CITY OF BLOOMINGTON

PLAT COMMITTEE

April 15, 2024 @ 4:00 p.m.

In-Person Location: 401 N Morton Street, Kelly Conference Room #155

Virtual Link:
https://bloomington.zoom.us/j/86714253039?pwd=SXJ2bmNwRFhLeVZSRW44TVI0T3hZUT09

Meeting ID: 867 1425 3039 **Passcode:** 064896

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HYBRID MEETING:

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Meeting ID: 867 1425 3039 **Password: 064896**

PETITION MAP: https://arcg.is/0a8OXu

ROLL CALL

MINUTES TO BE APPROVED:

REPORTS, RESOLUTIONS, AND COMMUNICATIONS:

PETITIONS:

DP-03-24 **William Kanyi Wamathai**
220 W Gordon Pike, Bloomington IN 47403
Parcel: 53-01-53-525-500.000-009
Request: Primary plat approval to allow a two-lot subdivision of 0.48 acres in the Mixed-Use-Corridor (MC) zoning district.
Case Manager: Katie Gandhi

**Next Meeting Date: May 13, 2024 Updated: 4/12/2024

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BLOOMINGTON PLAT COMMITTEE **CASE #: DP-03-24 / PLAT2024-02-0017**
STAFF REPORT **DATE: April 15, 2024**
Location: 220 W Gordon Pike (parcel #53-01-53-525-500.000-009)

PETITIONER: William Wamathai
220 W Gordon Pike, Bloomington, IN 47403

REQUEST: The petitioner is requesting primary plat approval to allow a two-lot infill subdivision of 0.48 acres in the Mixed-Use Corridor (MC) zoning district. The petitioner has requested secondary plat approval be delegated to staff.

BACKGROUND:

Area:	0.48 acres
Current Zoning:	Mixed-Use Corridor (MC)
Existing Land Use:	Dwelling, single-family (detached)
Proposed Land Use:	Residential rooming house & Multifamily
Surrounding Zones:	North – Mixed-Use Corridor (MC)
	West – Mixed-Use Institutional (MI)
	East – Mixed-Use Corridor (MC)
	South – Multi-Dwelling Res. 15 (RM15) & PUD (county land)
Surrounding Uses:	North – Dwelling, single-family (detached)
	West – Government service facility (Utilities Services Board)
	East – Dwelling, single-family (detached)
	South – Residential & Commercial (county land)
Comprehensive Plan Designation:	Urban Corridor

REPORT: The property is located at 220 W Gordon Pike is zoned Mixed-Use Corridor (MC). The property has been developed with one single family residence and detached garage.

The petitioner is proposing to subdivide the existing property into two lots – Lot #1 in the southern half of the parent lot, along the street frontage; and, Lot #2 in the northern half of the parent lot, without street frontage. This establishing of two new lots requires each lot to come into compliance with Title 20. Lot #1 will be 0.213 acres and would contain the existing house, which is intended to remain. Because the Dwelling, Single-Family (Detached) use is not permitted in the MC zone on lots of record lawfully established after February 12, 2007, the new use of Lot #1 will be Residential rooming house, which is permitted in the MC zone. Lot #2 will be 0.267 acres and its proposed use is multifamily.

The parent lot has frontage on W Gordon Pike to the south, with an existing 10 foot-wide multi-use path across the entire width of the property. No new public streets are proposed with the subdivision; however, the owner is proposing an extension of the driveway on Lot #1 and an Ingress/Egress easement on the drive to allow street access for Lot #2. Two street trees are required along the W Gordon Pike frontage and will be shown with the secondary plat.

20.06.060(b)(3)(E) PRIMARY PLAT REVIEW: The Plan Commission or Plat Committee shall review the primary subdivision petition and approve, approve with conditions, or deny the petition

in accordance with Section 20.06.040(g) (Review and Decision), based on the general approval criteria in Section 20.06.040(d)(6) (Approval Criteria) and the following standards:

i. All subdivision proposals shall be consistent with the need to minimize flood damage.
ii. All subdivision proposals shall have public utilities and facilities such as sewer, gas, electrical, and water systems located and constructed to minimize flood damage.
iii. All subdivision proposals shall have adequate drainage provided to reduce exposure to flood hazards
iv. Base flood elevation data shall be provided for subdivision proposals and other proposed development (including manufactured home parks and subdivisions), which is greater than the lesser of 50 lots or five acres.
v. All subdivision proposals shall minimize development in the SFHA and/or limit intensity of development permitted in the SFHA
vi. All subdivision proposals shall ensure safe access into/out of SFHA for pedestrians and vehicles (especially emergency responders).

PROPOSED FINDING: The subdivision proposal is consistent with the need to minimize flood damage. The site is not located in a Special Flood Hazard Area (SFHA). The site seems to have adequate drainage to reduce exposure to flood hazards, especially due to the greenspace west of this lot. This two-lot subdivision and associated improvements will not significantly reduce or impair the current adequacy of drainage. The site has public utilities along its frontage and no problems have been identified with connecting to those facilities. The proposed subdivision will result in Lot #1 reaching its impervious surface coverage maximum; therefore, no future expansion of impervious surface coverage footprint will be permitted on Lot #1.

20.06.040(d)(6)(B) General Compliance Criteria

i. Compliance with this UDO
ii. Compliance with Other Applicable Regulations
iii. Compliance with Utility, Service, and Improvement Standards
iv. Compliance with Prior Approvals

PROPOSED FINDING: The primary plat complies with all of the requirements of the UDO and Transportation Plan. The proposal includes an ingress/egress of 20 feet to satisfy fire department standards. Final approval from the City of Bloomington Utilities Department is required prior to the issuance of any permits.

20.06.040(d)(6)(D) Additional Criteria Applicable to Primary Plats and Zoning Map Amendments (Including PUDs)

i. Consistency with Comprehensive Plan and Other Applicable Plans

The proposed use and development shall be consistent with and shall not interfere with the achievement of the goals and objectives of the Comprehensive Plan and any other adopted plans and policies.

ii. Consistent with Intergovernmental Agreements

The proposed use and development shall be consistent with any adopted intergovernmental agreements and shall comply with the terms and conditions of any intergovernmental agreements incorporated by reference into this UDO.

iii. Minimization or Mitigation of Adverse Impacts

1. The proposed use and development shall be designed to minimize negative environmental impacts and shall not cause significant adverse impacts on the

natural environment. Examples of the natural environment include water, air, noise, stormwater management, wildlife habitat, soils, and native vegetation.

2. The proposed use and development shall not result in the excessive destruction, loss or damage of any natural, scenic, or historic feature of significant importance.
3. The proposed use and development shall not result in significant adverse fiscal impacts on the city.
4. The petitioner shall make a good-faith effort to address concerns of the adjoining property owners in the immediate neighborhood as defined in the pre-submittal neighborhood meeting for the specific proposal, if such a meeting is required.

iv. Adequacy of Road Systems

1. Adequate road capacity must exist to serve the uses permitted under the proposed development, and the proposed use and development shall be designed to ensure safe ingress and egress onto the site and safe road conditions around the site, including adequate access onto the site for fire, public safety, and EMS services.
2. The proposed use and development shall neither cause undue traffic congestion nor draw significant amounts of traffic through residential streets.

v. Provides Adequate Public Services and Facilities

Adequate public service and facility capacity shall exist to accommodate uses permitted under the proposed development at the time the needs or demands arise, while maintaining adequate levels of service to existing development. Public services and facilities include, but are not limited to, streets, potable water, sewer, stormwater management structures, schools, public safety, fire protection, libraries, and vehicle/pedestrian connections and access within the site and to adjacent properties.

vi. Rational Phasing Plan

If the petition involves phases, each phase of the proposed development shall contain all of the required streets, utilities, landscaping, open space, and other improvements that are required to comply with the project's cumulative development to date and shall not depend upon subsequent phases for those improvements

PROPOSED FINDING: There are no expected adverse impacts as a result of this plat. The proposed plat preserves the existing house and allows for increase residential density and will allow new infill development, which is consistent with the Comprehensive Plan designation for this zone - Urban Corridor. The existing road system, public services, and public facilities, including existing pedestrian facilities, are adequate to support all allowed uses. No phasing of the plat is expected. A method for pedestrian access between Lot #2 and the pedestrian facilities along W Gordon Pike has not been proposed.

PLAT REVIEW: The proposed subdivision is following the Infill Subdivision (IS) design standards.

Infill Subdivision Standards:

Parent tract size: No minimum parent tract size. The maximum parent tract size is 3 acres. The parent tract is 0.48 acres, which is less than the maximum.
Open space required: Not required. The proposal does not dedicate any open space.
Lots served by alleys: Not required. This lot is not served by any alleys.
Block length: Not required. No new blocks are created by the proposal.
Cul-de-sac length: Not permitted. No new culs-de-sac are proposed.
Transportation facilities: W Gordon Pike contains a middle turn lane, allowing cars to turn into the proposed access easement on Lot #1. There is an existing bike lane along W Gordon Pike. There is an existing 10 foot-wide multi-use path that is in functional condition, which satisfies the 7 foot pedestrian zone requirements from the Transportation Plan. There is a 3 foot-wide tree plot, which does not satisfy the 8-foot greenscape zone requirement from the Transportation Plan. The Planning and Transportation Department Director has determined that these are allowed to remain in their current location and configuration, with authority given in the Transportation Plan.
On-street parking: Not required. None provided.
Tree plot width: There are existing sidewalks along Lot #1's frontage with a 3-foot tree plot. The Planning and Transportation Department Director has approved the existing facilities to remain and therefore not have a new tree plot installed. The required street trees will be installed north of the existing sidewalks and will be part of the secondary plat approval.

Lot Establishment Standards:

Lot area and lot width: In the MC zoning district, the minimum lot size is 5,000 square feet and the minimum lot width is 50 feet. The proposed lots meet the minimum 50' lot width requirement the minimum lot size is 5,000 square feet. The proposed lot sizes allow adequate area for a new residence to be constructed and meet all other UDO standards.
Lot shape: All lots meet the UDO requirement for regular lot size and a depth-to-width ratio not to exceed four to one.
Lot access: Lot #1 will maintain its frontage on a public street. Multi-family lots are not required to have frontage on a public street right-of-way. Vehicle access to Lot #2 will come from an Ingress/Egress easement on Lot #1. Pedestrian access between Lot #2 and the pedestrian facilities along W Gordon Pike has not been proposed.
Setbacks for the existing structure: The existing structure on Lot #1 will meet all MC zone setback requirements (15 foot front, 7 foot side and rear).

Stormwater Standards: All proposed subdivisions shall provide for the collection and management of all surface water drainage, and all subdivision requests shall include the submittal of a drainage plan to the City of Bloomington Utilities (CBU). On-site detention is not required for Lot #1. No on-site stormwater drainage facilities are proposed for Lot #2, but the applicant did submit drainage and water flow information to CBU. Generally, drainage from the current property sheet flows towards the west. No on-site drainage facilities have been requested by CBU so far. There are existing stormwater inlets along W Gordon Pike to handle stormwater drainage.

Right-of-Way Standards:

ROW width: No new public streets are proposed. The Transportation Plan requires a 74' right-of-way for W Gordon Pike. The petitioner is responsible for fulfilling 37' of that (from the centerline of W Gordon Pike to the front property line). Right-of-way dedication occurred previously, when the road was redeveloped, so the current property line is 42.3 feet from the centerline of W Gordon Pike.

