



PROJECT #: 025-026	No.	Revisions	Date	Prepared For: STEPHEN NUCKOLS 4910 SPRINGHILL RD BRYANT, AR	STORM SEWER BASIN MAP CORNERSTONE MONTESSORI 4910 SPRINGHILL RD BRYANT, ARKANSAS	 RICHARDSON ENGINEERING Planning • Engineering • Development Consulting 325 W. SOUTH STREET, BENTON, AR 72015 (501)315-7225	
							Scale: 1" = 30'
							Sheet: 1 of 1



PROJECT Cornerstone Montessori

DATE 9-4-25

Basin A

$$96,934 \text{ ft}^2 \approx 2.23 \text{ acres}$$

18 inch pipe Selected
(1.5 ft)

$$TC = 20.46 \text{ min}$$

$$I = 6.08 \text{ in/hr}$$

$$C = 0.40$$

Rational Method

$$Q = CIA$$

$$0.40 (6.08 \text{ in/hr}) 2.23 \text{ acres} = 5.42 \text{ cfs}$$

Minimum Pipe Diameter

$$D = \left[\frac{C_o Q n}{\sqrt{S}} \right]^{3/8} \quad (\text{PE Civil Ref Handbook Version 2.0.2 pg 348})$$

$$C_o = 2.16 \text{ For USCS units}$$

$$Q = \text{cfs}$$

$$n = \text{Manning roughness}$$

$$S = \text{slope (ft/ft)}$$

$$D = \text{minimum pipe size in feet}$$

$$\left[\frac{2.16 (5.42 \text{ cfs}) 0.012}{\sqrt{0.0226}} \right]^{3/8}$$

$$= 0.97 \text{ Feet} < 1.5 \text{ Feet}$$

minimum pipe selected pipe