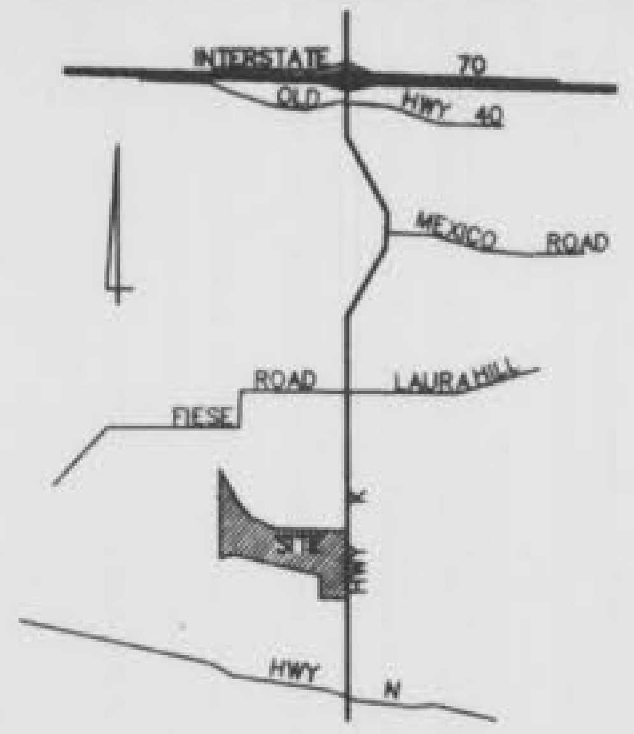
AS-BUILTS FOR SANITARY SEWERS, STORM SEWERS, FIRE HYDRANTS, AND WATER VALVES

~~PLANS FOR THE CONSTRUCTION OF SANITARY SEWERS, STORM SEWERS, GRADING, PAVING, AND WATER MAINS FOR~~

THE MANORS AT ROYALLSPRINGS

A TRACT OF LAND BEING PART OF U.S. SURVEY 3180
AND PART OF U.S. SURVEY 67
T.46 N., R.3 E., ST. CHARLES COUNTY, MISSOURI

PHASE 2, PLAT SEVEN



LOCATION MAP

N.T.S.

KEY MAP

LEGEND

C.I.	CURB INLET
D.C.I.	DOUBLE CURB INLET
A.I.	AREA INLET
M.H.	MANHOLE
F.E.	FLARED END SECTION
E.P.	END PIPE
C.P.	CONCRETE PIPE
R.C.P.	REINFORCED CONCRETE PIPE
C.M.P.	CORRUGATED METAL PIPE
C.I.P.	CAST IRON PIPE
P.V.C.	POLY VINYL CHLORIDE (PLASTIC)
C.O.	CLEAN OUT
	FIRE HYDRANT
	STORM SEWER
	SANITARY SEWER
	STREET LIGHT
582	EXISTING CONTOUR
582	PROPOSED CONTOUR
	STREET SIGN
	NO PARKING SIGN
	WATER VALVE
B.O.	BLOW OFF ASSEMBLY
	FLOWLINE ELEVATION OF HOUSE CONNECTION
	FLOWLINE ELEVATION OF SEWER MAIN
XXX	STREET ADDRESS

GRADING NOTES

1. A Geotechnical Engineer shall be employed by the owner and be on site during grading operations. All soils tests shall be verified by the Geotechnical Engineer concurrent with the grading and backfilling operations.

2. The grading contractor shall perform a complete grading and compaction operation as shown on the plans, stated in these notes, or reasonably implied there from, all in accordance with the plans and notes as interpreted by the Geotechnical Engineer.

3. The Contractor shall notify the Soils Engineer at least two days in advance of the start of the grading operation.

4. All areas shall be allowed to drain. All low points shall be provided with temporary ditches.

5. A sediment control plan that includes monitored and maintained sediment control basins and/or straw bales should be implemented as soon as possible. No graded area is to be allowed to remain bare over the winter without being seeded and mulched. Care should be exercised to prevent soil from damaging adjacent property and silting up existing downstream storm drainage system.

