



CITY OF SOUTH BEND

BOARD OF PUBLIC WORKS

January 27, 2026

Mr. John Lovely
Allen Edwin Homes
2186 E. Centre Avenue
Portage, MI 49002
jlvely@allenedwin.com

RE: Water & Sewer Extension Agreement

Dear Mr. Lovely:

At its January 27, 2026 meeting, the Board of Public Works approved the above referenced agreement for the water and sewer extension which will be dedicated to the city upon completion for the Woodhaven Hills Subdivision.

Please find enclosed the agreement. Kindly sign and return it to hhorvath@southbendin.gov and retain a copy for your records.

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

Sincerely,

/s/ Hillary Horvath

Hillary Horvath, Clerk

SEWER AND WATER SERVICE AGREEMENT

This Sewer and Water Service Agreement (“Agreement”) is made on the 27 day of January, 2026 by and between Allen Edwin Homes (“Owner”), 2186 E Centre Street, Portage, MI, 49002, and the City of South Bend, a municipal corporation existing under the laws of Indiana, acting by and through its Board of Public Works (“City”) in accordance with 170 I.A.C. 6-1.5-40.

WHEREAS, Owner intends to develop 0.78 of acres located east of Irvington Drive & Emerson Forest Parkway for a residential subdivision that includes 5 housing units across 5 parcels, some of which require extensions of public utilities;

WHEREAS, Owner plans to extend and make additions to existing water and sanitary sewer systems to serve said development as shown on the Exhibit A, attached and incorporated hereto (the "Dedicated Improvements"), and desires certain commitments from City; 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, 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. Design

The Owner shall consult the City and allow the City Engineer or her designee input prior to designating the project engineer who shall be responsible for the engineering design and inspection in connection with the installation of the Dedicated Improvements (the "Project Engineer"). The Owner shall inspect the site during construction to ensure the Project Engineer's conformance to zoning requirements, adequacy of design, and conformance to the City's specifications and standards regarding location, size and depth of line, and quality of construction of the Dedicated Improvements. The Owner shall provide the plans with a City of South Bend cover sheet and specifications for the Dedicated Improvements along with a cost estimate to the City. The Owner shall also provide to the City a statement from the Project Engineer certifying that the materials and workmanship including pipes, bedding, manholes, and other related materials and work meet the City's specifications and standards. Upon request of the City, the certification shall be substantiated by material affidavits from suppliers and by applicable test results for inflow/infiltration, exfiltration, deflection, pressure, leaks, bacteria, compaction and other tests required by the City. All construction, engineering, and inspection costs in connection with the Dedicated Improvements shall be borne by the Owner.

3. 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 zoning 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.

4. 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.

5. 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 Dedicated Improvements, including but not limited to, construction engineering, 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.

6. 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 covering all work performed or to be performed pursuant 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.

7. Maintenance Bond

Within ten (10) days of 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 or to be performed pursuant to this Agreement, and such bond shall remain in effect for three (3) years after dedication as described in Section 9 below.

8. 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.

9. 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 test results in accordance with City Standards, prevailing specifications, and City Engineering direction. At a minimum, required tests are:
 - i. Water: coliform test, hydrostatic pressure test, and hydrant flow test for water
 - ii. Sewer: sewer leakage test (hydrostatic or air test), mandrel deflection test, and negative air pressure test (for manholes)
- f. Owner must provide televising DVDs of the Sewer per the City of South Bend Construction Standards and Specifications 4-4.2.
- g. 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 9 shall be a material breach of this Agreement.

10. System Development Charges

Simultaneously with the execution of this Agreement, the Owner shall pay the City a sum of \$8,100 (eight thousand, one-hundred dollars and 00/100) for access to the City's water and sewer sanitary systems set forth as Exhibit D. A 10% discount is to be applied to the payment when paid as a lump sum. For purposes of this section of the Agreement, an equivalent residential unit ("ERU") shall mean a single residential unit. 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.

11. 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.

12. Indemnification

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. If any action is brought against the City or its respective agents, employees, successors, or assigns, in connection with this Agreement, Owner agrees to defend such action or proceedings at its own expense and to pay any judgment rendered therein.

13. Insurance

Owner, or 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 understands and agrees the amount of insurance does not in any way limit liability under this agreement to \$5,000,000. The Certificate of Insurance shall be provided concurrently with the execution of this Agreement and attached as Exhibit E.

14. 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.

15. 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.

16. Governing Law and Jurisdiction

This Agreement shall be construed and interpreted according to the laws of the State of Indiana, including, but not limited to, I.C. § 8-1-2-101.5 and 170 I.A.C. 6-1.5 *et seq.* and/or 170 I.A.C. 8.5-4 *et seq.* regarding the dispute resolution process of customer complaints, 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.

17. 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.

18. 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.

19. Time

Time is of the essence of this Agreement.

20. 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.

21. 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.

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"
Allen Edwin Homes / Green Development Ventures, LLC

By: John Lovely
Printed: John Lovely
Title: Land Development Manager

CITY OF SOUTH BEND, INDIANA
BOARD OF PUBLIC WORKS



Elizabeth A. Maradik, President



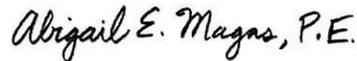
Joseph R. Molnar, Vice President



Murray L. Miller, Member

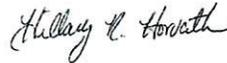


Breana N. Micou, Member



Abigail E. Magas Member

ATTEST:



Hillary R. Horvath, Clerk

Date: January 27, 2026

EXHIBIT A

DEDICATED IMPROVEMENTS

SITE CONSTRUCTION PLANS FOR:

WOODHAVEN HILLS SUBDIVISION, SECTION 1

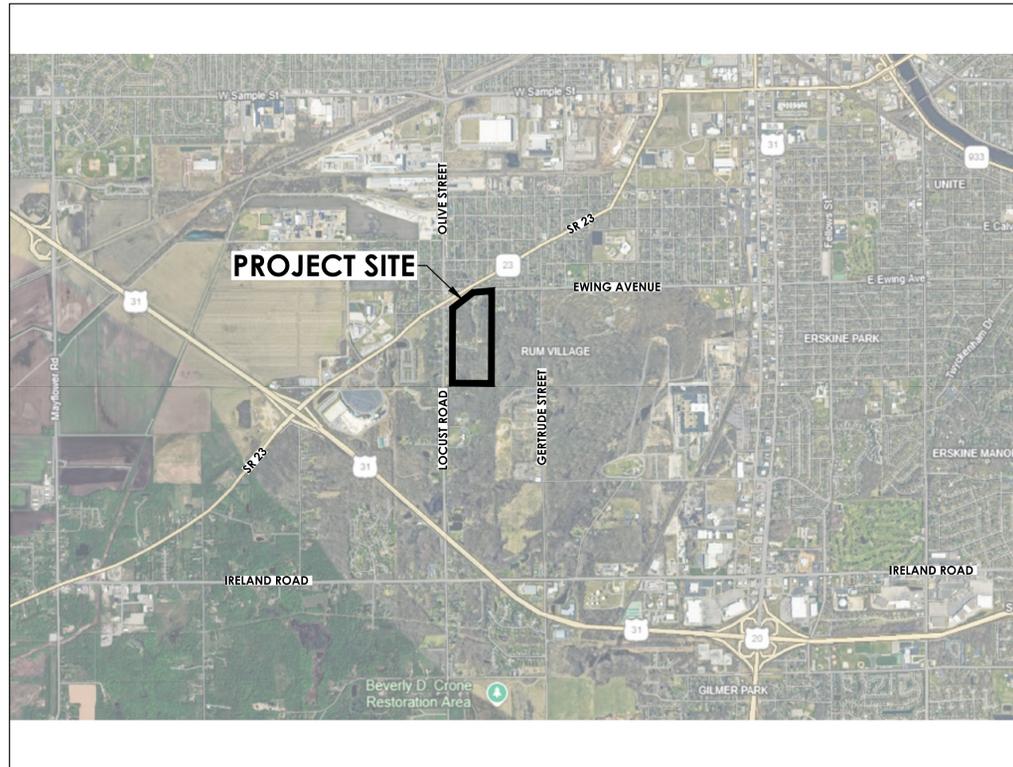
EMERSON FOREST PARKWAY, SOUTH BEND, IN 46614

ABONMARCHÉ
 315 W. Jefferson Boulevard
 South Bend, IN 46601
 T 574.232.8700
 F 574.232.4440
 abonmarche.com

Valparaiso
Benton Harbor
South Bend
Mishawaka
Fort Wayne
Lafayette
Grand Haven
Grand Rapids

Engineering, Architecture, Land Surveying

Part of the NE Qtr of Section 22, T-37-N, R-2-E, Portage Township, St. Joseph County, Indiana



VICINITY MAP
(NOT TO SCALE)



LOCATION MAP
(NOT TO SCALE)



SHEET INDEX

C0.0	COVER SHEET
C1.0	TYPICAL SECTIONS
C2.0	PRIMARY PLAT
C3.0-C3.2	PRELIMINARY MASTER GRADING, DRAINAGE AND UTILITY PLAN
C4.0	PHASING PLAN
C5.0	SECONDARY PLAT
C6.0 - C6.1	PLAN AND PROFILES
C7.0	GRADING PLAN
C8.0 - C8.3	STORMWATER POLLUTION PREVENTION PLAN AND DETAILS
C9.0 - C9.2	CONSTRUCTION DETAILS

UTILITY CONTACTS

<p>Water & Sewer City of South Bend 1316 County City Building 227 W. Jefferson Blvd. South Bend, IN 46601 Contact: Tara Bussell tbussell@southbendin.gov (574)235-9254</p>	<p>Electric AEP 2929 Lathrop St. South Bend, IN 46628 Contact: Brent Schoenleber bpschoenleber@aep.com (574)283-1885</p>
<p>Traffic & Lighting City of South Bend 1316 County City Building 227 W. Jefferson Blvd. South Bend, IN 46601 Contact: Coby Deal cdeal@southbendin.gov (574)245-6001</p>	<p>Communications Choicelight 130 S. Main St. #275 South Bend, IN 46601 Contact: Brandon Liggett bliggett@choicelight.org (574)968-5342</p>
<p>Cable Comcast 1920 E. McKinley Highway Mishawaka, IN 46545 Contact: Rhonda Dalton rhonda_dalton@comcast.com (224)229-5863</p>	<p>Telephone AT&T 302 S. East St. Crown Point, IN 46307 Contact: Matt Smith MS2827@att.com (219)662-4418</p>
<p>Gas NIPSCO 1039 Pennsylvania St. South Bend, IN 46601 Contact: Jonathan Erdahl jonathanderahl@nisource.com (574)312-1592</p>	

UTILITY INFORMATION

UTILITY LOCATIONS ARE TAKEN FROM SUBSTANTIAL ABOVE GROUND EVIDENCE AND APPROXIMATED FROM RECORD AS-BUILTS MADE AVAILABLE (INCLUDING, BUT NOT LIMITED TO, MANHOLES, HYDRANTS, VALVES, UTILITY PEDESTALS AND BOXES, AND MARKS/FLAGS SET ON THE GROUND SURFACE BY OTHERS). PIPE INVERTS HAVE BEEN MEASURED WITH AS MUCH ACCURACY AS CAN BE ACHIEVED WITHOUT CONFINED SPACE ENTRY. **CAUTION:** THERE MAY BE OTHER UTILITIES EXISTING BELOW GROUND THAT WERE NOT MARKED BY OTHERS NOR HAVE VISIBLE ABOVE GROUND EVIDENCE. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING LOCATIONS AND DEPTHS OF ALL UTILITIES AND PIPING AS NECESSARY PRIOR TO ANY AND ALL CONSTRUCTION. CONTACT ENGINEER IF ANY DISCREPANCIES DISCOVERED.



CALL 811 OR (800) 382-5544
 24 HOURS A DAY, SEVEN DAYS A WEEK

OWNER / DEVELOPER
 WOODHAVEN, LLC
 14009 JEFFERSON BLVD, SUITE C
 MISHAWAKA, IN 46545
 CONTACT: JOHN LOVELY
 (269) 391-0542

SURVEYOR / CIVIL ENGINEER

 315 W. Jefferson Boulevard
 South Bend, IN 46601
 T 574.232.8700

**WOODHAVEN HILLS
 MAJOR SUBDIVISION
 SECTION 1**
 EMERSON FOREST PARKWAY, SOUTH BEND, IN 46614

PROJECT:

COVER SHEET

SHEET TITLE:

DRAWN BY: **RAD**

DESIGNED BY: **RAD**

PM REVIEW: **SDR**

QA/QC REVIEW: **DSK**

DATE: **09/29/2025**

SEAL:

SIGNATURE:

DATE: **09/29/2025**

SCALE: **AS NOTED**

ACI JOB # **24-2170**

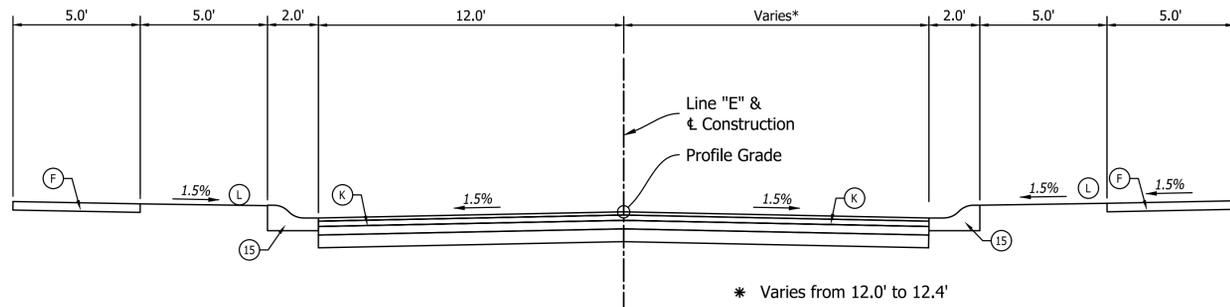
SHEET NO. **C0.0**

1

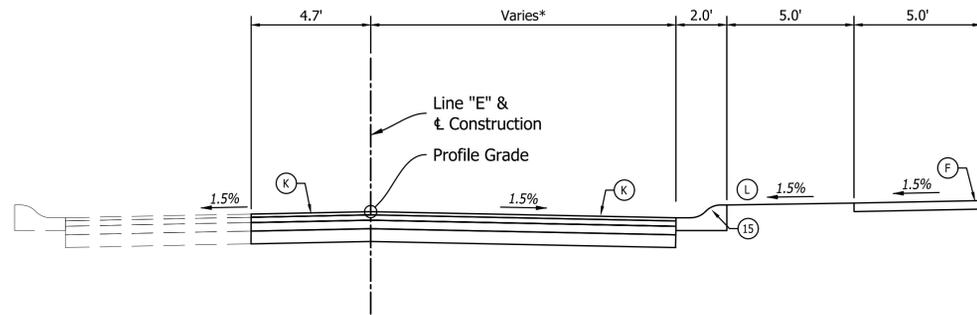
REVISED PER CITY OF SOUTH BEND ENGINEERING REVIEW

BY: RAD | 09/29/2025

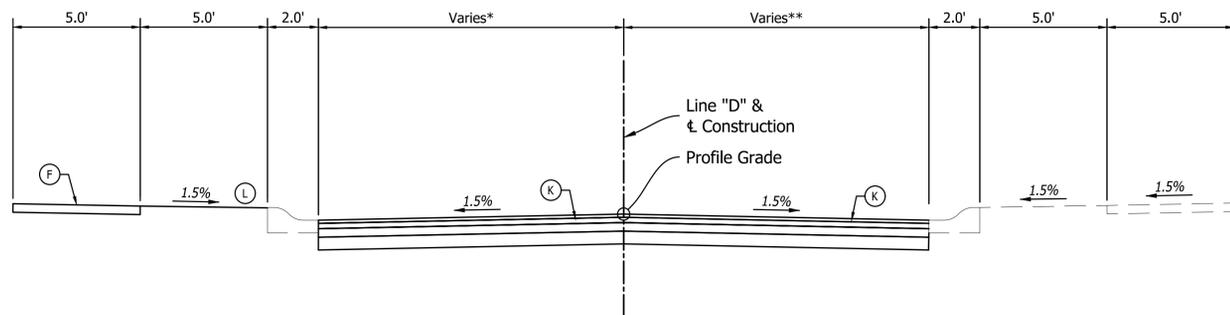
O:\PROJECTS\2024\24-2170 WOODHAVEN HILLS\CAD\PLANS\WOODHAVEN SECTION 1 PLANS\24-2170 TYP.DWG TYPICAL SECTIONS RICHARD DAVILA 9/29/2025 11:49 AM



FULL DEPTH SECTION
Line 'E' - Sta. 58+83.19 to Sta. 59+22.91
Scale: 1/4" = 1'-0"



FULL DEPTH SECTION
Line 'E' - Sta. 59+43.14 to Sta. 59+53.17
Scale: 1/4" = 1'-0"



FULL DEPTH SECTION
Line 'D' - Sta. 85+83.4 to Sta. 87+23.28
Scale: 1/4" = 1'-0"

* Varies from 11.9' to 11.8'
** Varies from 12.2' to 12.6'

LEGEND

- (F) Concrete Sidewalk, 4"
- (L) Tree Lawn
- (K) Full Depth Asphalt Pavement
1.5" HMA Surface
2.5" HMA Intermediate
4" HMA Base
6" Compacted Aggregate No. 53
- (15) Combination Curb and Gutter (See Construction Details)

PROJECT:

TYPICAL SECTIONS

SHEET TITLE:

DRAWN BY: RAD

DESIGNED BY: RAD

PM REVIEW: SDR

QA/QC REVIEW: DSK

DATE: 09/29/2025

SEAL:



