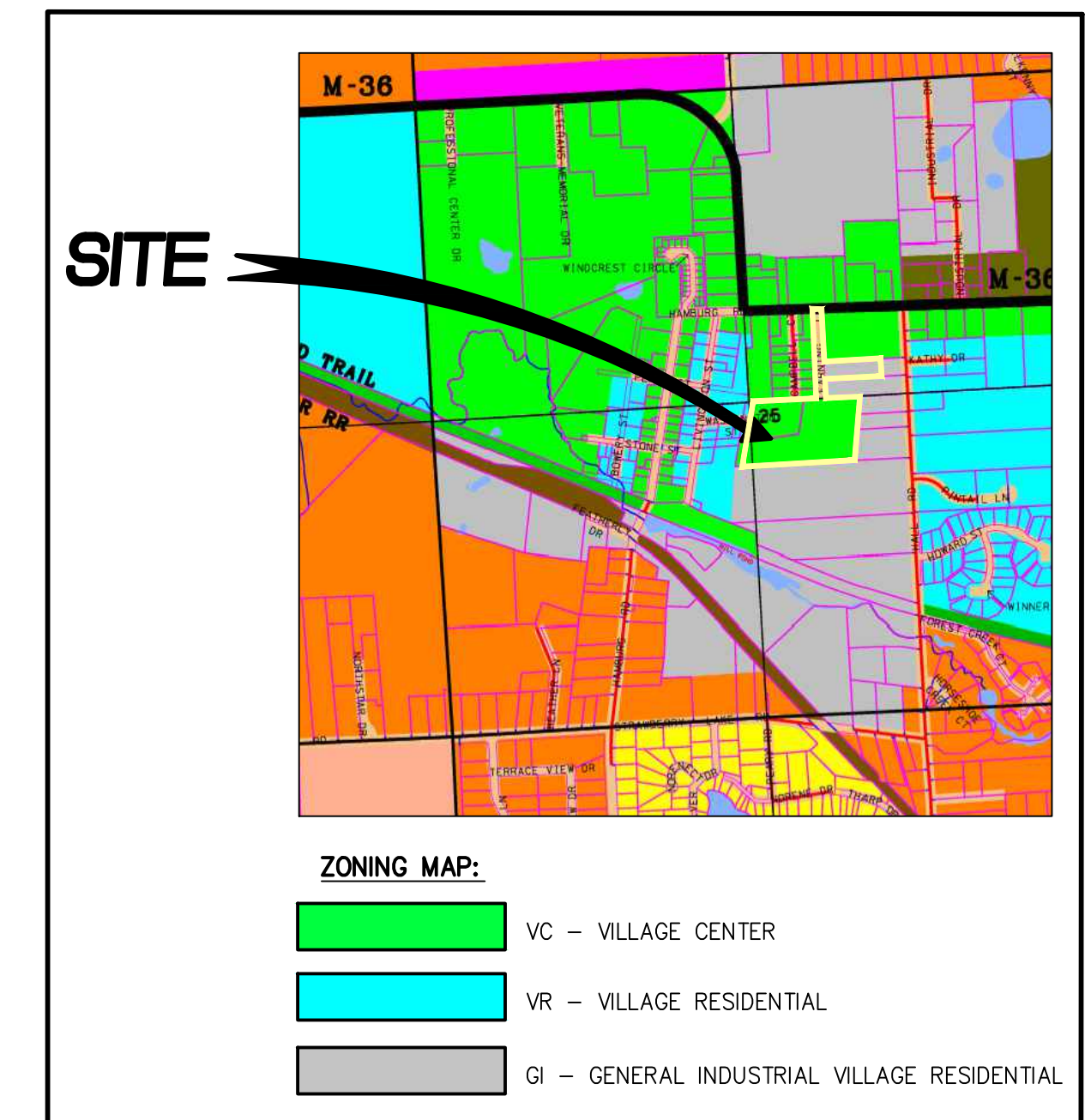
