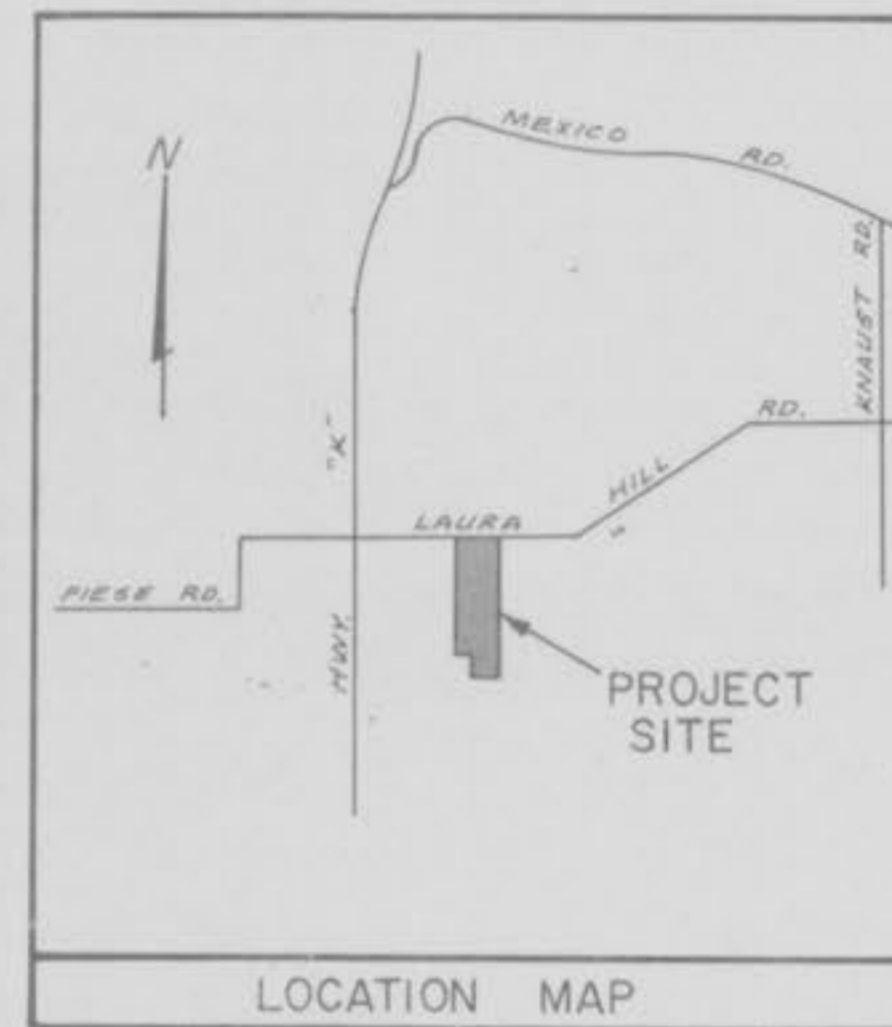


HILLCREST ESTATES



SANITARY SEWER NOTES

- All sanitary trench backfills shall be water jetted. Granular backfill is to be used under all pavement areas.
- The minimum vertical distance from the low point of the basement to the finishline of a sanitary sewer at the corresponding house connection shall not be less than the diameter of the sanitary sewer plus a vertical distance not less than two and one-half feet.
- All P.V.C. sanitary sewer pipe shall be installed with crushed stone bedding uniformly graded between 1" and 1 1/2" size. This bedding shall extend from 6" below the pipe to 12 inches above the top of the pipe.
- All sanitary manhole tops shall be set 0.2 foot higher than the proposed ground except in pavement areas.
- All sanitary manholes shall have a 3# ml. thick coat of coal tar pitch waterproofing.
- Brick manhole construction is not permitted on the sanitary sewers.

