

# FY 19 WATER LINE IMPROVEMENTS

## GENERAL NOTES

1. THIS PROJECT IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, SPECIAL CONDITIONS, CITY OF STAUNTON DESIGN AND CONSTRUCTION STANDARDS, VDOT ROAD AND BRIDGE STANDARDS, HEALTH DEPARTMENT WATER WORKS AND SEWERAGE REGULATIONS AND ANY OTHER APPLICABLE STANDARDS.
2. ALL MATERIAL USED ON THIS PROJECT SHALL BE NEW AND COMPLY WITH THE LATEST REVISION OF THE APPLICABLE AMERICAN SOCIETY OF TESTING AND MATERIALS (ASTM), AMERICAN WATERWORKS ASSOCIATION (AWWA), AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI) & VIRGINIA DEPARTMENT OF TRANSPORTATION (VDOT) ROAD & BRIDGE STANDARDS & SPECIFICATIONS UNLESS OTHERWISE NOTED.
3. THE LOCATION OF EXISTING UTILITIES AS SHOWN ON THE PLANS ARE AS THEY WERE KNOWN AT THE TIME THE PLANS WERE PREPARED. HOWEVER, NOTHING IN THE CONTRACT DOCUMENTS SHALL BE CONSTRUED AS A GUARANTEE THAT SUCH UTILITIES ARE IN THE LOCATION INDICATED OR THAT THEY ACTUALLY EXIST, OR THAT OTHER UTILITIES ARE NOT IN THE AREA OF OPERATION. THE CONTRACTOR SHALL MAKE ALL NECESSARY INVESTIGATIONS TO DETERMINE THE EXISTENCE AND LOCATION OF SUCH LINES. THE CONTRACTOR SHALL PAY FOR ANY DAMAGE TO AND FOR MAINTENANCE AND PROTECTION OF EXISTING UTILITIES AND STRUCTURES.  
**CALL MISS UTILITY 48 HOURS IN ADVANCE OF DIGGING.**
4. THE CONTRACTOR IS TO DIG & LOCATE EXISTING UTILITIES IN ADVANCE OF PIPE LAYING TO ALLOW FOR HORIZONTAL AND VERTICAL ALIGNMENT ADJUSTMENT.
5. UTILITY SERVICES SHALL BE UNINTERRUPTED UNLESS PRIOR APPROVAL IS GIVEN BY THE CITY ENGINEER. THE CONTRACTOR IS REQUIRED TO HANG (CITY PROVIDED) NOTICES ON ALL CUSTOMER DOORS 24 HOURS PRIOR TO UTILITY SHUT-OFFS.
6. MAINTAIN 18" VERTICAL CLEARANCE AT ALL SANITARY SEWER CROSSINGS, AND 12" CLEARANCE AT ALL STORM SEWER CROSSINGS. MAINTAIN 10 FEET HORIZONTAL DISTANCE BETWEEN WATER LINES AND SANITARY SEWER LINES AND MANHOLES.
7. WATERLINE APPURTENANCES SHALL BE LOCATED AWAY FROM DRAINAGE PATTERNS.
8. ALL TOPSOIL, SEEDING & MULCHING OPERATIONS ARE TO FOLLOW IMMEDIATELY BEHIND PIPE LAYING OPERATIONS.
9. ALL PAVEMENT REPAIR IS TO BE KEPT UP WITH LINE INSTALLATION AS DIRECTED BY INSPECTOR.
10. ALL SALVAGE ITEMS REMOVED FROM THE PROJECT SHALL BE DEPOSITED AT THE CITY SALVAGE YARD.
11. ALL TRAFFIC CONTROL DEVICES MUST BE IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND THE VIRGINIA WORK AREA PROTECTION MANUAL.
12. EXISTING LINES ARE NOT TO BE ABANDONED UNTIL ALL SERVICES IN THE PROJECT AREA ARE CONNECTED TO NEW LINES.
13. CONTACTS FOR ASSOCIATED UTILITY COORDINATION ARE:  
COLUMBIA GAS      TERRY HOWARD      290-0203  
VIRGINIA POWER      RICH PARASKA      245-4121  
COMCAST      ROB CROSIER      887-3461  
VERIZON      CALVIN JOHNSON      434-841-8570
14. DRAWINGS FOR THESE PROJECTS ARE BASED ON AVAILABLE RECORDS, SUPPLEMENTED WITH A LIMITED AMOUNT OF FIELD SURVEY.

JULY 2018

## CITY OF STAUNTON

116 W. Beverley Street

P.O. Box 58

Staunton, Virginia 24402

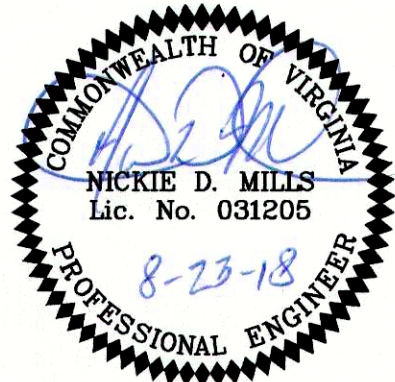
City Engineer: Nickie D. Mills, P.E.

Phone: 540-332-3858

| C STREET LEGEND |                                  |        |                             |
|-----------------|----------------------------------|--------|-----------------------------|
| SYMBOL          | DESCRIPTION                      | SYMBOL | DESCRIPTION                 |
| OHE             | EXISTING OVERHEAD ELECTRIC       | 2 w    | EXISTING 2" WATER LINE      |
| t               | EXISTING TELEPHONE               | 6 w    | EXISTING 6" WATER LINE      |
| ug              | EXISTING GAS                     | 8 w    | EXISTING 8" WATER LINE      |
| ub              | EXISTING UNDERGROUND ELECTRIC    |        | EXISTING GATE VALVE         |
|                 | EXISTING UTILITY POLE            |        | EXISTING FIRE HYDRANT       |
|                 | EXISTING GUY                     |        | EXISTING WATER METER        |
|                 | EXISTING LIGHT POST              |        | PROPOSED WATER LINE         |
|                 | EXISTING SIGN POST               |        | PROPOSED GATE VALVE         |
|                 | EXISTING MAILBOX                 |        | PROPOSED FIRE HYDRANT       |
| XXX             | EXISTING 10' CONTOUR             |        | PROPOSED BLOWOFF            |
| XXX             | EXISTING 2' CONTOUR              |        | WATER METERS TO BE REPLACED |
| SS              | EXISTING SANITARY SEWER MAIN     |        |                             |
|                 | EXISTING SANITARY SEWER MANHOLE  |        |                             |
|                 | EXISTING SANITARY SEWER CLEANOUT |        |                             |

This project's topographic and utility information mapping was completed under the direct and responsible charge of Nickie D. Mills, P.E., from an actual ground survey made under my supervision in May 2018. The survey information on this drawing meets minimum accuracy standards unless otherwise noted.

Data shown outside the limits of the actual field survey (beyond roadway edge of pavement) was obtained from Staunton GIS Database.



LOCATION MAP

SCALE 1"=100'

## PROJECT SITES

- A STERLING STREET EXTENSION  
B C STREET

- SHEET 1  
SHEET 2-13  
SHEET 14

## SHEET INDEX

- TITLE SHEET  
STERLING STREET EXTENSION  
C STREET

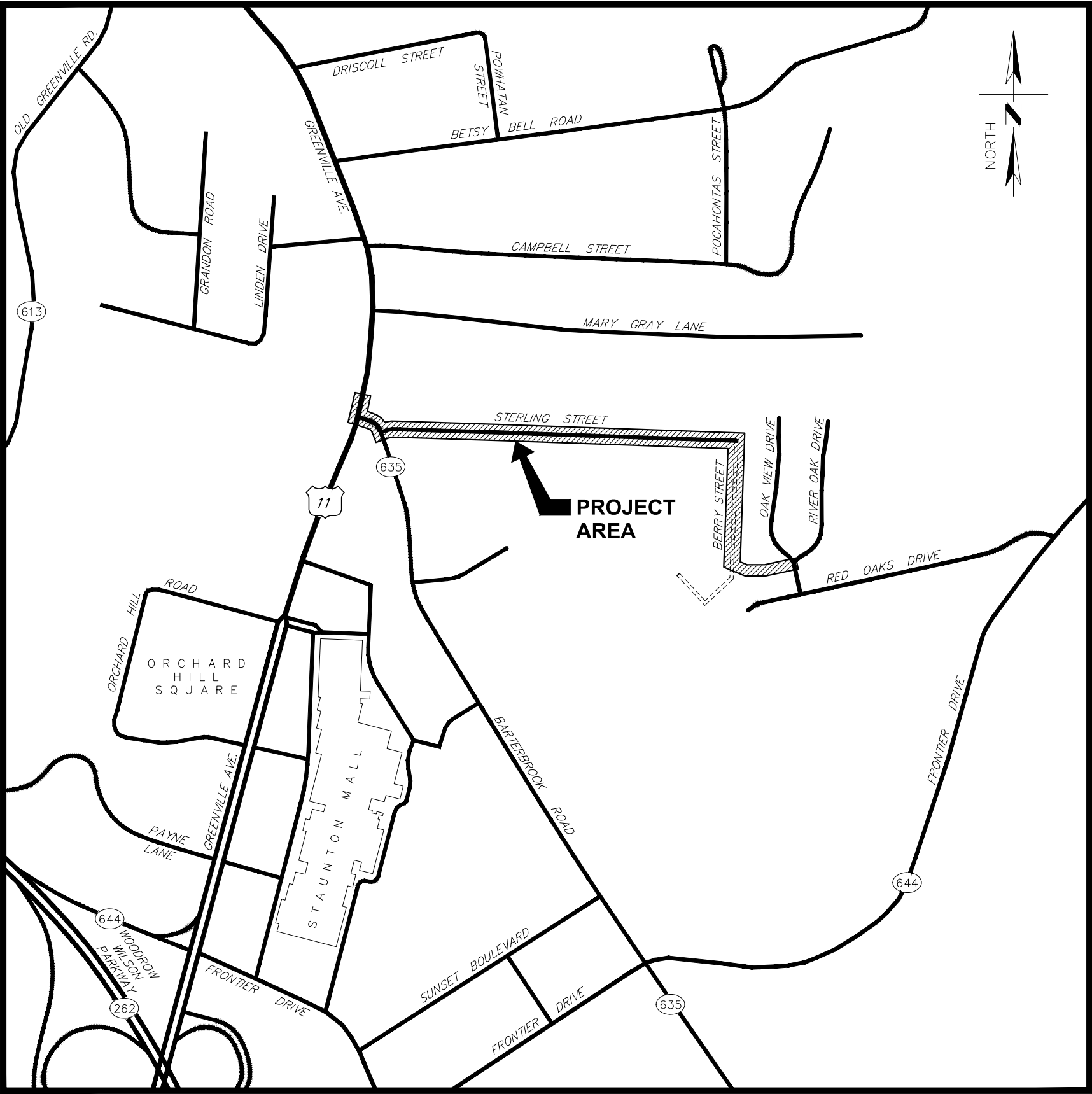
SH. 1 OF 14



# STERLING STREET WATERLINE

## CITY OF STAUNTON, VIRGINIA

| LEGEND                                               |                                        |
|------------------------------------------------------|----------------------------------------|
| <b>EXISTING FEATURES:</b>                            | <b>PROPOSED FEATURES:</b>              |
| DROP INLET & STORM SEWER                             | NEW WATERLINE 11+00 8" W 12+00         |
| STORM SEWER MANHOLE                                  | TAPPING SLEEVE AND VALVE               |
| SANITARY SEWER & MANHOLE                             | GATE VALVE AND BOX                     |
| CLEANOUT                                             | FIRE HYDRANT                           |
| WATER MAIN                                           | WATER METER ASSEMBLY                   |
| WATER VALVE                                          | WATER MAIN FITTINGS                    |
| WATER METER                                          | AIR RELEASE VALVE                      |
| CHECK VALVE                                          | BLOW-OFF ASSEMBLY                      |
| FIRE HYDRANT                                         | SILT FENCE                             |
| WELL (POTABLE)                                       | INLET PROTECTION                       |
| GAS LINE                                             | TEMPORARY SEEDING                      |
| GAS VALVE                                            | PERMANENT SEEDING                      |
| GAS DRIP                                             | SOIL STABILIZATION MAT                 |
| POWER POLE                                           | CONSTRUCTION ENTRANCE                  |
| LIGHT POLE / STREET LAMP                             | PERMANENT UTILITY EASEMENT             |
| MONITORING WELL                                      | A NEW WATER SERVICE AND METER ASSEMBLY |
| OVERHEAD TELEPHONE LINE                              | B NEW WATER SERVICE ONLY               |
| OVERHEAD POWER LINE                                  |                                        |
| OVERHEAD COMMUNICATION LINE                          |                                        |
| CONTOUR LINE                                         |                                        |
| TREE LINE                                            |                                        |
| UNDERGROUND TELEPHONE                                |                                        |
| UNDERGROUND POWER                                    |                                        |
| EDGE OF PAVEMENT                                     |                                        |
| BOLLARD                                              |                                        |
| WOODEN POST                                          |                                        |
| METAL POST                                           |                                        |
| BENCHMARK                                            |                                        |
| UTILITY DATA ACCORDING TO RECORD (NOT FIELD LOCATED) |                                        |
| LIMITS OF ACTUAL TOPOGRAPHIC FIELD SURVEY            |                                        |



VICINITY MAP  
1"= 600'

| DRAWING INDEX |                                           |
|---------------|-------------------------------------------|
| SHEET No.     | SHEET TITLE                               |
| 1             | COVER SHEET                               |
| 2             | NOTES                                     |
| 3             | INDEX SHEET                               |
| 4             | PLAN & PROFILE                            |
| 5             | PLAN & PROFILE                            |
| 6             | PLAN & PROFILE                            |
| 7             | PLAN & PROFILE                            |
| 8             | TRAFFIC CONTROL PLAN - TYPICAL WORK ZONES |
| 9             | TRAFFIC CONTROL PLAN                      |
| 10 - 11       | DETAILS                                   |
| 12            | EROSION & SEDIMENT CONTROL DETAILS        |

### DRAPER ADEN ASSOCIATES REVIEW

THESE PLANS HAVE BEEN SUBJECTED TO TECHNICAL AND QUALITY REVIEWS BY:

|                      |           |         |
|----------------------|-----------|---------|
| H. LANCE JAMES       |           | 7/20/18 |
| NAME: PRINTED        | SIGNATURE | DATE    |
| PROJECT DESIGNER     |           |         |
| MICHAEL S. HAGGERTY  |           | 7/20/18 |
| NAME: PRINTED        | SIGNATURE | DATE    |
| PROJECT MANAGER      |           |         |
| VICTOR H. VALENZUELA |           | 7/20/18 |
| NAME: PRINTED        | SIGNATURE | DATE    |
| QUALITY REVIEWER     |           |         |

These documents, including drawings and specifications, were prepared by Draper Aden Associates, Consulting Engineers, pursuant to a contract by and between Draper Aden Associates and City of Staunton, Virginia with respect to the project described in said contract. Any reuse or modification of said documents (whether hard copy or electronic) without written verification or adaptation by Draper Aden Associates for the specific purpose intended will be at the sole risk of the individual or entity utilizing said documents, drawings and specifications and such use is without the authorization of Draper Aden Associates. Draper Aden Associates, Consulting Engineers, shall have no legal liability resulting from any and all claims, damages, losses, and expenses, including attorney's fees arising out of the unauthorized use of these documents, drawings, specifications, reports, and studies prepared as a result of the aforesaid contract.

NOTE: CONTRACTOR TO CONTACT MISS UTILITY (811) IN ADVANCE OF PLANNED WORK. ADVANCE TIME PERIOD SHALL BE IN ACCORDANCE WITH CURRENT MISS UTILITY GUIDELINES ([www.missutilityofvirginia.com](http://www.missutilityofvirginia.com)).



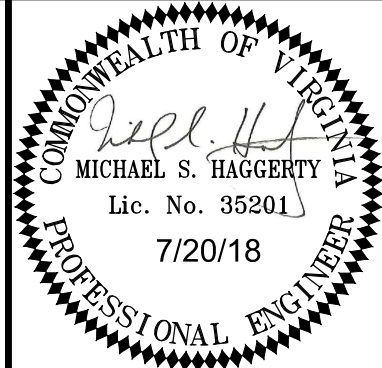
This project's existing topographic information and utility data was completed under the direct and responsible charge of Cheryl A. Stockton, L.S., from an actual xground or airborne survey made under my supervision; that the imagery and/or original data was obtained in August 2017; and that this plat, map or geospatial data including metadata meets minimum accuracy standards unless otherwise noted.

SIGNATURE

CHERYL A. STOCKTON 2/23/18  
NAME (PRINT) DATE

Data shown outside the limits of the actual field survey was obtained thus:

City of Staunton GIS Database on August 2017.



**Draper Aden Associates**  
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• Blacksburg, VA  
• Raleigh, NC  
• Fayetteville, NC  
• Charlottesville, VA  
• Hampton Roads, VA  
• Northern Virginia

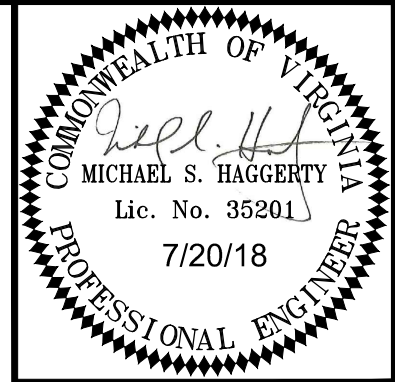
COVER SHEET  
**STERLING STREET WATERLINE**  
CITY OF STAUNTON, VIRGINIA

| REVISIONS                     |                   |
|-------------------------------|-------------------|
| 03/08/18                      | PER CITY COMMENTS |
| 6/10/18                       | PER CITY COMMENTS |
| 7/10/18                       | PER CITY COMMENTS |
| DESIGNED BY: BMC              |                   |
| DRAWN BY: HLJ                 |                   |
| CHECKED BY: MSH               |                   |
| SCALE: NOT TO SCALE           |                   |
| DATE: NOVEMBER 30, 2017       |                   |
| PROJECT NUMBER: 17020587-0103 |                   |
| 1<br>1 OF 12                  |                   |



