The City of Farmington has the authority to establish construction standards under 3-18-6(A)(1) NMSA 1978 which states a municipality has the general power to "protect the property of its municipality and its inhabitants."

APPROVED BY: Rob Manes, City Manager

DATE: 2-11-22
The Community Works Department reviewed and revised the City's 2019 Technical Specifications and Construction Standards which is an addendum to the 2006 New Mexico Standard Specifications for Public Works Construction (NM-APWA).

There were several changes to both the technical specification section and the construction drawing section. These changes vary as both minor and extensive.

Please take the time to read through the new City's 2022 Technical Specifications and Construction Standards. These revisions are not marked throughout the book. Therefore, we encourage you to read though the whole book. Please pay close attention to the lists stated in the attached February 10, 2022 memo.
MEMO

To: Rob Mayes, City Manager
From: Isaac J. Blue Eyes, City Engineer
Date: February 10, 2022
Subject: Changes to Technical Specifications and Construction Standards

The Community Works Department reviewed and revised the City’s Technical Specifications and Construction Standards which is an addendum to the 2006 New Mexico Standard Specifications for Public Works Construction (NM-APWA).

The following is a list of recommended changes to the Technical Specification:

1. Section 101.16 – Added Table 101.C from NM-APWA
2. Section 109.4 – Added Table 101.C from NM-APWA
3. Section 112 Paving Asphalt Binder - Added Sections 112.4.1.1 to 12.4.4.4 from NM-APWA
4. Section 113 Emulsified Asphalt – Added Table 113.3.2; Table 113.3.3; Table 113.5.2; and Table 113.5.3.
5. Section 121.4.2 – Changed section name from TRACER WIRE to LINE LOCATOR as named in NM-APWA specification book
6. Section 121.5.1.1 – Changed section name from P.V.C. PIPE to MATERIALS AND UTILIZATION as named in the NM-APWA specification book
7. Section 121.5.2.1 – Changed section name from P.V.C. SEWER SHALL MEET THE FOLLOWING to P.V.C. GRAVITY FLOW PIPE as named in the NM-APWA specification book
8. Section 301 Subgrade Preparation – Added Sections 301.4.1 to 301.7.2 (including tables) from the NM-APWA specification book
9. Section 302 Base Course – Added the following sections from the NM-APWA specification book: 302.1; 302.3; 302.3.1.2; 302.3.1.3; 302.3.1.4; 302.3.1.5; 302.3.1.6;
10. Section 306 Bituminous Stabilized Base - Added Section 306.3.1 from NM-APWA specification book

11. Section 336 Asphalt Concrete Pavement – Added the following sections from the NM-APWA specification book: 336.1.1; 336.1.2; 336.1.3; 336.3; 336.3.1; 336.3.2; 336.3.2.1; 336.3.2.2; 336.3.2.3; 336.3.2.4; 336.3.2.5; 336.3.2.6; 336.3.2.7; 336.3.2.8; 336.3.2.9; 336.3.2.10; 336.4; 336.4.1; 336.4.2; 336.4.3; 336.4.4; 336.5.2.1; 336.5.3; 336.5.4; 336.5.5; 336.5.6; 336.5.7; 336.5.8; 336.5.9; 336.5.10; 336.6; 336.6.1; 336.7; 336.7.1; 336.7.2; 336.7.3; 336.8; 336.9; 336.10; 336.10.1; 336.10.2; 336.10.3; 336.10.3.1; 336.10.3.2; 336.10.3.3; 336.10.4; 336.10.4.1; 336.10.4.2; 336.10.4.3; 336.10.4.4.1; 336.10.4.4.2; 336.10.4.4.3; 336.10.4.5; 336.10.4.6; 336.10.5; 336.10.6.1; 336.10.6.2; 336.10.6.3; 336.11; 336.11.1; 336.11.2.1; 336.11.2.1.1; 336.11.2.1.2; 336.11.2.1.3; 336.11.2.2; 336.11.2.2.2; 336.11.2.2.3; 336.11.2.2.4; 336.11.2.3.5; and 336.11.2.3.6

12. Added Section 336.3.2.11 PRIME COAT TEMPERATURE AND WEATHER LIMITATIONS, a section from the NMDOT specification book.

13. Revised Section 336.5.2.2 to require a minimum asphalt temperature of 50 degrees. It now also requires the Chill Factor temperature to come from the Airport weather station.

14. Section 338 PROWAG NOTES ON SIDEWALKS, CURB RAMPING, CROSSWALKS, DETECTABLE WARNING, ACCESSIBLE PEDESTRIAN SIGNALS (APS), AND PUSH BUTTONS is new to the written specifications. In the previous Technical Specifications, construction standard drawing D-302 was 24 sheets long and included multiple notes/specifications of information. These notes of specifications were separated from the standard drawings and put into the specification section of the book and labeled as the new Section 338.

15. Section 340.3.1 – changed words from SHALL to MUST

16. Section 451 WORK AREA TRAFFIC CONTROL AND SAFETY – This section was rewritten to update the traffic control plan submission process, define the different types of works zones, define mobile operations, define traffic control plan expectations, define key words and include up to date contact information.

17. Section 460: A Traffic Calming Policy for Residential/Local and Collector Streets – New section that was approved by City Council on Tuesday February 22, 2022.

18. Section 560 – Changed all words of "CUTLERED" to "mill and inlay"
19. Changed 560.3.4 form "Pavement Finished Treatment" to "Non-pavement Finished Treatment"
20. 701.15.3 – Added a title of "WATER FLOODING"
21. 701.15.4 – Added a title of "BACKFILL AND COMPACTION"
22. Updated Section 801, changed language that referenced “Jacobs” to “contractor”
23. Updated Section 802, changed language that referenced “Jacobs” to “contractor”
24. Updated Section 803, changed language that referenced “Jacobs” to “contractor”
25. Added 901.10 EMERGENCY CLEAN UP
26. Section 905.6.4.1 - Deleted paragraph that mention payment per 25 feet sections of pipe.

The following is a list of recommended changes to the Construction Standard Drawings:

1. Separated D-112 Sheet 1 of 4 into two sheets for clarity, this change required all sheet numbers to change in D-112. And updated trench/excavation slopes to match current OSHA standards.
2. D-113: Updated slopes to match current OSHA standards
3. D-203: Broke drawing into Pavement and Non-Pavement, before there was only a Pavement drawing, which was incorrect.
4. Revised drawing to be clearer and communicate better with the reader
5. Revised drawing to be clearer and communicate better with the reader
6. D-207: Revised drawing to match requests from the Fire Department
7. D-215: Added the model number to the ring
8. D-216: Added the model number to the ring
9. D-217: Added the model number to the ring
10. D-226: NEW Section – Water Valve Abandonment (3 sheets)
11. D-305: Added #1 Note
12. D-306: Made the asphalt thickness match our standard and added a compaction percentage
13. D-306: Made the asphalt thickness match our standard and added a compaction percentage
14. D-313: Changed thickness of driveway from 4 inches to 6 inches and the subgrade compaction to 95 percent.
15. D-314: Change the subgrade compaction to 95 percent.
16. D-321: Change the subgrade compaction to 95 percent.


17. D-322: Change the subgrade compaction to 95 percent.
18. D-323: Change the subgrade compaction to 95 percent.
19. D-332: Change the subgrade compaction to 95 percent.
20. In the previous Technical Specifications, drawing D-302 was 24 sheets long and included multiple texts/specifications and drawings. These specs were separated from the standard drawings and put into the specification section of the book and labeled as Section 338. The drawings were also separated, renamed as separate Sections from D-338 to D-347 (10 Sections).
21. D-510: Change the subgrade compaction to 95 percent.
22. D-620: NEW Sign Installation Detail, taken from NMDOT
23. D-634: NEW Trash Container Enclosure
24. D-650: NEW Root Control Barrier

GENERAL SPECIFICATIONS: Unless specifically indicated otherwise, all work and materials for projects shall conform to the New Mexico Standard Specifications for Public Works Construction (NM-APWA), 2006 Edition or latest versions, revisions or editions, as supplemented or changed herein and as noted above.

Note: All Brass Fittings supplied shall meet the new low lead requirements of the U.S. Safe Drinking Water Act, which went into effect in January 2014.

By signing the attached cover sheet, you are approving the entire book, including the previously approved sections (2019).
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TECHNICAL SPECIFICATIONS &
CONSTRUCTION STANDARDS

AN ADDENDUM TO THE NEW MEXICO STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (NM-APWA)

CITY OF FARMINGTON, NEW MEXICO
COMMUNITY WORKS DEPARTMENT

PURPOSE

The technical specifications and construction standards in this document are an addendum to the NEW MEXICO STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (NM-APWA), 2006 Edition or latest versions, revisions or editions, which serve to provide minimum standards to safeguard public welfare by regulating and controlling construction and quality of materials within this jurisdiction. The provisions of these standards shall apply to all construction, alteration and demolition within this jurisdiction. Where, in any specific case, different sections specify different materials, methods of construction, or other requirements, the most restrictive shall govern. Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall be applicable.
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Note: All Brass Fittings supplied shall meet the new low lead requirements of the U.S. Safe Drinking Water Act, which goes into effect in January 2014.
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<td>DIAGONAL CURB RAMPS (2 SHEETS)</td>
</tr>
<tr>
<td>D-342</td>
<td>COMBINATION CURB RAMPS (2 SHEETS)</td>
</tr>
<tr>
<td>D-343</td>
<td>PEDESTRIAN REFUGE ISLAND</td>
</tr>
<tr>
<td>D-344</td>
<td>CURB RAMPS AND SIDEWALK TRANSITION DETAILS (2 SHEETS)</td>
</tr>
<tr>
<td>D-345</td>
<td>DETECTABLE WARNING SURFACE (2 SHEETS)</td>
</tr>
<tr>
<td>D-346</td>
<td>DRIVEWAY APRONS (4 SHEETS)</td>
</tr>
<tr>
<td>D-347</td>
<td>PEDESTRIAN ACCESS DETAILS STAIRWAY AND HANDRAILS (5 SHEETS)</td>
</tr>
</tbody>
</table>
## CONSTRUCTION STANDARDS

### PIPE INSTALLATION

<table>
<thead>
<tr>
<th>SHEET NO.</th>
<th>TITLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>D-401</td>
<td>GENERAL UTILITY LOCATION (2 SHEETS)</td>
</tr>
<tr>
<td>D-402</td>
<td>BORING DETAILS</td>
</tr>
<tr>
<td>D-404</td>
<td>PIPE CULVERT FULL HEIGHT HEADWALL (2 SHEETS)</td>
</tr>
<tr>
<td>D-405</td>
<td>PIPELINE INSTALLATION IN ROCK AREAS</td>
</tr>
<tr>
<td>D-409</td>
<td>SEWER LINE ENCASEMENT</td>
</tr>
<tr>
<td>D-410</td>
<td>PIPE BEDDING (INCLUDING CONCRETE CRADLE)</td>
</tr>
</tbody>
</table>

TC-10
## CONSTRUCTION STANDARDS

### DRAINAGE

<table>
<thead>
<tr>
<th>SHEET NO.</th>
<th>TITLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>D-503</td>
<td>CURB INLET SINGLE</td>
</tr>
<tr>
<td>D-504</td>
<td>CURB INLET DOUBLE</td>
</tr>
<tr>
<td>D-505</td>
<td>CURB INLET SINGLE FOR STANDARD MANHOLE</td>
</tr>
<tr>
<td>D-506</td>
<td>SURFACE INLET</td>
</tr>
<tr>
<td>D-507</td>
<td>BEHIND THE CURB CATCH BASIN &amp; CURB INLET</td>
</tr>
<tr>
<td>D-508</td>
<td>SLOTTED CURB DRAIN</td>
</tr>
<tr>
<td>D-509</td>
<td>DRAIN LINE CONNECTION TO EXISTING DROP INLET</td>
</tr>
<tr>
<td>D-510</td>
<td>TRANSVERSE DRAINAGE STRUCTURE</td>
</tr>
<tr>
<td>D-512</td>
<td>WIRE ENCLOSED RIPRAP DETAILS (4 SHEETS)</td>
</tr>
<tr>
<td>D-513</td>
<td>TYPICAL CONCRETE DRAINAGE CHANNEL</td>
</tr>
<tr>
<td>D-514</td>
<td>TRASH RACK</td>
</tr>
<tr>
<td>D-515</td>
<td>STORM DRAIN</td>
</tr>
</tbody>
</table>

TC-11
### CONSTRUCTION STANDARDS

#### MISCELLANEOUS DETAILS

<table>
<thead>
<tr>
<th>SHEET NO.</th>
<th>TITLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>D-601</td>
<td>GAS LINE CROSSING DETAIL</td>
</tr>
<tr>
<td>D-605</td>
<td>GREASE TRAP DETAIL (3 SHEETS)</td>
</tr>
<tr>
<td>D-606</td>
<td>MAILBOX DETAIL</td>
</tr>
<tr>
<td>D-607</td>
<td>UTILITY INSTALLATION BETWEEN BUILDINGS</td>
</tr>
<tr>
<td>D-608</td>
<td>REINFORCED SOIL WALLS</td>
</tr>
<tr>
<td>D-609</td>
<td>SCHOOL FLASHER</td>
</tr>
<tr>
<td>D-610</td>
<td>TRAFFIC PULL BOX DETAILS (2 SHEETS)</td>
</tr>
<tr>
<td>D-611</td>
<td>EROSION CONTROL WALL</td>
</tr>
<tr>
<td>D-612</td>
<td>SITE DRAINAGE (2 SHEETS)</td>
</tr>
<tr>
<td>D-613</td>
<td>TRAFFIC CONTROL CABINET</td>
</tr>
<tr>
<td>D-620</td>
<td>SIGN INSTALLATION DETAILS (2 SHEETS)</td>
</tr>
<tr>
<td>D-630</td>
<td>HAND RAILS</td>
</tr>
<tr>
<td>D-631</td>
<td>STORM DRAIN MARKERS</td>
</tr>
<tr>
<td>D-632</td>
<td>BOLLARD DETAIL</td>
</tr>
<tr>
<td>D-634</td>
<td>ENCLOSURE SPECIFICATIONS FOR TRASH CONTAINERS</td>
</tr>
<tr>
<td>D-650</td>
<td>ROOT CONTROL BARRIER DETAIL</td>
</tr>
</tbody>
</table>

TC-12
<table>
<thead>
<tr>
<th>SHEET NO.</th>
<th>TITLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>D-700</td>
<td>TEMPORARY EROSION (2 SHEETS)</td>
</tr>
<tr>
<td>D-701</td>
<td>CULVERT PROTECTION</td>
</tr>
<tr>
<td>D-702</td>
<td>SURFACE ROUGHENING</td>
</tr>
<tr>
<td>D-703</td>
<td>TEMPORARY SLOPE DRAIN</td>
</tr>
<tr>
<td>D-704</td>
<td>STONE CHECK DAM</td>
</tr>
<tr>
<td>D-705</td>
<td>EARTH DIVERSION DIKE (BERM) WITH A CHANNEL</td>
</tr>
<tr>
<td>D-706</td>
<td>EARTH DIVERSION DIKE (BERM)</td>
</tr>
<tr>
<td>D-707</td>
<td>OFFSITE TRACKING PREVENTION (2 SHEETS)</td>
</tr>
<tr>
<td>D-708</td>
<td>FIBER ROLLS</td>
</tr>
<tr>
<td>D-709</td>
<td>SEDIMENT BASIN</td>
</tr>
<tr>
<td>D-710</td>
<td>SEDIMENT TRAP</td>
</tr>
<tr>
<td>D-711</td>
<td>SILT FENCE</td>
</tr>
<tr>
<td>D-712</td>
<td>CURB DROP INLET PROTECTION</td>
</tr>
<tr>
<td>D-713</td>
<td>SURFACE DROP INLET PROTECTION</td>
</tr>
<tr>
<td>D-714</td>
<td>STRAW BALE FENCE</td>
</tr>
</tbody>
</table>
SECTION 101

PORTLAND CEMENT CONCRETE

101.3.1 PORTLAND CEMENT (Add the following to NM-APWA section)

Cement to be used under this contract shall be Type II unless otherwise specified.

101.4.4.1 AGGREGATE GRADING (Add the following to NM-APWA section)

Unless otherwise specified, the coarse aggregate shall be Class (c) No. 67. 3/4 inch to No. 4.

101.6.1 ADMIXTURES (Add the following to NM-APWA section)

All exterior concrete placed under this contract shall have air entrainment in the amounts specified under this paragraph.

Table 101.C PORTLAND CEMENT CONCRETE PARAMETERS DESIGN MIX SPECIFICATIONS (Replace NM-APWA section with the following)

Change the design strengths in Table 101.C to the following: sidewalks and drive pads to 3000 psi; curb and gutter to 3500 psi; structural concrete to 4000 psi in 28 days. All valley gutters will achieve a minimum compressive strength of 3500 psi in 24 hours.

101.15 QUALITY ASSURANCE SAMPLING AND TESTING (Add the following to NM-APWA section)

The Engineer may require a reasonable number of additional tests during the progress of the work. Additional tests specimens cured entirely under field conditions may be required by the Engineer to check the adequacy of curing and protection of the concrete.
MEASUREMENT AND PAYMENT

(Replace NM-APWA section with the following)

The cost of said Portland cement concrete will be included in related items of work and no separate measurement and payment shall be made for Portland cement concrete.

<table>
<thead>
<tr>
<th>Application</th>
<th>Uses In Section(s)</th>
<th>( f'c ) @ 28 days psi, min ( [4] )</th>
<th>Entrained Air Range ( [11] )</th>
<th>Slump, Not To Exceed note ( [5] )</th>
<th>min, lbs./yd(^3)</th>
<th>( w:(c+f) ) max ( [7] )</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Interior Concrete</strong></td>
<td>(heated areas)</td>
<td>510</td>
<td>3,000</td>
<td>Hand Place</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Foundations and slab on grade.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1) Sidewalk and drive pads have a design strength of 3,000 psi in 28 days.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2) Curb and gutter to have a design strength of 3,500 psi in 28 days.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3) All concrete valley gutters will achieve a minimum compressive strength of 3,500 psi in 24 hours.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Exterior Concrete</strong></td>
<td>340, 346, 420, 510, 511, 602 [12,13], 701, 800, and, 1500</td>
<td>3,000</td>
<td>(See par.101.7.2)</td>
<td>Hand Place</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>1) Sidewalk and drive pads have a design strength of 3,000 psi in 28 days.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2) Curb and gutter to have a design strength of 3,500 psi in 28 days.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3) All concrete valley gutters will achieve a minimum compressive strength of 3,500 psi in 24 hours.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>For all other sections:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a) Structure, foundations, slab on grade, steps/stairs;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>e) wheel chair ramps and stamped pattern concrete;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>f) storm drain structures, channels, drop inlets, and manhole bases;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>g) retaining walls; and,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>h) miscellaneous concrete.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pavement</td>
<td>337</td>
<td>4,000</td>
<td>(See par.101.7.2)</td>
<td>Hand Place</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>For design of PCCP, use MR= 600 lbs/in(^2) ( [4] )</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table 101.C**

Design Mix Specifications - Portland Cement Concrete \([1,2,3]\)
### Table 101.C (continued)

**Design Mix Specifications - Portland Cement Concrete [1,2,3]**

<table>
<thead>
<tr>
<th>Reservoirs</th>
<th>Structures</th>
<th>Sanitary Sewer Facilities</th>
<th>Application</th>
<th>High Early Release Concrete</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hydraulic Structures</strong></td>
<td>510 and 512</td>
<td>3,500</td>
<td>(See par.101.7.2)</td>
<td>900</td>
</tr>
<tr>
<td><strong>Hand Place</strong></td>
<td>4</td>
<td>7</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td><strong>Slip Formed</strong></td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td><strong>Slump, Not To Exceed note [5]</strong></td>
<td>Placement</td>
<td>Norm</td>
<td>HRWRA</td>
<td></td>
</tr>
<tr>
<td><strong>w:(c+fa)</strong></td>
<td>min, lbs./yd³</td>
<td>max [7]</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Concrete Specifications</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Use of material(s) not defined by this specification must be approved by the ENGINEER.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Maximum size aggregate shall comply with the requirements of par. 101. 4.4.2.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Portland cement concrete shall be proportioned with Class F fly ash complying with the requirements of 101.6.4, proportioned 1: 4, minimum, fly ash to portland cement, by weight.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. MR-Modulus of Rupture, f’c-compressive strength at 28 days.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. When authorized by the ENGINEER, a high range water reducing admixture (HRWRA), super plasticizer, may be used to increase slump. When a HRWRA is proposed for use on a project. The design mix shall be proportioned to include the HRWRA. The use of a HRWRA in a design mix that was not originally proportioned with a HRWRA is not acceptable under this specification. Higher slump(s) may be used, as directed by the ENGINEER.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
6. If portland cement complying with ASTM C150 Type VLA is used, a minimum of 564 lbs/cy may be used.

7. "w : (c+fa)" is defined as water to cementitious materials ratio: w-water; (c+fa)-cementitious material as the sum of the portland cement and fly ash. Units are lbs/yd$^3$.

8. Lightweight structural concrete for structures, parking decks, and bridge decks shall be proportioned with a minimum compressive strength of $f'c = 4,750$ lbs/in$^2$ @ 28 days.

9. Minimum requirements for prestressed/post tensioned concrete. Actual criteria may differ as specified in the plans and supplemental technical specifications.

10. “High Early Release Concrete” may be used where early release of structure to either service or construction loads may be required (<3 days), as authorized by the ENGINEER. “fcr” is the minimum compressive strength for release, as determined by field cured cylinders. Maximum size aggregate shall be 3/4 inch.

11. Designated interior concrete, placed, finished, cured, and maintained by the Contractor in a temperate environment of 40 $^\circ$F or greater, may be constructed with non-air entrained concrete complying with all other requirements of this specification for the calendar period after April 30 and before October 1, as authorized by the Engineer. Concrete for wet exposures, showers and wash down areas, vehicle repair and storage floors shall not be included in this variance.

<table>
<thead>
<tr>
<th>Table 101.C (continued)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Design Mix Specifications - Portland Cement Concrete [1,2,3]</strong></td>
</tr>
<tr>
<td>6. If portland cement complying with ASTM C150 Type VLA is used, a minimum of 564 lbs/cy may be used.</td>
</tr>
<tr>
<td>7. &quot;w : (c+fa)&quot; is defined as water to cementitious materials ratio: w-water; (c+fa)-cementitious material as the sum of the portland cement and fly ash. Units are lbs/yd$^3$.</td>
</tr>
<tr>
<td>8. Lightweight structural concrete for structures, parking decks, and bridge decks shall be proportioned with a minimum compressive strength of $f'c = 4,750$ lbs/in$^2$ @ 28 days.</td>
</tr>
<tr>
<td>9. Minimum requirements for prestressed/post tensioned concrete. Actual criteria may differ as specified in the plans and supplemental technical specifications.</td>
</tr>
<tr>
<td>10. “High Early Release Concrete” may be used where early release of structure to either service or construction loads may be required (&lt;3 days), as authorized by the ENGINEER. “fcr” is the minimum compressive strength for release, as determined by field cured cylinders. Maximum size aggregate shall be 3/4 inch.</td>
</tr>
<tr>
<td>11. Designated interior concrete, placed, finished, cured, and maintained by the Contractor in a temperate environment of 40 $^\circ$F or greater, may be constructed with non-air entrained concrete complying with all other requirements of this specification for the calendar period after April 30 and before October 1, as authorized by the Engineer. Concrete for wet exposures, showers and wash down areas, vehicle repair and storage floors shall not be included in this variance.</td>
</tr>
</tbody>
</table>
105.3.1 MATERIALS
(Replace NM-APWA section with the following)

Curing compounds should be used on all concrete pours. All curing compound used under this contract shall be Type 1 “translucent, with white dye” or approved equal, unless modified on the plans or as approved by the ENGINEER.
SECTION 106
CEMENT MORTAR AND GROUT

106.9.1  MORTAR GROUT FOR MANHOLES
(Add the following to NM-APWA section)

All cement mortar grout used for manholes, including but not limited to seating and securing manhole rings and covers or coating shall be non-shrinking category M meeting the required compressive strength of 3000 psi in 28 days.
SECTION 109

RIPRAPH STONE

109.4 SHAPE AND GRADATION
(Add the following to NM-APWA section)

The size of stone used under these specifications listed under table 109.A CLASSIFICATION GRADATION shall be type L or M as approved by the City Engineer or their designee.

<table>
<thead>
<tr>
<th>Table 109.A</th>
<th>CLASSIFICATION GRADATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>DESIGNATION</td>
<td>MAX. DIMENSIONS (inches)</td>
</tr>
<tr>
<td>GABIONS</td>
<td>18 (0.45)</td>
</tr>
<tr>
<td>TYPE L</td>
<td>12 (0.30)</td>
</tr>
<tr>
<td></td>
<td>6 (0.15) 30-55</td>
</tr>
<tr>
<td></td>
<td>3 (0.08) 10</td>
</tr>
<tr>
<td>RIPRAP</td>
<td>24 (0.60)</td>
</tr>
<tr>
<td>TYPE M</td>
<td>18 (0.45)</td>
</tr>
<tr>
<td></td>
<td>12 (0.30)</td>
</tr>
<tr>
<td></td>
<td>6 (0.15)</td>
</tr>
</tbody>
</table>
SECTION 112

PAVING ASPHALT BINDER

112.4 SAMPLING AND TESTING
(Add the following to NM-APWA section)

All Asphalt Cement shall be as designated by New Mexico Standard Specifications for Public Works Construction (NM-APWA), 2006 Edition or latest versions, revisions or editions.

112.4.1.1 Quality assurance sampling and testing of asphalt binders shall be performed by the CONTRACTOR, at no cost to the OWNER, to verify compliance with the specification. A sample shall be taken at random during paving operations from a load(s) of material shipped as directed by the ENGINEER. The sample shall be tested by the CONTRACTOR to verify compliance with the specification requirements specified in either TABLE 112.A 60-70 PENETRATION GRADE BINDER SPECIFICATION, or TABLE 112.B AC-20 VISCOSITY GRADE BINDER SPECIFICATION, or TABLE 112.C PERFORMANCE GRADE (PG) BINDER SPECIFICATIONS. Test results shall be reported in writing to the ENGINEER by the CONTRACTOR. Non-complying sample test results shall be reported in to the ENGINEER within 24 hours of completion of the test(s). Complying sample test results shall be reported in writing to the ENGINEER, no later than ten working days after the date of sampling.

112.4.1.2 The binder sample used in the design of a job mix formula(s) shall be tested, and certified to comply with this specification. Written test results of the design sample binder tabulated with specifications with the certification of compliance shall be reported as specified herein and included in a job mix formula submittal.

112.4.2 A test report shall include, but not be limited to, (1) report date, (2) date of sampling, (3) bill of lading number of load sampled, (4) destination of load, (5) report of test results, (6) standard test identifications, (7) specification requirements, (8) statement of compliance, and certification signature. Failure to comply with quality assurance testing may result in rejection of either the binder, and/or the job mix formula, and/or the associated job mix placed on a project, as directed by the ENGINEER.

112.4.3.1 If non-complying material is identified, the paving program may be suspended for 24 hours, as directed by the ENGINEER, during which time the CONTRACTOR and the ENGINEER will meet to determine the impact of the non-compliance, and specify the necessary remedial action to be
taken by the CONTRACTOR. Remedial action shall be either acceptance, or acceptance at a pay adjustment, or removal and replacement at no cost to the OWNER. The paving program may continue upon written authorization by the ENGINEER. The suspension of asphalt concrete construction period due to the identification of non-complying binder shall be at no cost to the OWNER.

112.4.3.2 Production binder identified to be in non-compliance shall not be shipped to a project. Asphalt concrete batched and placed with non-complying binder shall be removed and replaced with complying material by the CONTRACTOR at no cost to the OWNER, as directed by the ENGINEER.

112.4.4.1 GRADE CORRELATION: TABLE 112.D defines binder correlation(s). A binder grade to the right of a respective binder grade in the same row may be substituted.

112.4.4.2 A job mix formula using either penetration or viscosity grade binders shall be designed using the Marshall procedure and specifications.

112.4.4.3 A job mix formula using a performance grade, PG, binder shall be designed using the gyratory (SUPERPAVE) procedure and specification.

112.4.4.4 Binder substitution in an authorized job mix formula shall not be allowed.

<table>
<thead>
<tr>
<th>TABLE 112.A - 60-70 PENETRATION GRADE BINDER SPECIFICATION (ASTM D 946) [1]</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHARACTERISTIC</td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>I. Original Binder</td>
</tr>
<tr>
<td>1 Penetration @ 25°C, 100 g, 5 s, mm</td>
</tr>
<tr>
<td>2 Flash Point (Cleveland open cup), °C</td>
</tr>
<tr>
<td>3 Ductility @ 25°C, 5 cm/min, cm</td>
</tr>
<tr>
<td>4 Solubility in trichloroethylene, %</td>
</tr>
<tr>
<td>II. Asphalt after Thin Film Oven Test, TFOT</td>
</tr>
<tr>
<td>1 Retained penetration @ 25°C, 100 g, 5 s, mm</td>
</tr>
<tr>
<td>2 Ductility @ 25°C, 5 cm/min, cm</td>
</tr>
</tbody>
</table>

[1] PG64-22 binders shall be used if 60-70 Penetration Grade and AC-20 Viscosity Grade binders are unavailable.
112.B AC-20 VISCOSITY GRADE BINDER (ASTM D3381, TABLE 2) [1]

<table>
<thead>
<tr>
<th>CHARACTERISTIC</th>
<th>min</th>
<th>max</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Original Binder</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Viscosity @ 60 °C, poises</td>
<td>1600</td>
<td>2400</td>
<td>ASTM D2171</td>
</tr>
<tr>
<td>2 Viscosity @ 135 °C, cSt</td>
<td>300</td>
<td>135</td>
<td>ASTM D2170</td>
</tr>
<tr>
<td>3 Penetration @ 25 °C, 100 g, 5 s</td>
<td>60</td>
<td>60</td>
<td>ASTM D5</td>
</tr>
<tr>
<td>4 Flash Point, °C (Cleveland open cup)</td>
<td>230</td>
<td>230</td>
<td>ASTM D92</td>
</tr>
<tr>
<td>5 Solubility in trichloroethylene, %</td>
<td>99.0</td>
<td>99.0</td>
<td>ASTM D2042</td>
</tr>
<tr>
<td>II. Tests on Residue From Thin-Film Oven Test</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Viscosity after TFOT @ 60 °C, poises</td>
<td>-</td>
<td>10,000</td>
<td>ASTM D2171</td>
</tr>
<tr>
<td>2 Ductility after TFOT @ 25 °C, 5 cm/min, cm</td>
<td>50</td>
<td>50</td>
<td>ASTM D113</td>
</tr>
</tbody>
</table>

[1] PG64-22 binders shall be used if 60-70 Penetration Grade and AC-20 Viscosity Grade binders are unavailable.

TABLE 112.C PERFORMANCE GRADE (PG) BINDER SPECIFICATIONS

<table>
<thead>
<tr>
<th>Performance Grade Binder</th>
<th>PG70-22</th>
<th>PG76-28</th>
<th>Standard Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Characteristic</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. Original Binder</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Dynamic Shear, 1.0 kPa min, G*/sin d @10 °/sec</td>
<td>70</td>
<td>76</td>
<td>AASHTO TP 5</td>
</tr>
<tr>
<td>2 Flash Point, min</td>
<td>230</td>
<td>230</td>
<td>ASTM D48</td>
</tr>
<tr>
<td>3 Viscosity, 3 Pa. s (3000 cP) max, @temp</td>
<td>135</td>
<td>135</td>
<td>ASTM D4402 [1]</td>
</tr>
<tr>
<td>B. Rolling Thin Film Oven Test Residue, RTFOT (T 240), 1 minute</td>
<td>yes</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td>1 Mass loss, 1% max</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Dynamic Shear, 2.20 kPa, min, G*/sin d @ 10 °/sec</td>
<td>70</td>
<td>76</td>
<td>AASHTO TP 5</td>
</tr>
<tr>
<td>C. Pressure Aging Vessel Residue, PAV (PP1), after RTFOT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 PAV Temperature</td>
<td>110</td>
<td>110</td>
<td></td>
</tr>
<tr>
<td>2 Dynamic Shear, G*/sin d, max, 5,000 kPa, @10 °/sec</td>
<td>28</td>
<td>28</td>
<td>AASHTO TP 5</td>
</tr>
<tr>
<td>3 Physical Hardening (report) [2]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Creep Stiffness: S, 300 Mpa, max, m-value, 0.300 minimum, @ 60 s</td>
<td>-12</td>
<td>-18</td>
<td>AASHTO TP 1 [3]</td>
</tr>
<tr>
<td>b. Direct Tension: Failure strain, 1.0 % min @ 1.0 mm/min</td>
<td>-12</td>
<td>-18</td>
<td>AASHTO TP 3 [4]</td>
</tr>
</tbody>
</table>

Notes:

[1] This requirement may be waived if the binder supplier warrants that the supplied binder can be adequately pumped and mixed at temperatures that meet all safety standards.

[2] Physical Hardening - TP1 is performed on a set of asphalt beams according to Section 13.1 of TP 1, except the conditioning is extended to 24 hrs ±10 minutes at 10 °C above the minimum performance temperature. The 24 hour stiffness, S, and the m-value are reported for information purposes only.
The physical hardening index "h" accounts for the physical hardening of the binder. It shall be determined and reported in the submittal for the proposed binder and each sample tested for compliance with TABLE 112.PG76-28.A. "h" is calculated as follows:

\[ h = \left( \frac{S_{24}}{S_1} \right)^{m_{14}} \]

"1" and "24" indicate 1 and 24 hours of conditioning of the tank asphalt. Conditioning and testing is conducted at the designated test temperature. Values should be calculated and reported. "S" is the creep stiffness after 60 sec loading time and "m" is the slope of the log creep stiffness versus the log time curve after 60 sec loading time.

If the creep stiffness "S < 300 MPa, the direct tension test is not required. If 300 < S < 600 MPa, the direct tension failure strain requirement can be used in lieu of the creep stiffness requirement. The m-value requirement must be satisfied in both cases.

**TABLE 112.D - ASPHALT BINDER CORRELATION(S)**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>60-70</td>
<td>-</td>
<td>PG70-22</td>
</tr>
<tr>
<td>-</td>
<td>AC-20</td>
<td>PG70-22</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>PG70-22 PG76-28</td>
</tr>
</tbody>
</table>

[2] Gyratory analysis/design
**SECTION 113**

**EMULSIFIED ASPHALT**

113.1 **GENERAL**

(Add the following to NM-APWA section)

Emulsified Asphalt shall conform to the requirements of RS-2 or CRS-2 as shown in the tables of Section 113.1.

<table>
<thead>
<tr>
<th>Type Grade</th>
<th>Test Method</th>
<th>Rapid Setting</th>
<th>Medium Setting</th>
<th>Slow Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AASHTO</td>
<td>CRS-1</td>
<td>CRS-2</td>
<td>CMS-2</td>
</tr>
<tr>
<td>Tests on Emulsions:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Viscosity SSF @ 77°F. (25°C.) sec.</td>
<td>D88</td>
<td>20</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Viscosity SSF @ 122°F. (50°C.) sec.</td>
<td>D88</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Settlement 5 days, %</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Storage Stability Test 1 day Demulsibility 35 ml 0.8% sodium diocyl sulfosuccinate, %</td>
<td>40</td>
<td>40</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coating ability s water resistance:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coating, dry aggregate</td>
<td>Good</td>
<td>Good</td>
<td>Good</td>
<td></td>
</tr>
<tr>
<td>Coating, after spraying</td>
<td>Fair</td>
<td>Fair</td>
<td>Fair</td>
<td></td>
</tr>
<tr>
<td>Coating, wet aggregate</td>
<td>Fair</td>
<td>Fair</td>
<td>Fair</td>
<td></td>
</tr>
<tr>
<td>Coating, after spraying</td>
<td>Fair</td>
<td>Fair</td>
<td>Fair</td>
<td></td>
</tr>
<tr>
<td>Sieve test, %</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
</tr>
<tr>
<td>Cement mixing test, %</td>
<td>2.0</td>
<td>2.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distillation:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oil distillate by volume of emulsion %</td>
<td>0</td>
<td>3</td>
<td>3</td>
<td>20</td>
</tr>
<tr>
<td>Residue, %</td>
<td>60</td>
<td>65</td>
<td>60</td>
<td>65</td>
</tr>
<tr>
<td>Tests on residue from distillation test</td>
<td>(4)</td>
<td>(4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Penetration, 77°F. (25°C.)</td>
<td>T49</td>
<td>D5</td>
<td>100</td>
<td>250</td>
</tr>
<tr>
<td>Ductility, 77°F. (25°C.), 5 cm/min., cm.</td>
<td>T51</td>
<td>D113</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>Solubility in Trichloroethylene, %</td>
<td>97.5</td>
<td>97.5</td>
<td>97.5</td>
<td>97.5</td>
</tr>
</tbody>
</table>

Notes:

1. The test requirement for settlement may be waived when the emulsified asphalt is used in less than 5 days time, or the purchaser may require that the settlement test be run from the time the sample is received until it is used, if the elapsed time is less than 5 days.
2. The 24 hour (1 day) storage stability test may be used instead of the 5 day settlement test.
3. The Demulsibility test shall be made within 30 days from date of shipment.
4. Must meet a pH requirement of 6.7 maximum (ASTM E-70) if the Particle Charge Test result is inconclusive.
<table>
<thead>
<tr>
<th>BITUMULS CLASS</th>
<th>ANIONIC</th>
<th>CATIONIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bitumuls Type</td>
<td>Dense Aggregate Mixing</td>
<td>Quick-Set Slurry Seal</td>
</tr>
<tr>
<td>Bitumuls Grade Designation</td>
<td>DM-h</td>
<td>QS-h</td>
</tr>
<tr>
<td>ASTM Grade Designation (Closest)</td>
<td>Test Method</td>
<td>Tech Method</td>
</tr>
<tr>
<td>Test on Emulsion (a)</td>
<td>AASHTO</td>
<td>ASTM</td>
</tr>
<tr>
<td>Viscosity, Saybolt Furol at 77°F (25°C) sec.</td>
<td>T-59</td>
<td>D244</td>
</tr>
<tr>
<td>Storage Stability Test, 1 day, per cent</td>
<td>D244</td>
<td>1.0</td>
</tr>
<tr>
<td>Cement Mixing Test, per cent</td>
<td>T-59</td>
<td>D244</td>
</tr>
<tr>
<td>Sieve Test, per cent</td>
<td>T-59</td>
<td>D244</td>
</tr>
<tr>
<td>Particle charge Test (b)</td>
<td>T-59</td>
<td>D244</td>
</tr>
<tr>
<td>pH (b)</td>
<td>T-200</td>
<td>E70</td>
</tr>
<tr>
<td>Dehydration, ratio</td>
<td>T-59</td>
<td>-</td>
</tr>
<tr>
<td>Adhesion</td>
<td>-</td>
<td>Pass</td>
</tr>
<tr>
<td>Slurry Seal Tests (Standard Reference Aggregate ©)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Mixing, seconds</td>
<td>-</td>
<td>60</td>
</tr>
<tr>
<td>Setting, minutes</td>
<td>-</td>
<td>60</td>
</tr>
<tr>
<td>Water Resistance, after 30 minutes cure</td>
<td>-</td>
<td>Pass</td>
</tr>
<tr>
<td>Residue by Distillation, per cent</td>
<td>T-59</td>
<td>D244</td>
</tr>
<tr>
<td>Tests on Residue from Distillation Test</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Penetration at 77°F (25°C), 1130 gm, 5 sec.</td>
<td>T-49</td>
<td>40</td>
</tr>
<tr>
<td>Ductility at 77°F (25°C), cm</td>
<td>T-51</td>
<td>D113</td>
</tr>
<tr>
<td>Solubility in Trichloroethylene, per cent</td>
<td>T-44</td>
<td>D2042</td>
</tr>
</tbody>
</table>

Notes:
(a) All tests shall be performed within 30 days from the date of emulsified asphalt shipment.
(b) Must meet pH Test if inconclusive Particle Charge Test.
(c) ASTM C778, Specification for Standard Sand
### TABLE 113.5.2 - APPLICATION TEMPERATURE OF EMULSIFIED ASPHALT

<table>
<thead>
<tr>
<th>Grade</th>
<th>Mixing</th>
<th>Spraying</th>
</tr>
</thead>
<tbody>
<tr>
<td>RS-1</td>
<td>Not Used</td>
<td>70-140 °F</td>
</tr>
<tr>
<td>CRS-1, RS-2, CRS-2</td>
<td>Not Used</td>
<td>125-185 °F</td>
</tr>
<tr>
<td>SS-1, CSS-1</td>
<td>50-160 °F</td>
<td>70-140 °F</td>
</tr>
<tr>
<td>SS-1h, CSS-1h</td>
<td>50-160 °F</td>
<td>70-140 °F</td>
</tr>
<tr>
<td>CMS-2S, CMS-2, CMS-2h</td>
<td>50-160 °F</td>
<td>125-185 °F</td>
</tr>
<tr>
<td>QS-KH, QS-H</td>
<td>50-120 °F</td>
<td>70-120 °F</td>
</tr>
</tbody>
</table>

### TABLE 113.5.3 - PRIME COAT SPECIFICATION

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>I.</td>
<td>Min</td>
<td>Max</td>
</tr>
<tr>
<td>Test</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A.</td>
<td>15</td>
<td>150</td>
</tr>
<tr>
<td>B.</td>
<td>-</td>
<td>1.0</td>
</tr>
<tr>
<td>C.</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>III.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distillation Test</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A.</td>
<td>65</td>
<td>-</td>
</tr>
<tr>
<td>B.</td>
<td>-</td>
<td>25</td>
</tr>
<tr>
<td>C.</td>
<td>97.5</td>
<td>-</td>
</tr>
</tbody>
</table>

Notes:

[1] AE-P, asphalt emulsified prime
SECTION 116

ASPHALT CONCRETE

116.4.7 COMPOSITION AND GRADING
(Add the following to NM-APWA section)

Add the following to the section: The grading of the combined aggregate shall conform to Type "SP". Type I of Asphalt Concrete Aggregate Classification, as specified by the City Engineer or their designee.

Class "B" and Class "C" Asphalt Concrete Aggregate should be used on a 25%-75% basis respectively. However, these figures are a rough estimate of the past usage. The contract requires the supply of A.C. aggregates in any proportions the City requires.

116.7.3 ASPHALT SUPPLY
(Add the following to NM-APWA section)

The availability of hot-mix and cold-mix asphalt shall be the responsibility of the Contractor. In the event he is unable to supply the asphalt from his own plant he shall provide any and all asphalt requested by the City through purchase from another supplier of the Contractor's choosing. The Contractor shall supply the asphalt at the price bid in this Contract regardless of his cost in procuring it elsewhere.

116.7.4 ASPHALT BATCH PLANT REQUIREMENTS
(Add the following to NM-APWA section)

The contractor (or his supplier) awarded the Annual Street Maintenance Contract shall have the batch plant capability of furnishing a minimum of 65 TONS PER HOUR of hot mix asphalt. This quantity is based on the hot mix asphalt requirements the City of Farmington needs to supply the contractor of the hot mix asphalt re-paving program.
SECTION 117

ASPHALT REJUVENATING AGENTS

117.1 GENERAL
(Add the following to NM-APWA section)
Type I rejuvenating agent as specified shall normally be used. The City may allow the use of emulsified Cyclogen rejuvenating agent (or equal) if requested in writing and approved by the City Engineer or their designee.

117.3 TESTING
(Add the following to NM-APWA section)
If emulsified Cyclogen use is approved, it shall meet the following specifications:

<table>
<thead>
<tr>
<th>Property</th>
<th>Test Method</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pumping Stability</td>
<td>G.B. Method</td>
<td>Pass</td>
</tr>
<tr>
<td>Emulsion Coarseness percent</td>
<td>Sieve Test,</td>
<td>0.1 max.</td>
</tr>
<tr>
<td></td>
<td>ASTM D 224-76(MOD)</td>
<td></td>
</tr>
<tr>
<td>Sensitivity to Fines, Percent</td>
<td>Cement mixing</td>
<td>2.0 max.</td>
</tr>
<tr>
<td></td>
<td>ASTM D 244-76</td>
<td></td>
</tr>
<tr>
<td>Particle Charge</td>
<td>ASTM D 244-76</td>
<td>Positive</td>
</tr>
<tr>
<td>Concentration of Oil Phase, percent</td>
<td>ASTM D 244-76(MOD)</td>
<td>60 min.</td>
</tr>
</tbody>
</table>

117.5.3 MEASUREMENT AND PAYMENT
(Add the following to NM-APWA section)
If Cyclogen or equal is approved, no additional compensation shall be made.

The storage and dispensing facilities of Cyclogen shall be included in other items of work, and no direct payment will be made for storage and dispensing facilities.
SECTION 121
PLASTIC PIPE (WATER & SANITARY SEWER USE)

121.4.2 LINE LOCATOR
(Replace NM-APWA section with the following)

Tracer wire shall be installed with all PVC pipe installations or as directed by the City Engineer or their designee. Tracer wire is required on all water line installations. Tracer wire shall be a minimum of 10 gage wire size for all installations and shall be coated wire. All service laterals from the main line to the water meter can shall be installed with a 10 gage coated tracer wire. The tracer wire for the lateral shall be connected to the tracer wire on the main line in a manner approved by the City Engineer or their designee. A minimum of a three foot pigtail shall be left in the meter can for tracing purposes.

The installed 10 gage coated tracer wire shall be attached to the top of the pipe with duct tape. The wire connection shall be made by a split bolt, and the wire connection shall be wrapped with electrical tape to protect the connection. The tracer wire shall be electrically connected to surface appurtenances of the water line using jumper wires and cad welding. Surface appurtenances shall include hydrants and blow-offs, etc. The wire must pass a conductivity test performed by the City of Farmington's Operations and Maintenance Utility Contractor prior to acceptance of the utility. In the event that the first test does not pass, all retests shall be performed at the contractor’s expense unless the failure was due to the operations and maintenance contractor’s equipment and/or operation of that equipment. Copy of said test shall be provided to the City. The cost of tracer wire, installation and testing, excluding retests, including all labor and equipment, as necessary, shall be included in the unit cost for PVC water main. No separate payment shall be made for tracer wire. The Contractor will be required to connect the tracer wire to water service meters at no additional cost.

All pressure sewer lines (mainlines and services) shall require tracer wire from the connection to the valve can.
121.5.1.1 MATERIALS AND UTILIZATION
(Replace NM-APWA section with the following)

Polyvinyl chloride (PVC) pipe shall meet the requirements of AWWA C900 for all diameters and shall be Underwriters Laboratories (UL) approved. This pipe shall be furnished in ductile iron pipe equivalent outside diameters. Joints shall be push-on, flexible, elastomeric gasketed and minimum pressure class of 150 psi (DR 18).

121.5.2.1 P.V.C. GRAVITY FLOW PIPE
(Add the following to NM-APWA section)

PVC Sewer Pipe shall be SDR-35. PVC Sewer pipe for force mains shall be C-900, purple pipe.
SECTION 123

REINFORCED CONCRETE PIPE

123.1.2 GENERAL
(Add the following to NM-APWA section)

All RCP used in this contract shall be Class III or Class IV, as specified by the City Engineer or their designee, and conform to ASTM C 76 with a wall thickness "B", all sizes or as noted on the plans.
SECTION 202

ROADWAY EXCAVATION

202.1 GENERAL
(Add the following to NM-APWA section)

Where roadway excavation is used, the City shall prepare cross section of the proposed work and shall furnish the Contractor with plans showing the finished section. Included in this item is excavation material from City provided borrows within 1320 feet of the project limits and delivering the material to the proper location on site for fill construction.

Different conditions of excavation may be encountered on this project. Due caution shall be exercised by the Contractor in preparing the bid proposal. The Contractor shall provide all necessary cofferdams, pumps, drains, well points and other necessary means for removing water from the excavation or other parts of the work or for preventing the slopes of excavations from sliding or caving, and he shall satisfactorily remove the water, whether it be from ground water or other sources. Dewatering shall continue for a minimum of twenty-four (24) hours in the vicinity of any concrete to allow the concrete to properly set. All water shall be disposed of by pumping into ditches, storm sewers or as may be approved by the City Engineer or their designee.

202.9 MEASUREMENTS
(Add the following to NM-APWA section)

Payment shall be based on load counts agreed on by the City and the Contractor on a daily basis. Included in the unit price bid for roadway excavation shall be any clearing and grubbing within the excavated area. This item shall not include rock excavation.

Limits of payment shall be from existing ground profile down to the top of subgrade preparation. Hauling material within the project limits and within 1320 feet of the project limits is incidental to the unit price bid for this item.
SECTION 204

FILL CONSTRUCTION

204.1 GENERAL
(Add the following to NM-APWA section)

Fill material shall be approved by the City Engineer or their designee.
SECTION 205
BORROW EXCAVATION

205.1 GENERAL
(Add the following to NM-APWA section)

The Contractor shall provide a borrow area to assure supply of the quantities of material shown on the bid proposal. The area shall be within 10 miles of the Farmington City limits and shall be approved by the City Engineer or their designee.

205.4 MEASUREMENT
(Add the following to NM-APWA section)

Payment shall be based on load counts agreed on between the City of Farmington and the Contractor. Hauling borrowed material to the job site shall be paid separately under Haul.

If the City provides a borrow area within 1320 feet of the contract limits, no payment will be made for borrow excavation. Such excavation from City provided borrows will be paid as Roadway Excavation, with no allowance for haul.

Borrow excavation shall include excavation and providing the borrow material from a Contractor provided site. Payment for stripping unsuitable overburden off the borrow area will not be made and shall be incidental to the actual borrow excavated.
SECTION 211

SELECT FILL MATERIAL

211.1 GENERAL
(Add the following to NM-APWA section)

This work shall consist of obtaining, hauling and delivering 3/4 minus aggregate acceptable to the City Engineer or their designee to replace unsuitable material excavated under other items or as special fill. Compaction of the select material to the requirement of Section 204 is also included in this item.

211.2 MEASUREMENT AND PAYMENT
(Add the following to NM-APWA section)

Payment for this item shall be by ton by weight ticket. The unit price bid shall include all labor to compact and finish the select fill material to the proposed cross section and grade.
SECTION 212

HAUL

212.1 GENERAL
(Add the following to NM-APWA section)

Haul shall consist of transporting material obtained from Contractor provided borrow area distance in excess of the free haul distance of 1320 feet from the project limits. Free haul distance within the job site and up to 1320 feet beyond the project limits shall be hauled with no additional compensation and shall be merged into the unit price bid for other items.

212.2 MEASUREMENT AND PAYMENT
(Add the following to NM-APWA section)

Haul Distance shall be measured by the City accompanied by the Contractor to the nearest tenth mile. The Haul Distance shall be measured along the shortest route determined by the City Engineer or their designee to be satisfactory and feasible. Should the Contractor elect to follow a route other than the one determined by the City Engineer or their designee, no additional compensation will be made.

Haul shall be paid based on the bank yards of material determined under borrow excavation times the distance to the project limits determined above. The unit shall therefore be yard mile.
SECTION 301

SUBGRADE PREPARATION

301 DESCRIPTION
(Add the following to NM-APWA section)

This work shall consist of compacting and finishing the subgrade in compliance with the specifications and the lines, grades, and typical cross-sections shown on the plans or established by the City Engineer or their designee.

301.4 SUBGRADE COMPACTION
(Replace NM-APWA section with the following)

301.4.1 Subgrade preparation shall extend to one foot (1') beyond the limits of the improvement to be placed on the subgrade except when that improvement abuts an existing structure and/or the limits of the right of way. Where an improvement abuts an existing structure and/or the limits of right of way, the subgrade preparation shall extend to the edge of the existing structure and/or the limits of right of way, as specified in the plans, specifications, supplemental technical specifications or as directed by the ENGINEER. Where existing structures are in the right of way or construction easements, subgrade preparation shall extend to the face of the structure, as specified above. Subgrade preparation shall not extend below the bottom of the foundation of an existing structure without specific authorization by the ENGINEER.

301.4.1.1 Subgrade preparation for roadway improvements shall be performed after completion of earthwork construction, subsurface utility installation and trenching back fill within the limits specified, as directed by the ENGINEER. The subgrade preparation shall extend the full width of the roadway to either one (1') foot back of new curb and gutter, and/or to the face of existing structures, and/or the limits of right of way, as specified in the plans and specifications, as directed by the ENGINEER.

301.4.1.2 Subgrade preparation for sidewalks and drive pads shall extend a minimum of one (1') beyond the free edge of the improvement, and/or to the limits of right of way, and/or to the face of existing structures.

301.4.1.3 The subgrade preparation for roadway construction without curb and gutter, shall extend one (1') beyond the edge of the pavement, and/or to the face of existing structures, and/or to the limits of right of way, as specified in the plans and specifications, as authorized by the ENGINEER.
301.4.1.4 Subgrade preparation shall extend the full width of roadway medians four (4) feet wide or less. In areas that the medians are wider than four feet (4') the subgrade compaction shall extend one foot (1') beyond the median edge of the pavement or back of the median curb.

301.4.2 The top 6 inches of the subgrade shall be compacted to not less than 95% percent of modified proctor. This applies to all soils except high volume change soils, which shall be compacted to 90% of modified proctor. For the purpose of these specifications, a high volume change soil is defined as any soil containing 35 percent or more of material passing No. 200 sieve. The moisture content of the top 6 inches of the roadbed shall be in accordance with the following provisions.

301.4.2.1 Unless otherwise provided, roadbed embankment of earth material shall be constructed with moisture and density control. Construction of non-roadbed embankments of earth material will not require moisture and density control, unless so specified on the plans. Unless otherwise shown on the plans or in the special provisions, the moisture content of the soil at the time of compaction shall not exceed the optimum or be less than the optimum, minus 5 percentage points, as determined by AASHTO T-180, except that in high volume change soils the City Engineer or their designee may require a moisture content more in excess of optimum. No payment will be made for re-handling or manipulating material.

301.4.2.2 Densities will be determined in compliance with AASHTO T 180. Field densities tests will be taken at locations designated by the City Engineer or their designee and the densities will be determined in compliance with AASHTO T 205, use of nuclear methods in conformity with AASHTO T 238 and 239, or other approved methods.

301.4.2.3 The top surface of the finished subgrade shall not vary more than 0.1 foot above or below established grade and 0.05 foot above or below the typical cross-section measured on the finished surface at right angles to the centerline. All deviations from these tolerances shall be corrected at contractor expense. Proof rolling of finished subgrade must be visually inspected by City Engineer or their designee. Roadbed construction under a previous contract shall be bladed, shaped, and compacted in accordance with the construction requirements of subgrade preparation.
301.4.2.4 Construction of roadbed embankments predominately of rock material (65 percent plus No. 4 sieve) will not require moisture and density control, except that the top 6 inches of the embankment shall be constructed in accordance with the requirements of subgrade preparation above.

301.4.3 The subgrade for arterial/collector roadway shall be ripped to a minimum depth of one (1) foot, brought to uniform moisture content, and compacted to the requirements of plans and specification, as authorized by the ENGINEER. Subgrade material with either 20 percent or more material passing a No. 200 sieve shall be uniformly mixed and moisture conditioned using a tractor mounted mixer or disced after ripping, as specified in the plans and specifications, as authorized by the ENGINEER. The subgrade for reconstructed curb and gutter, sidewalks, drive pads, residential roadways, bicycle paths and other roadways shall be scarified to a minimum depth of six (6) inches, brought to uniform compaction moisture content, and compacted to the requirements of plans and specification, as authorized by the ENGINEER.

301.4.4 Subgrade area shall be compacted to a dry density greater than 95 percent of maximum dry density in a moisture range of optimum moisture +/-2% as determined in accordance with ASTM D1557, unless the material contains 35% or more material finer than the No.200 sieve. If the subgrade material has 35% or more material finer than the No.200 sieve, the subgrade shall be compacted to a dry density greater than 95 percent of maximum dry density in a moisture content range of at least optimum moisture to optimum moisture +4%, as determined in accordance with ASTM D698.

301.4.5 Areas on which roadway pavement items are to be placed shall be compacted uniformly to the required subgrade density at the same time. Obtaining the required subgrade density in trench areas at a different time than obtaining the required subgrade density in the adjacent pavement areas will not be permitted.

301.4.6 Upon completion of the subgrade preparation, the CONTRACTOR shall maintain the compacted subgrade density and moisture content at the specified levels until the next lift of material is completed. The CONTRACTOR shall provide continuous moisture protection of the subgrade by either sprinkling or the application of a prime coat, as directed by the ENGINEER.
301.6 TESTING

301.6.1 A sample of each type of soil encountered shall be classified in accordance with the requirements of ASTM D2487, the moisture density relationship determined in accordance either ASTM D698 or D1557, whichever is applicable and an estimated resistance R-value assigned based on plasticity index, PI, and percent material passing the No.200 sieve.

301.6.2 Compaction tests shall be taken for each 500 sy or less, as directed by the ENGINEER. Compaction tests shall be taken in accordance with ASTM D2922 and D3017. Areas represented by noncomplying tests shall be reworked as specified, and retested for compliance.

301.6.3 Test reports shall include but not be limited to the requirements of TABLE 301.A.

TABLE 301.A
TEST REPORT INFORMATION

A. Field Data
   Date of Sampling/Field Test
   Project Number or
   Permit Number
   Project Title
   Location of sample/field test as defined by the project plans and specifications
   Time of Sampling/field testing
   Field test results with reference specification limits

B. Laboratory Data
   Soil classification
   Soil gradation
   Plasticity index
   Liquid limit
   Optimum moisture/maximum dry density relationship and graph
   Estimated soil resistance R-Value

301.6.4 Test results shall be reported to the ENGINEER and CONTRACTOR in writing, within 4 working days of completion of the sampling and or field test. Non-complying test shall be reported within 1 working day of completion of the test.
301.7 MEASUREMENT AND PAYMENT

301.7.1 Measurement for payment of roadway subgrade preparation will be by the square yard to the limits of the surfacing, as authorized by the ENGINEER. Payment for subgrade preparation shall include all labor and equipment required to shape, mix, add moisture, compact, bring to grade and maintaining the prepared subgrade moisture and density until the next course of material is placed.

301.7.2 The measurement of payment for subgrade preparation for non-pavement roadway items such as curb and gutter, valley gutter, drive pads and sidewalks etc., shall be included in that item. No separate payment will be made.

301.7.3 METHOD OF MEASUREMENT

Measurement will be made as follows: Subgrade preparation will be measured by the square yard on the top surface of the finished subgrade.

301.7.4 BASIS OF PAYMENT

The accepted quantities of subgrade preparation will be paid for at the contract unit price per square yard of finished subgrade.

NO PAYMENT WILL BE MADE FOR RE-HANDLING OR REWORKING MATERIAL TO MEET MOISTURE AND DENSITY REQUIREMENTS
SECTION 302

AGGREGATE BASE COURSE CONSTRUCTION

302.1 GENERAL

The work provided under this specification shall include the furnishing, placement and compaction of aggregate base course (ABC) to the lines, grades, dimensions, moisture, density and typical sections as specified in the plans and specifications, and or as directed by the ENGINEER. The CONTRACTOR shall be solely responsible for the aggregate base course either batched at and/or delivered to the site. A job mix formula for aggregate base course, shall be certified in accordance with these specifications. Each job mix formula submitted and authorized for use under this specification shall be identified by a number, unique to that job mix formula and aggregate production plant/pit. If a change in material(s) from that specified in the job mix formula occur during a project, the CONTRACTOR shall submit a new job mix have formula to include the changed materials for approval by the ENGINEER. A job mix formula shall not be used on a project without written approval of the ENGINEER. A job mix formula, upon request by an aggregate supplier, may be authorized by the OWNER for a period of 14 months, from the date of sampling of aggregates used in the job mix formula.

302.3 MATERIALS

Base course aggregate graduation shall be Class 2, unless otherwise authorize the ENGINEER, or their designee.

302.3.1.1 Aggregate base course shall be coarse aggregate of either crushed stone, or crushed gravel, or crushed asphalt concrete, or crushed Portland cement concrete, or any combination, and natural sand, the combination of materials conforming to the requirements of ASTM D2940 and the plans and specifications, as authorized by the ENGINEER.

302.3.1.2 Coarse aggregates retained on the No.4 sieve shall consists of durable particles of either crushed gravel, or crushed asphalt concrete pavement, or crushed portland cement concrete, or any combination, capable of withstanding the effects of handling, spreading and compacting without degradation production of deleterious fines. At least 50% of the particles retained on the 3/8-inch sieve, shall have two or more fractured faces. Coarse aggregate shall comply with the requirements of TABLE 302.A.
302.3.1.3 Fine aggregate passing the No. 4 sieve shall consist of fines from the operation of crushing coarse aggregate; where available and suitable, natural sand or finer mineral matter or both, may be added. Fine aggregate shall comply with the requirements of TABLE 302A.

302.3.1.4 The job mix formula and gradation shall comply with the requirements of TABLE 302B, and have the same or similar characteristic gradation curve as either range limit, when graphically plotted on a standard "0.45 POWER" Gradation Chart.

