

April 4, 2022

Calumet Plumbing
address

Gatlin Plumbing and Heating, Inc.
1111 East Main Street
Griffith, IN 46319

Grimmer Construction, Inc.
2619 Main Street
Highland, IN 46322

Hasse Construction Co., Inc.
10 Lincoln Avenue
PO Box 300
Calumet City, IL 60409

Subject: Town of Munster, Sanitary Sewer Repair – Beverly Place

You have been invited by the Town of Munster to submit a quote for the above referenced project. The project involves the installation of approximately 770 linear feet of 8-inch PVC SDR 35 sanitary sewer main on Beverly Place between State Line Avenue and Hohman Avenue to replace an existing deteriorated 10-inch clay pipe. This request is being issued in accordance with Indiana Code 36-1-12-4.7 as our estimates indicate the total cost will be below \$150,000.

Quotes should be submitted utilizing the attached State Form 96. Quotes should be delivered to the Munster Town Hall at 1005 Ridge Road, Munster, Indiana by 10 AM local time on Friday, April 15. Quotes will be opened and taken under advisement. Quotes should be accompanied by a Bid Bond in an amount of 10% of the total cost. As a condition of award, the successful Quoter will be required to provide both Performance and Payment Bonds in the amount of 100% of the final construction cost.

Quotes will be reviewed and tabulated and forwarded to the Town Council with an Award recommendation of the most responsive and responsible Quoter for approval at their regularly scheduled meeting on Monday, April 18, 2022.

I have attached Contract Information Documents consisting of design plans, specifications, and State Form 96. Questions/Clarifications shall be requested in writing and sent via email to the Town Engineer, SEH of Indiana, LLC attention Jill DiTommaso, at jditommaso@sehinc.com no later than 1 PM on April 13, 2022. We recognize we have an aggressive time frame and hope to hear from each of you.

Very truly yours,

Stephen Gunty
Director of Public Works

**TOWN OF MUNSTER, INDIANA
BEVERLY PLACE SANITARY SEWER REPAIRS**

1.0 Scope

1.1 This work consists of the installation of approximately 770 linear feet of 8-inch diameter PVC SDR 35 sanitary sewer main, connection to four manholes, all fittings, accessories, and appurtenances, parkway restoration, and mandril testing. Pavement and sidewalk restoration on Forest Avenue will be completed by the Town of Munster.

2.0 Technical Specifications

2.1 The current Indiana Department of Transportation Standard Specifications shall apply on this contract.

2.2 Technical specifications:

Section 31 23 33 Trench Excavation and Backfill
Section 32 92 10 Seeding and Sodding
Section 33 31 00 Sanitary Sewer Systems

3.0 Method of Measurement

3.1 The following table lists the estimated work items and quantities:

ITEM	UNIT	QUANTITY
8-INCH DIAMETER PVC SDR 35	LF	770
CONNECT TO EXISTING MANHOLE	EA	8
PARKWAY RESTORATION	LS	1

3.2 No measurement will be made.

4.0 Basis of Payment

4.1 This work will be paid for at the contract lump sum price for installation of sanitary sewer main and all accessories, testing, and all parkway restoration. Pavement and sidewalk restoration on Forest Avenue will be completed by the Town of Munster.

4.2 The cost of all materials, equipment, tools, labor, transportation, operations, and incidentals required for water main installation shall be included in the cost of this work.

CONTRACTORS BID FOR PUBLIC WORK

Form No. 96 (Revised 2009)

BID OF

(Contractor)

(Address)

FOR
PUBLIC WORKS PROJECTS
OF

Beverly Place Sanitary Sewer Repairs

Town of Munster, Lake County, Indiana

Filed _____, _____

Action Taken _____

CONTRACTOR'S BID FOR PUBLIC WORK - FORM 96

PART I

(To be completed for all bids. (Please type or print))

Date: _____

1. Governmental Unit (Owner): Town of Munster

2. County: Lake County

3. Bidder (Firm): _____

Address: _____

City/State: _____

4. Telephone Number: _____

5. Agent of Bidder (if applicable): _____

Pursuant to notices given, the undersigned offers to furnish labor and/or material necessary to complete the public works project of the Town of Munster (Governmental Unit) in accordance with plans and specifications dated April 2022 for the sum of

\$ _____

The undersigned further agrees to furnish a bond or certified check with this bid for an amount specified in the notice of the letting. If alternative bids apply, the undersigned submits a proposal for each in accordance with the notice. Any addendums attached will be specifically referenced at the applicable page.

If additional units of material included in the contract are needed, the cost of units must be the same as that shown in the original contract if accepted by the Governmental Unit. If the bid is to be awarded on a unit basis, the itemization of the units shall be shown on a separate attachment.

The Contractor and his subcontractors, if any, shall not discriminate against or intimidate any employee, or applicant for employment, to be employed in the performance of this contract, with respect to any matter directly or indirectly related to employment because of race, religion, color, sex, national origin or ancestry. Breach of this covenant may be regarded as a material breach of the contract.

