



TRAFFIC PLANNING AND DESIGN, INC.

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August 7, 2019

Mr. Neal Fisher
The Hankin Group
707 Eagleview Boulevard
Exton, PA 19341

RE: Hicks Tract – Traffic Evaluation

East Goshen Township, Chester County, PA
TPD No. HANK.00024

Dear Neal:

As requested, Traffic Planning and Design, Inc. (TPD) has conducted a preliminary traffic evaluation for the Hicks Tract located in East Goshen Township, Chester County, PA. The subject property is bound by Enterprise Drive to the north and Paoli Pike (SR 2014) to the south. The two (2) following development options were evaluated:

- » 90,000 square-foot office building with access to Enterprise Drive;
- » 170 apartments (85 one-bedroom units and 85 two-bedroom units) with access to Enterprise Drive and to Paoli Pike, opposite Meadow Drive.

The sketch plans for both development options are **attached**.

Trip Generation

Trip generation rates for the proposed site were obtained from the manual *Trip Generation*, Tenth Edition, 2017, an Institute of Transportation Engineers (ITE) Informational Report. The following land uses from *Trip Generation* were used to calculate the number vehicular trips the development would generate during the average weekday, weekday A.M. and weekday P.M. peak hours:

- » Office: Land Use Code 710 - General Office Building
- » Apartments: Land Use Code 221 - Multifamily Housing (Mid-Rise)

The trip generation rates are shown in **Table 1**, and the trip generation comparison for the two (2) development options are summarized in **Table 2**.

**TABLE 1
ITE TRIP GENERATION DATA**

Land Use	ITE #	Time Period	Equations/Rates	Entering %	Exiting %
Office	710	Weekday A.M. Peak Hour	$T = 0.94*(X) + 26.49$	86%	14%
		Weekday P.M. Peak Hour	$\ln(T) = 0.95*\ln(X) + 0.36$	16%	84%
		Weekday (24-Hour Total)	$\ln(T) = 0.97*\ln(X) + 2.50$	50%	50%
Apartments	221	Weekday A.M. Peak Hour	$T = 0.36*(X)$	26%	74%
		Weekday P.M. Peak Hour	$T = 0.44*(X)$	61%	39%
		Weekday (24-Hour Total)	$T = 5.44*(X)$	50%	50%

**TABLE 2
TRIP GENERATION COMPARISON**

Development Options	New Trips		
	Total	Enter	Exit
Weekday A.M. Peak Hour			
90,000 square-foot Office	111	95	16
170 Apartments	61	16	45
<i>Difference</i>	<i>-50</i>	<i>-79</i>	<i>+29</i>
Weekday P.M. Peak Hour			
90,000 square-foot Office	103	16	87
170 Apartments	75	46	29
<i>Difference</i>	<i>-28</i>	<i>+30</i>	<i>-58</i>
Average Weekday (24-Hour Total)			
90,000 square-foot Office	959	479	480
170 Apartments	925	462	463
<i>Difference</i>	<i>-34</i>	<i>-17</i>	<i>-17</i>

As shown in **Table 2**, the 170 apartments is anticipated to generate less total trips than a 90,000 s.f. office building during the weekday A.M. and P.M. peak hours, and during a typical weekday.

Site Access & Traffic Operations

Under either development scenario, access would be provided to Enterprise Drive, a loop road with external access to Paoli Pike via Reservoir Road, and Boot Road. Enterprise Drive is a local road, and therefore a PennDOT Highway Occupancy Permit (HOP) would not be required for access. In addition to the Enterprise Drive access, the potential apartment development would also have access to Paoli Pike, opposite Meadow Drive. Since Paoli Pike is a state-maintained roadway (S.R. 2014), an HOP would be required.

As noted, in **Table 2**, the apartment development scenario would generate less traffic than the office development scenario. In addition, the apartment development with the provision for a second access would further disperse the site traffic to the surrounding roadways.