302.3.1.5 Aggregate base course furnished and placed under this specification shall have a resistance value, (R-Value), not less than 76 as determined by ASTM D2844.

302.3.1.6 A job mix formula, certified by a Registered New Mexico Professional Engineer to comply with the requirements of this specification, shall be submitted to and authorized for use by the ENGINEER before the material may be incorporated in the construction. A submittal shall include, but not be limited to, the items in TABLE 302C. Prior to delivery of the material, the CONTRACTOR may be required to furnish samples of the aggregates base course to the ENGINEER for testing. Gradations for the aggregate base course used in a particular day's placement shall be submitted to the ENGINEER upon request.

302.3.2 Prime coat for surface sealing of compacted aggregate base course shall comply with the requirements of CSS-1H Cationic Emulsified Asphalt as specified in Section 113.

302.3.3 BASE COURSE GRADUATION

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>Percent Passing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Type I</td>
</tr>
<tr>
<td>25.0 mm (1.0 in.)</td>
<td>100</td>
</tr>
<tr>
<td>19.0 mm (3/4 in.)</td>
<td>80 – 100</td>
</tr>
<tr>
<td>4.75 mm (No. 4)</td>
<td>30 – 60</td>
</tr>
<tr>
<td>2.0 mm (No. 10)</td>
<td>20 – 45</td>
</tr>
<tr>
<td>75 µm (No. 200)</td>
<td>3.0 – 10.0</td>
</tr>
</tbody>
</table>

302.4 TRANSPORTATION AND PLACEMENT

302.4.1 Aggregate base course shall be transported in suitable vehicles with a cover. A load shall be covered immediately after loading and remain covered until unloading.
302.4.2 The CONTRACTOR shall provide to the ENGINEER with each load of batched and/or delivered to the job site, before unloading at the site, a copy of the delivery ticket on which is printed, stamped or written, the information defined in TABLE 302.D.

302.4.3 Aggregate base course shall be placed on prepared subgrade, prepared in accordance with the requirements of SECTION 301, the plans and specifications, and/or as directed by the ENGINEER.

302.4.4 Aggregate base course shall be placed in lifts which will provide not less than four (4) inches and not more than 6 inches compacted thickness. The material shall be moisture conditioned within a range of optimum moisture plus or minus two percent (+/-2%), and compacted to a dry density greater than ninety-five (95) percent of maximum dry density as determined in accordance under the procedures specified in ASTM D1557.

302.4.5 The finish surface of the compacted aggregate base course shall not deviate from finish grade in excess of 1/2 inch in 10 feet when tested with a 10-feet straight edge in any direction. All deviations in excess of the specified shall be corrected by the CONTRACTOR prior to authorization for placement of the next life of material.

302.4.6 Immediately upon completion of compaction, the CONTRACTOR shall seal the surface of the compacted aggregate base course with a prime coat. The prime coat shall be applied as required to provide a uniform coverage of the surface. Application shall be between 0.05 and 0.15 gallons per square yard of surface. If final surfacing is to be placed within twenty four (24) hours after completion of compaction, the prime coat may be waived as authorized by the ENGINEER. The surface shall be kept at compaction moisture until the final surfacing is placed in the event the prime coat is waived.

302.4.7 Traffic on compacted aggregate base course shall be limited to moisture control application and final surfacing traffic only, as authorized by the ENGINEER.

302.5 TESTING

302.5.1 A sample of material delivered to the project shall be taken for each 300 tons placed or each days placement, whichever is greater, and tested for gradation and moisture density relationship. The average value of individual gradation tests, for all sieve size determinations, shall comply with the job mix formula within the tolerances specified in TABLE 302.B. Individual sample gradation test results, for all sieve size determinations, shall comply with the tolerance range plus two (2) percent. Non-complying material shall be re-sampled and tested for compliance.
Material not in compliance after the initial and follow up testing shall be removed and replaced by the CONTRACTOR at no cost to the OWNER, as directed by the ENGINEER.

302.5.2 Compaction tests shall be taken at the rate of one test for each 500 sy/lift placed, or as directed by the ENGINEER, in accordance with the requirements of ASTM D 2922 and D 3017. Areas represented by non-complying tests shall be reworked and retested for compliance.

302.5.4 Test reports shall include but not be limited to the requirements of TABLE 302.E.

302.5.5 Test Results shall be reported to the ENGINEER, CONTRACTOR, and OWNER in writing, within 4 working days of completion of the sampling and or field test. Non-complying test shall be reported within 1 working day of completion of the test.

302.6 METHOD OF MEASUREMENT

(Add the following to NM-APWA section)

Base course in place shall include all labor, equipment and materials necessary to place and compact base course according to these specifications for use as a surface treatment I.E. gravel driveway, shoulder, backfilling of trenches, etc. This item will NOT be paid in conjunction with any other surfacing item, since those items include the cost of their base course in the unit price. City Engineer or their designee shall determine when base course will be used to backfill trenches.

302.6.1 Measurement of aggregate base course shall be by the square yard per each thickness required, complete in place.

<table>
<thead>
<tr>
<th>SIEVE SIZE/TYME</th>
<th>PRODUCTION RANGE (% passing)</th>
<th>PRODUCTION TOLERANCES (+/- %)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-1/2 inch</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>1 inch</td>
<td>95-100</td>
<td>100</td>
</tr>
<tr>
<td>3/8 inch</td>
<td>64-75</td>
<td>65-80</td>
</tr>
<tr>
<td>½ inch</td>
<td>35-46</td>
<td>48-55</td>
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<tr>
<td>No.4</td>
<td>12-18</td>
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<td>6-15</td>
</tr>
<tr>
<td>No.200</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
TABLE 302.C
SUBMITTAL REQUIREMENTS

A. Supplier
B. Date
C. Design Mix Identification Number
D. Contractor
E. Construction project number
F. Construction Project Title (contract)
G. Certification of compliance
H. Target Gradation of Material
I. Optimum moisture and maximum dry density relationship of material and graph

The submittal shall be rejected without review if the specified data is not included.
SECTION 306

BITUMINOUS STABILIZED BASE

306.3.2 AGGREGATE

Aggregate gradation shall be Class IIs.

306.3.1 The aggregates shall consist of soil or mineral aggregates or blends thereof, which, when stabilized with asphalt and allowed to cure, will meet the specified requirements for stability. A representative sample of minus No. 4 material taken from the proposed mixture of aggregates and soil material shall yield a sand equivalent of 40 or more when tested in accordance with AASHTO T 176. The CONTRACTOR shall notify the ENGINEER if he intends to import material in sufficient time to allow for the testing thereof to determine the suitability of the material and quantity of stabilizer required.

306.3.2 Gradation will be the same as specified for Classes I or II, Section 302.3.2.
SECTION 336
ASPHALT CONCRETE PAVEMENT

336.1.1 GENERAL

Asphalt concrete pavement shall consist of a mixture of mineral aggregate and asphalt binder, placed and compacted on either a prepared subgrade, or base, or asphalt concrete pavement, in conformity with the lines, grades, and dimensions shown on the plans or as specified in the supplementary Specifications, and this specification. The asphalt concrete including materials, mixing, and hauling shall comply with the requirements of SECTION 116, SECTION 328, and SECTION 329, as applicable, and the supplementary technical specifications. The CONTRACTOR shall be solely responsible for the asphalt concrete pavement supplied under this specification, materials, proportioning, placement, and compaction.

336.1.2 For construction and reconstruction street projects requiring asphalt concrete pavement placement equal or greater than either 500 tons of asphalt concrete per day, the CONTRACTOR shall have a full time asphalt pavement construction supervisor on site to direct the asphalt concrete pavement construction during test sections and pavement construction operations. The supervisor shall be certified under the New Mexico State Highway and Transportation Department/Associated CONTRACTORs of New Mexico Technical Training and Certification Program for ASPHALT and SUPERPAVE.™ The supervisor shall be identified by the CONTRACTOR at the prepaving conference and shall be the contact person for the ENGINEER during asphalt concrete pavement construction. Supervisor certification shall be made available to the ENGINEER upon request.

336.1.3 At the direction of the ENGINEER, a Pre-Paving Conference shall be held no later than seven calendar days prior to the start of asphalt concrete pavement construction. The meeting agenda/assigned responsibilities shall be accomplished at the conference.

I. ENGINEER/OWNER
   A. Scope of the project.
   B. Identify construction management team and contact telephone numbers.
   C. Review CONTRACT requirements for asphalt pavement construction.
   D. Review Quality Assurance Program.
II. CONTRACTOR
   A. Review pavement construction schedules.
      1. Test strip location and placement schedules.
      2. Proposed pavement construction schedule for duration of
         the project.
   B. Identify construction personnel and contact telephone numbers.
      1. CONTRACTOR Staff
      2. Sub-CONTRACTOR (s)
      3. Supplier (s)
      4. Safety Manager
   C. Present construction placement procedure plans.
      1. Equipment Schedule
      2. Asphalt Concrete Job Mix Formula
      3. Paving methodology
      4. Traffic Control Plan
      5. Quality Control Plan

336.3 MATERIALS

336.3.1 ASPHALT CONCRETE

Asphalt concrete shall be placed at the design proportions specified in the
authorized job mix formula, within the specified production tolerances for
combined aggregate gradation and asphalt binder content. Asphalt
concrete placed at a project, sampled and tested in accordance with this
specification, shall have a gradation that complies with the authorized
design gradation ± the production tolerance(s) specified in the authorized
job mix formula. Asphalt concrete placed at a project, sampled and tested
in accordance with this specification, shall have an asphalt content that
complies with the design asphalt content ± 0.5% (laboratory analysis).

336.3.2 PRIME AND TACK COAT

336.3.2.1 Prime coat shall comply with the 336-2 requirements of Section 113. It
shall be applied to subgrade, aggregate base course, and concrete
treated base course a minimum of 12 hours prior to placing the asphalt
concrete pavement, as directed by the ENGINEER. Traffic shall not be
permitted on the prime coat prior to construction of the asphalt concrete
pavement.

336.3.2.2 Immediately prior to prime coat application, an inspection of the surface
shall be made by the ENGINEER. The surface to be primed shall be in a
uniform and well compacted condition, true to grade and cross section. All
loose and foreign material shall be removed by light sweeping prior to
application. Loose material shall not be mixed with asphalt concrete.
336.3.2.3  (Replace NM-APWA section with the following)

Prime coat shall be applied uniformly at the rate of 0.10 to 0.30 gallon per square yard.

336.3.2.4  In order to prevent lapping at the joint of two applications, the distributor shall be promptly shut off. A hand spray shall be used to touch up all spots missed by the distributor.

336.3.2.5  The pressure distributor used for applying prime coat material shall be equipped with pneumatic tires and shall be so designed and operated as to distribute the prime material in a uniform spray without atomization, in the amount and between the limits of temperature specified. It shall be equipped with a speed tachometer registering feet per minute and so located as to be visible to the truck driver to enable him to maintain the constant speed required for application at the specified rate.

336.3.2.6  The pressure distributor shall be equipped with a tachometer registering the pump speed pressure gauge, and a volume gauge. The rates of application shall not vary from the rates specified by more than 10 percent. Suitable means for accuracy indicating at all times the temperature of the prime material shall be provided. The thermometer well shall be so placed as not to be in contact with a heating tube.

336.3.2.7  The distributor shall be so designed that the normal width of application shall be not less than 6 feet, with provisions for the application "of lesser width" when necessary. If the distributor is equipped with heating attachments, the prime coat material shall be circulated or agitated to provide the application temperature specified by the manufacturer.

336.3.2.8  If the prime coat has not been completely absorbed prior to the start of placing the asphalt concrete pavement, sufficient sand shall be spread over the surface to blot the excess and prevent tracking under traffic. Sand shall be applied as directed by the ENGINEER. Prior to placing the asphalt concrete pavement, loose or excess sand shall be swept from the base. If a sand cover is specified in the Supplementary Specifications or noted on the drawings to cover a prime coat, it shall be applied within 4 hours after the application of prime coat, as authorized by the ENGINEER.

336.3.2.9  A prime coat shall be prevented from spraying upon adjacent pavements, structures, guard rails, guide posts, culvert markers, trees, and shrubbery that are not to be removed; adjacent property and improvements; and other facilities or that portion of the traveled way being used by traffic.
The CONTRACTOR shall protect a prime coat against all damage and markings, both from foot and other traffic. Barricades shall be placed where necessary to protect a prime coat. Damaged prime coat shall be repaired by the CONTRACTOR, at his expense. Asphalt concrete pavement shall not be placed until a prime coat has been accepted by the ENGINEER.

(Add the following to NM-APWA section)

PRIME COAT TEMPERATURE AND WEATHER LIMITATIONS

The Contractor shall not apply the prime material in the following conditions:

1. If the surface has standing water.
2. If the ambient air temperature is 40°F and rising; or if the ambient air temperature is less than the manufacture’s recommendation; or as authorized by the ENGINEER.
3. If weather conditions prevent the proper placement of the prime coat.

TACK COAT

If the asphalt concrete pavement is being constructed directly upon an existing hard surfaced pavement, a tack coat shall be evenly and uniformly applied to existing pavement preceding the placing of the asphalt concrete, as directed by the ENGINEER. The surface shall be free of water, all foreign material, or dust when the tack coat is applied. No greater area shall be treated in any one day than will be covered by the asphalt concrete during the same day. Traffic will not be permitted over tack coat.

Tack coat shall consist of cationic emulsified asphalt as specified in Section 113. Application rate shall be 0.03 to 0.12 gallon per square yard.

A tack coat shall be applied to the surface of any course if, in the opinion of the ENGINEER, the surface is such that a satisfactory bond cannot be obtained between it and the succeeding course.

The contact surfaces of all cold pavement joints, curbs, gutters, manholes, and the like shall be painted with a tack coat immediately before the adjoining asphalt concrete is placed. Surfaces where a tack coat is
required shall be cleaned of all loose material before the tack coat is applied.

336.4.5 (Add the following to NM-APWA section)

TACK COAT PAYMENT

When called for in the specifications and on the plans for patch work, the application of a tack coat shall be considered as an incidental item and no separate measurement or payment will be made.

336.5 PLACEMENT

336.5.1 (Replace NM-APWA section with the following)

Asphalt concrete may be placed if the ambient air temperature is 60°F and rising, and the weather is favorable to construction, when authorized by the ENGINEER. Materials may not be placed in either wet weather, or on a wet or damp surface, or frozen supporting material, or if weather conditions prevent proper handling, finishing, and compacting.

Quiet asphalt concrete may be placed when the pavement temperature is 60°F and rising, and the weather is favorable to construction, when authorized by the ENGINEER. Materials may not be placed in either wet weather, or on a wet or damp surface, or frozen supporting material.

336.5.2.1 An asphalt concrete pavement lift shall be placed uniformly, at a temperature within the compaction range specified in the authorized job mix formula, without segregation, to such a depth that after compaction it will comply with the specified cross section and grade, specified in the plans and specifications. The temperature of the mat shall be in a uniform range of 15°F transverse the mat after placement behind the paver. Asphalt concrete shall be placed and compacted in uniform layers/lifts, ± 3/16 inch in 10 feet of the lift finish grade. The compacted thickness of a layer/lift shall be equal or greater than two (2) times the maximum size aggregate but less than or equal 4.0 inches for a SP-II aggregate gradations. The compacted thickness of a layer/lift shall be equal or greater than two (2) times the maximum size aggregate, but less than or equal to 3 inches for Types SP-III, SP-IV, B, C, and D aggregate gradations. Pavement lift thickness' shall be selected to use the maximum size aggregate. Lift thickness(s) and asphalt concrete type, designating the maximum nominal size aggregate, shall be either specified in the CONTRACT documents, or as directed by the ENGINEER. SP-II gradation mixes shall not be used for the surface course.
336.5.2.2 **WEATHER LIMITATIONS**
(Add the following to NM-APWA section)

If the ambient air temperature is less than 60°F then both the ground temperature and the Chill Factor temperature must be considered.

Both the Chill Factor temperature and ground temperature must be 50°F and rising for a period of at least four hours. Materials may not be placed in either wet weather, or on a wet or damp surface, or frozen supporting material, or if weather conditions prevent proper handling, finishing, and compacting.

The Chill Factor temperature must be referenced from the Wind Chill temperature from a local National Oceanic and Atmospheric Administration (NOAA) weather station. Currently, the local NOAA weather station for Farmington, NM is located at the Four Corners Regional Airport. The Wind Chill temperature for Farmington, NM can be obtained from the NOAA National Weather Service website (via the NOAA Weather Radio Transmitter WXJ37).

336.5.3 Placement shall be continuous, without interruption. No greater amount of the mixture shall be delivered in any one day than can be placed, compacted and finished that same day.

336.5.4 No asphalt concrete surface course shall be placed which cannot be finished within daylight hours of the same day it is laid unless authorized by the ENGINEER.

336.5.5 In narrow, deep, irregular sections, intersections, turning radiuses, turnouts, cul de sacs, or driveways, where it is impractical to spread and finish the base and level the surface mixtures by machine methods, the CONTRACTOR may use placement equipment or acceptable hand methods, as authorized by the ENGINEER. The CONTRACTOR shall place material in lifts as specified and not exceed the limits of depth of the compaction equipment. Hand placed and compacted material shall be placed in lifts not greater than 2 inches maximum compacted depth. The finish surface shall be checked with a 10 feet straight edge, true and level to the adjacent asphalt concrete pavement. Humps shall be milled true and level and depressions shall be filled and finished to comply with this specification.

336.5.6 Pavement cuts of 10 feet or more in width and 100 feet or more in length must be paved with an approved bituminous paving machine. Asphalt concrete should be placed with a paving machine for all sections if a paver is available.
Depositing and spreading of the asphaltic concrete shall be accomplished by means of a bituminous paver except as specified in 336.5.4. Bituminous pavers shall be self contained, self propelled units, provided with a automated leveling activated screed or a strike off assembly, with heating capabilities, and capable of spreading and finishing courses of bituminous plant mix material in lane widths applicable to the lifts and thickness specified in the plans and specifications. Pavers shall be free of fluid leaks. Pavers detected to have leaks shall not be allowed on the project.

The paver shall be equipped with a receiving hopper having sufficient capacity for uniform spreading operation. The hopper shall be equipped with a distribution system to place the mixture uniformly in front of the screed. The hopper shall be operated at 50% or greater capacity during paving operations. Paving shall not be allowed when the hopper is at less than 50% capacity.

The screed or strike off assembly shall effectively produce a uniform surface and texture without tearing, shoving or gouging the mixture. The paver shall be operated at a forward speed consistent with satisfactory laying of the mixture.

The paver shall be operated with an automatic leveling device controlled from an external guide, approved by the ENGINEER. The screed shall be zeroed by the CONTRACTOR on a template or blocks set to the same depth as the loose mat behind the paver, prior to start of placement of each lift of a material, as directed by the ENGINEER. Verification of the target loose lift thickness shall be made at regular intervals during the placement. The loose lift thickness, lift thickness behind the paver shall be defined by the CONTRACTOR and reported to the ENGINEER for reference prior to startup of a lift placement. Broadcasting of excess edge material over the surface of a precompacted lift shall not be permitted.

Compaction shall begin when the asphalt concrete temperature is in the compaction temperature range specified in the authorized job mix formula. Compaction shall be completed before the temperature of the material cools to less than 200°F. Compaction may be allowed on material with a temperature less than 200°F and greater than 185°F, as authorized by the ENGINEER. Compaction on a lift shall not be allowed when the temperature of the lift is less than 185°F. The material shall be compacted to a density of at least 93% and not greater than 97% of the theoretical maximum density as determined by ASTM D2041. The CONTRACTOR shall be responsible for the development and implementation of the compaction program. A reference compaction
program shall be defined by the CONTRACTOR and reported in writing to the ENGINEER for each job mix formula/lift thickness to be used on a project. Changes in the compaction program shall be reported to the ENGINEER as they may occur. Repair and replacement of damaged adjacent property and structures, resulting from the use of vibratory rolling equipment, shall be the responsibility of the CONTRACTOR, at no cost to the OWNER. A CONTRACTOR may construct a test strip, a minimum of 10 feet wide and 250 feet long, to establish the rolling pattern for an asphalt mix and lift thickness to be placed on the project, as directed by the ENGINEER. The test strip shall be paid for in accordance with the requirements of the CONTRACT, as authorized by The ENGINEER.

336.7 JOINTS

336.7.1 Care shall be exercised in connection with the construction of joints to insure that the surface of the pavement is true to grade and cross section across the joint. Periodically, joints shall be tested with a 10 feet straight edge to verify the smoothness of the surfaces of adjacent material(s). A 10 feet long straight edge shall be placed perpendicular to the joint extending equally on both sides of the joint. The smoothness of the surfaces across the joint shall comply with the requirements of this specification.

336.7.2 After construction of a joint along any adjoining edge such as a curb, gutter, or an adjoining pavement lift free edge, and after the hot mixture is placed by the finishing machine, sufficient hot material shall be carried back to fill any space left open. This joint shall be properly "SET UP" with the back of a rake at proper height and level to receive the maximum compaction. The work of "setting up" this joint shall be performed by competent workmen who are capable of making a correct, clean, and neat joint. Excess material shall be removed. Broadcasting excess material onto the adjacent asphalt concrete pavement surface will not be allowed. Excess material at an edge joint shall be removed and discarded if not required for compaction.

336.7.3 Longitudinal and transverse joints shall be made in a careful manner. Well bonded and sealed joints are required. Joints between old and new pavements or between successive day's work shall be carefully made in such a manner as to insure a thorough and continuous bond between the old and new surfaces. In the case of surface course, the edge of the old surface course shall be cut back for its full depth so as to expose a fresh surface and, if necessary to obtain a well bonded joint, shall be painted with a tack coat after which the hot surface mixture shall be placed in contact with it and raked to a proper depth and grade. Before placing mixture against contact surfaces of curbs, gutters, headers, manholes, etc., they shall be painted with a tack coat. Joints shall be tested with a 10 feet straight edge to verify the smoothness of the surfaces transition of
adjacent material(s). A 10 feet long straight edge shall be placed perpendicular to the joint extending equally on both sides of the joint. The smoothness of the surfaces across the joint shall comply with the requirements of this specification. Longitudinal and transverse joints shall be compacted parallel to the joint. Transverse and longitudinal joints shall be staggered a minimum of 1 foot offset from the joint of a lift either below or above, and completely bonded.

336.8 PAVEMENT PENETRATIONS, MANHOLES AND VALVE COVERS

Manhole frames and valve covers shall be adjusted as per the Standard Drawings, or as directed by the ENGINEER. The finish surface at the top of all asphalt concrete pavement penetrations, to include but not be limited to manhole frames and valve covers, shall be constructed to and be parallel in all directions the finish surface of the surrounding asphalt concrete pavement prior to placing the surface course.

336.9 SMOOTHNESS

Upon completion, the pavement shall be true to grade and cross section. Except any changes of grade, when a 10 foot straight edge is laid on the finished surface of the roadway, the surface shall not vary from the edge of the straightedge more than 3/16 inch. After the completion of final rolling, the smoothness of the course shall be checked, and the irregularities that exceed the specified tolerances and or retain water on the surface shall be corrected by the CONTRACTOR at the no cost to the OWNER, as directed by the ENGINEER.

336.10 SAMPLING AND TESTING

336.10.1 Asphalt concrete tests shall be performed in accordance with the requirements of this specification, the Supplemental Technical Specifications, or as directed by the ENGINEER. Asphalt concrete analysis shall be performed in a laboratory accredited in accordance with the requirements of the New Mexico State Highway and Transportation Department “Procedure for Approval of Testing Laboratories to Perform Inspection, Testing, and Mix Design Services”, April 13, 1998 Edition. Testing equipment used in the performance of specified testing shall be calibrated annually with calibration standards traceable to the National Bureau of Standards. Certification records shall be maintained at the Laboratory for review by the ENGINEER. A copy of the certifications shall be submitted to The ENGINEER upon request. The sampling and testing shall be performed by a technician certified under the New Mexico State Highway and Transportation Department/Associated CONTRACTORS of New Mexico Technical Training and Certification Program for ASPHALT and SUPERPAVE.TM
336.10.2 MATERIAL SAMPLING

A quality assurance asphalt concrete material field sample shall be taken in accordance with the requirements of ASTM D979 for each job mix delivered. The materials shall be sampled at the greater rate of either one sample for each 250 tons, or one sample per day, for each type of material placed on a project, as directed by the ENGINEER. The sample shall be of such size to provide material for all tests specified and a split sample to perform verification/referee tests for gradation and binder content, if required.

336.10.3 MATERIAL TESTING

336.10.3.1 Asphalt concrete quality assurance sampling and testing shall be performed in accordance with the requirements of this Specification, the Supplemental Technical Specifications, or as directed by The ENGINEER.

336.10.3.2 An quality assurance asphalt concrete sample shall be sampled, tested, and reported in accordance with the requirements and procedures of SECTION 116-ASPHALT CONCRETE, 116.10 SAMPLING AND TESTING.

336.10.3.3 A CONTRACTOR may challenge production material test results, binder content and aggregate gradation, and request that the retained split asphalt concrete sample of record be released to his assigned laboratory and tested for compliance, as authorized by the ENGINEER. A challenge notification shall be made in writing to the ENGINEER by the CONTRACTOR within 28 calendar days from date of sampling. Challenge test results shall be submitted to the ENGINEER for evaluation no later than 42 calendar days from date of sampling. Challenge test results will be evaluated in accordance with the “multi laboratory” precision tolerances specified, T53 for binder content, ASTM C117 and C136 for aggregate gradation. Challenge and record test results that comply with precision tolerances will be averaged with the companion test results of record and the material pay factor, Pmf, recalculated as directed by the ENGINEER. Challenge and record test results that do not comply with the precision tolerances will direct the disqualification of the challenged and record samples, as directed by the ENGINEER. Cut/core sample(s) will be taken from the area(s) represented by the disqualified challenge sample(s) and evaluated by the lab of record under the observation of the CONTRACTOR, in accordance with the requirements of these specification and replace the disqualified sample test results. Analysis of the replacement cut/core sample(s) may not be challenged. The CONTRACTOR will submit challenge test results in writing to the
ENGINEER for each split sample released to his assigned laboratory of record. Challenges filed after the time limitations will not be considered. The OWNER shall pay for all complying tests.

336.10.4 COMPACATION TESTING

336.10.4.1 Asphalt concrete pavement quality assurance compaction sampling and testing shall be performed in accordance with the requirements of this specification, the Supplemental Technical Specifications, as directed by The ENGINEER. Each lift, for each type of asphalt concrete pavement placed each day, shall be tested for compaction.

336.10.4.2 An asphalt concrete pavement compaction test shall be performed in accordance with the requirements of this specification, as directed by the ENGINEER. A test shall determine the compaction at a location of a fresh constructed asphalt concrete roadway lift. Compaction shall be calculated as the field density at a location of a LOT lift, determined by either 336.11.4.3 or 336.11.4.4, divided by the average of the maximum theoretical density \( G_{mm} \) of the acceptance sample(s) taken for that day’s placement, reported to the nearest one tenth of a percent, \( xxx.x \% \). A maximum theoretical density \( G_{mm} \) shall be determined in accordance with ASTM D2041.

336.10.4.3 The field density at a location for a lift of SP-II material shall be determined from a core sample. One core sample shall be taken for each lift of 250 tons, or fraction thereof, placed each day, but not less than 3 cores per day, as directed by the ENGINEER. The density of a core shall be determined in accordance with the requirements of D2726 and reported to the nearest one-tenth pound per cubic foot.

336.10.4.4.1 The field compaction at a location for Type B, C, D, E, SP-III, and SP-IV materials, shall be measured in accordance with the requirements of ASTM D2950 Density of Bituminous Concrete in Place by Nuclear Methods, at the minimum rate of three tests per lift of 500 sy, or fraction thereof, for each type of asphalt material placed in a day, as directed by the ENGINEER.

336.10.4.4.2 A reference density test of the support material, for the asphalt concrete roadway lift to be constructed, shall be taken prior to the placement of the fresh asphalt concrete lift, or defined from previous test results. The density of the support material shall be used as reference in performing the density test of a fresh asphalt concrete lift in accordance with the requirements ASTM D2950, placed over the support material. A density test of the support material shall be taken at the rate of one (1) test for each 500 sy of surface or less to be paved over in a day, as directed by the ENGINEER. The density of the support material shall be reported as
"reference support material density" in the compaction test report of the constructed asphalt concrete pavement over the area represented by the support material compaction test.

336.10.4.4.3 Core samples of the compacted asphalt pavement of SP-III, SP-IV, B, C, D, and E asphalt concrete, may be taken and tested to determine conformance of the finished pavement with the specified requirements either as requested by the CONTRACTOR, as directed by the ENGINEER. Samples shall be taken and tested in accordance with the requirements of 336.11.4.3, at the rate of three (3) core samples per LOT lift, as directed by the ENGINEER, and paid by the OWNER. Compaction determined from cores shall supersede tests performed in accordance with the requirements ASTM D2950. The CONTRACTOR shall be responsible for asphalt concrete pavement replacement at no cost to the OWNER where core samples are taken. The OWNER shall pay for all complying tests.

336.10.4.5 Field compaction tests shall be taken at random locations on an asphalt concrete pavement lift, as directed by the ENGINEER. Three (3) general areas at which a test should be taken are either adjacent to the free edge of the mat, or the mat interior, or adjacent to a joint. The number of tests taken will vary but the total number of tests taken on any project shall be in the approximate proportions specified in TABLE 336.A.

336.10.4.6 Sampling and testing of quiet asphalt concrete, and measurement and payment shall conform to the requirements of SECTION 328.

### TABLE 336.A - Asphalt Concrete Pavement Lift Compaction Test Location Proportions

<table>
<thead>
<tr>
<th>Location</th>
<th>% of total tests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Free Edge of Mat¹</td>
<td>20 to 33</td>
</tr>
<tr>
<td>Mat Interior</td>
<td>33 to 60</td>
</tr>
<tr>
<td>Joints²</td>
<td>20 to 33</td>
</tr>
</tbody>
</table>

**NOTES:**
1. The free Edge of Mat test shall be taken in the area between one (1) foot and two (2) feet in from a free edge of a lift.
2. Joints shall include the longitudinal and transverse butt joints between adjacent lifts of asphalt having the same finish elevation. Tests may be taken on material placed against a cold joint edge of formed surface.

336.10.5 Full depth cores of asphalt concrete shall be taken to determine the depth of structure and the depth pay factor, PF₀, defined in TABLE 336.E, as directed by the ENGINEER, A minimum of three cores, having an outside
diameter equal or greater than four (4) inches, shall be taken at random for each 1000 sy, or fraction thereof, placed. Cores shall be evaluated in accordance with the requirements of 336.12.2.3.4. The core length, depth of the pavement, shall be determined based on the average of three measurements of the length of the core, measured from circular ends of a sample. All measurements shall be reported to the nearest 0.125" (1/8 inch). Plant mixed seal coat shall not be included in the depth of structure.

336.10.6.1 Test reports shall include but not be limited to the information specified in TABLE 336.B.

TABLE 336.B - TEST REPORT(s)

A. Field Data and Test Results:
   1 Date of Sampling/Test
   2 City of Farmington Project Number or permit Number
   3 Project Title
   4 Asphalt Concrete Supplier
   5 Delivery Ticket Number (asphalt concrete ample-only)
   6 Job Mix Formula Number
   7 Location of sample/test as defined by Contract Documents
   8 Time of Sampling/testing
   9 Material temperature at time of sampling, oF
   10 Ambient temperature at time of sampling, oF
   11 Field test results with reference specification limits (compaction test)

B. Laboratory Test Results
   1 Laboratory results as defined in TABLE 16.F (asphalt concrete material)
   2 Field Test Data as required in 336.11.4 (compaction reports)
   3 Pavement Structure Depth (individual cores and average depths for Lot)

C. Recommended Pay Adjustment Factor for a LOT
   1 \( C_{LM} \) material factor, see TABLE 336.C
   2 \( C_{LC} \) placement/compaction factor, see ABLE 336.D
   3 \( P_{FD} \), depth factor, see TABLE 336.E

336.10.6.2 Test results shall be reported to The ENGINEER, CONTRACTOR, Supplier and OWNER, in writing, within 7 working days of completion of the sampling of the asphalt and/or the field testing. Non-complying tests
shall be reported to The ENGINEER, CONTRACTOR, supplier and OWNER, within 1 working day of completion of the test.

336.10.6.3 The New Mexico Registered Professional ENGINEER in direct charge of the laboratory shall certify on a quality assurance test report that the test procedures used to generate the report complied with the specifications.

336.11 MEASUREMENT AND PAYMENT

336.11.1 Measurement: Asphalt concrete pavement shall be measured by the square yard of full depth pavement including each type and lift of material delivered, placed, compacted, and finished at the project, as specified in the CONTRACT DOCUMENTS. Asphalt concrete pavement shall be measured in a LOT, as directed by the ENGINEER. A LOT shall be 500 square yards, or fraction thereof, or as specified in the supplemental technical specifications, of constructed asphalt concrete pavement specified in the CONTRACT documents, to full depth over supporting materials of either subgrade, base course, treated base course, or existing asphalt concrete pavement, as directed by the ENGINEER. Each LOT shall be divided into SUBLOT(s) for each lift thickness of asphalt concrete in the pavement.

336.11.2 PAYMENT

336.11.2.1.1 Asphalt concrete pavement placed in an area of 10 feet or more in width and 100 feet or more in length (requiring machine laydown) shall be divided into LOTS and paid at the adjusted CONTRACT unit price, specified in this section, as authorized by the ENGINEER.

336.11.2.1.2 Asphalt concrete pavement placed in an area less than 10 feet in width and/or less than 100 feet in length shall be paid at the CONTRACT unit price specified in the CONTRACT documents, adjusted in accordance with the requirements of this section, as authorized by the ENGINEER.

336.11.2.1.3 A LOT of asphalt concrete pavement shall be paid at a unit price equal to the sum of the CONTRACT unit prices of its SUBLOTS, each lift of asphalt in a LOT, the sum adjusted for deviation of full depth of structure from CONTRACT specification. The unit price for a LOT shall be calculated in accordance with the equation below.

\[ UP' = PF_D \times UP_{SUBLOTS} \]

\[ UP', \text{ LOT unit price} \]

\[ PF_D, \text{ depth factor defined in TABLE 336.D} \]

\[ UP_{SUBLOTS} = UP'_{SL1} + UP'_{SL2} + ... + UP'_{SLN}, \text{ sum of SUBLOTS' unit prices, see 336.12.2.2} \]
336.11.2.2 A SUBLOT, a lift of asphalt concrete in a LOT, shall be paid at the adjusted CONTRACT unit price determined in accordance with the equation below.

\[ UP'_{SLN} = F_N \times UP_{SLN} \]

- \( F_N \): 0.5 \times (C_{LM} + C_{LC}) - SUBLOT adjustment factor
- \( C_{LM} \): material factor, see TABLE 336.C
- \( C_{LC} \): placement/compaction factor, see TABLE 336.D
- \( UP_{SLN} \): CONTRACT unit price for a SUBLOT

336.11.2.2.2 The material factor, \( C_{LM} \), is the material acceptance factor for a SUBLOT determined in accordance with TABLE 336.C, based on the absolute value of the deviation of the average value, or arithmetic mean (M), of the daily acceptance sample(s) test results for the SUBLOT, deviation from the CONTRACT authorized job mix formula targets (T), for either combined aggregate gradation or binder content.

336.11.2.2.3 If the deviation is equal or less than the allowable deviation, \( D' \), the corresponding material pay factor, \( C_{LM} \), shall be used.

336.11.2.2.4 The SUBLOT placement/compaction factor, \( C_{LC} \), shall be defined in accordance with TABLE 336.D, as directed by the ENGINEER. The factor is determined based on the average of the compaction tests taken for a SUBLOT, with no single test neither less than 90.0 % nor greater than 97.9 %. Acceptance compaction tests shall be performed in accordance with the requirements of 336.11.4. A SUBLOT having a compaction test(s) either less than 90.0 % or greater than 97.9 % shall be evaluated and an appropriate pay factor assigned, as directed by the ENGINEER.

336.11.2.3.5 The depth factor, \( PF_D \), shall be defined in accordance with TABLE 336.E, based on the average depth of a minimum of three full depth cores taken at random for each 1000 sy, or fraction there of, with no single core less than the specified section depth less 0.75 in (19 mm), as directed by the ENGINEER. If a core(s) are identified at a depth of the specified depth less 0.75 in (19 mm), additional cores shall be taken to verify the condition. The condition shall be evaluated and either an appropriate pay factor assigned or the asphalt concrete pavement removed and replaced with complying pavement, as directed by the ENGINEER.
336.11.2.3.6 All work and materials noted in this section will be incidental to the Surface Course Replacement Asphalt bid item or as noted above. Any rework or replacement of materials that do not meet these section requirements shall be at the contractor’s expense.

<table>
<thead>
<tr>
<th>NUMBER OF DAILY SAMPLES</th>
<th>D', MAXIMUM ALLOWABLE DEVIATION [1, 2, 3]</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.40D, 1.20D</td>
</tr>
<tr>
<td>2</td>
<td>D + R, D + 0.37R</td>
</tr>
<tr>
<td>3</td>
<td>D + 0.30R, D + 0.07R</td>
</tr>
<tr>
<td>4</td>
<td>D + 0.16R, D - 0.01R</td>
</tr>
<tr>
<td>5</td>
<td>D + 0.11R, D - 0.03R</td>
</tr>
<tr>
<td>6</td>
<td>D + 0.09R, D - 0.05R</td>
</tr>
<tr>
<td>7</td>
<td>D + 0.07R, D - 0.07R</td>
</tr>
<tr>
<td>8</td>
<td>D + 0.06R, D - 0.08R</td>
</tr>
<tr>
<td>9</td>
<td>D + 0.05R, D - 0.09R</td>
</tr>
<tr>
<td>10 OR MORE</td>
<td>D + 0.04R, D - 0.10R</td>
</tr>
</tbody>
</table>

MATERIAL FACTOR, C_{LM} [3] 0.85 0.95 1.00

[1] D, production tolerance ± %, see 336.5.1.2, and authorized job mix formula; R, of test values, maximum - minimum values; M, average test value of a SUBLOT’s acceptance samples test results; T, target value specified in authorized job mix formula.

[2] The material factor, C_{LM}, shall be the lowest factor selected for |T-M|/[T-M]| D' calculated for either (a) the combined aggregate gradation and material passing the nominal maximum size aggregate screen, 3/8 inch (9.5 mm), and smaller screens of the project authorized job mix formula, or (b) the asphalt binder content.

[3] If the absolute value of the deviation of the daily mean from the target exceeds the maximum allowable deviation a SUBLOT, |T-M|/[T-M]| D', the SUBLOT shall be removed and replaced with material complying with this specification, at no cost to the OWNER, as directed by the ENGINEER. If it is determined by the ENGINEER to be more practical to accept the SUBLOT material, it may be accepted under written agreement between the OWNER and the CONTRACTOR, at any assigned pay factor, C_{LM} = 0.70, for a SUBLOT having a compaction factor, C_{LC} = 0.90, as directed by the ENGINEER.
### TABLE 336.D - SUBLOT PLACEMENT/COMPACTION FACTOR, C_{CL}

<table>
<thead>
<tr>
<th>Average Test Results</th>
<th>Factor, C_{CL}</th>
</tr>
</thead>
<tbody>
<tr>
<td>98.0 % and greater</td>
<td>[1]</td>
</tr>
<tr>
<td>97.1 to 97.9</td>
<td>0.85</td>
</tr>
<tr>
<td>93.0 to 97.0</td>
<td>1.00</td>
</tr>
<tr>
<td>92.0 to 92.9</td>
<td>0.95</td>
</tr>
<tr>
<td>91.0 to 91.9</td>
<td>0.90 [2]</td>
</tr>
<tr>
<td>90.0 to 90.9</td>
<td>0.85 [2]</td>
</tr>
<tr>
<td>less than 90.0%</td>
<td>[1], [2]</td>
</tr>
</tbody>
</table>

[1] The lift defined for the SUBLOT shall be removed and replaced by the CONTRACTOR with asphalt concrete pavement complying with this specification at no cost to The OWNER, as directed by the ENGINEER. If it is determined by the ENGINEER to be more practical to accept the SUBLOT, it may be accepted under written agreement between the OWNER and the CONTRACTOR at an assigned compaction pay factor, C_{CL}= 0.50, for the SUBLOT, if the SUBLOT has a material pay factor, C_{m}=0.85, as authorized by the ENGINEER.

[2] When the lift accepted at this factor is a final surface course of a street having a posted speed limit less than 40 mph, the lift shall have a FOG SEAL applied and sanded by the CONTRACTOR in accordance with SECTION 333, at no cost to the OWNER, as directed by the ENGINEER.

### TABLE 336.E DEPTH FACTOR, P_{FD}

<table>
<thead>
<tr>
<th>Deficient Pavement Depth</th>
<th>P_{FD}</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 \text{ (6 mm)}</td>
<td>1.00</td>
</tr>
<tr>
<td>0.25 \text{ in} (6 mm)</td>
<td></td>
</tr>
<tr>
<td>\text{D}<em>{S}-d</em>{A} &lt;</td>
<td></td>
</tr>
<tr>
<td>0.50 \text{ in} (12.5 mm)</td>
<td>(d)^2/(D)^2</td>
</tr>
<tr>
<td>\text{D}<em>{S}-d</em>{A} &gt;</td>
<td></td>
</tr>
<tr>
<td>0.50 \text{ in} (12.5 mm)</td>
<td>[A]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Excessive Pavement Depth, d-D</th>
<th>P_{FD}</th>
</tr>
</thead>
<tbody>
<tr>
<td>\text{D}<em>{S}-d</em>{A} &lt;</td>
<td>1.00</td>
</tr>
<tr>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

NOTES:
- \(d_{A}\): average depth of the pavement structure as determined by field cores.
- \(D_{S}\): specified depth of the pavement structure of a Lot.
- [A]: Correct deficiencies at no cost to the OWNER, as directed by the ENGINEER, constructing the pavement to the depth, grade, crown, and cross slope drainage, specified in the CONTRACT documents.

336.12 ASPHALT SURFACE COURSE REPLACEMENT
(Add the following to NM-APWA section)

Asphalt surface course replacement shall include all labor, equipment and materials necessary to properly cut existing pavement, remove, dispose and replace an existing asphalt surface course with a thickness of asphalt equal to or exceeding the existing asphalt depth. Subgrade preparation is incidental to this item. In no case shall the asphalt replaced be less than 3 inches thick. Included in the unit price bid shall be a 10 inch depth of base course material, tacking edges and all associated compaction.
A lay down paving machine will be used in paving all trenches over 100 feet in length and a minimum of 8 feet in width.

Wintertime surface course replacement shall include all labor, equipment and materials necessary to properly cut existing pavement, remove, dispose and replace an existing asphalt surface course with 3" of cold mix asphalt. Included shall be a 10 inch depth of base course material and all associated compaction.

Remove cold-mix, replace with hot-mix shall include all labor equipment and materials necessary to remove and dispose of existing cold-mix patch, shape and tack the edges and install a hot-mix asphalt patch to a thickness equal to or exceeding the existing thickness of the surrounding asphalt pavement. In no case shall the asphalt replaced be less than 3 inches thick after compaction.

WORKMANSHIP
(Add the following to NM-APWA section)

All pavement cuts shall be made with clean, neat vertical edges as noted on the standard drawings. The contractor shall replace the asphalt as noted on the standard drawings and as required by these specifications.

After the contractor has completed the installation of the underground pipe (conduits) or other type excavations and backfilled the trench he will re-trim the edges of the existing asphalt pavement as required to assure a smooth flat surface to patch against. The surface in question is the horizontal plane of the street or riding surface. The distance from the original vertical cut to the new edge will be a minimum of 6-inches and be completed with a saw or pneumatic hammer.

NOTE: The surface of the patch shall match the grades of the patch edges on the existing street section and will not have ridges or divots in the patch area or along the edges of the patch. The surface shall not vary from the edge of a 10-foot straight edge more than 3/16 of an inch.

The contractor will tack coat the vertical edges of the cut prior to the installation of any asphalt material. The application method for tack coat is by brush or spray and will be a full coverage of the vertical surface. Dripping or poring of tack material is not acceptable.

WARNING! These requirements are the minimum standards for workmanship and the contractor will be held to these standards.

Variances to this requirement shall be made only by the City Engineer or their designated representative after visual inspection.
(The following is a City of Farmington section)

SECTION 338

PROWAG NOTES ON SIDEWALKS, CURB RAMPING, CROSSWALKS, DETECTABLE WARNING, ACCESSIBLE PEDESTRIAN SIGNALS (APS), AND PUSHBUTTONS

338.1 GENERAL

The City of Farmington is recognized as a Title II Public Entity under The Americans with Disabilities Act (ADA), of 1990 (Public Law 101-336). A Title II entity is defined as any state or local government entity and prohibits discrimination on the basis of disability. The ADA extends the principles of Section 504 of the Rehabilitation Act of 1973, as amended, to protect persons with disabilities in all public facilities and programs irrespective of the funding source.

The construction drawing standards, provide guidance for compliance with the Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way (PROWAG), July 26, 2011, or latest edition. These guidelines shall apply to all new and altered pedestrian access routes. Refer to the construction drawing standards in section D-300s for the detailed layouts.

Pedestrian Access Routes (PAR) shall be firm, stable and slip resistant, provide slip resistant texture on sidewalks and curb ramps by brooming transverse to the slope of the ramp and/or perpendicular to pedestrian travel. Extend texture the full width and length of the curb ramp including side flares.

Vertical surface discontinuities shall be 0.5 inches maximum, vertical discontinuities between 0.25 inches and 0.5 inches shall be beveled with a slope not steeper than 50 percent. The bevel shall be applied across the entire vertical surface discontinuity.

Horizontal openings in gratings and joints shall not permit passage of a sphere more than 0.5 inches in diameter, elongated openings in grates shall be places so that the long dimension is perpendicular to the dominant direction of travel.

Provide expansion joint material 0.5 inches thick where curb ramp adjoins any rigid pavement, sidewalk or structure with the top of joint filler flush with adjacent concrete surface.

Seal all joints with an approved sealing material.
Install joints where curb ramps, turning spaces, flares, and sidewalks abut, all joints and transitions shall be flush.

Vertical walls or header curbs are permitted when adjacent to non-walk areas or elevation differences cannot be accommodated by curb ramp flares or grading. Grade non-walk areas at 3:1 or flatter.

Construction top/bottom of curb to be flush with adjacent surfaces (curb, sidewalks, and flares). Vertical lips not permitted at the bottom of curb ramp where the ramp meets street level.

338.2 SIDEWALKS

Sidewalk, and Curb and gutter construction shall be in accordance with the construction drawing standards.

Sidewalk cross slope is recommended to be constructed for cross slope of 1.5% typical, but shall not exceed 2.0% cross slope on the cross slope on the Pedestrian Access Route (PAR).

Sidewalk shall have a minimum width of 5.0 feet, exclusive of the width of the curb return. Exception: Where sidewalk width needs to be reduced to no less 4.0 feet, passing spaces shall be provided at interval of 200 feet maximum, passing spaces shall be 6.0 feet minimum by 5.0 feet minimum.

Any sign posts, utility poles, fire hydrants, traffic signals, street furniture, and other objects shall not reduce the clear width to less than 4.0 feet.

The clear width of Pedestrian Access Routes (PAR) within medians and pedestrian refuge islands shall be 5.0 feet minimum.

338.3 CURB RAMPS

For new construction and alterations, construct curb ramp and flare slopes with the flattest slope feasible. The maximum slope allowable is indicated in note 16 of the curb ramp standard details. Slopes that exceed those indicated in the curb ramp standard details, or construction plans, will not be accepted and will be removed and reconstructed.

Running slope of the curb ramp shall be 8.3% maximum (recommended 7.0%). But shall not require the ramp length to exceed 15.0 feet to avoid chasing the slope indefinitely when connecting to steep grades. When applying the 15-foot maximum length, the running slope of the curb ramp shall be extended as flat as maximum extent practicable.
Construct the clear width of curb ramp runs (excluding any flared sides), blended transitions, and turning spaces as typical 5.0 feet by 5.0 feet (5.0 ft X 5.0 ft) and minimum 4.0 feet by 4.0 feet (4.0 ft X 4.0 ft) clear space beyond the curb face, within the width of the crosswalk and wholly outside the parallel vehicle travel lane.

Curb ramp and side flare lengths are variable and based on curb height and the sidewalk slope.

The change in grade at the bottom of the curb ramp and adjoining road surface shall not exceed an algebraic difference of 13.3%. The counter slope of the gutter or road at the foot of a curb ramp runs, turning space or blended transition is not to exceed 5.0%.

Construct curb ramps flush to adjacent roadway. Grade edge of road elevations at the flow line to ensure positive drainage and prevent ponding. For level turning spaces behind curb, adjust slopes to provide positive drainage.

Grade breaks at the top and bottom of curb ramps shall be perpendicular to the direction of the curb ramp run. Grade breaks shall not be permitted on the surface of curb ramp runs and turning spaces. Surface slopes that meet at grade breaks shall be flush.

All slopes are measured with respect to a level plane. Therefore, the length of curb ramp is not solely dependent on the height of curb (for example, a 6.0 inch curb does not necessarily mean a ramp length of 6.0 feet for an 8.3% slope).

338.4 CROSSWALKS

Provide a separate curb ramp for each marked or unmarked crosswalk. Curb ramp locations shall be placed within the width of the marked or unmarked crosswalk as shown in the construction plans.

338.5 DETECTABLE WARNING

Detectable warning surfaces (DWS) consisting of truncated domes shall be utilized where curb ramps, blended transitions, or turning space provide a flush pedestrian connection to the street or where the Pedestrian Access Route (PAR) crosses a street, alley, traffic island, median, or railroad. DWS will not be installed at residential driveways. Detectable warning surface must be provided at the junction between the PAR and commercial driveways that are stop or yield controlled or are controlled by a signal.
Details of DWS are shown in the construction drawing standards.

338.6 ACCESSIBLE PEDESTRIAN SIGNALS (APS) AND PEDESTRIAN PUSHPBUTTONS

For alteration projects, provide access to existing pedestrian pushbuttons to the maximum extent practicable. Install pedestrian stub poles, where applicable, so as not to create pedestrian obstructions. Refer to the Manual on Uniform Traffic Control Devices (MUTCD) for further guidance.

Pedestrian signal push buttons shall comply with the current edition of the MUTCD and located within a horizontal reach of 0 inches to 10 inches and shall be within 36 inches and 46 inches above the sidewalk surface.

Pedestrian signal shall have preferred 5.0 feet by 5.0 feet (5.0 ft X 5.0 ft) turning space, 4.0 feet by 4.0 feet (4.0 feet X 4.0 feet) minimum turning space to provide access to push buttons.

338.7 ALTERATIONS TO EXISTING FACILITIES – GENERAL NOTES

Additions or alterations to any facility shall conform to the requirements of the new construction standards within the City of Farmington. Pedestrian access standards and PROWAG 2011 or latest addition, any design/construction deviation that is deemed a variance or technically infeasible by the definition below shall require submittal and approval of ADA design variance procedures.

EXCEPTION

In alteration work, if compliance is technically infeasible, the alteration shall provide accessibility to the maximum extent practicable, Any elements or features of the building or facility that is being altered and can be made accessible shall be made accessible within the scope of the alteration.
SECTION 340
CEMENT CONCRETE CURBS, GUTTERS, SIDEWALKS, DRIVEWAYS AND ALLEY INTERSECTIONS

340.3 FORMS

340.3.1 (Replace NM-APWA section with the following)

Form material must be free from warp, with smooth and straight upper edges and, if used for the face of curb, must be surfaced on the side against which the concrete is to be placed.

Timber forms may be used for forming curved sections but shall not be used for straight work unless authorized in writing by the ENGINEER. Metal forms for such work being of a gauge that will provide proper rigidity and strength for the purpose for which they are intended. Wood forms used on curb returns shall be not less than 3/4 of an inch in thickness, cut in the length and radius as shown on the plans and held rigidly in place by the use of metal stakes and clamps. The curb face forms shall be cut to conform exactly with the curb face batter, as well as being cut to the required length and radius. In every case, however, the forms shall be of sufficient rigidity and strength and shall be so supported as to adequately resist springing or deflection as a consequence of the placing and consolidation of the concrete.

340.3.2 All formed curb and combined curb and gutter shall be divided into blocks or stones in lengths not to exceed 12 feet long using metal templates' not less than 1/16-inch-thick cut to the same cross section as the curb or curb and gutter being constructed. Templates shall be securely attached to forms to prevent movement during concrete placement.

340.3.3 Form material shall be thoroughly clean at the time it is used and shall be given a coating of light oil or other suitable material immediately prior to the placing of the concrete.

340.3.4 Forms, except curb back planks, shall be set with the upper edges thereof flush with the specified grade of the finished surface of the adjacent portion of the work and shall be not less than a depth equivalent to the full specified depth of thickness of the concrete to be supported thereby.

340.3.5 Back forms shall be held securely in place by means of stakes driven in pairs, one at the front form and one at the back, at intervals not to exceed 4 feet; clamps, spreaders, and braces being used in connection therewith to such extent as may be necessary to insure proper rigidity of the forms. Forms for walks, gutters, and similar work shall be firmly secured by means of stakes driven flush with the upper edge of the forms at intervals
not to exceed 5 feet. The stakes shall be of sufficient size and shall be so driven as to properly and adequately support the forms.

340.3.6 Form clamps, specifically designed and manufactured for the curb and gutter to be constructed, may be used if, in the opinion of the ENGINEER, they fulfill the requirements above specified for curb and gutter forms.

340.3.7 (Add the following to NM-APWA section)

Forms must extend the entire depth of the curb and gutter. Forms shall be braced and secured sufficiently to prevent deflections during concrete placement. Flexible forms must be used in curved sections so that the top surface of the forms will produce a smooth, continuous arc. Timber forms may be used for forming curved sections but shall not be used for straight work unless authorized in writing by the ENGINEER. Wood forms used on curb returns shall be not less than 3/4 of an inch in thickness, cut in the length and radius as shown on the plans and held rigidly in place by the use of metal stakes and clamps. The curb face forms shall be cut to conform exactly with the curb face batter, as well as being cut to the required length and radius.

340.3.8 (Add the following to NM-APWA section)

Metal forms for such work being of a gauge that will provide proper rigidity and strength for the purpose for which they are intended. In every case, however, the forms shall be of sufficient rigidity and strength and shall be so supported as to adequately resist springing or deflection as a consequence of the placing and consolidation of the concrete.

340.4 PLACING CONCRETE

340.4.1 The concrete shall be placed on a thoroughly dampened subgrade sufficiently moist to insure that no moisture will be absorbed from the fresh concrete.

340.4.2 Surfaces of structures in sidewalks, curbs, and gutters shall be adjusted as necessary prior to placing of concrete to meet the contiguous sidewalk surfaces.

340.4.3 Concrete shall be placed in horizontal layers not to exceed 6 inches each in thickness, each layer being spaded along the forms and thoroughly consolidated. However, if the section is more than 6 inches in depth, the concrete may be placed to provide the thickness shown or specified, if mechanical internal vibrators are used or if, in the opinion of the ENGINEER, the spading and tamping is sufficient to consolidate the concrete for its entire depth.
340.4.4 After the concrete has been placed between the side forms, a strike off shall be used to bring the surface to the proper section to be compacted. It shall then be spaded along the form faces.

340.4.5 After the concrete has been placed and consolidated, the upper surface shall be struck off uniformly smooth and true to the specified grade.

340.4.6 BLOCK JOINTS
(Add the following to NM-APWA section)

All curb and curb and gutter shall be divided into blocks or stones 5 or 10 feet in length using metal templates not less than 1/16 inch nor more than 1/4 inch thick; templates shall be attached securely to forms to prevent movement while adjacent concrete is being placed and consolidated; location of template definitely marked so that the joint cut into the finished surface shall exactly coincide with the butt joint formed by the template. In areas where curb and gutter is constructed without a sidewalk, grading and compaction shall continue to the right-of-way at which point the elevation shall be 6 inches above the top of curb.

340.5 EXPANSION JOINTS

340.5.1 Expansion joints shall be constructed in curbs, walks, and gutters as hereinafter specified, being filled with premolded joint filler strips conforming with the requirements prescribed therefor in Section 107. No such joints shall, however, be constructed in cross gutters, alleys, intersections, or driveway aprons.

340.5.2 Spacing: Unless otherwise shown on the plans or authorized by the ENGINEER, the location and spacing of expansion joints shall be as specified in the Standard Detail Drawings and herein.

340.5.2.1 Expansion joints in all types of curb and gutters shall be placed at both ends of returns except where cross gutters are being constructed, and at regular intervals not to exceed 200 feet between expansion joints. Expansion joints shall be placed at both ends of the cross gutter transitions.

340.5.2.2 Expansion joints in all types of sidewalk shall be placed where the sidewalk abuts Wheel Chair Ramps and drivepads; at regular intervals not exceeding 18 feet between expansion joints; between the walk and any building or structure; around utility pads and light foundations; and between the walk and water meter areas.
340.5.2.3 Expansion joints at wheelchair ramps and driveways shall be placed between these items of work and the back of the curb and gutters and the adjoining sidewalks.

340.5.2.4 Expansion joint filler strips shall be vertical and shall extend to the full depth and width of the work in which they are installed, being constructed at right angles or radially to the line of the curb or gutter as the case may be. The filler strips shall completely fill these joints at least to within 1/4 of an inch of any surface of the concrete that will be exposed upon completion of the work and must fully extend at least to those surfaces that will not be exposed. However, before the work will be accepted, any joint filler that protrudes beyond a surface that will not be exposed or beyond 1/4 of an inch below a surface that is exposed shall be trimmed off to the specified dimension in a neat and workmanlike manner. During the placing and consolidation of the concrete, the filler strip shall be held rigidly and securely in proper position.

340.5.3 CONTRACTION JOINTS

340.5.3.1 Contraction joints shall be constructed in slip formed curbs, curb and gutter, walks, and gutters as hereinafter specified. The joint shall be either cut or tooled to a minimum depth of 1 inch at curb, curb and gutter, and gutter, and the greater of either 1 inch or 1/4 the actual depth of the concrete at sidewalks and slabs on grade. The contraction joint shall be tooled at all exposed faces of the fresh placed concrete.

340.5.3.2 Spacing: Unless otherwise shown on the plans or authorized by the ENGINEER, the location and spacing of contraction joints shall be as specified in the Standard Detail Drawings and herein.

340.5.3.3 Contraction joints in extruded curb, curb and gutter, and gutters shall be placed at regular intervals not to exceed 12 feet.

340.5.3.4 Contraction joints shall be placed in all types of sidewalk at regular intervals not less than the width of the sidewalk nor greater than 6 feet.

340.5.4 EXPANSION MATERIAL

(Add the following to NM-APWA section)

The cost for expansion material will be included in other items of work. Celotex material will not be used for expansion joints.
340.6 FINISHING

Surfaces of the various items of work shall be finished as specified herein. Edges of concrete at expansion joints shall be rounded to 1/4 inch radius. Upon completion, the finished surface shall be true to line and grade and free from irregularities.

340.6.1 CURB

340.6.1.1 The front forms may be stripped as soon as the concrete has set sufficiently but must be removed before the expiration of 6 hours after pouring. Immediately following the stripping of these forms, Class A mortar, as prescribed therefor in Section 106 thinned to the consistency of grout, shall be applied to the curb face. If monolithic curb and gutter is being constructed, this mortar shall be applied to the full exposed face; otherwise, it shall extend for an additional 2 inches below the gutter.

340.6.1.2 The face and top of the curb shall then be carefully troweled with a “steel mule” shaped to match the profile of the curb, curb and gutter, to a smooth and even finish, the top being finished to a transverse slope of 1/4 of an inch toward the front, with both edges rounded to a radius of 3/4 of an inch. Contraction joints, perpendicular to the flow line and in returns radial to the curve, shall be placed in the curb top and face and in the gutter. The surface shall be finished with a fine hair broom parallel with the line of the flow line.

340.6.2 SIDEWALK

340.6.2.1 Following the placing of concrete, the surface shall be struck and floated to a true and even grade, free from waves and irregularities. After the floating contraction joints shall be made to a depth of 1 inch. The work shall then be carefully floated to a smooth and even finish, with the contraction joint and expansion joint edges rounded to a radius of 1/8 of an inch. The finished surface shall be given a fine hair broom finish, applied transverse the direction of travel of the sidewalk.

340.6.2.2 Contraction joints or block joints shall not exceed intervals of 6 feet. On straight work, the joints shall be parallel with and at right angles to the line of the work; at curves the joints shall, in general, be along lines concentric with the curve radius. The contraction joint shall be made with jointer tools that will round the edges to a radius of 1/8 of an inch, with a depth of not less than 1 inch. The finished joint opening, exclusive of radii, shall not be not less than 1/8 inch nor greater than 3/16 inch. The CONTRACTOR will be required to have a sufficient number of jointer tools on the job to accomplish the above specified requirements.
340.6.2.3 The concrete shall be cured in accordance with the requirements of SECTION 349.

