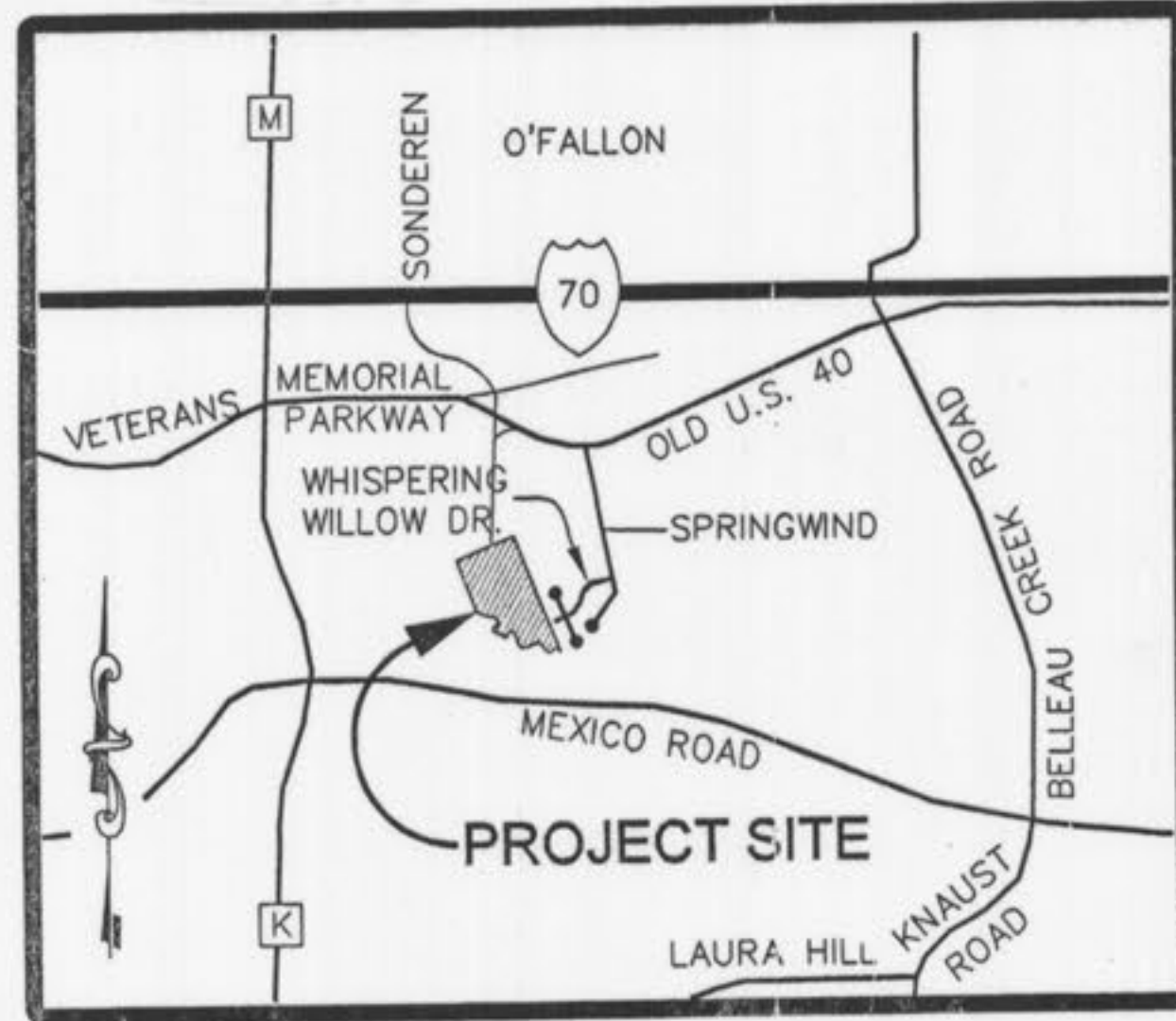


WHISPERING WOODS

A TRACT OF LAND BEING PART OF
U.S. SURVEY 1766 LOCATED IN TOWNSHIP 47 NORTH, RANGE 3 EAST,
ST. CHARLES COUNTY, MISSOURI

IMPROVEMENT PLANS AS-BUILT PLANS



LOCATION MAP

NOT TO SCALE

EXISTING	LEGEND	PROPOSED
542	CONTOURS	542
X 550	SPOT ELEVATIONS	XXX
	CENTER LINE	
	BUILDINGS, ETC.	
	TREE LINE	
	FENCE	
	STORM SEWERS	
	SANITARY SEWERS	
	CATCH BASIN	
	AREA INLET	
	GRATED INLET	
	DOUBLE CURB INLET	
	STORM MANHOLE	
	SANITARY MANHOLE	
	FLARED END SECTION	
	CLEANOUT	
	LATERAL CONNECTION	
	UTILITY OR POWER POLE	
	FIRE HYDRANT	
	TEST HOLE	
2"0	PAVEMENT	
6" W	GAS MAIN & SIZE	(2"0)
	WATER MAIN & SIZE	(6" W)
	TELEPHONE	(T)
	ELECTRIC (U) UNDERGROUND	(E)
	ELECTRIC (O) OVERHEAD	(OHW)
	FLOW LINE	
	TO BE REMOVED	TBR
TBR&R	TO BE REMOVED & RELOCATED/REPLACED	TBR&R
TC	TOP OF CURB	(TC)
	SWALE	
	LIGHT STANDARD	*
	STREET SIGN	+
P.S.	PARKING STALLS	P.S.
	YARD LIGHT	Y

FLOOD PLAIN NOTE:

ACCORDING TO THE FLOOD INSURANCE RATE MAP OF THE COUNTY OF ST. CHARLES, MISSOURI, UNINCORPORATED AREA (COMMUNITY PANEL NUMBER 291830037 E DATED AUGUST 2, 1996), A PORTION OF THIS PROPERTY LIES WITH ZONE AE. ZONE AE IS DEFINED AS AN AREA OF 100 YEAR FLOOD HAZARD, IN WHICH BASE FLOOD ELEVATIONS HAVE BEEN DETERMINED.

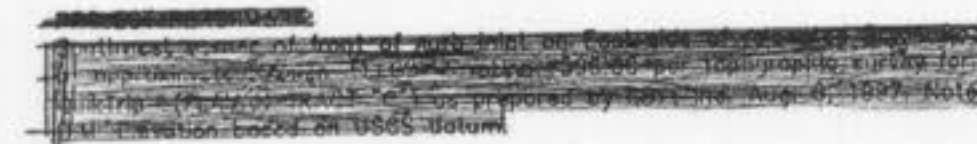
TREE ORDINANCE

Min. Tree retention = 20%
@ 20% = 5.78 AC Required
Existing trees = 28.9 ac.
Trees removed = 4.30 ac.
Trees saved = 4.30 acres
Trees required = 15 trees per acre, (28.9)(20) = 5.78 ac. -4.30 = 1.48 ac.
15 trees X 1.48 ac. = 22 trees required
Trees proposed = 27 trees (min. 2" caliper, 8' height) hardwood
27 trees proposed > 22 trees required
Complied with Ordinance

STREET TREES

1 tree shall be provided per every lot (single frontage) with multiple frontage lots having one tree on each street on which the lot has frontage. All street trees shall be located within the right-of-way as directed by Section 4.00.420 of the O'Fallon code.

TOTAL SITE AREA: 39.71 ac.



PROJECT BENCHMARK:

RM65: CHISEL L ON SOUTH AND WEST HEADWALL OF COUNTY HIGHWAY K BRIDGE OVER BELLEAU CREEK - ELEV. 509.47 N.G.V.D.

INDEX OF SHEETS

1	COVER SHEET
2-4	SITE PLANS
5-7	GRADING PLANS
8-11	STREET PROFILES
12-14	SANITARY SEWER PROFILES
15-18	STORM SEWER PROFILES
19-21	DRAINAGE AREA MAPS
22	HYDRAULIC CALCULATIONS
23	OUTFALL STRUCTURE DETAILS
24	DETENTION POND SECTIONS
25-27	WATER DISTRIBUTION PLAN
28	WARPIING DETAILS
SC1	SILTATION CONTROL DETAILS
TCP	TRAFFIC CONTROL PLAN
CD1 - CD6	CONSTRUCTION DETAILS
WD-1	WATER DETAILS
RW1-RW2	RETAINING WALL DETAILS
LS1	LANDSCAPE PLAN

SEWER CONSTRUCTION NOTES

- All storm and sanitary sewer construction methods to conform to latest standards and specifications of the applicable codes and shall conform to all appropriate City of O'Fallon standards.
- After all 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.
- Drainage pipe shall be reinforced concrete class III except as noted on plans.
- Joining material for Poly Vinyl Chloride (PVC) Sanitary Sewers shall conform to ASTM Specification D-3212. All PVC pipe shall conform to ASTM D-3034, Type PSM with a SDR rating of 35, or lower.
- Manhole frames and covers shall be standard frames and covers as approved by the governing authority.
- Trenches under existing pavement and under areas to be paved shall be backfilled with 3/4" minus crushed limestone.
- In all areas where sewer and appurtenances are to be constructed in filled ground, the fill will be placed to approximate final grade and compacted to 90% of maximum dry density as determined by the modified proctor prior to excavating and installing pipe.
- The sewer contractor may construct the building sewer laterals in conjunction with the sanitary main, trunk or lateral sewers, within development, provided that the building sewer lateral terminates five (5) feet, or more, outside the proposed, or existing building line or foundation wall.
- All manhole and inlet tops built without elevations furnished by the engineer will be the responsibility of the Sewer Contractor. At the time of construction stakeout of the sewer lines, all curb and grate inlets will be face staked, provided stake does not fall in the ditch line. If stakes fall within the ditch line the sewer company or job superintendent shall notify the engineer. If stakes are needed and allow 48 hours for cuts. Tops of manholes, inlets, valve boxes, etc. shall conform to Finished Grade.
- All standard street curb inlets to have front of inlet two feet (2.25) behind curb. All area inlets open 4 sides except as noted.
- All sanitary building connections have been designed so that the minimum vertical distance from the low point of the finished floor to the flow line of a sanitary sewer at the corresponding building connection is not less than the diameter of the pipe plus a vertical distance of 2 1/2 feet.
- All filled areas under buildings, proposed storm and sanitary sewer lines, and paved areas shall be placed in a maximum of 9" lifts and compacted to a minimum of 90 percent of maximum dry density as determined by the Modified AASHTO Compaction Test, ASTM D1557, unless otherwise recommended in the Soils Report for this project. Tests shall be taken at a maximum of 50 foot intervals along the route of the pipe, at a maximum of two feet vertically, and starting at the bottom of the fill and continuing through the fill to the top of the pipe at 8' intervals and laterally on each side the pipe for a distance equal to the depth of fill from the top of pipe to virgin soil.
- When P.V.C. pipe is used, appropriate rubber seal waterstop, as approved by the sewer district, shall be installed between PVC pipe and masonry (concrete & brick) structure.
- It is the contractor's responsibility to confirm the location of existing utilities and/or underground facilities by notifying utility companies prior to construction.
- Gas, water and other underground utilities shall not conflict with the depth or horizontal location of existing and proposed sanitary and storm sewers including building laterals.
- All construction methods and materials used shall conform to current applicable standards.
- Shop drawings are required for construction of non-standard reinforced concrete structures.
- Face of curb inlets shall be flush with face of Vertical Curb when used.
- All storm and sanitary trench backfills shall be water jetted.
- All sanitary manhole tops shall be set 0.2' higher than the proposed ground except in pavement areas.
- All sanitary manholes shall have a 31 mil. thick coat tar pitch waterproofing.
- All sanitary service lines shall have a 6" diameter for multi-family and a 4" diameter for single-family developments.
- A drop of 0.2 feet is required through all sanitary & storm manholes and inlets.
- The City of O'Fallon shall be notified at least 48 hours prior to construction of sanitary sewers for coordination and inspection.
- Brick shall not be used on manholes.
- All exterior sanitary sewer manholes shall be waterproofed on the exterior in accordance with Missouri Dept. of Natural Resources specifications 10 CRS-8.120(7)(E).
- All PVC sanitary sewer pipe to be SDR-35 or equal with "clean" 1/2 inch to 1 inch granular stone bedding uniformly graded. This bedding shall extend from 4 inches below the pipe to a springline of pipe. Immediate backfill over pipe shall consist of same size "clean" of "minus" stone from springline of pipe to 6 inches above the top of pipe.
- All pipes shall have positive drainage through manholes.
- Sanitary sewer connections shall be as approved by the City of O'Fallon Sewer District.
- All single and double curb inlets shall have a 5/8" Ø trash bar centered in the inlet opening.
- One eye or "T" wye connections to sanitary sewer mains, approved by the City of O'Fallon will be allowed.

AS-BUILT SANITARY AND STORM SEWER FINAL MEASUREMENT PLAT

As of _____, I certify that the actual sewer lengths, depths, flowlines, depths of structures and locations with respect to existing or proposed easements have been measured. The results of these measurements are shown on this set of Final Measurement Plans. Since the true 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 the designated existing or proposed easements except as follows:



PROPERTY DESCRIPTION:

