PLANS PREPARED BY:

KIMLEY–HORN & ASSOCIATES
500 EAST 96TH STREET, SUITE 300
INDIANAPOLIS, IN 46240
CONTACT: BRETT HUFF
PHONE: (317) 912–4129
EMAIL: BRETT.HUFF@KIMLEY–HORN.COM

DEVELOPMENT STANDARDS: SEE TOWNES AT 238 PUD

# TOWNES AT 238

## NOBLESVILLE, INDIANA

## PRELIMINARY DEVELOPMENT PLAN

## DOCKET #LEGP 0018-2024

EXHIBIT 5

### UTILITY AND GOVERNING AGENCY CONTACTS

| SERVICE / JURISDICTION | COMPANY / DEPT. | ADDRESS | PHONE NUMBER | CONTACT |
|---|---|---|---|---|
| SANITARY SEWER | CITY OF NOBLESVILLE WASTEWATER DEPARTMENT | 197 WEST WASHINGTON STREET NOBLESVILLE, IN 46060 | 317-776-6353 | |
| WATER | INDIANA AMERICAN WATER COMPANY INC. | 15227 HERRIMAN BLVD NOBLESVILLE, IN 46060 | 317-900-4975 | JOSHUA COX |
| STREETS | CITY OF NOBLESVILLE DEPARTMENT OF ENGINEERING | 16 SOUTH 10TH STREET, SUITE 155 NOBLESVILLE, IN 46060 | 317-776-6330 | |
| DRAINAGE | CITY OF NOBLESVILLE DEPARTMENT OF ENGINEERING | 16 SOUTH 10TH STREET, SUITE 155 NOBLESVILLE, IN 46060 | 317-776-6330 | |
| ELECTRICITY | DUKE ENERGY INDIANA | 100 SOUTH MILL CREEK ROAD NOBLESVILLE, INDIANA 46062 | 317-776-5365 | MARC DILLER |
| NATURAL GAS | VECTREN ENERGY | 16000 ALLISONVILLE ROAD NOBLESVILLE, INDIANA 46060 | 317-776-5537 | CATHY MIESSEN |
| TELEPHONE / COMMUNICATIONS | AT&T - ENGINEERING | 240 N. MERIDIAN STREET, 2ND FLOOR, ROOM 280 INDIANAPOLIS, IN 46204 | 317-252-4267 | BRIAN PETERS |
| FIBER OPTICS | MCLEOD USA | 6400 C STREET SW P.O. BOX 3177 CEDAR RAPIDS, IA 52406 | 317-697-2863 | |

### PROJECT TEAM

| ROLE | COMPANY | ADDRESS | PHONE NUMBER | EMAIL | CONTACT |
|---|---|---|---|---|---|
| DEVELOPER/OWNER | M/I HOMES OF INDIANA, LP | 8424 WOODFIELD CROSSING BLVD., STE 100W, INDIANAPOLIS, IN 46240 | 704-363-4491 | mreeve@mihomes.com | MICHEAL REEVE |
| CIVIL ENGINEER | KIMLEY-HORN & ASSOCIATES, INC. | 500 E. 96TH ST., STE 300, INDIANAPOLIS, IN 46240 | 317-912-4129 | brett.huff@kimley-horn.com | BRETT HUFF |
| LANDSCAPE ARCHITECT | START TO FINISH LANDSCAPING | 3375 S 500 E, WHITESTOWN, IN 46075 | 317-902-9141 | tom@starttofinish.com | TOM FELLEGY |

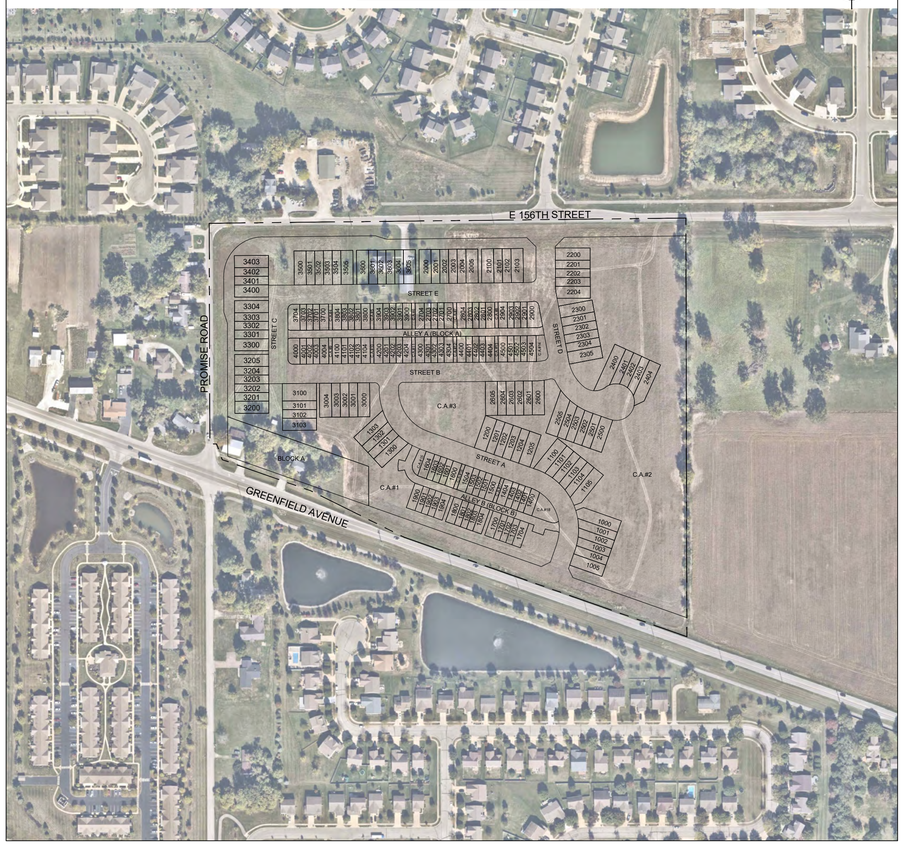
AFTER HAVING GIVEN PUBLIC NOTICE OF THE TIME, PLACE, AND NATURE OF HEARING ON AN APPLICATION PENDING BEFORE THE NOBLESVILLE PLAN COMMISSION AND UNDER THE AUTHORITY PROVIDED BY STATE STATUE AND ALL ACTS AMENDATORY THEREOF, AND UPON FINDING THAT THIS SUBDIVISION PLAT IS IN CONFORMANCE WITH THE SUBDIVISION REGULATIONS AS SERT FORTH IN THE UNIFIED DEVELOPMENT ORDINANCE FOR THE CITY OF NOBLESVILLE, THIS PLAT WAS GRANTED APPROVAL BY A MAJORITY OF THE MEMBERS OF THE NOBLESVILLE PLAN COMMISSION AT THE MEETING HELD ON _____ DAY OF _____, 2024.

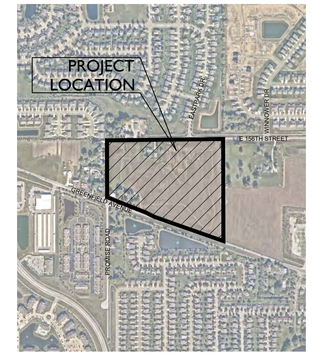
PLAN COMMISSION

_____ PRESIDENT – MALINDA WILCOX

_____ SECRETARY – STEVEN R. HUNTLEY

### LOCATION MAP




VICINITY MAP
(N.T.S.)

### Sheet List Table

| Sheet Number | Sheet Title |
|---|---|
| C100 | COVER SHEET |
| P100 | PRIMARY PLAT |
| C200 | SITE DEVELOPMENT PLAN |
| C201 | SITE DEVELOPMENT PLAN |
| C202 | OVERALL SITE PLAN |
| C300 | EMERGENCY FLOOD ROUTING |
| C400 | EROSION CONTROL PLAN |
| C403 | EROSION CONTROL DETAILS |
| C404 | EROSION CONTROL DETAILS |
| C405 | EROSION CONTROL DETAILS |
| C500 | SIGNAGE AND LIGHTING PLAN |
| C600 | LINE OF SIGHT PLAN |
| C700 | MAILBOX PLAN |
| C701 | MAILBOX PLAN |
| C702 | MAILBOX PLAN |
| L1–L5 | LANDSCAPE PLAN |

### PROJECT INFORMATION

| | |
|---|---|
| TOTAL AREA | 26.71 AC |
| TOTAL LOTS | 186 |
| | |
| DESIGN SPEED LIMIT | 25 MPH |
| TOTAL BLOCK | 0.6 AC± |
| TOTAL C.A. (OPEN SPACE) | 9.7 AC± (36.3%) |
| TOTAL R.O.W. | 7.1 AC± |
| DEVELOPABLE AREA | 19.7 AC± |
| IMPERVIOUS AREA | 10.3 AC± |
| | |
| DENSITY | 9.44 UNITS/AC |
| | |
| TOTAL LAKE AREA | 1.57 AC |
| | |
| PARKING SPACES PROVIDED | 186 UNITS X 4 SPACES = 744 |
| | + 9 GUEST SPACES |

### STREETS

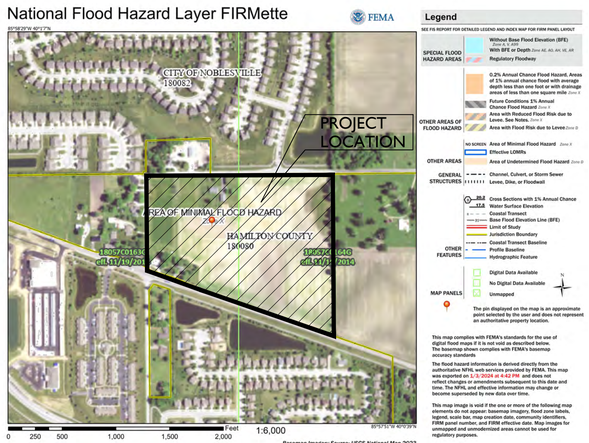
| NAME | LENGTH (LF±) |
|---|---|
| STREET A | 933 |
| STREET B | 789 |
| STREET C | 476 |
| STREET D | 641 |
| STREET E | 749 |
| ALLEY A | 768 |
| ALLEY B | 581 |
| TOTAL | 4937 |

TOWNES AT 238

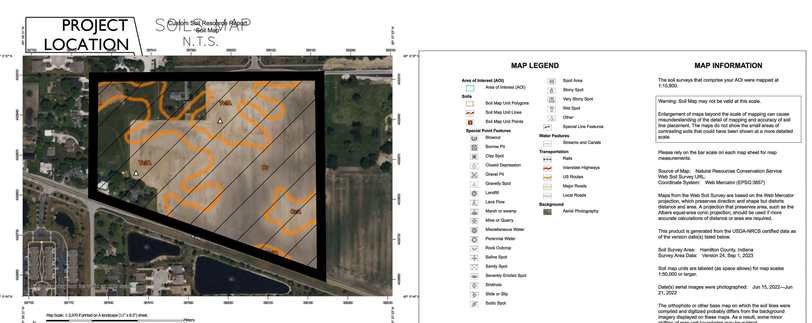
PART OF THE EAST HALF OF THE NORTHWEST QUARTER OF SECTION 16, TOWNSHIP 18 NORTH, RANGE 5 EAST IN HAMILTON COUNTY, INDIANA MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT A HARRISON MONUMENT MARKING THE NORTHEAST CORNER OF SAID SECTION 16, SAID POINT ALSO BEING THE NORTHWEST CORNER OF THE REPLAT OF LOT 2 IN HOOD'S MEADOW, RECORDED AS INSTRUMENT NUMBER 2022039936 IN THE OFFICE OF THE RECORDER FOR HAMILTON COUNTY; THENCE SOUTH 00 DEGREES 08 MINUTES 13 SECONDS EAST ALONG THE EAST LINE OF SAID SECTION 16 A DISTANCE OF 1,170.41 FEET TO A POINT ON THE NORTH RIGHT OF WAY LINE FOR STATE ROAD 238 (GREENVILLE AVENUE); THENCE NORTH 70 DEGREES 36 MINUTES 22 SECONDS WEST ALONG SAID RIGHT OF WAY LINE 838.00 FEET; THENCE NORTH 63 DEGREES 32 MINUTES 34 SECONDS WEST 290.92 FEET; THENCE NORTH 70 DEGREES 36 MINUTES 22 SECONDS WEST 262.47 FEET; THENCE NORTH 19 DEGREES 37 MINUTES 41 SECONDS WEST 46.77 FEET; THENCE SOUTH 89 DEGREES 55 MINUTES 25 SECONDS WEST 19.02 FEET TO A POINT ON THE WEST LINE OF THE EAST HALF OF THE NORTHWEST QUARTER OF SAID SECTION 16; THENCE NORTH 00 DEGREES 09 MINUTES 18 SECONDS WEST ALONG SAID WEST LINE 616.72 FEET TO A STONE FOUND MARKING THE NORTHWEST CORNER OF SAID HALF, QUARTER SECTION; THENCE NORTH 89 DEGREES 22 MINUTES 16 SECONDS EAST ALONG THE NORTH LINE OF SAID HALF, QUARTER SECTION 1,332.16 FEET TO THE POINT OF BEGINNING OF THIS DESCRIPTION, CONTAINING 28.01 ACRES, MORE OR LESS.

### National Flood Hazard Layer FIRMette




FLOOD MAP
(N.T.S.)




Drawing name: K:\IND_LDEV\170150023_MI_Homes_Noblesville_IN_PP\ Design\CADD\PlanSheets\Cover Sheet.dwg C100 COVER SHEET Feb 26, 2024 11:42am by: Grant.Shortridge



| No. | REVISIONS | DATE | BY |
|---|---|---|---|
| 1 | REVISIONS PER TAC COMMENTS | 02/22/24 | GMS |

Kimley»Horn
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500 EAST 96TH STREET, SUITE 300,
INDIANAPOLIS, IN 46240
PHONE: 317-912-4129
EMAIL: Brett.Huff@kimley-horn.com
WWW.KIMLEY-HORN.COM

SCALE: AS NOTED
DESIGNED BY: JSM
DRAWN BY: GMS
CHECKED BY: BAH

APPROVAL PENDING NOT FOR CONSTRUCTION

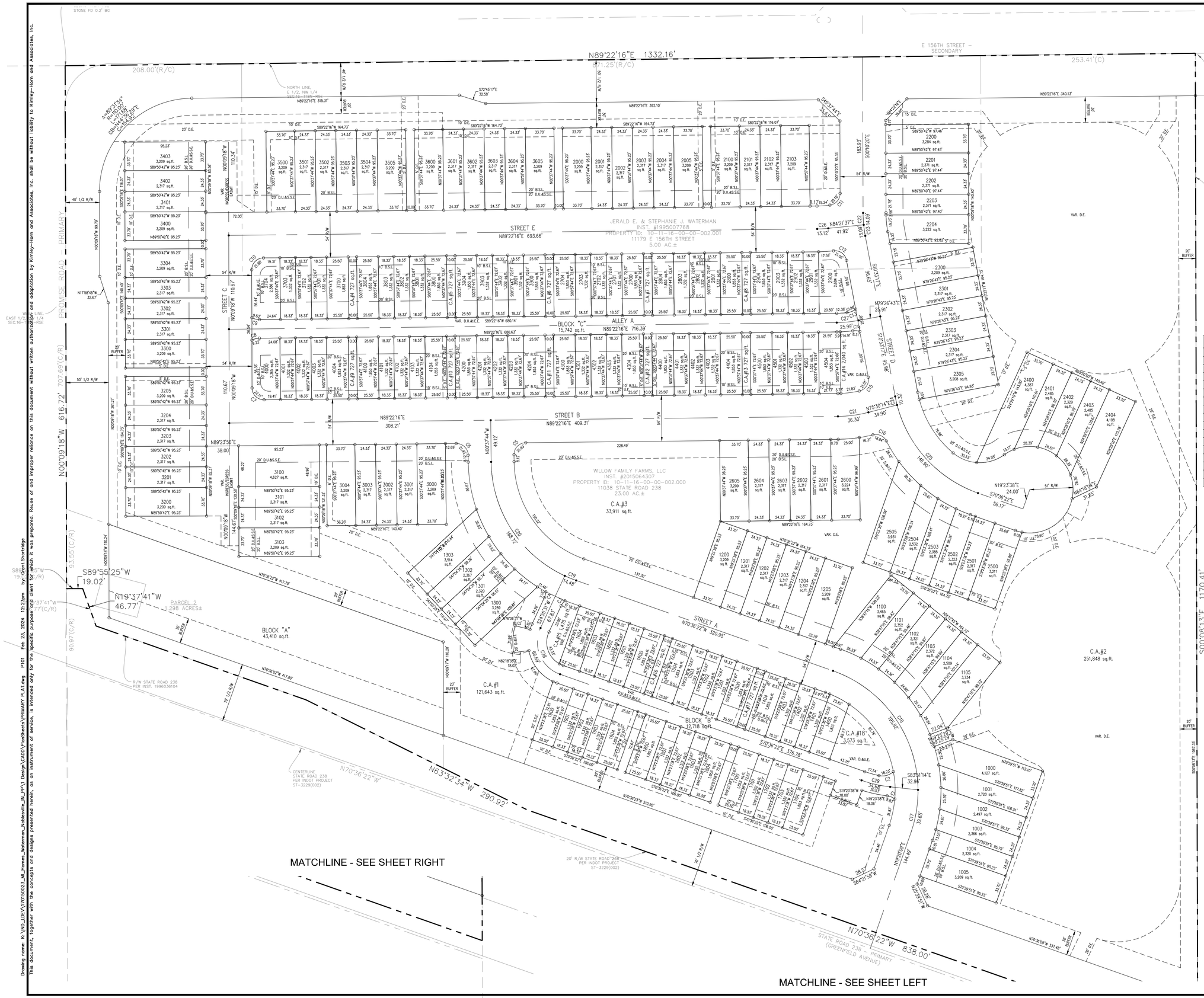
M/I HOMES

COVER SHEET

TOWNES AT 238
PRELIMINARY
DEVELOPMENT PLAN

ORIGINAL ISSUE: 01/17/2024
KHA PROJECT NO. 170150023
SHEET NUMBER
C100

Indiana Utilities Protection Service
Call 811 before you dig




## LEGEND

| | |
|---|---|
| 21 | LOT NUMBER |
| B.S.L. | BUILDING SETBACK LINE |
| D.&U.E. | DRAINAGE & UTILITY EASEMENT |
| S.S.E. | SANITARY SEWER EASEMENT |
| R/W | RIGHT OF WAY |
| VAR. | VARIABLE |
| U.E. | UTILITY EASEMENT |
| D.E. | DRAINAGE EASEMENT |

NORTH

GRAPHIC SCALE IN FEET
0 25 50 100

### CURVE TABLE

| CURVE | RADIUS | LENGTH | CHORD BEARING | CHORD | DELTA | TANGENT |
|---|---|---|---|---|---|---|
| C1 | 19.00' | 9.83' | S68°09'33"E | 9.72' | 29°38'01" | 5.03' |
| C2 | 19.00' | 18.23' | S74°40'21"W | 17.54' | 54°58'44" | 9.89' |
| C3 | 19.00' | 7.61' | S36°23'52"W | 7.56' | 22°56'41" | 3.86' |
| C4 | 19.00' | 7.16' | S14°07'27"W | 7.12' | 21°36'07" | 3.62' |
| C5 | 14.00' | 21.99' | S44°22'16"W | 19.80' | 90°00'00" | 14.00' |
| C6 | 14.00' | 21.99' | S45°37'44"E | 19.80' | 90°00'00" | 14.00' |
| C7 | 14.00' | 22.11' | S45°23'31"E | 19.88' | 90°28'26" | 14.12' |
| C8 | 19.00' | 9.22' | N75°28'16"E | 9.13' | 27°47'59" | 4.70' |
| C9 | 19.00' | 9.53' | N76°15'19"W | 9.43' | 28°44'51" | 4.87' |
| C10 | 14.00' | 21.88' | S44°36'29"W | 19.72' | 89°31'34" | 13.88' |
| C11 | 14.00' | 20.11' | S41°08'08"W | 18.42' | 82°16'16" | 12.23' |
| C12 | 14.00' | 21.06' | N53°38'44"W | 19.13' | 86°10'54" | 13.10' |
| C13 | 19.00' | 10.98' | S67°43'14"W | 10.82' | 33°05'53" | 5.65' |
| C14 | 19.00' | 8.31' | S84°48'39"E | 8.24' | 25°03'35" | 4.22' |
| C15 | 14.00' | 21.51' | N33°27'12"E | 19.45' | 88°00'56" | 13.52' |
| C16 | 14.00' | 18.84' | S65°26'44"E | 17.45' | 77°06'44" | 11.16' |

### CURVE TABLE: ALIGNMENT

| CURVE | RADIUS | LENGTH | CHORD BEARING | CHORD | DELTA | TANGENT |
|---|---|---|---|---|---|---|
| C17 | 150.00' | 39.65' | N11°45'49"E | 39.53' | 15°08'38" | 19.94' |
| C18 | 150.00' | 195.82' | N33°12'26"W | 182.21' | 74°47'53" | 114.68' |
| C19 | 150.00' | 14.48' | N67°50'26"W | 14.48' | 5°31'53" | 7.25' |
| C20 | 150.00' | 168.72' | N32°51'07"W | 159.96' | 64°26'45" | 94.54' |
| C21 | 150.00' | 36.30' | N82°26'15"E | 36.22' | 13°52'02" | 18.24' |
| C22 | 150.00' | 14.09' | S2°57'01"E | 14.08' | 5°22'49" | 7.05' |
| C23 | 150.00' | 13.09' | S7°57'35"E | 13.09' | 5°00'04" | 6.55' |
| C24 | 150.00' | 10.32' | S12°31'31"E | 10.32' | 3°56'29" | 5.16' |
| C25 | 150.00' | 146.90' | S42°33'04"E | 141.10' | 56°06'33" | 79.94' |
| C26 | 150.00' | 13.12' | N86°51'57"E | 13.11' | 5°00'39" | 6.56' |
| C27 | 150.00' | 25.99' | N84°24'30"E | 25.95' | 9°55'33" | 13.03' |
| C28 | 40.00' | 66.69' | S22°50'26"E | 59.23' | 95°31'53" | 44.06' |
| C29 | 150.00' | 34.68' | S77°13'48"E | 34.61' | 13°14'52" | 17.42' |

| No. | REVISIONS | DATE | BY |
|---|---|---|---|
| 1 | REVISIONS PER TAC COMMENTS | 02/22/24 | GMS |

Kimley»Horn
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INDIANAPOLIS, IN 46240
PHONE: 317-218-9560
EMAIL: Brett.Huff@kimley-horn.com
WWW.KIMLEY-HORN.COM

