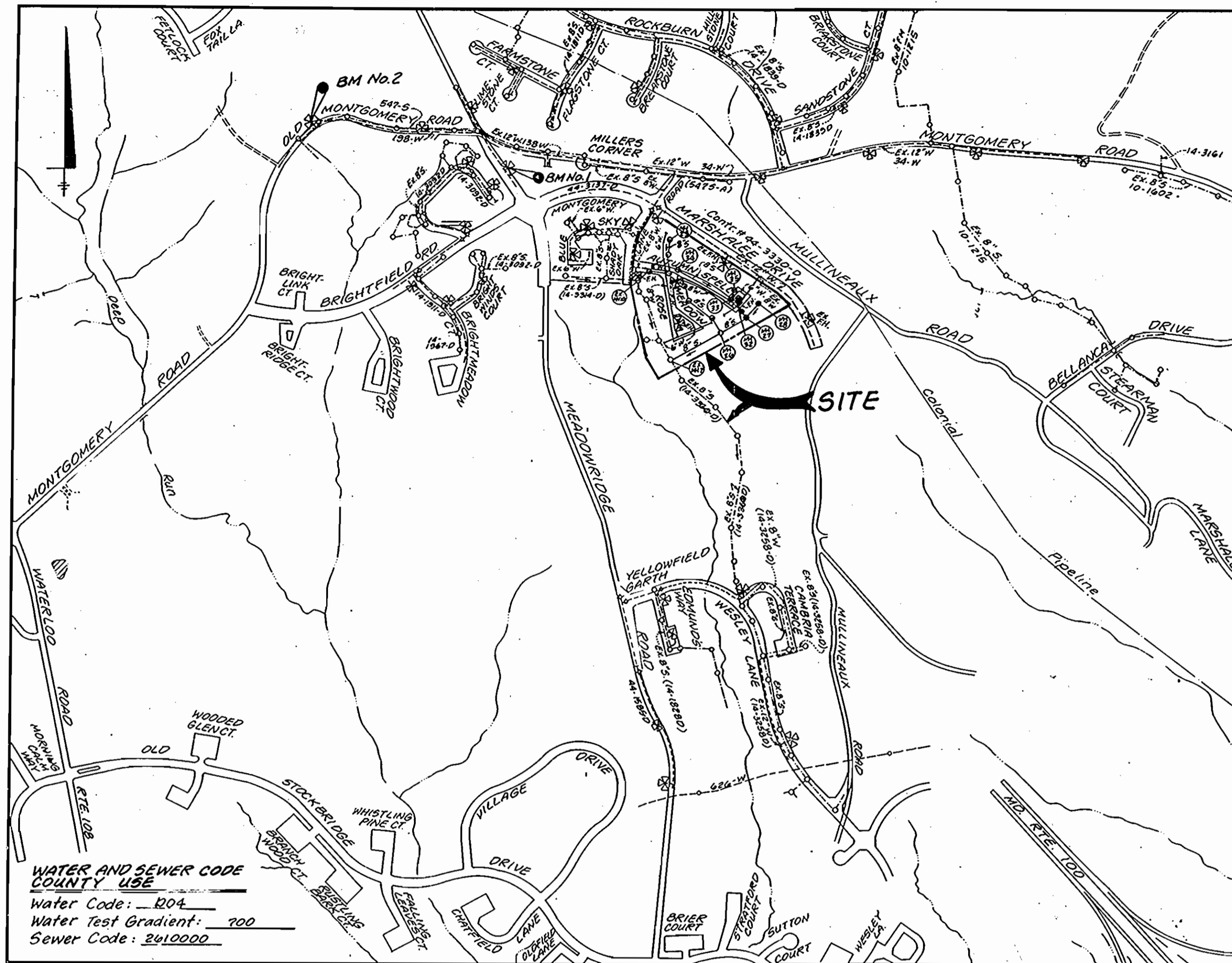


**BENCH MARKS:**

No. 1 Elev 411.43  
Top of FH at 325' North of Intersection  
of MD Route 103 and Brightfield Road.  
No. 2 Elev 401.07  
Top of FH North side of Old Montgomery Rd.  
1350' West of BM No. 1.



**WATER AND SEWER CODE COUNTY USE**  
Water Code: R24  
Water Test Gradient: 700  
Sewer Code: 241000

Type of Buildings: Single Family Attached  
Number of Lots/Parcels: 106 (104 Buildable, 2 O.S.)  
Number of W.H.C.'s: 104  
Number of S.H.C.'s: 104  
Drainage Area: Deep Run  
Treatment Plant: Patapsco

**LOCATION MAP**  
Scale: 1" = 600'

**WATER & SEWER CONSTRUCTION PLANS**

**SHADY OAKS**  
**SECTION ONE AREA TWO**

1st ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
CONTRACT No. 14 - 3360 - D

**INDEX OF SHEETS**

SHEET NO.	TITLE
1	TITLE SHEET
2	PLAN - WATER AND SEWER MAINS
3	PROFILES - WATER AND SEWER MAINS
4	PROFILES - SEWER MAINS

**GENERAL NOTES:**

- PART I:**
- Approximate location of existing mains are shown. The Contractor shall take all necessary precautions to protect existing mains and services and maintain uninterrupted supply. Any damage incurred shall be repaired immediately to the satisfaction of the Engineer at the Contractor's expense.
  - All horizontal controls are based on Maryland State Coordinates.
  - All vertical controls are based on U.S.G.S. data.
  - All pipe elevations shown are invert elevations.
  - Clear all utilities by a minimum of 6'. Clear all poles by 2'-0" minimum or tunnel as required. The owner has contacted the utility companies and has made arrangements for bracing of poles as shown on the drawings. In the event the Contractor's work requires the bracing of additional poles, any cost incurred by the owner for bracing of additional poles or damages shall be deducted from money owed the Contractor. The Contractor shall coordinate with the utility companies to schedule the bracing of the poles.
  - For details not shown on the drawings and for materials and construction methods, use Howard County Design Manual, Volume IV, Standard Specifications and Details for Construction (Latest Edition). The Contractor shall have a copy of Volume IV on the job.
  - Where test pits have been made on existing utilities, they are noted by the symbol (P) at the location of the test pit. A note or note containing the results of the test pit or pits is included on the drawings. Existing utilities in the vicinity of the proposed work for which test pits have not been dug shall be located by the Contractor two weeks in advance of construction operations at his own expense.
  - Contractor shall notify the following utility companies and agencies at least five working days before starting work shown on these plans:
 

a) State Highway Administration: 531-5533	d) Miss Utility: 1-800-267-7777
b) Baltimore Gas & Electric Co.: 850-4620	e) Colonial Pipeline Company: 795-1390
c) Baltimore Gas & Electric Co.: 787-3068	f) Howard County Dept. of Public Works Bureau of Utilities: 313-4300 (underground damage control)
  - Trees and shrubs are to be protected from damage to maximum extent. Trees and shrubs within the construction strip are not to be removed or damaged by the Contractor.
  - Contractor shall remove trees, stumps and roots along line of excavation. Payment for such removal shall be included in the unit price bid for construction of the main.
- PART II: WATER**
- All water mains to be D.I.P. Class 52 unless otherwise noted.
  - Tops of all water mains to have a minimum of 3 1/2 ft cover unless otherwise noted.
  - Valves adjacent to the tees shall be strapped to the tees.
  - All fittings shall be buttressed or anchored with concrete in accordance with the Standard Details unless otherwise provided for on the drawings.
  - Fire Hydrants shall be set to the bury line elevations shown on the drawings. All fire hydrants shall be strapped and buttressed in accordance with the Standard Details. Soil around the fire hydrant shall be compacted in accordance with Section 1000 and 1005 of the Standard Specifications. The Contractor shall not operate any water main valves on the existing water system.
  - All water house connections shall be for inside meter setting unless otherwise noted on plans or in specifications.
- PART III: SEWER**
- All sewer mains to be D.I.P. R.C.P., V.C.P.X., C.S.P.X., R.C.C.P. and R.C.V. unless otherwise noted.
  - All manholes shall be 4'-0" inside diameter unless otherwise noted.
  - Force mains shall be D.I.P. only.
  - Manholes designated W.I. in plan and profile shall have watertight frame and covers; Standard Detail 5552. Where watertight manhole frame and cover is used, set top of frame 1'-0" above finished grade unless otherwise noted on the drawings.
  - Houses with the symbol "C.M.S." indicates that cellar cannot be served.
  - Manholes shown with 12" and 16" walls are for brick manholes only.