P:\2017\17020587\17020587-1\202008-0103\Swaling Detail BMAP\DESIGN\DWG\17020587-0103\_CIVIL.dwg JUN 25, 2018 9:24:24 AM

| GENERAL NOTES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          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| <div>1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THESE DRAWINGS, THE ACCOMPANYING PROJECT MANUAL AND THE LATEST EDITION OF THE CITY OF STAUNTON (CITY) INFRASTRUCTURE DESIGN &amp; CONSTRUCTION STANDARDS AVAILABLE AT:<br/><a href="http://WWW.CI.STAUNTON.VA.US/DEPARTMENTS/ENGINEERING-DIVISION/DESIGN-CONSTRUCTION-STANDARDS">WWW.CI.STAUNTON.VA.US/DEPARTMENTS/ENGINEERING-DIVISION/DESIGN-CONSTRUCTION-STANDARDS</a>.<br/>ADDITIONALLY, THIS PROJECT IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE VDOT ROAD &amp; BRIDGE STANDARDS, VIRGINIA DEPARTMENT OF HEALTH WATERWORKS REGULATIONS, VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY SEWAGE COLLECTION AND TREATMENT (SCAT) REGULATIONS, AND ANY OTHER APPLICABLE STANDARDS.</div> <div>2. ALL MATERIALS USED ON THIS PROJECT SHALL BE NEW AND COMPLY WITH THE LATEST REVISION OF THE APPLICABLE AMERICAN SOCIETY FOR TESTING &amp; MATERIALS (ASTM), AMERICAN WATERWORKS ASSOCIATION (AWWA), AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI), AND VIRGINIA DEPARTMENT OF TRANSPORTATION (VDOT) ROAD &amp; BRIDGE STANDARDS &amp; SPECIFICATIONS UNLESS OTHERWISE NOTED.</div> <div>3. AN APPROVED SET OF PLANS AND PERMITS SHALL BE AVAILABLE AT THE CONSTRUCTION SITE AT ALL TIMES.</div> <div>4. HORIZONTAL DATUM IS VIRGINIA STATE PLANE COORDINATE SYSTEM NORTH ZONE NAD 83. VERTICAL DATUM IS NAVD 88.</div> <div>5. THE CONTRACTOR SHALL HAVE A VALID MISS UTILITY TICKET PRIOR TO EXCAVATION. CONTACT MISS UTILITY AT 811 AT LEAST SEVENTY-TWO (72) HOURS PRIOR TO ANY EXCAVATION.</div> <div>6. THE LOCATION OF EXISTING UTILITIES, INCLUDING UNDERGROUND UTILITIES, IS INDICATED ON THE DRAWINGS INSOFAR AS THEIR EXISTENCE AND LOCATION WERE KNOWN AT THE TIME OF PREPARATION OF THE DRAWINGS. HOWEVER, NOTHING IN THESE CONTRACT DOCUMENTS SHALL BE CONSTRUED AS A GUARANTEE THAT SUCH UTILITIES ARE IN THE LOCATION INDICATED OR THAT THEY ACTUALLY EXIST, OR THAT OTHER UTILITIES ARE NOT WITHIN THE AREA OF OPERATIONS. THE CONTRACTOR SHALL MAKE ALL NECESSARY INVESTIGATIONS TO DETERMINE THE EXISTENCE AND LOCATIONS OF SUCH UTILITIES FAR ENOUGH IN ADVANCE TO ALLOW FOR ADJUSTMENT DUE TO CONFLICTS IN THE HORIZONTAL AND VERTICAL LOCATION OF THE PIPE. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR ANY DAMAGE TO AND FOR MAINTENANCE AND PROTECTION OF EXISTING UTILITIES AND STRUCTURES.</div> <div>7. THE CONTRACTOR SHALL DIG AND LOCATE EXISTING UTILITIES IN ADVANCE OF PIPE LAYING TO ALLOW FOR HORIZONTAL AND VERTICAL ALIGNMENT ADJUSTMENTS IF NECESSARY.</div> <div>8. FIELD CHANGES SHALL BE APPROVED BY THE CITY OF STAUNTON'S ENGINEERING DEPARTMENT PRIOR TO SUCH CONSTRUCTION.</div> <div>9. PRIOR TO COMMENCING WORK, THE CONTRACTOR'S CERTIFIED RESPONSIBLE LAND DISTURBER SHALL OBTAIN AN EROSION AND SEDIMENT CONTROL PERMIT FOR THE PROJECT FROM THE LOCAL GOVERNING JURISDICTION. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK AND SHALL BE INSTALLED PRIOR TO CONSTRUCTION.</div> <div>10. CONTRACTOR SHALL CONTINUOUSLY MAINTAIN RECORD DRAWINGS DURING THE PROGRESS OF THE WORK.</div> <div>11. CONTRACTOR SHALL RECORD PRE-CONSTRUCTION AND POST-CONSTRUCTION VIDEOS TO DOCUMENT SITE CONDITIONS.</div> <div>12. THE CONTRACTOR SHALL MAKE PROVISIONS TO PROVIDE ACCESS TO ALL PROPERTIES DURING CONSTRUCTION AND SHALL MAINTAIN ACCESSIBILITY TO FIRE HYDRANTS AT ALL TIMES.</div> <div>13. SITE IS LOCATED IN A RESIDENTIAL AREA. CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO MINIMIZE DISTURBANCES TO ADJACENT PROPERTIES, INCLUDING PREVENTION OF DUST/DEBRIS INTRUSION ONTO PROPERTIES.</div> <div>14. CONSTRUCTION DEBRIS SHALL BE CONTAINERIZED IN ACCORDANCE WITH THE VIRGINIA LITTER CONTROL ACT.</div> <div>15. ALL SALVAGE ITEMS REMOVED FROM THE PROJECT SHALL BE DEPOSITED AT THE CITY SALVAGE YARD.</div> <div>16. FELLED TREES WITHIN THE CONSTRUCTION LIMITS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE.</div> <div>17. UNREPAIRED ROADWAYS OPENED TO TRAFFIC SHALL HAVE, AT A MINIMUM, COMPACTED AGGREGATE MATERIAL VDOT 21A FLUSH WITH THE ADJACENT ROADWAY SURFACE AND SHALL BE INSPECTED AND REPAIRED ON A DAILY BASIS. SOME AREAS (GREENVILLE AVENUE AND BARTERBROOK ROAD) WILL REQUIRE A TEMPORARY PATCH UNTIL FINAL PAYING CAN BE COMPLETED.</div> <div>18. OPEN TRENCHES ARE LIMITED TO 100'. ALL TRENCHES SHALL BE BACKFILLED OR PLATED AT THE END OF EACH WORK DAY OR WHEN THE CONTRACTOR IS NOT ON SITE.</div> <div>19. ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE GRADED TO PRECLUDE THE PONDING OF WATER.</div> <div>20. PORTIONS OF THE WATERLINE TO BE INSTALLED PASS UNDER EXISTING STORM SEWER SYSTEMS. DURING CONSTRUCTION CONTRACTOR SHALL PROTECT, SUPPORT, AND/OR REMOVE AND REPLACE EXISTING STORM SEWER PIPE AND STRUCTURES DURING WATERLINE INSTALLATION. CONTRACTOR IS ENCOURAGED TO PERFORM THESE TASKS ONLY DURING DRY WEATHER TO AVOID COMPROMISING OF STORM SEWER SYSTEM DURING A RAINFALL EVENT.</div> <div>21. WATERLINES SHALL BE LAID TO LINES AND GRADES SHOWN ON THE DRAWINGS TO AVOID LOCAL HIGH POINTS AND LOW POINTS EXCEPT WHERE INDICATED.</div> <div>22. THE MINIMUM COVER FOR THE NEW WATERLINE IS 36-INCHES UNLESS OTHERWISE INDICATED ON THE PLANS.</div> <div>23. MAINTAIN 18" VERTICAL SEPARATION AT ALL SANITARY SEWER CROSSINGS AND 12" SEPARATION AT ALL STORM SEWER CROSSINGS. MAINTAIN 10' HORIZONTAL DISTANCE BETWEEN WATERLINES AND SANITARY SEWER LINES AND MANHOLES UNLESS OTHERWISE NOTED OR SHOWN ON THE PLANS.</div> <div>24. CONTRACTOR SHALL PROVIDE AND INSTALL TAPPING SLEEVES AND VALVES. THE CITY WILL MAKE THE TAP FOR MAIN LINES (NO SERVICE TAPS WILL BE MADE BY THE CITY).</div> <div>25. WATER SERVICE CONNECTIONS SHALL BE INSTALLED IN ACCORDANCE WITH THE CITY OF STAUNTON DETAILS W-7 "TYPE I SERVICE CONNECTION" AND "W-8 TYPE II SERVICE CONNECTION."</div> <div>26. UTILITY SERVICES SHALL BE UNINTERRUPTED UNLESS PRIOR APPROVAL IS GIVEN BY THE CITY ENGINEER. THE CONTRACTOR IS REQUIRED TO HANG (CITY PROVIDED) NOTICES ON ALL CUSTOMER DOORS 24 HOURS PRIOR TO UTILITY SHUT-OFFS.</div> <div>27. ABANDONMENT OF EXISTING WATER MAIN SHALL INCLUDE PHYSICAL SEPARATION OF THE ABANDONED WATER MAIN FROM THE ACTIVE WATER DISTRIBUTION SYSTEM. CONTRACTOR SHALL CUT OUT EXISTING TEE IN ACTIVE MAIN AND SLEEVE IN A NEW SECTION OF PIPE, EFFECTIVELY DISCONNECTING THE ABANDONED MAIN FROM THE MAIN TO REMAIN ACTIVE. COORDINATE SHUTOFF WITH THE CITY OF STAUNTON, NOTIFYING ENGINEERING DEPARTMENT AND PUBLIC WORKS DEPARTMENT A MINIMUM OF 48 HOURS PRIOR TO PROPOSED SHUTOFF. FILL THE FIRST FOOT OF THE ABANDONED WATER MAIN WITH FLOWABLE FILL.</div> <div>28. CONTRACTOR SHALL REMOVE VALVE BOXES OF ALL VALVES TO BE ABANDONED. CONTRACTOR SHALL REMOVE ABANDONED FIRE HYDRANTS AND DELIVER TO THE CITY'S STORAGE YARD.</div> <div>29. EXISTING WATERLINES ARE NOT TO BE ABANDONED UNTIL ALL SERVICES IN THE PROJECT AREA ARE CONNECTED TO THE NEW WATERLINE.</div> <div>30. COORDINATE WITH THE CITY OF STAUNTON ENGINEERING DEPARTMENT FOR EQUIPMENT STAGING AND STORAGE LOCATIONS PRIOR TO MATERIALS BEING DELIVERED TO THE SITE.</div> | <div>A. <b>PROJECT DESCRIPTION</b><br/><br/>THIS PROJECT CONSISTS OF THE INSTALLATION OF APPROXIMATELY 2,809 LINEAR FEET OF PROPOSED 8"Ø DIAMETER WATER MAIN AND ALL ASSOCIATED APPURTENANCES (SERVICE LATERALS, VALVES, HYDRANTS).<br/><br/>THE WORK SHALL TAKE PLACE WITHIN THE RIGHT-OF-WAY OF GREENVILLE AVENUE, BARTERBROOK ROAD, STERLING STREET, BERRY STREET, AND OAK VIEW DRIVE. APPROXIMATELY 235 L.F. OF THE WORK IS ON PRIVATE PROPERTY. THE TOTAL <u>TEMPORARY</u> DISTURBED AREA FOR THIS PROJECT IS APPROXIMATELY 0.51 ACRES.</div> <div>B. <b>EXISTING SITE CONDITIONS</b><br/><br/>THE PROJECT SITE IS WITHIN THE PAVED AREAS OF GREENVILLE AVENUE, BARTERBROOK ROAD, STERLING STREET AND OAK VIEW DRIVE. APPROXIMATELY 642 L.F. IS WITHIN THE RIGHT-OF-WAY OF BERRY STREET (UNDEVELOPED) AND APPROXIMATELY 235 L.F. IS WITHIN PRIVATE PROPERTY.<br/><br/>THERE WILL BE NO CHANGES TO EXISTING DRAINAGE PATTERNS AS A RESULT OF THIS PROJECT. ALL AREAS EXCAVATED DURING INSTALLATION OF THE PROPOSED WATER MAIN WILL BE RESTORED TO PRE-CONSTRUCTION CONDITIONS.</div> <div>C. <b>ADJACENT PROPERTY</b><br/><br/>THIS PROJECT IS COMPLETELY WITHIN THE CITY OF STAUNTON, VIRGINIA AND IS BORDERED BY GREENVILLE AVENUE (WEST), BARTERBROOK ROAD (SOUTH), STERLING STREET (NORTH), AND OAK VIEW DRIVE (EAST).</div> <div>D. <b>PLANNED OFF-SITE ACTIVITIES</b><br/><br/>NO OFF-SITE ACTIVITIES ARE PLANNED.</div> <div>E. <b>CRITICAL EROSION AREAS</b><br/><br/>THERE ARE NO GROUND SLOPES ALONG THE PROPOSED WATER MAIN ALIGNMENT THAT ARE 3:1 OR STEEPER. SILT FENCE AND CONSTRUCTION ENTRANCES INSTALLED AS PART OF THIS PROJECT SHALL BE CHECKED REGULARLY TO ENSURE THEY ARE FUNCTIONING PROPERLY.</div> <div>F. <b>EROSION AND SEDIMENT CONTROL MEASURES</b><br/><div>1. <b>CONSTRUCTION ENTRANCE – 3.02</b><br/>STONE CONSTRUCTION ENTRANCES WILL BE INSTALLED AT THE END OF STERLING STREET ON THE NORTH AND THE END OF THE BERRY RIGHT-OF-WAY TO REDUCE THE AMOUNT OF MUD TRANSPORTED ONTO PAVED PUBLIC ROADS BY MOTOR VEHICLES OR RUNOFF.</div><div>2. <b>SILT FENCING – 3.05</b><br/>SILT FENCE SEDIMENT BARRIERS WILL BE INSTALLED DOWN SLOPE OF MINIMAL GRADED AREAS TO FILTER SEDIMENT LADEN RUNOFF.</div><div>3. <b>STORM DRAIN INLET PROTECTION – 3.07</b><br/>STORM DRAIN INLET PROTECTION SHALL BE INSTALLED AT ALL STORM DRAINS WHERE THERE IS A POTENTIAL FOR SEDIMENT LADEN RUNOFF TO PREVENT SEDIMENT FROM ENTERING, ACCUMULATING IN, AND BEING TRANSFERRED BY THE STORM DRAIN SYSTEM.</div><div>4. <b>SOIL STABILIZATION BLANKETS AND MATTING – 3.36</b><br/>BLANKETS AND MATTING SHALL BE USED IN THE AREAS SPECIFIED TO AID IN STABILIZATION AS REQUIRED IN GRASS LINED DITCHES/DRAINAGE SWALES AND STEEP SLOPES. BLANKETS AND MATTING SHALL BE VAE&amp;SC HANDBOOK TREATMENT 1 VDOT SPECIFICATIONS EC-2).</div></div> <div>G. <b>VEGETATIVE PRACTICES</b><br/><br/><b>GENERAL:</b> A PERMANENT VEGETATIVE COVER SHALL BE ESTABLISHED ON DENUDED AREAS NOT OTHERWISE PERMANENTLY STABILIZED BY CONCRETE OR PAVEMENT. PERMANENT VEGETATION SHALL NOT BE CONSIDERED ESTABLISHED UNTIL A GROUND COVER IS ACHIEVED THAT IS UNIFORM, MATURE ENOUGH TO SURVIVE AND WILL INHIBIT EROSION. NEW VEGETATION SHALL BE MAINTAINED FOR ONE FULL YEAR AFTER PLANTING. NEW SEEDING SHALL BE SUPPLIED WITH ADEQUATE MOISTURE, ESPECIALLY LATE IN THE SEASON, AND IN ABNORMALLY HOT OR DRY WEATHER. STABILIZATION PRACTICES SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THE APPROPRIATE VESCH STANDARD AND SPECIFICATION, AND AS PER EROSION AND SEDIMENT CONTROL PLAN. SELECTION OF THE APPROPRIATE SEED MIXTURE FOR TEMPORARY SEEDING WILL DEPEND UPON THE TIME OF YEAR IT IS APPLIED.<br/><div>1. <b>TEMPORARY SEEDING – 3.31</b><br/>TEMPORARY SEEDING SHALL BE APPLIED OVER CLEARED AREAS THAT WILL NOT BE BROUGHT TO FINAL GRADE WITHIN 14 DAYS. TEMPORARY SEEDING MIXES SHALL BE AS DESCRIBED IN VESCH STANDARD AND SPECIFICATION 3.31.<ul style="list-style-type: none"><li>SEQUENCE OF INSTALLATION: WHEN CLEARED AREAS WILL NOT BE BROUGHT TO FINAL GRADE WITHIN 14 DAYS.</li><li>MAINTENANCE: REFER TO STANDARD &amp; SPECIFICATION 3.31; AREAS WHICH FAIL TO ESTABLISH VEGETATIVE COVER ADEQUATE TO PREVENT RILL EROSION ARE TO BE RESEED.</li><li>REMOVAL EVENT: AS NEEDED FOR FINAL GRADING.</li></ul></div><div>2. <b>PERMANENT SEEDING – 3.32</b><br/>PERMANENT SEEDING SHALL ALSO BE USED ON ALL AREAS THAT ARE NOT AT FINAL GRADE AND THAT WILL BE LEFT DORMANT FOR A PERIOD OF MORE THAN 1 YEAR. IF CONFLICTS EXIST BETWEEN THE PROJECT SPECIFICATIONS AND THE VESCH STANDARD &amp; SPECIFICATION 3.32, THE MORE STRINGENT REQUIREMENT SHALL APPLY. PERMANENT SEEDING MIXES AND RATES ARE FOUND IN THE VESCH STANDARD &amp; SPECIFICATION 3.32.<ul style="list-style-type: none"><li>SEQUENCE OF INSTALLATION: WITHIN 7 DAYS OF ACHIEVING FINAL GRADE.</li><li>SOIL TESTING REQUIREMENTS: REFER TO STANDARD &amp; SPECIFICATION 3.32.</li><li>MAINTENANCE: REFER TO STANDARD &amp; SPECIFICATION 3.32; AREAS WHICH FAIL TO ESTABLISH VEGETATIVE COVER ADEQUATE TO PREVENT RILL EROSION ARE TO BE IMMEDIATELY RESEED, FOLLOWING IDENTIFICATION OF THE CAUSE OF POOR GERMINATION.</li></ul></div></div> <div>H. <b>MULCHING – 3.35</b><br/>APPLICATION OF PLANT RESIDUES OR OTHER SUITABLE MATERIALS TO THE SOIL SURFACE TO PREVENT EROSION BY PROTECTING THE SOIL SURFACE FROM RAINDROP IMPACT AND REDUCING THE VELOCITY OF OVERLAND FLOW. IT IS ALSO USED TO FOSTER THE GROWTH OF VEGETATION BY INCREASING AVAILABLE MOISTURE AND PROVIDING INSULATION AGAINST EXTREME HEAT AND COLD.</div> <div>I. <b>MAINTAINANCE</b><br/><br/>PRIOR TO ANY LAND DISTURBING ACTIVITY, CONTRACTOR SHALL PROVIDE THE NAME, CERTIFICATION INFORMATION, AND CONTACT INFORMATION OF THE DESIGNATED RESPONSIBLE LAND DISTURBER (RLD) TO DCR. IN GENERAL, ALL EROSION AND SEDIMENT CONTROL MEASURES WILL BE CHECKED AT LEAST EVERY TWO WEEKS AND/OR AFTER EACH SIGNIFICANT RAINFALL. DURING CONSTRUCTION, THE CONTRACTOR'S DESIGNATED RLD WILL BE RESPONSIBLE TO INSPECT AND REPAIR DAMAGED EROSION/SEDIMENT CONTROL MEASURES. THE FOLLOWING ITEMS WILL BE CHECKED IN PARTICULAR:<br/><div>1. THE SILT FENCE BARRIER WILL BE CHECKED REGULARLY FOR UNDERMINING OR DETERIORATION OF THE FABRIC. SEDIMENT SHALL BE REMOVED WHEN THE LEVEL OF SEDIMENT DEPOSITION REACHES HALF WAY TO THE TOP OF BARRIER.</div><div>2. THE SEEDED AREAS WILL BE CHECKED REGULARLY TO ENSURE THAT A GOOD STAND IS MAINTAINED. AREAS SHOULD BE FERTILIZED AND RESEED AS NEEDED. REFER TO ESC TECHNICAL BULLETIN #4.</div><div>3. PROVIDE REMEDIAL STABILIZATION AND SEEDING FOR A PERIOD OF ONE YEAR AFTER CONSTRUCTION.</div></div> | <div>ES-1, UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK AND VIRGINIA REGULATIONS VR 4VAC50-30 EROSION AND SEDIMENT CONTROL REGULATIONS.</div> <div>ES-2, THE CITY OF STAUNTON MUST BE NOTIFIED ONE WEEK PRIOR TO THE PRE-CONSTRUCTION CONFERENCE, ONE WEEK PRIOR TO THE COMMENCEMENT OF LAND DISTURBING ACTIVITY, AND ONE WEEK PRIOR TO THE FINAL INSPECTION.</div> <div>ES-3, ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE PLACED PRIOR TO OR AS THE FIRST STEP IN CLEARING, GRADING OR LAND-DISTURBING AND SEQUENCE OF CONSTRUCTION APPROVED.</div> <div>ES-4, A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN SHALL BE MAINTAINED ON THE SITE AT ALL TIMES.</div> <div>ES-5, PRIOR TO COMMENCING LAND DISTURBING ACTIVITIES IN AREAS OTHER THAN INDICATED ON THESE PLANS (INCLUDING, BUT NOT LIMITED TO, OFF-SITE BORROW OR WASTE AREAS), THE CONTRACTOR SHALL SUBMIT A SUPPLEMENTARY EROSION CONTROL PLAN TO THE OWNER FOR REVIEW AND APPROVAL BY THE PLAN APPROVING AUTHORITY.</div> <div>ES-6, INSTALL ADDITIONAL EROSION CONTROL MEASURES AS NECESSARY TO PREVENT EROSION AND SEDIMENTATION AS DETERMINED BY THE DIVISION OF SOIL AND WATER CONSERVATION OF THE DEPARTMENT OF CONSERVATION AND RECREATION.</div> <div>ES-7, ALL DISTURBED AREAS ARE TO DRAIN TO APPROVED SEDIMENT CONTROL MEASURES AT ALL TIMES DURING LAND DISTURBING ACTIVITIES AND DURING SITE DEVELOPMENT, UNTIL FINAL STABILIZATION IS ACHIEVED.</div> <div>ES-8, DURING DEWATERING OPERATIONS, WATER WILL BE PUMPED INTO AN APPROVED FILTERING DEVICE.</div> <div>ES-9, THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES AT LEAST EVERY TWO WEEKS AND/OR AFTER EACH RUNOFF-PRODUCING RAINFALL EVENT. ANY NECESSARY REPAIRS OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES SHALL BE MADE IMMEDIATELY. MAINTAIN A LOG OF INSPECTIONS, MAINTENANCE PERFORMED AND REPAIRS MADE FOR INSPECTION BY THE OWNER AND THE DEPARTMENT OF CONSERVATION AND RECREATION/DIVISION OF SOIL AND WATER CONSERVATION.</div> <div>MS-1, PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DENUDED AREAS WITHIN SEVEN DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT (UNDISTURBED) FOR LONGER THAN 30 DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN ONE YEAR.</div> <div>MS-2, DURING CONSTRUCTION OF THE PROJECT, SOIL STOCKPILES SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES, COORDINATE &amp; MAINTAIN TEMPORARY PROTECTION AND PERMANENT STABILIZATION OF ALL SOIL STOCKPILES ON SITE AS WELL AS SOIL INTENTIONALLY TRANSPORTED FROM THE PROJECT SITE.</div> <div>MS-3, A PERMANENT VEGETATIVE COVER SHALL BE ESTABLISHED ON DENUDED AREAS NOT OTHERWISE PERMANENTLY STABILIZED. PERMANENT VEGETATION SHALL NOT BE CONSIDERED ESTABLISHED UNTIL A GROUND COVER IS ACHIEVED THAT, IN THE OPINION OF THE DIVISION OF SOIL AND WATER CONSERVATION OF THE DEPARTMENT OF CONSERVATION AND RECREATION, IS UNIFORM, MATURE ENOUGH TO SURVIVE AND WILL INHIBIT EROSION.</div> <div>MS-4, SEDIMENT BASINS AND TRAPS, PERIMETER DIKES, SEDIMENT BARRIERS AND OTHER MEASURES INTENDED TO TRAP SEDIMENT SHALL BE CONSTRUCTED AS A FIRST STEP IN ANY LAND-DISTURBING ACTIVITY AND SHALL BE MADE FUNCTIONAL BEFORE UPSLOPE LAND DISTURBANCE TAKES PLACE.</div> <div>MS-5, STABILIZATION MEASURES SHALL BE APPLIED TO EARTHEN STRUCTURES SUCH AS DAMS DIKES AND DIVERSIONS IMMEDIATELY AFTER INSTALLATION.</div> <div>MS-6, SEDIMENT TRAPS AND SEDIMENT BASINS SHALL BE DESIGNED AND STRUCTED BASED UPON THE TOTAL DRAINAGE AREA TO BE SERVED BY THE TRAP OR BASIN.<div>A. THE MINIMUM STORAGE CAPACITY OF A SEDIMENT TRAP SHALL 134 CUBIC YARDS PER ACRE OF DRAINAGE AREA AND THE TRAP SHALL ONLY CONTROL DRAINAGE AREAS LESS THAN THREE ACRES.</div><div>B. SURFACE RUNOFF FROM DISTURBED AREAS THAT IS COMPRISED OF FLOW FROM DRAINAGE AREAS GREATER THAN OR EQUAL TO THREE ACRES SHALL BE CONTROLLED BY A SEDIMENT BASIN. THE MINIMUM STORAGE CAPACITY OF A SEDIMENT BASIN SHALL BE 134 CUBIC YARDS PER ACRE OF DRAINAGE AREA. THE OUTFALL SYSTEM SHALL, AT A MINIMUM, MAINTAIN THE STRUCTURAL INTEGRITY OF THE BASIN DURING A TWENTY-FIVE YEAR STORM OF 24-HOUR DURATION. RUNOFF COEFFICIENTS USED IN RUNOFF CALCULATIONS SHALL CORRESPOND TO A BARE EARTH CONDITION OF THOSE CONDITIONS EXPECTED TO EXIST WHILE THE SEDIMENT BASIN IS UTILIZED.</div></div> <div>MS-7, CUT AND FILL SLOPES SHALL BE DESIGNED AND CONSTRUCTED IN A MANNER THAT WILL MINIMIZE EROSION. SLOPES THAT ARE FOUND TO BE ERODING EXCESSIVELY WITHIN ONE YEAR OF PERMANENT STABILIZATION SHALL BE PROVIDED WITH ADDITIONAL SLOPE STABILIZING MEASURES UNTIL THE PROBLEM IS CORRECTED.</div> <div>MS-8, CONCENTRATED RUNOFF SHALL NOT FLOW DOWN CUT OR FILL SLOPES UNLESS CONTAINED WITHIN AN ADEQUATE TEMPORARY OR PERMANENT CHANNEL, FLUME OR SLOPE DRAIN STRUCTURE.</div> <div>MS-9, WHENEVER WATER SEEPS FROM A SLOPE FACE, ADEQUATE DRAINAGE OR OTHER PROTECTION SHALL BE PROVIDED.</div> <div>MS-10, ALL STORM SEWER INLETS THAT ARE MADE OPERABLE DURING CONSTRUCTION SHALL BE PROTECTED SO THAT SEDIMENT-LADEN WATER CANNOT ENTER THE CONVEYANCE SYSTEM WITHOUT FIRST BEING FILTERED OR OTHERWISE TREATED TO REMOVE SEDIMENT.</div> | <div>MS-11, BEFORE NEWLY CONSTRUCTED STORMWATER CONVEYANCE CHANNELS OR PIPES ARE MADE OPERATIONAL ADEQUATE OUTLET PROTECTION AND ANY REQUIRED TEMPORARY OR PERMANENT CHANNEL LINING SHALL BE INSTALLED IN BOTH THE CONVEYANCE CHANNEL AND RECEIVING CHANNEL.</div> <div>MS-16, UNDERGROUND UTILITY LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING STANDARDS IN ADDITION TO OTHER APPLICABLE CRITERIA:<div>A. NO MORE THAN 500 LINEAR FEET OF TRENCH MAY BE OPENED AT ONE TIME UNLESS OTHERWISE NOTED.</div><div>B. EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCHES.</div><div>C. EFFLUENT FROM DEWATERING OPERATIONS SHALL BE FILTERED OR PASSED THROUGH AN APPROVED SEDIMENT TRAPPING DEVICE, OR BOTH, AND DISCHARGED IN A MANNER THAT DOES NOT ADVERSELY AFFECT OFF SITE PROPERTY.</div><div>D. MATERIAL USED FOR BACKFILLING TRENCHES SHALL BE PROPERLY COMPACTED IN ORDER TO MINIMIZE EROSION AND PROMOTE STABILIZATION.</div><div>E. RESTABILIZATION SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THESE REGULATIONS.</div><div>F. APPLICABLE SAFETY REGULATIONS SHALL BE COMPLIED WITH.</div></div> <div>MS-17, WHERE CONSTRUCTION VEHICLE ACCESS ROUTES INTERSECT PAVED OR PUBLIC ROADS, PROVISIONS SHALL BE MADE TO MINIMIZE THE TRANSPORT OF SEDIMENT BY VEHICULAR TRACKING ONTO THE PAVED SURFACE. WHERE SEDIMENT IS TRANSPORTED ONTO A PAVED OR PUBLIC ROAD SURFACE, THE ROAD SURFACE SHALL BE CLEANED THOROUGHLY AT THE END OF EACH DAY. SEDIMENT SHALL BE REMOVED FROM THE ROADS BY SHOVELING OR SWEEPING AND TRANSPORTED TO A SEDIMENT CONTROL DISPOSAL AREA. STREET WASHING SHALL BE ALLOWED ONLY AFTER SEDIMENT IS REMOVED IN THIS MANNER. THIS PROVISION SHALL APPLY TO INDIVIDUAL DEVELOPMENT LOTS AS WELL AS TO LARGER LAND-DISTURBING ACTIVITIES.</div> <div>MS-18, ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION OR AFTER TEMPORARY MEASURES ARE NO LONGER NEEDED, UNLESS OTHERWISE AUTHORIZED BY THE LOCAL PROGRAM AUTHORITY. TRAPPED SEDIMENT AND THE DISTURBED SOIL AREAS RESULTING FROM DISPOSITION OF TEMPORARY MEASURES SHALL BE PERMANENTLY STABILIZED TO PREVENT FURTHER EROSION AND SEDIMENTATION.</div> <div>MS-19, PROPERTIES AND WATERWAYS DOWNSTREAM FROM DEVELOPMENT SITES SHALL BE PROTECTED FROM SEDIMENT DEPOSITION, EROSION AND DAMAGE DUE TO INCREASES IN VOLUME, VELOCITY AND PEAK FLOW RATE OF STORMWATER RUNOFF FOR THE STATED FREQUENCY STORM OF 24-HOUR DURATION IN ACCORDANCE WITH THE FOLLOWING STANDARDS AND CRITERIA:<div>A. CONCENTRATED STORMWATER RUNOFF LEAVING A DEVELOPMENT SITE SHALL BE DISCHARGED DIRECTLY INTO AN ADEQUATE NATURAL OR MAN-MADE RECEIVING CHANNEL, PIPE OR STORM SEWER SYSTEM. FOR THOSE SITES WHERE RUNOFF IS DISCHARGED INTO A PIPE OR PIPE SYSTEM, DOWNSTREAM STABILITY ANALYSES AT THE OUTFALL OF THE PIPE OR PIPE SYSTEM SHALL BE PERFORMED.</div><div>B. ADEQUACY OF ALL CHANNELS AND PIPES SHALL BE VERIFIED IN THE FOLLOWING MANNER:<div>(1) THE APPLICANT SHALL DEMONSTRATE THAT THE TOTAL DRAINAGE AREA TO THE POINT OF ANALYSIS WITHIN THE CHANNEL IS ONE HUNDRED TIMES GREATER THAN THE CONTRIBUTING DRAINAGE AREA OF THE PROJECT IN QUESTION; OR</div><div>(2) (a) NATURAL CHANNELS SHALL BE ANALYZED BY THE USE OF A TWO-YEAR STORM TO VERIFY THAT STORMWATER WILL NOT OVERTOP CHANNEL BANKS NOR CAUSE EROSION OF CHANNEL BED OR BANKS; AND</div><div>(b) ALL PREVIOUSLY CONSTRUCTED MAN-MADE CHANNELS SHALL BE ANALYZED BY THE USE OF A TEN-YEAR STORM TO VERIFY THAT STORMWATER WILL NOT OVERTOP ITS BANKS AND BY THE USE OF A TWO-YEAR STORM TO DEMONSTRATE THAT STORMWATER WILL NOT CAUSE EROSION OF CHANNEL BED OR BANKS; AND</div><div>(c) PIPES AND STORM SEWER SYSTEMS SHALL BE ANALYZED BY THE USE OF A TEN-YEAR STORM TO VERIFY THAT STORMWATER WILL BE CONTAINED WITHIN THE PIPE OR SYSTEM.</div></div><div>C. IF EXISTING NATURAL RECEIVING CHANNELS OR PREVIOUSLY CONSTRUCTED MAN-MADE CHANNELS OR PIPES ARE NOT ADEQUATE, THE APPLICANT SHALL:<div>(1) IMPROVE THE CHANNEL TO A CONDITION WHERE A TEN-YEAR STORM WILL NOT OVERTOP THE BANKS AND A TWO-YEAR STORM WILL NOT CAUSE EROSION TO THE CHANNEL BED OR BANKS; OR</div><div>(2) IMPROVE THE PIPE OR PIPE SYSTEM TO A CONDITION WHERE THE TEN-YEAR STORM IS CONTAINED WITHIN THE APPURTENANCES; OR</div><div>(3) DEVELOP A SITE DESIGN THAT WILL NOT CAUSE THE PRE-DEVELOPMENT PEAK RUNOFF RATE FROM A TWO-YEAR STORM TO INCREASE WHEN RUNOFF OUTFALLS INTO A NATURAL CHANNEL OR WILL NOT CAUSE THE PRE-DEVELOPMENT PEAK RUNOFF RATE FROM A TEN-YEAR STORM TO INCREASE WHEN RUNOFF OUTFALLS INTO A MAN-MADE CHANNEL; OR</div><div>(4) PROVIDE A COMBINATION OF CHANNEL IMPROVEMENT, STORMWATER DETENTION OR OTHER MEASURES WHICH IS SATISFACTORY TO THE PLAN-APPROVING AUTHORITY TO PREVENT DOWNSTREAM EROSION.</div></div><div>D. THE APPLICANT SHALL PROVIDE EVIDENCE OF PERMISSION TO MAKE THE IMPROVEMENTS.</div><div>E. ALL HYDROLOGIC ANALYSES SHALL BE BASED ON THE EXISTING WATERSHED CHARACTERISTICS AND THE ULTIMATE DEVELOPMENT OF THE SUBJECT PROJECT.</div><div>F. IF THE APPLICANT CHOOSES AN OPTION THAT INCLUDES STORMWATER DETENTION, HE SHALL OBTAIN APPROVAL FROM THE LOCALITY OF A PLAN FOR MAINTENANCE OF THE DETENTION FACILITIES. THE PLAN SHALL SET FORTH THE MAINTENANCE REQUIREMENTS OF THE FACILITY AND THE PERSON RESPONSIBLE FOR PERFORMING THE MAINTENANCE.</div><div>G. OUTFALL FROM A DETENTION FACILITY SHALL BE DISCHARGED TO A RECEIVING CHANNEL, AND ENERGY DISSIPATORS SHALL BE PLACED AT THE OUTFALL OF ALL DETENTION FACILITIES AS NECESSARY TO PROVIDE A STABILIZED TRANSITION FROM THE FACILITY TO THE RECEIVING CHANNEL.</div><div>H. ALL ON-SITE CHANNELS MUST BE VERIFIED TO BE ADEQUATE.</div><div>I. INCREASED VOLUMES OF SHEET FLOWS THAT MAY CAUSE EROSION OR SEDIMENTATION ON ADJACENT PROPERTY SHALL BE DIVERTED TO A STABLE OUTLET, ADEQUATE CHANNEL, PIPE OR PIPE SYSTEM, OR TO A DETENTION FACILITY.</div><div>J. IN APPLYING THESE STORMWATER RUNOFF CRITERIA, INDIVIDUAL LOTS OR PARCELS IN A RESIDENTIAL, COMMERCIAL OR INDUSTRIAL DEVELOPMENT SHALL NOT BE CONSIDERED TO BE SEPARATE DEVELOPMENT PROJECTS. INSTEAD, THE DEVELOPMENT, AS A WHOLE, SHALL BE CONSIDERED TO BE A SINGLE DEVELOPMENT PROJECT. HYDROLOGIC PARAMETERS THAT REFLECT THE ULTIMATE DEVELOPMENT CONDITION SHALL BE USED IN ALL ENGINEERING CALCULATIONS.</div><div>K. ALL MEASURES USED TO PROTECT PROPERTIES AND WATERWAYS SHALL BE EMPLOYED IN A MANNER WHICH MINIMIZES IMPACTS ON THE PHYSICAL, CHEMICAL AND BIOLOGICAL INTEGRITY OF RIVERS, STREAMS AND OTHER WATERS OF THE STATE.</div></div> | <div>DESIGNED BY: BMC</div> <div>DRAWN BY: HLJ</div> <div>CHECKED BY: MSH</div> <div>SCALE: NOT TO SCALE</div> <div>DATE: NOVEMBER 30, 2017</div> <div>PROJECT NUMBER: 17020587-0103</div> <div>2<br/>2 OF 12</div> |



