



**NORTHWOODS OF
NAPERVILLE
1151 WARRENVILLE ROAD
NAPERVILLE, ILLINOIS**

**STORMWATER MANAGEMENT REPORT
DECEMBER 2024**



1.0 INTRODUCTION

The proposed project includes redevelopment of a ±12.18-acre property located North of Warrenville Road in Naperville, IL. The property is bound to the North by a residential subdivision, to the Southeast by Chervon campus, and to the West by Herrick Lake Forest Preserve.

The intent of this report is to provide supporting information to the City of Naperville for an Engineering Plan Set and Stormwater Management Review to demonstrate that the proposed improvements meet all necessary requirements for stormwater management.

2.0 STORMWATER NARRATIVE

2.1 EXISTING CONDITIONS

The existing site consists of a ±12.18 development with an entrance drive, existing medical center building, utility appurtenances, a parking lot with some landscape islands, and ±9.35 acres of wooded area. The parking lot generally drains from East to West and runoff is captured by storm sewer inlets that eventually lead to a swale that drains to the North. The building and remaining wooded area all drains to an existing detention pond on the Eastern portion of the site. Most of the trees along the entrance drive and West of the parking lot are matured and are a priority to preserve. As a part of the development, ±5.33 acres will be disturbed. The remaining ±6.85 acres consist of wooded area and detention pond will remain mostly undisturbed.

2.2 PROPOSED CONDITIONS

Proposed conditions include the construction of eleven townhomes, a new road, driveways, sidewalk and all utilities to serve the development. According to section 15-72.A. of the DuPage County Stormwater Ordinance, the following case represents exceptions to providing site runoff storage: 15-72.A.1 "When comparing the Impervious Area of the predevelopment, the development Site as it existed as of February 15, 1992 to the with-development Impervious Area of the same Development Site, excluding any areas of the Development Site for which detention has already been provided, and the Impervious Area has not increased by a minimum of 25,000 sq. ft cumulatively of permitted Development." In other words, the site needs to be below 25,000 SF of net new impervious area compared to the predeveloped site so that providing additional site runoff storage is not required. To stay below the impervious threshold, there will be a few alleys constructed with permeable pavers rather than traditional pavement. Additional detention requirements would cause a lot of the natural vegetation and wooded areas to be demolished and/or disturbed. Therefore, staying under the 25,000 SF of net new impervious is imperative for the development and to preserve the existing site as much as possible. Six of the townhomes will have walkout and/or lookout units that walk out to decks. These walkout townhomes will be on the North and East side of the site, where there is significant grade change in the existing conditions. Implementing a deck instead of a patio will enable the grading to start closer to the house pads and limit grading disturbance. A majority of the site will drain toward the existing detention pond from the storm sewer system with the rest of the site draining similar to existing. The proposed conditions will also include a 15' native planting buff zone adjacent to the forest preserve property to the West.



Impervious Calculations

Proposed Impervious Area = 152,473 SF

Existing Impervious Area = 127,748 SF

NET NEW IMPERVIOUS AREA = 24,725 SF

3.0 BEST MANAGEMENT PRACTICES SUMMARY

Based on the DuPage County Stormwater Ordinance, Section 15-40F, "when the impervious coverage of the Development Site is increased by 2,500 square feet or more compared to the Pre-Development Site then PCBMPs designed in accordance with Section 15-63 through Section 15-70 are required." This development has 24,725 SF of net new impervious of area. The most important Post Construction Best Management Practice (PCBMP) for our development is to preserve as much of the existing site as possible. Therefore, our PCBMP solutions are all geared towards minimum disturbance to the existing site, first and foremost. The on-site PCBMPs include permeable paver alleys, which will have underdrains that tie directly into our proposed storm sewer system. As we outfall towards the existing pond with our storm sewer system, we are proposing level spreaders at our outfalls. This will limit the impact of the new outfall locations by dispersing the runoff flow from our site to the existing pond. The runoff flow will then sheet flow over the existing wooded area, which acts as a filter strip. By utilizing the existing wooded area, we can minimize disturbance while meeting PCBMP requirements.