**QUANTITIES**

ITEM	AS BUILT			
	QUANTITIES ESTIMATED	QUANTITIES	TYPE	MANUFACTURER / SUPPLIER
8" x 6" Tee	6 Ea.	6 EA		GRIFFIN PIPE
6" x 6" Tee	2 Ea.	2 EA		" "
8" Water	1,368 LF	1330 LF	OL 52	" "
6" Water	961 LF	1215 LF	" "	" "
1" WHC	1,201 LF	1100 LF	TYPE "K"	CERRO COPPER / A-1 PIPE
1 1/2" WHC	4,015 LF	1216 LF	" "	" " " "
Fire Hydrants	3 Ea.	4 EA	" "	MUELLER / A-1 PIPE
8" x 6" Reducer	3 Ea.	3 EA		GRIFFIN PIPE
8" V.	3 Ea.	3 EA	GATE	MUELLER / A-1 PIPE
6" V.	11 Ea.	11 EA	" "	" " " "
24" steel for sewer under existing sewer	400 L.F.	372 LF	STEEL	BAILO PIPE
6" Cap	5 Ea.	5 EA		GRIFFIN PIPE
8" Sewer	3,474 LF	3329 LF	SDR 35	J-H MFG. / A-1 PIPE
4" SHC	2,258 LF	2696 LF	" "	" " " "
Manholes	26 Ea.	26 EA	CONCRETE	ATLANTIC
8" x 8" Tee	1 Ea.	1 EA		GRIFFIN
8" Sewer D.I.P.	1305 LF	1362 LF		GRIFFIN

NAME OF CONTRACTOR: FALLSTON UTILITIES, INC.

REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.  
Signature: [Signature] 12/27/94  
U.S. SOIL CONSERVATION SERVICE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD COUNTY SOIL CONSERVATION DISTRICT.  
Signature: [Signature] 12/27/94  
HOWARD SOIL CONSERVATION DISTRICT

SEDIMENT CONTROL MEASURES FOR THIS CONTRACT WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 213 OF THE STANDARD SPECIFICATION AND ROAD CONSTRUCTION PLANS: F94-3B

**DEPARTMENT OF PUBLIC WORKS**  
HOWARD COUNTY, MARYLAND  
Signature: [Signature] 1/3/95  
DIRECTOR OF PUBLIC WORKS  
Signature: [Signature] 12-21-94  
CHIEF, BUREAU OF UTILITIES

**LAND DESIGN ENGINEERING, INC.**  
8835 Columbia 100 Parkway Unit N  
Columbia, Maryland 21045  
Phone: (410) 715-1070 (301) 506-3424  
Signature: [Signature] 1/3/95  
CHIEF, LAND DEVELOPMENT DIVISION

Designed: KBW  
Drawn: KBW  
Checked: MWM  
Date: 3/94  
SEWER & WATER ASBUILTS SHEET #7  
Revised Quantities/Number of Lots  
BY No. REVISION  
DATE

**TITLE SHEET**  
600 SCALE MAP No. 37 BLOCK No. 3

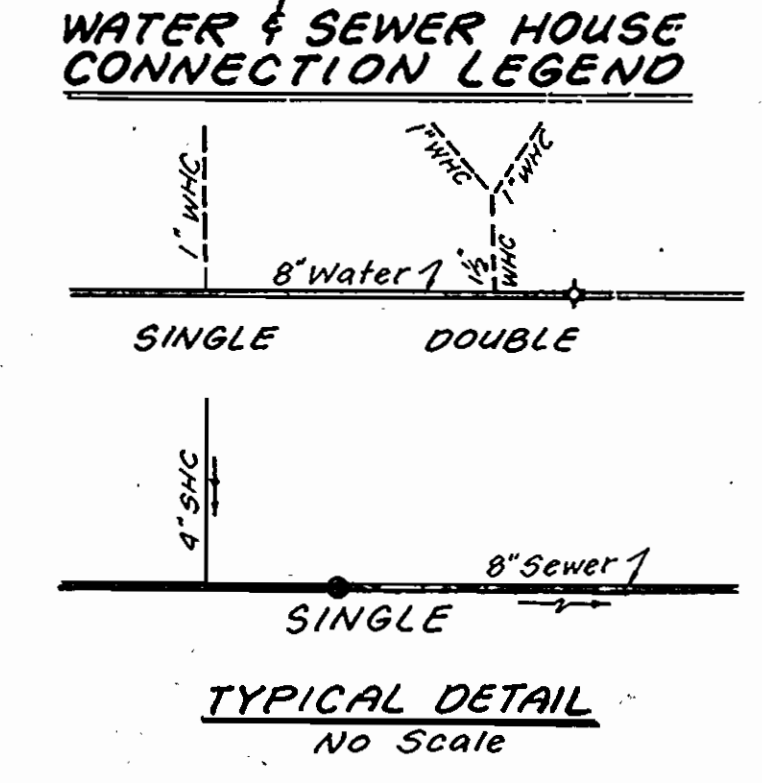
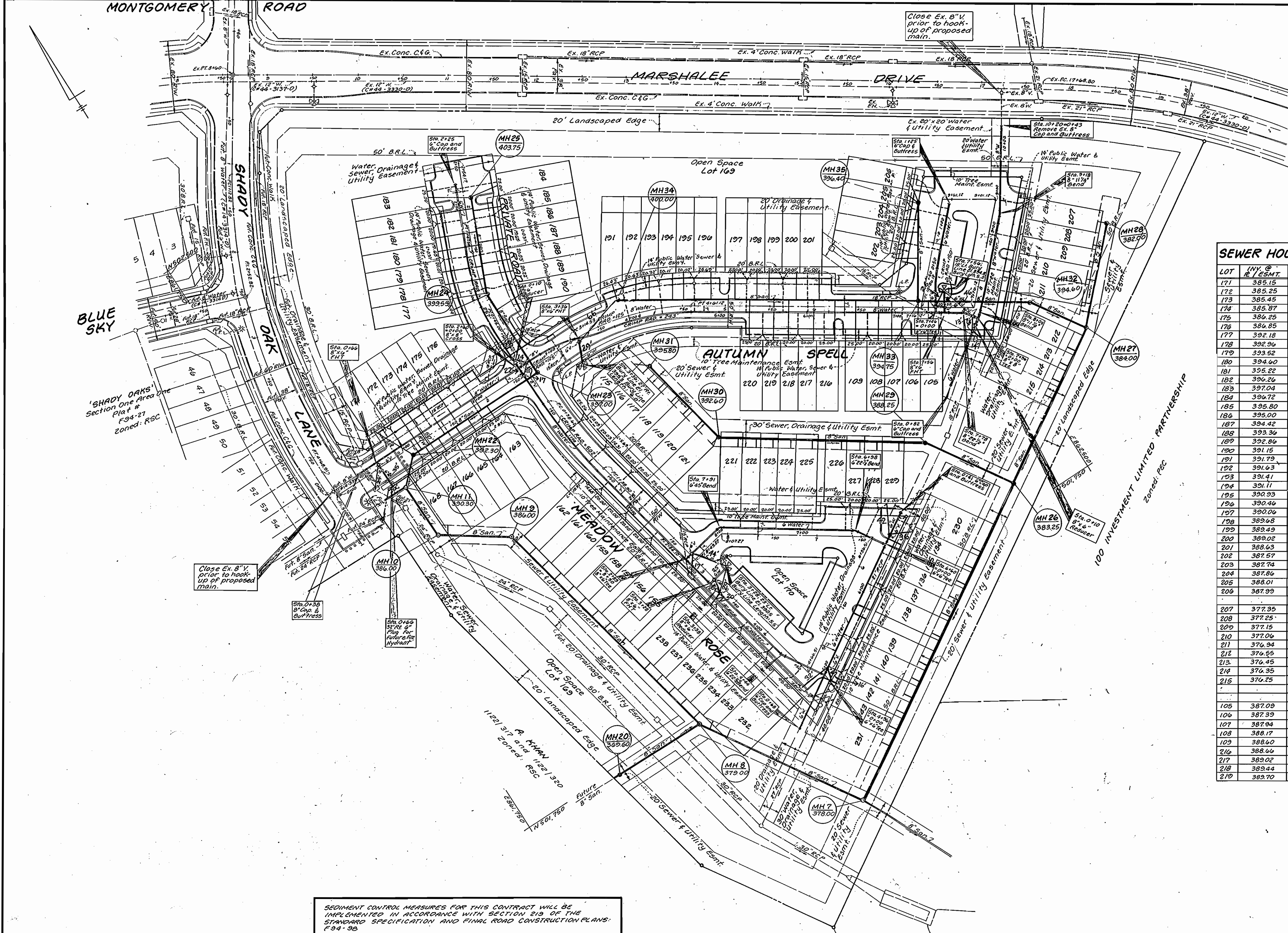
**SHADY OAKS**  
SECTION ONE AREA TWO  
LOT 57 THRU LOT 170  
1st Election District Howard County, Maryland  
Contract No. 14 - 3360 - D

