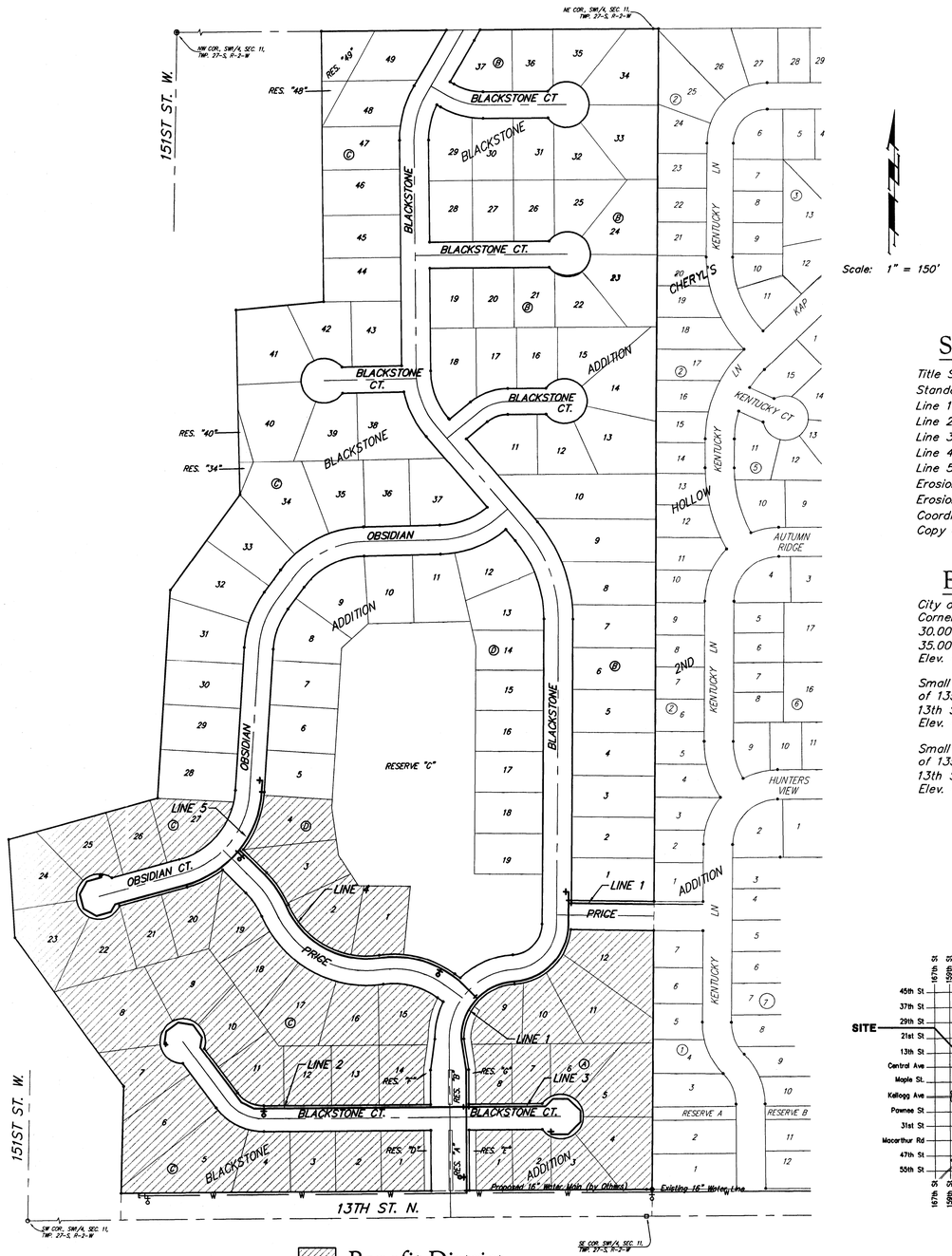


Benefit District

Scale: 1" = 150'

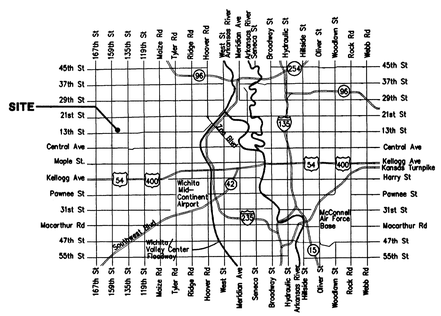
Sheet Index

Benchmarks

City of Wichita Disc at Southwest Corner of 135th St. W. & 13th St. N
30.00'± S. of ℄
35.00'± W. of ℄
Elev. = 1355.65 NGVD29

Small Railroad Spike in 2nd HLP W. of 135th St. W. on South Side of 13th St. N., (N. Face of HLP).
Elev. = 1359.50 NGVD29

Small Railroad Spike in 4th HLP W. of 135th St. W. on South Side of 13th St. N., (N. Face of HLP).
Elev. = 1366.64 NGVD29



Vicinity Map

WATER DISTRIBUTION SYSTEM

to serve

BLACKSTONE ADDITION - PHASE I

CITY OF WICHITA, KANSAS

James L. Armour, P.E. City Engineer

Project Number
448-90185

O.C.A. Number
735365

GENERAL NOTES:

1. Contractor will be required to provide notice to utility companies a minimum of forty–eight (48) hours prior to any excavation, as follows:

   Kansas One–Call 687–2470

   The Contractor must notify the following in case of an emergency:

Cox Communications	262–4270
Kansas Gas Service	1–888–482–4950
Westar Energy	383–8650
Aquila Energy	1–800–303–0357
SBC	268–2245
City of Wichita Water Dept.	268–4563
City of Wichita Sewer Maint.	268–4024
City of Wichita Storm Sewer Maint.	268–4090
City of Wichita Traffic Maint.	268–4034
Conoco Phillips Pipeline Co.	1–877–267–2290
Southern Star Pipeline Co.	529–6600
Kinder–Morgan Pipeline Co.	1–888–844–5658

2. Utility service lines, poles, valve boxes, meters, and etcetera are to be adjusted as necessary by others prior to construction unless the plans specifically call for their adjustment by the Contractor or unless the plans specifically identify a utility to be adjusted by its owner during construction. Existing utilities and their location, as shown on the plans, represent the best information obtainable for design. The Contractor will be required to work around existing utilities within the right–of–way which do not conflict with proposed construction.

3. Rubble from the removal of miscellaneous structures and excess excavation which is to be wasted shall be disposed of on sites to be provided by the Contractor. These sites shall be approved by the Engineer as to suitability, appearance and site location. Locations, in the opinion of the Engineer, that will leave an unsightly appearance will not be approved. All disposal sites must be approved by the Kansas Department of Health and Environment. Material either stockpiled or disposed of in a flood plain would require a Kansas State Board of Agriculture permit. Any material dumped in waters of the United States or wetlands is subject to U.S. Corps. of Engineers permitting regulations. Any material buried or stockpiled beyond approved construction limits would require additional archaeological investigations unless buried in a previously approved borrow location.

4. Trees and shrubs in public right–of–way which are in direct conflict with proposed new construction shall be removed by the Contractor with the Engineer's approval. Trees and shrubs which are not in direct conflict with proposed new construction shall be saved and protected from damage.

5. The Contractor shall give all property owners and/or tenants of developed property abutting the construction of this project a minimum of ten (10) days notice prior to start of construction.

6. The Contractor shall be responsible for preserving property irons. The Contractor will be required to re–establish any property irons which are damaged or destroyed by his construction operations. Such irons shall be re–established by a licensed land surveyor in accordance with state laws.

7. All existing and proposed erosion control measures including silt fencing, erosion control mat, straw bales, inlet barriers, and const. entrance shall be maintained throughout construction by the contractor and until project is accepted by the City of Wichita. The on–site engineer shall complete weekly reports on the status of erosion control measures. The contractor shall be required to comply with maintenance and/or replacement of erosion control measures as determined by the on–site engineer until project is accepted by City of Wichita.

8. The Contractor shall adjust water valve boxes and fire hydrants as directed by the Engineer at the price bid for said adjustments. The Water Department shall field locate water valves one time during construction when requested by Contractor. It shall be the Contractor's responsibility to preserve such field locations during the construction process. Water valves, water valve boxes or fire hydrants damaged during construction shall be repaired by the Contractor at his own expense.

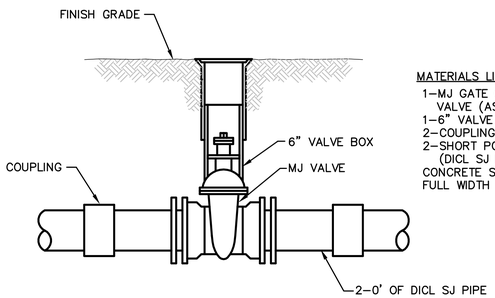
9. All water mains and appurtenances shall be installed in accordance with City of Wichita, Kansas Standard Specifications for Water Main Installations No. 14533.

10. Opening and closing of water valves shall be done slowly to prevent damage to the water distributions system from water hammer. All valves closed by the contractor must be reopened as new construction permits. Project inspector must ascertain that any valve closed by the Contractor is reopened. Contractor will be permitted to operate water valves only when the project inspector assigned to the project is present.

11. The developer for this project is Paul E. Kelsey, (316) 722–1077

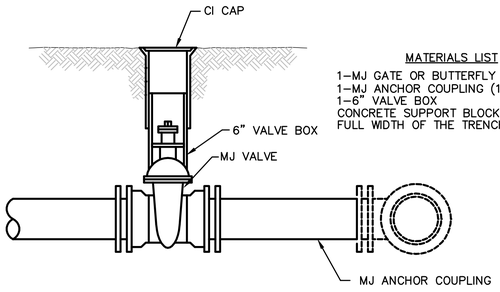
Baughman

Baughman Company, P.A. 315 Ellis St. Wichita, KS 67211 P 316-262-7271 F 316-262-0149
ENGINEERING | SURVEYING | PLANNING | LANDSCAPE ARCHITECTURE



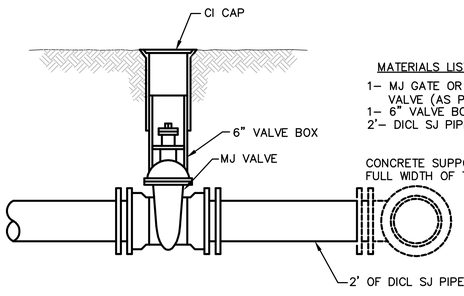
MATERIALS LIST
1-MJ GATE OR BUTTERFLY VALVE (AS PER PLAN)
1-6" VALVE BOX
2-COUPLINGS
2-SHORT PCS. (DICL SJ PIPE)
CONCRETE SUPPORT BLOCK SHALL BE FULL WIDTH OF THE TRENCH

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

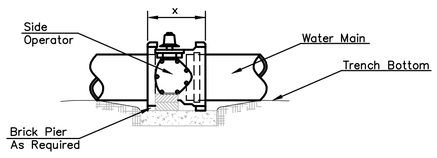
ANCHORED VALVE ASSEMBLY



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

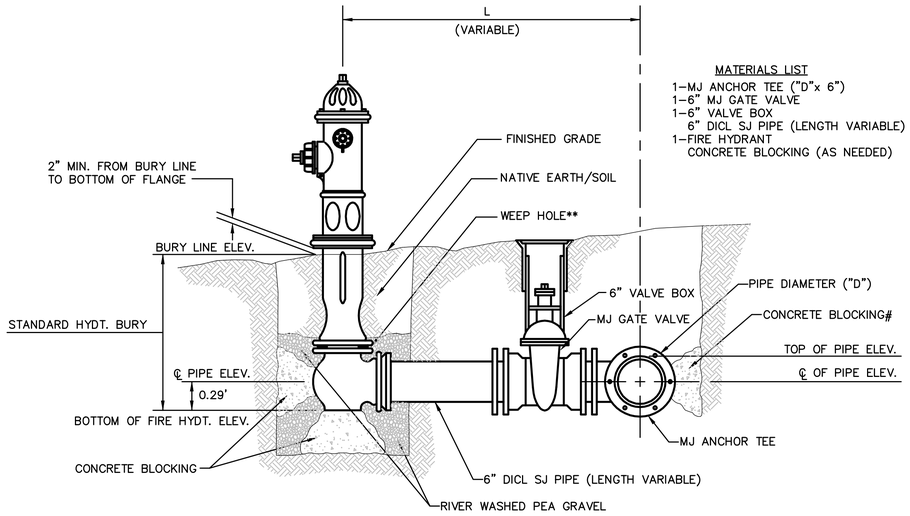
CONCRETE SUPPORT BLOCK SHALL BE FULL WIDTH OF THE TRENCH

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



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
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.

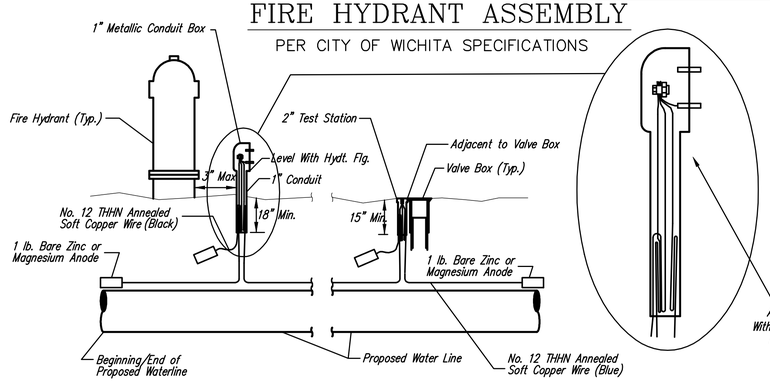
* IF HYDRANT BURY IS IN EXCESS OF 5', CONTRACTOR SHALL USE STANDARD 5' HYDRANT BURY AND HYDRANT BARREL EXTENSIONS AS NECESSARY.

FIRE HYDRANTS REQUIRED

LINE	STATION	BURY LINE ELEVATION	TOP OF PIPE ELEVATION	FIRE HYDRANT BURY REQUIRED*
1	0+36.00	1369.90	1365.05	5.5'
2	4+45.11	1372.65	1368.80	4.5'
4	1+03.19	1369.40	1365.55	4.5'
4	6+44.06	1372.60	1368.75	4.5'

FIRE HYDRANT ASSEMBLY

PER CITY OF WICHITA SPECIFICATIONS



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

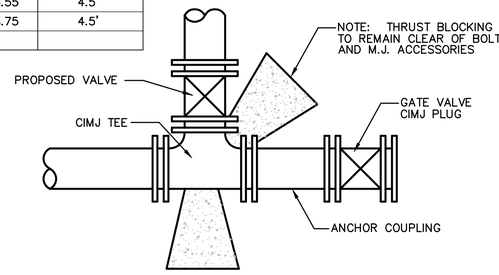
The test station for fire hydrant applications shall be a 1 inch galvanized conduit style test station as manufactured by AGRA Industries with a removable solid cover having two leads extending from the face or approved equal. The test station for valve applications shall be 2 inch flush style test station T2PSJB 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

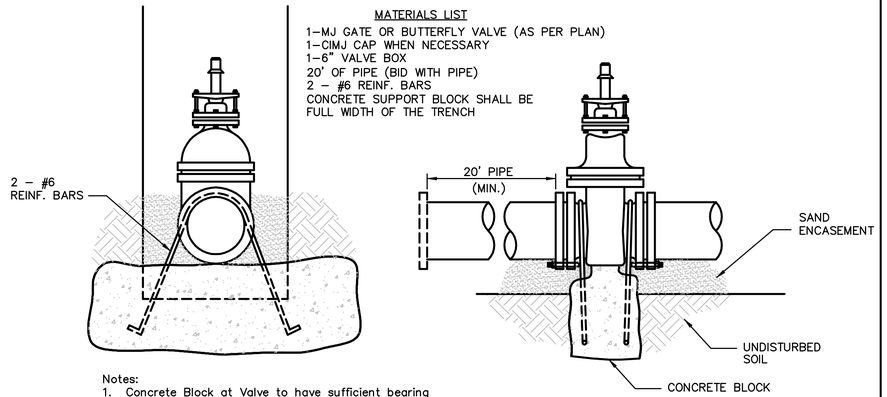
The anodes shall be 1 lb. bare zinc or magnesium. The anodes shall be buried at the same elevation as the waterline at each test station. The anodes shall be connected to Black No. 12 THHN annealed soft copper wire which shall be extended to the test station.