SCALE: AS NOTED
DESIGNED BY: JSM
DRAWN BY: GMS
CHECKED BY: BAH

APPROVAL PENDING
NOT FOR
CONSTRUCTION

M/I HOMES

PRIMARY PLAT

TOWNES AT 238
PRELIMINARY
DEVELOPMENT PLAN

ORIGINAL ISSUE:
01/17/2024

KHA PROJECT NO.
170150023

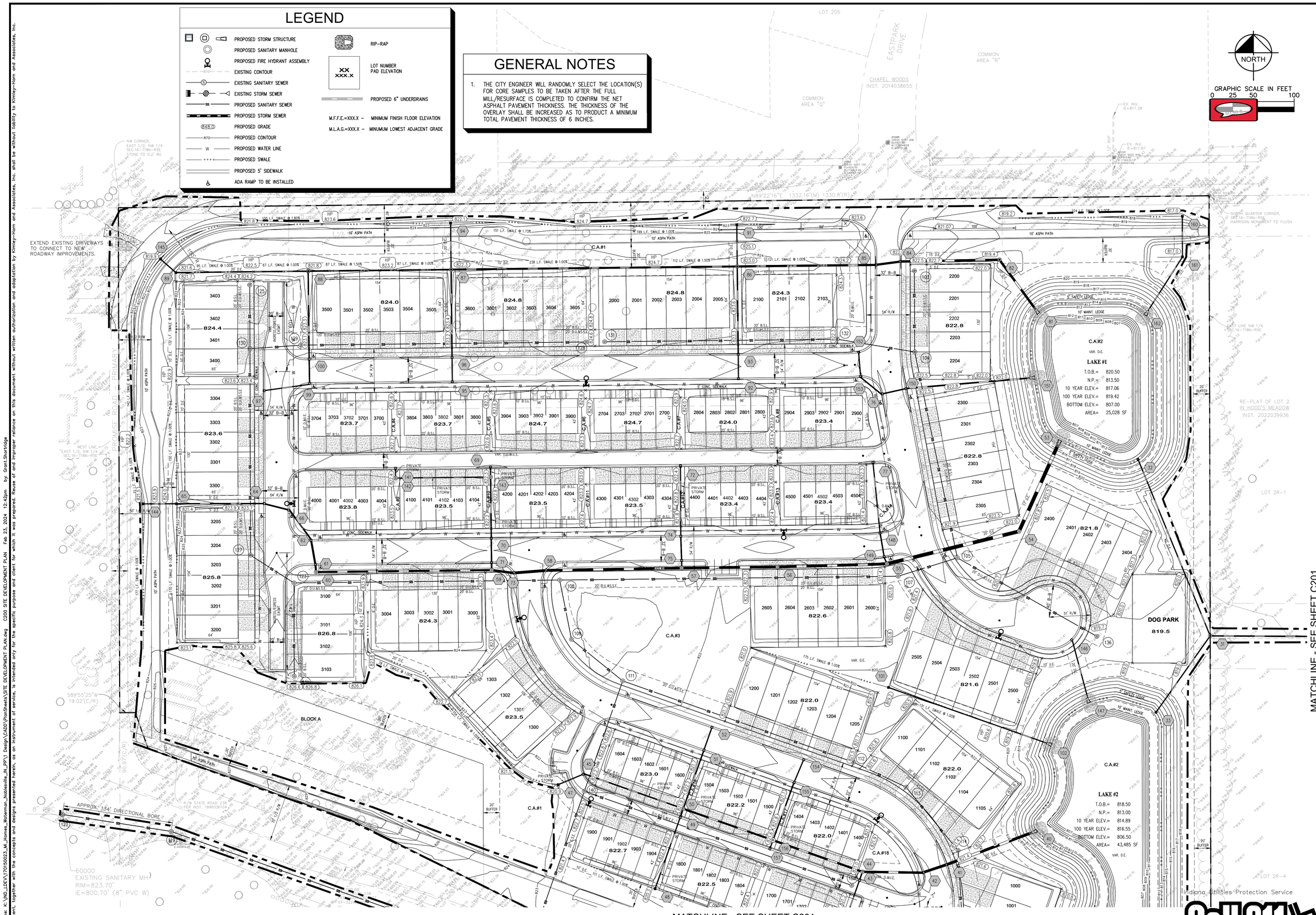
SHEET NUMBER
P100

# LEGEND

- PROPOSED STORM STRUCTURE
- PROPOSED SANITARY MANHOLE
- PROPOSED FIRE HYDRANT ASSEMBLY
- EXISTING CONTOUR
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- PROPOSED SANITARY SEWER
- PROPOSED STORM SEWER
- PROPOSED GRADE
- PROPOSED CONTOUR
- PROPOSED WATER LINE
- PROPOSED SWALE
- PROPOSED 5' SIDEWALK
- ADA RAMP TO BE INSTALLED
- RIP-RAP
- XX / XXX.X — LOT NUMBER / PAD ELEVATION
- PROPOSED 6" UNDERDRAINS
- M.F.F.E.=XXX.X – MINIMUM FINISH FLOOR ELEVATION
- M.L.A.G.=XXX.X – MINUMUM LOWEST ADJACENT GRADE

# GENERAL NOTES

1. THE CITY ENGINEER WILL RANDOMLY SELECT THE LOCATION(S) FOR CORE SAMPLES TO BE TAKEN AFTER THE FULL MILL/RESURFACE IS COMPLETED TO CONFIRM THE NET ASPHALT PAVEMENT THICKNESS. THE THICKNESS OF THE OVERLAY SHALL BE INCREASED AS TO PRODUCT A MINIMUM TOTAL PAVEMENT THICKNESS OF 6 INCHES.




| No. | REVISIONS | DATE | BY |
|---|---|---|---|
| 1 | REVISIONS PER TAC COMMENTS | 02/22/24 | GMS |

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PHONE: (317) 218-9560
EMAIL: Brett.Huff@kimley-horn.com
WWW.KIMLEY-HORN.COM

SCALE: AS NOTED
DESIGNED BY: JSM
DRAWN BY: GMS
CHECKED BY: BAH

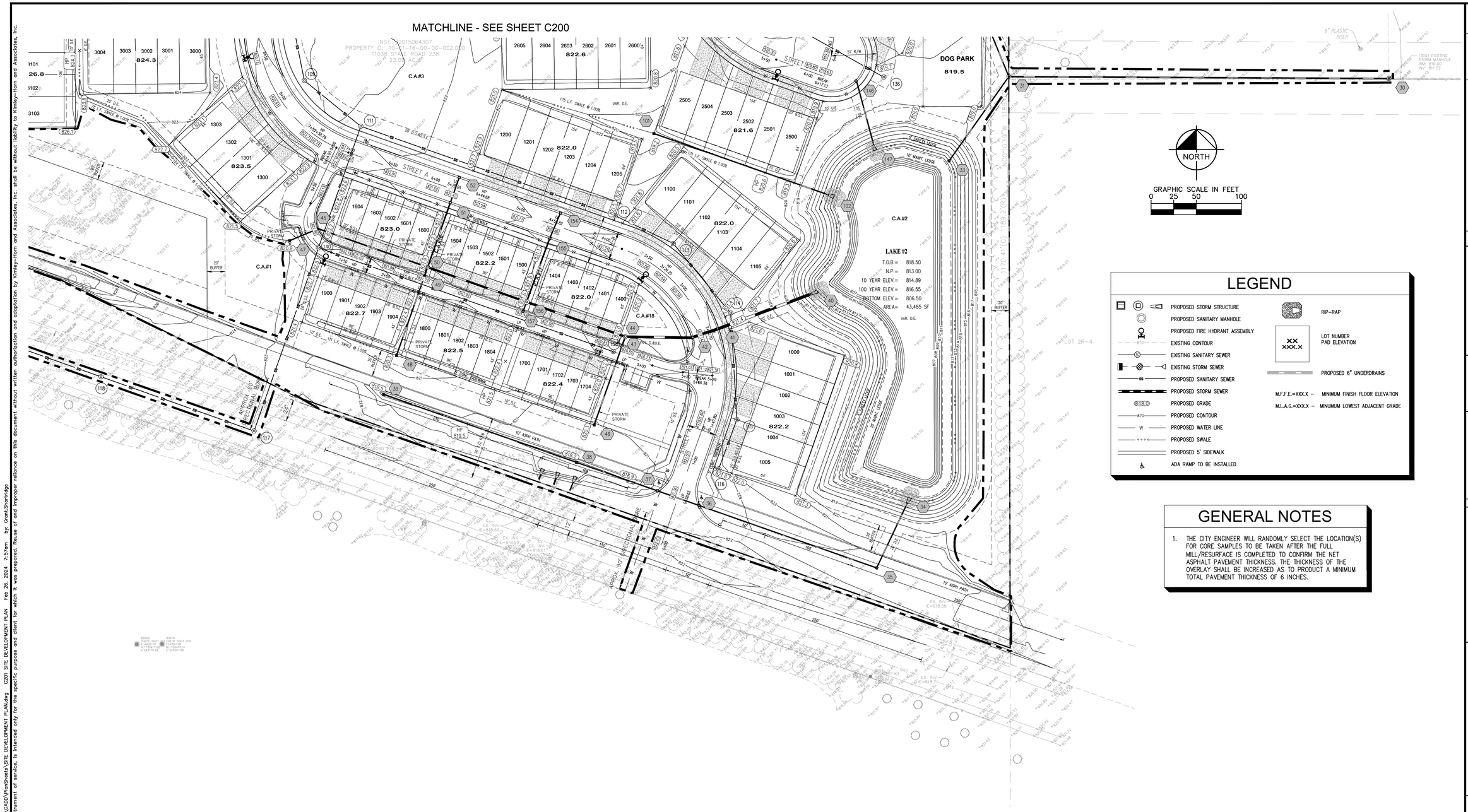
APPROVAL PENDING
NOT FOR
CONSTRUCTION

M/I HOMES

SITE DEVELOPMENT PLAN

TOWNES AT 238
PRELIMINARY
DEVELOPMENT PLAN

ORIGINAL ISSUE: 01/17/2024
KHA PROJECT NO. 170150023
SHEET NUMBER
C200




## LEGEND

- PROPOSED STORM STRUCTURE
- PROPOSED SANITARY MANHOLE
- PROPOSED FIRE HYDRANT ASSEMBLY
- EXISTING CONTOUR
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- PROPOSED SANITARY SEWER
- PROPOSED STORM SEWER
- PROPOSED GRADE
- PROPOSED CONTOUR
- PROPOSED WATER LINE
- PROPOSED SWALE
- PROPOSED 5' SIDEWALK
- ADA RAMP TO BE INSTALLED
- RIP-RAP
- LOT NUMBER / PAD ELEVATION
- PROPOSED 6" UNDERDRAINS
- M.F.F.E.=XXX.X – MINIMUM FINISH FLOOR ELEVATION
- M.L.A.G.=XXX.X – MINUMUM LOWEST ADJACENT GRADE

## GENERAL NOTES

1. THE CITY ENGINEER WILL RANDOMLY SELECT THE LOCATION(S) FOR CORE SAMPLES TO BE TAKEN AFTER THE FULL MILL/RESURFACE IS COMPLETED TO CONFIRM THE NET ASPHALT PAVEMENT THICKNESS. THE THICKNESS OF THE OVERLAY SHALL BE INCREASED AS TO PRODUCT A MINIMUM TOTAL PAVEMENT THICKNESS OF 6 INCHES.

Indiana Utilities Protection Service
Call 811 before you dig

| No. | REVISIONS | DATE | BY |
|---|---|---|---|
| 1 | REVISIONS PER TAC COMMENTS | 02/22/24 | GMS |

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SCALE: AS NOTED
DESIGNED BY: JSM
DRAWN BY: GMS
CHECKED BY: BAH

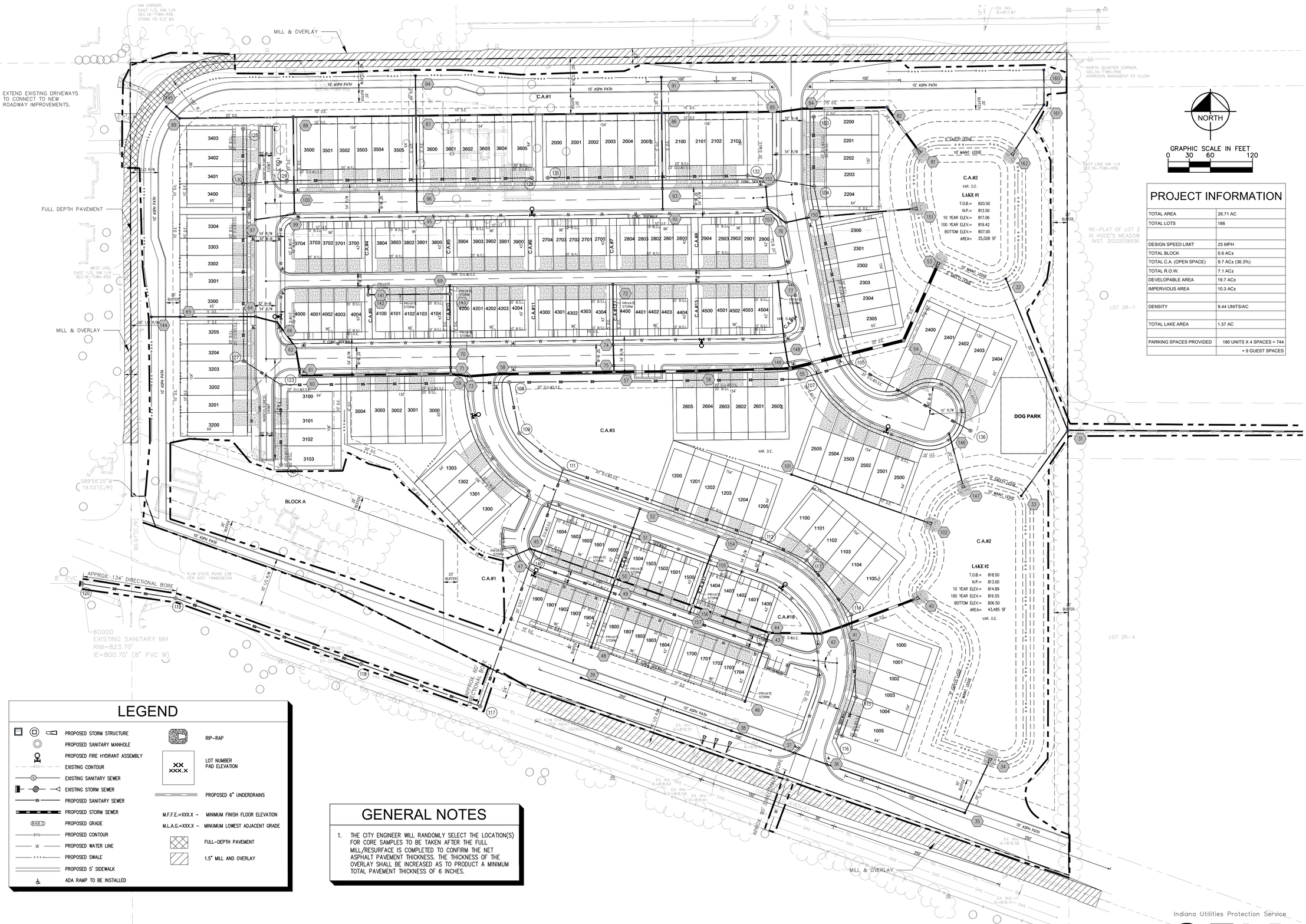
APPROVAL PENDING
NOT FOR
CONSTRUCTION

M/I HOMES

SITE DEVELOPMENT PLAN

TOWNES AT 238
PRELIMINARY
DEVELOPMENT PLAN

ORIGINAL ISSUE: 01/17/2024
KHA PROJECT NO. 170150023
SHEET NUMBER
C201




## PROJECT INFORMATION

| | |
|---|---|
| TOTAL AREA | 26.71 AC |
| TOTAL LOTS | 186 |
| | |
| DESIGN SPEED LIMIT | 25 MPH |
| TOTAL BLOCK | 0.6 AC± |
| TOTAL C.A. (OPEN SPACE) | 9.7 AC± (36.3%) |
| TOTAL R.O.W. | 7.1 AC± |
| DEVELOPABLE AREA | 19.7 AC± |
| IMPERVIOUS AREA | 10.3 AC± |
| | |
| DENSITY | 9.44 UNITS/AC |
| | |
| TOTAL LAKE AREA | 1.57 AC |
| | |
| PARKING SPACES PROVIDED | 186 UNITS X 4 SPACES = 744 |
| | + 9 GUEST SPACES |

## LEGEND

- PROPOSED STORM STRUCTURE
- PROPOSED SANITARY MANHOLE
- PROPOSED FIRE HYDRANT ASSEMBLY
- EXISTING CONTOUR
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- PROPOSED SANITARY SEWER
- PROPOSED STORM SEWER
- PROPOSED GRADE
- PROPOSED CONTOUR
- PROPOSED WATER LINE
- PROPOSED SWALE
- PROPOSED 5' SIDEWALK
- ADA RAMP TO BE INSTALLED
- RIP-RAP
- LOT NUMBER / PAD ELEVATION
- PROPOSED 6" UNDERDRAINS
- M.F.F.E.=XXX.X – MINIMUM FINISH FLOOR ELEVATION
- M.L.A.G.=XXX.X – MINUMUM LOWEST ADJACENT GRADE
- FULL-DEPTH PAVEMENT
- 1.5" MILL AND OVERLAY

## GENERAL NOTES

1. THE CITY ENGINEER WILL RANDOMLY SELECT THE LOCATION(S) FOR CORE SAMPLES TO BE TAKEN AFTER THE FULL MILL/RESURFACE IS COMPLETED TO CONFIRM THE NET ASPHALT PAVEMENT THICKNESS. THE THICKNESS OF THE OVERLAY SHALL BE INCREASED AS TO PRODUCT A MINIMUM TOTAL PAVEMENT THICKNESS OF 6 INCHES.

Indiana Utilities Protection Service
Call 811 before you dig

| No. | REVISIONS | DATE | BY |
|---|---|---|---|
| 1 | REVISIONS PER TAC COMMENTS | 02/22/24 | GMS |

SCALE: AS NOTED
DESIGNED BY: JSM
DRAWN BY: GMS
CHECKED BY: BAH

Kimley»Horn
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INDIANAPOLIS, IN 46240
PHONE: (317) 218-9560
EMAIL: Brett.Huff@kimley-horn.com
WWW.KIMLEY-HORN.COM

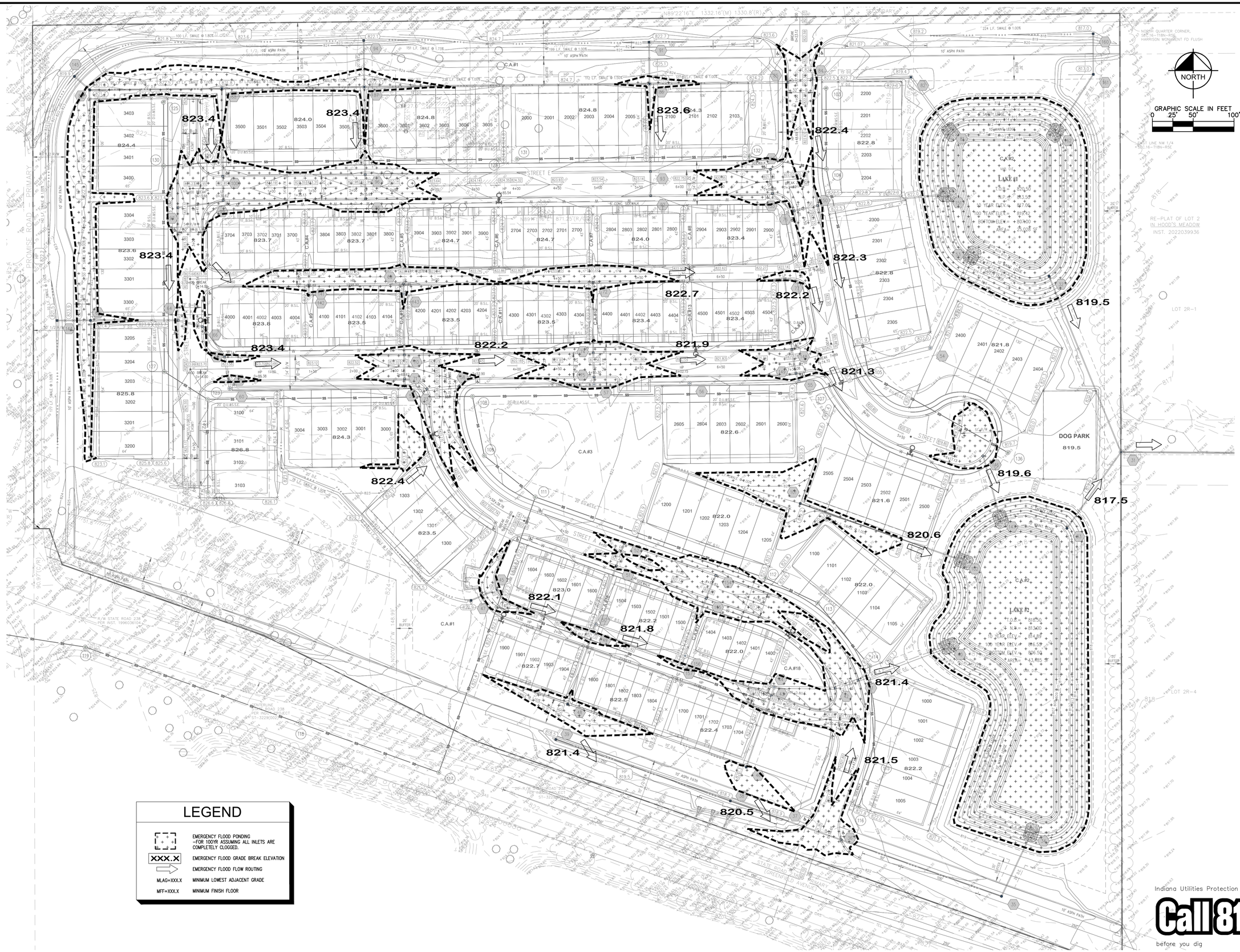
APPROVAL PENDING
NOT FOR CONSTRUCTION

M/I HOMES

# OVERALL SITE PLAN

# TOWNES AT 238 PRELIMINARY DEVELOPMENT PLAN

ORIGINAL ISSUE: 01/17/2024
KHA PROJECT NO. 170150023
SHEET NUMBER
C202




## LEGEND

| | |
|---|---|
| | EMERGENCY FLOOD PONDING –FOR 100YR ASSUMING ALL INLETS ARE COMPLETELY CLOGGED. |
| XXX.X | EMERGENCY FLOOD GRADE BREAK ELEVATION |
| | EMERGENCY FLOOD FLOW ROUTING |
| MLAG=XXX.X | MINIMUM LOWEST ADJACENT GRADE |
| MFF=XXX.X | MINIMUM FINISH FLOOR |