CERTIFICATION OF USE OF UNITED STATES STEEL PRODUCTS
(If applicable)

I, the undersigned bidder or agent as a contractor on a public works project, understand my statutory obligation to use steel products made in the United States (I.C. 5-16-8-2). I hereby certify that I and all subcontractors employed by me for this project will use U.S. steel products on this project if awarded. I understand that violations hereunder may result in forfeiture of contractual payments.

ACCEPTANCE

The above bid is accepted this _____ day of _____, _____, subject to the following conditions: _____

Contracting Authority Members:

_____	_____
_____	_____
_____	_____

PART II (For projects of \$100,000 or more – IC 36-1-12-4)

Governmental Unit: _____

Bidder (Firm): _____

Date: _____

These statements to be submitted under oath by each bidder with and as a part of his bid.
Attach additional pages for each section as needed.

SECTION I EXPERIENCE QUESTIONNAIRE

1. What public works projects has your organization completed for the period of one (1) year prior to the date of the current bid?

Contract Amount	Class of Work	Completion Date	Name and Address of Owner

2. What public works projects are now in process of construction by your organization?

Contract Amount	Class of Work	Expected Completion Date	Name and Address of Owner

3. Have you ever failed to complete any work awarded to you? _____ If so, where and why?

4. List referenced from private firms for which you have performed work.

SECTION II PLAN AND EQUIPMENT QUESTIONNAIRE

1. Explain your plan or layout for performing proposed work. (Examples could include a narrative of when you could begin work, completed the project, number of workers, etc. and any other information which you believe would enable the governmental unit to consider your bid.)

2. Please list the names and addresses of subcontractors (i.e. persons or firms outside your own firm who have performed part of the work) that you have used on public works projects during the past five (5) years along with a brief description of the work done by each subcontractor.

- 3 If you intend to sublet any portion of the work, state the name and address of each subcontractor, equipment to be used by the subcontractor, and whether you expect to require a bond. However, if you are unable to currently provide a listing, please understand a listing must be provided prior to contract approval. Until the completion of the proposed project, you are under a continuing obligation to immediately notify the governmental unit in the event that you subsequently determine that you will use a subcontractor on the proposed project.

4. What equipment do you have available for the proposed project? Any equipment to be used by subcontractors may also be required to be listed by the governmental unit.

5. Have you entered into contracts or received offers for all materials which substantiate the prices used in preparing your proposal? If not, please explain the rationale used which would corroborate the prices listed.

SECTION III CONTRACTOR'S FINANCIAL STATEMENT

Attachment of bidder's financial statement is mandatory. Any bid submitted without said financial statement as required by statute shall thereby be rendered invalid. The financial statement provided hereunder to the governing body awarding the contract must be specific enough in detail so that said governing body can make a proper determination of the bidder's capability for completing the project if awarded.

SECTION IV CONTRACTOR'S NON – COLLUSION AFFIDAVIT

The undersigned bidder or agent, being duly sworn on oath, says that he has not, nor has any other member, representative, or agent of the firm, company, corporation or partnership represented by him, entered into any combination, collusion or agreement with any person relative to the price to be bid by anyone at such letting nor to prevent any person from bidding nor to include anyone to refrain from bidding, and that this bid is made without reference to any other bid and without any agreement, understanding or combination with any other person in reference to such bidding.

He further says that no person or persons, firms, or corporation has, have or will receive directly or indirectly, any rebate, fee, gift, commission or thing of value on account of such sale.

SECTION IV OATH AND AFFIRMATION

I HEREBY AFFIRM UNDER THE PENALTIES OF PERJURY THAT THE FACTS AND INFORMATION CONTAINED IN THE FOREGOING BID FOR PUBLIC WORKS ARE TRUE AND CORRECT.

Dated at _____ this _____ day of _____, _____

(Name of Organization)

By _____

(Title of Person Signing)

ACKNOWLEDGEMENT

STATE OF _____)
COUNTY OF _____)

Before me, a Notary Public, personally appeared the above-named _____ and swore that the statements contained in the foregoing document are true and correct.

Subscribed and sworn to before me this _____ day of _____, _____.

Notary Public

My Commission Expires: _____

County of Residence: _____

END OF SECTION

SECTION 31 23 33

TRENCH EXCAVATION AND BACKFILL

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Trench excavation.
 - 2. Special pipe foundation.
 - 3. Trench backfill.
 - 4. Compaction.
 - 5. Pipe grade and alignment conflicts.
- B. Related Sections:
 - 1. Section 33 31 00 - Sanitary Sewer Systems
- C. Method of Measurement:
 - 1. Trench Excavation and Backfill: Incidental to associated pipe installation.
 - 2. Special Pipe Foundation Materials: Incidental to pipe installation.
 - 3. Replacement Backfill: Incidental to pipe installation.
 - 4. Compaction: Incidental to associated pipe installation.
 - 5. Dewatering: Incidental to associated pipe installation.
- D. Basis of Payment:
 - 1. Payment for quantities in this Section shall be incidental to pipe installation. All associated Work items shall be considered incidental.

