

#### NOTES:

1. PAVING SECTION SHOWN IS MINIMUM ALLOWED. STREET PAVING SHALL BE DESIGNED IN ACCORDANCE WITH THE CITY'S "ENGINEERING DESIGN CRITERIA".
2. DOWELS REQUIRED FOR PCC PAVING 8" THICK, OR GREATER, IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 2304.4.A.
3. ASPHALT SURFACE SHALL BE  $\frac{1}{4}$ " ABOVE EDGE OF CONCRETE GUTTER. THE GUTTER MAY BE REDUCED TO  $5\frac{3}{4}$ " TO ACCOMMODATE THIS REQUIREMENT.

## LOCAL (URBAN) STREET

City Engineer Approval:

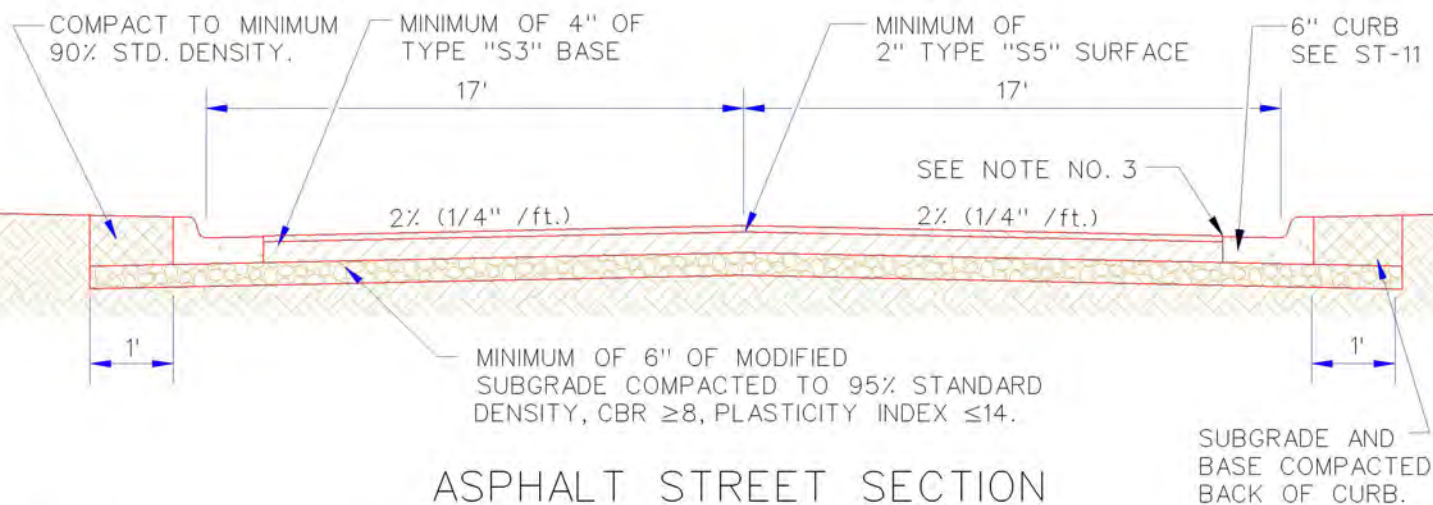
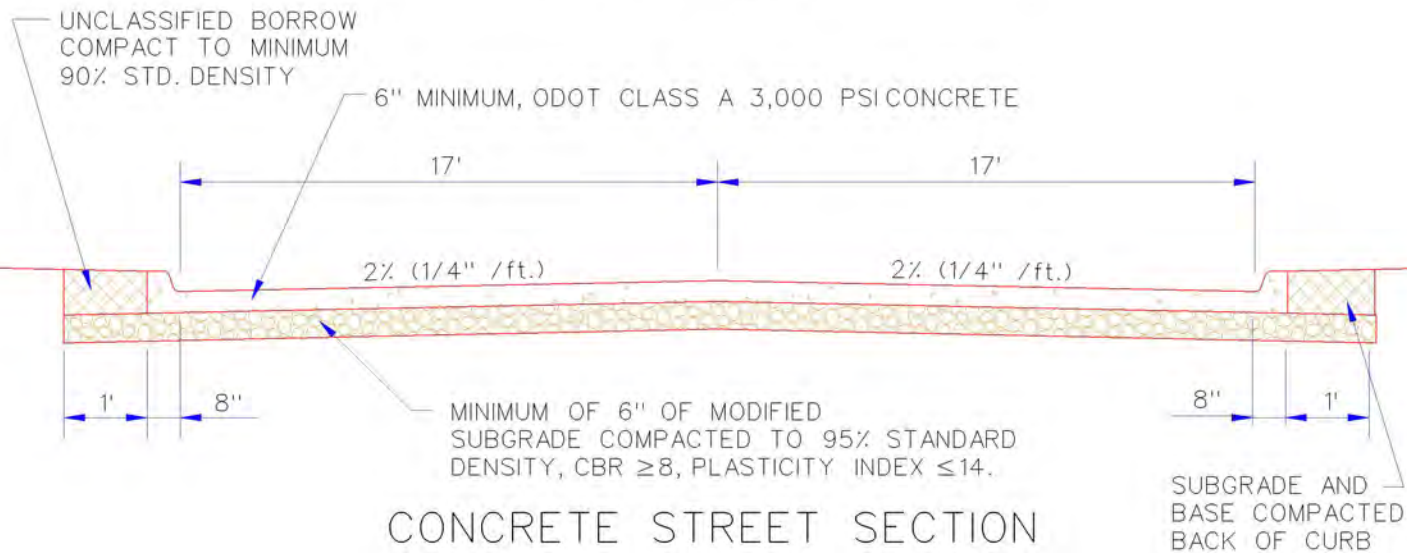
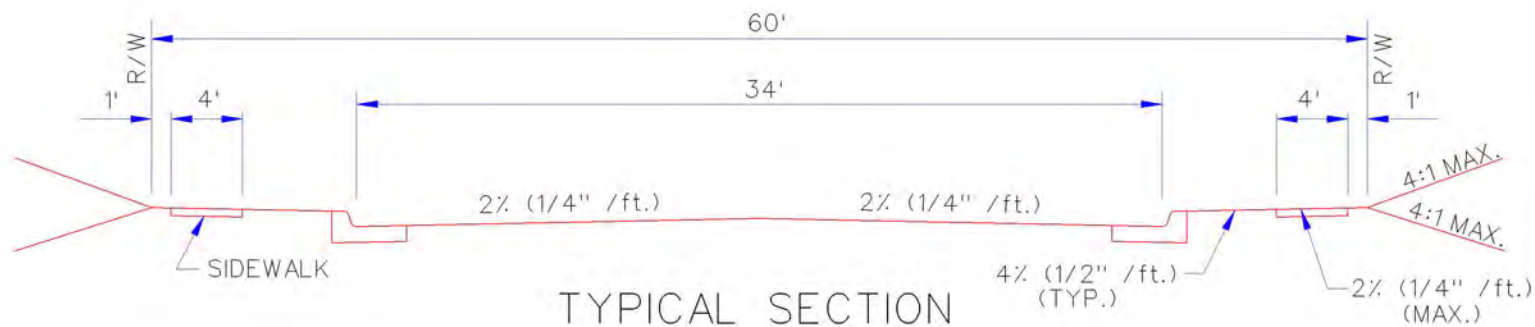
CITY OF NORMAN, OKLAHOMA

Approval Date:

Revision Date: 4-21-2006

Rev. No. 3

DRAWING NO. ST 01



#### NOTES:

1. PAVING SECTION SHOWN IS MINIMUM ALLOWED. STREET PAVING SHALL BE DESIGNED IN ACCORDANCE WITH THE CITY'S "ENGINEERING DESIGN CRITERIA".
2. DOWELS REQUIRED FOR PCC PAVING 8" THICK, OR GREATER, IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 2304.4.A.
3. ASPHALT SURFACE SHALL BE 1/4" ABOVE EDGE OF CONCRETE GUTTER. THE GUTTER MAY BE REDUCED TO 5 3/4" TO ACCOMMODATE THIS REQUIREMENT.

## COLLECTOR (URBAN) STREET

City Engineer Approval:

CITY OF NORMAN, OKLAHOMA

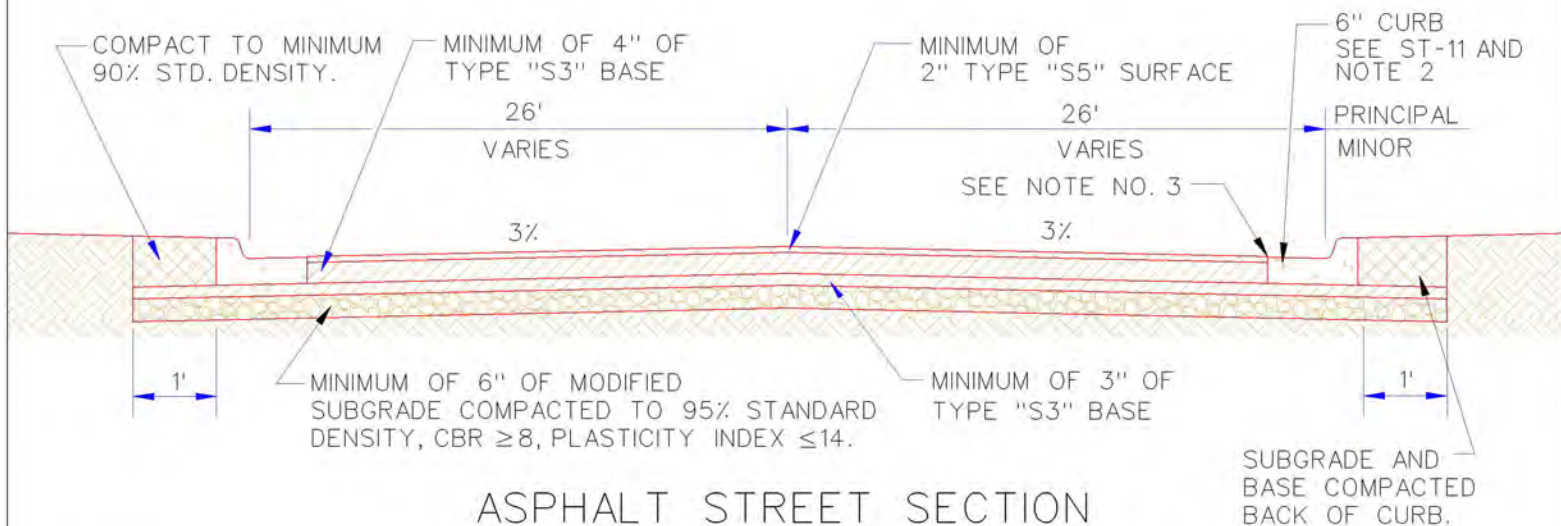
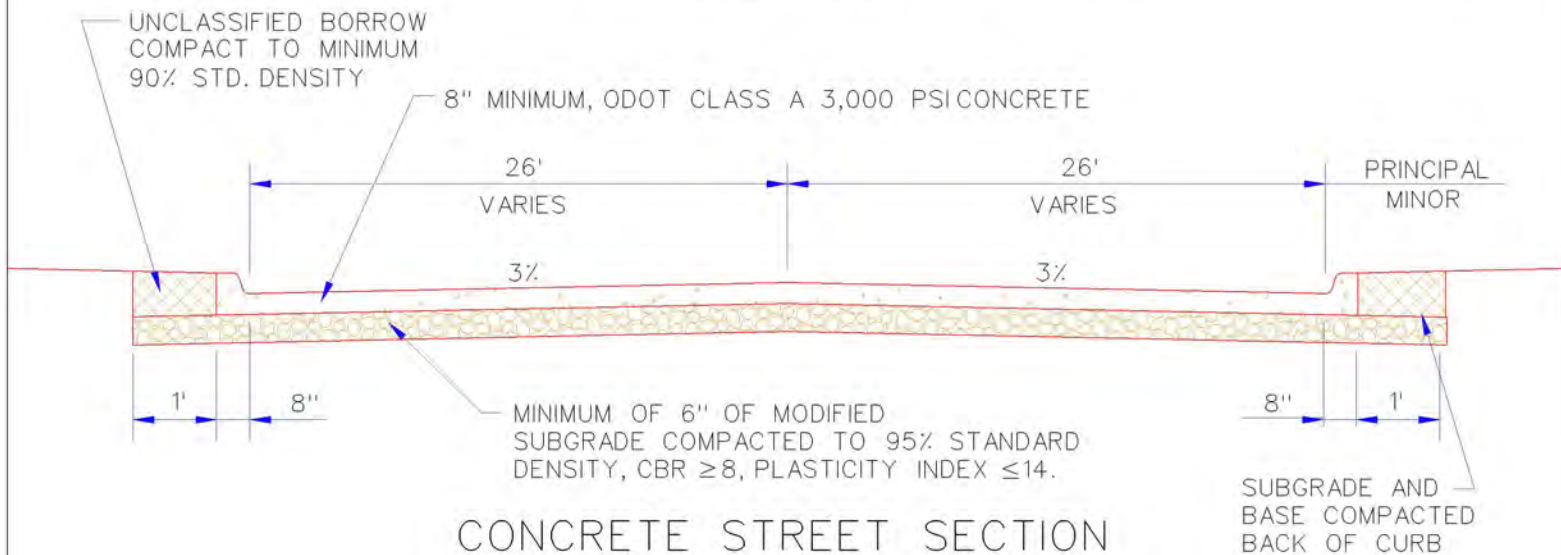
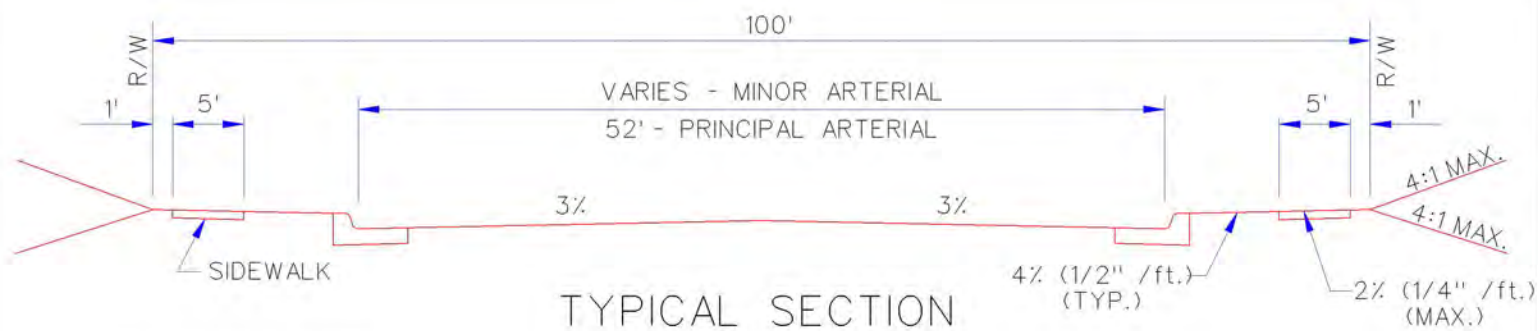
Approval Date:

Revision Date: 4-22-2006

Rev. No. 3

DRAWING NO. ST 02





NOTES:

1. PAVING SECTION SHOWN IS MINIMUM ALLOWED. STREET PAVING SHALL BE DESIGNED IN ACCORDANCE WITH THE CITY'S "ENGINEERING DESIGN CRITERIA".
2. DOWELS REQUIRED FOR PCC PAVING 8" THICK, OR GREATER, IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 2304.4.A.
3. ASPHALT SURFACE SHALL BE 1/4" ABOVE EDGE OF CONCRETE GUTTER. THE GUTTER MAY BE REDUCED TO 5 3/4" TO ACCOMMODATE THIS REQUIREMENT.
4. PAVEMENT SECTION TO BE SUPER-ELEVATED AT ROADWAY CURVES.

ARTERIAL (URBAN) STREET

City Engineer Approval:

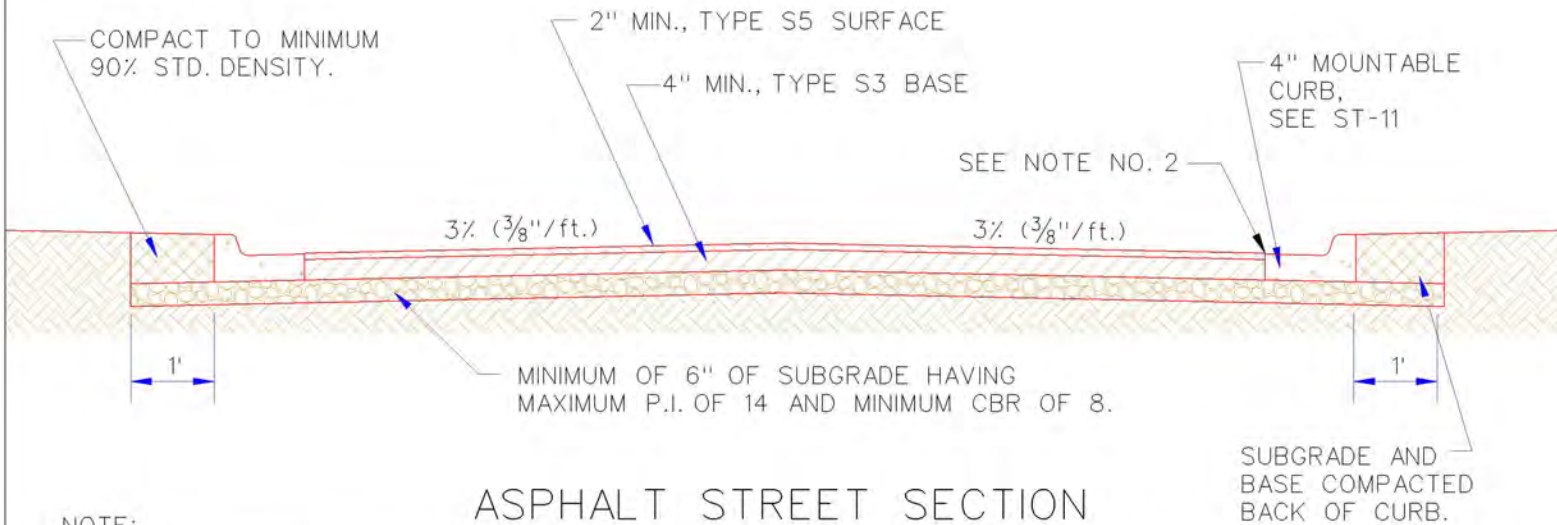
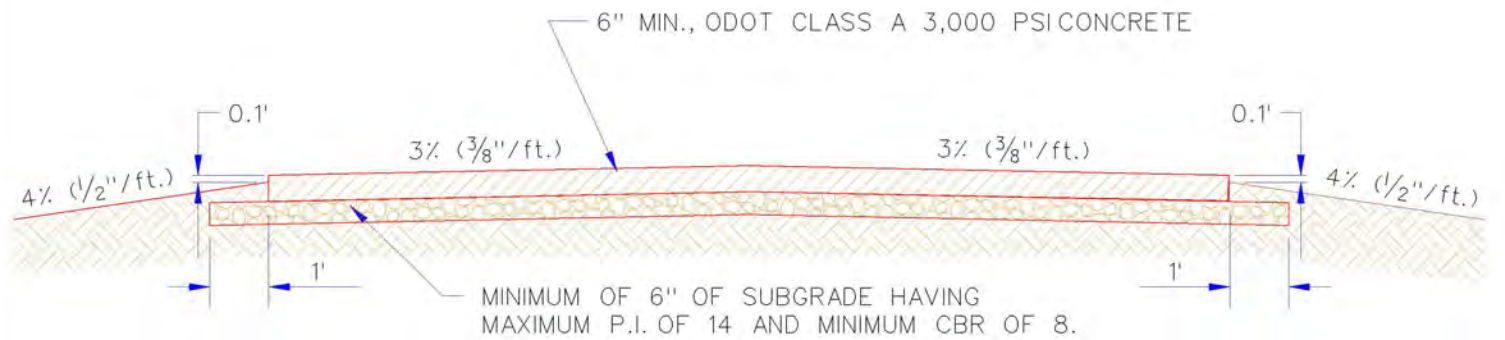
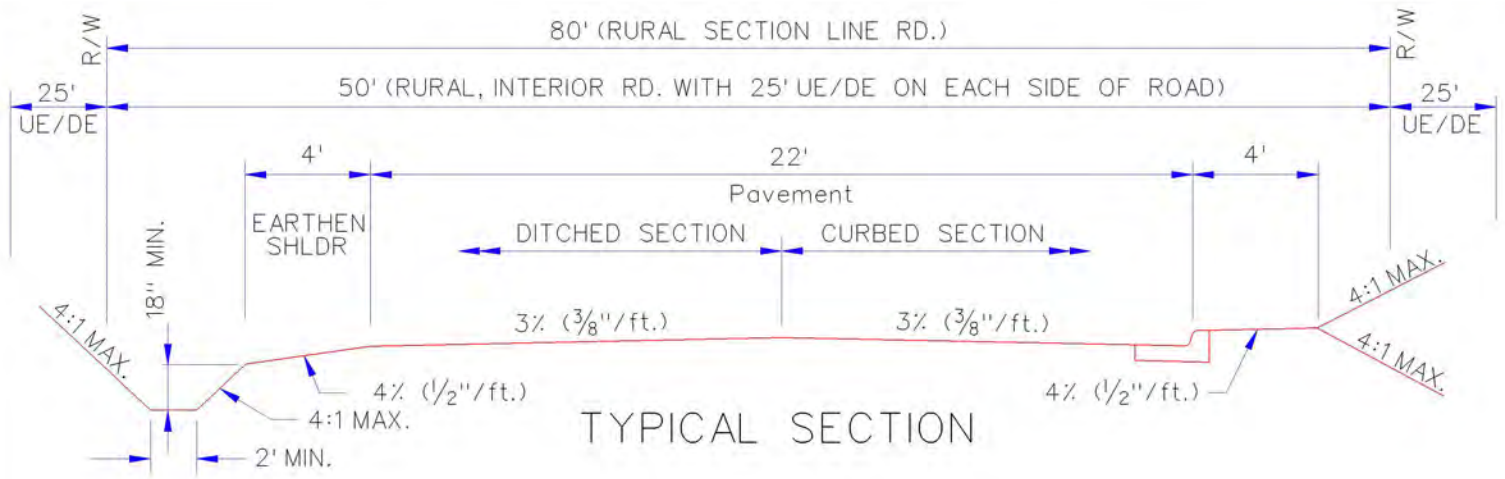
CITY OF NORMAN, OKLAHOMA

Approval Date:

Revision Date: 4-25-2006

Rev. No. 4

DRAWING NO. ST 03



NOTE:

1. PAVING SECTION SHOWN IS MINIMUM ALLOWED. STREET PAVING SHALL BE DESIGNED IN ACCORDANCE WITH THE CITY'S "ENGINEERING DESIGN CRITERIA".
2. ASPHALT SURFACE SHALL BE  $\frac{1}{4}$ " ABOVE EDGE OF CONCRETE GUTTER. THE GUTTER MAY BE REDUCED TO  $5\frac{3}{4}$ " TO ACCOMMODATE THIS REQUIREMENT.

RESIDENTIAL ESTATE/LOCAL (RURAL) ROAD

City Engineer Approval:

CITY OF NORMAN, OKLAHOMA

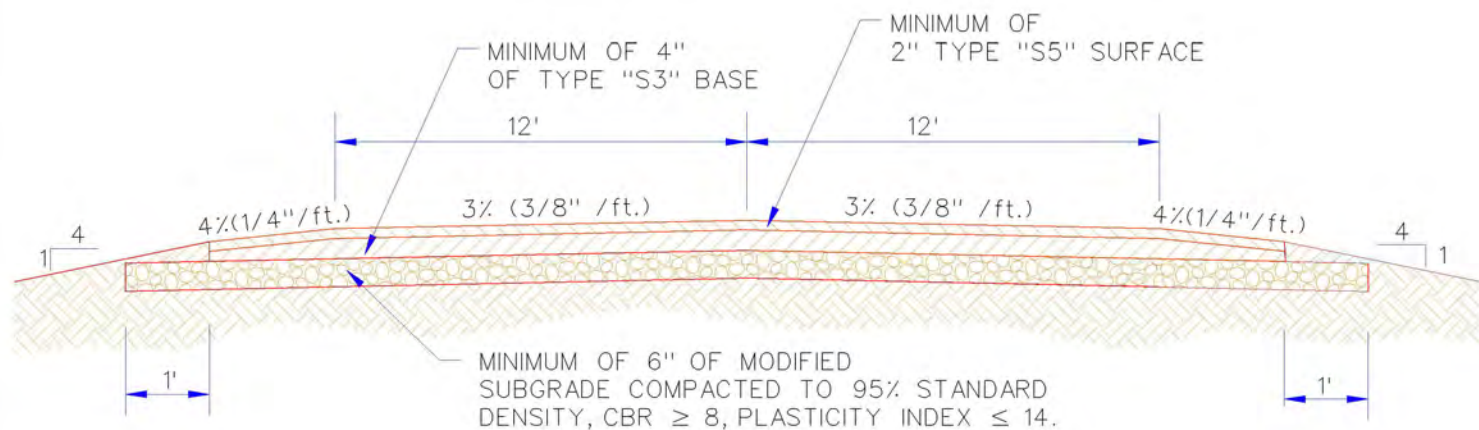
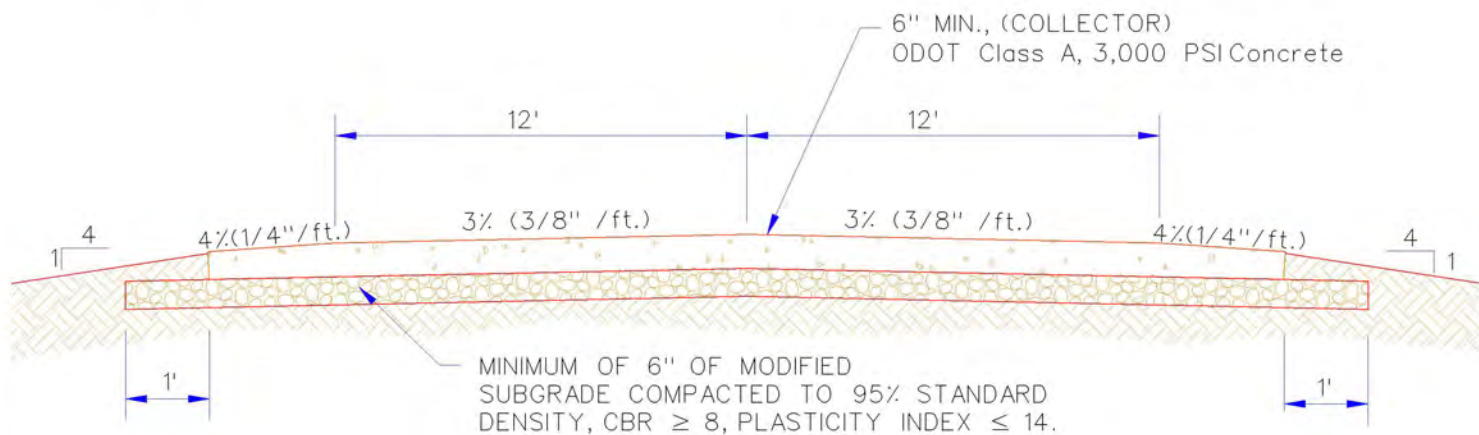
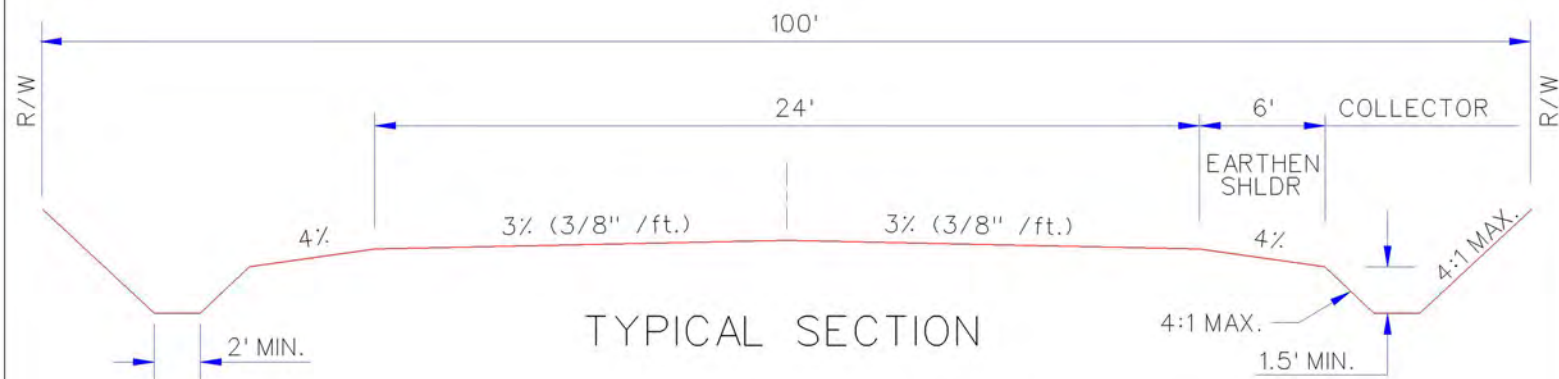
Approval Date:

Revision Date: 4-25-2006

Rev. No. 4

DRAWING NO. ST 04





NOTE:  
PAVING SECTION SHOWN IS MINIMUM ALLOWED. STREET PAVING SHALL BE DESIGNED  
IN ACCORDANCE WITH THE CITY'S "ENGINEERING DESIGN CRITERIA".

