Construction Standard Details

City of McKinney Engineering Department
www.mckinneytexas.org

Effective: JANUARY 1, 2023
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4010M Horizontal Thrust Block at Pipe Bend
4010M Horizontal Thrust Block at Pipe Bend
4020M Horizontal Thrust Block at Tees and Plugs
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4040M Thrust Block General Notes
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4061M 24" and Greater Horizontal Butterfly Valves
4061M 24" and Greater Horizontal Butterfly Valves
4061M 24" and Greater Horizontal Butterfly Valves
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4061M 24" and Greater Horizontal Butterfly Valves
4061M 24" and Greater Horizontal Butterfly Valves
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4300M Temporary Flushing Connection
4400M Temporary Water Test Station
4500M Automatic Flushing Device
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<td>5030M</td>
<td>Wastewater Manhole Cast-In-Place</td>
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<td>5031M</td>
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<td>5033M</td>
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<td>Type S Vented Sanitary Sewer Manhole SHEET 1 OF 2</td>
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<td>Type S Vented Sanitary Sewer Manhole SHEET 2 OF 2</td>
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<td>5080M</td>
<td>Wastewater Manhole Force Main Drop Connections SHEET 1 OF 2</td>
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<td>5090M</td>
<td>Wastewater Manhole Line Intersection</td>
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<td>5100M</td>
<td>Wastewater Manhole False Bottom</td>
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<td>5101M</td>
<td>Sanitary Sewer Manhole Lid SHEET 1 OF 3</td>
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<td>Standard Composite Sanitary Sewer Manhole Frame &amp; Cover SHEET 3 OF 3</td>
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<td>Residential Lateral w/ Cleanout at Property Line</td>
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<td>5140M</td>
<td>Wastewater Lateral Cleanout Frame and Cover</td>
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<td>5170M</td>
<td>Abandonment of Manhole Inside or Outside of Pavement</td>
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<td>5200M</td>
<td>Sanitary Sewer Pipeline Marker</td>
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<tr>
<td>6010M</td>
<td>Stormwater Manhole 4', 5', or 6' Square SHEET 1 OF 3</td>
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<td>6010M</td>
<td>Stormwater Manhole Lid SHEET 3 OF 3</td>
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<td>6030M</td>
<td>5', 8', 10' Single Curb Inlets SHEET 1 OF 4</td>
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<td>12', 15', 20' Double Curb Inlets SHEET 2 OF 4</td>
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<td>6030M</td>
<td>Curb Inlet Details and Notes SHEET 3 OF 4</td>
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<td>6030M</td>
<td>Curb Inlet Details and Notes SHEET 4 OF 4</td>
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<td>Drop Inlet 4', 5', or 6' Square</td>
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<td>Capital Improvements Program Project Information Sign SHEET 1 OF 4</td>
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<td>7002M</td>
<td>Major-Major Intersection Pavement Markings SHEET 2 OF 4</td>
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<td>Pavement Markings Details SHEET 3 OF 4</td>
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<td>Pavement Markings Details SHEET 4 OF 4</td>
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<td>7003M</td>
<td>Residential Street Light and Sign Locations SHEET 1 OF 3</td>
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<td>Street Name Sign Details SHEET 2 OF 3</td>
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<td>Street Name Sign Details Double Mount SHEET 3 OF 3</td>
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<td>Median Conduit System SHEET 2 OF 2</td>
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<td>Luminaire Poles SHEET 1 OF 2</td>
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<td>Luminaire Poles SHEET 2 OF 2</td>
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<td>7015M</td>
<td>Manhole and Valve Vault Mow Strip SHEET 1 OF 2</td>
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SILT FENCE EXAMPLE

NOTES:
1. DESIGN SHALL SHOW ON THE DRAWINGS THE LOCATIONS WHERE OVERFLOW STRUCTURES SHALL BE INSTALLED. OVERFLOW STRUCTURES ARE REQUIRED AT ALL POINTS AND AT A SPACING OF APPROXIMATELY 300 FT WHERE NO LOW POINT IS APPARENT.
2. DESIGNER SHALL ON THE DRAWINGS THE LOCATIONS WHERE SILT FENCE IS TO BE TURNED UPSLOPE. UPSLOPE LENGTHS SHALL BE A MINIMUM OF 10 FEET.
3. STEEL FENCE POSTS ADJACENT TO ROW AND PEDESTRIAN AREAS SHALL BE CAPPED.
SILT FENCE GENERAL NOTES:

1. STEEL POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF ONE FOOT.

2. THE TOE OF THE SILT FENCE SHALL BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWNSLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW. WHERE FENCE CANNOT BE TRENCHED IN (e.g. PAVEMENT), WEIGHT FABRIC FLAP WITH ROCK ON UPHILL SIDE TO PREVENT FLOW FROM SEEPING UNDER FENCE.

3. THE TRENCH MUST BE A MINIMUM OF 6 INCHES DEEP AND 6 INCHES WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.

4. SILT FENCE SHOULD BE SECURELY FASTENED TO EACH STEEL SUPPORT POST OR TO WOVEN WIRE, WHICH IN TURN IS ATTACHED TO THE STEEL FENCE POST. THERE SHALL BE A 3 FOOT OVERLAP, SECURELY FASTENED WHERE ENDS OF FABRIC MEET.

5. INSPECTION SHALL BE MADE EVERY TWO WEEKS AND AFTER EVERY RAIN EVENT. REPAIR OR REPLACEMENT SHALL BE MADE WITHIN 24 HOURS AS NEEDED.

6. SILT FENCE SHALL BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

7. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF HALF THE HEIGHT OF THE FENCE. THE SILT SHALL BE DISPOSED OF AT AN APPROVED SITE AND IN SUCH A MANNER AS TO NOT CONTRIBUTE TO ADDITIONAL SITATION.
NOTES:
ACTUAL DIMENSIONS OF THE CHECK DAMS SHALL BE DESIGNED BASED ON THE FLOW CONDITIONS IN THE DRAINAGE SWALE OR DITCH. PROVIDE CALCULATIONS THAT DOCUMENT THE FOLLOWING PARAMETERS USED TO DESIGN THE CHECK DAMS.

*HEIGHT OF CHECK DAMS BASED ON SWALE AND DITCH DIMENSIONS AND FLOW CONDITIONS.

*SPACING OF CHECK DAMS BASED ON GRADE OF THE SWALE OR DITCH. TOP OF DOWNSTREAM DAM SHALL BE AT SAME ELEVATION AS TOE OF UPSTREAM DAM.
ROCK CHECK DAM GENERAL NOTES:

1. USE ONLY OPEN GRADED ROCK 4–8 INCHES IN DIAMETER FOR STREAM FLOW CONDITION. USE OPEN GRADED ROCK 3–5 INCHES IN DIAMETER FOR OTHER CONDITIONS.

2. IF RECYCLED CONCRETE IS USED, IT SHALL BE CLEAN GRADED CRUSHED CONCRETE FREE OF REINFORCING STEEL AND OTHER OBJECTIONABLE MATERIAL AND HAVE AT MOST 1.5% DELETERIOUS MATERIAL CONFORMING TO TxDOT’S RECYCLED MATERIAL SPECIFICATIONS.

3. THE ROCK CHECK DAM SHALL BE SECURED WITH A WOVEN WIRE SHEATHING HAVING A MAXIMUM OPENING OF 1 INCH AND A MINIMUM WIRE SIZE OF 20 GAUGE AND SHALL BE BURIED IN A TRENCH APPROXIMATELY 3 TO 4 INCHES DEEP.

4. THE ROCK CHECK DAM SHALL BE INSPECTED EVERY TWO WEEKS OR AFTER EVERY RAIN EVENT AND SHALL BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.

5. WHEN SILT REACHES A DEPTH EQUAL TO ONE–THIRD OF THE HEIGHT OF THE ROCK CHECK DAM OR ONE FOOT, WHICHEVER IS LESS, THE SILT SHALL BE REMOVED AND DISPOSED OF PROPERLY.

6. WHEN THE SITE IS COMPLETELY STABILIZED, THE ROCK CHECK DAM AND ACCUMULATED SILT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED MANNER.

7. ROCK CHECK DAM SHOULD BE USED AS CHECK DAMS FOR CONCENTRATED FLOW AND ARE NOT INTENDED FOR USE IN PERIMETER PROTECTION.
NOTES:
INSTALL SILT FENCE, CONSTRUCTION SAFETY FENCING, OR SIMILAR BARRIER ALONG THE CONSTRUCTION ACCESS.

### TABLE 3.9 MINIMUM EXIT DIMENSIONS

<table>
<thead>
<tr>
<th>DISTURBED AREA</th>
<th>MIN. WIDTH OF EXIT</th>
<th>MIN. LENGTH OF EXIT</th>
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<tbody>
<tr>
<td>&lt;1 ACRE</td>
<td>15 FEET</td>
<td>20 FEET</td>
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<tr>
<td>&gt;1 ACRE BUT &lt;5 ACRES</td>
<td>25 FEET</td>
<td>50 FEET</td>
</tr>
<tr>
<td>&gt;5 ACRES</td>
<td>30 FEET</td>
<td>50 FEET</td>
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</table>
STABILIZED CONSTRUCTION EXIT GENERAL NOTES:

1. STONE SHALL BE 3 TO 5 INCH DIAMETER CRUSHED ROCK.

2. IF RECYCLED CONCRETE IS USED, IT SHALL BE CLEAN GRADED CRUSHED CONCRETE FREE OF REINFORCING STEEL AND OTHER OBJECTIONABLE MATERIAL AND HAVE AT MOST 1.5% DELETERIOUS MATERIAL CONFORMING TO TxDOT’S RECYCLED MATERIAL SPECIFICATIONS.

3. THE THICKNESS SHALL NOT BE LESS THAN 6 INCHES.

4. THE WIDTH SHALL BE NO LESS THAN THE FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS.

5. WHEN NECESSARY, VEHICLES SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO A PUBLIC ROADWAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE WITH DRAINAGE FLOWING AWAY FROM BOTH THE STREET AND THE STABILIZED ENTRANCE. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATERCOURSE USING APPROVED METHODS.

6. THE ACCESS SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PAVED SURFACES. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO PAVED SURFACES MUST BE REMOVED IMMEDIATELY.

7. THE ACCESS MUST BE PROPERLY GRADED OR INCORPORATE A DRAINAGE SWALE TO PREVENT RUNOFF FROM LEAVING THE CONSTRUCTION SITE.
NOTES:
1. WASHOUT AREA MUST BE CLEARLY MARKED WITH SIGNAGE.
2. WASHOUT STRUCTURES SHALL BE CLEANED OUT WHEN THE STRUCTURE IS 75% FULL. TEMORARY CONCRETE WASHOUT FACILITY SHOULD BE MAINTAINED TO PROVIDE ADEQUATE HOLDING CAPACITY.
3. A CONCRETE WASHOUT PIT SHALL BE INSTALLED A MINIMUM OF 50 FEET AWAY FROM INLETS, SWALES, DRAINAGE WAYS, CHANNELS, AND OTHER WATERS.
4. PROVIDE WASHOUT AREA WITH A MINIMUM 6 CUBIC FEET OF CONTAINMENT VOLUME FOR EVERY 10 CUBIC YARDS OF CONCRETE Poured. ALTERNATIVELY, THE DESIGNER MAY PROVIDE CALCULATIONS SIZING THE CONTAINMENT BASED ON THE NUMBER OF CONCRETE TRUCKS AND PUMPS TO BE WASHED OUT.
CONCRETE WASHOUT AREA GENERAL NOTES:

1. THE CONCRETE WASHOUT AREA SHALL BE INSTALLED PRIOR TO CONCRETE PLACEMENT ON SITE.

2. VEHICLE TRACKING PAD SHALL BE SLOPED 2% TOWARDS THE CONCRETE WASHOUT AREA.

3. SIGNS SHALL BE PLACED AT THE CONSTRUCTION ACCESS, AT THE CONCRETE WASHOUT AREA, AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CONCRETE WASHOUT AREA TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS.

4. USE EXCAVATED MATERIAL FOR PERIMETER BERM CONSTRUCTION.

5. INSPECT BMPs EACH WORKDAY, AND MAINTAIN IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM EVENT THAT CAUSES SURFACE EROSION AND PERFORM NECESSARY MAINTENANCE.

6. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

7. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

8. THE CONCRETE WASHOUT AREA SHALL BE REPAIRED, CLEANED, OR ENLARGED AS NECESSARY TO MAINTAIN CAPACITY FOR CONCRETE WASTE. CONCRETE MATERIALS, ACCUMULATED IN PIT, SHALL BE REMOVED ONCE THE MATERIALS HAVE REACHED A DEPTH OF 2 FEET.

9. CONCRETE WASHOUT WATER, WASTED PIECES OF CONCRETE AND ALL OTHER DEBRIS IN SHALL BE TRANSPORTED FROM THE JOB SITE IN A CONTAINER AND DISPOSED OF PROPERLY.

10. THE CONCRETE WASHOUT AREA SHALL REMAIN IN PLACE UNTIL ALL CONCRETE FOR THE AREA IS PLACED.

11. WHEN THE CONCRETE WASHOUT AREA IS REMOVED, COVER THE DISTURBED AREA WITH TOP SOIL, SEED AND MULCH OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE CITY OF MckINNEY.
NOTES:
ACTUAL DIMENSIONS OF THE SEDIMENT TRAP SHALL BE DESIGNED BASED ON FLOW CONDITIONS AND SITE TOPOGRAPHY. PROVIDE CALCULATIONS THAT DOCUMENT THE FOLLOWING PARAMETER USED TO DESIGN THE TRAP.

- SIZE OF CONTRIBUTING DRAINAGE AREA
- DESIGN STORM VOLUME AND FLOW RATE AT THE TRAP
- HEIGHT, SLOPE, AND LENGTH OF STONE OUTLET
- STORAGE VOLUME
- EXTENT OF GRADING TO PROVIDE THE CONTROLLED OUTLET
Bermed Stone Outlet Sediment Trap Plan View

Bermed Stone Outlet Sediment Trap Section View

Note:
Actual dimensions of the sediment reap shall be design based on flow conditions and site topography. Provide calculations that document the following parameter used to design the trap:

- Size of contributing drainage area
- Design storm volume and flow rate at the trap
- Height, slope, and length of stone outlet
- Storage volume
- Extent of grading to provide the controlled outlet

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<td>13</td>
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<td>0.51–1.0</td>
<td>82</td>
<td>16</td>
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<td>1.01–1.5</td>
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<td>1.51–2.0</td>
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<td>2.51–3.0</td>
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<td>4.51–5.0</td>
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NOTE: DO NOT LOCATE EMERGENCY SPILLWAY ON EARTH BERM

SEDIMENT BASIN WITH OVERFLOW RISER PLAN VIEW
N.T.S.

SEDIMENT BASIN WITH OVERFLOW RISER CROSS SECTION
N.T.S.
OPTIONAL: A COLLAR OF 1.5–3 INCH, WELL GRADED GRAVEL (NOT SHOWN) MAY BE PLACED AROUND THE PERFORATED RISER.
NOTES:

1. **Texas Administrative Code Title 30, Chapter 299 (30 TAC 299), Dams and Reservoirs, contains specific requirements for dams that:**
   * Have a height greater than or equal to 25 feet and a maximum storage capacity greater than or equal to 15 acre-feet; or
   * Have a height greater than or equal to 25 feet and a maximum storage capacity greater than or equal to 50 acre-feet

2. **If the size of the detention basin meets or exceeds the above applicability, the design must be in accordance with state criteria, and the final construction plans and specifications must be submitted to the TCEQ for review and approval.**

3. **Sediment basins should be inspected regularly (at least as often as required by the TPDES construction general permit) to check for damage and to ensure that obstructions are not diminishing the effectiveness of the structure. Sediment shall be removed and the basin shall be regraded to its original dimensions when the sediment storage capacity of the impoundment has been reduced by 20 percent. The removed sediment may be stockpiled or redistributed onsite in areas that are protected by erosion and sediment controls.**

**EXAMPLE SURFACE SKIMMER**

**SEDIMENT BASIN WITH SURFACE SKIMMER CROSS SECTION**

**CITY OF McKinney, Texas**

**DATE: JANUARY 2023**

**STANDARD DRAWING NO. 1100M**
ORGANIC FILTER TUBE GRATE INLET PROTECTION CROSS SECTION
N.T.S.

ORGANIC FILTER TUBE
(12" MIN. DIAMETER)

FLOW

GRATE INLET

2"x2" STEEL STAKES
MAX 4' SPACING

12" MIN. OVERLAP

LESS THAN
5% SLOPE

EXCAVATED IMPOUNDMENT GRATE INLET PROTECTION PLAN VIEW
N.T.S.

ORGANIC FILTER TUBE
(12" MIN. DIAMETER)

SLOPE VARIES

2"x2" STEEL STAKES
MAX 4' SPACING

9" MIN.

3" EMBEDMENT MIN.

12" MIN.

EMBEDMENT DETAIL FOR ORGANIC FILTER TUBE
N.T.S.

NOTES:

1. DESIGN SHALL SHOW ON THE DRAWINGS THE LOCATIONS WHERE OVERFLOW STRUCTURES SHALL BE INSTALLED. OVERFLOW STRUCTURES ARE REQUIRED AT ALL LOW POINTS AND AT A SPACING OF APPROXIMATELY 300 FT WHERE NO LOW POINT IS APPARENT.

2. DESIGNER SHALL SHOW ON THE DRAWINGS THE LOCATIONS WHERE SILT FENCE IS TO BE TURNED UPSLOPE. UPSLOPE LENGTHS SHALL BE A MINIMUM OF 10 FEET.
NOTES:

1. THIS CONTROL WILL DECREASE THE CAPACITY OF THE INLET. IT SHALL ONLY BE USED WHEN THE ENGINEER HAS DETERMINED THERE IS ADEQUATE STORAGE OR POSITIVE OVERFLOW. NOT TO BE USED ON ACTIVE PUBLIC ROADWAYS.

2. ALLOWED FOR NON-ACCEPTED ROADWAY.

3. FOR ACTIVE ROADWAY, SEDIMENT FROM ADJACENT STREET SHALL BE RETAINED ON SITE AND TYPE P-2 INLET FILTERS (OR APPROVED EQUAL) SHALL BE USED.

4. OVERLAP ROCK FILTER TUBES A MINIMUM OF 1-FOOT.
**CITY OF McKINNEY, TEXAS**

**STANDARD DRAWING NO.**

**1130M**

**CURB INLET PROTECTION**

**TYPE P-2 INLET FILTERS**

**SHEET 2 OF 2**

**DATE: JANUARY 2023**

---

**ENLARGED DETAIL**

**N.T.S.**

SPECIFICATION: INSERT CHAMBER

- WIDTH: 11"
- LENGTH: 11"
- HEIGHT: 22"
- FILTRATION SURFACE AREA

---

**SECTION A—A**

**N.T.S.**

*P2 INLET FILTERS (OR APPROVED EQUAL) REQUIRED WHEN STREET IS OPEN TO VEHICULAR TRAFFIC.*

**NOTES:**

1. BASKETS SHALL BE LINED WITH FILTER FABRIC AND INSPECTED/CLEANED/MAINTAINED BY CONTRACTOR ON A BI-WEEKLY BASIS AND/OR WITHIN TWO DAYS OF A RAIN EVENT.

2. P2 FILTERS ARE TO BE REMOVED BY CONTRACTOR WITH ALL EROSION CONTROL(BMPs) AT COMPLETION OF PROJECT.
CITY OF McKINNEY, TEXAS

STANDARD DRAWING NO.
2010M

R.O.W.

D

36' F-F

1'

2% MAX

A

B

12' LANE

12' LANE

12' LANE

2% TYP.

2% TYP.

1

4000 PSI CONCRETE*

LIME STABILIZED SUBGRADE*

COMPACTED BACKFILL (TYP.)

STEEL REINFORCEMENT*

SEE NOTE 2

R.O.W.

D

36' F-F

1'

2% MAX

12' LANE

12' LANE

12' LANE

2% TYP.

1

4000 PSI CONCRETE*

LIME STABILIZED SUBGRADE*

COMPACTED BACKFILL (TYP.)

STEEL REINFORCEMENT*

SEE NOTE 3

INTERSECTION
N.T.S.

1

SAWED LONGITUDINAL CONTRACTION JOINT OR CONSTRUCTION JOINT

<table>
<thead>
<tr>
<th>ROAD TYPE</th>
<th>R.O.W. Ø MID-BLOCK (A)</th>
<th>MEDIAN WIDTH (B)</th>
<th>MEDIAN WIDTH (C)</th>
<th>PARKWAY WIDTH (D)</th>
<th>R.O.W. Ø INTERSECTION (E)</th>
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<tbody>
<tr>
<td>P6D</td>
<td>130'</td>
<td>20'</td>
<td>7'</td>
<td>19'</td>
<td>150'</td>
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<tr>
<td>M6D</td>
<td>124'</td>
<td>20'</td>
<td>8'</td>
<td>16'</td>
<td>145'</td>
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NOTES:
1. REINFORCED CURB HEIGHT AND WIDTH SHALL BE 6".
2. SLOPES ADJACENT TO THE R.O.W. SHALL BE NO STEEPER THAN 4:1.
3. KEYWAY JOINT REQ'D FOR NEW ROADWAY CONSTRUCTION, LONGITUDINAL BUTT JOINT REQ'D ON EXISTING SECTION.
4. TOP 4" OF MEDIAN AND PARKWAY BACKFILL SHALL BE TOPSOIL MATERIAL.

* A GEOTECHNICAL EVALUATION AND DESIGN SHALL BE CONDUCTED TO DETERMINE AN ADEQUATE PAVEMENT SECTION BASED ON A MINIMUM 30 YEAR DESIGN LIFE FOR ALL PAVING PROJECTS. (REFER TO ENGINEERING DESIGN MANUAL) THE MINIMUM ALLOWABLE PAVEMENT DESIGN SHALL BE NO LESS THAN 9"-4000 PSI CONCRETE WITH #4 BARS AT 18" CENTERS ON A 8" LIME STABILIZED SUBGRADE COMPACTED TO 95% STANDARD PROCTOR DENSITY. THE PLASTICITY INDEX SHALL NOT EXCEED 12.

REFERENCE ENGINEERING DESIGN MANUAL FOR INTERSECTION LAYOUT INFORMATION
CITY OF McKINNEY, TEXAS

STANDARD DRAWING NO. 2015M

SIX LANE DIVIDED STANDARD SECTION (G6D)

INTERSECTION
N.T.S.