TRACER WIRE DETAIL

COST IS SUBSIDIARY TO PIPE INSTALLATION



KEY BLOCK DETAIL



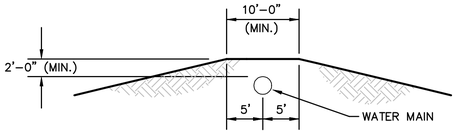
MATERIALS LIST
1-MJ GATE OR BUTTERFLY VALVE (AS PER PLAN)
1-CIMJ CAP WHEN NECESSARY
1-6" VALVE BOX
20' OF PIPE (BID WITH PIPE)
2 - #6 REINF. BARS
CONCRETE SUPPORT BLOCK SHALL BE FULL WIDTH OF THE TRENCH

Notes:
1. Concrete Block at Valve to have sufficient bearing in undisturbed soil to prevent thrust movement as shown in table at right. Field Engineer to determine thrust loading of undisturbed soil and final size of thrust block.
2. The thrust block shall be constructed such that bolts, nuts, and other MJ accessories are kept clear of concrete.
3. All valves at dead ends and at other locations as called out on the plans shall be blocked as shown here.

THRUST AT VALVES

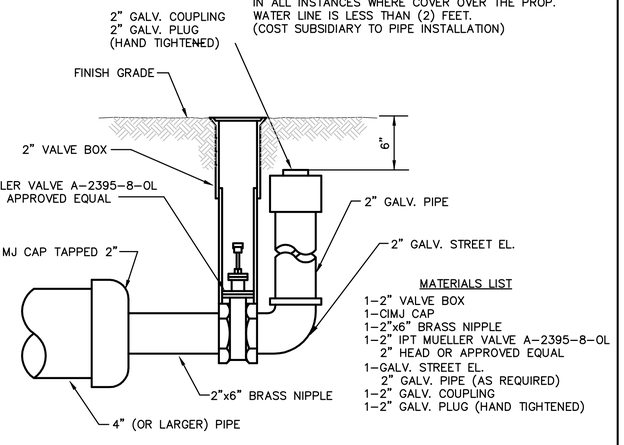
VALVE	THRUST AT 150 #/in²
4"	1809 lbs.
6"	4245 lbs.
8"	7540 lbs.
12"	16965 lbs.

ANCHORED VALVE ASSEMBLY, SPECIAL



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-2395-8-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

THE CITY OF WICHITA

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

STANDARD WATER ASSEMBLY DETAILS

James L. Armor, P.E. City Engineer

PROJECT NUMBER	INDEX CODE
448-90185	735365
DATE: JULY 2007	SHEET 2 OF 15

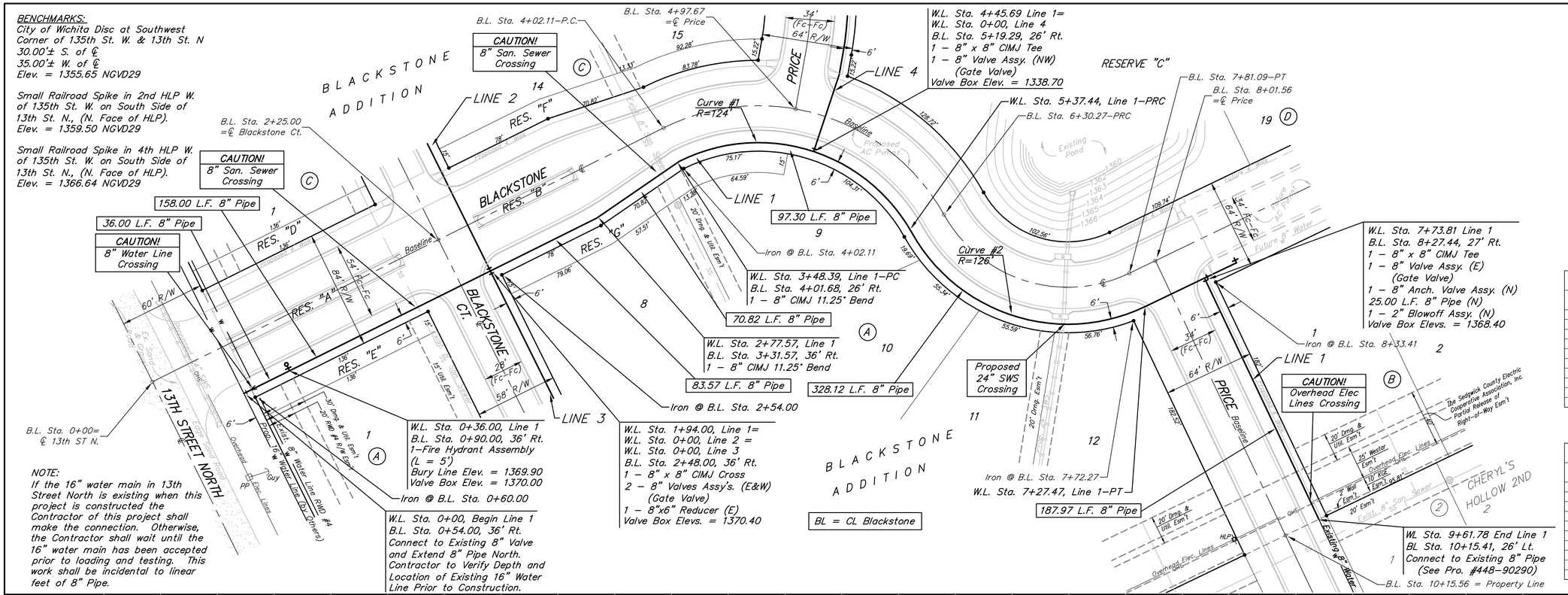
Revised: 6-7-00, MCG

BENCHMARKS:
City of Wichita Disc at Southwest Corner of 135th St. W. & 13th St. N
30.00'± S. of ℄
35.00'± W. of ℄
Elev. = 1355.65 NGVD29

Small Railroad Spike in 2nd HLP W. of 135th St. W. on South Side of 13th St. N., (N. Face of HLP).
Elev. = 1359.50 NGVD29

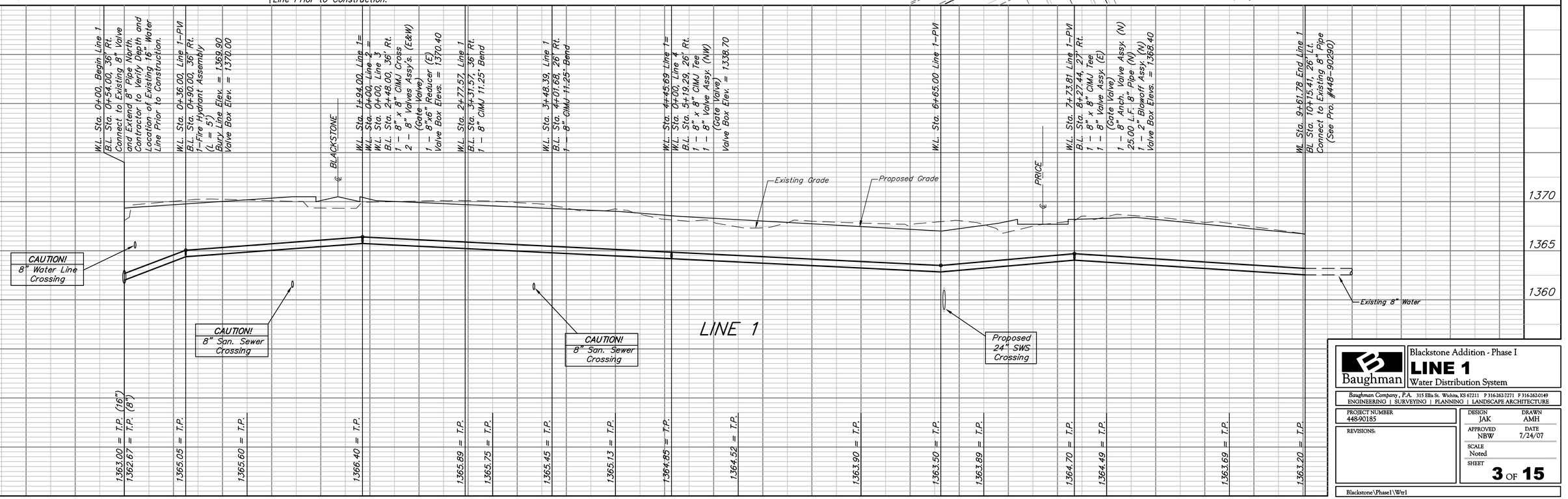
Small Railroad Spike in 4th HLP W. of 135th St. W. on South Side of 13th St. N., (N. Face of HLP).
Elev. = 1366.64 NGVD29

Scale: 1" = 40' Horizontal
1" = 5' Vertical
• = Iron



Station	Arc	CHORD 6' Rt.	Defl.	T. Defl.
3+48.39	–	–	0°00'00"	0°00'00"
3+75.00	26.61'	27.84'	6°08'51"	6°08'51"
4+00.00	25.00'	26.16'	5°46'32"	11°55'23"
4+25.00	25.00'	26.16'	5°46'32"	17°41'55"
4+45.69	20.69'	21.67'	4°46'48"	22°28'43"
4+50.00	4.31'	4.52'	0°59'44"	23°28'27"
4+75.00	25.00'	26.16'	5°46'32"	29°14'59"
5+00.00	25.00'	26.16'	5°46'32"	35°01'31"
5+25.00	25.00'	26.16'	5°46'32"	40°48'03"
5+37.44	12.44'	13.04'	2°52'27"	43°40'30"

Station	Arc	CHORD 6' Rt.	Defl.	T. Defl.
5+37.44	–	–	0°00'00"	0°00'00"
5+50.00	12.56'	13.15'	2°51'21"	2°51'21"
5+75.00	25.00'	26.15'	5°41'03"	8°32'24"
6+00.00	25.00'	26.15'	5°41'04"	14°13'28"
6+25.00	25.00'	26.15'	5°41'04"	19°54'32"
6+50.00	25.00'	26.15'	5°41'03"	25°35'35"
6+75.00	25.00'	26.15'	5°41'04"	31°16'39"
7+00.00	25.00'	26.15'	5°41'03"	36°57'42"
7+25.00	25.00'	26.15'	5°41'04"	42°38'46"
7+27.47	2.47'	2.59'	0°33'42"	43°12'28"



Baughman

Blackstone Addition - Phase I

LINE 1

Water Distribution System

Baughman Company, P.A. 315 Ellis St. Wichita, KS 67211 P 316-262-7271 F 316-262-0149
ENGINEERING | SURVEYING | PLANNING | LANDSCAPE ARCHITECTURE

PROJECT NUMBER 448-90185	DESIGN JAK / DRAWN AMH
REVISIONS:	APPROVED NBW / DATE 7/24/07
	SCALE Noted
	SHEET 3 OF 15

Blackstone\Phase1\Wtr1

BENCHMARKS:
City of Wichita Disc at Southwest
Corner of 135th St. W. & 13th St. N
30.00'± S. of ℄
35.00'± W. of ℄
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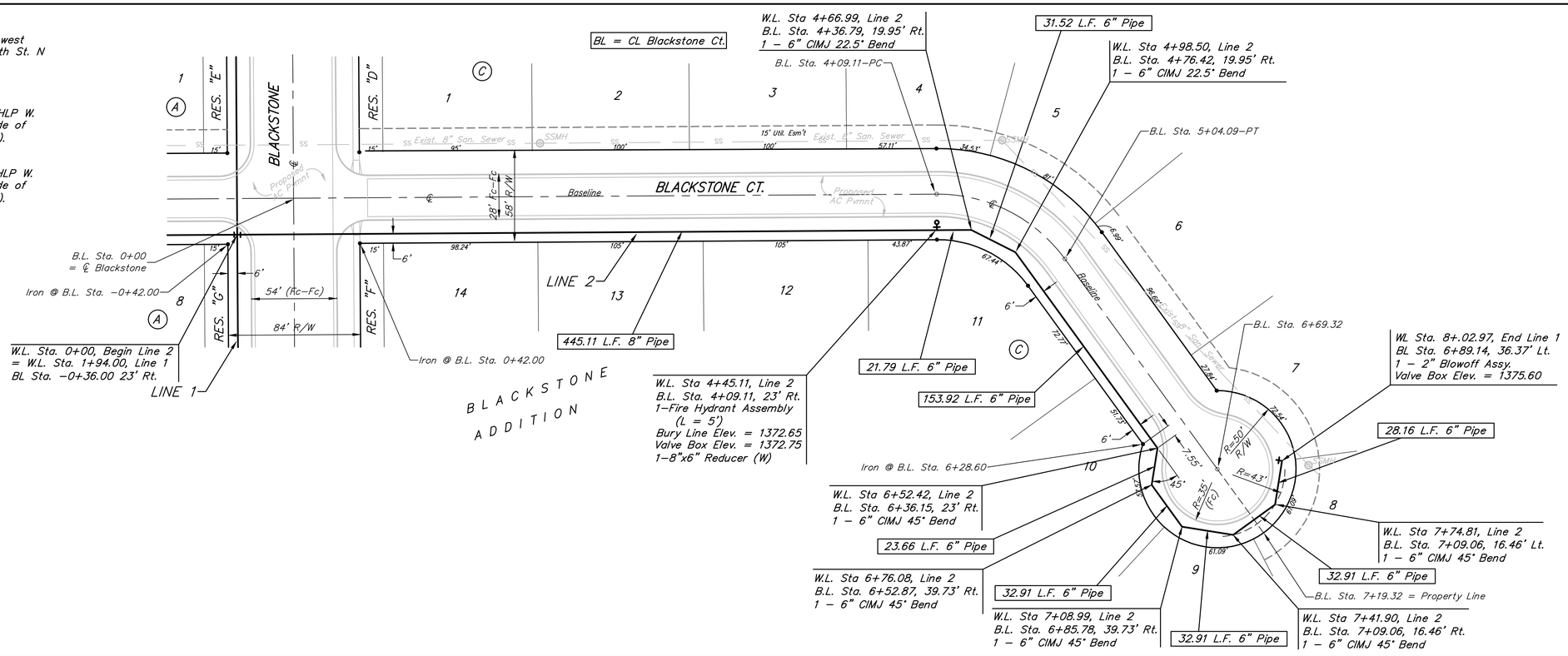
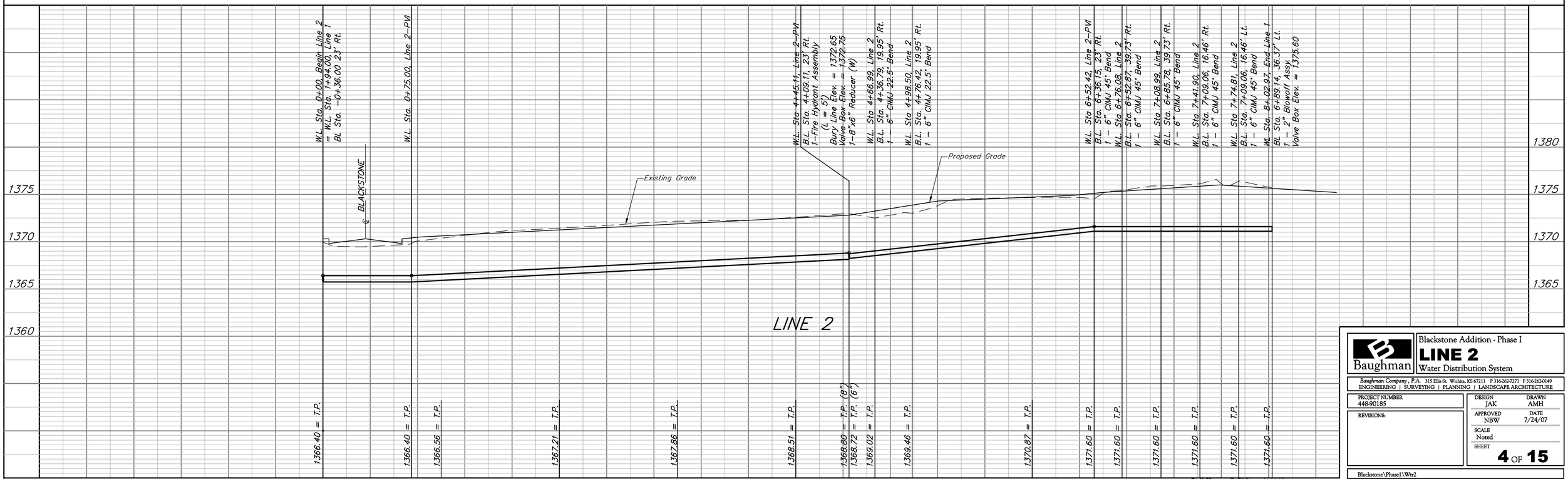
Small Railroad Spike in 2nd HLP W.
of 135th St. W. on South Side of
13th St. N., (N. Face of HLP).
Elev. = 1359.50 NGVD29