## COLLECTOR (RURAL) ROAD

City Engineer Approval:

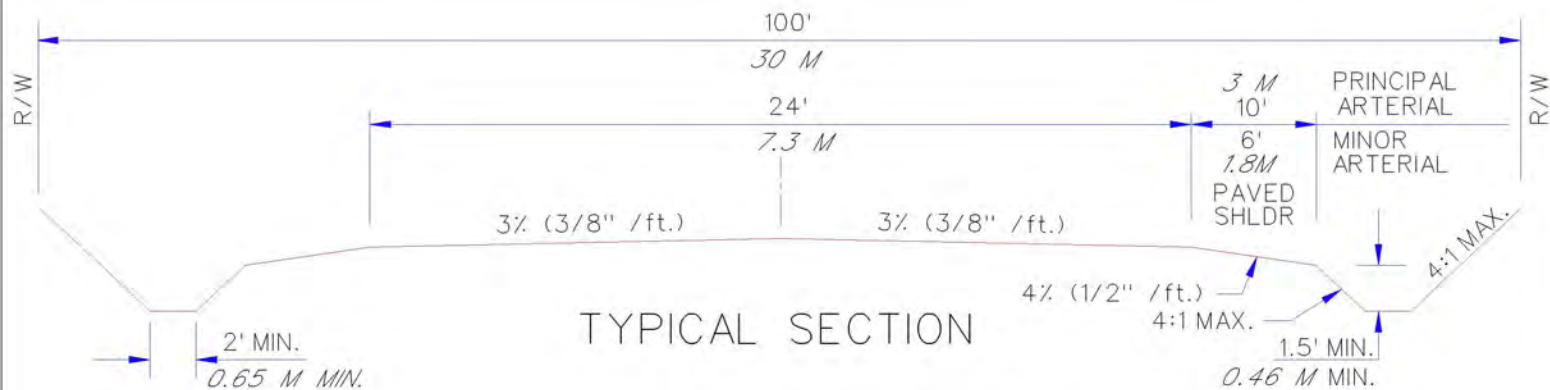
CITY OF NORMAN, OKLAHOMA

Approval Date:

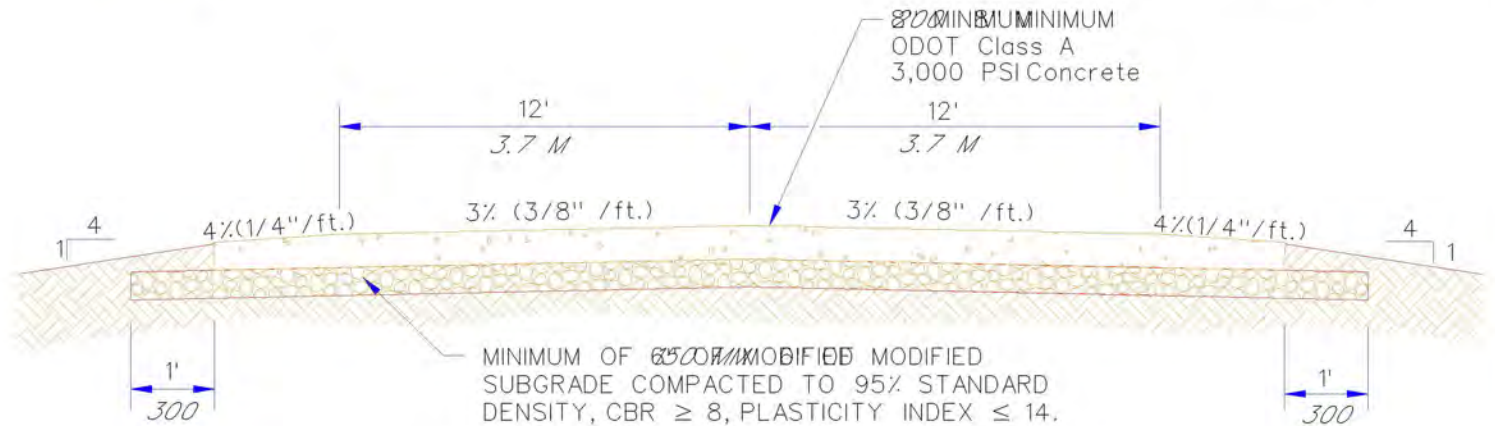
Revision Date: 4-26-2006

Rev. No. 3

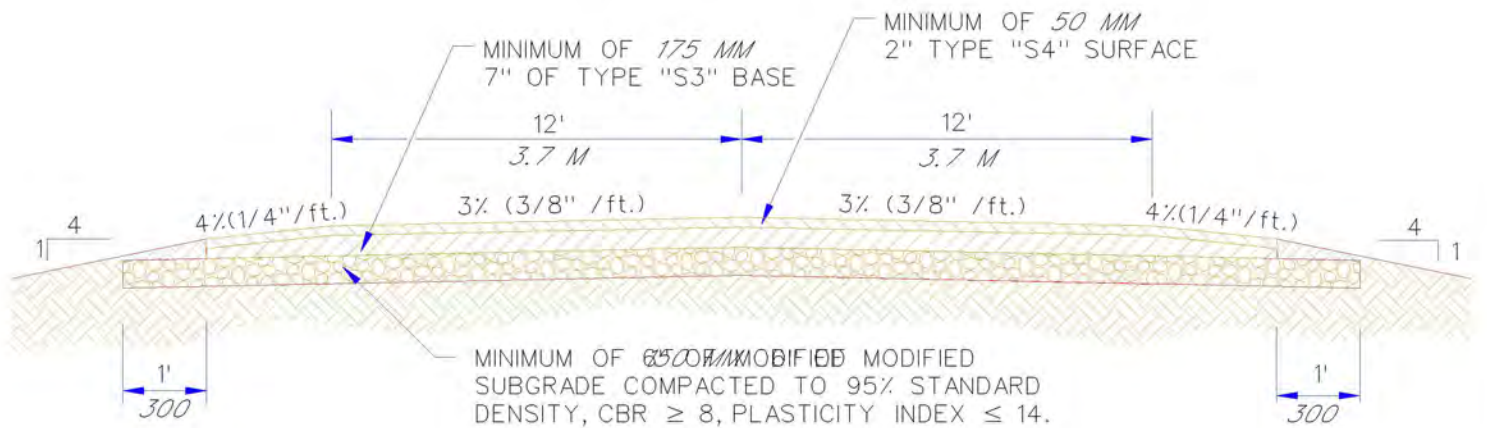
DRAWING NO. ST 05



TYPICAL SECTION



CONCRETE STREET SECTION



ASPHALT STREET SECTION

NOTES:

1. PAVING SECTION SHOWN IS MINIMUM ALLOWED. STREET PAVING SHALL BE DESIGNED IN ACCORDANCE WITH THE CITY'S "ENGINEERING DESIGN CRITERIA".
2. DOWELS REQUIRED FOR PCC PAVING ~~8" MIN.~~ OR GREATER, IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 2304.4.A.

METRIC UNITS ARE IN MM SHOWN IN ITALICS, UNLESS INDICATED OTHERWISE.

ARTERIAL (RURAL) ROAD

City Engineer Approval:

CITY OF NORMAN, OKLAHOMA

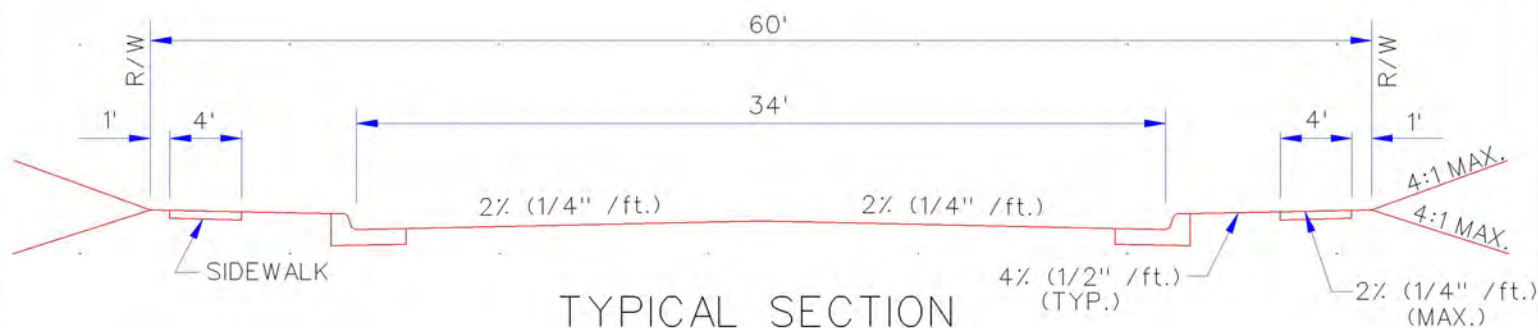
Approval Date:

Revision Date: 4-27-2006

Rev. No. 2

DRAWING NO. ST 06a





UNCLASSIFIED BORROW  
COMPACT TO MINIMUM  
90% STD. DENSITY

7" MINIMUM, ODOT CLASS A 3,000 PSI CONCRETE

2% (1/4" / ft.)

2% (1/4" / ft.)

MINIMUM OF 6" OF MODIFIED  
SUBGRADE COMPACTED TO 95% STANDARD  
DENSITY, CBR  $\geq 8$ , PLASTICITY INDEX  $\leq 14$ .

## CONCRETE STREET SECTION

SUBGRADE AND  
BASE COMPACTED  
BACK OF CURB

COMPACT TO MINIMUM  
90% STD. DENSITY.

MINIMUM OF 6" OF  
TYPE "S3" BASE

MINIMUM OF  
2" TYPE "S4" SURFACE

6" CURB  
SEE NOTE 4  
AND STD. ST-11

SEE NOTE NO. 3

2% (1/4" / ft.)

2% (1/4" / ft.)

MINIMUM OF 6" OF MODIFIED  
SUBGRADE COMPACTED TO 95% STANDARD  
DENSITY, CBR  $\geq 8$ , PLASTICITY INDEX  $\leq 14$ .

## ASPHALT STREET SECTION

SUBGRADE AND  
BASE COMPACTED  
BACK OF CURB.

### NOTES:

1. PAVING SECTION SHOWN IS MINIMUM ALLOWED. STREET PAVING SHALL BE DESIGNED IN ACCORDANCE WITH THE CITY'S "ENGINEERING DESIGN CRITERIA".
2. DOWELS REQUIRED FOR PCC PAVING 8" THICK, OR GREATER, IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 2304.4.A.
3. ASPHALT SURFACE SHALL BE  $\frac{1}{4}$ " ABOVE EDGE OF CONCRETE GUTTER. THE GUTTER MAY BE REDUCED TO  $5\frac{3}{4}$ " TO ACCOMMODATE THIS REQUIREMENT.
4. CURB THICKNESS TO BE 8" THICK, OR 2" THICK TYPE "S3" ASPHALT LAYER EXTENDED UNDER CURB SECTION.

## INDUSTRIAL/COMMERCIAL STREET

City Engineer Approval:

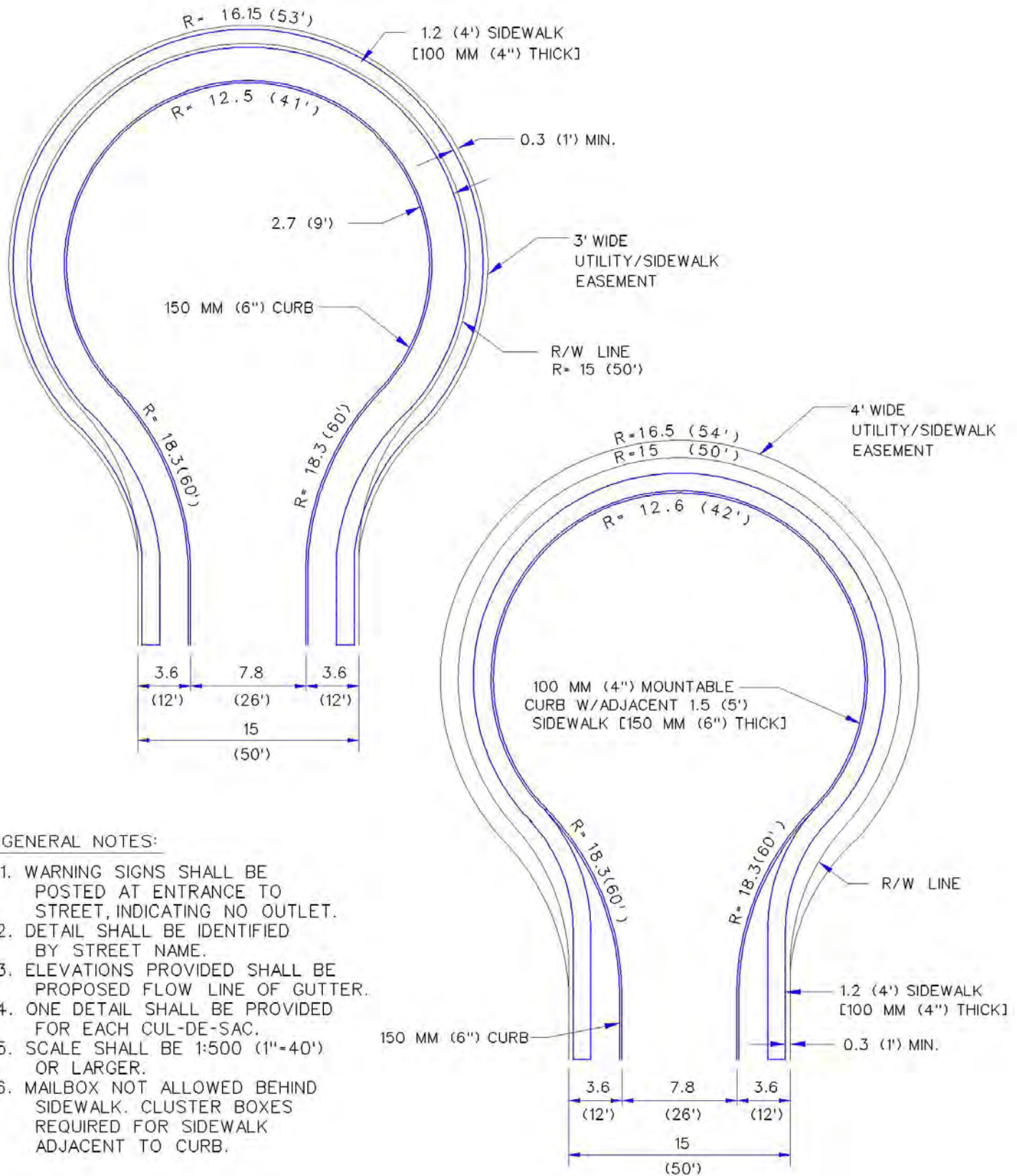
CITY OF NORMAN, OKLAHOMA

Approval Date:

Revision Date: 4-25-2006

Rev. No. 1

DRAWING NO. ST 06b



METRIC UNITS ARE IN METERS WITH ENGLISH UNITS IN PARENTHESIS, UNLESS INDICATED OTHERWISE.

## RESIDENTIAL CUL-DE-SAC (NO ISLAND)

City Engineer Approval:

CITY OF NORMAN, OKLAHOMA

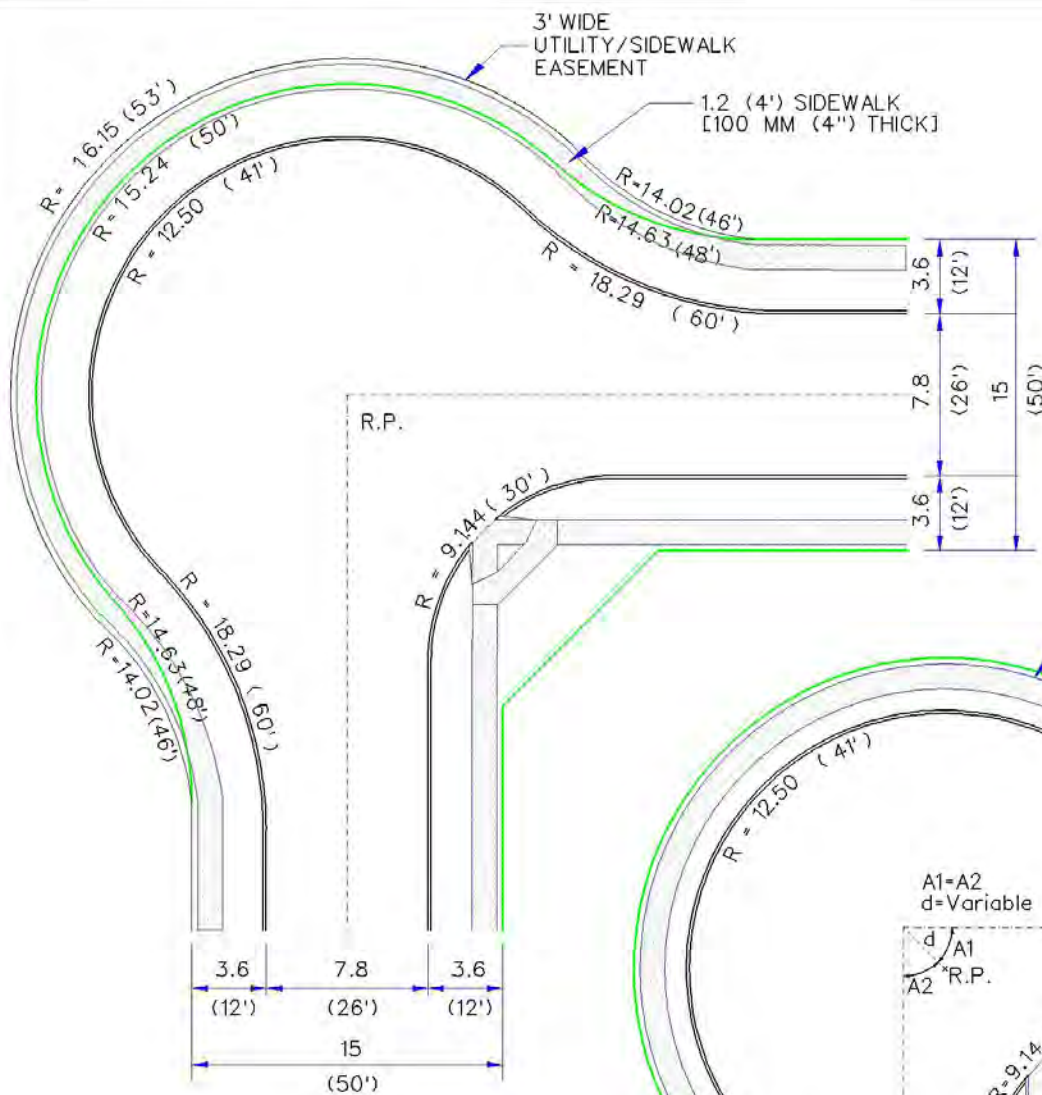
Approval Date:

Revision Date: 9-2-2004

Rev. No. 2

DRAWING NO. ST 07a

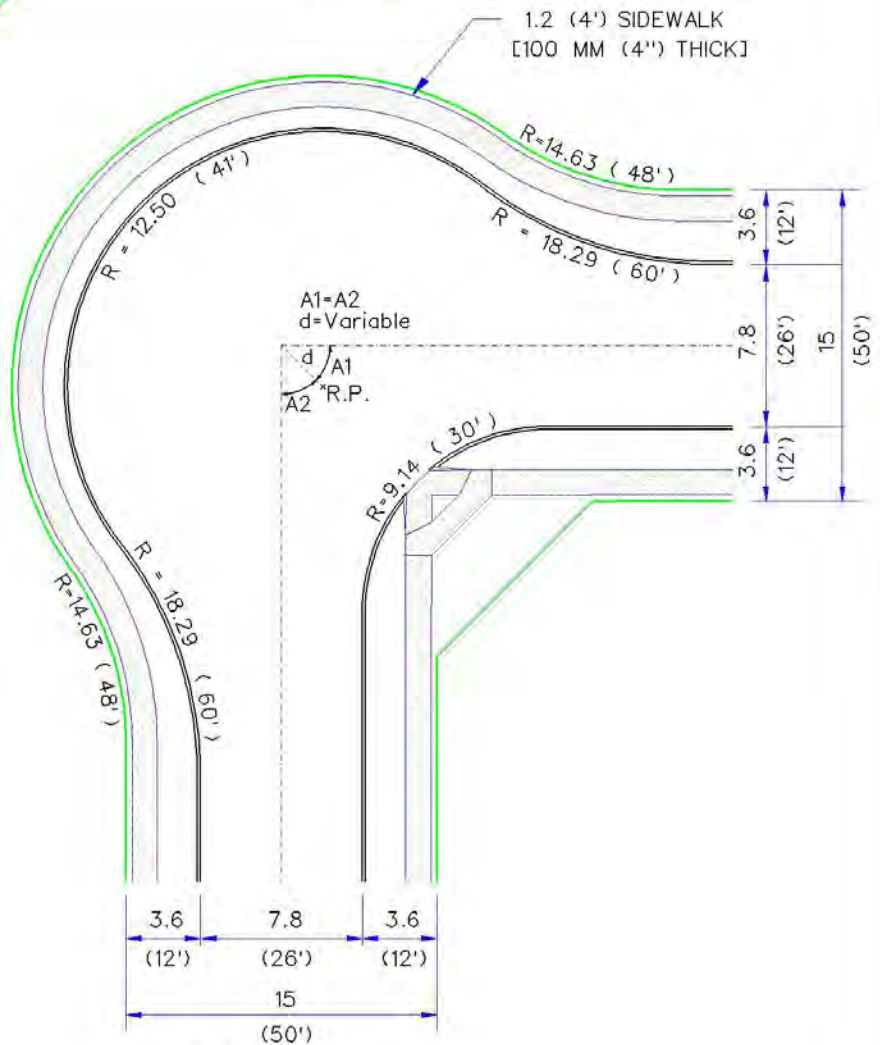




ELBOW

GENERAL NOTES:

1. DISTANCE "d" : 10 FOOT MAXIMUM
2. DETAIL SHALL BE IDENTIFIED BY STREET NAME.
3. ELEVATIONS PROVIDED SHALL BE PROPOSED FLOW LINE OF GUTTER.
4. ONE DETAIL SHALL BE PROVIDED FOR EACH RESIDENTIAL ELBOW
5. SCALE SHALL BE 1:500 (1"=40') OR LARGER.
6. MAILBOX NOT ALLOWED BEHIND SIDEWALK. CLUSTER BOXES REQUIRED FOR SIDEWALK ADJACENT TO CURB.



ELBOW WITH  
R.P. OFFSET

METRIC UNITS ARE IN METERS WITH ENGLISH UNITS IN PARENTHESIS, UNLESS INDICATED OTHERWISE.