SAWED LONGITUDINAL CONTRACTION JOINT OR CONSTRUCTION JOINT

NOTES:
1. REINFORCED CURB HEIGHT AND WIDTH SHALL BE 8".
2. SLOPES ADJACENT TO THE R.O.W. SHALL BE NO STEEPER THAN 4:1.
3. KEYWAY JOINT REQ'D FOR NEW ROADWAY CONSTRUCTION, LONGITUDINAL BUTT JOINT REQ'D ON EXISTING SECTION.
4. TOP 4" OF MEDIAN AND PARKWAY BACKFILL SHALL BE TOPSOIL MATERIAL.

* A GEOTECHNICAL EVALUATION AND DESIGN SHALL BE CONDUCTED TO DETERMINE AN ADEQUATE PAVEMENT SECTION BASED ON A MINIMUM 30 YEAR DESIGN LIFE FOR ALL PAYING PROJECTS. (REFER TO ENGINEERING DESIGN MANUAL)

THE MINIMUM ALLOWABLE PAVEMENT DESIGN SHALL BE NO LESS THAN 9"-4000 PSI CONCRETE WITH #4 BARS AT 18" CENTERS ON A 8" LIME STABILIZED SUBGRADE COMPACTED TO 95% STANDARD PROCTOR DENSITY. THE PLASTICITY INDEX SHALL NOT EXCEED 12.

REFERENCE ENGINEERING DESIGN MANUAL
FOR INTERSECTION LAYOUT INFORMATION

DATE: JANUARY 2023

STANDARD DRAWING NO.

G6D
6 LANE DIVIDED THOROUGHFARE

CITY OF McKinney, Texas

McKinney
Texas
Unique by nature.
FOUR LANE DIVIDED
STANDARD SECTION (G4D)

MID-BLOCK
N.T.S.

INTERSECTION
N.T.S.

1. SAWSED LONGITUDINAL CONTRACTION JOINT OR CONSTRUCTION JOINT

NOTES:
1. REINFORCED CURB HEIGHT AND WIDTH SHALL BE 6".
2. SLOPES ADJACENT TO THE R.O.W. SHALL BE NO STEEPER THAN 4:1.
3. KEYWAY JOINT REQ'D FOR NEW ROADWAY CONSTRUCTION, LONGITUDINAL BUTT JOINT REQ'D ON EXISTING SECTION.
4. TOP 4" OF MEDIAN AND PARKWAY BACKFILL SHALL BE TOPSOIL MATERIAL.
5. RESERVED MEDIAN TO ACCOMMODATE FUTURE LANE AND SHALL REMAIN CLEAR OF LANDSCAPING OR MEDIAN INFRASTRUCTURE.

* A GEOTECHNICAL EVALUATION AND DESIGN SHALL BE CONDUCTED TO DETERMINE AN ADEQUATE PAVEMENT SECTION BASED ON A MINIMUM 30 YEAR DESIGN LIFE FOR ALL PAVING PROJECTS. (REFER TO ENGINEERING DESIGN MANUAL)
THE MINIMUM ALLOWABLE PAVEMENT DESIGN SHALL BE NO LESS THAN 9"-4000 PSI CONCRETE WITH #4 BARS AT 18" CENTERED ON A 8" LIME STABILIZED SUBGRADE COMPACTED TO 95% STANDARD PROCTOR DENSITY. THE PERCENTAGE INDEX SHALL NOT EXCEED 12.

REFERENCE ENGINEERING DESIGN MANUAL FOR INTERSECTION LAYOUT INFORMATION
STANDARD SECTION (M4D)
MID-BLOCK
N.T.S.

INTERSECTION
N.T.S.

SAWED LONGITUDINAL CONTRACTION
JOINT OR CONSTRUCTION JOINT

NOTES:
1. REINFORCED CURB HEIGHT AND WIDTH SHALL BE 6".
2. SLOPES ADJACENT TO THE R.O.W. SHALL BE NO STEEPER THAN 4:1.
3. KEYWAY JOINT Req'D FOR NEW ROADWAY CONSTRUCTION, LONGITUDINAL BUTT JOINT Req'D ON EXISTING SECTION.
4. TOP 4" OF MEDIAN AND PARKWAY BACKFILL SHALL BE TOPSOIL MATERIAL.
5. RESERVED MEDIAN TO ACCOMMODATE FUTURE LANE AND SHALL REMAIN CLEAR OF LANDSCAPING OR MEDIAN INFRASTRUCTURE.

* A GEOTECHNICAL EVALUATION AND DESIGN SHALL BE CONDUCTED TO DETERMINE AN ADEQUATE PAVEMENT SECTION BASED ON A MINIMUM 30 YEAR DESIGN LIFE FOR ALL PAVING PROJECTS. (REFER TO ENGINEERING DESIGN MANUAL) THE MINIMUM ALLOWABLE PAVEMENT DESIGN SHALL BE NO LESS THAN 8"~4000 PSI CONCRETE WITH #4 BARS AT 18" CENTERS ON A 8" LIME STABILIZED SUBGRADE COMPACTED TO 95% STANDARD PROCTOR DENSITY. THE PLASTICITY INDEX SHALL NOT EXCEED 12.

REFERENCE ENGINEERING DESIGN MANUAL FOR INTERSECTION LAYOUT INFORMATION
MINOR ARTERIAL (M4U)
MID BLOCK
N.T.S.

① SAWS LONGITUDINAL CONTRACTION JOINT OR CONSTRUCTION JOINT

* A GEOTECHNICAL EVALUATION AND DESIGN SHALL BE CONDUCTED TO DETERMINE AN ADEQUATE PAVEMENT SECTION BASED ON A MINIMUM 30 YEAR DESIGN LIFE FOR ALL PAVING PROJECTS.
(REFER TO ENGINEERING DESIGN MANUAL)
THE MINIMUM ALLOWABLE PAVEMENT DESIGN SHALL BE NO LESS THAN 8" - 4000 PSI CONCRETE WITH #4 BARS AT 18" CENTERS ON A 8" LIME STABILIZED SUBGRADE COMPACTED TO 95% STANDARD PROCTOR DENSITY. THE PLASTICITY INDEX SHALL NOT EXCEED 12.

NOTES:
1. REINFORCED CURB HEIGHT AND WIDTH SHALL BE 6".
2. SLOPES ADJACENT TO THE R.O.W. SHALL BE NO STEEPER THAN 4:1.
3. TOP 4" OF PARKWAY BACKFILL SHALL BE TOPSOIL MATERIAL.
COLLECTOR STREET (C2U)
N.T.S.

RESIDENTIAL STREET (R2U)
N.T.S.

1. SAWED LONGITUDINAL CONTRACTION JOINT OR CONSTRUCTION JOINT

* A GEO TECHNICAL EVALUATION AND DESIGN SHALL BE CONDUCTED TO DETERMINE AN ADEQUATE PAVEMENT SECTION BASED ON A MINIMUM 30 YEAR DESIGN LIFE FOR ALL PAVING PROJECTS. (REFER TO ENGINEERING DESIGN MANUAL)

THE MINIMUM ALLOWABLE PAVEMENT DESIGN SHALL BE NO LESS THAN 8" IN COMMERCIAL/6" IN RESIDENTIAL FOR C2U AND 6" FOR R2U. 4000 PSI CONCRETE WITH #4 BARS AT 18" CENTERS ON A 6" LIME STABILIZED SUBGRADE COMPACTED TO 95% STANDARD PROCTOR DENSITY. THE PLASTICITY INDEX SHALL NOT EXCEED 12.

NOTES:
1. REINFORCED CURB HEIGHT AND WIDTH SHALL BE 6".
2. SLOPES ADJACENT TO THE R.O.W. SHALL BE NO STEEPER THAN 4:1.
3. TOP 4" OF PARKWAY BACKFILL SHALL BE TOPSOIL MATERIAL.

DATE: JANUARY 2023

C2U-R2U
UNDIVIDED THOROUGHFARE
CITY OF McKinney, Texas

McKinney
Texas
Unique by nature.

STANDARD DRAWING NO.
2030M
A geotechnical evaluation and design shall be conducted to determine an adequate pavement section based on a minimum 30-year design life for all paving projects. Refer to Engineering Design Manual. The minimum allowable pavement design shall be no less than 8" in commercial/6" in residential—4000 psi concrete with #4 bars at 18" Centers on a 6" lime stabilized subgrade compacted to 95% standard proctor density. The plasticity index shall not exceed 12.

Note:
1. Spacing and construction of joints shall conform to City street joint details.
2. All accessible routes shall meet ADA and TAS requirements.
3. The sidewalk thickness across any alley shall be 6" minimum.
CITY OF MCKINNEY, TEXAS

STANDARD DRAWING NO. 2040M

ALLEYS

STANDARD ALLEY SECTION

A—A

BEGIN ALLEY FLARE

R.O.W.

INVERT MIN. 6" ABOVE GUTTER ELEVATION

MAX 2%

10% MAX

2.5' TYP.

SIDWALK WIDTH

3' MIN

ALLEY APPROACH

LENGTH VARIES

SECTION B—B

MAX SLOPE 5%

2%

2%

4" THK SIDEWALK

10'

6" THK CONCRETE SIDEWALK

MAX CROSS SLOPE 1:50

4" THK SIDEWALK

SECTION C—C

<table>
<thead>
<tr>
<th>ALLEY WIDTH (A)</th>
<th>R.O.W. WIDTH (B)</th>
</tr>
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<tbody>
<tr>
<td>12'</td>
<td>17'</td>
</tr>
<tr>
<td>15'</td>
<td>20'</td>
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</tbody>
</table>

GENERAL NOTES FOR ALLEYS:
1. SPACING AND CONSTRUCTION OF JOINTS SHALL CONFORM TO CITY PAVEMENT JOINT DETAILS.
2. ALL ACCESSIBLE ROUTES SHALL MEET ADA & TAS REQUIREMENTS.
3. ENSURE APPROPRIATE POSITIVE DRAINAGE OF FINISHED CONCRETE.

* A GEOTECHNICAL EVALUATION AND DESIGN SHALL BE CONDUCTED TO DETERMINE AN ADEQUATE PAVEMENT SECTION BASED ON A MINIMUM 30 YEAR DESIGN LIFE FOR ALL PAVING PROJECTS. (REFER TO ENGINEERING DESIGN MANUAL)

THE MINIMUM ALLOWABLE PAVEMENT DESIGN SHALL BE 8" IN COMMERCIAL/6" IN RESIDENTIAL—4000 PSI CONCRETE WITH #4 BARS AT 18" CENTERS ON A 6" LIME STABILIZED SUBGRADE COMPACTED TO 95% STANDARD PROCTOR DENSITY. THE PLASTICITY INDEX SHALL NOT EXCEED 12.
CONSTRUCTION JOINT

KEYWAY JOINT
FOR PAVEMENT THICKNESS GREATER THAN OR EQUAL TO 6"

NOTE: STEEL REINFORCEMENT SHALL BE AS SPECIFIED IN THE SITE SPECIFIC PAVEMENT DESIGN FOR THE GIVEN ROADWAY.

SAWED CONTRACTION JOINT
NOTE: SAWED JOINTS SHALL BE EVERY 15' FOR ALL THICKNESS OF CONCRETE AND SHALL BE CONSTRUCTED WITHIN THE FIRST 12 HOURS OF CONCRETE PLACEMENT.

EXPANSION JOINT

NOTES:
1. DOWELS AND REINFORCING BARS SHALL BE SUPPORTED BY AN APPROVED DEVICE.
2. SLEEVES FOR DOWELS SHALL HAVE AN INSIDE DIAMETER OF 1/16" GREATER THAN THE DIAMETER OF THE DOWELS AND SHALL BE APPROVED BY THE ENGINEER PRIOR TO USE.
3. EXPANSION JOINTS TO BE CONSTRUCTED A MAXIMUM OF 400' APART ON STRAIGHT PAVING, AS WELL AS INTERSECTION P.C.'S & P.T.'S UNLESS OTHERWISE SPECIFIED.
4. REBAR BASKET FOR EXPANSION JOINTS IS REQUIRED.
LONGITUDINAL BUTT JOINT

NOTES:
1. DEFORMED BARS SHALL BE DRILLED INTO PAVEMENT HORIZONTALLY BY USE OF MECHANICAL RIG. ALL DRILLED DEFORMED BARS SHALL BE EPOXIED.
2. HAND DRILLING IS NOT ACCEPTABLE, PUSHING DEFORMED BARS INTO GREEN CONCRETE IS NOT ACCEPTABLE.
3. REINFORCING SHALL BE AS SPECIFIED IN THE SITE SPECIFIC PAVEMENT/GEOTECHNICAL DESIGN.
EXPANSION JOINTS (SPACED 400 FT. MAXIMUM; LOCATE AT STRUCTURES, INTERSECTIONS, P.C.'S, P.T.'S)

SAWED TRANSVERSE CONTRACTION JOINT

PROVIDE CL JOINT BOTH WAYS

SAWED CONTRACTION JOINT

NOTES:
1. SAWED CONTRACTION JOINTS SHALL BE SPACED AT 15' FOR ALL PAVEMENT THICKNESS.

SPACING DIAGRAM FOR TRANSVERSE JOINTS

TRANVERSE JOINT SPACING

DATE: JANUARY 2023

STANDARD DRAWING NO. 2060M

CITY OF McKinney, Texas
STREET HEADERS

NOTES:
1. PAVEMENT BARS TO BE BENT DOWN INTO HEADER.
2. HEADER AND PAVEMENT TO BE MONOLITHIC.
3. NEW ASPHALT SHALL MATCH PROPOSED PAVEMENT THICKNESS WITH TOP 2" TYPE O AND THE REMAINING ASPHALT SHALL BE TYPE B PER TxDOT SPECIFICATIONS.
KEYED CONSTRUCTION JOINT
MONOLITHIC MEDIAN NOSE
R = 1/4 W

COLORED TEXTURED CONCRETE

MEDIAN NOSE TYPE "A"
FOR W LESS THAN 9'

KEYED CONSTRUCTION JOINT
MONOLITHIC MEDIAN NOSE
R = 4'

COLORED TEXTURED CONCRETE

MEDIAN NOSE TYPE "B"
FOR W GREATER THAN 9' AND LESS THAN 33'

COLORED TEXTURED CONCRETE

MEDIAN NOSE TYPE "C"
FOR W GREATER THAN OR EQUAL TO 33'

R = 1/2 W

6" CURB

W

33' MIN

6'

1'

1'

1'

6'

1'
MONOLITHIC MEDIAN NOSE DETAIL  

SECTION A-A  

SECTION B-B  

INTEGRAL COLORED TEXTURED CONCRETE BRICK—RED 90° HERRING BONE PATTERN FLUSH W/ TOP OF CURB (INSTALL PER TXDOT SPECIFICATION — ITEM 528)

NOTES:
1. REINFORCEMENT BARS SHALL MATCH THOSE IN PAVEMENT.
2. FULL HEIGHT CURB REQUIRED FOR MEDIAN LESS THAN 6’ WIDE.
3. COLORED TEXTURED CONCRETE TO BE PROVIDED IN ALL LOCATIONS WHERE MEDIAN WIDTH LESS THAN 6’ WIDE.
NO PARKING ANY TIME

CITY OF McKinney, Texas

RESIDENTIAL MINI TRAFFIC CIRCLE

DATE: JANUARY 2023

STANDARD DRAWING NO. 2085M
NOTES:
1. USE OF SPEED HUMPS SHALL BE ON LOW SPEED (30 MPH OR LESS), LOW VOLUME R2U FACILITIES WITH AN ADT LESS THAN 2,000 VPD AND LOCATIONS SHALL BE APPROVED BY THE ENGINEER.
2. SPEED HUMPS SHALL NOT BE PLACED OVER MANHOLES, WATER VALVES, SURVEY MONUMENTS, ETC.
3. SPEED HUMPS SHALL NOT BE INSTALLED IN A LOCATION SUCH THAT ROADWAY DRAINAGE IS COMPROMISED.
4. SPEED HUMPS SHALL NOT BE INSTALLED WITHIN 20 FEET OF A DRIVEWAY (MEASURED FROM THE EDGE OF DRIVEWAY).
5. SPEED HUMPS TO BE CONSTRUCTED MONOLITHICALLY WITH ROADWAY CONCRETE PAVING.
6. STRIPING AND SIGNS SHOWN TO BE INSTALLED SHALL MEET CITY REQUIREMENTS FOR PAVEMENT MARKINGS AND SIGNING.
RESIDENTIAL STREET (R2U) PLAN VIEW

A-A

RESIDENTIAL STREET SECTION A-A (R2U)

N.T.S.

RESIDENTIAL STREET SECTION B-B (R2U)

N.T.S.

NOTES:

1. USE OF SPEED TABLES SHALL BE ON LOW SPEED (30 MPH OR LESS), LOW VOLUME R2U FACILITIES WITH AN ADT LESS THAN 4,000 VPD AND LOCATIONS SHALL BE APPROVED BY THE ENGINEER.

2. SPEED TABLES SHALL NOT BE PLACED OVER MANHOLES, WATER VALVES, SURVEY MOUNMENTS, ETC.

3. SPEED TABLES SHALL NOT BE INSTALLED IN A LOCATION SUCH THAT ROADWAY DRAINAGE IS COMPROMISED.

4. SPEED TABLES SHALL NOT BE INSTALLED WITHIN 20 FEET OF A DRIVEWAY (MEASURED FROM THE EDGE OF DRIVEWAY).

5. SPEED TABLES TO BE CONSTRUCTED MONOLITHICALLY WITH ROADWAY CONCRETE PAVING.

6. STRIPING AND SIGNS SHOWN TO BE INSTALLED SHALL MEET CITY REQUIREMENTS FOR PAVEMENT MARKINGS AND SIGNING.

DATE: JANUARY 2023

STANDARD DRAWING NO.

2095M

CITY OF McKinney, Texas
NOTES:
1. INTEGRAL CURB AND GUTTER SHALL BE USED ON ALL NEW STREETS.
2. FOR INTEGRAL CURB AND GUTTER, REINFORCEMENT SHALL MATCH STREET PAVING REINFORCING. FOR SEPARATE CURB AND GUTTER, #4 BARS SHALL BE USED.
3. ALL CURBS SHALL BE CONSTRUCTED OF 4000 PSI PORTLAND CEMENT CONCRETE UNLESS OTHERWISE SPECIFIED.
4. GRADE SHALL BE MEASURED AT BACK OF CURB.
5. NO VERTICAL DOWELED CURBS SHALL BE ALLOWED.
6. #4 REBAR SHALL BE USED.
7. IF SEPARATE CURB & GUTTER IS ADJACENT TO EXISTING CONCRETE PAVEMENT, LONGITUDINAL BUTT JOINT MUST BE INSTALLED.
NOTES: ALL NEWLY CONSTRUCTED SIDEWALKS, CURB RAMPS AND CROSSWALKS INSTALLED WITHIN CITY OF McKinney PUBLIC RIGHTS-OF-WAY SHALL BE CONSIDERED A PEDESTRIAN ACCESS ROUTE AND SHALL CONFORM TO THE MOST CURRENT GUIDELINES FOR PUBLIC RIGHTS-OF-WAY CREATED BY THE UNITED STATES Access Board.

1. SEE DETAIL 2125M (SHEET 2 OF 4) FOR RAMP FEATURE DESCRIPTIONS
2. SEE DETAIL 2125M (SHEET 3 OF 4) FOR SECTIONS X-X AND Y-Y
3. SEE DETAIL 2125M (SHEET 4 OF 4) FOR ADDITIONAL NOTES

DATE: JANUARY 2023
STANDARD DRAWING NO. 2125M
A. DETECTABLE WARNING DEVICES (DWD) SHALL BE PRE-MANUFACTURED CAST-IN-PLACE PLATES FROM THE CITY OF MCKINNEY APPROVED VENDOR LIST INSTALLED TO THE MANUFACTURER’S SPECIFICATIONS, AND SHALL MEET ALL ADA REQUIREMENTS. NO BRICK Pavers ALLOWED. COLOR TO BE BRICK RED OR SIMILAR. DWD SHALL BE 24 INCHES IN LENGTH FOR THE FULL WIDTH OF THE STREET CONNECTION STARTING AT THE BACK OF CURB.

B. ALSO KNOWN AS "CLEAR SPACE" PER ADA PROWAG, THE CITY REQUIRES A MINIMUM LANDING SPACE OF 5-FOOT BY 5-FOOT AT THE BOTTOM OF EVERY RAMP. THIS LANDING SPACE SHALL HAVE A CROSS SLOPE IN BOTH DIRECTIONS THAT DOES NOT EXCEED 2.0% AND SHALL BE WHOLLY OUTSIDE THE PARALLEL VEHICULAR TRAVEL PATH.

C. THE RAMP COMPONENT OF THE DIRECTIONAL CURB RAMP SHALL HAVE A CONTINUOUS LONGITUDINAL SLOPE MORE THAN 5% AND LESS THAN 8.3%. THE RAMP SHALL ALSO HAVE A CROSS SLOPE OF NO MORE THAN 2.0%. LENGTH OF RAMP CAN VARY, BUT SHALL NOT EXCEED 15 FEET TO ACHIEVE DESIRED ELEVATION CHANGE.

D. ALSO KNOWN AS "TURNING SPACE" PER ADA PROWAG, A MINIMUM LANDING SPACE OF 4-FOOT BY 4-FOOT SHALL BE AT THE TOP OF EVERY RAMP. WHERE THE TURNING SPACE IS CONSTRAINED AT THE BACK-OF-SIDEWALK, THE TURNING SPACE SHALL BE 4-FOOT BY 5-FOOT MINIMUM. THIS LANDING (TURNING) SPACE SHALL HAVE A CROSS SLOPE IN BOTH DIRECTIONS THAT DOES NOT EXCEED 2.0%. LANDING MUST MATCH WIDTH OF SIDEWALK AND LENGTH SHALL BE THE SAME DISTANCE ("SQUARED" LANDING).


F. PAVING CONTRACTOR SHALL LEAVE BLOCK OUT WITH A KEYWAY JOINT INSTALLED, MINIMUM OF 18 INCHES MEASURED FROM BACK OF CURB. BLOCK OUT SHALL BE POURED MONOLITHICALLY WITH CURB RAMP. CONCRETE SHALL TIE TO STREET PAVING WITH A KEYWAY JOINT PER CITY DETAIL 2050M. NO CURB SHALL BE CONSTRUCTED WHERE A DWD IS PROVIDED. THE CURB ON EITHER SIDE SHALL HAVE A TYPICAL 5 FOOT TAPER TO TRANSITION FROM THE STANDARD 6-INCH CURB HEIGHT TO BE FLUSH WITH RAMP.

