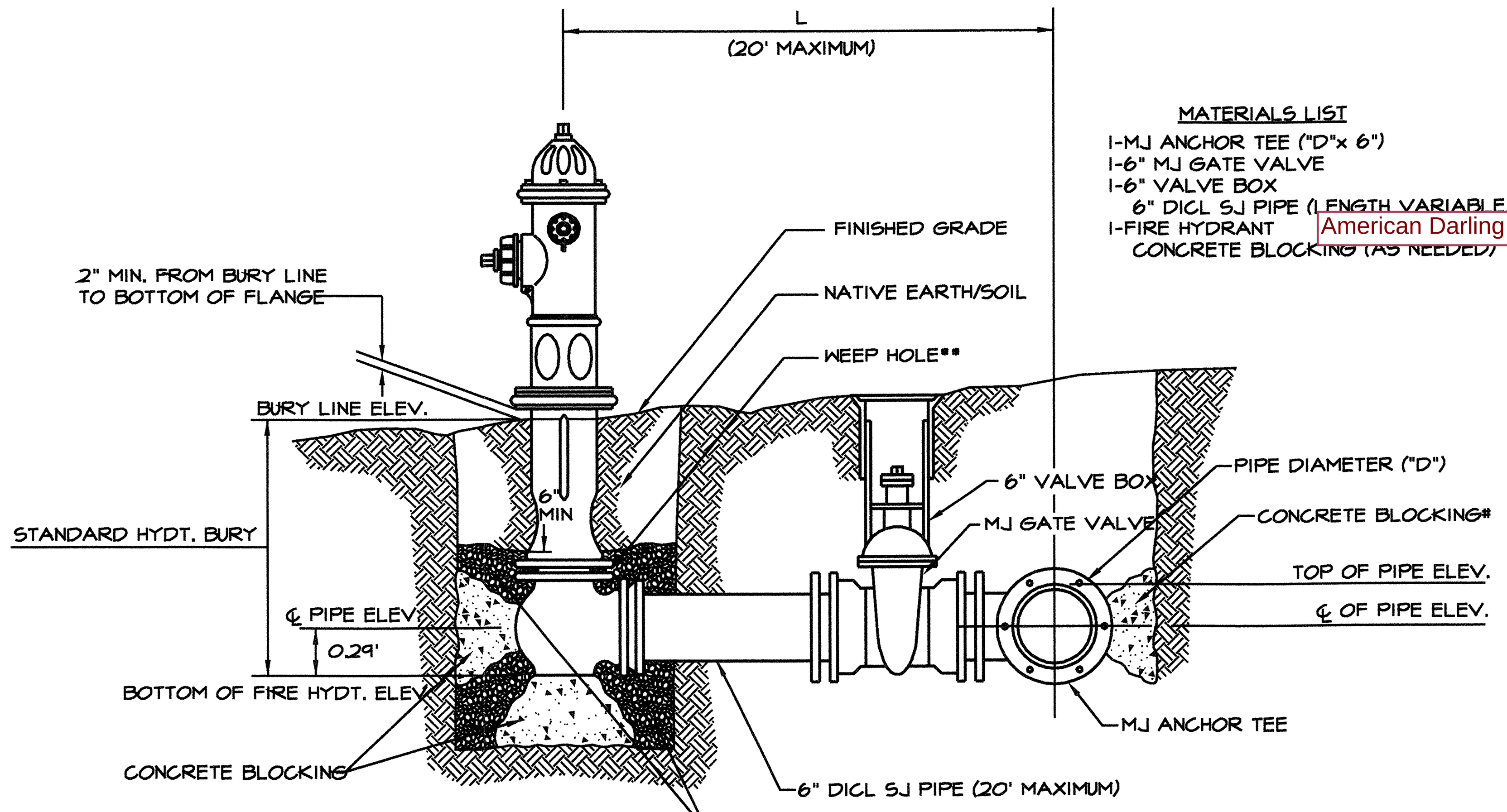


MATERIALS LIST
1-MJ ANCHOR TEE ("D"x 6")
1-6" MJ GATE VALVE
1-6" VALVE BOX
6" DICL SJ PIPE (LENGTH VARIABLE)
1-FIRE HYDRANT American Darling sortz
CONCRETE BLOCKING (AS NEEDED)

** CAUTION! WEEP HOLES TO BE KEPT CLEAR DURING CONSTRUCTION AND BACKFILL. CONCRETE FOR THRUST BLOCKING SHALL NOT OBSTRUCT WEEP HOLES.

