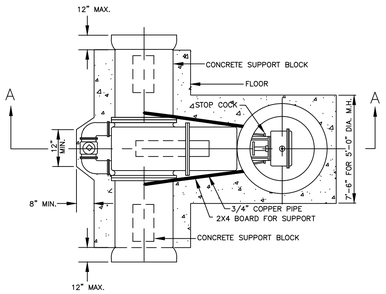
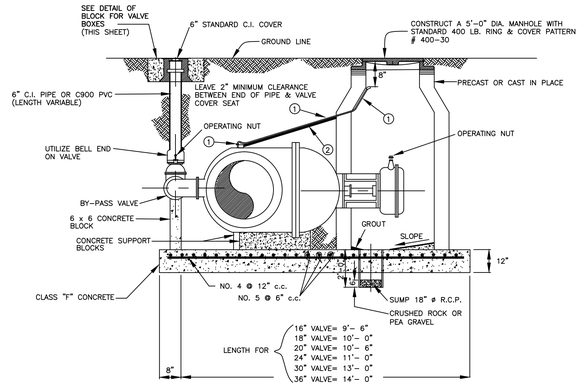


NOTES:

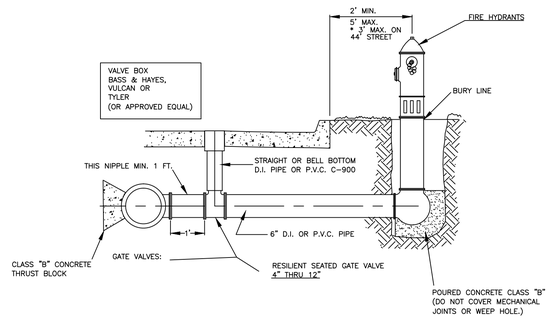
1. Valves shall have flanged ends. Flanged ends shall conform to ASA B16.1, Class 125 lb.
2. Rollers, tracks and scrappers for horizontal valves shall conform to AWWA Specification C500 with the following exception: Babbitt tracks will not be acceptable.
3. All valves 18" and larger shall be designed for horizontal pipe line unless otherwise called for. All other valves are to be vertical.
4. For cast in place or precast manholes, see sanitary sewer manholes for materials.

PLAN



SECTION A-A

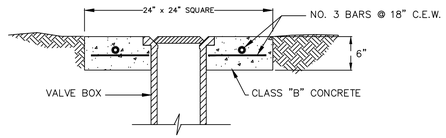
HORIZONTAL VALVE INSTALLATION



NOTES:

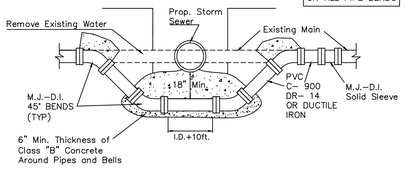
1. ALL FITTINGS ARE MECHANICAL JOINTS, EXCEPT VALVE TO TEES OR WYES MAY BE FLANGE TO FLANGE.
2. PLACEMENT OF FIRE HYDRANTS IN SIDEWALK IS PROHIBITED.
3. PEA GRAVEL TO BE PLACED AROUND WEEP HOLE.
4. HYDROLOCK IS NOT REQUIRED.

FIRE HYDRANT ASSEMBLY

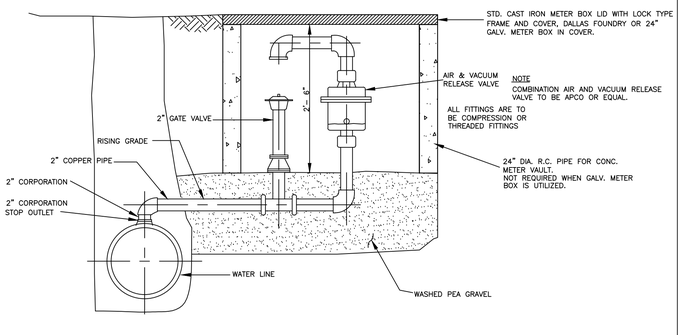


DETAIL OF BLOCK FOR VALVE BOXES

NOT IN PAVEMENT

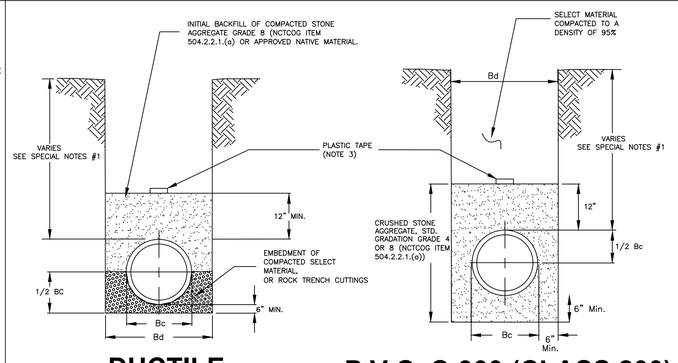


WATER MAIN LOWERING



LOCATION AS SPECIFIED ON PLANS

AIR RELEASE VALVE



DUCTILE

P.V.C. C-900 (CLASS 200)

FOR RCCP SEE MANUFACTURER'S LAYING SCHEDULE FOR EMBEDMENT DETAIL.

EMBEDMENT FOR WATER CONDUITS

ACCEPTED MATERIALS MANUFACTURERS (SEE NOTE 9)

GATE VALVES

M & H
CLOW

RESILIENT SEATED GATE VALVE 4" THRU 12"

MUELLER
CLOW
KENNEDY
AFC
AVK

TAPPING SLEEVES

M & H
CLOW
MUELLER
AFC
TYLER

TAPPING VALVES

M & H
CLOW
MUELLER
AFC
AVK

FIRE HYDRANTS

MUELLER #A423
M & H #129
CLOW #F2545
KENNEDY 5-1/4" K81D
AVK #2700
WATEROUS #WB-67

ADJUSTABLE VALVE BOX WITH LID

TYLER
BASS & HAYES
EAST JORDAN IRON WORKS

VALVE BOX WITH LID

FOR USE WITH C-900 P.V.C. VALVE STACK
EAST JORDAN IRON WORKS
TYLER
BASS & HAYES

STAINLESS STEEL WATERMAIN REPAIR CLAMP WITH OR WITHOUT SERVICE OUTLET

MUELLER
FORD

APPROVED PIPE

4-12" C-900-DR 14
GREATER THAN OR EQUAL TO 14" C-905-DR 18
CLASS 200, DR 14
DUCTILE IRON: CLASS 50 & 51 WITH MECHANICAL JOINT ACCESSORIES CEMENT LINED.

APPROVED FITTINGS

MADE IN USA ONLY

COMBINATION AIR VALVES

STANDARD, SINGLE- BODY DOUBLE ORIFICE
1" THRU 6": APCO OR APPROVED EQUAL

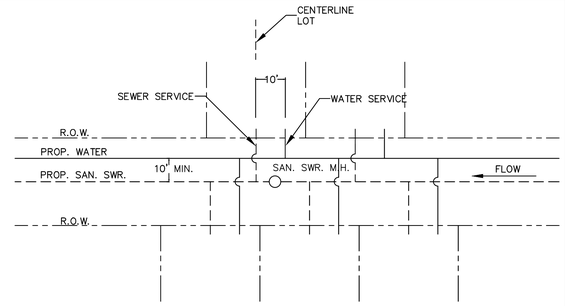
GATE VALVES FOR COMBINATION AIR VALVES 1" THRU 2"

NIBCO # T- 131; # T- 133, OR APPROVED EQUAL

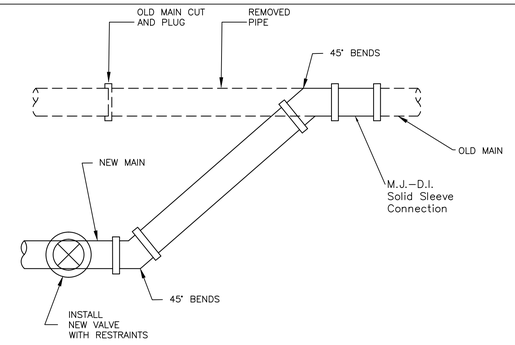
ALL MATERIALS AND WORKMANSHIP TO CONFORM TO THE REQUIREMENTS SET FORTH IN THE LATEST EDITION OF THE CITY OF RICHARDSON'S MANUAL FOR GENERAL PROCEDURES FOR THE DESIGN OF WATER AND SEWER LINES AND WATER DEPARTMENT STANDARDS.

SPECIAL NOTES:

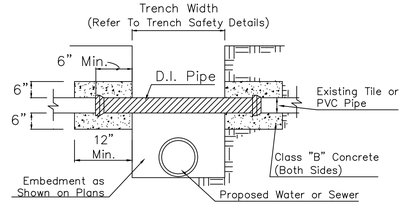
1. WATER MAINS SHALL HAVE THE FOLLOWING MINIMUM COVER BELOW STREET GRADES; 6", 3.5', 8", 4.0', 12", 5.0': LARGER, AS SHOWN ON PLANS.
2. ALL RESIDENTIAL WATER SERVICES SHALL BE 1" MINIMUM.
3. PLASTIC TAPE FOR SERVICES TO BE ATTACHED TO THE ENDS OF ALL SERVICE LINES AND EXTEND ABOVE GROUND LEVEL. THE TAPE SHALL MEET THE FOLLOWING SPECIFICATIONS:
   a. "ALLEN MARKING TAPE" OR EQUAL.
   b. ROLL MARKED CONTINUOUSLY, "CAUTION SEWER LINE", OR "CAUTION WATER LINE".
   c. SIX (6) INCHES IN WIDTH.
   b. GREEN TAPE FOR SEWER SERVICES, BLUE TAPE FOR WATER SERVICE.
4. LOCATE WATER SERVICES 10 FT. UPSTREAM OF SANITARY SEWER SERVICES.
5. ALL STUBOUTS SHALL BE ONE FULL JOINT OF PIPE.
6. REMOVE BLEEDER AND PLUG WITH BRASS PLUG.
7. CONTRACTOR SHALL MEET (TCEQ) STANDARDS FOR SEPARATION OF WATER AND SEWER CONDUITS.
8. CONTRACTOR SHALL SUPPLY ALL EQUIPMENT, LABOR, MATERIALS, AND ANY OTHER APPURTENANCES NECESSARY TO TEST WATER AND SEWER LINES TO CITY STANDARDS.
9. APPROVED MATERIALS LIST IS AVAILABLE FROM THE UTILITY SYSTEMS MANAGER ENGINEER AT THE CITY OF RICHARDSON SERVICE CENTER 1260 COLUMBIA DRIVE, RICHARDSON, TEXAS. TELEPHONE 972-744-4411.



TYPICAL LOT SERVICE DETAIL



WATER MAIN CONNECTION DETAIL



UTILITY SUPPORT DETAIL

Revisions:

City of Richardson
411 W. Arapaho Road
Suite 204
Richardson, Texas 75080
voice: 972 744-4280
fax: 972 744-5804

Drawn By: RGB
Checked By: COR

CITY OF RICHARDSON TEXAS

STANDARD DETAILS

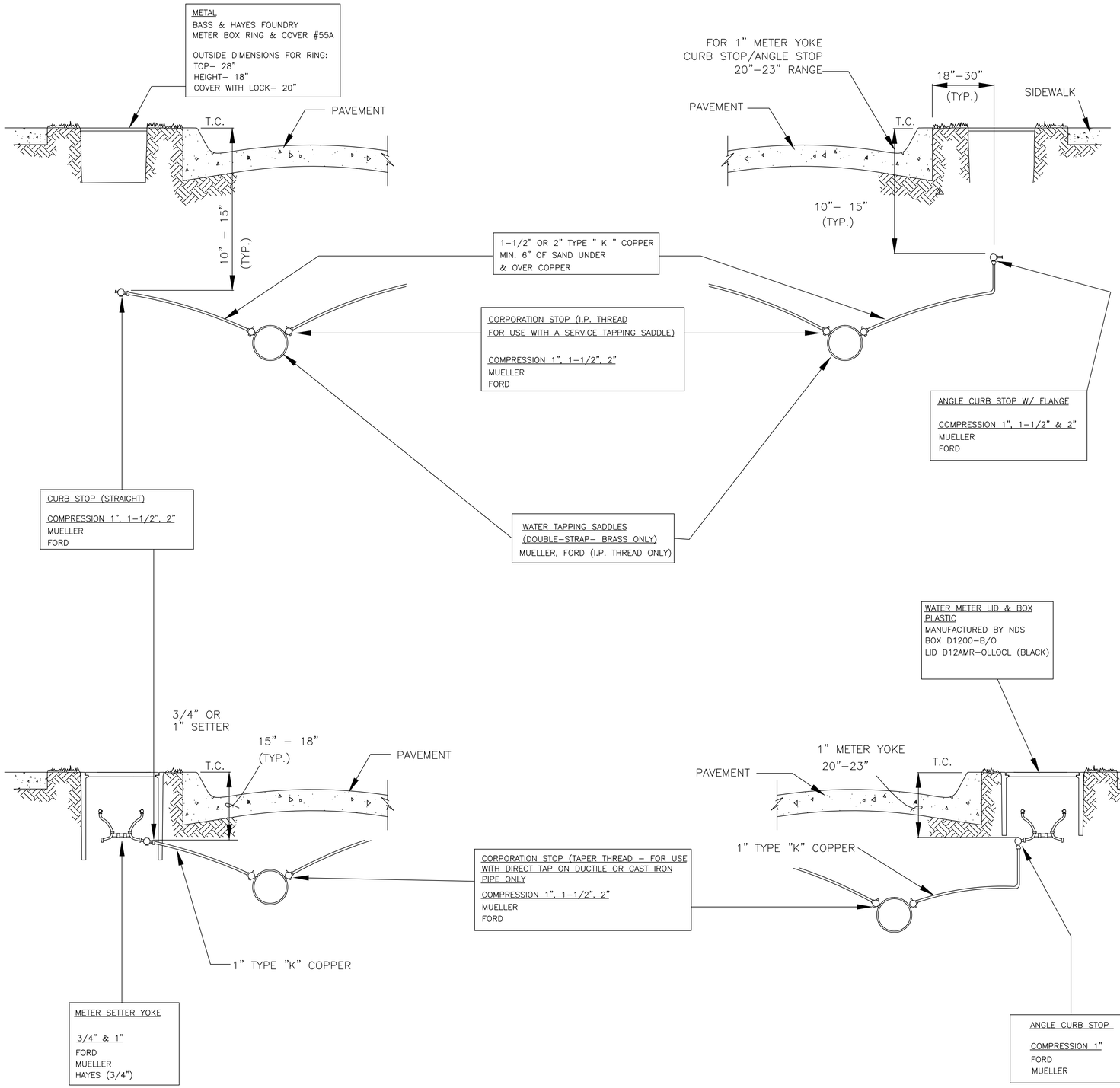
City of Richardson, Texas

NO ADDITIONS OR CHANGES TO STANDARD DETAIL SHEETS UNLESS APPROVED BY CITY OF RICHARDSON

24"x36" Scale: NTS
11"x17" Scale: NTS
Vertical Scale: NA
Project Number: XXX
Issue Date: 01 MAY 14

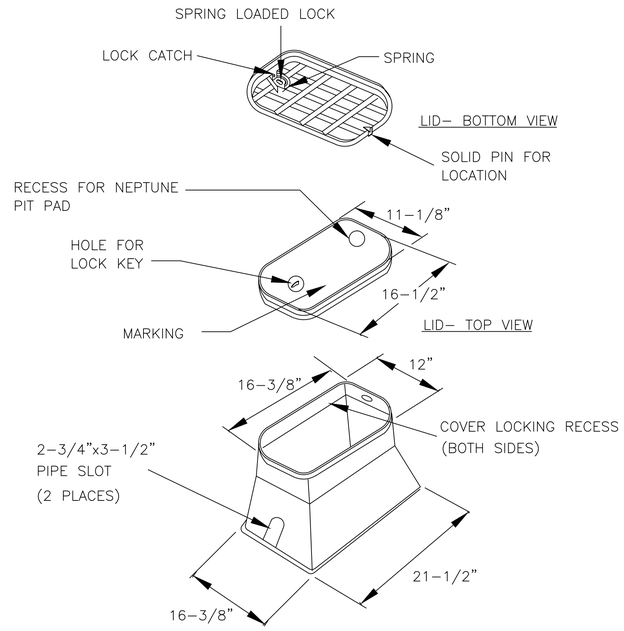
Sheet Title: **WATER**

Sheet No.: **C-1**



WATER METER LID AND BOX

MANUFACTURED BY NDS
SEE NOTE 2



MISCELLANEOUS METER FITTINGS

(PROVIDED BY CONTRACTOR)

3/4" METER INSTALLATIONS:

1" to 3/4" brass pipe thread reducer, any brand.
3/4" x 3" brass nipple, any brand.
For 1" angle stops: 1– 1/4" x 3/4" water meter bushings.
Acceptable Brands: Ford or approved equal brand, see Note 2.
One plastic Water Meter Box and lid, NDS brand, see Note 2.

1" METER INSTALLATIONS:

1" x 3" brass nipple, any brand.
For 1" angle stops: 1– 1/4" x 1" water meter bushings.
Acceptable Brands: Jones, Mueller, and Ford, see Note 2.
One plastic Water Meter Box and lid, NDS brand, see Note 2.

1– 1/2" & 2" METER INSTALLATIONS:

3" long brass nipple, any brand.
2 bolt meter flange: all brass with female pipe thread connections, any brand.
28" x 18" galvanized meter box with utility key lock.
Bass & Hayes #55A

NOTES:

1. Dimensions shown are approximate.

2. Approved materials list is available from the Water Utility Systems Manager Engineer at the City of Richardson Service Center 1260 Columbia Drive, Richardson, Texas. Telephone 972–744–4411.

3. Flare fittings are not allowed.

4. Center Meter in Parkway between sidewalk and back of curb. Do not place box in sidewalk.

Revisions:

City of Richardson
411 W. Arapaho Road
Suite 204
Richardson, Texas 75080
voice: 972 744–4280
fax: 972 744–5804

Drawn By: RGB
Checked By: COR

CITY OF RICHARDSON TEXAS

STANDARD DETAILS

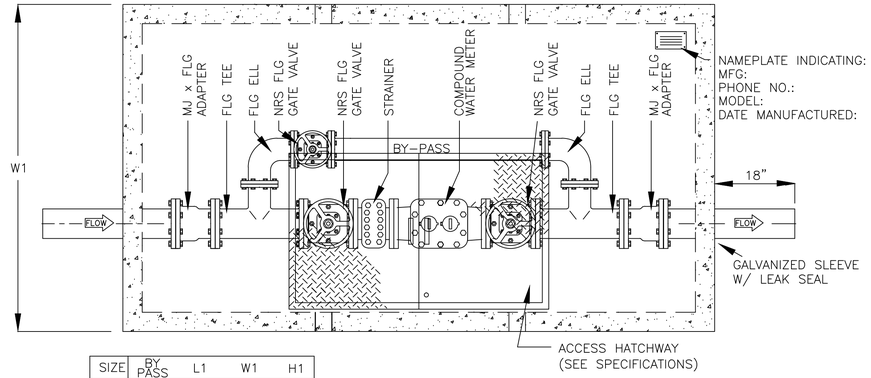
City of Richardson, Texas

NO ADDITIONS OR CHANGES TO STANDARD DETAIL SHEETS UNLESS APPROVED BY CITY OF RICHARDSON

24"x36" Scale: NTS
11"x17" Scale: NTS
Vertical Scale: NA
Project Number: XXX
Issue Date: 01 MAY 14

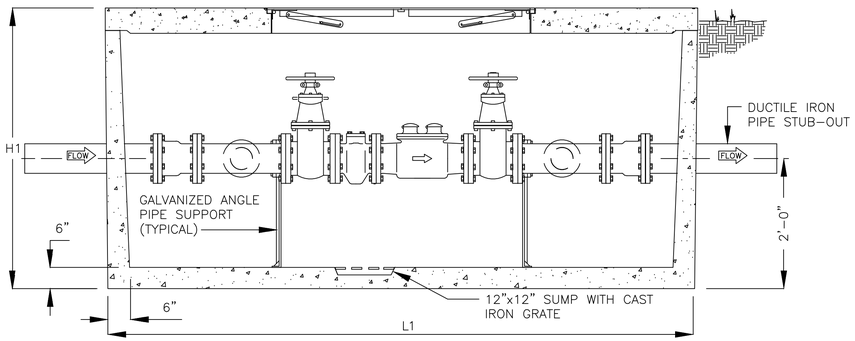
Sheet Title:
WATER SERVICE

Sheet No.:
C-2



SIZE	BY PASS	L1	W1	H1
4"	2"	8'-8"	4'-8"	4'-6"
6"	4"	11'-0"	6'-0"	4'-6"

PLAN VIEW



ELEVATION

PIPE AND FITTINGS SHALL BE DUCTILE IRON

SPECIFICATIONS

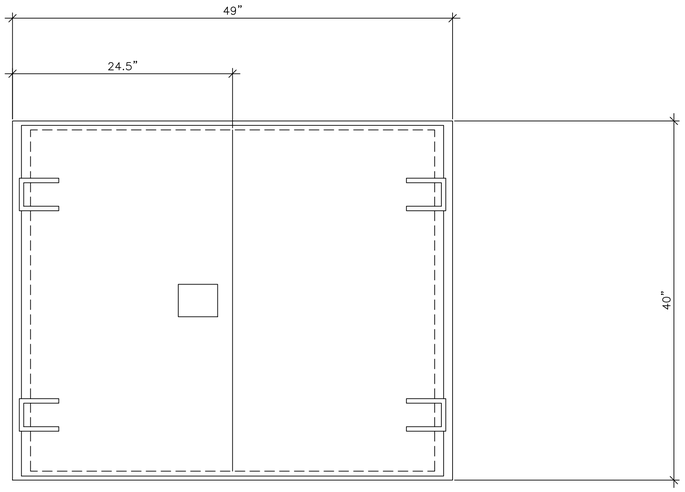
CONCRETE : CLASS 1 CONCRETE WITH DESIGN STRENGTH OF 4500 PSI AT 28 DAYS. UNIT IS OF MONOLITHIC CONSTRUCTION AT FLOOR AND FIRST STAGE OF WALL WITH SECTIONAL RISER TO REQUIRED DEPTH.

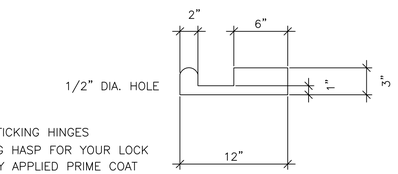
REINFORCEMENT: GRADE 60 REINFORCED. STEEL BAR CONFORMING TO ASTM A615 ON REQUIRED CENTERS OR EQUAL.

HATCHWAY: 3' X 5' GALVANIZED STEEL DOUBLE LEAF SPRING ASSISTED HATCHWAY – TRAFFIC RATED W/ SLAM LOCK.