A TRACT OF LAND BEING PART OF A TRACT OF LAND DESCRIBED IN A DEED TO FLORENCE LOEFFLER, AS TRUSTEE, RECORDED IN DEED BOOK 1384 PAGE 1090 OF THE ST. CHARLES COUNTY RECORDS AND BEING SITUATED IN U.S. SURVEY 1766, TOWNSHIP 47 NORTH, RANGE 3 EAST, ST. CHARLES COUNTY, MISSOURI, AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT A STONE FOUND FOR THE NORTHWEST CORNER OF WINDSOR PLAT ONE AS PER THE PLAT THEREOF RECORDED IN PLAT BOOK 29 PAGES 161-162 OF THE ST. CHARLES COUNTY RECORDS, SAID POINT ALSO BEING ON THE NORTH LINE OF U.S. SURVEY 1766; THENCE WITH THE WEST LINE OF WINDSOR PLAT ONE AND ITS DIRECT PROLONGATION, SOUTH 22°21'39" EAST 212.89 FEET TO A POINT ON THE WEST LINE OF WINDSOR PLAT FOUR AS PER THE PLAT THEREOF RECORDED IN PLAT BOOK 30 PAGES 395-396 OF THE ST. CHARLES COUNTY RECORDS, FROM SAID POINT A FOUND STONE BEARS SOUTH 22°21'39" EAST 391.63 FEET AND A FOUND IRON ROD BEARS SOUTH 63°52'58" EAST 2.26 FEET, SAID POINT ALSO BEING A POINT ON THE CENTERLINE OF BELLEAU CREEK ESTABLISHED PER TOPOGRAPHIC INFORMATION BY WALKER ASSOCIATES, INC. PROJECT NO. 02-3-40, FLY DATE OF 3-14-02; THENCE WITH SAID MEANDERING CENTERLINE THE FOLLOWING COURSES AND DISTANCES: NORTH 63°52'58" WEST 94.59 FEET TO A POINT; THENCE NORTH 80°00'00" WEST 43.36 FEET TO A POINT; THENCE SOUTH 29°09'59" WEST 51.31 FEET TO A POINT; THENCE SOUTH 68°39'36" WEST 50.43 FEET TO A POINT; THENCE NORTH 70°35'45" WEST 51.76 FEET TO A POINT; THENCE NORTH 35°06'35" WEST 169.63 FEET TO A POINT; THENCE NORTH 63°54'51" WEST 50.53 FEET TO A POINT; THENCE SOUTH 81°43'29" WEST 48.27 FEET TO A POINT; THENCE SOUTH 63°07'03" WEST 123.06 FEET TO A POINT; THENCE SOUTH 82°52'20" WEST 114.54 FEET TO A POINT; THENCE NORTH 58°00'11" WEST 67.19 FEET TO A POINT; THENCE NORTH 16°02'06" WEST 147.49 FEET TO A POINT; THENCE NORTH 27°38'28" WEST 103.88 FEET TO A POINT; THENCE NORTH 68°20'30" WEST 51.09 FEET TO A POINT; THENCE SOUTH 60°22'47" WEST 39.57 FEET TO A POINT; THENCE SOUTH 15°08'01" WEST 60.04 FEET TO A POINT; THENCE SOUTH 60°06'20" WEST 40.43 FEET TO A POINT; THENCE NORTH 61°29'58" WEST 137.76 FEET TO A POINT; THENCE NORTH 69°38'25" WEST 96.65 FEET TO A POINT; THENCE NORTH 15°21'14" WEST 46.53 FEET TO A POINT; THENCE NORTH 50°59'16" EAST 48.96 FEET TO A POINT; THENCE NORTH 87°32'48" EAST 60.66 FEET TO A POINT; THENCE NORTH 30°32'22" EAST 29.30 FEET TO A POINT; THENCE NORTH 18°54'54" WEST 103.68 FEET TO A POINT; THENCE NORTH 45°32'10" WEST 56.21 FEET TO A POINT; THENCE NORTH 79°19'39" WEST 163.68 FEET TO A POINT; THENCE NORTH 68°02'21" WEST 152.63 FEET TO A POINT ON THE EAST LINE OF A TRACT OF LAND DESCRIBED IN DEED TO HARRISON AND DORIS YEAKLEY RECORDED IN DEED BOOK 2730 PAGE 70 OF THE ST. CHARLES COUNTY RECORDS; THENCE DEPARTING THE MEANDERING CENTERLINE, WITH THE EAST LINE OF SAID YEAKLEY TRACT AND ITS DIRECT PROLONGATION, NORTH 22°06'24" WEST 919.12 FEET TO THE ADDRESSAD NORTH LINE OF U.S. SURVEY 1766, SAID POINT ALSO BEING THE NORTHEAST CORNER OF BRAMBLETT HOLLOW AS PER THE PLAT THEREOF RECORDED IN PLAT BOOK 32 PAGES 342-343 OF THE ST. CHARLES COUNTY RECORDS AND ALSO BEING ON THE SOUTHERN LINE OF SPRING HILL PLAT TWO AS PER THE PLAT THEREOF RECORDED IN PLAT BOOK 32 PAGES 82-83 OF THE ST. CHARLES COUNTY RECORDS, FROM SAID POINT A FOUND IRON ROD BEARS SOUTH 58°33'58" WEST 0.13 FEET AND A FOUND STONE BEARS SOUTH 04°55'57" WEST 2.04 FEET; THENCE WITH THE SAID SOUTHERN LINE AND ITS DIRECT PROLONGATION, NORTH 67°19'09" EAST 1060.50 FEET TO THE POINT OF BEGINNING AND CONTAINING 1,729,944 SQUARE FEET (39.70 ACRES), MORE OR LESS, PER A BOUNDARY SURVEY BY THE STERLING COMPANY DURING THE MONTH OF FEBRUARY, 2003 AND BEING SUBJECT TO THE FLUCTUATION OF THE CENTERLINE OF BELLEAU CREEK BY MEANS OF ACCRETION AND/OR EROSION.

GRADING & CONSTRUCTION NOTES:

- All construction methods, materials and practices shall conform to all current applicable specifications of the governing agencies.
- Any destruction of existing improvements or features shall be repaired or replaced in kind by the contractor and shall remain the contractor's responsibility.
- Underground utilities have been plotted from available information and therefore their locations must 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 grading or construction of improvements.
- It shall be distinctly understood that failure to specifically mention any work which would normally be required to complete the project shall not relieve the contractor of his responsibility to perform such work.
- Contractor shall keep road clear of mud and debris.
- All filled areas to be compacted to a minimum of 90 percent of maximum dry density as determined by the Modified AASHTO Compaction Test, ASTM D1557-78, or as specified by the soils engineer.
- It shall be the grading contractor's responsibility to notify the soils engineer prior to work in progress and to comply with recommendations by the soils engineer with regards to composition, surface preparation and placement of fill.
- It shall be the grading contractor's responsibility to provide the location of any existing underground utilities by notifying utility companies prior to grading operations.
- The grading contractor shall cut or fill to subgrade elevation under all areas to be paved. (Subgrade is figured at pavement depth). Rough grading is to be completed within ± 0.20'.
- All drainage swales shall be sodded or seeded and mulched to prevent erosion.
- All stumps, limbs, and other debris are to be removed from the site unless a suitable dump area is approved in advance by the owner after consulting with the soils engineer. If burning is approved, Subgrade is included in the total bid yardage. (Subgrade is figured at pavement depth).
- Subgrade to receive fill which is steeper than 5:1 should be benched prior to placement of fill.
- If fill is to be placed in areas of soft soil, particularly in draws, drainage channels and other low lying areas, the soft soil shall be excavated until firm soil is encountered.
- All grading shall comply with the soils engineer's recommendations.
- Permanent grass is required at completion of grading or a 30 day suspension of grading will be imposed.
- A drainage easement will be granted to the City of O'Fallon for any creeks to remain in the development on the record plat.
- Siltation control will be installed prior to any grading or construction operations and shall be inspected and maintained as necessary to insure their proper function until sufficient vegetation has been established to prevent erosion.
- The installation and maintenance of all siltation controls shall be the responsibility of the developer.
- Additional siltation control may be required as directed by the local governing authority.
- All grading areas shall be protected from erosion by erosion control devices and/or seeding and mulching as required by the City of O'Fallon.
- All fill placed in proposed roads shall be compacted from the bottom of the fill up to 90 maximum density as determined by the Modified AASHTO T-100 Compaction Test or 95 maximum density as determined by the Standard Proctor Test AASHTO T-99. All tests shall be verified by a soils engineer concurrent with grading and backfilling operations.
- Erosion and sediment control structures shall be maintained throughout the construction process.
- The Developer shall provide the City of O'Fallon construction inspectors with soils reports prior to and during site soil testing.
- The contractor shall assume complete responsibility for controlling all siltation and erosion of the project area. The Contractor shall use whatever means necessary to control erosion and siltation including, but not limited to, staked straw bales and/or siltation fabric fences (possible methods of control are detailed in the plan). Control shall commence with grading and be maintained throughout the project until acceptance of the work by the Owner and/or the City of O'Fallon and/or MoDOT. The Contractor's responsibilities include all design and implementation as required to prevent erosion and the depositing of silt. The Owner and/or the City of O'Fallon and/or MoDOT may at their option direct the Contractor in his methods as deemed fit to protect property and improvements. Any depositing of any silt or mud on new or existing pavement or in new or existing sewers or scales shall be removed after each rain and affected areas cleaned to the satisfaction of the Owner and/or the City of O'Fallon and/or MoDOT.
- All erosion control systems shall be inspected and necessary corrections made within 24 hours of any rainstorm resulting in one-half inch of rain or more.
- Erosion control shall not be limited to what is shown on the plan. Whatever means necessary shall be taken to prevent siltation and erosion from entering natural streams, adjacent roadways, properties, ditches.
- No graded area shall remain bare for over 6 months without being seeded or mulched.
- No slope shall exceed 3(H):1(V).
- All filled places under proposed storm and sanitary sewer and/or paved areas shall be compacted to 90% of maximum density as determined by the Modified AASHTO T-100 Compaction Test or 95% of maximum density as determined by the Standard Proctor Test AASHTO T-99.
- When deemed necessary, positive steps should be exercised to prevent the soil from damaging adjacent property and siting up all storm drainage systems whether on or off site.
- All low places whether on-site or off-site should be graded to allow drainage by installing temporary ditches.
- Any wells and/or springs which may exist on this property should be located and sealed in a manner acceptable to the City of O'Fallon.
- All trash and debris on-site, either existing or from construction, must be removed and disposed of off-site.
- Debris and foundation material from any existing on-site building or structure which is scheduled to be razed for this development must be disposed of off-site. All existing buildings and fencing is to be removed.
- Soft soils 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 included in proposed public right-of-way locations or on any storm sewer location. Dewatering of existing pond shall not exceed 50 GPM.
- Please notify the Director of Public Works for the City of O'Fallon 24 hours prior to the commencement of grading. No building permits will be issued by the City of O'Fallon until construction plans are approved and the final plat recorded.
- A LOMR (Letter of Map Revision) from FEMA shall be obtained from FEMA once grading is completed to remove proposed lots out of the 100-year flood plain limits.
- The sediment control plan should be implemented before grading begins. This should follow the guidelines in the model sediment and erosion control regulations by St. Charles Soil and Water Conservation District.
- The low sill elevation for any proposed structures adjacent to the flood plain shall be a minimum of 1(one) foot above the 100-year flood elevation.
- All grading adjustments shall be submitted to and receive approval from the City of O'Fallon.
- When utilized temporary siltation ponds/structures shall be completely removed following re-establishment of vegetation. Ponds shall be backfilled, compacted, and graded to provide positive drainage and then seeded and mulched.

ESTIMATED CONSTRUCTION SCHEDULE

- CLEARING AND GRUBBING: PRESENT - JANUARY 2004
- ROUGH GRADING: JANUARY - APRIL 2004
- CONSTRUCTION OF SEWERS, UTILITIES, ROADS: APRIL - JUNE 2004
- FINAL GRADING: JULY 2004
- LANDSCAPING: AUGUST 2004

GENERAL NOTES:

- This site is in the following Districts: City of O'Fallon Sewer District City of O'Fallon Fire Protection District Fort Zumwalt School District
- This site is in the following Utility Service Area: Public Water District #2 AT&T Broadband Ameren UE Company St. Charles County Gas Company Century Tel
- Sanitary sewer connections shall be as approved by the Public Water and Sewer District No.2 and the City of O'Fallon.
- Storm Water Management shall be designed pursuant to the requirements of City of O'Fallon and shall discharge at an adequate natural discharge point.
- Total site area: 108
- Grading shall be per City of O'Fallon standards.
- Street trees, landscaping and street lights shall be per City of O'Fallon standards
- The underground utilities shown herein were plotted from available information and do not necessarily reflect the actual existence, size, type, number, or location of these or other utilities. The general contractor shall be responsible for verifying the actual location of all underground utilities, shown or not shown, and shall be located in the field prior to any grading, excavation, or construction of improvements.
- Compliance with the Underground Facility Safety and Damage Prevention Act, Chapter 319, RSMO.
- The Source of topographic information is by Aerial Survey by Walker & Assoc. dated 4-4-02.
- All proposed utilities and sewers shall be covered by easements granted to the appropriate utility companies and municipalities.
- This project is in compliance with Article 25 of the City of O'Fallon's Zoning Code.
- All sidewalks shall be 4' wide minimum and comply with City of O'Fallon ADA Standards.
- All streets must meet the specifications and installation requirements of the City of O'Fallon.
- Proposed light standards shall be 15' tall max.
- Development density = 2.72 Lots per Acre.
- Existing zoning R-1 P.U.D.
- No known wetlands are on the subject property.
- Lot Information: min. width of building line - 70', side yard - 6', front yard - 25', rear yard - 25'
- No lots shall have driveway access to Sonderen Extension.
- All necessary utilities (public or private) will be available, functioning and useable prior to the issuance of any occupancy permits.
- Any septic tanks or leach fields to be removed per St. Charles County requirements.
- Driveway Locations shall not interfere with the sidewalk accessible ramps.
- All utilities shall be located underground.
- City approval of the construction site plans does not mean single family and two family zoning can be constructed on the lots without meeting the building setbacks, as required by the zoning code.

PREPARED FOR:
WHISPERING L.L.C.
5031 NEW BAUMGARTNER ROAD
ST. LOUIS, MISSOURI 63129
(314) 487-6717

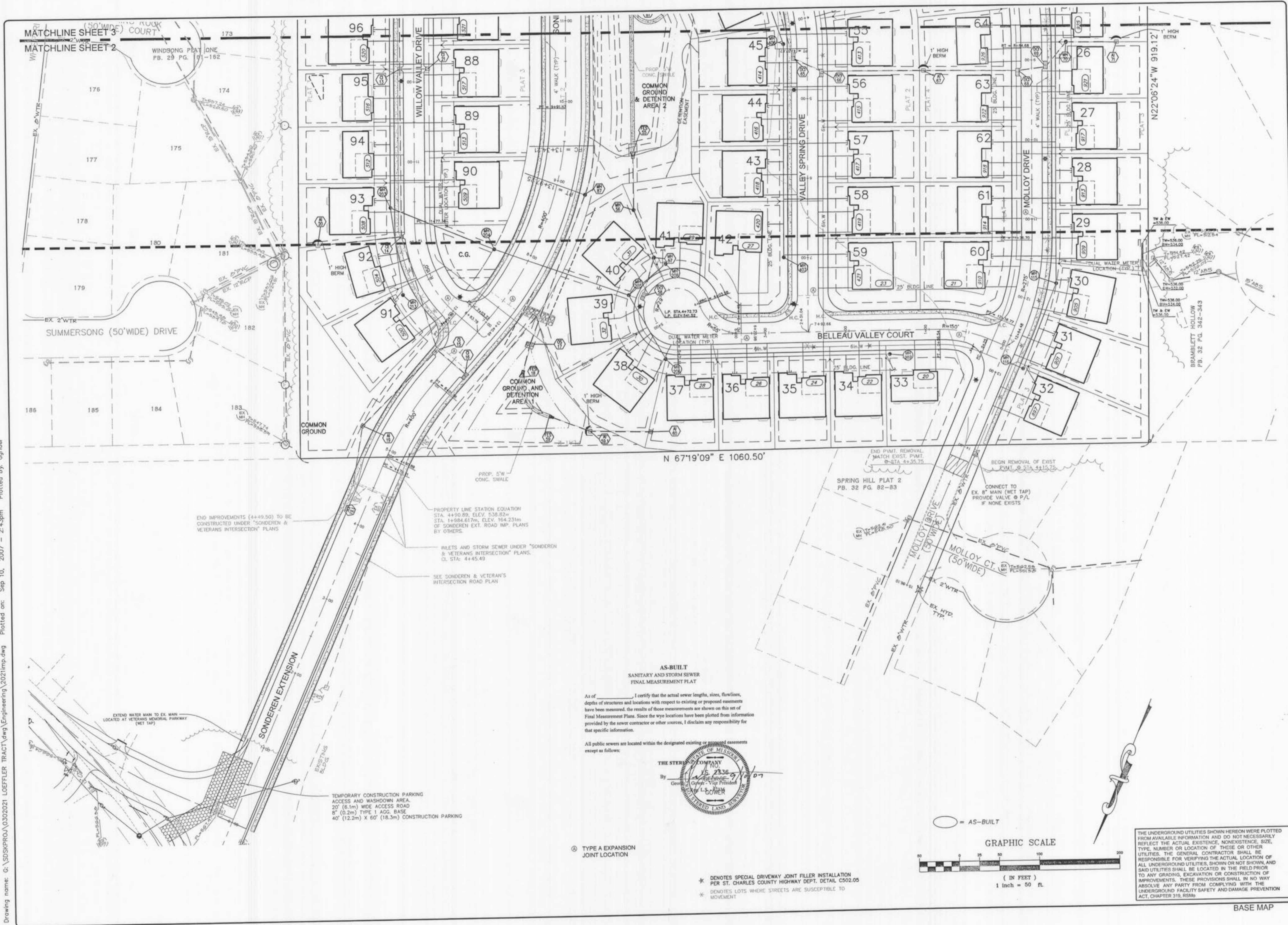
THE STERLING COMPANY
ENGINEERS & SURVEYORS
5055 NEW BAUMGARTNER ROAD
ST. LOUIS, MISSOURI 63129
(314) 487-0440 FAX: 487-9944
E-Mail: Sterling@sterling-engr.com

