



POGGEMEYER
DESIGN GROUP

TECHNICAL SPECIFICATIONS
SITE PREPARATION
PG & E* PEAKER PROJECT
LOT 1 HOGREFE INDUSTRIAL PARK
NAPOLEON, OHIO

675 Interchange Dr.

FEBRUARY, 2000

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A. GENERAL

1. REFERENCE SPECIFICATIONS

All materials and construction shall be in accordance with the City of Napoleon, and the latest revisions of the Ohio Department of Transportation Standards and Specifications.

2. REGULATIONS

All work must comply with applicable Federal, State, and Local regulations in all respects including compliance with OEPA and the Occupational Health and Safety Act (OSHA).

3. LICENSES AND PERMIT

All licenses and permits, except zoning permits, required by Local, State, or Federal Agencies shall be obtained by the Contractor.

4. PRECONSTRUCTION MEETING

Before any construction may begin, the Contractor is required to schedule and attend a preconstruction meeting with the Owner, Utility Agencies, and the City of Napoleon.

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In addition to the plans and specifications, the Owner retained Bowser Mornier, a professional soil and materials firm, to complete a series of soil borings and tests on the site and within the right-of-way of east/west access drive. The Contractor can elect to seek permission from the City and the Owner to further investigate the site, including test hole digs.

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8. TRAFFIC CONTROL

Two-way traffic shall be maintained at all times unless specifically approved in writing by the City of Napoleon.

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The contractor shall be responsible for providing site housekeeping and furnishing and maintaining all lights, signs, and barricades necessary to maintain public and project safety.

10. UTILITY NOTIFICATION

At least three (3) working days prior to commencing construction operations in an area which may involve underground utility facilities, the Contractor shall notify the City, the Project Engineer, the Ohio Utility Protection Service (800-362-2764), and the Owners of each underground utility facility that may be in the area of the site.

The Owner of the underground utility facility shall; (within 48 hours, excluding Saturdays, Sundays, and Legal Holidays, after notice is received); stake, mark or otherwise designate the location of the underground utility facilities in the construction area in such a manner as to indicate, their course and the approximate depth at which they were installed. The marking or location shall be coordinated to stay approximately three (3) days ahead of the planned construction.

Utility Companies:

Water/Sewer

City of Napoleon
255 Riverview
Napoleon, Ohio 43545
1-419-592-4010

Gas Company

Ohio Gas Company
506 Clinton Street
Defiance, Ohio 43512
1-419-738-0308
Attn: Jim Bercaw

Telephone Company

Sprint
812 Dolan Street
Defiance, Ohio 43512
1-419-782-6819

Cablevision

Frontiervision
310 Jefferson Avenue
Defiance, Ohio 43512
1-800-553-5992

Electric

Napoleon Light & Power
255 Riverview
Napoleon, Ohio 43545
1-800-447-8883

Pipeline

ANR Pipeline - Attn: Tracy Schultz
6357 S.R. 66, North
P.O. Box 68
Defiance, Ohio 43512
1-419-782-5146

11. UNDERGROUND UTILITIES

The location of underground utilities shown on the plans are as obtained from the Owners of the Utility. The exact location shall be determined by the Contractor.

12. RESTORATION OF EXISTING UTILITIES

Wherever existing power, telephone, gas, or other utilities require relocation, the work shall be done by others. The Contractor shall be responsible for repairing any utilities damaged during construction.

13. EXISTING DRAINAGE TILE

All existing drainage tile encountered during construction shall be connected to an appropriate drainage outlet approved by the City and Owner.

14. CONSTRUCTION LAYOUT

The Contractor employ a professional surveyor to establish horizontal and vertical alignment for utility extensions, grading, and fence alignment.

15. INSPECTION

The Contractor shall include in his bid funds to cover the cost of the City inspection of all water extensions and for the services of a professional soils and materials testing firm to confirm the quality of the storm sewer installation and, subgrade, subbase and aggregate base compaction and quality.