Indiana Utilities Protection Service
Call 811 before you dig

| No. | REVISIONS | DATE | BY |
|---|---|---|---|
| 1 | REVISIONS PER TAC COMMENTS | 02/22/24 | GMS |

SCALE: AS NOTED
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Kimley»Horn

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INDIANAPOLIS, IN 46240
PHONE: 317.218.9560
EMAIL: Brett.Huff@kimley-horn.com
WWW.KIMLEY-HORN.COM

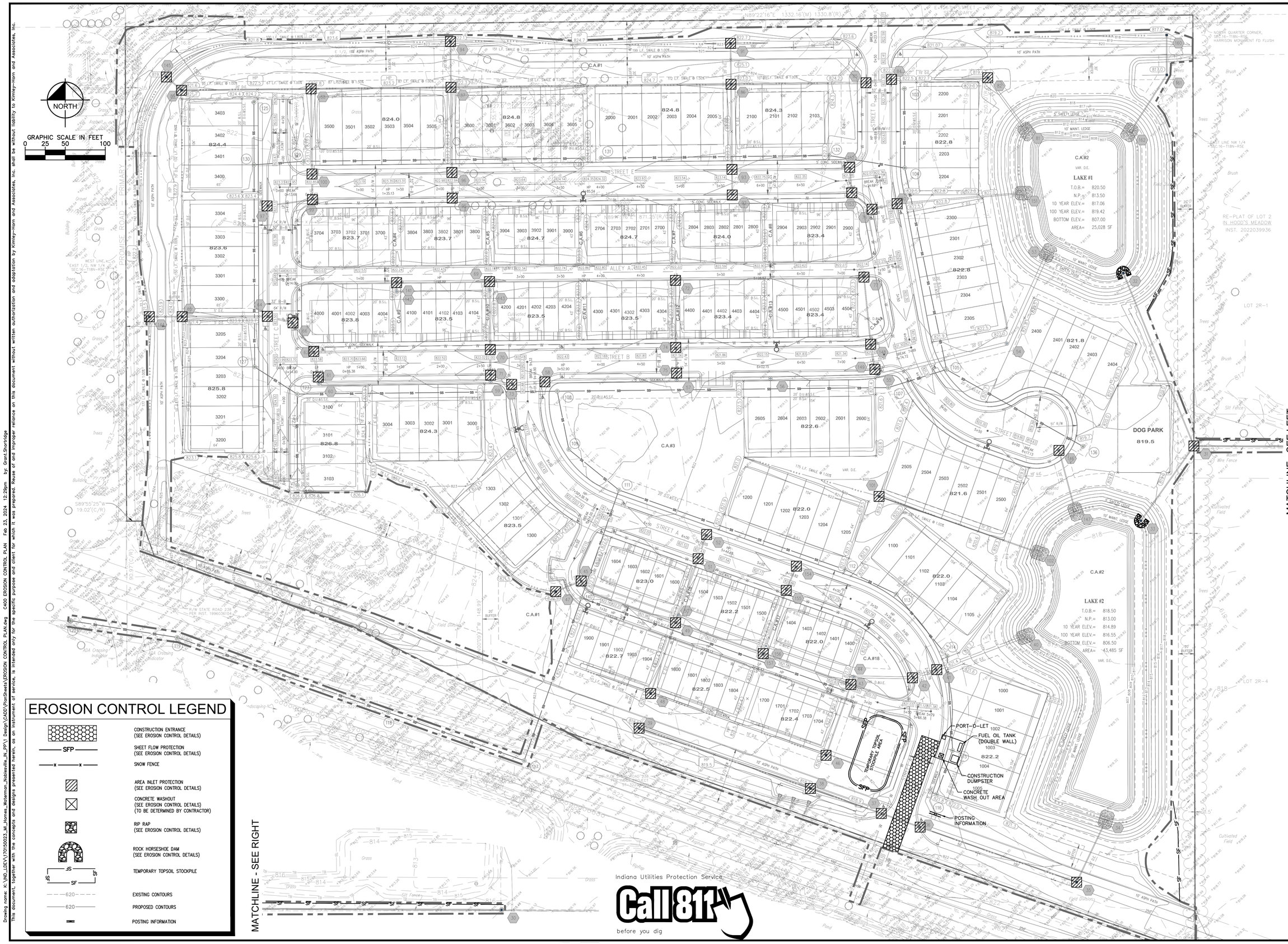
APPROVAL PENDING
NOT FOR CONSTRUCTION

M/I HOMES

# EMERGENCY FLOOD ROUTING

# TOWNES AT 238 PRELIMINARY DEVELOPMENT PLAN

ORIGINAL ISSUE: 01/17/2024
KHA PROJECT NO. 170150023
SHEET NUMBER
C300




## EROSION CONTROL LEGEND

| | |
|---|---|
| | CONSTRUCTION ENTRANCE (SEE EROSION CONTROL DETAILS) |
| SFP | SHEET FLOW PROTECTION (SEE EROSION CONTROL DETAILS) |
| x x | SNOW FENCE |
| | AREA INLET PROTECTION (SEE EROSION CONTROL DETAILS) |
| | CONCRETE WASHOUT (SEE EROSION CONTROL DETAILS) (TO BE DETERMINED BY CONTRACTOR) |
| | RIP RAP (SEE EROSION CONTROL DETAILS) |
| | ROCK HORSESHOE DAM (SEE EROSION CONTROL DETAILS) |
| JS SF SF SF | TEMPORARY TOPSOIL STOCKPILE |
| 620 | EXISTING CONTOURS |
| 620 | PROPOSED CONTOURS |
| | POSTING INFORMATION |

| No. | REVISIONS | DATE | BY |
|---|---|---|---|
| 1 | REVISIONS PER TAC COMMENTS | 02/22/24 | GMS |

Kimley»Horn



INDIANAPOLIS, IN 46240
PHONE: 317-218-9560
CONTACT: BRETT HUFF
EMAIL: Brett.Huff@kimley-horn.com
WWW.KIMLEY-HORN.COM

SCALE: AS NOTED
DESIGNED BY: JSM
DRAWN BY: GMS
CHECKED BY: BAH

APPROVAL PENDING
NOT FOR CONSTRUCTION

M/I HOMES

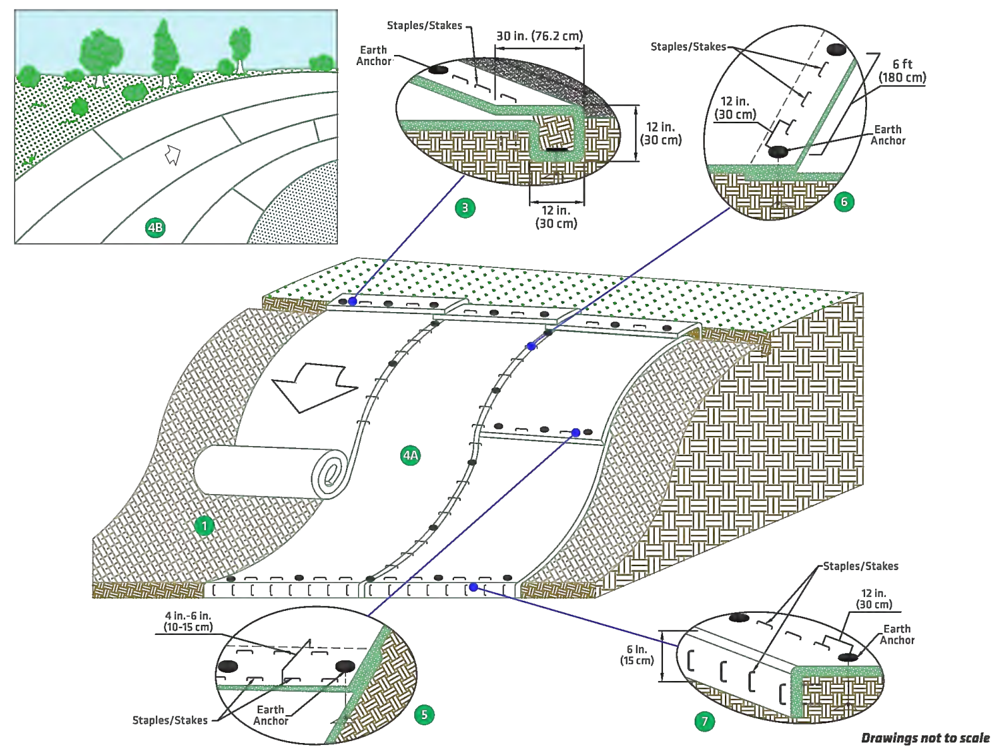
# EROSION CONTROL PLAN

# TOWNES AT 238 PRELIMINARY DEVELOPMENT PLAN

ORIGINAL ISSUE: 01/17/2024
KHA PROJECT NO. 170150023
SHEET NUMBER
C400

## Slope and Levee Installation Detail

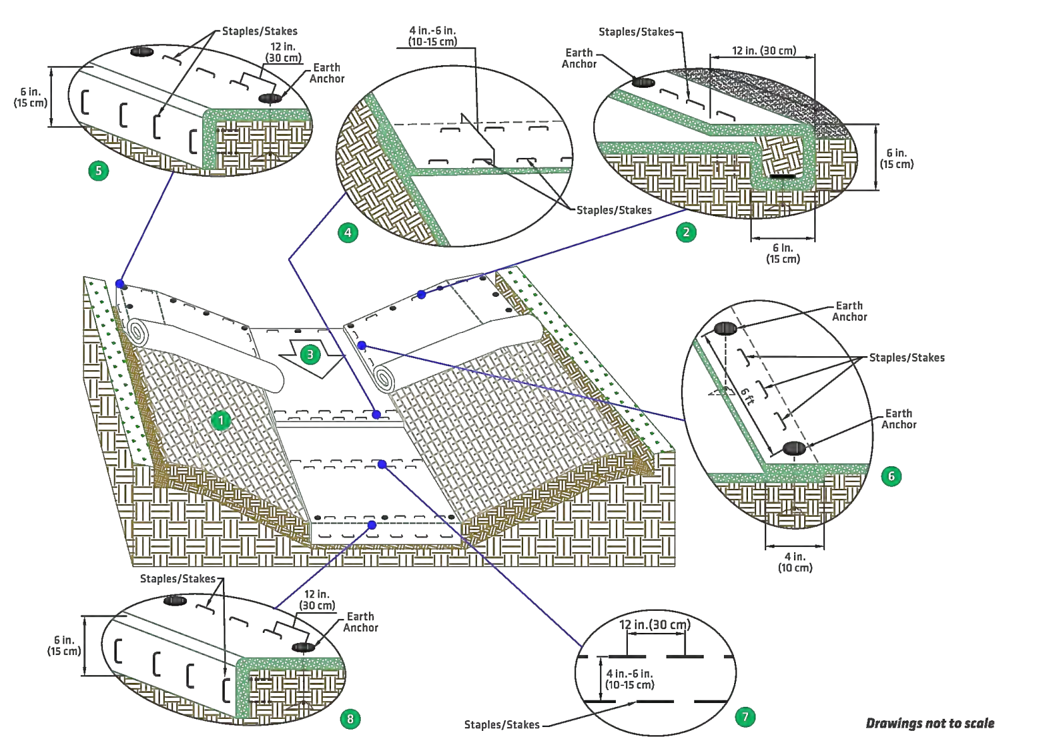
Choosing the right solution is half the battle against costly erosion. The other half is proper installation. North American Green® provides all of the tools and instructions you need for quick, effective installation on your site.



### GENERAL INSTALLATION

1. Prepare soil before installing the High-Performance Turf Reinforcement Mat (HPTRM), including any necessary application of soil amendments such as lime or fertilizer.
2. See Seeding and Vegetating section for details regarding preseeding, overseeding, or use with sod.
3. Begin at the top of the slope by anchoring the HPTRM in 12 in. (30 cm) deep x 12 in. (30 cm) wide trench with approximately 30 in. (76.2 cm) of HPTRM extended beyond the up-slope portion of the trench. Anchor the HPTRM with a row of anchors/staples approximately 12 in. (30 cm) apart in the bottom of the trench. Backfill and compact the trench after stapling. Compact soil and fold remaining 30 in. (76.2 cm) portion of HPTRM back over compacted soil. Secure HPTRM over soil with a row of staples/stakes spaced approximately 12 in. (30 cm) across the width of the HPTRMs.
4. Roll the HPTRM (4A) down or (4B) horizontally across the slope. HPTRM will unroll with appropriate side against the soil surface. All HPTRM must be securely fastened to soil surface by placing anchors/staples/stakes in appropriate locations as shown in the anchoring detail.
5. Place consecutive HPTRMs end over end (shingle style) with a 4 in.-6 in. (10 cm-15 cm) overlap. Staple/stake through overlapped area, approximately 12 in. (30 cm) apart across entire HPTRM width.
6. Adjacent HPTRMs must be overlapped approximately 4 in. (10 cm) and fastened using staples/stakes every 12 in. (30 cm) between earth anchors. For curved sections, adjust the overlap edges accordingly to accommodate transitional segments.
7. The terminal end of the HPTRM must be anchored with a row of staples/stakes approximately 12 in. (30 cm) apart in a 6 in. (15 cm) deep x 6 in. (15 cm) wide trench. Backfill and compact the trench after stapling.

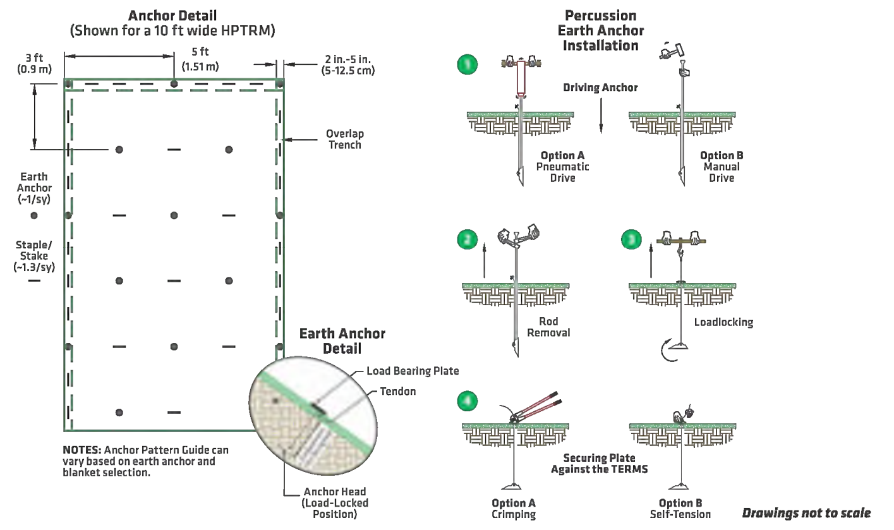
## Channel Installation Detail



### GENERAL INSTALLATION

1. Prepare soil before installing the HPTRM, including any necessary application of soil amendments such as lime or fertilizer. See seeding and vegetating section for details regarding preseeding, overseeding or use with sod.
2. Begin at the top of the channel by anchoring the HPTRM in a 6 in. (15 cm) deep x 6 in. (15 cm) wide trench with approximately 12 in. (30 cm) of HPTRM extended beyond the upslope portion of the trench. Anchor the HPTRM with a row of anchors/staples/stakes spaced approximately 12 in. (30 cm) apart in the bottom of the trench. Backfill and compact the trench after stapling. Compact soil and fold remaining 12 in.(30 cm) portion of HPTRM back over compacted soil. Secure HPTRM over soil with a row of anchors/staples/stakes spaced approximately 12 in. (30 cm) across the width of the HPTRM.
3. Roll center HPTRM in direction of water flow in bottom of channel. HPTRMs will unroll with appropriate side against the soil surface. All HPTRMs must be securely fastened to soil surface by placing anchors/staples/stakes in appropriate locations as shown in the anchoring detail.
4. Place consecutive HPTRMs end over end (shingle style) with a 4 in. x 6 in. (10 cm-15 cm) overlap. Use a double row of staples/stakes staggered 12 in. (30 cm) apart and 12 in. (30 cm) on center to secure HPTRMs.
5. Full length edge of HPTRMs at top of side slopes must be anchored with a row of staples/stakes approximately 12 in. (30 cm) apart in a 6 in. (15 cm) deep x 6 in. (15 cm) wide trench. Backfill and compact the trench after stapling.
6. Adjacent HPTRMs must be overlapped approximately 4 in. (10 cm) and fastened.
7. In high flow channel applications, a staple/stake check slot is recommended at 30 ft to 40 ft (9 m-12 m) intervals. Use a double row of staples/stakes staggered 4 in. (10 cm) apart and 12 in. (30 cm) on center over entire width of the channel.
8. The terminal end of the HPTRMs must be anchored with a row of staples/stakes approximately 12 in. (30 cm) apart in a 6 in. (15 cm) deep x 6 in. (15 cm) wide trench. Backfill and compact the trench after stapling.

## Anchoring Detail



NOTES: Anchor Pattern Guide can vary based on earth anchor and blanket selection.

### ANCHORING DETAIL

The performance of ground anchoring devices is highly dependent on numerous site/project specific variables. It is the sole responsibility of the project engineer and/or contractor to select the appropriate anchor type and length. Anchoring shall be selected to hold the mat in intimate contact with the soil subgrade and resist pullout in accordance with the project's design intent.

1. Staples and/or stakes should be at least 6 in. (15 cm) in length and with sufficient ground penetration to resist pullout. Longer staples and/or stakes may be needed in looser soils.
2. The percussion earth anchor assembly consists of an anchor head, a tendon, a faceplate, and an end-piece device. See North American Green® Earth Anchor specification for detailed information on assembly components and associated pull-out strength.

### PERCUSSION EARTH ANCHOR INSTALLATION

1. Insert the drive rod into the assembly's anchor head then use either a sledge hammer or vibratory hammer to drive the anchor to their desired depth.
2. After the desired anchor depth is achieved, retract the drive rod.
3. Lock the anchor assembly by swiftly pulling the cable upwards until the anchor head rotates as signaled by sudden resistance to pulling. A hooked setting tool may be used to aid in this step.

*NOTE: Larger anchors may require more force to set the anchor. This can be achieved through using simple mechanical equipment for greater leverage, such as a fulcrum, manual or hydraulic jack, winch, or post puller.*

4. Secure the faceplate to the High-performance Turf Reinforcement Mat (HPTRM) surface by locking the end-piece. If using a copper or aluminum stop, crimp the ferrule to secure. If using a self-tensioning end-piece (grip or wedge grip) set by simply tightening the end-piece against the faceplate. If desired, cut the remaining cable assembly, above end-piece, to desired length.

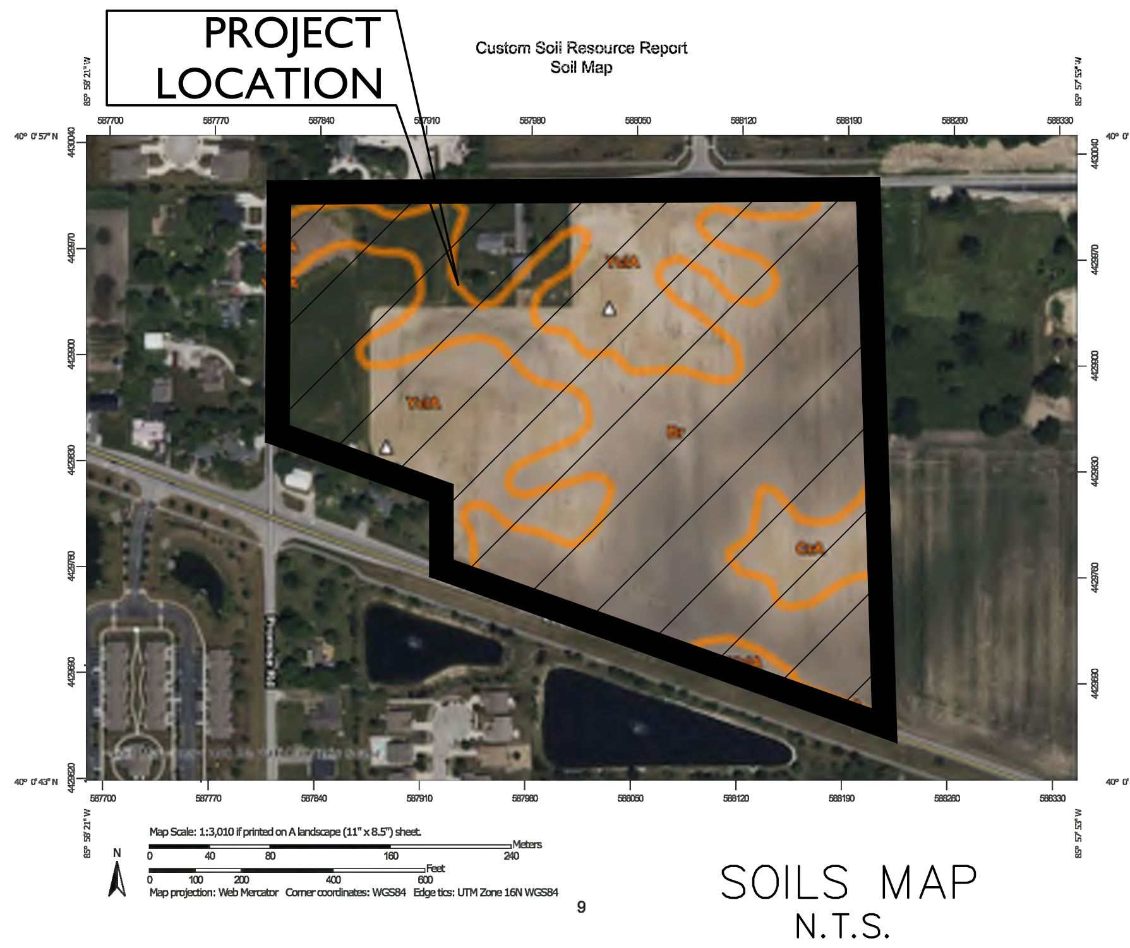
### SEEDING AND VEGETATING

**When using a Composite Turf Reinforcement Mat (C-TRM) with fiber components:**

1. Pre-seed prepared soils prior to the installation of the C-TRM. Install matting as directed. C-TRM does not require soil infill or a top dressing of seed. Overseeding may be done as a secondary form of seeding.
2. Sod may be installed in place of seeding on top of the C-TRM. Additional staking of sod is recommended in high-flow conditions. Sodded areas should be irrigated until rooting through the mat and into subgrade occurs.

