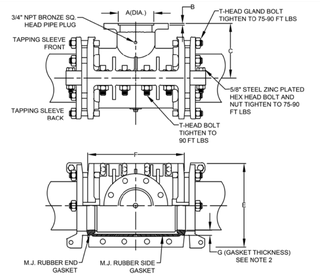
PROJECT REFERENCE NO.	SHEET NO.
U-4405	UC-03F
DESIGNED BY: AMH	
DRAWN BY: AMH/AB	
CHECKED BY: AMH	
APPROVED BY: MWF	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	UTILITY CONSTRUCTION PLANS ONLY

NORTH CAROLINA PROFESSIONAL SEAL 025490 ENGINEER MARK W. FISHER

DocuSigned by: Mark W. Fisher 6/12/2018 8E5F3B3B4F3C4DD

UTILITY CONSTRUCTION



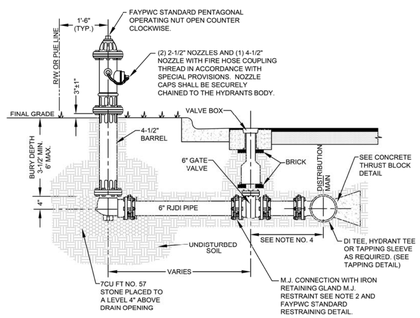
NOTES:
1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH FAYPWC STANDARDS. SLEEVE BODY SHALL BE DUCTILE IRON ASTM A536.
2. MECHANICAL JOINT TAPPING SLEEVES SHALL BE AS MANUFACTURED BY CLOW, M & H, MUELLER, OR AMERICAN AND SHALL BE FURNISHED WITH SPLIT GLANDS, SPLIT END GASKET, BOLTS, ETC. THE OUTLET FLANGE SHALL BE CL. 125 PER ANSI B16.1 COMPATIBLE WITH APPROVED TAPPING VALVES.
3. DIMENSIONS SHOWN ARE FOR REFERENCE AND MAY VARY BASED UPON MANUFACTURER. SLEEVES SHALL BE SIMILAR IN NATURE TO THAT SHOWN AND SHALL NOT DEVIATE IN ESSENTIAL DETAILS.
4. PIPE SURFACES SHALL BE CLEANED THOROUGHLY TO PERMIT FOR A GOOD SEAL PRIOR TO INSTALLATION.
5. EXTERIOR OF TAPPING SLEEVE SHALL BE COATED WITH 2 COATS ASPHALTIC VARNISH MIL-C450.
6. ALL TAPPING SLEEVES SHALL BE HYDROSTATICALLY PRESSURE TESTED IN ACCORDANCE WITH FAYPWC SPECIFICATIONS. TEST SHALL BE WITNESSED AND APPROVED BY FAYPWC PROJECT COORDINATOR PRIOR TO BEGINNING TAPPING PROCESS.
7. SEE DETAILS W.9 AND W.17 FOR ADDITIONAL REQUIREMENTS.

SLEEVE FOR USE WITH CI OR DI PIPE

SLEEVE SIZE: PIPE x BRANCH	6X6	8X6	8X8	12X6	12X8	12X12	16X6	16X8	16X12	24X6	24X8	24X12	24X16	24X24	30X6	30X8	30X12	30X16	30X24
A DIA +.031-.000	7.016	7.016	9.016	7.016	9.016	13.016	7.016	9.016	13.016	11.00	13.5	19.0	23.5	32.0	11.00	13.5	19.0	23.5	32.0
B	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
C	7-7/8	9-1/16	9	11-5/8	11-7/8	12-7/8	14-1/8	14-1/2	14-7/8	19.5	19.5	20.5	20.5	20.5	23.25	23.25	23.25	23.75	23.75
E	11-3/4	13-7/8	13-7/8	18-1/2	18-1/2	18-1/2	23-1/2	23-1/2	23-1/2	35.5	35.5	35.5	35.5	35.5	43.37	43.37	43.37	43.37	43.37
F	13-1/2	15	15	19-1/2	19-1/2	19-1/2	22-1/2	22-1/2	22-1/2	18.0	18.0	24.0	30.0	36.0	24.0	24.0	24.0	36.0	36.0

DUCTILE IRON TAPPING SLEEVE N.T.S.	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	NO.	DATE	REVISION
SHEET NO. 1 OF 1 · DWG. NO. W.10 · DWG. BY: FAYPWC · DATE: JAN. 01, 2018 · APPROVED BY: J.E.G.	WATER RESOURCES ENGINEERING DEPARTMENT	1	07/09	REVISED NOTE 6/REMOVED NOTE 8
		2	07/13	REVISED NOTES 6, 7