Pedestrian facilities and tree plot: W Gordon Pike is designated as a Neighborhood Connector street typology in the Transportation Plan, which requires a 7-foot pedestrian zone/sidewalk and 8-foot greescape zone/tree plot. There is an existing 10 foot-wide multi-use path that is in functional condition, which satisfies the pedestrian zone requirements from the Transportation Plan. The existing tree plot along W Gordon Pike is 3 feet wide. The Planning and Transportation Department Director has determined that the existing tree plot and multi-use path are allowed to remain in their current location and configuration.

Street trees: The installation of 2 large canopy street trees along as W Gordon Pike is required. There are existing overhead utility lines along W Gordon Pike and therefore small or medium trees are allowed be installed along that frontage. The required street trees will be installed north of the existing sidewalks and will be part of the secondary plat approval.

Environmental Considerations: There are no known steep slopes, karst features, or wetlands on the site. There are no portions of the site that have been deemed to be a closed canopy and subject to the tree preservation standards.

Utilities: There are existing utilities along W Gordon Pike, and along the west edge of Lot #1 and #2. No issues have been identified connecting to those utilities. Approval from the City of Bloomington Utility Department is required prior to any new connections.

CONCLUSION: The proposed subdivision complies with all standards in UDO ~~with the approval of the modifications~~. The small two-lot subdivision is appropriate in-fill development within an already developed neighborhood.

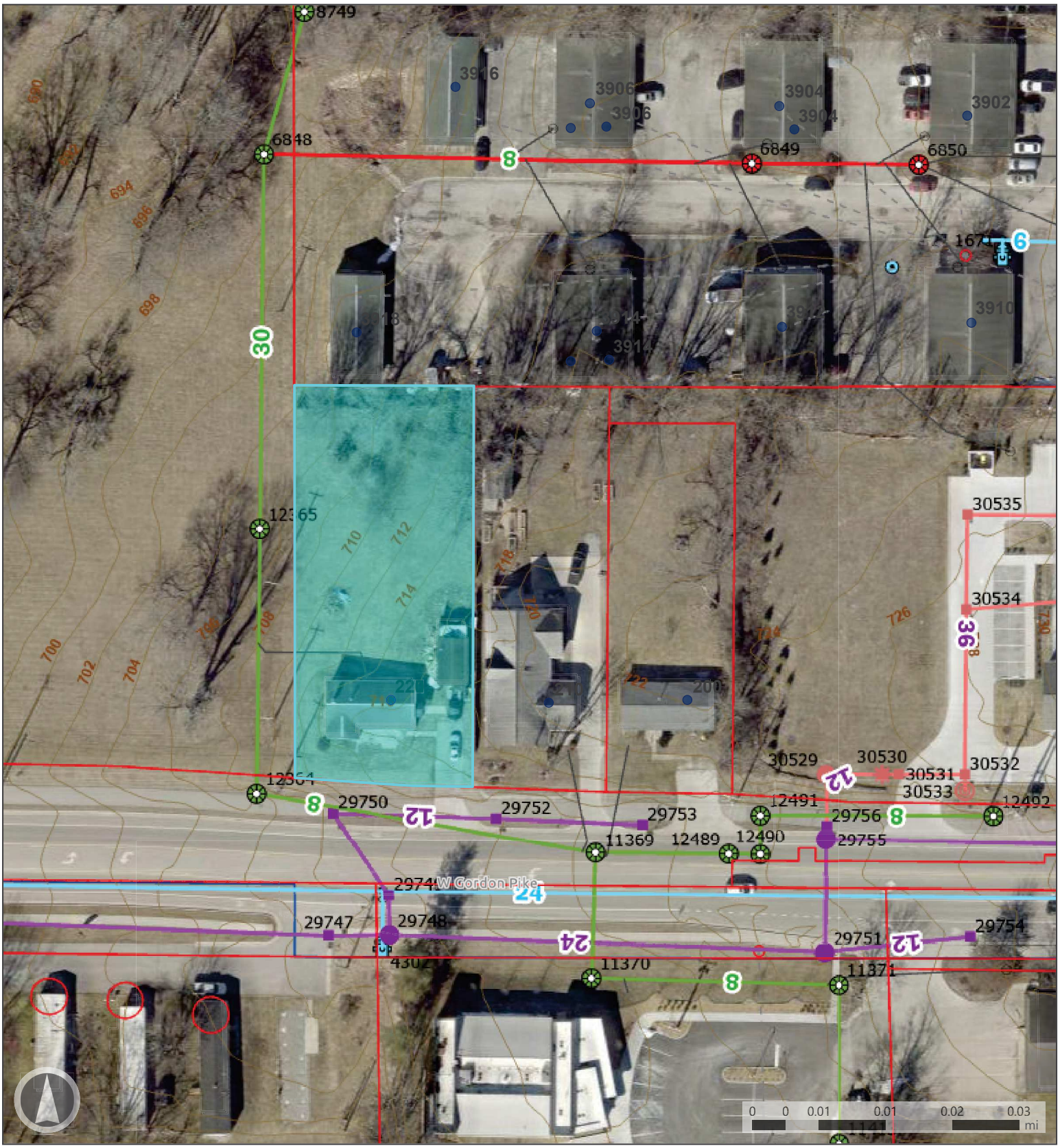
RECOMMENDATION: The Planning and Transportation Department recommends that the Plat Committee adopt the proposed findings and approve the primary plat of DP-03-24 with the following condition:

1. Secondary plat approval is delegated to staff.

City of Bloomington

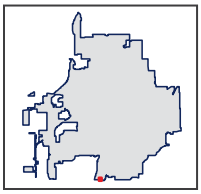
220 W Gordon Pike

Context Aerial



Map Legend

- Addresses
- Parcels
- CBU Manhole
- Private Manhole
- Cleanout
- Laterals - Active
- CBU Gravity
- Private
- CBU Curb or Flat Inlet
- CBU MH with Solid Lid
- Private Curb or Flat Inlet
- Private MH with Solid Lid

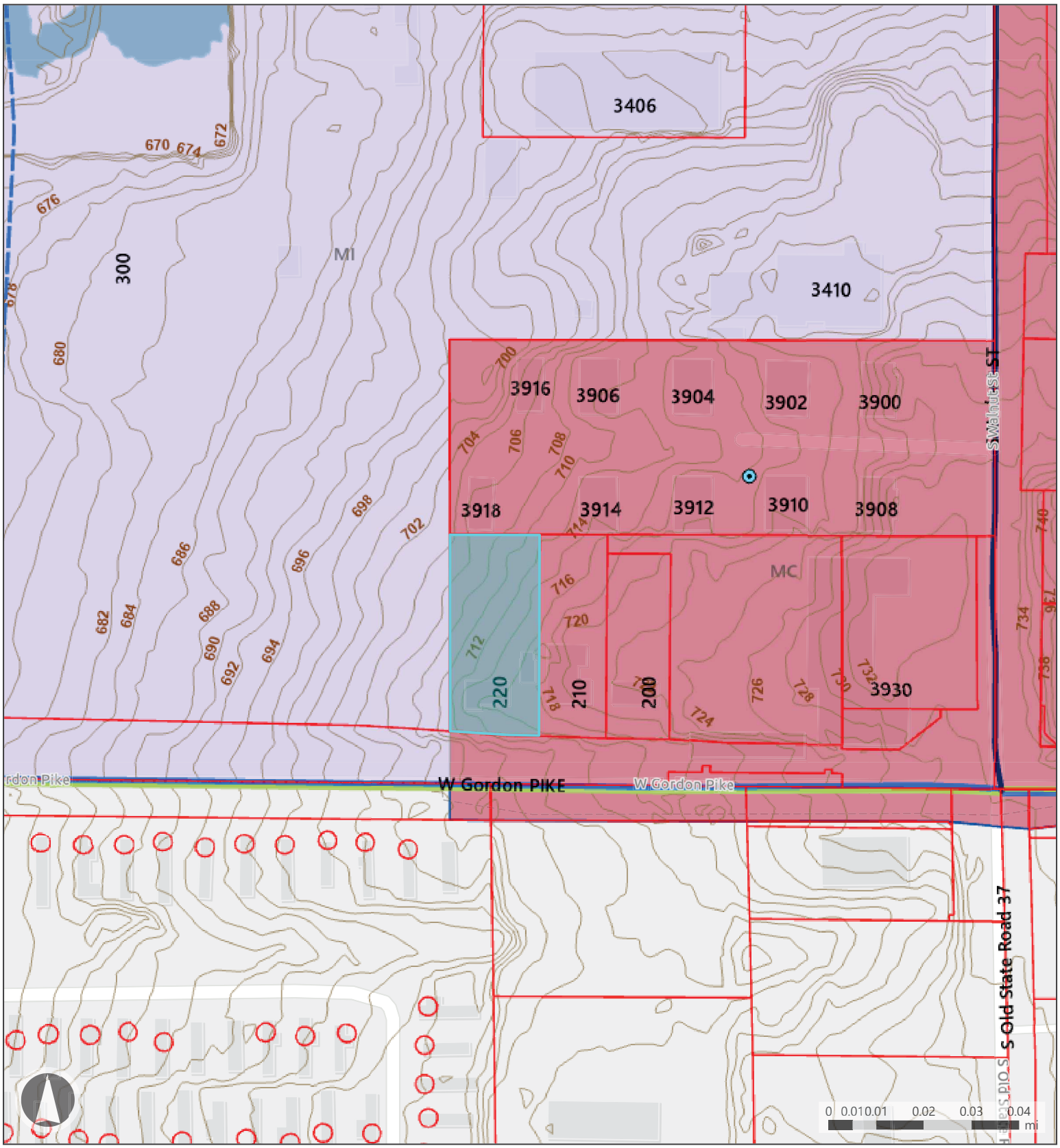


Created: 1/19/2024 *Map By: Katie Gandhi*

City of Bloomington

220 W Gordon Pike

Location Map



Map Legend

- Parcels
- Sinkholes
- Contours 2021
- Waterlines
- Waterbodies
- Bloomington Municipal Boundary
- Mixed-Use Corridor
- Mixed-Use Institutional

Created: 1/19/2024 *Map By: Katie Gandhi*

For use as map information only, information is NOT warranted.

William Kanyi Wamathai
220 W. Gordon Pike
Bloomington, IN 47403
telekiexpe@gmail.com
8122696515
8/1/2023

Development Review Committee
Bloomington City Planning Department
401 N Morton St,
Bloomington, IN 47404

Subject: Petition for Subdivision of Lot Number 53-01-53-525-500.000-009

I am writing to submit this petition to request the subdivision of 220 W Gordon Pike, Bloomington, IN 47403, Lot Number 53-01-53-525-500.000-009 into two separate lots. The subdivision aims to separate the property into two lots with the north side lot being approximately 11,500 square feet (Multifamily use) and the south side lot approximately 14,500 square feet (Residential rooming house).
The primary purpose of this petition is to present the necessary information and justification for the approval of the proposed subdivision.

1. Existing Use:
Lot Number 53-01-53-525-500.000-009 currently comprises a single property with an area of approximately 26,000 square feet. The property's current use is a residential 1 family dwelling.

2. Surrounding Land Uses:
The surrounding area to the north is commercial warehouse lot (MC), to the east is 2 family dwell (MC) and to the west is exempt, municipality land (MI), and on the south is a mobile park/business office. The proposed subdivision aligns with the existing character of the neighborhood and does not introduce any commercial or industrial elements that could disrupt the residential harmony.

3. Vehicular Access:
Both lots will have suitable access to public roads, and there are no foreseen issues regarding vehicular access. The existing driveway can be reconfigured or extended to accommodate the new lot layout.

