

1316 COUNTY-CITY BUILDING  
227 W. JEFFERSON BOULEVARD  
SOUTH BEND, INDIANA 46601-1830



PHONE 574/ 235-9251  
FAX 574/ 235-9171

CITY OF SOUTH BEND JAMES MUELLER, MAYOR  
**BOARD OF PUBLIC WORKS**

February 23, 2021

Mr. Bill Loudin  
Cleveland Woods Development Co., LLC  
2010 West Ave.  
Mishawaka, IN 46545  
[bloudin@comcast.net](mailto:bloudin@comcast.net)

RE: Sewer and Water Service Agreement for Cleveland Woods Development

Dear Mr. Loudin:

At its February 23, 2021 meeting, the Board of Public Works approved the above referenced agreement which outlines the terms for the public sewer and water main extension for the Fernwood Phase III project.

Enclosed please find the original of the agreement for your signature. Please sign and return the original agreement to [lhensley@southbendin.gov](mailto:lhensley@southbendin.gov). Please retain a copy for your records.

If you have any further questions regarding this matter, please call this office at (574) 235-9251.

Sincerely,

*/s/ Anne Fuchs*

Anne Fuchs, Clerk

Enclosures  
AF/lh

## **SEWER AND WATER SERVICE AGREEMENT**

This Sewer and Water Service Agreement (“Agreement”) is made on this 23rd. day of February, 2021 by and between Cleveland Woods Development Co., L.L.C., an Indiana limited liability company with an address of 2010 Went Avenue, Mishawaka, IN 46545 (“Owner”), and the City of South Bend, an Indiana municipal corporation (“City”), acting by and through its Board of Public Works (“Board”).

**WHEREAS**, Owner’s project site is located within Fernwood at Cleveland Subdivision Phase 2 and 3.

**WHEREAS**, in connection with the needs of Owner’s project, Owner has extended, relocated, or made, or plans to extend, relocate, and make additions to existing water and sanitary sewer systems to serve said replat as shown on the Exhibit A, attached and incorporated hereto (the "Dedicated Improvements"), and desires certain commitments from City; and

**WHEREAS**, the Dedicated Improvements that Owner plans to complete is further described in Exhibit B, attached and incorporated hereto (the "Engineer’s Estimate"), and

**WHEREAS**, the Owner acknowledges that it has installed public water main and sanitary sewer in previous phases (Fernwood-Phase I and Fernwood-Phase II), which have not been dedicated to the City, but Owner desires to dedicate such improvements to the City along with the remaining work set forth as Fernwood-Phase III and outlined in Exhibit A; and

**WHEREAS**, the engineering design for said Dedicated Improvements has been, or will be, accomplished by competent professional engineers registered and licensed in the State of Indiana; and

**NOW, THEREFORE**, in consideration of the obligations, terms and conditions contained herein, and the above recitals which are incorporated into this Agreement, the adequacy of which the parties expressly acknowledge, Owner and the City agree as follows:

**1. Recitals**

The parties hereto acknowledge and agree that the foregoing recitals are incorporated herein as a part of this Agreement.

**2. Construction Inspection**

The Owner has provided the City with Exhibit A, which depicts drawings of the Dedicated Improvements, which the City acknowledges conforms to the City's standards. The Owner shall allow the City to inspect the Dedicated Improvements during construction to ensure conformance to the agreed standards set forth in Exhibit A, in particular with regard to area planning requirements, adequacy of design, and quality of construction. The Owner shall contact the City's Engineering Department at least two (2) business days in advance to arrange for the attendance of a City inspector at key milestones throughout work. Key milestones shall include but not limited to: mandrel deflection testing, sanitary sewer taps, and water main taps. The Owner agrees to perform any necessary adjustments as reasonably requested by the City to ensure the Dedicated Improvements are constructed in accordance with Exhibit A.

**3. Permits**

It shall be Owner's sole responsibility and expense to obtain any and all permits associated with the construction and installation of the Dedicated Improvements and to comply with all applicable laws.

**4. Engineer's Estimate**

The Owner has provided an Engineer's Estimate (See Exhibit B, incorporated herein by reference and attachment) for the cost to construct the remaining portion of the water main portion of the Dedicated Improvements, including but not limited to, excavation, pipe materials, valves, hydrants, and all other appurtenant materials, supplies and equipment, permit fees, backfill and bedding, pavement, curbs, sidewalks, signs, and restoration of the areas within the proposed R.O.W.

#### **5. Performance Bond**

Owner shall provide the City with a performance bond for an amount equal to one hundred twenty-five percent (125%) of the construction cost as set forth on Exhibit B, covering all work to be performed as described as Fernwood-Phase III in Exhibit A to this Agreement. Owner's failure to provide the performance bond as prescribed herein shall cause this Agreement to be immediately terminated and of no effect, without the requirement of notice. The performance bond shall be provided concurrently with the execution of this Agreement and attached as Exhibit C.

#### **6. Maintenance Bond**

Within ten (10) days of the City's acceptance of the Dedicated Improvements, Owner shall provide the City with a maintenance bond equal to ten percent (10%) of the construction cost, covering all work performed and to be performed pursuant to this Agreement as outlined in Exhibit A as Fernwood-Phase III, and such bond shall remain in effect for three (3) years after dedication as described in Section 8 below.

#### **7. Term**

Except as otherwise provided herein, this Agreement shall continue for a period of sixteen (16) months from the Effective Date of this Agreement, or upon the issuance of the relevant occupancy permit(s), whichever occurs last.

## **8. Dedication**

Upon completion of the construction of the Dedicated Improvements substantially as depicted in Exhibit A, the Owner shall also convey an easement and dedicate to the City within such easement the Dedicated Improvements as public infrastructure. It is understood by the Owner that no dedication shall be accepted by the City until all required easements have been conveyed, accepted, and recorded by the City. It is also understood by Owner and the City that water main and sanitary sewer constructed in previous phases shall be dedicated to the City. The Owner shall use its best efforts to work with the City to ensure that the Dedicated Improvements are dedicated to the City in a timely manner.

Additionally, prior to dedication, the following must be satisfied:

- a. All parts and labor must meet the standards and requirements stated in the design specifications as presented to and accepted by the City's Engineering Department.
- b. Lien waivers must be received with regard to all workmanship and materials used in connection with these improvements.
- c. The Completion Affidavit must be furnished to Owner by the South Bend, Indiana Board of Public Works.
- d. Owner must provide copies of test reports or cut sheets on all materials supplied.
- e. Owner must provide As-Built drawings in accordance with the City of South Bend Prevailing Specifications for Public Works, which may be found at

<https://southbendin.gov/wp-content/uploads/2020/05/Prevailing-Supplemental-Specifications.pdf>

Owner's failure to comply with this Section 8 shall be a material breach of this Agreement.

## **9. System Development Charges**

Simultaneously with the execution of this Agreement, the Owner shall pay the City a sum of \$16,038.00 (sixteen thousand, thirty-eight dollars and 00/100) for access to the City's water and sewer sanitary systems set forth as Exhibit D. For purposes of this section 9 of the Agreement, an equivalent residential unit ("ERU") shall mean a single-family residence. For purposes of customers that are not single-family residences, one ERU shall equal estimated wastewater and water flows of 310 gallons per day, respectively. No customer will be less than one ERU.

For every new connection to the South Bend Municipal Sewer Works, a capital contribution of \$1,145 shall be collected per ERU. For every new connection to the South Bend Municipal Water Works, a system development charge of four hundred seventy-five dollars (\$475.00) shall be collected per ERU and additional portion thereof to be connected. All charges shall be paid to the City at the time the application for connection is filed. For all other types of structures, the ERU calculation shall be based upon the ratio of Average Daily Flow as computed pursuant to 327 IAC 3-6-11 in relationship to 310 gallons per day. For structures not listed in 327 IAC 3-6-11, the ERU shall be calculated as the relationship between the Average Daily Flow reported in the sewer capacity certification for the structure and 310 gallons per day.

For customers with greater than 20 ERUs, the ERU shall be adjusted based upon the Peaking Factor as computed herein. The Peaking Factor shall be calculated by dividing the Peak Daily Flow by the Average Daily Flow, both as reported in the sewer and water capacity certifications. In no event will a Peaking Factor less than 2.0 be used for purposes of the adjustment. The Peaking

Factor divided by 4.0 (the Peaking Factor for residential connections) will be multiplied by the number of ERUs for purposes of computing the capital contribution owed by the customer. The City reserves the right to require an additional capital contribution should Owner's flow rate exceed the predicted level. Such additional capital contribution will be based on the proportional share of Owner's use of the City's water and/or sewer sanitary system.

#### **10. Waiver of Remonstrations**

Owner agrees to waive its right to remonstrate and hereby consent to annexation. Further, Owner agrees to execute a petition of annexation upon request by the City.

#### **11. Indemnification**

In the event that Owner does not complete the Dedicated Improvements in accordance with Exhibit A, Owner agrees and undertakes to indemnify and hold the City, and its respective agents, employees, successors, and assigns, harmless from any liability, loss, costs, damages or expenses, including attorneys' fees, which the City may suffer or incur as a result of any claims or actions which may be brought by any person or entity arising out of this Agreement.

#### **12. Insurance**

Owner, or the owner's contractor, at Owner's sole expense, shall maintain during the term of this Agreement, commercial general liability insurance covering the Owner and the Dedicated Improvements in an amount not less than Five Million Dollars (\$5,000,000.00) per occurrence. Owner agrees to provide to the City a certificate of insurance evidencing such coverage within ten (10) days of the execution hereof.

#### **13. Assignment**

This Agreement may not be assigned by the Owner without the express written consent of the City which such consent may be withheld for any reason. Any violation of this limitation shall terminate the City's obligation and forfeit the Owner's rights under this Agreement.

#### **14. Material Breach**

In the event either party breaches any of the provisions set forth herein, the non-breaching party shall provide written notice of the breach to the breaching party. Upon receipt of the notice, the breaching party shall use its good faith efforts to cure the breach as soon as practical. In the event the breach is not cured within a reasonable amount of time, the non-breaching party may terminate this Agreement and pursue its legal and equitable remedies. .

#### **15. Governing Law and Jurisdiction**

This Agreement shall be construed and interpreted according to the laws of the State of Indiana and shall be enforced in any court of competent jurisdiction in St. Joseph County, Indiana. It is further agreed that all provisions of law now or hereafter in effect relating to water and sewer service by the City shall be applicable to this Agreement.

#### **16. Severability**

Wherever possible, each provision of this Agreement shall be interpreted in such a manner as to be effective and valid under applicable law, but if any provision of this Agreement shall be prohibited by or invalid under applicable law, such provision shall be ineffective only to the extent of such prohibition or invalidity, without invalidating the remainder of such provision or the remaining provisions of this Agreement.

#### **17. Waiver**

No provision of this Agreement will be deemed waived, unless such waiver will be in writing and signed by the party against which the waiver is sought to be enforced. The waiver will not be



construed to be a waiver of any succeeding breach of any such provision, a waiver of the provision itself, or a waiver of any other provisions of this Agreement. No delay or omission on the part of either party to exercise or avail itself of any right, power, or privilege that it has or may have under this Agreement will operate as a waiver of any breach or default.

**18. Time**

Time is of the essence of this Agreement.

**19. Entire Agreement**

This Agreement sets forth the entire agreement and understanding between the Owner and the City as to the subject matter hereof, and merges and supersedes all prior discussions, agreements, and understanding of any and every nature between them.

**20. Corporate Authority**

The person signing on behalf of the Owner represents that he/she has been duly authorized to execute this Agreement on behalf of said Owner.

**IN WITNESS WHEREOF**, the Owner and the City, through their duly authorized representatives, have caused this Agreement to be executed as of the day and year first written above. The parties have read and understand the foregoing terms of this Agreement and do, by their respective signatures hereby agree to its terms.

*(Remainder of page intentionally left blank)*

**IN WITNESS WHEREOF**, the Owner and the City, through their duly authorized representatives, have caused this Agreement to be executed as of the date first written above. The parties have read and understand the foregoing terms of this Agreement and do, by their respective signatures, hereby agree to its terms.

"OWNER"  
CLEVELAND WOODS CITY OF SOUTH BEND INDIANA  
DEVELOPMENT CO., L.L.C.

"CITY"  
**CITY OF SOUTH BEND, INDIANA**  
**BOARD OF PUBLIC WORKS**

By: \_\_\_\_\_  
Printed: \_\_\_\_\_  
Title: \_\_\_\_\_



\_\_\_\_\_  
Elizabeth A. Maradik, President



\_\_\_\_\_  
Gary A. Gilot, Member



\_\_\_\_\_  
Jordan V. Gathers, Member



\_\_\_\_\_  
Joseph R. Molnar, Member

ATTEST:



\_\_\_\_\_  
Anne Fuchs, Clerk

EXHIBIT A

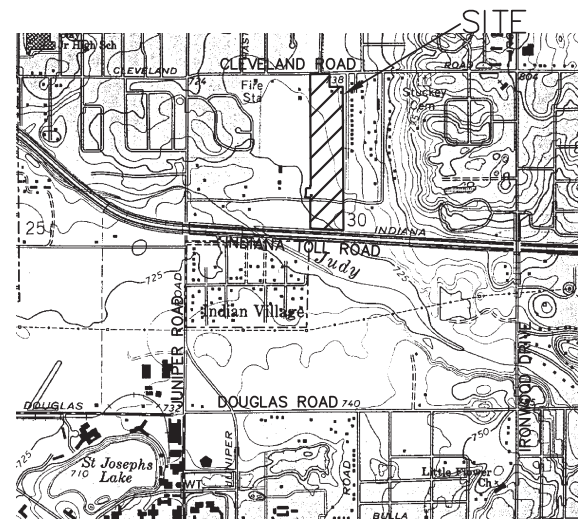
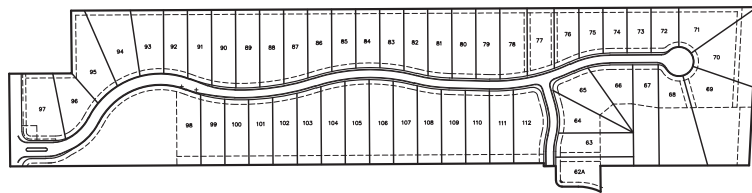
DEDICATED IMPROVEMENTS

# CITY OF SOUTH BEND, INDIANA DEPARTMENT OF PUBLIC WORKS

PROJECT     SEWER     WATER     TRAFFIC     STREET     OTHER

## FERNWOOD - PHASE III PROJECT NO. M3-1159

SUMMER BREEZE DRIVE/SPRING BLOSSOM COURT  
FROM STA 19+84.54 TO STA 24+56.52



**AREA LOCATION MAP**  
NOT TO SCALE

CITY OF SOUTH BEND, INDIANA  
BOARD OF PUBLIC WORKS

*E.A. Maradik*

Elizabeth A. Maradik, President

*Gary A. Gilot*

Gary A. Gilot, Member

*Anne Fuchs*

Attest: Anne Fuchs, Clerk

*J. Gathers*

Jordan V. Gathers, Member

*J. Molnar*

Joseph R. Molnar, Member

RECOMMENDED BY  
CITY STAFF

DATE

<i>Kyle W. Silveus</i>	2/16/21
KYLE W. SILVEUS, P.E.	ADMINISTRATION AND DESIGN
<i>Kara M. Boyles</i>	2/16/2021
KARA BOYLES, PH.D., P.E.	CITY ENGINEER
<i>Toy Villa</i>	02/16/21
TOY VILVA	CONSTRUCTION
<i>Ken Smith</i>	2/16/21
KEN SMITH	WATER WORKS

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### STANDARD DRAWINGS

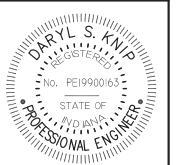
4-1	TYPE A MANHOLE - STANDARD PRE-CAST
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CITY OF SOUTH BEND, INDIANA PREVAILING SPECIFICATIONS LATEST EDITION,  
TO BE USED WITH THESE PLANS.

PLANS PREPARED BY:  
**ABONMARCHE CONSULTANTS, L.L.C.**  
315 W. Jefferson Boulevard  
South Bend, Indiana 46601  
(574) 232-8700  
FAX: (574) 251-4440

PLANS PREPARED FOR:  
**ROBERT LOUDIN**  
2010 WENT AVENUE  
MISHAWAKA, INDIANA, 46545

*Daryl S. Knip*      7-17-2020  
DARYL S. KNIP      DATE  
PROFESSIONAL ENGINEER NO. PE19900163



**BOARD OF PUBLIC WORKS  
AGENDA ITEM REVIEW REQUEST FORM**

Date	<u>February 15, 2021</u>	Department	<u>Engineering</u>
Name	<u>Kyle Silveus</u>	Phone Extension	
BPW Date	<u>February 23, 2021</u>		

Review and Approval Required Prior to Submittal to Board

Diversity Compliance and Inclusion Officer	<input type="checkbox"/>	Officer Name	
BPW Attorney	<input checked="" type="checkbox"/>	Attorney Name	<u>Clara McDaniels</u>
Dept. Attorney	<input type="checkbox"/>	Attorney Name	_____
Purchasing	<input type="checkbox"/>		_____

Check the Appropriate Item Type – Required for All Submissions

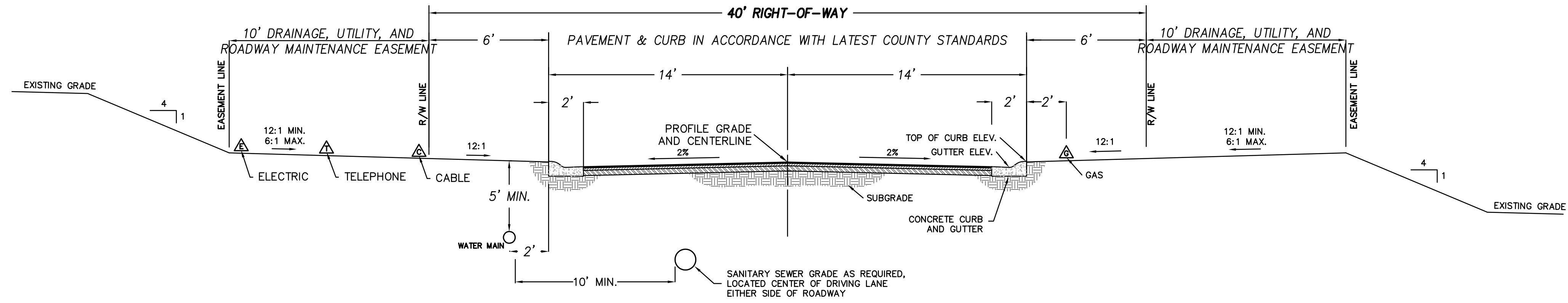
<input type="checkbox"/> Professional Services Agreement	<input type="checkbox"/> Contract	<input type="checkbox"/> Proposal	
<input type="checkbox"/> Open Market Contract	<input type="checkbox"/> Amendment/Addendum	<input type="checkbox"/> Special Purchase, QPA	
<input type="checkbox"/> Bid Opening	<input type="checkbox"/> Bid Award	<input type="checkbox"/> Req. to Advertise	<input checked="" type="checkbox"/> Title Sheet
<input type="checkbox"/> Quote Opening	<input type="checkbox"/> Quote Award	<input type="checkbox"/> Reject Bids/Quotes	
<input type="checkbox"/> Proposal Opening	<input type="checkbox"/> C/O & PCA No. _____	<input type="checkbox"/> PCA	
<input type="checkbox"/> Chg. Order, No. _____	<input type="checkbox"/> Traffic Control	<input type="checkbox"/> Resolution	
<input checked="" type="checkbox"/> Other: <u>Agreement</u>		<input type="checkbox"/> Ease./Encroach	

Required Information

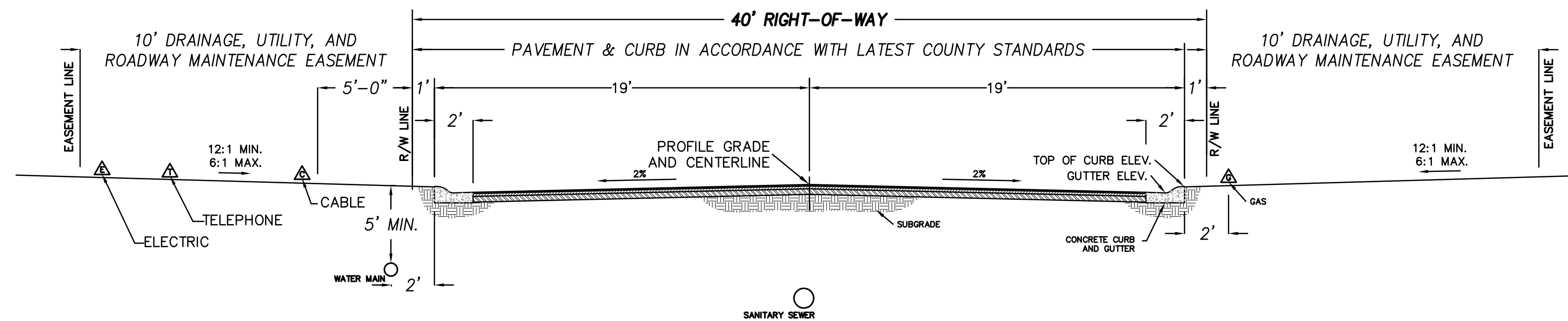
Company or Vendor Name	<u>Four Horsemen Ventures, LLC</u>		
New Vendor	<input type="checkbox"/> Yes <input type="checkbox"/> If Yes, Approved by Purchasing		
	<input checked="" type="checkbox"/> No		
MBE/WBE Contractor	<input checked="" type="checkbox"/> MBE	<u>Completed E-Verify Form Attached</u>	<input type="checkbox"/> Yes
	<input type="checkbox"/> WBE		<input type="checkbox"/> No
Project Name	<u>Belle Terre Water Extension Agreement</u>		
Project Number	<u>DP19-049</u>		
Funding Source	<u>N/A</u>		
Account No.	<u>N/A</u>		
Amount	<u>N/A</u>		
Terms of Contract			
Purpose/Description	<u>Outlines the terms for a public water main extension in Bracken Fern Court.</u>		

For Change Orders Only

Amount of	<input type="checkbox"/>	Increase	\$ _____	
	<input type="checkbox"/>	Decrease	(\$ _____ )	
Previous Amount			\$ _____	
		Increase	_____ %	
Current Percent of Change:		Decrease	( _____ %)	
New Amount			\$ _____	
		Increase	_____ %	
Total Percent of Change:		Decrease	( _____ %)	
Time Extension Amount:			_____	
New Completion Date:			_____	



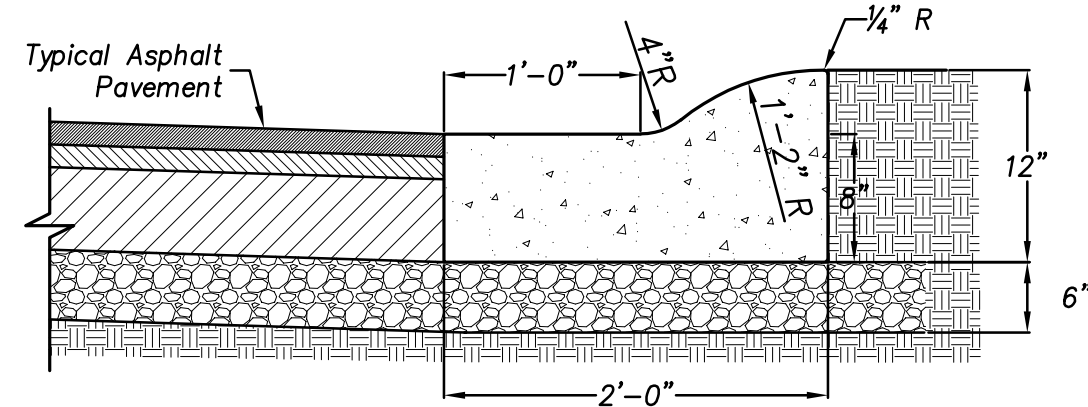
**ROADWAY SECTION (LOCAL)**  
-NOT TO SCALE-



**ROADWAY SECTION (COLLECTOR)**  
-NOT TO SCALE-

MINIMUM PAVEMENT THICKNESS				
CLASSIFICATION	HMA SURFACE	HMA BINDER	HMA BASE	COMP. AGG.
Local Street	1"	2"	4"	6"
Collector	1"	2"	5"	6"

- Asphalt Shall Meet 1999 INDOT Specifications, As Currently Revised, on Aggregate Size
  - HMA Surface, 9.5mm Mainline, PG 70-22, Type 'B'
  - HMA Intermediate, 12.5mm, Mainline, PG 64-22, Type 'B'
  - HMA Base, 25mm, Mainline, PG 64-22, Type 'B'
- Local Aggregates May Be Used in the HMA Base.



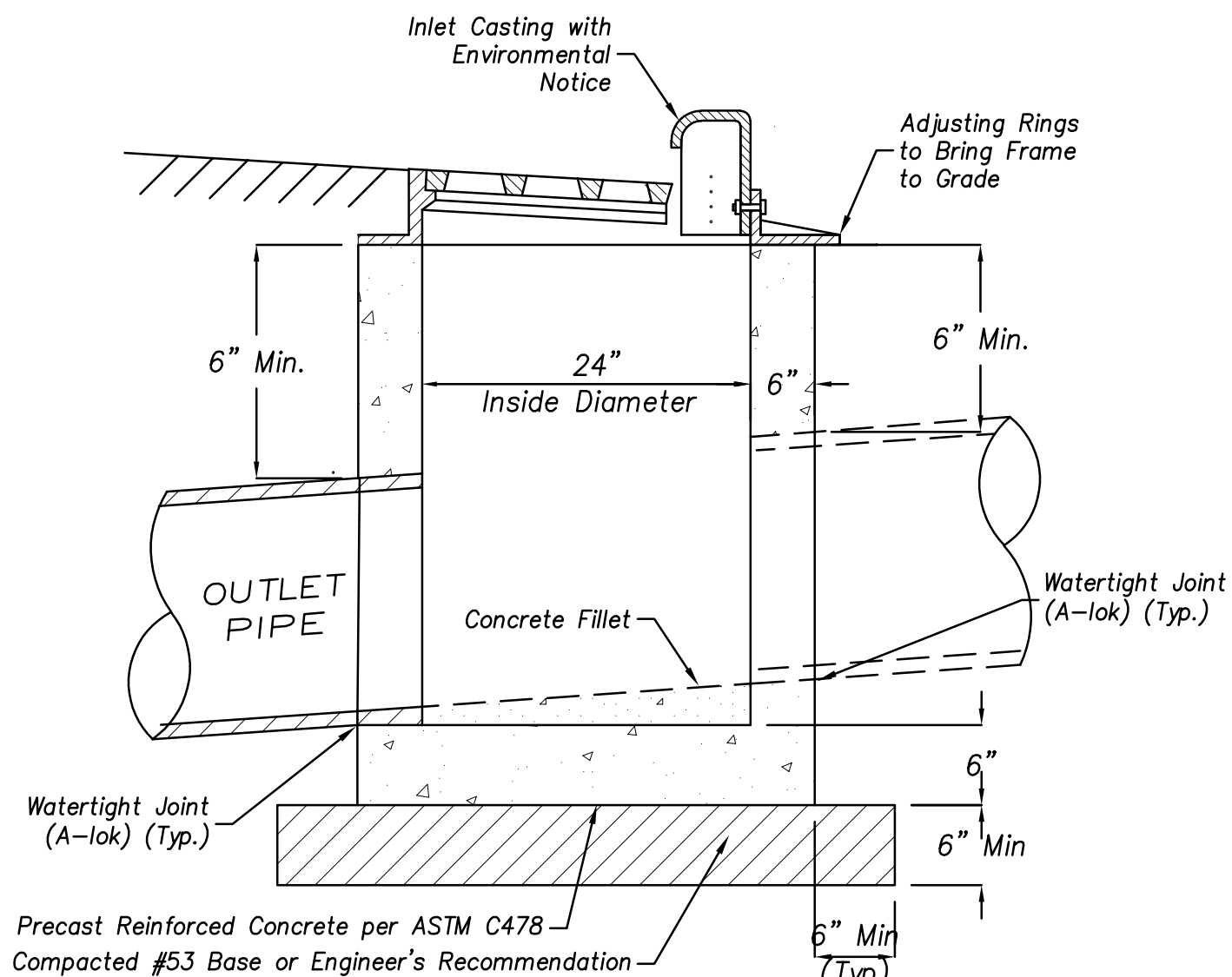
**NOTES**

- All curb to be constructed of class "A" concrete.
- Control joints to be placed every 10'.
- Expansion joints to be placed every 80' or as specified on construction drawings.
- Eliminate longitudinal bars if roadway is asphalt pavement.
- Curb depth at pavement edge shall match pavement depth where concrete is used.

**COMBINATION CURB AND GUTTER TYPE "A"**

(NOT TO SCALE)

Note:  
All castings in the roadway are to be installed to intermediate grade, flush with asphalt, to prevent problems with plows. The structures will need to be raised to surface grade at the time the surface is placed.



**NOTES**

- Hydraulic calculations for high volume / major thoroughfare roadways may require the use of INDOT standard inlets, Type J or M, with Type 10 (Neehan R-3287-10V) vaned grates or standard inlets, Type B or C with Type 15 (Neehan R-3287-15V) vaned grates as approved by City Engineer.
- Inlet and grate shall match installed curb and gutter width.
- Flexible butyl joint sealant and grout shall be utilized to seal each joint between frame and manhole casting or precast leveling rings.