6. Soft soil in the bottom and banks of any existing or former pond sites or tributaries should be removed, spread out and permitted to dry sufficiently to be used as fill. None of this material should be placed in proposed right-of-way locations or on storm sewer locations.

7. Site preparation includes the clearance of all stumps, trees, bushes, shrubs, and weeds; the grubbing and removal of roots and other surface obstructions from the site; and the demolition and removal of any man-made structures. The unsuitable material shall be properly disposed of as directed by the soils engineer. Topsoil and grass in the fill areas shall be thoroughly disced prior to the placement of any fill. The Soils Engineer shall approve the discing operation.

8. Compaction equipment shall consist of tamping rollers, pneumatic-tired rollers, vibratory roller, or high speed impact type drum rollers acceptable to the Soils Engineer. The roller shall be designed so as to avoid the creation of a layered fill without proper blending of successive fill layers.

9. The Soils Engineer shall observe and test the placement of the fill to verify that specifications are met. A series of fill density tests will be determined on each lift of fill. Interim reports showing fill quality will be made to the Owner at regular intervals.

10. The Soils Engineer shall notify the Contractor of rejection of a lift of fill or portion thereof. The Contractor shall rework the rejected portion of fill and obtain notification from the Soils Engineer of its acceptance prior to the placement of additional fill.

11. All areas to receive fill shall be scarified to a depth of not less than 6 inches and then compacted in accordance with the specifications given below. Natural slopes steeper than 1 vertical to 5 horizontal to receive fill shall have horizontal benches, cut into the slopes before the placement of any fill. The width and height to be determined by the Soils Engineer. The fill shall be loosely placed in horizontal layers not exceeding 8 inches in thickness and compacted in accordance with the specifications given below. The Soils Engineer shall be responsible for determining the acceptability of soils placed. Any unacceptable soils placed shall be removed at the Contractor's expense.

12. The sequence of operation in the fill areas will be fill, compact, verify acceptable soil density, and repetition of the sequence. The acceptable moisture contents during the filling operation are those at which satisfactory dry densities can be obtained. The acceptable moisture contents during the filling operation in the remaining areas are from 2 to 8 percent above the optimum moisture control.

13. The surface of the fill shall be finished so that it will not impound water. If at the end of a days work it would appear that there may be rain prior to the next working day, the surface shall be finished smooth. If the surface has been finished smooth for any reason, it shall be scarified before proceeding with the placement of succeeding lifts. Fill shall not be placed on frozen ground, nor shall filling operations continue when the temperature is such as to permit the layer under placement to freeze.

14. Fill and backfill should be compacted to the criteria specified in the following table:

CATEGORY	MINIMUM PERCENT COMPACTION
Fill in building areas below footings	90%
Fill under slabs, walks, and pavement	90%
Fill other than building areas	88%
Natural subgrade	88%
Pavement subgrade	90%
Pavement base course	90%

Measured as a percent of the maximum dry density as determined by modified Proctor Test (ASTM-D-1557).

Moisture content must be within 2 percent below or 4 percent above optimum moisture content if fill is deeper than 10 feet.

NOTE: Non-organic and incompressable trash and debris shall be disposed of in the detention basin area and other designated areas. All debris shall be buried a minimum of 3 feet below finished grade. Location of debris buried within the limits of the detention basin shall be shown on the as-builts for this project.

GENERAL NOTES

1. Underground utilities have been plotted from available information and therefore their locations shall be considered approximate only. The verification of the location of all underground utilities, either shown or not shown on these plans shall be the responsibility of the contractor, and shall be located prior to any grading or construction of the improvements.

2. All manhole tops built without elevations furnished by the Engineer will be the responsibility of the sewer contractor.

3. 8" P.V.C. sanitary sewer pipe shall meet the following standards. A.S.T.M.-D-3034 SDR-35, with wall thickness compression joint A.S.T.M.-D-3212. An appropriate rubber seal waterstop as approved by the sewer district shall be installed between P.V.C. pipe and masonary structures.

4. All filled places, including trench backfills, under buildings, proposed storm and sanitary sewer lines and/or paved, areas, shall be compacted to 90% maximum density as determined by the "Modified AASHTO T-180 Compaction Test." (A.S.T.M.-D-1557). All filled places within public roadways shall be compacted to 95% of maximum density as determined by the "Standard Proctor Test AASHTO T-99, Method C" (A.S.T.M.D.-698).