1. PRECAST VAULT SHALL BE FROM HANSEN PIPE & PRECAST, GRAND PRAIRIE, TEXAS PLANT OR APPROVED OTHER EQUAL.
2. DIMENSIONS SHOWN ARE APPROXIMATE ONLY.
3. SHOP DRAWINGS SHALL BE SUBMITTED BY CONTRACTOR FOR APPROVAL BY THE ENGINEER AND ACCEPTANCE BY CITY OF RICHARDSON PRIOR TO CONTRUCTION.

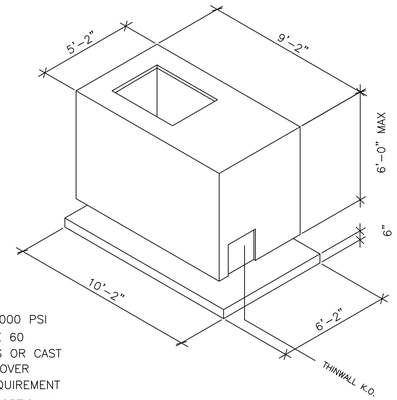
DOMESTIC WATER METER VAULT





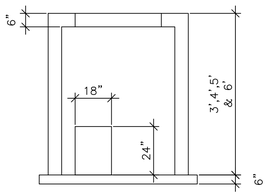
1. NON-STICKING HINGES
2. LOCKING HASP FOR YOUR LOCK
3. FACTORY APPLIED PRIME COAT
4. EASY OPENING HANDLE
5. 1/4" PLATE DOOR

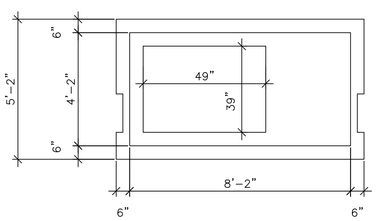
DOUBLE LEAF METAL DOOR



1. CONCRETE: 5000 PSI
2. REINF. GRADE 60
3. METAL DOORS OR CAST IN RING & COVER PER JOB REQUIREMENT
4. FLOOR SLAB OPTIONAL

HANSEN PIPE & PRECAST COMPOUND METER VAULT GRAND PRAIRIE, TEXAS PLANT





Revisions:

City of Richardson
411 W. Arapaho Road
Suite 204
Richardson, Texas 75080
voice: 972 744-4280
fax: 972 744-5804

Drawn By: RGB
Checked By: COR

CITY OF RICHARDSON TEXAS

STANDARD DETAILS
City of Richardson, Texas

NO ADDITIONS OR CHANGES TO STANDARD DETAIL SHEETS UNLESS APPROVED BY CITY OF RICHARDSON

24"x36" Scale: NTS
11"x17" Scale: NTS
Vertical Scale: NA
Project Number: XXX
Issue Date: 01 MAY 14

Sheet Title:
WATER VAULT

Sheet No.:
C-3

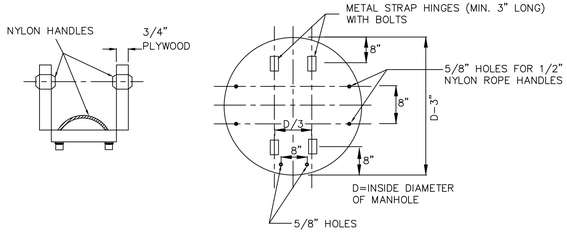
FALSE MANHOLE BOTTOM

INSTALLATION

FALSE MANHOLE BOTTOMS WILL BE FURNISHED AND INSTALLED IN ALL MANHOLES CONSTRUCTED IN ADVANCE OF PAVING. THESE FALSE MANHOLE BOTTOMS WILL BE INSTALLED AT A TIME DIRECTED BY THE ENGINEER, BUT WILL USUALLY BE AFTER ALL WORK IS COMPLETED ON THE SANITARY SEWER SYSTEM INCLUDING THE AIR TEST, BUT PRIOR TO THE FINAL INSPECTION.

REMOVAL

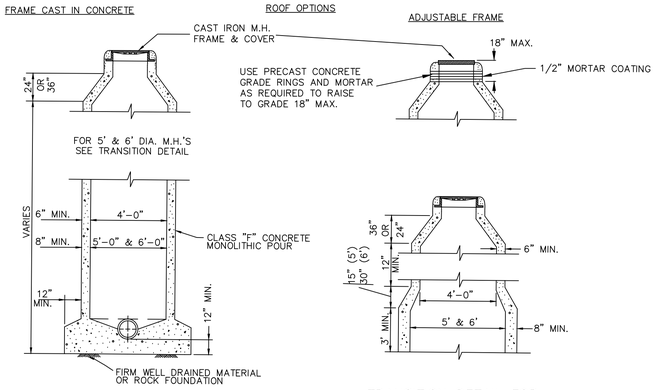
FALSE MANHOLE BOTTOMS WILL BE REMOVED AFTER THE FINAL APPURT. ADJUSTMENT INSPECTION. THE PAVING CONTRACTOR AND CITY FORCES REPRESENTATIVES WILL COORDINATE THE REMOVAL OF THE FALSE MANHOLE BOTTOMS.



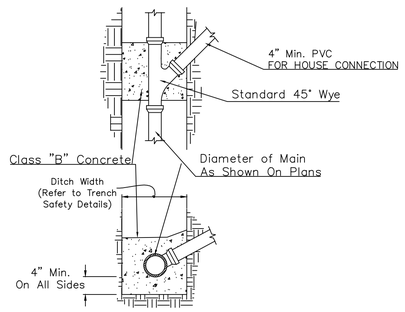
CAST IN PLACE MANHOLE

(PRECAST CONCRETE MANHOLES SHALL COMPLY WITH N.C.T.C.O.G. SPECS.

STANDARD DRAWING NO. 5020

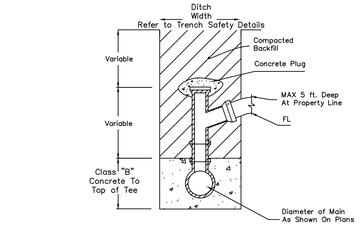


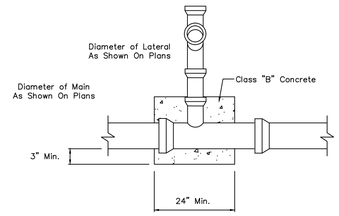
TRANSITION DETAIL FOR 5' & 6' DIA. M.H.'S



NOTE:
Wyes To Be Encased Within Limits Of Ditch Lateral Encasement Shall Be Provided When Existing Field Conditions Warrant. Ties to Existing Mains Shall Utilize "Y" or "T" Saddles.

STANDARD SERVICE CONNECTION

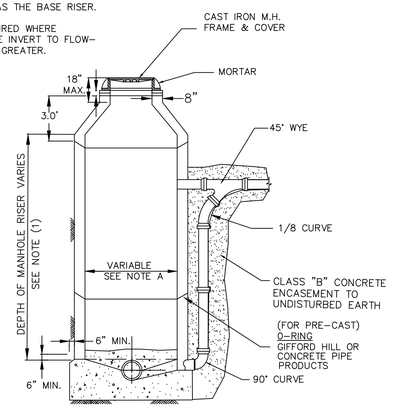




DROP CONNECTION

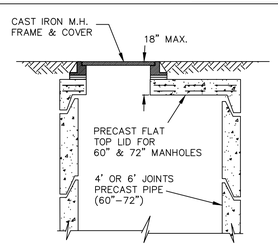
NOTES:

1. MANHOLE RISER PIPE FURNISHED IN LENGTHS OF 1,2,3,4 OR 6 FEET.
2. ANY ODD LENGTH JOINT USED AS MANHOLE RISER 1'-0" & 3'-0" SHOULD BE USED AS THE BASE RISER.
3. DROP CONNECTIONS WILL BE REQUIRED WHERE VERTICAL DISTANCE FROM MANHOLE INVERT TO FLOW-LINE OF INCOMING PIPE IS 30" OR GREATER.



NOTE: (A) MANHOLES FOR 6', 8" & 10" LINES SHALL BE 48" DIA.
MANHOLES FOR 12", 15" & 18" LINES SHALL BE 60" DIA.
MANHOLES FOR 21", 24" & 27" LINES SHALL BE 72" DIA.

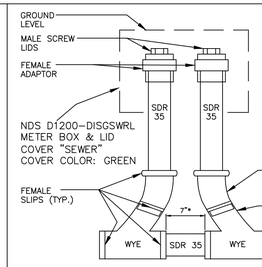
STANDARD MANHOLE WITH DROP CONNECTION



ALTERNATES FOR SANITARY SEWER MANHOLES

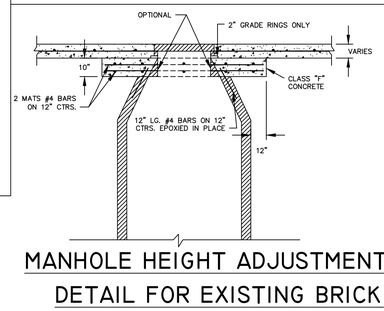
MANHOLES FOR SANITARY SEWERS SHALL BE CONSTRUCTED OF EITHER PRECAST REINFORCED CONCRETE PIPE MANHOLE SECTIONS.

ALTERNATE COVER FOR MANHOLE

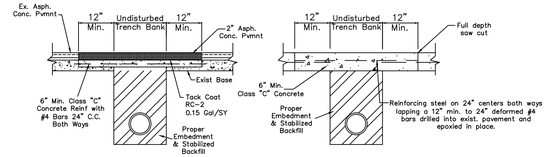


* VARIES IF CLEANOUT IS IN CONCRETE

DOUBLE CLEANOUT

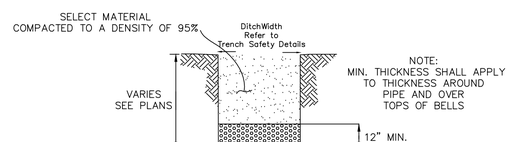


MANHOLE HEIGHT ADJUSTMENT DETAIL FOR EXISTING BRICK MANHOLE OR POURED IN PLACE



STREET OR ALLEY REPAIR AFTER UTILITY CUT

SEE NOTE 3.B. ON SHEET C-6



NOTES

1. Standard Embedment for Sanitary Sewer, or Design Engineer shall specify other Embedment to meet TCEQ Specifications Section 317.2
2. In Rock Trenches the minimum undercut will be 6".
3. FOR FORCE MAINS AND O-RING PIPE, SEE MANUF. SPECS. FOR EMBEDMENT.

EMBEDMENT FOR SEWER CONDUITS

SEWER COLLECTION MATERIALS

STANDARD BOLT DOWN TYPE RING & COVER
(To be used on trunklines, areas of flooring, or as specified)
5/8" stainless hex cap screws
Acceptable Brands:
Bass & Hayes VRM-30 Watertight or approved equal

STANDARD 400 LB RING & LID
(To be used at all times)
Pattern #400-30D
Acceptable Brands:
Bass & Hayes VRM-30 or approved equal

STANDARD 400 LB RING EXTENSION
Pattern #400-30
3" Rise Only
Acceptable Brands:
Bass & Hayes

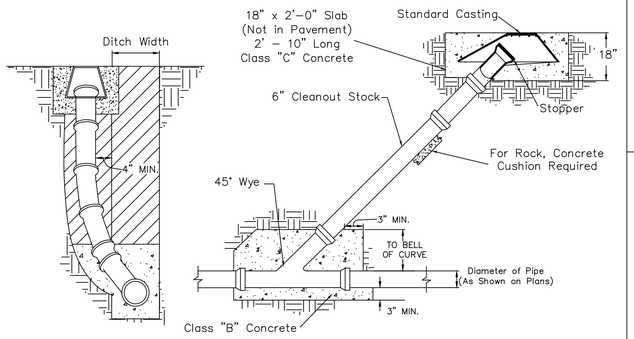
MANHOLE PIPE CONNECTOR
Designed to meet the resilient connectors requirements of ASTM C-923

STANDARD SANITARY SEWER FIELD CLEANOUT
Pattern #339
Acceptable Brands:
Vulcan or Equal
Tyler

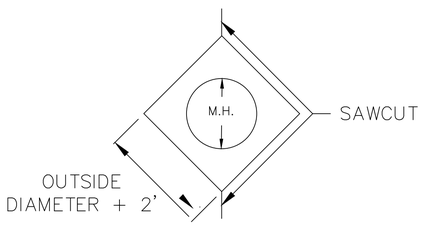
MANHOLE PIPE CONNECTORS
GPK Manhole Couplings
Ultra-Rib Manhole Sleeve Coupling
CEMENT COUPLING WITH O-RING RUBBER GASKET FOR PIPE OTHER THAN CLAY OR CONC. ALT. COUPLINGS MUST BE APPROVED BY CONSTR. ENGR.

NOTES:

1. All materials and workmanship to conform to the requirements set forth in the latest edition of the City of Richardson's MANUAL FOR GENERAL PROCEDURES FOR THE DESIGN OF WATER & SEWER LINES and Water Department Standards.
2. In the event an item is not covered by this manual, then the latest edition of the "Standard Specifications for Public Works Construction – North Central Texas", as adopted by the North Central Texas Council of Governments covering such items shall apply.
3. Forms for cast in place manholes shall remain in place, undisturbed, for a minimum of 24 hours.
4. Gravity Pipe for Sewer Applications
   4"-15" SDR-35 (Gravity)
   4"-12" AWWA C-900-07-DR14 Green
   Greater than or equal to 14" AWWA C-905-10-DR18 Green
5. All residential sewer services shall be 4" Minimum.
6. Locate sanitary sewer services in middle of lots, 4' past R.O.W. line (See Sheet C-1). – MAXIMUM 4' Deep.
7. All stubouts shall be one (1) full joint of pipe, and/or 3' past any pavement.
8. Plastic tape for services to be attached to the ends of all service lines and extend above ground level. The tape shall meet the following specifications:
   A. "Allen Marking Tape" or equal.
   B. Roll marked continuously, "Caution Water Line" or "Caution Sewer Line"
   C. Six (6) inches in width.
   D. Green tape for sewer services, blue tape for water services.
9. Free fall of concrete not to exceed 5 ft. MAX.
10. Contractor shall meet TCEQ standards for separation of water and sewer conduits where applicable.



STANDARD CLEANOUT



MANHOLE BLOCKOUT

Revisions:

City of Richardson
411 W. Arapaho Road
Suite 204
Richardson, Texas 75080
voice: 972 744-4280
fax: 972 744-5804

Drawn By: RGB
Checked By: COR

CITY OF RICHARDSON TEXAS

STANDARD DETAILS

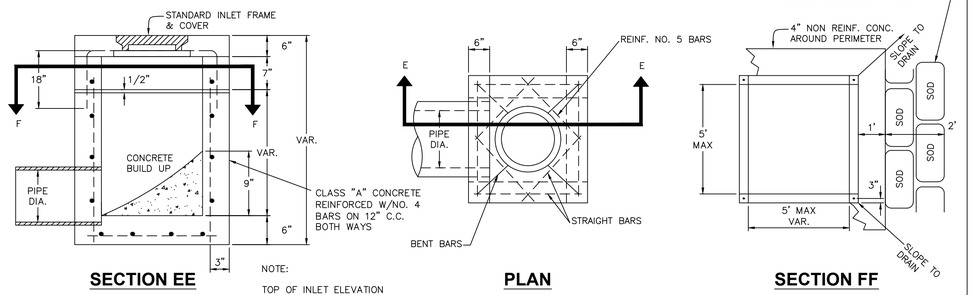
City of Richardson, Texas

NO ADDITIONS OR CHANGES TO STANDARD DETAIL SHEETS UNLESS APPROVED BY CITY OF RICHARDSON

24"x36" Scale: NTS
11"x17" Scale: NTS
Vertical Scale: NA
Project Number: XXX
Issue Date: 01 MAY 14

Sheet Title: **SANITARY SEWER**

Sheet No.: **C-4**

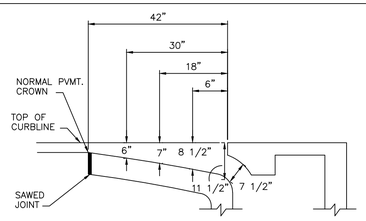


SECTION EE | **PLAN** | **SECTION FF**

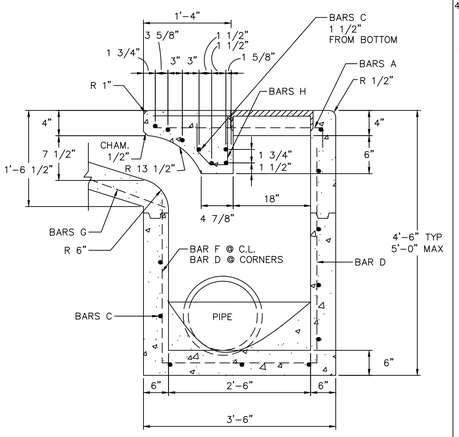
NOTE:

TOP OF INLET ELEVATION SHALL BE AT OR BELOW THE LOWEST ADJACENT CURB.

"Y" TYPE INLET

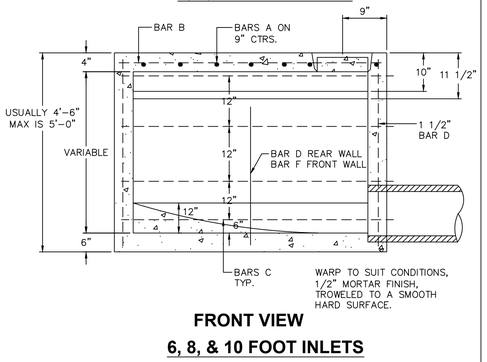


INLET THROAT DETAIL



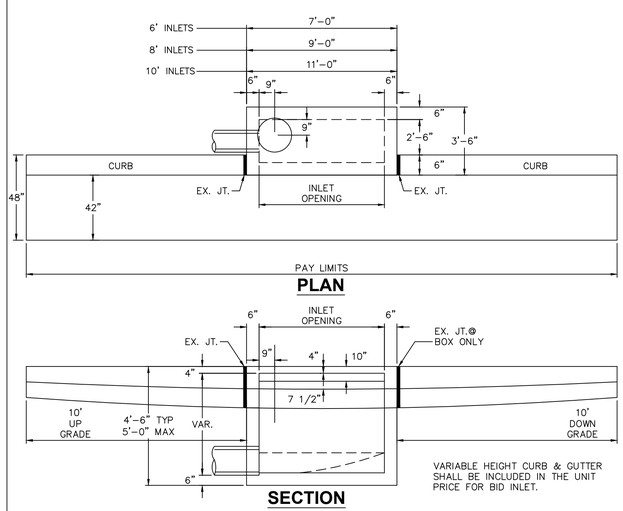
END VIEW

6, 8, & 10 FT. INLETS



FRONT VIEW

6, 8, & 10 FOOT INLETS



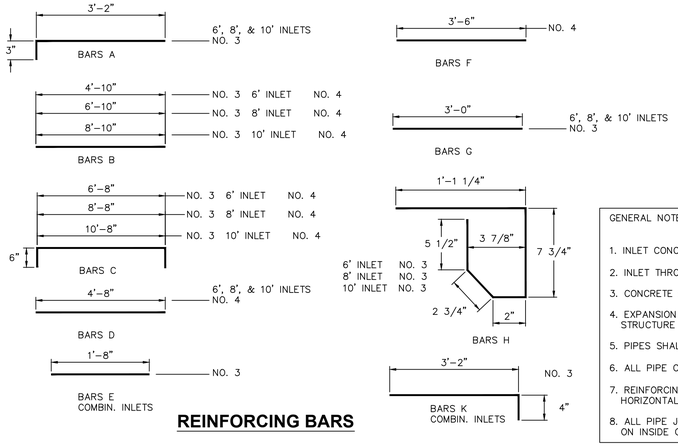
PLAN

SECTION

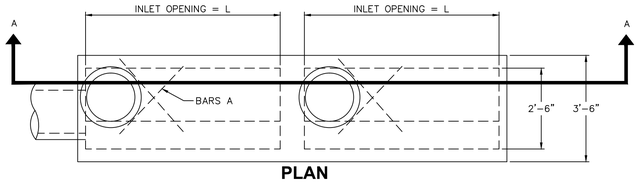
6, 8, & 10 FT. INLETS

(SEE INLET THROAT DETAIL)

VARIABLE HEIGHT CURB & GUTTER SHALL BE INCLUDED IN THE UNIT PRICE FOR BID INLET.



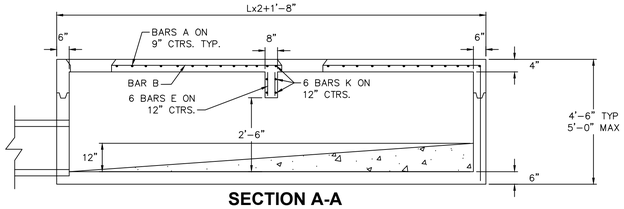
REINFORCING BARS



PLAN

COMBINATION INLETS

TO BE USED IN CONSTRUCTING 12', 14', 16', 18' & 20' INLETS



SECTION A-A

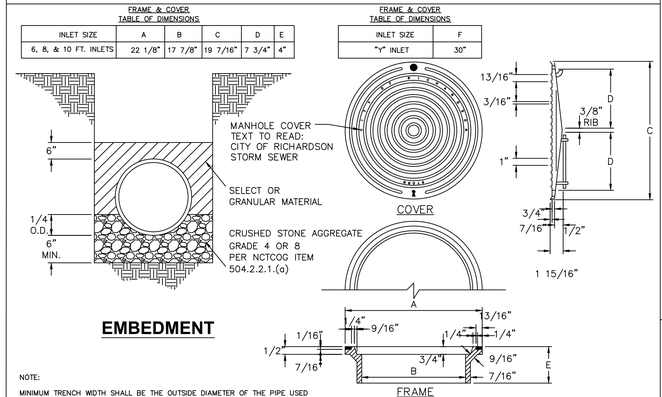
COMBINATION INLETS

FRAME & COVER TABLE OF DIMENSIONS

INLET SIZE	A	B	C	D	E
6, 8, & 10 FT. INLETS	22 1/8"	17 7/8"	19 7/16"	7 3/4"	4"

FRAME & COVER TABLE OF DIMENSIONS

INLET SIZE	F
"Y" INLET	30"



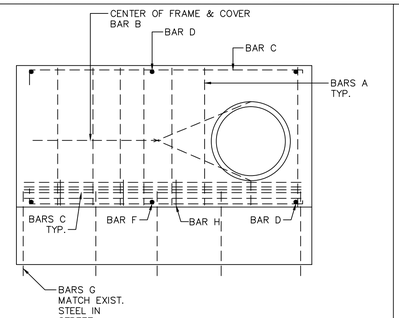
EMBEDMENT

NOTE:

MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE USED PLUS 16" FOR PIPE WITH 33" DIA. OR SMALLER. FOR PIPES LARGER THAN 33" SHALL BE THE O.D. PLUS 24".