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NOTES

STERLING STREET WATERLINE

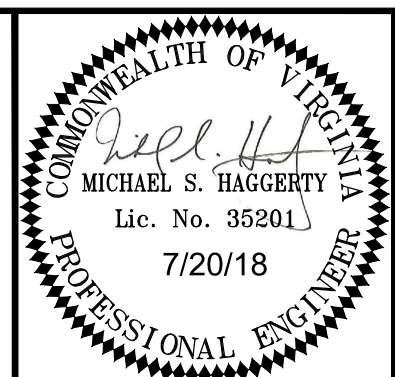
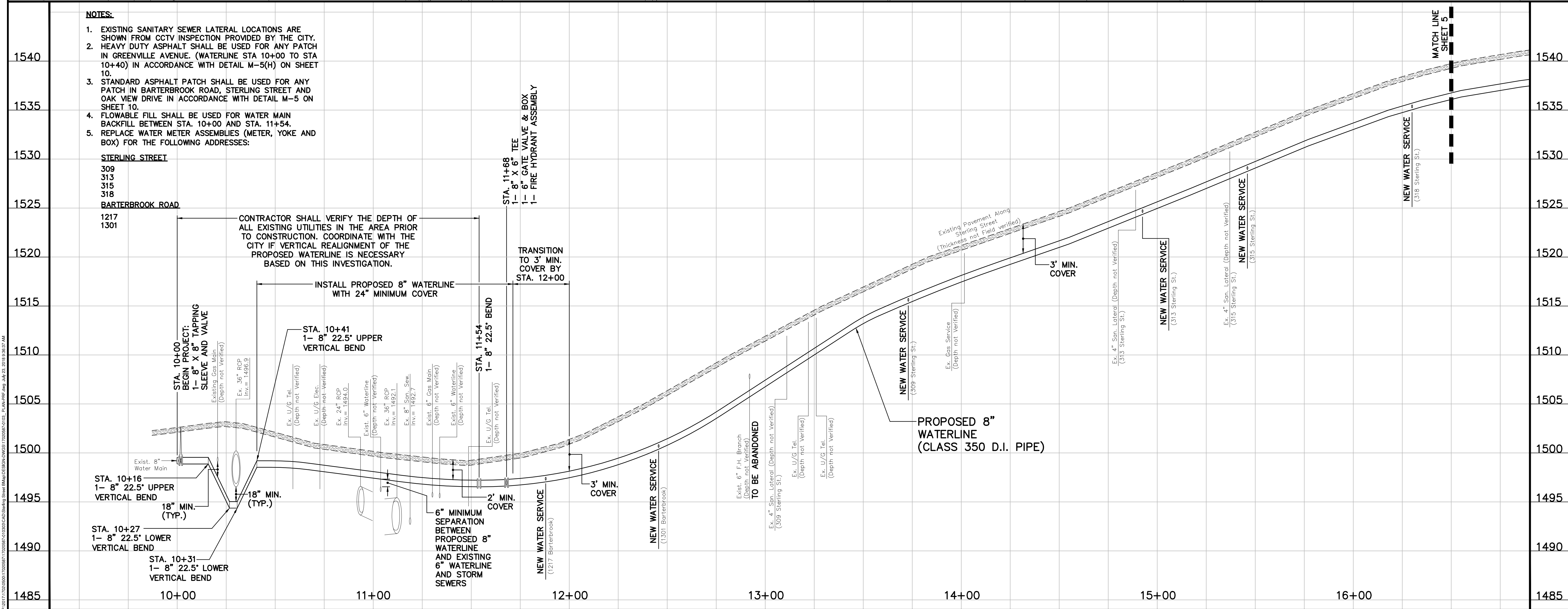
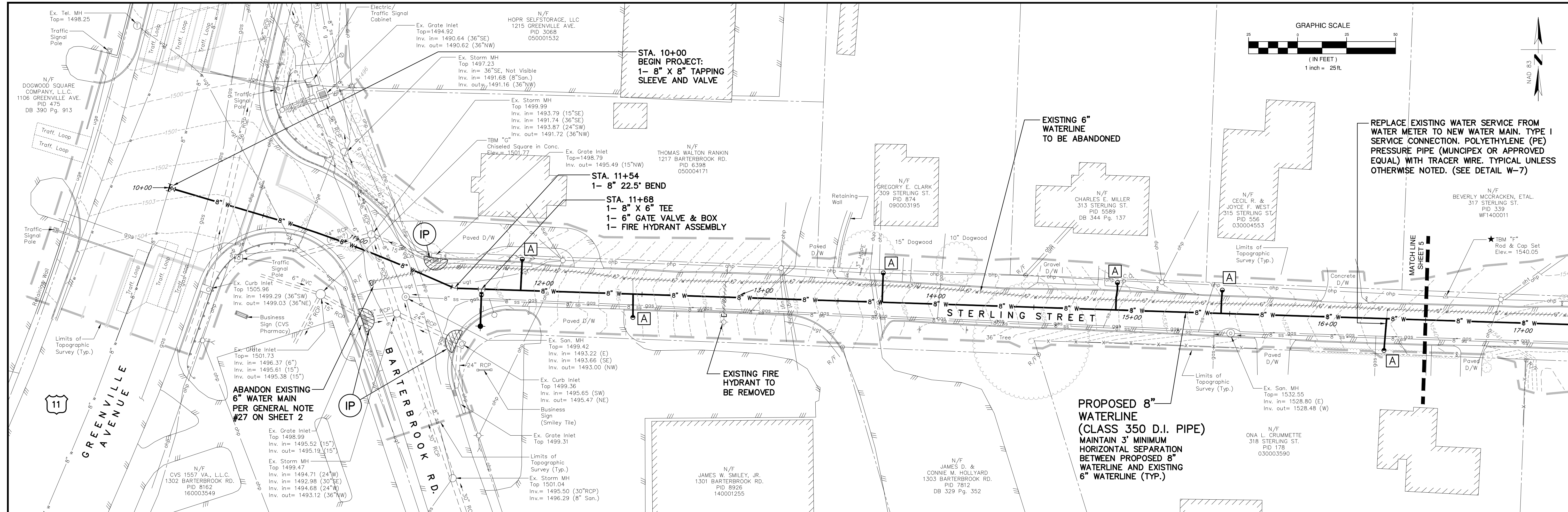
CITY OF STAUNTON, VIRGINIA