G. ALL WORK ASSOCIATED WITH ACCESSIBLE ROUTES SHALL BE INSTALLED FLUSH WITH ALL FEATURES TO MINIMIZE VERTICAL SURFACE DISCONTINUITIES. EACH SEGMENT ALONG ACCESSIBLE ROUTE SHALL BE FLUSH WITH NO MORE (ZERO TOLERANCE) THAN A 1/4-INCH GRADE SEPARATION (ELEVATION DIFFERENCE), OR 1/2-INCH GRADE SEPARATION IF BEEVED (BEVEL SLOPE SHALL NOT BE STEEPER THAN 50%).

H. A SIDEWALK HEADER SHALL BE CONSTRUCTED AT ENDS OF ALL WORK PERFORMED.

I. STREET CROSSINGS SHALL ADHERE TO SAME GUIDELINES AS OTHER ACCESSIBLE ROUTES WITHIN PUBLIC RIGHT-OF-WAY, AND SHALL BE FOR THE FULL WIDTH OF THE IN-LINE ACCESSIBLE ROUTE. CROSS SLOPE SHALL NOT EXCEED 2%. NEW STREET CONSTRUCTION SHALL INCORPORATE ALL ADA DESIGN REQUIREMENTS. IT SHALL BE THE RESPONSIBILITY OF THE DESIGN PROFESSIONAL AND CONTRACTOR TO ENSURE ALL STREET CROSSINGS MEET THE REQUIREMENTS OF PROWAG. STREET ALTERATIONS ON EXISTING STREETS TO BRING TO COMPLIANCE SHALL BE AT THE CITY ENGINEER’S DISCRETION.

J. ALL CURBS CONSTRUCTED AS PART OF AN ADA RAMP SHALL MATCH CITY CURB STANDARDS.

* SEE PROWAG SPECIAL DESIGN CONSIDERATIONS WHEN STREET CROSSING HAS NO STOP OR YIELD CONDITION.
SECTION X–X

N.T.S.

**KEYWAY JOINT FOR NEW CONSTRUCTION. STREET CONNECTION SHALL BE LONGITUDINAL BUTT JOINT FOR CONNECTIONS TO EXISTING ROADWAYS.**

SECTION Y–Y

N.T.S.

NOTE: ALL SIDEWALK CURB RAMPS WILL BE 4000 PSI CONCRETE.
PEDESTRIAN ACCESSIBILITY (WITHIN PUBLIC R.O.W.)
ALL NEWLY CONSTRUCTED SIDEWALKS, CURB RAMPS AND CROSSWALKS INSTALLED WITHIN CITY OF MCKINNEY
PUBLIC RIGHTS-OF-WAY SHALL BE CONSIDERED A PEDESTRIAN ACCESS ROUTE AND SHALL ConFORM TO THE
MOST CURRENT GUIDELINES FOR PUBLIC RIGHTS-OF-WAY CREATED BY THE UNITED STATES ACCESS BOARD.

CURB RAMPS
1. ALL SLOPES SHOWN ARE MAXIMUM ALLOWABLE. LESSER SLOPES THAT WILL STILL DRAIN PROPERLY
   SHOULD BE USED. ADJUST CURB RAMP LENGTH OR GRADE OF APPROACH SIDEWALKS AS DIRECTED.
2. LANDINGS SHALL HAVE A MAXIMUM 2% SLOPE IN THE TRANSVERSE AND LONGITUDINAL DIRECTIONS.
3. CLEAR SPACE AT THE BOTTOM OF CURB RAMPS SHALL BE A MINIMUM OF 5'X 5' WHOLLY CONTAINED
   WITHIN THE CROSSWALK AND WHOLLY OUTSIDE THE PARALLEL VEHICULAR TRAVEL PATH.
4. MAXIMUM ALLOWABLE CROSS SLOPE ON SIDEWALK AND CURB RAMP SURFACES IS 2%.
5. ADDITIONAL INFORMATION ON CURB RAMP LOCATION, DESIGN, LIGHT REFLECTIVE VALUE AND TEXTURE MAY
   BE FOUND IN THE MOST CURRENT EDITION OF THE TEXAS ACCESSIBILITY STANDARDS (TAS), 16 TAC
   68.102, 2010 ADA STANDARDS FOR ACCESSIBLE DESIGN, AND 2011 PROPOSED ACCESSIBLE GUIDELINES FOR
   PEDESTRIAN FACILITIES IN PUBLIC RIGHT-OF-WAY (Prowag).
6. CROSSWALK DIMENSIONS, CROSSWALK MARKINGS AND STOP BAR LOCATIONS SHALL BE AS SHOWN
   ELSEWHERE IN THE PLANS. AT INTERSECTIONS WHERE CROSSWALK MARKINGS ARE NOT REQUIRED, CURB
   RAMPS AND ACCESSIBLE ROUTES SHALL ALIGN WITH THEORETICAL CROSSWALKS UNLESS OTHERWISE
   DIRECTED.
7. HANDRAILS ARE NOT REQUIRED ON CURB RAMPS.
8. PROVIDE A FLUSH TRANSITION WHERE THE CURB RAMPS CONNECT TO THE STREET.
9. ACCESSIBLE ROUTES ARE CONSIDERED "RAMPS" WHEN LONGITUDINAL SLOPES ARE BETWEEN 5% AND 8.3%
   (MAXIMUM ALLOWABLE). SIDEWALKS UNDER 5% LONGITUDINAL SLOPE ARE DEEMED ACCESSIBLE ROUTES
   AND MUST FOLLOW ALL APPLICABLE GUIDELINES.

DETECTABLE WARNING DEVICE
10. CURB RAMPS OR LANDINGS MUST CONTAIN A DETECTABLE WARNING SURFACE THAT CONSISTS OF RAISED
    TRUNCATED DOMES COMPLYING WITH SECTION 705 OF THE TAS. THE SURFACE MUST CONTRAST VISUALLY
    WITH ADJOINING SURFACES. FURNISH AND INSTALL AN APPROVED CAST-IN-PLACE DARK RED DETECTABLE
    WARNING SURFACE MATERIAL ADJACENT TO UNCOLORED CONCRETE, UNLESS SPECIFIED ELSEWHERE IN THE
    PLANS.
11. DETECTABLE WARNING MATERIALS MUST MEET CITY OF MCKINNEY MATERIAL SPECIFICATION (REFER TO
    TxDOT APPROVED VENDOR LIST) AND BE LISTED ON THE MATERIAL PRODUCER LIST. INSTALL PRODUCTS
    IN ACCORDANCE WITH MANUFACTURER’S SPECIFICATIONS.
12. DETECTABLE WARNING SURFACES MUST BE SLIP RESISTANT AND NOT ALLOW WATER TO ACCUMULATE.
13. DETECTABLE WARNING SURFACES SHALL BE A MINIMUM OF 24” IN DEPTH IN THE DIRECTION OF
    PEDESTRIAN TRAVEL, AND EXTEND THE FULL WIDTH OF THE CURB RAMP OR LANDING WHERE THE
    PEDESTRIAN ACCESS ROUTE ENTERS THE STREET.
14. DETECTABLE WARNING SURFACES SHALL BE LOCATED SO THAT THE EDGE NEAREST THE CURB LINE IS AT
    THE BACK OF CURB. WHEN PLACED ON THE RAMP, ALIGN THE ROWS OF DOMES TO BE PERPENDICULAR TO
    THE GRADE BREAK BETWEEN THE RAMP RUN AND THE STREET. WHERE DETECTABLE WARNING SURFACES
    ARE PROVIDED ON A SURFACE WITH A SLOPE THAT IS LESS THAN 5 PERCENT, DOME ORIENTATION IS LESS
    CRITICAL. DETECTABLE WARNING SURFACES MAY BE CURVED ALONG THE CORNER RADIUS.

SIDEWALKS
15. PROVIDE CLEAR GROUND SPACE AT OPERABLE PARTS, INCLUDING PEDESTRIAN PUSH BUTTONS. OPERABLE
    PARTS SHALL BE PLACED WITHIN ONE OR MORE REACH RANGES SPECIFIED IN TAS 308.
16. PLACE TRAFFIC SIGNAL OR ILLUMINATION POLES, GROUND BOXES, CONTROLLER BOXES, SIGNS, DRAINAGE
    FACILITIES AND OTHER ITEMS SO AS NOT TO OBSTRUCT THE PEDESTRIAN ACCESS ROUTE OR CLEAR
    GROUND SPACE.
17. STREET GRADES AND CROSS SLOPES SHALL BE AS SHOWN ELSEWHERE IN THE PLANS.
18. CHANGES IN LEVEL GREATER THAN 1/4 INCH ARE NOT PERMITTED (1/2 INCH WITH BEVEL).
19. WHERE A 4’ SIDEWALK IS PROVIDED, A 5’X 5’ PASSING AREAS ARE REQUIRED AT INTERVALS NOT TO
    EXCEED 200’.
20. THE LEAST POSSIBLE GRADE SHOULD BE USED TO MAXIMIZE ACCESSIBILITY. THE RUNNING SLOPE OF
    SIDEWALKS AND CROSSWALKS WITHIN THE PUBLIC RIGHT OF WAY MAY FOLLOW THE GRADE OF THE
    PARALLEL ROADWAY, WHERE A CONTINUOUS GRADE GREATER THAN 5% MUST BE PROVIDED, HANDRAILS
    MAY BE DESIRABLE TO IMPROVE ACCESSIBILITY. HANDRAILS MAY ALSO BE NEEDED TO PROTECT
    PEDESTRIANS FROM POTENTIALLY HAZARDOUS CONDITIONS. IF PROVIDED, HANDRAILS SHALL COMPLY WITH
    TAS 505.
21. HANDRAIL EXTENSIONS SHALL NOT PROTRUDE INTO THE USABLE LANDING AREA OR INTO INTERSECTING
    PEDESTRIAN ROUTES.
**NOTES:**

1. **EXISTING CURB AND GUTTER.** If any must be sawed as directed by the city engineer, horizontal curb cut shall be at an elevation of 1" above the existing gutter with a minimum length as shown. The traditional saw cut shall have a run of 2'-6" and shall rise to meet the existing top of curb. All exposed edges shall be ground to a 1/8" radius. All exposed edges shall be ground to a 1/4" radius. Saw cutting shall be performed with a ride-on saw equipped with a diamond saw blade.

2. **SIDEWALK SECTION THRU DRIVEWAY.** Shall be poured same thickness as driveway approach. (Existing sidewalk, if any, shall be removed and replaced.)

3. **THIS WORK SHALL NOT DISRUPT THE DESIGN FLOWLINE OF EXISTING GUTTER.**
CITY OF MCKINNEY, TEXAS

STANDARD DRAWING NO. 2150M

RESIDENTIAL DRIVE APPROACH

DATE: JANUARY 2023

STANDARD DRAWING NO. 2150M

CITY OF MCKINNEY, TEXAS
MATCH EXISTING STREET SECTION
(6" MINIMUM THICKNESS)

R.O.W. LINE

3' 3'

11' MIN. TO 20' MAX.

4000 PSI CONC @ 28 DAYS,
NO. 4 BARS @ 18" O.C.E.W.
(SEE STD. DETAIL NOTE 1)

PLAN VIEW

SEE DETAIL 2055M

ALLEY

MIN. 6" 2.5' TYP.

SEE DETAIL 2055M

EXISTING ALLEY

2" COMPACTED WASHED SAND BEDDING

SECTION A-A

N.T.S.

INSPECTION MUST BE MADE
BY BUILDING INSPECTOR PRIOR
TO PLACEMENT OF CONCRETE

CITY OF McKinney, Texas

FLARED RETURN ON ALLEY
RESIDENTIAL DRIVE APPROACH

DATE: JANUARY 2023

STANDARD DRAWING NO. 2150M

SHEET 3 OF 4
RESIDENTIAL DRIVE APPROACH GENERAL NOTES:

1. IF ADJACENT CURB IS DAMAGED DURING SAW CUT OF BLOCKOUT, DAMAGED CURB SHALL BE REPLACED TO CITY OF McKINNEY STANDARDS.

2. IF THE BLOCKOUT IS WITHIN TWO FEET OF REDWOOD HEADER OR SAW JOINT, EXTEND THE BLOCKOUT TO THE HEADER OR JOINT.

3. CHECK FOR VALVE BOXES, WATER METERS AND SANITARY SEWER CLEANOUTS IN PROPOSED PAVING LOCATIONS. ADJUST DEVICE PER CITY STANDARDS.

4. IF WATER VALVE IS ADJACENT TO SIDEWALK, REMOVE CONCRETE PAD FROM WATER VALVE AND ADJUST TO GRADE WITH NEW CONCRETE PAD. SIDEWALK WILL SERVE AS PAD IF LOCATED IN WALK, AND A MINIMUM 48-INCH PEDESTRIAN PATH CAN BE MAINTAINED.

5. NO PORTION OF A DRIVEWAY BLOCKOUT MAY ENCROACH ON A STORM INLET VARIABLE THROAT BLOCKOUT.

6. TRAFFIC-BEARING CLEANOUTS SHALL BE INSTALLED IF SANITARY SEWER SERVICE FALLS WITHIN DRIVEWAY PAVING.

7. NO EXPOSED AGGREGATE PERMITTED WITHIN RIGHT-OF-WAY.

8. DRIVE APPROACH SLOPE MUST END AT FACE OF GUTTER – NOT AT END OF BLOCKOUT.

9. ROADWAY PAVEMENT JOINTS SHALL NOT EXTEND THROUGH DRIVE.

10. REINFORCING SHOWN IS MINIMUM ONLY AND SHOULD MATCH PROJECT SPECIFIC PAVEMENT DESIGN, WHICHEREVER IS MORE CONSERVATIVE.

11. CURB, GUTTER, PAVEMENT AND VALLEY TO BE Poured MONOLITHIC.

12. DRIVEWAY SLOPE FROM R.O.W. TO HOUSE SHALL NOT EXCEED 12% FOR ALL PARTS OF THE DRIVEWAY UNLESS APPROVED IN WRITING BY BUILDING INSPECTIONS DEPT.

13. NO DRIVEWAY CUT SHALL BE LOCATED CLOSER THAN 30 FT. FROM THE CURB RETURN OF AN ADJACENT ROADWAY INTERSECTION, MEASURED FROM THE PC (BEGINNING POINT OF CURVATURE) OF THE STREET RADIUS TO THE CLOSEST EDGE OF THE PAVEMENT OF THE DRIVEWAY.

14. ELEVATION DIFFERENTIALS FROM THE LOW SIDE DRIVEWAY CONNECTION TO THE STREET TO THE FINISHED PAD EXCEEDING THE VALUES BELOW FOR THE FOLLOWING BUILDING SETBACKS SHALL REQUIRE SPECIAL TREATMENT TO HOMES THAT MAY INCLUDE, BUT NOT LIMITED TO DROP GARAGES TO MAINTAIN A MAXIMUM DRIVEWAY SLOPE OF 12%:

- 20 FT SETBACK = 2.4 FEET ELEVATION DIFFERENCE
- 25 FT SETBACK = 3.0 FEET ELEVATION DIFFERENCE
- 30 FT SETBACK = 3.6 FEET ELEVATION DIFFERENCE

ELEVATION DIFFERENTIAL MEASURED FROM DOWNSTREAM CORNER OF DRIVEWAY AT R.O.W. LINE TO BUILDING SETBACK LINE

15. EACH SIDEWALK CROSSING A DRIVEWAY SHALL MEET ALL REQUIRED FEDERAL GUIDELINES FOR ACCESSIBLE ROUTES.

- 2% MAXIMUM CROSS SLOPE *(See Below)
- 5% MAXIMUM LONGITUDINAL SLOPE OR MATCHING STREET GRADE IF EXCEEDS 5%

* CITY INSPECTORS WILL CHECK THE SLOPES AT PRE-POUR AND ALSO AT "BUILDING FINAL". IF MORE THAN 2% CROSS SLOPE IS FOUND, CORRECTIONS MUST BE MADE TO COMPLY WITH THE 2% SLOPE OR LESS.
CITY OF McKINNEY, TEXAS

STANDARD DRAWING NO. 2170M

REINFORCED CONCRETE SIDEWALKS
JOINTS AND SPACING

PLAN VIEW

SIDEWALK PANELS SHALL BE GROOVED \( \frac{3}{8} \)" DEEP AND SPACED PER TABLE

SECTION "A-A"

N.T.S.

R.O.W.

3/8"R

MAX 2% SLOPE TOWARDS STREET

12"

2" COMPACTED CLEAN SAND

4"

#3 BARS ON 18" CENTERS BOTH WAYS 1 1/2"

SECTION "B-B"

N.T.S.

24" #4 SMOOTH ROUND DOWEL 18" O.C.

3/8"R

1" MIN.

4"

REINFORCING STEEL MAT TIED TO DOWEL BAR

2' - 6"

REINFORCING STEEL MAT FREE OF DOWEL BAR

THIS HALF OF DOWEL TO BE COATED WITH GREASE

TRANSLOCENT PVC EXPANSION CAP

#3 BARS ON 18" CENTERS BOTH WAYS

2 1/2" DOWELED EXPANSION JOINT SPACING S

3/8"R

1 1/2"

1" MIN.

NOTE:

1. CROSS SLOPE OF SIDEWALK SHALL BE NO GREATER THAN 2%
2. SIDEWALK CONCRETE WITHIN CITY R.O.W. SHALL BE MINIMUM 4,000 PSI CONCRETE.
3. ALL SIDEWALKS SHALL MAINTAIN POSITIVE DRAINAGE.
4. PAVED SIDEWALKS SHALL BE PROVIDED ALONG BOTH SIDES OF ALL THOROUGHFARES AND COLLECTORS, AND ALONG ALL RESIDENTIAL OR LOCAL STREETS WHICH ARE LOCATED IMMEDIATELY ADJACENT TO A SCHOOL SITE AND FOR A DISTANCE OF ONE BLOCK ALONG SUCH STREETS LEADING DIRECTLY TO A SCHOOL SITE.
5. MINIMUM WIDTH OF 6' IF SIDEWALK ADJACENT TO CURB.
6. STEEL WIRE MESH IS NOT ACCEPTABLE.
7. NO BELOW GRADE STAKES IN EXPANSION JOINTS.
8. ALL REINFORCING STEEL SHALL BE SUPPORTED BY AN APPROVED DEVICE.

SHEET 1 OF 3

DATE: JANUARY 2023

McKINNEY,
TENNESSEE

Unique by nature.

REINFORCED CONCRETE SIDEWALKS
JOINTS AND SPACING

CITY OF McKinney, Texas

STANDARD DRAWING NO.

2170M
JOINT LUG DETAIL FOR MEDIAN PAVEMENT
LEAD WALK CONNECTIONS OR SIDEWALK ADJACENT TO CURB
N.T.S.
2" COMPACTED CLEAN SAND
#3 BARS ON 18" CENTERS BOTH WAYS
1 1/2"

SECTION "A-A"

1/4" SEALED NON-EXTRUDED PRE-FORMED EXPANSION MATERIAL WITH SEALING COMPOUND

24" #4 SMOOTH ROUND DOWEL 18" O.C.

3/8"R
1" MIN.
2'-1/2"

REINFORCING STEEL TIED TO DOWEL BAR

SECTION "B-B"

1/2" EXPANSION JOINT WITH SEALING COMPOUND (BY FUTURE CONNECTION)

PROPERTY LINE

TRAILS HEADER

<table>
<thead>
<tr>
<th>TRAIL WIDTH (W)</th>
<th>EXPANSION JOINT SPACING (S)</th>
<th>PANEL SPACING (J)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10'</td>
<td>40'</td>
<td>10'</td>
</tr>
<tr>
<td>12'</td>
<td>36'</td>
<td>12'</td>
</tr>
</tbody>
</table>

W—SPECIFIED IN PLANS
REINFORCED CONCRETE RETAINING WALL WITH 6’ SIDEWALK

NOTES:
1. FOR USE OF THIS STANDARD DETAIL, THE FOLLOWING GEOTECHNICAL SITE CONDITIONS MUST BE MET:
   - MINIMUM ALLOWABLE BEARING PRESSURE: 1,500 PSF
   - MINIMUM COEFFICIENT OF FRICTION: 0.3
   - MAXIMUM ACTIVE PRESSURE COEFFICIENT (Ka): 0.65
2. ALL MATERIALS SHALL BE SUBMITTED FOR APPROVAL PRIOR TO CONSTRUCTION.
3. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI.
4. ALL REINFORCING STEEL SHALL BE GRADE 60.
5. ALL CLEAR COVER SHALL BE 2” WHERE FORMED AND 3” WHERE CAST AGAINST EARTH.
6. IF ANY SURCHARGE LOAD IS ANTICIPATED WITHIN A HORIZONTAL DISTANCE OF HALF THE WALL HEIGHT FROM THE BACK OF WALL, AN ENGINEERING DESIGN IS REQUIRED, SEALLED BY A REGISTERED ENGINEER IN THE STATE OF TEXAS. THIS INCLUDES DEAD LOAD SURCHARGES AND LIVE LOAD SURCHARGES SUCH AS TRAFFIC LOADS.
7. JOINT LOCATIONS SHALL MATCH ON SIDEWALK AND WALL. JOINT SPACING SHALL BE EVERY 30 FEET FOR CONTROL JOINTS AND EVERY 90 FEET FOR EXPANSION JOINTS. TYPE B WATERSTOP SHALL BE APPLIED ON THE FILL SIDE OF ALL EXPANSION AND CONSTRUCTION JOINTS.
8. FOR WALL HEIGHTS LESS THAN 2'-0", STRUCTURAL DESIGN IS NOT REQUIRED (SEE McKinney ENGINEERING DESIGN MANUAL).
CITY OF MCKINNEY, TEXAS

LEFT TURN LANE
CONCRETE REMOVAL & REPLACEMENT

NOTES:
1. ALL DIMENSIONS ARE TO BACK OF CURB UNLESS OTHERWISE NOTED.
2. NO CONCRETE REPLACEMENT WIDTH SHALL BE LESS THAN 18".
3. PAVEMENT SECTION SHALL MATCH THAT OF EXISTING STREET. FLEXIBLE BASE, IF PROPOSED AS AN ALTERNATIVE SUBGRADE, SHALL HAVE A MINIMUM DEPTH OF 8 INCHES AND SHALL EXTEND A MINIMUM OF 1 FOOT BEHIND THE BACK OF CURB. FLEXIBLE BASE SHALL MEET TXDOT SPECIFICATIONS, ITEM 247, TYPE D, GRADE 1 OR 2 WITH TRIAX TX 140 GEOGRID (OR APPROVED EQUAL) UNDER THE FLEXIBLE BASE.
4. ALL TIEBARS FOR LONGITUDINAL CONSTRUCTION JOINTS SHALL BE MACHINE DRILLED. NO HAND DRILLING ALLOWED.
5. IF MEDIAN WIDTH < 6', CONSTRUCT REINFORCED CONCRETE CAP (MINIMUM 4-INCH THICKNESS).
6. ALL SAWCUTS TO BE FULL DEPTH AND EITHER PERPENDICULAR AND/OR PARALLEL WITH STREET CENTERLINE. NO ANGLED OR CURVED SAWCUTS ALLOWED.
7. WHEN SAWCUT EXCEEDS HALF OF CONSTRUCTION JOINT PANEL WIDTH, FULL PANEL REMOVAL AND REPLACEMENT SHALL BE REQUIRED.
8. TYPICAL R1/R2 VALUES:
   150' TYP. FOR SINGLE TURN LANE
   250' TYP. FOR DUAL TURN LANE
9. MUST MATCH JOINTS OF ADJACENT TRAFFIC LANES

* REFER TO CONSTRUCTION DRAWINGS FOR STORAGE, TRANSITION AND RADIUS DIMENSIONS.
NOTES:
1. ALL DIMENSIONS ARE TO BACK OF CURB UNLESS OTHERWISE NOTED.
2. NO CONCRETE REPLACEMENT WIDTH SHALL BE LESS THAN 18".
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   150' TYP. FOR SINGLE TURN LANE
   250' TYP. FOR DUAL TURN LANE
9. MUST MATCH JOINTS OF ADJACENT TRAFFIC LANES
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4. ALL DOWELS FOR LONGITUDINAL BUTT JOINTS SHALL BE MACHINE DRILLED. NO HAND DRILLING ALLOWED.
5. ALL SAWCUTS TO BE FULL DEPTH AND EITHER PERPENDICULAR AND/OR PARALLEL WITH STREET CENTERLINE. NO ANGLED OR CURVED SAWCUTS ALLOWED.
6. WHEN SAWCUT EXCEEDS HALF OF CONSTRUCTION JOINT PANEL WIDTH, FULL PANEL REMOVAL AND REPLACEMENT SHALL BE REQUIRED.
7. REFER TO CONSTRUCTION DRAWINGS FOR GRADING OF TURN LANE. CONTRACTOR TO ENSURE ALL AREAS OF TURN LANE DRAIN PROPERLY WITH NO PONDBING OF WATER.
8. TYPICAL R1/R2 VALUES:
   150' TYP. FOR SINGLE TURN LANE
   250' TYP. FOR DUAL TURN LANE
9. MUST MATCH JOINTS OF ADJACENT TRAFFIC LANES.