RESIDENTIAL ELBOW (NO ISLAND)

City Engineer Approval:

CITY OF NORMAN, OKLAHOMA

Approval Date:

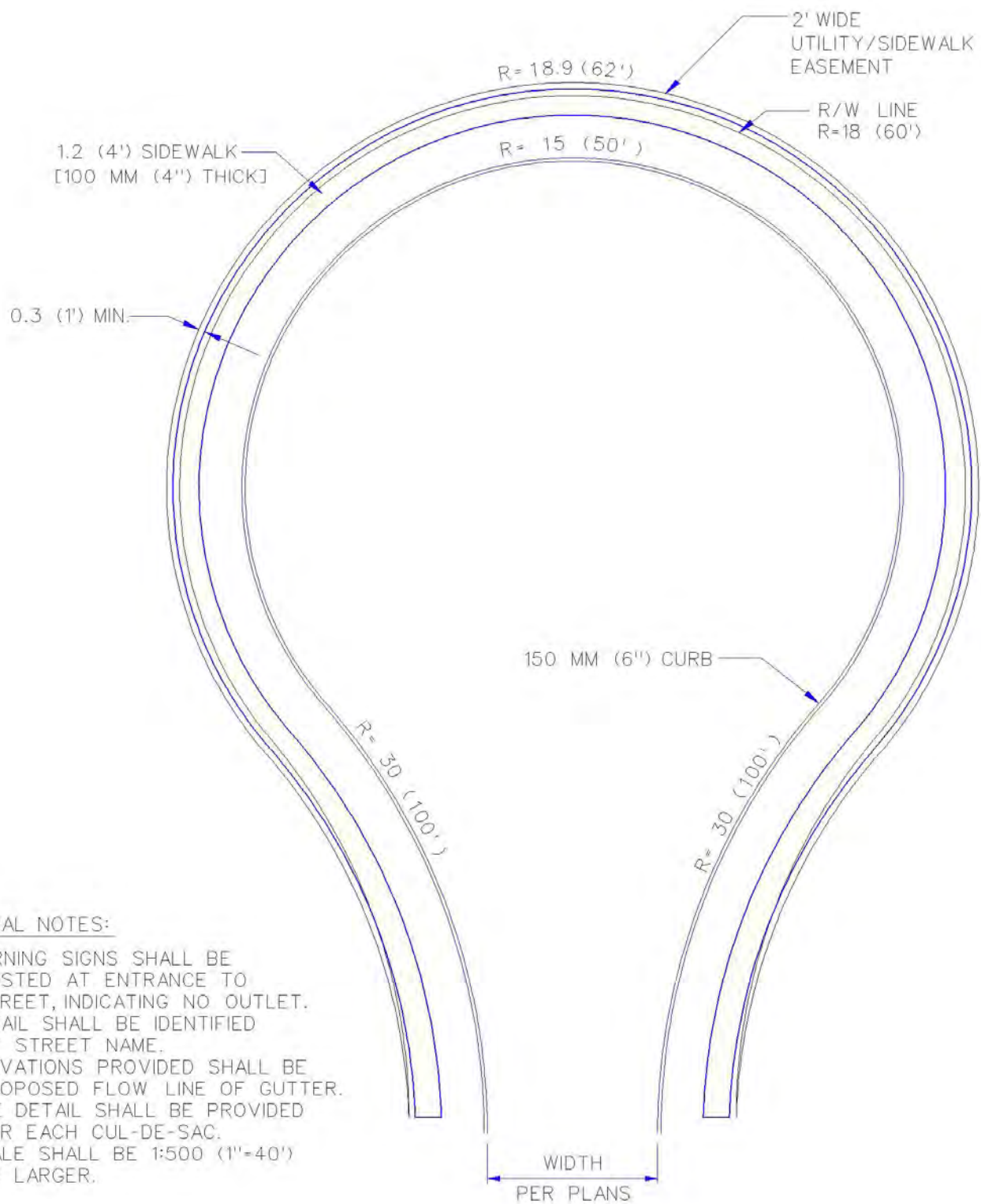
Revision Date: 9-2-2004

Rev. No. 1

DRAWING NO. ST 07b

DRAWING NO. ST 08





METRIC UNITS ARE IN M. WITH ENGLISH UNITS IN PARENTHESIS, UNLESS INDICATED OTHERWISE.

## NON-RESIDENTIAL CUL-DE-SAC

City Engineer Approval:

CITY OF NORMAN, OKLAHOMA

Approval Date:

Revision Date: 3-30-2001

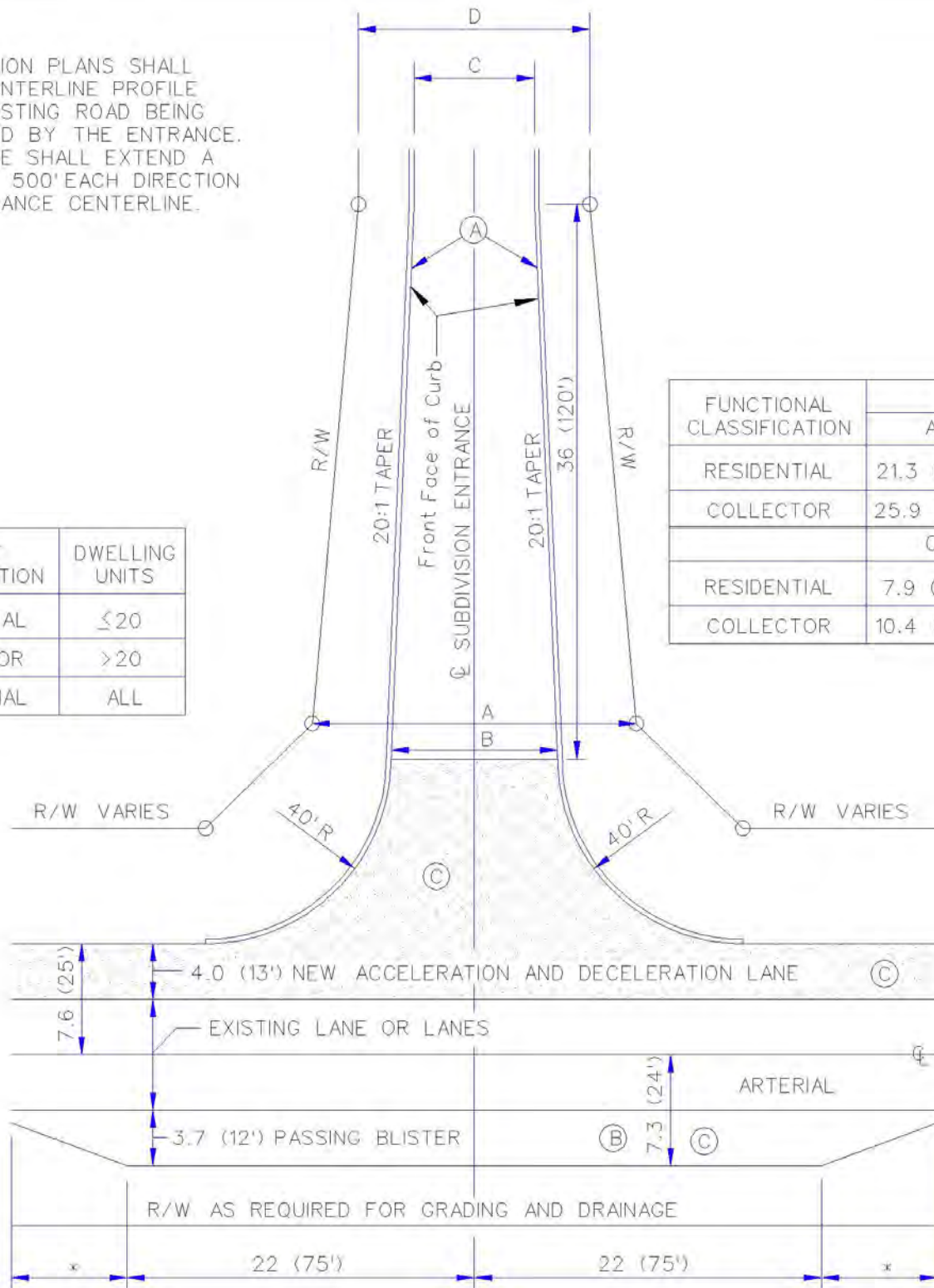
Rev. No. 0

DRAWING NO. ST 09

CONSTRUCTION PLANS SHALL INCLUDE CENTERLINE PROFILE OF THE EXISTING ROAD BEING INTERSECTED BY THE ENTRANCE. THE PROFILE SHALL EXTEND A MINIMUM OF 500' EACH DIRECTION FROM ENTRANCE CENTERLINE.

STREET CLASSIFICATION	DWELLING UNITS
RESIDENTIAL	≤ 20
COLLECTOR	> 20
COMMERCIAL	ALL

FUNCTIONAL CLASSIFICATION	DIMENSION	
	A	B
RESIDENTIAL	21.3 (70')	11.5 (38')
COLLECTOR	25.9 (85')	14 (46')
	C	D
RESIDENTIAL	7.9 (26')	15.2 (50')
COLLECTOR	10.4 (34')	18.3 (60')



- (A) STANDARD CURB & GUTTER
  - (B) PASSING BLISTER WHEN REQUIRED BY CITY ENGINEER
  - (C) LANE WIDENING SHALL MATCH EXISTING PAVEMENT SURFACE TYPE
- \* 45 (150') ARTERIAL  
 \* 30 (100') COLLECTOR

METRIC UNITS ARE IN M WITH ENGLISH UNITS IN PARENTHESIS, UNLESS INDICATED OTHERWISE.

## RESIDENTIAL/ARTERIAL STREET INTERSECTION

City Engineer Approval:

CITY OF NORMAN, OKLAHOMA

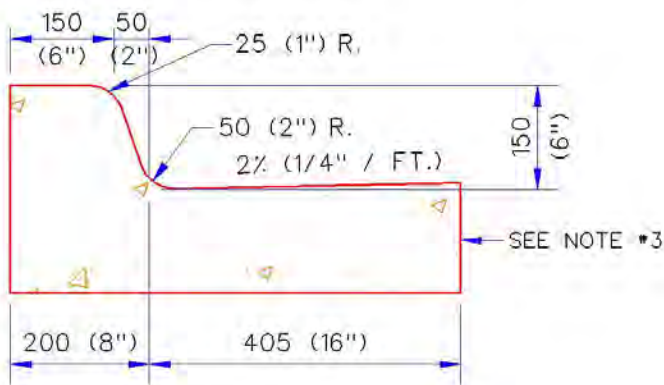
Approval Date:

Revision Date: 10-12-2004

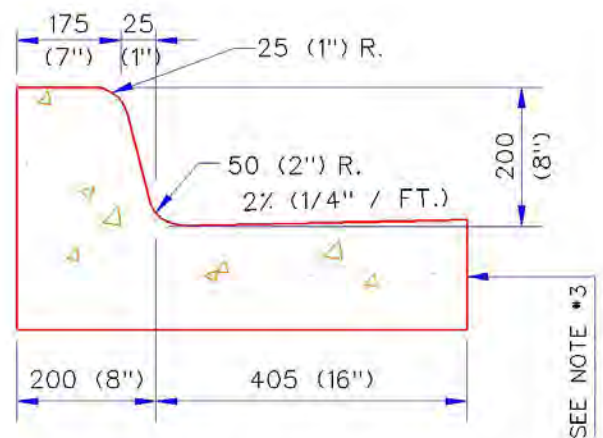
Rev. No. 2

DRAWING NO. ST 10

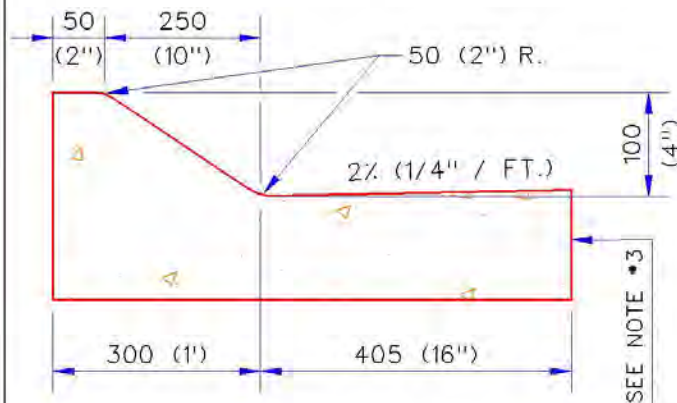




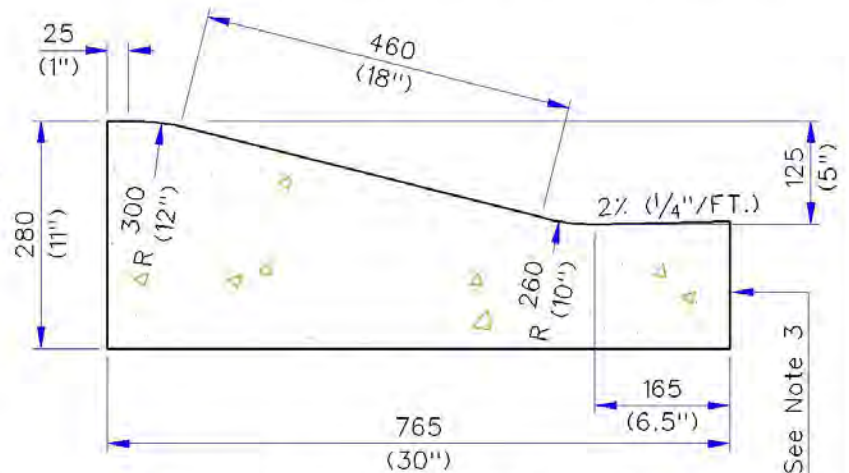
150 (6'') BARRIER CURB & GUTTER



200 (8'') BARRIER CURB & GUTTER



100 (4'') MOUNTABLE CURB & GUTTER



125 (5'') MOUNTABLE CURB & GUTTER



### SIDEWALK ADJACENT TO CURB

#### NOTES:

1. SEE ODOT STANDARD CSCD FOR JOINT DETAILS.
2. #4 TIE BARS 750 (2'-6'') LONG REQUIRED AT 450 (18'') CENTERS WITH TONGUE AND GROOVE JOINT IF CURB AND GUTTER NOT CAST INTEGRALLY WITH STREET PAVING. LONGITUDINAL CONSTRUCTION JOINTS ON LOCAL AND COLLECTOR STREET MAY, AT THE OPTION OF THE DESIGN ENGINEER, BE BUTT TYPE JOINTS WITH TIEBARS OR KEYWAY TYPE JOINT WITHOUT TIEBARS.
3. 150 (6'') MIN. WHEN CURB & GUTTER IS POURED SEPARATELY IF CURB & GUTTER IS POURED MONOLITHICLY WITH THE CONCRETE STREET PAVEMENT, THE GUTTER THICKNESS SHALL BE SAME AS THE APPROVED CONCRETE STREET PAVEMENT THICKNESS. USE 13 (1/2'') DIA. DOWELS 450 (18'') LONG AT 610 (24'') CENTERS (SMOOTH OR DEFORMED) TO TIE CURB TO CONCRETE STREET PAVEMENT.
4. FOR ARTERIAL (URBAN) STREET SECTIONS, THE GUTTER CROSS-SLOPE SHALL BE 3%.

METRIC UNITS ARE IN MM WITH ENGLISH UNITS IN PARENTHESIS, UNLESS INDICATED OTHERWISE.

### CURB AND GUTTER

City Engineer Approval:

CITY OF NORMAN, OKLAHOMA

Approval Date:

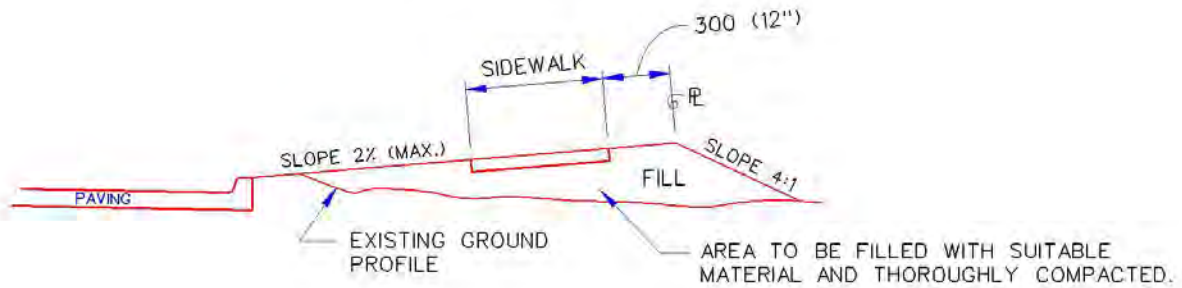
Revision Date: 1-31-2003

Rev. No. 3

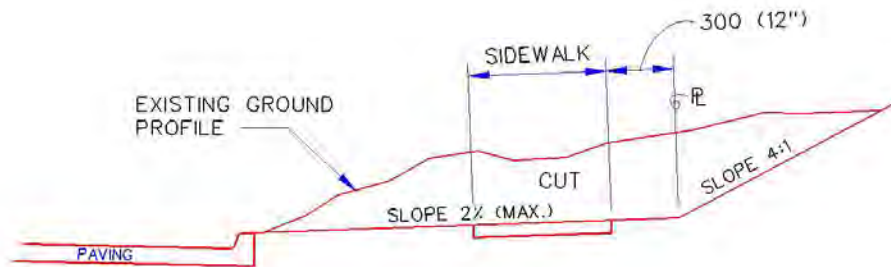
DRAWING NO. ST 11



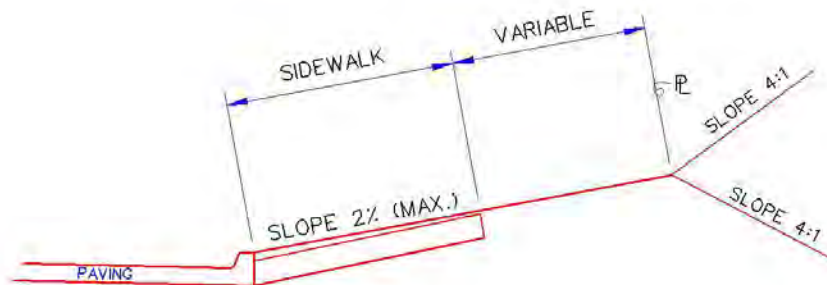




## FILL SECTION



## CUT SECTION



TO BE USED WITH LESS THAN 3.7 M (12') FACE OF CURB TO R OR PLAT WHICH SPECIFIES RAMP DRIVES.

## RAMP TYPE

### NOTES:

ENTIRE AREA BETWEEN CURB AND PROPERTY LINE TO BE GRADED AS SHOWN.  
 MINIMUM SIDEWALK THICKNESS 100 MM (4'')  
 MINIMUM THICKNESS THROUGH DRIVE 125 MM (5'')  
 INSTALL 12 MM (1/2'') EXPANSION JOINTS BETWEEN SIDEWALK & CURB.

METRIC UNITS ARE IN MM WITH ENGLISH UNITS IN PARENTHESIS, UNLESS INDICATED OTHERWISE.

## RIGHT-OF-WAY GRADING

City Engineer Approval:

CITY OF NORMAN, OKLAHOMA

Approval Date:

Revision Date:

Rev. No. 0

DRAWING NO. ST 13







METRIC UNITS ARE IN MM WITH ENGLISH UNITS IN PARENTHESIS, UNLESS INDICATED OTHERWISE.

## RIGHT OF WAY RAMP DETAILS

City Engineer Approval:

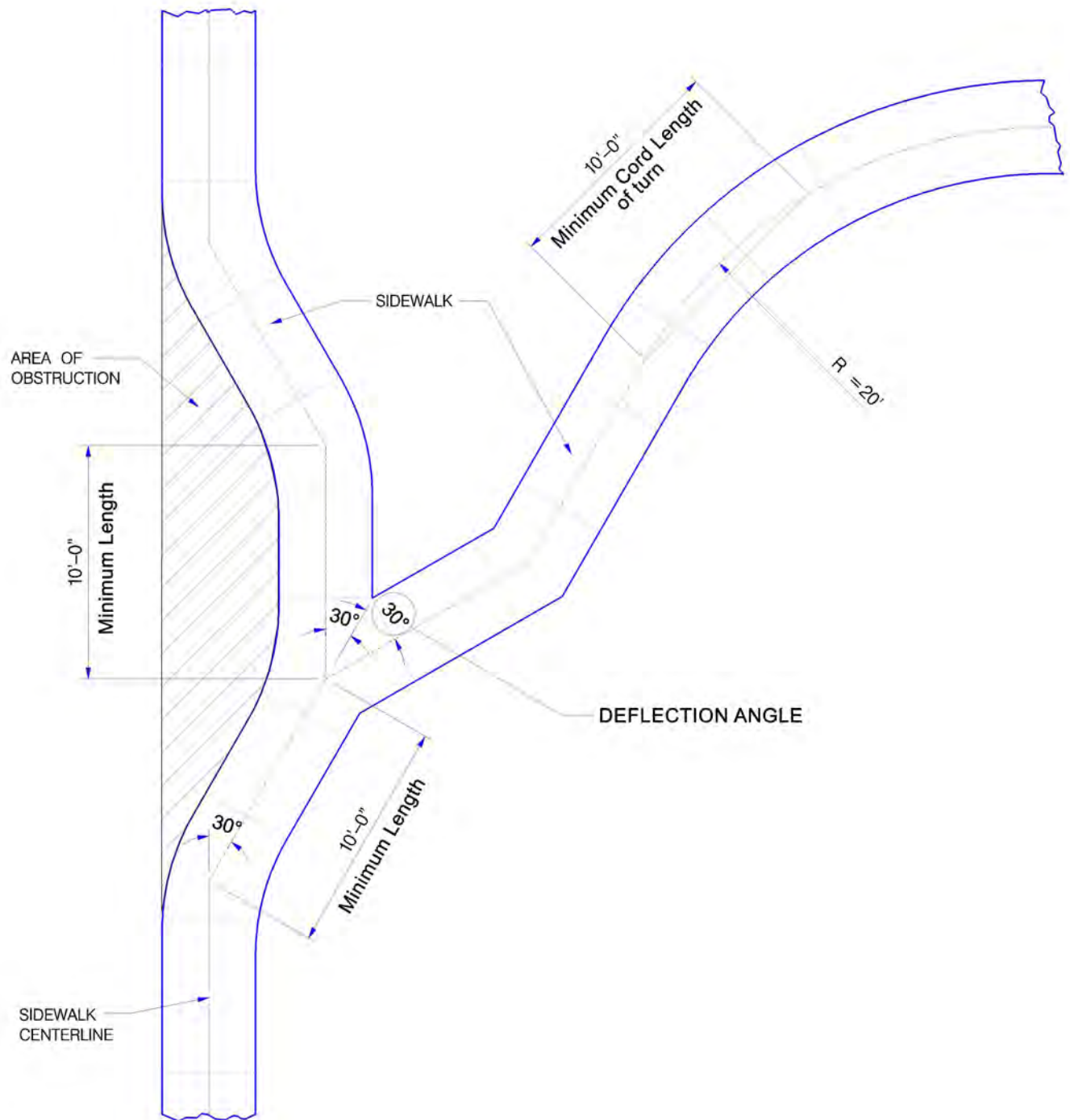
CITY OF NORMAN, OKLAHOMA

Approval Date:

Revision Date: 11-23-2004

Rev. No. 0

DRAWING NO. ST 14a



**NOTES:**

1. THE MAXIMUM DEFLECTION ANGLE SHALL BE 30° PER 10' LENGTH OF SIDEWALK OR CORD LENGTH OF CURVED SIDEWALK WITH A MINIMUM 20' RADIUS.
2. SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2%.