340.6.2.4 SIDEWALK AND DRIVEPADS

Except as noted in the requirements below, City Ordinance Chapter 24 shall govern the construction method of sidewalks and drivepads. The subgrade under the sidewalk shall be required to be compacted to 95% density as determined by the Modified Proctor Method, ASTM D-1557. The area from the back of the curb and gutter to the right-of-way shall be graded and the elevation at the right-of-way shall be 0.5 feet above the top of the curb. NOTE: All sidewalks must be backfilled to top of walk.

340.6.3 GUTTER

340.6.3.1 After the concrete has been thoroughly consolidated the surface shall be worked to a true and even grade by means of a float. Contraction joints shall be sawed or tooled at intervals not to exceed 6 feet, perpendicular to the flow line. The finished surface shall be textured longitudinally with a fine hair broom finish.

340.6.3.2 Side forms shall remain in place until the concrete is sufficiently set, after completion of the gutter, but must be removed before the work will be accepted. The concrete shall be cured in accordance with the requirements of SECTION 349.

340.6.3.3 Valley gutter or cross gutter sections reinforcement steel and steel placement shall be constructed accordance with the plans and detail drawings. The reinforcement steel shall be in accordance with Section 102. The finished surface shall conform to the required roadway section as to both line and grade. The gutter sections will not be opened to traffic until specimen cylinders have attained a compressive strength of not less than 85% of its design strength or after 14 days or as authorized by the ENGINEER.

340.6.3.4 BASE COURSE FOR GUTTER AND CURBS
(Add the following to NM-APWA section)

A minimum of 3 inches of compacted base course shall be placed under the curb and gutter and compacted to 95% density as determined by Modified Proctor. Curb and gutter shall be backed with clean fill material, 3/4" minus, and compacted to 95% density as determined by a Modified Proctor. Curb and gutter shall be backfilled a minimum of 2 feet, measured from back of curb, and level with top of curb.
340.6.4 CONCRETE SLOPE PAVEMENT

340.6.4.1 All subgrade preparation required for this item shall be done in accordance with applicable provisions of Section 301 with the exception that minimum density requirements will be 90% of maximum density as determined by ASTM D1557 or ASTM D698.

340.6.4.2 Reinforcement shall be included where shown on the plans or as specified.

340.6.4.3 Thickness of concrete shall be as specified or as shown on the plans. Concrete shall be screeded and finished with ten foot straight edge, lapped at ½ its length or equivalent, to a plane surface having no variation when measured with a 10 foot straight edge in excess of 1/4 inch, unless a curvilinear surface is designated for a particular job. All concrete work shall be in accordance with Sections 101 and 349.

340.7 CURING

340.7.1 GENERAL: Immediately after the operations have been completed on all concrete, the CONTRACTOR shall initiate the curing of the concrete as specified in Section 349 and/or as approved by the ENGINEER.

340.8 DRIVEWAY ENTRANCES

340.8.1 Driveway entrances shall be provided in new curbs at all existing driveways along the line of the work and at locations shown on the plans or as directed by the ENGINEER.

340.8.2 The location and construction details for driveways shall conform to the construction plans or Standard Detail Drawings, or as authorized by the ENGINEER.

340.8.2.1 (Add the following to NM-APWA section)
Driveways shall conform to the City of Farmington Unified Development Code (UDC) Article 5.3.3 and to the Standard Details attached herein.
NOTE: Whenever possible and where practical, utilities shall not be located in residential driveways. No Waste Management-cans in driveway area (on detail)

340.8.3 Where walks are to be constructed across driveways, the thickness of the walk shall be not less than 6 inches, unless otherwise specified or shown on the plans.
340.9 **DRAINAGE OUTLETS THROUGH CURB**

The CONTRACTOR will be required to construct suitable outlets through the new curb for all existing building drains along the line of the work, as per Standard Detail Drawings.

340.10 **MISCELLANEOUS TYPES OF CURB, GUTTERS, SIDEWALKS**

Extruded type concrete curb and gutter, precast curb and gutter sections, cut stone curbs, brick sidewalks, flagstone sidewalk, etc., will permitted where approved by the ENGINEER and in accordance with the plans and Supplementary Technical Specifications.

340.11 **REPAIRS AND REPLACEMENTS**

340.11.1 New work that is found to be defective or damaged prior to acceptance and/or existing work damaged by the CONTRACTOR's operation shall be repaired or replaced by the CONTRACTOR at no expense to the OWNER. Defective or damaged concrete areas shall be repaired by neatly saw cutting at right angles to the face of curb and removing and replacing the effected area. Removals of defective concrete shall be either the entire area between existing joints or if a minimum of 6 feet can be maintained to an existing joint, an intermediate saw cut may be permitted when approved by the ENGINEER.

340.12 **TESTS**

Testing procedures shall be as provided for in SECTION 101.

340.13 **BACKFILLING AND CLEANUP**

Backfilling and compaction to the finished surface of the newly constructed improvement must be completed before acceptance of the work.

340.14 **MEASUREMENT AND PAYMENT**

340.14.1 **MEASUREMENT**

340.14.1.1 Concrete curbs and gutters shall be measured by the linear foot per each type of curb and gutter.

340.14.1.2 Concrete sidewalks, driveways, valley gutters, gutters alley intersections shall be measured by the square foot per each type of improvement.
340.14.2  PAYMENT

340.14.2.1 The payment for concrete curb and gutter shall be at the contract unit price and SECTION 101 per linear foot per each type of curb and gutter, complete in place, which shall include all materials, equipment and labor required in the final grading, subgrade preparation (subgrade compaction), placing, finishing, curing, backfilling and cleanup.

340.14.2.2 The payment for concrete sidewalks, drivepads, valley gutters, gutters and alley intersections shall be at the contract unit price and SECTION 101 per square foot per each type of improvement, complete in place, which shall include all materials, equipment and labor required in the final grading, subgrade preparation (subgrade compaction), steel reinforcement (when and where required), placing, finishing, curing, backfilling and cleanup.

340.14.3 (Add the following to NM-APWA section)

MEASUREMENT AND PAYMENT

A. Sidewalk: The payment for this item shall be based on the unit bid price for sidewalk (four inch thickness), multiplied by the field measured surface area (to the nearest square yard) of this item complete in place, in accordance with the plans and/or specifications. Payment made, based on the unit bid price, shall be full compensation for all permits, inspection fees, all material, labor and equipment and for performing all operations, including grading and compaction, removal and replacement, and incidentals, such as site cleanup and disposal of excess materials and soil, necessary to complete the work.

B. Drivepads and Valley Gutter: The payment for this item shall be based on the unit bid price of drivepad and valley gutter (six inch thickness) complete in place, multiplied by the field measured surface area (to the nearest square yard) of this item complete in place in accordance with the plans and/or specification. All concrete for Valley Gutters will achieve a minimum compressive strength of 3500 psi in 24 hours. Payment made, based on the unit bid price, shall be full compensation for all permits, inspection fees, all materials, labor and equipment, and for performing all operations, including grading and compaction, removal and replacement, and incidentals, such as site cleanup and disposal of excess materials and soil, necessary to complete the work. Asphalt removal and disposal for Valley Gutters will be paid for separately.

C. Two foot standard and median curb and gutter: The payment for this item shall include removal, disposal and replacement of existing curb and gutter and shall be paid to include adjusting and compacting the subgrade. The removal of asphalt and the replacement of 3" asphalt and ten (10) inches of
base course shall be performed in accordance with section 336.12 ASPHALT SURFACE COURSE REPLACEMENT. Payment made, based on the unit bid price, shall be full compensation for all permits, inspection fees, all material, labor and equipment and for performing all operations, including grading and compaction, removal and replacement, and incidentals, such as site cleanup and disposal of excess materials and soil, necessary to complete the work. Payment for replacement of asphalt in excess of 20" from the curb line will not be allowed without prior approval of the city engineer or his designee.

D. Four (4) inch residential drivepads: Payment for these items shall be included in the unit price bid for concrete sidewalk.

E. For new or relocated curb & gutter, sidewalk, slope paving or valley gutter (colored or stamped) subgrade preparation will be paid under Subgrade Preparation Bid Item.

F. Handicapped Ramps will be paid as a separate bid item which includes subgrade prep, forming and placement of concrete

G. Detectable Warning Devices will be paid as a separate bid item which includes supplying and installation of surface mount composite tactile (2′ x 5′ Tile).

H. Incidental Cost – those items not captured in the technical specifications must be considered incidental cost.
SECTION 343

REMOVAL AND DISPOSAL OF EXISTING PAVEMENT, CURB AND GUTTER, SIDEWALK, DRIVEPADS AND SLOPE PAVEMENT

343.4  DISPOSAL
(Add the following to NM-APWA section)

Haul to disposal sites shall be considered part of removal and disposal, no separate payment will be made for haul. Disposal sites will be within 10 miles radius of the project site. Disposal beyond a 10 mile radius will constitute a change order and a method of payment will be negotiated.

343.5.3  MEASUREMENT AND PAYMENT
(Add the following to NM-APWA section)

Item for Asphalt Removal and Disposal, 10-mile haul, is to be paid only where asphalt is removed and not replaced or when use of a laydown machine is required. Note that all other items that deal with asphalt have removal already included in their unit prices. Item for Asphalt Removal and Disposal, 10-mile haul is not to be used in conjunction with those items.
SECTION 410
FENCE

410.3.3.1.3 TOP RAILS
(Add the following to NM-APWA section)

TOP RAILS shall be in lengths not less than 18 feet and shall be fitted with couplings to connect the lengths into a continuous run. The couplings shall not be less than 6 inches long, with a .070 minimum wall thickness, and shall allow for expansion and contraction of the rail. Open seam outside sleeves shall be permitted only with a minimum wall thickness of 0.100 inches. Suitable ties or clips shall be provided in sufficient number for attaching the fabric securely to the top rail at intervals not exceeding 2 feet. Means shall be provided for attaching the top rail to each gate, corner, pull and end post. Tension wire is required at the bottom of the fence.

410.3.3.2 (Replace NM-APWA section with the following)

FITTINGS AND POST TOPS

FITTINGS shall also comply with ASTM F626 as well as the following: POST BRACES shall be provided for each gate corner, pull and end posts shall consist of a round tubular brace extending to each adjacent line post at approximately mid-height of the fabric, and a truss consisting of a rod not less than 5/16 inch nominal diameter from the line post back to the gate, corner, pull or end post, with a turnbuckle or other equivalent provision for adjustment. Truss rods may be eliminated in any line of fence where there is a continuous center rail.

POST TOPS shall consist of ornamental tops or combination tops with barbed wire supporting arms, as specified. The top shall be provided with a hole suitable for the through passage of the top rail. The post tops shall fit over the outside of the posts and shall exclude moisture from the post.

BARBED WIRE SUPPORTING ARMS shall be at an angle of approximately 45 degrees or vertical as specified, and shall be fitted with clips or other means for attaching three stands of barbed wire. With 45 degree arms the top wire shall be approximately twelve inches horizontally from the fence line and the other wires spaced uniformly between the top of the fence fabric and the outside strand. Barbed wire arm shall be of sufficient strength to withstand a weight of 250 pounds applied at the outer strand of barbed wire.
TENSION BARS shall not be greater than 3/4" or less than 3/16" in diameter and not less than two (2) inches shorter than the nominal height of the fabric within which they are to be used. One tension bar shall be provided for at each end and gatepost, and two for each corner and pull post.

TENSION WIRE shall be Marcelled (spiraled or crimped) #7 gauge (0.188 in.) plus or minus 0.005 inches in diameter. Wire shall be metallic coated. Zinc coated tension wire shall be Class III (0.08 oz. of zinc per square foot of uncoated wire surface). Aluminum coated tension wire shall have 0.40 oz. of aluminum per square foot of uncoated wire surface.

410.3.3.3 TIES OR CLIPS, BANDS
(Add the following to NM-APWA section)

TIE OR CLIPS shall be provided in sufficient number for attaching the fabric to all at intervals not exceeding 15 inches; and not exceeding 24 inches when attaching fabric to top rail or tension wire.

BANDS OR CLIPS of adequate strength shall be provided in sufficient number for attaching the fabric and stretcher bars to all internal posts at intervals not exceeding 15 inches. Tension bands shall be formed from flat or beveled steel and shall have a minimum thickness after galvanizing of 0.078 inch; and a minimum width of 3/4 inch for posts four (4) inches O.D. or less; and 0.0108 inch thickness by 7/8 inch for posts larger than four (4) inches O.D.

BRACE BANDS shall be formed from flat or beveled steel and shall have a minimum thickness of 0.108 inch after galvanizing; and a minimum width of 3/4 inch for post thickness and 0.010 inch on width shall apply-attachment bolts shall be 5/16 dia. x 1-¼ galvanized carriage bolts and nuts.

410.3.3.6 (Replace NM-APWA section with the following)

GATES/GATE FRAMES

GATES shall be swing as specified, complete with latches, stops, keepers, and hinges and with provision for three strands of barbed wire above the fabric.

GATE FRAMES shall be constructed of tubular members welded at all corners or assembled with fittings. On steel, welds shall be painted with zinc based paint. Where corner fittings are used, gates shall have truss rods of 4/16 inch minimum nominal diameter to prevent sag or twist. Gate leaves shall have vertical intermediate bracing as required spaced so that no members are more than 8 feet apart. Gate leaves 10 feet or over shall have a horizontal brace or one 5/16 inch minimum diagonal truss rod. When
barbed wire top is specified, the end members of the gate frames shall be extended one foot above the top horizontal member to which 3 strands of barbed wire, uniformly spaced, shall be attached by use of bands, clips or hook bolts. Gate frames shall be fabricated from galvanized steel pipe conforming to ASTM A120 and A123.

GATE FABRIC shall be same type as used in fence construction. The fabric shall be attached securely to the gate frame at intervals not exceeding 15 inches.

GATE LATCHES, STOPS AND KEEPERS shall be provided for at all gates. Latches shall have a plunger-bar arranged to engage the center stop. Latches shall be arranged to be set in concrete and to engage a plunger bar from the latch of double gates. No stop is required for single gates. Keepers shall consist of a mechanical devise for securing the free end of the gate when in the full open position.

GATE HINGES shall be of adequate strength for gate, and with large bearing surfaces for clamping in position. The hinges shall not twist or turn under the action of the gate. The gates shall be capable of being opened and closed by one person.

410.3.3.7 MINIMUM WEIGHTS AND DIAMETER
(Add the following to NM-APWA section)

These are minimum weights and diameter. The Contractor may exceed these requirements at this position.

410.3.3.8 (Replace NM-APWA section with the following)

POST, RAILS, BRACES AND GATE OPTIONS

At the option of the Contractor, post, rails, braces and gates frames (members) may be manufactured from steel conforming to ASTM F6669-81 (group IC), A446/A4446M-83 (structural grade D), or A570-84A (grade 50). Coating shall be one of the following:

A. 0.9 ounces minimum of zinc per square foot.
B. 15 micrograms minimum of zinc chromate per square inch.
C. 3 mills minimum cross-linked polyurethane acrylic exterior coating.

410.3.3.9
410.3.3.10 (Replace NM-APWA section with the following)
When outriggers with barbed-wire are installed the lowest strand shall not be less than 6 feet high measured from ground level. The same clearance distance will be required for coiled security wire. Barbed wire shall conform to 410.3.2.1.

410.6

(Replace NM-APWA section with the following)

MEASUREMENT AND PAYMENT

Payment will be by one of the following methods:

a. Furnish and install: Payment for gates complete with all accessories shall be at the unit price bid in the proposal for each installed. Payment for fencing, complete with all accessories, shall be by the linear foot installed, excluding gates at the unit price in the proposal.

b. Furnish Only: Payment shall be made by lump sum only as outlines on bidding documents.

APPROVED MATERIAL 7 MANUFACTURER LIST

A. Schedule 40
B. Allied Tube Con, SS-40
C. Century Tube, CMT-40
D. P & H Tube Div., SP-40 Pozitube
E. American Tube Co., Tuff-40

Equal Items: Vendors quoting equal material and/or manufacturers that are not listed above are required to notify Purchasing at 505-599-1369. Product approval is required not less than 48 hours prior to bid opening date. Complete product specifications must be submitted and vendor may be required to supply a product sample at no cost for approval to the City of Farmington.
451.1 GENERAL

The purpose of this document is to set forth work area traffic control requirements. These basic principles and standards are to be observed and followed by all those who perform work on city right of way, including but not limited to: city streets, sidewalk, bikeway and city owned public parking lot. These provisions are aimed to provide safe and effective work zones for all workers and minimize delays and frustrations for the traveling public.

Applicability

Unless otherwise stated, the requirements specified in this document are applicable to all workers, including but not limited to contractors, developers, public utilities, private utilities, city work crew, county work crew, state work crew, and other workers performing work on or near public streets, public sidewalks, and public parking lots in all cases where traffic is affected by such work.

451.2 REQUIREMENTS TO WORK ON CITY RIGHT OF WAY

Any entity with the desire to set and/or remove traffic control on city right of way (including but not limited to city streets, sidewalk, bikeway and city owned public parking lot, etc.) is required to submit the following:

1. A Traffic Control Plan (TCP); and

   The TCP must be approved prior to the work start date and shall be on the person of the onsite supervisor.

   An entity can also obtain an Annual Traffic Control Permit (Annual Permit), which would allow an entity to work more easily on city right of way.

2. A Traffic Control Notice Form (Notice Form)

   A Notice Form is a tool used to acquire detail related to a project (job). It serves as a method to gather more detail about the job and its work area. This detail is then used to create a notice, which is distributed to first
responders and other city personnel, notifying them of the work area within the city streets.

For all planned jobs, a Notice Form shall be submitted at least 72-hours in advance of the job start time. For all unplanned emergency jobs, a notice is still required by the city, but rather than the Notice Form, a phone call into the Community Works Administrative team may be submitted as soon as practical.

If an entity has an Annual Permit, per the permit they may work on specific city right of way (including but not limited to city streets, sidewalk, bikeway and city owned public parking lot, etc.) for specific durations without submitting a TCP, but they are still required to provide a notice. The city will accept a notice in the expression of a Notice Form and/or a phone call into the Community Works Administrative team, which is similar to that of an unplanned emergency job.

451.3 TRAFFIC CONTROL SUBMITTALS

All TCPs and Notice Forms shall be submitted to the Traffic Engineer or their designee (email preferred) for review and approval.

A TCP shall be required for all city right of way (including but not limited to city streets, sidewalk, bikeway and city owned public parking lot, etc.), unless an entity has an Annual Permit.

All TCP submittals shall be accompanied with a Notice Form and both shall be submitted to the Traffic Engineer or their designee.

Mark E. Hathcock, E.I. | Traffic Engineer
mhathcock@fmtn.org | 505-599-8201

Demetrius Henry, E.I. | Traffic Associate Engineer
dhenry@fmtn.org | 505-599-8215

The TCP and Notice Form shall be submitted no less than three (3) working days (72 hours) in advance of the anticipated start of work date. Both submittals require the Traffic Engineer’s or their designee’s approval prior to occupying the work zone. Exceptions for emergency work will be considered on a case-by-case basis.

For all unplanned emergency jobs, a notice is still required by the city, but rather than the Notice Form, a phone call into the Community Works Administrative team may be submitted as soon as practical.
451.4 TRAFFIC CONTROL PLAN (TCP) DRAWING REQUIREMENTS

The TCP shall be prepared by a person who has participated in an American Traffic Safety Services Association (ATSSA) Traffic Control Supervisor course.

The TCP may be computer generated or hand drawn.

The TCP shall conform to Part 6 of the Manual on Uniform Traffic Control Devices (MUTCD).

The TCP shall be detailed, showing the city owned facility, either street, or intersection, or sidewalk, and also include details of driveways, signing, barricades, channeling devices, diversions, detours, and project phasing.

On New Mexico Department of Transportation (NMDOT) Right-of-Way, the TCP must be prepared by a professional engineer, licensed in the state of New Mexico. The TCP shall be submitted for review and approval to the NMDOT District 5 Office.

451.4.1.1 ANNUAL TRAFFIC CONTROL PERMIT (ANNUAL PERMIT)

The purpose of an Annual Permit is to replace the need to submit a TCP every time an entity desires to work within the city right of way. An Annual Permit only replaces a TCP for specific street classifications and work durations.

The City of Farmington recognizes five (5) types of street classifications:

1. Residential Streets
   Residential Streets have open access. They have predominately high-density residential driveways. They typically have low speed limits (25 MPH or lower) and low traffic volumes. They should not have roadway striping, and they should not intersect with a principal arterial street.
2. **Local Streets**  
Local Streets have open access. They are similar to Residential Streets, except they might only have a few or no residential driveways. An example of a Local Street would be alleys, Allen Avenue, and Schofield Lane. They typically have lower speed limits (30 MPH or lower) and low traffic volumes.

3. **Collector Streets**  
Collector Streets typically have open access. They have speed limits of 30 MPH and they have low to intermediate traffic volumes. An example of Collector Streets would be Cooper Street and Farmington Avenue. The properties along Collector Streets can be mixed used, including commercial and residential. Collector Streets should not have residential driveways.

4. **Minor Arterial Streets**  
Minor Arterial Streets can have both controlled and open access. They typically have higher speed limits, usually 35 MPH, and they have intermediate to high traffic volumes. An example of Minor Arterial Street would be 20th Street and College Boulevard. The properties along Minor Arterial Streets are usually commercial, including different businesses, schools, recreational, etc. Residential driveways should not be on Minor Arterial Streets.

5. **Principal Arterial Streets**  
Principal Arterial Streets typically have higher speed limits (35 MPH or greater), and higher traffic volumes. Examples of Principal Arterial Streets include East Main Street and Pinon Hills Boulevard. Principal Arterial Streets should not have residential driveways and they usually have controlled access.

The City of Farmington recognizes five (5) types of work durations:

1. **Mobile Work**  
Work that is moving continuous or intermittently.

2. **One Hour Work**  
Work that takes one (1) hour or less. Typically, within business hours, 8:00 AM to 5:00 PM.

3. **One Day Work**  
Work that takes one (1) day or less. Typically, within business hours, 8:00 AM to 5:00 PM.
4. **One Week Work**  
Work that takes five (5) days or less, Monday thru Friday only, of the same week. If work were to continue through the weekend (Saturday and/or Sunday), then work should be categorized as Long-Term Work.

5. **Long-Term Work**  
Work that takes more than five (5) business days.

Unless otherwise classified, all five (5) types of work duration mentioned above, refers to work that occurs during a typical business day, Monday thru Friday, and typical business hours, 8:00 AM to 5:00 PM.

Street Closures of any kind are not applicable with an Annual Permit.

The Annual Permit may be used for Mobile Work on all street classifications, and it may also be used for One Hour Work on Collector, Local and Residential streets only, as shown on Table 1 below:

<table>
<thead>
<tr>
<th>Type of Work Duration</th>
<th>Type of Street Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Major Arterial</td>
</tr>
<tr>
<td>Mobile</td>
<td>YES</td>
</tr>
<tr>
<td>One Hour Work</td>
<td>NO</td>
</tr>
<tr>
<td>One Day Work</td>
<td>NO</td>
</tr>
<tr>
<td>One Week Work</td>
<td>NO</td>
</tr>
<tr>
<td>Long-Term Work</td>
<td>NO</td>
</tr>
</tbody>
</table>

**Table 1: Traffic Control Annual Permit Applicability**

451.5 **ACQUIRING AN ANNUAL PERMIT**

Acquire an application for an Annual Traffic Control Permit (Annual Permit) from the Building Inspection Division or from the Traffic Engineer or their designee. Complete application and send completed Annual Permit to the Traffic Engineer or their designee (email preferred) for approval.
Building Inspection Division
805 Municipal Drive (Second Floor Lobby)
Farmington, NM 87401
505-599-1304

Mark E. Hathcock, E.I. | Traffic Engineer
mhathcock@fmtn.org | 505-599-8201

Demetrius Henry, E.I. | Traffic Associate Engineer
dhenry@fmtn.org | 505-599-8215

Application requires all onsite supervisors to be trained in ATSSA Traffic Control Supervisor course. To have participated and passed ATSSA Traffic Control Supervisor course exam.

A notice is still required by the city, in the expression of a Notice Form or phone call. Either notice expression shall be submitted to the Community Works Administrative team for all planned work at least 24-hours in advance of the work start time.

For all unplanned emergency jobs, a notice is still required by the City, but rather than the Notice Form, a phone call into the Community Works Administrative team may be submitted as soon as practical.

Tamra (Tami) Spencer | Community Works Administrative Assistant
tspencer@fmtn.org | 505-599-1301

Denise Hastings | Community Works Administrative Assistant
dhastings@fmtn.org | 505-599-1308

451.6 RESPONSIBILITIES AND EXPECTATIONS

Here are the City of Farmington’s expectations for any entity desiring to work in city right of way without an Annual Permit.

For every planned work on city right of way, it is the responsibility of the entity to complete the following tasks as outlined and expected by the City of Farmington:

1. Create a Traffic Control Plan (TCP); and

2. Submit TCP and Notice Form to the Traffic Engineer or their designee at least three (3) working days (72 hours) in advance of desired start date; and
Acquire Traffic Control Notice Form (Notice Form) from either the Building Inspection Division, or Traffic Engineer (or their designee) and complete it; and submit Notice Form to Traffic Engineer or their designee (email preferred); and

3. Wait to start work until the Traffic Engineer (or their designee) approves the TCP and Notice Form; and

4. Provide timely notification to, and coordination with, all affected agencies and utilities including, but limited to the following:

   a. City of Farmington Fire Department
   b. City of Farmington Water/Waste Water Division
   c. City of Farmington O&M Contractor – Jacobs
   d. City of Farmington Traffic Engineering Division
   e. City of Farmington Electrical Utility Services Department
   f. Telecommunications Utility
   g. Cable T.V.
   h. NMGAS; and

5. Must inform occupants of abutting properties of access limitations made necessary by the work. A minimum twenty-four (24) hour advanced notice is required of informing occupants of abutting properties except for emergency work; and

6. The TCP Shall be adjusted to minimize the area of restricted traffic flow as the project progresses. Where practical, adjustments for weekends, Holidays and time of no active work shall be made to maximize traffic flow for the public. Opportunities to allow traffic flow with in non-active, completed or accessible areas with in vast work zones should be sought after and utilized.

7. Must schedule and expedite work to cause the least inconvenience to the public. Customer service and perception (CSP) is extremely important. CSP includes the city's notification process and the TCP. Construction or repair work on Collector or Minor/Principal Arterial Streets will not be permitted during traffic peak hours without prior approval; and
8. All road closures on all Collector, Minor/Principal Arterial Streets should be minimized and be limited to short periods of time and all shall be pre-approved in writing by the Community Works Director 72 hours in advance (emergency work exempt).

9. Must provide their own traffic control setup, either in-house or subcontractor.

10. Must provide all traffic control devices (cones, barrels, temporary markings, road tabs, cat track tape, regulatory signs, orange warning signs, detour signs, blue guide signs, business access signs, etc.). All traffic control device shall meet the expectations as outlines in Section 451.8 - TRAFFIC CONTROL, WARNING AND GUIDANCE DEVICES; and

11. The traffic control setup must conform to the TCP as approved by the Traffic Engineer or their designee; and

12. Must provide blue and white “Project Information fmtn.org” information sign(s) for City of Farmington Community Works Department projects.

13. Must provide their own “Road Closed- Local Traffic Only” sign. The “Road Closed- Local Traffic Only” sign shall be used for soft closures (i.e. road closed to thru traffic situations).

14. Shall wear high-visibility safety apparel (i.e. vests).
   a. The color of the high-visibility safety apparel is preferred to be fluorescent yellow-green.
   b. The high-visibility safety apparel shall satisfy the Performance Class 3 requirements of the ANSI/ISEA 107-2004 publication entitled “American National Standard for High-Visibility Safety Apparel and Headwear”, or equivalent revisions, and labeled as meeting the ANSI 107-2004 standard performance for Class 3 risk exposure.

15. Must provide their own flagmen when required by TCP or Traffic Engineer (or their designee).
   a. All flaggers shall be ATSSA certified and shall wear high-visibility safety apparel

16. Should restore the road back to satisfactory condition including, but not limited to: paving, striping, markings, and traffic signal loop detectors
17. Should fill all trenches with backfill or cover all trenches with steel-plates during non-working hours.

18. All temporary traffic lanes in work area shall meet the expectations as outlined in Section 451.7 – TEMPORARY TRAFFIC LANES.

19. Any construction activities within the vicinity of traffic control signals will require coordination, three (3) days (72 hours) in advance of activities with the City of Farmington Traffic Engineering Division. Please contact the Traffic Engineer or the Traffic Engineering On-Call Phone Number.

**On-Call City of Farmington Phone Numbers**

Traffic Engineering On-Call Phone Number | 505-599-8204

Construction Inspection On-Call Phone Number | 505-215-8714

Streets Division On-Call Phone Number | 505-793-2537

Non-Emergency Police Dispatch Phone Number | 505-334-6622

**451.7 TEMPORARY TRAFFIC LANES**

All temporary traffic lanes shall be a minimum of 11 feet in width unless otherwise authorized.

Suitable surfacing must be provided for the temporary traffic lanes in work areas. When traffic is diverted from the existing pavement, temporary asphalt surfacing shall be provided.

Construction equipment not actively engaged in the work, employee vehicles and official vehicles of the agency shall not be parked in the vicinity of the work zone in such a manner as to further restrict or obstruct traffic flow.

Every reasonable TCP for work greater than one week, shall seek to provide a continuous open lane for all street classifications of Collector and above work zones. Work on Arterials shall be emphasized to provide at least one open lane all during construction if at all possible.
The purpose of the traffic control devices (cones, barrels, temporary markings, road tabs, cat track tape, regulatory signs, orange warning signs, detour signs, blue guide signs, business access signs, etc.), as well as the principles for their use, is to promote highway safety and efficiently by providing for the orderly movement of all road users on streets and highways.

Traffic control devices notify road users of regulations and provide warning and guidance needed for the reasonably safe, uniform, and efficient operation of all elements of the traffic stream in a manner intended to minimize the occurrence of crashes.

All traffic control, warning and guidance devices shall conform to the most current edition of the MUTCD.

At the time of the initial set up or at the time of major stage changes, one hundred percent (100%) of each type of device (cones, tubular markers, drums, barricades, vertical panels, signs, warning lights, arrow panels, portable changeable message signs, pavement tape and raised pavement markers) shall be classified as "acceptable" as defined in the ATSSA book: "Quality Guidelines for Temporary Traffic Control Devices and Features".

"Unacceptable" devices as defined in the ATSSA book: "Quality Guidelines for Temporary Traffic Control Devices and Features" shall not be delivered to the work zone. When found in the work zone, they shall be replaced or repaired within twelve (12) hours of notification or as contained in the contract specifications.

At a minimum, Mobile Work should have appropriate devices on work vehicles (that is, high-intensity rotating, flashing, oscillating, or strobe lights, signs, or special lighting). Standard vehicle hazard lights are not acceptable and do not meet the minimum requirement.
451.9 RULES AND REGULATIONS

United States Department of Labor Occupational Safety and Health Administration (OSHA), 1926 Subpart G – Signs, Signals, and Barricades, Traffic control signs and devices; requires all workers to deploy traffic control. “At points of hazard, construction areas shall be posted with legible traffic control signs and protected by traffic control devices” (1926.200(g)(1)). “The design and use of all traffic control devices, including signs, signals, markings, barricades, and other devices, for protection of construction workers shall conform to Part 6 of the Manual on Uniform Traffic Control Devices (MUTCD)” (1926.200(g)(2)).

NMSA 1978, Section 66-7-103, Local traffic-control devices; requires the city to place and maintain traffic-control devices deemed necessary to, among other things, “to regulate, warn or guide traffic.” All traffic control devices shall conform to the state manual and specifications. The state of New Mexico and the City of Farmington has adopted the Manual on Uniform Traffic Control Devices (MUTCD).

The MUTCD is approved by the Federal Highway Administrator and is incorporated by reference in 23 Code of Federal Regulations (CFR), Part 655, Subpart F and shall be recognized as the national standard for all traffic control devices installed on any street, highway, bikeway, or private road open to public travel in accordance with 23 U.S.C. 109(d) and 402(a). This includes, and is not limited to, work area traffic control devices.

Under City of Farmington Municipal Code Section 25-2-4, Authority to maintain traffic control devices, the City Traffic Engineer (or their designee) “shall maintain... traffic control devices” to “warn or guide... pedestrians and traffic. All such traffic control devices erected shall conform to the state manual and specifications.” Both the state manual and specifications follow the MUTCD.

All work areas and traffic control shall conform to the standards and guidelines outlined in the most recent version of the MUTCD. The City Traffic Engineer (or their designee) must approve all work areas and traffic control installed on any city street, sidewalk, bikeway and parking lot.

451.10 ENFORCEMENT PROCEDURES

The entity shall follow the minimum expectations as outline in this section. If an entity fails to meet the minimum expectations as described by the City then entity may be subject to receiving a complaint to the New Mexico Occupational Health and Safety Bureau (OSHA).
OSHA fines are handled on a case by case basis and are dependent on the frequency of occurrence of the hazard condition, the severity, and the probability of the hazardous condition to occur.

451.11 GUIDELINES AND REFERENCE FOR TYPICAL APPLICATIONS

a. Traffic Control Plans (TCP) shall follow the MUTCD available online at: https://mutcd.fhwa.dot.gov/kno_2009r1r2.htm; and

b. ATSSA: A Guide to Temporary Traffic Control in Work Zones; and

c. Institute for Transportation Research and Education (ITRE): Work Zone Safety – Guideline for Construction Maintenance and Utility Operations; and

d. ATSSA: Quality Guidelines for Temporary Traffic Control Devices and Features
SECTION 460
A TRAFFIC CALMING POLICY
FOR RESIDENTIAL/Local AND COLLECTOR STREETS

460.1 ABSTRACT

This policy was written and developed by the City of Farmington’s Traffic Engineering Division (TED) and its purpose is to establish standard practices and procedures concerning issues of excessive speed within the City of Farmington. This policy is intended for streets classified as either residential, local, or collector streets. Any streets classified as minor or major arterial are not subject to this policy. This policy is an open and transparent process on how speeding issues are identified, prioritized, and resolved. Therefore, this traffic calming policy has been developed to help address the safety concerns of the public.

460.2 DEFINITIONS

A. **Average Daily Traffic (ADT):** is the total traffic volume during a given time period in whole days greater than one day and less than one year.

B. **Average Annual Daily Traffic (AADT):** is the total volume of vehicle traffic on a highway or road for a year divided by 365 days.

C. **Physical traffic calming device:** is a device that acts as an obstruction to the roadway that requires a motorist to slow down and or maneuver around the obstruction. Examples include lane narrowing through restriping, speed humps, traffic circles, partial block medians, and lane chokers. Physical traffic calming devices shall only be considered on residential/local and collector streets.

D. **Non-physical traffic calming:** is any traffic calming method that does not involve the installation of a physical obstruction to the roadway. Examples include police enforcement, and speed radar feedback signs.

E. **85th Percentile Speed:** is the speed at or below which 85 percent of all vehicles are observed to travel under free-flowing conditions past a monitored point.

F. **Street Classification:** is the characteristics of streets, such as number of lanes, access limitations, street widths, volume totals, and overall design. The City of Farmington has five separate classes of streets. These classes include residential, local, collector, minor arterial, and principal arterial.
G. **Residential Street:** is a street with open access. They have predominantly high-density residential driveways. Section 25-3-1 of the City Code specifies that the maximum speed in any residential district shall be 25 miles per hour (MPH) or such other speed limit as is posted. Residential streets should not have roadway striping, and they should not intersect with a principal arterial street. An example of a residential street would be Pacific Street or Tijeras Avenue.

H. **Local Street:** is a street that is similar to residential streets, except they might only have a few or no residential driveways. Typically, local streets have mixed use between residential and commercial. They may have lower speed limits (30 MPH or lower) and low traffic volumes. An example of a local street would be Allen Avenue or Schofield Lane.

I. **Collector Street:** is a roadway that provides a means of access from lower traffic volume residential/local streets to higher traffic volume streets. Collector streets usually have a posted speed limit of 30 MPH unless there is a relatively high density of driveways. An example of a collector street would be Cooper Street or Farmington Avenue. The New Mexico Department of Transportation’s (NMDOT) street classification system separates collector streets into two categories: major and minor. Minor collector streets typically have slightly more traffic volume than residential and local streets. They usually are two lane, two way streets, without striping and no two way center turn lane median. Major collector streets typically carry more traffic volume than minor collector streets. They usually are two lane, two way streets, striped with a two way center turn lane median.

J. **Minor Arterial Street:** is a high-capacity thoroughfare roadway that receives traffic volume from one or more collector streets. There are typically no residential/local driveways on minor arterial streets. The primary function of a minor arterial street is to serve trips of moderate length at a somewhat lower level of travel mobility than principal arterials. Minor arterial also typically distributes traffic to smaller geographic areas than principal arterial counterparts do. An example of a minor arterial street would be Apache Street or 20th Street.

K. **Principal Arterial Street:** is a high-capacity thoroughfare roadway that generally receives the highest traffic volume and highest speed limits. There are no residential/local driveways on arterial streets. The primary function of an arterial street is to provide access to urban centers or major highways. An example of a principal arterial would be Main Street or Pinon Hills Boulevard.
460.3 INTRODUCTION

The Institute of Transportation Engineers (ITE) defines traffic calming as “the combination of mainly physical measures that reduce the negative effects of motor vehicle use, alter driver behavior, and improve conditions for non-motorized street users.” As the City experiences the continual changing of traffic patterns and increased traffic volumes, many residents are reaching out in regard to their concerns with speeding and cut-through traffic on their respective city street. Traffic calming is a developmental way to help address the safety concerns of the public.

460.4 TRAFFIC CALMING TOOL BOX

This traffic calming policy applies to streets classified as either residential, local or collector. Traffic calming measures for arterial streets will be considered by design only. Roundabouts shall also be engineered and designed on a case by case basis. The City of Farmington Traffic Engineering Division (TED) utilizes the following physical and non-physical traffic calming measures citywide.

460.4.1 NON-PHYSICAL TRAFFIC CALMING MEASURES

City streets that do not meet the criteria for physical traffic calming may be considered for non-physical traffic calming measures. Any of which shall be determined and recommended by the City Traffic Engineer or their designee.

1. Speed Limit Signage: the TED can recommend upgraded or additional speed limit signage.
2. Police Enforcement with Speed Radar Trailer: the TED may recommend a speed radar trailer be deployed on streets with only one lane of traffic flow in each direction if the shoulder along the side of the street permits the trailers deployment.
3. Police Enforcement: the TED can request that an officer be posted at a specific section of a street to monitor speed.
4. Public Information Campaigns: this is the method of bringing a speed issue on a particular street to the attention of the public via email, social media, or any other form of mass distribution.
5. Speed Radar Feedback signs: the TED can recommend the installation of a speed radar feedback sign. These signs may be installed either permanently or temporarily per the TED’s discretion.

460.4.2 PHYSICAL TRAFFIC CALMING MEASURES

Physical traffic calming devices shall only be allowed on residential/local and collector streets that are two lanes, two-way streets (two lanes of travel, one lane of traffic flow in each direction). All of which shall be determined and recommended by the City Traffic Engineer or their designee.
1. Lane Narrowing through Restriping: If speeding is determined to be an issue on any street with only one direction of traffic flow each way, the TED can recommend lane restriping to narrow a motorists driving lane. This narrowing of the lane encourages motorists to be more attentive to their respective travel lanes in order to stay between the lines. (Excludes residential/local streets).

2. Speed Humps: are midblock traffic calming devices that consists of raised pavement placed across the entire roadway width creating a rounded top that causes vertical deflection to slow vehicles and reduce volume. Speed humps shall only permitted on residential/local streets.

3. Speed Tables: are midblock traffic calming devices that raise the entire wheelbase has a level top used to reduce a vehicles traffic speed. Speed tables may also be utilized as raised crosswalks. Speed tables may be permitted on collector streets.

4. Traffic Circle: is a small circular raised islands, placed at intersections, in which traffic circulates in a counter-clockwise manner. Traffic circles are used for residential/local and collector street traffic calming. Traffic circles are smaller than roundabouts; do not have splitter islands, and no crosswalks.

5. Partial Block Median: is a raised curb island, constructed in the center of the roadway and placed midblock to a narrow roadway. This configuration forces vehicles to slow down as a result of the narrower street cross section.

6. Choker: is a curb extension that installed on either side of a roadway and can be placed either midblock or at intersection corners. This configuration forces vehicles to slow down as a result of the narrower street cross section.

THE TRAFFIC CALMING STUDY PROCESS

Before any street is considered for the installation of physical or non-physical traffic calming devices, the City Traffic Engineer or their designee must make a determination that the street in question is a reasonable candidate for such treatment. This is based on an analysis of the street classification, location, physical attributes of the subject street, traffic volumes, traffic speed, or any special situations, which may be affected if physical or non-physical traffic calming devices are to be installed. Therefore, a site assessment and traffic study shall be performed before any traffic calming will be recommended.

In order for the TED to prescribe a counter measure for speed and safety concerns on a selected street, in general the following steps will need to be taken:

1. Upon the request from a constituent, the TED will schedule a traffic study. The traffic study is dependent on a traffic count and will be performed as the TED's work schedule permits.
a. Before a data collection is performed, the physical traffic calming criteria table will be reviewed to determine if the street meets all the physical attribute criteria required for further study.
b. If a report has been produced within the last 3 years on the same section of the street in question, the TED may supply the requester with that traffic study report, in lieu of a new traffic study.

2. Once the street has been found to meet all physical attributes for further study, the TED will typically conduct a new traffic count. Working with the constituent (i.e. Requester), the TED will schedule a traffic count and determine the best location to collect traffic data.
   a. The traffic count consists of the measuring of the traffic speed and volume. The traffic count is typically a continuous seven-day count during the school year. Research studies have proven that there is usually more traffic volume during the school year, compared to that of the summer months. Therefore, the TED will only conduct traffic studies related to this traffic calming policy within the school year (i.e. September to May).

3. After a traffic count has been completed, a data analysis will be carried out. Once the data analysis is completed, the Requester will receive a copy of the full traffic study report. The traffic study report will consist of background information, traffic data, an evaluation of the City’s traffic calming policy’s 10 criteria, and if necessary a recommendation of a counter measure for the street of interest.
   a. It will take some time to plan, design and construct the traffic study’s recommended traffic calming counter measure. Each traffic study should have an expected date of completion within the recommendation section of the traffic study report.

4. Within the traffic study report, if the TED recommends a traffic calming method as the counter measure, then a conversation will need to occur between the TED and the Requester. During this conversation the Requester will be asked if they would like to move forward with the TED’s traffic calming method recommendation. If the Requester would like to move forward with said recommendation than the Requester will need to acquire a petition.
   a. All requests shall be in the form of a formal petition (blank petition forms will be supplied by the TED).
   b. It will be the responsibility of the Requester to insure that the petition gets completed.
   c. The petition shall be circulated by the Requester to all residents as an indicated by the TED. The petition shall be completed by residents who reside on the street of interest, within the area as outlined by the TED.
   d. A minimum of 75 percent concurrence is required for the petition to be satisfied. Therefore, at least 75 percent of residents who reside on the street of interest need to sign the petition. It is the responsibility of the Requester to acquire signatures. For the purposes of this policy, a resident is defined as the head-of household for the dwelling unit on the property. If there are multiple dwelling units on a property, a signature will be required from the resident of each dwelling unit for the entire property.
to be included in the calculation of the 75 percent. Fractional support will be considered for properties that have multiple dwelling units on them.

5. Traffic calming devices will only be installed in conformance with design guidelines that have been established by the City Traffic Engineer and the City of Farmington Construction Standards and Technical Specifications, as prepared by the City Engineer and approved by the City Council.
   a. The City Traffic Engineer or their designee shall determine the location for placement of any and all traffic calming devices.
   b. After the installation of traffic calming devices, the City will notify the appropriate emergency response agencies.

6. Traffic calming in general, is an experimental roadway treatment design to establish the channelization of vehicles, create vehicular travel uniformity and decrease the speed of traveling vehicles. Therefore, additions to, alterations of, or removals of any or all speed humps may occur at any time, if the City Traffic Engineer or their designee deems such additions, alterations or removals are necessary to protect the health and safety of the traveling public.

460.5.1 THE REQUIRED CRITERIA FOR TRAFFIC CALMING

The following criteria provides a basis for evaluating the appropriateness for physical traffic calming device installation. Each request will be evaluated on the criteria established for each specific traffic-calming device with additional consideration being given to unusual circumstances. Once a request is received, the TED will collect and analyze the data to determine if the street meets ALL of the following minimum criteria:

1. Street Classification
   Street classified on the Farmington Major Thoroughfare Plan (MTP):
   a. A residential/local or collector street may be selected to be a candidate for either non-physical or physical traffic calming devices.

2. Average 85th Percentile Speed
   An average 85th Percentile Speed is broken down into speed limit classifications.
   a. A posted 25 MPH street that has an 85th Percentile Speed between 31 MPH and 32 MPH should receive some form of non-physical traffic calming device based on the recommendation of the City Traffic Engineer. However, if the speed exceeds 32 MPH and 5 percent of motorists are speeding 35 MPH and above, a form of physical traffic calming device should be recommended by the City Traffic Engineer. See Figure 1 in appendix for reference.
   b. A posted 30 MPH street that has an 85th Percentile Speed between 34 and 36 MPH should receive some form of non-physical traffic calming device based on the recommendation of the City Traffic Engineer. However, if the speed exceeds 36 MPH and 5 percent of motorists are speeding 40 MPH and above, a form of physical traffic calming device

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should be recommended by the City Traffic Engineer. See Figure 2 in appendix for reference.

c. A posted 35 MPH street that has an 85th Percentile Speed above 42 MPH and 5 percent of motorists are speeding above 45 MPH should receive some form of non-physical traffic calming device based on the recommendation of the City Traffic Engineer (physical traffic calming device will not be recommended for streets of 35 MPH or greater). See Figure 3 in appendix for reference.

3. Average Daily Traffic
Average Daily Traffic (ADT) is broken down into street classifications.

a. A residential/local street must exceed 500 and be less than 1,500 in order for speed humps to be installed.
b. A residential/local or collector street must exceed 1,500 and be less than 2,500 in order for speed tables to be installed.
c. Any residential/local or collector street must exceed 500 and be less than 4,500 for any other form of physical traffic calming.
d. A form of non-physical traffic calming may be recommended regardless of the ADT.

4. Number of Travel Lanes
The number of travel lanes is also a factor in determining the potential of certain types of traffic calming based.

a. The residential/local or collector street shall only have a single travel lane in each direction to have physical traffic calming device recommendations.
b. A form of non-physical traffic calming device or measure may be utilized on streets with three or more lanes based on the City Traffic Engineer's recommendation.

5. Streets Paved with Curb and Gutter
Streets must be fully built and lie within the City boundaries to be considered for any traffic calming devices.

a. A street shall have a full pavement section of asphalt or concrete as well as curb and gutter in the section of study to be considered for physical traffic calming
b. Streets of dirt, gravel, or oil surface shall only be considered for non-physical traffic calming.

6. Potential of Traffic Diversion
Substantial diversions of traffic is also an element in determining physical traffic calming installation.

a. If the installation of traffic calming is determined to divert traffic to another residential/local street within the subdivision, physical traffic calming may not be considered.
b. Physical traffic calming may be considered where the City Traffic Engineer determines installing the physical traffic calming on multiple residential/local streets within the subdivision will calm traffic.
c. Installing physical traffic calming on multiple residential/local streets within a subdivision shall require 75 percent on resident agreeance from each street proposed. (see requirement 11)
7. Emergency Vehicle Access
Installation of a physical traffic calming device shall not be considered on streets commonly used by emergency vehicles as an access corridor. Physical traffic calming device installations cannot cause more than an accumulated 30-second delay in emergency vehicle response time, and in no case, will physical traffic calming devices be considered if they cause Fire Department response time to exceed six minutes.

8. Percent of Residential Request
A substantial majority (75 percent or more) of residents along the proposed street must agree to sign a petition for physical traffic calming devices. Initiation of the request by the residents serves to verify that a clear majority of the residents support the installation of a traffic calming devices. The City Traffic Engineer shall determine the type of device for the petition signature collection based on the area and layout of the street. Non-physical traffic calming exempt and shall be used at the City Traffic Engineer’s discretion.

9. Percent of Concurrence
A physical traffic calming device shall not be installed unless there is 100 percent concurrence by the owners of the properties within 200 feet on either side of the proposed physical traffic calming device location; or if the City Traffic engineer recommends it for the safety of the public. Non-physical traffic calming exempt and shall be used at the City Traffic Engineer’s discretion.

10. Street Grade
This criterion applies to speed humps and speed tables only. Speed humps or speed tables shall only be considered in situations where the street grade within each block has a less than 4 percent slope in the longitudinal direction.

In the event that all criteria for physical traffic calming is met on a collector street and there is no current center or edge line striping the TED will implement lane narrowing through restriping. Once the long line striping is installed, a follow-up study will be performed to determine if the speed has been reduced to the moderate speed range. If the 85th Percentile Speed is still averaging in the aggressive speed range, the process will go to the Physical Traffic Calming Decision Tree to determine the appreciate physical traffic calming measure to be used.

In the event that all criteria for physical traffic calming is met on a residential/local street follow the guidance on the Physical Traffic Calming Decision Tree.

In the event that not all criteria is met for physical traffic calming a speed radar feedback sign will recommended as a form of non-physical traffic calming for the remediation of the speeding issue.
460.5.2 **EXCEPTIONS**

In some instances, physical or non-physical traffic calming may be initiated by the City Traffic Engineering Division or other city entity. In these cases, other data collected from a standard speed study will be used. If this study results in finding that, the excessive speeding is deemed a potential safety hazard. In lieu of a formal petition, the City Traffic Engineer will initiate the physical or non-physical traffic calming device installation process.

Table 1: Table for Physical Traffic Calming Device Criteria

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Criteria</th>
<th>MET</th>
<th>FAILED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Classification of Street</td>
<td>Residential/Local or Collector</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2a 85th Percentile for Posted Speed Limit of 25 MPH</td>
<td>MPH &gt; 32 MPH and 5% of motorists 35 MPH and above</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2b 85th Percentile for Posted Speed Limit of 30 MPH</td>
<td>MPH &gt; 36 MPH and 5% of motorists 40 MPH and above</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Average Daily Traffic (ADT)</td>
<td>500 &lt; ADT &lt; 4,500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Number of Travel Lanes</td>
<td>&lt;= 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 Street paved with curb &amp; gutter</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 Traffic Diversion</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 Emergency Access Issues</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 Percent of Residents Request</td>
<td>75%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 Percent of Concurrence</td>
<td>100%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 Street Grade</td>
<td>Street grade is only applicable to Speed humps and will be reviewed on the Traffic Calming Decision Tree.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* All criteria must be met in order for physical traffic calming to be recommended.
** If all criteria are met refer to Physical Traffic Calming Decision Tree.
*** Upon any criteria failure recommend non-physical traffic calming.
Physical Traffic Calming Decision Tree

1. What is the street classification?
   - Residential/Local
   - Collector

2. Is the grade of the street 4% or less?
   - YES
   - NO

3a. If Residential/Local
   Is the volume (ADT) between 500 & 1,500?
   - YES
   - NO

3b. If Collector
   Is the volume (ADT) between 1,500 & 2,500?
   - NO
   - YES

4. Are there intersections that can be utilized?
   - YES
   - NO

5. Could a crosswalk improve accessibility to a destination?
   - NO
   - YES

6. Will unnecessary U-turns be increased?
   - NO
   - YES

7. Will on street parking be conflicted?
   - NO
   - YES

8. Are there roadway width issues?
   - NO
   - YES

Figure 1: Decision tree for determining the type of physical traffic calming to be used.
TRAFFIC CALMING REQUEST FOR REMOVAL

Any request for physical traffic calming device removal initiated by a resident or property owner shall be in the form of a written petition containing the signatures of residents representing at least 75 percent of the properties that face directly on or access the street or intersection of interest. The City Traffic Engineer or their designee will use the traffic calming device installation criteria for the application of removing said device(s). The petition for traffic calming device(s) removal shall be forwarded to the City Council along with a recommendation from the City Traffic Engineer regarding whether removal is appropriate based on the criteria. The request for traffic calming device removal shall be reviewed by the City Council and approved or denied.
25 MPH Posted Speed Limit Streets

Conservative Speed Zone | Moderate Speed Zone | Aggressive Speed Zone
---|---|---
0-24 MPH | 25-30 MPH | 31-32 MPH
No Traffic Calming Recommended | Non-physical Traffic Calming Recommended | Physical Traffic Calming Recommended
Exceeds 32 MPH and 5% of motorists 35 MPH and above

Figure 1: Average 85th Percentile Speed for 25 MPH streets

30 MPH Posted Speed Limit Streets

Conservative Speed Zone | Moderate Speed Zone | Aggressive Speed Zone
---|---|---
0-29 MPH | 30-33 MPH | 34-36 MPH
No Traffic Calming Recommended | Non-physical Traffic Calming Recommended | Physical Traffic Calming Recommended
Exceeds 36 MPH and 5% of motorists 40 MPH and above

Figure 2: Average 85th Percentile Speed for 30 MPH streets
### 35 MPH Posted Speed Limit Streets

<table>
<thead>
<tr>
<th>Conservative Speed Zone</th>
<th>Moderate Speed Zone</th>
<th>Aggressive Speed Zone</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-34 MPH</td>
<td>35-42 MPH</td>
<td>Exceeds 42 MPH and 5% of motorists 45 MPH and above</td>
</tr>
<tr>
<td>No Traffic Calming</td>
<td></td>
<td>Non-physical Traffic Calming Recommended</td>
</tr>
</tbody>
</table>

Figure 3: Average 85th Percentile Speed for 35 MPH streets
SECTION 510

CONCRETE STRUCTURES

510.3.2 REINFORCEMENT
(Add the following to NM-APWA section)

Shop drawings for all reinforcing steel shall be submitted in quadruplicate to the City Engineer for approval prior to fabrication and placement of any reinforcing steel.

510.18 MEASUREMENT AND PAYMENT
(Add the following to NM-APWA section)

The unit price bid for Structural Concrete shall include all labor, equipment and materials necessary to complete the project according to the construction standards indicated with the exception of rebar which will be a separate bid item. Structural Concrete payment shall be based on the number of cubic yards of concrete used as agreed upon by the City of Farmington and the Contractor. Rebar shall be 60,000 psi minimum. The cost of rebar will be included in related items of work and no separate measurement or payment shall be made for rebar.
SECTION 550

METAL RAILING

550.5 MEASUREMENT AND PAYMENT

550.5.1 (Replace NM-APWA section with the following)

Measurement of metal railing will be made by computed weight, in pounds, based on details shown on the fabricator’s approved shop drawings or from detailed plans prepared by the ENGINEER when shop drawings are not required.

550.5.2 (Replace NM-APWA section with the following)

Metal railing will be paid for at the Bid Proposal’s unit price per pound.

550.6 (Add the following to NM-APWA section)

HAND RAILING

Hand railing shall be 1 ¼” schedule 40 metal pipe installed with the first rail 24” above finished grade, the top rail 36” above finished grade, posts at 10’ on center, and finished with one coat primer and one coat epoxy paint (color) to be determined by the City Engineer or his designee as per City Standard D-630.

550.6.1 (Add the following to NM-APWA section)

MEASUREMENT AND PAYMENT

The unit price bid for hand railing shall include all labor, equipment and materials necessary to install hand railing as per D-630. Payment shall be by linear foot complete in place.
(The following is a City of Farmington section)

SECTION 560

ADJUST STRUCTURES

560.1 GENERAL

560.1.1 This work shall include the adjustment of all pavement structures to proposed grade including manhole frames and covers, valve boxes, storm inlets, etc., as indicated on the plans or as specified in the supplementary specifications.

560.2 MATERIALS

560.2.1 Concrete and structure work shall meet the requirements of 3000 PSI concrete on Section 500-Concrete Structures.

560.3 CONSTRUCTION REQUIREMENTS

560.3.1 Raising Structures: If the height that the ring and cover is to be raised is less than one course of brick, then 3000 PSI concrete shall be used. Concrete shall attain strength of 3000 PSI at 28 days and shall be cured by use of an approved curing compound. Adjustment of all structures shall be accomplished PRIOR TO LAYING ANY BITUMINOUS SURFACE for a new street, for an existing street that the asphalt is milled and inlaid the adjustment may be accomplished afterwards. If the ring and cover is to be raised 12 inches or more above the top of the existing cone, the cone shall be removed, the adjustment made in the barrel and cone rebuilt or replaced. Adjustment from 4 inches to 12 inches will be made by blocking with from one (1) to three (3) courses of standard means of a poured concrete ridge. Smaller adjustments may be made with a Portland Cement Mortar "Cap". After raising of structures, damaged ½ inch mortar on existing construction shall be retouched to repair damaged areas and to match existing mortared surfaces.

560.3.2 Lowering Structures: If a structure is to be lowered other than a slight adjustment, the cone shall be removed, the adjustment taken up in the barrel, and the cone rebuilt. A 3/4 inch minimum Portland Cement Mortar (plaster) surface shall be applied on the inside of the rebuilt surfaces where damaged. If a slight adjustment is to be made, a lowering of as much as the two brick courses may be made, without disturbing the cone.

560.3.3 Adjusting Valve Boxes and Covers: Valve box covers shall be made by extending the existing box sections to the proposed grade for paving prior to laying any new bituminous surface course for a new street, for an existing
street that the asphalt is milled and inlayed the adjustment may be accomplished afterwards.

560.3.4 (Replace NM-APWA section with the following)

Non-pavement Finish Treatment: After adjustment, each structure shall be backfilled and compacted according to specifications. A concrete collar 6 inches thick shall then be poured around the structure. The collar shall be constructed as shown on the City of Farmington Construction Standards for detail D-311/D-312 Structure Adjustment. When the concrete is cured a surface course of hot-mix asphalt shall then be applied to bring the pavement to the rim of the adjusted structure. Structures shall not deviate more than 3/8 inches in 10 foot from existing pavement.

560.4 MEASUREMENT

Each structure adjusted shall be paid for at the unit price stated in the proposal. The price shall include all labor, equipment, and materials necessary to completely adjust each structure, including but not limited to brick, mortar, concrete, grade rings, welding, steel, tack coat and hot-mix. The bid shall be based on a valve box adjustment to include an asphalt area of 2' x 2', the manhole adjustment shall include an asphalt area of 5' x 5', the asphalt replaced shall be a minimum of 3 inches thick.

Removal of asphalt from manhole covers and valve boxes less than 3/4" will be paid for on 8:1 basis.

The unit price bid for replacing valve boxes or manhole frame and cover shall include all labor, equipment and materials necessary to remove an existing valve box or structure frame and cover. All work shall conform with City of Farmington Standard No. D-311. Replace valve boxes or manhole frame cover shall not be paid in conjunction with other adjust structures items.

To adjust valve box to grade, adjust manhole to grade, and adjust irrigation or storm sewer frame and cover to grade shall include the cost of installing a new valve box or casting on the adjusted structure. Adjust valve box to grade, adjust manhole to grade, and adjust irrigation or storm sewer frame and cover to grade shall not be paid in conjunction with replaced valve boxes or manhole frame and cover.

The unit price bid for furnish and install new meter cans shall include all labor, equipment and materials to remove and dispose of the old cans and install new meter cans. Furnish and install new meter cans shall not be paid in conjunction with other replace structure items.
SECTION 602
PORTLAND CEMENT FLY ASH CONCRETE FOR CHANNEL LINING AND
DIKE OR DAM SURFACING

602.12 (Replace NM-APWA section with the following)

MEASUREMENT AND PAYMENT

602.12.1 MEASUREMENT: Concrete lining or surfacing shall be measured by the cubic yards of concrete, as measured along the finished surface for the type and thickness stated on the construction plans.

602.12.2 PAYMENT: The payment for concrete lining or surfacing shall be at the contract unit price per cubic yards of concrete complete in place, which price shall include all material, equipment and labor required in the subgrade finishing, placement of the reinforcement steel, forming, placement of the concrete, finishing, curing, form removal, backfilling, and cleanup.
SECTION 603

RIPRAP

603.3.3 DESCRIPTION

(Add the following to NM-APWA section)

The sizes of rock to be used in the different thicknesses of riprap are as follows:

<table>
<thead>
<tr>
<th>Riprap Protection</th>
<th>Thickness</th>
<th>Max. Size of Rock</th>
<th>Min. Size of Rock</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>18 inches</td>
<td>1/8 yd³</td>
<td>1/10 ft³</td>
</tr>
<tr>
<td></td>
<td>12 inches</td>
<td>1 ft³</td>
<td>1 1/2 inches</td>
</tr>
</tbody>
</table>

603.11 MEASUREMENT AND PAYMENT

603.11.1 (Replace NM-APWA section with the following)

Measurement for payment of riprap will be made to the outlines of the riprap directed to be placed on the basis of the nominal thickness prescribed. Payment for riprap will be made at the applicable unit price per ton or alternate cubic yard bid in the schedule, which shall include the cost of furnishing, hauling and placing and/or raking the rock for riprap including the rock spalls and gravel to fill the voids in the riprap.