* REFER TO CONSTRUCTION DRAWINGS FOR STORAGE, TRANSITION AND RADIUS DIMENSIONS.
FIRE LANE SECTION
(LOCATED OUTSIDE OF PARKING AREA)

* THICKNESS AND REINFORCING TO BE SPECIFIED BY DESIGN ENGINEER AND BASED ON GEOTECHNICAL EVALUATION. MIN. ALLOWABLE SECTION SHALL BE 6" THICK, #4 BARS AT 18" C.E.W. ON 6" LIME STABILIZED SUBGRADE. SEE NOTE 4

NOTES:
1. MINIMUM UNOBSCTURED FIRE LANE WIDTH SHALL NOT BE LESS THAN 24 FEET.
2. MINIMUM UNOBSCTURED VERTICAL CLEARANCE SHALL NOT BE LESS THAN 14 FEET.
3. FIRE LANE PAVEMENT SHALL BE CONSTRUCTED TO MEET CITY OF McKinney STANDARDS.
4. SUBGRADE SHALL BE LIME STABILIZED AND COMPACTED TO 95% STANDARD PROCTOR DENSITY. PLASTICITY INDEX SHALL NOT EXCEED 12. AS AN ALTERNATIVE TO LIME STABILIZATION, CONCRETE THICKNESS MAY BE INCREASED BY 1" WITH A MINIMUM OF 6" CRUSH STONE BASE COURSE PER TXDOT ITEM 247 AND GEOTECHNICAL RECOMMENDATION.
5. MINIMUM SLOPE IN ALL DIRECTIONS SHALL NOT BE LESS THAN 0.5%. MAXIMUM CROSS SLOPE, AND SHALL NOT EXCEED 3%. MAXIMUM LONGITUDINAL SLOPE SHALL NOT EXCEED 6%.
6. ASPHALT FIRE LANES SHALL NOT BE USED UNLESS APPROVED BY THE DIRECTOR OF ENGINEERING. IF APPROVED, MIN. DESIGN SHALL BE 2" TYPE D HMAC SURFACE COURSE OVER 6" ASPHALT STABILIZED BASE COURSE PER TXDOT ITEM 292. SUBGRADE REQUIREMENTS REMAIN PER NOTE 4.
7. PRIVATE PARKING THICKNESS SHALL BE AS SPECIFIED IN THE PLANS BY THE DESIGN ENGINEER.
CONCRETE PAVING REQUIREMENTS

1. CONCRETE MIX DESIGN SHALL BE SUBMITTED TO CITY FOR APPROVAL ONE WEEK PRIOR TO PLACING CONCRETE. CONCRETE MIX DESIGN MUST BE SEALED BY A LICENSED ENGINEER WITH AN ORIGINAL SIGNATURE AND DATE. MIN. COMPRESSION STRENGTH IS 4000*PSI AT 28 DAYS (*4500 PSI FOR HAND POURS). FLY ASH REPLACEMENT IS 20% MAX BY UNIT WEIGHT. MULTIPLE DESIGNS REQUIRED FOR MACHINE POURS, HAND POURS AND STRUCTURAL POURS. TEMPERATURES OF ALL CONCRETE SHALL NOT EXCEED 95 DEGREES F. ALL CONCRETE EXCEEDING THIS WILL BE REJECTED FROM THE PROJECT COMPLETELY.

2. SUBGRADE:
   OPTION 1: LIME STABILIZATION
   OPTION 2 WITH PRIOR APPROVAL OF THE ENGINEERING DEPARTMENT: FIRE LANES SHALL BE 6 INCHES THICK, BUT MAY INCREASE BY ONE (1) INCH AND A MINIMUM OF 6 INCHES FLEXIBLE BASE COURSE IN LIEU OF TREATING THE SUBGRADE WITH LIME OR CEMENT PER GEOTECHNICAL RECOMMENDATION.

3. FORMING OF PAVEMENT:
   SLIP FORM – REQUIRED
   HAND POUR – AT INTERSECTIONS AND OTHER MISC. AREAS

4. DENSITY REPORT PRIOR TO PAVING RECEIVED. DENSITIES ARE ONLY GOOD FOR 72 HOURS. DENSITIES RECEIVED ON A FRIDAY ARE ONLY GOOD UP UNTIL NOON ON THE FOLLOWING MONDAY. DENSITIES TAKEN BEFORE INCLEMENT WEATHER MAY BE REQUIRED TO BE RETAKEN AT THE INSPECTOR’S DISCRETION.

5. ALL DRIVE APPROACHES, SIDEWALKS WITHIN CITY RIGHT-OF-WAY, AND BARRIER FREE RAMPS MUST BE BUILT TO CITY OF MCKINNEY AND ADA/TAS STANDARDS.

6. MANHOLES FRAME AND COVERS SHALL BE RAISED TO GRADE PRIOR TO PLACEMENT OF CONCRETE.

7. ALL VALVES SHALL BE OPERABLE BEFORE SUBGRADE PREPARATION AND PAVING OPERATION BEGIN.

8. REBAR:
   a) SHALL BE A MIN. OF #4 REBAR, PLACE 18 INCHES OCEW, WITH
   b) MINIMUM COVER IS 2 INCHES, AND THE MAXIMUM LATERAL COVER IS 3 INCHES,
   c) SHALL BE TIED AT EACH JOINT, WITH CHAIRS PLACED AT EVERY OTHER JOINT, EACH BAR, EACH DIRECTION.
   d) MUST BE FREE OF ANY RUST OR DEBRIS PRIOR TO PLACEMENT OF CONCRETE.
   e) NO VEHICLES ON REBAR (E.G. TAILGATING).

10. WOOD STAKES – NO WOOD STAKES INSIDE OF FORMS

11. EXPANSION JOINTS:
   a) EXPANSION DOWELS BARS SHALL BE SMOOTH, LEVEL, AND PERPENDICULAR TO THE JOINT, ADEQUATELY SUPPORTED TO RETAIN PROPER ALIGNMENT; AND WITH ONE SIDE GREASED AND THE END PROTECTED WITH A PROPERLY LOCATED EXPANSION CAP.
   b) REDWOOD JOINTS MUST BE FULL DEPTH OF THE SLAB, RESTING ON GRADE.

12. EXPANSION JOINTS FOLLOW THE STREET STANDARDS SUCH AS EVERY 400 FEET, PC AND PT.
TRENCH WIDTH = 24” OR PIPE OD + 16”, WHICHEVER IS GREATER

NATIVE MATERIAL COMPACTED IN 8” MAXIMUM LIFTS TO 95% STD. PROCTOR

COMPACTED CRUSHED STONE, STD. GRADATION

12” MIN

1/2 Bc

6” MIN

Bc

Bd

CLASS "B"

N.T.S.

NOTES:

1. Bc=OUTSIDE DIAMETER OF PIPE
2. Bd= TRENCH WIDTH
3. IN-PLACE DENSITY/MOISTURE CONTENT SHALL BE TESTED AND VERIFIED AS SPECIFIED BY THE CITY, OR AT AN AVERAGE FREQUENCY OF ONCE PER 300 LINEAR FEET PER ONE FOOT OF DEPTH.
CITY OF MCKINNEY, TEXAS

STANDARD DRAWING NO. 3060M

MODIFIED CLASS H EMBDMENT
4", 6", 8" AND 12" DUCTILE IRON HDPE & PVC PIPE
CITY OF MCKINNEY, TEXAS

DATE: JANUARY 2023

STANDARD DRAWING NO. 3060M

NOTES:
1. CRUSHED STONE STANDARD GRADATION SHALL MEET AGGREGATE GRADE NO. 4 GRADATIONS.
   REFERR TO TABLE BELOW.

<table>
<thead>
<tr>
<th>CRUSHED STONE GRADATION</th>
<th>PERCENT BY WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>RETAINED ON 1-1/2 IN. SIEVE</td>
<td>0%</td>
</tr>
<tr>
<td>RETAINED ON 1 IN. SIEVE</td>
<td>0 TO 5%</td>
</tr>
<tr>
<td>RETAINED ON 1/2 IN. SIEVE</td>
<td>40 TO 75%</td>
</tr>
<tr>
<td>RETAINED ON NO. 4 SIEVE</td>
<td>90 TO 100%</td>
</tr>
<tr>
<td>RETAINED ON NO. 8 SIEVE</td>
<td>95 TO 100%</td>
</tr>
</tbody>
</table>

2. NON-METALLIC DETECTOR TAPE SHALL BE USED FOR DUCTILE IRON PIPE AND METALLIC DETECTOR TAPE SHALL BE USED FOR HDPE AND PVC PIPE.

3. DETECTOR TAPE FOR WATER LINES SHALL BE BLUE AND LABELED "CAUTION BURIED WATER LINE BELOW".

4. DETECTOR TAPE FOR SANITARY SEWER LINES SHALL BE GREEN AND LABELED "CAUTION BURIED SEWER LINE BELOW".

5. IN-PLACE DENSITY/MOISTURE CONTENT SHALL BE TESTED AND VERIFIED AS SPECIFIED BY THE CITY, OR AT AN AVERAGE FREQUENCY OF ONCE PER 300 LINEAR FEET PER ONE FOOT OF DEPTH.
GENERAL NOTES:

1. CLAY CUT-OFF WALLS SHALL BE CONSTRUCTED AT APPROXIMATELY 250 FOOT INTERVALS ALONG ALL WASTEWATER MAIN INSTALLATIONS BETWEEN MANHOLES.

2. THE CLAY CUT-OFF WALL SHALL BE PLACED AT THE MID POINT OF THE LENGTH OF THE PIPE BEING PLACED, BUT NOT AT A LOCATION WHERE A LATERAL OR SERVICE CONNECTS TO THE MAIN. THE MINIMUM CLEARANCE IS 10 FEET.

3. MATERIAL FOR CLAY CUT-OFF WALL TO BE CLEAN MATERIAL WITH NO LUMPS LARGER THAN 3”. CLAY TO HAVE P.I. OF 30 TO 40. MATERIAL TO BE PLACED IN 6” LIFTS, MOISTENED TO OPTIMUM MOISTURE CONTENT AND COMPACTED WITH HAND HELD MECHANICAL TAMPER, WITHOUT DAMAGING THE PIPE.

TRENCH DAM

TRENCH DAM WALL WIDTH = TRENCH WIDTH + 12” (6” EA. SIDE)

6” BELOW TRENCH DEPTH INTO UNDISTURBED SOIL

2” MINIMUM

CUT BACK 6” INTO BANK TO FORM DISCONTINUOUS JOINT.

TRENCH WALL ALONG PIPE TRENCH WITHOUT TRENCH DAM.

BOTTOM OF TRENCH

THE TRENCH DAM BOTTOM EDGE AND SIDE WALLS SHALL BE FIRMLY PLACED AGAINST UNDISTURBED SOIL.

6” TRENCH WIDTH = 24” OR PIPE OD + 16” (8” EA. SIDE)

CENTERLINE OF PIPE SECTION

CENTER CLAY CUT-OFF WALL AT MID POINT OF PIPE SECTION

PLAN VIEW
N.T.S.

NATURAL GROUND

SECTION VIEW
N.T.S.
ENCASED ROAD BORE
N.T.S.

NOTES:
1) PREFABRICATED PLASTIC SPACERS SHALL BE RACI NORTH AMERICA OR APPROVED EQUAL. FOR THE SPECIFIC APPLICATION AS RECOMMENDED BY THE MANUFACTURER.
2) CONTRACTOR SHALL PROVIDE SUPPORT UNDER CARRIER PIPE TO HAVE MIN. 1" CLEARANCE BETWEEN PIPE BELL AND ENCASEMENT PIPE.
3) ENDS OF ENCASEMENT PIPE SHALL HAVE END SEALS INSTALLED PER MANUFACTURER’S REQUIREMENTS. END SEALS SHALL BE CCI MODEL ESW WRAP-AROUND BY CCI PIPELINE SYSTEMS OR APPROVED EQUAL.
4) CONTRACTOR SHALL ONLY DRY BORE WITHIN THE ROW
5) STEEL ENCASEMENT PIPE SHALL CONFORM TO AWWA C–200. THE PIPE SHALL BE FABRICATED IN ACCORDANCE WITH ASTM A–570 FROM STEEL PLATES HAVING MINIMUM YIELD STRENGTH OF 36,000 PSI. ENCASEMENT PIPE SHALL HAVE A MINIMUM OF 3/8" WALL THICKNESS.
6) STEEL ENCASEMENT PIPE SHALL BE PAINTED INSIDE AND OUTSIDE WITH TWO COATS OF TNEDEC, HB TNEMCOL, SERIES 46–465 COAL TAR, OR CITY APPROVED EQUIVALENT PRIOR TO DELIVERY TO THE JOB SITE. MINIMUM COATING INSIDE AND OUTSIDE SHALL BE 12–MILS DRY FILM THICKNESS (DFT) PER EACH COAT.
7) ENCASEMENT PIPE SHALL BE FIELD WELDED IN ACCORDANCE WITH AWWA C–206. WELDED JOINTS SHALL BE WIRE BRUSHED AND PAINTED WITH ONE COAT OF TNEDEC, OMNITHANE SERIES 530, 2.5–MILS DRY FILM THICKNESS (DFT) OR CITY APPROVED EQUIVALENT. REFER TO NOTE 5. FOR COATING AFTER PRIMING.
### TABLES OF DIMENSIONS AND QUANTITIES

#### HORIZONTAL THRUST BLOCK

**STANDARD DRAWING NO. 4010M**

**DATE: JANUARY 2023**

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**CITY OF McKinney, Texas**

**HORIZONTAL THRUST BLOCK AT PIPE BEND**

**Mckinney, Texas**

**Unique by nature.**

**DATE: JANUARY 2023**

**STANDARD DRAWING NO. 4010M**
### Tables of Dimensions and Quantities

**Horizontal Thrust Block at Pipe Bend**

**City of McKinney, Texas**

**Date: January 2023**

**Standard Drawing No. 4010M**

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**Notes:**
- THRUST (TONS) indicates the thrust block capacity in tons for each orientation.
- EARTH and ROCK columns list the dimensions and quantities for both earth and rock conditions.
- G (FT.) represents the ground level or foundation depth in feet for each orientation.

**McKinney, Texas**

**Unique by Nature**

**Date:** January 2023

**Standard Drawing No.: 4010M**

**City of McKinney, Texas**
PLAN OF PLUG THRUST BLOCK

PLAN OF TEE THRUST BLOCK

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REFER TO STD. DWG. No. 4040M FOR GENERAL NOTES.
CITY OF MCKINNEY, TEXAS

STANDARD DRAWING NO.

VERTICAL THRUST BLOCK
AT PIPE BEND

DATE: JANUARY 2023

STANDARD DRAWING NO.

4030M

REFER TO STD. DWG. No. 4040M FOR GENERAL NOTES.
GENERAL NOTES FOR ALL THRUST BLOCKS:

1. CONCRETE FOR BLOCKING SHALL BE 2000 PSI MINIMUM.

2. ALL CALCULATIONS ARE BASED ON INTERNAL PRESSURE OF 200 PSI FOR DUCTILE IRON, P.V.C., AND 150 PSI FOR CONCRETE PIPE.

3. VOLUMES OF THRUST BLOCKS ARE NET VOLUMES OF CONCRETE TO BE FURNISHED. THE CORRESPONDING WEIGHT OF THE CONCRETE (CLASS "B") IS EQUAL TO OR GREATER THAN THE VERTICAL COMPONENT OF THE THRUST ON THE VERTICAL BEND.

4. WALL THICKNESS (T) ASSUMED HERE FOR ESTIMATING PURPOSES ONLY.

5. POUR CONCRETE FOR BLOCK AGAINST UNDISTURBED EARTH.

6. DIMENSIONS MAY BE VARIED AS REQUIRED BY FIELD CONDITIONS WHERE AND AS DIRECTED BY THE ENGINEER. THE VOLUME OF CONCRETE BLOCKING SHALL NOT BE LESS THAN SHOWN HERE.

7. THE SOIL BEARING PRESSURES ARE BASED ON 1000 LBS./S.F. IN SOIL AND 2000 LBS./S.F. IN ROCK.

8. USE POLYETHYLENE WRAP OR EQUAL BETWEEN CONCRETE AND BEND, TEE, OR PLUG TO PREVENT THE CONCRETE FROM STICKING TO IT.

9. CONCRETE SHALL NOT EXTEND BEYOND JOINTS.

10. IN ADDITION TO THRUST BLOCKING, ALL FITTINGS MUST BE RESTRAINED.

11. DESIGN ENGINEER OF RECORD SHALL VERIFY DESIGN OF THRUST BLOCKS USING PROJECT SITE SPECIFIC CONDITIONS, AND INCORPORATE ANY NECESSARY IMPROVEMENTS.
NOTES:
1. IN UNPAVED AREAS, INSTALL 2' X 2' 4" CONCRETE VALVE PAD FLUSH WITH THE TOP OF VALVE BOX AT GRADE. REINFORCE WITH #3 BARS ON 6" CENTERS BOTH WAYS. 2" MINIMUM COVER ON REBAR.


3. NRS RESILIENT–SEATED GATE VALVES SHALL CONFORM TO AWWA C509 OR AWWA C515. RUBBER–SEATED BUTTERFLY VALVES SHALL CONFORM TO AWWA C504. ALL VALVES SHALL HAVE A 2" SQUARE OPERATING NUT AND OPEN TO THE LEFT. ALL VALVES SHALL BE MUELLER, CLOW, M&H OR AMERICAN FLOW CONTROL.

4. PROPERLY BACKFILL AROUND VALVE STACK TO MAINTAIN STRAIGHT ALIGNMENT TO VALVE OPERATING NUT.

5. IF WATER VALVE IS DEEPER THAN 20 FEET, THEN USE ONE FULL SECTION OF WATER PIPE STARTING AT OPERATING NUT WITH BELL & SPIGOT JOINT NEAR THE TOP OF VALVE BOX TO COMPLETE THE VALVE ASSEMBLY.

GATE VALVE BOX AND EXTENSION SYSTEM

N.T.S.
PAVEMENT REPLACEMENT AS REQUIRED, SEE PLAN & PROFILE DRAWINGS FOR VALVE LOCATIONS & PAVEMENT REPLACEMENT DETAILS FOR REPAIRS

STD. COMPOSITE MANHOLE FRAME AND COVER

CITY OF MCKINNEY STANDARD CI. VALVE BOX SET IN CONCRETE PRECAST ROOF SLAB

EXTEND STEM SO NUT IS MAX 4" BELOW SURFACE

TRUMBULL STEM GUIDE ITEM NO. 367-4970, TYP.

BFV ACTUATOR STAND STEM, CONTRACTOR TO DETERMINE LENGTH IN FIELD AND PROVIDE SUPPORTS AS REQUIRED. SUBMIT SHOP DRAWING FOR ENGINEER’S APPROVAL

JOINTS SHALL BE WRAPPED WITH “GATOR WRAP” MANUFACTURED BY SEALING SYSTEMS INC. OR APPROVED EQUAL

USE PIPE STANCHION UNDER BONNET EXTENSION

MODIFIED FLOWABLE FILL

CONT. GALV 3"X3"X1/2" W/ 1/2" DIA.x 8" EXPANSION ANCHORS 2 PER SIDE

1 1/2" GALVANIZED GRATING

12" OF COMPACTED TYPE H EMBEDMENT COMPACTED TO 95% STANDARD PROCTOR DENSITY

12" DIA

5' DIA

CONTINUOUS HYDROPHYLIC WATERSTOP MANUFACTURED BY SIKA CORPORATION OR APPROVED EQUAL

GROUT BOTTOM AND FINISH SMOOTH

NOTES:
1. VALVE OPERATOR EXTENSION STEM SHALL BE 1" SOLID STEEL WITH WELDED CONNECTIONS. EXTENSION STEM SHALL NOT UTILIZE CLIPS AND SHALL NOT BE PERMANENTLY CONNECTED TO ACTUATOR.
2. WAX TAPE ALL BURIED FLANGES, BOLTS, AND MECHANICAL JOINTS.
3. WRAP VALVE IN 8 MIL POLYETHYLENE SHEET FOR BOND BREAKER PRIOR TO PLACEMENT OF MODIFIED FLOWABLE FILL.
4. DURING THE WATER LINE TESTING PROCESS, THE 1" HDPE DR9 POLY PIPE SHALL BE EXTENDED AND SUPPORTED TO 3 FEET ABOVE THE RIM ELEVATION OF THE VAULT FOR USE AS A WATER SAMPLING TEST STATION.
5. POLY PIPE SHALL BE SEAMLESS 250 PSI BLUE COLORED POLYETHYLENE ASTM D2737, DR 9, CTS WATER PIPE.
6. CONTRACTOR SHALL VERIFY VALVE BONNET, ACTUATOR, AND STEM EXTENSION DIMENSIONS WITH VALVE MANUFACTURER. COORDINATE LOCATION OF THE 2-INCH SQUARE NUT WITH VALVE BOX CAST IN MANHOLE ROOF SLAB. SUBMIT SHOP DRAWINGS CLEARLY SHOWING DIMENSIONS AND LOCATION OF THE ALL SLAB OPENINGS. ENSURE ADEQUATE CLEARANCE FOR ACTUATOR AND HATCH OPENING.
7. FOR SIZES ABOVE 20-INCH, THE ENGINEER OF RECORD SHALL SUBMIT A STRUCTURAL DESIGN TO THE CITY FOR REVIEW AND APPROVAL FOR CONSTRUCTION. THE STRUCTURAL DESIGN AND DETAIL SHALL FOLLOW THE GENERAL CONFIGURATION AND LAYOUT ILLUSTRATED IN STD. DWG. NO. 4061M.

