

PROPOSED TERRA RETAIL SUBDIVISION AND FACILITY FOR ASHLEY FURNITURE AT LOT 3

A TRACT OF LAND BEING PART OF THE NORTHWEST QUARTER OF FRACTIONAL SECTION 5,
TOWNSHIP 46 NORTH, RANGE 3 EAST OF THE 5TH PRINCIPAL MERIDIAN
CITY OF O'FALLON, ST. CHARLES COUNTY, MISSOURI
EXISTING ZONING: "C-2" (GENERAL BUSINESS DISTRICT)



LEGEND

EXISTING CONTOURS	----- 120 -----
PROPOSED CONTOURS	----- 120 -----
EXISTING SANITARY SEWERS	-----○-----
EXISTING STORM SEWERS	-----□-----
PROPOSED SANITARY SEWERS	-----●-----
PROPOSED STORM SEWERS	-----■-----
EXISTING RIGHT-OF-WAY	-----
PROPOSED RIGHT-OF-WAY	-----
CENTERLINE	-----
EASEMENT	-----
NON-REINFORCED CONCRETE PAVEMENT	[Pattern]
EXISTING SPOT ELEVATION	+ EX. 120.15
PROPOSED SPOT ELEVATION	+ 120.10
SWALE	-----
TO BE REMOVED	T.B.R.
TO BE REMOVED & RELOCATED	T.B.R. & R.
TO BE USED IN PLACE	U.I.P.
BACK OF CURB	B.C.
FACE OF CURB	F.C.
TRASH ENCLOSURE	[X]
LIGHT STANDARD	[Star]
GAS MAIN	----- G -----
WATER MAIN	----- W -----
UNDERGROUND TELEPHONE	----- T -----
FIRE HYDRANT	[Hydrant]
POWER POLE	[Pole]
HAY BALE	[Bale]
SILTATION CONTROL	----- X -----
PROPOSED	PR

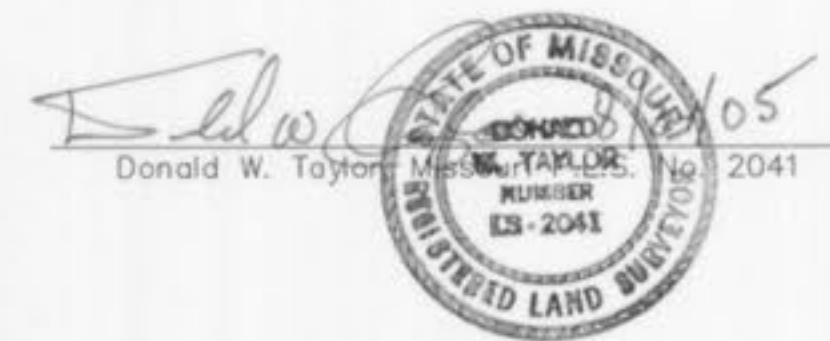
AS BUILT PLANS

AS-BUILT

SANITARY AND STORM SEWER MEASUREMENTS

The existing sewer lengths, sizes, flowlines, depths of structures and sewers and locations with respect to existing or proposed easements have been measured. The results of those measurements are shown on this set of Final Measurement Plans. Since the wye locations have been plotted from information provided by the sewer contractor or other sources, I disclaim any responsibility for that specific information.

All public sewers are located within designated existing or proposed easements.



INDEX

- 1 TITLE SHEET
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- 3 STORM SEWER PROFILES, DETAILS AND HYDRAULICS
- 4 SANITARY SEWER PROFILE AND DETAILS

PERTINENT DATA

OWNER	= HIGHWAY K INVESTMENTS, L.L.C.
ZONING	= "C-2" COMMERCIAL DISTRICT
SITE ACREAGE	= 7.82 ± Acres
SITE ADDRESS	= 2331 HIGHWAY K O'FALLON, MISSOURI 63376
FIRE DISTRICT	= O'FALLON FIRE PROTECTION DISTRICT
SEWER DISTRICT	= CITY OF O'FALLON
WATER SHED	= DARDENNE CREEK
WATER SERVICE	= ST. CHARLES WATER NO. 2
GAS SERVICE	= LACLEDE GAS COMPANY
ELECTRIC SERVICE	= AmerenUE ELECTRIC COMPANY
PHONE SERVICE	= CENTURY-TEL TELEPHONE
DEED BOOK	= DB. 3280 PG. 1135
PARCEL ID#	= 2-0067-S005-00-2
F.I.R.M. MAP	= 29183C0239 E (REVISED AUGUST 2, 1996)
WUNNENBERG'S	= PG. 45, GRID SS-18

ABBREVIATIONS

C.O.	= CLEANOUT
DB.	= DEED BOOK
E	= ELECTRIC
FL	= FLOWLINE
FT	= FEET
FND.	= FOUND
G	= GAS
M.H.	= MANHOLE
N/F	= NOW OR FORMERLY
PB.	= PLAT BOOK
PG.	= PAGE
P.V.C.	= POLYVINYL CHLORIDE PIPE
R.C.P.	= REINFORCED CONCRETE PIPE
D.I.P.	= DUCTILE IRON PIPE
SQ.	= SQUARE
T	= TELEPHONE CABLE
V.C.P.	= VETRIIFIED CLAY PIPE
W	= WATER
(86'W)	= RIGHT-OF-WAY WIDTH
N.T.S.	= NOT TO SCALE

- △ 08/23/05 AS BUILT
- △ 04/29/05 REVISED WATER LINE PER PHSD NO. 2 COMMENTS
- △ 04/26/05 REVISED FOR MoDOT COMMENTS
- △ 04-21-05 REVISED WATER LINE CONNECTION
- △ 04-15-05 REVISED SANITARY SEWER
- △ 04-12-05 REVISED SANITARY SEWER-EX. WATER LINE CONFLICT
- △ 04-07-05 REVISED SANITARY SEWER PER AS-BUILT CONDITIONS
- △ 02-15-05 REVISED SANITARY PROFILE-SHOWED EX. STORM CROSSING
- △ 01-20-05 REVISED PER MoDOT'S COMMENTS/RAISED SITE
- △ 12-16-04 REVISED PER ST. CHARLES COUNTY WATER NO. 2 COMMENTS
- △ 11-24-04 REVISED PER CITY COMMENT LETTER DATED 11-15-04

CURRENT PROPERTY OWNER:
HIGHWAY K INVESTMENTS, L.L.C.
16923 PACLAND RIDGE DRIVE
CHESTERFIELD, MISSOURI 63005

U.S.G.S. BENCHMARK

ELEV. 568.69 CHISEL SQUARE ON THE WEST SIDE OF 2 FOOT DIAMETER CONCRETE BASE OF FLASHING YELLOW LIGHT WITH PEDESTRIAN CROSSING SIGN ON THE EAST SIDE OF HIGHWAY K, 106± NORTH OF BABBLE CREEK.

PREPARED FOR DEVELOPER/OWNER OF PROPOSED LOT 3 (UNDER CONTRACT)
B & S PROPERTIES
310 SOUTH FILLMORE AVENUE
ST. LOUIS, MO 63122
(314) 965-3525, EXT. 1203
FAX (314)821-7978

SITE BENCHMARK

ELEV. 615.12 IRON PIPE AT SOUTHEAST CORNER OF RICHARD AND DOROTHY WOLF PROPERTY AS DESCRIBED IN DEED BOOK 404 PAGE 418, 5.8' WEST OF DOUBLE UTILITY POLE.