PROJECT: WHISPERING WOODS
P & Z File No. 1302.06
SHEET TITLE: COVER SHEET 1

NO. 03 02 021
M.S.D. SHEET
PH 1
28

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**AS-BUILT
SANITARY AND STORM SEWER
FINAL MEASUREMENT PLAT**

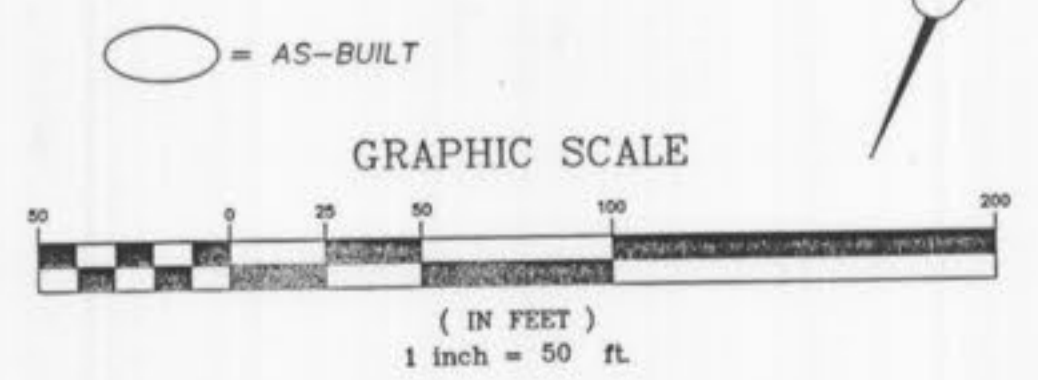
As of _____, I certify that the actual sewer lengths, sizes, flowlines, depths of structures and locations with respect to existing or proposed easements have been measured. The results of those measurements are shown on this set of Final Measurement Plans. Since the wye locations have been plotted from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

All public sewers are located within the designated existing or proposed easements except as follows:

① TYPE A EXPANSION JOINT LOCATION

* DENOTES SPECIAL DRIVEWAY JOINT FILLER INSTALLATION PER ST. CHARLES COUNTY HIGHWAY DEPT. DETAIL C502.05

* DENOTES LOTS WHERE STREETS ARE SUSCEPTIBLE TO MOVEMENT



THE UNDERGROUND UTILITIES SHOWN HEREON WERE PLOTTED FROM AVAILABLE INFORMATION AND DO NOT NECESSARILY REFLECT THE ACTUAL EXISTENCE, NONEXISTENCE, SIZE, TYPE, NUMBER OR LOCATION OF THESE OR OTHER UTILITIES. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE ACTUAL LOCATION OF ALL UNDERGROUND UTILITIES, SHOWN OR NOT SHOWN, AND SAID 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.

ISSUE	REMARKS/DATE
1	9/15/03 - Plotted
2	12/17/03 - Submitted
3	01/12/04 - Final Submittal
4	05/23/04 - Revise A-Joints
5	9/10/07 ADDRESSED CITY COMMENTS
6	10-11-07 ADDRESSED CITY COMMENTS

PREPARED FOR:
WHISPERING L.L.C.
5091 NEW BAUMGARTNER ROAD
ST. LOUIS, MISSOURI 63129
(314) 487-6711

PREPARED BY:
THE STERLING CO.
ENGINEERS & SURVEYORS
5055 NEW BAUMGARTNER ROAD
ST. LOUIS, MISSOURI 63129
(314) 487-0440 FAX 487-9544
E-Mail: Sterling@sterling-eng-survey.com

DRAWN:	DESIGNED:	CHECKED:
WHISPERING WOODS		
SITE PLAN		
PROJECT NO. 03	SHEET NO. 02	SHEET TOTAL 021
M.S.D. P#	2	OF 28
DIGITAL FILE LOCATION: S:\SDSKPROJ\0302021\DWG\2021tmp.dwg		

BASE MAP

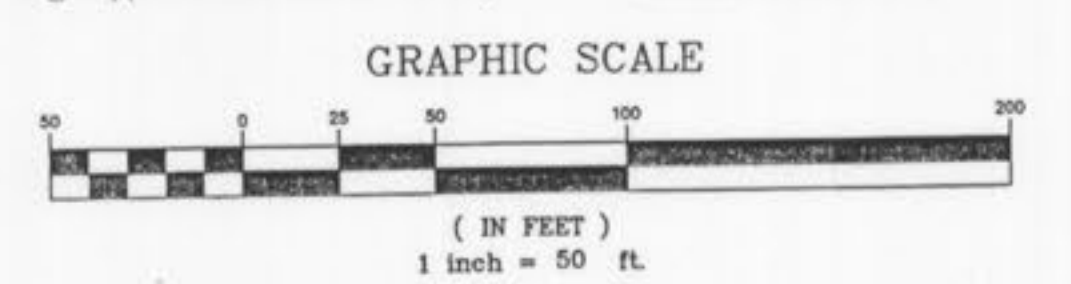
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MATCHLINE SHEET 4
MATCHLINE SHEET 3



As of _____ I certify that the actual sewer lengths, sizes, flowlines, depths of structures 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 style 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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THE UNDERGROUND UTILITIES SHOWN HEREON WERE PLOTTED FROM AVAILABLE INFORMATION AND DO NOT NECESSARILY REFLECT THE ACTUAL EXISTENCE, NONEXISTENCE, SIZE, TYPE, NUMBER OR LOCATION OF THESE OR OTHER UTILITIES. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE ACTUAL LOCATION OF ALL UNDERGROUND UTILITIES, SHOWN OR NOT SHOWN, AND SAID 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.

ISSUE	REMARKS/DATE
1	09/15/07 - PLOT
2	12/17/07 - SUBMITTED
3	01/12/08 - FINAL SUBMITTAL
4	02/28/08 - REVIEW BY OWNER
5	9-10-07 ADDRESS(557) CITY COMMENTS
6	10-11-07 ADDRESS(557) CITY COMMENTS

PREPARED FOR:
WHISPERING L.L.C.
5091 NEW BAUMGARTNER ROAD
ST. LOUIS, MISSOURI 63129
(314) 487-6717

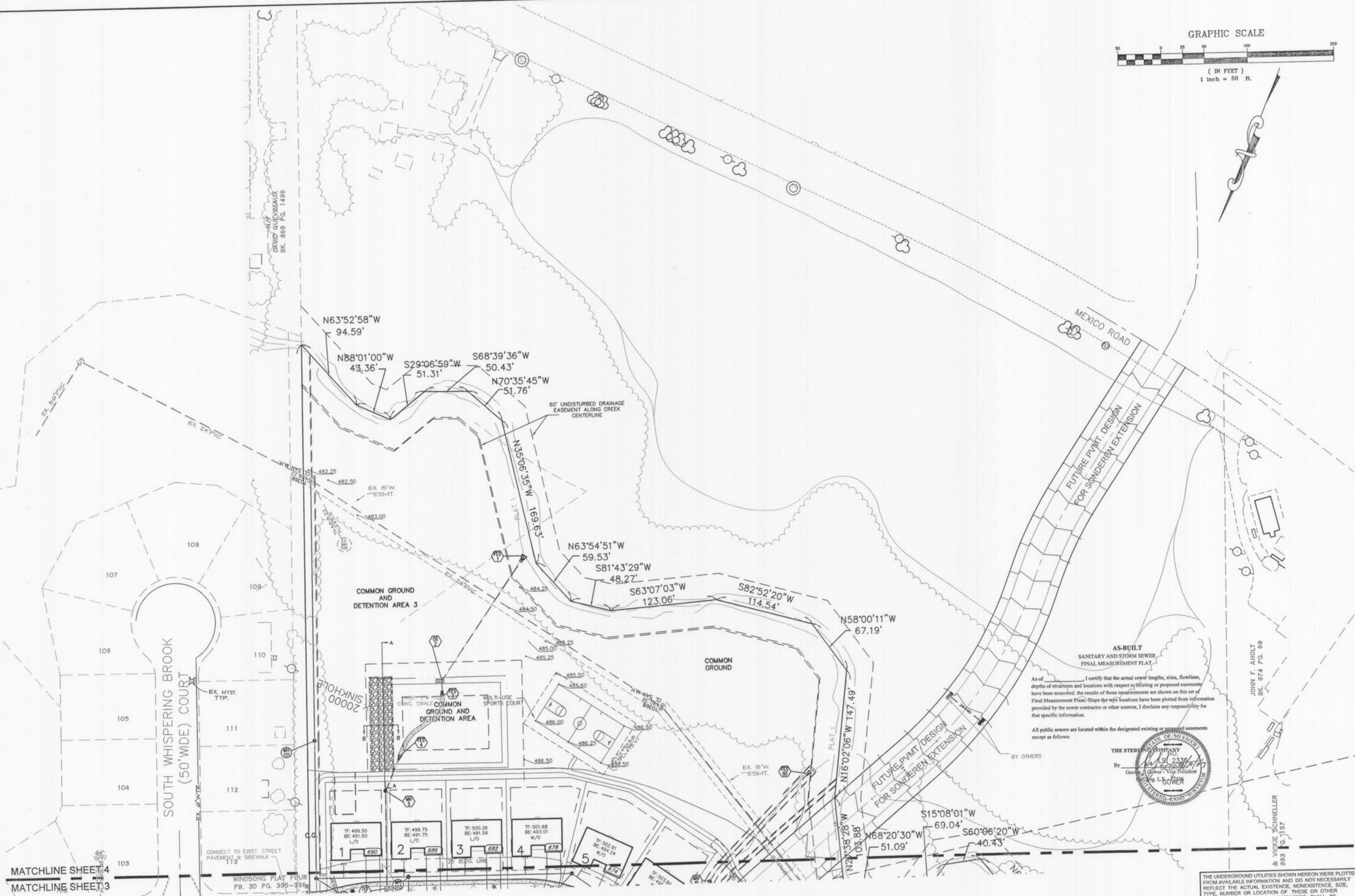
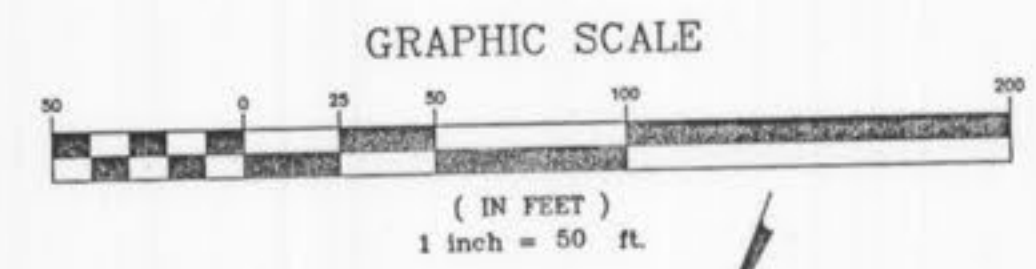
PREPARED BY:
THE STERLING CO.
ENGINEERS & SURVEYORS
5095 NEW BAUMGARTNER ROAD
ST. LOUIS, MISSOURI 63129
(314) 487-0440 FAX 487-8944
E-Mail: Sterling@sterling-eng-sur.com

PROJECT: **WHISPERING WOODS**
SHEET TITLE: **SITE PLAN**

NO.	03	02	021
M.S.D.			SHEET
PH		3	
DIGITAL FILE LOCATION	2021imp.dwg		
			OF 28

BASE MAP

Drawing name: G:\SDSKPROJ\0302021 LOEFFLER TRACT.dwg Engineering 2021imp.dwg Plotted on: Sep 10, 2007 - 2:49pm Plotted by: dgrider



ISSUE	REMARKS/DATE
1	09/15/03 - Plotted
2	12/17/03 - Submitted
3	01/12/04 - Final Submitted
4	02/23/04 - Review As-Plotted
5	7-10-07 - ST. LOUIS (0.65541) CITY COMMISSION
6	7-10-07 - ADDRESS 5091 CITY COMMISSION

PREPARED FOR:
WHISPERING L.L.C.
 5091 NEW BAUMGARTNER ROAD
 ST. LOUIS, MISSOURI 63129
 (314) 487-8717

PREPARED BY:
THE STERLING CO.
 ENGINEERS & SURVEYORS
 5055 NEW BAUMGARTNER ROAD
 ST. LOUIS, MISSOURI 63114
 (314) 487-8717
 E-Mail: Sterling@sterling-eng-survey.com

DRAWN: _____
 DESIGNED: _____
 CHECKED: _____

PROJECT:
WHISPERING WOODS

SHEET TITLE:
SITE PLAN

NO.	03	02	021
M.S.D.			
P#		4	
SPECIAL FILE LOCATION			
DATE			
BY			
DATE			
OF		28	

MATCHLINE SHEET 4
 MATCHLINE SHEET 3

WINDSONG PLAT FOUR
 PB. 3D PG. 395-396

As of _____ I certify that the actual sewer lengths, sizes, flowlines, depths of structures 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 95% 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 the designated existing or proposed easements except as follows:



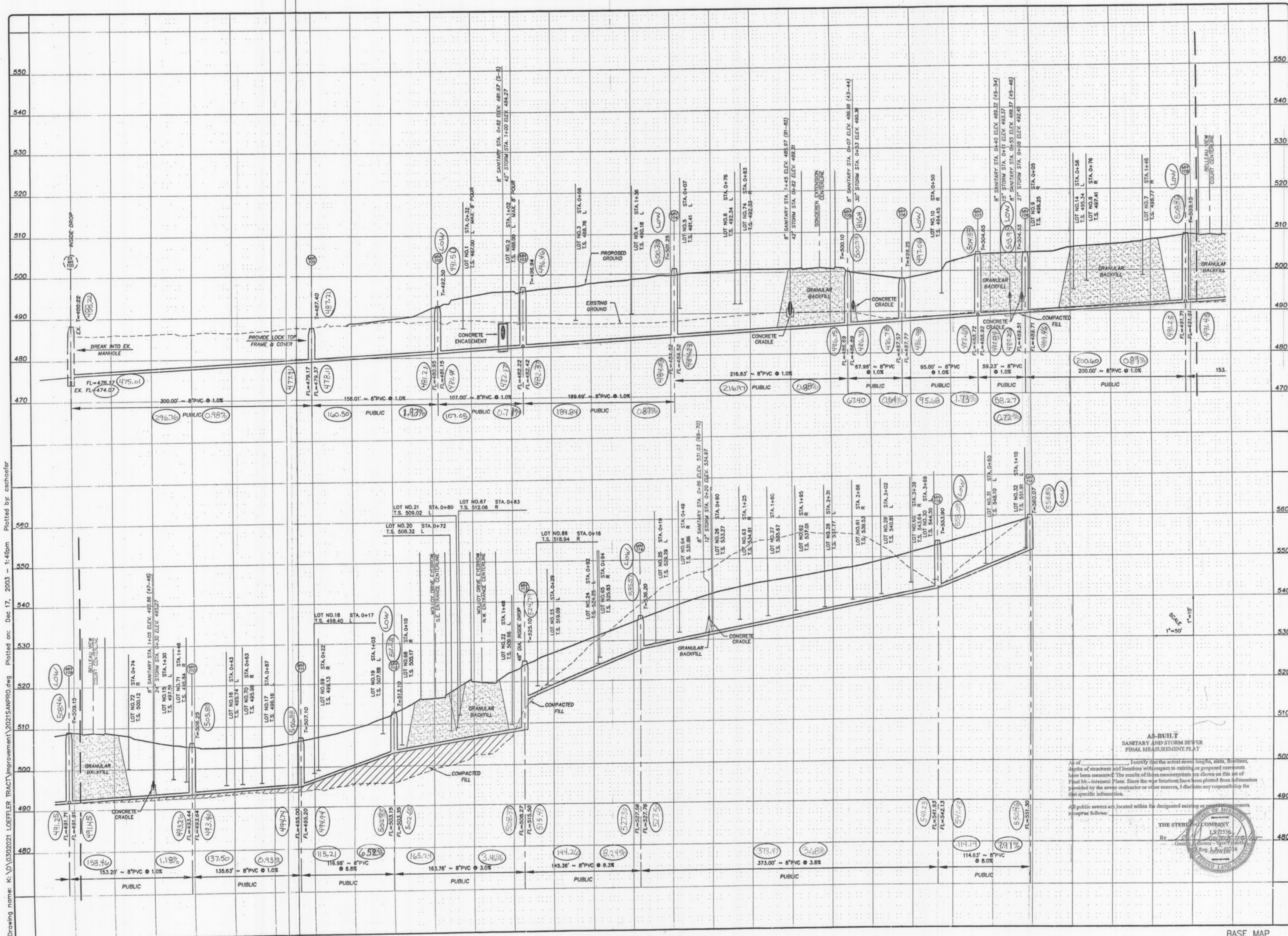
THE UNDERGROUND UTILITIES SHOWN HEREON WERE PLOTTED FROM AVAILABLE INFORMATION AND DO NOT NECESSARILY REFLECT THE ACTUAL EXISTENCE, NONEXISTENCE, SIZE, TYPE, NUMBER OR LOCATION OF THESE OR OTHER UTILITIES. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE ACTUAL LOCATION OF ALL UNDERGROUND UTILITIES, SHOWN OR NOT SHOWN, AND SAID 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.

