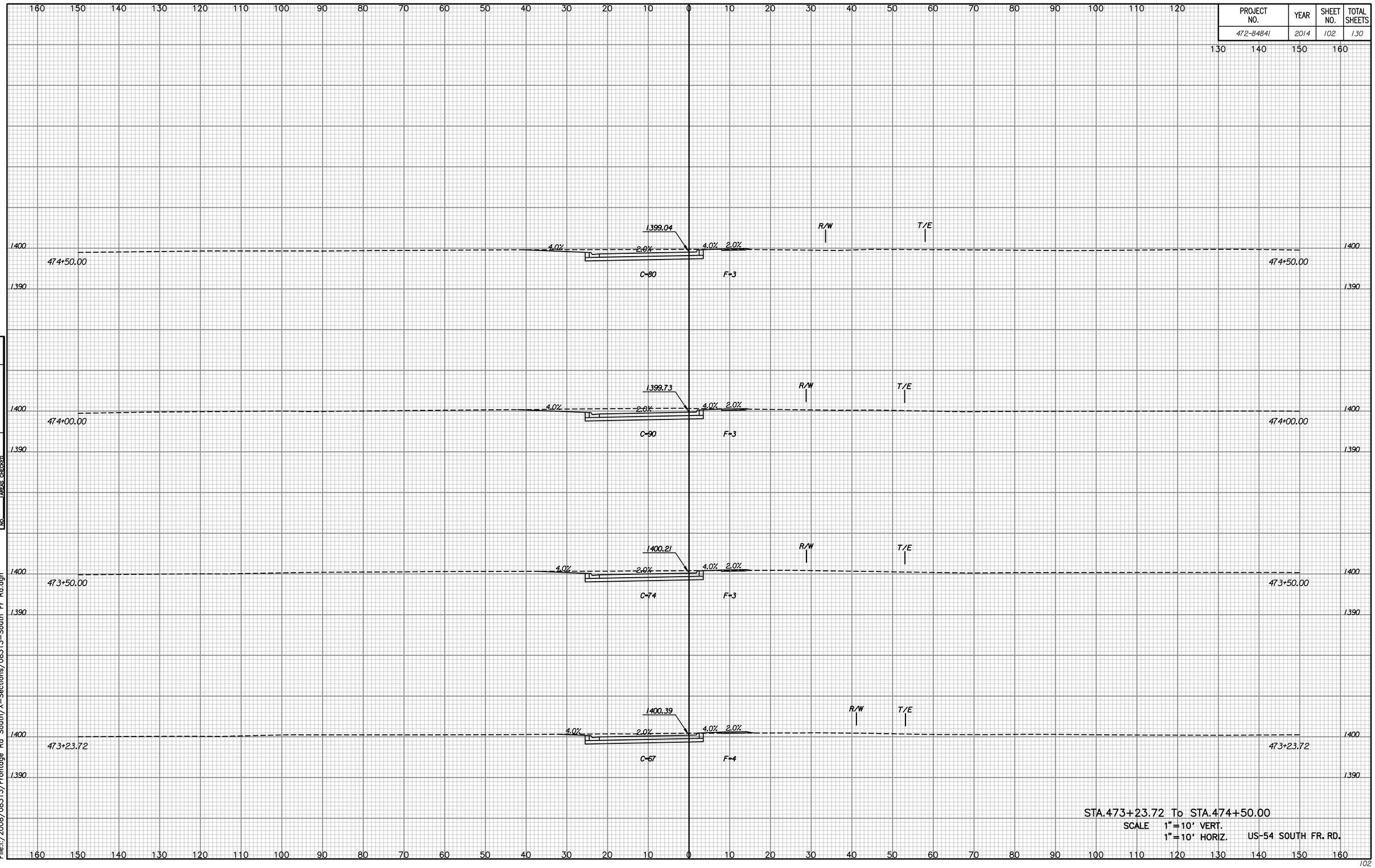
TE720

FHWA APPROVAL		10/16/12	APP'D	Kristina Pyle	
DESIGNED	L.E.R.	DETAILED	B.A.H.	QUANTITIES	TRACED
DESIGN CK.		DETAIL CK.		QUAN. CK.	TRACE CK.

Drawn By : drp
File : I:\2008\08313\Frontage Rd South\Standards\08313-te720.dgn
Plotted : 14-JUL-2014 11:49

PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
472-84841	2014	102	130

NOTE BOOK	TEMPLATE	AREAS	AREAS CHECKED
NO.			



STA.473+23.72 To STA.474+50.00

SCALE 1"=10' VERT.
1"=10' HORIZ. US-54 SOUTH FR. RD.

Plotted By:CKC Date:05-13-2014
File:I:/2008/08313/Frontage Rd South/X-Sections/08313-South Fr Rd.dgn

PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
472-84841	2014	103	130

160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160

1400
1390

476+50.00

1395.76

4.0% -0.3% 4.0% 2.0%

C=73 F=3

476+50.00

1396.58

R/W T/E

4.0% -1.4% 4.0% 2.0% 4.0%

C=99 F=3

476+00.00

476+00.00

1397.40

R/W T/E

4.0% -2.0% 4.0% 2.0%

C=84 F=3

475+50.00

475+50.00

1398.22

R/W T/E

4.0% -2.0% 4.0% 2.0% 4.0%

C=93 F=3

475+00.00

475+00.00

STA.475+00.00 To STA.476+50.00

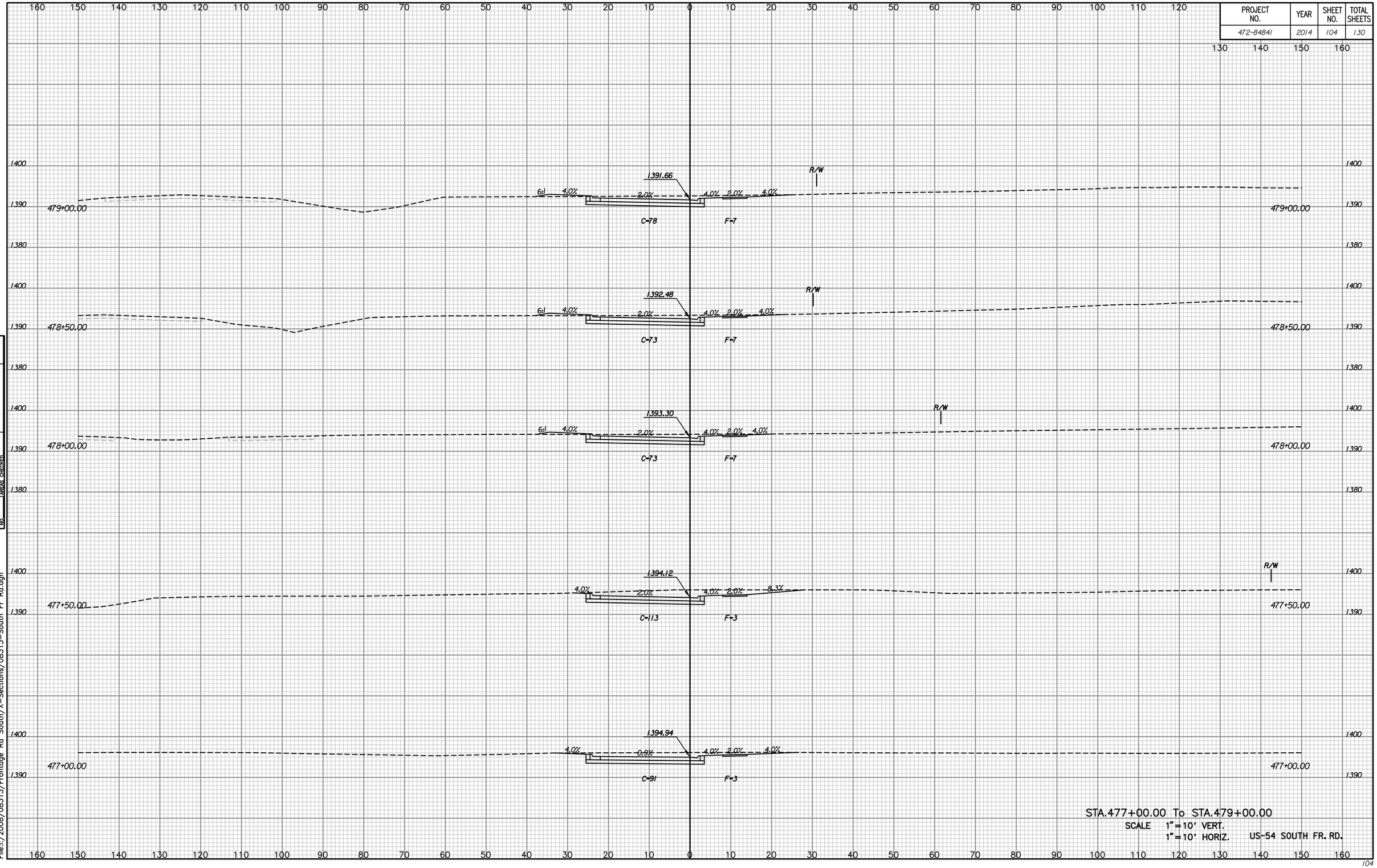
SCALE 1"=10' VERT.
1"=10' HORIZ.

US-54 SOUTH FR. RD.

NOTE BOOK
TEMPLATE
AREAS.
AREAS CHECKED
NO.

Plotted By:CKC Date:05-13-2014
File:i:/2008/08313/Frontage Rd South/X-Sections/08313-South Fr Rd.dgn

PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
472-84841	2014	104	130



NOTE BOOK	TEMPLATE AREAS	AREAS CHECKED
NO.		