SIGNATURE: *Daryl S. KMP*

DATE: 09/29/2025

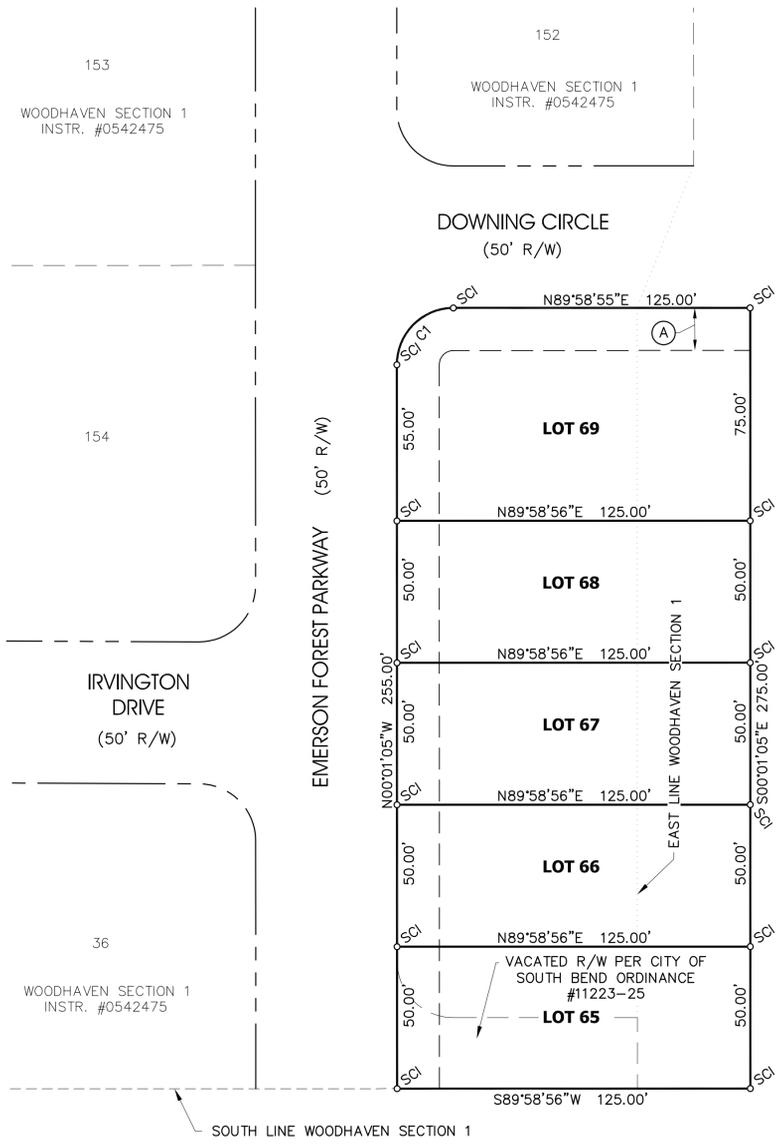
SCALE: 1" = 40'

ACI JOB # 24-2170

SHEET NO. C1.0

WOODHAVEN HILLS SECTION 1 MAJOR SUBDIVISION

ALL OF LOTS NUMBERED 122 AND 123, WOODHAVEN SECTION 1 SUBDIVISION, INSTR. NO. 0542475, AND PART OF THE NORTHEAST QUARTER OF SECTION 22, TOWNSHIP 37 NORTH, RANGE 2 EAST, CITY OF SOUTH BEND, PORTAGE TOWNSHIP, ST. JOSEPH COUNTY, INDIANA



LEGAL DESCRIPTION:

LOT NUMBERED 122 AS SHOWN ON THE RECORDED PLAT OF WOODHAVEN SECTION 1 SUBDIVISION, RECORDED IN THE OFFICE OF THE RECORDER OF ST. JOSEPH COUNTY, INDIANA, AS INSTRUMENT NO. 0542475,

ALSO,

LOT NUMBERED 123 AS SHOWN ON THE RECORDED PLAT OF WOODHAVEN SECTION 1 SUBDIVISION, RECORDED IN THE OFFICE OF THE RECORDER OF ST. JOSEPH COUNTY, INDIANA, AS INSTRUMENT NO. 0542475,

ALSO,

A PART OF WOODHAVEN SECTION ONE, AS RECORDED IN INSTRUMENT NUMBER 0542475 IN THE OFFICE OF THE ST. JOSEPH COUNTY RECORDER, SAID PLAT BEING IN THE WEST HALF OF THE NORTHEAST QUARTER OF SECTION 22, TOWNSHIP 37 NORTH, RANGE 2 EAST, PORTAGE TOWNSHIP, ST. JOSEPH COUNTY, INDIANA, AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEARINGS AND DISTANCES IN THIS DESCRIPTION ARE BASED UPON THE RECORDED PLAT OF SAID WOODHAVEN SECTION ONE.

BEGINNING AT THE SOUTHEAST CORNER OF SAID WOODHAVEN SECTION ONE; THENCE NORTH 00°16'28" WEST, ALONG THE EAST LINE OF SAID WOODHAVEN SECTION ONE, A DISTANCE OF 25.00 FEET TO THE SOUTHEAST CORNER OF LOT 122, AS SHOWN ON SAID WOODHAVEN SECTION ONE; THENCE SOUTH 89°43'33" WEST, ALONG THE SOUTH LINE OF SAID LOT 122, A DISTANCE OF 65.00 FEET TO THE POINT OF CURVATURE OF A TANGENT CURVE TO THE RIGHT HAVING A RADIUS OF 20.00 FEET, AND SUBTENDED BY A CHORD BEARING NORTH 46°16'28" WEST, A DISTANCE OF 28.28 FEET; THENCE NORTHWESTERLY, ALONG SAID CURVE, AN ARC DISTANCE OF 31.42 FEET TO THE EAST RIGHT OF WAY LINE OF EMERSON FOREST PARKWAY; THENCE SOUTH 00°16'28" EAST, ALONG THE EXTENDED EAST RIGHT OF WAY LINE OF SAID EMERSON FOREST PARKWAY, A DISTANCE OF 45.00 FEET TO THE SOUTH LINE OF SAID WOODHAVEN SECTION ONE; THENCE NORTH 89°43'33" EAST, ALONG SAID SOUTH LINE, A DISTANCE OF 85.00 FEET TO THE POINT OF BEGINNING

ALSO,

A PART OF WOODHAVEN SECTION ONE, AS RECORDED IN INSTRUMENT NUMBER 0542475 IN THE OFFICE OF THE ST. JOSEPH COUNTY RECORDER, SAID PLAT BEING IN THE WEST HALF OF THE NORTHEAST QUARTER OF SECTION 22, TOWNSHIP 37 NORTH, RANGE 2 EAST, PORTAGE TOWNSHIP, ST. JOSEPH COUNTY, INDIANA, AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHEAST CORNER OF SAID WOODHAVEN SECTION ONE; THENCE NORTH 00°01'05" WEST, ALONG THE EAST LINE OF SAID WOODHAVEN SECTION ONE, A DISTANCE OF 275.00 FEET TO THE NORTHEAST CORNER OF LOT 123, AS SHOWN ON SAID WOODHAVEN SECTION ONE; THENCE NORTH 89°58'55" EAST, ALONG THE EXTENDED NORTH LINE OF SAID LOT 123, A DISTANCE OF 40.00 FEET; THENCE SOUTH 00°01'05" EAST, A DISTANCE OF 275.00 FEET TO THE EXTENDED SOUTH LINE OF SAID WOODHAVEN SECTION ONE; THENCE SOUTH 89°58'56" WEST, A DISTANCE OF 40.00 FEET TO THE POINT OF BEGINNING.

TOTAL CONTAINING 34,289 SQUARE FEET (0.78 ACRES), MORE OR LESS, AND SUBJECT TO ALL COVENANTS, RIGHTS OF WAY, AND EASEMENTS OF RECORD.

DEED OF DEDICATION

THE UNDERSIGNED, GREEN DEVELOPMENT VENTURES, LLC, IS THE OWNER OF THE REAL ESTATE SHOWN AND DESCRIBED HEREIN, DOES HEREBY LAYOFF, PLAT AND SUBDIVIDE SAID REAL ESTATE IN ACCORDANCE WITH THE REQUIREMENTS OF THE SUBDIVISION CONTROL ORDINANCE OF THE CITY OF SOUTH BEND, INDIANA. THIS SUBDIVISION SHALL BE KNOWN AND DESIGNATED AS "WOODHAVEN HILLS SECTION 1 MAJOR SUBDIVISION". ALL STREETS, RIGHT-OF-WAYS, ALLEYS, FUTURE ROADWAY EASEMENTS AND PUBLIC OPEN SPACES SHOWN AND NOT HERETOFORE DEDICATED NOW ARE HEREBY DEDICATED TO THE PUBLIC FOR THE USES DESIGNATED HEREIN. THE AREA OF GROUND DESIGNATED ON THIS PLAT AND MARKED AS "EASEMENTS", ARE RESERVED FOR THE USES AS DESIGNATED BY THE UTILITIES, AND INCLUDE, BUT ARE NOT LIMITED TO, THE INSTALLATION OF MUNICIPAL WATER AND SEWER MAINS, UTILITY POLES, DUCTS, LINES AND WIRES, PRIVATE DRAINAGE FACILITIES, AND ACCESS FOR PRESENT OR FUTURE DEVELOPMENT, SUBJECT AT ALL TIMES TO THE PROPER AUTHORITIES AND TO THE EASEMENT HEREIN RESERVED. NO PERMANENT OR OTHER STRUCTURES ARE TO BE ERRECTED OR MAINTAINED UPON SAID STRIPS OF LAND, BUT OWNERS OF LOTS IN THIS SUBDIVISION SHALL TAKE THEIR TITLES SUBJECT TO THE RIGHTS OF THE PUBLIC UTILITIES, AND TO THE RIGHTS OF THE OWNERS OF OTHER LOTS IN THIS SUBDIVISION.

CERTIFICATE OF APPROVAL:

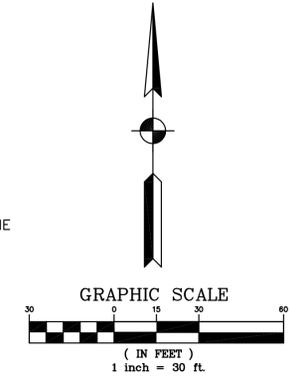
PURSUANT TO INDIANA CODE SECTION 36-7-4, THE UNDERSIGNED CERTIFY THAT THE WOODHAVEN HILLS SECTION 1 MAJOR SUBDIVISION WAS CONSIDERED AND GRANTED SECONDARY APPROVAL BY THE SOUTH BEND PLAN COMMISSION ON _____, DETERMINING THAT THE SAID SUBDIVISION COMPLIES WITH THE STANDARDS SET FORTH IN THE CITY OF SOUTH BEND SUBDIVISION CONTROL ORDINANCE.

IN WITNESS WHEREOF, WE HAVE ATTACHED OUR SIGNATURE AND THE COMMISSION'S SEAL HEREUPON:

TIM CORCORAN
PLAN DIRECTOR

SURVEY LEGEND

- o SCI SET REBAR W/ YELLOW CAP "ABONMARCHE FIRM #0050" FOR PROPERTY CORNER
- (A) 15' DRAINAGE, UTILITY, AND ROADWAY MAINTENANCE EASEMENT



CURVE DATA				
C1	31.42'	20.00'	90°00'00"	N44°58'55"E 28.28'

OWNER'S CERTIFICATION:

THIS IS TO CERTIFY THAT THE UNDERSIGNED, GREEN DEVELOPMENT VENTURES, LLC, IS THE OWNER OF THE LAND DESCRIBED HEREIN, AND HAS CAUSED THE SAME TO BE SURVEYED AND SUBDIVIDED AS INDICATED HEREON, FOR THE USES AND PURPOSES HEREIN SET FORTH, AND DOES HEREBY ACKNOWLEDGE AND ADOPT THE PLAT UNDER THE STYLE AND TITLE HEREON INDICATED.

GREEN DEVELOPMENT VENTURES, LLC
THOMAS M. LARABEL, VICE PRESIDENT
2186 E CENTRE AVENUE
PORTAGE, MI 49002

THOMAS M. LARABEL, VICE PRESIDENT

DATED THIS _____ DAY OF _____, _____

NOTARY PUBLIC CERTIFICATE

STATE OF _____)

COUNTY OF _____)

BEFORE ME, THE UNDERSIGNED NOTARY PUBLIC, IN AND FOR SAID COUNTY AND STATE, PERSONALLY APPEARED THOMAS LARABEL AND ACKNOWLEDGED THE EXECUTION OF THE FOREGOING INSTRUMENT AS A VOLUNTARY ACT AND DEED FOR THE PURPOSES THEREIN EXPRESSED.

WITNESS MY HAND AND NOTARIAL SEAL THIS _____ DAY OF _____, _____

MY COMMISSION EXPIRES: _____

(SIGNATURE)

(PRINT)

NOTARY PUBLIC IS A RESIDENT OF _____ COUNTY, _____

SURVEYOR CERTIFICATE

I, HANS P. MUSSER, HEREBY CERTIFY THAT I AM A REGISTERED LAND SURVEYOR, LICENSED IN COMPLIANCE WITH THE LAWS OF THE STATE OF INDIANA, THAT THIS PRIMARY PLAT IS ACCORDANCE WITH THE PROVISIONS OF THE SUBDIVISION ORDINANCE OF ST. JOSEPH COUNTY, INDIANA.

THIS INSTRUMENT WAS PREPARED BY HANS P. MUSSER, P.L.S. I AFFIRM UNDER THE PENALTIES FOR PERJURY, THAT I HAVE TAKEN REASONABLE CARE TO REDACT EACH SOCIAL SECURITY NUMBER IN THIS DOCUMENT, UNLESS REQUIRED BY LAW.

Hans P. Musser 08/12/25
HANS P. MUSSER, PS DATE
REGISTERED LAND SURVEYOR NO. 29700002

OWNER/DEVELOPER:

GREEN DEVELOPMENT VENTURES, LLC
2186 E CENTRE AVENUE
PORTAGE, MI 49002

SURVEYED BY:

ABONMARCHE CONSULTANTS, INC.
315 W JEFFERSON BOULEVARD
SOUTH BEND, IN 46601

GENERAL NOTES:

1. LOT 65 = 0.143 AC.±
- LOT 66 = 0.143 AC.±
- LOT 67 = 0.143 AC.±
- LOT 68 = 0.143 AC.±
- LOT 69 = 0.21 AC.±

TOTAL AREA OF SUBDIVISION = 0.78 ACRES±

2. ENGINEERING REPORT: ALL LOTS SHALL BE SERVICED BY CITY OF SOUTH BEND WATER AND SEWER.

3. THERE ARE NO ENCROACHMENTS OF EXISTING PERMANENT STRUCTURES UPON LOT LINES, BUILDING SETBACKS, OR EASEMENTS CREATED IN THE PLATTING OF THIS SUBDIVISION.

4. BUILDING SETBACK LINES SHALL CONFORM TO THE APPLICABLE PROVISIONS OF THE CITY OF SOUTH BEND ZONING ORDINANCE.

5. ALL NEW LOT CORNERS AND COMMON LOT CORNERS WITHOUT FOUND MONUMENTS WILL BE MARKED WITH 5/8 INCH DIAMETER REBAR ROD, 24 INCHES IN LENGTH, CAPPED WITH A PLASTIC, YELLOW MARKER STAMPED "ABONMARCHE FIRM #0050", UNLESS INDICATED OTHERWISE.

6. TO THE BEST OF OUR RESEARCH, ALL EASEMENTS OF RECORD ARE SHOWN.

7. THE BOUNDARY SURVEY OF THE PARENT PARCEL IS RECORDED UNDER INSTRUMENT NUMBER 2025-15464 IN THE OFFICE OF THE ST. JOSEPH COUNTY RECORDER. EXISTING MONUMENTS ARE SHOWN ON SAID SURVEY.

8. ACCORDING TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FEDERAL INSURANCE RATE MAP (FIRM) INDEX PANEL NO. 18141C0193D, WITH AN EFFECTIVE DATE OF 01/06/2011, THE SUBJECT PARCEL IS IN ZONE "X" - AREA OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.

9. ACCORDING TO THE 1999 ST. JOSEPH COUNTY POTENTIAL GROUNDWATER CONTAMINATION SITES MAP PUBLISHED BY THE MICHIANA AREA COUNCIL OF GOVERNMENTS, DOCUMENTED SITES USED AS A JUNK/AUTO/SCRAP YARD FOR DISPOSING OF HAZARDOUS SUBSTANCES (SITE 144, "BUSH AUTO SALVAGE", SITE 145, "STEVE AND GENES" AND SITE 146, "GENERAL METALS") ARE WITHIN 0.5 MILES OF THE SITE.

10. ACCORDING TO THE 1987 U.S. DEPARTMENT OF THE INTERIOR, FISH AND WILDLIFE SERVICE, INVENTORY MAPS, THERE ARE NO WETLANDS LOCATED ON THE SUBJECT PROPERTIES.

11. THE OWNERS OF THE LOTS CREATED BY THIS PLAT SHALL HAVE RESPONSIBILITY OF THE DRAINAGE STRUCTURES WHICH SERVE LOTS 65-69 OF WOODHAVEN HILLS SECTION 1.

STREET CLASSIFICATION

EMERSON FOREST PARKWAY (50' R/W) . . . LOCAL
DOWNING CIRCLE (50' R/W) LOCAL

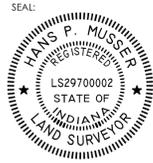
ABONMARCHE
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F 574.231.4400
abonmararche.com

Cashin
Hobart
Lafayette
South Bend
Mantille
South Haven

Engineering, Architecture, Land Surveying

PROJECT: WOODHAVEN HILLS SECTION 1 MAJOR SUBDIVISION
ALL OF LOTS NUMBERED 122 AND 123, WOODHAVEN SECTION 1
SUBDIVISION, INSTR. NO. 0542475, AND PART OF THE NORTHEAST
QUARTER OF SECTION 22, TOWNSHIP 37 NORTH, RANGE 2 EAST, CITY OF
SOUTH BEND, PORTAGE TOWNSHIP, ST. JOSEPH COUNTY, INDIANA

DRAWN BY:	HPM
FIELD BOOK:	
PM REVIEW:	SDR
QA/QC REVIEW:	HPM
DATE:	08/12/2025



HARD COPY IS INTENDED TO BE 24" X 36" WHEN PLOTTED. SCALE(S) INDICATED AND GRAPHIC QUALITY MAY NOT BE ACCURATE FOR ANY OTHER SIZES

SCALE: HORZ: 1" = 30'

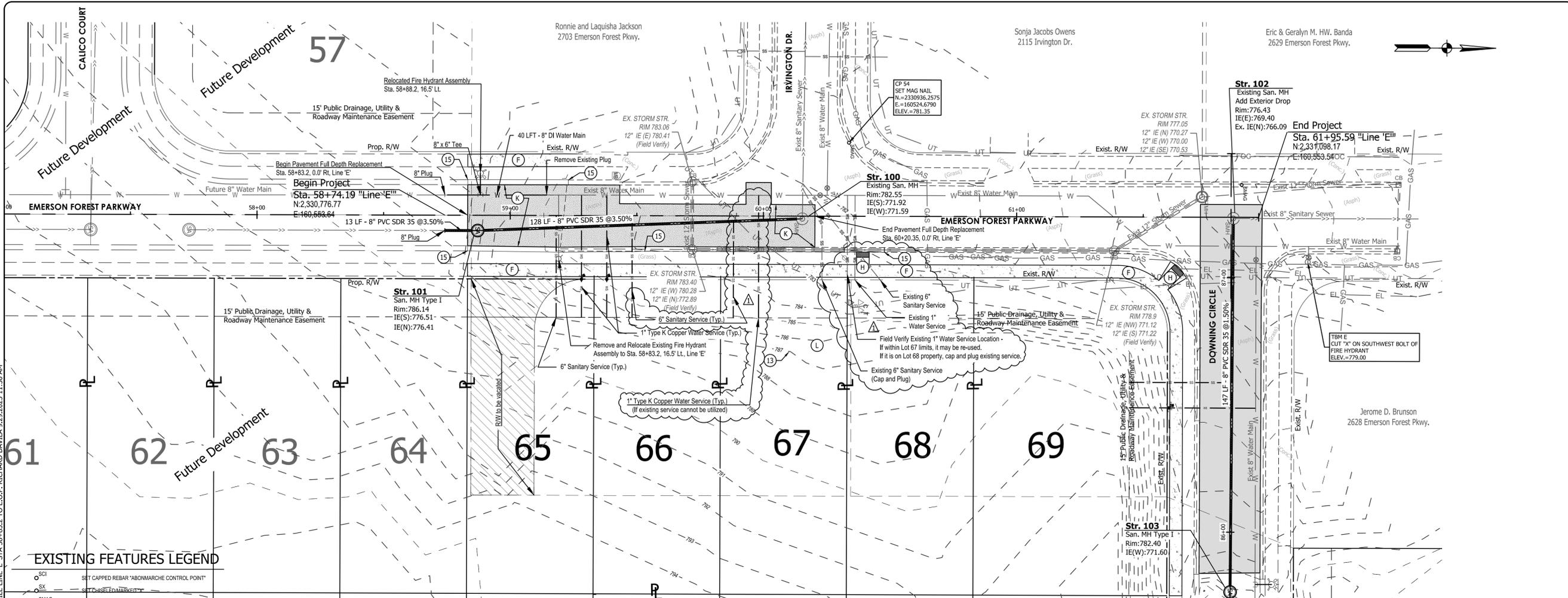
ACI JOB # 24-2170

SHEET NO.