| REVISIONS                     |                   |
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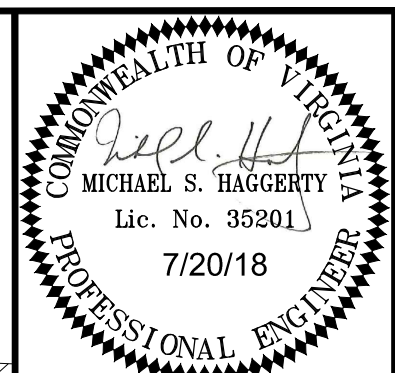
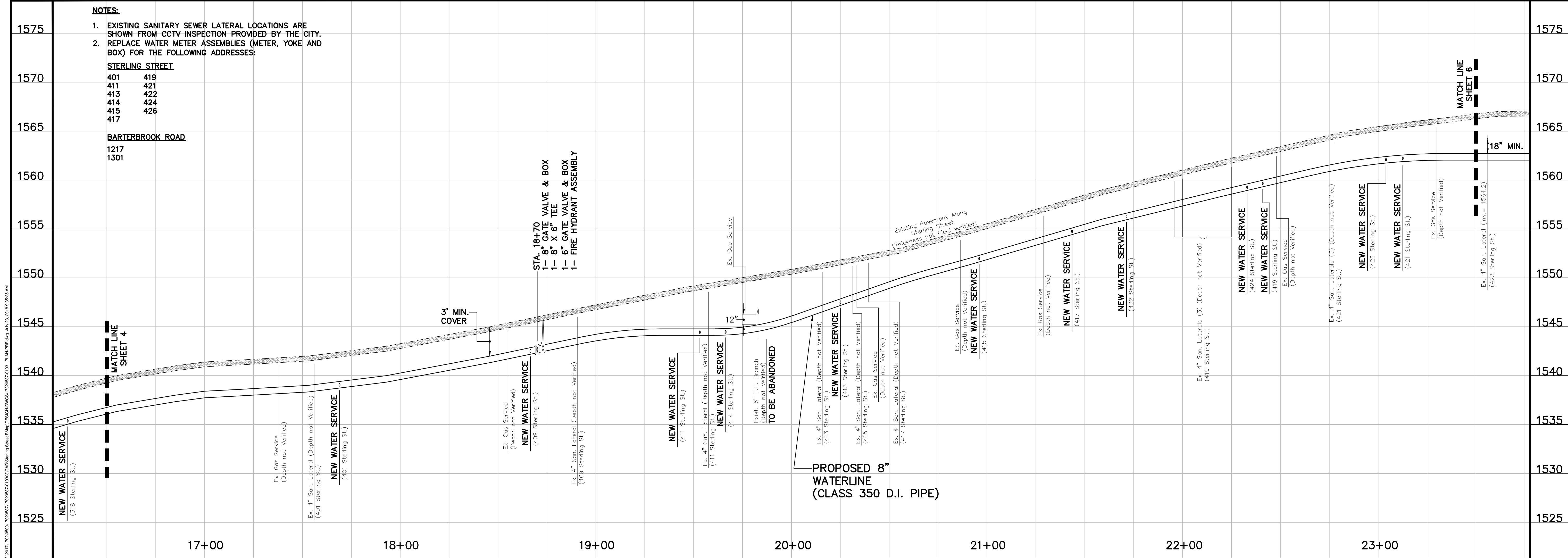
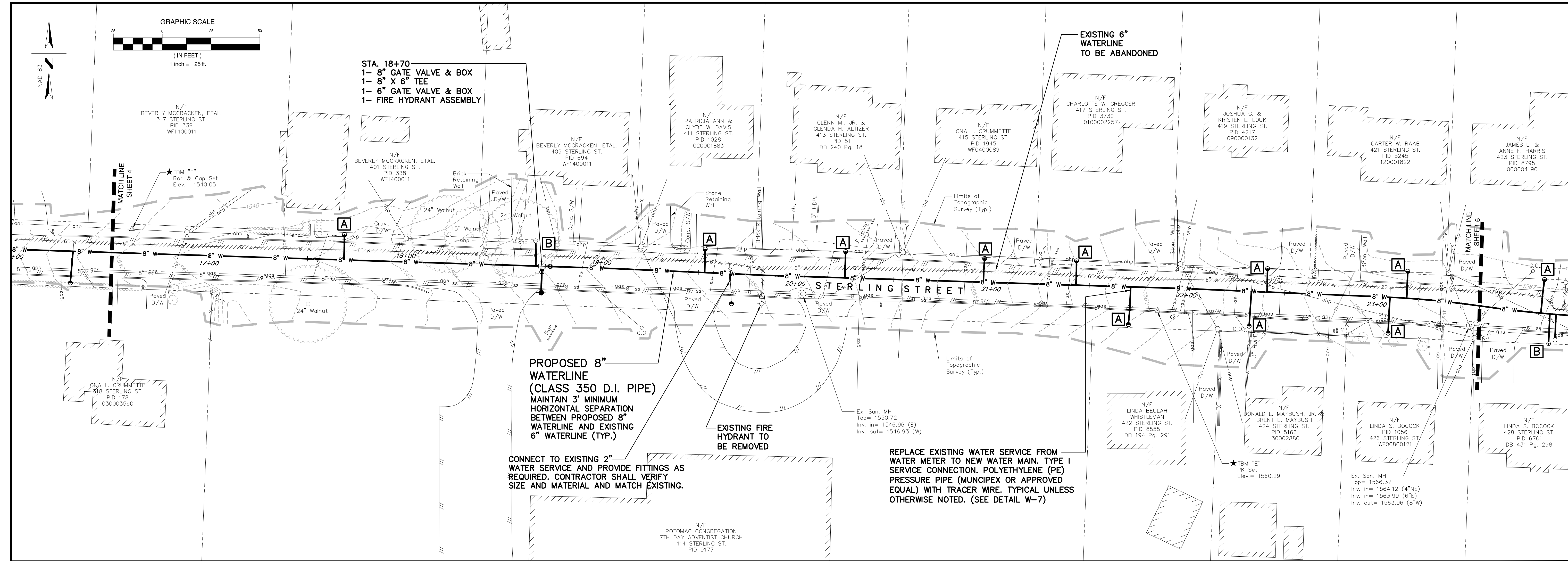
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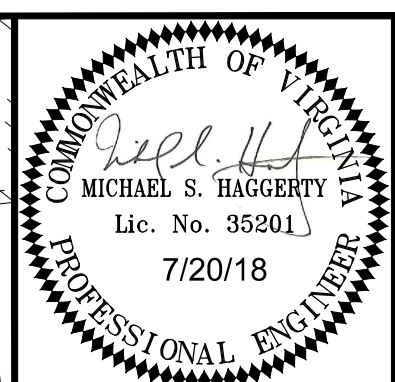
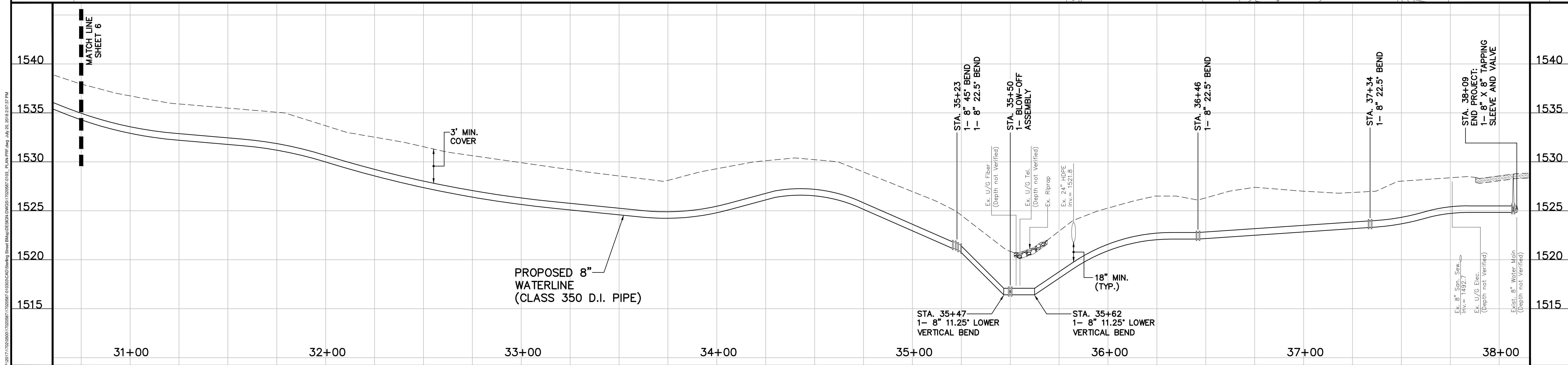
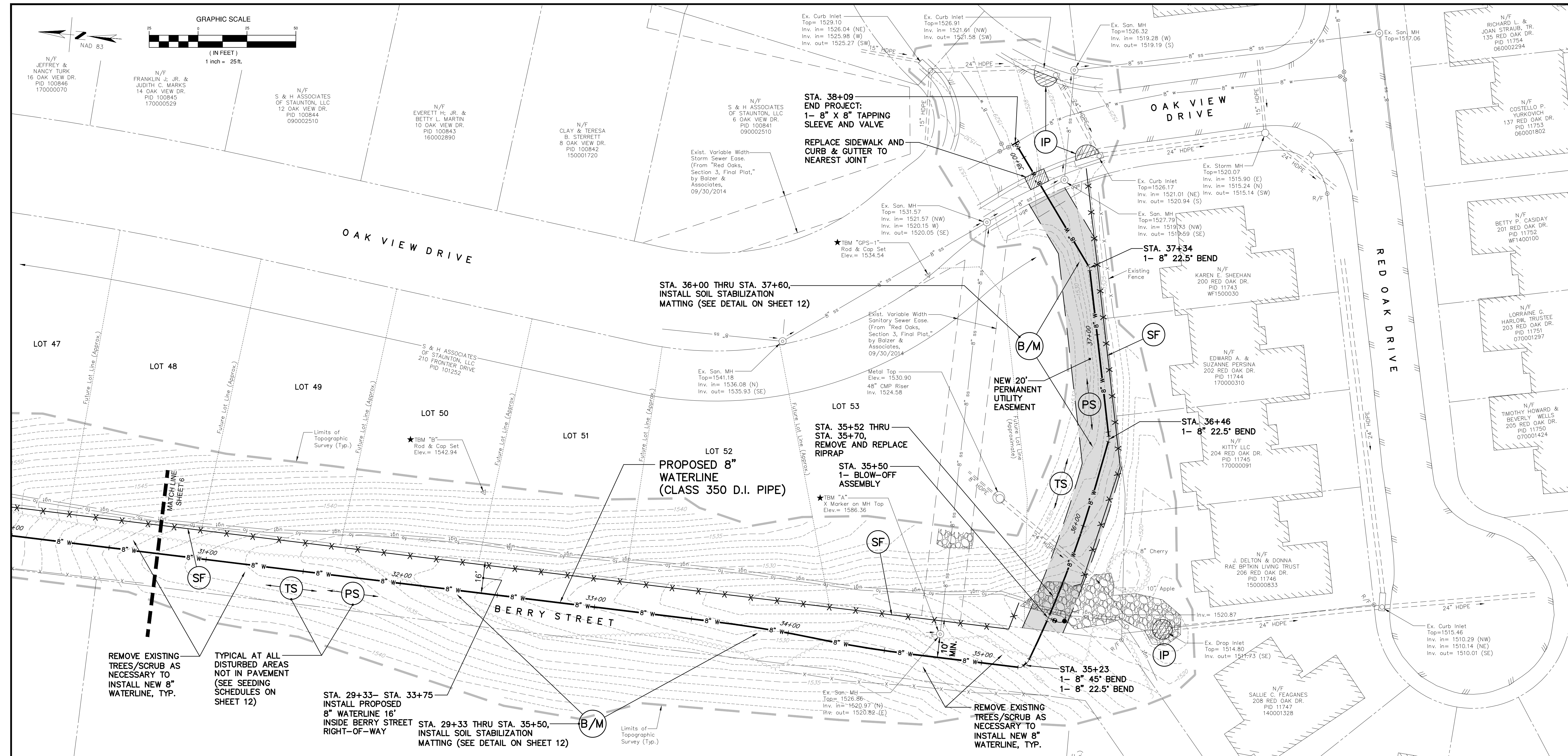
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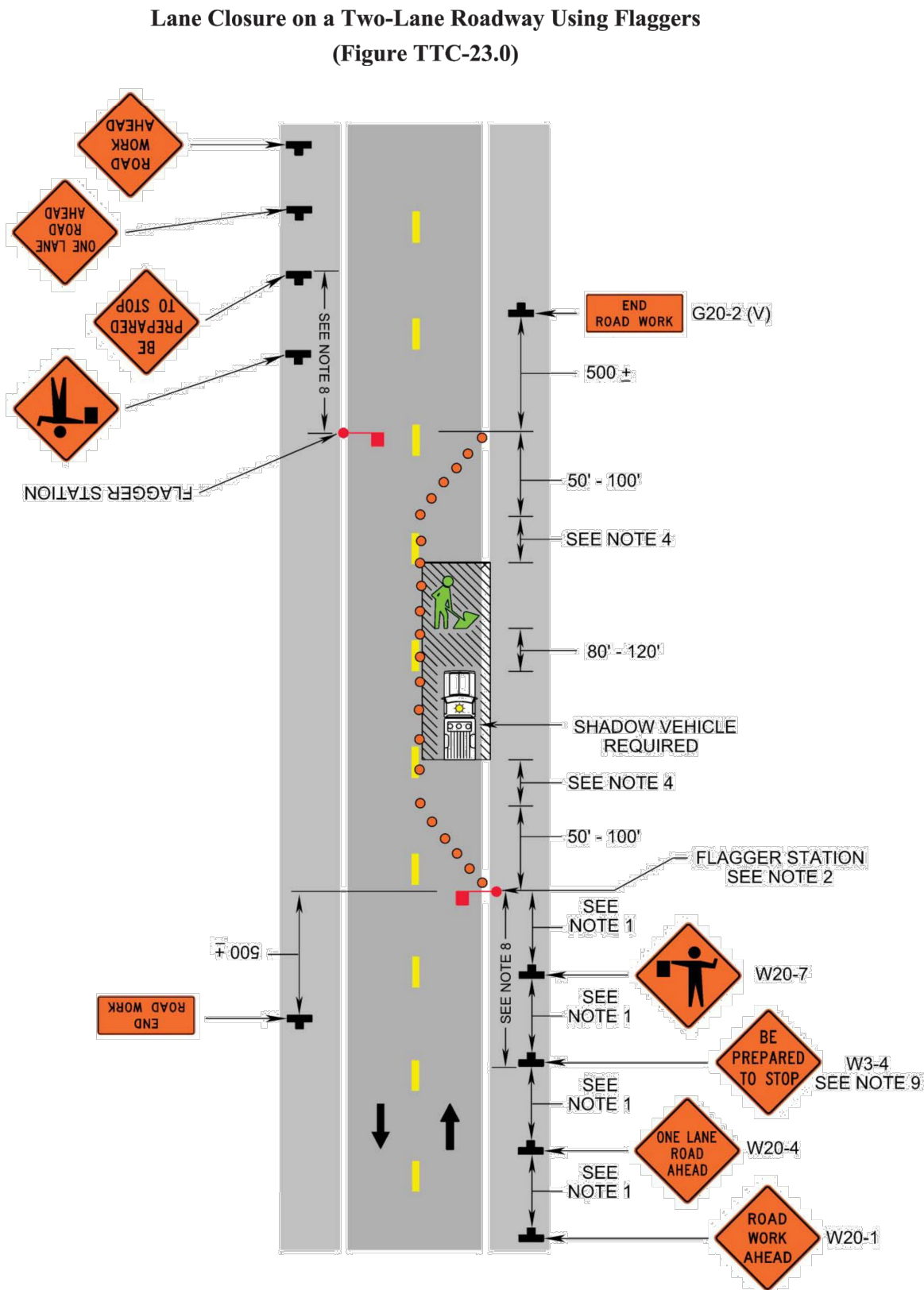
• Blacksburg, VA  
• Fayetteville, NC  
• Charlottesville, VA  
• Hampton Roads, VA  
• Northern Virginia

**PLAN & PROFILE**  
**STERLING STREET WATERLINE**  
CITY OF STAUNTON, VIRGINIA

| REVISIONS       |                            |
|-----------------|----------------------------|
| 03/08/18        | PER CITY COMMENTS          |
| DESIGNED BY:    | BMC                        |
| DRAWN BY:       | HLJ                        |
| CHECKED BY:     | MSH                        |
| SCALE:          | HORZ: 1"= 25' VERT: 1"= 5' |
| DATE:           | NOVEMBER 30, 2017          |
| PROJECT NUMBER: | 17020587-0103              |
| 7               | 7 OF 12                    |



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**Typical Traffic Control**  
**Lane Closure on a Two-Lane Roadway Using Flaggers**  
(Figure TTC-23.0)  
**NOTES**

**Guidance:**

1. Sign spacing distance should be 350'-500' where the posted speed limit is 45 mph or less, and 500'-800' where the posted speed limit is greater than 45 mph.
2. Care should be exercised when establishing the limits of the work zone to insure maximum possible sight distance in advance of the flagger station and transition, based on the posted speed limit and at least equal to or greater than the values in Table 6H-3. Generally speaking, motorists should have a clear line of sight from the graphic flagger symbol sign to the flagger.

**Option:**

3. Where Right-of-Way or geometric conditions prevent the use of 48" x 48" signs, 36" x 36" signs may be used.

**Standard:**

4. Flagging stations shall be located far enough in advance of the work space to permit approaching traffic to reduce speed and/or stop before passing the work space and allow sufficient distance for departing traffic in the left lane to return to the right lane before reaching opposing traffic (see Table 6H-3 on Page 6H-5).
5. All flaggers shall be state certified and have their certification card in their possession when performing flagging duties (see Section 6E.01, Qualifications for Flaggers).
6. Cone spacing shall be at the following:

| Location           | Posted Speed Limit (mph) |      |
|--------------------|--------------------------|------|
|                    | 0 - 35                   | 36 + |
| Transition Spacing | 20'                      | 40'  |
| Travelway Spacing  | 40'                      | 80'  |

7. A shadow vehicle with at least one high intensity amber rotating, oscillating, or strobe light shall be parked 80'-120' in advance of the first work crew.

**Option:**

8. A supplemental flagger may be required in this area to give advance warning of the operation ahead by slowing approaching traffic prior to reaching the flagger station or queued traffic.

**Guidance:**

9. If the queue of traffic reaches the BE PREPARED TO STOP (W3-4) sign, then the signs should be readjusted at greater distances.
10. When a highway-rail crossing exists within or upstream of the transition area and it is anticipated that queues resulting from the lane closure might extend through the highway-rail grade crossing, the temporary traffic control zone should be extended so that the transition area precedes the highway-rail crossing (see Figure TTC-56 for additional information on highway-rail crossings).