## SIDEWALK HORIZONTAL ALIGNMENT DETAILS

City Engineer Approval:

CITY OF NORMAN, OKLAHOMA

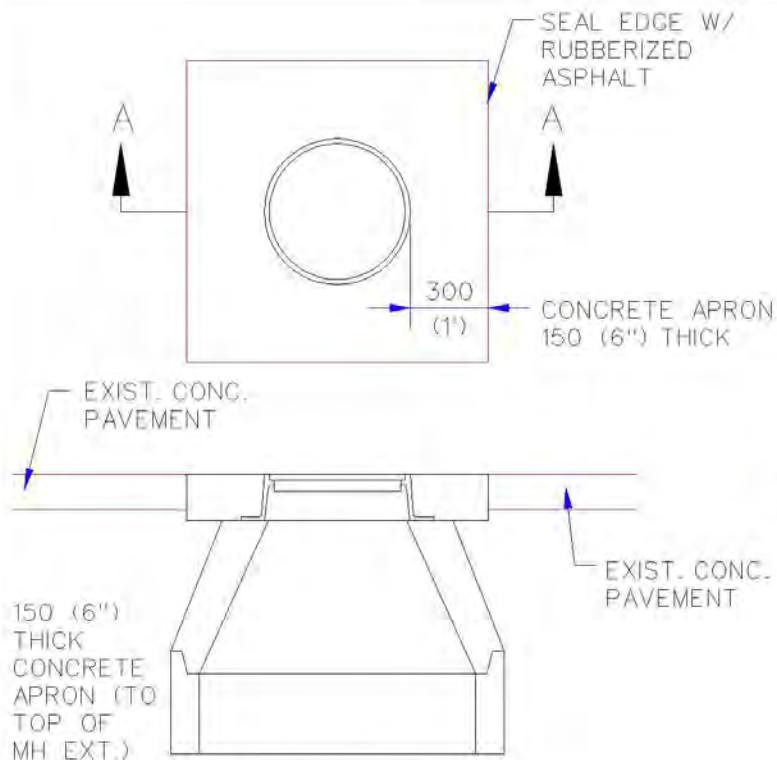
Approval Date:

Revision Date: 5-2-2006

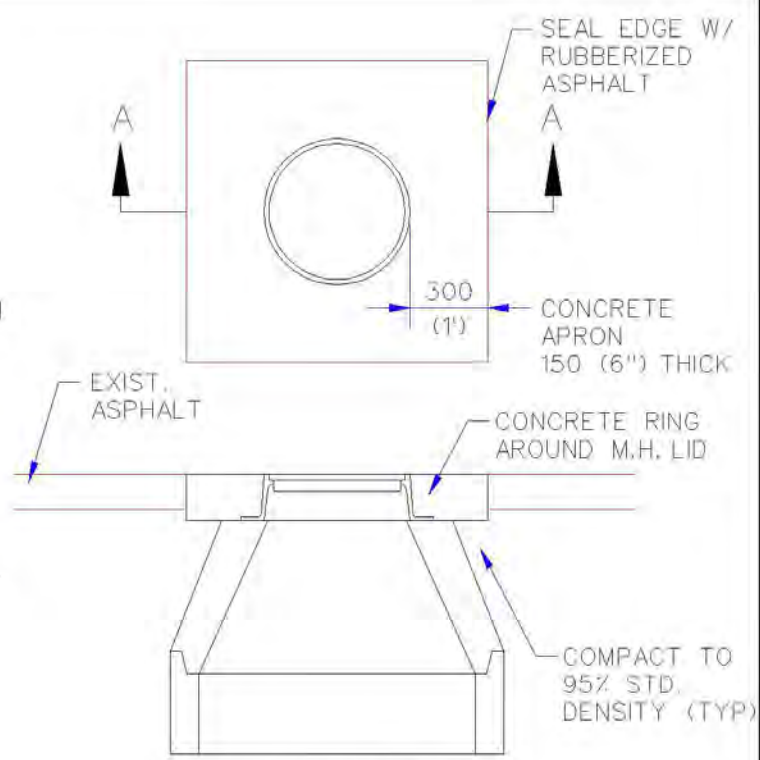
Rev. No. 0

DRAWING NO. ST 14b

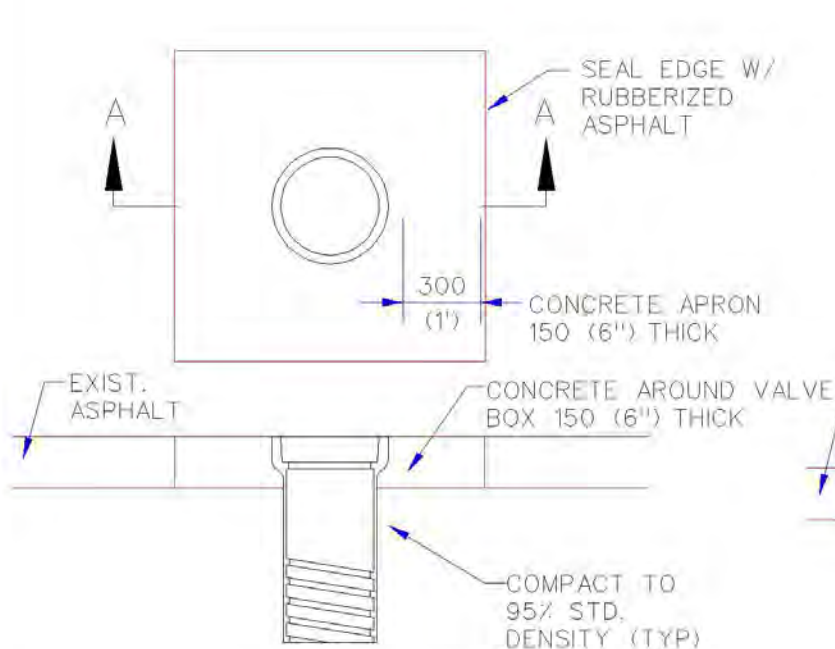




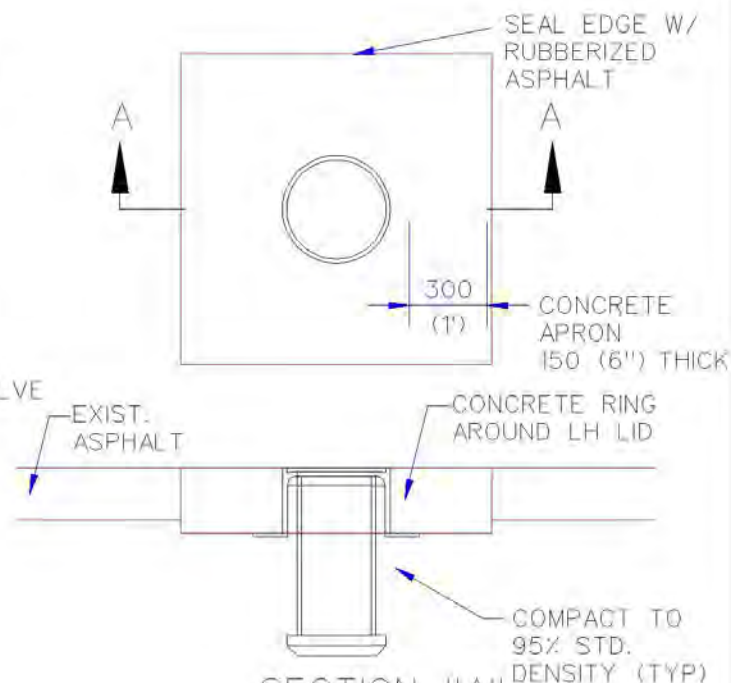
SECTION "A"  
MANHOLE IN CONCRETE,  
ADJUST TO GRADE



SECTION "A"  
MANHOLE IN ASPHALT,  
ADJUST TO GRADE



SECTION "A"  
WATER VALVE TO GRADE  
IN ASPHALT



SECTION "A"  
LAMP HOLE IN ASPHALT  
ADJUST TO GRADE

METRIC UNITS ARE IN MM WITH ENGLISH UNITS IN PARENTHESIS, UNLESS INDICATED OTHERWISE.

## MANHOLES, LAMP HOLES, AND VALVE BOXES IN STREETS

City Engineer Approval:

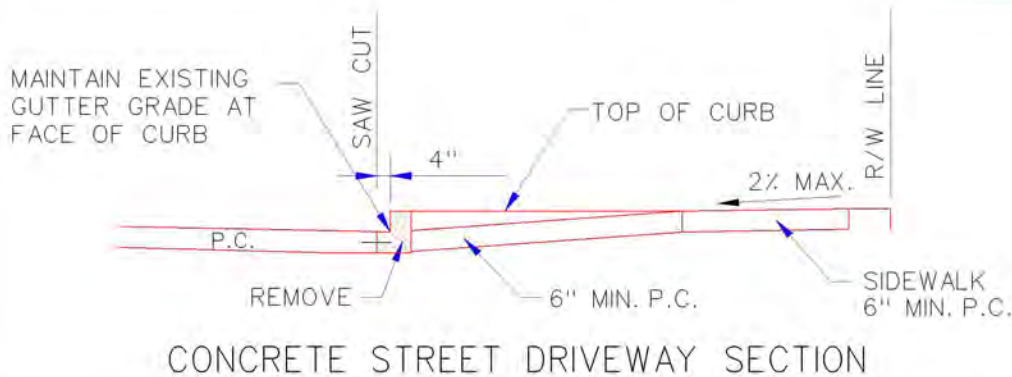
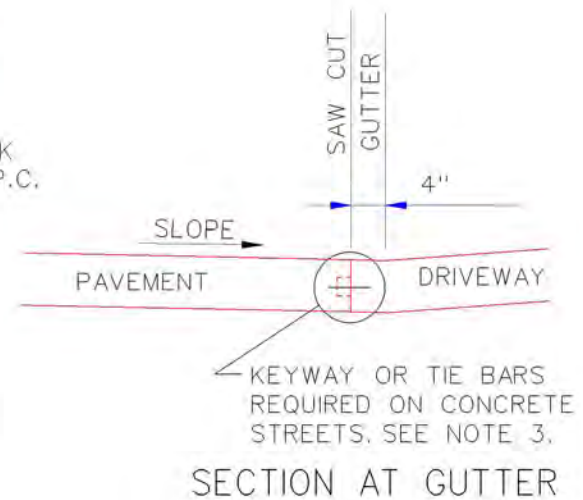
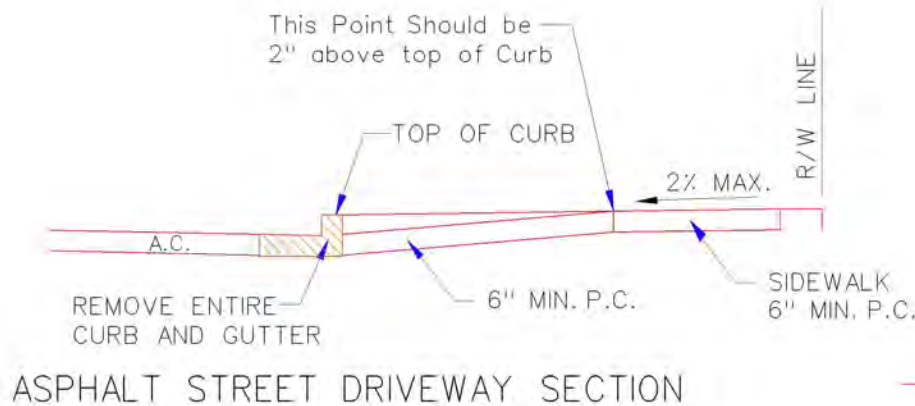
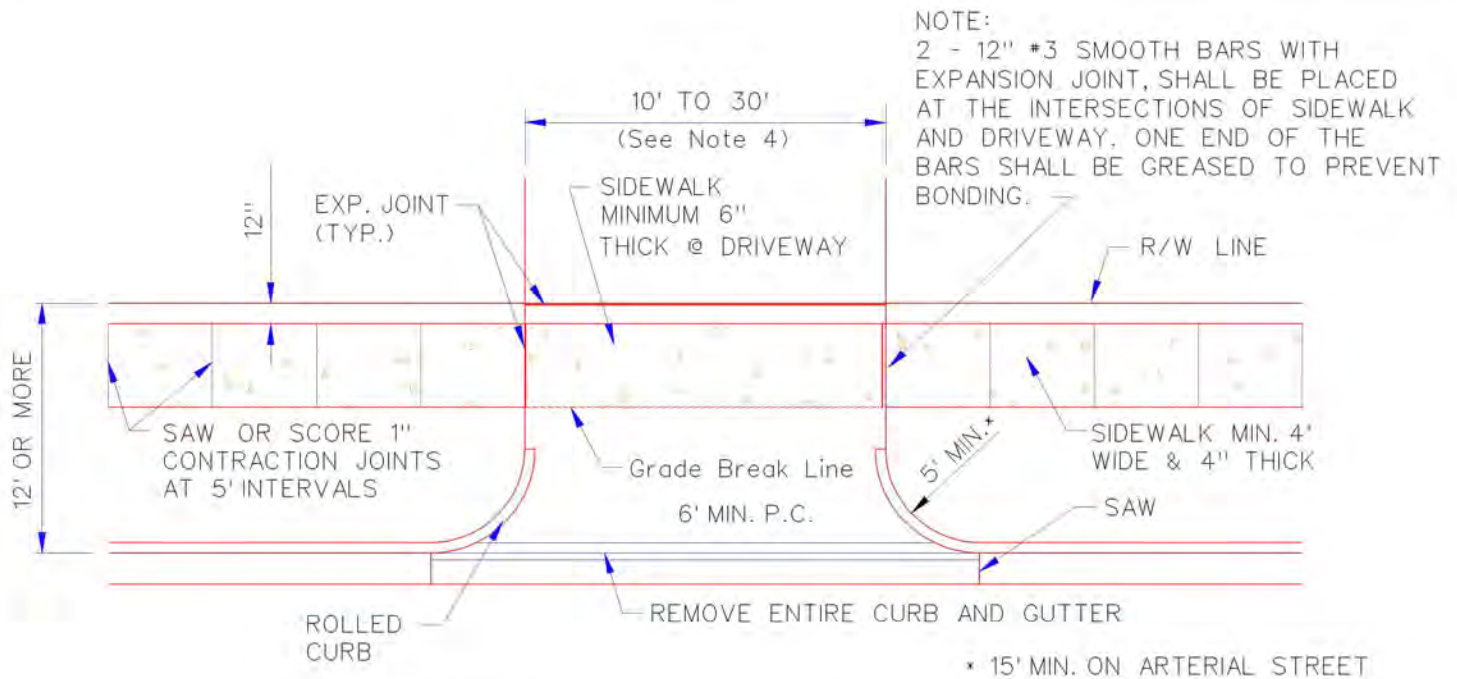
CITY OF NORMAN, OKLAHOMA

Approval Date:

Revision Date:

Rev. No. 0

DRAWING NO. ST 15



- NOTE: 1) REFER TO DRIVEWAY APPROACH STANDARDS ST-24 THROUGH ST-27.
- 2) IF THE CONCRETE STREET IS CONSTRUCTED WITH A SEPARATE CURB AND GUTTER, THE ENTIRE CURB AND GUTTER SHALL BE REMOVED WHEN CONSTRUCTING A DRIVEWAY APPROACH.
- 3) IF CONCRETE DRIVEWAY APPROACH ABUTS A CONCRETE STREET OR MOUNTABLE CURB THE DRIVEWAY SHALL BE CONNECTED TO THE STREET OR CURB USING A KEYWAY OR TIE BARS. THE TIE BARS SHALL BE #4 BARS 450 (18") LONG REQUIRED AT 600 (24") CENTERS.
- 4) IN THE HISTORIC DISTRICT, THE MINIMUM DRIVEWAY WIDTH SHALL BE 8 FEET AND THE MAXIMUM 10 FEET, ALSO TWO STRIPS OF CONCRETE 18" WIDE SHALL BE ALLOWED.

## RESIDENTIAL DRIVEWAY, Type II Driveway Approach

City Engineer Approval:

CITY OF NORMAN, OKLAHOMA

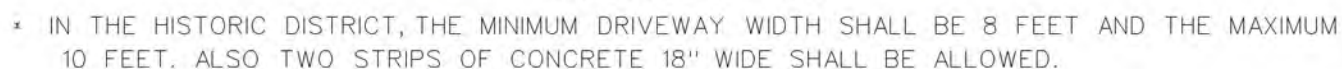
Approval Date:

Revision Date: 4-13-2006

Rev. No. 4

DRAWING NO. ST 16





## CONCRETE SLOPEWALL

METRIC UNITS ARE IN MM WITH ENGLISH UNITS IN PARENTHESIS, UNLESS INDICATED OTHERWISE.

## RESIDENTIAL DRIVEWAY ON STREET WITHOUT CURB

City Engineer Approval:

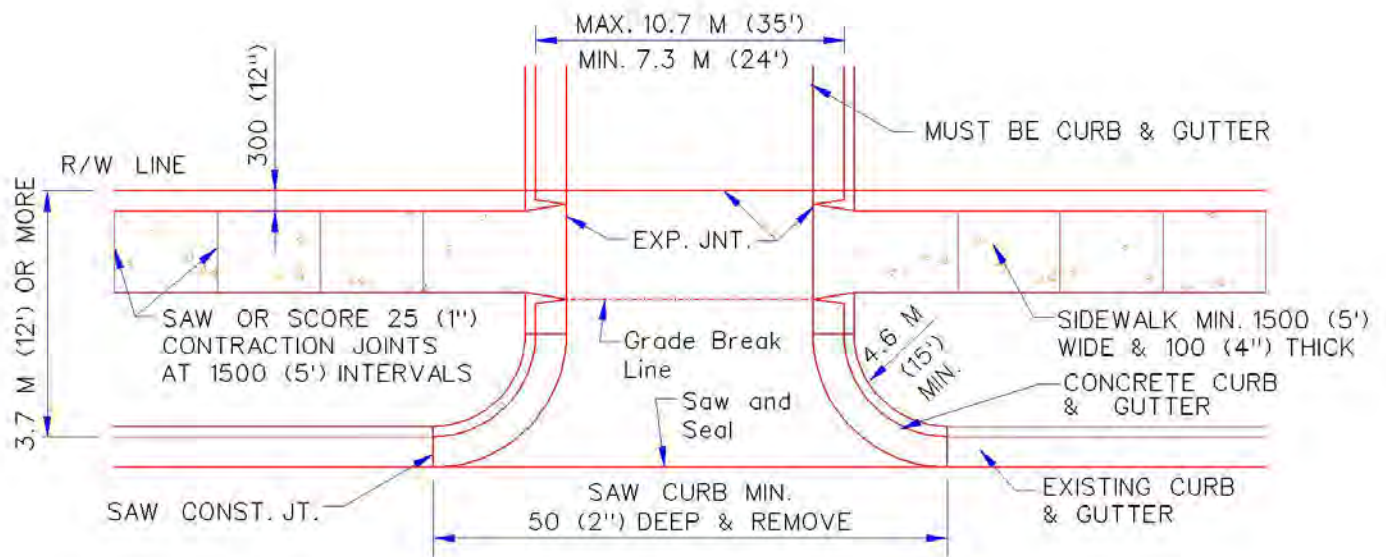
CITY OF NORMAN, OKLAHOMA

Approval Date:

Revision Date: 4-3-2006

Rev. No. 2

DRAWING NO. ST 17



#### NOTES:

1. DRIVEWAY SHALL BE DESIGNED TO ACCOMMODATE LARGEST TRUCK TO USE IT.
2. REFER TO DRIVEWAY APPROACH STANDARDS ST-24 THROUGH ST-27.
3. IF CONCRETE DRIVEWAY ABUTS AN ASPHALT STREET, SAWING AND SEALING WILL NOT BE REQUIRED. CONCRETE DRIVEWAY WILL NEED TO BE EDGED.
4. IF CONCRETE DRIVEWAY ABUTS A CONCRETE STREET THE DRIVEWAY SHALL BE CONNECTED TO THE STREET USING A KEYWAY OR TIE BARS. THE TIE BAR SHALL BE #4 BARS 450 (18") LONG REQUIRED AT 600 (24") CENTERS.

METRIC UNITS ARE IN MM WITH ENGLISH UNITS IN PARENTHESIS, UNLESS INDICATED OTHERWISE.

## COMMERCIAL DRIVEWAY, TYPE II DRIVEWAY APPROACH

City Engineer Approval:

CITY OF NORMAN, OKLAHOMA

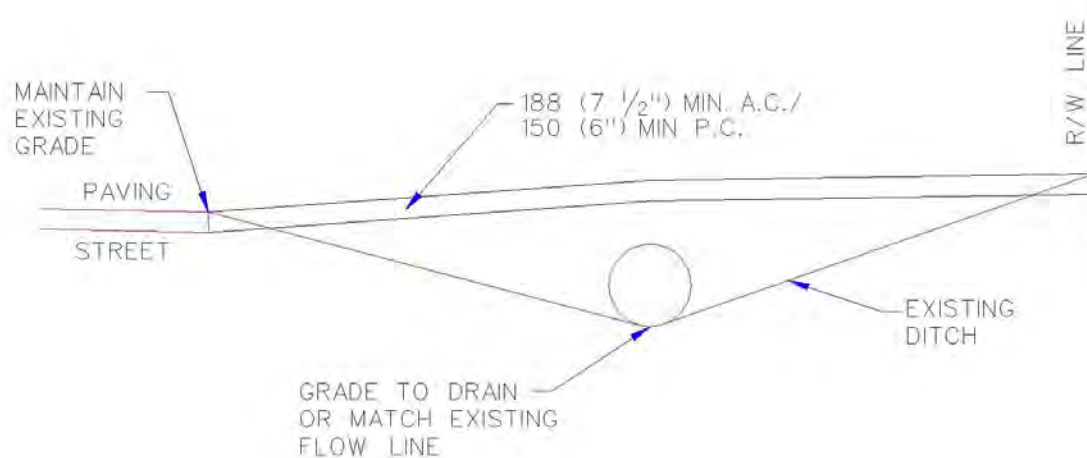
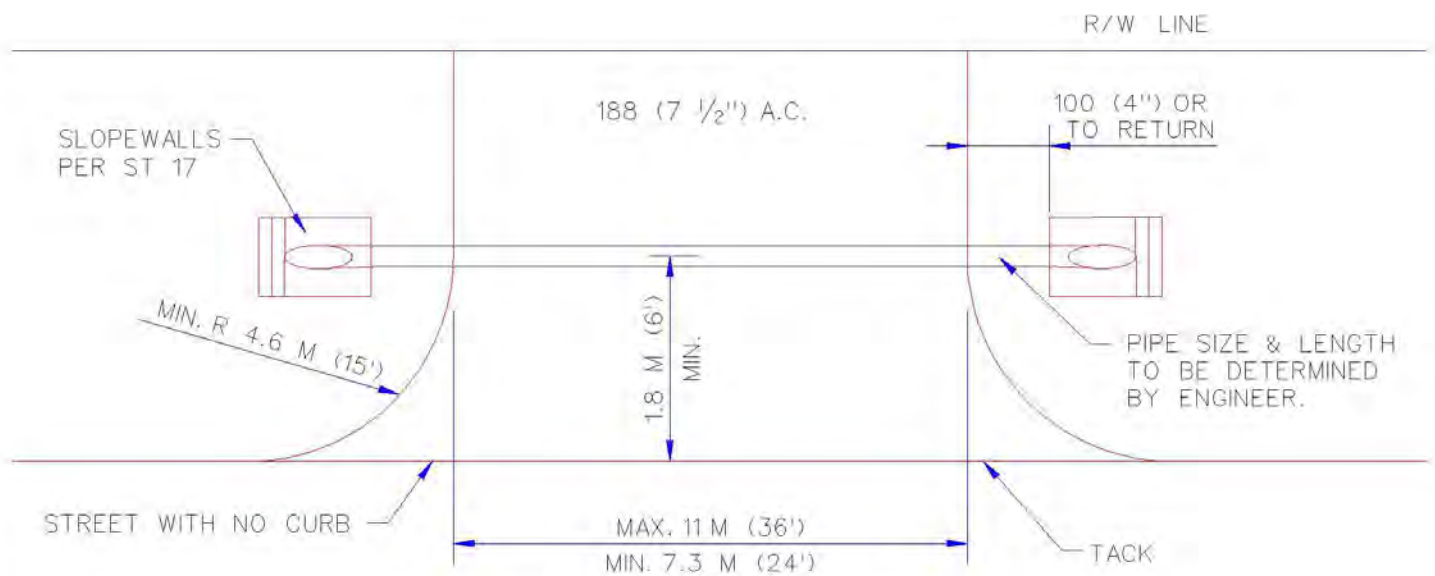
Approval Date:

Revision Date: 11-20-2002

Rev. No. 3

DRAWING NO. ST 18





## DRIVEWAY SECTION

NOTE: REFER TO DRIVEWAY APPROACH STANDARDS ST-24 THROUGH ST-27.

METRIC UNITS ARE IN MM WITH ENGLISH UNITS IN PARENTHESIS, UNLESS INDICATED OTHERWISE.

## COMMERCIAL DRIVEWAY ON STREET WITHOUT CURB

City Engineer Approval:

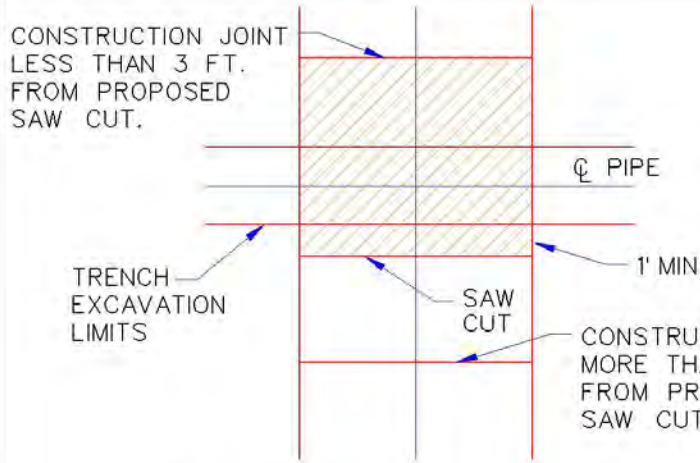
CITY OF NORMAN, OKLAHOMA

Approval Date:

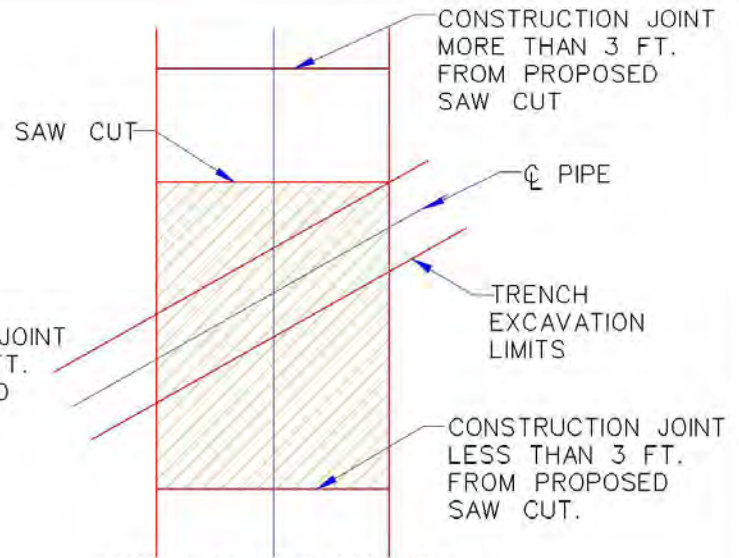
Revision Date:

Rev. No.

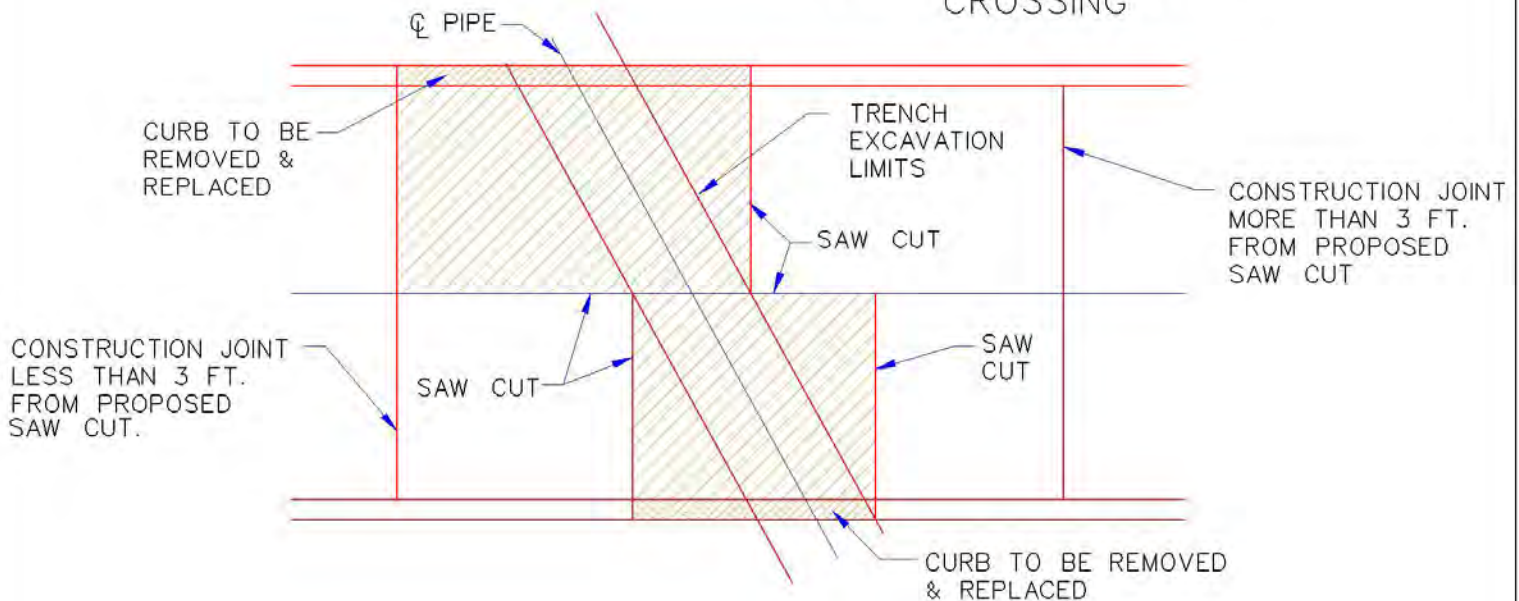
DRAWING NO. ST 19



TYP. STREET, DRIVEWAY,  
OR SIDEWALK WITH  
RIGHT ANGEL CROSSING



TYP. DRIVEWAY OR  
SIDEWALK W/ DIAGONAL  
CROSSING



TYPICAL STREET WITH DIAGONAL CROSSING

NOTES:

1. REMOVE AND REPLACE PAVEMENT WITHIN SHADED AREAS BOUNDED BY SAW CUTS AND/OR CONSTRUCTION JOINTS.
2. FOR DIAGONAL CROSSING, REPLACE PAVEMENT USING SQUARED CUTS, AS SHOWN. PAY QUANTITY WILL INCLUDED SQUARED AREA.
3. REMOVE AND REPLACE PAVEMENT TO CONSTRUCTION JOINT IF LESS THAN 3 FT. FROM PROPOSED SAW CUT. EXTRA AREA WILL BE INCLUDED IN PAY QUANTITY.
4. FOR LONGITUDINAL INSTALLATIONS: REMOVE AND REPLACE PAVEMENT AND CURB TO EDGE OF STREET, IF THE SAW CUT IS LESS THAN 3 FT. FROM THE OUTSIDE EDGE OF THE PAVEMENT OR CURB. AVOID SAW CUTS IN THE EXISTING WHEEL LINE. TRENCHES EXCEEDING 300 L.F. SHALL BE BACKFILLED AND MADE DRIVEABLE.
5. ALL CONSTRUCTION JOINTS SHALL BE REESTABLISHED IN ACCORDANCE WITH THE CITY OF NORMAN STANDARDS FOR PORTLAND CEMENT CONCRETE PAVEMENT, WHEN A PAVEMENT SECTION IS REMOVED ALONG AN EXISTING LONGITUDINAL CONSTRUCTION JOINT, THE NEW PAVEMENT SHALL BE DOWELLED TO THE PAVEMENT ADJACENT TO THE JOINT.

