

"AS-BUILTS"

A GRADING AND UTILITY PLAN FOR THE CROSSINGS INDUSTRIAL - ±12 AC. TRACT

A PORTION OF THE MASTER PLAN P.U.D. DEVELOPMENT FOR THE CROSSINGS BEING A TRACT OF LAND IN SECTION 21, 22, U.S. SURVEY 63 AND 3070, TOWNSHIP 47 NORTH, RANGE 3 EAST, ST. CHARLES COUNTY, MISSOURI

TO: TR HUGHES
These "As-Built" STORM SEWERS plans are based on actual field surveys conducted during JUNE 2003 and the results are shown hereon.
Pickett, Ray & Silver, Inc. is responsible for the as-built dimensions and elevations only and disclaims any responsibility for any and all other notes and information on these drawings provided by the client.

By: *James R. Chervak* 6-13-03
JAMES R. CHERVAK, P.L.S., #2211
STATE OF MISSOURI
PICKETT, RAY & SILVER'S CORPORATE
REGISTRATION NO. LS-54-D

GENERAL NOTES

- Underground utilities have plotted from available information and therefore location 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 improvements.
- Gas, water and other underground utilities shall not conflict with the depth or horizontal location of existing or proposed sanitary and storm sewers, including house laterals.
- All existing site improvements disturbed, damaged or destroyed shall be repaired or replaced to closely match pre construction conditions.
- All fill including places under proposed storm and sanitary sewer lines and paved areas within and off the road right-of-way shall be compacted to 90 percent of maximum density as determined by the Standard Proctor Test (ASTM-D-698). All tests shall be verified by a Soils Engineer concurrent with grading and back filling operations. The compacted fill shall be free of rutting and shall be non-yielding and non-pumping during proof rolling and compaction. All trench backfills in paved areas shall be granular fill.
- The contractor shall prevent all storm, surface water, mud and construction debris from entering the existing sanitary sewer system.
- All sanitary sewer flowlines and tops built without elevations furnished by the engineer will be the responsibility of the sewer contractor.
- Easements shall be provided for all sanitary sewers, storm sewers and all utilities on the record plat. See record plat for location and size of easement.
- All construction and materials shall conform to the current construction standards of the City of O'Fallon and Duckett Creek Sanitary Dist.
- The City of O'Fallon and Duckett Creek Sanitary District shall be notified at least 48 hour prior to start of construction for coordination and inspection.
- All sanitary sewer building connections have been designed so that the minimum vertical distances from the low point of the basement to the flowline of a sanitary sewer at the corresponding building connection is not less than the diameter of the pipe plus the vertical distance of 2-1/2 feet.
- All sanitary sewer manholes shall be waterproofed on the exterior in accordance Missouri Dept. Of Natural Resources specifications 10 CSR-8.120(7)(E).
- All PVC sanitary sewer pipe is 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 springline of pipe. Immediate back fill over pipe shall consist of same size "clean" or "minus" stone from springline of pipe to 6 inches above the top pipe.
- All sanitary and storm sewer trench backfills shall be water jetted. Granular back fill will be used under pavement areas.
- All pipes shall have positive drainage through manholes. No flat base structures are allowed.
- Brick shall not be used on sanitary sewer manholes.
- All PVC 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 masonry structures.
- All sanitary and storm sewers shall meet all specifications and installation requirements of the local governing authority.
- Storm sewers 18 inch diameter and smaller shall be A.S.T.M. C-14 unless otherwise shown on the plans.
- Storm sewers 21 inch diameter and larger shall be A.S.T.M. C-76, Class II minimum, unless otherwise shown on the plans.
- All storm sewer pipe in the right-of-way shall be reinforced concrete pipe (A.S.T.M. C-76, Class II minimum).
- All storm sewer pipe shall be "O-ring" pipe.
- All water lines shall be laid at least 10 feet horizontally from any sanitary sewer, or manhole. Whenever water lines must cross sanitary sewers, laterals or storm drains the water line shall be laid at such an elevation that the bottom of the water line is 18 inches 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 separation shall be maintained for that portion of the water line located within 10 feet, horizontally, of any sewer or drain it crosses.
- All water lines shall be C-900 Class 200 P.V.C.
- All sanitary sewer laterals shall be a minimum of 6 inches diameter.
- Existing sanitary sewer service shall not be interrupted.
- Maintain access to all existing residential drives and streets.
- Pre-manufactured adapters shall be used at all P.V.C. to D.I.P. connections. Rubber boot / Misonlon type couplings will not be allowed.
- Any permits, licenses, easements, or approvals required to work on public private properties or roadways are the responsibility of the developer.

GRADING NOTES

- 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 back filling operations.
- 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.
- The Contractor shall notify the Soils Engineer at least two days in advance of the start of the grading operation.
- All areas shall be allowed to drain. All low points shall be provided with temporary ditches.
- 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.
- Any existing trash and debris currently on this property must be removed and disposed of off-site.
- 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.
- 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 off-site. Topsoil and grass in the fill areas shall be thoroughly sliced prior to the placement of any fill. The Soils Engineer shall approve the slicing operation.
- 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.
- 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.
- 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.
- 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.
- 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 content.
- 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.
- Fill and back fill should be compacted to the criteria specified in the following table:
- All siltation control devices shall be inspected by the contractor after any rain of 1/2" or more with any appreciable accumulation of mud to be removed and siltation measures required where necessary.
- No slope shall be steeper than 3(Horizontal):1(Vertical). All slopes shall be sodded or seeded and mulched.

CATEGORY	MINIMUM PERCENT COMPACTION
Fill in building areas below footings	95%
Fill under slabs, walks, and pavement	90%
Fill other than building areas	90%
Natural sub grade	90%
Pavement sub grade	90%
Pavement base course	90%

Measured as a percent of the maximum dry density as determined by Standard Proctor Test (ASTM-D-698).
Moisture content must be within 2 percent below or 4 percent above optimum moisture content if fill is deeper than 10 feet.

