WATER DISTRIBUTION SYSTEM IMPROVEMENTS

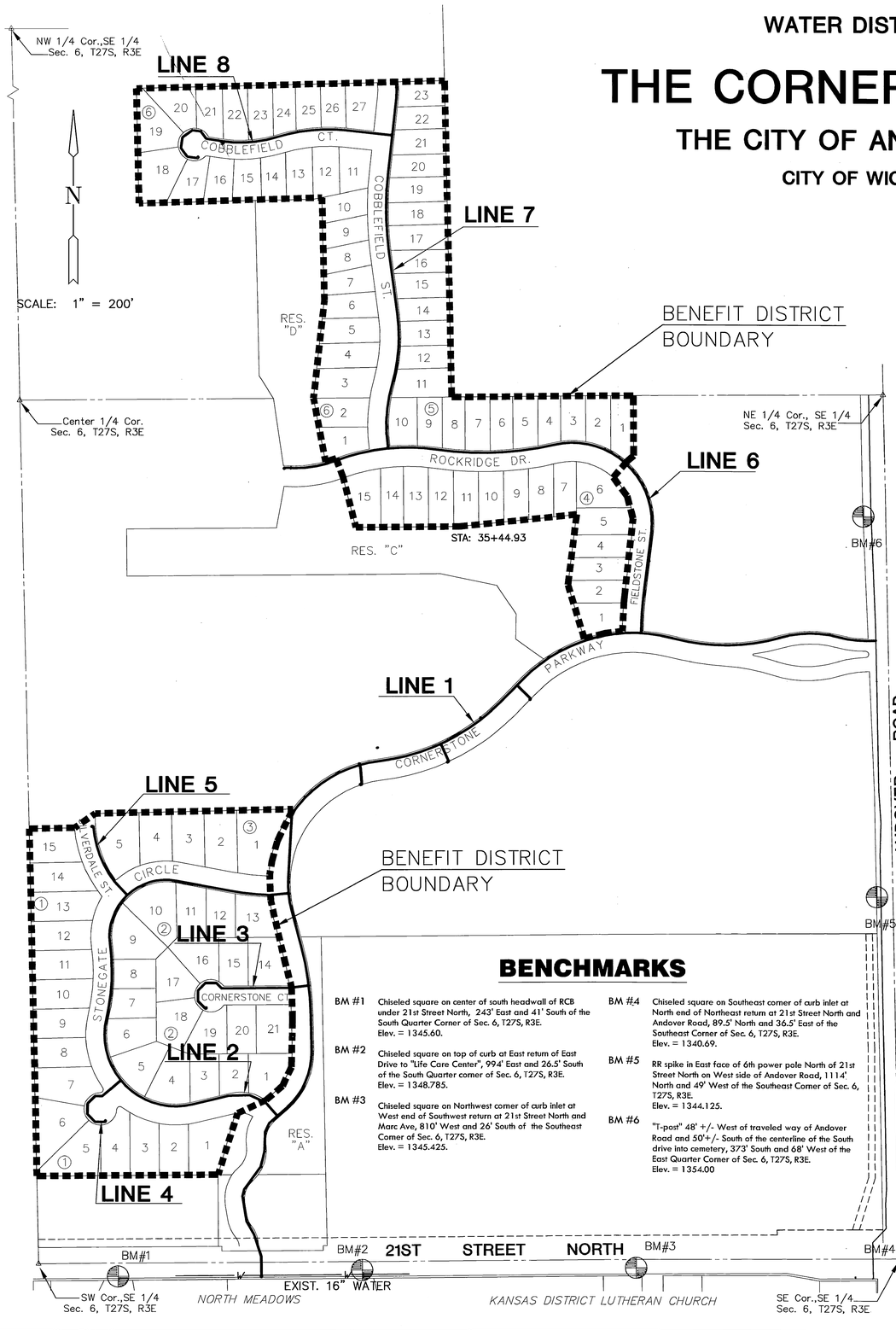
TO SERVE

THE CORNERSTONE FIRST ADDITION

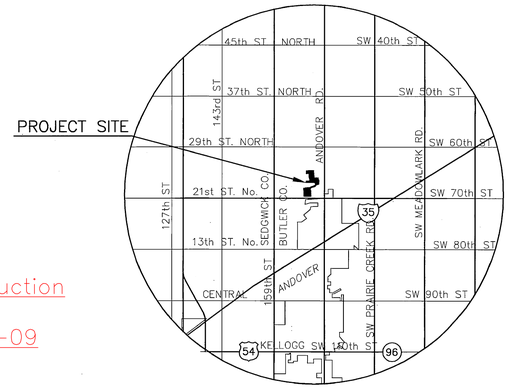
THE CITY OF ANDOVER, BUTLER COUNTY, KANSAS

CITY OF WICHITA PRIVATE PROJECT NO. PPW1178

OCA NO. 607853



RECORD DRAWING
Contractor: Nowak Construction
Inspector: D. Underwood
.pdf by: M. Tucker 1-12-09



VICINITY MAP

GENERAL NOTES

1. ALL WATER MAINS AND APPURTENANCES SHALL BE INSTALLED IN ACCORDANCE WITH CITY OF ANDOVER, AND CITY OF WICHITA, KANSAS STANDARD SPECIFICATIONS FOR WATER MAIN INSTALLATIONS.
2. CONTRACTOR WILL BE REQUIRED TO PROVIDE A MINIMUM ADVANCE NOTICE OF SEVENTY-TWO (72) HOURS TO UTILITY COMPANIES PRIOR TO STARTING ANY EXCAVATION AS FOLLOWS:

   KANSAS ONE-CALL 1-800-344-7233 or 687-2470 (LOCAL WICHITA)

   THE CONTRACTOR MUST NOTIFY THE FOLLOWING IN CASE OF AN EMERGENCY:

COX COMMUNICATIONS (CABLE)	262-0661
BUTLER RURAL ELECTRIC (AFTER HOURS)	(800)464-0600 OR 220-2608 (LOCAL WICHITA)
KANSAS GAS SERVICE (GAS)	383-8600
SBC (TELEPHONE)	1-800-734-7630
CITY OF ANDOVER (LES MANGUS)	733-2621
CITY OF BENTON	778-1625
WESTAR	383-8600

3. THE WATER MAIN SHALL BE CONSTRUCTED ON THE ALIGNMENT SHOWN ON THE PLANS. 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, AND SHALL BE INCLUDED IN THE PRICE BID FOR THE INSTALLED WATER PIPE. TREES AND SHRUBS WHICH ARE NOT IN DIRECT CONFLICT WITH PROPOSED CONSTRUCTION SHALL BE SAVED AND PROTECTED FROM DAMAGE.
4. OPENING AND CLOSING WATER VALVES SHALL BE DONE SLOWLY TO PREVENT DAMAGE TO THE WATER DISTRIBUTION 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.
5. CONTRACTOR SHALL NOT START WORK ON THE PROJECT UNTIL THE PROJECT INSPECTOR IS ASSIGNED TO THE PROJECT AND IS PRESENT ON THE SITE. ANY WORK DONE WITHOUT INSPECTION WILL BE REQUIRED TO BE UNCOVERED FOR INSPECTION.
6. UNDERGROUND UTILITY SERVICE LINES AND OVERHEAD UTILITY POLE LINES ARE TO BE ADJUSTED AS NECESSARY BY OTHERS PRIOR TO CONSTRUCTION UNLESS THE PLANS SPECIFICALLY CALL FOR THEIR ADJUSTMENT BY THE CONTRACTOR. EXISTING UTILITIES AND THEIR LOCATION, AS SHOWN ON THE PLANS, REPRESENT THE BEST INFORMATION OBTAINABLE FOR DESIGN. LOCATION INFORMATION HAS BEEN OBTAINED FROM THE VARIOUS UTILITY COMPANIES AND IS EITHER FROM COMPANY RECORD DRAWINGS OR COMPANY PROVIDED FIELD LOCATIONS. THE CONTRACTOR WILL BE REQUIRED TO WORK AROUND EXISTING UTILITIES WITHIN THE RIGHT-OF-WAY WHICH DO NOT CONFLICT WITH PROPOSED CONSTRUCTION.
7. THE CONTRACTOR SHALL GIVE ALL PROPERTY OWNERS AND/OR TENANTS OF DEVELOPED PROPERTY DIRECTLY ABUTTING CONSTRUCTION OF THIS PROJECT A MINIMUM OF TEN (10) DAYS NOTICE PRIOR TO START OF CONSTRUCTION.
8. 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. ALL COSTS FOR THIS WORK SHALL BE SUBSIDIARY TO SITE RESTORATION.
9. THE CONTRACTOR SHALL RESTORE ALL DITCHES, SWALES, ROAD SHOULDERS, ENTRANCES AND BANK LINES TO THEIR ORIGINAL SLOPES AND GRADES EXCEPT AS SHOWN OTHERWISE.
10. NO SERVICES WILL BE INSTALLED AS PART OF THIS PROJECT.
11. INTERURBAN TRAFFIC GENERATED OUTSIDE THE PROJECT AREA, AND LOCAL BUSINESS OR RESIDENTIAL TRAFFIC GENERATED WITHIN THE PROJECT AREA ARE TO BE CARRIED THROUGH CONSTRUCTION AS FURTHER PROMULGATED BY PROJECT SPECIAL PROVISIONS.
12. RUBBLE FROM THE REMOVAL OF MISCELLANEOUS STRUCTURES INCLUDING ANY TREES REMOVED AND TREE TRIMMINGS 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 THAT, IN THE OPINION OF THE ENGINEER, 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.
13. ALL DISTURBED AREAS TO BE SEEDED WITH RYE GRASS AT A RATE OF 200 LBS. PER ACRE WITHIN 10 DAYS OF CONSTRUCTION. CONTRACTOR TO PREPARE GROUND PER CITY SPECIFICATIONS. COST IS SUBSIDIARY TO SITE PREPARATION AND RESTORATION.
14. THE CONTRACTOR SHALL LAY A TRACER WIRE & SET TEST STATIONS ALONG ALL WATER LINE PIPE INSTALLED IN ACCORDANCE WITH CITY OF WICHITA SPECIFICATIONS & TRACER WIRE DETAIL ON DETAIL SHEET. COST IS SUBSIDIARY TO PIPE INSTALLATION.
15. WATER LINE TRENCHES SHALL BE BACKFILLED PER CITY SPEC. SPECIAL CARE SHALL BE TAKEN WHEN BACKFILLING TRENCHES IN PROPOSED STREET R.O.W.. TRENCHES SHALL BE COMPACTED TO 95% STD. DENSITY IN 6"-8" MAX LIFTS.

BENCHMARKS

BM #1 Chiseled square on center of south headwall of RCB under 21st Street North, 243' East and 41' South of the South Quarter Corner of Sec. 6, T27S, R3E. Elev. = 1345.60.

BM #2 Chiseled square on top of curb at East return of East Drive to "Life Care Center", 994' East and 26.5' South of the South Quarter corner of Sec. 6, T27S, R3E. Elev. = 1348.785.

BM #3 Chiseled square on Northwest corner of curb inlet at West end of Southwest return at 21st Street North and Marc Ave, 810' West and 26' South of the Southeast Corner of Sec. 6, T27S, R3E. Elev. = 1345.425.

BM #4 Chiseled square on Southeast corner of curb inlet at North end of Northeast return at 21st Street North and Andover Road, 89.5' North and 36.5' East of the Southeast Corner of Sec. 6, T27S, R3E. Elev. = 1340.69.

BM #5 RR spike in East face of 6th power pole North of 21st Street North on West side of Andover Road, 1114' North and 49' West of the Southeast Corner of Sec. 6, T27S, R3E. Elev. = 1344.125.

BM #6 "T-post" 48' +/- West of traveled way of Andover Road and 50'+/- South of the centerline of the South drive into cemetery, 373' South and 68' West of the East Quarter Corner of Sec. 6, T27S, R3E. Elev. = 1354.00

INDEX TO DRAWINGS

APPROVED AS NOTED
BY CITY ENGINEER OF WICHITA,
BY WICHITA WATER & SEWER DEPARTMENT,
& BY WICHITA FIRE DEPARTMENT

Water Mains (Public Works) 11/22/05

Water Mains (Water & Sewer Dept.) 11/22/05

Fire Prot. Line (Fire Dept.) WFD/PLT 11-22-05

NOTE TO CONTRACTORS

Public Property:

Inspection and testing for the waterline is to be provided by a Licensed Consulting Engineering Firm under contract with the Owner/Developer. Said inspection to be in accordance with the City of Wichita Standard Construction Engineering Practices and certified by a Professional Engineer licensed in the state of Kansas. No work shall be performed in dedicated easements or public rights-of-way by the Contractor without such inspection, nor shall any work be commenced without written authorization by the City Engineer. All construction and materials shall comply with the City of Wichita Specifications and Standards (on file and available in the City Engineer's Office).

Private Property:

Installation and testing for the fire protection line is to be performed by a City of Wichita Licensed Fire Protection Contractor in accordance with the fire codes as adopted by the City of Wichita. All materials and construction practices for the fire protection line shall comply with the fire codes as adopted by the City of Wichita (available from the City of Wichita Fire Department). The Contractor shall not commence work without notification to and approval of the Wichita Fire Department. Inspection of the fire protection line is to be provided by a licensed engineering firm under contract with the Owner/Developer and the Fire Department. The contractor shall not start work until the project inspector is assigned to the project and present on the site. Any work done without inspection will be required to be uncovered for inspection.

WATER LINE VALVES TO BE OPERATED BY CONTRACTOR ONLY IF WATER INSPECTOR IS ON SITE.

MKEC ENGINEERING CONSULTANTS
411 N. WEBB ROAD
WICHITA, KS. 67206
316 - 684 - 9600

THE CORNERSTONE FIRST ADDITION
PROJECT NAME

WATER DISTRIBUTION PLANS
SHEET TITLE

SRS	KKL	GJA
DESIGN BY:	DRAWN BY:	CHECKED BY:
OCTOBER 2005	04294	1 / 17
DATE	JOB NO.	SHEET/OF

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THE CORNERSTONE FIRST ADD. WATER DISTRIBUTION PLANS
PRO. # 1178
LINE 1 PHASE 1

SCALE: 1" = 40'

NOTE: ALL EXISTING UTILITIES MAY NOT BE SHOWN. CONTRACTOR SHALL CONTACT ONE-CALL TO VERIFY LOCATION OF ALL EXISTING UTILITIES

NOTE: CONTRACTOR SHALL PROTECT EXISTING TREES. ALL TREE REMOVAL SHALL BE APPROVED BY MKEC PRIOR TO TREES BEING REMOVED.

CAUTION: CITY OF BENTON 6" WATER LINE.

CURVE TABLE					
Δ= 49°29'31" R = 226.00' T = 104.17' L = 195.22' LC = 189.21'					
CURVE DATA BASED ON WATERLINE Δ/2 = 24°44'45"					
		CHORD LENGTH			TOTAL
STATION	ARC	6'LT Offset	6'RT Offset	DEFLECTION	DEFLECTION
15+31.35	–	–	–	00°00'00"	00°00'00"
15+50.00	18.65'	–	19.14'	02°21'51"	02°21'51"
15+75.00	25.00'	–	25.65'	03°10'08"	05°31'59"
16+00.00	25.00'	–	25.65'	03°10'08"	08°42'08"
16+25.00	25.00'	–	25.65'	03°10'08"	11°52'16"
16+50.00	25.00'	–	25.65'	03°10'08"	15°02'25"
16+75.00	25.00'	–	25.65'	03°10'08"	18°12'33"
17+00.00	25.00'	–	25.65'	03°10'08"	21°22'41"
17+25.00	25.00'	–	25.65'	03°10'08"	24°32'50"
17+26.57	1.57'	–	1.61'	00°11'56"	24°44'45"
					Def/Ft = 7.60563 Min.

CURVE TABLE					
Δ= 13°54'42" R = 876.00' T = 106.87' L = 212.70' LC = 212.17'					
CURVE DATA BASED ON WATERLINE Δ/2 = 06°57'21"					
		CHORD LENGTH			
STATION	ARC	6'LT Offset	6'RT Offset	DEFLECTION	DEFLECTION
18+37.28	–	–	–	00°00'00"	00°00'00"
18+50.00	12.72'	–	12.81'	00°24'58"	00°24'58"
18+75.00	25.00'	–	25.17'	00°49'03"	01°14'01"
19+00.00	25.00'	–	25.17'	00°49'03"	02°03'04"
19+25.00	25.00'	–	25.17'	00°49'03"	02°52'07"
19+27.60	2.60'	–	2.62'	00°05'06"	02°57'13"
19+50.00	22.40'	–	22.55'	00°43'57"	03°41'11"
19+75.00	25.00'	–	25.17'	00°49'03"	04°30'14"
20+00.00	25.00'	–	25.17'	00°49'03"	05°19'17"
20+25.00	25.00'	–	25.17'	00°49'03"	06°08'20"
20+49.98	24.98'	–	25.15'	00°49'01"	06°57'21"
					Def/Ft = 1.96218 Min.

BEND CHART					
NO.	12" BEND	STA.	BL STA.	OFFSET, RT.	ACTUAL
①	00.0°	10+43.14	10+17.7	38'	00°04'23"
~~②~~	~~11.25°~~	~~10+87.37~~	~~10+78.1~~	~~24'~~	
~~③~~	~~22.5°~~	~~11+33.84~~	~~11+24.7~~	~~24'~~	
~~④~~	~~22.5°~~	~~12+11.71~~	~~12+14.7~~	~~24'~~	
~~⑤~~	~~22.6°~~	~~12+33.62~~	~~12+43.7~~	~~24'~~	
⑥	11.25°	13+19.71°	13+31.7	24.1'	13°55'05"
⑦	11.25°	13+68.14	13+71.0	24.1'	
⑧	22.5°	14+28.19	14+38.7	24.9'	
⑨	22.5°	14+57.69	14+77.4	22.3'	

STA. 9+79.19, LINE 1= BL#1 STA. 9+53.71, 38' RT. 1–16"x12" TAPPING SLEEVE & VALVE TO BE FURNISHED AND INSTALLED BY COW WATER DEPT. CONTRACTOR TO REIMBURSE C.O.W. $3700.00

NOTE: CONTRACTOR TO VERIFY LOCATION AND ELEVATION OF EXIST. 16" WATER LINE PRIOR TO CONSTRUCTION.

DIRECTIONAL DRILL 63.95' OF 12" PIPE

Valve Located:
- 8' E. of East Edge of Concrete Drainage Swale and 1' S. of South Edge of Sidewalk

STA. 14+91.59, LINE 1= BL#1 STA. 15+18.30, 27' RT. 1–12"x8" DIMJ TEE 1–8" VALVE ASSY.(W) (MJ GATE VALVE) VALVE BOX EL=1351.0

Valve Located:
- 9' S.W. and 2' S.E. of Fire Hydrant

Added 11.25°MJ Bend Horz. at Sta. 16+18.5 to Maintain Alignment

STA. 15+00.84, LINE 1= BL#1 STA. 15+27.55, 27' RT. 1–FIRE HYDT. ASSY. L=5.0'

Valve Located:
- 3.5' S.E. of Fire Hydrant

Valve Located:
- 41.5' E. of BOC at 45° Cut in N. Curb Return of Valley Gutter

STA. 19+27.60, LINE 1= BL#1 STA. 19+28.20, 27' RT. 1–12"x8" DIMJ TEE 1–8" VALVE ASSY.(W) (MJ GATE VALVE) VALVE BOX EL=1350.9

PLAN LINE 1

RECORD DRAWING
M.T. 1–12–09

REVISED 12-27-05 ALIGNMENT FROM STA.10+15.23 TO STA.13+19.71

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THE CORNERSTONE FIRST ADD.
WATER DISTRIBUTION PLANS
PRO. # PPW1178
LINE 1 PHASE 1

CURVE TABLE

△= 18°15'43" R = 324.00' T = 52.08' L = 103.27' LC = 102.83'

CURVE DATA BASED ON WATERLINE △/2 = 09°07'52"

STATION	ARC	CHORD LENGTH 6"LT Offset	CHORD LENGTH 6"RT Offset	DEFLECTION	TOTAL DEFLECTION
21+64.43	–	–	–	00°00'00"	00°00'00"
21+75.00	10.57'	–	10.37'	00°56'05"	00°56'05"
22+00.00	25.00'	–	24.53'	02°12'58"	03°08'42"
22+18.63	18.63'	–	18.48'	01°39'54"	04°48'36"
22+25.00	6.17'	–	6.08'	00°32'44"	05°21'20"
22+50.00	25.00'	–	24.53'	02°12'38"	07°33'58"
22+67.70	17.70'	–	17.37'	01°33'54"	09°07'51"
				Def/Ft = 5.30516 Min.	

