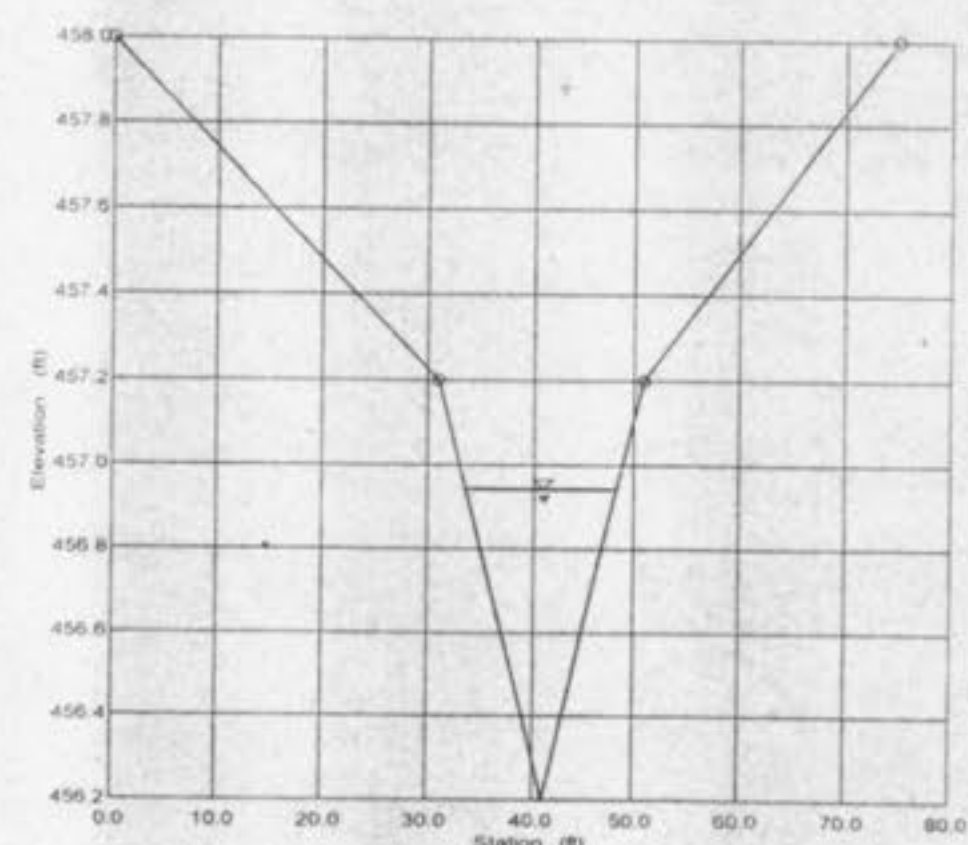


### WARPING DETAILS

SCALE: 1" = 30'

Cross Section A-A  
Cross Section for Irregular Channel

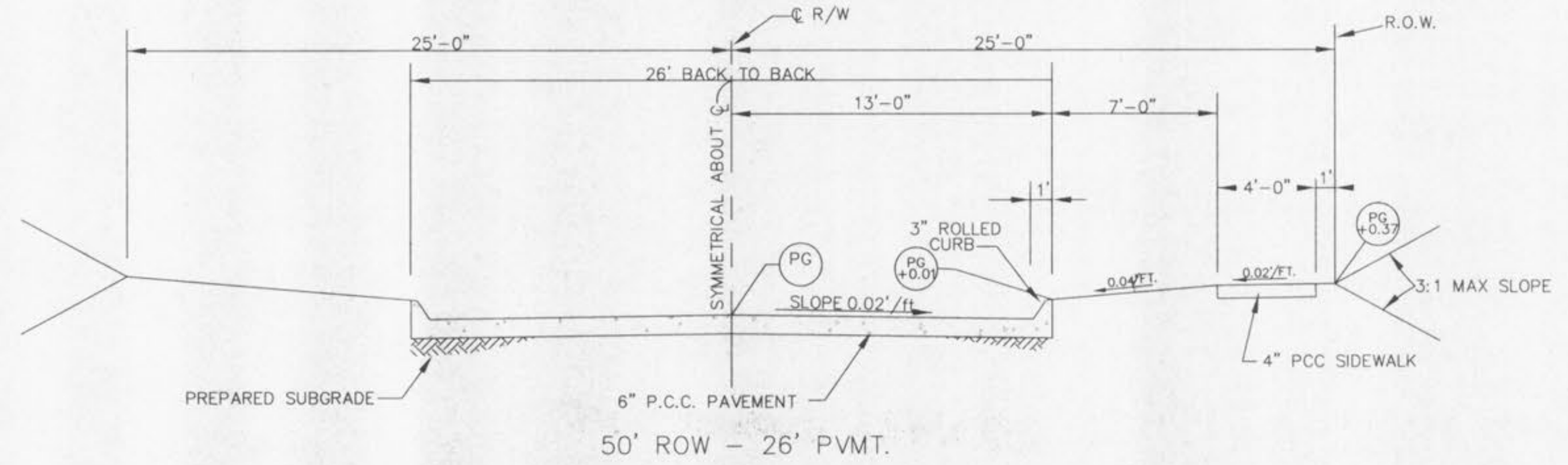
Project Description	
Project File	c:\hardsat\hmg\highgrove\h2
Worksheet	Section a-a
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Water Elevation
Section Data	
W.M. Manning Coefficient	0.040
Channel Slope	0.046300 R/R
Water Surface Elevation	456.94 ft
Discharge	22.50 cfs