**When using a woven HPTRM:**

1. Install the HPTRM as directed prior to seed and soil filling.
2. Place seed into the installed HPTRM. After seeding, spread a layer of fine soil into the mat. Using the flat side of a rake, broom or other tool, completely fill the voids. Smooth soil-fill in order to just expose the top of the HPTRM matrix. Do not place excessive soil above the mat.
3. Additional seed, hydraulic mulching of the use of a temporary Erosion Control Blanket (ECB) can be applied over the soil-filled mat for increased protection.
4. Sod may be installed in place of seeding. Install HPTRM, and soil-fill as outlined above. Place sod directly onto the soil-filled HPTRM. Additional staking of sod is recommended in high-flow conditions. Sodded areas should be irrigated until rooting through the mat and into subgrade occurs.
5. Consult with a manufacturer's technical representative for installation assistance if unique conditions apply.



## SOILS MAP

N.T.S.

| Map Unit Symbol | Map Unit Name | Acres in AOI | Percent of AOI |
|---|---|---|---|
| Br | Brookston silty clay loam, 0 to 2 percent slopes | 14.4 | 54.5% |
| CrA | Crosby silt loam, fine-loamy subsoil, 0 to 2 percent slopes | 1.2 | 4.6% |
| YbvA | Brookston silty clay loam-Urban land complex, 0 to 2 percent slopes | 0.1 | 0.3% |
| YclA | Crosby silt loam, fine-loamy subsoil-Urban land complex, 0 to 2 percent slopes | 10.7 | 40.6% |
| **Totals for Area of Interest** | | **26.4** | **100.0%** |

### 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.

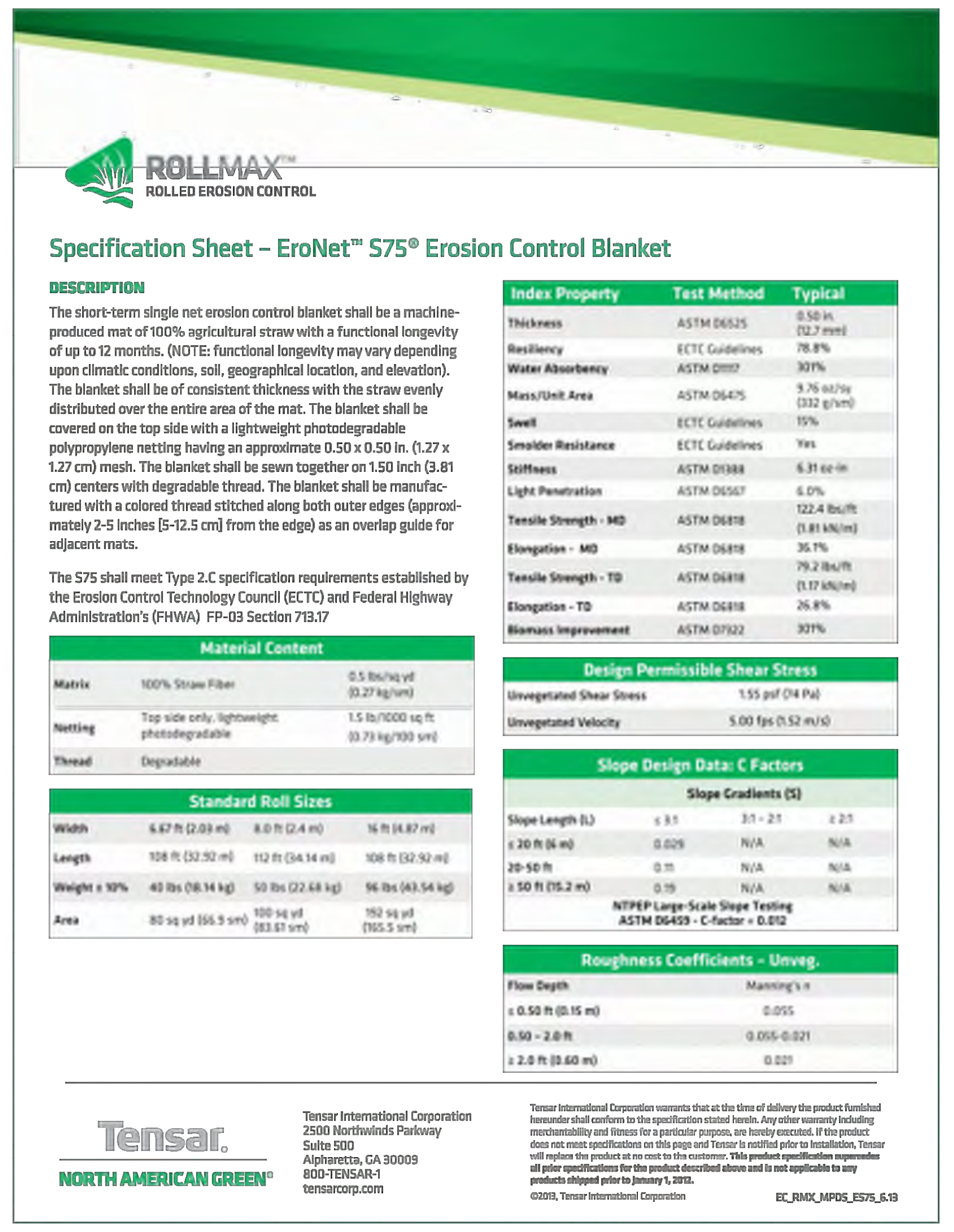
This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Hamilton County, Indiana
Survey Area Data: Version 24, 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.



ROLLMAX™
ROLLED EROSION CONTROL

## Specification Sheet – EroNet™ S75® Erosion Control Blanket

**DESCRIPTION**

The short-term single net erosion control blanket shall be a machine-produced mat of 100% agricultural straw with a functional longevity of up to 12 months. (NOTE: functional longevity may vary depending upon climatic conditions, soil, geographical location, and elevation). The blanket shall be of consistent thickness with the straw evenly distributed over the entire area of the mat. The blanket shall be covered on the top side with a lightweight photodegradable polypropylene netting having an approximate 0.50 x 0.50 in. (1.27 x 1.27 cm) mesh. The blanket shall be sewn together on 1.50 inch (3.81 cm) centers with degradable thread. The blanket shall be manufactured with a colored thread stitched along both outer edges (approximately 2-5 inches [5-12.5 cm] from the edge) as an overlap guide for adjacent mats.

The S75 shall meet Type 2.C specification requirements established by the Erosion Control Technology Council (ECTC) and Federal Highway Administration's (FHWA) FP-03 Section 713.17

| Material Content | | |
|---|---|---|
| Matrix | 100% Straw Fiber | 0.5 lbs/sq yd (0.27 kg/sm) |
| Netting | Top side only, lightweight photodegradable | 1.5 lb/1000 sq ft (0.73 kg/100 sm) |
| Thread | Degradable | |

| Standard Roll Sizes | | | |
|---|---|---|---|
| Width | 6.67 ft (2.03 m) | 8.0 ft (2.4 m) | 16 ft (4.87 m) |
| Length | 108 ft (32.92 m) | 112 ft (34.14 m) | 108 ft (32.92 m) |
| Weight ± 10% | 40 lbs (18.14 kg) | 50 lbs (22.68 kg) | 96 lbs (43.54 kg) |
| Area | 80 sq yd (66.9 sm) | 100 sq yd (83.61 sm) | 192 sq yd (160.5 sm) |

| Index Property | Test Method | Typical |
|---|---|---|
| Thickness | ASTM D6525 | 0.50 in. (12.7 mm) |
| Resiliency | ECTC Guidelines | 78.8% |
| Water Absorbency | ASTM D1117 | 301% |
| Mass/Unit Area | ASTM D6475 | 9.76 oz/sy (332 g/sm) |
| Swell | ECTC Guidelines | 15% |
| Smolder Resistance | ECTC Guidelines | Yes |
| Stiffness | ASTM D1388 | 6.31 oz-in |
| Light Penetration | ASTM D6567 | 6.0% |
| Tensile Strength - MD | ASTM D6818 | 122.4 lbs/ft (1.81 kN/m) |
| Elongation - MD | ASTM D6818 | 36.1% |
| Tensile Strength - TD | ASTM D6818 | 79.2 lbs/ft (1.17 kN/m) |
| Elongation - TD | ASTM D6818 | 26.8% |
| Biomass Improvement | ASTM D7322 | 301% |

| Design Permissible Shear Stress | |
|---|---|
| Unvegetated Shear Stress | 1.55 psf (74 Pa) |
| Unvegetated Velocity | 5.00 fps (1.52 m/s) |

| Slope Design Data: C Factors | | | |
|---|---|---|---|
| | Slope Gradients (S) | | |
| Slope Length (L) | ≤ 3:1 | 3:1 - 2:1 | ≥ 2:1 |
| ≤ 20 ft (6 m) | 0.029 | N/A | N/A |
| 20-50 ft | 0.11 | N/A | N/A |
| ≥ 50 ft (15.2 m) | 0.19 | N/A | N/A |

NTPEP Large-Scale Slope Testing
ASTM D6459 - C-factor = 0.012

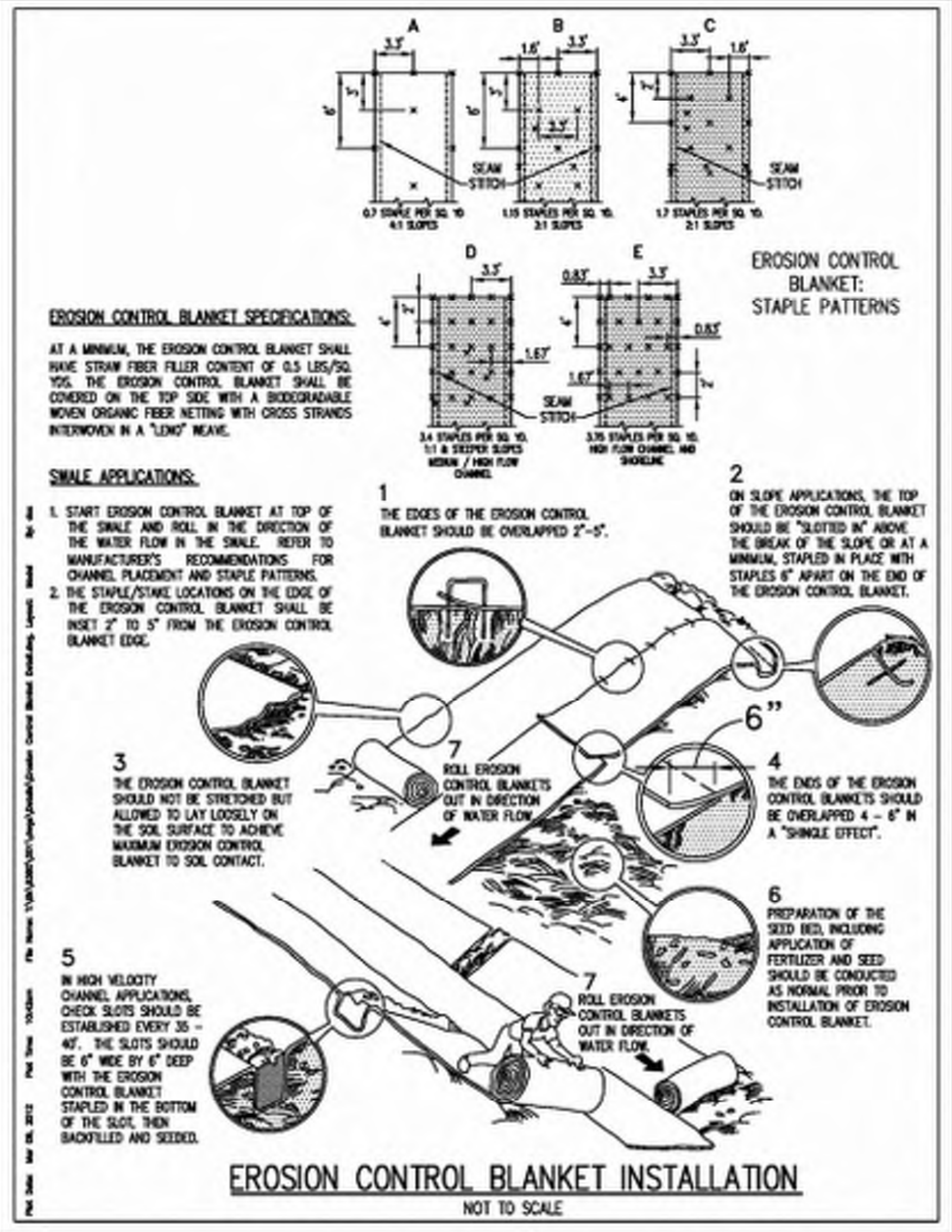
| Roughness Coefficients – Unveg. | |
|---|---|
| Flow Depth | Manning's n |
| ≤ 0.50 ft (0.15 m) | 0.055 |
| 0.50 - 2.0 ft | 0.055-0.021 |
| ≥ 2.0 ft (0.60 m) | 0.021 |

Tensar.
NORTH AMERICAN GREEN®

Tensar International Corporation
2500 Northwinds Parkway
Suite 500
Alpharetta, GA 30009
800-TENSAR-1
tensarcorp.com

Tensar International Corporation warrants that at the time of delivery the product furnished hereunder shall conform to the specification stated herein. Any other warranty including merchantability and fitness for a particular purpose, are hereby executed. If the product does not meet specifications on this page and Tensar is notified prior to installation, Tensar will replace the product at no cost to the customer. This product specification supersedes all prior specifications for the product described above and is not applicable to any products shipped prior to January 1, 2012.

EC_RMX_MPDS_ES75_6.13



EROSION CONTROL BLANKET: STAPLE PATTERNS

EROSION CONTROL BLANKET SPECIFICATIONS:

AT A MINIMUM, THE EROSION CONTROL BLANKET SHALL HAVE STRAW FIBER FILLER CONTENT OF 0.5 LBS/SQ. YDS. THE EROSION CONTROL BLANKET SHALL BE COVERED ON THE TOP SIDE WITH A BIODEGRADABLE WOVEN ORGANIC FIBER NETTING WITH CROSS STRANDS INTERWOVEN IN A "LENO" WEAVE.

SWALE APPLICATIONS:

1. START EROSION CONTROL BLANKET AT TOP OF THE SWALE AND ROLL IN THE DIRECTION OF THE WATER FLOW IN THE SWALE. REFER TO MANUFACTURER'S RECOMMENDATIONS FOR CHANNEL PLACEMENT AND STAPLE PATTERNS.
2. THE STAPLE/STAKE LOCATIONS ON THE EDGE OF THE EROSION CONTROL BLANKET SHALL BE INSET 2" TO 5" FROM THE EROSION CONTROL BLANKET EDGE.

1 THE EDGES OF THE EROSION CONTROL BLANKET SHOULD BE OVERLAPPED 2"-5".

2 ON SLOPE APPLICATIONS, THE TOP OF THE EROSION CONTROL BLANKET SHOULD BE "SLOTTED IN" ABOVE THE BREAK OF THE SLOPE OR AT A MINIMUM, STAPLED IN PLACE WITH STAPLES 6" APART ON THE END OF THE EROSION CONTROL BLANKET.

3 THE EROSION CONTROL BLANKET SHOULD NOT BE STRETCHED BUT ALLOWED TO LAY LOOSELY ON THE SOIL SURFACE TO ACHIEVE MAXIMUM EROSION CONTROL BLANKET TO SOIL CONTACT.

4 THE ENDS OF THE EROSION CONTROL BLANKETS SHOULD BE OVERLAPPED 4 – 6" IN A "SHINGLE EFFECT".

5 IN HIGH VELOCITY CHANNEL APPLICATIONS, CHECK SLOTS SHOULD BE ESTABLISHED EVERY 35 – 40'. THE SLOTS SHOULD BE 6" WIDE BY 6" DEEP WITH THE EROSION CONTROL BLANKET STAPLED IN THE BOTTOM OF THE SLOT, THEN BACKFILLED AND SEEDED.

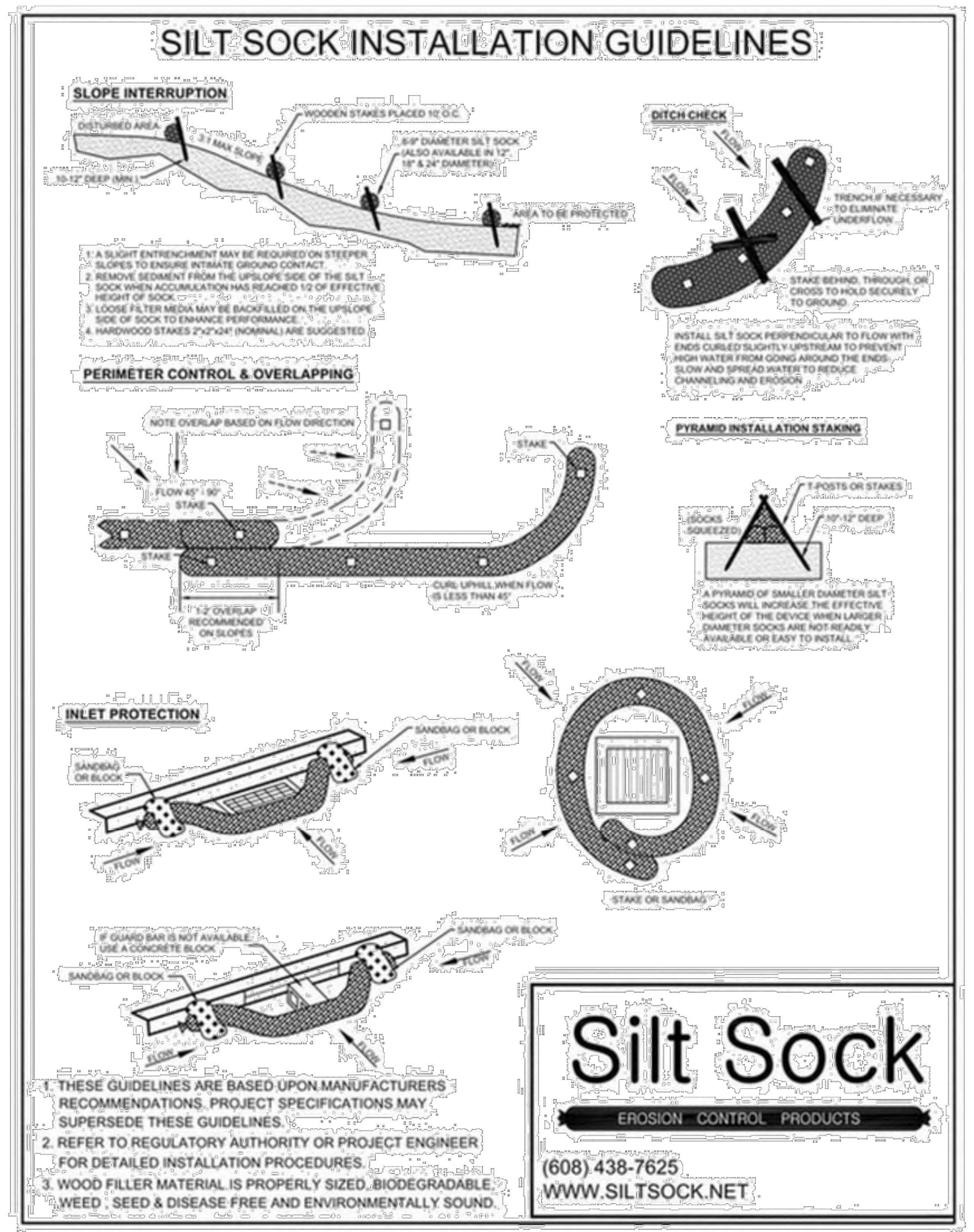
6 PREPARATION OF THE SEED BED, INCLUDING APPLICATION OF FERTILIZER AND SEED SHOULD BE CONDUCTED AS NORMAL PRIOR TO INSTALLATION OF EROSION CONTROL BLANKET.

7 ROLL EROSION CONTROL BLANKETS OUT IN DIRECTION OF WATER FLOW.

## EROSION CONTROL BLANKET INSTALLATION

NOT TO SCALE

## SILT SOCK INSTALLATION GUIDELINES



1. A SLIGHT ENTRENCHMENT MAY BE REQUIRED ON STEEPER SLOPES TO ENSURE INTIMATE GROUND CONTACT.
2. REMOVE SEDIMENT FROM THE UPSLOPE SIDE OF THE SILT SOCK WHEN ACCUMULATION HAS REACHED 1/2 OF EFFECTIVE HEIGHT OF SOCK.
3. LOOSE FILTER MEDIA MAY BE BACKFILLED ON THE UPSLOPE SIDE OF SOCK TO ENHANCE PERFORMANCE.
4. HARDWOOD STAKES 2"x2"x24" (NOMINAL) ARE SUGGESTED.

INSTALL SILT SOCK PERPENDICULAR TO FLOW WITH ENDS CURLED SLIGHTLY UPSTREAM TO PREVENT HIGH WATER FROM GOING AROUND THE ENDS. SLOW AND SPREAD WATER TO REDUCE CHANNELING AND EROSION.

A PYRAMID OF SMALLER DIAMETER SILT SOCKS WILL INCREASE THE EFFECTIVE HEIGHT OF THE DEVICE WHEN LARGER DIAMETER SOCKS ARE NOT READILY AVAILABLE OR EASY TO INSTALL.

1. THESE GUIDELINES ARE BASED UPON MANUFACTURERS RECOMMENDATIONS. PROJECT SPECIFICATIONS MAY SUPERSEDE THESE GUIDELINES.
2. REFER TO REGULATORY AUTHORITY OR PROJECT ENGINEER FOR DETAILED INSTALLATION PROCEDURES.
3. WOOD FILLER MATERIAL IS PROPERLY SIZED, BIODEGRADABLE, WEED, SEED & DISEASE FREE AND ENVIRONMENTALLY SOUND.