DATE: JANUARY 2023

Sheets 1 of 6

24" AND GREATER HORIZONTAL BUTTERFLY VALVES

CITY OF McKinney, Texas
NOTE:
COMPOSITE MANHOLE FRAME AND COVER ASSEMBLY, 32" O.D. AS MANUFACTURED BY TRUMBULL MANUFACTURING OR EQUAL.
24" AND GREATER HORIZONTAL BUTTERFLY VALVES
CITY OF McKinney, TEXAS

DATE: JANUARY 2023
STANDARD DRAWING NO. 4061M
PIPE WRAPPER CENTERED ON SUPPORT, THICKNESS = ⅜" STEEL PIPE OR BAR WRAPPED PIPE

2'-0" + 1/2 PIPE O.D.

2" CLR. TYP

12"

3" CLR. TYP

1'-6" TYP

2" CLR. TYP

24" AND GREATER HORIZONTAL BUTTERFLY VALVES

BFV ACTUATOR MANHOLE & SADDLE SUPPORT DETAIL - SECTION N.T.S.

1/4" HDPE PAD BETWEEN PIPE AND SADDLE

6"

PIPE O.D.

2" CLR. TYP

1/2 PIPE O.D.

B

12"

2" CLR. TYP

2'-0"

12"

3" CLR. TYP

BFV ACTUATOR MANHOLE & SADDLE SUPPORT DETAIL - SECTION N.T.S.

NOTE:
THE ENGINEER OF RECORD SHALL SUBMIT A STRUCTURAL DESIGN TO THE CITY FOR REVIEW AND APPROVAL FOR CONSTRUCTION. THE DESIGN AND DETAIL SHALL FOLLOW THE GENERAL CONFIGURATION AND LAYOUT ILLUSTRATED ON 4061M.

McKinney, Texas
Unique by nature.

CITY OF McKinney, TEXAS

DATE: JANUARY 2023

STANDARD DRAWING NO.

4061M

SHEET 5 OF 6
FILL ANNULAR SPACE W/NON-SHRINK NON-METALLIC GROUT

VALVE ACTUATOR BONNET EXTENSION

CIRCULAR HOLE IN PRECAST MANHOLE SECTION AS REQUIRED TO PASS OPERATOR BONNET EXTENSION. COORDINATE WITH VALVE MANUFACTURER.

MANHOLE WALL PENETRATION DETAIL
N.T.S.

VALVE ACTUATOR SUPPORT BASE, SEE DETAIL 6, SHEET 2 OF 2

3000 PSI(MIN) CONCRETE FILL, SLOPED 2% TO FLOOR SUMP

18"X18"X12" DEEP FLOOR SUMP

ACTUATOR MANHOLE, SHALL BE PRECAST IN ACCORDANCE WITH ASTM C-478

STANDARD COMPOSITE MANHOLE FRAME AND COVER

BFV SUPPORT & ACTUATOR MANHOLE STANDARD DETAIL—MANHOLE INTERIOR PLAN
N.T.S.
TRAFFIC RATED DOMESTIC WATER METER BOX (UP TO 2" METER)

SPECIFICATIONS:

BASS & HAYS OR APPROVED EQUAL MANHOLE RING BH 400–24, 225 LBS, BASS & HAYS BH 380–24 ML OR APPROVED EQUAL COVER; 140 LBS; LOCKING COVER; 15 LBS: UNIT=415 LBS.

DATE: JANUARY 2023

STANDARD DRAWING NO.

4066M

CITY OF McKinney, Texas
TRAFFIC RATED 2"
DOMESTIC WATER BLOW-OFF BOX

MANHOLE RING

24" DIA
2 1/2" [64mm]
2.13/16" [71mm]
1/4" [6mm]
1" [25mm]

COVER SECTION

WATER
BASS & HAYS FOLKLY

PICKBAR DETAIL

√ MACHINED SURFACE

PROPOSED PAVEMENT

24" CLASS III
RCP PIPE
METER BOX

6 Inch Compacted Flexbase

6"

MANHOLE RING

22 5/8" DIA
31" DIA

SPECIFICATIONS:

BASS & HAYS OR APPROVED EQUAL MANHOLE RING
BH 400-24, 225 LBS; BASS & HAYS BH 400-24
OR APPROVED EQUAL COVER, 140 LBS: UNIT=415
LBS

DATE: JANUARY 2023
STANDARD DRAWING NO. 4067M
2" DOMESTIC WATER BLOW-OFF HYDRANT

NOTES:
2" VALVE NOT NEEDED IF AN EXISTING VALVE IS LOCATED ON THE WATER MAIN FOR A STUBOUT.
CITY OF McKINNEY, TEXAS

STANDARD DRAWING NO. 4090M

COMBINATION AIR VACUUM VALVE
TYPE "1"

DATE: JANUARY 2023

NOTE:
WHEN NOT IN PAVING OR WALK, A CONCRETE PAD, REINFORCED W/#3 BARS AT 12" C-C EACH WAY, SHALL EXTEND A MINIMUM OF 2' AROUND THE M.H. AND VENT PIPE, AND SHALL BE A MINIMUM OF 4" THICK. PROTECTION OF AIR VENT WITH BOLLARDS SHALL BE SITE SPECIFIC AS DETERMINED BY THE ENGINEER OF RECORD.

TYPE "1" AIR VALVE
N.T.S.

STANDARD DRAWING NO. 4090M

DATE: JANUARY 2023

COMBINATION AIR VACUUM VALVE
TYPE "1"

CITY OF McKinney, Texas
NOTE:
WHEN NOT IN PAVING OR WALK, A CONCRETE PAD REINFORCED
W/#3 BARS AT 12" C-C EACH WAY, SHALL EXTEND A MINIMUM OF
2' AROUND THE M.H. AND VENT PIPE, AND SHALL BE A MINIMUM
OF 4" THICK. PROTECTION OF AIR VENT WITH BOLLARDS SHALL BE
SITE SPECIFIC AS DETERMINED BY THE ENGINEER OF RECORD.

WARNING SIGN WITH
TELEPHONE NUMBER
ATTACHED BY STRAPS

1/4" X 3/4" GALVANIZED
STRAPS DRILLED
TO D.I. PIPE

THIS RISER SHALL BE AS NEAR
AS PRACTICAL TO R.O.W. LINES,
AT LEAST 6' BEYOND EDGE OF
PAVEMENT

GROUND-
LINE

PRECAST OR CAST-
IN-PLACE M.H. TO
BE CLASS "F"
CONCRETE

#6 BARS AT
12" C-C. BOTH
WAYS (CAST-IN
PLACE)

6" D.I. PIPE
FILLED WITH
CONCRETE, 5"
MIN. BURY DEPTH

BOLTED CAST COUPLING
ROCKWELL 441 OR EQUAL
FITTING HEIGHT
SEE STD. DWG. 4100M
(SHEET 2 OF 3)

COMBINED AIR AND VACUUM AIR RELEASE
VALVE (VENT-O-MAT OR APPROVED EQUAL)
WITH FLANGE MOUNTING.

INSULATED FLANGE CONN. ASSEMBLY
FLANGED OUTLET, STEEL BOLTS

NOTE:
ON 4" AND LARGER TWO PIECE COMBINATION
AIR VALVES, THE OUTLET PIPING OF THE
SMALL VALVE SHALL BE VENTED INTO THE
SIDE OF THE LARGER VENT PIPE THAT GOES
ABOVE GROUND.

TYPE "2" AIR VALVE
N.T.S.
AIR RELEASE VALVE

4000 PSI CONCRETE
UNDISTURBED EARTH OR ROCK
(SEE TOP VIEW, STD. DWG. NO. 4100M (SHEET 2 OF 3))

FINE CRUSHED ROCK
POCKET ON CORNER

4" P.V.C. DRRAIN PIPE

6" P.V.C. WATER
STOP PRECAST
MANHOLES USE
RAMINAC OR
APPROVED EQUAL

BLIND FLANGE,
BORED--DRILLED AND
TAPPED FOR VALVE
ABOVE

RISINGGRADE

BOLTED CAST COUPLING
ROCKWELL 441 OR EQUAL
FITTING HEIGHT
SEE STD. DWG. 4100M
(SHEET 2 OF 3)

COMBINED AIR AND VACUUM AIR RELEASE
VALVE (VENT-O-MAT OR APPROVED EQUAL)
WITH FLANGE MOUNTING.

INSULATED FLANGE CONN. ASSEMBLY
FLANGED OUTLET, STEEL BOLTS

NOTE:
ON 4" AND LARGER TWO PIECE COMBINATION
AIR VALVES, THE OUTLET PIPING OF THE
SMALL VALVE SHALL BE VENTED INTO THE
SIDE OF THE LARGER VENT PIPE THAT GOES
ABOVE GROUND.

TYPE "2" AIR VALVE
N.T.S.
AIR RELEASE VALVE

4000 PSI CONCRETE
UNDISTURBED EARTH OR ROCK
(SEE TOP VIEW, STD. DWG. NO. 4100M (SHEET 2 OF 3))

FINE CRUSHED ROCK
POCKET ON CORNER

4" P.V.C. DRRAIN PIPE

6" P.V.C. WATER
STOP PRECAST
MANHOLES USE
RAMINAC OR
APPROVED EQUAL

BLIND FLANGE,
BORED--DRILLED AND
TAPPED FOR VALVE
ABOVE

RISINGGRADE

BOLTED CAST COUPLING
ROCKWELL 441 OR EQUAL
FITTING HEIGHT
SEE STD. DWG. 4100M
(SHEET 2 OF 3)

COMBINED AIR AND VACUUM AIR RELEASE
VALVE (VENT-O-MAT OR APPROVED EQUAL)
WITH FLANGE MOUNTING.
VENT OPENING HEIGHT IS MIN. 6" ABOVE FLOOD PLAIN ELEVATION OR 7'-0" ABOVE FINAL GRADE, WHICHEVER IS GREATER

DUCTILE IRON PIPE

S.S. IN SECT
SCREEN SECURED
OVER OPENING.

AIR VENT
N.T.S.

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PLAN VIEW
N.T.S.

CRUSHED ROCK POCKET

4" P.V.C. DRAIN PIPE

MIN. SECT.

PIECE

COMBINATION AIR VACUUM VALVE
TYPE "2"

CITY OF McKinney, Texas

DATE: JANUARY 2023

STANDARD DRAWING NO.

MCKINNEY, Texas

Unique by nature.
TYPE B MANHOLE NOTES:

1. Place 2000 P.S.I. grout around valve box above manhole. Extend grout a minimum of 6 inches all around.

2. Valve box shall be cut off at inside face of precast manhole.

3. The valve extension shall be positioned where it can be operated above ground. Valve extension shall be positioned to within 4 inches of manhole top. Provide core hole through the top of manhole and provide cover for opening. Seal penetration in manhole for valve box utilizing ram neck, synchoflex and non-shrink grout.

4. Roof vent size shall match valve size (4" or 6" I.D.) and shall be D.I.P. or galv. steel pipe and shall be secured to manhole walls using galvanized steel 2"x1/4" pipe straps and 5/8" dia. x 4" or 6" long S.S. anchor bolts. Exterior vent opening shall have S.S. insect screen secured over vent pipe opening.

5. All air/vacuum valves & butterfly valves shall include corrosion protection test stations.

6. Air vent piping shall be connected to air/vacuum valve with flange connection.

7. Cathodic protection per design.
1. FIRE HYDRANTS SHALL BE THREE WAY BREAKAWAY TYPE NO LESS THAN 5-1/4 INCHES IN SIZE AND MUST CONFORM TO AWWA SPECIFICATIONS C-502. THEY SHALL BE MUELLER "SUPER CENTURION", "RELIANT 129" AND CLOW MEDALLION WITH ALL BRONZE TO BRONZE MOVING PARTS.

2. VERTICAL SHOE FIRE HYDRANTS SHALL NOT BE ALLOWED.

3. ALL JOINTS SHALL BE RESTRAINED.

4. TYPICAL VALVE: ACTUAL VALVE LOCATION WILL DEPEND ON LOCATION OF WATER MAIN.

5. TWO 2-1/2 INCH NST HOSE CONNECTIONS ARE REQUIRED.

6. THE 4 INCH DIAMETER STEAMER CONNECTION SHALL BE 4.800 PITCH WITH 4 THREADS PER INCH.

7. THE OPERATING NUT SHALL BE 1/2 INCH P TO F PENTAGON NUT, OPEN LEFT.

8. THE STEAMER NOZZLE SHALL FACE THE FIRE LANE, ADJACENT ROADWAY OR AS DIRECTED BY THE FIRE DEPARTMENT.

9. ALL BOLTS SHALL BE THE SAME SIZE.

10. 45° BENDS MAY BE USED TO ACCOMMODATE SITE CONDITIONS FOR FIRE HYDRANT LEADS. FIRE HYDRANT LEADS SHALL USE DUCTILE IRON PIPE MEETING CITY STANDARDS (DUCTILE IRON, AWWA C151, WORKING PRESSURE OF 150 PSI WITH 100 PSI SURGE PRESSURE, CEMENT MORTAR LINED, POLYETHYLENE ENCASED.

11. ONLY ONE BARREL EXTENSION (6", 12", 18", OR 24") CAN BE USED ON EACH FIRE HYDRANT. THE BREAKAWAY COUPLER ON THE STEM NEEDS TO LINE UP WITH THE BREAKAWAY LOCATION ON THE BARREL.

12. ALL FIRE HYDRANTS ARE TO BE PAINTED WITH TWO COATS OF DIFFUSED ALUMINUM, SILVER PAINT. THE TOP BONNET INCLUDING THE LIP AND ALL NOZZLE CAPS SHALL BE PAINTED THE APPROPRIATE COLOR BASED ON THE WATER MAIN SIZE AS FOLLOWS: FOR 8 INCH AND LARGER WATER MAINS THE COLOR SHALL BE T NEMEC SERIES 2H HI-BUILD T NEMEC-GLOSS, TRUE BLUE SAFETY.

13. PRIMER AND FINAL PAINT COLORS SHALL BE FACTORY APPLIED PRIOR TO SHIPPING TO JOB SITE.
NOTES:

1. FIRE HYDRANTS SHALL BE PLACED 3 TO 6 FEET FROM BACK OF CURB UNLESS OTHERWISE INDICATED ON THE PLANS, OR AS REQUIRED TO CLEAR SIDEWALKS. FIRE HYDRANTS SHALL NOT BE LOCATED WITHIN A SIDEWALK.

2. A BLUE STIMSONITE, FIRE-LITE REFLECTOR (OR APPROVED EQUAL) SHALL BE PLACED IN THE CENTER OF THE STREET OPPOSITE EACH FIRE HYDRANT.

3. THE FIRE HYDRANT SHALL BE PAINTED WITH TWO COATS OF TNEMC SERIES 530 OMNITHANE PAINT OR APPROVED EQUAL, AND TWO COATS OF PRIMER.
## METER BOX TABLE

<table>
<thead>
<tr>
<th>1&quot; WATER SERVICE</th>
<th>2&quot; WATER SERVICES</th>
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<td>DFW2818-DR-1SAF MCK-BODY</td>
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<tr>
<td>DFW-18G-EJ - RING</td>
<td>DFW-18G-EJ - LID</td>
</tr>
<tr>
<td>DFW18-1SAF MCK-LID</td>
<td>DFW20-1SAF LARGE MCK-LID</td>
</tr>
</tbody>
</table>

## NOTES:

1. SERVICE PIPE SHALL BE 1" OR 2" SEAMLESS 250 PSI BLUE COLORED POLYETHYLENE ASTM D2737, SDR 9, CTS WATER SERVICE PIPE, NSF61 APPROVED.
2. TOP OF METER BOXES SHALL BE 1" ABOVE FINISHED GRADE.
3. METER BOX SHALL HAVE A MINIMUM OF 6" OF GRAVEL BENEATH METER BOX AS ILLUSTRATED.
4. LOCATION OF THE METER BOX SHALL BE LOCATED TO ALLOW 6" CLEARANCE FROM CURB.

## MATERIAL LIST:

A. SERVICE SADDLE SHALL BE BRASS WITH DOUBLE BRONZE FLATTENED STRAPS OR STAINLESS STEEL DOUBLE BOLT WIDE STRAPS. NO BANDED OR HINGED STRAPS SHALL BE ALLOWED. SERVICE SADDLES SHALL MEET AWWA/CC TAPPING OUTLET (TAPERED THREADS) REQUIREMENTS. ALL SERVICE SADDLES SHALL BE FORD MODELS 202B AND 202S, CAMBRIDGE MODELS SERIES 810 AND 811, A.Y. MCDONALD MODELS 3845 AWWA AND 3825 AWWA. AND MUELLER WATER PRODUCTS, INC. MODELS BR 2 B AND BR 2 S OR APPROVED EQUAL. PVC WATER LINES REQUIRE STRAPS TO BE A MINIMUM OF 2" WIDE.

B. 1" OR 2" CORPORATION STOP: 300 PSI BALL TYPE VALVE, AWWA X B COMPRESSION, NSF61 APPROVED (H-15008N BY MUELLER CO. OR APPROVED EQUAL).

C. 1" OR 2" SERVICE PIPE SHALL BE SEAMLESS 200 PSI BLUE COLORED POLYETHYLENE ASTM D2737, SDR9, CTS WATER SERVICE PIPE, NSF61 APPROVED.

D. 1" OR 2" LOCKING ANGLE METER VALVE: 1" OR 2" FIP INLET, 1" OR 2" SWIVEL COUPLING D NUT OUTLET, 300 PSI BALL TYPE VALVE ONLY, FULL PORT DESIGN ONLY, VALVE PASSAGE AND BALL IS EQUAL SIZE TO SMALLEST END CONNECTION, NON BLOW OUT STEM, UNFILLED TFEFLON SEALS, NSF61 APPROVED (H-14258N BY MUELLER CO. OR APPROVED EQUAL).

E. WATER METERS CENTERED IN BOX AS ILLUSTRATED.

F. PLASTIC ROUND METER BOX (SEE TABLE ABOVE).
NOTES:

1. SERVICE PIPE SHALL BE 2" SEAMLESS 250 PSI BLUE COLORED POLYETHYLENE ASTM D2737, SDR 9, CTS WATER SERVICE PIPE, NSF61 APPROVED.
2. TOP OF METER BOXES SHALL BE 1" ABOVE FINISHED GRADE.
3. METER BOX SHALL HAVE A MINIMUM OF 6" OF GRAVEL BENEATH METER BOX AS ILLUSTRATED.
4. BRANCH CONNECTION AND BOTH ANGLE METER VALVES MUST BE INSTALLED PRIOR TO FIRST METER INSTALLATION EVEN THOUGH THE SECOND PROPERTY MAY NOT BE READY FOR SERVICE.
5. LOCATION OF THE METER BOX SHALL BE LOCATED TO ALLOW 6" CLEARANCE FROM CURB.

MATERIAL LIST:

A. SERVICE SADDLE SHALL BE BRASS WITH DOUBLE BRONZE FLATTENED STRAPS OR STAINLESS STEEL DOUBLE BOLT WIDE STRAPS. NO BANDED OR HINGED STRAPS SHALL BE ALLOWED. SERVICE SADDLES SHALL MEET AWWA/CC TAPPING OUTLET (TAPERED THREADS) REQUIREMENTS. ALL SERVICE SADDLES SHALL BE ; FORD MODELS 202B AND 202S, CAMBRIDGE MODELS SERIES 810 AND 811, A.Y. MCDONALD MODELS 3845 AWWA AND 3825 AWWA. AND MUELLER WATER PRODUCTS, INC. MODELS BR 2 B AND BR 2 S OR APPROVED EQUAL. PVC WATER LINES REQUIRE STRAPS TO BE A MINIMUM OF 2" WIDE.

B. 2" CORPORATION STOP: 300 PSI BALL TYPE VALVE, AWWA X B COMPRESSION, NSF61 APPROVED (H=15008N BY MUELLER CO. OR APPROVED EQUAL).

C. BRANCH CONNECTION: 2" COMPRESSION SERVICE PIPE INLET AND (2) 1" COMPRESSION OUTLETS, SERVICE TEE AS ILLUSTRATED (CAMBRIDGE BRASS PART# 150NL-H7H4 OR APPROVED EQUAL).

D. 1" LOCKING ANGLE METER VALVE; 1" FIP INLET, 1" SWIVEL COUPLING D NUT OUTLET, 300 PSI BALL TYPE VALVE ONLY, FULL PORT DESIGN ONLY, VALVE PASSAGE AND BALL IS EQUAL SIZE TO SMALLEST END CONNECTION, NON BLOW OUT STEM, UNFILLED TEFLOW SEALS, NSF61 APPROVED (H=14285N BY MUELLER CO. OR APPROVED EQUAL).

E. WATER METERS CENTERED IN BOX AS ILLUSTRATED.

F. PLASTIC ROUND METER BOX (SEE TABLE ABOVE).
NOTES:

1. CONCRETE: MINIMUM 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.

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

3. HATCHWAY: 1/4" ALUMINUM DIAMOND PLATE COVER WITH EXTRUDED ALUMINUM FRAME. HATCH TO BE FURNISHED WITH 316 STAINLESS STEEL SNAP LOCK & BRASS HINGES. TRAFFIC RATED HATCHWAY WHERE NEEDED.

4. PRECAST VAULT SHALL BE FROM PARK EQUIPMENT COMPANY MATCHING DETAIL SHOWN OR APPROVED OTHER. MINIMUM 6" CLEARANCE REQUIRED FROM INTERIOR WALLS.
**NOTES:**

1. CONCRETE: MINIMUM 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.

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

3. HATCHWAY: 1/4" ALUMINUM DIAMOND PLATE COVER WITH EXTRUDED ALUMINUM FRAME. HATCH TO BE FURNISHED WITH 316 STAINLESS STEEL SNAP LOCK & BRASS HINGES.