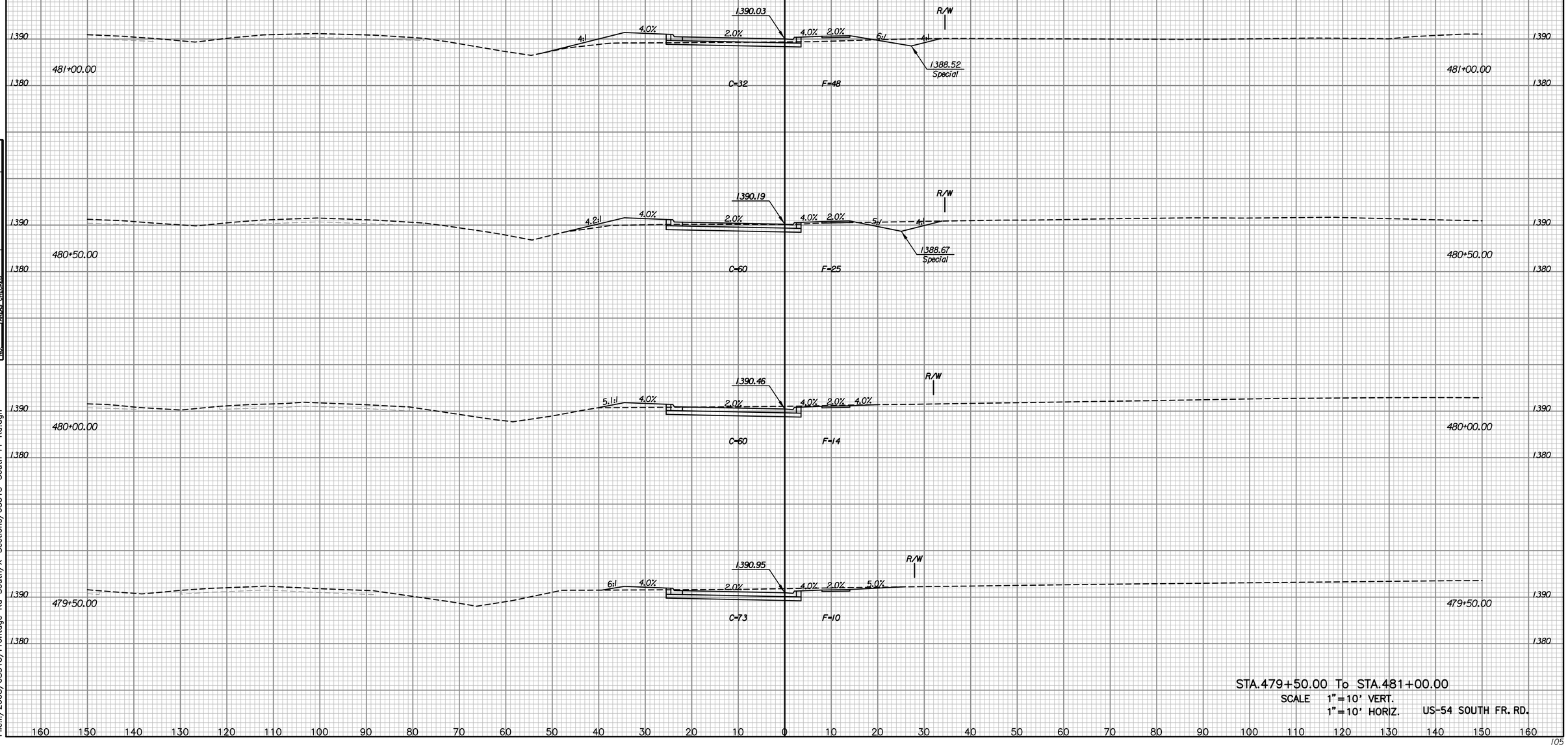
Plotted By:CKC Date:05-13-2014
File:i:/2008/08313/Frontage Rd South/X-Sections/08313-South Fr Rd.dgn

STA.477+00.00 To STA.479+00.00

SCALE 1"=10' VERT.
1"=10' HORIZ. US-54 SOUTH FR. RD.

PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
472-84841	2014	105	130

160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160



STA.479+50.00 To STA.481+00.00

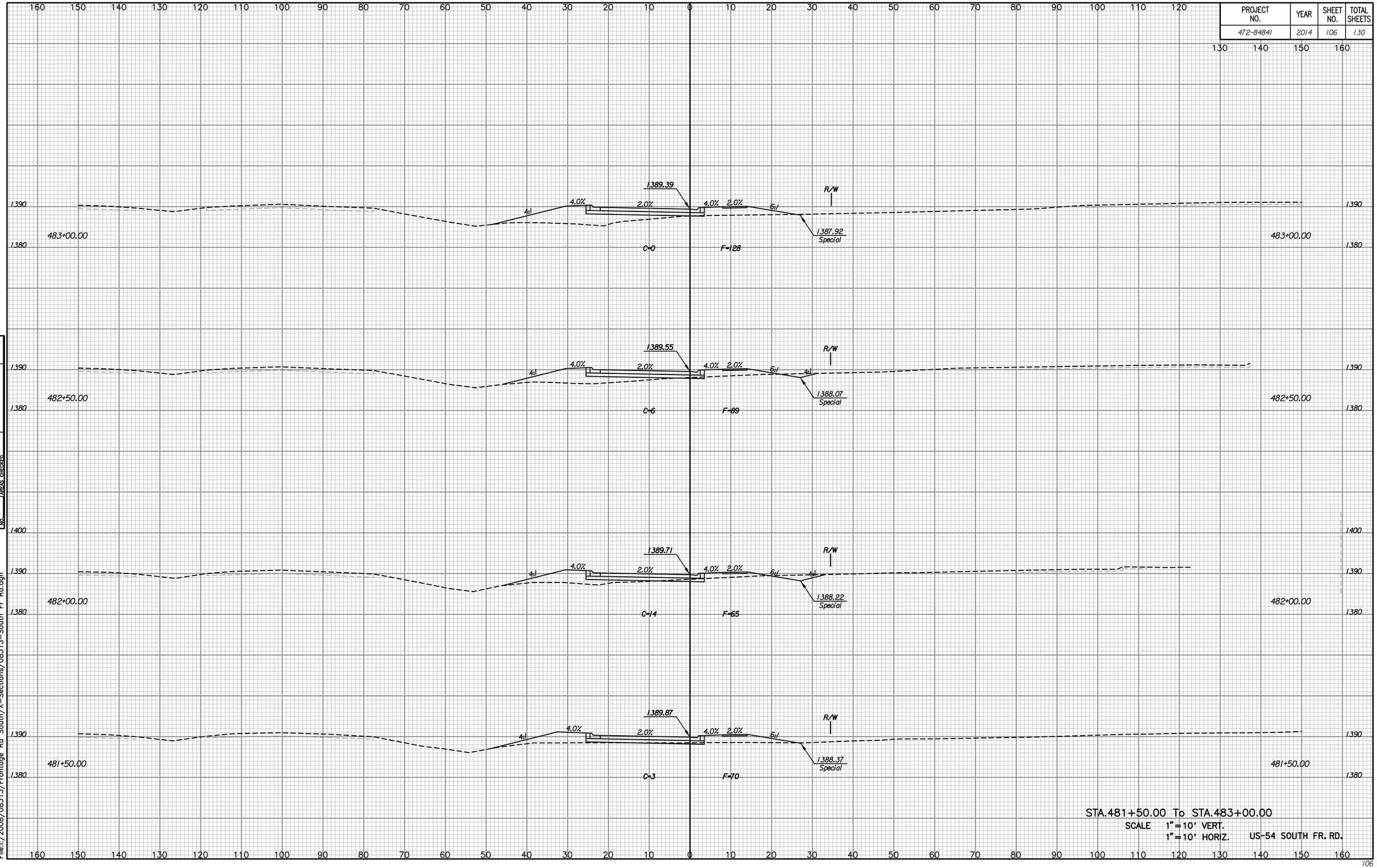
SCALE 1"=10' VERT.
1"=10' HORIZ. US-54 SOUTH FR. RD.

NOTE BOOK
NO.
TEMPLATE AREAS
AREAS CHECKED

Plotted By:CKC Date:05-13-2014
File:i:/2008/08313/Frontage Rd South/X-Sections/08313-South Fr Rd.dgn

PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
472-84841	2014	106	130

NOTE BOOK	TEMPLATE	AREAS	AREAS CHECKED
NO.			



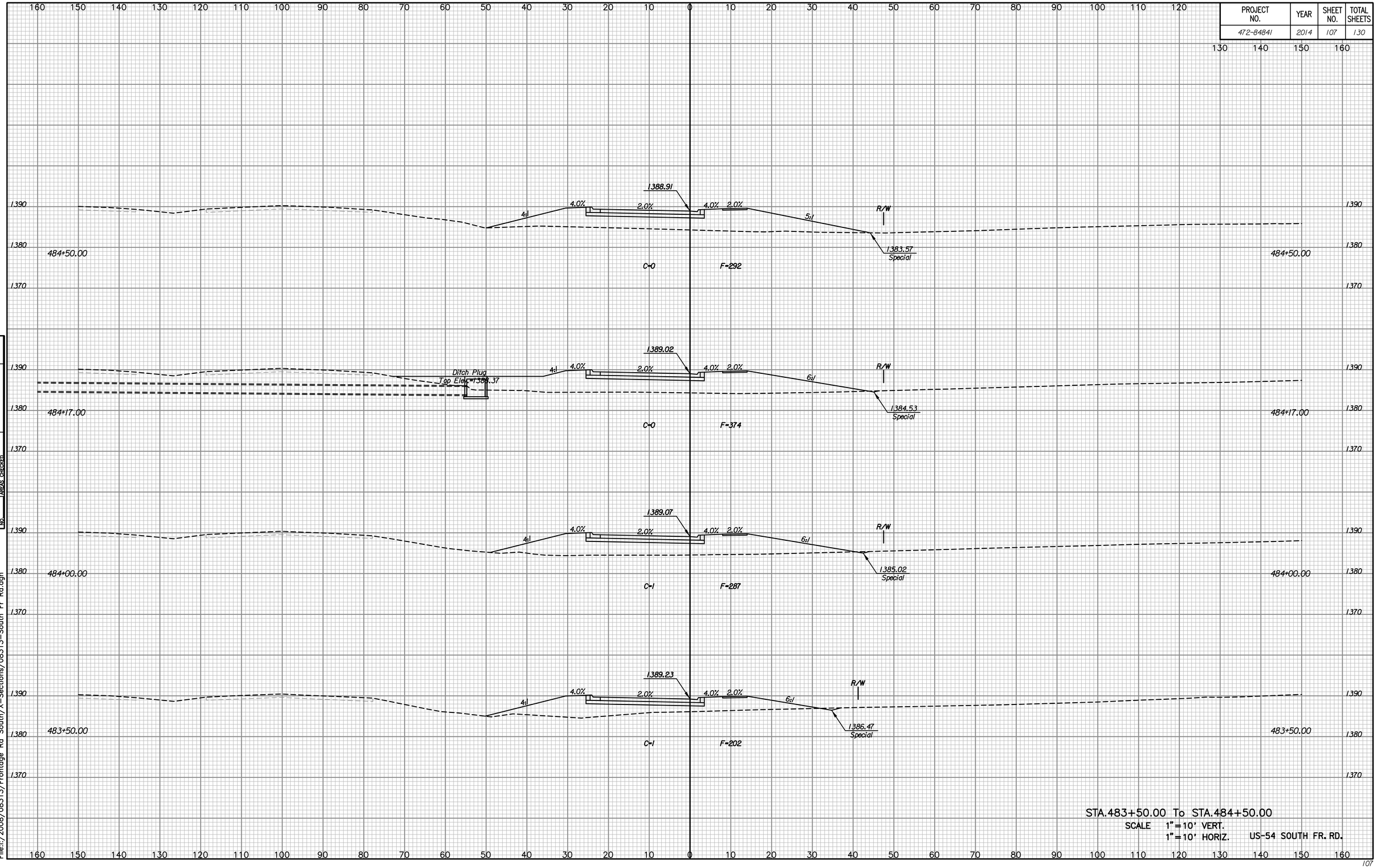
STA.481+50.00 To STA.483+00.00

SCALE 1"=10' VERT.
1"=10' HORIZ. US-54 SOUTH FR. RD.