**STANDARD INLET**

(NOT TO SCALE)

**GENERAL NOTES:**

- ALL LOTS SHALL BE SERVICED BY MUNICIPAL SEWER AND WATER.
- WATER MAIN, SANITARY AND STORM SEWERS AND APPURTENANCES SHALL BE FURNISHED, INSTALLED, AND TESTED IN ACCORDANCE WITH GENERAL CONSTRUCTION SPECIFICATIONS FOR ST. JOSEPH COUNTY AND THE CITY OF SOUTH BEND.
- ALL UTILITIES, SUCH AS NATURAL GAS, ELECTRIC, TELEPHONE, AND CABLE TELEVISION, SHALL BE UNDERGROUND.
- CONTRACTOR SHALL PERFORM COMPACTION TESTING ACCORDING TO ST. JOSEPH COUNTY AND THE CITY OF SOUTH BEND PROVISIONS.
- PRIOR TO CONSTRUCTION, THE CONTRACTOR SHOULD INQUIRE ALL UTILITY COMPANIES FOR UNDERGROUND CONDUITS. ANY DAMAGES DONE TO ANY PUBLIC AND/OR PRIVATE PROPERTIES DURING CONSTRUCTION SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
- ANY REMOVED AND/OR DISTURBED PAVEMENT, CURB AND GUTTER, ETC., SHALL BE REPLACED USING THE SAME TYPE OF MATERIAL AND BROUGHT BACK TO ITS ORIGINAL GRADE AND ALIGNMENT.
- SIGNED AS-BUILT DRAWINGS SHALL BE FURNISHED TO SOUTH BEND ENGINEERING DEPT., ST. JOSEPH COUNTY ENGINEERING DEPT., ST. JOSEPH COUNTY SURVEYOR'S OFFICE, AND OWNER UPON COMPLETION OF CONSTRUCTION AND AT TIME OF FINAL INSPECTION.
- NO CLOSING OF STREETS SHALL BE PERMITTED WITHOUT PRIOR APPROVAL FROM THE ST. JOSEPH COUNTY ENGINEERING DEPARTMENT.
- THE OWNER SHALL PROVIDE IDEM SANITARY SEWER AND WATER MAIN PERMITS AND EROSION CONTROL PERMITS. THE CONTRACTOR SHALL OBTAIN ALL OTHER NECESSARY PROJECT PERMITS FROM ALL RESPECTIVE GOVERNMENTAL AGENCIES.
- THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS FOR THE PROTECTION OF THE WORK AND SHALL PROVIDE, ERECT, AND MAINTAIN ALL NECESSARY BARRICADES, SUITABLE AND SUFFICIENT LIGHTS, DANGER SIGNALS, SIGNS, AND OTHER TRAFFIC CONTROL DEVICES.
- THE MINIMUM SOIL COMPACTION REQUIREMENTS, USING MODIFIED PROCTOR, FOR BACKFILL MATERIAL AND PAVEMENT SUBGRADE WILL BE AS FOLLOWS:
 

SUBGRADE UNDER PAVEMENT AND CURBS	100%
TOPSOIL USED IN ALL BUT THE TOP SIX INCHES (6") OF FILLS IN AREA SPECIFIED	90%
EXISTING GROUND RECEIVING FILLS	95%
BACKFILL IN PIPE AND CONDUIT TRENCHES	100%
UNDER PAVEMENTS AND CURBS	95%
ALL OTHER AREAS RECEIVING FILL	95%
- ST. JOSEPH COUNTY ENGINEERING DEPARTMENT MUST FIELD VERIFY THE CONTRACTOR'S CURB AND GUTTER MOLD FOR APPROVAL PRIOR TO PLACEMENT OF ANY CURB

**SPECIFICATIONS:**

**STORM SEWER:**

- ST. JOSEPH COUNTY STANDARDS AND SPECIFICATIONS ARE TO BE USED.
- ALL REINFORCED CONCRETE PIPE (RCP) SHALL BE CLASS III MINIMUM.
- MANHOLES SHALL BE A MINIMUM OF 48" PRE-CAST CONCRETE CONFORMING TO ASTM C-478 AND ST. JOSEPH COUNTY STANDARDS.
- ALL CASTINGS IN THE ROADWAY ARE TO BE INSTALLED TO INTERMEDIATE GRADE, FLUSH WITH THE ASPHALT, TO PREVENT PROBLEMS WITH PLOWS. THE STRUCTURES WILL NEED TO BE RAISED TO SURFACE GRADE AT THE TIME OF PAVING SURFACE.

**EARTHWORK:**

- ALL TOPSOIL SHALL BE REMOVED FROM THE ROADWAY BEFORE PAVEMENT IS PLACED.
- EXPOSED SUBGRADE SHALL BE PROOF ROLLED TO DETERMINE UNSUITABLE SOIL LOCATIONS. ANY UNSUITABLE SOIL SHALL BE EXCAVATED AND BACKFILLED WITH SUITABLE MATERIAL.
- ALL TESTING SHALL BE DONE BY A QUALIFIED SOIL TESTING FIRM APPROVED BY THE OWNER.
- A MINIMUM OF 4 INCHES OF TOPSOIL SHALL BE PLACED ON ALL DISTURBED AREAS OUTSIDE BUILDING AND ROADWAY AREAS.
- ALL AREAS RECEIVING TOPSOIL SHALL BE FERTILIZED, SEEDDED AND MULCHED TO PREVENT EROSION. IT IS THE RESPONSIBILITY OF THE EARTHWORK CONTRACTOR TO CONFORM TO INDIANA "RULE 5" REGARDING EROSION CONTROL.
- STRAW BALES OR SILT FENCE IS REQUIRED AROUND EACH STORM SEWER INLET DURING CONSTRUCTION.
- POSITIVE DRAINAGE DURING CONSTRUCTION IS REQUIRED TO PREVENT ANY PONDING OF WATER OR ENCROACHMENT ON ADJACENT PROPERTY.

**BENCH MARKS**

- TBM #1: NORTH FLANGE BOLT OF FIRE HYDRANT NEAR THE SOUTH END OF FERWOOD PHASE ONE ON BRACKEN FERN DRIVE. ELEV. = 730.29
- TBM #2: NORTH FLANGE BOLT OF FIRE HYDRANT NEAR THE EAST BOUNDARY OF FERWOOD PHASE TWO ON SUMMER WIND LANE. ELEV. = 754.47

HOLEY MOLEY SAYS "DON'T DIG BLIND" - CALL BEFORE YOU DIG  
1-800-382-5544  
FOR CALLS OUTSIDE OF INDIANA PER INDIANA STATE LAW IS-49-1991, IT IS AGAINST THE LAW TO EXCAVATE WITHOUT NOTIFYING THE UNDERGROUND UTILITY SERVICE INC (U) WORKING DATE BEFORE COMMENCING WORK.

LOCATIONS SHOWN FOR EXISTING UTILITIES ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY ALL LOCATIONS, ELEVATIONS, AND DIMENSIONS OF ALL EXISTING UTILITIES, STRUCTURES, AND OTHER FEATURES AFFECTING THE CONTRACTOR'S WORK PRIOR TO CONSTRUCTION.

DRAWINGS BY:  
**ABONMARCHE CONSULTANTS, L.L.C.**  
750 Lincoln Way East  
South Bend, Indiana 46601  
(574) 232-8700  
FAX: (574) 251-4440  
ENGINEERING / LAND SURVEYING / PLANNING / CONSTRUCTION SERVICES

DARYL S. KNIP  
REGISTERED PROFESSIONAL ENGINEER  
STATE OF INDIANA  
NO. PE19900163

PART OF THE WEST HALF OF THE NORTHEAST QUARTER, SECTION 30, TOWNSHIP 38 NORTH, RANGE 3 EAST, CLAY TWP., ST. JOSEPH COUNTY, INDIANA  
Daryl S. Knip  
7-17-2020  
DATE  
DARYL S. KNIP  
PROFESSIONAL ENGINEER NO. PE19900163

**FERWOOD PHASE THREE**  
ROADWAY DETAILS

JOB #: M3-1159	DRAWN BY: SSH	SHEETS
DATE: 02/20/03	DESIGNED BY: DSK	2 OF 13
HOR. SCALE: AS NOTED	CHECKED BY:	
VER. SCALE: AS NOTED	PROJ. MNGR: DSK	

**URBAN DRAIN CERTIFICATE:**

THE ST. JOSEPH COUNTY, INDIANA, DRAINAGE BOARD HAS APPROVED THIS SUBDIVISION'S DRAINAGE SYSTEM AS AN URBAN DRAIN SPECIFIED IN THE 1965 INDIANA DRAINAGE CODE, CHAPTER 305, ACTS OF 1965, AS AMENDED.

**LEGEND**

- (A) 5' NON-ACCESS EASEMENT
- (B) LANDSCAPE EASEMENT
- (C) 15' DRAINAGE, UTILITY & ROADWAY MAINTENANCE EASEMENT
- (D) 30' DRAINAGE EASEMENT, 15' EACH SIDE OF PROPERTY LINE
- (E) 20' UTILITY EASEMENT, 10' EACH SIDE OF PROPERTY LINE
- (F) 30' DRAINAGE EASEMENT
- (G) 15' DRAINAGE EASEMENT
- (H) RETENTION EASEMENT
- (I) DRAINAGE, UTILITY, LANDSCAPE AND SIGNAGE EASEMENT
- (J) 20' PEDESTRIAN EASEMENT
- 0 ACRES WATERSHED FLOW/ ACREAGE
- PROPOSED SANITARY SEWER LINE
- EXISTING SANITARY SEWER LINE
- PROPOSED WATER LINE
- EXISTING WATER LINE
- PROPOSED SANITARY MANHOLE
- PROPOSED HYDRANT
- EXISTING HYDRANT

INDIANA EAST-WEST TOLL I-80 & 90

**STREET CLASSIFICATION:**

- MINOR ARTERIAL . . . . . CLEVELAND ROAD (R/W VARIES)
- MINOR . . . . . SUMMER WIND LANE (40' R/W)
- COLLECTOR/ MINOR . . . . . SUMMER BREEZE DRIVE (40' R/W)
- CUL-DE-SAC . . . . . SNOW FLAKE COURT (40' R/W)

**SOILS CLASSIFICATION:**

- OsB . . . . . OSHTEMO SANDY LOAM, 2-6% SLOPES URBAN GROUP I
- OsC2 . . . . . OSHTEMO SANDY LOAM, 6-12% SLOPES, ERODED URBAN GROUP I

**PRIMARY PLAT & SUPPORT DATA SHEET  
FERNWOOD AT CLEVELAND,  
PHASE THREE**

INCLUDING A RESUBDIVISION OF LOT 62 IN  
FERNWOOD AT CLEVELAND, PHASE TWO

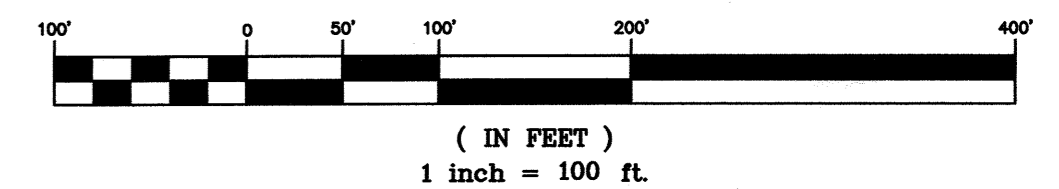
PROPERTY OWNER/DEVELOPER:  
CLEVELAND WOODS DEVELOPMENT CORPORATION, LLC  
(A.K.A. CLEVELAND WOODS LLC)  
2010 WEST AVENUE  
MISHAWAKA, INDIANA 46545

PROPERTY OWNER:  
ROBERT LOUDIN  
15833 ASHVILLE LANE  
GRANGER, INDIANA 46530

SURVEYED BY:  
ABONMARCHE CONSULTANTS, L.L.C.  
750 LINCOLN WAY EAST  
SOUTH BEND, INDIANA 46601



**GRAPHIC SCALE**



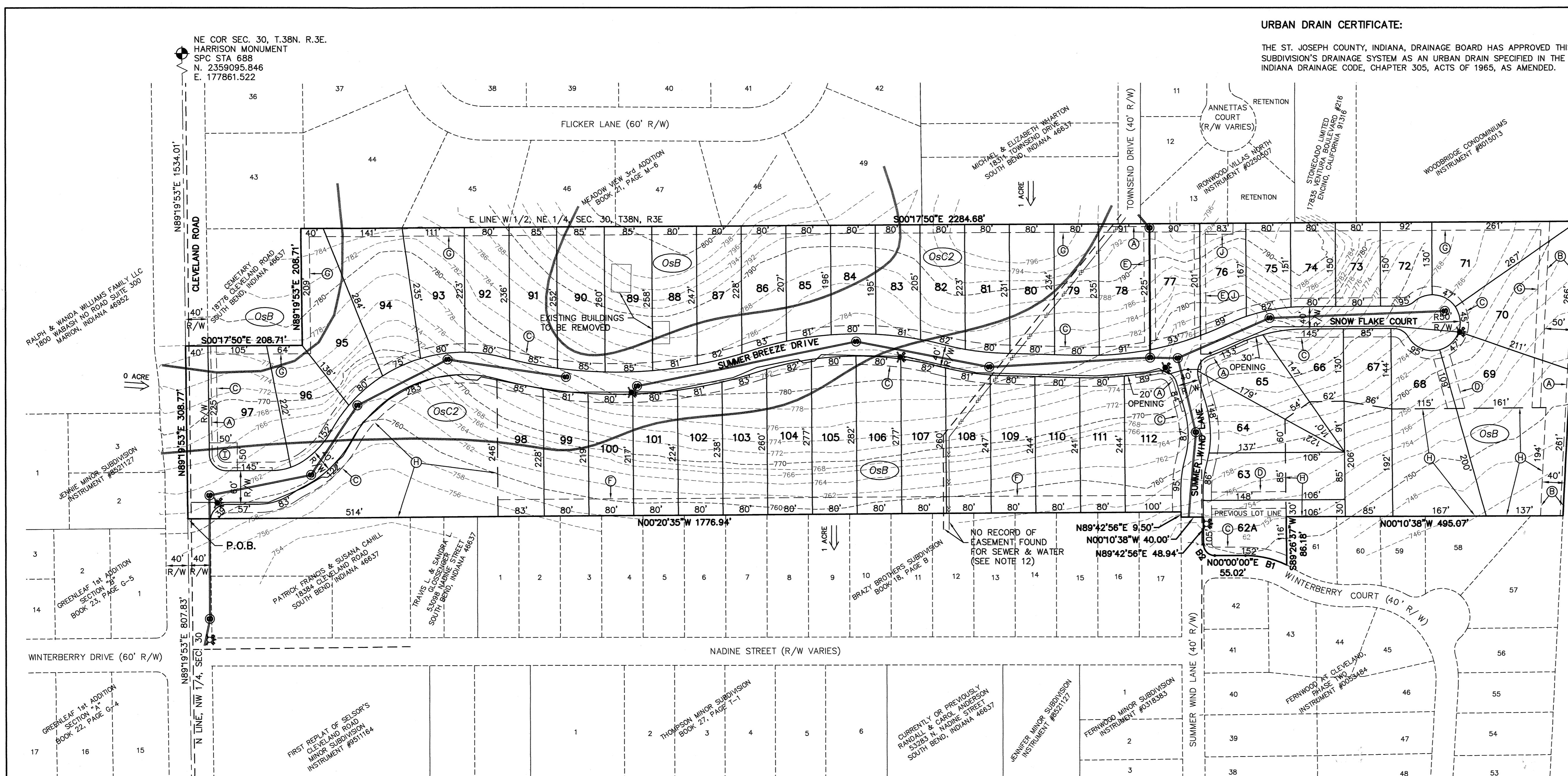
1	REVISIONS PER AREA PLAN COMMISSION	DLB	12/22/03
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PART OF THE NORTHEAST QUARTER,  
SECTION 30, TWP. 38 NORTH, RANGE 3 EAST,  
CLAY TOWNSHIP, ST. JOSEPH COUNTY,  
INDIANA

**ABONMARCHE CONSULTANTS, L.L.C.**  
750 Lincoln Way East  
South Bend, Indiana 46601  
(574) 232-8700  
FAX: (574) 251-4440

Indianapolis, Indiana  
Fort Wayne, Indiana  
Benton Harbor, Michigan  
Monistee, Michigan

ENGINEERING / LAND SURVEYING / PLANNING / CONSTRUCTION SERVICES	JOB NO. M3-1159	SHEET
THOMAS A. OESTERLING REGISTERED LAND SURVEYOR STATE OF INDIANA	DATE: 11/24/03	1
	FIELD BOOK:	
	SURVEYED BY:	
	DRAWN: DLB	
	PROJ. MANAGER:	
	CHECKED BY:	



**P.O.C.**  
N 1/4 CORNER  
SEC. 30 T.38N. R.3E.  
FD. HARRISON MONUMENT, ALSO,  
1" IRON ROD IN CONC. PVT.  
2.08'N & 0.2'E 1/4 CORNER

NW COR SEC. 30, T.38N. R.3E.  
1" ROD IN CONC. PVT. (FLUSH)  
SPC STA 694  
N. 2359047.935  
E. 172698.184

CURVE TABLE						
CURVE	RADIUS	LENGTH	CHORD	CHORD BEARING	TANGENT	DELTA
B1	170.00'	76.40'	75.76'	N12°52'28"E	38.86'	25°44'56"
B2	20.00'	31.32'	28.21'	N44°51'28"E	19.90'	89°42'56"

**CERTIFICATE OF APPROVAL --- NOT FOR RECORDING PURPOSES**

PURSUANT TO INDIANA CODE SECTION 36-7-4, THE UNDERSIGNED CERTIFY THAT THE FERNWOOD AT CLEVELAND, PHASE THREE SUBDIVISION WAS CONSIDERED AND GRANTED PRIMARY APPROVAL BY THE PLAT COMMITTEE OF THE AREA PLAN COMMISSION OF ST. JOSEPH COUNTY, INDIANA ON JANUARY 9, 2004; AND THAT A MAJORITY OF THE MEMBERS OF THE COMMITTEE CONCURRED IN THE FINDINGS AND DECISION GRANTING APPROVAL, DETERMINING THAT THE SAID SUBDIVISION COMPLIES WITH THE STANDARDS SET FORTH IN THE ST. JOSEPH COUNTY, INDIANA SUBDIVISION CONTROL ORDINANCE.

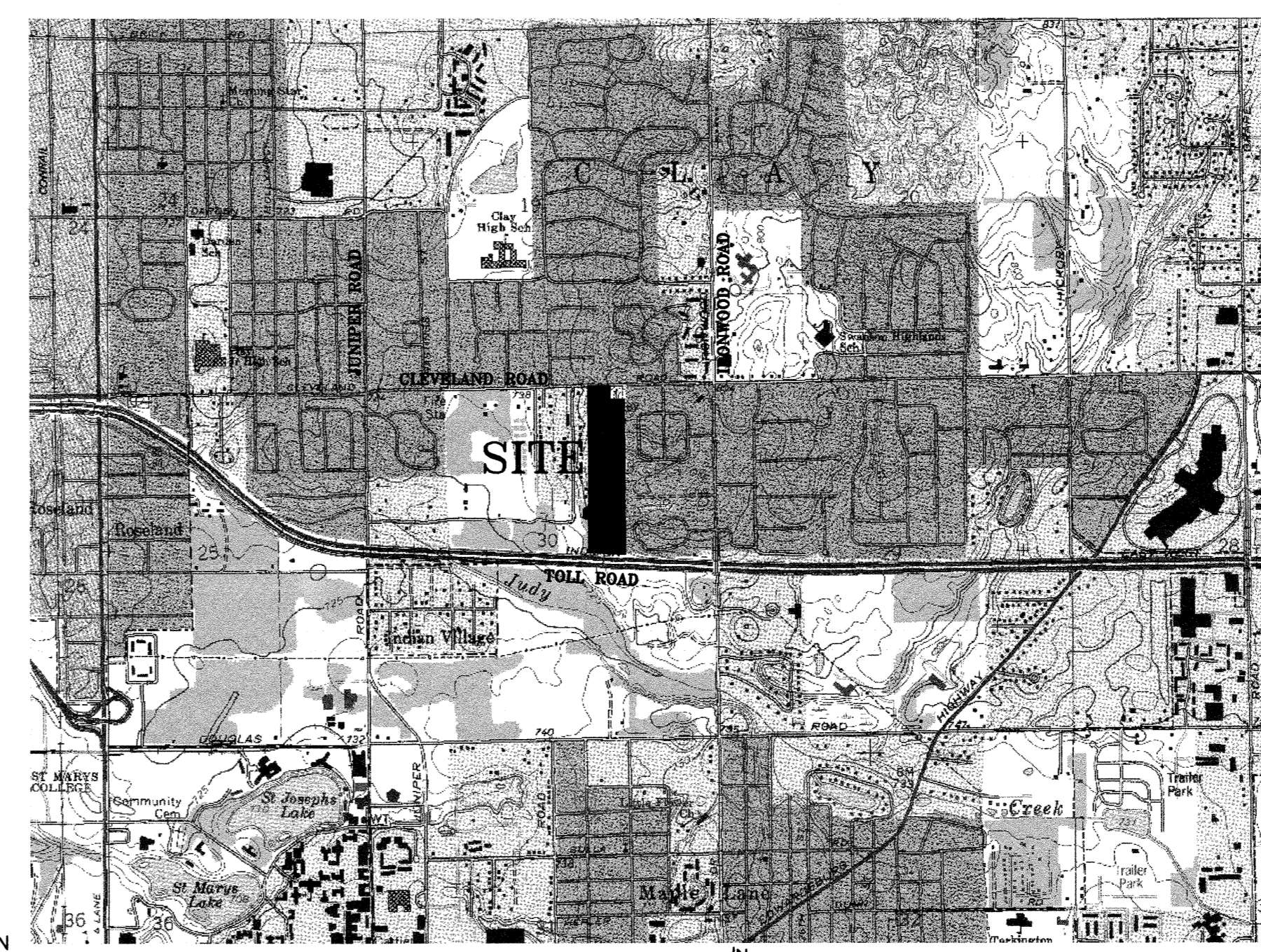
IN WITNESS WHEREOF, WE HAVE ATTACHED OUR SIGNATURES AND THE COMMISSION'S SEAL HEREOFON:

*Robert W. Sante*  
SECRETARY OF THE COMMISSION  
ROBERT W. SANTE

*John R. McNamara*  
CHAIRMAN OF THE COMMITTEE  
JOHN R. MCNAMARA

**NOTES:**

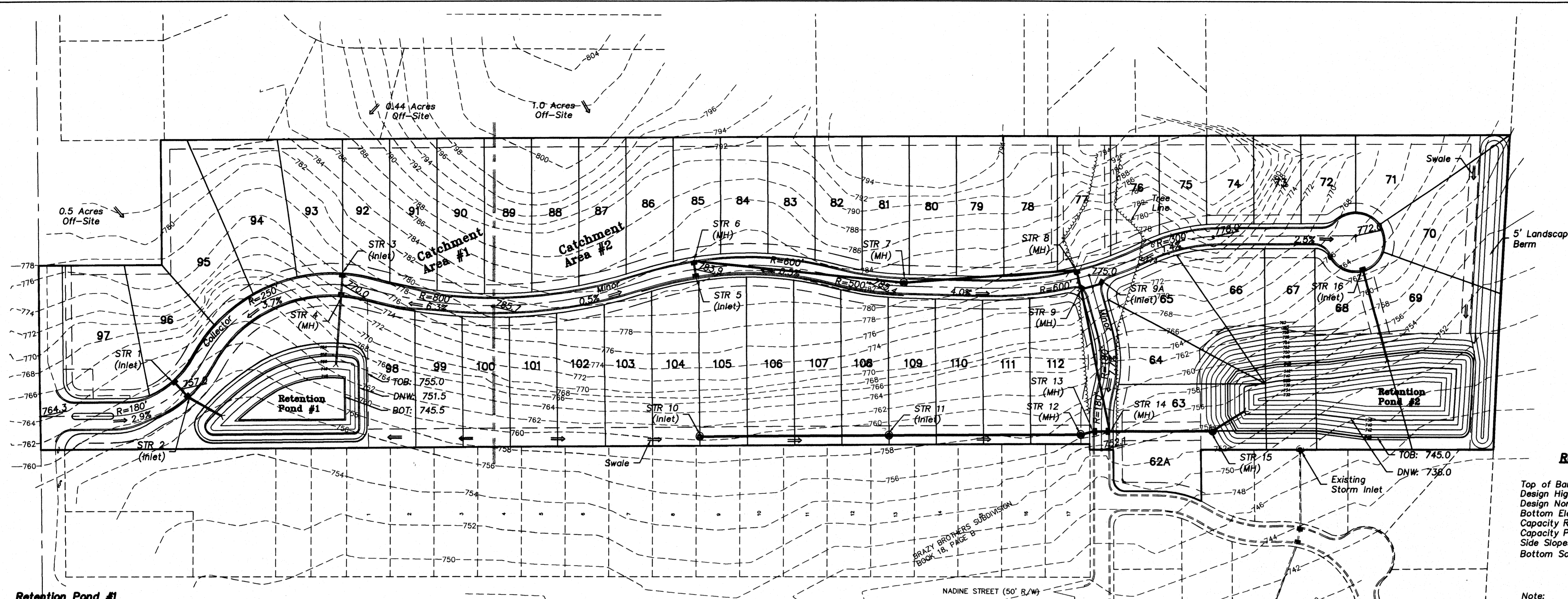
- THE DRAINAGE AND UTILITY EASEMENTS DELINEATED ON THIS PLAT ARE EASEMENTS RESERVED TO THE DEVELOPER OF SAID SUBDIVISION, ITS SUCCESSORS, ASSIGNS, THE ST. JOSEPH COUNTY DRAINAGE BOARD, ST. JOSEPH COUNTY HIGHWAY DEPARTMENT AND UTILITY COMPANIES. THE DEVELOPER, ITS SUCCESSORS AND ASSIGNS RESERVE THE RIGHT TO CONSTRUCT AND MAINTAIN CONTINUOUS DRAINAGE FACILITIES, INCLUDING, BUT NOT LIMITED TO, SWALES, PIPES AND DRYWELLS, TO PROVIDE WITHIN SAID EASEMENTS YARD DRAINAGE ON, ACROSS AND BETWEEN, ALL LOTS ON THIS PLAT. THE OWNERS OF THE LOTS CONTAINING SAID EASEMENTS, THEIR SUCCESSOR AND ASSIGNS SHALL TAKE THEIR TITLES SUBJECT TO SAID USE OF THE DRAINAGE AND UTILITY EASEMENTS.
- THE LANDSCAPE AND SIGNAGE EASEMENTS DELINEATED ON THIS SUBDIVISION PLAT, ARE EASEMENTS RESERVED TO THE DEVELOPER OF SAID SUBDIVISION, ITS SUCCESSORS AND ASSIGNS. THE DEVELOPER RESERVES THE RIGHT TO CONSTRUCT SIGN(S) AND LANDSCAPING FEATURES, PER THE ST. JOSEPH COUNTY ZONING ORDINANCE, IN ORDER TO IDENTIFY SAID SUBDIVISION AND/OR TO PROVIDE FOR THE PROMOTION AND EFFECT THE SALE OF LOTS OR STRUCTURES IN SAID SUBDIVISION. THE OWNER(S) OF THE LOT(S) CONTAINING SAID EASEMENTS, ITS SUCCESSORS AND ASSIGNS SHALL TAKE THEIR TITLES SUBJECT TO SAID USE OF THE LANDSCAPE AND SIGNAGE EASEMENTS.
- ALL EASEMENTS THAT ARE INDICATED ON DOCUMENTATION PROVIDED BY THE PROPERTY OWNER ARE SHOWN HEREON.
- EROSION CONTROL PLANS WILL BE FILED WITH THE RESPECTIVE GOVERNING AGENCIES.
- ALL LOTS WILL BE GOVERNED BY RESTRICTIVE COVENANTS.
- THE SITE IS ENTIRELY WOODED.
- ALL LOTS ARE PROPOSED TO BE SERVICED TO BY MUNICIPAL SEWER AND WATER.
- SITE IS WITHIN ZONE C -- NO FLOOD ELEVATIONS EXIST PER COMMUNITY PANEL NO. 180224 0040 B, DATED FEBRUARY 17, 1988.
- ACCORDING TO THE 1999 ST. JOSEPH COUNTY POTENTIAL GROUNDWATER CONTAMINATION SITES MAP PUBLISHED BY THE MICHIANA AREA COUNCIL OF GOVERNMENTS, NO DOCUMENTED DUMPSITES, LANDFILLS, SITES USED FOR DISPOSING OF HAZARDOUS SUBSTANCES, OR WELL HEAD PROTECTION AREAS, EXIST ON-SITE OR ADJACENT TO THE SITE.
- THERE ARE NO ENCROACHMENTS OF EXISTING STRUCTURES UPON LOT LINES, BUILDING SETBACKS OR EASEMENTS CREATED IN THE PLATTING OF HEREIN SUBDIVISION, EXCEPT FOR EXISTING BUILDINGS WHICH WILL BE REMOVED PRIOR TO SECONDARY PLAT APPROVAL.
- BUILDING SETBACK LINES SHALL CONFORM TO APPLICABLE PROVISIONS OF THE ZONING ORDINANCE.
- EXISTING SEWER AND WATER MAIN NOTED ON THIS PLAT IS PROPOSED TO BE RELOCATED PRIOR TO SECONDARY PLATTING OF THIS SUBDIVISION.
- ON THE DATE OF APPROVAL OF THIS PRIMARY PLAT, THE PLAT COMMITTEE OF THE ST. JOSEPH COUNTY AREA PLAN COMMISSION GRANTED A VARIANCE FROM SECTION 20.12.020.F OF THE SUBDIVISION CONTROL ORDINANCE TO ALLOW TOWNSEND DRIVE TO NOT BE CONTINUED WITHIN THIS SUBDIVISION.
- ON JANUARY 7, 2004, THE AREA BOARD OF ZONING APPEALS GRANTED A VARIANCE TO ALLOW LOTS 63, 67-71, 76-95 AND 99-112, WHICH HAVE 15,000 SQUARE FEET OR MORE, TO HAVE A MINIMUM LOT WIDTH OF 60 FEET INSTEAD OF THE REQUIRED 100 FEET.
- ONE DRIVEWAY ACCESS SHALL BE PERMITTED FOR LOT 112.
- ACCELERATION/DECELERATION LANES HAVE BEEN CONSTRUCTED AT THE ENTRANCE OF THIS SUBDIVISION ALONG THE SOUTH SIDE OF CLEVELAND ROAD.