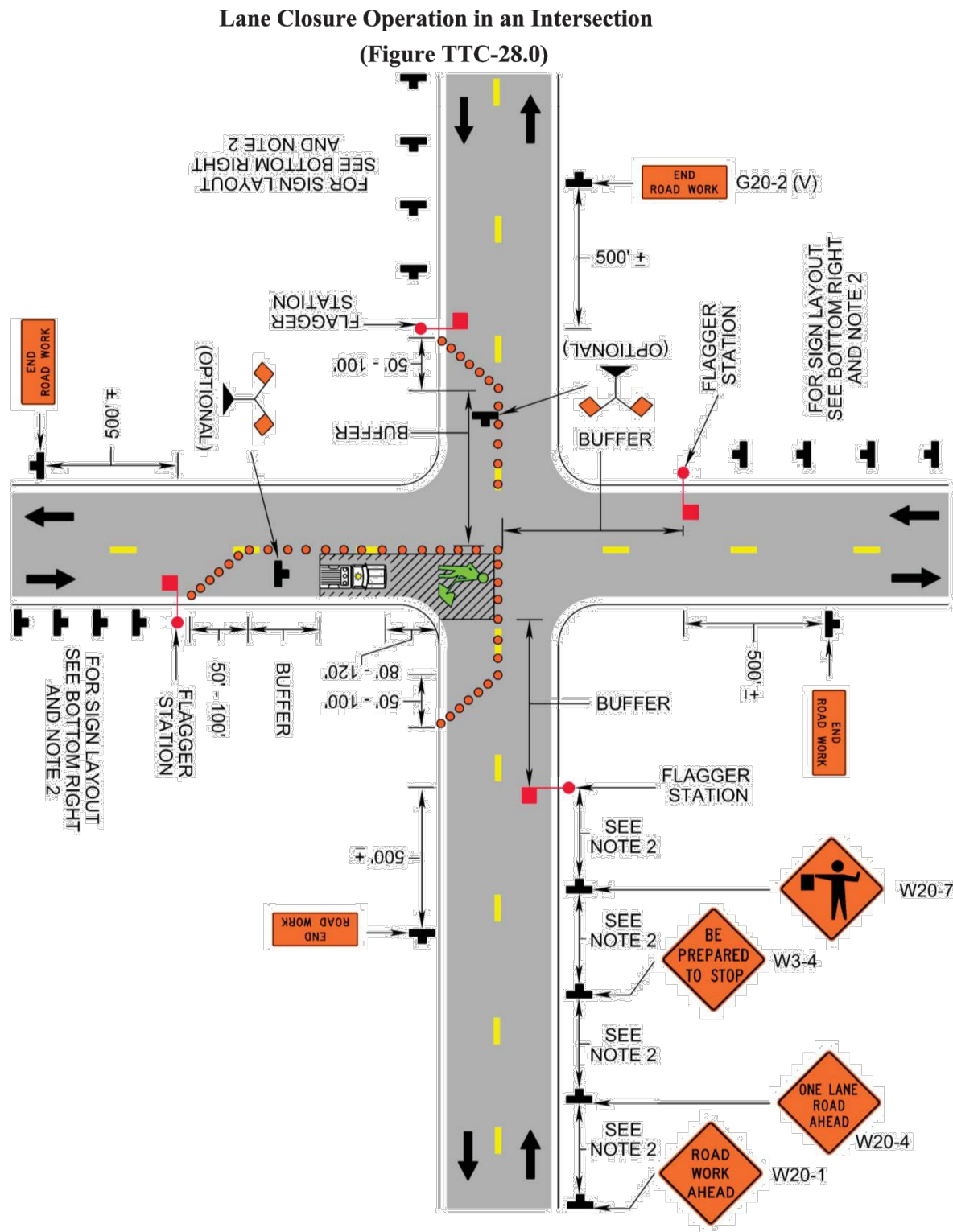
**Standard:**

11. At night, flagger stations shall be illuminated, except in emergencies (see Section 6E.08).

**Option:**

12. Cones may be eliminated when using a pilot vehicle operation or when the total roadway width is 20 feet or less.
13. For low-volume situations with short work zones on straight roadways where the flagger is visible to road users approaching from both directions, a single flagger, positioned to be visible to road users approaching from both directions, may be used (see Chapter 6E).

**WORKZONE A**



**Typical Traffic Control**  
**Lane Closure Operation in an Intersection**  
(Figure TTC-28.0)  
**NOTES**

**Guidance:**

1. The control of traffic through the intersection in order of preference should be:
  - a. Obtain the services of law enforcement personnel.
  - b. Detour the effective routes to other roads and streets as approved and directed by the Regional Traffic Engineer.
  - c. Place a state certified flagger on each leg of the intersection controlling a single lane of traffic.Appropriate signing as shown should be used for law enforcement and flagging operations. For detour signs see Figure TTC-34.
2. Sign spacing distance should be 350'-500' where the posted speed limit is 45 mph or less, 500'-800' where the posted speed limit is greater than 45 mph.

**Standard:**

3. Channelizing device spacing shall be on 20' centers or less.

**Guidance:**

4. If room permits, a shadow vehicle with at least one rotating amber light or high intensity amber strobe light should be parked 80'-120' in advance of the first work crew.

**Standard:**

5. If the posted speed limit is 45 mph or greater, the shadow vehicle shall have a truck-mounted attenuator.
6. For emergency situations (any non-planned operation) of 30 minutes or less duration, two rotating amber lights or high intensity amber strobe lights mounted on the vehicle and visible for 360° shall be required in addition to the channelizing devices shown around the vehicle. Also, vehicle hazard warning signals or amber oscillating lights shall be used.

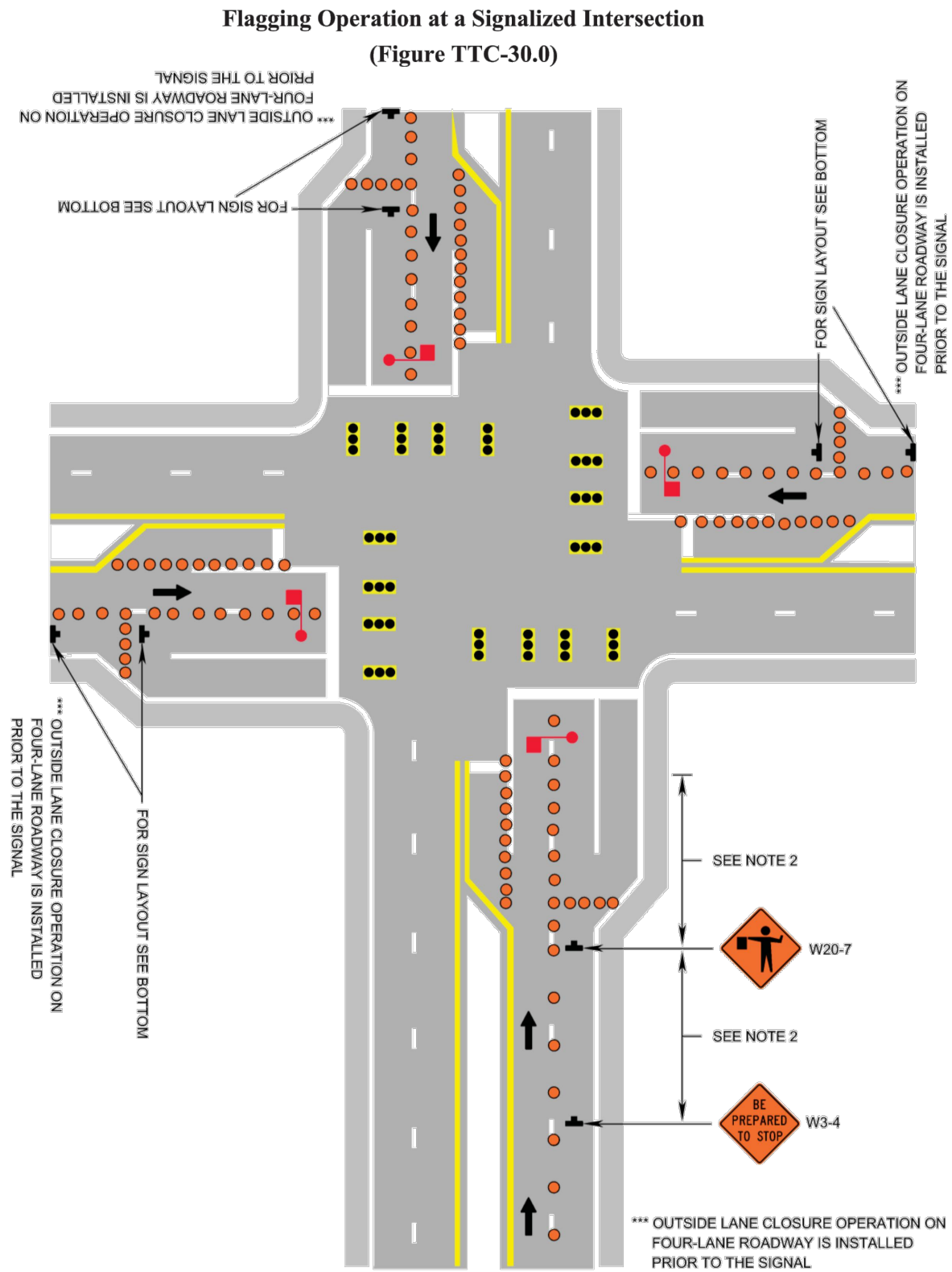
**Guidance:**

7. If the work space extends across a crosswalk, the crosswalk should be closed using the information and devices shown in Figure TTC-36.

**Support:**

8. Turns can be prohibited as required by vehicular traffic conditions. Unless the streets are wide, it might be physically impossible to make certain turns, especially for large vehicles.

**WORKZONE B**



**Typical Traffic Control**  
**Flagging Operation at a Signalized Intersection**  
(Figure TTC-30.0)  
**NOTES**

**Guidance:**

1. The control of traffic through the intersection in order of preference should be:
  - a. Obtain the services of law enforcement personnel.
  - b. Divert the effective routes to other roads and streets as approved and directed by the Regional Traffic Engineer.
  - c. Place a state certified flagger on each leg of the intersection with the approved signing as shown.
2. Sign spacing distance should be 350'-500' where the posted speed limit is 45 mph or less, 500'-800' where the posted speed limit is greater than 45 mph. For urban streets sign spacing distance should be 225'-275' where the posted speed limit is 30 to 35 mph, and 100'-200' where the posted speed is 25 mph or less.

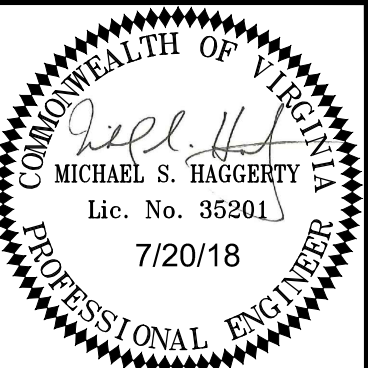
**Standard:**

3. A stationary lane closure shall be installed in advance of the signalized intersection for all approaches with two or more lanes for through traffic.
4. All turn lanes at the intersection shall be closed.
5. Electrical power supply to signals shall be turned off while flaggers are controlling traffic through the intersection.
6. To prevent accidental intrusion into the flagger station, cone spacing shall not exceed 10' on centers from the graphic flagger sign to the flagger station. Cones shall be installed in the closed lane, perpendicular to traffic, prior to the flagging station.
7. A lead flagger shall be assigned to control all flagger operations. One flagger shall be stationed to control each approach of the intersection. Flaggers shall alternate right-of-way to traffic such that traffic moves through the intersection one approach at a time.
8. Flagger stations shall be illuminated during planned night time work operations with a minimum of horizontal luminance of 5-foot candles (50 lux) (see Section 6E.08).
9. On divided highways having a median wider than 8', right and left sign assemblies shall be required.

**Option:**

10. RIGHT TURN LANE CLOSED AHEAD (W20-V13R) and/or LEFT TURN LANE CLOSED AHEAD (W20-V13L) sign(s) may be used when closing the turn lanes.
11. For a high volume of turning movements, additional traffic control devices, such as signs (graphic NO LEFT TURN (R3-2), NO RIGHT TURN (R3-1), RIGHT TURN LANE CLOSED AHEAD (W20-V13R) and/or LEFT TURN LANE CLOSED AHEAD (W20-V13L)), cones and vehicles may be used.

**WORKZONE C**



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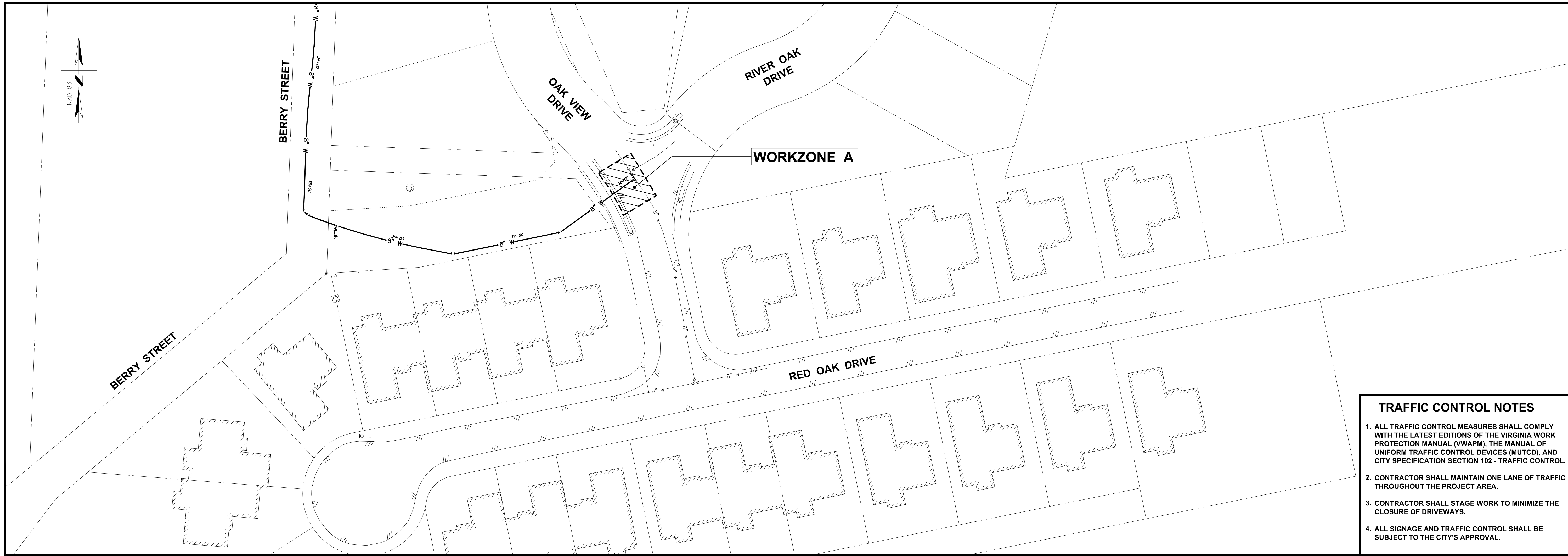
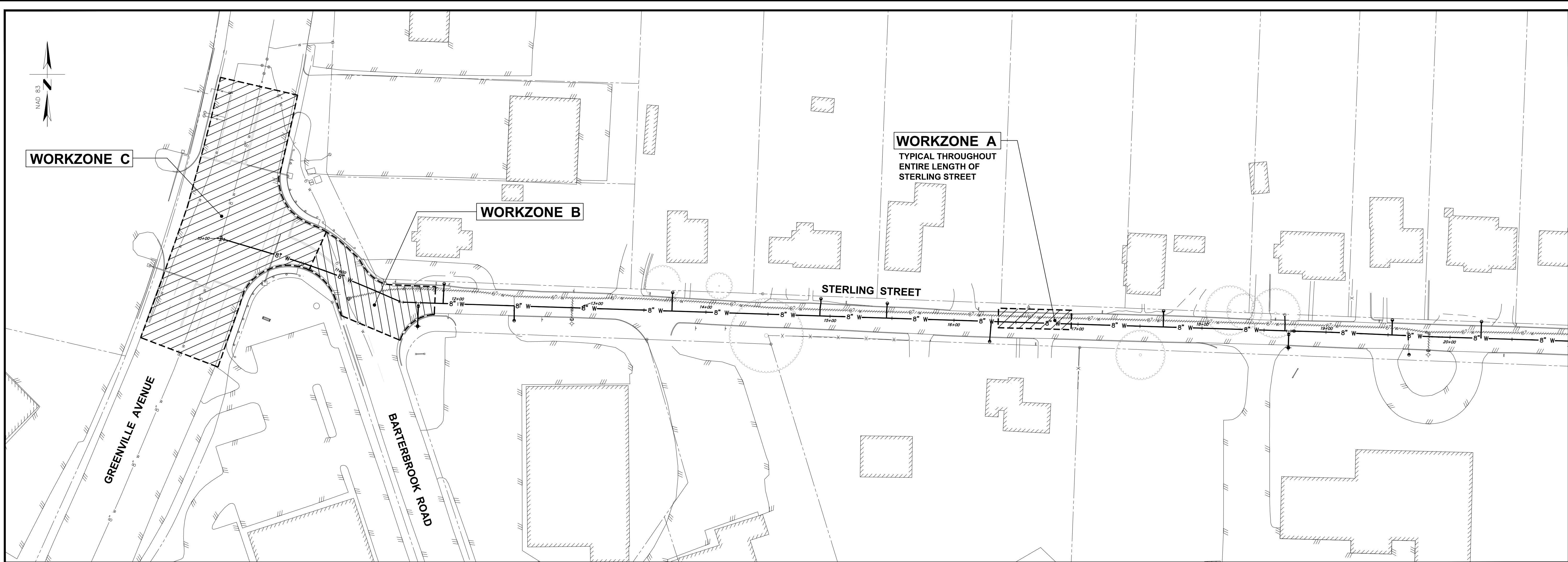
• Blacksburg, VA  
• Raleigh, NC  
• Fayetteville, VA  
• Charlottesville, VA  
• Hampton Roads, VA  
• Northern Virginia

TRAFFIC CONTROL-TYPICAL WORKZONES  
**STERLING STREET WATERLINE**  
CITY OF STAUNTON, VIRGINIA

| REVISIONS       |                   |
|-----------------|-------------------|
| 03/08/18        | PER CITY COMMENTS |
| DESIGNED BY:    | BMC               |
| DRAWN BY:       | HLJ               |
| CHECKED BY:     | MSH               |
| SCALE:          | NOT TO SCALE      |
| DATE:           | NOVEMBER 30, 2017 |
| PROJECT NUMBER: | 17020587-0103     |
| 8               |                   |
| 8 OF 12         |                   |

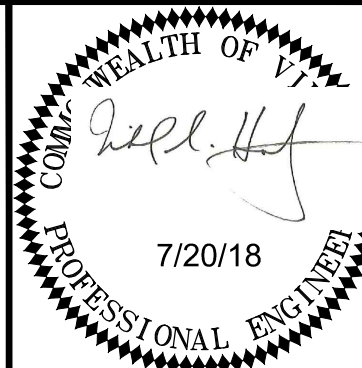


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#### TRAFFIC CONTROL NOTES

1. ALL TRAFFIC CONTROL MEASURES SHALL COMPLY WITH THE LATEST EDITIONS OF THE VIRGINIA WORK PROTECTION MANUAL (VWAPM), THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), AND CITY SPECIFICATION SECTION 102 - TRAFFIC CONTROL.
2. CONTRACTOR SHALL MAINTAIN ONE LANE OF TRAFFIC THROUGHOUT THE PROJECT AREA.
3. CONTRACTOR SHALL STAGE WORK TO MINIMIZE THE CLOSURE OF DRIVEWAYS.
4. ALL SIGNAGE AND TRAFFIC CONTROL SHALL BE SUBJECT TO THE CITY'S APPROVAL.