Plotted By:CKC Date:05-13-2014
File:I:/2008/08313/Frontage Rd South/X-Sections/08313-South Fr Rd.dgn

PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
472-84841	2014	107	130

NO.	AREAS CHECKED	TEMPLATE AREAS	BOOK
			NOTE



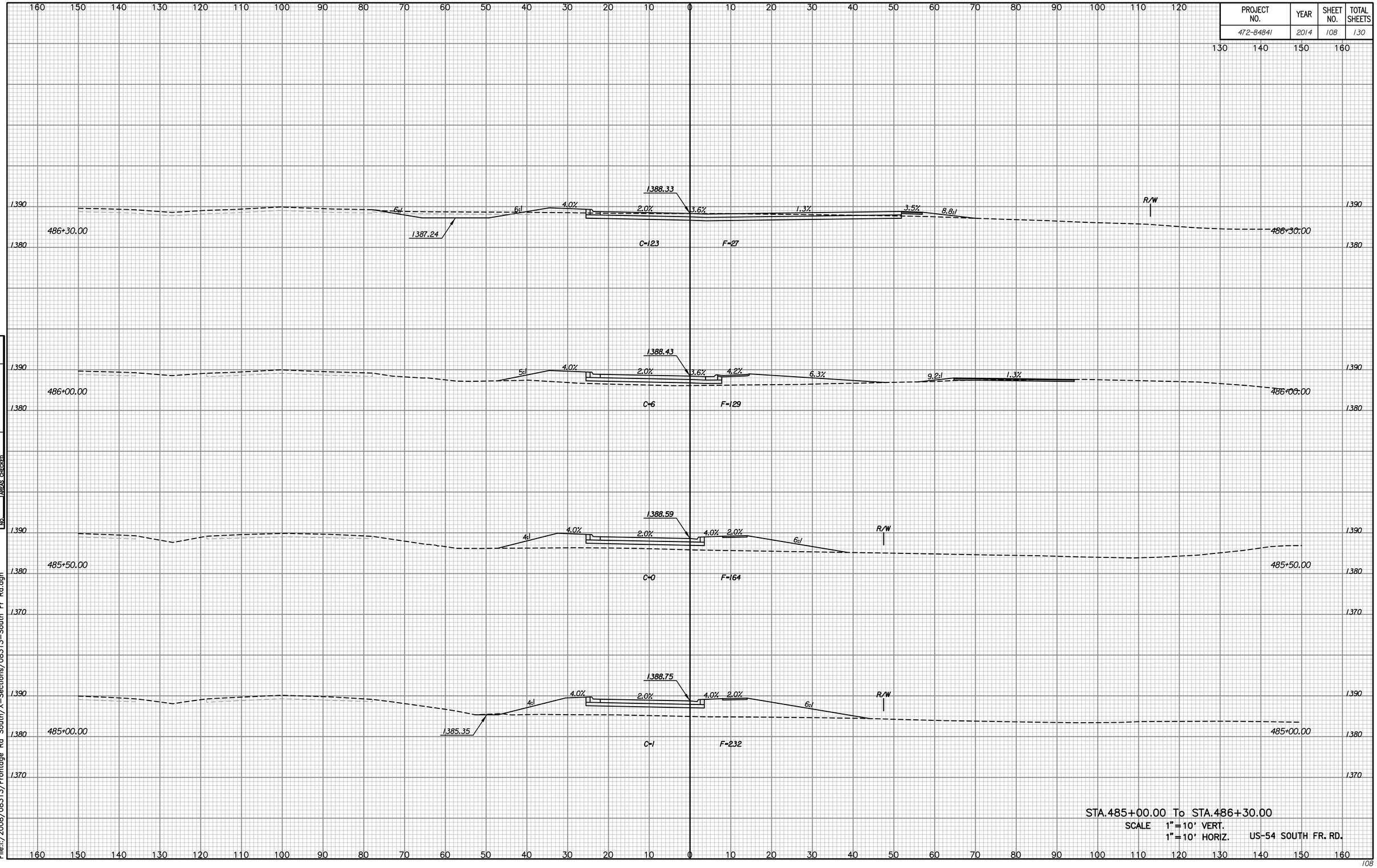
STA.483+50.00 To STA.484+50.00

SCALE 1"=10' VERT.
1"=10' HORIZ. US-54 SOUTH FR. RD.

Plotted By:CKC Date:05-13-2014
File:I:/2008/08313/Frontage Rd South/X-Sections/08313-South Fr Rd.dgn

PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
472-84841	2014	108	130

NO.	NOTE BOOK	TEMPLATE	AREAS	AREAS CHECKED



Plotted By:CKC Date:05-13-2014
File:I:/2008/08313/Frontage Rd South/X-Sections/08313-South Fr Rd.dgn

PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
472-84841	2014	109	130

160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160

1390
1380

488+00.00
1387.79
4:1
4.0%
2.0%
4.0%
2.0%
6:1
R/W
C=33
F=33
488+00.00

487+50.00
1387.95
5:1
4.0%
2.0%
4.0%
2.0%
6:1
R/W
C=22
F=51
487+50.00

487+00.00
1388.11
6:1
4.0%
2.0%
4.0%
2.0%
6:1
R/W
C=19
F=57
487+00.00

486+50.00
1388.27
6:1
Ditch Plug
Top Elev.=1388.22
6:1
4.0%
2.0%
3.6%
5.2%
6.1%
R/W
C=37
F=56
486+50.00

STA.486+50.00 To STA.488+00.00
SCALE 1"=10' VERT.
1"=10' HORIZ. US-54 SOUTH FR. RD.

NO.	NOTE BOOK	TEMPLATE AREAS	AREAS CHECKED

Plotted By:CKC Date:05-13-2014
File:I:/2008/08313/Frontage Rd South/X-Sections/08313-South Fr Rd.dgn

PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
472-84841	2014	110	130

160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160

1390
1380

490+00.00

1387.15

4.0% 2.0% 4.0% 2.0%

R/W

C=64 F=5

490+00.00

489+50.00

1387.31

4.0% 2.0% 4.0% 2.0%

R/W

C=58 F=9

489+50.00

489+00.00

1387.47

5:1 4.0% 2.0% 4.0% 2.0% 6:1

R/W

C=43 F=18

489+00.00

488+50.00

1387.63

4:1 4.0% 2.0% 4.0% 2.0% 6:1

R/W

C=36 F=27

488+50.00

STA.488+50.00 To STA.490+00.00

SCALE 1"=10' VERT.
1"=10' HORIZ. US-54 SOUTH FR. RD.

NOTE BOOK
TEMPLATE AREAS
AREAS CHECKED
NO.

Plotted By:CKC Date:05-13-2014
File:I:/2008/08313/Frontage Rd South/X-Sections/08313-South Fr Rd.dgn

PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
472-84841	2014	111	130

160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160

1390
1380
1370

492+50.00

1384.83

4.0% 2.0% 4.0% 2.0%

R/W

C=82 F=3

492+00.00

1385.37

C=80 F=3

491+50.00

1385.91

C=73 F=5

491+00.00

1386.45

C=68 F=4

490+50.00

1386.90

C=63 F=5

STA.490+50.00 To STA.492+50.00

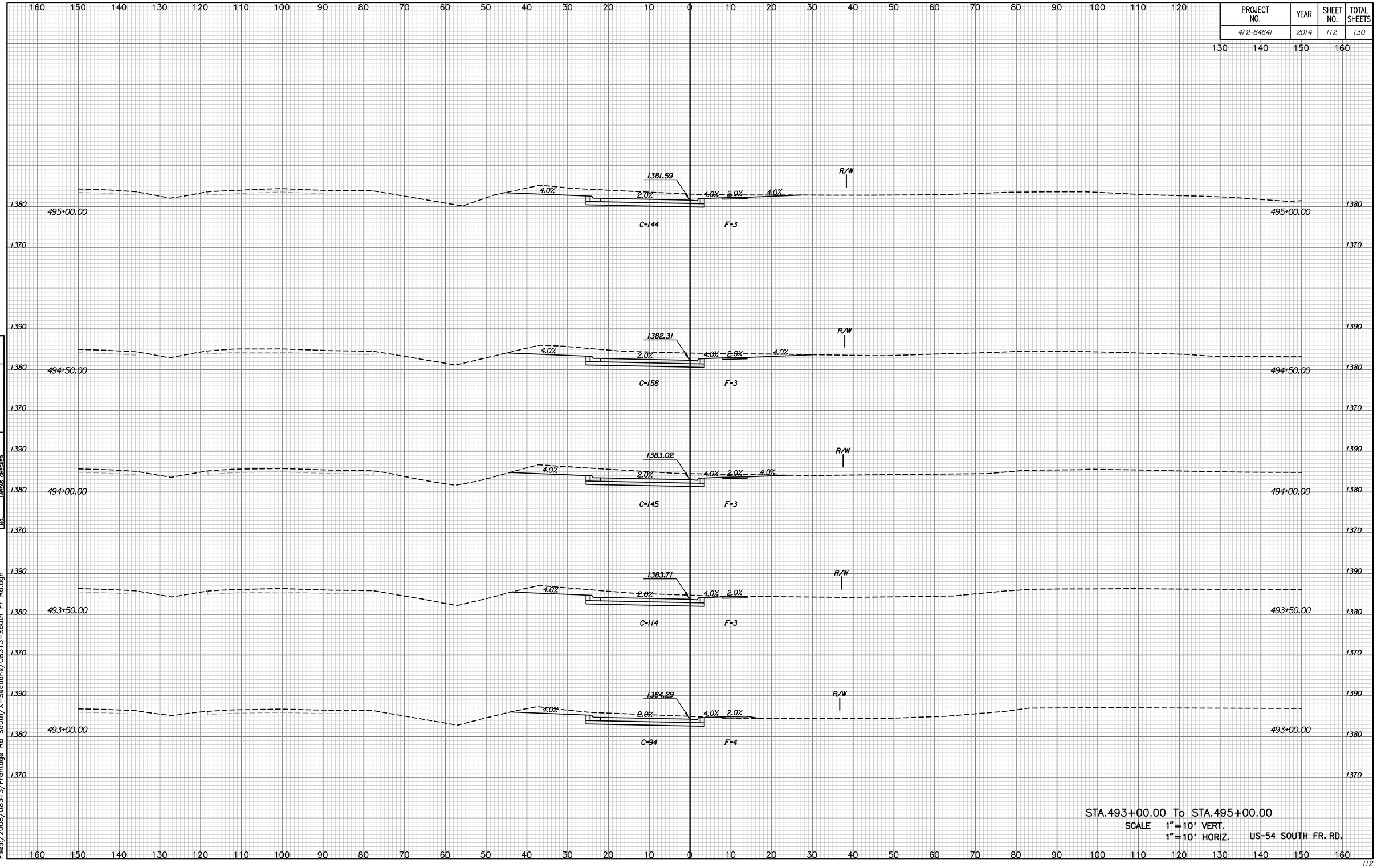
SCALE 1"=10' VERT.
1"=10' HORIZ. US-54 SOUTH FR. RD.

