

CITY COUNCIL:
BARBARA G. VOLK
Mayor
LYNDSEY SIMPSON
Mayor Pro Tem
DR. JENNIFER HENSLEY
DEBBIE O'NEAL-ROUNDTREE
JERRY A. SMITH, JR., J.D.

CITY OF HENDERSONVILLE

The City of Four Seasons



OFFICERS:
JOHN F. CONNET
City Manager
ANGELA S. BEEKER
City Attorney
ANGELA REECE
City Clerk

WATER AND SEWER DEPARTMENT Lee Smith, Utilities Director

DATE: July 14, 2022

SUBJECT: City of Hendersonville – Standard Water Pipe Material Substitution

The City of Hendersonville (City) recognizes that current global supply chain disruptions and material shortages are impacting private development projects connecting to the City's public water distribution system. Specifically, the City's standard water distribution pipe, ductile iron pipe (DIP) (ANSI/AWWA C151/A21.5), is experiencing extended lead times that are substantially affecting both utility-funded and private development project schedules. Therefore, effective immediately, the City will temporarily accept polyvinyl chloride (PVC) pipe (ANSI/AWWA C900 latest edition) DR-14 as an accepted pipe material substitute until market availability of DIP improves to a level that is deemed acceptable by City staff. The determination of the level of acceptable market availability of DIP shall be at the sole discretion of City staff and their decision will be final.

The City will consider requests for private development projects to use PVC pipe as a material substitute on a case-by-case basis under the following conditions:

- Private development projects with an existing City Engineering Department approval and NCDEQ-PWS Approval may submit a request to use PVC as a pipe material substitute. A proposed construction schedule of the water extension installation shall be included in the material substitution request. Upon review by City staff, a formal Notification of Acceptance of Material Substitution will be issued and valid for one year. An on-site pre-construction meeting with City Construction Inspection staff must be held with all water materials on-site within one year of the Notification of Acceptance of Material Substitution. Renewals of Notifications of Acceptance of Material Substitution will be reevaluated based on market availability of DIP at the time of the request and shall be at the sole discretion of City staff.
- All fittings shall be ductile iron in accordance with AWWA C153 or C110 latest edition.
- Pipe and fittings shall be mechanically restrained in accordance with City Standard Detail WD4-1 and WD4-2. The restraint shall be manufactured of ductile iron conforming to ASTM A536. The combination of the restraint(s) and fasteners shall have a pressure rating to the full pressure rating of the pipe. The restraint shall have a two to one safety factor and be manufactured by EBAA Iron, Inc., or approved equal.

- Service saddles shall be Triple Tap® “T3” Service Saddles by Total Piping Solutions, Inc. or equal.
- Notifications of Acceptance of Material Substitution shall be project specific and non-transferable.
- Modifications, if required, to any applicable permits are the Developer’s responsibility along with all additional costs and potential schedule delays associated with these modifications.
- The Developer and the Engineer are responsible for confirming and correlating dimensions for tolerances, clearance, quantities, fabrication process and techniques of construction that may be impacted by the material substitution. The Engineer shall provide approved material submittals to the City Engineering Department prior to construction.
- Material substitutions shall be documented in the project closeout documents including as-built drawings and engineer’s certification, which shall include a statement that the water pipe materials installed meet the latest edition of the AWWA C900 standards or meet the specifications of ANSI/NSF Standard 61 Drinking Water System Components – Health Effects.
- Projects consisting of a single-phase or individual phases within a multi-phase project must use consistent pipe material. Material transitions within a single-phase project or within an individual phase of a multi-phase project will not be permitted.
- Installation of PVC water pipe shall be completed in accordance with the City’s standard installation details (including bedding and backfill requirements as shown on the attached details) and under inspection by City staff. If any portion of the pipeline is installed without observation by City staff, the pipeline may be required to be uncovered for verification of proper installation method and material.
- All new water extension projects shall be designed and permitted with DIP material. Requests to use PVC as a material substitute shall be submitted after City Engineering Department approval and NCDEQ-PWS approval.