15-72.A.1 When comparing the Impervious Area of the pre development Development Site as it existed as of February 15, 1992 to the with-development Impervious Area of the same Development Site, excluding any areas of the Development Site for which detention has already been provided, and the Impervious Area has not increased by a minimum of 25,000 sq. ft cumulatively of permitted Development.

In our professional opinion, the proposed improvements adequately provide stormwater management in accordance with the Dupage County stormwater ordinance requirements. It should be noted that best management practices will be installed throughout construction to ensure that the stormwater runoff is improved to the extent possible before discharging from the site, and the Storm Water Pollution Prevention Plan (SWPPP) will be maintained on site.

If you should have any questions regarding the information presented in this Stormwater Report, please do not hesitate to contact us at 630-598-0007.

Sincerely,
CAGE ENGINEERING

Dan Burns
Project Engineer



APPENDICES

APPENDIX A – SITE SPECIFIC INFORMATION

1. NATIONAL WETLANDS INVENTORY MAP
2. HYDROLOGICAL SOILS MAP
3. FEMA FIRMETTE MAP

APPENDIX B – EXISTING CONDITIONS & REFERENCED INFORMATION

1. EXISTING CONDITIONS DRAINAGE AREA EXHIBIT (EX-1)

APPENDIX C – PROPOSED CONDITIONS & DESIGN CALCULATIONS


1. PROPOSED CONDITIONS IMPERVIOUS AREA EXHIBIT (PR-1)



U.S. Fish and Wildlife Service, National Standards and Support Team,
wetlands_team@fws.gov