DEVELOPMENT NOTES

- Area of Tract: 12 Acres
- Existing Zoning: I-1 Light Industrial P.U.D.
- Current Owner: T.R. HUGHES INC.
239 FOX HILL ROAD
ST. CHARLES, MO 63301
(636) 940-9300
- Site is served by: City of O'Fallon Sewer and Water
Ameren Union Electric Company
St. Charles Gas Company
G.T.E. Telephone Company
O'Fallon Fire Protection District
Fort Zumwalt School District
- Per the flood insurance rate map no. 29183 c 0235 e dated August 2, 1996, this tract lies within zone "X" areas determined to be outside the 500-year floodplain.
- No existing trees on site.

PRINCIPALS & STANDARDS

- All excavations, grading, or filling shall have a finished grade not to exceed a 3:1 slope (33%). Steeper grades may be approved by the designated official if the excavation is through rock or the excavation or the fill is adequately protected (a designed head wall or toe wall may be required). Retaining walls that exceed a height of four (4) feet shall require the construction of safety guards as identified in the appropriate section(s) of the adopted BOCA Codes and must be approved by the County Building Department. Permanent safety guards will be constructed in accordance with the appropriate section(s) of the adopted BOCA Codes.
- Sediment and erosion control plans for sites that exceed 20,000 square feet of grading shall provide for sediment basins, silt traps or filters, staked straw bales or other approved measures to remove sediment from run-off waters. The design to be approved by the Designated Official. Temporary siltation control measures (structural) shall be maintained until vegetative cover is established at a sufficient density to provide erosion control on the site.
- Where natural vegetation is removed during grading, vegetation shall be reestablished in such a density as to prevent erosion. Permanent type grasses shall be established as soon as possible during the next seeding period after grading has been completed.
- When grading operations are completed or suspended for more than 30 days permanent grass must be established at sufficient density to provide erosion control on the site. Between permanent grass seeding periods, temporary cover shall be provided according to the City Engineer's recommendations. All finished grades (areas not to be disturbed by future improvement) in excess of 20% slopes (5:1) shall be mulched and tacked at the rate of 100 pounds per 1,000 square feet when seeded.
- Provisions shall be made to accommodate the increased runoff caused by changed soils and surface conditions during and after grading. Unvegetated open channels shall be designed so that gradients result in velocities of 2 fps (feet per second) or less. Open channels with velocities more than 2 fps and less than 5 fps shall be established in permanent vegetation by use of commercial erosion control blankets or lined with rock rip rap or concrete or other suitable materials as approved by the City Engineer. Detention basins, diversions, or other appropriate structures shall be constructed to prevent velocities above 5 fps.
- The adjoining ground to development sites (lots) shall be provided with protection from accelerated and increased surface water, silt from erosion, and any other consequence of erosion. Run-off water from developed areas (parking lots, paved sites and buildings) above the area to be developed shall be directed to diversions, detention basins, concrete gutters and/or underground outlet systems. Sufficiently anchored straw bales may be temporarily substituted with the approval of the City Engineer.
- Development along natural watercourses shall have residential lot lines, commercial or industrial improvements, parking areas or driveways set back a minimum of 25 feet from the top of the existing stream bank. The watercourse shall be maintained and made the responsibility of the subdivision trustees or in the case of a site plan by the property owner. Permanent vegetation should be left intact. Variances will include designed stream bank erosion control measures and shall be approved by the City Engineer. FEMA and U.S. Army Corps of Engineers guidelines shall be followed where applicable regarding site development areas designated as flood plains and wetlands.
- All lots shall be seeded and mulched at the minimum rates defined in Appendix A or sodded before an occupancy permit shall be issued except that a temporary occupancy permit may be issued by the Building Department in cases of undue hardship because of unfavorable ground conditions.
- All outside trash containers, HVAC units, electric, telephone and gas meters shall be thoroughly screened with materials and/or landscaping to conceal the visibility of such items from the view of right-of-way and/or adjacent properties as reviewed and approved by the planning divisions.
- The developer shall comply with articles 26 performance standards.
- The developer shall comply with the current comprehensive plan for The City of O'Fallon.
- Tree preservation and landscape requirements per City of O'Fallon zoning ordinances will be provided prior to construction.

VEGETATIVE ESTABLISHMENT APPENDIX A

Seeding Rates:
Permanent:
Tall Fescue - 30 lbs./ac.
Smooth Brome - 20 lbs./ac.
Combined Fescue @ 15 lbs./ac. and Brome @ 10 lbs./ac.
Temporary:
Wheat or Rye - 150 lbs./ac. (3.5 lbs. per square foot)
Oats - 120 lbs./ac. (2.75 lbs. per square foot)
Seeding Periods:
Fescue or Brome - March 1 to June 1
Wheat or Rye - August 1 to October 1
Oats - March 15 to November 1
Mulch Rates: 100 lbs. per 1,000 sq. feet (4,356 lbs. per acre)
Fertilizer Rates: Nitrogen 30 lbs./ac.
Phosphate 30 lbs./ac.
Potassium 30 lbs./ac.
Lime 600 lbs./ac. ENM*
* ENM = effective neutralizing material as per State evaluation of quarried rock.