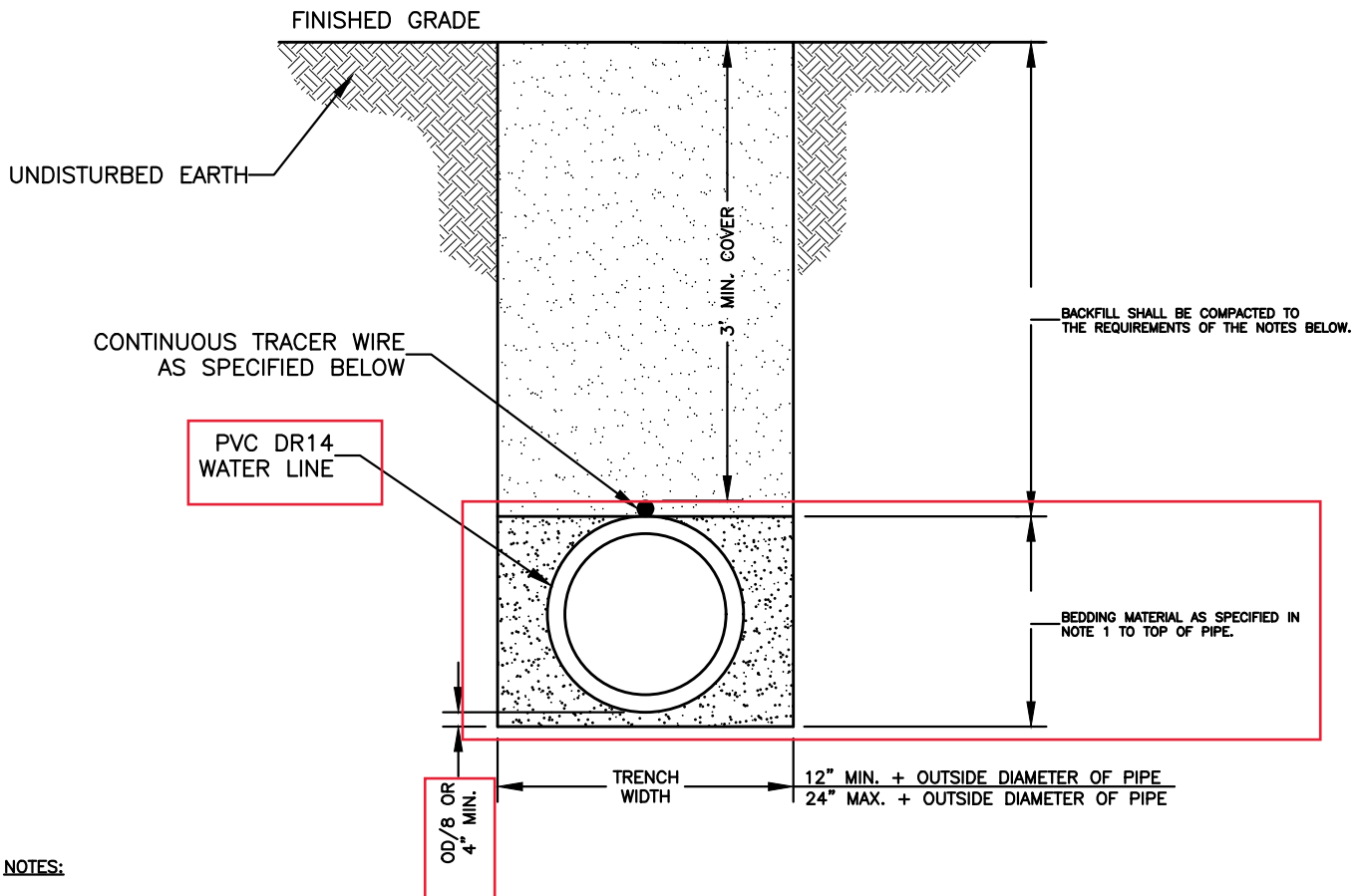
Requests shall be submitted in writing via email to Brendan Shanahan at bshanahan@hvlnc.gov. The City reserves the right to deny material substitution requests at its sole discretion.

Sincerely,
City of Hendersonville



Adam A. Steurer
Utilities Engineer

Attachment: WD-02a – PVC Water Trench Construction Outside of Pavement
 WD-03a – PVC Water Trench Construction Under Pavement



NOTES:

1. BEDDING CLASSIFICATION SHALL MEET OR EXCEED ASTM D2487 CLASS 1 BEDDING. INSTALLATION IN ACCORDANCE WITH ANSI/AWWA C605 UTILIZING A TYPE 4 EMBEDMENT AND CLASS 1 BEDDING.