**LOCATION MAP**  
SCALE: 1"=2000'

*Thomas A. Oesterling* 11/24/03  
THOMAS A. OESTERLING  
REG. LAND SURVEYOR NO. 11462  
STATE OF INDIANA

- Notes:**
1. A Soil Erosion Control Plan shall be developed for this project to minimize sediment entering the retention ponds.
  2. 10 syds of rip-rap/stone shall be around end sections to minimize erosion.
  3. Storm sewer pipe shall be reinforced concrete and shall meet St. Joseph County Standards.
  4. All minor streets shall be 28' wide from back of curb to back of curb with a 24' wide bituminous roadway and 2' curb and gutter. All collector streets shall be 38' wide from back of curb to back of curb with a 34' wide bituminous roadway and 2' curb and gutter.
  5. All Drainage Easements containing structures are 30' in width.



**Retention Pond #1**  
(wet bottom)

Top of Bank Elev. = 755.0  
 Design High Water = 755.0  
 Design Normal Water = 751.5  
 Bottom Elev. = 745.5  
 Capacity Required = 2.50 Acre-Ft  
 Capacity Provided = 2.54 Acre-Ft  
 Side Slopes = 4:1, 6:1 along roadway  
 Bottom Soil Type = Stratified fine medium, and Coarse Sand and fine gravel

Note:  
 Pond #1 is designed as a Retention Pond with storage for a 100 year rain event

**Storm Sewer Calculations:**  
 All storm sewer sizing has been based upon a 10 year, 2 hour storm with a 1.2 inch/hour intensity and a developed runoff coefficient of 0.6.

\*\*\* Provided flows/velocities for pipes discharging into the ponds below normal water levels have been calculated under a submerged condition.

Structure Number	Catchment Area (Ac.)	Total Area (Ac.)	Q Req'd (cfs)	Length (feet)	Pipe Dia. (inches)	Slope (ft/100 ft)	Q Prov'd (cfs)	Velocity (ft/s)	Upper I.E.	Lower I.E.	Inlet	Outlet
1	3.19	3.19	2.30	38	12	1.0	3.6	4.5	753.75	753.37	Std. Inlet	Str. 2
2	0.43	3.62	2.61	68	12	3.2	6.3	8.0	751.60	749.40	Std. Inlet	Str. 1
3	1.46	1.46	1.05	38	12	0.5	2.5	3.2	766.25	766.06	Std. Inlet	Str. 4
4	0.64	2.10	1.51	131	12	2.3	6.3	8.0	752.50	749.50	Std. MH	Pond 1
5	0.81	0.81	0.58	28	12	0.5	2.5	3.2	780.35	780.18	Std. Inlet	Str. 6
6	3.28	4.07	2.93	359	12	1.1	3.7	4.8	780.18	776.20	Std. MH	Str. 7
7	-	4.07	2.93	294	12	1.1	3.7	4.8	775.96	772.75	Std. MH	Str. 8
8	2.79	6.86	4.94	34	15	1.1	6.8	5.5	772.75	772.38	Std. MH	Str. 9
9	0.52	7.76	5.59	244	15	2.3	9.8	8.0	756.41	750.91	Std. MH	Str. 14
9A	0.38	0.38	0.27	39	12	0.5	2.5	3.2	771.25	771.05	Std. Inlet	Str. 9
10	1.85	1.85	1.19	321	12	0.5	2.5	3.2	754.48	752.87	Std. Inlet	Str. 11
11	1.73	3.38	2.43	325	12	0.5	2.5	3.2	752.87	751.24	Std. Inlet	Str. 12
12	1.31	4.69	3.38	22	15	0.5	4.6	3.7	751.24	751.13	Std. MH	Str. 13
13	0.46	5.15	3.71	28	15	0.8	5.8	4.7	751.13	750.91	Std. MH	Str. 14
14	0.51	13.42	9.66	177	15	2.3	9.8	8.0	750.91	746.84	Std. MH	Str. 15
15	-	13.42	9.66	60	15	2.3	9.8	8.0	741.38	740.00	Std. MH	Pond 2
16	1.85	1.85	1.33	154	12	3.2	6.3	8.0	748.92	744.00	Std. MH	Pond 2

**Retention Calculations:**  
 All ponds are sized to accommodate runoff under the 100 year developed condition with a maximum release rate governed by the 10 year undeveloped condition.

**Retention Pond #1**  
(Wet Bottom)

Retention Pond #1 captures runoff from approximately 8.2 acres on-site and 0.94 acres off-site.

Runoff after development:  
 On-Site: 8.2 x 0.6 x 0.467 = 2.30 acre-ft  
 Off-Site: 0.94 x 0.2 x 0.467 = 0.08 acre-ft

Runoff to be retained:  
 Total runoff after dev. 2.36 acre-ft  
 Runoff prior to dev. ---  
 Runoff to be retained 2.36 acre-ft  
 Siltation factor 6%  
 Storage volume required 2.50 acre-ft  
 Pond volume provided 2.54 acre-ft

**Retention Pond #2**  
(Wet Bottom)

Retention Pond #2 captures runoff from approximately 20.7 acres on-site and 1.0 acres off-site.

Runoff after development:  
 On-Site: 20.7 x 0.6 x 0.467 = 5.80 acre-ft  
 Off-Site: 1.0 x 0.2 x 0.467 = 0.09 acre-ft

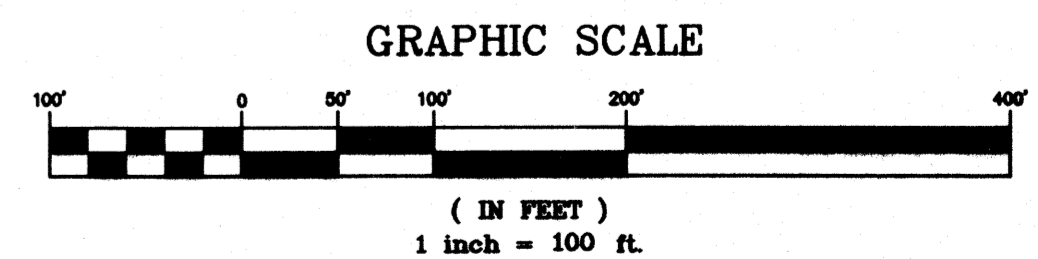
Runoff to be retained:  
 Total runoff after dev. 5.89 acre-ft  
 Runoff prior to dev. ---  
 Runoff to be retained 5.89 acre-ft  
 Siltation factor 6%  
 Storage volume required 6.24 acre-ft  
 Pond volume provided 6.24 acre-ft

**Retention Pond #2**  
(wet bottom)

Top of Bank Elev. = 745.0  
 Design High Water = 745.0  
 Design Normal Water = 738.0  
 Bottom Elev. = 732.0  
 Capacity Required = 6.10 Acre-Ft  
 Capacity Provided = 6.24 Acre-Ft  
 Side Slopes = 4:1  
 Bottom Soil Type = Stratified fine medium, and Coarse Sand and fine gravel

Note:  
 Pond #2 is designed as a Retention Pond with storage for a 100 year rain event

DEVELOPED BY:  
 ALWAYS DEVELOPMENT  
 61679 BROMPTON DRIVE  
 SOUTH BEND, INDIANA 46614



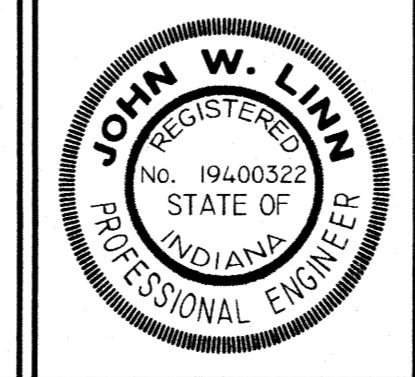
Susan D. Al-Abbas P.E. 12-12-03  
 Susan D. Al-Abbas  
 Approved for Concept and Planning Only

LOCATIONS SHOWN FOR EXISTING UTILITIES ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY ALL LOCATIONS, ELEVATIONS, AND DIMENSIONS OF ALL EXISTING UTILITIES, STRUCTURES, AND OTHER FEATURES AFFECTING THE CONTRACTOR'S WORK PRIOR TO COMMENCING CONSTRUCTION.

DRAWINGS BY:  
**ABONMARCHE CONSULTANTS, L.L.C.**  
 750 Lincoln Way East  
 South Bend, Indiana 46601  
 (574) 232-8700  
 FAX: (574) 251-4440

Indianapolis, Indiana  
 Fort Wayne, Indiana  
 Benton Harbor, Michigan  
 Marquette, Michigan

ENGINEERING / LAND SURVEYING / PLANNING / CONSTRUCTION SERVICES



PART OF THE WEST HALF OF THE NORTHEAST QUARTER, SECTION 30, TOWNSHIP 38 NORTH, RANGE 3 EAST, CLAY TWP., ST. JOSEPH COUNTY, INDIANA

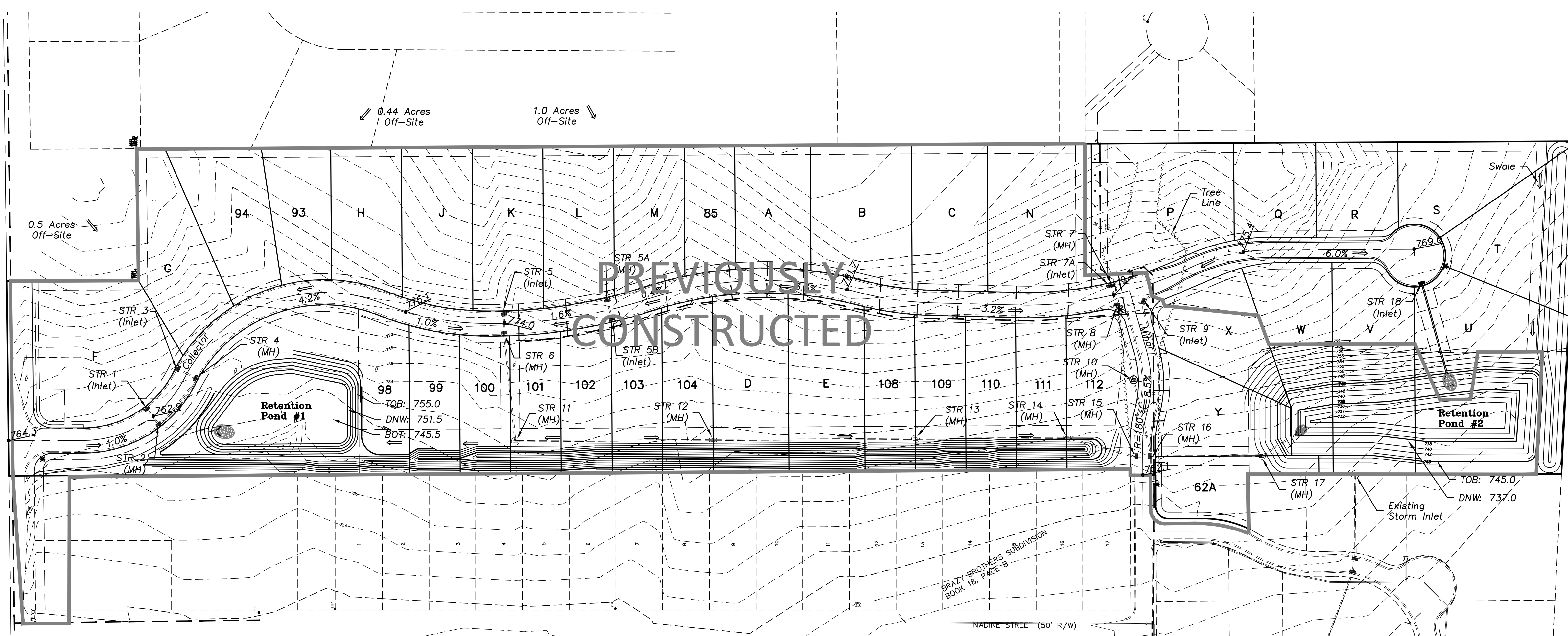
John W. Linn 12/20/03  
 JOHN W. LINN  
 PROFESSIONAL ENGINEER NO. PE19400322

**FERNWOOD PHASE THREE**

PRELIMINARY DRAINAGE PLAN

1	Revised Structure Catchment Areas and Pond #2	12/02/03
2	Revised Pond #2 Elevations	12/10/03
JOB #: M3-1159		
DATE: 11/17/03	DRAWN BY: P.J.L.	SHEETS
HOR. SCALE: 1"=100'	DESIGNED BY: DSK	4 OF 13
VER. SCALE: N/A	CHECKED BY:	
	PROJ. MNGR: DSK	





- Notes:**
1. A Soil Erosion Control Plan shall be developed for this project to minimize sediment entering the retention ponds.
  2. 10 syds of rip-rap/stone shall be around end sections to minimize erosion.
  3. Storm sewer pipe shall be reinforced concrete and shall meet St. Joseph County Standards.
  4. All minor streets shall be 28' wide from back of curb to back of curb with a 24' wide bituminous roadway and 2' curb and gutter. All collector streets shall be 38' wide from back of curb to back of curb with a 34' wide bituminous roadway and 2' curb and gutter.
  5. All Drainage Easements containing structures are 30' in width.

**Retention Pond #2**  
(wet bottom)

Top of Bank Elev.	= 745.0
Design High Water	= 745.0
Design Normal Water	= 737.0
Bottom Elev.	= 731.0
Capacity Required	= 6.46 Acre-Ft
Capacity Provided	= 6.46 Acre-Ft
Side Slopes	= 4:1
Bottom Soil Type	= Stratified fine medium, and Coarse Sand and fine gravel

Note:  
Pond #2 is designed as a Retention Pond with storage for a 100 year rain event

**Retention Pond #1**  
(wet bottom)

Top of Bank Elev.	= 762.0
Design High Water	= 760.0
Design Normal Water	= 756.0
Bottom Elev.	= 748.0
Capacity Required	= 2.31 Acre-Ft
Capacity Provided	= 2.37 Acre-Ft
Side Slopes	= 4:1, 6:1 along roadway
Bottom Soil Type	= Stratified fine medium, and Coarse Sand and fine gravel

Note:  
Pond #1 is designed as a Retention Pond with storage for a 100 year rain event

**Storm Sewer Calculations:**

All storm sewers are sized to accommodate runoff from a 10 year, 2 hour storm with an intensity of 1.2"/hr.

Structure Number	Catchment Area (Ac.)	Total Area (Ac.)	Q Req'd (cfs)	Length (feet)	Pipe Dia. (inches)	Slope (ft/100 ft)	Q Prov'd (cfs)	Velocity (ft/s)	Upper I.E.	Lower I.E.
1	1.37	1.37	1.0	38	12	1.0	3.6	4.5	755.50	755.12
2	0.25	4.68	3.4	116	12	3.0	6.2	7.9	752.64	749.16
3	2.75	2.75	2.0	38	12	0.5	2.5	3.2	758.71	758.33
4	0.31	3.06	2.2	107	12	3.0	6.2	7.9	758.33	754.85
5	1.38	3.86	2.8	38	12	1.1	3.7	4.8	769.50	769.08
5A	2.05	2.48	1.8	160	12	1.0	3.6	4.5	771.20	769.60
5B	0.43	0.43	0.3	38	12	1.0	3.6	4.5	771.68	771.30
6	1.19	5.05	3.6	189	12	3.0	6.2	7.9	762.87	757.17
7	1.04	3.45	2.5	39	12	0.5	2.5	3.2	762.40	762.21
7A	2.41	2.41	1.7	2	12	1.0	3.6	4.5	767.02	767.00
8	0.67	4.36	3.1	120	12	2.0	5.0	6.4	759.40	757.00
9	0.24	0.24	0.2	46	12	0.5	2.5	3.2	766.98	766.75
10	—	4.36	3.1	125	12	2.0	5.0	6.4	749.00	746.50
11	0.67	5.72	4.1	313	15	0.8	5.8	4.7	757.07	754.50
12	1.38	7.10	5.1	321	15	1.0	6.5	5.3	754.50	751.29
13	0.97	8.07	5.8	240	15	1.2	7.1	5.8	751.29	748.41
14	1.00	9.07	6.5	106	15	1.5	7.9	6.4	748.05	746.82
15	0.26	9.33	6.7	28	15	1.6	8.2	6.7	746.82	746.37
16	0.31	14.00	10.1	175	18	1.8	14.1	8.0	745.00	741.85
17	0.15	14.15	10.2	72	18	1.8	14.1	8.0	741.85	740.55
18	1.86	1.86	1.3	145	12	3.0	2.5	3.2	749.64	745.29

**Retention Calculations:**

All ponds are sized to accommodate runoff under the 100 year developed condition with a maximum release rate governed by the 10 year undeveloped condition.

**Retention Pond #1**  
(Wet Bottom)

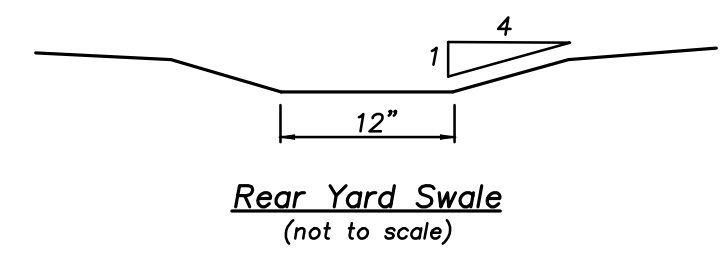
Retention Pond #1 captures runoff from approximately 7.5 acres on-site and 0.9 acres off-site.

Runoff after development:	
On-Site:	7.5 x 0.6 x 0.467 = 2.10 acre-ft
Off-Site:	0.94 x 0.2 x 0.467 = 0.08 acre-ft
Runoff to be retained:	
Total runoff after dev.	2.18 acre-ft
Runoff prior to dev.	—
Runoff to be retained	2.18 acre-ft
Siltation factor	6%
Storage volume required	2.31 acre-ft
Pond volume provided	2.35 acre-ft

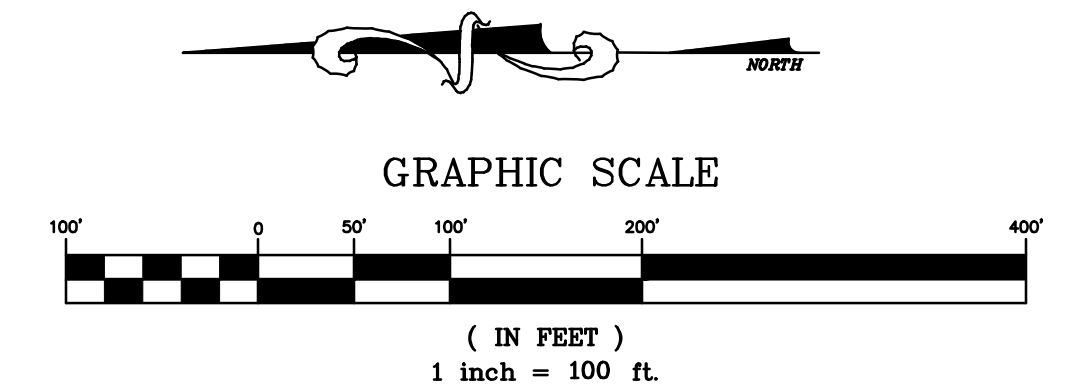
**Retention Pond #2**  
(Wet Bottom)

Retention Pond #2 captures runoff from approximately 21.4 acres on-site and 1.0 acres off-site.

Runoff after development:	
On-Site:	21.4 x 0.6 x 0.467 = 6.00 acre-ft
Off-Site:	1.0 x 0.2 x 0.467 = 0.09 acre-ft
Runoff to be retained:	
Total runoff after dev.	6.09 acre-ft
Runoff prior to dev.	—
Runoff to be retained	6.09 acre-ft
Siltation factor	6%
Storage volume required	6.46 acre-ft
Pond volume provided	6.46 acre-ft



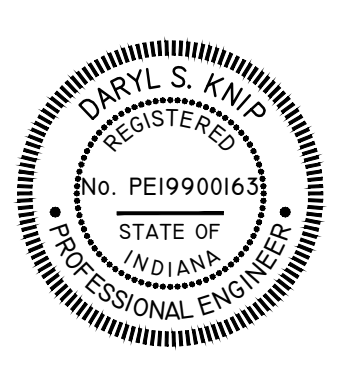
DEVELOPED BY:  
ALWAY DEVELOPMENT  
61679 BROMPTON DRIVE  
SOUTH BEND, INDIANA 46614



HOLEY MOLEY SAYS  
"DON'T  
DIG  
BLIND"  
1-800-382-5544  
FOR CALLS OUTSIDE OF INDIANA PER  
INDIANA STATE LAW §-49-199, IT IS AGAINST  
THE LAW TO EXERCISE WITHOUT NOTING THE  
UNDERGROUND LOCATION SERVICE TWO (2)  
WORKING DAYS BEFORE COMMENCING WORK.

LOCATIONS SHOWN FOR  
EXISTING UTILITIES ARE  
APPROXIMATE. THE  
CONTRACTOR SHALL  
VERIFY ALL LOCATIONS,  
ELEVATIONS, AND  
DIMENSIONS OF ALL  
EXISTING UTILITIES,  
STRUCTURES, AND  
OTHER FEATURES  
AFFECTING THE  
CONTRACTOR'S WORK  
PRIOR TO  
CONSTRUCTION.

DRAWINGS BY:  
**ABONMARCHE CONSULTANTS, L.L.C.**  
750 Lincoln Way East  
South Bend, Indiana 46601  
(574) 232-8700  
FAX: (574) 251-4440  
Indianapolis, Indiana  
Fort Wayne, Indiana  
Benton Harbor, Michigan  
Manistee, Michigan  
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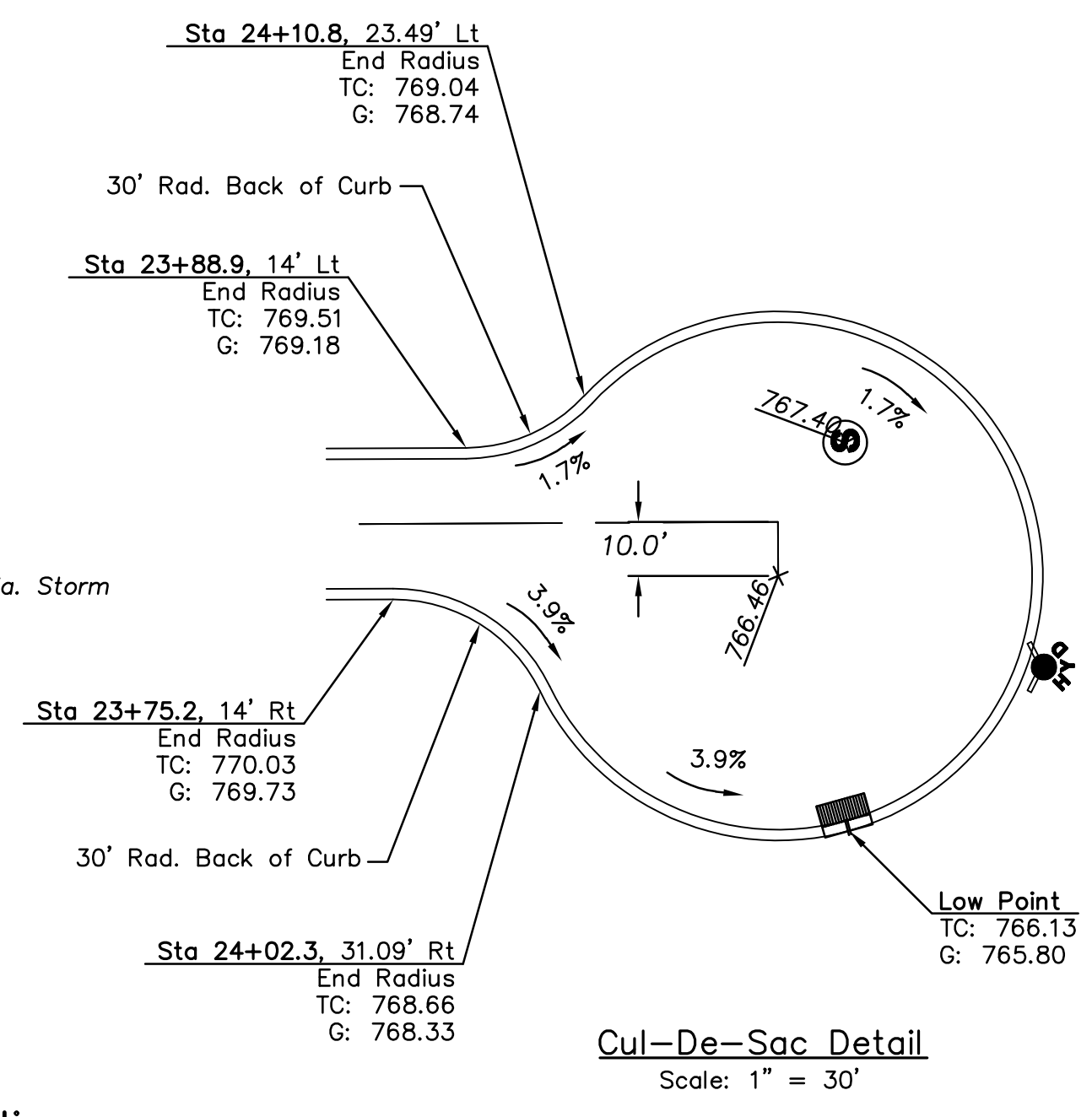
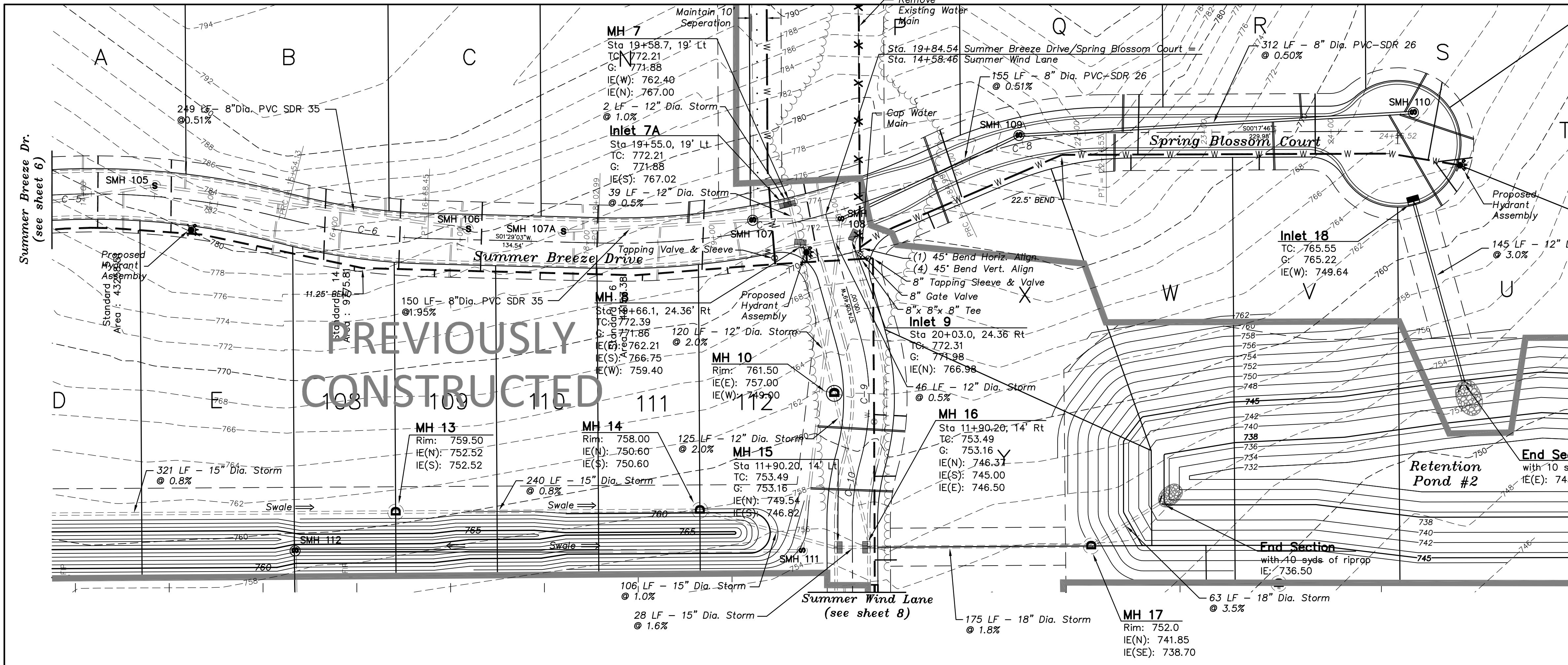