FRAME

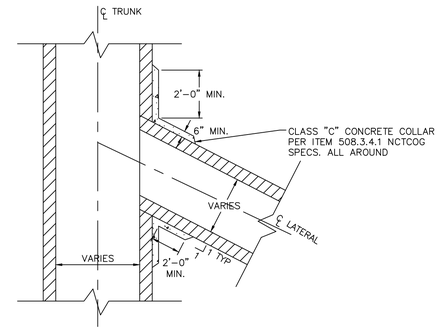
INLET FRAME & COVER (LOCKING TYPE)



REINFORCING PLAN

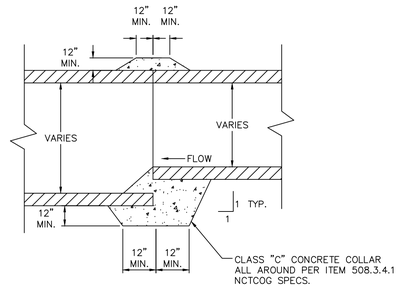
GENERAL NOTES

1. INLET CONCRETE SHALL BE CLASS "A".
2. INLET THROAT CONCRETE SHALL BE CLASS "C".
3. CONCRETE SHALL HAVE A TROWEL AND BRUSH FINISH.
4. EXPANSION JOINT MATERIAL SHALL BE PLACED BETWEEN INLET STRUCTURE AND CURB.
5. PIPES SHALL ONLY CONNECT TO THE ENDS OR SIDES OF INLETS.
6. ALL PIPE CONNECTIONS 48" AND SMALLER SHALL BE FACTORY WYES.
7. REINFORCING STEEL– NO. 3 12" O.C.E.W. EQUALLY SPACED HORIZONTALLY IN INLET FOOTINGS.
8. ALL PIPE JOINTS SHALL SHOW EVIDENCE OF JOINT MATERIAL 360° ON INSIDE OF PIPE.
9. NO PRECAST STRUCTURES ALLOWED FOR STORM SEWER.
10. SEE SHEET C–10 FOR STORM SEWER MANHOLE DETAILS.
11. SEE C–9 FOR ALLEY INLETS.



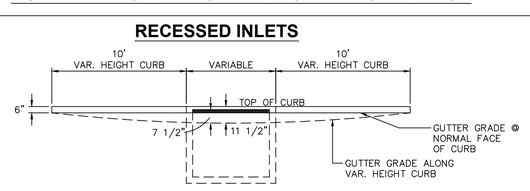
NOTE:
ALL PIPE CONNECTIONS 48" AND SMALLER SHALL BE FACTORY WYES

CONCRETE COLLAR FOR WYE CONNECTION

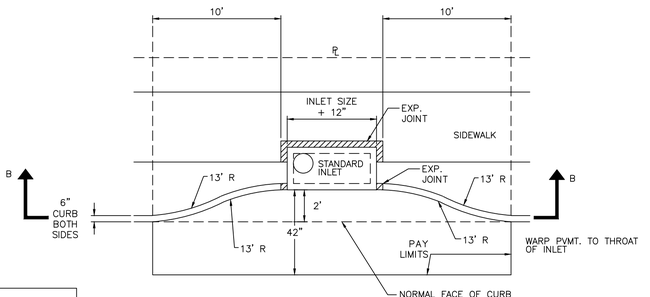


CONCRETE COLLAR FOR PIPE TO PIPE CONNECTION

RECESSED INLETS



SECTION B-B



PLAN

Revisions:

City of Richardson
411 W. Arapaho Road
Suite 204
Richardson, Texas 75080
voice: 972 744-4280
fax: 972 744-5804

Drawn By: RGB
Checked By: COR

CITY OF RICHARDSON TEXAS

STANDARD DETAILS

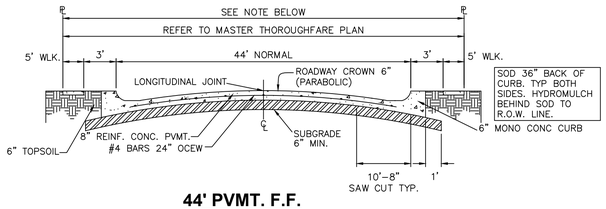
City of Richardson, Texas

NO ADDITIONS OR CHANGES TO STANDARD DETAIL SHEETS UNLESS APPROVED BY CITY OF RICHARDSON

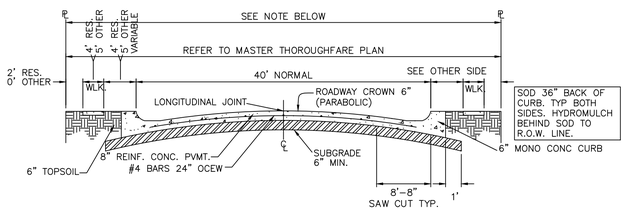
24"x36" Scale: NTS
11"x17" Scale: NTS
Vertical Scale: NA
Project Number: XXX
Issue Date: 01 MAY 14

Sheet Title: **STORM SEWER**

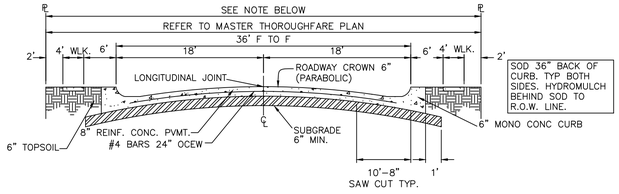
Sheet No.: **C-5**



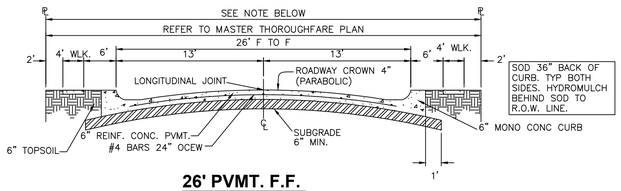
44' PVMT. F.F.



40' PVMT. F.F. (NORMAL)



36' PVMT. F.F.

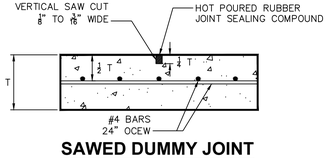


26' PVMT. F.F.

NOTE:

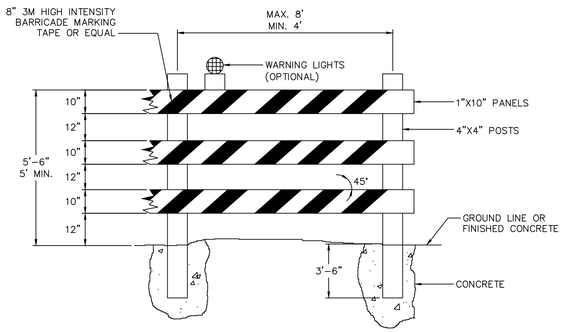
1. ALL R.O.W. SHALL BE COMPACTED TO A MINIMUM OF 95% OF STANDARD PROCTOR @ −2% TO +4% OPTIMUM MOISTURE.
2. SIDEWALK WIDTH VARIES ACCORDING TO ZONING, AND PRESENCE OF SCREENING WALL.

TABLE OF CROWN HEIGHTS				
ROADWAY WIDTH	TOTAL CROWN	3/4 POINT	MID−POINT	1/4 POINT
26'	4"	2−1/4"	1"	1/4"
36'	6"	3−3/8"	1 1/2"	3/8"
40'	6"	3−3/8"	1 1/2"	3/8"
44'	6"	3−3/8"	1 1/2"	3/8"

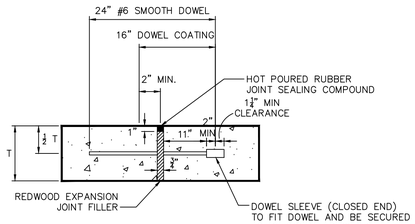


SAWED DUMMY JOINT

1. RAIL STRIPE WIDTHS SHALL BE 6", EXCEPT THAT 4" WIDE STRIPS MAY BE USED IF RAIL LENGTHS ARE LESS THAN 36".
2. THE SIDES OF BARRICADES FACING TRAFFIC SHALL HAVE RETROREFLECTIVE RAIL FACES.

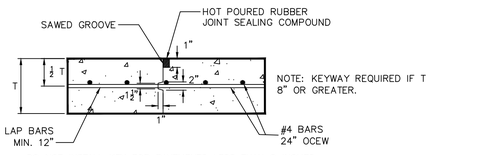


PERMANENT BARRICADE



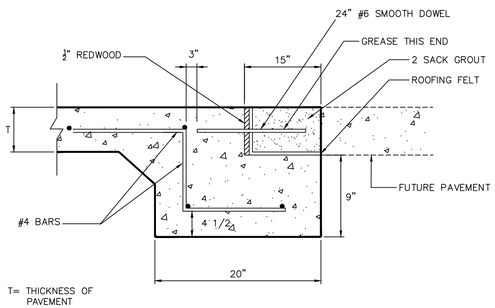
EXPANSION JOINTS TO BE PLACED ON 500' TO 700' INTERVALS AND RADIUS RETURNS, BOTH MEDIAN & INTERSECTION.

TRANSVERSE EXPANSION JOINT



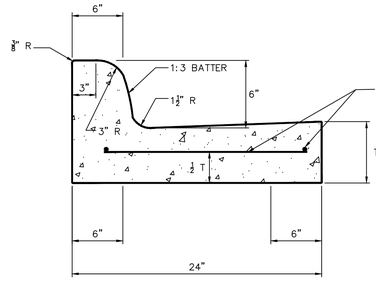
DO NOT INSTALL KEY FOR PAVEMENTS LESS THAN 8 INCHES

CONSTRUCTION JOINT

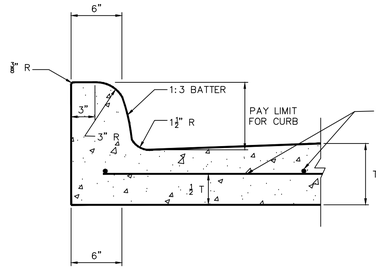


PAVEMENT HEADER

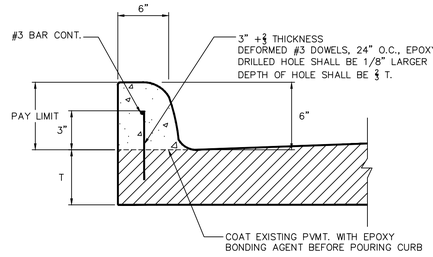
THIS SECTION TO BE USED FOR CONTINUATION OF FUTURE PAVEMENT



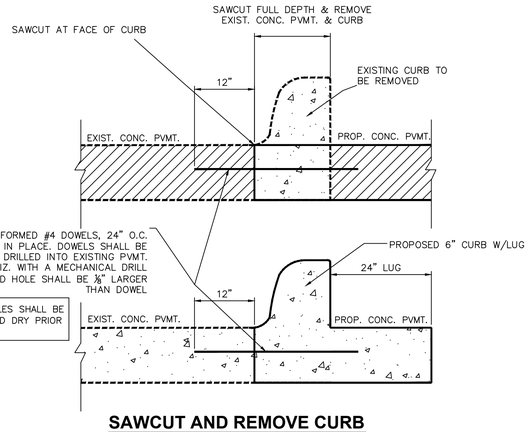
SEPARATE CURB AND GUTTER



INTEGRAL CURB AND GUTTER



DOWEL ON CURB



SAWCUT AND REMOVE CURB

CONNECTION TO EXISTING PAVEMENT

NOTES:

1. STREET CONSTRUCTION SHALL CONFORM TO THE LATEST EDITION OF THE "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION NORTH CENTRAL TEXAS." FOR THE DESIGN OF WATER AND SEWER LINES AND WATER DEPARTMENT STANDARDS.
2. ALL STREET PAVEMENT SHALL BE CLASS "C" CONCRETE PER NCTCOG ITEM 303.3.4.2(a), REINFORCED WITH #4 BARS, GRADE 60 SHOWN BOTH SPACED 24" O.C.E.W. HAND FINISHING WILL BE AS PER ITEM 303.5.6.2
3. ALL PARKWAYS SHALL SLOPE A MIN. OF 1/4" PER FOOT UP FROM THE CURB TO THE RIGHT−OF−WAY LINE, THEN AT A MAX 3:1 SLOPE TO MATCH EXISTING GRADE.
4. SAWING AND SEALING OF ALL LONGITUDINAL AND TRANSVERSE PAVEMENT JOINTS SHALL BE CONSIDERED SUBSIDIARY TO ALL PAVING ITEMS.
5. FOR PLACING OF CONCRETE PAVEMENT REFER TO ITEM 303.5.5 OF "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION NORTH CENTRAL TEXAS."
6. FOR MAXIMUM SLUMP OF CONCRETE FOR PAVEMENT REFER TO ITEM 303.3.4.4 OF "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION NORTH CENTRAL TEXAS."
7. ALL NONRESIDENTIAL PAVEMENT SHALL BE A MINIMUM OF 8" THICK, REINFORCED WITH #4 BARS, GRADE 60.
8. ALL COMMERCIAL AND RESIDENTIAL DRIVEWAYS SHALL BE CLASS "C" CONCRETE WITH #4 BARS GRADE 60 SPACED AT 24" OCEW.

PORTLAND CEMENT CONCRETE PAVEMENT:

1. STANDARD SPECIFICATIONS ITEM 303.2.1.3 – 'COARSE AGGREGATES' SHALL BE AMENDED THE FIRST SENTENCE IS DELETED AND REPLACED AS FOLLOWS "COARSE AGGREGATES SHALL BE 100% CRUSHED STONE"
2. STANDARD SPECIFICATIONS ITEM 303 SHALL BE AMENDED AS FOLLOWS:
   A. ITEM 303.2.4. FLY ASH IS ALLOWED: MAX 20% BY WEIGHT
   B. ITEM 303.2.5 SHALL BE DELETED. NO MINERAL FILLER IS ALLOWED
   C. ITEM 303.2.6 SHALL BE DELETED. NO FIBROUS REINFORCEMENT ALLOWED
3. STANDARD SPECIFICATIONS ITEM 303 SHALL BE AMENDED TO INCLUDE THE FOLLOWING:

A. ALL EQUIPMENT NECESSARY TO CONSTRUCT CONCRETE PAVEMENT SHALL BE APPROVED BY THE OWNER PRIOR TO STARTING THE PAVING OPERATION. PAVING EQUIPMENT REQUIREMENTS ARE

1. SIDEWALKS LESS THAN 8' IN WIDTH

   NO PAVING MACHINE REQUIRED. STINGER VIBRATORS AND METAL STRAIGHT EDGES SHALL BE USED TO CONSOLIDATE THE CONCRETE.

2. SIDEWALKS 8' IN WIDTH OR WIDER

   VIBRATING SCREED WITH TWO HAND HELD STINGER VIBRATORS SHALL BE USED TO CONSOLIDATE THE CONCRETE.

3. PARKING LOTS AND TURN LANES

   VIBRATING SCREED WITH TWO HAND HELD STINGER VIBRATORS SHALL BE USED TO CONSOLIDATE THE CONCRETE.

4. NEW STREET AND ALLEY PAVEMENT

   SLIPFORM PAVING EQUIPMENT AS DESCRIBED IN ITEM 303.4.3 OF THE STANDARD SPECIFICATIONS SHALL BE USED.

5. STREET AND ALLEY REPAIRS

   PAVING EQUIPMENT WILL BE DETERMINED BY THE OWNER.

6. FULL WIDTH ALLEY REPLACEMENT

   VIBRATING SCREED WITH TWO HAND HELD STINGER VIBRATORS SHALL BE USED TO CONSOLIDATE THE CONCRETE.

B. CONCRETE FINISH

NEW PAVEMENT: STREET AND ALLEY PAVEMENT SHALL BE TEXTURED WITH A NYLON BAKER BROOM THAT IS CLEAN AND FREE OF GROUT BUILDUP. DRAG BROOM LONGITUDINALLY OVER THE PAVEMENT AFTER BLEED WATER HAS EVAPORATED (CONCRETE WILL APPEAR DULL) BUT BEFORE CONCRETE HAS ATTAINED ITS INITIAL SET.

NEW SIDEWALK: SHALL BE TEXTURED WITH A TRANSVERSELY WITH A LIGHT BROOM FINISH. HAND FINISHING SHALL BE PER ITEM 303.5.6.2

PAVEMENT PATCHING: STREET AND ALLEY PAVEMENT SHALL BE TEXTURED LONGITUDINALLY WITH A HORSEHAIR BROOM OR A BURLAP DRAG FINISH.

C. CONCRETE TEMPERATURES

MAY 1 THROUGH SEPTEMBER 30

1. ALL MIXES AND MIX DESIGNS SHALL INCLUDE A RETARDING AGENT.
2. CONCRETE TEMPERATURE PRIOR TO PLACEMENT SHALL NOT EXCEED 95°F, (35°C).
3. THE TIME INTERVAL (FROM ADDITION OF INITIAL WATER):

AGITATED CONCRETE

90°F OR ABOVE	(32.2°C)	45 MINUTES
75°F TO 89°F	(23.9° TO 31.6°C)	60 MINUTES
35°F TO 74°F	(1.6° TO 23.3°C)	90 MINUTES

NON AGITATED CONCRETE

80°F OR ABOVE	(26.6°C)	15 MINUTES
35°F TO 79°F	(1.6° TO 26.1°C)	30 MINUTES

OCTOBER 1 THROUGH APRIL 30

1. CONCRETE TEMPERATURE PRIOR TO PLACEMENT SHALL NOT EXCEED 95°F, (35°C).
2. THE TIME INTERVAL (FROM ADDITION OF INITIAL WATER):

AGITATED CONCRETE

90°F OR ABOVE	(32.2°C)	45 MINUTES
75°F TO 89°F	(23.9° TO 31.6°C)	60 MINUTES
35°F TO 74°F	(1.6° TO 23.3°C)	90 MINUTES

NON AGITATED CONCRETE

80°F OR ABOVE	(26.6°C)	15 MINUTES
35°F TO 79°F	(1.6° TO 26.1°C)	30 MINUTES

Revisions:

City of Richardson
411 W. Arapaho Road
Suite 204
Richardson, Texas 75080
voice: 972 744−4280
fax: 972 744−5804

Drawn By: RGB
Checked By: COR

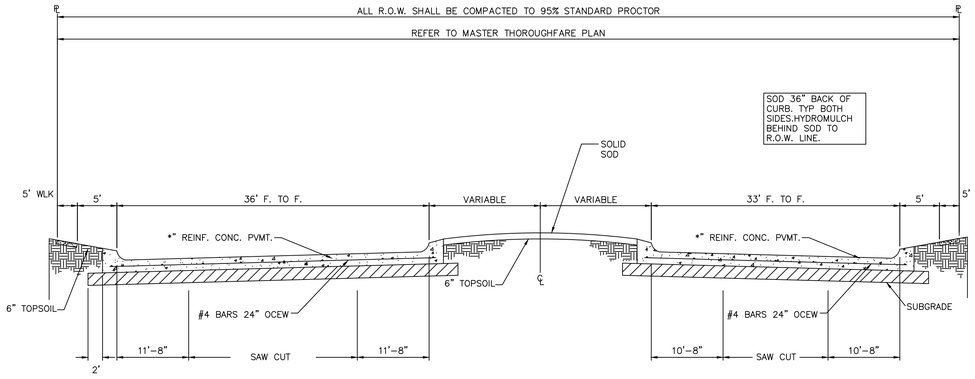
CITY OF RICHARDSON TEXAS

STANDARD DETAILS

City of Richardson, Texas

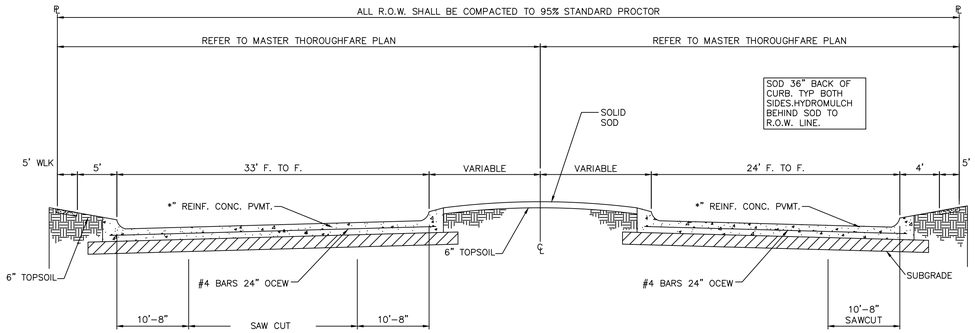
NO ADDITIONS OR CHANGES TO STANDARD DETAIL SHEETS UNLESS APPROVED BY CITY OF RICHARDSON

24"x36" Scale: NTS
11"x17" Scale: NTS
Vertical Scale: NA
Project Number: XXX
Issue Date: 01 MAY 14
Sheet Title: **STREET**
Sheet No.: **C-6**

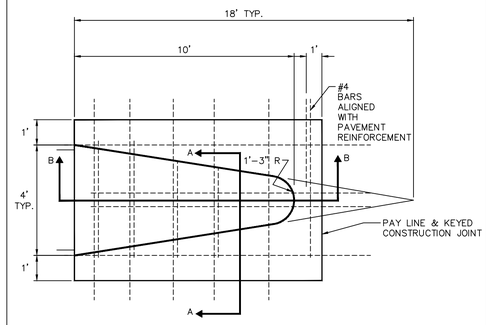


36'-33' PVMT. F.F.

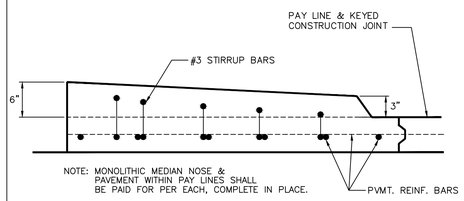
* 8" THK WITH LIME TREATED SUBGRADE
  9" THK WITHOUT LIME TREATED SUBGRADE
  10" THK AT ALL THOROUGHFARE TO THOROUGHFARE INTERSECTIONS, FROM RADIUS RETURN TO RADIUS RETURN



22'-33' PVMT. F.F.
TYPICAL PVMT. SECTION-DIVIDED ROADWAY

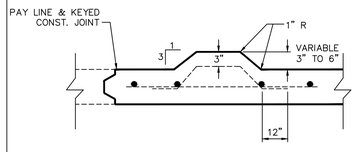


MONOLITHIC MEDIAN NOSE

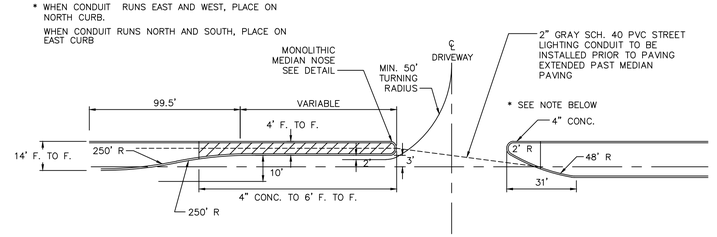


NOTE: MONOLITHIC MEDIAN NOSE & PAVEMENT WITHIN PAY LINES SHALL BE PAID FOR PER EACH, COMPLETE IN PLACE.

SECTION B-B



SECTION A-A



MEDIAN NOSE PLACEMENT:

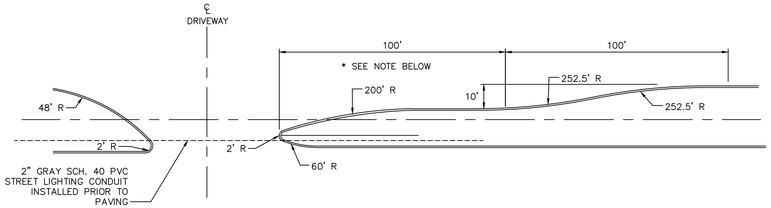
TYP. 1 FOOT MIN. PRECEDING PROJECTED LINES OF CURB RAMP (SEE SHEET C-11) OR AS REQUIRED BASED ON INTERSECTION GEOMETRY.