2. TRENCHES EXCAVATED OUTSIDE EXISTING ROAD AND RAILWAY RIGHTS-OF-WAY SHALL BE BACKFILLED WITH COMMON BACKFILL MATERIAL CONSISTING OF EXCAVATED MATERIALS EXCEPT HIGHLY ORGANIC SILTS AND CLAYS AND TAMPED THOROUGHLY. FILL SHALL BE DEPOSITED IN SUCCESSIVE, UNIFORM, APPROXIMATELY HORIZONTAL LAYERS. MATERIAL SHALL BE FREE OF ROOTS, STONES, AND DEBRIS. ALL MATERIAL SHALL HAVE AN IN-PLACE DENSITY OF AT LEAST 85% OF MAXIMUM DRY DENSITY (STANDARD PROCTOR) OR AS APPROVED BY THE ENGINEER. COMMON BACKFILL SHALL NOT CONTAIN STONE BLOCKS, BROKEN CONCRETE, MASONRY RUBBLE, OR OTHER SIMILAR MATERIALS. IT SHALL HAVE PHYSICAL PROPERTIES SUCH THAT IT CAN BE READILY SPREAD AND COMPACTED DURING FILLING. SNOW, ICE, AND FROZEN SOIL WILL NOT BE PERMITTED.

WHERE EXCAVATED MATERIAL, AFTER REMOVAL OF ROCKS, STUMPS, PLANT MATERIAL, AND OTHER EXTRANEIOUS MATERIAL AND PROPER DEWATERING, DRYING, PROTECTION, AND STORAGE OF THE EXCAVATION BY THE CONTRACTOR, CANNOT BE PREPARED TO MEET THE REQUIREMENTS FOR COMMON BACKFILL, DUE TO THE NATURE OF THE MATERIAL (E.G., EXCESSIVE ROCK, MUCK, ORGANICS, CLAY, SILT, OR OTHER MATERIAL), AND AS DETERMINED BY THE ENGINEER, THE UNACCEPTABLE EXCAVATION SHALL BE REMOVED FROM THE SITE AND DISPOSED OF BY THE CONTRACTOR AND REPLACED BY IMPORTED BACKFILL MEETING THE REQUIREMENTS OF STRUCTURAL BACKFILL. IMPORTED STRUCTURAL BACKFILL SHALL BE FREE OF ORGANICS, ROOTS OR OTHER DELETERIOUS MATERIALS AND SHALL NOT CONTAIN MORE THAN FIVE PERCENT (BY WEIGHT) ORGANIC MATERIAL, HAVE A PLASTICITY INDEX (PI) GREATER THAN 25, OR HAVE A MAXIMUM DRY DENSITY LESS THAN 90 POUNDS PER CUBIC FOOT. IMPORTED STRUCTURAL FILL SHOULD CONSIST OF MATERIAL CLASSIFIED AS ML, CL, SC, OR SM, OR BETTER PER ASTM D-2487 AND BE CAPABLE OF BEING COMPACTED TO 85% STANDARD PROCTOR.

3. THE WATER LINE SHALL HAVE A MINIMUM OF 3' OF COVER AT FINISHED GRADE.

TRACER WIRE WILL BE A 19 GAUGE, TIN COATED, COPPER CONDUCTOR WITH POLYETHYLENE INSULATION. CORE MATERIAL COMPRISED OF HIGH-TENACITY, WOVEN POLYESTER WITH WATER BLOCKING YARNS ENCAPSULATED IN 30 MIL. BLUE HDPE JACKET PROVIDING CORROSION RESISTANCE, FLEXIBILITY, IMPACT STRENGTH AND 1800 LBS. TENSILE STRENGTH. TRACER WIRE WILL NOT CONDUCT AN ELECTRICAL CURRENT WHEN STRUCK BY LIGHTNING AND IS DESIGNED FOR DIRECT BURY AND DIRECTIONAL BORING APPLICATIONS. WHEN SPLICES AND LATERAL CONNECTIONS ARE MADE, ONLY GEL FILLED CONNECTORS DESIGNED FOR WIRE WITH WOVEN POLYESTER FIBER CORE ARE TO BE USED. TRACER WIRE AND CONNECTORS SHALL BE TRACE-SAFE® WATER BLOCKING TRACER WIRE AND RELATED CONNECTORS, MANUFACTURED BY NEPTCO, INC., OR EQUIVALENT APPROVED BY ENGINEER, AND PRODUCED IN THE UNITED STATES OF AMERICA.

TRACER WIRE SHALL BE EXTENDED ALONG ALL WATER LINES, FITTINGS, VALVES, SERVICES, AND HYDRANTS. LOCATING CLIPS SHALL BE PROVIDED AT ALL VALVES, HYDRANT VALVES AND METER BOXES. THE CONTRACTOR SHALL DUCT TAPE TRACER WIRE ON CROWN OF WATER LINE EVERY FIVE FEET.

THIS DETAIL SHALL ONLY BE USED WITH WRITTEN CONSENT OF THE CITY.