TPD also developed preliminary traffic volumes at the Paoli Pike intersection with Meadow Drive/ potential site access. These volumes were developed utilizing historical traffic data along Paoli Pike, the site trip generation for the apartment development and the ITE trip generation data for the existing residential homes served by Meadow Drive. Based on these preliminary traffic volumes and related traffic evaluation, the following was determined:

- Turn lane warrants for an eastbound Paoli Pike left turn lane may be satisfied. This lane would accommodate entering left turns into the Hicks Tract. If an eastbound left turn lane is required at this location, a westbound Paoli Pike left turn lane, which would accommodate left turns onto Meadow Drive will also be required to shadow the roadway widening. The left turn lanes are sketched on the **attached** apartment plan.
- Paoli Pike is a state-maintained roadway and the proposed access and roadway configurations will need to be further evaluated through the HOP process, including sight distance evaluation, consideration for traffic signalization, etc.

Site Parking Requirements

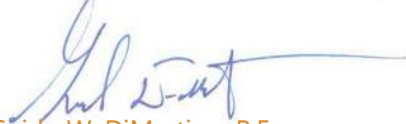
TPD evaluated industry standard data related to parking demand for apartments. Parking generation rates for the proposed site were obtained from the Institute of Transportation Engineers (ITE) *Parking Generation Manual*, 5th Edition, 2019. The manual provides parking demand data for Land Use Code 221, Multifamily Housing (Mid-Rise) based on both apartment units and number of bedrooms. **Table 3** below summarized the average peak parking demand rates and the anticipated peak parking demand based on either units or bedrooms

TABLE 3
ITE PARKING GENERATION DATA

Land Use	ITE #	Time Period	Variable (X)	Equations/Rates	Parking Demand
Apartments	221	Weekday (Monday-Friday)	170 units	$T = 1.31*(X)$	223 spaces
			285 bedrooms	$T = 0.75*(X)$	192 spaces

As shown in **Table 3**, the use of the apartment units as the independent variable results in the highest anticipated peak parking demand for the proposed site at 223 spaces. As shown in the attached plan, 286 parking spaces are proposed, or 63 more spaces than the anticipated peak parking demand.

TRAFFIC PLANNING AND DESIGN, INC.