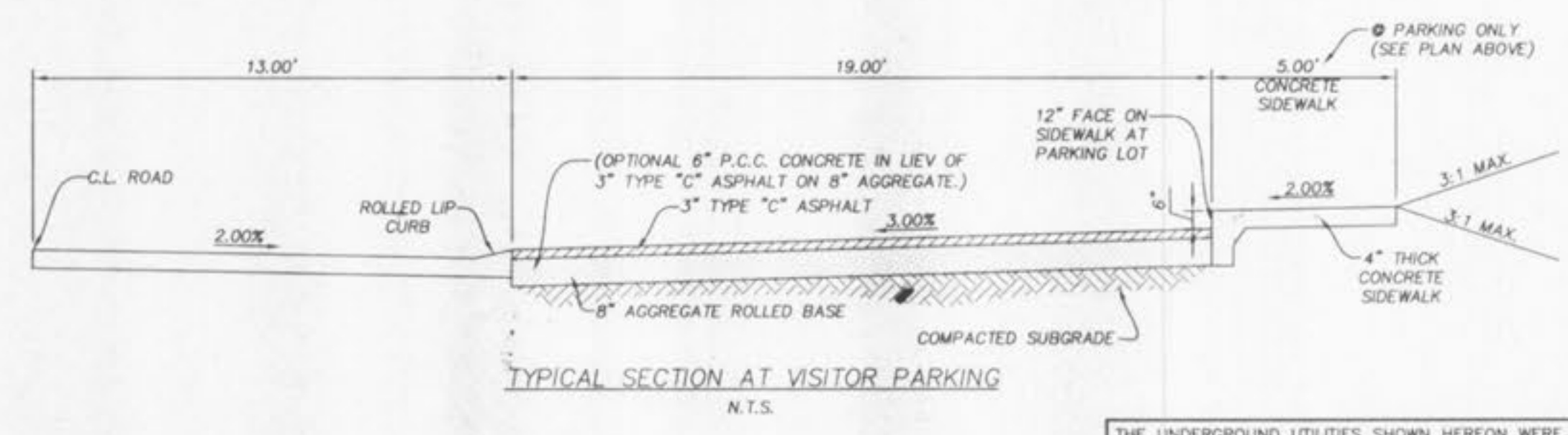
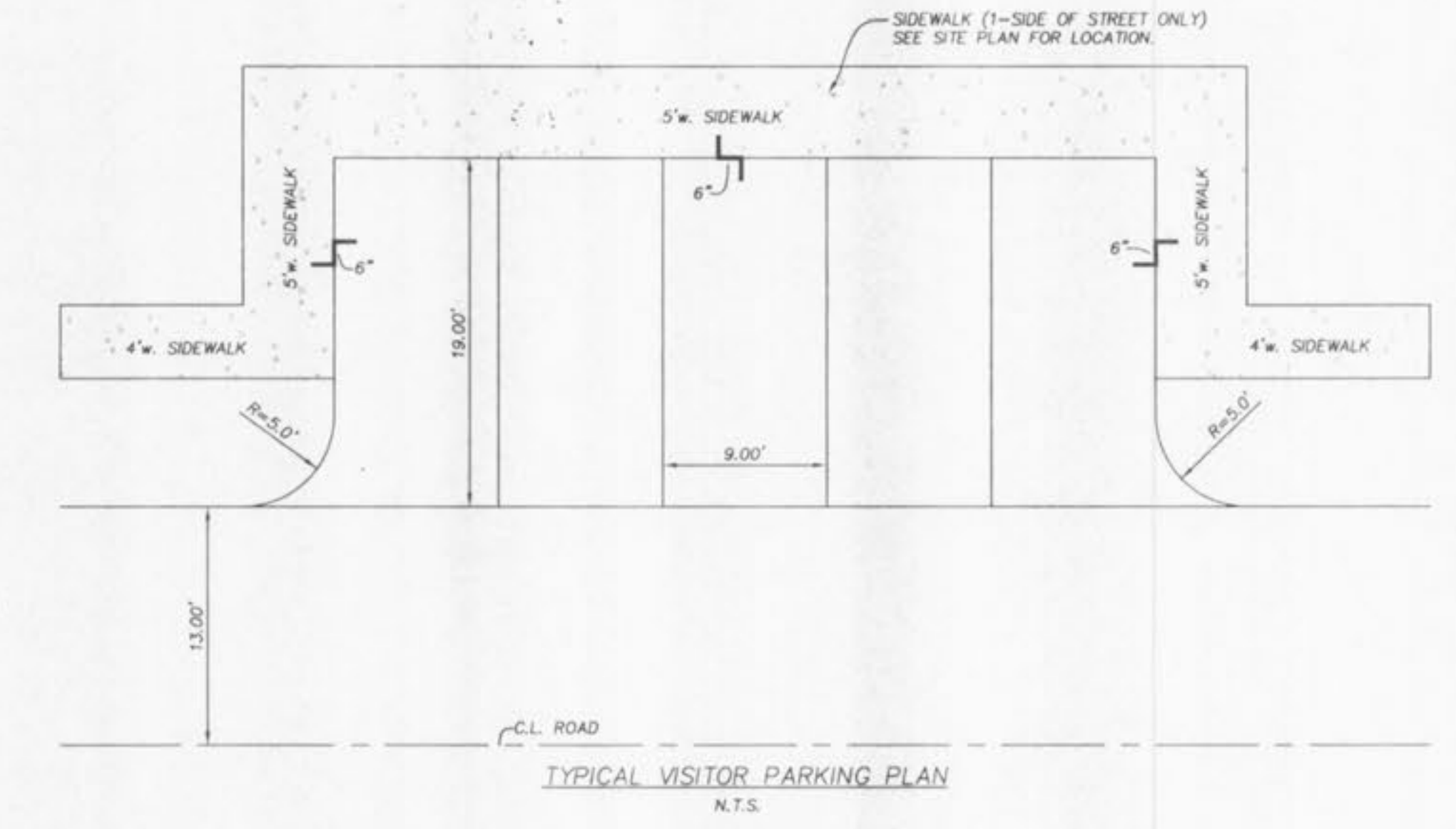
High grove Sec a-a  
Worksheet for Irregular Channel