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• Northern Virginia

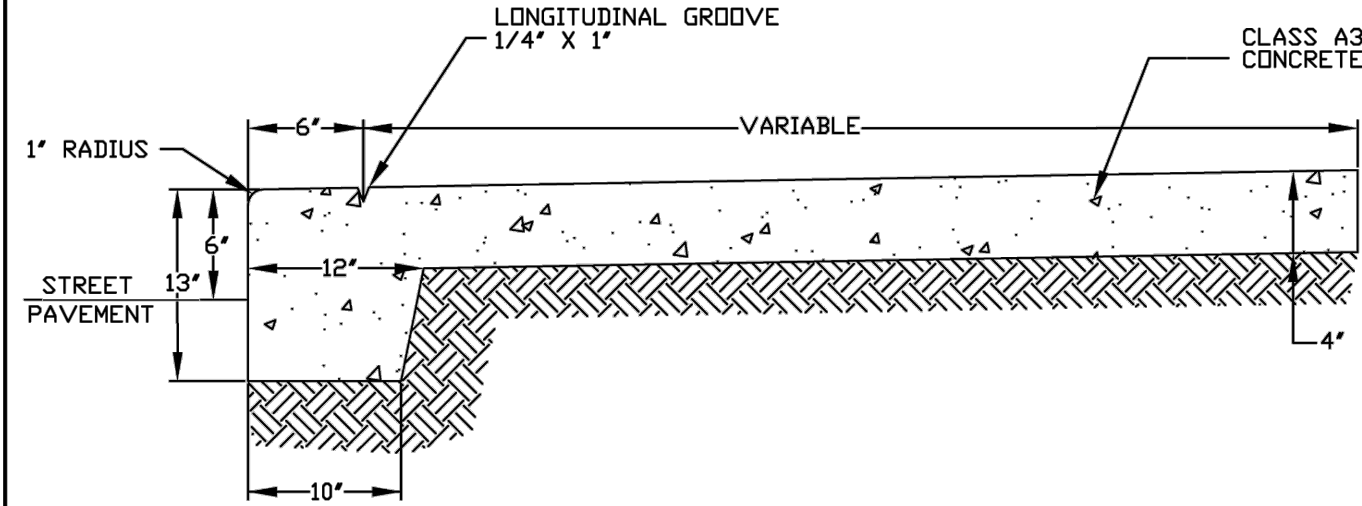
## TRAFFIC CONTROL PLAN STERLING STREET WATERLINE CITY OF STAUNTON, VIRGINIA

REVISIONS  
03/08/18  
PER CITY COMMENTS

DESIGNED BY: BMC  
DRAWN BY: HLJ  
CHECKED BY: MSH  
SCALE: 1"= 40'±  
DATE: NOVEMBER 30, 2017  
PROJECT NUMBER: 17020587-0103



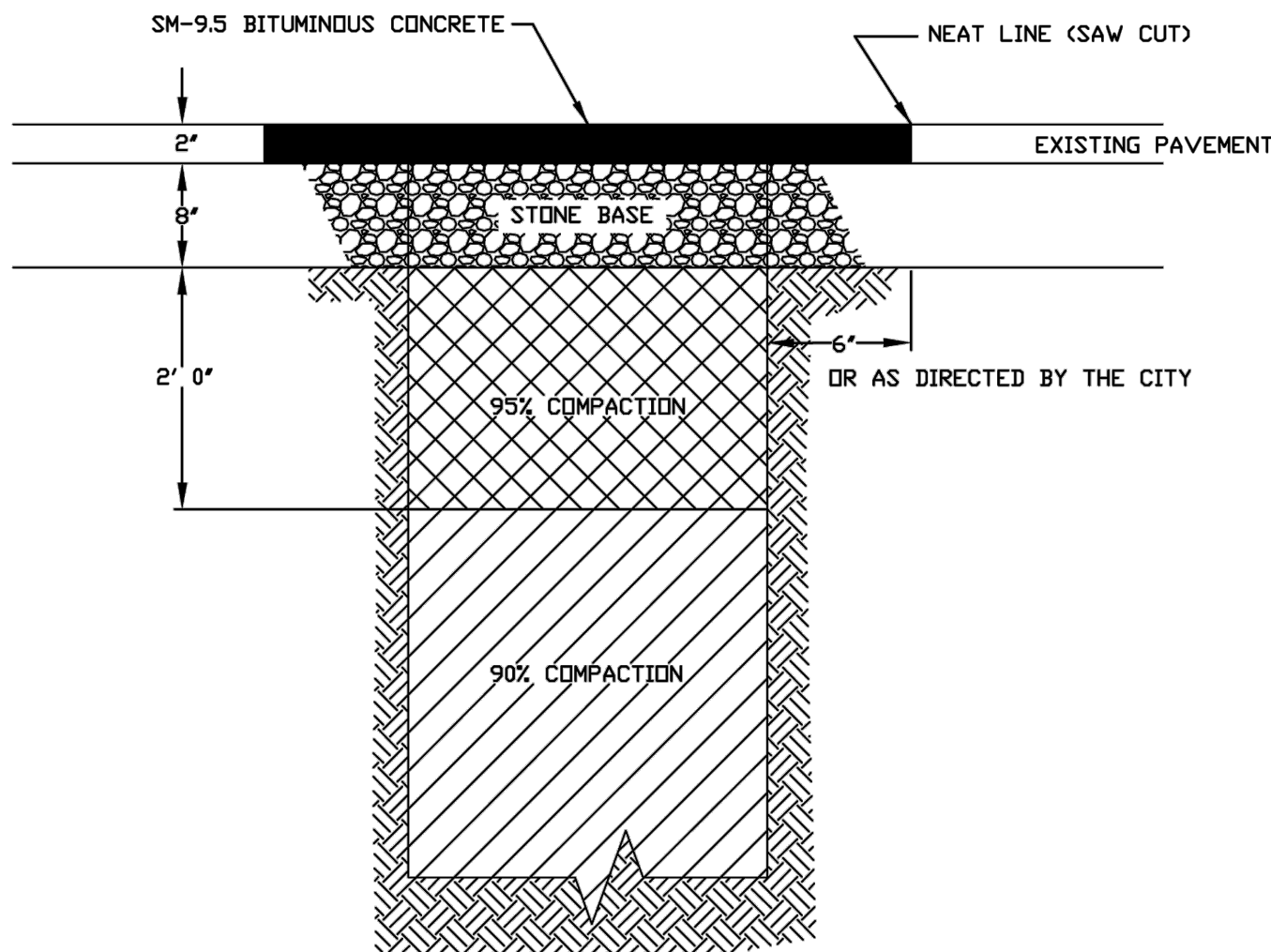
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CITY OF  
STAUNTON, VA

**MONOLITHIC CONCRETE WALK**

Draw No.  
**M-1**

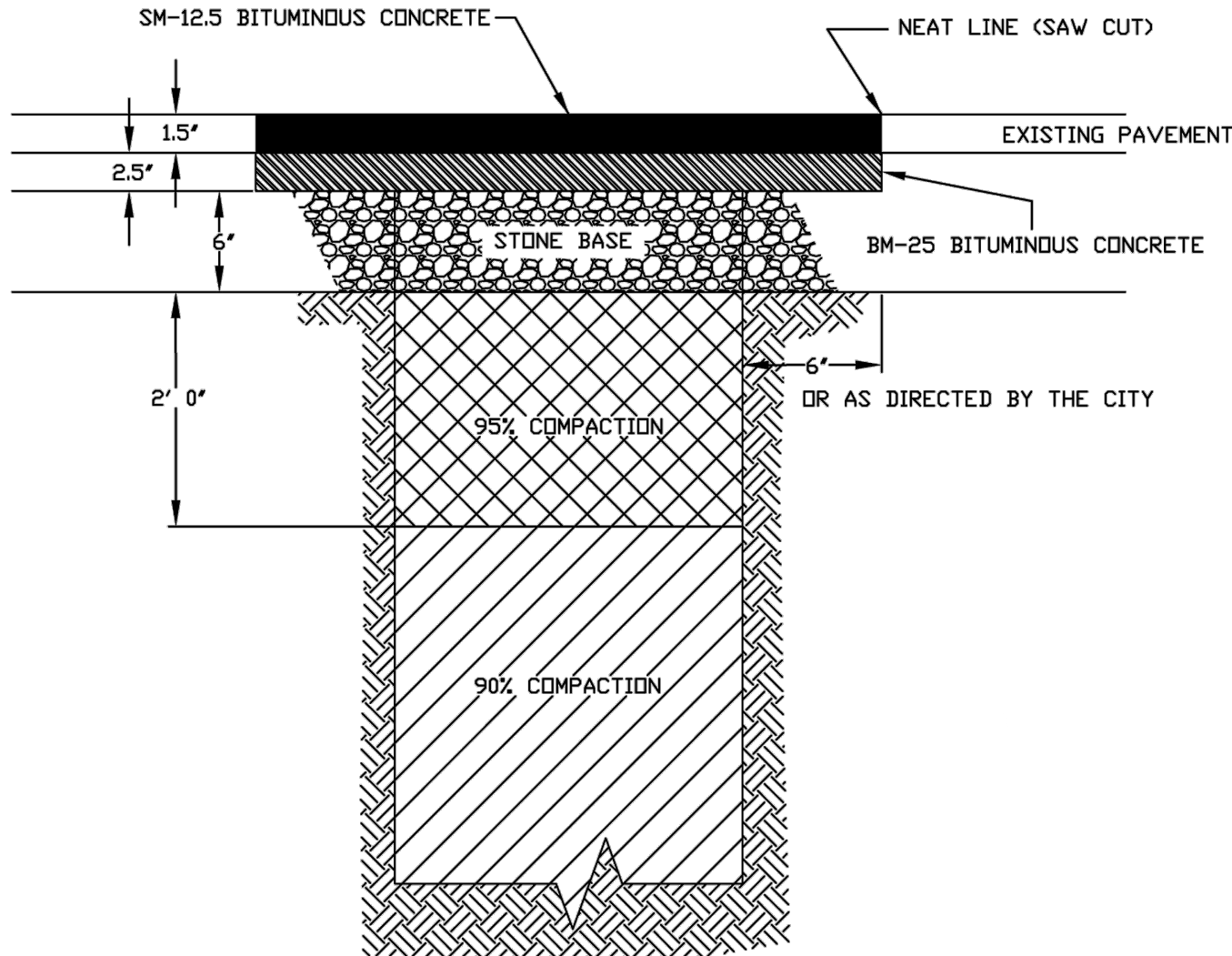


**STANDARD PATCH TO BE USED FOR BARTERBROOK ROAD,  
STERLING STREET AND OAK VIEW DRIVE**

CITY OF  
STAUNTON, VA

**STANDARD PATCH  
FOR ASPHALT PAVEMENT**

Draw No.  
**M-5**

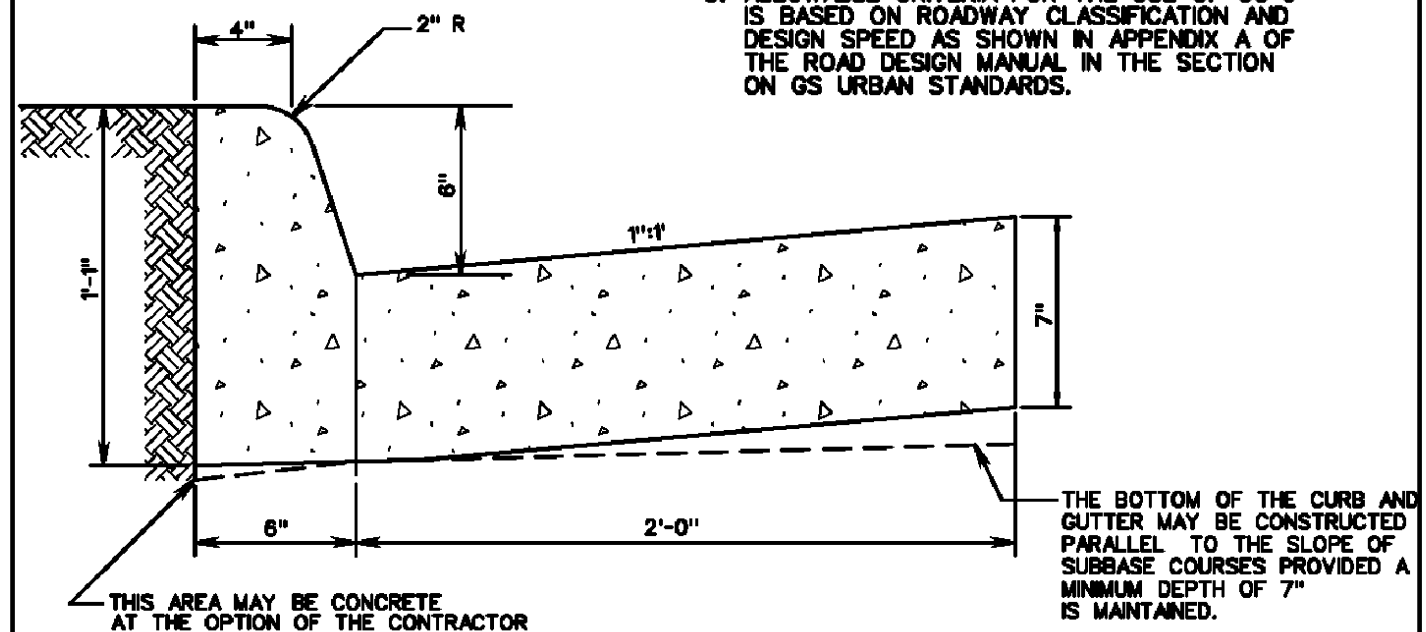


**HEAVY DUTY PATCH TO BE USED FOR  
GREENVILLE AVENUE**

CITY OF  
STAUNTON, VA

**HEAVY DUTY PATCH  
FOR ASPHALT PAVEMENT**

Draw No.  
**M-5(H)**

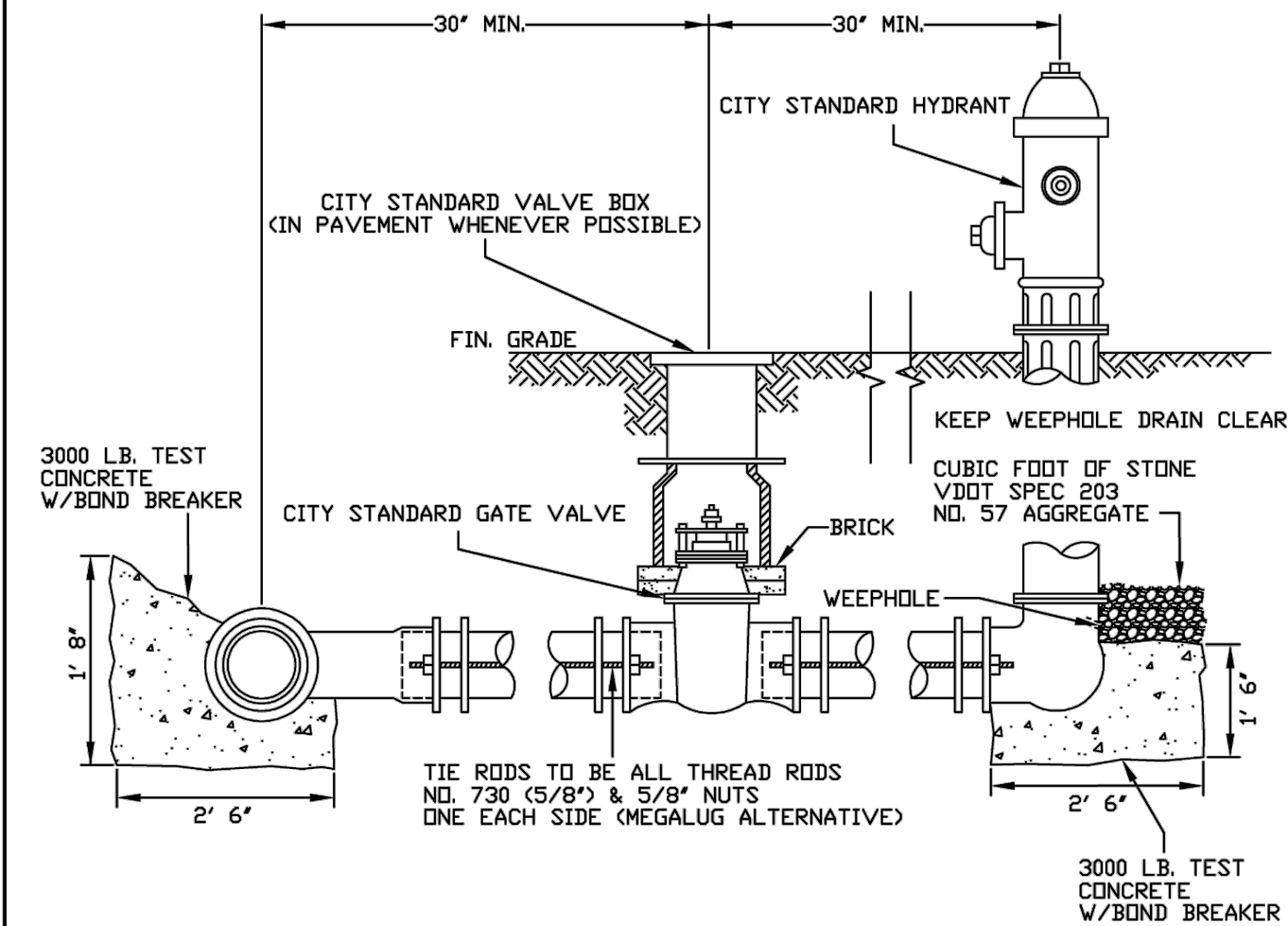


**COMBINATION 6" CURB AND GUTTER**

|                                          |                           |                        |
|------------------------------------------|---------------------------|------------------------|
| SPECIFICATION<br>REFERENCE<br>105<br>502 | VDOT                      |                        |
|                                          | ROAD AND BRIDGE STANDARDS |                        |
|                                          | REVISION DATE             | SHEET 1 OF 1<br>201.03 |

NOTES:

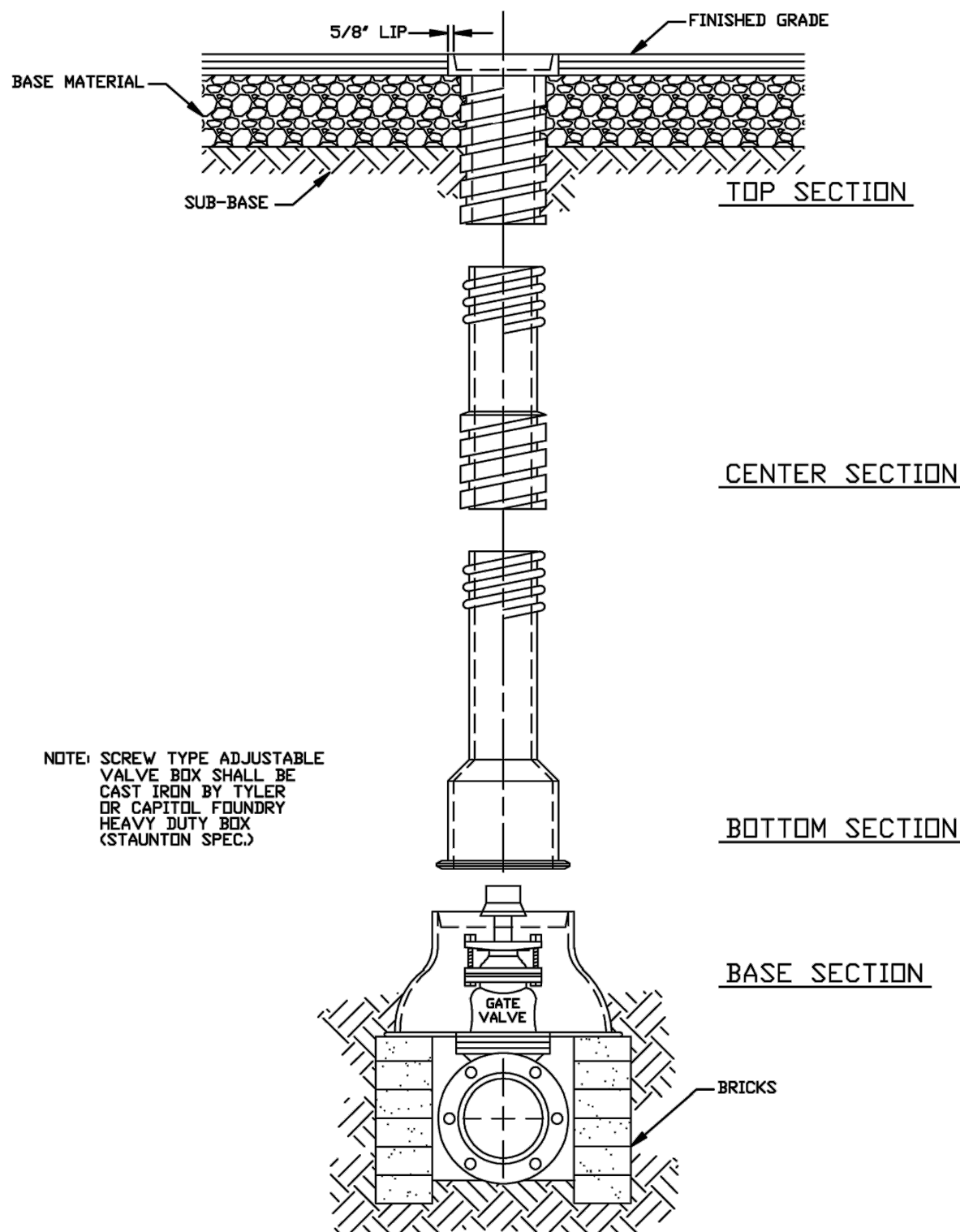
1. THIS ITEM MAY BE PRECAST OR CAST IN PLACE.
2. CONCRETE TO BE CLASS A3 IF CAST IN PLACE, 4000 PSI F PRECAST.
3. COMBINATION CURB & GUTTER HAVING A RADIUS OF 300 FEET OR LESS (ALONG FACE OF CURB) SHALL BE PAID FOR AS RADIAL COMBINATION CURB & GUTTER.
4. FOR USE WITH STABILIZED OPEN-GRADED DRAINAGE LAYER, THE BOTTOM OF THE CURB & GUTTER SHALL BE CONSTRUCTED PARALLEL TO THE SLOPE OF SUBBASE COURSES AND TO THE DEPTH OF THE PAVEMENT.
5. ALLOWABLE CRITERIA FOR THE USE OF CG-6 IS BASED ON ROADWAY CLASSIFICATION AND DESIGN SPEED AS SHOWN IN APPENDIX A OF THE ROAD DESIGN MANUAL IN THE SECTION ON GS URBAN STANDARDS.



