



**PRELIMINARY DRAINAGE REPORT  
LONG GROVE SENIOR LIVING**

VSEI #: 140314  
July 29, 2014

**I. PROJECT SUMMARY**

- A. This Preliminary Stormwater Report provides information on the drainage aspects of the Long Grove Senior Living assisted living and memory care facility..
- B. This report examines:
  - i. the Detention Volume required for the proposed development on the subject property.
  - ii. Depressional Storage replacement requirements,
  - iii. Water Quality elements of the development.
- C. The subject property is approximately 9.4 acres and is located to the South of the Illinois Route 53 right of way between Long Grove Road and Old Hicks Road. A location map of the subject property is contained in **Attachment 1**.

**II. WETLANDS**

- A. There are two wetland areas located on the site. These areas were evaluated by DJ Krill Environmental, Inc. and are discussed briefly below:
  - i. A wetland area along the West property line is wholly contained on the subject property. It is categorized as an Isolated Water of Lake County (IWOLC) and is regulated by the Village of Long Grove. This wetland is to be removed and mitigated offsite and the area used will be utilized for detention.
  - ii. A wetland in the northeast area of the subject property extending beyond the East property line. This wetland is categorized as being a Water of the United States (WOTUS). The 80-150 rule must be followed (due to the large off-site drainage area, the small area on-site that is tributary to this wetland this 80-150 rule will be followed).

- iii. A buffer around USACE wetland will be maintained as part of the development plan.

