STANDARD DESIGN MANUAL
FOR
PUBLIC INFRASTRUCTURE IMPROVEMENTS

CITY OFFICIALS

Oscar D. Montoya Sr.	Mayor
Joe Martinez	Mayor Pro-Tem
Jacob C Howell	Commissioner Place 1
Leonel Benavidez	Commissioner Place 2
Jose Gomez	Commissioner Place 4
Kevin Pagan	Interim City Manager
Jose D. Figueroa	Director of Public Works

Rev. Jan. 2021

This Page Left Intentionally Left Blank

PREFACE

The City of Mercedes is committed to providing a high quality of life throughout the City by ensuring properly designed and constructed infrastructure to serve those who live and work in the City of Mercedes. The condition of public infrastructure facilities is important to the everyday life of its citizens.

This manual was prepared to assist engineers, developers, planners, and architects during the development of infrastructure improvements in public rights of way by providing design standards.

DISCLAIMER: This document is to be reviewed and revised, as necessary, in order to adapt any infrastructure improvements, advances and innovations in standard design practices. The user of this manual is responsible for requesting the most recent version.

Pursuant to a sanctioned fee, which may change from time to time, copies of this standard design manual are available at:

City of Mercedes
Planning & Zoning Department
400 S. Ohio Ave.
Mercedes, Texas 78570
(956) 565 -3114

This development manual is adopted under the authority of the Constitution and laws of the State of Texas, and the City Charter of the City of Mercedes, Texas.

ORDINANCE NO. _____

ORDINANCE ADOPTING THE CITY OF MERCEDES'S STANDARD DESIGN MANUAL FOR PUBLIC INFRASTRUCTURE IMPROVEMENTS.

WEREAS, the City of Mercedes approved Ordinance

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COMMISION OF THE CITY OF MERCEDES, TEXAS, THAT:

READ, CONSIDERED, PASSED AND APPROVED ON FIRST READING at a regular meeting of the City Commission of the City of Mercedes, Texas, at which a quorum was present and which was held in accordance with Vernon's Texas Codes Ann, Government Code, Section 551.041, on the day of , 20 .

READ, CONSIDERED, PASSED AND APPROVED ON SECOND READING at a regular meeting of the City Commission of the City of Mercedes, Texas, at which a quorum was present and which was held in accordance with Vernon's Texas Codes Ann, Government Code, Section 551.041, on the day of , 20 .

CITY OF MERCEDES

By: _____
Oscar P. Montoya Sr

ATTEST:

By: _____
Joselynn Castillo, City Secretary

APPROVED AS TO FORM:

By: _____
Anthony P. Troiani, City Attorney

This Page Left Intentionally Left Blank

Table of Contents

Section 1

General Provisions

1.1 Introduction

This manual is intended to aid and assist engineers, planners, developers, and architects in the layout and design of public infrastructure within the City of Mercedes to definite standards, and to obtain uniformity in the plans. It is recognized that each department has its individual problems that no fixed rules will apply to all cases; therefore, final approval of all or any part of any plans rests with the City.

It is the purpose of this manual to provide for the safe, efficient, and orderly development of the city, and the provision of adequate streets, utilities, services, and facilities, all in accordance with the comprehensive plan for the City. The City of Mercedes is committed to maintaining a high standard for public improvements within the City's rights of way and minimizing the future maintenance costs to the City.

1.2 Development Policy

Development and/or construction activities shall not be allowed within the City of Mercedes until the appropriate City approvals and permits have been obtained by the developer or contractor/builder. The submittal and approval of plats, Development Plans, and permit applications shall be in accordance with the requirements and procedures outlined within this development manual.

1.3 Jurisdiction

Provisions of this development manual shall apply within the incorporated limits of the City of Mercedes, Texas and the city's Extra Territorial Jurisdiction.

1.4 Fees Required

Various fees shall be required for the review and processing of applications and permits for development, construction, and building related activities within the City of Mercedes. Additional information regarding the development fees assigned by the City of Mercedes can be found by contacting the City's Planning Department.

1.5 Design Standards

Standards for design of public improvements and private improvements, which interface with public improvements, shall be as required by the City of Mercedes, including those requirements identified in this development manual, and the City of Mercedes Standard Construction Details, except as otherwise noted.

This Page Left Intentionally Left Blank

Section 2
Definitions

2.1 Definitions; Terms can be enforced as defined herein.

Alleys. Minor roadways which are used primarily for vehicular access service delivery to the back or the side of properties otherwise abutting on a street.

Alleys, Interior. Internal alleys within a subdivision not parallel to a City street.

Alleys, Perimeter. Alleys adjacent to and parallel to a City street requiring a screening wall between the rights-of-ways.

Amended Plat. A plat of a subdivision correcting the scrivener errors of a previously approved plat. Amended Plats must be prepared in accordance with the requirements of this development manual, shall require City approval, and upon approval shall be filed for recording with the County Clerk of Hidalgo County, Texas.

Arterial Streets. Major streets in the City's street system that serve as avenues for the circulation of traffic onto, out, or around the City, and carry high volume of traffic.

Building. A structure (anything constructed or erected), designed to be used as a place of occupancy, storage, or shelter.

Building Plans. Plans for the construction of a building. Building Plans may include: architectural plans, architectural elevations, foundation plans, mechanical (HVAC) plans, electrical and lighting plans, plumbing plans, etc. Building Plans will often be accompanied by Construction Plans for site development projects. Building Plans may not, in some cases, include Construction Plans for remodeling projects.

Building Area. A portion of a lot on which a building or buildings are allowed to be placed.

Building Lot. A single tract of land that is designated by its owner or developer as a tract to be used, developed, or built upon as a unit, under single ownership or control. It shall front upon a street unless otherwise approved by the City.

Building Pad. A portion of a lot covered by a building footprint.

City. The City of Mercedes, Texas, and all its governing and operating bodies.

City Engineer. The Texas licensed professional engineer or Texas registered engineering firm, employed by the City or engaged by the City as a consultant, and designated by the City as the “City Engineer”.

City Staff. City employees and City consultants, including the City Engineer, designated by the City and by properly constituted authority to enforce the regulations contained in the City's development requirements.

Clear Vision Area. A part of a lot (generally corner lot) which may not be utilized for plantings, walls, fences, parking, vending machines, or other obstructions which would cause sight obstructions.

Collector Streets. Streets whose principal function is to carry traffic between residential streets and the arterial streets, but that may also provide direct access to abutting properties, including the principal entrance streets of residential developments.

Commercial Building. Any building, other than a residential building, will be referred to as a Commercial Building in this development manual.

Commercial Development. Any development subdivision which is not strictly Residential in nature as defined by this development manual. Multi-family uses, retail uses, restaurants, office buildings, mixed-use developments, industrial uses, and all other non-residential uses will be considered Commercial Development as used throughout this development manual.

Construction Plans. Plans for construction activities other than building construction. Construction plans may include: paving plans, grading plans, drainage plans, water line plans, sanitary sewer plans, erosion control plans, construction details, etc.

Control of Access Line. Lines along sections of the street and alley rights-of-way that delineate areas where no driveway access will be permitted. These lines shall be shown within the limits that the city determines to be potentially unsafe for driveway access.

Conveyance Plat. A complete and exact plan, map, or drawing, indicating the boundary information of a parcel of previously unplatted land, solely for the purpose of conveying property in a real estate transaction. Conveyance Plats must be prepared in accordance with the requirements of this development manual, shall require City approval, and upon approval shall be filed for record with the County Clerk of Hidalgo County, Texas.

Corner Clip. A triangular area of additional right-of-way at street and alley intersections.

Commission. The City Commission of the City of Mercedes, Texas.

Cul-De-Sacs. Short minor streets having only one vehicular access to another street and terminated by a vehicular turn-around.

Dead End Streets. Streets other than a cul-de-sac with only one outlet.

Development Plan. The site plan document for one or more lots upon which is shown all information required by the City's development requirements. Also called "Development Plan" or "Site Plan" throughout this development manual.

Earth Disturbance. Any grading, filling, excavating or trenching activities within the City of Mercedes.

Earth Disturbance Permit. A permit which must be obtained from the City of Mercedes prior to commencing any grading, filling, excavating or trenching activities within the City of Mercedes.

Easement. The right granted for the purpose of limited public use across, over, or under private land.

Engineer of Record. A Texas licensed professional engineer in responsible charge of the engineering associated with a development or project.

Extra Territorial Jurisdiction (ETJ). The unincorporated area contiguous to the municipality's corporate boundaries and extends to a certain distance based on the municipality's population. A municipality may extend to the ETJ the application of municipal ordinances and other ordinances relating to platting, access to public roads, or the pumping, extraction, and use of groundwater by persons other than retail public utilities. A municipality may not enforce its Zoning Rules and Regulations within the ETJ; however, subdivision rules and regulations apply to the ETJ areas. ETJ may be further regulated by approved mutual agreements with adjoining cities or nearby cities having overlapping ETJs.

Final Plat. A complete and exact plan, map, or drawing, on which a plan of a subdivision is represented in conformance with an approved Preliminary Plat. Final Plats must be prepared in accordance with the subdivision ordinance and the requirements of this development manual, shall require City approval, and upon approval shall be filed for record with the County Clerk of Hidalgo County, Texas.

Fire Lane. A fire apparatus access road (or drive) meeting the minimum width specified by City standards and the International Fire Code and constructed of a pavement section, typically asphalt or reinforced concrete, sufficiently designed to support the imposed loads of fire apparatus, and providing a surface capable of being striped in accordance with current City requirements. Fire Lanes will be required and maintained in accordance with this development manual and the International Fire Code.

Lot of Record. A lot that is created by an approved plat of which has been duly recorded in the office of the County Clerk of Hidalgo County, Texas.

Marginal Access Streets. Streets which are parallel to and adjacent to arterial streets and highways and which provide access to abutting properties and protection from through traffic.

Master Plan. The various plans for the City and its adjoining areas, as adopted by the Commission, and as it may subsequently be amended, and which indicates the existing and recommended general locations of various land uses, streets, parks, and other public and private developments and improvements.

Mining. The use of a facility or area for the extraction, removal, or stockpiling of sub-earth materials, including sand, gravel, oil, gas, caliche, or other materials found under the earth's surface.

The following are not considered mining:

1. The excavation, extraction, removal, or stockpiling of earth materials for ponds or lakes, or incidental to an approved plat, or incidental to construction with a building permit, or for governmental or utility construction projects such as streets, alleys, gas, electrical, water, telephone facilities and similar projects.

2. The extraction, removal, or stockpiling of earth materials incidental to construction of landscaping, retaining walls, screening devices and similar activities consistent with the land use allowed at the site of removal.

3. Grading, filling, or excavating when done in conjunction with an approved Earth Disturbance Permit properly issued by the City of Mercedes.

Minor Plat. A complete and exact plan, map, or drawing, on which a plan of a subdivision is represented, only for a subdivision that involves four or fewer lots which front on an existing street and do not require the creation of any new street or the extension of municipal facilities. Minor Plats must be prepared in accordance with the requirements of this development manual, shall require City approval, and upon approval shall be filed for record with the County Clerk of Hidalgo County, Texas.

Multi-Family Residential. Development or subdivision, consisting of one or more lots, developed, or intended for development, for the purpose of providing any building or portion thereof, which is designed, built, rented, leased, or let to be occupied as three or more dwelling units or apartments.

Non-Residential. All uses in all zoning districts that are not Single-Family Residential in nature as defined by this development manual. Multi-family residential and mobile home parks shall be considered under this design manual as Non-Residential in terms of process and design requirements. As used throughout this development manual, the term "Commercial" shall mean Non-Residential as defined herein.

Off-Site Public Improvements. All improvements outside the limits of the development.

On-Site Public Improvements. All improvements constructed within the development.

Opaque. As specified in the Screening Requirements shall mean a fence or hedge that cannot be seen through. A chain link fence with slats or a fabric fence are not considered opaque under the requirements of this development manual.

Ordinances, Standards, Codes, Criteria, Requirements, Construction Details, and Specifications. These terms may be used interchangeably throughout this development manual. As used in this development manual, these terms may be used interchangeably, and any of these terms shall mean the various or combined ordinances, standards, codes, criteria, requirements, construction details, and/or specifications of the City of Mercedes.

Planning & Zoning Commission. The Planning and Zoning Commission of the City of Mercedes, Texas.

Plat. See "Amended Plat", "Conveyance Plat", "Final Plat", "Preliminary Plat", "Replat".

Preliminary Plat. A preliminary plan, map, or drawing that represents a proposed subdivision, showing all boundaries and location of individual properties and streets, as well as other information in accordance with the requirements of this development manual. Preliminary plats must be approved by the City in accordance with the requirements of this development manual.

Protected Tree. Trees that are defined as protected by City standards, often determined by species and caliper size.

Public Improvements. All publicly maintained infrastructure including public surface improvements (curbs, gutters, driveway approaches, sidewalks, paved streets, alleys, bridges, culverts, street lights, and etc.) and public utilities (water lines, sanitary sewer lines, storm drains, fire hydrants, and etc).

Replat. A plat of any portion or all of a subdivision which has been previously platted (other than by Conveyance Plat). Replats must be prepared in accordance with the requirements of this development manual, shall require City approval, and upon approval shall be filed for record with the County Clerk of Hidalgo County, Texas.

Residential. Development which is Single-Family Residential in nature as defined by this development manual. Multi-family residential and mobile home parks shall be considered under this design manual as Non-Residential in terms of process and design requirements.

Residential Streets. Streets which are intended primarily to serve traffic within a neighborhood or limited residential district, and which is used for access to abutting properties.

Screening Hedge. An allowable Screening Device of shrubs as required in development manual.

Screening Fence. A solid opaque screening fence used to screen outside storage in accordance with the screening section of this development manual.

Screening Wall. A solid, opaque wall made of wood, brick, stone, decorative concrete block, or concrete panels to be erected at designated areas in accordance with the screening section of this development manual.

Semi-Public Improvements. Privately maintained improvements installed on private property, other than easements, which are required for the public benefit, public use or public welfare. Semi-Public Improvements might include: fire lanes, fire lines, onsite fire hydrants, screening devices, onsite drainage, etc.

Setback Line. A line mandated by zoning regulations or recorded plat that a building must be set back from the property line, the street right-of- way line or easement line.

Single-Family Residential. Development or subdivision with the intended purpose of providing for single-family detached housing. Duplexes will also be considered as Single-Family Residential for the purposes of this development manual.

Site Improvements. All necessary site related improvements required by this development manual.

Site Plan. The site plan document for one or more lots upon which is shown all information required by this development manual. Also called “Development Plan” or “Site Plan” throughout this development manual.

Street. A public right-of-way for vehicular traffic, whether designated as street, highway, thoroughfare, parkway, road, boulevard, or however otherwise designated.

Subdivision. The division of a parcel or parcels of land into two or more lots, or building sites for the purpose of sale or building development (whether immediate or future) including one lot subdivision and all divisions of land involving dedication of streets, alleys, and easements, or change in existing streets. The term also includes re-subdivision, and the term subdivider or developer are synonymous and interchangeable, and include any person, partnership, corporation, association, firm, trustee, or agent who participate in subdivision of land within the intent, scope, and purview of this development manual. Divisions of land for agricultural purposes in parcels of five (5) acres or more shall not be included within this definition, unless any such division of five (5) acres or more includes the planning or development of a new street or access easement, plus associated improvements of utility service.

Thoroughfare Plan. A master plan, as adopted by the City Commission, and as it may subsequently be amended, which indicates the existing and recommended streets of the City of Mercedes and its extra territorial jurisdiction.

Tract. An un-platted parcel of land whose boundaries have been established by a recorded deed and which is recognized as a separate parcel for purpose of transfer of title.

Tree Survey. A drawing showing all trees on a property greater than the minimum diameter described in this development manual.

Truck-Lay. The route Fire Department apparatus travels from a fire hydrant to all points of a structure or combustible storage area. Actual distance is measured along a paved street and/or fire lane as the apparatus would travel.

Utility Company. Companies, corporations, and other entities that undertake transmission and distribution of natural gas, electricity, telecommunications, radio or television communications, or other similar services.

Utility Lines / Utilities. Pipes, poles, structures, wire, aerial cables and related facilities used in transmission and distribution of natural gas, electricity, telecommunications, radio or television communications, or other similar utility services.

Variance. A grant of permission acted on by the Planning and Zoning Commission, and given final action by the City Commission, that authorizes a specific suspension, relaxation, or waiver of one or more of the development rules and regulations of the City.

This Page Left Intentionally Left Blank

Section 3
Development Requirements and Procedures

3.1 Platting Requirements

A. Final Plat – A Final Plat shall be required by the City of Mercedes, whereby the owner of a tract of land, located within the limits or in the extra-territorial jurisdiction of the City, who divides the tract in two or more parts for the purpose of sale, or to lay out a subdivision or building lots or any lots, or streets, alleys, parks or other portions intended for public use or the use of purchasers or owners of lots, shall cause a final plat to be made in accordance with this development manual and with the Local Government Code. A Final Plat shall substantially conform to an approved Preliminary Plat, or a revised Preliminary Plat must be submitted for formal approval. Final Plat approval will be granted only on the condition that all lots can stand alone in terms of public and semi-public improvements. Every structure hereafter erected or enlarged shall be located on a lot of record as identified on a Final Plat for the property.

B. Preliminary Plat – Preliminary Plat approval will be granted only on the condition that all lots can stand alone in terms of public and semi-public improvements. Development Plan approval is typically required prior to approval of a Preliminary Plat. However, Preliminary Plat and Development Plan applications may be submitted and considered concurrently. A Preliminary Plat approval is typically required prior to approval of a Final Plat, Minor Plat, or Replat. However, at the discretion of the Director of Planning, the City shall have the option to accept applications for Final Plats, Minor Plats, or Replats concurrently with applications for the associated Preliminary Plats and Development Plans.

C. Replat – A Replat will be required to further subdivide a lot which has already been final platted. When re-platting, a lot of record must be replatted in its entirety. In addition, all replats of commercially zoned land and all replats of single-family and two-family residential zoned land of more than six lots must be considered in a public hearing in accordance with the Local Government Code. Upon approval and County filing, a Replat will be treated as a Final Plat with regard to the development process of the City of Mercedes. Replat approval will be granted only on the condition that all lots can stand alone in terms of public and semi-public improvements. Development Plan and Preliminary Plat approval is typically required prior to approval of a Replat. However, at the discretion of the Director of Planning, the City shall have the option to accept applications for Replats concurrently with applications for the associated Preliminary Plats and Development Plans.

D. Minor Plat – A Minor Plat may be obtained for a subdivision that involves four or fewer lots that fronts on an existing street, does not require the creation of any new street or the extension of municipal facilities, and is not a Replat. A Minor Plat can be "administratively approved" by the Planning Director and City Engineer. Upon request by the landowner, the designee shall be required to refer any disapproved Minor Plat to

the Planning and Zoning Commission for consideration and public hearing. Upon approval and County filing, a Minor Plat will be treated as a Final Plat with regard to the development process of the City of Mercedes. Development Plan and Preliminary Plat approval is typically required prior to approval of a Minor Plat. However, at the discretion of the Director of Planning, the City shall have the option to accept applications for Minor Plats concurrently with applications for the associated Preliminary Plats and Development Plans.

E. Conveyance Plat – A Conveyance Plat may be obtained solely for the purpose of conveying property in a real estate transaction in order to plat an un-platted tract of land. A Conveyance Plat may only be obtained if the tract is platted as a single lot that fronts on an existing street, does not require the creation of any new street or the extension of municipal facilities, and is not a Replat. A Conveyance Plat, similar to a Minor Plat, can be "administratively approved" by the Planning Director. Upon request by the landowner, the Planning Director shall be required to refer any disapproved Conveyance Plat to the Planning and Zoning Commission for consideration and public hearing. Upon approval and County filing, a Conveyance Plat will be treated as a Final Plat with regard to the development process of the City of Mercedes.

3.2 Development Plan Requirements

A. Development Plan approval is required for all construction other than projects which involve only interior building remodel. Projects performed and funded by the City of Mercedes are exempt from this requirement to the extent that such projects are for the construction or maintenance of public streets, drainage, water and/or sanitary sewer facilities. Development Plans may proceed through staff review and approval so long as no variances are required. Development plan approval will be required when any of the following apply:

1. Any proposed new development, including building construction or site improvements (grading, paving, drainage, water, sanitary sewer, etc.).

2. Any change in the location, configuration, or square footage of any existing building, driveway, fire lane, parking area, on-site public drainage system, open drainage channel, or storm water detention facility.

3. Any platting or subdivision of real property.

B. Existing legal non-conforming structures may maintain a legal nonconforming status until the requirement for a Development Plan is triggered per the section above or until the use or operation of the structure or property ceases or becomes vacant for a period of twelve (12) months or more, in which case, the startup of any use of the structure or property will require compliance with all applicable provisions of this development manual, including platting and Development Plan application.

C. The approval of a Development Plan shall be effective for a period of twelve (12) months after the date of formal approval. Following a twelve (12) month period after the approval of a Development Plan, the Development Plan will be considered invalid. At the discretion of the Director of Planning, the expiration date of an approved Development Plan may be extended an additional twelve (12) months without the need to resubmit through the typical approval process for new Development Plans. Request for extension shall be made by the property owner in writing at least fourteen (14) calendar days prior to the end of the first twelve (12) month period.

3.3 Platting and Development Plan Procedures

A. All plats, Development Plans, construction plans and building plans shall be submitted to the Planning Department. Persons wishing to discuss specific questions in the development process should contact the appropriate department/division, but all formal submittals should be made to the Planning Director in order to provide a coordinated review.

B. Prior to submitting a plat or Development Plan, the developer/owner should consult with the appropriate City staff concerning the proposal. Staff will assist in determining whether the proposed development is generally consistent with City of Mercedes standards, plans and policies. City review staff will be available on a regular basis for a meeting with any person wishing to discuss projects in review or proposed for submittal. The project engineer or architect is encouraged to attend the review meeting in order to directly receive pertinent information regarding the proposed project. This meeting will not provide a full review of any particular project, but will provide the opportunity for a developer, architect or engineer to ask questions regarding City policies, process, plans, and requirements. Persons wishing to schedule a review meeting should contact the Planning Director.

C. Upon submittal, plats, Development Plans, permit applications, building plans, construction plans, and other related items will be reviewed by applicable staff. The Planning Department will coordinate all submittals and returns of marked-up copies. The Planning Department will also coordinate payment of City fees, acceptance of tax certificates, and acceptance of final file copies. The developer shall be responsible to provide copies of plats and Development Plans to the electric, telephone, gas, cable, and solid waste disposal utility companies for review and comment. The developer shall coordinate with each utility company prior to plat or development plan approval to ensure that adequate utility easements are provided to serve the proposed development. In order to prevent delays in obtaining building or construction permits, the developer shall obtain letters from each utility (electric and gas at a minimum) indicating that the utility has reviewed the plat or Development Plan and that the developer has satisfied the utility's easement requirements. The developer shall provide copies of the utility acceptance letters to the City at the time of permit application. The City shall have the right to refuse issuance of building permits and construction permits if proof of utility company acceptance is not provided to the City.

D. All plats and Development Plans submitted for review will be on the City's active list for a period of three months from the date of each submittal. After the three-month period, a project may be considered abandoned and may be removed from the City's files. Substantial developer-initiated changes in the project from one submittal to the next that need additional review will require an additional payment equal to one-half of the original review fee.

E. Following completion of the review process, plats must be submitted to the Planning and Zoning Commission. If a variance is requested, Preliminary Plats will be forwarded to the City Commission after going before the Planning and Zoning Commission. Although City Commission will consider the recommendations of the Planning and Zoning Commission, City Commission is not required to adhere to those recommendations if unique development conditions exist.

F. Following completion of the review process, Development Plans can be granted approval by City staff if the Development Plans conform with all applicable requirements of the City. If a variance is requested, upon completion of staff review, Development Plans will be forwarded to the Planning and Zoning Commission and then to City Commission for public hearing. Although City Commission will consider the recommendations of the Planning and Zoning Commission, City Commission is not required to adhere to those recommendations of unique development conditions exist.

3.4 Building Permits

A. All building activities within the City of Mercedes shall comply with the City of Mercedes Code of Ordinances.

B. Prior to commencement of any building activities, the owner, developer or contractor shall secure a Building Permit, a site Construction Permit (if applicable) and an Earth Disturbance Permit (if applicable), all properly issued by the City of Mercedes. Simultaneous construction of public and private improvements may be approved by the Planning Director in some instances where a written request of sufficient merit, as determined by the Planning Director, has been made by the applicant. However, without written approval of the Planning Director, no building or construction permit for private improvements, including but not limited to permits for electrical, mechanical, plumbing, signs, paving, etc. (with the exception of temporary power permits associated with construction), will be issued for any residential or commercial building until all public improvements associated with the development are completed and accepted by the City and until gas and electrical service has been made available to each lot. These public improvements and franchise utilities constitute the basic infrastructure required to serve the development and include construction of streets, sidewalks, drainage, water and sanitary sewer facilities.

C. Commercial Building Permit applications will not be granted until a Development Plan has been approved and the construction and acceptance of all required public and semi-public improvements (fire lanes, fire lines, fire hydrants and other appurtenances,

sidewalks, driveway approaches, drainage facilities, water and sanitary sewer service connections, etc.) as shown on the approved Development Plan. Simultaneous construction of public and private improvements will require written approval of the Planning Director.

D. A foundation permit may be issued, on a case-by-case basis, based on the approved Development Plan that adequately addresses the location and elevations of water and sanitary sewer services in relation to the proposed finish floor elevation of the building.

E. No building construction above the slab may be commenced prior to the construction and approval of all fire lanes, fire lines, fire hydrants and other waterline appurtenances.

F. Some items of public and semi-public improvements (i.e. sidewalks, driveway approaches, grading and drainage improvements, water and sanitary sewer service connections) may be constructed simultaneously with the building provided a cash escrow is deposited with the City to cover 100 percent of the cost of the improvements. A non-refundable fee will be charged by the City for escrow handling. On cash escrow's where the developer satisfactorily completes all public and semi-public improvements, the City will return the entire amount escrowed (without interest). If the developer fails to complete the project, then the escrowed funds will be retained by the City. The City will either use the funds to complete the public improvements associated with the project, or the City will hold the funds and apply them for public improvements on a future project at the same location. The City shall be entitled to retain all interest earned on the escrowed funds.

G. Three-party contracts may be considered on case-by-case basis and are subject to approval by the City Commission.

H. The developer shall coordinate with each utility company prior to plat or development plan approval to ensure that adequate utility easements are provided to serve the proposed development. In order to prevent delays in obtaining building or construction permits, the developer shall obtain letters from each utility (electric and gas at a minimum) indicating that the utility has reviewed the plat or Development Plan and that the developer has satisfied the utility's easement requirements. The developer shall provide copies of the utility acceptance letters to the City at the time of permit application. The City shall have the right to refuse issuance of building permits and construction permits if proof of utility company acceptance is not provided to the City.

I. Building Permits shall be valid for a period of six (6) months from the date of permit issuance. That portion of the building activities which is not substantially complete within six (6) months will require a new permit and the remaining building activities must comply with the most current City standards and regulations, unless a variance is granted by the City's Building Board of Adjustments. In cases of large scale building projects which require longer than six (6) months to complete, the Building Official, upon approval by the Planning Director, shall be authorized to provide permit extensions which do not require compliance with new building codes.

3.5 Construction Permits

A. Prior to commencement of any construction activities (paving, drainage, utilities, etc.) the owner, developer or contractor shall secure a Construction Permit properly issued by the City of Mercedes. A Construction Permit will be issued only after City requirements have been met.

B. Three-party contracts may be considered on case-by-case basis and are subject to approval by the City Commission.

C. Construction must be underway within six (6) months from the date of permit issuance and the improvements must be substantially completed within eighteen (18) months from the date of permit issuance. That portion of the construction which is not substantially complete within eighteen (18) months will require a new permit and the remaining construction must comply with the most current City standards and regulations, unless a variance is granted by the City's Building Board of Adjustments.

D. Any construction activities involving grading, filling, excavation, or trenching activities, shall also require an Earth Disturbance Permit.

3.6 Earth Disturbance Permits

A. No grading, filling, excavation, or trenching activities shall be performed within the limits of the City of Mercedes except with an unexpired Earth Disturbance Permit properly issued by the City. An Earth Disturbance Permit will be issued only after the requirements outlined in this development manual and other City requirements have been met. The City of Mercedes shall be exempt from this requirement.

B. In order to apply for an Earth Disturbance Permit, the applicant must submit various plans and items as outlined in this document. An Earth Disturbance Permit will not be issued until all of the required submittal items have been approved.

C. The applicant must pay an Earth Disturbance Permit fee.

D. An Earth Disturbance Permit will not be issued if the work is deemed to adversely affect drainage on adjacent or other properties, create a traffic safety problem, or be considered a mining operation. Specific use district zoning may be required for mining, including such mining as sand and gravel removal.

E. Earth disturbance within the floodway or floodplain will trigger additional requirements.

F. Earth disturbance impacting trees is prohibited prior to the approval of a Development Plan for commercial developments. The Development Plan requirement may be waived by the Director of Public Works for earth disturbance activities necessary to improve drainage or for utility work if such activities are not associated with demolition, construction, expansion, or reconfiguration of a commercial building, fire lane,

commercial parking lot, outdoor storage area, or outdoor area used for business operations.

G. An Earth Disturbance Permit is not required for the addition of topsoil or similar material used to spread over grassed areas in average depths of less than two inches.

H. The contractor shall establish erosion control devices in accordance with the current Texas Pollution Discharge Elimination System (TPDES) requirements. Texas Commission on Environmental Quality (TCEQ) requirements must be followed by the developer and contractor.

I. Grading, filling, excavating, and/or trenching activities must be underway within six (6) months from the date of permit issuance and must be substantially completed within twelve (12) months from the date of permit issuance. That portion of the work which is not substantially complete within twelve (12) months will require a new permit and the remaining work must comply with the most current City standards and regulations, unless a variance is granted by the City Commission.

3.7 Driveway Permits

A. No driveway shall be constructed within the limits of the City of Mercedes except by an unexpired Driveway Permit properly issued by the City. A Driveway Permit will be issued only after the requirements outlined in this development manual and other City requirements have been met. The City of Mercedes shall be exempt from this requirement.

B. In order to apply for a Driveway Permit, the applicant must submit various plans and items as outlined in this document. A Driveway Permit will not be issued until all of the required submittal items have been approved.

C. The applicant must pay a Driveway Permit fee.

D. A Driveway Permit will not be issued if the driveway is deemed to create a traffic problem or a potential safety problem. If granted, a Driveway Permit shall be effective for a period of sixty (60) days from the date the permit is issued. The driveway must be constructed within the sixty (60) day period or a new permit will be required. The contractor shall construct all City permitted driveways within five (5) days of the sawcut and removal of the existing pavement.

E. In addition to the requirements described above, access to state controlled highways shall require State permits through the Texas Department of Transportation (TxDOT).

3.8 Sign Permits

A. No sign or advertising structure shall be erected, relocated, posted, painted or maintained within the City by any person, firm or corporation without first obtaining a permit

therefor, properly issued by the City Building official, except as may otherwise be provided in the City's Sign Ordinance.

B. Any person applying for a sign permit must show proof of property damage and public liability insurance in an amount not less than ten (10) times the construction cost of the sign and containing standard provisions that the sign contractor or property owner are insured against claims by third persons for negligence of the contractor or owner or their agents, officers, or employees in the construction, erection, or maintenance of the proposed sign. Electrical signs shall also require electrical permits. Permits for advertising signs (billboards) shall also require approval of the City Commission.

C. No sign permit shall be issued except after receipt of an application prescribed by the building official and showing the sign location, size, type, height, materials of constructions, surface area and such other information as the building official shall require. When required by the building official, plans shall be prepared by a registered professional engineer or architect.

D. The fee for all permitted signs shall be as provided for in the fee schedule which can be obtained from the City of Mercedes Planning Department. When a sign is erected, placed or maintained or work started thereon before obtaining a sign permit, there shall be a late fee equal to twice the amount of the sign permit fee. The late fee does not excuse full compliance with the sign code provisions.

E. A permit for a sign shall expire if the work is not started within ninety (90) days or is not completed within one hundred and twenty (120) days after work has commenced. A new permit shall be required to replace any permit which has expired. Any permit issued in conflict with the provisions of this section is void.

3.9 Development of Land Served by Substandard Public Improvements (or Not Served by Public Improvements)

A. General Provisions: This section deals with lots or tracts that are not served by public improvements or that are served by one or more existing substandard public improvements including water, sanitary sewer, streets, sidewalks, or storm drainage. Such developments must meet these required minimum standards in order to obtain a building permit for a new building or if an addition is being made to an existing building. In reviewing the required Development Plan, the City staff will note areas that fail to meet minimum standards. If in the opinion of the City staff, on a case-by-case basis, these minimums are not adequate, more extensive improvements may be required, as necessary. Additionally, each of the lots or tracts must follow all City Master Plans for streets, utilities, parks, and other public improvements.

B. Paving: Development must be served by minimum street right-of-way as determined by the adopted Thoroughfare Plan shall be required.

C. Water Lines: If development is to occur on land which is not currently served or which is currently served by sub-standard water utilities, the owner, developer or applicant may be required to extend the existing system or improve the existing system to current requirements.

D. Fire protection: Inadequate or substandard water line size may require line upgrades and additional fire hydrants, or other measures may be needed in order to provide adequate fire protection. A hydrant escrow may serve this latter purpose

E. Sanitary Sewers: If improvement is to occur on land that is not currently served or that is served by substandard sanitary sewer utilities, the owner, developer, or applicant may be required to extend the existing system or improve the existing system to current requirements. If not feasible on this latter intent, the owner/developer must meet the minimum standards of the county of Hidalgo's OSSF Policies.

F. Septic Systems: Application for construction and operation of a septic system must be submitted to Hidalgo County. Application, fees, tests, design and on-site inspections must be submitted and coordinated with Hidalgo County. The tract of land must consist of ½ acre (net) or more to qualify for a septic system. If the project includes a septic system, prior to issuance of a Certificate of Occupancy by the City of Mercedes, the City must be in receipt of the following:

1. Approved septic system permit by Hidalgo County

2. Approved design by Hidalgo County

3. Approved final inspection by Hidalgo County

Septic systems will not be permitted within the City limits of the City of Mercedes where any part of the platted lot or tract is within 1,000 feet of an existing City sanitary sewer line, unless otherwise approved by the Director of Public Works. The requirements to connect to the City's sewer system may be enforced even if the improvements must include a lift station, force main or both. The requirement will not be enforced in instances where the Director of Public Works determines that the connection is impractical.

G. Drainage: Permanent Storm water detention may be required for any development at the discretion of the City Engineer or Director of Public Works. All site drainage resulting in concentrated flow must discharge to an adequate outfall capable of conveying the proposed runoff for a 50-year rainfall event. Concentrated flow shall discharge from the site to public right-of-way or a drainage easement. In the event that a drainage easement cannot be obtained from adjacent property owners, the developer shall take measures to, as closely as practical, simulate pre-existing drainage flow rates and patterns.

3.10 Abandonment of Real Property

A. General Provisions: An Abandonment Ordinance is required for abandonment of any public right-of-way. Any easement may be abandoned with a Certificate of Abandonment in accordance with paragraph B.3(c) below. Requests for abandonment shall be made in writing to the Planning Department. The proposal to abandon shall be fully examined by the appropriate city departments prior to approaching the City Commission for Ordinance approval. If favorable, the City will file with the County all documents that are required to record the transaction. An application fee must accompany all requests and the Hidalgo County filing fees shall be submitted with a separate check. If applicable, fair market value will be established by the City based on information, acceptable to the City. Should appraisals be required, the cost shall be paid in advance by the applicant. Any relocation, adjustment or other construction shall be the financial responsibility of the applicant. The following information must be provided with any request for abandonment of real property by the City of Mercedes:

1. Metes and bounds description of the property to be abandoned, as prepared by a registered surveyor.

2. Exhibit showing the property to be abandoned, as prepared by a registered surveyor.

3. Letters of Release from utility companies, if applicable.

4. Application fee of $250 made payable to “City of Mercedes”.

5. Recording fee made payable to the Hidalgo County Clerk.

B. Additional Requirements for Certain Abandonments.

1. Abandonment of an improved street or alley:

    a. Fair market value of the real property and the improvements that are to be removed or converted to private use

    b. Dedication of easements for any facilities that are to remain or be relocated; all costs to be incurred by the applicant.

2. Abandonment of street or alley right-of-way (unimproved):

    a. Fair market value of the real property

    b. Dedication of easements for any facilities that are to remain or be relocated by the applicant.

3. Abandonment of an occupied easement in exchange for another easement at the request of the property owner:

a. Fair market value of the difference in value if the abandoned easement is greater than the replacing easement

b. The applicant shall incur the full cost to relocate and/or reconstruct any streets, drainage improvements, utilities, or other facilities.

c. To abandon an easement in exchange for an equivalent easement, or when it is determined that an easement is no longer necessary, a Certificate of Abandonment, or such other documents as may be legally required, shall be filed of record with Hidalgo County. This certificate shall be filed only after all information for abandonment of an easement on real property has been submitted and a final approval for abandonment has been provided by the Director of Public Works.