Small Railroad Spike in 4th HLP W.
of 135th St. W. on South Side of
13th St. N., (N. Face of HLP).
Elev. = 1366.64 NGVD29



Scale: 1" = 40' Horizontal
1" = 5' Vertical
• = Iron



Baughman

Blackstone Addition - Phase I
LINE 2
Water Distribution System

Baughman Company, P.A. 315 Ellis St. Wichita, KS 67211 P 316-262-7271 F 316-262-0149
ENGINEERING | SURVEYING | PLANNING | LANDSCAPE ARCHITECTURE

PROJECT NUMBER 448-90185
REVISIONS:
DESIGN JAK
DRAWN AMH
APPROVED NBW
DATE 7/24/07
SCALE Noted
SHEET **4** OF **15**

Blackstone\Phase1\Wtr2

BENCHMARKS:
City of Wichita Disc at Southwest Corner of 135th St. W. & 13th St. N
30.00'± S. of ℄
35.00'± W. of ℄
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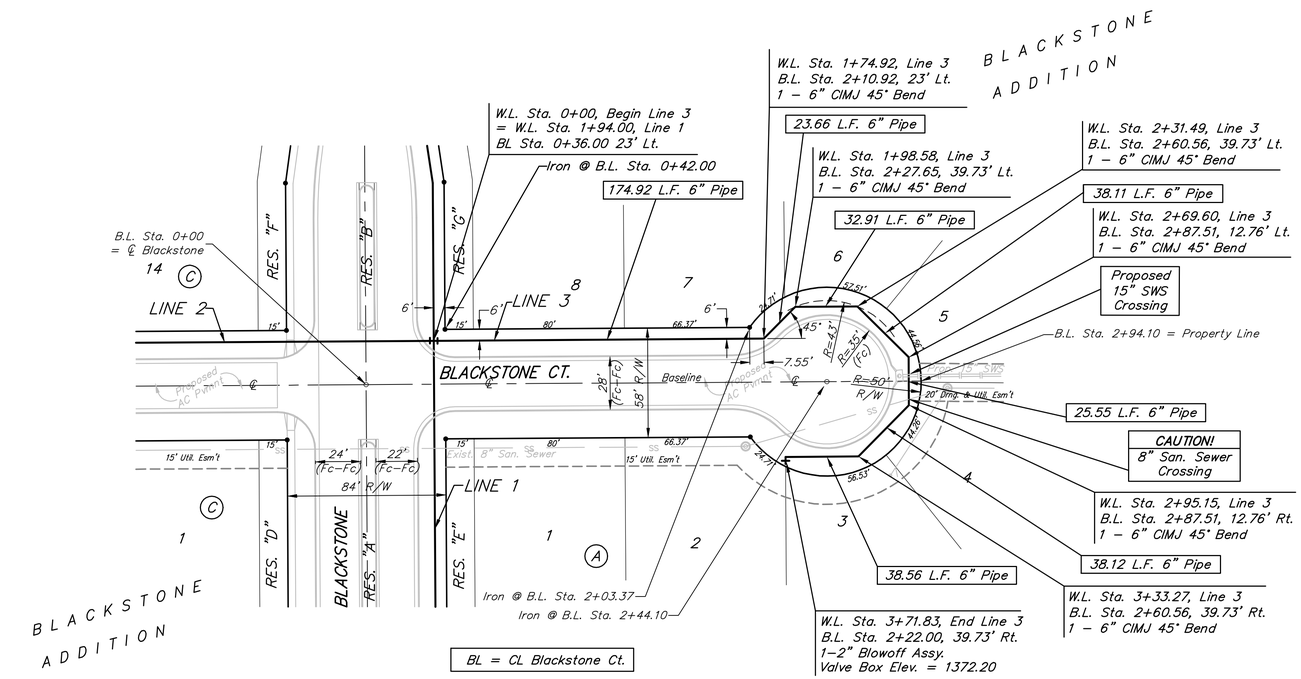
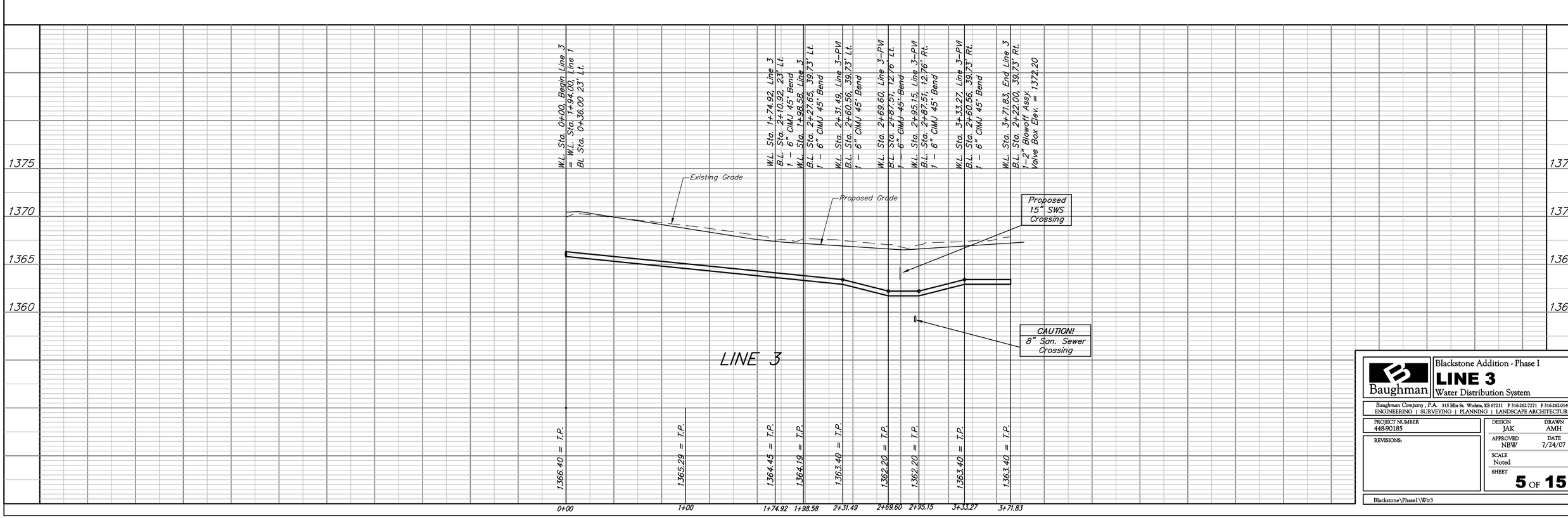
Elev. = 1359.50 NGVD29

Small Railroad Spike in 4th HLP W. of 135th St. W. on South Side of 13th St. N., (N. Face of HLP).
Elev. = 1366.64 NGVD29





Baughman

Blackstone Addition - Phase I

LINE 3

Water Distribution System

Baughman Company, P.A. 315 Ellis St. Wichita, KS 67211 P 316-262-7271 F 316-262-0149
ENGINEERING | SURVEYING | PLANNING | LANDSCAPE ARCHITECTURE

PROJECT NUMBER	DESIGN	DRAWN
448-90185	JAK	AMH
REVISIONS:	APPROVED NBW	DATE 7/24/07
	SCALE Noted	
	SHEET 5 OF 15	

Blackstone\Phase1\Wtr3

BENCHMARKS:
City of Wichita Disc at Southwest Corner of 135th St. W. & 13th St. N
30.00'± S. of ℄
35.00'± W. of ℄
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Small Railroad Spike in 2nd HLP W. of 135th St. W. on South Side of 13th St. N., (N. Face of HLP).
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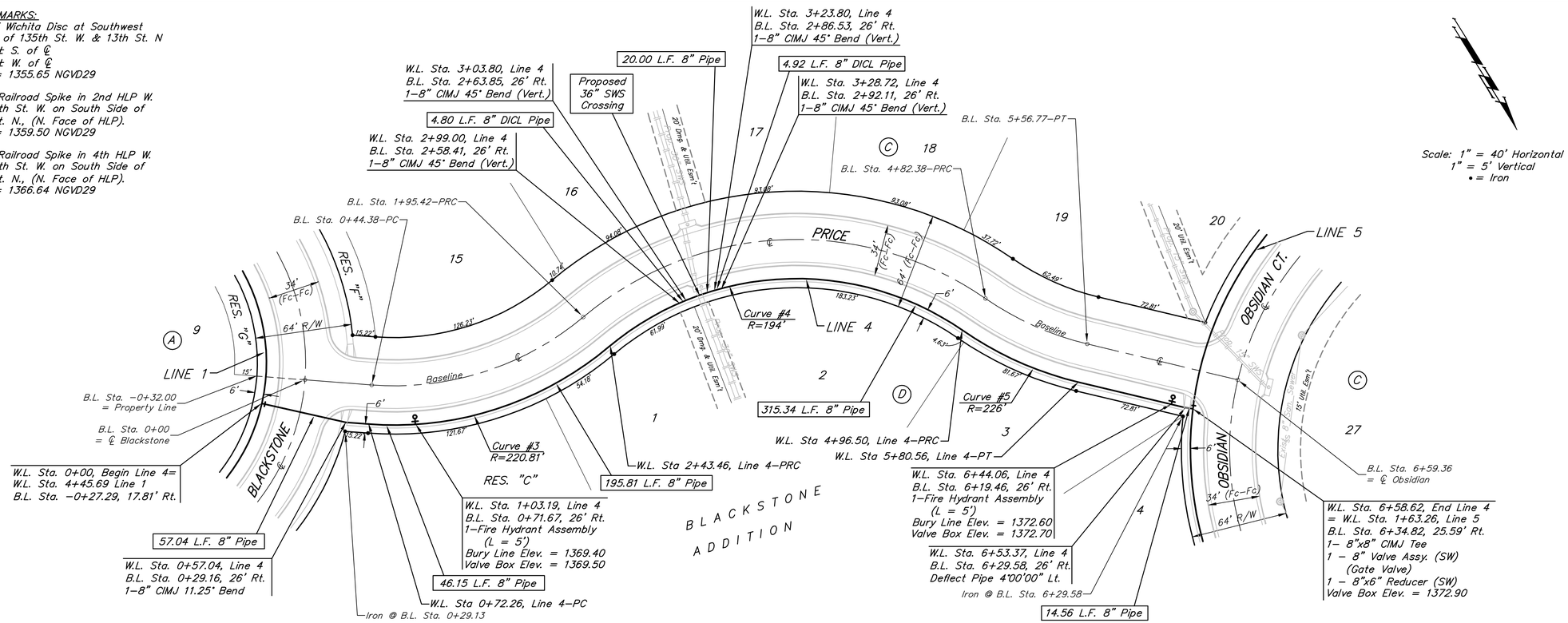
Small Railroad Spike in 4th HLP W. of 135th St. W. on South Side of 13th St. N., (N. Face of HLP).
Elev. = 1366.64 NGVD29



Curve #3
Curve Data Based on Centerline of Pipe
Rad. = 220.81' Delta = 44° 25' 17" Tangent = 90.16'
Arc = 171.20' L.C. = 166.94' Def/Ft. = 7.78412 Min.

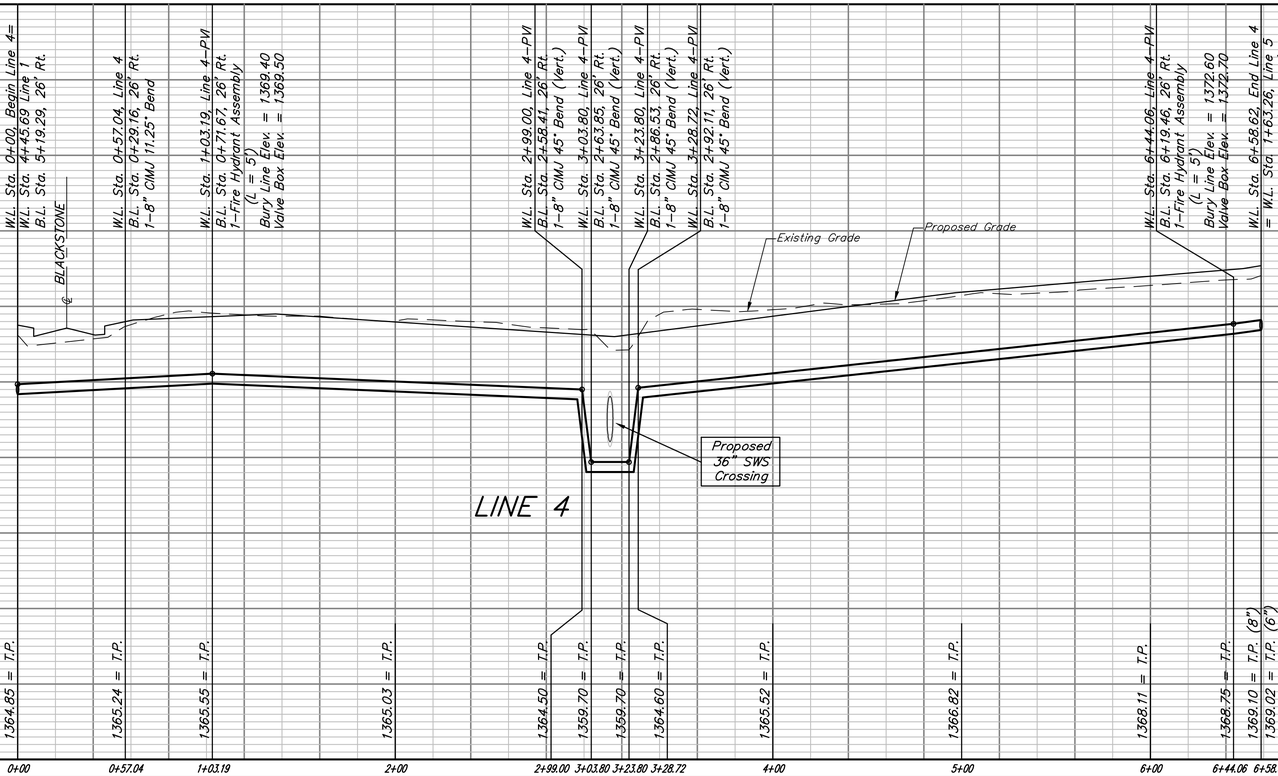
Station	Arc	CHORD 6' Rt.	Defl.	T. Defl.
0+72.26	–	–	0°00'00"	0°00'00"
0+75.00	2.74'	2.81'	0°21'20"	0°21'20"
1+00.00	25.00'	25.66'	3°14'36"	3°35'56"
1+03.19	3.19'	3.28'	0°24'50"	4°00'46"
1+25.00	21.81'	22.39'	2°49'46"	6°50'32"
1+50.00	25.00'	25.66'	3°14'36"	10°05'08"
1+75.00	25.00'	25.66'	3°14'36"	13°19'44"
2+00.00	25.00'	25.66'	3°14'37"	16°34'21"
2+25.00	25.00'	25.66'	3°14'36"	19°48'57"
2+43.46	18.46'	18.96'	2°23'42"	22°12'39"

Curve #4
Curve Data Based on Centerline of Pipe
Rad. = 194' Delta = 74° 44'01" Tangent = 148.15'
Arc = 253.04' L.C. = 235.48' Def/Ft. = 8.86029 Min.