- * DENOTES SPECIAL DRIVEWAY JOINT FILLER INSTALLATION PER ST. CHARLES COUNTY HIGHWAY DEPT. DETAIL C502.05
- * DENOTES LOTS WHERE STREETS ARE SUSCEPTIBLE TO MOVEMENT

○ = AS-BUILT

BASE MAP

Drawing name: K:\D\302021 LOEFFLER TRACT\improvement\2021\SANPRO.dwg Plotted on: Dec 17, 2003 - 1:49pm Plotted by: csc/aefer



AS-BUILT
SANITARY AND STORM SEWER
FINAL MEASUREMENT PLAN

All of _____ certify that the actual sewer lengths, sizes, flowlines, depths of structures and locations with respect to existing or proposed easements have been measured. The results of these measurements are shown on this set of Final Measurement Plans. Since the sewer 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 the designated existing or proposed easements except as follows:



ISSUE	REMARKS/DATE
1	8-04-03
2	9/16/03 Rev. (CHS)
3	12/17/03 - Submitted
4	12-15-07 ADDRESSED CITY COMMENTS
5	10-11-07 ADDRESSED CITY COMMENTS

PREPARED FOR:
WHISPERING L.L.C.
5091 NEW BAUMGARTNER ROAD
ST. LOUIS, MISSOURI 63129
(314) 487-6717

PREPARED BY:
THE STERLING COMPANY
ENGINEERS & SURVEYORS
5055 NEW BAUMGARTNER ROAD
ST. LOUIS, MISSOURI 63129
(314) 437-0440 FAX 437-2544
E-Mail: Sterling@sterling-eng-srv.com

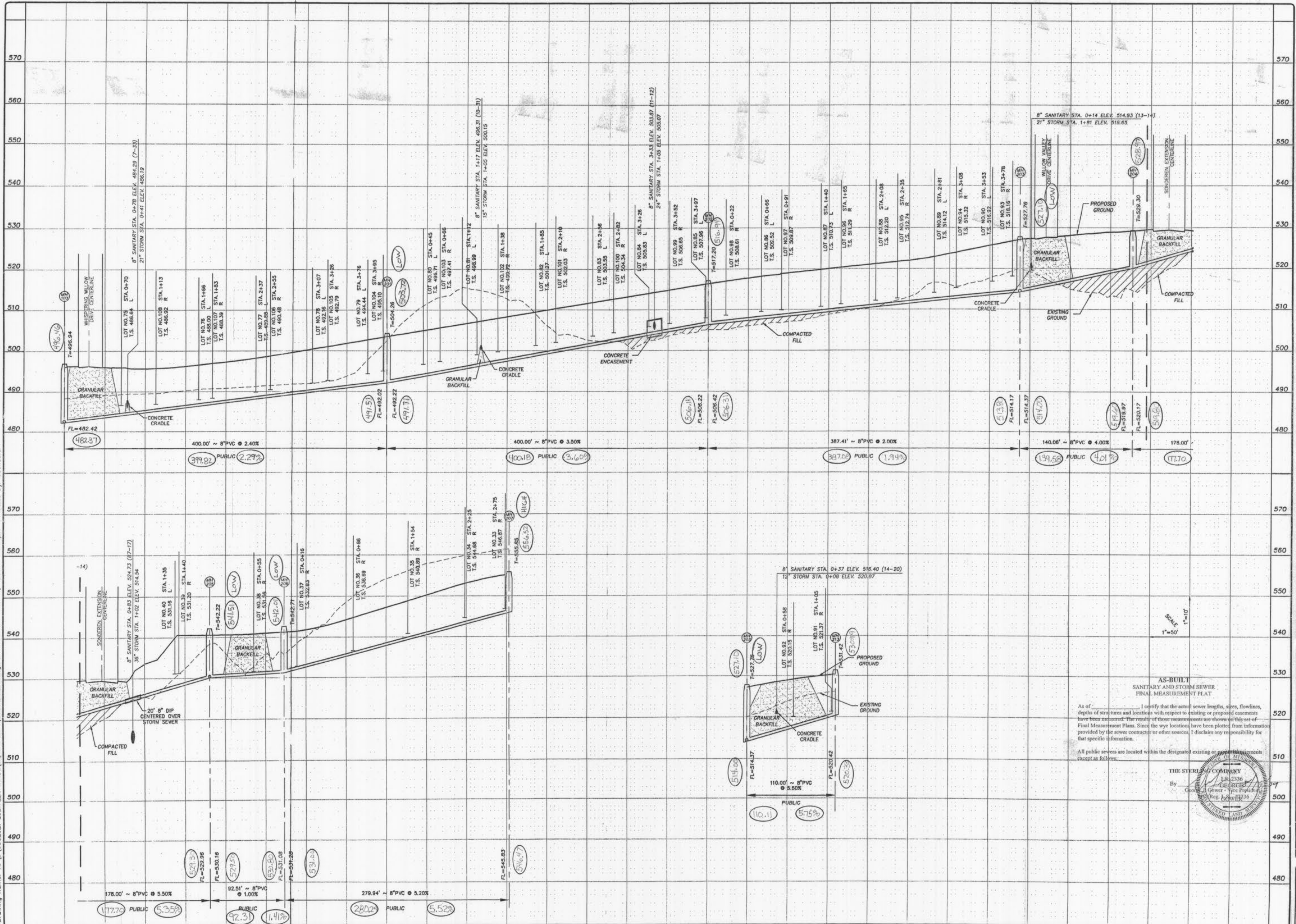
DESIGNED: *Muller*
CHECKED: *PL*
DATE: 12/17/03

PROJECT: **WHISPERING WOODS**
SHEET TITLE: SANITARY SEWER PROFILES

NO. 03	02	021
M.S.D.		SHEET
PH	12	28
		OF

DISTAL FILE LOCATION: SEWER-STERLING-2.dwg

BASE MAP



As of _____, I certify that the actual sewer lengths, sizes, flowlines, depths of structures and locations with respect to existing or proposed easements have been measured. The results of these 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 the designated existing or proposed easements except as follows:

THE STERLING COMPANY
 By _____
 GEORGE A. GOWER, Jr. (Professional Engineer No. 10000)
 505 NEW BAUMGARTNER ROAD
 ST. LOUIS, MISSOURI 63129
 (314) 487-0440 FAX 487-8844
 E-Mail: Sterling@sterling-survey.com

ISSUE	REMARKS/DATE
1	9-24-03
2	05/18/03 Rev. (CHS)
3	12/17/03 - Submittal
4	9-10-03 - LINGENBERG SITE COMMENTS
5	10-11-03 ADDRESSSED CITY COMMENTS

PREPARED FOR:
WHISPERING L.L.C.
 5091 NEW BAUMGARTNER ROAD
 ST. LOUIS, MISSOURI 63129
 (314) 487-6717

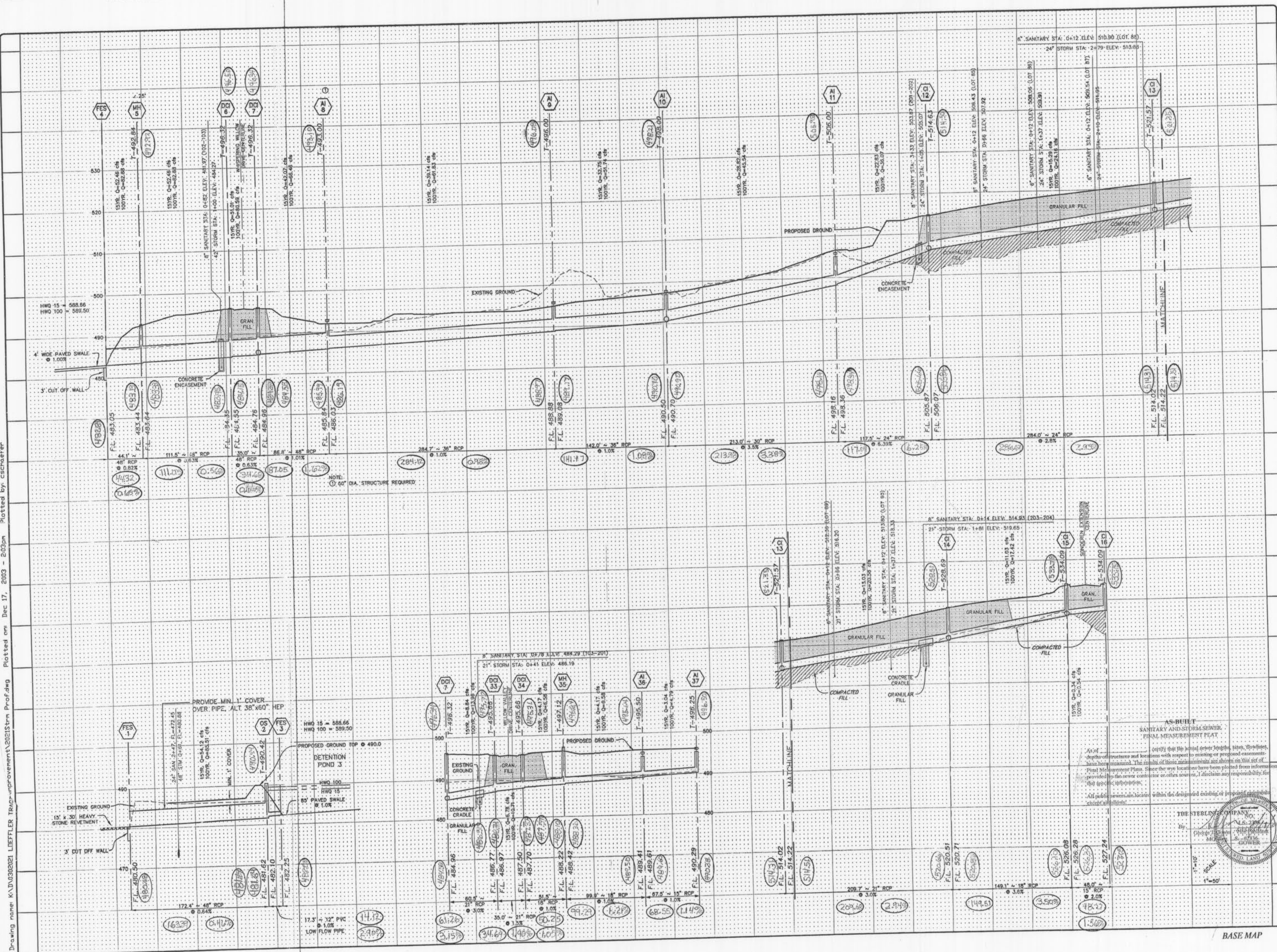


THE STERLING COMPANY
 ENGINEERS & SURVEYORS
 505 NEW BAUMGARTNER ROAD
 ST. LOUIS, MISSOURI 63129
 (314) 487-0440 FAX 487-8844
 E-Mail: Sterling@sterling-survey.com

PROJECT: 03 02 021
 M.S.D. SHEET 13 OF 28
 DIGITAL FILE LOCATION: SERVER-STERLING-2 SIX

PROJECT TITLE: WHISPERING WOODS
 SHEET TITLE: SANITARY SEWER PROFILES

Drawing name: KAD\0302021 LIEFFLER TRAC-improvement\2012\1stn Prof.dwg Plotted on Dec 17, 2003 - 2:03pm Plotted by: cschaefer



ISSUE	REMARKS/DATE
1	03-22-03
2	03-02-03
3	12-11-03
4	12/17/03 - Submitted
5	9-10-07 ADDRESS: 5091 NEW BAUMGARTNER ROAD
6	10-11-07 ADDRESS: 5091 NEW BAUMGARTNER ROAD

PREPARED FOR:
WHISPERING L.L.C.
 5091 NEW BAUMGARTNER ROAD
 ST. LOUIS, MISSOURI 63129
 (314) 487-6717

PREPARED BY:
THE STERLING CO.
 ENGINEERS & SURVEYORS
 5091 NEW BAUMGARTNER ROAD
 ST. LOUIS, MISSOURI 63129
 (314) 487-0440 FAX 487-8944
 E-Mail: Sterling@sterling-eng-survey.com

WHISPERING WOODS
 STORM PROFILES

PROJECT: 03 02 021
 M.S.D. SHEET 15 OF 28
 PH ORIGINAL FILE LOCATION

AS-BUILT SANITARY AND STORM SEWER FINAL MEASUREMENT PLOT

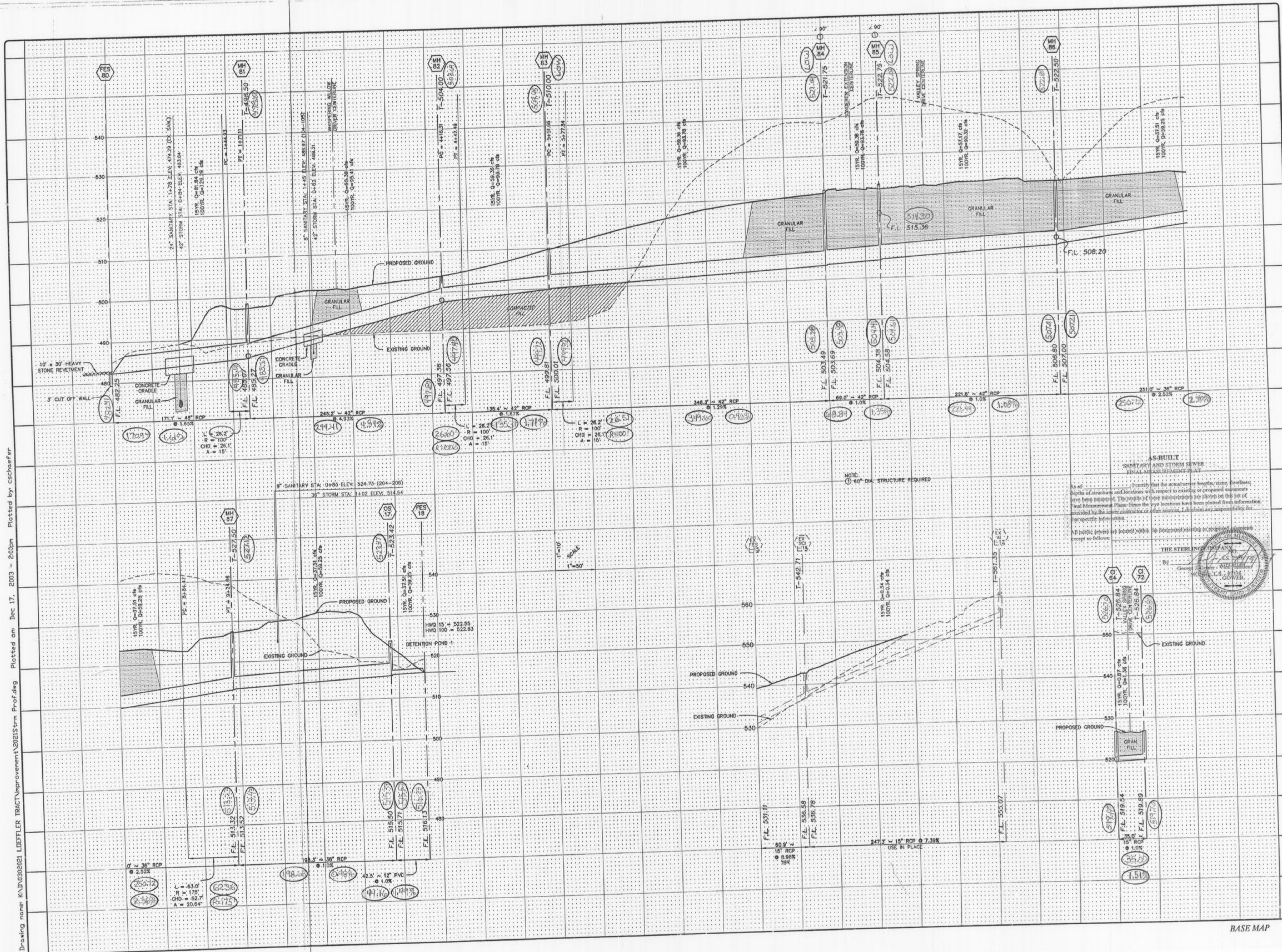
I certify that the actual sewer lengths, sizes, flowlines, depths of structures and locations with respect to existing or proposed easements have been measured. The results of those measurements are shown on this final of Final Measurement Plans. Since the pipe locations have been plotted from information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

All public sewerage located within the designated existing or proposed easements except as follows:

THE STERLING COMPANY
 U.S. 2997
 MOBILE, ALABAMA 36688
 S. J. GOWER
 REGISTERED LAND SURVEYOR

BASE MAP

Drawing name: K:\10302021\LEFFLER TRACT\Improvement\2021\Strm Prof.dwg Plotted on: Dec 17, 2003 - 2:03pm Plotted by: cschaefer



AS-BUILT
SANITARY AND STORM SEWER
FINAL MEASUREMENT PLAT

As of _____ I certify that the actual sewer lengths, sizes, flowlines, depths of structure and locations with respect to existing or proposed easements have been measured. The results of this measurement are shown on this set of final measurements. Plans since the eye locations have been plotted from information furnished by the contractor or other sources. I disclaim any responsibility for any specific information.