4. Environmental Issues:
The proposed subdivision does not pose any significant environmental concerns since the proposed use of the new lot is residential. I am committed to preserving and protecting the natural environment throughout the subdivision process, adhering to all local and state environmental regulations.

5. Drainage Plan:
A comprehensive drainage plan will be developed to align with any proposed residential property. I will ensure that the drainage system on each lot meets all applicable standards and guidelines to prevent flooding and other drainage-related issues. Additionally, I will implement any recommended measures to protect neighboring properties from any adverse effects of the drainage system.

Justification for Subdivision Approval:

1. Improved Land Utilization: Subdividing the property into two lots will optimize land utilization in the area and allow for the development of additional residential properties, meeting the demand for housing in our community.

2. Minimal Impact on Surrounding Properties: The proposed subdivision will have minimal effects on surrounding properties.

3. Meeting Local Zoning Requirements: The proposed subdivision aligns with the zoning requirements and regulations of the City of Bloomington, ensuring compliance with all applicable laws.

4. Increased Property Values: The creation of two well-planned and appropriately sized lots will likely increase property value.

5. Enhanced Housing Opportunities: The new lot will offer additional housing opportunities, contributing to the growth and diversity of the area housing.

Considering the above information and the positive impact that the subdivision will have on the property, we kindly request the City Planning Department to consider and approve the subdivision of Lot Number 53-01-53-525-500.000-009 into two separate lots as described herein.

Thank you for your time and consideration. I am confident that the approval of this petition will be in the best interest of the neighborhood and will contribute to the overall development of the City of Bloomington.

Sincerely,

William Kanyi Wamathai

WAMATHAI SUBDIVISION PRIMARY SUBDIVISION PLAT

A PART OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION SIXTEEN (16), TOWNSHIP EIGHT (8) NORTH, RANGE ONE (1) WEST PERRY TOWNSHIP, MONROE COUNTY, INDIANA PARCEL NO. 53-01-53-525-500.000-009

RECORD DESCRIPTION (PARENT TRACT)

A PART OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION SIXTEEN (16), TOWNSHIP EIGHT (8) NORTH, RANGE ONE (1) WEST, IN MONROE COUNTY , INDIANA, BOUNDED AND DESCRIBED AS FOLLOWS, TO-WIT: BEGINNING AT A POINT IN THE CENTERLINE OF THE GORDON PIKE ROAD, SAID POINT BEING SIX HUNDRED FIVE (605) FEET WEST OF THE SOUTHEAST CORNER OF SAID QUARTER QUARTER; THENCE NORTH ZERO (00) DEGREES TWENTY-TWO (22) MINUTES WEST TWO HUNDRED SIXTY-FIVE AND FIFTY-SIX HUNDREDTHS (265.56) FEET, THENCE EAST ONE HUNDRED AND THREE TENTHS (100.3) FEET, THENCE SOUTH ZERO (00) DEGREES TEN (10) MINUTES EAST TWO HUNDRED SIXTY-FIVE AND FOUR TENTHS (265.4) FEET, AND TO THE CENTER OF THE GORDON PIKE ROAD, THENCE WEST NINETY-EIGHT AND THIRTY-SIX HUNDREDTHS (98.36) FEET, OVER AND ALONG THE CENTERLINE OF SAID ROAD, AND TO THE PLACE OF BEGINNING. CONTAINING SIX HUNDRED FIVE THOUSANDTHS (0.605) ACRE, MORE OR LESS.

SURVEYED DESCRIPTION (LOT 1)

A PART OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 16, TOWNSHIP 8 NORTH, RANGE 1 WEST, MONROE COUNTY, INDIANA. BOUNDED AND DESCRIBED AS FOLLOWS:
COMMENCING AT THE CALCULATED SOUTHEAST CORNER OF SAID QUARTER QUARTER, THENCE ALONG THE SOUTH LINE OF SAID QUARTER QUARTER, SOUTH 89 DEGREES 41 MINUTES 12 SECONDS WEST, A DISTANCE OF 531.57 FEET; THENCE LEAVING SAID SOUTH LINE, NORTH 00 DEGREES 18 MINUTES 17 SECONDS WEST, A DISTANCE OF 53.83 FEET TO THE NORTH LINE OF GORDON PIKE AND TO A REBAR WITH CAP INSCRIBED "S.P. RECTOR LS21000239" (AND HEREINAFTER REFERRED TO AS AN "IRON MONUMENT") SET AND THE TRUE POINT OF BEGINNING; THENCE CONTINUING NORTH 00 DEGREES 18 MINUTES 18 SECONDS WEST, A DISTANCE OF 95.53 FEET TO AN IRON MONUMENT SET; THENCE SOUTH 89 DEGREES 46 MINUTES 35 SECONDS WEST, A DISTANCE OF 99.50 FEET TO AN IRON MONUMENT SET; THENCE SOUTH 00 DEGREES 44 MINUTES 34 SECONDS EAST, A DISTANCE OF 90.91 FEET TO SAID NORTH LINE OF GORDON PIKE AND AN IRON MONUMENT SET; THENCE ALONG SAID NORTH LINE, SOUTH 86 DEGREES 33 MINUTES 43 SECONDS EAST, A DISTANCE OF 64.78 FEET TO AN IRON MONUMENT SET; THENCE CONTINUING ALONG SAID NORTH LINE, SOUTH 89 DEGREES 24 MINUTES 28 SECONDS EAST, A DISTANCE OF 34.17 FEET TO THE POINT OF BEGINNING, CONTAINING 0.213 ACRES, MORE OR LESS.

SUBJECT TO A 20 FOOT WIDE INGRESS/EGRESS EASEMENT BOUNDED AND DESCRIBED AS FOLLOWS:
COMMENCING FROM THE SOUTHEAST CORNER OF LOT 1; THENCE ALONG THE SOUTH LINE OF SAID LOT 1, NORTH 89 DEGREES 24 MINUTES 28 SECONDS WEST, A DISTANCE OF 7.60 FEET TO THE TRUE POINT OF BEGINNING OF SAID EASEMENT; THENCE CONTINUING ALONG SAID SOUTH LINE, NORTH 89 DEGREES 24 MINUTES 28 SECONDS WEST, A DISTANCE OF 20.00 FEET; THENCE LEAVING SAID SOUTH LINE, NORTH 00 DEGREES 14 MINUTES 19 SECONDS WEST, A DISTANCE OF 95.14 FEET TO THE NORTH LINE OF LOT 1; THENCE ALONG SAUD NORTH LINE, NORTH 89 DEGREES 46 MINUTES 35 SECONDS EAST, A DISTANCE OF 20.00 FEET; THENCE LEAVING SAID NORTH LINE, SOUTH 00 DEGREES 14 MINUTES 19 SECONDS EAST, A DISTANCE OF 95.42 FEET TO THE POINT OF BEGINNING, CONTAINING 0.044 ACRES, MORE OR LESS

SURVEYED DESCRIPTION (LOT 2)

A PART OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 16, TOWNSHIP 8 NORTH, RANGE 1 WEST, MONROE COUNTY, INDIANA. BOUNDED AND DESCRIBED AS FOLLOWS:
COMMENCING AT THE CALCULATED SOUTHEAST CORNER OF SAID QUARTER QUARTER; THENCE ALONG THE SOUTH LINE OF SAID QUARTER QUARTER, SOUTH 89 DEGREES 41 MINUTES 12 SECONDS WEST, A DISTANCE OF 531.57 FEET; THENCE LEAVING SAID SOUTH LINE, NORTH 00 DEGREES 18 MINUTES 17 SECONDS WEST, A DISTANCE OF 53.83 FEET TO TO THE NORTH LINE OF GORDON PIKE AND TO A REBAR WITH CAP INSCRIBED "S.P. RECTOR LS21000239" (AND HEREINAFTER REFERRED TO AS AN "IRON MONUMENT") SET; THENCE CONTINUING NORTH 00 DEGREES 18 MINUTES 18 SECONDS WEST, A DISTANCE OF 95.53 FEET TO AN IRON MONUMENT SET AND THE TRUE POINT OF BEGINNING; THENCE CONTINUING NORTH 00 DEGREES 18 MINUTES 17 SECONDS WEST, A DISTANCE OF 116.38 FEET TO AN IRON MONUMENT SET; THENCE SOUTH 89 DEGREES 39 MINUTES 41 SECONDS WEST, A DISTANCE OF 100.39 FEET TO AN IRON MONUMENT SET; THENCE SOUTH 00 DEGREES 44 MINUTES 34 SECONDS EAST, A DISTANCE OF 116.19 FEET TO AN IRON MONUMENT SET; THENCE NORTH 89 DEGREES 46 MINUTES 35 SECONDS EAST, A DISTANCE OF 99.50 FEET TO THE POINT OF BEGINNING, CONTAINING 0.267 ACRES, MORE OR LESS.

ALSO, A 20 FOOT WIDE INGRESS/EGRESS EASEMENT BOUNDED AND DESCRIBED AS FOLLOWS:
COMMENCING FROM THE SOUTHEAST CORNER OF LOT 1; THENCE ALONG THE SOUTH LINE OF SAID LOT 1, NORTH 89 DEGREES 24 MINUTES 28 SECONDS WEST, A DISTANCE OF 7.60 FEET TO THE TRUE POINT OF BEGINNING OF SAID EASEMENT; THENCE CONTINUING ALONG SAID SOUTH LINE, NORTH 89 DEGREES 24 MINUTES 28 SECONDS WEST, A DISTANCE OF 20.00 FEET; THENCE LEAVING SAID SOUTH LINE, NORTH 00 DEGREES 14 MINUTES 18 SECONDS WEST, A DISTANCE OF 95.14 FEET TO THE NORTH LINE OF LOT 1; THENCE ALONG SAUD NORTH LINE, NORTH 89 DEGREES 46 MINUTES 35 SECONDS EAST, A DISTANCE OF 20.00 FEET; THENCE LEAVING SAID NORTH LINE, SOUTH 00 DEGREES 14 MINUTES 19 SECONDS EAST, A DISTANCE OF 95.42 FEET TO THE POINT OF BEGINNING, CONTAINING 0.044 ACRES, MORE OR LESS

SURVEYOR'S REPORT

SCOPE OF PROJECT: THIS RETRACEMENT SURVEY AND SUBSEQUENT LOT SUBDIVISION WAS REQUESTED BY WILLIAM WAMATHAI TO DETERMINE TO BOUNDARIES OF HIS LOT AND THEN SUBDIVIDE IT TO CONSTRUCT A NEW MULTI-FAMILY DWELLING.

IN ACCORDANCE WITH INDIANA SURVEY STANDARDS AS DEFINED IN THE INDIANA ADMINISTRATIVE CODE (865 IAC 1-12 "RULE 12"), THE FOLLOWING OBSERVATIONS AND OPINIONS ARE SUBMITTED REGARDING THE VARIOUS UNCERTAINTIES IN THE LOCATIONS OF THE LINES AND CORNERS ESTABLISHED ON THIS SURVEY AS A RESULT OF:

A.) AVAILABILITY AND CONDITION OF REFERENCE MONUMENTS
B.) EXISTING DEEDS AND PLATS OF RECORD
C.) OCCUPATION OR POSSESSION LINES
D.) THEORY OF LOCATION
E.) THE RELATIVE POSITIONAL ACCURACY OF MEASUREMENTS

THERE MAY BE UNWRITTEN RIGHTS ASSOCIATED WITH THESE UNCERTAINTIES.