NO.	AREAS CHECKED	TEMPLATE AREAS	NOTE BOOK

Plotted By:CKC Date:05-13-2014
File:I:/2008/08313/Frontage Rd South/X-Sections/08313-South Fr Rd.dgn

PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
472-84841	2014	112	130

NO.	AREAS CHECKED	TEMPLATE AREAS	NOTE BOOK

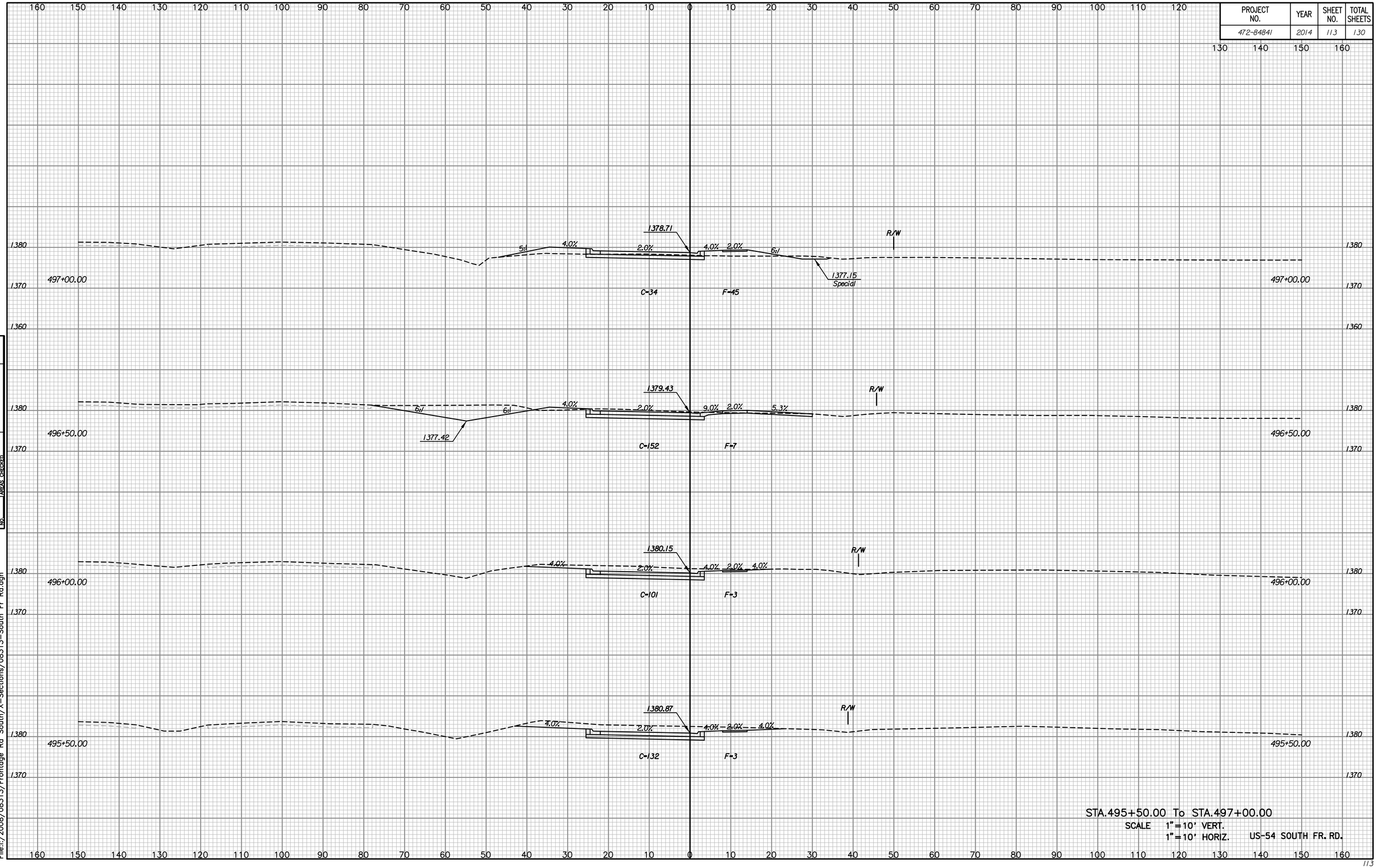


STA.493+00.00 To STA.495+00.00

SCALE 1"=10' VERT.
1"=10' HORIZ. US-54 SOUTH FR. RD.

Plotted By:CKC Date:05-13-2014
File:I:/2008/08313/Frontage Rd South/X-Sections/08313-South Fr Rd.dgn

PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
472-84841	2014	113	130



NOTE BOOK
TEMPLATE AREAS
AREAS CHECKED
NO.

Plotted By:CKC Date:05-13-2014
File:i:/2008/08313/Frontage Rd South/X-Sections/08313-South Fr Rd.dgn

PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
472-84841	2014	114	130

160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160

1380
1370
1360

499+00.00

1375.83
4:1 4.0% 2.0% 4.0% 2.0% 6:1 4:1
R/W
1373.93
Special
C=19 F=49

499+00.00

498+50.00

1376.55
4:1 4.0% 2.0% 4.0% 2.0% 6:1 4:1
R/W
1374.08
Special
C=11 F=75

498+50.00

498+00.00

1377.27
4:1 4.0% 2.0% 4.0% 2.0% 6:1 4:1
R/W
1374.75
Special
C=8 F=91

498+00.00

497+50.00

1377.99
4:1 4.0% 2.0% 4.0% 2.0% 6:1 4:1
R/W
1375.95
Special
C=14 F=65

497+50.00

STA.497+50.00 To STA.499+00.00

SCALE 1"=10' VERT.
1"=10' HORIZ. US-54 SOUTH FR. RD.

NOTE BOOK TEMPLATE
NO. AREAS AREAS CHECKED

Plotted By:CKC Date:05-13-2014
File:I:/2008/08313/Frontage Rd South/X-Sections/08313-South Fr Rd.dgn

PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
472-84841	2014	115	130

160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160

1380
1370
1360

500+50.00

1374.99
4:1
4.0%
2.0%
4.0%
2.0%
4:1
4:1
R/W
1373.48
Special
C=116
F=17

500+34.00

Exist. 3'x3'xI32' RCB
1370.14
1374.95
4:1
4.0%
2.0%
4.0%
2.0%
4.3:1
4:1
R/W
1373.52
Special
C=107
F=21

500+00.00

1374.98
4:1
4.0%
2.0%
4.0%
2.0%
5:1
4:1
R/W
1373.63
Special
C=36
F=39

499+50.00

1375.26
4:1
4.0%
2.0%
4.0%
2.0%
6:1
4:1
R/W
1373.78
Special
C=6
F=84

STA.499+50.00 To STA.500+50.00

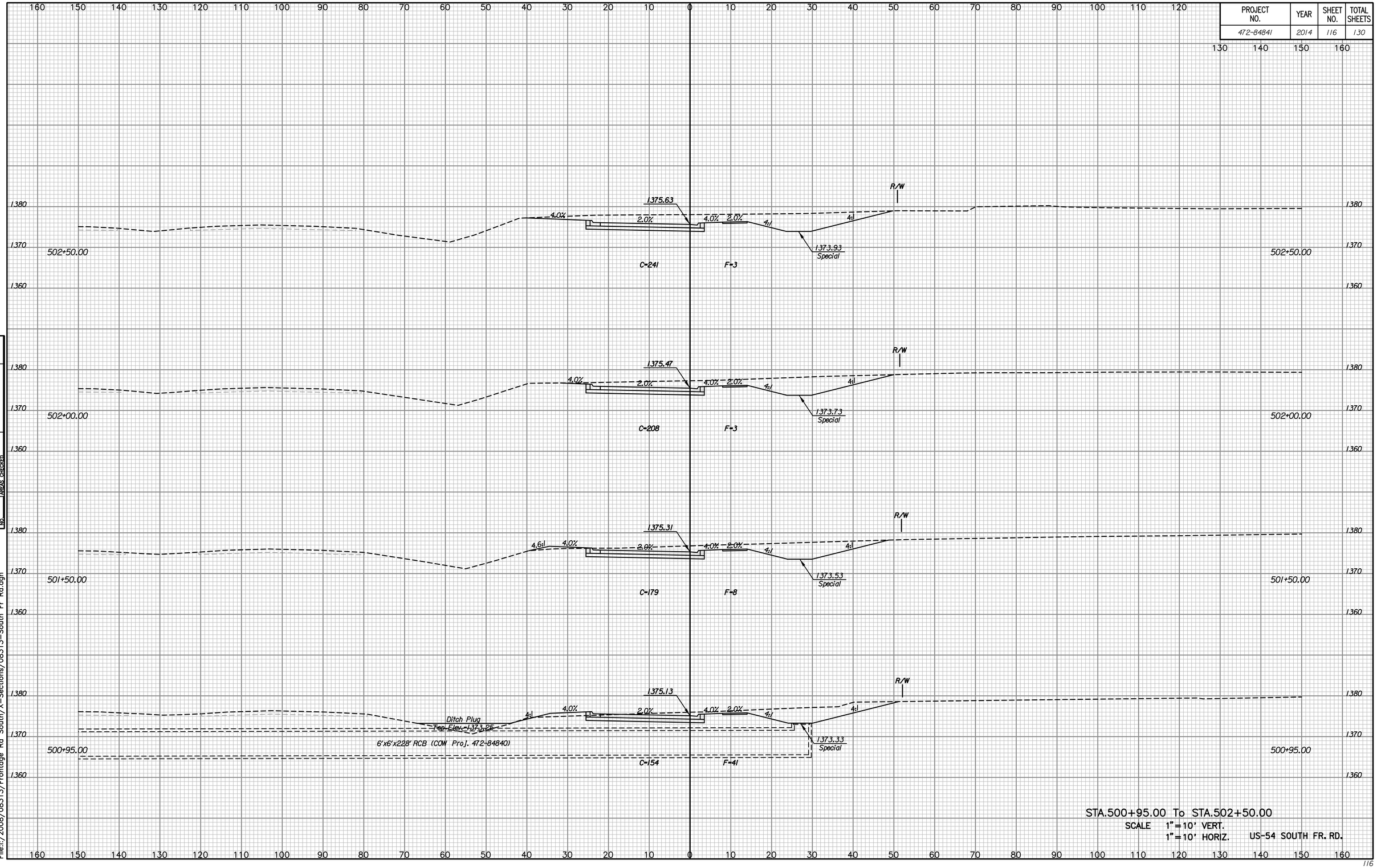
SCALE 1"=10' VERT.
1"=10' HORIZ. US-54 SOUTH FR. RD.