Station	Arc	CHORD 6' Rt.	Defl.	T. Defl.
2+43.46	–	–	0°00'00"	0°00'00"
2+50.00	6.54'	6.34'	0°57'57"	0°57'57"
2+75.00	25.00'	24.21'	3°41'30"	4°39'27"
2+99.00	24.00'	23.24'	3°32'39"	8°12'06"
3+03.80	4.80'	4.65'	0°42'32"	8°54'38"
3+23.80	20.00'	19.37'	2°57'12"	11°51'50"
3+28.72	4.92'	4.77'	0°43'36"	12°35'26"
3+50.00	21.28'	20.61'	3°08'33"	15°43'59"
3+75.00	25.00'	24.21'	3°41'30"	19°25'29"
4+00.00	25.00'	24.21'	3°41'30"	23°06'59"
4+25.00	25.00'	24.21'	3°41'31"	26°48'30"
4+50.00	25.00'	24.21'	3°41'30"	30°30'00"
4+75.00	25.00'	24.21'	3°41'31"	34°11'31"
4+96.50	21.50'	20.82'	3°10'30"	37°22'01"

Curve #5
Curve Data Based on Centerline of Pipe
Rad. = 226' Delta = 21° 18' 43" Tangent = 42.52'
Arc = 84.06' L.C. = 83.58' Def/Ft. = 7.60598 Min.

Station	Arc	CHORD 6' Rt.	Defl.	T. Defl.
4+96.50	–	–	0°00'00"	0°00'00"
5+00.00	3.50'	3.59'	0°26'37"	0°26'37"
5+25.00	25.00'	25.65'	3°10'09"	3°36'46"
5+50.00	25.00'	25.65'	3°10'09"	6°46'55"
5+75.00	25.00'	25.65'	3°10'09"	9°57'04"
5+80.56	5.56'	5.71'	0°42'18"	10°39'22"



Baughman

Blackstone Addition - Phase I
LINE 4
Water Distribution System

Baughman Company, P.A. 315 Ellis St. Wichita, KS 67211 P 316-262-7271 F 316-262-0149
ENGINEERING | SURVEYING | PLANNING | LANDSCAPE ARCHITECTURE

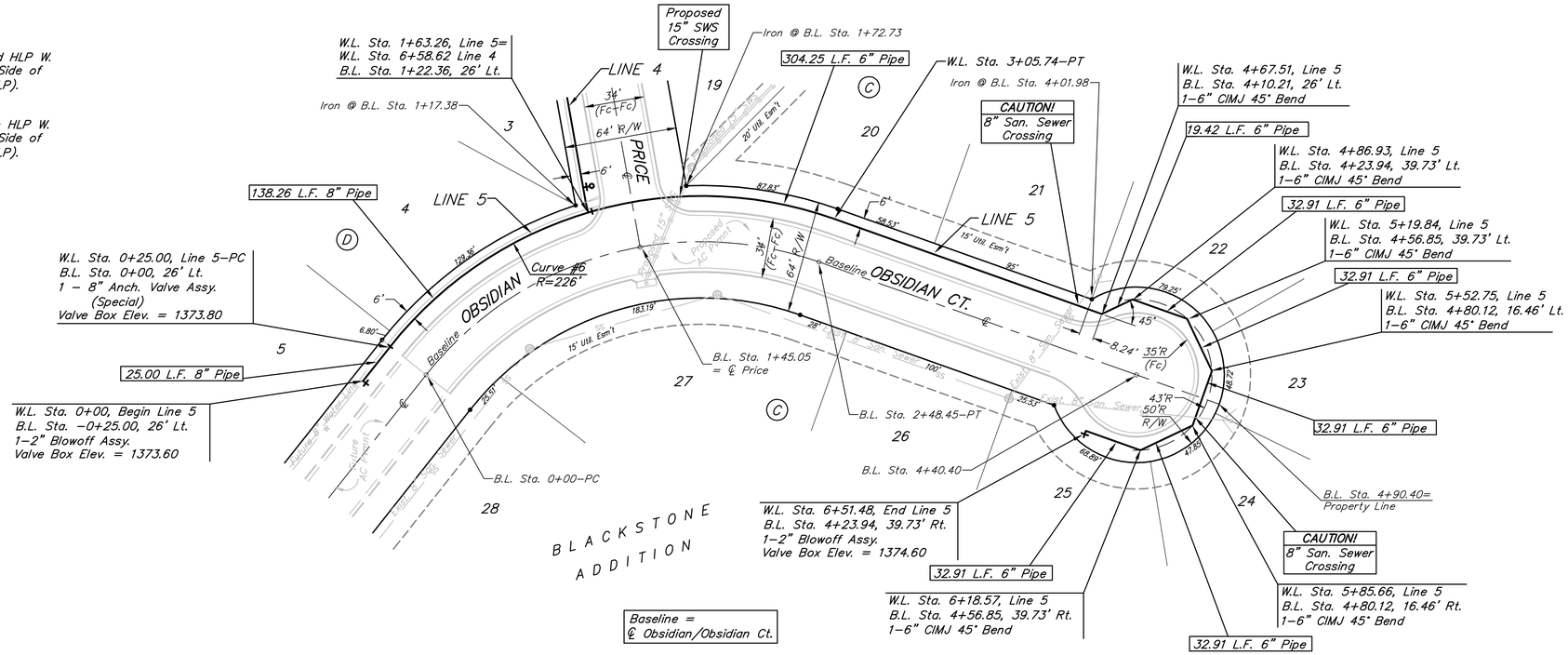
PROJECT NUMBER	DESIGN	DRAWN
448-90185	JAK	AMH
REVISIONS:	APPROVED NBW	DATE 7/24/07
	SCALE Noted	
	SHEET **6** OF **15**	

Blackstone\Phase1\Wtr4

BENCHMARKS:
City of Wichita Disc at Southwest
Corner of 135th St. W. & 13th St. N
30.00'± S. of ℄
35.00'± W. of ℄
Elev. = 1355.65 NGVD29

Small Railroad Spike in 2nd HLP W.
of 135th St. W. on South Side of
13th St. N., (N. Face of HLP).
Elev. = 1359.50 NGVD29

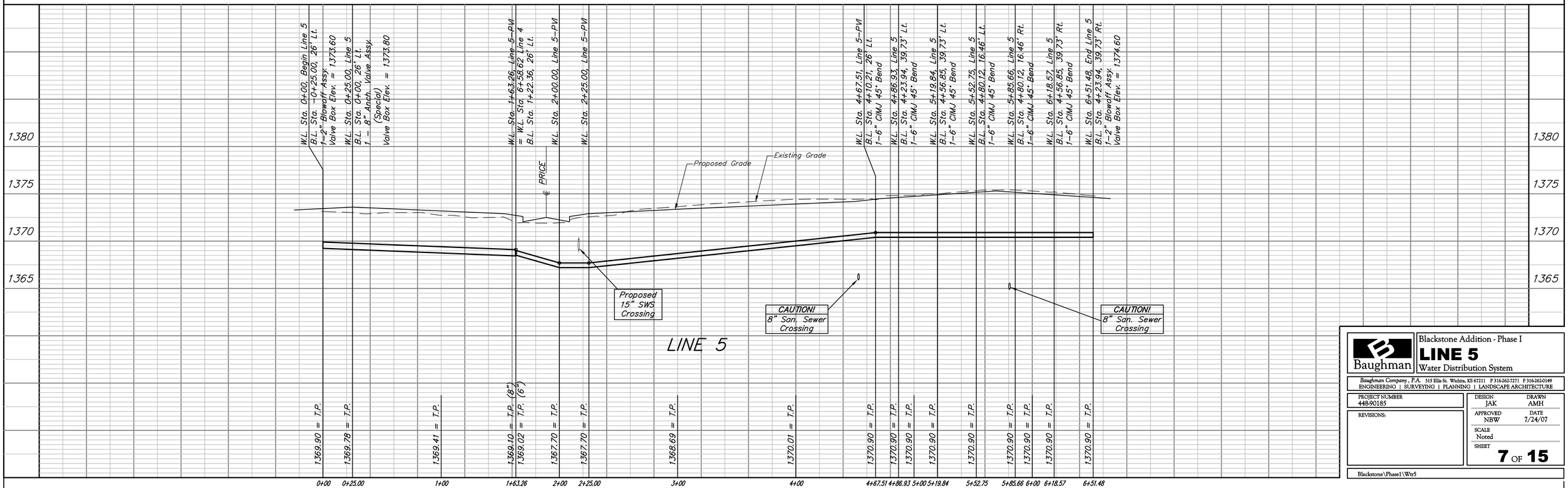
Small Railroad Spike in 4th HLP W.
of 135th St. W. on South Side of
13th St. N., (N. Face of HLP).
Elev. = 1366.64 NGVD29



Scale: 1" = 40' Horizontal
1" = 5' Vertical
• = Iron

Curve #6
Curve Data Based on Centerline of Pipe
Rad. = 226' Delta = 71° 10' 28" Tangent = 161.72'
Arc = 280.74' L.C. = 263.04' Def/Ft. = 7.60573 Min.

Station	Arc	CHORD 6' Lt.	Defl.	T. Defl.
0+25.00	–	–	0°00'00"	0°00'00"
0+50.00	25.00'	25.65'	3°10'09"	3°10'09"
0+75.00	25.00'	25.65'	3°10'08"	6°20'17"
1+00.00	25.00'	25.65'	3°10'08"	9°30'26"
1+25.00	25.00'	25.65'	3°10'08"	12°40'34"
1+50.00	25.00'	25.65'	3°10'09"	15°50'43"
1+63.26	13.26'	13.61'	1°40'51"	17°31'34"
1+75.00	11.74'	12.05'	1°29'18"	19°00'52"
2+00.00	25.00'	25.65'	3°10'08"	22°11'00"
2+25.00	25.00'	25.65'	3°10'09"	25°21'09"
2+50.00	25.00'	25.65'	3°10'08"	28°31'17"
2+75.00	25.00'	25.65'	3°10'08"	31°41'26"
3+00.00	25.00'	25.65'	3°10'09"	34°51'35"
3+05.74	5.74'	5.89'	0°43'39"	35°35'14"



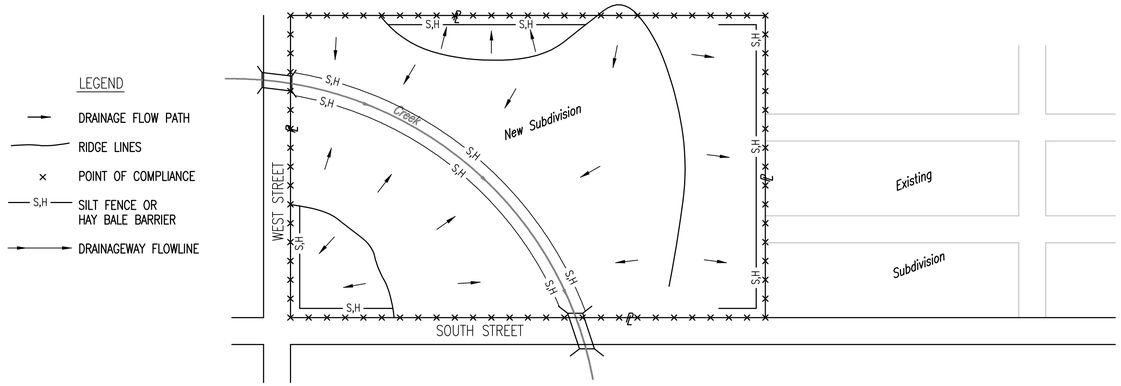
Baughman
Blackstone Addition - Phase I
LINE 5
Water Distribution System

Baughman Company, P.A. 315 Ellis St. Wichita, KS 67211 P 316-262-7271 F 316-262-0149
ENGINEERING | SURVEYING | PLANNING | LANDSCAPE ARCHITECTURE

PROJECT NUMBER 448-90185
REVISIONS:
DESIGN JAK
DRAWN AMH
APPROVED NBW
DATE 7/24/07
SCALE Noted
SHEET **7** OF **15**

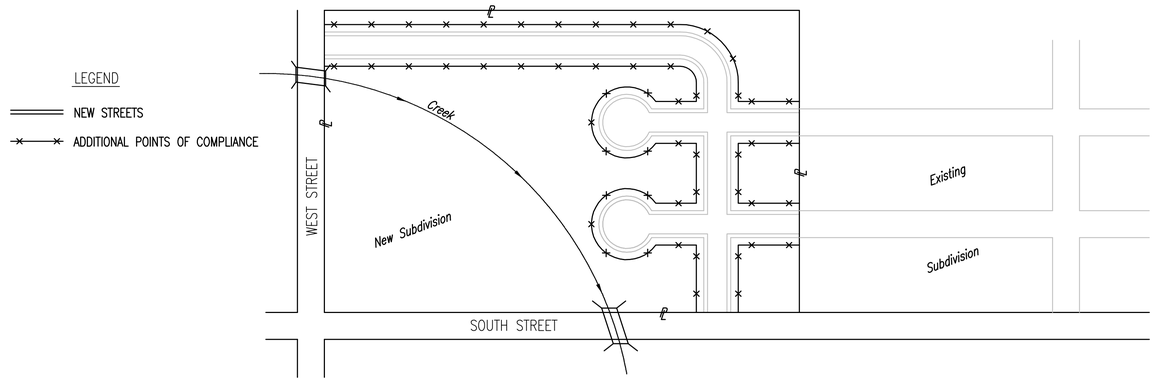
Blackstone\Phase1\W=5

PHASE 1 – INITIAL EARTHWORK AND UTILITIES (EXCEPT STORM SEWER)