Silt Sock
EROSION CONTROL PRODUCTS
(608) 438-7625
WWW.SILTSOCK.NET

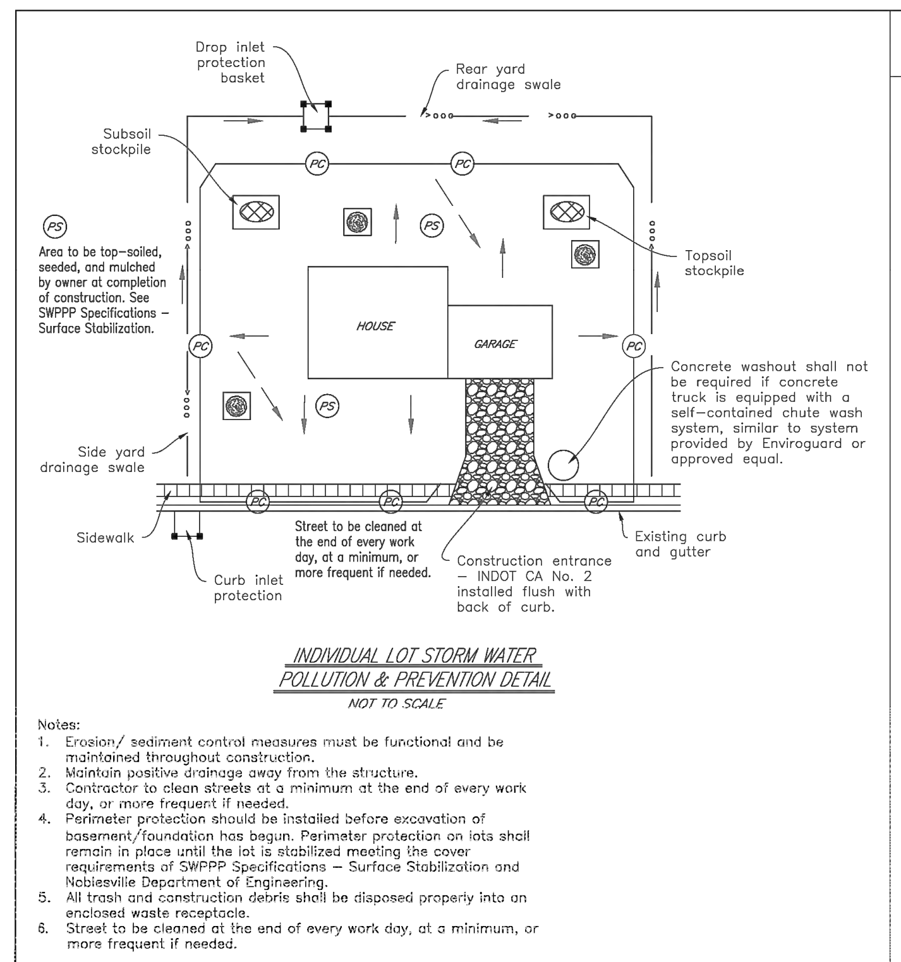
### *GENERAL SWPPP NOTES FOR INDIVIDUAL LOTS*

1. All storm water quality measures, including erosion and sediment control, necessary to comply with the requirements for 327 IAC 15–5, Rule 5 and/or general construction practices and/or City of Noblesville Improvement Location Permit must be implemented in accordance with the plan and sufficient to satisfy Section 600 of the City of Noblesville Stormwater Technical Standards (STSM).
2. Provisions for erosion and sediment control on individual building lots regulated under the original permit of a project site owner must include the following requirements:
   - 2.1. The individual lot operator, whether owning the property or acting as the agent of the property owner, shall be responsible for erosion and sediment control requirements associated with activities on individual lots.
   - 2.2. Installation and maintenance of a stable construction site access.
   - 2.3. Installation and maintenance of appropriate perimeter erosion and sediment control measures prior to land disturbance.
   - 2.4. Sediment discharge and tracking from each lot must be minimized throughout the land disturbing activities on the lot until permanent stabilization has been achieved.
   - 2.5. Clean–up of sediment must be redistributed or disposed of in a manner that is in compliance with all applicable statutes and rules.
   - 2.6. Adjacent lots disturbed by and individual lot operator must be repaired and stabilized with temporary or permanent surface stabilization.
3. In accordance with Chapter 600 of the Noblesville STSM, final stabilization of an individual lot project site is achieved when:
   - 3.1. All land disturbing activities have been completed
   - 3.2. The establishment, at a uniform density of seventy percent (70%) across the disturbed area, of vegetative cover or permanent non–erosive material that will ensure the resistance of the soil to erosion, sliding, or other movement.

### *CONSTRUCTION SEQUENCE FOR INDIVIDUAL LOTS*

Construction sequence on individual lots should be as follows:

1. Clearly delineate areas of trees, shrubs, and vegetation that are to be undisturbed. To prevent root damage, the areas delineated for tree protection should be at least the same diameter as the crown.
2. Install perimeter silt fence at construction limits. Position the fence to intercept runoff prior to entering drainage swales.
3. Avoid disturbing drainage swales if vegetation is established. If drainage swales are bare, install erosion control blankets or sod to immediately stabilize.
4. Install drop inlet protection for all inlets on the property.
5. Install curb inlet protection, on both sides of the road, for all inlets along the property frontage and along the frontage of adjacent lots, or install temporary catch basin inserts in each inlet and frequently clean.
6. Install gravel construction entrance flush with the back of existing curb, extending from the street to the building pad.
7. Perform primary grading operations.
8. Contain erosion from any soil stockpiles created on–site with silt fence around the base.
9. Establish temporary seeding and straw mulch on disturbed areas.
10. Construct the home and install utilities.
11. Install downspout extenders once the roof and gutters have been constructed. Extenders should outlet to a stabilized area.
12. Re–seed any areas disturbed by construction and utilities installation with temporary seed mix within 3 days of completion of disturbance.
13. Grade the site to final elevations. Add topsoil as needed to minimize erosion of underlying soil and to quickly establish grass.
14. Install permanent seeding or sod.



(PS) Area to be top–soiled, seeded, and mulched by owner at completion of construction. See SWPPP Specifications – Surface Stabilization.

Concrete washout shall not be required if concrete truck is equipped with a self–contained chute wash system, similar to system provided by Enviroguard or approved equal.

Street to be cleaned at the end of every work day, at a minimum, or more frequent if needed.

Construction entrance – INDOT CA No. 2 installed flush with back of curb.

### *INDIVIDUAL LOT STORM WATER POLLUTION & PREVENTION DETAIL*

*NOT TO SCALE*

Notes:

1. Erosion/ sediment control measures must be functional and be maintained throughout construction.
2. Maintain positive drainage away from the structure.
3. Contractor to clean streets at a minimum at the end of every work day, or more frequent if needed.
4. Perimeter protection should be installed before excavation of basement/foundation has begun. Perimeter protection on lots shall remain in place until the lot is stabilized meeting the cover requirements of SWPPP Specifications – Surface Stabilization and Noblesville Department of Engineering.
5. All trash and construction debris shall be disposed properly into an enclosed waste receptacle.
6. Street to be cleaned at the end of every work day, at a minimum, or more frequent if needed.

EROSION CONTROL PLAN LEGEND

| | |
|---|---|
| — | PROPERTY LINE/ DRAINAGE SWALE |
| — — ▶ | EXISTING DRAINAGE |
| ——▶ | FINISHED DRAINAGE |
| ▨ | TREE CONSERVATION WITH FENCING AT DRIP LINE |
| (PC) | PERIMETER CONTROLS |
| ▨ | TEMPORARY CONSTRUCTION INGRESS/EGRESS PAD |
| ☐ | BASKET INLET PROTECTION (COMBINATION INLET FILTER FOR CURB HOODS) |
| ☐ | BASKET INLET PROTECTION (ROUND OR RECTANGULAR INLET FILTER) |
| ⊠ | TOPSOIL / SUBSOIL STOCKPILE |
| (PS) | PERMANENT SEEDING / SOD |

THE CITY OF NOBLESVILLE
EST. 1823

ALISON M. KRUPSKI
REGISTERED
NO. 11100334
STATE OF INDIANA
PROFESSIONAL ENGINEER

Alison M. Krupski 7/8/2021

CITY OF NOBLESVILLE
SWPPP Details

SHEET 26 OF 29

| No. | REVISIONS | DATE | BY |
|---|---|---|---|
| 1 | REVISIONS PER TAC COMMENTS | 02/22/24 | GMS |

SCALE: AS NOTED
DESIGNED BY: JSM
DRAWN BY: GMS
CHECKED BY: BAH

Kimley»Horn

500 EAST 96TH STREET, SUITE 300,
INDIANAPOLIS, IN 46240
CONTACT: BRETT HUFF
PHONE: 317–912–4129
EMAIL: Brett.Huff@kimley–horn.com
WWW.KIMLEY–HORN.COM

APPROVAL PENDING
NOT FOR
CONSTRUCTION

M/I HOMES

EROSION
CONTROL
DETAILS

TOWNES AT 238
PRELIMINARY
DEVELOPMENT PLAN

ORIGINAL ISSUE:
01/17/2024

KHA PROJECT NO.
170150023

SHEET NUMBER
C403

## TEMPORARY CURB & PAVED AREA INLET PROTECTION

### Insert (Basket) Curb Inlet Protection

***Insert (basket) curb inlet protection** is a temporary sediment control measure consisting of a metal frame or basket that is used to support a geotextile fabric. The system is installed under the storm sewer grate.*

#### Purpose

To minimize sediment from entering the storm sewer system while allowing runoff to enter the storm sewer system in the event of excessive storm events. This measure traps sediment associated with small storm events below the grade of the paved area. This measure does not place an obstruction in the street to trap sediment and is especially conducive to stages of construction when the public has access to the project site.

Note: **This measure should be used in conjunction with other sediment control measures.**

#### Specifications

#### Contributing Drainage Area:

One-quarter acre maximum.

#### Capacity

Runoff from a two-year frequency, 24-hour storm event entering a storm drain without bypass flow.



## INSERT (BASKET) CURB INLET PROTECTION

#### Location

- At curb inlets on paved roads and parking lots.
- Down grade from construction activities (e.g., individual home sites).

#### Materials

- Metal frame or basket with a top width and length such that the frame fits into the inlet. (The frame is supported by the structural integrity of the storm sewer.)
- The metal frame or geotextile should be designed with a bypass to allow storm water to flow into the storm sewer system during excessive storm events.
- The system should be designed for ease of maintenance.
- Geotextile fabric.

Table 1. Geotextile Fabric Specifications

| Physical Property | Woven | Non-Woven |
|---|---|---|
| Filtering Efficiency | 85% | 85% |
| UV Resistance (Inhibitors and stabilizers to ensure six month minimum life at temperatures of 0° F to 120° F) | 70% | 85% |
| Tensile Strength at 20% Elongation: | | |
| Standard Strength | 30 lbs./linear inch | 50 lbs./linear inch |
| Extra Strength | 50 lbs./linear inch | 70 lbs./linear inch |
| Slurry Flow Rate | 0.3 gal./min./sq. ft. | 4.5 gal./min./sq. ft. |
| Water Flow Rate | 15 gal./min./sq. ft. | 220 gal./min./sq. ft. |

#### Installation

1. Remove the storm sewer grate and place the frame into the grate opening.
2. Place geotextile fabric into the frame and secure according to the manufacturer's recommendations.
3. Replace the storm sewer grate.



## INSERT (BASKET) CURB INLET PROTECTION

#### Maintenance

- Inspect daily.
- Remove accumulated sediment and debris after each storm event. Deposit sediment in an area where it will not re-enter the paved area or storm drains.
- Replace or clean geotextile fabric as needed.
- When the contributing drainage area has been stabilized, remove inlet protection.



NOTE: "NO CURED/RUBBLE CONCRETE ALLOWED"

## SITE MANAGEMENT MEASURES

### Concrete Washout


***Concrete washout** areas are designated locations within a construction site that are either a prefabricated unit or a designed measure that is constructed to contain concrete washout. Concrete washout systems are typically used to contain washout water when chutes and hoppers are rinsed following delivery.*

#### Purpose

Concrete washout systems are implemented to reduce the discharge of pollutants that are associated with concrete washout waste through consolidation of solids and retention of liquids. Uncured concrete and associated liquids are highly alkaline which may leach into the soil and contaminate ground water or discharge to a waterbody or wetland which can elevate the pH and be harmful to aquatic life. Performing concrete washout in designated areas and into specifically designed systems reduces the impact concrete washout will have on the environment.

#### Specifications

#### Site Management

- Complete construction/installation of the system and have washout locations operational prior to concrete delivery.
- Do not wash out concrete trucks or equipment into storm drains, wetlands, streams, rivers, creeks, ditches, or streets.
- Never wash out into a storm sewer drainage system. These systems are typically connected to a natural conveyance system.
- Where necessary, provide stable ingress and egress (see **Temporary Construction Ingress/Egress Pad** on page 17).
- It is recommended that washout systems be restricted to washing concrete from mixer and pump trucks and not used to dispose of excess concrete or



## CONCRETE WASHOUT

residual loads due to potential to exceed the design capacity of the washout system. Small amounts of excess or residual concrete (not washout water) may be disposed of in areas that will not result in flow to an area that is to be protected.

- Install systems at strategic locations that are convenient and in close proximity to work areas and in sufficient number to accommodate the demand for disposal.
- Install signage identifying the location of concrete washout systems.

#### Location

- Locate concrete washout systems at least 50 feet from any creeks, wetlands, ditches, karst features, or storm drains/manmade conveyance systems.
- To the extent practical, locate concrete washout systems in relatively flat areas that have established vegetative cover and do not receive runoff from adjacent land areas.
- Locate in areas that provide easy access for concrete trucks and other construction equipment.
- Locate away from other construction traffic to reduce the potential for damage to the system.

#### General Design Considerations

- The structure or system shall be designed to contain the anticipated washout water associated with construction activities.
- The system shall be designed, to the extent practical, to eliminate runoff from entering the washout system.
- Runoff from a rainstorm or snowmelt should not carry wastes away from the washout location.
- Washout will not impact future land uses (i.e., open spaces, landscaped areas, home sites, parks).
- Washout systems/containment measures may also be utilized on smaller individual building sites. The design and size of the system can be adjusted to accommodate the expected capacity.

#### Prefabricated Washout Systems/Containers

- Self-contained sturdy containment systems that are delivered to a site and located at strategic locations for concrete disposal.



## CONCRETE WASHOUT

- These systems are manufactured to resist damage from construction equipment and protect against leaks or spills.
- Manufacturer or supplier provides the containers. The project site manager maintains the system or the supplier provides complete service that includes maintenance and disposal.
- Units are often available with or without ramps. Units with ramps lend themselves to accommodate pump trucks.
- Maintain according to the manufacturer's recommendations.

#### Designed and Installed Units

These units are designed and installed on site. They tend to be less reliable than prefabricated systems and are often prone to failure. Concrete washout systems can be constructed above or below grade. It is not uncommon to have a system that is partly below grade with an additional containment structure above grade.

- Washout systems shall utilize a pit or bermed area designed and maintained at a capacity to contain all liquid and concrete waste generated by washout operations.
- The volume of the system must also be designed to contain runoff that drains to the system and rainfall that enters the system for a two-year frequency, 24-hour storm event.
  - **Below Grade System**
    - A washout system installed below grade should be a minimum of ten feet wide by ten feet long, but sized to contain all liquid and waste that is expected to be generated between scheduled cleanout periods. The size of the pit may be limited by the size of polyethylene available. The polyethylene lining should be of adequate size to extend over the entire excavation.
    - Include a minimum 12-inch freeboard to reasonably ensure that the structure will not overtop during a rain event.
    - Line the pit with ten millimeter polyethylene lining to control seepage.
    - The bottom of excavated pit should be above the seasonal high water table.
  - **Above Grade System**
    - A system designed and built above grade should be a minimum of ten feet wide by ten feet long, but sized to contain all liquid and waste that is expected to be generated between scheduled cleanout periods. The size of the containment system may be limited by the size of



## CONCRETE WASHOUT

polyethylene available. The polyethylene lining should be of adequate size to extend over the berm or containment system.
    - The system design may utilize an earthen berm, straw bales, sandbags, or other acceptable barriers that will maintain its shape and integrity and support the polyethylene lining.
    - Include a minimum four-inch freeboard as part of the design.

#### Washout Procedures

- Do not leave excess mud in the chutes or hopper after the pour. Every effort should be made to empty the chutes and hopper at the pour. The less material left in the chutes and hopper, the quicker and easier the cleanout. Small amounts of excess concrete (not washout water) may be disposed of in areas that will not result in flow to an area that is to be protected.
- At the washout location, scrape as much material from the chutes as possible before washing them. Use non-water cleaning methods to minimize the chance for waste to flow off site.
- Remove as much mud as possible when washing out.
- Stop washing out in an area if you observe water running off the designated area or if the containment system is leaking or overflowing and ineffective.
- Do not back flush equipment at the project site. Back flushing should be restricted to the plant as it generates large volumes of waste that more than likely will exceed the capacity of most washout systems. If an emergency arises, back flush should only be performed with the permission of an on-site manager for the project.
- Do not use additives with wash water. Do not use solvents or acids that may be used at the target plant.

#### Materials

- Minimum of ten millimeter polyethylene sheeting that is free of holes, tears, and other defects. The sheeting selected should be of an appropriate size to fit the washout system without seams or overlap of the lining **(designed and installed systems)**.
- Signage.
- Orange safety fencing or equivalent.
- Straw bales, sandbags (bags should be ultraviolet-stabilized geotextile fabric), soil material, or other appropriate materials that can be used to construct a containment system **(above grade systems)**.



## CONCRETE WASHOUT

- Metal pins or staples at a minimum of six inches in length, sandbags, or alternative fastener to secure polyethylene lining to the containment system.
- Non-collapsing and non-water holding cover for use during rain events (optional).

#### Installation

#### Prefabricated Washout Systems/Containers

- Install and locate according to the manufacturer's recommendations.

#### Designed and Installed Systems

- Utilize and follow the design in the storm water pollution prevention plan to install the system.
- Dependent upon the type of system, either excavate the pit or install the containment system.
- A base shall be constructed and prepared that is free of rocks and other debris that may cause tears or punctures in the polyethylene lining.
- Install the polyethylene lining. For excavated systems, the lining should extend over the entire excavation. The lining for bermed systems should be installed over the pooling area with enough material to extend the lining over the berm or containment system. The lining should be secured with pins, staples, or other fasteners.
- Place flags, safety fencing, or equivalent to provide a barrier to construction equipment and other traffic.
- Place a non-collapsing, non-water holding cover over the washout facility prior to a predicted rainfall event to prevent accumulation of water and possible overflow of the system (optional).
- Install signage that identifies concrete washout areas.
- Post signs directing contractors and suppliers to designated locations.
- Where necessary, provide stable ingress and egress (see **Temporary Construction Ingress/Egress Pad** on page 17) or alternative approach pad for concrete washout systems.

SIGNAGE TO STATE : "NO CURED/RUBBLE CONCRETE ALLOWED"



## CONCRETE WASHOUT

#### Maintenance

- Inspect daily and after each storm event.
- Inspect the integrity of the overall structure including, where applicable, the containment system.
- Inspect the system for leaks, spills, and tracking of soil by equipment.
- Inspect the polyethylene lining for failure, including tears and punctures.
- Once concrete wastes harden, remove and dispose of the material.
- Excess concrete should be removed when the washout system reaches 50 percent of the design capacity. Use of the system should be discontinued until appropriate measures can be initiated to clean the structure. Prefabricated systems should also utilize this criterion, unless the manufacturer has alternate specifications.
- Upon removal of the solids, inspect the structure. Repair the structure as needed or construct a new system.
- Dispose of all concrete in a legal manner. Reuse the material on site, recycle, or haul the material to an approved construction/demolition landfill site. Recycling of material is encouraged. The waste material can be used for multiple applications including but not limited to roadbeds and building. The availability for recycling should be checked locally.
- The plastic liner should be replaced after every cleaning; the removal of material will usually damage the lining.
- The concrete washout system should be repaired or enlarged as necessary to maintain capacity for concrete waste.
- Concrete washout systems are designed to promote evaporation. However, if the liquids do not evaporate and the system is near capacity it may be necessary to vacuum or remove the liquids and dispose of them in an acceptable method. Disposal may be allowed at the local sanitary sewer authority provided their National Pollutant Discharge Elimination System permits allow for acceptance of this material. Another option would be to utilize a secondary containment system or basin for further dewatering.
- Prefabricated units are often pumped and the company supplying the unit provides this service.
- Inspect construction activities on a regular basis to ensure suppliers, contractors, and others are utilizing designated washout areas. If concrete waste is being disposed of improperly, identify the violators and take appropriate action.



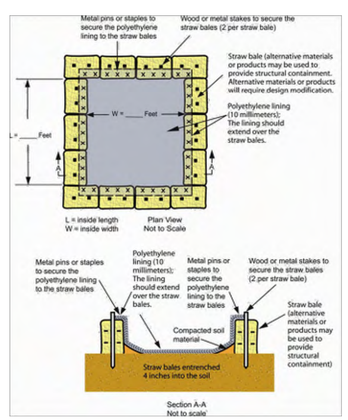
## CONCRETE WASHOUT

- When concrete washout systems are no longer required, the concrete washout systems shall be closed. Dispose of all hardened concrete and other materials used to construct the system.
- Holes, depressions and other land disturbances associated with the system should be backfilled, graded, and stabilized.

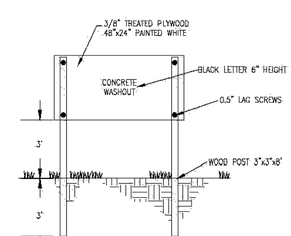


## CONCRETE WASHOUT

Concrete Washout (Above Grade System) Worksheet






CONCRETE WASHOUT SIGN

| No. | REVISIONS | DATE | BY |
|---|---|---|---|
| 1 | REVISIONS PER TAC COMMENTS | 02/22/24 | GMS |



Kimley»Horn
500 EAST 96TH STREET, SUITE 300,
INDIANAPOLIS, IN 46240
PHONE: 317-218-9560
FAX: 317-843-1479
EMAIL: Brett.Huff@kimley-horn.com
WWW.KIMLEY-HORN.COM

SCALE: AS NOTED
DESIGNED BY: JSM
DRAWN BY: GMS
CHECKED BY: BAH

APPROVAL PENDING
NOT FOR CONSTRUCTION

M/I HOMES

EROSION CONTROL DETAILS

TOWNES AT 238 PRELIMINARY DEVELOPMENT PLAN

ORIGINAL ISSUE: 01/17/2024
KHA PROJECT NO. 170150023
SHEET NUMBER
C404

## SITE ACCESS & PREPARATION

### Temporary Construction Ingress/Egress Pad (Large Sites—Two Acres or Larger)

*A **temporary construction ingress/egress pad** is a sediment control measure consisting of a stabilized aggregate pad with geotextile underlayment that is used at any point where construction traffic will be traversing between a large construction site and adjoining public right-of-way, street, alley, sidewalk, or parking areas.*

#### Purpose

To provide ingress/egress to a construction site and minimize tracking of mud and sediment onto public roadways.

#### Specifications

##### Location

- Avoid locating on steep slopes or at curves in public roads.

##### Dimensions

- Width – 20 feet minimum or full width of entrance/exit roadway, whichever is greater.
- Length – 150 feet minimum (length can be shorter for small sites).
- Thickness – eight inches minimum.

##### Washing Facility (optional)

- Level area with three inch, or larger, washed aggregate or install a commercial wash rack.
- Divert waste water to a sediment trap or basin.