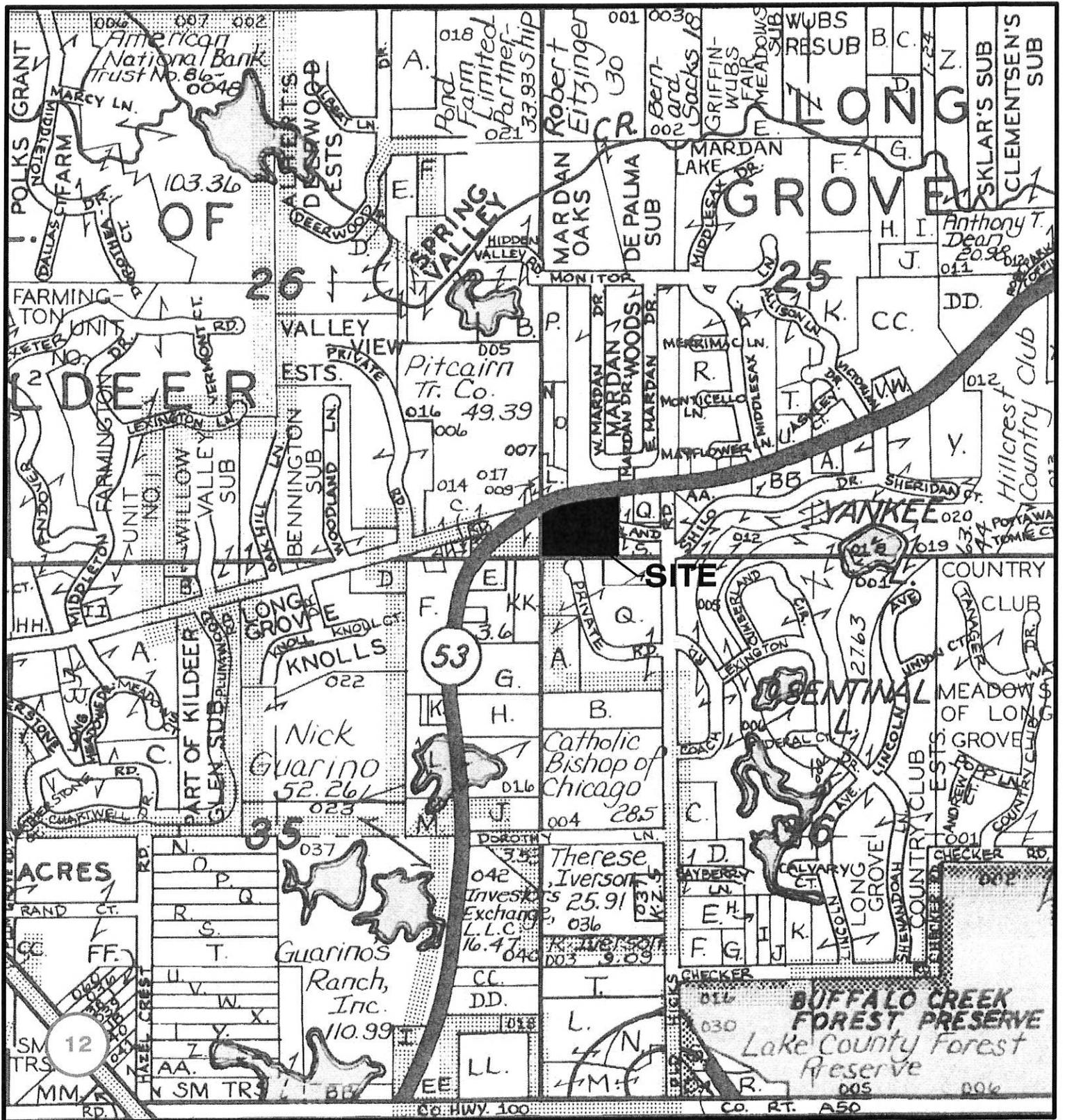
### III. DETENTION VOLUME

- A. Detention Requirements
  - i. The site plan for the development is shown is shown in **Attachment 2**.
  - ii. The Tributary Area to the detention facilities is  $\pm 5.7$  acres. However the project area for detention purposes is the disturbed area on-site (6.93 acres) and the new impervious area added within the R-O-W (0.12 acres) for a total project area of 6.93 acres.
  - iii. The impervious area within the area tributary to the detention basin is 3.51 acres (adding the 0.12 acres of R-O-W results in a total of 3.63 acres), resulting in 52% impervious of the tributary area.
  - iv. The Required Volume per the County nomograph is 2.07 ac-ft during a 100 year storm see **Attachment 3**.
- B. Depressional Storage
  - i. There is a depressional storage area in the southern center of the subject property.
  - ii. This area contains approximately 0.15 acre feet, **Attachment 4**.
  - iii. Because this area will be filled as a result of the construction of the project, the volume of this area will be added to the detention volume required.
- C. Detention Basin
  - i. The Required Volume per the Lake County WDO is the sum of the 2.22 acre-feet as called for in the County nomograph and the lost depressional storage volume. (2.07 acre-feet plus 0.15 acre-feet).
  - ii. The Detention Basin is shown in **Attachment 5**.
  - iii. The volume provided is 2.02 ac-ft is shown in **Attachment 5**. There will be 0.2 acre feet provided in the storm piping system.
  - iv. The basin will have a permanent poll to meet the WDO water quality volume requirements.

# ATTACHMENTS

Location Map	1
Tributary Area / Site Plan	2
Detention Volume Nomograph	3
Depressional Storage Calculations	4
Drainage Plan / Detention Provided Analysis	5