STA. 24+62.40, LINE 1=
BL#1 STA. 24+63.06, 27' LT.
1–12" DIMJ 45° BEND

Used 22.5° and 11.25° Bends in place of 45° Bend to stay on alignment

260.91' OF 12" PIPE

STA. 27+23.31, LINE 1=
BL#1 STA. 27+07.04, 27' LT.
1–12"x8" DIMJ TEE
1–8" ANCH. VALVE ASSY.
(MJ GATE VALVE)
VALVE BOX EL=1350.2
5' OF 8" DICL PIPE (NW)
1–8" DIMJ CAP (NW)

See Revisions Made on Sheet 4A for Details

105.81' OF 12" PIPE

243.77' OF 12" PIPE

54.20' OF 12" PIPE

STA. 22+18.63, LINE 1=
BL#1 STA. 22+19.98, 27' RT.
1–12"x8" DIMJ TEE
1–12" BF VALVE ASSY.(S)
1–8" VALVE ASSY.(W)
(MJ GATE VALVE)
VALVE BOX EL=1350.9

CURVE TABLE

△= 48°14'57" R = 378.00' T = 173.26' L = 324.91' LC = 315.00'

CURVE DATA BASED ON WATERLINE △/2 = 24°37'29"

STATION	ARC	CHORD LENGTH 6"LT Offset	CHORD LENGTH 6"RT Offset	DEFLECTION	TOTAL DEFLECTION
24+62.40	–	–	–	00°00'00"	00°00'00"
24+75.00	12.60'	12.80'	–	00°57'18"	00°57'18"
25+00.00	25.00'	25.39'	–	01°53'41"	02°50'59"
25+25.00	25.00'	25.39'	–	01°53'41"	04°44'40"
25+50.00	25.00'	25.39'	–	01°53'41"	06°38'21"
25+75.00	25.00'	25.39'	–	01°53'41"	08°32'01"
26+00.00	25.00'	25.39'	–	01°53'41"	10°25'42"
26+25.00	25.00'	25.39'	–	01°53'41"	12°19'23"
26+50.00	25.00'	25.39'	–	01°53'41"	14°13'04"
26+75.00	25.00'	25.39'	–	01°53'41"	16°06'45"
27+00.00	25.00'	25.39'	–	01°53'41"	18°00'26"
27+25.00	25.00'	25.39'	–	01°53'41"	19°54'07"
27+50.00	25.00'	25.39'	–	01°53'41"	21°47'48"
27+75.00	25.00'	25.39'	–	01°53'41"	23°41'29"
27+85.48	10.48'	12.51'	–	00°56'00"	24°37'28"
				Def/Ft = 4.54728 Min.	

8" Valve Located:
- 68'E. of Hydrant

12" Valve Located:
- 2'E. and 2.5'S. of 8" Valve

CURVE TABLE

△= 38°56'13" R = 622.00' T = 219.88' L = 422.70' LC = 414.61'

CURVE DATA BASED ON WATERLINE △/2 = 19°28'06"

STATION	ARC	CHORD LENGTH 6"LT Offset	CHORD LENGTH 6"RT Offset	DEFLECTION	TOTAL DEFLECTION
27+85.48	–	–	–	00°00'00"	00°00'00"
28+00.00	14.52'	14.38'	–	00°40'08"	00°40'08"
28+25.00	25.00'	24.76'	–	01°09'05"	01°49'13"
28+29.12	4.12'	4.08'	–	00°11'23"	02°00'36"
28+50.00	20.88'	20.88'	–	00°57'42"	02°58'18"
28+75.00	25.00'	24.76'	–	01°09'05"	04°07'23"
29+00.00	25.00'	24.76'	–	01°09'05"	05°16'28"
29+25.00	25.00'	24.76'	–	01°09'05"	06°25'33"
29+50.00	25.00'	24.76'	–	01°09'05"	07°34'39"
29+75.00	25.00'	24.76'	–	01°09'05"	08°43'44"
30+00.00	25.00'	24.76'	–	01°09'05"	09°52'45"
30+25.00	25.00'	24.76'	–	01°09'05"	11°01'54"
30+50.00	25.00'	24.76'	–	01°09'05"	12°10'55"
30+75.00	25.00'	24.76'	–	01°09'05"	13°20'05"
31+00.00	25.00'	24.76'	–	01°09'05"	14°29'10"
31+25.00	25.00'	24.76'	–	01°09'05"	15°38'15"
31+28.43	3.43'	3.40'	–	00°09'29"	15°47'44"
31+46.04	17.61'	17.44'	–	00°48'40"	16°36'24"
31+50.00	3.98'	3.92'	–	00°10'57"	16°47'20"
31+75.00	25.00'	24.76'	–	01°09'05"	17°56'25"
32+00.00	25.00'	24.76'	–	01°09'05"	19°05'31"
32+08.18	8.18'	8.10'	–	00°22'38"	19°28'06"
				Def/Ft = 2.70348 Min.	

STA. 28+29.12, LINE 1=
BL#1 STA. 28+10.30, 27' LT.
1–FIRE HYDT. ASSY.
L=5.0'

Valve Located:
- 3' N. of Fire Hydrant

299.31' OF 12" PIPE

STA. 31+28.43, LINE 1=
BL#1 STA. 31+22.61, 27' LT.
1–12"x8" DIMJ TEE
1–8" ANCH. VALVE ASSY. (NW)
(MJ GATE VALVE)
VALVE BOX EL=1350.4
5.0' OF 8" DICL PIPE (NW)
1–8" DIMJ CAP

Valve Located:
- 18' S.W. of Fire Hydrant Along WL Then 9' N.W.

17.61' OF 12" PIPE

STA. 31+46.04, LINE 1=
BL#1 STA. 30+40.98, 27' LT.
1–FIRE HYDT. ASSY.
L=5.0'

Valve Located:
- 3' N.W. of Fire Hydrant

157.39' OF 12" PIPE

STA. 33+03.43=
BL STA. 33+01.06
MATCH LINE

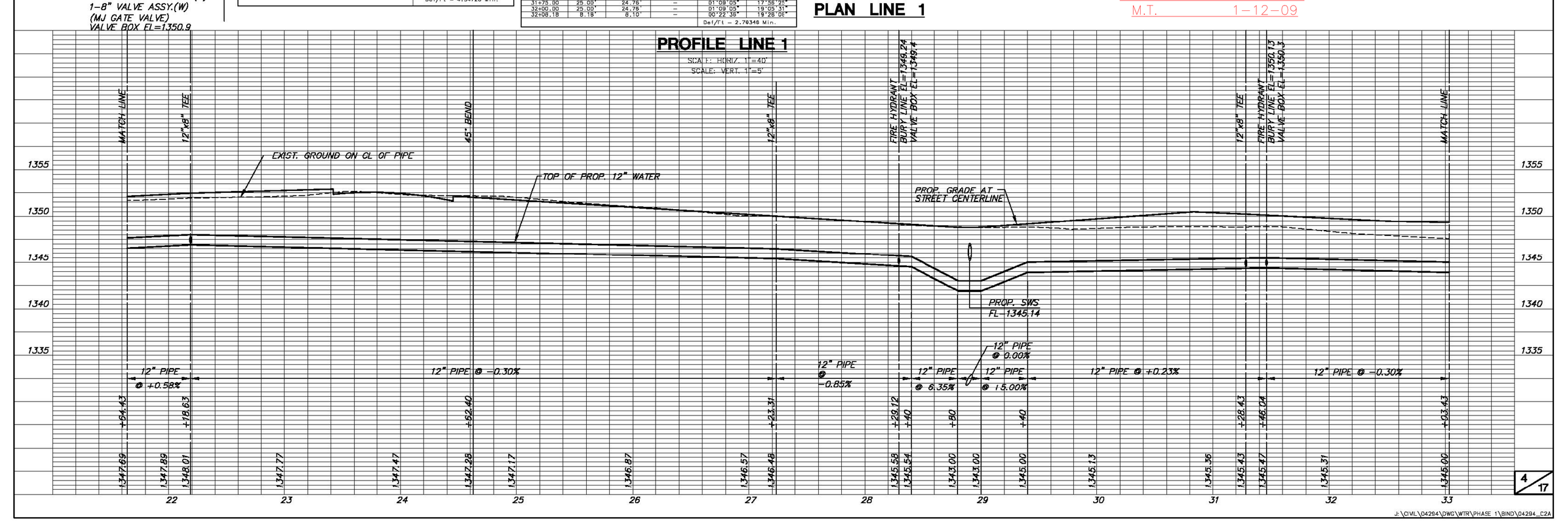
PLAN LINE 1

RECORD DRAWING
M.T. 1–12–09

SCALE: 1"= 40'
0 20 40 80

PROFILE LINE 1

SCALE: HORIZ. 1"=40'
SCALE: VERT. 1"=5'



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THE CORNERSTONE FIRST ADD.
WATER MAIN EXTENSION
LINE 2

2" Blow Off Valve Located:
- 4.5' N and 7.5 E of Back of the End of Curb

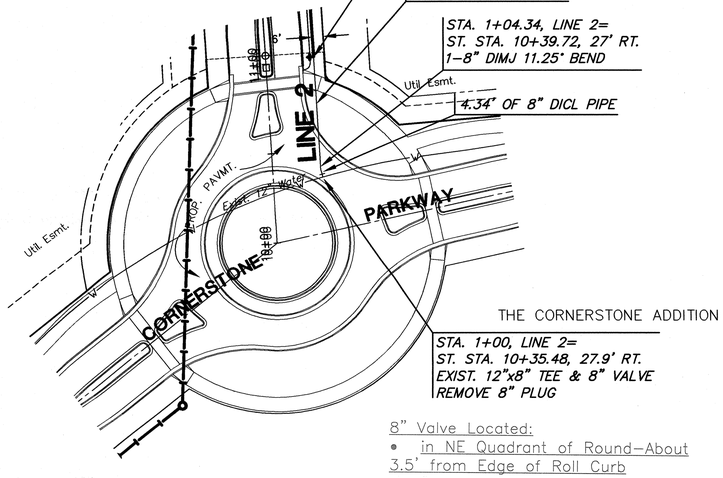
STA. 1+67.28, LINE 2=
ST. STA. 11+02.66, 27' RT.
1-2" BLOWOFF ASSY.

62.94' OF 8" PIPE

STA. 1+04.34, LINE 2=
ST. STA. 10+39.72, 27' RT.
1-8" DIMJ 11.25° BEND

4.34' OF 8" DICL PIPE

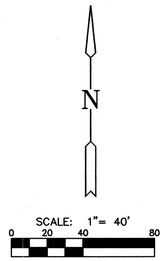
THE CORNERSTONE ADDITION



THE CORNERSTONE ADDITION

STA. 1+00, LINE 2=
ST. STA. 10+35.48, 27.9' RT.
EXIST. 12"x8" TEE & 8" VALVE
REMOVE 8" PLUG

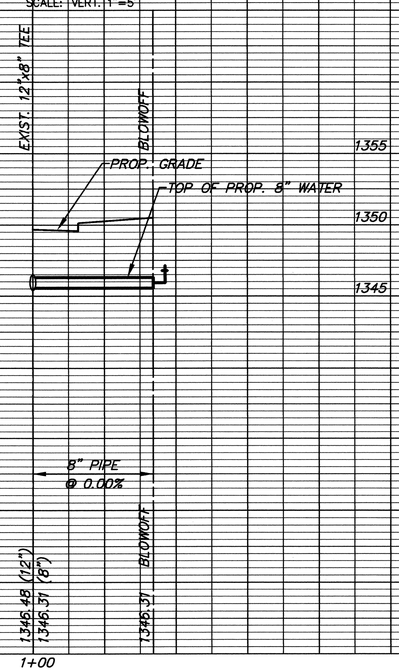
8" Valve Located:
- in NE Quadrant of Round-About 3.5' from Edge of Roll Curb



RECORD DRAWING
M.T. 1-12-09

PROFILE WATER LINE 2

SCALE: HORIZ. 1"=40'
SCALE: VERT. 1"=5'



4A
2/2

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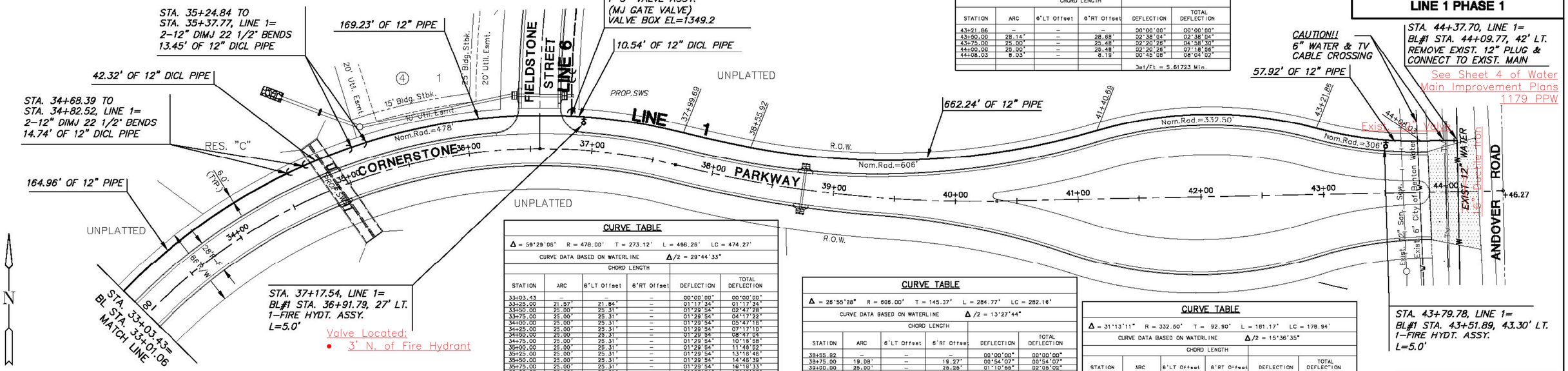
THE CORNERSTONE FIRST ADD.
WATER DISTRIBUTION PLANS
PRO. # PPW1178
LINE 1 PHASE 1



RECORD DRAWING
M.T. 1-12-09

NOTE:
CONTRACTOR TO VERIFY LOCATION AND ELEVATION OF EXIST. 6" & 16" WATER LINES PRIOR TO CONSTRUCTION.

CURVE TABLE

Δ = 16°08'04" R = 306.00' T = 43.37' L = 86.17' LC = 85.88'
CURVE DATA BASED ON WATERLINE Δ/2 = 08°04'02"

STATION	ARC	CHORD LENGTH 6'LT Offset	6'RT Offset	DEFLECTION	TOTAL DEFLECTION
43+21.86	–	–	–	00°00'00"	00°00'00"
43+50.00	28.14'	–	28.68'	02°38'04"	02°38'04"
43+75.00	25.00'	–	25.48'	02°20'26"	04°58'30"
44+00.00	25.00'	–	25.48'	02°20'26"	07°18'56"
44+08.03	8.03'	–	8.19'	00°45'06"	08°04'02"
				Def/Ft = 5.61723 Min.	

CURVE TABLE

Δ = 59°29'06" R = 478.00' T = 273.12' L = 496.26' LC = 474.27'
CURVE DATA BASED ON WATERLINE Δ/2 = 29°44'33"

STATION	ARC	CHORD LENGTH 6'LT Offset	6'RT Offset	DEFLECTION	TOTAL DEFLECTION
33+03.43			–	00°00'00"	00°00'00"
33+25.00	21.57'	21.84'	–	01°17'34"	01°17'34"
33+50.00	25.00'	25.31'	–	01°29'54"	02°47'28"
33+75.00	25.00'	25.31'	–	01°29'54"	04°17'22"
34+00.00	25.00'	25.31'	–	01°29'54"	05°47'16"
34+25.00	25.00'	25.31'	–	01°29'54"	07°17'10"
34+50.00	25.00'	25.31'	–	01°29'54"	08°47'04"
34+75.00	25.00'	25.31'	–	01°29'54"	10°16'58"
35+00.00	25.00'	25.31'	–	01°29'54"	11°46'52"
35+25.00	25.00'	25.31'	–	01°29'54"	13°16'46"
35+50.00	25.00'	25.31'	–	01°29'54"	14°46'39"
35+75.00	25.00'	25.31'	–	01°29'54"	16°16'33"
36+00.00	25.00'	25.31'	–	01°29'54"	17°46'27"
36+25.00	25.00'	25.31'	–	01°29'54"	19°16'21"
36+50.00	25.00'	25.31'	–	01°29'54"	20°46'15"
36+75.00	25.00'	25.31'	–	01°29'54"	22°16'09"
37+00.00	25.00'	25.31'	–	01°29'54"	23°46'03"
37+25.00	25.00'	25.31'	–	01°29'54"	25°15'57"
37+50.00	25.00'	25.31'	–	01°29'54"	26°45'51"
37+75.00	25.00'	25.31'	–	01°29'54"	28°15'45"
37+99.69	24.69'	25.00'	–	01°28'48"	29°44'33"
				Def/Ft = 3.39597 Min.	

CURVE TABLE

Δ = 26°55'28" R = 606.00' T = 145.37' L = 284.77' LC = 282.18'
CURVE DATA BASED ON WATERLINE Δ/2 = 13°27'44"

STATION	ARC	CHORD LENGTH 6'LT Offset	6'RT Offset	DEFLECTION	TOTAL DEFLECTION
38+55.92	–	–	–	00°00'00"	00°00'00"
38+75.00	19.08'	–	19.27'	00°54'07"	00°54'07"
39+00.00	25.00'	–	25.25'	01°10'55"	02°05'02"
39+25.00	25.00'	–	25.25'	01°10'55"	03°15'56"
39+50.00	25.00'	–	25.25'	01°10'55"	04°26'51"
39+75.00	25.00'	–	25.25'	01°10'55"	05°37'46"
40+00.00	25.00'	–	25.25'	01°10'55"	06°48'40"
40+25.00	25.00'	–	25.25'	01°10'55"	07°59'35"
40+50.00	25.00'	–	25.25'	01°10'55"	09°10'30"
40+75.00	25.00'	–	25.25'	01°10'55"	10°21'24"
41+00.00	25.00'	–	25.25'	01°10'55"	11°32'19"
41+25.00	25.00'	–	25.25'	01°10'55"	12°43'14"
41+40.69	15.69'	–	15.85'	00°44'30"	13°27'44"
				Def/Ft = 2.83642 Min.	

CURVE TABLE

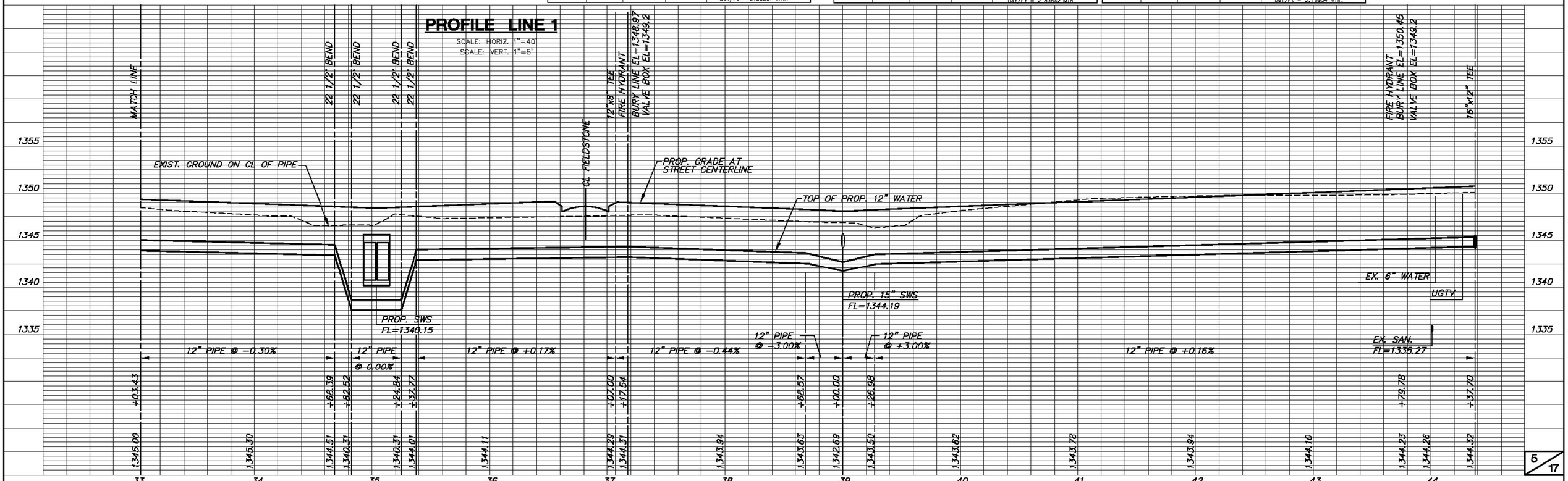
Δ = 31°13'11" R = 332.50' T = 92.90' L = 181.17' LC = 178.94'
CURVE DATA BASED ON WATERLINE Δ/2 = 15°36'35"

STATION	ARC	CHORD LENGTH 6'LT Offset	6'RT Offset	DEFLECTION	TOTAL DEFLECTION
41+40.69	–	–	–	00°00'00"	00°00'00"
41+50.00	9.31'	9.48'	–	00°48'08"	00°48'08"
41+75.00	25.00'	25.45'	–	02°09'14"	02°57'22"
42+00.00	25.00'	25.45'	–	02°09'14"	05°06'36"
42+25.00	25.00'	25.45'	–	02°09'14"	07°15'51"
42+50.00	25.00'	25.45'	–	02°09'14"	09°25'05"
42+75.00	25.00'	25.45'	–	02°09'14"	11°34'19"
43+00.00	25.00'	25.45'	–	02°09'14"	13°43'34"
43+21.86	21.86'	22.26'	–	01°53'02"	15°36'35"
				Def/Ft = 5.18954 Min.	