## TEMPORARY CONSTRUCTION INGRESS/EGRESS PAD (LARGE SITES—TWO ACRES OR LARGER)

#### Materials

- One to two and one-half inch diameter washed aggregate [Indiana Department of Transportation Course Aggregate No. 2 (see Appendix D)].
- One-half to one and one-half inch diameter washed aggregate [INDOT CA No. 53 (see Appendix D)].
- Geotextile fabric underlayment (see Appendix C) (used as a separation layer to prevent intermixing of aggregate and the underlying soil material and to provide greater bearing strength when encountering wet conditions or soils with a seasonal high water table limitation).

#### Installation

1. Remove all vegetation and other objectionable material from the foundation area.
2. Grade foundation and crown for positive drainage. If the slope of the construction entrance is toward a public road and exceeds two percent, construct an eight inch high diversion ridge with a ratio of 3-to-1 side slopes across the foundation area about 15 feet from the entrance to divert runoff away from the road (see Temporary Construction Ingress/Egress Pad Cross-Section View Worksheet).
3. Install a culvert pipe under the pad if needed to maintain proper public road drainage.
4. If wet conditions are anticipated, place geotextile fabric on the graded foundation to improve stability.
5. Place aggregate (INDOT CA No. 2) to the dimensions and grade shown in the construction plans, leaving the surface smooth and sloped for drainage.
6. Top-dress the first 50 feet adjacent to the public roadway with two to three inches of washed aggregate (INDOT CA No. 53) [optional, used primarily where the purpose of the pad is to keep soil from adhering to vehicle tires].
7. Where possible, divert all storm water runoff and drainage from the ingress/egress pad to a sediment trap or basin.

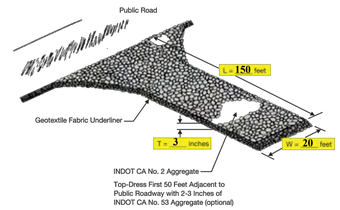
#### Maintenance

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



## TEMPORARY CONSTRUCTION INGRESS/EGRESS PAD (LARGE SITES—TWO ACRES OR LARGER)

Temporary Construction Ingress/Egress Pad
Plan View Worksheet
(large sites—two acres or larger)




L = Ingress/Egress Pad Length
W = Ingress/Egress Pad Width
T = Aggregate Thickness

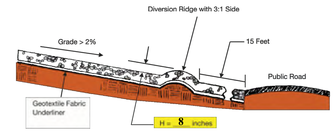
(Note: For minimum dimensions, see the "Specifications" section of this measure.)

Source: Adapted from North Carolina Erosion and Sediment Control Planning and Design Manual, 1993



## TEMPORARY CONSTRUCTION INGRESS/EGRESS PAD (LARGE SITES—TWO ACRES OR LARGER)

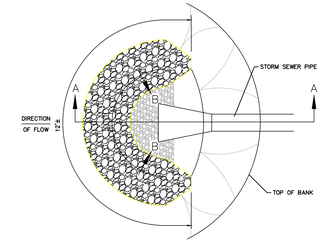
Temporary Construction Ingress/Egress Pad
Cross-Section View Worksheet
(large sites two acres or larger)



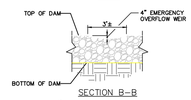

H = Height of Diversion Ridge
(*Note: 8 inches minimum*)

Source: Adapted from North Carolina Erosion and Sediment Control Planning and Design Manual, 1993

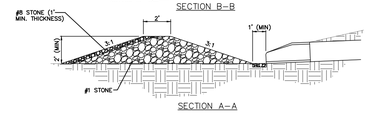





PLAN




SECTION B–B




SECTION A–A

MAINTENANCE:

1. INSPECT THE STRUCTURE AFTER EACH STORM EVENT, REMOVING SEDIMENT AND MAKING NEEDED REPAIRS IMMEDIATELY.
2. WHEN THE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED, REMOVE AND PROPERLY DISPOSE OF ANY UNSTABLE SEDIMENT AND CONSTRUCTION MATERIAL, AND RE-STABILIZE.

ROCK HORSESHOE DETAIL
NOT TO SCALE

## SEDIMENT BARRIERS & FILTERS

### Silt Fence

*A **silt fence** is a temporary barrier of entrenched geotextile fabric stretched across and attached to supporting posts and installed on the contour to intercept and treat sediment-laden storm water runoff from small, unvegetated drainage areas.*

#### Purpose

To trap sediment from small, disturbed areas by reducing the velocity of sheet flow. Silt fences capture sediment by ponding water to allow deposition, not by filtration.

Note: **Silt fence is not recommended for use as a diversion and should not be used across a stream, channel, ditch, swale, or anywhere that concentrated flow is anticipated.**

#### Specifications

##### Drainage Area

- Limited to one-quarter acre per 100 linear feet of fence.
- Further restricted by slope steepness (see Table 1).

##### Effective Life

Six months (maximum).

##### Location

- Installed parallel to the slope contour.
- Minimum of 10 feet beyond the toe of the slope to provide a broad, shallow sediment pool.
- Accessible for maintenance (removal of sediment and silt fence repair).



## SILT FENCE

#### Spacing

Table 1. Slope Steepness Restrictions

| Percent Slope | | Maximum Distance |
|---|---|---|
| < 2% | < 50:1 | 100 feet |
| 2% – 5% | 50:1 to 20:1 | 75 feet |
| 5% – 10%[1] | 20:1 to 10:1 | 50 feet |
| 10% – 20%[1] | 10:1 to 5:1 | 25 feet |
| > 20%[1] | > 5:1 | 15 feet |

[1] Consider other alternatives.

Note: Multiple rows of silt fence are not recommended on the same slope.

#### Trench

- Depth – eight inches minimum.
- Width – four inches minimum.
- After installing fence, backfill with soil material and compact (to bury and anchor the lower portion of the fence fabric).

Note: **An alternative to trenching is to use mechanical equipment to plow in the silt fence.**

#### Materials and Silt Fence Specifications

- Fabric – woven or non-woven geotextile fabric meeting specified minimums outlined in Table 2.



## SILT FENCE

Table 2. Geotextile Fabric Specifications for Silt Fence (minimum)

| Physical Property | Woven Geotextile Fabric | Non-Woven Geotextile Fabric |
|---|---|---|
| Filtering efficiency | 85% | 85% |
| Textile strength at 20% elongation<br>Standard strength<br>Extra strength | <br>30 lbs. per linear inch<br>50 lbs. per linear inch | <br>50 lbs. per linear inch<br>70 lbs. per linear inch |
| Slurry flow rate | 0.3 gal./min./square feet | 4.5 gal./min./square feet |
| Water flow rate | 15 gal./min./square feet | 220 gal./min./square feet |
| UV resistance | 70% | 85% |
| Post spacing | 7 feet | 5 feet |

Note: Silt fences can be purchased commercially.

- Height – a minimum of 18 inches above ground level (30 inches maximum).
- Reinforcement – fabric securely fastened to posts with wood lathe.
- Support Posts
  - 2 x 2 inch hardwood posts. Steel fence posts may be substituted for hardwood posts (steel posts should have projections for fastening fabric).
  - Spacing
    - Eight feet maximum if fence is supported by wire mesh fencing.
    - Six feet maximum for extra-strength fabric without wire backing.

#### Installation

Prefabricated silt fence (see Exhibits 1, 2, and 3)

1. Lay out the location of the fence so that it is parallel to the contour of the slope and at least 10 feet beyond the toe of the slope to provide a sediment storage area. Turn the ends of the fence up slope such that the point of contact between the ground and the bottom of the fence end terminates at a higher elevation than the top of the fence at its lowest point (see Exhibit 1).
2. Excavate an eight-inch deep by four-inch wide trench along the entire length of the fence line (see Exhibit 2). Installation by plowing is also acceptable.
3. Install the silt fence with the filter fabric located on the up-slope side of the excavated trench and the support posts on the down-slope side of the trench.



## SILT FENCE

4. Drive the support posts at least 18 inches into the ground, tightly stretching the fabric between the posts as each is driven into the soil. A minimum of 12 inches of the filter fabric should extend into the trench. (If it is necessary to join the ends of two fences, use the wrap joint method shown in Exhibit 3.)
5. Lay the lower four inches of filter fabric on the bottom of the trench and extend it toward the up-slope side of the trench.
6. Backfill the trench with soil material and compact it in place.

   Note: **If the silt fence is being constructed on-site, attach the filter fabric to the support posts (refer to Tables 1 and 2 for spacing and geotextile specifications) and attach wooden lathe to secure the fabric to the posts. Allow for at least 12 inches of fabric below ground level. Complete the silt fence installation, following steps 1 through 6 above.**

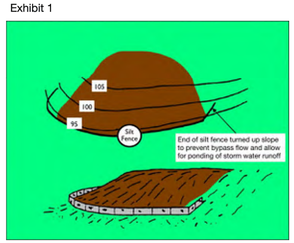
#### Maintenance

- Inspect within 24 hours of a rain event and at least once every seven calendar days.
- If fence fabric tears, starts to decompose, or in any way becomes ineffective, replace the affected portion immediately. Note: **All repairs should meet specifications as outlined within this measure.**
- 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 contributing drainage area has been stabilized, remove the fence and sediment deposits, grade the site to blend with the surrounding area, and stabilize.



## SILT FENCE

Exhibit 1

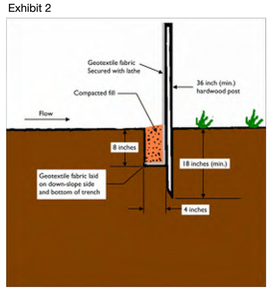



Source: Adapted from Commonwealth of Pennsylvania Erosion and Sediment Pollution Control Manual, 1990



## SILT FENCE

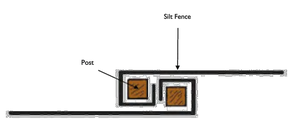
Exhibit 2






## SILT FENCE

Exhibit 3








| No. | REVISIONS | DATE | BY |
|---|---|---|---|
| 1 | REVISIONS PER TAC COMMENTS | 02/22/24 | GMS |

SCALE: AS NOTED
DESIGNED BY: JSM
DRAWN BY: GMS
CHECKED BY: BAH

Kimley»Horn
© 2024 KIMLEY-HORN AND ASSOCIATES, INC.
500 EAST 96TH STREET, SUITE 300,
INDIANAPOLIS, IN 46240
PHONE: 317-218-9560
CONTACT: BRETT HUFF
EMAIL: Brett.Huff@kimley-horn.com
WWW.KIMLEY-HORN.COM

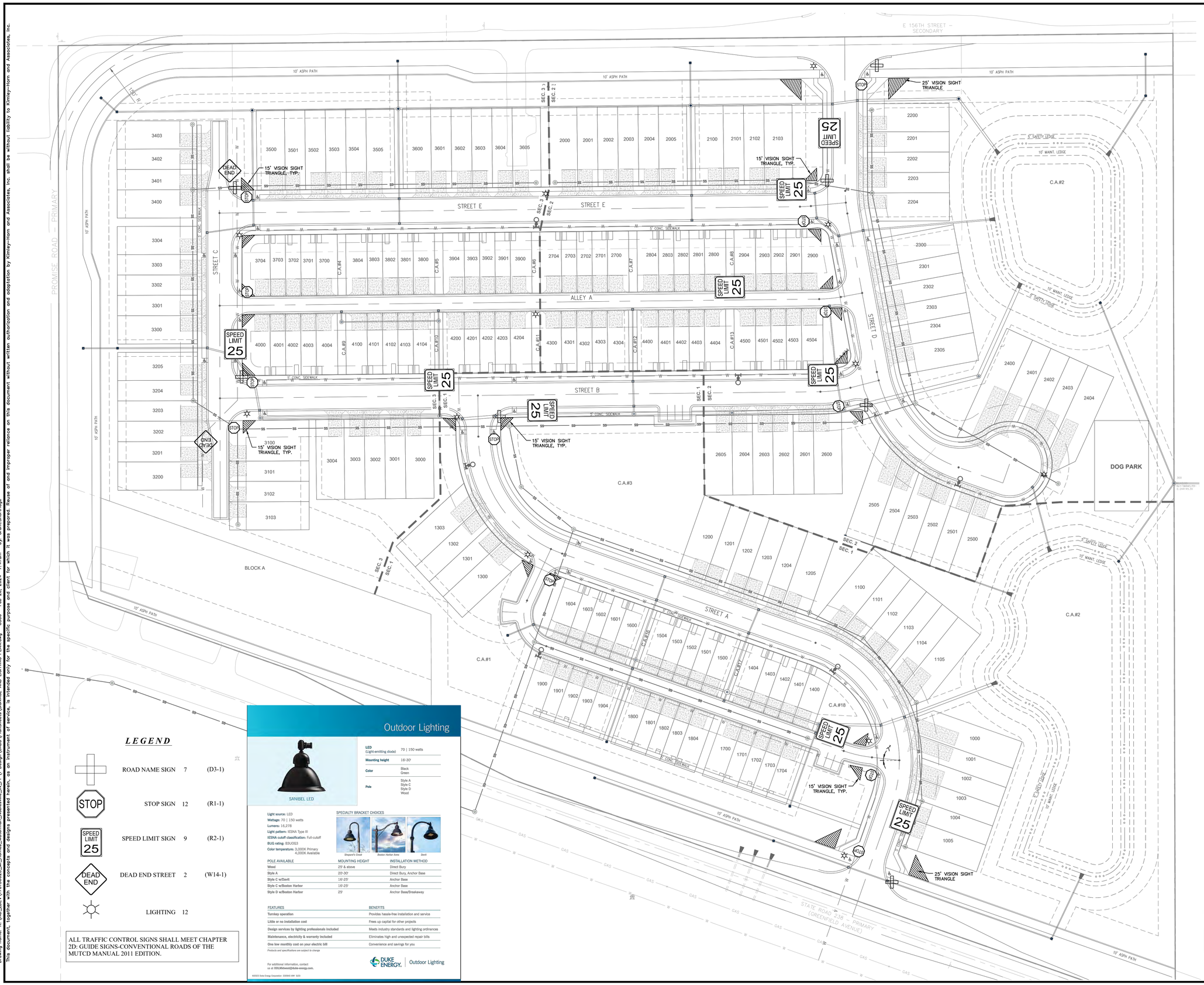
APPROVAL PENDING
NOT FOR CONSTRUCTION

M/I HOMES

Erosion Control Details - C405

TOWNES AT 238
PRELIMINARY DEVELOPMENT PLAN

ORIGINAL ISSUE: 01/17/2024
KHA PROJECT NO. 170150023
SHEET NUMBER
24




## LEGEND

| | | |
|---|---|---|
| ROAD NAME SIGN | 7 | (D3-1) |
| STOP SIGN | 12 | (R1-1) |
| SPEED LIMIT SIGN | 9 | (R2-1) |
| DEAD END STREET | 2 | (W14-1) |
| LIGHTING | 12 | |

ALL TRAFFIC CONTROL SIGNS SHALL MEET CHAPTER 2D: GUIDE SIGNS-CONVENTIONAL ROADS OF THE MUTCD MANUAL 2011 EDITION.

## Outdoor Lighting




**LED** (Light-emitting diode): 70 | 150 watts
**Mounting height**: 16'-30'
**Color**: Black, Green
**Pole**: Style A, Style C, Style D, Wood

**Light source:** LED
**Wattage:** 70 | 150 watts
**Lumens:** 16,278
**Light pattern:** IESNA Type III
**IESNA cutoff classification:** Full-cutoff
**BUG rating:** B3UO3
**Color temperature:** 3,000K Primary, 4,000K Available

SPECIALTY BRACKET CHOICES




| POLE AVAILABLE | MOUNTING HEIGHT | INSTALLATION METHOD |
|---|---|---|
| Wood | 25' & above | Direct Bury |
| Style A | 20'-30' | Direct Bury, Anchor Base |
| Style C w/Davit | 16'-25' | Anchor Base |
| Style C w/Boston Harbor | 16'-25' | Anchor Base |
| Style D w/Boston Harbor | 25' | Anchor Base/Breakaway |

| FEATURES | BENEFITS |
|---|---|
| Turnkey operation | Provides hassle-free installation and service |
| Little or no installation cost | Frees up capital for other projects |
| Design services by lighting professionals included | Meets industry standards and lighting ordinances |
| Maintenance, electricity & warranty included | Eliminates high and unexpected repair bills |
| One low monthly cost on your electric bill | Convenience and savings for you |

*Products and specifications are subject to change*

For additional information, contact us at OOLMidwest@duke-energy.com.

DUKE ENERGY. | Outdoor Lighting



Indiana Utilities Protection Service
Call 811 before you dig

| No. | REVISIONS | DATE | BY |
|---|---|---|---|
| 1 | REVISIONS PER TAC COMMENTS | 02/22/24 | GMS |

Kimley»Horn

500 EAST 96TH STREET, SUITE 300,
INDIANAPOLIS, IN 46240
PHONE: 317-218-9560
CONTACT: Brett Huffman
EMAIL: Brett.Huffman@kimley-horn.com
WWW.KIMLEY-HORN.COM

SCALE: AS NOTED
DESIGNED BY: JSM
DRAWN BY: GMS
CHECKED BY: BAH

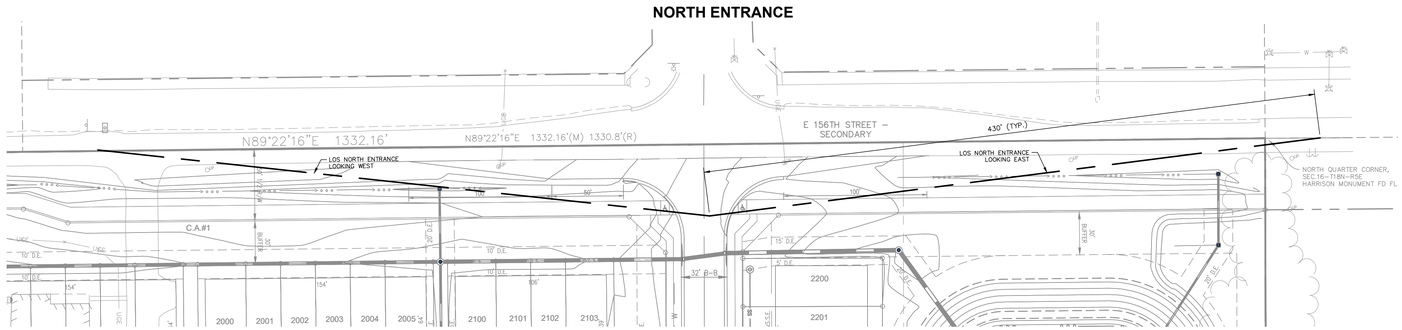
APPROVAL PENDING
NOT FOR
CONSTRUCTION

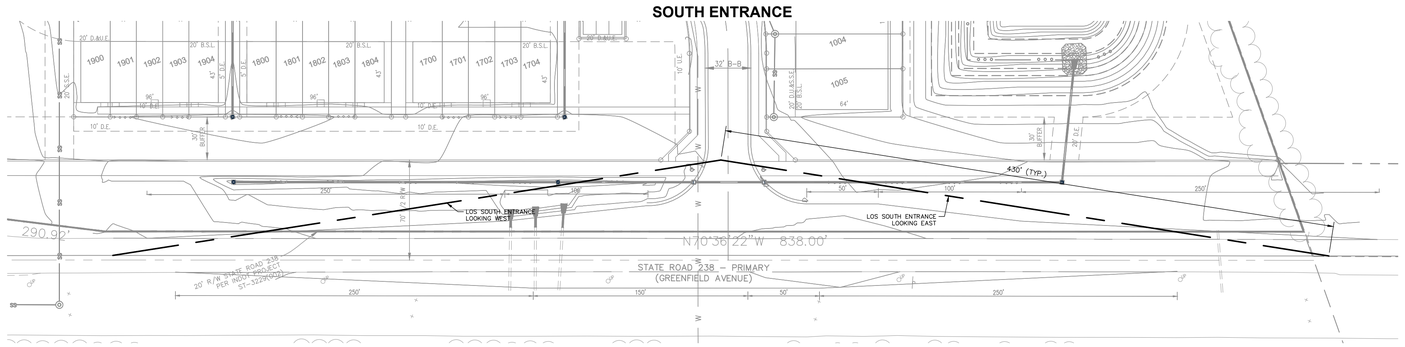
M/I HOMES

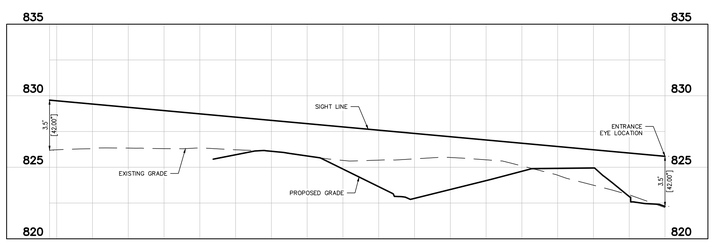
# SIGNAGE AND LIGHTING PLAN

# TOWNES AT 238 PRELIMINARY DEVELOPMENT PLAN

ORIGINAL ISSUE: 01/17/2024
KHA PROJECT NO. 170150023
SHEET NUMBER
C500

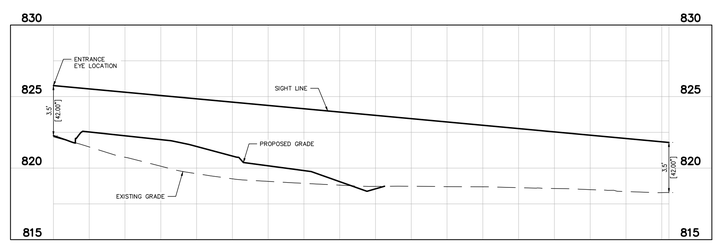


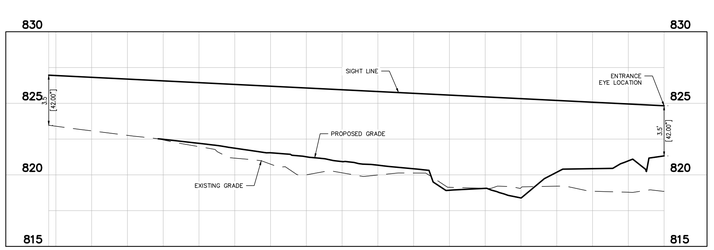

NORTH ENTRANCE LOOKING WEST

H: 1"=50 ; V: 1"=5



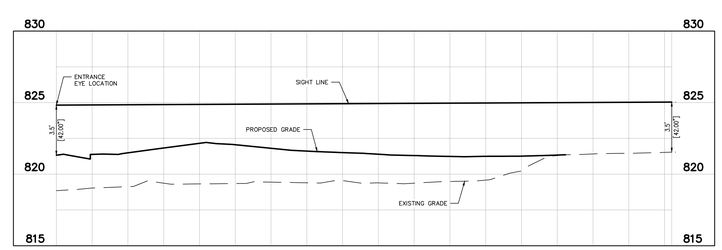

NORTH ENTRANCE LOOKING EAST

H: 1"=50 ; V: 1"=5




SOUTH ENTRANCE LOOKING WEST

H: 1"=50 ; V: 1"=5




SOUTH ENTRANCE LOOKING EAST

H: 1"=50 ; V: 1"=5

| | Intersection Sight Distance For Passenger Car | |
|---|---|---|
| Design Speed (mph) | Calculated (ft) | Design (ft) |
| 15 | 143.3 | 145 |
| 20 | 191.1 | 195 |
| 25 | 238.9 | 240 |
| 30 | 286.7 | 290 |
| 35 | 334.4 | 335 |
| 40 | 382.2 | 385 |
| 45 | 430.0 | 430 |
| 50 | 477.8 | 480 |
| 55 | 525.5 | 530 |
| 60 | 573.3 | 575 |
| 65 | 621.1 | 625 |
| 70 | 668.9 | 670 |