16. CLEANING SEWERS

The Contractor shall include in his bid funds to clean storm sewer prior to use of such facilities. Condition of sewers following with cleaning shall meet with the acceptance of the City of Napoleon and the Owner prior to final payment.

17. TRENCH MAINTENANCE

At all times during the progress of the work, and until the release from his guarantee by the Owner and the Contractor shall maintain all backfilled trenches. Any settlement that occurs during such time shall be filled immediately.

18. RIGHT-OF-WAY RESTORATION

All features in existing rights-of-way; including pavement, drives, walk, pipe, sod, etc.; that are disturbed due to construction, shall be replaced to the satisfaction of the City Engineer.

19. SUB-SURFACE ROCK

Test holes for rock determination were dug and it is believed that no rock will be encountered during construction. The Owner or Poggemeyer Design Group, Inc. does not guarantee the accuracy or completeness of said borings.

20. OFF-SITE RESTORATION

The Contractor shall keep all haul roads and routes free of mud and debris. The Contractor shall restore all disturbed off-site construction areas to a condition equal or better than that existing prior to beginning construction.

B. SITE PREPARATION

1. SOIL EROSION

Prior to commencing major earth disturbance activities, the Contractor shall install soil erosion measures in accordance with ODOT Item 207, OEPA regulations and the plans.

2. GRUBBING AND SCALPING

Grubbing and scalping shall be performed in accordance with ODOT Item 201 within the main project site and access drive area.

3. EXCAVATION AND EMBANKMENT

Excavation and embankment shall be performed in accordance with ODOT Item 203 within the main project site and access drive area, including topsoil mounding. Subgrade shall be cut and compacted to within 0.1 feet of design grade.

4. COMPACTION

Compaction of the graded and sloped subgrade shall be performed in accordance with ODOT Item 203 and the soil testing firm recommendations. Adequate proof rolling and testing shall be provided to meet the approval of the soil testing firm and the Owner. If soft subgrade is encountered due to no fault of the Contractor, the unstable material shall be removed per the recommendation of the soil testing firm and the Owner after a monetary fee is presented by the Contractor and accepted by the Owner.

5. SUBBASE

A 6" minimum thick subbase consisting of compacted #1 and #2 limestone aggregate shall be installed on the subbase in accordance with ODOT Item 203.

6. BASE

A 9" minimum thick compacted limestone aggregate base in accordance with ODOT Item 304 shall be provided over the subbase. The base shall be placed in two (2) compacted lifts.

7. SEEDING

Seeding, mulching, and fertilizing shall be done in accordance with ODOT Item 659 using a "urban" type mixture. All disturbed areas not stabilized by other surface treatments shall be seeded. The Contractor shall maintain the grass, including required watering until a full and healthy stand of grass is obtained and two cuttings are made.

8. CHANNEL PROTECTION

The Contractor shall provide channel protection consisting of erosion fabric, ODOT 411 and #3 and #4 limestone aggregate in accordance with ODOT Item 601 plan detail. The channel protection shall be provided at each end wall and within the ditch section of the north ditch and south ditch.

9. FENCE

The Contractor shall install chain link fence in accordance with ODOT Item 607. Fence shall be 8' high, Type CL, chain link with 2-inch diamond mesh steel wire fabric interwoven (9 gage). Line posts shall be Grade 1 pipe having an outside diameter of 2-3/8 inch. End and corner posts shall be Grade 1 pipe having an outside diameter of 2-7/8 inch. Gate posts shall be Grade 1 pipe having an outside diameter of 6-5/8-inch. Grade 1 pipe bottom and top rails shall be provided and shall have an outside diameter of 1.66 inch. The two 30' (15', double leaf) 8' high swing gates shall have a gate frame of Grade 1 pipe having an outside dimension of 1.90 inch. All posts shall be provided with caps and necessary fittings, clips, and other appurtenances. All posts shall be set plumb in a concrete foundation 12 inches in diameter and 42 inches below finish grade. Concrete should be crowned. Fence shall be provided with two strands of 12-1/2 gage twisted barb wire in accordance with ODOT Item 710.01. Gate shall be provided with fork type latch with gravity drop. All components shall be galvanized in accordance with ODOT Item 710.