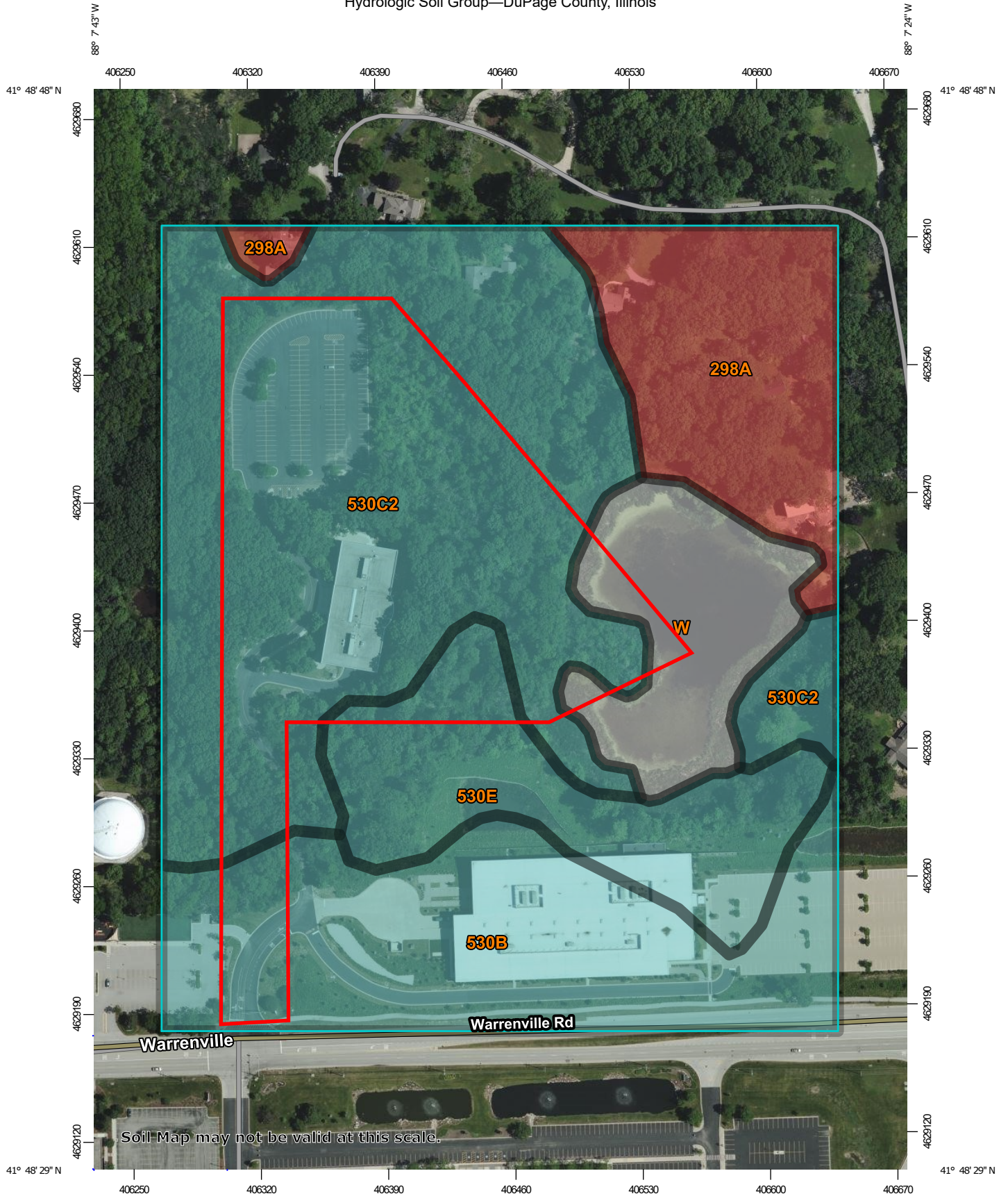
May 31, 2024

Wetlands

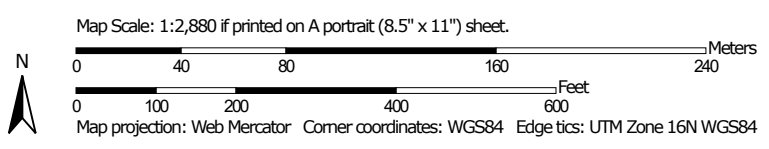
- | | | | | | |
|---|--------------------------------|---|-----------------------------------|---|----------|
|  | Estuarine and Marine Deepwater |  | Freshwater Emergent Wetland |  | Lake |
|  | Estuarine and Marine Wetland |  | Freshwater Forested/Shrub Wetland |  | Other |
| | |  | Freshwater Pond |  | Riverine |

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

Hydrologic Soil Group—DuPage County, Illinois




Soil Map may not be valid at this scale.



MAP LEGEND

Area of Interest (AOI)









 Area of Interest (AOI)

Soils

Soil Rating Polygons





 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Lines


 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Points






 A
 A/D
 B
 B/D

 C
 C/D
 D
 Not rated or not available


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 1:12,000.

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: DuPage County, Illinois
 Survey Area Data: Version 19, Aug 28, 2023

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

Date(s) aerial images were photographed: Jun 13, 2020—Jul 6, 2020

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.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
298A	Beecher silt loam, 0 to 2 percent slopes	D	5.3	13.0%
530B	Ozaukee silt loam, 2 to 4 percent slopes	C	8.6	21.0%
530C2	Ozaukee silt loam, 4 to 6 percent slopes, eroded	C	18.2	44.7%
530E	Ozaukee silt loam, 12 to 20 percent slopes	C	5.0	12.3%
W	Water		3.7	9.0%
Totals for Area of Interest			40.7	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