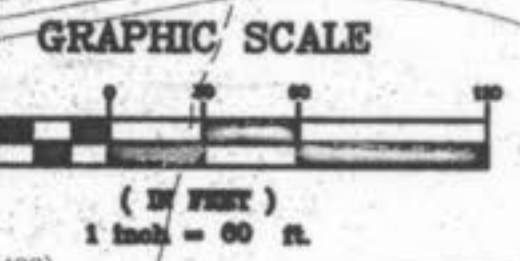
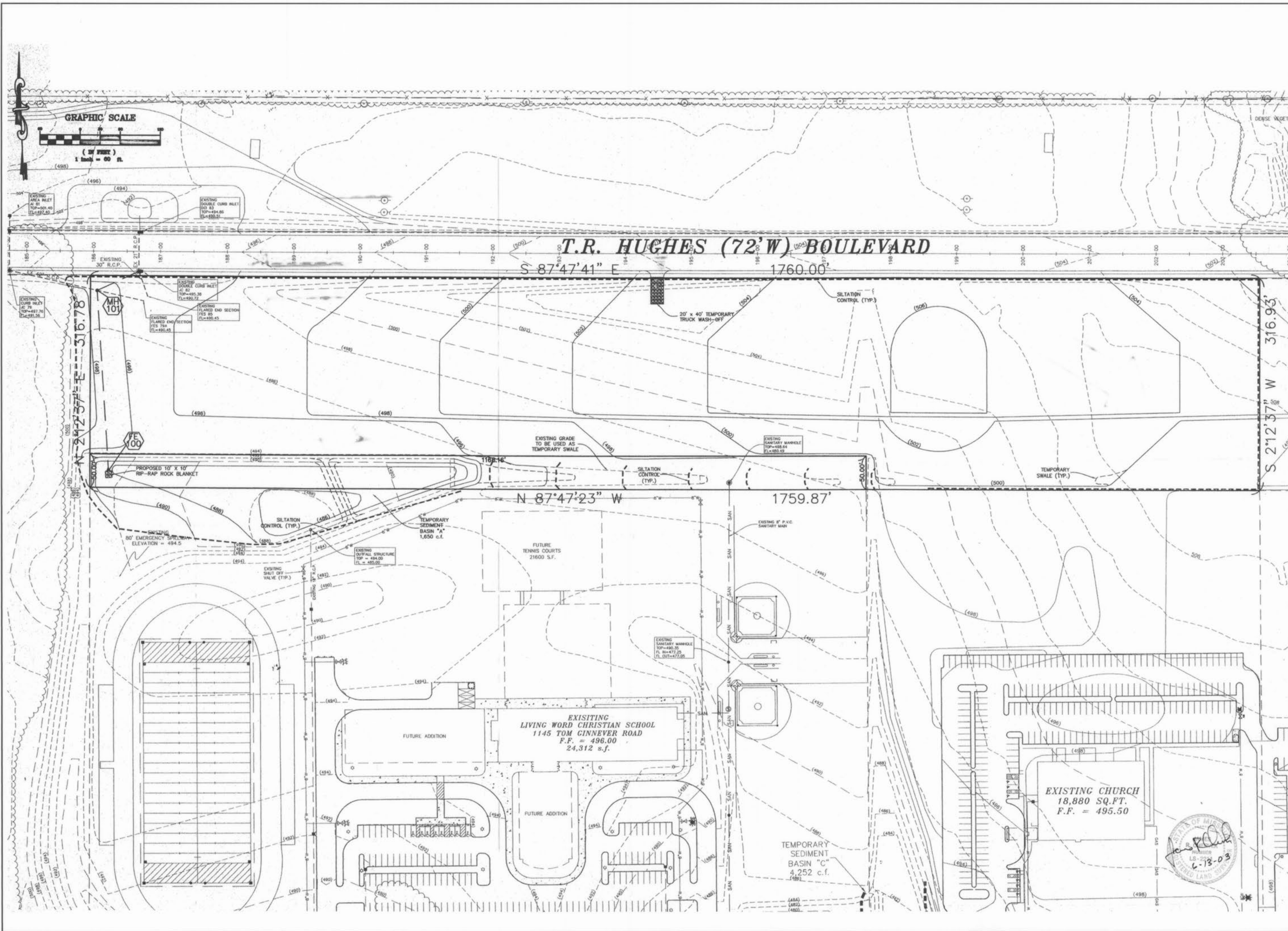
PICKETT RAY & SILVER
CIVIL ENGINEERS
PLANNERS
LAND SURVEYORS
333 Mid Rivers Mall Drive
St. Peters, MO 63376
Phone (636) 397-1211
Fax (636) 397-1104

THE CROSSINGS INDUSTRIAL TRACT "AS-BUILTS"
Prepared For:
SUMMIT POINTE, L.C.
219 FOX HILL ROAD
ST. CHARLES, MO. 63301
(636) 979-9580

REVISIONS NO.	DATE	DESCRIPTION

DRAWN	E.J.S.	DATE	6/10/03
CHECKED	J.R.C.	DATE	6/10/03
PROJECT #	01212.SUPO.OBS	TASK #	1
FIELD BOOK	802		

I:\stcharles\proj\01212\sup\01212SUPO.OBS.dwg, 6/13/2003 7:01:41 AM, e:\msdoso\hp 1090c