GRADING NOTES

- Trench backfills within the road right-of-way will be water jetted and granular backfill will be used under paved areas.
- All filled places under proposed storm and sanitary sewer lines and/or paved areas including trench backfills within and off the road right-of-way shall be compacted to 90 percent of maximum density as determined by the "Modified AASHTO T-180 Compaction Test" (ASTM D-1557). All tests shall be verified by a Soils Engineer concurrent with grading and backfilling operations.
- All filled places in proposed and existing St. Charles County roads (highways) shall be compacted from the bottom of the fill up to 90 percent maximum density as determined by the "Standard Proctor Test AASHTO T-99, Method C", (ASTM D-698). All tests shall be verified by a Soils Engineer concurrent with grading operations.
- A sediment control plan that includes 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 this soil from damaging adjacent property and silting up existing downstream storm drainage systems.
- Any wells and/or springs which may exist on this property should be located and sealed in a manner acceptable to this office.
- Existing crossroad storm drainage structures along Laura Hill Road should be kept open at all times.

GENERAL NOTES - ST. CHARLES COUNTY

- All storm sewer structures, piping, construction methods, materials, and appurtenances shall conform to the latest details and specifications as set down by Metropolitan St. Louis Sewer District or as modified by St. Charles County.
- All sanitary sewer structures, piping, construction methods, materials, and appurtenances shall conform to the latest details and specifications as set down by Metropolitan St. Louis Sewer District or as modified by St. Charles County.
- After sewers and appurtenances are completed, inspected and accepted, the contractor will be permitted to connect the sewer extension into the existing system, in the presence of an Inspector.
- Joining material Polyvinyl Chloride (PVC) sanitary sewer shall conform to ASTM Specifications D3212.
- All polyvinyl chloride (PVC) sewer pipe shall conform to ASTM D-3034, Type PSM with a SDR rating of 35 or lower.
- All polyvinyl chloride (PVC) water pipe shall conform to ASTM D-2241 with a SDR rating of 26 or lower. Joint materials shall conform to ASTM D3139.
- The manhole frames and covers shall be Clay & Bailey No. 2008, Neenah R7736, Dueter 1315, or an approved equal.
- Trenches under existing pavement or areas to be paved shall be granularly backfilled.
- In areas where sewer appurtenances are to be constructed in filled ground, the fill will be placed to approximate finished grade and compacted as specified prior to the excavation and installation of the pipe.
- The sewer contractor may construct the building sewer laterals in conjunction with the sanitary main, trunk or lateral sewers, within the development; so long as the building sewer lateral terminates five (5) feet or more outside the proposed or existing building line or foundation wall.
- All fill areas under buildings, proposed storm or sanitary sewers and paved areas shall be compacted to 90% of maximum density as determined by the "Modified AASHTO T-180 Compaction Test" (ASTM D-1557) unless otherwise required by the soils engineer or by St. Charles County.
- It shall be the grading contractor's responsibility to notify the soils engineer of work in progress and to comply with the specifications by the soils engineer with regards to compaction, surface preparation, and placement in fill areas.

- All stumps, limbs, and other debris are to be removed from the site unless a suitable on site dump area is approved in advance by the soils engineer or if burning is approved. Clearing shall be completed under the supervision of the developer or his representative, and shall not be done without authorization.
- All grading adjustments must be submitted in writing and approved by the site engineer and St. Charles County.
- It is the developers responsibility to maintain all siltation controls as required by St. Charles County.
- Underground utilities as shown have been plotted from available information and must be considered as approximate locations. The verification and location of all underground utilities either shown or not shown, shall be the responsibility of the contractor. It is the contractor's responsibility to provide location of underground utilities and to notify the proper utility company prior to any grading or construction.
- Minimum separation between sanitary sewers and water mains shall be ten (10) feet horizontally and two (2) feet vertically.
- When PVC sewer pipe is used, appropriate rubber seal waterstop, as approved by the sewer district, shall be installed between PVC pipe and masonry (concrete and brick) structures.
- All standard street curb inlets shall have the front face of the inlet set two (2) feet behind back of curb. All area inlets are to be open four (4) sides unless otherwise noted.
- All existing and required monuments will be shown on the record plat.
- Cut-off walls shall be provided at all flared end sections and ends of pipes. Depth of walls shall be a minimum of two (2) feet at the inflow end of pipes and three (3) feet at all outflow ends of pipe.
- The contractor or developer shall notify the owners of the property adjacent to Laura Hill Road (George and Joan Bartley) a minimum of forty-eight (48) hours prior to commencement of work to replace the driveway entrance culvert pipe to said Bartley property.