SEC. 22-137N-R2E

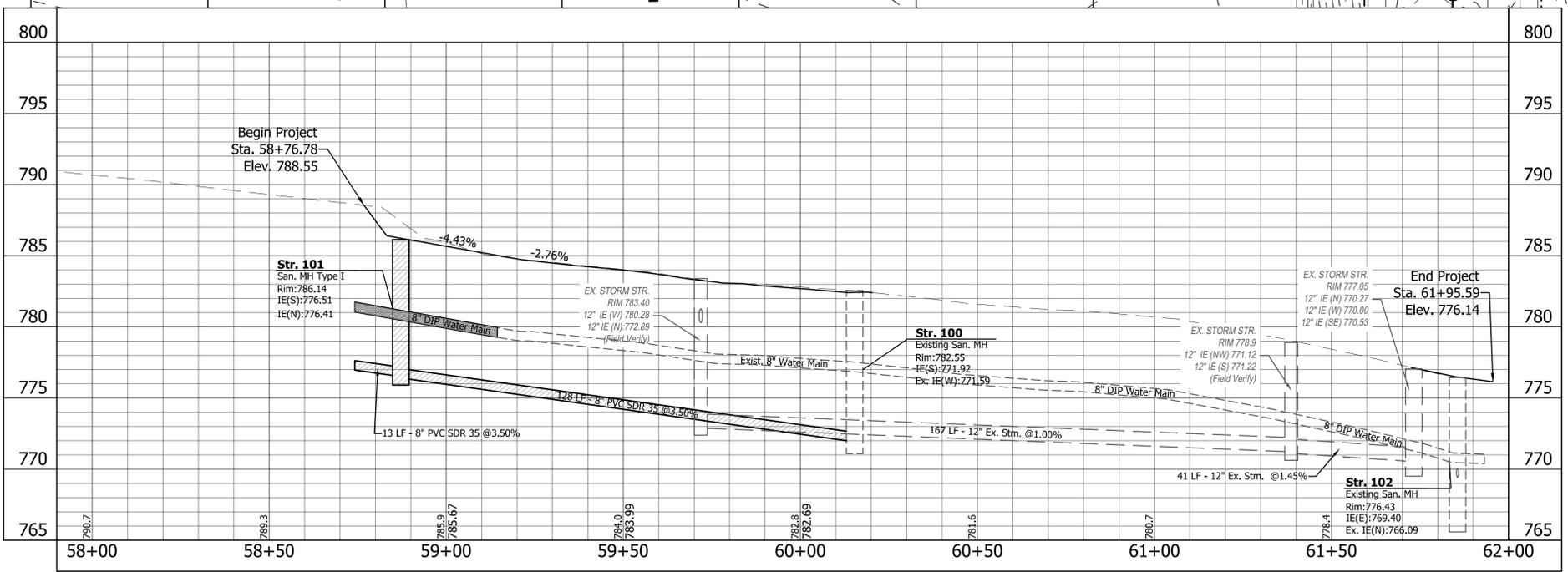
1	ADD NOTE #11, VACATED RW ORDINANCE #, & UPDATE SUBDIV. NAME	HPM	11/11/2025
NO.	REVISION DESCRIPTION:	BY:	DATE:

O:\PROJECTS\2024\24-2170 WOODHAVEN HILLS\CAD\CIVIL\PLANS\WOODHAVEN SECTION 1 PLANS\24-2170 PLAN AND PROFILES.DWG PLAN AND PROFILE LINE 'E' STA 58+83.2 TO E.O.P. RICHARD DAVILA 9.29.2025 11:50 AM



EXISTING FEATURES LEGEND

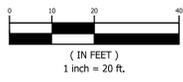
- SC1 SET CAPPED REBAR 'ABONMARCHÉ CONTROL POINT'
- SK SET CHISEL POINT MARKER
- SMAG SET MAG NAIL
- FMAG FOUND MAG NAIL
- BOL BOLLARD
- ELEC ELECTRICAL PANEL
- ELEM ELECTRIC METER
- EPEL ELECTRIC PEDESTAL
- TELP TELEPHONE PEDESTAL
- GMSK GAS MARKER
- GMM GAS METER
- BSH BASKETBALL HOOP
- ELM ELECTRIC METER
- UMH UTILITY MANHOLE
- POC POWER POLE
- TLP TRAFFIC LIGHT POLE (STRAIN)
- LPP LIGHT POLE
- HHH HAND HOLE
- CSH CURBED STORM STRUCTURE
- MHH MANHOLE
- SMH SANITARY SEWER MANHOLE
- FHH FIRE HYDRANT
- FDC FIRE DEPARTMENT CONNECTION
- IVC IRRIGATION CONTROL VALVE
- POST POST
- SPC SIGN POST (CANTILEVERED)
- TRS TRAFFIC SIGN
- OHU OVERHEAD UTILITY
- EL UNDERGROUND ELECTRIC
- GAS UNDERGROUND GAS
- UT UNDERGROUND TELE-COMMUNICATION
- W UNDERGROUND WATER
- HVC UNDERGROUND GEOTHERMAL
- FOC UNDERGROUND FIBER-COMMUNICATION
- SSW UNDERGROUND SANITARY SEWER
- SSSP UNDERGROUND STORM SEWER PIPE



PROPOSED FEATURES LEGEND

- ⊖ Concrete Sidewalk, 4", See Construction Details
- ⊖ ADA Curb Ramp, See Construction Details
- ⊖ Residential HMA Pavement, See Typical Sections
- ⊖ Combination Curb and Gutter, See Construction Details
- ⊖ Detectable Warning Surface
- ⊖ Street Light

NOTES
 1. Each individual proposed driveway curb cut will require a Right-of-Way Permit from the City of South Bend.



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Engineering, Architecture, Land Surveying

**WOODHAVEN HILLS
 MAJOR SUBDIVISION
 SECTION 1**
 EMERSON FOREST PARKWAY, SOUTH BEND, IN 46614

**PLAN AND PROFILE LINE 'E' STA
 58+83.2 TO E.O.P.**

SHEET TITLE:
 DRAWN BY: RAD
 DESIGNED BY: RAD
 PM REVIEW: SDR
 QA/QC REVIEW: DSK
 DATE: 09/29/2025
 SEAL:

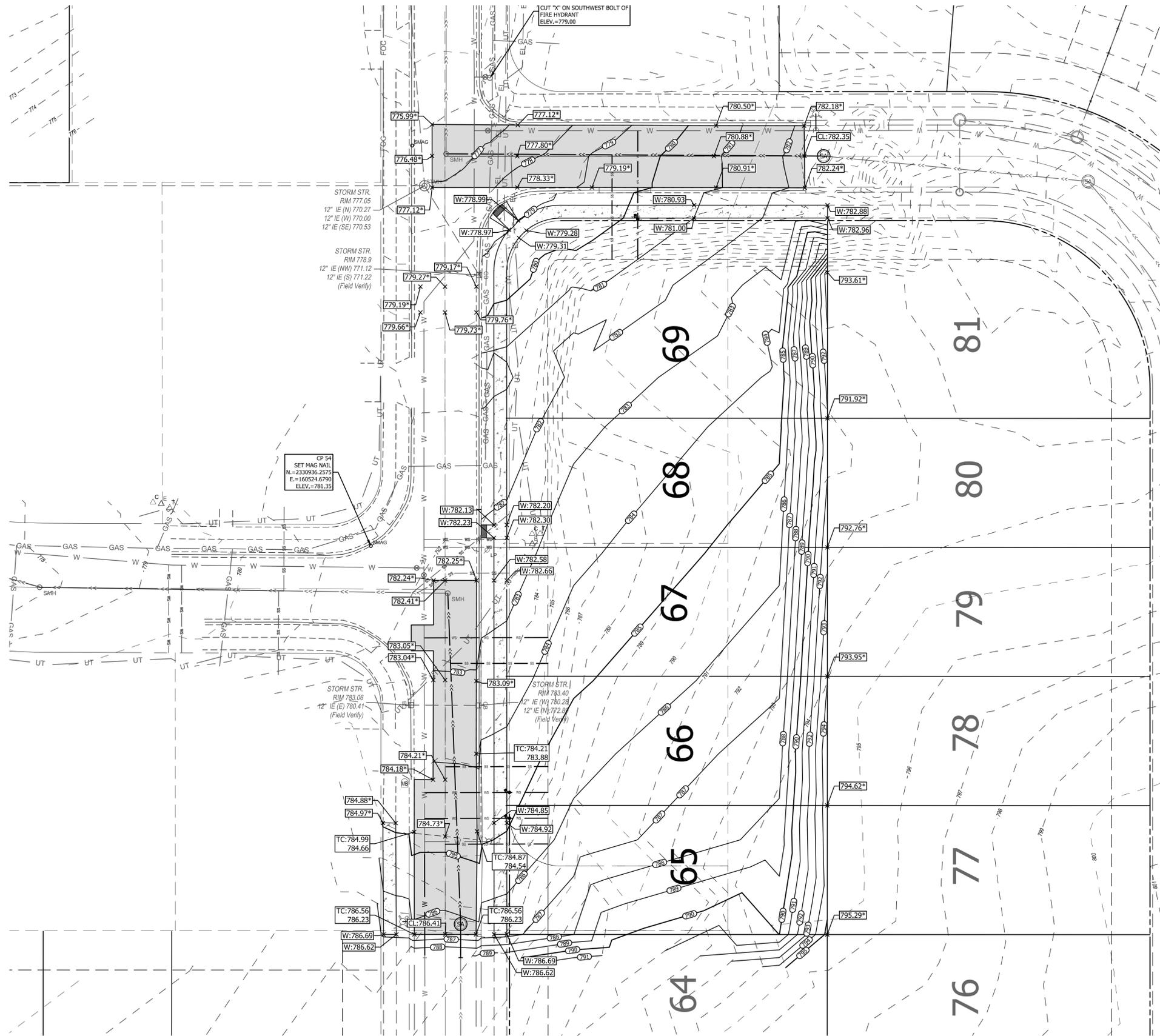


SIGNATURE: *Daryl S. Karp*
 DATE: 09/29/2025

SCALE:
 HORZ: 1" = 20'
 VERT: 1" = 5'
 ACI JOB #
24-2170

SHEET NO.
C6.0

O:\PROJECTS\2024\24-2170 WOODHAVEN HILLS\CAD_CIVIL\PLANS\WOODHAVEN SECTION 1 PLANS\24-2170 GRADING.DWG GRADING PLAN RICHARD DAVILA 9/29/2025 11:50 AM



GRADING NOTES

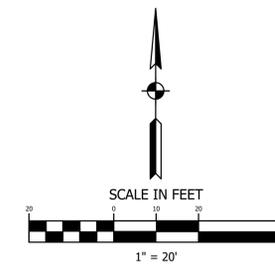
- Contractor shall follow the latest Municipality and the State of Indiana "CSGP" Soil Erosion Practices, See Erosion Control Sheets.
- All topsoil shall be removed and temporarily stockpiled onsite at a location approved by the Owner. A minimum of four (4) inches of topsoil shall be placed on all disturbed areas outside the building and parking areas.
- All exposed subgrade shall be proof-rolled and witnessed by a Geotechnical Engineer or qualified representative to determine unsuitable soil locations prior to any paving operations. Any unsuitable soil shall be excavated, backfilled, and compacted with suitable material in accordance with the plans and capable of supporting the anticipated loadings of the project.
- Positive drainage shall be maintained to prevent any ponding of water or encroachment onto adjacent properties.
- Proposed contours show grading intent only. Contractor shall use proposed spot grade elevations and check all grade stakes to ensure positive drainage to stormwater system is achieved. Contact Engineer if additional grades are needed or if any discrepancies or conflicts which become apparent before or during construction are found so that clarification or redesign may occur.

PERMANENT EXCESS SOIL REMOVAL

- Excess soil and unsuitable soil shall be removed from project site to another site permanently.
- Contractor shall obtain any required permits and implement erosion control measures in accordance to the Indiana Stormwater quality manual and any local ordinances.

LEGEND

- Proposed Contours
- Proposed Spot Elevation
- 800.00 Pavement / Ground Elevation
- 800.00* Match Existing Elevation
- P: Pavement Elevation
- TC: Top of Curb
- W: Sidewalk Elevation
- Swale Centerline
- Storm Inlet or Manhole w/ Storm Pipe
- Existing Contours



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**WOODHAVEN HILLS
 MAJOR SUBDIVISION
 SECTION 1**
 EMERSON FOREST PARKWAY, SOUTH BEND, IN 46614

GRADING PLAN

SHEET TITLE:
 DRAWN BY: RAD
 DESIGNED BY: RAD
 PM REVIEW: SDR
 QA/QC REVIEW: DSK
 DATE: 09/29/2025
 SEAL:

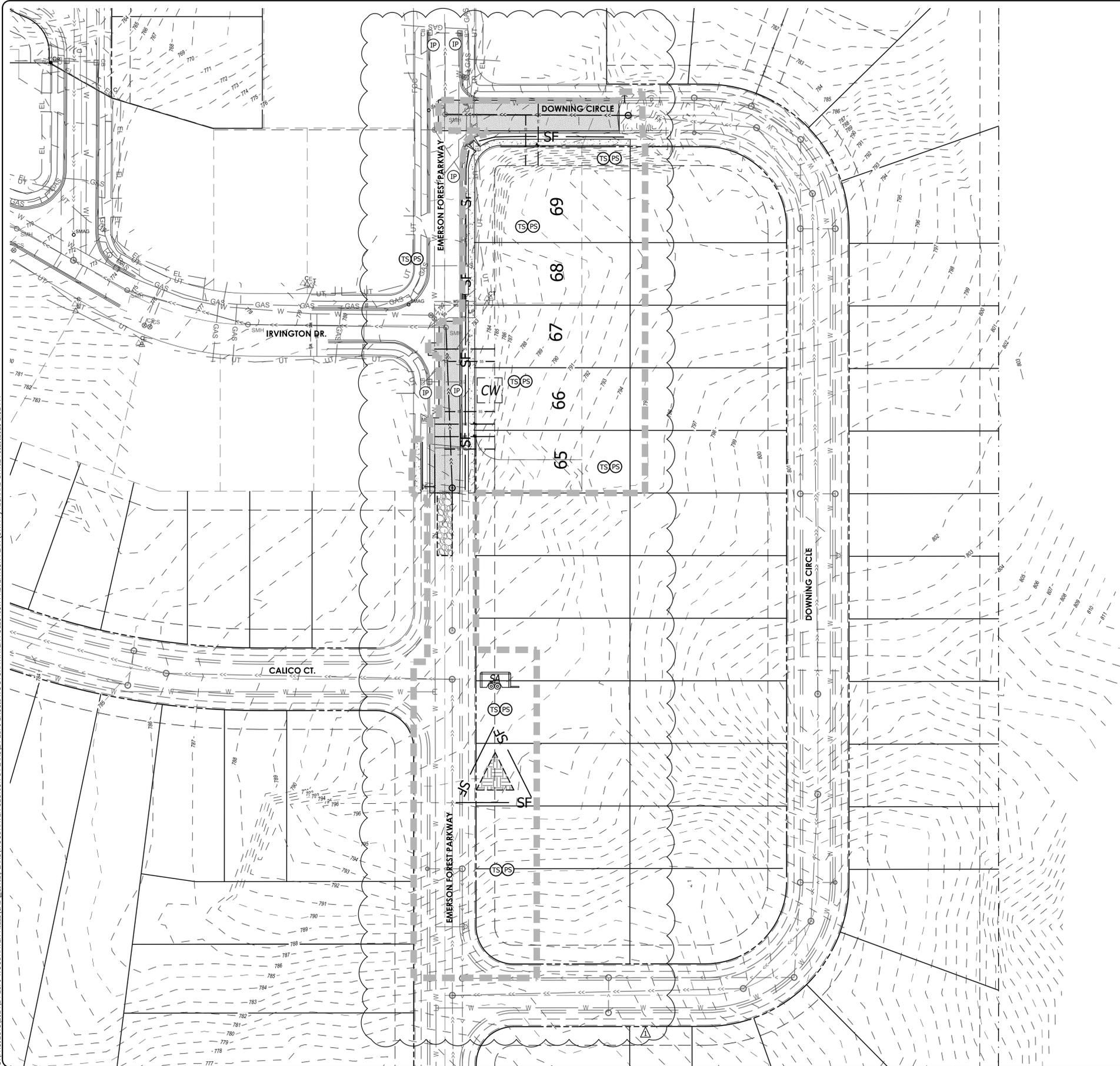


SIGNATURE: *Daryl S. KMP*
 DATE: 09/29/2025
 SCALE: 1" = 20'

ACI JOB #
24-2170
 SHEET NO.