APPLIES ONLY @ INTERSECTIONS W/ CROSSWALKS.

SEE STREET MARKING STANDARD DETAIL FOR BUTTON TYPE AND LOCATION

LEFT TURN LANE FOR 14 FOOT MEDIAN

ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED



MEDIAN NOSE PLACEMENT:

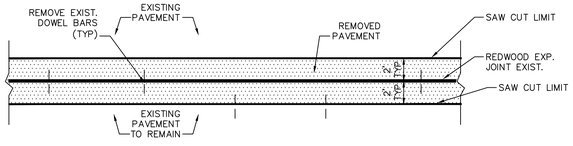
TYP. 1 FOOT MIN. PRECEDING PROJECTED LINES OF CURB RAMP (SEE SHEET C-11) OR AS REQUIRED BASED ON INTERSECTION GEOMETRY.

APPLIES ONLY @ INTERSECTIONS W/ CROSSWALKS.

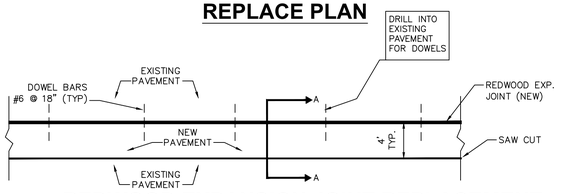
* STREET LIGHTING CONDUIT
  WHEN CONDUIT RUNS EAST AND WEST, PLACE ON NORTH CURB
  WHEN CONDUIT RUNS NORTH AND SOUTH, PLACE ON EAST CURB

SEE STREET MARKING STANDARD DETAIL FOR BUTTON TYPE AND LOCATION

LEFT TURN LANE FOR 28 FOOT (OR LARGER) MEDIAN

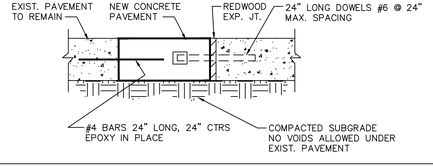


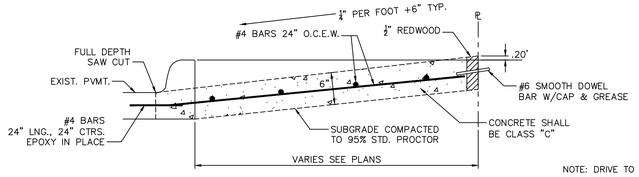
REPLACE PLAN



REDWOOD EXPANSION JOINT REPLACEMENT CURB TO CURB ONLY

EXISTING PLAN

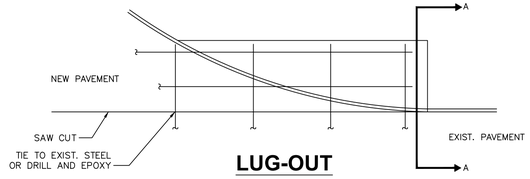




NOTE: DRIVE TO HAVE MAXIMUM OF 2% CROSS SLOPE @ SIDEWALK CROSSING

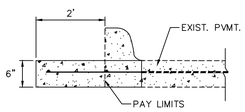
TYP. COMMERCIAL DRIVE APPROACH

CONNECTION TO EXIST. STREET

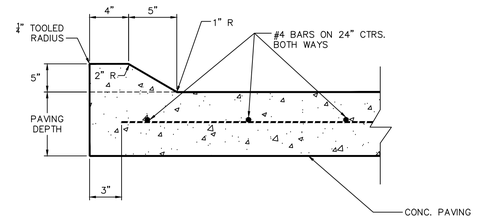


LUG-OUT

LUG-OUT



SECTION A-A



MOUNTABLE MONOLITHIC CURB TYPE 1

NOTES:

1. STREET CONSTRUCTION SHALL CONFORM TO THE LATEST EDITION OF THE "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION NORTH CENTRAL TEXAS."
2. ALL STREET PAVEMENT SHALL BE CLASS "C" CONCRETE PER ITEM 303.3.4.2, REINFORCED WITH #4 BARS, GRADE 60 SHOWN BOTH SPACED 24" O.C.E.W. HAND FINISHING WILL BE AS PER ITEM 303.5.6.2.
3. ALL PARKWAYS SHALL SLOPE A MIN. OF 1/4" PER FOOT UP FROM THE CURB TO THE RIGHT-OF-WAY LINE, THEN AT A MAX 3:1 SLOPE TO MATCH EXISTING GRADE.
4. SAWING AND SEALING OF ALL LONGITUDINAL AND TRANSVERSE PAVEMENT JOINTS SHALL BE CONSIDERED SUBSIDIARY TO ALL PAVING ITEMS.
5. FOR PLACING OF CONCRETE PAVEMENT REFER TO ITEM 303.5.5 OF "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION NORTH CENTRAL TEXAS."
6. FOR MAXIMUM SLUMP OF CONCRETE FOR PAVEMENT REFER TO ITEM 303.3.4.4 OF "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION NORTH CENTRAL TEXAS."
7. ALL MEDIAN PAVEMENT SHALL BE CLASS "A" CONCRETE, REINFORCED WITH #4 BARS, GRADE 60, MIN. AT 24" O.C.E.W

Revisions:

City of Richardson
411 W. Arapaho Road
Suite 204
Richardson, Texas 75080
voice: 972 744-4280
fax: 972 744-5804

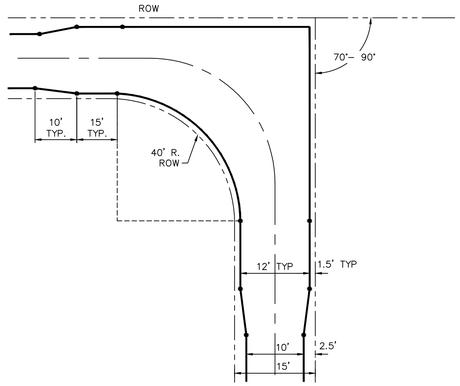
Drawn By: RGB
Checked By: COR

CITY OF RICHARDSON TEXAS

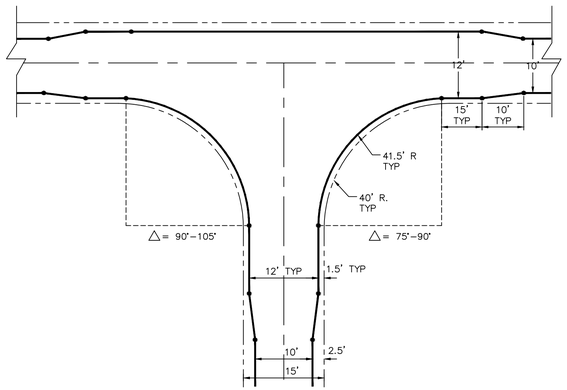
STANDARD DETAILS
City of Richardson, Texas

NO ADDITIONS OR CHANGES TO STANDARD DETAIL SHEETS UNLESS APPROVED BY CITY OF RICHARDSON

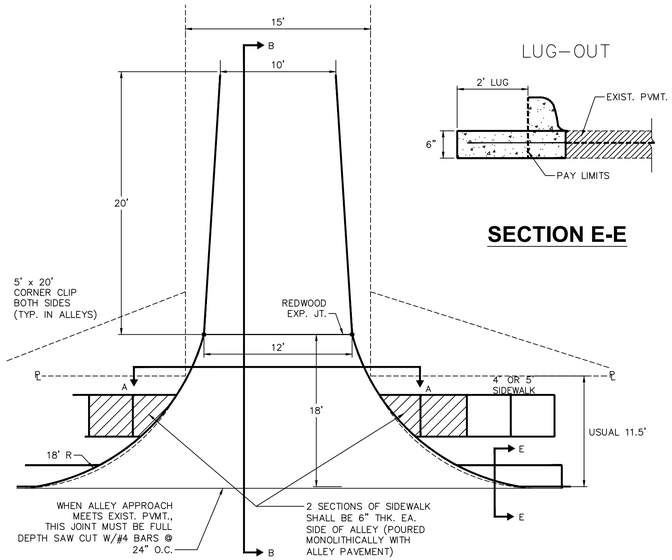
24"x36" Scale: NTS
11"x17" Scale: NTS
Vertical Scale: NA
Project Number: XXX
Issue Date: 01 MAY 14
Sheet Title: **STREET**
Sheet No.: **C-7**



ALLEY INTERSECTION DETAIL



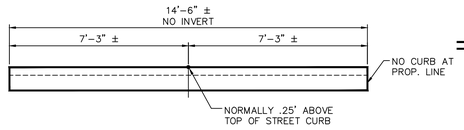
ALLEY INTERSECTION DETAIL



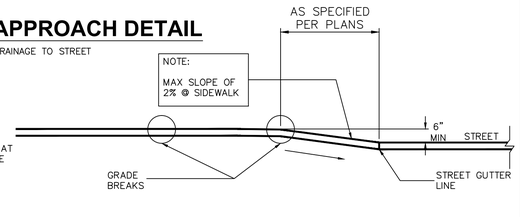
ALLEY APPROACH DETAIL

WITH DRAINAGE TO STREET

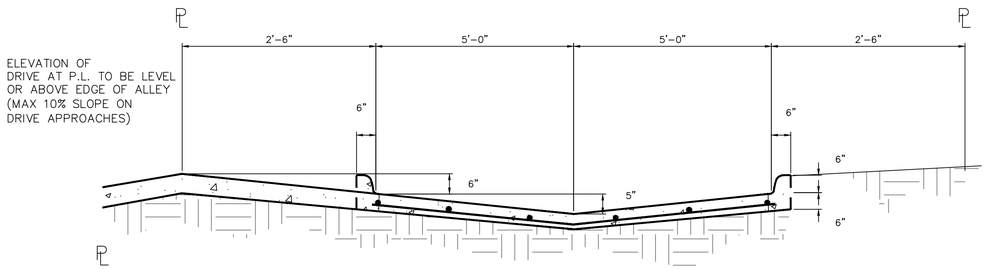
SECTION E-E



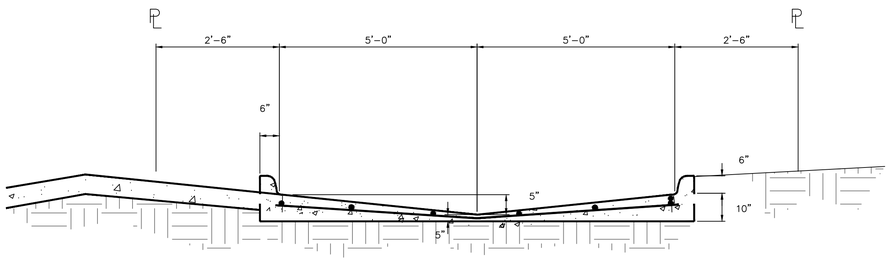
SECTION A-A



SECTION B-B



ALTERNATE ALLEY DETAIL (SLIP FORM ONLY)



STANDARD ALLEY DETAIL

ALTERNATE ALLEY CROSS SECTION MAY BE USED IN LIEU OF STANDARD CROSS SECTION HOWEVER, NO ADDITIONAL COMPENSATION WILL BE PROVIDED TO THE CONTRACTOR.

NOTES:

1. ALL CONSTRUCTION SHALL CONFORM TO THE LATEST EDITION OF THE "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION NORTH CENTRAL TEXAS."
2. ALL ALLEY PAVEMENT SHALL BE CLASS "C" CONCRETE PER ITEM 303.3.4.2, REINFORCED WITH #4 BARS, GRADE 60 SPACED 24" O.C.E.W. ONE SACK OF CEMENT TO BE ADDED FOR HAND POURS
3. ALL JOINTS, SAWING AND SEALING OF LONGITUDINAL AND TRANSVERSE PAVEMENT JOINTS SHALL BE CONSIDERED SUBSIDIARY TO ALL PAVING ITEMS.
4. FOR PLACING OF CONCRETE PAVEMENT REFER TO ITEM 303.5.5.
5. FOR MAXIMUM SLUMP OF CONCRETE FOR PAVEMENT REFER TO ITEM 303.4.4.
6. ALTERNATE ALLEY CROSS SECTION MAY BE USED IN LIEU OF STANDARD ALLEY CROSS SECTION HOWEVER, NO ADDITIONAL COMPENSATION WILL BE PROVIDED TO THE CONTRACTOR.
7. SEE SHEET C–6 FOR JOINT DETAILS
8. INLETS SHALL NOT BE LOCATED IN ALLEY TRANSITIONS

PORTLAND CEMENT CONCRETE PAVEMENT

1. STANDARD SPECIFICATIONS ITEM 303.2.1.3 – 'COARSE AGGREGATES' SHALL BE AMENDED THE FIRST SENTENCE IS DELETED AND REPLACED AS FOLLOWS "COARSE AGGREGATES SHALL BE 100% CRUSHED STONE"
2. STANDARD SPECIFICATIONS ITEM 303 SHALL BE AMENDED AS FOLLOWS:
   A. ITEM 303.2.4. FLY ASH IS ALLOWED MAX 20% BY WEIGHT
   B. ITEM 303.2.5 SHALL BE DELETED. NO MINERAL FILLER IS ALLOWED
   C. ITEM 303.2.6 SHALL BE DELETED. NO FIBROUS REINFORCEMENT ALLOWED
3. STANDARD SPECIFICATIONS ITEM 303 SHALL BE AMENDED TO INCLUDE THE FOLLOWING:

A. ALL EQUIPMENT NECESSARY TO CONSTRUCT CONCRETE PAVEMENT SHALL BE APPROVED BY THE OWNER PRIOR TO STARTING THE PAVING OPERATION. PAVING EQUIPMENT REQUIREMENTS ARE AS FOLLOWS:

1. NEW STREET AND ALLEY PAVEMENT
   SLIPFORM PAVING EQUIPMENT AS DESCRIBED IN ITEM 303.4.3 OF THE STANDARD SPECIFICATIONS SHALL BE USED.
2. STREET AND ALLEY REPAIRS
   PAVING EQUIPMENT WILL BE DETERMINED BY THE OWNER.
3. FULL WIDTH ALLEY REPLACEMENT
   VIBRATING SCREED WITH TWO HAND HELD STINGER VIBRATORS SHALL BE USED TO CONSOLIDATE THE CONCRETE.

B. CONCRETE FINISH
NEW PAVEMENT: STREET AND ALLEY PAVEMENT SHALL BE TEXTURED WITH A NYLON BAKER BROOM THAT IS CLEAN AND FREE OF GROUT BUILDUP. DRAG BROOM LONGITUDINALLY OVER THE PAVEMENT AFTER BLEED WATER HAS EVAPORATED (CONCRETE WILL APPEAR DULL) BUT BEFORE CONCRETE HAS ATTAINED ITS INITIAL SET.

C. CONCRETE TEMPERATURES

MAY 1 THROUGH SEPTEMBER 30

1. ALL MIXES AND MIX DESIGNS SHALL INCLUDE A RETARDING AGENT.
2. CONCRETE TEMPERATURE PRIOR TO PLACEMENT SHALL NOT EXCEED 95°F, (35°C).
3. THE TIME INTERVAL (FROM ADDITION OF INITIAL WATER):

AGITATED CONCRETE		
90°F OR ABOVE	(32.2°C)	45 MINUTES
75°F TO 89°F	(23.9° TO 31.6°C)	60 MINUTES
35°F TO 74°F	(1.6° TO 23.3°C)	90 MINUTES

NON AGITATED CONCRETE		
80°F OR ABOVE	(26.6°C)	15 MINUTES
35°F TO 79°F	(1.6° TO 26.1°C)	30 MINUTES

OCTOBER 1 THROUGH APRIL 30

1. CONCRETE TEMPERATURE PRIOR TO PLACEMENT SHALL NOT EXCEED 95°F, (35°C).
2. THE TIME INTERVAL (FROM ADDITION OF INITIAL WATER):

AGITATED CONCRETE		
90°F OR ABOVE	(32.2°C)	45 MINUTES
75°F TO 89°F	(23.9° TO 31.6°C)	60 MINUTES
35°F TO 74°F	(1.6° TO 23.3°C)	90 MINUTES

NON AGITATED CONCRETE		
80°F OR ABOVE	(26.6°C)	15 MINUTES
35°F TO 79°F	(1.6° TO 26.1°C)	30 MINUTES

Revisions:

City of Richardson
411 W. Arapaho Road
Suite 204
Richardson, Texas 75080
voice: 972 744–4280
fax: 972 744–5804

Drawn By: RGB
Checked By: COR

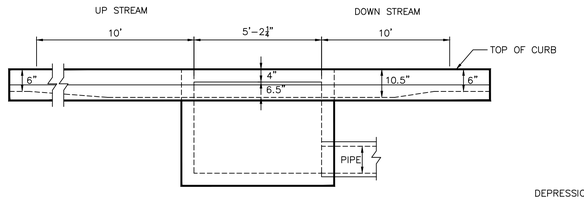
CITY OF RICHARDSON TEXAS

STANDARD DETAILS

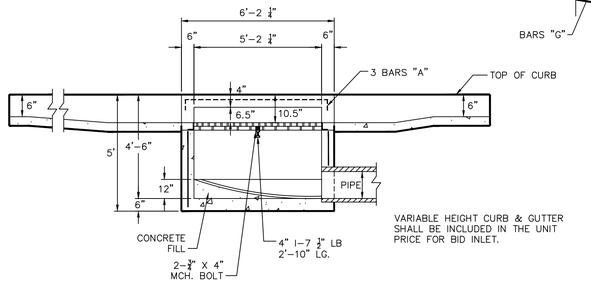
City of Richardson, Texas

NO ADDITIONS OR CHANGES TO STANDARD DETAIL SHEETS UNLESS APPROVED BY CITY OF RICHARDSON

24"x36" Scale: NTS
11"x17" Scale: NTS
Vertical Scale: NA
Project Number: XXX
Issue Date: 01 MAY 14
Sheet Title: **ALLEY**
Sheet No.: **C-8**

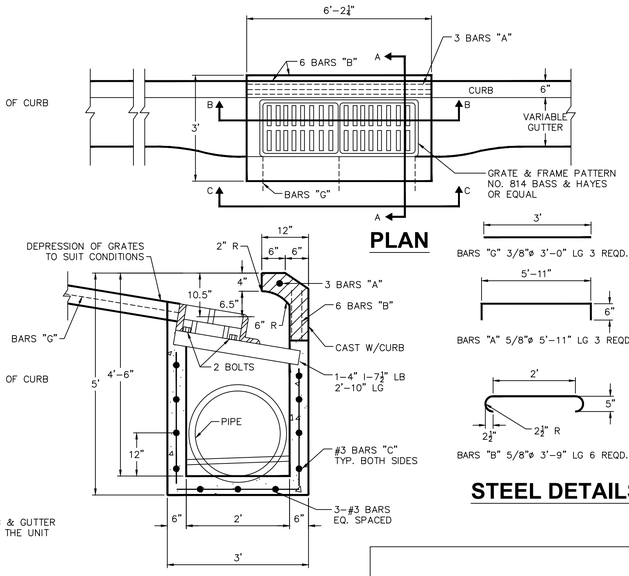


SECTION C-C

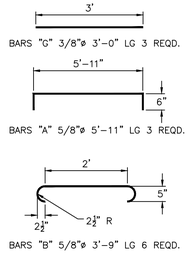


VARIABLE HEIGHT CURB & GUTTER SHALL BE INCLUDED IN THE UNIT PRICE FOR BID INLET.

SECTION B-B



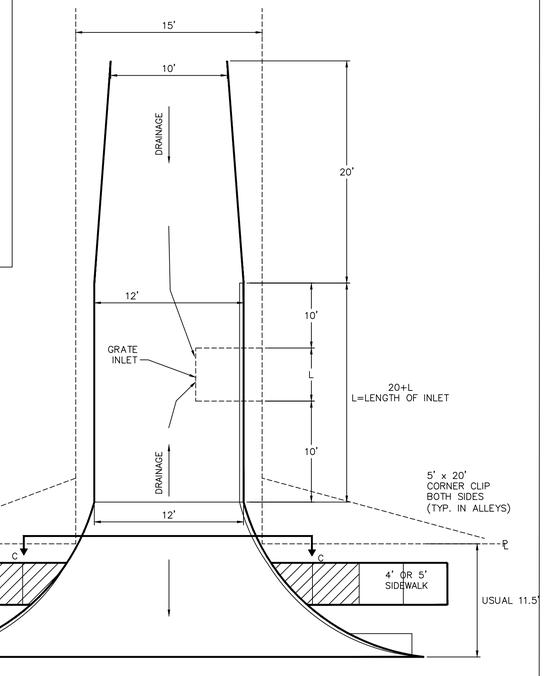
SECTION A-A



STEEL DETAILS

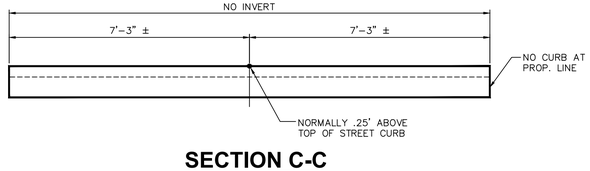
REINFORCING STEEL– NO. 3 12" O.C.E.W. EQUALLY SPACED HORIZONTALLY IN INLET FOOTINGS.

DOUBLE GRATE INLET

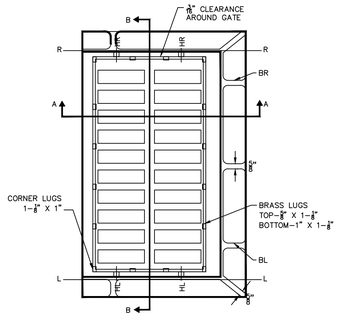


ALLEY W/GRATE INLET (INLET LOCATION)

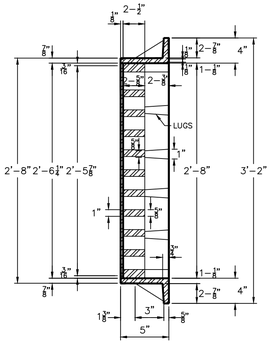
NOTE:
MAX SLOPE OF 2% @ SIDEWALK



SECTION C-C



PLAN



SECTION B-B

FOR STD. SINGLE GRATE INLETS: FRAME AS SHOWN, OMITTING BOLT HOLES AND BRACKETS "BR" AND "BL".

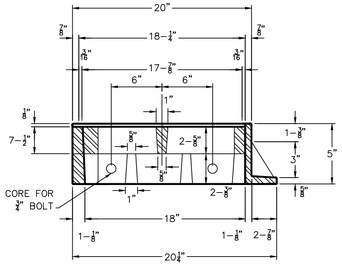
FOR STD. DOUBLE GRATE INLETS: RIGHT FRAME AS SHOWN, OMITTING FLANGE ON LINE "L–L", PUT ON BRACKET "BL" AND CORE HOLES "HL"; LEFT FRAME AS SHOWN, OMITTING FLANGE ON LINE "R–R", PUT ON BRACKET "BR", AND CORE HOLES "HR".

