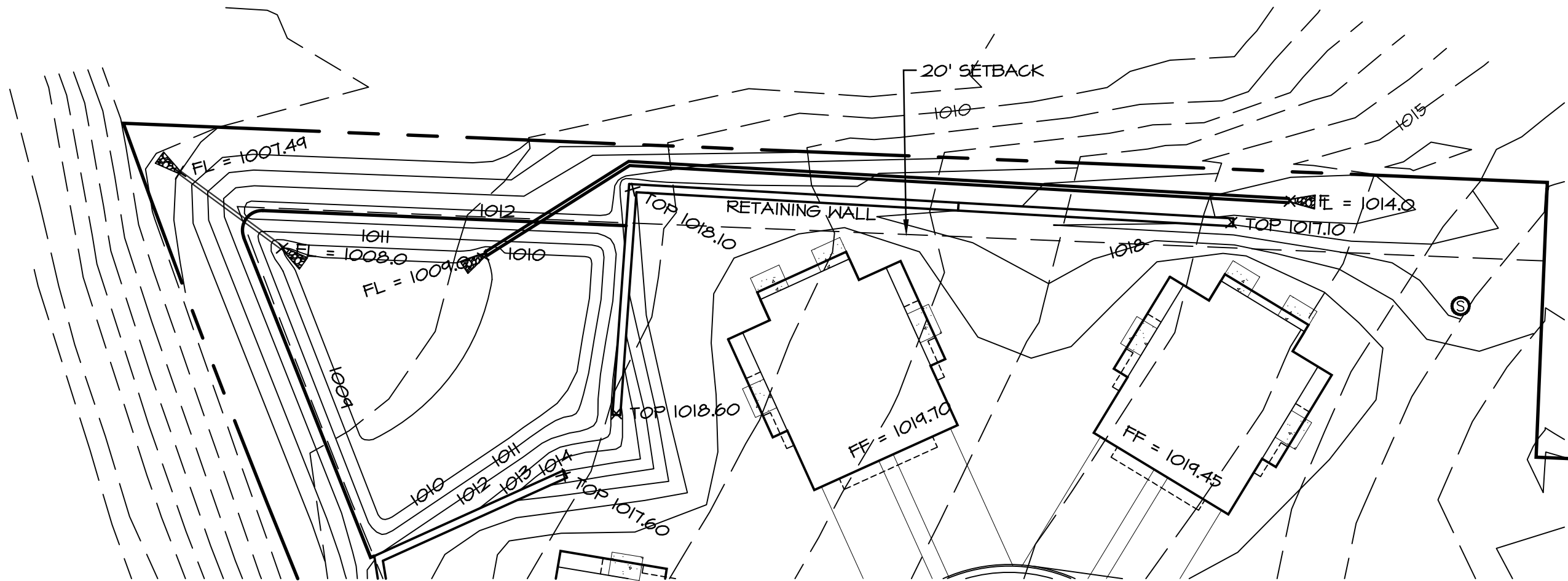


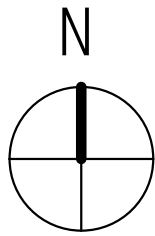
PROFILE		BY		DATE	
NOTE BOOK	No. _____	SURVEYED	GRADES CHECKED	B.M.'S. NOTED	STRUCTURE NOTATIONS CHECKED