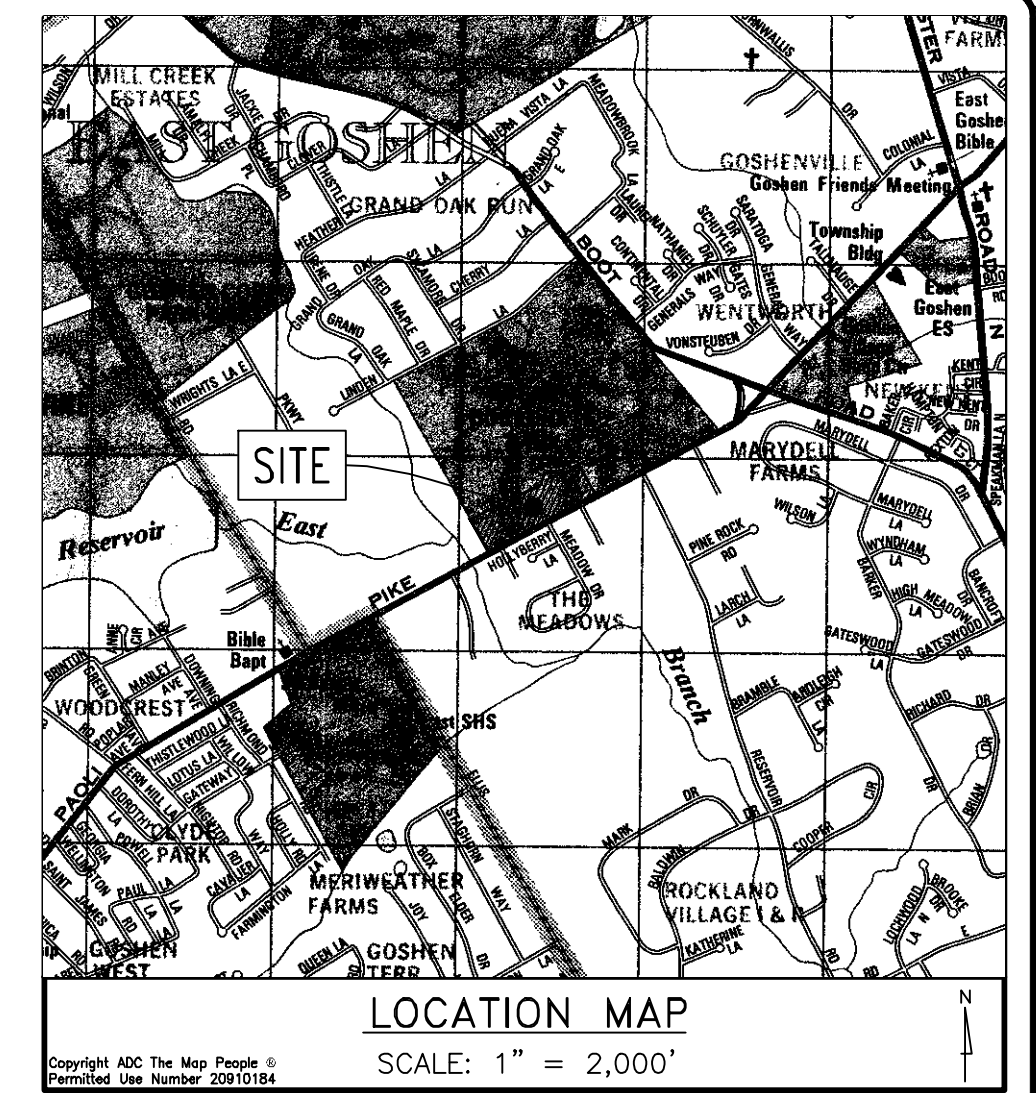