C7.0

O:\PROJECTS\2024\24-2170 WOODHAVEN HILLS\CAD_CIVIL\PLANS\WOODHAVEN SECTION 1 PLANS\24-2170 EROS.DWG STORMWATER POLLUTION PREVENTION PLAN (SWPPP) RICHARD DAVILA 9/29/2025 2:32 PM



EROSION CONTROL NOTES

- Contractor shall implement, install and maintain all erosion control measures in accordance with this plan, the current Indiana Storm Water Quality Manual and the City of South Bend Standards.
- It is the responsibility of the Contractor to remove all mud, dirt, gravel and any other materials tracked onto any public or private streets, parking lots, or walks. At minimum, sediment shall be removed daily. Airborne dust shall be kept to a minimum by using water or other methods as necessary.
- Contractor shall inspect all erosion control measures after each rainfall event or at minimum every 5 business days. The Contractor shall cleanup sediment and restore effective erosion control devices.
- Temporary erosion control measures shall be maintained until all disturbed areas are well established with vegetation.
- Until the project is accepted by the Owner, shall maintain all erosion control measures to prevent sediment from entering public and private storm sewers and leaving the project site.
- Field conditions shall determine the location and amount of silt fence required to prevent sediment from entering public and private storm sewers and from leaving the project site.
- All areas disturbed by construction shall be stabilized with seeding or an alternate surface stabilization measure. Temporary seeding shall take place as soon as possible on any bare or thinly vegetated areas which have less than 70% cover and on all areas which remain inactive for a period of 15 days or more.
- A temporary construction entrance shall be installed and maintained to minimize soil tracked onto private and public roadways, parking lots, and driveways. A proposed location is shown on the plan. The entrance shall be installed prior to any other construction activity. See "Temporary Construction Entrance" detail. The installation of the entrance is a land disturbing activity and stormwater inspections are to commence with the installation of the entrance.
- Existing inlets that may be impacted, by construction, shall have inlet protection. The intent of this measure is to prevent sediment from entering existing drainage systems. Contractor shall protect any inlets, not shown on the plan, that are affected by construction activities.
- Soil Stabilization: Hydro Seeding can be used to initially stabilize basin bottom. If erosion occurs: Reestablish grade and stabilize by installing Erosion Control Blanket with seed.
- The SWPPP drawings are not Construction Plans/Drawings, but are to be used by the Contractor during Construction to establish, monitor, and address Erosion Control issues.
- No off-site sediment flows or sediment laden stormwater flows are to occur at anytime. Silt Fencing to be installed as needed to contain sediment flows and sediment laden stormwater flows. Additional erosion control measures shall be installed as needed.

PERMANENT EXCESS SOIL REMOVAL

- Excess soil and unsuitable soil not needed shall be removed from project site to another site permanently.
- Contractor shall be responsible to execute any agreements or contracts required for the relocated soil material.
- Contractor shall obtain any required permits and implement erosion control measures in accordance to the Indiana Stormwater quality manual and any local ordinances.

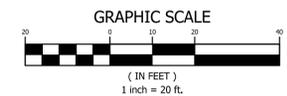
LEGEND

	Temporary Construction Entrance, See Erosion Control Details
	Staging Area, Coordinate with Owner
	Temporary Seeding, See Seeding Notes
	Permanent Seeding, See Seeding Notes
	Soil Stabilization, See Seeding Stabilization
	Erosion Control Blanket, See Erosion Control Details
	Inlet Protection, See Erosion Control Details
	Yard or Pavement Inlet Protection, See Erosion Control Details
	Silt Fence, See Erosion Control Details
	Do Not Disturb, No Exceptions!
	Concrete Washout, See Erosion Control Details
	Construction Limits

Anticipated Land Disturbed Area, Construction Limits: 1.85± Acres

FLOOD INSURANCE RATE MAP

- According to FIRM Map Number 18141C0194D with an effective date of January 6, 2011: The project lies in shaded "Zone X" (Areas determined to be outside the 0.2% annual chance floodplain.)



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**WOODHAVEN HILLS
 MAJOR SUBDIVISION
 SECTION 1
 EMERSON FOREST PARKWAY, SOUTH BEND, IN 46614**

**STORMWATER POLLUTION
 PREVENTION PLAN (SWPPP)**

PROJECT:
 SHEET TITLE:
 DRAWN BY: RAD
 DESIGNED BY: RAD
 PM REVIEW: SDR
 QA/QC REVIEW: DSK
 DATE: 09/29/2025
 SEAL:



SIGNATURE: [Signature]
 DATE: 09/29/2025

SCALE: 1" = 20'
 ACI JOB # 24-2170
 SHEET NO.

C8.0

C:\PROJECTS\2024\24-2170 WOODHAVEN HILLS\CAD_CIVIL\PLANS\WOODHAVEN SECTION 1 PLANS\24-2170 EROS.DWG SWPPP DETAILS RICHARD DAVILA 9.29.2025 11:51 AM

SECTION 7 - EARTHWORK & EROSION AND SEDIMENT CONTROL

REQUIREMENTS:
 Material: 2-3 in. dia. washed stone (INDOT CA No. 2) over a stable foundation.
 Thickness: 6 in. minimum.
 Width: See minimums on plan below or full width of entrance/exist roadway, whichever is greater.
 Length: 50 ft. minimum for small sites (less than 2 acres); 150 ft. minimum for large sites (2 acres and larger). The length can be shorter for small sites such as for an individual home, but shall be of sufficient length to prevent tracking.
 Washing facility (optional): Level area with 3 in. washed stone minimum or a commercial rack, and waste water diverted to a sediment trap or basin.
 Geotextile fabric underliner: Required to provide greater bearing strength.

INSTALLATION:

- Avoid locating on steep slopes or at curves in public roads.
- Remove all vegetation and other objectionable material from the foundation area, and grade and crown for positive drainage.
- If slope towards the road exceeds 2%, construct an 8 in. high diversion ridge with 3:1 side slopes across the foundation area about 15 ft. from the entrance to divert runoff away from the road (see profile).
- Install culvert pipe under the pad if needed to maintain proper public road drainage.
- Place stone to dimensions and grade shown in the erosion/sediment control plan, leaving the surface smooth and sloped for drainage.
- Divert all surface runoff and drainage from the stone pad to a sediment trap or basin.

PROFILE

MAINTENANCE:

- Inspect entrance pad, sediment disposal area, and all other erosion control measures once every seven days and within 24 hours following each 1/2" storm event or heavy use. Required repairs should be completed immediately.
- Reshape pad as needed for drainage and runoff control.
- Topdress with clean stone as needed.
- Immediately remove mud and sediment tracked or washed onto public roads by brushing or sweeping; at a minimum this should be performed daily. Flushing should only be used if the water is conveyed into a sediment trap or basin.
- Repair any broken road pavement immediately.

PLAN VIEW

Kara M. Boyles, P.E. 6/26/18
Date

REF STD SPEC SEC 7-1, 7-2			APPROVED/REVISOR BY THE BOARD OF PUBLIC WORKS EFFECTIVE DATE: June 26, 2018		
Item	Revision	Approved Date	CITY OF SOUTH BEND		
			STANDARDS FOR DESIGN AND CONSTRUCTION		
TEMPORARY GRAVEL CONSTRUCTION ENTRANCE			STANDARD	7-1	

SECTION 7 - EARTHWORK & EROSION AND SEDIMENT CONTROL

DETAIL OF CURB INLET SEDIMENT CONTROL DEVICE WITH CURB FILTER

DETAIL OF INLET SEDIMENT CONTROL DEVICE WITH CURB FILTER

MAINTENANCE:

- Site inspection should occur at least once every seven days and within 24 hours following each 1/2" or more rain event.
- Empty the sediment bag if more than half filled with sediment and debris.
- Remove the grate, engage the lifting bars or handles and lift from the drainage structure.
- Dispose of the sediment or debris in accordance with EPA guidelines.
- Remove any silt from silt in the sediment bag and reverse flush the bag with medium spray for optimal filtration.
- Replace the bag if torn or punctured to 1/2" diameter or greater on the lower half of the bag.
- When the contributing drainage area within 50' upstream of the inlet has been stabilized, remove insert (basket) and properly dispose of sediment deposits.

Kara M. Boyles, P.E. 6/26/18
Date

REF STD SPEC SEC 7-1, 7-2			APPROVED/REVISOR BY THE BOARD OF PUBLIC WORKS EFFECTIVE DATE: June 26, 2018		
Item	Revision	Approved Date	CITY OF SOUTH BEND		
			STANDARDS FOR DESIGN AND CONSTRUCTION		
INLET PROTECTION ALONG CURB			STANDARD	7-3	

SECTION 7 - EARTHWORK & EROSION AND SEDIMENT CONTROL

ELEVATION

JOINING FENCES

STAKE INSTALLATION

TIEBACK DETAIL

INSTALLATION:

- Install fencing parallel to slope contour by digging a minimum 8" deep x 4" wide trench along proposed fence line. Round posts in trench 6"-8" or until secure. Be sure to stretch fabric taut when pounding posts. Fabric to be placed on up slope side of posts. Drape loose end of geotextile fabric into trench. Backfill and compact soil on both sides.
- Join fences by placing the end post of the second fence inside the end post of the first fence. Rotate both posts at least 180° in a clockwise direction to create a tight seal with the fabric material. Drive both posts about 10" into the ground and bury flap.
- Turn ends of fence up slope such that point of contact between ground and bottom of fence end terminates at higher elevation than top of fence at lowest point.

MAINTENANCE:

- Inspect within 24 hours following each 1/2" (Min.) rain event and at least once every seven days. If fence fabric tears, starts to decompose, or in anyway becomes ineffective, replace the affected portion immediately.
- Remove deposited sediment when it is causing the filter fabric to bulge or when it reaches one-half the height of the fence at its lowest point. When the contributing drainage area has been stabilized, remove the fence and sediment deposits, grade the site to blend with the surrounding area and stabilize.

Kara M. Boyles, P.E. 6/26/18
Date

REF STD SPEC SEC 7-1, 7-2			APPROVED/REVISOR BY THE BOARD OF PUBLIC WORKS EFFECTIVE DATE: June 26, 2018		
Item	Revision	Approved Date	CITY OF SOUTH BEND		
			STANDARDS FOR DESIGN AND CONSTRUCTION		
TEMPORARY SILT FENCE			STANDARD	7-4	

SECTION 7 - EARTHWORK & EROSION AND SEDIMENT CONTROL

PLAN

SECTION

NOTES:

- Install concrete washout sign within 30' of temporary washout facility.
- Layout of washout facility may vary depending on space available within construction staging area. Washout facilities shall be designated by the permit holder before work begins and shall be located in an appropriate area where the waste resulting from the washout cannot enter sewer systems or local waterways.
- Waste from the washout facilities shall be disposed of in an approved manner according to state laws.

Kara M. Boyles, P.E. 6/26/18
Date

REF STD SPEC SEC 7-1, 7-2			APPROVED/REVISOR BY THE BOARD OF PUBLIC WORKS EFFECTIVE DATE: June 26, 2018		
Item	Revision	Approved Date	CITY OF SOUTH BEND		
			STANDARDS FOR DESIGN AND CONSTRUCTION		
CONCRETE WASHOUT			STANDARD	7-6	

SECTION 7 - EARTHWORK & EROSION AND SEDIMENT CONTROL

SLOPE INSTALLATION:

- Prepare soil before installing blankets, including any necessary application of lime, fertilizer, and seed.
- Begin at the top of the slope by anchoring the blanket in a 6" deep x 6" wide trench with approximately 12" of blanket extended beyond the up-slope portion of the trench. Anchor the blanket with a row of staples/stakes approximately 12" apart in the bottom of the trench. Backfill and compact the trench after stapling. Apply seed to compacted soil and fold remaining 12" portion of blanket back over seed and compacted soil. Secure blanket over compacted soil with a row of staples/stakes spaced approximately 12" apart across the width of the blanket.
- Roll the blankets (A) down or (B) horizontally across the slope. Blankets will unroll with appropriate side against the soil surface. All blankets must be securely fastened to soil surface by placing staples/stakes in appropriate locations as per by manufacturer's recommendation.
- The edges of parallel blankets must be stapled with approximately 3"-5" overlap. To ensure proper seam alignment, place the edge of the overlapping blanket (blanket being installed on top) even with the colored seam stitch on the previously installed blanket.
- Stapling consecutive blankets down the slope shall be done in a shingle style with the up-slope blanket overlapping the down-slope blanket 3" minimum. Staple through overlapped areas, approximately 12" apart across entire blanket width.
- In loose soil conditions the use of staples or stake lengths greater than 6" may be necessary to properly secure the blankets.

GENERAL NOTES:

- Install erosion control blanket to prevent erosion on slopes 3:1 or steeper, as well as other areas prone to erosion, to aid in establishing vegetation and preventing soil movement.
- Installation instructions above are provided for reference only. Installation should be completed in accordance with erosion control blanket manufacturer's specifications.
- Model and manufacturer to be selected based on project slopes, vegetation, and soil conditions.

Kara M. Boyles, P.E. 6/26/18
Date

REF STD SPEC SEC 7-1, 7-2			APPROVED/REVISOR BY THE BOARD OF PUBLIC WORKS EFFECTIVE DATE: June 26, 2018		
Item	Revision	Approved Date	CITY OF SOUTH BEND		
			STANDARDS FOR DESIGN AND CONSTRUCTION		
EROSION CONTROL BLANKET			STANDARD	7-7	

SECTION 7 - EARTHWORK & EROSION AND SEDIMENT CONTROL

TYPICAL INDIVIDUAL LOT EROSION AND SEDIMENT CONTROL MEASURES (LESS THAN 1-ACRE)

LEGEND:

- Property Lines
- Constructed Building Pad
- Silt Fence or Filter Sock
- Stream/Ditch
- Gravel Construction Entrance
- Soil Stockpile Protection
- Inlet Protection
- Temporary Seeding
- Erosion Control Blanket

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 gauge 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.

Kara M. Boyles, P.E. 6/26/18
Date

REF STD SPEC SEC 7-1, 7-2			APPROVED/REVISOR BY THE BOARD OF PUBLIC WORKS EFFECTIVE DATE: June 26, 2018		
Item	Revision	Approved Date	CITY OF SOUTH BEND		
			STANDARDS FOR DESIGN AND CONSTRUCTION		
TEMPORARY SILT FENCE			STANDARD	7-8	

GENERAL SEEDING AND SURFACE STABILIZATION PROCEDURES IN ACCORDANCE WITH CHAPTER 7 OF THE "INDIANA STORM WATER QUALITY MANUAL", OCTOBER 2007

TEMPORARY SEEDING

Table 1. Temporary Seeding Specifications

Seed Species 1	Rate per Acre	Planting Depth	Optimum Dates 2
Wheat or Rye	150 lbs.	1 to 1-1/2 inches	Sept. 15 - Oct. 30
Spring Oats	100 lbs.	1 inch	March 1 - April 15
Annual Ryegrass	40 lbs.	1-1/4 inch	March 1 - May 1 Aug. 1 - Sept. 1
German Millet	40 lbs.	1 to 2 inches	May 1 - June 1
Sudangrass	35 lbs.	1 to 2 inches	May 1 - July 30
Buckwheat	60 lbs.	1 to 2 inches	April 15 - June 1
Corn (broadcast)	300 lbs.	1 to 2 inches	May 11 - Aug. 10
Sorghum	35 lbs.	1 to 2 inches	May 1 - July 15

- Perennial species may be used as a temporary cover, especially if the area to be seeded will remain idle for more than one year (See Permanent Seeding).
- Seeding done outside the optimum seeding dates increases the chances of seeding failure. Dates may be extended or shortened based on the location of the project site within the state.
- Mulch alone is an acceptable temporary cover and may be used in lieu of temporary seeding, provided that it is appropriately anchored. A high potential for fertilizer, seed, and mulch to wash exists on steep banks, cuts, and in channels and areas of concentrated flow.
- Test soil to determine pH and nutrient levels.
- Apply soil amendments as recommended by the soil test. If testing is not done, apply 400 to 600 pounds per acre of 12-12-12 analysis fertilizer, or equivalent.
- Work the soil amendments into the upper two to four inches of the soil with a disk or rake operated across the slope.
- Select a seed species or an appropriate seed mixture and application rate from Table 1.
- Apply seed uniformly with a drill or cultipacker seeder or by broadcasting. Plant or cover seed to the depth shown in Table 1.
- If drilling or broadcasting the seed, ensure good seed-to-soil contact by firming the seedbed with a roller or cultipacker after completing seeding operations. Daily seeding when the soil is moist is usually most effective.
- If seeding is done with a hydroseeder, fertilizer and mulch can be applied with the seed in a slurry mixture.
- Apply mulch (See Mulching and Compost Mulching Requirements Below) and anchor it in place.
- Inspect within 24 hours of each rain event and at least once every seven calendar days.
- Check for erosion or movement of mulch and repair immediately.
- Monitor for erosion damage and adequate cover (80 percent density); reseed, fertilize, and apply mulch where necessary.
- If nitrogen deficiency is apparent, top-dress fall seeded wheat or rye seeding with 50 pounds per acre of nitrogen in February or March.

SOD

Installation

Sod should not be installed during hot weather, on dry soil, frozen soil, compacted clay, loose sand or gravelly substrate soils, aggregate, or pesticide treated soil. The ideal time to lay sod is May 1 to June 1 or September 1 to September 30, although it can be installed as early as March 15 if available or June 1 to September 1 if irrigated.

Site Preparation

- Apply topsoil if existing soil conditions are unsuitable for establishing vegetation.
- Grade the site to achieve positive drainage and create a smooth, firm soil surface.
- Where applicable, use a chisel plow, disk, harrow, or rake to break up compacted soils and create a favorable rooting depth of six to eight inches.

Sod Bed Preparation

- Test soil to determine pH and nutrient levels.
- If soil pH is too acidic for the grass sod to be installed, apply lime according to soil test results or at the rate recommended by the sod supplier.
- Apply fertilizer as recommended by the soil test. If testing was not done, apply 400 to 600 pounds per acre of 12-12-12 analysis fertilizer, or equivalent.
- Work the soil amendments into the upper two to four inches of soil with a disk or rake operated across the slope.
- Rake or harrow the area to achieve a smooth final grade and then roll or cultipack the soil surface to create a firm surface on which to lay the sod.

Laying the Sod

- Install sod within thirty-six hours of its cutting.
- Store the sod in a shaded location during installation.
- Immediately before laying the sod, rake the soil surface to break any crust. (If the weather is hot, lightly irrigate the soil surface prior to laying the sod.)
- Lay sod strips in a brick-like pattern.
- Butt all joints tightly against each other (do not stretch or overlap them), using a knife or mason's trowel to trim and fit sod into irregularly shaped areas.
- Roll the sod lightly after installation to ensure firm contact between the sod and soil.
- Irrigate newly sodded areas until the underlying soil is wet to a depth of four inches, and then keep moist until the grass takes root.