# LOCATION MAP



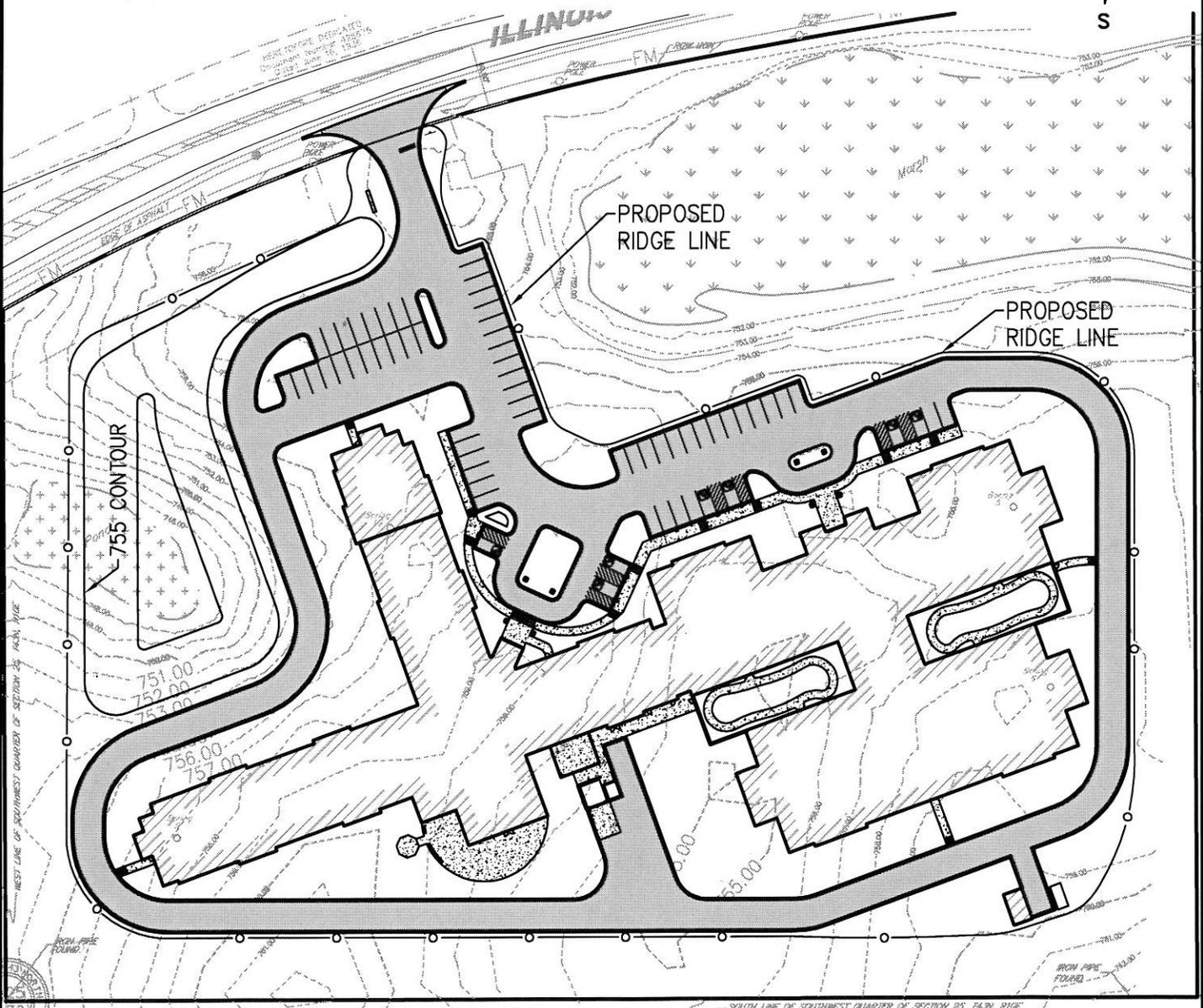
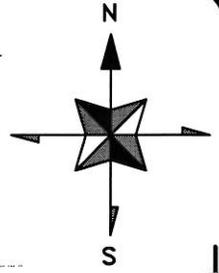
VICINITY MAP  
N.T.S.

# TRIBUTARY AREA / SITE PLAN



**VSEI**  
 Vanderstappen Surveying &  
 Engineering, Incorporated  
 1316 North Madison Street, Woodstock, Illinois  