4. PRECAST VAULT SHALL BE FROM PARK EQUIPMENT COMPANY MATCHING DETAIL SHOWN OR APPROVED OTHER.

5. FDC RISER SHALL BE DETERMINED FROM HYDRAULIC CALCULATION, BUT SHALL BE 4" MIN. A 6" MIN. SHALL BE USED ON SYSTEM DEMANDS GREATER THAN 750 GPM.

6. MINIMUM 6" CLEARANCE REQUIRED FROM INTERIOR WALLS.

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DOUBLE DETECTOR CHECK
FIRE VAULT AND FDC

DATE: JANUARY 2023

STANDARD DRAWING NO.
4192M

CITY OF McKinney, Texas
CITY OF MCKINNEY, TEXAS

DOMESTIC WATER METER VAULT

DATE: JANUARY 2023

STANDARD DRAWING NO. 4193M

NOTES:

1. CONCRETE: MINIMUM 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. NO CAST-IN-PLACE VAULTS SHALL BE ALLOWED.

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

3. 3’ X 5’ GALVANIZED STEEL DOUBLE LEAF SPRING ASSISTED HATCHWAY – TRAFFIC RATED W/ SLAM LOCK AND SAFETY NET.

4. ALL VAULTS SHALL BE PRECAST. PRECAST VAULT SHALL BE FROM PARK EQUIPMENT COMPANY MATCHING DETAIL SHOWN OR APPROVED EQUAL. MINIMUM 6” CLEARANCE REQUIRED FROM INTERIOR WALLS.
**NOTES:**

1. MARKER SHALL BE LOCATED ON BOTH SIDES OF ALL ROADS AND RAILROADS, AND AT ALL MANHOLES.

2. MARKER SHALL ALSO BE PLACED AT ALL HORIZONTAL BENDS.

3. EACH MARKER SHALL HAVE A STICKER PRINTED WITH THE FOLLOWING INFORMATION "CAUTION WATER PIPELINE, BEFORE DIGGING, CONTACT (TEXAS 811)."
NOTES:

1. CLEAN POTABLE-WATER HOSE ONLY. THIS HOSE MUST BE REMOVED DURING THE HYDROSTATIC PRESSURE TEST.

2. APPLIES TO PIPES WITH DIAMETERS 8 IN. THROUGH 12 IN. LARGER SIZES MUST BE HANDLED ON A CASE BY CASE BASIS.
NOTES:

1. SERVICE PIPE SHALL BE SEAMLESS 250 PSI BLUE COLORED POLYETHYLENE ASTM D2737, SDR 9, CTS WATER SERVICE PIPE, NSF61 APPROVED.

MATERIAL LIST:

A. SERVICE SADDLE SHALL BE BRASS WITH DOUBLE BRONZE FLATTENED STRAPS OR STAINLESS STEEL DOUBLE BOLT WIDE STRAPS. NO BANDED OR HINGED STRAPS SHALL BE ALLOWED. SERVICE SADDLES SHALL MEET AWWA/CC TAPPING OUTLET (TAPERED THREADS) REQUIREMENTS. ALL SERVICE SADDLES SHALL BE; FORD MODELS 202B AND 202S, CAMBRIDGE MODELS SERIES 810 AND 811, A.Y. MCDONALD MODELS 3845 AWWA AND 3825 AWWA, AND MUELLER WATER PRODUCTS, INC. MODELS BR 2 B AND BR 2 S OR APPROVED EQUAL. PVC WATER LINES REQUIRE STRAPS TO BE A MINIMUM OF 2" WIDE.

B. CORPORATION STOP: 300 PSI BALL TYPE VALVE, AWWA X B COMPRESSION, NSF61 APPROVED (H-1500BM BY MUELLER CO. OR APPROVED EQUAL).

C. SERVICE PIPE SHALL BE SEAMLESS 250 PSI BLUE COLORED POLYETHYLENE ASTM D2737, SDR9, CTS WATER SERVICE PIPE, NSF61 APPROVED.

D. LOCKING ANGLE METER VALVE; FP INLET, SWVEL COUPLING D NUT OUTLET, 300 PSI BALL TYPE VALVE ONLY, FULL PORT DESIGN ONLY, VALVE PASSAGE AND BALL IS EQUAL SIZE TO SMALLEST END CONNECTION, NON BLOW OUT STEM, UNFILLED TEFLOK SEALS, NSF61 APPROVED (H-14258N BY MUELLER CO. OR APPROVED EQUAL).
NOTES:
ACCEPTABLE MANUFACTURERS SHALL BE HYDRO-GUARD® HG-2 MODEL NUMBER HG2-A-BL-2-BRN-018-LPLG-TCV AS MANUFACTURED BY THE MUELLER COMPANY, OR PRE-APPROVED EQUAL.

AUTOMATIC WATER DISTRIBUTION FLUSHING EQUIPMENT
N.T.S.

CONCRETE PAD FOR VALVE, AIR RELEASE, ETC.

FIELD INSTALLATION DETAIL
OFFSITE WATER MAIN MARKER
N.T.S.

PLANT VIEW

THERMAL CONTROL VALVE (TCV) FREEZE PROTECTION

ELEVATION

MCKINNEY, TEXAS

AUTOMATIC FLUSHING DEVICE
DATE: JANUARY 2023
STANDARD DRAWING NO.
4500M

CITY OF MCKINNEY, TEXAS
NOTE:
1. STRAIGHT CLAMP AND TRANSITION CLAMP COUPLINGS SHALL BE POLYWRAPPED.
2. BAND SHALL BE STAINLESS STEEL 18–8 TYPE 304, OR APPROVED EQUAL.
3. TRANSITION GASKET MATERIAL (RA-SEAL) PLIABLE BUTYL RUBBER SEALANT FOR TEMPERATURE RANGE –65° TO 180°F.
4. CLAMPS SHALL BE MODEL 108 MANUFACTURED BY JCM INDUSTRIES OR APPROVED EQUAL.
NOTES:

1. FIRST MAIN LINE JOINT TO BE A MIN. OF 5' LONG.
2. IF FALSE M.H. ARE REQUIRED, THEY SHALL BE CONSTRUCTED, INSTALLED AND REMOVED PER STD. DWG. NO. 5010M.
3. M.H.'S LOCATED OUTSIDE OF PAVING SHALL BE CONSTRUCTED WITH A CONCRETE MOW STRIP PER STD. DWG. NO. 5015M.
4. REFER TO STD. DWG. NO. 5031M FOR INFLOW PROTECTION AT MANHOLE GRADE RINGS, MANHOLE JOINTS AND ON OUTSIDE OF STRUCTURE.
5. CONCRETE SHALL BE 5,000 PSI 28 DAY STRENGTH.
6. REINFORCING SHALL MEET OR EXCEED ASTM C478 REQUIREMENTS.

Pipe connection to main shall be min. 5' long supported by modified flowable backfill/7% min. cement stabilized backfill material. Include manhole base prep within the whole manhole excavation zone to where pipe trench starts. Stubouts to be grouted at m.h. with non shrink grout. Stubouts shall also be fitted with water tight stopper or cap.

Inverts shall be sloped to maintain a smooth transition through the manhole, connecting all inlets and outlets from the manufacturer.

Base riser with "butt end" integrated into the conc. base.

Pipe connection to main shall be min. 5' long supported by modified flowable backfill/7% min. cement stabilized backfill material. Include manhole base prep within the whole manhole excavation zone to where pipe trench starts. Stubouts to be grouted at m.h. with non shrink grout. Stubouts shall also be fitted with water tight stopper or cap.

Approved resilient pipe-to-manhole connector or gasket req'd for pipe other than clay or concrete.

Cast in place base

Refer to Std. Dwg. No. 5030M

Non shrink grout coating, when not in paving

Use O-ring rubber gasket (typ.)

Use precast conc. grade rings & non shrink grout as required to raise grade.

Intermediate riser

As specified by owner

Standard sanitary sewer manhole frame & cover per city of McKinney standard.

McKinney Texas

Unique by nature.

WASTEWATER MANHOLE PRECAST

DATE: JANUARY 2023

STANDARD DRAWING NO.

5020M
**CONCRETE CONE**

- **ACCESS OPTIONS**
  
  **REINFORCED CONCRETE SLAB**

- **STANDARD SANITARY SEWER MANHOLE FRAME & COVER PER CITY OF MCKINNEY STANDARD**

- **SECTION A-A**

  - **CONSTRUCTION JOINT WITH KEY WAY WATERSTOP, AND #3'S AT 12" O.C.EXTENDING 9" INTO WALL (NOT REQ'D FOR CONTINUOUS POUR)**

- **ACCESS STEEL LAYOUT**
  (MUST BE APPROVED FOR SPECIAL USE)

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

**NOTES:**

1. IF FALSE M.H. BOTTOMS ARE REQUIRED THEY SHALL BE CONSTRUCTED, INSTALLED AND REMOVED, PER STD. DWG. NO. 5100M.
2. M.H.'S LOCATED OUTSIDE OF PAVING SHALL BE CONSTRUCTED WITH A CONCRETE MOW STRIP PER STANDARD DETAIL 7025M.
3. REFER TO STD. DWG. NO. 5031M FOR INFLOW PROTECTION AT MANHOLE GRADE RINGS AND ON THE OUTSIDE OF MANHOLE STRUCTURE.
4. CAST IN PLACE MANHOLE WILL REQUIRE A P.E. SEALLED DESIGN SUBMITTED BY CONTRACTOR, AND APPROVED BY CITY OF MCKINNEY ENGINEER. CAST IN PLACE BASE MUST BE A MINIMUM 12" THICK WITH #5 BARS @ 12" OC-EW (EACH WAY) AND SHALL EXTEND 1' BEYOND MANHOLE.
NOTE:
1. REQUIRED ON ALL SANITARY SEWER MANHOLES.
NOTE:
1. PRIOR TO THE POLYURETHANE COATING PROCESS, PRESSURE WASH AND CLEAN STRUCTURE. FILL BUG HOLES, JOINTS, HONEYCOMBS AND AROUND PIPE PENETRATIONS WITH A CEMENTITIOUS REPAIR MATERIAL (CRM) AS NEEDED. USE STRONG SEAL MS2C MANUFACTURED BY THE STRONG COMPANY, INC. OR APPROVED EQUAL. THEN APPLY A MINIMUM OF 125 MILS (1/16 INCH) THICKNESS OF A POLYURETHANE COATING MATERIAL (EXISTING MANHOLES REQUIRE A MINIMUM OF 250 MILS THICKNESS OF POLYURETANE COATING MATERIAL). FOR THE POLYURETHANE COATING MATERIAL USE SPRAYWALL MANUFACTURED BY SPRAYROQ, INC. OR APPROVED EQUAL.
2. ADDITIONAL CLEANING, PREPARATION, AND REPAIR METHODS MAY BE REQUIRED FOR EXISTING MANHOLES DEPENDING ON CONDITION ASSESSMENT OF THE MANHOLE. CONTACT ENGINEERING DEPARTMENT FOR ADDITIONAL SPECIFICATIONS.
3. THIS DETAIL APPLIES TO DROP MANHOLES, MANHOLES ON LINES 15 INCH OR GREATER, FIRST MANHOLE UPSTREAM OF CONNECTION TO 15" AND GREATER LINE SIZES, MANHOLES IN FLOODPLAINS, AND FORCE MAIN TRANSITION MANHOLES.
4. SPARK TESTING IS REQUIRED FOR COATINGS. COST FOR TESTING IS SUBSIDIARY TO OTHER BID ITEMS. CITY INSPECTOR TO BE PRESENT FOR SPARK TESTING. CONTRACTOR TO PROVIDE WRITTEN SPARK TEST RESULTS TO CITY.
5. EXISTING BRICK MANHOLES SHALL BE REPLACED.
WET WELLS:
1. MANHOLE JOINTS SHALL BE WRAPPED WITH A HEAT SHRINK THERMO PLASTIC MATERIAL "WRAPIDSEAL" MANUFACTURED BY CANUSA COATING SYSTEMS, "GATOR WRAP" MANUFACTURED BY SEALING SYSTEMS, INC. OR APPROVED EQUAL.

2. THE OUTSIDE OF THE JOINTS AND ADJUSTMENT RINGS NEED TO BE WRAPPED AS NOTED ON THIS DETAIL.

APPLY POLYURETHANE COATING MATERIAL (SPRAYROQ) TO ALL EXPOSED CONCRETE AND GROUTED SURFACES. SURFACE PREPARATION AND POLYURETHANE COATING MATERIAL APPLICATION SHALL FOLLOW MANUFACTURERS RECOMMENDATIONS.

NOTE:
1. PRIOR TO THE POLYURETHANE COATING PROCESS, PRESSURE WASH AND CLEAN STRUCTURE. FILL BUG HOLES, JOINTS, HONEYCOMBS AND AROUND PIPE PENETRATIONS WITH A CEMENTITIOUS REPAIR MATERIAL (CRM) AS NEEDED. USE STRONG SEAL MS2C MANUFACTURED BY THE STRONG COMPANY, INC. OR APPROVED EQUAL. THEN APPLY A MINIMUM OF 125 MILS (1/8 INCH) THICKNESS OF A POLYURETHANE COATING MATERIAL (EXISTING WET WELLS REQUIRE A MINIMUM OF 250 MILS (1/4") THICKNESS OF POLYURETANE COATING MATERIAL). FOR THE POLYURETHANE COATING MATERIAL USE SPRAYWALL MANUFACTURED BY SPRAYROQ, INC. OR APPROVED EQUAL.
2. ADDITIONAL CLEANING, PREPARATION, AND REPAIR METHODS MAY BE REQUIRED FOR EXISTING WET WELLS AND LIFT STATIONS DEPENDING ON A CONDITION ASSESSMENT PROVIDED BY THE ENGINEER OF RECORD. CONTACT ENGINEERING DEPARTMENT FOR ADDITIONAL SPECIFICATIONS.
3. THIS DETAIL APPLIES TO ALL WET WELLS AND LIFT STATIONS.
4. SPARK TESTING IS REQUIRED FOR COATINGS. COST FOR TESTING IS SUBSIDIARY TO OTHER BID ITEMS. CITY INSPECTOR TO BE PRESENT FOR SPARK TESTING. CONTRACTOR TO PROVIDE WRITTEN SPARK TEST RESULTS TO CITY.
4" REINFORCED CONCRETE MOW STRIP. REINFORCE WITH #3 BARS ON 18" CENTERS EACH WAY.

MINIMUM 2' ABOVE 100 YR FLOODPLAIN (WHICHEVER IS GREATER). THE DESIGN ENGINEER SHALL PROVIDE HEIGHT OF VENT OPENING IN PLAN AND PROFILE SHEET.

NOTES:
1. REFER TO STANDARD DETAIL 5030M FOR MANHOLE. CONCRETE SHALL BE MONOLITHIC POUR.
2. REFER TO STD. DWG. NO. 5031M FOR INFLOW PROTECTION AT MANHOLE GRADE RINGS, MANHOLE JOINTS, AND ON OUTSIDE OF STRUCTURE.
NOTES:
1. BOLLARD HEIGHT SHALL EXTEND TO 1 FOOT ABOVE THE OVERALL HEIGHT OF THE VENT PIPE.

4" REINFORCED CONCRETE MOW STRIP.

8" DIA SCH 40 STEEL PIPE, GRIND SMOOTH, FILL WITH CONC AND PAINT AS SPECIFIED

FOUNDATION DEPTH SHALL MATCH ABOVE GROUND HEIGHT OF BOLLARD

4,000 PSI CONCRETE ENCASMENT

GROUT PLUG

TOP OF FINISH GRADE

VARES

1"

1' - 0"

MIN.

3"

CLR

1' - 6"

MIN DIA

DATE: JANUARY 2023

CITY OF McKinney, Texas
ELEVATION
N.T.S.

NOTE:
1. DROP BOWL, DROP PIPE CHANNEL LINER AND STAINLESS STEEL PIPE CLAMPS AS MANUFACTURED BY RELINER/DURAN INC. OR APPROVED EQUAL.
2. INSIDE DROP CONNECTIONS MAY ONLY BE USED ON NEW MANHOLES.
3. EVALUATE EXISTING MANHOLES TO PROVIDE 4'-0" MINIMUM CLEARANCE BETWEEN DROP BOWL APPARATUS AND INSIDE WALL OF MANHOLE. IF MINIMUM CLEARANCE CANNOT BE ACHIEVED THEN THE MANHOLE SHALL BE REPLACED WITH AN APPROPRIATELY SIZED MANHOLE.
4. DROP MANHOLES REQUIRE A DROP OF 2' OR GREATER. NO BUILDING OF CHANNELS OR SLOPES INSIDE OF MANHOLE. ANY DROPS LESS THAN 2' MUST COME FROM THE SUPPLIER WITH FACTORY MANUFACTURED INVERTS.
HVA ADHESIVE CAPSULE ANCHOR
A. DRILL HOLES WITH ANSI B212.15 MATCHED TOLERANCE CARBIDE TIPPED DRILL BITS WITH DRILL IN ROTO-HAMMER MODE OR USE A MATCHED TOLERANCE DIAMOND CORE DRILL BIT OF DIAMETER SPECIFIED BY HILTI.
B. DRILLED HOLE SPECIFICATIONS (DIAMETER & DEPTH) SHALL COMPLY WITH HILTI SPECIFICATION OR ICC ESR 1562.
C. ALLOWABLE LOADS MAY BE INCREASED BY 33-1/3% FOR SHORT-TERM WIND OR SEISMIC LOAD RESISTANCE IAW ICC ESR 1862 UNLESS NOT PERMITTED BY THE APPLICABLE BUILDING CODE.
D. WHEN CONDUCTED, PROOF TESTS ANCHORS IN THE FIELD TO 150-200% OF HILTI PUBLISHED ALLOWABLE TENSION LOAD UNLESS NOTED OTHERWISE IN A PROOF TEST LOAD TABLE. TORQUE TESTING IS NOT PERMITTED.
E. ANCHORS SHALL BE TIGHTENED WITH A CALIBRATED TORQUE WRENCH. USE OF AN IMPACT WRENCH IS NOT PERMITTED.
F. CONTACT HILTI TECHNICAL SUPPORT AT 1-800-879-8000 FOR INSTALLATION INSTRUCTIONS IN SUBMERGED WATER CONDITIONS.
G. CONTACT HILTI TECHNICAL SUPPORT AT 1-800-879-8000 FOR ADDITIONAL ASSISTANCE WITH HVA ADHESIVE ANCHOR INSTALLATIONS.

INSTALLATION INSTRUCTIONS:
H.1. FOR HVA ADHESIVE CAPSULES WITH H.A.S. THREADED RODS:
1. DRILL ANCHOR HOLE WITH A CARBIDE BIT (SEE NOTE 1 ABOVE), TO SPECIFIED EMBEDMENT DEPTH.
2. CLEAN HOLE WITH COMPRESSED AIR OR BLOW OUT PUMP. INSERT NOZZLE TO BOTTOM OF HOLE.
3. IF USING MATCHED TOLERANCE CORE BIT, REMOVE STANDING WATER FROM HOLE.
4. INSERT APPROPRIATE HVU CAPSULE INTO HOLE WITH POINTED END FIRST. CAPSULE LENGTH IS LONGER THAN STANDARD EMBEDMENT AND WILL PROTRUDE FROM HOLE. DO NOT CUT OFF ANY PART OF THE HVU CAPSULE.
5. THREAD ROD INTO HOLE.
6. PLACE A WASHER ON TOP NUT AND THREAD BLACK SETTING NUT DOWN ON WASHER.
7. TIGHTEN NUTS TOGETHER SO THAT BLACK SETTING WASHER IS AT TOP OF ROD.
8. INSERT SQUARE DRIVE SHAFT INTO HAMMER DRILL AND ATTACH PROPER IMPACT SOCKET.
9. WITH HAMMER DRILL ON ROTARY HAMMER, ENGAGE TOP NUT OF H.A.S. ROD ASSEMBLY AND ROTOHAMMER ROD THROUGH CAPSULE(S) INTO THE HOLE. STOP DRILL ROTATION IMMEDIATELY UPON REACHING BOTTOM OF HOLE.
10. DO NOT DISTURB OR LOAD ANCHOR BEFORE CURING TIME ELAPSES.