UTILITY NOTE:

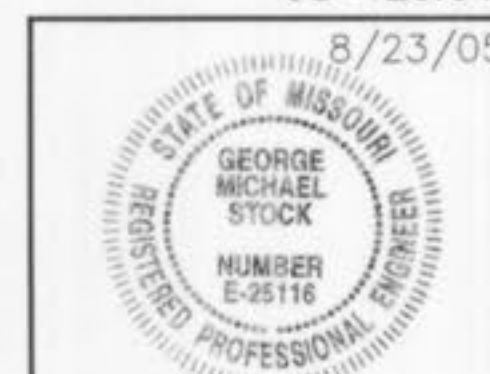
UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS, RECORDS AND INFORMATION, AND THEREFORE DO NOT NECESSARILY REFLECT THE ACTUAL EXISTENCE, NONEXISTENCE, SIZE, TYPE, NUMBER, OR LOCATION OF THESE FACILITIES, STRUCTURES AND UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE ACTUAL LOCATION OF ALL UNDERGROUND FACILITIES, STRUCTURES, AND UTILITIES, EITHER SHOWN OR NOT SHOWN ON THESE PLANS. THE UNDERGROUND FACILITIES, STRUCTURES, AND UTILITIES SHALL BE LOCATED IN THE FIELD PRIOR TO ANY GRADING, EXCAVATION OR CONSTRUCTION OF IMPROVEMENTS. THESE PROVISIONS SHALL IN NO WAY ABSOLVE ANY PARTY FROM COMPLYING WITH THE UNDERGROUND FACILITY SAFETY AND DAMAGE PREVENTION ACT, CHAPTER 319 RSMo. FIBER OPTICS EXIST WITHIN PROJECT AREA



MoDOT 314-340-4100

STOCK AND ASSOCIATES CONSULTING ENGINEERS, INC. AND THE UNDERSIGNED ENGINEER HAVE NO RESPONSIBILITY FOR SERVICES PROVIDED BY OTHERS TO IMPLEMENT THE IMPROVEMENTS SHOWN ON THIS PLAN AND ALL OTHER DRAWINGS WHERE THE UNDERSIGNED ENGINEER'S SEAL APPEARS. THE CONSTRUCTION MEANS AND METHODS ARE THE SOLE RESPONSIBILITY OF THE OWNER AND CONTRACTOR. STOCK AND ASSOCIATES CONSULTING ENGINEERS, INC. HAS NO RESPONSIBILITY TO VERIFY FINAL IMPROVEMENTS AS SHOWN ON THIS PLAN UNLESS SPECIFICALLY ENGAGED AND AUTHORIZED TO DO SO BY THE OWNER OR CONTRACTOR.

P&Z NOS: 98-126.03
98-126.04



GEORGE M. STOCK E-25116

TITLE SHEET			
TERRA RETAIL DEVELOPMENT/ASHLEY FURNITURE			
STOCK & ASSOCIATES		257 Chesterfield Business Parkway St. Louis, MO 63005 PH (636) 530-9100 FAX (636) 530-9130 e-mail: general@stockassoc.com Web: www.stockassoc.com	
Consulting Engineers, Inc.			
DRAWN BY:	DATE:	CHECKED BY:	DATE:
J.P.P.	10/20/04	G.M.S.	10/20/04
JOB NUMBER		SHEET	
204-3381		1 of 4	



(IN FEET)
1 inch = 40 ft.



ZONED C2

IBT DEVELOPMENT

589°28'00"E

293.17'

ZONED C2

S87°47'36"E 293.18'

LOT 1
1.207 Ac±

LOT 2
1.313 Ac±

MISSOURI STATE HIGHWAY K

ZONED C-2
USE-RETAIL

COMMERCIAL - ENTRY

ZONED C-2
USE-RETAIL

AS-BUILT

SANITARY AND STORM SEWER MEASUREMENTS

The existing sewer lengths, sizes, flowlines, depths of structures and sewers and locations with respect to existing or proposed easements have been measured. The results of those measurements are shown on this set of Final Measurement plans. Since the wye locations have been plotted from information provided by the sewer contractor or other sources, I disclaim any responsibility for that specific information.

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Donald W. Taylor
Donald W. Taylor, Missouri
Professional Engineer
No. 25116
State of Missouri
Professional Engineer
No. 25116

ASHLEY FURNITURE
LOT 3
5.243 Ac±
PROPOSED BUILDING
54,000 sq. ft.±
(F.F.=596.00)
215 PARKING SPACES

HIGHWAY K INVESTMENTS, L.L.C.
DB. 3280 P.G. 11.35

WOOD CREST
FLATIRON
P.B. 14 PG. 42
ZONED R1-E
USE-RESIDENTIAL

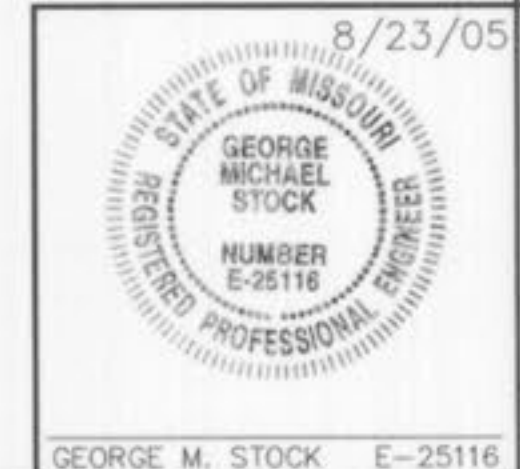
- NOTES:
- 1.) ALL STORM SEWERS ARE PRIVATE.
 - 2.) CONSTRUCTION OF PUBLIC PORTION OF WATER LINE TO COMPLY WITH "STANDARD SPECIFICATIONS OF PUBLIC WATER SUPPLY DISTRICT NO. 2 OF ST. CHARLES COUNTY-DATED JUNE 2004" AS APPROVED BY MNR, REVIEW NO. 61996-04.
- ▲ 08/23/05 AS BUILT
 - ▲ 04/29/05 REVISED WATER LINE PER PWSO NO. 2 COMMENTS
 - ▲ 04/26/05 REVISED FOR MGDOT COMMENTS
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INFORMATION ON LOCATION OF EXISTING WATER LINE AND EASEMENT PROVIDED BY PUBLIC WATER SUPPLY DISTRICT NO. 2 OF ST CHARLES COUNTY, APRIL 18, 2005"

UTILITY PLAN TERRA RETAIL DEVELOPMENT/ASHLEY FURNITURE

P&Z NOS: 98-126.03
98-126.04

8/23/05



STOCK & ASSOCIATES
Consulting Engineers, Inc.