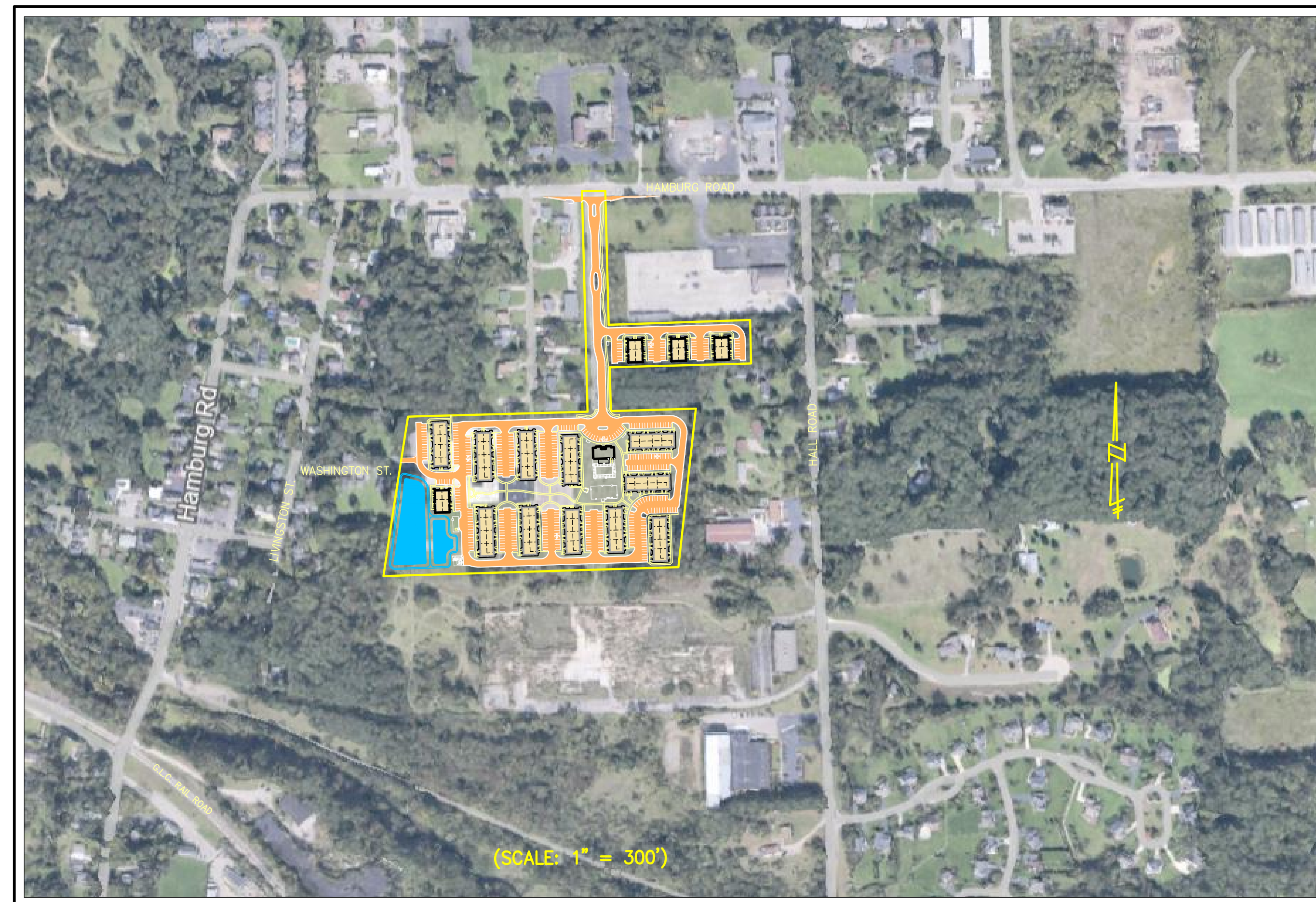