C. SEWER GENERAL

1. PIPE

Unless otherwise specifically noted on the plans, all storm sewer pipe shall be one of the following:

- a. Corrugated polyethylene pipe with smooth wall interior. Pipe shall be N-12 pipe as manufactured by Advanced Drainage Systems or approved equal. Joints shall be bell and spigot, slip on style with premium gaskets that make watertight seals.
- b. Reinforced concrete pipe shall be in accordance with ASTM C-76 Class III. Joints shall be bell and spigot style with "O" ring gasket forming a watertight seal.
- c. Polyvinyl chloride (PVC) storm sewers shall conform to ASTM D3034 SDR35. Joints shall be slip on; bell and spigot style with ASTM D3212 gasket forming a watertight seal.

2. DEFLECTION TESTING

All flexible pipe shall be tested for deflection. Tests shall be conducted, in the presence of a representative of the City and/or the Owner; no less than 30 days after final full backfill has been placed. No pipe shall exceed a deflection of 5%. Where possible, electronic equipment shall be used to measure and record the deflection in flexible pipe. If such equipment is not available, deflection tests can be run using rigid mandrels with diameters equal to 95% of the inside diameter of the pipe. All tests shall be performed without mechanical pulling devices.

3. BEDDING AND BACKFILL

Pipe embedment and backfill shall be in accordance with the trench details included in this plan. All pipe under or within five feet (5') from the edge of paved surface or the project site shall be backfilled with ODOT Item 304 stone to the top of the subgrade or to existing ground. Pipe outside of the five foot (5') limit may be backfilled with excavated material free from debris.

Where the trench is in rock, 6" of granular bedding shall be used. Shot rock or boulders shall not be used as backfill.

4. EMBANKMENT CONSTRUCTION

Where a conduit is to be placed within an embankment or the top of the conduit is above the existing ground, the embankment shall be constructed at least one foot (1') above the top of the conduit before trenching for the conduit. The trench shall then be excavated to the minimum width necessary for the proper placing and backfilling of the conduit as described in Item 603.08 of ODOT specifications.

5. CONNECTING TO/OR CROSSING EXISTING UTILITIES

Where the plans provide for proposed conduit to be connected to, or to cross over or under an existing utility; it shall be the responsibility of the Contractor to locate the existing utility as to line and grade before laying the proposed conduit. When connecting to an existing manhole or catch basin, the Contractor shall cut a circular hole and install a korband boot or approved equal.

6. SERVICE CONNECTIONS

All sewer service connections shall be properly plugged, with the cost of all labor and materials for installation included in the price bid for the storm sewer. The ends of all sewer service connections shall be marked with a two-inch (2") by two-inch (2") stake extending from the flow line to within 18 inches of proposed finished grade.

7. PLUGS AND FITTINGS

Any pipe not connected shall be fitted with premium joint plugs fastened in an approved manner. All pipe specials, such as plugs, bends, tees, wyes, etc., shall be one-piece factory formed and considered paid for in the price bid for the storm sewer.

8. CATCH BASINS, AND ENDWALLS

Catch basins, and endwalls shall be constructed according to the details shown on the plans. All catch basins shall be built without sumps.

9. ENDWALL/HEADWALLS

Storm sewer end walls shall be in accordance with ODOT Item 602 using Class C concrete.

10. CATCH BASINS

Catch basin shall be in accordance with the plans detail for an A-3A basin. All pipe connections shall be mudded in lieu of watertight sealed. Catch basin tops shall be set at ground grade or 1" lower than ground grade.