A.) THE SOUTH QUARTER CORNER AND THE SOUTHWEST CORNER OF SECTION 16 WAS FOUND PER THE TIE SHEETS MONROE COUNTY SURVEYORS OFFICE. A BLEDSOE TAPP REBAR AND CONCRETE ROW MARKER WERE FOUND MARKING THE NORTH LINE OF AN ADJOINING LOT TO THE EAST. DECKARD REBAR WERE FOUND THE SOUTHEAST CORNER OF THE ADJOINING TRACT TO THE WEST COMMON TO THE SOUTHWEST CORNER OF THE SUBJECT TRACT AND AT THE INTERIOR CORNER OF THE SAME ADJOINING PARCEL ON THE LINE COMMON TO THE WEST LINE OF THE SUBJECT TRACT. A POTTER REBAR WAS FOUND N 03°29'37" W, 4.66' OF THE DETERMINED LOCATION OF THE NORTHWEST CORNER OF THE SUBJECT TRACT, AS CALLED OUT ON THE BLEDSOE TAPP SURVEY OF THE PREVIOUSLY DESCRIBED REBAR FOUND.

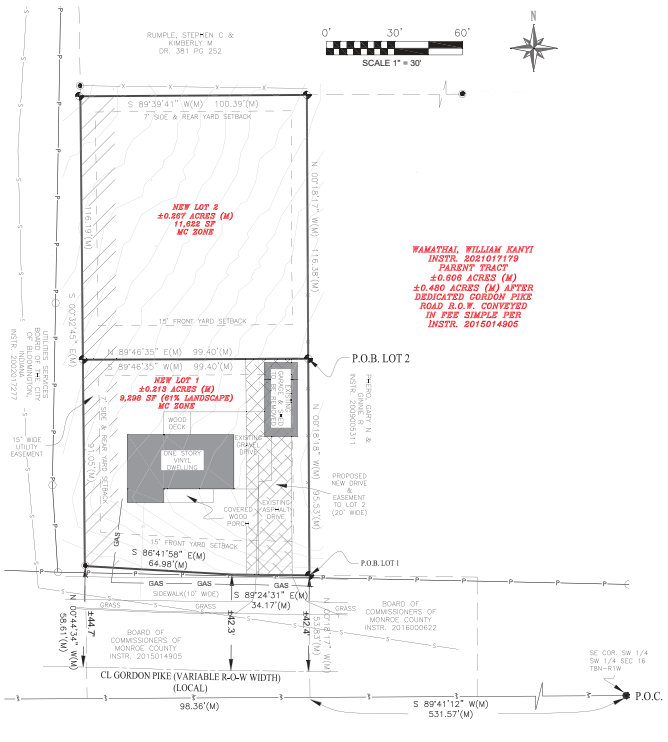
B.) THE MOST CURRENT DEED FOR THE SUBJECT TRACT WAS FOUND ON FILE IN THE OFFICE OF THE RECORDER OF MONROE COUNTY, INDIANA. THE SUBJECT TRACT IS DESCRIBED IN INSTRUMENT 2021017178. A PORTION OF THE PARENT TRACE WAS TRANSFERRED TO THE BOARD OF COMMISSIONERS OF MONROE COUNTY PER INSTRUMENT 2015014905, HOWEVER THIS IS NOT SHOWN IN THE DEED OF THE SUBJECT TRACT.

C.) THE SUBJECT TRACT IS IN AN OPEN AREA AND IS BOUNDED ON THE NORTH BY A TREE LINE AND FENCE, ON THE EAST BY A FENCE LINE, AND ON THE SOUTH BY GORDON PIKE.

D.) BY HOLDING THE MONUMENTS FOUND AT THE SOUTHWEST CORNER AND SOUTH QUARTER CORNERS OF THE SECTION ALONG WITH THE BLEDSOE TAPP REBAR AND CONCRETE ROW MONUMENT ALONG THE COMMON NORTH LINE THE NORTH AND SOUTH LINES OF THE DESCRIBED PROPERTY WERE ESTABLISHED. BY HOLDING THE FOUND DECKARD REBAR THE SOUTHWEST CORNER AND WEST LINE OF THE SUBJECT TRACT WAS DEFINED. THE COMMENCING CALL FROM THE SOUTHEAST CORNER OF THE SOUTHWEST QUARTER HOWEVER APPEARS TO BE IN ERROR. BY HOLDING THE CALLS FROM THE GORDON PIKE ROW SURVEYS, THE EAST LINES UP RIGHT WITH AN EXISTING FENCE LINE AND IS BEING HELD FOR THE EAST LINE. THE DETERMINED EAST & WEST LINES WERE EXTENDED TO MEET THE EXTENDED LINE FROM THE FOUND WALNUT STREET RIGHT OF WAY MARKER AND THE FOUND BLEDSOE TAPP REBAR TO DETERMINE THE NORTH LINE, WHICH ALSO MATCHES THE BLEDSOE TAPP SURVEY.

E.) THE RELATIVE POSITIONAL ACCURACY OF THE LINES AND CORNERS OF THIS SURVEY DUE TO MEASUREMENTS ARE WITHIN THE SPECIFICATIONS FOR A SUBURBAN SURVEY, WHICH IS A MAXIMUM OF 0.13 FEET (40 MILLIMETERS) PLUS 100 PARTS PER MILLION.

SURVEY DATA UTILIZED FROM THE FOLLOWING SOURCES:
COPIES OF THE SURVEYS, PLATS, AND INFORMATION REFERENCED EITHER IN THIS REPORT OR ON THE ATTACHED PLAT, WERE OBTAINED FROM FILES AND INFORMATION AT THE FOLLOWING OFFICES:
MONROE COUNTY RECORDER'S OFFICE
MONROE COUNTY ASSESSOR'S OFFICE
MONROE COUNTY GIS
MONROE COUNTY SURVEYOR'S OFFICE



OWNER CERTIFICATION

The undersigned, William Kanyi Wamathai, being the owner of the above described real estate, does hereby layoff, plat and subdivide the same into lots and streets in accordance with this plat. This plat shall be known and designated as Wamathai Subdivision Final Plat.

All additional road rights-of-way shown and not previously dedicated are hereby dedicated to public use.

In witness whereof, the undersigned declarant sets their hand and seal this day of_____, 2024.

_____
William Kanyi Wamathai

NOTARY CERTIFICATION

Before me, a notary public in and for the State of Indiana and Monroe County, personally appeared William Kanyi Wamathai, being the owner of the described real estate, and who acknowledged the execution of the foregoing plat for the real estate known as Wamathai Subdivision Final Plat, as their voluntary act and deed for the uses and purposes therein expressed.

In witness whereof, the undersigned declarant sets their hand and seal this day of_____, 2024.

_____
Notary Public (signature)

_____
Notary Public (printed name)

My county of residence:_____

My commission expires:_____

Commission number:_____

CERTIFICATE OF APPROVAL OF PLAT COMMITTEE:

Under the authority of Indiana Code 36-7-4 700 series, enacted by the General Assembly of the State of Indiana and ordinance adopted by the Common Council of the City of Bloomington, Indiana, this plat was given approval by the City of Bloomington as follows:

Pursuant to Bloomington Municipal Code 20.06.060(c)(3)(C)(i)(1), approval authority was delegated to the Planning and Transportation Department by the Plat Committee at its hearing on:_____

The Planning and Transportation Department approved this plat, Wamathai Subdivision Final Plat on: _____

_____
Jacqueline Scanlan, Interim Director of Planning and Transportation

I AFFIRM UNDER PENALTIES OF PERJURY THAT I HAVE TAKEN REASONABLE CARE TO REDACT EACH SOCIAL SECURITY NUMBER IN THIS DOCUMENT, UNLESS REQUIRED BY LAW.

THE UNDERSIGNED, A PROFESSIONAL LAND SURVEYOR OF THE STATE OF INDIANA, DOES HEREBY CERTIFY THAT THE ATTACHED PLAT AND INCLUDED LEGAL DESCRIPTIONS WERE PREPARED UNDER HIS DIRECT SUPERVISION, AND WAS EXECUTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE INDIANA SURVEY STANDARDS AS DEFINED IN TITLE 865, ARTICLE 1, RULE 12 OF THE INDIANA ADMINISTRATIVE CODE.
THIS CERTIFICATION DOES NOT TAKE INTO CONSIDERATION ADDITIONAL FACTS THAT AN ACCURATE AND CORRECT TITLE SEARCH AND/OR EXAMINATION MIGHT DISCLOSE.
SUBJECT TO THE ABOVE RESERVATION, I HEREBY CERTIFY THAT THE SURVEY WORK PERFORMED ON THE PROJECT SHOWN HEREIN WAS PERFORMED EITHER BY ME OR UNDER MY DIRECT SUPERVISION AND CONTROL, AND THAT ALL INFORMATION SHOWN IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

2/26/24
SHAUN P. RECTOR
INDIANA PS NO. 21000239
DATE

SHAUN P. RECTOR REGISTERED LS21000239 STATE OF INDIANA AND SURVEYOR

SURVEY BY:

Terran Surveys LLC
7110 W. Upland Ct. Bloomington, In 47404
Phone: 812-269-2289

LEGEND

- REBAR W/ CAP FOUND
- REBAR FOUND
- POWER POLE
- FENCE POST
- MAG NAIL SET
- 5/8" REBAR W/CAP INSCRIBED "S.P. RECTOR LS21000239" (SET)
- SUBJECT TRACT LINE
- BUILDING SETBACK LINE
- ADJOINER
- EXISTING FENCE
- OVERHEAD POWERLINE
- TREE LINE
- GAS LINE
- WATER LINE
- TREE LINE
- PROPOSED EASEMENT (INGRESS/EGRESS)
- PROPOSED 15' WIDE UTILITY EASEMENT

OWNER OF RECORD

WAMATHAI, WILLIAM KANYI
220 W GORDON PIKE
BLOOMINGTON, IN 47403
INSTRUMENT 2021017179

MIXED-USE CORRIDOR (MC) ZONING DISTRICT SETBACK TABLE

FRONT	SIDE	REAR
15'	7'	7'

ADDRESS TABLE

NEW LOT 1 - 220 W GORDON PIKE
BLOOMINGTON, IN 47403
NEW LOT 2 - _____ W GORDON PIKE
BLOOMINGTON, IN 47403

FLOOD STATEMENT

BY GRAPHIC PLOTTING ONLY, THIS PROPERTY IS NOT LOCATED IN THE SPECIAL FLOOD HAZARD AREA AS SHOWN BY THE FLOOD HAZARD BOUNDARY MAP, COMMUNITY PANEL #18105C0111D, DATED DECEMBER 17, 2010.

NOTES

1. THIS SURVEY PLAT INCOMPLETE WITHOUT THE ASSOCIATED SURVEYOR'S REPORT
2. ALL DIMENSIONS SHOWN ARE MEASURED UNLESS OTHERWISE NOTED
3. OWNERSHIP PER MONROE COUNTY TAX MAPS MAINTAINED IN THE MONROE COUNTY COURTHOUSE AS OF NOVEMBER 2023
4. FIELDWORK COMPLETED ON 12-04-23
5. ONE LARGE CANOPY TREE FOR EVERY 30 FEET OF PROPERTY THAT ABUTS A PUBLIC RIGHT-OF-WAY. IF MEDIUM OR SMALL TREES ARE ALLOWED, TWO MEDIUM OR SMALL TREES CAN BE SUBSTITUTED FOR EACH LARGE CANOPY TREE. [BMC 20.04080(f)(1)
6. STREET TREES "SHALL BE PLANTED IN A MINIMUM FIVE-FOOT WIDE TREE PLOT BETWEEN THE SIDEWALK AND THE CURB. IF A TREE PLOT IS NOT AVAILABLE, THEN THE STREET TREES SHALL BE PLANTED WITHIN THE FRONT YARD IMMEDIATELY ADJACENT TO THE STREET."
7. SANITARY LATERAL WILL NEED TO BE CONNECTED ON THE 8" MAIN, SOUTH OF SANMH 12365, AND WATER WILL HAVE TO CROSS TO THE SOUTH SIDE OF GORDON PIKE TO CONNECT.