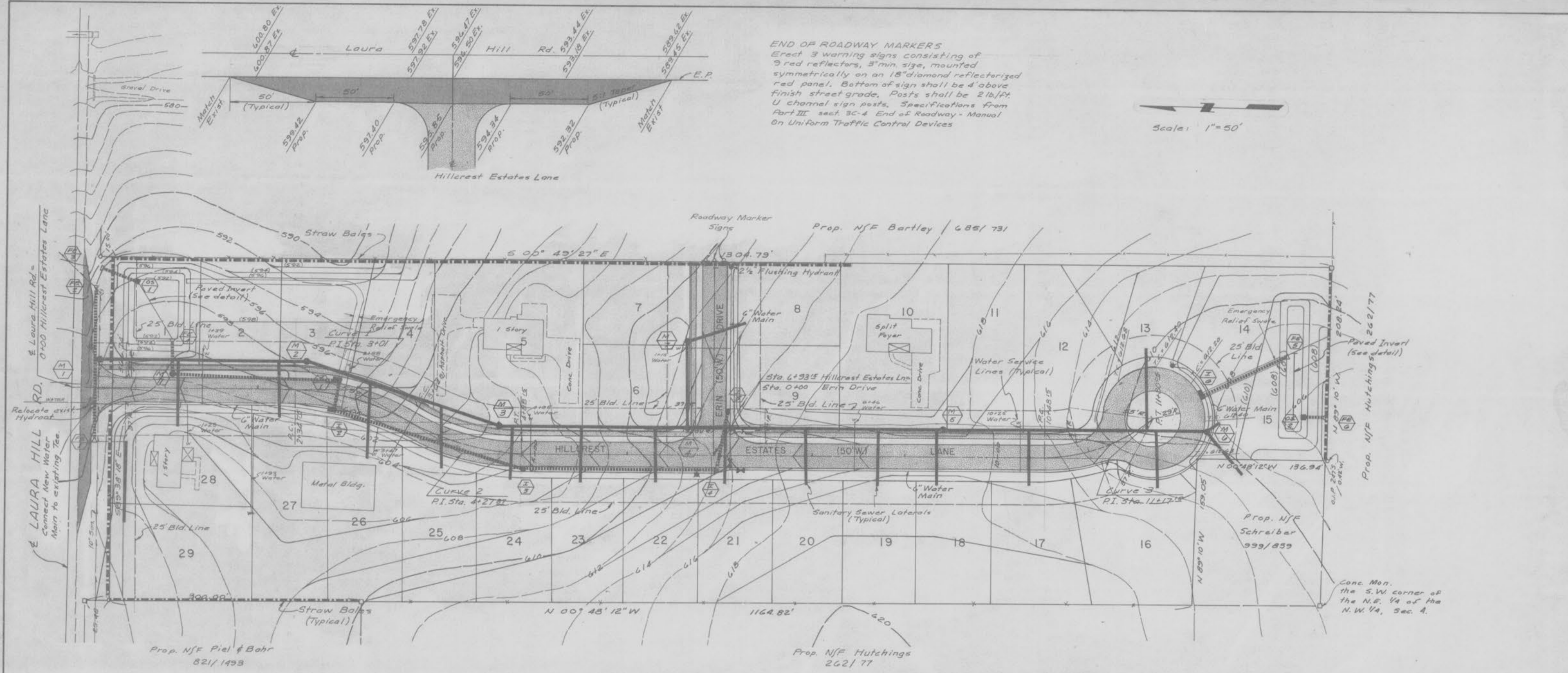
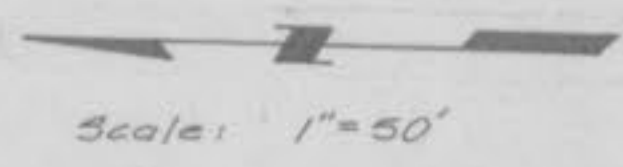
DEVELOPER
HILLCREST ENTERPRISES
HILLCREST REALTY
9 HILLCREST
ST. PETERS, MO. 63367
314-272-2159