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e-mail: general@stockassoc.com
Web: www.stockassoc.com

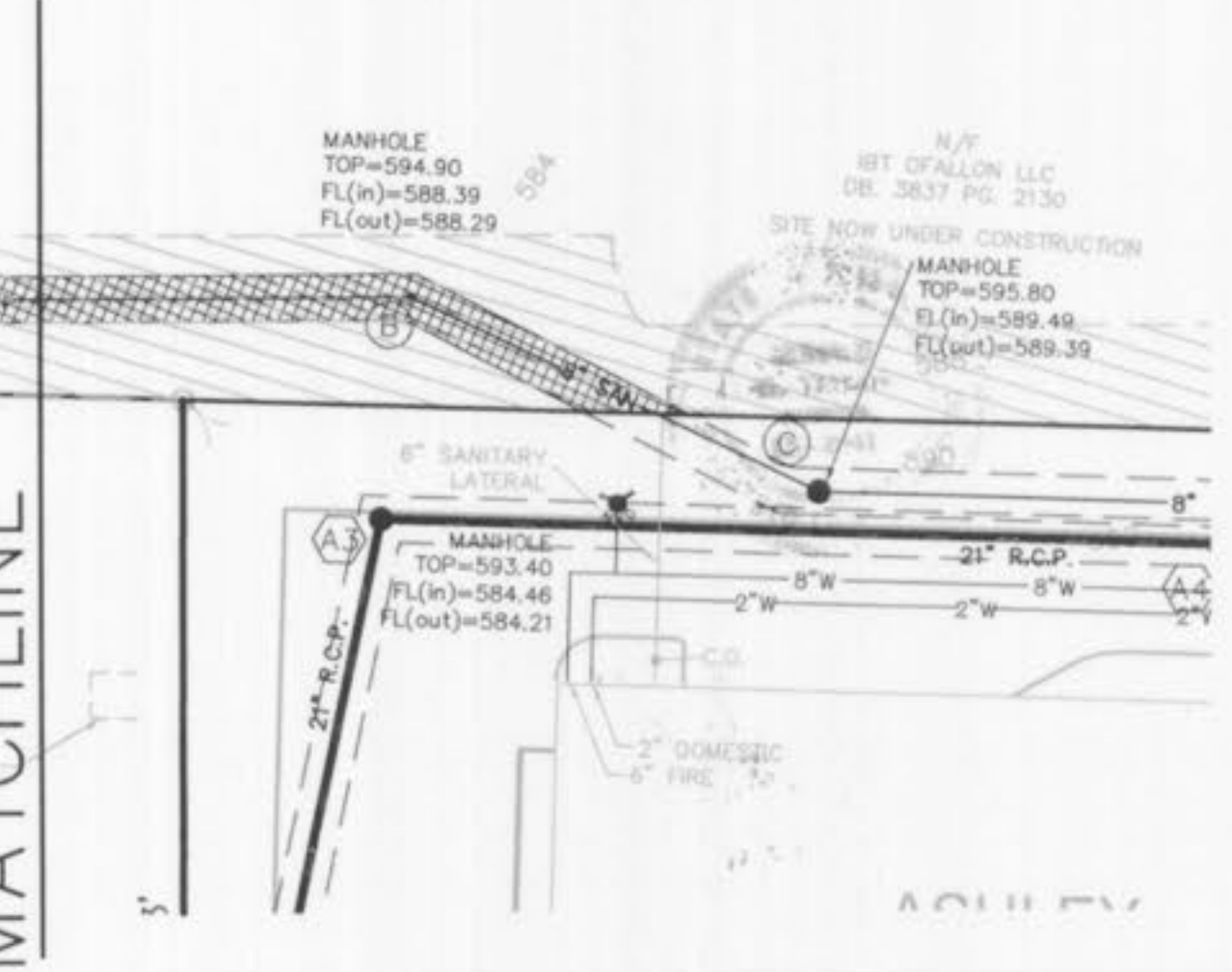
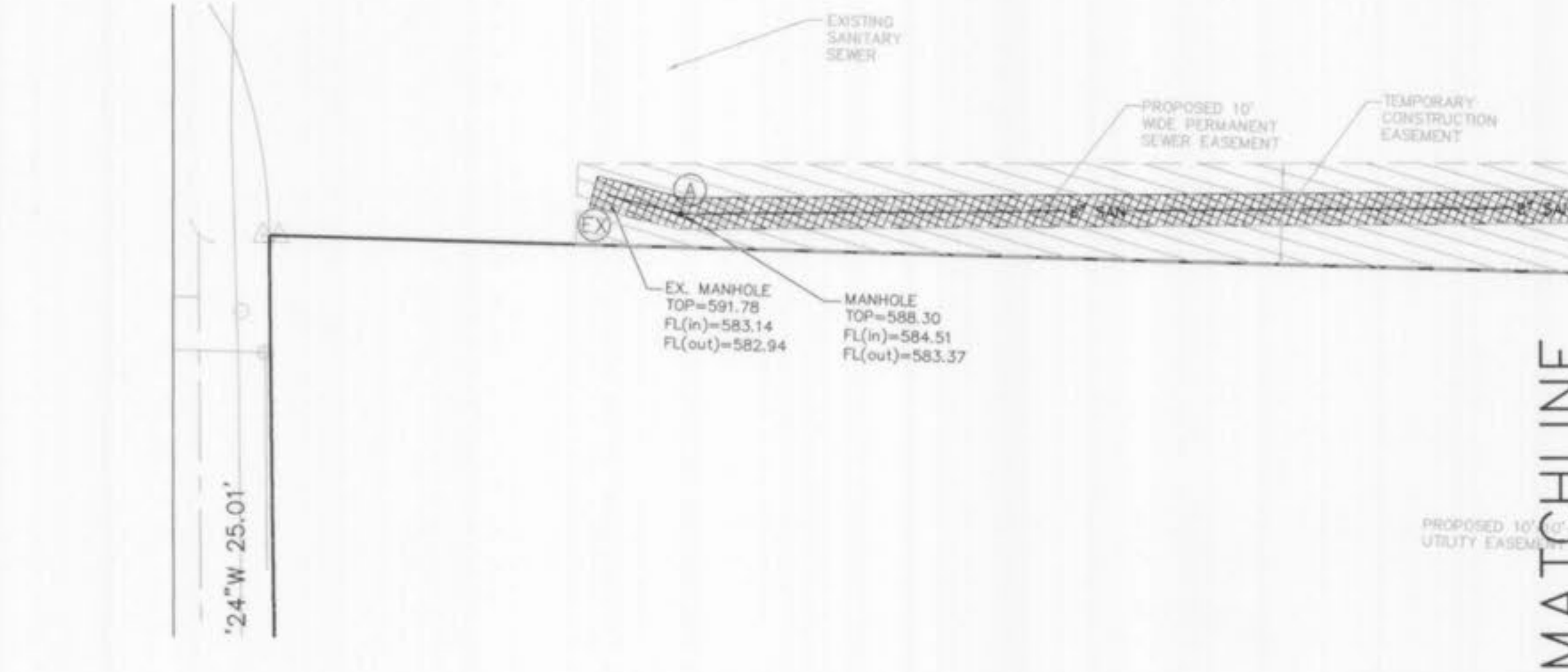
DRAWN BY: J.P.P.	DATE: 10/20/04	CHECKED BY: G.M.S.	DATE: 10/20/04	JOB NUMBER: 204-3381	SHEET: 2 of 4
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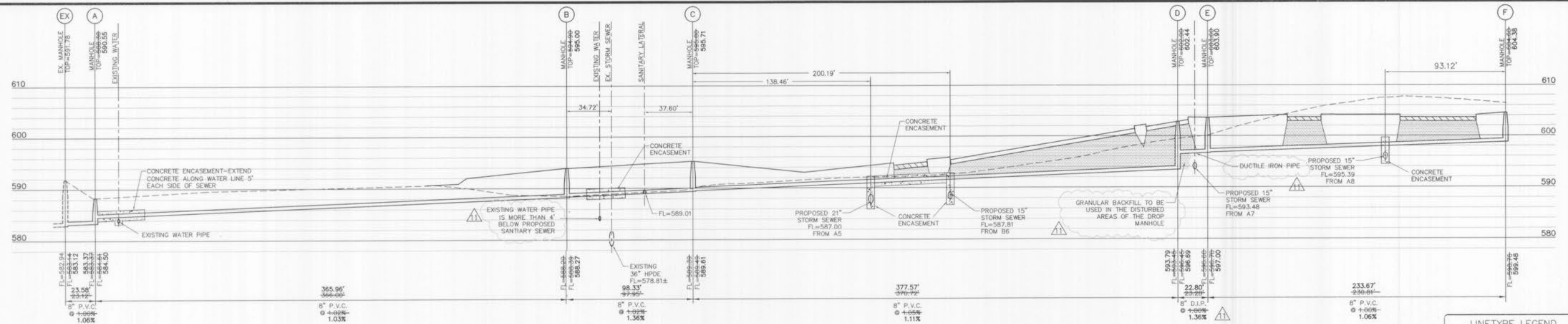
N87°46'00"W 440.26'