PLAN LINE 1

PROFILE LINE 1

SCALE: HORIZ. 1"=40'
SCALE: VERT. 1"=5'



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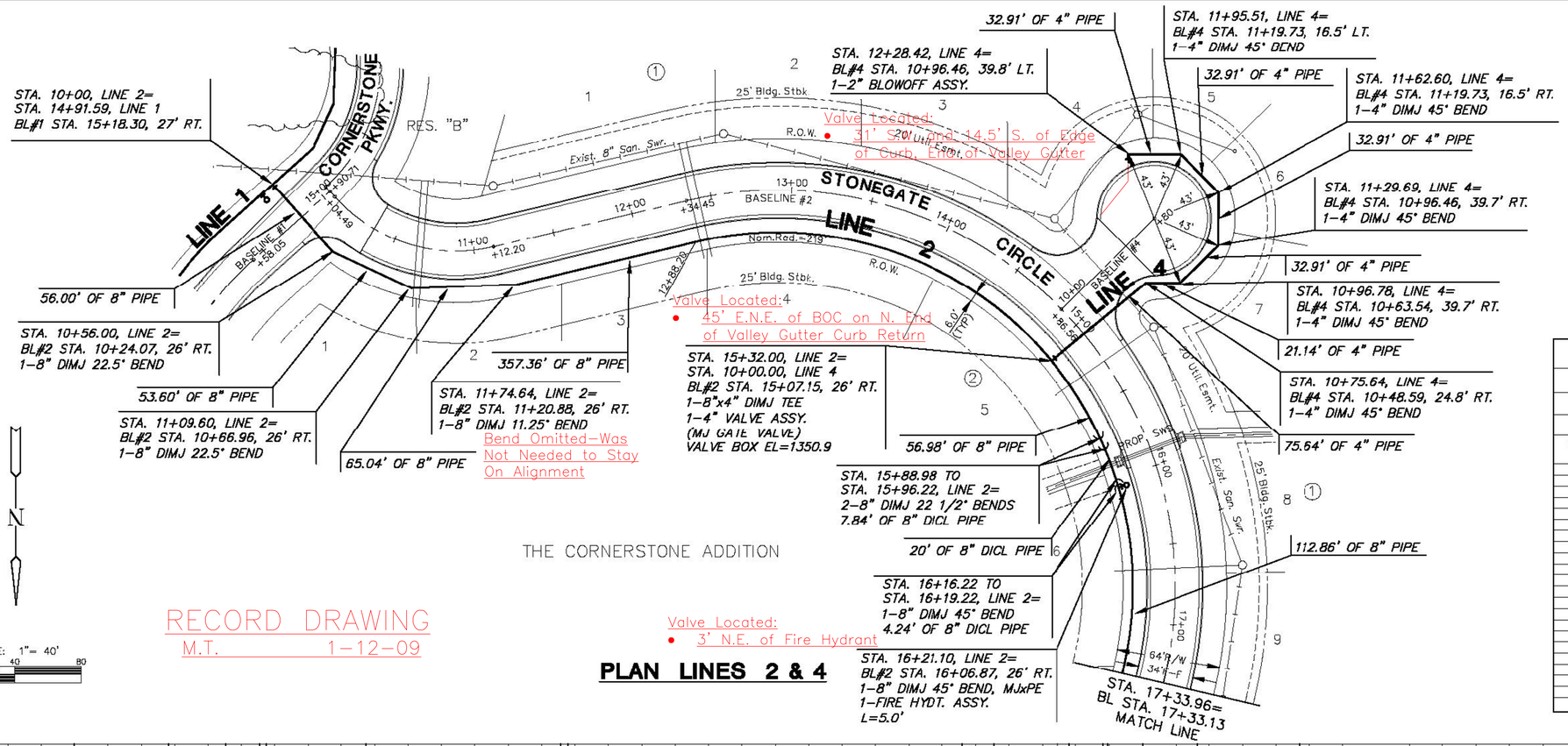
THE CORNERSTONE FIRST ADD.
WATER DISTRIBUTION PLANS
PRO. # PPW1178
LINES 2 & 4 PHASE 1



CURVE TABLE

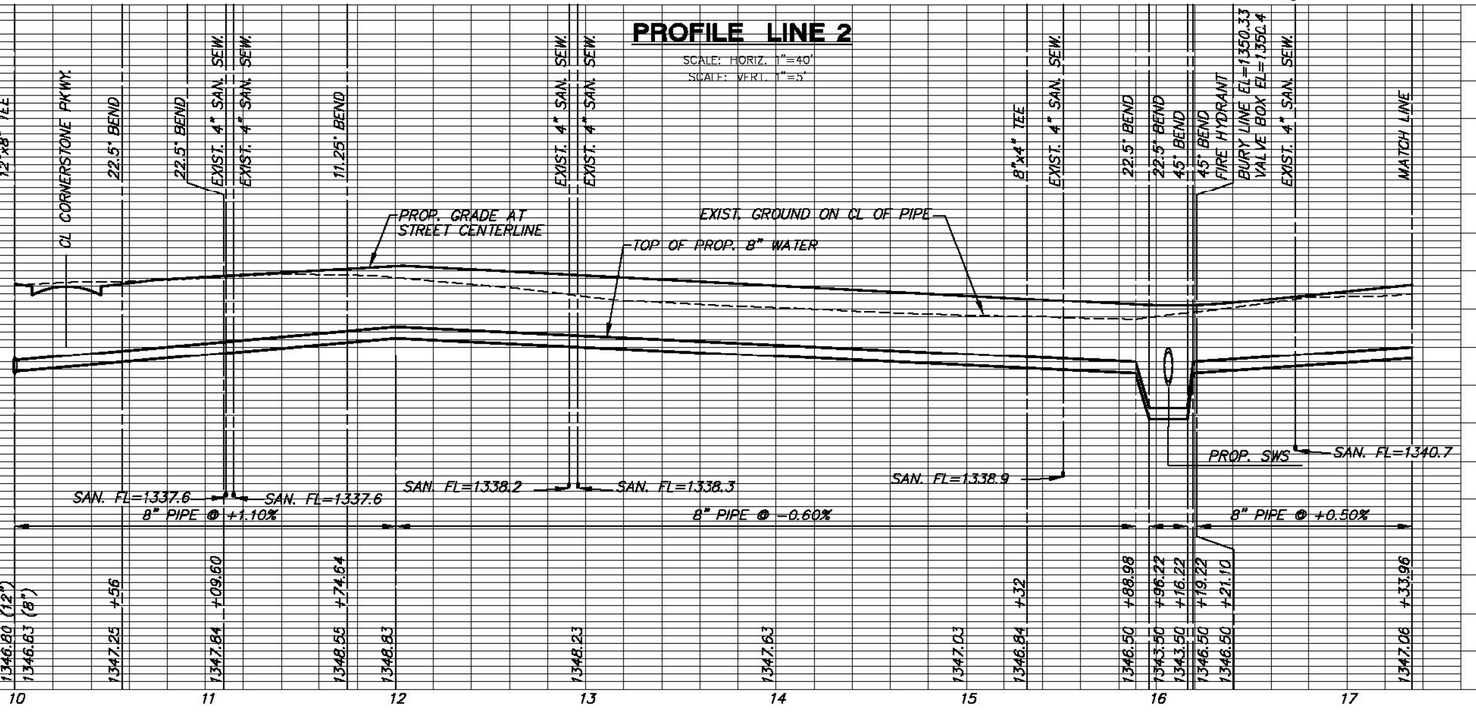
△ =116°37'20" R = 219.00' T = 351.75' L = 445.76' LC = 372.70'

CURVE DATA BASED ON WATER_LINE △ /2 = 58°18'40"

STATION	ARC	CHORD LENGTH 6'LT Offset	CHORD LENGTH 6'RT Offset	DEFLECTION	TOTAL DEFLECTION
12+88.20	–	–	–	00°00'00"	00°00'00"
13+00.00	11.80'	11.48'	–	01°32'37"	01°32'37"
13+25.00	25.00'	24.30'	–	03°16'13"	04°48'50"
13+50.00	25.00'	24.30'	–	03°16'13"	08°05'03"
13+75.00	25.00'	24.30'	–	03°16'13"	11°21'16"
14+00.00	25.00'	24.30'	–	03°16'13"	14°37'29"
14+25.00	25.00'	24.30'	–	03°16'13"	17°53'42"
14+50.00	25.00'	24.30'	–	03°16'13"	21°09'56"
14+75.00	25.00'	24.30'	–	03°16'13"	24°26'09"
15+00.00	25.00'	24.30'	–	03°16'13"	27°42'22"
15+25.00	25.00'	24.30'	–	03°16'13"	30°58'35"
15+32.00	7.00'	6.81'	–	00°54'56"	31°53'31"
15+50.00	18.00'	17.50'	–	02°21'17"	34°14'48"
15+75.00	25.00'	24.30'	–	03°16'13"	37°31'01"
16+00.00	25.00'	24.30'	–	03°16'13"	40°47'14"
16+25.00	25.00'	24.30'	–	03°16'13"	44°03'27"
16+50.00	25.00'	24.30'	–	03°16'13"	47°19'40"
16+75.00	25.00'	24.30'	–	03°16'13"	50°35'53"
17+00.00	25.00'	24.30'	–	03°16'13"	53°52'07"
17+25.00	25.00'	24.30'	–	03°16'13"	57°08'20"
17+33.96	8.96'	8.72'	–	01°10'20"	58°18'40"
				Def/Ft = 7.84874 Min.	

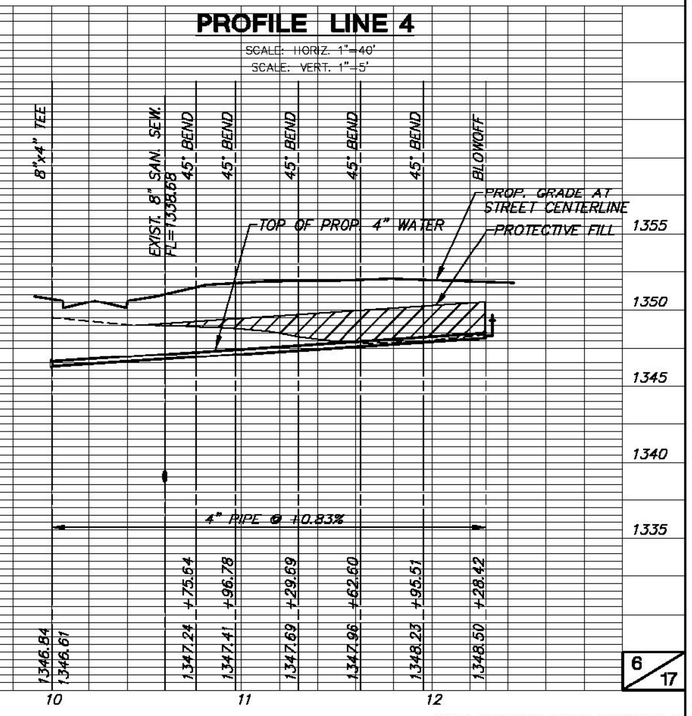
PROFILE LINE 2

SCALE: HORIZ. 1"=40'
SCALE: VERT. 1"=5'



PROFILE LINE 4

SCALE: HORIZ. 1"=40'
SCALE: VERT. 1"=5'



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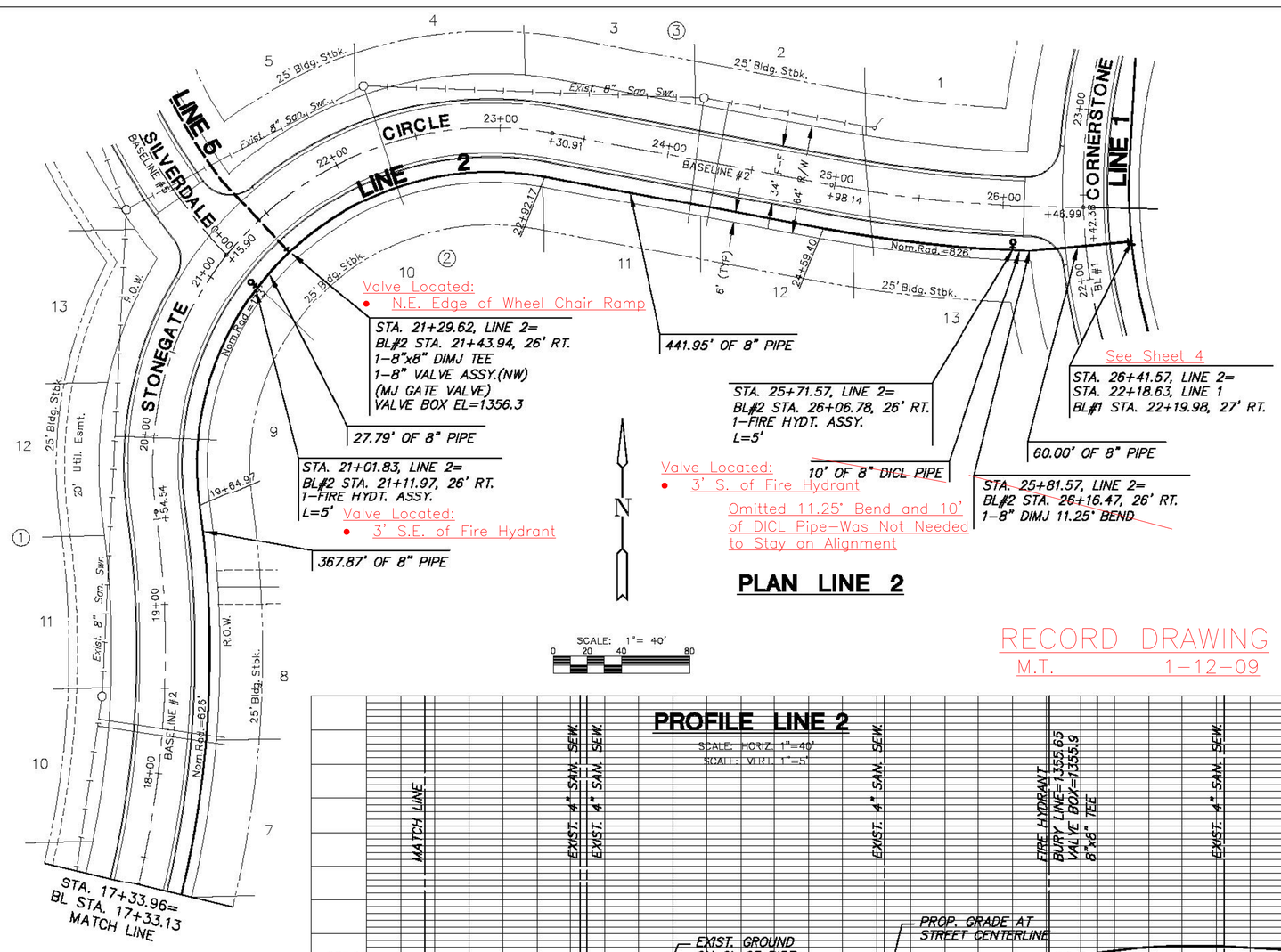
THE CORNERSTONE FIRST ADD.
WATER DISTRIBUTION PLANS
PRO. # PPW1178
LINE 2 PHASE 1



PLAN LINE 2

RECORD DRAWING
M.T. 1-12-09

CURVE TABLE

△= 21°08'36" R = 626.00' T = 116.83' L = 231.01' LC = 229.70'

CURVE DATA BASED ON WATERLINE △ /2 = 10°34'18"

STATION	ARC	CHORD LENGTH 6'LT Offset	CHORD LENGTH 6'RT Offset	DEFLECTION	TOTAL DEFLECTION
15+32.00	–	–	–	00°00'00"	00°00'00"
17+33.96	201.96'	–	203.01'	09°14'33"	09°14'33"
17+50.00	16.04'	–	16.19'	00°44'03"	09°58'35"
17+75.00	25.00'	–	25.24'	01°08'39"	11°07'14"
18+00.00	25.00'	–	25.24'	01°08'39"	12°15'53"
18+25.00	25.00'	–	25.24'	01°08'39"	13°24'31"
18+50.00	25.00'	–	25.24'	01°08'39"	14°33'10"
18+75.00	25.00'	–	25.24'	01°08'39"	15°41'49"
19+00.00	25.00'	–	25.24'	01°08'39"	16°50'27"
19+25.00	25.00'	–	25.24'	01°08'39"	17°59'06"
19+50.00	25.00'	–	25.24'	01°08'39"	19°07'45"
19+64.97	14.97'	–	15.11'	00°41'05"	19°48'51"
				Def/Ft = 2.74580 Min.	

△=108°21'47" R = 173.00' T = 239.71' L = 327.19' LC = 280.56'

CURVE DATA BASED ON WATERLINE △ /2 = 54°10'54"

STATION	ARC	CHORD LENGTH 6'LT Offset	CHORD LENGTH 6'RT Offset	DEFLECTION	TOTAL DEFLECTION
19+64.97	–	–	–	00°00'00"	00°00'00"
19+75.00	10.03'	–	9.68'	01°39'39"	01°39'39"
20+00.00	25.00'	–	24.11'	04°08'24"	05°48'03"
20+25.00	25.00'	–	24.11'	04°08'24"	09°56'26"
20+50.00	25.00'	–	24.11'	04°08'24"	14°04'50"
20+75.00	25.00'	–	24.11'	04°08'24"	18°13'13"
21+00.00	25.00'	–	24.11'	04°08'24"	22°21'37"
21+01.83	1.83'	–	1.77'	00°18'11"	22°39'48"
21+25.00	23.17'	–	22.35'	03°50'13"	26°30'00"
21+29.62	4.62'	–	4.46'	00°45'54"	27°15'55"
21+50.00	20.38'	–	19.66'	03°22'28"	30°38'24"
21+75.00	25.00'	–	24.11'	04°08'24"	34°46'48"
22+00.00	25.00'	–	24.11'	04°08'24"	38°55'11"
22+25.00	25.00'	–	24.11'	04°08'24"	43°03'35"
22+50.00	25.00'	–	24.11'	04°08'24"	47°11'58"
22+75.00	25.00'	–	24.11'	04°08'24"	51°20'22"
22+92.16	17.16'	–	16.56'	02°50'32"	54°10'53"
				Def/Ft = 9.95888 Min.	