Excavation required for the placing of riprap be measured to the prescribed outlines and depths and will be paid for under applicable unit price per cubic yard bid in the schedule.

603.11.2 Filter cloth shall be measured by square yard in place.
SECTION 701
TRENCH EXCAVATION AND BACKFILL

701.6.5.1 BRACING EXCAVATIONS

(Add the following to NM-APWA section)

Failure to properly brace trenches shall be at the risk of the Contractor, and where such failure results in slide or caving, producing unusual or excessive loading on the pipe, the Contractor shall be required to remove and replace the pipe with whatever type of construction the Engineer may require, with no extra allowance for materials or labor. The Contractor shall be responsible for damage to other utilities, buildings, and structures resulting from earth slides, caving or other failure. No extra payment will be made for sheeting, bracing or "boot-caisson". No sheeting or bracing, where used, shall be removed until sufficient backfill is in place to protect the pipe and the adjacent street, alley or easement surface and structure from damage by sliding and caving in of trench sides. No extra compensation shall be allowed for the handling of excavated materials in alleys, easements, streets, or other confined areas.

701.6 PUBLIC UTILITIES

(Add the following to NM-APWA section)

Public Utilities: The Contractor shall be responsible for the destruction of, or damage to, all existing structures, pipe lines, conduits, cables, sewers, drains or other properties encountered in conduits, cables, sewers, drains or other properties encountered in or adjacent to the excavation, and he shall use all reasonable measures and precautions to protect such properties, and shall maintain or replace them in as good condition as they were prior to the construction operations. He shall make a diligent effort to locate all underground properties in advance of excavation work, and support or protect them so that they will not be broken and their functions interrupted. The Contractor shall notify all Owners of public utilities that may be affected by construction demands so that the Owner may protect, transfer, change, rebuild, or remove any part of their utilities as the owner may deem fit. Such notification shall be in writing and in advance of work at least one week.

Where abandoned pipes, or sewers are removed from the trench, leaving dead ends in the ground, such dead ends shall be carefully and permanently plugged in a manner approved by the city engineer or his designee.
701.7 DEWATERING

(Add the following to NM-APWA section)

All water shall be disposed of by pumping into city approved disposal areas. Only sewage effluent shall be disposed into the sanitary sewer system, all other shall be disposed of per EPA Regulations.

701.8.8 OBSTRUCTION

(Add the following to NM-APWA section)

Removal and disposal of obstruction and underground footings and foundations will not be paid for directly, but shall be considered incidental to the contract.

701.8.9 (Add the following to NM-APWA section)

If soil and/or existing pavement conditions encountered in trenching will not allow the area of pavement removal and replacement to be contained within the limits indicated on City of Farmington Construction Standard D-112, the Contractor may request approval of additional width in writing. The Engineer will then approve or deny the request in writing.

Paving cuts shall be repaved to the general thickness and material design provided on the plans and shall be made in complete compliance with the applicable specifications in this contract.

The Contractor shall repave all paving cuts. All unauthorized paving cut areas exceeding the tabulated pay limits shall be repaved at the expense of the Contractor. All other pavement replacements made by the Contractor shall be based on the applicable unit prices.

Pavement cuts shall not be repaved until the newly installed, repaired or replaced City utilities have been pressure tested and no leaks appear unless approved by the City Engineer. The street surface and gutters and other areas shall be swept clean by the Contractor after the pavement replacement is completed.

701.10.1 WIDTH OF TRENCHES

(Replace NM-APWA section with the following)

Trench widths at the level of the top of the pipe shall not exceed the following and shall be kept to the practical minimum required for properly laying, aligning, grading, and joining of the pipe. Trench widths at the level
of the top of the pipe shall not exceed City of Farmington Standard No. D-112. Sloped sides of trenches shall be in at a point not less than 12 inches above the top of pipe. The Contractor shall maintain all trenches in a safe condition protecting the men working and the general public as outlined under Standard Details.

701.11.4 BLASTING

(Add the following to NM-APWA section)

The Contractor shall obtain a Permit for the use of High Explosives from the FIRE MARSHALL AND CITY ENGINEER prior to using such methods of construction.

701.14 (Add the following to NM-APWA section)

When excavated material, in the opinion of the City Engineer or his designee, is unsatisfactory for backfill it shall be removed from the site and disposed of by the Contractor. The City Engineer shall determine when base course will be used to backfill trenches. Base course shall be used by the Contractor for bedding and backfill and paid at the unit price indicated on the bid proposal. Natural crusher fines may be used for pipe bedding material or backfill, with approval from engineer. All trench backfill material shall be placed and compacted, to 95% of modified proctor, in lifts of 11 inches, plus or minus 1 inch (not to exceed 12 inches).

701.15 COMPACtion METHODS

701.15.1 (Add the following to NM-APWA section)

A. Sufficient density tests shall be made at various depths which will give the degree of compaction within the lower one-half of trench backfill and in the initial fill around the pipe, as well as in the upper one-half of the backfill.

Density tests shall be taken as follows:

A minimum of two field density test shall be made for each 200 feet of trench for each one to two feet of depth of the trench. A minimum of 2 tests per trench run.

The City Engineer, or his designee, shall have the right to call for any additional tests he may deem necessary at shorter intervals along the trench in order to carry out the intent of these specifications.

When tests fail, additional compaction shall be required. If tests indicate the compaction method does not produce the required end results, the
Contractor shall alter the methods of compaction in order to obtain the required densities. All re-compacted trenches shall be re-tested at the Contractor's expense. All sewer appurtenant structures shall be backfilled in accordance with these requirements.

B. When trenching within New Mexico State Highway Department right-of-way, the method of compaction and densities required in backfilling of trenches shall comply with the requirements of the New Mexico Highway Department's "Standard Specification for Highway and Bridge Construction", Latest Edition, and all provisions shall be subject to supervision of the States Project Engineer. Final City acceptance of the completed trench backfill will be dependent upon the State. No extra compensation shall be allowed the Contractor for the above trench compaction and testing.

701.15.3 (Replace NM-APWA section with the following)

WATER FLOODING

Water flooding will not normally be allowed under this contract. When soils encountered exhibit characteristics conducive to water flooding, conversely the Engineer may require water flooding as a compaction method. When such a procedure is approved, the Contractor may jet or flood the trench with water in successive lifts in a volume sufficient to obtain the required density and compaction. Density requirements shall remain the same.

701.15.4 (Add the following to NM-APWA section)

BACKFILL AND COMPACTION

Proper and adequate backfilling and compaction, regardless of the method used, shall be the responsibility of the Contractor. Final acceptance of the project does not relieve the Contractor of this responsibility. The Contractor shall at his expense repair all damages to streets, sidewalks, curbs, gutter paving, sewer pipe, water lines and any other private or public utility line including damage to abutting private property caused by trench or excavation settlement for a period of one (1) year after final acceptance of the project.

701.17 MEASUREMENT & PAYMENT

701.17.1 (Replace NM-APWA section with the following)

A. Trenching and Backfilling: Trenching and backfilling shall be measured along the alignment of the pipe parallel to the invert of the utility line for which the trenching is performed. Measurement shall be to the nearest
lineal foot. Measurement shall be made from center of manhole for all sewer lines. Payment for trenching and backfilling according to specifications for all items other than sanitary and storm sewer is included in the unit prices bid for each item and no separate payment will be made.

Depth of trench shall be measured to the nearest foot vertically from the invert of the utility line to the surface of the existing ground for trenches not within areas to be graded under the same contract and for all graded areas where the finished subgrade elevation is higher than the existing ground. Measurement shall be from the invert of the utility line to the finished sub-grade elevation for trenches within graded areas where the existing ground is higher than the finished subgrade elevation. Existing ground shall mean the surface elevations prior to any grading operations.

Payment will be made at the applicable contract unit price per linear foot of pipe at the depth indicated which price and payment shall be full compensation for all excavation, bracing, and sheeting, and for furnishing all labor, equipment, and incidentals necessary to complete all work specified herein. Trench and backfill unit priced items are for installation of pipe diameters up to 18 inches I.D. for pipe I.D.'s over 18 inches and up to 27 inches payment for trenching and backfill shall be made at 1.5 (one and one-half) times the unit price bid for that depth. For pipe I.D.'s 30 inches or over, payment for trenching and backfill shall be made at 2 (two) times the unit price bid for that depth.

B. Pavement Replacement: Measurement for pavement replacement shall be made to the nearest square yard on the top of the pavement removed, EXCEPT that the maximum width of pavement removal to be paid for shall not exceed the widths of trench tabulated in City of Farmington Construction Standards. No pavement removed beyond the limits specified or without the approval of the Engineer shall be measured or paid for. Payment will be made at the contract unit price per square yard for pavement replacement which price and payment shall be full compensation for removing and disposing of existing pavement, and construction of replacement pavement and furnishing all labor, equipment, materials, and incidentals necessary to complete the work as specified herein.

C. 3/4" to one (1) inch trench stabilization aggregate and select backfill or bedding material shall be paid by the ton compacted in place as directed by the City. Payment shall be limited to the maximum trench width indicated in City Standard No. 112 multiplied times the depth authorized by the Engineer.
D. The unit price for concrete Pipe collar installed on the size of pipe indicated shall include all labor equipment and materials necessary to install a Portland cement pipe collar around the pipe indicated. The collar shall be a minimum of two (2) feet long along the pipe length and shall extend out from the pipe a minimum of 1 foot in all directions.

E. Item for Rock Excavation will be paid according to the trench widths on City Standard Drawing 112. The hydraulic items are only to be used for special hydraulic attachments used for breaking through rock and shall be measured in the field for actual yardage.
SECTION 710
BORING, DRILLING AND JACKING

710.5.3 INSTALLATION

Carrier pipe shall be skidded through the casing per D-402.

Other methods shall be approved in writing by the City Engineer.

710.7 MEASUREMENT

(Add the following to NM-APWA section)

Steel casing, bored and jacked shall also include installation of the carrier pipe in the casing. The utility (water and sewer, etc.) pipe shall be paid for by the bid item.

(Change Payment to read)

Payment shall be based on the unit price bid in the schedule times the diameter in inches of the casing per lineal foot of casing installed. This item will only be used for casings ten inches in diameter or larger.
SECTION 801

INSTALLATION OF WATER TRANSMISSION, COLLECTOR
AND DISTRIBUTION LINES

801.1 (Replace NM-APWA section with the following)

GENERAL

The water facilities and materials, specified herein, are associated with water transmission, collector and distribution lines.

All Materials and Methods within this section shall be as approved by the City and fall within the entire City Technical Specifications & Construction Standards Addendum to the New Mexico Standard Specifications for Public Works Construction.

801.1.1 AUTHORIZED CONTRACTOR

For the purpose of this section, “Authorized Contractor” shall be entity holding a valid New Mexico GF-98 or GF-9 License, Valid City of Farmington Business License & awarded specific scope of work included in their contract by the City of Farmington.

The City’s Operations & Maintenance Contractor may also be the “Authorized Contractor” based upon the current contract with the City of Farmington.

All Authorized Contractors shall acquaint themselves with the primary & alternate design water shut-off provided by the city. Water shut off as provided shall be incidental to the contract.

All Contractors will be responsible for damages caused by their work or lack thereof.

801.1.2 WATER SYSTEM CONNECTION AND CERTIFICATION FEE

Water System Connection and Construction Water Valve Operation: All water utilities work, within the City’s existing or proposed Right of Way, shall be coordinated with the City’s Construction Inspector prior to construction. A dated copy of the approved construction drawings (not older than 1 years from date of signature) shall be kept on-site and shown to the inspector upon request. Failure to comply shall result in job shutdown until plans can be provided or re-approved.
No Contractor shall connect to the City's water system without first being under contract with the City of Farmington prior to connection. The City's Construction Inspector will schedule the water connection with the City's Authorized Contractor(s). All work shall be scheduled with the Community Works Department & Authorized Contractor a minimum of 96 hours in advance of construction.

Only an Authorized Contractor(s) shall operate valves within the scope of their contract with City of Farmington. In cases of emergency, or in situations that may endanger the public health, such as water main breaks, the Authorized Contractor may close nearby valves to minimize danger after coordinating with the City’s Community Works Department.

Emergencies caused by the Authorized Contractor will be the responsibility of the Contractor.

(Replace NM-APWA section with the following)

**GATE VALVES**

Gate valves shall be designed for 150psi operating pressure and shall be Mueller Resilient Seat Type A-2370-20 or approval equal. Gate valves shall be supplied complete with valve box and cover. Valve boxes for ten (10) inches and smaller gate valves shall be two-piece screw type. Clow Model F-2493 stay-put cover or city approved equal.  **Valves shall be a maximum of five (5) feet from a cross or tee.**  Unless approved by City Engineer or designee

Gate valves shall be used on pipes 10" in diameter or smaller.

Substitute the following list of approved manufactures:

1) Clow  
2) Mueller  
3) Kennedy  
4) Dresser

**BUTTERFLY VALVES**

Butterfly valves shall be used on pipes 12" in diameter or larger.

Valves shall be a minimum of three (3) feet to a maximum of five (5) feet from a cross or tee.

Delete this paragraph and insert the following:

Butterfly valves shall be an approved equal to those made by the following approved companies:
The valve bodies shall be coated with a 100% solid heat-cured epoxy coating holiday-free in the waterway. Valve vanes shall be 100% holiday-free.

801.3.6.1 **COMBINATION AIR AND VACCUM VALVES**

Air and vacuum valves shall be the type and size shown on the plans.

(Add the following to NM-APWA section)

Corporation Stops (Valves) shall conform to AWWA Standard C800-66, outlet to be AWWA C-800 copper service thread, with flare nut. Inlet is to be male IPT. All exposed casting to be bronze ASTM B-62.

All valves to be individually factory tested in both the open and closed position. Corporation stops shall be: Mueller H 15025, Ford F700, Hayes 5204 and Jones J 1505 or an approved equal.

Curb Stops shall be bronze, inlet for flared copper, outlet for female IPT. Curb stops shall be to: Ford Z 21-333 3/4", Ford Z 21-444 1", Mueller H 15275, Hayes 5050, Jones J- 1507 or McDonald 4721 or an approved equal.

Copper setters shall be: Ford VHH72-15 5/8" x 3/4" or 1" VHH74-15, or Mueller H 1404-2A. Non-Bronze Service Saddles shall be nylon coated ductile iron with double stainless steel straps or an approved equal. Nylon to be fusion bonded to an average of 12 mils thickness. The straps, nuts and washers will be type 304 - stainless steel. Gasket will be a rubber type compound to resist oil, natural gas, acids, and alkalis and be water tight. Tap threads to be iron pipe. Saddles will be various sizes for cast iron, asbestos-cement, and plastic pipe. Tap sizes will be 3/4, 1, 1½, and 2 inch N.P.T. Non-Bronze Service Saddles shall be: Rockwell 317 or Romac 202-n or an approved equal.

Tapping saddles 4 inches and above shall be two piece, stainless steel capable of fitting A.C., Ductile Iron or PVC pipe.
801.3.7 FIRE HYDRANTS

(Add the following to NM-APWA section)

801.3.7.11 Fire hydrants shall be manufactured by the following approved companies: 1) Mueller (Centurion), 2) Kennedy (Guardian), 3) M & H (Model T-129, Traffic Model), 4) Clow (Medallion Series).

801.3.7.12 All hydrants shall meet the following specifications:

Fire hydrants shall be of the dry barrel, compression type, closing with the line pressure. All private fire lines, including private fire hydrants and all appurtenances associated with that private line, shall be tested to a minimum pressure of 200 psi for at least two (2) hours and shall comply with AWWA Standard C-502-94 or latest revision thereof.

Fire hydrants shall open left (counter clockwise) with a 1 1/2" all bronze pentagon operating nut and an anti-friction washer above the trust collar to reduce opening torque. The hydrant bonnet shall have a lubricant reservoir surrounding the working parts of the hydrant which is "O" ring sealed from the water pressure and weather conditions and a weather shield for freeze protection if available.

Fire hydrants shall have two 2 1/2" hose nozzles and one 4 1/2" pumper nozzle with National Standard Hose Nozzle Threads. The hose nozzles shall be cast of minimum Grade D low zinc bronze and shall be threaded and locked into the upper barrel.

**Fire hydrants max space, per UDC 6.4.12, is 500'.**

801.3.7.13 DOUBLE STEAMER HYDRANT

Any hydrant installed on a main line 12" and larger shall have two (2) 4.5" ports and zero (0) 2.5" ports. The underground supply to the hydrant, including all valves shall be 8".

The hydrant traffic feature shall consist of a breakable flange and a breakable ferrous metal "safety sleeve" stem coupling with stainless steel stem coupling pins.

The bronze seat right shall be a minimum 5 1/2" inside diameter and shall thread into a bronze drain ring or busing forming an all bronze drain way with positive dealing resilient seat drain valve facings. All bronze shall be less the 16% zinc alloy with minimum yield of 20,000 psi as noted in Section 2.1, Table 1 of the above referenced standard. The main valve shall be
replaceable with a lightweight wrench by disassembly at the hydrant bonnet flange.

Fire hydrants shall be four (4), five (5) or six (6) feet bury (unless otherwise noted) and shall have a completely assembled six (6) inch mechanical joint shoe inlet. Underground flanging of these parts shall have a minimum of six 3/4" rust-prohibitive bolts or the bolts shall be stainless steel.

All fire hydrant joints not flanged shall require mega lugs or approved equal.

Fire hydrants shall be painted above the ground line with one coat of rust prohibitive primer and one coat of yellow brushing enamel and all other exposed surfaces shall be coated with asphalt varnish as noted in Section 4.2 of the above standard.

In no case shall the Contractor use pipe wrenches to operate fire hydrants.

801.3.7.14  **INSPECTION**

All hydrants shall also be inspected by the Farmington Fire Department Fire Marshal's office. The inspection shall include a flush and drain test.

801.6  **WATER LINE CONNECTIONS**

801.6.1  **GENERAL**

Only the City's Authorized Contractor(s) shall perform any connection to existing waterlines or operate any valves. In cases of emergency, or in situations that may endanger the public health, such as water main breaks, the Contractor may close nearby valves to minimize danger after coordinating with the City's Community Works Department & Authorized Contractor(s).

Tracer wire is to be used on all water line installations & repairs per the Tracer Wire requirements under Section 121. One of the City's Inspectors will verify the repair work before the line is reburied.

801.16  (Replace NM-APWA section with the following)

**HYDROSTATIC TESTS**

801.16.1  The CONTRACTOR shall be required to perform hydrostatic tests in all water mains, laterals, dead ends, and service lines in accordance with AWWA C 600. The test shall be conducted in the presence of the ENGINEER or his authorized representative. The testing of the lines shall be done without being connected to existing lines unless approved by the
ENGINEER. The CONTRACTOR shall provide all temporary plugs required. If connections to the existing lines are allowed by the ENGINEER, it is with the understanding that the CONTRACTOR assumes any and all responsibility in case of damage or failure of the existing system. Water used for disinfecting may be used for hydrostatic testing. Leakage through connections to the existing system, leaks in the existing lines, or leaking existing valves under the test pressure will invalidate the test. The lines shall be tested at 150 pounds, or 1.5 times the normal working pressure of the line, whichever is greater, for not less than two hours. Fire Hydrants shall be tested and verified by the City’s Construction Inspector to 200 psi for two hours. All taps, gauges and necessary equipment shall be provided by the CONTRACTOR as approved by the ENGINEER, however, the ENGINEER may utilize gauges provided by himself if he so elects. Each section of the new line, between valves shall be tested to demonstrate that each valve will hold the test pressure. No installed pipe will be accepted if the leakage is greater than that determined by hydrostatic test sheet calculations in which L is the allowable leakage, in gallons per hour; S is the length of pipeline tested; D is the nominal diameter of the pipe in inches; and P is the test pressure in pounds per square inch gauge. During the test the test pressure should not lose more than 10 psig without being pumped back up to test pressure. The totals of the gallons of water required to hold the test pressure during the two hours and the amount of water required to return the line to the test pressure at the end of the test period is the total leakage. If the total leakage is less than the allowable, the line can be accepted. All visible leaks will be repaired regardless of the amount of leakage. CONTRACTOR shall submit a testing plan to the ENGINEER for approval. In cases where a new main is being connected to an existing main without the installation of a new valve, the end of the new main shall be temporarily capped and blocked and a hydro-static test performed. Hydro-static tests should not be made such that an existing valve or existing main is included in the test section. Test Sheet on page 801-12 is the standard form which must be completed at the time of the test, signed by the ENGINEER and delivered to the OWNER prior to acceptance of the Project. DISINFECTING, FLUSHING, AND BACTERIA TESTING OF WATER LINES

New water lines shall be installed in such a manner as to not require cleaning by flushing. This shall require capping of stockpiled line, capping of lines at night and any other time work is not in progress, visual inspection of interior of lines, and cleaning as necessary, prior to placing in the trench. Every effort shall be made to prevent the entry of dirt and debris into pipelines under construction.
801.17.1 Mains shall be disinfected in accordance with AWWA C 651 or as required below with chlorine liquid solution, which is added by an approved method at one end of the lines as water is drawn through the lines and service connections. The chlorine solution shall remain in the line for at least 24 hours. The lines shall then be flushed until the chlorine residual is equal to the normal residual in the existing system or at 0.5 parts per million for unchlorinated water. Dry chlorine will not be used for disinfection of water lines. The flushed water will be disposed of by the CONTRACTOR appropriately.

801.17.2 Prior to the line being placed into service, bacteria samples shall be taken by the OWNER. Should results of the bacteriological analysis be unsatisfactory, the disinfection procedure shall be repeated.

All new public waterlines, including new fire hydrants that will be incorporated into the City system, shall have the following steps verified by the City's Construction Inspector prior to connection: lines and fittings disinfected, flushed, have a Passing Bac-T Test & any other steps deemed necessary by the inspector and contract. DISINFECTION SHALL CONFORM TO CURRENT AWWA STANDARDS C-601. Tablets shall not be used for disinfection. Amount of Chlorine Compound (HTH 65%) required for sterilizing various sizes of waterline.

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**801.22 MEASUREMENT AND PAYMENT**

(Add the following to NM-APWA section)

All items incidental to water line construction shall be included in the per linear foot cost of the waterline, no separate payment will be made for the following:

1) Testing equipment - pump, fittings, special piping, gauges, etc.  
5) Blocking and supports

2) Disinfecting and testing.  
6) Tracer wire (section121)

3) Flushing/Declorination  
7) Other incidental items

4) Trench and Back fill

**801.22.4.1 IRON FITTINGS**

(Replace NM-APWA section with the following)

Iron fittings shall be measured by the weight of the fittings installed based on the manufacturer's body casting catalog weight without accessories. Fittings installed shall include all necessary accessories to complete the work incidental to the unit price bid for iron. Fittings include, but are not limited to all tees, crosses, bends, reducers, plugs, offsets, wyes, elbows and any other fittings, standard or reducing types, necessary to complete the work that is not covered by other bid items.

Fittings not used on the contract will remain the property of the Contractor. No payment shall be made to the Contractor for unused fittings.

**801.22.10** (Add the following to NM-APWA section)

Adjust fire hydrant (six inch increments) shall include all labor, equipment and materials, necessary to adjust a fire hydrant up to a six inch increment. All materials including barrel and stem extensions are included in this item.

Remove and relocate hydrant shall include all labor, equipment and materials including excavation to remove and relocate an existing fire hydrant to a new line.
All wet taps, cut-ins, physical separations and connections shall be made by an Authorized Contractor and inspected by the City's Construction Inspector. All connections shall require that the Contractor supply all materials, labor and equipment necessary to connect to an existing waterline. All new connections shall include all labor, equipment and materials necessary to remove existing joint restraint, thrust block and plug from a stubbed-out water main and connecting a new water main to the stub-out.

AIR RELEASE VALVE: The unit price bid for air relief valve assembly (including vault) of the size indicated according to the City of Farmington Construction Standard D-208 and D-209 specified shall include all labor, equipment and materials necessary to properly install the air relief valve assembly according to the appropriate standard, compete in place, ready for use.

Note: All Brass Fittings supplied shall meet the new low lead requirements of the U.S. Safe Drinking Water Act, which went into effect in January 2014.
SECTION 802

INSTALLATION OF WATER SERVICE LINES

802.6 3/4" thru 2" METER REHABILITATION AND REPLACEMENT

(Water meter shall not be installed within sidewalk or driveway areas. Exceptions must be approved prior to installation by water/ wastewater administrator or his/her designee. In areas where a water meter already exists, either the existing water meter or the proposed driveway or sidewalk shall be relocated not to impede with one another at the owner’s expense.

802.8.4 The Building Inspection Department shall verify all fees have been paid before starting work. The Authorized Contractor is to furnish all labor, equipment, & materials necessary to properly complete the water service installation according to City Standard D-215 – D-224 exclusive of the water meter. All water services shall be installed with all new connecting valves open, tracer wire, pressure tested, disinfected, flushed and Passing Bac-T test as part of any new water line installations. The City’s Construction Inspector will verify all steps listed above and a meter reading shall be noted on the inspection report.

For water line replacement, the main shall be tested and accepted prior to switching water services.

All hot taps and cut-ins shall be performed in accordance with Section 801.22.12.

All Contractors working on live potable water lines shall have an approved set of drawings, shall have a valid New Mexico GF-98 or GF-9 License, Business License with the City of Farmington & contract with the City of Farmington or Customer for the lines being installed and/or modified. All work shall be scheduled with the Community Works Department a minimum of 96 hours in advance of construction.

802.8.5 MEASUREMENT AND PAYMENT

(Add the following to NM-APWA section)
The unit price bid for installation of water service lines, any size, shall include all labor, materials and equipment required to install up to 25 linear foot of water service line according to City Standard D-215-D-224. When the service requires more than 25 linear foot of line, the additional length shall be paid by the foot under the appropriate bid item.

Note: All Brass Fittings supplied shall meet the new low lead requirements of the U.S. Safe Drinking Water Act, which went into effect in January 2014.
SECTION 803

OPERATING WATER SYSTEM

803.1 OPERATIONS OF THE EXISTING WATER SYSTEM

NOTE: The contractor is required to provide the City a minimum of 24 Hour Advance notice for valve operation, wet taps, cut-ins, flushing and disinfection.

Waterline shutoffs shall be in accordance with the following procedures:

803.2 A waterline valve may not be operated without permission of the City of Farmington. Only Authorized Contractors working within the scope of their contract have permission to construct or modify the City's water system & will be eligible to operate valves.

803.3 Request for water shutoff permits must be submitted two working days (min 48 hours) prior to the date of the required shutoff. Required shutoff must be coordinated with the Community Works Department & Authorized Contractor(s).

803.4 The Community Works Department & Authorized Contractor(s) shall review the proposed valve operation as follows:

1. Prior to Construction/ Sending the Project to Bid. Determine that a shutoff is necessary or whether design or construction can be reasonably modified to alleviate a shutoff (E.G.-dry tap instead of insertion of fitting),

2. Prior to Construction/ Sending the Project to Bid. Community Works Department & Authorized Contractor(s) shall determine method of making shutoff, i.e., the specific valves to be closed and lines to be taken out of service shall be defined as well as secondary valves in the event of a failure/ emergency (Contingency Plan). The Community Works Department & Authorized Contractor(s) will inspect the site to insure that all valves can be located and are in operating condition. A pre-trial shutoff will be made with the approval and supervision of City's Authorized Representative. If valves cannot be located or are not in operating condition, the Authorized Contractor shall notify the Community Works Department. The Authorized Contractor and/or Community Works Department will locate the valves,
determine and make repairs if necessary, determine the alternate method of making the shutoff, or modify the scope of the project.

3. Contact industry and commercial establishments to determine the effect of the shutoff on their operations and to make special provision for continuous water service, which will be the responsibility of the Authorized Contractor. (Create Plan to Follow the Outage Notification Process).

4. Date, time, and duration of shutoff information shall be provided to The Community Works Department, The City’s Operation & Maintenance Contractor, & Authorized Contractor(s). (Follow the Outage Notification Process).

If required by the Community Works Department & Authorized Contractor(s), the shutoff shall be performed at night if necessary for the convenience of the City and/or general public. (Follow the Outage Notification Process).

5. The Contractor shall contact the Community Works Department & Authorized Contractor(s) for the water utility when the agreed upon procedure does not work as planned and obtain permission to modify the shutoff plan.

803.5 Emergency Breaks: The Community Works Department & Authorized Contractor for the water utility shall be notified immediately so that it may perform the shutoff

803.6 All existing valves within the construction area shall be kept accessible for use by the City. Valves that must be covered during pavement construction shall be raised to grade within three days after completion of base course construction. When activity requires short term covering of a valve, the valve shall be referenced and plainly marked at the site where the valve is located. A variance from this three day requirement may be granted by the City Engineer when requested in writing.

803.10 WET CONNECTIONS

A wet connection is defined as a connection to the existing system where a large volume of water must be disposed of along with pressure relieving procedures of a line at operating pressure. A small leak of water from a stub, valve or other items shall not qualify a connection to be considered "wet". The Contractor shall provide all necessary blocking, bracing and other necessary precautions to prohibit damage to the existing system or any other property or person.
(The following is a City of Farmington section)

SECTION 804

IRRIGATION CLEANOUT

804.1 GENERAL

Only standard manholes will be considered acceptable for irrigation cleanouts. See detail D-102.

804.2 PAYMENT

Payment will include excavation, furnishing required materials, installation and backfill up to subgrade as shown in the City Standard D-602 on a unit cost basis.
SECTION 805
INSTALLATION OF PRESSURE REDUCING VALVE

805.1 MEASUREMENT AND PAYMENT

Payment for Installation of new Pressure Reducing Valve (PRV) — Complete in Place (CIP) will be made at stipulated price indicated in the Bid Proposal for each PRV installed. Price Bid shall include but not be limited to the following: staking; clearing and grubbing, excavation; backfill; compaction; grading; concrete; vault; pressure reducing valve; pressure relief valve; air relief valve; all materials and equipment inside vault; valves and piping inside the vault; piping ten (10') feet outside vault; drain sump; riser and vent piping; concrete splash pad; warranties; record drawings; cleaning and other materials; equipment and labor are incidental thereto.
SECTION 901

INSTALLATION OF SANITARY SEWER LINES

901.5.1 REMOVING EXISTING SEWER PIPE

(Add the following to NM-APWA section)

Add the following to the section: Removal of existing sewer pipe shall be paid for on a unit price per lineal foot of pipe removed, which payment shall be full compensation for furnishing all labor and equipment for the removal, haul and disposal of the existing pipe.

The Items for removal, separation and disposal of listed pipe items requires the actual removal and separation of pipe form the excavation material and hauling off site separate from excavation. If pipe is adequately crushed so that the inspector allows the pipe to be backfilled into the trench or if the provisions of Section 920.4a are not met, no payment will be made under these items.

901.5.2.1 PIPE LAYING

(Add the following to NM-APWA section)

The type of pipe to be installed shall be one of the types designated by the City. Pipe shall be installed in accordance with the appropriate pipe laying handbook or manual and/or AWWA recommended pipe laying practice for the type of pipe being installed. The interior of the pipe shall be thoroughly cleaned of foreign matter before being lowered into the trench and shall be kept clean during operations by plugging or other approved methods. The pipe Class shall be clearly indicated on each end of all pipe sections fittings. Bridging will not be allowed, grade shall be established prior to laying pipe.

Handling

Pipe and accessories shall be handled in such a manner as to insure delivery to the trench in sound, undamaged condition. Particular care shall be taken not to injure the pipe coating. No other pipe or material of any kind shall be placed inside of a pipe or fitting after the coating has been applied.

Cutting

Cutting of pipe shall be done in a neat and workmanlike manner without damage to the pipe. Unless otherwise authorized by the
Engineer cutting shall be done by means of an approved type of mechanical cutter with wheel cutters utilized where practicable. Burrs will be removed from all cuts by means of grinding or filing.

Placing and Laying

Before installing ductile iron pipe, the pipe shall be inspected for defects and tapped with a light hammer to detect cracks. Defective, damaged or unsound pipe shall be rejected. Deflection from a straight line of grade as required by vertical curves, horizontal curves or offsets shall not exceed those specified in AWWA C-600. If the alignment requires deflection in excess of these limitations, special bends or a sufficient number of short lengths of pipe shall be furnished to provide angular deflection within the limit set forth.

Pipe Laid in Trench

The full length of each section of pipe shall rest solidly upon the bed, with recesses excavated to accommodate bells and joints. Any pipe that has the grade or joint distributed after laying shall be taken up and re-laid. Pipe shall not be laid in water or when trench or weather conditions are unsuitable for the work, except by permission of the Engineer.

When work is not in progress, open ends of pipe and fittings shall be securely closed so that no other substances will enter the pipes or fittings. Any section of the pipe found to be defective before or after laying shall be replaced with sound pipe at no additional expense to the City.

Water and Sewer Proximity

Water lines shall not be laid closer horizontally then ten feet from sewer lines and the water lines shall be at a higher elevation than the sewer. If this is not possible, separate trenches will be required and the water line shall be 6 inches above the sewer. When water and sewer lines cross each other, the water line shall be at least 6 inches above the sewer, otherwise, the sewer shall be ductile (PVC may be used with City Engineers approval). No joint shall be within ten feet of the crossing.

Excavation for Appurtenances

Excavation for structures related to the water or sewer line shall be sufficient to leave at least twelve (12) inches in the clear between their outer surfaces and the embankment or timber which may be
used to hold and protect the banks. Any other depth excavation below such appurtenances that has not been directed by the City shall be considered as unauthorized and shall be filled with sand, gravel or concrete as directed and at the expense of the Contractor. Excavation for concrete structures may serve as the outside form, if in the opinion of the Engineer, the walls of excavation are smooth, and if a workmanlike finish can be assured utilizing this method.

Tracer Wire

Tracer wire shall be installed on sewer force mains (mainlines or service lines) per Section -121 - Plastic Pipe

Inspection of House Service Connection

All sewer house service connections replaced by the Contractor shall not be backfilled before inspection by the Construction Inspector.

Marking Sewer Stub-outs

All sewer stub-outs shall be marked by a clean out and riser (the cap on the riser shall be glued on) extending from the end of the stub-out to the surface of the ground. The riser shall be a minimum 3 feet above ground with a glued on cap, whose top has been painted green for sewer.

Sewer Tie into Existing System

Mainline extensions to the sewer system will not be tied into the existing sewer system until the new mainline extension has been inspected (i.e. videoed and approved by The Operation and Maintenance Contractor for, and accepted by, the City Engineer or his designee).

901.5.2.7.2 INSTALLATION OF PLASTIC SEWER PIPE (PVC)

A. Installation of PVC sewer pipe shall be in strict accordance with Uni-Bell Plastic Pipe Association (UPPA) Recommended Practice for the Installation of Polyvinyl Chloride (PVC) Sewer Pipe, UNI-B-5-79.

B. Pipe embedment material shall be Class I, II or Class III of Uni-B-5-79, Appendix I. Minimum compaction shall be 90% of relative density per ASTM D2049 for Class I & II material and 90% of standard proctor per ASTM D698 using ASTM D2167, D1556 or D2922 for Class III material.
Consolidation by saturation shall not be used for Class III materials. All embedment materials shall pass a 1½" sieve.

C. All sewer lines shall be installed using a laser and shall run directly from manhole to manhole without deflection.

D. Pressure sewers shall be buried a minimum of 60" measured from finish grade to top of pipe. Hydrostatic pressure will be 1.5x working pressure test.

901.6.5 EXCAVATION OF EXISTING PIPE AND MANHOLES

Due care shall be exercised during excavation near manholes. Any damage to the existing pipe or manhole structure shall be repaired at the Contractor's expense. The City will determine the extent of damage and the type of repairs necessary. Hand excavation at manholes may be necessary at the Contractor's option. Excavation at the manholes shall progress downward until the first joint of pipe connecting to the manhole is encountered. The joint will be exposed and the City will determine the disposition of the type of connection to be used between new and old pipe. Excavation shall then proceed up the pipe line removing the existing pipe as the work progresses until the first service tap is encountered. The service tap shall be excavated to a point where a satisfactory connection can be accomplished. Care shall be exercised in excavating the service tap to prevent damage of the existing pipe beyond point of connection. Pipe may be removed in any manner as required by the City. Pipe removed shall be hauled to points designated by the City as soon as practical. *Old sewer pipe shall not remain on the job site for a period longer than 8 hours or overnight.* Excavated pipe shall be hauled from the job site daily.

901.8.2.1 (Replace NM-APWA section with the following)

SEWER ACCEPTANCE

All new sewer lines shall be videoed by the project, and any needed repairs made by the contractor at his expense prior to acceptance of the sewer line and start of the one year warranty period. The sewer line shall be videoed again prior to the expiration of the one year warranty period. The contractor shall make any needed repairs at his expense before issuance of final acceptance by the City Engineer or his designee.

901.8.2.2 (Replace NM-APWA section with the following)

If the sewer line and manholes are not properly cleaned by the contractor so that the video work can be completed, then the contractor shall incur all costs associated with cleaning and re-videoing the sewer lines and
manholes. The contractor shall be responsible for these additional costs and will be billed by The Operation and Maintenance Contractor for the water/sewer utility. Any cleaning blow back and damaged caused shall be the responsibility of the contractor.

901.8.3 BY-PASSING:

Sewage flow from the collection system upstream of the section which is under construction shall be by-passed in a manner approved by the City. The upstream manhole of the section will be plugged by means which shall prevent passage of sewage into the construction area. Plugs shall be of the easily removable type which will not damage pipe or require loose material for the plugging operations.

By-passing pumps shall be of the positive action type and of a pumping capacity large enough to pump all sewage flow encountered. No surcharging of upstream piping will be permitted. A standby pump shall be on the job site to be used in the event of pump failure for any cause. By-pass pumps shall be gasoline or diesel powered. A sump may be constructed in the upstream manhole of size and depth to accommodate the suction requirements of the by-pass pumps used. Pumps shall be held to a practical minimum size. By-pass piping shall be adequately sized to carry all sewage flows pumped and shall be of an adequate size to pass such debris as may be encountered. Piping shall be continuous from manhole to manhole. Joints shall be tight and leak free at pumping pressures. Leaks at pipe joints or connection shall be immediately repaired and the entire area washed down with clean water. Pipe may be at the Contractor's option and as approved by the City.

By-pass operations including pipe alignments shall be conducted to minimize the interference with traffic and/or access to residences within the construction area. Where by-pass piping must be crossed by traffic, the pipe will be protected and protection will be provided for the public. Prevention of pipe breakage and subsequent sewage spills is primary to the health and welfare of the community and the Contractor shall take all precautions necessary to insure the health and safety of the public. Pipe protection ramps or devices shall be constructed to prevent damage to vehicles and shall provide an "easy-road" crossing. Baffles or diversions at the downstream manholes shall be constructed at the upstream inlet to prevent sewage from flowing back into the construction area. Flow through the down-stream manhole shall be maintained at all times. Baffles or diversions at the downstream manhole shall be at the Contractor's option.

Trash encountered at the intake of by-pass pumps shall be removed from the pump suction as quickly as possible. No accumulations of trash from
sewage lines will be permitted. The Contractor shall provide plastic trash bags and receptacles which trash may be deposited in prior to removal from the site.

Upstream or downstream surcharging or overloading of pipe due to construction operation shall be the sole responsibility of the Contractor. The City will not be held responsible for any damage or claims of damage resulting from the operations of the Contractor.

EMERGENCY CLEAN UP

Lime may be used to stabilize the sewage spill. In using lime, isolate the affected area. Liberally apply lime to the affected area until covered in white dust. Mix in lime with a rake or a spade as needed. Lime should be covered over area for 24 hours. Once dry, shovel sewage-contaminated lime away.
SECTION 905

SANITARY SEWER SERVICE LINES

905.3 MATERIALS

905.3.6 (Replace NM-APWA section with the following)

Service lines: Pipe for service lines shall be PVC Schedule 40 pipe conforming to Section 129.2 of the New Mexico Standard Specifications for Public Works Construction, 2006 Edition or latest versions, revisions or editions, for depths to invert of less than 3 feet. For depths greater than 3 feet P.V.C. SDR-35 shall be used.

905.4 INSTALLATION

905.4.2 SERVICE LINES

(Add the following to NM-APWA section)

Taps: Mainline pipe shall be tapped using a tapping machine. Tap hole shall be bored to a clean circular hole in the plane of the pipe centerline. Holes shall be sized to receive a tap saddle of the type specified herein. Existing service lines will in general be four (4) inches in diameter. Facilities for making larger or smaller types shall be available for use during construction. Taps shall be placed in the upper quadrant vertical. No tap will be placed at the top of the pipe unless express permission has been obtained from the City.

Tapping Saddles: Saddles for connecting to mainline sewer pipe shall be constructed of VCP, PVC or C.I. material capable of withstanding pressure and chemical attack. One saddle size shall fit an eight (8) inch pipe. "Insert-a-tees" are also acceptable to the City.

905.4.4 MARKING SEWER STUB OUTS

All sewer stub outs shall be marked with a clean out and riser (the cap on the riser shall be glued on) extending from the end of the stub out to the surface of the ground. The riser shall be cut off flush with the ground with a glued on cap, whose top has been painted green for sewer. Provide approved green warning tape in trench 12"-18" above installed or repaired sewer lateral.
905.5.1 RISERS: Change the 15-feet in the section to 6-feet. Risers shall be 3 feet above the ground per drawing D-115.

905.6.3 (Add the following to NM-APWA section)

Connections of New Service Line to Old Service Line

Where new service line is connected to old service line pipe, an adapter connector of the type specified in ASTM C-594 shall be used. The connector shall be the Type "A" elastomeric sleeve incorporating corrosion resistant tension bands. Shearings will be required when connecting to existing service lines. The old pipe shall be removed to a point where the pipe is found to be in good condition and undisturbed or to the property line which ever occurs first.

Connections to the old pipe shall be tight and as leak-proof as condition of the old pipe warrants. Damage to existing service piping beyond the connection point is the sole responsibility of the Contractor.

905.6.4.1 (Add the following to NM-APWA section)

SEWER SERVICE ITEMS

The unit price bid Item for four (4) inch sewer service tapping saddle, shall include all labor, equipment and materials necessary to tap an existing sewer main in the trench using a tapping machine. Materials shall include but not be limited to the following: PVC or VCP tapping saddle, gasket, epoxy and concrete cradle or dry packed as approved by the inspector. This item shall also include furnishing and installing strap type saddles as well as glued type when directed by the City. Saddles shall be single wide band (two inch wide strap) and/or double strap, stainless steel type.

The unit price bid for items for reconnecting existing sewer service of the type indicated, includes all labor, equipment and materials necessary to reconnect as existing sewer service to a tapping saddle installed under four (4) inch sewer services tapping saddle, are to be paid for sewer connections 10 feet in length. The cost of riser and pipe materials, gaskets, sleeves, bands, pipe cutting and excavation is to be included in the unit price bid for these items.
(Add the following to NM-APWA section)

**EXISTING HOUSE SEWER LATERAL**

Where house service line connections to sewer mains are encountered, the Contractor shall insure that the service lines will not be disturbed or damaged. Should any service line connection be broken during the construction of the new line, it shall be replaced by the Contractor with the same type pipe. In the case of a sewer service, the trench shall not be backfilled until the service line is inspected by the City Construction Inspector. **Without an inspection no extra compensation will be allowed the contractor for this item.** The City assumes no liability for damage to a replacement of house sewer and water service line connections. When a new sanitary sewer lateral is required as a replacement for an existing line, and the alignment of the new line coincides with the existing line and the grade of the new line is approximately at the same grade as the existing line or lower, then the existing line shall be removed or dealt with as ordered by the Engineer or Inspector. The cost of this work when applicable shall be paid for under the appropriate item in the Bid Proposal.

The Engineer or Inspector shall determine if it is necessary to pump sewage around the replacement work, or if it is possible to temporarily plug the sewer line during the replacement operation.

(Add the following to NM-APWA section)

**INTERUPTION OF SERVICE**

No more than four (4) sewer service lines may be removed from the service at any one time without written approval of the Owner. In no case may a sewer service be out of operation more than eight (8) hours. The Contractor shall give notification of service outage to each household affected at least twenty-four (24) hours prior to the service interruption. Failure to give notice will result in a work stoppage on that particular service until the specified period has elapsed or the expressed approval of the householder has been given to proceed with the service outage.
MEASUREMENT AND PAYMENT

(Replace NM-APWA section with the following)

The unit price bid for four (4) inch sewer service tapping saddle, shall include all labor, equipment and materials necessary to tap an existing sewer main in the trench using a tapping machine. Materials shall include but not be limited to the following: PVC or VCP tapping saddle, gasket, epoxy and concrete cradle. Factory fabricated tees or wyes installed are not to be included in this item. Excavation for this item shall be paid under one of Bid Items for trench and backfill. All work to be as directed by the City. This item shall also include furnishing and installing strap type saddles as well as glued type when directed by the City.
SECTION 920
SANITARY AND STORM DRAIN MANHOLES

920.4.1.3 MANHOLE CONSTRUCTION --- GENERAL

(Replace NM-APWA section with the following)

Invert elevations of the pipes entering or exiting the manhole and interior
inverts shall not vary more than 0.05 feet from the elevations indicated on
the construction plans. Spacing requirement for sanitary manhole will be at
maximum of 400 feet while the requirement for storm drain manhole will be
at maximum of 500 feet.

920.4.4.1 MANHOLES

(Add the following to NM-APWA section)

The inside and outside of all concrete block manholes shall be neatly
plastered with Type PM or PL mortar as specified in ASTM C-476, ½” thick
with cement as specified with Section 106 and cured as specified under
Section 500. Manholes of the design indicated on the Construction
Standards shall be built around the pipe at designated intervals, and shall
be adjusted such that pipe joints at the point will be just outside the manhole
barrel both upstream and downstream. These joints just outside the
manhole barrel shall be reinforced with a U-1 concrete block, as specified
in ASTM C-145, poured under the joint and including the lower one half of
the pipe. This block of concrete shall be at least three (3) inches under and
around the bell and shall extend at least six (6) inches on each side of the
joint along axis of the pipe. Where manholes are constructed using pre­
cast concrete blocks, all blocks shall be soaked or wetted prior to placing
on mortar bed or placement of mortar joints. After the manhole has been
constructed and a shelf of concrete has been poured on the bottom of the
manhole at an elevation of ½ pipe diameter above invert elevation, the top
½ of the pipe through the manhole shall carefully be broken out and
removed. All bases of manholes shall contain reinforcing steel furnished
and placed by the Contractor in accordance to the details as shown on the
Standard Manhole Detail Sheet. All manholes shall be plastered inside and
outside. Plastering will not be applicable on pre-cast (Type 8-1 or C-1)
manholes, unless specifically required by the Engineer.
920.7.4 RESHAPE MANHOLE INVERTS

Existing manhole inverts will be repaired and grouted in accordance with these specifications and the directions of the City.

A. Cleaning: The inverts of selected manhole will be cleaned by approved method to remove all foreign materials and loose concrete.

B. Invert Coating: Upon completion of cleaning, the Contractor shall reshape the invert to accommodate existing sewer lines with mortar that meets City Standards D-106.

920.7.4.1 MANHOLE REPAIR

(Add the following to NM-APWA section)

The interior of manholes will be sand blasted to remove all foreign materials. Sand blasting will extend to a depth sufficient to remove surface material without effecting block strength. Penetration by sand blasting will be repaired with suitable material at no extra cost to the City.

920.8 MEASUREMENT

Sewer Lines

(Add the following to NM-APWA section)

All sewers, except for storm sewer cross drains, shall be measured and paid based on the actual length of pipe installed from center of structure to center of structure for the various sizes constructed.

Storm sewer cross drains (those installed from a drainage structure to an inlet) shall be paid based on the actual length of pipe used. The length so measured shall in no event be less than the distance from center of structure to center of structure.

Removal of Existing Water and Sewer Pipe

Removal of existing water and sewer pipe shall be paid for on a unit price per lineal foot of pipe removed, which payment shall be full compensation for furnishing all labor and equipment for the removal, haul and disposal of the existing pipe. This item includes the removal, separation, disposal and hauling to an approved landfill of various pipe sizes. If non-AC pipe is adequately crushed so that the Inspector allows the pipe to be backfilled
into the trench, no payment will be made under this item. Removal and disposal of AC pipe will be handled by the contractor.

Connection of Existing Lines

Connection of existing lines shall be paid for at the contract unit price by sizes stated in the Bid Proposal which shall be complete compensation of all materials furnished which shall include wastewater disposal, location of utilities, cutting into and removal of existing pipe, necessary blocking and bracing.

920.8.1 MANHOLES

(Replace NM-APWA section with the following)

The Contractor is to furnish all materials, labor, equipment and supplies necessary to excavate, backfill and construct complete in place the manholes as shown on the City of Farmington Construction Standards referred to in these specifications. The Contractor shall install one standard manhole frame and cover for each manhole constructed.

Manholes shall be paid at the unit price bid for the diameters and depths shown on the bid proposal. Depth in excess of 6 feet for type "B" manholes and in excess of 8 feet for type "E" manholes shall be paid on a vertical foot basis at the unit price in the bid proposal. Depth shall be measured from manhole rim to invert.

Replace manhole cone, shall include all materials, labor, and equipment necessary to excavate, backfill and construct a complete cone section concentric or eccentric. Manhole cone replacement shall include an area of asphalt of 5'x 5', any asphalt replacement in excess of this 25 SF shall be paid for under the asphalt surface course replacement bid item.

Manhole stub outs, includes all labor, equipment and materials necessary to install 5 foot max of any type of sewer pipe as a stub out of the size indicated. The type of pipe and length of the stub out is to be directed by the City.

Remove and abandon existing manhole shall include removing and disposing of the existing structure down at least three feet from proposed grade, compacted backfill, plugging all existing pipes and patching pavement.

The unit bid price per lineal foot for sanitary service lines and all items indicated shall include the furnishing and installation of the material and all
trenching, backfill, compaction and removal of unsuitable material necessary to properly complete the work ready for use.

Sanitary Sewer or storm sewer Items noted with an * do not include any trenching and backfill or removal of unsuitable material. These sewer items do, however, include furnishing and installing items competed in place ready for use.
(The following is a City of Farmington section)

SECTION 930

MANHOLE CONNECTIONS

930.1 GENERAL
This item will cover the labor, tools, equipment, and materials except pipe, required to make connections between new sewer lines and existing manholes.

930.2 MATERIALS
New block or mortar required shall conform with ASTM C-139 and as described in Section 106.

930.3 CONSTRUCTION
Where required to make a new connection to an existing manhole, a hole shall be driven through the manhole wall of a size sufficient to allow entrance of the pipe into the manhole while maintaining pipe alignment and grade. The new connection may be either inlet or outlet piping.

930.4 PAYMENT
Payment for this item will be made at the unit price bid in the Proposal Schedule for each manhole connection, either inlet or outlet, and shall include labor, tools, equipment, materials, etc., necessary for completion of this work. Installation of pipe will be paid for separately under the applicable item.
(The following is a City of Farmington section)

SECTION 940

PIPE LAYING (RIGID PIPE)

940.1 BEDDING

The bottom of the trench shall be rounded so that the bottom of the pipe for a width of 60% of the outside diameter shall rest firmly on a layer of sand or base course placed as leveling laying and bedding as shown on the plans. In rounding the bottom of the trench, a template shaped to match the pipe for the 60% width shall be used, and final shaping shall be done a few feet ahead of the pipe laying. Bell holes, where required, shall be carefully excavated to provide uniform bearing for the barrel of the pipe. This is class "B" bedding as shown on City Standard No. D-410.

940.3 PIPE LAID IN TRENCH

The full length of each section of pipe shall rest solidly upon the bed, with recesses excavated to accommodate bells and joints. Any pipe that had the grade or joint distributed after laying shall be taken up and relaid. Pipe shall not be laid in water or when trench or weather conditions are unsuitable for the work, except by permission of the Engineer. When work is not in progress, open ends of pipe and fittings shall be securely closed so that no other substances will enter the pipes or fittings. Any section of the pipe found to be defective before or after laying shall be replaced with sound pipe without additional expense to the City. Fittings shall not be placed less than 20 feet from a restrained joint and must be meg-a-lugged as shown on the drawings or as directed by the City Engineer, to prevent the fittings from being blown off the line when under pressure. **Thrust blocks are not allowed, mega lugs only.** **Thrust blocks cannot be used unless approved by the City Engineer or their designee as per detail D-210.** Where connections are made between new work and existing lines, the connections shall be made by using special fittings as needed. Minimum depth of cover over top of pipe shall be forty (42) inches and the pipe shall be installed to the depth designated by the Engineer.

940.4 CONNECTIONS

Where connections are made between new work and existing lines, the connections shall be made using special fittings. Couplings may be either ductile iron or steel with bolts as above. If steel couplings are used, they will be cocoon wrapped as specified herein.
940.5 WATER AND SEWER PROXIMITY

SEE SECTION 901.5.2.1 WATER AND SEWER PROXIMITY

940.7 EXCAVATION FOR APPURTENANCES

Excavation for structures related to the water or sewer line shall be sufficient to leave at least twelve (12) inches in the clear between their outer surfaces and the embankment or timber which may be used to hold and protect the banks. Any over depth excavation below such appurtenances that has not been directed by the City shall be considered as unauthorized and shall be filled with sand, gravel or concrete as directed and at the expenses of the Contractor.

Excavation for concrete structures may serve as the outside form, if in the opinion of the Engineer, the walls of excavation are satisfactory and the concrete will not dry out too rapidly and if a workmanlike finish can be assured utilizing this method.

940.8 HOUSE SERVICES CONNECTIONS

Where existing water and gas house lateral connections to utility mains are encountered, the Contractor shall exercise due care to insure that the laterals are not disturbed or damaged. Should any lateral connections be broken, as a result of the work under this contract, it shall be replaced by the Contractor with the same type pipe or better. All house sewer service connections replaced by the Contractor shall not be backfilled prior to approval by the Construction Inspector.

940.10 MARKING BLIND FLANGES AND SEWER STUB OUTS

All sewer stub-outs shall be per the City of Farmington standard detail drawing D-115 latest revision. The riser shall be 3 foot above ground with a glued on cap, whose top has been painted green for sewer.
SECTION 960

SLIPLINE REMOVAL

960.1 GENERAL

This item shall include the length of lining that is removed in the slip lining of a sewer that is then replaced with laid 8 inch PVC.

960.2 MEASUREMENT AND PAYMENT

Slip line removal shall be paid by a lineal foot cost under the applicable bid item.
SECTION 970

SEWER SERVICE REPAIRS
(SLIPPED TAPS)

970.1 GENERAL

This item shall include providing equipment, labor, and material to cut, remove and replace asphalt surface (winter or summer time asphalt), excavation of existing sewer service connection, removal and replacement of concrete encasement, removal of existing tapping saddle, replace with INSERTA TEES, reconnecting sewer service connection and sewer line, placing wet concrete around repaired tap, making necessary repairs to settled service line at original trench edge connection, backfill and compaction of Base Course for pipe bedding and backfill material, mobilization and demobilization. All other requirements to make the necessary repair shall be incidental to construction.

970.2 MEASUREMENT AND PAYMENT

Sewer Service Repairs (Slipped Taps) shall be paid by the each under the applicable bid item. Mobilization shall be considered incidental to the sewer service repair item and shall not be paid for under the mobilization bid item.

No separate payment for mobilization will be made.
SECTION 971

SEWER MAINLINE REPAIRS

971.1 GENERAL

This item shall include providing equipment, labor, and material to cut, remove and replace asphalt surface (winter or summer time asphalt), excavation of existing sewer line, removal and replacement of sewer pipe, removal of existing tapping saddle, reconnecting sewer service connection and sewer line, making necessary repairs to service line at original trench edge connection, backfill and compaction of Base Course for pipe bedding and backfill material, mobilization and demobilization. All other requirements to make the necessary repair shall be incidental to construction.

971.2 MEASUREMENT AND PAYMENT

Sewer Mainline Repairs shall be paid by the each under the applicable bid item. Mobilization shall be considered incidental to the sewer mainline repair and shall not be paid for under the mobilization bid item.
SECTION 1503

RESTORE YARDS

1503.1 GENERAL  (Add the following)

This item will cover all equipment and labor required to restore the effected property to its pre-existing state prior to any construction work. The Contractor shall obtain color photographs of each property before and after construction. These photographs will be submitted to the owner after said work is completed.

1503.2 PAYMENT

This item is considered incidental to all other applicable bid items unless specifically included in a work order.
(The following is a City of Farmington section)

SECTION 1504

MOBILIZATION

1504.1 GENERAL

Mobilization, unless specifically included by the City Engineer, shall be considered incidental to construction of the project and no direct compensation shall be made for mobilization. The costs associated with mobilization shall be incorporated into the appropriate bid items.

1504.2 MEASUREMENT AND PAYMENT

No direct payment will be made for mobilization.
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NOTES

ALL SANITARY SEWER MH COVERS TO BE VENTED & HAVE THE WORD "SEWER" CAST INTO LID.

ALL STORM SEWER MH COVERS TO BE VENTED & HAVE THE WORD "STORM" CAST INTO LID.

PRE CAST TOP

PLASTER INSIDE & OUTSIDE OF M.H. BLOCK W/1/2" MORTAR

NEENAH FOUNDRY NO. R-1596 OR AS DIRECTED BY THE CITY ENGINEER.

C.I.M.H. RING & COVER (INVERTED TYPE) CENTERED (TYPICAL) RECESSED INTO FLAT TOP, (SHOWN).

PRECAST CONCRETE MANHOLE SECTIONS CONFORMING TO SPEC. A.S.T.M. C-478

BREAKOUT TOP OF PIPE INSIDE MANHOLE FROM WALL TO WALL

SLOPE 1/2" PER FOOT

DASHED LINES CAMERA ACCESS

GENERAL NOTES:

1. SEE STANDARD 107 FOR PLACEMENT OF MANHOLE STEPS.

2. COMPACT BACKFILL TO 95% POSITION M.H. OPENING OVER THE UPSTREAM SIDE OF MAIN LINE.

3. PIPE PENETRATION INTO MANHOLE SHALL BE FLUSH TO 2" MAX., MEASURED AT SPRING LINE OF PIPE.

4. MANHOLE COVER SHALL HAVE A 5/8" MIN TO 1" MAX DIAMETER VENT HOLE CENTERED IN COVER.

5. FOR PRETREATMENT MANHOLES, CONTACT THE CITY LAB, PRE-TREATMENT COORDINATOR FOR PURCHASE OF A PREFABRICATED PIPE SECTION.

6. ALL LIFTING HOLES AND GAPs BETWEEN MANHOLE RINGS AND LID, ETC... SHOULD BE FILLED WITH NON SHRINK GROUT.

7. MANHOLES IN A NON-PAVED AREA SHALL HAVE A ROUND CONCRETE APRON OR BE RAISED A MIN 6" OR AS DIRECTED BY THE CITY ENGINEER.

8. FIBERGLASS MANHOLES SHALL BE MANUFACTURED FROM COMMERCIAL GRADE POLYESTER RESIN OR OTHER SUITABLE POLYESTER OR VINYL ESTER RESINS WITH FIBERGLASS REINFORCEMENTS. MANHOLE SHALL BE A ONE PIECE UNIT MANUFACTURED TO MEET OFF EXCEED ALL SPECIFICATION OF A.S.T.M. D-3753 LATEST EDITION. FIBERGLASS MANHOLE MANUFACTURER SHALL DEMONSTRATE CONTINUED EXPERIENCE AS A MANUFACTURER OF FIBERGLASS WASTEWATER PRODUCTS FOR A PERIOD OF NOT LESS THAN FIVE YEARS. IN ADDITION ALL APPROVED MANHOLE MANUFACTURES SHALL BE ISO9001.
1) All sanitary sewer manhole covers shall be vented and have the word "sewer" cast into the lid.

2) All storm sewer manhole covers shall be vented and have the word "storm" cast into the lid.

- Precast concrete adjusting rings or brick max. of four courses (12" max)
- Cements grout or mortar
- Approved mastic joint or cement mortar
- All joints precast concrete manhole sections conforming to Spec. A.S.T.M. C-478 or fiberglass manholes (see note 8)
- Manhole segmental block
- Plaster inside and outside of manhole block w/1/2" mortar
- Breakout top of pipe inside manhole wall to wall
- Slope 1/2" per foot
- 4' min. dia.
- 5'-6" max.
- 2" min.
- 6" min. concrete
- See standard 106 for detail on construction keyway

GENERAL NOTES:
1. Compact backfill to 95%
2. Position M.H. opening over the upstream side of main line.
3. Pipe penetration into manhole shall be flush to 2" max., measured at spring line of pipe.
4. Manhole cover shall have a 5/8" min to 1" max diameter vent hole centered in cover.
5. For pretreatment manholes, contact the city lab, pre-treatment coordinator for purchased of precast concrete pipe section.
6. All lifting holes and gaps between manhole rings and lid, etc. should be filled with non-shrink grout.
7. Manholes in a non-paved area shall have a round concrete apron or be raised a min. 6" or as directed by the city engineer.
8. Fiberglass manholes shall be manufactured from commercial grade polyester resin or other suitable polyester or vinyl ester resins with fiberglass reinforcements. Manhole shall be a one piece unit manufactured to meet of exceed all specifications of A.S.T.M. D-3753 latest edition. fiberglass manhole manufacturer shall demonstrate continued experience as a manufacturer of fiberglass wastewater products for a period of not less than five years. In addition, all approved manhole manufacturers shall be ISO9001.

