

APPENDIX F

Culverts and Driveways Policy

The purpose of this policy is to establish guidelines, procedures, and standard practices regarding installation, maintenance, and repair of culverts and driveways in new and old subdivisions with open ditches.

I. REPLACEMENT OF DRIVEWAY/CULVERTS DUE TO REPAIRS

- A. If a failure occurs on an existing paved driveway located within the City rights-of-way due to a defect in the existing public infrastructure (i.e., leaking or broken water or sanitary sewer line, failure in storm sewer, culvert failure, etc.) the City will remove the damaged pavement, repair or replace the damaged infrastructure, and replace the pavement up to the rights-of-way line at no cost to the property owner.
- B. If a failure occurs on an existing paved driveway located within the City rights-of-way due to age, wear, or subsidence, and the public infrastructure is found to be in good condition, the property owner shall be responsible for the removal and replacement of the driveway, such replacement being accomplished according to the Ordinances, Design Criteria, Standard Details, and Technical Specifications of the City. In addition, the property owner shall be responsible for any damages that may occur to existing public infrastructure, including the culverts, during the construction process. The property owner shall obtain a building permit from the City for the driveway replacement and shall call in for inspections as needed.
- C. If the driveway to be replaced is on an open ditch street, the culverts may be replaced with the same size as existing with no drainage calculations required, unless:
 - i. They are smaller than the 18" minimum requirements, or
 - ii. The whole drainage ditch is being enclosed (see paragraph III).
- D. When new culverts are installed and concrete paving is being replaced, construction joints shall be installed as shown in Detail A.

II. PROPOSED DRIVEWAY CONSTRUCTION/CULVERT INSTALLATION

- A. When a property owner chooses to make improvements to an existing driveway, the property owner is responsible for removing and replacing the culverts as well as the existing paving.

- B. When a property owner chooses to construct a new driveway, the property owner shall install the proper driveway culverts and new pavement.
- C. All work shall be completed in accordance with the City of Friendswood Technical Specifications and Standard Details, latest edition.
- D. When new culverts are installed and concrete paving is being installed, construction joints shall be installed as shown in Detail A.

III. PROPOSED CULVERT INSTALLATION FOR THE PURPOSE OF ENCLOSING OPEN DITCHES FRONTING RESIDENTIAL PROPERTY.

A. Development Permit:

- i. An approved City of Friendswood Development Permit shall be required prior to installation of residential storm sewer (unless the storm sewer is being installed as part of a new residential building, in which case it shall fall underneath the building permit). Development permits shall only be valid for 1 year.
- ii. A plan drawing shall be submitted with the Development Permit Application. The plan shall be drawn to a 1" = 20' scale.
- iii. Pipe diameters, pipe flow lines, inlet flow lines, and inlet rim elevations shall be shown on the drawings.
- iv. All residential storm sewer projects shall extend from property line to property line.
- v. A Traffic Control Plan shall be provided if any of the proposed work involves obstruction of traffic or lane closures of City streets.
- vi. All residential storm sewers shall be made of Reinforced Concrete Pipe (RCP) Class III, with a minimum 18" diameter, and shall be designed for the purpose intended.
- vii. Alternate sizes and styles may be used as long as they meter the same square inch area of the required pipe size, and is approved by the City Engineer.

B. Installation:

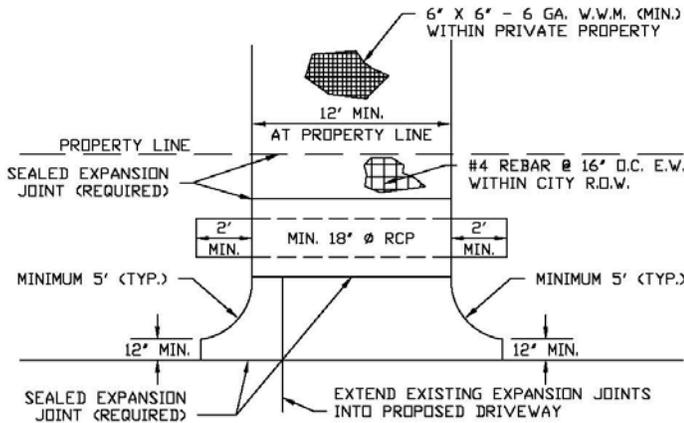
- i. Storm sewer inlets shall be located no farther than 15 feet from the property line.
- ii. Storm sewer inlets shall be no farther than 30 feet from center to center.