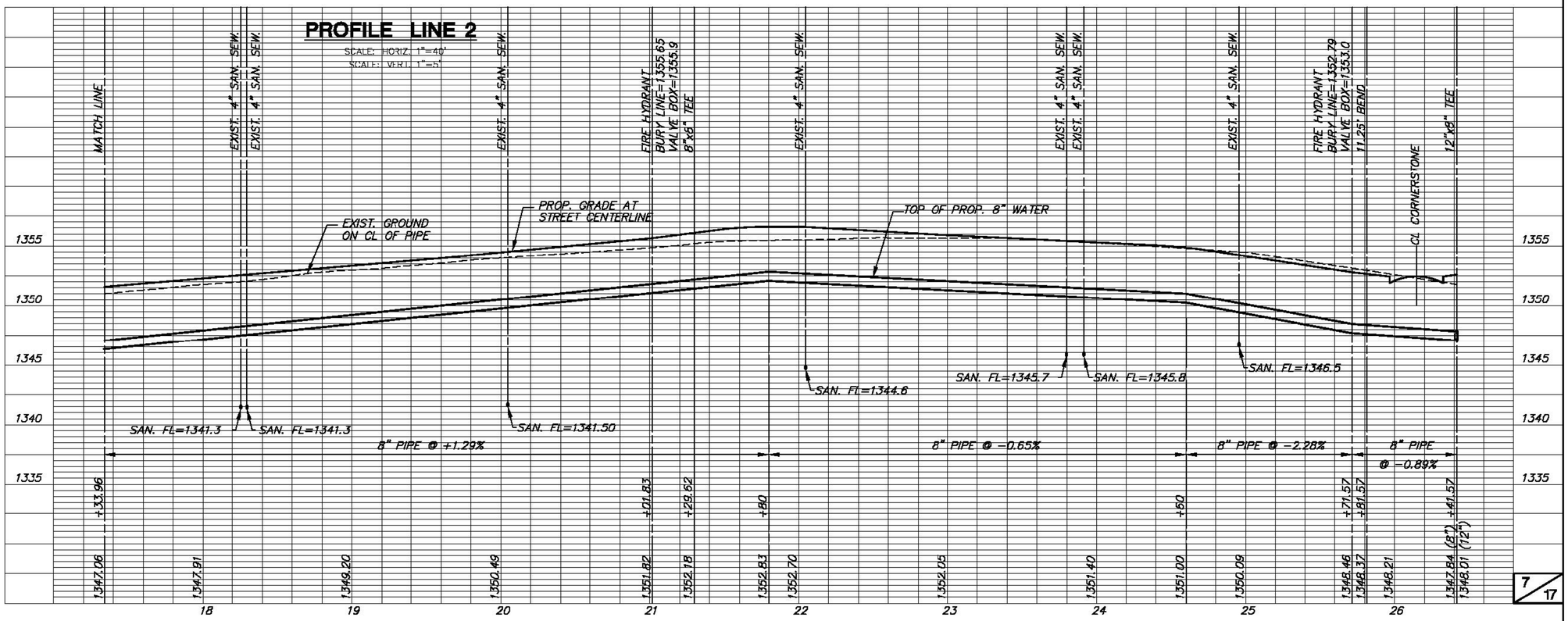
△= 08°28'28" R = 826.00' T = 61.20' L = 122.17' LC = 122.06'

CURVE DATA BASED ON WATERLINE △ /2 = 04°14'14"

STATION	ARC	CHORD LENGTH 6'LT Offset	CHORD LENGTH 6'RT Offset	DEFLECTION	TOTAL DEFLECTION
24+59.40	–	–	–	00°00'00"	00°00'00"
24+75.00	15.60'	–	15.71'	00°32'28"	00°32'28"
25+00.00	25.00'	–	25.18'	00°52'01"	01°24'28"
25+25.00	25.00'	–	25.18'	00°52'01"	02°16'31"
25+50.00	25.00'	–	25.18'	00°52'01"	03°08'32"
25+71.57	21.57'	–	21.73'	00°44'53"	03°53'25"
25+75.00	3.43'	–	3.45'	00°07'08"	04°00'34"
25+81.57	6.57'	–	6.62'	00°13'40"	04°14'14"
				Def/Ft = 2.08096 Min.	

PROFILE LINE 2

SCALE: HORIZ. 1"=40'
SCALE: VERT. 1"=5'



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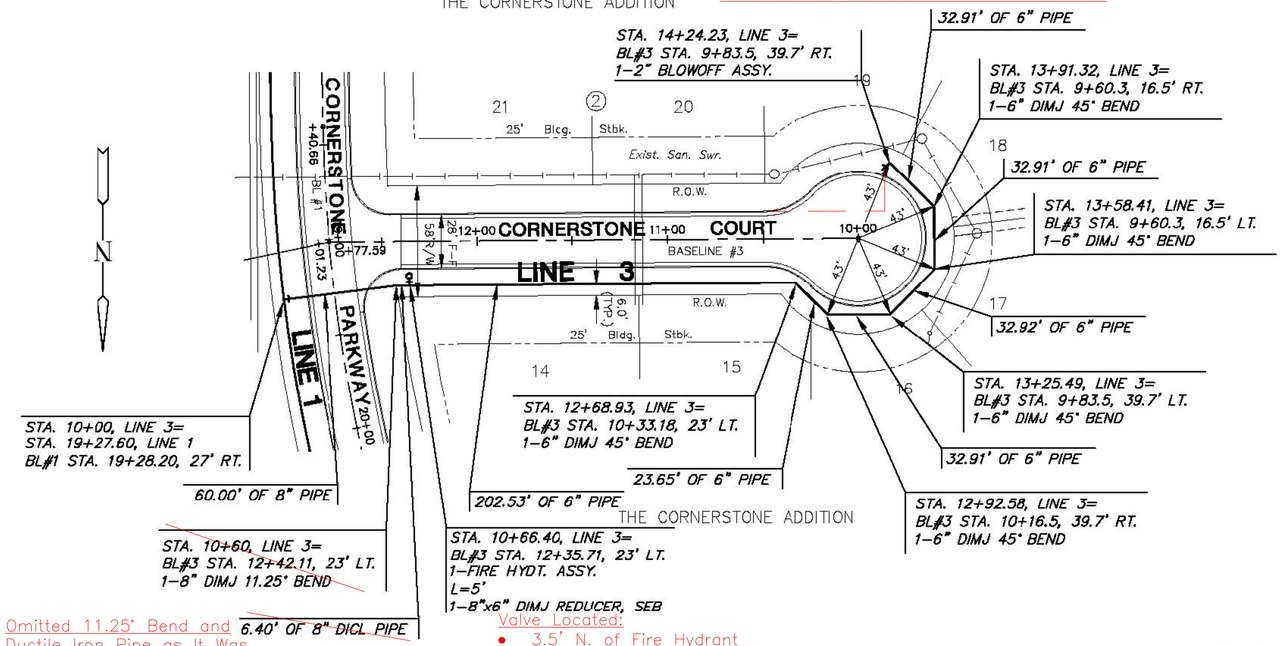
THE CORNERSTONE FIRST ADD.
WATER DISTRIBUTION PLANS
PRO. # PPW1178
LINE 3 & 5 PHASE 1

Valve Located:
- 67' W. and 25' S. of BOC on Curb Return



Omitted 11.25° Bend and Ductile Iron Pipe as It Was Not Nessecary for Alignment

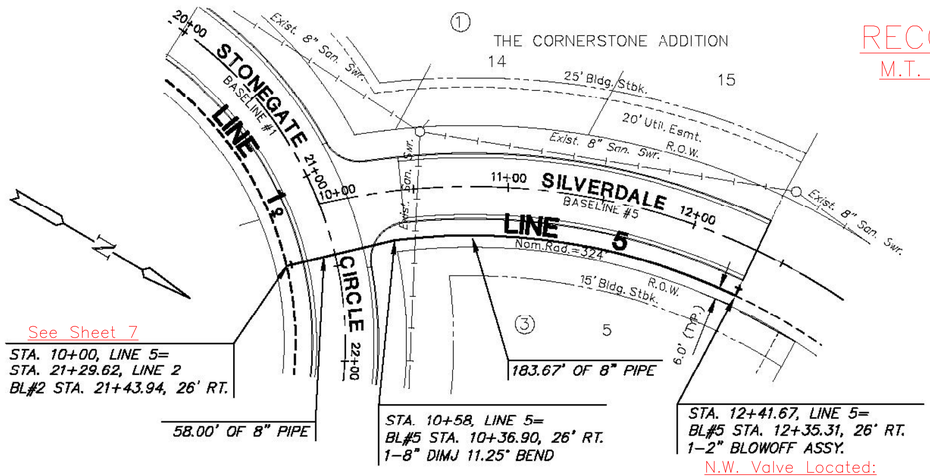
Valve Located:
- 3.5' N. of Fire Hydrant

PLAN LINE 3

SCALE: 1"= 40'
0 20 40 80

CURVE TABLE					
△= 32°28'50"	R = 324.00'	T = 94.38'	L = 183.67'	LC = 181.22'	
CURVE DATA BASED ON WATERLINE				△/2 = 16°14'25"	
		CHORD LENGTH			TOTAL
STATION	ARC	6'LT Offset	8'RT Offset	DEFLECTION	DEFLECTION
10+58.00	–	–	–	00°00'00"	00°00'00"
10+75.00	17.00'	–	16.68'	01°30'11"	01°30'11"
11+00.00	25.00'	–	24.53'	02°12'38"	03°42'48"
11+25.00	25.00'	–	24.53'	02°12'38"	05°55'27"
11+50.00	25.00'	–	24.53'	02°12'38"	08°08'05"
11+75.00	25.00'	–	24.53'	02°12'38"	10°20'42"
12+00.00	25.00'	–	24.53'	02°12'38"	12°33'20"
12+25.00	25.00'	–	24.53'	02°12'38"	14°45'58"
12+41.67	16.67'	–	16.36'	01°28'27"	16°14'25"
				Def/Ft = 5.30516 Mln.	

RECORD DRAWING
M.T. 1-12-09



See Sheet 7

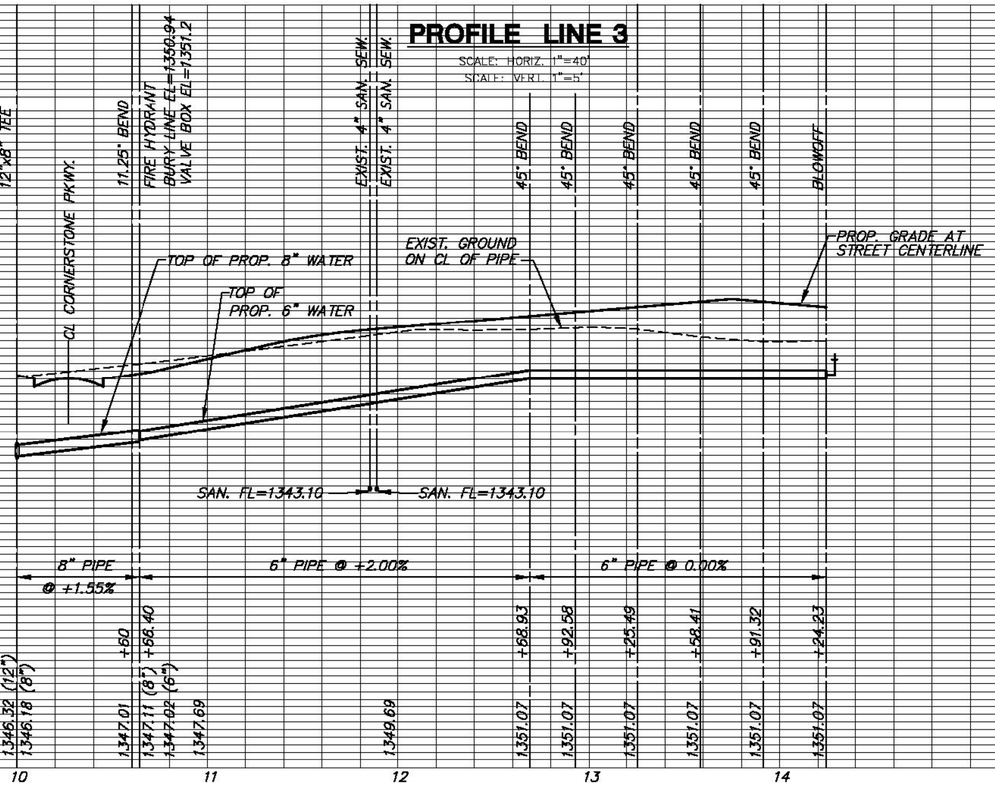
PLAN LINE 5

N.W. Valve Located:
- 57' E. and 7' S. of S. Curb End

N.E. Valve Located:
- 61' E. and 3' S. of S. Curb End

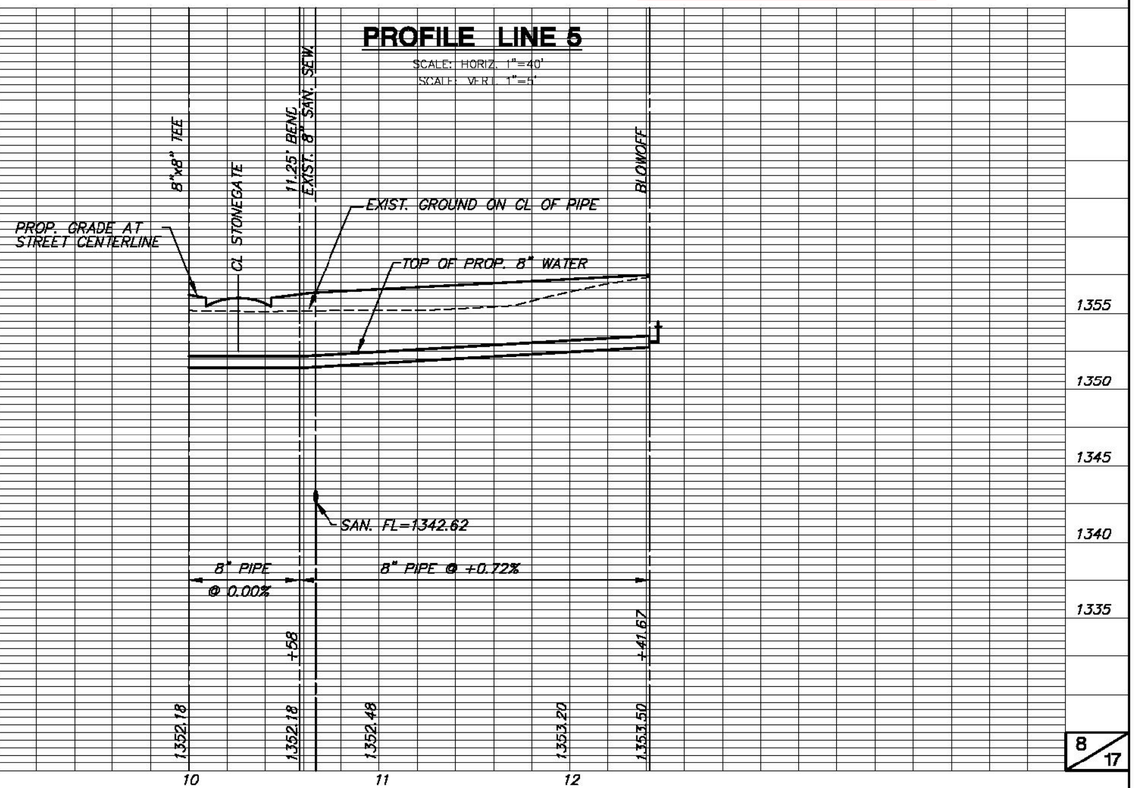
PROFILE LINE 3

SCALE: HORIZ. 1"=40'
SCALE: VERT. 1"=5'



PROFILE LINE 5

SCALE: HORIZ. 1"=40'
SCALE: VERT. 1"=5'



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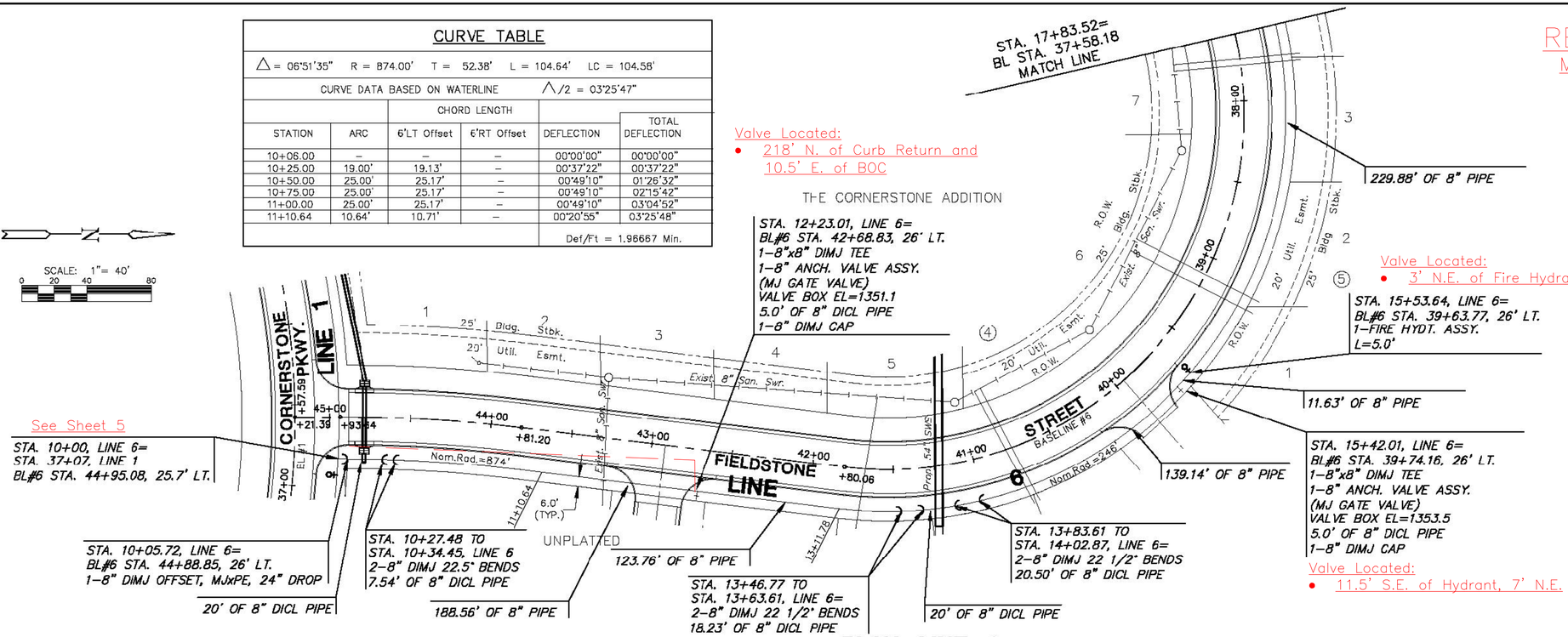
THE CORNERSTONE FIRST ADD.
WATER DISTRIBUTION PLANS
PRO. # PPW1178
LINE 6 PHASE 1

RECORD DRAWING
M.T. 1-12-09

CURVE TABLE					
△ = 06°51'35" R = 874.00' T = 52.38' L = 104.64' LC = 104.58'					
CURVE DATA BASED ON WATERLINE △/2 = 03°25'47"					
		CHORD LENGTH			
STATION	ARC	6'LT Offset	6'RT Offset	DEFLECTION	TOTAL DEFLECTION
10+06.00	–	–	–	00°00'00"	00°00'00"
10+25.00	19.00'	19.13'	–	00°37'22"	00°37'22"
10+50.00	25.00'	25.17'	–	00°49'10"	01°26'32"
10+75.00	25.00'	25.17'	–	00°49'10"	02°15'42"
11+00.00	25.00'	25.17'	–	00°49'10"	03°04'52"
11+10.64	10.64'	10.71'	–	00°20'55"	03°25'48"
				Def/Ft = 1.96667 Min.	

CURVE TABLE					
△ =109°52'19" R = 246.00' T = 350.49' L = 471.74' LC = 402.71'					
CURVE DATA BASED ON WATERLINE △/2 = 54°56'09"					
		CHORD LENGTH			TOTAL
STATION	ARC	8'LT Offset	8'RT Offset	DEFLECTION	DEFLECTION
13+11.78	–	–	–	00°00'00"	00°00'00"
13+25.00	13.22'	–	13.65'	01°32'22"	01°32'22"
13+50.00	25.00'	–	25.80'	02°54'41"	04°27'03"
13+75.00	25.00'	–	25.80'	02°54'41"	07°21'44"
14+00.00	25.00'	–	25.80'	02°54'41"	10°16'25"
14+25.00	25.00'	–	25.80'	02°54'41"	13°11'06"
14+50.00	25.00'	–	25.80'	02°54'41"	16°05'47"
14+75.00	25.00'	–	25.80'	02°54'41"	19°00'28"
15+00.00	25.00'	–	25.80'	02°54'41"	21°55'09"
15+25.00	25.00'	–	25.80'	02°54'41"	24°49'50"
15+50.00	25.00'	–	25.80'	02°54'41"	27°44'31"
15+75.00	25.00'	–	25.80'	02°54'41"	30°39'12"
16+00.00	25.00'	–	25.80'	02°54'41"	33°33'53"
16+25.00	25.00'	–	25.80'	02°54'41"	36°28'34"
16+50.00	25.00'	–	25.80'	02°54'41"	39°23'14"
16+75.00	25.00'	–	25.80'	02°54'41"	42°17'55"
17+00.00	25.00'	–	25.80'	02°54'41"	45°12'36"
17+25.00	25.00'	–	25.80'	02°54'41"	48°07'17"
17+50.00	25.00'	–	25.80'	02°54'41"	51°01'58"
17+75.00	25.00'	–	25.80'	02°54'41"	53°56'39"
17+83.52	8.52'	–	8.79'	00°59'30"	54°56'09"
				Def/Ft = 6.98729 Min.	