CONSTRUCTION STANDARDS
SHALLOW MANHOLE
TYPE "B"

STANDARD NO. D-102 SHEET 1 OF 1

CITY OF FARMINGTON
PUBLIC WORKS DEPARTMENT

APPROVED

DATE 8/27/13
CONSTRUCTION STANDARDS

DROP MANHOLE TYPE "D"

STANDARD NO. D-103 SHEET 1 OF 1

GENERAL NOTES:
1. ALL SANITARY SEWER MANHOLE COVERS SHALL BE VENTED AND HAVE THE WORD "SEWER" CAST INTO THE LID.
2. ALL STORM SEWER MANHOLE COVERS SHALL BE VENTED AND HAVE THE WORD "STORM" CAST INTO THE LID.
3. COMPACT BACKFILL TO 95% OF MODIFIED PROCTOR.
4. POSITION M.H. OPENING OVER THE UPSTREAM SIDE OF LINE.
5. PIPE PENETRATION INTO M.H. SHALL BE FLUSH TO 2" MAX., MEASURED AT SPRING LINE OF PIPE.
6. MANHOLE COVER SHALL HAVE A 5/8" MIN TO 1" MAX DIAMETER VENT HOLE CENTERED IN COVER.
7. DROP DISTANCE VARY.
8. ALL LIFTING HOLES AND GAPS BETWEEN MANHOLE RINGS AND LID, ETC... SHOULD BE FILLED WITH NON SHRINK GROUT.
9. MANHOLES IN A NON-PAVED AREA SHALL HAVE A 2FT CONCRETE APRON AROUND LID (SEE DETAIL) OR BE RAISED A MIN. 6" OR AS DIRECTED BY THE CITY ENGINEER.
10. FIBERGLASS MANHOLES SHALL BE MANUFACTURED FROM COMMERCIAL GRADE POLYESTER RESIN OR OTHER SUITABLE POLYESTER OR VINYL ESTER RESINS WITH FIBERGLASS REINFORCEMENTS. MANHOLE SHALL BE A ONE PIECE UNIT MANUFACTURED TO MEET OF EXCEED ALL SPECIFICATION OF A.S.T.M. D-3753 LATEST EDITION. FIBERGLASS MANHOLE MANUFACTURER SHALL DEMONSTRATE CONTINUED EXPERIENCE AS A MANUFACTURER OF FIBERGLASS WASTEWATER PRODUCTS FOR A PERIOD OF NOT LESS THAN FIVE YEARS. IN ADDITION ALL APPROVED MANHOLE MANUFACTURES SHALL BE ISO9001.
11. SEE STANDARD D-107 FOR PLACEMENT OF MANHOLE STEPS.
CEMENT GROUT OR MORTAR
SEE DETAIL D-311

PRECAST CONCRETE ADJUSTING RINGS *
OR BRICK MAX. OF FOUR COURSES (12" MAX)

SLOPE 1/2" PER FOOT

PRECAST CONCRETE MANHOLE SECTIONS
CONFORMING TO SPEC. A.S.T.M. C-476
OR FIBERGLASS MANHOLES (SEE NOTE 10)

APPROVED MASTIC JOINT OR
CEMENT MORTAR
ALL JOINTS (TYP.)

BREAKOUT TOP OF PIPE
INSIDE MANHOLE WALL TO WALL

SEE STANDARD 106 FOR
DETAIL ON CONSTRUCTION KEYWAY

GENERAL NOTE:
1. ALL SANITARY SEWER MANHOLE COVERS SHALL BE
VENTED AND HAVE THE WORD "SEWER" CAST INTO THE
LID.
2. ALL STORM SEWER MANHOLE COVERS SHALL BE
VENTED AND HAVE THE WORD "STORM" CAST INTO THE
LID.
3. COMPACT BACK FILL TO 95%.
4. POSITION MANHOLE OPENING OVER THE UPSTREAM SIDE OF MAIN LINE.
5. PIPE PENETRATION INTO MANHOLE SHALL BE FLUSH TO 2" MAX., MEASURED AT SPRING LINE OF PIPE.
6. MANHOLE COVER SHALL HAVE A 5/8" MIN. TO 1" MAX. DIAMETER VENT HOLE CENTERED IN COVER.
7. FOR PRETREATMENT MANHOLES, CONTACT THE CITY LAB, PRETREATMENT COORDINATOR FOR PURCHASE OF PREFABRICATED PIPE SECTION.
8. ALL LIFTING HOLES AND GAPS BETWEEN MANHOLE RINGS AND LID, ETC., SHOULD BE FILLED WITH NON-SHRINK GROUT.
9. MANHOLES IN A NON-PAVED AREA SHALL HAVE ROUND CONCRETE APRON OR BE RAISED A MIN. 6" OR AS DIRECTED BY THE ENGINEER.
10. FIBERGLASS MANHOLES SHALL BE MANUFACTURED FROM COMMERCIAL GRADE POLYESTER RESIN OR OTHER SUITABLE POLYESTER OR VINYL ESTER RESINS WITH FIBERGLASS REINFORCEMENTS. MANHOLE SHALL BE A ONE PIECE UNIT MANUFACTURED TO MEET OR EXCEED ALL SPECIFICATIONS OF A.S.T.M. D-3753 LATEST EDITION. FIBERGLASS MANHOLE MANUFACTURER SHALL DEMONSTRATE CONTINUED EXPERIENCE AS A MANUFACTURER OF FIBERGLASS WASTEWATER PRODUCTS FOR A PERIOD OF NOT LESS THAN FIVE YEARS. IN ADDITION, ALL APPROVED MANHOLE MANUFACTURERS SHALL BE ISO9001 REGISTERED.

PRECAST CONCRETE SEGMENTAL BLOCKS

MAINLINE 8" MINIMUM

MANHOLE SEGMENTAL BLOCKS

CAMERA ACCESS

STUB OR LATERAL

MANHOLE SEGMENTAL BLOCKS

MANHOLE DEPTH

<table>
<thead>
<tr>
<th>DIMENSION</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>6&quot; TO 15&quot;</td>
<td>0°-3&quot;</td>
<td>0°-6&quot;</td>
</tr>
<tr>
<td>OVER 15&quot;</td>
<td>0°-6&quot;</td>
<td>0°-10&quot;</td>
</tr>
</tbody>
</table>

NOTE:

<table>
<thead>
<tr>
<th>MAINLINE SIZE</th>
<th>MANHOLE DEPTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>4&quot; TO 24&quot;</td>
<td>4&quot;-0&quot;</td>
</tr>
</tbody>
</table>

CONSTRUCTION STANDARDS

STANDARD MANHOLE TYPE "E"

STANDARD NO. D-104 SHEET 1 OF 1

CITY OF FARMINGTON
PUBLIC WORKS DEPARTMENT

APPROVED DATE 8/27/13
**MANHOLE BASES**

**CONSTRUCTION STANDARDS**

**STANDARD No. D-106**

**DATE 12/27/06**

**CITY OF FARMINGTON**

**PUBLIC WORKS DEPARTMENT**

**APPROVED DATE 1/5/07**

---

**PRECAST CONCRETE MANHOLE SECTIONS**

**4' - 0" MIN. DIA.**

**SLOPE 1/2" PER FT**

**#4 BARS AT 6" O.C. EACH WAY**

FOR MANHOLE 16' OR GREATER

FOR MANHOLE LESS THAN 16'

**#4 BARS AT 12" O.C. EACH WAY**

**STANDARD**

**NOTE:**

CONCRETE SHALL BE 5.5 SACK 3500 PSI 28 DAY STRENGTH

**NOTE:**

MANHOLE BASES ARE TO BE USED IN AREAS WHERE MANHOLE BASES ARE BELOW WATER TABLE.
**NOTE:**

STEPS SHALL BE SIMILAR AND EQUAL TO COPOLYMER POLYPROPYLENE PLASTIC EQUAL TO M.A. INDUSTRIES MODEL PS2-PF.

**SECTION A-A**

REINFORCING STEEL WHEN CONC. SECTIONS ARE CAST.

VERTICAL SPACING 12" TO 16 1/2" WITH BOTTOM STEP 8" ± ABOVE BENCH AND TOP STEP 18" MAX. BELOW RIM.

**NOTE:**

1) ALUMINUM ALLOY SPECIFICATIONS
   A. FED SPEC. QQ - A - 200/B
   B. MIN. TENSILE STRENGTH = 38,000 P.S.I.
   C. MIN. YIELD STRENGTH = 35,000 P.S.I.
   D. MIN. ELONGATION = 10% IN 2"

2) MIN. LOAD CAPACITY APPLIED CENTER OF STEP
   A. 1,000 LB. WITH 6" PROJECTION FROM WALL
   B. 1,500 LB. WITH 4" PROJECTION FROM WALL

3) WEIGHT PER STEP = 223 LBS.

4) STEPS TO BE CAST UNALTERED IN MANHOLE WALL IN A STRAIGHT LINE, VERTICALLY, AT THE SAME TIME THE BARREL OR CONE SECTIONS ARE CAST.

5) THE PORTION OF THE STEPS EMBEDDED IN THE CONCRETE SHALL BE COATED WITH BITUMINOUS MATERIAL AS SPECIFIED OR APPROVED BY CONTRACTING OFFICER.
NOTES:

1. MANHOLE LID SHALL BE ADJUSTED WHEN GREATER THAN OR EQUAL TO 0.75 INCH FROM FINAL SURFACE GRADE.
2. CUT AND REMOVE EXISTING PAVEMENT TO NEAT LINES AS SHOWN OR AS DIRECTED. REMOVE BITUMINOUS CONCRETE FROM THE MANHOLE FRAME AND COVERS. CIRCULAR PAVEMENT CUT AROUND MANHOLE COVER ALSO ACCEPTABLE.
3. REMOVE EXISTING MORTAR AND MASONRY WHICH IS LOOSE, DETERIORATED OR UNSOUND AS DIRECTED BY THE ENGINEER. REPLACE PAVEMENT WITH 3" BITUMINOUS CONCRETE ON TAMPED SUBBASE. SEAL PAVEMENT JOINT WITH ASPHALT.
4. SET MANHOLE FRAME TO REQUIRED GRADE WITH MANHOLE GRADE RINGS OR AS DIRECTED BY THE ENGINEER. MANHOLE FRAMES ARE TO BE SET IN FULL MORTAR BEDS.
5. CONTRACTOR TO FURNISH NEW MANHOLE FRAME AND COVER AS NECESSARY.
6. FINAL LID ADJUSTMENT SHALL BE FLUSH WITH EXISTING SURFACE ±0.25 INCH.
7. HOT ASPHALT MIX SHALL BE USED FOR MANHOLE LID ADJUSTMENT UNLESS DIRECTED OTHERWISE BY THE ENGINEER.
**CONSTRUCTION STANDARDS**

**TAP SADDLE CONNECTION**

**NOTES:**
1. ALL SERVICE LINES SHALL CONFORM TO LOCAL PLUMBING CODE.
2. SERVICE LINE SHALL NOT PROTRUDE INTO SEWER MAIN.
1) ALL SERVICE LINES SHALL CONFORM TO LOCAL PLUMBING CODE.

2) SERVICE LINE SHALL NOT PROTRUDE INTO MAIN.

MINIMUM ONE CUBIC FOOT 2500 P.S.I. CONCRETE UNDER THE TAP AND 45° BEND.

MIN. SLOPE 1/4" PER FT

LOCATION TAPE 10" ABOVE TOP OF PIPE.

ELEVATION

CONSTRUCTION STANDARDS

SLIP LINE TAP CONNECTION

STANDARD No. D-110 SHEET 1 OF 1

CITY OF FARMINGTON
PUBLIC WORKS DEPARTMENT

APPROVED DATE
NOTE:

⚠️ AS DETERMINED BY A.S.T.M. D-1557
A.A.S.H.T.O. D.E.G T-147 - FIELD TEST
MOISTURE CONTENT OF ALL COMPACTION
SUBGRADE MATERIAL IN PLACE SHALL
BE NO GREATER THAN OPTIMUM NOR
ANY LESS THAN OPTIMUM MINUS 5%

CUT AND BACKFILL IN ROCK
FOR MANHOLES

CONSTRUCTION
STANDARDS

TRENCH CUTS
(MANHOLES)
TRENCH WIDTHS

STANDARD No. D-111 SHEET 1 OF 1

CITY OF FARMINGTON
PUBLIC WORKS DEPARTMENT

APPROVED DATE 4/15/08
NOTE:

1. TOP 6" OF BASE COURSE ON PAVED RESIDENTIAL STREETS & TOP 12" OF PAVED ARTERIAL STREETS TO BE COMPACTED TO 95% MODIFIED PROCTOR.
2. UNPAVED STREETS & OTHER AREAS TO BE 95% MODIFIED PROCTOR.
3. WITHIN CITY ROW PIPE BEDDING & TRENCH BACK FILL SHALL BE BASE COURSE.
4. TRENCH DETAILS FOLLOW OSHA 1926 SUBPART P APP B - EXCAVATION: SLOPING AND BENCHING.

<table>
<thead>
<tr>
<th>PIPE DIA.</th>
<th>TRENCH WIDTH</th>
<th>PIPE DIA.</th>
<th>TRENCH WIDTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>8&quot;</td>
<td>2'-6&quot;</td>
<td>30&quot;</td>
<td>6'-6&quot;</td>
</tr>
<tr>
<td>10&quot;</td>
<td>2'-8&quot;</td>
<td>36&quot;</td>
<td>7'-0&quot;</td>
</tr>
<tr>
<td>12&quot;</td>
<td>3'-0&quot;</td>
<td>42&quot;</td>
<td>8'-0&quot;</td>
</tr>
<tr>
<td>15&quot;</td>
<td>3'-0&quot;</td>
<td>48&quot;</td>
<td>9'-0&quot;</td>
</tr>
<tr>
<td>18&quot;</td>
<td>4'-6&quot;</td>
<td>54&quot;</td>
<td>10'-6&quot;</td>
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<td>21&quot;</td>
<td>4'-6&quot;</td>
<td>60&quot;</td>
<td>11'-0&quot;</td>
</tr>
<tr>
<td>24&quot;</td>
<td>5'-6&quot;</td>
<td>72&quot;</td>
<td>14'-0&quot;</td>
</tr>
</tbody>
</table>
NOTE:

1. TOP 6" OF BASE COURSE ON PAVED RESIDENTIAL STREETS &
   TOP 12" OF PAVED ARTERIAL STREETS TO BE COMPACTED TO
   95% MODIFIED PROCTOR.
2. UNPAVED STREETS & OTHER AREAS TO BE 95% MODIFIED
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4. TRENCH DETAILS FOLLOW OSHA 1926 SUBPART P APP B -
   EXCAVATION: SLOPING AND BENCHING.
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<thead>
<tr>
<th>PIPE SIZE</th>
<th>TRENCH PAY WIDTH</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>3'</td>
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<tr>
<td>4</td>
<td>5.00</td>
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<tr>
<td>6</td>
<td>5.00</td>
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<tr>
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<td>102</td>
<td>26.00</td>
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<tr>
<td>108</td>
<td>26.50</td>
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</tbody>
</table>

NOTE:
1. PAYMENT FOR PAVEMENT REMOVAL AND REPLACEMENT SHALL BE BASED ON ACTUAL TRENCH WIDTHS UP TO THE WIDTH NOTED ABOVE & WILL BE PAID FOR ACTUAL TRENCH MEASUREMENT.
2. EXCESSIVE TRENCH WIDTH ABOVE THAT LISTED IN THE TABLE ABOVE WILL BE AT THE CONTRACTORS EXPENSE AND NO ADDITIONAL COMPENSATION WILL BE PAID. IF CONDITIONS EXIST THAT REQUIRES ADDITIONAL REMOVAL CONTRACTOR SHALL REQUEST CITY ENGINEER APPROVAL.
3. IN THE EVENT A LINE IS LOCATED SUCH THAT REMOVAL OF CURB, GUTTER AND SIDEWALK IS REQUIRED PAVEMENT WIDTH SHALL BE LIMITED TO 1/2 THE PAY WIDTH PLUS THE DISTANCE FROM THE CENTERLINE OF THE PIPE TO GUTTER. PAYMENT FOR REMOVAL AND REPLACEMENT OF CURB AND SIDEWALK SHALL BE AS MEASURED IN THE FIELD.
4. THE ADDITIONAL 1' PAVEMENT CUT BACK SHALL BE MADE AFTER BACKFILLING AND TESTING IS COMPLETE. THIS CUT SHALL BE REMOVED TO A NEAT LINE. IF THE CONTRACTORS OPERATION PRODUCES A JAGGED EDGE HE SHALL BE REQUIRED TO REMOVE ADDITIONAL PAVING UNTIL A NEAT STRAIGHT LINE IS OBTAINED.

REV. DATE 1/22

CONSTRUCTION STANDARDS

TRENCH PAY WIDTH

STANDARD No. D-112 SHEET 3 OF 4

CITY OF FARMINGTON
COMMUNITY WORKS DEPARTMENT

APPROVED DATE 02/14/2022
### TRENCH SHORING—MINIMUM REQUIREMENTS

<table>
<thead>
<tr>
<th>DEPTH OF TRENCH</th>
<th>CONDITION OR KIND OF EARTH</th>
<th>UPRIGHTS</th>
<th>STRINGERS</th>
<th>CROSS BRACES—SEE NOTE 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>FEET</td>
<td>INCHES</td>
<td>FEET</td>
<td>INCHES</td>
<td>FEET</td>
</tr>
<tr>
<td>5' TO 10'</td>
<td>HARD, COMPACT... 3X4 OR 2X6</td>
<td>6</td>
<td>4X6</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>SOFT, SANDY, OR FILLED... 3X4 OR 2X6</td>
<td>3</td>
<td>4X6</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>HYDROSTATIC PRESSURE... 3X4 OR 2X6</td>
<td>6</td>
<td>4X6</td>
<td>4</td>
</tr>
<tr>
<td>10' TO 15'</td>
<td>HARD... 3X4 OR 2X6</td>
<td>4</td>
<td>4X6</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>SOFT, SANDY, OR FILLED... 3X4 OR 2X6</td>
<td>2</td>
<td>4X6</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>HYDROSTATIC PRESSURE... 3X6</td>
<td>6X10</td>
<td>4X6</td>
<td>4</td>
</tr>
<tr>
<td>15' TO 20'</td>
<td>ALL KINDS OR CONDITIONS... 3X6</td>
<td>4X12</td>
<td>4X12</td>
<td>6X8</td>
</tr>
<tr>
<td>OVER 20'</td>
<td>ALL KINDS OR CONDITIONS... 3X6</td>
<td>6X8</td>
<td>4X12</td>
<td>6X8</td>
</tr>
</tbody>
</table>

**NOTES:**
1) TRENCH JACKS MAY BE USED IN LIEU OF, OR IN COMBINATION WITH, CROSS BRACES. SHORING IS NOT REQUIRED IN SOLID ROCK, HARD SHALE, OR HARD SLAG. WHERE DESIRABLE, SHEET STEEL PILING AND BRACING OF EQUAL STRENGTH MAY BE SUBSTITUTED FOR WOOD.
NOTES
1. SIDES OF TRENCHES IN HARD OR COMPACTED SOIL, INCLUDING EMBANKMENTS SHALL BE SHORED, OR OTHERWISE SUPPORTED OR SLOPED WHEN THE TRENCH IS MORE THAN 5 FEET IN DEPTH AND 8 FEET OR MORE IN LENGTH.
2. CLAYS, SILLS, LOAMS OR NON HOMOGENOUS SOILS REQUIRE SHORING AND BRACING. THE PRESENCE OF GROUND WATER REQUIRES SPECIAL TREATMENT.
3. STANDARD DETAIL 112 SHALL BE APPLICABLE WHEN EXCAVATING IN PAVED STREETS.
4. ALL PAYMENT WILL BE BASED ON TRENCH PAY WIDTHS AS OUTLINED IN CITY STANDARD 112. NO EXTRA PAYMENT OUTSIDE THOSE LIMITS LISTED IN COF 112 WILL BE PAID.
5. DETAILS FOLLOW OSHA 1926 SUBPART P APP B - EXCAVATIONS: SLOPING AND BENCHING.

CONSTRUCTION STANDARDS
APPROXIMATE ANGLE OF REPOSE FOR SLOPING SIDES OF EXCAVATIONS
STANDARD No. D-113 SHEET 1 OF 1

CITY OF FARMINGTON
PUBLIC WORKS DEPARTMENT

APPROVED DATE 08/10/99
NOTES:

1. ALL SERVICE LINES SHALL CONFORM TO LOCAL PLUMBING CODE.
2. SERVICE LINES SHALL NOT PROTRUDE INTO SEWER MAIN.

3. SEWER SERVICE SHALL BE A COMBO OR 45° WYE WITH 45° ELBOW.

EDGE OF GUTTER

TOP OF CURB

BACK OF CURB

SERVICES LINE

CLEAN OUT GLUED CAP

NOTE: SEWER SERVICE SHALL NOT CONNECT TO RISER W/O THE APPROVAL OF THE CITY ENGINEER.

LOCATION TAPE 18" ABOVE TOP OF PIPE.

Curb & Gutter

Existing Ground

Asphalt

Subgrade

45° ELBOW

45° WYE

22-1/2° OR 45° BEND

MAINLINE-8" MIN.

1/4" DROP PER FT (MIN.)

Provide 1 CUBIC FOOT Poured
Concrete Support To
Prevent Shear 2,500 P.S.I.
Concrete - SEE SPECS.

5'-0" MINIMUM OR 1'
INSIDE PROPERTY LINE
WHEN NO CURB PRESENT

3' MINIMUM

3' MIN.

12/01/05

12/02/05

4/22/10

CITY OF FARMINGTON
PUBLIC WORKS DEPARTMENT

CONSTRUCTION STANDARDS

SEWER SERVICE LOCATION

STANDARD No. D-115 SHEET 1 OF 1

APPROVED DATE

REV. DATE

11/22/04

12/01/05

12/02/05

1/24/11
NOTES:

1. PRIOR TO BACKFILLING, RECORD INVERT ELEVATIONS AND LOCATION ON CONSTRUCTION PLANS FOR AN AS-BUILT RECORD.

2. SEE LATEST EDITION OF THE N.M. STANDARD SPECIFICATIONS FOR PUBLIC WORKS FOR A LIST OF ACCEPTABLE SEWER MAIN MATERIALS & PIPE.

3. MINIMUM 4'-0" COVER UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.

4. MAXIMUM MANHOLE SPACING 400 FEET.

5. THIS TYPE OF INSTALLATION WILL ONLY BE USED IF THE DOWNSTREAM MANHOLE IS LESS THAN 100 FEET FROM END OF LINE.

6. MANHOLE WILL BE BUILT AT END OF MAINLINE UNLESS ALTERNATE IS APPROVED BY CITY ENGINEER OR BY DESIGNEE.

7. STUB OUT FOR FUTURE MAINLINE EXTENSION SHALL BE CONST. A MAX. OF 5' WITH BELL END AND FACTORY PLUG BEYOND LAST MANHOLE.

ALTERNATE

WHEN APPROVED BY CITY ENGINEER (FOR TEMPORARY CONDITION)

PROFILE VIEW

\[ \text{MIN. SIZE SEWER MAIN} = 8'' \]

\[ \text{Bell End with Factory Cap a Plug} \]
NOTE:
FIBERGLASS SHALL BE A ONE PIECE UNIT MANUFACTURED BY L.F. MANUFACTURING INC., GIDDING TEXAS, 1-800-237-5791, OR APPROVED EQUAL. SEE SPECIFICATION FOR APPROVAL.
PRECAST CONCRETE RAT LID
FOR H-20 LOADING (STD) OR
CONCENTRIC CONE FINAL GRADE
(ENGINEER'S APPROVAL ONLY)

72" DIA. FIBERGLASS
SPECIFICATION # LP1056SP

PLAN VIEW

72" DIA. PRECAST CONCRETE MANHOLE RING (STD) OR APPROVED EQUAL

SEWER CLEANOUT DETAIL

SECTION VIEW

CONSTRUCTION STANDARDS

PRESSURE SANITARY SEWER CLEANOUT DETAIL

CITY OF FARMINGTON
PUBLIC WORKS DEPARTMENT

STANDARD No. D-118 SHEET 1 OF 1

APPROVED DATE 8/29/13

REV. DATE 8/13
1-1/2" PRESSURE SANITARY SEWER LATERAL DETAIL

NOTE:
1. CONTRACTOR SHALL REMOVE END CAP AND CONNECT TO EXISTING 1-1/2" CAP.
2. CONTRACTOR SHALL BORE A HOLE INTO EXISTING BOX TO RUN PIPE THROUGH AND PROVIDE SEALER TO PREVENT WATER SEEPAGE.
3. CENTRIFICAL PUMP OR APPROVED EQUAL RECOMMENDED FOR THIS APPLICATION.
4. UPON DEVELOPMENT, THE OWNER SHALL INSTALL A PRIVATE BALL/CHECK VALVE WITH CAN AS SHOWN ABOVE.

CONSTRUCTION STANDARDS

CITY OF FARMINGTON
PUBLIC WORKS DEPARTMENT

STANDARD No. D-119 SHEET 1 OF 1

APPROVED DATE 6/13/18
NOTE:
1. CONTRACTOR SHALL REMOVE END CAP AND CONNECT TO EXISTING 2" CAP.
2. CONTRACTOR SHALL BORE A HOLE INTO EXISTING BOX TO RUN PIPE THROUGH AND PROVIDE SEALER TO PREVENT WATER SEEPAGE.
3. CENTRIFUGAL PUMP OR APPROVED EQUAL RECOMMENDED FOR THIS APPLICATION.
4. TEE IS REQUIRED TO SEPARATE SERVICES SHALL BE CAPEO ON OTHER IF NO OTHER SERVICE.
5. UPON DEVELOPMENT, THE OWNER SHALL INSTALL A PRIVATE BALL/CHECK VALVE WITH CAN AS SHOW ABOVE.
Note: All Brass Fittings supplied shall meet the new low lead requirements of the U.S. Safe Drinking Water Act, which goes into effect in January 2014.
## CONSTRUCTION STANDARDS

### WATER

<table>
<thead>
<tr>
<th>SHEET NO.</th>
<th>TITLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>D-201</td>
<td>WATER LINE CONNECTION DETAILS (2 SHEETS)</td>
</tr>
<tr>
<td>D-202</td>
<td>TYPICAL VALVE BOS RAISING</td>
</tr>
<tr>
<td>D-203</td>
<td>VALVE INSTALLATION (2 SHEETS)</td>
</tr>
<tr>
<td>D-204</td>
<td>PRESSURE REDUCER VALVE/RISER DETAIL (2 SHEETS)</td>
</tr>
<tr>
<td>D-206</td>
<td>BLOW OFF VALVE ASSEMBLY</td>
</tr>
<tr>
<td>D-207</td>
<td>FIRE HYDRANT (7 SHEETS)</td>
</tr>
<tr>
<td>D-208</td>
<td>AIR RELIEF OR VAC VALVE ASSEMBLY-6&quot; THRU 12&quot; PIPE</td>
</tr>
<tr>
<td>D-209</td>
<td>AIR RELIEF OR VAC VALVE ASSEMBLY-16&quot; PIPE OR LARGER</td>
</tr>
<tr>
<td>D-210</td>
<td>THRUST BLOCKS (2 SHEETS)</td>
</tr>
<tr>
<td>D-212</td>
<td>WATER LINE LOCATION MARKERS</td>
</tr>
<tr>
<td>D-215</td>
<td>WATER SERVICE CONNECTION (5/8&quot; METER)</td>
</tr>
<tr>
<td>D-216</td>
<td>WATER SERVICE CONNECTION (1&quot; METER)</td>
</tr>
<tr>
<td>D-217</td>
<td>WATER SERVICE CONNECTION (1 1/2&quot; METER)</td>
</tr>
<tr>
<td>D-218</td>
<td>LARGE WATER METER VAULT DETAIL (2&quot; METER)</td>
</tr>
<tr>
<td>D-219</td>
<td>LARGE WATER METER VAULT DETAIL (3&quot; METER)</td>
</tr>
<tr>
<td>D-220</td>
<td>LARGE WATER METER VAULT DETAIL (4&quot; METER)</td>
</tr>
<tr>
<td>D-221</td>
<td>LARGE WATER METER VAULT DETAIL (6&quot; METER)</td>
</tr>
<tr>
<td>D-222</td>
<td>LARGE WATER METER VAULT DETAIL (8&quot; METER)</td>
</tr>
<tr>
<td>D-224</td>
<td>WATER SERVICE MANIFOLD DETAIL</td>
</tr>
</tbody>
</table>
# CONSTRUCTION STANDARDS

## WATER

<table>
<thead>
<tr>
<th>SHEET NO.</th>
<th>TITLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>D-225</td>
<td>(TYPICAL) FIRE LINE INSTALLATION</td>
</tr>
<tr>
<td>D-226</td>
<td>TYPICAL WATER VALVE ABANDONMENT (3 SHEETS)</td>
</tr>
</tbody>
</table>

*Note: All Brass Fittings supplied shall meet the new low lead requirements of the U.S. Safe Drinking Water Act, which goes into effect in January 2014.*
NOTE

MEG-A-LUG FITTINGS

CUTTING TEE INTO EXISTING LINE

CONNECTING UNLIKE PIPE MATERIALS

MIN. OVERLAP OF 3"

STEEL PIPE

TRANSITION COUPLING (ROMAC COUPLING) OR APPROVED EQUAL

MIN. OVERLAP OF 3"

PIPE
EXISTING LINE

FLANGED X, M.A. VALVE
FLANGED TAPPING VALVE

NEW PIPE TO BE DETERMINED BY CITY ENGINEER.

WET TAP TO EXISTING LINE

NOTE
1. ALL TAP SADDLES OVER 4” SHALL BE TWO PIECE STAINLESS STEEL CAPABLE OF FITTING A/C, DI OR PVC PIPE.

REV. DATE
1/08
8/13
NOTES:

1. FINAL LID ADJUSTMENT SHALL BE FLUSH WITH EXISTING SURFACE ±0.25 INCH.
2. CUT AND REMOVE EXISTING PAVEMENT TO NEAT LINES AS SHOWN OR AS DIRECTED. REMOVE ASPHALT CONCRETE FROM THE WATER VALVE FRAME AND COVERS. CIRCULAR PAVEMENT CUT AROUND WATER VALVE LID COVER ALSO ACCEPTABLE.
3. REMOVE EXISTING MORTAR AND MASONRY WHICH IS LOOSE, DETERIORATED OR UNSOUND AS DIRECTED BY THE ENGINEER. REPLACE PAVEMENT WITH MINIMUM 3" BITUMINOUS CONCRETE MATCH EXISTING ON TAMPPED SUBBASE.
4. SET WATER VALVE LID FRAME TO REQUIRED GRADE WITH WATER VALVE LID GRADE RINGS OR AS DIRECTED BY THE ENGINEER. WATER VALVE LID FRAMES ARE TO BE SET IN FULL MORTAR BEDS.
5. CONTRACTOR TO FURNISH NEW FRAME AND COVER AS NECESSARY.
6. HOT MIX ASPHALT SHALL BE USED FOR VALVE LID ADJUSTMENT UNLESS DIRECTED OTHERWISE BY THE ENGINEER.
COVER-CLOW F-2493
"STAY-PUT" TYPE
(OR CITY APPROVED EQUAL)

SET BASE ON SOLID
CONCRETE BLOCK AFTER
BACKFILLING PIPE

PLAN

EXISTING ASPHALT
SECTION

TWO PIECE SCREW
TYPE VALVE BOX -
CLOW TYPE F-2454
(OR CITY APPROVED EQUAL)

SET BASE ON SOLID
CONCRETE BLOCK AND
BACKFILLING PIPE

SECTION

GATE VALVE
OR BUTTERFLY VALVE

GATE VALVE

NOTE:
1. MEG-A-LUG WEDGE ACTION JOIST RESTRAINT, SERIES - 1100
   FOR CAST IRON OR DUCTILE, SERIES - 1100 PVC FOR CAST
   IRON SIZE PVC (TYPICAL).
2. PRE-MIXED CONCRETE BAGS MAY BE USED WITH CITY ENGINEER
   APPROVAL.

CONSTRUCTION
STANDARDS

VALVE INSTALLATION
FOR ASPHALT PAVEMENT AREAS

STANDARD No. D-203 SHEET 1 OF 2

APPROVED DATE 02/10/99
CONSTRUCTION STANDARDS

VALVE INSTALLATION
FOR NON PAVEMENT AREAS

STANDARD No. D-203 SHEET 2 OF 2

NOTE:
1. VEG-A-LUG WEDGE ACTION JOIST RESTRAINT, SERIES - 1100 FOR CAST IRON OR DUCTILE, SERIES - 1100 PV FOR CAST IRON SIZE PVC (TYPICAL).
2. PRE-MIXED CONCRETE BAGS MAY BE USED WITH CITY ENGINEER APPROVAL.
NOTES:
1. PRECAST MANHOLE SHALL BE DESIGNED FOR HS-20 LOADING.
2. VALVES SHALL BE CAL-VAL ONLY—NO SUBSTITUTIONS WILL BE ALLOWED.
3. THE GATE VALVE SERVING THE PRESSURE RELIEF VALVE SHALL BOTH MATCH IN SIZE.
4. IF THE PROPOSED PRV IS SMALLER THAN THE LINE SIZE, THEN REDUCERS ARE REQUIRED IMMEDIATELY BEFORE AND AFTER THE PRV INSIDE THE VAULT.
5. ARV SHALL BE INSTALLED ON THE DECLINE SIDE OF THE PRV.
6. CITY SHALL PROVIDE PRV SPEC INFORMATION AND SIZE.

<table>
<thead>
<tr>
<th>PRV (FIRE)</th>
<th>PRV (DOMESTIC)</th>
<th>DOMESTIC MAIN SIZE</th>
<th>VAULT SIZE</th>
<th>PRESSURE RELIEF SIZE</th>
<th>BLOW OFF AND VENT PIPE SIZE</th>
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<tbody>
<tr>
<td>6&quot;</td>
<td>1&quot; to 4&quot;</td>
<td>4&quot;</td>
<td>10&quot;x10&quot;x6.5</td>
<td>4&quot;</td>
<td>4&quot;</td>
</tr>
<tr>
<td>8&quot;</td>
<td>1&quot; to 4&quot;</td>
<td>4&quot;</td>
<td>10&quot;x10&quot;x6.5</td>
<td>4&quot;</td>
<td>4&quot;</td>
</tr>
<tr>
<td>10&quot;</td>
<td>1&quot; to 6&quot;</td>
<td>5&quot;</td>
<td>10&quot;x10&quot;x6.5</td>
<td>6&quot;</td>
<td>6&quot;</td>
</tr>
</tbody>
</table>
BLOW OFF & VENT PIPE DETAIL

CONSTRUCTION STANDARDS

STANDARD No. D-204 SHEET 2 OF 2

CITY OF FARMINGTON
COMMUNITY WORKS DEPARTMENT

REV. DATE 1/22

1/8" DRILL WEEP HOLE 3/4" - 3" ROCK BACKFILL

MEGA-LUG WEDGE ACTION JOIST RESTRAINT SERIES- DUCTILE

UNDISTURBED EARTH

SCREEN SLOPE 4' SIDEWALK 1'-0"

CONCRETE SPLASH PAD 4'X4'X4"

BLOW OFF TO BE ORIENTED TO STREET

5' MIN. TO BACK OF CURB

SIDEWALK

VENT

MEGA-LUG WEDGE ACTION JOIST RESTRAINT SERIES- DUCTILE

BLOW OFF

UNDISTURBED EARTH

BLOW OFF PIPE AND VENT LOCATION TYPICAL 1ft BEHIND SIDEWALK

3. MINIMUM 10ft HORIZONTAL SEPARATION FROM THE VAULT FOR BIDDING PURPOSES.

4. LOCATION OF THE BLOW OFF AND VENT PIPES SHALL BE DETERMINED IN THE FIELD BY THE CITY.

NOTES:
1. SEE D-204 SHEET 1 OF 2 FOR THE PRV MATRIX TABLE FOR BLOW OFF AND VENT PIPE SIZING.

02/10/22

APPROVED DATE

CITY OF FARMINGTON
COMMUNITY WORKS DEPARTMENT
NOTE
MINIMUM DEPTH OF COVER OVER WATER LINE - 42"

6" FLEXIBLE 180° ELBOW ABOVE GROUND PIPING PAINTED PER A.W.A. C204.

(10' INCLUDED IN BO ITEM FOR BLOWOFF)

WATER LINE
6" 45° ELL.

6" GATE VALVE
6" STEEL
6" GATE VALVE

Concrete Splash Pad

C&G 2'

4' SIDEWALK
1' MIN.

SCREEN

STANDARD VALVE BOX WITH EXTENSION PER C.O.F. CONSTRUCTION STANDARD No. 203 AND No. 311

DI OR PVC

3/4" - 3" ROCK BACKFILL
DRILL 1/8" WEEP HOLE
UNDISTURBED EARTH

1/4 CUBIC YARD MIN.

MEG-A-LUG WEDGE ACTION JOIST RESTRAINT SERIES - 1100 FOR CAST IRON OR DUCTILE SERIES - 1100 PV FOR CAST IRON SIZE PVC (TYPICAL)

CONSTRUCTION STANDARDS
BLOW OFF VALVE ASSEMBLY DETAIL
STANDARD No. D-206 SHEET 1 OF 1
CITY OF FARMINGTON PUBLIC WORKS DEPARTMENT

APPROVED DATE 4/15/08
ON DEAD END LINES VALVE BOX SHALL BE IN ASPHALT OR A MINIMUM ASPHALT PAVING 4'X4' SQUARE

GROUND LINE

ADJUSTABLE C.I. VALVE BOX

2' MIN. - 5' MAX.

6" GATE VALVE

4"X8"X16"SOLID CONCRETE BLOCK

TRACER WIRE

MECHANICAL JOINT FITTINGS (TYPICAL) (SEE NOTE 3)

FABRIC BARRIER BETWEEN ROCK & BACKFILL MATERIAL

FIRE HYDRANT PER SPECS. SECTION 801.3.7
5" INTEGRAL STORZ PUMPER NOZZLE
(2) 2-1/2" HOSE NOZZLE

MIN. 3" - MAX. 6" (MEASUREMENT TAKEN FROM TOP OF CONCRETE PAD TO BOTTOM OF NUT)

MIN. 3-1/2" THICK

SEE NOTE #6

SEE NOTE #5

TRACER WIRE TO BYPASS VALVE BOX

MECHANICAL JOINT FITTINGS (TYPICAL) (SEE NOTE 3)

FIRE HYDRANT PER SPECS. SECTION 801.3.7
5" INTEGRAL STORZ PUMPER NOZZLE
(2) 2-1/2" HOSE NOZZLE

MIN. 3" - MAX. 6" (MEASUREMENT TAKEN FROM TOP OF CONCRETE PAD TO BOTTOM OF NUT)

MIN. 3-1/2" THICK

SEE NOTE #6

SEE NOTE #5

TRACER WIRE TO BYPASS VALVE BOX

MECHANICAL JOINT FITTINGS (TYPICAL) (SEE NOTE 3)

FABRIC BARRIER BETWEEN ROCK & BACKFILL MATERIAL

FIRE HYDRANT PER SPECS. SECTION 801.3.7
5" INTEGRAL STORZ PUMPER NOZZLE
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MIN. 3-1/2" THICK

SEE NOTE #6

SEE NOTE #5

TRACER WIRE TO BYPASS VALVE BOX

MECHANICAL JOINT FITTINGS (TYPICAL) (SEE NOTE 3)

FABRIC BARRIER BETWEEN ROCK & BACKFILL MATERIAL

FIRE HYDRANT PER SPECS. SECTION 801.3.7
5" INTEGRAL STORZ PUMPER NOZZLE
(2) 2-1/2" HOSE NOZZLE

MIN. 3" - MAX. 6" (MEASUREMENT TAKEN FROM TOP OF CONCRETE PAD TO BOTTOM OF NUT)

MIN. 3-1/2" THICK

SEE NOTE #6

SEE NOTE #5

TRACER WIRE TO BYPASS VALVE BOX

MECHANICAL JOINT FITTINGS (TYPICAL) (SEE NOTE 3)

FABRIC BARRIER BETWEEN ROCK & BACKFILL MATERIAL

NOTES:

1. SEE SECTION 801.3.7 - FIRE HYDRANT SPECIFICATION.
2. ORIENTATION OF NOZZLES AS SPECIFIED.
3. MEG-A-LUG WEDGE ACTION JOINT RESTRAINT, SERIES - 1100 FOR CAST IRON OR DUCTILE, SERIES - 2000 PV FOR CAST IRON SIZE PVC.
4. HYDRANT BURY 5" PIPE.
5. TRACER WIRE TO BE IN A 2" PVC PIPE WITH INVERTED THREADED CAP (TEFLON TAPED), FLUSH WITH TOP OF CONCRETE PAD. (LEAVE 12" TO 18" SLACK INSIDE TUBING)
6. THE TOP SIDE OF THE 46" CONCRETE PAD SHALL BE LOCATED FLUSH AND LEVEL WITH THE BACKSIDE SIDEWALK ELEVATION.

- IF NO SIDEWALK AREA; FLUSH WITH THE BACK OF SIDEWALK (FUTURE) ELEVATION.
- IF NO CURB & GUTTER; FLUSH WITH THE FINAL ROAD ELEVATION.
- IF NO ROAD FRONTAGE; FLUSH WITH THE FINAL GROUND ELEVATION.

ANY GROUND SLOPE REMEDIATION SURROUNDING THE "CLEAR-AREA" SHALL BE COMPLETED BY THE CONTRACTOR, PRE-AUTHORIZED BY THE CITY.

REV. DATE
03/21
11/21

CITY OF FARMINGTON
COMMUNITY WORKS DEPARTMENT

CONSTRUCTION STANDARDS
STANDARD FIRE HYDRANT
STANDARD No. D-207 SHEET 1 OF 7

APPROVED DATE 11/23/21
ON DEAD END LINES VALVE BOX SHALL BE IN ASPHALT OR A MINIMUM ASPHALT PAVING 4'X4' SQUARE.

GROUND LINE

MIN. 3" - MAX. 6"
(MEASUREMENT TAKEN FROM TOP OF CONCRETE PAD TO BOTTOM OF NUT)

MIN. 3-1/2" THICK
SEE NOTE #6
SEE NOTE #5
TRACER WIRE

TRACER WIRE TO BYPASS VALVE BOX
MECHANICAL JOINT FITTINGS (TYPICAL)
(SEE NOTE 3)

MECHANICAL JOINT FITTINGS (TYPICAL) (SEE NOTE 3)

FABRIC BARRIER BETWEEN ROCK & BACKFILL MATERIAL

NOTES:
1. SEE SECTION 801.3.7 - FIRE HYDRANT SPECIFICATION.
2. ORIENTATION OF NOZZLES AS SPECIFIED.
3. MED-A-LUG WEDGE ACTION JOINT RESTRAINT.
   SERIES - 1100 FOR CAST IRON OR DUCTILE.
   SERIES - 2000 PV FOR CAST IRON SIZE PVC.
4. HYDRANT BURY 6" PIPE.
5. TRACER WIRE TO BE IN A 2" PVC PIPE WITH INVERTED THREADED CAP (TEFLON TAPED), FLUSH WITH TOP OF CONCRETE PAD.
   (LEAVE 12" TO 18" SLACK INSIDE TUBING)
6. THE TOP SIDE OF THE 48" CONCRETE PAD SHALL BE LOCATED FLUSH AND LEVEL WITH THE BACKSIDE SIDEWALK ELEVATION.
   -IF NO SIDEWALK AREA; FLUSH WITH THE BACK OF SIDEWALK (FUTURE) ELEVATION.
   -IF NO CURB & GUTTER; FLUSH WITH THE FINAL ROAD ELEVATION.
   -IF NO ROAD FRONTAGE; FLUSH WITH THE FINAL GROUND ELEVATION.
   ANY GROUND SLOPE REMEDIATION SURROUNDING THE "CLEAR-AREA" SHALL BE COMPLETED BY THE CONTRACTOR,
PRE-AUTHORIZED BY THE CITY.
FIRE HYDRANT W/ INTEGRAL STORZ

MANUFACTURER MODEL
M&H 129
MUELLER A423/A425
KENNEDY K-81D
CLOW F2545

NOTES:
1. ORIENTATION OF NOZZLES AS SPECIFIED.
2. BURY 6" or 8" PIPE.
3. TWO RESTRAINED 45 BENDS (EQUIVALENT TO PIPE SIZE) MAY BE INSTALLED IN LIEU OF THE SWIVEL OPTION.
NOTE:
1. Minimum direct distance fire hydrant to gate valve shall be 8'-0".
2. All joints shall be Mega-Lugs.
3. Lubricate hydrant nozzle threads with non-toxic grease.
4. Non flanged fire hydrant joints require Mega-Lug or approved equal.
5. The top side of the 48" concrete pad shall be located flush and level with the backside sidewalk elevation.
   - If no sidewalk area; flush with the back of sidewalk (future) elevation.
   - If no curb & gutter; flush with the final road elevation.
   - If no road frontage; flush with the final ground elevation.
   Any ground slope remediation surrounding the "clear-area" shall be completed by the contractor, pre-authorized by the city.
STREET/BUILDING SIDE MUST REMAIN OPEN AND CLEAR

48" SQ. CONCRETE PAD

TRACER WIRE 2" INVERTED CAP LOCATION (FLUSH WITH CONCRETE)

STANDARD HYDRANT TOP VIEW

NOTE:
1. PROVIDE 45" RADIUS AND 7 FT OVERHEAD "CLEAR-AREA" AROUND FIRE HYDRANT EXCEPT HYDRANT WITH BOLLARDS.
2. NO CURBING AROUND HYDRANT UNLESS AUTHORIZED BY CITY.
3. 45" RADIUS "CLEAR-AREA" SHALL BE FLUSH WITH CONCRETE PAD.

STREET/BUILDING SIDE MUST REMAIN OPEN AND CLEAR

48" SQ. CONCRETE PAD

TRACER WIRE 2" INVERTED CAP LOCATION (FLUSH WITH CONCRETE)

DOUBLE STEAMER TOP VIEW

NOTE:
1. PROVIDE 45" RADIUS AND 7 FT OVERHEAD "CLEAR-AREA" AROUND FIRE HYDRANT EXCEPT HYDRANT WITH BOLLARDS.
2. NO CURBING AROUND HYDRANT UNLESS AUTHORIZED BY CITY.
3. 45" RADIUS "CLEAR-AREA" SHALL BE FLUSH WITH CONCRETE PAD.

CONSTRUCTION STANDARDS

FIRE HYDRANT (TOP VIEW) WITHOUT BOLLARD

STANDARD No. D-207 SHEET 5 OF 7

CITY OF FARMINGTON
COMMUNITY WORKS DEPARTMENT

APPROVED DATE 11/23/21
STANDARD HYDRANT TOP VIEW

NOTE:
1. PROVIDE 45" RADIUS AND 7 FT OVERHEAD CLEAR-AREA AROUND FIRE HYDRANT EXCEPT HYDRANT WITH BOLLARDS.
2. NO CURBING AROUND HYDRANT UNLESS AUTHORIZED BY CITY.
3. 45" RADIUS CLEAR-AREA SHALL BE FLUSH WITH CONCRETE PAD.

DOUBLE STEAMER TOP VIEW

NOTE:
1. PROVIDE 45" RADIUS AND 7 FT OVERHEAD CLEAR-AREA AROUND FIRE HYDRANT EXCEPT HYDRANT WITH BOLLARDS.
2. NO CURBING AROUND HYDRANT UNLESS AUTHORIZED BY CITY.
3. 45" RADIUS CLEAR-AREA SHALL BE FLUSH WITH CONCRETE PAD.
NOTES:
1. ORIENTATION OF NOZZLES AS SPECIFIED.
2. BURY 6" or 8" PIPE.
48" DIA. PRECAST CONCRETE MANHOLE RING (STD.) FIBERGLASS METER COVER AND LID PER NEENAH R-1572 LABEL "W" OR CITY APPROVED EQUAL 1" DOUBLE STRAP SERVICE TAP SADDLE: BRONZE W/ BRONZE STRAPS.

AIR RELIEF OR VAC VALVE VALMATIC (OR CITY APPROVED) (SEE TABLE BELOW)

<table>
<thead>
<tr>
<th>WATERLINE DIAMETER</th>
<th>INLET SIZE N.P.T.</th>
<th>OUTLET SIZE N.P.T.</th>
<th>ORIFICE SIZE</th>
<th>VALMATIC MODEL NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>6&quot; OR UNDER</td>
<td>1&quot;</td>
<td>3/8&quot;</td>
<td>1/16&quot;</td>
<td>15</td>
</tr>
<tr>
<td>8&quot;</td>
<td>1&quot;</td>
<td>1/2&quot;</td>
<td>3/32&quot;</td>
<td>22</td>
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<tr>
<td>12&quot;</td>
<td>1&quot;</td>
<td>1/2&quot;</td>
<td>1/8&quot;</td>
<td>25</td>
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</tbody>
</table>

FINAL GRADE.

CONSTRUCTION STANDARDS

AIR RELIEF OR VAC VALVE ASSEMBLY 6" THRU 12" PIPE

CITY OF FARMINGTON
PUBLIC WORKS DEPARTMENT

STANDARD No. D-208 SHEET 1 OF 1

APPROVED DATE 8/27/13
48" DIA. PRECAST CONCRETE MANHOLE RING (STD.)

MANHOLE STEPS 16" O.C. FOR DEPTHS OVER 3'-0"

2" MIN. - 6" MAX.

UNDISTURBED FOUNDATION OR GRAVEL BASE

8" X 12" X 6' CONCRETE FOOTING Omit PORTION WHICH CROSSES PIPE

NEENAH FROST PROOF MANHOLE COVER, CAT. No. R-1572 LABEL "W" OR CITY APPROVED EQUAL.

PRECAST CONCRETE FLAT LID FOR H-20 LOADING (STD.) OR CONCENTRIC CONE (ENGINEER'S APPROVAL ONLY)

2" BRASS NIPPLE

AIR RELIEF OR VAC VALVE VALMATIC (OR CITY APPROVED) (SEE TABLE BELOW)

2" BRASS PIPE

2" BRASS BALL VALVE MUELLER ORISEAL III (OR CITY APPROVED)

2" DOUBLE STRAP SERVICE SADDLE, DUCTILE IRON BODY W/ BRONZE STRAPS.

3/4"-1" GRAVEL

PROPOSED WATER LINE

* AIR RELIEF OR VAC VALVE DATA

<table>
<thead>
<tr>
<th>WATERLINE DIAMETER</th>
<th>INLET SIZE N.P.T.</th>
<th>OUTLET SIZE N.P.T.</th>
<th>ORIFICE SIZE</th>
<th>VALMATIC MODEL NO.</th>
</tr>
</thead>
<tbody>
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<td>16&quot;</td>
<td>2&quot;</td>
<td>1/2&quot;</td>
<td>3/16&quot;</td>
<td>38</td>
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<tr>
<td>24&quot;</td>
<td>2&quot;</td>
<td>1/2&quot;</td>
<td>3/16&quot;</td>
<td>38</td>
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<tr>
<td>OVER 24&quot;</td>
<td></td>
<td></td>
<td></td>
<td>AS DIRECTED BY ENGINEER.</td>
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</tbody>
</table>

CONSTRUCTION STANDARDS

AIR RELIEF OR VAC VALVE ASSEMBLY

16" PIPE OR LARGER

STANDARD No. D-209 SHEET 1 OF 1

CITY OF FARMINGTON

PUBLIC WORKS DEPARTMENT

APPROVED DATE 8/27/13
MEG-A-LUGS ARE REQUIRED UNLESS APPROVED BY WATER & WASTEWATER ADMINISTRATOR

1. AT DEAD ENDS, WRAP FITTINGS WITH TAR PAPER, FELT, PLASTIC ETC. TO PROVIDE BOND BREAK BETWEEN CONCRETE AND FITTINGS
2. ALL THRUST BLOCKING SHALL BE CAST-IN-PLACE CONCRETE HAVING A MINIMUM YIELD STRENGTH OF 2000 P.S.I.
3. THRUST BLOCKING SHALL BE CAST AGAINST UNDISTURBED EARTH. FORMS SHALL BE USED AS REQUIRED TO OBTAIN ADEQUATE BEARING AREA AND TO CONFINE THE CONCRETE THRUST BLOCKING SHALL BEAR ON THE FITTING OR END CAP ONLY AND SHOULD NOT BE ALLOWED TO SPILL OVER THE JOINT OR AGAINST THE PIPE.

CONSTRUCTION STANDARDS
THRUST BLOCKS ONLY WITH APPROVAL

CITY OF FARMINGTON
PUBLIC WORKS DEPARTMENT

APPROVED DATE 4/15/08
MEG-A-LUGS ARE REQUIRED UNLESS APPROVED BY WATER & WASTEWATER ADMINISTRATOR

TABLE OF BEARING AREAS IN SQ. FT FOR CONCRETE
THRUST BLOCKING

FOR 150 P.S.I. INTERNAL STATIC PRESSURE AND 2000 LBS. PER
SQ. FT SOIL BEARING CAPACITY.

<table>
<thead>
<tr>
<th>PIPE SIZE</th>
<th>BENDS</th>
<th></th>
<th></th>
<th>TEES</th>
<th>PLUGS</th>
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<tr>
<td></td>
<td>90°</td>
<td>45°</td>
<td>22 1/2°</td>
<td>11 1/4°</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(in sq. ft)</td>
<td>(in sq. ft)</td>
<td>(in sq. ft)</td>
<td>(in sq. ft)</td>
<td>(in sq. ft)</td>
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<tr>
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<td>0.0</td>
<td>1.00</td>
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<td>6</td>
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<td>13.25</td>
<td>6.75</td>
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<td>30</td>
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<td>36</td>
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<td>58.50</td>
<td>30.00</td>
<td>15.00</td>
<td>76.50</td>
</tr>
</tbody>
</table>

AREAS GIVEN IN TABLE ARE BASED UPON AN INTERNAL STATIC
PRESSURE OF 150 P.S.I. AND A SOIL BEARING CAPACITY OF
2000 LBS. PER SQ. FT. BEARING AREAS FOR ANY PRESSURE
AND SOIL BEARING CAPACITY MAY BE OBTAINED BY MULTIPLYING
THE TABULATED VALUES BY A CORRECTION FACTOR "F".

\[
F = \frac{\text{ACTUAL SPECIFIED TEST PRESSURE IN HUNDREDS OF LBS.}}{\text{ACTUAL SOIL BEARING CAPACITY IN THOUSANDS OF LBS.}}
\]

EXAMPLE: TO FIND BEARING AREA FOR 8" - 90° BEND WITH
A STATIC INTERNAL PRESSURE OF 100 P.S.I. AND WITH A SOIL
BEARING CAPACITY OF 3000 LBS. PER SQ. FT.

\[
F = \frac{1}{3} = 0.33 \text{ TABULATED VALUE} = 550 \text{ SQ. FT.}
\]

\[
0.33 \times 550 = 1.82 \text{ SAY 2 SQ. FT. OR 2 FT. LONG BY 1 FT. HIGH}
\]
FIBERGLASS POST DETAIL

CARSONITE CUM-375
OR APPROVED EQUAL

SECTION VIEW:

FRONT VIEW

NOTE:
TEXT PER CITY ENGINEER
OR HIS/HER DESIGNEE.

CONSTRUCTION STANDARDS

STATIONARY WATER LINE LOCATION MARKER

STANDARD No. D-212 SHEET 1 OF 1

APPROVED DATE 8/27/13

CITY OF FARMINGTON
PUBLIC WORKS DEPARTMENT
NOTES:
1. UNLESS OTHERWISE AUTHORIZED BY THE CITY, ALL SERVICE LINES TAPPED INTO EXISTING WATER MAINS ARE TO BE INSTALL BY THE CITY'S O & M CONTRACTOR FOR 1-1/2" AND SMALLER METER SERVICES.
2. FOR COMMERCIAL PROPERTIES WITH ZERO LOT LINE PLACE METER ONE FOOT BEHIND CURB.
3. WHENEVER POSSIBLE, ALL METERS SHALL BE INSTALLED WITHIN RIGHT-OF-WAY BEHIND SIDEWALK, OUTSIDE OF DRIVEWAY AREA AND CLOSE TO PROPERTY LINE.
4. SEE SPEC. SECTION 002.3.4
5. TAMPERING AND ACCESS OF THE METER CAN IS PROHIBITED. FOR ACCESS INTO METER CAN, CONTACT CITY'S O&M CONTRACTOR.
6. SHOULD THE CITY DEEM USE OF THE PROPERTY AS HIGH HAZARD, THEN AN RP BACKFLOW IN ADDITION TO THE DOUBLE CHECK VALVE WILL BE REQUIRED.
7. THE PROPERTY OWNER SHOULD INSTALL A SIMILAR SHUT OFF VALVE AS INDICATED AT THE TIME OF METER INSTALLATION AS SHOWN.
8. FOR WATER METER CANS PROVIDE NO MORE THAN 4" "PIG-TAIL" SERVICE LINE Stub OUTSIDE OF METER CAN (CUSTOMER SIDE). "PIG-TAIL" SHALL BE WRAPPED TO PREVENT DAMAGE.
9. WITHIN NDOT RIGHT-OF-WAY AREAS ONLY, ALL NEW WATER SERVICE LINES SHALL MAINTAIN A MINIMUM 35" DEPTH FROM FINAL GRADE.
NOTES:
1. UNLESS OTHERWISE AUTHORIZED BY THE CITY, ALL SERVICE LINES TAPPED INTO EXISTING WATER MAINS ARE TO BE INSTALL BY THE CITY'S O & M CONTRACTOR FOR 1-1/2" AND SMALLER METER SERVICES.
2. FOR COMMERCIAL PROPERTIES WITH ZERO LOT LINE PLACE METER ONE FOOT BEHIND CURB.
3. WHENEVER POSSIBLE, ALL METERS SHALL BE INSTALLED WITHIN RIGHT-OF-WAY BEHIND SIDEWALK, OUTSIDE OF DRIVEWAY AREA AND CLOSE TO PROPERTY LINE.
4. SEE SPEC. SECTION 802.8.4
5. TAMPERING AND ACCESS OF THE METER CAN IS PROHIBITED, FOR ACCESS INTO METER CAN, CONTACT CITY'S O & M CONTRACTOR.
6. SHOULD THE CITY DEEM USE OF THE PROPERTY AS HIGH HAZARD, THEN A RP BACKFLOW IN ADDITION TO THE DOUBLE CHECK VALVE WILL BE REQUIRED.
7. THE PROPERTY OWNER SHOULD INSTALL A SIMILAR SHUT OFF VALVE AS INDICATED AT THE TIME OF METER INSTALLATION AS SHOWN.
8. FOR WATER METER CAN; PROVIDE NO MORE THAN 4" "PIG-TAIL" SERVICE LINE STUB OUT OF METER CAN (CUSTOMER SIDE). "PIG-TAIL" SHALL BE WRAPPED TO PREVENT DAMAGE.
9. WITHIN HIGHWAY RIGHT-OF-WAY AREAS ONLY; ALL NEW WATER SERVICE LINES SHALL MAINTAIN A MINIMUM 36" DEPTH FROM FINAL GRADE.