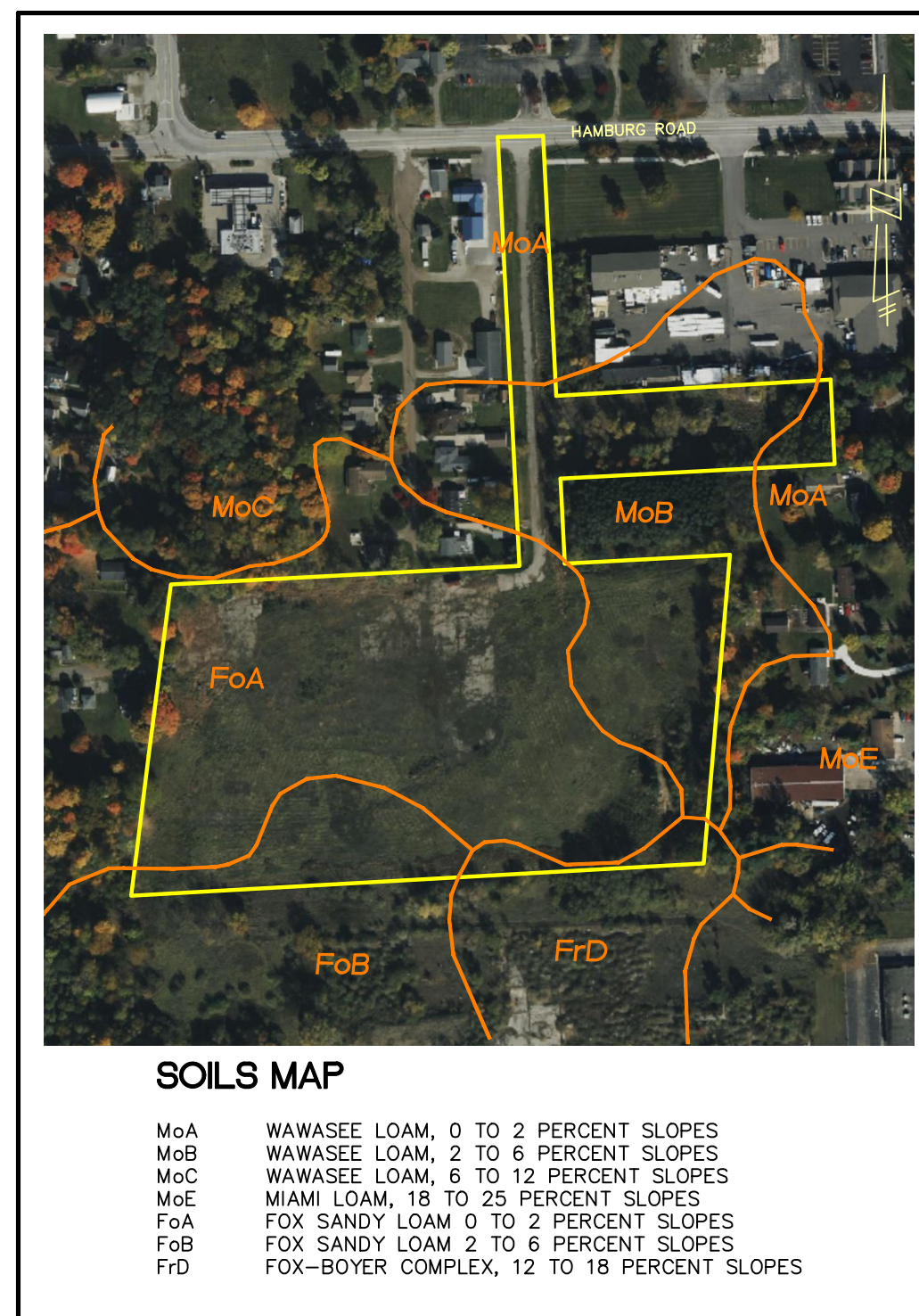


