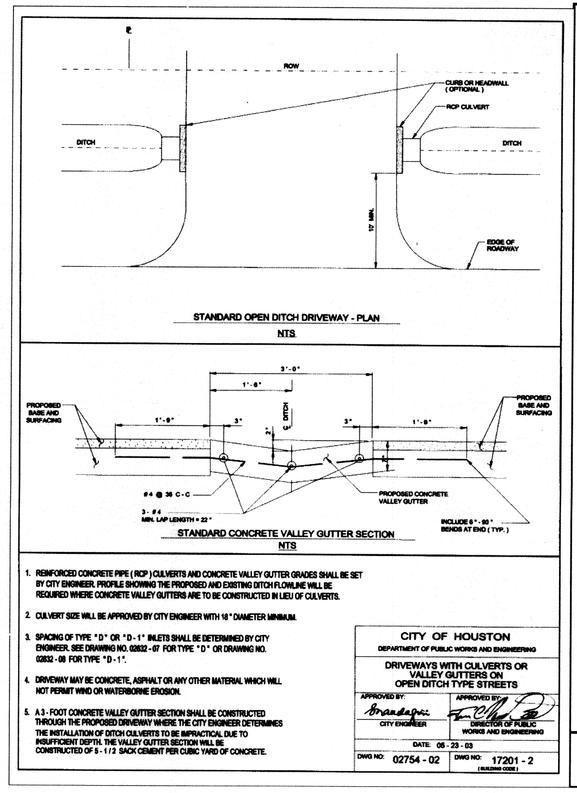
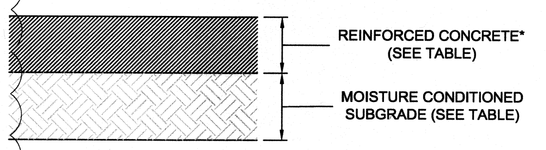


1. REINFORCED CONCRETE PIPE (RCP) CULVERTS AND CONCRETE VALLEY GUTTER GRADES SHALL BE SET BY CITY ENGINEER. PROFILE SHOWING THE PROPOSED AND EXISTING DITCH FLOWLINE WILL BE REQUIRED WHERE CONCRETE VALLEY GUTTERS ARE TO BE CONSTRUCTED IN LIEU OF CULVERTS.
2. CULVERT SIZE WILL BE APPROVED BY CITY ENGINEER WITH 18 " DIAMETER MINIMUM.
3. SPACING OF TYPE "D" OR "D-1" INLETS SHALL BE DETERMINED BY CITY ENGINEER. SEE DRAWING NO. 02652 -07 FOR TYPE "D" OR DRAWING NO. 02652 - 09 FOR TYPE "D-1".
4. DRIVEWAY MAY BE CONCRETE, ASPHALT OR ANY OTHER MATERIAL WHICH WILL NOT PERMIT WING OR WESTBOURNE EROSION.
5. A 3 - FOOT CONCRETE VALLEY GUTTER SECTION SHALL BE CONSTRUCTED THROUGH THE PROPOSED DRIVEWAY WHERE THE CITY ENGINEER DETERMINES THE INSTALLATION OF SUCH CULVERTS TO BE IMPRACTICAL DUE TO INSUFFICIENT DEPTH. THE VALLEY GUTTER SECTION WILL BE CONSTRUCTED OF 3 - 1 / 2 SACK CEMENT PER CUBIC YARD OF CONCRETE.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
DRIVEWAYS WITH CULVERTS OR VALLEY GUTTERS ON OPEN DITCH TYPE STREETS
APPROVED BY: CITY ENGINEER
APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
DATE: 08 - 23 - 03
DWG NO: 02754 - 02 DWG NO: 17201 - 2



COMPONENT	MATERIAL THICKNESS	
	LIGHT-DUTY	HEAVY-DUTY
REINFORCED CONCRETE*	5"	7"
MOISTURE CONDITIONED SUBGRADE	6"	6"

REINFORCING STEEL: STANDARD DUTY: #4 BARS SPACED AT 18" ON CENTERS IN BOTH DIRECTIONS.

HEAVY DUTY: #5 BARS AT 15 INCHES ON CENTER IN BOTH DIRECTIONS

STEEL REINFORCING SHALL BE GRADE 60 FOR BOTH STANDARD AND HEAVY DUTY APPLICATIONS.