All public utilities are located within the designated easement of proposed easements except as follows:

THE STERLING COMPANY
L.S. GOWER
REGISTERED PROFESSIONAL SURVEYOR
MISSOURI

ISSUE	REMARKS/DATE
1	08/25/03
2	09/04/03
3	12/11/03
4	12/17/03 - Submittal
5	ADDRESS: CITY ELEMENTS
6	10-14-07 ADDRESS: CITY ELEMENTS

PREPARED FOR:
WHISPERING L.L.C.
5091 NEW BAUMGARTNER ROAD
ST. LOUIS, MISSOURI 63129
(314) 487-6717

12/17/2003

PREPARED BY:
THE STERLING COMPANY
ENGINEERS & SURVEYORS
5055 NEW BAUMGARTNER ROAD
ST. LOUIS, MISSOURI 63129
(314) 487-6717 FAX 487-6714
E-Mail: Staring@sterling-eng.com

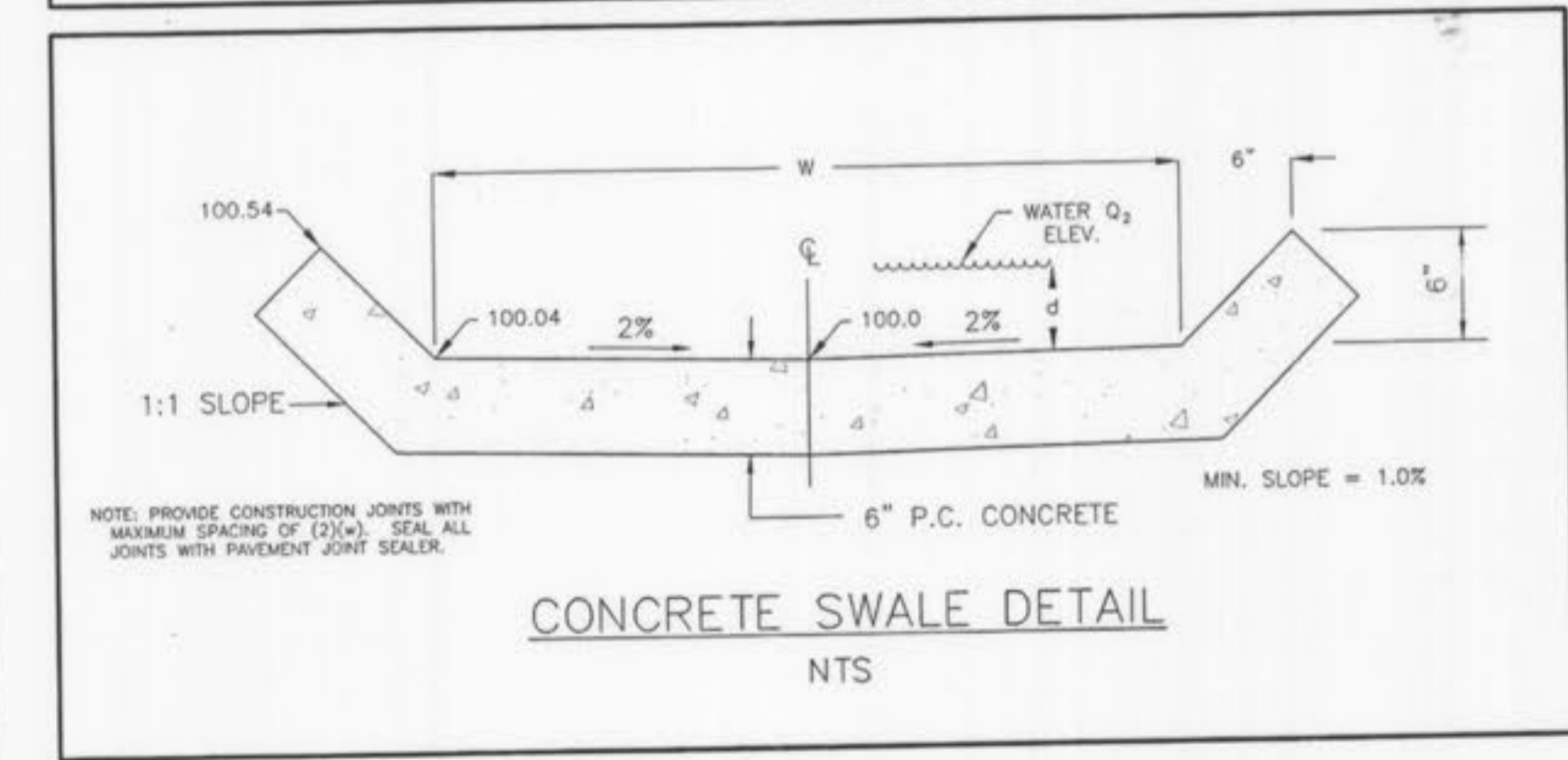
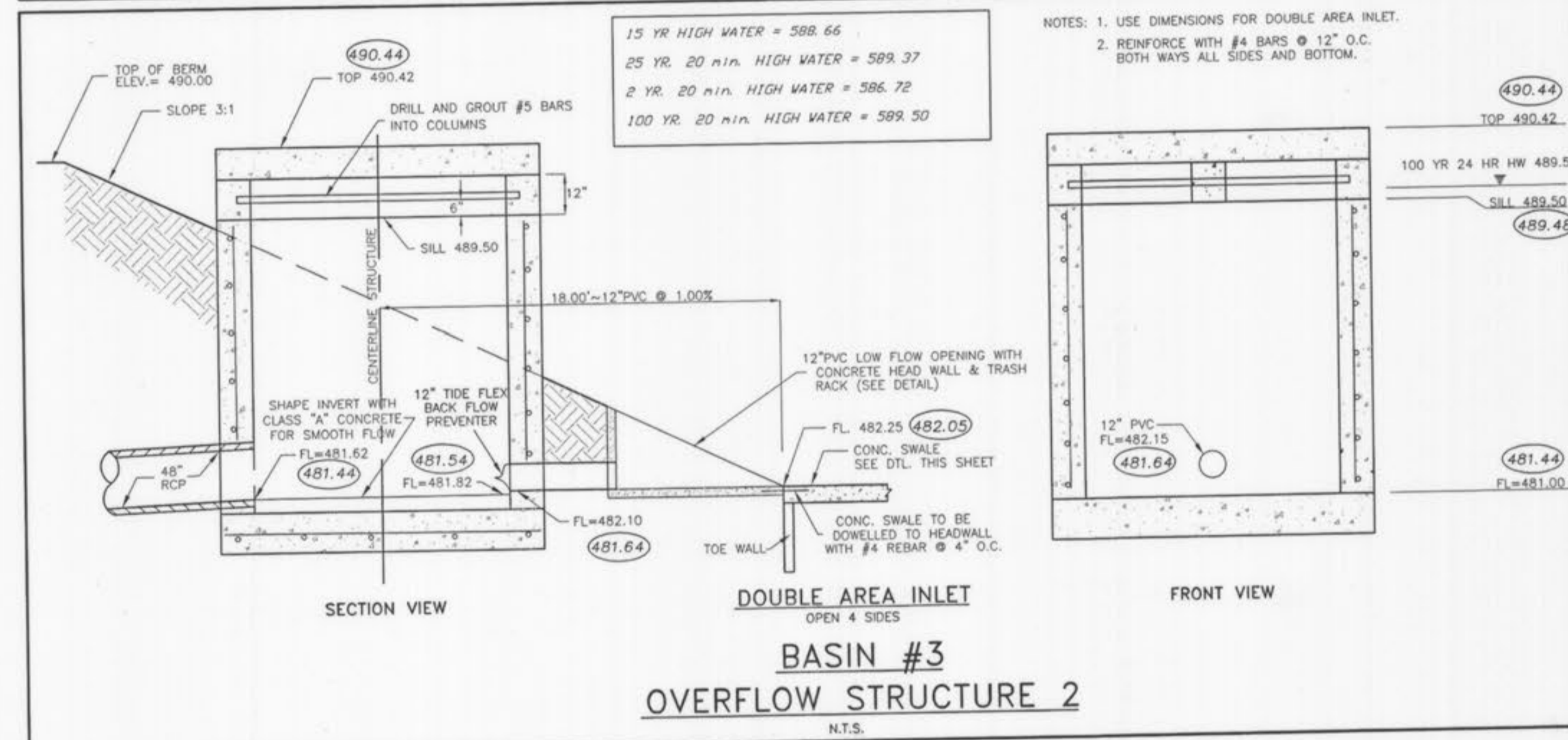
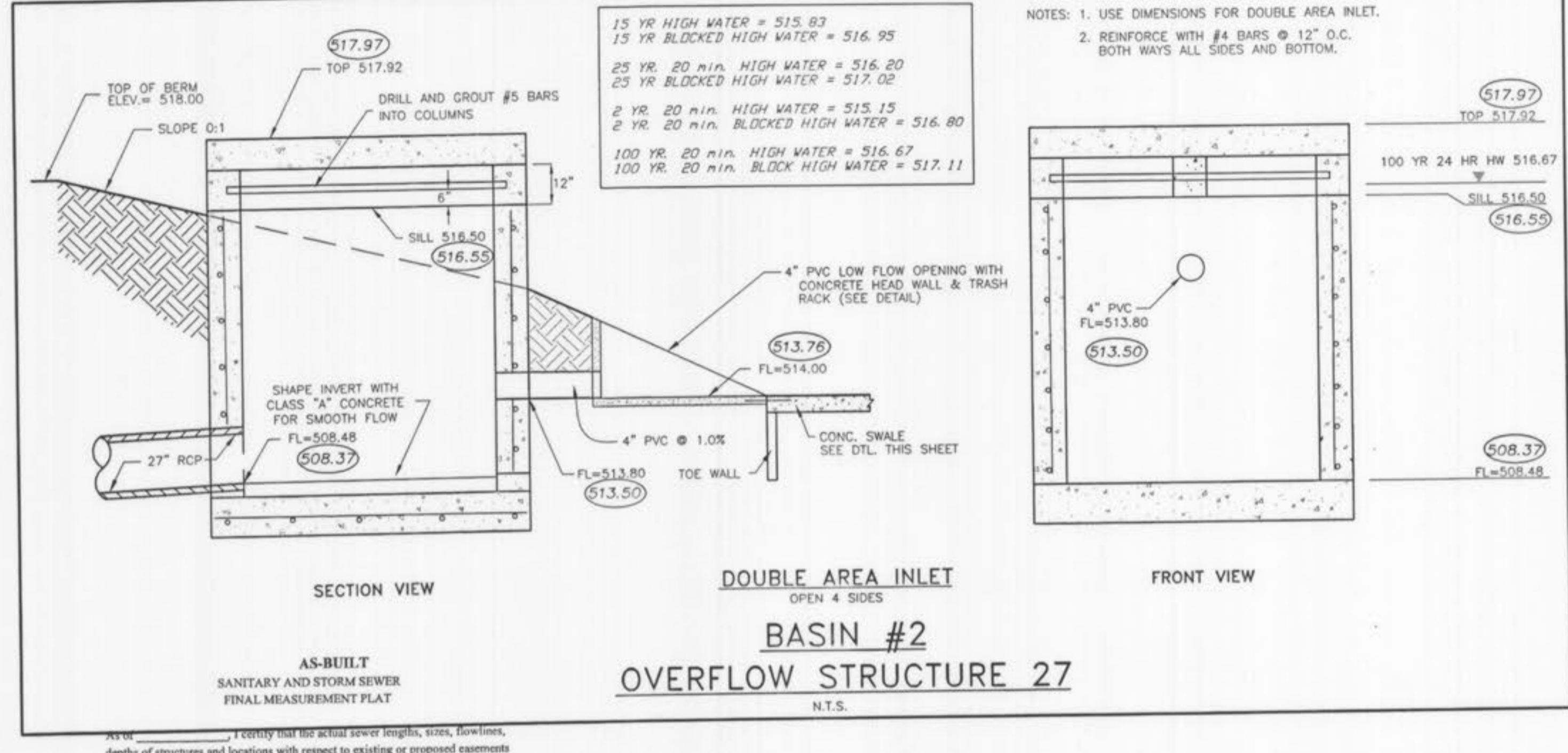
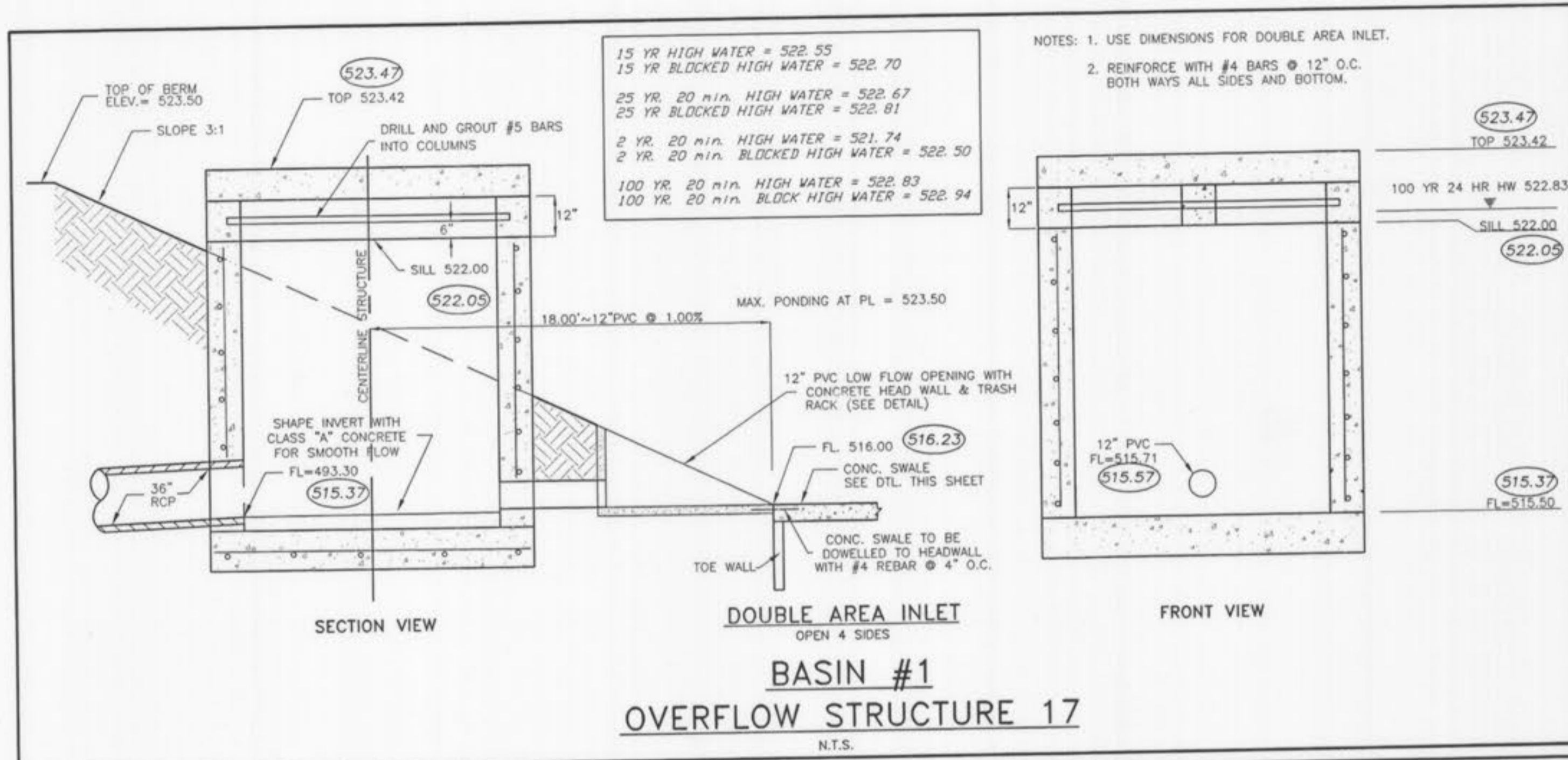
PROJECT: **WHISPERING WOODS** STORM PROFILES