Slope Application

- Install sod strips with the longest dimension perpendicular to the slope.
- Where slopes exceed a ratio of 3:1, staple or stake each strip at the corners and in the middle.

Channel Application

(Sodding provides quicker protection than seeding and may reduce the risk of early washout.)

- Excavate the channel, allowing for the full thickness of the sod.
- Lay sod strips with the longest dimension perpendicular to channel flow.
- Staple or stake each strip of sod at the corners and in the middle.
- Staple jute or biodegradable polypropylene netting over the sodded area to minimize the potential for washout during establishment.

Maintenance

- Inspect within 24 hours of each rain event and at least once every seven calendar days until sod is well rooted.
- Keep sod moist until fully rooted.
- After sod is well-rooted (two to three weeks), maintain a plant height of two to three inches.
- Time mowing to avoid ruts in turf
- Fertilize turf areas annually. Apply fertilizer in a split application. For coolseason grasses, apply one-half of the fertilizer in late spring and one-half in early fall. For warm-season grasses, apply one-third in early spring, one-third in late spring and one-third in mid-summer.

PERMANENT SEEDING

Site Preparation

- Grade the site to achieve positive drainage.
- Add topsoil or compost mulch to achieve needed depth for establishment of vegetation. (Compost material may be added to improve soil moisture holding capacity, soil friability, and nutrient availability.)

Seedbed Preparation

- Test soil to determine pH and nutrient levels.
- Apply soil amendments as recommended by the soil test and work into the upper two to four inches of soil. If testing is not done, apply 400 to 600 pounds per acre of 12-12-12 analysis fertilizer, or equivalent.
- Till the soil to obtain a uniform seedbed. Use a disk or rake, operated across the slope, to work the soil amendments into the upper two to four inches of the soil.

Seeding

- Optimum seeding dates are March 1 to May 10 and August 10 to September 30. Permanent seeding done between May 10 and August 10 may need to be irrigated. Seeding outside or beyond optimum seeding dates is still possible with the understanding that reseeding or overseeding may be required if adequate surface cover is not achieved. Reseeding or overseeding can be easily accomplished if the soil surface remains well protected with mulch.
- Select a seeding mixture and rate from Table 1 Permanent Seeding Recommendations. Select seed mixture based on site conditions, soil pH, intended land use, and expected level of maintenance.
- Apply seed uniformly with a drill or cultipacker seeder or by broadcasting. Plant or cover the seed to a depth of one-fourth to one-half inch. If drilling or broadcasting the seed, ensure good seed-to-soil contact by firming the seedbed with a roller or cultipacker after completing seeding operations. (If seeding is done with a hydroseeder fertilizer and mulch can be applied with the seed in a slurry mixture.)
- Mulch all seeded areas and use appropriate methods to anchor the mulch in place. Consider using erosion control blankets on sloping areas and conveyance channels.

Maintenance

- Inspect within 24 hours of each rain event and at least once every seven calendar days until the vegetation is successfully established.
- Characteristics of a successful stand include vigorous dark green or bluishgreen seedlings with a uniform vegetative cover density of 90 percent or more.
- Check for erosion or movement of mulch.
- Repair damaged, bare, gullied, or sparsely vegetated areas and then fertilize, reseed, and apply and anchor mulch.
- If plant cover is sparse or patchy, evaluate the plant materials chosen, soil fertility, moisture condition, and mulch application; repair affected areas either by overseeding or preparing a new seedbed and reseeding. Apply and anchor mulch on the newly seeded areas.
- If vegetation fails to grow, consider soil testing to determine soil pH or nutrient deficiency problems. (Contact your soil and water conservation district or cooperative extension office for assistance.)
- If additional fertilization is needed to get a satisfactory stand, do so according to soil test recommendations.
- Add fertilizer the following growing season. Fertilize according to soil test recommendations.
- Fertilize turf areas annually. Apply fertilizer in a split application. For cool-season grasses, apply one-half of the fertilizer in late spring and one-half in early fall. For warm-season grasses, apply one-third in early spring, one-third in late spring, and the remaining one-third in middle summer.

Table 1 Permanent Seeding Recommendations

This table provides several seed mixture options. Additional seed mixtures are available commercially. When selecting a mixture, consider intended land use and site conditions, including soil properties (e.g., soil pH and drainage), slope aspect, and the tolerance of each species to shade and drought.

Open Low-Maintenance Areas (Remaining idle more than six months)

Seed Mixtures	Rate per Acre Pure Live Seed	Optimum Soil pH
1. Perennial ryegrass - white clover 1	70 lbs. 2 lbs.	5.6 to 7.0
2. Perennial ryegrass - tall fescue 2	70 lbs. 50 lbs.	5.6 to 7.0
3. Tall fescue 2 - white clover 1	70 lbs. 2 lbs.	5.5 to 7.5

Steep Banks and Cuts, Low-Maintenance Areas (not mowed)

Seed Mixtures	Rate per Acre Pure Live Seed	Optimum Soil pH
1. Smooth brome grass - red clover 1	35 lbs. 20 lbs.	5.5 to 7.0
2. Tall fescue 2 - white clover 1	50 lbs. 2 lbs.	5.5 to 7.5
3. Tall fescue 2 - red clover 1	50 lbs. 20 lbs.	5.5 to 7.5
4. Orchard grass - red clover 1 - white clover 1	30 lbs. 20 lbs. 2 lbs.	5.6 to 7.0
5. Crownvetch 1 - tall fescue 2	12 lbs. 30 lbs.	5.6 to 7.0

Lawns and High-Maintenance Areas

Seed Mixtures	Rate per Acre Pure Live Seed	Optimum Soil pH
1. Bluegrass	140 lbs.	5.5 to 7.0
2. Perennial ryegrass (turf type)	60 lbs. 90 lbs.	5.6 to 7.0
3. Tall fescue (turf type) 2 - bluegrass	170 lbs. 30 lbs.	5.6 to 7.5

Channels and Areas of Concentrated Flow

Seed Mixtures	Rate per Acre Pure Live Seed	Optimum Soil pH
1. Perennial ryegrass - white 1	150 lbs. 2 lbs.	5.5 to 7.0
2. Kentucky bluegrass - smooth bromegrass - switchgrass - timothy	20 lbs. 10 lbs. 3 lbs. 4 lbs.	5.6 to 7.0
- perennial ryegrass - white clover	10 lbs. 2 lbs.	
3. Tall fescue 1 - white clover	150 lbs. 2 lbs.	5.5 to 7.5
4. Tall fescue 2 - perennial ryegrass - Kentucky bluegrass1	150 lbs. 20 lbs. 20 lbs.	5.5 to 7.5

- For best results: (a) legume seed should be inoculated; (b) seeding mixtures containing legumes should preferably be spring-seeded, although the grass may be fall-seeded and the legume frost-seeded (see Dormant Seeding and Frost Seeding on page 41); and (c) if legumes are fall-seeded, do so in early fall.
- Tall fescue provides little cover for, and may be toxic to some species of wildlife. The Indiana Department of Natural Resources recognizes the need for additional research on alternatives such as buffalograss, orchardgrass, smooth bromegrass, and switchgrass. This research, in conjunction with demonstration areas, should focus on erosion control characteristics, wildlife toxicity, turf durability, and drought resistance.

Notes

- An oat or wheat companion or nurse crop may be used with any of the above permanent seeding mixtures, at the following rates:
 - Spring oats - one-fourth to three-fourths bushel per acre
 - Wheat - no more than one-half bushel per acre
- A high potential for fertilizer, seed, and mulch to wash exists on steep banks, cuts, and in channels and areas of concentrated flow.

Slope Stabilization Mix
Available from Cardno Native Plant Nursery
128 Sunset Drive
Walkerton, IN 46574
574-586-2412
OR EQUAL

MULCHING

Table 1. Mulch Specifications

Material 1	Rate per Acre	Comments
Straw or Hay	2 tons	Should be dry, free of undesirable seeds. Spread by hand or machine. Must be crimped or anchored (See Table 2).
Wood fiber or cellulose1	1 ton	Apply with a hydraulic mulch machine and use with tacking agent.

Mulching is not recommended in concentrated flows. Consider erosion control blankets or other stabilization methods.

Coverage

The mulch should have a uniform density of at least 75 percent over the soil surface.

Anchoring

Table 2. Mulch Anchoring Methods

Anchoring Method	How to Apply
Mulch anchoring tool or farm disk (dull, serrated, and blades set straight)	Crimp or punch the straw or hay two to four inches into the soil. Operate machinery on the contour of the slope.
Cleating with dozer tracks	Operate dozer up and down slope to prevent formation of rills by dozer cleats.
Wood hydromulch fibers	Apply according to manufacturer's recommendations.
Synthetic tackifiers, binders, or soil stabilizers	Apply according to manufacturer's recommendations.
Netting (synthetic or biodegradable material)	Install netting immediately after applying mulch. Anchor netting with staples. Edges of netting strips should overlap with each up-slope strip overlapping four to six inches over the adjacent down-slope strip. Best suited to slope applications. In most instances, installation details are site specific, so manufacturer's recommendations should be followed.

All forms of mulch must be anchored to prevent displacement by wind and/or water.

Application

- Apply mulch at the recommended rate shown in Table 1.
- Spread the mulch material uniformly by hand, hayfork, mulch blower, or hydraulic mulch machine. After spreading, no more than 25 percent of the ground should be visible.
- Anchor straw or hay mulch immediately after application. The mulch can be anchored using one of the methods listed below:
 - Crimp with a mulch anchoring tool, a weighted farm disk with dull serrated blades set straight, or track cleats of a bulldozer.
 - Apply hydraulic mulch with short cellulose fibers.
 - Apply a liquid tackifier, or
 - Cover with netting secured by staples.

Maintenance

- Inspect within 24 hours of each rain event and at least once a week.
- Check for erosion or movement of mulch; repair damaged areas, reseed, apply new mulch and anchor the mulch in place.
- Continue inspections until vegetation is firmly established.
- If erosion is severe or recurring, use erosion control blankets or other more substantial stabilization methods to protect the area.

(5) Compost Mulching

Compost Specifications

- Feedstocks may include but are not limited to well-composted vegetable matter, leaves, yard trimmings, food scraps, composted manures, paper fiber, wood bark, Class A biosolids (as defined in Title 40 of the Code of Federal Regulations at 40 CFR Part 503), or any combination thereof.
- Compost shall be produced using an aerobic composting process meeting 40 CFR Part 503 regulations, including time and temperature data indicating effective weed seed, pathogen, and insect larvae kill.
- Compost shall be well decomposed, stable, and weed free.
- Refuse free (less than one percent by weight).
- Free of any contaminants and materials toxic to plant growth.
- Inert materials not to exceed one percent by dry weight pH of 5.5 to 8.0.
- Carbon-nitrogen ratio not to exceed 10:1.
- Moisture content not to exceed 45 percent by dry weight.
- Variable particle size with maximum dimensions of three inches in length, one-half inch in width and one-half inch in depth.

Table 1. Compost Particle Size

Percent Passing Sieve Size		
2-Inch Sieve	1-Inch Sieve	3/4-Inch Sieve > 1/4-Inch Sieve
100%	99%	90% 25%

Banding Agents (optional)

Tackifiers, flocculants, or microbial additives may be used to remove sediment and/or additional pollutants from storm water runoff. (All additives combined with compost materials should be tested for physical results at a certified erosion and sediment control laboratory and biologically tested for elevated beneficial microorganisms at a United States Compost Council, Seal of Testing Assurance, approved testing laboratory.)

Soil Material (optional)

Five percent to ten percent sandy loam (as classified by the U.S. Department of Agriculture soil classification system).

Cover Density

Ninety percent or greater over the soil surface.

Anchoring Method

- Moisten compost/mulch blanket for a minimum of 60 days.
- Erosion control netting (optional).

Cover Thickness

Table 2. Compost Blanket Thickness

Slope	Thickness of Compost Blanket	Thickness of Compost Blanket with Erosion Control Netting
< 25%	< 4:1	1 to 2 inches
25% to 50%	4:1 to 2:1	1 to 2 inches
> 50%	> 2:1	2 to 3 inches

Application

- Remove existing vegetation, large soil clods, rocks, stumps, large roots, and debris in areas where compost mulch is to be applied and dispose in designated areas.
- Scarify sloping areas.
- Aerate areas to be covered with compost/mulch blanket. (Proper aeration will require a minimum of two passes oriented in opposite directions.)
- Broadcast a minimum of one pound of nitrogen (N), one-half pound of phosphorus (P205), and one-half pound of potash (K20) per 1,000 square feet or 300 to 400 pounds per acre of 12-12-12 analysis fertilizer, or equivalent, per acre.
- Apply compost mulch blanket with a pneumatic blower or per manufacturer's directions.
 - Apply within three days of completing aeration operations.
 - Overlap top of slope shoulder by five to ten feet.
 - Seed may be applied at time of installation. (Seed must be evenly blended into the compost if applied with a pneumatic blower or applied with a calibrated seeder attachment prior to installation of the compost blanket.)
- Water compost mulch blanket for a period of 60 days following application. (On steeper slopes, it may be necessary to install erosion control netting over the compost blanket.)
 - Mist blanket for first seven days and then every three days throughout the remainder of the 60-day period.
 - Maintain a constant moisture content of 40 percent to 60 percent.

Maintenance

- Inspect within 24 hours of a rain event and at least once a week.
- Repair eroded areas, and reseed, if applicable.
- Monitor vegetation and apply appropriate soil amendments (if needed) per a soil test.

DORMANT & FROST SEEDING

CONTRACTOR TO DETERMINE THE APPROPRIATE SEEDING METHOD BASED ON THE TIME OF YEAR.

Purpose:

- To provide early germination and soil stabilization in the spring.
- To reduce sediment-laden stormwater runoff from being transported to downstream areas.
- To improve visual aesthetics of construction area.
- To repair or enhance previous seeding.

Materials Required:

- Soil amendments based upon analysis of soil by a soil testing service. (fertilizer, etc.)
- Seed (information follows)
- Mulch (straw, hay, wood fiber, etc.) for protection of seedbed, moisture retention and encouragement of plant growth. mulch must be anchored to prevent dispersal by wind or water. may be covered with manufactured erosion control blankets.

Seed Specifications:

Note that seeding done outside of the optimum seeding dates increases the chances of seeding failure. dates may be shortened or extended depending on the location of the site within the State of Indiana. Mulch alone is an acceptable temporary cover and may be used in lieu of temporary seeding, providing that it is appropriately anchored. perennial species may be used as a temporary cover, especially if the area to be seeded will remain idle for more than one year (see permanent seeding).

Temporary Dormant or Frost Seeding

Wheat or Rye: 150 pounds per acre
Spring Oats: 150 pounds per acre
Annual Rye Grass: 60 pounds per acre

Permanent Dormant or Frost Seeding

Open low-maintenance areas (remaining idle more than 6 months):

Perennial ryegrass & white clover: ryegrass 75 pounds per acre + 3 pounds of clover per acre, optimum soil pH 5.6 to 7.0

Perennial ryegrass & tall fescue: ryegrass 45 pounds per acre + 45 pounds of fescue per acre, optimum soil pH 5.6 to 7.0

Tall fescue & white clover: fescue 75 pounds per acre + 3 pounds of white clover per acre, optimum soil pH 5.5 to 7.5
Kentucky bluegrass, smooth bromegrass, switchgrass, timothy, perennial ryegrass, & white clover: bluegrass 30 pounds per acre + 15 pounds of bromegrass per acre + 5 pounds of switchgrass per acre + 6 pounds of timothy per acre + 15 pounds of ryegrass per acre + 3 pounds of white clover per acre, optimum soil pH 5.5 to 7.5

Steep banks and cuts (low-maintenance areas, not mowed):

Smooth bromegrass & red clover: bromegrass 50 pounds per acre + 30 pounds of red clover per acre, optimum soil pH 5.5 to 7.0

Tall fescue & white clover: fescue 75 pounds per acre + 30 pounds of white clover per acre, optimum soil pH 5.5 to 7.5

Tall fescue & red clover: fescue 75 pounds per acre + 30 pounds of red clover per acre, optimum soil pH 5.5 to 7.5

Orchard grass, red clover & white clover: orchard grass 45 pounds per acre + 30 pounds of red clover per acre + 3 pounds of white clover per acre, optimum soil pH 5.6 to 7.0

Lawns and high-maintenance areas:

Bluegrass: bluegrass 210 pounds per acre, optimum pH 5.5 to 7.0

Perennial ryegrass & bluegrass: 90 pounds of ryegrass per acre & 135 pounds of bluegrass per acre, optimum pH 5.6 to 7.0

Tall fescue (turf type) & bluegrass: fescue 250 pounds per acre + 45 pounds of bluegrass per acre, optimum soil pH 5.6 to 7.5

Channels and areas of concentrated flow:

Perennial ryegrass & white clover: ryegrass 225 pounds per acre + 3 pounds of white clover per acre, optimum soil pH 5.5 to 7.0

Kentucky bluegrass, smooth bromegrass, switchgrass, timothy, perennial ryegrass, & white clover: bluegrass 30 pounds per acre + 15 pounds of bromegrass per acre + 5 pounds of switchgrass per acre + 6 pounds of timothy per acre + 15 pounds of ryegrass per acre + 3 pounds of white clover per acre, optimum soil pH 5.5 to 7.5

Tall fescue & white clover: fescue 225 pounds per acre + 3 pounds of clover per acre, optimum soil pH 5.5 to 7.5

Tall fescue, perennial ryegrass, & Kentucky bluegrass: fescue 225 pounds per acre + 30 pounds of ryegrass per acre + 30 pounds of bluegrass per acre, optimum soil pH 5.5 to 7.5

Notes:

- Legume seed should be inoculated
- Seeding mixtures containing legumes should be spring-seeded although, the grass may be fall-seeded and the legume frost seeded
- If legumes are fall-seeded, do so in early fall
- If using mixtures other than those listed above, increase seeding rates by 50 percent over the conventional seeding rates.

Site Preparation:

- Grade the site to achieve positive drainage.
- Add topsoil to achieve needed depth for establishment of vegetation.

Dormant Seeding:

- Test soil to determine pH and nutrient levels.
- Broadcast soil amendments as recommended by soil test and work into the upper 2 to 4 inches of soil. If testing is not done, apply 200 to 300 pounds per acre of 12-12-12 analysis fertilizer, or equivalent.
- Apply anchored mulch immediately after completion of grading and addition of soil amendments.
- Select appropriate seed species (see seed specifications above). Broadcast the seed on top of the mulch and/or into existing ground cover at rates shown. Areas are to be seeded when soil temperatures are below 50 degrees but the soil is not frozen.

