

**New Market V Addition**  
**Wichita, Sedgwick County, Kansas**  
2/06/08

New Market V Addition is a future 13.3 acre commercial development. This development is part of the New Market Development Master Plan. New Market V is a 13.3 acre, commercial development on the southwest corner of 29<sup>st</sup> Street North and Maize Road within the city limits of Wichita in Sedgwick County, Kansas. The development consists of parking lots, storm sewer, utilities services and detention pond that meet the requirements of the 2006 Cadillac Lake Drainage Study. This drainage report contains a drawing of the drainage plan and additional data for the New Market V Addition.

**Hydrology**

The proposed plat lies in the NE 1/4, Section 6, T27S, R1W. The soil on-site is comprised primarily of Waurika, which is classified in hydrologic group D. This site is located within the Cadillac Lake boundaries. Approximately 1 acre or more of the site is considered a wetland and is regulated by the Department of Army Corps of Engineers. The land is currently vacant and is grassland throughout with the exception of the wetland area stated above. The site is bordered to the north by 29<sup>st</sup> Street North, to the south by the Target Store property, to the east by Maize Road and to the west by the Evergreen Addition and vacant property. This property is naturally used as a detention facility for approximately 1,217 acres. There is a 36" RCP, elevation 1346.20, that is at the SE corner of the property with drains under Maize Road and into Cadillac Lake. The existing RCP can discharge around 65 cfs, the pipe can't handle the peak runoff from the basin on the west side of Maize Road, which is detained on the New Market V site and adjacent properties.

The proposed site will be filled, (minimum pad elevation of 1354.00 NGVD) and the storm water runoff will drain to a proposed detention facility behind the property. In the Cadillac Lake Drainage Study the detention pond west of the property had to be increased

to handle the additional flows from the entire basin for the 100 year storm event. This property was included in the drainage study therefore the detention pond will be enlarged with this site development to meet the Cadillac Lake Drainage Study requirements. HEC-1 input and output files weren't included in this report due to the Cadillac Lake Study and the proposed detention pond. The water from the site will drain into the proposed detention pond with a bottom elevation of 1341.00 where it will be pump out by a 5,000 gpm pump station into the Cadillac Lake area on the west side of Maize Road. The finished floor elevation for the building will be set 3 feet higher than Maize Road. The filling of the property will require permits from the Division of Water Resources and the Corps of Engineers which will be applied for at a later date.

### **Site Excavation and Fill**

The proposed New Market V site will excavate approximately 88,000 cubic yards of dirt from the proposed pond. All the excavation will be used on-site with an additional 20,000 cubic yards needed to fill the site to the proposed building pad elevations.

### **Storm Sewer Design**

The storm sewer hydrologic analysis was not preformed for this site. Due to commercial property changing layouts and this property being already included in the Cadillac Lake Drainage Study. The drainage plan shows the emergency 100 year overflow and the drainage reserve locations. The storm water system will be designed for a 2 year storm event at a later date when the site layout has been determined and finalized. It is known that all the storm water runoff will drain to the detention pond on the west side of property, (behind the proposed building location).

### **Design Aids**

This section includes material used to assist in designing the drainage system. A 1" = 100' scale Drainage Plan map (Attachment A).

## **References**

Design of Urban Highway Drainage – The State of the Art, by Reitz & Jens, Inc., April 1980.

Drainage of Highway Pavements, Hydraulic Engineering Circular #12, by Tye Engineering, Inc., March 1984.

Interim Drainage and Storm Sewer Policy for Design Criteria and Documentation, City of Wichita, Kansas, 1985.

Soil Survey of Sedgwick County, Kansas, US Department of Agriculture, Soil Conservation Service, 1979.