- iii. Only Type “A” Inlet (Detail B) or Type “S” Inlet (Detail C) shall be used.
- iv. Inlet and junction box size and design shall be approved by the City Engineer.
- v. High points shall be located halfway between inlets with mild swales (see Detail D).
- vi. Elevations on inlet rims shall be a minimum of 3 inches lower than the surrounding high points (see Detail D).
- vii. All storm sewer projects are subject to inspections by City of Friendswood personnel before they are covered up. Such inspections may require changes or corrections to all or part of the culvert installations during any phase of the work. All inspections shall be called into the Building Division at (281) 996-3201 a minimum of 24 hours prior to inspections.
- viii. Contractor shall have a means to determine flows on site (i.e., laser level, level, etc.).
- ix. All storm sewers shall receive a final inspection and approval by City of Friendswood personnel upon completion. Any deficiencies noted shall be completed within 30 days of such notice.
- x. The City of Friendswood reserves the right to adjust or remove all or part of the storm sewer at any time for any reason.
- xi. All work shall be completed in accordance with the latest revisions of this Design Criteria Manual, City of Friendswood Technical Specifications, and City of Friendswood Standard Detail; which can be found online at:

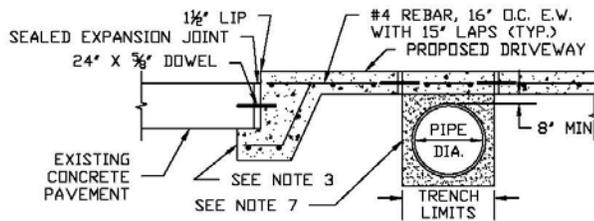
www.ci.friendswood.tx.us/350/Publications-Forms

IV. ACKNOWLEDGEMENT

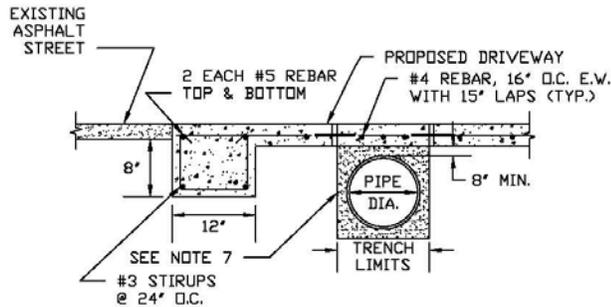
By signing the permit application, the applicant acknowledges they have received and fully understand the requirements pertaining to the installation of residential storm sewers.



PLAN - ALL STREETS



PROFILE - CONCRETE STREETS



PROFILE - ASPHALT STREETS

NOTES:

1. EXPANSION JOINT ON CONCRETE STREETS SHALL BE NOMINAL REDWOOD OR ASPHALTIC EXPANSION JOINT MATERIAL WITH 1" PULL-OF STRIP TO BE FILLED WITH APPROVED JOINT SEALANT.
2. 1 1/2" LIP (CONCRETE STREETS ONLY) SHALL NOT BE REQUIRED ON STREETS WITH 4' X 12" MOUNTABLE CURB.
3. CONCRETE PAVEMENT HEADERS SHALL BE BUILT IN ACCORDANCE WITH CITY OF FRIENDSWOOD PAVING DETAILS.
4. CONNECTION TO EXISTING ASPHALT STREETS SHALL BE MADE BY BLOCKING NEW CONCRETE WITH EDGE OF PAVEMENT. A 8" DEEP BY 12" WIDE BEAM SHALL BE PLACED ALONG THE EDGE OF THE ASPHALT PAVEMENT. NO EXPANSION JOINT MATERIAL REQUIRED BETWEEN EXISTING ASPHALT STREET AND NEW CONCRETE DRIVEWAY.
5. DAMAGE TO EXISTING STREETS, WHETHER ASPHALT OR CONCRETE, SHALL BE REPAIRED AT CONTRACTORS EXPENSE.
6. ALL CONCRETE SHALL BE CLASS 'A', 3,000 PSI AT TWENTY-EIGHT DAYS.
7. USE MATERIAL AND DIMENSION AS SPECIFIED IN STORM SEWER DETAILS FOR TRENCH WIDTHS AND BACKFILL.
8. NO MORE THAN ONE (1) DRIVEWAY ON LOTS WITH LESS THAN 120' OF FRONTAGE.
9. 24" X 3/8" DOWELS SHALL BE EMBEDDED A MINIMUM OF 12" INTO EXISTING CONCRETE ROADWAY. DOWELS TO BE INSTALLED AT 12' O.C.