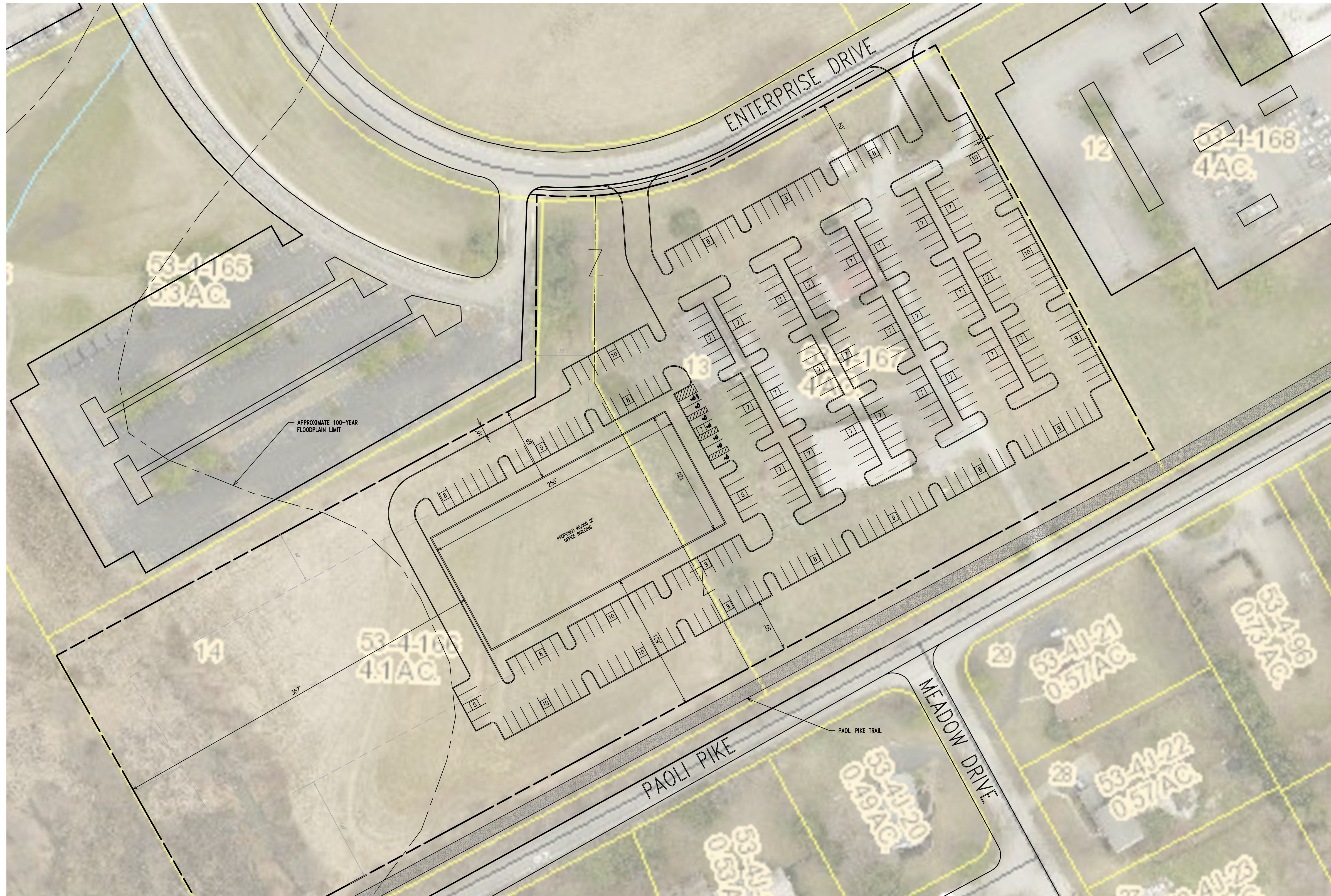