DRAWN: _____ DESIGNED: _____ CHECKED: _____

NO.	03	02	021
M.S.D.			
P#		18	
OF			26

BASE MAP

Drawing name: G:\SOSKPROJ\0302021 LOEFFLER TRACT.dwg_Engineering_2021outfall.dwg Plotted on: Sep 10, 2007 - 3:17pm Plotted by: dprider



Detention Pond Paved Swale Capacity

Detention Pond 1:	$Q_2 = 22.88$ cfs,	$d=0.35'$,	$w=4.0'$
Detention Pond 2:	$Q_2 = 11.99$ cfs,	$d=0.25'$,	$w=4.0'$
Detention Pond 3:	$Q_2 = 35.83$ cfs,	$d=0.46'$,	$w=4.0'$

$S = \min 1.0\% \text{ } n = 0.013$

detention pond swale capacity Worksheet for Irregular Channel

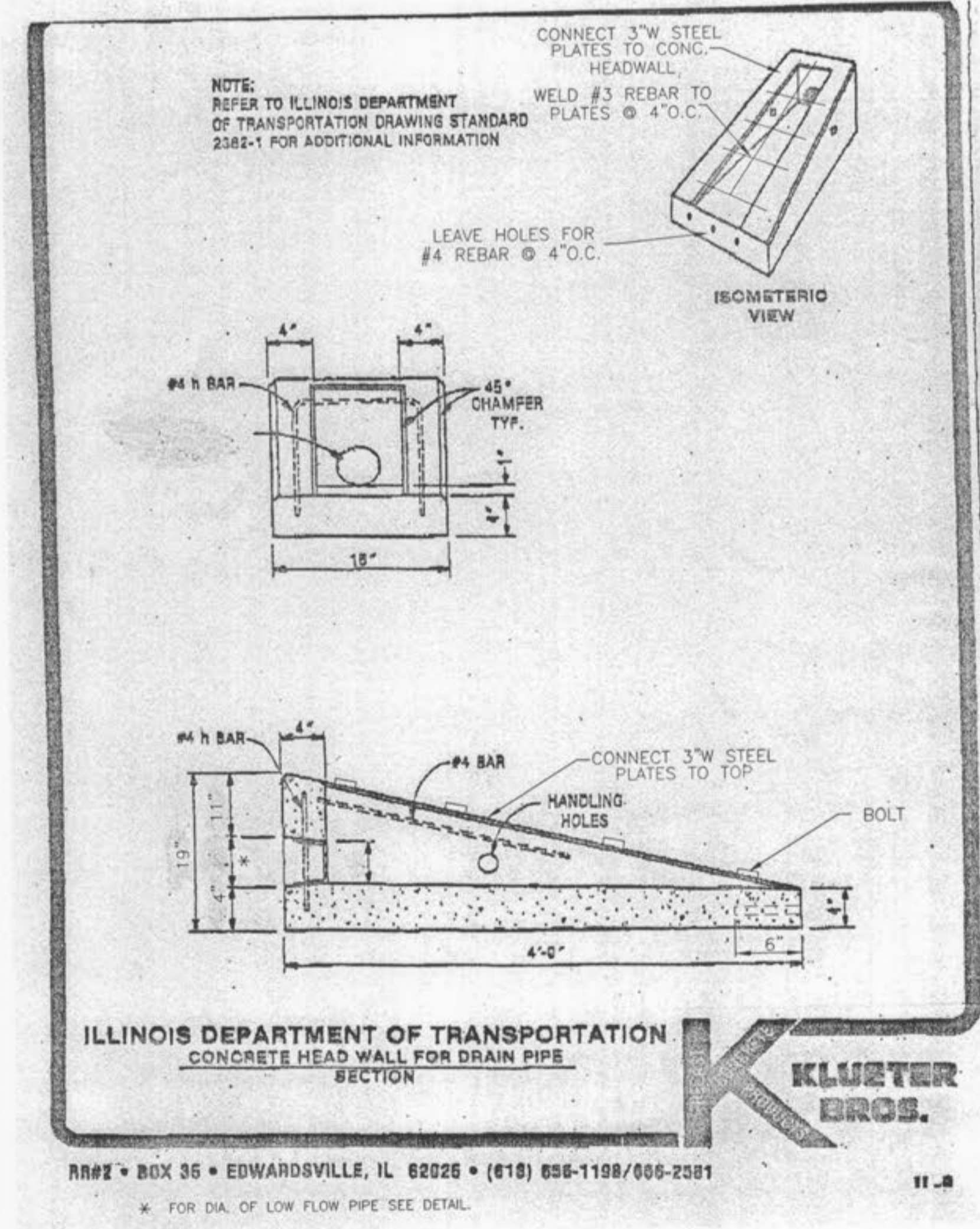
Project Description		Project File: J:\basin2\flow\swale\swale.ms2	
Worksheet: det pond swale		Flow Element: Irregular Channel	
Method: Manning's Formula		Solve For: Water Elevation	
Input Data			
Channel Slope:	0.100000 R/R	Elevation range:	100.00 ft to 100.54 ft
Station (ft)	Elevation (ft)	Start Station	End Station
0.00	100.54	0.00	5.00
0.50	100.04		
2.50	100.00		
4.50	100.04		
5.00	100.54		
Discharge:	22.88 cfs		
Results			
Wtd. Manning Coefficient:	0.013	Water Surface Elevation:	100.35 ft
Flow Area:	1.43 ft ²	Wetted Perimeter:	4.88 ft
Top Width:	4.63 ft	Height:	0.35 ft
Critical Depth:	0.35 ft	Critical Slope:	0.003453 R/R
Velocity:	15.96 ft/s	Velocity Head:	3.96 ft
Specific Energy:	104.31 ft	Froude Number:	5.05
Flow is supercritical.			

detention pond swale capacity Worksheet for Irregular Channel

Project Description		Project File: J:\basin2\flow\swale\swale.ms2	
Worksheet: det pond swale		Flow Element: Irregular Channel	
Method: Manning's Formula		Solve For: Water Elevation	
Input Data			
Channel Slope:	0.100000 R/R	Elevation range:	100.00 ft to 100.54 ft
Station (ft)	Elevation (ft)	Start Station	End Station
0.00	100.54	0.00	5.00
0.50	100.04		
2.50	100.00		
4.50	100.04		
5.00	100.54		
Discharge:	11.99 cfs		
Results			
Wtd. Manning Coefficient:	0.013	Water Surface Elevation:	100.25 ft
Flow Area:	0.95 ft ²	Wetted Perimeter:	4.58 ft
Top Width:	4.41 ft	Height:	0.25 ft
Critical Depth:	0.25 ft	Critical Slope:	0.00478 R/R
Velocity:	12.54 ft/s	Velocity Head:	2.48 ft
Specific Energy:	102.73 ft	Froude Number:	4.81
Flow is supercritical.			

detention pond swale capacity Worksheet for Irregular Channel

Project Description		Project File: J:\basin2\flow\swale\swale.ms2	
Worksheet: det pond swale		Flow Element: Irregular Channel	
Method: Manning's Formula		Solve For: Water Elevation	
Input Data			
Channel Slope:	0.100000 R/R	Elevation range:	100.00 ft to 100.54 ft
Station (ft)	Elevation (ft)	Start Station	End Station
0.00	100.54	0.00	5.00
0.50	100.04		
2.50	100.00		
4.50	100.04		
5.00	100.54		
Discharge:	35.83 cfs		
Results			
Wtd. Manning Coefficient:	0.013	Water Surface Elevation:	100.46 ft
Flow Area:	1.92 ft ²	Wetted Perimeter:	5.15 ft
Top Width:	4.83 ft	Height:	0.46 ft
Critical Depth:	0.46 ft	Critical Slope:	0.003537 R/R
Velocity:	18.00 ft/s	Velocity Head:	5.41 ft
Specific Energy:	105.87 ft	Froude Number:	5.22
Flow is supercritical.			



ISSUE REMARKS/DATE

1	09/15/03 - Plotted
2	12/11/03
3	12/17/03 - Submitted
4	9-18-07 ADDRESS CHANGE COMMENTS
5	10-11-07 ADDRESS CHANGE COMMENTS

PREPARED FOR:
WHISPERING L.L.C.
5091 NEW BAUMGARTNER ROAD
ST. LOUIS, MISSOURI 63129
(314) 487-6717

PREPARED BY:
THE STERLING CO.
ENGINEERS & SURVEYORS
5055 NEW BAUMGARTNER ROAD
ST. LOUIS, MISSOURI 63129
(314) 487-0440 FAX 487-9944
E-Mail: Sterling@sterling-eng-survey.com

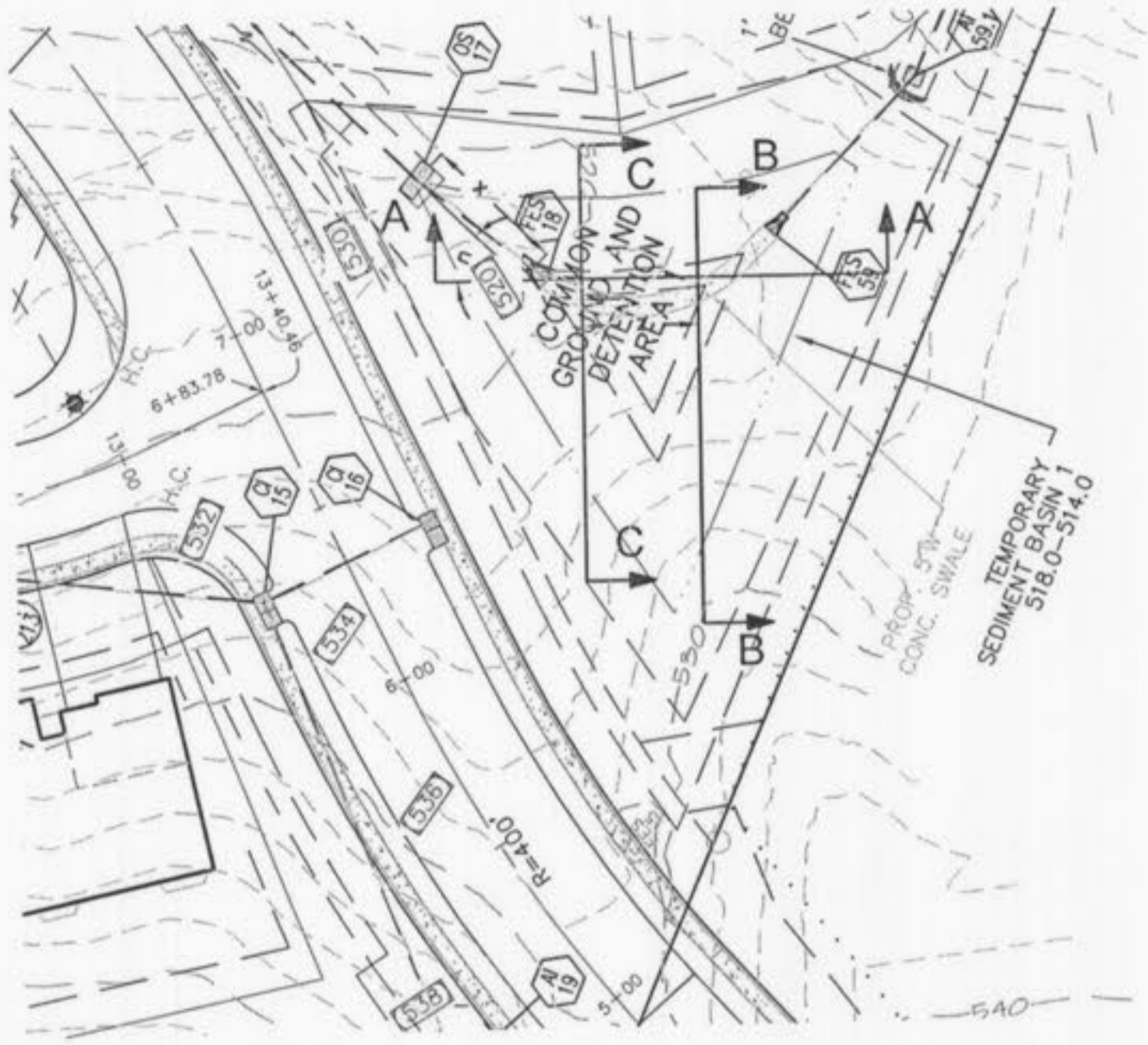
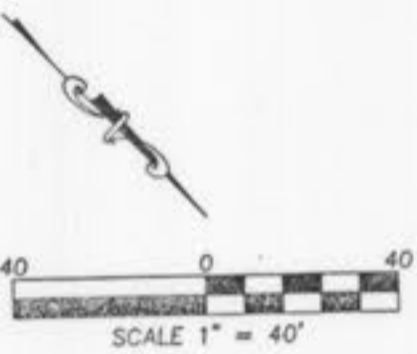
DRAWN: _____
DESIGNED: _____
CHECKED: _____