Frost Seeding:

- Test soil to determine pH and nutrient levels.
- Broadcast soil amendments as recommended by a soil test and work into the upper 2 to 4 inches of soil before it freezes. If testing was not done, apply 200 to 300 pounds per acre of 12-12-12 analysis fertilizer, or equivalent.
- Select appropriate seed species or mixture (see seed specifications above). Broadcast the seed on the seedbed when the soil is frozen. do not work the seed into the soil.

Maintenance:

- Inspect at least once every a week (minimum) and within one business day of each

STORMWATER POLLUTION PREVENTION PLAN (SWPPP) INDEX

Construction Plan – General Plan Components (Section A)

- A1 - Index of the location of required plan elements in the construction plan:
See this sheet for Stormwater Pollution Prevention Plan (SWPPP) Index and "Cover Sheet" for Sheet Index.
- A2 - A vicinity map depicting the project site location in relationship to recognizable local landmarks, towns, and major roads:
See "Cover Sheet" for Location Map.
- A3 - Narrative of the nature and purpose of the project:
Project will include grading, sanitary sewer and services, water main and services, asphalt pavement, concrete curb and gutter, and other pertinent utilities for single family home construction.
- A4 - Latitude and longitude to the nearest fifteen (15) seconds:
Latitude 41° 38' 45" N
Longitude 86° 16' 46" W
- A5 - Legal description of the project site:
See "Cover Sheet"
- A6 - 11 X 17-inch plat showing building lot numbers/boundaries and road layout/names:
11x17 PDF's of SWPPP drawings are being provided to Local Agency with the filing of this plan for review.
- A7 - Boundaries of the one hundred (100) year floodplains, floodway fringes, and floodways:
N/A
- A8 - Land use of all adjacent properties:
North: Residential
South: Vacant / Open Land / Future Residential
East: Vacant / Woods
West: Residential
- A9 - Identification of a U.S. EPA approved or established TMDL:
The IDEM site (<https://www.in.gov/idem/nps/resources/total-maximum-daily-load-reports/>) does have record of a TMDL for E.Coli in the Kankakee/Iroquois Watershed.
- A10 - Name(s) of the receiving water(s):
The proposed site will drain to an existing drainage system within the existing subdivision, where the stormwater runoff will be conveyed to an existing drainage basin where the runoff will infiltrate to the subsols and ultimately drain to the Kankakee/Iroquois Watershed. HUC 07120001
- A11 - Identification of discharges to a water on the current 303(d) list of impaired waters and the pollutant(s) for which it is impaired:
The Kankakee River is not on the 303(d) list of impaired waters.
- A12 - Soils map of the predominate soil types:
See Sheet "SWPPP Plan" for Published Soils Map.
- A13 - Identification and location of all known wetlands, lakes, and water courses on or adjacent to the project site (construction plan, existing site layout):
See Sheet "SWPPP Plan" for Published Wetland Inventory Map.
- A14 - Identification of any other state or federal water quality permits or authorizations that are required for construction activities:
NONE
- A15 - Identification and delineation of existing cover, including natural buffers:
See "Plan and Profile, and SWPPP Sheets" showing existing vegetation cover.
- A16 - Existing site topography at an interval appropriate to indicate drainage patterns:
See "Plan and Profile, and Grading Plan" for existing contours.
- A17 - Location(s) where run-off enters the project site:
Run-off enters the site from the adjacent east and south limits of the site.
- A18 - Location(s) where run-off discharges from the project site prior to land disturbance:
Existing run-off discharges to a into an existing storm sewer system, that drains to an existing drainage basin.
- A19 - Location of all existing structures on the project site:
See "Plan and Profile" for existing structures.
- A20 - Existing permanent retention or detention facilities, including manmade wetlands, designed for the purpose of stormwater management:
The existing site does have existing stormwater management. The proposed site will utilize existing drainage, draining into Emerson Forest Parkway, where there is an existing storm sewer. The runoff will be conveyed to an existing basin north of Irvington Drive, and east of Locust Rd.
- A21 - Locations where stormwater may be directly discharged into ground water, such as abandoned wells, sinkholes, or karst features:
This project does not contain any known sinkholes or uncapped abandoned wells to exist. Any found abandoned wells must be properly capped by a licensed well driller.
- A22 - Size of the project area expressed in acres:
Total project size: 0.78± Acres
- A23 - Total expected land disturbance expressed in acres:
Total disturbed area: 1.85± Acres
- A24 - Proposed final topography:
See "Grading Plan" for proposed contours.
- A25 - Locations and approximate boundaries of all disturbed areas:
See Construction Limits on "SWPPP Plan."
- A26 - Locations, size, and dimensions of all stormwater drainage system such as culverts, stormwater sewer, and conveyance channels:
N/A - There are no additional proposed stormwater measures included in this project.
- A27 - Locations of specific points where stormwater and non-stormwater discharges will leave the project site:
See "Plan and Profile", stormwater will runoff to Emerson Forest Parkway, into an existing stormwater system.
- A28 - Location of all proposed site improvements, including roads, utilities, lot delineation and identification, proposed structures, and common areas:
See "Plan and Profile" and "Grading Plan" for proposed site improvements.
- A29 - Location of all on-site and off-site soil stockpiles and borrow areas:
See "Grading Plan", Permanent Excess Soil Removal Notes.
- A30 - Construction support activities that are expected to be part of the project:
Refer to "SWPPP Plan" for tentative project staging area location(s). Staging areas will be used for storage of building supplies, equipment, and related materials. Staging areas will be removed and related construction activities will end when construction is complete at the project.
- A31 - Location of any in-stream activities that are planned for the project including, but not limited to, stream crossings and pump arounds:
This project does not have planned in-stream activities.

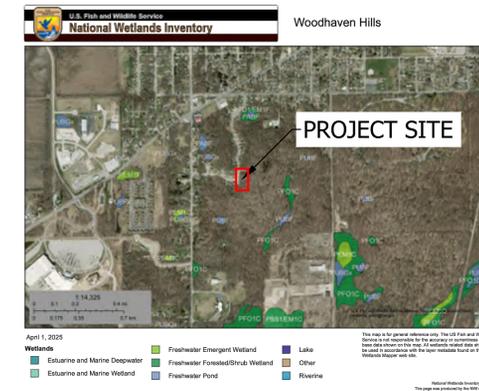
Stormwater Pollution Prevention - Post-construction Components (Section B)

- B1 - Description of the potential pollutant generating sources and pollutants, including all potential non-stormwater discharges:
The following could generate pollutants associated with construction activities:
1. Vehicles/Equipment, Fueling and Leaking
2. Material Storage
3. Site Demolition & Construction Debris
4. Exposed Soils
5. Excavation of Materials
6. Sanitary Chemicals/Waste
7. Tracking Soils Offsite
8. Concrete Washout
- B2 - Stable construction entrance locations and specifications:
See "SWPPP Plan" and "SWPPP Details" for location and specifications.
- B3 - Specifications for temporary and permanent stabilization:
See seeding notes on "SWPPP Plan" and "SWPPP Details" for stabilization location and specifications.
- B4 - Sediment control measures for concentrated flow areas:
N/A
- B5 - Sediment control measures for sheet flow areas:
See seeding notes on "SWPPP Plan" and "SWPPP Details" for location and specifications.
- B6 - Run-off control measures:
Erosion Control Blankets and Silt Fence will be used for storm run-off. See "SWPPP Plan" and "SWPPP Details" for location and specifications.
- B7 - Stormwater outlet protection location and specifications:
N/A
- B8 - Grade stabilization structure locations and specifications:
Energy dissipators will be used for grade stabilization. See "SWPPP Plan" and "SWPPP Details" for location and specifications.
- B9 - Dewatering applications and management methods:
NA, Dewatering is not anticipated.
- B10 - Measures utilized for work within waterbodies:
NA, In-stream activities are not planned.
- B11 - Maintenance guidelines for each proposed stormwater quality measure:
See "SWPPP Details".
- B12 - Planned construction sequence that describes the implementation of stormwater quality measures in relation to land disturbance:
Preconstruction:
1. Notify the Project Owner of work commencement.
2. Contact Indiana 811 (Indiana Underground Plant Protection System, Inc.) for Underground Utility Locations, 800-382-5544.
3. The "CSQP" Notice of Intent shall be visible and posted at the Project Site. Contractor shall designate a Stormwater Quality Manager who will be responsible for onsite inspection and for providing the SWQCP onsite.
4. Notify the Local Agency 48 hours prior to commencing construction, IDEM is notified via the Notice of Intent submittal. Schedule any required meetings with the Local Agency.
Install Perimeter Control:
5. Install Erosion Control Measures, which may include, but not limited to: Construction Entrance, Concrete Washout, Silt Fence and Inlet protection.
6. Establish Staging Areas, Material Storage Areas and Fuel Areas Locations. Area locations shall be approved by the Owner. Each area shall be properly protected and delineated prior to construction.
7. Establish Soil Stockpile Area Locations.
Construction:
8. Install utilities, grading and associated construction.
9. Maintain all erosion and sediment control practices until all disturbed areas are permanently stabilized.
10. Install and reset any signs, mailboxes, etc. that were removed during construction.
11. Final Grade and Seed.
12. Remove erosion control measures after all disturbed area are fully established.
13. A final site inspection will take place to assure that all requirements of the SWPPP and Construction Plans.
Project Completion:
When the site meets permanent surface stabilization requirements the Notice of Termination (NOT) shall be submitted to IDEM. When the NOT is approved, the NOT will be provided to the Local Authority.
- B13 - Provisions for erosion and sediment control on individual residential building lots regulated under the proposed project:
See the "SWPPP Details" pages.
- B14 - Material handling and spill prevention and spill response plan meeting the requirements in 327 IAC 2-6.1:
Construction materials that may be located onsite include vehicle lubricants, oils and fuels, concrete wash-out, acids, curing compounds, paints, mulch, water treatment chemicals, pesticides, herbicides, fertilizers, and trash. Any toxic materials are to be properly disposed of in an approved manner in accordance with local, state, and federal laws.
These materials should be stored in a manner that prevents or minimizes the chance that a spill will reach soils, groundwater or surface water. Any discharge that occurs from stored materials shall be contained and prevented from entering soils, groundwater, or surface water.
In the event of a material spill, the spill must be contained immediately utilizing appropriate response techniques including diking and absorbents. Clean up of the spill shall occur as soon as possible once the spill is stabilized and contained. Spills shall be cleaned up using acceptable methods such as absorbents on impervious surfaces or removal of contaminated soils. In all cases cleanup standards must adhere to local, state and federal requirements. Failure to clean up any spill is a violation of the Indiana State Spill Rule (327 IAC 2-6.1), which is enforced by the Indiana Department of Environmental Management (IDEM). Certain spills must be reported to Local Agency and IDEM (888-233-7745). Initial calls should be made to the 911 system if the spill exceeds reportable quantities or is a threat to public safety. IDEM's Emergency Response line (888-233-7745) can typically assist with information on clean up operations or clean up contractors.
All spills that occur near an inlet to the stormwater conveyance system must have "curbing" implemented immediately. "Curbing" is the use of a barrier (absorbent material) which prevents the spill from making contact with the stormwater conveyance system or stormwater runoff.
- B15 - Material handling and storage procedures associated with construction activity:
See "SWPPP Plan" and "SWPPP Details" for Concrete Washout Location and specifications.

Stormwater Pollution Prevention - Post-construction Components (Section C)

- C1 - Description of pollutants and their sources associated with the proposed land use:
Potential pollutants are: Vehicular traffic (Grit, Oil & Solvents), discarded litter, sediment from road treatment, runoff from pesticides or fertilizers.
- C2 - Description of proposed post-construction stormwater measures:
See "SWPPP Plan", permanent vegetation will be permanent stormwater quality measures at the project.
- C3 - Plan details for each stormwater measure:
See "SWPPP Plan" and "SWPPP Details" sheets for location of permanent stormwater measures and specifications.
- C4 - Sequence describing stormwater measure implementation:
Silt Fence, and Inlet protection shall be implemented before any excavation occurs - Maintenance guidelines for proposed post-construction stormwater measures:
An operation manual will be provided to the Project Owner with post-construction maintenance guidelines for the sites stormwater measures proper long-term function will be provided.
- C6 - Entity that will be responsible for operation and maintenance of the post construction stormwater measures:
The Project Owner will be responsible for the operation and maintenance of post-construction stormwater measures.

GENERAL CONSTRUCTION ACTIVITY SCHEDULE					
Construction Activity	2025			2026	
	October	November	December	January-April	
1 Temporary Construction Entrance	█				
2 Silt Fence Installed	█				
3 Clearing and Stripping Activities	█				
4 Rough Grading & Stockpile / Contain Topsoil	█				
5 Sanitary Sewer Construction		█			
7 Inlet / Swale Protection + Temporary Seeding		█			
8 Pavement Construction			█		
9 Final Grading / Feature Construction			█		
10 Permanent Erosion Control Measures			█		
11 Erosion / Sediment Maintenance			█		



NOTE: Existing wetland delineated by Fishbeck, per report dated: July 16, 2024
Map Source: <https://www.fws.gov/program/national-wetlands-inventory/wetlands-mapper>
PUBLISHED WETLAND MAP
(NOT TO SCALE)



SITE SOIL INFORMATION			
SOILS INFORMATION IS DEFINED AND SCALED FROM THE UNITED STATES DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION DISTRICT'S WEB SOIL SURVEY (https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx)			
Soil Name	Soil Description	Area (Acres)	Percent of Area
HkKB	Hillsdale Sandy Loam, 1 to 5% Slopes	0.4	6.10%
HkPC2	Hillsdale-Tracy Sandy Loams, 5-10% Slopes, Eroded	2.0	28.50%
MfA	Martinsville Loam, 0 to 1% Slopes	2.1	29.60%
MfA2	Martinsville Loam, 5 to 10% Slopes	2.5	35.60%
TmpC2	Tracy Sandy Loam, 6 to 12% slopes, Moderately Eroded	0.0	0.20%
Total		7	

PUBLISHED SOIL MAP
(NOT TO SCALE)

EROSION CONTROL CONTACTS	
Project Owner:	John Lovely Land Development Manager 269-391-0542 jlovely@allenedwin.com
IDEM: Indiana Dept. of Environmental Management	Eric Roberts Stormwater Permit Coordinator 317-233-1864 eroberts@idem.IN.gov
Local Agency: City of South Bend	Kaitlyn Smith MS4 Specialist 574-235-5903 kmsmith@southbend.in.gov

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315 W. Jefferson Boulevard
South Bend, IN 46601
P: 574.235.4440
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Valparaiso
Ellettsville
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Lafayette

Engineering Architecture Land Surveying

**WOODHAVEN HILLS
MAJOR SUBDIVISION
SECTION 1**
EMERSON FOREST PARKWAY, SOUTH BEND, IN 46614

PROJECT:

SWPPP DETAILS

SHEET TITLE:

DRAWN BY: RAD

DESIGNED BY: RAD

PM REVIEW: SDR

QA/QC REVIEW: DSK

DATE: 09/29/2025

SCALE:



SIGNATURE:

DATE: 09/29/2025

SCALE: AS NOTED

ACI JOB #

24-2170

SHEET NO.

C8.3

CONSTRUCTION AND TESTING SHALL BE IN ACCORDANCE WITH THE CITY OF SOUTH BEND STANDARDS, SPECIFICATIONS, AND DRAWINGS

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315 W. Jefferson Boulevard
 South Bend, IN 46601
 Phone: 574.251.4400
 Fax: 574.251.4440
 abonmarche.com

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**WOODHAVEN HILLS
 MAJOR SUBDIVISION
 SECTION 1**
 EMERSON FOREST PARKWAY, SOUTH BEND, IN 46614

**CONSTRUCTION DETAILS -
 GENERAL**

PROJECT: PROJECT TITLE:
 DRAWN BY: RAD
 DESIGNED BY: RAD
 PM REVIEW: SDR
 QA/QC REVIEW: DSK
 DATE: 09/29/2025
 SEAL: DRURY S. KMP REGISTERED PROFESSIONAL ENGINEER
 SIGNATURE: [Signature]
 DATE: 09/29/2025
 SCALE: AS NOTED
 ACI JOB #: 24-2170
 SHEET NO. C9.0

SECTION 2 - STREETS AND PATHS

RESIDENTIAL APPROACH

SECTION B-B

NOTES:
 1. Class "A" concrete to be used in all walks and approaches.
 2. Radii may be used if approved by the City Engineer.
 3. Contraction joint required on approach center when D is 12 ft. or more.
 4. "Curing Concrete" - As per INDOT Standard Specifications Section 501 (Paragraph 501.20). Use a curing compound immediately (White membrane only accepted cure).
 5. Concrete forms shall be at least as high as the thickness of the item shown. Lumber of nominal dimension shall not be used to equal the specified dimension.
 6. All walks and approaches shall require proper compaction as per INDOT Standard Specifications Section 200 (Paragraphs 207.02 and 207.05).
 7. Curb Casting - Preformed 1/4" expansion joint material shall be placed on each side of curb return.
 8. Blankets shall be utilized on concrete when temperature is expected to fall below 50°.
 9. No wire mesh or rebar allowed in any concrete (sidewalk, approaches, curbs) placed within the right of way.
 10. When a new drive is constructed with existing vertical curb, the existing curb shall be depressed in accordance with the detail for existing vertical curb on Standard 2-24.
 11. When a drive is constructed within the limits of new road construction, the curb shall be depressed in accordance with the detail for new curb on Standard 2-24. Rolled Curb and Gutter Type "A" does not require depression.
 12. Max slope for all approaches is 8%, with max algebraic difference of 10%.
 13. Drive width shall match existing approach width at the Right-of-Way, not less than 10' wide.
 14. The maximum driveway width in suburban areas is not greater than 20'.

LEGEND:
 (A) Expansion Joint - Full Depth
 (B) Contraction Joint
 W Width
 D Dimension

REF STD SPEC SEC 2-2
 APPROVED/REVISED BY THE BOARD OF PUBLIC WORKS
 EFFECTIVE DATE: June 26, 2018
 Kara M. Boyles, Ph.D., P.E. 6/26/18 Date

CITY OF SOUTH BEND
 STANDARDS FOR DESIGN AND CONSTRUCTION
 STANDARD 2-23
 DRIVES AND APPROACHES - RESIDENTIAL

SECTION 2 - STREETS AND PATHS

CONCRETE SIDEWALK - RESIDENTIAL

SECTION A-A

LEGEND:
 (A) Expansion Joint - Full Depth
 (B) Contraction Joint
 W Width

NOTES:
 1. Class "A" concrete to be used in all walks and approaches.
 2. "Curing Concrete" - As per INDOT Standard Specifications Section 501 (Paragraph 501.20). Use a curing compound immediately (white membrane only accepted cure).
 3. Concrete forms shall be at least as high as the thickness of the item shown. Lumber of nominal dimension shall not be used if less than the design thickness.
 4. Proper compaction per INDOT Standard Specification Section 604 (Paragraph 604.02(b)) is required for all walks and approaches.
 5. Blankets shall be utilized on concrete when temperature is expected to fall below 50°F.
 6. No wire mesh or rebar allowed in any concrete (sidewalk, approaches, curbs) placed within the right of way.