1.02 REFERENCES

- A. INDOT:

1.03 SUBMITTALS

- A. Provide for each granular material:
 - 1. Name and location of source.
 - 2. Sample gradation.

1.04 SITE CONDITIONS

- A. Groundwater: Provide trench dewatering if groundwater surface is above or within 3 feet of pipe zone.

1.05 WARRANTY

- A. Repair all trench settlements and resulting damage or displacement of surface facilities that occur within the Contract correction period.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Pipe Zone: INDOT Coarse Aggregate No. 8
- B. Above Pipe Zone: Compacted Soil or "B" Borrow in parkway, INDOT Aggregate No. 53 under pavement. (See detail.)
- C. No slag aggregate will be permitted.

PART 3 EXECUTION

3.01 CONSTRUCTION REQUIREMENTS

- A. Trench Excavation:
 - 1. Alignment and Grade:
 - a. Excavate trench to alignment and grade as staked.
 - b. Excavate no more than 100 feet in advance of pipe laying operation.
 - 2. Trench Width at Pipe Zone:
 - a. Center trench on pipe alignment.
 - b. Minimum width: Pipe outside dimension plus 12 inches.
 - c. Maximum width: Pipe outside dimension plus 24 inches (except rock excavation).
 - 3. Excavated Materials:
 - a. Use stable material for backfill.
 - b. Waste unstable material as directed.
 - c. Do not place materials on sidewalk, driveways, or drainageways.
 - 4. Drainage:
 - a. Provide dewatering trenches when required.
 - b. Drain trench water into natural channels or storm sewer.
 - c. Do not drain trench water into sanitary sewer.
 - 5. Rock Excavation:
 - a. Blasting shall conform to all local and state ordinances.
 - b. Submit blasting schedule for approval.
 - c. Minimum trench width: 36 inch.
 - d. Provide minimum 6 inch vertical clearance between pipe and rock trench bottom.
 - e. Provide minimum 12 inch horizontal clearance between pipe and rock trench walls.
 - f. Provide pipe foundation material for pipe in rock trenches.
- B. Pipe Foundations:
 - 1. Engineer to determine condition of trench bottom.
 - 2. Stable Trench Bottom Condition:
 - a. Shape trench bottom to conform to bottom half of pipe.
 - b. Excavate bell holes to permit proper jointing.
 - 3. Unstable Trench Bottom Condition:
 - a. Excavate below pipe grade to specified depth.
 - b. Refill with specified foundation material in accordance with Drawings details and compact.
- C. Trench Backfill:
 - 1. Pipe Zone:
 - a. Use specified foundation material free of rocks and other unsuitable debris.
 - b. Deposit material uniformly on both sides of pipe throughout entire trench width.
 - c. Place material in 6 inch lifts and mechanically compact.
 - 2. Above Pipe Zone:
 - a. Use native materials free of debris and rock, concrete or clay lumps with a volume greater than 1/3 cubic foot.
 - b. Place in uniform lifts no more than 1 foot thick.
 - c. Mechanically compact each lift of the upper 3 feet of trench to a standard Proctor density of 100 percent.
 - d. Do not backfill unless approved compaction equipment is operating.
 - e. Fine grade street subgrade to staked elevation and cross section.
 - 3. Replacement Backfill:
 - a. Engineer to determine suitability of native material for backfill.
 - b. Use replacement backfill in lieu of native materials as directed.
 - 4. Excess or Deficiency of Backfill Material:
 - a. Dispose of excess backfill material as directed after all trenches are backfilled.
 - b. Provide replacement backfill as required to establish required surface elevation.

3.02 FIELD QUALITY CONTROL

- A. Density tests on backfill materials will be as directed by Engineer.
- B. Recompect all areas represented by failed density tests.

3.03 PIPE CLEARANCES AND CONFLICTS

- A. Provide clearance between sewers and water main as follows:
 - 1. Maintain 10 foot horizontal between pipes.
 - 2. Maintain 18-inch vertical separation between pipes.
- B. When 18-inch vertical separation between sewer and water main cannot be maintained, provide special pipe crossing as follows:
 - 1. Advise Engineer of pipe conflict.
 - 2. Lower water main in accordance with Drawing or as directed.
 - 3. Provide 18-inch vertical separation between pipes.
 - 4. Construct sewer using pipe material and joints equal to water main at crossing point.
 - 5. Center pipe lengths at crossing point.
 - 6. Provide special foundation material for both pipes.
 - 7. Place insulation as directed.