CITY OF  
STAUNTON, VA

**STANDARD FIRE HYDRANT  
ASSEMBLY**

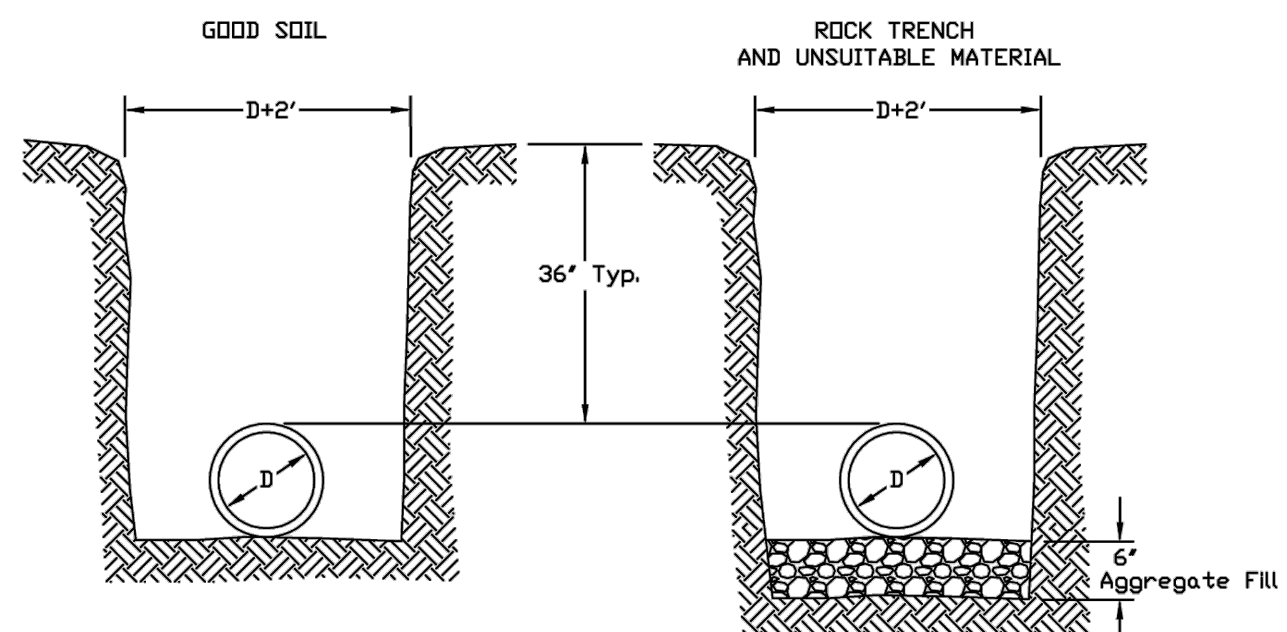
Draw No.  
**W-10**



CITY OF  
STAUNTON, VA

**SCREW - TYPE  
ADJUSTABLE VALVE BOX**

Draw No.  
**W-11**

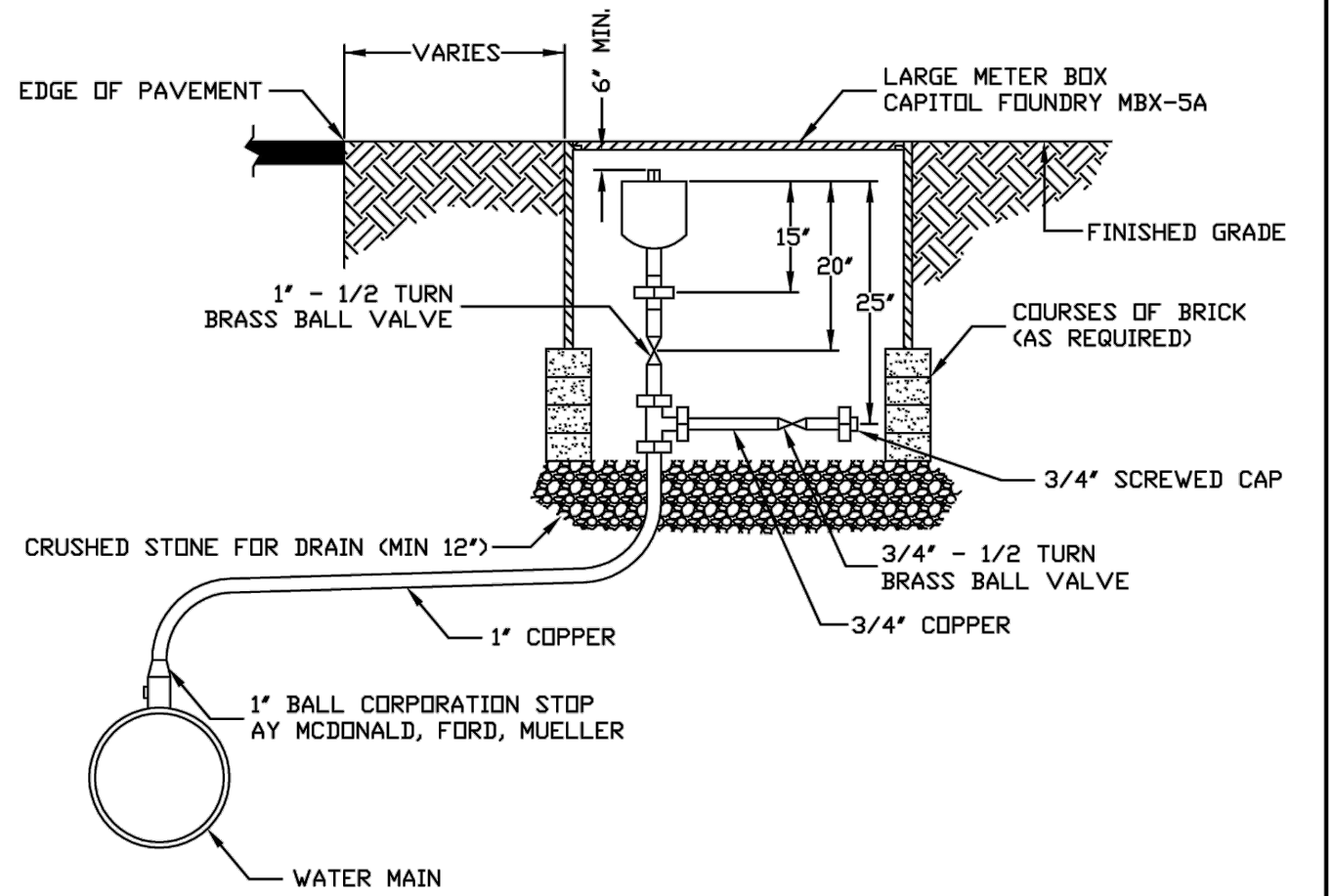


- NOTE:
1. ALL BEDDING SHALL BE CONTINUOUS AND UNIFORM
  2. EXCAVATION IS REQUIRED TO ENSURE THERE IS NO ROCK WITHIN 6" OF THE BOTTOM OF THE PIPE