REF STD SPEC SEC 2-2
 APPROVED/REVISED BY THE BOARD OF PUBLIC WORKS
 EFFECTIVE DATE: June 26, 2018
 Kara M. Boyles, Ph.D., P.E. 6/26/18 Date

CITY OF SOUTH BEND
 STANDARDS FOR DESIGN AND CONSTRUCTION
 STANDARD 2-28
 DETAILS - RESIDENTIAL SIDEWALK

SECTION 2 - STREETS AND PATHS

COMBINATION CURB AND GUTTER, TYPE A

NOTES:
 1. All curb to be constructed of class "A" concrete.
 2. Control joints to be placed every 10'.
 3. Expansion joints to be placed every 60' or as specified on construction drawings.
 4. Eliminate longitudinal bars if roadway is asphalt pavement.
 5. Curb depth at pavement edge shall match pavement depth where concrete is used.

REF STD SPEC SEC 2-2
 APPROVED/REVISED BY THE BOARD OF PUBLIC WORKS
 EFFECTIVE DATE: June 26, 2018
 Kara M. Boyles, Ph.D., P.E. 6/26/18 Date

CITY OF SOUTH BEND
 STANDARDS FOR DESIGN AND CONSTRUCTION
 STANDARD 2-32
 DETAILS - COMBINATION CURB AND GUTTER, TYPE A

SECTION 2 - STREETS AND PATHS

PERPENDICULAR CURB RAMP ADJACENT NON-WALKABLE SURFACE

SECTION A-A

SECTION B-B

NOTES:
 1. These dimensions are based on a 6 in. curb height. They shall be proportionally adjusted for other curb heights.
 2. The bottom edge of the curb ramp shall be flush with the edge of adjacent pavement and gutter line.
 3. Landing areas at the top of the curb ramps shall have maximum cross slope of 1.5% in any direction.
 4. Drainage inlets should be located uphill from the curb ramps to prevent water ponding within the pedestrian access route.
 5. Algebraic difference in grade between the base of curb ramp and the gutter shall be less than 11%. If this is not practical, a 2'-0" wide level strip shall be provided.
 6. Minimum width of curb ramp is 4'-0".
 7. Under restrictive conditions, additional details and design modifications may be required and subject to approval by City.

REF STD SPEC SEC 2-2
 APPROVED/REVISED BY THE BOARD OF PUBLIC WORKS
 EFFECTIVE DATE: June 26, 2018
 Kara M. Boyles, Ph.D., P.E. 6/26/18 Date

CITY OF SOUTH BEND
 STANDARDS FOR DESIGN AND CONSTRUCTION
 STANDARD 2-38
 DETAILS - SIDEWALK CURB RAMP, TYPE B

SECTION 2 - STREETS AND PATHS

TYPICAL RAMP AND TRUNCATED DOME CONSTRUCTION DETAIL

SECTION A-A

TRUNCATED DOMES

CHANGE OF GRADE > 11%

NOTES:
 1. Detectable warning surface shall consist of truncated domes and shall be aligned in a square or radial grid pattern. Where truncated domes are arrayed radially, they may differ in diameter and center-to-center spacing within the ranges specified.
 2. The detectable warning surface shall be manufactured to fit the radii. Field cutting shall not alter the truncated dome spacing between the adjacent panels outside of the allowable range.
 3. The detectable warning surface shall contrast visually with adjacent surfaces, either light-on-dark or dark-on-light.
 4. The detectable warning surface shall extend a minimum of 2 ft. in the direction of pedestrian travel and extend the full width as shown. The detectable warning surface shall not be placed across a grade break.
 5. The maximum counter slope of the gutter or street at the bottom of the ramp shall be 5.00%. Where the algebraic difference between the running slope and the counter slope exceeds 11%, a 2 ft. minimum level strip should be provided at the bottom of the ramp.
 6. Where the concrete border is used for forming, the border shall be cast monolithically with the curb ramp concrete. The concrete border shall not exceed 2 in. within the ramp width.
 7. Where forming other than a concrete border is used, the edge restraint shall not encroach upon the ramp width.

REF STD SPEC SEC 2-2
 APPROVED/REVISED BY THE BOARD OF PUBLIC WORKS
 EFFECTIVE DATE: June 26, 2018
 Kara M. Boyles, Ph.D., P.E. 6/26/18 Date

CITY OF SOUTH BEND
 STANDARDS FOR DESIGN AND CONSTRUCTION
 STANDARD 2-42
 DETAILS - SIDEWALK CURB RAMP: DETECTABLE WARNING SURFACE

SECTION 2 - STREETS AND PATHS

ASPHALT PAVEMENT PATCHING AND UTILITY CUTS - ASPHALT

ASPHALT PAVEMENT NOTES:
 1. Depth of asphalt patch shall be a minimum of 8" or the same depth as original pavement, whichever is greater.
 2. A concrete patch on asphalt pavement may be allowed by the City Engineer if the road is scheduled to be rehabilitated in the near future or other like circumstances.

GENERAL NOTES:
 1. Temporary Patch:
 If it is not possible, due to weather conditions, for the contractor to replace the pavement within 24 hours following backfilling of cut, a coarse aggregate base 8" thick and a cold asphaltic surface of 4" shall be applied and maintained as a temporary patch until permanent repairs can be made. When temperature falls below 50°F within 72 hour cure time, concrete to be used shall be 7 bag w/ 2% accelerator. Such temporary patches shall be replaced with permanent repairs no later than May 1 of the following year.
 2. All utilities must be located prior to making pavement cut.

REF STD SPEC SEC 2-6
 APPROVED/REVISED BY THE BOARD OF PUBLIC WORKS
 EFFECTIVE DATE: June 26, 2018
 Kara M. Boyles, Ph.D., P.E. 6/26/18 Date

CITY OF SOUTH BEND
 STANDARDS FOR DESIGN AND CONSTRUCTION
 STANDARD 2-48
 PAVEMENT PATCHING AND UTILITY CUTS - ASPHALT

O:\PROJECTS\2024\24-2170 WOODHAVEN HILLS\CADD_CIVIL\PLANS\WOODHAVEN SECTION 1 PLANS\24-2170 CONST DTLS.DWG CD-01 SITE RICHARD DAVILA 9:29:2025 11:51 AM

CONSTRUCTION AND TESTING SHALL BE IN ACCORDANCE WITH THE CITY OF SOUTH BEND STANDARDS, SPECIFICATIONS, AND DRAWINGS

SECTION 5 - WATER WORKS

1" AND 2" TAP
 1" Tap Shall be Level to 40" up
 2" Tap Shall be Level
 Depth Shall be 1' Below Main (at Main)
 Tap Shall be Min. 1' Laterally
 From Other Taps or Joints
 1' Below Water Main
 1' Below Water Main
 1' Below Water Main
 5' in Front of Water Main

4" TO 12" TAP
 Tap Shall be Level
 Depth Shall be 2' Below Main (at Main)
 Tap Shall be a Min. 2' Laterally
 From Other Taps or Joints
 Small Tap in Middle of Excavation
 2' Below Water Main
 2' Below Water Main
 2' Below Water Main
 8' in Front of Water Main

NOTE:
 Shown are minimum excavations required - sheeting and shielding or sloping to 1.5 x depth is also needed.

SOUTH BEND WATER WORKS TAPPING REQUIREMENTS:

- Call 811 or (800) 382-5544 for utility locates a minimum of 48 hours prior to excavation.
- The plumber or contractor must obtain all permits required by the City Engineering Department. (excavation, street cuts, and sidewalk permits)
- Call Engineering Department (574) 235-9251 a minimum of 48 hours prior to excavation and street closure.
- Call City Water Works Department at (574) 235-9279 for tap fee requirements. The tap fee is to be paid to the Water Works Engineering Department, 830 N Michigan St.
- Schedule taps through Field Operations number at (574) 235-9464.
- Excavate, expose and clean water main for tap.
- Material supplied by South Bend Water Works:
 2" and smaller - corporation stop, curb stop and stop box
 4" and larger - tapping sleeve and valve, roadway/valve box
- All excavations must meet O.S.H.A. excavation standards.
- Contractor shall provide all sheeting and shielding.
- Domestic branches off of fire lines are strictly prohibited.
- Any abandoned service lines within the property frontage of the new tap shall be disconnected at the water main by the contractor during the tap excavation. This applies to services at the same address as well as any other connections.

REF STD SPEC SEC 5-2.5(e) and 5-2.5(g)
 APPROVED/REVISED BY THE BOARD OF PUBLIC WORKS
 EFFECTIVE DATE: June 26, 2018

CITY OF SOUTH BEND

STANDARDS FOR DESIGN AND CONSTRUCTION

TAPPING REQUIREMENTS STANDARD 5-1

SECTION 5 - WATER WORKS

TAP MADE UNDER PRESSURE (WET TAP) CONNECTING NEW MAIN TO EXISTING MAIN

NOTE:
 1. Tapping valves shall be Clow, Mueller, or approved equal.
 2. The physical tapping of the existing water main shall be performed by the city's utility distribution department. All excavation and preparation work shall be performed by the contractor, and the contractor shall provide all materials. The utility will only perform the physical tap. Contractor shall coordinate with the Water Department.

REF STD SPEC SEC 5-2.5(e)
 APPROVED/REVISED BY THE BOARD OF PUBLIC WORKS
 EFFECTIVE DATE: June 26, 2018

CITY OF SOUTH BEND

STANDARDS FOR DESIGN AND CONSTRUCTION

TAPPING SLEEVE AND VALVE STANDARD 5-2

SECTION 5 - WATER WORKS

TYPICAL WATER SERVICE CONNECTION

NOTE:
 1. Service shut-off box shall be placed in the public right-of-way in grass between curb and sidewalk.
 2. For a 2" service the corporation stop shall be located at 90° (level).

REF STD SPEC SEC 5-2.1 and 5-2.5(g)
 APPROVED/REVISED BY THE BOARD OF PUBLIC WORKS
 EFFECTIVE DATE: June 26, 2018

CITY OF SOUTH BEND

STANDARDS FOR DESIGN AND CONSTRUCTION

TYPICAL WATER SERVICE CONNECTION STANDARD 5-3

SECTION 5 - WATER WORKS

TRENCH DETAIL FOR WATER MAIN IN SUITABLE SOIL

NOTES:
 1. 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 IOSHA Regulation 29 C.F.R. 1926, Subpart P for Trench Safety Systems.
 2. For multiple pipes in same trench:
 a. Place bedding to Spring Line of first pipe across entire trench width.
 b. Placement of next pipe, re-excavate trench as needed. Then place bedding as noted above.
 c. For additional pipes repeat as required.
 3. Minimum easement width for water main shall be 15'.
 4. Minimum obstruction setback requirement from water main shall be 10'. Obstructions shall include structures, other utilities, trees, and landscaping.

REF STD SPEC SEC 5-3.2 and 5-3.9
 APPROVED/REVISED BY THE BOARD OF PUBLIC WORKS
 EFFECTIVE DATE: June 26, 2018

CITY OF SOUTH BEND

STANDARDS FOR DESIGN AND CONSTRUCTION

TRENCH DETAIL FOR WATER MAIN IN SUITABLE SOIL STANDARD 5-6

SECTION 5 - WATER WORKS

TRENCH DETAIL FOR WATER MAIN IN UNSUITABLE SOIL

NOTES:
 1. 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 IOSHA Regulation 29 C.F.R. 1926, Subpart P for Trench Safety Systems.
 2. For multiple pipes in same trench:
 a. Place bedding to Spring Line of first pipe across entire trench width.
 b. Placement of next pipe, re-excavate trench as needed. Then place bedding as noted above.
 c. For additional pipes repeat as required.
 3. Minimum easement width for water main shall be 15'.
 4. Minimum obstruction setback requirement from water main shall be 10'. Obstructions shall include structures, other utilities, trees, and landscaping.

REF STD SPEC SEC 5-3.2 and 5-3.9
 APPROVED/REVISED BY THE BOARD OF PUBLIC WORKS
 EFFECTIVE DATE: June 26, 2018

CITY OF SOUTH BEND

STANDARDS FOR DESIGN AND CONSTRUCTION

TRENCH DETAIL FOR WATER MAIN IN UNSUITABLE SOIL STANDARD 5-7

SECTION 5 - WATER WORKS

TYPICAL GATE VALVE AND BOX

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

REF STD SPEC SEC 5-2.5(a)
 APPROVED/REVISED BY THE BOARD OF PUBLIC WORKS
 EFFECTIVE DATE: June 26, 2018

CITY OF SOUTH BEND

STANDARDS FOR DESIGN AND CONSTRUCTION

TYPICAL GATE VALVE AND BOX STANDARD 5-8

SECTION 5 - WATER WORKS

FIRE HYDRANT ASSEMBLY

NOTES:
 1. 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.
 2. Hydrant drainage: To prevent freezing of the hydrant barrel if it were not drained, a drainage pit 24x24" 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.
 3. Hydrant painting: Hydrants to be painted red, white and blue per manufacturers paint specs.
 4. All pipe, fitting and valve joints shall be restrained with wedge action restraints.

REF STD SPEC SEC 5-2.6 and 5-3.10
 APPROVED/REVISED BY THE BOARD OF PUBLIC WORKS
 EFFECTIVE DATE: June 26, 2018

CITY OF SOUTH BEND

STANDARDS FOR DESIGN AND CONSTRUCTION

FIRE HYDRANT ASSEMBLY STANDARD 5-11

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**WOODHAVEN HILLS
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 SECTION 1**

EMERSON FOREST PARKWAY, SOUTH BEND, IN 46614

**CONSTRUCTION DETAILS -
 WATER**

SHEET TITLE:
 DRAWN BY: RAD
 DESIGNED BY: RAD
 PM REVIEW: SDR
 QA/QC REVIEW: DSK
 DATE: 09/29/2025
 SEAL:
 SIGNATURE:
 DATE: 09/29/2025
 SCALE: AS NOTED
 ACI JOB #: 24-2170
 SHEET NO. C9.1

CONSTRUCTION AND TESTING SHALL BE IN ACCORDANCE WITH THE CITY OF SOUTH BEND STANDARDS, SPECIFICATIONS, AND DRAWINGS

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**WOODHAVEN HILLS
 MAJOR SUBDIVISION
 SECTION 1**
 EMERSON FOREST PARKWAY, SOUTH BEND, IN 46614

CONSTRUCTION DETAILS -
 SANITARY

SHEET TITLE:
 DRAWN BY: RAD
 DESIGNED BY: RAD
 PM REVIEW: SDR
 QA/QC REVIEW: DSK
 DATE: 09/29/2025
 SEAL:
 SIGNATURE:
 DATE: 09/29/2025
 SCALE: AS NOTED
 ACI JOB #: 24-2170
 SHEET NO. C9.2

SECTION 4 - SANITARY

PLAN VIEW
 Conc. Bench (Class A)(Typ.)
 4% Slope (Typ.)
 Precast Manhole Section
 B-Borrow Backfill Unless Otherwise Approved by City Engineer
 Flow Channel (See Note 3)
 Min. Distance Between Openings shall be 6" for pipe up to 12" Nominal Diam. For Larger Pipes the Min. Distance Between Openings shall be 1/2 O.D. of Smallest Pipe

SECTION VIEW
 Heavy Duty Casting (Refer to Standard 4-6)
 Eccentric Cone
 3" of
 14" O.C.
 Adjusting Rings to Bring Frame to Grade (Refer to Standard 4-6)
 Cooler polymer polypropylene plastic manhole steps with 1/2" grade 60 reinforcing steel
 Seal all Joints w/ Concast CS-102, Bello C-56 or Approved Equal. Wrap all Joints with Concast CS-212 Exterior Joint Wrap or Approved Equal. Apply Joint Wrap Primer per Manufacturers Requirements.
 Reinforced Conc. Pre-Cast Manhole
 4" Dia. or 5" Dia. (See Note 4)
 Flow Channel
 Conc. Bench (Class A)
 4" Min. Clearance Between Lowest Pipe Invert and Manhole Bottom
 B-Borrow (Compacted)
 Pre-Cast Base
 Sanitary Manhole
 8" Min. Pipe Diameter
 12" Pipe
 Inlet Pipe
 Flow

DETAIL A

NOTES:
 1. All manholes shall be manufactured and installed in compliance with ASTM C-478.
 2. All pipe connections shall be made with integral resilient fittings complying with ASTM C-923.
 3. 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.
 4. Refer to manhole size vs. pipe size chart on Standard 4-2.
 5. Completed manholes shall be tested with negative air pressure (vacuum) in accordance with ASTM C-1244-93.
 6. At manholes where a smaller diameter sewer joins a larger diameter sewer, the invert of the larger sewer shall be lowered such that the elevation at 80% of the pipe diameter of both sewers is matched (Refer to Detail A above).
 7. The Design Engineer to be responsible for setting pipe invert elevations to account for minor losses through the manhole.

REF STD SPEC SEC 4-2, 4-3 and 4-4
 APPROVED/REVISED BY THE BOARD OF PUBLIC WORKS
 EFFECTIVE DATE: June 26, 2018

CITY OF SOUTH BEND
 STANDARDS FOR DESIGN AND CONSTRUCTION
 STANDARD 4-1

SECTION 4 - SANITARY

PLAN VIEW
 Conc. Bench (Class A)(Typ.)
 4% Slope (Typ.)
 Precast Manhole Section
 B-Borrow Backfill Unless Otherwise Approved by City Engineer
 Flow Channel (See Note 3)
 Drop Connection

SECTION VIEW
 Grade
 Heavy Duty Casting (Refer to Standard 4-6)
 Adjusting Rings to Bring Frame to Grade (Refer to Standard 4-6)
 Eccentric Cone
 Seal all Joints w/ Concast CS-102, Bello C-56 or Approved Equal. Wrap all Joints with Concast CS-212 Exterior Joint Wrap or Approved Equal. Apply Joint Wrap Primer per Manufacturers Requirements.
 Cooler polymer polypropylene plastic manhole steps with 1/2" grade 60 reinforcing steel
 Brick 2" Dia. of Pipe (See Note 4)
 4" Dia.
 Drop Connection
 8" Min. Pipe Size
 6" Min.
 Flowable Fill (Removable) (See Note 7)
 Manhole
 Conc. Bench (Class A)
 4" Min. Clearance Between Lowest Pipe Invert and Manhole Bottom
 B-Borrow (Compacted)
 Pre-Cast Base

NOTES:
 1. All manholes shall be manufactured and installed in compliance with ASTM C-478.
 2. All pipe connections shall be made with integral resilient fittings complying with ASTM C-923.
 3. 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.
 4. Refer to manhole size vs. pipe size chart on Standard 4-2.
 5. Completed manholes shall be tested with negative air pressure (vacuum) in accordance with ASTM C-1244-93.
 6. The Design Engineer to be responsible for setting pipe invert elevations to account for minor losses through the manhole.
 7. Refer to INDOT Standard Specification Section 213 for removable flowable fill requirements.