PRELIMINARY SITE PLANS FOR:
THE CROSSING AT LAKELANDS TRAIL

PART OF E. 1/2 OF SECTION 25, TOWN 1 NORTH, RANGE 5 EAST
 HAMBURG TWP., LIVINGSTON COUNTY, MICHIGAN

PREPARED FOR:
 ELEVATE LAND HOLDINGS - THE CROSSING
 128 N. CENTER STREET
 NORTHVILLE, MICHIGAN 48167
 248.344.1885



SHEET INDEX

ENGINEERING PLANS:

- COVER SHEET
- PREVIOUSLY APPROVED OPEN SPACE PLAN
- OVERALL PLAN AND OPEN SPACE PLAN
- UTILITIES PLAN
- GRADING PLAN
- GRADING PLAN
- GRADING PLAN
- STORM WATER MANAGEMENT PLAN

LANDSCAPE PLANS:

- LANDSCAPE PLAN
- LANDSCAPE PLAN
- LANDSCAPE PLAN
- LANDSCAPE DETAILS

ARCHITECTURAL PLANS PREPARED BY:
 TK DESIGN & ASSOCIATES
 26030 PONTIAC TRAIL
 SOUTH LYON, MICHIGAN, 48178
 PHONE: 248.446.1960

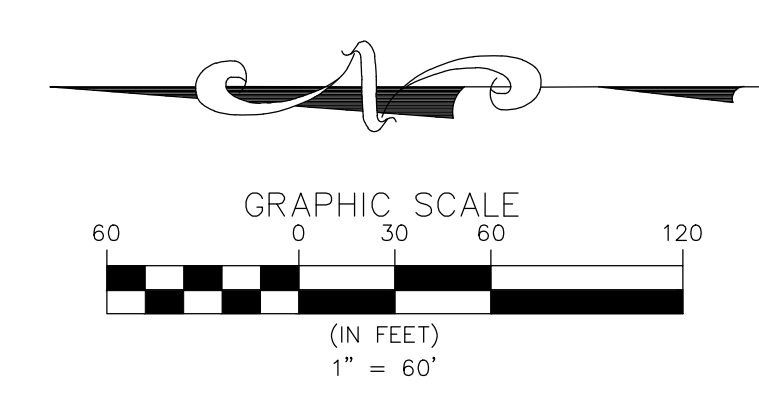
LANDSCAPE PLANS PROVIDED BY:
 ALLEN DESIGN
 557 CARPENTER
 NORTHVILLE, MICHIGAN 48167
 PHONE: 248.467.4668

TOPOGRAPHIC SURVEY PREPARED BY:
 M. E. G. A.
 298 VETERANS DRIVE
 FOWLerville, MICHIGAN, 48836
 PHONE: 517.223.3512

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 ENGINEERING | SURVEYING**

CLINTON TOWNSHIP OFFICE 17001 NINETEEN MILE ROAD, SUITE 3 CLINTON TOWNSHIP, MI 48038 586.412.7050	FARMINGTON HILLS OFFICE 39205 COUNTRY CLUB DRIVE, SUITE C8 FARMINGTON HILLS, MI 48331 248.308.3331
------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------

REVISIONS			ENGINEER'S SEAL
NO.	ITEM	DATE	
1.	PRE-APP SUBMITTAL	4-22-24	
2.	SUBMIT TO HAMBURG TWP.	8-16-24	
DATE: 1-5-2024			DESIGNED BY: A.A. CHECKED BY: C.S.
			JOB NUMBER: 23-299 DRAWING FILE: 1-23289-CV.dwg



PER PREVIOUSLY APPROVED PLANS
 PREPARED BY M.E.G.A. ENGINEERING
 DATED: 8-30-2022

OPEN SPACE REQUIRED:
 1,500 S.F./ UNIT=1,500 x 208
 312,000 S.F. (7.16 AC.) 44% OF SITE AREA (16.1 AC.)

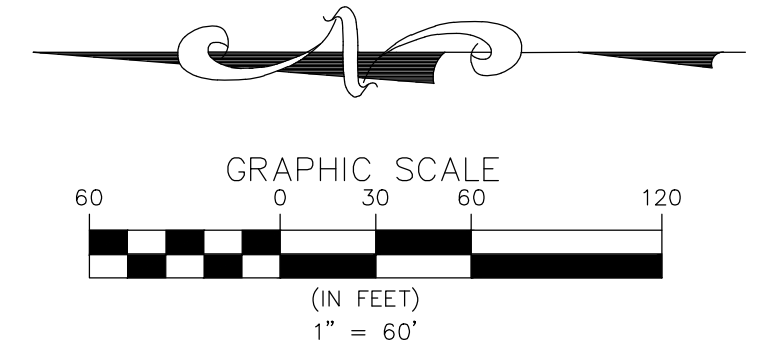
OPEN SPACE PROVIDED:
 262,684 S.F. (6.03 AC.) 37% OF SITE AREA (16.1 AC.)

3 WORKING DAYS
 BEFORE YOU DIG
 CALL MISS DIG
 1-800-482-7171
 TOLL FREE FOR THE LOCATION
 OF UNDERGROUND FACILITIES

CLIENT INFO:
 ELEVATE LAND HOLDINGS-
 THE CROSSING
 128 N. CENTER STREET
 NORTHVILLE, MI 48167
 248.344.1885

PROJECT NAME:
 THE CROSSING AT
 LAKELANDS TRAIL
 PART OF E 1/2 OF SEC. 25, T.1N., R.5E.,
 HAMBURG TWP., LIVINGSTON COUNTY, MI