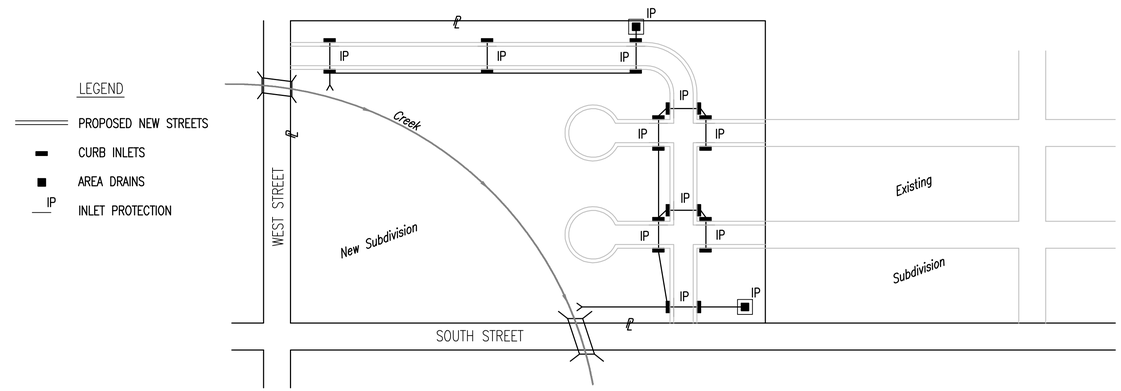
1. DURING THIS PHASE OF SUBDIVISION CONSTRUCTION, THE POINTS OF COMPLIANCE ARE THE PERIMETER BOUNDARIES AND ANY DRAINAGE WAYS OR STORM SEWERS DRAINING THROUGH OR FROM THE SITE. SHOULD LAKES BE CONSTRUCTED WITHIN THE SUBDIVISION THAT WILL DISCHARGE DURING STORMS, THEY ARE ALSO A POINT OF COMPLIANCE.
2. HAY BALES OR SILT FENCE MUST BE CONSTRUCTED ALONG THE PROPERTY LINE WHERE ON SITE WATER CAN DRAIN OFF THE PROPERTY. THESE EROSION CONTROL DEVICES WILL ALSO BE INSTALLED ALONG ANY DRAINAGE DITCH OR LAKE THAT CAN DISCHARGE.
3. SHOULD SILT OR SEDIMENT ENTER THE DITCHES OR STREETS ON THE ADJACENT BOUNDARY STREETS, APPROPRIATE EROSION CONTROL DEVICES WILL BE PLACED WITHIN THE SUBDIVISION TO PREVENT THIS.
4. ANY MUD TRACKED ONTO ADJACENT STREETS WILL BE REMOVED WITHIN 48 HOURS OR BY FRIDAY AT 6:00 PM, WHICHEVER IS EARLIER.
5. CONTRACTORS WORKING WITHIN THE SITE WILL NOT BE REQUIRED TO USE INDIVIDUAL EROSION CONTROL DEVICES AS LONG AS THOSE SPECIFIED ABOVE ARE IN PLACE AND EFFECTIVE. CONTRACTORS WORKING ON THE BOUNDARY LINE STREETS OR ON ADJACENT PROPERTIES TO EXTEND UTILITIES ARE EXPECTED TO USE EROSION CONTROL DEVICES AT THEIR WORK LOCATIONS, AS NEEDED.
6. UTILIZE STABILIZED CONSTRUCTION ENTRANCE AT ENTRANCE AND EXIT ONTO ANY EXISTING PUBLIC STREETS.
7. IF THE INITIAL EARTH WORK AND UTILITIES ARE DONE AS PART OF A PUBLIC IMPROVEMENT PROJECT, THESE EROSION CONTROL DEVICES WILL BE INSTALLED BY THE CONTRACTOR AS SPECIFIED IN THE INDIVIDUAL PROJECT CONTRACTS. THE CONTRACTOR WILL MAINTAIN THE DEVICES UNTIL COMPLETION OF THE CONTRACT, AT WHICH TIME THE DEVELOPER WILL ASSUME MAINTENANCE RESPONSIBILITIES. IF THESE CONTRACTS ARE NOT PUBLIC IMPROVEMENT PROJECTS, THE DEVELOPER WILL BE RESPONSIBLE FOR INSTALLING AND MAINTAINING THESE DEVICES.
8. WITHIN 14 DAYS OF COMPLETION OF EARTHWORK ACTIVITIES IN ANY GIVEN AREA, THAT AREA SHALL BE TEMPORARILY OR PERMANENTLY SEEDED AND MULCHED.

PHASE 3 – STREET CONSTRUCTION



1. DURING THIS PHASE OF SUBDIVISION CONSTRUCTION, NEW STREETS ARE INSTALLED. ALL EROSION CONTROL DEVICES INSTALLED DURING PHASE 1 AND 2 MUST STILL BE MAINTAINED. THE POINT OF COMPLIANCE NOW SHIFTS TO THE BACK OF CURB ALONG EACH STREET.
2. CURB OPENING INLET PROTECTION:
   A. SUMP AREAS – INLET PROTECTION SHALL BE PROVIDED WHEN STREET SUBGRADE WORK IS COMPLETED.
   B. NON–SUMP LOCATIONS – PROVIDE INLET PROTECTION AS SOON AS BASE COURSE ASPHALT IS INSTALLED, BEFORE THE SURFACE COURSE LIFT.
3. EROSION CONTROL DEVICES WILL BE REQUIRED BACK OF CURB WHEREVER WATER CAN FLOW OVER THE CURB AND THE CURB HAS BEEN BACKFILLED TO WITHIN 3" OR LESS OF THE TOP OF CURB (SEE CURB BACKFILL DETAIL). FOR CURBS NOT YET ENTIRELY BACKFILLED (3" OR MORE BELOW TOP OF CURB), ADDITIONAL DEVICES WILL BE REQUIRED AT POINTS WHERE WATER BREAKS OVER CURB WHICH COULD RESULT IN THE PLACEMENT OF SEDIMENT IN THE GUTTER.
4. SEE DETAIL SHEET FOR BACK OF CURB PROTECTION.
5. THE BACK OF CURB PROTECTION SPECIFIED ON THIS PLAN MAY HAVE TO BE SUPPLEMENTED WITH HAY BALE OR SILT FENCE EROSION CONTROL DEVICES AT LOCATIONS WHERE CONCENTRATED FLOW RESULTS IN SEDIMENT BEING CARRIED OVER THE EXCELSIOR MATS.
6. THE STREET CONTRACTOR WILL BE RESPONSIBLE FOR INSTALLING BACK OF CURB EROSION CONTROL DEVICES.
7. THE INDIVIDUAL LOT OWNERS WILL BE RESPONSIBLE FOR MAINTAINING THE BACK OF CURB EROSION CONTROL DEVICES IN FRONT OF THEIR LOTS UNTIL SUCH TIME AS ADJACENT DISTURBED EARTH IS STABILIZED WITH GRASS OR SOD.

PHASE 2 – INSTALLATION OF STORM SEWER

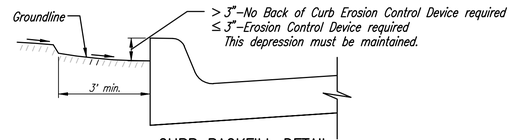


1. DURING THIS PHASE OF SUBDIVISION DEVELOPMENT, ALL EROSION CONTROL DEVICES REQUIRED IN PHASE 1 SHALL REMAIN IN PLACE AND BE MAINTAINED.
2. AS NEW STORM SEWERS, WITH INLETS, ARE INSTALLED, THE STORM SEWERS MUST NOW BE PROTECTED SO ALL NEW INLETS BECOME POINTS OF COMPLIANCE.
3. AREA DRAINS – AS SOON AS WATER CAN FLOW INTO THESE DRAINS, HAY BALE OR SILT FENCE PROTECTION WILL BE INSTALLED AROUND THEM.
4. CURB OPENING INLETS – AS SOON AS WATER CAN FLOW INTO THESE DRAINS, INLET PROTECTION DEVICES MUST BE INSTALLED. IF WATER CANNOT FLOW INTO CURB INLETS UNTIL STREET CONSTRUCTION IS COMPLETE, THEN STREET CONTRACTOR WILL INSTALL INLET PROTECTION. SEE PHASE 3 – STREET CONSTRUCTION.
5. THE STORM SEWER CONTRACTOR WILL BE RESPONSIBLE FOR INSTALLING THESE DEVICES.
6. THE SUBDIVISION DEVELOPER WILL MAINTAIN THESE EROSION CONTROL DEVICES ONCE INSTALLED.
7. ALL DISTURBED GROUND WILL BE FINAL GRADED AND TEMPORARILY OR PERMANENTLY SEEDED WITHIN 14 DAYS IF COMPLETION OF WORK IN ANY GIVEN PART OF THE SUBDIVISION.
8. ONCE ALL DISTURBED GROUND DRAINING TO AN INLET HAS BEEN RESTABILIZED WITH GRASS OR SOD, THE SUBDIVISION DEVELOPER WILL BE RESPONSIBLE FOR PERMANENTLY REMOVING THE INLET PROTECTION.

GENERAL NOTES:

1. THE INTENT OF ALL EROSION CONTROL DEVICES IS TO PREVENT ERODED SOIL FROM ENTERING DITCHES, STORM SEWERS, LAKES, STREETS OR ANY OTHER OTHER DRAINAGE FEATURE.
2. THIS SHEET IS INTENDED TO PROVIDE GUIDELINES AS TO WHAT TYPE OF EROSION CONTROL DEVICES WILL BE INSTALLED DURING THE CONSTRUCTION PROCESS. CONTRACTORS ARE EXPECTED TO BID PROJECTS ACCORDINGLY.
3. EROSION CONTROL DEVICES SHALL BE MAINTAINED DURING THE CONSTRUCTION PROCESS TO REMAIN EFFECTIVE. MAINTENANCE SHALL BE AS INDICATED ON SOIL EROSION BMP'S DETAIL SHEETS.
4. PERSONS DESTROYING EROSION CONTROL DEVICES SHALL BE RESPONSIBLE FOR IMMEDIATELY REPAIRING THEM OR INSTALLING SUITABLE REPLACEMENT DEVICES.
5. THE DEVELOPMENT OF ANY SUBDIVISION THAT DISTURBS 1 ACRE OR MORE WILL REQUIRE A FEDERAL/STATE NPDES STORMWATER PERMIT. THE PREPARATION OF A STORMWATER POLLUTION PREVENTION PLAN IS REQUIRED. EROSION CONTROL DEVICES ARE REQUIRED. THE DETAILS SHOWN ON THIS SHEET ARE THE MINIMUM STANDARDS TO BE SHOWN ON POLLUTION PREVENTION PLANS.
6. FOR SUBDIVISIONS SMALLER THAN 1 ACRE, SOIL EROSION DEVICES ARE REQUIRED. ALSO, DEVELOPERS AND CONTRACTORS ARE ENCOURAGED TO DEVELOP POLLUTION PREVENTION PLANS FOR EACH PROJECT PRIOR TO CONSTRUCTION.
7. FAILURE TO USE AND MAINTAIN SOIL EROSION DEVICES IS A VIOLATION OF SECTION 16.32 OF THE CITY CODE AND WILL SUBJECT THE SUBDIVISION DEVELOPER AND CONTRACTORS TO THE PENALTIES PROVIDED THEREIN.
8. THE APPLICATION OF EROSION CONTROL DEVICES SHOWN ON THIS SHEET IS FOR SITUATIONS NORMALLY ENCOUNTERED. FROM TIME TO TIME, SITUATIONS WILL ARISE THAT MAY REQUIRE DEVICES OTHER THAN THAT SHOWN. EROSION CONTROL DEVICES, OTHER THAN THOSE SHOWN, MAY BE UTILIZED SO LONG AS THEY ARE EFFECTIVE AND MAINTAINED.
9. A STABILIZED EARTH SURFACE IS DEFINED AS ONE THAT IS HARD SURFACED WITH CONCRETE, ASPHALT, OR THE LIKE, OR ONE ON WHICH 70% OF THE GRASS HAS GERMINATED ON THE ENTIRE SURFACE.

SEE DETAIL SHEET FOR
BACK OF CURB PROTECTION DETAIL



CURB BACKFILL DETAIL
(STREET CONSTRUCTION ONLY)

CITY OF WICHITA

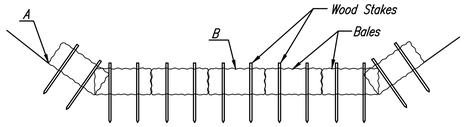
SOIL EROSION BMPs

SUBDIVISION DEVELOPMENT PROJECTS

JIM ARMOUR, P.E.
CITY ENGINEER

PROJECT NUMBER	OCA NO.
448–90185	735365
DATE 7/24/07	SHEET 8 OF 15

NOTE: Point A must be higher than Point B so that water flows over the bales and not around them.



STRAW BALE DITCH CHECKS

Material Specification:

Bale ditch checks may be constructed of wheat straw, oat straw, prairie hay, or bromegrass hay that is free of weeds declared noxious by the Kansas State Board of Agriculture.
The stakes used to anchor the bales should be a hardwood material with the following minimum dimensions: 2" square (nominal) by 4' long.
Optional: The downstream scour apron should be constructed of a double-netted straw erosion-control blanket at least 6' wide.
Optional: The metal landscape staples used to anchor the erosion-control blanket should be at least 8" long.

Placement:

Bale ditch checks should be placed perpendicular to the flowline of the ditch.
The ditch check should extend far enough so that the ground level at the ends of the check is higher than the top of the lowest center bale. This prevents water from flowing around the check.
Straw bale ditch checks should not be placed in ditches where high flows are expected. Rock checks should be used instead.
Bales should be placed in ditches with slopes of 6% or less. For slopes steeper than 6%, rock checks should be used.
The following table provides check spacing for a given ditch grade:

Ditch Check Spacing

Ditch grade (%)	Check Spacing (feet)
0.5	200
1.0	200
2.0	100
3.0	65
4.0	50
5.0	40
6.0	30

Proper installation method:

Excavate a trench perpendicular to the ditch flowline that is 4" deep and a bale's width wide. Extend the trench in a straight line along the entire length of the proposed ditch check. Place the soil on the upstream side of the trench-it will be used later.
Optional: On the downstream side of the trench, roll out a length of erosion-control blanket (scour apron) equal to the length of the trench. Place the upstream edge of the erosion-control blanket along the bottom upstream edge of the trench. The erosion control blanket should be anchored in the trench with one row of 8" landscape staples placed on 18" centers. The remainder of the erosion-control blanket (the portion that is not lying in the trench) will serve as the downstream scour apron. This section of the blanket should be anchored to the ground with 8" landscape staples placed around the perimeter of the blanket on 18" centers. The remainder of the blanket should be anchored using two evenly spaced rows of 8" landscape staples on 18" centers placed perpendicular to the flowline of the ditch.
Place the bales in the trench, making sure that they are butted tightly. Two stakes should be driven through each bale along the centerline of the ditch check, approximately 6" to 8" in from the bale ends. Stakes should be driven at least 12" into the ground.
Once all the bales have been installed and anchored, place the excavated soil against the upstream side of the check and compact it. The compacted soil should be no more than 3" to 4" deep and extend upstream no more than 24".