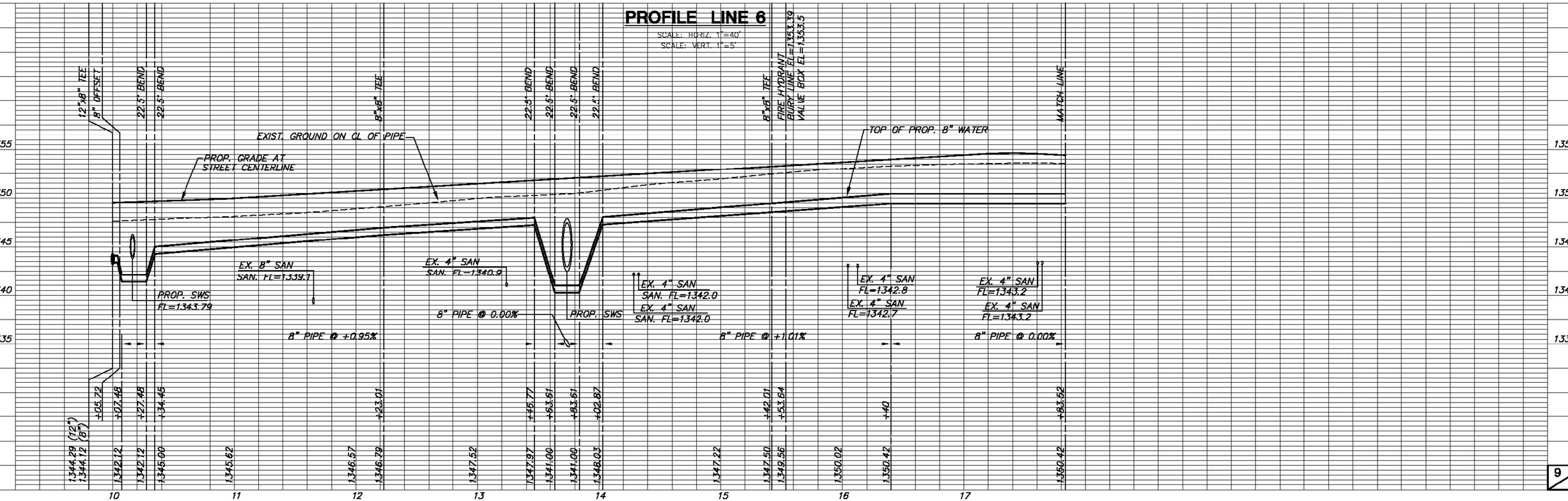
SCALE: 1"= 40'
0 20 40 80



PLAN LINE 6

PROFILE LINE 6

SCALE: HORIZ. 1"=40'
SCALE: VERT. 1"=5'



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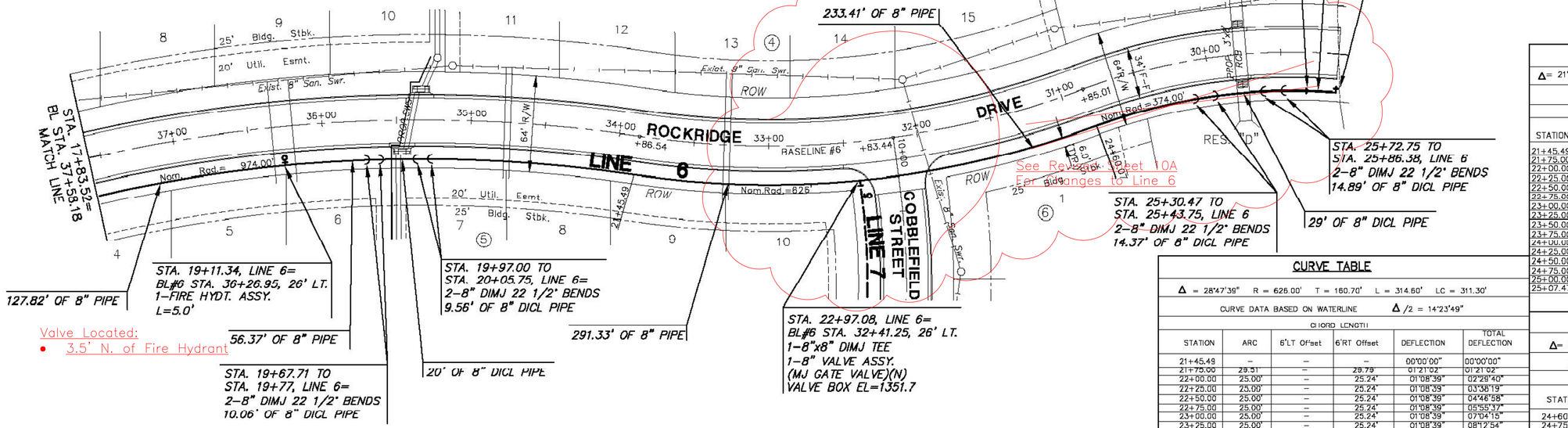
THE CORNERSTONE FIRST ADD.
WATER DISTRIBUTION PLANS
PRO. # PPW1178
LINE 6 PHASE 1

RECORD DRAWING
M.T. 1-12-09

SCALE: 1"= 40'
0 20 40 80

N

THE CORNERSTONE ADDITION



Valve Located:
- 3.5' N. of Fire Hydrant

CURVE TABLE

Δ= 21°17'36" R = 974.00' T = 183.10' L = 361.98' LC = 359.90'

CURVE DATA BASED ON WATERLINE Δ/2 = 10°38'48"

STATION	ARC	8"LT Offset	8"RT Offset	DEFLECTION (CHORD LENGTH)	TOTAL DEFLECTION
21+45.49	–	–	–	00°00'00"	00°00'00"
21+75.00	29.51'	–	29.75'	00°52'05"	00°52'05"
22+00.00	25.00'	–	25.20'	00°44'07"	01°36'12"
22+25.00	25.00'	–	25.20'	00°44'07"	02°20'19"
22+50.00	25.00'	–	25.20'	00°44'07"	03°04'26"
22+75.00	25.00'	–	25.20'	00°44'07"	03°48'33"
23+00.00	25.00'	–	25.20'	00°44'07"	04°32'40"
23+25.00	25.00'	–	25.20'	00°44'07"	05°16'47"
23+50.00	25.00'	–	25.20'	00°44'07"	06°00'55"
23+75.00	25.00'	–	25.20'	00°44'07"	06°45'02"
24+00.00	25.00'	–	25.20'	00°44'07"	07°29'09"
24+25.00	25.00'	–	25.20'	00°44'07"	08°13'16"
24+50.00	25.00'	–	25.20'	00°44'07"	08°57'23"
24+75.00	25.00'	–	25.20'	00°44'07"	09°41'30"
25+00.00	25.00'	–	25.20'	00°44'07"	10°25'37"
25+07.47	7.47'	–	7.53'	00°13'11"	10°38'48"

Def/Ft = 1.76476 Min.

CURVE TABLE

Δ = 28°47'39" R = 626.00' T = 160.70' L = 314.60' LC = 311.30'

CURVE DATA BASED ON WATERLINE Δ/2 = 14°23'49"

STATION	ARC	6"LT Offset	6"RT Offset	DEFLECTION (CHORD LENGTH)	TOTAL DEFLECTION
21+45.49	–	–	–	00°00'00"	00°00'00"
21+75.00	29.51'	–	29.79'	01°21'02"	01°21'02"
22+00.00	25.00'	–	25.24'	01°08'39"	02°29'40"
22+25.00	25.00'	–	25.24'	01°08'39"	03°38'19"
22+50.00	25.00'	–	25.24'	01°08'39"	04°46'58"
22+75.00	25.00'	–	25.24'	01°08'39"	05°55'37"
23+00.00	25.00'	–	25.24'	01°08'39"	07°04'15"
23+25.00	25.00'	–	25.24'	01°08'39"	08°12'54"
23+50.00	25.00'	–	25.24'	01°08'39"	09°21'33"
23+75.00	25.00'	–	25.24'	01°08'39"	10°30'11"
24+00.00	25.00'	–	25.24'	01°08'39"	11°38'50"
24+25.00	25.00'	–	25.24'	01°08'39"	12°47'29"
24+50.00	25.00'	–	25.24'	01°08'39"	13°56'07"
24+60.09	10.09'	–	10.18'	00°27'42"	14°23'49"

Def/Ft = 2.74580 Min.

CURVE TABLE

Δ= 24°58'43" R = 374.00' T = 82.84' L = 163.05' LC = 161.76'

CURVE DATA BASED ON WATERLINE Δ /2 = 12°29'21"

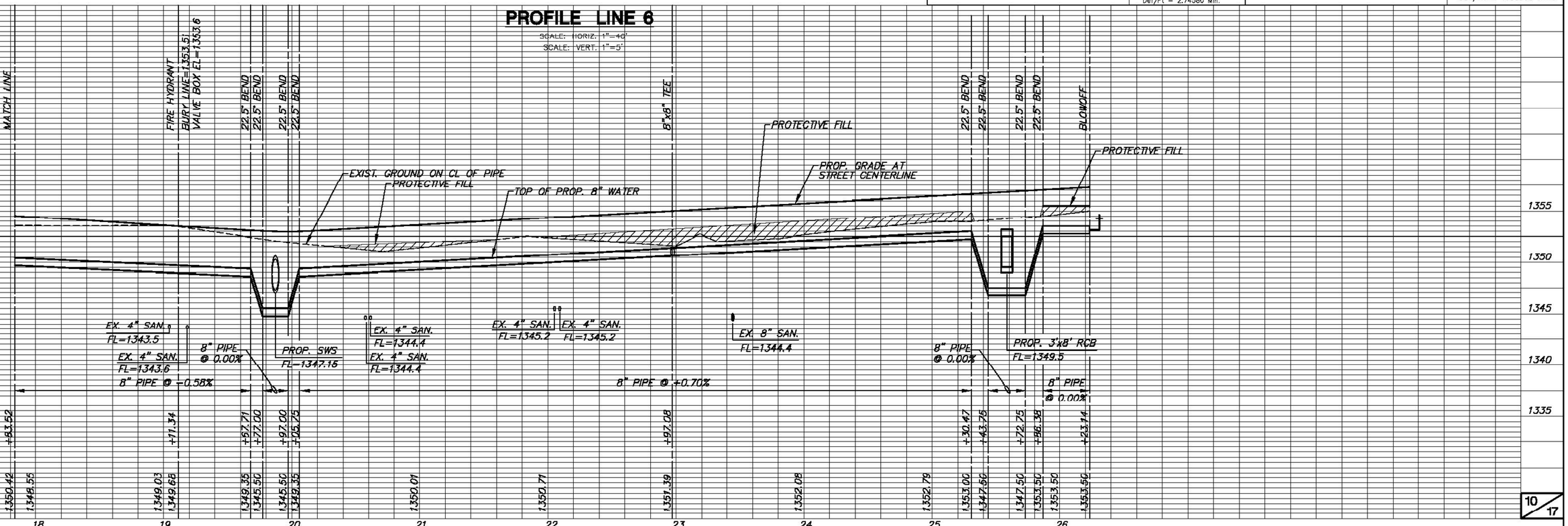
STATION	ARC	6"LT Offset	6"RT Offset	DEFLECTION (CHORD LENGTH)	TOTAL DEFLECTION
24+60.07	–	–	–	00°00'00"	00°00'00"
24+75.00	14.93'	–	14.69'	01°08'37"	01°08'37"
25+00.00	25.00'	–	24.59'	01°54'54"	03°03'31"
25+25.00	25.00'	–	24.59'	01°54'54"	04°58'25"
25+50.00	25.00'	–	24.59'	01°54'54"	06°53'19"
25+75.00	25.00'	–	24.59'	01°54'54"	08°48'13"
26+00.00	25.00'	–	24.59'	01°54'54"	10°43'08"
26+23.12	23.12'	–	22.74'	01°46'15"	12°29'22"

Def/Ft = 4.50592 Min.

PLAN LINE 6

PROFILE LINE 6

SCALE: HORIZ. 1"=40'
SCALE: VERT. 1"=5'



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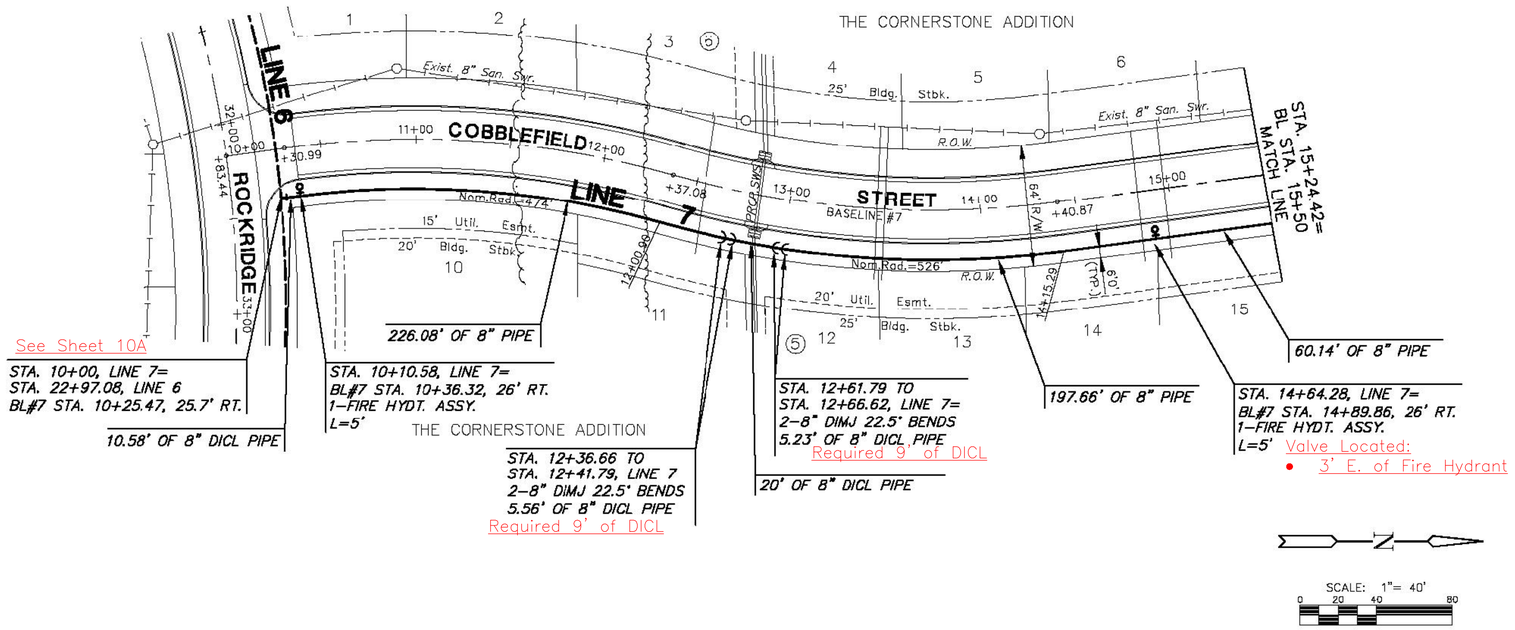
RECORD DRAWING
M.T. 1-12-09

THE CORNERSTONE FIRST ADD.
WATER DISTRIBUTION PLANS
PRO. # PPW1178
LINE 7 PHASE 1



See Sheet 10A

CURVE TABLE

△= 23°33'31" R = 474.00' T = 98.85' L = 194.90' LC = 193.53'

CURVE DATA BASED ON WATERLINE △/2 = 11°46'46"

CHORD LENGTH

STATION	ARC	6'LT Offset	6'RT Offset	DEFLECT ON	TOTAL DEFLECTION
10+06.00				00°00'00"	00°00'00"
10+10.58	4.58'	–	4.52'	00°16'37"	00°16'37"
10+25.00	14.42'	–	14.24'	00°52'17"	01°08'54"
10+50.00	25.00'	–	24.68'	01°30'39"	02°39'33"
10+75.00	25.00'	–	24.68'	01°30'39"	04°10'13"
11+00.00	25.00'	–	24.68'	01°30'39"	05°40'52"
11+25.00	25.00'	–	24.68'	01°30'39"	07°11'32"
11+50.00	25.00'	–	24.68'	01°30'39"	08°42'11"
11+75.00	25.00'	–	24.68'	01°30'39"	10°12'51"
12+00.00	25.00'	–	24.68'	01°30'39"	11°43'30"
12+00.90	.90'	–	.89'	00°03'15"	11°46'46"
				Def/Ft = 3.62632 Min.	

CURVE TABLE

△= 23°21'10" R = 526.00' T = 108.70' L = 214.39' LC = 212.91'

CURVE DATA BASED ON WATERLINE △/2 = 11°40'35"

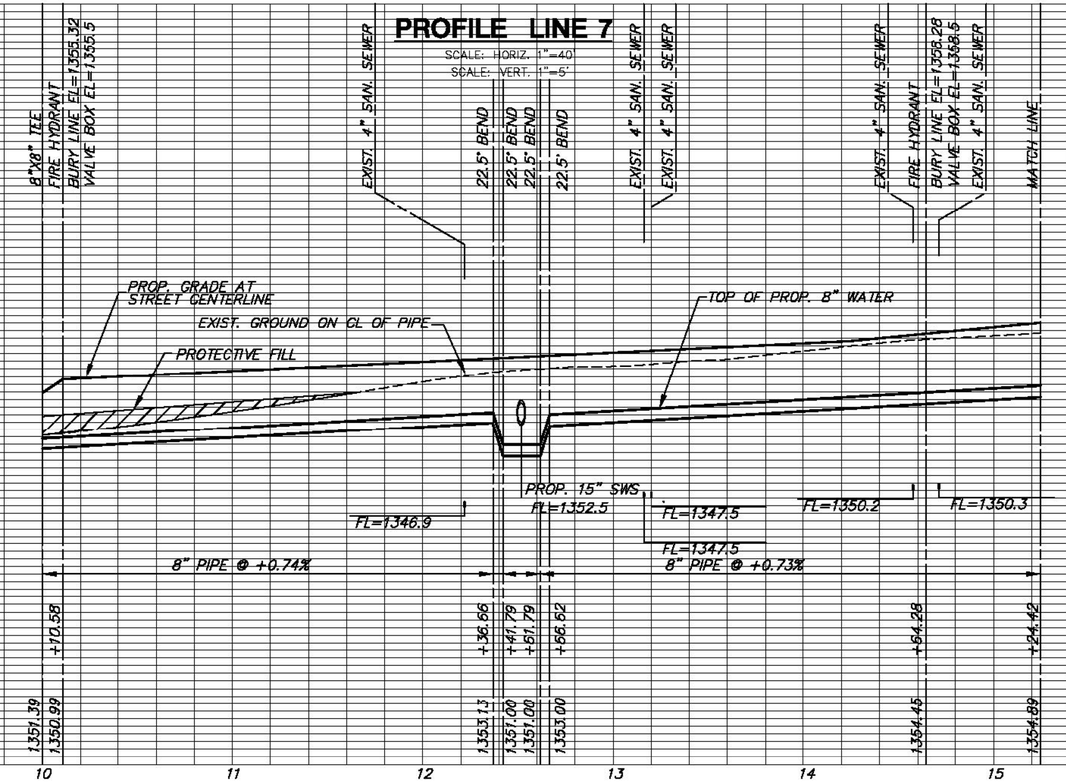
CHORD LENGTH

STATION	ARC	6'LT Offset	6'RT Offset	DEFLECTION	TOTAL DEFLECTION
12+00.90	–	–	–	00°00'00"	00°00'00"
12+25.00	24.10'	–	24.37'	01°18'45"	01°18'45"
12+36.66	11.66'	–	11.79'	00°38'06"	01°56'51"
12+41.79	5.13'	–	5.19'	00°16'46"	02°13'37"
12+50.00	8.21'	–	8.30'	00°26'50"	02°40'27"
12+61.79	11.79'	–	11.92'	00°38'32"	03°18'59"
12+75.00	13.21'	–	13.36'	00°43'10"	04°02'09"
13+00.00	25.00'	–	25.28'	01°21'42"	05°23'50"
13+25.00	25.00'	–	25.28'	01°21'42"	06°45'32"
13+50.00	25.00'	–	25.28'	01°21'42"	08°07'14"
13+75.00	25.00'	–	25.28'	01°21'42"	09°28'56"
14+00.00	25.00'	–	25.28'	01°21'42"	10°50'37"
14+15.29	15.29'	–	15.46'	00°49'58"	11°40'35"
				Def/Ft = 3.26782 Min.	