NO.	NOTE BOOK	TEMPLATE
	AREAS	
	AREAS CHECKED	

Plotted By:CKC Date:05-13-2014
File:I:/2008/08313/Frontage Rd South/X-Sections/08313-South Fr Rd.dgn

PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
472-84841	2014	116	130

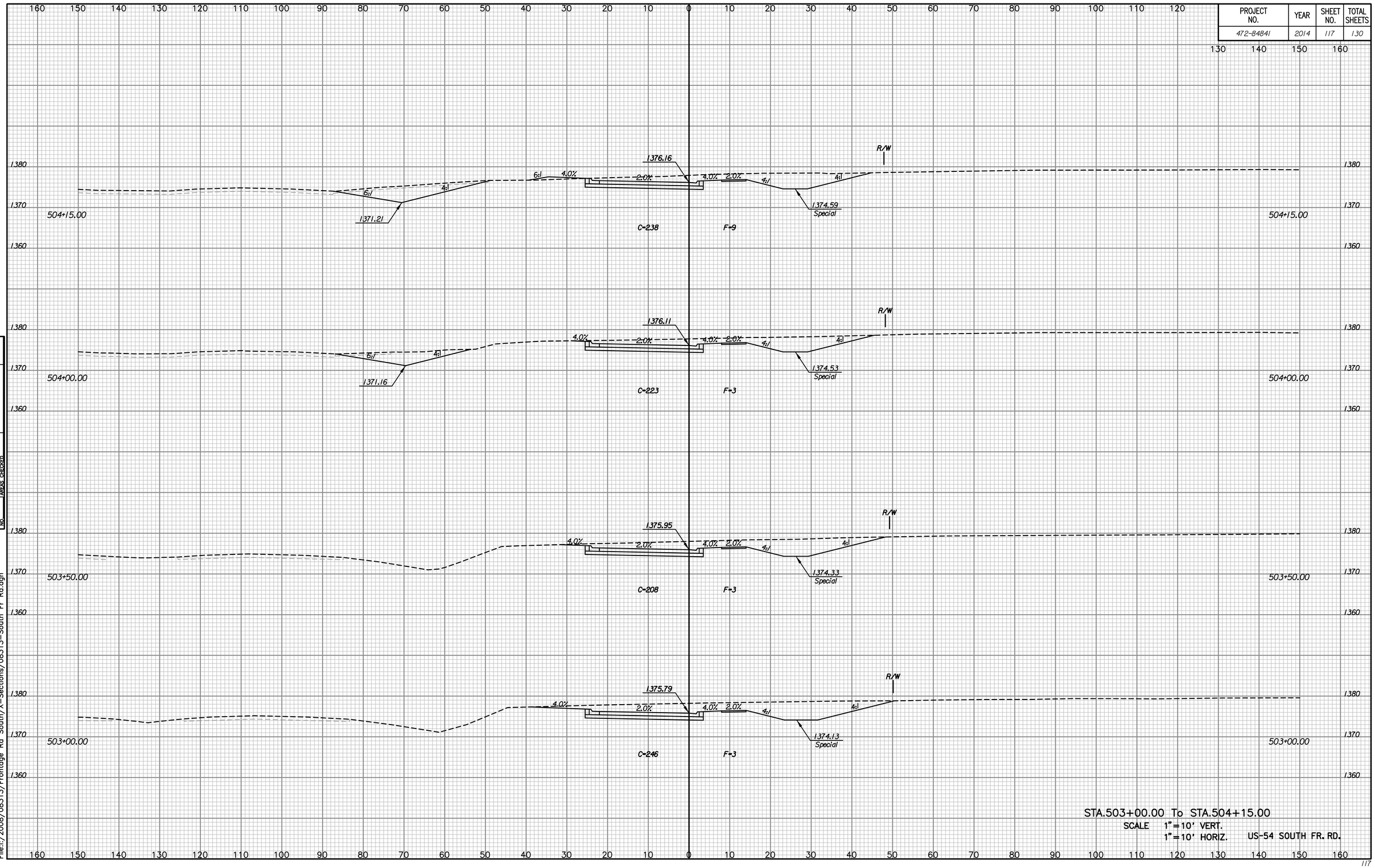
NOTE BOOK	TEMPLATE	AREAS	AREAS CHECKED
NO.			



Plotted By:CKC Date:05-13-2014
File:I:/2008/08313/Frontage Rd South/X-Sections/08313-South Fr Rd.dgn

PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
472-84841	2014	117	130

NOTE BOOK	TEMPLATE	AREAS	AREAS CHECKED
NO.			

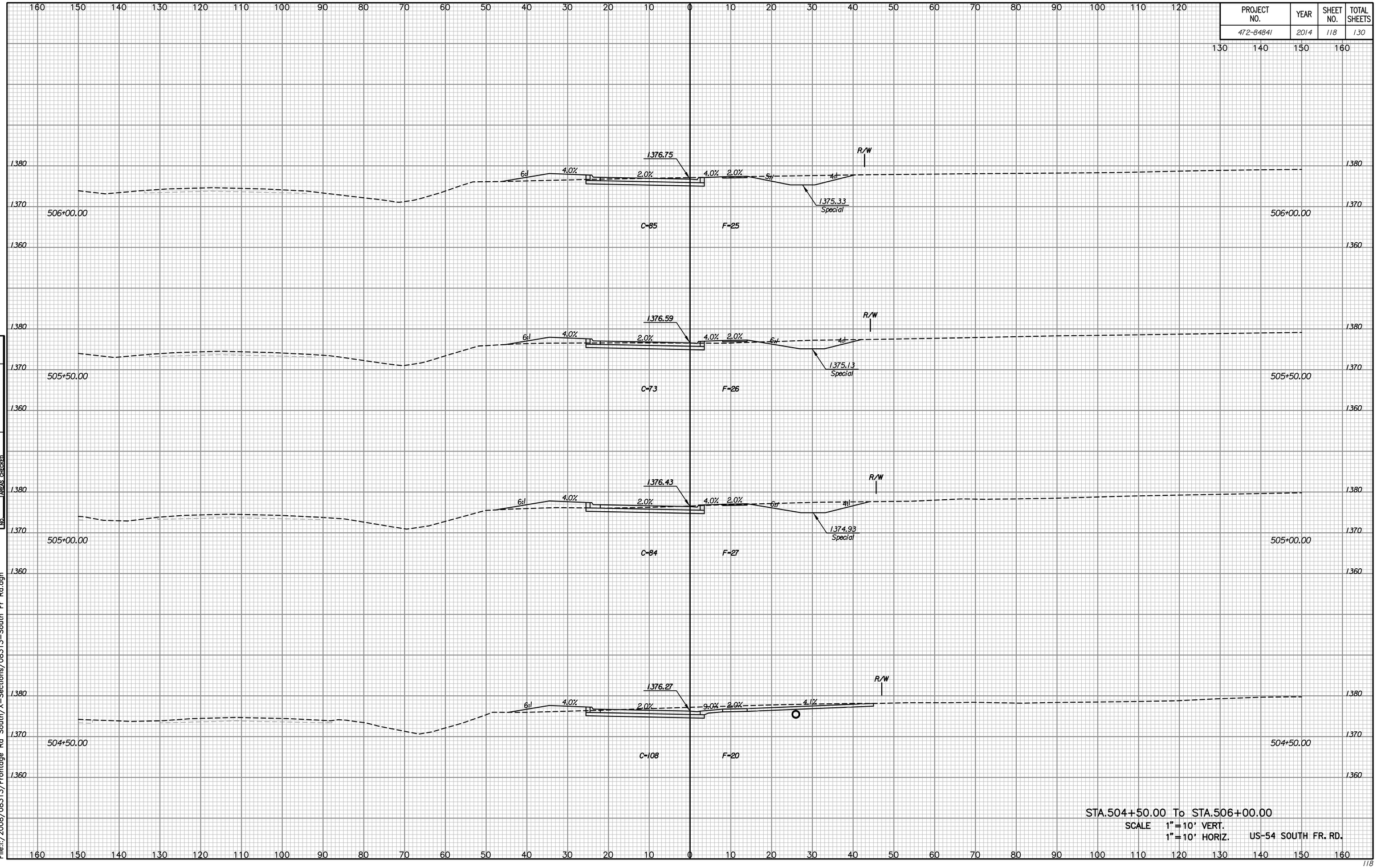


STA.503+00.00 To STA.504+15.00

SCALE 1"=10' VERT.
1"=10' HORIZ. US-54 SOUTH FR. RD.

Plotted By:CKC Date:05-13-2014
File:I:/2008/08313/Frontage Rd South/X-Sections/08313-South Fr Rd.dgn

PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
472-84841	2014	118	130



STA.504+50.00 To STA.506+00.00

SCALE 1"=10' VERT.
1"=10' HORIZ. US-54 SOUTH FR. RD.

NOTE BOOK TEMPLATE AREAS AREAS CHECKED NO.

Plotted By:CKC Date:05-13-2014
File:I:/2008/08313/Frontage Rd South/X-Sections/08313-South Fr Rd.dgn

PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
472-84841	2014	119	130

NOTE BOOK	TEMPLATE	AREAS	AREAS CHECKED
NO.			