*Note: Intersection sight distance shown is for a stopped passenger car to turn right onto or cross a two-lane highway with no median and grades of 3% or flatter. For other conditions, the time gap should be adjusted and the required sight distance recalculated.*

**INTERSECTION SIGHT DISTANCE FOR PASSENGER CAR TO TURN RIGHT FROM A STOP OR TO MAKE A CROSSING MANEUVER**

**Figure 46-10H**

| No. | REVISIONS | DATE | BY |
|---|---|---|---|
| 1 | REVISIONS PER TAC COMMENTS | 02/22/24 | GMS |

Kimley»Horn



500 EAST 96TH STREET, SUITE 300,
INDIANAPOLIS, IN 46240
PHONE: 317-218-9560
FAX: 317-218-9561
EMAIL: Brett.Huff@kimley-horn.com
WWW.KIMLEY-HORN.COM

SCALE: AS NOTED
DESIGNED BY: JSM
DRAWN BY: GMS
CHECKED BY: BAH

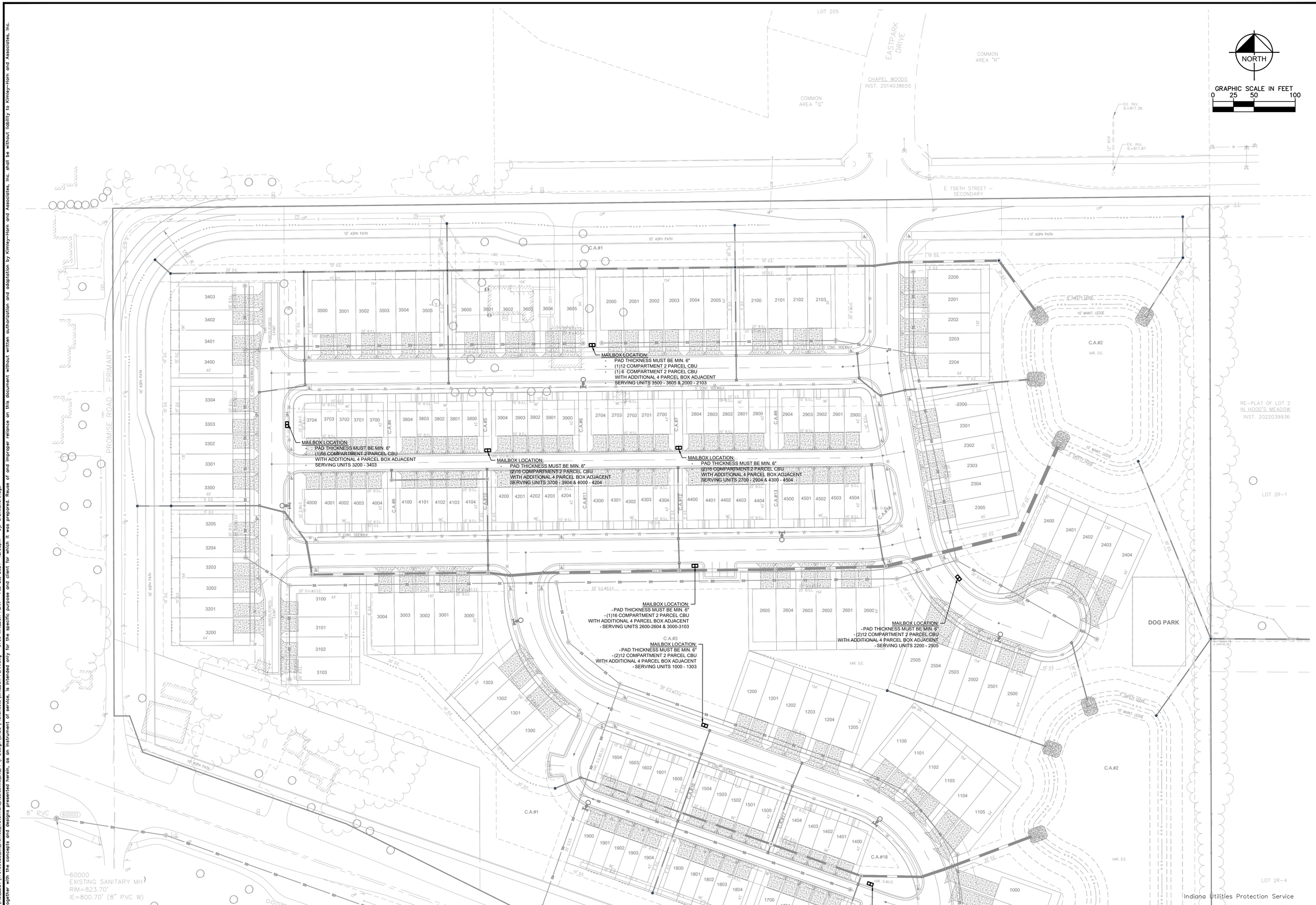
APPROVAL PENDING
NOT FOR CONSTRUCTION

M/I HOMES

LINE OF SIGHT PLAN

TOWNES AT 238
PRELIMINARY DEVELOPMENT PLAN

ORIGINAL ISSUE: 01/17/2024
KHA PROJECT NO. 170150023
SHEET NUMBER
C600




MATCHLINE - SEE SHEET C701

Indiana Utilities Protection Service
Call 811 before you dig

| No. | REVISIONS | DATE | BY |
|---|---|---|---|
| 1 | REVISIONS PER TAC COMMENTS | 02/22/24 | GMS |

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SCALE: AS NOTED
DESIGNED BY: JSM
DRAWN BY: GMS
CHECKED BY: BAH

APPROVAL PENDING
NOT FOR
CONSTRUCTION

M/I HOMES

MAILBOX PLAN

TOWNES AT 238
PRELIMINARY
DEVELOPMENT PLAN

ORIGINAL ISSUE:
01/17/2024

KHA PROJECT NO.
170150023

SHEET NUMBER
C700

MATCHLINE - SEE SHEET C700

MAILBOX LOCATION:
- PAD THICKNESS MUST BE MIN. 6"
- (1)16 COMPARTMENT 2 PARCEL CBU
WITH ADDITIONAL 4 PARCEL BOX ADJACENT
- SERVING UNITS 2600-2604 & 3000-3103

C.A.#3
MAILBOX LOCATION:
- PAD THICKNESS MUST BE MIN. 6"
- (2)12 COMPARTMENT 2 PARCEL CBU
WITH ADDITIONAL 4 PARCEL BOX ADJACENT
- SERVING UNITS 1000 - 1303

MAILBOX LOCATION:
- PAD THICKNESS MUST BE MIN. 6"
- (2)12 COMPARTMENT 2 PARCEL CBU
WITH ADDITIONAL 4 PARCEL BOX ADJACENT
- SERVING UNITS 2200 - 2505

MAILBOX LOCATION:
- PAD THICKNESS MUST BE MIN. 6"
- (2)16 COMPARTMENT 2 PARCEL CBU
WITH ADDITIONAL 4 PARCEL BOX ADJACENT
- SERVING UNITS 1400 - 1904

DOG PARK

C.A.#1 C.A.#2 C.A.#18

STATE ROAD 238 - PRIMARY (GREENFIELD AVENUE)

LOT 2R-4

6" PLASTIC RISER

(305) EXISTING STORM MANHOLE RIM: 816.00 INV: 811.02

NORTH

GRAPHIC SCALE IN FEET
0 25 50 100

Indiana Utilities Protection Service
Call 811 before you dig

| No. | REVISIONS | DATE | BY |
|---|---|---|---|
| 1 | REVISIONS PER TAC COMMENTS | 02/22/24 | GMS |

Kimley»Horn

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INDIANAPOLIS, IN 46240
PHONE: 317-218-9560
FAX: 317-218-9129
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WWW.KIMLEY-HORN.COM

SCALE: AS NOTED
DESIGNED BY: JSM
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APPROVAL PENDING
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CONSTRUCTION

M/I HOMES

MAILBOX PLAN

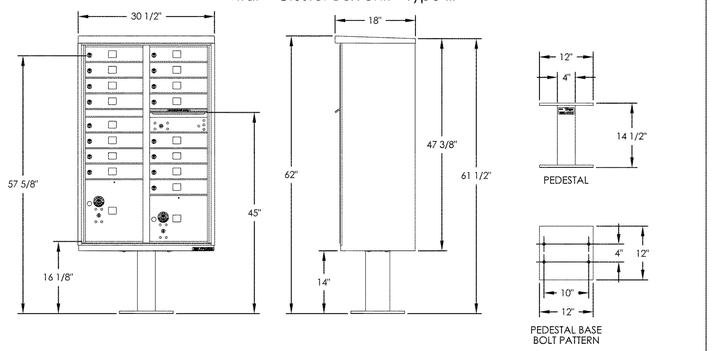
TOWNES AT 238
PRELIMINARY
DEVELOPMENT PLAN

ORIGINAL ISSUE:
01/17/2024

KHA PROJECT NO.
170150023

SHEET NUMBER
C701

## vital™ Cluster Box Unit - Type III




DOOR CHART

| DOOR TYPE | DIMENSION (HEIGHT x WIDTH) |
|---|---|
| TENANT | 5-3/8"x12-13/16" |
| 10" PARCEL | 10-1/4"x12-13/16" |
| 13" PARCEL | 13-3/4"x12-13/16" |
| OUTGOING SLOT | 3/4"x11-3/4" |

NOTES:

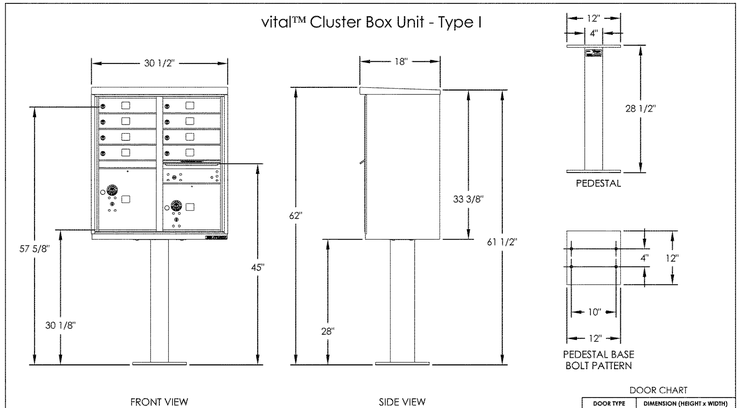
1. This unit is approved for USPS and private applications.
2. Decorative mailbox accessories sold separately and are USPS Approved products.
3. Pedestal should be installed with included Rubber Pad; mounting hardware not included, refer to installation manual for recommendations.
4. Florence "F" series CBU is Officially Licensed by USPS: License#CDSEQ-08-B-0012

PRODUCT SERIES: vital™ CLUSTER BOX UNIT

FLORENCE manufacturing company
5935 Corporate Drive • Manhattan, KS 66503
www.florencemailboxes.com • (800) 275-1747
A GIBRALTAR INDUSTRIES COMPANY

| MODEL | 1570-16 | REV | A |
|---|---|---|---|
| SCALE | NONE | LAST REV DATE | 9/26/2012 |
| DRAWING NUMBER | 1570-16CS | DRAWN BY | AFD |

## vital™ Cluster Box Unit - Type I




DOOR CHART

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|---|---|
| TENANT | 5-3/8"x12-13/16" |
| 10" PARCEL | 10-1/4"x12-13/16" |
| 13" PARCEL | 13-3/4"x12-13/16" |
| OUTGOING SLOT | 3/4"x11-3/4" |

NOTES:

1. This unit is approved for USPS and private applications.
2. Decorative mailbox accessories sold separately and are USPS Approved products.
3. Pedestal should be installed with included Rudder Pad; mounting hardware not included, refer to installation manual for recommendations.
4. Florence "F" series CBU is Officially Licensed by USPS: License#CDSEQ-08-B-0012

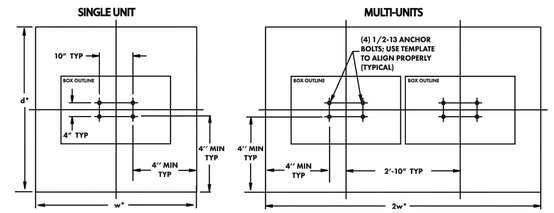
PRODUCT SERIES: vital™ CLUSTER BOX UNIT

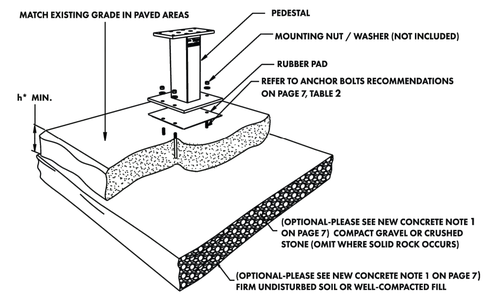
FLORENCE manufacturing company
5935 Corporate Drive • Manhattan, KS 66503
www.florencemailboxes.com • (800) 275-1747
A GIBRALTAR INDUSTRIES COMPANY

| MODEL | 1570-8 | REV | A |
|---|---|---|---|
| SCALE | NONE | LAST REV DATE | 9/26/2012 |
| DRAWING NUMBER | 1570-8CS | DRAWN BY | AFD |

# CONCRETE FOUNDATION PREPARATION

## vital™ cluster box unit - 1570 "F" Series




***Pad recommendations for "h/d/w" outlined on page 7, Table 1**



# CONCRETE FOUNDATION PREPARATION

## vital™ cluster box unit - 1570 "F" Series

NEW CONCRETE BASE:

1) Depending on climatic and soil conditions in the area of installation, optional foundation material may be necessary as shown. Consult local building codes for recommendations.

2) Refer to Table 1 for thickness (h), width (w), and depth (d) of the concrete pad alternatives.

3) Concrete shall have a compressive strength of 3000 psi @ 28 days, contain 4% min ~ 6% max air entrapment and be placed with a 3.50~4.50 slump in accordance to 301.

4) Use wire mesh as per (Standard) or fiber reinforced concrete as per (Standard).

EXISTING CONCRETE BASE:

1) Existing concrete pad must be at least 48" wide.

2) Concrete base and anchor bolts may be reused if:
   a. existing ½" diameter expansion anchor bolts are firmly embedded in the concrete and not damaged or corroded;
   b. concrete foundation is not damaged; ***and***
   c. bolt hole pattern of the new unit matches the installed anchor bolts.

3) Additional considerations include:
   a. if concrete is only 4" thick, then option ' b' in Table 2 below cannot be used
   b. any unused, existing anchor bolts must be cut flush to the level of the concrete surface
   c. if concrete is damaged, replacement of foundation pad is required

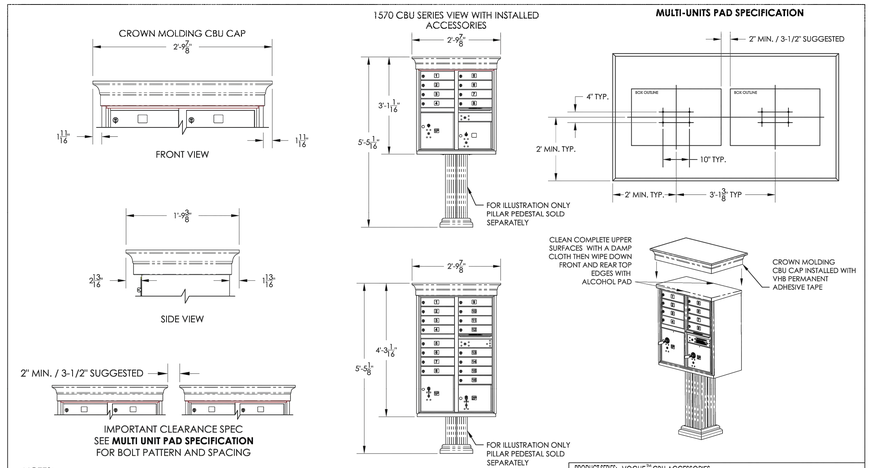
TABLE 1: Pad Recommendations

| h (Thickness) | w (Width) min | d (Depth) min |
|---|---|---|
| 4" | 47" | 47" |
| 5" | 44" | 44" |
| 6" | 42" | 42" |
| 7" | 40" | 40" |
| 8" | 39" | 39" |

TABLE 2

| Expansion Anchor Bolt Recommendations (or equivalent) |
|---|
| **a. Hilti Kwik Bolt II (www.hilti.com)**<br>- 1/2 inch diameter x 5 1/2 inches overall length<br>- Galvanized<br>- KB II 12-512, Stainless Steel<br>**Minimum embedment in concrete must be at least 3 1/2 inches** |
| **b. ITW Ramset Redhead Turbolt (www.hilti.com)**<br>- 1/2 inch diameter x 7 inches overall length<br>- Galvanized<br>**Minimum embedment in concrete must be at least 4 1/8 inches** |
| **c. Rawl Stud (www.rawl.com)**<br>- 1/2 inch diameter x 5 1/2 inches overall length<br>- Galvanized<br>**Minimum embedment in concrete must be at least 4 inches** |






NOTES:

1. CROWN MOLDING CAP DESIGN REQUIRES ADDITIONAL SPACE BETWEEN CBUs FOR MULTIPLE CBU INSTALLATIONS. SEE IMPORTANT CLEARANCE SPEC ABOVE.
2. CAP AND PEDESTAL COVER SOLD SEPARATELY.
3. CROWN MOLDING CAP AVAILABLE IN ALL STANDARD CBU POWDER COAT FINISHES.
4. CAP INSTALLED USING PERMANENT VHB ADHESIVE TAPE. NO HARDWARE NECESSARY.
5. CROWN MOLDING CAP DESIGNED TO FIT OVER FLORENCE 1570 SERIES CBU.

PRODUCT SERIES: VOGUE™ CBU ACCESSORIES

FLORENCE manufacturing company
5935 Corporate Drive•Manhattan, KS 66503
www.auth-florence.com•(800) 275-1747
A GIBRALTAR INDUSTRIES COMPANY

| MODEL | CROWN MOLDING CAP | REV | - |
|---|---|---|---|
| SCALE | NONE | DATE | 1/1/2008 |
| DRAWING NUMBER | VOGUECTCS | DRAWN BY AFD | SHEET 1 OF 1 |

**CBU'S WITH CROWN MOLDING CAP COLOR: BLACK**

Indiana Utilities Protection Service
Call 811 before you dig

| No. | REVISIONS | DATE | BY |
|---|---|---|---|
| 1 | REVISIONS PER TAC COMMENTS | 02/22/24 | GMS |

Kimley»Horn

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PHONE: (317) 218-9560
CONTACT: BRETT HUTTON
EMAIL: Brett.Hutton@kimley-horn.com
WWW.KIMLEY-HORN.COM

SCALE: AS NOTED
DESIGNED BY: JSM
DRAWN BY: GMS
CHECKED BY: BAH

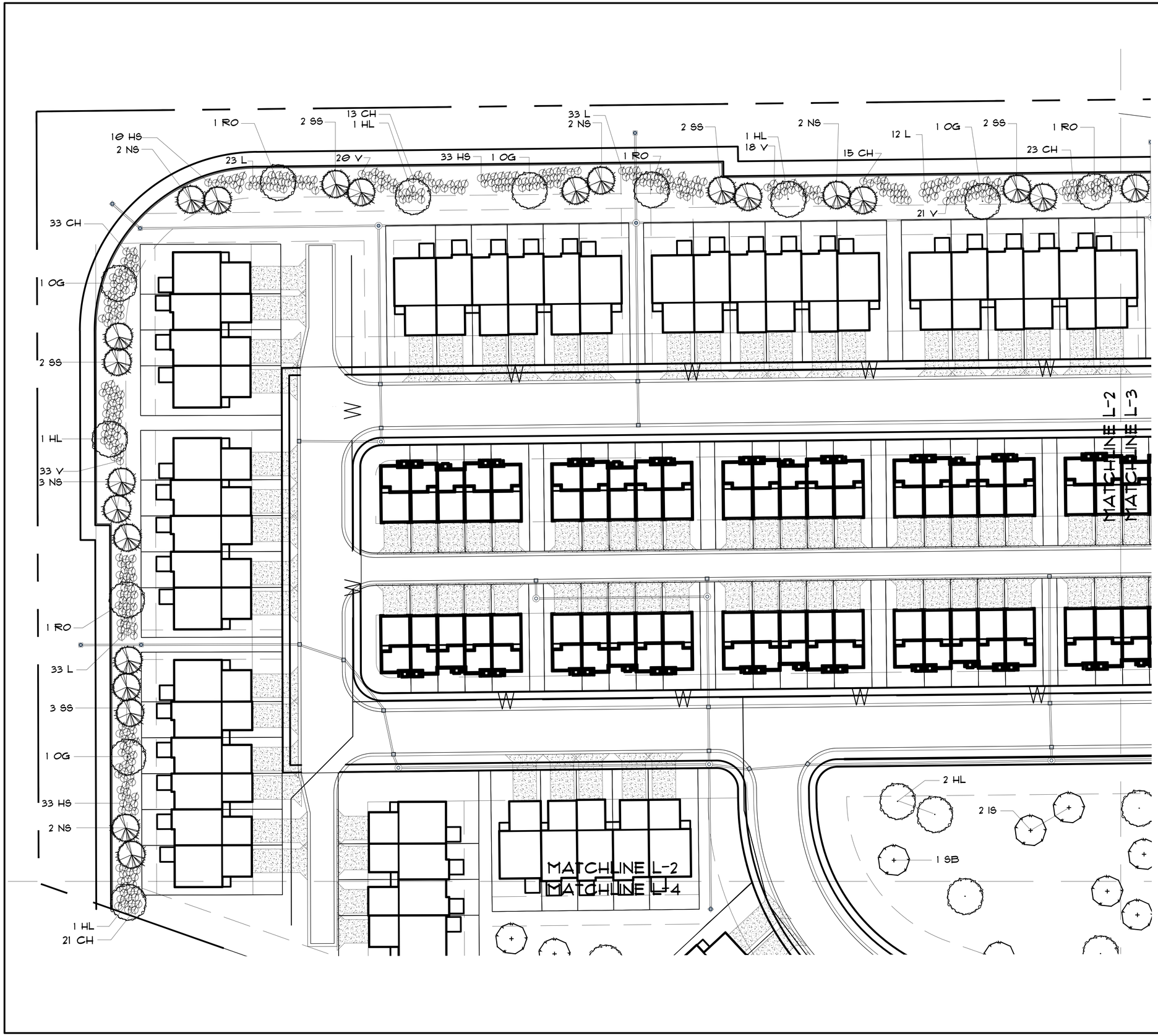
APPROVAL PENDING NOT FOR CONSTRUCTION

M/I HOMES

MAILBOX PLAN

TOWNES AT 238 PRELIMINARY DEVELOPMENT PLAN

ORIGINAL ISSUE: 01/17/2024
KHA PROJECT NO. 170150023
SHEET NUMBER
C702




## PLANT SCHEDULE

| SYMBOL | KEY | COMMON NAME | SCIENTIFIC NAME | SIZE | QUANT |
|---|---|---|---|---|---|
| SHADE TREES | | | | | |
| | BC | BALD CYPRESS | TAXODIUM DISTICHUM | 2-1/2" | 7 |
| | HL | HONEYLOCUST 'SHADEMASTER' | GLEDITSIA TRICANTHOS 'SHADEMASTER' | 2-1/2" | 15 |
| | OG | OCTOBER GLORY MAPLE | ACER RUBRUM 'OCTOBER GLORY' | 2-1/2" | 15 |
| | RB | RIVERBIRCH | BETULA NIGRA | 10'CL | 9 |
| | RO | RED OAK | QUERCUS RUBRA | 2-1/2" | 11 |
| ORNAMENTAL TREES | | | | | |
| | IS | IVORY SILK LILAC | SYRINGA RETICULATA 'IVORY SILK' | 1-1/2" | 15 |
| | SB | SERVICEBERRY 'AUTUMN BRILLIANCE' | AMELANCHER X GRANDIFLORA 'AUTUMN BRILL' | 1-1/2" | 16 |
| EVERGREEN TREES | | | | | |
| | NS | NORWAY SPRUCE | PICEA ABIES | 6-7' | 27 |
| | SS | SERBIAN SPRUCE | PICEA OMORIKA | 6-7' | 26 |
| SHRUBS | | | | | |
| | CH | BRILLIANT RED CHOKEBERRY | ARONIA ARBUTIFOLIA 'BRILLIANTISSIMA' | 18" | 220 |
| | HS | KODIAK HONEYSUCKLE | DIERVILLA X 'KODIAK' | 18" | 173 |
| | L | DWARF KOREAN LILAC | SYRINGA MEYERI 'PALIBIN' | 18" | 215 |
| | V | LEATHERLEAF VIBURNUM | VIBURNUM X RHYTID. 'ALLEGHENY' | 18" | 203 |