5. All trench backfills under paved areas shall be granular backfill, and shall be compacted to 90% of the maximum density as determined by the "Modified AASHTO T-180 Compaction Test." (A.S.T.M.-D.-1557). All other trench backfills may be earth material (free of large clods or stones). All trench backfills shall be water jetted.

6. All sanitary house connections have been designed so that the minimum vertical distance from the low point of the basement to the flow line of a sanitary sewer at the corresponding house connection is not less than the diameter of the pipe plus the vertical distance of 2 1/2 feet.

7. No area shall be cleared without the permission of the Project Engineer.

8. All grades shall be within 0.2 feet of those shown on the grading plan.

9. No slope shall be steeper than 3:1 or as called for in the soils report for the project. All slopes shall be sodded or seeded and mulched.

10. All construction and materials used shall conform to current City of O'Fallon Standards.

11. All P.V.C. sanitary sewer pipe is to be SDR-35 or equal with "clean" 1/2" to 1" granular stone bedding uniformly graded. This bedding shall extend from 4" below the pipe to the springline of pipe. Immediate backfill over pipe shall consist of same size "clean" or minus stone from springline of pipe to 6" above the top of the pipe.

12. All soils test shall be verified by a Soils Engineer concurrent with the grading and backfilling operations.

13. Easements shall be provided for sanitary sewers, and all utilities on the Record Plat. See Record Plat for location and size of easements.

14. Storm sewers 18" diameter and smaller shall be A.S.T.M. C-14. Storm sewers 21" diameter and larger shall be A.S.T.M. C-76, Class II minimum.

15. All storm pipe in the right-of-way shall be reinforced concrete pipe A.S.T.M. C-76, Class III minimum.

16. A 20' building line shall be established along all Public Right-Of-Way.

17. All water lines shall be laid at least 10 feet horizontally, from any sanitary sewer, storm sewer, or manhole. Whenever water lines must cross sanitary sewers, laterals, or strorm drains the water line shall be laid at such an elevation that the bottom of the water line is above the top of the drain or sewer. A full length of water pipe shall be centered over the sewer line to be crossed so that the joints will be equally distant from the sewer and as remote therefrom as possible. This vertical seperation shall be maintained for that portion of the water line located within 10 feet horizontally, of any sewer or drain it crosses.

18. All sanitary manholes shall be waterproofed on the exterior in accordance with Missouri Department of Natural Resources specifications 10 CSR-8.120 (7)E.

19. The grading yardage shown on the drawings is an approximation only, and is not for bidding purposes. The contractor shall verify quantities prior to construction. It is the intention of the Engineer for the earthwork to balance onsite. The Engineer shall be notified if any difficulties arise in achieving the balance.

20. Brick will not be used in the construction of sanitary sewer manholes.

21. All pipes shall have positive drainage through manholes. No flat base structures are allowed.

~~22. All sanitary sewer manholes to be 48 inch minimum inside diameter in accordance to Missouri Department of Natural Resources specification 10 CSR 20-8~~

23. All PVC water pipe shall have a minimum pressure rating of PR-200 or SDR-21.

24. Water lines, valves, sleeves, meters, and fittings shall meet all specifications and installation requirements of the East-Central Missouri Water and Sewer Authority.

25. All water hydrants and valves shall be ductile iron and installed in accordance with plans and details.

26. All ductile iron pipe for water mains shall conform to A.W.W.A. Specifications C-106 and/or C-108. The ductile iron fittings shall conform to A.W.W.A. Specification C-110. All rubber gasket joints for water ductile iron pressure pipe and fittings shall conform to A.W.W.A. Specification C-111.

27. The Duckett Creek Sewer District and The City of O'Fallon shall be notified 48 hours prior to construction for coordination and inspection.