PROJECT: _____ SHEET TITLE: OUTFALL STRUCTURE DETAILS

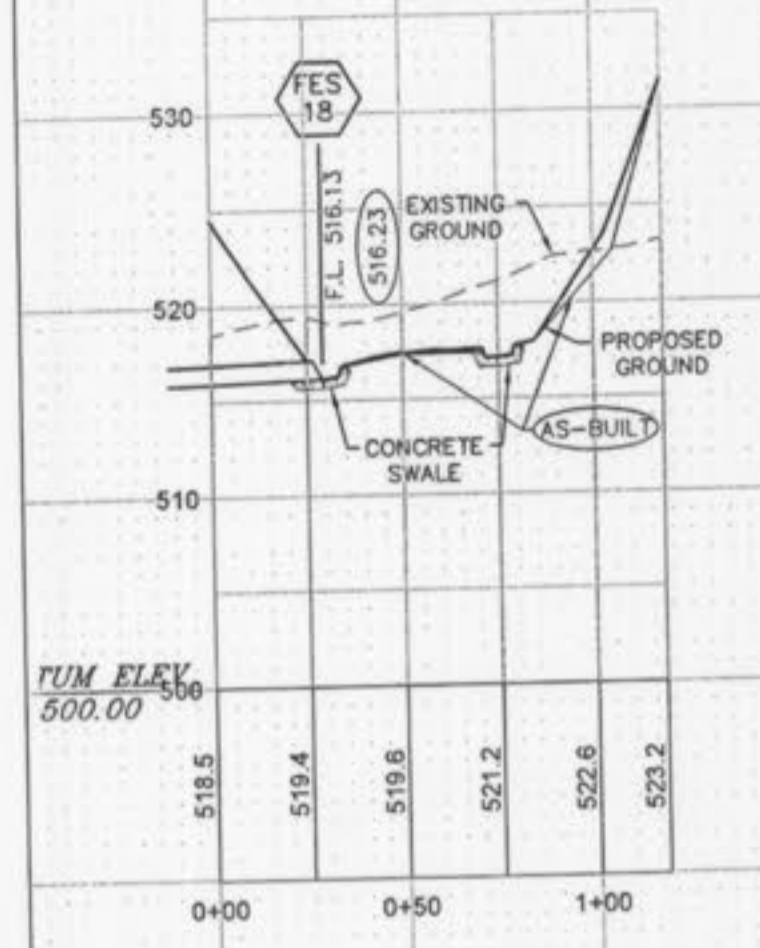
NO.	03 02 021
M.S.D.	SHEET 23
P#	23
DIGITAL FILE LOCATION:	00000-000-000
OF	28

Drawing name: G:\SOSKPROJ\0302021 LOEFLE TRACT\dwg\Engineering\2021detpond-sec.dwg Plotted on: Sep 10, 2007 - 2:06pm Plotted by: dgrider

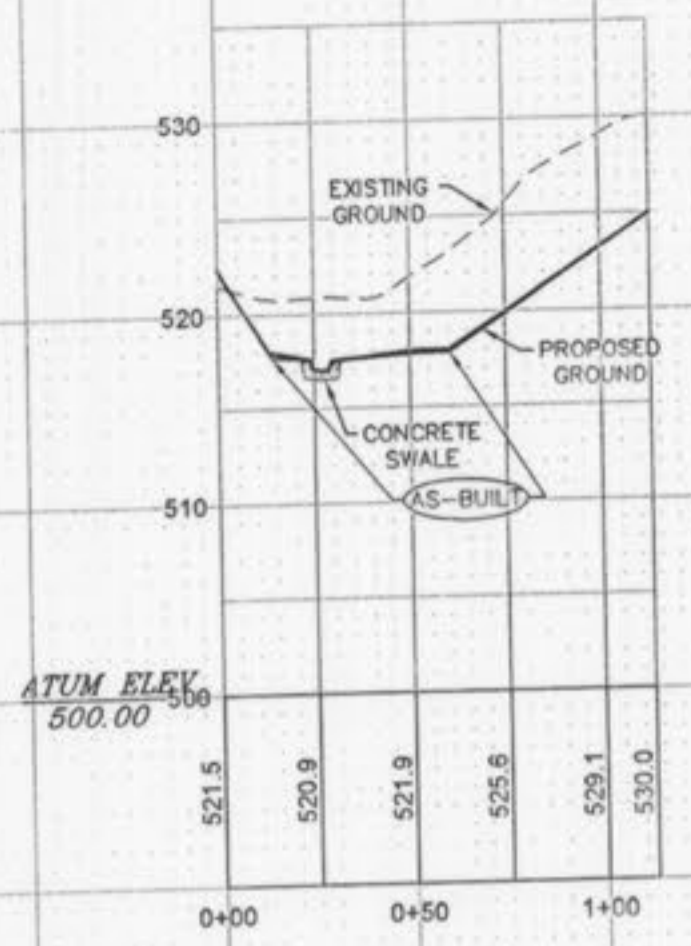
DETENTION POND 1
 n=44'
 x=37.7'
 y=15.5'
 z=45.8'



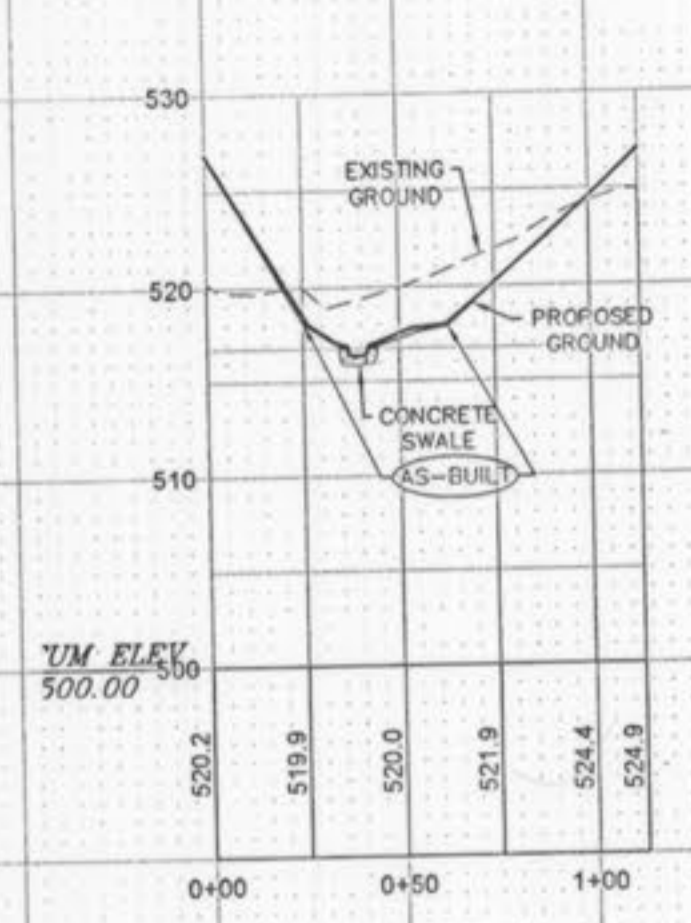
SECTION A - A



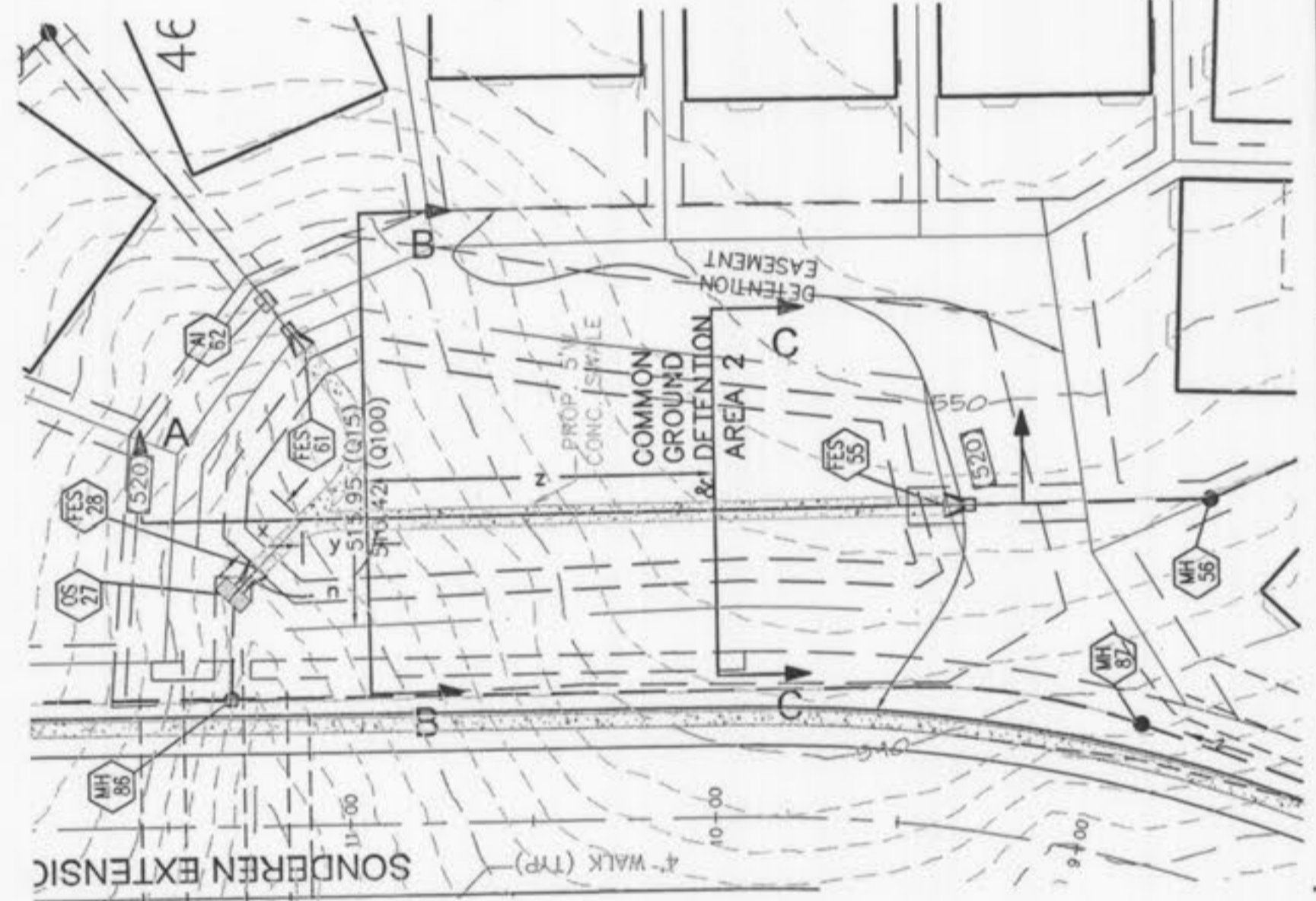
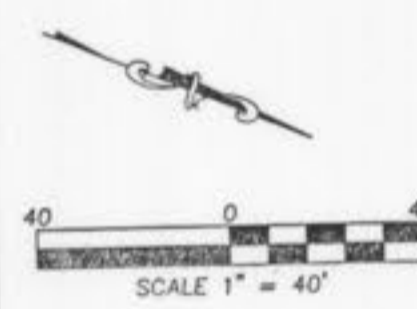
SECTION B - B



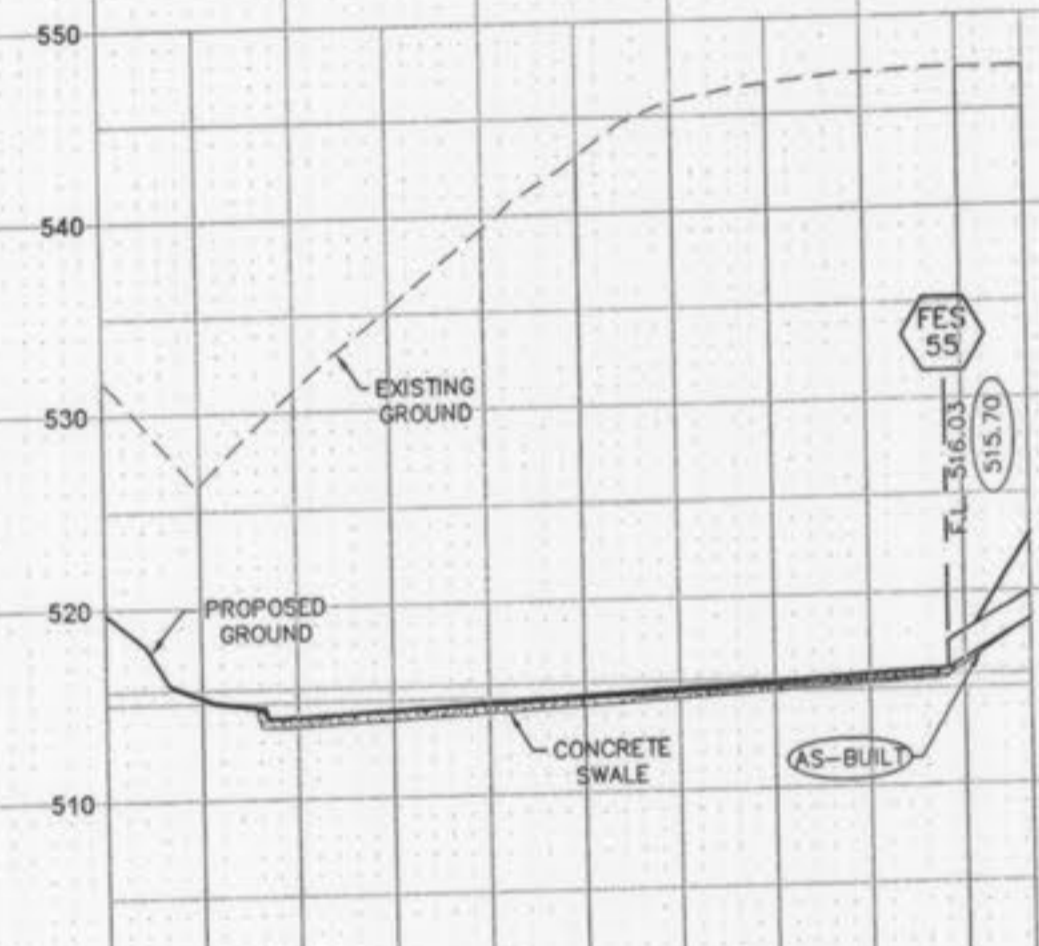
SECTION C - C



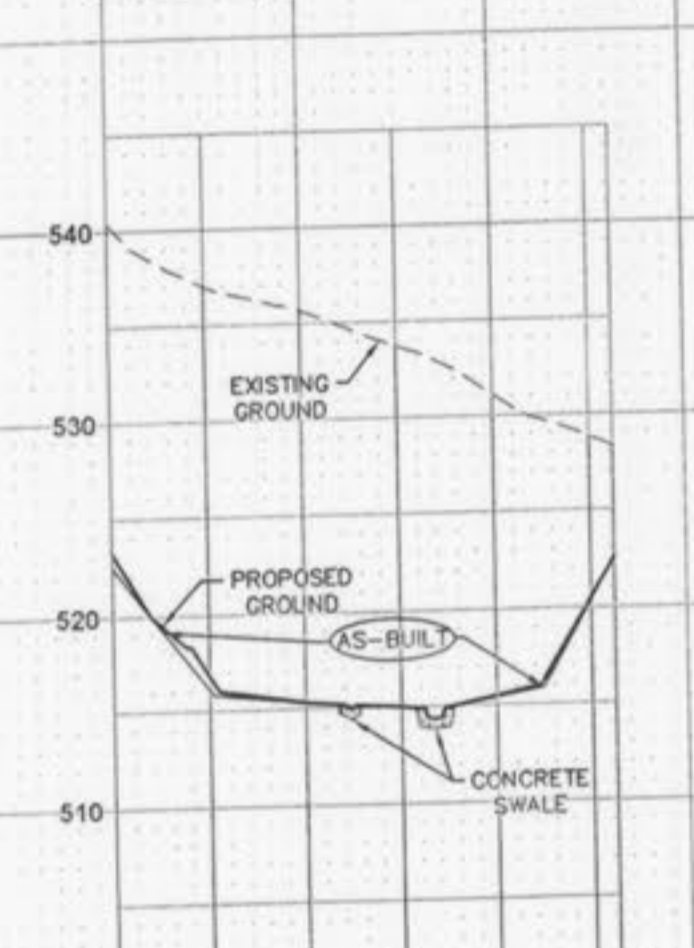
DETENTION POND 2
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 x=17.47'
 y=17.77'
 z=95.55'