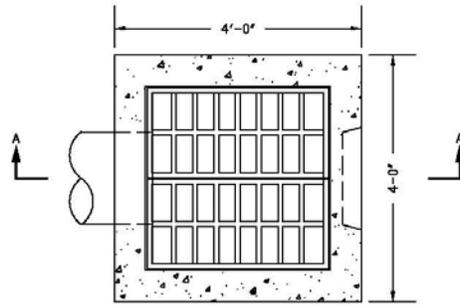
**RESIDENTIAL CONCRETE DRIVEWAY
(OPEN DITCH STREETS)**

DEPARTMENT OF PUBLIC WORKS

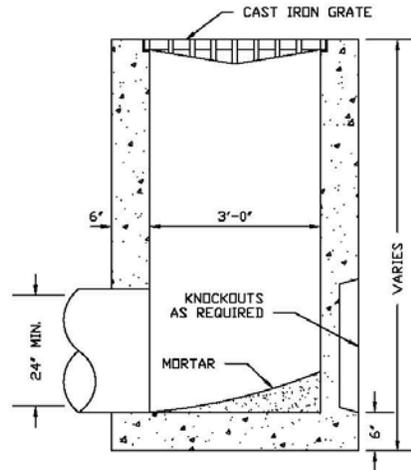
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PLAN



SECTION A-A

TYPE "A" INLET

NOTES:

1. USE #4 REBAR IN 12" D.C.E.W.
2. CONCRETE SHALL BE CLASS "A" WITH A TWENTY-EIGHT DAY COMPRESSIVE STRENGTH OF 4,000 PSI.
3. GRATES SHALL BE CAST IRON.