D. WATERLINE

1. OHIO EPA REQUIREMENTS

The Ohio Environmental Protection Agency requires a conformance to the 1992 edition of "Recommended Standards". This standard shall be equaled or exceeded for waterlines. Special attention shall be given to the following Sections of Part 8:

- 8.01.1 Materials Conform to AWWA Standards
- 8.1.2. Minimum Six-Inch (6") Diameter Fire Protection
- 8.5.3. Minimum Four-Foot (4') Ground Cover
- 8.5.5. Pressure Testing - AWWA C-600*
- 8.5.6. Disinfection - AWWA C-651*
- 8.6.2. 10 Foot Horizontal Separation - Water Main/Sewer
- 8.6.3. 18-Inch Vertical Separation - Water Main/Sewer
- 8.6.6. No Entry and/or Contact with Sewer Manhole

*NOTE: It shall be the Contractor's responsibility to perform this test properly. The responsibility for adequate supervision and approval rests with the appropriate governmental agency. Any deviations from the above will not be permitted unless specifically included in the general notes or otherwise shown on the plans. In cases where one or more of the above-mentioned OEPA standards fall short of the local standards, the latter shall govern.

2. WATERLINE MATERIALS

Water line pipe shall meet the requirements of the City of Napoleon and be one of the following:

- A. PVC - AWWA C-900, Class 150 DR 18
- B. Ductile Iron (Class 54) - AWWA C-151 with AWWA C-111 Joints. Pipe shall have field installed polyethylene wrap per City specification.

Water Pipe shall have a minimum working pressure of 150 PSI.

Fittings - AWWA C-110 or C153 (Mechanical Joint)

Gate Valves - Iron body resilient seated meeting AWWA C-509 and City of Napoleon specifications. Gates shall be Mueller A-2360.

All bolts and nuts shall be Cor-Ten.

3. TRACER TAPE

Whenever PVC watermain is installed, the Contractor shall be required to install 3 inch wide detectable tracer tape at a depth of 30 inches over the center of the main for its entire length. The tape shall have printed, "Buried Waterline Below", in 1-inch high bold black letters repeated every 21 inches.

4. WATER TESTINGS

The waterline shall be installed, tested, and sterilized under the direct supervision of a representative of the City of Napoleon. Upon completion of the sterilization, the waterlines shall be filled with water, all air exhausted, and a leakage test applied.

The Contractor shall furnish all materials and labor required for the sterilization and leakage test. The Contractor shall include in his bid all costs necessary to perform the sterilization and leakage tests. Leakage test shall be performed in accordance with AWWA Standard C-600. Sterilization shall be performed in accordance with AWWA Standard C-651.

5. BACTERIOLOGICAL TESTS

After the watermain has been sterilized and tested for leakage, bacteriological samples shall be collected from the extremities and intermediate points along the main.

If results of two (2) consecutive sets of tests show the water to be safe, the main may be placed in service. If any test results show the water to be unsafe, the main shall be completely sterilized and retested.

6. DEPTH OF BURY

A minimum ground cover of five (5) vertical feet shall be maintained for all waterlines. The waterline shall be constructed at the minimum depth wherever possible.

7. PIPE CLEARANCE

A minimum horizontal clearance of 10 feet and a vertical separation of 18 inches shall be maintained between all waterlines and sanitary sewers. These clearances apply to main line sanitary sewers and lateral services.

8. MECHANICAL JOINT RESTRAINT

Restrained joints shall be provided at all fittings and to the lengths, in feet, as shown on the drawings. Restrained joints for fittings shall be Mega-Lug Series 1100 for DIP and Series 2000 for PVC, as manufactured by EBAA Iron, Inc., or approved equal. Bell clamp restraint for DIP with push-on joints, where required, shall be Series 800 "Coverall", as manufactured by EBAA Iron, Inc., or approved equal. Bell clamp restraint for PVC pipe, where required, shall be Series 1600 Restraint Harness, as manufactured by EBAA Iron, Inc., or approved equal. All bolts and nuts shall be Cor-Ten. All other hardware shall be ductile iron. Restrained joints shall be installed as per manufacturer's recommendations. Thrust blocking as a means of joint restraint will not be permitted.