PART OF THE WEST HALF OF THE  
NORTHEAST QUARTER, SECTION 30,  
TOWNSHIP 38 NORTH, RANGE 3 EAST,  
CLAY TWP., ST. JOSEPH COUNTY, INDIANA  
*D. Knip* 7-17-2020  
DATE  
DARYL S. KNIP  
PROFESSIONAL ENGINEER NO. PE19900163

**FERWOOD  
PHASE THREE**  
FINAL DRAINAGE PLAN

1	Add berm, Revise storm notes	08/31/04
2	Added inlets 5A and 5B	03/09/05
3	Added inlet 7A	03/21/05
JOB #: M3-1159		
DATE:	DRAWN BY: PJJ	SHEETS
HOR. SCALE: 1"=100'	DESIGNED BY: DSK	5 OF 13
VER. SCALE: N/A	CHECKED BY:	
	PROJ. MNGR: DSK	

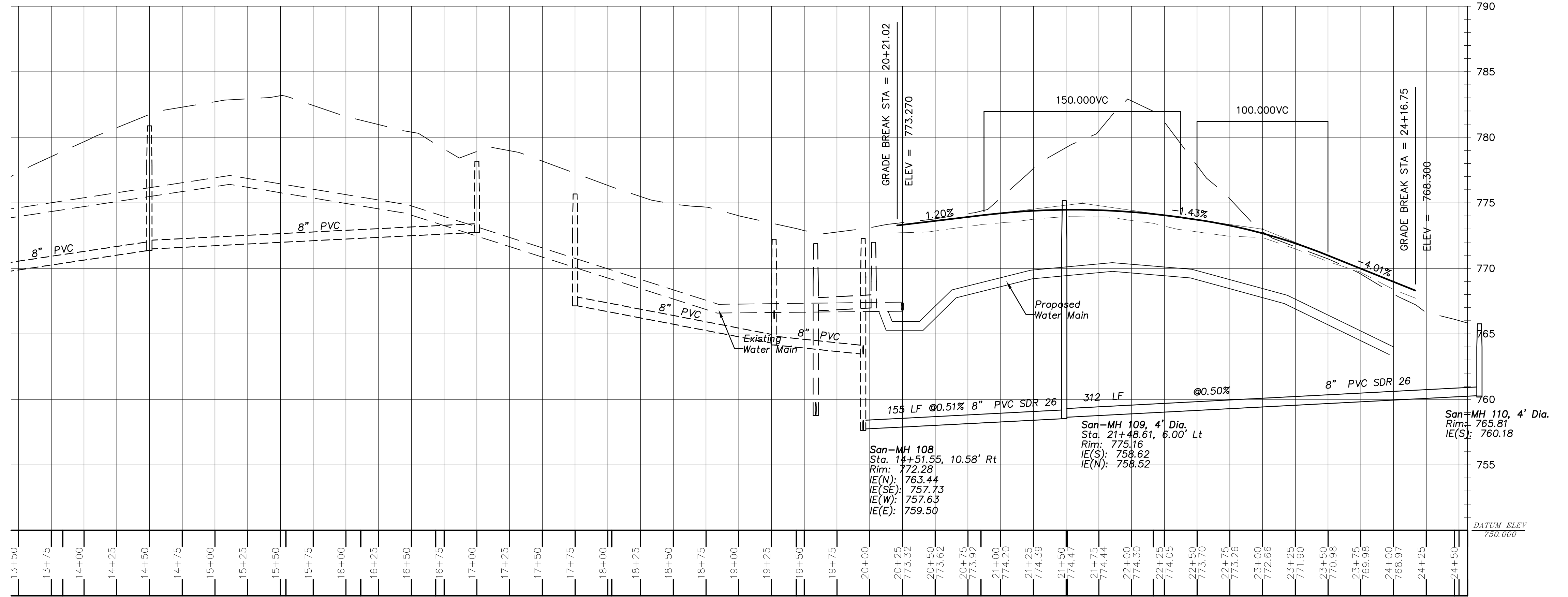
D:\Projects\2020\20-0148 Robert Louder - Fernwood (VIC) - Civil\Drawings\Plans\1148FDP.dwg, 10/16/2020 8:18:23 AM



**Note:**  
Sanitary Sewer greater than  
18' deep shall be PVC SDR 21

THIS SITE IS WITHIN ZONE C - NO FLOOD ELEVATIONS EXIST PER  
COMMUNITY NO. 180224 0040 A, DATED FEBRUARY 17, 1988.

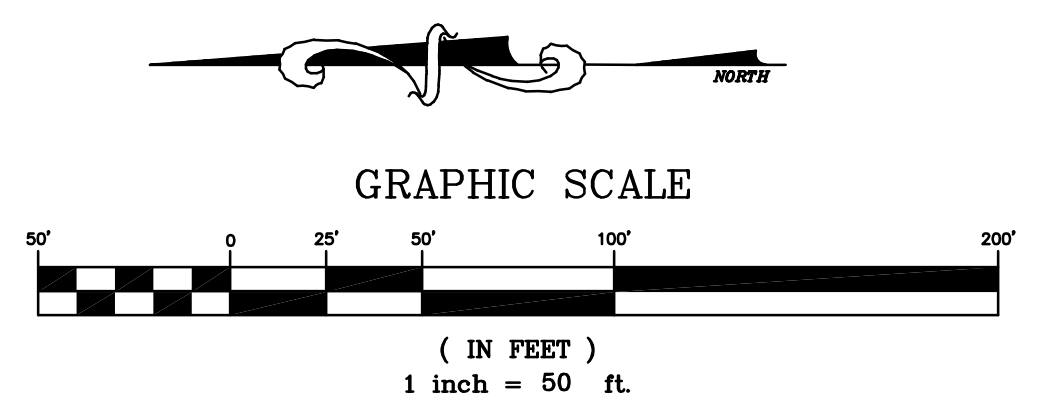
Curve	Radius	Length	Chord	Chord Bearing	Tangent	Delta
C-5	600.00'	340.74'	336.18'	N01°41'05"W	175.10'	32°32'18"
C-6	500.00'	114.32'	114.07'	S08°02'04"W	57.41'	13°06'01"
C-7	600.00'	281.91'	279.32'	S11°58'34"E	143.61'	26°55'14"
C-8	300.00'	131.63'	130.58'	N12°51'58"W	66.89'	25°08'25"



Str. No.	Str. Dia.	Casting & Grating
7	48"	R-3501-LTA
7A	30"	R-3501-LTA
8	48"	R-3501-LTA
9	30"	R-3501-LTA
10	48"	R-1642
13	48"	R-2560-C
14	48"	R-2560-C
15	48"	R-3286-BV
16	48"	R-3286-BV
17	48"	R-2560-C
18	48"	R-3501-LTA

All Casting Numbers Reference Neenah Castings.  
Approved Equivalent Castings May Be Used.

DEVELOPED BY:  
ROBERT LOUDIN  
2010 WENT AVENUE  
MISHAWAKA, INDIANA 46545



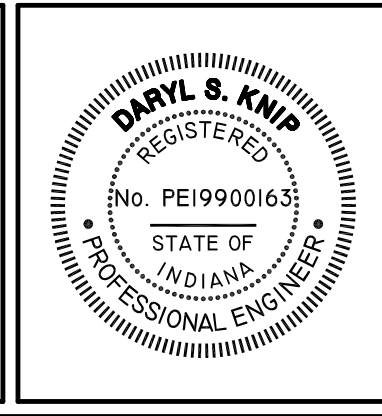
**HOLEY HOLLY BATS "DON'T DIG BLIND"**  
1-800-382-8544  
1-800-428-8200  
FOR CALLS OUTSIDE OF INDIANA FROM INDIANA STATE LAW IS 69-1992. IT IS AGAINST THE LAW TO EXCAVATE WITHOUT NOTIFYING THE UNDERGROUND LOCATION SERVICE TWO (2) WORKING DAYS BEFORE COMMENCING WORK.

LOCATIONS SHOWN FOR EXISTING UTILITIES ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY ALL LOCATIONS, ELEVATIONS, AND DIMENSIONS OF ALL EXISTING UTILITIES, STRUCTURES, AND OTHER FEATURES AFFECTING THE CONTRACTOR'S WORK PRIOR TO CONSTRUCTION.

DRAWINGS BY:  
**ABONMARCHÉ CONSULTANTS, L.L.C.**  
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South Bend, Indiana 46601  
(574) 232-8700  
FAX: (574) 251-4440

Fort Wayne, Indiana  
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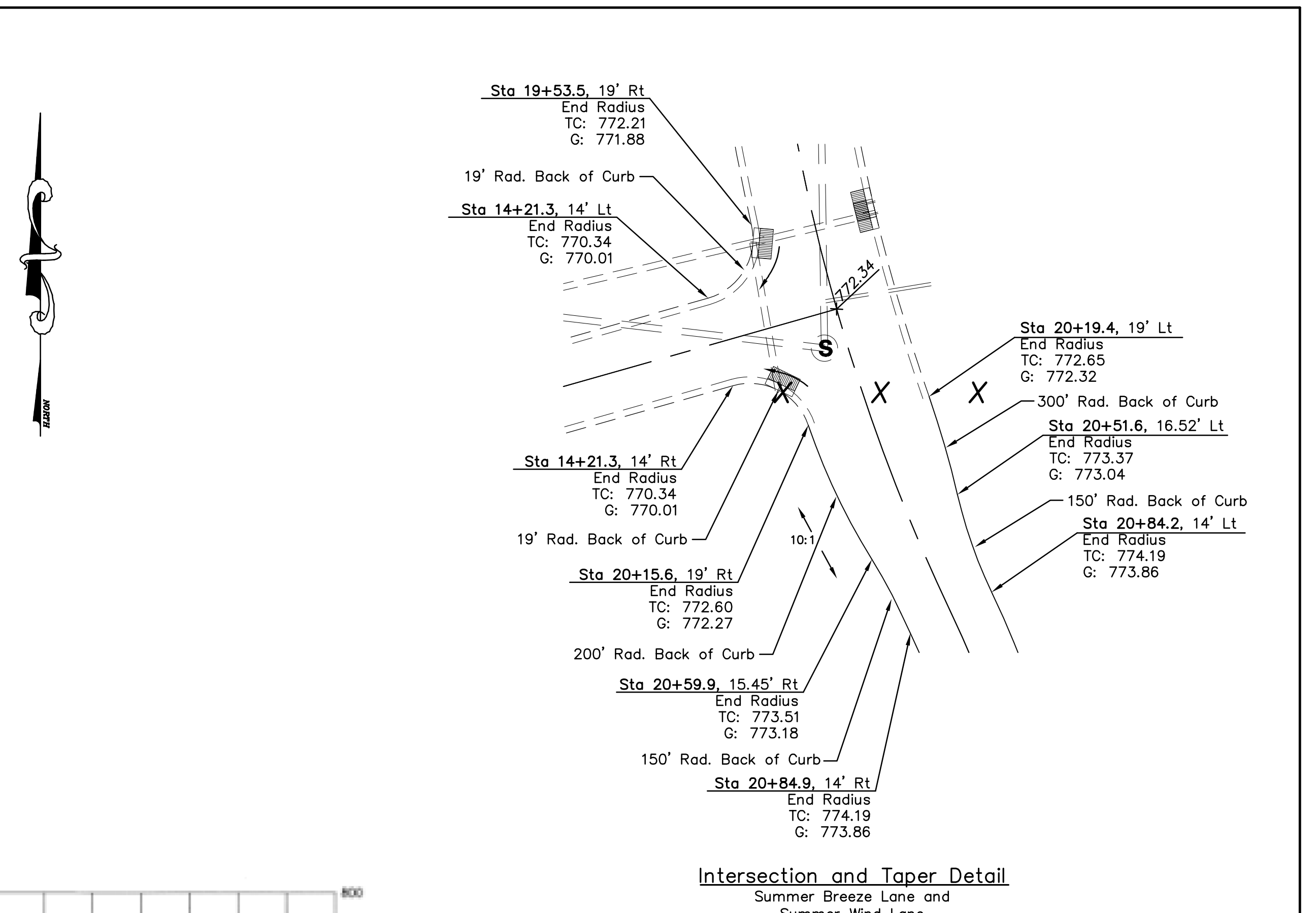
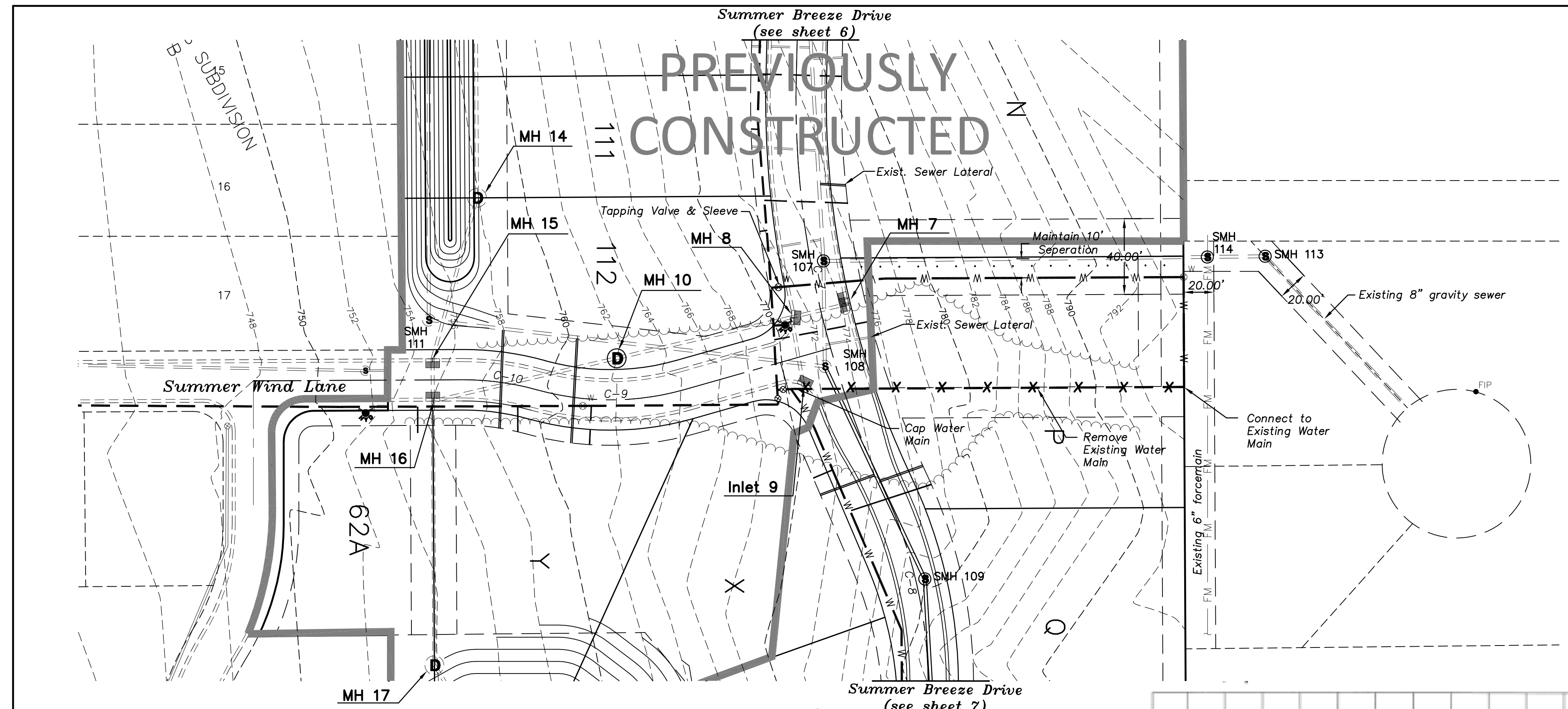
PART OF THE WEST HALF OF THE NORTHEAST QUARTER, SECTION 30, TOWNSHIP 38 NORTH, RANGE 3 EAST, CLAY TWP., ST. JOSEPH COUNTY, INDIANA

*D. S. Knip*  
DARYL S. KNIP  
PROFESSIONAL ENGINEER NO. PE19900163  
DATE 7-17-2020

**FERNWOOD PHASE THREE**

PLAN AND PROFILE  
SUMMER BREEZE DRIVE  
STA 13+50 TO 24+45.52

1	Add berm, Revise storm notes	08/31/04
2	Added Inlet 7A	03/21/05
JOB #: M3-1159		
DATE: 02/20/03	DRAWN BY: SSH	SHEETS 7 OF 13
HOR. SCALE: 1"=50'	DESIGNED BY: DSK	CHECKED BY:
VER. SCALE: 1"=5'	PROJ. MNGR: DSK	



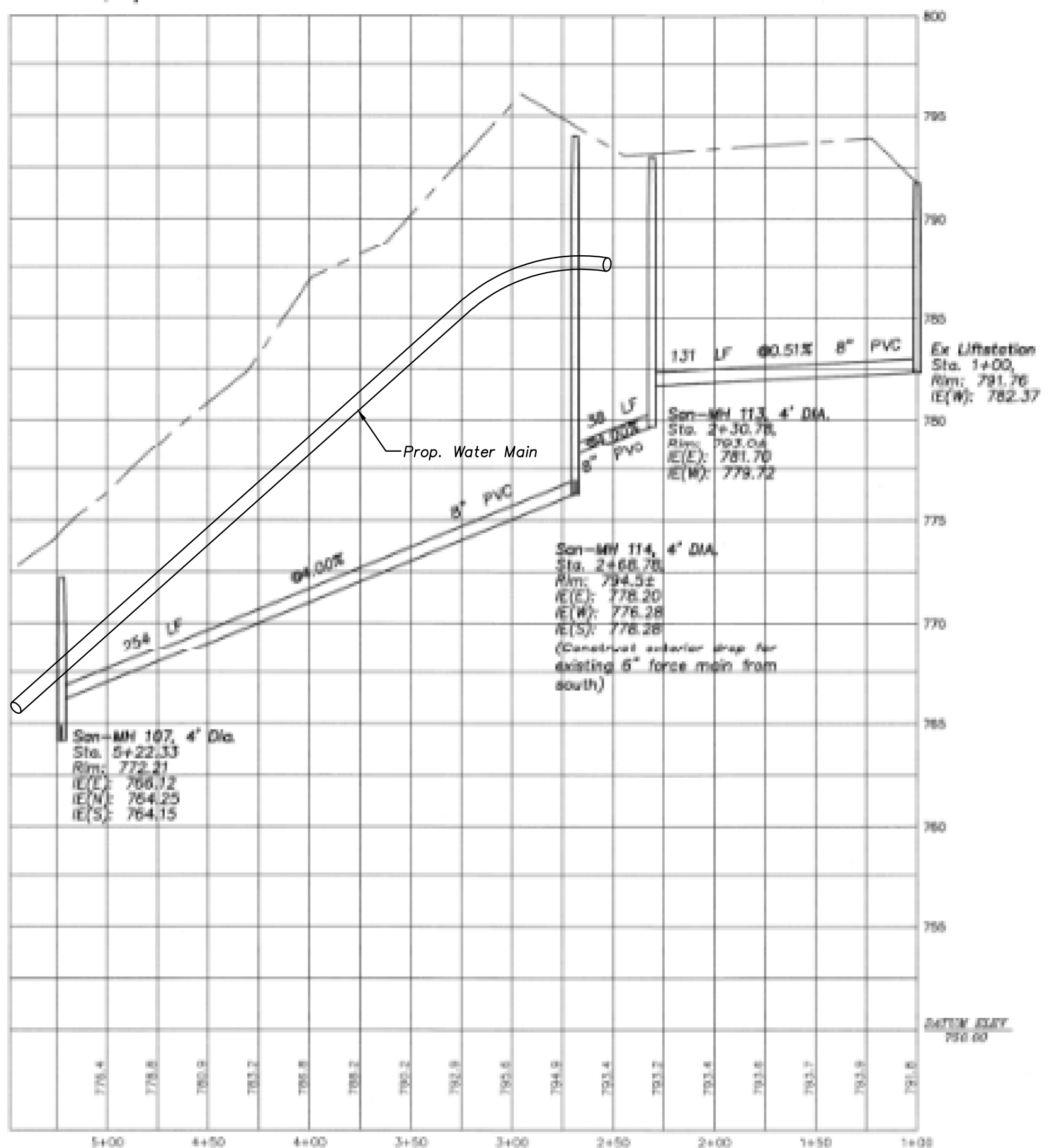
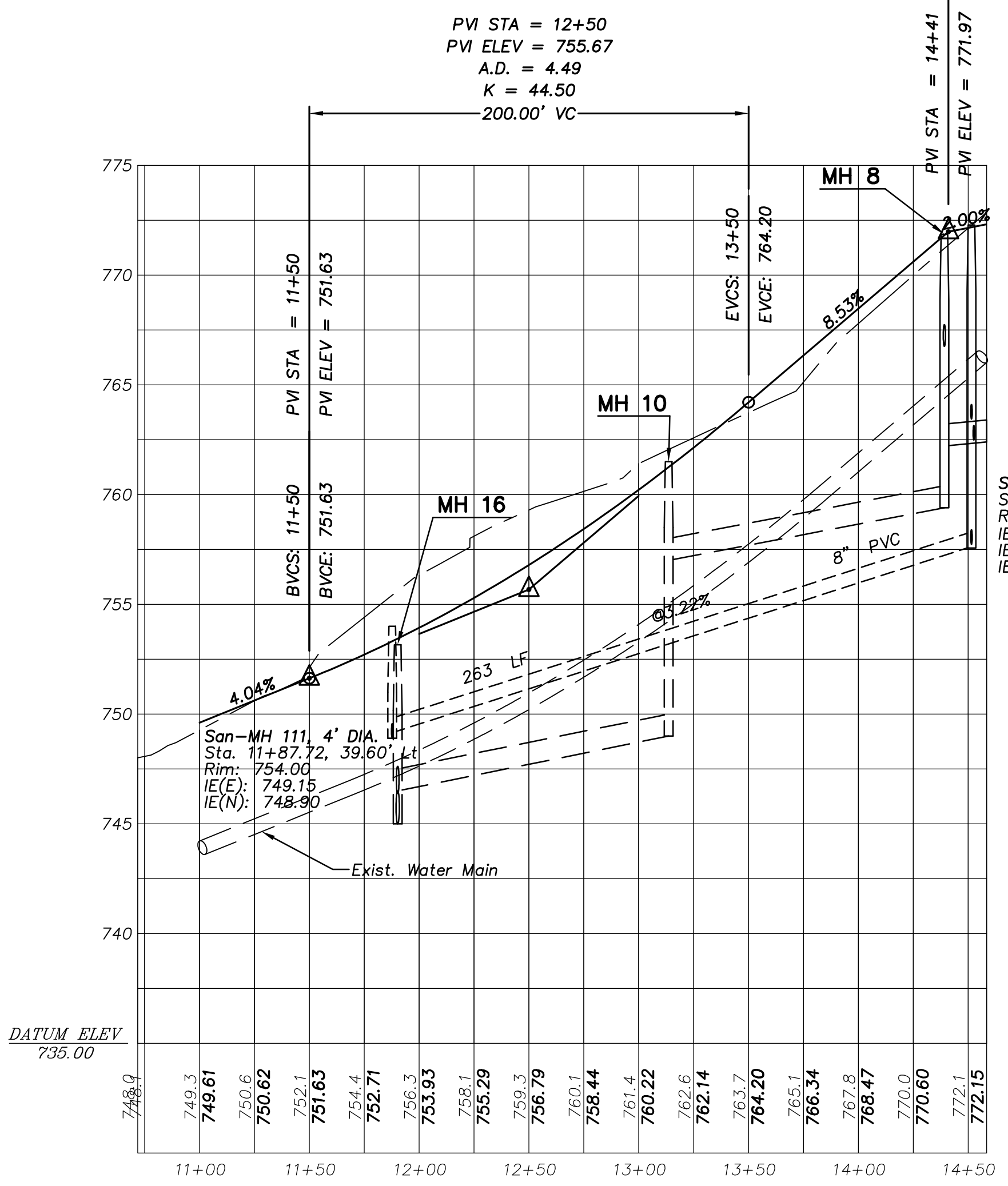
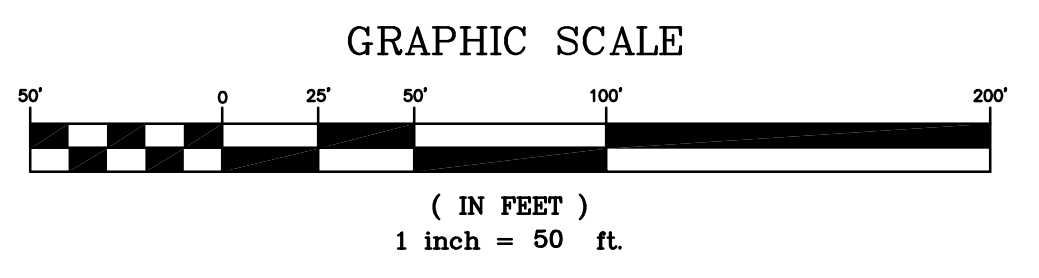
Intersection and Taper Detail  
Summer Breeze Lane and Summer Wind Lane  
Scale: 1" = 50'

Note:  
Sanitary Sewer greater than 18' deep shall be PVC SDR 21

THIS SITE IS WITHIN ZONE C - NO FLOOD ELEVATIONS EXIST PER COMMUNITY NO. 180224 0040 A, DATED FEBRUARY 17, 1988.

Curve Table						
Curve	Radius	Length	Chord	Chord Bearing	Tangent	Delta
C-9	180.00'	98.82'	97.58'	N89°52'27"E	50.69'	31°27'15"
C-10	180.00'	49.91'	49.75'	N82°20'30"W	25.11'	15°53'08"

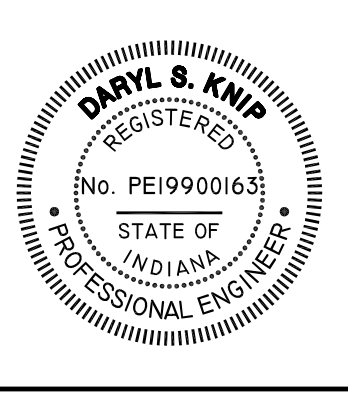
DEVELOPED BY:  
ROBERT LOUDIN  
2010 WENT AVENUE  
MISHAWAKA, INDIANA 46545



**HOLEY MOLLY SAYS "DON'T DIG BLIND"**  
1-800-882-8844  
1-800-488-8200  
FOR CALLS OUTSIDE OF INDIANA PER INDIANA STATE LAW IS-49-1991, IT IS AGAINST THE LAW TO EXCAVE WITHOUT NOTICING THE CONTRACTOR'S WORK PRIOR TO CONSTRUCTION.