3.11 Parkland Dedication

A. Purpose: The City of Mercedes has adopted this ordinance to provide recreational areas in the form of neighborhood parks as a function of subdivision development within the City. The City Commission has declared that recreational areas in the form of neighborhood parks are necessary and in the public welfare, and that the only adequate procedure to provide for same is by integrating such a requirement into the procedure for planning and developing property or subdivisions in the City, whether such development consists of new construction on vacant land. Neighborhood parks are those parks providing for a variety of outdoor recreational opportunities and within convenient distances from a majority of the residences to be served thereby. The City of Mercedes shall approve of a Park Zone map depicting the various 'zones' in which park land dedication and/or Park fees shall be applied to residential subdivision plats.

B. General Requirements: Whenever a final plat is to be filed of record with the County Clerk of Hidalgo County for development of a residential area in accordance with the planning and zoning ordinances of the city, such plat shall contain a clear fee simple dedication of an area of land to the city for public park purposes, which area shall equal one (1) acre for each one hundred twenty (120) proposed dwelling units. However, if the existing Parks are deemed adequate for that Park Zone, then the City of Mercedes may require the Developer(s) to pay the cash fee per lot instead of the Park Land dedication. Any proposed plat submitted to the city for approval shall show the area proposed to be dedicated under this division. The required dedication of this section may be met by a payment of money in lieu of land when permitted or required by the other provisions of this section. The City Commission declares that development of an area smaller than one (1) acre for public park purpose, is impractical. Therefore, if fewer than one hundred twenty (120) units are proposed by a plat filed for approval, the developer shall be required to pay the applicable cash in lieu of land amount provided by Sec. 3.11 D "Money in Lieu of Land", rather than to dedicate any land area. In instances where an area of less than five (5) acres is required to be dedicated, the City shall have the right to accept the dedication for approval on the final plat, or to refuse same, after consideration of the recommendation of the Planning and Zoning Commission and to require payment

of cash in lieu of land in the amount provided by Sec. 3.11 D "Money in Lieu of Land", if the City determines that sufficient park area is already in the public domain in the area of the proposed development, or if the recreation potential for that zone would be better served by expanding or improving existing parks. The dedication required by this division shall be made by filing of the final plat or contemporaneously by separate instrument. If the actual number of completed dwelling units exceed the figure upon which the original dedication was based, such additional dedication shall be required, and shall be made by payment of the cash in lieu of land amount provided by Sec. 3.11 D "Money in Lieu of Land".

C. Prior Dedication: At the discretion of the City Commission, any former gift of land for Public Park purposes in that same Park Zone may be credited on a per-acre basis toward eventual land dedication requirements imposed on the donor of such lands. The City Commission shall consider the recommendation of the Planning and Zoning Commission in exercising its discretion under this division.

D. Money in Lieu of Land: Subject to the veto of the City Commission, a developer responsible for dedication under this division may elect to meet the requirements of Sec. 3.11 B "General Requirements" in whole or in part by a cash payment in lieu of land, in the amount set forth in Sec. 3.11 D "Money in Lieu of Land". Such payment in lieu of land shall be made at or prior to the time of final plat recording. The City may from time to time decide to purchase land for parks in the same Park Zone. If the City does purchase parkland, subsequent parkland dedications for that zone may be in cash only. The cash amount shall be $500.00 per dwelling.

E. Special Fund, Right to Refund: There is hereby established a special fund for the deposit of all sums paid in lieu of land dedication under this section or any preceding section, which fund shall be known as the Park Dedication Fund. The City shall account for all sums paid in lieu of land dedication under this section with reference to the individual plats involved. Any funds paid for such purposes must be expended by the city within five (5) years from the date received by the City for acquisition of development of a neighborhood park as defined herein. Such funds shall be considered to be spent on a first in, first out basis. If not so expended, the owners of the property on the last day of such period shall be entitled to a pro rata refund of such sum, computed on a square footage of area basis. The owners of such property must request such refund within one (1) year of entitlement, in writing, or such right shall be barred.

F. Additional Requirements, Definitions: Any land dedicated to the City under this division must be suitable for park and recreation uses. The following characteristics of a proposed area are generally unsuitable:

    1. Any area primarily located in the one hundred (100) year floodplain.

    2. Any areas of unusual topography or slope which renders same unusable for organized recreational activities.

Drainage areas may be accepted as part of a park if the channel is constructed in accordance with city engineering standards, and if no significant area of the park is cut off from access by such channel.

3.12 Variances and Exceptions

A. Variances requested on a plat or Development Plan will be scheduled for Planning and Zoning Commission after staff's review. After the Planning and Zoning Commission hearing, variance requests will be scheduled for a City Commission hearing.

B. An administrative fee will be charged by the City for processing variance requests.

C. Where the City Commission, in its judgment, finds that hardship or practical difficulties may result from strict compliance with the regulations outlined in this development manual, and/or that the purpose of the regulations may be served to a greater extent by an alternative proposal, the City Commission may approve exceptions to these subdivision regulations so that substantial justice may be done and the public interest secured, provided that such exception shall not have the effect of nullifying the intent and purpose of the regulations. In approving exceptions, the City Commission may require such conditions and stipulations that will, in its judgment, secure substantially the objectives of the standards of the regulations.

D. A petition for any such exception shall be submitted in writing by the owner/agent, four weeks prior to any Commission meeting, to the Planning Department. The request shall state fully the grounds for the application and all facts relied upon by the applicant. All supporting exhibits, fees and documents must be included with the application. Incomplete applications will not be processed until all documents are received by Planning staff.

3.13 Tax Certificate Requirement

A. A current Tax Certificate must be included with all plat recording submittals. A current, original (official) Tax Certificate must be provided to the City prior to filing of any Final Plat, Replat, Minor Plat, or Conveyance Plat.

3.14 Title Opinion Requirement

A. To provide evidence that the owner has adequate title and authority to convey ROW and easement dedications, a Title Opinion must be submitted for all plats or actions that include dedication of land or easements to the City. Said Title Opinion must be deemed to be satisfactory by the City Attorney and will be at the sole expense of the owner. In the event there is one or more lien holder(s), written approval by the lien holder(s) must be provided to show agreement with the plat or dedication. Dedication along state routes shall be by warranty deed.

3.15 Phasing a Development

A. Development may be performed in phases by establishing phase lines and/or lot lines on a Master Development Plan. Each phase shall be capable of standing alone, as development occurs, and shall not be dependent on future construction associated with separate phases to meet City standards or requirements. All required public, semipublic and private improvements, as defined by this development manual, (roads, turn lanes, deceleration lanes, traffic control devices, sidewalks, screening walls, temporary cul-de-sacs, etc.), shall be designed and constructed with each phase in conformance with all applicable City standards.

3.16 Traffic Impact Analysis Requirement

A. When a proposed development is estimated to generate more than 1,000 vehicle trips per day, a traffic impact analysis (TIA) shall be required with the submittal of a preliminary plat application or a Development Plan. The traffic impact analysis shall be prepared in accordance with accepted engineering practices. The purpose of the TIA is to determine the need for traffic mitigation measures which may include, but are not limited to, dedication of additional right-of-way, construction of turning lanes, a deceleration lane, or construction of traffic control facilities. Any mitigating measures required shall be the responsibility of the developer, unless a cost-sharing agreement is approved by the City.

This Page Left Intentionally Left Blank

Section 4
Submittal and Plan Requirements

4.1 Submittal Requirements

A. Submittals shall comply with all requirements as set forth in this development manual. Submittal documents which do not include all of the necessary items or comply with the submittal standards as described throughout this development manual may be subject to rejection.

B. The following items shall be submitted to the Planning Department:

1. Staff Review Submittals for Plats and Development Plans:

    a. Submit directly to the Planning Department
        i. Four (4) full size, bond paper copies (24"X36")
        ii. City Fees, etc.
        iii. PDF of all Drawings

    Note: As revisions are made, the applicant will file the same number as originally filed.

2. P&Z Submittals for Plats and Development Plans:

    a. Final Submittals for Plats and Development Plans:

        i. Submit directly to the Planning Department
        ii. One (1) full size, mylar signed, sealed and dated copy
        iii. Two (2) reduced size, bond paper copies (11"x17")
        iv. City Fees and Current Tax Certificates
        v. PDF copy of all drawings, signed, sealed and dated
        vi. AutoCAD dwg files, versions 2010 or later, showing all line work and text (as-builts)
        vii. All fees and associated development costs

*Note: Hard copies and electronic media can be delivered by hand delivery, courier, FedEx, UPS, US Postal Service, etc. Electronic files can also be sent by email or FTP. Please call or check the City of Mercedes' web site for current mailing address and email.

4.2 Commercial and Multi-Family Residential Plan Requirements

A. The following is a checklist for items, which shall be included, as applicable, on each Commercial or Multi-Family Residential Development Plan submitted for review:

1. A title block located at the bottom right hand side of the page to include project's name, addition's name, lot, block and phase designations, total acreage, zoning classification and address if available (

2. A summary table to include total land area (square feet / acres) and the building area (square feet)

3. North arrow

4. Date (all revision dates should also be indicated)

5. Sheet size of 22" X 34"

6. Scale (must be legible)

7. Name, address and phone number of contact persons of developer/owner and engineer.

8. Distances and bearings of the lot including total land area, subdivision lot & block designation and phase lines (if any).

9. Iron rods set or found and shown on the plan

10. Existing contours with intervals of two feet (2') or less or spot elevations indexed to the NAD 1983 State Plane Coordinate System using the appropriate horizontal projection for the applicable zone, and indexed to the NAVD 1988 vertical datum

11. Building setback lines

12. Zoning of subject lot

13. Easements, deed restrictions or encumbrances which impact development of the lot

14. Control of access lines, corner clips and clear vision areas

15. Streets, alleys and easements adjacent to the site showing right-of-way and limits of paving

16. Existing and proposed streets, driveways, fire lanes, sidewalks, and parking areas

17. Existing and proposed water and sanitary sewer utilities and services

18. Fire protection including fire hydrants, fire lanes, fire lines and related devices, if applicable

19. Landscape details and open space areas (tree caliper, mitigation plan, etc.)

20. Screening devices, if applicable, inclusive of height

21. Dumpster locations, if applicable

22. Franchise utilities serving the property

23. Finished floor elevations. The builder is responsible to furnish the City with a completed elevation certificate, if applicable

24. Requested variances from City requirements shall be clearly listed on the face of the Development Plan

25. Location space and height of all proposed freestanding signage.

4.3 Preliminary Plat Plan Requirements

A. The following is a checklist for items, which shall be included, as applicable, on each Preliminary Plat submitted for review:

1. A title block located at the bottom right hand side of the page to include project's name, addition's name, lot, block and phase designations, total acreage, zoning classification and address if available

2. A summary table to include (as applicable):

    a. Non-Residential: total land area (square feet / acres) and the building area (square feet) for Non-Residential developments

    b. Residential: total land area (square feet / acres), land area per phase (square feet / acres), total number of lots and number of lots per phase, minimum lot size (square feet / acres), minimum dwelling size (square feet), and density per acre

3. City of Mercedes signature block

    APPROVED BY THE CITY OF MERCEDES

    SIGNATURE: _____

    PRINTED NAME: _____

    TITLE OF CITY OFFICIAL: _____

    DATE: _____

4. North arrow

5. Date (all revision dates should also be indicated)

6. Location map (at legible scale)

7. Sheet size of 22" X 34"

8. Scale (must be legible)

9. Name, address and phone number of contact persons of developer/owner and engineer and/or surveyor

10. Distances and placings of the lot including total land area, subdivision lot, block designation, and phase lines (if any)

11. Iron rods set or found and shown on the plan

12. Contours with intervals of two feet (2') or less or spot elevations indexed to the NAD 1983 State Plane Coordinate System using the appropriate horizontal projection for the applicable zone, and indexed to the NAVD 1988 vertical datum

13. Abstract(s) and Survey(s) of subject tract

14. Abstract and Survey lines

15. Boundary line, accurate in scale, of the subject tract

16. Building setback lines

17. The layout and dimensions of proposed lots, blocks, etc.

18. Lot number, block letter designations, and square footage / acreage of each lot

19. Zoning of subject property

20. The names of adjacent subdivisions and/or the names of record owners of adjoining parcels of unplatted land
21. Designation of boundaries of municipalities, counties, and special districts

22. Existing and proposed streets and alleys including widths of right-of-way and pavement, street names, and any proposed dedication of right-of-way in accordance with the requirements of the Thoroughfare Plan

23. Easements, deed restrictions or encumbrances

24. Control of access lines, corner clips and clear vision areas

25. Median openings, turning lanes, acceleration and deceleration lanes

26. For residential developments, park dedication provisions are to be addressed by the Planning and Zoning Commission.

27. All land proposed for public use dedication or to be reserved for the common use of all property owners, together with conditions or limitations of such use. Such reservations and dedications must be identified with a lot and block designation except street and alley rights-of-way. Right-of-way dedication square footage and acreage must be listed on the plan.

28. Other features which impact the subject property including, but not limited to, buildings, cemeteries, parks, landfills and monuments

29. Phase lines must be clearly delineated, with improvements capable of standing alone as development occurs and not depending on future construction to meet City standards or requirements.

30. Variances from this development manual that may be requested shall be listed on the face of the plat.

B. The following is a list of accompanying documents or items, which shall be included, as applicable, with each Preliminary Plat submitted for review:

1. Copy of the owner's recorded deed

2. A copy of an approved Development Plan or a copy of a Development Plan to be considered by the City

3. Preliminary site improvement plans/exhibits prepared by a Texas Licensed Professional Engineer (including grading, drainage, water, and sanitary sewer).

4. Preliminary Tree Preservation and Mitigation Plan (if applicable)

4.4 Final Plats, Replats, and Minor Plat Plan Requirements

A. The following is a checklist for items, which shall be included, as applicable, on each Final Plat, Replat, or Minor Plat submitted for review:

1. A title block located at the bottom right hand side of the page to include project's name, addition's name, lot, block and phase designations, total acreage, zoning classification and address if available

2. A summary table to include (as applicable):

a. Non-Residential: total land area (square feet / acres), total number of lots, minimum lot size (square feet / acres)

b. Residential: total land area (square feet / acres), total number of lots, minimum lot size (square feet / acres), minimum dwelling size (square feet), and density per acre

3. City of Mercedes signature block per the following:

   APPROVED BY THE CITY OF MERCEDES

   SIGNATURE:

   PRINTED NAME:

   TITLE OF CITY OFFICIAL:

   DATE:

4. North arrow

5. Date (all revision dates should also be indicated)

6. Location map (at legible scale)

7. Sheet size of 22" X 34"

8. Scale (must be legible)

9. Name, address and phone number of contact persons of land owner and surveyor

10. Location of corner pins and monuments, including description and indication of whether found or set

11. A plat note on whether sidewalks are required or not

12. Abstract(s) and Survey(s) of subject tract

13. Abstract and Survey lines

14. Zoning of subject property and adjoining property

15. The names of adjacent subdivisions and/or the names of record owners of adjoining parcels of unplatted land

16. Designation of boundaries of municipalities, counties, and special districts

17. Boundary line, accurate in scale and with exact distances and bearings, of the subject tract and each lot within the subdivision including exact acreage and square footage per lot

18. Designations of lots and blocks within the subdivision

19. Metes and bounds description of the subdivision, with exact acreage, in reference to the deed records of the County, including the volume and page of the deed for the land being platted

20. Building setback lines, or via plat note

21. Existing and proposed street and alley right-of-way and access easements, indicating street names, right-of-way or easement widths, and curve data. Any proposed dedication of right-of-way, including right-of-way dedication square footage and acreage, in accordance with the requirements of the Thoroughfare Plan.

22. Easements, deed restrictions or encumbrances. A note regarding responsibility for maintenance shall be included for all drainage easements

23. Control of access lines, corner clips and clear vision areas

24. All land proposed for public use dedication or to be reserved for the common use of all property owners, together with conditions or limitations of such use. Such reservations and dedications must be identified with a lot and block designation except street and alley rights-of-way.

25. Right-of-way and public property to be abandoned should be identified on the plat, but information being provided separately as required for the creation of an abandonment ordinance.

26. The 100-year flood plain per current FEMA Flood Insurance Rate Map (FIRM), if applicable, shall be delineated. If the floodplain is not mapped, the developer is responsible for making this determination using a FEMA approved method.

27. Other features which impact the subject property including, but not limited to, buildings, cemeteries, parks, landfills and monuments
28. For all residential development, the park dedication shall be finalized at the time of approval of the final plat including all dedications and/or fees to be paid.

29. Variances from this development manual shall be listed on the face of the plat.

30. Certification by a Registered Professional Land Surveyor (R.P.L.S.), registered in the State of Texas, to the effect that the plan represents a survey made by him or under his direct supervision and that all the monuments and corner pins shown exist and are correctly described

31. An Owner's Certificate of Dedication of all streets, alleys, parks, easements and other public ways, signed and acknowledged before a notary public by the owner, trustee(s) or person(s) duly authorized to sign the plat. This will include any lien holder(s) on the property.

32. All plats must include the following plat note:
    "Notice: Selling a portion of this addition by metes and bounds is a violation of the city Subdivision Ordinance and State platting statutes and is subject to fines and withholding of utilities and building permits."

B. The following is a list of accompanying documents or items, which shall be included, as applicable, with each Final Plat, Re-plat, or Minor Plat submitted for review:

1. Tax certificate showing all tax payments to the City of Mercedes are current. Taxes must be current as of the date of formal City approval of the Plat.

2. A copy of an approved Development Plan or a copy of a Development Plan to be considered by the City

3. Site construction plans prepared by a Texas Licensed Professional Engineer (including grading, paving, drainage, water, sanitary sewer, erosion control, and construction details)

4. Tree Preservation and Mitigation Plan (if applicable)

4.5 Building Permit Application Plan Requirements

A. The following is a partial list of accompanying documents or items, which shall be included, as applicable, with each Building Permit application submitted for review:

1. For Fourplexes, Commercial, Multi-Family Residential, or Industrial use permits, Tax certificate showing all tax payments to the City of Mercedes are current.

2. A copy of the Recorded lot(s)

3. Architectural plans (floor plan, building elevations, etc.)

4. Mechanical, electrical, and plumbing plans (MEP); Manual J

5. Structural plans; sealed; windstorm

6. Site construction plans prepared by a Texas Licensed Professional Engineer (including grading, paving, drainage, water, sanitary sewer, erosion control, and construction details).

7. Landscape Plan; tree caliper, irrigation plan, etc.

8. Tree Preservation and Mitigation Plan (if applicable)

9. Any other plans or information needed for proper review of the Building Permit application

10. Sight Obstructions: No person shall erect, permit or maintain the existence of any wall, fence, or other structure, or plant or permit the growth of plants at a height greater than 3' from the street gutter flow line upon her/her property where such property is bound on two adjacent sides by a public right-of-way for a road, street, alley or other public/private passageway. The area that is so restricted being the area of the corner of such property, more particularly described as being that area in the form of a triangle, bound by two intersecting boundaries of the present or future street curbline. The distance for each such boundaries shall be as follows:

    Residential zone/use - - 15' x 15'
    Commercial, business, industrial zone/use - 30' x 30'
    Alleys - - 10' x 10'
    The distance shall be measured as follows: from the point of intersection, along the 10 foot or 30 foot curbline of the two present or future streets and bounded by a third side determined by drawing a straight line from the points of the two (furthest) intersection boundary points.

4.6 Construction Permit Application Plan Requirements

A. Construction plans shall contain engineering data for the construction of all improvements consistent with current city development standards and master plans. The following is a checklist for items, which shall be included, as applicable, as part of each set of commercial, industrial, multi-family residential, and institutional construction plans submitted for review:

1. The plans shall be signed, sealed, and dated by a Professional Engineer licensed in the State of Texas (the Engineer of Record). In addition to the license number of the Engineer of Record, the plans shall indicate the firm registration number of the engineering firm responsible for preparation of the plans, which shall be registered as an engineering firm with the Texas Board of Professional Engineers. If standardized construction detail sheets, schedules, or specifications are included in the plans they shall be noted on the sheet index. If such standardized construction detail sheets, schedules, or specifications are not sealed by the Engineer of Record, then the Engineer of Record shall include a statement under the sheet index stating that the construction detail sheets, schedules, and/or specifications have been selected by the Engineer of Record and have been deemed appropriate by the Engineer of Record for their specified use on the project.

2. The plans shall be drawn to a standard sheet size of 22" X 34" or 11” X 17”

3. The plans shall have a cover sheet including, at a minimum, the project name/description, engineer and firm licensure/registration information as described above, a location map, a sheet index, and the contact information for the developer/owner and engineer. When possible, contact information for the surveyor should also be included.

4. The maximum scale for all construction plans shall be 1" = 40' (1" = 20' is preferred). Construction plans for street construction shall be drawn to a scale of 1" = 20'.

5. Typical plan and/or profile sheets shall include the following basic items:

    a. Title block including project name/description and information about the Engineer of Record and the engineering firm

    b. North arrow on all plan sheets

    c. Date (all revision dates should also be indicated)

    d. Scale (must be legible)

    e. Engineer’s seal for completed plans or a preliminary stamp (specifying that plans are preliminary, for review only, and not for construction purposes)

    f. Benchmark description indexed to the NAD 1983 State Plane Coordinate System using the appropriate horizontal projection for the applicable zone, and indexed to the NAVD 1988 vertical datum

6. Construction plan sets should typically include the following plan sheets as well as other sheets deemed appropriate by the Engineer of Record:

    a. A grading plan including existing and proposed one-foot interval elevation contours and spot elevations. Grades shall be indexed to the NAD 1983 State Plane Coordinate System using the appropriate horizontal projection for the applicable zone, and indexed to the NAVD 1988 vertical datum. The grading plan shall include a proposed finished floor elevation for all buildings and a proposed finished pad elevation for all pad sites. Note that the builder is responsible for furnishing a certification of the foundation elevation and location prior to construction of a foundation.

    b. Typical Cross-Sections of proposed public streets and alleys drawn to a maximum scale of 1" = 10' horizontal and 1" = 2' vertical, and drawn from beyond right-of-way to beyond right-of-way. Proposed street and alley pavement sections shall conform to City of Mercedes standards unless otherwise approved by the City Engineer.

c. Paving Plans for driveways, fire lanes, parking areas, and sidewalks indicating pavement types, thicknesses, and dimensions

d. Paving Plans and Profiles for each public street and alley with top of curb grades for streets and centerlines for alleys. The plan view shall show all existing features and the profile view shall include the existing ground. The profile grade lines and cross-sections of intersecting streets should be adjusted to provide a smooth junction and proper drainage.

e. Roadway Cross-Sections for each arterial or collector street indicating cut and fill and the limits of earth work

f. A Drainage Area Map which shall include size and delineation of drainage areas, storm frequency, storm water runoff calculations, designation of points of concentration, and any additional data necessary for the proper design of drainage facilities

g. Drainage Plans for storm sewers showing drainage calculations, hydraulic data, pipe grades and sizes, manholes and junction boxes, other pipe connections, inlets, and outfall structures. Storm sewers for public systems (and all other storm sewers as required by the City Engineer or Director of Public Works) must be profiled and shall include hydraulic grade line.

h. Drainage Plans for open channels showing drainage calculations, hydraulic data and depth of flow, channel grades, channel material, channel geometry, inlet structures, culverts, bridges, and outfall structures (such as concrete rip-rap, etc.). Open channels for public systems (and all other open channels as required by the City Engineer or Director of Public Works) must be profiled and shall include depth of flow. Cross-sections may be required on a case-by-case basis.

i. Drainage Plans for storm water detention ponds showing drainage calculations, hydraulic data, pond depth and geometry, pond material, and other information necessary for proper design review and construction of the proposed improvements. If an underground storm water detention facility is proposed, then appropriate plans and details should be provided.

j. Water Line Plans showing pipe sizes, location of valves, fire hydrants, fittings and other appurtenances, including installation and backfill details. All public water lines (of any size) and all private water lines 12” in diameter and larger must be profiled. Water line profiles shall include the station, elevation and description of utility crossings.

k. Sanitary Sewer Plans and Profiles indicating pipe grades and sizes, manholes, cleanouts and other appurtenances, including installation and backfill details.

Profiles are not required for private sanitary sewer services under 250 feet long and 6-inches or less in diameter, if they do not cross other private properties. Sanitary sewer lines or services crossing other private properties must be in easements and must be profiled. Sanitary sewer connections which extend more than 10 feet into the paved section of public streets must be profiled for the section which is located in the right-of-way. Private sanitary sewer profiles shall include the station, elevation, existing and proposed ground lines, and the location and description of utility crossings.

l. An Erosion Control Plan prepared in accordance with the current Texas Pollution Discharge Elimination System (TPDES) requirements and all other applicable requirements of the Texas Commission on Environmental Quality (TCEQ). For all projects requiring a SWPPP based on TPDES/TCEQ requirements, the contractor or the developer/owner shall provide the Department of Public Works with a copy of the SWPPP and the Construction Site Notice (and NOI if applicable) prior to any earth disturbance activities.

m. A Traffic Control Plan shall be submitted for all proposed construction within a street right-of-way. The traffic control plan shall incorporate all applicable requirements of the Texas Manual on Uniform Traffic Control Devices (TMUTCD).

n. Street Lighting Plan and Sidewalk Plan for all projects involving public street construction

B. The following is a list of accompanying documents or items, which shall be included, as applicable, with each Construction Permit application submitted for review: (Commercial, Multi-Family Residential, Industrial, or Institutional):

1. Tax certificate showing all tax payments to the City of Mercedes are current. Taxes must be current as of the date of formal City approval of the Plat. (Institutional will likely be exempt).

2. A copy of an approved Development Plan

3. A copy of the filed Final Plat, Re-plat or Minor Plat (a Conveyance Plat is not acceptable)

4. Landscape Plan

5. Tree Preservation and Mitigation Plan (if applicable)

4.7 Earth Disturbance Permit Application Plan Requirements

A. The following is a list of accompanying documents or items, which shall be included, as applicable, with each Earth Disturbance Permit application submitted for review:

1. Tax certificate showing all tax payments to the City of Mercedes are current. Taxes must be current as of the date of formal City approval of the Plat. (Commercial, Multi-Family Residential, Industrial, or Institutional)

2. A copy of an approved Development Plan

3. A copy of the recorded lot(s)

4. A Grading Plan prepared and submitted in accordance with the plan preparation/submittal requirements described under the section on Construction Permit Application Plan Requirements above.

5. Drainage Plans prepared and submitted in accordance with the plan preparation/submittal requirements described under the section on Construction Permit Application Plan Requirements above.

6. An Erosion Control Plan prepared in accordance with the current Texas Pollution Discharge Elimination System (TPDES) requirements and all other applicable requirements of the Texas Commission on Environmental Quality (TCEQ). For all projects requiring a SWPPP based on TPDES/TCEQ requirements, the contractor or the developer/owner shall provide the Department of Public Works with a copy of the SWPPP and the Construction Site Notice (and NOI if applicable) prior to any earth disturbance activities. Note: Erosion control plans shall be prepared in accordance with the plan preparation/submittal requirements described under the section on Construction Permit Application Plan Requirements above.

7. Tree Preservation and Mitigation Plan (if applicable)

4.8 Driveway Permit Application Plan Requirements

A. Application for a driveway permit can be made as part of the Development Plan request or as a separate request. Driveway permit applications shall contain sufficient information to allow the city to fully assess the adequacy of the proposed driveway design. A Driveway Permit application shall include a driveway plan. The following is a checklist for items, which shall be included, as applicable, on the driveway plan:

1. Title block including property address, property legal description, and information contact information for the property owner and contractor

2. North arrow

3. Date

4. Scale (must be legible)

5. The dimensions, locations and design of the driveway(s) being requested

6. The location of any building or structure on the site, either existing or proposed

7. List uses on commercial lots (such as office, retail store, gas station, etc.)

8. The layout of all drive lanes, fire lanes, and parking areas including the proposed internal circulation patterns
9. All existing or proposed driveways, gutters, storm sewers, manholes, fire hydrants, utility poles, underground utilities, service fixtures, etc., which may be impacted by the driveway construction or may affect driveway operations

10. Any existing driveways or curb cuts located on the property

11. The geometric design features of the connecting roadway, including the roadway width, roadway material (concrete or asphalt), the presence of a median, the number and width of travel lanes, the presence of a shoulder or a parking lane, etc.

12. The distances to the nearest intersecting streets and driveways

B. The following is a list of accompanying documents or items, which shall be included, as applicable, with each Driveway Permit application submitted for review:

1. Tax certificate showing all tax payments to the City of Mercedes are current. Taxes must be current as of the date of formal City approval of the Plat (Commercial, Multi-Family Residential, Industrial, or Institutional).

2. A copy of the recorded lot(s)

3. A Traffic Control Plan shall be submitted for all proposed construction within a street right-of-way. The traffic control plan shall incorporate all applicable requirements of the Texas Manual on Uniform Traffic Control Devices (TMUTCD).

4.9 Sign Permit Application Plan Requirements

A. No sign permit shall be issued except after receipt of an application prescribed by the building official and showing the sign location, size, type, height, materials of constructions, surface area and such other information as the building official shall require. When required by the building official, plans shall be prepared by a registered professional engineer or architect.

This Page Left Intentionally Left Blank

Section 5
Screening Devices and Fence Regulations

5.1 General Provisions

A. The intent of this section is to provide for visual screening of non-single-family parking lots, trash container and storage areas.

B. A screening device shall be of wood, brick, stone or decorative block masonry wall not less than six (6) feet nor greater than eight (8) feet in height measured at the highest finished grade. Any brick, stone or decorative block masonry walls shall be designed and sealed by a Texas licensed engineer. Construction and location details of the required screening devices shall be shown as part of the Development Plan for all multi-family and non-residential uses. In areas where multi-family development or non-residential development is proposed adjacent to established single-family residential dwellings, the screening device shall be constructed prior to issuance of a building permit for the primary structure. The developer/owner will not be allowed to escrow the screening device portion of the project costs under the performance escrow policy.

5.2 Screening Between Single-Family Residential and Multi-Family Residential Uses

A. There shall be constructed a minimum six (6) foot screening device along any portion of a multi-family parking lot or trash container area which adjoins any portion of a single-family residential use. The construction of the screening wall is the responsibility of the multi-family property owner. The screening barrier shall be perpetually maintained by the Multi-Family Residential owner.

5.3 Screening Between Non-Residential and Residential Uses

A. There shall be constructed a minimum six (6) foot screening device along any portion of a non-residential development parking lot or trash container area which adjoins any portion of a single-family detached residential, townhouse, or multi-family residential use. The construction of the screening wall is the responsibility of the commercial property owner, who shall perpetually maintain said barrier.

5.4 Screening of Refuse Areas

A. Location of refuse storage areas

1. Refuse storage areas shall be located in an area coordinated with the City's current solid waste collection company.

2. Refuse storage areas shall not be located within fifty (50) feet of property zoned as a single-family residential district.

3. Each refuse facility shall be located so as to facilitate pickup by refuse collection agencies with adequate reinforced paved areas for loading and unloading.

B. Refuse storage that is not within a screened service area shall be screened on three sides in accordance with one of the following methods. The fourth side shall be utilized for pickup service with an optional gate to secure the area. The minimum height shall be the taller of six (6) feet or one (1) foot above the height of the refuse storage area that is required to be screened.

1. A fence or wall constructed of a primary building material that is similar to the main building.

2. Redwood, cedar, preservative pressure treated wood, or other similar materials, screened with large evergreen shrubs planted four (4) feet on center and staggered thirty (30) to thirty-six (36) inches.

3. Fence posts shall be rust-protected metal, masonry or concrete. Six (6) -inch concrete filled steel pipes, painted in a neutral color, shall be located to protect the enclosure from truck operations.

4. The Planning and Zoning Commission and City Commission may approve alternative screening during consideration of the site plan application if it finds that the property proposes an adequate screening of the refuse storage area compatible with surrounding land uses. The fee for processing the site plan approval is $50.

5.5 Screening Requirements for Outside Storage

A. Where outside storage of equipment, material, goods and supplies for non-retail purposes is permitted by ordinance, all outside storage shall be screened from the view of any adjacent public street by a screening wall not less than six (6) feet in height. Materials and supplies may not be stacked higher than the height of the wall. The wall shall be placed beyond the required ten (10) foot landscaped strip. Other portions of the storage yard not adjacent to or fronting a street, may be fenced with a solid, opaque fence.

B. A detail of the proposed opaque fence in section and elevation and/or a manufacturer's detail and specifications must be provided on the Development Plan for a project and/or as part of the fence permit process. The fence must completely conceal outside storage.

C. This provision does not apply to display of goods for sale incidental to a retail use, plant nursery, sales and rental of motor vehicles, mobile homes, boats or trailers.

5.6 Screening Requirements for Roof Projections

A. Screening shall also be required for approved projections above the building roofline. These shall include but are not limited to such projections as satellite dishes, communication towers, and heating and air conditioning units. The screening shall

consist of materials similar to that used in the front façade of the building and shall be constructed to a height appropriate for screening the allowed projection from view at ground level within sixty (60) feet of the subject building.

5.7 Maintenance Requirements

A. Required screening walls shall be maintained in good condition by the property owner.

Section 6
Off-Street Parking and Loading Requirements

6.1 General Provisions

A. Off-street parking spaces shall be provided at the time any building or structure is erected or structurally altered. Parking which is provided shall be shown on a Development Plan when such a plan is required. All parking and loading or unloading facilities, approaches, access driveways and stacking or storage parking spaces for vehicles shall be paved with concrete or asphalt. This provision shall also apply to any use located on the property with no building or structure, i.e. public or private parking lots. Trailers are defined as vehicles.

6.2 Parking Requirements Based on Use

A. Businesses are encouraged to provide as many spaces as possible utilizing parking formulas in this Section. Parking which is provided shall be shown on a Development Plan, when such a plan is required.

B. All required off-street parking shall be in accordance with the following requirements.

C. Business or Professional Office:

1. One (1) parking space for each three hundred (300) square feet of floor area per unit.

2. Assembly or Exhibition Hall: One (1) parking spaces for each one hundred (100) square feet of floor area used thereof. With fixed seating, one (1) parking space for each four (4) seats or bench seating spaces.

D. Day Care: One (1) parking space per faculty plus one (1) parking space per then (10) children plus one (1) stacking spaces per three (3) children.

E. Dwellings, Single-Family Attached or Detached: A minimum of two (2) parking spaces.

F. Dwellings, Multi-Family: Two (2) parking spaces for each dwelling unit.

G. Hospital: One (1) space per bed, plus additional parking as required for other listed categories.

H. Hotel, Motel or Inn: One (1) parking space for each one (1) guest room or suite for the first one-hundred (100) guests and three-quarters (0.75) of a parking space for each one (1) guest room or suite for additional guests plus one (1) space for each three hundred (300) square feet of commercial floor area contained therein.

I. Manufacturing or Industrial Establishment: One (1) parking space for each three hundred (300) square feet of floor area.

J. Retail Store or Personal Service Establishment: One (1) parking space for each 250 square feet of Gross Leasable Area.

K. Restaurant, Night Club, Cafe or Similar Recreation or Amusement Establishment: One (1) parking spaces for each one hundred (100) square feet of patron's floor area.

L. Warehouse or Storage: One (1) parking space for each 2,000 square feet of floor area.

6.3 Rules for Computing Number of Required Parking Spaces

A. "Floor area" shall mean the gross floor area of the specific use. Where fractional spaces result, the parking spaces required shall be constructed to the nearest whole number.

B. The parking space requirement for a use not specifically mentioned herein shall be the same as required for a use of similar nature.

C. Whenever a building or use constructed or established after the effective date of this development manual is changed or enlarged in floor area, number of employees, number of dwellings units, seating capacity or otherwise, to create a need for an increase of ten (10) percent or more in the number of existing parking spaces, such spaces shall be provided on the basis of the enlargement or change. Whenever a building or use existing prior to the effective date of this development manual is enlarged to the extent of fifty (50) percent or more in floor area or in the area used, said building or use shall then and thereafter comply with the parking requirements set forth herein.

D. In the case of mixed uses, the parking spaces required shall equal the sum of the requirements of the various uses computed separately. In the event that the developer of a mixed-use development wishes to reduce the overall parking provided, a parking study based on recognized industry standards and indicating how the uses work together in a way that their peak use periods are phased, may be submitted for review by City staff. An approval of reduced parking would be in the form of a parking variance, to be approved by the City Commission.

6.4 Location of Parking Spaces

A. Where an increase in the number of spaces is required by a change or enlargement of use or where such spaces are provided collectively or used jointly by two (2) or more buildings or establishments, the required spaces may not be located in excess of five hundred (500) feet from any other non-residential building served.