1377.39
4.0%
2.0%
4.0%
2.0%
4:1
4:1
R/W
1376.13
Special
508+00.00
C=120
F=3
508+00.00

1377.23
2.0%
4.0%
2.0%
4:1
4:1
R/W
1375.93
Special
507+50.00
C=121
F=3
507+50.00

1377.07
6:1
4.0%
2.0%
4.0%
2.0%
4:1
4:1
R/W
1375.73
Special
507+00.00
C=109
F=12
507+00.00

1376.91
6:1
4.0%
2.0%
4.0%
2.0%
4:1
4:1
R/W
1375.53
Special
506+50.00
C=87
F=21
506+50.00

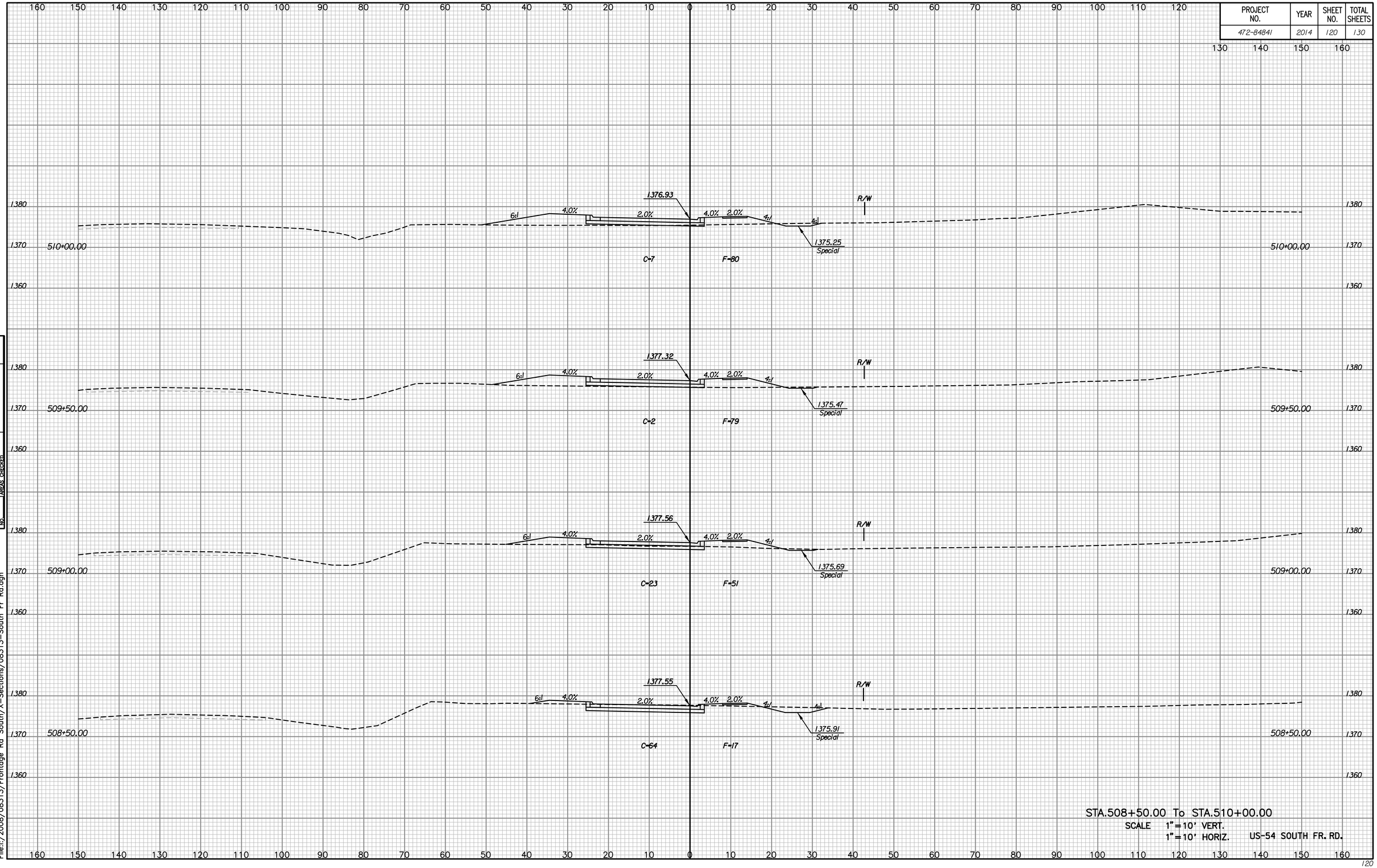
1380
1370
1360

STA.506+50.00 To STA.508+00.00
SCALE 1"=10' VERT.
1"=10' HORIZ. US-54 SOUTH FR. RD.

Plotted By:CKC Date:05-13-2014
File:I:/2008/08313/Frontage Rd South/X-Sections/08313-South Fr Rd.dgn

PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
472-84841	2014	120	130

NOTE BOOK	TEMPLATE AREAS	AREAS CHECKED
NO.		



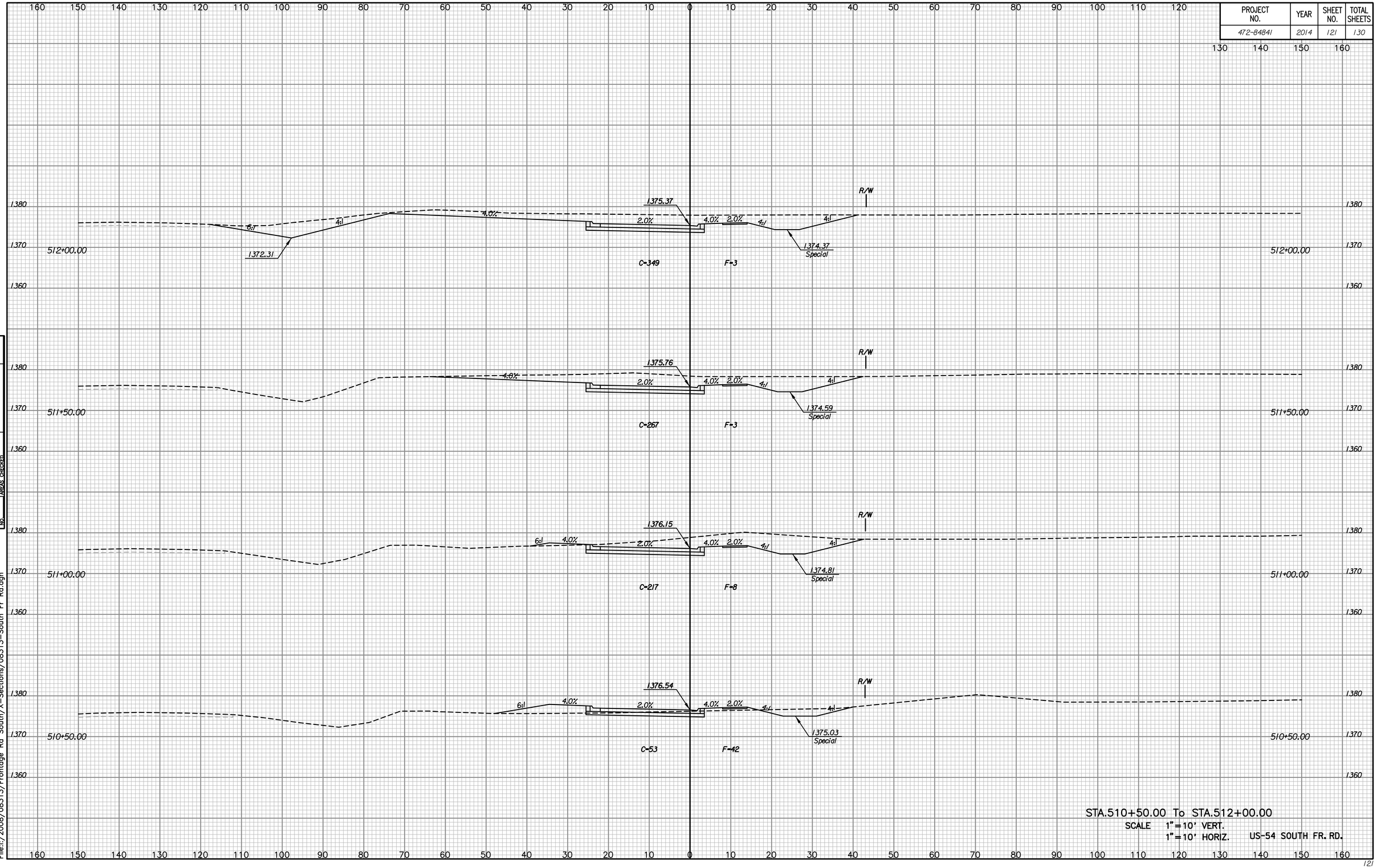
STA.508+50.00 To STA.510+00.00

SCALE 1"=10' VERT.
1"=10' HORIZ. US-54 SOUTH FR. RD.

Plotted By:CKC Date:05-13-2014
File:I:/2008/08313/Frontage Rd South/X-Sections/08313-South Fr Rd.dgn

PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
472-84841	2014	121	130

NOTE BOOK	TEMPLATE	AREAS	AREAS CHECKED
NO.			



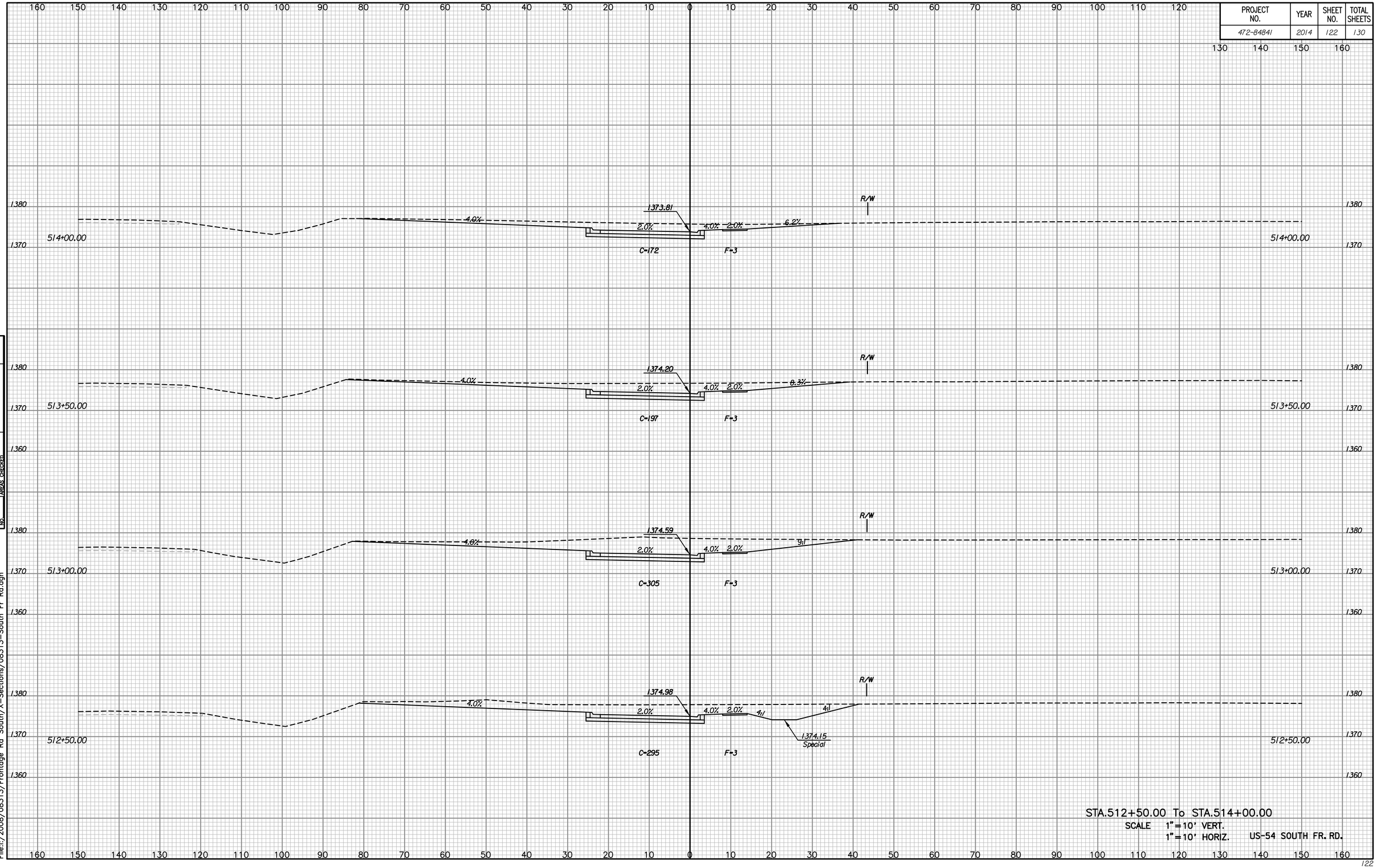
STA.510+50.00 To STA.512+00.00

SCALE 1"=10' VERT.
1"=10' HORIZ. US-54 SOUTH FR. RD.