SCALE AS SHOWN  
SHEET 1 OF 4

5560 WS/1 Shady Oaks 1/2, lots 57-110



5560 ws/2 Shady Oaks 1/2



SEWER HOUSE CONNECTION TABLE

LOT	INV. @ 1' ESMT.	MIN. C.E.	LOT	INV. @ 1' ESMT.	MIN. C.E.
171	385.15	388.00	220	390.10	393.00
172	385.25	388.50	115	386.48	390.00
173	385.45	388.50	116	386.32	389.50
174	385.87	389.00	117	385.82	389.00
175	386.25	389.50	118	385.32	388.50
176	386.85	390.00	119	384.92	388.00
177	392.18	395.50	120	384.50	388.00
178	392.36	396.00	121	383.96	387.50
179	393.52	396.50	221	383.54	386.50
180	394.60	397.50	222	383.14	386.50
181	395.22	398.50	223	382.74	386.00
182	396.26	399.50	224	382.34	385.50
183	397.04	400.00	225	381.84	385.00
184	397.72	400.00	226	381.20	384.50
185	395.80	399.00	227	380.80	384.00
186	395.00	398.00	228	380.40	383.50
187	394.42	397.50	229	379.90	383.00
188	393.36	396.50			
189	392.86	396.00			
190	391.15	394.50	230	374.75	378.00
191	391.79	395.00	134	374.55	378.00
192	391.63	395.00	135	374.35	377.50
193	391.41	394.50	136	374.15	377.50
194	391.11	394.50	137	373.95	377.00
195	390.93	394.00	138	373.70	377.00
196	390.46	393.50	139	373.31	376.50
197	390.06	393.00	140	373.11	376.50
198	389.68	393.00	141	372.91	376.00
199	389.43	392.50	142	372.71	376.00
200	389.02	392.00	143	372.51	376.00
201	388.63	392.00	231	372.31	375.50
202	387.77	390.50			
203	387.74	390.50			
204	387.86	390.50			
205	388.01	391.00	232	Ex. 360.58	364.00
206	387.99	391.00	233	Ex. 360.69	364.50
			234	Ex. 372.89	376.50
207	377.35	381.00	235	Ex. 373.13	376.50
208	377.25	381.00	236	Ex. 373.37	377.00
209	377.15	380.50	237	Ex. 373.61	377.00
210	377.06	380.50	238	Ex. 373.85	377.50
211	376.94	380.50	155	Ex. 374.30	378.00
212	376.55	380.00	156	Ex. 374.60	378.00
213	376.45	380.00	157	Ex. 374.84	378.50
214	376.35	380.00	158	Ex. 375.08	378.50
215	376.25	380.00	159	Ex. 375.32	379.00
			160	Ex. 375.56	379.50
			161	Ex. 375.80	379.50
105	387.09	390.00	162	Ex. 376.04	379.50
106	387.39	390.50	163	386.95	35' 00
107	387.94	391.00	164	386.17	389.50
108	388.17	391.00	165	385.87	389.00
109	388.60	391.50	166	385.39	388.50
216	388.66	392.00	167	385.05	388.00
217	389.02	392.00	168	Ex. 376.78	380.00
218	389.44	392.50	169	Open Space	No Service
219	389.70	393.00	170	Open Space	No Service

SEDIMENT CONTROL MEASURES FOR THIS CONTRACT WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 219 OF THE STANDARD SPECIFICATION AND FINAL ROAD CONSTRUCTION PLANS: 294-98

DEPARTMENT OF PUBLIC WORKS  
 HOWARD COUNTY, MARYLAND  
 Director of Public Works  
 Chief Bureau of Engineering  
 Chief Bureau of Utilities  
 Chief Land Development Division

LAND DESIGN ENGINEERING, INC.  
 8835 Columbia 100 Pkwy, Unit N  
 Columbia, Maryland 21045  
 Phone: (410) 715-1070 (301) 596-3424

Designed: KBW  
 Drawn: KBW  
 Checked: BOB  
 Date: 3/94

LOE Revised Lots/House Conn./Lot Numbers 4/95  
 LDE Revised Water-Sewer Utility Esmt (M) 6/95