B. In any case where the required parking spaces are not located on the same lot with the building or use served, or where such spaces are collectively or jointly provided and used, a written agreement thereby assuring their retention for such purposes, shall be properly drawn and executed by the parties concerned and shall be filed with the development plan application. On Multi-Family Residential and Commercial Parking, such spaces shall not have vehicles parked behind them to thus impede departure from the blocked-in vehicle.

C. For detached single family or duplex residential uses, it shall be unlawful for any owner of property to allow a driveway or parking surface in the required front yard setback to exceed 27 feet in width on lots 60 feet wide or greater or 45 percent of the lot width for lots less than 60 feet in width. For purposes of this requirement, the lot width shall mean the width of the lot measured at the front yard setback. Driveways shall be paved with concrete except that expansion of an existing driveway may be with concrete or a continuation of an existing non-conforming material adjacent to the side of the driveway being expanded, provided that the total parking area complies with the width requirements herein and not more than 45 percent of the required front yard shall be used for parking. A permit is required for all driveway and parking surface improvements.

6.5 Minimum Dimensions for Off-Street Parking

A. The minimum dimensions for off-street parking shall be as follows:

1. Ninety (90) Degree Angle Parking: Each parking space shall be not less than nine (9) feet wide or less than eighteen (18) feet in length. Maneuvering space shall be in addition to parking space and shall be not less than twenty-four (24) feet perpendicular to the building or parking line.

2. Sixty (60) Degree Angle Parking: Each parking space shall be not less than (9) feet wide perpendicular to the parking angle nor less than twenty (20) feet in length when measured at right angles to the building or parking line. Maneuvering space shall be in addition to parking space and shall be not less than twenty (20) feet perpendicular to the building or parking line.

3. Forty-Five (45) Degree Angle Parking: Each parking space shall be not less than nine (9) feet wide perpendicular to the parking angle nor less than nineteen (19) feet in length when measured at right angles to the building or parking line. Maneuvering space shall be in addition to parking space and shall be not less than eighteen (18) feet perpendicular to the building or parking line.

4. Parallel Parking: Each parking space shall be not less than ten (10) feet wide nor less than twenty-four (24) feet in length. Parallel parking will not be considered except when it can be situated in such a manner that persons entering and exiting vehicles will be out of the flow of traffic.

B. When off-street parking facilities are located adjacent to a public alley, the width of said alley may be assumed to be a portion of the maneuvering space requirement. Where off-street parking facilities are provided in excess of the minimum amounts herein specified, or when off-street parking facilities are provided but not required by this development manual, said off-street parking facilities shall comply with the minimum requirements for parking and maneuvering space herein specified.

6.6 Minimum Dimensions for Off-Street Loading Areas

A. All buildings (except single-family, duplex and multi-family dwellings) hereafter erected, reconstructed or enlarged so as to require additional parking spaces shall have adequate permanent off-street facilities providing for the loading and unloading of merchandise and goods within or adjacent to the building in such a manner as not to obstruct the freedom of traffic movement on the public rights-of-way.

B. All loading areas are to be indicated on the development plan.

C. Required off-street loading facilities may be adjacent to a public alley or private service drive, or may consist of a berth within a structure.

D. No portion of a loading facility or space may extend into a public right-of-way, a fire lane, or into an off-street parking space.

    1. Loading spaces may, with the approval of the City, be located within off-street parking spaces that are anticipated to be unused when deliveries are to be made. Typically, this will apply to fast-food restaurants, and pad retail sites.

E. The off-street loading spaces or truck berths shall provide maneuvering areas on site to prevent any blockage of public right-of-way.

6.7 Accessible Parking Requirements

A. Accessible parking spaces and/or loading zones shall be provided by the building or facility owner, agent, or occupants in accordance with the Americans With Disabilities Act (ADA), Texas Department of Licensing and Regulation (TDLR) and other applicable agency requirements, if any. All other requirements shall be established by the state or federal authority having jurisdiction. The owner(s) shall be responsible to perpetually maintain required signage, markings, lighting, etc.

Section 7
Water Improvements

7.1 General

The purpose of this section is to outline the general requirements for the design of water improvements and provide typical details for construction. The City of Mercedes's City Engineer should be consulted if any deviations from these standards are anticipated before and during construction. In cases where design limitations or physical barriers restrict compliance with the provisions of this section, alternatives are to be considered by the City Engineer prior to construction and final acceptance of the improvements.

7.2 Design Standards

All water mains extended or proposed to the City of Mercedes's water distribution systems shall be designed and constructed in accordance to the following requirements.

A. All water mains must be designed in accordance with ***Subchapter D: Rules and Regulations for Public Water Systems*** of the Texas Commission on Environmental Quality (TCEQ), current edition.

B. Water improvements to the City of Mercedes water distribution system are to be designed by a Professional Engineer licensed to practice in the State of Texas.

C. Water mains are to be designed and installed with a minimum cover of four (4) feet unless approved by the City Engineer.

D. Water mains shall be a minimum of 8 inches in diameter. Fire Hydrant lead line shall be no less than 6 inches in diameter. The City may require larger diameter lines based on several factors including demand, service areas, Fire Marshal requirements, and historical data.

E. On cul-de-sac streets less than 400 feet, fire hydrants should be located at the entrance of the cul-de-sac. The City Fire Marshals has final authority regarding the quantity and location of proposed fire hydrants. Additional installations may also be required by the City Engineer for future developments.

F. Valves shall be spaced at a maximum of 800 feet or as directed by the City Engineer. Valves should also be installed on any stub-outs for future line extensions.

G. Water line pipe shall conform to AWWA C900, C905, or C909 requirements and have a minimum Pressure Class or Pressure Rating of no less than 150 psi. Pipe diameters 12 inches or smaller shall be AWWA C900 PVC DR18. Pipe diameters 14 inches and larger shall conform to AWWA C905.

H. Water jetting is not allowed under any circumstance for utility crossings or within a roadway. Water jetting for water lines outside of roadways may be considered if a licensed geotechnical engineer has determined the soil is suitable for jetting AND if approved by the City Engineer.

I. Tapping sleeves and valves shall meet AWWA specifications with a minimum working pressure of 150 psi.

J. All fittings shall be Ductile Iron, meeting the specifications of A.N.S.I/AWWA C110

K. Deflections and bends shall utilize the Mega-lug, Mega-flange, and joint resistant fittings.

L. Galvanized pipe or fittings are not allowed, with the exception of a 2-inch riser on blow-offs.

M. Fire Hydrants shall be located with a maximum spacing of 500 feet between fire hydrants in areas with a residential land use, and a maximum 300 feet spacing between fire hydrants in areas with a non-residential land use.

N. The design of a water distribution system shall incorporate a means to achieve a two-source water line loop. This may require extensions or off-site utility improvements. Exceptions to the looped water line requirement will be evaluated on a case by case basis.

O. Blue reflective markers shall be installed on the centerline of access road to indicate the location of a fire hydrant.

P. Concrete thrust blocks on water main fittings should be placed to withstand the test pressure of 150 psi.

Q. Project Close-out documents shall include an electronic and (or) hard copy of Final Record Drawings. Electronic drawings are preferred.

R. Water Main – Sanitary Sewer Crossings:

Primary Condition	**Proposed Water Existing Sanitary**				**Proposed Water Proposed Sanitary or Existing Water Proposed Sanitary**			
Secondary Condition	Water Over Sanitary		Water Under Sanitary		Water Over Sanitary		Water Under Sanitary	
If the Clearance Is	Less Than 2’	Greater Than 2’ But Less Than 9’	Less Than 2’	Greater Than 2’ But Less Than 9’	Less Than 2’	Greater Than 2’ But Less Than 9’	Less Than 2’	Greater Than 2’ But Less Than 9’
*Protection Requirement	1	2	3	4	5	6	3	6

Protection requirements for sanitary sewer crossings (Unless variance is granted by the TCEQ) (All clearances shall be measured from outside wall to outside wall)

1. Center one (1) 20-foot joint of C-900 PVC DR-18, Class 150, waterline pipe over sanitary sewer; 6-inch absolute minimum clearance.

2. If no evidence of sanitary sewer leakage, center one joint of water line over sanitary sewer: 24-inch absolute minimum clearance. If the sewer line is leaking, the sewer line shall be replaced with 150 psi lined ductile iron or PVC pipe with appropriate adapters on all lined ductile iron or PVC pipe with appropriate adapters on all portions of the sanitary sewer within 9-feet of the water main.

3. Not allowed

4. Auger 9-feet minimum each side of sanitary sewer, place one 20-foot joint of C-900 PVC, 150 psi, centered under sanitary sewer. Fill bored hole with bentonite/clay mixture: 2-foot absolute minimum clearance or replace the existing sanitary sewer with 150 psi line ductile iron or PVC pipe with appropriate adapters on all portions of the sanitary within 9-feet of the water main.
5. Minimum 18-foot joint of sanitary sewer, 150 psi lined ductile iron or PVC pipe centered at the water line; 6-inch absolute minimum clearance.

6. If clearance is between 2 to 9-feet:

a. Center a minimum 18-foot joint of 150 psi lined ductile iron or PVC pipe at water line.

b. Use cement-stabilized sand backfill (minimum 2 sacks cement per cubic yard of sand) starting at a point ¼ of the pipe diameter above the bottom of the sanitary sewer to 1-foot above the top of sanitary sewer, or one sanitary sewer diameter, whichever is larger. Center one joint of sanitary sewer pipe about the water main.

7.3 Testing Requirements

A. Water mains shall be tested for leakage in accordance with AWWA Standard C-900 (150 psi) for two hours. Air from the water line shall be removed before the start of testing.

B. Water mains and service lines shall be chlorinated before it can begin service. The chlorinating substance shall be applied at the beginning of each pipe section for testing.

C. Water mains and service lines should be flushed before testing by City inspector for bacteria. All costs associated with bacterial testing is to be paid by the Contractor, including retests.

7.4 Right of Way Crossings

A. Water distribution mains that are located within state right of way must conform to the requirements of the Texas Department of Transportation (TxDOT). Water distribution mains that cross railroads must conform to the requirements of the railroad company whose right-of-way is being crossed. Water distribution mains crossing creeks or drainage channels regulated by FEMA shall require encasement. Below grade crossings are preferred; however, aerial crossings may be considered. Thrust restraint shall be provided at points of transition from buried to exposed pipe and at changes in alignment of exposed pipe. Air release valves shall be provided at the high point of all crossings. Below grade crossings of creeks and drainage channels shall have a minimum cover of 3.5-feet below the creek flowline at the time of construction. All below grade crossings will require steel encasement with all ends capped and sealed. The casing shall be carried into the bank a distance that should consider changes in the creek channel. This distance shall be beyond the high bank, outside of a projected 1H:1V slope from the high bank away from the channel.

7.5 Encasement

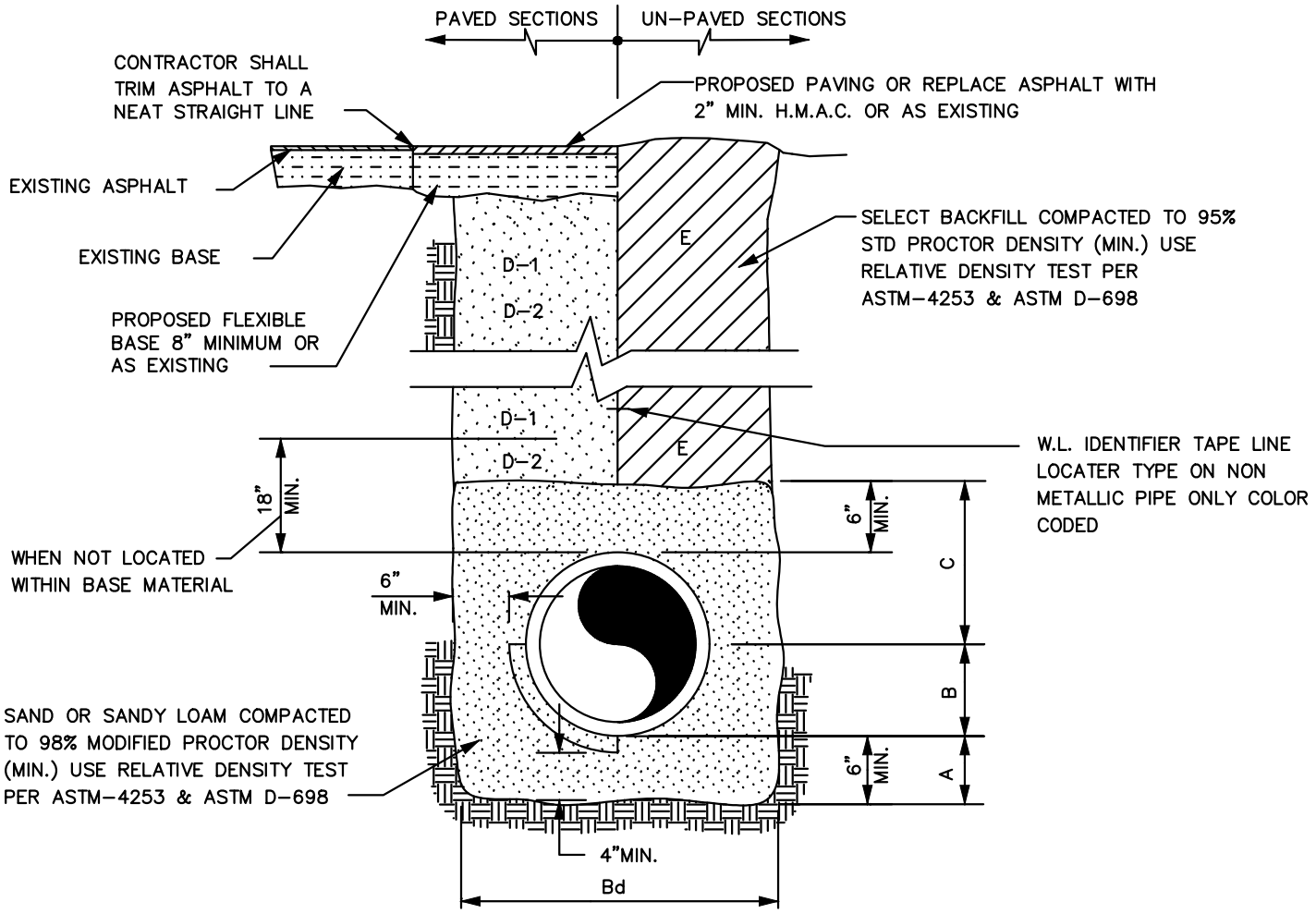
A. Steel cylinder pipe shall be used for all encasement pipe. Other encasement pipe material may be used per TCEQ requirements and City specifications. Carrier pipes sized less than 30 inches shall use an encasement pipe with a wall thickness of no less than 3/8-inch. For carrier pipes 30 inches and larger, a wall thickness of no less than 1/2-inch shall be used. Coating of encasement pipe may be required in special soil conditions. All carrier pipes will be supported by casing spacers in accordance with the specifications and details, and shall have joints restrained by an approved method that will allow the removal of the

carrier pipe from the encasement pipe in a single direction by means of tension on the carrier pipe only.

7.6 Easements

A. Water mains constructed outside of public rights of way shall be in easements of not less than 10 feet in width except for the following: if the water main is deeper than 6 feet, the easement width shall be not less than 20 feet; and if the water main depth is greater than 14 feet, the easement width shall be 30 feet. If both water and wastewater mains are located within the same easement, the width shall not be less than 25 feet (larger widths will be required depending on the depth of the sewer main). Where water lines will be near or adjacent to building structures, easement width shall be increased.

7.7 Water Improvement Details



A. SAND OR SANDY LOAM BEDDING PLACED BEFORE PIPE IS LAID UP TO FLOW LINE OF PIPE. (MIN. THICKNESS= 6")

B. SAND OR SANDY LOAM BACKFILL PLACED AFTER PIPE IS LAID FROM BOTTOM OF PIPE TO SPRING LINE OF PIPE. (4" LIFTS, HAND TAMPED) Bd TRENCH WIDTHS SHALL BE PIPE O.D. + 12" OR IN ACCORDANCE WITH ASTM 2321 FOR PVC PIPE.

C. SAND OR SANDY LOAM BACKFILL PLACED FROM SPRING LINE OF PIPE TO 6" ABOVE TOP OF PIPE. (6" LIFTS, HAND TAMPED)

D–1. (CITY STREETS, PARKING AREA, SELECT EXCAVATED BACKFILL MATERIAL COMPACTED TO 98% SPD. (8" LIFTS, MECHANICAL COMPACTION)

D–2. (STATE MAINTAINED ROADWAY) COMPACTED SAND/CEMENT STABILIZED BACKFILL WITH 7% PORTLAND CEMENT COMPACTED AS PER ASTM D–4253 AND ASTM D–698.

E. SELECT EARTH BACKFILL COMPACTED TO 92% SPD. (12" LIFTS, MECHANICAL COMPACTION) FOUNDATION PREPARATION (WELLPOINTS, GRAVEL OR CEMENT STABILIZATION, OR APPROVED SUBSTITUTE) SHALL BE REQUIRED WHEN TRENCH BOTTOM IS UNSTABLE, BACKFILLING AT STRUCTURES SHALL BE PLACED IN UNIFORM LAYERS, MOISTENED AS REQUIRED TO APPROXIMATE OPTIMUM MOISTURE CONTENT, AND COMPACTED TO 95% STD. PROCTOR DENSITY (USE RELATIVE DENSITY TEST PER ASTM D–4253 & ASTM D–698). THE THICKNESS OF EACH LOOSE LAYER SHALL NOT EXCEED 6". STRUCTURE BACKFILL MATERIAL SHALL BE SAND, APPROVED SITE SOIL, OR OTHER APPROVED SUBSTITUTE.

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

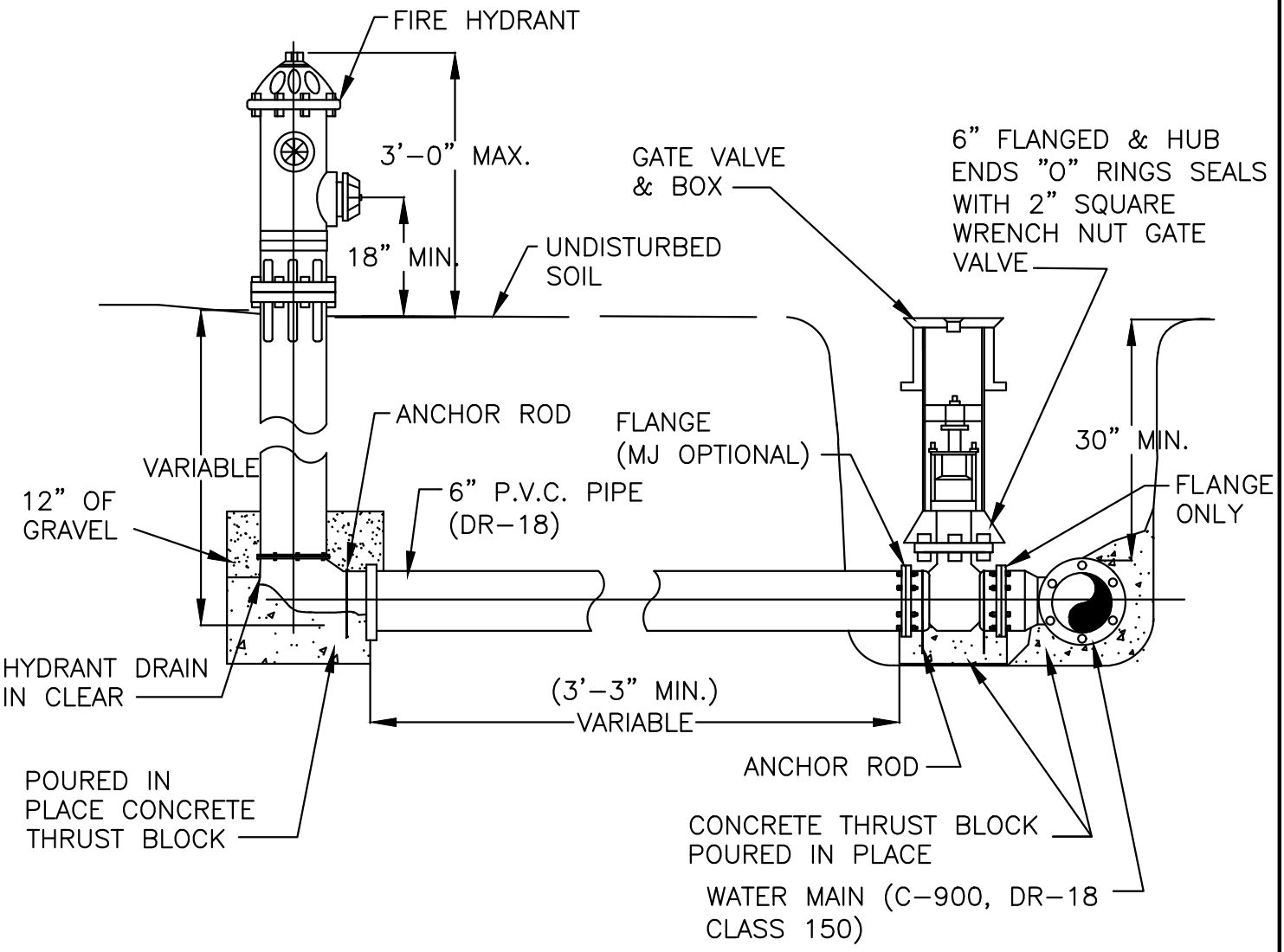
WATER IMPROVEMENT DETAILS
WATERLINE TRENCH BEDDING

HCE PROJECT NO.
P241-01

STANDARD DESIGN MANUAL
CITY OF MERCEDES

SHEET NO.
W - 1

01/2021

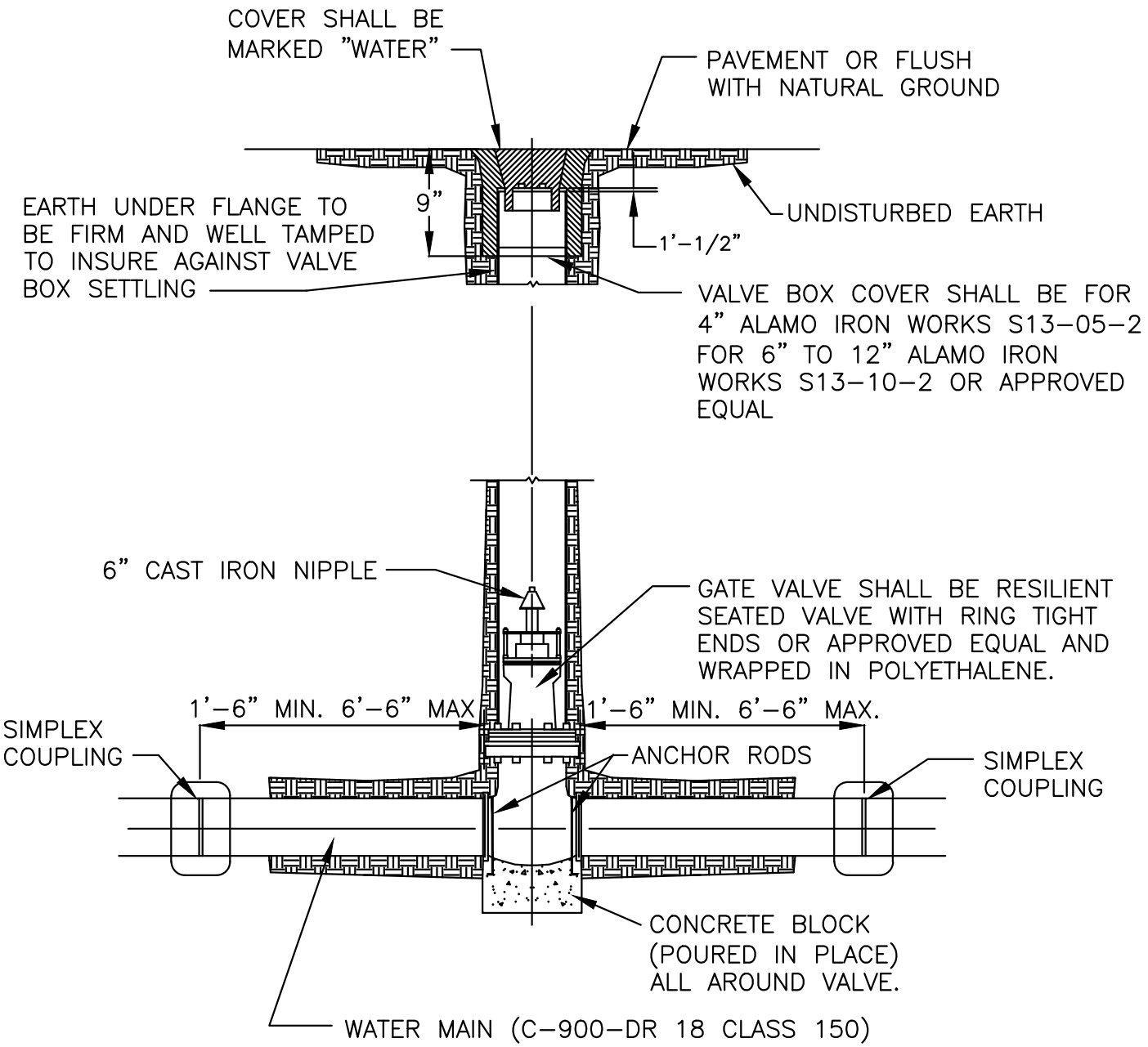


NOTES:

1. FIRE HYDRANT ELEVATIONS WILL BE SET BY THE ENGINEER.
2. FLANGE MUST BE AT FINISHED GRADE OR 3" TO 6" ABOVE 2. FLANGE MUST BE AT FINISHED GRADE OR 3" TO 6" ABOVE TOP OF CURB.
3. FLANGED GATE VALVE INSTALLATION TO BE USED WITH 10" WATER LINES OR GREATER.
4. BBF TEES TO BE USED WITH 10" WATER LINE OR GREATER BBF TEES TO BE UED WITH SMALLER DIA. PIPES.
5. ACCEPTABLE HYDRANT BRANDS ARE MUELLER, AMERICAN DARLING AND KENNEDY.

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

WATER IMPROVEMENT DETAILS **FIRE HYDRANT INSTALLATION**	HCE PROJECT NO. P241-01	
STANDARD DESIGN MANUAL **CITY OF MERCEDES**	SHEET NO. W - 2	01/2021

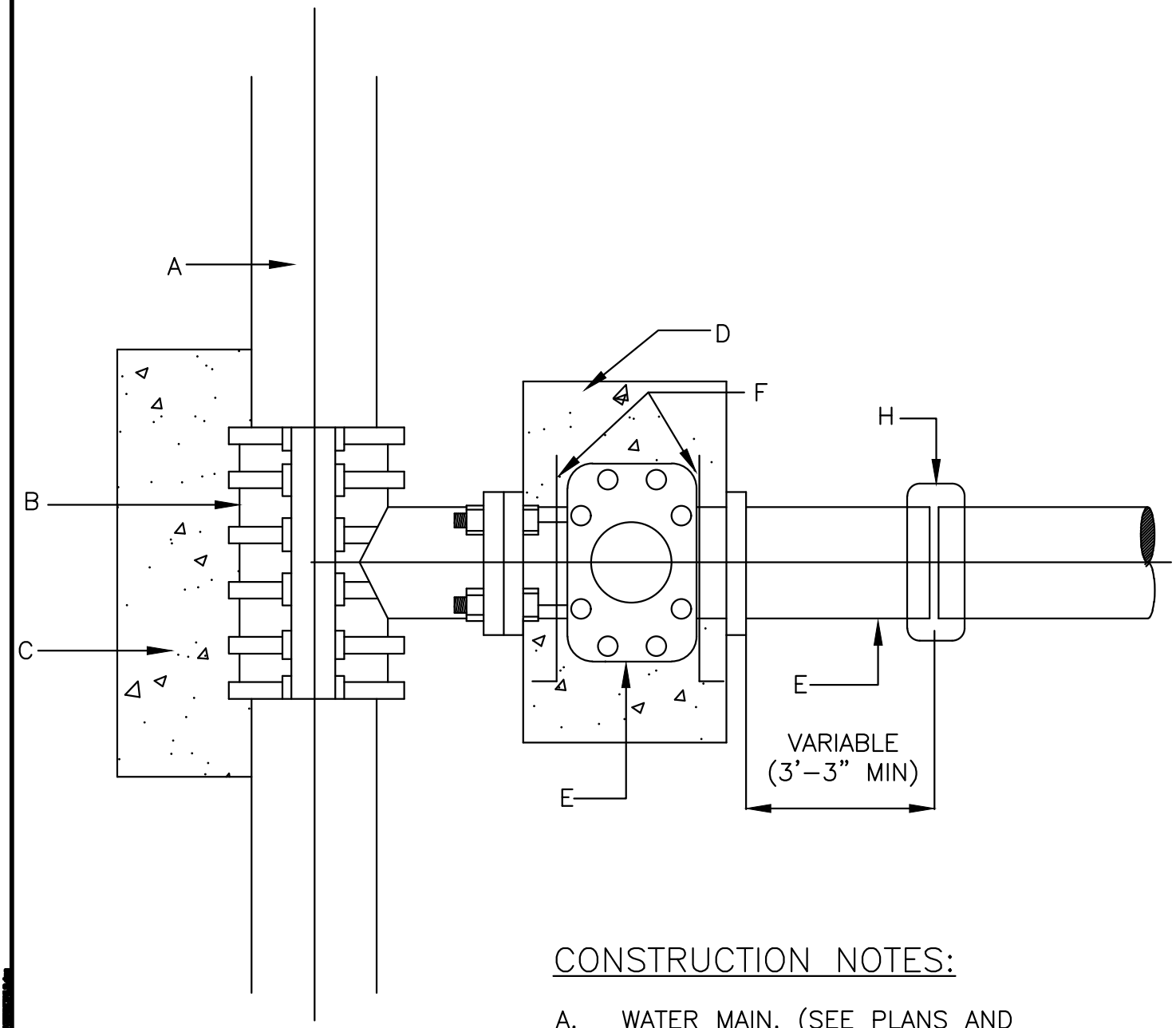


NOTES:

1. CAST IRON BOOT TO BE USED IN HEAVY TRAFFIC AREAS CONCRETE BLOCK (POURED IN PLACE)

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

WATER IMPROVEMENT DETAILS GATE VALVE AND BOX	HCE PROJECT NO. P241-01	
STANDARD DESIGN MANUAL CITY OF MERCEDES	SHEET NO. W - 3	01/2021



GENERAL NOTES:

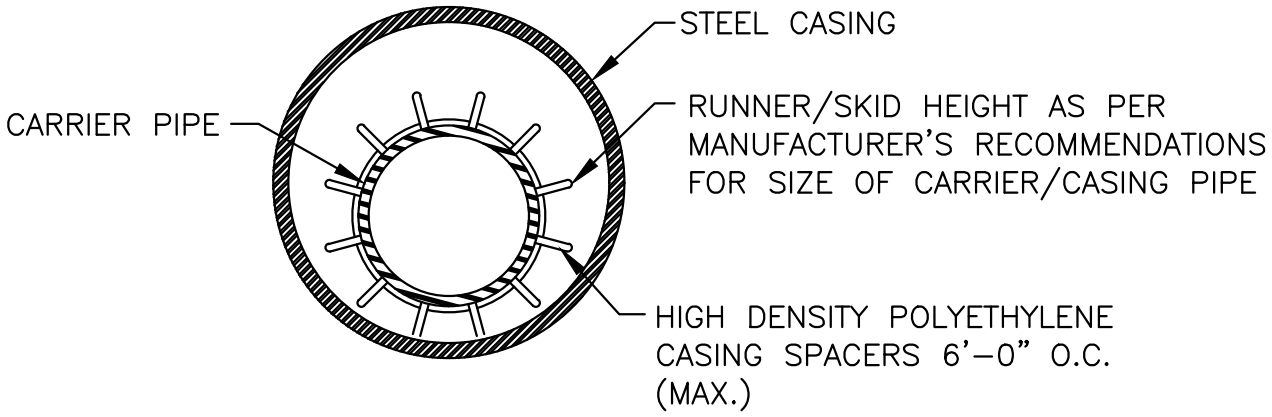
1. ALL CONCRETE TO HAVE A MINIMUM OF 28 DAYS COMPRESSIVE STRENGTH OF 3,000 P.S.I.

CONSTRUCTION NOTES:

A. WATER MAIN. (SEE PLANS AND SPECIFICATION)
B. TAPPING SLEEVE (SIZE AS REQUIRED).
C. CONCRETE SUPPORT UNDER TAPPING SLEEVE AND BEHIND.
D. THRUST BLOCK AS PER SPECIFICATIONS.
E. FLANGED AND HUB ENDS "O" RING SEALS WITH 2" SQUARE WRENCH NUT GATE VALVE.
F. ANCHOR RODS.
G. PVC PIPE.
H. SIMPLEX COUPLING.

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

WATER IMPROVEMENT DETAILS **WATER TAPPING SLEEVE & VALVE INSTALLATION**	HCE PROJECT NO. P241-01	
STANDARD DESIGN MANUAL **CITY OF MERCEDES**	SHEET NO. W - 4	01/2021



BORING INSTALLATION		
CARRIER PIPE SIZE	PIPE CASING SIZE	MIN. WALL THICKNESS
6"	14"	0.3125"
8"	16"	0.3125"
10"	18"	0.3125"
12"	21"	0.3750"
14", 15"	24"	0.4375"
16"	26"	0.4375"
18"	30"	0.5000"
24"	36"	0.5625"
36"	48"	0.6250"

GENERAL NOTES:

1. ALL STEEL CASING SHALL BE WELDED.

2. STEEL CASING SHALL BE CLOSED AT EACH END USING USING SYNTHETIC RUBBER END SEALS.

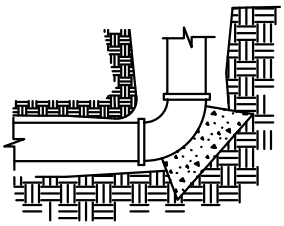
3. CASING SPACERS SHALL BE USED TO INSTALL THE CARRIER PIPE INSIDE THE ENCASEMENT PIPE. CASING SPACERS SHALL FASTEN TIGHTLY ON THE CARRIER PIPE TO PREVENT RELATIVE MOVEMENT ON PIPE DURING INSTALLATION. CASING SPACERS SHALL BE DOUBLED ON EACH END OF THE ENCASEMENT.

4. PROJECTION TYPE CASING SPACERS SHALL BE CONSTRUCTED SECTIONS OF HIGH DENSITY POLYETHYLENE.

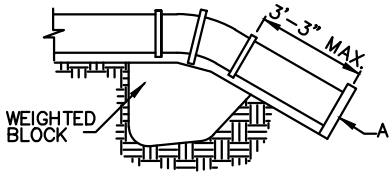
5. INSTALLATION AND SIZE OF SPACERS SHALL BE PER MANUFACTURER'S RECOMMENDATIONS.

CONSTRUCTION NOTES

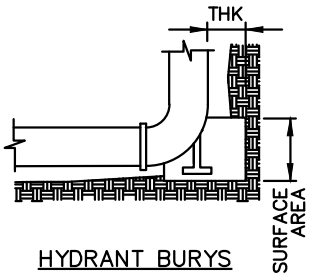
A. SIMPLEX COUPLING
B. ANCHOR ROD



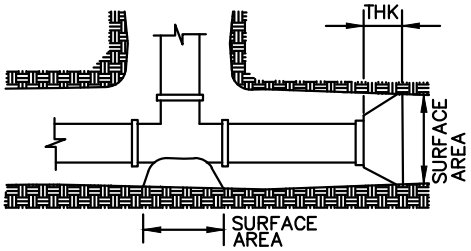
HORIZONTAL BENDS



VERTICAL BENDS



HYDRANT BURYS



TEES & DEAD ENDS

GENERAL NOTES

1. SEE THRUST BLOCK SIZE CHART FOR PROPER THICKNESS AND SURFACE AREAS. (SHEET 2 OF 2)
2. THE LOCATION OF THRUST BLOCKS DEPENDS UPON THE DIRECTION OF THRUST AND TYPE FITTINGS.