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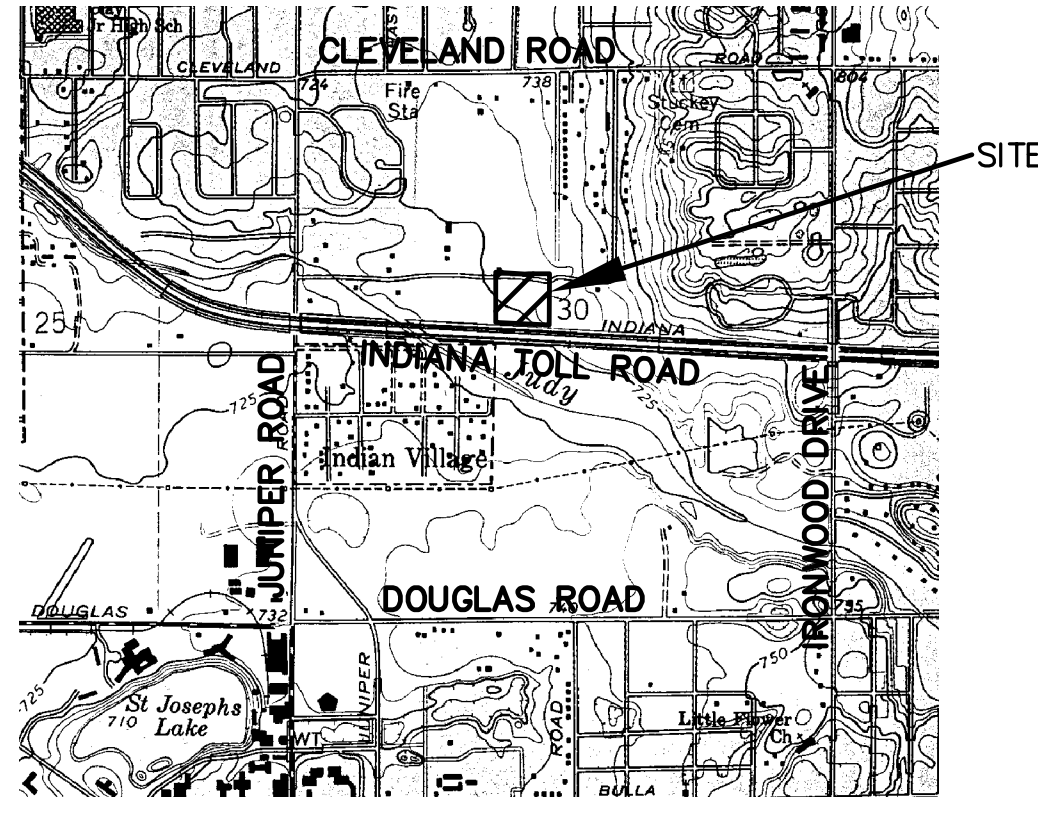
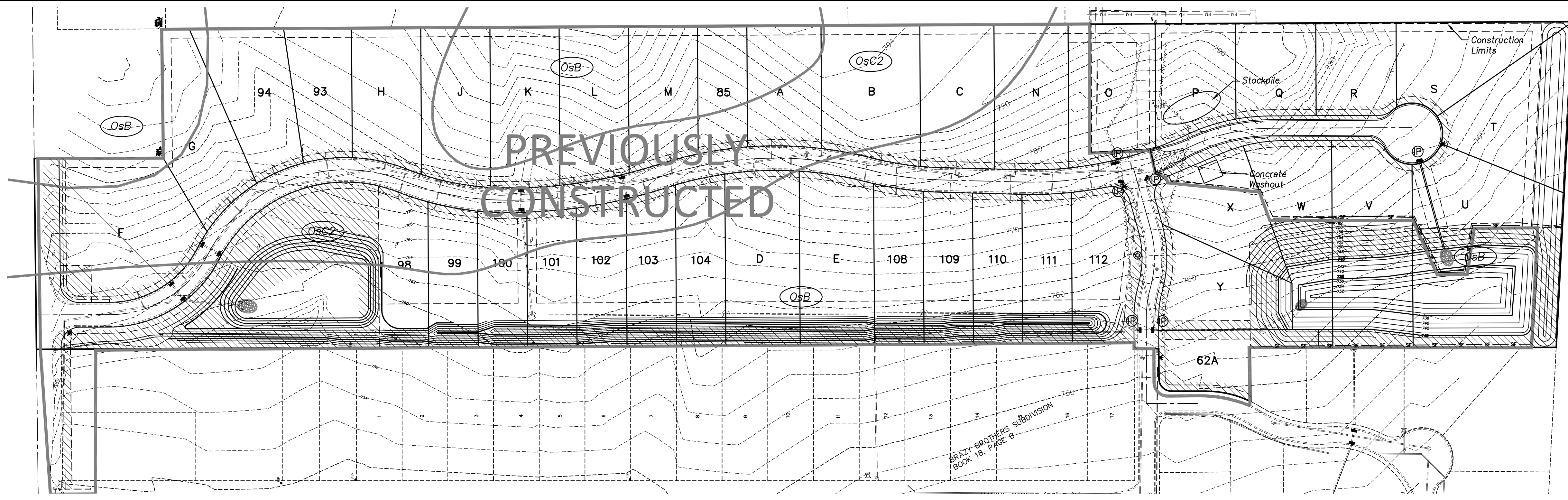
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PART OF THE WEST HALF OF THE NORTHEAST QUARTER, SECTION 30, TOWNSHIP 38 NORTH, RANGE 3 EAST, CLAY TWP., ST. JOSEPH COUNTY, INDIANA  
Daryl S. KNP  
7-17-2020  
DATE  
DARYL S. KNP  
PROFESSIONAL ENGINEER NO. PE19900163

**FERWOOD PHASE THREE**  
PLAN AND PROFILE  
SUMMER WIND LANE  
STA 10+71.82 TO 14+58.46

JOB #: M3-1159	DRAWN BY: SSH	SHEETS
DATE: 02/20/03	DESIGNED BY: DSK	8 OF 13
HOR. SCALE: 1"=50'	CHECKED BY:	
VER. SCALE: 1"=5'	PROJ. MNGR: DSK	



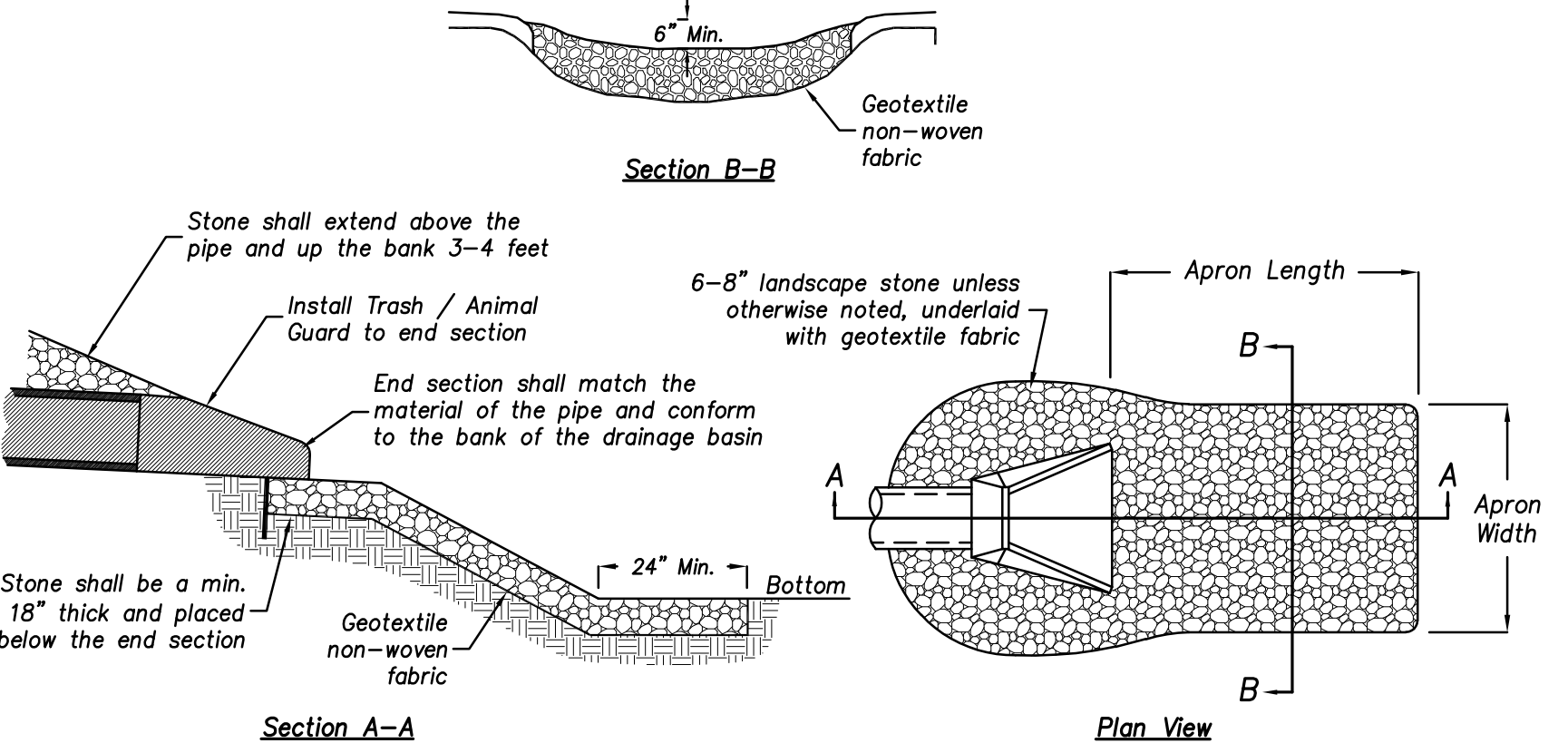
AREA LOCATION MAP  
NOT TO SCALE

**SOILS CLASSIFICATION:**  
OsB . . . . . OSSTEMO SANDY LOAM, 2-6% SLOPES  
URBAN GROUP I

- LEGEND:**
- RIP-RAP
  - INLET PROTECTION - FABRIC COVER OR SAND BAG DAM
  - SILT FENCE
  - TEMPORARY GRAVEL ENTRANCE/EXIT (60 SYDS)
  - SEEDING AREAS & LIMITS OF CONSTRUCTION ACTIVITY

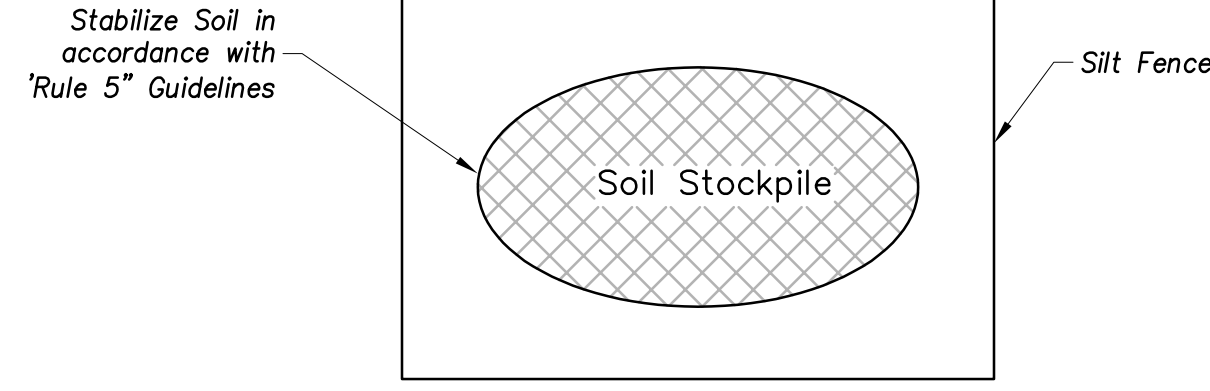
**PERMANENT EROSION CONTROL MEASURES**

- ALL DISTURBED AREAS SHALL BE SEED. THE SEED MIX SHALL BE A TYPE "R" PURSUANT TO THE INDOT SPECIFICATIONS, SECTION 621. MULCH MATERIAL SHALL BE EITHER HYDRO MULCH ACCORDING TO THE INDOT SPECIFICATIONS, SECTION 621, OR STRAW. STORM WATER PIPE OUTLETS WILL BE SURROUNDED WITH THE APPROPRIATE DESIGN AMOUNT OF HEAVY RIP-RAP MATERIAL AS SPECIFIED ON THE POND DETAILS TO PREVENT FUTURE EROSION OF THE BANKS OF THE PONDS. RIP-RAP MATERIAL SHALL BE IN ACCORDANCE WITH THE INDOT SPECIFICATIONS, SECTION 616.02 FOR "UNIFORM RIP-RAP".



PIPE END SECTION TREATMENT  
(NOT TO SCALE)

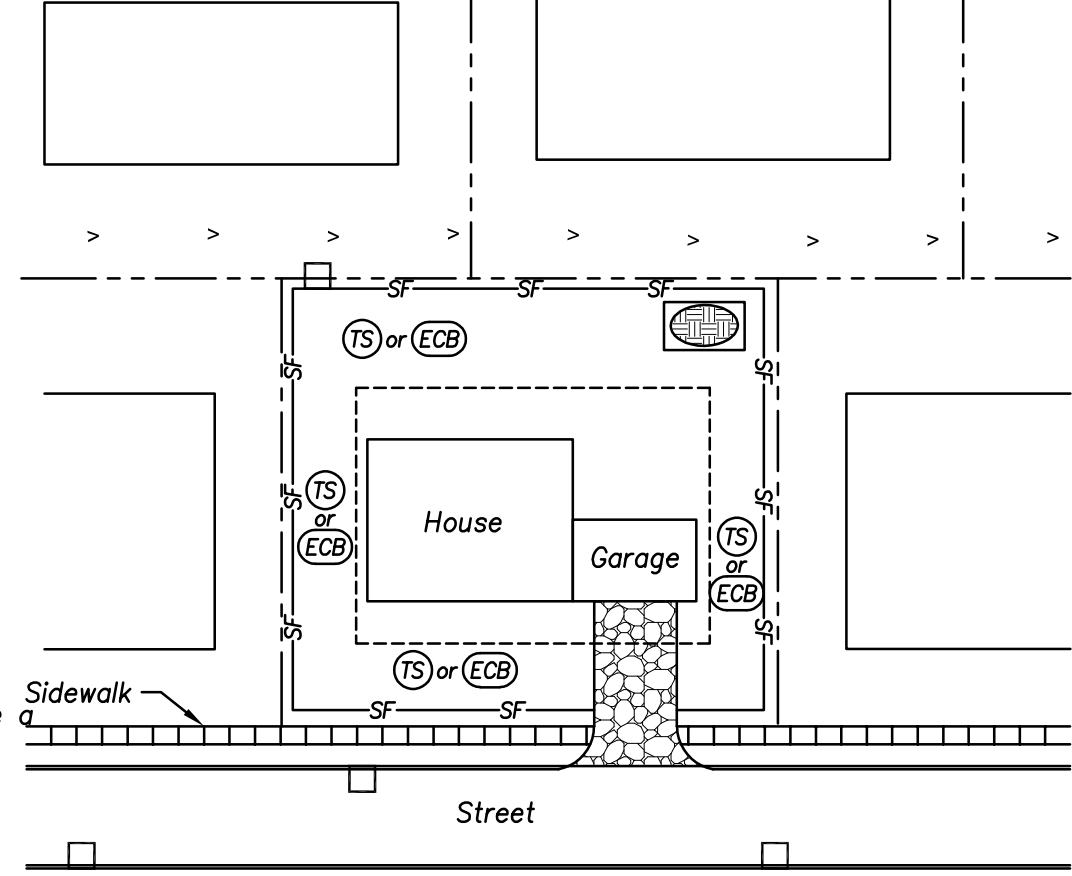
- MAINTENANCE GUIDELINES**
- Inspection should occur at least once a week and following each 1/2" or more rain event.
  - Inspect for stone displacement; replace stones ensuring placement at finished grade.
  - Check for erosion or scouring around sides of the apron; repair immediately.
  - Check for piping or undercutting; repair immediately.



TEMPORARY SOIL STOCKPILE  
(NOT TO SCALE)

- INSTALLATION**
- Storage area shall be free of stumps, rock and construction debris.
  - Cover stockpile with vegetation and tarp.
  - Surround with sediment barrier or filter. See "Silt Fence" detail. If straw bales are utilized, place minimum of 10 feet from the toe of slope. Each bale shall be entrenched a minimum of 4 inches into subsoil and shall be anchored with (2) 36-inch long steel rebar or 2x2 inch wood stakes driven through the bale. The minimum bale size shall be 14"x18"x36".
  - Backfill the trench with soil material and compact it in place.

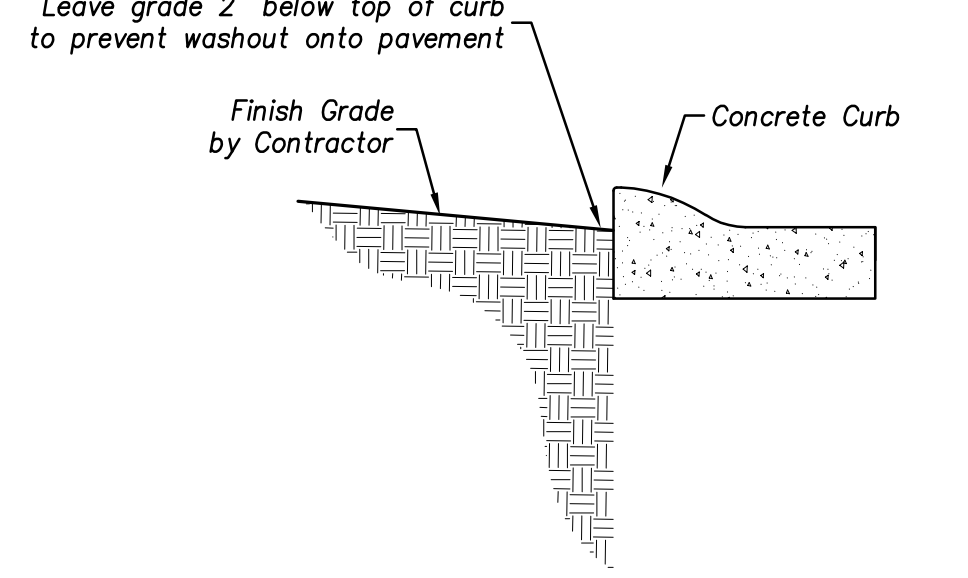
- MAINTENANCE**
- Inspect daily.
  - Check for damage to perimeter barrier; repair immediately.



NOTES

- Erosion control measures must be functional and maintained throughout construction.
- Erosion Control Blanket shall be used on slopes greater than 3:1 per Std. 7-7.
- Install Silt Fence or Filter Sock as necessary according to Std. 7-4 and 7-5.
- Post Notice of Intent and place rain gauges on site prior to start of construction.
- Remove sediment from street at the end of each work day. Do not flush bulk sediments with water.

TYPICAL INDIVIDUAL LOT EROSION AND  
SEDIMENT CONTROL MEASURES  
(NOT TO SCALE)



CURB BACKFILL DETAIL  
(NOT TO SCALE)

**GENERAL NOTES**

- All erosion control measures shall be implemented in accordance with this plan and shall comply with the City of South Bend and 327 IAC 15-5 or "Rule 5" as outlined in the Indiana Storm Water Quality Manual and on the following website for best management practices (BMPs): [www.in.gov/ldem/4902.htm](http://www.in.gov/ldem/4902.htm).
- The Owner must notify IDEM's Rule 5 Coordinator at (317) 233-1864, the local Soil & Water Conservation District (SWCD) at (574) 291-7444 Ext. 3, and the City of South Bend MS4 Coordinator at (574) 258-1619 at least 48 hours prior to any land disturbing activity and upon completion so that final site inspections may be performed for compliance.
- If construction is not completed within 5 years or if an early release from the permit is not received as specified under 327 IAC 15-5-8, the Owner shall renew the permit. Once all construction is completed for the entire project, the Owner must file the IDEM "Notification of Termination" form to the City of South Bend who will process this form and forward to IDEM.
- Temporary construction entrances shall be installed and maintained to minimize the amount of soil tracked onto public/private roadways. The Contractor shall submit actual locations to the Owner for approval. Entrances shall be installed prior to any other construction activity.
- Storm sewer inlets within the construction limits and existing inlets nearby that may be impacted by construction shall be protected as specified on this plan or an approved equal. The intent of this measure is to prevent sediment from entering the drainage system.
- Until the project is accepted by the Owner, the Contractor shall maintain all erosion control measures to prevent sediment from entering public and private storm sewers and from leaving the project site.
- Silt fence - The location of silt fence shown on the drawing shall act as a guide for the Contractor to follow. Actual field conditions shall dictate the location and amount of silt fence required to prevent sediment from entering public and private storm sewers and from leaving the project site. Silt fence shall also be installed at specific down slope areas as shown on the plan. Silt fence or other appropriate sediment barriers shall be installed a minimum of 10 feet from the toe of slope of any onsite or offsite soil stockpile, borrow and/or disposal areas.
- Locations for concrete washout, temporary construction staging, and dewatering operations, if required shall be determined by the Contractor and Owner prior to construction. These locations shall be provided to the City of South Bend MS4 Coordinator prior to construction of said items and adequate protection installed to protect public and private drainage systems.
- Temporary Seeding shall take place as soon as possible on any bare or thinly vegetated areas which have less than 70 percent cover and will remain inactive for a period of 15 days or more. Temporary Seeding shall be in accordance with the Indiana Storm Water Quality Manual.
- Seeding/Sodding shall be in accordance with the Indiana Storm Water Quality Manual.
- The project is within the 18,203 acres of the St. Joseph River - Airport Watershed, HCU14 04050001240040.
- Contractor shall take necessary measures to eliminate tracking soil from the site to offsite by vehicle tires, to the maximum extent possible by installing gravel pads where appropriate or using washing stations, or other approved methods.

**EROSION AND SEDIMENT CONTROL SEQUENCE AND IMPLEMENTATION**

- A pre-construction meeting with the City of South Bend MS4 and St. Joseph County Soil and Water Conservation District (SWCD) is requested to be held prior to any land disturbance.
- IDEM, City of South Bend, and St. Joseph County SWCD must be notified 48 hours prior to commencement of construction.
- Install temporary construction entrance at location approved by the Owner.
- Install silt fencing as shown and protection around or an existing storm inlets with open grates.
- Identify Contractor staging, concrete washout areas, and material storage areas. Each area shall be properly protected and delineated prior to construction.
- The Rule 5 Notice of Intent, SWPPP, and who to contact regarding the SWPPP shall be posted at the job site.
- Contact Indiana Underground Plant Protection Systems, Inc. (INDIANA 811) for underground utility locations. (1-800-382-5544)
- Strip and stockpile any existing topsoil onsite at a location determined by the Contractor and Owner.
- Install dewatering measures if necessary for the proposed construction.
- Begin construction activities for removals and milling, and installing new storm sewer, new sidewalks, new pavement, and new parking lanes. Install inlet protection on new storm sewer.
- Repair any silt fencing if damaged. If silt is 1/3 height of fabric, remove silt and replace/repair fence.
- Immediately after final grading, apply surface stabilization practices on all graded areas, using permanent measures in accordance with the SWPPP drawings for "General Seeding and Surface Stabilization Procedures". However, if weather delays permanent stabilization, temporary seeding and/or mulching may be necessary as a provisional measure. Also stabilize using temporary seeding/mulching or other suitable means any disturbed area where active construction will or has not taken place for 15 working days.
- After construction and final grading are completed, install landscaping, and apply permanent stabilization techniques on all disturbed areas. Also remove temporary runoff control structures and any unstable sediment around them, and stabilize those areas with permanent seeding/sod and erosion control blankets as necessary. Coordinate sod areas with Landscape Plan.
- Maintain all erosion and sediment control practices until all disturbed areas are permanently stabilized.
- Notice of Termination of Rule 5 Notice of Intent shall be submitted to the City of South Bend when construction is completed for the entire project. The City of South Bend will process the Notice of Termination and will forward to IDEM.

DEVELOPED BY:  
ALWAY DEVELOPMENT  
61679 BROMPTON DRIVE  
SOUTH BEND, INDIANA 46614

GRAPHIC SCALE  
( IN FEET )  
1 inch = 100 ft.

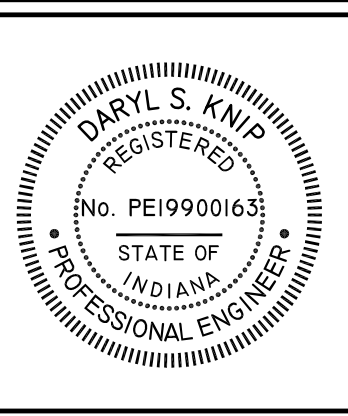
HOLEY MOLEY SAYS  
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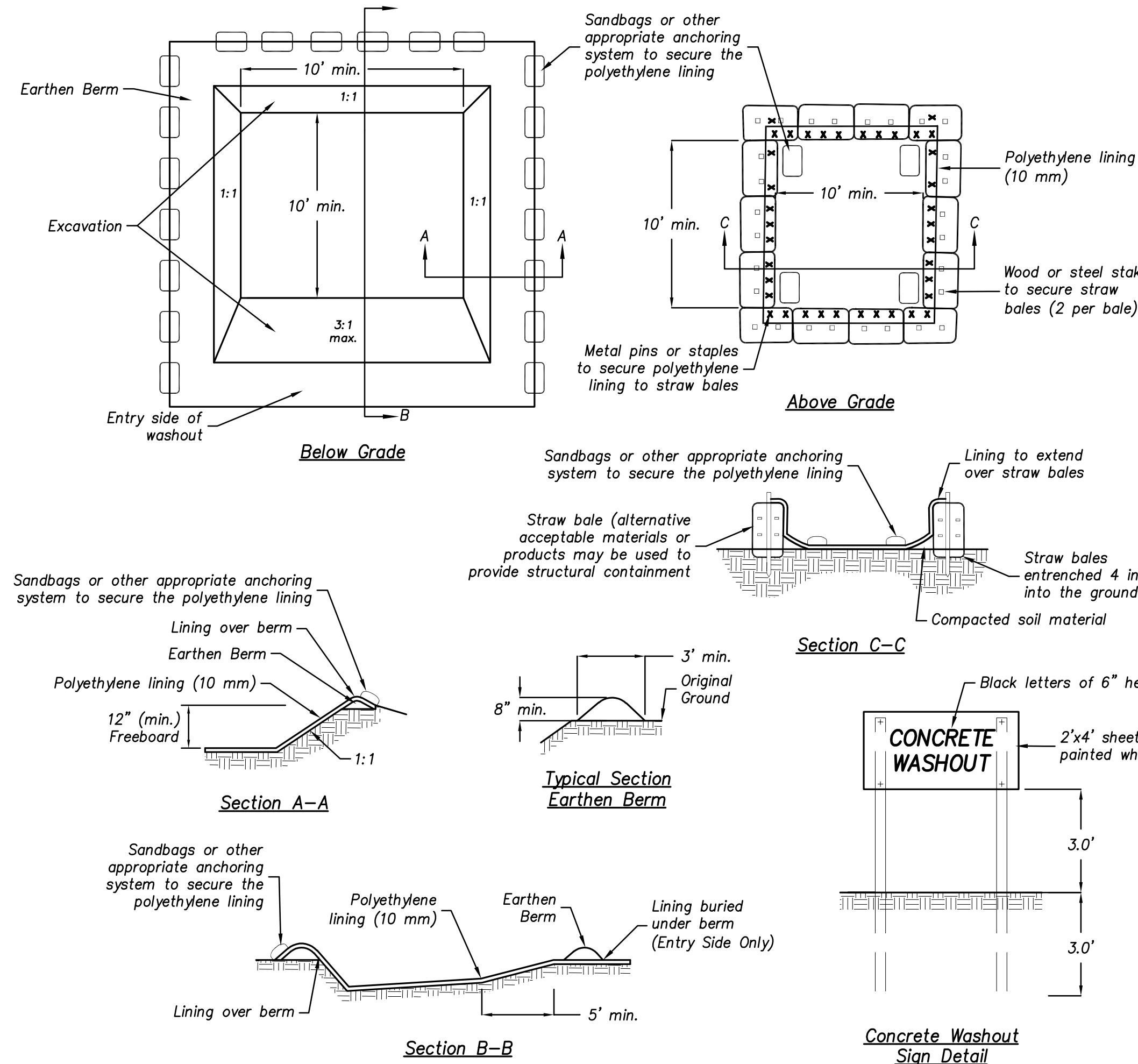
*D. S. Knip*  
DARYL S. KNIP  
PROFESSIONAL ENGINEER NO. PE19900163

7-17-2020  
DATE

**FERNWOOD  
PHASE THREE**

EROSION CONTROL PLAN

JOB #: M3-1159	DRAWN BY: P.J.L.	SHEETS
DATE: 02/20/03	DESIGNED BY: DSK	11 OF 13
HOR. SCALE: 1"=100'	CHECKED BY:	
VER. SCALE: N/A	PROJ. MNGR: DSK	



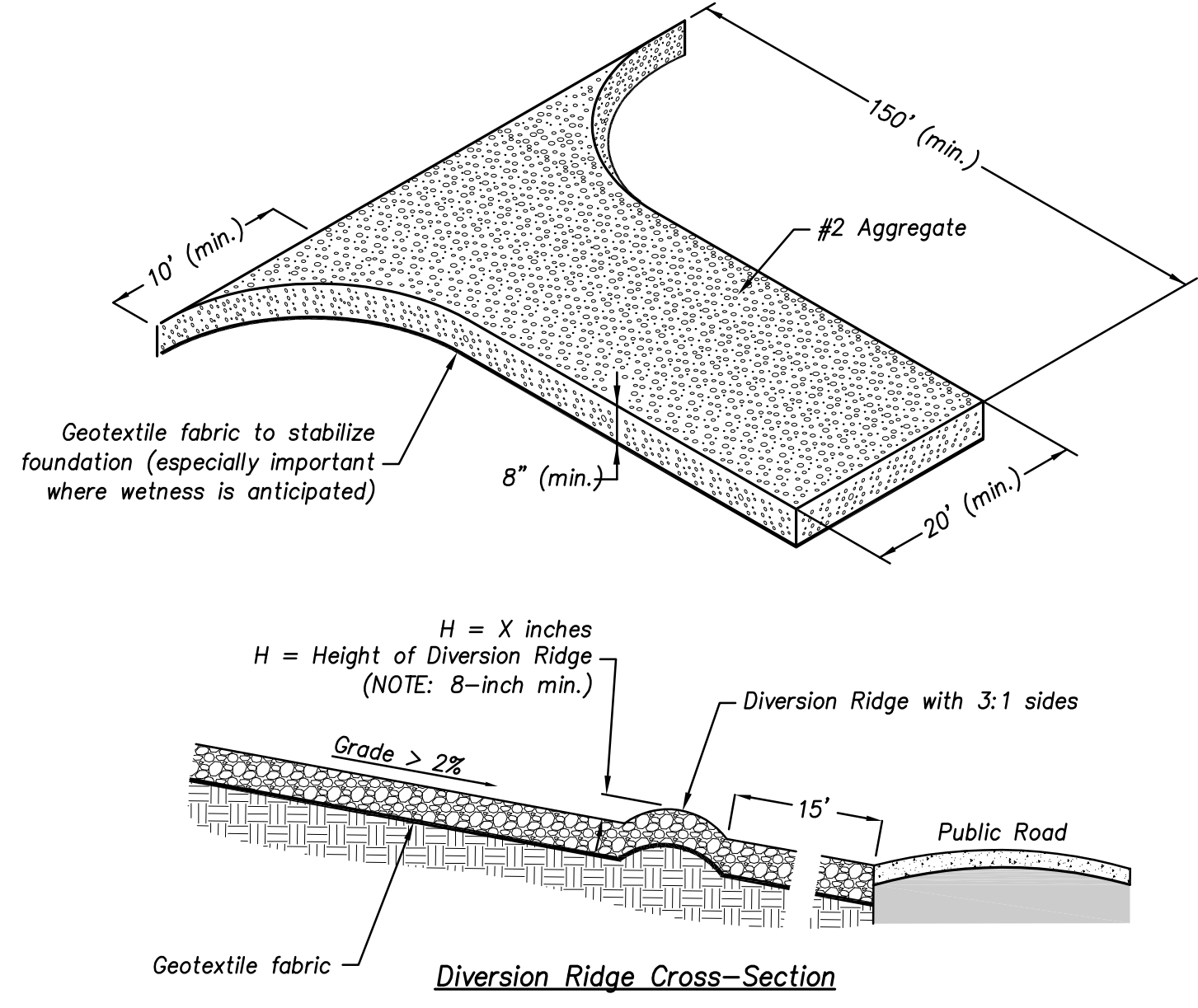
**INSTALLATION NOTES**

1. Dependent upon the type of system, either excavate the pit or install the containment system. For prefabricated containers, locate, and install according to the manufacturer's recommendations.
2. A base shall be constructed and prepared that is free of rocks and other debris that may cause tears/punctures in the polyethylene lining.
3. Install the polyethylene lining. For excavated systems, the lining should extend over the entire excavation. The lining for bermed systems should be installed over the pooling area with enough material to extend the lining over the berm or containment system. The lining should be secured with pins, staples, or other fasteners.
4. Place flags, safety fencing, or equivalent to provide a barrier to construction equipment and other traffic.
5. Place a non-collapsing, non-water holding cover over the washout facility prior to a predicted rainfall event to prevent accumulation of water and possible overflow of the system (optional).
6. Install signage that identifies concrete washout areas and post signs directing contractors and suppliers to designated locations.
7. Where necessary, provide stable ingress and egress or alternative approach pad for concrete washout systems.