ALLAN E. HEMMINGHAUS, P.E.
ENGINEERING SERVICES
P. O. BOX 1208
ST. LOUIS, MO. 63301
314-831-2570



PROPERTY OF
CITY OF FALLON
BUILDING DEPARTMENT

END OF ROADWAY MARKERS
 Erect 3 warning signs consisting of 3 red reflectors, 3" min. size, mounted symmetrically on an 18" diamond reflectorized red panel. Bottom of sign shall be 4' above finish street grade. Posts shall be 2 lb./ft. U channel sign posts. Specifications from Part III sect. 3C-4 End of Roadway - Manual on Uniform Traffic Control Devices



CURVE DATA

- 1. $\Delta = 28^\circ 14' 51''$
 $R = 263.29'$
 $T = 66.25'$
 $L = 129.81'$
- 2. $\Delta = 29^\circ 24' 45''$
 $R = 240.26'$
 $T = 63.06'$
 $L = 123.34'$
- 3. $\Delta = 41^\circ 33' 28''$
 $R = 181.85'$
 $T = 69.00'$
 $L = 131.90'$

LEGEND

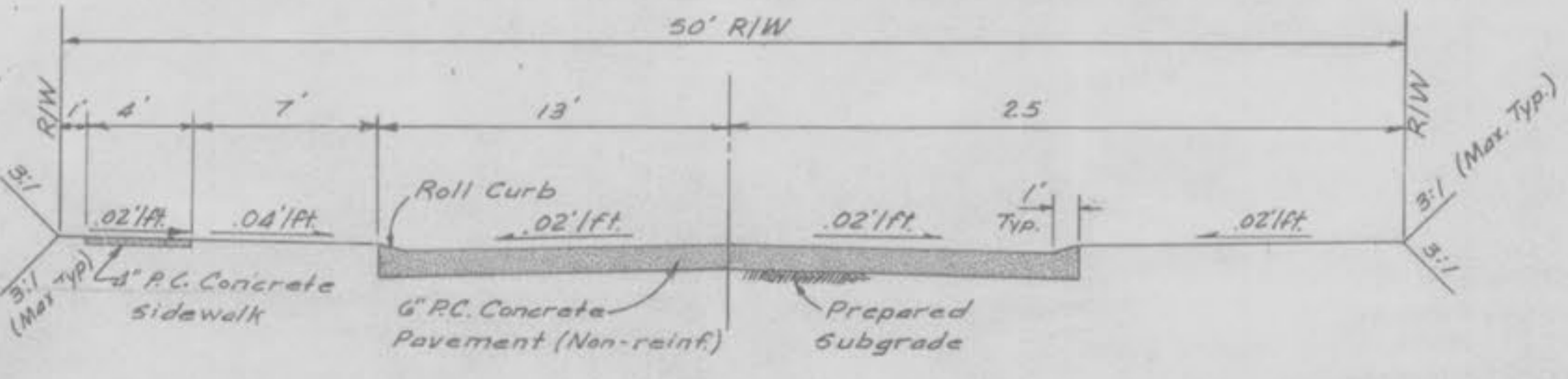
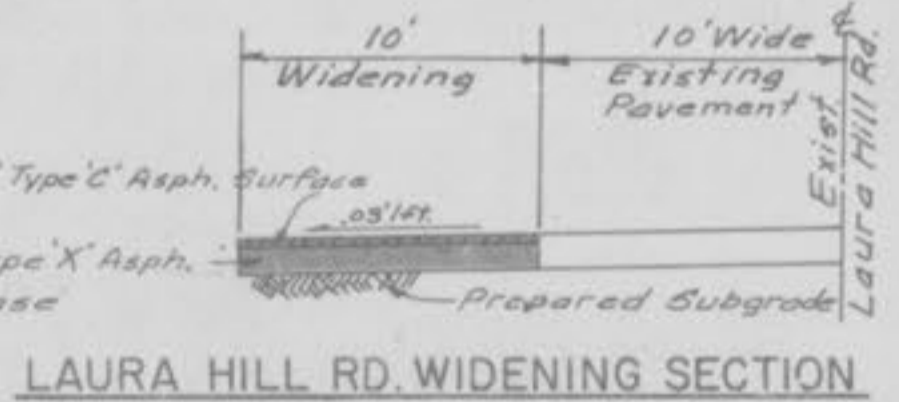
EXISTING	DESCRIPTION	PROPOSED
---	CONTOUR	(LOB)
---	STORM SEWER	---
---	INLET	---
---	SANITARY SEWER	---
---	MANHOLE	---
---	CONCRETE	---
---	ASPHALT	---
---	TO BE REMOVED	(T.B.R.)
---	NOT TO SCALE	N.T.S.
---	POWER POLES	---
---	FIRE HYDRANT	---
---	WATER VALVE	---
---	WATER MAIN	---
---	FLARED END SEC.	---
---	SINGLE CURB INL.	S.C.I.
---	DOUBLE CURB INL.	D.C.I.