Plotted By:CKC Date:05-13-2014
File:I:/2008/08313/Frontage Rd South/X-Sections/08313-South Fr Rd.dgn

PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
472-84841	2014	122	130

NOTE BOOK	TEMPLATE AREAS	AREAS CHECKED
NO.		



STA.512+50.00 To STA.514+00.00

SCALE 1"=10' VERT.
1"=10' HORIZ. US-54 SOUTH FR. RD.

Plotted By:CKC Date:05-13-2014
File:I:/2008/08313/Frontage Rd South/X-Sections/08313-South Fr Rd.dgn

PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
472-84841	2014	123	130

160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160

1380
1370
1360

517+00.00
1372.37
2.0% 4.0% 2.0% 4.0%
R/W
C=99 F=3
517+00.00

516+50.00
1372.20
2.0% 4.0% 2.0% 4.0%
R/W
C=91 F=3
516+50.00

516+00.00
1372.29
4.0% 2.0% 4.0% 2.0% 4.0%
R/W
C=94 F=3
516+00.00

515+50.00
1372.64
4.0% 2.0% 4.0% 2.0% 4.0%
R/W
C=98 F=3
515+50.00

515+00.00
1373.03
4.0% 2.0% 4.0% 2.0% 4.0%
R/W
C=127 F=3
515+00.00

514+50.00
1373.42
4.0% 2.0% 4.0% 2.0% 4.0%
R/W
C=166 F=3
514+50.00

NO.	NOTE BOOK	TEMPLATE AREAS	AREAS CHECKED

Plotted By:CKC Date:05-13-2014
File:I:/2008/08313/Frontage Rd South/X-Sections/08313-South Fr Rd.dgn

STA.514+50.00 To STA.517+00.00
SCALE 1"=10' VERT.
1"=10' HORIZ. US-54 SOUTH FR. RD.

PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
472-84841	2014	124	130

160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160

519+50.00

1380
1370
1360

1373.42
4.0% 2.0% 4.0% 2.0% 9.0%
R/W
C=130 F=3

519+50.00

519+00.00

1380
1370
1360

1373.21
4.0% 2.0% 4.0% 2.0% 7.0%
R/W
C=122 F=3

519+00.00

518+50.00

1380
1370
1360

1373.00
4.0% 2.0% 4.0% 2.0% 6.0%
R/W
C=109 F=3

518+50.00

518+00.00

1380
1370
1360

1372.79
6:1 4.0% 2.0% 4.0% 2.0% 5.0%
R/W
C=97 F=7

518+00.00

517+50.00

1380
1370
1360

1372.58
6:1 4.0% 2.0% 4.0% 2.0% 5.0%
R/W
C=90 F=8

517+50.00

160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160

STA.517+50.00 To STA.519+50.00

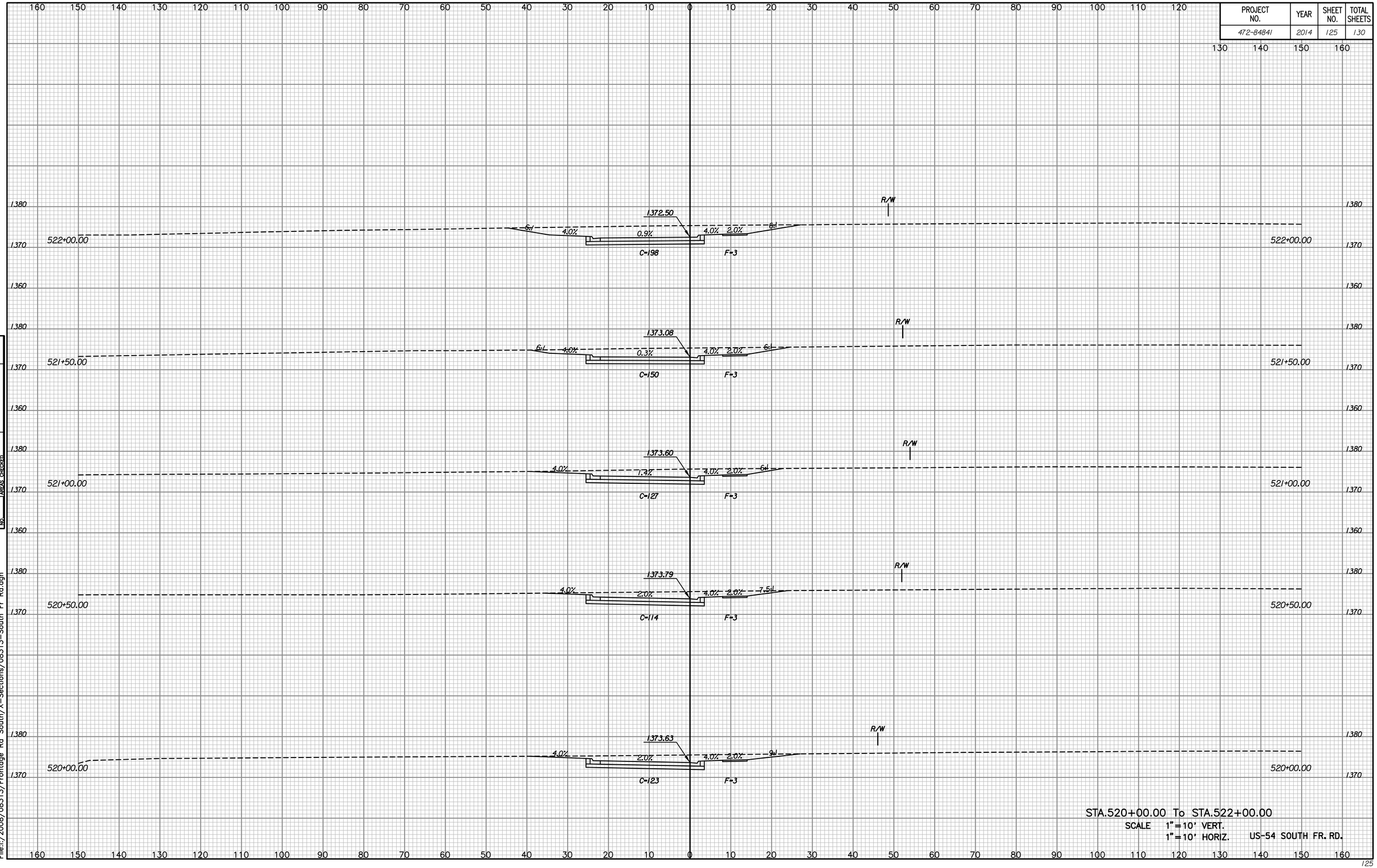
SCALE 1"=10' VERT.
1"=10' HORIZ. US-54 SOUTH FR. RD.

NO.	NOTE BOOK	TEMPLATE AREAS	AREAS CHECKED

Plotted By:CKC Date:05-13-2014
File:I:/2008/08313/Frontage Rd South/X-Sections/08313-South Fr Rd.dgn

PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
472-84841	2014	125	130

NOTE BOOK
TEMPLATE
AREAS
AREAS CHECKED
NO.



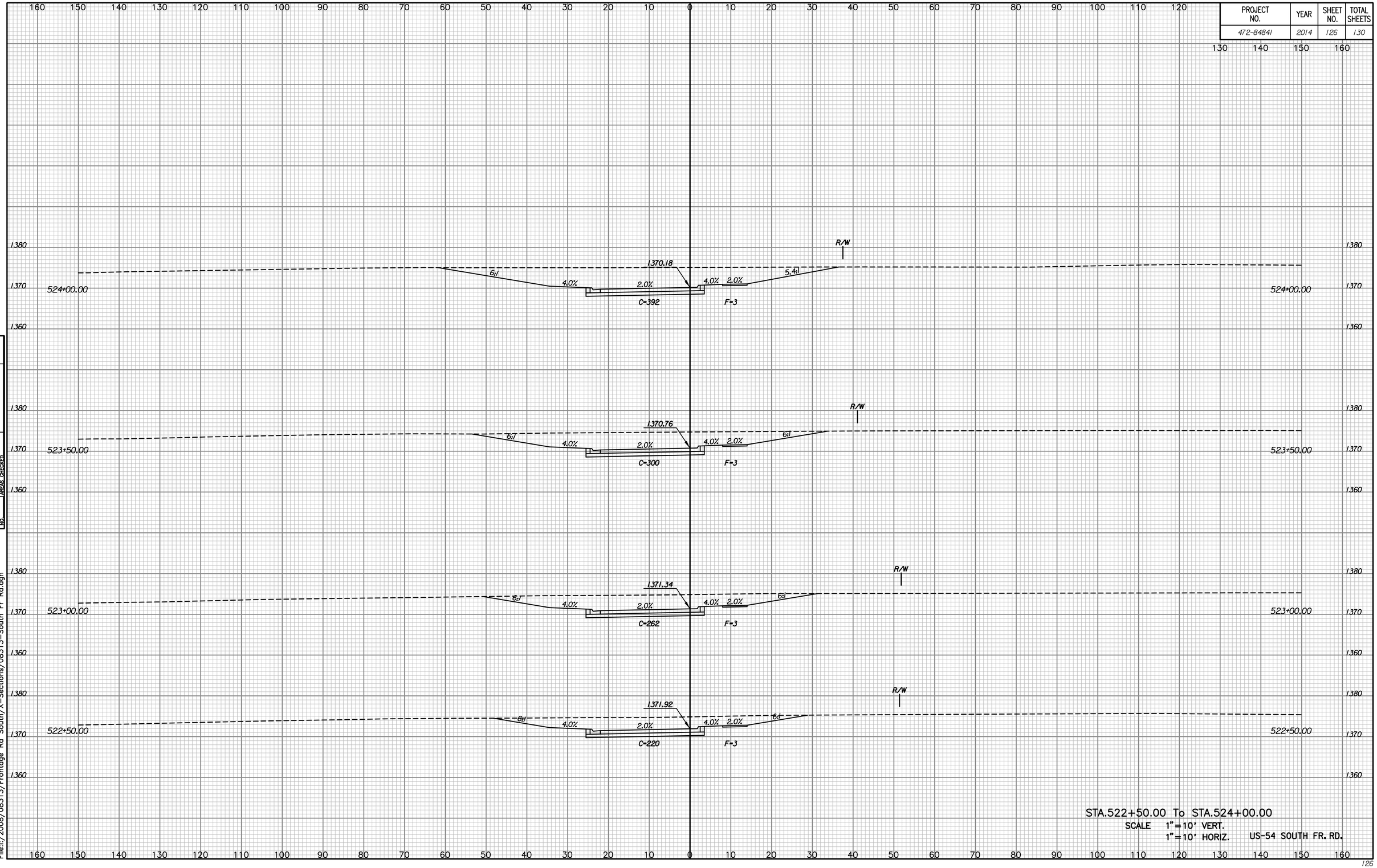
STA.520+00.00 To STA.522+00.00

SCALE 1"=10' VERT.
1"=10' HORIZ. US-54 SOUTH FR. RD.