THRUST BLOCK SIZE

DIAMETER OF PIPE INCHES	HORIZONTAL BEND		WEIGHT AT VERTICAL BENDS–LBS.
	SURFACE AREA SQ. FEET	THICKNESS INCHES	
22–1/2° BENDS			
6 OR LESS	2	8	1700
8	3	8	3,000
10	3.5	12	4,500
12	4	14	6,600
14	5	18	9,000
16	6	18	11,800
45° BENDS			
6 OR LESS	4	12	3,200
8	5	14	5,800
10	6	18	9,000
12	7	18	13,000
14	8	24	17,000
16	11.5	24	23,200
90° BENDS			
6 OR LESS	6	12	6,000
8	8	15	10,700
10	10	18	16,700
12	12	18	24,000
14	18	24	32,600
16	21	24	42,700
TEES & DEAD ENDS			
6 OR LESS	3	12	
8	4	15	
10	6	18	
12	8.5	18	
14	11.5	24	
16	15	24	

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

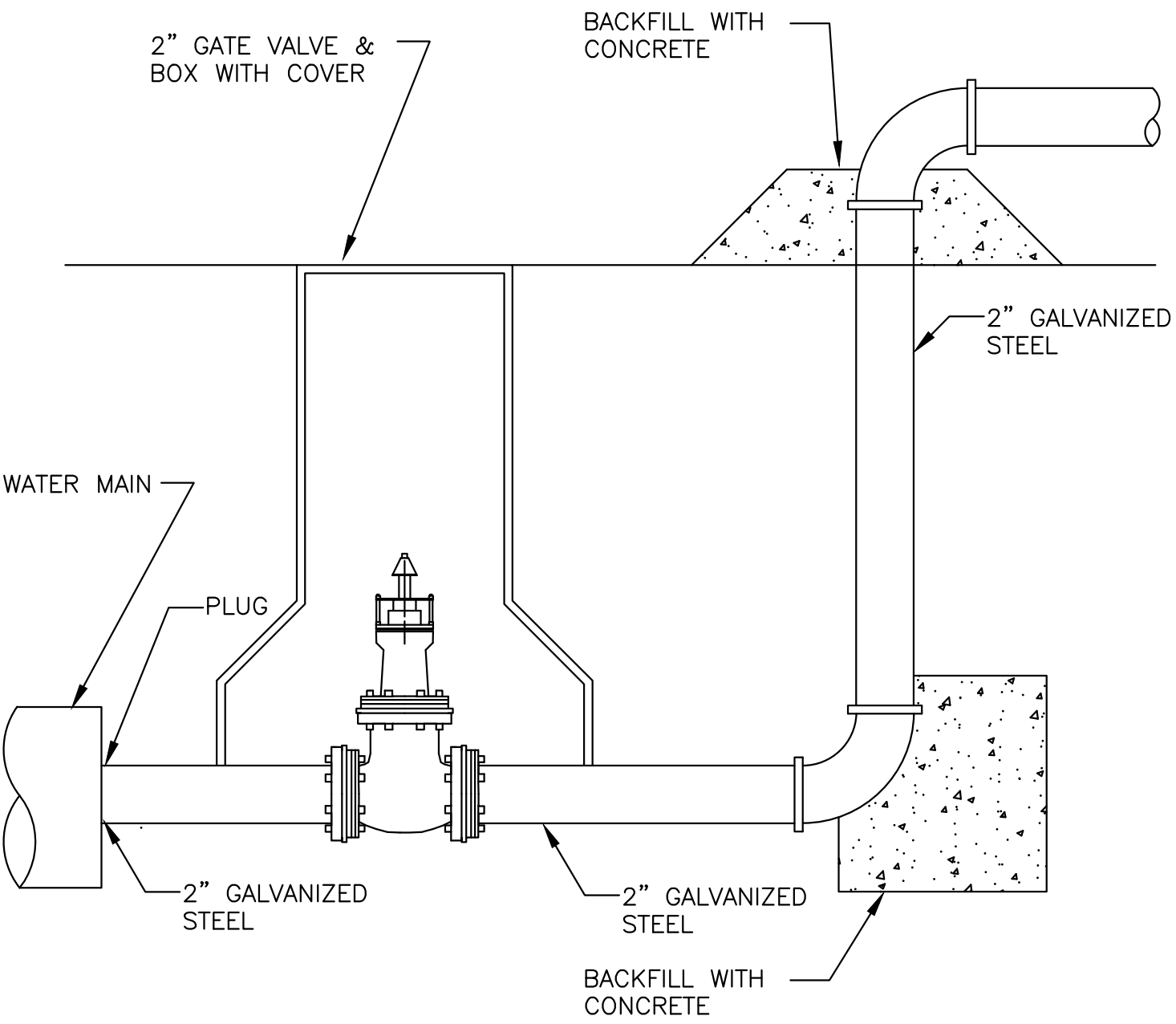
WATER IMPROVEMENT DETAILS
CONCRETE THRUST BLOCKS

HCE PROJECT NO.
P241-01

STANDARD DESIGN MANUAL
CITY OF MERCEDES

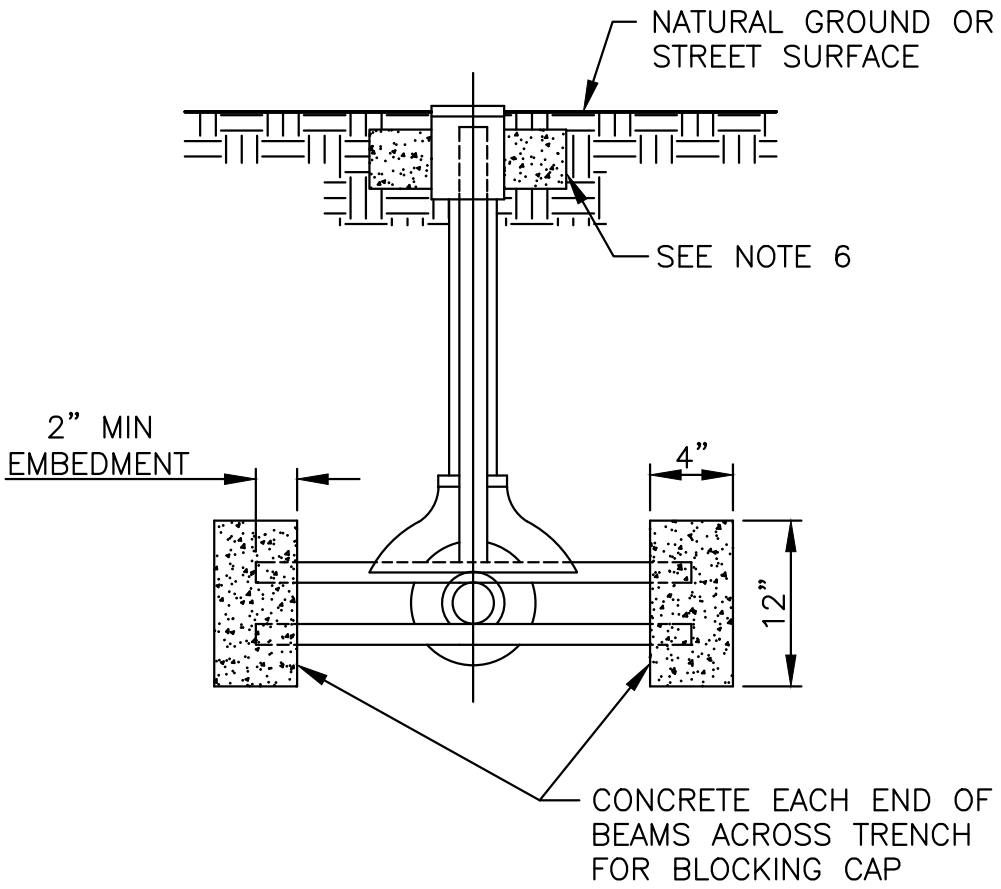
SHEET NO.
W - 6

01/2021



city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

WATER IMPROVEMENT DETAILS **2" BLOW OFF VALVE**		HCE PROJECT NO. P241-01
STANDARD DESIGN MANUAL **CITY OF MERCEDES**	SHEET NO. W - 7	01/2021



NOTES:

1. ALL DEAD–ENDS ON NEW WATER LINES SHALL BE EQUIPPED WITH A SUITABLE BLOW–OFF FACILITY, OR AS DIRECTED BY THE ENGINEER.
2. EMBED ALL C.I. FITTINGS IN SAND.
3. BEAM SCHEDULE SHALL BE USED FOR END CAPS AND PLUGS, OMITTING BLOW–OFF FITTINGS.
4. BEAMS SHALL EXTEND BEYOND TRENCH WALLS.
5. ALL CONCRETE TO HAVE A MIN. 28 DAYS COMPRESSIVE STRENGTH 3,000 P.S.I.
6. MIN. OF 9 SY. COMPACTION AROUND INSTALLATION.

BEAM SCHEDULE

SIZE MAIN	SIZE AND TYPE BEAM	No.OF BEAMS
2"	2" STEEL PIPE	2
8"	3" STEEL PIPE	2
12"	5" I 10.0#	2
16"	6" I 17.25#	2
20"	8" I 18.4#	2
24"	10" I 25.4#	2
30"	12" I 35.0#	2
36"	15" I 50.0#	2

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

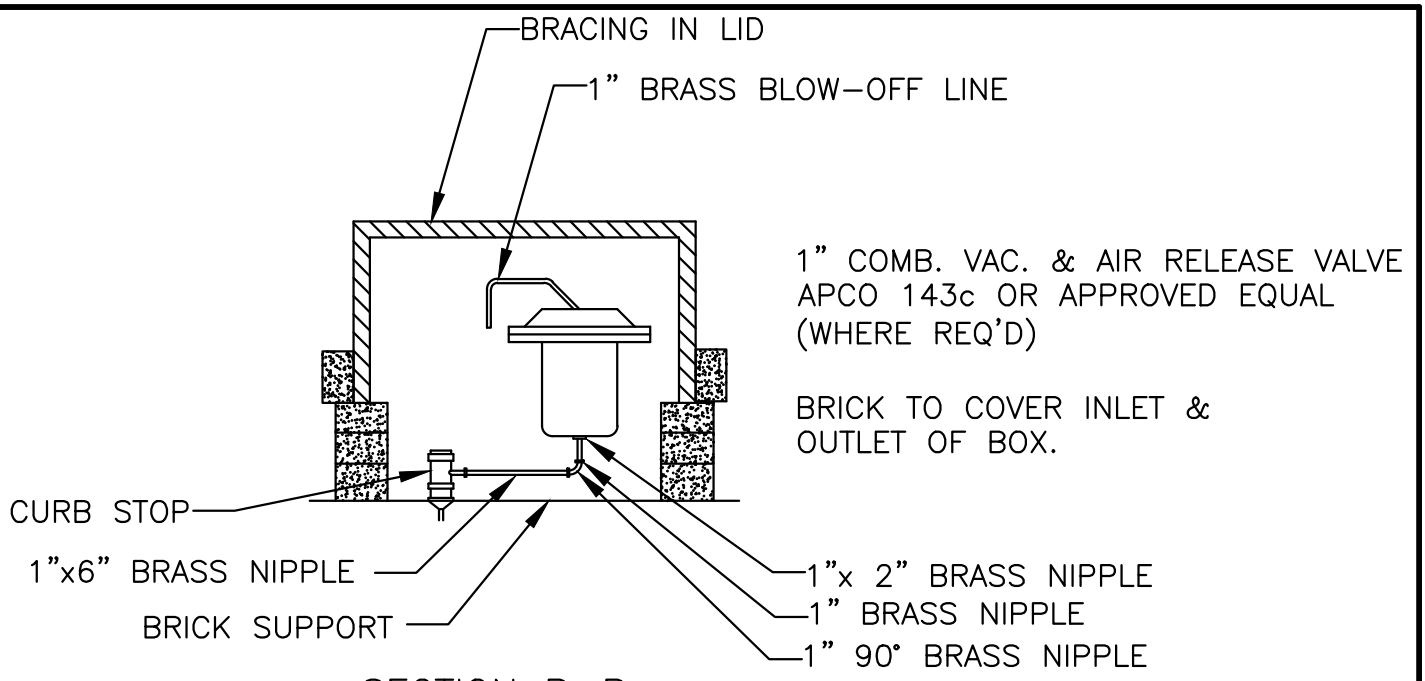
WATER IMPROVEMENT DETAILS
1" AIR RELEASE VALVE

HCE PROJECT NO.
P241-01

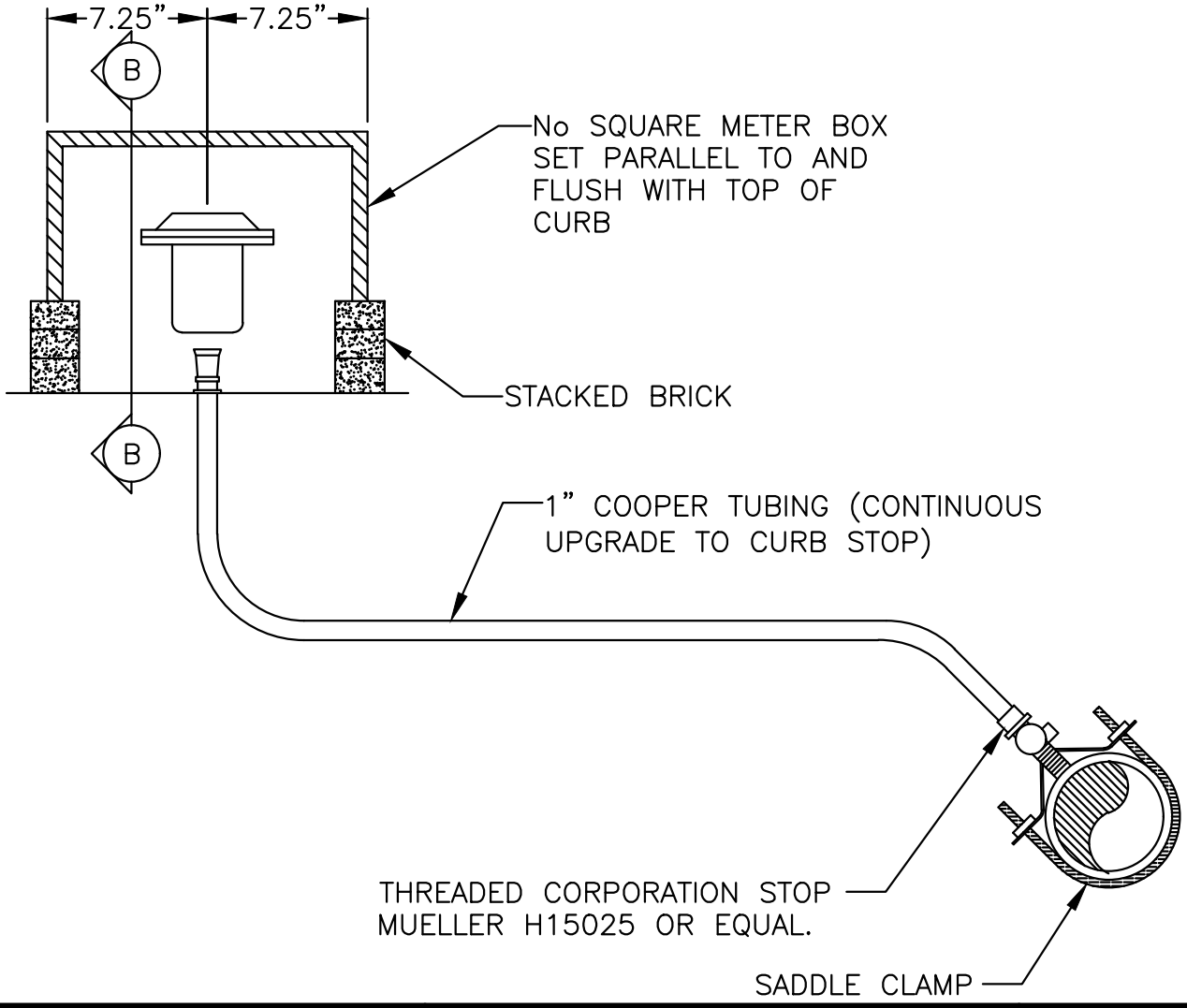
STANDARD DESIGN MANUAL
CITY OF MERCEDES

SHEET NO.
W - 8

01/2021



SECTION B–B

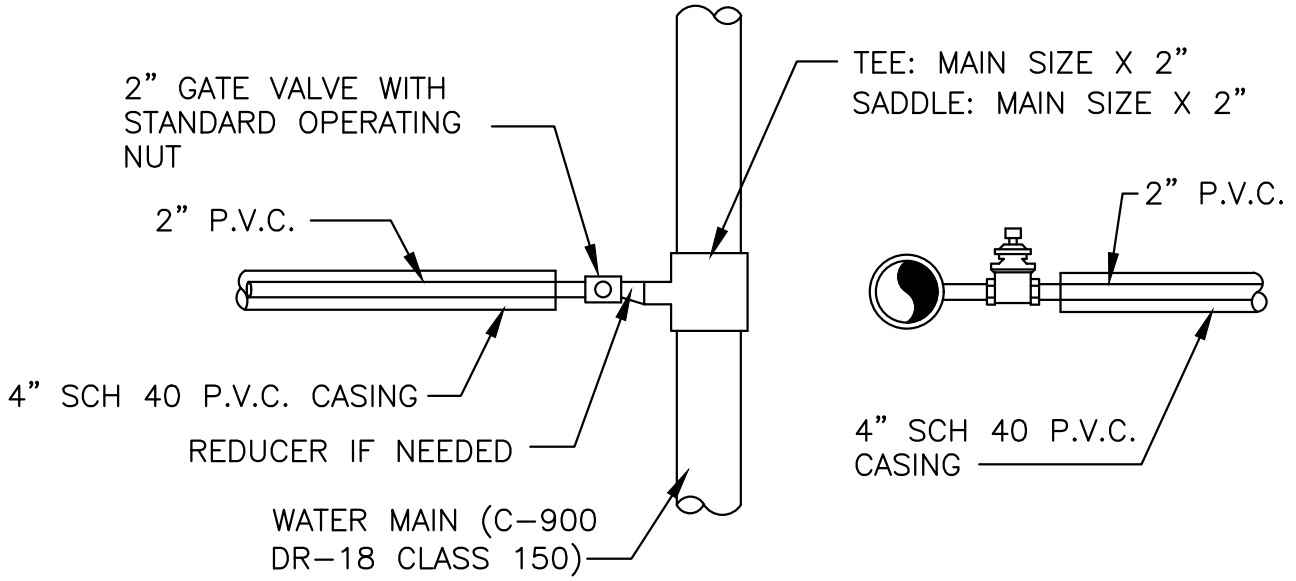


city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

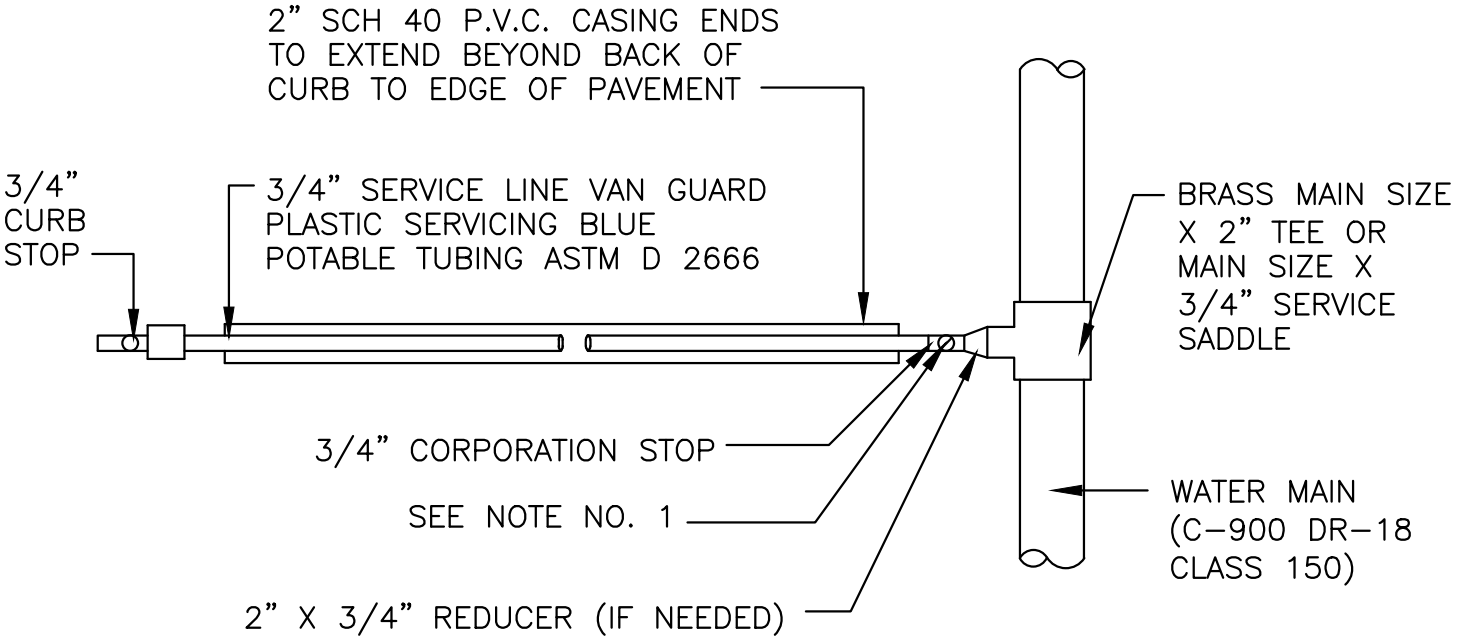
WATER IMPROVEMENT DETAILS **1" AIR RELEASE VALVE**	HCE PROJECT NO. P241-01	
STANDARD DESIGN MANUAL **CITY OF MERCEDES**	SHEET NO. W - 9	01/2021

NOTES:

1. ON ALL SERVICE LINES GREATER THAN 1" (2" P.V.C. SCHEDULE 40), A 2" VALVE WILL BE REQUIRED.
2. ONE SERVICE PER EACH LOT.



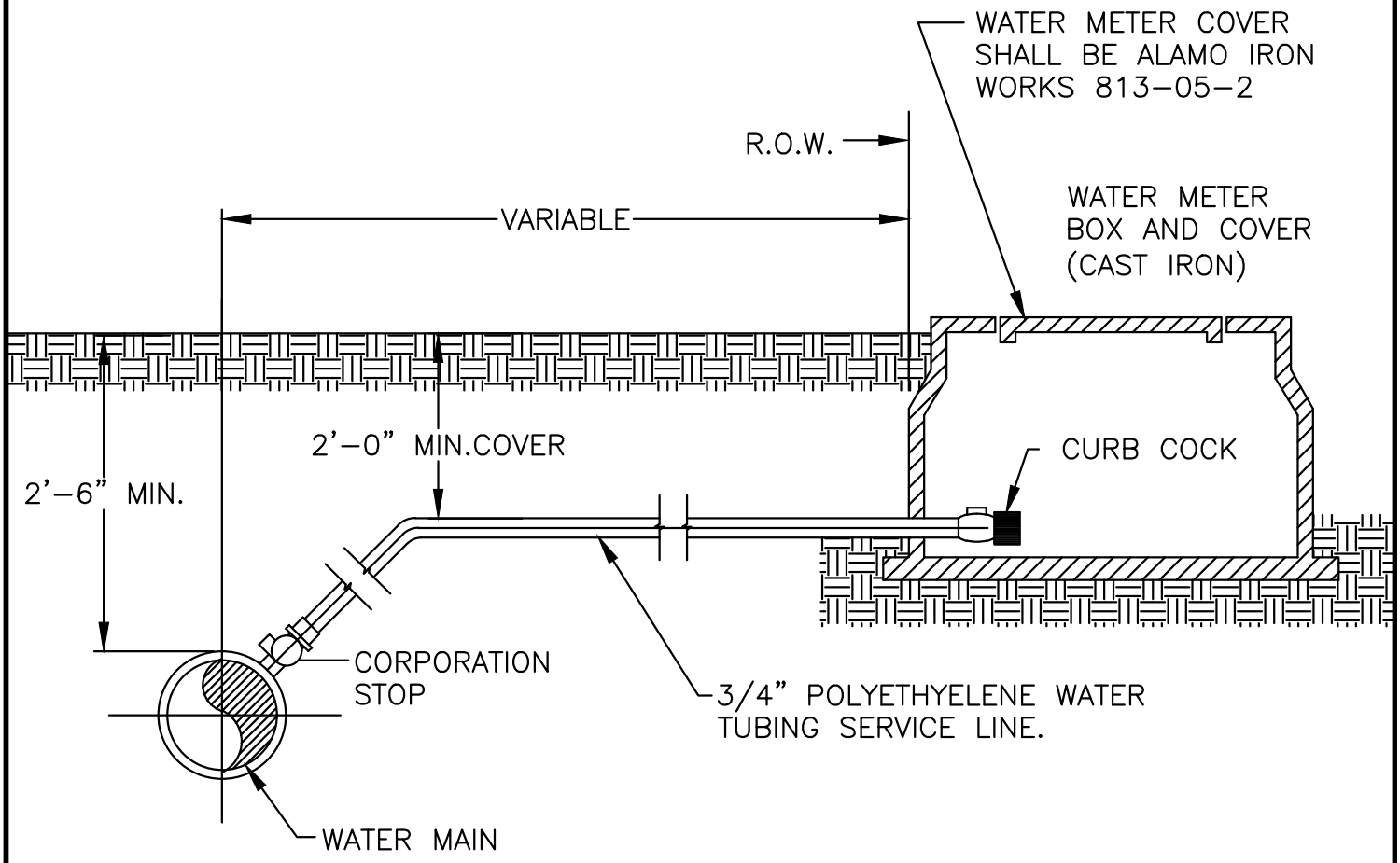
2" SERVICE LINE



SINGLE CONNECTION

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

WATER IMPROVEMENT DETAILS **WATER SERVICE STREET CROSSING**	HCE PROJECT NO. P241-01	
STANDARD DESIGN MANUAL **CITY OF MERCEDES**	SHEET NO. W - 10	01/2021



NOTES:

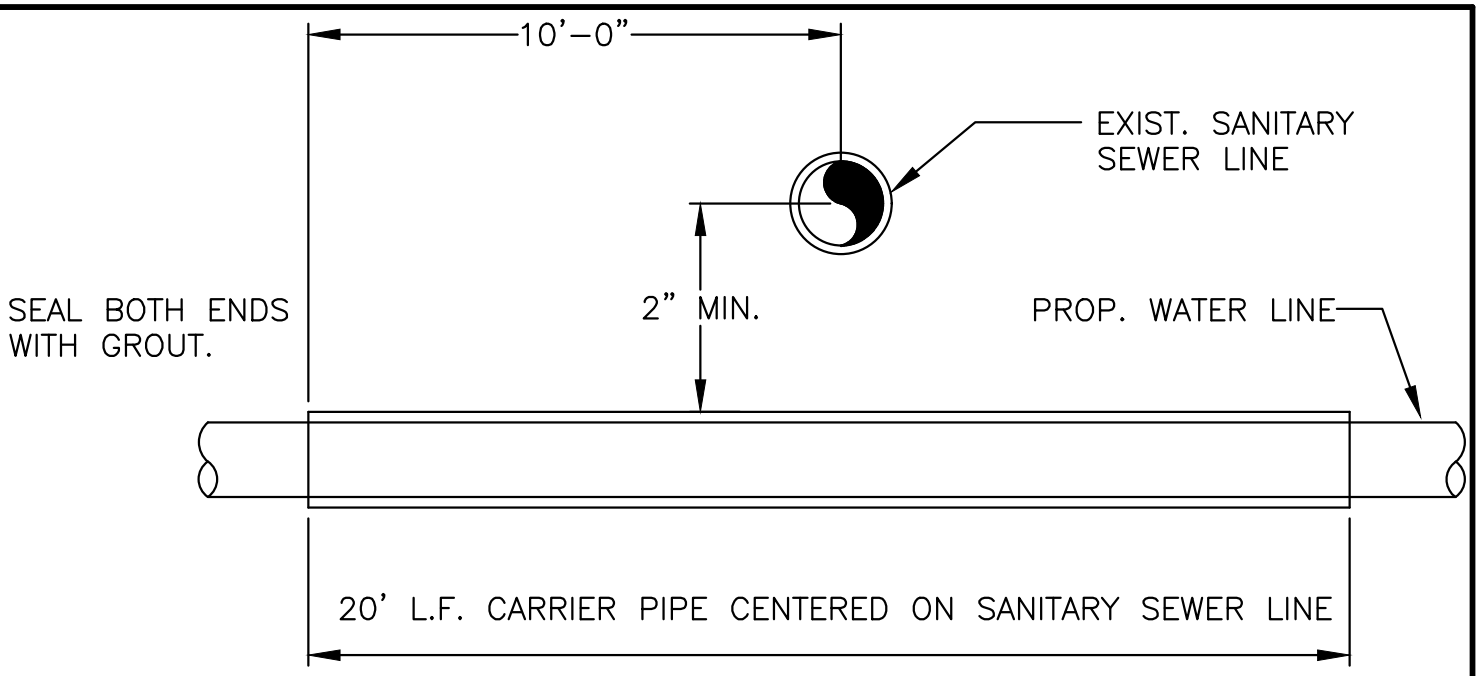
1. ALL SERVICE CONNECTIONS NEED TO HAVE A MIN. 2'–0" COVER FROM FINISHED GRADE.
2. WATER METER COVER SHALL BE ALAMO IRON WORKS 813–05–2.
3. ALL WATER MAINS HAVE 30 INCHES OF COVER FROM FINISHED GRADE.
4. METER BOX SHALL BE CAST IRON.
5. ALL CONCRETE TO HAVE A MIN. 28 DAYS COMPRESSIVE STRENGHT OF 3,000 P.S.I.
6. 2" GATE VALVE ONLY REQUIRED FOR 2" SERVICE.
7. POLYETHYLENE TUBING ACCEPTABLE FOR LINE SIZES 1" OR LESS, SCHEDULE 40 PVC REQUIRED FOR LINE SERVICES GREATER THAN 1".

CONSTRUCTION NOTES:

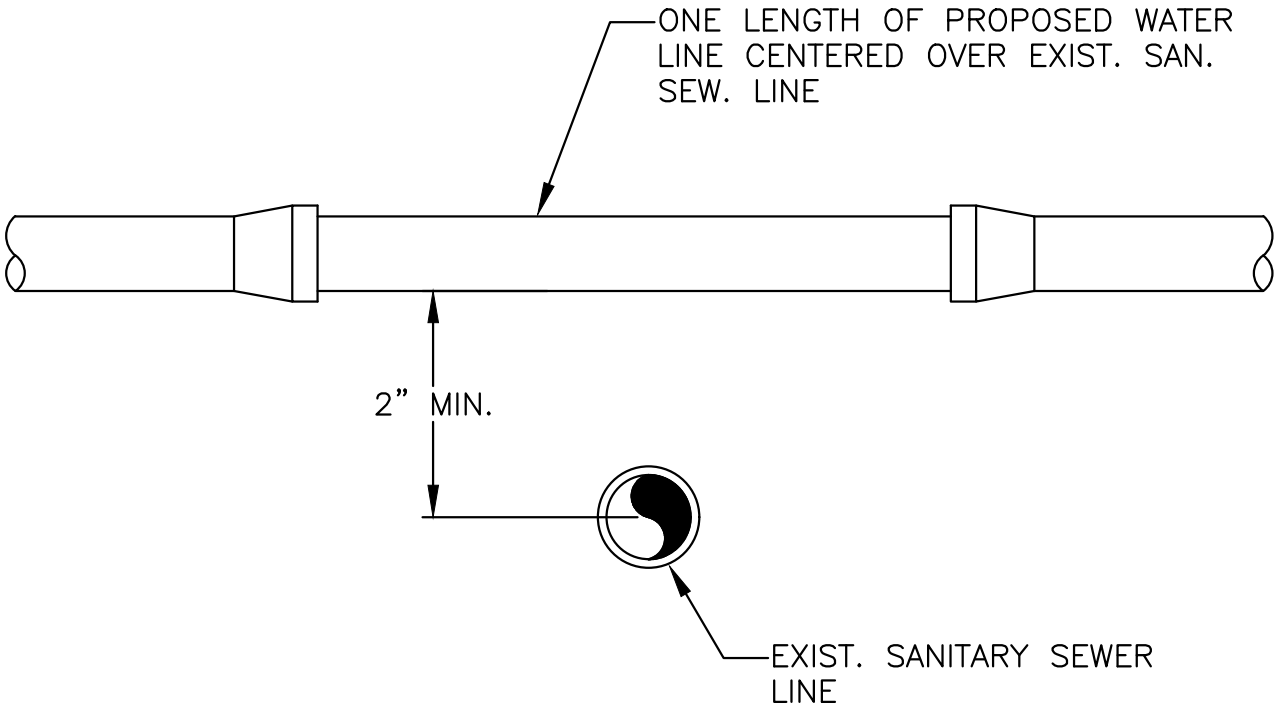
A. WATER VALVE COVER
B. CURB COCK
C. METER BOX & METER PROVIDED
D. WATER TUBING SERVICE LINE
E. CORPORATION STOP
F. WATER MAIN

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

WATER IMPROVEMENT DETAILS TYPICAL SERVICE CONNECTION W/ METER BOX	HCE PROJECT NO. P241-01	
STANDARD DESIGN MANUAL CITY OF MERCEDES	SHEET NO. W - 11	01/2021



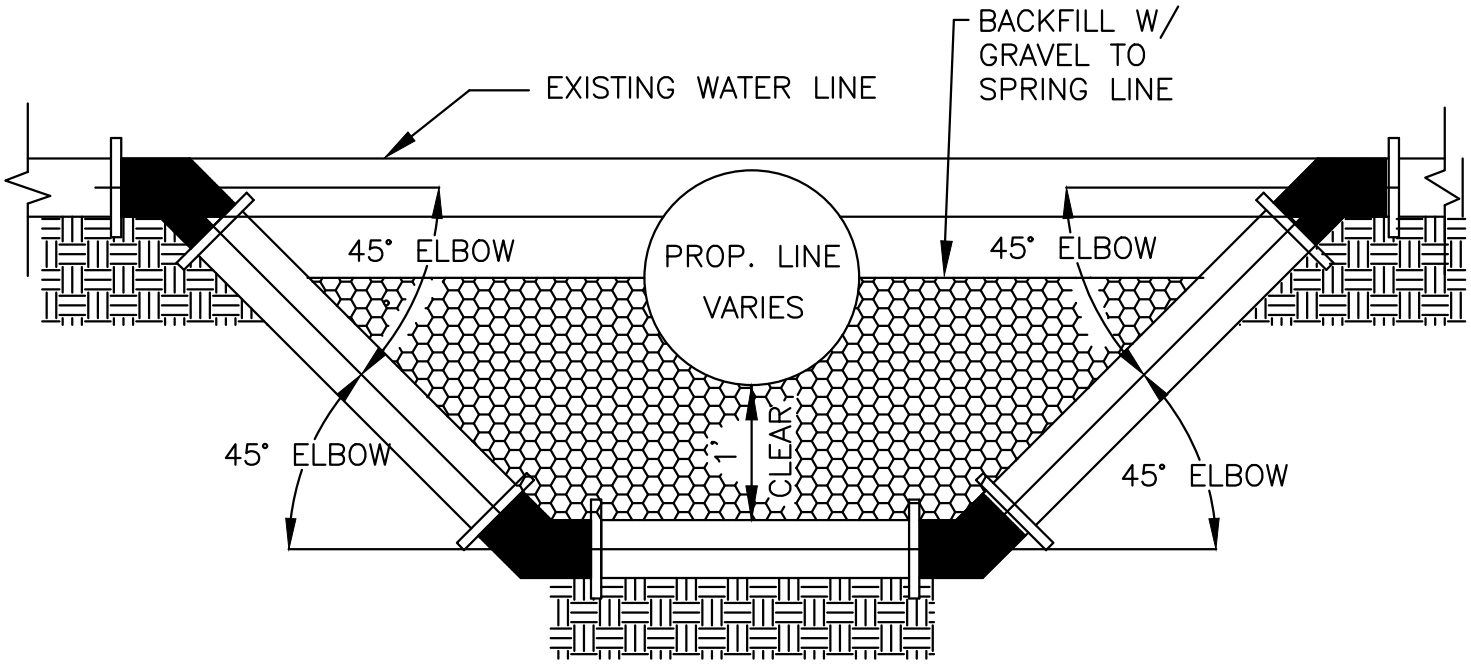
WATER LINE CROSSING
UNDER EXIST. S.S. LINE



WATER LINE CROSSING
OVER EXIST. S.S. LINE

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

WATER IMPROVEMENT DETAILS WATERLINE CROSSING	HCE PROJECT NO. P241-01	
STANDARD DESIGN MANUAL CITY OF MERCEDES	SHEET NO. W - 12	01/2021