PICKETT RAY & SILVER

CIVIL ENGINEERS
PLANNERS
LAND SURVEYORS

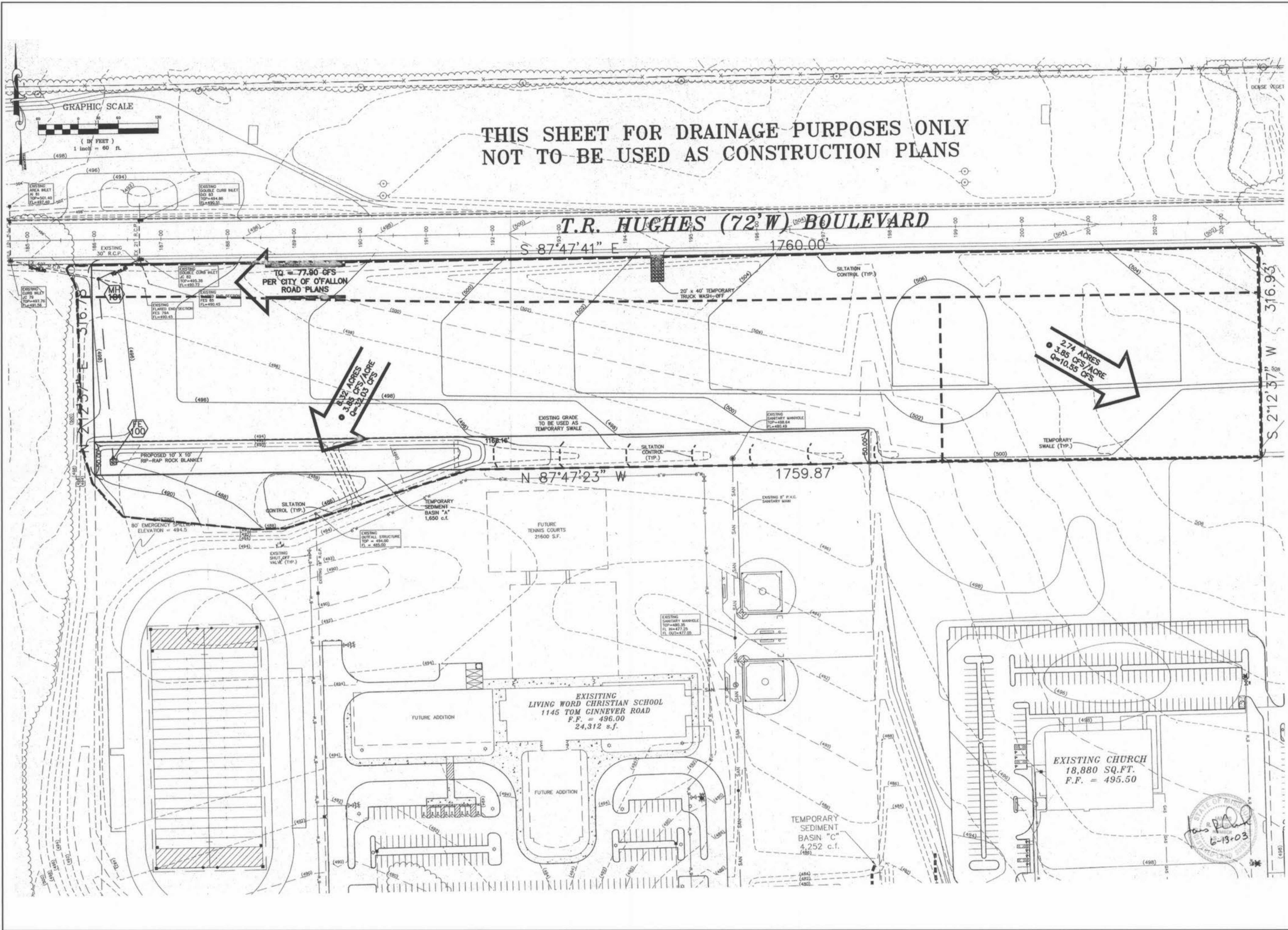
333 Mid Rivers Mall Drive
St. Peters, MO 65376
Phone (636) 397-1211
Fax (636) 397-1704

**THE CROSSINGS
INDUSTRIAL TRACT
"AS-BUILTS"**

Prepared For:
SUMMIT POINTE, L.C.
219 FOX HILL ROAD
ST. CHARLES, MO. 63301
(636) 970-9000

NO.	DATE	DESCRIPTION

DRAWN	E.J.S.	DATE	6/10/03
CHECKED	J.R.C.	DATE	6/10/03
PROJECT #	01212.SUPO.08S	TASK #	1
FIELD BOOK	802		



THIS SHEET FOR DRAINAGE PURPOSES ONLY
NOT TO BE USED AS CONSTRUCTION PLANS

T.R. HUGHES (72' W) BOULEVARD

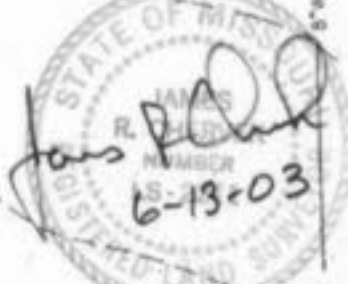
**TO = 77.90 CFS
PER CITY OF OFALLON
ROAD PLANS**

**8.12 ACRES
3.85 CFS/ACRE
Q = 31.03 CFS**

**2.74 ACRES
3.85 CFS/ACRE
Q = 10.55 CFS**

EXISTING
LIVING WORD CHRISTIAN SCHOOL
1145 TOM CINNEVER ROAD
F.F. = 496.00
24,312 s.f.