PLAN

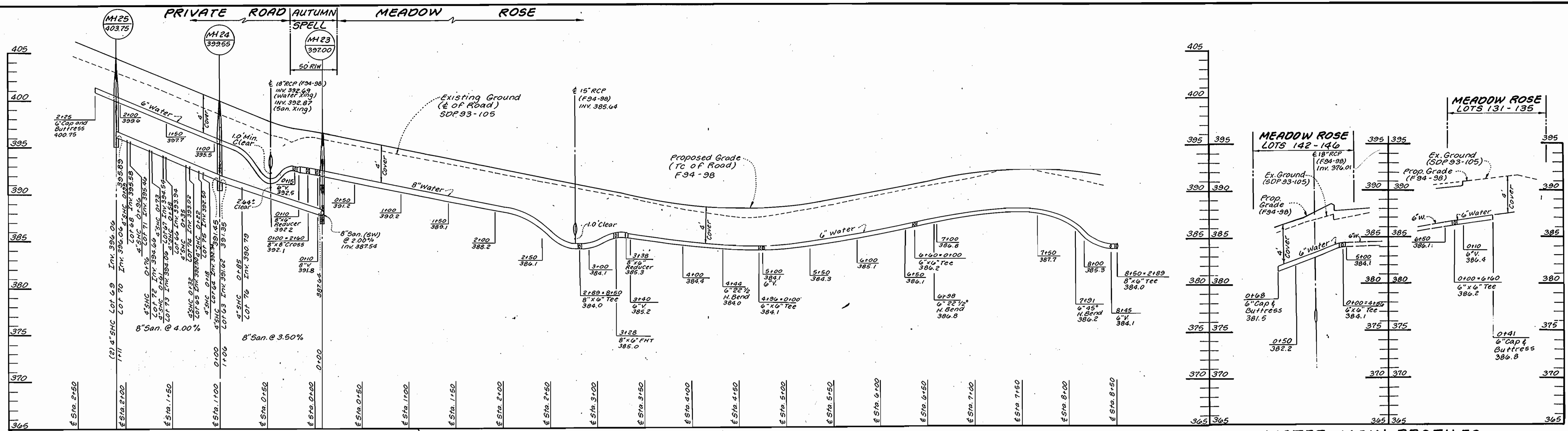
600 SCALE MAP NO. 31 BLOCK No. 3

SHADY OAKS  
 SECTION ONE AREA TWO  
 LOT 57 THRU LOT 170  
 1st Election District Howard County, Maryland  
 Contract No. 14-3360-D

SCALE AS SHOWN  
 SHEET 2 OF 6

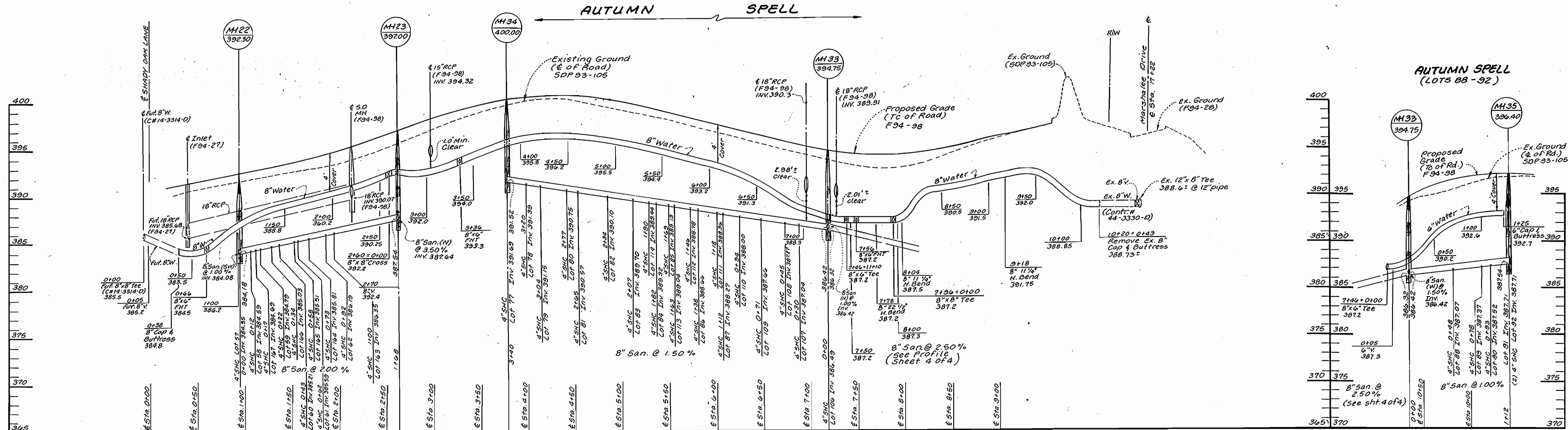


3360 ws/3 Shady Oaks 1/2



**WATER AND SEWER MAIN PROFILE**  
Scale: 1" = 50' Horiz.  
1" = 5' Vert.

**WATER MAIN PROFILES**  
Scale: 1" = 50' Horiz.  
1" = 5' Vert.



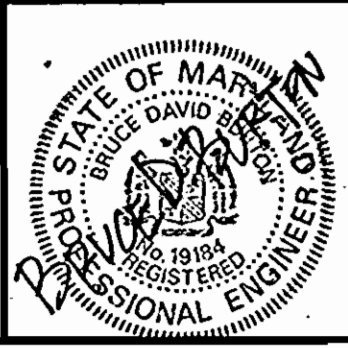
**WATER AND SEWER MAIN PROFILE**  
Scale: 1" = 50' Horiz.  
1" = 5' Vert.

**WATER MAIN PROFILE**  
Scale: 1" = 50' Horiz.  
1" = 5' Vert.

SEDIMENT CONTROL MEASURES FOR THIS CONTRACT WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 210 OF THE STANDARD SPECIFICATION AND FINAL ROAD CONSTRUCTION PLANS: F94-98

**DEPARTMENT OF PUBLIC WORKS**  
HOWARD COUNTY, MARYLAND  
James J. Chew, Director of Public Works  
12-31-94  
1845  
1/3/95

**LAND DESIGN ENGINEERING, INC.**  
8835 Columbia 100 Pkwy. Unit N  
Columbia, Maryland 21045  
Phone: (410) 715-1070 (301) 536-3424



Designed: K.B.W.				
Drawn: K.B.W.				
Checked: D.B.B.				
Date: 3/94				
BY	NO.	REVISION	DATE	

**PROFILES**  
WATER AND SEWER MAINS  
600 SCALE MAP NO. 37 BLOCK NO. 3

**SHADY OAKS**  
SECTION ONE AREA TWO  
LOT 57 THRU LOT 170  
1st Election District Howard County, Maryland  
Contract No 14-3360-D  
SCALE AS SHOWN  
SHEET 3 OF 6