## STANDARD PAVEMENT CUTS

City Engineer Approval:

CITY OF NORMAN, OKLAHOMA

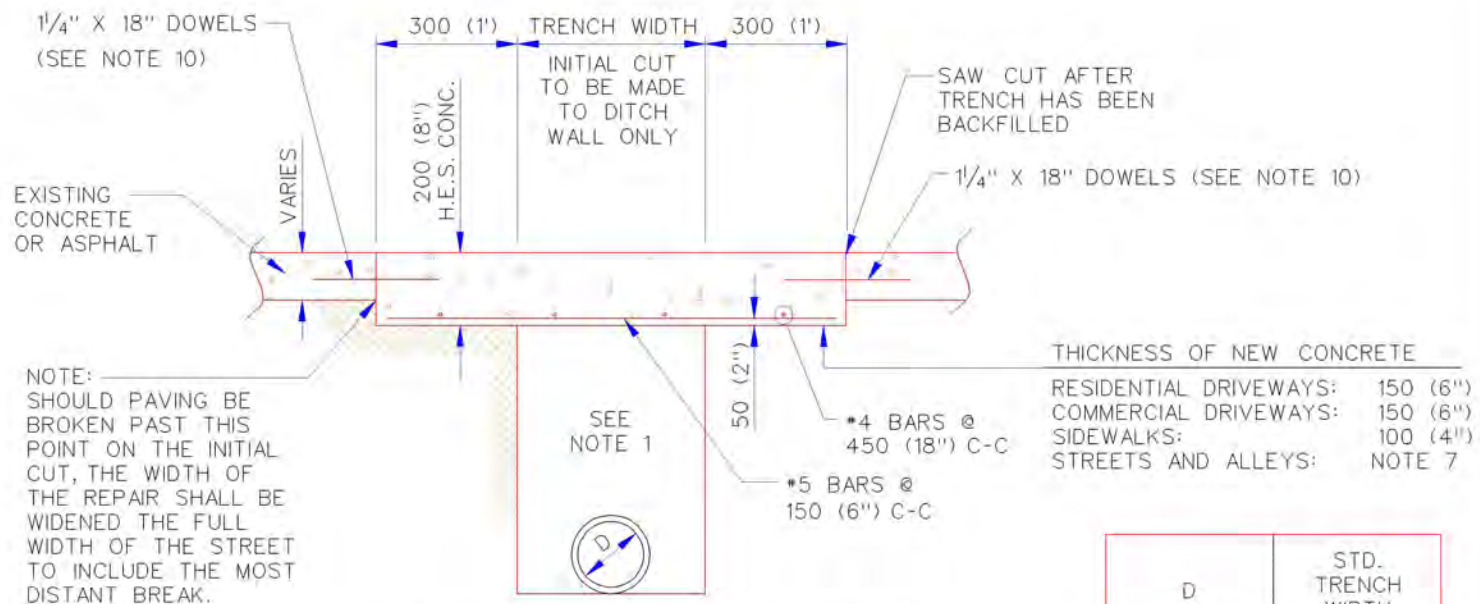
Approval Date:

Revision Date: 5-24-99

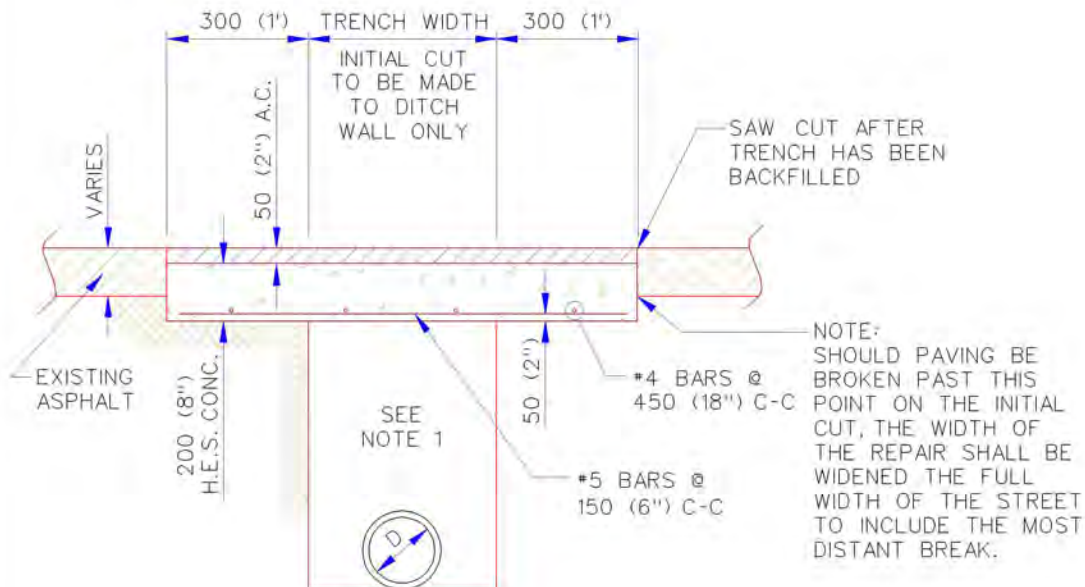
Rev. No. 1

DRAWING NO. ST 20





## ASPHALT OR CONCRETE PAVEMENT



D		STD. TRENCH WIDTH	
MM	IN.	MM	IN.
150	6	450	18
200	8	600	24
250	10	750	30
300	12	750	30
375	15	900	36
450	18	900	36
525	21	1,050	42
600	24	1,050	42
675	27	1,200	48
750	30	1,200	48
825	33	1,350	54
900	36	1,350	54
1,050	42	1,500	60
1,350	54	1,800	72
1,500	60	1,950	78
1,650	66	2,100	84

## ASPHALT PAVEMENT

### GENERAL NOTES:

1. ALL PUBLIC ROADS AND DRIVE CROSSINGS ARE TO BE BACKFILLED WITH ODOT 703.01 TYPE A AGGREGATE BASE OR FLOWABLE FILL.
  2. REMOVE AND REPLACE PAVEMENT TO NEAREST JOINT IF PROPOSED SAW CUT IS LESS THAN 900 MM (3') FROM JOINT.
  3. NO PAYMENT WILL BE MADE FOR REPLACEMENT OF PAVEMENT OUTSIDE OF STD. PAY WIDTH DUE TO TRENCH EXCAVATION WIDER THAN STANDARD TRENCH WIDTH.
  4. PAY QUANTITY WILL INCLUDE REPLACEMENT OF PAVEMENT DUE TO SQUARING OF DIAGONAL CUTS.
  5. FOR SERVICE LINES 50 MM (2'') AND SMALLER, THE STD. PAY WIDTH SHALL BE 660 MM (2.2').
  6. WHERE TRENCH EXCAVATION IS WITHIN 300 MM (12'') OF BACK OF CURB STANDARD NO. GC-02 SHALL APPLY.
  7. NEW PCC TO BE 2" THICKER THAN EXISTING PAVING, 8" MINIMUM.
  8. CONCRETE SHALL BE 3500 PSIHIGH EARLY STRENGTH CONCRETE PER ODOT 701.01(A).
  9. CITY ENGINEER SHALL DECIDE WHICH TYPE OF REPAIR TO MAKE.
  10. 1/4" DIA. BY 18" LONG DOWELS SPACED AT 12" CENTERS ARE REQUIRED IF ADJACENT PAVEMENT IS CONCRETE.
- METRIC UNITS ARE IN MM WITH ENGLISH UNITS IN PARENTHESIS, UNLESS INDICATED OTHERWISE.

## PAVEMENT REMOVAL AND REPLACEMENT

City Engineer Approval:

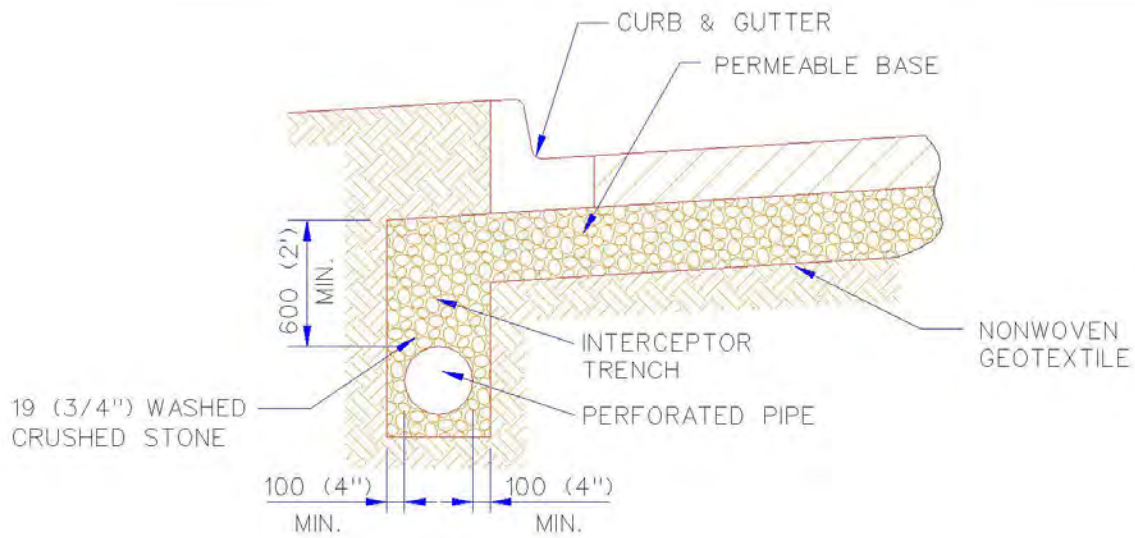
CITY OF NORMAN, OKLAHOMA

Approval Date:

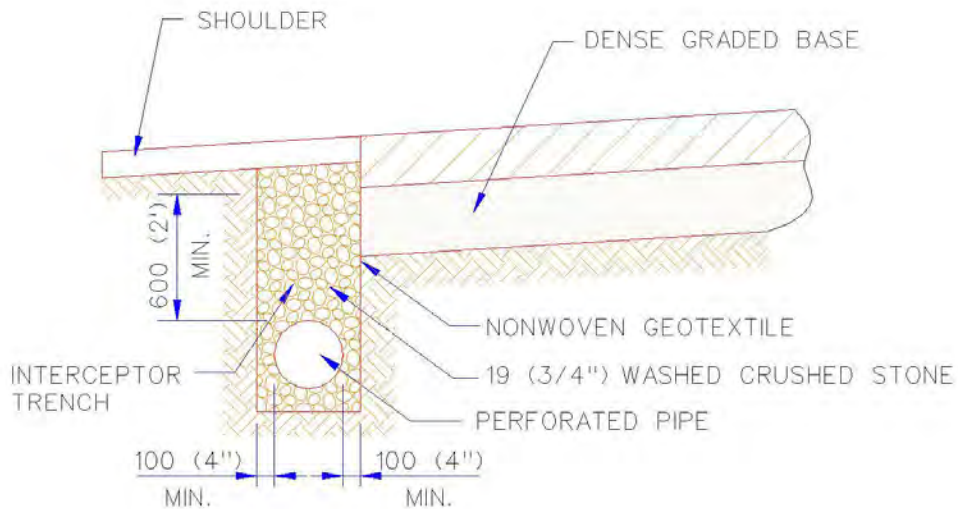
Revision Date: 2-08-2006

Rev. No. 2

DRAWING NO. ST 21



CROSS SECTION OF NEW PAVEMENT  
WITH DRAINAGE SYSTEM



CROSS SECTION OF DRAINAGE  
IMPROVEMENT TO EXISTING PAVEMENT

NOTES:

1. MINIMUM PERFORATED PIPE SIZE IS 100 MM (4'') DIAMETER.
2. PERFORATED PIPES SHALL BE TIED TO THE STORM SEWER SYSTEM.
3. ON STREETS WITH CURB AND GUTTER, THE DRAIN SHALL BE OUTSIDE OF BUT ADJACENT TO THE CURB.
4. PIPE MATERIAL SHALL BE POLYETHYLENE PIPE THAT MEETS ASTM F405 SPECIFICATIONS.

METRIC UNITS ARE IN MM WITH ENGLISH UNITS IN PARENTHESIS, UNLESS INDICATED OTHERWISE.

BASE DRAINAGE

City Engineer Approval:

CITY OF NORMAN, OKLAHOMA

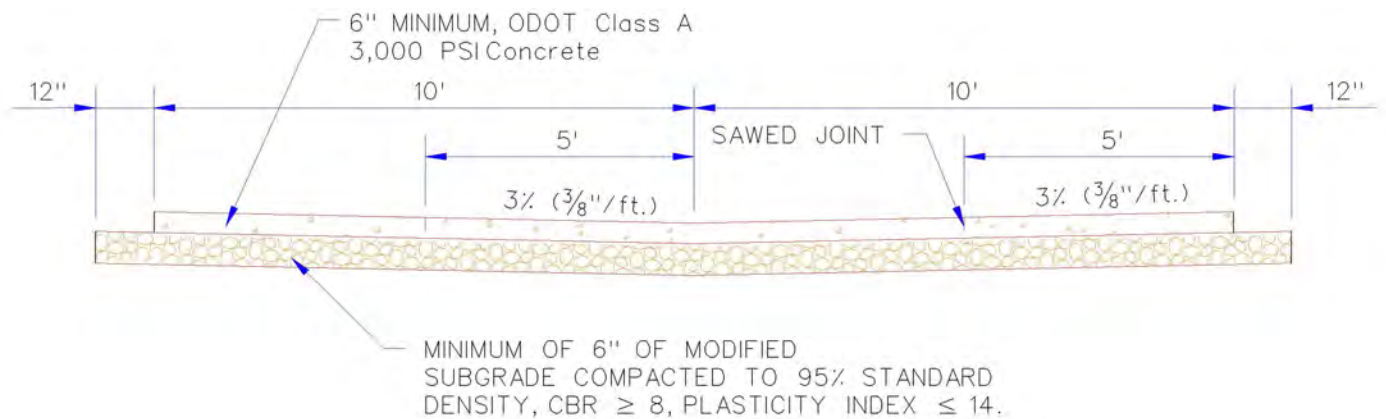
Approval Date:

Revision Date:

Rev. No. 0

DRAWING NO. ST 22





NOTES:

1. PAVING SECTION SHOWN IS MINIMUM ALLOWED. PAVING SHALL BE DESIGNED IN ACCORDANCE WITH THE CITY'S "ENGINEERING DESIGN CRITERIA".
2. LONGITUDINAL AND TRANSVERSE JOINTS SHALL BE IN ACCORDANCE WITH THE CITY'S "STANDARD SPECIFICATIONS" PAVING CONSTRUCTION SECTION 2304.4(B) & 2304.4(C).
3. PAVING CONSTRUCTION TO BE MONOLITHIC, NO CONSTRUCTION JOINTS.
4. THE MINIMUM RADIUS SHALL BE 20 FEET FOR RETURNS AT THE INTERSECTION OF AN ALLEY AND STREET. IF DEEMED NECESSARY, THE CITY ENGINEER MAY REQUIRE A LARGER RADIUS. FOR AN EXISTING ALLEY BEING RECONSTRUCTED, ON SITE CONDITIONS MAY WARRANT A SMALLER RADIUS IF APPROVED BY THE CITY ENGINEER.

## ALLEY PAVING

City Engineer Approval:

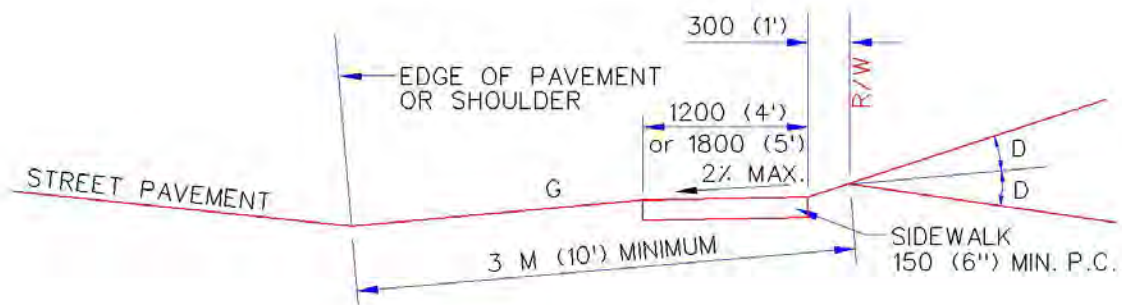
CITY OF NORMAN, OKLAHOMA

Approval Date:

Revision Date: 4-10-2006

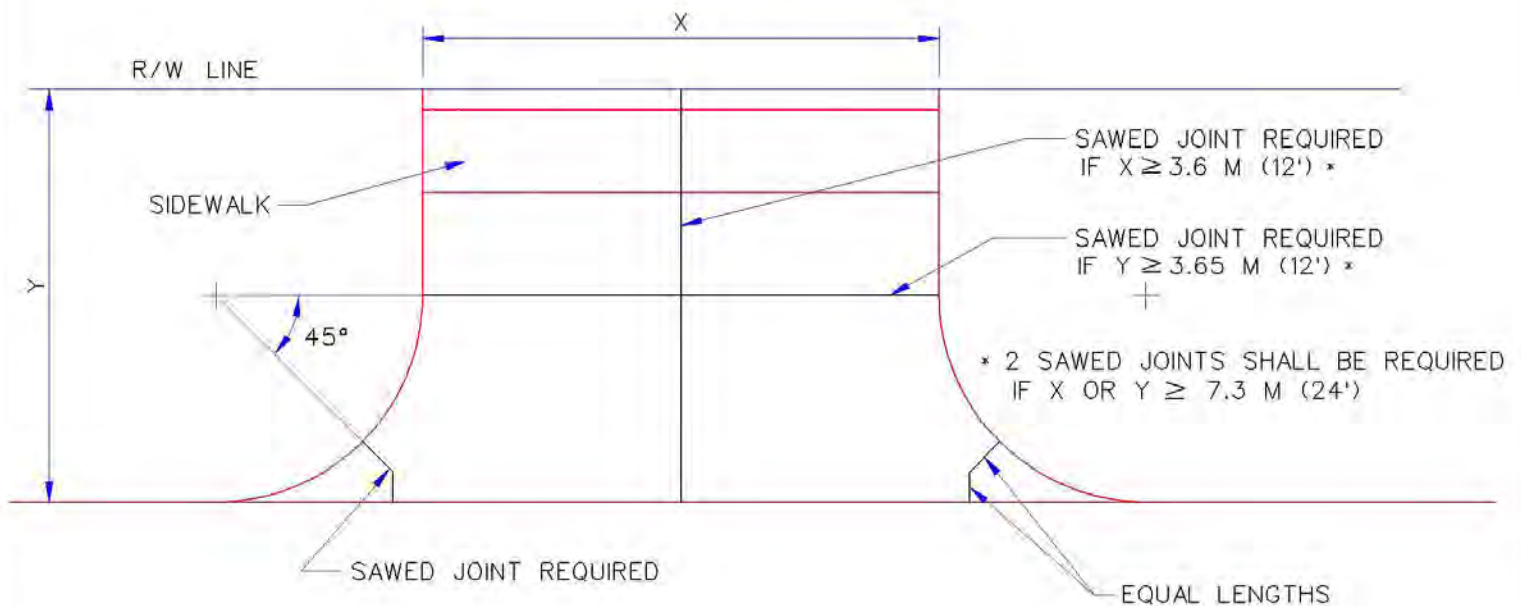
Rev. No. 3

DRAWING NO. ST 23



CONDITION	MAX. (G)	MAXIMUM GRADE CHANGE (D)	
		DESIRABLE	MAXIMUM
HIGH VOLUME DRIVEWAY	6%	0%	+ 3%
LOW VOLUME DRIVEWAY ON ARTERIAL	6%	+ 3%	+ 6%
LOW VOLUME DRIVEWAY ON COLLECTOR	8% - 10%	+ 6%	+ 12%
LOW VOLUME DRIVEWAY ON LOCAL STREET	10%	+ 6%	+ 12%

### APPROACH GRADE



### CONTRACTION JOINTS

METRIC UNITS ARE IN MM WITH ENGLISH UNITS IN PARENTHESIS, UNLESS INDICATED OTHERWISE.

## DRIVEWAY APPROACH - GRADES & CONTRACTION JOINTS

City Engineer Approval:

CITY OF NORMAN, OKLAHOMA

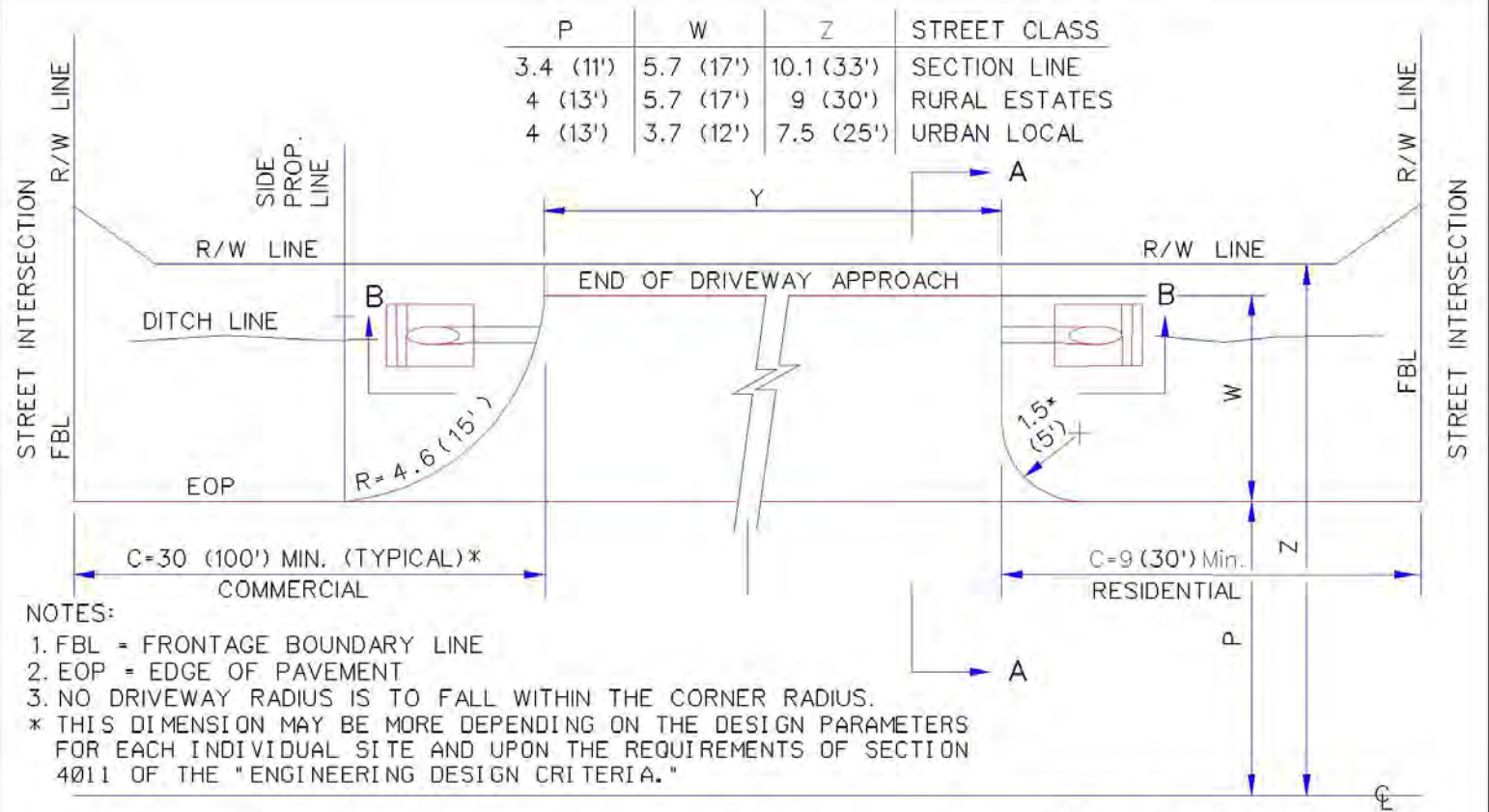
Approval Date:

Revision Date: 12-12-2000

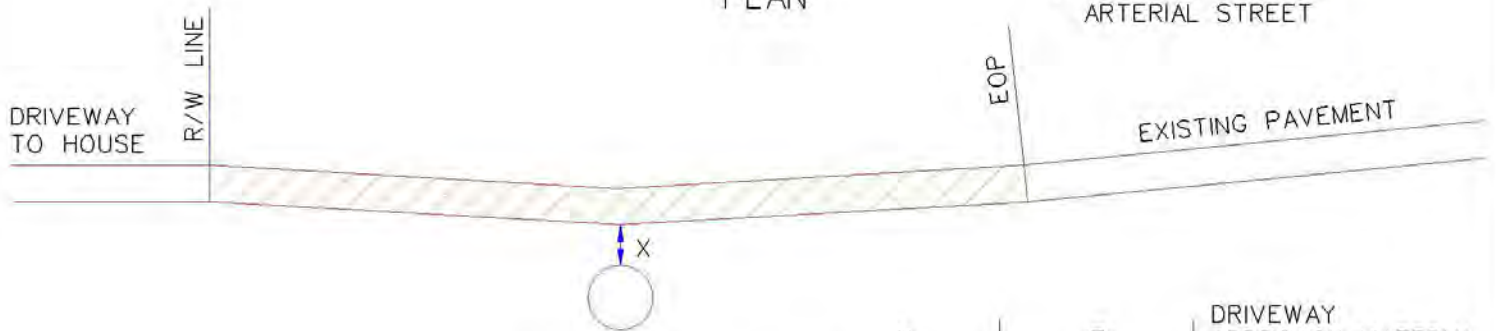
Rev. No. 3

DRAWING NO. ST 24





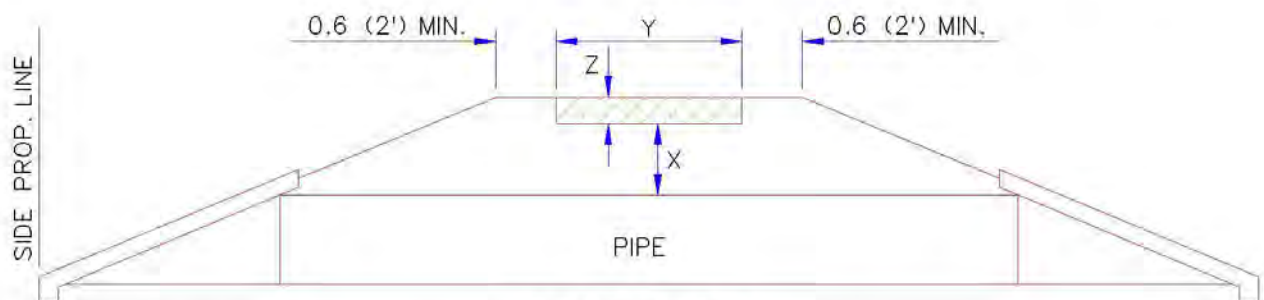
PLAN



SECTION A-A

Y	TYPE DRIVE
3-9 (10'-30')	RESIDENTIAL
10.7 (35') MAX.	COMMERCIAL

X	Z	DRIVEWAY APPROACH MATERIAL
75 MM (3")	150 MM (6")	CONCRETE
150 MM (6")	100 MM (4")*	ASPHALT
225 MM (9")	125 MM (5")	OTHER
* 150 MM (6") IF COMMERCIAL		



SECTION B-B

METRIC UNITS ARE IN M. WITH ENGLISH UNITS IN PARENTHESIS, UNLESS INDICATED OTHERWISE.