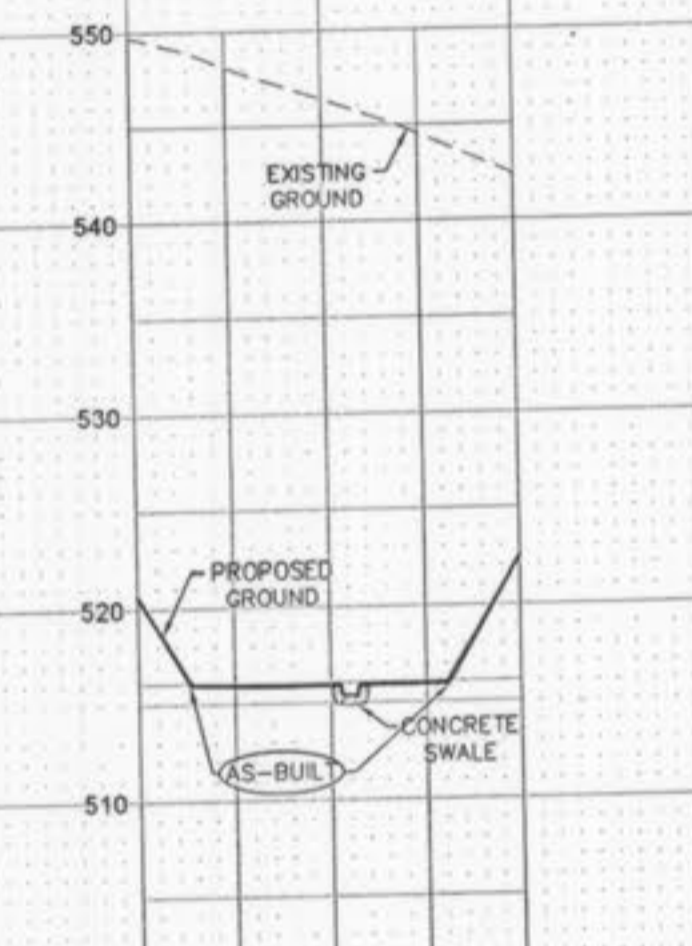
SECTION A - A



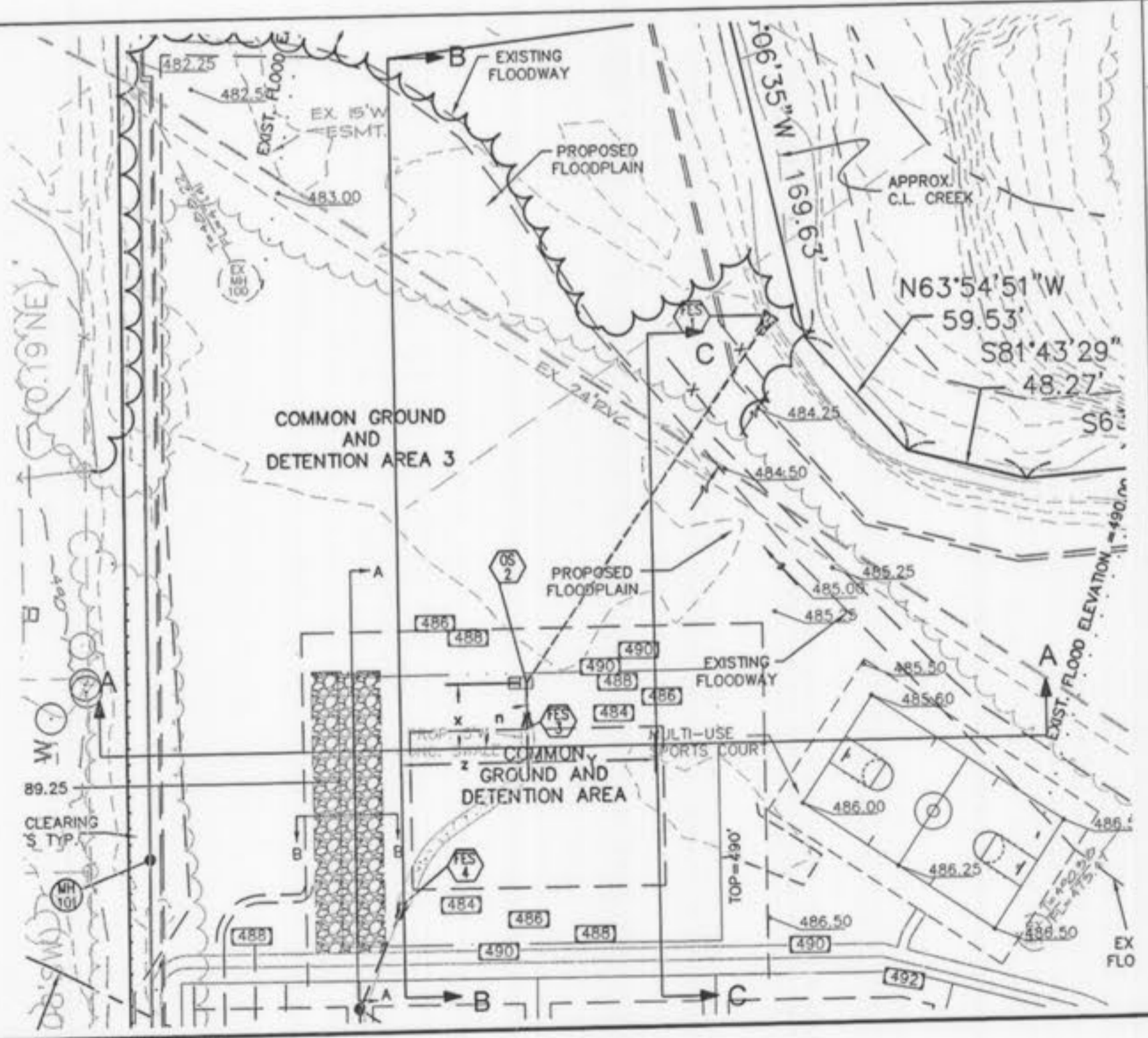
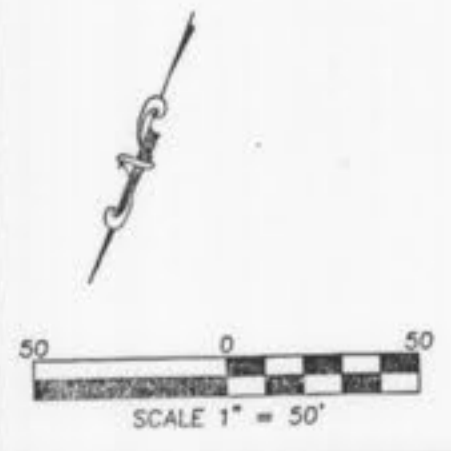
SECTION B - B



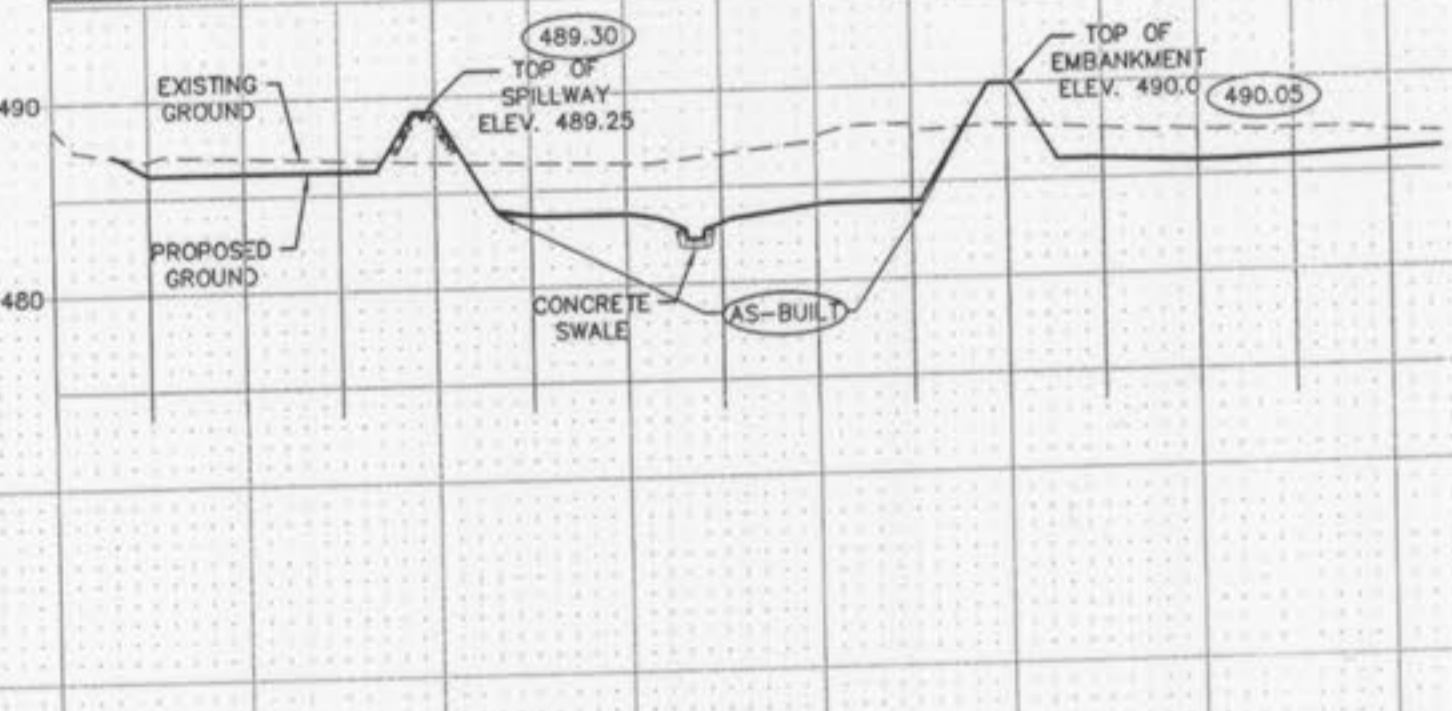
SECTION C - C



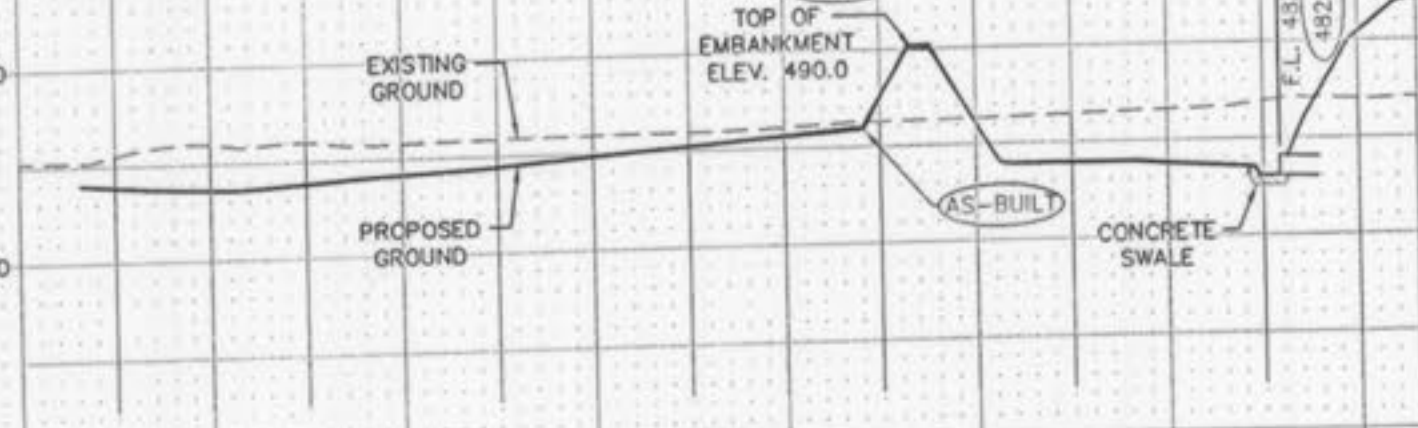
DETENTION POND 3
 n=90'
 x=25'
 y=50'
 z=50'



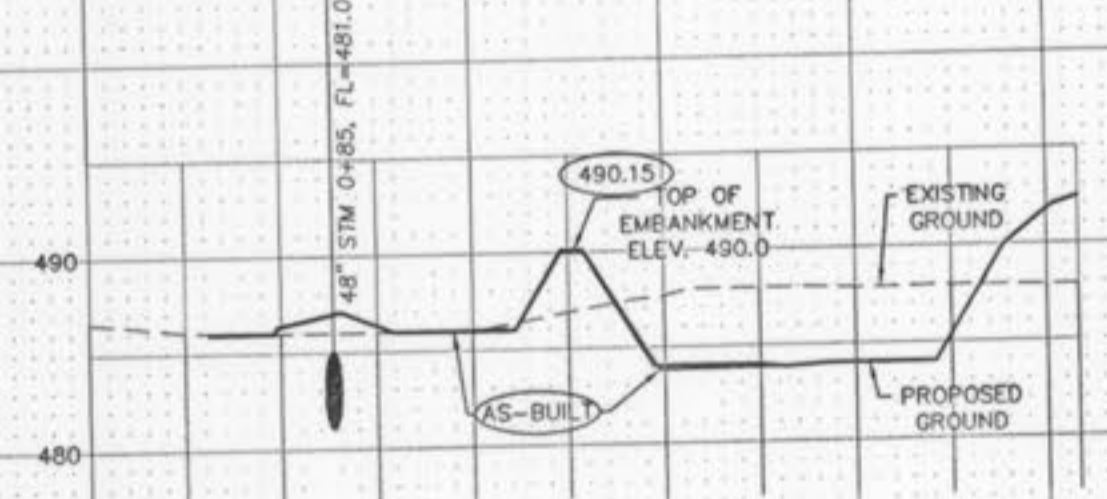
SECTION A - A



SECTION B - B



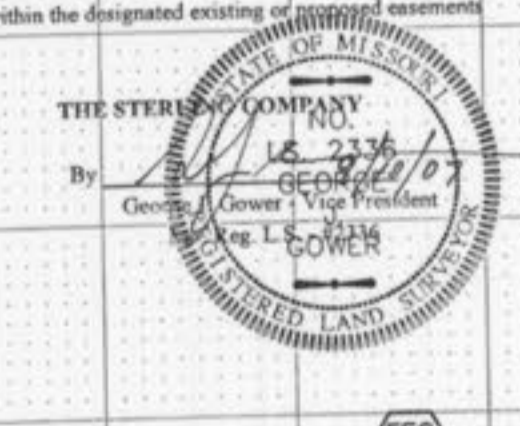
SECTION C - C



AS-BUILT SANITARY AND STORM SEWER FINAL MEASUREMENT PLAT

As of _____ I certify that the actual sewer lengths, sizes, flowlines, depths of structures 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 the designated existing or proposed easements except as follows:



ISSUE	REMARKS/DATE
1	11/12/03
2	12/12/03
3	12/17/03 - Submitted
4	ADDRESS: CITY COMMENTS: 10-1-07

PREPARED FOR:
WHISPERING L.L.C.
 5091 NEW BAUMGARTNER ROAD
 ST. LOUIS, MISSOURI 63129
 (314) 487-6717

PREPARED BY:
THE STERLING CO.
 ENGINEERS & SURVEYORS
 5095 NEW BAUMGARTNER ROAD
 ST. LOUIS, MISSOURI 63129
 (314)-437-0440 FAX 437-9344
 E-Mail: Sterling@sterling-eng-sur.com

DRAWN:	DESIGNED:	CHECKED:
PROJECT:	DETENTION POND CROSS SECTIONS	
NO. 03 02 021	SHEET 24	OF 28
M.S.D. P#	DIGITAL FILE LOCATION: G:\SOSKPROJ\0302021 LOEFLE TRACT\DWG\Engineering\2021detpond-sec.dwg	