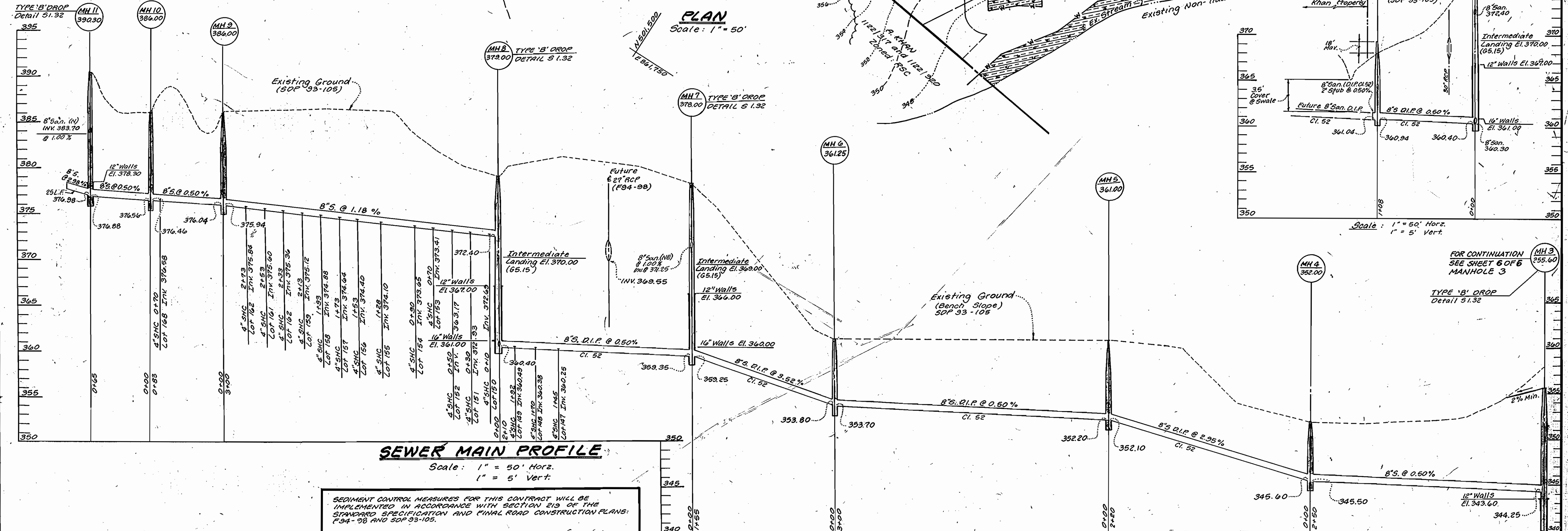
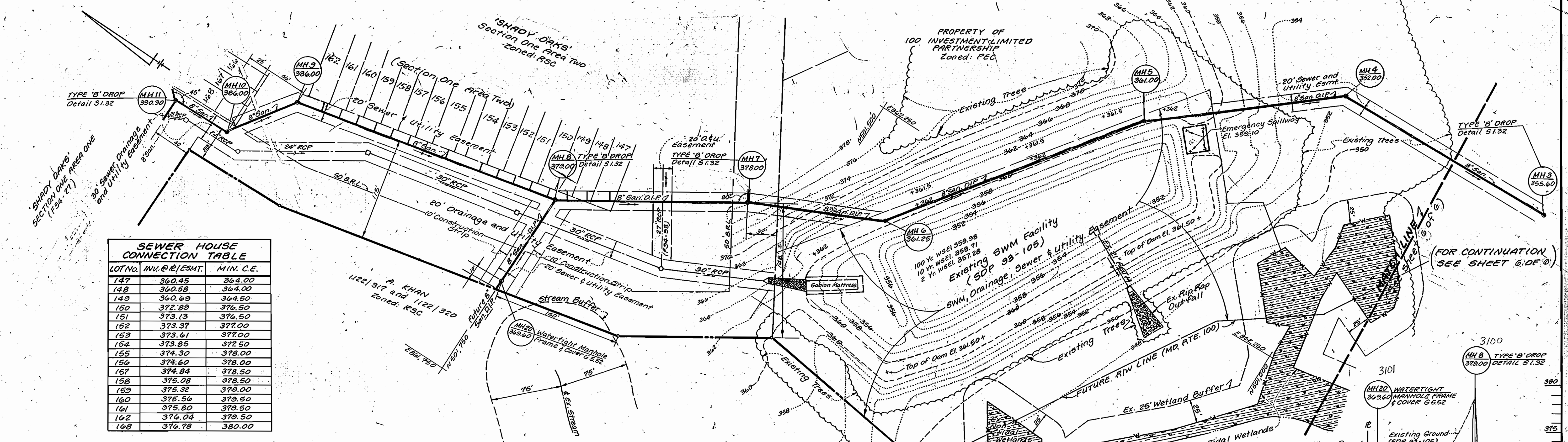




7560 WS/12 Shady Oaks

**SEWER HOUSE CONNECTION TABLE**

LOT NO.	INV. @ E/ESMT	MIN. C.E.
147	360.45	364.00
148	360.58	364.00
149	360.69	364.50
150	372.89	376.50
151	373.13	376.50
152	373.37	377.00
153	373.61	377.00
154	373.85	377.50
155	374.30	378.00
156	374.60	378.00
157	374.84	378.50
158	375.08	378.50
159	375.32	379.00
160	375.56	379.50
161	375.80	379.50
162	376.04	379.50
168	376.78	380.00



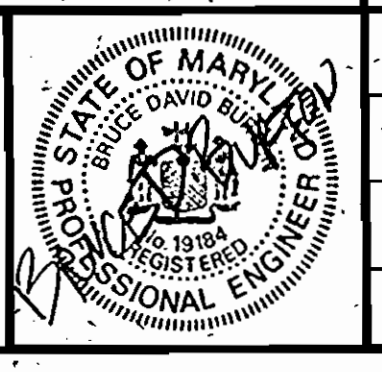
SEDIMENT CONTROL MEASURES FOR THIS CONTRACT WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 813 OF THE STANDARD SPECIFICATION AND FINAL ROAD CONSTRUCTION PLANS: F94-98 AND SDP 93-105.

**DEPARTMENT OF PUBLIC WORKS**  
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS DATE: 1/12/95  
 CHIEF BUREAU OF UTILITIES DATE: 1/12/95

**LAND DESIGN ENGINEERING, INC.**

8835 Columbia 100 Pkwy, Unit N  
 Columbia, Maryland 21046  
 Phone: (410) 715-1070 (301) 596-3424



Designed: BOB/KBW	BY	NO.	REVISION	DATE
Drawn: KBW				
Checked: BOB				
Date: Feb. 1994				