N87°46'00"W 809.32'

S02°14'00"W 160.66'

EXISTING WATER MAIN (SIZE UNKNOWN)-APPROX. LOCATION
30" WATER MAIN EASEMENT (APPROXIMATE LOCATION)

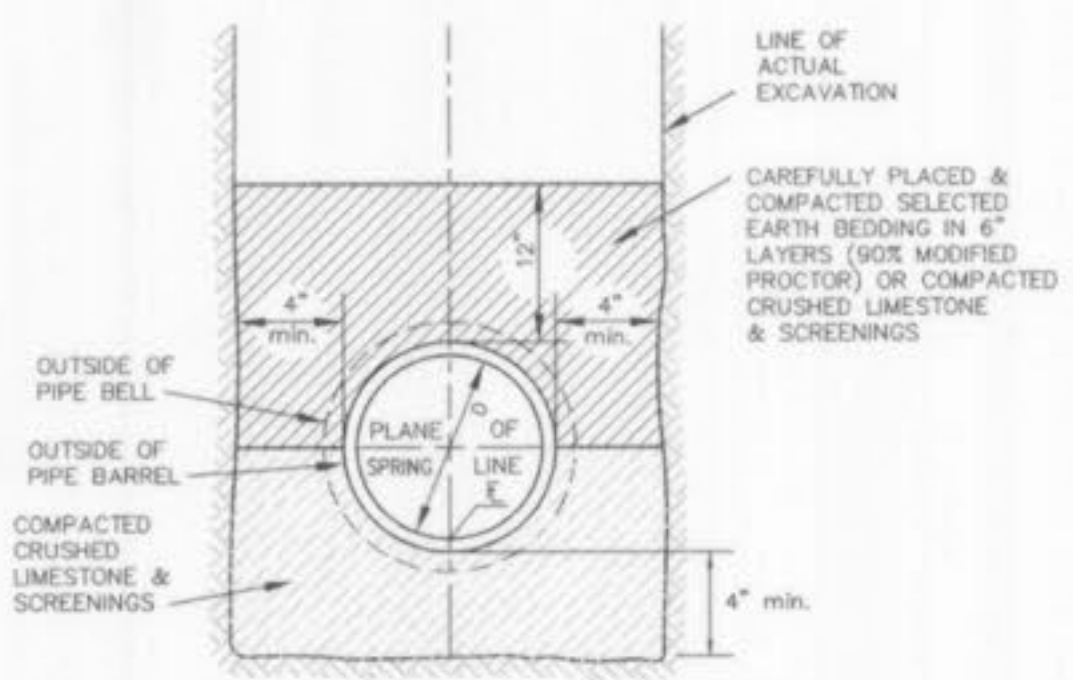




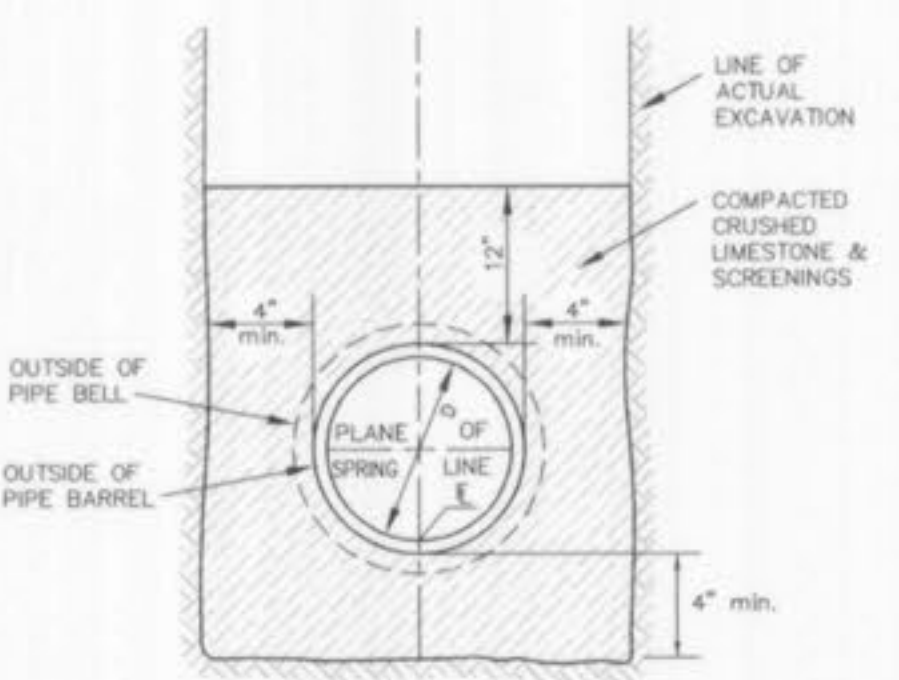
SANITARY SEWER PROFILE
 HORIZONTAL SCALE: 1"=40'
 VERTICAL SCALE: 1"=10'

LINE TYPE LEGEND

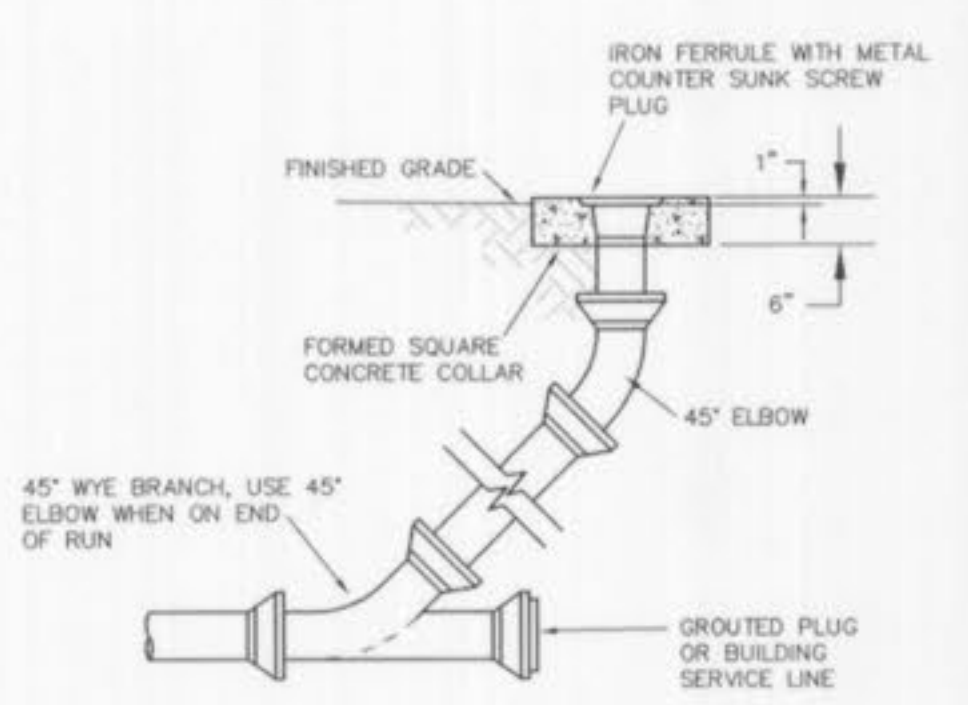
EXISTING GRADE	---
PROPOSED GRADE	---
HYDRAULIC GRADE	---
PROPOSED PAVEMENT	---
GRANULAR BACKFILL	---
COMPACTED FILL	---