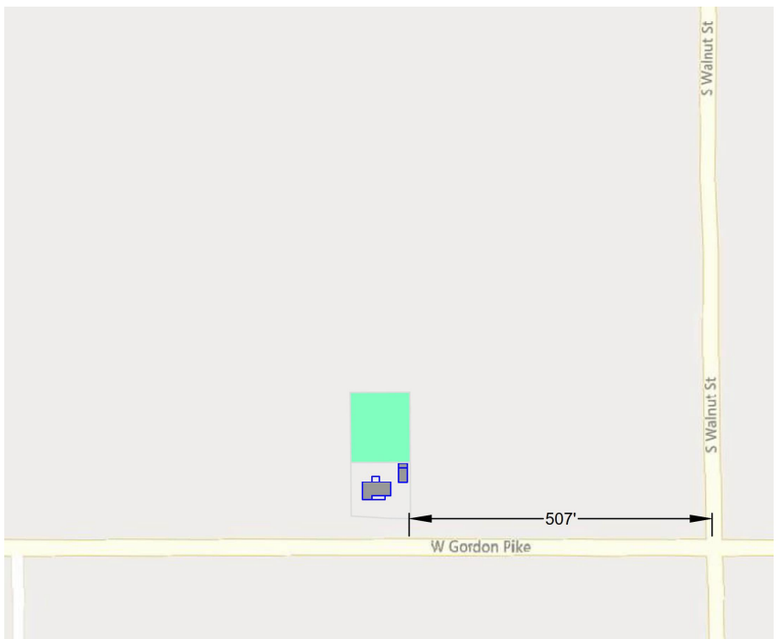
SCALE	SHEET NUMBER
1" = 30'	1 of 1
PLOT DATE	
4/3/2024	
FILE NAME	
Wamathai(FINAL).dwg	

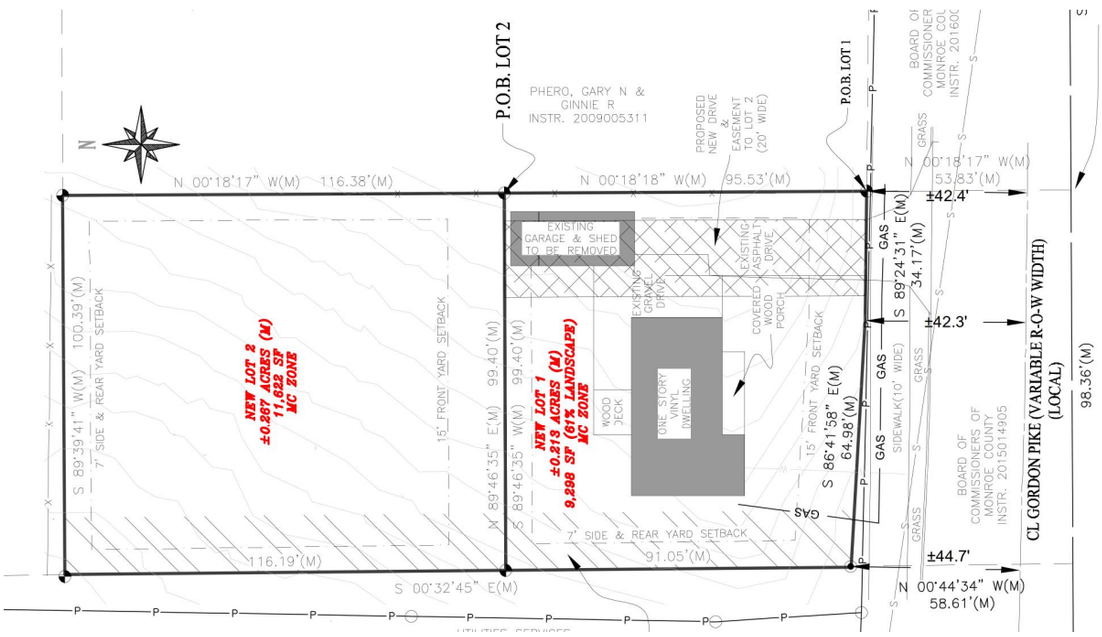
WAMATHAI

MIXED USE BUILDING DRAINAGE REPORT

DATED: 04/01/2024

CITY OF BLOOMINGTON, PERRY TOWNSHIP, MONROE COUNTY, INDIANA





Prepared by:

Shaun Rector, PS

Terran Surveys, LLC

812-269-2289

MIXED USE BUILDING DRAINAGE REPORT

Storm Water Review Jurisdiction

City of Bloomington Utilities Department

Storm Water Requirements

Bloomington Indiana Unified Development Ordinance (Effective 04/l8/2020 Amended 06/22/2022 — Current Version)

Storm Water Model(s)

USDA NRCS TR-55 Urban Hydrology for Small Watersheds (June I986)

Modeling Software

Hydraflow Hydrographs Extension for Autodesk® Civil 3D© by Autodesk, Inc. v2024

Items to Accompany this Report

N/A

Project Overview

This project consists of demolition of an existing garage, widening of an existing driveway, and the construction of a new multifamily residential building with surface parking and amenity areas. There is no current building or grading design. The project site totals 0.267 acres and the expected disturbed area including the construction of a new driveway to access the public right of way totals 0.310 acres.

Karst and Sinkholes

No karst features have been located on the project site.

Environmental Features

The project disturbs only previously developed land. No areas of the site are located within a FEMA designated floodway area. There are no known riparian buffer areas, steep slopes, tree canopy areas, or wetlands on the site.

Changes in Surfaces

Condition	Type	Surface Coverage (sf)	Percent of Total Site Area
Pre-Construction	Pervious	11,622	100%
Post-Construction	Pervious	4,648.8	40%
Post-Construction	Impervious	6,973.2	60%

Storm Water Quantity Control

Rainfall IDF curves and precipitation data were taken from the NOAA ATLAS 14 POINT PRECIPITATION FREQUENCY ESTIMATES: IN. The Rainfall Report in the appendix summarizes the data used in this analysis.

Curve Numbers (CN)

Curve numbers used in this analysis were taken from the TR-55 document. The hydrologic soil group for this project site is B. A curve number of 61 was selected for the Pre-Consruction condition (Open Space — good condition for hydrologic soil group B). For the Post-Construction condition, two curve numbers were used. For impervious areas, a curve number of 98 was used. For pervious areas, a curve number of 61 (Open space — good condition for hydrologic soil group B) was used. The appendix shows the curve numbers used in this analysis. The NRCS Custom Soil Resource Report for this site is included in the appendix.

Time of Concentration (Tc)

The times of concentration used in this analysis were calculated via the TR-55 method. A maximum of 150 feet of flow length was permitted to be sheet flow; the rest was assumed to be either shallow concentrated flow or channel flow depending on the flow route. The appendix contains the Tc calculations for this analysis.

Drainage Area Maps

Drainage Area maps are provided at the end of this report.

Pre-Construction Conditions

The Pre-Construction Drainage Area consists entirely of a previously developed area of grass. There does not appear to be any storm water detention provided currently. The Pre-Construction Drainage Map shows the existing drainage areas and the existing site conditions. The Pre-Construction conditions were modeled in this analysis to reflect idealized Pre-Civilization conditions rather than the existing conditions on site. A Curve Number (CN) value of 61 (Open Space — Good Condition — Hydrologic Soil Group B) was selected for the Pre-Civilization condition. Times of concentration were calculated based off the existing topography but assuming open space groundcover conditions and using a maximum sheet flow distance of 150 feet. The Pre-Civilization peak flows from the site are summarized below for the 2-Year, 10-Year, and 100-Year return period design storms:

Return Period	**Peak Flow (cfs)**
2-Year	0.102
10-Year	0.370
100-Year	0.974

See Appendix A for complete information regarding the calculations used for the pre-construction drainage area hydrographs.

Post-Construction Conditions

The post-construction drainage area was analyzed using the maximum amount of impervious surface areas for the proposed building, access drives, sidewalks, and patio areas. When compared to the pre-civilization conditions the storm water runoff rates are increased in the post-construction condition. The total post-construction peak flows for the site is summarized below for the 2-Year, 10-Year, and 100-Year return period design storms:

Return Period	**Peak Flow (cfs)**
2-Year	0.688
10-Year	1.207
100-Year	2.125

See Appendix A for complete information regarding the calculations used for the pre-civilization drainage area hydrographs.

Summary

The table below summarizes the calculated peak flows without any additional runoff rate control.

Return Period	**Pre-Construction Peak Flow (cfs)**	**Post-Construction Peak Flow (cfs)**
2-Year	0.102	0.688
10-Year	0.370	1.207
100-Year	0.974	2.125

Water Quality Treatment

There is currently no water quality treatment designed at this time.

Appendix A – Hydraflow Hydropraphs Report

Hydraflow Table of Contents

D:\Personal\Terran Surveys\Jobs\Wamathai\Wamathai.gpw

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Tuesday, 04 / 2 / 2024

Hydrograph Return Period Recap

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

Hyd. No.	Hydrograph type (origin)	Inflow hyd(s)	Peak Outflow (cfs)							Hydrograph Description
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
1	SCS Runoff	------	-------	0.102	-------	-------	0.370	-------	-------	0.974	Pre-Construction
2	SCS Runoff	------	-------	0.688	-------	-------	1.207	-------	-------	2.125	Post-Construction