END OF SECTION

SECTION 32 92 10

SEEDING AND SODDING (INDOT 621)

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes either, or both, seeding or placing approved sod on designated areas.
- B. Method of Measurement:
 - 1. Fertilizer: Measure by weight in tons of each mixture applied.
 - 2. Mulching: Measure mulching material by weight in tons.
 - 3. Seed Mixture: Measure by weight in pounds of each mixture applied.
 - 4. Erosion Control Blanket, Mulched Seeding, and Sodding: Measure by area in square yard of material applied.
 - 5. Water: Water for turf establishment will not be measured.
 - 6. Topsoil: Measure by area in cubic yard of material applied.
 - 7. Sign: Measure by each sign erected.
- C. Basis of Payment:
 - 1. Payment for acceptable quantities of turf establishment shall be at the Contract Unit Price as listed on the Bid Form. All associated Work items shall be considered incidental.

1.02 REFERENCES

- A. INDOT 621 - Seeding and Sodding and Current Supplements

1.03 SUBMITTALS

- A. Submit certified test report for each seed mixture.
- B. Submit certification from the grower stating the grass varieties contained in the sod.

1.04 ACCEPTANCE OF WORK

- A. Turf establishment will be accepted on a total Project basis
- B. All permanent erosion control items must also be in place and properly maintained prior to acceptance.
- C. Once accepted, Contractor is relieved of any further maintenance or repair.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Protect seed from moisture prior to use.
- B. Deliver sod to Site within 24 hours after cutting.
- C. Place sod on the same day it is delivered.

1.06 SCHEDULE OF WORK

- A. Coordinate turf establishment to minimize lag time after topsoil placement.

- B. Plant seed between February 1 and October 16. Seeding between May 1 and August 15 shall be mulched.
- C. Sod placed between June 1 and August 30 shall be subject to the following:
 - 1. Sod shall be in good, live, growing condition.
 - 2. Sod shall be placed within 36 hours after cutting, and protected from damage during that period.
 - 3. Sod shall be watered sufficiently and otherwise maintained so that it is in a live growing condition at the time other items of the Contract are accepted, provided the period between placing the sod and acceptance is greater than 30 days.

1.07 MAINTENANCE

- A. Maintain and repair all areas until acceptance.
- B. Water, weed, and mow turf during establishment period.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Fertilizer: INDOT 914.03
- B. Grass Seed: INDOT 914.04
- C. Grass Seed, Temporary: INDOT 914.02
- D. Leguminous Inoculants: INDOT 914.06
- E. Mulch: INDOT 914.05(a)
- F. Plastic Net: INDOT 914.09(g)
- G. Sod, including Nursery Sod: INDOT 914.07
- H. Top Soil: INDOT 914.01
- I. Water: INDOT 914.09(a)
- J. Wire Staples: INDOT 914.09(f)
- K. Erosion Control Blanket: INDOT 914.05(a)3.

PART 3 EXECUTION

3.01 SOIL PREPARATIONS

- A. Remove all undesirable weeds.
- B. Loosen topsoil on all areas prior to seeding or sodding.
- C. Cultivate to a depth of 3 inches using discs or other suitable equipment.
- D. Operate equipment at right angles to direction of drainage.
- E. Fill all washouts prior to cultivation.
- F. Finish all areas to provide a smooth, moist, even-textured foundation of uniform density.

3.02 CONSTRUCTION REQUIREMENTS

- A. Applying Fertilizer and Conditions:
 - 1. Apply fertilizer uniformly over the designated area using mechanical spreading devices.
 - 2. Apply at a rate of 800 pounds per acre.
 - 3. Apply fertilizer prior to placing sod.
 - 4. Apply fertilizer no more than 48 hours prior to seeding.
- B. Sowing Seed:
 - 1. Apply seed mixture U over designated areas at a rate of 196.5 pounds per acre.
 - 2. Apply seed uniformly by mechanical or hand cyclone method.
 - 3. Firm all seeded areas with a drag or cultipacker immediately after seeding and prior to mulching.
- C. Applying Mulch:
 - 1. Spread mulch uniformly by mechanical means at a rate of 2 tons per acre.
 - 2. Apply mulch in accordance with INDOT 621.05(c).
- D. Mulch Anchoring:
 - 1. Anchor mulch immediately after placement.
 - 2. On flat areas and slopes flatter than 2:1, mulch shall be anchored by disk tilling in accordance with INDOT 621.05(c).
 - 3. On slopes steeper than 3:1 or areas where specified, anchor mulch in accordance with INDOT 621.05(c). Method to be selected by Engineer or as noted on Drawings.
- E. Hydroseeding:
 - 1. Prepare seed bed according to Article 3.01.
 - 2. Combine seed, fertilizer, and mulch with water and apply in 1 operation.
 - 3. Application rates shall be as specified in Paragraph A, B, and C above.
 - 4. Maintain and repair hydroseeded areas until acceptance.
- F. Placing Sod:
 - 1. Prepare sodding areas prior to delivery of sod.
 - 2. Place sod strips at right angles to direction of drainage.
 - 3. Place sod strips with staggered end joints.
 - 4. Water and roll sod immediately after placement.
 - 5. Complete repair of sodded areas as directed within 5 days after placement.
 - 6. Stake sod on slopes to prevent displacement.
- G. Placing Erosion Control Mats:
 - 1. Polypropylene Plastic Netting:
 - a. Place immediately after mulch or sod has been placed.
 - b. Place and secure netting in accordance with INDOT 621.05(c)4.
 - 2. Excelsior Blankets:
 - a. Place blankets within 24 hours after seeding.
 - b. Place and secure blanket in accordance with INDOT 621.05(d).
 - 3. Paper Mat:
 - a. Place mat within 24 hours after seeding.
 - b. Place and secure mat in accordance with INDOT 621.05(e).
 - 4. Straw Mat:
 - a. Place mat within 24 hours after seeding.
 - b. Place and secure mat in accordance with IN/DOT 621.05(f).
 - 5. Wood Cellulose Fiber Mulch:
 - a. Place mat within 24 hours after seeding.
 - b. Place and secure mat in accordance with INDOT 621.05(g).