* CONCRETE THRUST BLOCKING SHALL BE KEPT CLEAR OF BOLTS, NUTS, AND MJ ACCESSORIES.

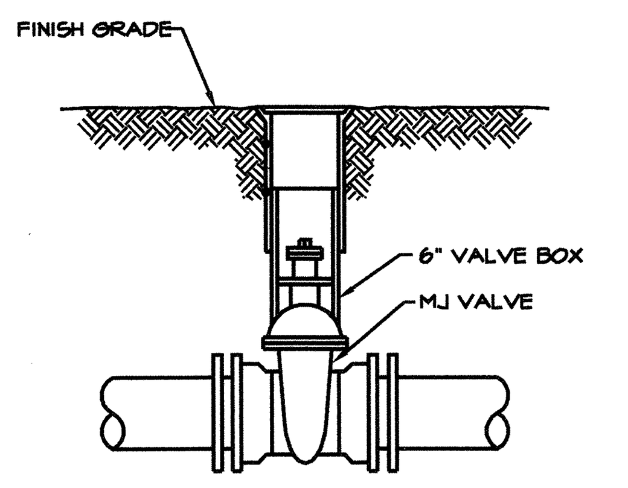
* IF HYDRANT BURY IS IN EXCESS OF 5', CONTRACTOR SHALL USE STANDARD 5' HYDRANT BURY AND HYDRANT BARREL EXTENSIONS AS NECESSARY.

\## MINIMUM 1 CU. FT. PER WEEP HOLE

PEA GRAVEL ## GRADATION REQUIREMENT	
SIEVE SIZE	SPECIFICATION % RETAINED
3/4"	0 - 5
1/2"	5 - 35
3/8"	40 - 85
# 4	95 - 100
# 8	97 - 100

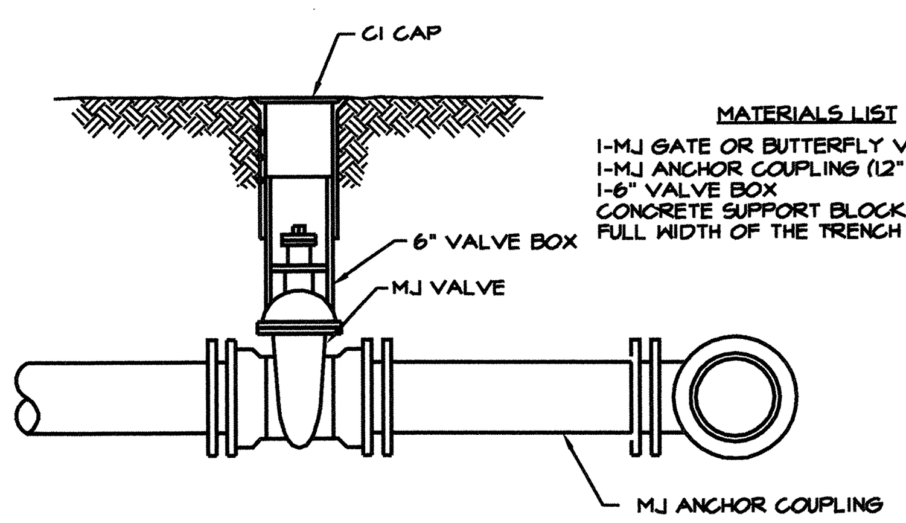
FIRE HYDRANT ASSEMBLY

PER CITY OF WICHITA SPECIFICATIONS



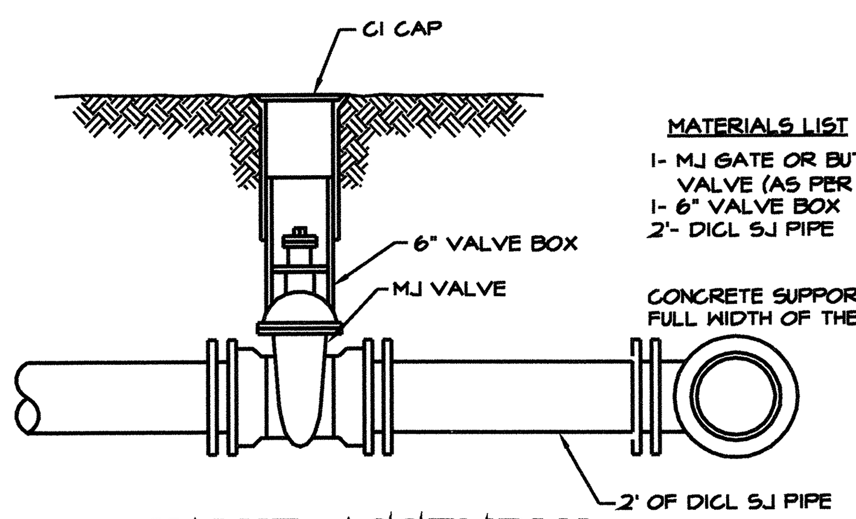
MATERIALS LIST
1-MJ GATE OR BUTTERFLY VALVE (AS PER PLAN)
1-6" VALVE BOX
CONCRETE SUPPORT BLOCK SHALL BE FULL WIDTH OF THE TRENCH