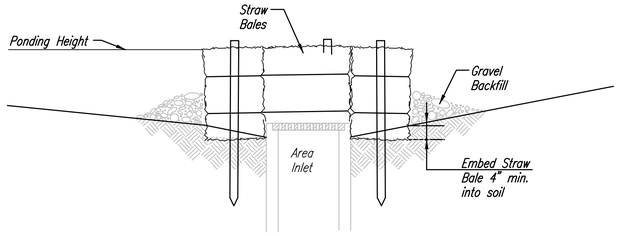
List of common placement/installation mistakes to avoid:

Do not place a bale ditch check directly in front of a culvert outlet. It will not stand up to the concentrated flow.
Do not place bale ditch checks in ditches that will likely experience high flows. They will not stand up to concentrated flow.
Follow prescribed ditch-check spacing guidelines. If spacing guidelines are exceeded, erosion will occur between the ditch checks.
Do not allow water to flow around the ditch check. Make sure that the ditch check is long enough so that the ground level at the ends of the check is higher than the top of the lowest center bale.
Do not place bale ditch checks in channels with shallow soils underlain by rock. If the check is not anchored sufficiently, it will wash out.
Bale ditch checks must be dug into the ground. Bales at ground level do not work because they allow water to flow under the check.

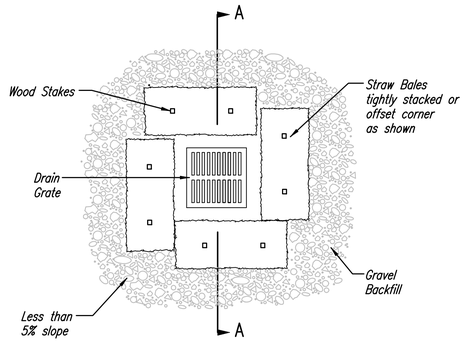
Inspection and Maintenance:

Bale ditch checks should be inspected every 7 days and within 24 hours of a rainfall of 1/2" or more. The following is a list of questions that should be addressed during each inspection:

Does water flow around the ditch check?
Does water flow under the ditch check?
Does water flow through spaces between abutting bales?
Are any bales and/or scour aprons (optional) dislodged?
Are bales decomposing due to age and/or water damage?
Does sediment need to be removed from behind the ditch check?



SECTION A-A



STRAW BALE BARRIERS FOR AREA INLETS

(INLET PROTECTION)

Material Specification:

Bale area inlet barriers should be constructed of wheat straw, oat straw, prairie hay, or bromegrass hay that is free of weeds declared noxious by the Kansas State Board of Agriculture.
The stakes used to anchor the bales should be a hardwood material with the following minimum dimensions: 2" square (nominal) by 4' long.
Twine should be used to bind bales. The use of wire binding is prohibited because it does not biodegrade readily.

Placement:

Bale area inlet barriers should be placed directly around the perimeter of a drop inlet.
When a bale area inlet barrier is located near an inlet that has steep approach slopes, the storage capacity behind the barrier is drastically reduced. Timely removal of sediment must occur for a barrier to operate properly in this location.

Proper Installation Method:

Excavate a trench around the perimeter of the area inlet that is at least 4" deep by a bale's width wide.
Place the bales in the trench, making sure that they are butted tightly. Some bales may need to be shortened to fit into the trench around the area inlet. Two stakes should be driven through each bale, approximately 6" to 8" in from the bale ends.
Stakes should be driven at least 12" into the ground.
Once all the bales have been installed and anchored, place the excavated soil against the receiving side of the barrier and compact it. The compacted soil should be no more than 3" to 4" deep.
Note: When a bale area inlet barrier is placed in a shallow median ditch, make sure that the top of the barrier is not higher than the paved road. In this configuration, water may spread onto the roadway causing a hazardous condition.

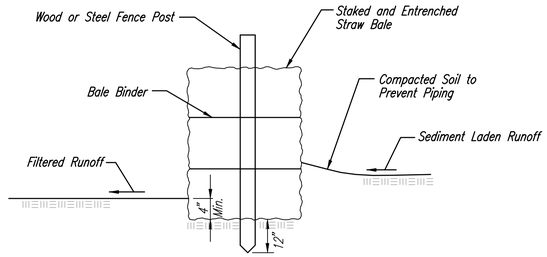
List of common placement installation mistakes to avoid:

Bales should be placed directly against the perimeter of the area inlet. This allows overtopping water to flow directly into the inlet instead of onto nearby soil causing scour.
Bale area inlet barriers must be dug into the ground. Bales at ground level do not work because they allow water to flow under the barrier.

Inspection and Maintenance:

Bale area inlet barriers should be inspected every 7 days and within 24 hours of a rainfall 1/2" or more. The following is a list of questions that should be addressed during each inspection:

Does water flow under the area inlet barrier?
Does water flow through spaces between abutting bales?
Are any bales dislodged?
Are bales decomposing due to age and/or water damage?
Does sediment need to be removed from behind the area inlet barrier?



STRAW BALE BARRIERS

Material Specification:

Bale slope barriers may be constructed of wheat straw, oat straw, prairie hay, or bromegrass hay that is free of weeds declared noxious by the Kansas State Board of Agriculture.
The stakes used to anchor the bales should be a hardwood material with the following minimum dimensions: 2" square (nominal) by 4' long.
Twine should be used to bind bales. The use of wire binding is prohibited because it does not biodegrade readily.

Placement:

A slope barrier should be used at the toe of a slope when a ditch does not exist. The slope barrier should be placed on nearly level ground 5' to 10' away from the toe of a slope. The barrier is placed away from the toe of the slope to provide adequate storage for settling out sediment.
When practicable, bale slope barriers should be placed along contours to avoid a concentration of flow.
Bale slope barriers can also be placed along right-of-way fence lines to keep sediment from crossing onto adjacent property. When placed in this manner, the slope barrier will not likely follow contours.

Proper installation method:

Excavate a trench the length of the planned slope barrier that is 4" deep and a bale's width wide. Make sure that the trench is excavated along a single contour. When practicable, slope barriers should be placed along contours to avoid a concentration of flow. Place the soil on the upslope side of the trench for later use.
Place the bales in the trench, making sure that they are butted tightly. Two stakes should be driven through each bale along the centerline of the ditch check, approximately 6" to 8" in from the bale ends. Stakes should be driven at least 12" into the ground.
Once all the bales have been installed and anchored, place the excavated soil against the upslope side of the check and compact it. The compacted soil should be no more than 3" to 4" deep.

List of common placement/installation mistakes to avoid:

When practical, do not place bale slope barriers across contours. Slope barriers should be placed along contours to avoid a concentration of flow. Concentrated flow over a slope barrier creates a scour hole on the downslope side of the barrier. The scour hole eventually undermines the bales and the barrier fails.
Do not place bale slope barriers in areas with shallow soils underlain by rock. If the barrier is not anchored sufficiently, it will wash out.
Bale slope barriers must be dug into the ground. Bales at ground level do not work because they allow water to flow under the barrier.

Inspection and Maintenance:

Bale slope barriers should be inspected every 7 days and within 24 hours of a rainfall of 1/2" or more. The following is a list of questions that should be addressed during each inspection:

Are there any points along the slope barrier where water is concentrating?
Does water flow under the slope barrier?
Does water flow through spaces between abutting bales?
Are any bales dislodged?
Are bales decomposing due to age and/or water damage?
Does sediment need to be removed from behind the slope barrier?

CITY OF WICHITA

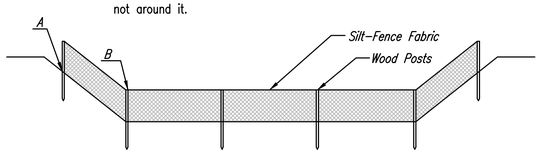
SOIL EROSION BMPs

STRAW BALE DITCH CHECK AND BARRIER DETAILS

JIM ARMOUR, P.E.
CITY ENGINEER

PROJECT NUMBER	OCA NO.
448-90185	735365
DATE 7/24/07	SHEET 9 OF 15

NOTE: Point A must be higher than Point B so that water flows over the silt fence fabric and not around it.



ELEVATION

SILT FENCE DITCH CHECKS
(STREAM PROTECTION)

Material Specification:

Silt fence fabric should conform to the AASHTO M288 96 silt fence specification.
The posts used to support the silt fence fabric should be a hardwood material with the following minimum dimensions: 2" square (nominal) by 4' long.
Silt fence fabric should be attached to the wooden posts with staples, wire, zip ties, or nails.

Placement:

Place silt fence in ditches where it is unlikely that it will be overtopped.
Water should flow through a silt fence ditch check, not over it. Silt fence ditch checks often fail when overtopped.
Silt fence ditch checks should be placed perpendicular to the flowline of the ditch.
The silt fence should extend far enough so that the ground level at the ends of the fence is higher than the top of the low point of the fence. This prevents water from flowing around the check.
Silt fence ditch checks should not be placed in ditches where high flows are expected. Rock checks should be used instead.
Silt fence should be placed in ditches with slopes of 6% or less. For slopes steeper than 6%, rock checks should be used.

The following table provides check spacing for a given ditch grade:

Ditch grade (%)	Check Spacing (feet)
0.5	200
1.0	200
2.0	100
3.0	65
4.0	50
5.0	40
6.0	30

Proper installation method:

Excavate a trench perpendicular to the ditch flowline that is at least 12" deep by 6" wide.
Extend the trench in a straight line along the entire length of the proposed ditch check.
Place the soil on the upstream side of the trench for later use.
Roll out a continuous length of silt fence fabric on the downstream side of the trench.
Place the edge of the fabric in the trench starting at the top upstream edge of the trench.
Line two sides of the trench with the fabric as shown on detail. Backfill over the fabric in the trench with the excavated soil and compact. After filling the trench, approximately 24" to 36" of silt fence fabric should remain exposed.
Lay the exposed silt fence on the upstream side of the trench to clear an area for driving in the posts. Just downstream of the trench, drive posts into the ground to a depth of at least 24". Place posts no more than 4' apart.
Attach the silt fence to the anchored post with staples, wire, zip ties, or nails.

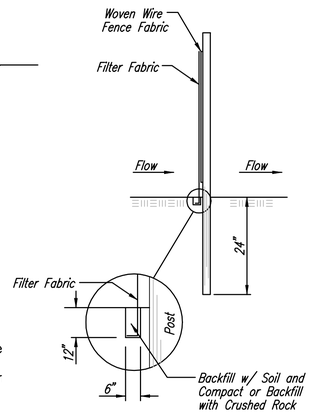
List of common placement/installation mistakes to avoid:

Water should flow through a silt fence ditch check–not over it. Place silt fence in ditches where it is unlikely that it will be overtopped. Silt fence installations quickly deteriorate when water overtops them.
Do not place silt fence posts on the upstream side of the silt fence fabric. In this configuration, the force of the water is not restricted by the posts, but only by the staples (wire, zip ties, nails, etc.). The silt fence will rip and fail.
Do not place a silt fence ditch check directly in front of a culvert outlet. It will not stand up to the concentrated flow.
Do not place silt fence ditch checks in ditches that will likely experience high flows. They will not stand up to concentrated flow.
Follow prescribed ditch check spacing guidelines. If spacing guidelines are exceeded, erosion will occur between the ditch checks.
Do not allow water to flow around the ditch check. Make sure that the ditch check is long enough so that the ground level at the ends of the fence is higher than the low point on the top of the fence.
Do not place silt fence ditch checks in channels with shallow soils underlain by rock. If the check is not anchored sufficiently, it will wash out.

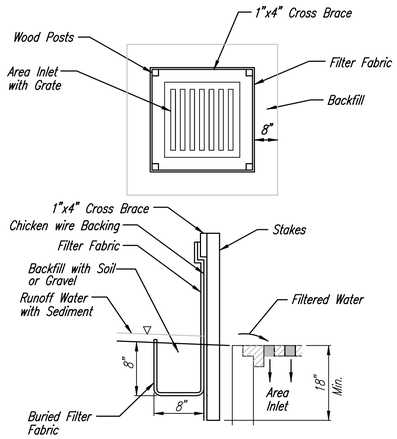
Inspection and Maintenance:

Silt fence ditch checks should be inspected every 7 days and within 24 hours of a rainfall of 1/2" or more. The following is a list of questions that should be addressed during each inspection:

Does water flow around the ditch check?
Does water flow under the ditch check?
Does the silt fence sag excessively?
Has the silt fence torn or become detached from the posts?
Does sediment need to be removed from behind the ditch check?



ANCHOR TRENCH DETAIL



SILT FENCE BARRIERS FOR AREA INLETS
(INLET PROTECTION)

Material Specification:

Silt fence fabric should conform to the AASHTO M288 96 silt fence specification.
The wire or polymeric mesh backing used to help support the silt fence fabric should conform to the AASHTO M288 96 silt fence specification.
The posts used to support the silt fence fabric should be a hardwood material with the following minimum dimensions: 2" square (nominal) by 4' long.
The material used to frame the tops of the posts should be 1" by 4" boards.
Silt fence fabric and support backing should be attached to the wooden posts and frame with staples, wire, zip ties, or nails.

Placement:

Place a silt fence drop inlet barrier in a location where it is unlikely to be overtopped.
Water should flow through silt fence, not over it. Silt fence barriers for area inlets often fail when repeatedly overtopped.
When used as a barrier for area inlets, silt fence fabric and posts must be supported at the top by a wooden frame.
When a silt fence barrier for area inlets is located near an inlet that has steep approach slopes, the storage capacity behind the barrier is drastically reduced. Timely removal of sediment must occur for a barrier to operate properly in this location.

Proper installation method:

Excavate a trench around the perimeter of the area inlet that is at least 8" deep by 8" wide.
Drive posts to a depth of at least 18" around the perimeter of the area inlet.
The distance between posts should be 4' or less. If the distance between two adjacent corner posts is more than 4', add another post(s) between them.
Connect the tops of all the posts with a wooden frame made of 1" by 4" boards. Use nails or screws for fastening.
Attach the wire or polymeric–mesh backing to the outside of the post/frame structure with staples, wire, zip ties, or nails.
Roll out a continuous length of silt fence fabric long enough to wrap around the perimeter of the area inlet. Add more length for overlapping the fabric joint. Place the edge of the fabric in the trench, starting at the outside edge of the trench. Line all three sides of the trench with the fabric. Backfill over the fabric in the trench with the excavated soil and compact. After filling the trench, approximately 24" to 36" of silt fence fabric should remain exposed.
Attach the silt fence to the outside of the post/frame structure with staples, wire, zip ties, or nails. The joint should be overlapped to the next post.

Note: When a silt fence barrier for area inlet is placed in a shallow median ditch, make sure that the top of the barrier is not higher than the paved road. In this configuration, water may spread onto the roadway causing a hazardous condition.

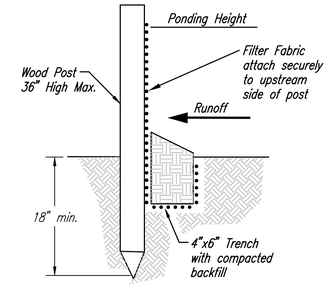
List of common placement/installation mistakes to avoid:

Water should flow through a silt fence barrier for area inlet–not over it. Place a silt fence barrier for area inlet in a location where it is unlikely to be overtopped. Silt fence barrier for area inlets often fail when repeatedly overtopped.
Do not place posts on the outside of the silt fence barrier for area inlet. In this configuration, the force of the water is not resisted by the posts, but only by the staples (wire, zip ties, nails, etc.). The silt fence will rip and fail.
Do not install silt fence barrier for area inlets without framing the top of the posts.
The corner posts around area inlets are stressed in two directions whereas a normal silt fence is only stressed in one direction. This added stress requires more support.