FOR STD. TRIPLE GRATE INLET: MAKE ONE RIGHT FRAME, ONE LEFT FRAME, AND ONE FRAME OMITTING BOTH END FLANGES. PUT ON BRACKETS "BR" AND "BL" AND CORE HOLES "HR" AND "HL".

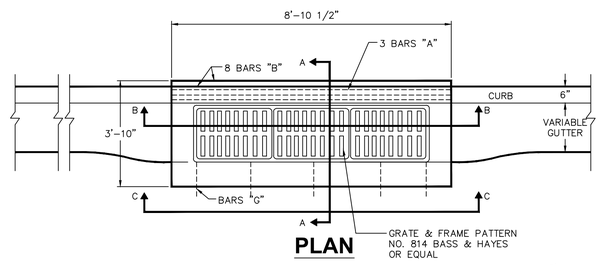
THE AVERAGE WEIGHT OF ALL GRATES SHALL NOT BE LESS THAN 153 LBS. THE AVERAGE WEIGHT OF A SINGLE GRATE INLET FRAME SHALL NOT BE LESS THAN 185 LBS. THE DOUBLE GRATE INLET FRAMES SHALL NOT BE LESS THAN 177 LBS., AND THE CENTER FRAMES SHALL NOT BE LESS THAN 170 LBS. EACH.

ALL MATERIALS SHALL CONFORM TO THE SPECS. FOR "CAST IRON" AND BE MADE IN THE USA.

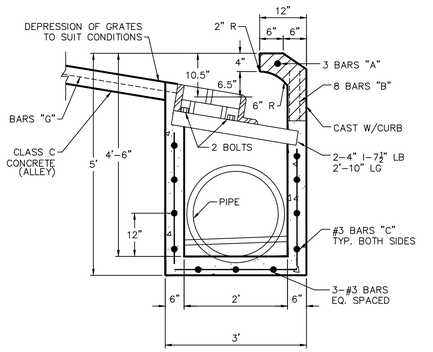
INLET GRATE & FRAME



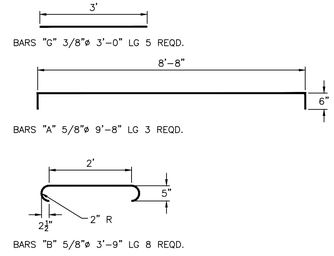
SECTION A-A



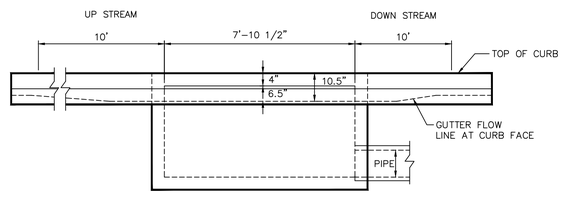
PLAN



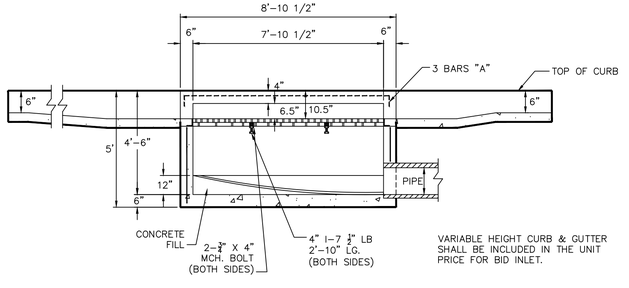
SECTION A-A



STEEL DETAILS



SECTION C-C



VARIABLE HEIGHT CURB & GUTTER SHALL BE INCLUDED IN THE UNIT PRICE FOR BID INLET.

SECTION B-B

TRIPLE GRATE INLET

NOTES:

1. CONCRETE SHALL BE CLASS A FOR INLET BOXES.
2. ALLEY PAVEMENT SHALL BE CLASS C CONCRETE.

Revisions:

City of Richardson
411 W. Arapaho Road
Suite 204
Richardson, Texas 75080
voice: 972 744–4280
fax: 972 744–5804

Drawn By: RGB
Checked By: COR

CITY OF RICHARDSON TEXAS

STANDARD DETAILS

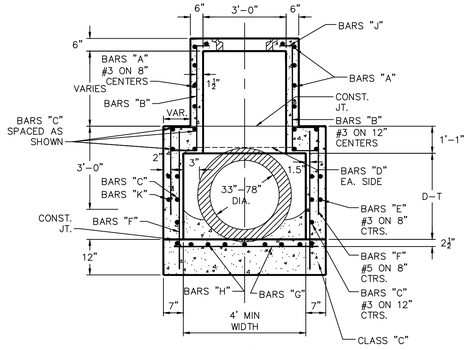
City of Richardson, Texas

NO ADDITIONS OR CHANGES TO STANDARD DETAIL SHEETS UNLESS APPROVED BY CITY OF RICHARDSON

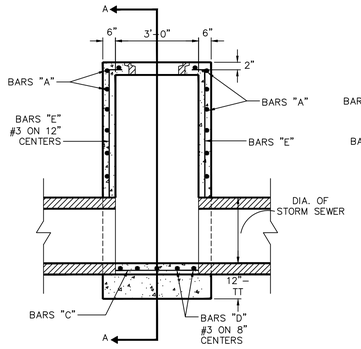
24"x36" Scale:	NTS
11"x17" Scale:	NTS
Vertical Scale:	NA
Project Number:	XXX
Issue Date:	01 MAY 14

Sheet Title:
ALLEY

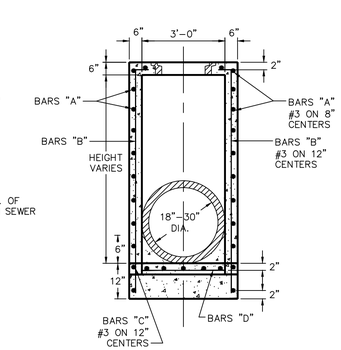
Sheet No.:
C-9



SECTION B-B



ELEVATION

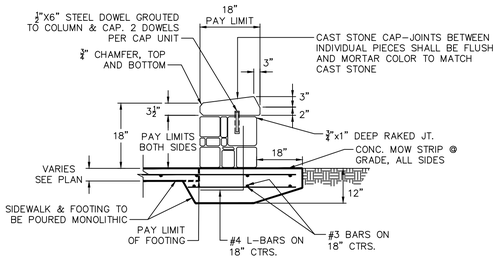


SECTION A-A

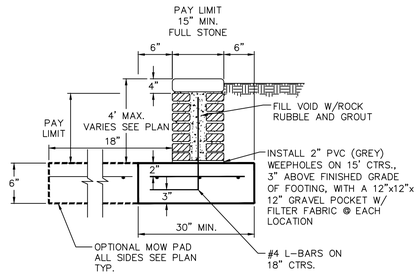
CLASS "C" CONCRETE

TYPE A STORM SEWER MANHOLE

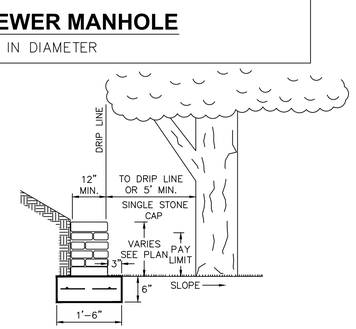
FOR PIPE 18" TO 30" IN DIAMETER



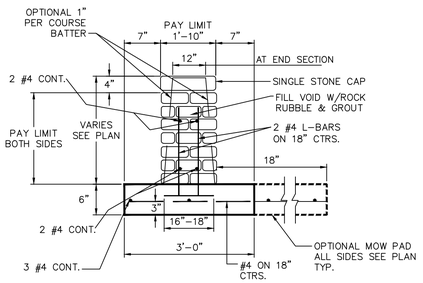
MILSAP SEATWALL



RETAINING WALL SECTION

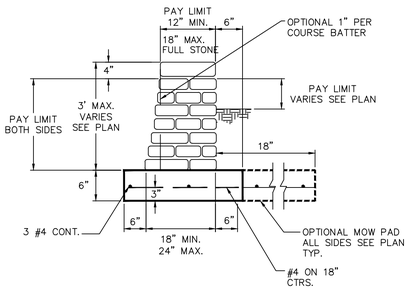


TREE WELL RETAINING WALL



GUARD WALL SECTION

END VIEW

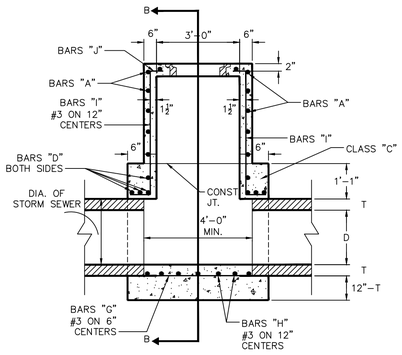


LANDSCAPE WALL SECTION

END VIEW

NOTE:
FRAME AND COVER SHALL BE BASS & HAYES VRM-30" EQUAL PATTERN AND SHALL BE OF GRAY CAST IRON CONFORMING TO ASTM SPEC. A-40 FOR CLASS 30 CAST IRON. COVER MARKED "CITY OF RICHARDSON STORM SEWER".

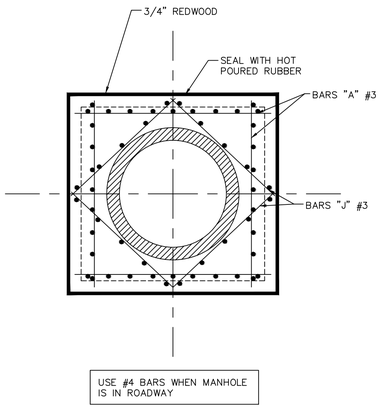
BAR SIZE CHART		
BAR	SIZE	SPACING
A	#3	8" ON CENTER
B	#3	12" ON CENTER
C	#3	12" ON CENTER
D	#3	8" ON CENTER
E	#3	12" ON CENTER
F	#5	8" ON CENTER
G	#3	6" ON CENTER
H	#3	12" ON CENTER
I	#3	12" ON CENTER
J	#3	12" ON CENTER
K	#3	12" ON CENTER



ELEVATION

TYPE B STORM SEWER MANHOLE

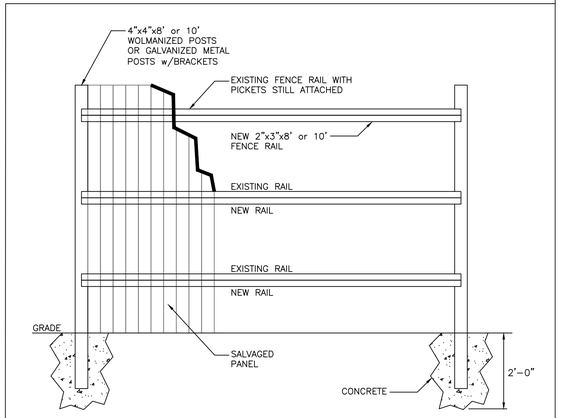
FOR PIPE 33" TO 78" IN DIAMETER



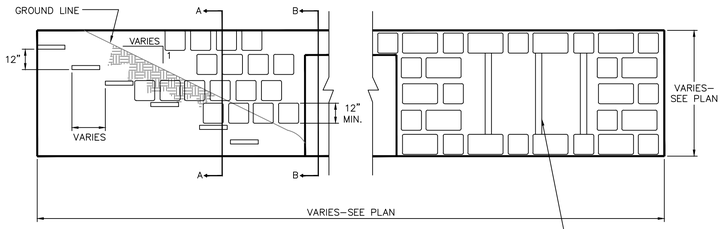
TOP PLAN

TYPE A & TYPE B STORM SEWER MANHOLE

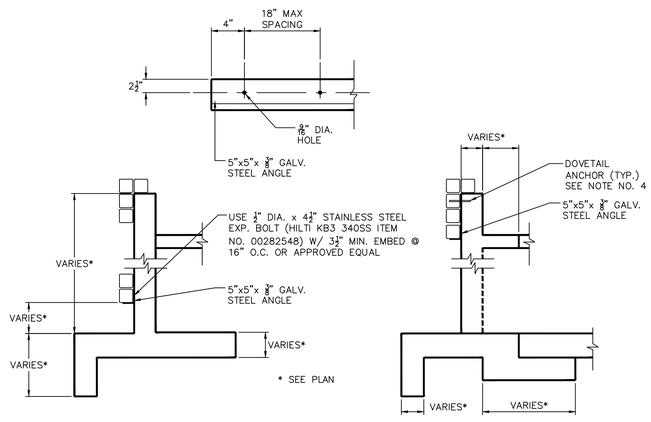
MAXIMUM PIPE SIZE TO BE USED 78"



WOODEN FENCE RELOCATION DETAIL



HEADWALL WITH MILSAP STONE FASCIA



SECTION A-A

SECTION B-B

STONE MASONRY NOTES

1. ALL EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED ¾".
2. REINFORCING STEEL SHALL BE PLACED WITH THE OUTSIDE BARS 2" FROM THE SURFACE OF THE CONCRETE, UNLESS NOTED OTHERWISE.
3. DOVETAIL SLOTS, WHERE REQUIRED, SHALL BE 20 GAUGE, GALVANIZED. CODE NUMBER DAS-920 MANUFACTURED BY GATEWAY BUILDING PRODUCTS OR ENGINEER APPROVED EQUAL AND SHALL BE SPACED @ 4'-0" O.C. MAX.
4. DOVETAIL STONE ANCHORS SHALL BE ¼"x1¼" SPACED AT 1'-0" O.C. THE FULL LENGTH OF SLOT.
5. CAPSTONE SHALL BE FULL WIDTH OF WALL (UNLESS OTHERWISE SPECIFIED) AND A MINIMUM OF 1' LONG. CAPSTONE SHALL BE A SEPARATE PAY ITEM.
6. FACE OF WALLS SHALL BE PAID FOR IN SQUARE FEET.
7. CONCRETE FOOTING SHALL BE A SEPARATE PAY ITEM.
8. ALL CONCRETE SHALL BE CLASS "A", UNLESS OTHERWISE NOTED.
9. ALL JOINTS SHALL BE 3/4" THICK x 3/4" DEEP RANKED.
10. ALL MORTAR SHALL BE TYPE "S".
11. LOCATION OF STONEWALLS WILL COMPLY WITH CITY'S SIGHT DISTANCE/HEIGHT REQUIREMENTS.
12. IF THE WALL IS WITHIN 10 FT. OF PARKWAY, THE STRUCTURE WILL BE BREAKAWAY.
13. CONTRACTOR SHALL PROVIDE A MOCKUP A MINIMUM OF 4' X 4' FOR APPROVAL (NO SEPARATE PAY ITEM)

Revisions:

City of Richardson
411 W. Arapaho Road
Suite 204
Richardson, Texas 75080
voice: 972 744-4280
fax: 972 744-5804

Drawn By: RGB
Checked By: COR

CITY OF RICHARDSON TEXAS

STANDARD DETAILS

City of Richardson, Texas

NO ADDITIONS OR CHANGES TO STANDARD DETAIL SHEETS UNLESS APPROVED BY CITY OF RICHARDSON

24"x36" Scale: NTS
11"x17" Scale: NTS
Vertical Scale: NA
Project Number: XXX
Issue Date: 01 MAY 14

Sheet Title: **MISC. DETAILS**

Sheet No.: **C-10**

NOTES:

1. CONSTRUCTION SHALL CONFORM TO THE LATEST EDITION OF THE PUBLIC WORKS CONSTRUCTION STANDARDS, NORTH CENTRAL TEXAS.
2. ALL JOINTS SHALL BE CONSIDERED SUBSIDIARY TO ALL PAVING ITEMS.
3. FOR PLACING OF CONCRETE PAVEMENT REFER TO ITEM 303.5.5.
4. FOR MAXIMUM SLUMP OF CONCRETE FOR PAVEMENT REFER TO ITEM 303.4.4.

PORTLAND CEMENT CONCRETE PAVEMENT

1. STANDARD SPECIFICATIONS ITEM 303.2.1.3 – 'COARSE AGGREGATES' SHALL BE AMENDED THE FIRST SENTENCE IS DELETED AND REPLACED AS FOLLOWS "COARSE AGGREGATES SHALL BE 100% CRUSHED STONE"
2. STANDARD SPECIFICATIONS ITEM 303 SHALL BE AMENDED AS FOLLOWS:
   A. ITEM 303.2.4. FLY ASH IS ALLOWED MAX 20% BY WEIGHT
   B. ITEM 303.2.5 SHALL BE DELETED. NO MINERAL FILLER IS ALLOWED
   C. ITEM 303.2.6 SHALL BE DELETED. NO FIBROUS REINFORCEMENT ALLOWED
3. STANDARD SPECIFICATIONS ITEM 303 SHALL BE AMENDED TO INCLUDE THE FOLLOWING:

A. ALL EQUIPMENT NECESSARY TO CONSTRUCT CONCRETE PAVEMENT SHALL BE APPROVED BY THE OWNER PRIOR TO STARTING THE PAVING OPERATION. PAVING EQUIPMENT REQUIREMENTS ARE AS FOLLOWS:

1. SIDEWALKS LESS THAN 8' IN WIDTH

   NO PAVING MACHINE REQUIRED. STINGER VIBRATORS AND METAL STRAIGHT EDGES SHALL BE USED TO CONSOLIDATE THE CONCRETE.

2. SIDEWALKS 8' IN WIDTH OR WIDER

   VIBRATING SCREED WITH TWO HAND HELD STINGER VIBRATORS SHALL BE USED TO CONSOLIDATE THE CONCRETE.

B. CONCRETE FINISH

SIDEWALK TO BE LIGHT BROOM FINISH.

CONCRETE TEMPERATURES

MAY 1 THROUGH SEPTEMBER 30

1. ALL MIXES AND MIX DESIGNS SHALL INCLUDE A RETARDING AGENT.
2. CONCRETE TEMPERATURE PRIOR TO PLACEMENT SHALL NOT EXCEED 95°F, (35°C).
3. THE TIME INTERVAL (FROM ADDITION OF INITIAL WATER):

AGITATED CONCRETE

90°F OR ABOVE	(32.2°C)	45 MINUTES
75°F TO 89°F	(23.9° TO 31.6°C)	60 MINUTES
35°F TO 74°F	(1.6° TO 23.3°C)	90 MINUTES

NON AGITATED CONCRETE

80°F OR ABOVE	(26.6°C)	15 MINUTES
35°F TO 79°F	(1.6° TO 26.1°C)	30 MINUTES

OCTOBER 1 THROUGH APRIL 30

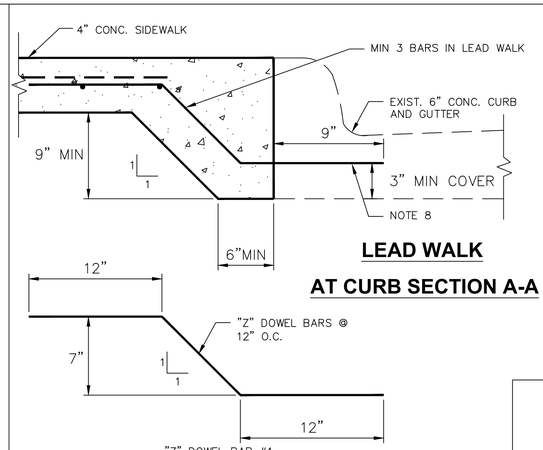
1. CONCRETE TEMPERATURE PRIOR TO PLACEMENT SHALL NOT EXCEED 95°F, (35°C).
2. THE TIME INTERVAL (FROM ADDITION OF INITIAL WATER):

AGITATED CONCRETE

90°F OR ABOVE	(32.2°C)	45 MINUTES
75°F TO 89°F	(23.9° TO 31.6°C)	60 MINUTES
35°F TO 74°F	(1.6° TO 23.3°C)	90 MINUTES

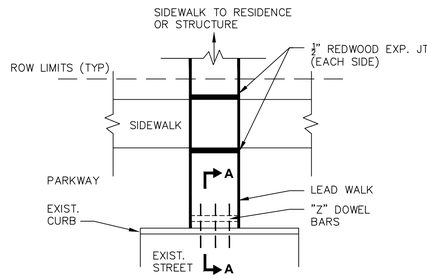
NON AGITATED CONCRETE

80°F OR ABOVE	(26.6°C)	15 MINUTES
35°F TO 79°F	(1.6° TO 26.1°C)	30 MINUTES



LEAD WALK

AT CURB SECTION A-A

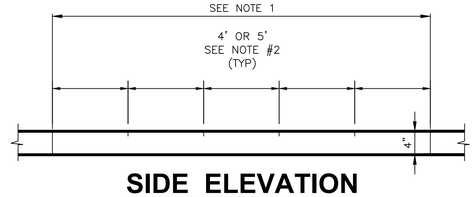


LEAD WALK

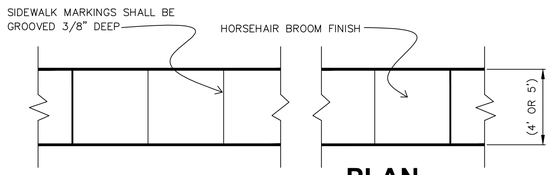
REPLACEMENT PLAN

1. 1/2" EXPANSION JOINTS SHALL BE SPACED AT 30' MAXIMUM INTERVALS, OR AS OTHERWISE SPECIFIED. JOINTS SHALL BE REDWOOD WITH THREE (3) #3 2' SLIP DOWELS WITH END CAPS AT EQUAL SPACING.
2. TOOL GROOVE EVERY 5' ON 5' WALKS AND EVERY 4' ON 4' WALKS.
3. SIDEWALKS SHALL BE CLASS "A" CONCRETE.
4. WHEN CONCRETE WALK IS ADJACENT TO EXISTING CONCRETE, DEPTH OF BITUMINOUS EXPANSION JOINT FILLER SHALL BE SUFFICIENT TO PREVENT CONCRETE TO CONCRETE CONTACT BETWEEN WALK AND CONCRETE. WHEN SIDEWALK IS LOCATED AT THE BACK OF CURB THE NO. 3 REBAR AT 24" O.C. FOR THE SIDEWALK SHOULD EXTEND TO A DEPTH OF APPROXIMATELY 3" INTO THE BACK OF THE CURB AND SHOULD BE ANCHORED IN PLACE WITH EPOXY RESIN.
5. SIDEWALK SUBGRADE SHALL BE COMPACTED TO MINIMUM 95% STANDARD PROCTOR DENSITY.
6. A MAXIMUM OF 1" OF SAND MAY BE USED FOR LEVEL UP ONLY.
7. NO "WHIRLEY BIRD" TYPE FINISHING MACHINES WILL BE ALLOWED.
8. EPOXY DOWELS IN PLACE. DRILLED HOLE SHALL BE 1/8" LARGER THAN DOWEL. USE MECHANICAL DRILL AND INSTALL DOWELS HORIZONTAL INTO EXISTING PAVEMENT. CLEAN AND DRY DRILL HOLES PRIOR TO APPLYING EPOXY.