DEVELOPMENT NOTES

1.	Area of P.U.D.:	68.891 Acres
2.	Existing Zoning:	R-4 P.U.D. (City of O'Fallon)
3.	Proposed Use:	Single Family Homes
4.	Number of Lots Proposed:	204 Lots
5.	Area in Common Ground:	11.628 Acres
6.	Area in Right-of-Way:	14.998 Acres (2.843 ac.-Hwy K)
7.	Area in Lots:	42.265 Acres
8.	Minimum Lot Area:	7,000 Square Feet
9.	Average Lot Area (not including common ground):	9,024 Square Feet
10.	Average Lot Area including Lake Amenity Area Only:	9,163 Square Feet
11.	Average Lot Area including Lake Amenity and Common Ground:	11,507 Square Feet

12. The proposed height and lot setbacks are as follows:

Minimum Front Yard:	20 feet
Minimum Side Yard:	6 feet
Minimum Rear Yard:	25 feet
Minimum Lot Area:	7,000 square feet
Maximum Height of Building:	2 1/2 stories or 35 feet

17. Boundary information is per survey by Bax Engineering Co., Inc. during April, 1993.

18. An entrance permit for access to Highway K will be required from the Missouri Highway and Transportation Department.

19. All streets will be constructed to City of O'Fallon standards. Streets will consist of 26 foot wide concrete pavement with integral rolled curb centered in a 50 foot right-of-way. Minimum radius shall be 150 feet.

20. All cul-de-sacs and bubbles will have pavement radii of 42 feet with right-of-way radii of 54 feet. Street intersections shall have a minimum rounding radius of 25 feet with pavement radii of 37 feet.

21. Minimum street grades shall be 1%.

22. A 4 foot wide concrete sidewalk shall be constructed on one side of streets where indicated.

23. All homes shall have a minimum of 2 off-street parking places with 2-car garages.

24. All utilities must be located underground.

25. The developer shall comply with current Tree Preservation Ordinance Number 1689 and provide landscaping as set forth in Article 23 of the City of O'Fallon Zoning Ordinances.

THIS IS TO CERTIFY THAT WE HAVE, DURING THE MONTH OF JANUARY, 1996, BY ORDER OF M.L.S. HOMES, INC., EXECUTED AN AS-BUILT SURVEY OF THE EXISTING SANITARY SEWERS, STORM SEWERS, FIRE HYDRANTS AND WATER VALVES WITHIN THE MANORS AT ROYALLSPRINGS, PLAT 7, A SUBDIVISION ACCORDING TO THE PLAT THEREOF RECORDED IN PLAT BOOK 33 PAGES 81&82 OF THE ST. CHARLES COUNTY RECORDS. SANITARY LATERALS, IF ANY, WERE NOT VERIFIED ON THIS AS-BUILT SURVEY. THE RESULTS OF THIS AS-BUILT SURVEY ARE SHOWN HEREON TO THE BEST OF MY KNOWLEDGE AND BELIEF.

4-20-96

DARREL R. OAKLEY
MO. REG. L.S. #2265

SHEET INDEX

SHEET 1 - COVER SHEET
SHEET 2 - SITE PLAN
~~SHEET 6-9 - GRADING PLANS~~
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SHEET 5 - STORM PROFILES
~~SHEET 15-17 - STREET PROFILES~~
~~SHEET 18-21 - WATER PLANS~~
~~SHEET 22-25 - DRAINAGE AREA MAPS~~
~~SHEET 26-30 - CONSTRUCTION DETAILS~~

SITE BENCHMARK:

"O" in Open on fire hydrant at the intersection of Chapparal Drive and Stillwater Drive.
Elevation 558.84 USGS DATUM

AS-BUILTS ADDED JANUARY, 1996

PREPARED FOR:

M.L.S. HOMES INC
11443 ST. CHARLES ROCK ROAD
BRIDGETON, MO 63044-2789
314-739-2110

PREPARED BY:

BAX
ENGINEERING
PLANNING
SURVEYING

221 Point West Boulevard
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314-946-0588
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FAX 947-0182

DATE	FEB. 10,1994
REVISIONS	5-3-94, 8-25-94, 4-26-96
PROJECT NUMBER	93-3774
SHEET	1 OF 5

Royallsprings - The Manors Ph... AS-Builts

PREPARED FOR: M.L.S. HOMES
11443 ST. CHARLES ROCK ROAD
BRIDGETON, MO 63044-2789
PHONE (314)739-2110

DISCLAIMER OF RESPONSIBILITY
I hereby specify that the documents intended to be authenticated by my seal are limited to this sheet, and I hereby disclaim any responsibility for all other Drawings, Specifications, Estimates, Reports or other documents or instruments relating to or intended to be used for any part or parts of the architectural or engineering project or survey.

