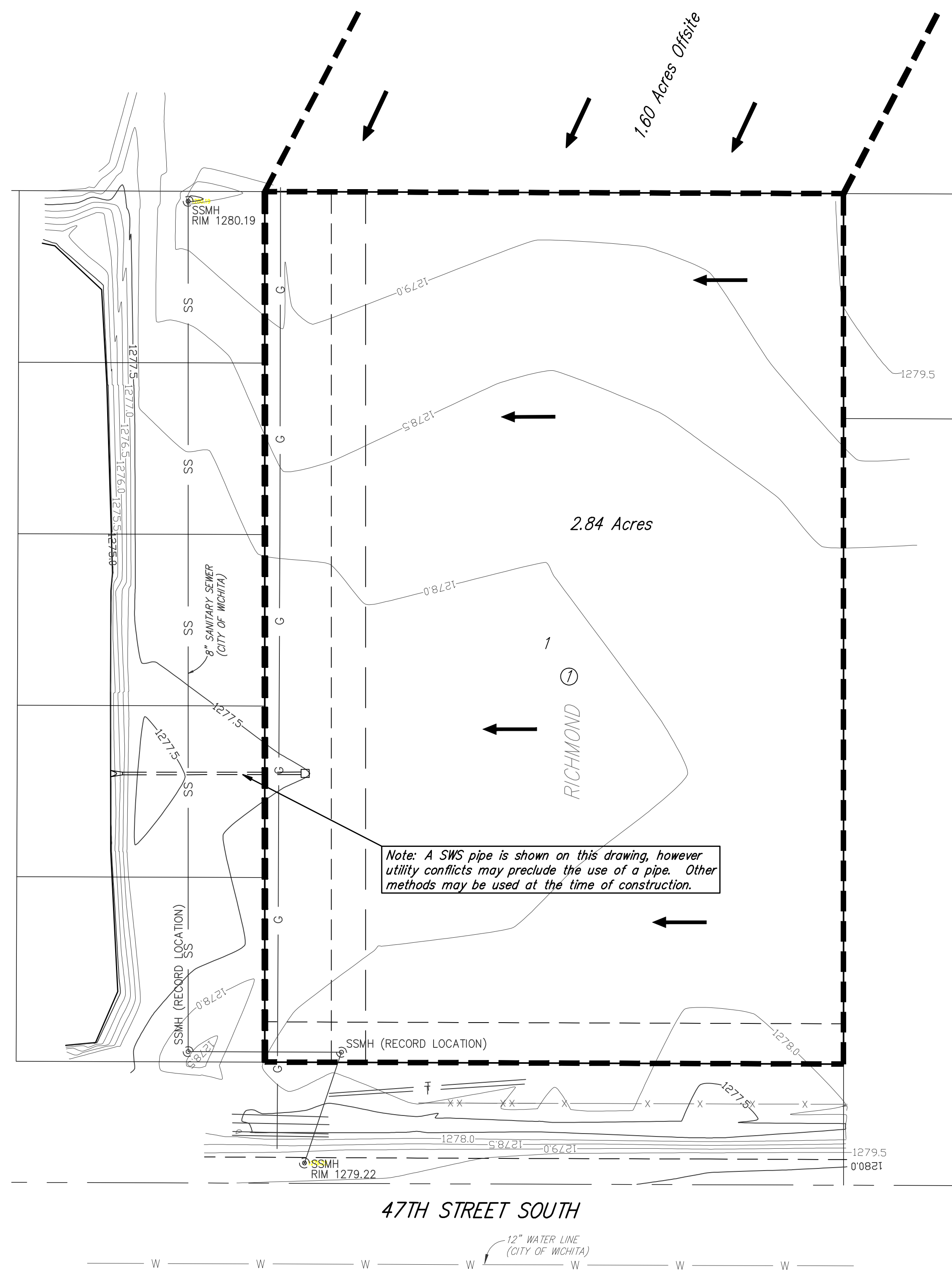


# Drainage Plan

## WESTSIDE CHURCH OF CHRIST

### an Addition to Wichita, Sedgwick County, Kansas



**Existing Conditions**

**Soil Type**  
 50% Punkin-Taver; Hydrologic Group D  
 50% Naron; Hydrologic Group B

**Existing Time of Concentration**

$T_{c1} = L_1 / V_1 = 300' / 0.28 \text{fps} = 17.85 \text{ min.}$   
 $T_{c2} = L_2 / V_2 = 388' / 0.77 \text{fps} = 8.4 \text{ min.} \Rightarrow 26 \text{ min.}$

Area	C <sub>2</sub>	C <sub>100</sub>	l <sub>2</sub>	l <sub>100</sub>	Q <sub>2</sub>	Q <sub>100</sub>	
Offsite	1.60	0.28	0.53	2.90	5.79	1.3	2.8
West	2.60	0.28	0.53	2.90	5.79	2.1	8.0
South	0.24	0.28	0.53	2.90	5.79	0.2	0.7

**Proposed Conditions**

Proposed use shall be a church, use neighborhood business area from Attachment D; C<sub>2</sub>=0.68, C<sub>100</sub>=0.80.

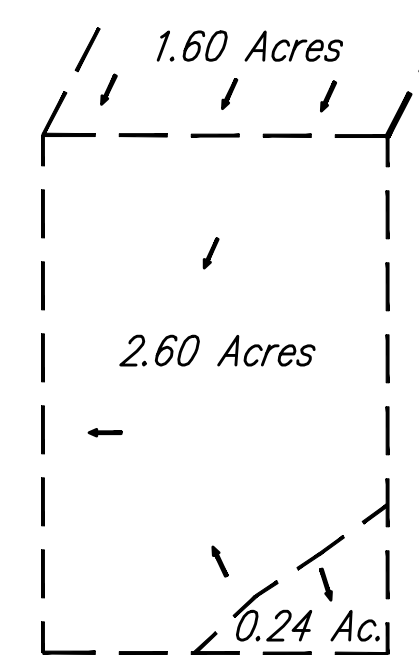
**Proposed Time of Concentration**

$T_{c1} = L_1 / V_1 = 300' / 0.28 \text{fps} = 17.85 \text{ min.}$   
 $T_{c2} = L_2 / V_2 = 388' / 1.40 \text{fps} = 4.6 \text{ min.} \Rightarrow 22 \text{ min.}$

Area	C <sub>2</sub>	C <sub>100</sub>	l <sub>2</sub>	l <sub>100</sub>	Q <sub>2</sub>	Q <sub>100</sub>	
Offsite	1.60	0.28	0.53	3.17	6.39	1.4	5.4
West	2.84	0.68	0.80	3.17	6.39	6.1	14.5

The proposed drainage pattern shall be to sheet drain towards the west property line. The runoff will be collected at the low point on the west property line conveyed into the existing pond. The method of conveyance shall be determined during the final design of the project. A SWS pipe is shown on this drawing, however utility conflicts may preclude the use of a pipe. Other methods may be used at the time of construction. The existing pond located on Angel Acres is formerly a borrow pit and is approximately 4.4 acres in area and 2.5' in depth, a minimum of 12 acre-feet in storage. The additional runoff generated by the development should have no appreciable negative effect on the downstream drainage conditions.

A preliminary estimate of the required storage volume indicates that 0.5 acre-feet are necessary to detain the proposed site. As shown above, the existing pond provides a minimum of 12 acre-feet of storage, much more than the 0.5 acre-feet required. Therefore, the existing pond shall satisfy the detention requirements of the proposed development. At this time the same ownership controls both the proposed plot and Angel Acres. If the existing pond should be filled in to reclaim the area for development, an area sufficient to supply the detention volume described above should be preserved.



Existing Drainage Patterns