LINE VALVE ASSEMBLY



MATERIALS LIST
1-MJ GATE OR BUTTERFLY VALVE (AS PER PLAN)
1-MJ ANCHOR COUPLING (12" OR SMALLER)
1-6" VALVE BOX
CONCRETE SUPPORT BLOCK SHALL BE FULL WIDTH OF THE TRENCH

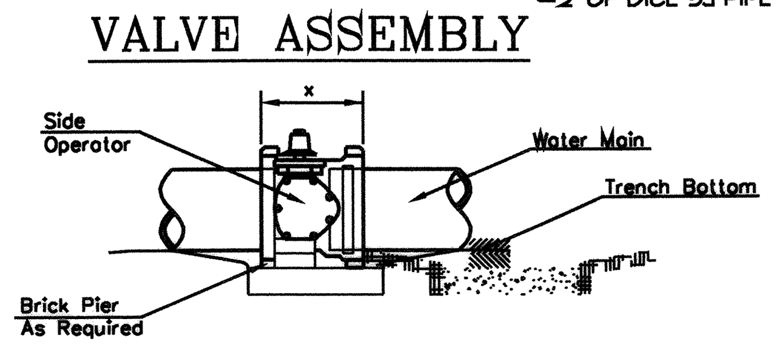
ANCHORED VALVE ASSEMBLY



MATERIALS LIST
1- MJ GATE OR BUTTERFLY VALVE (AS PER PLAN)
1- 6" VALVE BOX
2'- DICL SJ PIPE

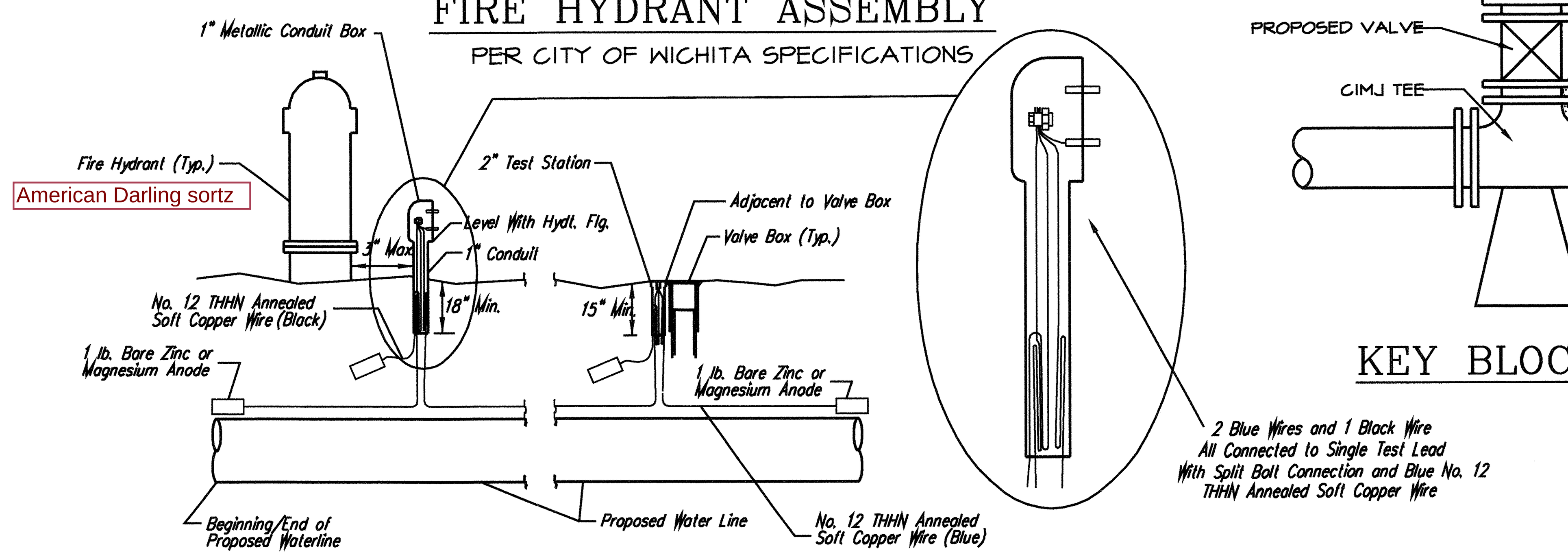
CONCRETE SUPPORT BLOCK SHALL BE FULL WIDTH OF THE TRENCH

VALVE ASSEMBLY



NOTES
1. This detail covers Butterfly Valve installation, inclusive, regardless of type of pipe or joint used. Larger lines to be detailed on plans.
2. 6" Valve Box and Cover required per City of Wichita Std. Specifications.
3. Conc. Support Block to be full width of trench.