PIPE BEDDING CLASS "C"
 (MODIFIED FOR REINFORCED CONCRETE PIPE)



PIPE BEDDING CLASS "C"
 (FOR ALL PIPE EXCEPT REINFORCED CONCRETE PIPE)



CLEANOUT DETAIL
 (n.t.s.)

AS-BUILT

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Donald W. Taylor, P.E. 2041
 PROFESSIONAL ENGINEER
 MISSOURI
 LICENSE NO. 2041

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DETAILS AND SANITARY SEWER PROFILE
 TERRA RETAIL DEVELOPMENT/ASHLEY FURNITURE

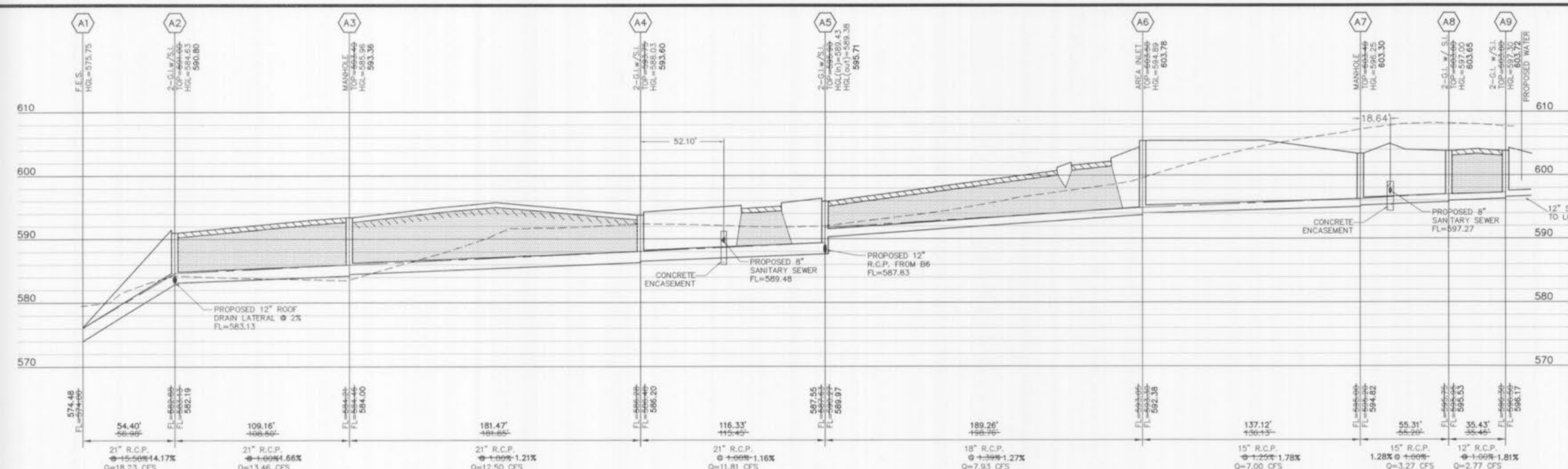
P&Z NOS: 98-126.03
 98-126.04