Guido W. DiMartino, P.E.

Senior Project Manager

GDiMartino@TrafficPD.com

Attachments



ZONING DATA TABULATION

EAST GOSHEN TOWNSHIP ZONING ORDINANCE
 EXISTING ZONING DISTRICT
 ARTICLE IV - BP BUSINESS PARK DISTRICT
 SECTION 240-21.G - AREA AND BULK REGULATIONS FOR ALL USES IN THE BP DISTRICT

	REQUIRED	PROPOSED
MINIMUM LOT AREA	4 ACRES	8.1 AC
MINIMUM LOT WIDTH		
BUILDING LINE	400 FT	993 FT
STREET LINE	300 FT	386 FT
MAXIMUM LAND COVERAGE		
BY BUILDINGS	30%	8.5% (30,000 SF)
BY TOTAL IMPERVIOUS COVERAGE	50%	47.8% (168,616 SF)
MAXIMUM BUILDING HEIGHT		
FEET	3	3
MINIMUM FRONT YARD	35 FT	<35 FT
MINIMUM SIDE YARD	120 FT	69 FT
MINIMUM REAR YARD	50 FT	357 FT

PARKING REQUIREMENTS

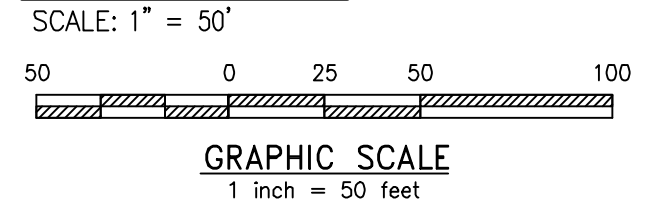
REQUIRED 4 SPACES/1,000 SF
 OF GROSS FLOOR AREA = 360 SPACES
 PROPOSED SPACES = 362 SPACES

PER ZONING ORDINANCE 240-21.C(23) PARKING IS PERMITTED WITHIN THE FRONT YARD BY CONDITIONAL USE.

GENERAL NOTES:

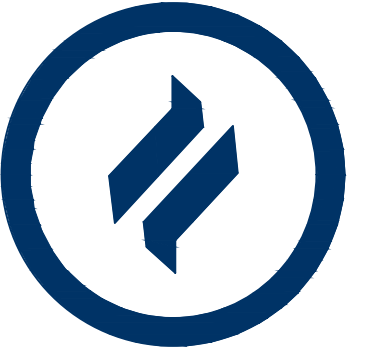
- OWNER:
 RUSSELL J. & ELIZABETH A. HICKS
 1351 PAOLI PIKE
 WEST CHESTER, PA
 DEED BOOK D39, PAGE 342
 EQUITABLE OWNER/APPLICANT:
 1351 PAOLI PIKE ASSOCIATES
 C/O HANKIN GROUP
 707 EAGLEVIEW BLVD.
 EXTON, PA 19341
 PHONE: (610)-458-1900
- SITE ADDRESS: 1351 PAOLI PIKE, WEST CHESTER, PA 19380
- TOTAL TRACT AREA: ±8.1 AC (GROSS/NET)
 NUMBER OF EXISTING LOTS = 2
 NUMBER OF PROPOSED LOTS = 1
 PROPOSED USE = COMMERCIAL OFFICE
- BOUNDARY INFORMATION FROM PARCEL BOUNDARY MAPPING PROVIDED BY THE CHESTER COUNTY GIS DEPARTMENT AND UNNAMED SUBDIVISION PLAN.
- A WETLAND SURVEY HAS NOT BEEN CONDUCTED.
- PUBLIC SEWER AND PUBLIC WATER ARE PROPOSED.
- ALL PROPOSED BUILDINGS SHALL BE EQUIPPED WITH SPRINKLERS AND KNOX BOXES FOR FIRE DEPARTMENT ACCESS.
- ALL UTILITIES INCLUDING GAS, ELECTRIC, TELEPHONE AND CABLE SHALL BE LOCATED UNDERGROUND.