EXISTING CHURCH
18,880 SQ.FT.
F.F. = 495.50

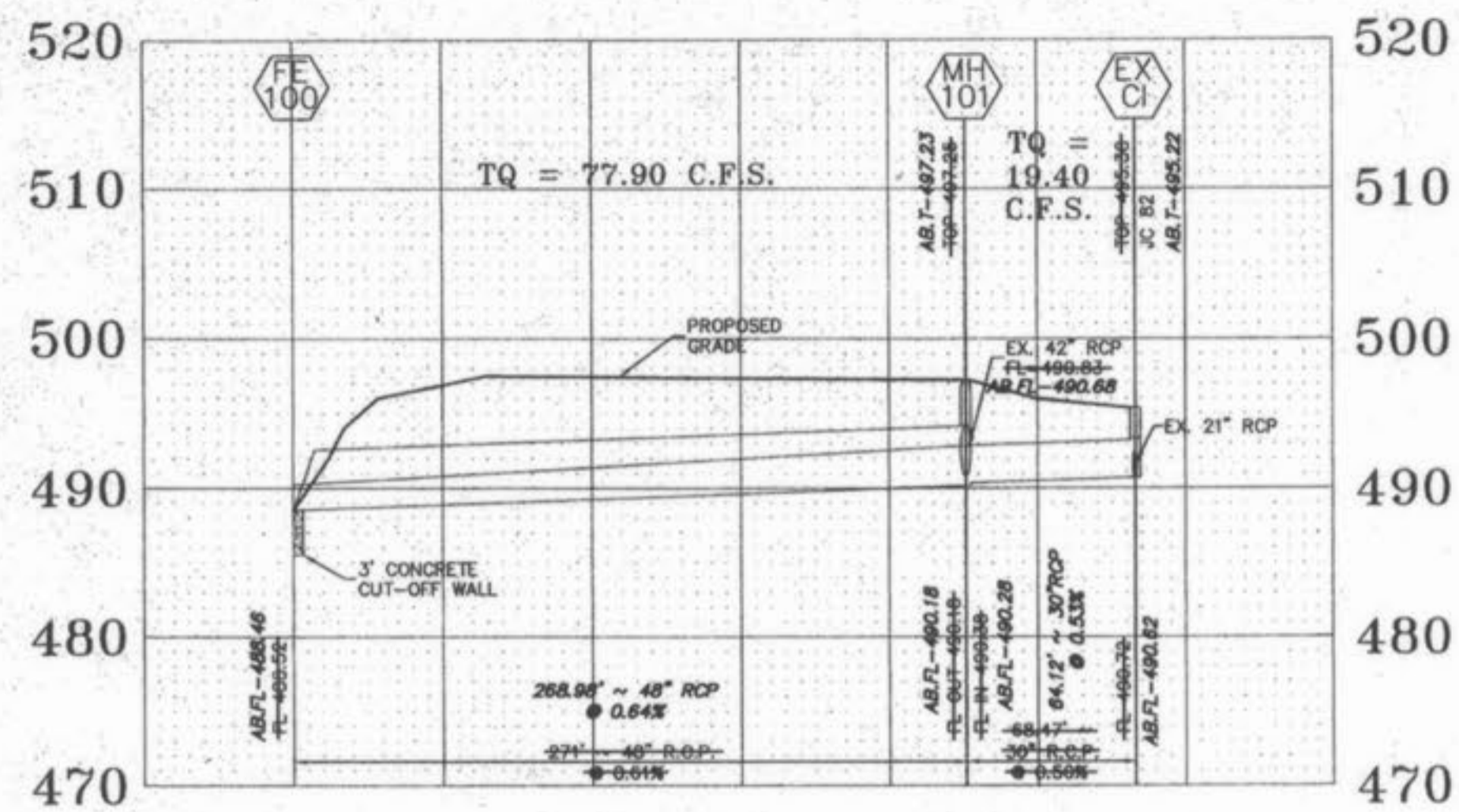


PICKETT RAY & SILVER
CIVIL ENGINEERS
PLANNERS
LAND SURVEYORS
333 Mid Rivers Mall Drive
St. Peters, MO. 63376
Phone (636) 397-1311
Fax (636) 397-1104

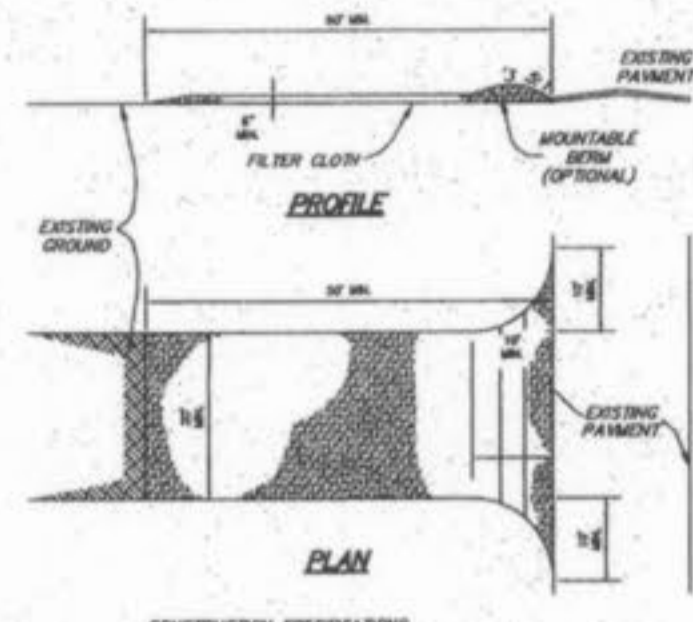
**THE CROSSINGS
INDUSTRIAL TRACT
"AS-BUILTS"**
Prepared For:
SUMMIT POINTE, L.C.
239 FOX HILL ROAD
ST. CHARLES, MO. 63301
(636) 936-5500

NO.	DATE	DESCRIPTION

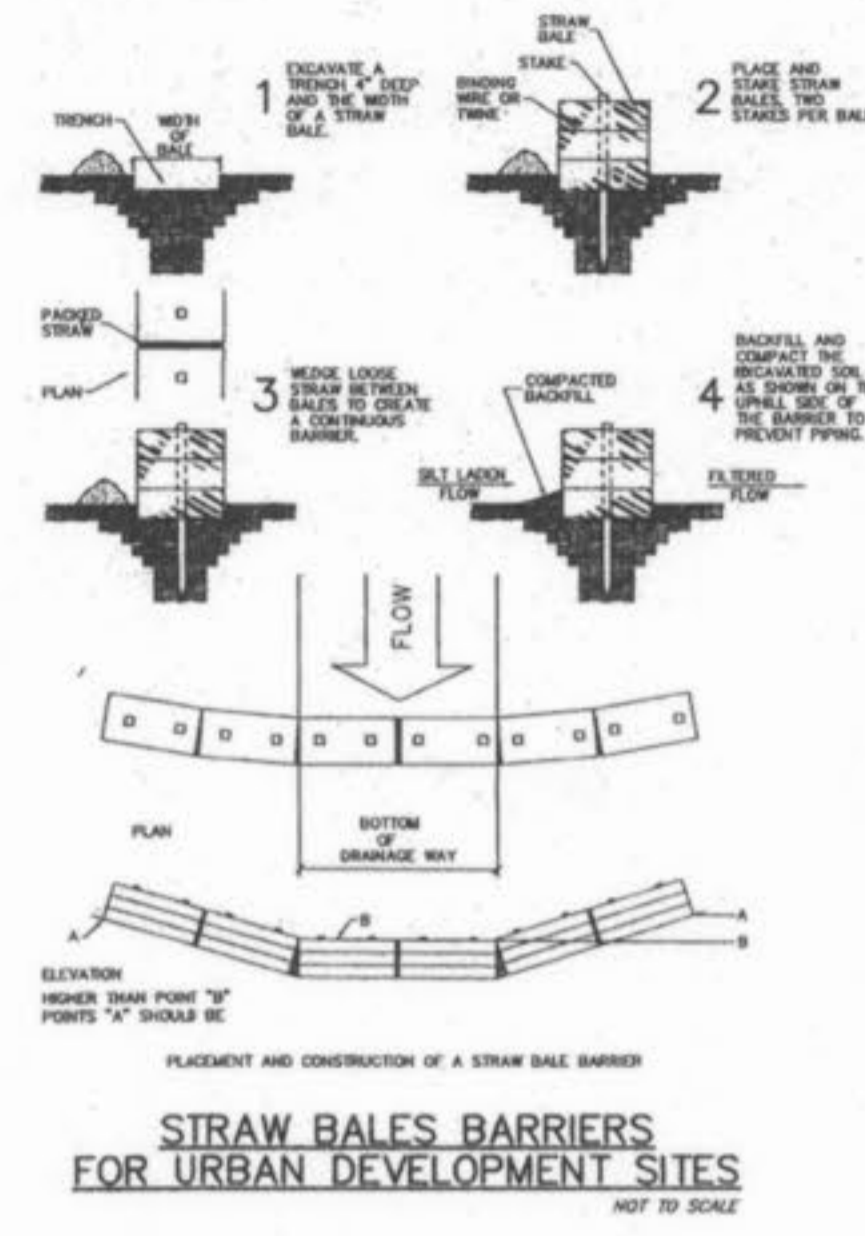
DRAWN E.J.S.	DATE 6/10/03
CHECKED J.R.C.	DATE 6/10/03
PROJECT # 01212.SUPO.08S	FIELD BOOK 802
TASK # 1	