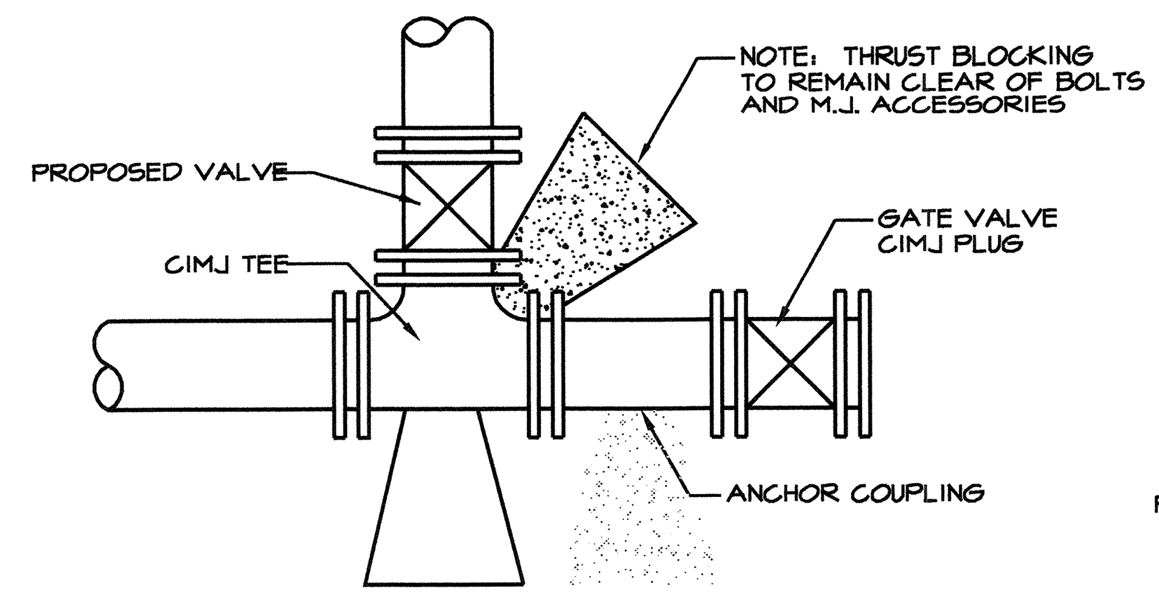
CONCRETE SUPPORT BLOCKING FOR BUTTERFLY VALVE INSTALLATION



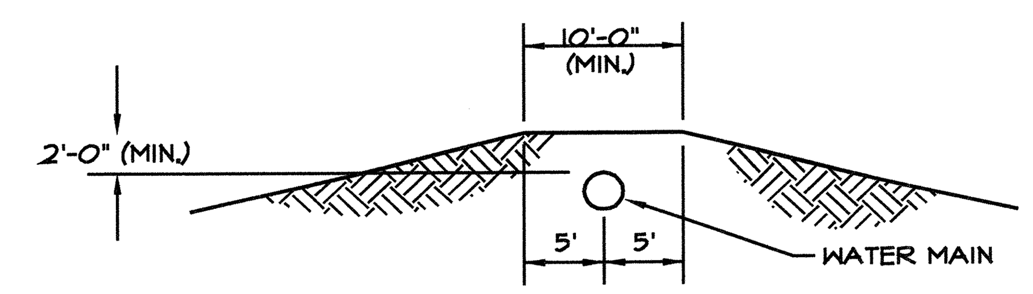
TRACER WIRE
Conductive type pipe locator/tracer wire shall be installed to locate all waterline pipe regardless of pipe material. The wire shall extend the entire length of the proposed pipe. The wire shall be taped to the waterline and pulled with the pipe. Split-bolt connectors shall be used at splice locations. Electrical tape shall cover all splices so no bare wire is exposed. Test stations shall be installed adjacent to all fire hydrants along the waterline and at blowoffs or valves near the ends of the waterlines. Any exceptions to the location of test stations shall be approved by the engineer. At each test station, the tracer wire shall be connected to a 1 lb. Zinc or magnesium anode. Anodes shall also be attached to the tracer wire at both the beginning and the end of the proposed waterline. A typical layout of the tracer wire and test station is provided in the above figure.
WIRE
The tracer wire shall be Blue No. 12 THHN annealed soft copper wire with thermal plastic insulation. The insulation shall be heat, oil, and gasoline resistant as manufactured by Temple Electric or approved equal. To allow for grade adjustment, a minimum of 12" of excess wire shall be coiled at the bottom of the test station for all wires. The insulation sheathing shall be removed such that 1" bare copper wire is exposed at all points of connection. Contractor shall attach wire being installed with proposed water main to any tracer wire installed with adjacent waterline projects.
TEST STATIONS
The test station for fire hydrant applications shall be a 1 inch galvanized conduit style test station as manufactured by AGRA Industries with a removable solid cover having two leads extending from the face or approved equal. The test station for valve applications shall be 2 inch flush style test station T2PS3B as manufactured by HANDLEY Industries or approved equal. The conduit style shall be attached to a 1 inch rigid galvanized conduit with a minimum length of 36" and plastic end bushing. The flush style shall have the word "WATER" stamped or molded into the lid. All test stations shall be manufactured using molded blue tops or sufficiently coated with blue enamel paint. The tracer wire and the anode wire shall be installed to allow 10 inches of wire within the test station. In concrete environments such as sidewalks or in the downtown area the contractor shall use the flush style test station. The location of all test stations shall be approved by the engineer, recorded, and shown in the as-built drawings.
ANODES
The anodes shall be 1 lb. bare zinc or magnesium. The anodes shall be buried at the same elevation as the waterline at each test station. The anodes shall be connected to Black No. 12 THHN annealed soft copper wire which shall be extended to the test station.