CITY OF  
STAUNTON, VA

**WATER PIPE INSTALLATION**

Draw No.  
**W-12**

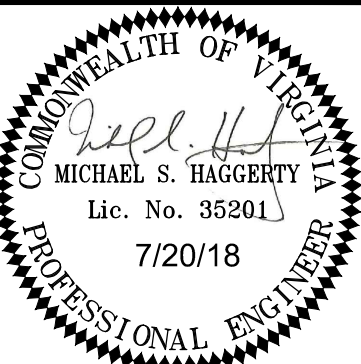


- NOTES:
1. ALL COPPER CONNECTIONS AND FITTINGS SHALL BE COMPRESSION
  2. AIR RELIEF VALVE TO BE VALMATIC 201C.2

CITY OF  
STAUNTON, VA

**1" AIR RELIEF VALVE  
INSTALLATION**

Draw No.  
**W-18A**



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DETAILS

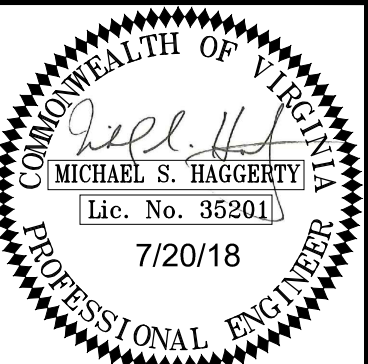
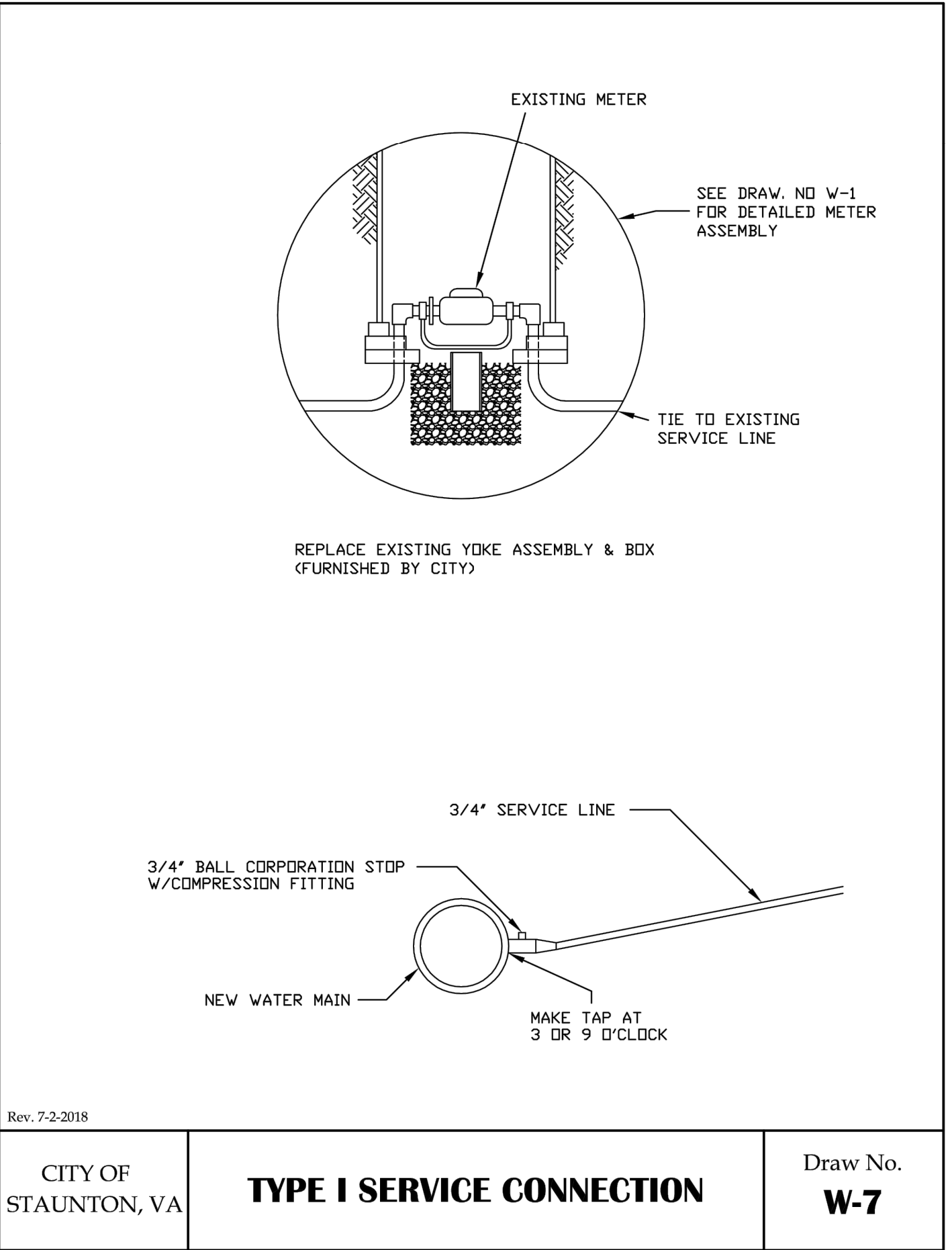
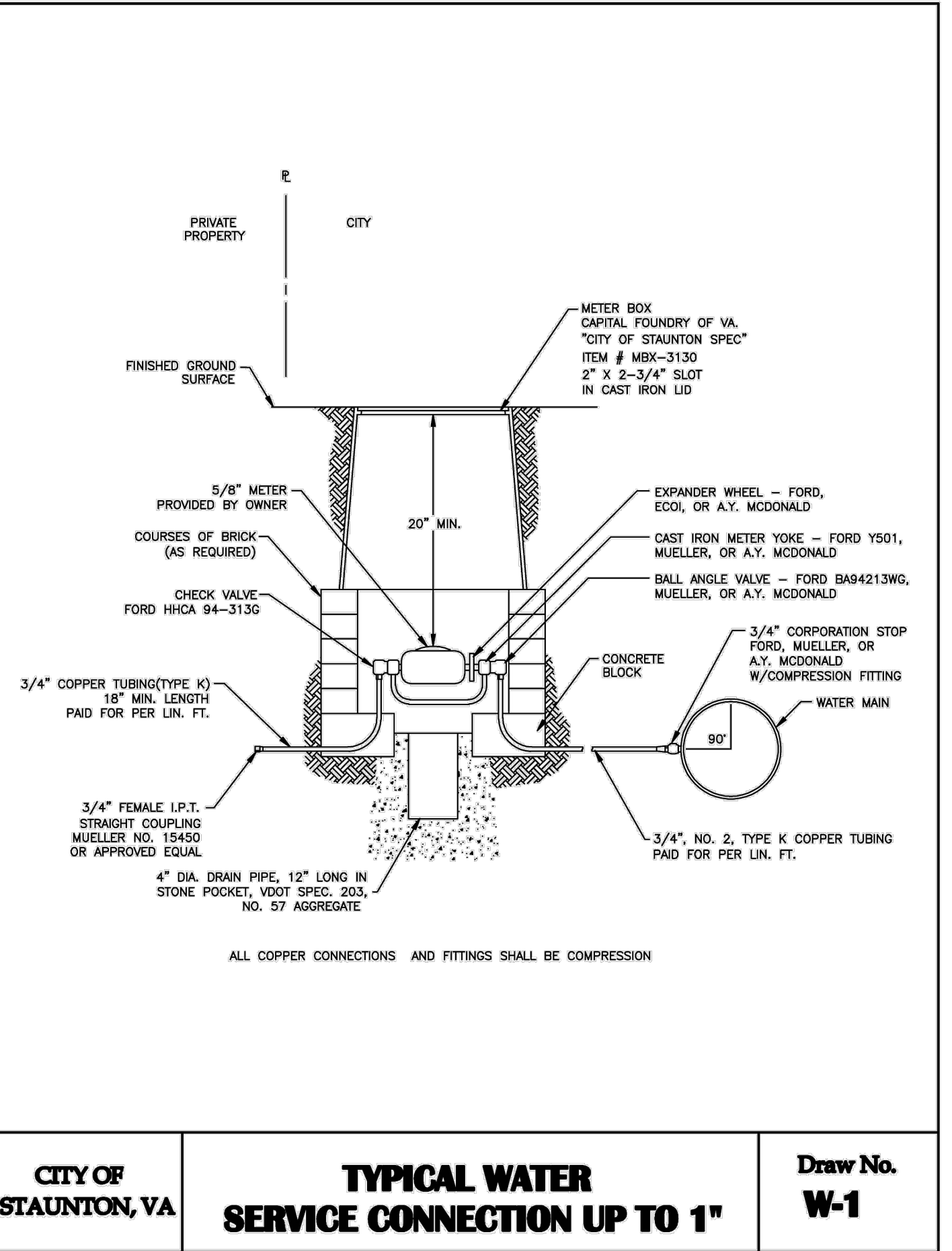
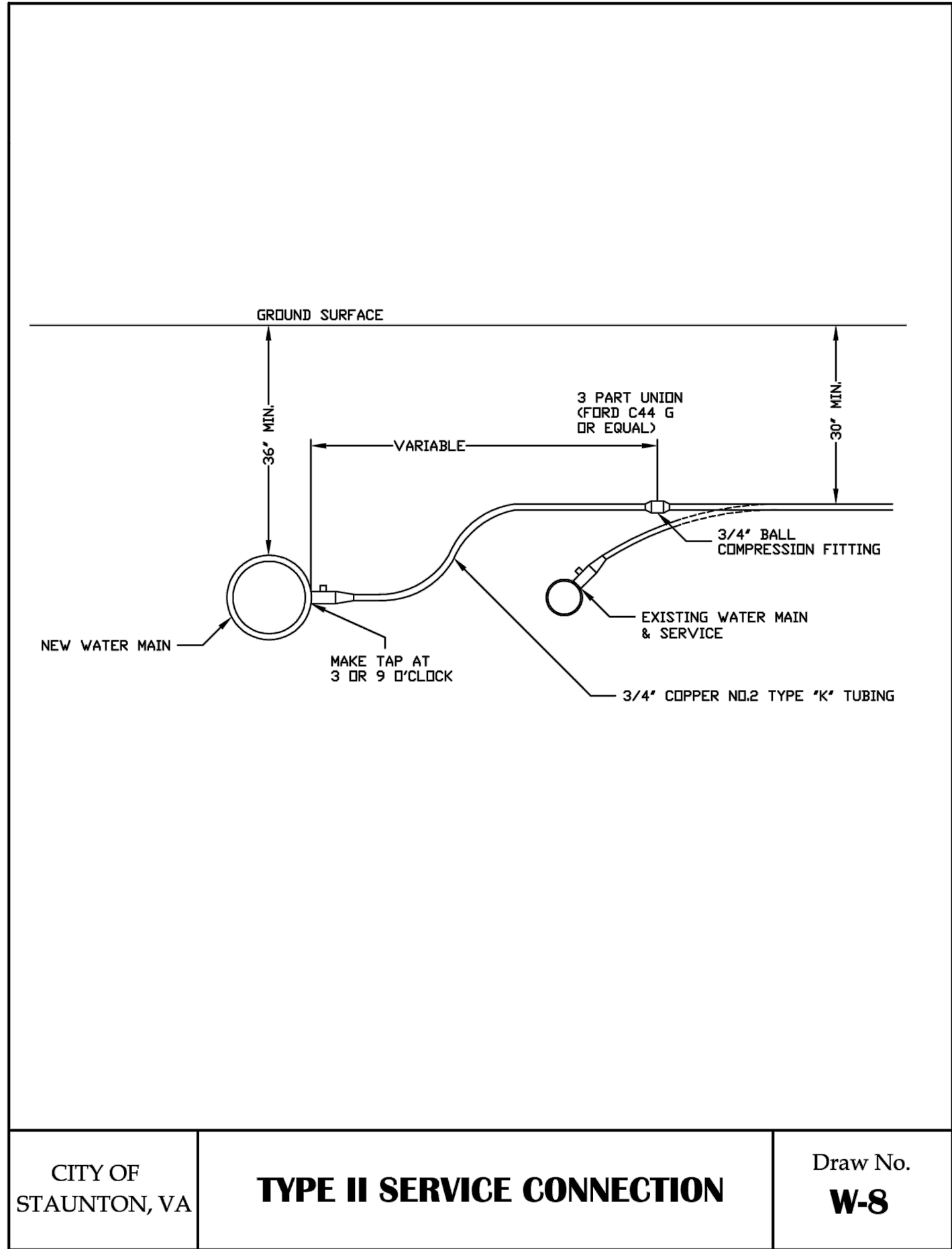
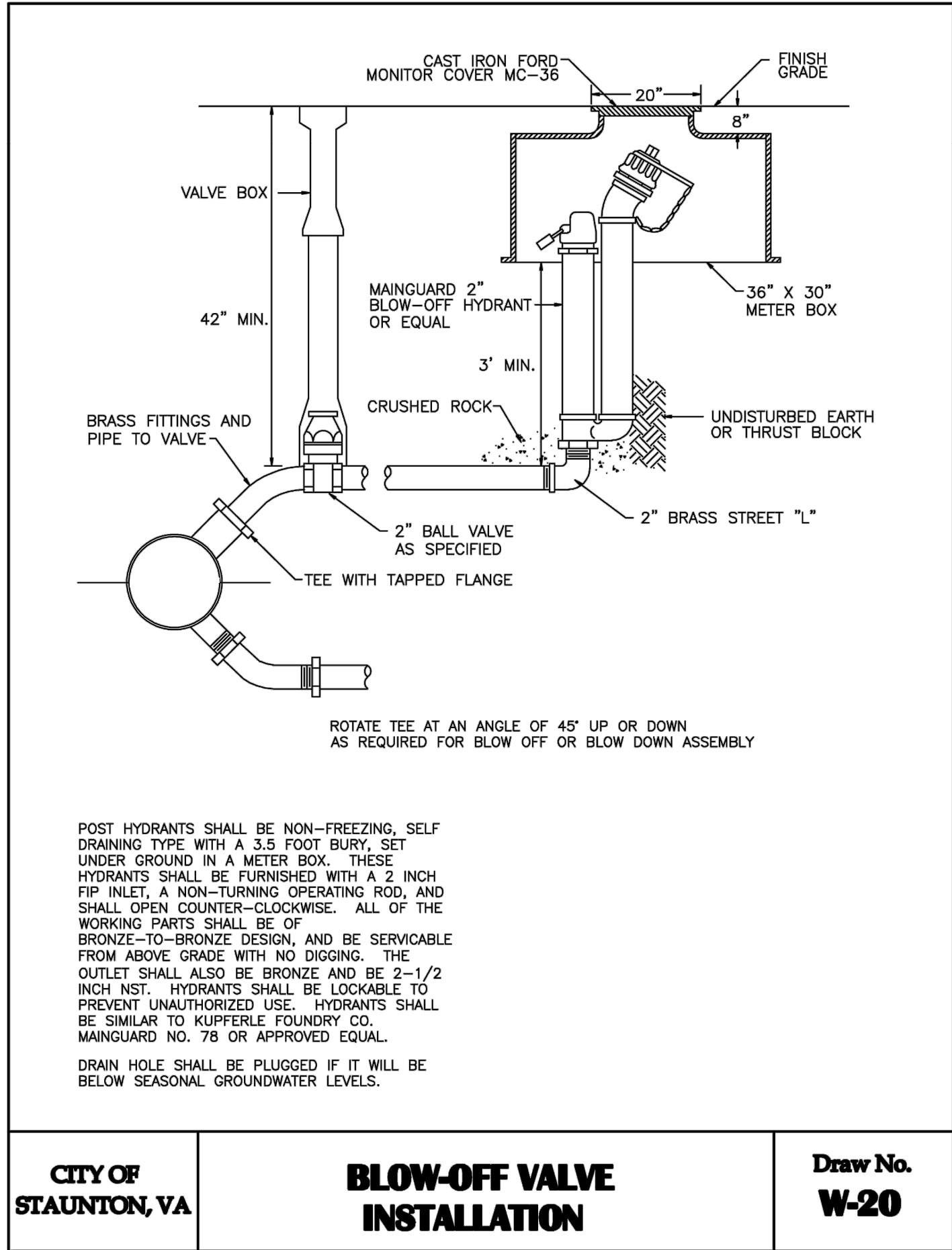
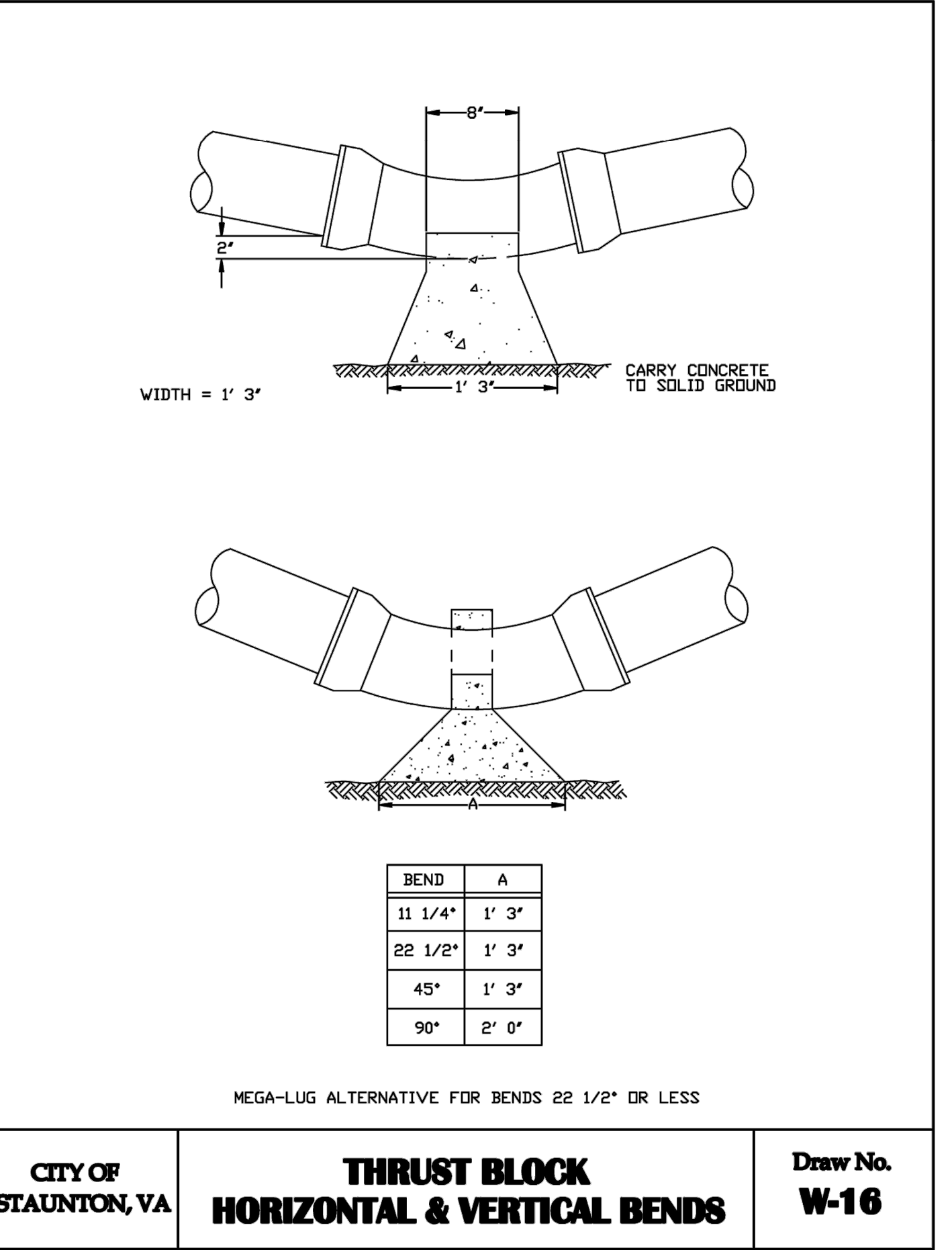
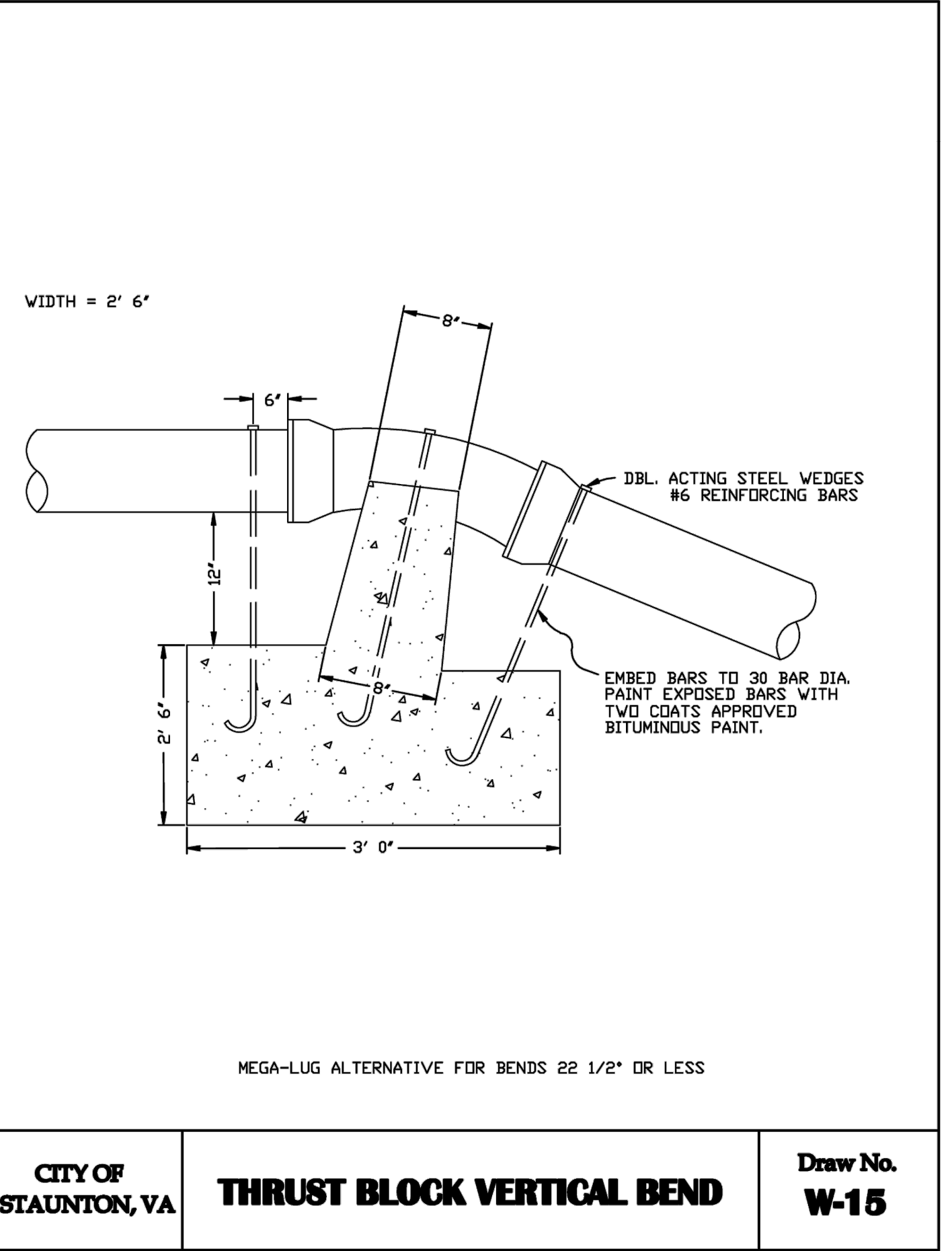
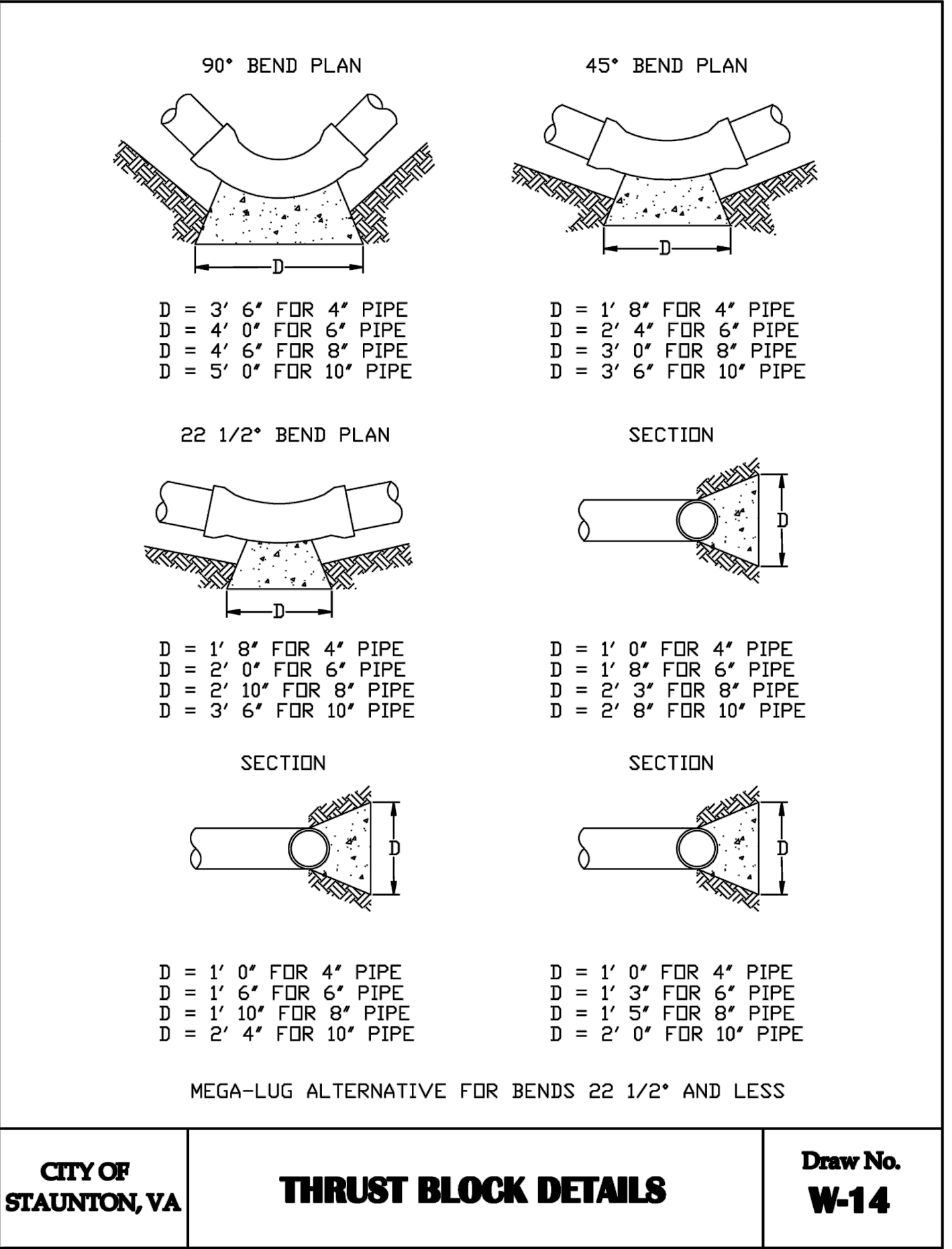
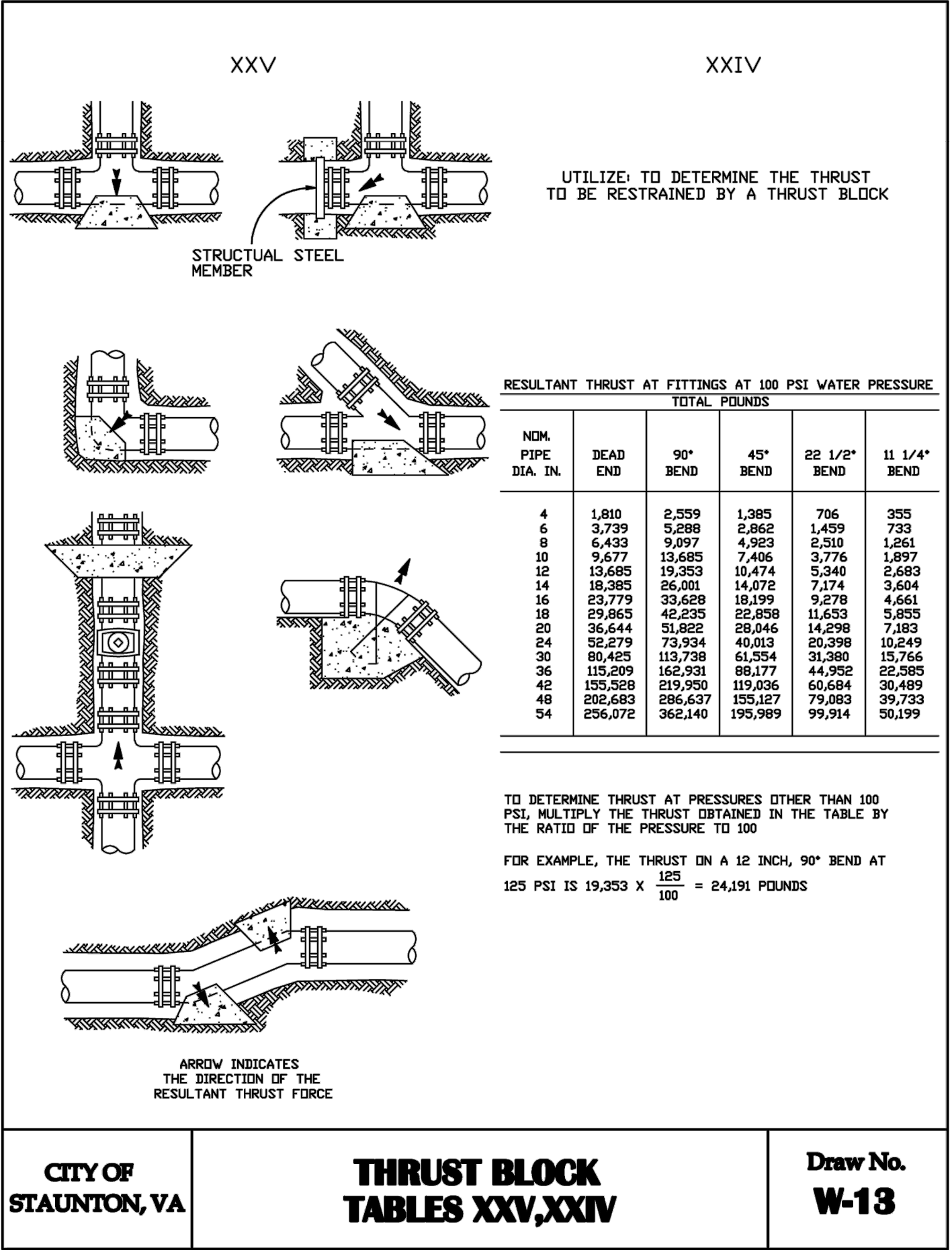
**STERLING STREET WATERLINE**

CITY OF STAUNTON, VIRGINIA

| REVISIONS                     |                   |
|-------------------------------|-------------------|
| 03/08/18                      | PER CITY COMMENTS |
| DESIGNED BY: BMC              |                   |
| DRAWN BY: HLJ                 |                   |
| CHECKED BY: MSH               |                   |
| SCALE: NOT TO SCALE           |                   |
| DATE: NOVEMBER 30, 2017       |                   |
| PROJECT NUMBER: 17020587-0103 |                   |

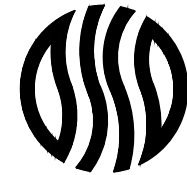


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DETAILS

**STERLING STREET WATERLINE**

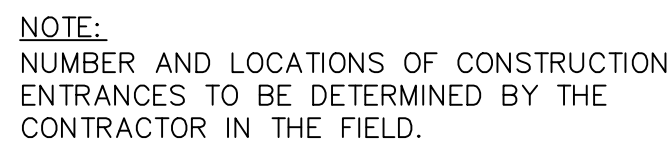
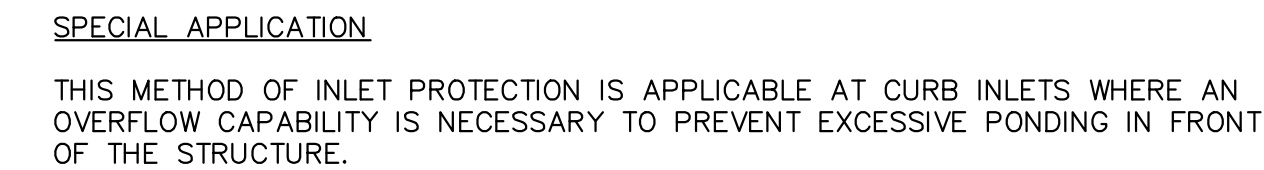
CITY OF STAUNTON, VIRGINIA

REVISIONS

03/08/18  
PER CITY COMMENTS

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CHECKED BY: MSH  
SCALE: NOT TO SCALE  
DATE: NOVEMBER 30, 2017  
PROJECT NUMBER: 17020587-0103





SEEDINGS MADE IN FALL FOR WINTER COVER AND DURING HOT AND DRY SUMMER MONTHS SHALL BE MULCHED IMMEDIATELY UPON COMPLETION OF SEED APPLICATION WITH TACKIFIED STRAW, IN ACCORDANCE WITH VA E&S STD 3.35.

|                                    |                           |
|------------------------------------|---------------------------|
| <u>GENERAL SLOPE (3:1 OR LESS)</u> | <u>TOTAL LBS PER ACRE</u> |
| KENTUCKY 31 FESCUE                 | 128 LBS.                  |
| RED TOP GRASS                      | 2 LBS.                    |
| SEASONAL NURSE CROP                | 20 LBS.                   |
|                                    | <hr/> 150 LBS.            |

| <u>SEASONAL NURSE CROP</u>           |                |
|--------------------------------------|----------------|
| MARCH, APRIL THROUGH MAY 15          | ANNUAL RYE     |
| MAY 16 THROUGH AUGUST 15             | FOXTAIL MILLET |
| AUGUST 16 THROUGH SEPTEMBER, OCTOBER | ANNUAL RYE     |
| NOVEMBER THROUGH FEBRUARY            | WINTER RYE     |

TIME AND FERTILIZER NEEDS SHALL BE DETERMINED BY SOIL TESTS.

SEEDINGS TO BE MULCHED AT THE RATE OF 2 TONS PER ACRE  
WITH TACKIFIED STRAW, IMMEDIATELY UPON COMPLETION OF SEED  
APPLICATION, IN ACCORDANCE W/ VA E&S STD 3.35.

COMMONWEALTH OF VIRGINIA  
*Exp. 11/18*  
 MICHAEL S. HAGGERTY  
 Lic. No. 35201  
 7/20/18  
 PROFESSIONAL ENGINEER

**Draper Aden Associates**  
*Engineering • Surveying • Environmental Services*

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EROSION & SEDIMENT CONTROL DETAILS

**STERLING STREET WATERLINE**

CITY OF STAUNTON, VIRGINIA

| REVISIONS                     |
|-------------------------------|
| 03/08/18<br>PER CITY COMMENTS |

|                 |                   |
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12  
12 OF 12