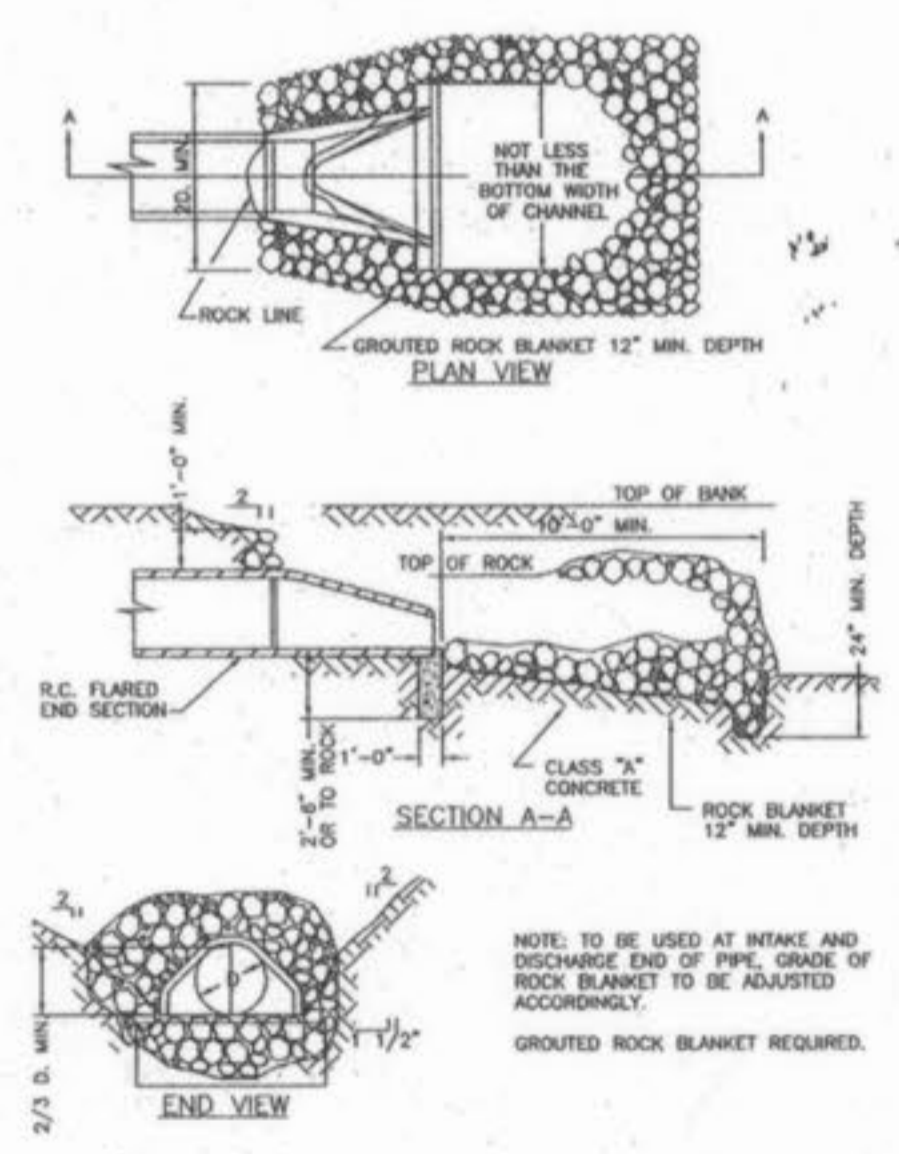
STORM SEWER PROFILE
HORIZONTAL SCALE: 1"=60'
VERTICAL SCALE: 1"=10'