PLAN LINE 7

PROFILE LINE 7

SCALE: HORIZ. 1"=40'
SCALE: VERT. 1"=5'



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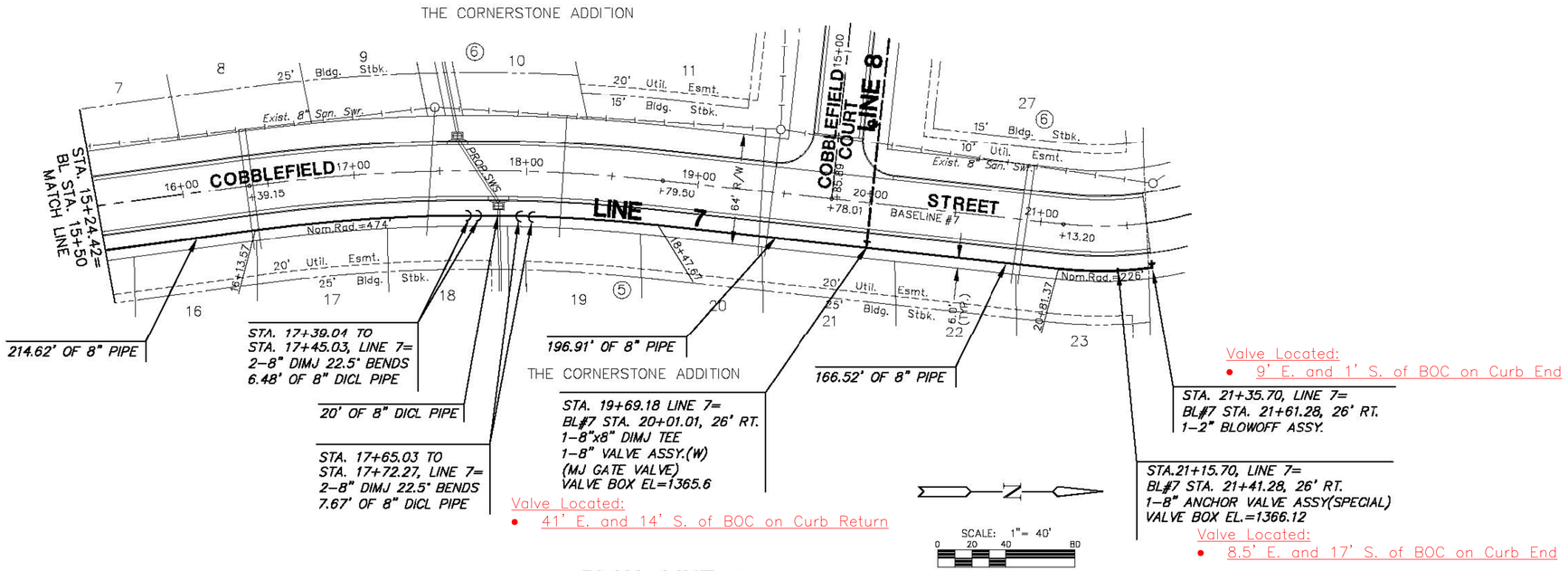
RECORD DRAWING
M.T. 1-12-09

THE CORNERSTONE FIRST ADD.
WATER DISTRIBUTION PLANS
PRO. # PPW1178
LINE 7 PHASE 1



Valve Located:
- 41' E. and 14' S. of BOC on Curb Return

Valve Located:
- 9' E. and 1' S. of BOC on Curb End

Valve Located:
- 8.5' E. and 17' S. of BOC on Curb End

PLAN LINE 7

CURVE TABLE

△= 13°46'15" R = 974.00' T = 117.62' L = 234.10' LC = 233.53'

CURVE DATA BASED ON WATERLINE △ /2 = 06°53'08"

CHORD LENGTH

STATION	ARC	6'LT Offset	6'RT Offset	DEFLECTION	TOTAL DEFLECTION
16+13.57	–	–	–	00°00'00"	00°00'00"
16+25.00	11.43'	–	11.36'	00°20'10"	00°20'10"
16+50.00	25.00'	–	24.85'	00°44'07"	01°04'17"
16+75.00	25.00'	–	24.85'	00°44'07"	01°48'25"
17+00.00	25.00'	–	24.85'	00°44'07"	02°32'32"
17+25.00	25.00'	–	24.85'	00°44'07"	03°16'39"
17+39.04	14.04'	–	13.95'	00°24'47"	03°41'25"
17+45.03	5.99'	–	5.95'	00°10'34"	03°52'00"
17+50.00	4.97'	–	4.94'	00°08'46"	04°00'46"
17+65.03	15.03'	–	14.94'	00°26'31"	04°27'17"
17+72.27	7.24'	–	7.20'	00°12'47"	04°40'04"
17+75.00	2.73'	–	2.71'	00°04'49"	04°44'53"
18+00.00	25.00'	–	24.85'	00°44'07"	05°29'00"
18+25.00	25.00'	–	24.85'	00°44'07"	06°13'07"
18+47.67	22.67'		22.53'	00°40'00"	06°53'07"
				Def/Ft = 1.76476 Min.	

CURVE TABLE

△= 13°46'24" R = 226.00' T = 27.30' L = 54.33' LC = 54.20'

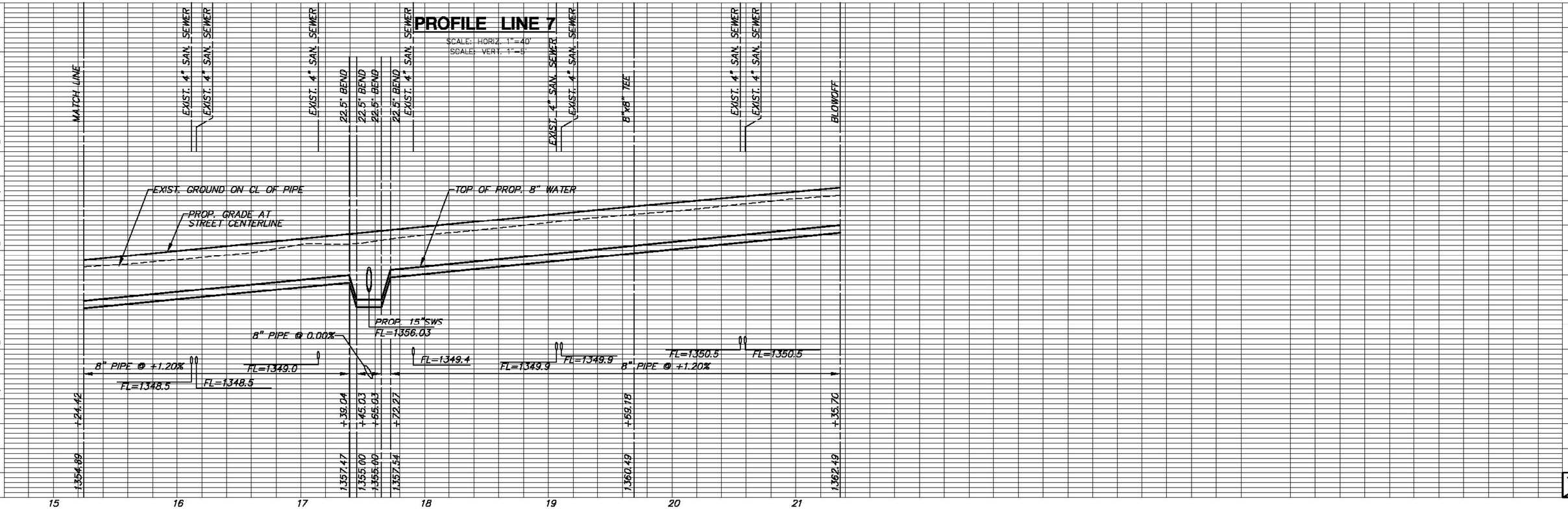
CURVE DATA BASED ON WATERLINE △ /2 = 06°53'12"

CHORD LENGTH

STATION	ARC	6'LT Offset	6'RT Offset	DEFLECTION	TOTAL DEFLECTION
20+81.37	–	–	–	00°00'00"	00°00'00"
21+00.00	18.63'	–	19.12'	02°21'42"	02°21'42"
21+25.00	25.00'	–	25.65'	03°10'08"	05°31'50"
21+35.70	10.70'	–	10.98'	01°21'22"	06°53'12"
				Def/Ft = 7.60563 Min.	

PROFILE LINE 7

SCALE: HORIZ. 1"=40'
SCALE: VERT. 1"=5'



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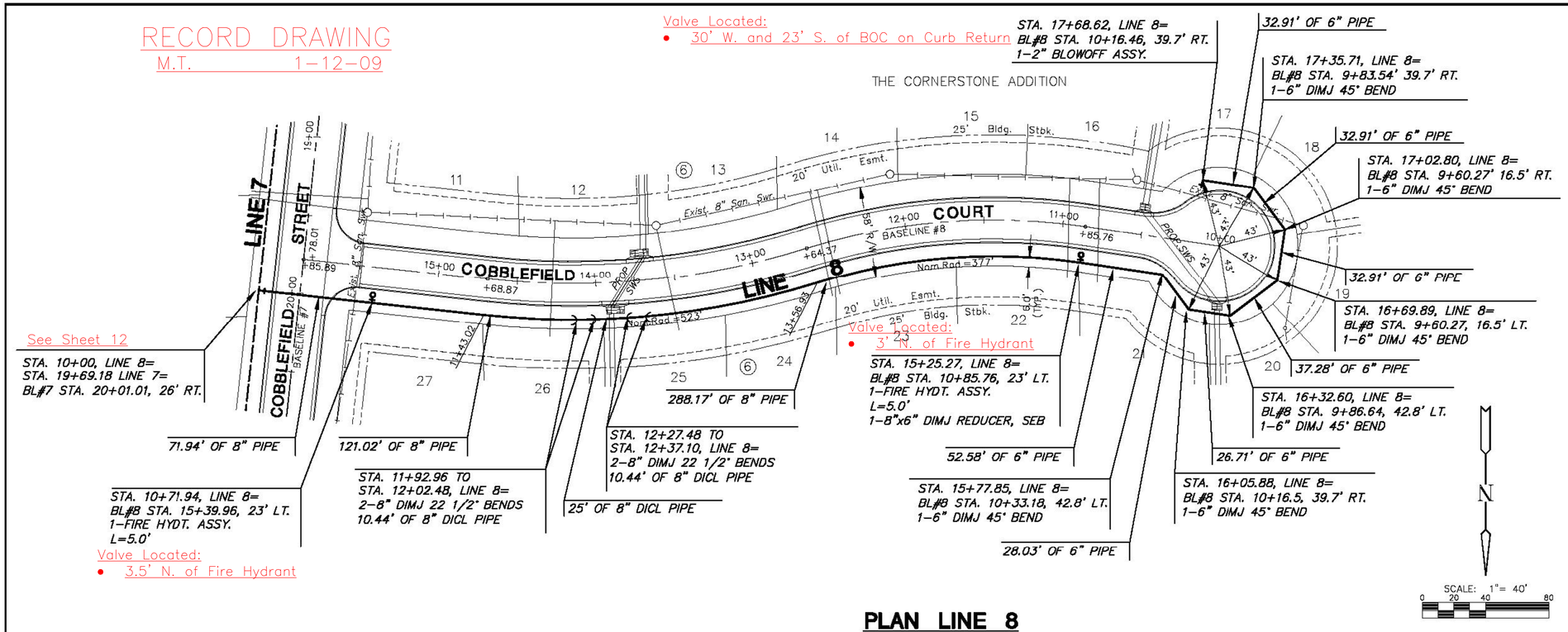
RECORD DRAWING
M.T. 1-12-09

THE CORNERSTONE FIRST ADD.
WATER DISTRIBUTION PLANS
PRO. # PPW1178
LINE 8 PHASE 1



PLAN LINE 8

CURVE TABLE

△= 23°26'05" R = 523.00' T = 108.47' L = 213.91' LC = 212.43'

CURVE DATA BASED ON WATERLINE △/2 = 11°43'03"

STATION	ARC	6'LT Offset	6'RT Offset	DEFLECTION (CHORD LENGTH)	TOTAL DEFLECTION
11+43.02	–	–	–	00°00'00"	00°00'00"
11+50.00	6.98'	–	7.06'	00°22'56"	00°22'56"
11+75.00	25.00'	–	25.28'	01°22'10"	01°45'06"
11+92.96	17.96	–	18.17'	00°59'02"	02°44'08"
12+00.00	7.04'	–	7.12'	00°23'08"	03°07'16"
12+05.03	5.03'	–	5.09'	00°16'32"	03°23'48"
12+25.00	19.97'	–	20.20'	01°05'38"	04°29'26"
12+25.03	.03	–	.03'	00°00'06"	04°29'32"
12+37.10	12.07'	–	12.21'	00°39'40"	05°09'12"
12+50.00	12.90'	–	13.05'	00°42'24"	05°51'36"
12+75.00	25.00'	–	25.28'	01°22'10"	07°13'46"
13+00.00	25.00'	–	25.28'	01°22'10"	08°35'55"
13+25.00	25.00'	–	25.28'	01°22'10"	09°58'05"
13+50.00	25.00'	–	25.28'	01°22'10"	11°20'15"
13+56.93	6.93'	–	7.01'	00°22'47"	11°43'02"

Def/Ft = 3.28656 Min.

CURVE TABLE

△= 25°34'59" R = 377.00' T = 85.59' L = 168.33' LC = 166.94'

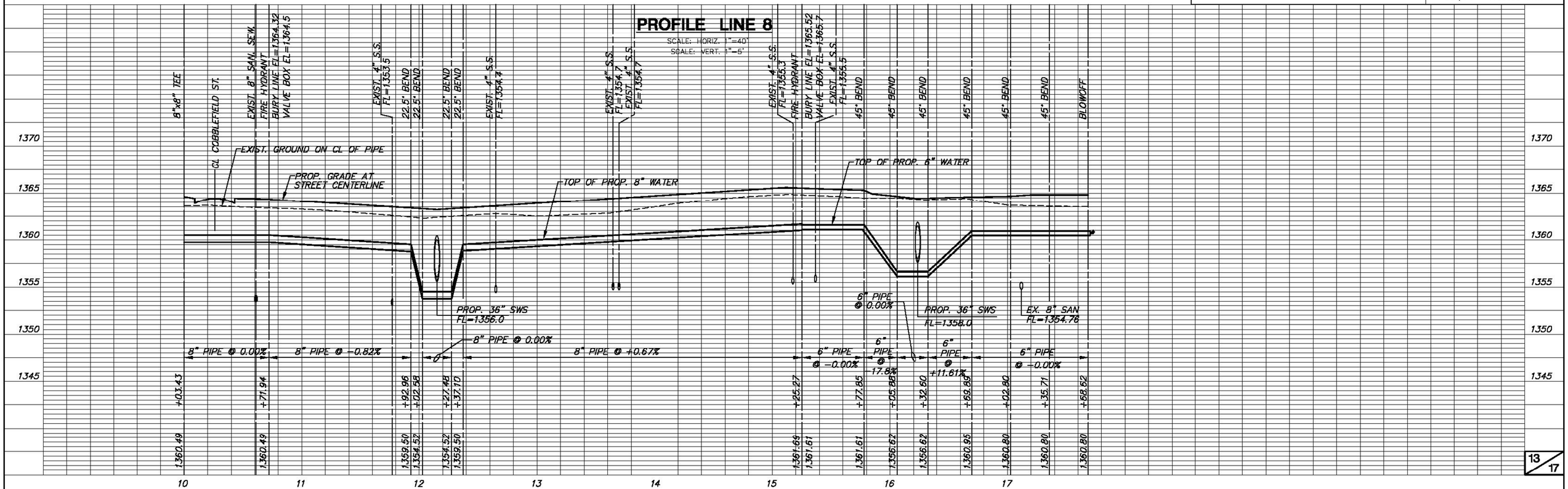
CURVE DATA BASED ON WATERLINE △/2 = 12°47'30"

STATION	ARC	6'LT Offset	6'RT Offset	DEFLECTION (CHORD LENGTH)	TOTAL DEFLECTION
13+56.93	–	–	–	00°00'00"	00°00'00"
13+75.00	18.07'	–	17.78'	01°22'23"	01°22'23"
14+00.00	25.00'	–	24.60'	01°53'59"	03°16'22"
14+25.00	25.00'	–	24.60'	01°53'59"	05°10'21"
14+50.00	25.00'	–	24.60'	01°53'59"	07°04'20"
14+75.00	25.00'	–	24.60'	01°53'59"	08°58'19"
15+00.00	25.00'	–	24.60'	01°53'59"	10°52'18"
15+25.00	25.00'	–	24.60'	01°53'59"	12°46'17"
15+25.26	.26'	–	.26'	00°01'12"	12°47'30"

Def/Ft = 4.55935 Min.

PROFILE LINE 8

SCALE: HORIZ. 1"=40'
SCALE: VERT. 1"=5'



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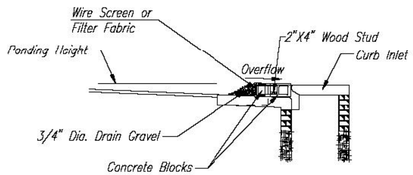
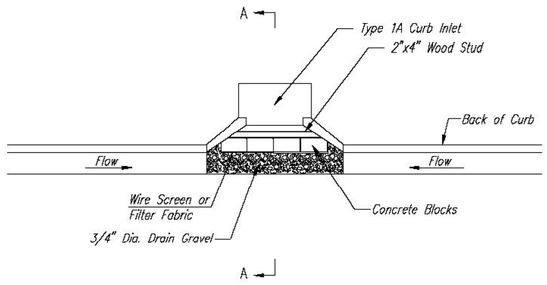


SECTION A–A



CURB INLET GRAVEL FILTERS
(INLET PROTECTION–RESIDENTIAL STREETS ONLY)

NOTE: Other types of curb inlet protection may be approved by the city so long as equal protection is provided.

A gravel inlet filter shall be installed at sump locations on residential streets. This type of protection is not to be used on arterial or collector streets at any time that it would pose an undue traffic hazard.

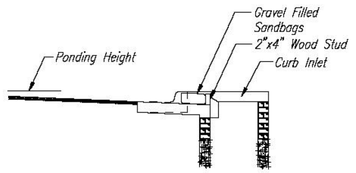
Instructions for Installing:

STEP 1: Place concrete blocks around the inlet as shown on drawing. Insert 2x4 board as shown.
STEP 2: Wrap 1/2" mesh wire screen around the concrete blocks.
STEP 3: Place 1" to 1-1/2" diameter rock around the blocks and wire screen. Be sure the rock extends down from the top of the concrete block.
STEP 4: To prevent damage to vehicles, signs warning drivers about the structures may be necessary. An alternative installation is the use of gravel bags supported by a 2"x4" board to prevent collapsing.

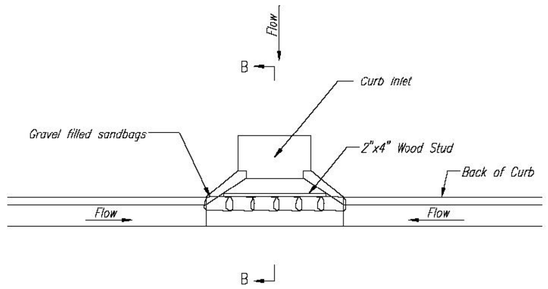
Use of rock with diameters smaller than 1" in the bag may result in clogging of pores and reduce the amount of water flowing into an inlet.

Maintenance:

All curb inlet gravel filters shall be nspected and repaired after each runoff event. Sediment deposits are to be removed once material is within 8 cm (3 inches) of the top of any block. Periodically, the gravel stall be raked to increase infiltration and filtering of runoff waters. Accumulated sediment is to be removed immediately from roads and streets.

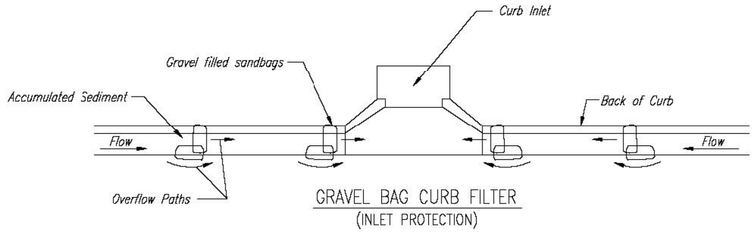


SECTION B–B



CURB INLET SANDBAG FILTERS
(INLET PROTECTION)

NOTE: Other types of curb inlet protection may be approved by the City so long as equal protection is provided.