DATE: 07/01/2022

WD DWG. NO. 2.a

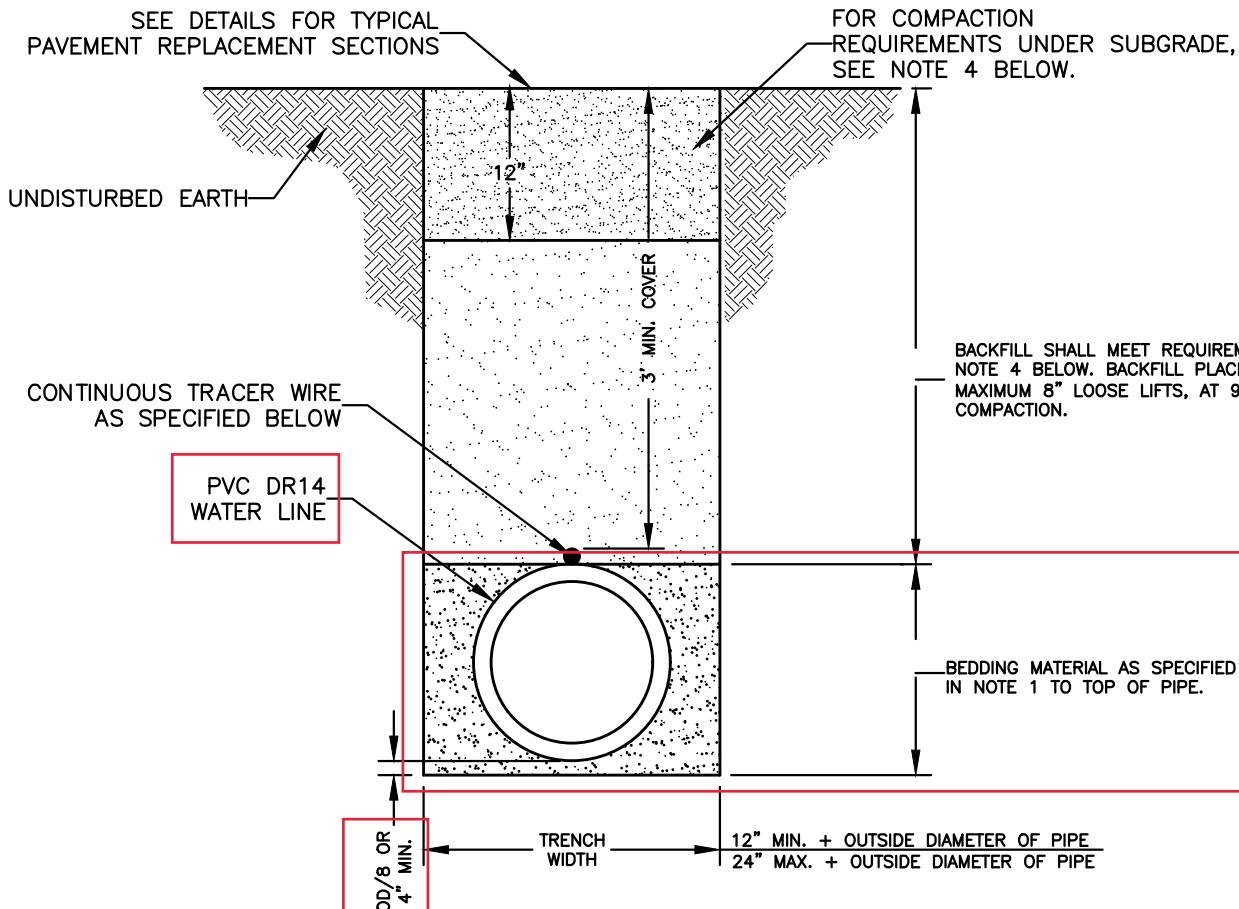
SCALE: NOT TO SCALE

City of Hendersonville Engineering Department
305 Williams Street
Hendersonville, NC 28792
(828) 697-3000 (office)

www.cityofhendersonville.org

PVC WATER TRENCH
CONSTRUCTION OUTSIDE
PAVEMENT





NOTES:

1. BEDDING CLASSIFICATION SHALL MEET OR EXCEED ASTM D2487 CLASS 1 BEDDING. INSTALLATION IN ACCORDANCE WITH ANSI/AWWA C605 UTILIZING A TYPE 4 EMBEDMENT AND CLASS 1 BEDDING.
2. THIS TRENCH BACKFILL DETAIL APPLIES TO AREAS UNDER PAVEMENT, CURB, GUTTER, SIDEWALK OR AREAS WHERE THE TRENCH IS WITHIN FIVE (5) FEET OF THE EDGE OF PAVEMENT.
3. COMPACTION OF THE BACKFILL SHALL BE ACHIEVED THROUGH THE USE OF AN APPROVED VIBRATORY PLATE TAMPER OR ROLLER. THE CONTRACTOR IS RESPONSIBLE FOR MEETING ALL COMPACTION REQUIREMENTS.
4. COMPACTION TESTING OF THE BACKFILL SHALL BE PROVIDED, DIRECTED AND COORDINATED BY THE OWNER. INTERVALS OF TESTING SHALL BE AT THE TOTAL DISCRETION OF THE OWNER AND MAY BE CHANGED AT ANY TIME.