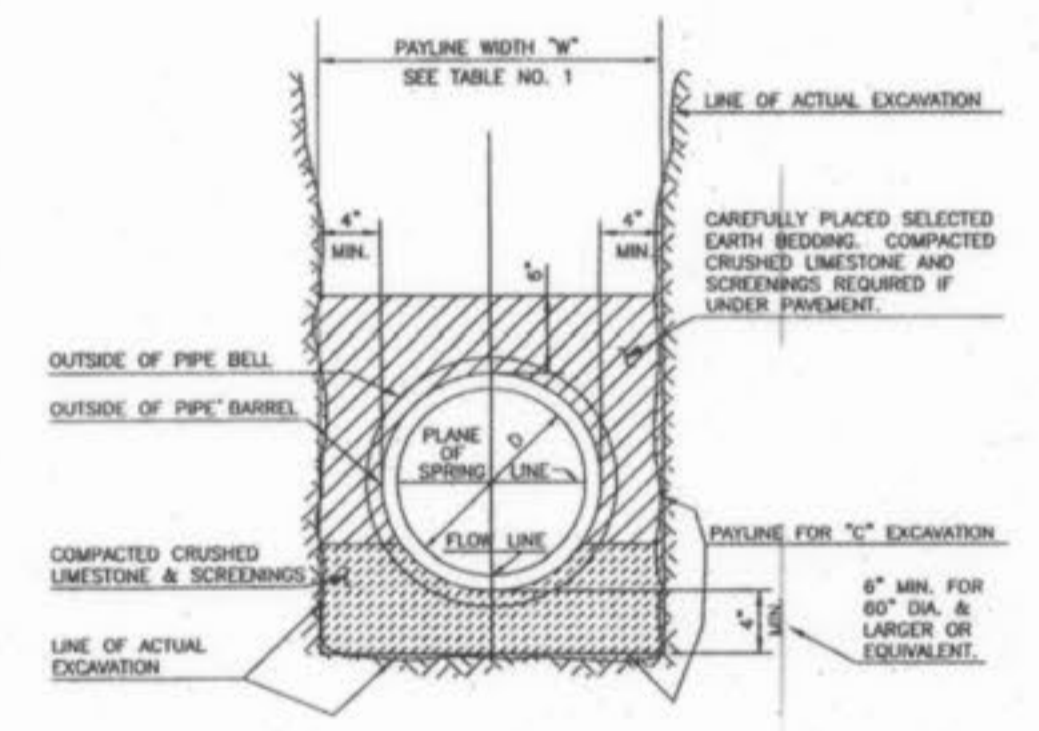
- CONSTRUCTION SPECIFICATIONS**
- Stone Size - Use 2" stone, or crushed or recycled concrete equivalent.
 - Length - As required, but not less than 50 feet (except in a single residence lot where a 30 foot minimum length would apply).
 - Thickness - Not less than six (6) inches.
 - Width - Twenty (20) feet minimum, but not less than the full width of points where ingress or egress occurs.
 - Filter Cloth - Will be placed over the entire area prior to placing of stone. Filter will not be required on a single family residence lot.
 - Surface Water - All surface water flowing or diverted toward construction entrances shall be piped across the entrance. If piping is impractical, a mountable berm with 5:1 slopes will be permitted.
 - Maintenance - The entrance shall be maintained in a condition which will prevent tracking or flowing of sediment onto public right-of-way. This may require periodic top dressing with additional stone on conditions demand and repair and/or removal of any measures used to trap sediment. All sediment applied, dropped, washed or tracked onto public right-of-way must be removed immediately.
 - Washing - Wheels shall be cleaned to remove sediment prior to entrance onto public right-of-way. When washing is required, it shall be done on an area stabilized with stone and which drains into an approved sediment trapping device.
 - Periodic inspection and needed maintenance shall be provided after each rain.
- STABILIZED CONSTRUCTION ENTRANCE/WASHDOWN AREA**
NOT TO SCALE