 (815) 337-8310 www.vandersinc.com

# AREA TRIBUTARY TO POND



SCALE: 1" = 100'

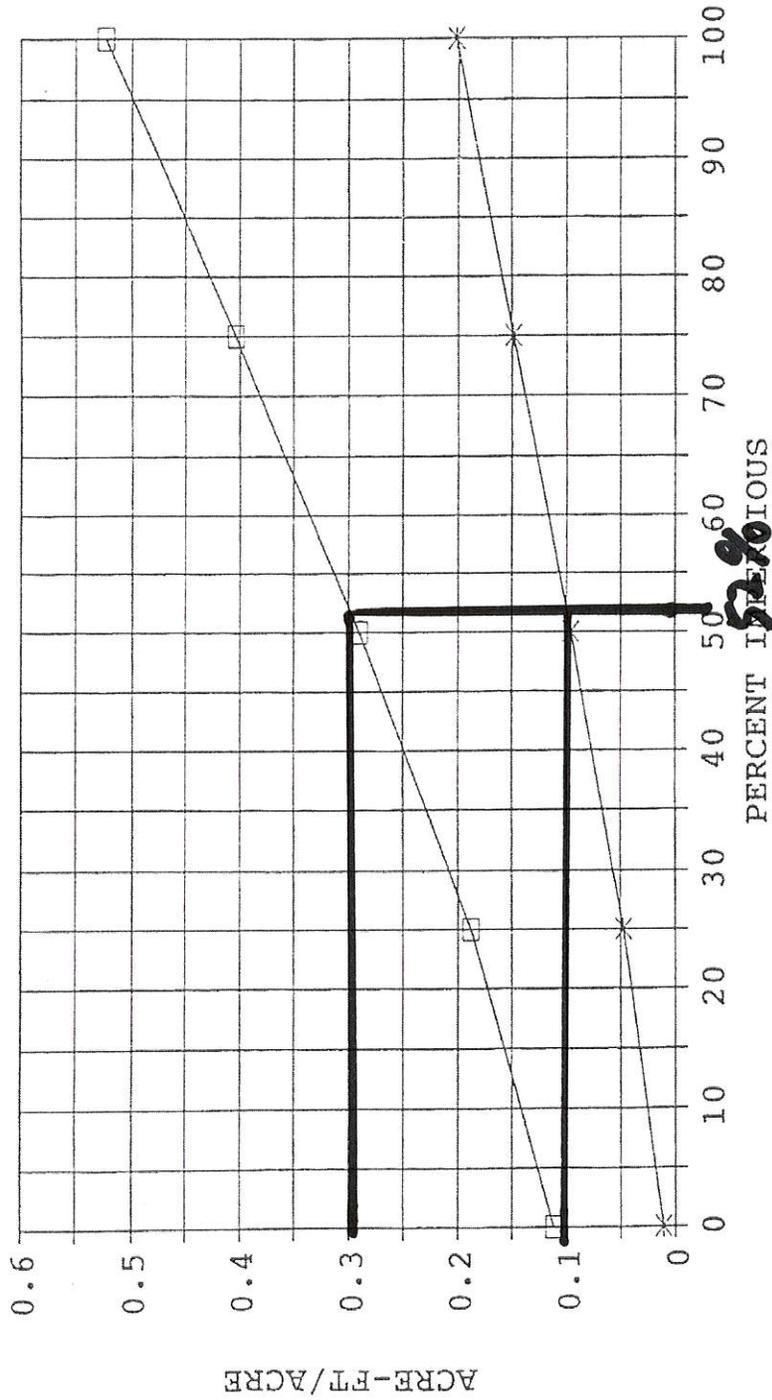
CLIENT: LONG GROVE SENIOR CARE  
 DRAWN BY: BTE CHECKED BY: MJC  
 P.I.N.: 14-25-300-009  
 JOB NO.: 140314