## TYPE I DRIVEWAY APPROACH ON STREET WITH SIDE DITCHES

City Engineer Approval:

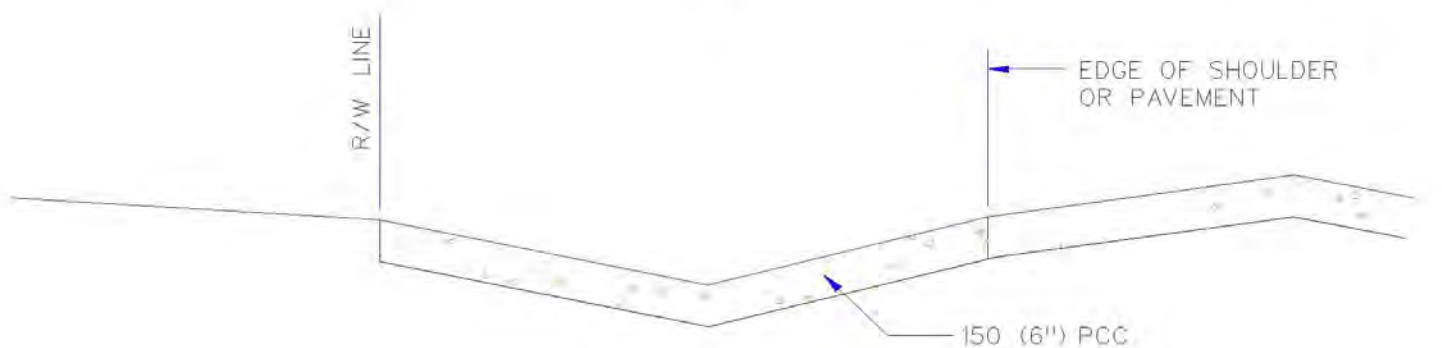
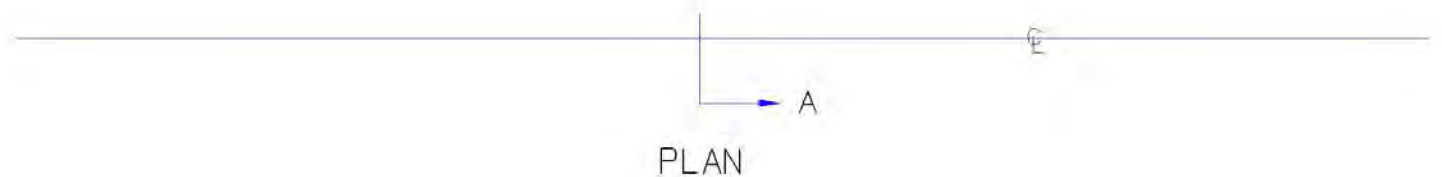
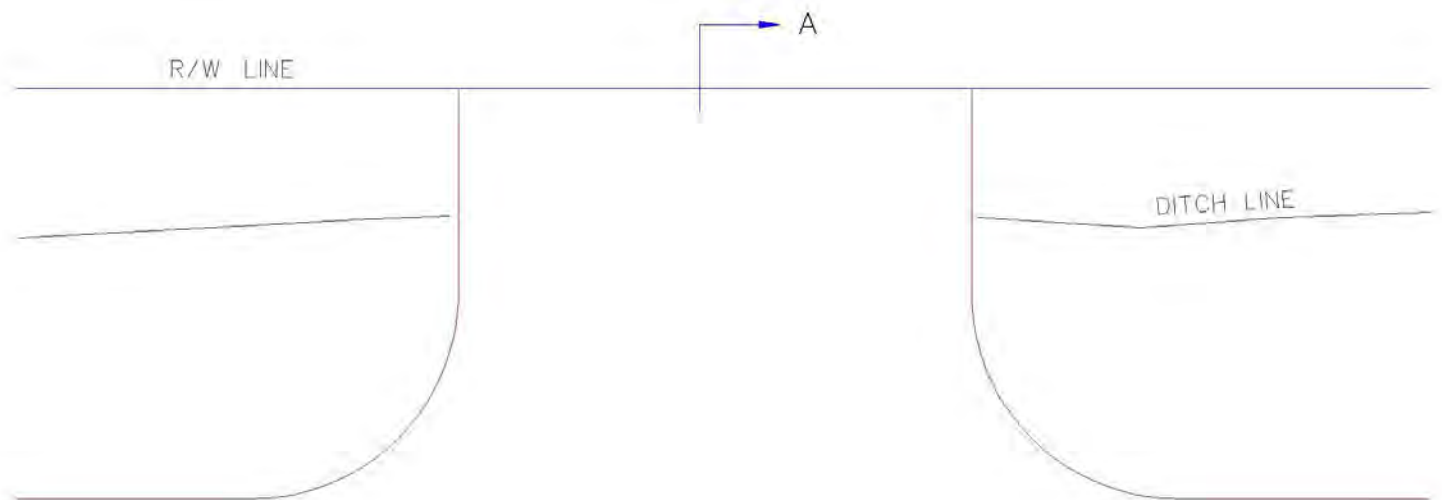
CITY OF NORMAN, OKLAHOMA

Approval Date:

Revision Date: 5-5-03

Rev. No. 1

DRAWING NO. ST 25



**NOTE:**

NO DRAINAGE PIPE REQUIRED IF THE EXISTING DRAINAGE DITCH IS SHALLOW (LESS THAN ONE FOOT DEEP FROM THE EDGE OF PAVEMENT) AND THE EXISTING DRAINAGE AREA IS SMALL (THE QUANTITY OF STORM WATER PRODUCED BY A FIFTY YEAR RAINFALL SHALL REMAIN ENTIRELY WITHIN THE DITCH AND NOT TOUCH THE STREET PAVEMENT).

METRIC UNITS ARE IN MM WITH ENGLISH UNITS IN PARENTHESIS, UNLESS INDICATED OTHERWISE.

## DRIVEWAY APPROACH - TYPE I (STREET WITH DITCHES, NO PIPE)

City Engineer Approval:

CITY OF NORMAN, OKLAHOMA

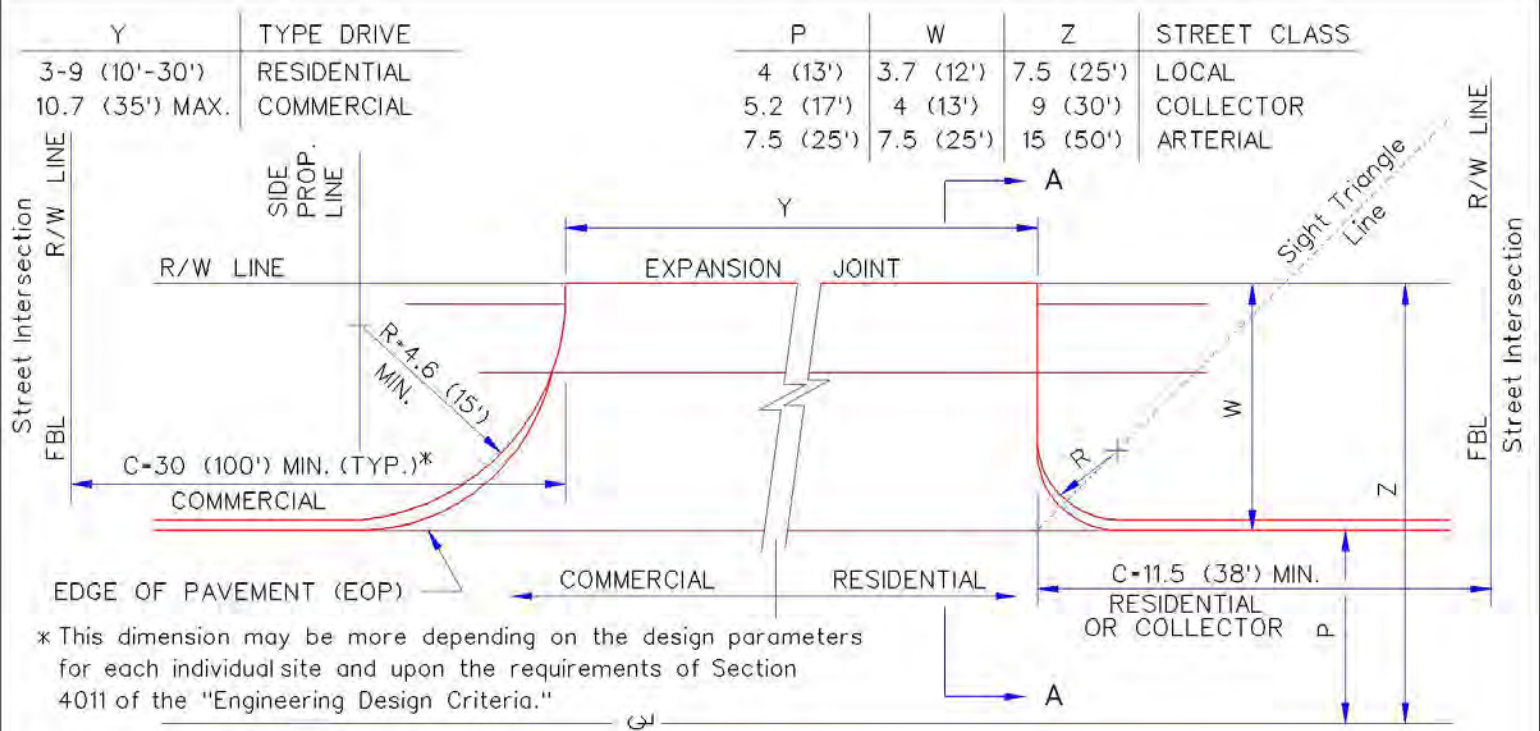
Approval Date:

Revision Date:

Rev. No.

DRAWING NO. ST 26

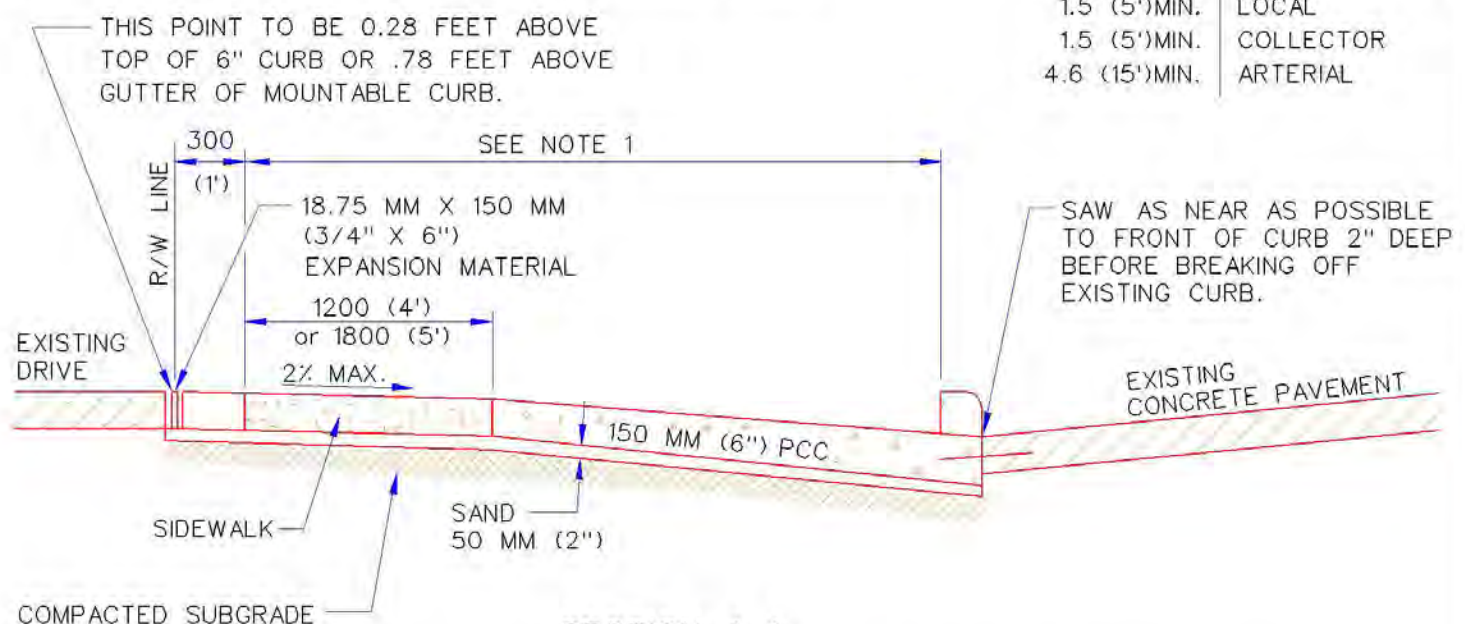




PLAN

- NOTES:
1. FBL = FRONTAGE BOUNDARY LINE
  2. NO DRIVEWAY RADIUS IS TO FALL WITHIN THE CORNER RADIUS.

R	STREET CLASS
1.5 (5') MIN.	LOCAL
1.5 (5') MIN.	COLLECTOR
4.6 (15') MIN.	ARTERIAL

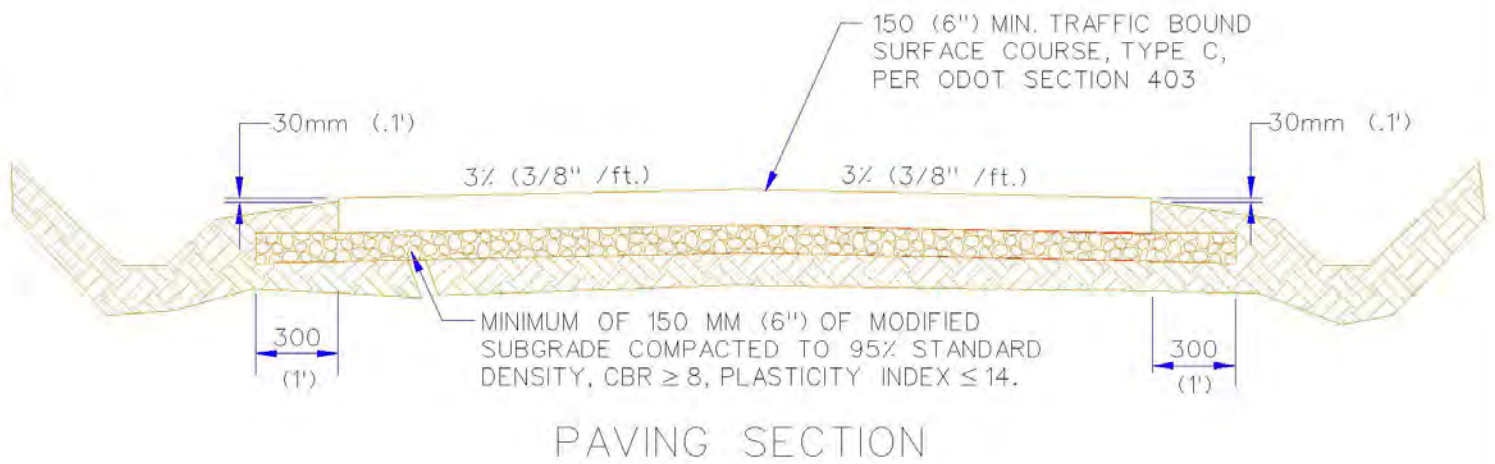
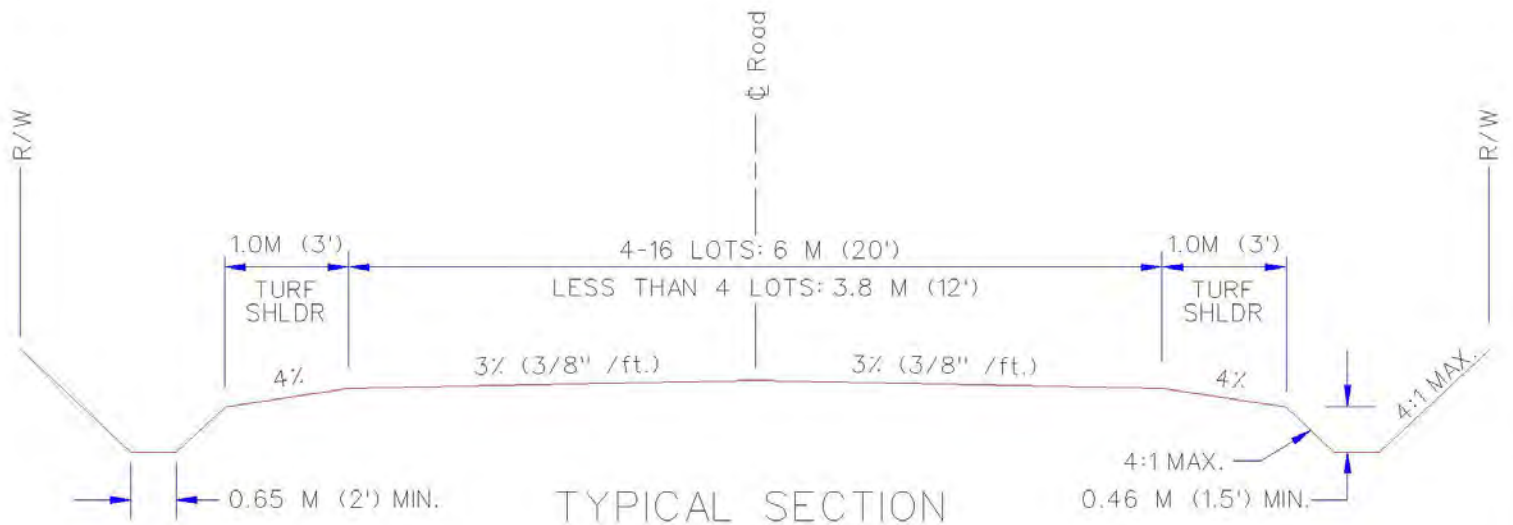


SECTION A-A  
(DRIVEWAY SECTION)

- NOTE:
1. TYPICALLY 23.33 FEET FOR COMMERCIAL DRIVEWAY (SEE NOTE 2), 11.33 FEET FOR RESIDENTIAL DRIVEWAY ON LOCAL STREET AND 12.33 FEET FOR RESIDENTIAL DRIVEWAY ON A COLLECTOR STREET.
  2. IF LESS THAN TYPICAL, THE APPROACH GRADE MAY BE STEEPER THAN RECOMMENDED ON DRAWING NO. ST-24. THE STEEPER GRADE MAY BE APPROVED BY THE CITY ENGINEER ON A CASE BY CASE BASIS.
  3. IF CONCRETE DRIVEWAY APPROACH ABUTS A CONCRETE STREET OR MOUNTABLE CURB THE DRIVEWAY SHALL BE CONNECTED TO THE STREET OR CURB USING A KEYWAY OR TIE BARS. THE TIE BARS SHALL BE #4 BARS 450 (18") LONG REQUIRED AT 600 (24") CENTERS.
- METRIC UNITS ARE IN M. WITH ENGLISH UNITS IN PARENTHESIS, UNLESS INDICATED OTHERWISE.

## TYPE II DRIVEWAY APPROACH ON STREET WITH CURB & GUTTER

City Engineer Approval:		CITY OF NORMAN, OKLAHOMA	
Approval Date:	Revision Date: 10-20-2004	Rev. No. 3	DRAWING NO. ST 27



**NOTES:**

1. TRAFFIC BOUND SURFACE COURSE (TBSC) AND SUBGRADE SHALL BE COMPACTED TO 95% STANDARD PROCTOR DENSITY.
2. TBSC SHALL BE CONSTRUCTED IN ACCORDANCE WITH ODOT STANDARD SPECIFICATIONS, SECTION 310, METHOD A.

METRIC UNITS ARE IN MM WITH ENGLISH UNITS IN PARENTHESIS, UNLESS INDICATED OTHERWISE.

**RURAL PRIVATE ROAD**

City Engineer Approval:

CITY OF NORMAN, OKLAHOMA

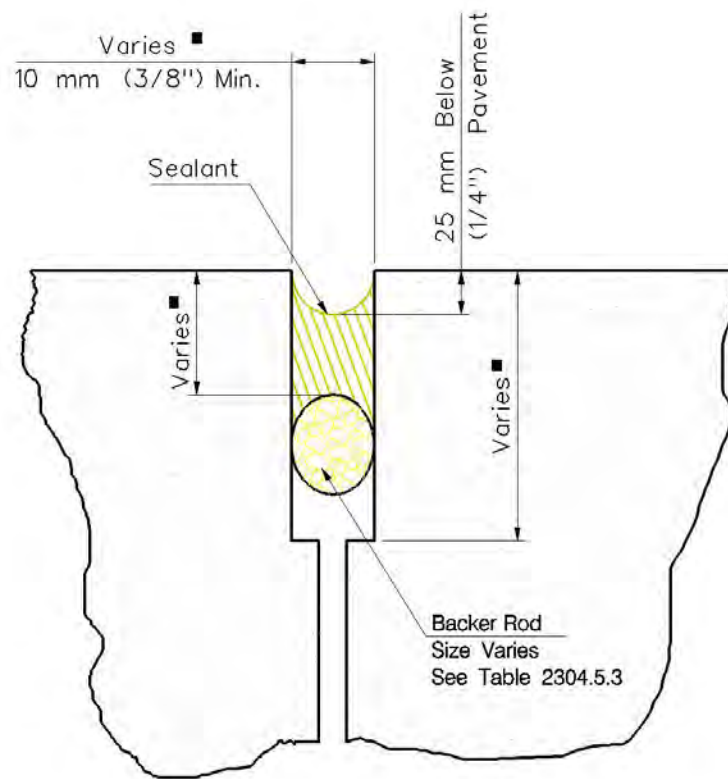
Approval Date:

Revision Date: 11-17-2000

Rev. No. 1

DRAWING NO. ST 28





■ See Table 2304.5.1

## JOINT SEALING DETAIL

City Engineer Approval:

CITY OF NORMAN, OKLAHOMA

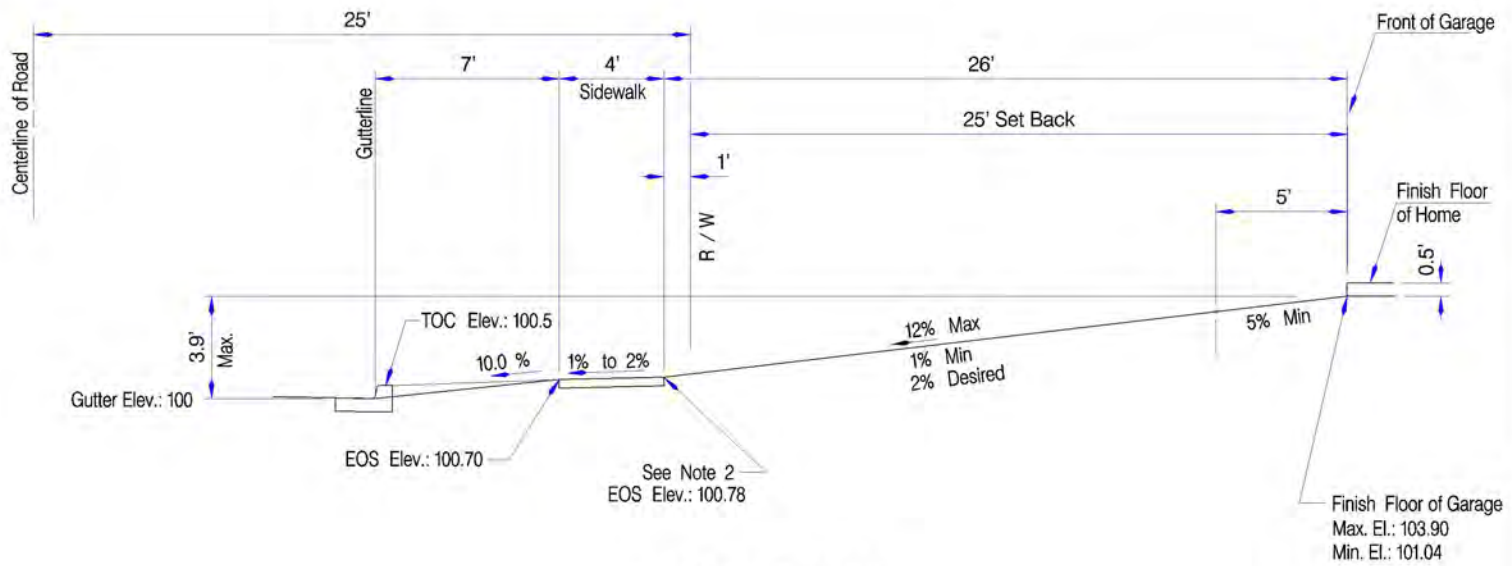
Approval Date:

Revision Date: 3-24-1998

Rev. No. 0

DRAWING NO.