TRACER WIRE DETAIL

COST IS SUBSIDIARY TO PIPE INSTALLATION

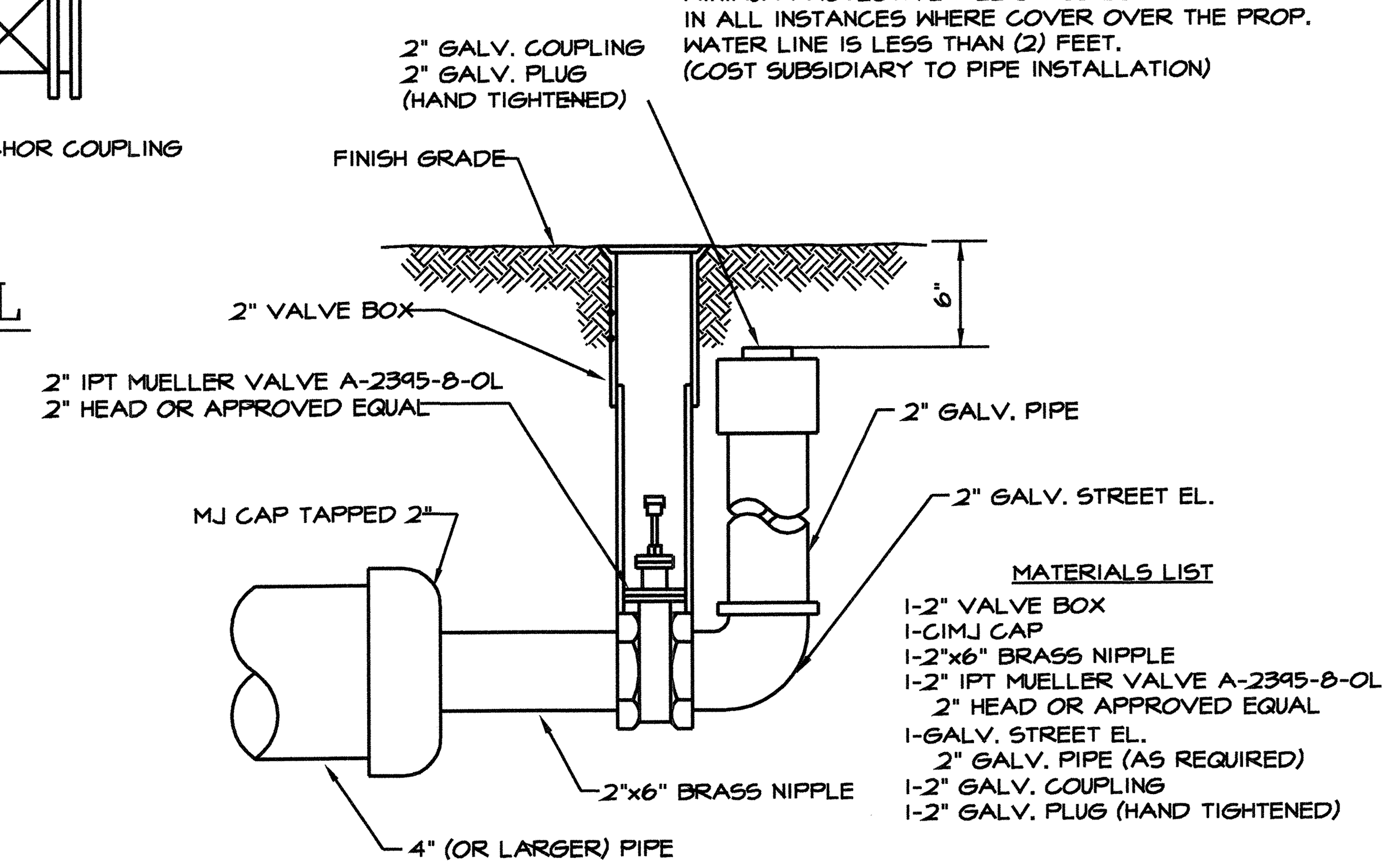


KEY BLOCK DETAIL



PROTECTIVE FILL DETAIL

MINIMUM PROTECTIVE FILL SHALL BE PROVIDED IN ALL INSTANCES WHERE COVER OVER THE PROP. WATER LINE IS LESS THAN (2) FEET. (COST SUBSIDIARY TO PIPE INSTALLATION)



MATERIALS LIST
1-2" VALVE BOX
1-CIMJ CAP