3.03 CLEANUP AND PROTECTION

- A. Sweep-up spilled fertilizer.

B. Do not apply water to spilled fertilizer.

3.04 WARRANTY

A. The Contractor shall re-seed and/or re-sod according to INDOT 621.13(a).

END OF SECTION

SECTION 33 31 00

SANITARY SEWER SYSTEMS

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Gravity sanitary sewer pipe.
 - 2. Sanitary manholes and appurtenances.
 - 3. Service connections.
 - 4. Service pipe.
 - 5. Riser pipe.
- B. Related Sections:
 - 1. Section 31 23 33 - Trench Excavation and Backfill
 - 2. Section 33 01 30 - Television Inspection of Sewers
- C. Method of Measurement:
 - 1. Sewer Pipe:
 - a. Measure by distance in linear feet.
 - b. Measure along longitudinal axis from manhole centers with no deduction for fittings.
 - c. Measure each pipe size, class, and depth zone separately.
 - 2. Manholes:
 - a. Measure each size and type individually as a unit.
 - b. Unit includes granular foundation, base, precast barrel and cone sections, steps, rings, frame, and cover.
 - c. Measure depth from lowest invert to top of frame.
 - 3. Manhole Connections:
 - a. Measure connections to an existing manhole as a unit.
 - b. Unit includes cutting and patching of manhole wall and base, and construction of a new invert.
 - 4. Service Connections: Measure fittings of each size and type as a unit.
 - 5. Service Pipe:
 - a. Measure by distance in linear feet of each size.
 - b. Measure horizontally from end of riser fitting to end of pipe.
 - 6. Riser Pipe:
 - a. Measure by distance in linear feet for each size.
 - b. Measure vertically from end of service wye connection fitting to end of riser fitting.
- D. Basis of Payment:
 - 1. Payment for acceptable quantities of sanitary sewer items shall be at the Contract Unit Price as listed on the Bid Form.
 - 2. All associated Work items shall be considered incidental.
 - 3. Maintaining sanitary sewer service during construction shall be considered incidental.

1.02 REFERENCES

- A. ANSI:
 - 1. A21.4 - Standard for Cement - Mortar Lining for Ductile Iron Pipe and Fittings
 - 2. A21.11 - Standard for Rubber - Gasket Joints for Ductile Iron Pressure Pipe and Fittings
 - 3. A21.51 - Standard for Ductile Iron Pipe Centrifugally Cast
 - 4. A21.53 - Standard for Ductile Iron Compact Fittings, 3-inch through 16-inch
- B. ASTM:
 - 1. A48 - Specification for Gray Iron Castings

2. A74 - Specification for Cast Iron Soil Pipe and Fittings
3. C76 - Specification for Reinforced Concrete Pipe
4. C361 - Specification for Reinforced Concrete Low Head Pressure Pipe
5. C425 - Specification for Compression Joints for VCP and Fittings
6. C478 - Specification for Precast Reinforced Concrete Manhole
7. C564 - Specification for Rubber Gaskets for Cast Iron Soil Pipe and Fittings
8. D2321 - Recommended Practice for Installation of Flexible Thermo-plastic Sewer Pipe
9. D3034 - Specification for PVC Sewer Pipe and Fittings
10. F477 - Elastomeric Seals for Joining Plastic Pipe
11. F714 - Specification for PE Sewer Pipe and Fittings

1.03 SUBMITTALS

- A. Submit Shop Drawings for each manhole.
- B. Quality Assurance/Control Submittals:
 1. Submit Certificates of Compliance from manufacturers certifying that materials meet reference specifications listed in Article 1.02.
 2. Submit record of service connections weekly to Engineer.

1.04 HANDLING AND DELIVERY OF MATERIALS

- A. Inspect pipe and materials during unloading process and notify Engineer of cracked, flawed or otherwise defective material.

1.05 STAKING

- A. Contractor shall provide necessary staking for all Work under this Section.