W10-M.J.-TAPPING-SLEEVE.dwg



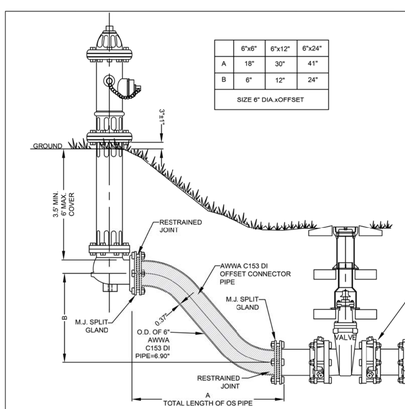
FIRE HYDRANT AND VALVE INSTALLATION N.T.S.	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	NO.	DATE	REVISION
SHEET NO. 1 OF 2 · DWG. NO. W.13 · DWG. BY: FAYPWC · DATE: JAN. 01, 2018 · APPROVED BY: J.E.G.	WATER RESOURCES ENGINEERING DEPARTMENT	1	10/23/03	REVISED NOTE NO. 4
		2	07/01/09	REVISED NOTE NO. 2, REMOVED NOTE NO. 3 AND ALTERED RESTRAINT DETAIL
		3	07/01/16	REVISED NOTES
		4	05/29/19	REVISED NOTES FOR NCDOT U-4405 AND INCLUDE PLACEMENT INSIDE PUE

W13-FHCC.dwg

NOTES:
1. FIRE HYDRANT SHALL BE MODELS MANUFACTURED BY MUELLER CO. (CENTURIAN), AMERICAN VALVE AND HYDRANT CO. (MODEL MARK 73). CLOW MEDALLION OR APPROVED EQUAL.
2. ALL VALVES AND HYDRANTS SHALL HAVE M.J. CONNECTIONS WITH IRON RETAINING GLAND M.J. RESTRAINT.
3. HYDRANT VALVE SHALL BE PLACED AS CLOSE AS POSSIBLE TO THE MAIN, BUT DO NOT PLACE VALVE IN PROPOSED OR EXISTING CURB AND GUTTER. IF THE STREET IS SOIL AND NO PAVING IS TO BE DONE AT THIS TIME, THE LOCATION OF THE VALVE IS TO BE DETERMINED BY THE ENGINEER.
4. HYDRANT BRANCH SHALL NOT BE BACK FILLED UNTIL INSPECTED AND APPROVED BY ENGINEER.
5. GATE VALVE AND BOX SHALL BE IN ACCORDANCE WITH FAYPWC STANDARD DETAIL.
6. HYDRANT EXTENSIONS AND/OR OFFSETS SHALL BE APPROVED BY ENGINEER.
7. FIRE HYDRANT CONNECTIONS TO EXISTING WATER MAINS SHALL BE MADE USING A TAPPING SLEEVE AND VALVE BY WET TAP CONNECTION. THE TAPPING SLEEVE AND VALVE SHALL BE HYDROSTATICALLY TESTED PRIOR TO STARTING THE TAP IN THE PRESENCE OF THE ENGINEER.
8. THE PROPOSED LOCATION MAY BE RELOCATED BY THE ENGINEER IF CONFLICTS EXIST (IE: GAS SERVICES, UGE, TELEPHONE, ETC.).
9. THE CONTRACTOR SHALL FIELD VERIFY THE EXISTING WATER MAIN MATERIAL, SIZE, AND DEPTH FOR EACH FIRE HYDRANT LOCATION PRIOR TO ORDERING MATERIALS. THE CONTRACTOR WILL BE REQUIRED TO SUPPLY VARIOUS LENGTHS OF BARRELS AND HYDRANT EXTENSIONS (NO MORE THAN ONE HYDRANT EXTENSION MAY BE USED PER HYDRANT). ADDITIONAL FITTINGS AND/OR HYDRANT EXTENSIONS OR OFFSET CONNECTORS MAY BE REQUIRED TO MAINTAIN PROPER COVER AS APPROVED BY THE ENGINEER.
10. CONTRACTOR SHALL NOTIFY THE APPROPRIATE FIRE DEPARTMENT OF OUT OF SERVICE FIRE HYDRANTS PRIOR TO CONSTRUCTION.
11. FIRE HYDRANT SHALL BE FIELD PAINTED IN ACCORDANCE WITH SPECIAL PROVISIONS, BEFORE PROJECT IS ACCEPTED. HYDRANTS SHALL BE PAINTED WITH A GREEN BONNET AND YELLOW BODY. PAINT SHALL BE IN ACCORDANCE WITH SPECIAL PROVISIONS. THE CONTRACTOR SHALL PAINT ALL EXPOSED EXTERIOR FIRE HYDRANT SURFACES PRIOR TO FINAL ACCEPTANCE BY ENGINEER. ALL PAINTING SHALL BE DONE IN STRICT ACCORDANCE WITH THE PAINT MANUFACTURER'S RECOMMENDATIONS AND SHALL BE SATISFACTORY TO THE ENGINEER.
12. PROTECTIVE COVERING SHALL BE UTILIZED, AS NECESSARY FOR PROTECTION OF ADJACENT AREAS. EQUIPMENT, SHRUBBERY, OR OTHER ITEMS. AFTER PAINTING IS COMPLETE, THE ENTIRE AREA SHALL BE THOROUGHLY CLEANED UP.
13. ALL PAINT MATERIALS SHALL BE IN THE ORIGINAL SEALED CONTAINERS BEARING THE MANUFACTURER'S NAME.
14. WHERE NECESSARY, THINNING SHALL BE DONE IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS, AND AS APPROVED BY ENGINEER.
15. ALL SURFACES TO BE PAINTED SHALL BE CLEAN AND DRY.
16. THE BONNET OF THE FIRE HYDRANT SHALL BE PAINTED A DARK GREEN, UTILIZING AN ALKYD OR POLYURETHANE ENAMEL. WITH A FINAL DRY MIL THICKNESS OF 4 TO 6 MILS. MULTIPLE COATS MAY BE NECESSARY TO ACHIEVE THE FINAL REQUIRED DRY MIL THICKNESS. THE PAINT SHALL BE FOREST GREEN, SAMPLES SHALL BE SUBMITTED IN ORDER FOR ENGINEER TO CONSIDER ALTERNATIVE PAINT MANUFACTURERS.
17. THE REMAINDER OF THE FIRE HYDRANT SHALL BE PAINTED SAFETY YELLOW, UTILIZING AN ALKYD OR POLYURETHANE ENAMEL, WITH A FINAL DRY MIL THICKNESS OF 4 TO 6 MILS. MULTIPLE COATS MAY BE NECESSARY TO ACHIEVE THE FINAL REQUIRED DRY MIL THICKNESS. THE PAINT SHALL BE YELLOW, BY THE SHERWIN-WILLIAMS COMPANY, PART NUMBER 3186, OR APPROVED EQUAL. SAMPLES SHALL BE SUBMITTED IN ORDER FOR ENGINEER TO APPROVE PAINT MANUFACTURERS.