SHEET TITLE:
 PREVIOUSLY APPROVED
 SITE PLAN - OPEN SPACE



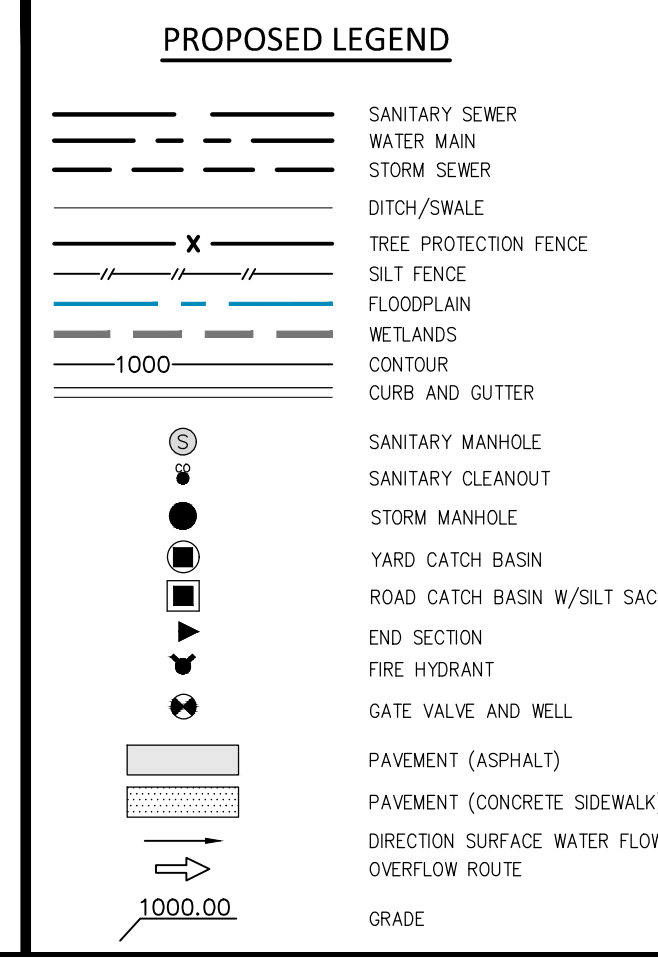
BUILDING TYPE	1BR	2BR	3BR	TOTAL UNITS PER BLDG TYPE	TOTAL B/R PER BLDG TYPE	NO OF BLDGS	TOTAL B/R ALL BLDG TYPE
77' VD	4	4	0	8	12	4	48
154' VD	10	4	2	16	24	6	144
167' VD	6	8	2	16	28	5	140
1BR/UNITS	106	51%				15	332
2BR/UNITS	80	38%					
3BR/UNITS	22	11%					
	208	100%					

SITE DATA
 EXISTING ZONING: GENERAL PLANNED UNIT DEVELOPMENT (GPUD)
 SITE AREA = 15.478 ACRES
 MAX. DWELLING UNITS PER ACRE (VC): 10 DU/CCRE
 NO. OF BUILDING ON SITE: 16
 NO. OF UNITS PROPOSED: 208
 DWELLING UNITS PER ACRE: 13.44 DU/CCRE (AMEND TO PUD AGREEMENT)

BUILDING SETBACKS:	REQUIRED	PREVIOUSLY APPROVED	PROPOSED
FRONT (FROM PAVEMENT):	20'	15'	N/A
SIDE:	10'	15'	20' MIN.
REAR: TO PROPERTY LINE	25'	30'	20' MIN.
BUILDING TO BUILDING:	35'	N/A	N/A
BUILDING FRONT TO SIDE:	N/A	25'	N/A
BUILDING SIDE TO SIDE:	N/A	15'	N/A
MAXIMUM BUILDING HEIGHT:	35'	35'	35'
MAXIMUM BUILDING STORIES:	2.5 STORIES	2 STORIES	2 STORIES
MINIMUM FLOOR AREA:			
1 BEDROOM	550 S.F.	875 S.F.	815 S.F.
2 BEDROOMS	650 S.F.	1,100 S.F.	1,106 S.F.
3 BEDROOMS			1,435 S.F.
BUILDING COVERAGE:	50% MAX.	16%	16.8%
IMPERVIOUS AREA CALCULATION:	N/A	32%	37.85%
OPEN SPACE REQUIRED:			
1,500 S.F./UNIT=1,500 x 208			
312,000 S.F. (7.16 AC.)	44%	37%	42.56%
OPEN SPACE PROVIDED:		6.03 AC.	6.41 AC.
PARKING REQUIRED: (1.5 SPACE/UNIT)			
1.5 x 208 = 312 SPACES			
PARKING PROVIDED: 409 SPACES (INCLUDING 10 B.F. SPACES)			
(1.966 SPACES/UNIT)			

	PREVIOUSLY APPROVED PLANS	CURRENT PLANS
SITE AREA	16.1 AC.	15.478 AC.
NO. OF BUILDING ON SITE:	23	16
NO. OF UNITS PROPOSED:	208	208
DWELLING UNITS PER ACRE:	12.91 DU/CCRE	13.44 DU/CCRE
BUILDING COVERAGE:	16%	15.8%
PAVED SURFACE PARKING AND ROADS CIRCULATION	32%	35.4%
OPEN SPACE:	37%	41.41%
PARKING PROVIDED:	406 SPACES (1.952 SPACES/UNIT)	409 SPACES (1.966 SPACES/UNIT)