Inspection and Maintenance:

Silt fence barrier for area inlets should be inspected every 7 days and within 24 hours of a rainfall of 1/2" or more. The following is a list of questions that should be addressed during each inspection:

Does water flow under the silt fence?
Does the silt fence sag excessively?
Has the silt fence torn or become detached from the posts?
Does sediment need to be removed from behind the area inlet barrier?



SILT FENCE BARRIERS

Material Specification:

Silt fence fabric should conform to the AASHTO M288 96 silt fence specification.
The posts used to support the silt fence fabric should be a hardwood material with the following minimum dimensions: 2" square (nominal) by 4' long.
Silt fence fabric should be attached to the wooden posts with staples, wire, zip ties, or nails.

Placement:

A slope barrier should be used at the toe of a slope when a ditch does not exist. The slope barrier should be placed on nearly level ground 5' to 10' away from the toe of a slope. The barrier is placed away from the toe of the slope to provide adequate storage for settling out sediment.
When practicable, silt fence slope barriers should be placed along contours to avoid a concentration of flow.
Silt fence slope barriers can also be placed along right–of–way fence lines to keep sediment from crossing onto adjacent property. When placed in this manner, the slope barrier will not likely follow contours.

Proper installation method:

Excavate a trench the length of the planned slope barrier that is 6" deep by 4" wide.
Make sure that the trench is excavated along a single contour. When practicable, slope barriers should be placed along contours to avoid a concentration of flow. Place the soil on the upslope side of the trench for later use.
Roll out a continuous length of silt fence fabric on the downslope side of the trench.
Place the edge of the fabric in the trench starting at the top upslope edge. Line all three sides of the trench with the fabric. Backfill over the fabric in the trench with the excavated soil and compact. After filling the trench, approximately 24" to 36" of silt–fence fabric should remain exposed.
Lay the exposed silt fence upslope of the trench to clear an area for driving in the posts.
Just downslope of the trench, drive posts into the ground to a depth of at least 18".
Place posts no more than 4' apart.
Attach the silt fence to the anchored post with staples, wire, zip ties, or nails.

List of common placement/installation mistakes to avoid:

When practicable, do not place silt fence slope barriers across contours. Slope barriers should be placed along contours to avoid a concentration of flow. When the flow concentrates, it overtops the barrier and the silt fence slope barrier quickly deteriorates.
Do not place silt–fence posts on the upslope side of the silt fence fabric. In this configuration, the force of the water is not restricted by the posts, but only by the staples (wire, zip ties, nails, etc.). The silt fence will rip and fail.
Do not place silt fence slope barriers in areas with shallow soils underlain by rock. If the barrier is not sufficiently anchored, it will wash out.
Silt fence slope barriers must be dug into the ground–silt fence at ground level does not work because water will flow underneath.

Inspection and Maintenance:

Silt fence slope barriers should be inspected every 7 days and within 24 hours of a rainfall of 1/2" or more. The following is a list of questions that should be addressed during each inspection:

Are there any points along the slope barrier where water is concentrating?
Does water flow under the slope barrier?
Do the silt fences sag excessively?
Has the silt fence torn or become detached from the posts?
Does sediment need to be removed from behind the slope barrier?

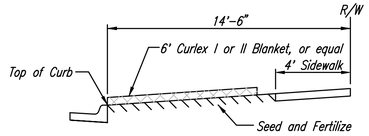
CITY OF WICHITA

SOIL EROSION BMPs

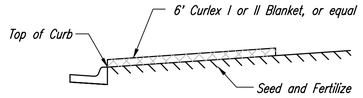
SILT FENCE DITCH CHECK AND BARRIER DETAILS

JIM ARMOUR, P.E.
CITY ENGINEER

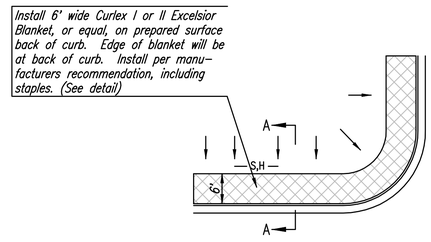
PROJECT NUMBER	OCA NO.
448-90185	735365
DATE 7/24/07	SHEET 10 OF 15



SECTION B-B



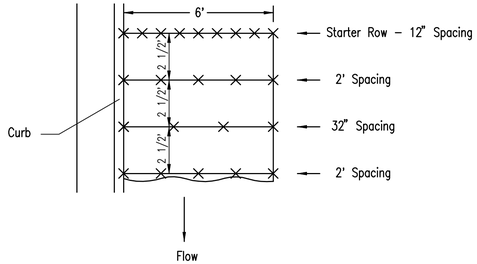
SECTION A-A



NOTES:

1. EXCELSIOR MAT TO BE INSTALLED WHEN SOD IS NOT SPECIFIED ON PROJECT.
2. EXCELSIOR BLANKET TO BE INSTALLED OVER SEED AND FERTILIZER, AS SPECIFIED IN THE PROJECT SPECIFICATIONS.
3. AFTER INSTALLATION OF EXCELSIOR BLANKET, AT LOCATIONS WHERE CONCENTRATED FLOW CARRIES SEDIMENT OVER THE CURB AND INTO THE GUTTER, SUPPLEMENTAL EROSION CONTROL DEVICES WILL BE INSTALLED BY THE CONTRACTOR AS NEEDED, TO FIX THE PROBLEM.

BACK OF CURB PROTECTION DETAIL



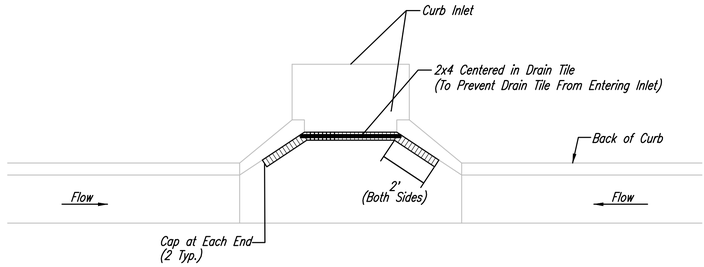
STAPLE PATTERN

NOTES: Use 6" seam overlap

STAPLE

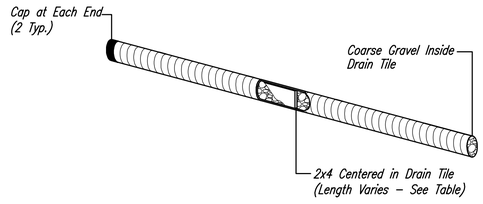
DETAILS FOR CURLEX I OR II BLANKETS

NOTE: 6' WIDE CURLEX TO BE USED ON THIS PROJECT



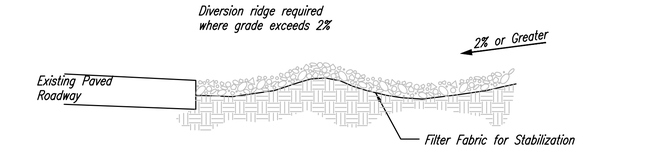
Note:
Place 4" perforated PVC pipe, filled with 1/2"-1" dia. gravel, in front of curb inlet as shown.

2X4 LENGTH	INLET TYPE	INLET OPENING
5'-6"	1-A	5'-0"
10'-6"	1-A	10'-0"
15'-6"	1-A	15'-0"

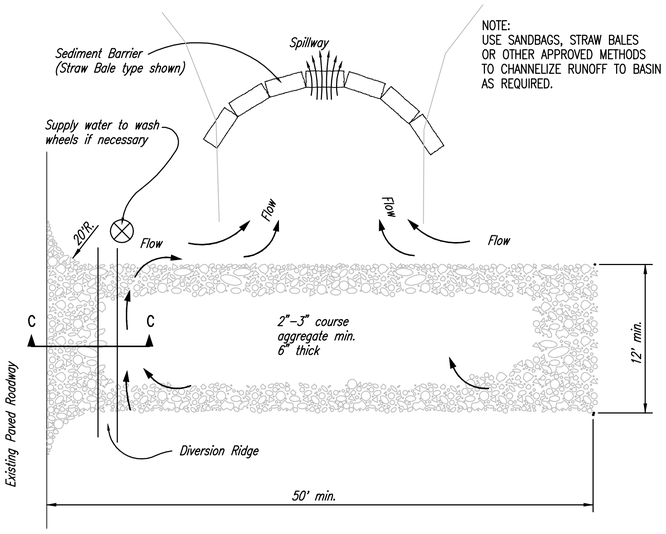


CURB INLET PROTECTION

4" PERFORATED PIPE W/ GRAVEL



SECTION C-C



STABILIZED CONSTRUCTION ENTRANCE

NOTES:

1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN, AS SHOWN ABOVE.
4. DRIVE ENTRANCES ONTO RESIDENTIAL LOTS WILL NOT BE REQUIRED TO HAVE THE SEDIMENT BARRIER SHOWN, BUT WHEEL WASHING MAY BE REQUIRED IF STABILIZED ENTRANCE IS NOT SUFFICIENT TO KEEP MUD FROM BEING TRACKED ONTO ADJACENT STREET. ENTRANCE SHALL EXTEND FROM BACK OF CURB TO DWELLING.

CITY OF WICHITA

SOIL EROSION BMPs

BACK OF CURB PROTECTION, CURB INLET PROTECTION AND CONSTRUCTION ENTRANCE

JIM ARMOUR, P.E.
CITY ENGINEER

PROJECT NUMBER	OCA NO.
448-90185	735365
DATE: 7/24/07	SHEET 11 OF 15

Scale: 1" = 60'

Maintain 370 L.F. silt fence per detail, sheet 10.

Maintain 2,028 L.F. silt fence per detail, sheet 10.

Maintain 575 L.F. silt fence per detail, sheet 10.

Maintain one construction entrance onto existing paved roadway per detail, sheet 11.

EROSION CONTROL PLAN LEGEND

- SILT FENCING

NO SCALE

---1370--- Existing Grade

OBSIDIAN

OBSIDIAN CT.

BLACKSTONE CT.

PRICE

RESERVE "C"

13TH ST. N.

15' Util. Esm't

20' Drng. & Util. Esm't

30' Drng. & Util. Esm't

30' DRNG. & UTIL. ESM'T.

50' RWD. & R/W EASEMENT (DOCKET/FILM-PG. 288888540)

THE SEDGWICK COUNTY ELECTRIC COOPERATIVE ASSOCIATION, INC. PARTIAL RELEASE OF RIGHT-OF-WAY EASEMENT. (SUBJECT TO ROAD R/W OF RECORD)

70' RWD. & R/W EASEMENT (DOCKET/FILM-PG. 288888525)

THE SEDGWICK COUNTY ELECTRIC COOPERATIVE ASSOCIATION, INC. PARTIAL RELEASE OF RIGHT-OF-WAY EASEMENT

UNDERGROUND ELECTRIC EASEMENT (DOCKET/FILM-PG. 5868)

2' WALK ESMT.

Baughman

BLACKSTONE ADDITION

EROSION CONTROL PLAN

WICHITA, KANSAS

Baughman Company, P.A. 315 Ellis St. Wichita, KS 67211 P 316-262-7271 F 316-262-0149
ENGINEERING | SURVEYING | PLANNING | LANDSCAPE ARCHITECTURE

PROJECT NUMBER	DESIGN	DRAWN
448-90185	NBW/JAK	JAK
REVISIONS:	APPROVED	DATE
		7/24/07
	SCALE	
	Noted	
	SHEET	
	12 OF 15	

Blackstone\Wtr Erosion

Maintain 775 L.F. silt fence per detail, sheet 10.

Maintain one construction entrance onto existing paved roadway per detail, sheet 11.

Scale: 1" = 60'

Maintain 1,068 L.F. silt fence per detail, sheet 10.

Maintain 273 L.F. silt fence per detail, sheet 10.

Maintain 647 L.F. silt fence per detail, sheet 10.

EROSION CONTROL PLAN LEGEND

- SILT FENCING

NO SCALE

1370 Existing Grade

BLACKSTONE ADDITION

EROSION CONTROL PLAN

WICHITA, KANSAS

Baughman Company, P.A. 315 Ellis St. Wichita, KS 67211 P 316.262.7271 F 316.262.0149
ENGINEERING | SURVEYING | PLANNING | LANDSCAPE ARCHITECTURE

PROJECT NUMBER	DESIGN	DRAWN
448-90185	NBW/JAK	JAK
REVISIONS:	APPROVED	DATE
		7/07
	SCALE	
	Noted	
	SHEET	
	13 OF 15	

Blackstone\Wtr Erosion

Scale: 1" = 100'

Points	Northing	Easting	Desc
1001	22673.9191	7357.3569	Iron
1002	22671.3898	6967.3648	Iron
1003	22670.8450	6883.3666	Iron
1004	22666.4206	6201.1526	Iron
1005	22906.6194	6206.6462	Iron
1006	23236.2334	5967.5863	Iron
1007	23453.4027	5953.4700	Iron
1008	23542.7080	6281.0396	Iron
1009	24004.8775	6309.9183	Iron
1010	24215.2716	6464.0874	Iron
1011	24628.7340	6456.0111	Iron
1012	24646.9838	6648.7501	Iron
1013	25246.2071	6643.6515	Iron
1014	25247.7204	6918.9693	Iron
1015	25248.1268	6992.9005	Iron
1016	25250.2920	7385.7201	Iron
1017	23313.2058	7373.4174	Iron
1018	23249.2063	7373.0109	Iron
1019	22807.3870	6966.4828	Iron
1020	22865.3857	6966.1067	Iron
1021	22866.4323	7127.4752	Iron
1022	22808.4335	7127.8514	Iron
1023	22864.8410	6882.1084	Iron
1024	22808.8422	6882.4846	Iron
1025	22862.4601	6515.0013	Iron
1026	22804.4613	6515.3774	Iron
1027	22891.7736	6457.0659	Iron
1028	22857.7211	6410.1146	Iron
1029	22992.5604	6383.9680	Iron
1030	22958.5079	6337.0167	Iron
1031	22942.6393	6891.6026	Iron
1032	22943.3841	6965.6008	Iron
1033	23013.0175	6891.1476	Iron
1034	23013.4326	6955.1463	Iron
1035	23093.9908	6909.5679	Iron
1036	23145.6824	6947.3034	Iron
1037	23154.6558	6935.0113	Iron
1038	23102.9641	6897.2759	Iron
1039	23132.5738	6777.7998	Iron
1040	23195.9048	6768.5703	Iron
1041	23281.2209	6510.4615	Iron
1042	23306.8002	6569.1275	Iron
1043	23377.7513	6520.8837	Iron
1044	23332.5992	6475.5264	Iron
1045	23429.3526	6469.5159	Iron
1046	23384.2005	6424.1586	Iron
1047	23407.5410	6328.9145	Iron
1048	23345.7946	6345.7484	Iron
1049	23367.1577	6180.7896	Iron
1050	23305.4113	6197.6236	Iron
1051	23559.1483	6452.3984	Iron
1052	23555.1570	6516.2738	Iron
1053	23876.7344	6472.2428	Iron
1054	23872.7431	6536.1182	Iron
1055	23999.3931	6516.6544	Iron
1056	23961.5649	6568.2783	Iron
1057	24010.4798	6604.1214	Iron
1058	24048.3080	6552.4975	Iron
1059	24143.1367	6735.1034	Iron
1060	24079.1489	6736.3533	Iron
1061	24082.4304	6904.3469	Iron
1062	24146.4182	6903.0970	Iron
1063	24185.4167	7007.3808	Iron
1064	24136.3103	7048.4242	Iron
1065	24111.6686	7069.0198	Iron
1066	24152.7120	7118.1262	Iron
1067	23938.0974	7131.3812	Iron
1068	23937.6910	7195.3799	Iron
1069	23315.2719	7191.4268	Iron
1070	23251.2783	7190.5017	Iron
1071	23263.3711	7127.0959	Iron
1072	23195.9104	7062.9179	Iron
1073	23132.0115	7066.5139	Iron
1074	24339.1698	6962.2839	Iron
1075	24344.5310	6874.0580	Iron
1076	24383.6725	6925.0884	Iron
1077	24377.9271	7008.6552	Iron
1078	24422.4298	6971.4596	Iron
1079	24452.4477	7053.4786	Iron
1080	24394.4486	7053.7974	Iron
1081	24394.9109	7137.8982	Iron
1082	24452.9100	7137.5794	Iron
1083	24492.2838	6884.0749	Iron
1084	24503.8630	6819.9741	Iron
1085	24445.9509	6825.0385	Iron
1086	24443.3211	6690.4077	Iron
1087	24501.3100	6689.2750	Iron
1088	24723.5099	6882.1075	Iron
1089	24781.5080	6881.6140	Iron
1090	24782.9534	7144.5791	Iron
1091	24724.9543	7144.8979	Iron
1092	25006.5925	6815.6965	Iron
1093	25007.1370	6879.6942	Iron
1094	25125.9071	6847.5502	Iron
1095	25084.1463	6897.6492	Iron
1096	25134.3529	6926.6908	Iron
1097	25112.1589	6999.1187	Iron
1098	25054.1598	6999.4375	Iron
1099	25112.9430	7141.7713	Iron
1100	25054.9439	7142.0901	Iron
1101	25129.2951	6935.3175	Iron
1102	25079.2606	6905.9823	Iron