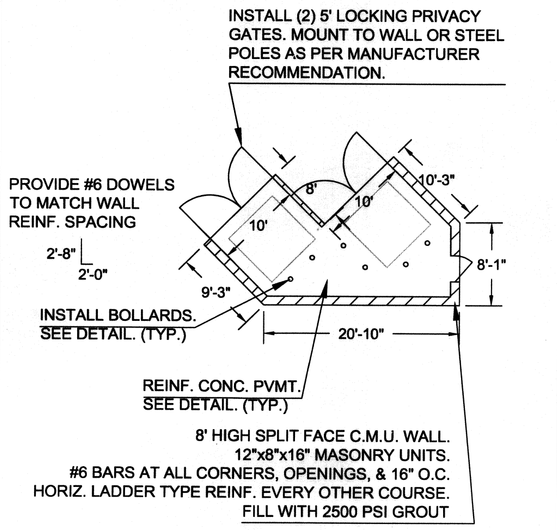
SUGGESTED LONGITUDINAL AND TRANSVERSE JOINT SPACING FOR CONCRETE PAVING IS 15-FEET. THE EXPANSION JOINT SPACING IS APPROXIMATELY 80-FEET.

1) REFERENCE GEOTECHNICAL FOR SPECIFIC PAVEMENT DESIGN AND PLACEMENT GUIDELINES.

2) REINFORCED CONCRETE: CONCRETE SHOULD BE DESIGNED TO EXHIBIT A FLEXURAL STRENGTH (THIRD-POINT LOADING) OF AT LEAST 500 PSI AT 7 DAYS. THIS CORRESPONDS TO A COMPRESSIVE STRENGTH OF 3,000 PSI AT 28 DAYS.

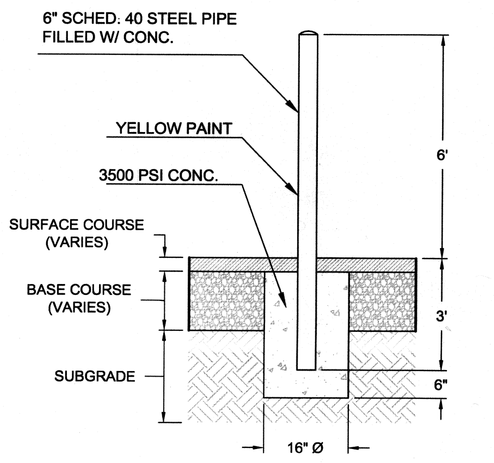
3) STABILIZED SUBGRADE: LIME-FLY ASH STABILIZED SUBGRADE (TXDOT SPECIFICATION ITEM 265, NOTES 1 AND 2) COMPACT TO 95% OF THE MAXIMUM STANDARD PROCTOR DENSITY (ASTM D 698) AT A MOISTURE CONTENT BETWEEN OPTIMUM AND + 3% OF OPTIMUM. USE 2% LIME AND 8% FLY ASH BY DRY WEIGHT TO STABILIZE THE UPPER SOILS. THIS RESULTS IN APPLICATION RATES OF 9 AND 36 POUNDS PER SQUARE YARD PER SIX INCHES OF COMPACTED THICKNESS FOR LIME AND FLY-ASH, RESPECTIVELY.

CONCRETE PAVEMENT DETAIL
N.T.S.

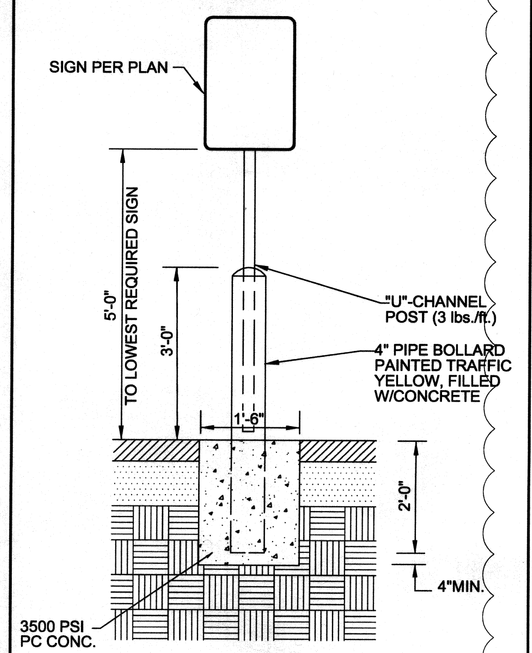


1) REF. STRUCTURAL FOR FOUNDATION DETAIL
2)THIS DUMPSTER ENCLOSURE IS SIZED TO ACCOMMODATE (2) DUMPSTER WITH UP TO A 8-YARD CAPACITY. MAXIMUM DUMPSTER DIMENSIONS ALLOWED ARE 6.5'D X 6.5'L X 6'H. IF A LARGER DUMPSTER IS PROPOSED, NOTIFY ENGINEER FOR REVISED DIMENSIONS.
3) SLOPE DUMPSTER PAD TO DRAIN OUT FRONT OF ENCLOSURE (MIN. 1.0%).