SKETCH PLAN



LEGEND

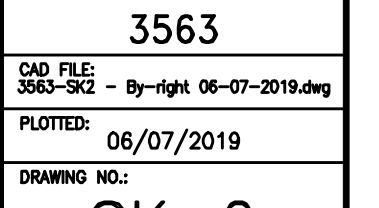
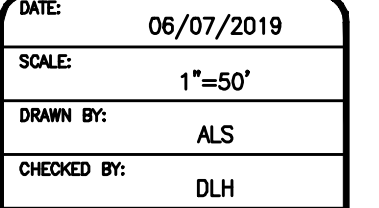
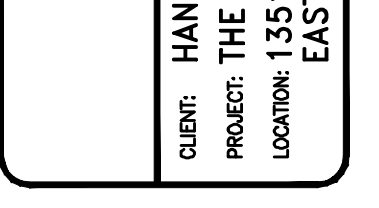
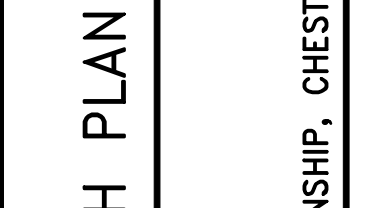
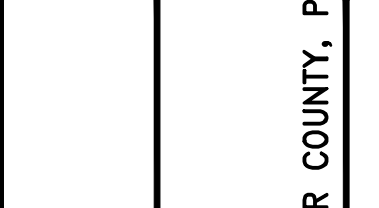
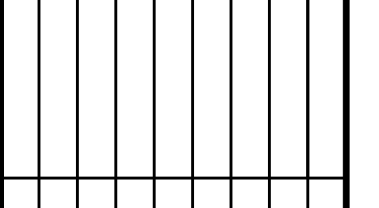
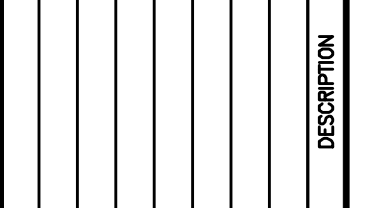
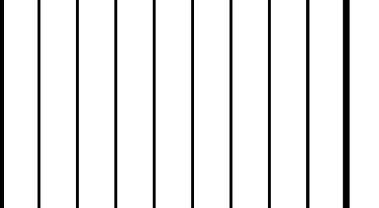
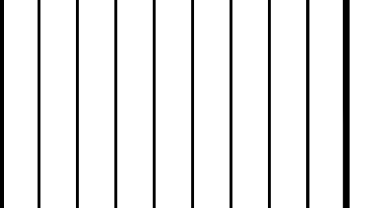
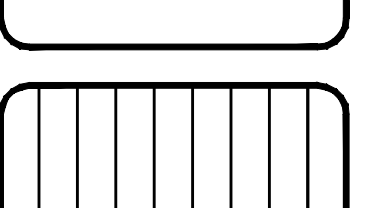
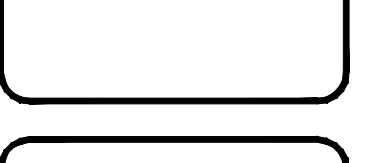
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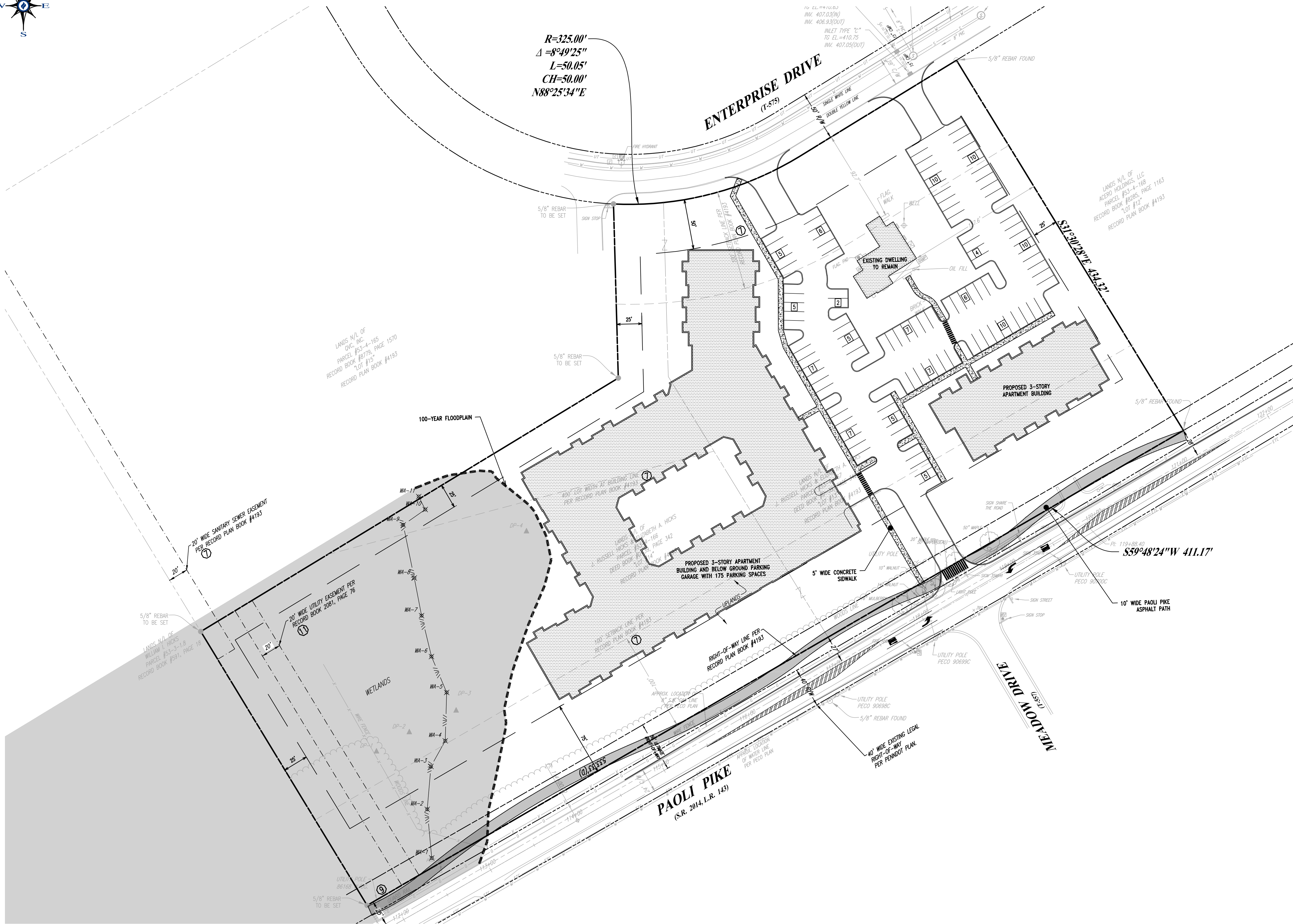