National Flood Hazard Layer FIRMMette



88°7'56"W 41°48'53"N



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

<p>SPECIAL FLOOD HAZARD AREAS</p>	<p>Without Base Flood Elevation (BFE) <i>Zone A, V, A99</i></p> <p>With BFE or Depth <i>Zone AE, AO, AH, VE, AR</i></p> <p>Regulatory Floodway</p>
<p>OTHER AREAS OF FLOOD HAZARD</p>	<p>0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile <i>Zone X</i></p> <p>Future Conditions 1% Annual Chance Flood Hazard <i>Zone X</i></p> <p>Area with Reduced Flood Risk due to Levee. See Notes. <i>Zone X</i></p> <p>Area with Flood Risk due to Levee <i>Zone D</i></p>
<p>OTHER AREAS</p>	<p>NO SCREEN Area of Minimal Flood Hazard <i>Zone X</i></p> <p>Effective LOMRs</p> <p>Area of Undetermined Flood Hazard <i>Zone D</i></p>
<p>GENERAL STRUCTURES</p>	<p>Channel, Culvert, or Storm Sewer</p> <p>Levee, Dike, or Floodwall</p>
<p>OTHER FEATURES</p>	<p>20.2 Cross Sections with 1% Annual Chance Water Surface Elevation</p> <p>17.5 Coastal Transect</p> <p>Base Flood Elevation Line (BFE)</p> <p>Limit of Study</p> <p>Jurisdiction Boundary</p> <p>Coastal Transect Baseline</p> <p>Profile Baseline</p> <p>Hydrographic Feature</p>
<p>MAP PANELS</p>	<p>Digital Data Available</p> <p>No Digital Data Available</p> <p>Unmapped</p>

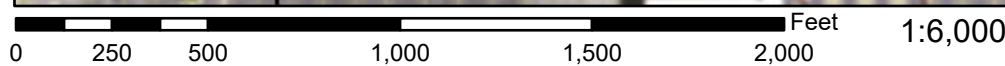
N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 5/31/2024 at 2:17 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.



Basemap Imagery Source: USGS National Map 2023



REVISIONS Δ

NO.	DESCRIPTION

THIS DESIGN AND THESE DRAWINGS ARE THE PROPERTY OF CAGE ENGINEERING, INC. NO PART OF THIS WORK MAY BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, WITHOUT PRIOR WRITTEN PERMISSION FROM CAGE ENGINEERING, INC.