HVA INSTALLATION SPECIFICATION TABLE FOR H.A.S. RODS

<table>
<thead>
<tr>
<th>DETAILS HAS Rod Size</th>
<th>in.</th>
<th>3/8</th>
<th>1/2</th>
<th>5/8</th>
<th>3/4</th>
<th>7/8</th>
<th>1</th>
<th>1-1/4</th>
</tr>
</thead>
<tbody>
<tr>
<td>d bit : nominal bit diameter</td>
<td>in.</td>
<td>15/32</td>
<td>9/16</td>
<td>11/16</td>
<td>7/8</td>
<td>1</td>
<td>1-1/8</td>
<td>1-3/8</td>
</tr>
<tr>
<td>h nom = std. depth of embed.</td>
<td>in.</td>
<td>3-1/2</td>
<td>4-1/4</td>
<td>5</td>
<td>6-5/8</td>
<td>6-5/8</td>
<td>8-1/4</td>
<td>12</td>
</tr>
<tr>
<td>= capsule length</td>
<td>in.</td>
<td>1</td>
<td>1-1/2</td>
<td>1-3/4</td>
<td>2</td>
<td>2-1/4</td>
<td>2-1/2</td>
<td>2-3/4</td>
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<tr>
<td>t : max. thickness of Hilti Rods ft-lb</td>
<td>in.</td>
<td>18</td>
<td>30</td>
<td>75</td>
<td>150</td>
<td>175</td>
<td>235</td>
<td>400</td>
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<tr>
<td>h max : max. tightening torque</td>
<td>in.</td>
<td>5-1/4</td>
<td>6-3/8</td>
<td>7-1/2</td>
<td>10</td>
<td>10</td>
<td>12-3/8</td>
<td>18</td>
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<tr>
<td>h : minimum base material thickness</td>
<td>in.</td>
<td>1.0h+2f</td>
<td>1.0h+2f</td>
<td>1.0h+2f</td>
<td>1.0h+2f</td>
<td>1.0h+2f</td>
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<tr>
<td>f</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>3</td>
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</table>

Recommended Hilti Rotary Hammer Drill
TE-515, 18M25 TE-18M,25,55,76 TE-55, 76 TE-76

For St: 1 inch = 25.4mm, 1 ft-lb = 1.4 Nm
Curing Time Table (Approximate)

<table>
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<tr>
<th>Approx. Curing Time</th>
<th>Base Material Temperature</th>
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<tr>
<td>20 Minutes</td>
<td>ABOVE 68° F/20°C</td>
</tr>
<tr>
<td>30 Minutes</td>
<td>50°F/10°C</td>
</tr>
<tr>
<td>1 Hour</td>
<td>32°F/0°C</td>
</tr>
<tr>
<td>5 Hour</td>
<td>23°F/-5°C</td>
</tr>
</tbody>
</table>

INSTALLATION INSTRUCTIONS:
1. SET THE DRILL DEPTH GAUGE AND DRILL A HOLE TO THE REQUIRED HOLE DEPTH. IMPORTANT: CLEAN OUT DUST AND DEBRIS. USE COMPRESSED AIR OR VACUUM AT BOTTOM OF HOLE. WHEN USING THE HILT I MATCHED TOLERANCE DIAMOND CORE BIT, IMMEDIATELY REMOVE STANDING WATER.
2. INSERT APPROPRIATE DIAMETER HVU ADHESIVE CAPSULE INTO PRE-DRILLED HOLE IN BASE MATERIAL. NOTE: THE BEST METHOD FOR SETTING MULTIPLE CAPSULES IS TO CRUSH THE FIRST CAPSULE(S) INTO THE HOLE AND THEN INSERT THE NEXT CAPSULE. DO NOT CUT OFF CAPSULES PARTIALLY PROTRUDING FROM THE HOLE.
3. CAPSULE LENGTH IS LONGER THAN STANDARD EMBED, DEPTH AND WILL PROTRUDE FROM THE HOLE.
6. DO NOT DISTURB OR LOAD THE SET ANCHOR BEFORE THE SPECIFIED CURING TIME ELAPSES.
NOTES:
1. REFER TO MANHOLE STANDARD DRAWINGS FOR ADDITIONAL DETAIL OF M.H.
2. 2' MAXIMUM DIFFERENCE BETWEEN ENTRANCE PIPE AND EXIT PIPE FLOWLINE WITH 1:1 MAXIMUM SLOPE.
3. PROVIDE A CONTINUOUS INVERT FLOWLINE TO FLOWLINE MAKING A SMOOTH TRANSITION.
INSTALLATION

FALSE MANHOLE BOTTOM SHALL 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 WASTEWATER SYSTEM INCLUDING THE AIR TEST, BUT PRIOR TO THE FINAL INSPECTION.

REMOVAL

FALSE MANHOLE BOTTOM SHALL BE REMOVED AFTER THE FINAL APPURTENANCE ADJUSTMENT INSPECTION. THE PAVING CONTRACTOR AND OWNER'S REPRESENTATIVE WILL COORDINATE THE REMOVAL OF THE FALSE MANHOLE BOTTOMS.

INSTALLATION AND REMOVAL POSITION

N.T.S.

PLAN VIEW

N.T.S.

D = INSIDE DIAMETER OF MANHOLE

5/8" HOLE FOR 1/2" NYLON ROPE HANDLES

5/8" HOLES FOR 1/2" NYLON ROPE HANDLES

D/3

8"

3/4" PLYWOOD

NYLON ROPE HANDLES

METAL STRAP HINGES (MIN. 3" LONG) W/BOLTS
1480A COVER

CITY OF McKinney, TX
SANITARY SEWER MANHOLE LID
CITY OF McKinney, TEXAS

1 1/2" RAISED LETTERING (RECESSED FLUSH)

(2) STEEL PICKBARS

SECTION A-A

BOTTOM VIEW

PRODUCT NUMBER
NCR09-2259C

DESIGN FEATURES

MATERIALS
COVER: RAY IRON
ASTM A-48 CL35B

DESIGN LOAD
HEAVY DUTY

COATING
UNDIPPED

OPEN AREA
N/A

✓ DESIGNATES MACHINE SURFACE

DATE: JANUARY 2023
STANDARD DRAWING NO. 5101M
1480ZPT ASSEMBLY

CITY OF McKinney, Texas

Sanitary Sewer Manhole Lid

Product Number:
NPR10-1550A

Design Features:

Materials:
- Cover: Gray Iron, ASTM A48 CL35B
- Frame: Gray Iron, ASTM A48 CL35B

Design Load:
Heavy Duty

Coating:
Undipped

Open Area:
N/A

Designates Machine Surface:
✓

Bolt Down
Sanitary Sewer Manhole Lid

CITY OF McKinney, Texas
CITY OF McKINNEY, TEXAS

STANDARD DRAWING NO. 5101M

STANDARD COMPOSITE SANITARY SEWER MANHOLE FRAME & COVER

DATE: JANUARY 2023

MOUNTING FOR FLOW MONITORING AND LEAK DETECTION DEVICES

EPDM SEAL

COVER THICKNESS 1 1/4"

FRAME HEIGHT 4"

Ø30 CLEAR OPENING

SECTION A-A

STANDARD DRAWING NO. 5101M
CITY OF McKinney, Texas
NOTES:
1. RESIDENTIAL SEWER LATERAL SHALL BE MINIMUM 4" PVC CLASS 180 SDR 26 AT A 2% MINIMUM GRADE.
2. SEWER LATERALS SHALL EXTEND TO A POINT 10 FT BEYOND RIGHT-OF-WAY LINE AND SHALL BE A MAXIMUM OF 5 FT DEEP.
3. SEWER LATERALS SHALL BE PLACED AT THE C OF EACH LOT.
4. DURING INITIAL LATERAL INSTALLATION, A 4" CLEANOUT SHALL BE BROUGHT 3–4 FT ABOVE GRADE AT THE R.O.W. LINE.
5. PRIOR TO FINAL GRADING, LATERAL LOCATION SHALL BE MARKED ON CURB AND CLEANOUT TO BE CUT 1 FOOT BELOW GRADE.
6. CONNECTION TO THE MAIN SHALL BE MADE WITH A COMBO WYE & EXTRA–LONG SWEEP ⅜ BEND.
7. NO CONNECTIONS OR FITTINGS ARE ALLOWED ON THE VERTICAL STACK.
**NOTES:**

1. WYE SHALL BE SUPPORTED AS SHOWN FOR WYE CONNECTION SUPPORT.
2. LATERALS ARE TO CLEAR ALL EXISTING UTILITIES. 11 1/4" OR 22 1/2" BEND, ONLY, MAY BE REQUIRED.
3. USE NON-SHRINK GROUT FOR ALL RUBBER FITTINGS TO ENSURE STRUCTURAL INTEGRITY OF SEWER MAIN LINE TAP.
CITY OF McKINNEY, TEXAS

WASTEWATER LATERAL CLEANOUT FRAME AND COVER

DATE: JANUARY 2023
STANDARD DRAWING NO. 5140M
CITY OF McKinney, Texas

NOTES:
1. THE WORDS "WASTEWATER LATERAL CLEANOUT" SHALL BE CAST INTO TOP OF COVER.
2. MATERIALS TO BE CAST IRON, P.V.C. OR ABS PLASTIC.

ASSEMBLY VIEW
N.T.S.
ABANDONMENT OF MANHOLE INSIDE OR OUTSIDE OF PAVEMENT

CITY OF McKinney, TEXAS

DATE: JANUARY 2023

STANDARD DRAWING NO. 5170M

OUT OF PAVEMENT

IN PAVEMENT

N.T.S.

N.T.S.

EX. M.H. COVER TO BE REMOVED

EXISTING PAVEMENT AND SUBGRADE

CONCRETE

EX. WASTEWATER MAIN

FLOWABLE FILL, 2 SACK MIN.

EX. WASTEWATER MAIN

EXISTING CONC. BASE

CLASS "B" CONC. TO A POINT 1" ABOVE TOP OF PIPE.

TO BE PLUGGED PRIOR TO POURING CLASS "B" CONCRETE.

ALL ABANDONED MAINS SHALL BE FILLED WITH GROUT

SAND AND/OR GRAVEL COMPACTED TO 90% OF THE MAXIMUM STANDARD PROCTOR DRY DENSITY AS PER STD. SPEC. ITEM 6.2.9.(b)(2)

REMOVE AT LEAST ONE OR MORE SECTIONS AS REQUIRED

EX. M.H. FRAME & COVER TO BE REMOVED & REPLACED W/ top soil of solid sod
3.75" SEE DETAIL BELOW
GREEN MARKER W/ WHITE BLOCK TEXT

3.75"x72" THREE RAIL COMPOSITE PIPELINE MARKER MANUFACTURED BY CARBONITE INTERNATIONAL OR APPROVED EQUAL

TOP OF GROUND

24"

EACH MARKER SHALL INCLUDE A BARB ANCHOR FOR PERMANENT ANCHORING

3.75"  

SANITARY SEWER
CAUTION
PIPELINE

NOTES:
1. MARKER SHALL BE LOCATED ON BOTH SIDES OF ALL ROADS AND RAILROADS, AND AT ALL MANHOLES.

2. MARKER SHALL ALSO BE PLACED AT ALL HORIZONTAL BENDS.

3. EACH MARKER SHALL HAVE A STICKER PRINTED WITH THE FOLLOWING INFORMATION "CAUTION SANITARY SEWER PIPELINE, BEFORE DIGGING, CONTACT (TEXAS 811)."
STORMWATER MANHOLE
4', 5', OR 6' SQUARE

NOTES:
1. ACCESS MANHOLE SHALL BE LOCATED ABOVE EXIT PIPE.
2. FOR LINES OVER 60 INCHES, A SPECIAL DETAIL IS REQUIRED.
3. SEE DETAIL 7005M FOR MANHOLE MOWSTRIP.
4. SEE STRUCTURAL NOTES ON 6010M SHEET 2 OF 2.

TABLE OF DIMENSIONS

<table>
<thead>
<tr>
<th>M.H. SIZE (W)</th>
<th>V</th>
<th>T</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>FOR PIPE SIZES</th>
</tr>
</thead>
<tbody>
<tr>
<td>4'</td>
<td>5'-4&quot;</td>
<td>8&quot;</td>
<td>6&quot;</td>
<td>9&quot;</td>
<td>6&quot;</td>
<td>1'-3&quot;</td>
<td>18'-39&quot;</td>
</tr>
<tr>
<td>5'</td>
<td>6'-4&quot;</td>
<td>8&quot;</td>
<td>6&quot;</td>
<td>12&quot;</td>
<td>8&quot;</td>
<td>1'-8&quot;</td>
<td>42'-48&quot;</td>
</tr>
<tr>
<td>6'</td>
<td>7'-6&quot;</td>
<td>9&quot;</td>
<td>9&quot;</td>
<td>16&quot;</td>
<td>10&quot;</td>
<td>2'-2&quot;</td>
<td>54'-60&quot;</td>
</tr>
</tbody>
</table>

NOTE:
- STANDARD M.H. FRAME AND COVER AS SPECIFIED BY OWNER. SEE 6010M
- PRECAST CONCRETE GRADE RINGS AS REQUIRED TO RAISE GRADE
- VERT. #4 BARS @ 12" OUTSIDE AND INSIDE FACES (TYP)
- 2"x4" KEYWAY OR CONTINUOUS #4 BARS AT 8" C/C (4' & 5' M.H.), #5 BARS @ 8" C/C (6' M.H.)
- #4 BARS AT 6" C/C (4' M.H.) OR #5 BARS AT 8" C/C (5' & 6' M.H.) EACH WAY
- COMPACTED CRUSHED STONE, STANDARD GRADATION
- 6" MIN.

DATE: JANUARY 2023
STANDARD DRAWING NO.
6010M
CITY OF McKinney, Texas
NOTES:
1. SLOPE INVERT OF MANHOLE AS INDICATED ON PLAN--PROFILE SHEET.
2. FOR USE OF THIS STANDARD DETAIL, THE FOLLOWING GEOTECHNICAL SITE CONDITIONS MUST BE MET:
   - MINIMUM ALLOWABLE BEARING PRESSURE: 1,500 PSF
   - MAXIMUM AT REST PRESSURE COEFFICIENT (K_o): 0.75
   - MAXIMUM FILL SOIL UNIT WEIGHT: 130 PCF
3. ALL MATERIALS SHALL BE SUBMITTED FOR APPROVAL PRIOR TO CONSTRUCTION.
4. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI.
5. ALL REINFORCING STEEL SHALL BE GRADE 60.
6. ALL CLEAR COVER SHALL BE 2" WHERE FORMED AND 3" WHERE CAST AGAINST EARTH.
CITY OF MCKINNEY, TEXAS

STORMWATER MANHOLE LID

STANDARD DRAWING NO. 6010M

DATE: JANUARY 2023

PRODUCT NUMBERS
BASS & HAYS VRM–30 BASS Storm Sewer
EAST JORDAN IRON WORKS 00147987A01

DESCRIPTION
30" REVERSIBLE CAST IRON MANHOLE RING AND COVER "BASS STORM SEWER"
ASTM A48 GRAY IRON CL35B
RING WEIGHT: 154 LBS.
COVER WEIGHT: 237 LBS.
SET WEIGHT: 391 LBS.

H–20 TRAFFIC RATED WHEN RING IS PROPERLY INSTALLED IN REINFORCED CONCRETE.

✓ DESIGNATES MACHINED SURFACE.

COATING: UNDIPPED
12', 15', & 20' DOUBLE CURB INLETS

NOTE:
1. REINFORCEMENT SHOWN IS ADDITIONAL FOR PIPE OPENINGS SEE SECTIONS FOR OTHER REINFORCING.
2. BARS J SHALL BE CUT AT OPENINGS TO MAINTAIN 2" MIN. CLEAR COVER. ADDITIONAL #5 BARS X 3'-6"
   SHALL BE PROVIDED AT EACH SIDE OF OPENING.

SECTION B-B - 12, 15 AND 20 FOOT INLETS

SECTION C-C - 12, 15 AND 20 FOOT INLETS

SECTION D-D - 12, 15 AND 20 INLETS

OPENING NOTE:
BARS SHALL BE ADJUSTED OR CUT AS NECESSARY TO MAINTAIN A MIN. 1 3/8" CLEAR AT ALL OPENINGS.

DATE: JANUARY 2023

CITY OF McKinney, Texas

12', 15', & 20' DOUBLE CURB INLETS
1. Throat opening shall be 6 inches.
2. Precast inlets must be approved by engineer.
3. The floor of the excavation must provide a firm, level bed for the base section to rest upon.
4. A minimum of 6 inches of 1" diameter (maximum rock or gravel shall be used to prepare the bedding to final grade or in lieu of this, at least 6 inches of 2-sack cement stabilized sand shall be used to prepare the bedding to grade. Cement stabilized-sand shall be allowed to set by keeping hole pumped dry.
5. After casting has been installed on the proper bedding, the backfill material, which is free flowing and clear of rocks, in excess of 4" diameter and other lumps which would prohibit proper compaction, shall be commingled in lifts of no more than 1/8". The material used for backfill should be of type A suitable to obtain the density requirements for the specific job.
6. Concrete to be 4000 psi.
7. Locking device is required on all storm sewer lids.
8. "No dumping" warning plaque to be installed on all standard and recessed inlets.
9. Design shown for inlets up to 5'-0" in depth. Special design will be required for inlets greater than 5'-0" in depth.
10. At least one access ring and cover shall be placed over outfall pipe.
11. If inlet in sag, blockout shall extend 10' either side of inlet. If not in sag, then blockout shall extend 10' upstream and 5' downstream of inlet.

Pipe shall connect to the ends or sides of inlets. Connection shall be made at corner or bottom.
### Reinforcing Steel Schedule

#### Double Inlets

<table>
<thead>
<tr>
<th>Inlet Opening &quot;L&quot;</th>
<th>Bar</th>
<th>Bar Size</th>
<th>Bar Length</th>
<th>Bar Spacing</th>
<th>Bar</th>
<th>Bar Size</th>
<th>Bar Length</th>
<th>Bar Spacing</th>
</tr>
</thead>
<tbody>
<tr>
<td>6'-0&quot;</td>
<td>A</td>
<td>#4</td>
<td>13'-4&quot;</td>
<td>8&quot; O.C. MAX</td>
<td>A</td>
<td>#4</td>
<td>16'-4&quot;</td>
<td>8&quot; O.C. MAX</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>#4</td>
<td>13'-4&quot;</td>
<td>8&quot; O.C. MAX</td>
<td>B</td>
<td>#4</td>
<td>16'-4&quot;</td>
<td>8&quot; O.C. MAX</td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>#4</td>
<td>13'-4&quot;</td>
<td>8&quot; O.C. MAX</td>
<td>C</td>
<td>#4</td>
<td>16'-4&quot;</td>
<td>8&quot; O.C. MAX</td>
</tr>
<tr>
<td></td>
<td>C2</td>
<td>#4</td>
<td>3'-2&quot;</td>
<td>8&quot; O.C. MAX</td>
<td>C2</td>
<td>#4</td>
<td>3'-2&quot;</td>
<td>8&quot; O.C. MAX</td>
</tr>
<tr>
<td></td>
<td>D</td>
<td>#5</td>
<td>4'-6&quot;</td>
<td>12&quot; O.C. MAX</td>
<td>D</td>
<td>#5</td>
<td>4'-8&quot;</td>
<td>12&quot; O.C. MAX</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>#5</td>
<td>3'-3&quot;</td>
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<td>3'-3&quot;</td>
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<tr>
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<td></td>
<td>H</td>
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<td>4'-8&quot;</td>
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<td>K**</td>
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<tr>
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<td>6'-2&quot;</td>
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<tr>
<td></td>
<td>U</td>
<td>#4</td>
<td>3'-4&quot;</td>
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<td>U</td>
<td>#4</td>
<td>3'-4&quot;</td>
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#### Single Inlets

<table>
<thead>
<tr>
<th>Inlet Opening &quot;L&quot;</th>
<th>Bar</th>
<th>Bar Size</th>
<th>Bar Length</th>
<th>Bar Spacing</th>
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<th>Bar Size</th>
<th>Bar Length</th>
<th>Bar Spacing</th>
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<tbody>
<tr>
<td>5'-0&quot;</td>
<td>A</td>
<td>#4</td>
<td>5'-0&quot;</td>
<td>8&quot; O.C. MAX</td>
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<td>#4</td>
<td>7'-0&quot;</td>
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</tr>
<tr>
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<td>8&quot; O.C. MAX</td>
<td>B</td>
<td>#4</td>
<td>7'-0&quot;</td>
<td>8&quot; O.C. MAX</td>
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<tr>
<td></td>
<td>C</td>
<td>#4</td>
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<td>8&quot; O.C. MAX</td>
<td>C</td>
<td>#4</td>
<td>7'-0&quot;</td>
<td>8&quot; O.C. MAX</td>
</tr>
<tr>
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<td>C2</td>
<td>#4</td>
<td>3'-2&quot;</td>
<td>8&quot; O.C. MAX</td>
<td>C2</td>
<td>#4</td>
<td>3'-2&quot;</td>
<td>8&quot; O.C. MAX</td>
</tr>
<tr>
<td></td>
<td>D</td>
<td>#5</td>
<td>4'-6&quot;</td>
<td>12&quot; O.C. MAX</td>
<td>D</td>
<td>#5</td>
<td>4'-6&quot;</td>
<td>12&quot; O.C. MAX</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>#5</td>
<td>3'-3&quot;</td>
<td>12&quot; O.C. MAX</td>
<td>F</td>
<td>#5</td>
<td>3'-3&quot;</td>
<td>12&quot; O.C. MAX</td>
</tr>
<tr>
<td></td>
<td>G</td>
<td>#4</td>
<td>3'-6&quot;</td>
<td>12&quot; O.C. MAX</td>
<td>G</td>
<td>#4</td>
<td>3'-6&quot;</td>
<td>12&quot; O.C. MAX</td>
</tr>
<tr>
<td></td>
<td>H</td>
<td>#4</td>
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<td>H</td>
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<td></td>
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<td>#5</td>
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<td>#5</td>
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<td>6'-2&quot;</td>
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</tbody>
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* Bar lengths shown are for max height inlets; values shall be adjusted for usual height inlets.
** Dimensions shown for top slab openings as shown in the details. Additional bars shall be provided at all pipe openings as shown in the details. Number and dimensions to be modified as needed.
SECTION "A—A"
N.T.S.

PLAN OF TOP SLAB
N.T.S.

NOTES:
1. MATERIAL AND WORKMANSHIP SHALL CONFORM WITH THE REQUIREMENTS OF NTCOG STANDARD SPECIFICATIONS FOR STANDARD CONCRETE MANHOLES, MINIMUM 4000 PSI CONCRETE.
2. LAYERS OF REINFORCING STEEL NEAREST THE INTERIOR AND EXTERIOR SURFACES SHALL HAVE A COVER OF 2" UNLESS OTHERWISE NOTED.
3. FOR DETAILS OF REINFORCING OF LOWER PORTIONS OF THE INLET SEE APPROPRIATE SQUARE MANHOLE DETAILS.
4. DEPTH OF DROP INLET FROM THROAT TO FLOW LINE OF INLET IS VARIABLE. APPROXIMATE DEPTH SHALL BE SHOWN ON PLANS AT LOCATION OF INLET.
5. ALL STANDARD DROP INLETS SHALL HAVE ONE OPENING ON EACH SIDE UNLESS OTHERWISE SHOWN ON THE PLANS.
6. DECK MAY BE REINFORCED SAME AS 4' SQUARE MANHOLE, SEE STD. DETAIL 6000M.
7. MANHOLE OPENING SHALL BE EAST JORDAN IRON WORKS #00303461 OR EQUAL WITH FISH IMAGE ON COVER AND TOP FLANGE ON FRAME.
8. APRON SLOPE SHALL BE 4:1 UNLESS NOTED OTHERWISE ON PLANS. IF APRON SLOPES DIFFER ON DIFFERENT SIDES OF THE INLET, ELEVATIONS SHALL BE SPECIFIED AT APRON CORNERS AND ALL GRADE BREAKS.