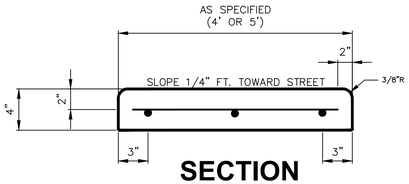
CONCRETE SIDEWALK DETAIL



SIDE ELEVATION



PLAN

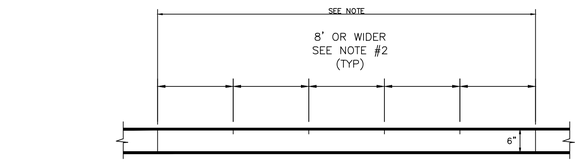


SECTION

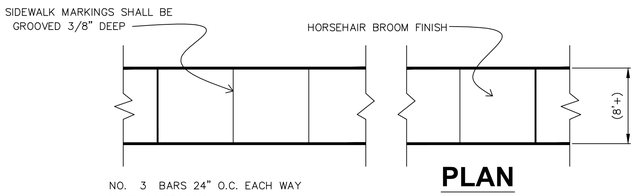
SEE SHEET C-12 FOR BARRIER FREE RAMP DETAILS

CONCRETE SIDEWALK DETAIL FOR SIDEWALKS 8' OR WIDER

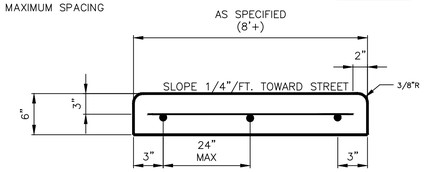
1. 1/2" EXPANSION JOINTS SHALL BE SPACED AT 60' MAXIMUM INTERVALS, OR AS OTHERWISE SPECIFIED. JOINTS SHALL BE REDWOOD WITH FIVE (5) #3 2' SLIP DOWELS WITH END CAPS AT EQUAL SPACING.
2. TOOL GROOVE EVERY 8' ON 8' WALKS.
3. SIDEWALKS SHALL BE CLASS "A" CONCRETE.
4. WHEN CONCRETE WALK IS ADJACENT TO EXISTING CONCRETE, DEPTH OF BITUMINOUS EXPANSION JOINT FILLER SHALL BE SUFFICIENT TO PREVENT CONCRETE TO CONCRETE CONTACT BETWEEN WALK AND CONCRETE. WHEN SIDEWALK IS LOCATED AT THE BACK OF CURB THE NO. 3 REBAR AT 24" O.C. FOR THE SIDEWALK SHOULD EXTEND TO A DEPTH OF APPROXIMATELY 3" INTO THE BACK OF THE CURB AND SHOULD BE ANCHORED IN PLACE WITH EPOXY RESIN.
5. SIDEWALK SUBGRADE SHALL BE COMPACTED TO MINIMUM 95% STANDARD PROCTOR DENSITY.
6. A MAXIMUM OF 1" OF SAND MAY BE USED FOR LEVEL UP ONLY.
7. NO "WHIRLEY BIRD" TYPE FINISHING MACHINES WILL BE ALLOWED.
8. SEAL ALL JOINTS WITH GRAY RUBBERIZED SEALANT.



SIDE ELEVATION



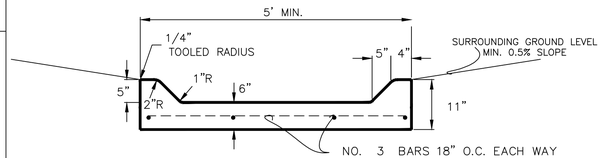
PLAN

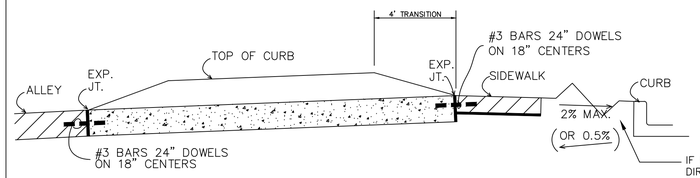


SECTION

FLUME DETAIL

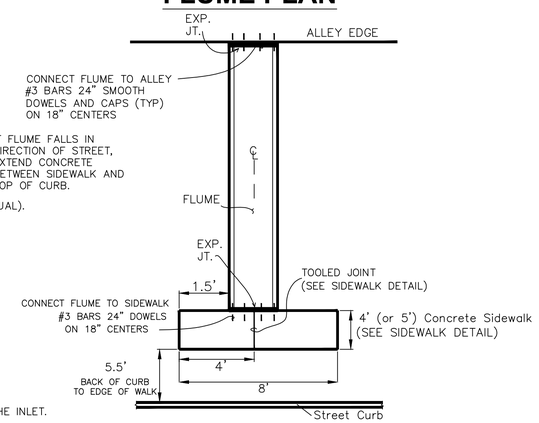
(FOR POSITIVE OVERFLOW)





1. FLUMES LOCATED BETWEEN RESIDENTIAL LOTS SHALL TIE TO ALLEY AND SIDEWALK.
2. FLUMES SHALL BE CLASS "A" CONCRETE WITH EXPOSED AGGREGATE FINISH (1" – #4 LATTIMORE RIVER GRAVEL OR EQUAL).
3. 1/2" EXPANSION JOINTS SHALL BE SPACED 40' MAX. INTERVALS, OR AS SPECIFIED AND JOINTS SHALL BE REDWOOD WITH THREE (3) #3 2' SLIP DOWELS WITH THE END CAPS AT EQUAL SPACING AND SEALED.
4. FLUME AND SIDEWALK SUBGRADE SHALL BE COMPACTED TO 95% STANDARD PROCTOR DENSITY.
5. 1/4" SAW JOINTS SHALL BE SPACED AT 20' MAX. INTERVALS.
6. AN 8' LONG SECTION OF 4' (or 5') WIDE SIDEWALK WILL BE CONSTRUCTED, AND CONNECTED, WITH THE FLUME THE SIDEWALK WILL HAVE A STANDARD SIDEWALK FINISH (NOT EXPOSED AGGREGATE).
7. FLUMES ARE TO BE CONSTRUCTED TO PROVIDE POSITIVE OVERFLOW DRAINAGE ACCORDING TO THE FOLLOWING:
   LOW POINT INLET IN STREET: FLUME TO SLOPE FROM STREET TO ALLEY.
   LOW POINT INLET IN ALLEY: FLUME TO SLOPE FROM ALLEY TO STREET.
8. MINIMUM SLOPE OF FLUME TO BE 0.5% (REFER TO DRAINAGE PLAN).
9. WHERE INLETS ARE CLOSER THAN 6 INCHES FROM SIDEWALK, THE SIDEWALK SHOULD BE WIDENED TO ABUT AGAINST THE INLET.

FLUME PLAN



Revisions:

City of Richardson
411 W. Arapaho Road
Suite 204
Richardson, Texas 75080
voice: 972 744-4280
fax: 972 744-5804

Drawn By: RGB
Checked By: COR

CITY OF RICHARDSON TEXAS

STANDARD DETAILS

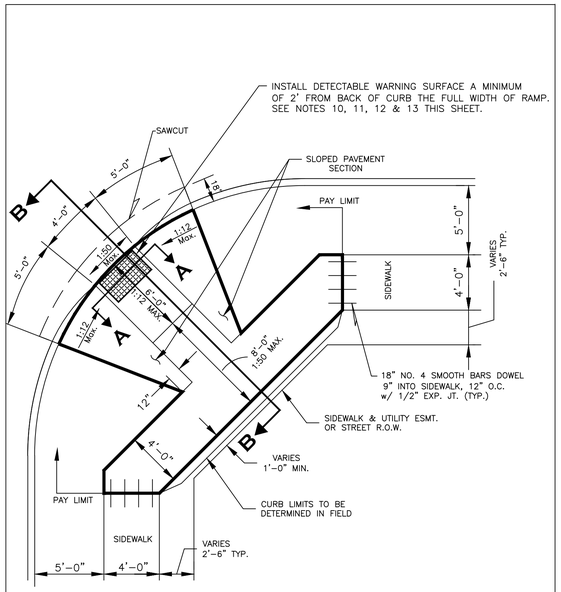
City of Richardson, Texas

NO ADDITIONS OR CHANGES TO STANDARD DETAIL SHEETS UNLESS APPROVED BY CITY OF RICHARDSON

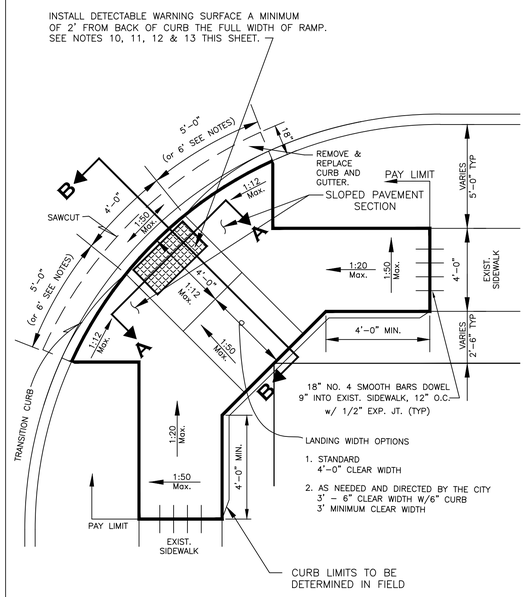
24"x36" Scale:	NTS
11"x17" Scale:	NTS
Vertical Scale:	NA
Project Number:	XXX
Issue Date:	06 MAR 15

Sheet Title: **SIDEWALK/ FLUME**

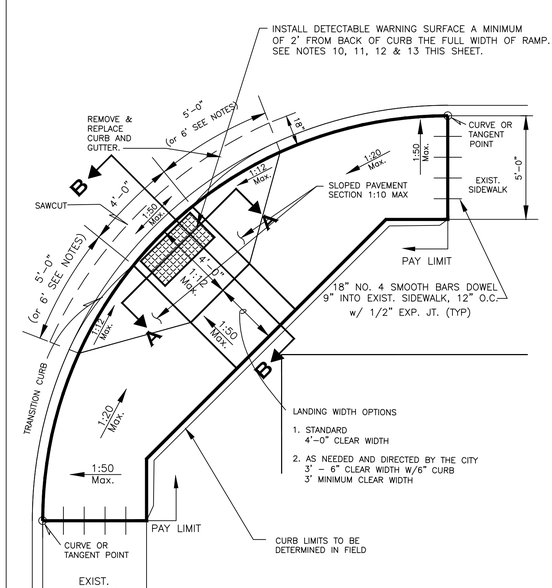
Sheet No.: **C-11**



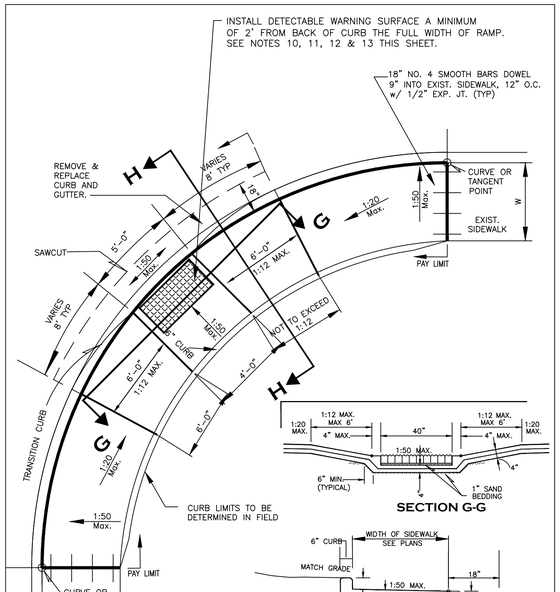
BARRIER FREE RAMP
AT INTERSECTION
TYPE A



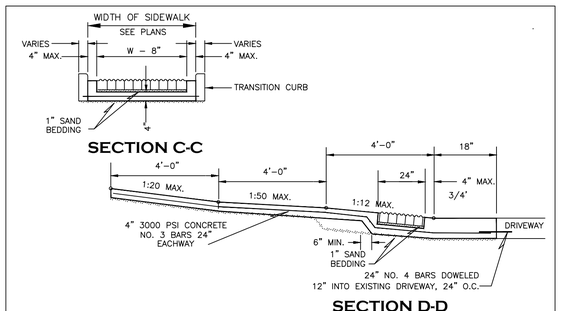
BARRIER FREE RAMP
INSIDE R.O.W.
TYPE B

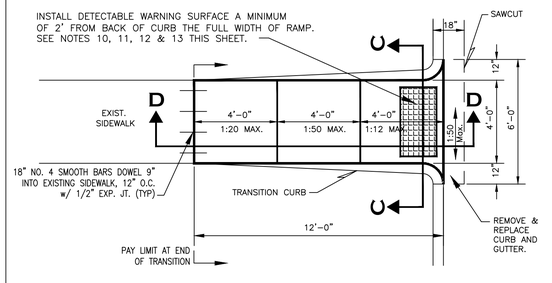


BARRIER FREE RAMP
SIDEWALK AT CURB
TYPE C

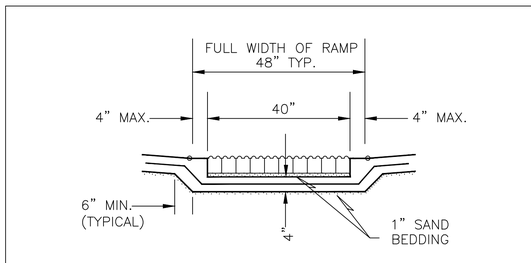


BARRIER FREE RAMP
SIDEWALK AT CURB
TYPE D

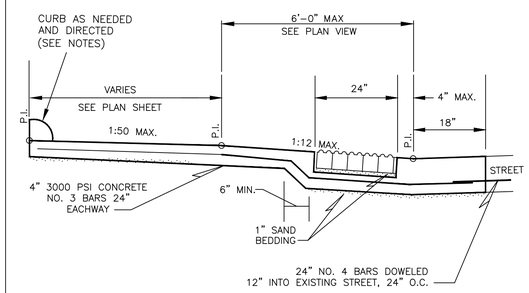




BARRIER FREE RAMP
AT COMMERCIAL DRIVEWAY (I)
TYPE E



SECTION A-A



SECTION B-B

TYPICAL SECTION DETAILS

NOTES:

1. DIMENSIONS SHOWN ON STANDARD DETAILS ARE APPROXIMATE AND WILL VARY DEPENDING ON EXISTING SIDEWALK AND STREET LONGITUDINAL AND CROSS SLOPES. DIMENSIONS SHOWN ASSUME EXISTING LONGITUDINAL AND CROSS SLOPES ARE LESS THAN 2%. RAMP LOCATIONS WITH LONGITUDINAL OR CROSS SLOPES EXCEEDING 2% SHOULD BE ADDRESSED BY SEPARATE DESIGN DETAILS THAT COMPLY WITH TEXAS ACCESSIBILITY STANDARDS AND MATCH CITY OF RICHARDSON STANDARD DETAILS IN APPEARANCE AS MUCH AS POSSIBLE.
2. RAMPS FOR SIDEWALKS (WITH WIDTHS OTHER THAN SHOWN ON THESE DETAILS) SHOULD BE ADJUSTED TO FIT DIMENSIONS OF THE APPROACH SIDEWALKS CALLED FOR ON PLAN SHEETS.
3. FULL LENGTH OF RAMP (SLOPE OF 1:12) NOT TO EXCEED 6' IN LENGTH.
4. PAYMENT FOR INSTALLATION OF BARRIER FREE RAMP SHALL INCLUDE SAWCUT, REMOVAL AND DISPOSAL OF EXISTING CURB AND GUTTER, SIDEWALK, ALL EXCAVATION NECESSARY TO CONSTRUCT RAMPS PER CITY STANDARDS, INCLUDING ALL LABOR, MATERIAL AND OTHER MISCELLANEOUS APPERTANCES.
5. THE CONTRACTOR MUST NOTIFY THE CITY PRIOR TO INSTALLATION OF CONCRETE IF THE APPROACH SLOPE OF THE EXISTING SIDEWALK EXCEEDS 1:20 (5%) OR HAS A CROSSFALL GREATER THAN 1:50 (2%) AND NO DESIGN DETAILS ARE PROVIDED FOR THAT SPECIFIC LOCATION.
6. CONTRACTOR TO VERIFY ALL SLOPES PRIOR TO POURING CONCRETE. ALL SLOPES SHOULD BE IN COMPLIANCE WITH APPLICABLE STANDARDS FROM THE TEXAS DEPARTMENT OF LICENSING AND REGULATION.
7. MINIMUM LANDING CLEAR WIDTH TO BE 48", UNLESS OTHERWISE DIRECTED BY THE CITY. WHEN LANDING IS LESS THAN 48" CLEAR WIDTH THE STREET CURB TRANSITION TO BE INCREASED FROM 5' TO 6' IN LENGTH.
8. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO INSURE SLOPES MEET REQUIREMENTS OF THE TEXAS ACCESSIBILITY STANDARDS.
9. A CURB SHALL BE CONSTRUCTED AT THE BACK OF THE WHEELCHAIR RAMP WHEN ELEVATION DIFFERENCE EXCEEDS 8".
10. DETECTABLE WARNING SHALL BE 24" IN LENGTH THE FULL WIDTH OF RAMP AT BACK OF CURB (LESS 4" BORDER FOR BRICK PAVERS) AND BE AS SPECIFIED EXCEPT AT INTERESECTIONS WHERE EXISTING RAMPS ON ADJACENT CORNERS PROVIDE DETECTABLE WARNING FOR THE FULL LENGTH AND WIDTH OF RAMP. WHERE EXISTING RAMPS ON ADJACENT CORNERS PROVIDE DETECTABLE WARNING FOR THE FULL LENGTH AND WIDTH OF RAMP THE NEW RAMPS SHALL BE MADE TO MATCH ADJACENT RAMPS IN COMPLIANCE WITH TEXAS ACCESSIBILITY STANDARDS.
11. BRICK PAVERS SHALL BE 7 7/8"x 3 15/16"x 2 3/8" WITH "CHARCOAL" COLOR MEETING ADA SECTION 4.29.2 (PAVESTONE DETECTABLE WARNING PAVER OR APPROVAL EQUAL). PAVERS SHALL HAVE DETECTABLE WARNING THAT CONSIST OF RAISED TRUNCATED DOMES WITH A DIA. OF 0.9 IN. (23MM), A HEIGHT OF NOMINAL 0.2 IN. (5MM) AND A CENTER TO CENTER SPACING OF NOMINAL 2.35 IN. (60MM). PAVERS SHALL BE SAWED (NOT BROKEN)
12. A VIBRATORY PLATE SHALL BE USED TO CONSOLIDATE PAVERS AFTER INSTALLATION. CONTRACTOR SHALL PREVENT DAMAGE TO PAVERS FROM VIBRATORY PLATE BY COVERING PAVERS WITH PLYWOOD, OR OTHER METHOD APPROVED BY THE CITY. ANY DAMAGE PAVERS WILL BE REPLACED AT THE CONTRACTOR'S EXPENSE
13. ADA REPLACEABLE (WET SET) COMPOSITE TACTILE WARNING SURFACE UNIT (GRAY) AVAILABLE FROM ADA SOLUTIONS MAY BE INSTALLED INSTEAD OF SPECIFIED TRUNCATED DOME BRICK PAVERS. CONTRACTOR SHALL PROVIDE A MINIMUM 4" CONCRETE THICKNESS BENEATH THE ADA REPLACEABLE COMPOSITE TACTILE WARNING SURFACE UNIT. THE TYPICAL BOX LEAVE OUT AND DEEPER CONCRETE SECTION FOR PAVERS SHOWN IN DETAILS IS NOT REQUIRED.

CONVERSIONS
1:12 – APPROXIMATELY 8.3%
1:20 – APPROXIMATELY 5%
1:50 – APPROXIMATELY ½" per 1' or 2%

Revisions:

City of Richardson
411 W. Arapaho Road
Suite 204
Richardson, Texas 75080
voice: 972 744-4280
fax: 972 744-5804

Drawn By: RGB
Checked By: COR

CITY OF RICHARDSON TEXAS

STANDARD DETAILS

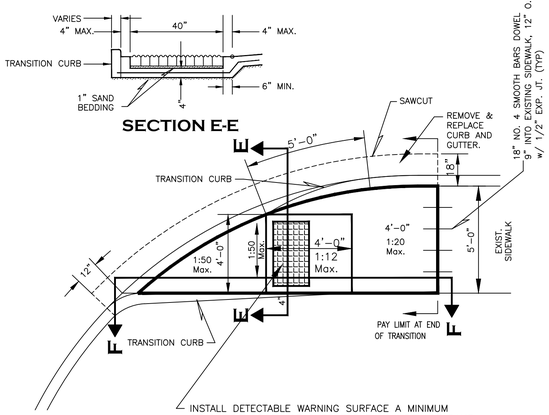
City of Richardson, Texas

NO ADDITIONS OR CHANGES TO STANDARD DETAIL SHEETS UNLESS APPROVED BY CITY OF RICHARDSON

24"x36" Scale: NTS
11"x17" Scale: NTS
Vertical Scale: NA
Project Number: XXX
Issue Date: 01 MAY 14

Sheet Title:
BARRIER FREE RAMPS

Sheet No.:
C-12



BARRIER FREE RAMP
AT COMMERCIAL DRIVEWAY (2)
TYPE F

NOTES:

1. DIMENSIONS SHOWN ON STANDARD DETAILS ARE APPROXIMATE AND WILL VARY DEPENDING ON EXISTING SIDEWALK AND STREET LONGITUDINAL AND CROSS SLOPES. DIMENSIONS SHOWN ASSUME EXISTING LONGITUDINAL AND CROSS SLOPES ARE LESS THAN 2%. RAMP LOCATIONS WITH LONGITUDINAL OR CROSS SLOPES EXCEEDING 2% SHOULD BE ADDRESSED BY SEPARATE DESIGN DETAILS THAT COMPLY WITH TEXAS ACCESSIBILITY STANDARDS AND MATCH CITY OF RICHARDSON STANDARD DETAILS IN APPEARANCE AS MUCH AS POSSIBLE.

2. RAMPS FOR SIDEWALKS (WITH WIDTHS OTHER THAN SHOWN ON THESE DETAILS) SHOULD BE ADJUSTED TO FIT DIMENSIONS OF THE APPROACH SIDEWALKS CALLED FOR ON PLAN SHEETS.

3. FULL LENGTH OF RAMP (SLOPE OF 1:12) NOT TO EXCEED 6' IN LENGTH.

4.. PAYMENT FOR INSTALLATION OF BARRIER FREE RAMP SHALL INCLUDE SAWCUT, REMOVAL AND DISPOSAL OF EXISTING CURB AND GUTTER, SIDEWALK, ALL EXCAVATION NECESSARY TO CONSTRUCT RAMPS PER CITY STANDARDS, INCLUDING ALL LABOR, MATERIAL AND OTHER MISCELLANEOUS APPERTANCES.

5. THE CONTRACTOR MUST NOTIFY THE CITY PRIOR TO INSTALLATION OF CONCRETE IF THE APPROACH SLOPE OF THE EXISTING SIDEWALK EXCEEDS 1:20 (5%) OR HAS A CROSSFALL GREATER THAN 1:50 (2%) AND NO DESIGN DETAILS ARE PROVIDED FOR THAT SPECIFIC LOCATION.

