

SITE DATA

County ROCKINGHAM SR SR 1785 CHURCH ST Bridge Over TACKETT BRANCH

Drainage Area 1220 ACRES Source USGS QUAD Character URBAN (EXISTING IA=10%)

River Basin (1.9 Sq Miles) ROANOKE NWEDEN

Stream Classification (Such as Trout, High Quality Water, etc.) C

Proposed Structure 17'-3" x 11'-0" CASPPA W/HW & EW & SILLSBAFFLES Sta 12+60 -L- Skew 96

Existing Structure 2 @ 96" CMP

Existing Structures Up and Down Stream

Historical Flood Information:

Date Elev. Est. Freq. NO. of Source PHILIP BREWER Period of Knowledge 20 YEARS

Date Elev. Est. Freq. Source Period of Knowledge

Channel Slope 0.015 ft/ft Source SURVEYS Normal Water Surface Elev. 521.0

Manning's n : Left 0.10 Channel 0.04 Right 0.10 Source FIELD OBSERVATION

Flood Study / Status DETAILED STUDY Floodway Established? YES

EXISTING 2 @ 96" CMP OPENING = 100.3 SQ FT

PROPOSED 17'-3" - 11'-0" OPENING = 138.8 SQ FT (BURIED 1')

CULVERT DESIGN DATA

Hydrological Method USGS 2014-5030

Hydraulic Design Method HDS-5; FLOWMASTER

Size & Type	Q	Ke	Inlet Control		Outlet Control							Remarks
			HW/D	H.W.	dc	dc+D/2	h0	H	LS0	H.W.	H.W. ELEV.	
EXIST. 2 @ 96" CMP	1350	0.5	1.54	12.3	6.6	7.3	-	6.0	1.3	12.0	532.0	50 YR
EXIST. 2 @ 96" CMP	1200	0.5	1.36	10.9	6.2	7.1	-	4.7	1.3	10.5	530.6	FEMA 100 YR
*PROP 17'-3" x 11'-0" CASPPA	1350	0.5	0.99	10.4	6.8	8.6	-	3.1	1.6	10.1	530.0	50 YR
*PROP 17'-3" x 11'-0" CASPPA	1200	0.5	0.92	9.7	5.9	8.2	-	2.2	1.6	8.8	528.4	FEMA 100 YR
*ANALYZED BURIED 1'												
Design Control	IMPROVE EXISTING LOS AND 100 YR BACKWATER											
Outlet Velocity, (V10)	12.2 FT/S											
Required Outlet Protection	CLASS II RIP RAP											

PROJECT DESCRIPTION

PROJECT: 17BP.7.C.8

REPLACE CULVERT #2147 ON SR 1785 (CHURCH ST) OVER TACKETT BRANCH

LAT 36.5059 LONG -79.7611

SCALE:

1" = 50' HORIZ 1" = 10' VERT.

COMPUTATIONS

IA = 30% (FUTURE)

Streamstats: DA=1.9 sq miles; IA=10%

USGS URBAN REGION 1 SIR 2014-5030

FEMA DISCHARGES DETAILED STUDY - TACKETT BRANCH

Q10 = 1000 CFS

Q50 = 1350 CFS

Q100 = 1500 CFS

Q100 = 1200 CFS

PROJECT REFERENCE NO.

HYDRAULICS ENGINEER

SURVEY BY: DESIGNED BY: W.G. CAIL

DRAWN BY: CHECKED BY:

DATE: 9/24/18 REV 124/19 REV 123 REV 323