GRAVEL BAG CURB FILTER
(INLET PROTECTION)

NOTE: Place two or more sets of bags in a manner that results in maximum support. The flow line bag must be lower than top of curb.

CURB SEDIMENT TRAPS

When inlets are located on streets having a grade (i.e., sump conditions do not exist), installing gravel (or sand) bags in the gutter flow line to create small sediment traps can be considered. Gravel bags are recommended over sand bags to allow for drainage.

If the spacing between bags becomes too large, little sediment may be trapped. Spacing of bags should be completed using the table or graph that illustrates placement distances based upon street slope. When installed in the gutter, bag tops must be lower than the sidewalk.

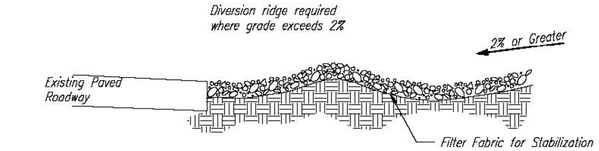
Spacing:

Gravel bags are to be placed according to street grades using the following table or graph that appears below.

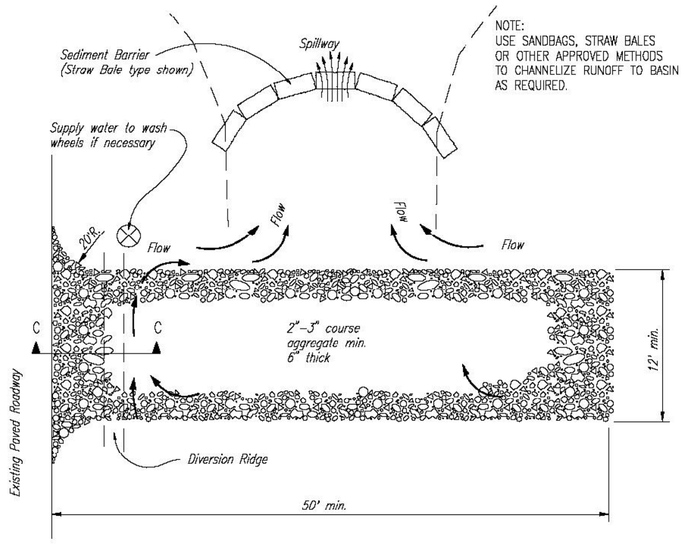
GRADE (%)	SPACING (FEET)
0.5	75
1.0	45
2.0	18
3.0	12
4.0	9
5.0	6

Maintenance:

Collected sediment shall be removed after every runoff event. Bags that are destroyed by vehicular traffic or through natural deterioration are to be immediately replaced.



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 STABLIZED 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 TC 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.

RECORD DRAWING
M.T. 1–12–09

MKEC ENGINEERING CONSULTANTS
411 N. WEBB ROAD
WICHITA, KS. 67206
316 - 684 - 9600

THE CORNERSTONE FIRST ADDITION
PROJECT NAME

SOIL EROSION BMP DETAILS
SHEET TITLE

MKEC	MKEC	MKEC
DESIGN BY:	DRAWN BY:	CHECKED BY:
OCTOBER 2005	04294	14 / 17
DATE	JOB NO.	SHEET/OF

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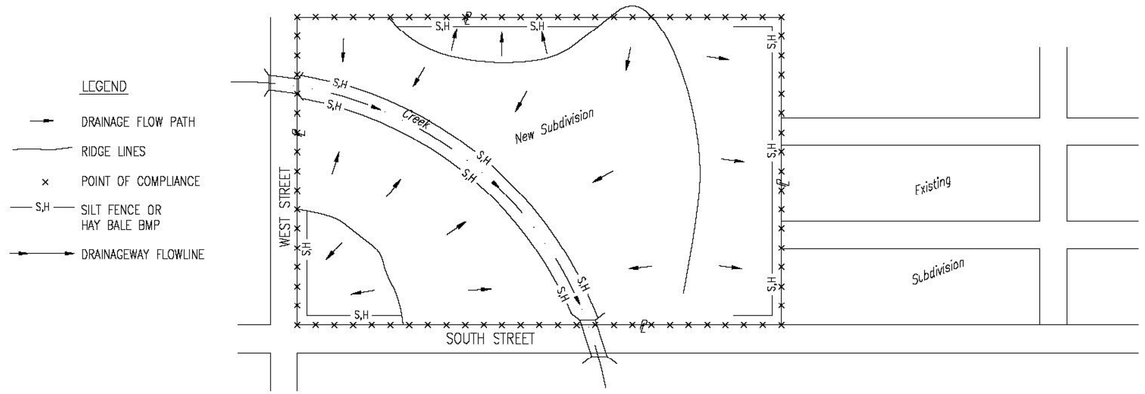
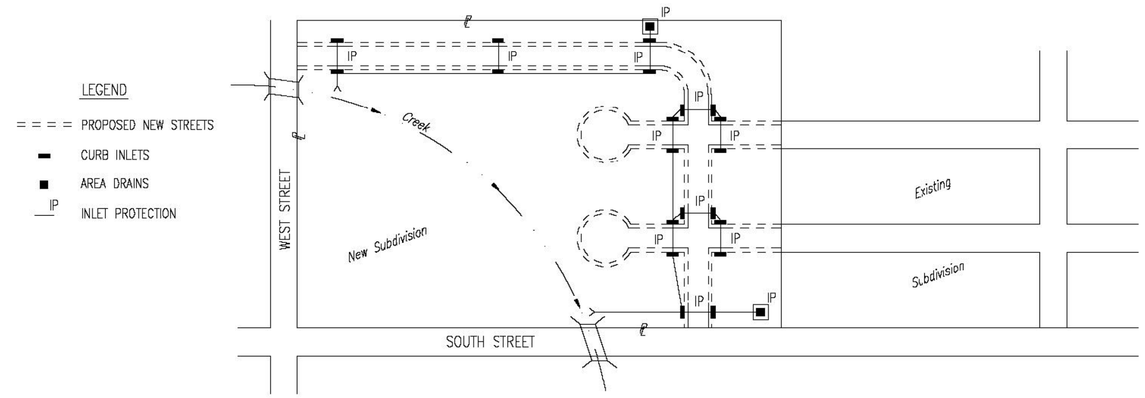
PHASE 1 – INITIAL EARTHWORK AND UTILITIES (EXCEPT STORM SEWER)



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. HAYBALES OR SILT FENCE MUST BE CONSTRUCTED ALONG THE PROPERTY LINE WHERE ON SITE WATER CAN DRAIN OFF THE PROPERTY. THESE BMP'S WILL ALSO BE INSTALLED ALONG ANY DRAINAGE DITCH OR LAKE THAT CAN DISCHARGE.
3. SHOULD SILT OR SEDIMENT ENTER THE DITCHES OR GUTTERLINES ON THE ADJACENT BOUNDRY STREETS, APPROPRIATE BMP'S WILL BE PLACED WITHIN THE SUBDIVISION TO PREVENT THIS.
4. ANY MUD TRACKED ONTO ADJACENT STREETS WILL BE REMOVED AT THE END OF EACH WORK DAY.
5. CONTRACTORS WORKING WITHIN THE SITE WILL NOT BE REQUIRED TO USE INDIVIDUAL BMP'S AS LONG AS THOSE SPECIFIED ABOVE ARE IN PLACE AND EFFECTIVE. CONTRACTORS WORKING ON THE BOUNDRY LINE STREETS OR ON ADJACENT PROPERTIES TO EXTEND UTILITIES ARE EXPECTED TO USE BMP'S AT THEIR WORK LOCATIONS, AS NEEDED.
6. UTILIZE STABILIZED CONSTRUCTION ENTRANCE AT ENTRANCE AND EXIT ONTO ANY EXISTING PUBLIC STREETS.
7. THE SUBDIVISION DEVELOPER (OWNER) SHALL INSTALL AND MAINTAIN THE ON-SITE BMP'S.

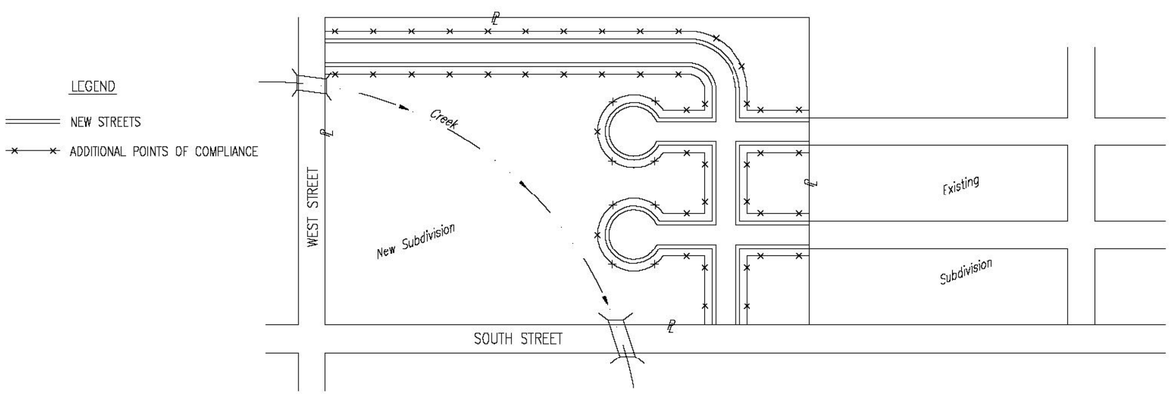
PHASE 2 – INSTALLATION OF STORM SEWER



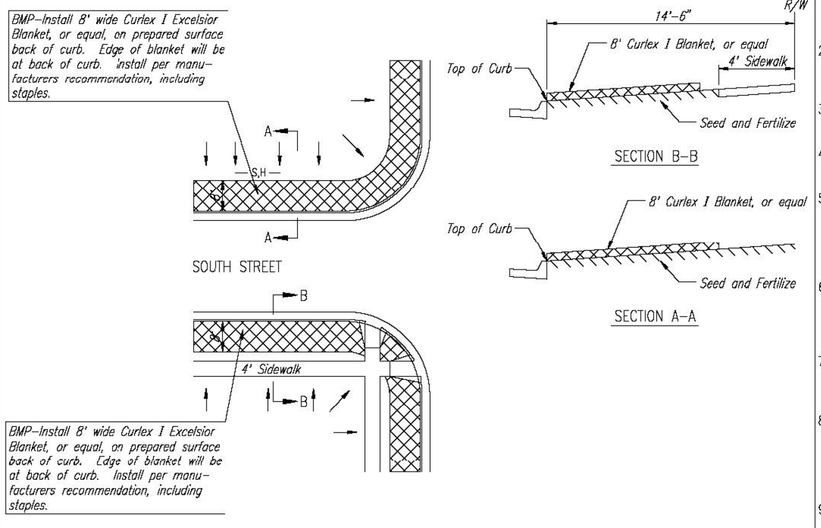
1. DURING THIS PHASE OF SUBDIVISION DEVELOPMENT, ALL BMP'S REQUIRED IN PHASE 1 SHALL REMAIN IN PLACE AND BE MAINTAINED.
2. AS NEW STORM SEWERS, WITH INLETS, ARE INSTALLED, THE STORM SEWERS MUST NOW BE PROTECTED SO ALL NEW INLETS BECOME POINTS OF COMPLIANCE.
3. AREA DRAINS – AS SOON AS WATER CAN FLOW INTO THESE DRAINS, HAYBALE OR SILT FENCE PROTECTION WILL BE INSTALLED AROUND THEM.
4. CURB OPENING INLETS – AS SOON AS WATER CAN FLOW INTO THESE DRAINS, INLET PROTECTION BMP'S MUST BE INSTALLED. SEE PHASE 3 – STREET CONSTRUCTION.
5. THE STORM SEWER CONTRACTOR WILL BE RESPONSIBLE FOR INSTALLING THESE BMP'S. IF WATER CANNOT FLOW INTO CURB INLETS UNTIL STREET CONSTRUCTION IS COMPLETE, THEN STREET CONTRACTOR WILL INSTALL INLET PROTECTION.
6. THE SUBDIVISION DEVELOPER WILL MAINTAIN THESE BMP'S ONCE INSTALLED.
7. 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.

RECORD DRAWING
M.T. 1-12-09

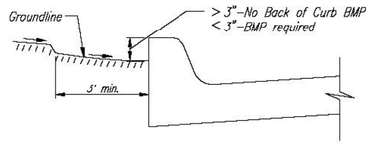
PHASE 3 – STREET CONSTRUCTION



1. DURING THIS PHASE OF SUBDIVISION CONSTRUCTION, NEW STREETS ARE INSTALLED. ALL BMP'S 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. BMP'S 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), BMP'S WILL BE REQUIRED AT POINTS WHERE WATER BREAKS OVER CURB WHICH COULD RESULT IN THE PLACEMENT OF SEDIMENT IN THE GUTTER.
4. SEE DETAIL THIS SHEET ON BACK OF CURB PROTECTION.
5. THE BACK OF CURB PROTECTION SPECIFIED ON THIS PLAN MAY HAVE TO BE SUPPLIMENTED WITH HAYBALE OR SILT FENCE BMP'S 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 BMP'S.
7. THE INDIVIDUAL LOT OWNERS WILL BE RESPONSIBLE FOR MAINTAINING THE BACK OF CURB BMP'S IN FRONT OF THEIR LOTS UNTIL SUCH TIME AS ADJACENT DISTURBED EARTH IS STABILIZED WITH GRASS OR SOD.



BACK OF CURB PROTECTION DETAIL



CURB BACKFILL DETAIL

GENERAL NOTES:

1. THE INTENT OF ALL BEST MANAGEMENT PRACTICES (B.M.P.'S) IS TO PREVENT ERODED SOIL FROM ENTERING DITCHES, STORM SEWERS, OR ANY OTHER DRAINAGE FEATURE.
2. THIS SHEET IS INTENDED TO PROVIDE GUIDELINES AS TO WHAT TYPE OF BMP'S WILL BE INSTALLED DURING THE CONSTRUCTION PROCESS. CONTRACTORS ARE EXPECTED TO BID PROJECTS ACCORDINGLY.
3. BMP'S SHALL BE MAINTAINED DURING THE CONSTRUCTION PROCESS TO REMAIN EFFECTIVE. MAINTENANCE SHALL BE AS INDICATED ON THE BMP DETAIL SHEETS.
4. PERSONS DESTROYING BMP'S SHALL BE RESPONSIBLE FOR IMMEDIATELY REPAIRING THEM OR INSTALLING SUITABLE REPLACEMENT BMP'S.
5. THE DEVELOPMENT OF ANY SUBDIVISION THAT DISTURBS 5 ACRES OR MORE WILL REQUIRE A FEDERAL/STATE NPDES STORMWATER PERMIT. THE PREPARATION OF A STORMWATER POLLUTION PREVENTION PLAN IS REQUIRED. EROSION CONTROL BMP'S ARE REQUIRED. THE DETAILS SHOWN ON THIS SHEET ARE THE MINIMUM STANDARDS TO BE SHOWN ON POLLUTION PREVENTION PLAN.
6. FOR SUBDIVISIONS SMALLER THAN 5 ACRES, SOIL EROSION BMP'S 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 BMP'S 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 BMP'S SHOWN ON THIS SHEET IS FOR SITUATIONS NORMALLY ENCOUNTERED. FROM TIME TO TIME, SITUATIONS WILL ARISE THAT MAY REQUIRE A DIFFERENT BMP OTHER THAN THAT SHOWN. BMP'S, 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 75% OF THE GRASS HAS GERMINATED ON THE ENTIRE SURFACE.

MKEC ENGINEERING CONSULTANTS
411 N. WEBB ROAD
WICHITA, KS. 67206
316 - 684 - 9600

THE CORNERSTONE FIRST ADDITION
PROJECT NAME

SOIL EROSION BMP DETAILS
SUBDIVISION DEVELOPMENT PROCESS
SHEET TITLE

MKEC	MKEC	MKEC
DESIGN BY:	DRAWN BY:	CHECKED BY:
OCTOBER 2005	04294	15 / 17
DATE	JOB NO.	SHEET/OF

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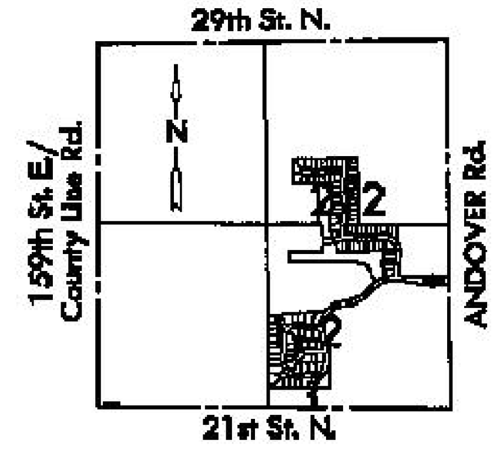
RECORD DRAWING
M.T. 1-12-09

FINAL PLANNED UNIT DEVELOPMENT
THE CORNERSTONE FIRST ADDITION
AN ADDITION TO ANDOVER, BUTLER COUNTY, KANSAS

LYING IN A PORTION OF THE SOUTHEAST QUARTER, SECTION 6, TOWNSHIP 27 SOUTH, RANGE 3 EAST, OF THE SIXTH PRINCIPAL MERIDIAN, TOGETHER WITH, A PORTION OF THE SOUTHWEST QUARTER OF THE NORTHEAST QUARTER, SECTION 6, TOWNSHIP 27 SOUTH, RANGE 3 EAST, OF THE SIXTH PRINCIPAL MERIDIAN and being part of the Cornerstone Preliminary Planned Unit Development

CURVE TABLE			
CURVE	LENGTH	RADIUS	DELTA
C1	28.50'	130.00'	12°33'40"
C2	70.19'	70.00'	57°26'58"
C3	36.13'	70.00'	29°34'34"
C4	67.90'	101.76'	38°13'51"
C5	27.86'	41.76'	38°13'51"
C6	67.11'	130.00'	29°34'34"
C7	97.91'	130.00'	43°09'13"

LINE TABLE		
LINE	LENGTH	BEARING
L1	40.54'	S09°03'29"E
L2	50.00'	S00°24'11"E
L3	60.00'	S89°35'49"W
L4	50.00'	N00°24'11"W
L5	40.54'	N09°03'29"W



VICINITY MAP
NOT TO SCALE

LEGEND

- △ = Section Corner Monument Found
- ○ = Found Survey Monument (see annotated caption for type)
- ● = Set 5/8" Rebar W/ MKEC CLS 39 Id. Cap
- (M) = Measured
- (CM) = Calculated from measured
- U.E. & D.E. = Utility Easement and Drainage Easement
- [shaded] = Street Dedication (width varies)

100 0 ft. 100 200

BENCH MARK

BM #1 Chiseled square on center of south headwall of RCB under 21st Street North, 243' East and 41' South of the South Quarter Corner of Sec. 6, T27S, R3E.
Elev. = 1345.60

BM #2 Chiseled square on top of curb at East return of East Drive to "Life Care Center", 994' East and 26.5' South of the South Quarter corner of Sec. 6, T27S, R3E.
Elev. = 1348.78

BM #4 Chiseled square on Southeast corner of curb inlet at North end of Northeast return at 21st Street North and Andover Road, 89.5' North and 36.5' East of the Southeast Corner of Sec. 6, T27S, R3E.
Elev. = 1340.69

BM #6 "T-post" 48" +/- West of traveled way of Andover Road and 50'+/- South of the centerline of the South drive into cemetery, 373' South and 68' West of the East Quarter Corner of Sec. 6, T27S, R3E.
Elev. = 1354.00

CERTIFICATE OF SURVEY

I, Gregory J. Allison the undersigned registered land surveyor of the State of Kansas, do hereby certify that the following described tract of land was surveyed on August 4, 2005, and that the accompanying Final Planned Unit Development was prepared and that all monuments shall herein actually exist and their positions are correctly shown to the best of my knowledge and belief.