8/23/05
 GEORGE M. STOCK
 REGISTERED PROFESSIONAL ENGINEER
 MISSOURI
 LICENSE NO. E-25116

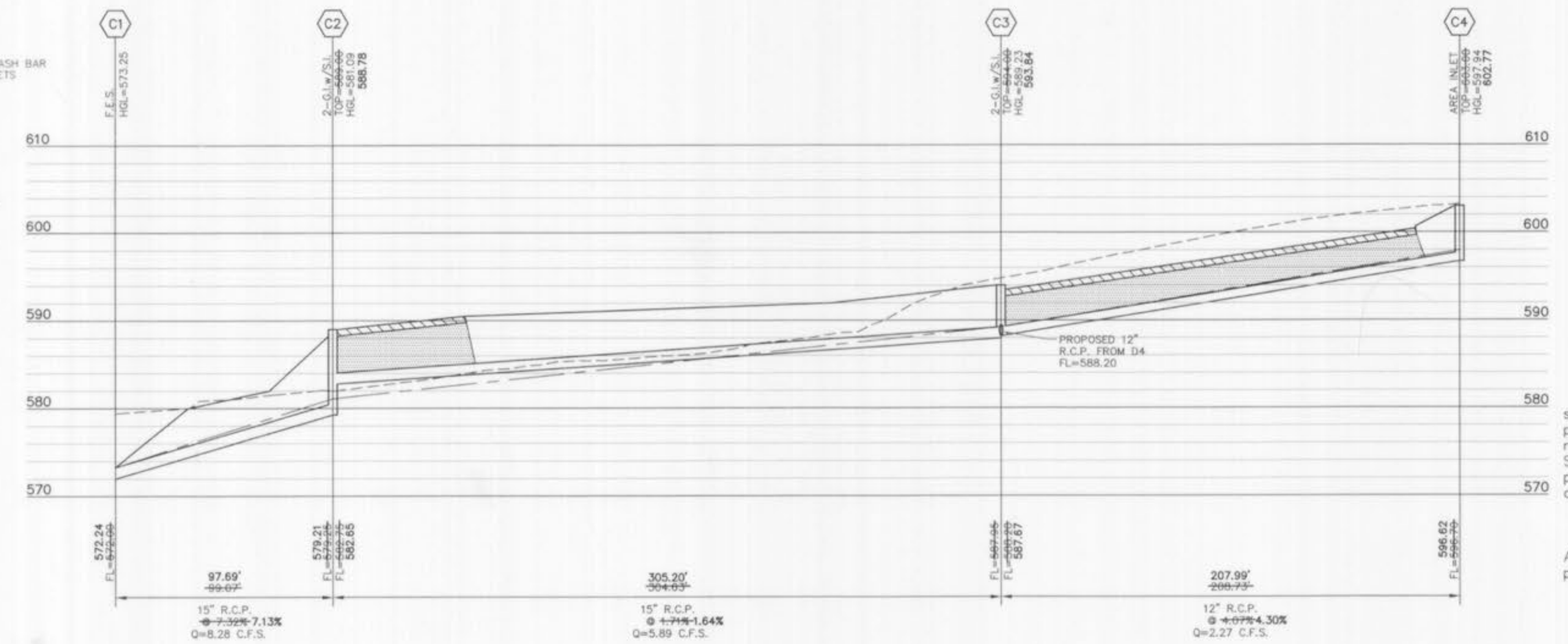
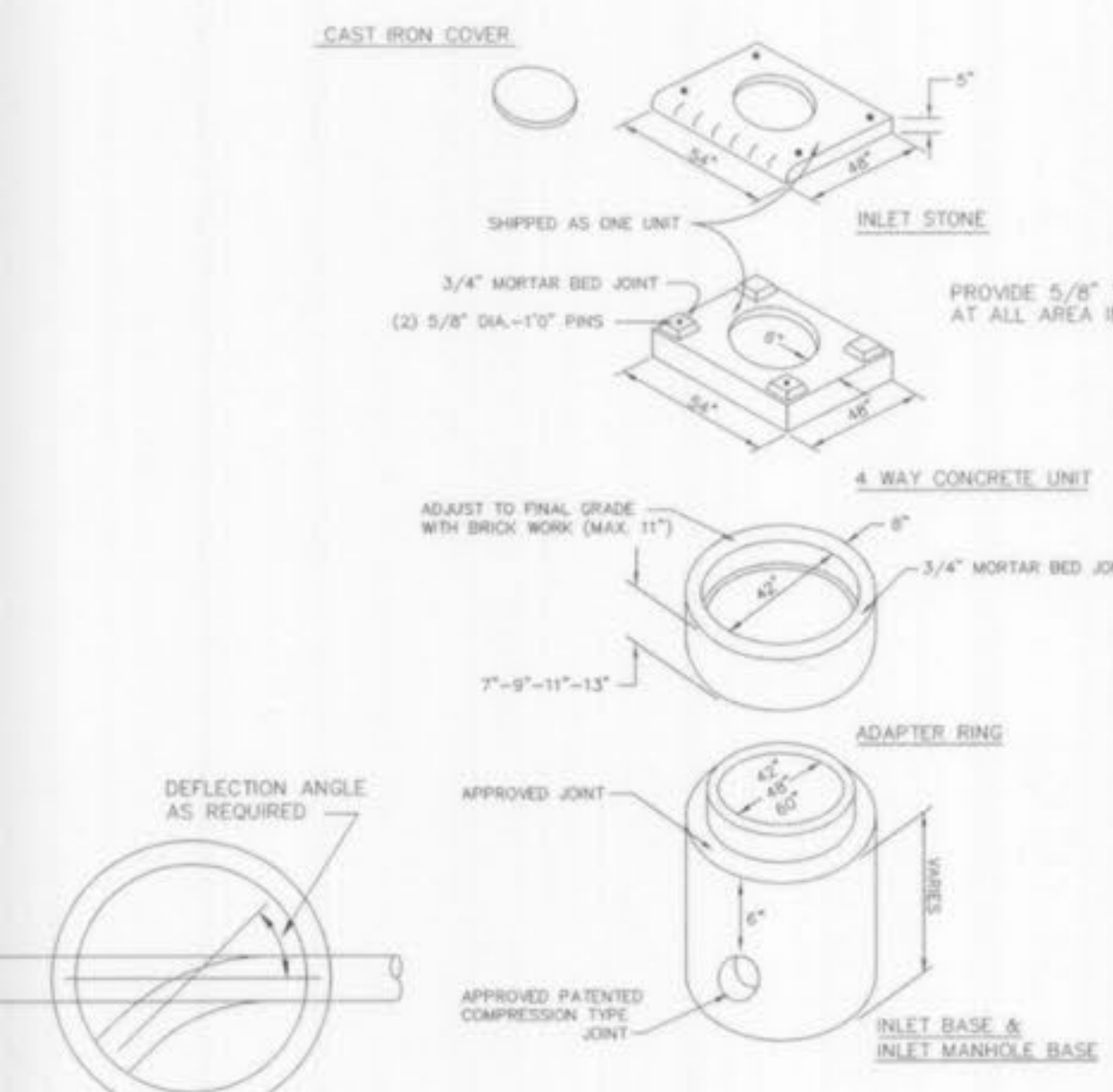
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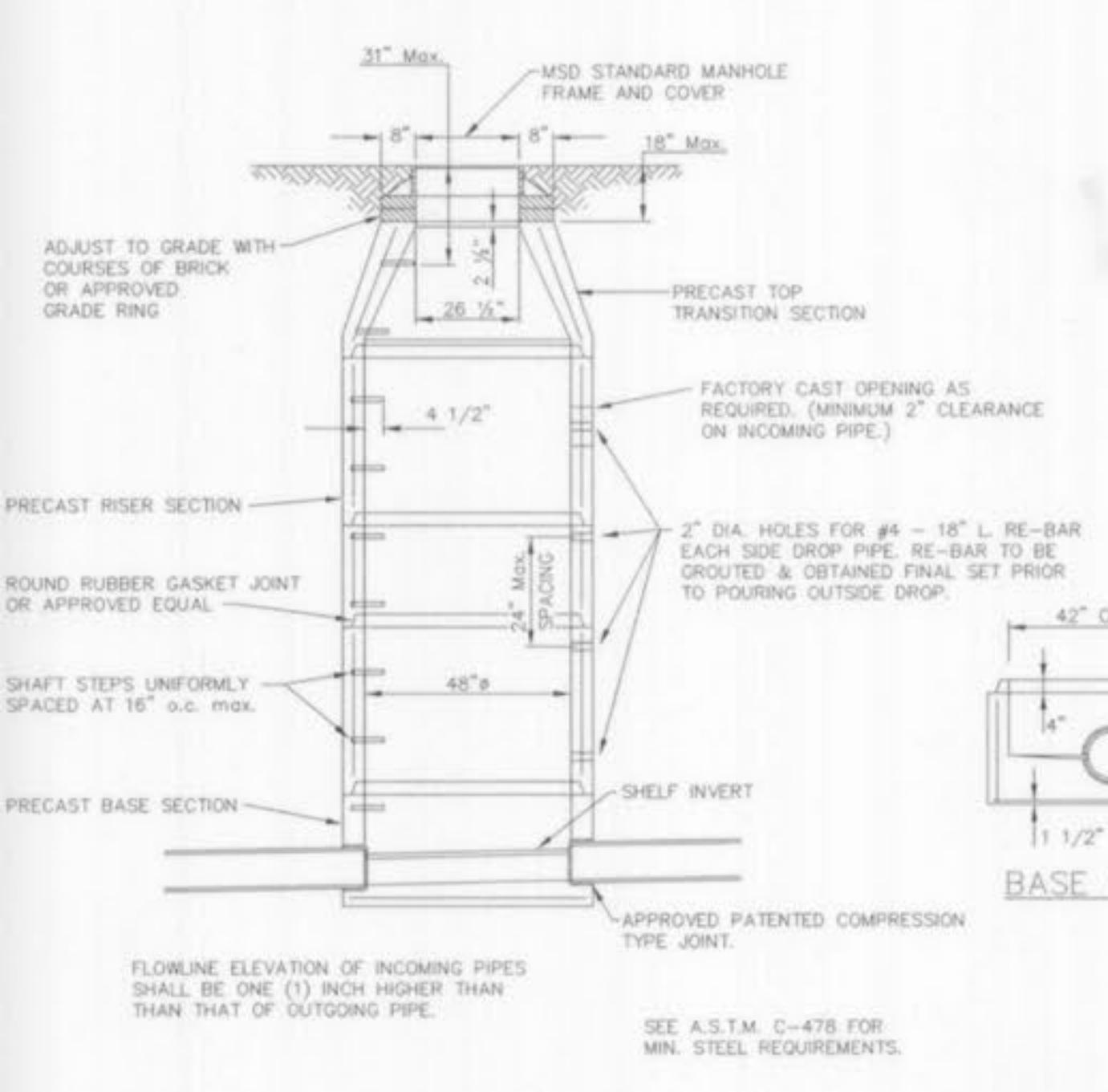
DATE: 10/20/04
 CHECKED BY: G.M.S.
 DATE: 10/20/04
 SHEET: 3 of 4



PRIVATE STORM SEWER PROFILE
HORIZONTAL SCALE: 1"=40'
VERTICAL SCALE: 1"=10'



PRIVATE STORM SEWER PROFILE
HORIZONTAL SCALE: 1"=40'
VERTICAL SCALE: 1"=10'



PRECAST MANHOLE
(n.l.s.)