SEE LANDSCAPE PLANS FOR SCREENING WALL DETAILS



NO.	REVISIONS	DESCRIPTION	DATE
1.	REV. LAYOUT PER HAMBURG TWP. REVIEW		4-22-24
2.	REV. ISLAND, ADD VINYL FENCE		6-26-24
3.	SUBMIT TO HAMBURG TWP.		8-16-24

3 WORKING DAYS BEFORE YOU DIG
 CALL MISS DIG
 1-800-482-7171
 TOLL FREE FOR THE LOCATION OF UNDERGROUND UTILITIES

PROJECT NUMBER:
PROJECT MANAGER:
DRAWN BY:
CHECKED BY:
DATE:
OFFICE:

CLIENT INFO:
 ELEVATE LAND HOLDINGS-
 THE CROSSING TRAIL
 128 N. CENTER STREET
 NORTHVILLE, MI 48167
 248.344.1885

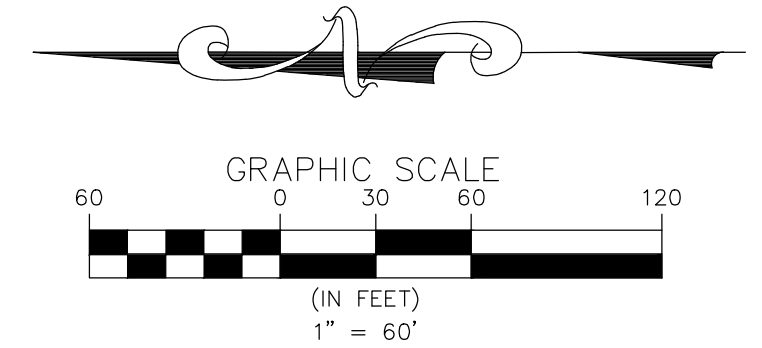
PROJECT NAME:
 THE CROSSING AT
 LAKELANDS TRAIL
 PART OF E. 1/2 OF SEC. 25, T.1N., R.5E.,
 HAMBURG TWP., LIVINGSTON COUNTY, MI

SHEET TITLE:
 OVERALL PLAN AND
 OPN SPACE PLAN

PAGE No.:
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NO.	REVISIONS	DESCRIPTION	DATE
1.	REV. LAYOUT PER HAMBURG TWP.	REVIEW	4-22-24
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3 WORKING DAYS BEFORE YOU DIG
CALL MISS DIG
1-800-482-7171
TOLL FREE FOR THE LOCATION OF UNDERGROUND UTILITIES

PROJECT NUMBER:	
PROJECT MANAGER:	B. EMERINE
DRAWN BY:	A. AWAD
CHECKED BY:	C.S.
DATE:	7/24
OFFICE:	FARMINGTON HILLS

CLIENT INFO:
ELEVATE LAND HOLDINGS—
THE CROSSING
128 N. CENTER STREET
NORTHVILLE, MI 48167
248.344.1885

PROJECT NAME:
**THE CROSSING AT
LAKELANDS TRAIL**
PART OF E. 1/2 OF SEC. 25, T. 1 N., R. 6 E.,
HAMBURG TWP., LIVINGSTON COUNTY, MI.

SHEET TITLE:
UTILITIES PLAN

PAGE No.:
4

PROPOSED LEGEND	
	SANITARY SEWER
	WATER MAIN
	STORM SEWER
	DITCH/SWALE
	TREE PROTECTION FENCE
	SILT FENCE
	FLOODPLAIN
	WETLANDS
	CONTOUR
	CURB AND GUTTER
	SANITARY MANHOLE
	SANITARY CLEANOUT
	STORM MANHOLE
	YARD CATCH BASIN
	ROAD CATCH BASIN W/SILT SAC
	END SECTION
	FIRE HYDRANT
	GATE VALVE AND WELL
	PAVEMENT (ASPHALT)
	PAVEMENT (CONCRETE SIDEWALK)
	DIRECTION SURFACE WATER FLOW
	OVERFLOW ROUTE
	GRADE



REVISIONS

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3.	SUBMIT TO HAMBURG TWP.	8-16-24

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CLIENT INFO:
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 THE CROSSING
 128 N. CENTER STREET
 NORTHVILLE, MI 48167
 248.344.1885