M/I/HOMES
**NORTHWOODS OF
 NAPERVILLE**
 1151 WARRENVILLE ROAD
 NAPERVILLE, ILLINOIS

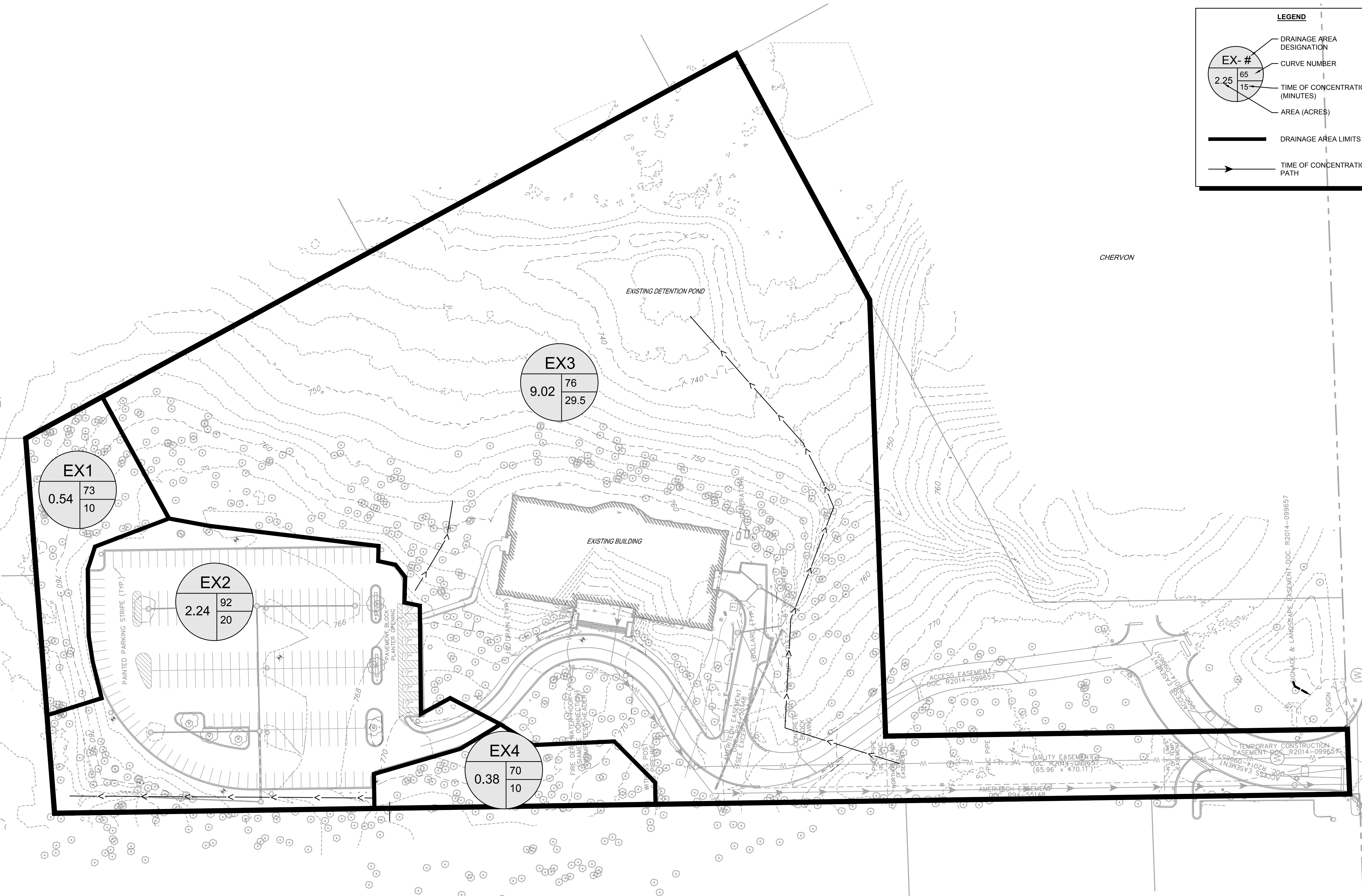
PROJ NO: 240255
 ENG: DJB
 DATE: 11/01/24

SHEET TITLE
**EXISTING
 DRAINAGE
 EXHIBIT**

SHEET NUMBER
EX-1
 1 OF 2

LEGEND

- DRAINAGE AREA DESIGNATION
 CURVE NUMBER
 TIME OF CONCENTRATION (MINUTES)
 AREA (ACRES)
- DRAINAGE AREA LIMITS
- TIME OF CONCENTRATION PATH



REVISIONS Δ

NO.	DESCRIPTION

THIS DESIGN AND THESE DRAWINGS ARE THE PROPERTY OF CAGE ENGINEERING, INC. NO PART OF THIS WORK MAY BE REPRODUCED WITHOUT PRIOR WRITTEN PERMISSION FROM CAGE ENGINEERING, INC.

M/I/HOMES
**NORTHWOODS OF
 NAPERVILLE**
 1151 WARRENVILLE ROAD
 NAPERVILLE, ILLINOIS

PROJ NO: 240255

ENG: DJB

DATE: 11/01/24

SHEET TITLE

PROPOSED
 DRAINAGE
 EXHIBIT

SHEET NUMBER

PR-1
 2 OF 2

LEGEND

- DRAINAGE AREA DESIGNATION
- CURVE NUMBER
- TIME OF CONCENTRATION (MINUTES)
- AREA (ACRES)
- DRAINAGE AREA LIMITS
- TIME OF CONCENTRATION PATH

IMPERVIOUS AREA SUMMARY

TOTAL PROPERTY AREA =	12.18 ACRES
EXISTING IMPERVIOUS AREA =	±129,000 SF
PROPOSED IMPERVIOUS AREA =	±153,000 SF
NET NEW IMPERVIOUS AREA =	±24,000 SF