**MAINTENANCE**

1. Inspect daily and after each storm event - inspect the integrity of the overall structure and containment system where applicable.
2. Inspect the system for leaks, spills, and tracking of soil by equipment, and the polyethylene lining for failure, including tears and punctures.
3. Once concrete wastes harden, remove and dispose of the material.
4. Excess concrete should be removed when the washout system reaches 50 percent of the design capacity. Use of the system should be discontinued until appropriate measures can be initiated to clean the structure. Prefabricated systems should also utilize this criterion, unless the manufacturer has alternate specifications.
5. Upon removal of the solids, inspect the structure. Repair the structure as needed or construct a new system.
6. Dispose of all the concrete in a legal manner. Reuse the material on site, recycle, or haul the material to an approved construction/demolition landfill site. Recycling of material is encouraged. The waste material can be used for multiple applications including but not limited to roadbeds and building. The availability for recycling should be checked locally.
7. The plastic liner should be replaced after every cleaning; the removal of material will usually damage the lining.
8. The concrete washout system should be repaired or enlarged as necessary to maintain capacity for concrete waste.
9. Concrete washout systems are designed to promote evaporation. However, if the liquids do not evaporate and the system is near capacity it may be necessary to vacuum or remove the liquids and dispose of them in an acceptable method. Disposal may be allowed at the local sanitary sewer authority provided their national pollutant discharge elimination system permits allow for acceptance of this material. Another option would be to utilize a secondary containment system or basin for further dewatering.
10. Prefabricated units are often pumped and the company supplying the unit provides this service.
11. Inspect construction activities on a regular basis to ensure suppliers, contractors, and others are utilizing designated washout areas. If concrete waste is being disposed of improperly, identify violators and take appropriate action.
12. When concrete washout systems are no longer required, the concrete washout system shall be closed. Dispose of all hardened concrete and other materials used to construct the system.
13. Holes, depressions and other land disturbances associated with the system should be backfilled, graded, and stabilized.

**CONCRETE WASHOUT STRUCTURE**  
(NOT TO SCALE)



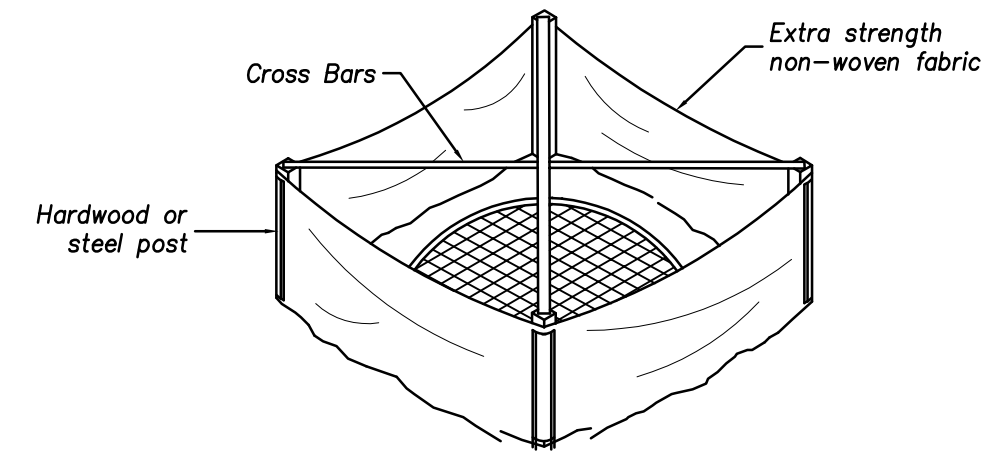
**INSTALLATION NOTES**

1. Remove all vegetation and other objectionable material from the foundation area.
2. Grade foundation and crown for positive drainage. If the slope of the construction entrance is toward a public road and exceeds two percent, construct an 8-inch high diversion ridge with a ratio of 3-to-1 side slopes across the foundation area about 15 feet from the entrance to divert runoff away from the road.
3. Install a culvert pipe under the pad if needed to maintain proper public road drainage.
4. If wet conditions are anticipated, place geotextile fabric on the graded foundation to improve stability.
5. Place specified aggregate to the dimensions shown leaving the surface smooth and sloped for drainage.
6. Top-dress the first 50 feet adjacent to the public roadway with 2-3 inches of washed #53 aggregate [optional, used primarily where the purpose of the pad is keep soil from adhering to vehicle tires]
7. Where possible, divert all storm water runoff and drainage from the pad to a sediment trap or basin.

**MAINTENANCE**

1. Inspect daily.
2. Reshape pad as needed for drainage and runoff control.
3. Top dress with clean aggregate as needed.
4. Immediately remove mud and sediment tracked or washed onto public roads.
5. Flushing should only be used if the water can be conveyed into a sediment trap or basin.

**TEMPORARY CONSTRUCTION ENTRANCE**  
(NOT TO SCALE)



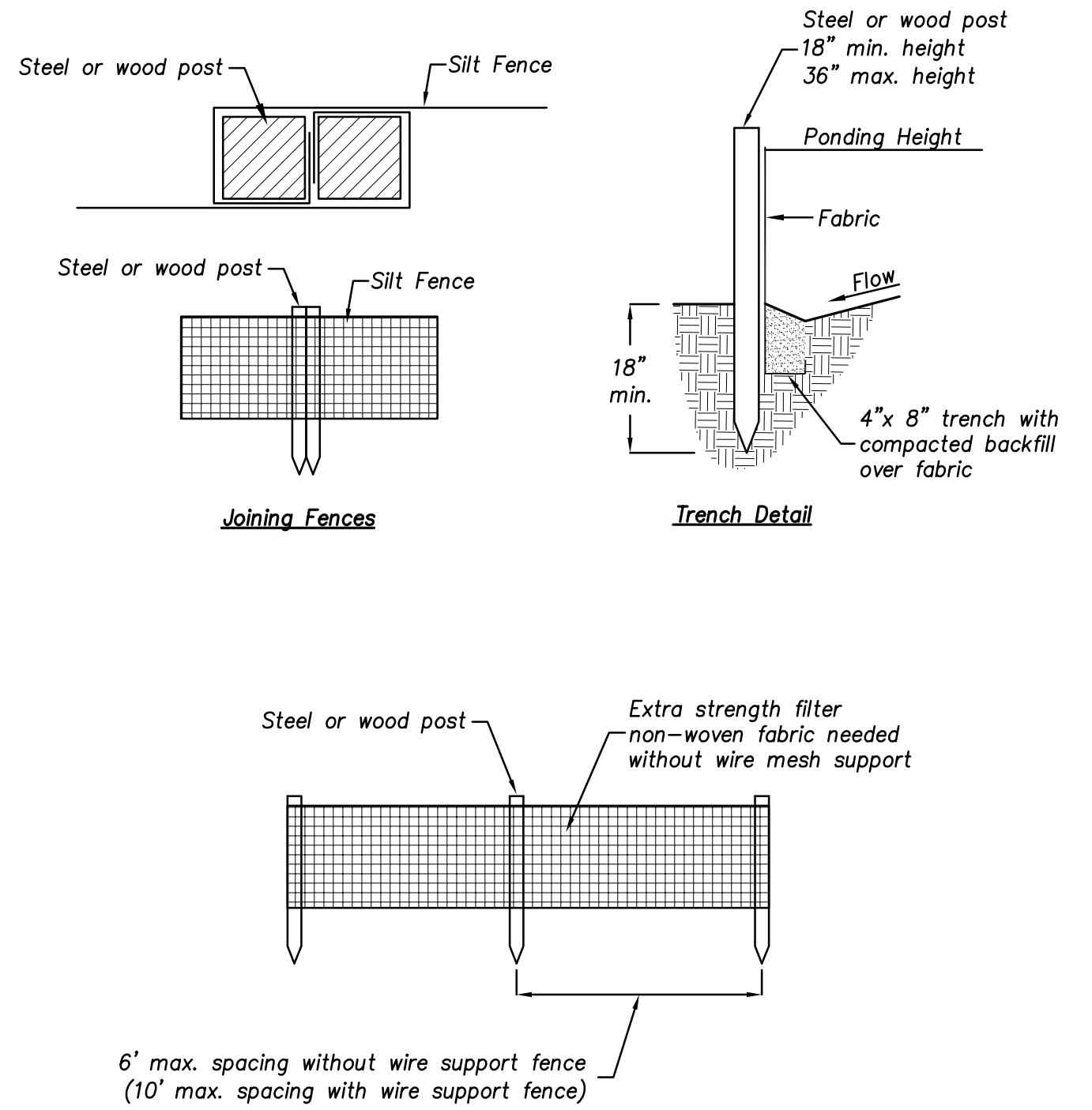
**INSTALLATION NOTES**

1. Dig trench around perimeter of inlet.
2. Drive posts into soil and stretch geotextile fabric tightly between each post.
3. Place bottom 12" of geotextile fabric into trench.
4. Backfill with soil material and compact. Brace as necessary.
5. The frame shall be wrapped with one continuous piece of geotextile fabric and a 2' overlap shall be provided.

**MAINTENANCE NOTES**

1. Inspection should occur at least once a week and following each 1/2" or more rain event.
2. If fence fabric tears, starts to decompose, or in anyway becomes ineffective, replace the affected portion immediately.
3. Remove deposited sediment to provide storage for next storm event.
4. When the contributing drainage area has been stabilized, remove the geotextile box and sediment deposits, final grade area, and stabilize immediately.

**TEMPORARY INLET PROTECTION PRIOR TO CURB/PAVING**  
**SILT FABRIC CURB SEDIMENT BARRIER**  
(NOT TO SCALE)



**SILT FENCE DETAIL**  
(NOT TO SCALE)

**INSTALLATION NOTES**

1. Lay out the location of the fence so that it is parallel to the contour of the slope and at least 10 feet beyond the toe of the slope to provide a sediment storage area. Turn the ends of the fence up slope such that the point of contact between the ground and the bottom of the fence end terminates at a higher elevation than the top of the fence at its lowest point.
2. Excavate an 8-inch deep by 4-inch wide trench along the entire length of the fence. (Installation by plowing is acceptable)
3. Install silt fence with the filter fabric located on the up-slope side of the excavated trench and the support posts on the down-slope side of the trench.
4. Drive the support posts at least 18 inches into the ground, tightly stretching the fabric between the posts as each is driven into the soil. A minimum of 12 inches of the filter fabric should extend into the trench.
5. Lay the lower 4 inches of fabric on the bottom of the trench and extend it toward the up-slope side of the trench.
6. Backfill the trench with soil material and compact it in place.

**NOTE:**

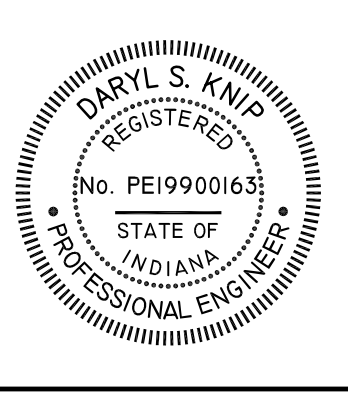
If the silt fence is being constructed onsite, attach the filter fabric to the support posts and attach wooden lath to secure the fabric to the posts. Allow for at least 12 inches of fabric below ground level. Complete the silt fence installation, following steps 1 through 6 above.

DEVELOPED BY:  
ALWAY DEVELOPMENT  
61679 BROMPTON DRIVE  
SOUTH BEND, INDIANA 46614

HOLEY MOLEY SAYS "DON'T DIG" - BLIND - CALLING  
1-800-382-5544  
1-800-428-5200  
FOR CALLS OUTSIDE OF INDIANA PER INDIANA STATE LAW 2-69-1991, IT IS AGREED THE LAW TO LOCATE WITHOUT NOTING THE UNDERGROUND LOCATION SERVICE TWO (2) WORKING DAYS BEFORE COMMENCING WORK.

LOCATIONS SHOWN FOR EXISTING UTILITIES ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY ALL LOCATIONS, ELEVATIONS, AND DIMENSIONS OF ALL EXISTING UTILITIES, STRUCTURES, AND OTHER FEATURES AFFECTING THE CONTRACTOR'S WORK PRIOR TO CONSTRUCTION.

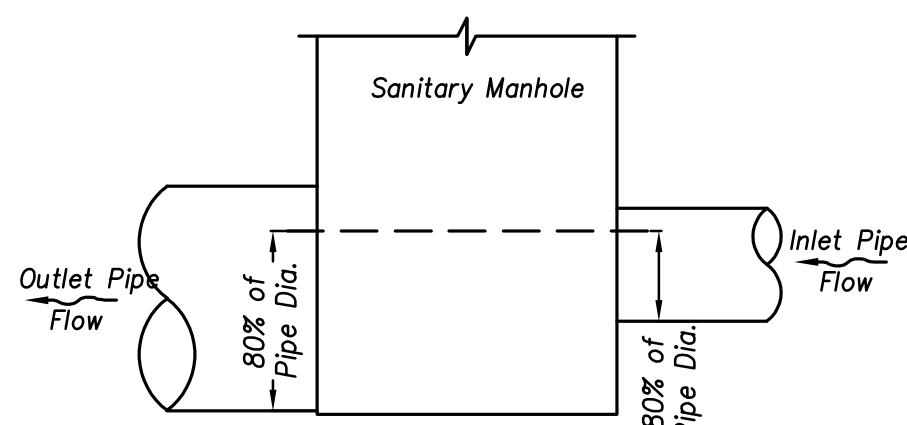
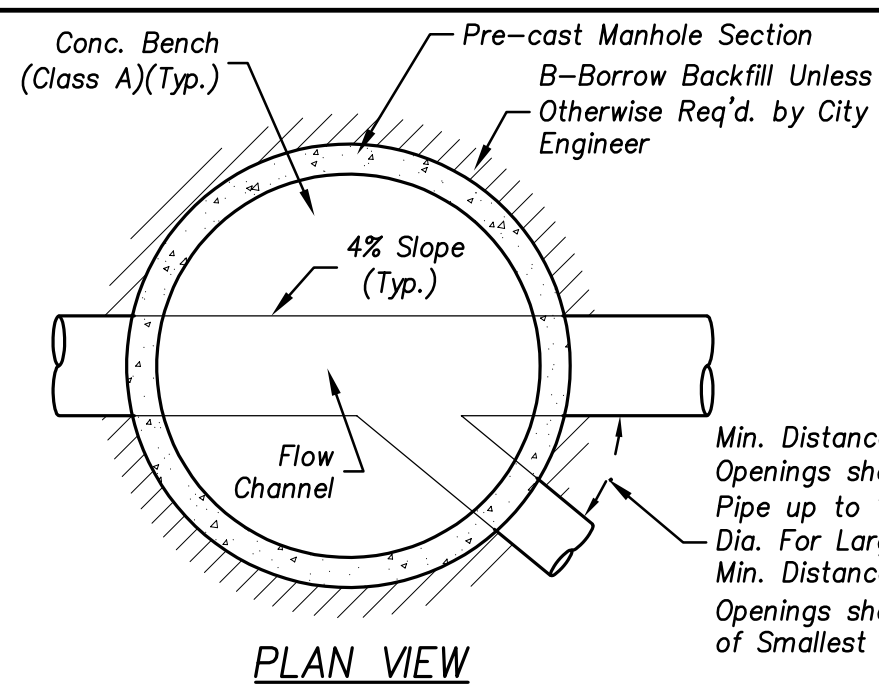
DRAWINGS BY:  
**ABONMARCHE CONSULTANTS, L.L.C.**  
750 Lincoln Way East  
South Bend, Indiana 46601  
(574) 232-8700  
FAX: (574) 251-4440  
Indianapolis, Indiana  
Fort Wayne, Indiana  
Benton Harbor, Michigan  
Manistee, Michigan  
ENGINEERING / LAND SURVEYING / PLANNING / CONSTRUCTION SERVICES



PART OF THE WEST HALF OF THE NORTHEAST QUARTER, SECTION 30, TOWNSHIP 38 NORTH, RANGE 3 EAST, CLAY TWP., ST. JOSEPH COUNTY, INDIANA  
Daryl S. Knip  
7-17-2020  
DATE  
DARYL S. KNIP  
PROFESSIONAL ENGINEER NO. PE19900163

**FERWOOD PHASE THREE**  
EROSION CONTROL PLAN

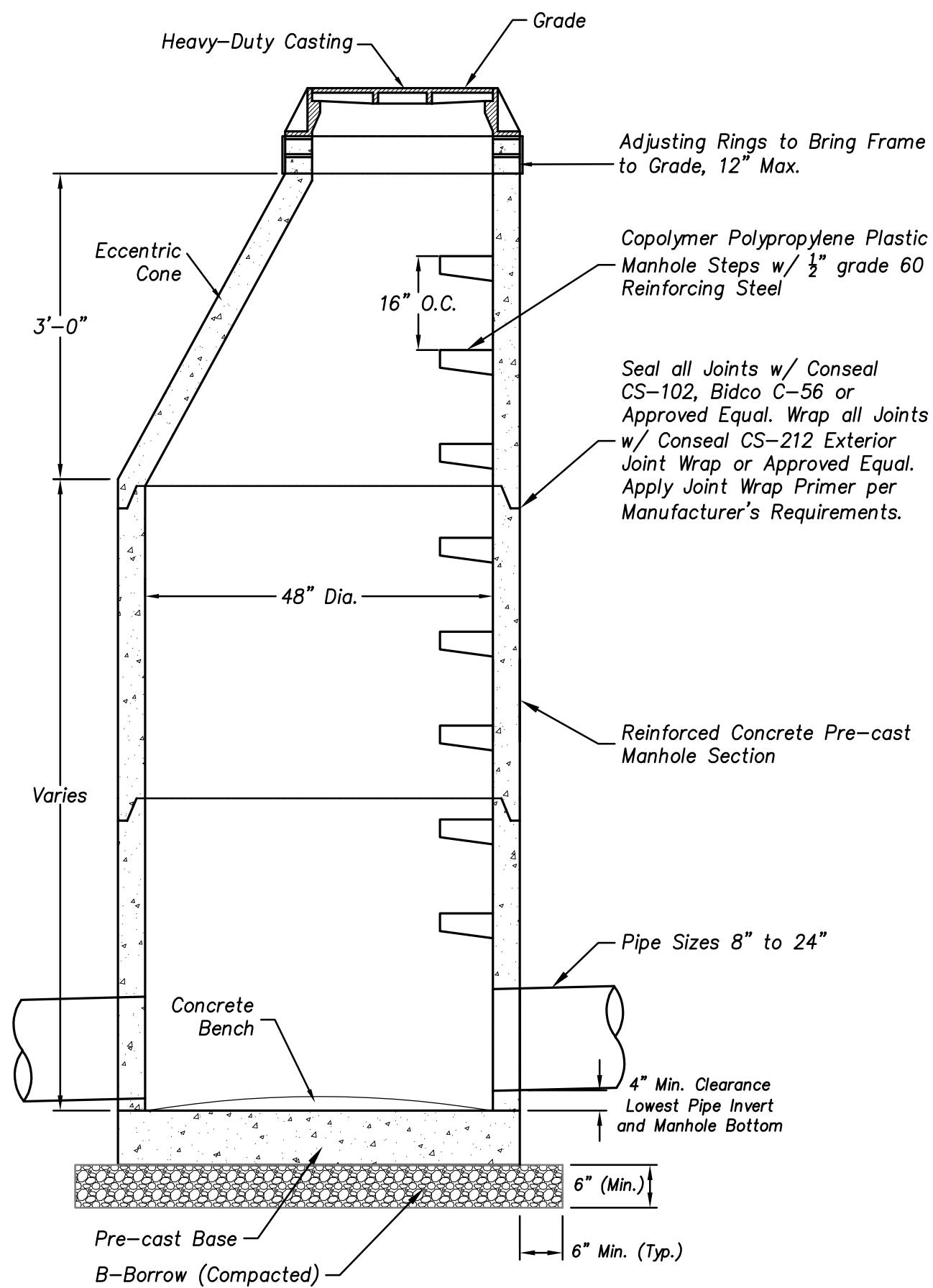
JOB #: M3-1159	DRAWN BY: P.J.L.	SHEETS
DATE: 02/20/03	DESIGNED BY: DSK	11A OF 13
HOR. SCALE: 1"=100'	CHECKED BY:	
VER. SCALE: N/A	PROJ. MNGR: DSK	



**NOTES:**

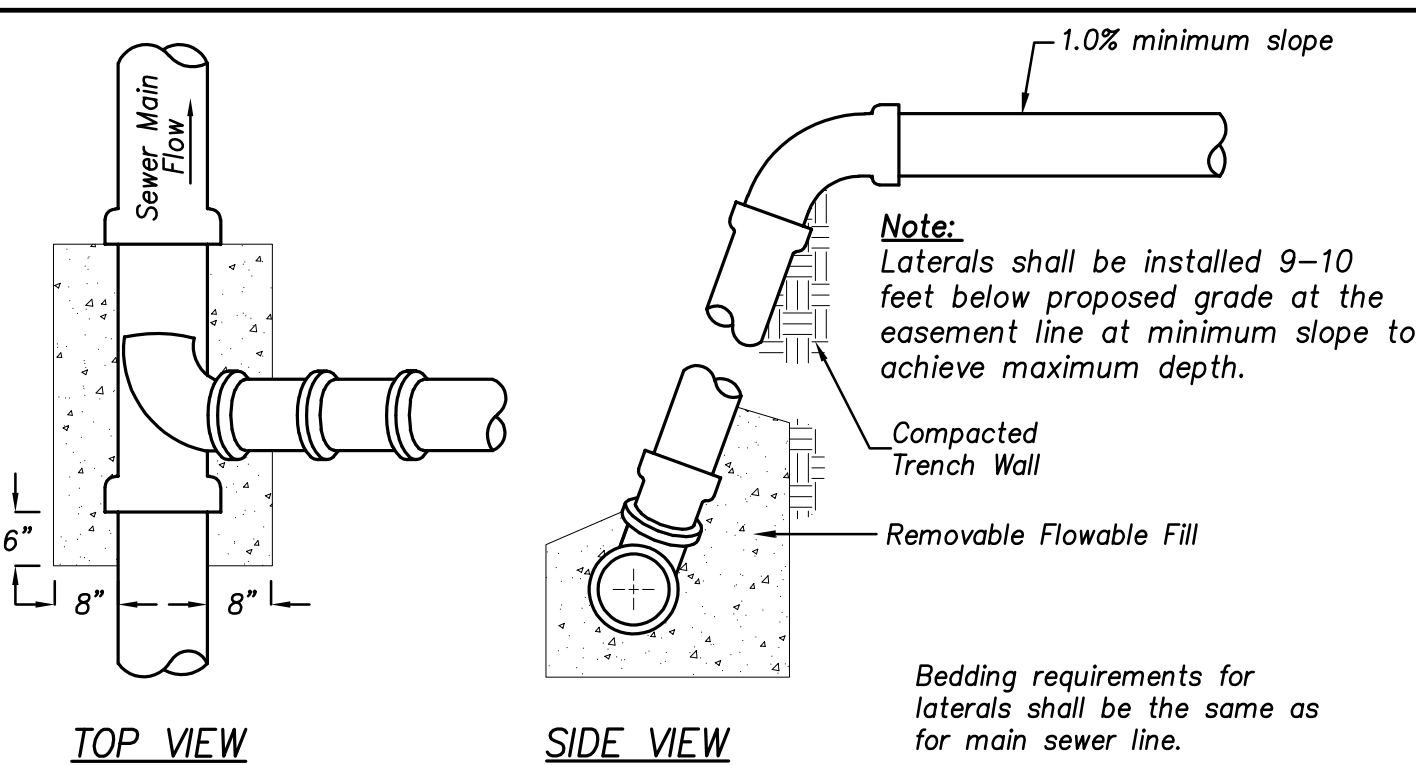
- For all manholes 6'-0" or less in depth, provide riser with flat top in lieu of eccentric cone in accordance with ASTM C-478.
- The invert elevation of the inlet pipe shall be 0.1 ft above the invert elevation of the outlet pipe, unless otherwise noted.
- All manholes shall be manufactured and installed in compliance with ASTM C-478.
- All pipe connections shall be made with integral resilient fittings complying with ASTM C-923.
- Flow channel shall conform to the shape of the connecting sanitary sewer and be made through the bottom surface of the manhole. The channel walls shall be formed or shaped to the full height of the crown of the outlet sewer.
- Refer to manhole size vs. pipe size chart on City of South Bend Standard Drawing 4-2.
- Completed manholes shall be tested with negative air pressure (vacuum) in accordance with ASTM C-1244-93.
- At manholes where a smaller diameter sewer joins a larger diameter sewer, the invert of the smaller diameter pipe shall be raised such that the elevation at 80% of the pipe diameter of both sewers is matched (Refer to Detail A above), unless otherwise noted.
- The Design Engineer is responsible for setting pipe invert elevations to account for minor losses through the manhole.

**DETAIL A**



**TYPE "A" SANITARY MANHOLE - STANDARD PRECAST**

(NOT TO SCALE)

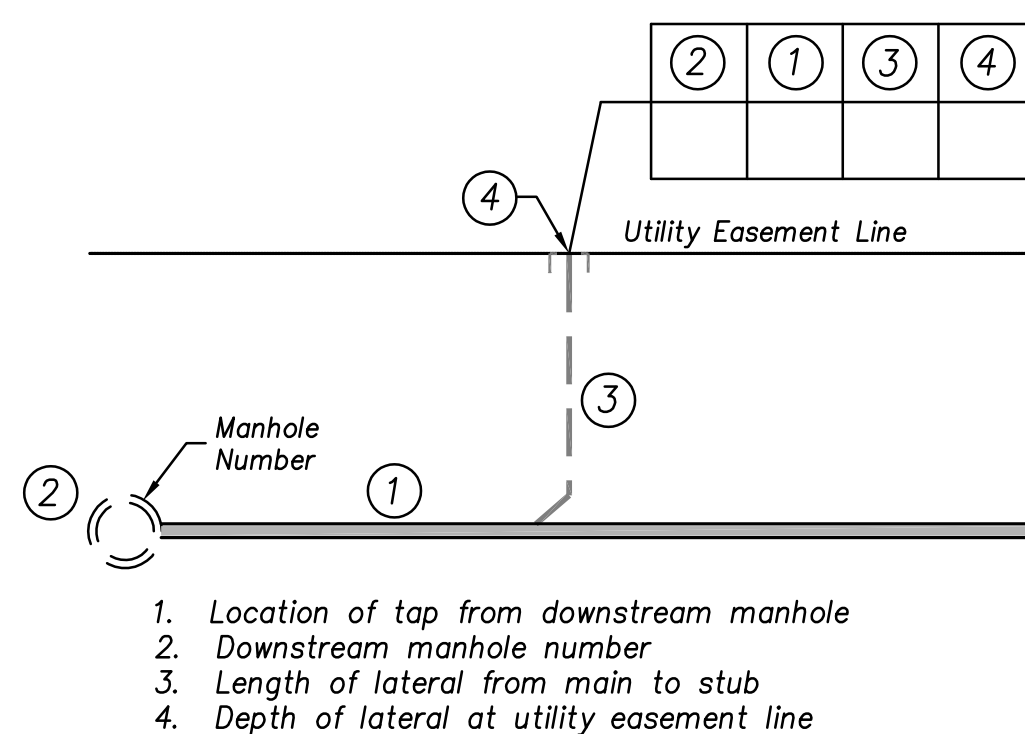


**NOTES:**

- Refer to INDOT Standard Specification Section 213 for removable flowable fill requirements.
- Wye replacement: Remove old wye, trim existing as pipe required, install new wye and pipe and connect to existing pipes with Fernco couplings.