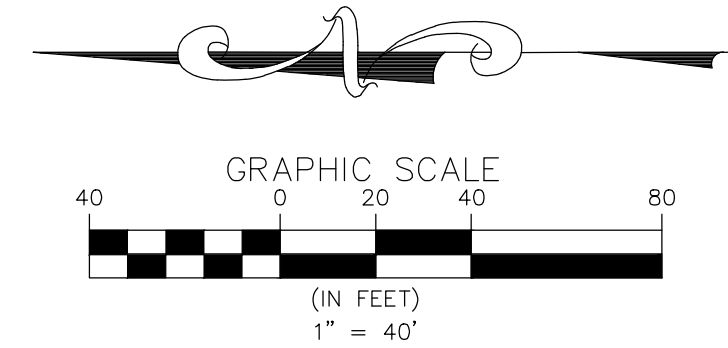
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 LAKELANDS TRAIL
 PART OF E. 1/2 OF SEC. 25, T.1N., R.6E.,
 HAMBURG TWP., LIVINGSTON COUNTY, MI.

SHEET TITLE:
 GRADING PLAN

PAGE No.:
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(SEE SHEET 5)

(SEE SHEET 7)



NO.	REVISIONS	DATE
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PROJECT NUMBER:	B. EMERIE
PROJECT MANAGER:	A. AWAD
DRAWN BY:	C.S.
CHECKED BY:	J.F.
DATE:	04/24/24
OFFICE:	FARMINGTON HILLS

CLIENT INFO:
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THE CROSSING
128 N. CENTER STREET
NORTHVILLE, MI 48167
248.344.1885

PROJECT NAME:
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PART OF E. 1/2 OF SEC. 26, T.1N., R.6E.,
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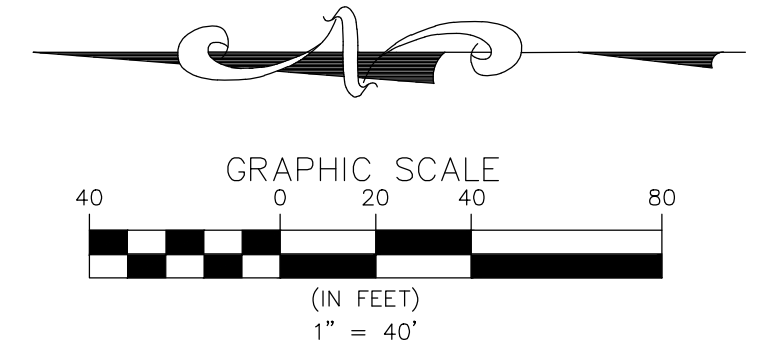
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GRADING PLAN

PAGE No.:
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PROPOSED LEGEND

	SANITARY SEWER
	WATER MAIN
	STORM SEWER
	DITCH/SWALE
	TREE PROTECTION FENCE
	SILT FENCE
	FLOODPLAIN
	WETLANDS
	CONTOUR
	CURB AND GUTTER
	SANITARY MANHOLE
	SANITARY CLEANOUT
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	YARD CATCH BASIN
	ROAD CATCH BASIN W/SILT SAC
	END SECTION
	FIRE HYDRANT
	GATE VALVE AND WELL
	PAVEMENT (ASPHALT)
	PAVEMENT (CONCRETE SIDEWALK)
	DIRECTION SURFACE WATER FLOW
	OVERFLOW ROUTE
	GRADE

(SEE SHEET 6)



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PROJECT NUMBER:	
PROJECT MANAGER:	B. EMERIE
DRAWN BY:	A. AWAD
CHECKED BY:	C.S.
DATE:	7/24
OFFICE:	FARMINGTON HILLS

CLIENT INFO:
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128 N. CENTER STREET
NORTHVILLE, MI 48167
248.344.1885

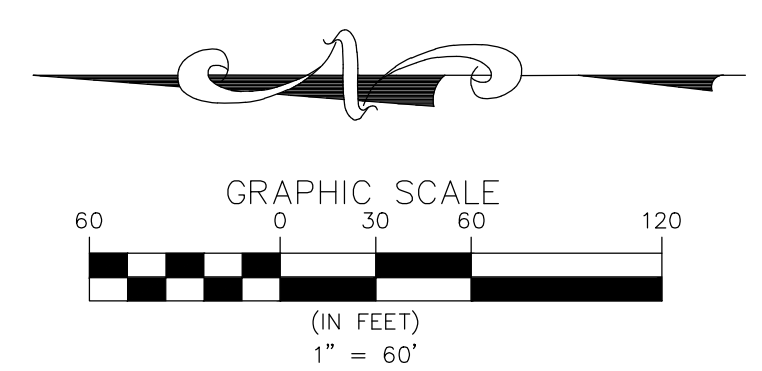
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HAMBURG TWP., LIVINGSTON COUNTY, MI