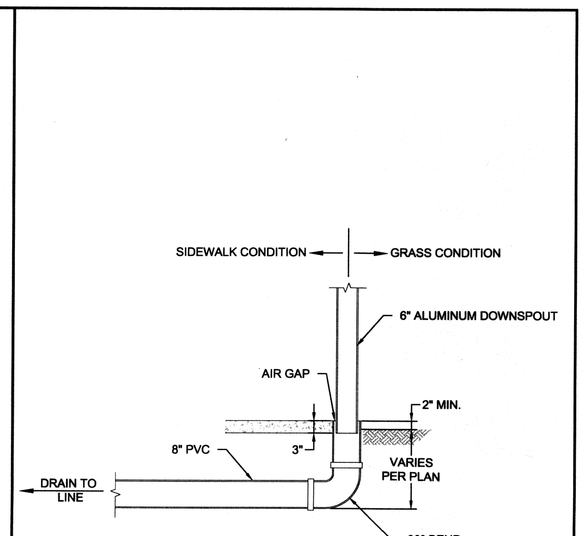
DUMPSTER ENCLOSURE DETAIL
N.T.S.



BOLLARD DETAIL
N.T.S.



BOLLARD MOUNTED SIGN
N.T.S.



DOWNSPOUT CONNECTION DETAIL
N.T.S.

TABLE OF CONSTANT DIMENSIONS

PIPE SIZE	A	L	T
18"	0'-6"	4'-0"	6"
24"	0'-6"	4'-0"	6"
30"	0'-6"	4'-0"	6"
36"	0'-6"	4'-0"	6"
42"	0'-6"	4'-0"	6"
48"	0'-6"	4'-0"	6"
54"	0'-6"	4'-0"	6"
60"	0'-6"	4'-0"	6"
66"	0'-6"	4'-0"	6"
72"	0'-6"	4'-0"	6"

TABLE OF REINFORCING STEEL

MARK	SIZE	SPA.	NO.
A			
B			
C			
D			
E			
F			

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
CONSTRUCTION AND REAL ESTATE DIVISION
CONCRETE HEADWALLS WITH PARALLEL WINGS
(NOT TO SCALE)
APPROVED BY: CITY ENGINEER
APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: OCT-01-2002 DWG NO: 02632-12

4"x12" MONOLITHIC AND TRANSITION CURB NOTES:

1. 6-INCH CONCRETE CURB TO BE CONSTRUCTED ON ALL ESPLANADES, ISLANDS NON-RESIDENTIAL STREETS AND RESIDENTIAL STREETS
2. TRANSITION FROM 6-INCH CONCRETE CURB TO 4-INCH x 12-INCH CONCRETE CURB TO BE ACCOMPLISHED WITHIN 10 FEET, UNLESS OTHERWISE SHOWN. IF THE 10-FOOT TRANSITION CURB IS NOT POURED MONOLITHICALLY WITH THE PAVEMENT, THEN REINFORCING STEEL AS SHOWN IN "4-INCH x 12-INCH TRANSITION CURB" IS TO BE INSTALLED.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
CONSTRUCTION AND REAL ESTATE DIVISION
CURB, CURB AND GUTTER AND HEADER DETAILS
(NOT TO SCALE)
APPROVED BY: CITY ENGINEER
APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: OCT-01-2002 DWG NO: 02771

RAMP HANDRAIL DETAILS
NOT TO SCALE

PLAN VIEW – DRIVEWAY

SECTION A
TYPICAL SIDEWALKS SECTION
N.T.S.

NOTES:
1. IF SIDEWALK RUN IS NOT SUFFICIENT TO ACCOMMODATE A 5-FEET SIDEWALK, ENGINEER SHALL OBTAIN A VARIANCE FROM THE CITY ENGINEER FOR A 4-FEET WIDE SIDEWALK.
2. DRIVEWAYS SHALL BE 6" THICK FOR SINGLE FAMILY.
3. DRIVEWAYS AND SIDEWALKS SHALL BE CONSTRUCTED WITH PORTLAND CEMENT CONCRETE HAVING MODULUS OF RUPTURE (CEMENT TYPE CLASS "AAA" OF CONCRETE).
4. THE OUTER DOWEL BARS ARE TO BE LOCATED 12" FROM END OF PROPOSED USE OF ERECTABLE RETURN. EXTEND DOWEL 7" HOOKS AND PROVIDED WITH 2" CLEAR COVER. FOR TURNING RAD TO EXTEND TO WIDTH OF PROPOSED USE.
5. TRIMMED GROOVE SIDEWALK SHALL BE LOW MODULUS SILICONE OR POLYURETHANE SEALANT.
6. EXPANSION & CONSTRUCTION JOINTS ALONG SIDEWALK SHALL BE ACCORDING TO DRAWING No. 02720-02
7. REFER CHAPTER 10 DESIGN REQUIREMENTS FOR 4 AND 6.

SECTION B
PROPOSED SIDEWALK THROUGH DRIVEWAY WITH EXCESSIVE GRADES
N.T.S.