Note: Length and location of Sanitary Sewer Laterals and Water Services shown on plans are approximate. Water Service stations are from roadway &.

SUMMARY OF EARTHWORK

Excavation 9,900 C.Y.
 Fill 9,900 C.Y.
 Balanced Earthwork
 Note: Fill Volumes have been Adjusted for shrinkage

B.M. R.R. Spike in power pole at intersection of Laura Hill Road & Laura Hill Drive U.S.G.S. Elev. 591.77



HILLCREST ESTATES
 DEVELOPER: HILLCREST ENTERPRISES

GRADING PLAN

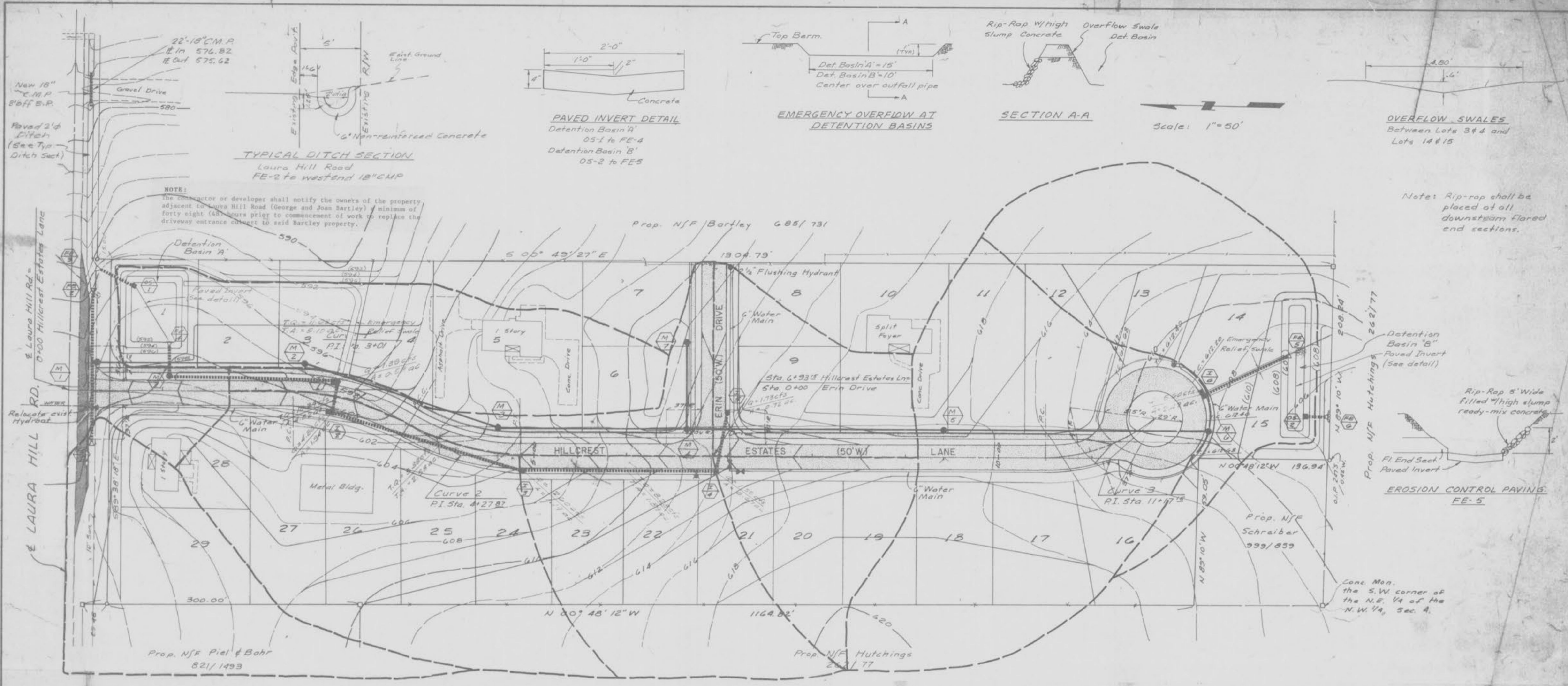
ALLAN E. HEMMINGHAUS, P.E.
 ENGINEERING SERVICES
 P.O. Box 1208 St. Louis, Missouri 63031
 (314) 831-2570