1-2"x6" BRASS NIPPLE
1-2" IPT MUELLER VALVE A-2345-8-OL
2" HEAD OR APPROVED EQUAL
1-GALV. STREET EL.
2" GALV. PIPE (AS REQUIRED)
1-2" GALV. COUPLING
1-2" GALV. PLUG (HAND TIGHTENED)

2" BLOWOFF ASSEMBLY

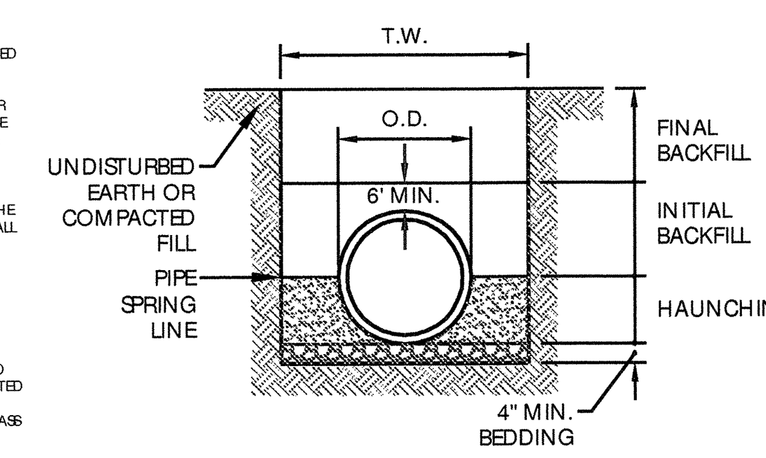
FIRE HYDRANTS REQUIRED			
STATION	BURY LINE ELEVATION	TOP OF PIPE ELEVATION	FIRE HYDRANT BURY REQUIRED*