1. UNLESS OTHERWISE AUTHORIZED BY THE CITY, ALL SERVICE LINES TAPPED INTO EXISTING WATER MAINS ARE TO BE INSTALL BY THE CITY'S O & M CONTRACTOR FOR 1-1/2" AND SMALLER METER SERVICES.
2. FOR COMMERCIAL PROPERTIES WITH ZERO LOT LINE PLACE METER ONE FOOT BEHIND CURB.
3. WHENEVER POSSIBLE, ALL METERS SHALL BE INSTALLED WITHIN RIGHT-OF-WAY BEHIND SIDEWALK, OUTSIDE OF DRIVEWAY AREA AND CLOSE TO PROPERTY LINE.
4. SEE SPEC. SECTION 802.8.4
5. TAMPERING AND ACCESS OF THE METER CAN IS PROHIBITED, FOR ACCESS INTO METER CAN, CONTACT CITY'S O & M CONTRACTOR.
6. SHOULD THE CITY DEEM USE OF THE PROPERTY AS HIGH HAZARD, THEN A RP BACKFLOW IN ADDITION TO THE DOUBLE CHECK VALVE WILL BE REQUIRED.
7. THE PROPERTY OWNER SHOULD INSTALL A SIMILAR SHUT OFF VALVE AS INDICATED AT THE TIME OF METER INSTALLATION AS SHOWN.
8. FOR WATER METER CAN; PROVIDE NO MORE THAN 4" "PIG-TAIL" SERVICE LINE STUB OUT OF METER CAN (CUSTOMER SIDE). "PIG-TAIL" SHALL BE WRAPPED TO PREVENT DAMAGE.
9. WITHIN HIGHWAY RIGHT-OF-WAY AREAS ONLY; ALL NEW WATER SERVICE LINES SHALL MAINTAIN A MINIMUM 36" DEPTH FROM FINAL GRADE.
NOTES:
1. UNLESS OTHERWISE AUTHORIZED BY THE CITY, ALL SERVICE LINES TAPPED INTO EXISTING WATER MAINS ARE TO BE INSTALL BY THE CITY'S O & M CONTRACTOR FOR 1-1/2'' AND SMALLER METER SERVICES.
2. FOR COMMERCIAL PROPERTIES WITH ZERO LOT LINE PLACE METER ONE FOOT BEHIND CURB.
3. WHENEVER POSSIBLE, ALL METERS SHALL BE INSTALLED WITHIN RIGHT-OF-WAY BEHIND SIDEWALK, OUTSIDE OF DRIVEWAY AREA AND CLOSE TO PROPERTY LINE.
4. SEE SPEC. SECTION 802.8.4
5. TAMPERING AND ACCESS OF THE METER CAN IS PROHIBITED, FOR ACCESS INTO METER CAN, CONTACT CITY'S O&M CONTRACTOR.
6. SHOULD THE CITY DEEM USE OF THE PROPERTY AS HIGH HAZARD, THEN AN RP BACKFLOW IN ADDITION TO THE DOUBLE CHECK VALVE WILL BE REQUIRED.
7. THE PROPERTY OWNER SHOULD INSTALL A SIMILAR SHUT OFF VALVE AS INDICATED AT THE TIME OF METER INSTALLATION AS SHOWN.
8. FOR WATER METER CANS, PROVIDE NO MORE THAN 4" "PIG-TAIL" SERVICE LINE STUB OUTSIDE OF METER CAN (CUSTOMER SIDE). "PIG-TAIL" SHALL BE WRAPPED TO PREVENT DAMAGE.
9. WITHIN MDOT RIGHT-OF-WAY AREAS ONLY, ALL NEW WATER SERVICE LINES SHALL MAINTAIN A MINIMUM 36" DEPTH FROM FINAL GRADE.
1. For commercial properties with zero lot line place meter one foot behind curb.
2. All meters shall be installed behind sidewalk & outside of proposed driveway.
3. Reference Spec. Section 802.8.4
4. Owner is responsible to install double check valve assembly and valve pit prior to water meter installation.

5. Contractor shall install pipe through the meter pit. City's O&M contractor will cut the pipe and install the meter at a later date.
6. Should the City deem the use of the property as high hazardous, then an RP backflow in lieu of the double check valve will be required (above ground).
7. Tampering and access of meter pit is prohibited for access into meter pit. Contact City's O&M contractor.
8. The city shall install water meter & strainer upon inspection and approval of the meter pit & backflow preventor assembly by the contractor.

Note: For ALL CORROSION VALVE H-15003 (or city approved) 202-N ROMAC TAPPIPI NYLON COATED FOR C120 PVC PIPE DOUBLE STRAPS SS.

CONSTRUCTION STANDARDS
STANDARD No. D-218
PUBLIC WORKS DEPARTMENT
APPROVED SHEET 1 OF 1 8/27/13

REV: DATE
8/13
1. FOR COMMERCIAL PROPERTIES WITH ZERO LOT LINE PLACE METER ONE FOOT BEHIND CURB.
2. ALL METERS SHALL BE INSTALLED BEHIND SIDEWALK & OUTSIDE OF PROPOSED DRIVEWAY.
3. REFERENCE SPEC. SECTION 802.8.4
4. OWNER IS RESPONSIBLE TO INSTALL DOUBLE CHECK VALVE ASSEMBLY AND VALVE BOX PRIOR TO WATER METER INSTALLATION.

5. CONTRACTOR SHALL INSTALL PIPE THROUGH THE METER PIT. CITY'S O&M CONTRACTOR WILL CUT THE PIPE AND INSTALL THE METER AT A LATER DATE.
6. SHOULD THE CITY DEEM THE USE OF THE PROPERTY AS HIGH HAZARDOUS, THEN AN RP BACKFLOW IN LIEU OF THE DOUBLE CHECK VALVE WILL BE REQUIRED.
7. TAMPERING AND ACCESS OF METER PIT IS PROHIBIT FOR ACCESS INTO METER PIT. CONTACT CITY'S O&M CONTRACTOR.
8. THE CITY SHALL INSTALL WATER METER & STRAINER UPON INSPECTION AND APPROVAL OF THE METER PIT & BACKFLOW PREVENTOR ASSEMBLY BY THE CONTRACTOR.
NOTE:
1. FOR COMMERCIAL PROPERTIES WITH ZERO LOT LINE PLACE METER ONE FOOT BEHIND CURB.
2. ALL METERS SHALL BE INSTALLED BEHIND SIDEWALK & OUTSIDE OF PROPOSED DRIVEWAY.
3. REFERENCE SPEC. SECTION 802.8.4
4. OWNER IS RESPONSIBLE TO INSTALL DOUBLE CHECK VALVE ASSEMBLY AND VALVE BOX PRIOR TO WATER METER INSTALLATION.
5. CONTRACTOR SHALL INSTALL PIPE THROUGH THE METER PIT. CITY'S O&M CONTRACTOR WILL CUT THE PIPE AND INSTALL THE METER AT A LATER DATE.

NOTE:
SHOULD THE CITY DEEM THE USE OF THE PROPERTY AS HIGH HAZARDOUS, THEN AN RP BACKFLOW IN LIEU OF THE DOUBLE CHECK VALVE WILL BE REQUIRED.
NOTES:
1. MANHOLE SHALL BE DESIGNED FOR HS-20 LOADING EXCEPT FOR LIDS.
2. ALL PIPE INCLUDING BYPASS SHALL BE 6" C-900 DEPENDNG ON DEMAND FLOW CALCULATIONS.
3. FOR MECHANICAL JOINTS - USE MEGALUGS OR APPROVED.
4. FOR COMMERCIAL PROPERTIES WITH ZERO LOT LINE PLACE METER ONE FOOT BEHIND CURB.
5. ALL METERS SHALL BE INSTALLED BEHIND SIDEWALK & OUTSIDE PROPOSED DRIVEWAY AREAS.
6. REFERENCE SPEC. SECTION 802.8.4
7. OWNER IS RESPONSIBLE TO INSTALL DOUBLE CHECK VALVE ASSEMBLY AND VALVE BOX PRIOR TO WATER METER INSTALLATION.
8. CONTRACTOR SHALL INSTALL PIPE THROUGH THE METER PIT. CITY'S O&M CONTRACTOR WILL CUT THE PIPE AND INSTALL THE METER AT A LATER DATE.
9. SHOULD THE CITY DEEM THE USE OF THE PROPERTY AS HIGH HAZARDOUS, THEN AN RP BACKFLOW IN LIEU OF THE DOUBLE CHECK VALVE WILL BE REQUIRED.
ALL GATE VALVES SHALL MATCH SERVICE LINE SIZE

CONCRETE COLLAR Y CONSTRUCTED IN NON-PAVED AREA 24" X 24" X 4"  

NOTES:
1. MANHOLE SHALL BE DESIGNED FOR HS-20 LOADING EXCEPT FOR LIDS.
2. ALL PIPE INCLUDING BYPASS SHALL BE 8" C-900 DEPENDING ON DEMAND FLOW CALCULATIONS.
3. FOR MECHANICAL JOINTS - USE MEGALUGS OR APPROVED.
4. FOR COMMERCIAL PROPERTIES WITH ZERO LOT LINE PLACE METER ONE FOOT BEHIND CURB.

PLAN VIEW  

PROPERTY OWNER RESPONSIBILITY

CITY OF FARMINGTON RESPONSIBILITY

SECTION VIEW

5. ALL METERS SHALL BE INSTALLED BEHIND SIDEWALK & OUTSIDE OF PROPOSED DRIVEWAY AREAS.
6. REFER TO SPEC. SECTION 802.8.4
7. OWNER IS RESPONSIBLE TO INSTALL DOUBLE CHECK VALVE ASSEMBLY AND VALVE BOX PRIOR TO WATER METER INSTALLATION.
8. CONTRACTOR SHALL INSTALL PIPE THROUGH THE METER PIT. CITY'S O&M CONTRACTOR WILL CUT THE PIPE AND INSTALL THE METER AT A LATER DATE.
9. SHOULD THE CITY DETERMINE THE USE OF THE PROPERTY AS HIGH HAZARDOUS, THEN AN RP BACKFLOW IN LIEU OF THE DOUBLE CHECK VALVE WILL BE REQUIRED.
**NOTES:**

1. **MANIFOLD MUST BE TAPPED ON METER (PRIVATE PROPERTY) SIDE ONLY.**
2. **MANIFOLD SHALL BE INSTALLED OUTSIDE THE SIDEWALK AND DRIVEWAY AREAS.**

---

**MANIFOLD SHALL BE 4" OR 6" C-900 (PVC) PIPE ONLY SEE CHART BELOW**

<table>
<thead>
<tr>
<th>PIPE SIZES VS # OF METERS</th>
<th>MANIFOLD SIZE</th>
<th>5/8&quot; METER</th>
<th>1&quot; METER</th>
</tr>
</thead>
<tbody>
<tr>
<td>4&quot;</td>
<td>2-10</td>
<td>2-6</td>
<td></td>
</tr>
<tr>
<td>6&quot;</td>
<td>11+</td>
<td>7+</td>
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</tr>
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</table>
NOTE:
1. FOR WATER SERVICE CONNECTIONS SEE STD. No. D-215 through D-222.
2. FOR FIRE FLOW AND FIRELINE INSTALLATION POLICY, SEE CITY OF FARMINGTON WEBSITE AT WWW.FMTN.ORG.
3. ALL PRIVATE VALVES ON THE SPRINKLER SYSTEM SHALL BE ELECTRONICALLY MONITORED AND SHALL BE INSPECTED AND APPROVED BY THE FARMINGTON FIRE DEPARTMENT.
4. WHEN AN ON-SITE HYDRANT IS REQUIRED, THE MINIMUM PIPE SIZE SHALL BE 8" UP TO THE REMOTE MOST HYDRANT TEE.
5. HYDRAULICALLY CALCULATED FIRE SERVICE LINE TO THE BASE OF THE RISER, MINIMUM 4" FOR NFPA 13 AND NFPA 13R SYSTEMS, MINIMUM 4-1/2" FOR NFPA 13D SYSTEMS.
6. FIRELINE SHALL NOT SUPPLY MORE THAN ONE PROPERTY UNLESS SPECIFIED BY THE CITY. FIRELINES THAT SUPPLY MULTIPLE BUILDINGS ON A PROPERTY SHALL BE EQUIPPED WITH PIV'S (POST INDICATOR VALVE) AT EACH BUILDING.
7. ALL 4" AND LARGER FIRE LINES SHALL BE C900 PVC.
NOTE:

IF GATE VALVE IS APPROXIMATELY 6 FEET OR LESS FROM THE MAIN TEE, THEN PLUG IMMEDIATELY AFTER GATE VALVE. OTHERWISE, PLUG AFTER MAIN LINE TEE.
HYDRANT, SLAB AND PIPE SEGMENT TO BE REMOVED

FILL (FLUSH) TO MATCH EXISTING SURFACE

NOTE:
IF GATE VALVE IS APPROXIMATELY 6 FEET OR LESS FROM THE MAIN TEE, THEN PLUG IMMEDIATELY AFTER GATE VALVE. OTHERWISE, PLUG AFTER MAIN LINE TEE.
NOTE:
1. INSTALL BOLTED PLUG FOR ABANDONMENT.
2. USE A RESTRRAINING JOINT WITH FLANGE PLATE TO SEAL.

SECTION A-A
PAVING & STREETS
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<tr>
<th>SHEET NO.</th>
<th>TITLE</th>
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<tbody>
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<td>PAVING CURB &amp; GUTTER</td>
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<tr>
<td>D-303</td>
<td>STANDARD RETAINING WALL</td>
</tr>
<tr>
<td>D-304</td>
<td>CONCRETE RETAINING WALL</td>
</tr>
<tr>
<td>D-305</td>
<td>STANDARD PAVING DETAIL</td>
</tr>
<tr>
<td>D-306</td>
<td>PAVEMENT PATCHING CITY STREETS (2 SHEETS)</td>
</tr>
<tr>
<td>D-310</td>
<td>PAVING AND PATCHING</td>
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<tr>
<td>D-311</td>
<td>STRUCTURE ADJUSTMENT (3 SHEETS)</td>
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<tr>
<td>D-313</td>
<td>SIDEWALK &amp; DRIVEPAD</td>
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<tr>
<td>D-314</td>
<td>PAVEMENT PATCHING STATE HWY. (2 SHEETS)</td>
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<tr>
<td>D-315</td>
<td>SURVEY MONUMENT</td>
</tr>
<tr>
<td>D-316</td>
<td>SURVEY MONUMENT WITHOUT FRAME</td>
</tr>
<tr>
<td>D-317</td>
<td>BRASS CAP FOR SURVEY MONUMENT</td>
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<tr>
<td>D-318</td>
<td>PAVING-SIDEWALK OBSTRUCTIONS</td>
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<td>D-319</td>
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<td>D-320</td>
<td>PAVING-TYPICAL RESIDENTAL STREET INTERSECTION (2 SHEETS)</td>
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<tr>
<td>D-321</td>
<td>PAVING COMMERCIAL ALLEY</td>
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<tr>
<td>D-322</td>
<td>PAVING ARTERIAL OR COLLECTOR WITH MEDIAN</td>
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<tr>
<td>D-323</td>
<td>PAVING ARTERIAL OR COLLECTOR WITHOUT MEDIAN</td>
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<tr>
<td>D-324</td>
<td>PAVING-SPECIAL VALLEY GUTTERS</td>
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## CONSTRUCTION STANDARDS
### PAVING AND STREET

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<tr>
<td>D-325</td>
<td>EYE BROW VALLEY GUTTER</td>
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<tr>
<td>D-326</td>
<td>SCUPPER</td>
</tr>
<tr>
<td>D-328</td>
<td>RESIDENTIAL SPEED HUMP</td>
</tr>
<tr>
<td>D-329</td>
<td>DRIVEWAY TO STREET SIGHT TRIANGLE</td>
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<tr>
<td>D-330</td>
<td>STREET INTERSECTION VIEW TRIANGLES</td>
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<tr>
<td>D-331</td>
<td>REPAVEMENT MILLING TOLERANCE – NEW DETAIL</td>
</tr>
<tr>
<td>D-332</td>
<td>COLD MILL PAVING RESIDENTIAL STREET – NEW DETAIL</td>
</tr>
<tr>
<td>D-338</td>
<td>VERTICAL SURFACE DISCONTINUITIES AND HORIZONTAL OPENINGS</td>
</tr>
<tr>
<td>D-339</td>
<td>PERPENDICULAR CURB RAMPS (2 SHEETS)</td>
</tr>
<tr>
<td>D-340</td>
<td>PARALLEL CURB RAMP (2 SHEETS)</td>
</tr>
<tr>
<td>D-341</td>
<td>DIAGONAL CURB RAMPS (2 SHEETS)</td>
</tr>
<tr>
<td>D-342</td>
<td>COMBINATION CURB RAMPS (2 SHEETS)</td>
</tr>
<tr>
<td>D-343</td>
<td>PEDESTRIAN REFUGE ISLAND</td>
</tr>
<tr>
<td>D-344</td>
<td>CURB RAMPS AND SIDEWALK TRANSITION DETAILS (2 SHEETS)</td>
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<tr>
<td>D-345</td>
<td>DETECTABLE WARNING SURFACE (2 SHEETS)</td>
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<tr>
<td>D-346</td>
<td>DRIVEWAY APRONS (4 SHEETS)</td>
</tr>
<tr>
<td>D-347</td>
<td>PEDESTRIAN ACCESS DETAILS STAIRWAY AND HANDRAILS (5 SHEETS)</td>
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</tbody>
</table>
CONSTRUCTION STANDARDS

PAVING CURB & GUTTER

STANDARD No. D-301 SHEET 1 OF 1

CONSTRUCTION

1) FOR ALL CURBING AND OR GUTTERS PROVIDE CONTRACTION JOINTS AT 10' O.C. ALSO PROVIDE 1/2" PREFORMED EXPANSION JOINTS AT 50' O.C. ADJACENT TO BUILDING AND WALLS, AT CURB RETURNS AND AT EACH SIDE OF DRIVEWAYS. EXPANSION JOINT MATERIALS MUST EXTEND FULL THICKNESS OF CONCRETE SECTION.

2) CONCRETE SHALL BE 5.5 SACK, 3500 PSI 28 DAY STRENGTH.

3) CONCRETE FOR ALL VALLEY GUTTERS WILL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI IN 24 HOURS.

4) SEE D-305 FOR INSTALLATION REQUIREMENTS.

5) BASE COURSE UNDER CURB & GUTTER MINIMUM 3" THICK.

6) CONSTRUCT GUTTER WITH #5 REBAR FOR COMMERCIAL, ONE BAR PER FOOT OF WIDTH, 2" MINIMUM CLEARANCE.

7) SEE D-324 FOR WIDTH VARIATIONS

REV. DATE

12/9/02
11/19/04

APPROVED DATE 4/1/08

CITY OF FARMINGTON
PUBLIC WORKS DEPARTMENT
NOTES

1. GROUT TO ATTAIN 2000 P.S.I. WITHIN 28 DAYS.

2. FILL MATERIAL 1'-0" MIN. BEHIND WALL TO BE FREE-DRAINING SAND OR GRAVEL.

3. GROUT FILL ALL CELLS PRIOR TO PLACING CAP.

CONSTRUCTION STANDARDS

STANDARD RETAINING WALL

STANDARD No. D-303 SHEET 1 OF 1

APPROVED DATE 4/6/08
NOTES

1. THIS WALL DESIGN IS TO BE USED ONLY TO SEPARATE PROPERTY
2. DIMENSION 'A' SHALL NOT BE LESS THAN 30"
3. FOUNDATIONS OR SURCHARGE WILL NOT BE CLOSER THAN 5'-0"
4. CONCRETE WILL OBTAIN 4000 P.S.I. IN 28 DAYS.
5. STEEL MUST BE 60,000 P.S.I.
6. WALL CONSTRUCTED ON SILT - CHANGE BASE LENGTH OF 26" TO 30"
RIGHT-OF-WAY
STREET WIDTH
40' RESIDENTIAL - 48' ARTERIAL
CURB & GUTTER
RESIDE -48 ARTERIAL
CURB & GUTTER
COMPACTED BASE COURSE
TRANSMON FROM NORMAL CROWN TO FLAT SECTION
SEE NOTES 1, 2 & 3. ON THIS SHEET
SECTION B-B

ASPHALTIC CONCRETE
SURFACE COURSE
RESIDENTIAL (MINIMUM)

ASPHALTIC CONCRETE
SURFACE COURSE
ARTERIAL (MINIMUM)

GENERAL NOTES
1. BASE COURSE SHALL COMPLY WITH SECTION 302 IN THE TECHNICAL SPECIFICATION.
2. REDUCE CROWN TO FLAT SECTION AT INTERSECTIONS ONLY REQUIRED FOR DRAINAGE.
3. REDUCE NORMAL CROWN TO HALF CROWN AT THROUGH INTERSECTIONS WHERE DRAINAGE ACROSS ROADWAY IS NOT REQUIRED.
4. CARRY NORMAL CROWN THROUGH INTERSECTIONS WHERE DRAINAGE ACROSS ROADWAY IS NOT REQUIRED.
5. PAYMENT FOR SUBGRADE PREPARATION UNDER CURB & GUTTER SHALL BE INCLUDED WITH CURB & GUTTER BID ITEMS.
6. PAYMENT FOR SUBGRADE PREPARATION UNDER SIDEWALKS AND DRIVEWAY SLABS SHALL BE INCLUDED WITH SIDEWALK AND DRIVEWAY BID ITEMS.
7. USE 2:1 SLOPE WHERE EASEMENTS ARE REQUIRED FOR EITHER CUT OR FILL SECTION.
8. UP OF GUTTER TO BE DEPRESSED AS NEEDED TO INSURE DRAINAGE ACROSS INTERSECTION.
9. CROWN HEIGHT FROM GUTTER ELEVATION TO BE 6", UNLESS OTHERWISE SPECIFIED.
10. BASE COURSE UNDER CURB & GUTTER MINIMUM 3" THICK.

CONSTRUCTION
STANDARDS
STANDARD PAVING
DETAIL
STANDARD No. D-305 SHEET 1 OF 1
APPROVED DATE 02/10/22
CITY OF FARMINGTON
PUBLIC WORKS DEPARTMENT
RESIDENTIAL — ARTERIAL

MATCH EXISTING ASPHALT SURFACE
OR 2.5" ASPHALTIC HOT MIX
SURFACING LIFT

REMOVE AFTER PLACEMENT
OF BACKFILL AND BASE

EXISTING OIL MAT

EXISTING ASPHALT SURFACE

MATCH EXISTING BASE COURSE OR
6" BASE COURSE COMPACTED
(95% COMPACTION MINIMUM)

COMPACTED SUBGRADE AT 95% COMPACTION
(Road base or suitable material as
determined by the engineer)

12" BASE COURSE COMPACTED
(95% COMPACTION, MINIMUM)

COMPACTED SUBGRADE AT 95% COMPACTION
(Road base or suitable material as
determined by the engineer)

SUITABLE MATERIAL COMPACTED IN 6" Lifts.
(SAND OR SUITABLE MATERIAL AS
DETERMINED BY THE ENGINEER)

6" PIPE BEDDING.
(SAND OR SUITABLE MATERIAL AS
DETERMINED BY THE ENGINEER)

NOTES:

1. AS DETERMINED BY A.S.T.M. D-1557 A.A.S.H.T.O. DEG M-147 MOISTURE
CONTENT OF ALL COMPACTED SUBGRADE MATERIAL IN PLACE SHALL BE
+ OR - 3% OF OPTIMUM MOISTURE.
2. ALL PAVEMENT CUT EDGES WILL BE TRIMMED TO PRESENT AN EVEN
LINE PRIOR TO REPLACEMENT OF PAVING MATERIALS
3. 3" MINIMUM TO 6" MAXIMUM THICKNESS WITH 3" MAXIMUM LIFTS.
4. APWA ASPHALT MIX DESIGN TYPE B, C, D, E, SP-II, SP-III AND SP-IV.
5. NMDOT ASPHALT MIX DESIGN TYPES SP-II, SP-III, AND SP-IV.
NOTES

1. AS DETERMINED BY A.S.T.M. D-1557 A.A.S.H.T.O. TECHNICAL REPORT M-147. The moisture content of all compacted subgrade material in place shall be ± 3% of optimum moisture.

2. All pavement cut edges will be trimmed to present an even line prior to replacement of paving materials.

3. 4" minimum to 6" maximum thickness - which ever is greater (with engineer approval) with 3" maximum lifts.

4. APWA Asphalt Mix Design Types B, C, D, E, SP-II, SP-III, and SP-IV.

5. NMDOT Asphalt Mix Design Types SP-II, SP-III, and SP-IV.

CONSTRUCTION STANDARDS  
PAVEMENT TRENCH PATCHING CITY STREET  
STANDARD No. D-306 SHEET 2 OF 2  
APPROVED DATE 09/10/22  
CITY OF FARMINGTON  
COMMUNITY WORKS DEPARTMENT
CURB & GUTTER

GENERAL NOTES:
EgDES OF PAVEMENT CUTS
WILL BE EITHER PERPENDICULAR
OR PARALLEL TO THE DIRECTION
OF TRAFFIC.

CONSTRUCTION
STANDARDS

PAVING AND PATCHING

TYPICAL SECTION

6" CEMENT TREATED BASE
COURSE OR 4" ASPHALT TREATED
BASE COURSE

1" ASPHALTIC CONCRETE
SURFACE COURSE

EXISTING PAVING

TACK COAT

12" COMPACTED SUBGRADE
PREPARATION OR MAY BE
UNDISTURBED EARTH

3" ASPHALTIC CONCRETE
BASE COURSE

UNDISTURBED EARTH

CITY OF
FARMINGTON
PUBLIC
WORKS
DEPARTMENT

CONSTRUCTION
STANDARDS

PAVING AND PATCHING

STANDARD No. D-310 SHEET 1 OF 1

APPROVED DATE 4/2/06
LESS THAN 1 BRICK (4" OR LESS) REMOVE 1-4 BRICK (4" TO 12")

LOWERING STRUCTURE

LESS THAN 1 BRICK (4" OR LESS) ADD 1-4 BRICK (4" TO 12")

RAISING STRUCTURE

12" OR MORE LOWER STRUCTURE

ADJUST MANHOLE BARREL IF PROPOSED ADJUSTMENT WOULD MAKE STACK MORE THAN 12".

ADD ROWS OF BLOCK OR ADJUSTING RINGS

REPLASTER INSIDE AND WITH 1/2" MORTAR WHERE DAMAGE

12" OR MORE RAISE STRUCTURE

REPLASTER INSIDE AND WITH 1/2" MORTAR WHERE DAMAGE

CONSTRUCTION STANDARDS

STRUCTURE ADJUSTMENT

STANDARD No. D-311 SHEET 1 OF 3

CITY OF FARMINGTON PUBLIC WORKS DEPARTMENT

APPROVED DATE 5/11/11
NOTES

1. MATCH EXISTING THICKNESS OF A.C. (3" MIN. TO 6" MAX.)
2. MAX. OF 12" GRADE RING ADJUSTMENT

REV. DATE
△ 01/19/17

STRUCTURE ADJUSTMENT
PAVEMENT FINISH TREATMENT

REV. DATE
△ 01/19/17

VALVE BOX ADJUSTMENT
PAVEMENT FINISH TREATMENT

NOTE: FOR GRAVEL ROAD SEE D-203

CONSTRUCTION STANDARDS

STRUCTURE ADJUSTMENT

STANDARD No. D-311 SHEET 2 OF 3

APPROVED DATE 1/19/17

CITY OF FARMINGTON
PUBLIC WORKS DEPARTMENT
**PLAN VIEW**

**TYPICAL CONCRETE COLLAR DETAIL**

**NON-PAVED AREA**

---

**NOT TO SCALE**

**CONSTRUCTION STANDARDS**

**STRUCTURE ADJUSTMENT**

STANDARD No. D-311 SHEET 3 OF 3

APPROVED DATE 8/27/13

CITY OF FARMINGTON
PUBLIC WORKS DEPARTMENT
NOTES:

1. INSTALL APPROVED 1/2 INCH PRE-FORMED EXPANSION JOINT MATERIAL (BITUMINOUS TYPE) WHERE DRIVE PADS AND CURB & GUTTER MEET, INSTALL 50 LB. ROOFING FELT AROUND POLES, HYDRANTS OR ANY OTHER CONCRETE STRUCTURE (AS SHOWN ON DRAWING).

2. DRIVEPADS WIDER THAN 18' (NORMAL) TO HAVE A 1/2 INCH EXPANSION JOINT AT THE MIDPOINT. DRIVEPADS WIDER THAN 36' TO HAVE EXPANSION JOINTS ON EQUALLY SPACED WITH NOT MORE THAN 18' BETWEEN JOINTS. SIDEWALK CONSTRUCTION JOINTS TO BE MADE AT INTERVALS NOT EXCEEDING 6"-0" MATCHING CONSTRUCTION JOINTS ON CURBING WHEREVER POSSIBLE, WITH EXPANSION JOINTS EVERY 40' TO 50'.

3. PARKWAY TO BE DETERMINED BY AVAILABLE RIGHT OF WAY (IF LESS THAN 2'-0" USE CURB TYPE SIDEWALK).

4. SIDEWALK WIDTH SHALL BE 60" MINIMUM.


6. SUBGRADE UNDER SIDEWALK AND DRIVEPAD SHALL BE COMPACTED TO 95% MAXIMUM DENSITY TO A DEPTH OF 6".

7. DEVIATIONS FROM THESE STANDARDS SHALL BE SUBMITTED TO THE CITY ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION.

8. ALL EXPANSION JOINTS TO BE CONSTRUCTED AT FULL DEPTH OF SIDEWALK.

9. ALL CONCRETE SHALL BE 3000 PSI AT 28 DAYS.

10. RESIDENTIAL DRIVEWAY SHALL BE 6" THICK AND COMMERCIAL DRIVEWAY SHALL BE 8" THICK (REINFORCED).
ASPHALT CONCRETE PAVEMENT

EXISTING 1" ASPHALTIC HOT MIX TYPE B OR C SURFACING COURSE REMOVED AFTER PLACEMENT OF BACKFILL AND C.T.B./A.T.B.

TACK COAT

EXISTING 3" ASPHALTIC HOT MIX B.C.

EXISTING GRAVEL OR EMULSIFIED ASPHALT OR CEMENT STABILIZED BASE INITIAL TRENCH CUT

6" SUBGRADE SUITABLE MATERIAL 95% COMPACTION (MODIFIED)

SUBGRADE SUITABLE MATERIAL 95% COMPACTION (MODIFIED)

PORTLAND CEMENT CONCRETE

REMOVE AFTER PLACEMENT OF BACKFILL & CUTS IN TRENCH

INITIAL TRENCH CUT

PORTLAND CEMENT CONCRETE SAME THICKNESS AS EXITING PAVEMENT

SAW CUT PRIOR TO REMOVAL

PORTLAND CEMENT CONCRETE EXISTING

STABILIZED CEMENT OR GRAVEL BASE

8" SUBGRADE SUITABLE MATERIAL 95% COMPACTION (MODIFIED)

SUBGRADE SUITABLE MATERIAL 95% COMPACTION (MODIFIED)

NOTE:

1. APWA ASPHALT MIX DESIGN TYPES B,C,D,E, SP-II, SP-III AND SP-IV.
2. NMDOE ASPHALT MIX DESIGN TYPES SP-II, AND SP-IV.

CONSTRUCTION STANDARDS

PAVEMENT PATCHING

STANDARD No. D-314 SHEET 1 OF 2

APPROVED DATE 02/10/22
1. AS DETERMINED BY A.A.S.H.T.O. DEG. M-147 MOISTURE CONTENT OF ALL COMPACTED SUBGRADE MATERIAL IN PLACE SHALL BE NO GREATER THAN 2% ABOVE OPTIMUM TO 3% BELOW OPTIMUM.

2. THE METHOD OF PAVEMENT REPLACEMENT FOR TRENCHES IS IN ACCORDANCE WITH N.M.D.O.T. DESIGN REQUIREMENTS & WILL ONLY APPLY TO STREETS OR ROADS WHICH REQUIRE N.M.D.O.T. UTILITY INSTALLATION PERMITS.

3. N.M.D.O.T. ASPHALT MIX DESIGN TYPES SP-II, SP-III, AND SP-IV
PLAN

SURVEY MONUMENT FRAME SHALL BE ADJUSTED TO THE FINISHED GRADE PRIOR TO PLACING OF THE ASPHALTIC CONCRETE.

SECTION

CAST IRON (MIN. WT. OF FRAME 80 LBS.)

CATCH BASIN

1-1/2"

3/4"

1"

SECTION A-A

SECTION

BOTTOM OF COVER

CORE 3/4" HOLES

CAST IRON (MIN. WT. 29 LBS.)

3/4"

1-1/2"

7-1/8"

1-1/4"

7-5/8"

3-5/8"

5-1/8"

COVER SHALL BE ATTACHED TO INSIDE OF FRAME WITH 16" OF 3/8" CHAIN WITH 1/2" BOLTS AS SHOWN. PEEN THREAD END OF BOLT.

TOP OF COVER

1-1/4"

1/2" BOLT

3/8" CHAIN

CONSTRUCTION STANDARDS

SURVEY MONUMENT

STANDARD No. D-315 SHEET 1 OF 1

APPROVED DATE 4/3/08

CITY OF FARMINGTON

PUBLIC WORKS DEPARTMENT
NOTE
TO BE USED AT:
P.C.'S & P.T.'S OF CURVES OR P.I. WHEN P.I. FALLS IN PAVEMENT
RADIUS POINT AT END OF CUL-DE-SAC

CITY OF FARMINGTON
PUBLIC WORKS DEPARTMENT
CONSTRUCTION STANDARDS
SURVEY MONUMENT WITHOUT FRAME
STANDARD No. D-316 SHEET 1 OF 1
APPROVED DATE 4/5/08
NOTES

1. ORIGINAL STONE TO BE USED WHEN FOUND.

2. BRASS CAP TO BE SET IN FRESH CONCRETE AT TIME OF POURING IN PLACE. NEW MEXICO LICENSED SURVEYOR TO SET CROSS ON BRASS MARKER.
POWER POLE WITH 1/2" BITUMINOUS EXPANSION JOINT

Δ 48" (MIN.) OR PAVED AS SHOWN BELOW
PREFORMED BITUMINOUS EXPANSION JOINT MATERIAL AROUND POLE AND FIRE HYDRANTS

1/2" BIT EXPANSION JOINT TYPICAL

FIRE HYDRANT

NOTES:
1. FOR SIDEWALK CONSTRUCTION DETAILS, SEE STANDARD 313
2. PROVIDE 1/2" PREFORMED BITUMINOUS EXPANSION JOINT MATERIAL AROUND ALL MAILBOXES, POWER POLES & FIRE HYDRANTS WITHIN THE SIDEWALK AREA.
3. PROVIDE 1/2" PREFORMED BITUMINOUS EXPANSION JOINT MATERIAL AT TRANSITION TO STANDARD WIDTH SIDEWALK.
PAVEMENT SECTION

MINIMUM

COMPACTION 95% ▲
MIN. 2 1/2" ASPHALT ▲

6" COMPACTED BASE-COURSE ▲
(95% COMPACTION)

COMPACTED SUBGRADE
(90% COMPACTION)
*SEE NOTE 3

NOTES

1) CROWN ON STREETS LESS THAN 40" TO BE AT A 2% SLOPE UNLESS OTHERWISE SPECIFIED.

2) ALL SUBGRADE COMPACTION FOR C & G WILL EXTEND 12" MIN. ON EITHER SIDE OF CURB AND GUTTER.

3) POOR SUBGRADE MAY REQUIRE ADDITIONAL SOIL MATERIAL AND/OR M relentless MATERIAL, APPROVAL BY THE CITY ENGINEER REQUIRED.

4) SUBGRADE PREPARATION UNDER SIDEWALK AND DRIVEPADS SHALL BE INCLUDED WITH THE PARTICULAR ITEM.

5) BASE COURSE UNDER CURB & GUTTER MINIMUM 3" THICK.

6) FINAL PAVEMENT SECTION TO BE DESIGNED BY A GEOTECHNICAL ENGINEER.

RIGHT - OF - WAY VARIES

STREET WIDTH - 40' TYPICAL

CARRY BASE COURSE UNDER CURB 3" THICK

SEE SIDEWALK STD. 313
SEE C & G STD. 301
6" CROWN TYP. NOTE 1

TYPICAL RESIDENTIAL STREET SECTION

CONSTRUCTION STANDARDS

PAVING
RESIDENTIAL STREET

STANDARD No. D-319 SHEET 1 OF 1

APPROVED DATE 4/15/08

CITY OF FARMINGTON
PUBLIC WORKS DEPARTMENT
1. Reduce normal crown to no crown section when approaching perpendicular to valley gutter.

2. Reduce normal crown to half crown section when street is parallel to valley gutter.

3. For "T" intersection the through street will retain normal crown & the leg of the "T" will retain normal crown to no crown section when approaching perpendicular to valley gutter.

### Table: Paving Typical Residential Street Intersection

<table>
<thead>
<tr>
<th>Thoroughfares</th>
<th>Principal Arterials</th>
<th>Minor Arterials</th>
<th>Collectors</th>
<th>Nonresidential</th>
<th>Residential</th>
<th>Frontage Roads (3)</th>
<th>Alleys</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rights of Way (1)</td>
<td>100'</td>
<td>80'</td>
<td>60'</td>
<td>60'</td>
<td>50'</td>
<td>40'</td>
<td>28'</td>
</tr>
<tr>
<td>Pavement Widths (2)</td>
<td>64'</td>
<td>64'</td>
<td>48'</td>
<td>48'</td>
<td>40'</td>
<td>36'</td>
<td>18'</td>
</tr>
<tr>
<td>Traffic Lanes</td>
<td>4 TO 6</td>
<td>4 TO 4</td>
<td>2</td>
<td>2</td>
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<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Lane Width</td>
<td>11'</td>
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<td>11'</td>
<td>12'</td>
<td>12'</td>
<td>11'</td>
</tr>
<tr>
<td>Minimum Horizontal Radius (Centerline)</td>
<td>300'</td>
<td>300'</td>
<td>300'</td>
<td>300'</td>
<td>100'</td>
<td>100'</td>
<td>100'</td>
</tr>
<tr>
<td>Parking</td>
<td>NONE</td>
<td>NONE</td>
<td>NONE</td>
<td>2 SIDES</td>
<td>2 SIDES</td>
<td>NONE</td>
<td>NONE</td>
</tr>
<tr>
<td>Grades Maximum / Minimum</td>
<td>6.0% / 0.5%</td>
<td>6.0% / 0.5%</td>
<td>6.0% / 0.5%</td>
<td>6.0% / 0.5%</td>
<td>5.0% / 0.5%</td>
<td>5.0% / 0.5%</td>
<td>5.0% / 0.5%</td>
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<tr>
<td>Median</td>
<td>18'</td>
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<td>NONE</td>
<td>NONE</td>
<td>NONE</td>
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<tr>
<td>Sidewalks (4)</td>
<td>BOTH</td>
<td>BOTH</td>
<td>BOTH</td>
<td>BOTH</td>
<td>BOTH</td>
<td>BOTH</td>
<td>BOTH</td>
</tr>
</tbody>
</table>

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**NOTES**

- Property Line
- Curb & Gutter
- Full Crown
- Flat Section
- Transition

---

**Construction Standards**

- City of Farmington
- Public Works Department

**Approved Date**: 5/13/13
NOTES

1) REDUCE NORMAL CROWN TO NO CROWN SECTION WHEN APPROACHING PERPENDICULAR TO VALLEY GUTTER.

2) REDUCE NORMAL CROWN TO HALF CROWN SECTION WHEN STREET IS PARALLEL TO VALLEY GUTTER.

3) FOR "T" INTERSECTION, THE THROUGH STREET WILL RETAIN NORMAL CROWN AND THE LEG OF THE "T" WILL RETAIN NORMAL CROWN TO NO CROWN SECTION WHEN APPROACHING PERPENDICULAR TO THE VALLEY GUTTER.

SECTION A-A INTERSECTION VALLEY GUTTER
NOTES
1) TYPE & LOCATION OF JOINTS SHALL BE DEFINED ON THE PROJECT CONSTRUCTION PLANS.
2) ALLEY SECTION WILL BE INVERTED EXCEPT AS APPROVED BY ENGINEER.
3) FINAL PAVEMENT SECTION TO BE DESIGNED BY A GEOTECHNICAL ENGINEER.

PAVEMENT SECTION MINIMUM

TYPICAL COMMERCIAL ALLEY SECTION

CONSTRUCTION STANDARDS

PAVING COMMERCIAL ALLEY
STANDARD No. D-321 SHEET 1 OF 1

APPROVED DATE 02/19/92

CITY OF FARMINGTON COMMUNITY WORKS DEPARTMENT
PAVEMENT SECTION

MINIMUM

- 5/8" PLANT MIX SEAL (IF REQUIRED)
- 8" COMPACTED BASE (95% COMPACTION)
- COMPACTED SUBGRADE (90% COMPACTION)

NOTES

1) STRUCTURAL THICKNESS OF PAVEMENT COMPONENTS WILL BE AS PER PAVEMENT DESIGN. THE DESIGN METHOD UTILIZED SHALL BE AS CURRENTLY IN USE BY THE N.M.D.O.T.
2) ALL SUBJECT COMPACTION FOR C & G WILL EXTEND 12" MINIMUM ON EITHER SIDE OF C & G OR CURB SECTION.
3) SUBGRADE PREPARATION UNDER SIDEWALK AND DRIVEPADS SHALL BE INCLUDED WITH THE PARTICULAR ITEM.
4) PLANT MIX SEAL SHALL BE PLACED ABOVE THE TOE OF THE GUTTER.
5) POOR SUBGRADE MAY REQUIRE ADDITIONAL SOIL MATERIAL AND/OR GEOTEXTILE MATTING MATERIAL (APPROVAL BY CITY ENGINEERS) REQUIRED.

CONCRETE MEDITAN SECTION

WIDTH VARIES

1/2" BIT. EXP. JOINT TYP. BOTH SIDES

PAVED MEDITAN SECTION

1" ASPHALT SURFACE COURSE

C & G SEE STD. 301

COMPACTED SUBGRADE 95% COMPACTION

TYPICAL ARTERIAL OR COLLECTOR STREET SECTION WITH MEDIAN

1/2 RIGHT-OF-WAY WIDTH VARIES

1/2 STREET WIDTH

5" SIDEWALK VARY

2% SLOPE TYPICAL

SEE NOTE 3 & 6 ABOVE

CITY OF FARMINGTON

COMMUNITY WORKS DEPARTMENT

CONSTRUCTION STANDARDS

PAVING ARTERIAL OR COLLECTOR WITH MEDIAN

STANDARD No. D-322 SHEET 1 OF 1

APPROVED DATE 01/10/23
NOTES
1) STRUCTURAL THICKNESS OF PAVEMENT COMPONENTS WILL BE AS PER PAVEMENT DESIGN. THE DESIGN METHOD UTILIZED SHALL BE AS CURRENTLY IN USE BY THE N.M.U.O.T.
2) ALL SUBJECT COMPACTION FOR C & G WILL EXTEND 12" MINIMUM ON EITHER SIDE OF C & G OR CURB SECTION.
3) SUBGRADE PREPARATION UNDER SIDEWALK AND DRIVEPADS SHALL BE INCLUDED WITH THE PARTICULAR ITEM.
4) PLANT MIX SEAL SHALL BE PLACED ABOVE THE TOE OF THE GUTTER.
5) POOR SUBGRADE MAY REQUIRE ADDITIONAL SOIL MATERIAL AND/OR GEOTEXTILE MATTING MATERIAL (APPROVAL BY CITY ENGINEER) REQUIRED.
6) BASE COURSE UNDER CURB & GUTTER MINIMUM 3" THICK.
7) FINAL PAVEMENT SECTION TO BE DESIGNED BY A GEOTECHNICAL ENGINEER.

PAVEMENT SECTION MINIMUM

TYPICAL ARTERIAL OR COLLECTOR STREET SECTION
NOTES

1. VALLEY GUTTERS SHOWN IN THIS DRAWING ARE TO BE USED WHERE THERE IS A NON-STOPPING CONDITION FOR VEHICLES CROSSING THE VALLEY GUTTER.

2. VALLEY GUTTERS ARE NOT TO BE USED AS STANDARD DESIGN FOR CROSSING WATER ACROSS COLLECTOR OR ARTERIAL ROADWAYS UNLESS THERE IS NO ALTERNATIVE.

3. CONCRETE FOR ALL VALLEY GUTTERS WILL HAVE A MIN. COMpressive STRENGTH OF 3000 PSI IN 24 HOURS.

<table>
<thead>
<tr>
<th>DESIGN SPEED</th>
<th>WIDTH</th>
<th>CROWN TRANSITION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>35 MPH</td>
<td>10'</td>
<td>1:150</td>
</tr>
<tr>
<td>35 MPH</td>
<td>12'</td>
<td>1:150</td>
</tr>
<tr>
<td>50 MPH</td>
<td>16'</td>
<td>1:200</td>
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</table>

SECTION B-B

HIGHER SPEED ROADWAY

SECTION A-A

LOCAL STREET

CONSTRUCTION STANDARDS

PAVING - SPECIAL VALLEY GUTTERS

STANDARD No. D-324 SHEET 1 OF 1
NOTES

1. INVERT OF VALLEY GUTTER TO EXTEND FROM FLOWLINE OF UPSTREAM CURB RETURN TO FLOWLINE OF DOWNSTREAM CURB RETURN.

2. ENTIRE VALLEY GUTTER TO BE REINFORCED WITH 6 X 6 NO. 6 WOVEN WIRE FABRIC.
NEENAH FOUNDRY MODEL R-4995 - R-4996 TYPE M OR APPROVED EQUAL.

Sections: Thru Drains, Type M

NOTES
1. ANGLE EQUALS 45° SPECIFIED ON PLAN
2. DIMENSION 'B' EQUALS 'A' + 2'
3. (-----) INDICATES DIRECTION OF FLOW
4. TWO COATS OR BLASTED & POWDER COATED
5. R EQUALS 1" UNLESS OTHERWISE DIRECTED
6. H EQUALS CURB FACE HEIGHT
7. FOR ROLL CURB AND GUTTER, USE 2' TRANSITIONS TO VERTICAL CURB.
8. 3500 PSI

EXPANSION JOINT

SECTION 'A-A'

SECTION 'B-B'
NOTES:

1. HUMPS TO BE THE FULL HEIGHT AS SHOWN.
2. CROSS-SECTION ELEVATIONS SHALL HAVE A MAXIMUM TOLERANCE OF ±0.25".
3. SPEED HUMPS SHALL BE PLACED ONLY AT THE DIRECTION OF THE ENGINEER.
4. HUMP TO BE CONSTRUCTED WITH ASPHALT MIX APPROVED BY THE CITY ENGINEER. ASPHALT COMPACTION SHALL BE 95% OF MAXIMUM. A TACK COAT SHALL BE APPLIED PRIOR TO APPLICATION OF PAVEMENT.
5. INSTALLATION JOINTS:
   A. STANDARD INSTALLATION:
      THE EXISTING ROADWAY SHALL BE MILL TO A MINIMUM DEPTH OF 3/4" AROUND THE PERIMETER. CROSS-SECTION DIMENSIONS DO NOT INCLUDE THE 3/4" MILLING. CONTRACTOR MUST PROVIDE VERIFICATION OF CROSS-SECTION DIMENSIONS.
   B. ALTERNATIVE INSTALLATION:
      FOR TRANSVERSE JOINTS (CROSS ROADWAY), THE EXISTING ASPHALT SHALL BE SAW CUT AND REMOVED FOR A WIDTH OF 18". THE ASPHALT SHALL BE REPLACED WITH THE SAME ASPHALT AND AT THE SAME TIME AS THE HUMP ASPHALT. FOR LONGITUDINAL JOINTS, THE EXISTING ASPHALT SHALL BE OVERLAP AND TROPPED IN 12". CROSS-SECTION DIMENSIONS REFLECT DISTANCES FROM THE SURFACE OF EXISTING ASPHALT.

6. CONTACT THE AGENCY (OR INSPECTOR) ONE WEEK PRIOR TO INSTALLATION TO COORDINATE PAVEMENT MARKINGS AND SIGNING.
7. HUMP TO BE STRIPED BY THE CITY ENGINEER.
NOTE:
NO STRUCTURE OR PLANTING (AT MATURE GROWTH) THAT EXCEEDS 3 FEET IN HEIGHT SHALL BE PERMITTED WITHIN A CORNER SETBACK. EXCEPTIONS ARE PERMITTED FOR UTILITY POLES (D-318), LIGHTING STANDARDS, MAIL BOXES (D-606), FIRE HYDRANTS (D-318), AND EXISTING TREES IF THE LOWER CANOPY OF THE TREES ALLOW A CLEAR LINE OF SIGHT BETWEEN 3 FEET AND 7 FEET ABOVE THE STREET GRADE. A SIGN PERMITTED BY SECTION 5.8 MAY BE LOCATED WITHIN THE INTERSECTION VISIBILITY AREA, PROVIDED, THAT VISUAL CLEARANCE EXISTS BETWEEN 3 FEET AND 7 FEET ABOVE GROUND.

MINIMUM CORNER SETBACKS

<table>
<thead>
<tr>
<th>INTERSECTION TYPE</th>
<th>DIMENSIONS</th>
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<tbody>
<tr>
<td>LOCAL/COLLECTOR TO LOCAL/COLLECTOR</td>
<td>20 FEET BY 20 FEET</td>
</tr>
<tr>
<td>LOCAL/COLLECTOR TO ARTERIAL</td>
<td>20 FEET BY 40 FEET</td>
</tr>
<tr>
<td>ARTERIAL TO ARTERIAL</td>
<td>40 FEET BY 40 FEET</td>
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<tr>
<td>DRIVEWAY TO LOCAL/COLLECTOR</td>
<td>20 FEET BY 20 FEET</td>
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<tr>
<td>DRIVEWAY TO ARTERIAL</td>
<td>20 FEET BY 40 FEET</td>
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</tbody>
</table>

CONSTRUCTION STANDARDS

DRIVEWAY TO STREET SIGHT TRIANGLE

STANDARD No. D-329 SHEET 1 OF 1

APPROVED DATE 4/19/11

CITY OF FARMINGTON
PUBLIC WORKS DEPARTMENT
**SECTION A-A**
CURB-LINE MILL EDGE IF THE ASPHALT LIP IS ABOVE THE CURB AND GUTTER BY GREATER THAN 1/2".

**SECTION C-C**
RUTTING PRE-LEVEL:
- REQUIRED IF DEEPER THAN 1 1/2" AND NO LIP.
RUTTING GRIND:
- REQUIRED IF LIP EXISTS GREATER THAN 1" ABOVE SURROUNDING ASPHALT SURFACE.

**SECTION B-B (CONTINUED)**
NEW OVERLAY ASPHALT SHALL "TAPER TO ZERO" AGAINST THE EDGE OF THE EXISTING CURB AND GUTTER.

**SECTION B-B (CONTINUED)**
MILLING SHALL TAPER WITHIN THE WIDTH OF THE MILLING MACHINE'S CAPABILITY.

---

**CONSTRUCTION STANDARDS**

**REPAVEMENT AND MILLING TOLERANCE**

**STANDARD No. D-331 SHEET 1 OF 1**
NOTES:

1. CROWN ON STREETS LESS THAN 40' TO BE AT A 2% SLOPE UNLESS OTHERWISE SPECIFIED.

2. POOR SUBGRADE MAY REQUIRE ADDITIONAL SOIL MATERIAL AND/OR GEOGRID MATERIAL. APPROVAL BY THE CITY ENGINEER REQUIRED.

3. ASPHALT MILLING WILL BE SPRAYED WITH HFE-300 AT A RATE 0.2 GAL/SY AND MUST BE APPLIED WHEN NIGHT TEMPERATURES EXCEED 50° F FOR NEXT 7 DAYS TO INSURE CURE.

4. SEAL COAT AS DETERMINED BY CITY ENGINEER.

5. FOR USE ON EXISTING DIRT ROADS TO IMPROVE SURFACE CONDITION. APPROVAL REQUIRED BY CITY ENGINEER.
HORIZONTAL OPENINGS

NOTE:
1. HORIZONTAL OPENING IN GRATINGS AND JOINTS SHALL NOT PERMIT PASSAGE OF A SPHERE MORE THAN 0.5 INCHES IN DIAMETER.
2. ELONGATED OPENING IN GRATES SHALL BE PLACED SO THAT THE LONG DIMENSION IS PERPENDICULAR TO THE DOMINANT DIRECTION OF TRAVEL.

VERTICAL SURFACE DISCONTINUITIES

NOTE:
1. VERTICAL SURFACE DISCONTINUITIES SHALL BE .05 INCHES MAXIMUM.
2. VERTICAL DISCONTINUITIES BETWEEN 0.25 INCHES AND 0.5 INCHES SHALL BE BEVELED WITH A SLOPE NOT STEEPER THAN 50 PERCENT.
3. THE BEVEL SHALL BE APPLIED ACROSS THE ENTIRE VERTICAL SURFACE DISCONTINUITY.
CONSTRUCTION STANDARDS

PERPENDICULAR CURB RAMPS

STANDARD No. D-339 SHEET 1 OF 2

KEYED NOTES

1. TURNING SPACE SHALL HAVE MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.0% (RECOMMEND 1.5%). TURNING SPACE SHALL BE 4.0 FT BY 4.0 FT MIN (RECOMMEND 5.0 FT BY 5.0 FT) AT THE TOP OF THE CURB RAMP AND SHALL BE PERMITTED TO OVERLAP OTHER TURNING SPACES AND CLEAR SPACES, WHERE THE TURNING SPACE IS CONSTRAINED AT THE BACK OF SIDEWALK, THE TURNING SPACE SHALL BE 4.0 FT MIN BY 5.0 FT SHAL BE PROVIDED IN THE DIRECTION OF THE RAMP RUN.

2. CROSS SLOPE SHALL BE 2.0% MAX (RECOMMEND 1.5%). EXCEPTION: THE CROSS SLOPE OF CURB RAMPS AT PEDESTRIAN STREET CROSSING WITHOUT YIELD OR STOP CONTROL, TRAFFIC SIGNALS DESIGNED FOR THE GREEN PHASE, AND AT MIDBLOCK PEDESTRIAN STREET CROSSING, THE CROSS SLOPE IS PERMITTED TO MATCH STREET OR HIGHWAY GRADE.

3. RUNNING SLOPE OF THE CURB RAMP SHALL BE 8.3% MAX (RECOMMENDED 7.0%) BUT SHALL NOT REQUIRE THE RAMP LENGTH TO EXCEED 16.0 FT TO AVOID CHASING THE SLOPE INDEFINITELY WHEN CONNECTING TO STEEP GRADES. WHEN APPLYING THE 15 FOOT MAX LENGTH, THE RUNNING SLOPE OF THE CURB RAMP SHALL BE EXTENDED AS FLAT AS MAXIMUM EXTENT PRACTICAL.

4. GRADE BREAKS AT THE TOP AND BOTTOM OF CURB RAMPS RUNS SHALL BE PERPENDICULAR TO THE DIRECTION OF THE RAMP RUN. GRADE BREAKS SHALL NOT BE PERMITTED ON THE SURFACE OF RAMP RUNS AND TURNING SPACE. SURFACE SLOPES THAT MEET AT GRADE BREAKS SHALL BE FLUSH.

5. COUNTER SLOPE OF THE GUTTER OR STREET AT THE FOOT OF A CURB RAMP, RUN OR TURNING SPACE SHALL BE 5% MAX.

6. FLARED SIDES ARE TO HAVE A SLOPE OF 10% MAX (RECOMMEND 9%), MEASURED PARALLEL TO THE BACK OF THE CURB, UNLESS THE FLARED SIDES ARE PROTECTED FROM CROSS TRAVEL BY LANDSCAPING, STREET FURNITURE, CHAINS, FENCING, OR RAILINGS.

NOTES:

1. DO NOT SCORE OR MAKE GROOVES IN SLOPED SURFACE. LINES SHOWN ON STANDARD DETAILS ARE FOR ILLUSTRATION ONLY.

2. DETAILS OF THE DETECTABLE WARNING SURFACE ARE SHOWN ON SHEET D-339 OF THE STANDARD DRAWINGS.

3. IN ALTERATIONS WHERE EXISTING PHYSICAL CONSTRAINTS PREVENT COMPLIANCE TO PROVIDE A CURB RAMP FOR EACH PEDESTRIAN CROSSING A SINGLE DIAGONAL CURB RAMP SHALL BE PERMITTED TO SERVE BOTH PEDESTRIAN STREET CROSSINGS.

4. CONCRETE HEADER CURBS CONSTRUCTED AS PART OF THE CURB RAMP WILL BE CONSIDERED INCIDENTAL.
DETE:CrABLE WARNING
SURFACE (TYP)
CURB & GUTTER
(HEIGHT VARIES
CURB REVEAL DETERMINED BY
FLARE SLOPE)

CONSTRUCTION
STANDARDS
STANDARD No. D-339 SHEET 2 OF 2
CITY OF
FARMINGTON
COMMUNITY
WORKS
DEPARTMENT

KEYED NOTES
1. TURNING SPACE SHALL HAVE MAXIMUM CROSS SLOPE
AND LONGITUDINAL SLOPE OF 2.0% (RECOMMENDED 1.5%).
TURNING SPACE SHALL BE 4.0 FT BY 4.0 FT MIN
(RECOMMEND 5.0 FT BY 5.0 FT) AT THE TOP OF THE CURB
RAMP AND SHALL BE ALLOWED TO OVERLAP OTHER
TURNING SPACES AND CLEAR SPACES. WHERE THE
TURNING SPACE IS CONSTRANGED AT THE BACK OF
SIDEWALK, THE TURNING SPACE SHALL BE 4.0 FT MIN
BY 5.5 FT MIN. THE 5.5 FT SHALL BE PROVIDED IN THE
DIRECTION OF THE RAMP RUN.
2. CROSS SLOPE SHALL BE 2.0% MAX (RECOMMENDED
1.5%). EXCEPTION: THE CROSS SLOPE OF CURB RAMPS
AT PEDESTRIAN STREET CROSSING WITHOUT YIELD OR
STOP CONTROL, TRAFFIC SIGNALS DESIGNED FOR THE
GREEN PHASE, AND AT MIDBLOCK PEDESTRIAN STREET
CROSSING THE CROSS SLOPE IS RECOMMENDED TO MATCH
STREET OR HIGHWAY GRADE.
3. RUNNING SLOPE OF THE CURB RAMP SHALL BE 8.3 %
MAX (RECOMMENDED 7.0%) BUT SHALL NOT REQUIRE
THE RAMP LENGTH TO EXCEED 15.0 FT TO AVOID
CHASING THE SLOPE INDEFINITELY WHEN CONNECTING
TO STEEP GRADES. WHEN APPLYING THE 15 FOOT MAX
LENGTH, THE RUNNING SLOPE OF THE CURB RAMP
SHALL BE EXTENDED AS FLAT AS MAXIMUM EXTENT
PRACTICAL.
4. GRADE BREAKS AT THE TOP AND BOTTOM OF CURB
RAMPS RUNS SHALL BE PERPENDICULAR TO THE
DIRECTION OF THE RAMP RUN. GRADE BREAKS SHALL
NOT BE PERMITTED ON THE SURFACE OF RAMP RUNS
AND TURNING SPACE. SURFACE SLOPES THAT MEET AT
GRADE BREAKS SHALL BE FLUSH.
5. COUNTER SLOPE OF THE GUTTER OR STREET AT THE
FOOT OF A CURB RAMP, RUN OR TURNING SPACE SHALL
BE 5% MAX.
6. FLARED SIDES ARE TO HAVE A SLOPE OF 10% MAX
(RECOMMENDED 9%), MEASURED PARALLEL TO THE BACK
OF THE CURB, UNLESS THE FLARED SIDES ARE
PROTECTED FROM CROSS TRAVEL BY LANDSCAPING,
STREET FURNITURE, CHAINS, FENCING, OR RAILINGS.

NOTES:
A. DO NOT SCORE OR MAKE GROOVES IN SLOPED SURFACE.
LINES SHOWN ON STANDARD DETAILS ARE FOR
ILLUSTRATION ONLY.
B. DETAILS OF THE DETECTABLE WARNING SURFACE ARE
SHOWN ON SHEET D-339 OF THE STANDARD DRAWINGS.
C. IN ALTERATIONS WHERE EXISTING PHYSICAL
CONSTRAINTS PREVENT COMPLIANCE TO PROVIDE A
CURB RAMP FOR EACH PEDESTRIAN CROSSING A SINGLE
DIAGONAL CURB RAMP SHALL BE PERMITTED TO SERVE
BOTH PEDESTRIAN STREET CROSSINGS.
D. CONCRETE HEADER CURBS CONSTRUCTED AS PART OF
THE CURB RAMP WILL BE CONSIDERED INCIDENTAL.
RAMP WIDTH 5'-0" MIN. TYP.

DETECTABLE WARNING SURFACE (TYP). GRADE BREAK

SIDEWALK WIDTH 5'-0" MIN.

PARALLEL CURB RAMP
SCALE 1/8" = 1'-0"

KEYED NOTES

1. TURNING SPACE SHALL HAVE MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.0% (RECOMMEND 1.5%). TURNING SPACE SHALL BE 4.0 FT BY 4.0 FT MIN. (RECOMMEND 5.0 FT BY 5.0 FT) AT THE TOP OF THE CURB RAMP AND SHALL BE PERMITTED TO OVERLAP OTHER TURNING SPACES AND CLEAR SPACES. WHERE the TURNING SPACE IS CONSTRAINED AT THE BACK OF SIDEWALK, THE TURNING SPACE SHALL BE 4.0 FT MIN BY 5.0 FT MIN. THE 5.0 FT SHALL BE PROVIDED IN THE DIRECTION OF THE RAMP RUN.

2. CROSS SLOPE SHALL BE 2.0% MAX (RECOMMENDED 1.5%). EXCEPTION: THE CROSS SLOPE OF CURB RAMPS AT PEDESTRIAN STREET CROSSING WITHOUT YIELD OR STOP CONTROL, TRAFFIC SIGNALS DESIGNED FOR THE GREEN PHASE, AND AT MIDBLOCK PEDESTRIAN STREET CROSSING, THE CROSS SLOPE IS PERMITTED TO MATCH STREET OR HIGHWAY GRADE.

3. RUNNING SLOPE OF THE CURB RAMP SHALL BE 8.3 % MAX (RECOMMENDED 7.0 %) BUT SHALL NOT REQUIRE THE RAMP LENGTH TO EXCEED 15.0 FT TO AVOID CHASING THE SLOPE INDEFINITELY WHEN CONNECTING TO STEEP GRADES. WHEN APPLYING THE 15 FOOT MAX LENGTH, THE RUNNING SLOPE OF THE CURB RAMP SHALL BE EXTENDED AS FLAT AS MAXIMUM EXTENT PRACTICABLE.