STATE OF MISSOURI
DARREL R. OAKLEY
NUMBER LS-2265
REGISTERED LAND SURVEYOR

REVISIONS

4/26/96	PER COMMENTS

BAX
ENGINEERING
PLANNING
SURVEYING

1052 South Cloverleaf Drive
St. Peters, MO. 63376-6445
314-928-5552
FAX 928-1718

1/11/96
DATE

93-3774
PROJECT NUMBER

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Royallsprings - The Manors Plat 7
As-Builts 5/2/96 cen

2/5

Storm Sewer Profiles
Manors at Royall Springs
93 3714
Feb 10 1994

Rev 2-23-94
Rev 12-6-94

Phase 2 | Phase 2 | Phase 2 | Phase 2 | Phase 1 | Phase 1 | Phase 2 | Phase 2

Continued Below

@ 0.0221'/ft | @ 0.0117'/ft | @ 0.012'/ft | @ 0.023'/ft | @ 0.0094'/ft | @ 0.0385'/Ft. | @ 0.009 | @ 0.197 | @ 0.076 | @ 0.0933'/ft. | @ 0.0473'/ft. | @ 0.0225'/FT.

Phase 2 | Phase 2 | Phase 2 | Phase 1 | Phase 1 | Phase 2 | Phase 2 | Phase 2 | Phase 4

@ 0.0543'/FT | @ 0.0192'/ft. | @ 0.019'/ft. | @ 0.0129'/ft. | @ 0.0002'/FT | @ 0.0085'/FT | @ 0.0176'/Ft. | @ 0.0381'/Ft. | @ 0.0105'/ft. | @ 0.10

Phase 4 | Phase 4 | Phase 4 | Phase 4 | Phase 5 | Phase 4 | Phase 4

@ 0.035 | @ 0.01 | @ 0.06 | @ 0.01 | @ 0.015 | @ 0.015 | @ 0.02 | @ 0.19

NOTE:
THE USE OF HIGH DENSITY POLYETHYLENE CORRUGATED PIPE WITH SMOOTH INTERIOR WALL WILL BE PERMITTED AS AN ACCEPTABLE ALTERNATIVE TO R.C.P. OUTSIDE OF PUBLIC R/W. PIPE SHALL MEET A.S.T.M. D-2321 & AASHTO M-294-92I. CONCRETE FLARED END SECTION AND INLET STRUCTURES SHALL BE REQUIRED.

Scales: 1"=50' Hor.
1"=10' Vert.