REV: 8-14-01, MCG

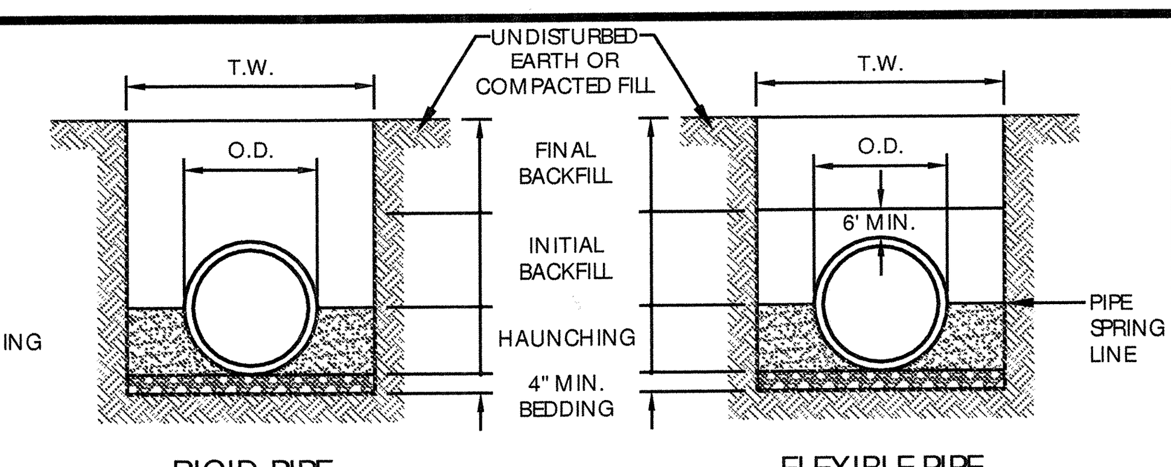
GENERAL NOTES:

1. BEDDING SHALL BE DUMPED CLASS I-A WORKED BY HAND, OR CLASS I-B COMPACTED TO 85% STANDARD PROCTOR. LOCAL CODE PERMITTING WITH GEOTECHNICAL ENGINEER AND OWNER APPROVAL, NATIVE SOIL MAY BE USED FOR BEDDING PROVIDED IT MEETS THE EMBEDMENT AND BACKFILL MATERIALS IN TABLE 1 EXCLUDING CLASS IV-A.
2. HAUNCHING SHALL BE WORKED AROUND THE PIPE BY HAND TO ELIMINATE VOIDS AND SHALL BE CLASS I-A, OR CLASS I-B OR CLASS II COMPACTED TO 95% STANDARD PROCTOR. PEA GRAVEL SHALL NOT BE USED AS A HAUNCHING MATERIAL. CLASS III MATERIAL SHALL BE ALLOWED FOR RIGID PIPE COMPACTED AT 95% STANDARD PROCTOR.
3. INITIAL BACKFILL SHALL BE CLASS I-A WORKED BY HAND, OR CLASS I-B OR CLASS II COMPACTED TO 90% STANDARD PROCTOR, OR CLASS III COMPACTED 95% STANDARD PROCTOR. CLASS I & II MATERIAL SHALL BE USED FOR FLEXIBLE PIPE WHEN FILL HEIGHTS EXCEED 8'.
4. FINAL BACKFILL SHALL BE CLASS I-A WORKED BY HAND, OR CLASS I-B OR CLASS II COMPACTED TO 90% STANDARD PROCTOR, OR CLASS III COMPACTED TO 95% STANDARD PROCTOR.
5. FINAL BACKFILL NOT UNDER PAVED AREAS CAN BE CLASS IV-A COMPACTED TO 95% STANDARD PROCTOR.
6. ALL MATERIALS ARE CLASSIFIED IN ACCORDANCE WITH ASTM D 2321. (SEE TABLE 1)
7. ALL MATERIALS SHALL BE INSTALLED IN MAXIMUM 8" LOOSE LIFTS IN ACCORDANCE WITH ASTM D 698. CLASS III AND IV-A MATERIALS SHALL BE COMPACTED NEAR OPTIMUM MOISTURE CONTENT.
8. FILL SALVAGED FROM EXCAVATION SHALL BE FREE OF DEBRIS, ORGANICS AND ROCKS LARGER THAN 3".
9. ALL TRENCH EXCAVATIONS SHALL BE SLOPED, SHORED, SHEETED, BRACED, OR OTHERWISE SUPPORTED IN COMPLIANCE WITH OSHA REGULATIONS AND LOCAL ORDINANCES
10. DESIGN ENGINEER SHALL DESIGNATE ON THE PLANS WHERE WATERTIGHT JOINTS ARE TO BE REQUIRED.
11. REPLACE WET OR UNSUITABLE SOIL AS NECESSARY TO PROVIDE A SUITABLE BASE, AS DIRECTED BY GEOTECHNICAL ENGINEER OR OWNER.
12. WHERE GROUND WATER IS PRESENT CLASS I-A MATERIAL SHALL BE WRAPPED WITH A NON-WOVEN GEO-TEXTILE, EXCLUDING BEDDING MATERIAL BETWEEN 4" & 6" THICK.
13. CONTRACTOR SHALL REFER TO GEOTECHNICAL REPORT FOR SOIL TYPE AND CLASSIFICATIONS FOR THIS PROJECT.
14. CONTRACTOR SHALL REFER TO THE LATEST VERSION OF ASTM STANDARDS PRIOR TO CONSTRUCTION.