9. PIPE SPECIALS

All pipe specials, such as wyes, tees, plugs, etc. shall be included in the price bid for the waterline.

10. PLUGS

Any pipes not connected on this project shall be fitted with appropriate plugs fastened in an approved manner.

11. BEDDING AND BACKFILL

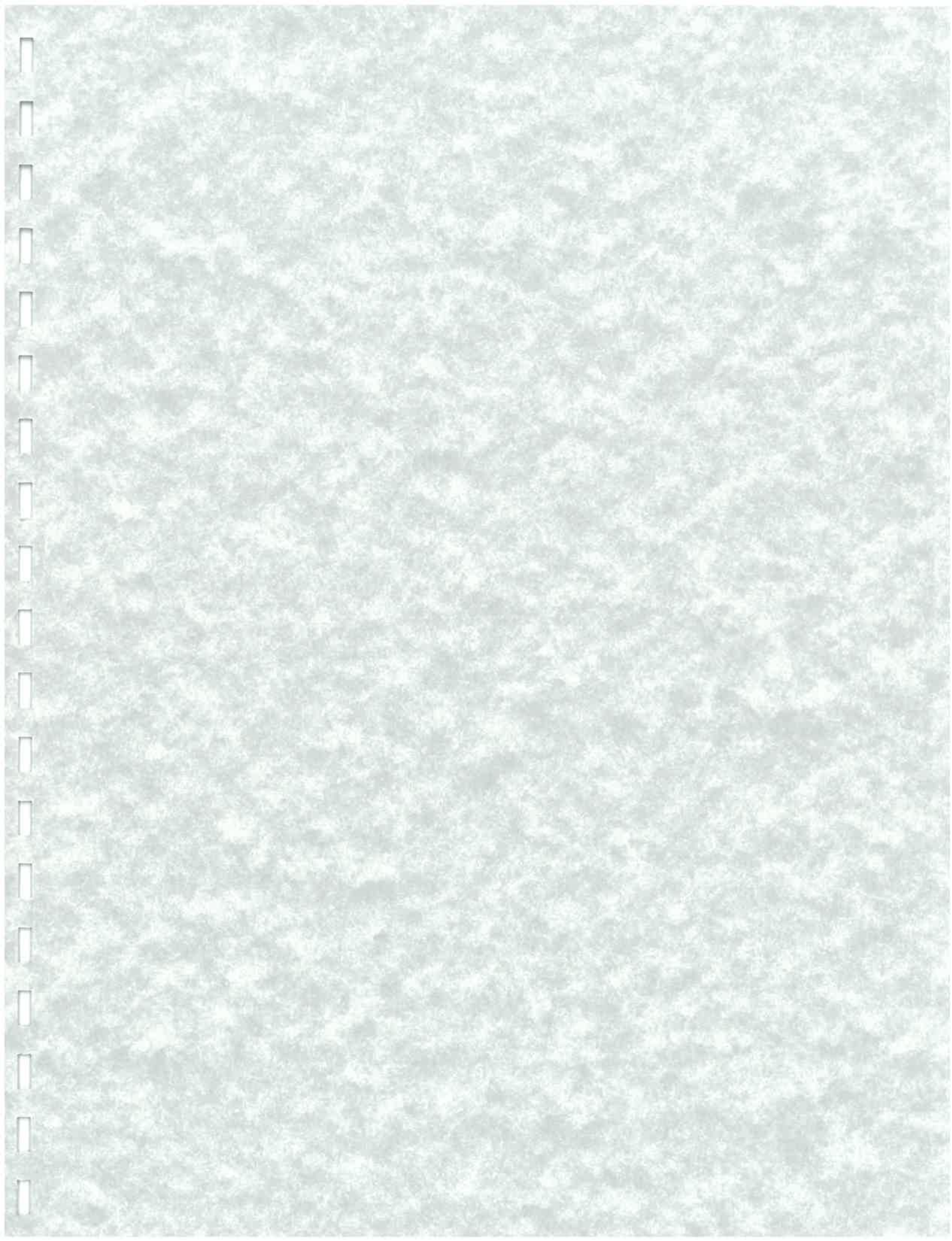
Pipe embedment and backfill shall be in accordance with the trench detail included in this plan. All waterlines shall be placed on a 4-inch deep layer of ODOT Item 603.04 Class B bedding material #8 limestone. All longitudinal or traverse pipe under the pavement or the project site, or within 5 feet from the back of curb shall be backfilled with ODOT item 304 stone to the bottom of the subgrade or to existing ground. Pipe outside of the 5 foot limit may be backfilled with excavated material free from debris.