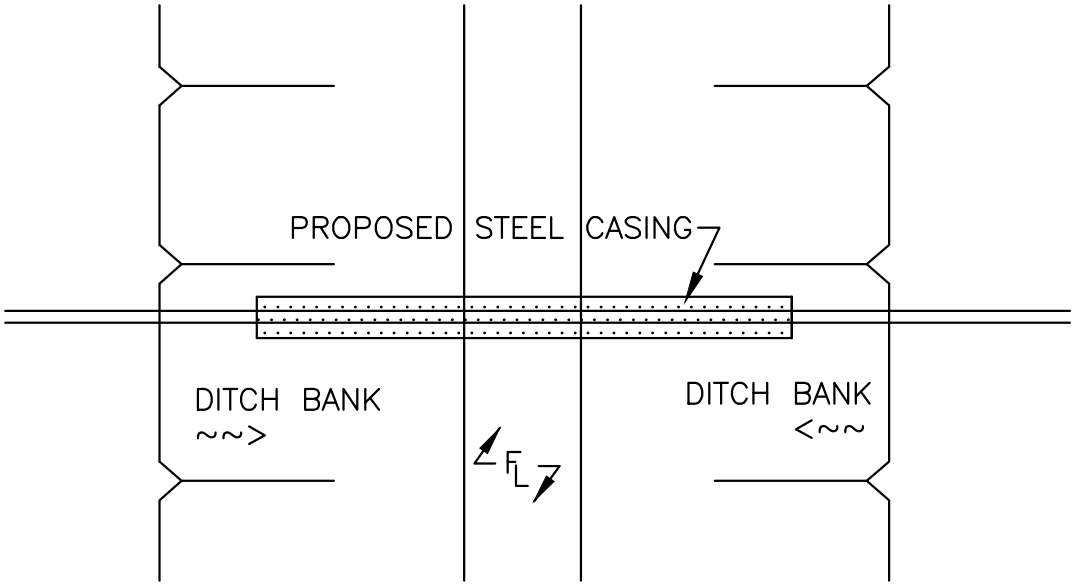
WATER LINE ADJUSTMENT PVC

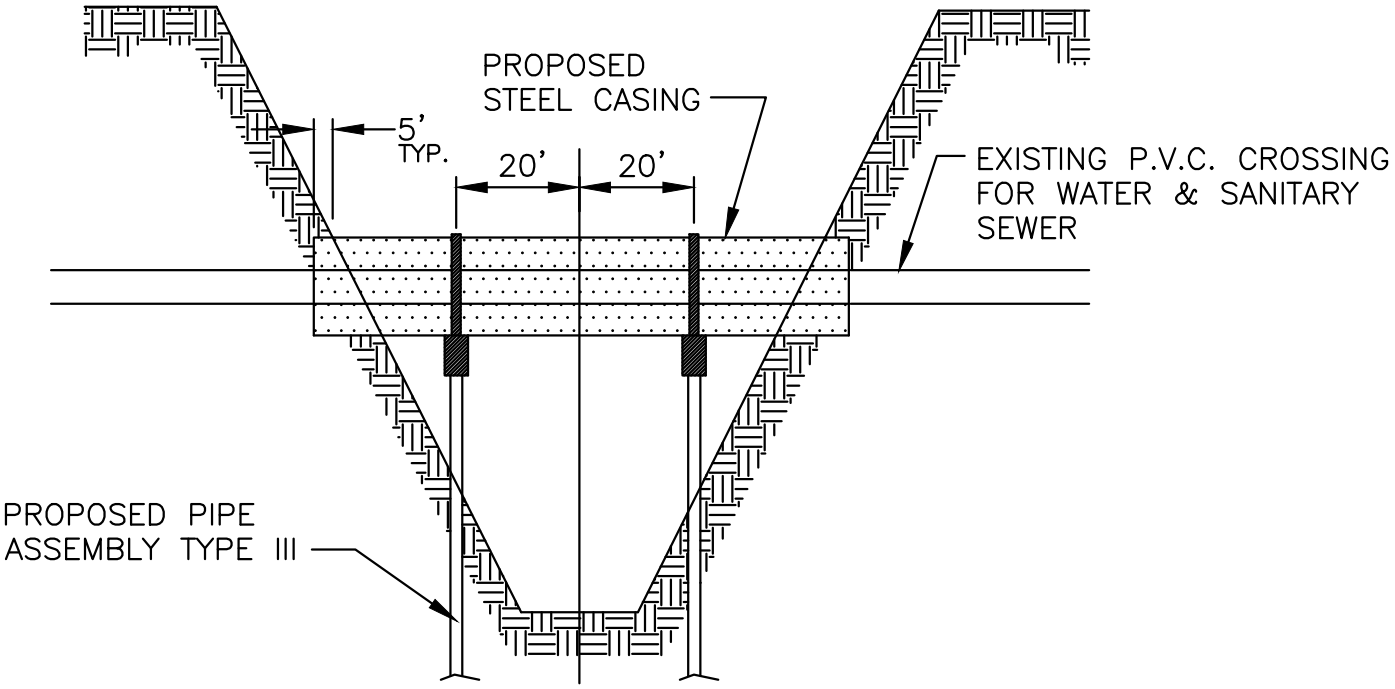
NOTE:

ALL BENDS AND JOINTS MUST BE SUPPORTED BY A CONC. THRUST BLOCK, APPROVED EQUAL,OR AS DIRECTED BY ENGINEER

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

WATER IMPROVEMENT DETAILS **WATERLINE ADJUSTMENT**	HCE PROJECT NO. P241-01	
STANDARD DESIGN MANUAL **CITY OF MERCEDES**	SHEET NO. W - 13	01/2021



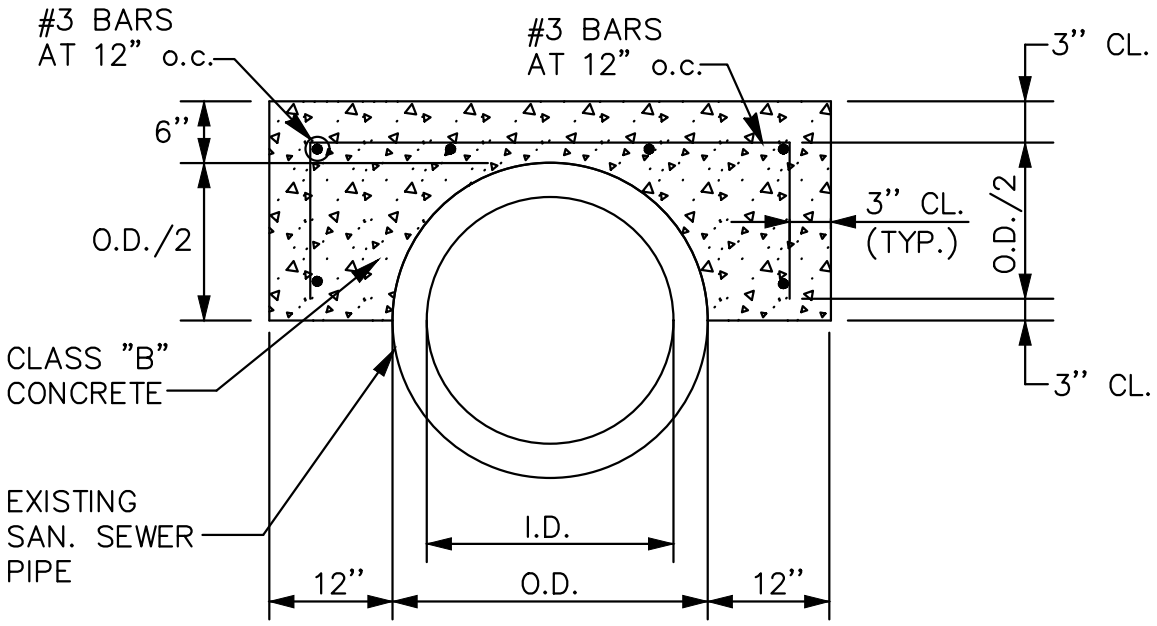


NOTE:

FOUNDATION DESIGN TO BE SUBMITTED BY ENGINEER AND APPROVED BY THE CITY OF MERCEDES

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

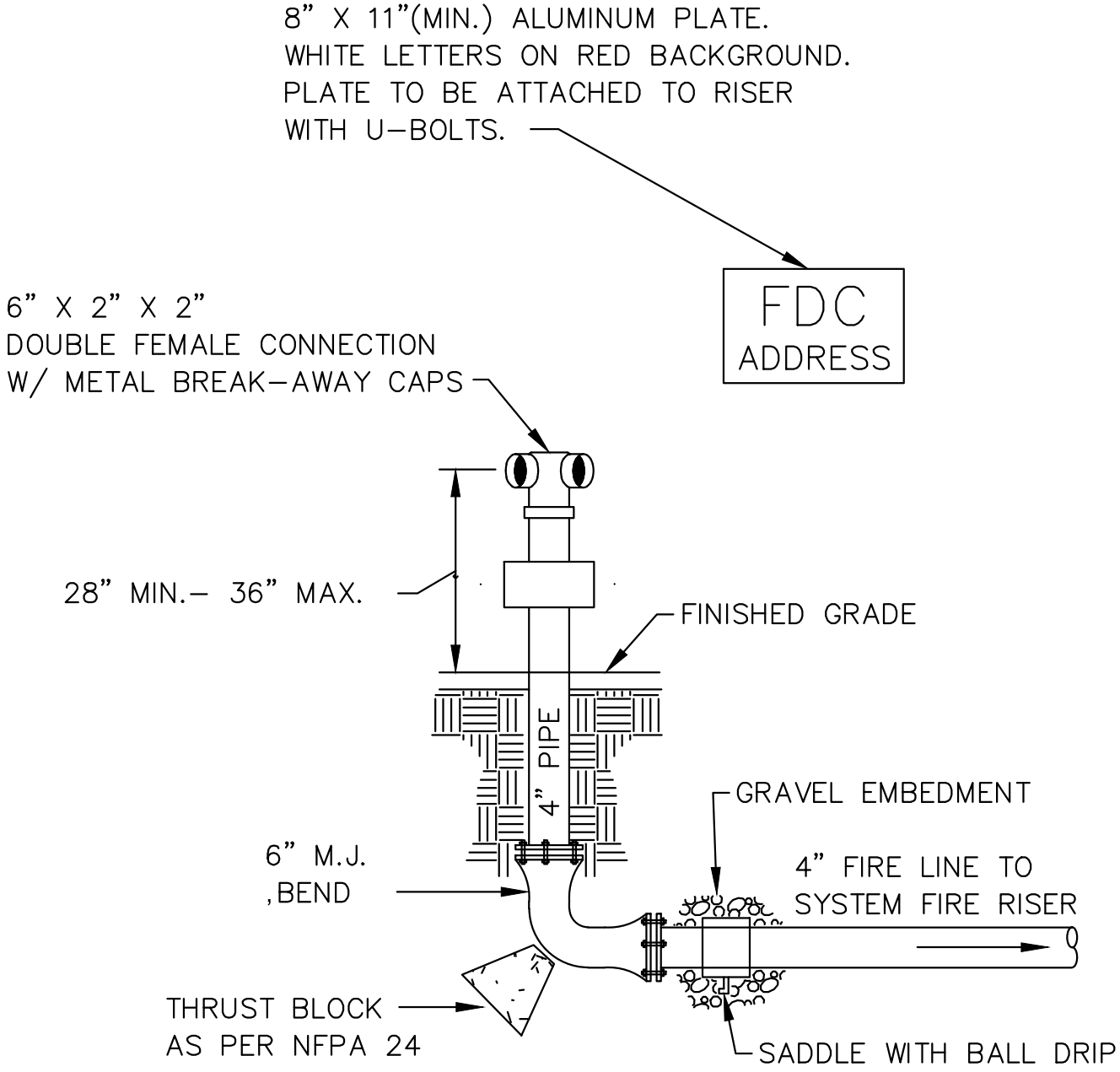
WATER IMPROVEMENT DETAILS **WATERLINE DRAINAGE DITCH CROSSING**	HCE PROJECT NO. P241-01	
STANDARD DESIGN MANUAL **CITY OF MERCEDES**	SHEET NO. W -14	01/2021



NOTE: CRADLE SHALL EXTEND A MINIMUM OF 24" ALONG PROPOSED PIPE.

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

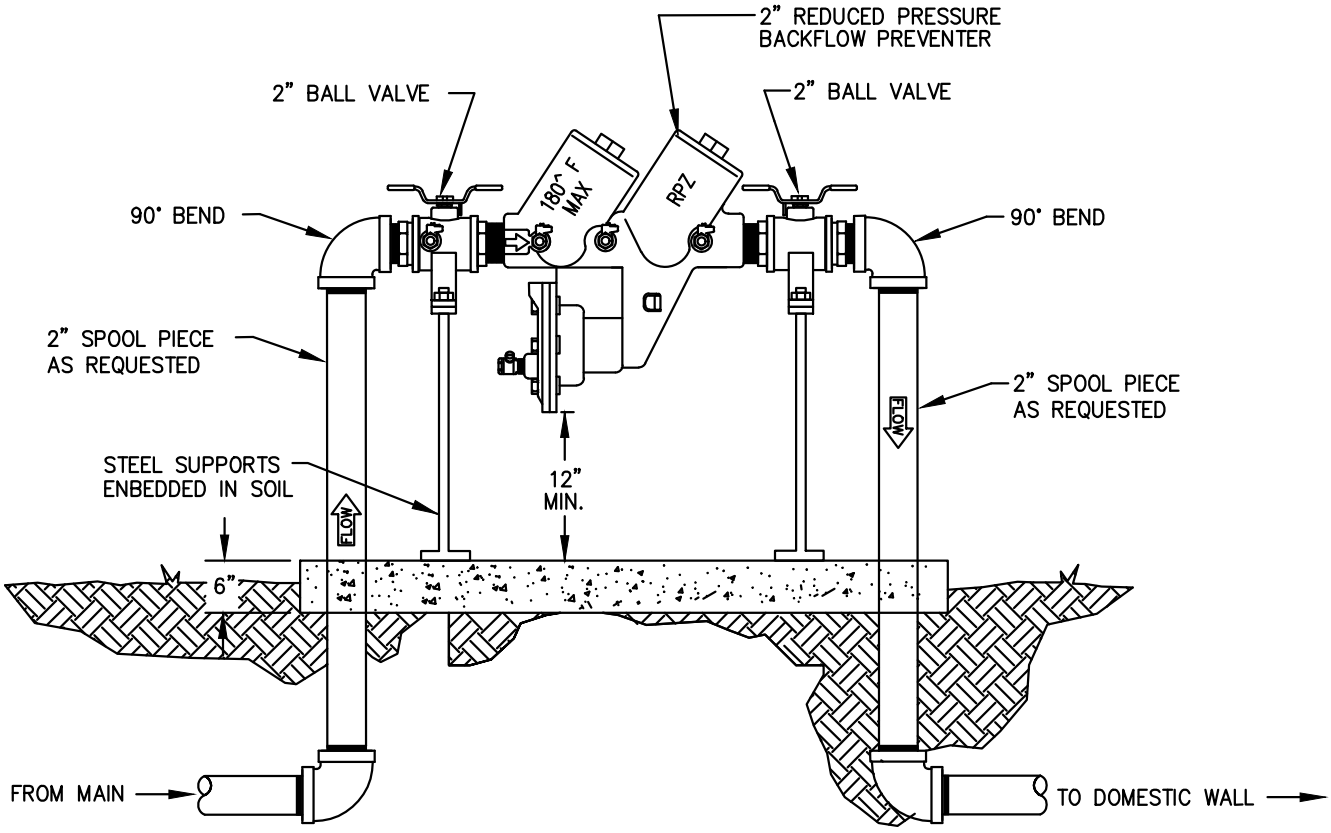
WATER IMPROVEMENT DETAILS **TYPICAL CONCRETE SADDLE**		HCE PROJECT NO. P241-01
STANDARD DESIGN MANUAL **CITY OF MERCEDES**	SHEET NO. W - 15	01/2021



NOTE: FIRE DEPARTMENT CONNECTION AND SIGN
AS PER CITY OF MERCEDES FIRE MARSHAL.

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

WATER IMPROVEMENT DETAILS **TYPICAL FIRE DEPARTMENT CONNECTION (FDC)**	HCE PROJECT NO. P241-01	
STANDARD DESIGN MANUAL **CITY OF MERCEDES**	SHEET NO. W - 16	01/2021



city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

WATER IMPROVEMENT DETAILS **REDUCED PRESSURE BACKFLOW PREVENTER**	HCE PROJECT NO. P241-01	
STANDARD DESIGN MANUAL **CITY OF MERCEDES**	SHEET NO. W - 17	01/2021

Section 8
Wastewater Improvements

8.1 General

The purpose of this section is to outline the general requirements for the design of wastewater improvements and provide typical details for construction. The City of Mercedes's City Engineer should be consulted if any deviations from these standards are anticipated before and during construction. In cases where design limitations or physical barriers restrict compliance with the provisions of this section, alternatives are to be considered by the City Engineer prior to construction and final acceptance of the improvements.

8.2 Design Standards

A. All wastewater mains must be designed in accordance with Design Criteria for Sewage Systems by the Texas Commission on Environmental Quality (TCEQ) TAC 217, current edition.

B. Wastewater improvements to the City of Mercedes wastewater collection systems are to be designed by a Professional Engineer licensed to practice in the State of Texas.

C. Wastewater mains are to be designed and installed with minimum cover of four (4) feet unless approved by the City Engineer.

D. Sanitary Sewer lines shall be a minimum of eight (8) inches in diameter, except laterals and force mains. The City may require larger diameter lines based on several factors including demand, service areas, and historical data.

E. Gravity sewer lines shall be designed with a straight alignment and a uniform grade between manholes. Horizontal curvature between manholes is not allowed. The table below shows the minimum and maximum pipe slopes for waste water lines.

Table 2-1 Minimum and Maximum Sanitary Sewer Pipe Slopes

Size of Pipe (inches)	Minimum Slope (%)	Maximum Slope (%)
8	0.33	8.40
10	0.25	6.23
12	0.20	4.88
15	0.15	3.62
18	0.11	2.83
21	0.09	2.30
24	0.08	1.93
27	0.06	1.65
30	0.055	1.43
33	0.05	1.26
36	0.045	1.12
39	0.04	1.01
Greater than 39	*	*

* Pipes larger than 39 inches in diameter slopes are determined by Manning's formula to maintain a velocity greater than 2.0 (ft/s) and less than 10.0 (ft/s) when flowing full.

Manning's Formula

$$V = \frac{1.49}{n} \; x \; R_h^{0.67} \; x \; \sqrt{S}$$

V = velocity (ft/s)
n = Manning's roughness coefficient (0.013)
R_h = hydraulic radius (ft)
S = slope (ft/ft)
Reference: *TCEQ Chapter 217, Subchapter C: Conventional Collection Systems*

F. Wastewater pipe diameters shall be designed to serve the anticipated development, but shall not be less than the following requirements:

1. Single Family 8 inches
2. Commercial, Retail, Multi-Family 8 inches
3. Industrial 12 inches
4. Educational Facilities 12 inches

G. Water jetting is not allowed under any circumstance for sewers crossing or within a roadway. Water jetting for sewers outside of roadways may be considered if a licensed

geotechnical engineer has determined the soil is suitable for jetting AND if approved by the City Engineer.

H. Sanitary Sewer manholes shall be placed at a maximum of 500 foot spacing or as directed by the City Engineer. The table below shows the maximum manhole spacing as required by TCEQ.

Table 2-2 Maximum Sanitary Sewer Manhole Spacing

Pipe Diameter (inches)	**Maximum Manhole Spacing (feet)**
6-15	500
18-30	800
36-48	1000
54 or greater	2000
Reference: *TCEQ Chapter 217, Subchapter C: Conventional Collection Systems*	

I. Sewer main and service line pipe shall conform to SDR26 meeting requirements of ASTM D-3034. Force mains shall conform to SDR21.

J. All lots must be serviced with single service stub-outs, including a clean-out located at the right of way or within an easement. Service locations should be marked on the curb or gutter with an "S" not less than (4) inches in size or in a manner approved by the City of Mercedes.

K. Single service connections shall be extended for each lot and a cleanout shall be installed at the right of way or within an easement. For land use other than single family residential, individual services shall be provided for each unit or suite. If a shell building is proposed, the project engineer shall provide a reasonable assumption to the number of suites that the shell building may hold.

L. Single-family residential private service connections shall be a minimum of four (4) inches in diameter. Multi-family residential, commercial, and industrial private service connections shall be a minimum of six (6) inches in diameter. Location of service lines shall be in the center of the lots' frontage; unless the sewer main is located at another juncture.

M. Rubber gaskets shall conform to ASTM D-1869, D-361 or C-443. A maximum of twelve (12) inches of manhole grade adjustment rings is allowed and a minimum of one (1) grade ring is required between the manhole and the rings.

N. Manhole rings and covers shall have a minimum 30 inch opening and include the City of Mercedes logo provided in the details sections and rain guards. Manhole cover is to be hinged and traffic rated fiber composite. (See details at the end of this section)

O. Project Close-out documents shall include an electronic and hard copy of Final Record Drawings. Electronic drawings are preferred.

8.3 Testing Requirements

A. Infiltration/Exfiltration: The total infiltration or exfiltration, as determined by test, shall not exceed 200 gallons per inch diameter per mile of pipe per 24 hours at a minimum test head of 2 feet. If the quantity of infiltration or exfiltration exceeds the maximum quantity specified, remedial action shall be undertaken in order to reduce the infiltration or exfiltration to an amount within limits as specified. Infiltration or exfiltration tests shall be performed on the total footage on the project. Copies of all tests results shall be made available to the city. The air test shall conform to the procedure described in ASTM C 828 or other appropriate procedures.

B. Deflection: Deflection tests shall be performed on all flexible and semi-rigid pipes. The test shall be conducted after the final backfill has been placed. No pipe shall exceed a deflection of 5%. The deflection test should be performed using a rigid ball or mandrel and have a diameter equal to 95% of the inside diameter of the pipe being tested. The test should not be performed using mechanical pulling devices. The city's construction inspector must be present at the time of testing.

C. Pressure Test:

Table 2-3 Minimum Testing Times for Low-Pressure Air Test

Pipe Diameter (inches)	Minimum Time (seconds)	Maximum Length for Minimum Time (feet)	Time for Longer Length (seconds/foot)
6	340	398	0.855
8	454	298	1.520
10	567	239	2.374
12	680	199	3.419
15	850	159	5.342
18	1020	133	7.693
21	1190	114	10.471
24	1360	100	13.676
27	1530	88	17.309

30	1700	80	21.369
33	1870	72	25.856
Reference: *TCEQ Chapter 217, Subchapter C: Conventional Collection Systems*			

D. Video Camera Inspection: The City of Mercedes may perform a video inspection prior to final acceptance of work but is not necessary for approval. Any defects including but not limited to, sagging, leaking, infiltration, separation of joints, service connection, defects, or loss of roundness shall require repair and must be reported to the City Engineer and the Public Works Director.

8.4 Manholes

A. Manholes will be required to facilitate maintenance, cleaning, and inspection at changes in horizontal alignment (including at the center of horizontally curved sections of main where the included angle equals or exceeds 45-degrees), changes in grade, changes in pipe size and at junctions with other wastewater mains or collection lines. Manholes will be required at the junctions where service leads, 6-inch diameter or larger, join mains.

B. Manholes will be equipped with rain guards (see typical manhole detail).

C. Manhole covers will have the City of Mercedes Logo in the center.

D. When a change in the size of a wastewater main or collection line occurs without a change in grade, the inside top of pipe (soffit) elevations will be matched in the manhole. Elevation differences between pipes at a manhole will require a drop manhole if >2' above FL.

E. A 0.1-foot drop through the manhole is desired.

F. At the end of a main or collection line, the line shall be terminated with a manhole or clean out as per TCEQ requirements. Clean-outs shall only be allowed when there is no physical means for an extension and the line is less than 4 feet in depth. If an extension is anticipated, a plugged stub-out of one full pipe joint with a clean-out is required.

G. Manholes shall be constructed of fiberglass. Watertight sealed manholes with bolt-down lids shall be provided in creek beds and in floodplains

H. Manhole sizes shall be as follows:

Manhole Diameter	Main Size
4 ft	<18 in.
5 ft	≥18 in. < 30 in.
6 ft	≥36 in.

I. Manholes 10 feet to 20 feet deep shall be at least 5 feet in diameter and manholes over 20 feet deep shall be at least 6 feet in diameter and covers customized for Mercedes.

8.5 Right of Way Crossings

A. Wastewater collection mains located within state right of way must conform to the requirements of the Texas Department of Transportation (TxDOT).

B. Wastewater collection mains that cross railroads must conform to the requirements of the railroad company whose right-of-way is being crossed.

C. For wastewater collection mains crossing creeks or drainage channels, the mains shall be encased in steel casing; piers must support the elevated sections of such crossings. Dry bore all crossings of existing streets unless otherwise authorized by the Director of Public Works.

D. Below grade crossings of creeks and drainage channels shall have a minimum cover of 3.5-feet below the flowline at the time of construction. All below grade crossings will require encasement with steel encasement pipe and all ends shall be capped and sealed. The casing shall be carried into the bank a distance that should consider changes in the creek channel. This distance shall be beyond the high bank, outside of a projected 1H:1V slope from the high bank away from the channel. If the pipe is less than 3.5-feet in depth, steel encasement and concrete capping shall be required.

8.6 Encasement

A. Steel cylinder pipe shall be used for all encasement pipe. Other encasement pipe material may be used per TCEQ requirements and City Specifications. Carrier pipes sized less than 30 inches shall use an encasement pipe with a wall thickness no less than 3/8-inch. For carrier pipes 30 inches and larger, a wall thickness of no less than 1/2-inch shall be used. Coating of encasement pipe may be required in special soil conditions.

B. When required, encasement pipe diameter shall be as specified in the specifications and details. Encasement pipes shall extend 2-feet beyond the back of both curbs on the street. Ends of encasement pipes shall be sealed to prevent the intrusion and collection of groundwater.

C. All carrier pipes will be supported by casing spacers in accordance with the specifications and details, and shall have joints restrained by an approved method that will allow the removal of the carrier pipe from the encasement pipe in a single direction by means of tension on the carrier pipe only.

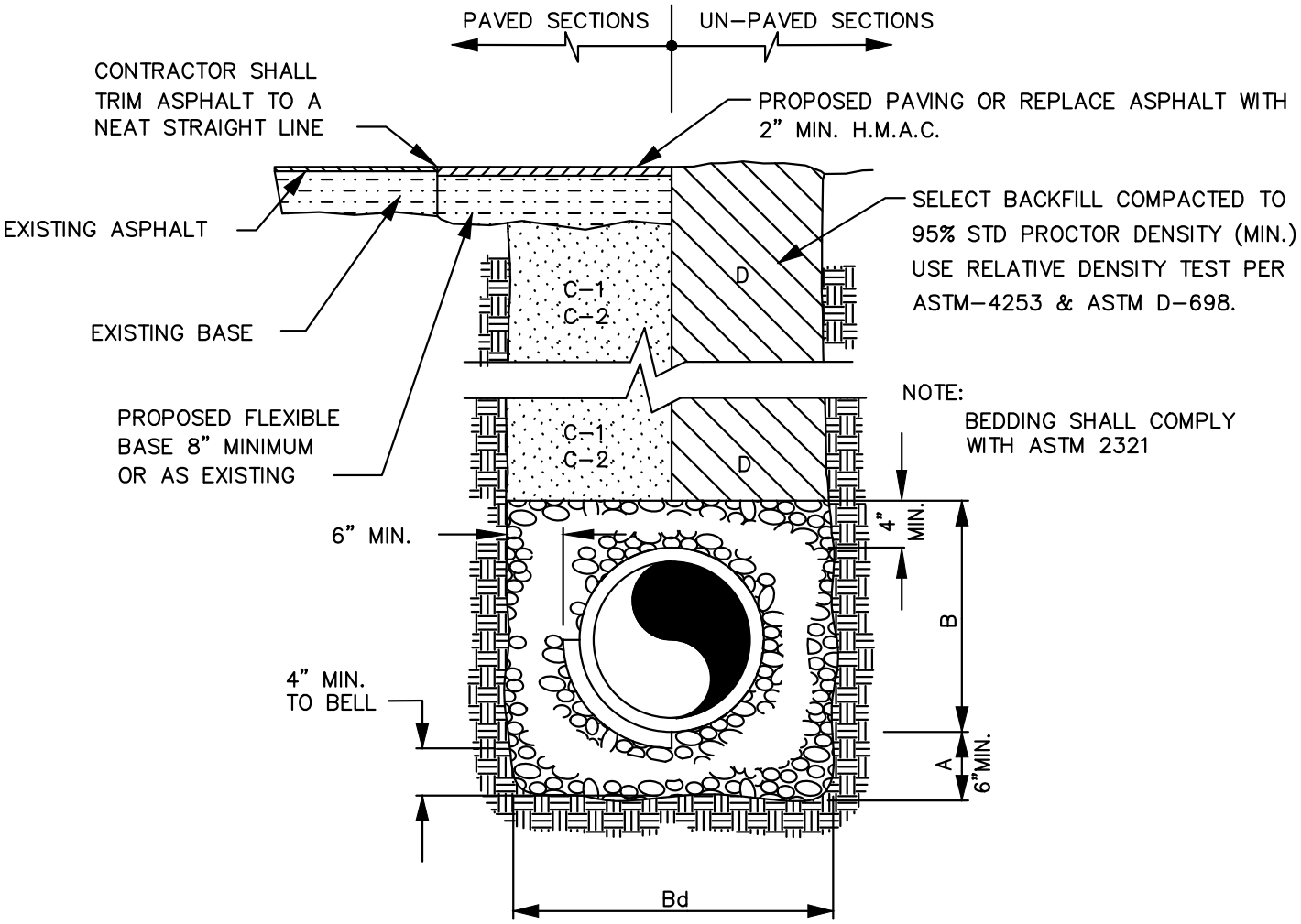
8.7 Easements

A. Wastewater lines constructed outside of or not adjacent to public rights-of-way shall be in easements of not less than 10 feet in width except for the following: if the sewer main

bury is deeper than 10 feet, the easement width shall be not less than 20 feet: and if the sewer main bury is greater than 14 feet, the easement width shall be 30 feet. If both wastewater and water mains are located within the same easement, the width shall not be less than 25 feet (larger widths will be required depending on the depth of the sewer main).

B. The easement must be located such that the centerline of the wastewater line is no closer than 5.5-feet to the closest edge of the easement.

8.8 Wastewater Improvement Details



A. GRAVEL BEDDING PLACED BEFORE PIPE IS LAID (MIN. THICKNESS = 6"). PIT RUN GRAVEL 3/4" MAX. SIZE.

B. GRAVEL PLACED AFTER PIPE IS LAID, FROM BOTTOM OF PIPE TO 4" ABOVE THE TOP OF PIPE. PIT RUN GRAVEL 3/4" MAX. SIZE.

Bd. TRENCH WIDTHS SHALL BE EQUAL TO PIPE BELL O.D. + 12" OR IN ACCORDANCE WITH ASTM 2321.

C-1. CITY STREETS, PARKING AREA, DRIVEWAYS: SELECTED BACKFILL SHALL BE PLACED IN 8" LIFTS MECHANICALLY COMPACTED TO 98% MODIFIED PROCTOR DENSITY,

C-2. STATE MAINTAINED ROADWAYS: SAND/CEMENT STABILIZED BACKFILL, WITH 7% PORTLAND CEMENT, COMPACTED AS PER ASTM D-4253 AND ASTM D-698.

D. SELECTED EARTH BACKFILL MECHANICALLY COMPACTED TO 95% STD. PROCTOR DENSITY (12" LIFTS). FOUNDATION PREPARATION (WELLPOINTS, GRAVEL OR CEMENT STABILIZATION, OR APPROVED SUBSTITUTE) SHALL BE REQUIRED WHEN TRENCH BOTTOM IS UNSTABLE. BACKFILLING AT STRUCTURES SHALL BE PLACED IN UNIFORM LAYERS, MOISTENED AS REQUIRED TO APPROXIMATE OPTIMUM MOISTURE CONTENT, AND COMPACTED TO 95% STD. PROCTOR DENSITY (USE RELATIVE DENSITY TEST PER ASTM D-4253 & ASTM D-698). THE THICKNESS OF EACH LOOSE LAYER SHALL NOT EXCEED 6". STRUCTURAL BACKFILL MATERIAL SHALL BE AS APPROVED BY THE ENGINEER.

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

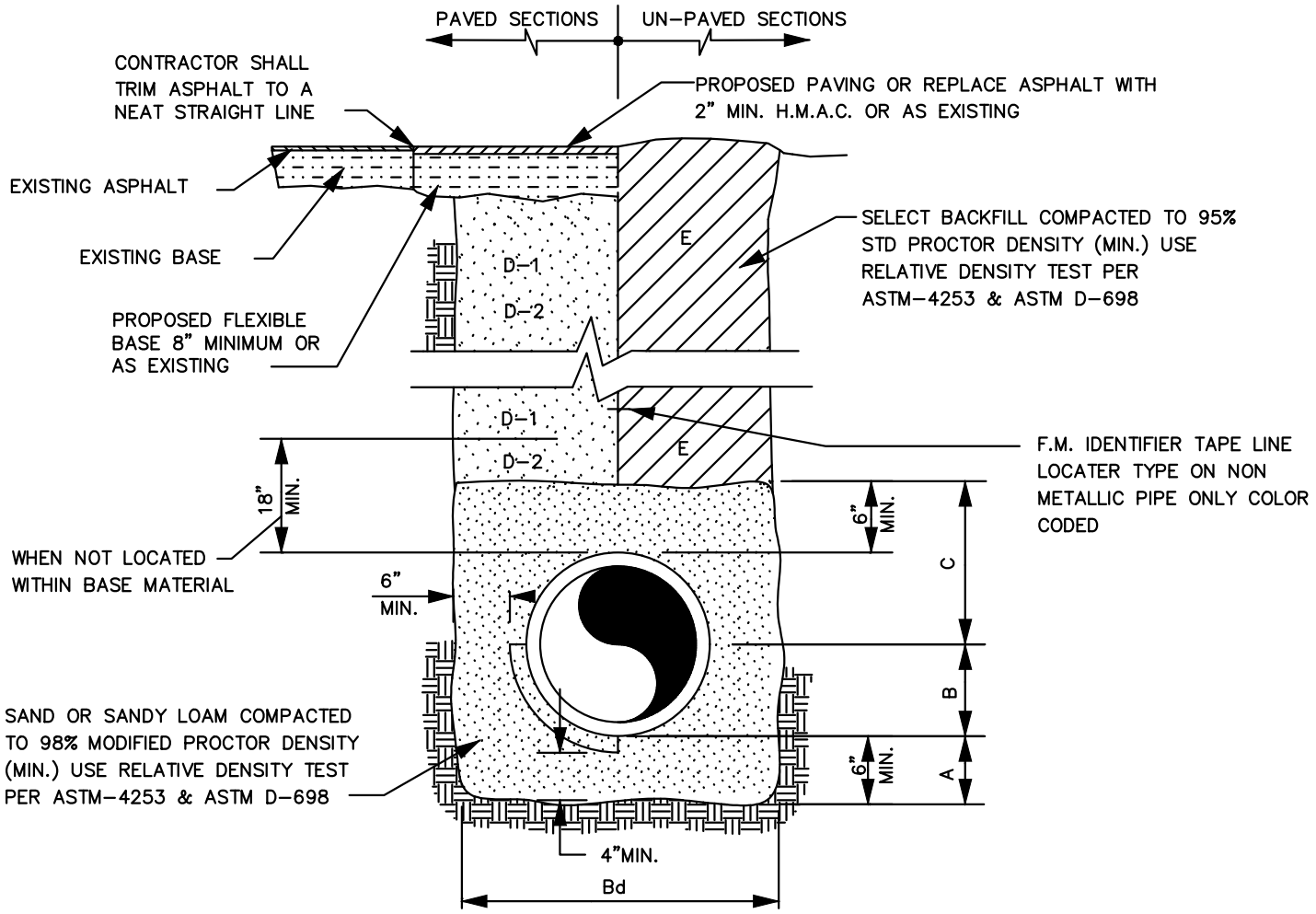
WASTE WATER IMPROVEMENT DETAILS
SEWER LINE TRENCH BEDDING (NON-FORCEMAIN)

HCE PROJECT NO.
P241-01

STANDARD DESIGN MANUAL
CITY OF MERCEDES

SHEET NO.
WW - 1

01/2021



A. SAND OR SANDY LOAM BEDDING PLACED BEFORE PIPE IS LAID UP TO FLOW LINE OF PIPE. (MIN. THICKNESS= 6")

B. SAND OR SANDY LOAM BACKFILL PLACED AFTER PIPE IS LAID FROM BOTTOM OF PIPE TO SPRING LINE OF PIPE. (4" LIFTS, HAND TAMPED) Bd TRENCH WIDTHS SHALL BE PIPE O.D. + 12" OR IN ACCORDANCE WITH ASTM 2321 FOR PVC PIPE.

C. SAND OR SANDY LOAM BACKFILL PLACED FROM SPRING LINE OF PIPE TO 6" ABOVE TOP OF PIPE. (6" LIFTS, HAND TAMPED)

D–1. (CITY STREETS, PARKING AREA, SELECT EXCAVATED BACKFILL MATERIAL COMPACTED TO 98% SPD. (8" LIFTS, MECHANICAL COMPACTION)

D–2. (STATE MAINTAINED ROADWAY) COMPACTED SAND/CEMENT STABILIZED BACKFILL WITH 7% PORTLAND CEMENT COMPACTED AS PER ASTM D–4253 AND ASTM D–698.