4. GRADE BREAKS AT THE TOP AND BOTTOM OF CURB RAMPS RUNS SHALL BE PERPENDICULAR TO THE DIRECTION OF THE RAMP RUN. GRADE BREAKS SHALL NOT BE PERMITTED ON THE SURFACE OF RAMP RUNS AND TURNING SPACE. SURFACE SLOPES THAT MEET AT GRADE BREAKS SHALL BE FLUSH.

5. COUNTER SLOPE OF THE GUTTER OR STREET AT THE FOOT OF A CURB RAMP, RUN OR TURNING SPACE SHALL BE 5% MAX.

6. FLARED SIDES ARE TO HAVE A SLOPE OF 10% MAX (RECOMMEND 9%), MEASURED PARALLEL TO THE BACK OF THE CURB, UNLESS THE FLARED SIDES ARE PROTECTED FROM CROSS TRAVEL BY LANDSCAPING, STREET FURNITURE, CHAINS, FENCING, OR RAILINGS.

NOTES:

1. DO NOT SCORE OR MAKE GROOVES IN SLOPED SURFACE. LINES SHOWN ON STANDARD DETAILS ARE FOR ILLUSTRATION ONLY.

2. DETAILS OF THE DETECTABLE WARNING SURFACE ARE SHOWN ON SHEET D-309 OF THE STANDARD DRAWINGS.

3. IN ALTERATIONS WHERE EXISTING PHYSICAL CONSTRAINTS PREVENT COMPLIANCE TO PROVIDE A CURB RAMP FOR EACH PEDESTRIAN CROSSING A SINGLE DIAGONAL CURB RAMP SHALL BE PERMITTED TO SERVE BOTH PEDESTRIAN STREET CROSSINGS.

4. CONCRETE HEADER CURBS CONSTRUCTED AS PART OF THE CURB RAMP WILL BE CONSIDERED INCIDENTAL.

SEE SECTION A-A, SECTION 8-B, SECTION C-C ON SHEET 2 OF D-304

REV. DATE 12/21
1. Turning space shall have maximum cross slope and longitudinal slope of 2.0% (recommended 1.5%). Turning space shall be 4.0 ft by 4.0 ft min (recommend 5.0 ft by 5.0 ft) at the top of the curb ramp and shall be permitted to overlap other turning spaces and clear spaces. Where the turning space is constrained at the back of sidewalk, the turning space shall be 4.0 ft min by 5.0 ft min. The 6.0 ft shall be provided in the direction of the ramp run.

2. Cross slope shall be 2.0% max (recommended 1.5%). Exception: the cross slope of curb ramps at pedestrian street crossings without yield or stop control, traffic signals designed for the green phase, and at midblock pedestrian street crossing, the cross slope is permitted to match street or highway grade.

3. Running slope of the curb ramp shall be 8.3 % max (recommended 7.0%) but shall not require the ramp length to exceed 15.0 ft to avoid chasing the slope indefinitely when connecting to steep grades. When applying the 15 foot max length, the running slope of the curb ramp shall be extended as flat as maximum extent practicable.

4. Grade breaks at the top and bottom of curb ramps runs shall be perpendicular to the direction of the ramp run. Grade breaks shall not be permitted on the surface of ramp runs and turning space. Surface slopes that meet at grade breaks shall be flush.

5. Counter slope of the gutter or street at the foot of a curb ramp, run or turning space shall be 5% max.

6. Flared sides are to have a slope of 10% max (recommended 9%), measured parallel to the back of the curb, unless the flared sides are protected from cross travel by landscaping, street furniture, chains, fencing, or railings.

NOTES:
1. Do not score or make grooves in sloped surface. Lines shown on standard details are for illustration only.
2. Details of the detectable warning surface are shown on Sheet D-309 of the standard drawings.
3. In alterations where existing physical constraints prevent compliance to provide a curb ramp for each pedestrian crossing a single diagonal curb ramp shall be permitted to serve both pedestrian street crossings.
4. Concrete header curbs constructed as part of the curb ramp will be considered incidental.

CONSTRUCTION STANDARDS

PARALLEL CURB RAMPS

STANDARD No. D-340 SHEET 2 OF 2

CITY OF FARMINGTON
COMMUNITY WORKS DEPARTMENT

APPROVED DATE 09/10/22
KEYED NOTES

1. TURNING SPACE SHALL HAVE MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.0% (RECOMMEND 1.5%). TURNING SPACE SHALL BE 4.0 FT BY 4.0 FT MIN (RECOMMEND 5.0 FT BY 5.0 FT) AT THE TOP OF THE CURB RAMP AND SHALL BE PERMITTED TO OVERLAP OTHER TURNING SPACES AND CLEAR SPACES. WHERE THE TURNING SPACE IS CONSTRAINED AT THE BACK OF SIDEWALK, THE TURNING SPACE SHALL BE 4.0 FT MIN BY 5.0 FT MAX. THE 5.0 FT SHALL BE PROVIDED IN THE DIRECTION OF THE RAMP RUN.

2. CROSS SLOPE SHALL BE 2.0% MAX (RECOMMEND 1.5%). EXCEPTION: THE CROSS SLOPE OF CURB RAMPS AT PEDESTRIAN STREET CROSSING WITHOUT YIELD OR STOP CONTROL, TRAFFIC SIGNALS DESIGNED FOR THE GREEN PHASE, AND AT MIDBLOCK PEDESTRIAN STREET CROSSING, THE CROSS SLOPE IS PERMITTED TO MATCH STREET OR HIGHWAY GRADE.

3. RUNNING SLOPE OF THE CURB RAMP SHALL BE 6.3 3/4% MAX (RECOMMEND 7.0%) BUT SHALL NOT REQUIRE THE RAMP LENGTH TO EXCEED 15.0 FT TO AVOID CHASING THE SLOPE INDEFINITELY WHEN CONNECTING TO STEEP GRADES. WHEN APPLYING THE 15 FOOT MAX LENGTH, THE RUNNING SLOPE OF THE CURB RAMP SHALL BE EXTENDED AS FLAT AS MAXIMUM EXTENT PRACTICABLE.

4. GRADE BREAKS AT THE TOP AND BOTTOM OF CURB RAMPS RUNS SHALL BE PERPENDICULAR TO THE DIRECTION OF THE RAMP RUN. GRADE BREAKS SHALL NOT BE PERMITTED ON THE SURFACE OF RAMP RUNS AND TURNING SPACE. SURFACE SLOPES THAT MEET AT GRADE BREAKS SHALL BE FLUSH.

5. COUNTER SLOPE OF THE GUTTER OR STREET AT THE FOOT OF A CURB RAMP, RUN OR TURNING SPACE SHALL BE 5% MAX.

6. FLARED SIDES ARE TO HAVE A SLOPE OF 10% MAX (RECOMMEND 9%), MEASURED PARALLEL TO THE BACK OF THE CURB, UNLESS THE FLARED SIDES ARE PROTECTED FROM CROSS TRAVEL BY LANDSCAPING, STREET FURNITURE, CHAINS, FENCING, OR RAILINGS.

NOTES:

1. DO NOT SCORE OR MAKE GROOVES IN SLOPED SURFACE. LINES SHOWN ON STANDARD DETAILS ARE FOR ILLUSTRATION ONLY.

2. DETAILS OF THE DETECTABLE WARNING SURFACE ARE SHOWN ON SHEET D-309 OF THE STANDARD DRAWINGS.

3. IN ALTERATIONS WHERE EXISTING PHYSICAL CONSTRAINTS PREVENT COMPLIANCE TO PROVIDE A CURB RAMP FOR EACH PEDESTRIAN CROSSING A SINGLE DIAGONAL CURB RAMP SHALL BE PERMITTED TO SERVE BOTH PEDESTRIAN STREET CROSSINGS.

4. CONCRETE HEADER CURBS CONSTRUCTED AS PART OF THE CURB RAMP WILL BE CONSIDERED INCIDENTAL.
KEYED NOTES

1. TURNING SPACE SHALL HAVE MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.0% (RECOMMENDED 1.5%). TURNING SPACE SHALL BE 4.0 FT BY 4.0 FT MIN (RECOMMENDED 5.0 FT BY 5.0 FT) AT THE TOP OF THE CURB RAMP AND SHALL BE PERMITTED TO OVERLAP OTHER TURNING SPACES AND CLEAR SPACES, WHERE THE TURNING SPACE IS CONSTRAINED AT THE BACK OF SIDEWALK, THE TURNING SPACE SHALL BE 4.0 FT BY 5.0 FT MIN BY 5.0 FT MIN. THE 5.0 FT SHALL BE PROVIDED IN THE DIRECTION OF THE RAMP RUN.

2. CROSS SLOPE SHALL BE 2.0% MAX (RECOMMENDED 1.5%). EXCEPTION: THE CROSS SLOPE OF CURB RAMPS AT PEDESTRIAN STREET CROSSING WITHOUT YIELD OR STOP CONTROL, TRAFFIC SIGNALS DESIGNED FOR THE GREEN PHASE, AND AT MIDBLOCK PEDESTRIAN STREET CROSSING, THE CROSS SLOPE IS PERMITTED TO MATCH STREET OR HIGHWAY GRADE.

3. RUNNING SLOPE OF THE CURB RAMP SHALL BE 8.3% MAX (RECOMMENDED 7.0%) BUT SHALL NOT REQUIRE THE RAMP LENGTH TO EXCEED 15.0 FT TO AVOID CHASING THE SLOPE INDEFINITELY WHEN CONNECTING TO STEEP GRADES. WHEN APPLYING THE 15 FOOT MAX LENGTH, THE RUNNING SLOPE OF THE CURB RAMP SHALL BE EXTENDED AS FLAT AS MAXIMUM EXTENT PRACTICABLE.

4. GRADE BREAKS AT THE TOP AND BOTTOM OF CURB RAMPS RUNS SHALL BE PERPENDICULAR TO THE DIRECTION OF THE RAMP RUN. GRADE BREAKS SHALL NOT BE PERMITTED ON THE SURFACE OF RAMP RUNS AND TURNING SPACE. SURFACE SLOPES THAT MEET AT GRADE BREAKS SHALL BE FLUSH.

5. COUNTER SLOPE OF THE GUTTER OR STREET AT THE FOOT OF A CURB RAMP, RUN OR TURNING SPACE SHALL BE 5% MAX.

6. FLARED SIDES ARE TO HAVE A SLOPE OF 10% MAX (RECOMMEND 9%), MEASURED PARALLEL TO THE BACK OF THE CURB, UNLESS THE FLARED SIDES ARE PROTECTED FROM CROSS TRAVEL BY LANDSCAPING, STREET FURNITURE, CHAINS, FENCING, OR RAILINGS.

NOTES:

1. DO NOT SCORE OR MAKE GROOES IN SLOPED SURFACE. LINES SHOWN ON STANDARD DETAILS ARE FOR ILLUSTRATION ONLY.

2. DETAILS OF THE DETECTABLE WARNING SURFACE ARE SHOWN ON SHEET D-309 OF THE STANDARD DRAWINGS.

3. IN ALTERATIONS WHERE EXISTING PHYSICAL CONSTRAINTS PREVENT COMPLIANCE TO PROVIDE A CURB RAMP FOR EACH PEDESTRIAN CROSSING A SINGLE DIAGONAL CURB RAMP SHALL BE PERMITTED TO SERVE BOTH PEDESTRIAN STREET CROSSINGS.

4. CONCRETE HEADER CURBS CONSTRUCTED AS PART OF THE CURB RAMP WILL BE CONSIDERED INCIDENTAL.
**CONSTRUCTION STANDARDS**

**COMBINATION CURB RAMPS**

**STANDARD No. D-342 SHEET 1 OF 2**

**CITY OF FARMINGTON COMMUNITY WORKS DEPARTMENT**

**Approved Date 09/10/2022**

**KEYED NOTES**

1. **Turning Space** shall have maximum cross slope and longitudinal slope of 2.0% (recommended 1.5%). Turning space shall be 5.0 ft by 4.0 ft min (recommended 5.0 ft by 5.0 ft) at the top of the curb ramp and shall be permitted to overlap other turning spaces and clear spaces. Where the turning space is constrained at the back of sidewalk, the turning space shall be 4.0 ft min by 5.0 ft min. The 5.0 ft shall be provided in the direction of the ramp run.

2. **Cross Slope** shall be 2.0% max (recommended 1.5%). Exception: The cross slope of curb ramps at pedestrian street crossing without yield or stop control, traffic signals designed for the green phase, and at midblock pedestrian street crossing, the cross slope is permitted to match street or highway grade.

3. **Running Slope** of the curb ramp shall be 6.3% max (recommended 7.0%) but shall not require the ramp length to exceed 15.0 ft to avoid chasing the slope indefinitely when connecting to steep grades. When applying the 15 foot max length, the running slope of the curb ramp shall be extended as flat as maximum extent practicable.

4. **Grade breaks at the top and bottom of curb ramps runs shall be perpendicular to the direction of the ramp run. Grade breaks shall not be permitted on the surface of ramp runs and turning space. Surface slopes that meet at grade breaks shall be flush.**

5. **Counter slope of the gutter or street at the foot of a curb, ramp, run or turning space shall be 5% max.**

6. **Flared sides are to have a slope of 10% max (recommended 9%), measured parallel to the back of the curb, unless the flared sides are protected from cross travel by landscaping, street furniture, chains, fencing, or railings.**

**NOTES:**

1. Do not score or make grooves in sloped surface. Lines shown on standard details are for illustration only.

2. Details of the detectable warning surface are shown on Sheet D-309 of the standard drawings.

3. In alterations where existing physical constraints prevent compliance to provide a curb ramp for each pedestrian crossing a single diagonal curb ramp shall be permitted to serve both pedestrian street crossings.

4. Concrete header curbs constructed as part of the curb ramp will be considered incidental.
CONCRETE HEADER CURB
CURB & GUTTER
REDUCED HEIGHT 3" MIN CONSTRUCT
TOP OF SIDEWALK FLUSH WITH ADJACENT CURB

RAMP WIDTH 5'-0" TYP.
4'-0" MIN
DETECTABLE WARNING SURFACE

RAMP WIDTH 5'-0" TYP.
4'-0" MIN
DETECTABLE WARNING SURFACE

CONCRETE HEADER CURB
CURB & GUTTER
DETECTABLE WARNING SURFACE
REDUCED HEIGHT 3" MIN CONSTRUCT
TOP OF SIDEWALK FLUSH WITH ADJACENT CURB

COMBINATION CURB RAMP (D)
WITH SHARED TURNING SPACE

1. DO NOT SCORE OR MAKE GROOVES IN SLOPED SURFACE.
2. DETAILS OF THE DETECTABLE WARNING SURFACE ARE SHOWN ON SHEET D-309 OF THE STANDARD DRAWINGS.
3. IN ALTERATIONS WHERE EXISTING PHYSICAL CONSTRAINTS PREVENT COMPLIANCE TO PROVIDE A CURB RAMP FOR EACH PEDESTRIAN CROSSING A SINGLE DIAGONAL CURB RAMP SHALL BE PERMITTED TO SERVE BOTH PEDESTRIAN STREET CROSSINGS.
4. CONCRETE HEADER CURBS CONSTRUCTED AS PART OF THE CURB RAMP WILL BE CONSIDERED INCIDENTAL.

COMBINATION CURB RAMPS
CITY OF FARMINGTON
COMMUNITY WORKS DEPARTMENT

NOTES:

CONSTRUCTION STANDARDS
STANDARD No. D-342 SHEET 2 OF 2

KEYED NOTES

① TURNING SPACE SHALL HAVE MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.0% (RECOMMEND 1.5%). TURNING SPACE SHALL BE 4.0 FT BY 4.0 FT MIN (RECOMMEND 5.0 FT BY 5.0 FT) AT THE TOP OF THE CURB RAMP AND SHALL BE PERMITTED TO OVERLAP OTHER TURNING SPACES AND CLEAR SPACES. WHERE THE TURNING SPACE IS CONSTRAINED AT THE BACK OF SIDEWALK, THE TURNING SPACE SHALL BE 4.0 FT MIN BY 5.0 FT MIN. THE 5.0 FT SHALL BE PROVIDED IN THE DIRECTION OF THE RAMP RUN.

② CROSS SLOPE SHALL BE 2.0% MAX (RECOMMEND 1.5%). EXCEPTION: THE CROSS SLOPE OF CURB RAMPS AT PEDESTRIAN STREET CROSSING WITHOUT YIELD OR STOP CONTROL, TRAFFIC SIGNALS DESIGNED FOR THE GREEN PHASE, AND AT MIDBLOCK PEDESTRIAN STREET CROSSING, THE CROSS SLOPE IS PERMITTED TO MATCH STREET OR HIGHWAY GRADE.

③ RUNNING SLOPE OF THE CURB RAMP SHALL BE 8.3 % MAX (RECOMMENDED 7.0%) BUT SHALL NOT REQUIRE THE RAMP LENGTH TO EXCEED 15.0 FT TO AVOID CHASING THE SLOPE INFINITELY WHEN CONNECTING TO STEEP GRADES. WHEN APPLYING THE 15 FOOT MAX LENGTH, THE RUNNING SLOPE OF THE CURB RAMP SHALL BE EXTENDED AS FLAT AS MAXIMUM EXTENT PRACTICABLE.

④ GRADE BREAKS AT THE TOP AND BOTTOM OF CURB RAMPS RUNS SHALL BE PERPENDICULAR TO THE DIRECTION OF THE RAMP RUN. GRADE BREAKS SHALL NOT BE PERMITTED ON THE SURFACE OF RAMP RUNS AND TURNING SPACE. SURFACE SLOPES THAT MEET AT GRADE BREAKS SHALL BE FLUSH.

⑤ COUNTER SLOPE OF THE GUTTER OR STREET AT THE FOOT OF A CURB RAMP, RUN OR TURNING SPACE SHALL BE 5% MAX.

⑥ FLARED SIDES ARE TO HAVE A SLOPE OF 10% MAX (RECOMMEND 9%), MEASURED PARALLEL TO THE BACK OF THE CURB, UNLESS THE FLARED SIDES ARE PROTECTED FROM CROSS TRAVEL BY LANDSCAPING, STREET FURNITURE, CHAINS, FENCING, OR RAILINGS.

REV. DATE 12/21
APPROVED DATE 02/10/03
KEYED NOTES

1. TURNING SPACE SHALL HAVE MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.0% (RECOMMEND 1.5%). TURNING SPACE SHALL BE 4.0 FT BY 4.0 FT MIN (RECOMMEND 5.0 FT BY 5.0 FT) AT THE TOP OF THE CURB RAMP AND SHALL BE PERMITTED TO OVERLAP OTHER TURNING SPACES AND CLEAR SPACES. WHERE THE TURNING SPACE IS CONSTRAINED AT THE BACK OF SIDEWALK, THE TURNING SPACE SHALL BE 4.0 FT MIN BY 5.0 FT MIN. THE 5.0 FT SHALL BE PROVIDED IN THE DIRECTION OF THE RAMP RUN.

2. CROSS SLOPE SHALL BE 2.0% MAX (RECOMMENDED 1.5%). EXCEPTION: THE CROSS SLOPE OF CURB RAMPS AT PEDESTRIAN STREET CROSSING WITHOUT YIELD OR STOP CONTROL, TRAFFIC SIGNALS DESIGNED FOR THE GREEN PHASE, AND AT MIDBLOCK PEDESTRIAN STREET CROSSING, THE CROSS SLOPE IS PERMITTED TO MATCH STREET OR HIGHWAY GRADE.

3. RUNNING SLOPE OF THE CURB RAMP SHALL BE 8.3% MAX (RECOMMENDED 7.0%) BUT SHALL NOT REQUIRE THE RAMP LENGTH TO EXCEED 15.0 FT TO AVOID CHASING THE SLOPE INDEFINITELY WHEN CONNECTING TO STEEP GRADES. WHEN APPLYING THE 15 FOOT MAX LENGTH, THE RUNNING SLOPE OF THE CURB RAMP SHALL BE EXTENDED AS FLAT AS MAXIMUM EXTENT PRACTICABLE.

4. GRADE BREAKS AT THE TOP AND BOTTOM OF CURB RAMPS RUNS SHALL BE PERPENDICULAR TO THE DIRECTION OF THE RAMP RUN. GRADE BREAKS SHALL NOT BE PERMITTED ON THE SURFACE OF RAMP RUNS AND TURNING SPACE. SURFACE SLOPES THAT MEET AT GRADE BREAKS SHALL BE FLUSH.

5. COUNTER SLOPE OF THE GUTTER OR STREET AT THE FOOT OF A CURB RAMP, RUN OR TURNING SPACE SHALL BE 5% MAX.

6. FLARED SIDES ARE TO HAVE A SLOPE OF 10% MAX (RECOMMEND 8%), MEASURED PARALLEL TO THE BACK OF THE CURB, UNLESS THE FLARED SIDES ARE PROTECTED FROM CROSS TRAVEL BY LANDSCAPING, STREET FURNITURE, CHAINS, FENCING, OR RAILINGS.

NOTES:

1. DO NOT SCORE OR MAKE GROOVES IN SLOPED SURFACE. LINES SHOWN ON STANDARD DETAILS ARE FOR ILLUSTRATION ONLY.

2. DETAILS OF THE DETECTABLE WARNING SURFACE ARE SHOWN ON SHEET D-309 OF THE STANDARD DRAWINGS.

3. IN ALTERNATIONS WHERE EXISTING PHYSICAL CONSTRAINTS PREVENT COMPLIANCE TO PROVIDE A CURB RAMP FOR EACH PEDESTRIAN CROSSING A SINGLE DIAGONAL CURB RAMP SHALL BE PERMITTED TO SERVE BOTH PEDESTRIAN STREET CROSSINGS.

4. CONCRETE HEADER CURBS CONSTRUCTED AS PART OF THE CURB RAMP WILL BE CONSIDERED INCIDENTAL.
RAMP CROSS SLOPE TRANSITION
TO MATCH ROADWAY PROFILE SLOPE* SLOPES SHOWN ARE FOR ILLUSTRATION ONLY.

NOTE:
1) CROSS SLOPE OF CURB RAMP AT PEDESTRIAN STREET CROSSING WITHOUT YIELD ON STOP CONTROL, AND AT MID BLOCK PEDESTRIAN STREET CROSSING, THE CROSS SLOPE ARE PERMITTED TO EQUAL THE STREET OR HIGHWAY GRADE.
2) CROSS SLOPE IF CURB RAMP IS AT YIELD OR STOP CONTROL REQUIRES 2% MAX CROSS SLOPE AT CURB LINE

CHANGE OF GRADE LIMITATIONS
SCALE NONE

COUNTER SLOPE OF THE GUTTER OR STREET AT THE FOOT OF A CURB RAMP, RUN OR TURNING SPACE SHALL BE 5% MAX.

CURB RAMP TRANSITION TO EXISTING SIDEWALK DETAIL

CITY OF FARMINGTON
COMMUNITY WORKS DEPARTMENT

CONSTRUCTION STANDARDS
CURB RAMPS AND SIDEWALK TRANSITION DETAILS
STANDARD No. D-344 SHEET 1 OF 2

APPROVED DATE 03/10/22
**CURB RAMPS AND SIDEWALK TRANSITION DETAILS**

- **LIMIT OF WORK (TYP)**
- **ROADWAY**
  - 5'-0" TYP
  - 4'-0" MIN
- **RADIAL CLEAR SPACE**
  - CURB & GUTTER

**SIDEWALK ADDITION DUE TO OBSTRUCTIONS**

**TRANSITION TO EXISTING SIDEWALK DETAIL**

- **MINIMUM SLOPE TRANSITION LENGTH**
  - Based on the difference of proposed sidewalk cross slope and existing sidewalk cross slope at the location of tie in. This minimum length to be determined by the following formula: \( \Delta \% \text{slope} \times 0.5' \) or min width of 1 ft.
- **THE MINIMUM WIDTH TRANSITION**
  - Shall be calculated using the following formula: change in width \( \times 2 \).
- **DEPENDING ON WHICH IS LONGEST, EITHER THE SLOPE TRANSITION OR WIDTH TRANSITION WILL CONTROL THE LENGTH OF SIDEWALK TRANSITION.**
- **TRANSITION AREAS SERVE**
  - As temporary connections of the pedestrian access route.
  - Future improvements to the remaining portion of existing sidewalk shall include removing the transition area and constructing a fully compliant sidewalk.

**PASSING SPACE DETAIL**

1. **WHERE THE CLEAR WIDTH**
   - Of pedestrian access routes is greater than 4 ft and less than 5 ft, passing spaces shall be provided at intervals 200 ft maximum.
2. **PASSING SPACES ARE PERMITTED**
   - To overlap pedestrian access routes.

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**CONSTRUCTION STANDARDS**

**STANDARD No. D-344**

**CITY OF FARMINGTON**

**COMMUNITY WORKS DEPARTMENT**

**APPROVED DATE 02/10/22**
DETECTABLE WARNING SURFACE:
A STANDARDIZED TRUNCATED DOME GRID SURFACE BUILT IN OR APPLIED TO THE PEDESTRIAN ACCESS ROUTE TO WARN VISUALLY IMPAIRED PEOPLE OF HAZARDS. THE SURFACE IS PLACED WHERE DETECTABLE WARNING SURFACE (DWS). A STANDARDIZED TRUNCATED DOME GRID SURFACE BUILT IN OR APPLIED TO THE PEDESTRIAN ACCESS ROUTE TO WARN VISUALLY IMPAIRED PEOPLE OF HAZARDS. THE SURFACE IS PLACED WHERE PEDESTRIANS WILL ENCOUNTER THE PRESENCE OF HAZARDS IN THE LINE OF TRAVEL, SUCH AS THE EDGE OF ROADWAY AND AT-GRADE RAIL CROSSINGS, INDICATING THEY SHOULD STOP AND DETERMINE THE NATURE OF THE HAZARD BEFORE PROCEEDING.

LOCATION:
1. THE DETECTABLE WARNING SURFACE (DWS) SHALL BE 2.0 FT MINIMUM WIDTH AND EXTEND THE FULL WIDTH OF THE CURB RAMP (EXCLUDING FLARES OR TURNING SPACE).
2. THE ROWS OF TRUNCATED DOMES SHALL BE ALIGNED TO BE PERPENDICULAR TO THE GRADE BREAK AT THE BACK OF THE CURB.
3. THE ROWS OF TRUNCATED DOMES SHALL BE ALIGNED TO BE PARALLEL TO THE DIRECTION OF TRAVEL.
4. IF CURB AND GUTTER ARE NOT PRESENT, SUCH AS A SHARED-USE PATH CONNECTION, THE DETECTABLE WARNING SURFACE SHALL BE PLACED AT THE PAVEMENT EDGE.
5. PEDESTRIAN REFUGE ISLANDS SHALL HAVE DETECTABLE WARNINGS.
6. DETECTABLE WARNINGS AT CUT THROUGH ISLANDS SHALL BE SEPARATED BY A 24 INCH MINIMUM LENGTH OF THE WALKWAY WITHOUT MARKINGS.

EXCEPTION: DETECTABLE WARNINGS SHALL NOT BE REQUIRED ON CUT THROUGH ISLANDS WHERE THE CROSSING IS LESS THAN 6 FT IN THE DIRECTION OF PEDESTRIAN TRAVEL.

NOTES:
1. DETAILS SPECIFIED ON THIS PLAN APPLY TO ALL CONSTRUCTION OR RECONSTRUCTION OF STREETS, CURBS, OR SIDEWALKS BY ALL PUBLIC AGENCIES AND BY ALL PRIVATE ORGANIZATIONS CONSTRUCTING FACILITIES FOR PUBLIC USE.
2. DETECTABLE WARNING SURFACE SHALL CONTRAST VISUALLY WITH ADJACENT GUTTER, WALKWAY SURFACES, EITHER LIGHT-ON-DARK OR DARK-ON-LIGHT FOR THE FULL WIDTH OF RAMP.
3. ALL PRODUCTS USED FOR DETECTABLE WARNING SURFACES SHALL BE ON THE DEPARTMENT'S APPROVED PRODUCT LIST.
CONSTRUCTION STANDARDS

DETECTABLE WARNING SURFACE

STANDARD No. D-345 SHEET 2 OF 2

CITY OF FARMINGTON
COMMUNITY WORKS DEPARTMENT

APPROVED DATE 02/10/22

DETECTABLE WARNING SURFACE:

A STANDARIZED TRUNCATED DOME GRID SURFACE BUILT IN OR APPLIED TO THE PEDESTRIAN ACCESS ROUTE TO WARN VISUALLY IMPAIRED PEOPLE OF HAZARDS. THE SURFACE IS PLACED WHERE DETECTABLE WARNING SURFACE (DWS) IS PLACED WHERE PEDESTRIANS WILL ENCOUNTER THE PRESENCE OF HAZARDS IN THE LINE OF TRAVEL, SUCH AS THE EDGE OF ROADWAY AND AT-GRADE RAIL CROSSINGS, INDICATING THEY SHOULD STOP AND DETERMINE THE NATURE OF THE HAZARD BEFORE PROCEEDING.

LOCATION:

1. THE DETECTABLE WARNING SURFACE (DWS) SHALL BE 2.0 FT MINIMUM WIDTH AND EXTEND THE FULL WIDTH OF THE CURB RAMP (INCLUDING FLARES OR TURNING SPACE).
2. THE ROWS OF TRUNCATED DOMES SHALL BE ALIGNED TO BE PERPENDICULAR TO THE GRADE BREAK AT THE BACK OF THE CURB.
3. THE ROWS OF TRUNCATED DOMES SHALL BE ALIGNED TO BE PARALLEL TO THE DIRECTION OF TRAVEL.
4. IF CURB AND GUTTER ARE NOT PRESENT, SUCH AS A SHARED USE PATH CONNECTION, THE DETECTABLE WARNING SURFACE SHALL BE PLACED AT THE PAVEMENT EDGE.
5. PEDESTRIAN REFUGE ISLANDS SHALL HAVE DETECTABLE WARNINGS. DETECTABLE WARNINGS AT CUT THROUGH ISLANDS SHALL BE SEPARATED BY A 24 INCH MINIMUM LENGTH OF THE WALKWAY WITHOUT MARKINGS.

EXCEPTION: DETECTABLE WARNINGS SHALL NOT BE REQUIRED ON CUT THROUGH ISLANDS WHERE THE CROSSING IS LESS THAN 6 FT IN THE DIRECTION OF PEDESTRIAN TRAVEL.

NOTES:

1. DETAILS SPECIFIED ON THIS PLAN APPLY TO ALL CONSTRUCTION OR RECONSTRUCTION OF STREETS, CURBS, OR SIDEWALKS BY ALL PUBLIC AGENCIES AND BY ALL PRIVATE ORGANIZATIONS CONSTRUCTING FACILITIES FOR PUBLIC USE.
2. DETECTABLE WARNING SURFACE SHALL CONTRAST VISUALLY WITH ADJACENT GUTTER, WALKWAY SURFACES, EITHER LIGHT-ON-DARK OR DARK-ON-LIGHT FOR THE FULL WIDTH OF RAMP.
3. ALL PRODUCTS USED FOR DETECTABLE WARNING SURFACES SHALL BE ON THE DEPARTMENT'S APPROVED PRODUCT LIST.
KEYED NOTES

1. TURNING SPACE SHALL HAVE MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.0% (RECOMMEND 1.5%). TURNING SPACE SHALL BE 4.0 FT BY 4.0 FT MIN (RECOMMEND 5.0 FT BY 5.0 FT) AT THE TOP OF THE CURB RAMP AND SHALL BE PERMITTED TO OVERLAP OTHER TURNING SPACES AND CLEAR SPACES WHERE THE TURNING SPACE IS CONSTRAINED AT THE BACK OF SIDEWALK. THE TURNING SPACE SHALL BE 4.0 FT MIN BY 5.0 FT MIN. THE 5.0 FT SHALL BE PROVIDED IN THE DIRECTION OF THE RAMP RUN.

2. CROSS SLOPE SHALL BE 2.0% MAX (RECOMMEND 1.5%). EXCEPTION: THE CROSS SLOPE OF CURB RAMPS AT PEDESTRIAN STREET CROSSING WITHOUT YIELD OR STOP CONTROL, TRAFFIC SIGNALS DESIGNED FOR THE GREEN PHASE, AND AT MIDBLOCK PEDESTRIAN STREET CROSSING, THE CROSS SLOPE IS PERMITTED TO MATCH STREET OR HIGHWAY GRADE.

3. RUNNING SLOPE OF THE CURB RAMP SHALL BE 8.3% MAX (RECOMMEND 7.0%) BUT SHALL NOT REQUIRE THE RAMP LENGTH TO EXCEED 15.0 FT TO AVOID CHASING THE SLOPE INDEFINITELY WHEN CONNECTING TO STEEP GRADES. WHEN APPLYING THE 15 FOOT MAX LENGTH, THE RUNNING SLOPE OF THE CURB RAMP SHALL BE EXTENDED AS FLAT AS MAXIMUM EXTENT PRACTICABLE.

4. GRADE BREAKS AT THE TOP AND BOTTOM OF CURB RAMPS RUNS SHALL BE PERPENDICULAR TO THE DIRECTION OF THE RAMP RUN. GRADE BREAKS SHALL NOT BE PERMITTED ON THE SURFACE OF RAMP RUNS AND TURNING SPACE. SURFACE SLOPES THAT MEET AT GRADE BREAKS SHALL BE FLUSH.

5. COUNTER SLOPE OF THE GUTTER OR STREET AT THE FOOT OF A CURB RAMP, RUN OR TURNING SPACE SHALL BE 5% MAX.

6. FLARED SIDES ARE TO HAVE A SLOPE OF 10% MAX (RECOMMEND 9%), MEASURED PARALLEL TO THE BACK OF THE CURB, UNLESS THE FLARED SIDES ARE PROTECTED FROM CROSS TRAVEL BY LANDSCAPING, STREET FURNITURE, CHAINS, FENCING, OR RAILINGS.

NOTES:

1. DO NOT SCORE OR MAKE GROOVES IN SLOPED SURFACE. LINES SHOWN ON STANDARD DETAILS ARE FOR ILLUSTRATION ONLY.

2. DETAILS OF THE DETECTABLE WARNING SURFACE ARE SHOWN ON SHEET D-308 OF THE STANDARD DRAWINGS.

3. IN ALTERNATIONS WHERE EXISTING PHYSICAL CONSTRAINTS PREVENT COMPLIANCE TO PROVIDE A CURB RAMP FOR EACH PEDESTRIAN CROSSING A SINGLE DIAGONAL CURB RAMP SHALL BE PERMITTED TO SERVE BOTH PEDESTRIAN STREET CROSSINGS.

4. CONCRETE HEADER CURBS CONSTRUCTED AS PART OF THE CURB RAMP WILL BE CONSIDERED INCIDENTAL.
KEYED NOTES

1. TURNING SPACE SHALL HAVE MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.0% (RECOMMEND 1.5%). TURNING SPACE SHALL BE 4.0 FT BY 4.0 FT MIN (RECOMMEND 5.0 FT BY 5.0 FT) AT THE TOP OF THE CURB RAMP AND SHALL BE PERMITTED TO OVERLAP OTHER TURNING SPACES AND CLEAR SPACES. WHERE THE TURNING SPACE IS CONSTRAINED AT THE BACK OF SIDEWALK, THE TURNING SPACE SHALL BE 4.0 FT MIN BY 5.0 FT MIN. THE 5.0 FT SHALL BE PROVIDED IN THE DIRECTION OF THE RAMP RUN.

2. CROSS SLOPE SHALL BE 2.0% MAX (RECOMMENDED 1.5%). EXCEPTION: THE CROSS SLOPE OF CURB RAMPS AT PEDESTRIAN STREET CROSSING WITHOUT YIELD OR STOP CONTROL, TRAFFIC SIGNALS DESIGNED FOR THE GREEN PHASE, AND AT MIDBLOCf PEDESTRIAN STREET CROSSING, THE CROSS SLOPE IS PERMITTED TO MATCH STREET OR HIGHWAY GRADE.

3. RUNNING SLOPE OF THE CURB RAMP SHALL BE 3.5% MAX (RECOMMENDED 7.0%) BUT SHALL NOT REQUIRE THE RAMP LENGTH TO EXCEED 15.0 FT TO AVOID CHASING THE SLOPE INDEFINITELY WHEN CONNECTING TO STEEP GRADES. WHEN APPLYING THE MAXIMUM LENGTH, THE RUNNING SLOPE OF THE CURB RAMP SHALL BE EXTENDED AS FLAT AS MAXIMUM PRACTICABLE.

4. GRADE BREAKS AT THE TOP AND BOTTOM OF CURB RAMPS RUNS SHALL BE PERPENDICULAR TO THE DIRECTION OF THE RAMP RUN. GRADE BREAKS SHALL NOT BE PERMITTED ON THE SURFACE OF RAMP RUNS AND TURNING SPACE. SURFACE SLOPES THAT MEET AT GRADE BREAKS SHALL BE FLUSH.

5. COUNTER SLOPE OF THE GUTTER OR STREET AT THE FOOT OF A CURB RAMP, RUM OR TURNING SPACE SHALL BE 6% MAX.

6. FLARED SIDES ARE TO HAVE A SLOPE OF 10% MAX (RECOMMEND 9%), MEASURED PARALLEL TO THE BACK OF THE CURB, UNLESS THE FLARED SIDES ARE PROTECTED FROM CROSS TRAVEL BY LANDSCAPING, STREET FURNITURE, CHAINS, FENCING, OR RAILINGS.

NOTES:

1. DO NOT SCORE OR MAKE GROOVES IN SLOPED SURFACE. LINES SHOWN ON STANDARD DETAILS ARE FOR ILLUSTRATION ONLY.

2. DETAILS OF THE DETECTABLE WARNING SURFACE ARE SHOWN ON SHEET D-309 OF THE STANDARD DRAWINGS.

3. IN ALTERATIONS WHERE EXISTING PHYSICAL CONSTRAINTS PREVENT COMPLIANCE TO PROVIDE A CURB RAMP FOR EACH PEDESTRIAN CROSSING A SINGLE DIAGONAL CURB RAMP SHALL BE PERMITTED TO SERVE BOTH PEDESTRIAN STREET CROSSINGS.

4. CONCRETE HEADER CURBS CONSTRUCTED AS PART OF THE CURB RAMP WILL BE CONSIDERED INCIDENTAL.
TURNING SPACE SHALL HAVE MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.0% (RECOMMEND 1.5%). TURNING SPACE SHALL BE 4.0 FT BY 4.0 FT MIN (RECOMMEND 5.0 FT BY 5.0 FT) AT THE TOP OF THE CURB RAMP AND SHALL BE PERMITTED TO OVERLAP OTHER TURNING SPACES AND CLEAR SPACES. WHERE THE TURNING SPACE IS CONSTRAINED AT THE BACK OF SIDEWALK, THE TURNING SPACE SHALL BE 4.0 FT MIN BY 5.0 FT MIN. THE 5.0 FT SHALL BE PROVIDED IN THE DIRECTION OF THE RAMP RUN.

CROSS SLOPE SHALL BE 2.0% MAX (RECOMMEND 1.5%). EXCEPTION: THE CROSS SLOPE OF CURB RAMPS AT PEDESTRIAN STREET CROSSING WITHOUT YIELD OR STOP CONTROL, TRAFFIC SIGNALS DESIGNED FOR THE GREEN PHASE, AND AT MOBILITY PEDESTRIAN STREET CROSSING, THE CROSS SLOPE IS PERMITTED TO MATCH STREET OR HIGHWAY GRADE.

RUNNING SLOPE OF THE CURB RAMP SHALL BE 8.3% MAX (RECOMMENDED 7.0%) BUT SHALL NOT REQUIRE THE RAMP LENGTH TO EXCEED 15.0 FT TO AVOID CHASING THE SLOPE INDEFINITELY WHEN CONNECTING TO STEEP GRADES. WHEN APPLYING THE 15 FOOT MAX LENGTH, THE RUNNING SLOPE OF THE CURB RAMP SHALL BE EXTENDED AS FLAT AS MAXIMUM EXTENT PRACTICABLE.

GRADE BREAKS AT THE TOP AND BOTTOM OF CURB RAMPS RUNS SHALL BE PERPENDICULAR TO THE DIRECTION OF THE RAMP RUN. GRADE BREAKS SHALL NOT BE PERMITTED ON THE SURFACE OF RAMP RUNS AND TURNING SPACE. SURFACE SLOPES THAT MEET AT GRADE BREAKS SHALL BE FLUSH.

COUNTER SLOPE OF THE GUTTER OR STREET AT THE FOOT OF A CURB RAMP, RUN OR TURNING SPACE SHALL BE 5% MAX.

FLARED SIDES ARE TO HAVE A SLOPE OF 10% MAX (RECOMMEND 9%), MEASURED PARALLEL TO THE SACK OF THE CURB. UNLESS THE FLARED SIDES ARE PROTECTED FROM CROSS TRAVEL BY LANDSCAPING, STREET FURNITURE, CHAIN, FENCING, OR RAILINGS.

KEYED NOTES

1. DO NOT SCORE OR MAKE GROOVES IN SLOPED SURFACE. LINES SHOWN ON STANDARD DETAILS ARE FOR ILLUSTRATION ONLY.
2. DETAILS OF THE DETECTABLE WARNING SURFACE ARE SHOWN ON SHEET D-309 OF THE STANDARD DRAWINGS.
3. IN ALTERATIONS WHERE EXISTING PHYSICAL CONSTRAINTS PREVENT COMPLIANCE TO PROVIDE A CURB RAMP FOR EACH PEDESTRIAN CROSSING A SINGLE DIAGONAL CURB RAMP SHALL BE PERMITTED TO SERVE BOTH PEDESTRIAN STREET CROSSINGS.
4. CONCRETE HEADER CURBS CONSTRUCTED AS PART OF THE CURB RAMP WILL BE CONSIDERED INCIDENTAL.
1. Turning space shall have maximum cross slope and longitudinal slope of 2.0% (recommended 1.5%). Turning space shall be 4.0 ft by 4.0 ft min (recommended 5.0 ft by 5.0 ft) at the top of the curb ramp and shall be permitted to overlap other turning spaces and clear spaces. Where the turning space is constrained at the back of sidewalk, the turning space shall be 4.0 ft min by 5.0 ft min. The 5.0 ft shall be provided in the direction of the ramp run.

2. Cross slope shall be 2.0% max (recommended 1.5%). Exception: the cross slope of curb ramps at pedestrian street crossing without yield or stop control, traffic signals designed for the green phase, and at midblock pedestrian street crossing, the cross slope is permitted to match street or highway grade.

3. Running slope of the curb ramp shall be 8.3% max (recommended 7.0%) but shall not require the ramp length to exceed 15.0 ft to avoid chasing the slope indefinitely when connecting to steep grades. When applying the 15 foot max length, the running slope of the curb ramp shall be extended as flat as maximum extent practicable.

4. Grade breaks at the top and bottom of curb ramps runs shall be perpendicular to the direction of the ramp run. Grade breaks shall not be permitted on the surface of ramp runs and turning space. Surface slopes that meet at grade breaks shall be flush.

5. Counter slope of the gutter or street at the foot of a curb ramp, run or turning space shall be 3% max.

6. Flared sides are to have a slope of 10% max (recommended 9%) measured parallel to the back of the curb, unless the flared sides are protected from cross travel by landscaping, street furniture, chains, fencing, or railings.

NOTES:
1. Do not score or make grooves in sloped surface. Lines shown on standard details are for illustration only.
2. Details of the detectable warning surface are shown on sheet D-309 of the standard drawings.
3. In alterations where existing physical constraints prevent compliance to provide a curb ramp for each pedestrian crossing, a single diagonal curb ramp shall be permitted to serve both pedestrian street crossings.
4. Concrete header curbs constructed as part of the curb ramp will be considered incidental.
STAIRWAY REQUIREMENTS

1. STAIRWAYS SHALL BE 4 FT WIDE MINIMUM BETWEEN HANDRAILS.

2. ALL STEPS ON A FLIGHT OF STAIRS SHALL HAVE UNIFORM RISER HEIGHTS AND UNIFORM TREAD DEPTH. RISERS SHALL BE 4 INCHES (100mm) HIGH MINIMUM AND 7 INCHES (180mm) MAXIMUM. TREADS SHALL BE 11 INCHES (280mm) DEEP MINIMUM MEASURED FROM RISER TO RISER.

3. OPEN RISERS SHALL NOT BE PERMITTED.

4. STAIR TREADS SHALL BE STABLE, FIRM, AND SLIP RESISTANT.

5. THE RADIUS OF CURVATURE AT THE LENDING EDGE OF THE TREAD SHALL BE ½ INCH (13mm) MAXIMUM. NOSINGS THAT PROJECT BEYOND RISERS SHALL HAVE THE UNDERSIDE OF THE LANDING EDGE CURVED OR BEVELED. RISERS SHALL BE PERMITTED TO SLOPE UNDER THE TREAD AT AN ANGLE OF 30 DEGREES MAXIMUM FROM THE VERTICAL. THE PERMITTED PROJECTION OF THE NOSING SHALL BE 1 INCH (28mm) MAXIMUM BEYOND THE TREAD BELOW.

6. HANDRAILS SHALL BE PROVIDED ON BOTH SIDES OF STAIRS.

7. OUTDOOR STAIRS AND OUTDOOR APPROACHES TO STAIRS SHALL BE DESIGNED SO THAT WATER WILL NOT ACCUMULATE ON WALKING SURFACES.
HANDRAIL REQUIREMENTS

1. HANDRAILS SHALL BE PROVIDED ON BOTH SIDES OF STAIRS AND RAMPS.

2. HANDRAILS SHALL BE CONTINUOUS WITHIN THE FULL LENGTH OF EACH STAIR FLIGHT OR RAMP RUN. INSIDE HANDRAILS ON SWITCH BACK OR DOGLEG STAIRS OR RAMPS SHALL BE CONTINUOUS BETWEEN FLIGHTS OR RUNS.

3. TOP GRIPPING SURFACES OF HANDRAILS SHALL BE 34 INCHES (865mm) MINIMUM AND 38 INCHES (965mm) MAXIMUM VERTICALLY ABOVE STAIR NOSINGS AND RAMP SURFACES. HANDRAILS SHALL BE AT A CONSISTENT HEIGHT ABOVE STAIR NOSINGS AND RAMP SURFACES.

4. CLEAR SPACE BETWEEN HANDRAIL AND WALL SHALL BE 1 INCH (38mm) MINIMUM.

5. GRIPPING SURFACES SHALL BE CONTINUOUS WITHOUT INTERRUPTION BY NEW POSTS, OTHER CONSTRUCTION ELEMENTS, OR OBSTRUCTIONS. EXCEPTION: HANDRAIL BRACKETS OR BALUSTERS ATTACHED TO THE BOTTOM SURFACE OF THE HANDRAIL SHALL NOT BE CONSIDERED OBSTRUCTIONS PROVIDED THEY COMPLY WITH THE FOLLOWING CRITERIA:
   A. NOT MORE THAN 20 PERCENT OF THE HANDRAIL LENGTH IS OBSTRUCTED.
   B. HORIZONTAL PROJECTIONS BEYOND THE SIDES OF THE HANDRAIL OCCUR 2 INCHES (64mm) MINIMUM BELOW THE BOTTOM OF THE HANDRAIL AND EDGES HAVE 1 INCH (32mm) MINIMUM RADIUS.

6. HANDRAILS SHALL HAVE A CIRCULAR CROSS SECTION WITH AN OUTSIDE DIAMETER OD 1-1/4" or 1.25" INCH (32mm) MINIMUM AND 2 INCH (51mm) MAXIMUM OR SHALL PROVIDE EQUIVALENT GRASPABILITY. EXCEPTION: HANDRAILS WITH OTHER SHAPES SHALL BE PERMITTED PROVIDED THEY HAVE A PERIMETER DIMENSION OF 4 INCH (100mm) MINIMUM AND A 0.25 INCH (16mm) MAXIMUM AND PROVIDED THEIR LARGEST CROSS SECTION DIMENSION IS 2.25 INCH (57mm) MAXIMUM.

7. HANDRAILS AND ANY WALL OR OTHER SURFACES ADJACENT TO THEM, SHALL BE FREE OF ANY SHARP OR ABRASIVE ELEMENTS. EDGES SHALL HAVE 1 INCH (32mm) MINIMUM RADIUS.

8. HANDRAILS SHALL NOT ROTATE WITHIN THEIR FITTINGS.

9. HANDRAILS FOR STAIRS AND RAMPS SHALL HAVE EXTENSIONS. EXCEPTIONS:
   A. EXTENSIONS ARE NOT REQUIRED FOR CONTINUOUS HANDRAILS AT THE INSIDE TURN OF STAIRS AND RAMPS.
   B. IN ALTERATIONS FULL EXTENSIONS OF HANDRAILS SHALL NOT BE REQUIRED WHERE SUCH EXTENSIONS WOULD BE HAZARDOUS OR IMPOSSIBLE DUE TO PLAN CONFIGURATION.

10. RAMP HANDRAILS SHALL EXTEND HORIZONTALLY 12 INCHES (305mm) MINIMUM BEYOND OF RAMP RUNS SUCH EXTENSION SHALL RETURN TO WALL GUARD OR THE WALKING SURFACE OR SHALL BE CONTINUOUS TO THE HANDRAIL OF AN ADJACENT STAIR RUN.

11. AT THE TOP OF A STAIR FLIGHT HANDRAILS SHALL EXTEND HORIZONTALLY ABOVE THE LANDING FOR 12 INCHES (305mm) MINIMUM BEGINNING DIRECTLY ABOVE THE FIRST RISER NOSING. SUCH EXTENSIONS SHALL RETURN TO A WALL, GUARD, OR THE WALKING SURFACE, OR SHALL BE CONTINUOUS TO THE HANDRAIL OF AN ADJACENT STAIR FLIGHT.

12. AT THE BOTTOM OF THE STAIR FLIGHT HANDRAILS SHALL EXTEND AT THE SLOPE OF THE STAIR FLIGHT FOR A HORIZONTAL DISTANCE AT LEAST EQUAL TO THE TREAD DEPTH BEYOND THE LAST RISER NOSING. EXTENSIONS SHALL RETURN TO A WALL, GUARD, OR THE LANDING SURFACE, OR SHALL BE CONTINUOUS TO THE HANDRAIL OF AN ADJACENT STAIR FLIGHT.
ACCESSIBLE ROUTES:
ACCESSIBLE EXTERIOR ROUTES SHALL BE PROVIDED FROM TRANSPORTATION STOPS,
ACCESSIBLE PARKING AND ACCESSIBLE PASSENGER LOADING ZONES AND PUBLIC
SIDEWALKS TO THE ACCESSIBLE BUILDING ENTRANCE THEY SERVE. ACCESSIBLE PARKING SPACES SHALL BE LOCATED ON THE
SHORTEST ACCESSIBLE ROUTE OF TRAVEL FROM ADJACENT PARKING TO AN ACCESSIBLE BUILDING ENTRANCE OR FACILITY

ACCESSIBLE PARKING REQUIREMENTS:
1. EACH FACILITY SHALL PROVIDE ACCESSIBLE PARKING SPACES IN COMPLIANCE WITH THE FOLLOWING TABLE:

NUMBER OF ACCESSIBLE PARKING SPACES

<table>
<thead>
<tr>
<th>TOTAL PARKING SPACES</th>
<th>TOTAL REQUIRED ACCESSIBLE PARKING SPACES</th>
<th>NUMBER REQUIRED TO BE VAN ACCESSIBLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-25</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>26-35</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>36-50</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>51-100</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>101-300</td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>301-500</td>
<td>12</td>
<td>2</td>
</tr>
<tr>
<td>501-800</td>
<td>16</td>
<td>3</td>
</tr>
<tr>
<td>801-1000</td>
<td>20</td>
<td>4</td>
</tr>
<tr>
<td>OVER 1,000</td>
<td>20 SPACES PLUS 1 SPACE FOR EVERY 100 SPACES, OR FRACTION THEREOF, OVER 1,000</td>
<td>1 OF EVERY 6 ACCESSIBLE PARKING SPACES, OR FRACTION THEREOF</td>
</tr>
</tbody>
</table>

2. CAR SPACES SHALL BE 96 INCHES (2440 mm) WIDE MINIMUM AND VAN PARKING SPACES SHALL BE 132 INCHES AND SHALL HAVE AN ADJACENT ACCESS AISLE.

3. ACCESS AISLES SERVING PARKING SPACES SHALL CONNECT TO THE BUILDING OR FACILITY ENTRANCE BY AN ACCESSIBLE SIDEWALK. TWO PARKING SPACES SHALL BE PERMITTED TO SHARE A COMMON ACCESS AISLE. THE VAN ACCESS AISLE IS PREFERRED TO BE AT THE RIGHT SIDE (PASSenger SIDE) OF THE PARKING SPACE. (AN ACCESSIBLE SIDEWALK IS 60 INCHES (1525mm) MINIMUM CLEAR WIDTH, 50:1 MAXIMUM CROSS SLOPE WITH A RUNNING SLOPE OF 30:1 MAXIMUM OR THE RUNNING SLOPE MAY FOLLOW THE ADJACENT ROAD PROFILE GRADE.) PARKED VEHICLE OVERHANGS SHALL NOT REDUCE THE MINIMUM 48 INCH CLEAR WIDTH OF AN ACCESSIBLE ROUTE.

4. ACCESS AISLES SERVING CAR PARKING SPACES SHALL BE 60 INCHES (1525mm) WIDE MINIMUM. ACCESS AISLES SERVING VAN PARKING SPACES SHALL BE 96 INCHES (2440mm) WIDE MINIMUM.

5. ACCESS AISLES SHALL EXTEND THE FULL LENGTH OF THE PARKING SPACES THEY SERVE.

6. PARKING SPACES AND ACCESS AISLES SHALL HAVE SURFACE SLOPES NOT STEEPER THAN 50:1. ACCESS AISLES SHALL BE AT THE SAME LEVEL AS THE PARKING SPACES THEY SERVE.

7. PARKING SPACES FOR VANS SHALL HAVE A VERTICAL CLEARANCE OF 98 INCHES (2490mm) MINIMUM AT THE SPACE AND ALONG THE VEHICULAR ROUTE THERETO.

8. EACH ACCESSIBLE PARKING SPACE SHALL BE IDENTIFIED BY A SIGN ON A POST. SIGNS SHALL INCLUDE THE INTERNATIONAL SYMBOL OF ACCESSIBILITY. THE CLEARANCE TO THE BOTTOM OF THE SIGN (RT-8) SHALL BE AT LEAST 7 FEET (2100mm), LOCATED AT THE HEAD OF THE PARKING SPACE. VAN ACCESSIBLE PARKING SPACES SHALL HAVE AN ADDITIONAL SIGN (RT-8A) MOUNTED BELOW THE INTERNATIONAL SYMBOL OF ACCESS IDENTIFYING THE SPACE AS "VAN ACCESSIBLE."

9. PARKING SPACE AND ACCESS AISLES SHALL HAVE OSHA SAFETY BLUE STRIPING. STRIPING SHALL BE 4 INCHES (100mm) WIDE. ACCESS AISLES STRIPING SHALL BE 30 INCHES (760mm) ON CENTER ACCESS AISLE SHALL HAVE THE WORDS "NO PARKING" IN CAPITAL LETTER WHICH SHALL BE AT LEAST ONE FOOT HIGH AND AT LEAST TWO INCHES WIDE PLACED AT THE REAR OF THE PARKING SPACE SO AS TO BE CLOSE TO WHERE AN ADJACENT VEHICLES REAR TIRES WOULD BE PLACED.

10. EACH ACCESSIBLE PARKING SPACE SHALL INCLUDE, CENTERED AT THE FOOT, A PAVEMENT MARKING OF THE INTERNATIONAL SYMBOL OF ACCESSIBILITY TO BE CLEARLY VISIBLE WHEN THE SPACE IS OCCUPIED.
ACCESSIBLE PASSENGER LOADING ZONE REQUIREMENTS:

1. PASSENGER LOADING ZONES SHALL PROVIDE A 60 INCH (1525mm) WIDE ACCESS AISLE ADJACENT AND PARALLEL TO A VEHICLE PULL-UP SPACE. ACCESS AISLES SHALL BE 20 FEET (6100mm) LONG MINIMUM.

2. ACCESS AISLES SHALL BE PART OF THE ACCESSIBLE ROUTE TO THE BUILDING OR FACILITY ENTRANCE, AND MARKED TO DISCOURAGE PARKING.

3. VEHICLE PULL-UP SPACES IN PASSENGER LOADING ZONES AND ACCESS AISLES SHALL HAVE SURFACE SLOPES NOT STEEPER THAN 50:1. ACCESS AISLES SHALL BE AT THE SAME LEVEL AS THE VEHICLE PULL-UP SPACE THEY SERVE.

4. VERTICAL CLEARANCE OF 114 INCHES (2895mm) MINIMUM SHALL BE PROVIDED AT PASSENGER LOADING ZONES AND ALONG VEHICLE ACCESS ROUTES TO SUCH AREAS FROM SITE ENTRANCES.

5. EACH ACCESSIBLE PASSENGER LOADING ZONE SHALL BE IDENTIFIED BY A SIGN ON A POST. SIGNS SHALL INCLUDE THE INTERNATIONAL SYMBOL OF ACCESSIBILITY.

ACCESSIBLE PASSENGER LOADING ZONE
PLAN VIEW

CURB RAMP REQUIRED, LOCATION SHALL BE DETERMINED BY ENGINEER

OPTIONAL CURB RAMP LOCATION

ACCESSIBLE PASSENGER LOADING ZONE REQUIREMENTS:

1. TRANSIT STOPS SHOULD BE LOCATED SO THAT THERE IS A LEVEL AND STABLE SURFACE FOR BOARDING VEHICLES.

2. LOCATING TRANSIT STOPS AT SIGNALIZED INTERSECTIONS INCREASE THE USABILITY FOR PEDESTRIANS WITH DISABILITIES.

3. WHERE SECURITY BOLLARDS ARE INSTALLED AT TRANSIT STOPS, THEY MUST NOT OBSTRUCT THE CLEAR SPACE AT BOARDING AND ALIGHTING AREAS OR REDUCE THE REQUIRED CLEAR WIDTH OF PEDESTRIAN ACCESS ROUTES.

4. TRANSIT STOPS SHALL COMPLY WITH PROWAG SECTION R 308 TRANSIT STOPS AND TRANSIT SHELTERS.

TRANSIT STOP REQUIREMENTS

1. TRANSIT STOPS SHOULD BE LOCATED SO THAT THERE IS A LEVEL AND STABLE SURFACE FOR BOARDING VEHICLES.

2. LOCATING TRANSIT STOPS AT SIGNALIZED INTERSECTIONS INCREASE THE USABILITY FOR PEDESTRIANS WITH DISABILITIES.

3. WHERE SECURITY BOLLARDS ARE INSTALLED AT TRANSIT STOPS, THEY MUST NOT OBSTRUCT THE CLEAR SPACE AT BOARDING AND ALIGHTING AREAS OR REDUCE THE REQUIRED CLEAR WIDTH OF PEDESTRIAN ACCESS ROUTES.

4. TRANSIT STOPS SHALL COMPLY WITH PROWAG SECTION R 308 TRANSIT STOPS AND TRANSIT SHELTERS.
RAMP REQUIREMENTS:

1. RAMP RUNS SHALL HAVE A RUNNING SLOPE GREATER THAN 1:20 AND NOT STEEPER THAN 1:12. THE EXCEPTION SHALL
   REMAIN AS SHOWN, INCLUDING THE TABLE FOR EXISTING BUILDINGS AND FACILITIES.

2. RAMP RUNS SHALL HAVE A RUNNING SLOPE NOT STEEPER THAN 12:1. EXCEPTION: RAMPS IN OR ON EXISTING BUILDINGS
   OR FACILITIES SHALL BE PERMITTED TO HAVE SLOPES STEEPER THAN 12:1 AND SHALL COMPLY
   WITH THE FOLLOWING TABLE WHERE SUCH SLOPES STEEPER THAN 8:1 SHALL NOT BE PERMITTED.

<table>
<thead>
<tr>
<th>SLOPE</th>
<th>MAXIMUM RISE</th>
</tr>
</thead>
<tbody>
<tr>
<td>STEEPER THAN 10:1 BUT NOT STEEPER THAN 8:1</td>
<td>3 INCHES (75mm)</td>
</tr>
<tr>
<td>STEEPER THAN 12:1 BUT NOT STEEPER THAN 10:1</td>
<td>6 INCHES (150mm)</td>
</tr>
</tbody>
</table>

3. CROSS SLOPE OF RAMP RUNS SHALL NOT BE STEEPER THAN 50:1.

4. FLOOR OR GROUND SURFACES OF RAMP RUN SHALL BE STABLE, FIRM, AND SLIP RESISTANT.

5. THE CLEAR WIDTH OF A RAMP RUN SHALL BE 48 INCHES (915mm) MINIMUM MEASURED BETWEEN HANDRAILS.

6. THE RISE FOR ANY RAMP RUN SHALL BE 30 INCHES (760mm) MAXIMUM.

7. RAMPS SHALL HAVE LANDINGS AT THE BOTTOM AND TOP OF EACH RUN. LANDINGS SHALL COMPLY WITH THE FOLLOWING:
   A. LANDINGS SHALL HAVE A SLOPE NOT STEEPER THAN 50:1.
   B. CLEAR WIDTH OF LANDINGS SHALL BE AT LEAST AS WIDE AS THE WIDEST RAMP RUN LEADING TO THE LANDING.
   C. LANDING LENGTH SHALL BE 60 INCHES (1525mm) MINIMUM CLEAR.
   D. RAMPS THAT CHANGE DIRECTION AT LANDINGS SHALL HAVE A 60 INCH BY 60 INCH (1525mm) MINIMUM LANDING.
   E. WHERE DOORWAYS ARE ADJACENT TO A RAMPS LANDING, MANEUVERING CLEARANCES
      SHALL COMPLY WITH 2010 AMERICANS WITH DISABILITIES ACT STANDARDS FOR ACCESSIBLE DESIGN (2010 ADA)
      SECTION 404.