**PLAN AND PROFILE**  
SEWER MAINS

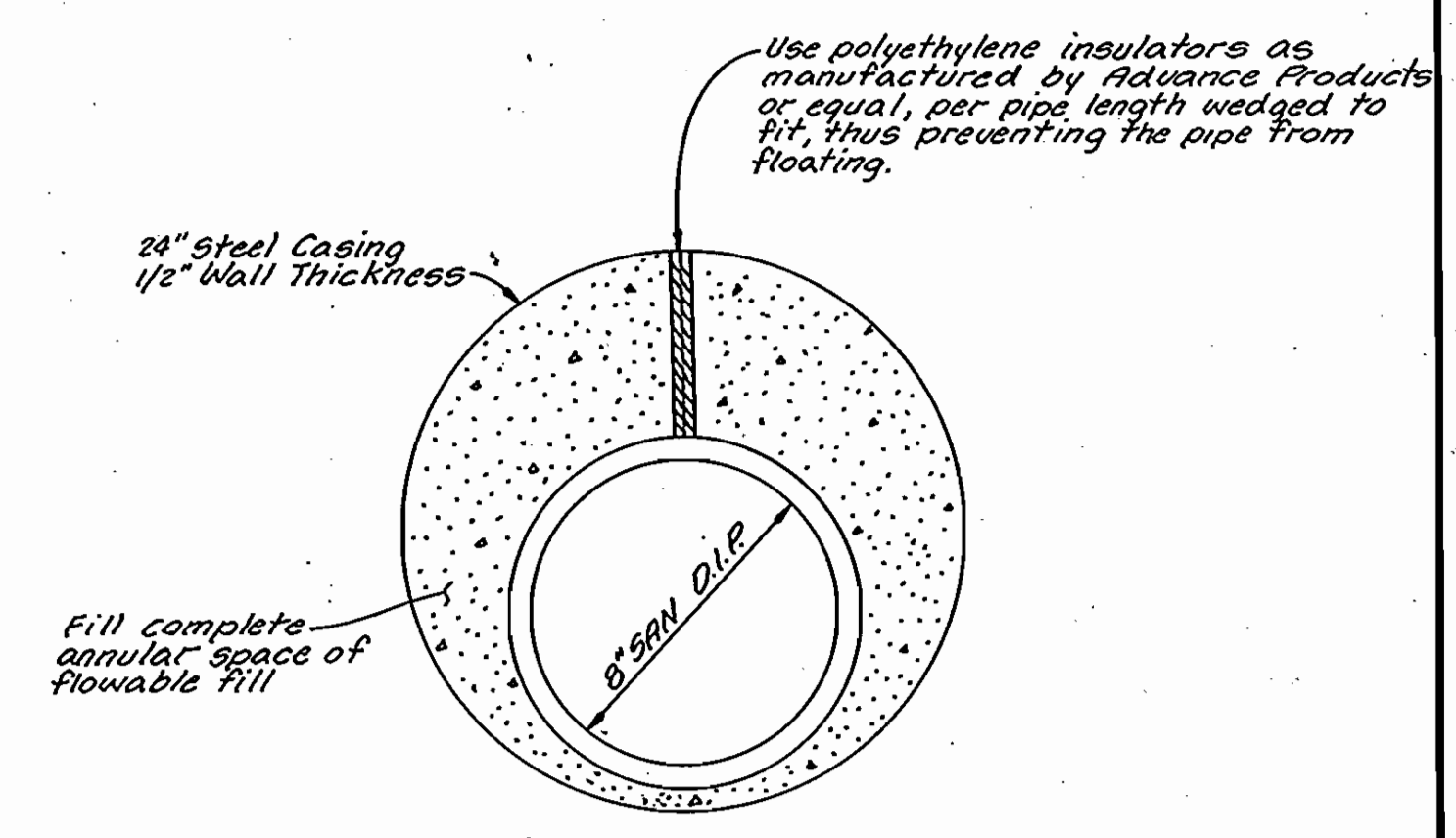
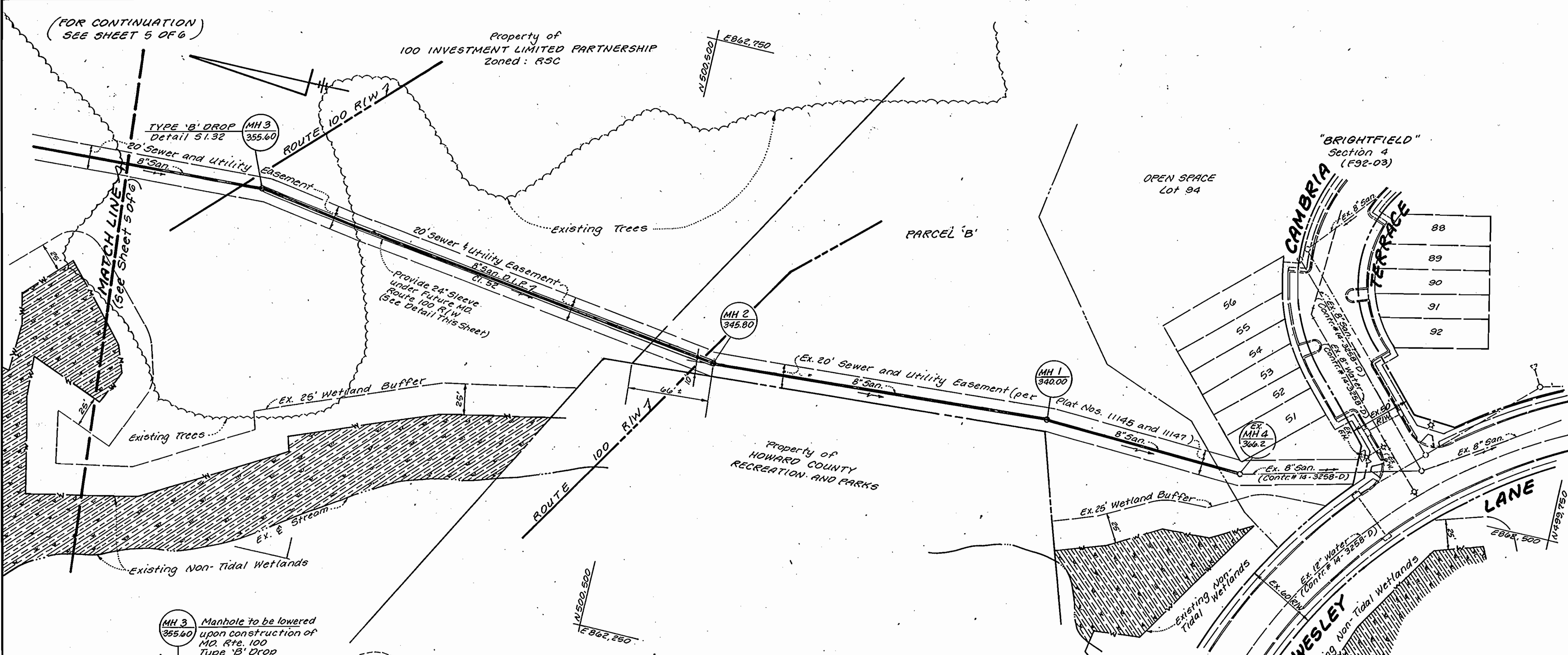
600 SCALE MAP NO. 37 BLOCK NO. 3

**SHADY OAKS**  
SECTION ONE AREA TWO  
LOT 57 THRU LOT 170  
1st Election District Howard County, Maryland  
Contract No. 14-3360-D