E. SELECT EARTH BACKFILL COMPACTED TO 92% SPD. (12" LIFTS, MECHANICAL COMPACTION) FOUNDATION PREPARATION (WELLPOINTS, GRAVEL OR CEMENT STABILIZATION, OR APPROVED SUBSTITUTE) SHALL BE REQUIRED WHEN TRENCH BOTTOM IS UNSTABLE, BACKFILLING AT STRUCTURES SHALL BE PLACED IN UNIFORM LAYERS, MOISTENED AS REQUIRED TO APPROXIMATE OPTIMUM MOISTURE CONTENT, AND COMPACTED TO 95% STD. PROCTOR DENSITY (USE RELATIVE DENSITY TEST PER ASTM D–4253 & ASTM D–698). THE THICKNESS OF EACH LOOSE LAYER SHALL NOT EXCEED 6". STRUCTURE BACKFILL MATERIAL SHALL BE SAND, APPROVED SITE SOIL, OR OTHER APPROVED SUBSTITUTE.

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

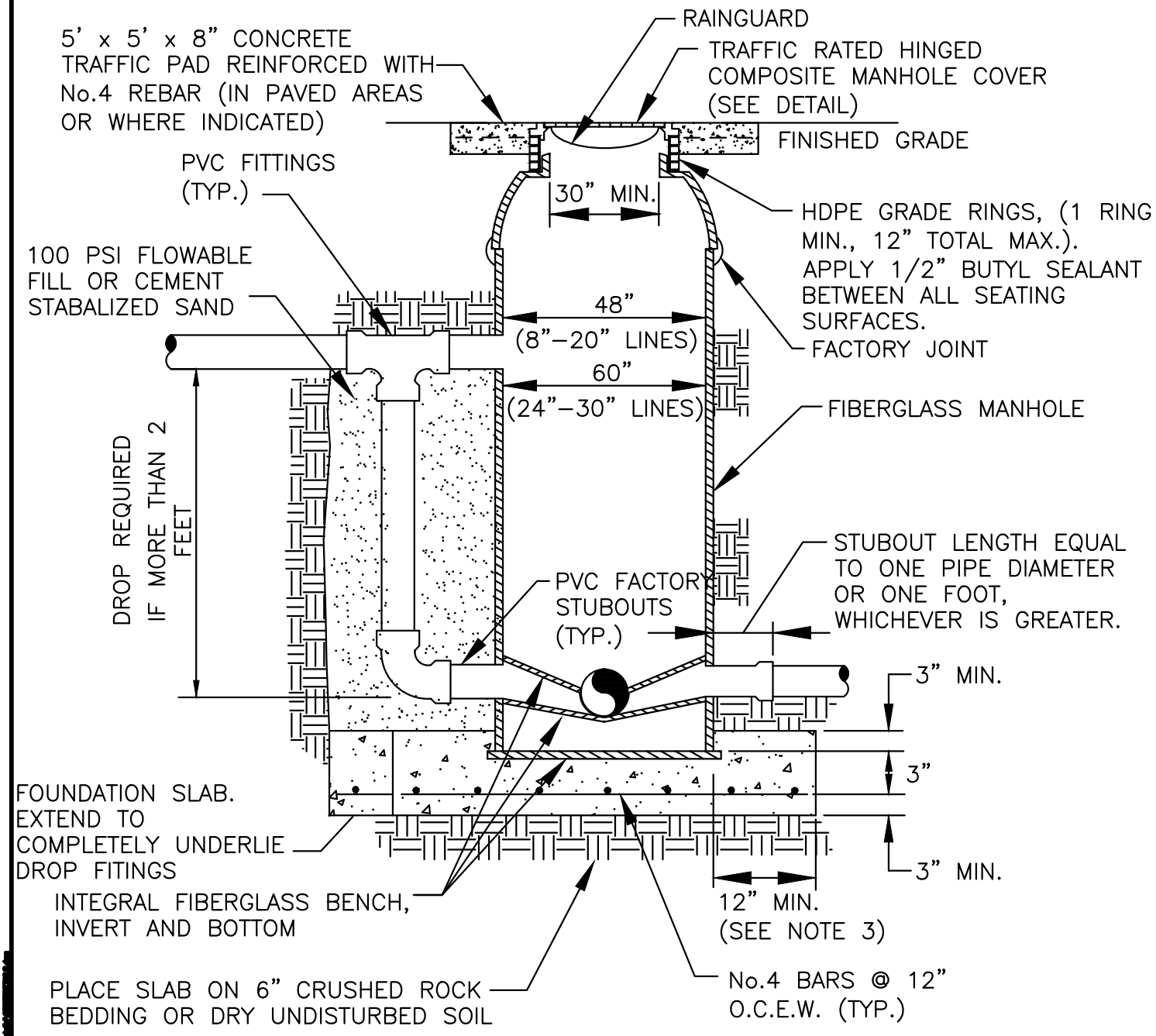
WASTE WATER IMPROVEMENT DETAILS
FORCE MAIN TRENCH BEDDING

HCE PROJECT NO.
P241-01

STANDARD DESIGN MANUAL
CITY OF MERCEDES

SHEET NO.
WW - 2

01/2021

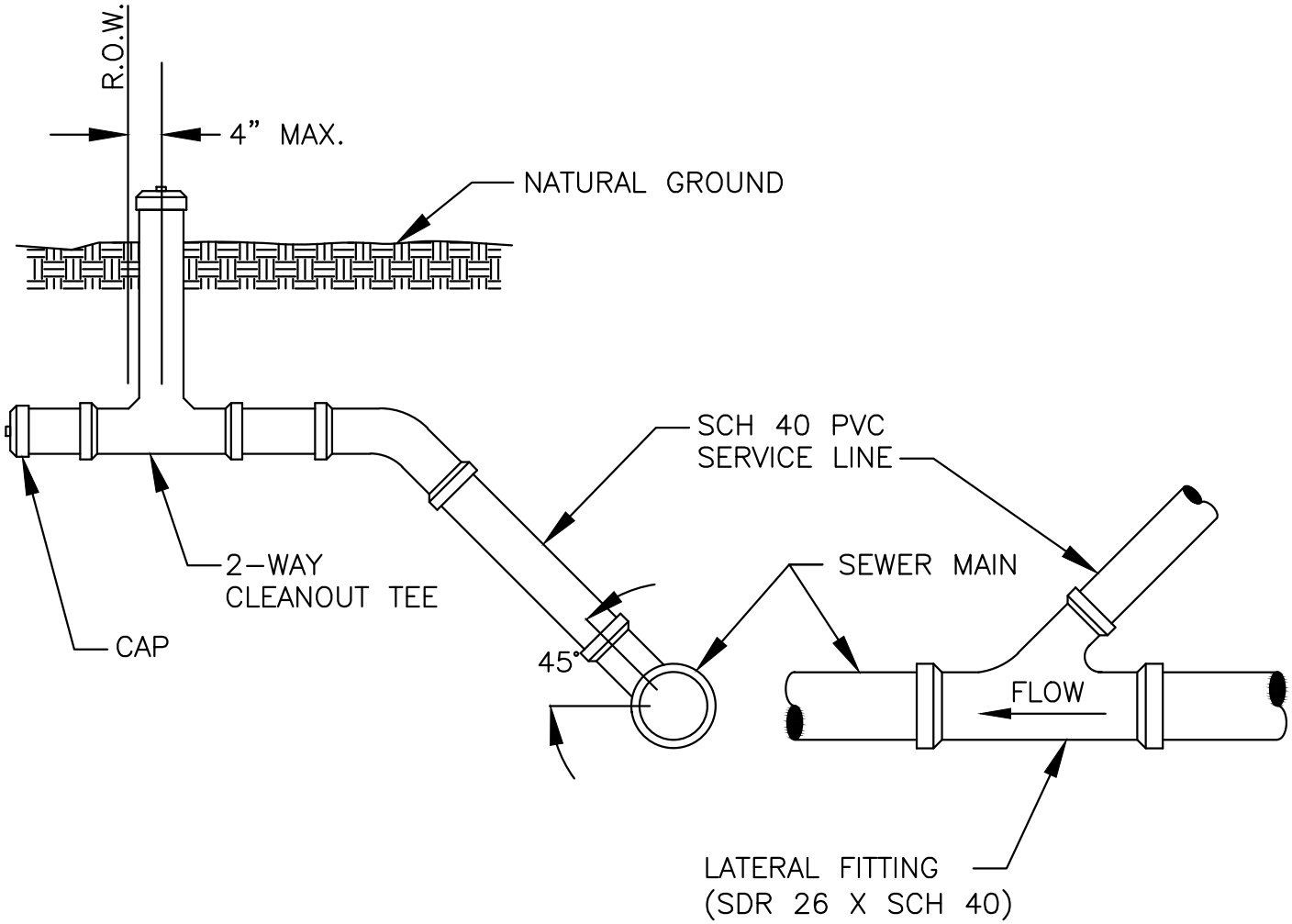


NOTES

1. INSTALL IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
2. BACKFILL SHALL BE SAND COMPACTED TO 95% STANDARD PROCTOR.
3. BASE SLAB SHALL BE 4 FT. LARGER THAN MANHOLE DIAMETER WHERE SOIL BEARING CAPACITY < 2000 PSF, WATER TABLE < 5 FT., OR DEPTH > 20 FT. SLAB SHALL BE DESIGNED TO PREVENT FLOTATION OF MANHOLE.
4. COAT ALL INTERNAL CEMENTITIOUS AND METALLIC SURFACES WITH COAL TAR EPOXY.
5. OUTLET STUBOUT SHALL BE SPIGOT END. INLET STUBOUTS SHALL BE BELL END EXCEPT FOR DROP CONNECTIONS.

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

WASTE WATER IMPROVEMENT DETAILS SANITARY SEWER MANHOLE	HCE PROJECT NO. P241-01	
STANDARD DESIGN MANUAL CITY OF MERCEDES	SHEET NO. WW - 3	01/2021

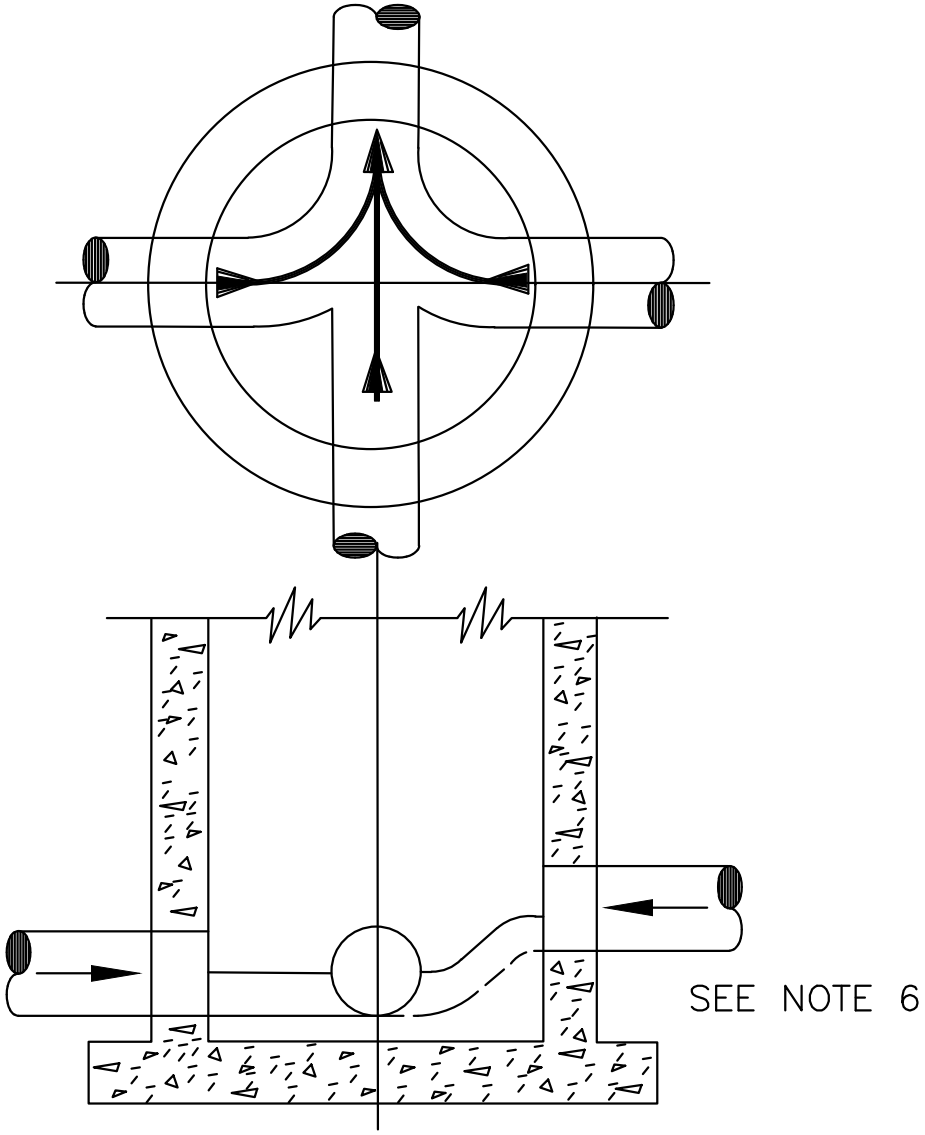


NOTES

1. INDIVIDUAL SERVICE LATERALS TO BE PROVIDED TO EACH LOT.
2. SINGLE FAMILY SERVICE SHALL BE 4" MIN. MULTI-FAMILY, COMMERCIAL, AND INDUSTRIAL SERVICE SHALL BE 6" OR GREATER AS REQUIRED.

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

WASTE WATER IMPROVEMENT DETAILS **TYPICAL SANITARY SEWER SERVICE CONNECTION**	HCE PROJECT NO. P241-01	
STANDARD DESIGN MANUAL **CITY OF MERCEDES**	SHEET NO. WW - 4	01/2021

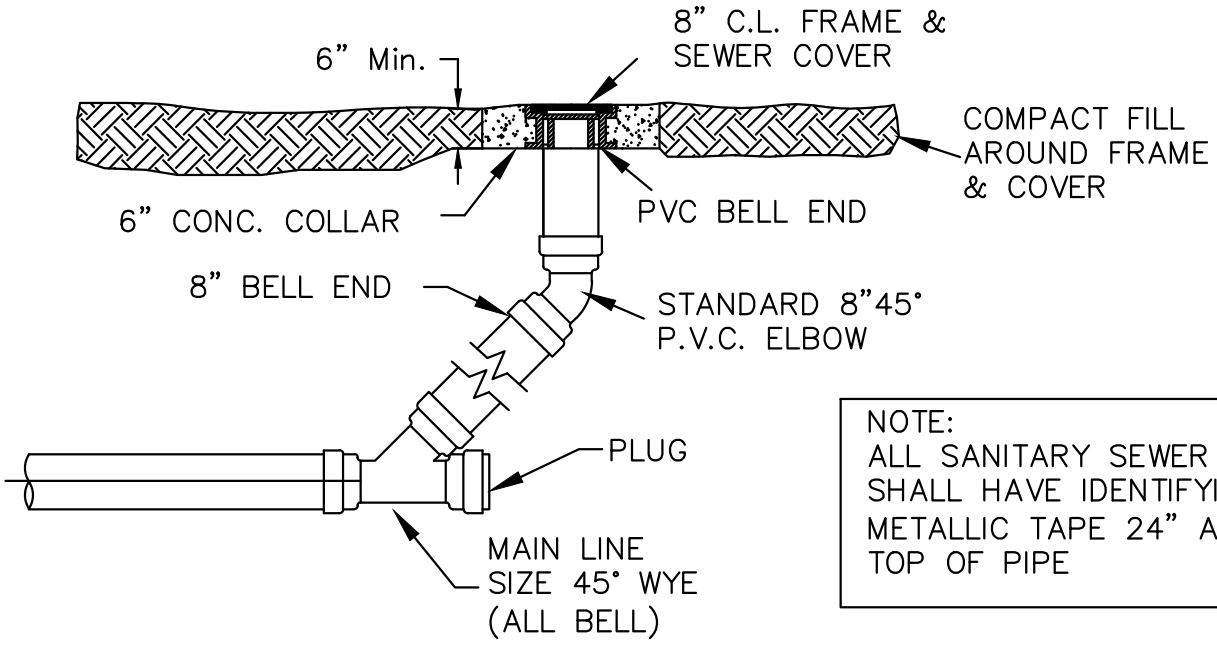


NOTES:

1. ALL INVERT CHANNELS ARE TO BE CONSTRUCTED FOR SMOOTH FLOW WITHOUT OBSTRUCTION.
2. PROPERLY SHAPED SPILLWAYS SHALL BE CONSTRUCTED BETWEEN PIPES WITH DIFFERENT INVERT ELEVATIONS TO PROVIDE FOR SMOOTH FLOWS.
3. SERVICE LATERALS SHALL NOT ENTER MANHOLES UNLESS SPECIFIED ON PLANS AND THEN MUST BE TREATED AS MAINS (ELEVATIONS SHOWN, PRECAST HOLE, FLOW CHANNEL)
4. APPROVED PRECAST CONCRETE OR FIELD INSTALLED CONCRETE FLOW CHANNEL IS REQUIRED.
5. SIDEWALLS OF FLOW CHANNEL SHALL BE AT LEAST HALF OF PIPE HEIGHT AT ALL POINTS.
6. NO INSIDE DROP LARGER THAN 6" SHALL BE ALLOWED WHEN THERE ARE MORE THAN 2 INVERTS OR WHEN THERE IS A CHANGE OF DIRECTION OF FLOW GREATER THAN 45 DEGREES.
7. THE FIELD APPLIED CORROSION BARRIER SYSTEM SHALL BE INSTALLED AFTER INVERT CHANNEL CONSTRUCTION, THE CORROSION BARRIER SHALL NOT BE APPLIED TO THE FLOW CHANNEL

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

WASTE WATER IMPROVEMENT DETAILS **SANITARY SEWER MANHOLE INVERT**	HCE PROJECT NO. P241-01	
STANDARD DESIGN MANUAL **CITY OF MERCEDES**	SHEET NO. WW - 5	01/2021



NOTE:
ALL SANITARY SEWER LINE SHALL HAVE IDENTIFYING METALLIC TAPE 24" ABOVE TOP OF PIPE

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

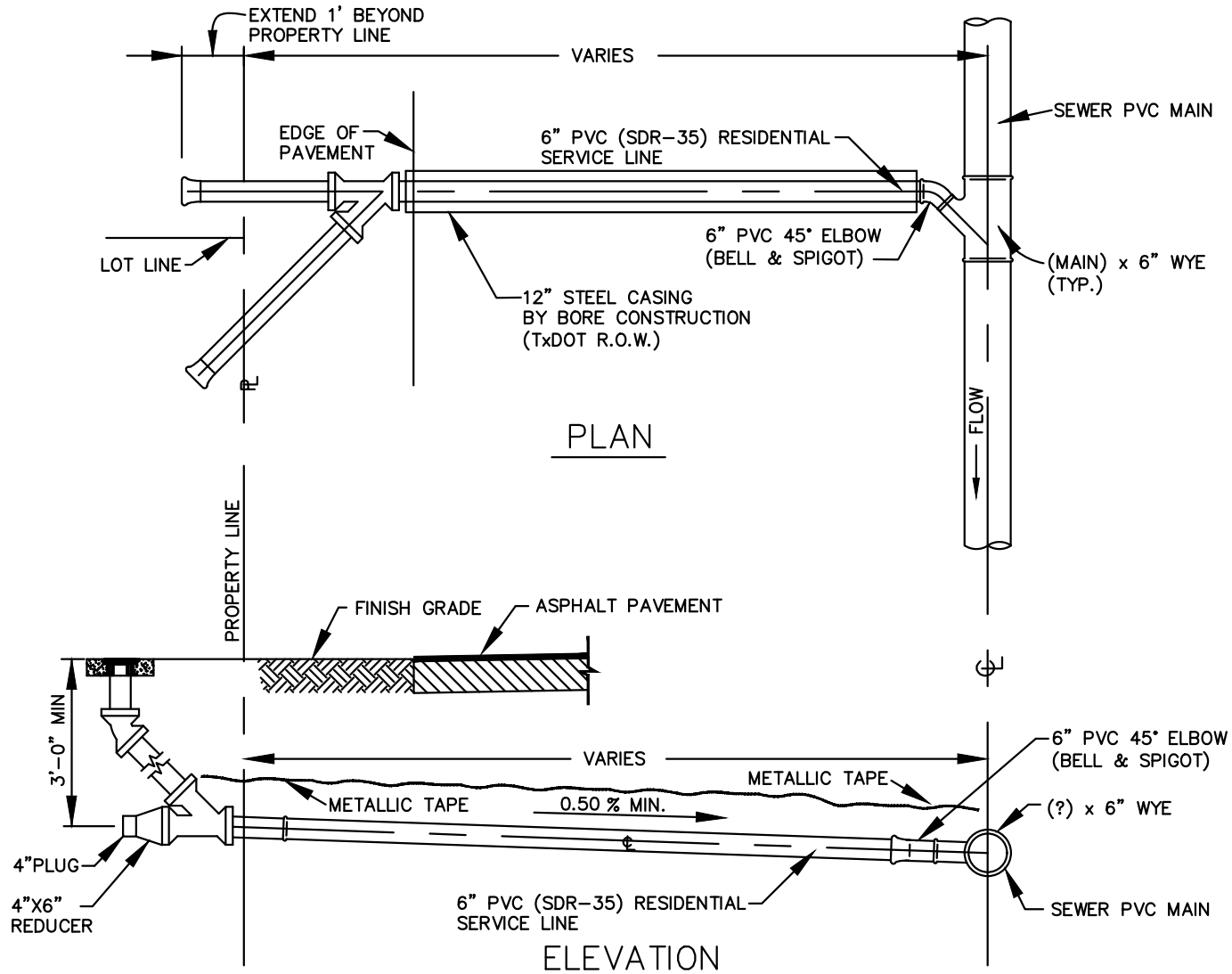
WASTE WATER IMPROVEMENT DETAILS
SANITARY SEWER CLEANOUT DETAIL

HCE PROJECT NO.
P241-01

STANDARD DESIGN MANUAL
CITY OF MERCEDES

SHEET NO.
WW - 6

01/2021



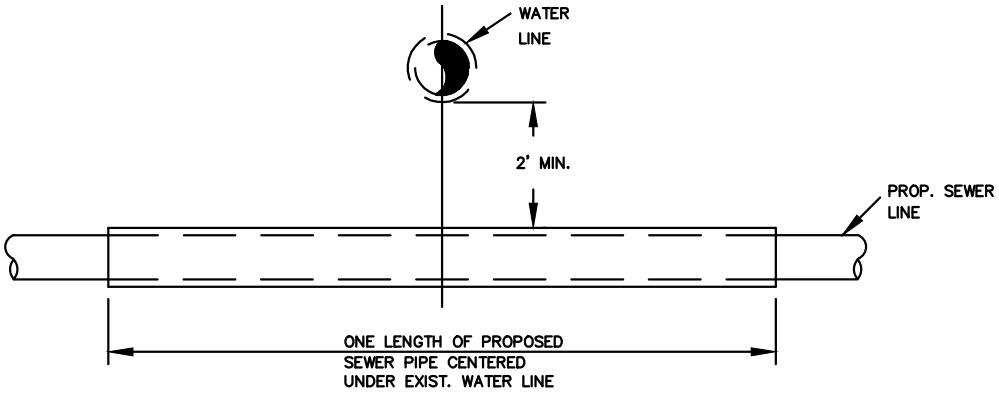
PIPE:
POLYVINYLCHLORIDE (PVC) SEWER PIPE SHALL CONFORM TO REQUIREMENTS OF ASTM D-3034-73-JOHNS-MANVILLE "RING TITE" PVC (SDR-35) SEWER PIPE.

NOTE:
1.) ALL SANITARY SEWER LINE SHALL HAVE IDENTIFYING METALLIC TAPE 24" ABOVE TOP OF

2.) CONTRACTOR SHALL NOT CONNECT PROPOSED SERVICE LINE TO AN EXISTING MAIN SANITARY SERVICE LINE UNTIL APPROVED BY ENGINEER.

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

WASTE WATER IMPROVEMENT DETAILS **TYPICAL SANITARY SEWER SERVICE INSTALLATION**	HCE PROJECT NO. P241-01	
STANDARD DESIGN MANUAL **CITY OF MERCEDES**	SHEET NO. WW - 7	01/2021



NOTES:

(1) WHEN NEW POTABLE WATER DISTRIBUTION LINES ARE CONSTRUCTED, THEY SHALL BE INSTALLED NO CLOSER THAN NINE FEET IN ALL DIRECTIONS TO WASTEWATER COLLECTION FACILITIES. ALL SEPARATION DISTANCES SHALL BE MEASURED FROM THE OUTSIDE SURFACE OF EACH OF THE RESPECTIVE PIECES.

(2) POTABLE WATER DISTRIBUTION LINES AND WASTEWATER MAINS OR LATERALS THAT FORM PARALLEL UTILITY LINES SHALL BE INSTALLED IN SEPARATE TRENCHES.

(3) NO PHYSICAL CONNECTION SHALL BE MADE BETWEEN A DRINKING WATER SUPPLY AND A SEWER LINE. ANY APPURTENANCE SHALL BE DESIGNED AND CONSTRUCTED SO AS TO PREVENT ANY POSSIBILITY OF SEWAGE ENTERING THE DRINKING WATER SYSTEM.

(4) WHERE THE NINE-FOOT SEPARATION DISTANCE CANNOT BE ACHIEVED, THE FOLLOWING CRITERIA SHALL APPLY.

(A) NEW WATERLINE INSTALLATION -- PARALLEL LINES.

(I) WHERE A NEW POTABLE WATERLINE PARALLELS AN EXISTING, NON-PRESSURE OR PRESSURE RATED WASTEWATER MAIN OR LATERAL AND THE LICENSED PROFESSIONAL ENGINEER LICENSED IN THE STATE OF TEXAS IS ABLE TO DETERMINE THAT THE EXISTING WASTEWATER MAIN OR LATERAL IS NOT LEAKING, THE NEW POTABLE WATERLINE SHALL BE LOCATED AT LEAST TWO FEET ABOVE THE EXISTING WASTEWATER MAIN OR LATERAL, MEASURED VERTICALLY, AND AT LEAST FOUR FEET AWAY, MEASURED HORIZONTALLY, FROM THE EXISTING WASTEWATER MAIN OR LATERAL. EVERY EFFORT SHALL BE EXERTED NOT TO DISTURB THE BEDDING AND BACKFILL OF THE EXISTING WASTEWATER MAIN OR LATERAL.

(II) WHERE A NEW POTABLE WATERLINE PARALLELS AN EXISTING PRESSURE-RATED WASTEWATER MAIN OR LATERAL AND IT CANNOT BE DETERMINED BY THE LICENSED PROFESSIONAL ENGINEER IF THE EXISTING LINE IS LEAKING, THE EXISTING WASTEWATER MAIN OR LATERAL SHALL BE REPLACED WITH AT LEAST 150 PSI PRESSURE-RATED PIPE. THE NEW POTABLE WATERLINE SHALL BE LOCATED AT LEAST TWO FEET ABOVE THE NEW WASTEWATER LINE, MEASURED VERTICALLY, AND AT LEAST FOUR FEET AWAY, MEASURED HORIZONTALLY, FROM THE REPLACED WASTEWATER MAIN OR LATERAL.

(III) WHERE A NEW POTABLE WATERLINE PARALLELS A NEW WASTEWATER MAIN, THE WASTEWATER MAIN OR LATERAL SHALL BE CONSTRUCTED OF AT LEAST 150 PSI PRESSURE-RATED PIPE. THE NEW POTABLE WATERLINE SHALL BE LOCATED AT LEAST TWO FEET ABOVE THE WASTEWATER MAIN OR LATERAL, MEASURED VERTICALLY, AND AT LEAST FOUR FEET AWAY, MEASURED HORIZONTALLY, FROM THE WASTEWATER MAIN OR LATERAL.

(B) NEW WATERLINE INSTALLATION -- CROSSING LINES.

(I) WHERE A NEW POTABLE WATERLINE CROSSES ABOVE A WASTEWATER MAIN OR LATERAL, THE SEGMENT OF THE WATERLINE PIPE SHALL BE CENTERED OVER AND MUST BE PERPENDICULAR TO THE WASTEWATER MAIN OR LATERAL SUCH THAT THE JOINTS OF THE WATERLINE PIPE ARE EQUIDISTANT AND AT LEAST NINE FEET HORIZONTALLY FROM THE CENTERLINE OF THE WASTEWATER MAIN OR LATERAL. WHEN CROSSING AN EXISTING WASTEWATER MAIN OR LATERAL AND IT IS DISTURBED OR SHOWS SIGNS OF LEAKING, THE WASTEWATER MAIN OR LATERAL SHALL BE REPLACED FOR AT LEAST NINE FEET IN BOTH DIRECTIONS (18 FEET TOTAL) WITH AT LEAST 150 PSI PRESSURE-RATED PIPE EMBEDDED IN CEMENT STABILIZED SAND (SEE CLAUSE (V) OF THIS SUBPARAGRAPH) FOR THE TOTAL LENGTH OF ONE PIPE SEGMENT PLUS 12 INCHES BEYOND THE JOINT ON EACH END.

(I) THE POTABLE WATERLINE SHALL BE AT LEAST TWO FEET ABOVE AN EXISTING, NON-PRESSURE RATED WASTEWATER MAIN OR LATERAL.

(II) THE POTABLE WATERLINE SHALL BE AT LEAST SIX INCHES ABOVE AN EXISTING, PRESSURE-RATED WASTEWATER MAIN OR LATERAL.

(II) WHERE A NEW POTABLE WATERLINE CROSSES A NEW, NON-PRESSURE RATED WASTEWATER MAIN OR LATERAL, THE SEGMENT OF THE WATERLINE PIPE SHALL BE CENTERED OVER AND SHALL BE PERPENDICULAR TO THE WASTEWATER MAIN OR LATERAL SUCH THAT THE JOINTS OF THE WATERLINE PIPE ARE EQUIDISTANT AND AT LEAST NINE FEET HORIZONTALLY FROM THE CENTERLINE OF THE WASTEWATER MAIN OR LATERAL. THE POTABLE WATERLINE SHALL BE AT LEAST TWO FEET ABOVE THE WASTEWATER MAIN OR LATERAL. WHENEVER POSSIBLE, THE CROSSING SHALL BE CENTERED BETWEEN THE JOINTS OF THE WASTEWATER MAIN OR LATERAL. THE WASTEWATER PIPE SHALL HAVE A MINIMUM PIPE STIFFNESS OF 115 PSI AT 5.0% DEFLECTION. THE WASTEWATER MAIN OR LATERAL SHALL BE EMBEDDED IN CEMENT STABILIZED SAND (SEE CLAUSE (V) OF THIS SUBPARAGRAPH) FOR THE TOTAL LENGTH OF ONE PIPE SEGMENT PLUS 12 INCHES BEYOND THE JOINT ON EACH END. THE MATERIALS AND METHOD OF INSTALLATION SHALL CONFORM TO ONE OF THE FOLLOWING OPTIONS:

(I) WITHIN NINE FEET HORIZONTALLY OF EITHER SIDE OF THE WATERLINE, THE WASTEWATER PIPE AND JOINTS SHALL BE CONSTRUCTED WITH PIPE MATERIAL HAVING A MINIMUM PRESSURE RATING OF AT LEAST 150 PSI. AN ABSOLUTE MINIMUM VERTICAL SEPARATION DISTANCE OF TWO FEET SHALL BE PROVIDED. THE WASTEWATER MAIN OR LATERAL SHALL BE LOCATED BELOW THE WATERLINE.

(II) ALL SECTIONS OF WASTEWATER MAIN OR LATERAL WITHIN NINE FEET HORIZONTALLY OF THE WATERLINE SHALL BE ENCASED IN AN 18-FOOT (OR LONGER) SECTION OF PIPE. FLEXIBLE ENCASING PIPE SHALL HAVE A MINIMUM PIPE STIFFNESS OF 115 PSI AT 5.0% DEFLECTION. THE ENCASING PIPE SHALL BE CENTERED ON THE WATERLINE AND SHALL BE AT LEAST TWO NOMINAL PIPE DIAMETERS LARGER THAN THE WASTEWATER MAIN OR LATERAL. THE SPACE AROUND THE CARRIER PIPE SHALL BE SUPPORTED AT FIVE-FOOT (OR LESS) INTERVALS WITH SPACERS OR BE FILLED TO THE SPRINGLINE WITH WASHED SAND. EACH END OF THE CASING SHALL BE SEALED WITH WATERTIGHT NON-SHRINK CEMENT GROUT OR A MANUFACTURED WATERTIGHT SEAL. AN ABSOLUTE MINIMUM SEPARATION DISTANCE OF SIX INCHES BETWEEN THE ENCASEMENT PIPE AND THE WATERLINE SHALL BE PROVIDED. THE WASTEWATER LINE SHALL BE LOCATED BELOW THE WATERLINE.

(III) WHEN A NEW WATERLINE CROSSES UNDER A WASTEWATER MAIN OR LATERAL, THE WATERLINE SHALL BE ENCASED AS DESCRIBED FOR WASTEWATER MAINS OR LATERALS IN CLAUSE (II) OF THIS SUBPARAGRAPH OR CONSTRUCTED OF DUCTILE IRON OR STEEL PIPE WITH MECHANICAL OR WELDED JOINTS AS APPROPRIATE. AN ABSOLUTE MINIMUM SEPARATION DISTANCE OF ONE FOOT BETWEEN THE WATERLINE AND THE WASTEWATER MAIN OR LATERAL SHALL BE PROVIDED. WHEN A NEW WATERLINE CROSSES UNDER A WASTEWATER MAIN, THE PROCEDURES IN §217.53(D) OF THIS TITLE (RELATING TO PIPE DESIGN) MUST BE FOLLOWED.

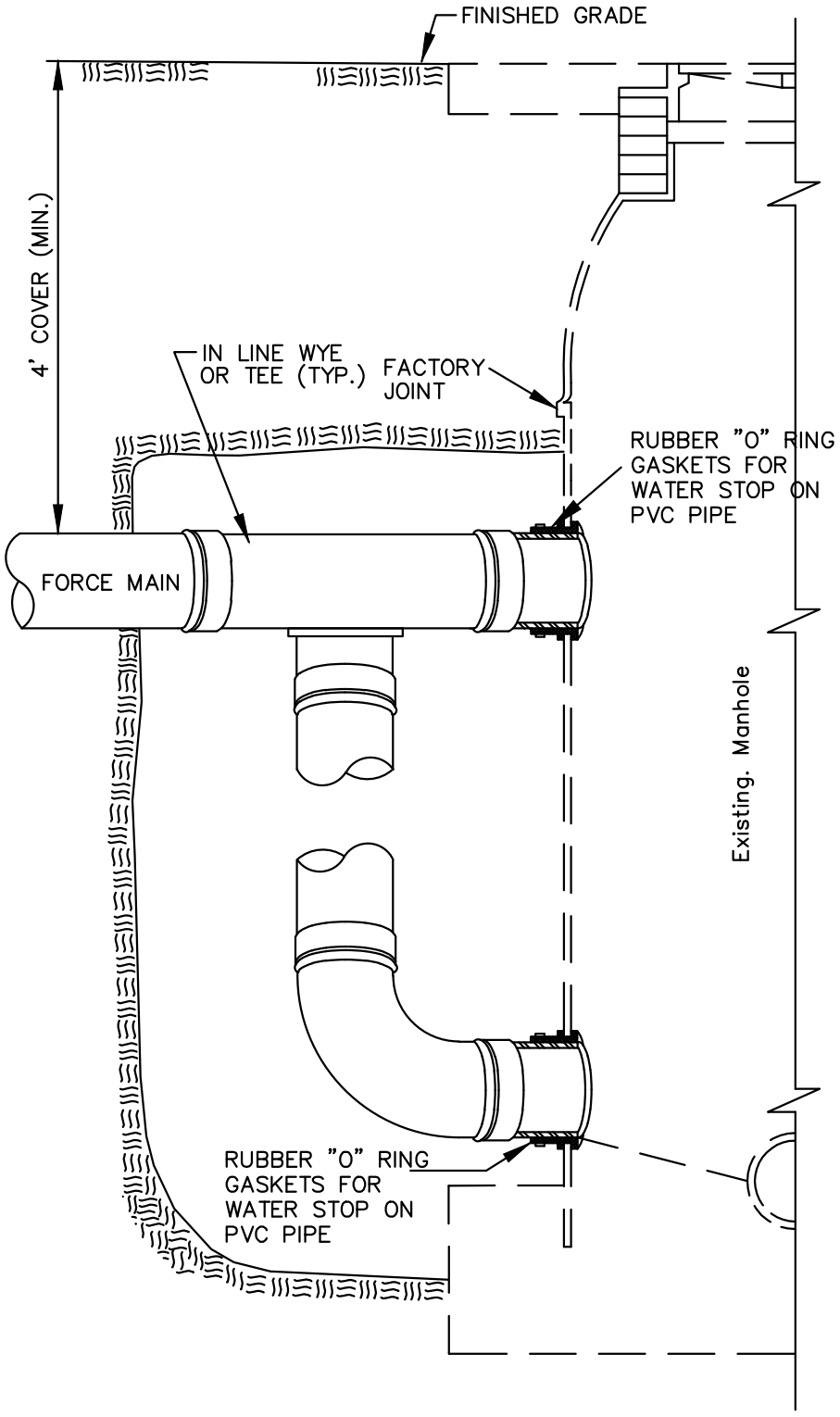
(Iv) WHERE A NEW POTABLE WATERLINE CROSSES A NEW, PRESSURE RATED WASTEWATER MAIN OR LATERAL, ONE SEGMENT OF THE WATERLINE PIPE SHALL BE CENTERED OVER AND SHALL BE PERPENDICULAR TO THE WASTEWATER LINE SUCH THAT THE JOINTS OF THE WATERLINE PIPE ARE EQUIDISTANT AND AT LEAST NINE FEET HORIZONTALLY FROM THE CENTER LINE OF THE WASTEWATER MAIN OR LATERAL. THE POTABLE WATERLINE SHALL BE AT LEAST SIX INCHES ABOVE THE WASTEWATER MAIN OR LATERAL. WHENEVER POSSIBLE, THE CROSSING SHALL BE CENTERED BETWEEN THE JOINTS OF THE WASTEWATER MAIN OR LATERAL. THE WASTEWATER PIPE SHALL HAVE A MINIMUM PRESSURE RATING OF AT LEAST 150 PSI. THE WASTEWATER MAIN OR LATERAL SHALL BE EMBEDDED IN CEMENT STABILIZED SAND (SEE CLAUSE (V) OF THIS SUBPARAGRAPH) FOR THE TOTAL LENGTH OF ONE PIPE SEGMENT PLUS 12 INCHES BEYOND THE JOINT ON EACH END.