A tract of land lying in a portion of the East Half of Section 6, Township 27 South, Range 3 East, of the 6th Principal Meridian, Andover, Butler County, Kansas said tract being more particularly described as follows:

COMMENCING at the South Quarter corner of said Section 6, thence along the East line of the Southeast Quarter on a Kansas Coordinate System 1983 South Zone Grid Bearing of N01°17'44"W, 270.03 feet to the **POINT OF BEGINNING**; thence continuing along said East line N01°17'44"W, 1067.47 feet; thence N88°42'16"E, 139.54 feet; thence N85°24'04"E, 64.00 feet to a point on a non-tangent curve to the right; thence along said curve 38.74 feet, said curve having a central angle of 06°58'50", a radius of 318.00 feet, and a long chord distance of 38.72 feet, bearing N01°06'31"W; thence N88°42'34"E, 607.74 feet to a point on a non-tangent curve to the right; thence along said curve 316.41 feet to a reverse curve to the left, said curve having a central angle of 47°12'37", a radius of 384.00 feet, and a long chord distance of 307.53 feet, bearing N59°50'24"E; thence along said reverse curve to the left 418.62 feet, said curve having a central angle of 38°56'13", a radius of 616.00 feet, and a long chord distance of 410.61 feet, bearing N63°58'36"E; thence N44°30'30"E, 95.25 feet to a point on a curve to the right; thence along said curve 90.75 feet, said curve having a central angle of 10°44'37", a radius of 484.00 feet, and a long chord distance of 90.62 feet, bearing N49°52'48"E; thence N54°13'22"W, 103.87 feet; thence N00°43'42"E, 76.81 feet; thence N33°55'31"W, 105.45 feet; thence N78°03'50"W, 177.46 feet; thence S89°35'37"W, 963.77 feet; thence N00°24'22"W, 145.00 feet; thence N89°35'37"E, 460.00 feet; thence N10°20'38"E, 129.89 feet; thence N01°24'01"W, 64.35 feet; thence N08°25'43"W, 208.17 feet to the North line of said Southeast Quarter; thence N32°12'56"W, 82.82 feet; thence N01°21'12"W, 537.82 feet; thence S88°38'48"W, 358.00 feet; thence N01°21'12"W, 353.00 feet; thence N88°38'48"E, 740.93 feet; thence N87°27'16"E, 64.25 feet; thence N88°38'48"E, 142.38 feet to the East line of Southwest Quarter of the Northeast Quarter; thence along said East line S01°21'12"E, 972.29 feet to the Southeast corner of said Southwest Quarter of said Northeast Quarter; thence along the North line of said Southeast Quarter N89°35'38"E, 558.84 feet; thence S00°24'22"E, 184.75 feet; thence S48°34'21"W, 28.01 feet to a point on a non-tangent curve to the right; thence along said curve 241.88 feet, said curve having a central angle of 54°59'42", a radius of 252.00 feet, and a long chord distance of 232.70 feet, bearing S20°32'17"E; thence S06°57'34"W, 201.14 feet to a point on a curve to the left; thence along said curve 104.25 feet to a point on a non-tangent curve to the right, said curve having a central angle of 06°52'53", a radius of 868.00 feet, and a long chord distance of 104.19 feet, bearing S03°31'07"W; thence along said non-tangent curve to the right 87.85 feet to a reverse curve to the left, said curve having a central angle of 10°23'58", a radius of 484.00 feet, and a long chord distance of 87.73 feet, bearing S81°12'23"E; thence along said reverse curve to the left 55.88 feet to a curve to the left, said curve having a central angle of 03°18'39", a radius of 967.00 feet, and a long chord distance of 55.87 feet, bearing S77°39'44"E; thence along said curve to the left 281.95 feet to a reverse curve to the right, said curve having a central angle of 26°55'28", a radius of 600.00 feet, and a long chord distance of 279.37 feet, bearing N87°13'13"E; thence along said reverse curve to the right 184.44 feet to a reverse curve to the left, said curve having a central angle of 31°13'11", a radius of 338.50 feet, and a long chord distance of 182.17 feet, bearing N89°22'04"E; thence along said reverse curve to the left 84.48 feet, said curve having a central angle of 16°08'04", a radius of 300.00 feet, and a long chord distance of 84.20 feet, bearing S83°05'22"E; thence N88°50'36"E, 5.27 feet to the West line of an Agreement and Release of Highway Damages, to Butler County, Kansas, Dated March 30th, 1964, and Filed at the Butler County Engineering Office; thence N88°50'36"E, 60.90 feet to the East line of said Southeast Quarter; thence along aforesaid East line S01°09'24"E, 101.00 feet; thence S88°50'36"W, 58.57 feet to aforesaid West line of an Agreement and Release of Highway Damages; thence S88°50'36"W, 6.89 feet to a point on a curve to the left; thence along said curve 84.15 feet to a reverse curve to the right, said curve having a central angle of 16°04'16", a radius of 300.00 feet, and a long chord distance of 83.87 feet, bearing S80°48'28"W; thence along said reverse curve to the right 209.67 feet to a reverse curve to the left, said curve having a central angle of 34°58'23", a radius of 343.50 feet, and a long chord distance of 206.43 feet, bearing N89°44'28"W; thence along said curve reverse curve to the left 147.66 feet to a reverse curve to the right, said curve having a central angle of 14°06'02", a radius of 600.00 feet, and a long chord distance of 147.29 feet, bearing N79°18'17"W; thence along said curve reverse curve to the right 186.57 feet to a reverse curve to the left, said curve having a central angle of 10°20'54", a radius of 1033.00 feet, and a long chord distance of 186.32 feet, bearing N81°10'51"W; thence along said curve reverse curve to the left 433.97 feet, said curve having a central angle of 59°29'06", a radius of 418.00 feet, and a long chord distance of 414.74 feet, bearing S74°15'03"W; thence S44°30'30"W, 95.25 feet to a point on a curve to the right; thence along said curve 463.47 feet to a reverse curve to the left, said curve having a central angle of 38°56'13", a radius of 682.00 feet, and a long chord distance of 454.61 feet, bearing S63°58'36"W; thence along said reverse curve to the left 546.76 feet, said curve having a central angle of 98°30'49", a radius of 318.00 feet, and a long chord distance of 481.86 feet, bearing S34°11'18"W; thence S15°04'06"E, 85.54 feet; thence N89°35'49"E, 62.83 feet; thence S01°09'24"E, 729.98 feet to a point lying 270 feet North of said South line; thence S89°35'49"W, 207.63 feet to a point on a non-tangent curve to the right; thence along said curve 28.50 feet to a reverse curve to the left, said curve having a central angle of 12°33'40", a radius of 130.00 feet, and a long chord distance of 28.44 feet, bearing S42°06'39"W; thence along said reverse curve to the left 70.19 feet, said curve having a central angle of 57°26'58", a radius of 70.00 feet, and a long chord distance of 67.28 feet, bearing S19°40'00"W; thence S09°03'29"E, 40.54 feet to a point on a curve to the left; thence along said curve 36.13 feet to a reverse curve to the right, said curve having a central angle of 29°34'34", a radius of 70.00 feet, and a long chord distance of 35.73 feet, bearing S23°50'46"E; thence along said reverse curve to the right 67.90 feet, said curve having a central angle of 38°13'51", a radius of 101.76 feet, and a long chord distance of 66.65 feet, bearing S19°31'07"E; thence S00°24'11"E, 50 feet to the South line of said Southeast Quarter; thence along said South line, S89°35'49"W, 60.00 feet; thence N00°24'11"W, 50 feet to a point on a curve to the left; thence along said curve 27.86 feet to a reverse curve to the right, said curve having a central angle of 38°13'51", a radius of 41.76 feet, and a long chord distance of 27.35 feet, bearing N19°31'07"W; thence along said reverse curve to the right 67.11 feet, said curve having a central angle of 29°34'34", a radius of 130.00 feet, and a long chord distance of 66.36 feet, bearing N23°50'46"W; thence N09°03'29"W, 40.54 feet to a point on a curve to the right; thence along said curve 97.91 feet to a point lying 270.00 feet North of said South line, said curve having a central angle of 43°09'13", a radius of 130.00 feet, and a long chord distance of 95.61 feet, bearing N12°31'08"E; thence parallel with and 270.00 feet North of said South line, S89°35'49"W, 600.62 feet to the **POINT OF BEGINNING**. Said tract **CONTAINS**: 59.42 acres of land, more or less.

Gregory J. Allison, P.E., R.L.S. #1257
MKEC Engineering Consultants, Inc.
411 N. Webb Road
Wichita, Kansas 67206
316-684-9600
www.mkec.com

GREGORY J. ALLISON LICENSED 1257 KANSAS LAND SURVEYOR
8/4/05

Reviewed in accordance with K.S.A. 58-2005 on this 25th day of July, 2005.

ROGER L. CUTSINGER REGISTERED 7-25-05 LS-805 KANSAS LAND SURVEYOR

Print name Roger L. Cutsinger, R.L.S.# 805
Appointed Land Surveyor, Butler County, Kansas

Know all men by these presents that we the undersigned property owners of the land as above set forth in the Registered Land Surveyor's Certificate, have caused the same to be surveyed and platted into Lots, Blocks, Streets and Reserves; the same to be known as the Final Planned Unit Development, "THE CORNERSTONE FIRST ADDITION", an addition to the City of Andover, Butler County, Kansas, and being part of Cornerstone Preliminary Planned Unit Development.

The streets are hereby dedicated to and for the use of the public. Easements for the construction and maintenance of public utilities and drainage, are hereby granted to the public.

Reserves "A", "B", "C", and "D" are platted for monuments, landscaping, irrigation, berming, open space and drainage. Reserve "B" is also platted for sidewalks, and utilities in designated areas. Reserves "C" and "D" are also platted for drainage and utilities in designated areas. The reserves shall be owned and maintained by a homeowner's association and are reserved for uses stated in the Planned Unit Development General Provisions, provided however, that the undersigned or homeowner's association as the undersigned successors in interest may, at its discretion deed a parcel of Reserves "B", "C", and "D" to an owner(s) of an adjoining lot subject to the obligation to maintain such deeded parcel in compliance with the provisions hereof and in compliance with the maintenance covenants of any applicable restrictive covenants or regulations.

A drainage plan has been developed for this plat and all drainage easements, rights-of-way, or reserves shall remain at established grades or as modified with the approval of the applicable City or County Engineer, and unobstructed to allow for the conveyance of storm water.

Lots 1-15 Inclusive, Block 4, and Lots 1-15 Inclusive, Block 6, are required to adhere to the minimum pad elevation as shown on the "Minimum Pad Elevations" table on sheet 2/2.

GENERAL PROVISIONS

1. All utilities shall be installed underground. Easements shall be determined on the final PUD plan.

2. **Access Controls:**
21st Street North: Access to 21st Street North shall be limited to fourteen (14) openings. There shall be eight (8) total openings to Parcels 1, 2, and 3, provided that one of which shall be to major entrance serving Parcel 4 to the North, and provided there shall be complete access control on the east 175' of Parcel 1. There shall be six (6) total opening to Parcels 5 and 6, provided one of which shall be to major entrance serving the parcels to the North, and provided, there shall be complete access control on the west 175' of Parcel 6. As stated above, there shall be 2 major collector street entrances onto 21st Street North located accordingly, one within Parcel 3 and one within Parcel 5. The above openings shall be further defined upon filing for final PUD.

3. **Street Requirements:**
A. Arterial Streets: 50' half street right-of-way adjacent to residential zoning and 60' adjacent to commercial zoning, with 75' required within 250' of the arterial intersection with a 100' taper to the 50' or 60' Right Of Way.
B. Public Streets
1. The pavement section for public streets shall meet the City of Andover standards.
2. Right of way and pavement widths for public street are as follows
64' right of way - 35' roadway width (back of curb to back of curb) with curb and gutter.
60' right of way - 31' roadway width (back of curb to back of curb) with curb and gutter.
58' right of way - 29' roadway width (back of curb to back of curb) with curb and gutter.
3. There shall be no gated access on public streets.
4. Residential collector street right-of-way may be 60' with a 29' roadway width if designed with no residential driveway access points or on street parking. Commercial collector street right-of-way shall be 70' with a 41' roadway width.
C. Cul-de-sacs: All cul-de-sacs shall have a minimum property line diameter of 100 feet. Maximum length for a cul-de-sac shall not exceed 600 feet.

4. **Drainage:** An overall grading and drainage plan shall be provided as a separate instrument based on a hydrology study. This plan shall be general in character but establish the overall grading and drainage requirements. A final lot grading plan shall be submitted with each final PUD plan which shall include a minimum foundation opening elevation for each lot and elevations of any grading for drainage purposes and/or curb elevations.

5. **Signs:** Signs for all residential parcels designating the name of the development shall be permitted in reserves at the entrances to the overall project and to each of the proposed parcels. The maximum size shall be as per the City Code. The maximum size for each project identification sign shall be 150 square feet. No project signs shall be permitted in public right of way.

6. **Homeowners Associations:** A document to create and operate a homeowners association shall be filed with the final PUD plan of each parcel to provide for the maintenance of open space, reserves, parking areas, signs, logos, berms, landscaping, buffer areas, drainage channels, swales, hedge rows within adjacent arterial street right of ways, etc. Said document shall be received by the City and recorded with the Butler County Register of Deeds. Failure of the Homeowners Association(s) to properly maintain the areas listed above shall give the City the right to properly maintain the areas listed and to assess the cost of maintenance to the property owners.

7. **Restrictive Covenants:** Shall be filed with the final PUD plan for each parcel.

8. **Relationship to Comprehensive Plan:** The PUD is in keeping with Andover's Comprehensive Development Plan for this area. Appropriate city zoning and subdivision regulations have been utilized as a basis for design of the PUD. The amount of land designated for residential land use and related open space provides for an average area per dwelling unit, which is reflective of the R-2 single-family residential district; in that, said average lot area exceeds the 10,000 sq. ft. per lot requirement. Provided however, within Parcel 4 the minimum lot size may be as little as 8,500 square feet while maintaining an average lot area exceeding 10,000 sq. ft.

9. **Sidewalks:** Sidewalks are proposed along the collector streets and the loop roads within each parcel. The width of the sidewalk on collector streets shall be 6 feet and the width on local loop streets shall be 5 feet. The exact location will be determined at the time of the final PUD plan is submitted for each parcel.

PARCEL DESCRIPTION

Parcel No. 4 - (R-2 Zoning District)
Permitted Uses: All uses permitted in the R-2 zoning district of the Andover Zoning Regulations, provided however, the minimum lot size may be as little as 8,500 square feet while maintaining an average lot area exceeding 10,000 sq. ft.
Gross Area - 125.55 AC
Net Parcel Area - 100 AC
Maximum Dwelling Units - 340
Not to Exceed Net Density - 3.40 DU/AC
Maximum Lot Coverage - 35%
Maximum Building Height - 35 feet
Setbacks - As per zoning code except if two front yards abut a street then one side may be reduced to 15 feet. Except that 25 feet is required in front of garage door opening.
Parking Ratio - As per zoning code

OWNER'S CERTIFICATE

CHESTNUT RIDGE, LLC, A KANSAS LIMITED LIABILITY COMPANY, by: Ritchie Development Corporation, Manager
and
GREENWICH/4 LLC, A KANSAS LIMITED LIABILITY COMPANY, by: Ritchie Investment Company, Inc., Manager

_____________, Vice President
Rob Ramseyer, Vice President
Ritchie Development Corporation and Ritchie Investment Company, Inc.

STATE OF KANSAS, SEDGWICK COUNTY) ss

This instrument was acknowledged before me on 4 day of August, 2005, by Rob Ramseyer, Vice President of Ritchie Development Corporation and Ritchie Investment Company, as Managers of Chestnut Ridge, LLC, a Kansas Limited Liability Company and Greenwich/4 LLC, a Kansas Limited Liability Company, respectively.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, the day and year last above written.

CYNTHIA A. WOMACK Notary Public - State of Kansas My Appt. Expires 2-7-2009

Cynthia A. Womack, Notary Public
Notary Public Cynthia A. Womack
My Term Expires Feb. 7th, 2009.

MORTGAGE CERTIFICATE

We Intrust Bank, holders of a mortgage on the above described property, do hereby consent to the plat of "THE CORNERSTONE FIRST ADDITION."

INTRUST BANK, N.A.

_____________ Executive Vice President
Gary D. Schmitt, Executive Vice President

This instrument was acknowledged before me on 8th day of August, 2005, by Gary D. Schmitt, Executive Vice President, Intrust Bank.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, the day and year last above written.

SUSAN K. COOK Notary Public - State of Kansas My Appt. Expires 11/3/09

Susan K. Cook, Notary Public
Notary Public
Print name Susan K. Cook
My Term Expires 11/3/09

MKEC ENGINEERING CONSULTANTS
411 N. WEBB ROAD
WICHITA, KS. 67206
316-684-9600
www.mkec.com

FINAL PLANNED UNIT DEVELOPMENT

THE CORNERSTONE FIRST ADDITION

AN ADDITION TO ANDOVER, BUTLER COUNTY, KANSAS

LYING IN A PORTION OF THE SOUTHEAST QUARTER, SECTION 6, TOWNSHIP 27 SOUTH, RANGE 3 EAST, OF THE SIXTH PRINCIPAL MERIDIAN, TOGETHER WITH, A PORTION OF THE SOUTHWEST QUARTER OF THE NORTHEAST QUARTER, SECTION 6, TOWNSHIP 27 SOUTH, RANGE 3 EAST, OF THE SIXTH PRINCIPAL MERIDIAN and being part of the Cornerstone Preliminary Planned Unit Development

PLANNING COMMISSION CERTIFICATE

STATE OF KANSAS, BUTLER COUNTY} ss:

This Final Planned Unit Development, "THE CORNERSTONE FIRST ADDITION", an addition to the City of Andover, Butler County, Kansas, was approved by the Andover City Planning Commission.

Dated this 17th day of May, 2005.

ANDOVER PLANNING COMMISSION

Clark Nelson, Chair

Attest: Janice Cox, Secretary

GOVERNING BODY CERTIFICATE

STATE OF KANSAS, BUTLER COUNTY} ss:

The dedications shown on this Final Planned Unit Development, are hereby accepted by the Governing Body of the City of Andover, Kansas.

Dated this 14th day of June, 2005.

Ben Lawrence, Mayor

Attest: Jeffrey R. Bridges Jr., City Clerk

CITY OF ANDOVER CORPORATE SEAL ANDOVER, KANSAS

REGISTER OF DEEDS CERTIFICATE

STATE OF KANSAS, BUTLER COUNTY} ss:

This is to certify that this instrument was filed for record in the Register of Deeds office this 5th day of December, 2005, at 8:30 o'clock AM, and is duly recorded in Record Book ____, Page ____, Plat Book Q, Page 40B, Doc# ____, Fee 40.00

Marcia McCoy, Register of Deeds

Attest: Teresa Dawson, Deputy

TRANSFER RECORD

STATE OF KANSAS, BUTLER COUNTY} ss:

Entered on transfer record this 5th day of December, 2005.

Ron Roberts, County Clerk

COUNTY CLERK SEAL BUTLER COUNTY, KANSAS

LEGEND

- △ = Section Corner Monument Found
- o = Found Survey Monument (see annotated caption for type)
- • = Set 5/8" Rebar W/ MKEC CLS 39 Id. Cap
- (M) = Measured
- (CM) = Calculated from measured
- U.E. & D.E. = Utility Easement and Drainage Easement

MINIMUM PAD ELEVATIONS (LOWEST OPENINGS)		
LOTS	BLOCK	ELEVATION (NGVD)
1-11	4	1350.4
12-15	4	1355.2
1-15	6	1359.0

BENCH MARK

BM #1 Chiseled square on center of south headwall of RCB under 21st Street North, 243' East and 41' South of the South Quarter Corner of Sec. 6, T27S, R3E.
Elev. = 1345.60

BM #2 Chiseled square on top of curb at East return of East Drive to "Life Care Center", 994' East and 26.5' South of the South Quarter corner of Sec. 6, T27S, R3E.
Elev. = 1348.78

BM #4 Chiseled square on Southeast corner of curb inlet at North end of Northeast return at 21st Street North and Andover Road, 89.5' North and 36.5' East of the Southeast Corner of Sec. 6, T27S, R3E.
Elev. = 1340.69

BM #6 "T-post" 48' +/- West of traveled way of Andover Road and 50'+/- South of the centerline of the South drive into cemetery, 373' South and 68' West of the East Quarter Corner of Sec. 6, T27S, R3E.
Elev. = 1354.00

RESERVE "E" CURVE TABLE			
CURVE	LENGTH	RADIUS	DELTA
C10	7.03'	2.50'	161°12'05"
C11	93.74'	638.50'	08°24'42"
C12	163.30'	300.00'	31°11'16"
C13	92.26'	338.50'	15°37'00"
C14	29.71'	9.52'	178°51'27"
C15	92.60'	343.50'	15°26'46"
C16	183.12'	300.00'	34°58'23"
C17	75.76'	643.50'	06°44'43"

2/2