IF A TEST DOES NOT PASS, THE CONTRACTOR SHALL REMOVE THE DEFECTIVE BACKFILL, REDO THE WORK AND THE AREA WILL BE RETESTED. THE CONTRACTOR SHALL BE AWARE OF THE LEVEL OF COMPACTION REQUIRED.

IF THE WORK IS SUSPECT TO BE DEFECTIVE BY THE OWNER, THE WORK SHALL BE RETESTED.

THE WATER CONTENT OF THE BACKFILL MATERIAL SHALL ALSO BE TESTED AND RECORDED FOR EACH TEST COMPLETED. THE CONTRACTOR WILL BE ALLOWED TO ADD WATER TO THE BACKFILL MATERIAL IN ORDER TO OBTAIN THE OPTIMUM WATER CONTENT. HOWEVER, THE CONTRACTOR WILL NOT BE ALLOWED TO UTILIZE THE ADDITION OF WATER AS A MEANS OF COMPACTION. FURTHERMORE, SHOULD THE BACKFILL MATERIAL BE FOUND TO HAVE WATER CONTENT RATIOS WHICH IN THE OPINION OF THE ENGINEER OR THE OWNER PREVENTS THE APPROPRIATE COMPACTION OF THE TRENCH, THE CONTRACTOR SHALL REMOVE ALL DEFECTIVE MATERIAL AND UNDERTAKE THE NECESSARY CORRECTIVE WORK.

5. THE TOP TWELVE INCHES OF THE FINAL BACKFILL SHALL BE COMPACTED TO 98% STANDARD PROCTOR,
6. THE WATER LINE SHALL HAVE A MINIMUM OF 3' OF COVER AT FINISHED GRADE.
7. TRACER WIRE WILL BE A 19 GAUGE, TIN COATED, COPPER CONDUCTOR WITH POLYETHYLENE INSULATION. CORE MATERIAL COMPRISED OF HIGH-TENACITY, WOVEN POLYESTER WITH WATER BLOCKING YARNS ENCAPSULATED IN 30 MIL. BLUE HDPE JACKET PROVIDING CORROSION RESISTANCE, FLEXIBILITY, IMPACT STRENGTH AND 1800 LBS. TENSILE STRENGTH. TRACER WIRE WILL NOT CONDUCT AN ELECTRICAL CURRENT WHEN STRUCK BY LIGHTNING AND IS DESIGNED FOR DIRECT BURY AND DIRECTIONAL BORING APPLICATIONS. WHEN SPLICES AND LATERAL CONNECTIONS ARE MADE, ONLY GEL FILLED CONNECTORS DESIGNED FOR WIRE WITH WOVEN POLYESTER FIBER CORE ARE TO BE USED. TRACER WIRE AND CONNECTORS SHALL BE TRACE-SAFE® WATER BLOCKING TRACER WIRE AND RELATED CONNECTORS, MANUFACTURED BY NEPTCO, INC., OR EQUIVALENT APPROVED BY ENGINEER, AND PRODUCED IN THE UNITED STATES OF AMERICA.

TRACER WIRE SHALL BE EXTENDED ALONG ALL WATER LINES, FITTINGS, VALVES, SERVICES, AND HYDRANTS. LOCATING CLIPS SHALL BE PROVIDED AT ALL VALVES, HYDRANT VALVES AND METER BOXES. THE CONTRACTOR SHALL DUCT TAPE TRACER WIRE ON CROWN OF WATER LINE EVERY FIVE FEET.

THIS DETAIL SHALL ONLY BE USED WITH WRITTEN CONSENT OF THE CITY.

DATE: 07/01/2022

WD DWG. NO. 3.a

SCALE: NOT TO SCALE

City of Hendersonville Engineering Department
 305 Williams Street
 Hendersonville, NC 28792
 (828) 697-3000 (office)

www.cityofhendersonville.org

**PVC WATER TRENCH
 CONSTRUCTION
 UNDER PAVEMENT**