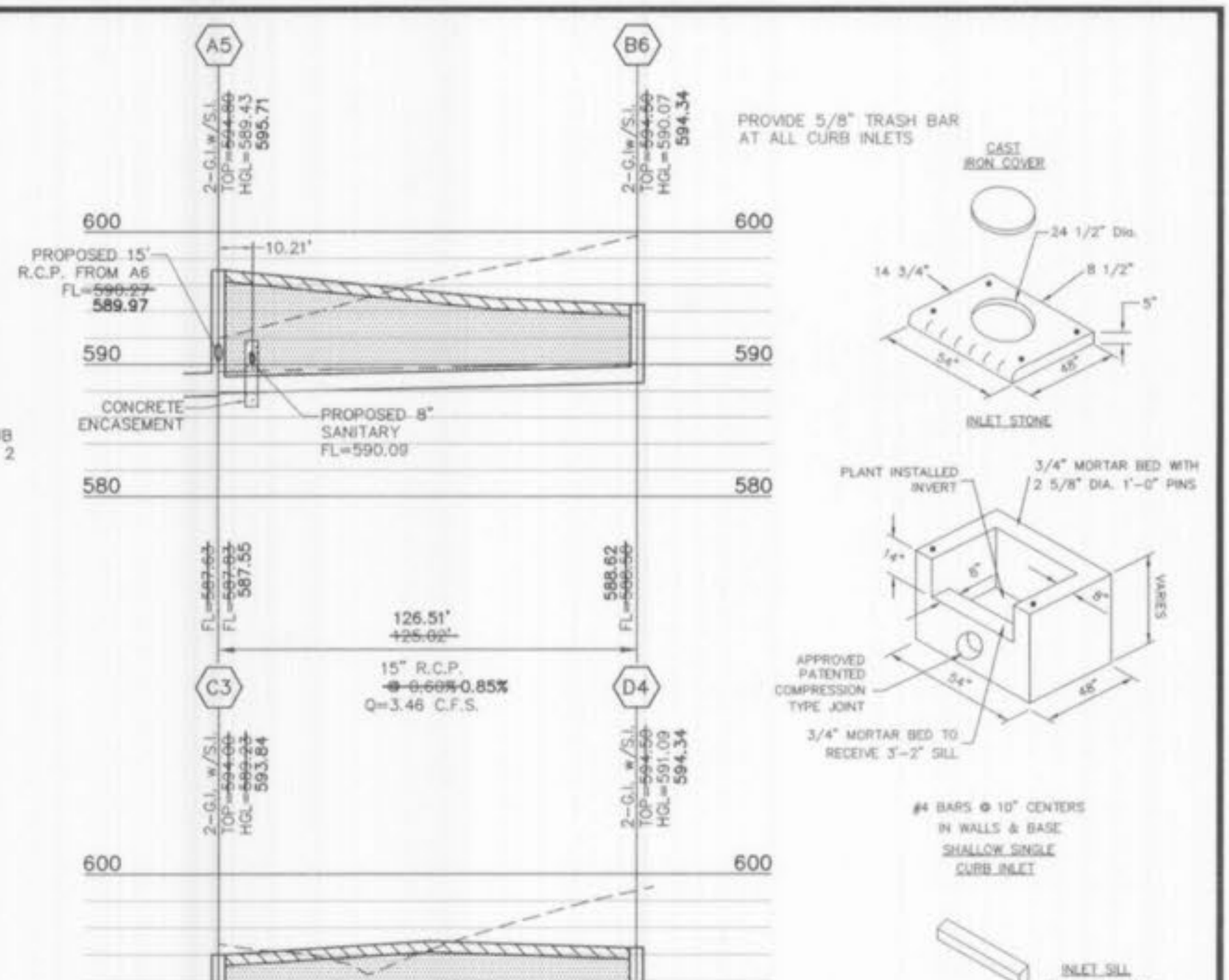
HYDRAULIC CALCULATION SHEET (SEE DRAINAGE AREA MAP SHEET C13 FOR PL AND Q (inflow) FOR EACH STRUCTURE)

Project name: **ASHLEY FURNITURE** Calculated By: **JPP**
 Project number: **204-3381** Checked By: **GMS**
 Storm: **1/2" - 20min** Date: **08-23-05 AS-BUILT**