PROFILE		BY		DATE	
NOTE BOOK	No. _____	SURVEYED	GRADES CHECKED	B.M.'S. NOTED	STRUCTURE NOTATIONS CHECKED



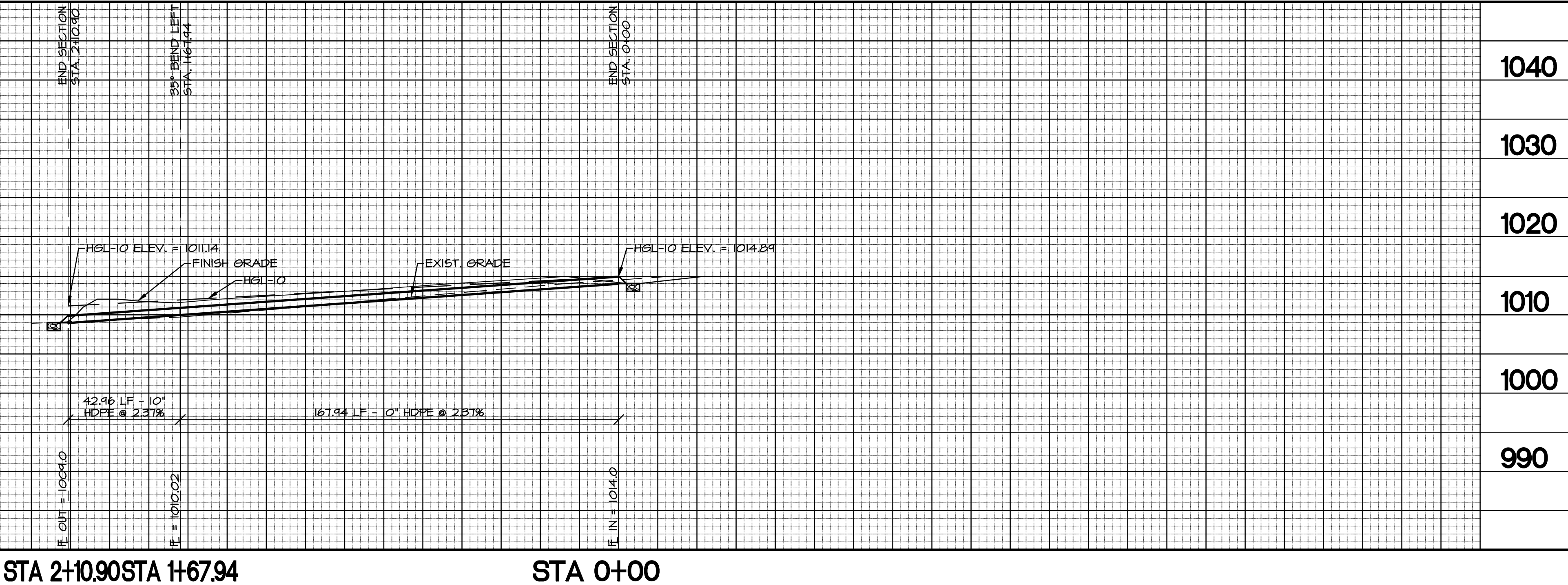
PARTIAL SITE PLAN

SCALE: 1" = 30'-0"



HYDRAULIC GRADE LINE CALCULATION

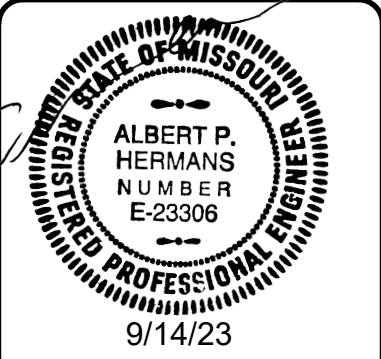
DESIGN STORM = 10 YEARS
Q10 = 2.20 CFS
PIPE DIAMETER = 10" HDPE
PIPE LENGTH = 210.4'
PIPE SLOPE = 0.0231 FT/FT
PIPE AREA = 0.5454 FT²
PIPE MANNING COEFFICIENT = 0.010
PIPE HYDRAULIC RADIUS = 0.417 / 2 = 0.208 FT
ESTIMATED TAILWATER DEPTH = 0.31' ABOVE PIPE FL
GRAVITATIONAL CONSTANT = 32.2 FT/SEC²
OUTLET VELOCITY = 2.20 / (PI*(0.833/2)²) = 4.034 FPS
VELOCITY HEAD = 4.034² / (2*32.2) = 0.253 FT
EXIT LOSS = 1.0 * [(0.253) / 0.253]² = 0.253 FT (ASSUME DISCHARGE INTO RESERVOIR)
FRICTION SLOPE = [(2.20*0.010) / (1.486*0.545*0.208^{4/3})]² = 0.006 FT/FT
PIPE FRICTION LOSS = 210.4 * 0.006 = 1.258'
INITIAL HEADLOSS COEFFICIENT = 0.5
PIPE DIAMETER CORRECTION FACTOR = 1.0
PIPE CORRECTION FOR FLOW DEPTH = 1.0
PIPE CORRECTION FOR RELATIVE FLOW = 1.0
PIPE CORRECTION FOR PLUNGING FLOW = 1.0
CORRECTION FOR BENCHING = 1.0
STRUCTURE LOSSES = 0.5*1.0⁵ = 0.5
ENERGY GRADE LINE - OUTLET = 0.253 + (0.31+0.833)/2 = 0.825'
ENERGY GRADE LINE - INLET = 1.258 + 0.825 = 2.083'
HYDRAULIC GRADE LINE = 2.083 - 0.253 = 1.83'



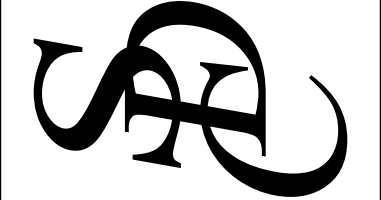
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DATE:	9/12/23
REVISION	
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