	SQ.FT.	ACRES
TOTAL TRIBUTARY AREA	<u>247,000</u>	<u>5.670</u>
PROPOSED IMPERVIOUS AREA*	153,000	3.512
PROPOSED PERVIOUS AREA*	94,000	2.158

\* INSIDE TRIBUTARY AREA

# DETENTION VOLUME NOMOGRAPH

DETENTION VOLUME VS PERCENT IMPERVIOUS  
2-YEAR AND 100-YEAR UNIT AREA DETENTION



2-year release = 0.04 cfs/acre, 100-year release = 0.15 cfs/acre

—\*— 2-YEAR —□— 100-YEAR

Reference: Northeastern Illinois Planning Commission, Investigation of Hydrologic Methods for Urban Development in Northeastern Illinois

100 YR - 0.3 x 6.93 = 2.07 AC-FT  
2 YR - 0.1 x 6.93 = 0.69 AC-FT

# DEPRESSIONAL STORAGE CALCULATIONS

LONG GROVE SENIOR CARE  
VSEI No.: 140314



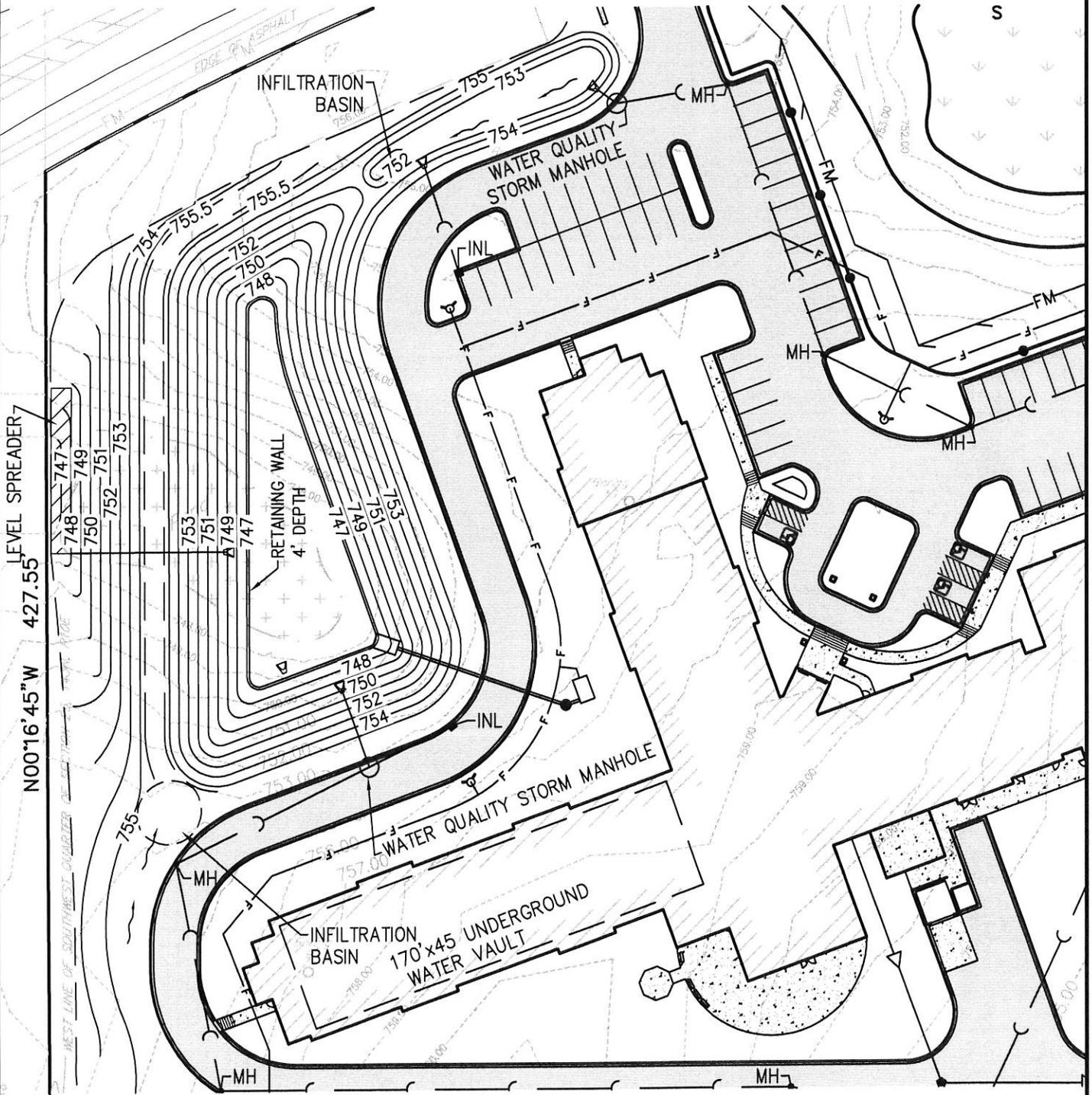
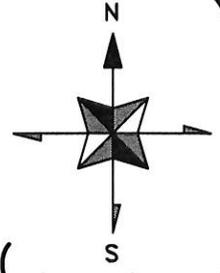
DEPRESSIONAL STORAGE						
STAGE	ΔELEV	AREA (FT <sup>2</sup> )	AREA (AC.)	AVG. AREA (AC.)	STORAGE (AC-FT)	Σ STORAGE (AC-FT)
754.50	0.00	0	0.00	0.00	0.00	0.00
755.00	0.50	4851	0.11	0.06	0.03	0.03
755.50	0.50	21100	0.48	0.27	0.14	0.16

**DRAINAGE PLAN**  
-  
**DETENTION PROVIDED ANALYSIS**

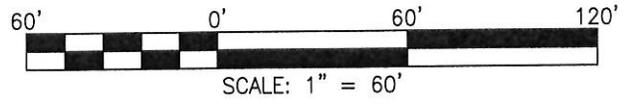


Vanderstappen Surveying & Engineering, Incorporated  
 1316 North Madison Street, Woodstock, Illinois  
 (815) 337-8310 www.vandersinc.com

# DRAINAGE PLAN



CLIENT: LONG GROVE SENIOR CARE  
 DRAWN BY: BTE CHECKED BY: MJC  
 P.I.N.: 14-25-300-009  
 JOB NO.: 140314



LONG GROVE SENIOR CARE  
VSEI No.: 140314



PROPOSED DETENTION BASIN						
STAGE	$\Delta$ ELEV	AREA (FT <sup>2</sup> )	AREA (AC.)	AVG. AREA (AC.)	STORAGE (AC-FT)	$\Sigma$ STORAGE (AC-FT)
748.00	0.00	6620	0.15	0.00	0.00	0.00
749.00	1.00	8390	0.19	0.17	0.17	0.17
750.00	1.00	10300	0.24	0.21	0.21	0.39
751.00	1.00	12400	0.28	0.26	0.26	0.65
752.00	1.00	14600	0.34	0.31	0.31	0.96
753.00	1.00	17000	0.39	0.36	0.36	1.32
754.00	1.00	21769	0.50	0.45	0.45	1.77
754.50	0.50	23477	0.54	0.52	0.26	2.02