Where the trench is in rock, 6 inches of granular bedding shall be used. Shot rock or boulders shall not be used as backfill.

12. TAPS TO EXISTING WATERMAINS

Taps to existing watermains shall be made using a stainless steel (including flange) tapping sleeve. Before use, the tapping sleeve shall be tested in the presence of a representative of the City of Napoleon.

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4. EMBANKMENT CONSTRUCTION

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5. CONNECTING TO/OR CROSSING EXISTING UTILITIES

Where the plans provide for proposed conduit to be connected to, or to cross over or under an existing utility; it shall be the responsibility of the Contractor to locate the existing utility as to line and grade before laying the proposed conduit. When connecting to an existing manhole or catch basin, the Contractor shall cut a circular hole and install a korband boot or approved equal.

6. SERVICE CONNECTIONS

All sewer service connections shall be properly plugged, with the cost of all labor and materials for installation included in the price bid for the storm sewer. The ends of all sewer service connections shall be marked with a two-inch (2") by two-inch (2") stake extending from the flow line to within 18 inches of proposed finished grade.

7. PLUGS AND FITTINGS

Any pipe not connected shall be fitted with premium joint plugs fastened in an approved manner. All pipe specials, such as plugs, bends, tees, wyes, etc., shall be one-piece factory formed and considered paid for in the price bid for the storm sewer.

8. CATCH BASINS, AND ENDWALLS

Catch basins, and endwalls shall be constructed according to the details shown on the plans. All catch basins shall be built without sumps.

9. ENDWALL/HEADWALLS

Storm sewer end walls shall be in accordance with ODOT Item 602 using Class C concrete.

10. CATCH BASINS

Catch basin shall be in accordance with the plans detail for an A-3A basin. All pipe connections shall be mudded in lieu of watertight sealed. Catch basin tops shall be set at ground grade or 1" lower than ground grade.

D. WATERLINE

1. OHIO EPA REQUIREMENTS

The Ohio Environmental Protection Agency requires a conformance to the 1992 edition of "Recommended Standards". This standard shall be equaled or exceeded for waterlines. Special attention shall be given to the following Sections of Part 8:

- 8.01.1 Materials Conform to AWWA Standards
- 8.1.2. Minimum Six-Inch (6") Diameter Fire Protection
- 8.5.3. Minimum Four-Foot (4') Ground Cover
- 8.5.5. Pressure Testing - AWWA C-600*
- 8.5.6. Disinfection - AWWA C-651*
- 8.6.2. 10 Foot Horizontal Separation - Water Main/Sewer
- 8.6.3. 18-Inch Vertical Separation - Water Main/Sewer
- 8.6.6. No Entry and/or Contact with Sewer Manhole

*NOTE: It shall be the Contractor's responsibility to perform this test properly. The responsibility for adequate supervision and approval rests with the appropriate governmental agency. Any deviations from the above will not be permitted unless specifically included in the general notes or otherwise shown on the plans. In cases where one or more of the above-mentioned OEPA standards fall short of the local standards, the latter shall govern.