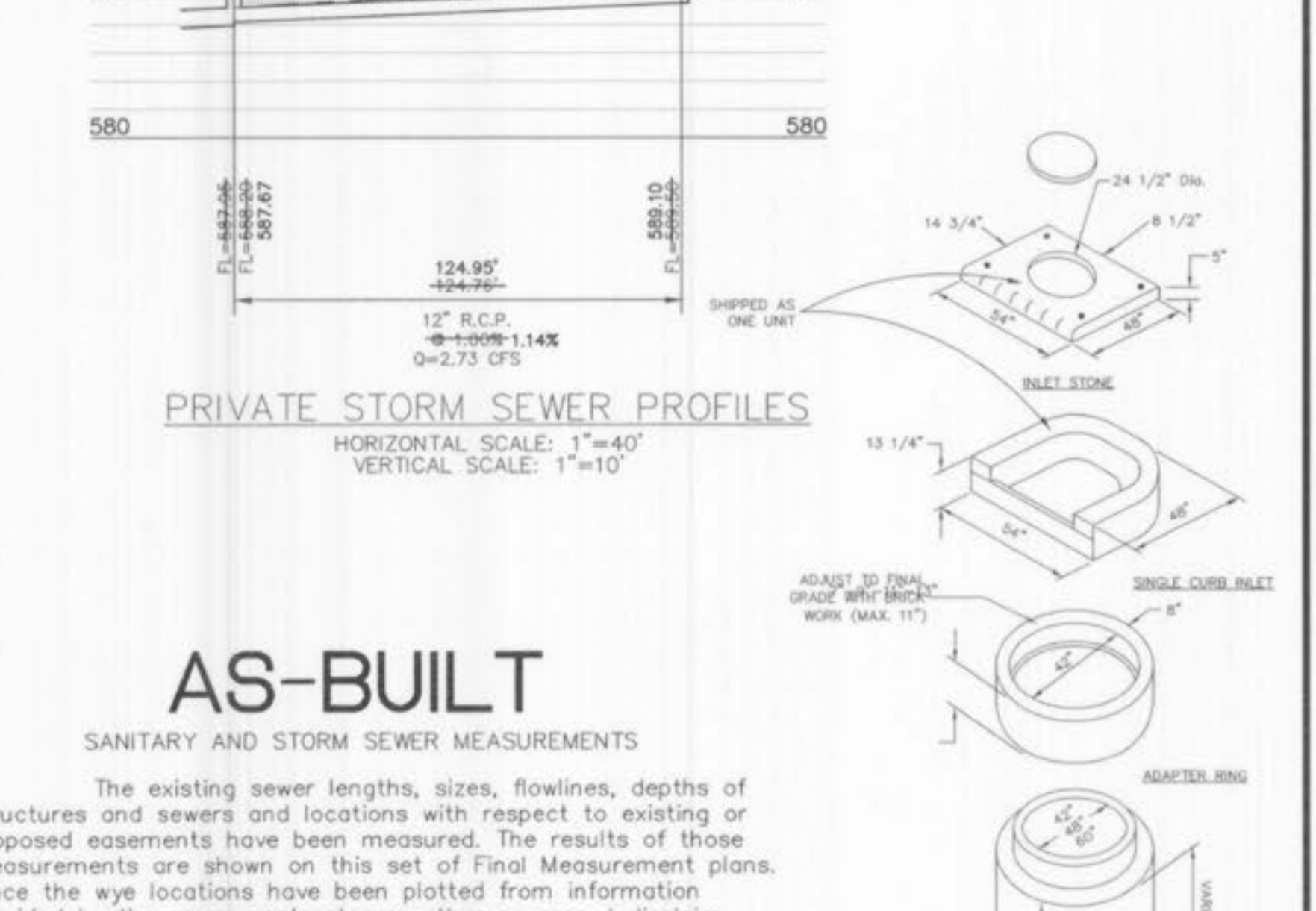
Structure	Upper	Lower	ELEVATIONS	Length	Flowline	Pipe Size	Full Flow	Head Loss								Hydraulic Elevation				Structure	TOP	Free	Structure		
								15"=0.06	20"=0.24	35"=0.4	50"=0.50	65"=0.57	80"=0.65	15"=0.11	25"=0.30	45"=0.47	65"=0.55	75"=0.62	85"=0.67					H	Junction
A9	A8	A8	596.17	595.53	35.43	0.0181	12	4.80	2.77	3.53	0	0.19	0.54	0.013	0.21	0.00	0.00	0.00	597.17	596.99	596.78	597.17	603.72	6.55	A9
A8	A7	A7	595.53	594.82	55.31	0.0128	15	7.34	3.77	2.66	0	0.11	0.36	0.013	0.14	0.00	0.00	596.78	596.21	596.07	596.78	603.65	6.87	A8	
A7	A6	A6	594.82	593.38	137.12	0.0128	15	8.64	7.00	5.70	0	0.51	3.54	0.013	1.01	0.00	0.00	596.07	595.49	593.88	596.07	603.30	7.71	A7	
A6	A5	A5	593.38	589.67	189.26	0.0127	18	11.89	7.93	4.49	0	0.31	2.48	0.013	1.08	0.00	0.00	595.49	593.88	593.55	593.88	603.78	9.90	A6	
A5	A4	A4	587.55	586.20	116.53	0.0116	21	17.12	11.81	4.91	0	0.57	4.42	0.013	0.65	0.00	0.00	589.30	588.60	587.95	589.30	595.71	6.41	A5	
A4	A3	A3	586.20	584.00	181.47	0.0121	21	17.49	12.50	5.20	0	0.42	5.24	0.013	1.13	0.00	0.00	587.95	586.88	585.75	587.95	593.60	5.65	A4	
A3	A2	A2	584.00	582.19	109.16	0.0166	21	20.46	13.46	5.60	0	0.49	6.55	0.013	0.79	0.00	0.00	585.75	584.73	583.94	585.75	593.36	7.61	A3	
A2	A1	A1	582.19	574.48	54.80	0.1417	21	59.81	18.23	7.58	0	0.89	16.26	0.013	0.72	0.00	0.00	583.94	578.92	578.23	583.94	590.80	6.86	A2	
A1	A1	A1	574.48															574.48						A1	
B6	B6	A5	588.62	587.55	126.51	0.0083	15	3.96	3.46	2.82	0	0.12	0.43	0.013	0.36	0.13	0.11	0.24	589.87	589.79	589.43	590.11	594.34	4.23	B6
A5	A5	A5	587.55																SET HGL (CALCULATED FROM ABOVE DATA)	589.43				A5	
C4	C4	C3	596.62	587.62	207.99	0.0430	12	7.41	2.77	2.80	0	0.13	0.29	0.013	0.84	0.11	0.13	0.24	597.62	589.78	588.95	597.86	602.77	4.91	C4
C3	C3	C2	587.62	582.65	304.63	0.0163	15	8.31	5.89	4.80	0	0.36	2.11	0.013	2.53	0.00	0.03	0.03	588.92	586.43	583.90	588.95	593.84	4.89	C3
C2	C2	C1	579.21	572.24	90.07	0.0794	15	17.18	8.28	6.75	0	0.71	5.85	0.013	1.63	0.31	0.28	0.59	580.46	575.13	573.49	581.05	588.78	7.71	C2
C1	C1	C1	572.24																SET HGL	573.24					C1
D4	D4	C3	589.10	587.62	124.95	0.0114	12	3.82	2.73	3.48	0	0.19	0.51	0.013	0.73	0.31	0.28	0.59	590.10	589.96	589.23	590.69	594.34	3.65	D4
A1	A1	A1	587.62																SET HGL - TOP OF DOWNSTREAM PIPE	589.23					C3

FORMULAS:
 MEAN FULL FLOW VELOCITY: $V = Q_{avg}/A_{avg}$
 FRICTION LOSS (ft): $HF = 2.47 \cdot L \cdot (V^{1.49})$
 VELOCITY HEAD: $V_h = V^2/2g$
 JUNCTION LOSSES (JUNC) = $(Q_1 V_{h1} - \sum Q_i V_{hi}) / 1.33 Q_{out}$
 BEND LOSSES (BEND) = $(V_h) \times$ ANGLE COEFFICIENT

Note: 1. IF MORE THAN ONE INCOMING LINE, CALCULATE EACH BEND LOSS AND ADD TOGETHER.
 2. NO STRUCTURE LOSSES TO BE CALCULATED AT A DROP.
 3. IF $Q_{down} > Q_{up}$, NO JUNCTION LOSSES TO BE CALCULATED.



PRIVATE STORM SEWER PROFILES
HORIZONTAL SCALE: 1"=40'
VERTICAL SCALE: 1"=10'



CURB INLET DETAILS
(n.l.s.)

AS-BUILT
SANITARY AND STORM SEWER MEASUREMENTS

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- LINETYPE LEGEND**
- EXISTING GRADE: - - - - -
 - PROPOSED GRADE: ————
 - HYDRAULIC GRADE: ————
 - PROPOSED PAVEMENT: ————
 - GRANULAR BACKFILL: [Pattern]
 - COMPACTED FILL: [Pattern]
- 08/23/05 AS BUILT
 - 04/29/05 REVISED WATER LINE PER PWS NO. 2 COMMENTS
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8/23/05

SEWER PROFILES, DETAILS, AND HYDRAULICS
TERRA RETAIL DEVELOPMENT/ASHLEY FURNITURE

STOCK & ASSOCIATES
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Web: www.stockassoc.com

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J.P.P. 10/20/04 G.M.S. 10/20/04 204-3381 4 of 4