INLET SIZE  T  W  A
4' SQUARE  7"  4'-0"  4'
5' SQUARE  8"  5'-0"  4'
6' SQUARE  9"  6'-0"  4'

CITY OF McKinney, Texas
DATE: JANUARY 2023
STANDARD DRAWING NO.
6040M
TYPICAL FLUME (WITH CURB)

TYPICAL FLUME (NO CURB)

NOTES:

1. WIDTH AS SPECIFIED IN PLANS (3’ MIN. WIDTH, 6’ MAX WIDTH)

2. EROSION PROTECTION SUCH AS ARTICULATED CONCRETE BLOCK, TURF REINFORCEMENT MAT, OR NON–GROUTED RIP RAP MUST BE PROVIDED ADJACENT TO THE PILOT CHANNEL TO PREVENT UNDERMINING DUE TO SCOUR.
NOTES:
1. ROCK RIPRAP PROVIDED BEYOND APRON SHALL BE AS SPECIFIED IN PLANS BY DESIGN ENGINEER.
2. POSITIVE DRAINAGE MUST BE PROVIDED BEYOND CONCRETE APRON.
3. HEADWALL SLOPE SHALL BE SPECIFIED IN PLANS BY DESIGN ENGINEER (MAX. 3:1)
4. CONCRETE SHALL BE 4000 PSI.
5. CONCRETE APRON OR APPROVED EQUAL.
6. REFER TO TxDOT STANDARD DETAILS FOR HEADWALLS TYPE A AND TYPE B.
1/4"x4" STEEL PLATE (TYP. ALL SIDES)

1"x1" STEEL ANGLES ALONG TOP EDGES

EXPANDED METAL MESH TYPICAL 1" OR 2", #13 REGULAR (ENGINEER TO SPECIFY).

WELD EXPANDED METAL MESH TO INSIDE ANGLES, TOP AND SIDES. TACK WELD AT ALL POINTS OF CONTACT WITH STEEL PLATES.

PROVIDE FULL CONTINUOUS WELD AT PLATE CONNECTIONS WITH ANGLE IRON.

DRILL HOLES, 2 EACH PLATE, SECURE WITH 1/4"x4" GALVANIZED STEEL EXPANSION ANCHORS

BEND STEEL PLATE TO MATCH PILOT CHANNEL AS NEEDED

ORIFICE (PER DESIGN ENGINEER)

NOTES:
1. ALL COMPONENTS OF TRASH RACK SHALL BE GALVANIZED OR CONSTRUCTED OF APPROVED CORROSION RESISTANT MATERIALS.

2. DESIGN ENGINEER SHALL SPECIFY LENGTH(L), WIDTH(W), HEIGHT(H) AND MESH SIZE OF TRASH RACK.

3. TOP OR SIDES OF TRASH RACK MUST BE REMOVABLE BY HINGE OR OTHER METHOD TO ALLOW ACCESS INSIDE FOR CLEANING OF DEBRIS AND SEDIMENT.

4. TRASH RACKS ARE REQUIRED ONLY FOR OPENINGS SMALLER THAN 12" IN DIAMETER, OR EQUIVALENT.

DISCLAIMER:
THIS DETAIL IS INTENDED AS AN EXAMPLE ONLY. THE DESIGN ENGINEER SHALL DESIGN AND SIZE A TRASH RACK SPECIFIC TO THE PROJECT. TRASH RACKS SHALL BE PRIVATELY MAINTAINED BY OWNER.
COLLIN COUNTY LOGO SHALL BE INCLUDED ON PROJECTS THAT INCLUDE COLLIN COUNTY MATCHING FUNDS. COLLIN COUNTY LOGO WILL BE PROVIDED TO THE CONTRACTOR IN ELECTRONIC FORMAT.

"PROJECT INFORMATION" SHALL BE PRINTED WITH BLACK LETTERING ON A WHITE BACKGROUND. THE PROJECT NAME SHALL BE PRINTED WITH 3-INCH TEXT. ALL OTHER INFORMATION SHALL BE PRINTED WITH 2-INCH TEXT.

ADA/TAS COMPLIANCE:

MAX 4" PROJECTION FROM POST IF LOCATED ADJACENT TO PEDESTRIAN ZONE

INSTALL 2X4 CROSS BAR AT MAX 27” HEIGHT IF LOCATED ADJACENT TO PEDESTRIAN ZONE

MAINTAIN 4’ CLEAR PEDESTRIAN WIDTH IF LOCATED ADJACENT TO PEDESTRIAN ZONE

NOTES:
1. CONTRACTOR SHALL PROVIDE CITY PROJECT MANAGER A PROOF FOR REVIEW PRIOR TO FABRICATION OF THE SIGN.
2. McKinney Logo Will be provided to the Contractor in Electronic Format, Upon Request. Contractor shall maintain the aspect ratio of the Logo using a 12” height. Custom colors are as follows:
   - Green: PMS 330; RGB 15, 59, 52; CMYK 93, 40, 64, 35.
   - Brown: PMS 448; RGB 58, 48, 13; CMYK 55, 40, 93, 50.
3. Project Information Signs shall be erected in accordance with the TXDOT BC (BARRICADE & CONSTRUCTION) STANDARD SHEETS, EXCEPT AS NOTED HEREIN.
4. Remove Signs at end of Project.
NOTES:
1. ALL NEW STRIPING SHALL BE CITY APPROVED THERMOPLASTIC (TYPE I, DMS–8220) OR MMA AS SHOWN IN THE PLANS UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF ENGINEERING.
2. STOP BARS SHALL BE 24" WIDE AND EXTEND FROM 12" FROM NEAREST FACE OF CURB OR EDGE OF PAVEMENT ACROSS ALL APPROACH LANES.
3. INSTALL ALL PAVEMENT MARKINGS ACCORDING TO TxDOT STANDARD SPECIFICATION ITEMS 666, 668, 672, 677 AND 678.
4. DIMENSIONS OF SYMBOLS ARE TYPICAL. DIMENSIONS MAY BE MODIFIED IF SHOWN ON PLANS.
5. FOR ITEMS NOT SHOWN ON THESE SHEETS REFER TO TxDOT STANDARD SHEETS PM(1)–20, PM(2)–20 AND PM(3)–20 (OR LATEST TxDOT REVISION).
6. REMOVE EXISTING STRIPING PRIOR TO INSTALLATION OF NEW STRIPING. REMOVE EXISTING RAISED PAVEMENT MARKINGS (RPMs) THAT ARE IN CONFLICT WITH NEW STRIPING PLANS.
7. THESE DETAILS ARE FOR DESCRIPTION ONLY; NOT ALL INTERSECTIONS WILL HAVE ALL FEATURES.
8. INSTALL ARROWS STRIPING AS DIRECTED BY DIRECTOR OF ENGINEERING.
9. USE TYPE II–C–R RPMs ALONG LEFT TURN BAY STRIPES IN AREAS WITH DIVIDED HIGHWAYS OR RAISED MEDIANs. USE TYPE II–A–A WITH UNDIVIDED HIGHWAYS, FLUSH MEDIANs, AND TWO–WAY LEFT TURN LANES.
NOTES:
1. ALL NEW STRIPING SHALL BE CITY APPROVED THERMOPLASTIC (TYPE I, DMS–B220) OR MMA AS SHOWN IN THE PLANS UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF ENGINEERING.
2. STOP BARS SHALL BE 24" WIDE AND EXTEND FROM 12" FROM NEAREST FACE OF CURB OR EDGE OF PAVEMENT ACROSS ALL APPROACH LANES.
3. INSTALL ALL PAVEMENT MARKINGS ACCORDING TO TxDOT STANDARD SPECIFICATION ITEMS 666, 668, 672, 677 AND 678.
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7. THESE DETAILS ARE FOR DESCRIPITION ONLY; NOT ALL INTERSECTIONS WILL HAVE ALL FEATURES.
8. INSTALL ARROWS STRIPING AS DIRECTED BY DIRECTOR OF ENGINEERING.
9. USE TYPE II–C–R RPMs ALONG LEFT TURN BAY STRIPES IN AREAS WITH DIVIDED HIGHWAYS OR RAISED MEDIANS. USE TYPE II–A–A WITH UNDIVIDED HIGHWAYS, FLUSH MEDIANS, AND TWO–WAY LEFT TURN LANES.
**Detail A - International Striping**

<table>
<thead>
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<th>L (Length)</th>
<th>L (Length)</th>
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<tbody>
<tr>
<td>L/2</td>
<td>L/2</td>
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</tbody>
</table>

24" Solid White

24" Stop Bar

Adjust international markings to avoid wheel path.

**Detail B - Left Turn Bay**

8" White Solid Barrier Line

4" Square ReflectORIZED White RPM (TY II-C-R)

32' 8'

Left turn arrows shall be placed at 32' from the stop bar and at the end of the left turn lane.

If the left turn lane is over 150' in length place one arrow marking in the middle between the other two arrows.

Begin 8" stripe where turn bay reaches full width.

Stop bar and arrows are not required for an uncontrolled approach unless otherwise noted.

**Detail C - Approach to Intersection**

24" Stop Bar

4" White Skip Lines

Match existing at project limit

Note: 4" white skip line installed to stop bar.

**Detail D - 4" White Skips**

10' 30'

4" White

TY II-C-R 4" RPM every other skip.

**Detail E - 4" Double Yellow Striping**

2" 12" 2"

40'

4" Yellow Stripe

4" Square TY II-A-A ReflectORIZED RPM

**Detail F - Typical Symbols**

ONLY

"Only" Word

Turn Arrow

Option Arrow

Straight Arrow

Left or Right

Left or Right

**Detail H - Yield Triangles**

12" 6"

18"

24" 12"

36"

16" 16"

POSTED SPEED LIMIT 40 MPH OR LESS

POSTED SPEED LIMIT 45 MPH OR MORE

**Detail I - Right Turn Bay**

32' 8' 8'

10'

- Curb

8" White Solid Barrier Line

4" Square ReflectORIZED White RPM (TY II-C-R)

Right turn arrows shall be placed at 32' from the stop bar and at the end of the right turn lane.

If the right turn lane is over 150' in length place one arrow marking in the middle between the other two arrows.

Begin 8" stripe where turn bay reaches full width.

Stop bar and arrows are not required for an uncontrolled approach unless otherwise noted.

**Detail J - Left Turn Guide Lines**

Align with Lane Stripping

4" White

Provide detailed layout on plan sheet.

Note if concurring lefts occur.

*Match pavement marking width with approach pavement marking width.
RESIDENTIAL & COLLECTOR STREET SIGN & LIGHT LAYOUT

NOTES:
1. STREET NAME SIGNS SHALL BE FURNISHED AND INSTALLED BY THE DEVELOPER PER THE CITY’S STANDARDS.
2. THE INSTALLATION OF ANY SIGNS MUST BE COMPLETED PRIOR TO THE FINAL ACCEPTANCE OF THE SUBDIVISION.
3. ALL SIGNS SHALL COMPLY WITH THE LATEST VERSION OF THE TMUTCD.
4. SIGNS SHALL BE AS FOLLOWS:
   - STOP SIGN: WHITE ASTM HIGH INTENSITY PRISMATIC GRADE REFLECTIVE SHEETING (MANUFACTURED BY 3M OR EQUAL) COVERED WITH EASY CUTABLE RED FILM, REVERSE SCREEN PROCESS.
   - STREET NAME SIGN: WHITE ASTM HIGH INTENSITY PRISMATIC GRADE REFLECTIVE SHEETING (MANUFACTURED BY 3M OR EQUAL) COVERED WITH EASY CUTABLE GREEN FILM, REVERSE SCREEN PROCESS.
5. NAME PLATE SHALL BE MOUNTED 10" FROM TOP OF CURB.
6. SIGNS SHALL BE MOUNTED ON A 2 INCH BY 12 FOOT MINIMUM TELESPAR SQUARE POST WITH ONE OF THE FOLLOWING ANCHOR SYSTEMS:
   a. 2 ¼ INCH BY 36 INCH TELESPAR GROUND ANCHOR INTO THE GROUND A DEPTH OF 32 INCHES. THE ANCHOR POST SYSTEM SHALL PROTRUDE 2–4 INCHES FROM FINISHED GRADE AT THE BASE OF THE SIGN AND BOLTED IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS, OR
   b. 2 ¼ INCH BY 36 INCH TELESPAR GROUND ANCHOR, WRAPPED TO PREVENT CONCRETE INFILTRATION INTO ANCHOR POST, SET IN 3,000 PSI CONCRETE. 1 FOOT IN DIAMETER AND 32 INCHES DEEP. CONCRETE SHALL BE 4−INCH BELOW FINISHED GRADE AND THE ANCHOR POST SYSTEM SHALL PROTRUDE 2–4 INCHES FROM FINISHED GRADE.
7. STOP SIGNS SHALL BE MOUNTED 7 FEET FROM THE TOP OF THE CURB MEASURED TO THE BOTTOM OF THE LOWEST SIGN.
8. STOP SIGNS SHALL BE MOUNTED TO PROVIDE A MINIMUM 2 FOOT HORIZONTAL CLEARANCE FROM THE EDGE OF THE SIGN TO THE BACK OF CURB. NAME SIGNS SHALL BE MOUNTED TO PROVIDE A MINIMUM 12 INCH HORIZONTAL CLEARANCE FROM THE EDGE OF THE SIGN TO THE BACK OF THE CURB.
9. STOP SIGNS SHALL BE 30" FOR SINGLE LANE ROAD, AND 36" FOR A ROAD INTERSECTING A PLANNED MULTI−LANE ROAD.
10. FOR STREETS INTERSECTING ARTERIAL ROADWAYS, DEVELOPER/CONTRACTOR SHALL CONTACT THE CITY INSPECTOR TO COORDINATE SIGN PLACEMENT WITH CITY TRAFFIC DEPARTMENT.
11. DIMENSIONS SHOWN ABOVE ARE FROM BACK OF CURB.
12. STREET LIGHTS SHALL BE LOCATED ON OPPOSITE SIDE OF INTERSECTION FROM NAME BLADES.

REFER TO ENGINEERING DESIGN MANUAL FOR ADDITIONAL REQUIREMENTS.
NOTES:
1. THE NAME SIGN BLADE SHALL BE 9 INCHES TALL BY 0.125 INCHES THICK MINIMUM. IF LENGTH OF NAME SIGN BLADE IS GREATER THAN 54 INCHES, THE NAME SIGN BLADE SHALL BE 9 INCHES TALL BY 0.080 INCHES THICK.
2. THE STREET NAME SHALL BE 6 INCH FONT WITH UPPER AND LOWER CASE LETTERS. SUFFIX SHALL BE 3" FONT WITH UPPER AND LOWER CASE LETTERS. BLOCK NUMBERS SHALL BE 3" FRONT. FONT WILL BE CLEARVIEW 1-W WITH 90% KERNING. TMUTCD STATES BACKGROUND SHALL BE GREEN AND ALL LETTERS SHALL BE WHITE.
3. THE CITY OF MCKINNEY LOGO ARTWORK WILL BE IN A 9 BY 9 INCH SQUARE. THE DEVELOPER/CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF THE LOGO MATERIALS. CONTACT THE CITY OF MCKINNEY TRANSPORTATION ENGINEER FOR LIST OF APPROVED VENDORS.
4. ALL BRACKETS SHALL HAVE A MINIMUM SLOT LENGTH OF 9 INCHES AND BE DESIGNED FOR FLAT BLADES.
5. IF LENGTH OF NAME SIGN BLADE IS LESS THAN 54 INCHES, SIGN SHALL BE PRINTED ON BOTH SIDES OF THE SIGN BLADE.
6. IF LENGTH OF NAME SIGN BLADE IS GREATER THAN 54 INCHES, A DOUBLE MOUNT SHALL BE INSTALLED.
7. ALL SIGN PROOFS SHALL BE SUBMITTED TO THE CITY OF MCKINNEY SIGNS AND MARKINGS SUPERVISOR AT (972) 547-7437 FOR APPROVAL PRIOR TO ORDERING AND INSTALLING SIGNS.

DATE: JANUARY 2023
STANDARD DRAWING NO. 7003M
NOTES:
1. IF LENGTH OF NAME SIGN PLATE IS GREATER THAN 54”, A DOUBLE MOUNT SHALL BE INSTALLED ACCORDING TO DETAILS AS SHOWN.
2. FOR TxDOT NAME SIGN ASSEMBLIES, CONTRACTOR WILL NEED TO PROVIDE ADAPTER COUPLER DETAIL.
3. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR ANY DECORATIVE ELEMENTS.
NOTES
1. INSTALL ONE – TWO (2) INCH DIAMETER HDPE OR SCHEDULE 40 PVC CONDUIT (Dove Grey in Color) for Roadway Lighting and Two – Three (3) Inch HDPE or Schedule 40 PVC Conduit (Dove Grey in Color) for Fiber Optic Communication Cable with its Type 1 Ground Boxes Spaced on 500 Foot Intervals. Roadway Lighting Conduit shall be in a separate trench from the Communication Conduits Six (6) Feet Apart, Three (3) Feet Minimum with Type A (122311) Ground Boxes As Needed. Contractor shall Coordinate Final Conduit Location with Engineering Staff. Conduit shall be Conforming to TXDOT Specification Item 618 and have a Minimum Burial Depth of 30 Inches Under New Pavement.
2. Where bends are required, they shall be of the Long Radius Type.
3. Install Locatable Mule Tape in Conduit runs in excess of 50 ft and all runs designated for future use. The conduit shall be capped after installation with red marker tape installed on each cap, with a means provided to prove conduit is unobstructed before the intersection paving will be accepted by the City of McKinney.
4. The exact locations where conduit crosses under the paving are to be marked with an “X” and painted with red paint on the curb or paving.
5. A No. 9 Galvanized Wire shall be in all conduit. This wire shall extend 1 foot (minimum) beyond the conduit end when the cap is removed. The wire end shall be coiled and then taped to the conduit surface at the conduit end for easy future access.
6. Conduit and ground boxes described and shown above shall be installed at all Arterial - Arterial and Arterial – Major Collector Intersections prior to pavement construction. (Note 10 for Illumination maintained by Oncor and Grayson – Collins Electric Cooperative)
7. Two (2) Inch Diameter Conduit for roadway illumination shall run between each illumination pole base and shall not be placed inside ground boxes. Only exception is allowed at the electrical service meter.
NOTES
1. THE GROUND BOXES AND THEIR INSTALLATION SHALL CONFORM TO THE LATEST VERSION
   OF TXDOT SPECIFICATION ITEMS 618 AND 624 AND TXDOT STANDARD DRAWINGS
   ED(4)–14 AND ITS(41)–16. USE CABLE RACK DETAIL "OPTION C", 7.5 INCH (1 SIDE), IN
   STANDARD DRAWING ITS(41)–16.
2. THE COVER SHALL BE POLYMER FOR ALL BOXES OF THE BOLT–DOWN TYPE.
   COMMUNICATION GROUND BOXES IN THE MEDIAN SHALL BE PERMANENTLY MARKED "CITY
   OF MCKINNEY COMMUNICATIONS".
3. ALL GROUND BOXES SHALL HAVE REINFORCED CONCRETE APRONS AND SHALL BE
   BEDDED FLUSH WITH THE FINISHED GRADE.
4. THE COVER MUST BE RATED FOR THE TESTING LOADING GUIDELINES IN DMS 11070.
5. MINIMUM 36" SWEEPS WILL BE USED FOR HDPE CONDUIT. DO NOT USE 90 DEGREE
   ELBOWS.
6. WHEN USING SCHEDULE 40 PVC, REFER TO TXDOT STANDARD ED(4)–14.
**SPECIFICATIONS**

**Pole** - The pole shaft conforms to ASTM A595 Grade A with a constant linear taper of 0.14 in/ft.

**Pole Top** - A removable pole cap with hardware is provided.

**Luminaire Arm** - Luminaire arms are made from 2" schedule 40 pipe (2.38" OD) with a minimum yield strength of 36,000 psi. Double luminaire arms are oriented 180° apart. For other orientations and scroll options please consult factory.

**Luminaire Arm Attachment** - Connection allows arm to be erected and held in place by gravity and secured by a single bolt.

**Handhole** - A covered handhole and grounding provision with hardware is provided.

**Nut Covers** - Anchor bolt nut covers with hardware are provided.

**Full Base Cover** - Optional two-piece full base cover is fabricated from ABS plastic. Valmont reserves the right to provide an optional two-piece steel full base cover on some applications depending upon the finish requirement and/or pole base diameter.

**Anchor Base** - The anchor base (base plate) conforms to ASTM A36.

**Anchor Bolts** - Anchor bolts conform to ASTM F1554 Grade 55 and are provided with two hex nuts and two flat washers. Bolts have an "L" bend on one end and are galvanized a minimum of 12" on the threaded end.

**Hardware** - All structural fasteners are galvanized high strength carbon steel. All non-structural fasteners are galvanized or zinc-plated carbon steel or stainless steel.

**Finish** - Standard finishes are galvanized, prime painted or any of Valmont's V-PRO™ Protection Systems. Additional finish options available upon request.

**Design Criteria** - Please reference Design Criteria Specification for appropriate design conditions.
ANCHORAGE DATA

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<td>DIA (IN)</td>
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LOAD AND DIMENSIONAL DATA

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PRODUCT ORDERING CODES

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<td></td>
<td></td>
<td>- = Silver Metallic</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DG = Dark Tan</td>
<td></td>
<td></td>
<td>- = Bronze</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>GB = Medium Bronze</td>
<td></td>
<td></td>
<td>- = Dark Bronze</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BN = Brown</td>
<td></td>
<td></td>
<td>- = Hunter Green</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DC = Dark Green</td>
<td></td>
<td></td>
<td>- = Grey</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>RC = Red</td>
<td></td>
<td></td>
<td>- = Red</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>GC = Special Color</td>
<td></td>
<td></td>
<td>- = Special Color (Contact Factory)</td>
<td>-</td>
</tr>
</tbody>
</table>

1. EPA represents the Effective Projected area of each luminaire. Designs are limited to one luminaire per arm. Variations from data above are available upon inquiry at the factory. Satisfactory performance of poles & luminaire upon the pole being properly attached to a supporting foundation is a supporting function of adequate design.

2. Structure weight is a nominal value which includes the pole shaft, base plate and luminaire arm(s) only.

3. Structure weight and luminaire arm(s) only.

4. All dimensions are in (IN).

5. Dimensions and luminaire arm(s) only.

6. Basic 1 Coat Powder. Includes zinc primer & premium top coat.

7. Includes epoxy primer & 2 Coat Powder or Liquid. Includes zinc primer & premium top coat.

8. Includes zinc primer & 2 Coat Powder or Liquid. Includes zinc primer & premium top coat.

9. Includes zinc primer & 2 Coat Powder or Liquid. Includes zinc primer & premium top coat.

10. Includes zinc primer & 2 Coat Powder or Liquid. Includes zinc primer & premium top coat.
OUTSIDE EDGE OF SANITARY SEWER MANHOLE

3" CLR. TYPICAL

2'-0" MIN.

PIPELINE MARKER INSTALLED ON CENTERLINE OF SANITARY SEWER LINE(S)

6" REINFORCED 4,000 PSI CONCRETE MOW STRIP.

ORIENTATION OF MOW STRIP MAY BE ADJUSTED IN FIELD AS APPROVED BY THE CITY.

6" REINFORCED 4,000 PSI CONCRETE MOW STRIP. REINFORCE WITH #4 BARS ON 18" CENTERS EACH WAY.

6" MIN.

PROVIDE 3/8" ROUNDED EDGE ON FOUR TOP EDGES