SHEET TITLE:
GRADING PLAN

PAGE No.:
7

PROPOSED LEGEND

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	STORM SEWER
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	PAVEMENT (CONCRETE SIDEWALK)
	DIRECTION SURFACE WATER FLOW
	OVERFLOW ROUTE
	GRADE



WATER QUALITY VOLUME REQUIRED

A =	15.11	Ac
C =	0.65	
Vw-q = 3,630 x C x A =	35,652 ft ³ required < Vr-a	

DETERMINE DETENTION REQUIREMENTS (100-YEAR STORM)

Ac =	15.11	Ac	(Onsite Area Tributary to Basin)
Ac _{off} =	0.00	Ac	(Offsite Area Tributary to Basin)
Q ₁₀₀ =	3.02	cfs	(0.2 CFS/ACRE)
C =	0.65		

CALCULATE VARIABLE RELEASE RATE

Q _{vrr} = 1.1055-0.206 ln(A)	Q _{vrr} = Allowable release rate in cfs/acre
A = Contribution area in acres	(does not govern)
Q _{vrr} =	0.55 cfs/acre
Q _{100p} = Q _{vrr} x A	Q _{100p} = Allowable 100-year post-development peak flow rate in cfs
Q _{100p} =	3.02 cfs (0.2 CFS/ACRE)

CALCULATE 100-YEAR DETENTION VOLUME (V_{100D})

Ac =	15.11	Ac	(Onsite Area Tributary to Basin)
Ac _{off} =	0.00	Ac	(Offsite Area Tributary to Basin)
V _{100D} = 18985 x C x A	V _{100D} = POST-DEVELOPMENT 100-YEAR RUNOFF VOLUME in cf		
V _{100D} =	186461	cf	

CALCULATE 100-YEAR PEAK INFLOW RATE (Q_{100IN})

Ac =	15.11	Ac	(Onsite Area Tributary to Basin)
Ac _{off} =	0.00	Ac	(Offsite Area Tributary to Basin)
Q _{100IN} = C x I ₁₀₀ x A	Q _{100IN} = 100-YEAR POST-DEVELOPMENT PEAK INFLOW RATE in cfs		
I ₁₀₀ = 83.3 / (Tc + 9.17) ^{0.81}	I ₁₀₀ = 100-year peak rainfall intensity in inches/hour		
I ₁₀₀ =	4.658	in/hr	
Q _{100IN} =	45.75	cfs	

CALCULATE STORAGE CURVE FACTOR FOR THE 100-YEAR DETENTION VOLUME (R)

R = [0.206-0.15IN (Q _{100P} /Q _{100IN})]		
R =	0.614	

CALCULATE 100-YEAR REQUIRED DETENTION BASIN VOLUME

V _{100D} = (V _{100R} x R) - VCP-P	V _{100D} = Required 100-year detention volume in cf	
V _{100D} =	114413 C.F.	REQUIRED DETENTION VOLUME
	117041 C.F.	PROVIDED DETENTION VOLUME

DETERMINE STORAGE IN SEDIMENT BASIN

Elevation	Area	Volume (c.f.)
904	6964	0
905	8526	7695
906	10321	17119
907	12214	28386

HW EL = 907.0 Volume at HW = 28386

DETERMINE STORAGE IN DETENTION BASIN

Elevation	Area	Volume (c.f.)
904	24897	0
905	27939	26418
906	31098	55937
907	34338	88655

HW EL = 907.0 Volume at HW = 88655

C-Factor Determination

Tributary Area =	15.11 Acres		
Impervious Areas			
Bldgs, Roads and S/W =	8.83	Ac.	at C = 0.90
Previous Areas			
Lawn Areas =	5.60	Ac.	at C = 0.20
Low Water	0.68	Ac.	at C = 1.00
C Avg. =	0.65		

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2.	SUBMIT TO HAMBURG TWP.	8-16-24

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DRAWN BY:	A. AWAD
CHECKED BY:	J.S.
DATE:	04/24
OFFICE:	FARMINGTON HILLS

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SHEET TITLE:
STORM WATER
MANAGEMENT PLAN

PAGE No.: 8