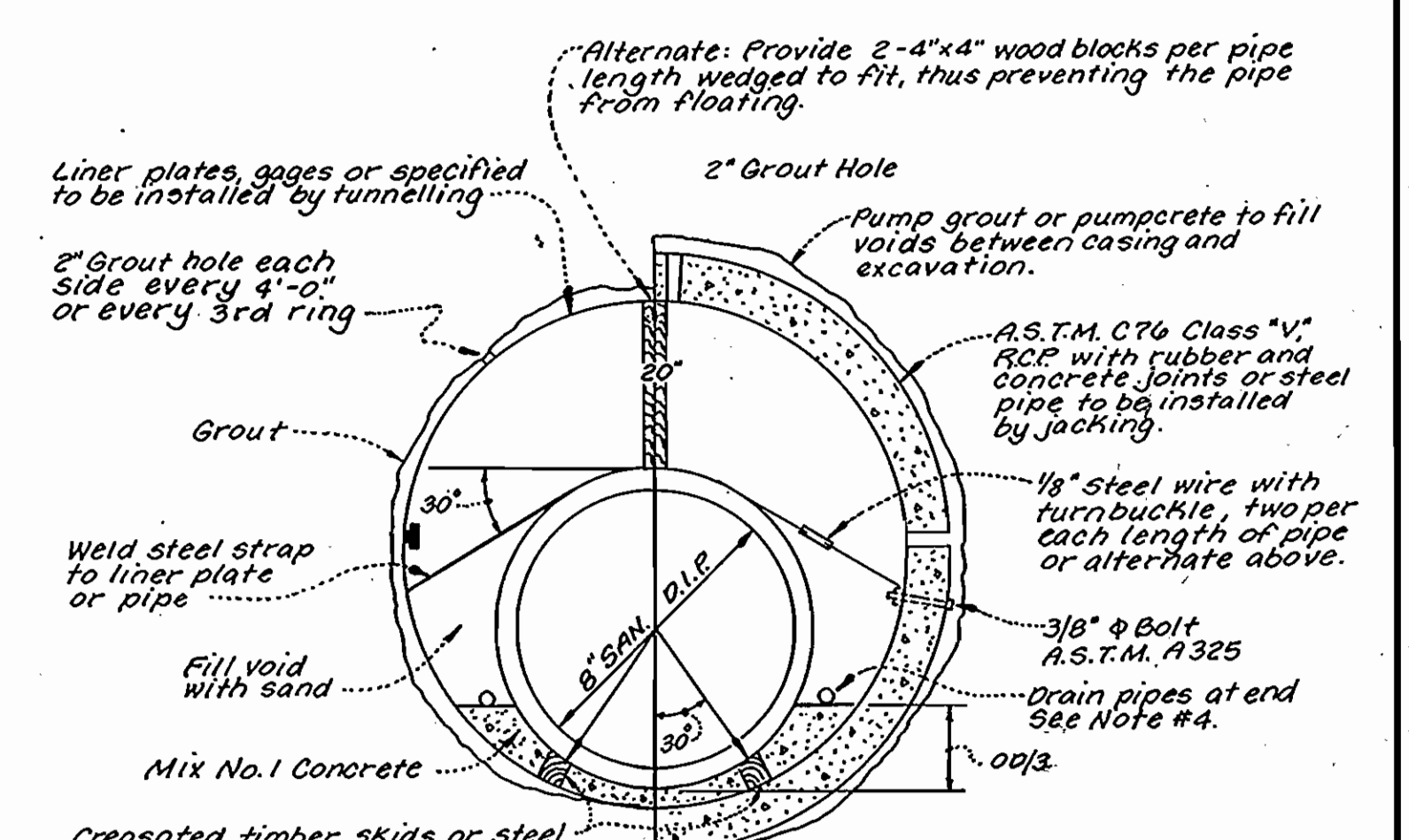
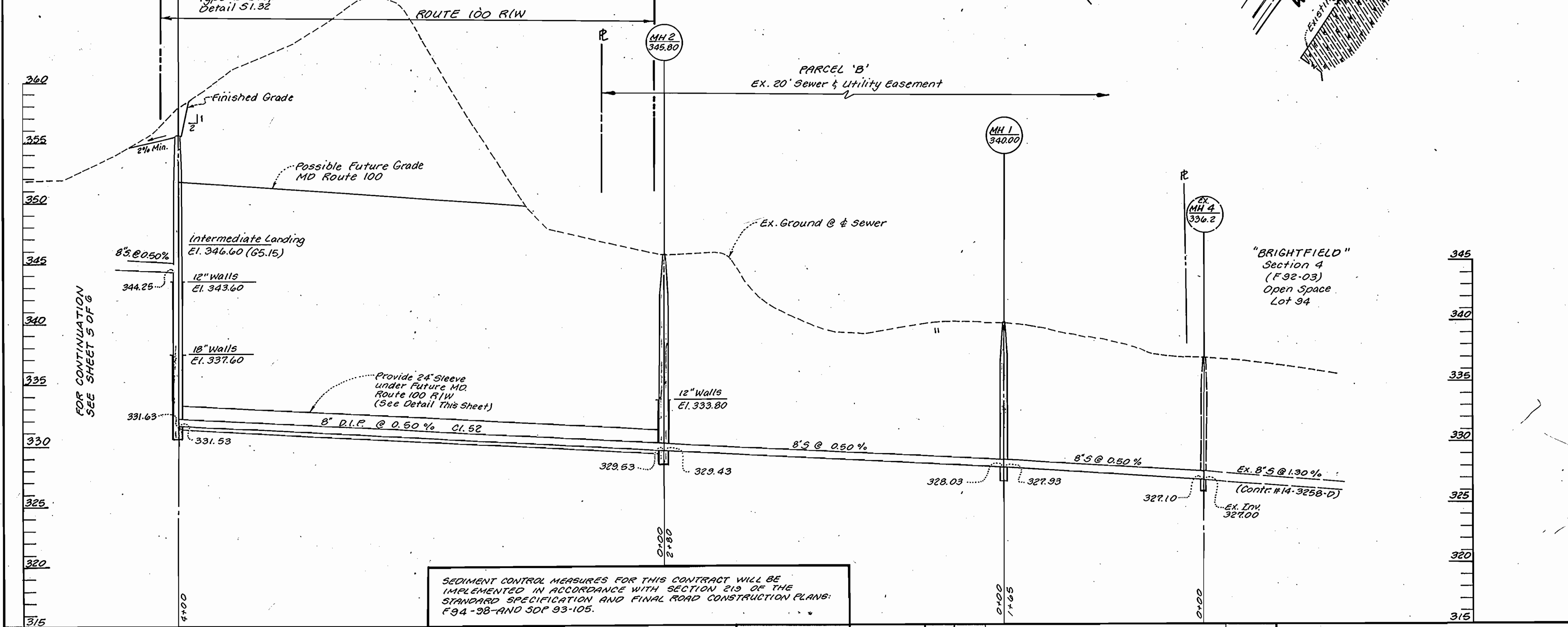
SCALE AS SHOWN  
SHEET 5 OF 16  
As-Built 2-5-96



3760 w316 Shady Oaks 1/2



**24" SLEEVE DETAIL**  
N.T.S.



**CASING DETAIL**  
No Scale

**NOTES:**

1. Steel tunnel liner plates to conform to latest A.P.S.H.T.O. Design Specification.
2. Tunnel liner plate to be hot dipped galvanized in accordance with A.S.T.M. A123. All galvanized surfaces to be treated with a vinyl wash primer and coated with Koppers Bitumastic 300M, Thene tar 46-413 or equal.
3. A joint in the main pipe to be provided within 2 feet of each outside end of casing. An 8" brick bulkhead to be provided at each end of casing. Two 2" diameter pipes through bulkhead to be provided at each side of main pipe at low end of casing for drainage, prior to filling with grout.
4. All straps and other exposed steel to be coated as in Note #2 above.
5. Steel casing installed by jacking to be 5/16" minimum thick, A.W.W.A. C-200-80 with coal tar enamel coating, A.W.W.A. C-203 or C-210. Joints to be welded full circumference.

**CRADLE DETAIL**  
No Scale

**TUNNELING INSTALLATION (Optional) OR BORING AND JACKING**

SEDIMENT CONTROL MEASURES FOR THIS CONTRACT WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 219 OF THE STANDARD SPECIFICATION AND FINAL ROAD CONSTRUCTION PLANS: F94-38-AND SDP 93-105.

**DEPARTMENT OF PUBLIC WORKS**  
HOWARD COUNTY, MARYLAND

Director of Public Works DATE: 1-12-94  
Chief Bureau of Utilities DATE: 1/7/94

**LAND DESIGN ENGINEERING, INC.**  
8835 Columbia 100 Pkwy, Unit N  
Columbia, Maryland 21045  
Phone: (410) 715-1070 (301) 596-3424

Designed: BOB KBW	BY	NO.	REVISION	DATE
Drawn: KBW				
Checked: BOB				
Date: Feb. 1994				

**PLAN AND PROFILE**  
SEWER MAINS

600 SCALE MAP No. 37 BLOCK No. 3

**SHADY OAKS**  
SECTION ONE AREA TWO  
LOT 57 THRU LOT 170  
1st Election District Howard County, Maryland  
Contract No. 14-3360-D

SCALE AS SHOWN  
SHEET 6 OF 6

SHC AS-BUILTS

LOT #	LOT #	LOT #	LOT #	LOT #	LOT #	LOT #
105	157	183	207	231	176	215
106	158	184	208	232	177	216
107	159	185	209	233	178	217
108	160	186	210	234	179	218
109	161	187	211	235	180	219
115	162	188	212	236	181	220
116	163	189	213	237	182	221
117	164	190	214	238	183	222
118	165	191	215		184	223
119	166	192	216		185	224
120	167	193	217		186	225
121	168	194	218		187	226
134	171	195	219		188	227
135	172	196	220		189	228
136	173	197	221		190	229
137	174	198	222		191	230
138	175	199	223		192	231
139	176	200	224		193	232
140	177	201	225		194	233
141	178	202	226		195	234
142	179	203	227		196	235
143	180	204	228		197	236
155	181	205	229		198	237
156	182	206	230		199	238
					200	
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					202	
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					211	
					212	
					213	
					214	
					215	

WHC AS-BUILTS

LOT #	LOT #	LOT #	LOT #	LOT #	LOT #	LOT #
105	157	183	207	231	176	215
106	158	184	208	232	177	216
107	159	185	209	233	178	217
108	160	186	210	234	179	218
109	161	187	211	235	180	219
115	162	188	212	236	181	220
116	163	189	213	237	182	221
117	164	190	214	238	183	222
118	165	191	215		184	223
119	166	192	216		185	224
120	167	193	217		186	225
121	168	194	218		187	226
134	171	195	219		188	227
135	172	196	220		189	228
136	173	197	221		190	229
137	174	198	222		191	230
138	175	199	223		192	231
139	176	200	224		193	232
140	177	201	225		194	233
141	178	202	226		195	234
142	179	203	227		196	235
143	180	204	228		197	236
155	181	205	229		198	237
156	182	206	230		199	238
					200	
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					214	
					215	