Baughman

Blackstone Addition

COORDINATE SHEET

Water Distribution System

Baughman Company, P.A. 315 Ellis St. Wichita, KS 67211 P 316-262-7271 F 316-262-0149
ENGINEERING | SURVEYING | PLANNING | LANDSCAPE ARCHITECTURE

PROJECT NUMBER 448-90185

REVISIONS:

DESIGN NBW/JAK

DRAWN JAK

APPROVED

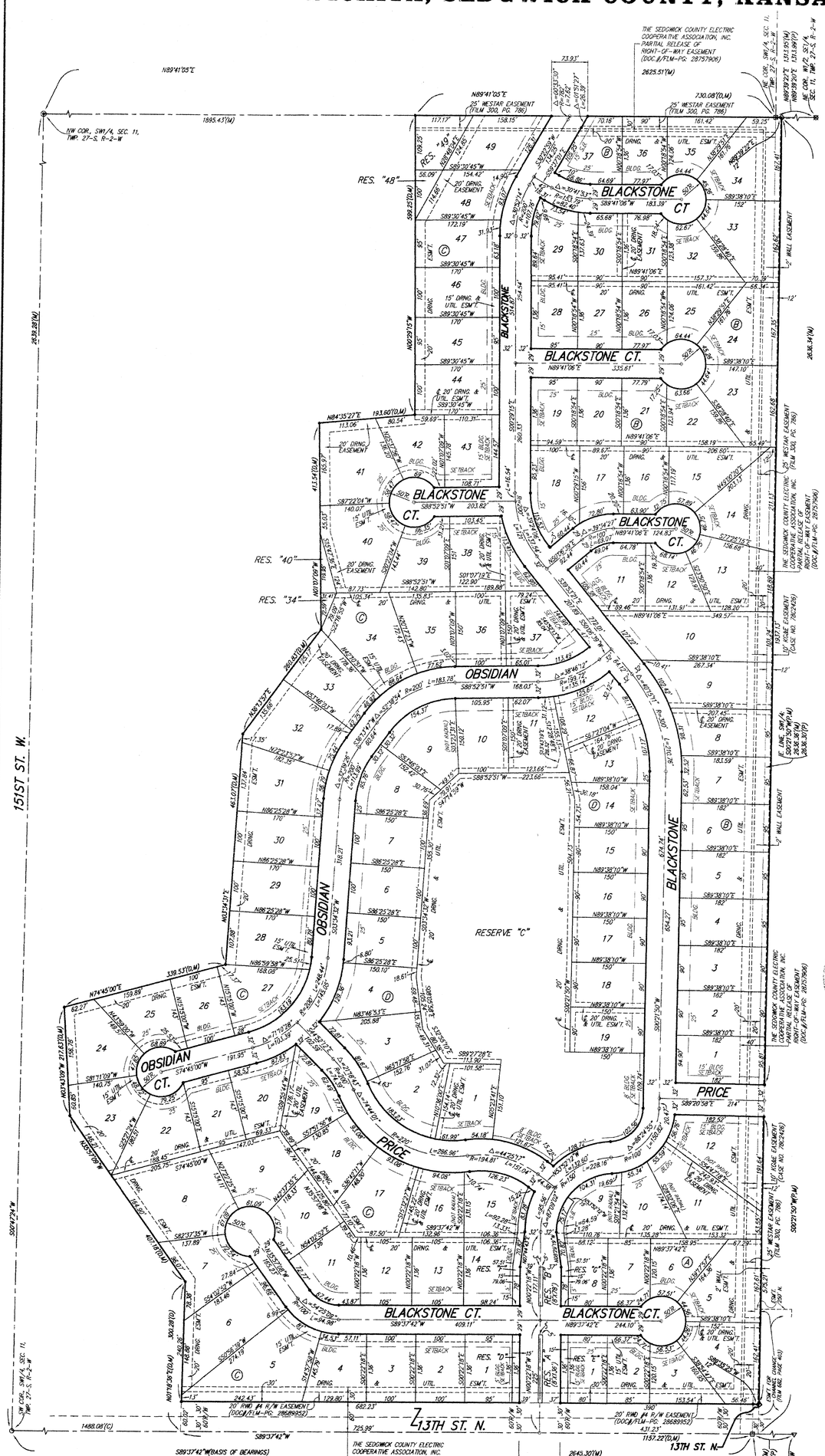
DATE 7/07

SCALE Noted

SHEET 14 OF 15

Blackstone\Wtr Coord.dwg

BLACKSTONE ADDITION
WICHITA, SEDGWICK COUNTY, KANSAS



MINIMUM BUILDING PAD ELEVATIONS FOR LOWEST OPENING TO THE STRUCTURES		
LOT	BLOCK	ELEVATION NGVD29
34-37	B	1368.1
5	C	1373.0
6-8, 22, 23	C	1375.0
24-26	C	1374.0
27-29	C	1373.0
30-31	C	1372.0
32-34	C	1370.5
35, 39-42	C	1369.0
43-45	C	1368.5
46-47	C	1368.0
48-49	C	1367.0
1-19	D	1368.2

1.35TH ST. W. & 13TH ST. N. – CITY OF WICHITA DISC AT SOUTHWEST CORNER OF INTERSECTION, 30.00'± S. OF ℄ 35.00'± W. OF ℄ ELEV. = 1355.65 NGVD29 (168.25 CITY DATUM)

SMALL RAILROAD SPIKE IN 2ND H.P. W. OF 1.35TH ST. W. ON SOUTH SIDE OF 13TH ST. N., (N. FACE OF H.P.). ELEV. = 1359.50 NGVD29

SMALL RAILROAD SPIKE IN 4TH H.P. W. OF 1.35TH ST. W. ON SOUTH SIDE OF 13TH ST. N., (N. FACE OF H.P.). ELEV. = 1366.64 NGVD29

1.35TH ST. W. & 13TH ST. N. – CITY OF WICHITA DISC AT SOUTHEAST CORNER OF INTERSECTION, 56.00'± E. OF ℄ 55.00'± S. OF ℄ ELEV. = 1355.23 NGVD29 (157.83 CITY DATUM)

● = #4 REBAR W/ "BAUGHMAN" CAP (SET)
⊕ = #4 REBAR OVER STONE (FOUND)
○ = 1" STEEL CAP SURVEY MARKER (FOUND)
□ = STONE (FOUND)
▽ = 1/2" IRON OVER STONE (FOUND)
⊠ = 1" IRON (FOUND)
◇ = #4 REBAR W/ "RAB" CAP (FOUND)

(M) = MEASURED
(D) = DESCRIBED
(P) = PLATTED
(C) = CALCULATED

0 100 200

NOTE:
EXISTING 20 FOOT RURAL WATER DISTRICT NO. 4, SEDGWICK COUNTY, KANSAS RIGHT-OF-WAY EASEMENT, (DOC.#/FILM-PG: 28891987), OVER THE NORTH 20 FEET OF THE SOUTH 80 FEET OF THE W1/2 OF THE W1/2 OF THE SE1/4 OF SEC. 11, TWP. 27-S, R-2-W, EXCEPT THAT PART PLATTED AS CHERYL'S HOLLOW, WICHITA, SEDGWICK COUNTY, KANSAS. THIS EASEMENT AFFECTS THE SOUTH 20 FEET OF THE EAST 12 FEET OF LOT 4, BLOCK A, BLACKSTONE ADDITION.

NOTE:
KG&E EASEMENT PER CASE NO. 78C2426 ALLOWS FOR 4 ANCHORS WITH GUY WIRES TO BE LOCATED APPROXIMATELY 2' SOUTH & NOT MORE THAN 75' E. OF THE NW COR., OF THE SE¼ OF SEC. 11, TWP. 27-S, R-2-W. (SAID ANCHOR EASEMENT IS OF UNDEFINED WIDTH)

NOTE:
A MASTER GRADING PLAN FOR DRAINAGE HAS BEEN DEVELOPED FOR THIS SUBDIVISION AND IS ON FILE WITH THE CITY OF WICHITA, KANSAS. ALL DRAINAGE EASEMENTS, RIGHTS-OF-WAY, OR RESERVES SHALL REMAIN AT ESTABLISHED GRADES OR AS MODIFIED WITH THE APPROVAL OF THE CITY ENGINEER OF THE CITY OF WICHITA, KANSAS. NO OBSTRUCTIONS WHICH IMPEDE THE FLOW OF THIS DRAINAGE SYSTEM SHALL BE ALLOWED.

State of Kansas) SS
Sedgwick County)

We, Baughman Company, P.A., Surveyors in aforesaid county and state do hereby certify that we have surveyed and platted "BLACKSTONE ADDITION", Wichita, Sedgwick County, Kansas and that the accompanying plat is a true and correct exhibit of the property surveyed, described as part of the SW1/4 of Sec. 11, Twp. 27-S, R-2-W of the 6th P.M., Sedgwick County, Kansas, more particularly described as follows: Beginning at the SE corner of said SW1/4; thence S89°37'42"W along the south line of said SW1/4, 1157.22 feet; thence N01°18'36"E, 300.28 feet; thence N35°57'09"W, 407.18 feet; thence N03°43'09"W, 217.63 feet; thence N74°45'00"E, 339.53 feet; thence N03°34'31"E, 463.07 feet; thence N36°13'57"E, 260.83 feet; thence N01°07'09"W, 413.54 feet; thence N84°35'27"E, 193.60 feet; thence N00°29'15"W, 593.25 feet to a point on the north line of said SW1/4; thence N89°41'05"E along the north line of said SW1/4, 730.08 feet to the NE corner of said SW1/4; thence S00°21'50"W along the east line of said SW1/4, 2636.36 feet to the point of beginning, TOGETHER with the west 12.00 feet of the W1/2 of the SE1/4 of said Sec. 11, all being subject to road rights-of-way of record.

Existing public easements and dedications being vacated by virtue of K.S.A. 12-512(b).

Baughman Company, P.A.

Michael G. Conrey LS-871 5-31-2006 Surveyor

Know all men by these presents that we, the undersigned, have caused the land in the surveyors certificate to be platted into Lots, Blocks, Reserves, and Streets, to be known as "BLACKSTONE ADDITION", Wichita, Sedgwick County, Kansas. The utility easements are hereby granted as indicated for the construction and maintenance of all public utilities. The drainage and utility easements are hereby granted as indicated for drainage purposes and for the construction and maintenance of all public utilities. The drainage easements are hereby granted as indicated for drainage purposes. Reserves "A" and "B" are hereby reserved for entry monuments, landscaping, open space, streets, drainage purposes, and utilities. The public shall not bear the cost of any repair or replacement of improvements within said Reserves "A" and "B" adversely affected by street construction, repair, or maintenance. Reserve "C" is hereby reserved for landscaping, lakes, open space, berms, drainage purposes, swimming pool and related accessories, parking, gazebos, recreational uses, private sidewalks, and utilities as confined to easements. Reserves "D" and "E" are hereby reserved for entry monuments, landscaping, berms, drainage purposes, and utilities as confined to easements. Reserves "F" and "G" are hereby reserved for landscaping, berms, drainage purposes, and utilities as confined to easements. Reserves "A", "B", "C", "D", "E", "F", and "G" shall be be owned and maintained by the homeowners association for the addition. Reserves "34", "40", "48", and "49" are hereby reserved for landscaping, open space, and drainage purposes. Reserves "34", "40", "48", and "49", shall be owned and maintained by their corresponding adjacent lots. The streets are hereby dedicated to and for the use of the public. Access controls shall be as depicted on the face of the plat and are hereby granted to the City of Wichita, Kansas. The Minimum Building Pad Elevations for the lowest opening to the structures shall be as indicated on the face of the plat.

Kelsey Development, Inc., a Kansas corporation

Paul E. Kelsey, President

State of Kansas) SS
Sedgwick County)

The foregoing instrument acknowledged before me, this 7TH day of JUNE, 2006, by Paul E. Kelsey, President of Kelsey Development, Inc., a Kansas corporation, on behalf of the corporation.

JUDITH M. TERHUNE, Notary Public
Notary Public - State of Kansas
My Appt. Expires 11-7-07

My App't. Exp. 11-7-07

This plat of "BLACKSTONE ADDITION", Wichita, Sedgwick County, Kansas has been submitted to and approved by the Wichita-Sedgwick County Metropolitan Area Planning Commission, Wichita, Kansas.

Dated this 8TH day of December, 2005
Wichita-Sedgwick County Metropolitan Area Planning Commission

Harold L. Warner, Jr., Chair

John L. Schlegel, Secretary

This plat approved and all dedications shown hereon accepted by the City Council of the City of Wichita, Kansas, this 27 day of June, 2006.

Carlos Mayans, Mayor

Karen Sublett, City Clerk

Reviewed in accordance with K.S.A. 58-2005 on this 6th day of July, 2006.

Tricia L. Robello, L.S. #1246
Deputy County Surveyor
Sedgwick County, Kansas

Entered on transfer record this 13TH day of July, 2006.

for Don Brace, County Clerk

State of Kansas)
Sedgwick County) SS

This is to certify that this plat has been filed for record in the office of the Register of Deeds, this 13th day of July, 2006 at 12:07 o'clock P M; and is duly recorded.

Bill Meek, Register of Deeds

Tonya Buckingham, Deputy

Sedgwick County
Register of Deeds - Bill Meek
DOC.#/FILM-PG: 28798396
Receipt #: 3827985
Pages Recorded: 2
Recording Fee: $20.00
Authorized By:
Date Recorded: 7/13/2006 12:07:23 PM

Baughman Company, P.A.
315 Ellis St. Wichita, KS 67211 P 316.262.7271 F 316.263.0149
ENGINEERING | SURVEYING | PLANNING | LANDSCAPE ARCHITECTURE

F:\PLAT\BLACKSTONE ADDITION\DWG\BLACKSTONEADDEP.DWG,MGC