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

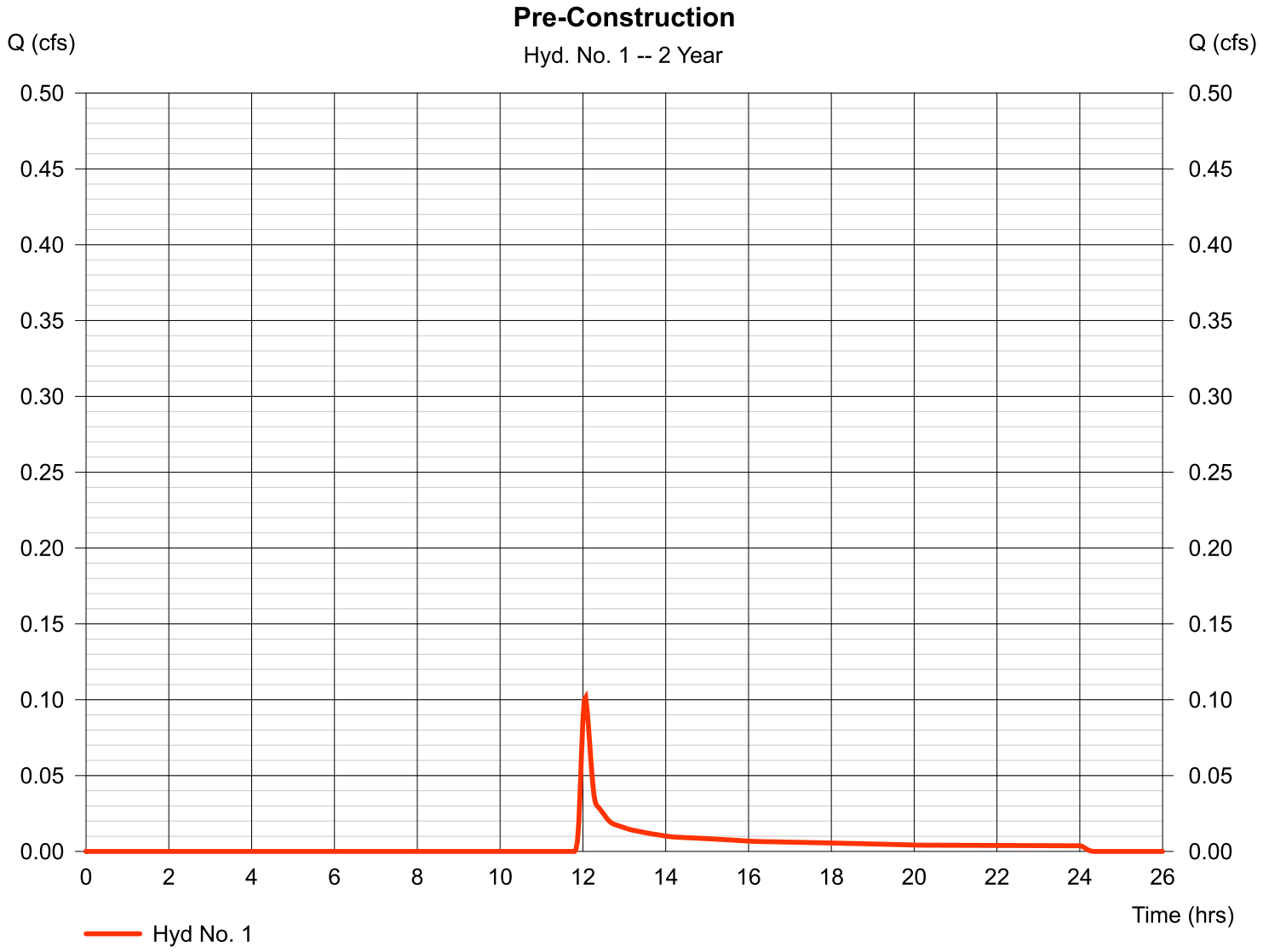
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	0.102	2	724	395	------	------	------	Pre-Construction
2	SCS Runoff	0.688	2	716	1,389	------	------	------	Post-Construction

Hydrograph Report

Hyd. No. 1

Pre-Construction

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.102 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.07 hrs
Time interval	=	2 min	Hyd. volume	=	395 cuft
Drainage area	=	0.267 ac	Curve number	=	61
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	9.90 min
Total precip.	=	3.08 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



TR55 Tc Worksheet

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

Hyd. No. 1

Pre-Construction

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.240		0.000		0.000		
Flow length (ft)	= 128.5		0.0		0.0		
Two-year 24-hr precip. (in)	= 3.08		0.00		0.00		
Land slope (%)	= 8.56		0.00		0.00		
Travel Time (min)	**= 9.94**	**+**	**0.00**	**+**	**0.00**	**=**	**9.94**
Shallow Concentrated Flow							
Flow length (ft)	= 0.00		0.00		0.00		
Watercourse slope (%)	= 0.00		0.00		0.00		
Surface description	= Paved		Paved		Paved		
Average velocity (ft/s)	=0.00		0.00		0.00		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**
Channel Flow							
X sectional flow area (sqft)	= 0.00		0.00		0.00		
Wetted perimeter (ft)	= 0.00		0.00		0.00		
Channel slope (%)	= 0.00		0.00		0.00		
Manning's n-value	= 0.000		0.000		0.000		
Velocity (ft/s)	=0.00						
			0.00				
					0.00		
Flow length (ft)	({0})0.0		0.0		0.0		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

Total Travel Time, Tc ..... 9.90 min

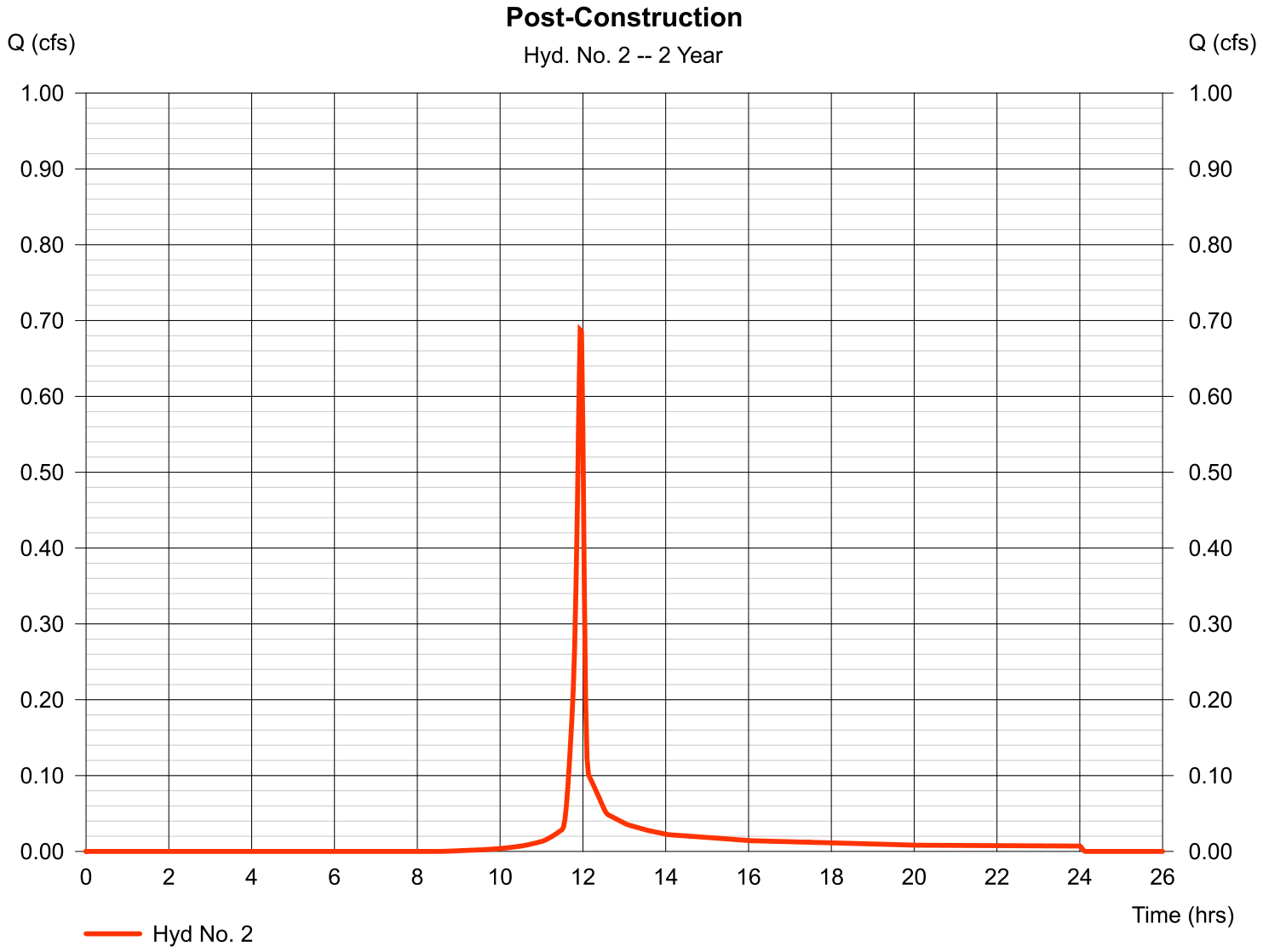
Hydrograph Report

Hyd. No. 2

Post-Construction

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.688 cfs
Storm frequency	=	2 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	1,389 cuft
Drainage area	=	0.270 ac	Curve number	=	83*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	5.40 min
Total precip.	=	3.08 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.160 x 98) + (0.107 x 61)] / 0.270



TR55 Tc Worksheet

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

Hyd. No. 2

Post-Construction

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.240		0.011		0.011		
Flow length (ft)	= 50.0		75.0		0.0		
Two-year 24-hr precip. (in)	= 3.08		3.08		0.00		
Land slope (%)	= 10.00		2.00		0.00		
Travel Time (min)	**= 4.39**	**+**	**0.98**	**+**	**0.00**	**=**	**5.37**
Shallow Concentrated Flow							
Flow length (ft)	= 0.00		0.00		0.00		
Watercourse slope (%)	= 0.00		0.00		0.00		
Surface description	= Paved		Paved		Paved		
Average velocity (ft/s)	=0.00		0.00		0.00		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**
Channel Flow							
X sectional flow area (sqft)	= 0.00		0.00		0.00		
Wetted perimeter (ft)	= 0.00		0.00		0.00		
Channel slope (%)	= 0.00		0.00		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	=0.00						
			0.00				
					0.00		
Flow length (ft)	({0})0.0		0.0		0.0		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

Total Travel Time, Tc ..... 5.40 min

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

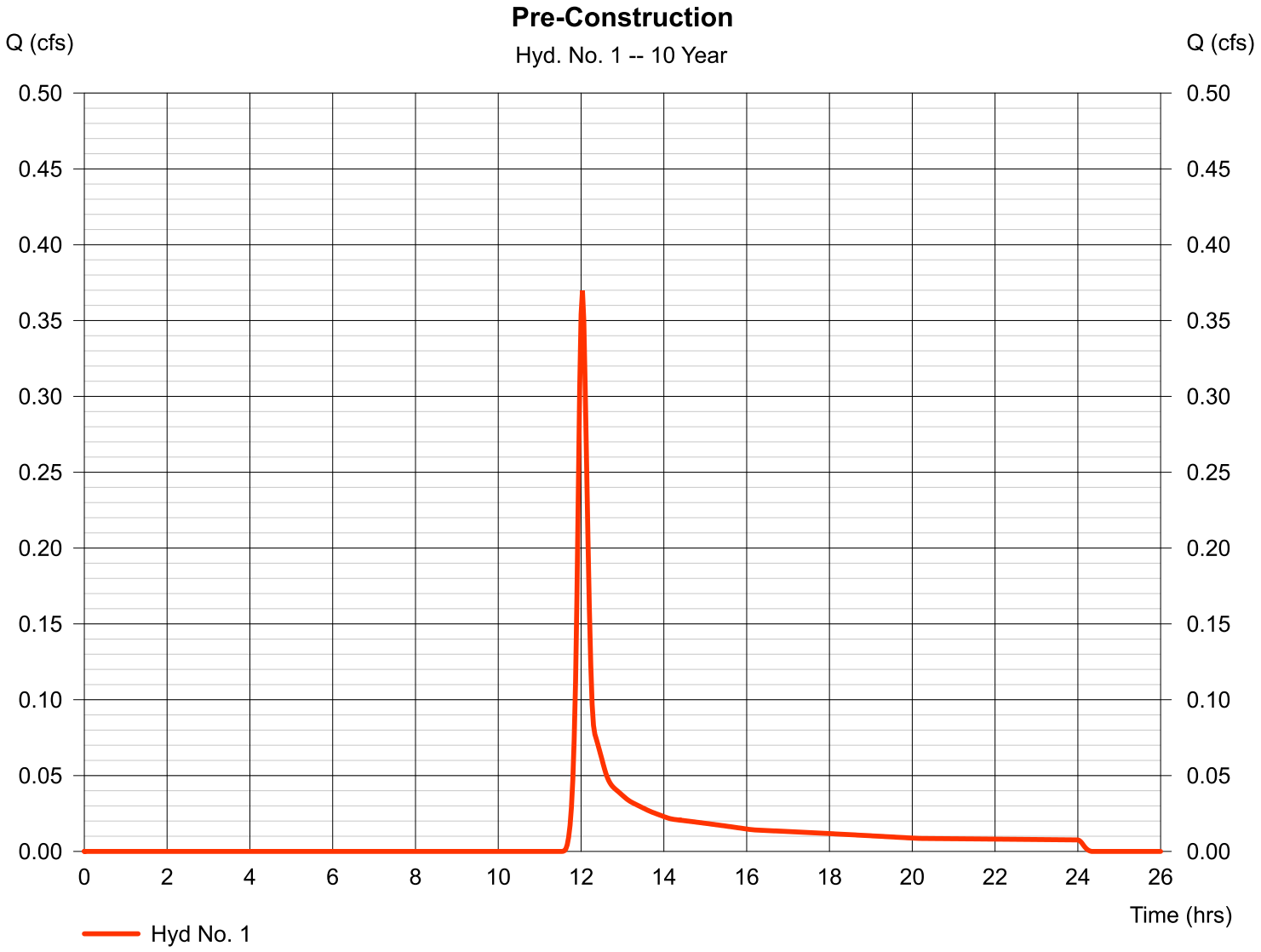
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	0.370	2	722	1,051	------	------	------	Pre-Construction
2	SCS Runoff	1.207	2	716	2,464	------	------	------	Post-Construction