6. CONTRACTOR TO VERIFY ALL SLOPES PRIOR TO POURING CONCRETE. ALL SLOPES SHOULD BE IN COMPLIANCE WITH APPLICABLE STANDARDS FROM THE TEXAS DEPARTMENT OF LICENSING AND REGULATION.

7. MINIMUM LANDING CLEAR WIDTH TO BE 48", UNLESS OTHERWISE DIRECTED BY THE CITY. WHEN LANDING IS LESS THAN 48" CLEAR WIDTH THE STREET CURB TRANSITION TO BE INCREASED FROM 5' TO 6' IN LENGTH.

8. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO INSURE SLOPES MEET REQUIREMENTS OF THE TEXAS ACCESSIBILITY STANDARDS.

9. A CURB SHALL BE CONSTRUCTED AT THE BACK OF THE WHEELCHAIR RAMP WHEN ELEVATION DIFFERENCE EXCEEDS 8".

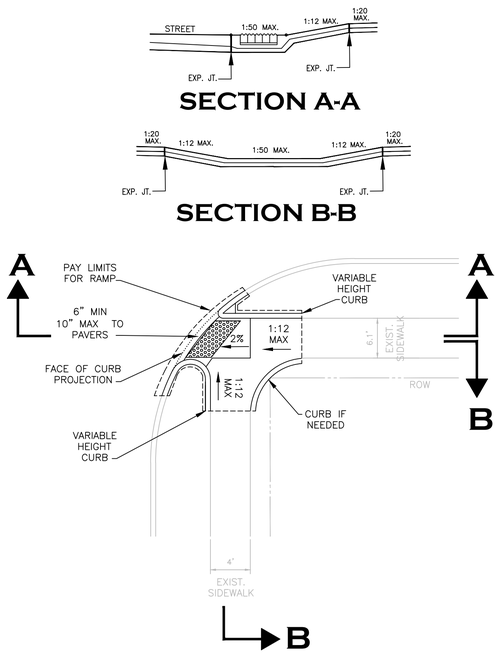
10. DETECTABLE WARNING SHALL BE 24" IN LENGTH THE FULL WIDTH OF RAMP AT BACK OF CURB (LESS 4" BORDER FOR BRICK PAVERS) AND BE AS SPECIFIED EXCEPT AT INTERESECTIONS WHERE EXISTING RAMPS ON ADJACENT CORNERS PROVIDE DETECTABLE WARNING FOR THE FULL LENGTH AND WIDTH OF RAMP. WHERE EXISTING RAMPS ON ADJACENT CORNERS PROVIDE DETECTABLE WARNING FOR THE FULL LENGTH AND WIDTH OF RAMP THE NEW RAMPS SHALL BE MADE TO MATCH ADJACENT RAMPS IN COMPLIANCE WITH TEXAS ACCESSIBILITY STANDARDS.

11. BRICK PAVERS SHALL BE 7 7/8"x 3 15/16"x 2 3/8" WITH "CHARCOAL" COLOR MEETING ADA SECTION 4.29.2 (PAVESTONE DETECTABLE WARNING PAVER OR APPROVAL EQUAL). PAVERS SHALL HAVE DETECTABLE WARNING THAT CONSIST OF RAISED TRUNCATED DOMES WITH A DIA. OF 0.9 IN. (23MM), A HEIGHT OF NOMINAL 0.2 IN. (5MM) AND A CENTER TO CENTER SPACING OF NOMINAL 2.35 IN. (60MM). PAVERS SHALL BE SAWED (NOT BROKEN)

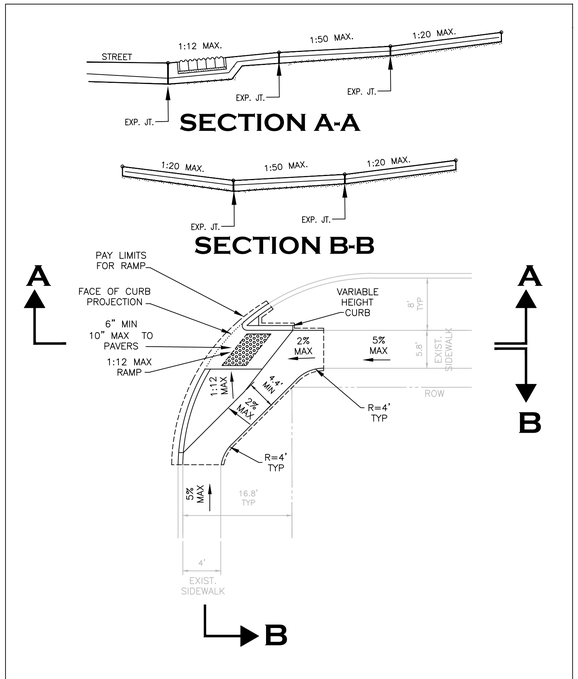
12. A VIBRATORY PLATE SHALL BE USED TO CONSOLIDATE PAVERS AFTER INSTALLATION. CONTRACTOR SHALL PREVENT DAMAGE TO PAVERS FROM VIBRATORY PLATE BY COVERING PAVERS WITH PLYWOOD, OR OTHER METHOD APPROVED BY THE CITY. ANY DAMAGE PAVERS WILL BE REPLACED AT THE CONTRACTOR'S EXPENSE

13. ADA REPLACEABLE (WET SET) COMPOSITE TACTILE WARNING SURFACE UNIT (GRAY) AVAILABLE FROM ADA SOLUTIONS MAY BE INSTALLED INSTEAD OF SPECIFIED TRUNCATED DOME BRICK PAVERS. CONTRACTOR SHALL PROVIDE A MIN-IMUM 4" CONCRETE THICKNESS BENEATH THE ADA REPLACEABLE COMPOSITE TACTILE WARNING SURFACE UNIT. THE TYPICAL BOX LEAVE OUT AND DEEPER CONCRETE SECTION FOR PAVERS SHOWN IN DETAILS IS NOT REQUIRED.

CONVERSIONS
1:12 – APPROXIMATELY 8.3%
1:20 – APPROXIMATELY 5%
1:50 – APPROXIMATELY 1/4" per 1' or 2%



TYPE G RAMP
AT DIRECTIONAL CORNER
(TEE INTERSECTION)



TYPE H RAMP
AT DIRECTIONAL CORNER
(TEE INTERSECTION)

Revisions:

City of Richardson
411 W. Arapaho Road
Suite 204
Richardson, Texas 75080
voice: 972 744-4280
fax: 972 744-5804

Drawn By: RGB
Checked By: COR

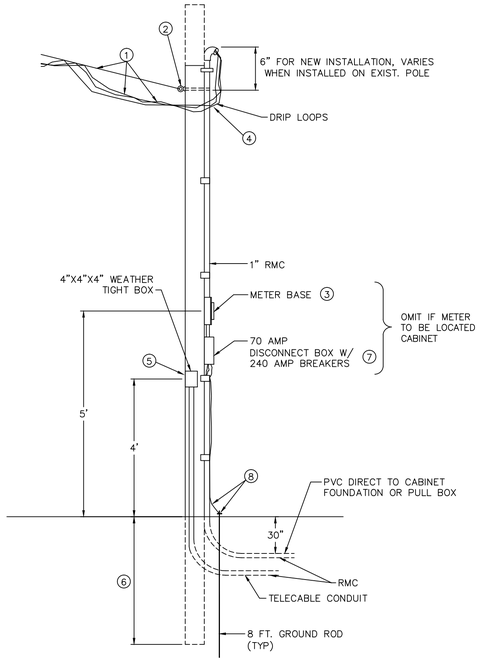
CITY OF RICHARDSON TEXAS

STANDARD DETAILS

City of Richardson, Texas

NO ADDITIONS OR CHANGES TO STANDARD DETAIL SHEETS UNLESS APPROVED BY CITY OF RICHARDSON

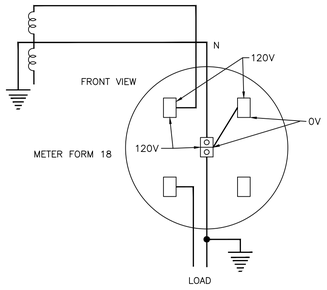
24"x36" Scale: NTS
11"x17" Scale: NTS
Vertical Scale: NA
Project Number: XXX
Issue Date: 01 MAY 14
Sheet Title: **BARRIER FREE RAMPS**
Sheet No.: **C-13**



ELECTRIC SERVICE TO TYPICAL PERMANENT METER POLE INSTALLATION

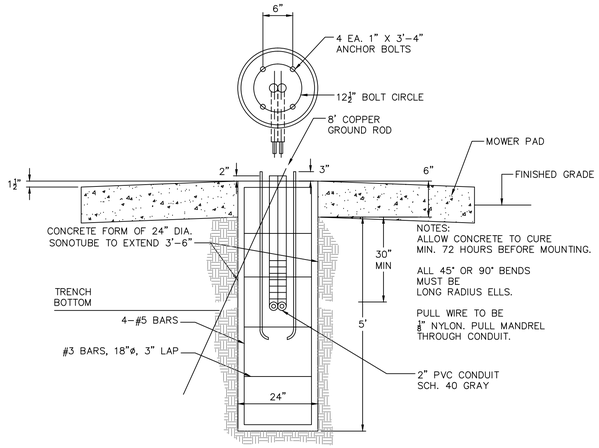
NOTES:

1. SERVICE DROP PROVIDED AND INSTALLED BY POWER COMPANY.
2. SERVICE ATTACHMENT PROVIDED BY POWER COMPANY AND INSTALLED BY CONTRACTOR.
3. METER SOCKET PROVIDED BY POWER COMPANY AND INSTALLED BY CONTRACTOR.
4. SERVICE ENTRANCE CONDUCTOR AND SERVICE RACEWAY PROVIDED AND INSTALLED BY CONTRACTOR. CONDUCTORS TO EXTEND 24" MIN. OUTSIDE SERVICE HEAD FOR CONNECTION TO SERVICE DROP. MINIMUM #6 COPPER CONDUCTOR TO BE NEC APPROVED PHASE CONDUCTORS BLACK INSULATION NEUTRAL CONDUCTORS WHITE OR BARE.
5. CONTRACTOR TO PROVIDE AND INSTALL SUPPORT FOR SERVICE ATTACHMENT AND METER SOCKET. CREOSOTE POLE (OR EQUAL) TO BE 5" MIN. DIA. AT TOP. STEEL POLE TO BE 4" MIN. OUTSIDE DIAMETER. SUPPORT TO BE SUFFICIENT HEIGHT FOR THE SERVICE DROP TO MEET MIN. CLEARANCES.
6. POLE TO BE SET IN 4 FEET OF TAMPED EARTH OR CONCRETE WHERE SOIL CONDITIONS WARRANT. PIPE TO BE SET IN 4 FEET OF CONCRETE.
7. WEATHERPROOF SERVICE SWITCH TO BE PROVIDED AND INSTALLED BY CONTRACTOR.
8. CONTRACTOR'S GROUND CONDUCTOR #6 COPPER MINIMUM TO APPROVED ELECTRODE.
9. CONTRACTOR INSTALLATION TO MEET ALL REQUIREMENTS OF NATIONAL ELECTRICAL CODE AND LOCAL ORDINANCES.



2 WIRE 120 VOLT, SELF-CONTAINED
120 VOLTS LINE TO NEUTRAL

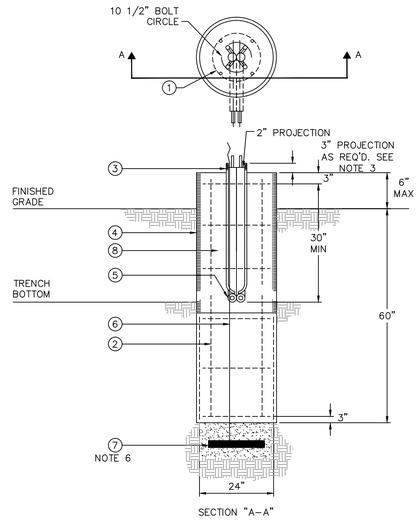
METER SOCKET CONNECTIONS AND VOLTAGES 4-TERMINAL SOCKET



CITY OF RICHARDSON STREET LIGHT FOUNDATION 40' SQUARE STEEL POLE C.O.R.

STREET LIGHT FOUNDATION NOTES

1. CONDUIT, TRENCHES AND BASES MUST BE INSPECTED BY C.O.R. DISTRIBUTION DEPT. BEFORE ANY BACK FILLING OR CONCRETE WORK IS DONE. FAILURE TO HAVE INSPECTION WILL RESULT IN REMOVAL OF WORK. CALL 881-5400 FOR INSPECTION.
2. ANCHOR BOLTS WILL BE FURNISHED BY CITY OF RICHARDSON.
3. PROVIDE AN 8 FT. LONG GROUND ROD FOR CONNECTION OF WIRE TO POLE.
4. MOWER PAD IS REQUIRED ONLY WHEN STREET LIGHTS ARE LOCATED IN GRASS AREA. PAD WILL BE SUBSIDIARY TO STREET LIGHT FOUNDATION.
5. ON PAVED MEDIANS, FOUNDATION SHALL BE FLUSH WITH HIGHEST CURB.



SECTION "A-A"

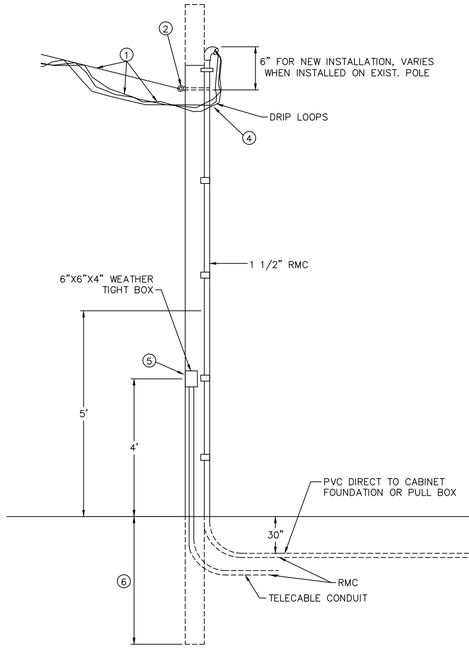
NOTES:

1. CONCRETE TO BE MINIMUM 3000 PSI AT 28 DAYS. (6 SACK) MAXIMUM AGGREGATE ¾". TOP OF FOUNDATION TO BE TROWELED TO A FLAT AND LEVEL SURFACE. AVOID EXCESSIVE TROWELING. CONCRETE TO SET A MINIMUM OF 72 HOURS BEFORE POLE INSTALLATION.
2. REBAR HOOPS ARE TIED BEGINNING 3" BELOW TOP OF CONCRETE FORM AND ARE REPEATED AT APPROXIMATE 1 FT. INTERVALS TO BOTTOM OF FOUNDATION.
3. CONTRACTOR TO PROVIDE ANCHOR BOLTS. ANCHOR BOLTS ARE NOT SUPPLIED WITH POLE. USE TEMPLATE FURNISHED BY POLE MANUFACTURER FOR ALIGNING ANCHOR BOLTS.
4. CONCRETE FORM OF SONOTUBE TO EXTEND TO BOTTOM OF TRENCH OR AS NEEDED.
5. PROVIDE 24" PIGTAIL FOR CONNECTION OF GROUND WIRE TO POLE.
6. A MINIMUM OF 12' OF BARE #6 SD CU WIRE TO BE PLACED IN BOTTOM OF HOLE AND COVERED WITH 2" OF DIRT.
7. IF SOIL HAS BEEN DISTURBED, EXTEND FOUNDATION BY DEPTH OF DISTURBED SOIL.
8. MOWER PAD IS REQUIRED ONLY WHEN STREET LIGHTS ARE LOCATED IN GRASS AREA. PAD WILL BE SUBSIDIARY TO STREET LIGHT FOUNDATION.

ITEM	QTY	DESCRIPTION	TSN	AUN	MACRO AUN
1	6	#3 REBAR 18" DIA. HOOP. 3 IN. OVERLAP	314470	SLF01	21332001
2	4	#6 REBAR STRAIGHT. 50 IN. LONG	317821		
3	4	ANCHOR BOLT,GALV 1 IN. (SUPPLIED W/POLE)			
4	AS REQ'D	CONCRETE FOUNDATION TUBE 24 IN. DIA.	313841		
5	AS REQ'D	CONDUIT PVC OR PEC (NOT IN FOUND. AUN)			
6	.5 LB	WIRE #6 COPPER SOLID	310091		
7	1	GROUND, POLE BUTT WIRE COIL			
8	AS REQ'D	CONCRETE			

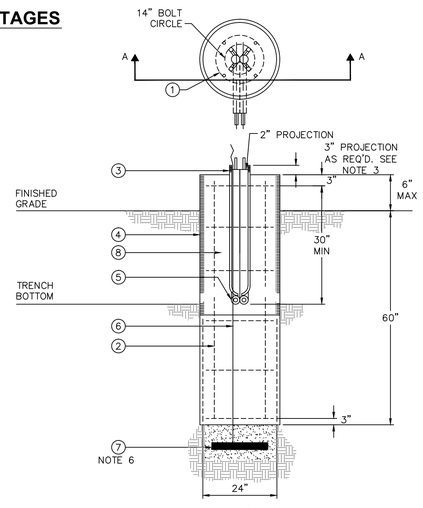
APPROVED BY TXU ELECTRIC

ONCOR/TXU STREET LIGHT FOUNDATION 25', 30' & 40' SQUARE STEEL POLE 40' M.H. ROUND STEEL POLE



R101CP6

ELECTRIC SERVICE TO TYPICAL PERMANENT PEDESTAL INSTALLATION



SECTION "A-A"

NOTES:

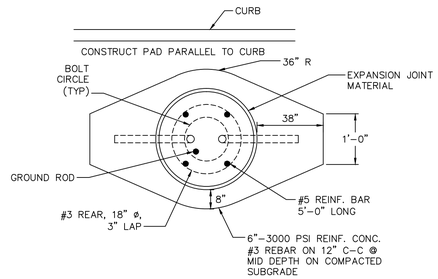
1. CONCRETE TO BE MINIMUM 3000 PSI AT 28 DAYS. (6 SACK) MAXIMUM AGGREGATE ¾". TOP OF FOUNDATION TO BE TROWELED TO A FLAT AND LEVEL SURFACE. AVOID EXCESSIVE TROWELING. CONCRETE TO SET A MINIMUM OF 72 HOURS BEFORE POLE INSTALLATION.
2. REBAR HOOPS ARE TIED BEGINNING 3" BELOW TOP OF CONCRETE FORM AND ARE REPEATED AT APPROXIMATE 1 FT. INTERVALS TO BOTTOM OF FOUNDATION.
3. CONTRACTOR TO PROVIDE ANCHOR BOLTS. ANCHOR BOLTS ARE NOT SUPPLIED WITH POLE. USE TEMPLATE FURNISHED BY POLE MANUFACTURER FOR ALIGNING ANCHOR BOLTS. PROJECTION OF 3 IN. ON 25 & 30 FT. SQUARE AND 3½ IN. ON 40 FT. SQUARE AND 37 FT. ROUND POLES.
4. CONCRETE FORM OF SONOTUBE TO EXTEND TO BOTTOM OF TRENCH OR AS NEEDED.
5. PROVIDE 24" PIGTAIL FOR CONNECTION OF GROUND WIRE TO POLE.
6. A MINIMUM OF 12' OF BARE #6 SD CU WIRE TO BE PLACED IN BOTTOM OF HOLE AND COVERED WITH 2" OF DIRT.
7. IF SOIL HAS BEEN DISTURBED, EXTEND FOUNDATION BY DEPTH OF DISTURBED SOIL.
8. MOWER PAD IS REQUIRED ONLY WHEN STREET LIGHTS ARE LOCATED IN GRASS AREA. PAD WILL BE SUBSIDIARY TO STREET LIGHT FOUNDATION.

ITEM	QTY	DESCRIPTION	TSN	AUN	MACRO AUN
1	6	#3 REBAR 18" DIA. HOOP. 3 IN. OVERLAP	314470	SLF01	21332001
2	4	#6 REBAR STRAIGHT. 50 IN. LONG	317821		
3	4	ANCHOR BOLT,GALV 1 IN.* (SUPPLIED W/POLE)			
4	AS REQ'D	CONCRETE FOUNDATION TUBE 24 IN. DIA.	313841		
5	AS REQ'D	CONDUIT PVC OR PEC (NOT IN FOUND. AUN)			
6	.5 LB	WIRE #6 COPPER SOLID	310091		
7	1	GROUND, POLE BUTT WIRE COIL			
8	AS REQ'D	CONCRETE			

* 1 1/4" ANCHOR BOLT REQ'D. W/40' POLE

APPROVED BY TXU ELECTRIC

ONCOR/TXU STREET LIGHT FOUNDATION 25' M.H. & 30' M.H. ROUND STEEL POLE



MOWER PAD

Revisions:

City of Richardson
411 W. Arapaho Road
Suite 204
Richardson, Texas 75080
voice: 972 744-4280
fax: 972 744-5804

Drawn By: RGB
Checked By: COR

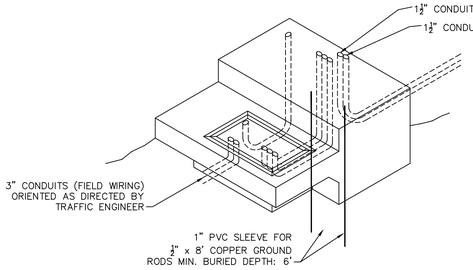
CITY OF RICHARDSON TEXAS

STANDARD DETAILS

City of Richardson, Texas

NO ADDITIONS OR CHANGES TO STANDARD DETAIL SHEETS UNLESS APPROVED BY CITY OF RICHARDSON

24"x36" Scale: NTS
11"x17" Scale: NTS
Vertical Scale: NA
Project Number: XXX
Issue Date: 01 MAY 14
Sheet Title: **TRAFFIC**
Sheet No.: **T-1**

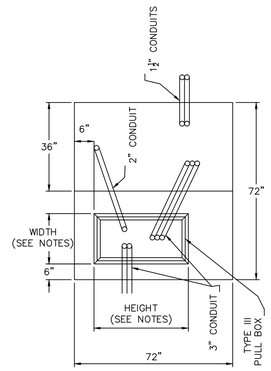


NOTES:

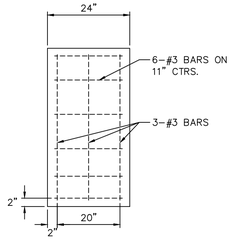
1. PULL BOXES SHALL BE POLYMER CONCRETE REINF. BY HEAVY WEAVE FIBERGLASS AND RATED FOR A MIN. LOAD OF 8,000 LBS. OVER A 10"X10" AREA.
2. TYPE III PULL BOXES SHALL BE USED FOR CONTROLLER FOUNDATIONS. ALL OTHER TYPES ARE SHOWN ON THE PLANS.
3. EXTERIOR DIMENSIONS FOR PULL BOXES ARE AS FOLLOWS:

	WIDTH:	HEIGHT:	LENGTH:
I.	14"	12¾"	14"
II.	16½"	12"	27½"
III.	20⅛"	12"	33⅛"

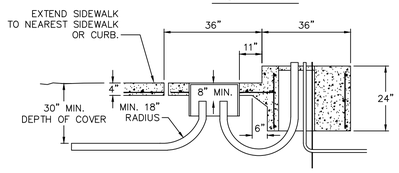
4. ALL PULL BOXES SHALL BE SUPPORTED WITH CONCRETE BRICK IN EACH CORNER.
5. ALL PULL BOXES SHALL HAVE THE LOGO "TRAFFIC SIGNAL OR STREET LIGHTING" AS REQUIRED.
6. ALL PULL BOXES NOT IN SIDEWALK OR MEDIAN PAVING SHALL HAVE A 5" APRON.