ISSUED BY CLIENT 03/01/2009
OCE STDS CONV. 03/09/2009



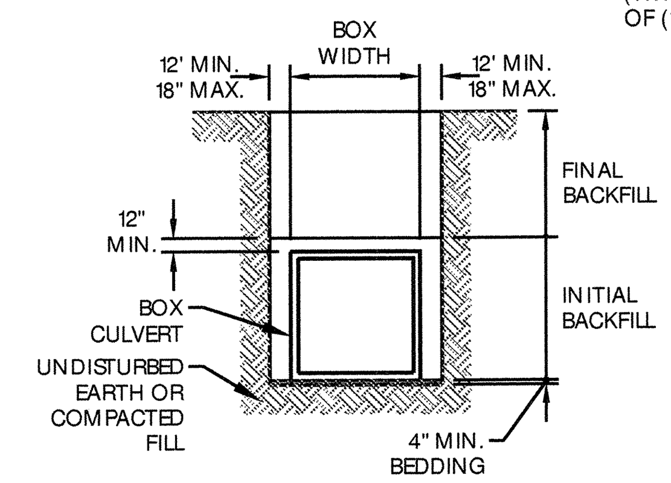
WATER & SANITARY SEWER LINES



RIGID PIPE
(RCP) OR (CMP & SPIRAL RIB ≤ 48"Ø)

FLEXIBLE PIPE
(HDPE) OR (PVC) OR (CMP > 48"Ø)

NOTE
MINIMUM TRENCH WIDTH (T.W.) SHALL BE THE GREATER OF (1.25 O.D. + 12") OR (O.D. + 16")



CONCRETE BOX CULVERT

TABLE 1: CLASSES OF EMBEDMENT AND BACKFILL MATERIALS

ASTM D 2321 MATERIAL CLASS	ASTM D 2487 USCS SOIL GROUP	MATERIAL TYPE	% PASSING			ATTERBERG LIMITS	
			1 1/2 IN.	NO. 4	NO. 200	LL	PI
IA	NONE	MANUFACTURED OPEN GRADED AGGREGATES	100%	< 10%	< 5%	NON PLASTIC	
IB	NONE	MANUFACTURED OPEN GRADED AGGREGATES	100%	< 50%	< 5%	NON PLASTIC	
II	GW	COARSE-GRAINED SOILS, CLEAN	100%	< 50% OF "COARSE FRACTION"	< 5%	NON PLASTIC	
	GP						
	SW			> 50% OF "COARSE FRACTION"			
	SP						
III	GM	COARSE-GRAINED SOILS W/ FINES	100%	< 50% OF "COARSE FRACTION"	12% TO 50%		< 50
	GC						< 7 OR > "A" LINE
	SM			> 50% OF "COARSE FRACTION"			> 4 OR < "A" LINE
	SC						> 7 OR > "A" LINE
IV-A	ML	FINE-GRAINED SOILS	100%	100%	> 50%	< 50	< 4 OR < "A" LINE
	CL						> 7 OR > "A" LINE

TRENCH AND BEDDING DETAIL

N.T.S

D321

BY

DESCRIPTION

DATE

SCOTT P. McGEE
LICENSED
16347
KANSAS
PROFESSIONAL ENGINEER
1/28/11

Ozark
Civil Engineering Inc.
Bentonville • Kansas City

DETAIL SHEET

A NEW RESTAURANT FOR:
PANDA EXPRESS
W. CENTRAL PARK ST. AND MAIZE ROAD N.
Wichita, Kansas

DRAWN BY:	EDH
APPV. BY:	SM
DWG. NAME:	10-0992CR3.dwg
DATE:	01-27-11
JOB NO:	10-0992
SHEET NO:	3

CITY OF WICHITA
PUBLIC WORKS
ENGINEERING

STANDARD
WATER ASSEMBLY
DETAILS

CITY ENGINEER
JAMES L. ARMOUR, P.E., L.S.
ACTING

PROJECT NUMBER	OCA NUMBER	DATE
XXX-XXXXX	XXXXXX	MM/YY

CITY ENGINEER'S OFFICE
CITY HALL - SEVENTH FLOOR
455 NORTH MAIN STREET
WICHITA, KANSAS 67202-1620
(316) 268-4501
(316) 268-4114 FAX

DESIGN	DRAWN
ABC	DEF

SHEET
X OF X

p:\08-0838 nw wichita ks east side development\dwg\project\rev 1\08-0838 ppw 1.dwg - Plotted on — @ a scale of 1:1 to hp designjet 1050c by hp by Earl