Hydrograph Report

Hyd. No. 1

Pre-Construction

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.370 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.03 hrs
Time interval	=	2 min	Hyd. volume	=	1,051 cuft
Drainage area	=	0.267 ac	Curve number	=	61
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	9.90 min
Total precip.	=	4.45 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



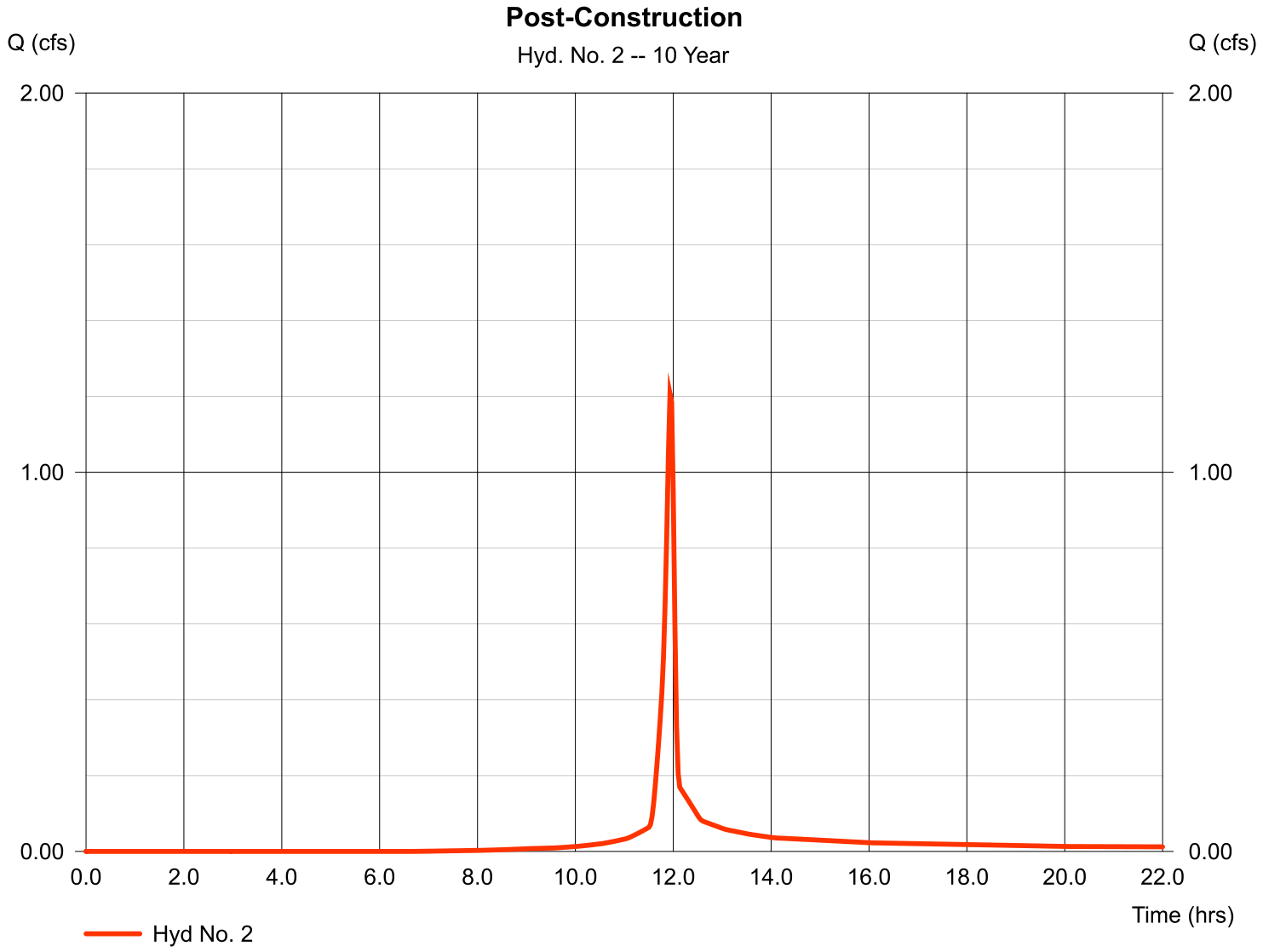
Hydrograph Report

Hyd. No. 2

Post-Construction

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.207 cfs
Storm frequency	=	10 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	2,464 cuft
Drainage area	=	0.270 ac	Curve number	=	83*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	5.40 min
Total precip.	=	4.45 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.160 x 98) + (0.107 x 61)] / 0.270



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

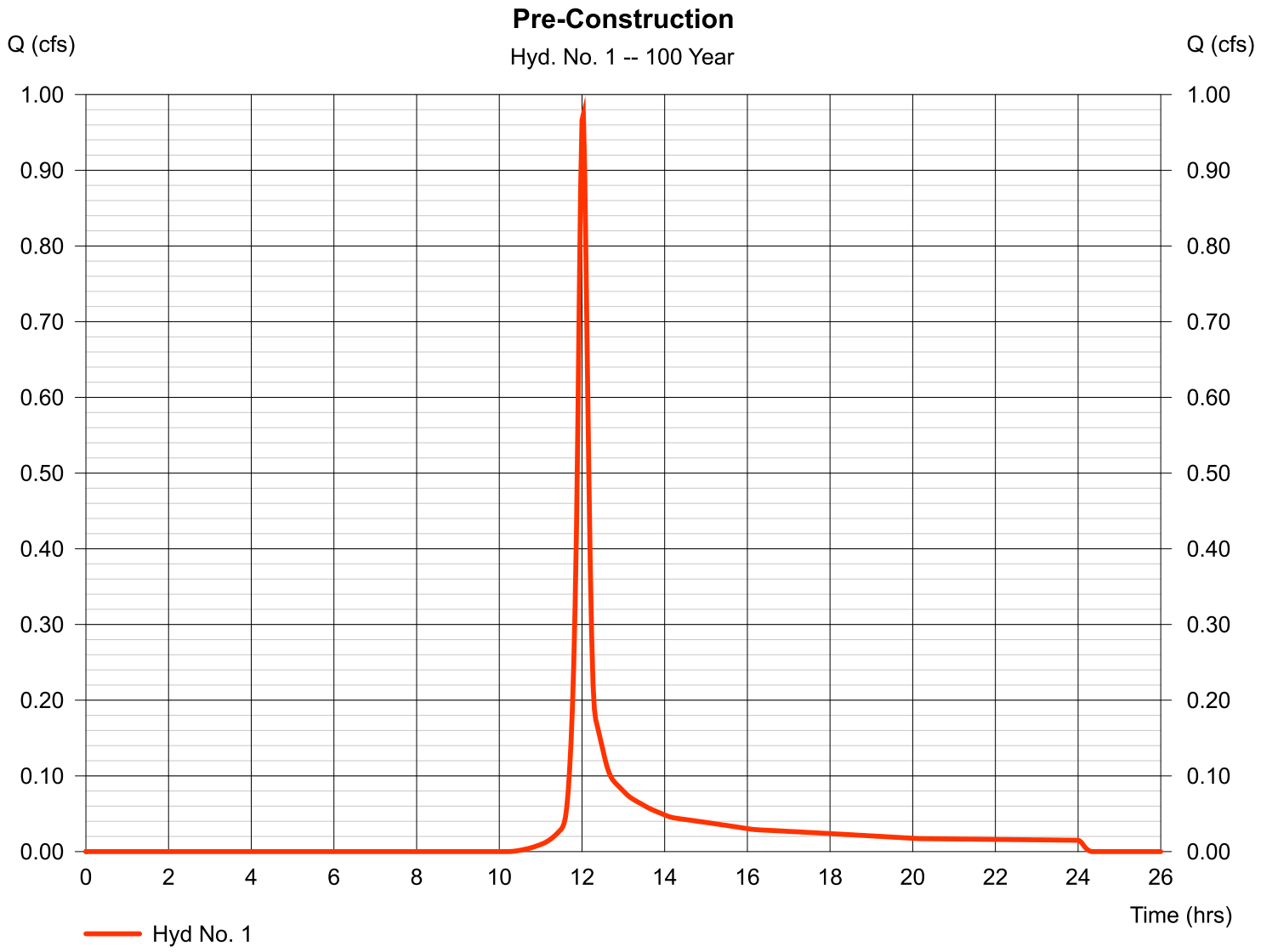
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	0.974	2	722	2,564	------	------	------	Pre-Construction
2	SCS Runoff	2.125	2	716	4,455	------	------	------	Post-Construction

Hydrograph Report

Hyd. No. 1

Pre-Construction

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.974 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.03 hrs
Time interval	=	2 min	Hyd. volume	=	2,564 cuft
Drainage area	=	0.267 ac	Curve number	=	61
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	9.90 min
Total precip.	=	6.81 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