Plotted By:CKC Date:05-13-2014
File:I:/2008/08313/Frontage Rd South/X-Sections/08313-South Fr Rd.dgn

PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
472-84841	2014	126	130

NOTE BOOK
TEMPLATE
AREAS
AREAS CHECKED
NO.



STA.522+50.00 To STA.524+00.00

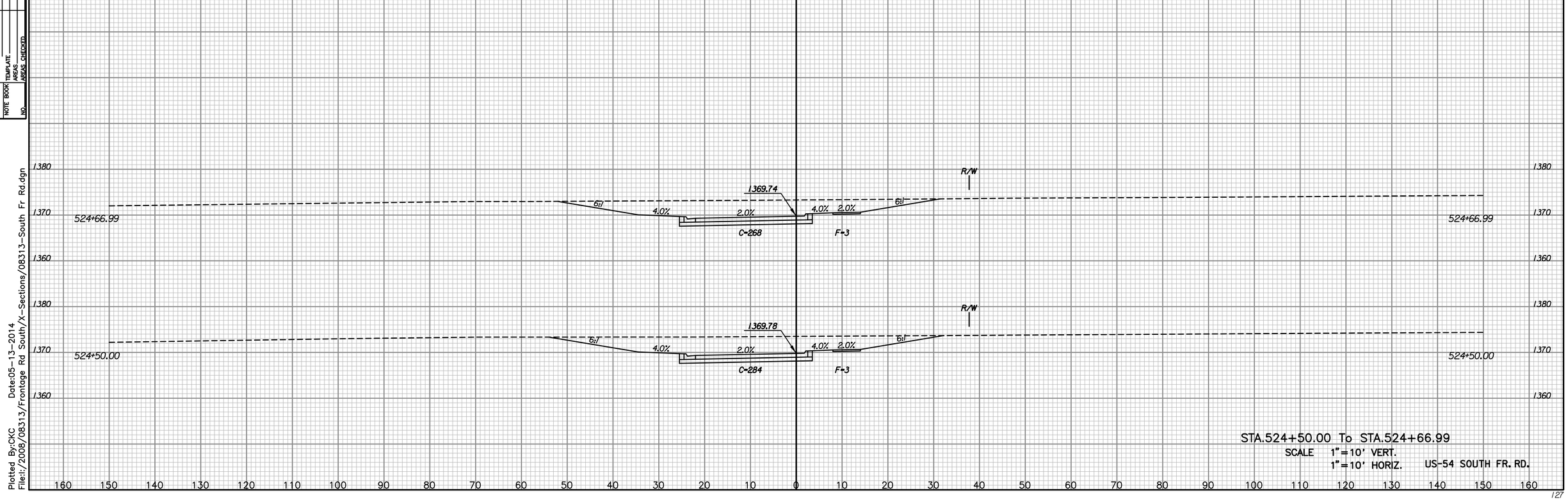
SCALE 1"=10' VERT.
1"=10' HORIZ.

US-54 SOUTH FR. RD.

Plotted By:CKC Date:05-13-2014
File:I:/2008/08313/Frontage Rd South/X-Sections/08313-South Fr Rd.dgn

PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
472-84841	2014	127	130

NOTE BOOK	TEMPLATE AREAS	AREAS CHECKED
NO.		



Plotted By:CKC Date:05-13-2014
File:I:/2008/08313/Frontage Rd South/X-Sections/08313-South Fr Rd.dgn

PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
472-84841	2014	128	130

NOTE BOOK
TEMPLATE
AREAS
AREAS CHECKED
NO.

Plotted By:CKC Date:04-30-2013
File:I:/2008/08313/Frontage Rd South/X-Sections/08313-135th St.dgn

160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160

1370
1360
1350

32+00.00 C=110 F=0 6:1 4:1 1364.95 Special 32+00.00

31+50.00 C=59 F=0 6:1 4:1 1364.70 Special 31+50.00

31+00.00 C=16 F=0 6:1 4:1 1364.45 Special 31+00.00

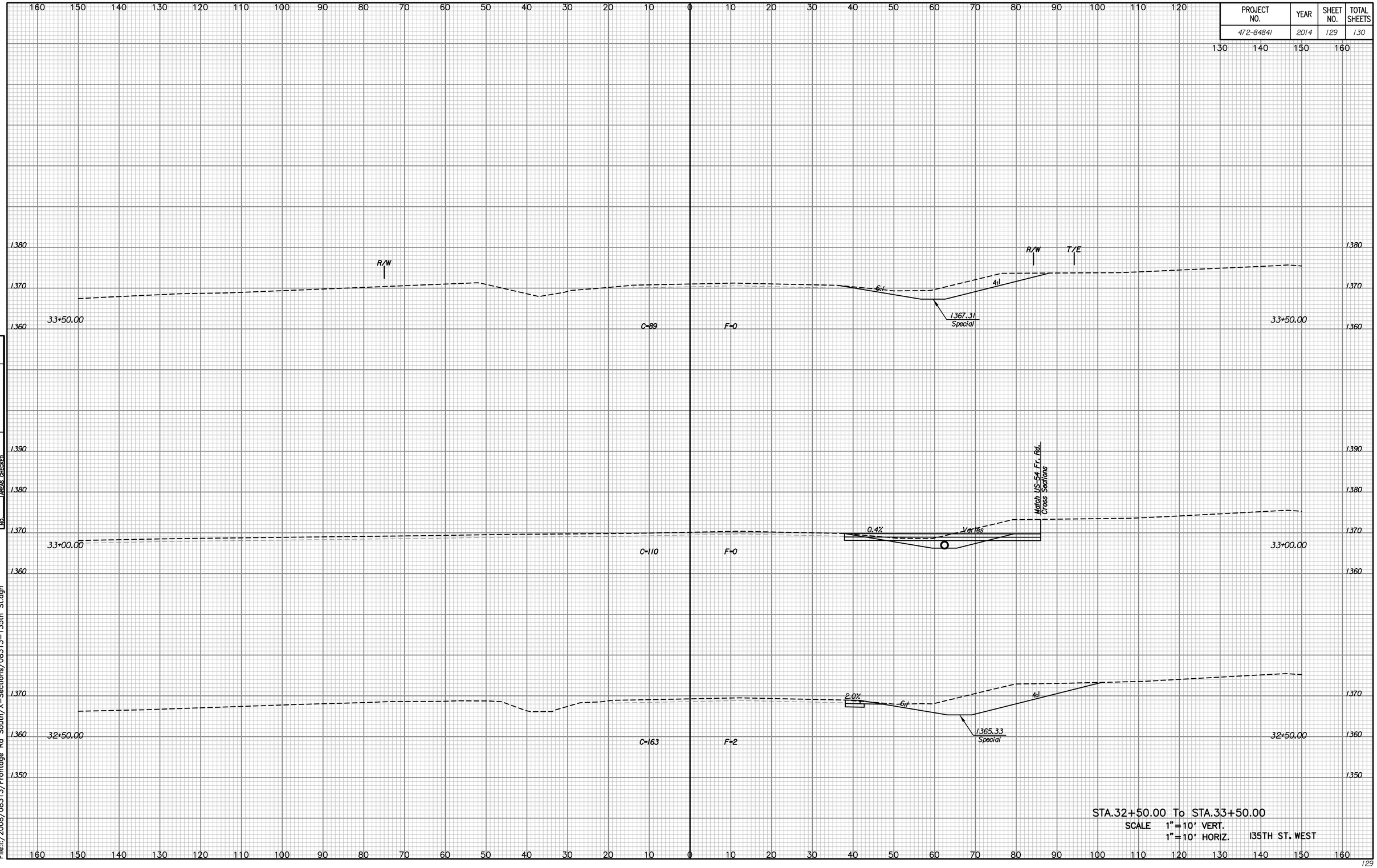
30+50.00 C=4 F=0 6:1 4:1 1364.20 Special 30+50.00

30+00.00 C=0 F=0 30+00.00

STA.30+00.00 To STA.32+00.00
SCALE 1"=10' VERT.
1"=10' HORIZ. 135TH ST. WEST

PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
472-84841	2014	129	130

NOTE BOOK	TEMPLATE	AREAS	AREAS CHECKED
NO.			



STA.32+50.00 To STA.33+50.00

SCALE 1"=10' VERT.
1"=10' HORIZ.

135TH ST. WEST

Plotted By:CKC Date:04-30-2013
File:I:/2008/08313/Frontage Rd South/X-Sections/08313-135th St.dgn

PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
472-84841	2014	130	130

NO.	NOTE BOOK	TEMPLATE AREAS	AREAS CHECKED

160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160

1380
1370
1360

R/W
35+00.00
C=0
F=0
R/W
35+00.00

1380
1370
1360

R/W
34+50.00
C=21
F=0
6:1
4:1
R/W
T/E
1369.81
Special
34+50.00

1380
1370
1360

R/W
34+00.00
C=51
F=0
6:1
4:1
R/W
T/E
1368.56
Special
34+00.00

STA.34+00.00 To STA.35+00.00
SCALE 1"=10' VERT.
1"=10' HORIZ. 135TH ST. WEST

Plotted By:CKC Date:04-30-2013
File:I:/2008/08313/Frontage Rd South/X-Sections/08313-135th St.dgn