**SLANT STACK LATERAL CONNECTION DETAIL**

(NOT TO SCALE)

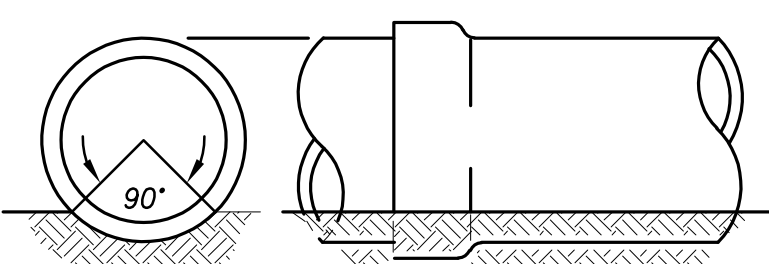


**SANITARY LATERAL AS-BUILT DETAIL**

(NOT TO SCALE)

**CONSTRUCTION NOTES (SANITARY SEWER)**

- Prior to any work, Contractor shall obtain all necessary permits from the local municipality and governing agencies.
- All sewer materials and construction shall be in accordance with the City of South Bend Standard Construction Specification Guidelines and Drawings, and these Construction Drawings.
- Sewers shall be installed in a dry trench.
- Sanitary sewer pipe outside the building shall be polyvinyl chloride pipe (PVC) conforming to ASTM D3034, Type PSM SDR 35 and SDR 26, as indicated on the plans, with elastomeric gasket joints conforming to ASTM D3212.
- Sanitary sewer fittings shall conform to the requirements of ASTM D3034 with a minimum wall thickness of SDR 35 or SDR 26 as indicated, and molded in one piece with elastomeric joints and minimum socket depths as specified. PVC material shall have a cell classification of 12454-B and C as defined in ASTM D1784.
- Sanitary sewer manholes shall be a minimum 48-inch diameter precast concrete with base conforming to ASTM C-478 and constructed of INDOT Class A Concrete. Refer to the construction detail on this sheet for further information.
- Contractor shall supply As-Built Record Drawings to the Owner/Developer and Engineer upon completion of work.
- The following tests shall be performed by the Contractor in accordance with the City of South Bend Standards and witnessed by a Professional Engineer. The Engineer and Owner shall be provided 48 hours notice of all testing.
  - Low pressure air leakage test per ASTM F1417, standard test method for installation acceptance of plastic gravity sewer lines using low-pressure air. The infiltration rate shall not exceed 100 gallons per inch diameter of pipe per mile per day. If the test fails, the Contractor shall determine the cause, repair/replace the sewer line to the satisfaction of the Owner, and then re-test.
  - Tests for deflection of sanitary sewer pipes shall be performed no earlier than 30 days after installation. The pipe shall be tested with an approved 9-point mandrel. No pipe shall exceed a deflection of five (5%) percent. In the event the sanitary sewer pipe fails the deflection test, the section of pipe which failed shall be completely removed, replaced, and tested starting with low pressure air leakage testing and then deflection testing. The mandrel shall be pulled without the aid of a mechanical pulling device.
  - Sanitary sewer manholes shall be tested by negative air pressure in accordance with ASTM C1244-93. If the test fails, the Contractor shall determine the cause, and then repair/replace the manhole to the satisfaction of the Owner. The test shall be repeated until it is successful.
- Construction and testing shall be in accordance with the City of South Bend standards, specifications & drawings.



The Lower 90° Arc of the Barrel of the Pipe Should be in Firm Contact With Undisturbed Earth. The Bedding Should be Continuous and Uniform for the Length of the Pipe.

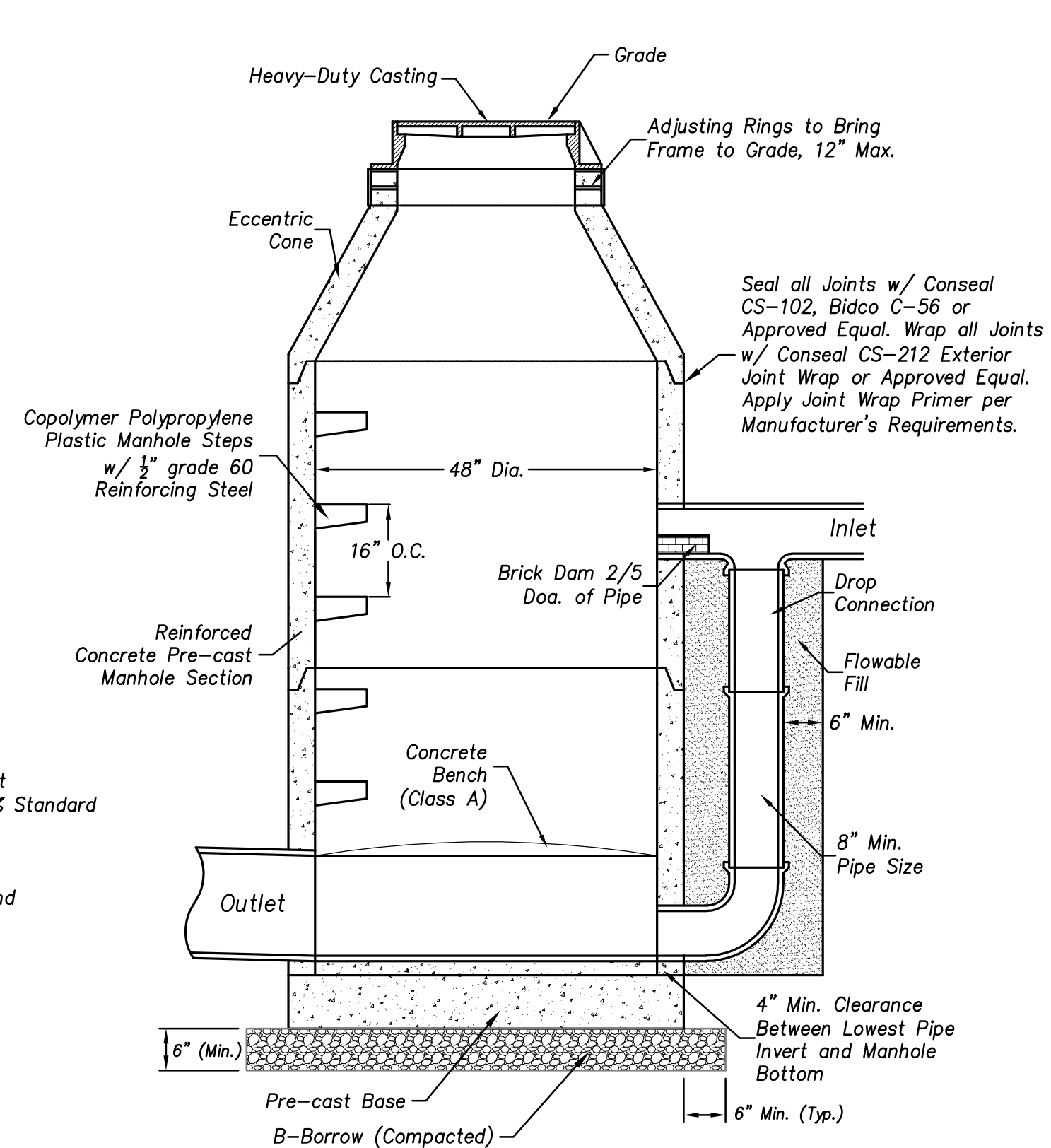
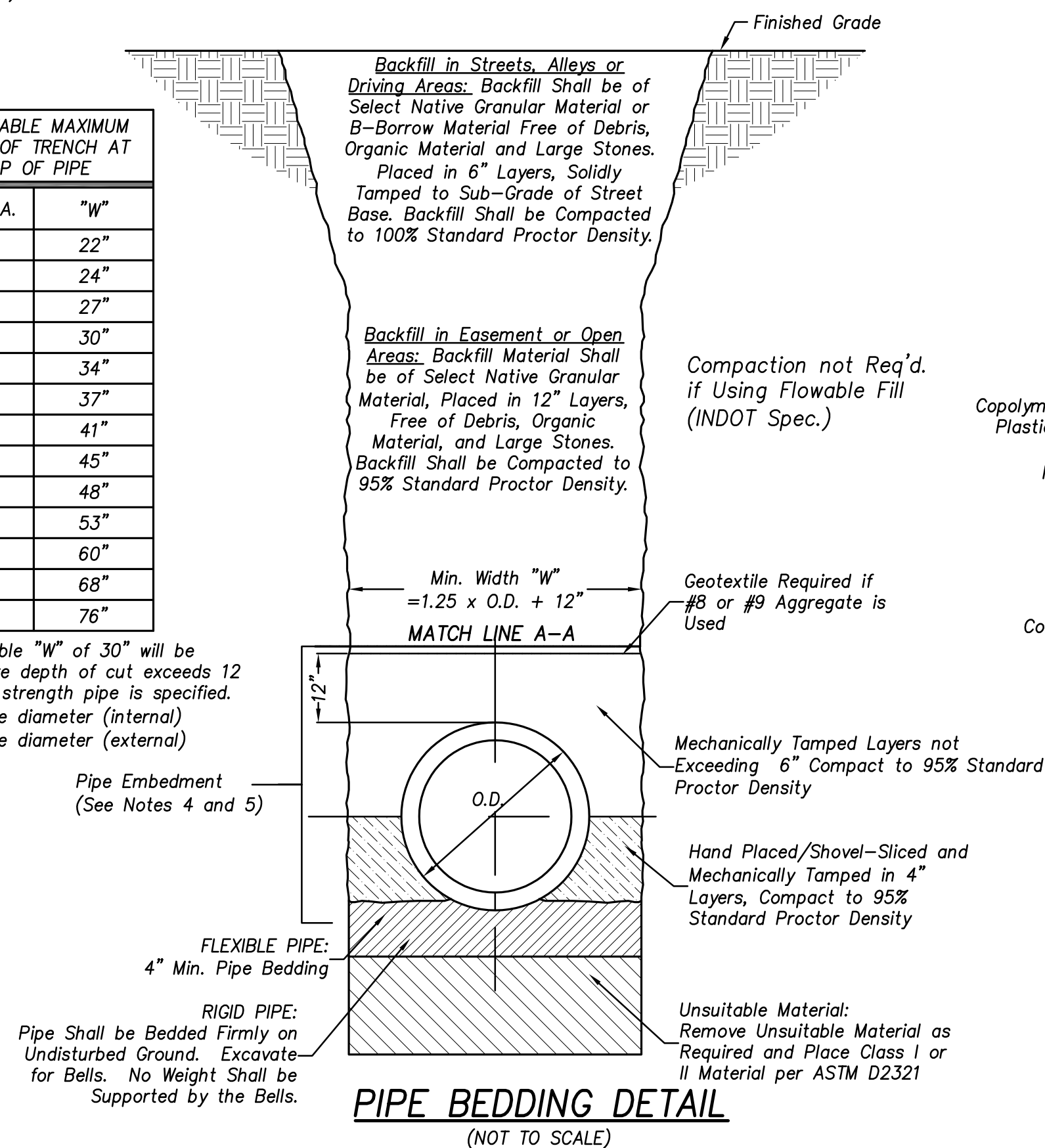
Small Excavations Should be Made for the Bells. No Weight Shall be Supported by the Bells. These Should be no Larger Than Necessary to Clear the Bell.

**NOTES:**

- These trench and bedding details are for pipe structural requirements only. The contractor is solely responsible for safety of operations. The contractor shall slope trench walls, provide protective work boxes, and/or shore and brace all excavations as the contractor determines necessary for safety of operations, and in conformance to OSHA Regulation 29 C.F.R. 1926, Subpart P for Trench Safety Systems.
- All PVC pipe for sanitary sewers shall be installed in accordance with ASTM D2321.
- There shall be no rocks or stones greater than 2" in any dimension within 6" of the pipe wall or bell.
- Flexible Pipe: Embedment materials for bedding, haunching and initial backfill shall comply with the requirements of ASTM D2321, Classes I (INDOT #8 or #9), II (INDOT #53, #73, or B-Borrow), or III and shall be compacted as noted. Refer to pipe manufacturers recommended bedding and embedment material class type requirements. Removable flowable backfill shall be placed for all areas within 5 feet of pavements to 12" above pipe crown. Above this limit structure backfill shall be used.
- Rigid Pipe: Embedment materials for bedding, haunching and initial backfill shall comply with the requirements of ASTM C12 (VCP) Classes A, B, C or crushed stone (INDOT #8, #9 or B-Borrow) and shall be compacted as noted. Removable flowable backfill shall be placed for all areas within 5 feet of pavements to 12" above pipe crown. Above this limit structure backfill shall be used.
- Final backfill shall not contain debris, organic material, frozen material, unstable material or boulders or stones greater than 2" in any dimension. Flowable fill optional.
- The placement and compaction of backfill shall not cause displacement of the pipe.
- For multiple pipes in same trench:
  - Place bedding to Spring Line of first pipe across entire trench width.
  - Placement of next pipe, re-excavate trench as needed. Then place bedding as noted above.
  - For additional pipes repeat as required.
- Refer to INDOT Standard Specification Section 213 for flowable fill (removable) requirements.

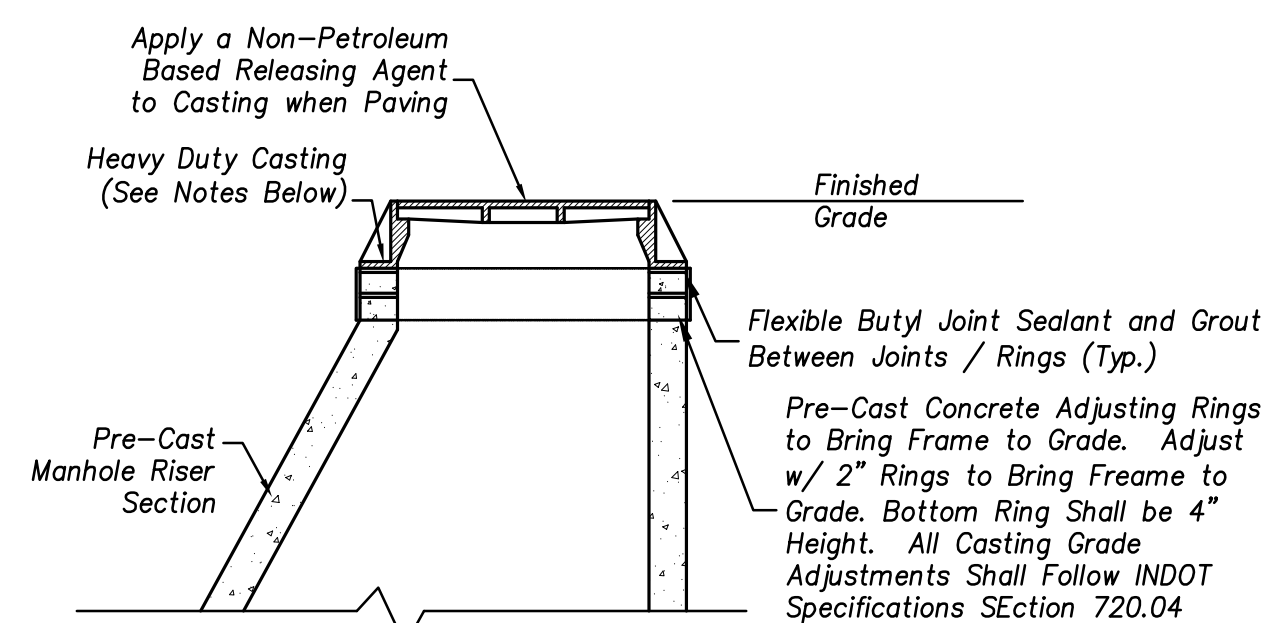
PIPE DIA.	"W"
6"	22"
8"	24"
10"	27"
12"	30"
15"	34"
18"	37"
21"	41"
24"	45"
27"	48"
30"	53"
36"	60"
42"	68"
48"	76"

An allowable "W" of 30" will be permitted where depth of cut exceeds 12 ft. and extra strength pipe is specified.  
D = Pipe diameter (internal)  
Bc = Pipe diameter (external)



**STANDARD DROP MANHOLE**

(NOT TO SCALE)



**NOTES:**

- Manhole castings shall be Heavy Duty (H-20 rated). Castings shall be East Jordan Iron Works 1040A or Neenah R-1642.
- Casting lid shall be solid with two (2) concealed pickholes for sanitary or combined sewer manholes and two (2) open pickholes for storm sewer manholes. The text STORM shall be cast into the lid for storm sewer manholes.
- Where directed by the City, casting lids shall bolt down. Bolts shall be provided with an anti-seizing agent.
- For manholes 72-inch diameter and larger, the clear opening shall be 36-inch diameter. The casting shall be Heavy Duty (H-20 Rated). Casting shall be East Jordan Iron Works V-1600-5 or Neenah R-1741-D.
- For casting adjustments of existing brick manholes, remove old bricks down to a solid base. Then level with mortar and build up with pre-cast adjusting rings.
- When manholes are located in gravel or treelawn areas, provide a 5 foot diameter concrete collar, centered on the casting. Concrete shall be Class A

**TYPICAL MANHOLE CASTING & ADJUSTING RINGS**

(NOT TO SCALE)

**NOTES:**

- All manholes shall be manufactured and installed in compliance with ASTM C-478.
- All pipe connections shall be made with integral resilient fittings complying with ASTM C-923.
- Flow channel shall conform to the shape of the connecting sanitary sewer and be formed through the bottom surface of the manhole. The channel walls shall be formed or shaped to the full height of the crown of the outlet sewer.
- Refer to manhole size vs. pipe size chart on City of South Bend Standard Drawing 4-2.
- Completed manholes shall be tested with negative air pressure (vacuum) in accordance with ASTM C-1244-93.
- The Design Engineer is responsible for setting pipe invert elevations to account for minor losses through the manhole.
- Refer to INDOT Standard Specification Section 213 for removable flowable fill requirements.

HOLEY MOLEY SAYS "DON'T DIG BLIND"

LOCATIONS SHOWN FOR EXISTING UTILITIES ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY ALL LOCATIONS, ELEVATIONS, AND DIMENSIONS OF ALL EXISTING UTILITIES, STRUCTURES, AND OTHER FEATURES AFFECTING THE CONTRACTOR'S WORK PRIOR TO CONSTRUCTION.

1-800-382-5544  
1-800-428-5200  
FOR CALLS OUTSIDE OF INDIANA PER INDIANA STATE LAW § 49-199, IT IS AGREED THE LAW TO EXERCISE WITHOUT NOTING THE UNDERGROUND LOCATION SERVICE INC. (U) WORKING DAYS BEFORE COMMENCING WORK.

DRAWINGS BY:

**ABONMARCHE CONSULTANTS, L.L.C.**

750 Lincoln Way East  
South Bend, Indiana 46601  
(574) 232-8700  
FAX: (574) 251-4440

Indianapolis, Indiana  
Fort Wayne, Indiana  
Benton Harbor, Michigan  
Manistee, Michigan

ENGINEERING / LAND SURVEYING / PLANNING / CONSTRUCTION SERVICES

**DARYL S. KNIP**  
REGISTERED PROFESSIONAL ENGINEER  
No. PE19900163  
STATE OF INDIANA

PART OF THE WEST HALF OF THE NORTHEAST QUARTER, SECTION 30, TOWNSHIP 38 NORTH, RANGE 3 EAST, CLAY TWP., ST. JOSEPH COUNTY, INDIANA

*D. Knip* 7-17-2020  
DATE

DARYL S. KNIP  
PROFESSIONAL ENGINEER NO. PE19900163

**FERNWOOD PHASE THREE**

SANITARY SEWER DETAILS

JOB #: M3-1159	DRAWN BY: SSH	SHEETS
DATE: 02/20/03	DESIGNED BY: DSK	12 OF 13
HOR. SCALE: 1"=50'	CHECKED BY:	
VER. SCALE: 1"=5'	PROJ. MNGR: DSK	

7-17-2020

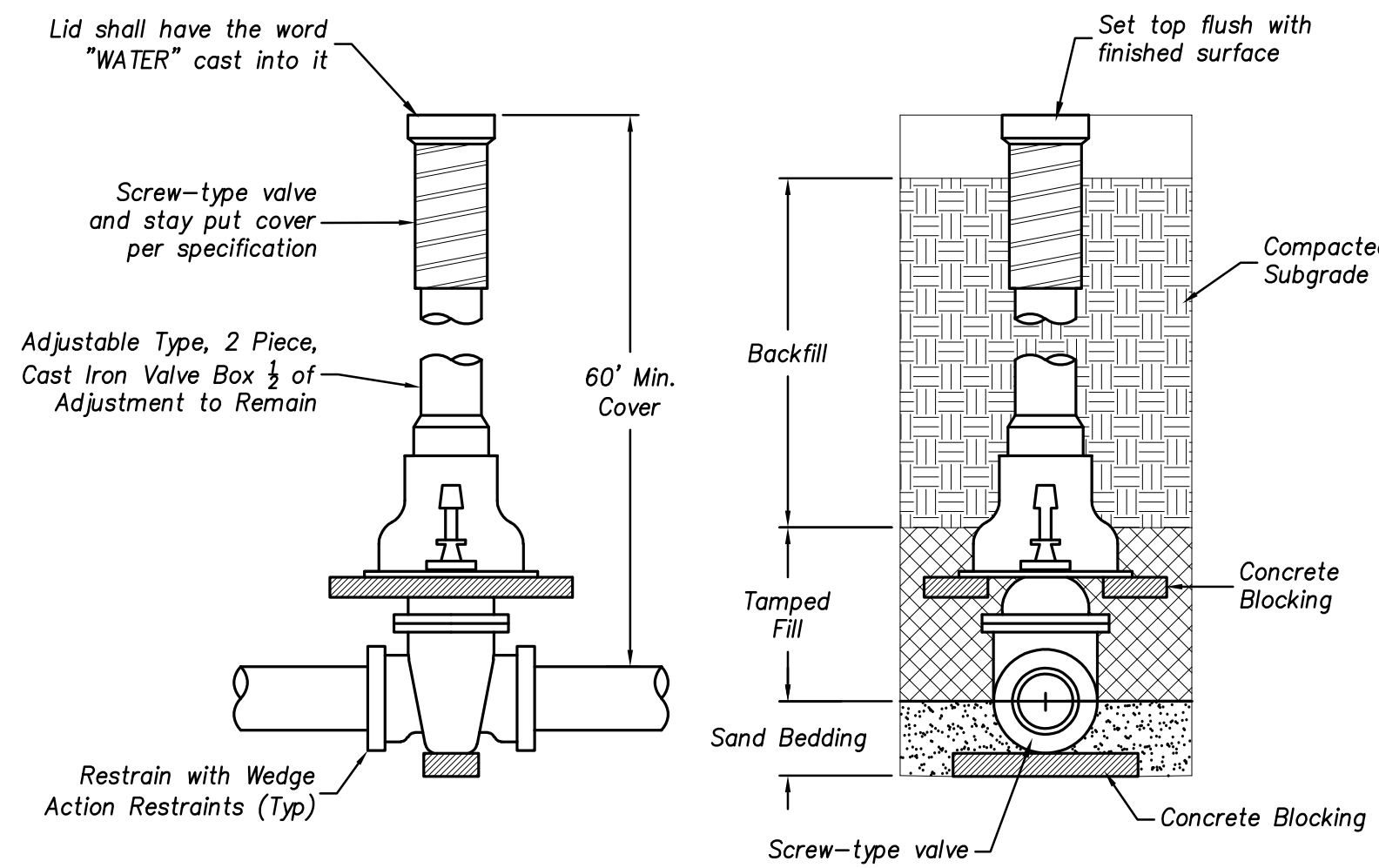
DARYL S. KNIP  
PROFESSIONAL ENGINEER NO. PE19900163

**CONSTRUCTION NOTES (WATER MAIN)**

- Prior to any work, Contractor shall obtain all necessary permits from the local municipality and governing agencies.
- All water main construction shall be in accordance with City of South Bend Standards, American Water Works Association (AWWA) Standards, and these Drawings.
- Water service pipe and fittings shall be type "K" copper conforming to ASTM B88 with compression fittings.
- Water main pipe shall be 18 foot lengths of ductile iron pipe conforming to the requirements of the American National Standards Institute (ANSI) 21.51 or the American Water Works Association (AWWA) C151, thickness class 50 push-on joint pipe.
- Water main pipe and fittings shall have a hot coal tar coating in accordance with ANSI for coal-tar dip coating for cast iron pipe and fittings, and shall also be cement-lined conforming to ANSI a21.4 or AWWA C104. rubber gasket joints shall conform to ANSI A21.11 or AWWA C111.
- All water main fittings shall be ductile iron conforming to AWWA C111 / ANSI A21.11 and AWWA C110 / ANSI A21.10 for full body fittings or AWWA C153 / ANSI A21.53-94 for compact fittings. All fittings shall be mechanical joint and manufactured in the United States.
- Water main pipe, valves, and associated fitting shall be encased (wrapped) in polyethylene in accordance with AWWA C105 / ANSI A21.5. The polyethylene wrap shall be V-BIO enhanced. It shall consist of three (3) layers of co-extruded linear low density polyethylene (LLDPE), fused into single thickness of not less than 8 mils. The inside surface of the polyethylene wrap shall be in contact with the pipe exterior and infused with a blend of anti-microbial biocide to mitigate microbiologically influenced corrosion and a volatile corrosion inhibitor to control galvanic corrosion. The wrap shall be overlapped one (1) foot in each direction at joints and secured in place around the pipe. Wrap at top locations shall be taped tightly prior to tapping. Contractor shall make all necessary repairs to wrap following tapping operations.
- Retainer glands shall be wedge action and provided on all valves and fittings according to the City of South Bend. Concrete thrust blocks shall only be used if designed and certified by a professional engineer registered in the State of Indiana.
- Resilient seated gate valves shall be Clow or Mueller, epoxy coated, resilient wedge, open right, designed for 200 psi working pressure and meeting the requirement of AWWA C509. Valves shall be bronze non-rising stem, mechanical joint, 2 inch square operating nut for vertical installation with two O-ring stem seals, and rubber-coated or rubber sealed gate. Valves shall be used on water main pipe 12 inches and smaller.
- Valve box shall be cast iron and include the bottom section, top section, and lid. Lid shall have the word "Water" cast into it. Box shall have a 5 foot burial depth. Box shall be manufactured by Tyler Pipe Industries Model 664-S or approved equal.
- Curb valves and corporation stops shall be ball type, 1/4 turn clockwise from fully open to fully closed, and designed for 200 psi working pressure. Inlet and outlet shall have compressed connections. Curb valve box shall allow valve operation from surface with box and rod 5 foot depth of curb valve. The tee head should be parallel to pipe when open and perpendicular when closed. Only valves valves manufactured by Mueller, Ford, or McDonald shall be permitted.
- Fire hydrant shall conform to the most recent version of AWWA C502. Hydrant to include two (2) 2 1/2 inch nozzles with national standard thread, one (1) 5 inch pumper nozzle with South Bend Fire Department special thread; chained nozzle caps; 1 inch square operating nut to open clockwise; 1 inch square nozzle cap nuts; 360° rotatable upper barrel of break-flange design; painted red, white, and blue; extension for a 6 feet trench depth; 6 inch inlet with gasket and wedge action retainer gland. The inlet connection (shoe) shall be oversized, having outside diameter range from 6.9 inch to 7.1 inch. the nominal 5 inch pumper nozzle shall have an inside diameter of at least 4 3/4 inch. The main valve size shall be 5 1/4 inch diameter and close with and be held closed by normal water pressure. The inside of the shoe and lower plate valve shall be epoxy coated where exposed to pressurized water. Hydrants must be Clow Medallion or Mueller Super Centurion. Hydrant spacing shall be no greater than 500 feet and not placed within pedestrian access.
- Water main and services shall have a minimum cover of 5 feet 0 inches.
- No water services shall be extended from a bend in the water line. All services shall be extended from the water main in the street, to a curb valve approximately two (2) feet inside the proposed curb.
- Restrained joints shall be placed at fittings, upstream and downstream of the fitting, according to City of South Bend Standards.
- Water mains and sewer mains shall have a minimum horizontal separation of 10 feet. Whenever sewer mains must cross under the water main, a minimum vertical separation of 18 inches is required between the top of the sewer main and the bottom of the water main. If this cannot be met, then the sewer shall be constructed of ductile iron pipe (Thickness Class 50) with mechanical joints or PVC pipe (SDR 21) with compression seals for a distance of 10 feet each side of the water main. The sewer pipe shall be pressure tested in place per AWWA C600 without leakage before backfilling.
- Contractor shall supply South Bend Water Works and the Engineer with as-built drawings at least three (3) working days prior to the static pressure test. The drawings must include all fire hydrants, main line valves, hydrant valves, and curb stops. Contractor must provide proper documentation on official letterhead including a detailed list of material and total lengths installed.
- The City of South Bend shall be contacted to supervise and inspect the pressure testing and the disinfecting of the water main as required. Water main shall be tested in accordance with AWWA 600 for rate of ex-filtration at 150 psi hydrostatic pressure test for no less than two (2) hours and shall not exceed 10.0 gallons/inch of diameter/mile of pipe/day. All hydrants will be live during the static pressure test. Table 6A from the AWWA C600-99 will be used to determine testing allowances.
- Contractor shall disinfect water main according to the requirements of the AWWA C651-99 and as directed by the City of South Bend Water Works.
- Construction and testing shall be in accordance with the City of South Bend standards, specifications & drawings.