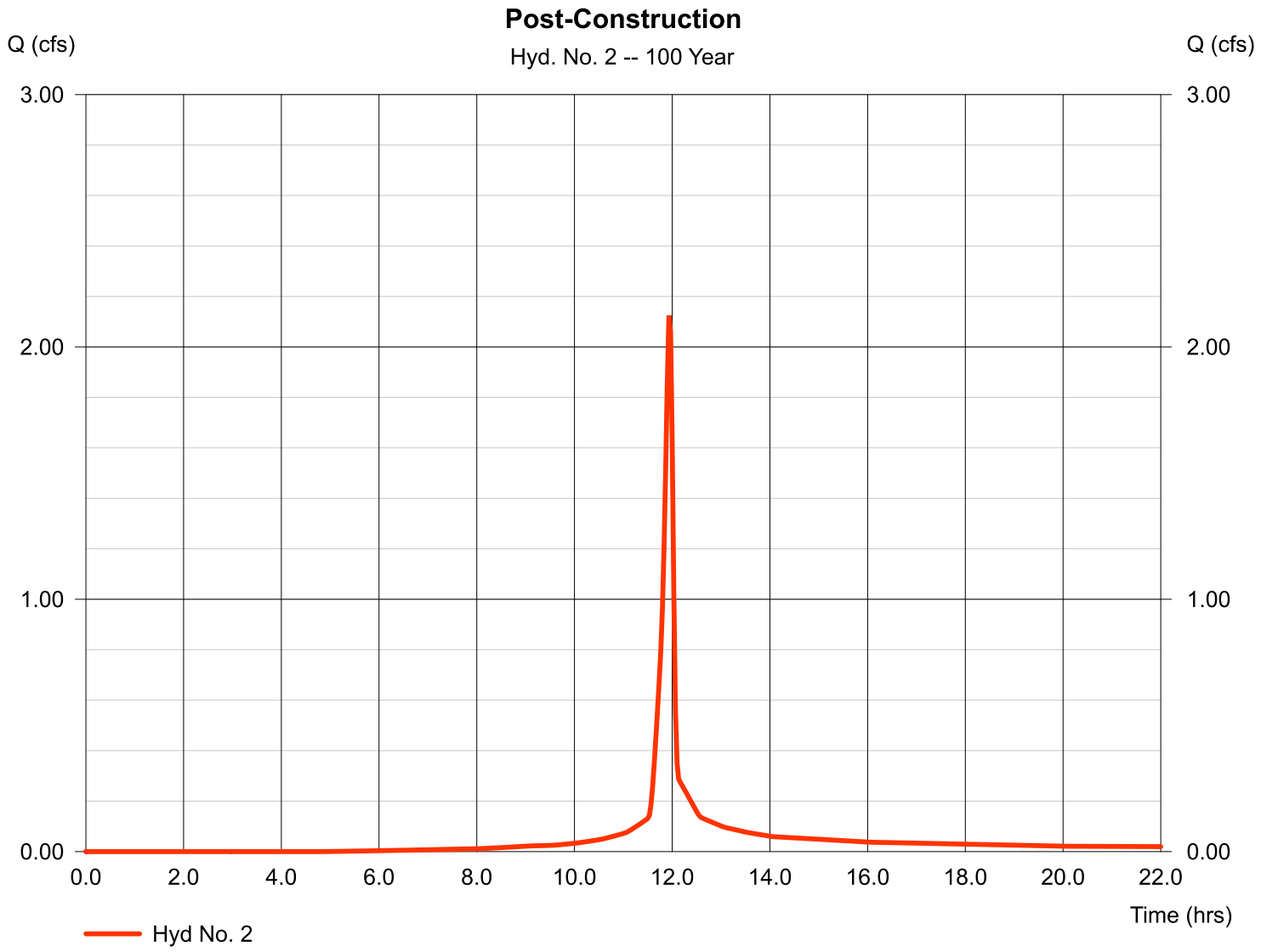
Hydrograph Report

Hyd. No. 2

Post-Construction

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.125 cfs
Storm frequency	=	100 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	4,455 cuft
Drainage area	=	0.270 ac	Curve number	=	83*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	5.40 min
Total precip.	=	6.81 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.160 x 98) + (0.107 x 61)] / 0.270



Hydraflow Rainfall Report

Return Period (Yrs)	Intensity-Duration-Frequency Equation Coefficients (FHA)			
	B	D	E	(N/A)
1	0.0000	0.0000	0.0000	--------
2	69.8703	13.1000	0.8658	--------
3	0.0000	0.0000	0.0000	--------
5	79.2597	14.6000	0.8369	--------
10	88.2351	15.5000	0.8279	--------
25	102.6072	16.5000	0.8217	--------
50	114.8193	17.2000	0.8199	--------
100	127.1596	17.8000	0.8186	--------

File name: SampleFHA.idf

Intensity = B / (Tc + D)^E

Return Period (Yrs)	Intensity Values (in/hr)											
	5 min	10	15	20	25	30	35	40	45	50	55	60
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	5.69	4.61	3.89	3.38	2.99	2.69	2.44	2.24	2.07	1.93	1.81	1.70
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	6.57	5.43	4.65	4.08	3.65	3.30	3.02	2.79	2.59	2.42	2.27	2.15
10	7.24	6.04	5.21	4.59	4.12	3.74	3.43	3.17	2.95	2.77	2.60	2.46
25	8.25	6.95	6.03	5.34	4.80	4.38	4.02	3.73	3.48	3.26	3.07	2.91
50	9.04	7.65	6.66	5.92	5.34	4.87	4.49	4.16	3.88	3.65	3.44	3.25
100	9.83	8.36	7.30	6.50	5.87	5.36	4.94	4.59	4.29	4.03	3.80	3.60

Tc = time in minutes. Values may exceed 60.

Precip. file name: D:\Personal\Terran Surveys\Jobs\Wamathai\Wamathai.pcp

Storm Distribution	Rainfall Precipitation Table (in)							
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
SCS 24-hour	0.00	3.08	0.00	3.30	4.45	5.77	6.80	6.81
SCS 6-Hr	0.00	2.16	0.00	0.00	3.21	0.00	0.00	5.12
Huff-1st	0.00	0.00	0.00	2.75	0.00	5.38	6.50	0.00
Huff-2nd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-3rd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-4th	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-Indy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Custom	0.00	0.00	0.00	2.80	0.00	5.25	6.00	0.00

Appendix B – NRCS Custom Soil Resource Report

United States Department of Agriculture

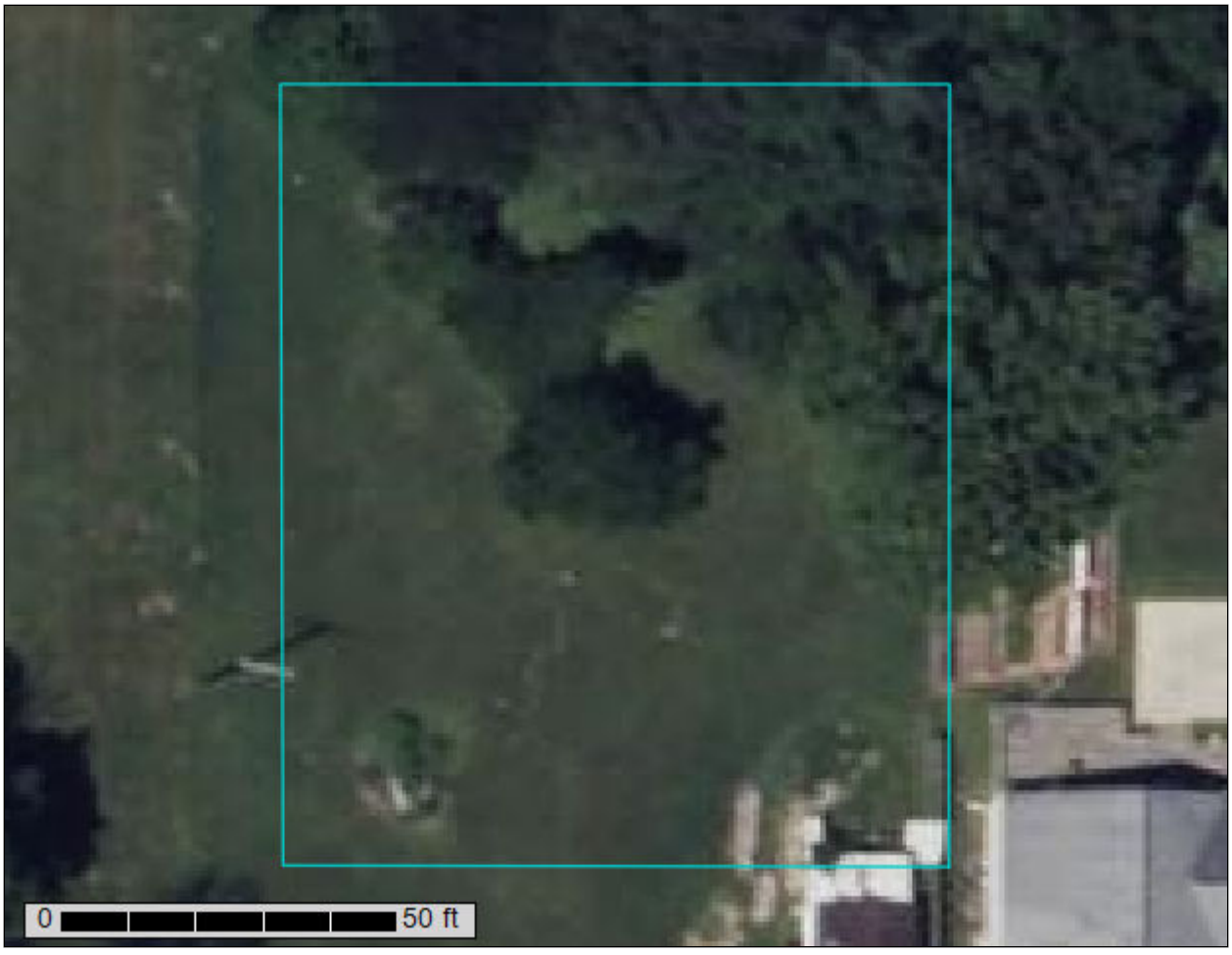
NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Monroe County, Indiana

Wamathai Custom Soil Resource Report



April 2, 2024

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

Map Scale: 1:235 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 3 6 12 18

Feet
0 10 20 40 60

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Monroe County, Indiana
Survey Area Data: Version 30, Sep 1, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 15, 2022—Jun 21, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
CtB	Crider-Urban land complex, 2 to 6 percent slopes	0.0	2.7%
CtC	Crider-Urban land complex, 6 to 12 percent slopes	0.3	97.3%
Totals for Area of Interest		**0.3**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Monroe County, Indiana

CtB—Crider-Urban land complex, 2 to 6 percent slopes

Map Unit Setting

National map unit symbol: kz84
Elevation: 370 to 1,020 feet
Mean annual precipitation: 40 to 46 inches
Mean annual air temperature: 52 to 57 degrees F
Frost-free period: 170 to 200 days
Farmland classification: Not prime farmland

Map Unit Composition

Crider and similar soils: 60 percent
Urban land: 40 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Crider

Setting

Landform: Hills
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Loess over clayey residuum

Typical profile

Ap - 0 to 7 inches: silt loam
Bt1 - 7 to 36 inches: silty clay loam
2Bt2 - 36 to 80 inches: clay

Properties and qualities

Slope: 2 to 6 percent
Depth to restrictive feature: 60 to 120 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 9.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Ecological site: F122XY004KY - Loess Veneered Uplands
Other vegetative classification: Trees/Timber (Woody Vegetation)
Hydric soil rating: No

Description of Urban Land

Setting

Landform: Hills

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Other vegetative classification: Trees/Timber (Woody Vegetation)
Hydric soil rating: No

CtC—Crider-Urban land complex, 6 to 12 percent slopes

Map Unit Setting

National map unit symbol: kz85
Elevation: 370 to 1,020 feet
Mean annual precipitation: 40 to 46 inches
Mean annual air temperature: 52 to 57 degrees F
Frost-free period: 170 to 200 days
Farmland classification: Not prime farmland

Map Unit Composition

Crider and similar soils: 60 percent
Urban land: 40 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Crider

Setting

Landform: Hills
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Loess over clayey residuum

Typical profile

Ap - 0 to 7 inches: silt loam
Bt1 - 7 to 36 inches: silty clay loam
2Bt2 - 36 to 80 inches: clay

Properties and qualities

Slope: 6 to 12 percent
Depth to restrictive feature: 60 to 120 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 9.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: F122XY004KY - Loess Veneered Uplands
Other vegetative classification: Trees/Timber (Woody Vegetation)
Hydric soil rating: No

Description of Urban Land

Setting

Landform: Hills

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Other vegetative classification: Trees/Timber (Woody Vegetation)
Hydric soil rating: No

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