REF STD SPEC SEC 4-2, 4-3 and 4-4
 APPROVED/REVISED BY THE BOARD OF PUBLIC WORKS
 EFFECTIVE DATE: June 26, 2018

CITY OF SOUTH BEND
 STANDARDS FOR DESIGN AND CONSTRUCTION
 STANDARD 4-3

SECTION 4 - SANITARY

SECTION VIEW
 Apply a Non-Petroleum Based Release Agent to Casting When Paving
 Heavy Duty Casting (See Note Below)
 12" Max. Adjustment
 Pre-Cast Manhole Rear Section
 Flexible Butyl Joint Sealant and Gout Between Joints / Rings (Typ.)
 Pre-Cast Concrete Adjusting Rings to Bring Frame to Grade. Adjust w/ 2" Rings to Bring Frame to Grade. Bottom Ring Shall be 4" in Height. All Casting Grade Adjustments Shall Follow: INDOT Forming Specifications Section 720.04.
 Finished Grade

NOTES:
 1. Manhole castings shall be Heavy Duty (H-20 rated). Castings shall be East Jordan Iron Works 1040A or Neenah R-1642.
 2. 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 SANITARY shall be cast into the lid for sanitary or combined sewer manholes. The text STORM shall be cast into lid for storm sewer manholes.
 3. Where directed by the City, casting lids shall bolt down. Bolts shall be provided with an anti-seizing agent.
 4. For manholes 22-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-S or Neenah R-1741-D.
 5. For casting adjustment of existing brick manholes, remove old bricks down to a solid base. Then level with mortar and build up with pre-cast adjusting rings.
 6. When manholes are located in gravel or trestle areas, provide a 5 foot diameter concrete collar, centered on the casting. Concrete shall be Class "A".

REF STD SPEC SEC 4-2
 APPROVED/REVISED BY THE BOARD OF PUBLIC WORKS
 EFFECTIVE DATE: June 26, 2018

CITY OF SOUTH BEND
 STANDARDS FOR DESIGN AND CONSTRUCTION
 STANDARD 4-6

SECTION 4 - SANITARY

PLAN VIEW
 Tapping Area 120°
 Horizontal Axis
 Vertical Axis
 Core Drill and Seal Water Tight
 Maximum 1" Protrusion Into Existing Pipe
 Sewer Main Flow

SECTION VIEW
 12" Dia.
 45° Cut Elbow
 8" Min.
 Tapped Felt Disk
 Plug
 Same Size as Service Lateral
 45° Cut Elbow
 12" Min.
 Blocking Class "A" Conc.

PLUG
 1/2" Rod for Lifting
 Depth Socket
 I.D. Socket

NOTES:
 1. When "d" > 1/2 "D" use wye.
 2. When "d" < 1/2 "D" use manufactured saddle or if not available cut tap pipe per sketch.

REF STD SPEC SEC 4-2
 APPROVED/REVISED BY THE BOARD OF PUBLIC WORKS
 EFFECTIVE DATE: June 26, 2018

CITY OF SOUTH BEND
 STANDARDS FOR DESIGN AND CONSTRUCTION
 STANDARD 4-7

SECTION 4 - SANITARY

PLAN VIEW - SERVICE LINE CLEAN-OUTS
 End of Line Clean-Out
 150' Max.
 Service Lateral Pipe (Typ.)
 Sewer Main
 Service Tap or Wye

TYPICAL MID-RUN CLEAN-OUT DETAIL
 8" Min.
 Tapped Felt Disk
 Plug
 Same Size as Service Lateral
 45° Elbow
 Same Size as Service Lateral
 Wye
 Sanitary Service from Building

TYPICAL END OF LINE CLEAN-OUT DETAIL
 12" Min.
 45° Cut Elbow
 8" Min.
 Tapped Felt Disk
 Plug
 Same Size as Service Lateral
 45° Cut Elbow
 12" Min.
 Blocking Class "A" Conc.

NOTES:
 1. Insert a manhole in service lateral if its length exceeds 150 ft.
 2. The minimum service lateral size shall be 6-inches diameter, placed at a minimum slope of 0.5%. Larger sized service laterals shall be installed according to the minimum slopes required by 317 IAC 3-6-12(a).

REF STD SPEC SEC 4-2
 APPROVED/REVISED BY THE BOARD OF PUBLIC WORKS
 EFFECTIVE DATE: June 26, 2018

CITY OF SOUTH BEND
 STANDARDS FOR DESIGN AND CONSTRUCTION
 STANDARD 4-9

SECTION 4 - SANITARY

PIPE BEDDING DETAIL
 The Lower 90° Arc of the Barrel of the Pipe Should be in Firm Contact with Undisturbed Earth. The Bedding Shall 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.
 Backfill - In Streets, Alleys, or Driveway Areas: Backfill Shall be of Select Native Granular Material or B-Borrow Material Free of Debris, Organic Material and Large Stones. Place in 12" Layers, Fully Tamped to Sub-grade or Street Base. Backfill Shall be Compacted to 100% Standard Proctor Density.
 Backfill - In Easement or Open Areas: Backfill Material Shall be of Select Native Granular Material, Placed in 12" Layers, Free of Debris, Organic Material, and Large Stones. Backfill Shall be Compacted to 95% Standard Proctor Density.
 Mechanically Tamped Layers not Exceeding 4" Compacted to 95% Standard Proctor Density.
 Hand Placed/Shouldered and Mechanically Tamped in 4" Layers Compact to 95% Standard Proctor Density.
 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:
 a. Place bedding to Spring Line of first pipe across entire trench width.
 b. Placement of next pipe, re-excavate trench as needed.
 c. Then place bedding as noted above.
 9. Refer to INDOT Standard Specification Section 213 for flowable fill (removable) requirements.

NOTES:
 1. 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.
 2. All PVC pipe for sanitary sewers shall be installed in accordance with ASTM D2321.
 3. There shall be no rocks or stones greater than 2" in any dimension within 6" of the pipe wall or bell.
 4. 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.
 5. 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.
 6. 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.
 7. The placement and compaction of backfill shall not cause displacement of the pipe.
 8. For multiple pipes in same trench:
 a. Place bedding to Spring Line of first pipe across entire trench width.
 b. Placement of next pipe, re-excavate trench as needed.
 c. Then place bedding as noted above.
 9. Refer to INDOT Standard Specification Section 213 for flowable fill (removable) requirements.

REF STD SPEC SEC 4-2 and 4-3
 APPROVED/REVISED BY THE BOARD OF PUBLIC WORKS
 EFFECTIVE DATE: June 26, 2018

CITY OF SOUTH BEND
 STANDARDS FOR DESIGN AND CONSTRUCTION
 STANDARD 4-11

C:\PROJECTS\2024\24-2170 WOODHAVEN HILLS\CAD_CIVIL\PLANS\WOODHAVEN SECTION 1 PLANS\24-2170 CONST DTLS.DWG CD-03 SAN RICHARD DAVILA 9.29.2025 11:51 AM

EXHIBIT B

ENGINEER'S ESTIMATE

City of South Bend
Woodhaven Hills Subdivision, Section 1

Right of Way Construction Estimate
November 24, 2025

Right of Way Work

<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Unit Price</i>	<i>Cost</i>
1 Construction Engineering	1	LS	\$3,763	\$3,763
2 Mobilization/Demobilization	1	LS	\$9,406.90	\$9,407
3 Erosion Control	1	LS	\$5,000.00	\$5,000
4 Maintenance of Traffic	1	LS	\$2,500.00	\$2,500
5 Common Excavation	350	CYD	\$40.00	\$14,000
6 Combination Curb and Gutter	235	LFT	\$40.00	\$9,400
7 4" Concrete Sidewalk	216	SYD	\$100.00	\$21,600
8 Concrete Curb Ramp	15	SYD	\$300.00	\$4,500
9 Detectable Warning Surface	2	EA	\$250.00	\$500
10 6" Compacted Aggregate, No. 53	235	TON	\$40.00	\$9,400
11 HMA Surface, 165 lb/syd	60	TON	\$120.00	\$7,200
12 HMA Intermediate, 220 lb/syd	80	TON	\$110.00	\$8,800
13 HMA Base, 330 lb/syd	120	TON	\$100.00	\$12,000
14 Fire Hydrant Assembly Remove and Relocate	1	EA	\$6,500.00	\$6,500
15 Fire Hydrant Assembly with Gate Valve, 6"	1	EA	\$5,000.00	\$5,000
16 Water Main, DI, 8"	40	LFT	\$120.00	\$4,800
17 Water Main Plug, 8"	1	EA	\$800.00	\$800
18 Type K Copper Water Service, 1" (In Public R/W)	134	LFT	\$100.00	\$13,418
19 8" x 8" x 6" Tee	2	EA	\$1,500.00	\$3,000
20 Connect to Existing Sanitary Structure	2	EA	\$3,000.00	\$6,000
21 Sanitary Sewer Pipe, 8"	288	LFT	\$125.00	\$36,000
22 Sanitary Sewer Manhole	2	EA	\$5,500.00	\$11,000
23 Sanitary Service, 6" (In Public R/W)	90	LFT	\$50.00	\$4,497
24 Mulched Seeding, Type U	350	SYD	\$7.00	\$2,450
Total:				\$201,534
125% of total			25%	\$50,384
Bond Amount 125% of Total			TOTAL:	\$252,000

EXHIBIT C

PERFORMANCE BOND

SUBDIVISION BOND

Bond No.: LICX1988300

Principal Amount: \$252,000.00

KNOW ALL MEN BY THESE PRESENTS, that we

Green Development Ventures, LLC
2186 E. Centre Street, Portage, MI 49002

as Principal, and

Lexon Insurance Company
12890 Lebanon Road, Mt. Juliet, TN 37122 a TX

Corporation, as Surety, are held and firmly bound unto

City of South Bend,
227 West Jefferson Blvd., South Bend, IN 46601

as Obligee, in the penal sum of

Two Hundred Fifty Two Thousand Dollars and 00/100

(Dollars) (\$ 252,000.00), lawful money of the United States of America, for the payment of which well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, Green Development Ventures, LLC has agreed to construct in Woodhaven Hills Section 1 Subdivision, in South Bend, IN the following improvements:

Installation of Public Sanitary Sewer, Watermain, Gravel, Curbs, Sidewalk & Pavement.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the said Principal shall construct, or have constructed, the improvements herein described, and shall save the Obligee harmless from any loss, cost or damage by reason of its failure to complete said work, then this obligation shall be null and void, otherwise to remain in full force and effect, and the Surety, upon receipt of a resolution of the Obligee indicating that the improvements have not been installed or completed, will complete the improvements or pay to the Obligee such amount up to the Principal amount of this bond which will allow the Obligee to complete the improvements.

Upon approval by the Obligee, this instrument may be proportionately reduced as the public improvements are completed.

Signed, sealed and dated, this 10th day of December, 2025

Green Development Ventures, LLC
Principal
By: 

Lexon Insurance Company
Surety
By: 
James I. Moore Attorney-in-Fact



KNOW ALL BY THESE PRESENTS, that **Endurance Assurance Corporation**, a Delaware corporation ("EAC"), **Endurance American Insurance Company**, a Delaware corporation ("EAIC"), **Lexon Insurance Company**, a Texas corporation ("LIC"), and/or **Bond Safeguard Insurance Company**, a South Dakota corporation ("BSIC"), each, a "Company" and collectively, "**Sompo International**," do hereby constitute and appoint: **James I. Moore**

as true and lawful Attorney(s)-In-Fact to make, execute, seal, and deliver for, and on its behalf as surety or co-surety, bonds and undertakings given for any and all purposes, also to execute and deliver on its behalf as aforesaid renewals, extensions, agreements, waivers, consents or stipulations relating to such bonds or undertakings provided, however, that no single bond or undertaking so made, executed and delivered shall obligate the Company for any portion of the penal sum thereof in excess of the sum of **One Hundred Million Dollars (\$100,000,000.00)**.

Bond No.: LICX1988300
 Principal: Green Development Ventures, LLC
 Obligee: City of South Bend

Such bonds and undertakings for said purposes, when duly executed by said attorney(s)-in-fact, shall be binding upon the Company as fully and to the same extent as if signed by the President of the Company under its corporate seal attested by its Corporate Secretary.

This appointment is made under and by authority of certain resolutions adopted by the board of directors of each Company by unanimous written consent effective the 30th day of March, 2023 for BSIC and LIC and the 17th day of May, 2023 for EAC and EAIC, a copy of which appears below under the heading entitled "Certificate".

This Power of Attorney is signed and sealed by facsimile under and by authority of the following resolution adopted by the board of directors of each Company by unanimous written consent effective the 30th day of March, 2023 for BSIC and LIC and the 17th day of May, 2023 for EAC and EAIC and said resolution has not since been revoked, amended or repealed:

RESOLVED, that the signature of an individual named above and the seal of the Company may be affixed to any such power of attorney or any certificate relating thereto by facsimile, and any such power of attorney or certificate bearing such facsimile signature or seal shall be valid and binding upon the Company in the future with respect to any bond or undertaking to which it is attached.

IN WITNESS WHEREOF, each Company has caused this instrument to be signed by the following officers, and its corporate seal to be affixed this 25th day of May, 2023.

Endurance Assurance Corporation
 By: *Richard M Appel*
 Richard Appel, SVP & Senior Counsel



Endurance American Insurance Company
 By: *Richard M Appel*
 Richard Appel, SVP & Senior Counsel



Lexon Insurance Company
 By: *Richard M Appel*
 Richard Appel, SVP & Senior Counsel



Bond Safeguard Insurance Company
 By: *Richard M Appel*
 Richard Appel, SVP & Senior Counsel



ACKNOWLEDGEMENT

On this 25th day of May, 2023, before me, personally came the above signatories known to me, who being duly sworn, did depose and say that he/she is an officer of each of the Companies, and that he executed said instrument on behalf of each Company by authority of his office under the by-laws of each Company.

By: *Amy Taylor*
 Amy Taylor, Notary Public - My Commission Expires 3/9/27



CERTIFICATE

I, the undersigned Officer of each Company, DO HEREBY CERTIFY that:

1. That the original power of attorney of which the foregoing is a copy was duly executed on behalf of each Company and has not since been revoked, amended or modified; that the undersigned has compared the foregoing copy thereof with the original power of attorney, and that the same is a true and correct copy of the original power of attorney and of the whole thereof;
2. The following are resolutions which were adopted by the board of directors of each Company by unanimous written consent effective 30th day of March, 2023 for BSIC and LIC and the 17th day of May, 2023 for EAC and EAIC and said resolutions have not since been revoked, amended or modified.

*RESOLVED, that each of the individuals named below is authorized to make, execute, seal and deliver for and on behalf of the Company any and all bonds, undertakings or obligations in surety or co-surety with others: RICHARD M. APPEL, MATTHEW E. CURRAN, MARGARET HYLAND, SHARON L. SIMS, CHRISTOPHER L. SPARRO,

and be it further

RESOLVED, that each of the individuals named above is authorized to appoint attorneys-in-fact for the purpose of making, executing, sealing and delivering bonds, undertakings or obligations in surety or co-surety for and on behalf of the Company.*

3. The undersigned further certifies that the above resolutions are true and correct copies of the resolutions as so recorded and of the whole thereof.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the corporate seal this 10th day of December, 2025

By: *Daniel S. Lurie*
 Daniel S. Lurie, Secretary

NOTICE: U. S. TREASURY DEPARTMENT'S OFFICE OF FOREIGN ASSETS CONTROL (OFAC)

No coverage is provided by this Notice nor can it be construed to replace any provisions of any surety bond or other surety coverage provided. This Notice provides information concerning possible impact on your surety coverage due to directives issued by OFAC. Please read this Notice carefully.

The Office of Foreign Assets Control (OFAC) administers and enforces sanctions policy, based on Presidential declarations of "national emergency". OFAC has identified and listed numerous foreign agents, front organizations, terrorists, terrorist organizations, and narcotics traffickers as "Specialty Designated Nationals and Blocked Persons". This list can be located on the United States Treasury's website - <https://www.treasury.gov/resource-center/sanctions/SDN-List>.

In accordance with OFAC regulations, if it is determined that you or any other person or entity claiming the benefits of any coverage has violated U.S. sanctions law or is a Specialty Designated National and Blocked Person, as identified by OFAC, any coverage will be considered a blocked or frozen contract and all provisions of any coverage provided are immediately subject to OFAC. When a surety bond or other form of surety coverage is considered to be such a blocked or frozen contract, no payments nor premium refunds may be made without authorization from OFAC. Other limitations on the premiums and payments may also apply.

Any reproductions are void.

Surety Claims Submission: LexonClaimAdministration@sompo-intl.com

Telephone: 615-553-9500 Mailing Address: Sompo International; 12890 Lebanon Road; Mount Juliet, TN 37122-2870

STATE OF ILLINOIS }
COUNTY OF DU PAGE}

On December 10, 2025, before me, Diane M. Rubright, a Notary Public in and for said County and State, duly commissioned and sworn, personally appeared, James I. Moore, known to me to be Attorney-in-Fact of Lexon Insurance Company, a corporation described in and that executed the within and foregoing instrument, and known to me to be the person who executed the said instrument on behalf of the said corporation, and he duly acknowledged to me that such corporation executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, the day and year stated in this certificate above.

My Commission Expires March 23, 2027

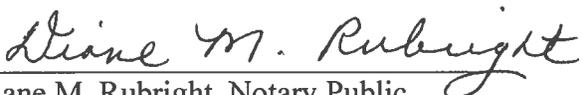

Diane M. Rubright, Notary Public
Commission No. 817036



EXHIBIT D

SYSTEM DEVELOPMENT CHARGE

Estimate for System Development Charges

Estimate Provided On: 12/2/2025

Estimate Provided By: Gemma Stanton

Woodhaven Hills Section 1

South Bend, IN

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

	Values	Unit Type
Estimated Total Flow Per Home	310	gpd
Total Homes	5	unit
Estimated Total Flow for Woodhaven Hills Section 1	1550	gpd
ERU calculation	5.000	ERU
ERU rounddown	5	ERU
Sewer SDC Calculation (\$1145 per ERU)	\$	5,725.00
Water SDC Calculation (\$475 per ERU)	\$	2,375.00
Estimated Amount Due for Woodhaven Hills Section 1	\$	8,100.00
Estimated 10% Discounted Total (Payment in full)	\$	7,290.00

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:

EXHIBIT E

CERTIFICATE OF INSURANCE