1.06 MAINTAINING SEWER SYSTEM

- A. Maintain flow in sanitary sewers on continuous basis while construction is underway.
- B. Plug sewers with inflatable plug. Provide pumps, portable generators, hoses, and related items appurtenant to the Work.
- C. Sewer service lines to individual users may be disconnected for a period not to exceed hours.

PART 2 PRODUCTS

2.01 PIPE AND FITTINGS

- A. Provide the following:

Material	Class	Joint
Reinforced Concrete	ASTM C76	R-4 (Round O-Ring Gasket)
PVC	SDR 35 ASTM D3034 ASTM F477	Elastomeric Gasket Water Stop Gasket
Cast Iron Soil Pipe	Service Weight ASTM A74 ASTM C564	Rubber Gasket
Cement Lined Ductile Iron	Class 52 ANSI A21.4 ANSI A21.11 ANSI A21.51 ANSI A21.53	Push-On (Pipe) Mechanical (Fittings)
HDPE	SDR 17	Butt-Fusion

B. Provide pipe and fittings of each material type from same manufacturer.

C. Service Pipe Couplings:

1. Dissimilar Pipe Material Connection:

- a. Fernco, Inc., 1-piece eccentric series, or approved equal.
- b. Series no. _____, Part no. _____.

2. PVC to PVC Connection:

- a. PVC Stop or Repair Coupling, Gasket by gasket joint.

2.02 MANHOLES

A. Precast Sections:

- 1. ASTM C478.
- 2. Cone: Eccentric.
- 3. Pipe Joints: Gasketed, water-tight.

B. Covers and Frames:

- 1. ASTM A48
- 2. Self-sealing lid with concealed pick hole
- 3. Neenah Foundry, East Jordan, or approval equal
- 4. "Sanitary Sewer" imprinted on cover in raised letters

C. Steps:

- 1. Polypropylene coated steel by MA Industries.

D. Seals: Infi-shield, Inc., or approved equal.

PART 3 EXECUTION

3.01 PREPARATION

A. Line and Grade: Provide means for accurately transferring line and grade from ground surface stakes to working point in trench.

B. Water Stops: Provide in manholes as required to prevent infiltration into system.

3.02 CONSTRUCTION REQUIREMENTS

A. Pipe Installation:

- 1. Comply with ASTM D2321 for PVC installation.
- 2. Inspect pipe for defects and cracks while suspended before lowering into trench.
- 3. Place pipe bell at upstream end of pipe length.
- 4. Install pipe from lower to higher invert elevation at a uniform slope between manholes.
- 5. Place plug in end of incomplete piping at end of day and when Work stops.
- 6. Provide watertight plugs at future connection plugs.
- 7. When water is present in trench, seals are to remain in-place while trench is pumped completely dry.
- 8. See Section 31 23 33 for pipe foundation and backfill.
- 9. Maximum Allowable Deviation from Staked Grade:
 - a. Alignment: 0.30 feet.
 - b. Elevation: 0.02 percent.

B. Manhole Installation:

- 1. Place precast manhole base on compacted granular subgrade.
- 2. Locate steps within 1 inch of vertical alignment and within 1 inch of required vertical spacing.
- 3. Provide monolithic base for drop manholes.

4. Maximum Allowable Deviation from Staked Grade:
 - a. Alignment: 0.30 feet.
 - b. Elevation: 0.03 feet.
- C. Service Pipe:
 1. Extend pipe to right-of-way line.
 2. Install pipe at minimum 1 percent to maximum 2 percent grade.
 3. Place gasketed plug at end of pipe.
 4. Mark end of service with a 4-inch by 4-inch by 8-foot timber set 4 feet below grade.
 5. Maintain a record of each service connection as follows to be submitted to Engineer at the end of each week:
 - a. Type of service connection.
 - b. Distance from downstream manhole.
 - c. Length of riser.
- D. Riser Pipe:
 1. Extend riser from service connection at 45-degree angle above horizontal to a point 11 feet below street grade.
 2. Install riser pipe against undisturbed trench wall.
 3. Place concrete collar around service connection as shown on Drawings.