(v) WHERE CEMENT STABILIZED SAND BEDDING IS REQUIRED, THE CEMENT STABILIZED SAND SHALL HAVE A MINIMUM OF 10% CEMENT PER CUBIC YARD OF CEMENT STABILIZED SAND MIXTURE, BASED ON LOOSE DRY WEIGHT VOLUME (AT LEAST 2.5 BAGS OF CEMENT PER CUBIC YARD OF MIXTURE). THE CEMENT STABILIZED SAND BEDDING SHALL BE A MINIMUM OF SIX INCHES ABOVE AND FOUR INCHES BELOW THE WASTEWATER MAIN OR LATERAL. THE USE OF BROWN COLORING IN CEMENT STABILIZED SAND FOR WASTEWATER MAIN OR LATERAL BEDDING IS RECOMMENDED FOR THE IDENTIFICATION OF PRESSURE RATED WASTEWATER MAINS DURING FUTURE CONSTRUCTION.

(5) WATERLINE AND WASTEWATER MAIN MANHOLE OR LATERAL MANHOLE OR CLEANOUT SEPARATION. THE SEPARATION DISTANCE FROM A POTABLE WATERLINE TO A WASTEWATER MAIN MANHOLE OR LATERAL MANHOLE OR CLEANOUT SHALL BE A MINIMUM OF NINE FEET. WHERE THE NINE-FOOT SEPARATION DISTANCE CANNOT BE ACHIEVED, THE POTABLE WATERLINE SHALL BE ENCASED IN A JOINT OF AT LEAST 150 PSI PRESSURE CLASS PIPE AT LEAST 18 FEET LONG AND TWO NOMINAL SIZES LARGER THAN THE NEW CONVEYANCE. THE SPACE AROUND THE CARRIER PIPE SHALL BE SUPPORTED AT FIVE-FOOT INTERVALS WITH SPACERS OR BE FILLED TO THE SPRINGLINE WITH WASHED SAND. THE ENCASEMENT PIPE SHALL BE CENTERED ON THE CROSSING AND BOTH ENDS SEALED WITH CEMENT GROUT OR MANUFACTURED SEALANT.

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

WASTE WATER IMPROVEMENT DETAILS SANITARY SEWER LINE CROSSING	HCE PROJECT NO. P241-01	
STANDARD DESIGN MANUAL CITY OF MERCEDES	SHEET NO. WW - 8	01/2021



city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

WASTE WATER IMPROVEMENT DETAILS
TYPICAL FORCE MAIN TIE IN DETAIL

HCE PROJECT NO.
P241-01

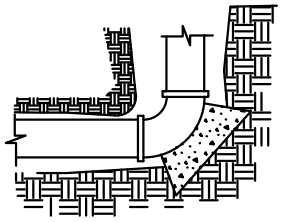
STANDARD DESIGN MANUAL
CITY OF MERCEDES

SHEET NO.
WW - 9

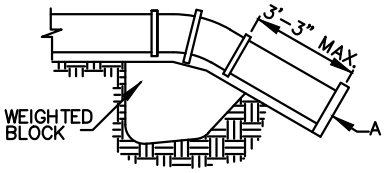
01/2021

CONSTRUCTION NOTES

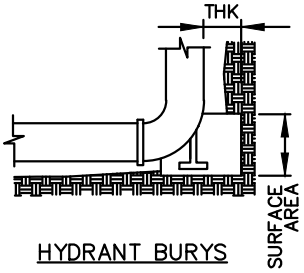
A. SIMPLEX COUPLING
B. ANCHOR ROD



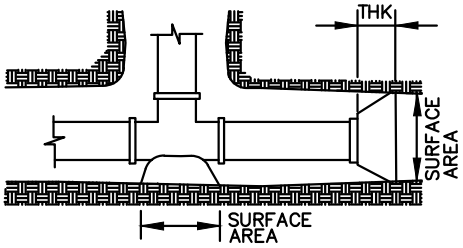
HORIZONTAL BENDS



VERTICAL BENDS



HYDRANT BURYS



TEES & DEAD ENDS

GENERAL NOTES

1. SEE THRUST BLOCK SIZE CHART FOR PROPER THICKNESS AND SURFACE AREAS. (SHEET 2 OF 2)
2. THE LOCATION OF THRUST BLOCKS DEPENDS UPON THE DIRECTION OF THRUST AND TYPE FITTINGS.

THRUST BLOCK SIZE

DIAMETER OF PIPE INCHES	HORIZONTAL BEND		WEIGHT AT VERTICAL BENDS–LBS.
	SURFACE AREA SQ. FEET	THICKNESS INCHES	
22–1/2° BENDS			
6 OR LESS	2	8	1700
8	3	8	3,000
10	3.5	12	4,500
12	4	14	6,600
14	5	18	9,000
16	6	18	11,800
45° BENDS			
6 OR LESS	4	12	3,200
8	5	14	5,800
10	6	18	9,000
12	7	18	13,000
14	8	24	17,000
16	11.5	24	23,200
90° BENDS			
6 OR LESS	6	12	6,000
8	8	15	10,700
10	10	18	16,700
12	12	18	24,000
14	18	24	32,600
16	21	24	42,700
TEES & DEAD ENDS			
6 OR LESS	3	12	
8	4	15	
10	6	18	
12	8.5	18	
14	11.5	24	
16	15	24	

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

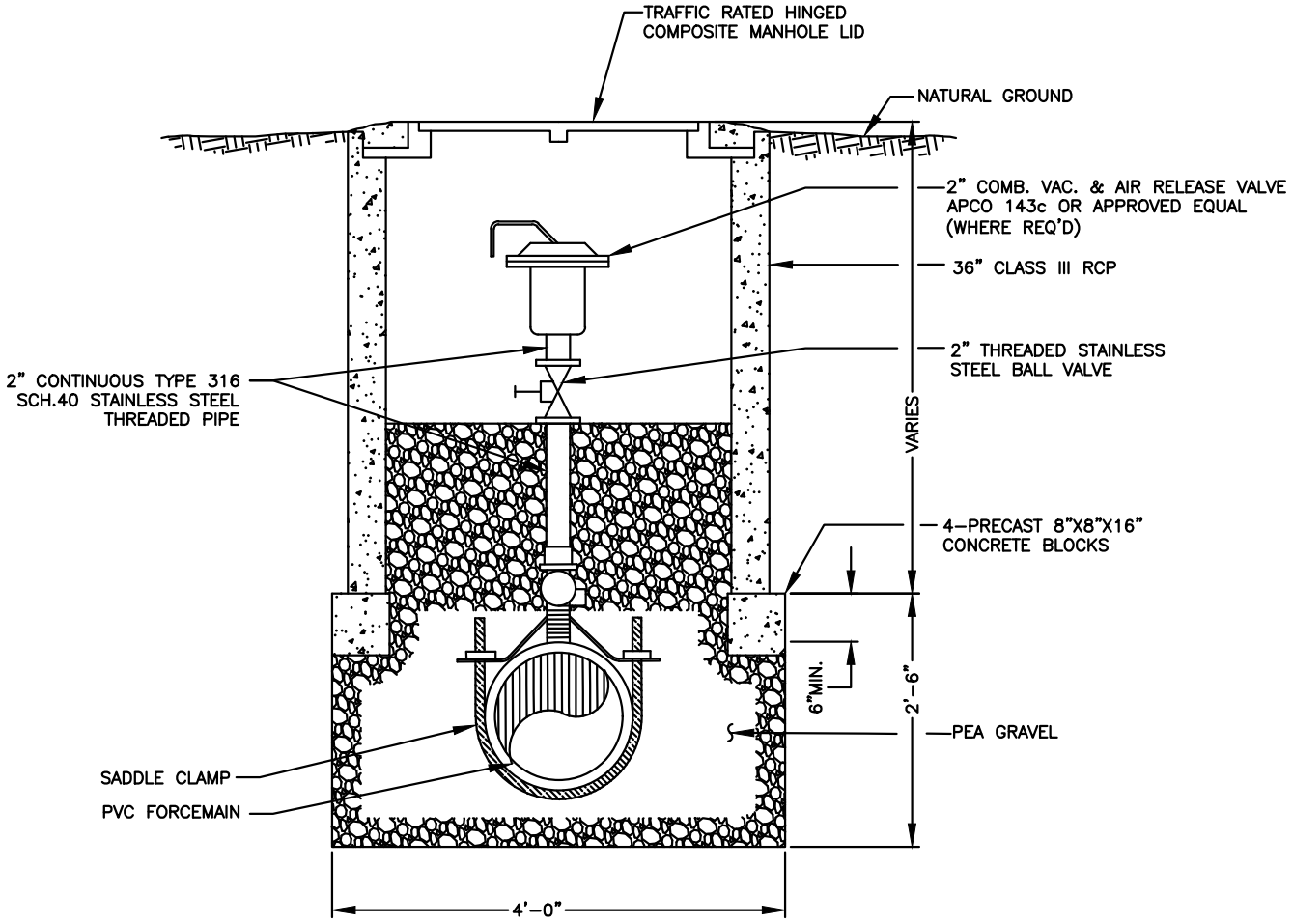
WASTE WATER IMPROVEMENT DETAILS
CONCRETE THRUST BLOCK (FORCE MAIN)

HCE PROJECT NO.
P241-01

STANDARD DESIGN MANUAL
CITY OF MERCEDES

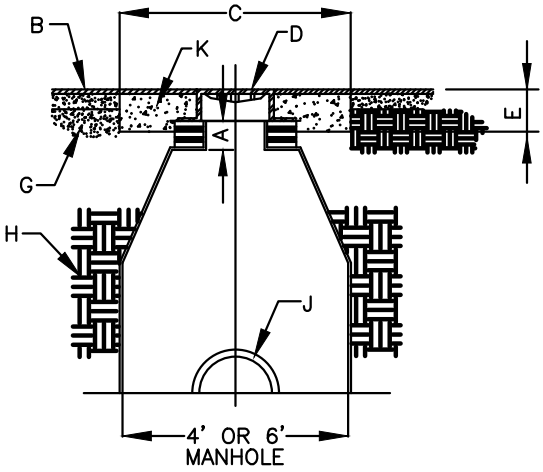
SHEET NO.
WW - 10

01/2021

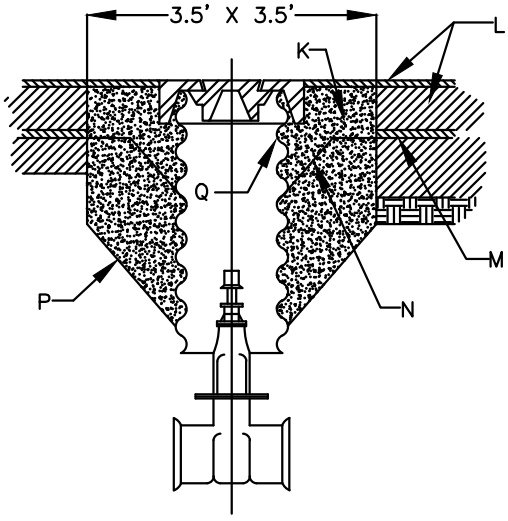


city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

WASTE WATER IMPROVEMENT DETAILS **SEWER AIR RELEASE VALVE W/ MANHOLE**	HCE PROJECT NO. P241-01	
STANDARD DESIGN MANUAL **CITY OF MERCEDES**	SHEET NO. WW - 11	01/2021



MANHOLE REGRADING DETAIL



VALVE BOX REGRADING DETAIL

GENERAL NOTES:

1. ADJUSTMENT TO GRADE OF FRAME AND COVER SHALL BE MADE BY VARYING NUMBER OF HDPE GRADE RINGS DIRECTLY UNDER FRAME USING A MINIMUM OF ONE RING UP TO A MAXIMUM OF 12 INCHES TOTAL. IF ADJUSTMENT REQUIRES MORE THAN 12 INCHES, THE CONE SHALL BE REMOVED, BARREL HEIGHT ADJUSTED AND CONE REPLACED.
2. FOR SHALLOW ADJUSTMENTS, WATER VALVE EXTENSION COLLAR & INSERT MAY BE USED.
3. ALL SEATING SURFACES BETWEEN INDIVIDUAL GRADE RINGS, FRAME, AND MANHOLE BRICK LEDGE SHALL BE SEALED USING 1/2" BUTYL SEALANT.

CONSTRUCTION NOTES:

A. HDPE GRADE RINGS, ONE RING MINIMUM, 12" MAX. TOTAL
B. OVERLAY
C. USE A REINFORCED CONCRETE PAD 5' X 5' X 8" IN ALL PAVED AREAS
D. MANHOLE FRAME & COVER
E. STANDARD PAVING SECTION
G. FLEX BASE
H. SUBGRADE
J. SEWER LINE
K. NEW PORTLAND CEMENT CONCRETE.
L. NEW PAVING MATERIAL
M. EXISTING PAVEMENT
N. CUT LINE
P. EXISTING CONCRETE
Q. VALVE BOX EXTENSION

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

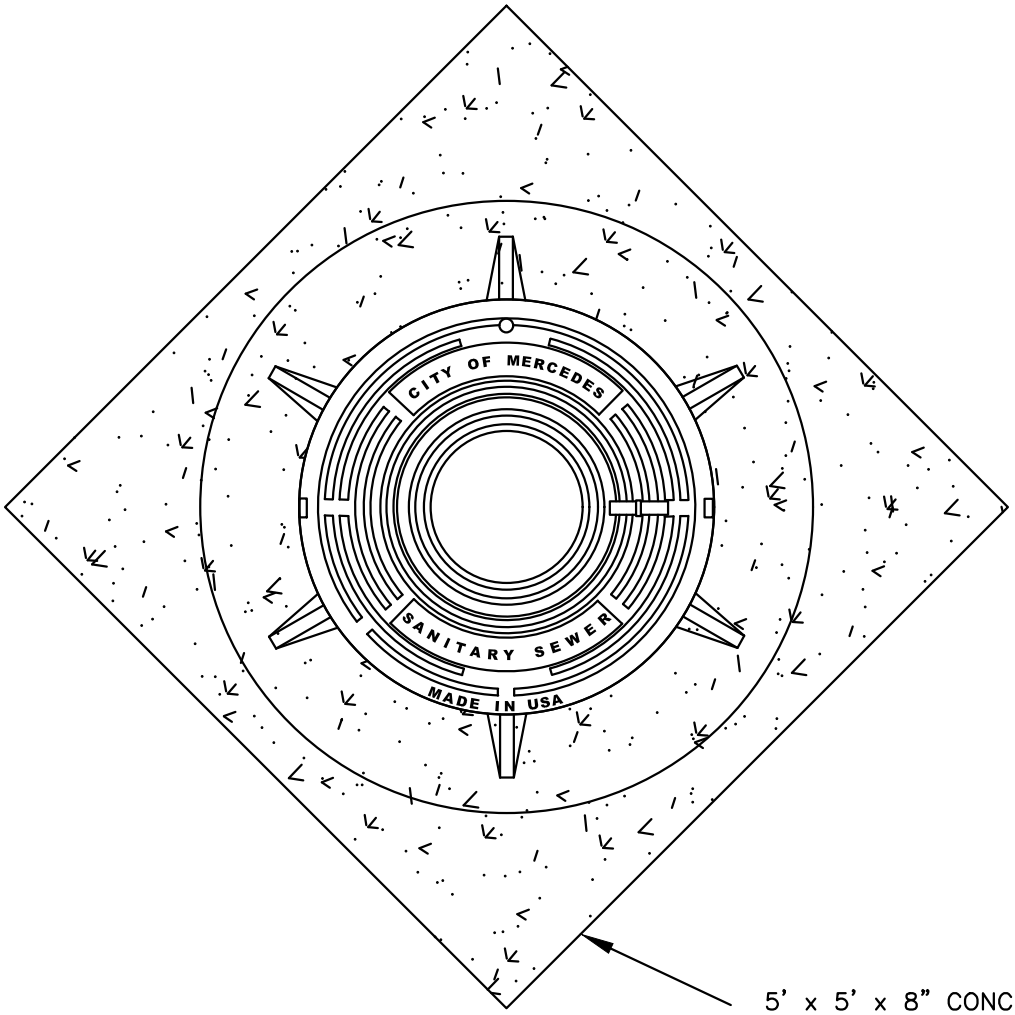
WASTE WATER IMPROVEMENT DETAILS
MANHOLE AND VALVE BOX REGRADING

HCE PROJECT NO.
P241-01

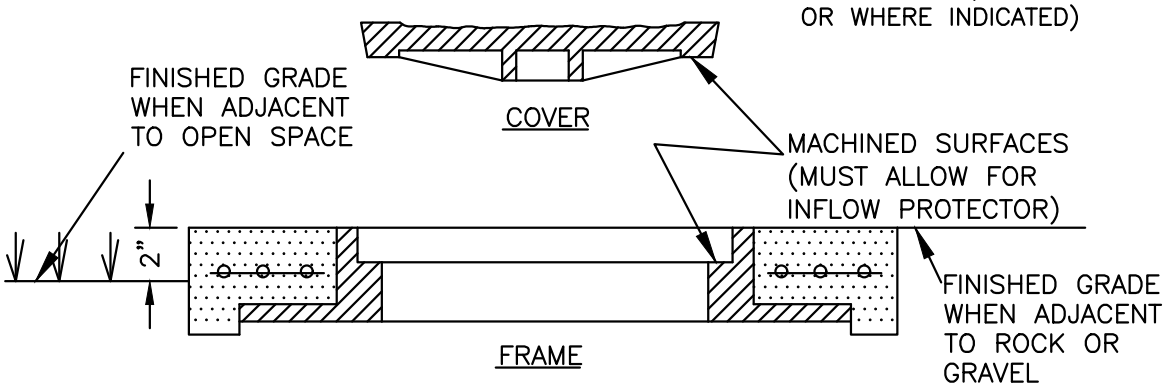
STANDARD DESIGN MANUAL
CITY OF MERCEDES

SHEET NO.
WW - 12

01/2021



5' x 5' x 8" CONCRETE TRAFFIC PAD REINFORCED WITH No.4 REBAR (IN PAVED AREAS OR WHERE INDICATED)

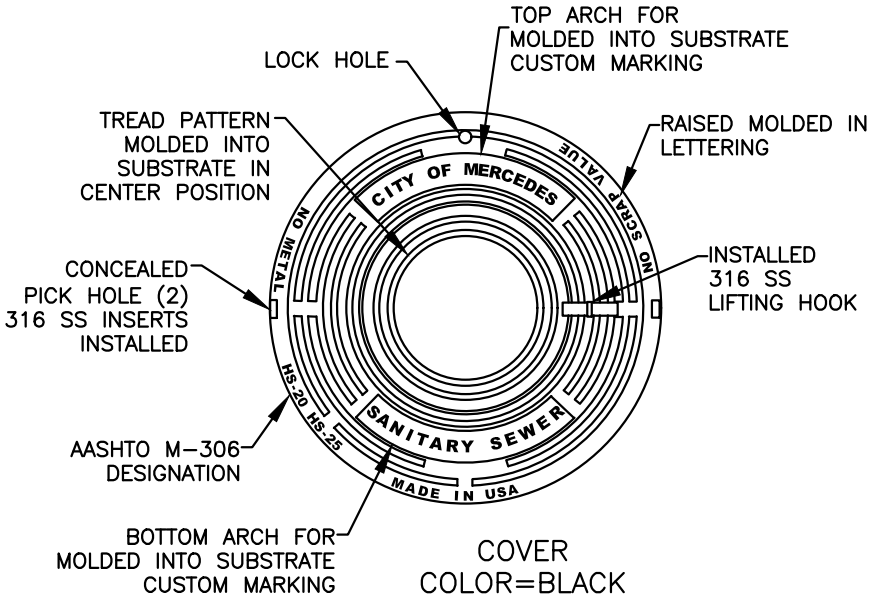


NOTES:

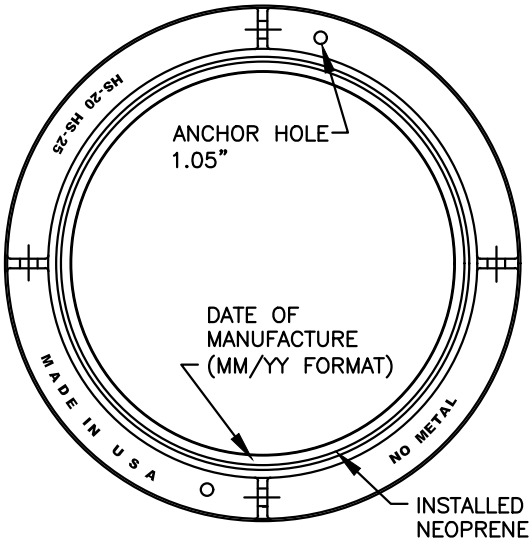
1. STANDARD FRAME AND COVER SIZE SHALL BE USED.
2. APPROVED HDPE ADJUSTING RINGS MAY BE USED TO ELEVATE EXISTING MANHOLE COVERS TO RESURFACED GRADE (MAX. 4" HEIGHT).
3. COVER SHALL FIT FLUSH WITH THE FRAME WITH THE INFLOW PROTECTOR INSTALLED.

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

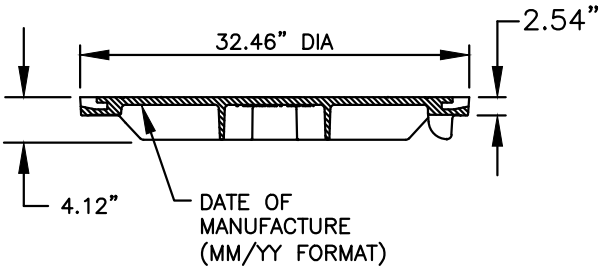
WASTE WATER IMPROVEMENT DETAILS CONCRETE COLLAR FOR SANITARY SEWER MANHOLES		HCE PROJECT NO. P241-01
STANDARD DESIGN MANUAL CITY OF MERCEDES	SHEET NO. WW - 13	01/2021



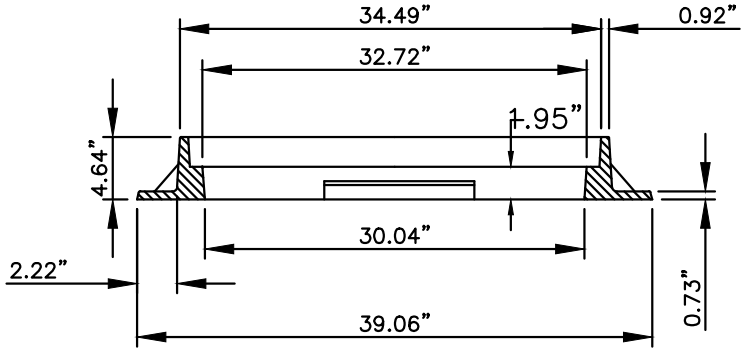
COVER
COLOR=BLACK



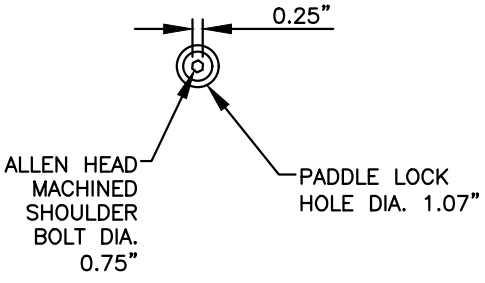
FRAME
COLOR=BLACK

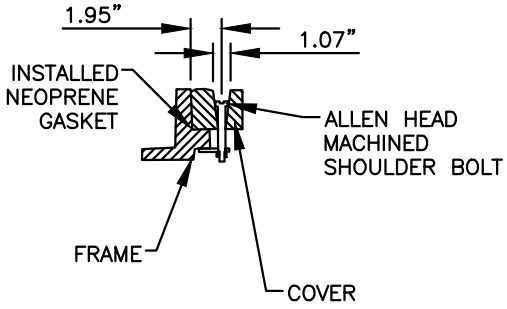


SECTION VIEW



FRAME SECTION



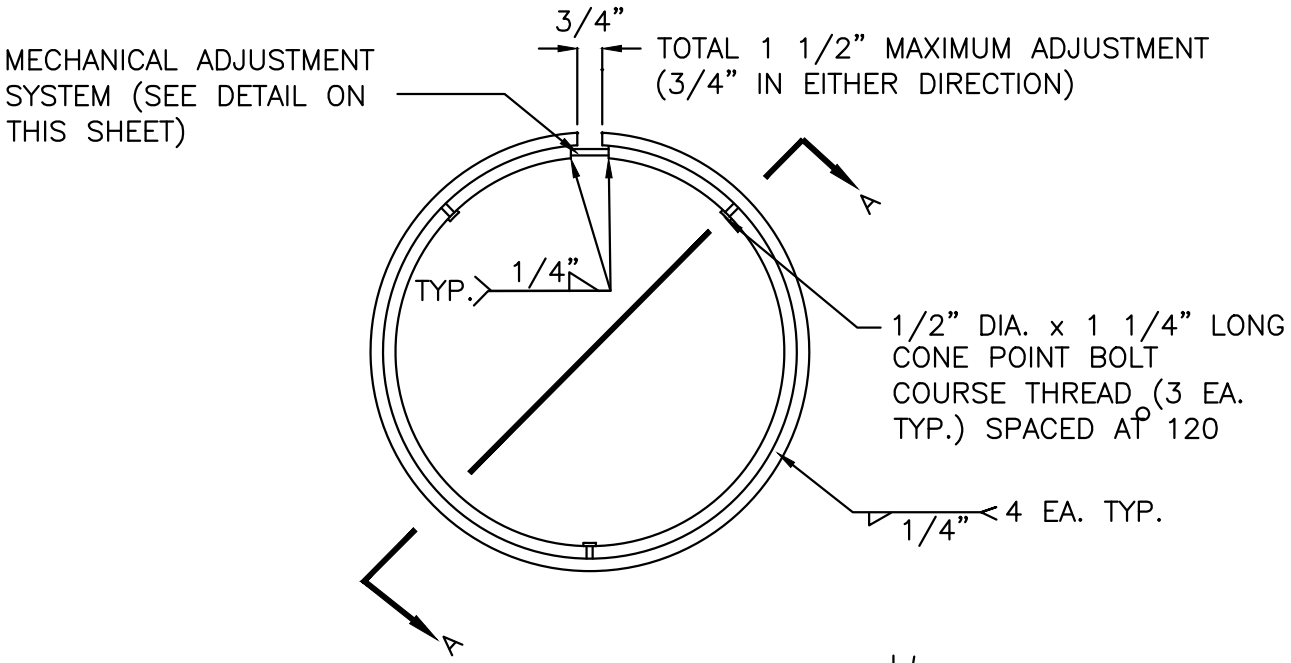


NOTES:

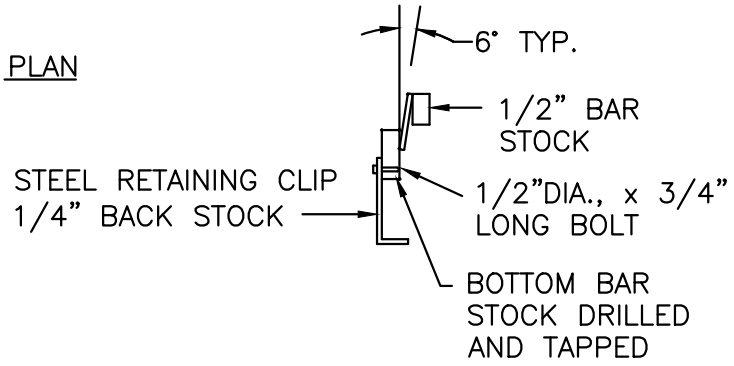
1. ALL HARDWARE IS 316 STAINLESS STEEL.
2. DETECTABLE BY STANDARD METAL DETECTORS.
3. COMPRESSION MOLDED THERMOSET COMPOSITE – NO METAL REINFORCEMENT.
4. PASSED M306 H20/H25 PROOF LOAD.

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

WASTE WATER IMPROVEMENT DETAILS SANITARY SEWER MAHNOLE COMPOSITE MATERIAL STANDARD RING & COVER		HCE PROJECT NO. P241-01
STANDARD DESIGN MANUAL CITY OF MERCEDES	SHEET NO. WW - 14	01/2021

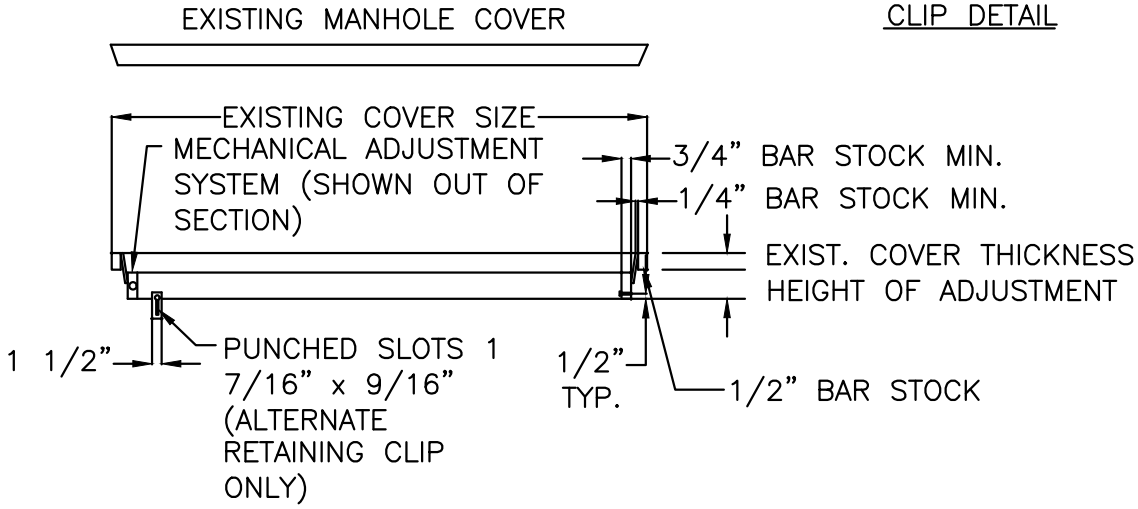


PLAN



ALTERNATE RETAINING

CLIP DETAIL



SECTION A–A

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

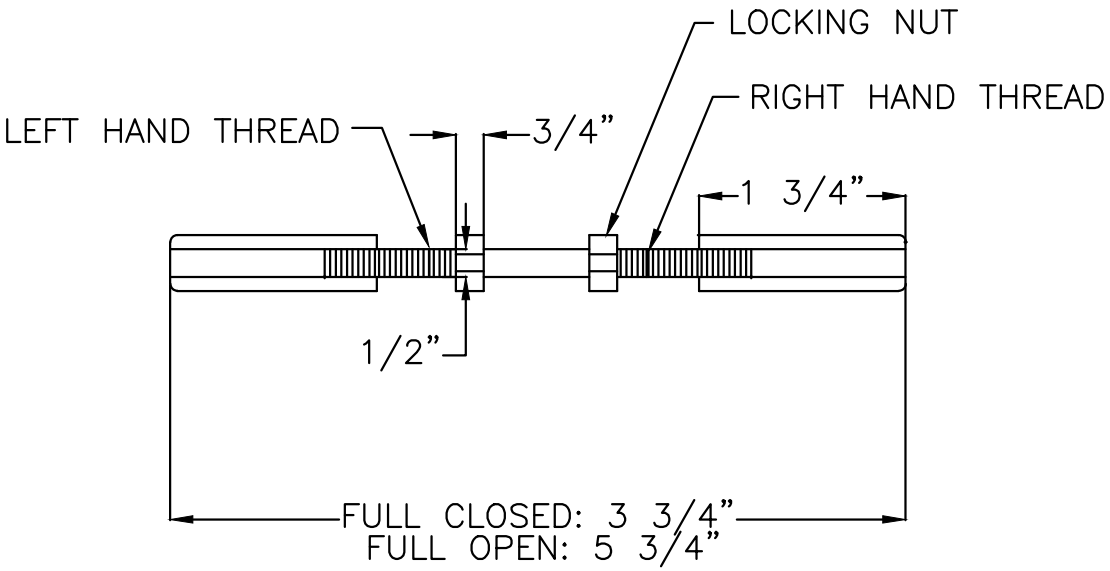
WASTE WATER IMPROVEMENT DETAILS
MAHNOLE COVER ADJUSTMENT DETAIL
1 OF 2

HCE PROJECT NO.
P241-01

STANDARD DESIGN MANUAL
CITY OF MERCEDES

SHEET NO.
WW - 15

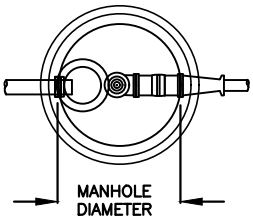
01/2021



MECHANICAL ADJUSTMENT SYSTEM

NOTES:

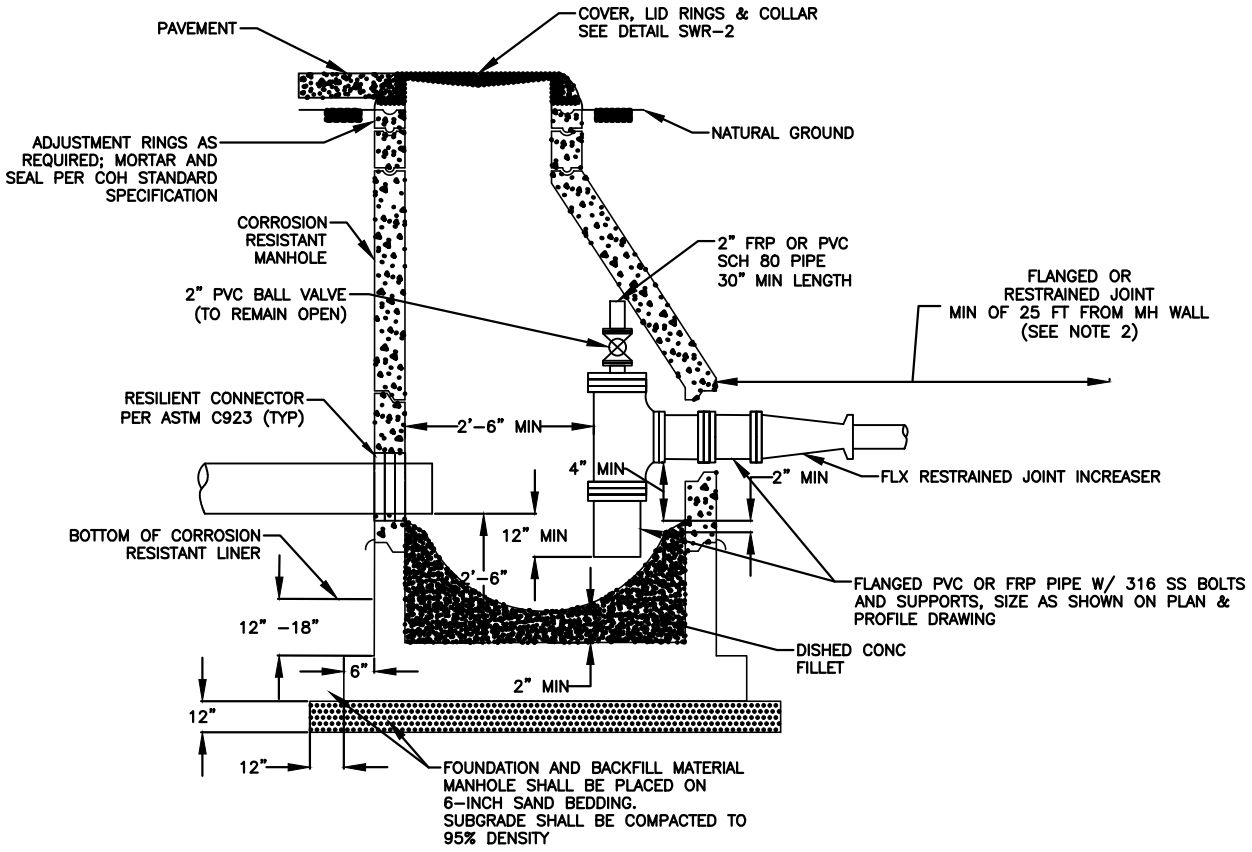
1. ALL COMPONENTS ARE MANUFACTURED FROM U.S. MADE CARBON STEEL MEETING OR EXCEEDING THE MINIMUM REQUIREMENTS OF A.S.T.M. A–36.
2. 4 INCH WELDS ON 12 INCH CENTERS ARE MADE BETWEEN THE TOP AND BOTTOM LIDS FOR SUPERIOR STRENGTH AND DURABILITY.
3. MECHANICAL ADJUSTMENT STUD IS MADE FROM TYPE 304 STAINLESS STEEL.
4. EACH ADJUSTMENT RING IS CUSTOM FABRICATED FROM MEASUREMENTS PROVIDED WITH EACH ORDER, REQUIRED MEASUREMENTS INCLUDE:
   A. EXISTING MANHOLE COVER DIAMETER AND THICKNESS.
   B. REQUIRED HEIGHT OF ADJUSTMENTS FROM TOP OF EXISTING LID TO FINISHED ELEVATION. MAXIMUM RECOMMENDED HEIGHT OF ADJUSTMENTS IS 6 INCHES. HEIGHT ADJUSTMENTS ARE AVAILABLE IN 1/4" INCREMENTS.
   C. REQUIRED LENGTH AND TYPE OF RETAINER CLIP FOR ALTERNATE RETAINING CLIP ONLY.
   D. WIDTH OF EXISTING CASTING BEARING SURFACE.
5.. DURING INSTALLATION, CHECK FOR FULL BEARING OF LOWER FRAME SECTION ON EXISTING CASTING. OVER TIGHTENING ADJUSTMENT DEVICE MAY CAUSE UPLIFTING OF RISER.
6. DIMENSIONS MAY VARY TO MEET EXISTING FIELD CONNECTIONS. ANY CHANGES IN DIMENSIONS SHOULD BE APPROVED BY PROJECT OWNER.
7. AVAILABLE OPTIONS IN LIEU OF CONE POINT BOLTS FOR ATTACHING RETAINING CLIP INCLUDE DRILL AND TAPPED BAR STOCK WITH 1/2" AND 3/4" LONG BOLT.