8. RAMPS WITH A RISE GREATER THAN 6 INCHES (150mm) SHALL HAVE HANDRAILS. HANDRAILS SHALL NOT REDUCE THE
   REQUIRED CLEARANCES OF A RAMP RUN OR LANDINGS.

9. EDGE PROTECTION SHALL BE PROVIDED ON EACH SIDE OF RAMP RUNS AND AT EACH SIDE OF RAMP LANDINGS.

EXCEPTIONS:

F. RAMPS NOT REQUIRED TO HAVE HANDRAILS WHERE SIDE FLARES ARE PROVIDED.

G. SIDES OF RAMP LANDINGS SERVING AN ADJOINING RAMP RUN OR STAIRWAY.

H. SIDES OF RAMP TURN SPACE HAVING A VERTICAL DROP-OFF OF 1/2 INCH (13mm) MAXIMUM WITHIN 10 INCHES (255mm)
   HORIZONTALLY OF THE MINIMUM LANDING AREA.

10. EDGE PROTECTION MAY BE PROVIDED BY EXTENDING A FLOOR OR GROUND SURFACE, OF THE RAMP RUN OR LANDING, 12
      INCHES (305mm) MINIMUM BEYOND THE INSIDE FACE OF A HANDRAIL OR AN EDGE PROTECTION CURB OR BARRIER SHALL
      BE PROVIDED THAT PREVENTS THE PASSAGE OF A 4-INCH (100mm) DIAMETER SPHERE BELOW A HEIGHT OF 4 INCHES
      (100mm).

11. OUTDOOR RAMPS AND APPROACHES TO RAMPS SHALL BE DESIGNED SO THAT WATER WILL NOT ACCUMULATE ON
      WALKING SURFACES.
PIPE INSTALLATION
## CONSTRUCTION STANDARDS

### PIPE INSTALLATION

<table>
<thead>
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<th>SHEET NO.</th>
<th>TITLE</th>
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<tbody>
<tr>
<td>D-401</td>
<td>GENERAL UTILITY LOCATION (2 SHEETS)</td>
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<tr>
<td>D-402</td>
<td>BORING DETAILS</td>
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<tr>
<td>D-404</td>
<td>PIPE CULVERT FULL HEIGHT HEADWALL (2 SHEETS)</td>
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<td>D-405</td>
<td>PIPELINE INSTALLATION IN ROCK AREAS</td>
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<tr>
<td>D-409</td>
<td>SEWER LINE ENCASEMENT</td>
</tr>
<tr>
<td>D-410</td>
<td>PIPE BEDDING (INCLUDING CONCRETE CRADLE)</td>
</tr>
</tbody>
</table>
NOTES:

1) FOR SANITARY SEWER AND/OR WATERLINES GREATER THAN 16" IN DIAMETER, UTILITY LOCATIONS MUST BE ADJUSTED TO MAINTAIN MINIMUM O.D. SEPARATION BETWEEN SEWER AND WATERLINES IN WHICH CASE THE SANITARY WILL BE RELOCATED TO THE SOUTH OR EAST WITHIN THE STREET.

2) STRICT ADHERENCE TO THESE LOCATIONS MAY NOT ALWAYS BE PRACTICAL; LOCATIONS WILL BE RESOLVED BETWEEN THE INVOLVED UTILITIES.

3) MINIMUM COVER WILL BE MEASURED FROM FINISHED GRADE TO TOP OF UNDERGROUND LINES.

4) ANY CHANGES IN MINIMUM SEPARATION WILL BE APPROVED BY CITY ENGINEER.

5) SEWER CLEANOUTS SHALL BE A MIN. 6" ABOVE FINAL GRADE.

6) A 2% GRADE SHALL BE MAINTAINED ON SEWER LATERALS TO THE BOTTOM OF CLEANOUTS.

7) PROVIDE MIN. 66" COVER OVER SEWER LATERALS FROM THE BOTTOM OF CLEANOUTS.

8) PROVIDE MIN. 6" VERTICAL CLEARANCE AND 3FT HORIZONTAL SEPARATION BETWEEN ALL OTHER UTILITIES.

10) DESIGN CRITERIA LIMITED TO 12" WATER AND 10" SEWERLINE. ANY LARGER PIPES PROPOSED WOULD REQUIRE SPECIAL DESIGN APPROVED BY THE CITY.

11) PROVIDE MIN. 12" VERTICAL CLEARANCE BETWEEN SEWER LATERAL, GAS AND ELECTRIC LINES.

12) FOR WATER METER CANS, PROVIDE NO MORE THAN 4" "PIG-TAIL" SERVICE LINE STUB OUTSIDE OF METER CAN (CUSTOMER SIDE). "PIG-TAIL" SHALL BE WRAPPED TO PREVENT DAMAGE.
CURB & GUTTER

PROPERTY LINE

2' BEHIND SIDEWALK

UNDERGROUND ELECTRIC LINE

PROPERTY LINE

LOT

WEST & NORTH

SOUTH & EAST

STREET

GENERAL
UTILITY LOCATION

CONSTRUCTION STANDARDS
STANDARD No. D-401 SHEET 2 OF 2

CITY OF FARMINGTON
PUBLIC WORKS DEPARTMENT

NOTE:
FOR WATER SERVICE CONNECTIONS SEE STD. No. D-220

1. A MINIMUM OF 3' SEPARATION BETWEEN WATERLINE, SEWER LINE AND TELEPHONE, ELECTRIC OR CABLE TV. A 2' CLEARANCE IS ALLOWED BETWEEN VERTICAL WATERLINES AND MANHOLES FOR THESE UTILITIES.

REV. DATE
\[ 12/31/97 \]
\[ 01/10/01 \]
\[ 1/22/08 \]
NOT TO SCALE

HIGH DENSITY POLYETHYLENE CASING SPACERS RACI TYPE F/G O.C. OR APPROVED EQUAL BY CITY ENGINEER.

NOT TO SCALE

CARRIER PIPE

SECTION A-A.

*CARRIER PIPE AND SIZE PER PLAN APPROVED BY C.O.F. MATERIAL WILL BE FURNISHED AND INSTALLED BY CONTRACTOR.

*N HDPE FUSED PIPE OR WELDED STEEL CASING PIPE SCHEDULE 40

NOTES 1) SIZE AND TYPE PER PLAN

CONSTRUCTION STANDARDS

BORING DETAIL WITH CASING SPACERS

STANDARD No. D-402 SHEET 1 OF 1

APPROVED DATE 5/13/13

CITY OF FARMINGTON
PUBLIC WORKS DEPARTMENT

NOT TO SCALE

REV. DATE *

04/19/13
NOTE:
ALL BARS #4@12" MIN. 2 1/2" CLEAR OUTSIDE FACE
OR AS SHOWN.
<table>
<thead>
<tr>
<th>INSIDE DIAMETER</th>
<th>T</th>
<th>L</th>
<th>W</th>
<th>D</th>
<th>SINGLE PIPE HEADWALL</th>
<th>ADD EACH ADDITIONAL PIPE</th>
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<tbody>
<tr>
<td></td>
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<td></td>
<td>CONC. C.Y.</td>
<td>REIN. STEEL LBS.</td>
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<td>8</td>
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<td>5'-7&quot;</td>
<td>7'/16&quot;</td>
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<td>15</td>
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<td>2'-3&quot;</td>
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<tr>
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<td>10</td>
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<td>2'-6&quot;</td>
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<td>3'-6&quot;</td>
<td>5.61</td>
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<tr>
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<td>15'-6</td>
<td>9'/16&quot;</td>
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<td>12</td>
<td>14'-0&quot;</td>
<td>22'-2</td>
<td>5'-6&quot;</td>
<td>12.94</td>
<td>650</td>
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</table>

For elliptical or squash pipe use next largest horizontal and vertical pipe I.D. shown.
EARTH TO ROCK
LONGITUDINAL TRANSITION

NOTES

AS DETERMINED BY A.S.T.M. D-1557
A.A.S.H.T.O. DEG. T-147-FIELD TEST
MOISTURE CONTENT OF ALL COMPACTED
SUBGRADE MATERIAL IN PLACE SHALL
BE NO GREATER THAN OPTIMUM NOR
ANY LESS THAN OPTIMUM MINUS 5%

EARTH TO ROCK
LONGITUDINAL TRANSITION

CONSTRUCTION STANDARDS

PIPEDLINE INSTALLATION
IN ROCK AREAS

STANDARD NO. D-405 SHEET 1 OF 1

APPROVED DATE 4/5/08
NOTES

1) ENCASMENT IS REQUIRED WHERE THE VERTICAL SEPARATION BETWEEN A WATER LINE AND A V.C.P. SEWER LINE DOES NOT EXCEED 24" AT A CROSSING. ENCASMENT IS TO EXTEND A MINIMUM OF 10' EACH DIRECTION ALONG THE SEWER LINE FROM THE POINT OF CROSSING.

2) ENCASMENT IS NOT REQUIRED IF DUCTILE IRON PIPE OR PVC IS USED FOR SEWER LINE A MINIMUM OF 10' EACH DIRECTION FROM CROSSING. IF WATER MAIN CROSSES UNDER SEWER MAIN, THE SEWER MAIN MUST BE ENCASED, AND WATER MAIN SHALL BE DUCTILE IRON PIPE.
1. FOR ROCK OR OTHER INCOMPRESSIBLE MATERIALS, THE TRENCH SHALL BE OVEREXCAVATED
   A MINIMUM OF 6" AND REFILLED WITH GRANULAR BEDDING MATERIAL AS DEFINED
   BY CLASS "B" BEDDING.

2. "L.F." LOAD FACTOR.

NOTES
DRAINAGE
## CONSTRUCTION STANDARDS
### DRAINAGE

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<tr>
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<th>TITLE</th>
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</tr>
<tr>
<td>D-504</td>
<td>CURB INLET DOUBLE</td>
</tr>
<tr>
<td>D-505</td>
<td>CURB INLET SINGLE FOR STANDARD MANHOLE</td>
</tr>
<tr>
<td>D-506</td>
<td>SURFACE INLET</td>
</tr>
<tr>
<td>D-507</td>
<td>BEHIND THE CURB CATCH BASIN &amp; CURB INLET</td>
</tr>
<tr>
<td>D-508</td>
<td>SLOTTED CURB DRAIN</td>
</tr>
<tr>
<td>D-509</td>
<td>DRAIN LINE CONNECTION TO EXISTING DROP INLET</td>
</tr>
<tr>
<td>D-510</td>
<td>TRANSVERSE DRAINAGE STRUCTURE</td>
</tr>
<tr>
<td>D-512</td>
<td>WIRE ENCLOSED RIPRAP DETAILS (4 SHEETS)</td>
</tr>
<tr>
<td>D-513</td>
<td>TYPICAL CONCRETE DRAINAGE CHANNEL</td>
</tr>
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<td>D-514</td>
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<tr>
<td>D-515</td>
<td>STORM DRAIN</td>
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CONSTRUCTION STANDARDS

CURB INLET SINGLE

STANDARD No. D-503 SHEET 1 OF 1

CITY OF FARMINGTON
PUBLIC WORKS DEPARTMENT

APPROVED DATE 4/5/08

CONCRETE SHALL BE 3000 PSI 28 DAY STRENGTH.

NOTE: ALL CURB INLETS SHALL BE DEPRESSED A MINIMUM OF 1 1/2".

STORM DRAIN MARKER SEE DETAIL D-631

FRAME & GRATE AS MANUFACTURED BY NEENAH FOUNDRY NO. R-3067-V OR EQUAL.

SECTION A-A

SECTION B-B

REV. DATE

11/3/82
11/16/83
11/6/87
01/07/04
12/16/04
1/22/08

48" IF DEPTH IS 4" OR LESS
52" IF DEPTH IS 4" TO 7"
6" OR 8"
6" OR 8"
36 1/2"
35 1/2"
43"
31"
17 3/4"
6"
6"
6" OR 8"

CITY OF FARMINGTON
PUBLIC WORKS DEPARTMENT

APPROVED DATE 4/5/08
CONSTRUCTION STANDARDS

CURB INLET DOUBLE

STORM DRAIN MARKER
SEE DETAIL D-631

FRAME & GRATE
AS MANUFACTURED BY
NEENAH FOUNDRY
NO. R-3295-2
TYPE V OR EQUAL

FOR TRIPLE INLETS:
1.) USE NEENAH
R-3295-3 TYPE V OR EQUAL
2.) TWO STORM DRAIN MARKERS SHALL BE INSTALLED, ONE OVER THE INLET ON EACH SIDE

CONCRETE SHALL BE 3000 PSI 28 DAY STRENGTH.

SECTION A-A

OUTLET SIZE @ LOCATIONS PER PLANS

SECTION B-B

40" WIDE IF DEPTH IS 4" TO 7"
STORM DRAIN MARKER
SEE DETAIL D-631

AS MANUFACTURED BY
NEENAH FOUNDRY
NO. R-3065-V
OR EQUAL.

SECTION A-A

CONSTRUCTION
STANDARDS

STANDARD PRECAST M.H. CONCRETE CONE

SECTION B-B

CURB INLET SINGLE
FOR STANDARD MH.

STANDARD No. D-505 SHEET 1 OF 1

CITY OF FARMINGTON
PUBLIC WORKS DEPARTMENT

APPROVED DATE 4/5/08
NOTES

1) CONCRETE TO BE 6 SACK, 3,000 PSI 28 DAY STRENGTH

2) SEE PAVEMENT PATCHING STD. No. 308, 310, & 311

3) WALLS & FLOOR TO BE 6" THICK IF BOX IS 4' DEEP OR LESS. 8" THICK IF INLET BOX IS 4'-0" TO 7'-0" DEEP

4) PIPE OUTLET 18" DIA. MIN.

5) CULVERTS UNDER PUBLIC STREETS SHALL BE RCP OR OTHER NON-FERROUS PIPE WITH CITY ENGINEERS APPROVAL.

6) IF CONSTRUCTED IN SOIL SURROUND WITH 2' OF ROCK 6" MINUS.

7) INSTALL STORM DRAIN MARKER ON PAVED SURFACE WITHIN 6" OF THE OUTER EDGE OF THE SURFACE INLET.

MATCH EXISTING PAVING (3" MIN. AC)

1-1/2" ASPHALTIC HOT MIX

OUTLET PIPE SIZE & LOCATION PER PLANS

OUTLET PIPE - 18" DIA. MIN.

PLAN VIEW

CONCRETE APRON

SECTION A-A

SECTION B-B

CONSTRUCTION STANDARDS

SURFACE INLET

STANDARD No. D-506 SHEET 1 OF 1

CITY OF FARMINGTON
PUBLIC WORKS DEPARTMENT

APPROVED

DATE 5/3/04
GENERAL NOTES

1) CONCRETE TO BE 3,000 PSI 28 DAY STRENGTH.

2) WALLS & FLOOR TO BE 6" THICK IF BOX IS 4' DEEP OR LESS. 8" THICK IF BOX IS 4' TO 7' DEEP.

3) PIPE OUTLET 18" DIA. MIN.

4) PIPE WITH CITY ENGINEERS APPROVAL.

CULVERTS UNDER PUBLIC STREETS SHALL BE RCP OR OTHER NON-FERROUS PIPE WITH CITY ENGINEERS APPROVAL.

SECTION A-A

SECTION B-B

CONSTRUCTION STANDARDS

BEHIND-THE-CURB CATCH BASIN AND CURB INLET

STANDARD No. D-507 SHEET 1 OF 1

APPROVED DATE

CITY OF FARMINGTON
PUBLIC WORKS DEPARTMENT
GENERAL NOTES

1. ALL FITTINGS TO BE COMPATIBLE WITH ADPE OR RCP.
2. SPECIAL END CAPS AS MANUFACTURED EQUAL, TO BE INSTALLED AT UPSTREAM ENDS OF DRAIN PIPE.
3. GRATE OPENING TO BE BLOCKED DURING CONSTRUCTION TO PREVENT DEBRIS FROM ENTERING PIPE.
4. SURFACE CONFIGURATION TO CONFORM WITH STANDARD CURB AND GUTTER.
5. NOT ALLOWED ON PUBLIC STREETS.

CONSTRUCTION STANDARDS

SLOTTED CURB DRAIN

STANDARD No. D-508 SHEET 1 OF 1

CITY OF FARMINGTON
PUBLIC WORKS DEPARTMENT

APPROVED DATE 4/7/17
GENERAL NOTES

1. THE CITY DOES NOT ACCEPT RESPONSIBILITY FOR MAINTENANCE OF ANY DRAIN LINES INSTALLED BY OR FOR PRIVATE PROPERTY OWNERS.

2. CORE DRILL INTO BACK OF EXISTING CATCH BASIN WITH INVERT OF DRILLED OPENING 1/2" ABOVE EXISTING CONC. GROUT WITH NONSHRINK, NONMETALLIC GROUT.

3. NEW DRAIN LINE TO BE SCH. 40 PVC, RCP, DUCTILE IRON PIPE, OR ADS N-12 HDPE. DRAIN SIZE TO BE AT LEAST ONE SIZE SMALLER THAN OUTLET PIPE WITH A MAXIMUM SIZE OF 12".

TYPICAL SECTIONS THRU DROP INLET

CONSTRUCTION STANDARDS TO EXISTING DROP INLET

STANDARD No. D-509 SHEET 1 OF 1

APPROVED DATE 4/3/08
GENERAL NOTES

1) OUTLET PIPE PER DESIGN REQUIREMENTS.

2) FOR FLAT OR CROWNED TRANSVERSE DRAINAGE STRUCTURES USE NEENAH R-4999 SERIES WITH TYPE "C" GRATE AND TYPE "X" FRAME, OR APPROVED EQUAL.

3) INLETS OR CURB BOXES NEED NOT BE INSTALLED AT BOTH ENDS OF THE TRENCH DRAIN; THEY CAN BE USED IN COMBINATION OR NOT AT ALL, DEPENDING ON DRAINAGE CONDITIONS.

4) BOLT GRATES TO FRAMES WITH STAINLESS STEEL BOLTS WHEN REQUIRED.

5) CONCRETE TO BE 3,000 P.S.I. 28 DAY TEST, COMPACtion TO 90% OF MODIFIED PROCTOR.

SECTION A-A

TYPE "X" FRAME
4 BARS AT 6" O.C. EA. WAY
1 1/2" CL TYP.

SECTION B-B

CROWN TO MATCH ROAD SURFACE
LENGTH PER PLANS IN 2" INCREMENTS
SLOPE FLOOR AT 0.02' PER FT.
1 1/2" CL
NO. 9 GAGE GALVANIZED TIE WIRES AT APPROX. 2' CENTERS LONGITUDINALLY & TRANSVERSE.

STEEL STAKES 5' LONG AT 6' O.C.

WIRE ENCLOSED RIPRAPH

FIELD VERIFY LOCATION WITH ENGINEER

STEEL STAKES 5' LONG AT 6' O.C.

SLOPE 1:1 1/2:1 2:1 3:1 4:1

RIPRAP CU. YDS

1/27 (A + B + 1.414V)
1/27 (A + B + 1.803V)
1/27 (A + B + 2.016V)
1/27 (A + B + 2.236V)
1/27 (A + B + 3.162V)
1/27 (A + B + 4.123V)

WIRE ENCLOSED RIP RAP DETAIL

CONNSTRUCTION STANDARDS

STANDARD No. D-512 SHEET 1 OF 4

APPROVED DATE 5/13/13
NO. 9 GAGE GALVANIZED TIE WIRES AT APPROX. 2' CENTERS LONGITUdINALLY & TRANSVERSELY.

STEEL STAKES 5' LONG AT 8' O.C.

FIELD VERIFY LOCATION WITH ENGINEER

STEEL STAKES 5' LONG AT 8' O.C.

WIRE ENCLOSURE RIPRAPP

MAIN WIRES ARE TO BE PLACED PERPENDICULAR TO THE SLOPE.

WIRE FABRIC

FILL AND COMPACT AFT ER PLACEMENT OF RIPRAPP

SLOPE | RIPRAP CU. YDS
--- | ---
1 1/2:1 | \( \frac{27}{27} (A + B + 1.414V) \)
1 3/4:1 | \( \frac{27}{27} (A + B + 1.803V) \)
2:1 | \( \frac{27}{27} (A + B + 2.016V) \)
3:1 | \( \frac{27}{27} (A + B + 2.236V) \)
4:1 | \( \frac{27}{27} (A + B + 3.162V) \)

SEE SHEET 4 FOR GEN. NOTE.
"V" MESH

HEXAGONAL MESH

CONSTRUCTION STANDARDS

WIRE ENCLOSED RIP RAP DETAIL

STANDARD No. D-512 SHEET 3 OF 4

CITY OF FARMINGTON PUBLIC WORKS DEPARTMENT

APPROVED DATE 4/5/08
GENERAL NOTES

1. WIRE FABRIC IS TO BE GALVANIZED "V" MESH OF THE FOLLOWING CONSTRUCTION:
   MAIN WIRES: TWO NO. 12-1/2 GAUGE STRANDED WIRES SPACED AT 4".
   CROSS WIRES: SINGLE NO. 12-1/2 GAUGE WIRE SPACED AT 2" WITH NOT LESS
   THAN TWO TURNS AROUND THE MAIN WIRES.
   APPROXIMATE WEIGHT: 48 LBS PER 100 SQUARE FEET.

2. STEEL STAKES MAY BE RAILROAD RAILS WEIGHING NOT LESS THAN 30 LBS PER
   YARD, 4" O.D. STANDARD STRENGTH GALVANIZED STEEL PIPE OR 4 X 4 X 3/8
   STEEL ANGLES. STEEL STAKES SHALL PROJECT 6" ABOVE TOP OF RIPRAP.
   STEEL STAKES ARE CONSIDERED INCIDENTAL TO THE COMPLETION OF THE WORK
   AND NO DIRECT MEASUREMENT OR PAYMENT WILL BE MADE THEREFORE.

3. IF LENGTH OF SLOPE IS 15 FEET OR LESS ONLY ONE ROW OF STEEL STAKES, 2
   FEET FROM THE TOP EDGE OF THE RIPRAP, WILL BE REQUIRED UNLESS OTHERWISE.
   NOTED ON PLANS.

4. FOR DIMENSIONS A, B, V & T. SEE BRIDGE OR ROADWAY PLANS.

5. T = 12" UNLESS OTHERWISE SHOWN ON PLANS.
   T = 18" AT BRIDGES.

6. AS AN ALTERNATE, WIRE FABRIC MAY BE GALVANIZED STEEL WIRE MEETING THE
   REQUIREMENTS FOR CLASS 3, FINISH 5, MEDIUM TENSILE STRENGTH COATED WIRE
   AS SET FORTH IN FEDERAL SPECIFICATIONS QQ–W–461. THE WIRES SHALL BE
   CONTINUOUS, HAVE A DIAMETER OF NOT LESS THAN 0.118 INCH AND SHALL BE
   TRIPLE TWISTED TO FORM A UNIFORM HEXAGONAL MESH PATTERN WITH A MAXIMUM
   OPENING SIZE OF 3" X 4 3/4".
For Street Crossing, provide laydown curb slope.

- Removable steel pipe bollard - 6" dia. or approved equal.

1. Place 1/2" preformed bituminous expansion joint material with silicone sealant equally spaced with not more than 20'-0" between expansion joints. (See Detail "A").
2. A control joint every 5'-0".
3. Channel width & depth to be determined by a New Mexico Professional Engineer (P.E.).
4. Width and depth shown are the minimum.

**NOTES**

- 3/4" VB" (See D-301)
- 2'-0" std. curb & gutter (See D-300)
- Slope 8' curb face minimum
- 8" curb face minimum

**SECTION A-A**

**SECTION B-B**

**SEAL EXPANSION JOINT**

**DETAIL "A"**
Squares to be no bigger than 4" opening
Use 5/8" round stock for bars
Weld every bar.
1/4" x 2" flat bar base

Attach to concrete via 5/8" bolts.

1/4" x 2" flat base

5/8" concrete anchors — 'Red Head'

CONSTRUCTION STANDARDS

TRASH RACK

CITY OF FARMINGTON

PUBLIC WORKS DEPARTMENT

STANDARD No. D-514 SHEET 1 OF 1

APPROVED DATE 4/5/08
STORM SEWER MAINS MINIMUM SLOPES

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<th>SIZE</th>
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<tr>
<td>30&quot; OR GREATER</td>
<td>0.0050</td>
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<tr>
<td>27&quot; OR SMALLER</td>
<td>0.0100</td>
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NOTES:

1. PRIOR TO BACKFILLING, RECORD INVERT ELEVATIONS AND LOCATION ON CONSTRUCTION PLANS FOR AN AS-BUILT RECORD.
2. STORM SEWER MAIN MATERIALS & PIPE ADS N-12 UNLESS APPROVED BY THE CITY ENGINEER.
3. MINIMUM 2'-0" COVER UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.
4. MAXIMUM MANHOLE SPACING 400 FEET.
5. THIS TYPE OF INSTALLATION WILL ONLY BE USED IF THE DOWNSTREAM MANHOLE IS LESS THAN 100 FEET FROM END OF LINE.
6. MANHOLE WILL BE BUILT AT END OF MAINLINE UNLESS ALTERNATE IS APPROVED BY CITY ENGINEER OR BY DESIGNEE.
7. STUB OUT FOR FUTURE MAINLINE EXTENSION SHALL BE CONST. A MAX. OF 5' WITH BELL END AND FACTORY PLUG BEYOND LAST MANHOLE.

ALTERNATE

WHEN APPROVED BY CITY ENGINEER (FOR TEMPORARY CONDITION)

PROFILE VIEW

MIN. SIZE STORM SEWER MAIN = 18"

REV. DATE

1/08
* 1/19

CONSTRUCTION STANDARDS

STORM DRAIN

STANDARD No. D-515 SHEET 1 OF 1

APPROVED DATE 4/7/19

CITY OF FARMINGTON
PUBLIC WORKS DEPARTMENT
MISCELLANEOUS DETAILS
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LOADING: GROSS LOAD 150 TONS - MAXIMUM AXLE LOAD 60 TONS.
CONCRETE: ULTIMATE STRENGTH - 2500 P.S.I. IN 28 DAYS.
REINFORCING STEEL: A.S.T.M. A-16 INTERMEDIATE GRADE, AND
A.S.T.M. A-305 HIGH BOND.
CAUTION: HEAVY CONSTRUCTION EQUIPMENT SHALL NOT BE OPERATED
OVER UNPROTECTED PIPE AND SHALL NOT BE OPERATED
OVER SLAB UNTIL 14 DAYS AFTER POURING.

SLAB TO EXTEND THE FULL WIDTH OF
DRIVING SURFACE WITH THE ENDS
SKewed IF NECESSARY.

1-1/2" HOT MIX
ASPHALT COVER
MINIMUM.

NO. 6 BARS AT
6" CENTERS.

NO. 5 BARS AT 12" CENTERS,
FULL LENGTH OF SLAB,
LAP 2'-0" AT SPLICES.

CONSTRUCTION STANDARDS
GAS LINE CROSSING DETAIL
STANDARD No. D-601 SHEET 1 OF 1
APPROVED DATE 4/5/08
CITY OF FARMINGTON PUBLIC WORKS DEPARTMENT
**MATERIAL SPECIFICATION LIST**

1-6" PVC SEWER PLUG WITH GASKET
1-6" PVC SEWER PIPE
1-8" PVC REDUCERS
1-4"x4" PVC TEE
1-STANDARD CLEAN-OUT SEWER 30 B CONCRETE-MINIMUM 2500 PSI.
2- 1/2" THREADED FEMALE ANCHORS.

---

**NOTE:**
1. THE PLUG ON THE SEWER PIPE MUST BE INVERTED WITH NO TRIPPING HAZARD.
2. THE SAMPLE PORT SHALL BE LOCATED IN PRIVATE PROPERTY OUTSIDE TRAFFIC AREA.

---

**CONSTRUCTION STANDARDS** 4" SEWER SAMPLE PORT FOR GREASE TRAP

STANDARD No. D-605 SHEET 2 OF 3

APPROVED DATE 12/24/18
MATERIAL SPECIFICATION LIST

1-6" PVC SEWER PLUG WITH GASKET
1-6" PVC SEWER PIPE
1-6"X6"X6" PVC TEE
1-STANDARD CLEAN-OUT SEWER 30 B
CONCRETE-MINIMUM 2500 PSI.
2-ANCHORS-1/2" DIA. WITH FLARES.

NOTE:
*1. THE PLUG ON THE SEWER PIPE MUST BE INVERTED WITH NO TRIPPING HAZARD.
2. THE SAMPLE PORT SHALL BE LOCATED IN PRIVATE PROPERTY OUTSIDE TRAFFIC AREA.

6" SEWER SAMPLE PORT
FOR GREASE TRAP

CONSTRUCTION STANDARDS

STANDARD No. D-605 SHEET 3 OF 3

APPROVED DATE 12/13/18
NOTE: REFERENCE D-318 FOR BULBOUT DETAIL

*USE SAME DETAIL FOR PAPER BOX.
NOTE:
REFERENCE D-318 FOR BULBOUT DETAIL

*USE SAME DETAIL FOR PAPER BOX.
Utility Easement shall not be impeded by trees, fences, storage or carports. If fence is installed, gates are needed in front and the back.

City of Farmington
Public Works Department

CONSTRUCTION STANDARDS
UTILITY INSTALLATION BETWEEN BUILDINGS
STANDARD No. D-607 SHEET 1 OF 1

APPROVED DATE 4/25/08
REINFORCED SOIL WALLS

<table>
<thead>
<tr>
<th>CASE #1</th>
<th>T2</th>
<th>27''</th>
<th>7 = 125pcf</th>
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<tbody>
<tr>
<td>H1</td>
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<tr>
<td>BASE ELEVATION</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FOUNDATION SOIL</td>
<td>T = 32/27''</td>
<td>7 = 125pcf</td>
<td></td>
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</tbody>
</table>

DESIGN BASED ON MIRAGRID 5T. BUILDER MAY USE COMPARABLE OR EQUAL. IT IS RESPONSIBILITY OF THE INSTALLER TO SHOW COMPARISON TO CHIEF INSPECTOR PRIOR TO CONSTRUCTION.
NOTES:
1. 2 - 1 SECTION AMBER 12" SIGNAL HEAD
2. PEDESTAL POLE
3. #14 THHN WIRE (NOT SHOWN)
4. INSTALL SERVICE PEDESTAL PER US 26 OF THE FARMINGTON ELECTRIC UTILITY METER & DEVICE GUIDE
5. 1" MINIMUM CONDUIT SIZE
6. FLASHER UNIT LOCATED IN PEDESTAL POLE BASE
7. DRIVER FEEDBACK SIGN

NOTE
△ DIMENSION CHANGES DUE TO LARGER DRIVER FEEDBACK SIGNS
NOTES FOR HEAVY DUTY REINFORCED POLYMER MORTAR PULL BOX AND COVERS

1. MATERIAL TO BE AN AGGREGATE CONSISTING OF SAND AND GRAVEL BOUND TOGETHER WITH A POLYMER AND REINFORCED WITH CONTINUOUS WOVEN GLASS STRANDS. THE MATERIAL MUST HAVE THE FOLLOWING MECHANICAL PROPERTIES:
   - COMPRESSIVE STRENGTH - 10,000 PSI
   - TENSILE STRENGTH - 1,700 PSI
   - FLEXURAL STRENGTH - 7,500 PSI

2. ALL PULL BOX COVERS SHALL BE HEAVY DUTY REINFORCED POLYMER MORTAR, HAVING A SERVICE LOAD OF 22,568 LBS. OVER 10' SQUARE (225 PSI).

3. PULL BOX TYPE AND LOGO SHALL BE APPROVED BY THE TRAFFIC ENG. DIV.

4. THE DIMENSIONS OF THE PULL BOXES SHOWN ARE NOMINAL DIMENSIONS AND MAY VARY AS TO THE MANUFACTURER'S RECOMMENDATIONS. ALL DIMENSIONS SHALL BE VERIFIED BY THE TRAFFIC ENGINEERING DIVISION.

5. %-inch DIAMETER BY 8 LINEAR FEET COPPER CLAD GROUND ROD TO BE INSTALLED.

6. LOCATION SHALL BE OUTSIDE OF THE SIDEWALK AREA.
CONSTRUCTION STANDARDS

IN COMPACTED EARTH

IN ASPHALT PAVEMENTS

IN CONCRETE PAVEMENTS

CONSTRUCTION STANDARDS

TRAFFIC PULL BOX COLLARS

STANDARD No. D-610 SHEET 2 OF 2

APPROVED DATE 5/3/11

CITY OF FARMINGTON
PUBLIC WORKS DEPARTMENT
NOTE:
1. #4 REBAR 12" O.C. IN BOTH DIRECTIONS
2. SCH. 40 STEEL
3. ALL DIMENSIONS ARE SUBJECT TO CHANGE DEPENDING ON FLOW REQUIREMENTS AND SCOUR DEPTH.
4. REBAR SHALL BE PLACED 3" FROM UPSTREAM FACE IN WALL AND 3" FROM BOTTOM IN FOOTER.
4. USE 4000 P.S.I. CONCRETE
1. All improvements must have positive drainage away from the house to the street, and
2. Finished floor elevation must be a minimum of 18" above the flow line of the gutter measured at the center of the lot. If curb and gutter are absent flow line is at the edge of roadway measured at the center of the lot.
3. If note 1. and 2. are not met then a drainage plan prepared, stamped and sealed by a New Mexico Professional Engineer must be submitted. The plan must consider onsite and offsite stormwater.
4. Note 3. can be appealed to City Engineer.
5. The intent of this detail is to provide positive drainage away from the house and to insure during times of flooding that the flood carrying capacity of the city's stormwater conveyance system, which includes overland sheet flow in the street, drainage easements and arroyos, is maintained.
FOOTINGS ON OR ADJACENT TO SLOPES

THE PLACEMENT OF BUILDINGS AND STRUCTURES ON OR ADJACENT TO SLOPES STEEPER THAN ONE UNIT VERTICAL IN THREE UNITS HORIZONTAL (33.3 PERCENT SLOPE OR 1V:3H SLOPE) SHALL CONFORM TO PART A THROUGH PART D.


B. FOOTING SETBACK FROM DESCENDING SLOPE SURFACE. FOOTINGS ON OR ADJACENT TO SLOPE SURFACES SHALL BE FOUNDED IN FIRM MATERIAL WITH AN EMBEOMENT AND SETBACK FROM THE SLOPE SURFACE SUFFICIENT TO PROVIDE VERTICAL AND LATERAL SUPPORT FOR THE FOOTING WITHOUT DETRIMENTAL SETTLEMENT. EXCEPT AS PROVIDED FOR IN PART D AND DIAGRAM SHOWN ABOVE, THE FOLLOWING SETBACK IS DEEMED ADEQUATE TO MEET THE CRITERIA. WHERE THE SLOPE IS STEEPER THAN 1 UNIT VERTICAL IN 1 UNIT HORIZONTAL (100 PERCENT SLOPE OR 1V:1H SLOPE), THE REQUIRED SETBACK SHALL BE MEASURED FROM AN IMAGINARY PLANE 45 DEGREES TO THE HORIZONTAL, PROJECTED UPWARD FROM THE TOE OF THE SLOPE.

C. FOUNDATION ELEVATION. ON GRADED SITES, THE TOP OF ANY EXTERIOR FOUNDATION SHALL EXTEND ABOVE THE ELEVATION OF THE STREET GUTTER AT POINT OF DISCHARGE OR THE INLET OF AN APPROVED DRAINAGE DEVICE A MINIMUM OF 12 INCHES PLUS 2 PERCENT. ALTERNATE ELEVATIONS ARE PERMITTED SUBJECT TO THE APPROVAL OF THE BUILDING OFFICIAL AND/OR CITY ENGINEER, PROVIDED IT CAN BE DEMONSTRATED THAT REQUIRED DRAINAGE TO THE POINT OF DISCHARGE AND AWAY FROM THE STRUCTURE IS PROVIDED AT ALL LOCATIONS ON THE SITE.

D. ALTERNATE SETBACK AND CLEARANCE. ALTERNATE SETBACKS AND CLEARANCES ARE PERMITTED, SUBJECT TO THE APPROVAL OF THE BUILDING OFFICIAL AND CITY ENGINEER. THE BUILDING OFFICIAL AND/OR CITY ENGINEER MAY REQUIRE AN INVESTIGATION AND RECOMMENDATION OF A REGISTERED DESIGN PROFESSIONAL TO DEMONSTRATE THAT THE INTENT OF THIS SECTION HAS BEEN SATISFIED. SUCH AN INVESTIGATION AT A MINIMUM SHALL INCLUDE CONSIDERATION OF MATERIAL, HEIGHT OF SLOPE, SLOPE GRADIENT, LOAD INTENSITY AND EROSION CHARACTERISTICS OF SLOPE MATERIAL.

NOTE: REFERENCED FROM INTERNATIONAL BUILDING CODE.
CONSTRUCTION STANDARDS

SIGN INSTALLATION DETAILS

SINGLE POST INSTALLATIONS
(TOTAL SIGN AREA NOT TO EXCEED 0.5 SQ FT)

TYPICAL SIGN SIZE:
24" X 36"
30" X 30"
36" X 42"

DOUBLE POST INSTALLATIONS
(TOTAL SIGN AREA NOT TO EXCEED 2 SQ FT)

TYPICAL SIGN SIZE:
72" X 48"
96" X 48"

TRIPLE POST INSTALLATIONS
(TOTAL SIGN AREA NOT TO EXCEED 5 SQ FT)

SIGN POST REQUIREMENTS

POST TYPE | POST SIZE | MAX. CLEAR HEIGHT H (FT) | MAX. SIGN AREA (SQ FT)
--- | --- | --- | ---
SQUARE TUBING | 2.00" X 2.00" (12 GA) | 5 | 6
SQUARE TUBING | 2.00" X 2.00" (12 GA) | 9 | 9
SQUARE TUBING | 2.00" X 2.00" (12 GA) | 7 | 7
SQUARE TUBING | 2.25" X 2.25" (12 GA) | 10 | 10
SQUARE TUBING | 2.25" X 2.25" (12 GA) | 9 | 9
SQUARE TUBING | 2.25" X 2.25" (12 GA) | 7 | 7
SQUARE TUBING | 2.25" X 2.25" (12 GA) | 11 | 11
SQUARE TUBING | 2.25" X 2.25" (12 GA) | 9 | 9

SIGN POST REQUIREMENTS

POST TYPE | POST SIZE | MAX. CLEAR HEIGHT H (FT) | MAX. SIGN AREA (SQ FT)
--- | --- | --- | ---
SQUARE TUBING | 2.0" X 2.0" (12 GA) | 11 | 12
SQUARE TUBING | 2.0" X 2.0" (12 GA) | 9 | 9
SQUARE TUBING | 2.0" X 2.0" (12 GA) | 8 | 8
SQUARE TUBING | 2.0" X 2.0" (12 GA) | 7 | 7

NOTE 1: POSTS MUST BE SET tn CONCRETE TO ATTAIN MAX. CLEAR HEIGHT.
NOTE 2: MAX. CLEAR HEIGHT FOR TUBING WITH SLIP BASE SYSTEMS IS 8 FT.
NOTE 3: MAX. CLEAR HEIGHT FOR TUBING WITH SLIP BASE SYSTEMS IS 9 FT.
NOTE 4: SEE NOTES 1 & 3

APPROVED DATE 11/22/22
HORIZONTAL AND VERTICAL CLEARANCE
(BUSINESS, COMMERCIAL, & RESIDENTIAL AREAS)

NOTE:
1. ALL SQUARE TUBING SIGN POST REQUIREMENTS ARE BASED ON A 12 GAUGE THICKNESS, ASTM A570 GRADE 50 STEEL. MINIMUM YIELD STRENGTH OF 60,000 PSI AND A 70 MPH WIND. SEE THE MUTCO & STANDARD HIGHWAY SIGNS MANUEL (CURRENT EDITION) FOR FURTHER GUIDANCE.
2. FOR CONSTRUCTION SIGNING & PERMANENT SINGLE AND TRIPLE POST INSTALLATIONS. SMALLER POST CROSS SECTIONS MAY BE USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND THE RECOMMENDATIONS DETAIL IN NOTE 1.
3. TOP EDGE OF POST SHALL NOT EXTEND PAST TOP EDGE OF SIGN.
4. STEEL POST, BASE POST, AND SLIP BASES FOR ALUMINUM PANEL SIGNS SHALL BE SELECTED FROM THE DEPARTMENT'S APPROVED PRODUCT LIST. ALL SIGN MOUNTED WITHIN THE CLEAR ZONE SHALL BE MOUNTED ON A NCHRP REPORT 350 APPROVED SIGN POST/BASE POST BREAKAWAY SYSTEM UNLESS INSTALLATION ISLOCATED BEHIND A NON-GATING LONGITUDINAL BARRIER. OTHER INSTALLATION, CONFIGURATIONS OR SYSTEM NOT SHOWN MAY BE USED AS RECOMMENDED BY THE MANUFACTURER WITH APPROVAL OF THE DISTRICT TRAFFIC ENGINEER.
5. FOR INSTALLATION ON WEAK (SOAFT) SOIL, SOIL PLATES SHALL BE USED AS ROMMENDED BY THE MANUFACTURER, PAYMENT FOR SOIL PLATES SHALL BE INCIDENTAL TO THE SIGN INSTALLATION.
6. BASE POST SHALL NOT EXTEND MORE THAN 4" ABOVE GROUND LEVEL AND SHALL BE OF THE SAME WEIGHT/ GAUGE AND TYPE AS THE SIGN POST.
7. HORIZONTAL CLEARANCE APPLY TO INSTALLATION ON LEFT AND RIGHT SIDE OF ROADWAY.
8. SUPPLEMENTAL SIGNS SHALL NOT BE ATTACHED DIRECTLY TOPRIMARY PANELS ON EITHER PERMANENT OR CONSTRUCTION SIGNING INSTALLATION.
9. SPACING BETWEEN SUPPLEMENTAL PANELS AND PRIMARY PANELS SHALL NOT EXCEED 6".
10. SIGN PANELS PLACED PARALLEL TO TRAFFIC SHALL BE MOUNTED ON A MULTI-DIRECTIONAL BREAKAWAY SYSTEM. (SEE SERIAL 701-02-3/31)
1 1/4" SCHEDULE 40 STEEL WITH PRIMER AND FINISH COAT PAINT, COLOR BY C.O.F.

POST AT 10' O.C.
ANCHOR AS DIRECTED BY CITY ENGINEER

FINISH GRADE

CONSTRUCTION STANDARDS
HAND RAILS

STANDARD No. D-630 SHEET 1 OF 1

APPROVED DATE 4/15/08
FRONT VIEW

NOTES
1) ALL STORM DRAIN INLETS SHALL BE LABELED WITH MARKERS APPROVED BY THE CITY ENGINEER.
2) STORM DRAIN MARKERS MAY BE OBTAINED FROM THE CITY OF FARMINGTON PUBLIC WORKS DEPARTMENT.

BACK VIEW

APPLICATIONS INSTRUCTIONS:
1) WIRE BRUSH DIRT OR LOOSE IMPEDIMENTS FROM A FLAT, DRY SURFACE.
2) APPLY ADHESIVE ON THE BACK OF THE MARKER ABOUT \(\frac{3}{8}\)" FROM THE OUTER EDGE AND THEN WORK TO THE CENTER OF THE MARKER. SEE PATTERN ON BACK VIEW.
3) WHEN APPLYING THE MARKER, PRESS DOWN HARD ENOUGH TO FORCE THE ADHESIVE OUT AROUND THE ENTIRE EDGE OF THE MARKER. ENSURE THAT THE ENTIRE EDGE OF THE MARKER IS SEALED.

ADHESIVE:
USE SLATE GRAY OUTDOOR ACRYLIC LATEX CAULK PLUS SILICONE THAT IS MOLD AND MILDEW RESISTANT, PROVIDES A WATER PROOF SEAL, AND IS PERMANENTLY FLEXIBLE.
NOTE:

1. DUMPSTER, RECEPTACLES AND CONTAINERS SHALL BE SCREENED FROM PUBLIC VIEW ON THREE SIDES BY A SOLID WALL AT LEAST SIX FEET IN HEIGHT.
2. ALL ENCLOSURES SHOULD BE DESIGNED WITHOUT GATES.
3. IF GATES ARE USED, THE POLES THAT THE GATES HANG ON MUST ALSO BE 10'-8" APART. ALL GATES MUST HAVE STAKES TO KEEP GATE OPEN WHILE SERVICING THE CONTAINER INSIDE.
4. ALL ENCLOSURES MUST HAVE OPEN TOPS (NO ROOF).
5. FOR FRONT LOADING CONTAINER ONLY- ENCLOSURES MUST HAVE A CLEAR STRAIGHT-IN APPROACH DISTANCE OF 50' TO FRONT OF ENCLOSURE, A MINIMUM MANEUVERING OF TRASH COLLECTION VEHICLES IS REQUIRED. VERIFY WITH WASTE MANAGEMENT.
6. NO PARKING AREA MUST BE MARKED IN FRONT OF THE ENCLOSURE.
7. NO OVERHEAD ELECTRIC OR TELEPHONE WIRES IN THE AREA OF THE ENCLOSURE.
SIDEWALK

24" ROOT BARRIER AT SIDEWALK
ROOTBARRIER: PLACE AT EDGE OF PAVEMENT/SIDEWALK/ETC.; PLACE PRIOR TO PLACEMENT OF NEW SIDEWALK OR CURB TO PREVENT UNDERMINING.

CURB AND GUTTER

24" ROOT BARRIER AT CURB WHEN SHOWN ON THE DRAWINGS.

NOTE:
1. ROOT BARRIER REQUIRED ALONG EDGE OF ROADWAY, CURB, DRIVEWAY, TRAIL, SIDEWALK, OR OTHER STRUCTURES WHERE ROOTBALL IS WITHIN 2 FEET.
2. ROOT CONTROL BARRIER SHALL BE FABRICATED FROM A HIGH DENSITY AND HIGH IMPACT PLASTIC SUCH AS POLYVINYL CHLORIDE, ASEX OR POLYETHYLENE AND HAVE A MINIMUM THICKNESS OF 0.06 INCH. THE PLASTIC SHALL HAVE 1/2 INCH HIGH RAISED VERTICAL RIBB ON THE INNER SURFACE SPACED NOT MORE THAN 8 INCHES APART, OR AS APPROVED BY THE CITY ENGINEER OR THEIR DESIGNEE AND SHALL BE A MINIMUM OF 24 INCHES DEEP.
STORMWATER POLLUTION PREVENTION PLAN
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GENERAL NOTES:

1. The soil retention installation details shown for culvert protection shall be used for all temporary erosion and sediment control measures utilizing soil retention blankets unless otherwise noted.

2. Rock placement used in the temporary erosion and sediment control measures shown on these sheets shall have a minimum thickness of 6 inches unless otherwise indicated.

3. All temporary erosion and sediment control measures placed within the construction clear zone shall be installed with 8:1 slopes parallel to traffic and 4:1 slopes perpendicular to traffic.

4. Sediment traps and sediment basins shall be cleaned of accumulated sediment when approximately 50% filled.

5. Check dams shall be cleaned of accumulated sediment when the deposits reach approximately one-half the height of the check dam.

6. Culvert protections shall be installed upon initiation of earth activities and maintained as much as practical until stabilization is completed and accepted. Culvert protections may be removed for periods of time as required during construction to complete adjacent improvements.

7. The contractor may construct an earth dike as shown, or relocate the check dams as construction progresses. No direct payment shall be made for relocation of the check dams.

8. For storm drain inlet protection, remove accumulated sediment from the area around the drop inlet when the capacity is reduced by 50%.

9. Straw bale fences shall be cleaned of accumulated sediment when accumulation reaches one-third of the bale height.

10. Fiber rolls shall be cleaned of accumulated sediment when accumulation reaches one-half the distance between then top of the fiber roll and the ground surface.

CONSTRUCTION STANDARDS

TEMPORARY EROSION CONTROL LABELS

STANDARD No. D-700 SHEET 1 OF 2

CITY OF FARMINGTON PUBLIC WORKS DEPARTMENT

APPROVED DATE 4/8/08

REV. DATE 1/22/08
TYPICAL USAGE OF SELECTED EROSION AND SEDIMENT CONTROL MEASURES

STANDARD SYMBOLS FOR EROSION AND SEDIMENT CONTROL MEASURES

- Silt Fence
- Straw Bale
- Earth Dike (Berm)
- Diversion Channel (Swale)
- Fiber Roll
- Slope Drain
- Drop Inlet Protection
- Culvert Protection
- Check Dam
- Filter Dike
- Triangular
- Sediment Trap
- Excavated
- Sediment Basin
- Sediment Trap,
- Right of Way
- Flow Line
- F/L
- Top of Slope
- Cut Section
- Top of Cut
- Sheet D-704
- Sediment Trap
- Erosion
- Sediment Control
- Measure
NOTES: CULVERT PROTECTION

1. WHEN CULVERT PROTECTION IS SPECIFIED, EITHER SOIL RETENTION BLANKETS OR SOIL RETENTION ROCK MAY BE PROVIDED.

2. THE CULVERT PROTECTION WIDTH REQUIRED SHALL BE IN ACCORDANCE WITH THESE DETAILS UNLESS SPECIFIED OTHERWISE.

3. THE SOIL RETENTION BLANKET INSTALLATION SHOWN OUTLINES MINIMUM REQUIREMENTS. MANUFACTURER’S RECOMMENDATIONS SHALL BE USED IF THEY ARE MORE STRINGENT.

SOIL RETENTION BLANKET STAPLE PATTERN

SECTION B-B
SOIL RETENTION ROCKS (RIPRAP) △

NOT TO SCALE

CONSTRUCTION STANDARDS

CULVERT PROTECTION

STANDARD No. D-701 SHEET 1 OF 1

REV. DATE
△ 1/22/08

CITY OF FARMINGTON
PUBLIC WORKS DEPARTMENT

APPROVED DATE 9/27/08
GROOVING IS CUTTING FURROWS ALONG THE CONTOUR OF A SLOPE. IRREGULARITIES IN THE SOIL SURFACE CATCH RAINWATER AND PROVIDE SOME RETENTION OF LIME, FERTILIZER AND SEED.

TOP OF SLOPE

TOE OF SLOPE

DEBRIS FROM SLOPE ABOVE IS CAUGHT BY STEPS

STAIR-STEPPING CUT SLOPE

NOT TO SCALE

SURFACE ROUGHENING

CITY OF FARMINGTON PUBLIC WORKS DEPARTMENT

CONSTRUCTION STANDARDS

STANDARD No. D-702 SHEET 1 OF 1

APPROVED DATE 4/12/08
1. The flexible pipe shall be the same diameter as the inlet pipe and shall be constructed of a durable material with hold-down grommets spaced 10 ft. on center.

2. The flexible pipe shall be securely fastened to the corrugated metal or high density polyethylene pipe with metal strapping or watertight connecting collars.

3. The flexible pipe shall be staked at 10 ft. centers along the slope using minimum 4 inch square wood posts or standard steel posts driven 2 ft. minimum into the ground, or earthen thrust block.

4. Rigid pipe shall be anchored at bends. Anchorage shall consist of a minimum of 4 inch square wood posts or standard steel posts driven 2 ft. minimum into the ground, or earthen thrust block.

5. Payment of basin items are incidental to the cost of flexible storm drain pipe.
ELEV. OF POINT B SHOULD BE ABOVE OR EQUAL TO POINT A.

3"-6" WASHED GRAVEL

TRAFFIC FLOW

PROFILE

CONSTRUCTION STANDARDS

STONE CHECK DAM

STANDARD No. D-704 SHEET 1 OF 1

APPROVED DATE 5/21/12
SIDE SLOPES WITHIN THE SAFETY CLEAR ZONE OF A ROADWAY SHALL BE 1:6 OR FLATTER

SOIL RETENTION BLANKET OR ROCK PLATING (BLANKET SHOWN)
TOP OF EARTH BERM SHALL BE CONSTRUCTED LEVEL

TYPICAL SWALE CONFIGURATION

CONSTRUCTION STANDARDS

EARTH DIVERSION DIKE (BERM) WITH A CHANNEL

STANDARD No. D-705 SHEET 1 OF 1

CITY OF FARMINGTON
PUBLIC WORKS DEPARTMENT

APPROVED DATE 4/16/98
SOIL OR ROCK RETENTION BLANKET

SECTION A-A

SOIL RETENTION BLANKET, TOP OF EARTH BERM SHALL BE CONSTRUCTED LEVEL

SECTION B-B

CONSTRUCTION STANDARDS

EARTH DIVERSION DIKE (BERM)

STANDARD No. D-706 SHEET 1 OF 1

CITY OF FARMINGTON
PUBLIC WORKS DEPARTMENT

APPROVED DATE 4/13/08
CITY REQUIREMENTS FOR OFFSITE TRACKING PREVENTION

FILTER FABRIC
PER ENGINEER

COURSE AGGREGATE
12" TO 3"

10' MIN RADIUS

50' MIN.

12' MIN.
(TYPICAL RESIDENTIAL 2-WAY TRAFFIC PER ENGINEER)

CITY OF FARMINGTON
CONSTRUCTION STANDARDS

NOT TO SCALE

CITY CONTRACTS
REFERENCE FOR OTHERS

CONSTRUCTION STANDARDS

STANDARD No. D-707 SHEET 2 OF 2

APPROVED DATE 1/22/08

CITY OF FARMINGTON
PUBLIC WORKS DEPARTMENT

REV. DATE

1/22/08
VERTICAL SPACING MEASURED ALONG THE FACE OF THE SLOPE VARIES BETWEEN 10' AND 20'.

NOTE: INSTALL FIBER ROLL ALONG A LEVEL CONTOUR.

NOTE: INSTALL FIBER ROLL NEAR SLOPE WHERE IT TRANSITIONS INTO A STEEPER SLOPE.

TYPICAL FIBER ROLL INSTALLATION

FIBER ROLL BIND ROLLS AT EACH END AND AT LEAST EVERY 4 FEET ALONG THE LENGTH OF THE ROLL WITH JUTE-TYPE TWINE.

1) If more than one fiber roll is placed in a row, the rows shall be overlapped; not abutted.

2) The fiber roll installation shown outlines minimum requirements. Manufacturer's recommendations shall be used if they are more stringent.

3) The fiber roll installation shown outlines minimum requirements. Manufacturer's recommendations shall be used if they are more stringent.

ENTRENCHMENT DETAIL

NOTES: FIBER ROLLS

1) Bind rolls at each end and at least every 4 feet along the length of the roll with jute-type twine.

2) If more than one fiber roll is placed in a row, the rows shall be overlapped; not abutted.

3) The fiber roll installation shown outlines minimum requirements. Manufacturer's recommendations shall be used if they are more stringent.
EMERGENCY SPILLWAY SHOULD NOT BE CONSTRUCTED OVER FILL MATERIAL.

PLAN VIEW
NOT TO SCALE

CROSS SECTION A-A
NOT TO SCALE

DESIGN HIGH WATER
DESIGN CAPACITY
DEWATERING OUTLET
(PERFORATED RISER SHOWN)
EMERGENCY SPILLWAY
EARTH BERM
OUTFALL

CONSTRUCTION STANDARDS
SEDIMENT BASIN

STANDARD No. D-709 SHEET 1 OF 1

APPROVED DATE 4/5/08

CITY OF FARMINGTON
PUBLIC WORKS DEPARTMENT
NOTES SEDIMENT TRAPS

1. TEMPORARY SEDIMENT TRAPS MAY BE CONSTRUCTED BY EXCAVATION ALONE OR BY EXCAVATION IN COMBINATION WITH AN ENBANKMENT.

2. TEMPORARY SEDIMENT TRAPS ARE OFTEN USED IN CONJUNCTION WITH A DIVERSION DIKE OR SWALE.

3. THE DRAINAGE AREA FOR THE SEDIMENT TRAP SHOULD NOT EXCEED 5 DISTURBED ACRES.

4. THE TRAP MUST BE ACCESSIBLE FOR EASE OF REGULAR MAINTENANCE, WHICH IS CRITICAL TO ITS PROPER FUNCTIONING.

5. SEDIMENT TRAPS ARE TEMPORARY MEASURES AND SHOULD NOT REMAIN IN PLACE LONGER THAN 18 TO 24 MONTHS.

6. THE ENBANKMENT MAY NOT EXCEED 5 FT. IN HEIGHT.

7. THE RECOMMENDED MINIMUM WIDTH AT THE TOP OF THE ENBANKMENT IS BETWEEN 2 FT. AND 5 FT. FOR LARGE DEVELOPMENTS, ENGINEER SHALL APPROVE.

8. MINIMUM STORAGE CAPACITY SHOULD BE 1,800 FT³ PER ACRE OF TOTAL DRAINAGE AREA.
NOTES: SILT FENCE

THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE POST SPACING FOR SILT FENCES TO MINIMIZE MAINTENANCE.

1. POST SPACING SHALL BE 4 FT. MAXIMUM WITHOUT SUPPORTING FENCE, 10 FT. MAXIMUM WITH SUPPORTING FENCE.

2. POSTS FOR 4 FT. MAXIMUM POST SPACING SHALL BE 2 INCH SQUARE NOMINAL SIZE OR HEAVIER WOOD POSTS, OR STANDARD "T" OR "U" SECTION STEEL POSTS WEIGHING NOT LESS THAN 1 LB. PER LINEAR FOOT.

   POSTS FOR 10 FT. MAXIMUM POST SPACING SHALL BE 4 INCH SQUARE NOMINAL SIZE OR HEAVIER WOOD POSTS, OR STEEL POSTS AS SPECIFIED ABOVE.

3. SUPPORTING FENCE SHALL BE WIRE MESH (14 GA. MIN., 1 INCH MAX. MESH OPENINGS), SNOW FENCE, PLASTIC FENCE, OR APPROVED EQUAL.

4. SUPPORTING FENCE SHALL BE FASTENED SECURELY TO POSTS WITH STAPLES OR WIRE TIES. FILTER FABRIC SHALL BE FASTENED SECURELY TO SUPPORTING FENCE WITH WIRE TIES SPACED AT 2 FT. CENTERS ALONG THE TOP AND MIDSECTION. WHEN A SUPPORTING FENCE IS NOT USED, FILTER FABRIC SHALL BE SECURELY FASTENED TO POSTS WITH STAPLES OR WIRE TIES.

5. FOR SILT FENCES, RUNOFF FLOW SHOULD NOT EXCEED 0.5cfs AND THE DRAINAGE AREA SHOULD NOT EXCEED 0.25 ACRE PER 100-FOOT FENCE LENGTH.

6. STANDARD "T" OR "U" SECTION STEEL POSTS SHALL NOT BE USED WITHIN THE CONSTRUCTION CLEAR ZONE RECOVERY AREA.
CITY CONTRACTS
REFERENCE FOR OTHERS

Curb Opening

Notes: Gravel Inlet Protection
1. This installation is for a typical curb drop inlet.
2. The spacing of the longitudinal bracing shall not exceed 5 ft.

Type II Curb Drop Inlet

Note: Alternate protection of city structures needs approval by city engineer.
NOTE:
1. WHEN SPECIFIED, ROCKS OR STRAW BALES CAN BE SUBSTITUTED FOR SILT FENCE.

2. STAKES SHOULD BE PLACED AT LEAST EVERY THREE FEET.

NOTE:
ALTERNATE PROTECTION OF CITY STRUCTURES NEEDS APPROVAL BY CITY ENGINEER.
FLOW TOE OF SLOPE TO TOP OF SLOPE

BOUND BALES PLACED ON CONTOUR
2"x2" STAKES 6" TO 12" IN GROUND. DRIVE STAKES LEAVE STAKES VISIBLE PAINT FLUORESCENT ORANGE

NOTES: STRAW BALE FENCE

1. WATER DEPTH SHOULD NEVER EXCEED 1 FOOT AT ANY ONE TIME
2. BECAUSE STRAW BALE INSTALLATIONS HAVE A HIGH FAILURE RATE CONSIDER OTHER BEST MANAGEMENT PRACTICES FIRST.

CONSTRUCTION STANDARDS
STANDARD No. D-714 SHEET 1 OF 1

CITY OF FARMINGTON
PUBLIC WORKS DEPARTMENT

APPROVED DATE 4/15/08