3.03 FIELD QUALITY CONTROL

- A. Remove all dirt and foreign material from pipe interior prior to testing.
- B. Gravity Sewer Pipe:
 1. Pipe Diameter 27 Inches and Smaller: Air test.
 2. Pipe Diameter Larger Than 27 Inches: Infiltration test.
- C. Perform the following tests upon completion of sewer construction and prior to any external plumbing connections:
 1. Infiltration Test:
 - a. Manholes shall be watertight, with no leakage permitted.
 - b. Place 90-degree V-notch weirs in locations directed by Engineer to measure leakage in sewer lines.
 - c. Allowable leakage rate shall be 100 gallons/day/inch diameter/mile of sewer between any adjacent manholes.
 - d. Provide corrective measures for lines exceeding the allowable leakage rate.
 2. Air Test:
 - a. Place inflatable sewer stoppers in manhole at each end of reach to be tested.
 - b. Connect 1 end of an air hose to plug used for air inlet.
 - c. Connect other end of hose to portable air control equipment.
 - d. This equipment consists of valves and pressure gages used to control the rate air flows to the test section and to monitor air pressure inside the pipe.
 - e. Connect an air hose between compressor (or other source of compressed air) and control equipment.
 - f. Add air to pipe section. Monitor air pressure so pressure inside pipe does not exceed 5.0 psig.
 - g. When pressure reaches 4.0 psig, stop air supply so internal pressure is maintained for 2 minutes.
 - h. These 2 minutes allow time for air temperature to come to equilibrium with the pipe walls.
 - i. During this time check plugs with soap solution to detect any plug leakage. If plugs are found to leak, bleed off air, tighten plugs, and begin again by supplying air.
 - j. After temperature has been allowed to stabilize for 2 minutes, disconnect air supply and allow pressure to decrease to 3.5 psig.
 - k. At 3.5 psig, start stopwatch to determine time required for pressure to drop to 2.5 psig.
 - l. Provide corrective measures for any line not meeting requirements.
 - m. Test results are usually better if sewer pipe walls are damp at time of testing.

- n. Time shall be equal to or greater than the allowable time shown in table at end of this Section.
- 3. Deflection Test:
 - a. Perform on PVC pipe at least 30 days after trench backfill has been placed.
 - b. Perform test by pulling a mandrel through each line between manholes without aid of mechanical pulling devices.
 - c. Mandrel diameter: Minimum 95 percent of the base inside diameter of the pipe as follows:

Nominal Size (in.)	Base I.D.	5% Deflection Mandrel
4	3.874	3.68
6	5.742	5.46
8	7.665	7.28
10	9.563	9.08
12	11.360	10.79
15	13.897	13.20
18	16.975	16.13
21	20.004	19.01
24	22.481	21.36
27	25.326	24.06
30	28.639	27.21
33	32.224	30.61
36	35.808	34.02
42	40.401	38.38
48	46.094	43.79

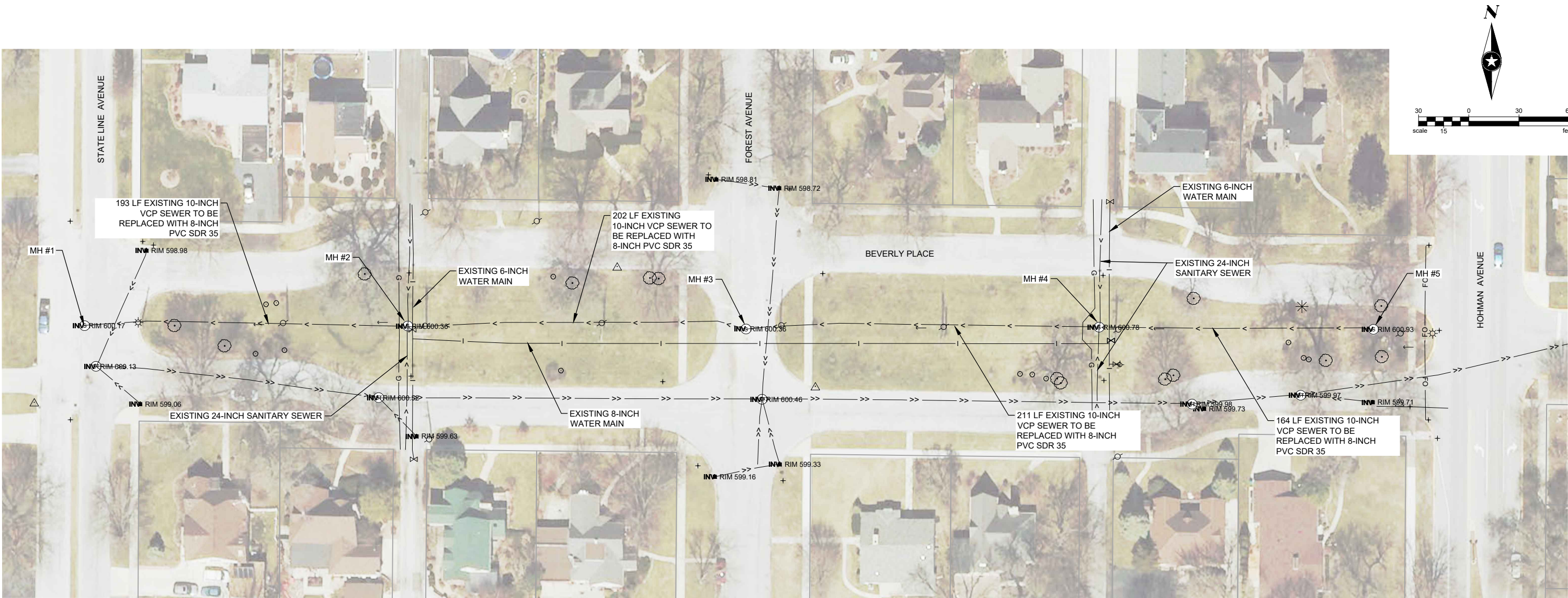
- d. The line will be considered acceptable if mandrel can progress through line without binding.
- e. Provide corrective measures for lines not meeting these requirements.