ST 29



## DRIVEWAY

(Yard Slopes to Sidewalk)

	Gutter line to Finish Floor of Garage
Max. above	3.90 ft. (3 ft., 10 3/4 in.)
Min. above	1.04 ft. (1 ft., 0 1/2 in.)

### NOTES:

- 1) Must have a minimum of 5% slope (3" in 5 ft.) away from the sides of the house for at least 5 ft.
- 2) This point is .28 ft. (3 3/8 in.) above top of 6" curb or 0.78 ft. above gutter.
- 3) This is based on a 1% front yard grade from the house to the sidewalk.
- 4) This is a typical drawing. This drawing may be amended by the City Engineer on a case by case basis.

### REQUIRED RESIDENTIAL DRIVEWAY GRADES – LOCAL STREET (HOUSE ABOVE STREET LEVEL)

City Engineer Approval:

CITY OF NORMAN, OKLAHOMA

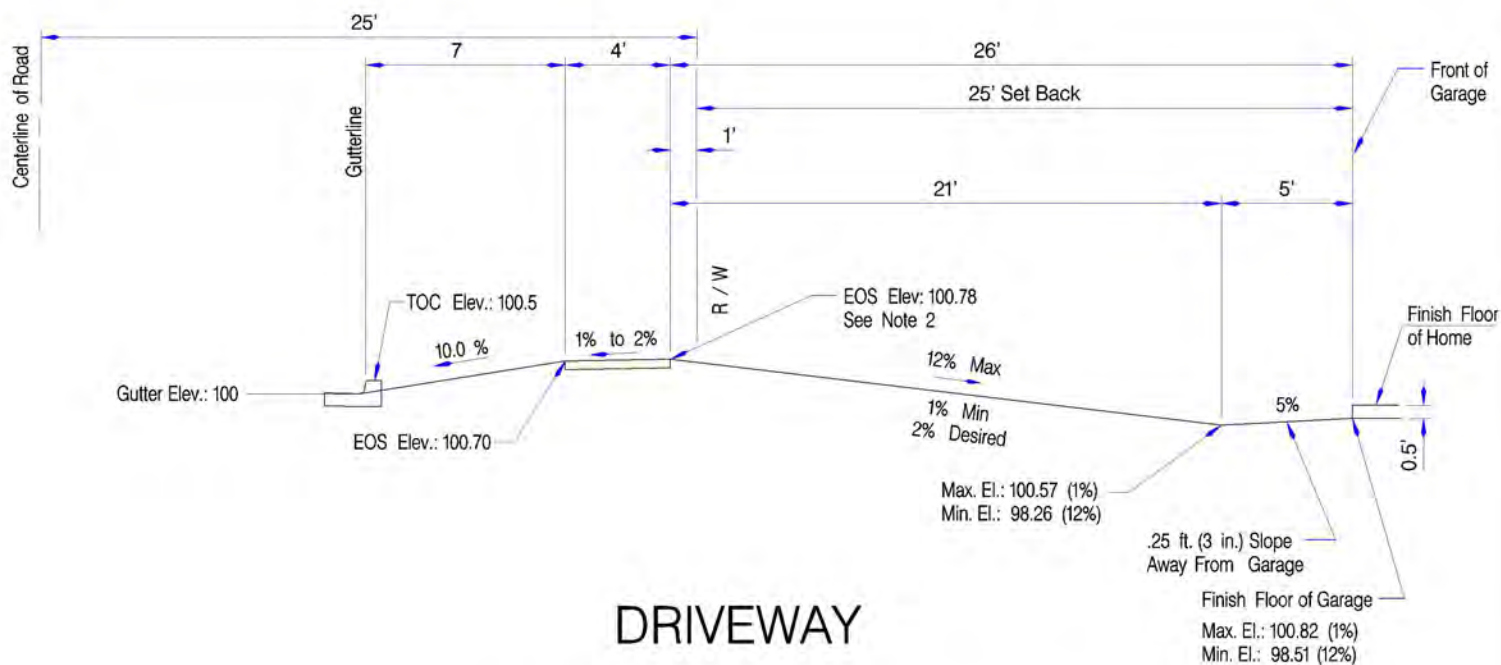
Approval Date:

Revision Date: 4-10-2006

Rev. No. 3

DRAWING NO. ST 30





## DRIVEWAY

(Yard Slopes Away From Sidewalk)

	Gutter line to Finish Floor of Garage
Max. below the gutterline	1.49 ft. (1 ft., 5 7/8 in.)
Max. above the gutterline	.82 ft. (9 7/8 in.)

### NOTES:

- 1) Must have a minimum of 5% slope (3" in 5 ft.) away from the sides of the house for at least 5 ft.
- 2) This point is 0.28 ft. (3 3/8 in.) above top of 6" curb or 0.78 ft. above gutter.
- 3) This is based on a 1% front yard grade from the house to the sidewalk.
- 4) This is a typical drawing. This drawing may be amended by the City Engineer on a case by case basis.

### REQUIRED RESIDENTIAL DRIVEWAY GRADES – LOCAL STREET (HOUSE BELOW STREET LEVEL)

City Engineer Approval:

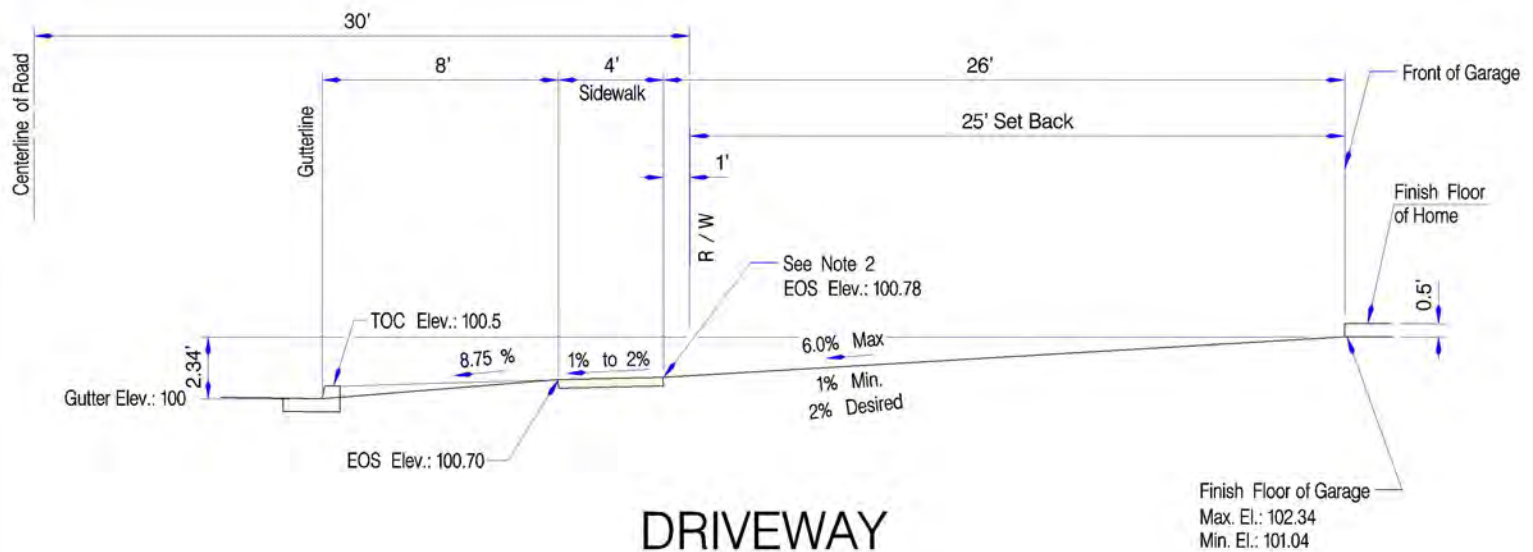
CITY OF NORMAN, OKLAHOMA

Approval Date:

Revision Date: 6-9-2006

Rev. No. 2

DRAWING NO. ST 31



	Gutter line to Finish Floor of Garage
Max. above	2.34 ft. (2 ft., 4 in.)
Min. above	1.04 ft. (1 ft., 0 1/2 in.)

#### NOTES:

- 1) Must have a minimum of 5% slope (3" in 5') away from the sides of the house for at least 5 ft.
- 2) This point is .28 ft. (3 3/8 in.) above top of 6" curb or 0.78 ft. above gutter.
- 3) This is based on a 1% front yard grade from the house to the sidewalk.
- 4) This is a typical drawing. This drawing may be amended by the City Engineer on a case by case basis.

#### REQUIRED RESIDENTIAL DRIVEWAY GRADES – COLLECTOR ST. (HOUSE ABOVE STREET LEVEL)

City Engineer Approval:

CITY OF NORMAN, OKLAHOMA

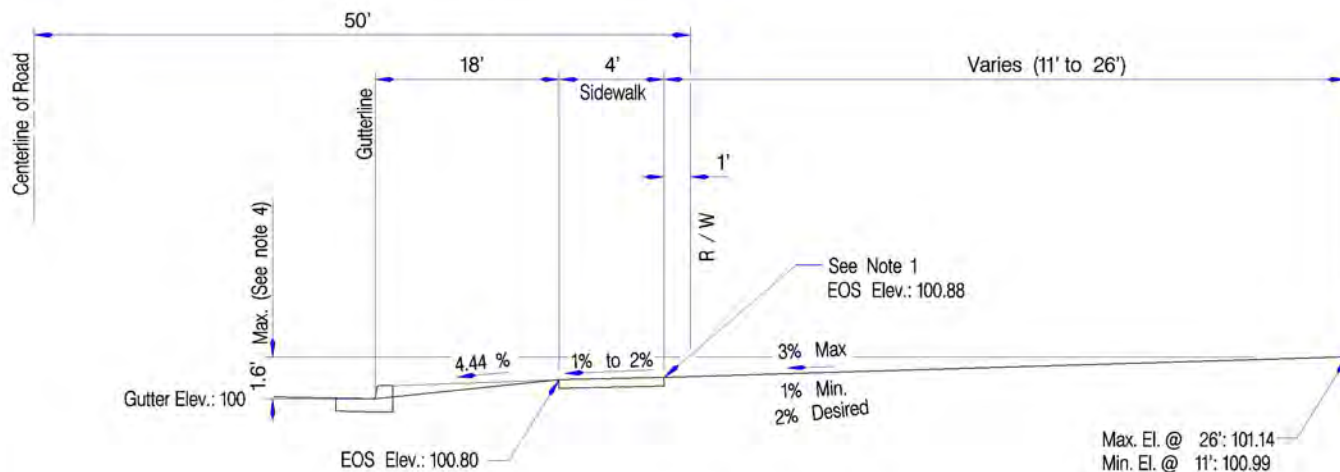
Approval Date:

Revision Date: 4-10-2006

Rev. No. 3

DRAWING NO. ST 32





## DRIVEWAY

(Yard Slopes to Sidewalk)

	Gutter line to Finish Elevation of the Parking Area
Max. above	See note 3
Min. above	0.99 ft. (11 7/8 in.) for 10 ft. set back, (see note 2) 1.14 ft. (1 ft., 1 11/16 in.) for 25 ft. set back, (see note 2)

### NOTES:

- 1) This point is at least 0.38 ft. (4 1/2 in.) above top of 6" curb or 0.88 ft. above gutter.
- 2) This is based on a 1% front area grade from the building to the sidewalk.
- 3) In commercial areas, there will be a 10 ft. or 25 ft. set back. The maximum finish elevation of the parking area above the gutter line will vary and will be determined on a case by case basis by the City Engineer.

### REQUIRED COMMERCIAL DRIVEWAY GRADES – ARTERIAL ST.

City Engineer Approval:

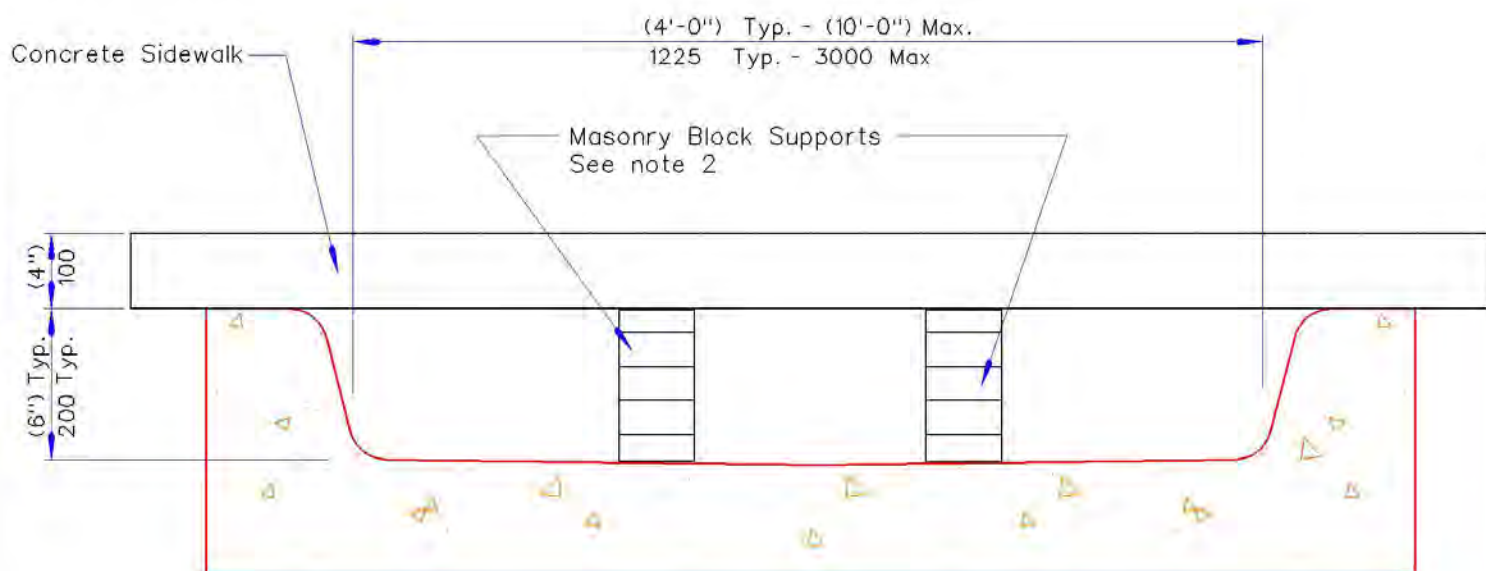
CITY OF NORMAN, OKLAHOMA

Approval Date:

Revision Date: 4-10-2006

Rev. No. 3

DRAWING NO. ST 33



NOTE:

1. CROSS SLOPE OF SIDEWALK SHALL NOT EXCEED 2% IN ANY DIRECTION.
2. ONE MASONRY BLOCK SUPPORT SHALL BE REQUIRED FOR A FLUME 1.8 M (6 FT) WIDE OR LESS.

METRIC UNITS ARE IN MM WITH ENGLISH UNITS IN PARENTHESIS, UNLESS INDICATED OTHERWISE.

## SIDEWALK CROSSING CONCRETE FLUME

City Engineer Approval:

CITY OF NORMAN, OKLAHOMA

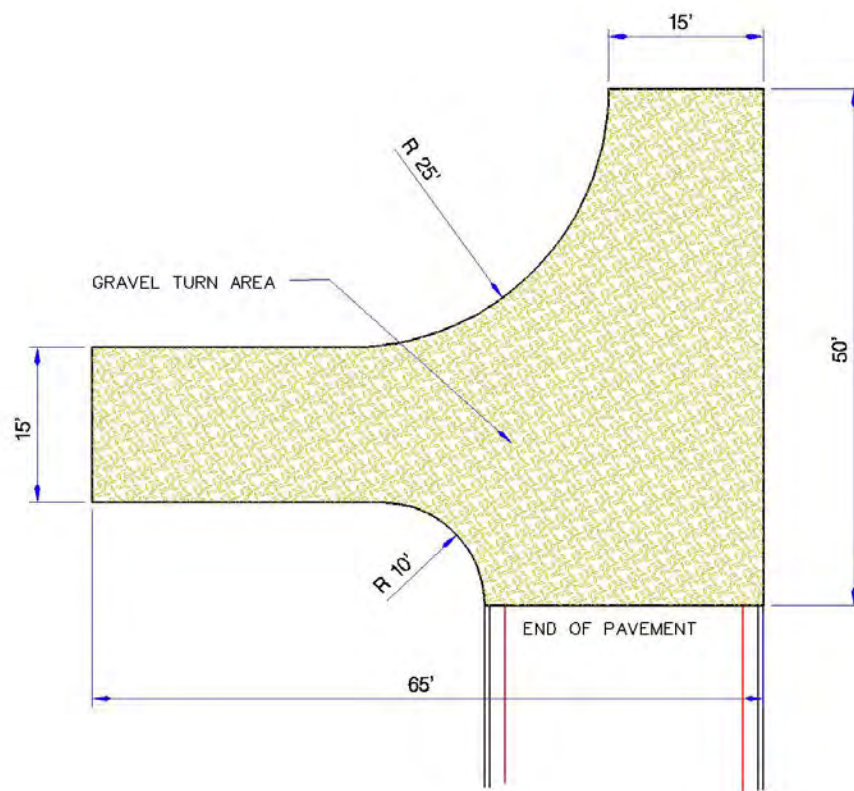
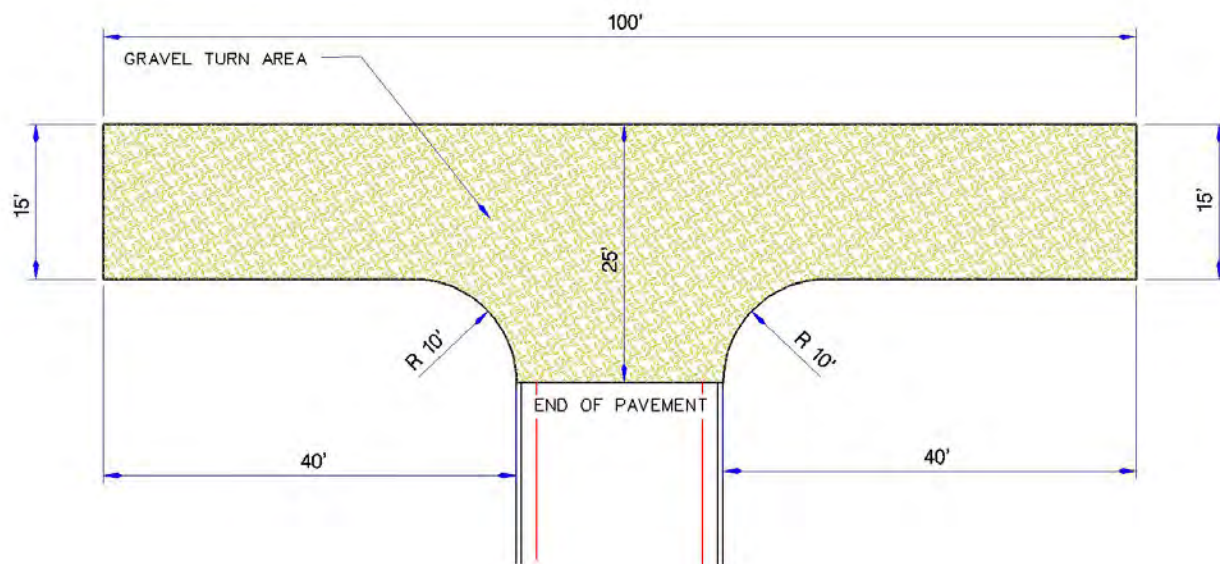
Approval Date:

Revision Date: 12-12-2000

Rev. No. 0

DRAWING NO. ST 34





## TEMPORARY T TURN AROUND

City Engineer Approval:

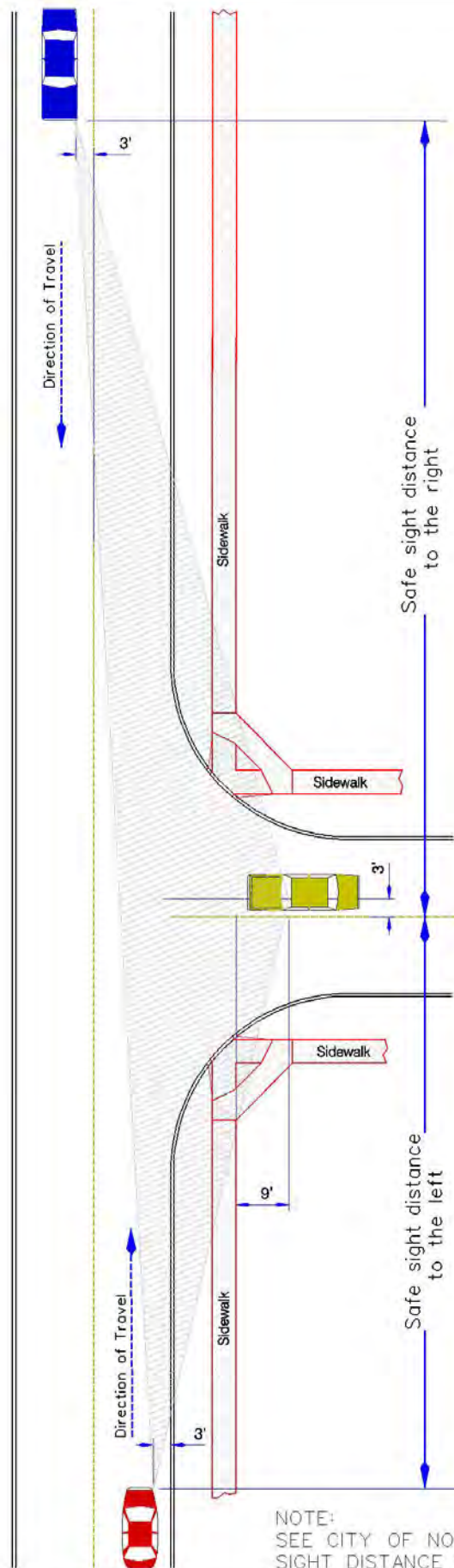
CITY OF NORMAN, OKLAHOMA

Approval Date:

Revision Date: 12-04-2001

Rev. No. 0

DRAWING NO. ST-35



Design Speed (MPH)	Minimum Sight Distance (Feet) *
25	280
30	355
35	415
40	470
45	530
50	590
55	645
60	705

\* Distance measured from an entering driver's eye position to the position of the closest approaching vehicle's far front corner.

NOTE:  
SEE CITY OF NORMAN "STANDARD SPECIFICATIONS" SECTION 4005.2  
SIGHT DISTANCE TRIANGLE (VISION TRIANGLE).

## INTERSECTION SIGHT DISTANCE

City Engineer Approval:

CITY OF NORMAN, OKLAHOMA

Approval Date:

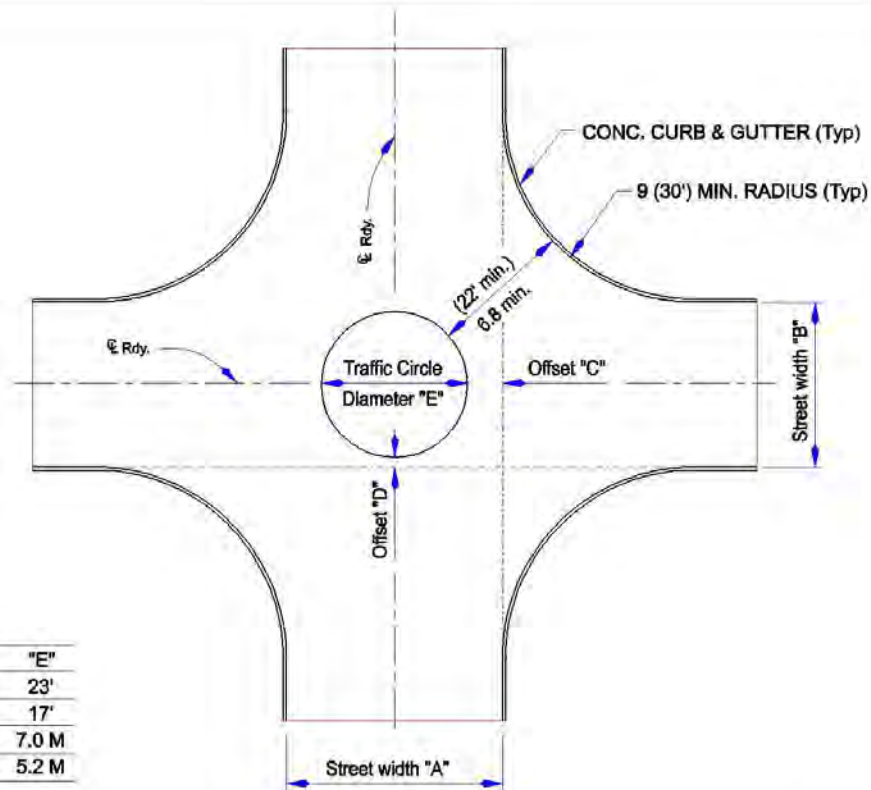
Revision Date: 5-28-2003

Rev. No. 0

DRAWING NO. ST-36

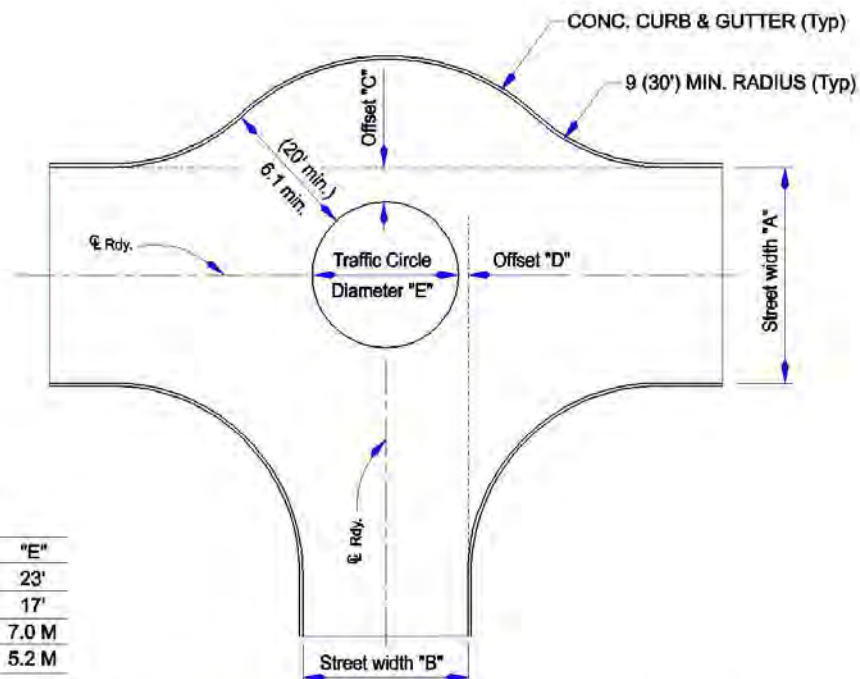


DIMENSIONS TABLE				
"A"	"B"	"C"	"D"	"E"
34'	26'	5'-6"	1'-6"	23'
26'	26'	4'-6"	4'-6"	17'
10.4 M	7.9 M	1.7 M	0.5 M	7.0 M
7.9 M	7.9 M	1.4 M	1.4 M	5.2 M



LAYOUT OF TRAFFIC CIRCLE AT FOUR WAY INTERSECTION

DIMENSIONS TABLE				
"A"	"B"	"C"	"D"	"E"
34'	26'	5'-6"	1'-6"	23'
26'	26'	4'-6"	4'-6"	17'
10.4 M	7.9 M	1.7 M	0.5 M	7.0 M
7.9 M	7.9 M	1.4 M	1.4 M	5.2 M



LAYOUT OF TRAFFIC CIRCLE AT TEE INTERSECTION

METRIC UNITS ARE IN METERS WITH ENGLISH UNITS IN PARENTHESES, UNLESS INDICATED OTHERWISE.