Design _____ Sheet No. _____
 Drawn _____
 Checked _____
 Scale 1" = 50'
 Date 1/1/85 of 4 Sheets

2

PROPERTY OF CITY OF FALLON BUILDING DEPARTMENT

Revised 1/1/85 Revised 2/1/85



LEGEND		PROPOSED
EXISTING	DESCRIPTION	(608)
— 608 —	CONTOUR	6" PVC
— 10" Sew —	STORM SEWER	M 2
○	INLET	(T.B.R.)
○	SANITARY SEWER	N.T.S.
□	MANHOLE	6" W.
□	CONCRETE	6" W.
□	ASPHALT	6" W.
+	TO BE REMOVED	6" W.
+	NOT TO SCALE	6" W.
+	POWER POLES	6" W.
+	FIRE HYDRANT	6" W.
+	WATER VALVE	6" W.
+	WATER MAIN	6" W.
+	FLARED END SEC.	6" W.
+	SINGLE CURB INL.	6" W.
+	DOUBLE CURB INL.	6" W.

DETENTION BASIN 'A'

Outfall Structure (05-1) Calc.
 Tributary Area = 6.56 Ac.
 Max. Flow = 6.56 x 1.7 = 11.15 cfs.

Slot discharge - orifice rectangular
 $Q = C A \sqrt{2gH}$
 $Q = 0.6 \frac{5' \times 20'}{12} \sqrt{64.4 (3.00)}$
 $Q = 9.34 \text{ cfs} < 11.15 \text{ cfs}$

Storage - Basin 'A'
 Rectangular - 58' x 72'
 Provide 3.00' Ave. depth
 Storage = 58 x 72 x 3 = 12,528 c.f.

DETENTION BASIN 'B'

Outfall Structure (05-2) Calc.
 Tributary Area = 4.02 Ac.
 Max. Flow = 4.02 x 1.7 = 6.83 cfs.

Slot discharge - orifice rectangular
 $Q = C A \sqrt{2gH}$
 $Q = 0.6 \frac{5' \times 20'}{12} \sqrt{64.4 (1.5)}$
 $Q = 6.85 \text{ cfs} < 6.83 \text{ cfs}$

Storage - Basin 'B'
 Rectangular - 140 x 20
 Provide 1.5' depth
 Storage = 140 x 20 x 1.5 = 4,200 c.f.

TOTAL DETENTION REQ.
 Required Detention = 10.43 (2.4 - 1.7) x 10.43 = 10.43 c.f.

Storage Provided:
 Basin 'A' = 12,528 c.f.
 Basin 'B' = 4,200 c.f.
 Total = 16,728 c.f. > 13,205 c.f. ok

OUTFALL STRUCTURE DETAIL
 N.T.S.

B.M. R.R. Spike in power pole at intersection of Laura Hill Road & Laura Hill Drive U.S.G.S. Elev. 591.77

HILLCREST ESTATES
 DEVELOPER: HILLCREST ENTERPRISES

DRAINAGE PLAN

ALLAN E. HEMMINGHAUS, P.E.
 ENGINEERING SERVICES
 P.O. Box 1208 St. Louis, Missouri 63031
 (314) 831-2570

Design	Sheet No.
Drawn	3
Checked	
Scale	1" = 50'
Date	of 4 Sheets

PROPERTY OF
 CITY OF FALLON
 BUILDING DEPARTMENT

FINAL SURVEY SHEET
 DATE: _____
 SURVEYED BY: _____
 PLOTTED BY: _____
 NOTE BOOK NO. _____
 AREA CHECKED: _____

ORIGINAL SURVEY SHEET
 DATE: _____
 SURVEYED BY: _____
 PLOTTED BY: _____
 NOTE BOOK NO. _____
 AREA CHECKED: _____