Time Required for a 0.5 PSIG Pressure Drop for Size and Length of Pipe Indicated

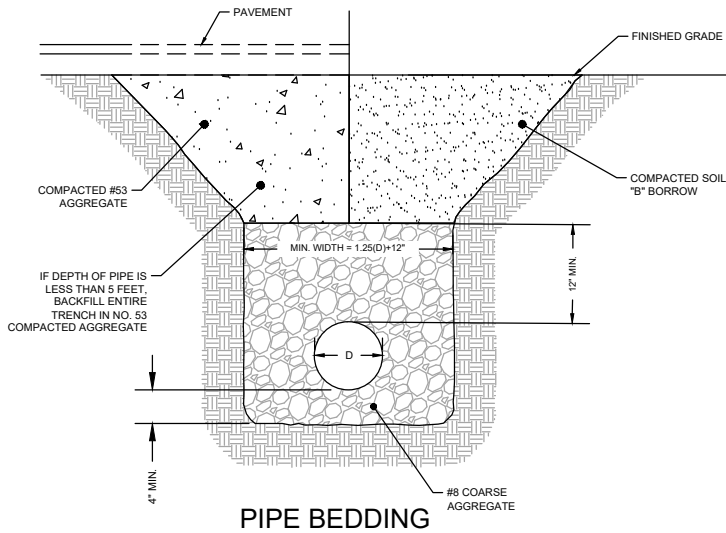
1 Pipe Diameter (inches)	2 Minimum Time (minutes:seconds)	3 Length for Minimum Time (feet)	4 Time for Longer Length (seconds)	Specified Minimum for Length (L) Shown (minutes:seconds)							
				100 feet	150 feet	200 feet	250 feet	300 feet	350 feet	400 feet	450 feet
4	1:53	597	.190 L	1:53	1:53	1:53	1:53	1:53	1:53	1:53	1:53
6	2:50	398	.427 L	2:50	2:50	2:50	2:50	2:50	2:50	2:51	3:12
8	3:47	298	.760 L	3:47	3:47	3:47	3:47	3:48	4:26	5:04	5:42
10	4:43	239	1.187 L	4:43	4:43	4:43	4:57	5:56	6:55	7:54	8:54
12	5:40	199	1.709 L	5:40	5:40	5:42	7:08	8:33	9:58	11:24	12:50
15	7:05	159	2.671 L	7:05	7:05	8:54	11:08	13:21	15:35	17:48	20:02
18	8:30	133	3.846 L	8:30	9:37	12:49	16:01	19:14	22:26	25:38	28:51
21	9:55	114	5.235 L	9:55	13:05	17:27	21:49	26:11	30:32	34:54	39:16
24	11:20	99	6.837 L	11:24	17:57	22:48	28:30	34:11	39:53	45:35	51:17
27	12:45	88	8.653 L	14:25	21:38	28:51	36:04	43:16	50:30	57:42	64:54
30	14:10	80	10.683 L	17:48	26:43	35:37	44:31	53:25	62:19	71:13	80:07
33	15:35	72	12.926 L	21:33	32:19	43:56	53:52	64:38	75:24	86:10	96:57
36	17:00	66	15.384 L	25:39	38:28	51:17	64:06	76:55	89:44	102:34	115:23
42	19:74	57	20.942 L	34:54	52:21	69:49	87:15	104:42	122:10	139:37	157:04
48	22:67	50	27.352 L	45:35	68:23	91:11	113:58	136:46	159:33	182:21	205:09

END OF SECTION

Save: 4/4/2022 10:49 AM jdlomaso Plt: 4/4/2022 10:51 AM X:\COM\MUNST\158600\Beverly Sanitary Sewer\CAD\BEVERLY_SAN-SEWER.dwg



- NOTES:
1. CONTRACTOR SHALL CALL THE INDIANA ONE CALL SYSTEM AT 811 BEFORE COMMENCING EXCAVATION.
 2. RESTORE ALL DISTURBED PARKWAY AREAS TO THEIR ORIGINAL OR BETTER CONDITIONS. RESTORATION SHALL CONSIST OF 4 INCHES OF TOPSOIL AND SEED MIXTURE U WITH STRAW MULCHING.
 3. COORDINATE WITH MUNSTER PUBLIC WORKS FOR TEMPORARY STREET CLOSURES.



DATE: 04/04/2022

SEH Project	158600	Rev #	Revision Issue Description	Date	Rev.#	Revision Issue Description	Date
Drawn By	##	##	##	##	##	##	##
Designed By	##	##	##	##	##	##	##
Checked By	##	##	##	##	##	##	##



BEVERLY PLACE SANITARY SEWER REPAIRS
MUNSTER, INDIANA

EXISTING UTILITIES