FIRE HYDRANT AND VALVE INSTALLATION N.T.S.	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	NO.	DATE	REVISION
SHEET NO. 2 OF 2 · DWG. NO. W.13 · DWG. BY: FAYPWC · DATE: JAN. 01, 2018 · APPROVED BY: J.E.G.	WATER RESOURCES ENGINEERING DEPARTMENT	1	10/23/03	REVISED NOTE NO. 4
		2	07/01/09	REVISED NOTE NO. 2, REMOVED NOTE NO. 3 AND ALTERED RESTRAINT DETAIL
		3	07/01/16	REVISED NOTES
		4	05/29/19	REVISED NOTES 3, 4, 6, 7, 8, 9, 11, 16 AND 17

W13-FHCC.dwg

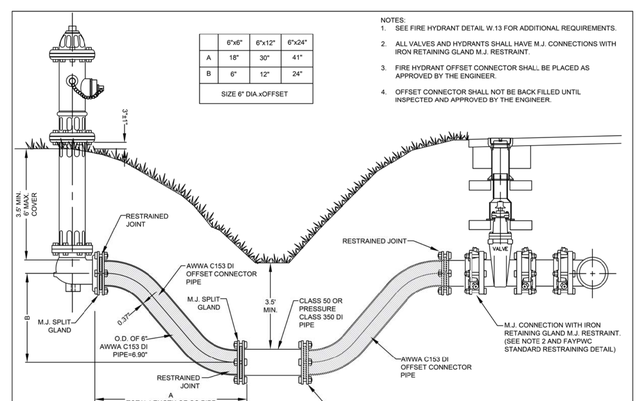


	6"x6"	6"x12"	6"x24"
A	18"	30"	41"
B	6"	12"	24"
SIZE 6" DIA.xOFFSET			

NOTES:
1. SEE FIRE HYDRANT DETAIL W.13 FOR ADDITIONAL REQUIREMENTS.
2. ALL VALVES AND HYDRANTS SHALL HAVE M.J. CONNECTIONS WITH IRON RETAINING GLAND M.J. RESTRAINT.
3. FIRE HYDRANT OFFSET CONNECTOR SHALL BE PLACED AS APPROVED BY THE ENGINEER.
4. OFFSET CONNECTOR SHALL NOT BE BACK FILLED UNTIL INSPECTED AND APPROVED BY ENGINEER.