**NOTES**

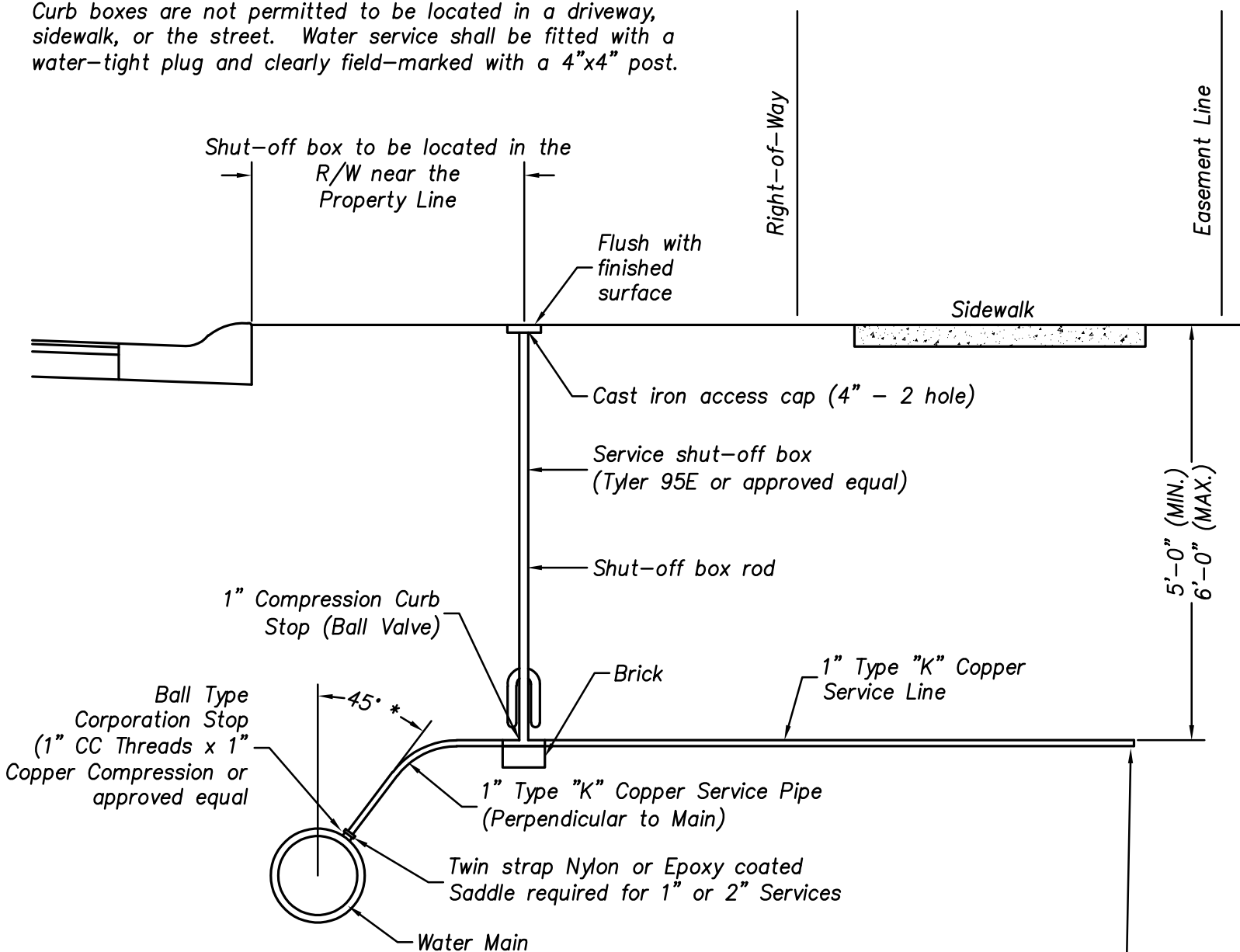
- Gate valves shall be manufactured by Clow, Mueller, or approved equal.
- Valve box shall be manufactured by Tyler Pipe Industries Model 664-S or approved equal.
- Gate valves shall be used on water main pipe 12-inches and smaller.
- Valve spacing shall be no greater than 1,000 feet. A main line valve shall be placed at each intersection.
- Valve locations shall be configured to be within 3 Ft. of adjoining fittings.



**WATER VALVE DETAIL**  
(NOT TO SCALE)

**NOTE:**

Curb boxes are not permitted to be located in a driveway, sidewalk, or the street. Water service shall be fitted with a water-tight plug and clearly field-marked with a 4"x4" post.



**WATER SERVICE CONNECTION DETAIL**  
(NOT TO SCALE)

**NOTES**

- Any subgrade disturbed beneath hydrant shall be thoroughly compacted or suitable material shall be furnished, placed, and compacted to provide a firm foundation for the hydrant.
- All pipe, fitting, and valve joints shall be restrained with wedge action restraints.

**HYDRANT PAINTING:**  
Hydrant to be painted red, white, and blue with rust-inhibitive paint or equal product that is approved by the City of South Bend Water Works Department.

**LEGEND:**

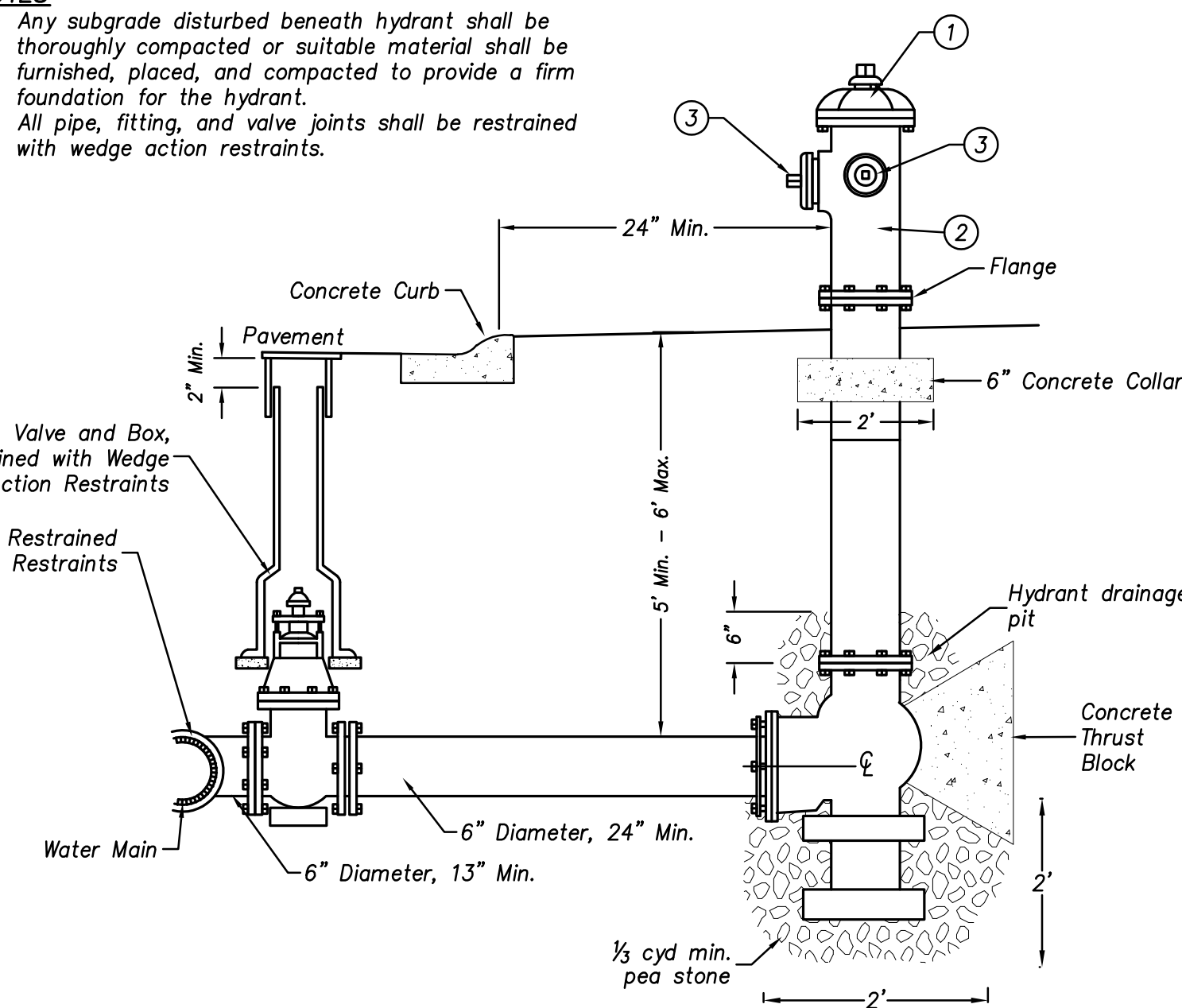
- Coastal Blue 074-2561
- Fire Protection Red 074-4091
- White 074-1651

**SUBGRADE NOTE:**

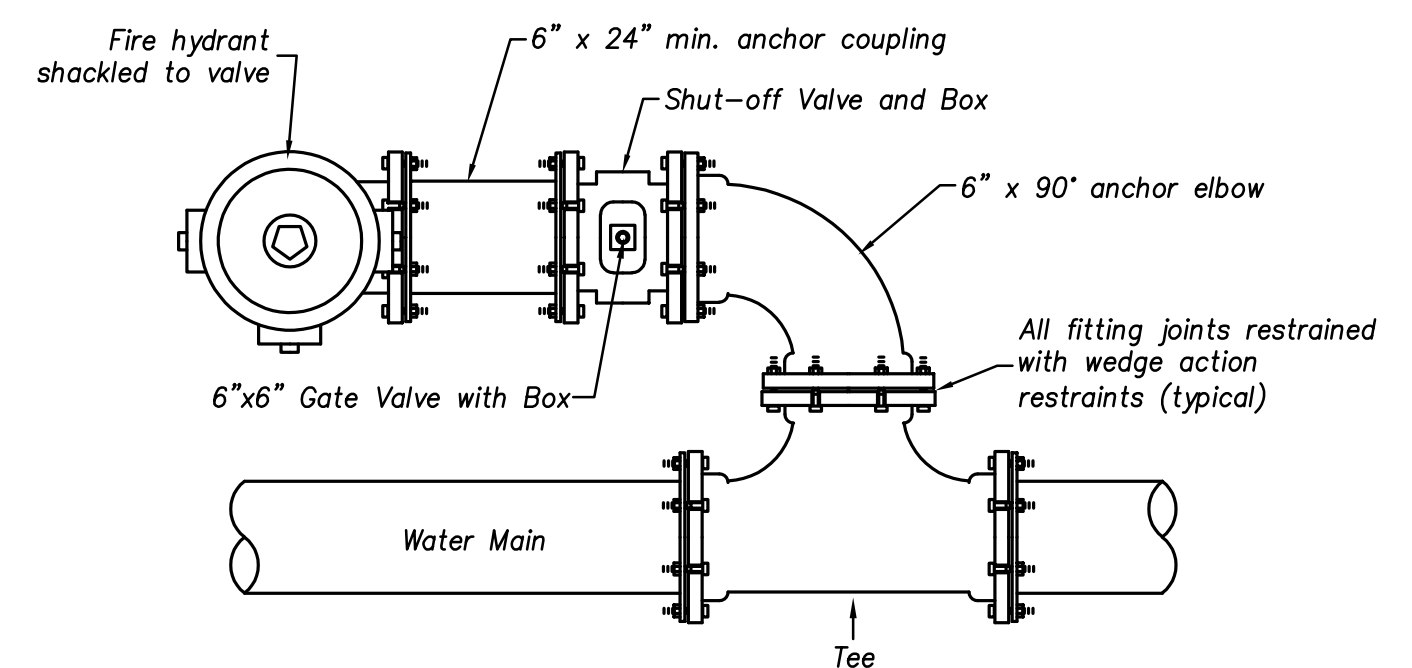
Any subgrade disturbed beneath hydrant shall be thoroughly compacted or suitable material shall be furnished, placed, and compacted to provide a firm foundation for the hydrant.

**HYDRANT DRAINAGE:**  
To prevent freezing of the hydrant barrel if it were not drained, a drainage pit 2'x2'x2' shall be excavated below the hydrant and filled with coarse gravel or crushed stone mixed with sand to a depth of 6" above the hydrant opening, providing sufficient aggregate void space to more than equal the volume of the barrel.

The drainage pit should neither be near, nor have a connection to, a sewer.



**STANDARD FIRE HYDRANT ASSEMBLY DETAIL**  
(NOT TO SCALE)



**STANDARD FIRE HYDRANT ASSEMBLY DETAIL LIMITED SPACE**  
(NOT TO SCALE)

HOLEY MOLEY SAYS "DON'T DIG" BLIND. Locations shown for existing utilities are approximate. The contractor shall verify all locations, elevations, and dimensions of all existing utilities, structures, and other features affecting the contractor's work prior to construction.

1-800-382-5544  
1-800-428-5200  
FOR CALLS OUTSIDE OF INDIANA PER INDIANA STATE LAW IS-49-1991, IT IS AGAINST THE LAW TO EXERCISE WITHOUT NOTIFYING THE UNDERGROUND UTILITY SERVICE INC (U) WORKING DAYS BEFORE COMMENCING WORK.

DRAWINGS BY:  
**ABONMARCHÉ CONSULTANTS, L.L.C.**  
750 Lincoln Way East  
South Bend, Indiana 46601  
(574) 232-8700  
FAX: (574) 251-4440

Indianapolis, Indiana  
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Benton Harbor, Michigan  
Manistee, Michigan

ENGINEERING / LAND SURVEYING / PLANNING / CONSTRUCTION SERVICES

DARYL S. KNIP  
REGISTERED  
No. PE19900163  
STATE OF INDIANA  
PROFESSIONAL ENGINEER

PART OF THE WEST HALF OF THE  
NORTHEAST QUARTER, SECTION 30,  
TOWNSHIP 38 NORTH, RANGE 3 EAST,  
CLAY TWP., ST. JOSEPH COUNTY, INDIANA

Daryl S. Knip  
7-17-2020  
DATE  
DARYL S. KNIP  
PROFESSIONAL ENGINEER NO. PE19900163

**FERNWOOD  
PHASE THREE**

WATER MAIN DETAILS

JOB #: M3-1159	DRAWN BY: SSH	SHEETS
DATE: 02/20/03	DESIGNED BY: DSK	13 OF 13
HOR. SCALE: 1"=50'	CHECKED BY:	
VER. SCALE: 1"=5'	PROJ. MNGR: DSK	

EXHIBIT B

ENGINEER'S ESTIMATE



***Cleveland Road Development, LLC.*****Fernwood Phase Three (Re-plot)*****Remaining Water Utility Construction Cost Estimate  
9 Lots*****December 15, 2020**

<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Unit Price</i>	<i>Cost</i>
<b>Water Main</b>				
1 Mobilization/Demobilization	5%	%	\$24,305.00	\$1,215.25
2 Remove Existing Watermain	263	LFT	\$5.00	\$1,315.00
3 HMA Pavement Patching	17	TON	\$110.00	\$1,870.00
4 Concrete Curb Removal/Replacement	20	LFT	\$25.00	\$500.00
5 Water Main, 8" D.I.	346	LFT	\$45.00	\$15,570.00
6 Gate Valve & Box, 8" D.I.	2	EA	\$650.00	\$1,300.00
7 12" x 8" Tapping Sleeve with Valve	1	EA	\$3,000.00	\$3,000.00
8 8" DI Cap	1	EA	\$250.00	\$250.00
9 Testing	1	LS	\$500.00	\$500.00
	<b>TOTAL</b>			<b>\$25,520.25</b>
	<b>Performance Bond Amount (125%)</b>			<b>\$31,900.31</b>

EXHIBIT C

PERFORMANCE BOND

**MERCHANTS**  
**BONDING COMPANY**<sup>TM</sup>

MERCHANTS BONDING COMPANY (MUTUAL) P.O. BOX 14498, DES MOINES, IOWA 50306-3498  
PHONE: (800) 678-8171 FAX: (515) 243-3854

**SUBDIVISION BOND**

Bond No. INC61295

**KNOW ALL PERSONS BY THESE PRESENTS:**

THAT we, R & R Excavating, Inc.  
2010 Went Avenue, Mishawaka, IN 46545  
as Principal, and Merchants Bonding Company (Mutual) (hereinafter called  
the Surety) are held and firmly bound unto the City of South Bend, 227 West Jefferson Blvd,  
South Bend, IN 46601  
as Obligee, in the penal sum of Thirty One Thousand Nine Hundred & 31/100THS

dollars ( \$31,900.31 ), lawful money of the United States to the payment of which sum well and truly to  
be made, the Principal herein firmly binds himself (themselves), their heirs, executors, and administrators,  
and the said Surety binds itself, its successors, assigns, executors and administrators, jointly and  
severally, firmly by these presents.

NOW THE CONDITION OF THIS OBLIGATION IS SUCH, THAT, whereas the above bounden Principal  
is platting certain lots entitled Fernwood Phase 3

being an official plat lying within the City of South Bend  
County of St. Joseph, State of Indiana.

WHEREAS, the above bounden Principal has agreed with the Obligee to install the following  
improvements:

Water Main Utility Construction Work

ALL such improvements to be completed in accordance with an agreement between the Principal and  
the Obligee.

NOW, if the Principal shall in all respects fulfill this said obligation according to the terms thereof, and  
shall satisfy all claims and demands incurred for same, and shall fully indemnify and save harmless the  
Obligee from all costs and damages which it may suffer by reason of failure to do so and shall fully  
reimburse and repay the Obligee all outlays and expenses which it may incur in making good any such  
default, then this obligation is to be void and of no effect; otherwise to remain in full force and effect.

IN WITNESS WHEREOF, we have hereunto set our hands and seals this 18th  
day of February, 2021.

R & R Excavating, Inc.  
Principal

By \_\_\_\_\_

Merchants Bonding Company (Mutual)

By Jennifer L. Kasznia  
Jennifer L. Kasznia, Attorney-in-Fact



**MERCHANTS**  
**BONDING COMPANY™**  
**POWER OF ATTORNEY**

Know All Persons By These Presents, that MERCHANTS BONDING COMPANY (MUTUAL) and MERCHANTS NATIONAL BONDING, INC., both being corporations of the State of Iowa (herein collectively called the "Companies") do hereby make, constitute and appoint, individually, Barbara E Pearson; Faith D Hunt; Jennifer L Kasznia; Jordan M Scheiber; Lisa M Thomas; Mark E Wobbe; Megan E Riesenber; Nicole L Bicknell; Sandra L Junk; Theresa M Burns; Wesley L Mantooh; William J Cerney III

their true and lawful Attorney(s)-in-Fact, to sign its name as surety(ies) and to execute, seal and acknowledge any and all bonds, undertakings, contracts and other written instruments in the nature thereof, on behalf of the Companies in their business of guaranteeing the fidelity of persons, guaranteeing the performance of contracts and executing or guaranteeing bonds and undertakings required or permitted in any actions or proceedings allowed by law.

This Power-of-Attorney is granted and is signed and sealed by facsimile under and by authority of the following By-Laws adopted by the Board of Directors of Merchants Bonding Company (Mutual) on April 23, 2011 and amended August 14, 2015 and adopted by the Board of Directors of Merchants National Bonding, Inc., on October 16, 2015.

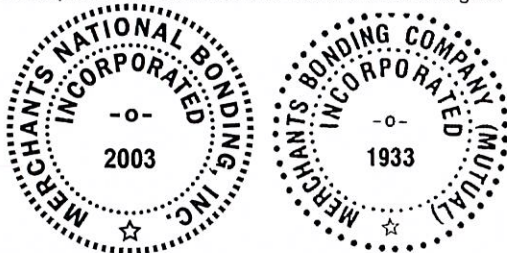
"The President, Secretary, Treasurer, or any Assistant Treasurer or any Assistant Secretary or any Vice President shall have power and authority to appoint Attorneys-in-Fact, and to authorize them to execute on behalf of the Company, and attach the seal of the Company thereto, bonds and undertakings, recognizances, contracts of indemnity and other writings obligatory in the nature thereof."

"The signature of any authorized officer and the seal of the Company may be affixed by facsimile or electronic transmission to any Power of Attorney or Certification thereof authorizing the execution and delivery of any bond, undertaking, recognizance, or other suretyship obligations of the Company, and such signature and seal when so used shall have the same force and effect as though manually fixed."

In connection with obligations in favor of the Florida Department of Transportation only, it is agreed that the power and authority hereby given to the Attorney-in-Fact includes any and all consents for the release of retained percentages and/or final estimates on engineering and construction contracts required by the State of Florida Department of Transportation. It is fully understood that consenting to the State of Florida Department of Transportation making payment of the final estimate to the Contractor and/or its assignee, shall not relieve this surety company of any of its obligations under its bond.

In connection with obligations in favor of the Kentucky Department of Highways only, it is agreed that the power and authority hereby given to the Attorney-in-Fact cannot be modified or revoked unless prior written personal notice of such intent has been given to the Commissioner-Department of Highways of the Commonwealth of Kentucky at least thirty (30) days prior to the modification or revocation.

In Witness Whereof, the Companies have caused this instrument to be signed and sealed this 8th day of October, 2020

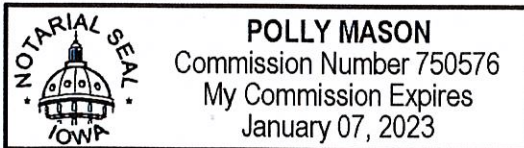


MERCHANTS BONDING COMPANY (MUTUAL)  
MERCHANTS NATIONAL BONDING, INC.

By *Larry Taylor*  
President

STATE OF IOWA  
COUNTY OF DALLAS ss.

On this 8th day of October, 2020, before me appeared Larry Taylor, to me personally known, who being by me duly sworn did say that he is President of MERCHANTS BONDING COMPANY (MUTUAL) and MERCHANTS NATIONAL BONDING, INC.; and that the seals affixed to the foregoing instrument are the Corporate Seals of the Companies; and that the said instrument was signed and sealed in behalf of the Companies by authority of their respective Boards of Directors.

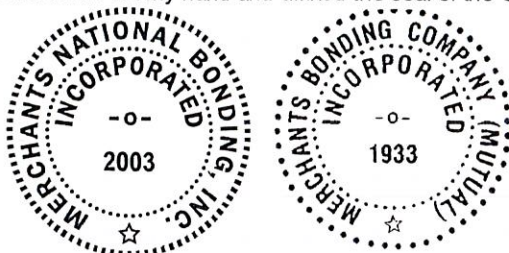


*Polly Mason*  
Notary Public

(Expiration of notary's commission does not invalidate this instrument)

I, William Warner, Jr., Secretary of MERCHANTS BONDING COMPANY (MUTUAL) and MERCHANTS NATIONAL BONDING, INC., do hereby certify that the above and foregoing is a true and correct copy of the POWER-OF-ATTORNEY executed by said Companies, which is still in full force and effect and has not been amended or revoked.

In Witness Whereof, I have hereunto set my hand and affixed the seal of the Companies on this 18th day of February, 2021



*William Warner Jr.*  
Secretary

EXHIBIT D

SYSTEM DEVELOPMENT CHARGE

## Estimate for System Development Charges

Estimate Provided On: 11/9/2020

Estimate Provided By: C. Brach

### Fernwood Phase III South Bend, IN

**\*\*Estimate is based on projected uses and calculations provided by owner/consultant\*\***

	Values	Unit Type
Single Family Homes # of Unit Types	11	houses
Estimated Flow (gpd) for Single Family Homes	310	per house
Estimated Total Flow for Single Family Homes	3410	gpd
Estimated Total Flow for Fernwood Phase III	3410	gpd
ERU calculation	11.000	ERU
ERU rounddown	11	ERU
Sewer SDC Calculation (\$1145 per ERU)	\$	12,595.00
Water SDC Calculation (\$475 per ERU)	\$	5,225.00
<b>Estimated Amount Due for Fernwood Phase III</b>	<b>\$</b>	<b>17,820.00</b>
<b>Estimated 10% Discounted Total (Payment in full)</b>	<b>\$</b>	<b>16,038.00</b>

**Per the Ordinance of the Common Council of the City of South Bend, System Development Charges are summarized below from Sections 17-79 and 17-80:**

**Sec. 17-79. - System Development Charge for Wastewater inside and outside City limits.**

(1) For purposes of this section "ERU" shall be defined as an equivalent residential unit which means a single family residence. For purposes of customers that are not single family residences, one (1) ERU shall equal estimated wastewater flows of three hundred ten (310) gallons per day. No customer will be less than one (1) ERU. There will be no partial ERU's. The City shall round down to the closest applicable ERU calculation at all times.

(2) Except as provided in Subsections (5) and (6) of this section, for every new connection to the South Bend Municipal Sewer Works, a system development charge of one thousand one hundred forty-five dollars (\$1,145.00) shall be collected per ERU and additional portion thereof to be connected. All charges shall be billed by the City at the time the application for service is filed.

(3) System development charges per ERU shall also be collected from existing customers undertaking activities producing a permanent increase in wastewater flow of greater than three hundred ten (310) gallons per day. This subsection shall not apply to an existing customer who has, by contract, purchased reserved capacity from the City so long as the customer's flows remain within the reserved capacity. A permanent increase shall be deemed to have occurred when the average flow rate for six (6) consecutive months exceeds the current flow rate by at least three hundred ten (310) gallons per day.

(4) For multifamily structures (e.g., apartments, condominiums, mobile home communities), each individual unit shall be one (1) ERU. For all other types of structures, the ERU calculation shall be based upon the ratio of Average Daily Flow as computed pursuant to 327 IAC 3-6-11 in relationship to three hundred ten (310) gallons per day. For structures not listed in 327 IAC 3-6-11, the ERU shall be calculated as the relationship between the Average Daily Flow reported in the sewer capacity certification for the structure and three hundred then (310) gallons per day.

(5) For customers with greater than twenty (20) ERUs as calculated pursuant to subsection (4) of this section, the ERU shall be adjusted based upon the Peaking Factor as computed herein. The Peaking Factor shall be calculated by dividing the Peak Daily Flow by the Average Daily Flow, both as reported in the sewer capacity certification. In no event will a Peaking Factor less than 2.0 be used for purposes of the adjustment described in this subsection. The Peaking Factor divided by 4.0 (the Peaking Factor for residential connections) will be multiplied by the number of ERUs for purposes of computing the system development charge owed by the customer. The City Board of Works may execute a contract with the customer authorizing an increase to the initial System Development Charge based upon actual usage data that is collected after connection.

(6) Where a prospective customer seeks to connect a new structure on property which replaces a prior structure of a similar use what was located on the same property and which was connected to the South Bend Municipal Sewer Works, no system development charge will be collected. For instance, if the prior structure was a single family structure and the new structure is to be used as a multi-family structure, a system development charge, as contemplated herein this section, shall be charged. The Board of Public Works shall make the final determination of whether the new property structure is a similar use to the prior property structure for the purposes of this subsection.

**Sec. 17-80. - System Development Charge for Water inside and outside City limits.**

(1) For purposes of this section "ERU" shall be defined as an equivalent residential unit which means a single family residence. For purposes of customers that are not single family residences, one (1) ERU shall equal estimated water flows of three hundred ten (310) gallons per day. No customer will be less than one (1) ERU. There will be no partial ERU's. The City shall round down to the closest applicable ERU calculation at all times.

(2) Except as provided in Subsections (5) and (6) of this section, for every new connection to the South Bend Municipal Water Works, a system development charge of five hundred dollars (\$500.00) shall be collected per ERU and additional portion thereof to be connected. All charges shall be billed by the City at the time the application for service is filed.

(3) System development charges per ERU shall also be collected from existing customers undertaking activities producing a permanent increase in water flow of greater than three hundred ten (310) gallons per day. This subsection shall not apply to an existing customer who has, by contract, purchased reserved capacity from the City so long as the customer's flows remain within the reserved capacity. A permanent increase shall be deemed to have occurred when the average flow rate for six (6) consecutive months exceeds the current flow rate by at least three hundred ten (310) gallons per day.

(4) For multifamily structures (e.g., apartments, condominiums, mobile home communities), each individual unit shall be one (1) ERU. For all other types of structures, the ERU calculation shall be based upon the ratio of Average Daily Flow as computed pursuant to 327 IAC 3-6-11 in relationship to three hundred ten (310) gallons per day. For structures not listed in 327 IAC 3-6-11, the ERU shall be calculated as the relationship between the Average Daily Flow reported in the water capacity certification for the structure and three hundred ten (310) gallons per day.

(5) For customers with greater than twenty (20) ERUs as calculated pursuant to subsection (4) of this section, the ERU shall be adjusted based upon the Peaking Factor as computed herein. The Peaking Factor shall be calculated by dividing the Peak Daily Flow by the Average Daily Flow, both as reported in the water capacity certification. In no event will a Peaking Factor less than 2.0 be used for purposes of the adjustment described in this subsection. The Peaking Factor divided by 4.0 (the Peaking Factor for residential connections) will be multiplied by the number of ERUs for purposes of computing the system development charge owed by the customer. The City Board of Works may execute a contract with the customer authorizing an increase to the initial System Development Charge based upon actual usage data that is collected after connection.

(6) Where a prospective customer seeks to connect a new structure on property which replaces a prior structure of a similar use what was located on the same property and which was connected to the South Bend Municipal Water Works, no system development charge will be collected. For instance, if the prior structure was a single family structure and the new structure is to be used as a multi-family structure, a system development charge, as contemplated herein this section, shall be charged. The Board of Public Works shall make the final determination of whether the new property structure is a similar use to the prior property structure for the purposes of this subsection.

**Sec. 17-85. - Methods of payment; prepayment with discount; installment plan.**

(a) The property owner may pay all charges in full prior to time the installation work is commenced. Prepayment of expenses in advance under this section shall entitle the owner to a ten (10) percent *discount* of the total charge.