DLHowell

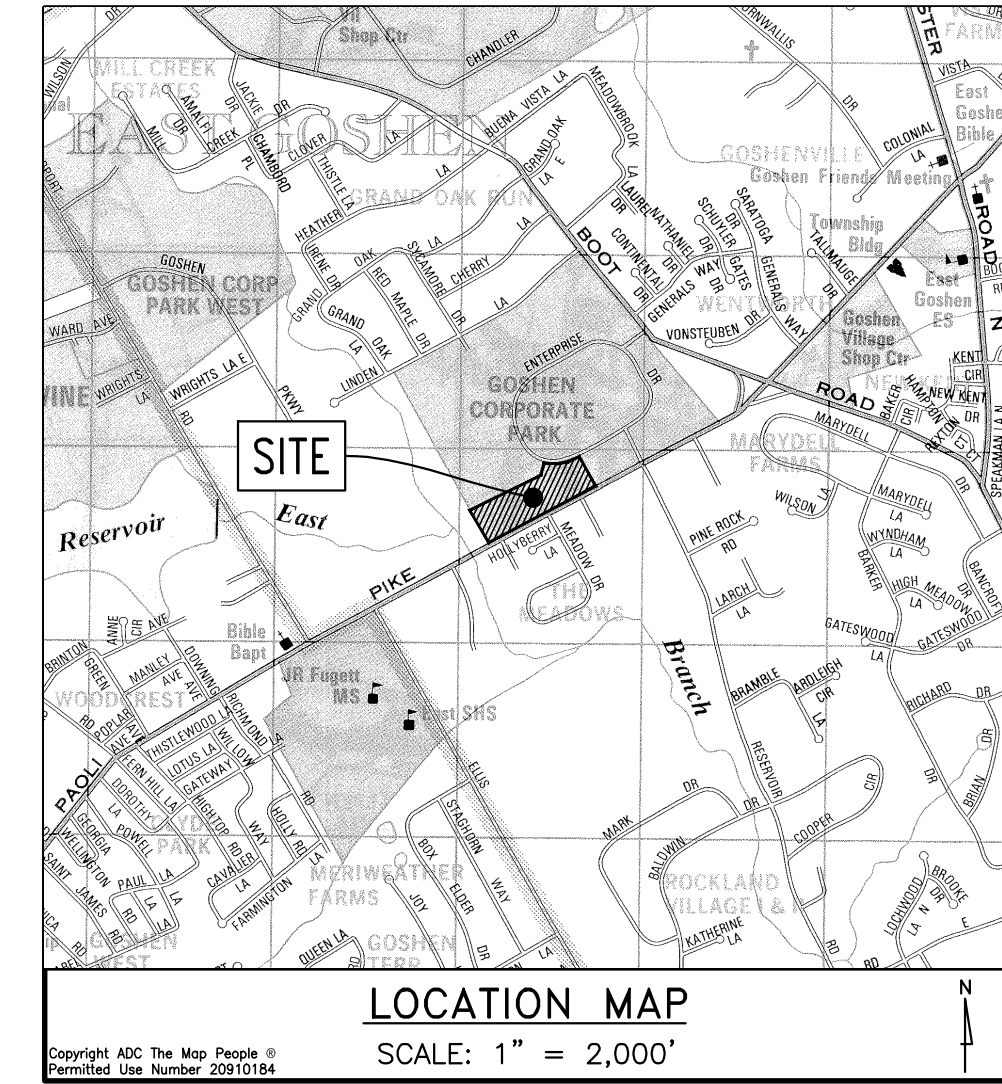
Civil Engineering
 Land Planning
 Environmental
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ZONING DATA TABULATION

PROPOSED BUSINESS PARK ZONING MODIFICATION

PROPOSED AREA AND BULK REQUIREMENTS:

USE: MULTIFAMILY RESIDENTIAL (BY CONDITIONAL USE)

	REQUIRED	PROPOSED
MIN. LOT AREA	4 ACRES	8.1 ACRES
MIN. LOT WIDTH		
BUILDING LINE	400 FT	944 FT
STREET LINE	750 FT	944 FT
IMPERVIOUS COVERAGES		
MAX. BUILDING COVERAGE	30%	22.1% (77,821 SF)
MAX. TOTAL COVERAGE	50%	35.7% (125,833 SF)
BUILDING HEIGHT		
STORIES	3	3
HEIGHT	35 FT	35 FT
MIN. FRONT YARD ARTERIAL STREET	75 FT	75 FT
MIN. FRONT YARD LOCAL STREET	50 FT	50 FT
MIN. SIDE YARD	25 FT	25 FT
MIN. REAR YARD	25 FT	25 FT
DWELLING UNIT MIX:		
1 BEDROOM UNITS	40% MIN.	50% (85 UNITS)
2 BEDROOM UNITS	60% MAX.	50% (85 UNITS)
MIN. BUILDING SEPARATION	53 FT	90 FT

PROPOSED RESIDENTIAL PARKING REQUIREMENTS

RENTAL UNITS 170 UNITS X 1.31 SPACE/UNIT = 223 SPACES*

*PARKING REQUIREMENT VALUE OBTAINED FROM ITE PARKING GENERATION MANUAL.