SECTION C
TYPICAL DRIVEWAY SECTION
N.T.S.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
DRIVEWAY / LOCAL RESIDENTIAL STREETS
(NOT TO SCALE)
APPROVED BY: CITY ENGINEER
APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JULY-01-2009 DWG NO: 02754 - 01A

SIDEWALK 1 OF 3
SCALE: N.T.S.

DOWEL DETAIL

SIDEWALK 2 OF 3
SCALE: N.T.S.

SECTION OF SIDEWALK OVER UTILITY SERVICE LINES

NOTES:
1. THIS STANDARD APPLIES TO THE INSTALLATION OF NEW UTILITIES OR UTILITIES BEING REPLACED BY A NEW LINE.
2. NO JOINTS IN UTILITY SERVICE PIPE TO BE LOCATED INSIDE PVC PIPE SLEEVE.

SIDEWALK 3 OF 3
SCALE: N.T.S.

NOTE:
1. EXPOSE 15" OF REINFORCING STEEL AT PROPOSED SAWED JOINT. IF NO REINFORCING STEEL EXISTS, USE HORIZONTAL DOWELS. HORIZONTAL DOWELS SHALL BE # 6 BARS, 24" LONG, 24" C.C., DRILLED AND EMBEDDED 8" INTO THE CENTER OF THE EXISTING SLAB. WITH "PO ROC" OR EQUAL.
2. IF REINFORCED CONCRETE IS OVERLAYED WITH ASPHALT, REPLACE WITH 2" MIN HMAC SURFACING.
3. REFER TO STANDARD DETAIL 02751-01 FOR REINFORCING STEEL REQUIREMENTS
4. REFER TO STANDARD DETAIL 02951-01 FOR PAVEMENT RESTORATION LIMITS.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
CONSTRUCTION AND REAL ESTATE DIVISION
PAVEMENT REPAIR DETAILS FOR STREET CUTS
(NOT TO SCALE)
APPROVED BY: CITY ENGINEER
APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: OCT-01-2002 DWG NO: 02902-01

NOTES:

1. EXTENT OF PAVEMENT REPAIR SHALL BE PERPENDICULAR AND PARALLEL TO TRAVEL WAY.
2. FLEXIBLE BASE:
   REPLACE BASE TO SAME THICKNESS PLUS TWO INCHES (2") FOR EXTENT OF EXCAVATION. USE APPROVED BASE MATERIAL TYPE. *
3. SURFACE COURSE:
   A. WIDTH
      SURFACE MILL AND OVERLAY FULL WIDTH OF LANE(S) TO NEAREST LANE DIVIDER BEYOND EDGE OF EXCAVATION.
   B. LENGTH
      MINIMUM LENGTH OF SURFACE MILL ALONG TRAVEL WAY IS 10'.
   C. REPLACE PAVEMENT MARKINGS IN ACCORDANCE WITH CITY SPECIFICATIONS 02754 & 02767.

ADDITIONAL REQUIREMENTS FOR ASPHALT OVERLAY ON CONCRETE PAVEMENT:

1. REPLACE CONCRETE FOR EXTENT OF EXCAVATION. REPLACE TO SAME THICKNESS PLUS TWO INCHES (2").
2. WIDTH:
   IF EXCAVATION EXTENDS MORE THAN HALF OF A LANE, REPLACE ENTIRE LANE OF CONCRETE. OTHERWISE USE STANDARD DETAIL 02902-01.
3. SAW CUT AND EXPOSE 15" OF REINFORCING STEEL AROUND EDGE OF CONCRETE REPLACEMENT. IF NO REINFORCING STEEL EXISTS, USE HORIZONTAL DOWELS PER SPECIFICATION SECTION 02902
4. REPLACE CURB WHEN ADJACENT LANE IS REPLACED.
5. MAINTAIN CONCRETE EXPANSION JOINTS AT EXISTING LOCATIONS UNLESS OTHERWISE APPROVED BY CITY ENGINEER.

* EXTENT OF EXCAVATION INCLUDES 18" OVERCUT AS SHOWN ON STANDARD DETAIL 02902-01.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
CONSTRUCTION AND REAL ESTATE DIVISION
Street Cut Pavement Replacement ASPHALT PAVEMENT FOR PAVEMENT OF ALL AGES
(NOT TO SCALE)
APPROVED BY: CITY ENGINEER
APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JUNE 2002 DWG NO: 02951-03

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BOWIE STREET CAMPUS
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HOUSTON, TEXAS 77012

HATCH + ULLAND OWEN ARCHITECTS

JEFFREY B. SHINDLER
91160
REGISTERED PROFESSIONAL ENGINEER
24 OCT 09
FIRM REG. # F-8601

SITE DETAIL SHEET

PROJECT # 302-103

DATE 10/29/09

SHEET C13
13 OF 16