## BUFFER REQUIREMENTS

| TOTAL LI FT | PLANTS | QUANTITY REQUIRED | QUANTITY PLANNED |
|---|---|---|---|
| 2,440 | 1 SHADE TREE, 2 EVERGREEN, 33 SHRUBS PER 100' | | |
| | SHADE TREE | 25 | 26 |
| | EVERGREEN | 49 | 50 |
| | SHRUBS | 803 | 811 |

SCALE: 1" = 30'

0' 30' 60' 90'

NORTH

Start to Finish
LANDSCAPING
3375 South 500 East
Whitestown, IN 46075
tel. 317.769.2211 fax. 317.769.2213
email. startofinish@tds.net
web. landscapingbystartofinish.com

DESIGNED FOR

M HOMES OF INDIANA
8425 WOODFIELD CROSSING
BLVD, SUITE 100W
INDIANAPOLIS, IN 46240

PROJECT NAME

TOWNES AT 238
NOBLESVILLE, IN

SHEET NAME

LANDSCAPE PLAN

DESIGNER
TF

DATE: FEB 19, 2024

SHEET
L2


## PLANT SCHEDULE

| SYMBOL | KEY | COMMON NAME | SCIENTIFIC NAME | SIZE | QUANT |
|---|---|---|---|---|---|
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| | BC | BALD CYPRESS | TAXODIUM DISTICHUM | 2-1/2" | 7 |
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| | RB | RIVERBIRCH | BETULA NIGRA | 10'CL | 5 |
| | RO | RED OAK | QUERCUS RUBRA | 2-1/2" | 11 |
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| EVERGREEN TREES | | | | | |
| | NS | NORWAY SPRUCE | PICEA ABIES | 6-7' | 27 |
| | SS | SERIBIAN SPRUCE | PICEA OMORIKA | 6-7' | 26 |
| SHRUBS | | | | | |
| | CH | BRILLIANT RED CHOKEBERRY | ARONIA ARBUTIFOLIA 'BRILLIANTISSIMA' | 18" | 229 |
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| | EVERGREEN | 49 | 54 |
| | SHRUBS | 805 | 811 |

SCALE: 1" = 30'

0' 30' 60' 90'

NORTH

Start to Finish
LANDSCAPING
3375 South 500 East
Whitestown, IN 46075
tel. 317.769.3211 fax. 317.769.3213
email: startofinish@tsfinish.net
web: landscapingbystartofinish.com

DESIGNED FOR

M HOMES OF INDIANA
8425 WOODFIELD CROSSING
BLVD, SUITE 100N
INDIANAPOLIS, IN 46240

PROJECT NAME

TOWNES AT 238
NOBLESVILLE, IN

SHEET NAME

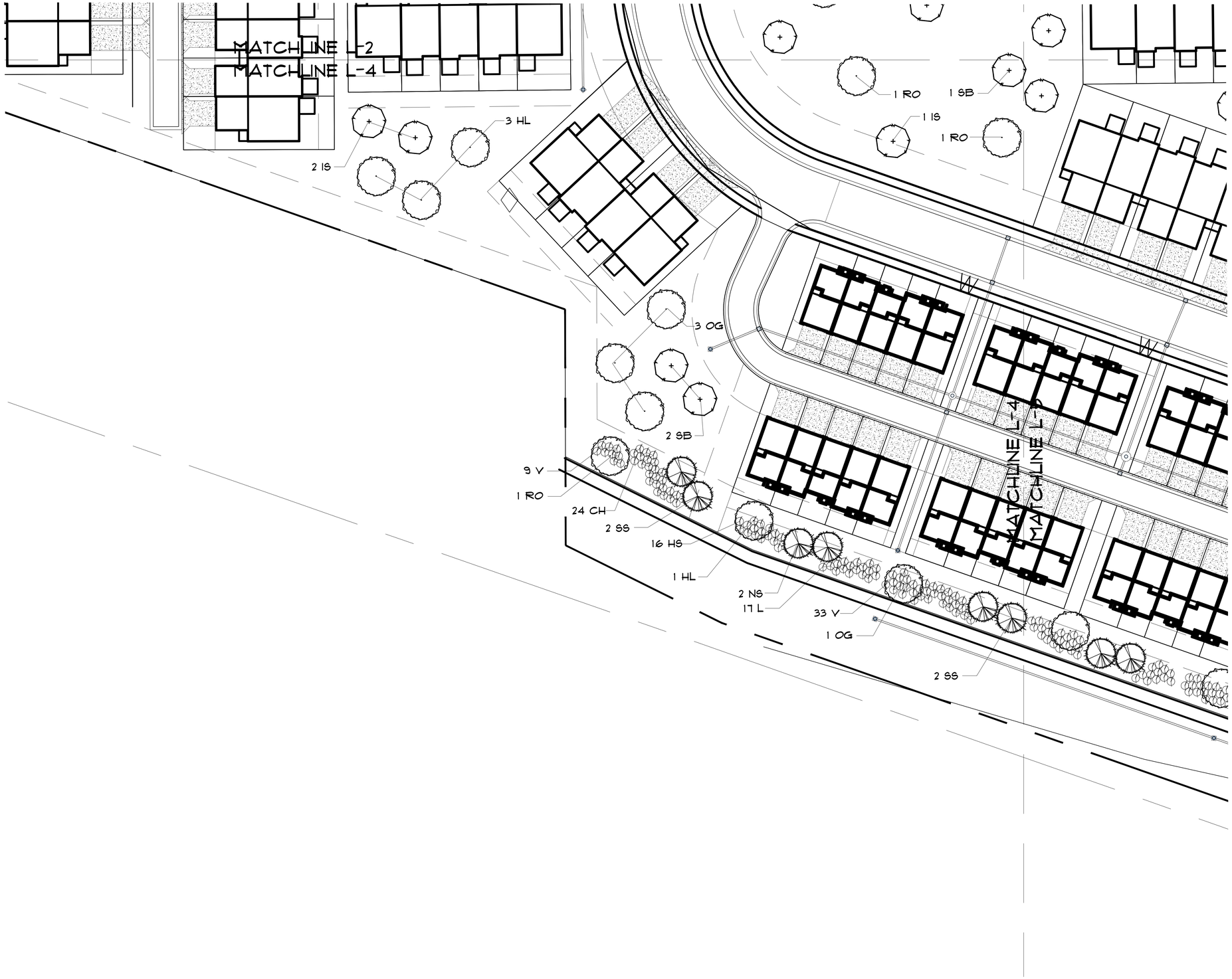
LANDSCAPE PLAN

DESIGNER
TF

DATE: FEB 19, 2024

SHEET

L3




SCALE: 1" = 30'

0' 30' 60' 90'

NORTH

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|---|---|---|---|---|---|
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| EVERGREEN TREES | | | | | |
| | NS | NORWAY SPRUCE | PICEA ABIES | 6-7' | 27 |
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| SHRUBS | | | | | |
| | CH | BRILLIANT RED CHOKEBERRY | ARONIA ARBUTIFOLIA 'BRILLIANTISSIMA' | 18" | 220 |
| | HS | KODIAK HONEYSUCKLE | DIERVILLA X 'KODIAK' | 18" | 173 |
| | L | DWARF KOREAN LILAC | SYRINGA MEYERI 'PALIBIN' | 18" | 215 |
| | V | LEATHERLEAF VIBURNUM | VIBURNUM X RHYTID. 'ALLEGHENY' | 18" | 293 |

## BUFFER REQUIREMENTS

| TOTAL LI FT | PLANTS | QUANTITY REQUIRED | QUANTITY PLANNED |
|---|---|---|---|
| 2,440 | 1 SHADE TREE, 2 EVERGREEN, 33 SHRUBS PER 100' | | |
| | SHADE TREE | 25 | 26 |
| | EVERGREEN | 49 | 50 |
| | SHRUBS | 805 | 811 |

Start to Finish LANDSCAPING
3375 South 500 East
Whitestown, IN 46075
tel. 317.769.2221 fax. 317.769.2210
email. startofinish@tds.net
web. landscapingbystartofinish.com

DESIGNED FOR

M HOMES OF INDIANA
8425 WOODFIELD CROSSING
BLVD, SUITE 100-2U
INDIANAPOLIS, IN 46240

PROJECT NAME

# TOWNES AT 238

NOBLESVILLE, IN

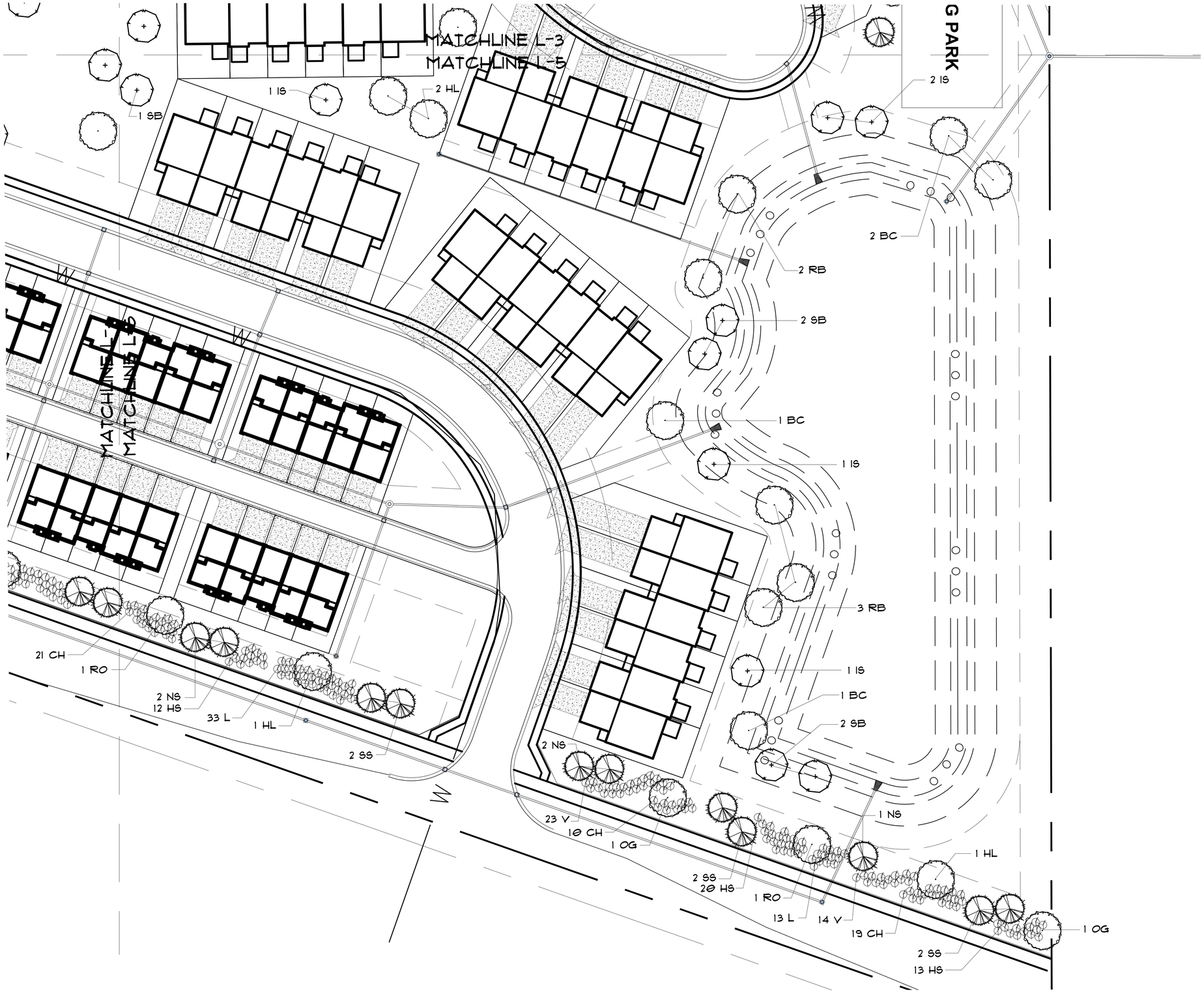
SHEET NAME

# LANDSCAPE PLAN

DESIGNER
TF

DATE: FEB 19, 2024

SHEET
L4




## PLANT SCHEDULE

| SYMBOL | KEY | COMMON NAME | SCIENTIFIC NAME | SIZE | QUANT |
|---|---|---|---|---|---|
| SHADE TREES | | | | | |
| | BC | BALD CYPRESS | TAXODIUM DISTICHUM | 2-1/2" | 7 |
| | HL | HONEYLOCUST 'SHADEMASTER' | GLEDITSIA TRICANTHOS 'SHADEMASTER' | 2-1/2" | 15 |
| | OG | OCTOBER GLORY MAPLE | ACER RUBRUM 'OCTOBER GLORY' | 2-1/2" | 15 |
| | RB | RIVERBIRCH | BETULA NIGRA | 10'CL | 9 |
| | RO | RED OAK | QUERCUS RUBRA | 2-1/2" | 11 |
| ORNAMENTAL TREES | | | | | |
| | IS | IVORY SILK LILAC | SYRINGA RETICULATA 'IVORY SILK' | 1-1/2" | 15 |
| | SB | SERVICEBERRY 'AUTUMN BRILLIANCE' | AMELANCHER X GRANDIFLORA 'AUTUMN BRILL' | 1-1/2" | 16 |
| EVERGREEN TREES | | | | | |
| | NS | NORWAY SPRUCE | PICEA ABIES | 6-7' | 27 |
| | SS | SERBIAN SPRUCE | PICEA OMORIKA | 6-7' | 26 |
| SHRUBS | | | | | |
| | CH | BRILLIANT RED CHOKEBERRY | ARONIA ARBUTIFOLIA 'BRILLIANTISSIMA' | 18" | 220 |
| | HS | KODIAK HONEYSUCKLE | DIERVILLA X 'KODIAK' | 18" | 173 |
| | L | DWARF KOREAN LILAC | SYRINGA MEYERI 'PALIBIN' | 18" | 215 |
| | V | LEATHERLEAF VIBURNUM | VIBURNUM X RHYTID. 'ALLEGHENY' | 18" | 203 |

## BUFFER REQUIREMENTS

| TOTAL LI FT | PLANTS | QUANTITY REQUIRED | QUANTITY PLANNED |
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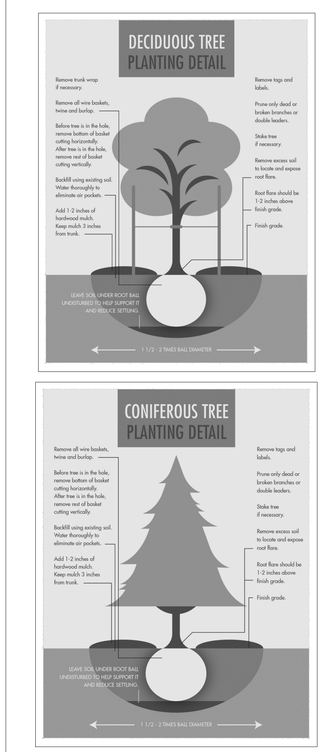
| 2,440 | 1 SHADE TREE, 2 EVERGREEN, 33 SHRUBS PER 100' | | |
| | SHADE TREE | 25 | 26 |
| | EVERGREEN | 49 | 54 |
| | SHRUBS | 805 | 811 |




SCALE: 1" = 30'

0' 30' 60' 90'

NORTH

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tel. 317.769.2311 fax. 317.769.2310
email. startofinish@tds.net
web. landscapingbystartofinish.com

DESIGNED FOR

M HOMES OF INDIANA
8425 WOODFIELD CROSSING
BLVD, SUITE 1000N
INDIANAPOLIS, IN 46240

PROJECT NAME
TOWNES AT 238
NOBLESVILLE, IN

SHEET NAME
LANDSCAPE PLAN

DESIGNER
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DATE: FEB 19, 2024

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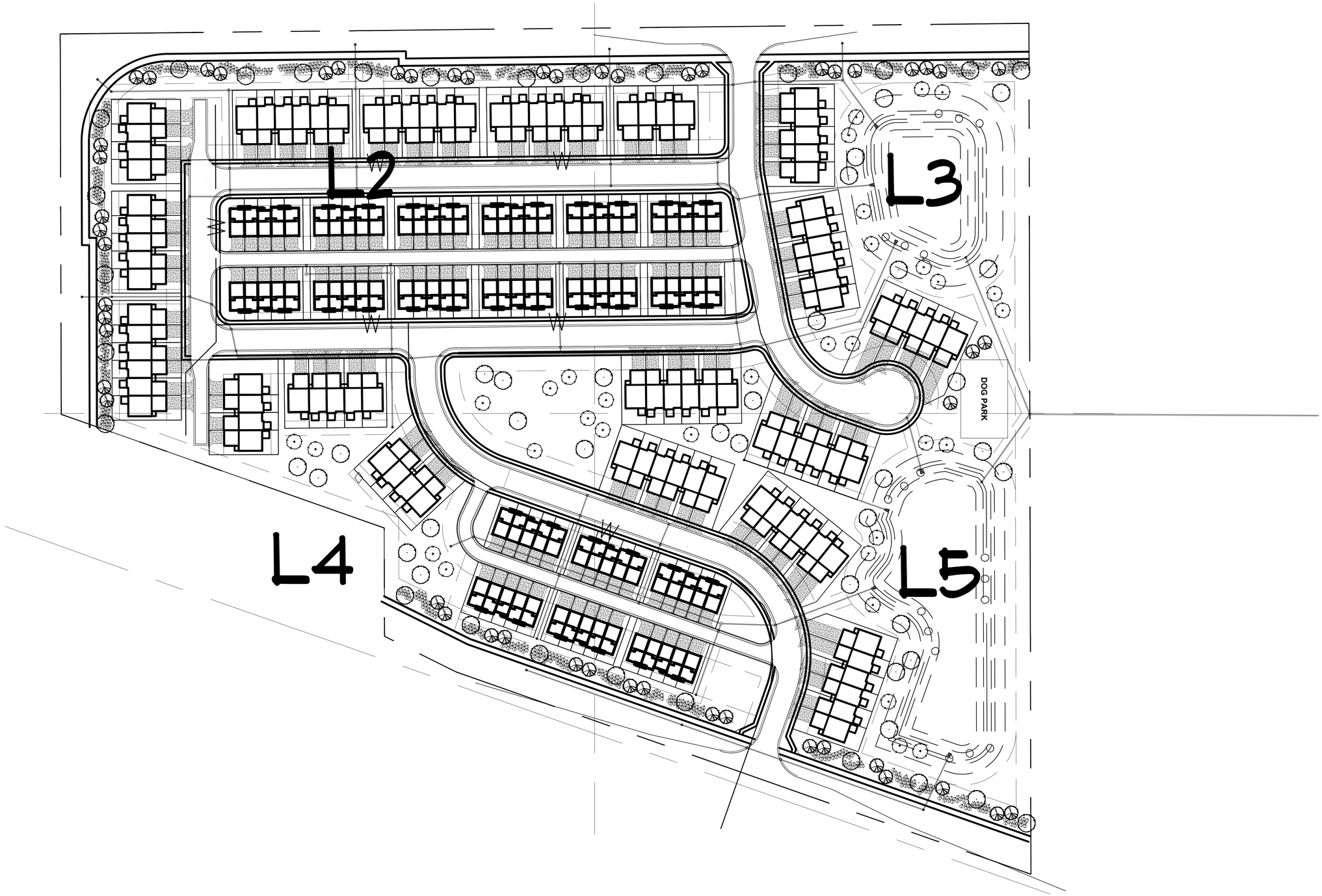
L5




NOT TO SCALE

NORTH

Start to Finish
LANDSCAPING
3375 South 500 East
Whitestown, IN 46075
tel. 317.769.2011 fax. 317.769.2020
email. startofinish@tds.net
web. landscapingbystartofinish.com

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BLVD, SUITE 1000
INDIANAPOLIS, IN 46240

PROJECT NAME

TOWNES AT 238
NOBLESVILLE, IN

SHEET NAME

LANDSCAPE
PLAN

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DATE: FEB 19, 2024

SHEET
L1