PROPOSED PARKING

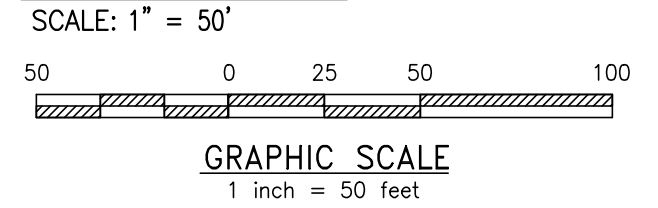
SURFACE	111 SPACES
GARAGE	175 SPACES
TOTAL	286 SPACES

GENERAL NOTES:

- OWNER: RUSSELL J. & ELIZABETH A. HICKS
1351 PAOLI PIKE
WEST CHESTER, PA
DEED BOOK D39, PAGE 342

EQUITABLE OWNER/APPLICANT:
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C/O HANKIN GROUP
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EXTON, PA 19341
PHONE: (610)-458-1900
- SITE ADDRESS: 1351 PAOLI PIKE, WEST CHESTER, PA 19380
- TOTAL TRACT AREA: ±8.1 AC (GROSS/NET)
NUMBER OF EXISTING LOTS = 2
NUMBER OF PROPOSED LOTS = 1
PROPOSED USE = BUSINESS PARK APARTMENTS
- BOUNDARY INFORMATION FROM PARCEL BOUNDARY MAPPING PROVIDED BY THE CHESTER COUNTY GIS DEPARTMENT AND UNNAMED SUBDIVISION PLAN.
- A WETLAND SURVEY HAS BEEN PERFORMED BY MARATHON ENGINEERING, INC.
- PUBLIC SEWER AND PUBLIC WATER ARE PROPOSED.
- A ZONING OVERLAY IS BEING PROPOSED AS PART OF THIS LAND DEVELOPMENT PROJECT.
- ALL PROPOSED BUILDINGS SHALL BE EQUIPPED WITH SPRINKLERS AND KNOX BOXES FOR FIRE DEPARTMENT ACCESS.
- ALL UTILITIES INCLUDING GAS, ELECTRIC, TELEPHONE AND CABLE SHALL BE LOCATED UNDERGROUND.
- THE APPLICANT WILL WORK WITH THE TOWNSHIP AND PENNDOT IN APPLYING FOR A TRAFFIC SIGNAL AT THE INTERSECTION OF PAOLI PIKE AND MEADOW DRIVE.
- FLOODPLAIN PROFILES FROM FEMA WERE REVIEWED AND IT WAS DETERMINED THAT THE BASE FLOOD ELEVATION FOR THE 100 YEAR FLOOD PLAN IS IN ACCORDANCE WITH FEMA PROFILE 074 P "FLOOD PROFILES: EAST BRANCH CHESTER CREEK."

SKETCH PLAN



LEGEND

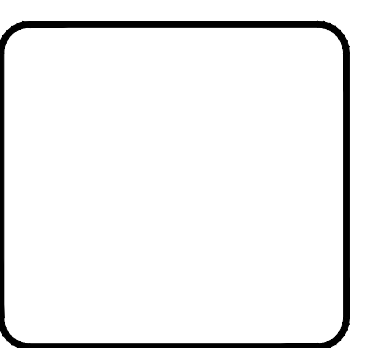
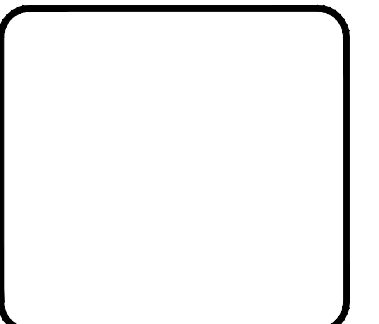
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Phone: (610) 918-9002
Fax: (610) 918-9003



REV.	DATE	DESCRIPTION
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SKETCH PLAN
 CLIENT: HANKIN GROUP
 PROJECT: THE HICKS TRACT
 LOCATION: 1351 PAOLI PIKE
 EAST GOSHEN TOWNSHIP, CHESTER COUNTY, PA

DATE:	05/31/2019
SCALE:	1"=50'
DRAWN BY:	ALS
CHECKED BY:	RBV
PROJECT NO.:	3563
CAD FILE:	3563-SK-08-06-2019.dwg
PLOTTED:	05/31/2019
DRAWING NO.:	SK-1
SHEET:	01 of 01