TOP VIEW

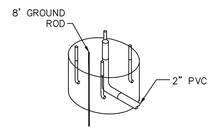


BACK VIEW
(REBAR DETAILS)

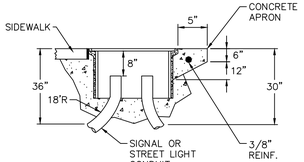


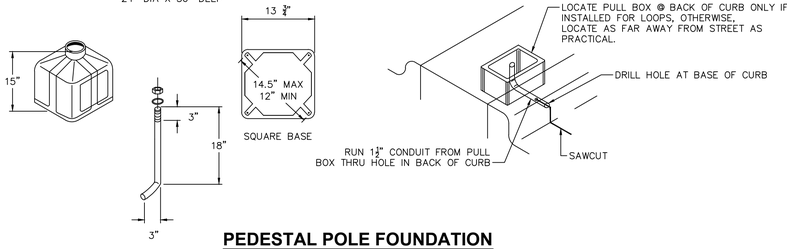
SIDE VIEW

CONTROLLER FOUNDATION AND PULL BOXES



24" DIA X 36" DEEP

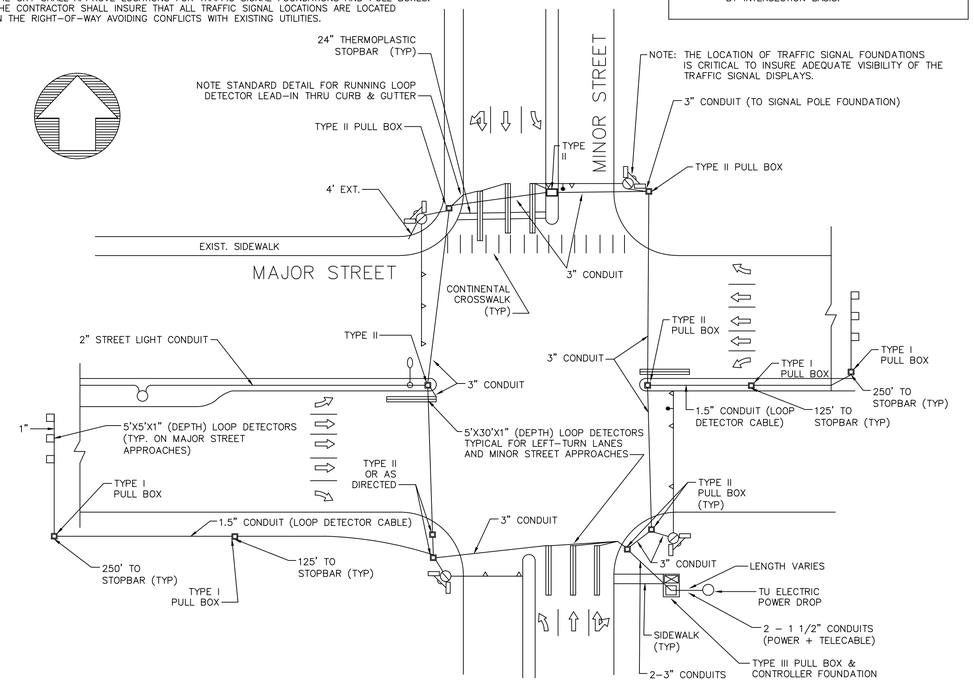




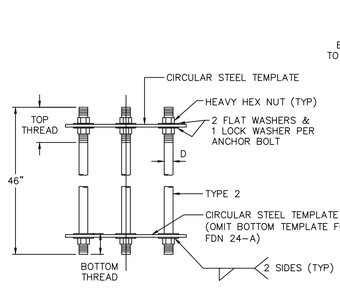
PEDESTAL POLE FOUNDATION

NOTE: THE CONTRACTOR SHALL NOTIFY THE CITY OF RICHARDSON AT 972-744-4460 AT LEAST 3 DAYS PRIOR TO SIGNAL CONSTRUCTION AFTER UTILITY LOCATES ARE SECURE. THE CITY SHALL APPROVE LOCATIONS FOR TRAFFIC SIGNAL FOUNDATIONS AND PULL BOXES. THE CONTRACTOR SHALL INSURE THAT ALL TRAFFIC SIGNAL LOCATIONS ARE LOCATED IN THE RIGHT-OF-WAY AVOIDING CONFLICTS WITH EXISTING UTILITIES.

NOTE: THIS IS A TYPICAL INTERSECTION LAY-OUT. ACTUAL DETAILS MAY VARY ON AN INTERSECTION BY INTERSECTION BASIS.



TYPICAL DETAILS FOR TRAFFIC SIGNAL CONSTRUCTION

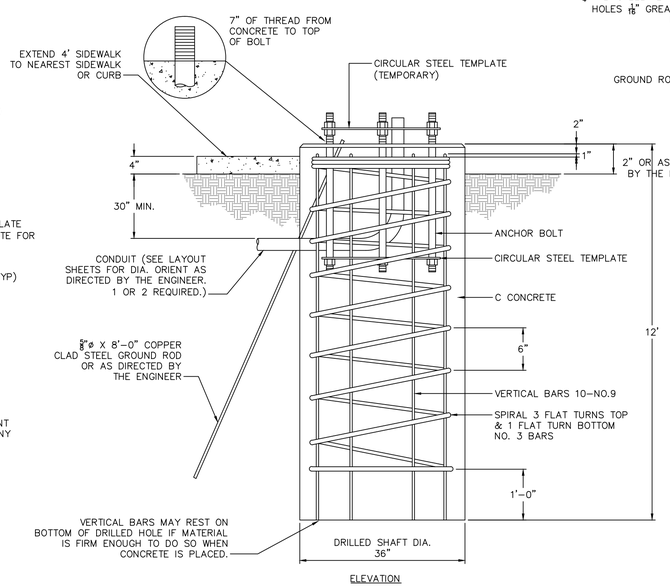


NUT ANCHOR (TYPE 2)

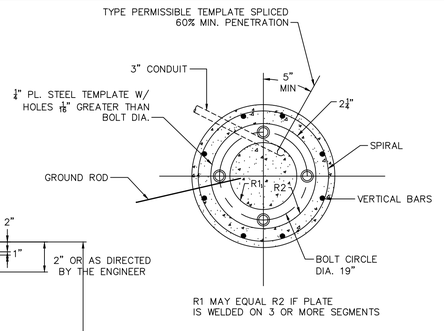
ANCHOR BOLT ASSEMBLY

INSTALLATION PROCEDURE:

THREADS OF ANCHOR BOLTS SHALL BE COATED WITH PIPE JOINT COMPOUND OR TAPE PRIOR TO INSTALLATION OF CONCRETE. ANY EXCESS CONCRETE ON THREADS SHALL BE REMOVED.



ELEVATION



SIGNAL FOUNDATION DETAIL

1. ANCHOR BOLTS SHALL BE INSTALLED SO 2 BOLTS ARE IN TENSION AND 2 BOLTS ARE IN COMPRESSION FROM THE MAST ARM.

Revisions:

City of Richardson
411 W. Arapaho Road
Suite 204
Richardson, Texas 75080
voice: 972 744-4280
fax: 972 744-5804

Drawn By: RGB
Checked By: COR

CITY OF RICHARDSON TEXAS

STANDARD DETAILS

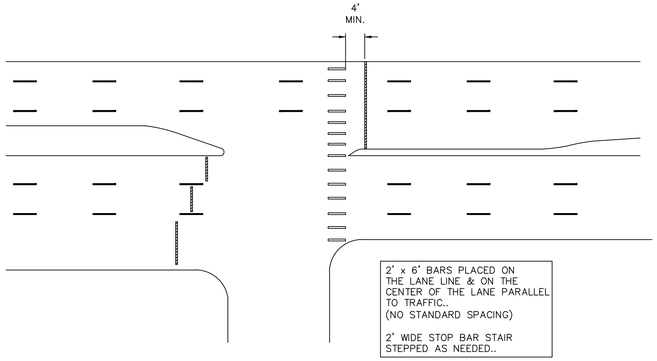
City of Richardson, Texas

NO ADDITIONS OR CHANGES TO STANDARD DETAIL SHEETS UNLESS APPROVED BY CITY OF RICHARDSON

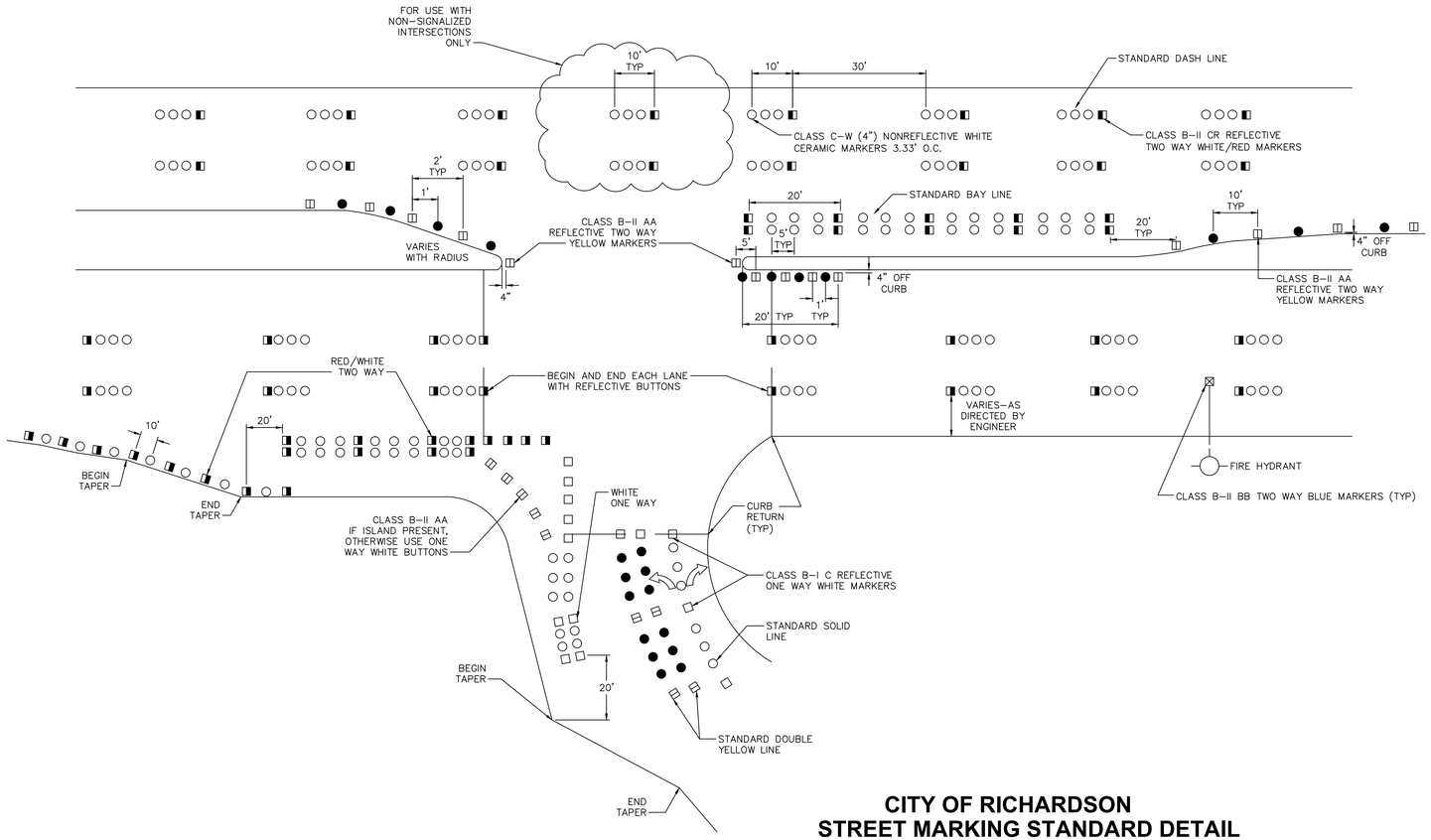
24"x36" Scale: NTS
11"x17" Scale: NTS
Vertical Scale: NA
Project Number: XXX
Issue Date: 01 MAY 14

Sheet Title:
TRAFFIC

Sheet No.:
T-2

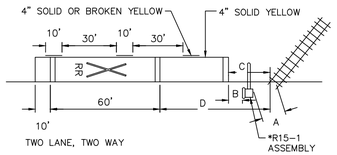


STANDARD CONTINENTAL CROSSWALK

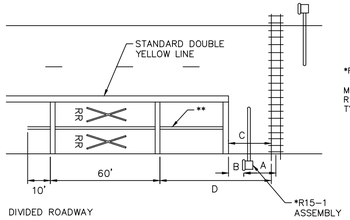


CITY OF RICHARDSON STREET MARKING STANDARD DETAIL

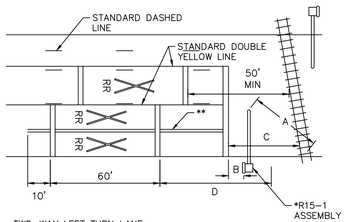
** DOUBLE WHITE BUTTON LINE (SEE STANDARD BAY LINE)



TWO LANE, TWO WAY



DIVIDED ROADWAY



TWO-WAY LEFT TURN LANE (TWLTL)

A= 12' MIN. 15 FEET USUAL. IF AUTOMATIC GATES ARE PRESENT, DISTANCE "A" SHOULD BE MEASURED FROM NEAREST EDGE OF AUTOMATIC GATES TO RAILS.

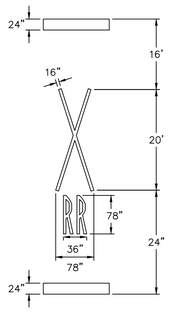
B= STOP LINES SHOULD BE PLACED ON 8 FOOT MIN. DISTANCE IN ADVANCE OF R15-1.

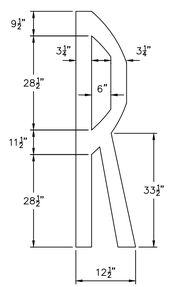
C= 15 FEET DESIRABLE MINIMUM. R15-1 SHOULD BE PLACED BETWEEN STOP LINE AND RAILS WITH ADEQUATE DISTANCE PROVIDED FOR "A".

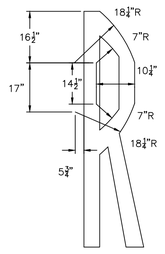
D= APPROACH SPEED	DESIRABLE PLACEMENT
30	50 (MIN)-90 (USUAL)
35	70-170
40	150-250
45	235-335
50	315-415
55	400-UP (500 USUAL)

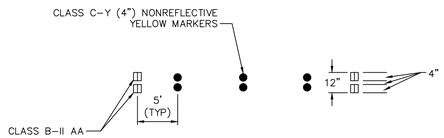
*R15-1 ASSEMBLY

MAY CONSIST OF R15-1 AND/OR R15-2, TYPE A, TYPE E OR TYPE F ASSEMBLY.



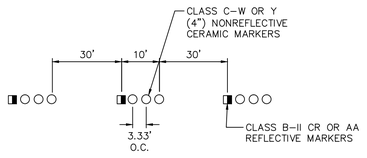




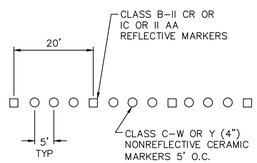


STANDARD DOUBLE YELLOW LINE

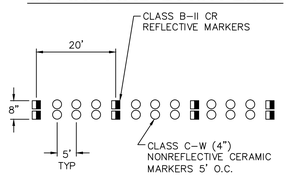
THERMOPLASTIC, HOT APPLIED TAPE, OR BUTTONS



STANDARD DASH LINE



STANDARD SOLID LINE



STANDARD BAY LINE

LEGEND

- CLASS B-II CR (4" SQUARE) TWO WAY REFLECTIVE RED/WHITE MARKER
- CLASS B-II AA (4" SQUARE) TWO WAY REFLECTIVE YELLOW MARKER
- CLASS B-II BB (4" SQUARE) TWO WAY REFLECTIVE BLUE MARKER
- CLASS B-I C (4" SQUARE) ONE WAY REFLECTIVE WHITE MARKER
- CLASS C-W (4" ROUND) NON REFLECTIVE WHITE MARKER
- CLASS C-Y (4" ROUND) NON REFLECTIVE YELLOW MARKER

C.O.R. WILL PROVIDE INITIAL DETAIL ASSISTANCE IN PAVING MARKING LAYOUT (AS REQUIRED)

Revisions:

City of Richardson
411 W. Arapaho Road
Suite 204
Richardson, Texas 75080
voice: 972 744-4280
fax: 972 744-5804

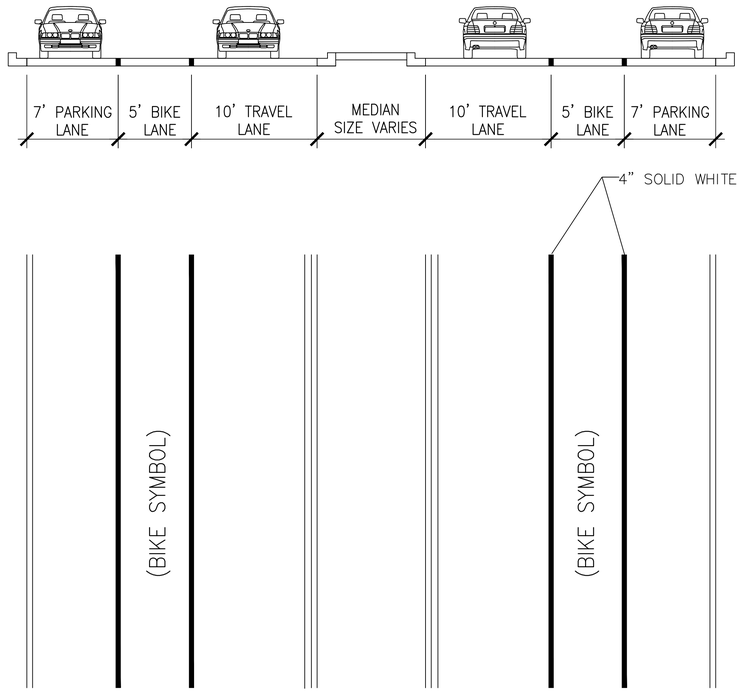
Drawn By: RGB
Checked By: COR

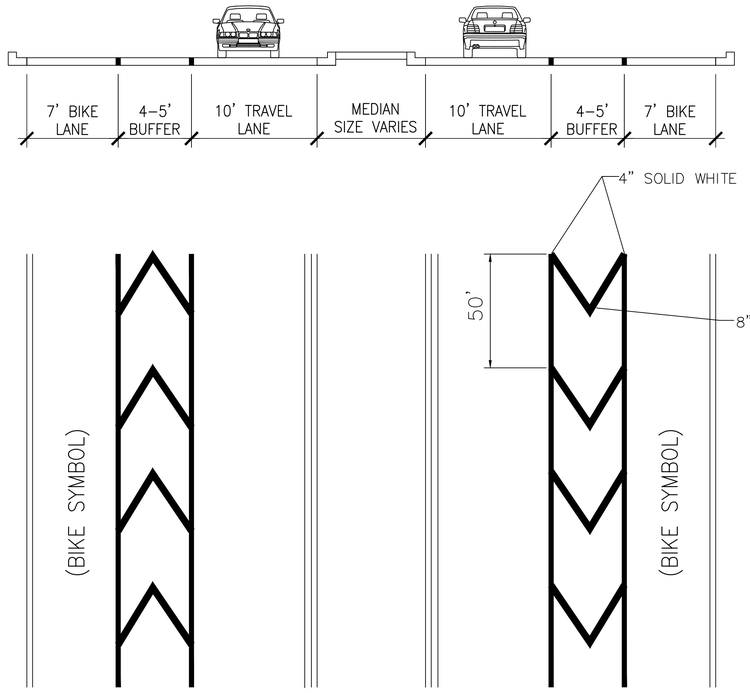
CITY OF RICHARDSON TEXAS

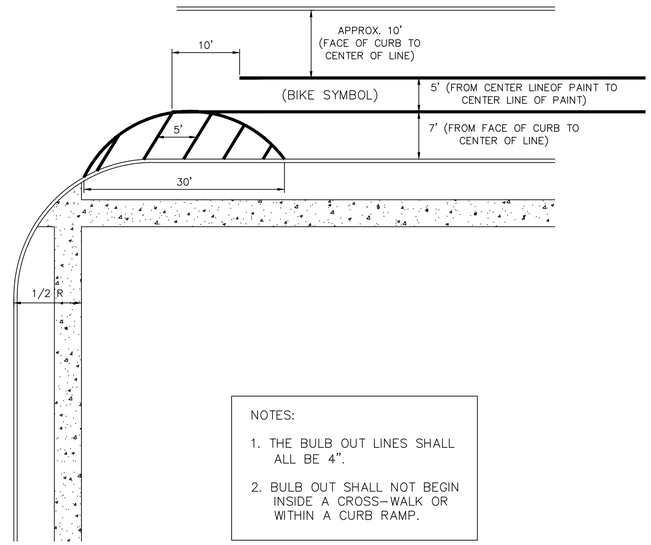
STANDARD DETAILS
City of Richardson, Texas

NO ADDITIONS OR CHANGES TO STANDARD DETAIL SHEETS UNLESS APPROVED BY CITY OF RICHARDSON

24"x36" Scale: NTS
11"x17" Scale: NTS
Vertical Scale: NA
Project Number: XXX
Issue Date: 01 MAY 14
Sheet Title: **TRAFFIC**
Sheet No.: **T-3**







NOTES:

1. THE BULB OUT LINES SHALL ALL BE 4".
2. BULB OUT SHALL NOT BEGIN INSIDE A CROSS-WALK OR WITHIN A CURB RAMP.

BICYCLE LANE BULB-OUT DETAIL (TYP)

Revisions:

City of Richardson
411 W. Arapaho Road
Suite 204
Richardson, Texas 75080
voice: 972 744-4280
fax: 972 744-5804

Drawn By: RGB
Checked By: COR

CITY OF RICHARDSON TEXAS

STANDARD DETAILS

City of Richardson, Texas

NO ADDITIONS OR CHANGES TO STANDARD DETAIL SHEETS UNLESS APPROVED BY CITY OF RICHARDSON

24"x36" Scale: NTS
11"x17" Scale: NTS
Vertical Scale: NA
Project Number: XXX
Issue Date: 01 MAY 14
Sheet Title: **TRAFFIC**
Sheet No.: **T-4**