RESTRAINED JOINT FIRE HYDRANT OFFSET CONNECTOR (STEEP BANK) N.T.S.4	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	NO.	DATE	REVISION
SHEET NO. 1 OF 2 · DWG. NO. W.14 · DWG. BY: FAYPWC · DATE: JAN. 01, 2018 · APPROVED BY: J.E.G.	WATER RESOURCES ENGINEERING DEPARTMENT	1	07/09	REVISED NOTES 1, 2, AND 3
		2	05/29/19	REVISED NOTES 3 AND 4 FOR NCDOT U-4405

W14-FH-OFFSET.dwg



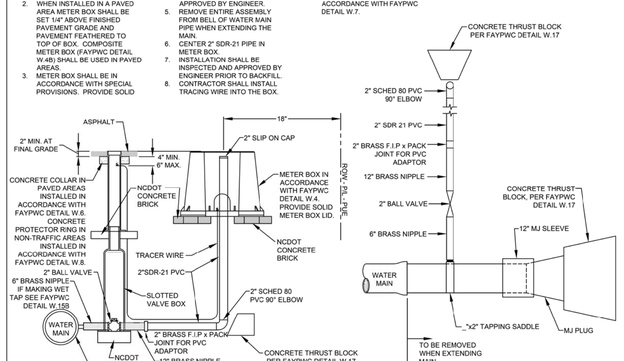
	6"x6"	6"x12"	6"x24"
A	18"	30"	41"
B	6"	12"	24"
SIZE 6" DIA.xOFFSET			

NOTES:
1. SEE FIRE HYDRANT DETAIL W.13 FOR ADDITIONAL REQUIREMENTS.
2. ALL VALVES AND HYDRANTS SHALL HAVE M.J. CONNECTIONS WITH IRON RETAINING GLAND M.J. RESTRAINT.
3. FIRE HYDRANT OFFSET CONNECTOR SHALL BE PLACED AS APPROVED BY THE ENGINEER.
4. OFFSET CONNECTOR SHALL NOT BE BACK FILLED UNTIL INSPECTED AND APPROVED BY THE ENGINEER.

RESTRAINED JOINT FIRE HYDRANT OFFSET CONNECTOR @ DITCH (N.T.S.)	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	NO.	DATE	REVISION
SHEET NO. 2 OF 2 · DWG. NO. W.14 · DWG. BY: FAYPWC · DATE: JAN. 01, 2018 · APPROVED BY: J.E.G.	WATER RESOURCES ENGINEERING DEPARTMENT	1	01/05	ADDED NOTES
		2	07/09	REVISED NOTES 1, 2, AND 3
		3	05/29/19	REVISED NOTES 3 AND 4 FOR NCDOT U-4405

W14-FH-OFFSET.dwg

NOTES:
1. ALL MATERIAL SHALL BE APPROVED BY ENGINEER.
2. WHEN INSTALLED IN A PAVED AREA METER BOX SHALL BE SET 1/4" ABOVE FINISHED PAVEMENT GRADE AND PAVEMENT FEATHERED TO TOP OF BOX. COMPOSITE METER BOX (FAYPWC DETAIL W.4B) SHALL BE USED IN PAVED AREAS.
3. METER BOX SHALL BE IN ACCORDANCE WITH SPECIAL PROVISIONS. PROVIDE SOLID METER BOX LID.
4. BLOW-OFF ASSEMBLY NOT TO BE RE-USED UNLESS APPROVED BY ENGINEER.
5. REMOVE ENTIRE ASSEMBLY FROM BELL OF WATER MAIN PIPE WHEN EXTENDING THE MAIN.
6. CENTER 2" SDR-21 PIPE IN METER BOX.
7. INSTALLATION SHALL BE INSPECTED AND APPROVED BY ENGINEER PRIOR TO BACKFILL.
8. CONTRACTOR SHALL INSTALL TRACING WIRE INTO THE BOX. A MINIMUM OF 2' OF WIRE SHALL BE IN BOX.
9. VALVE BOX TO BE INSTALLED IN ACCORDANCE WITH FAYPWC DETAIL W.7.



2" BLOW OFF N.T.S.	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	NO.	DATE	REVISION
SHEET NO. 1 OF 1 · DWG. NO. W.15 · DWG. BY: FAYPWC · DATE: JAN. 01, 2018 · APPROVED BY: J.E.G.	WATER RESOURCES ENGINEERING DEPARTMENT	1	08/06	CHANGED FITTINGS TO SCHED 80
		2	11/06	REVISED CONFIGURATION
		3	07/17	REVISED NOTES
		4	05/29/18	REVISED NOTES 1, 3, 4 AND 7 AND INCLUDE PUE FOR NCDOT U-4405

W15-2-BLOWOFF.dwg

5/14/99
01-JUN-2018 14:41
pb_proj@ncdot.gov
pbarnhill
$cdpb$dgnssfayetteville Public Works Commission\2015017700RA Raeford Road NCDOT U 4405\CADD\NCDOT PLANS\Utilities\Engineering\UC\Proj\u4405_ut_dtl_UC03F.dgn