## TRAFFIC CIRCLE LAYOUT

City Engineer Approval:

CITY OF NORMAN, OKLAHOMA

Approval Date:

Revision Date: 12-6-2004

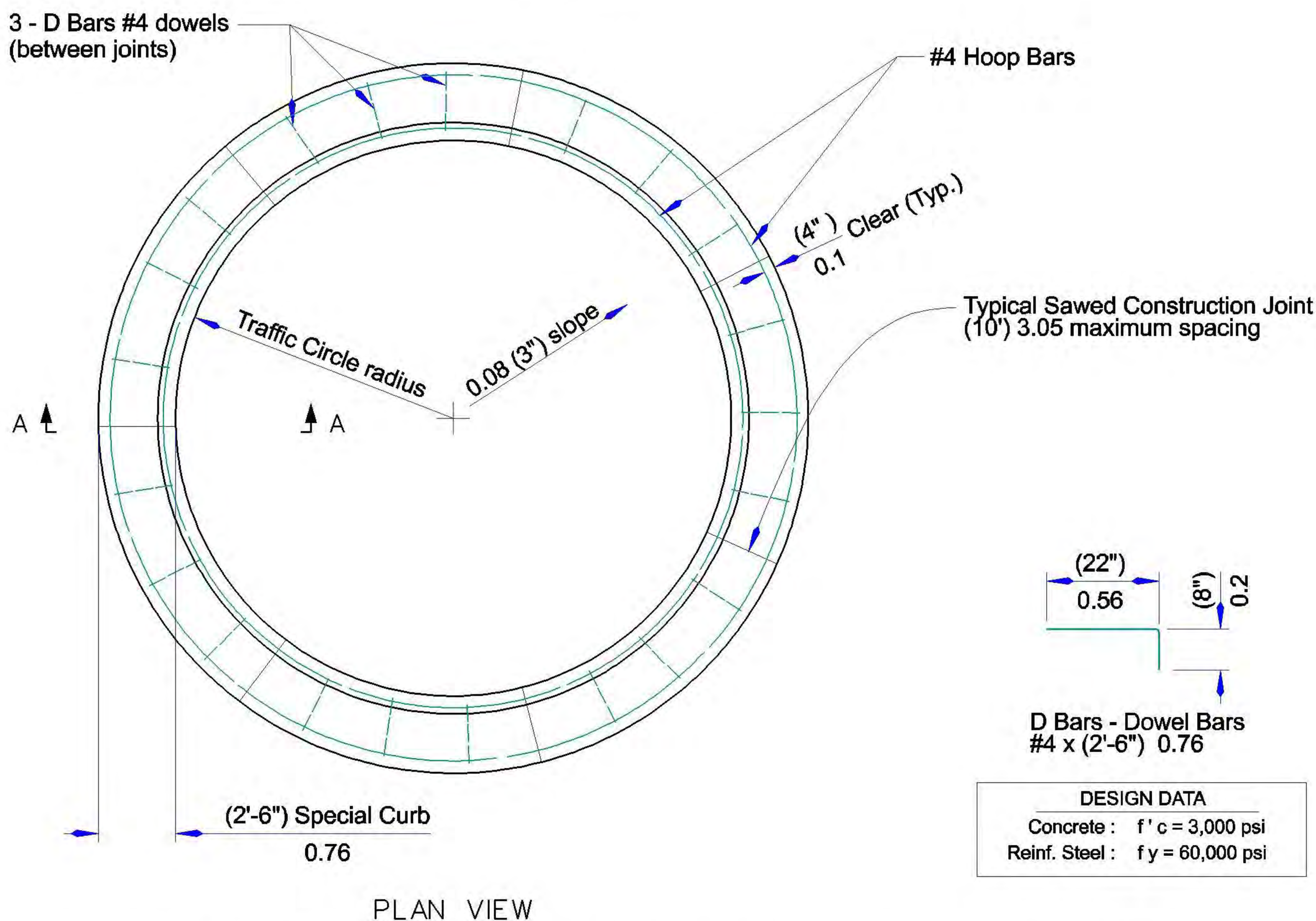
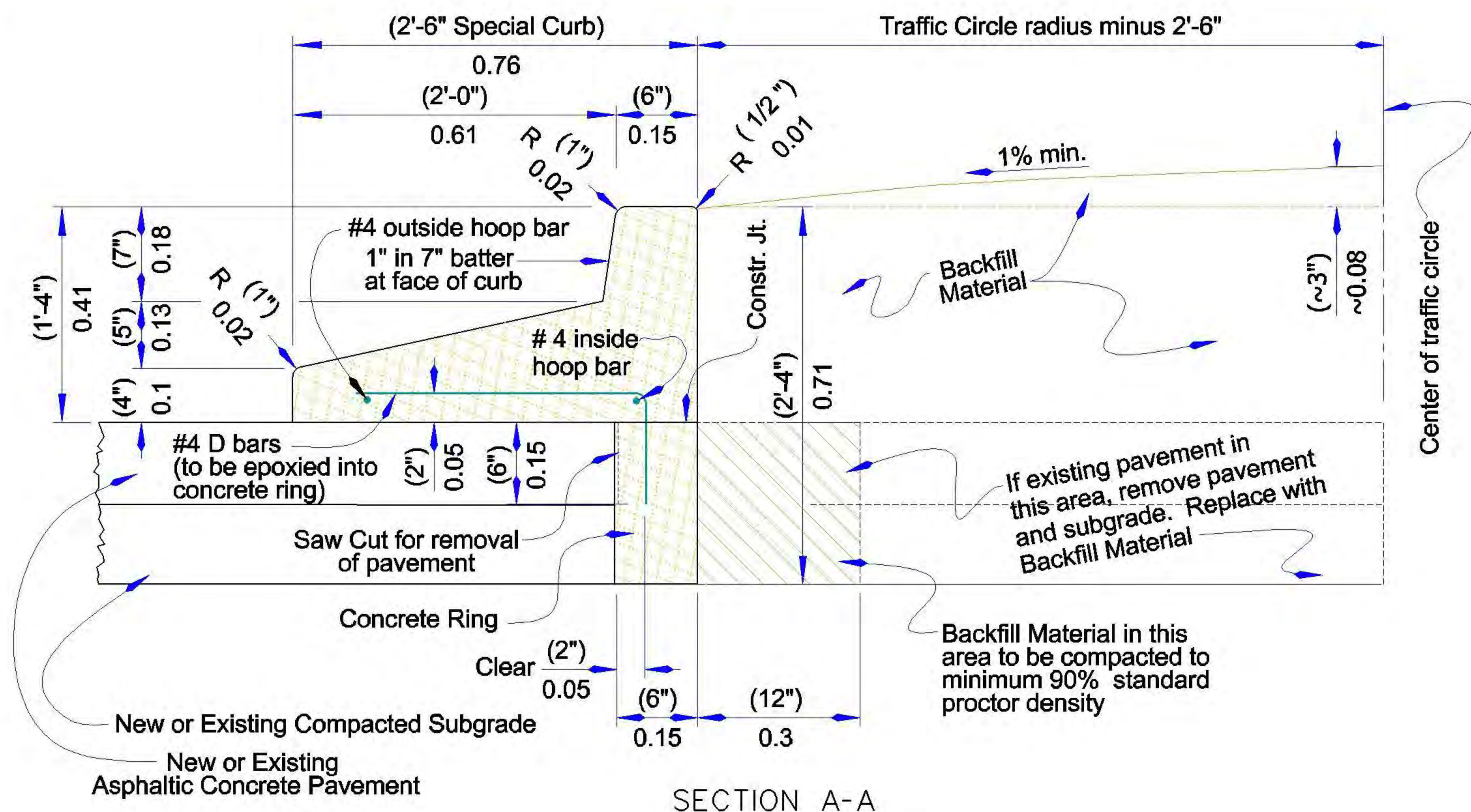
Rev. No. 0

DRAWING NO. ST 37









METRIC UNITS ARE IN METERS WITH ENGLISH UNITS IN PARENTHESIS, UNLESS INDICATED OTHERWISE.

## TRAFFIC CIRCLE ON ASPHALT (New or Retrofit Construction)

City Engineer Approval:

CITY OF NORMAN, OKLAHOMA

Approval Date:

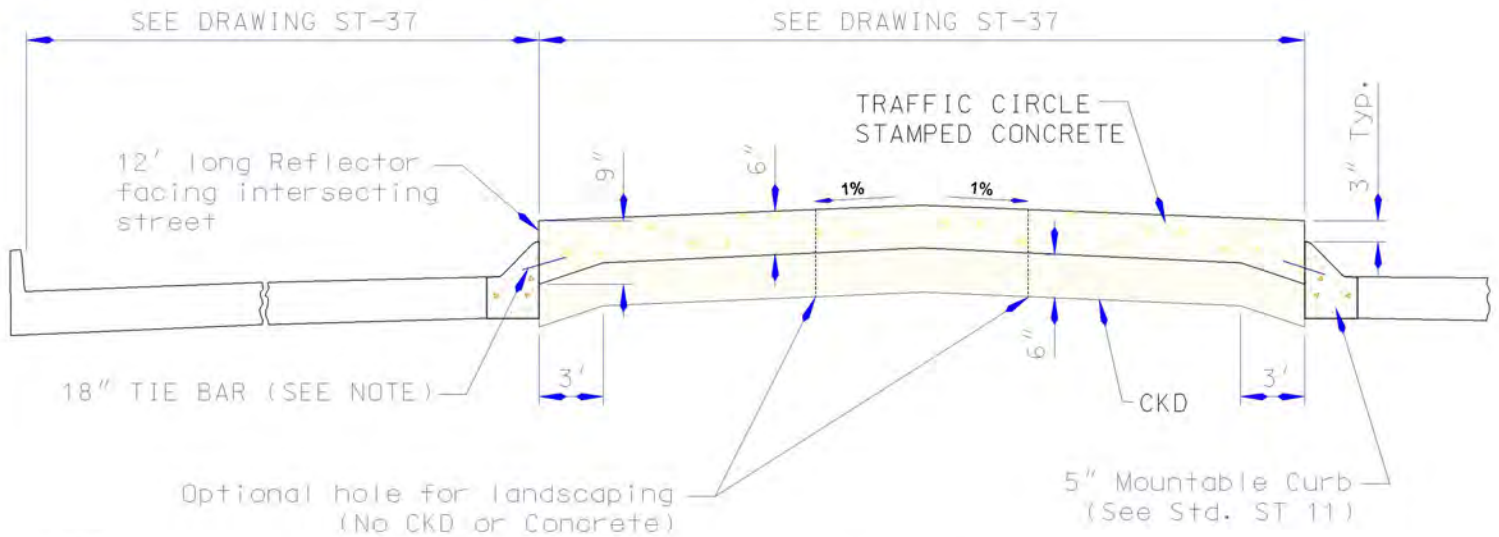
Revision Date: 10-20-2004

Rev. No. 0

DRAWING NO.

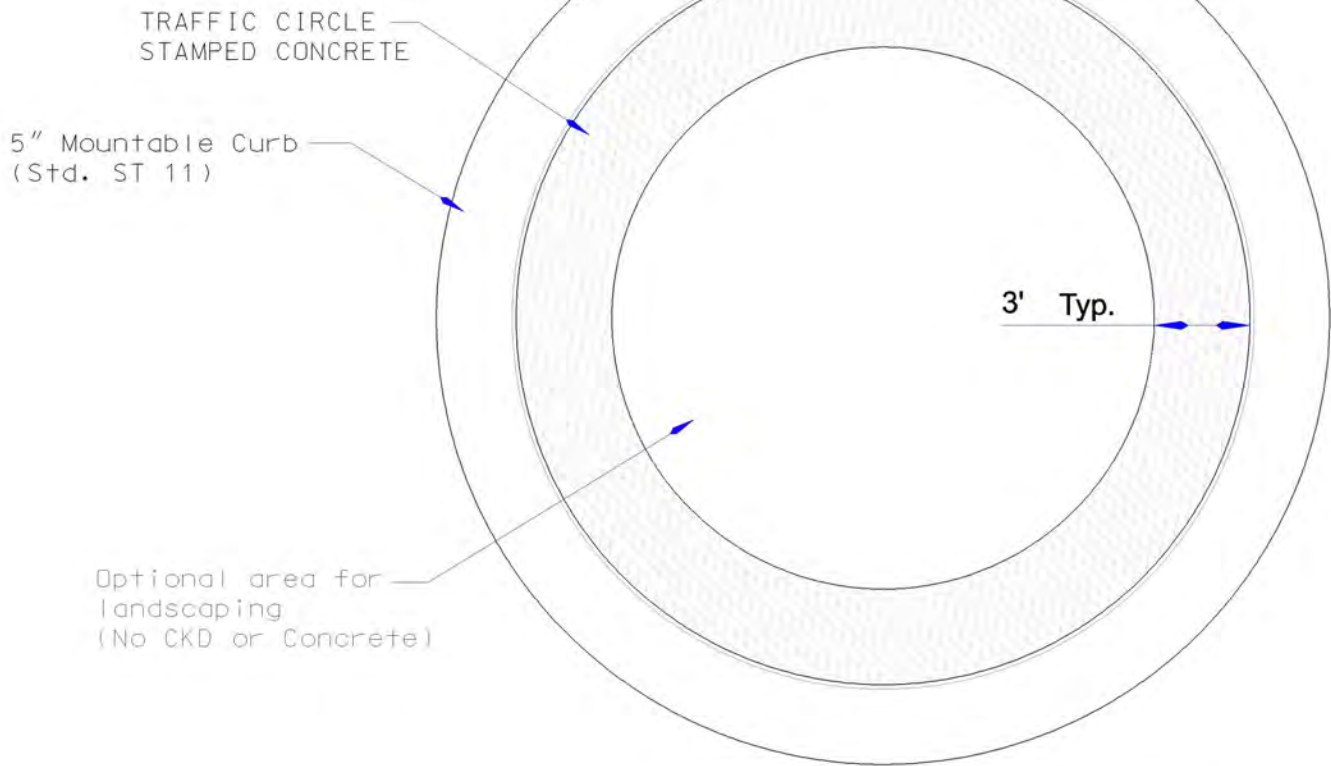
ST 39





## ELEVATION

NOTE:  
IF ADJACENT PAVEMENT IS CONCRETE  
THEN TIE BARS OR KEY WAY IS REQUIRED.  
TIE BARS TO BE #5 BARS, 18 INCHES LONG  
EVERY 2 FEET.



TRAFFIC CIRCLE - STAMPED CONCRETE  
PLAN VIEW

## TRAFFIC CIRCLE DETAILS

City Engineer Approval:

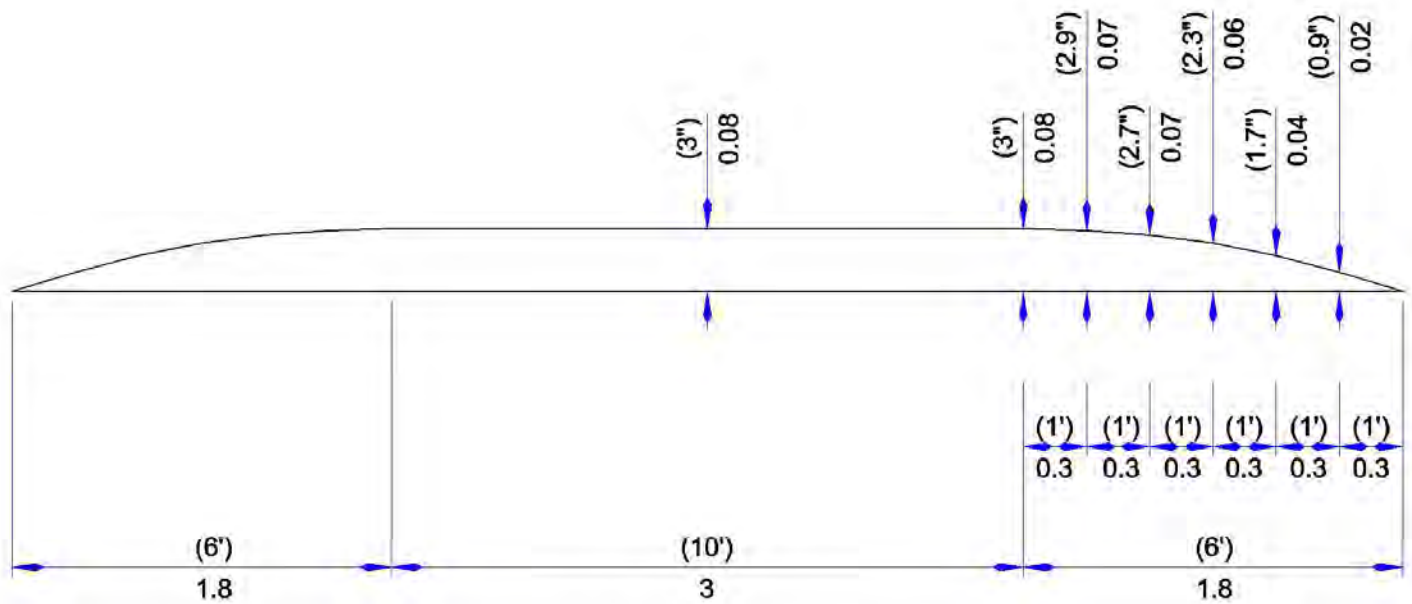
CITY OF NORMAN, OKLAHOMA

Approval Date:

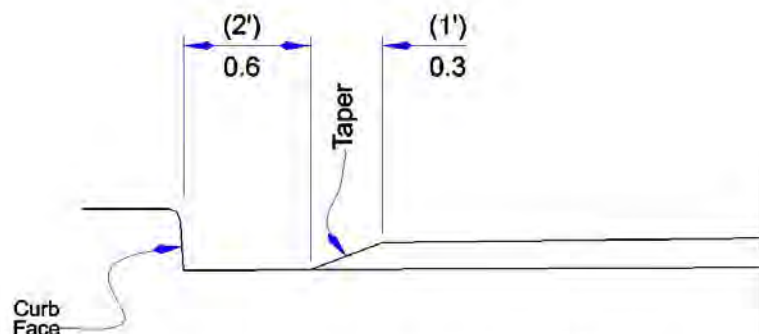
Revision Date: 4-18-2006

Rev. No. 1

DRAWING NO. ST 40



LONGITUDINAL PROFILE



AT EDGE OF ROADWAY  
(transverse direction)

METRIC UNITS ARE IN METERS WITH ENGLISH UNITS IN PARENTHESIS, UNLESS INDICATED OTHERWISE.

## SPEED TABLE - 22' LONG

City Engineer Approval:

CITY OF NORMAN, OKLAHOMA

Approval Date:

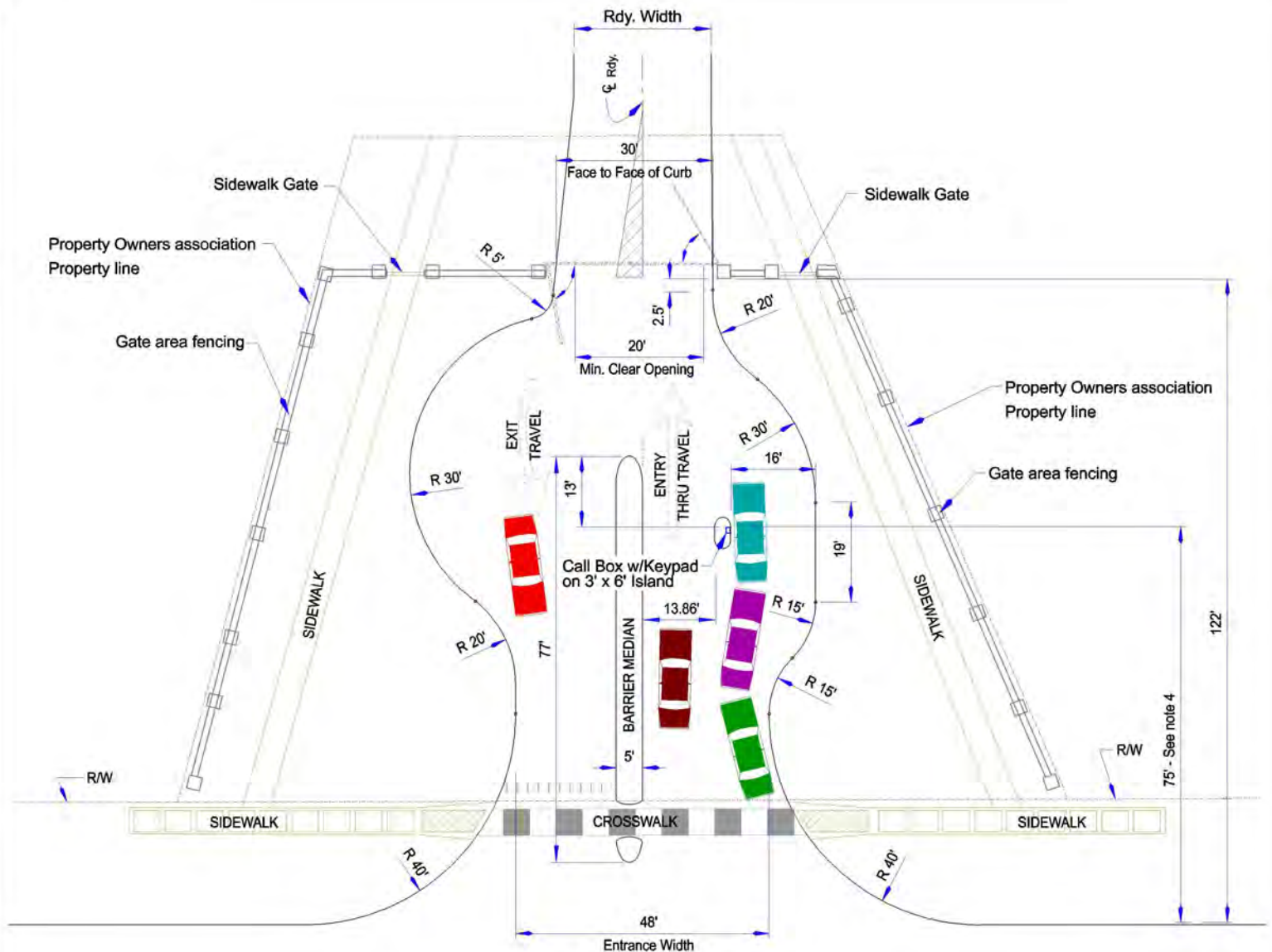
Revision Date: 10-18-2004

Rev. No.

0

DRAWING NO.

ST 41



GATED SUBDIVISION ENTRANCE  
(VEHICLE STACKING AT KEYPAD SHOWN)

NOTES:

1. A Siren Operated System (SOS) shall be provided that will automatically open the gates upon approach of emergency vehicles.
2. A manual gate release mechanism shall be provided to allow a responder to open the gate upon the loss of power to the gate controls.
3. There must be at least one 20' clear width gate opening and minimum clear height of 13'-6" to accommodate emergency vehicles.
4. Minimum queuing space for gated entrances intersecting urban local and collector streets shall be 50 feet. For gated entrances intersecting arterial and rural collector streets the minimum queuing space shall be 75 feet for developments with less than 100 lots. Additional queuing space may be required if the number of lots served by the gated entrance exceeds 100.
5. Swinging gates must open in the direction of normal traffic flow and must not impede pedestrian traffic or turnaround traffic while opening or when in the open position.
6. Gates, fences, etc. shall not interfere with or prevent access to fire hydrants. Area around hydrant(s) shall be kept clear of obstructions in accordance with City Standards.
7. Turnaround area shall accommodate a Single Unit truck as described in Standard GC-04.
8. A "Gate House" may be constructed using current building codes and entrance, traveled way lanes and turn-around area must be modified to accommodate the Building.
9. Any Proposed changes shall be reviewed and approved by the City Engineer, Traffic Engineer and the Fire Marshal's office.

GATED ENTRANCE LAYOUT

City Engineer Approval:

CITY OF NORMAN, OKLAHOMA

Approval Date:

Revision Date: 7-6-2006

Rev. No. 0

DRAWING NO. ST. 42