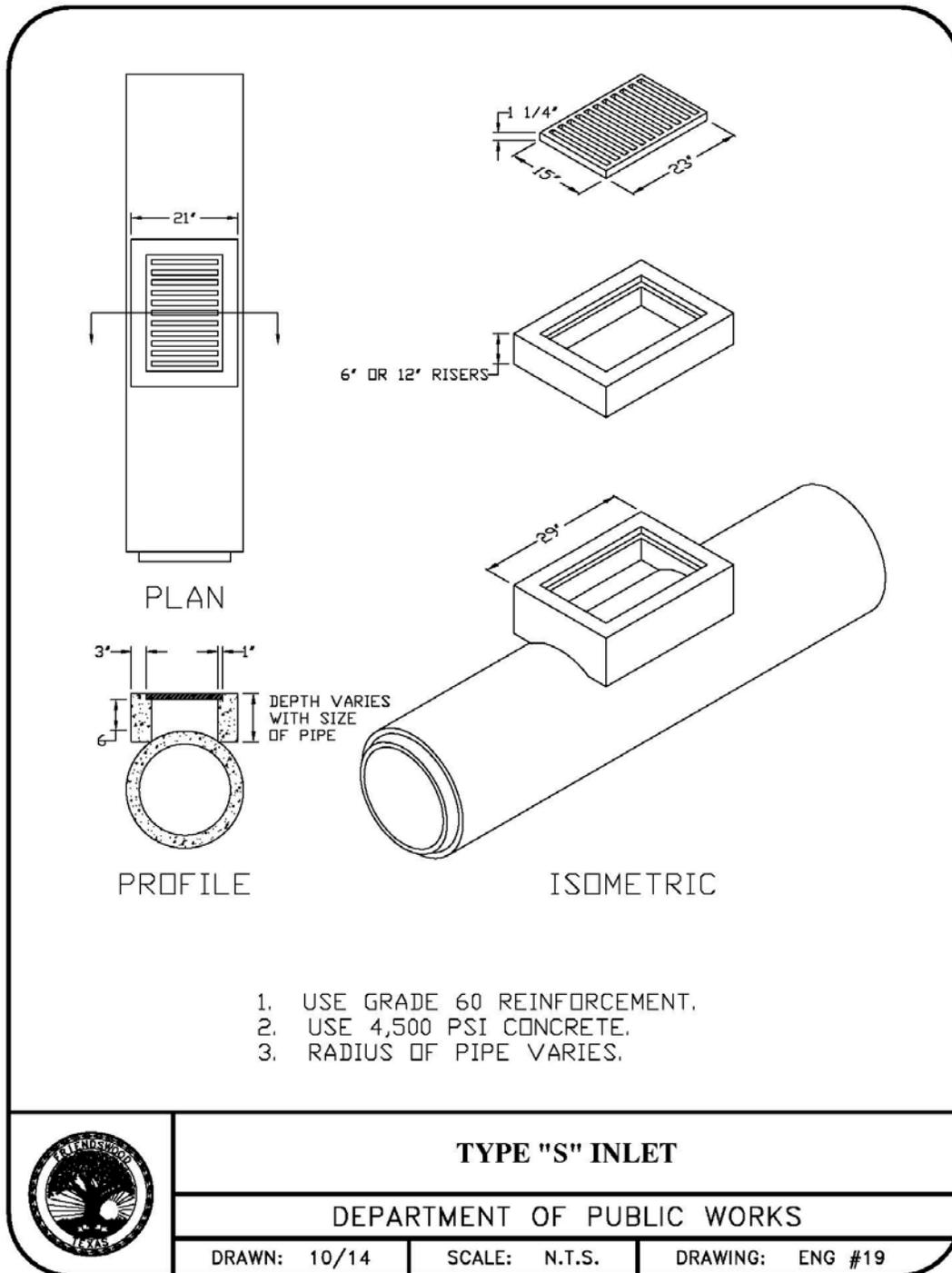
TYPE "A" INLET

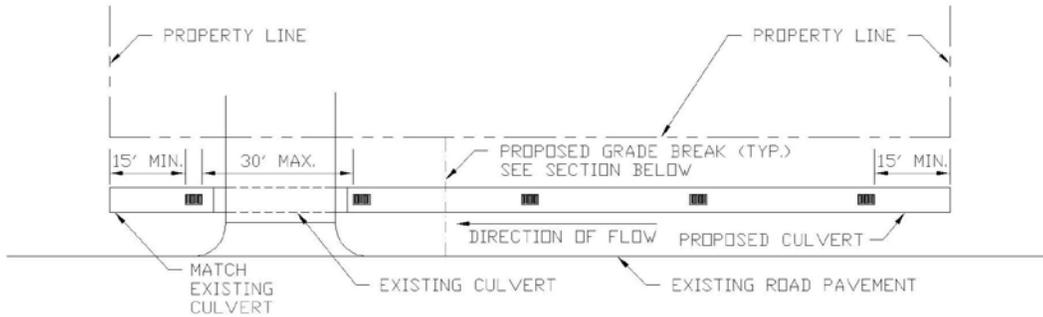
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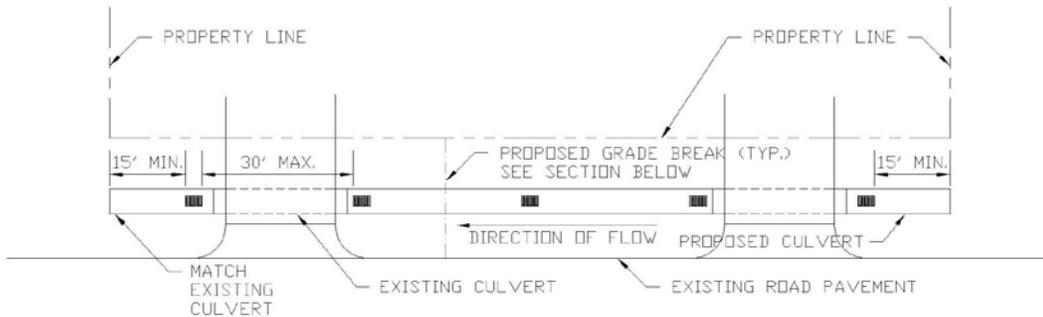
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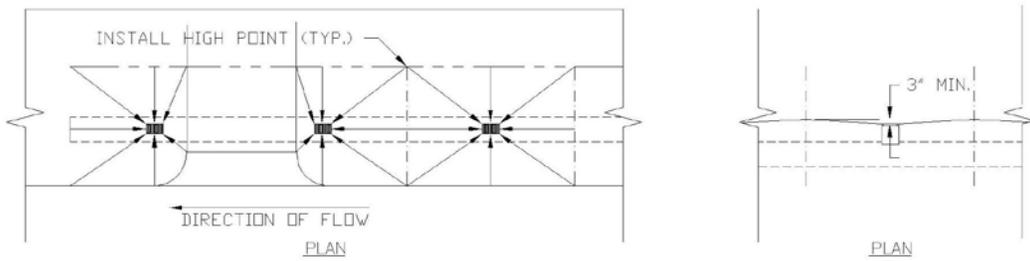




PLAN VIEW FOR SINGLE DRIVEWAY



PLAN VIEW FOR DOUBLE DRIVEWAY



DRAINAGE GRADING



**REQUIREMENTS FOR FILLING IN ROADSIDE
DITCHES IN RESIDENTIAL AREAS**

DEPARTMENT OF PUBLIC WORKS

DRAWN: 10/16

SCALE: N.T.S.

DRAWING: ENG #21