3/5

AS-BUILTS ADDED JANUARY, 1996
REV: 4-26-96

3/5

RoyallSprings - The Manors Part 1
As-Builts 5/2/96

FINAL SURVEY — SURVEYED, PLOTTED, TEMPLATE, AREAS CHECKED, NOTE BOOK, NO., BY, DATE

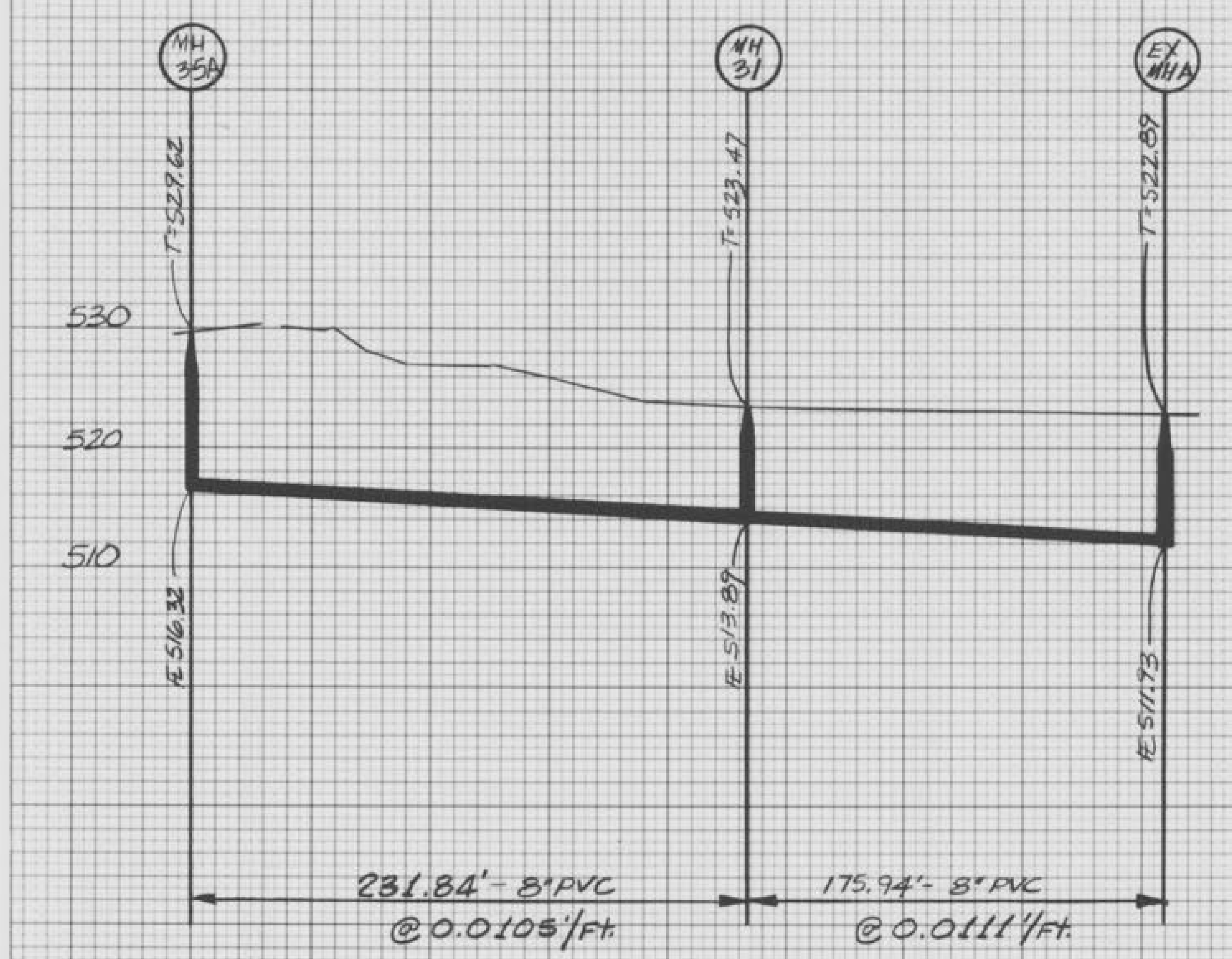
ORIGINAL SURVEY — SURVEYED, PLOTTED, NOTE BOOK, NO., BY, DATE

HIGHWAY FEDERAL AID SHEET
PLATE 3-FULL CROSS SECTION FULL LINE
TELEDYNE
PRINTED IN U.S.A.

Sanitary Sewer Profiles
Manors at RoyallSprings
93-3774 Jan. 12, 1996

FINAL SURVEY | SURVEYED | PLOTTED | TEMPLATE | AREAS | AREAS CHECKED | NOTE BOOK | NO. | BY | DATE

ORIGINAL SURVEY | SURVEYED | PLOTTED | TEMPLATE | AREAS | AREAS CHECKED | NOTE BOOK | NO. | BY | DATE



Scales: 1" = 50' Hor.
1" = 10' Vert.

4/5

DARREL R. ... LS-2285

4-30-96 AS-BUILTS ADDED JANUARY, 1996

4/5 Plat 7
Royallsprings - The Manors
As - Builts 5/2/96 CEK

PLATE 3-FULL CROSS SECTION FULL LINE

NATIONAL PRINTFAST

AS-BUILTS ADDED JANUARY, 1996

DARREL R. LS-2205

Royallsprings - The Manors
5/2/96 AS-Builts