2. WATERLINE MATERIALS

Water line pipe shall meet the requirements of the City of Napoleon and be one of the following:

- A. PVC - AWWA C-900, Class 150 DR 18
- B. Ductile Iron (Class 54) - AWWA C-151 with AWWA C-111 Joints. Pipe shall have field installed polyethylene wrap per City specification.

Water Pipe shall have a minimum working pressure of 150 PSI.

Fittings - AWWA C-110 or C153 (Mechanical Joint)

Gate Valves - Iron body resilient seated meeting AWWA C-509 and City of Napoleon specifications. Gates shall be Mueller A-2360.

All bolts and nuts shall be Cor-Ten.

3. TRACER TAPE

Whenever PVC watermain is installed, the Contractor shall be required to install 3 inch wide detectable tracer tape at a depth of 30 inches over the center of the main for its entire length. The tape shall have printed, "Buried Waterline Below", in 1-inch high bold black letters repeated every 21 inches.

4. WATER TESTINGS

The waterline shall be installed, tested, and sterilized under the direct supervision of a representative of the City of Napoleon. Upon completion of the sterilization, the waterlines shall be filled with water, all air exhausted, and a leakage test applied.

The Contractor shall furnish all materials and labor required for the sterilization and leakage test. The Contractor shall include in his bid all costs necessary to perform the sterilization and leakage tests. Leakage test shall be performed in accordance with AWWA Standard C-600. Sterilization shall be performed in accordance with AWWA Standard C-651.

5. BACTERIOLOGICAL TESTS

After the watermain has been sterilized and tested for leakage, bacteriological samples shall be collected from the extremities and intermediate points along the main.

If results of two (2) consecutive sets of tests show the water to be safe, the main may be placed in service. If any test results show the water to be unsafe, the main shall be completely sterilized and retested.

6. DEPTH OF BURY

A minimum ground cover of five (5) vertical feet shall be maintained for all waterlines. The waterline shall be constructed at the minimum depth wherever possible.

7. PIPE CLEARANCE

A minimum horizontal clearance of 10 feet and a vertical separation of 18 inches shall be maintained between all waterlines and sanitary sewers. These clearances apply to main line sanitary sewers and lateral services.

8. MECHANICAL JOINT RESTRAINT

Restrained joints shall be provided at all fittings and to the lengths, in feet, as shown on the drawings. Restrained joints for fittings shall be Mega-Lug Series 1100 for DIP and Series 2000 for PVC, as manufactured by EBAA Iron, Inc., or approved equal. Bell clamp restraint for DIP with push-on joints, where required, shall be Series 800 "Coverall", as manufactured by EBAA Iron, Inc., or approved equal. Bell clamp restraint for PVC pipe, where required, shall be Series 1600 Restraint Harness, as manufactured by EBAA Iron, Inc., or approved equal. All bolts and nuts shall be Cor-Ten. All other hardware shall be ductile iron. Restrained joints shall be installed as per manufacturer's recommendations. Thrust blocking as a means of joint restraint will not be permitted.

9. PIPE SPECIALS

All pipe specials, such as wyes, tees, plugs, etc. shall be included in the price bid for the waterline.

10. PLUGS

Any pipes not connected on this project shall be fitted with appropriate plugs fastened in an approved manner.

11. BEDDING AND BACKFILL

Pipe embedment and backfill shall be in accordance with the trench detail included in this plan. All waterlines shall be placed on a 4-inch deep layer of ODOT Item 603.04 Class B bedding material #8 limestone. All longitudinal or traverse pipe under the pavement or the project site, or within 5 feet from the back of curb shall be backfilled with ODOT item 304 stone to the bottom of the subgrade or to existing ground. Pipe outside of the 5 foot limit may be backfilled with excavated material free from debris.

Where the trench is in rock, 6 inches of granular bedding shall be used. Shot rock or boulders shall not be used as backfill.

12. TAPS TO EXISTING WATERMAINS

Taps to existing watermains shall be made using a stainless steel (including flange) tapping sleeve. Before use, the tapping sleeve shall be tested in the presence of a representative of the City of Napoleon.

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