Project Description				
Project File	c:\hardsat\hmg\highgrove\h2			
Worksheet	Section a-a			
Flow Element	Irregular Channel			
Method	Manning's Formula			
Solve For	Water Elevation			
Input Data				
Channel Slope	0.046300 R/R			
Elevation range	456.20 ft to 458.00 ft			
Station (ft)	Elevation (ft)	Start Station	End Station	Roughness
0.00	458.00	0.00	31.00	0.030
31.00	457.20	31.00	51.00	0.040
41.00	456.20	51.00	75.00	0.030
51.00	457.20			
75.00	458.00			
Discharge	22.50 cfs			
Results				
W.M. Manning Coefficient	0.040			
Water Surface Elevation	456.94 ft			
Flow Area	5.44 ft <sup>2</sup>			
Wetted Perimeter	14.88 ft			
Top Width	14.80 ft			
Height	0.74 ft			
Critical Depth	456.99 ft			
Critical Slope	0.031941 R/R			
Velocity	4.11 ft/s			
Velocity Head	0.26 ft			
Specific Energy	457.20 ft			
Froude Number	1.19			
Flow is	supercritical			

### CROSS SECTION A-A



### TYPICAL PAVEMENT SECTIONS



THE UNDERGROUND UTILITIES SHOWN HEREON WERE PLOTTED FROM AVAILABLE INFORMATION AND DO NOT NECESSARILY REFLECT THE ACTUAL EXISTENCE, NONEXISTENCE, SIZE, TYPE, NUMBER OR LOCATION OF THESE OR OTHER UTILITIES. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE ACTUAL LOCATION OF ALL UNDERGROUND UTILITIES, SHOWN OR NOT SHOWN, AND SAID UTILITIES SHALL BE LOCATED IN THE FIELD PRIOR TO ANY GRADING, EXCAVATION OR CONSTRUCTION OF IMPROVEMENTS. THESE PROVISIONS SHALL IN NO WAY ABSOLVE ANY PARTY FROM COMPLYING WITH THE UNDERGROUND FACILITY SAFETY AND DAMAGE PREVENTION ACT, CHAPTER 319, RSMo

ISSUE REMARKS/DATE	
1	Original Issue 05/28/99
2	PER CITY COMMENTS REISSUED 07/02/99

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DRAWN	DESIGNED	CHECKED
K.K.	K.K.	K.K.

PROJECT:  
**VILLAS AT HIGHGROVE  
PHASE TWO**

SHEET TITLE:  
WARPING DETAILS

NO.	08	02	036
M.S.D.	SHEET		
P#	9		
DIGITAL FILE LOCATION	SERVER=STERLING-1		
DATE	07/02/99		
OF	18		