3360 ws/6a As-BLT INFO. / SHADY OAKS

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS DATE CHIEF, BUREAU OF ENGINEERING DATE

DES:				
DRN:				
CHK:				
DATE:	BY	NO.	REVISION	DATE

SEWER & WATER  
AS-BUILTS

SHADY OAKS  
SECTION ONE AREA TWO  
LOT 57 THRU LOT 170

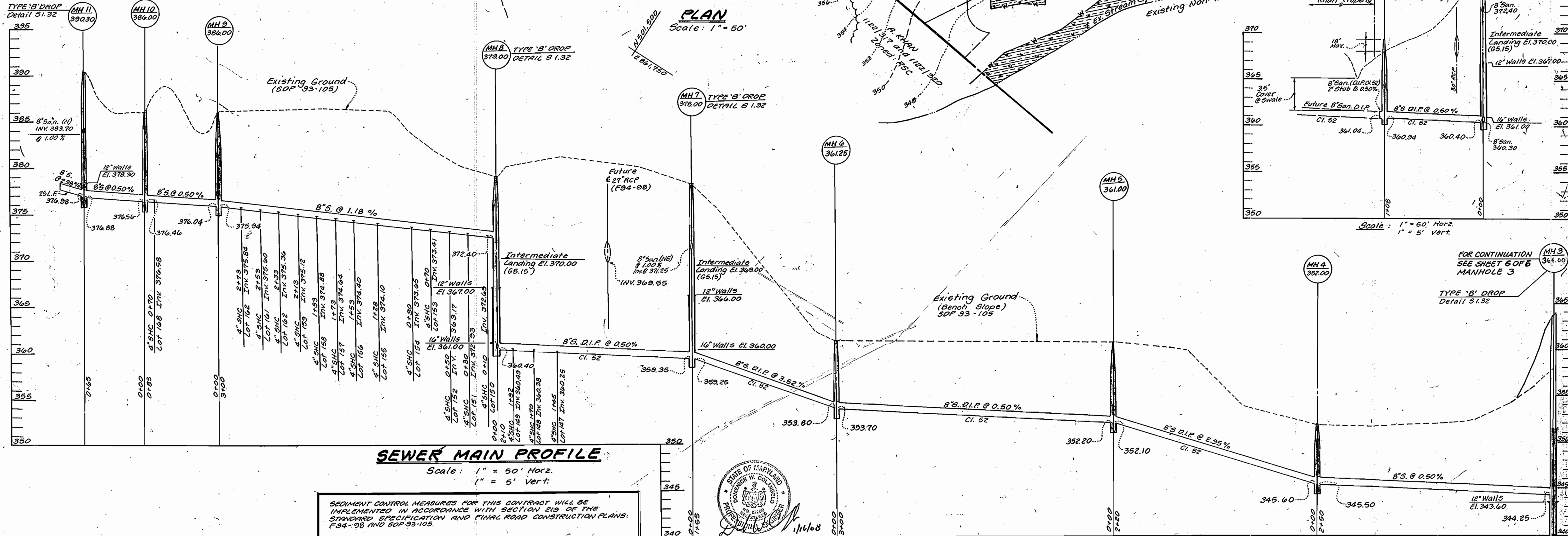
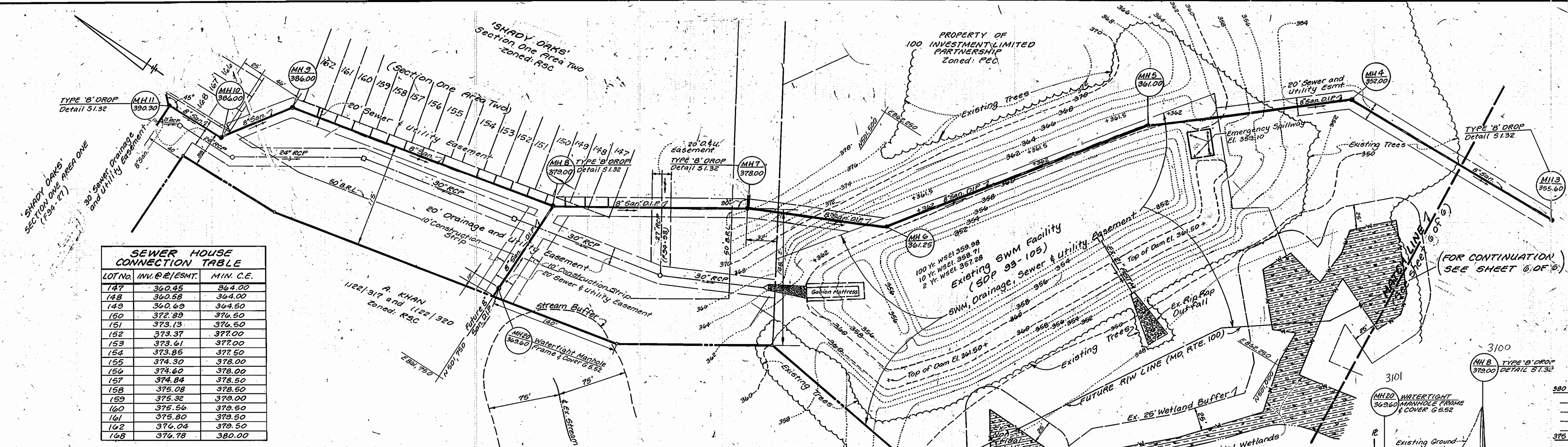
SCALE  
AS  
SHOWN  
SHEET  
2 OF 7  
60 6



3360 ws/5 Shady Oaks 1/2

**SEWER HOUSE CONNECTION TABLE**

LOT NO.	INV. @ E/ESMT.	MIN. C.E.
147	360.45	364.00
148	360.58	364.00
149	360.69	364.50
150	372.89	376.50
151	373.13	376.50
152	373.37	377.00
153	373.61	377.00
154	373.86	377.50
155	374.30	378.00
156	374.60	378.00
157	374.84	378.50
158	375.08	378.50
159	375.32	379.00
160	375.56	379.50
161	375.80	379.50
162	376.04	379.50
168	376.78	380.00



SEDIMENT CONTROL MEASURES FOR THIS CONTRACT WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 219 OF THE STANDARD SPECIFICATION AND FINAL ROAD CONSTRUCTION PLANS: F-94-98 AND SOP 93-105.



**DEPARTMENT OF PUBLIC WORKS**  
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS DATE: Robert M. ... 1-12-95

CHIEF BUREAU OF UTILITIES DATE: ... 1/17/95

**LAND DESIGN ENGINEERING, INC.**

8835 Columbia 100 Pkwy, Unit N  
Columbia, Maryland 21046  
Phone: (410) 716-1070 (301) 596-3424

Designed: BOB MBW	EMR 1	RAISE MH3 + REV. PROP. GRADE	12/7/07
Drawn: KBW	BY NO.	REVISION	DATE
Checked: BOB			
Date: Feb. 1994			

**PLAN AND PROFILE**  
SEWER MAINS

600 SCALE MAP NO. 37 BLOCK NO. 3

**SHADY OAKS**  
SECTION ONE AREA TWO  
LOT 57 THRU LOT 170  
1st Election District Howard County, Maryland  
Contract No. 14-3360-D

SCALE AS SHOWN  
SHEET 5 OF 16  
As-BUILT 2-5-96