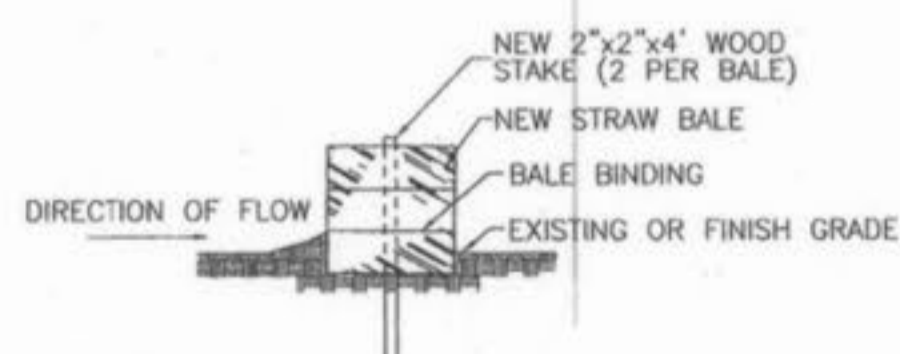
STRAW BALES BARRIERS FOR URBAN DEVELOPMENT SITES
NOT TO SCALE



FLARED END SECTION
NOT TO SCALE

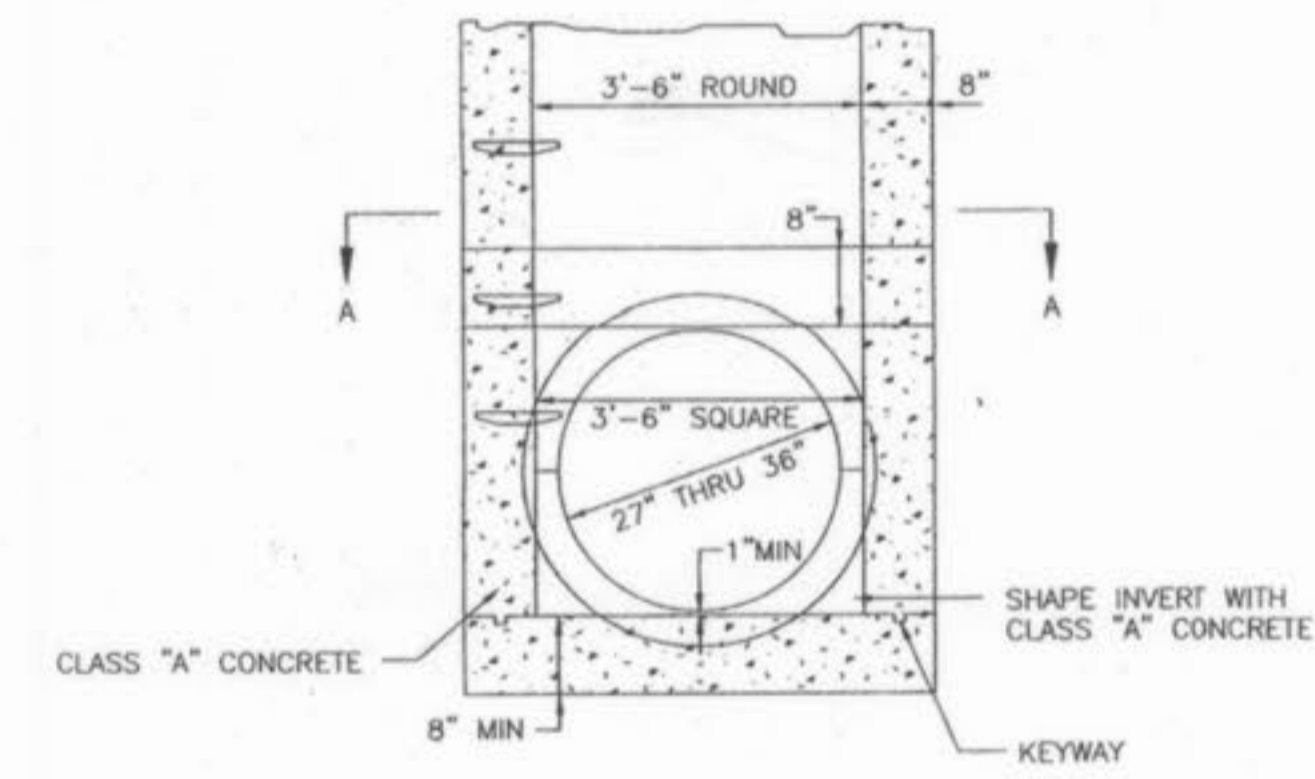


PIPE BEDDING CLASS "C" (MODIFIED FOR REINFORCED CONCRETE PIPE)
NOT TO SCALE

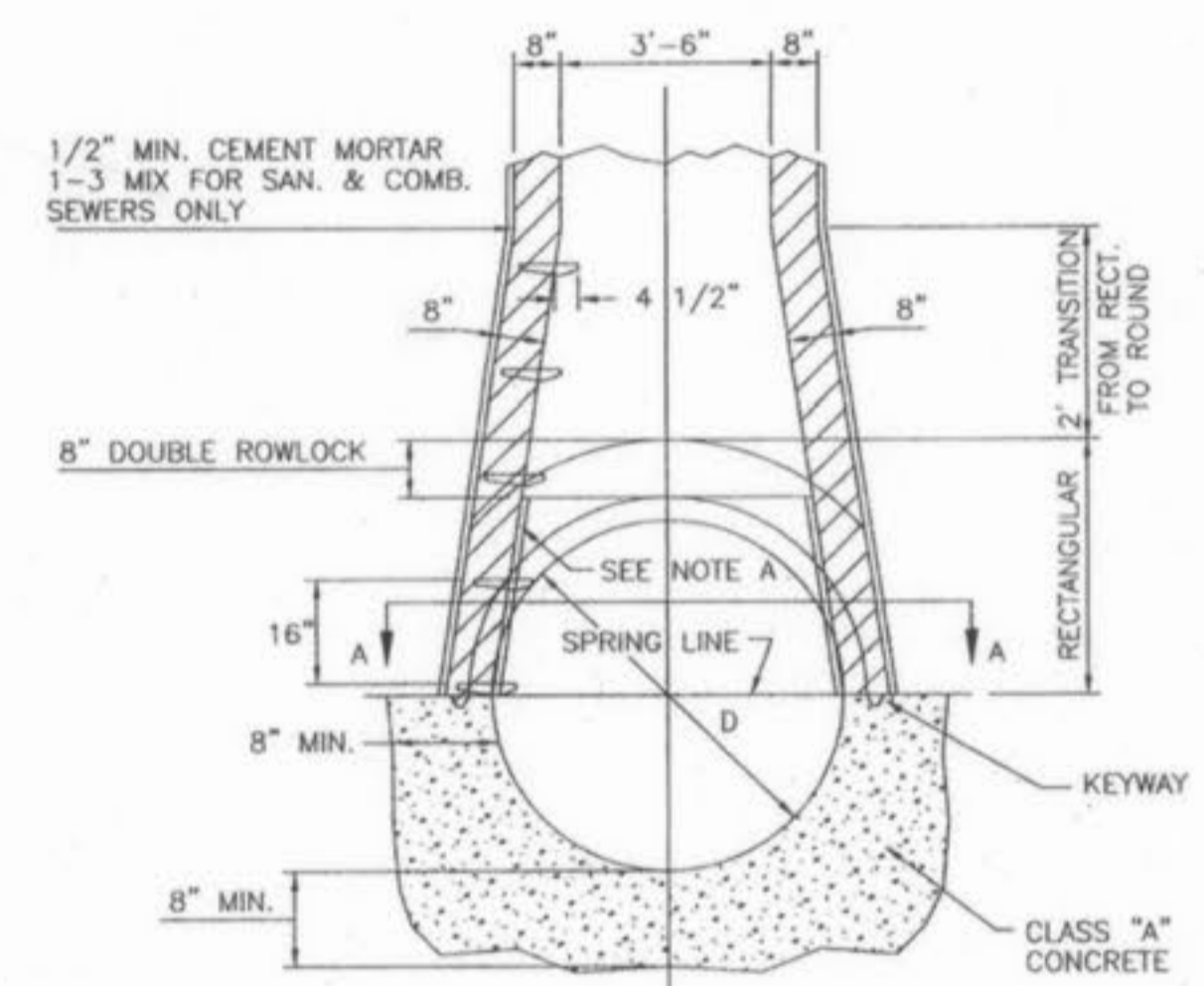


- NOTES:**
- STRAW BALES, NOT HAY BALES SHALL BE USED.
 - BUTT ENDS OF BALES TIGHTLY TOGETHER.
 - INSTALL BALES WITH BINDING AROUND SIDES, NOT TOP AND BOTTOM.
 - FILL ANY GAP BETWEEN BALES BY WEDGING LOOSE STRAW BETWEEN THEM.

SEDIMENT BARRIER
NOT TO SCALE



MANHOLE ON PIPE SEWER 27\"/>



MANHOLE ON CONCRETE PIPE SEWERS 39\"/>

REVISIONS NO.	DESCRIPTION	DATE

DRAWN	E.J.S.	DATE	6/10/03
CHECKED	J.R.C.	DATE	6/10/03
PROJECT #	01212.SUPO.08S		
TASK #	1	FIELD BOOK	802