PLAN VIEW
NOT TO SCALE

TABLE

MANHOLE DIAMETER	4'–0"	5'0"	6'–0"
MAX DISCHARGE SIZE	6"	14"	24"



ELEVATION VIEW
NOT TO SCALE

NOTES:

1. SEAT MANHOLE FRAME IN SEALANT PER STANDARD SPECIFICATION.
2. IF FORCE MAIN HAS BENDS WITHIN 25 FT OF MANHOLE, EXTEND RESTRAINED JOINTS TO 25 FT MINIMUM UPSTREAM OF BEND.
3. OMIT CEMENT MORTAR WHEN MANHOLE IS LOCATED IN PAVED AREA.
4. MINIMUM REINFORCING IN BASE SHALL BE 5 @ 8 E W.
5. PRECAST RINGS SHALL BE PROVIDED FOR A COMBINED ADJUSTMENT HEIGHT OF AT LEAST 12". THE TOTAL HEIGHT OF THE ADJUSTMENT RINGS SHALL NOT EXCEED 1'–6".

NOTES TO SPECIFIER:

1. INDICATE SIZE OF FORCE MAIN, INCREASER AND DISCHARGE EITHER ON THIS DETAIL OR ON PLAN AND PROFILE.
2. PROVIDE INVERT ELEVATIONS OR FORCE MAIN AND SEWER CONNECTIONS TO MH, ON THIS DETAIL OR PLAN AND PROFILE.
3. THIS DETAIL IS TO BE USED ONLY WHEN THERE ARE NO INTERSECTING GRAVITY SEWERS.
4. DETAIL MAY BE REVISED TO ORIENT INCOMING FORCE MAIN AT OTHER ANGLES RELATIVE TO GRAVITY SEWER.
5. IF LENGTH OF DISCHARGE DROP BELOW FLANGED TEE FITTING EXCEEDS 7 TIMES DISCHARGE DIAMETER PROVIDE STAINLESS STEEL OR FRP PIPE SUPPORT.

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

WASTE WATER IMPROVEMENT DETAILS
SANITARY SEWER CORROSION RESISTANT MANHOLE FOR FORCE MAIN DISCHARGE

HCE PROJECT NO.
P241-01

STANDARD DESIGN MANUAL
CITY OF MERCEDES

SHEET NO.
WW - 17

01/2021

Section 9

Drainage Improvements Policy

9.1 General

The purpose of this section is to outline the general requirements for the design of storm water improvements and provide typical details for construction. The City of Mercedes's City Engineer should be consulted if any deviations from these standards are anticipated before and during construction. In cases where design limitations or physical barriers restrict compliance with the provisions of this section, alternatives are to be considered by the City Engineer prior to construction and final acceptance of improvements.

9.2 Drainage Improvements

All storm sewer mains extended or proposed to the City of Mercedes's storm water collection systems and watercourses shall be designed and constructed in accordance to the following requirements.

A. General Policy:

1. All Development within the City of Mercedes or its Extraterritorial Jurisdiction (ETJ) shall include planning, design and construction of storm drainage systems in accordance with this manual.

2. Drainage reports and drainage improvements shall be performed and designed by a Professional Engineer licensed to practice in the State of Texas and are subject to approval by the City Engineer.

3. All drainage studies and design plans shall be formulated and based upon ultimate, fully developed watershed or drainage area runoff conditions. In certain circumstances where regional detention is in place or a master plan has been adopted, a development may plan to receive less than ultimate developed flow from upstream with the approval of the City Engineer.

4. Storm water must be carried to an adequate or acceptable outfall. An adequate outfall is one that does not create or increase flooding or erosion conditions downstream and is approved by the City Engineer.

5. Proposed storm water discharge rates and velocities from a development shall not exceed the runoff from existing, pre-development conditions, unless a detailed study is prepared that demonstrates that no unacceptable adverse impacts will be created. Adverse impacts include: new or increased flooding of existing insurable (FEMA) structures, significant increases in flood elevations over existing roadways,

unacceptable rises in FEMA base flood elevations, and new or increased stream bank erosion.

6. If a development drains into an improved channel or storm water drainage system designed under a previous drainage policy, then the hydraulic capacities of downstream facilities must be checked to verify that increased flows, caused by the new development, will not exceed the capacity of the existing system or cause increased downstream structure flooding. If there is not sufficient capacity to prevent increased downstream flooding, then detention or other acceptable measures must be adopted to accommodate the increase in runoff due to the proposed development.

7. Storm water runoff may be stored in detention and retention basins to mitigate potential downstream problems caused by a proposed development. Proposed detention or retention basins shall be analyzed both individually and as a part of the watershed system, to assure compatibility with one another and with the City's overall Storm Water Management Master Plan for that watershed (if available). Storage of storm water runoff, near to the points of rainfall occurrence, such as the use of parking lots, ball fields, property line swales, parks, road embankments, borrow pits and on-site ponds is desirable and encouraged.

8. Alternatives to detention or retention, for mitigation of potential downstream problems caused by proposed development, include: acquisition of expanded drainage easements, ROW, or property owner agreements; downstream channel and/or roadway bridge/culvert improvements or stream bank erosion protection; and financial contributions to the City of Mercedes's Storm Water Utility Program for future improvements. These alternatives will be considered, as presented by the developer, on a case-by-case basis.

9. Stream bank stabilization and protection shall be required to prevent erosion and sedimentation from creeks, streams, and channels.

10. Required Easements:

    a. Drainage easements shall be required for both on-site and off-site public storm water drainage improvements, including standard engineered channels, storm drain systems, public detention/retention facilities and other storm water controls.

    b. Temporary drainage easements may be allowed off-site for temporary channels when future off-site development is anticipated to enclose the channel in conduit or follow an altered alignment. Temporary drainage easements will not be maintained by the City and will not terminate until permanent drainage improvements meeting City standards are installed and accepted. Temporary drainage easements will require written approval from the City Engineer and the City Attorney.

c. Private drainage easements, not dedicated to the city, may be required for private storm water drainage improvements serving multiple lots or for storm water controls on a property.

d. Access easements shall be provided for access to public storm water drainage improvements where necessary for maintenance.

11. Required Right of Way:

a. All drainage improvements in residential developments shall be located within rights of way.

b. Floodplain right of way shall be provided on sites along natural or improved earthen drainage ways (other than standard engineered channels). Floodplain rights of way shall encompass all areas below a ground elevation one foot above the water surface elevation of the base flood. The right-of-way shall also include at least a minimum 20 foot wide maintenance strip along both sides of the channel to provide ingress and egress for maintenance of the banks, as determined and required by the City Engineer. The access shall be part of the floodplain right of way itself and not a separate easement. Floodplain rights of way are not routinely maintained by the City.

c. All proposed developments within the City of Mercedes and its (ETJ) shall comply with all local, county, state and federal regulations and all required permits or approvals shall be obtained by the developer.

d. The policy of the City Mercedes is to avoid substantial or significant transfer of storm water drainage runoff from one basin to another and to maintain historical drainage paths whenever possible. However, the transfer of storm water drainage from basin to basin may be necessary in certain instances and will be reviewed by the City Engineer on a case-by-case basis.

9.3 Design Storm Requirements

A. Rainfall and Intensity: the table below shows the Intensity-Duration-Frequency coefficients for Hidalgo County that are to be used for Intensity Calculations:

Table 3-1 Intensity-Design-Duration Coefficients for Hidalgo County, Texas

Recurrence Interval (years)	IDF Coefficients		
	e	B	d
2	0.8645	72.4	12.92
5	0.8647	100.21	13.9
10	0.8599	116.24	14.33

25	0.8572	140.47	15.32
50	0.8613	170.66	16.77
100	0.8619	201.07	18.00

1. The rainfall intensity can be calculated by the formula shown below:

$$\boldsymbol{i = \frac{b}{(t_c + d)^e}}$$

Nomenclature:
i = intensity (inches/hour)
t_c = time of concentration (minutes)
e, B, d = IDF Coefficients (reference Table 3-1)

A. Time of Concentration: The time of concentration can be estimated by associating velocity and three typical flow regimes; pipe or channel flow, shallow concentrated flow, and overland/sheet flow. Each system should be calculated accordingly.

1. The time of concentration for shallow concentrated flow can be calculated by the formula shown below:

$$\boldsymbol{t_c = \frac{L}{60V}}$$

Nomenclature:
t_c = travel time (minutes)
L = watercourse length (feet)
V = average flow velocity (feet/second)

a. The shallow concentrated flow velocity can be calculated by the formula shown below:

$$\boldsymbol{V = K_u k S_p^{0.5}}$$

Nomenclature:
K_u= 3.28
V = velocity (feet/second)
k = intercept coefficient (reference Table 3-2)
S_p = slope (%)

Table 3-2 Intercept Coefficients

Land Cover / Flow System	k
Forest with heavy ground litter; hay meadow (overland flow)	0.076
Trash fallow or minimum tillage cultivation; contour or strip cropped; woodland (overland flow)	0.152

Short grass pasture (overland flow)	0.213
Cultivated straight row (overland flow)	0.274
Nearly bare and untilled (overland flow); alluvial fans in western mountainous regions	0.305
Grassed waterway (shallow concentrated flow)	0.457
Unpaved (shallow concentrated flow)	0.491
Paved area (shallow concentrated flow); small upland gullies	0.619
Reference: *FHWA Urban Drainage Design Manual, 3rd Edition (2013)*	

b. Manning's Equation shall be used to estimate average flow velocities in channels and conduits. Storm water runoff shall be calculated for fully developed conditions. The minimum inlet time of concentration is 10 minutes.

$$V = \left(\frac{1.49}{n}\right) R^{2/3} S^{1/2}$$

Nomenclature:
V = velocity (feet/second)
n = Manning's roughness coefficient
R = Hydraulic radius (feet)
S = slope

B. Runoff Coefficients

1. Runoff Coefficients shall be determined for each drainage area. Weighted coefficients shall be determined with application of the Weighted Runoff Coefficient formula when multiple surfaces exist.

$$C_W = \frac{(C_1 A_1 + C_2 A_2 + C_3 A_3 + \ldots + C_n A_n)}{A_{total}}$$

Nomenclature:
C_W = Weighted Runoff Coefficient
C_n = Runoff Coefficient n-th term
A_n = Area of n-th term (acres)
A_{total} = Total Area (acres)

Table 3-3 Runoff Coefficients

Type of Drainage Area	Runoff Coefficient, C
Business	
Downtown areas	0.70 – 0.95
Neighborhood areas	0.50 – 0.70
Residential	
Single-family	0.30 – 0.50
Multi-units, attached	0.40 – 0.60
Multi-units, detached	0.60 – 0.75
Suburban	0.25 – 0.40
Apartment dwelling areas	0.50 – 0.70
Industrial	
Light areas	0.50 – 0.80
Heavy areas	0.60 – 0.90
Lawns	
Sandy soil, flat, 2%	0.05 – 0.10
Sandy soil, average, 2 – 7%	0.10 – 0.15
Sandy soil, steep, 7%	0.15 – 0.20
Heavy soil, flat, 2%	0.13 – 0.17
Heavy soil, average, 2 – 7%	0.18 – 0.22
Heavy soil, steep, 7%	0.25 – 0.35
Streets	
Asphaltic	0.70 – 0.95
Concrete	0.80 – 0.95
Brick	0.70 – 0.85
Miscellaneous	
Parks, cemeteries	0.10 – 0.25
Playgrounds	0.20 – 0.40
Railroad yard areas	0.20 – 0.40
Unimproved areas	0.10 – 0.30
Drives and walks	0.75 – 0.85
Roofs	0.75 – 0.95
Reference: *FHWA Urban Drainage Design Manual, 3rd Edition (2013)*	

9.4 Drainage Report Requirements

A. Requirements: Drainage Report to be approved by Hidalgo County Drainage District No.1 prior to submitting to city.

The following information shall be required as part of the drainage report for new developments:

1. Summary of Project
    a. Existing and Proposed conditions.
2. Vicinity map showing location of project
3. Location of proposed site with respect to the latest FEMA Floodplain map
4. Summary of Soil Conditions and Soil Classifications
5. Summary of Existing Drainage Conditions
6. Summary of Proposed Drainage Conditions
7. Summary of detention requirements based on the 2, 10, 25 and 50 year storm events.
8. Attachments
    a. Exhibit A – Drainage Area Map
        i. All contributing areas
        ii. Contours and spot elevations
        iii. Direction of flow
        iv. Existing and Proposed storm sewer systems and outfalls
        v. Design assumptions
    b. Exhibit B – FEMA Floodplain Map with respect to project location
    c. Exhibit C – Soils Survey Map
    d. Exhibit D – Drainage Calculations
        i. Runoff, detention and hydraulic summary
        ii. Time of concentration (Tc) estimates
        iii. Runoff coefficient (c) assumptions
        iv. Storage volume calculations (Modified Rational Method)
        v. Pipe and inlet capacities
        vi. Detention pond dimensions
        vii. Hydraulic Grade Line (HGL)

9.5 Storm Water Detention Design:

A. General Policy:

1. Storm water runoff increases resulting from development shall be mitigated on-site for the 2, 10, 25 and 50-year meteorological events. The Modified Rational Method is to be used for determination of storm water storage requirements for developments less than 10 acres. Reference Table 3-4 for the Modified Rational Method calculation example.

Table 3-4 Modified Rational Method

(A)	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**	**(G)**
Duration	Intensity	Q_{in}	V_{in}	Q_{out}	V_{out}	Storage
(min)	(in/hr)	(cfs)	(cf)	(cfs)	(cf)	(cf)

(A) – Duration in minutes
(B) – Intensity for respective duration
(C) – Developed conditions peak discharge
(D) – Developed conditions runoff volume
(E) – Pre-developed peak discharge
(F) – Pre-developed conditions runoff volume
(G) – Storage required ($V_{in} – V_{out}$)

2. Storm water runoff shall be released from detention area into a receiving system at the pre-developed rate for the 50-year frequency storm events.

3. On-site detention facilities shall be placed in dedicated areas unless otherwise approved by the City Engineer.

4. Maintenance of on-site detention areas shall be maintained by the property owner(s) or a home owner's association if applicable.

B. Drainage Detention Calculation Requirements:

1. Calculate runoff from site for existing conditions:

    a. Calculate runoff coefficient (C) based on ground cover, slope, soil type, etc.

    b. Calculate time of concentration (Tc), or time for runoff to flow from furthest hydraulic point of property to the collection point.

    c. From curve, select intensity (I) corresponding to time of concentration (Tc).

d. Calculate runoff (Q).

2. Calculate runoff conditions from site for improved conditions:

    a. Calculate runoff coefficient (c) based on improvements; i.e., paving, buildings, green areas.

    b. Calculate revised time of concentration (Tc).

    c. Determination of intensity and runoff not required at this stage.

3. Calculate on-site storage required:

    a. Storage required equals the difference between the volume of runoff generated in the improved condition and the volume of runoff that can be discharged based on the pre-developed conditions.

    b. The volume in and the volume out is calculated for storms of varying durations.

    c. Select maximum storage indicated for compliance with the City of Mercedes drainage policy.

    d. Time of concentration beginning with calculated (t) for future conditions.

    e. Intensity for corresponding time of concentration. These values are from the rainfall intensity graph or from Hidalgo County statistical data.

    f. Q is the runoff rate in cubic feet per second. It is calculated from the rational formulate being Q = CIA.

    g. Volume of runoff in cubic feet for developed property. This is determined by multiplying the time of concentration (Tc) and the runoff amount (Q).

    h. Determine the maximum runoff rate from the existing conditions.

    i. The volume of runoff that can be discharged during the time of concentration (Tc). This is determined by multiplying the time of concentration (Tc) and the Q out.

9.6 Storm Sewer Design:

A. General Policy

1. Storm sewer systems are to be designed to convey the runoff resulting from a 10-year frequency storm event and checked for the 50-year storm event. Calculations are to be submitted to City Engineer for approval.

2. Plan and profile of proposed storm water infrastructure shall be required.

3. Storm water infrastructure shall be designed such that the hydraulic grade line (HGL) is at least 6 inches below the adjacent top of curb.

4. Rubber-gasket, Class III, reinforced concrete pipe (RCP) shall be used for storm water systems. Any other type of pipe is to be submitted to the City Engineer for approval.

5. Manholes or junction boxes shall be used at all changes in pipe size and direction. Reference Table 3-4 for suggested manhole spacing of storm water systems.

Table 3-4 Suggested Storm Sewer Manhole Spacing

Pipe Size (inches)	**Maximum Spacing (feet)**
12 to 24	300
27 to 36	375
39 to 54	450
60 and greater	900
Reference: *TxDOT Hydraulic Design Manual (2014)*	

6. Pipe slopes shall be designed to provide a minimum velocity of 3 feet per second (ft/s) and a maximum velocity of 12 feet per second (ft/s). Reference Table 3-5 for minimum pipe slopes of storm water systems.

Table 3-5 Minimum Storm Sewer Pipe Slopes

.

Diameter (inches)	**Slope (foot/foot)**	**Slope (%)**
8	0.0075	0.75
10	0.0056	0.56
12	0.0044	0.44
15	0.0032	0.32
18	0.0026	0.26
21	0.0021	0.21
24	0.0017	0.17
27	0.0015	0.15
30	0.0013	0.13
33	0.0011	0.11

36	0.0010	0.10
42	0.0008	0.08
48	0.0007	0.07
54	0.0006	0.06
60	0.0005	0.05
66	0.0005	0.05
72	0.0004	0.04
Reference: *FHWA, Urban Drainage Design Manual, 3rd Edition (2013)*		

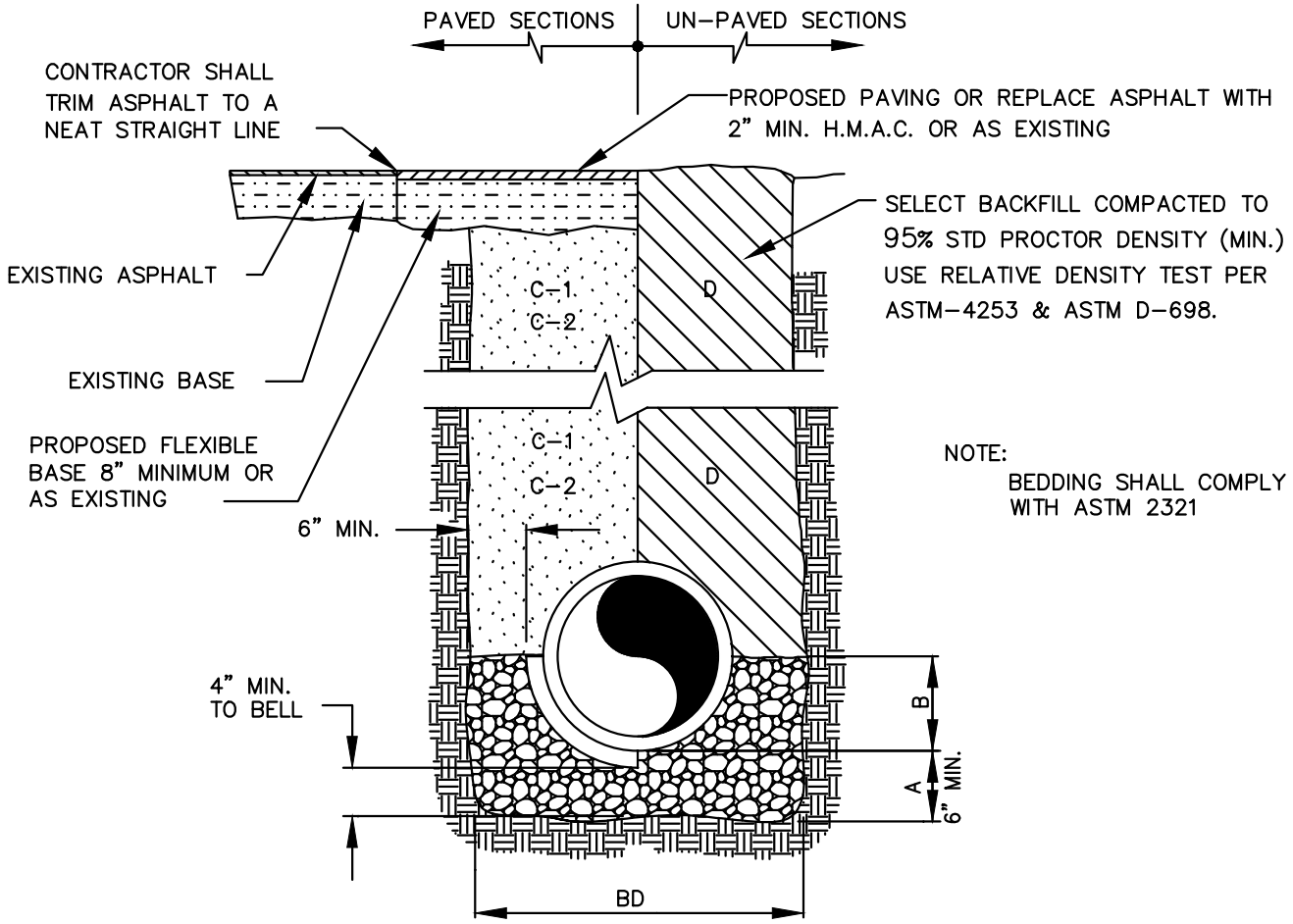
7. All proposed outfalls shall provide a concrete sloped-end treatment approved by the City Engineer according to the City of Mercedes standard drainage detail. Velocity dissipations shall be used when outlet velocities exceed the suggested maximum.

8. The minimum cover for all storm sewer pipe systems is 3 feet below finished grade. Depth of cover not meeting the 3-foot requirement shall be submitted to the City Engineer for approval.

9. Trench protection is to be used on all storm sewer systems given a depth of 5 feet or greater according to the latest OSHA regulations.

10. The maximum length of gutter flow before runoff is intercepted by an underground storm sewer system is 300’ from the high point to an inlet measured along the gutter.

9.7 Drainage Improvement Details



A. GRAVEL BEDDING PLACED BEFORE PIPE IS LAID (MIN. THICKNESS = 6"). PIT RUN GRAVEL 3/4" MAX. SIZE.

B. AFTER PIPE IS LAID, PLACE GRAVEL FROM BOTTOM TO SPRING LINE OF PIPE. PIT RUN GRAVEL 3/4" MAX. SIZE.

Bd. TRENCH WIDTHS SHALL BE EQUAL TO PIPE BELL O.D. + 12" OR IN ACCORDANCE WITH ASTM 2321.

C-1. CITY STREETS, PARKING AREA, DRIVEWAYS: SELECTED BACKFILL SHALL BE PLACED IN 8" LIFTS MECHANICALLY COMPACTED TO 98% MODIFIED PROCTOR DENSITY,

C-2. STATE MAINTAINED ROADWAYS: SAND/CEMENT STABILIZED BACKFILL, WITH 7% PORTLAND CEMENT, COMPACTED AS PER ASTM D-4253 AND ASTM D-698.

D. SELECTED EARTH BACKFILL MECHANICALLY COMPACTED TO 95% STD. PROCTOR DENSITY (12" LIFTS). FOUNDATION PREPARATION (WELLPOINTS, GRAVEL OR CEMENT STABILIZATION, OR APPROVED SUBSTITUTE) SHALL BE REQUIRED WHEN TRENCH BOTTOM IS UNSTABLE. BACKFILLING AT STRUCTURES SHALL BE PLACED IN UNIFORM LAYERS, MOISTENED AS REQUIRED TO APPROXIMATE OPTIMUM MOISTURE CONTENT, AND COMPACTED TO 90% STD. PROCTOR DENSITY (USE RELATIVE DENSITY TEST PER ASTM D-4253 & ASTM D-698). THE THICKNESS OF EACH LOOSE LAYER SHALL NOT EXCEED 6". STRUCTURAL BACKFILL MATERIAL SHALL BE AS APPROVED BY THE ENGINEER.

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

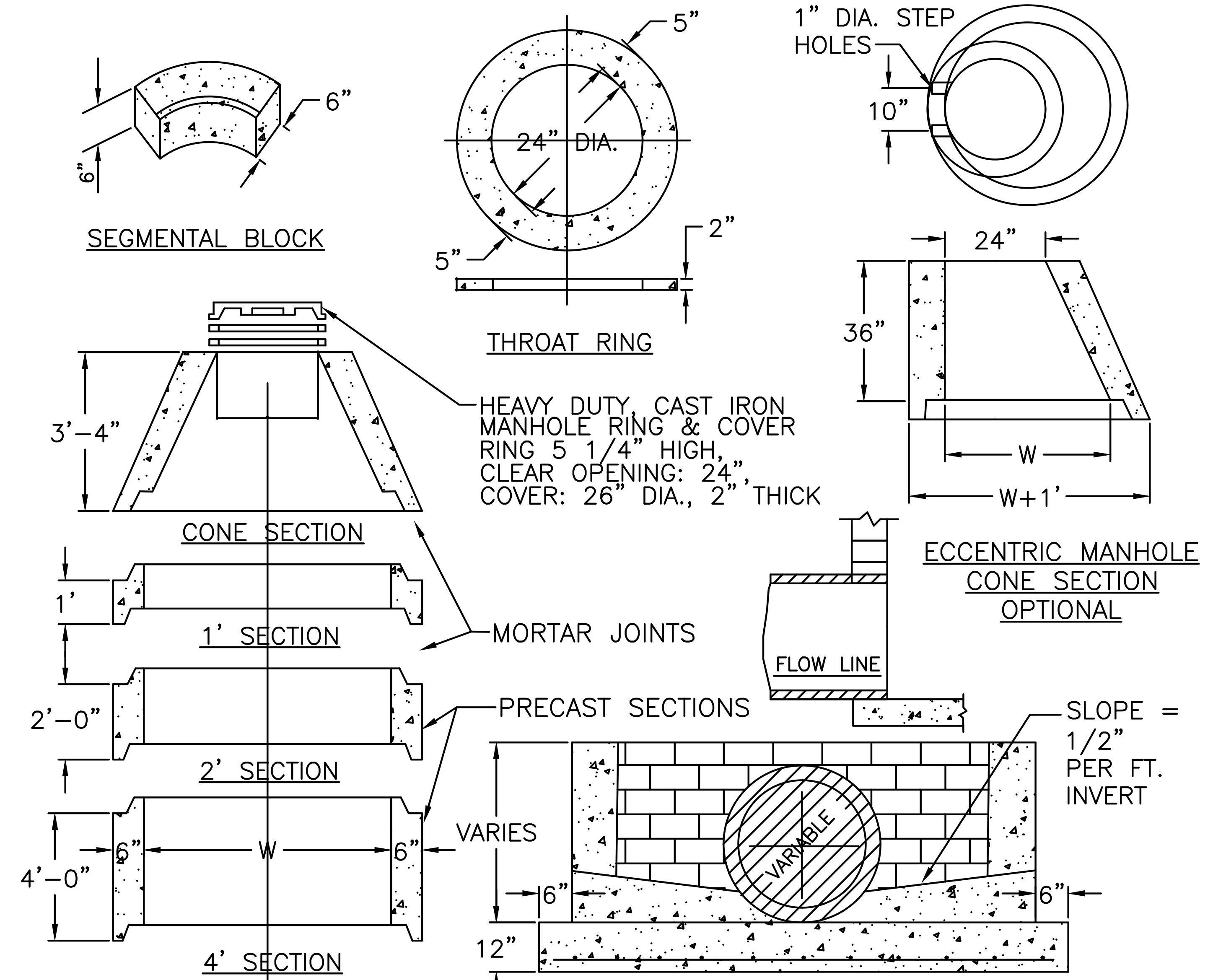
DRAINAGE IMPROVEMENT DETAILS
STORM SEWER LINE TRENCH BEDDING

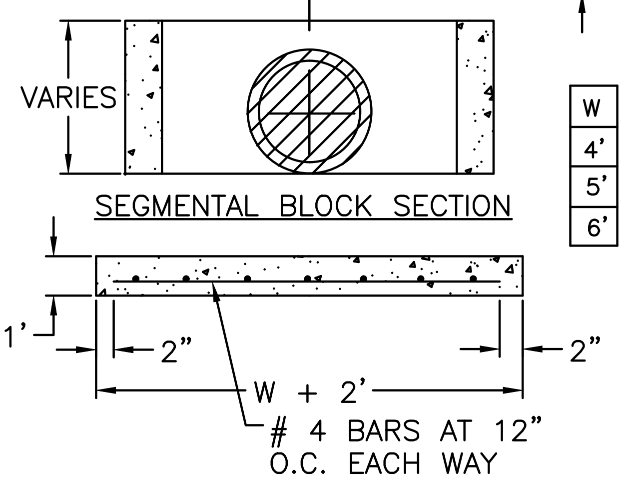
HCE PROJECT NO.
P241-01

STANDARD DESIGN MANUAL
CITY OF MERCEDES

SHEET NO.
STM - 1

01/2021





W
4'
5'
6'

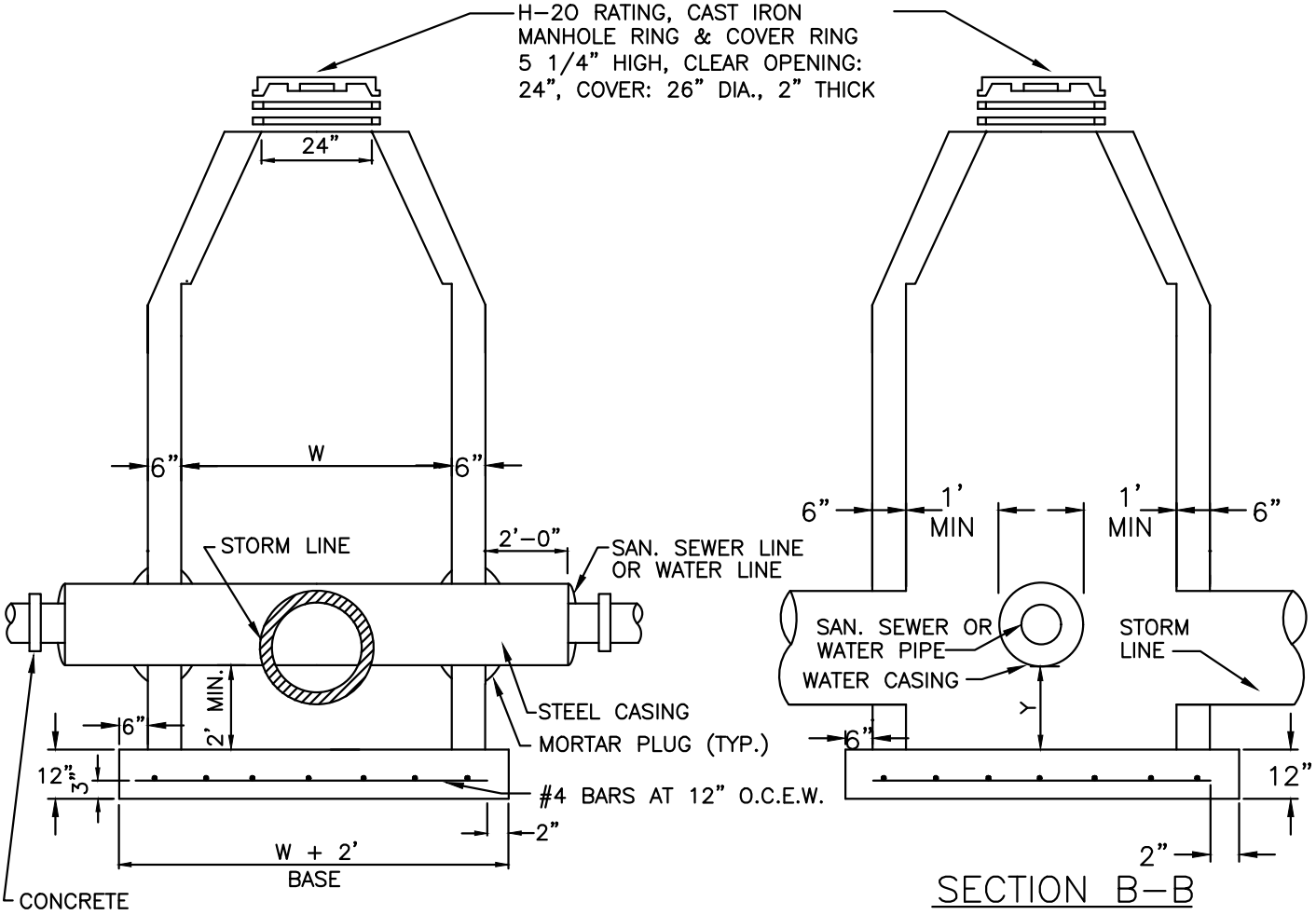
GENERAL NOTES:

1. PRE–CAST SECTIONS MAY BE PLACED IN ANY ORDER.
2. FOOTING (BASE) TO BE POURED ON UNDISTURBED SOIL & TO BE UNIFORM IN THICKNESS.
3. ALL TIE–INS TO BE AT BOTTOM OF MANHOLE. NO DROP CONNECTIONS ACCEPTABLE.
4. 1/2" OF MORTAR TO BE PLACED ON INSIDE AND OUTSIDE OF SEGMENTAL BLOCK MANHOLE.
5. SEGMENTAL BLOCKS TO BE USE AS DIRECTED BY ENGINEER.
6. THROAT RINGS SHALL BE REINFORCED CONCRETE H–20 RATING. 2 RINGS MIN / 5 RINGS MAX. TO ALLOW FOR FUTURE ADJUSTMENT.
7. CONCRETE TO HAVE A MIN 28 DAY COMPRESSIVE STRENGTH OF 3,000 PSI.
8. NEW MANHOLE INSTALLATION ON EXISTING LINES SHALL CONFORM TO THIS DETAIL.
9. GRAVEL BEDDING IS REQUIRED IF UNSTABLE SOIL OR GROUNDWATER IS FOUND.
10. MAXIMUM PIPE DIAMETER AND EXIT/ENTERANCE ANGLES ALLOWED ON MANHOLES IS SUBJECT TO REVIEW AND APPROVAL BY CITY ENGINEER.

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

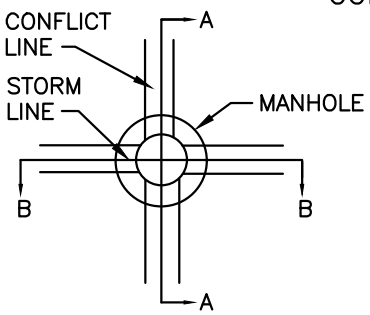
DRAINAGE IMPROVEMENT DETAILS TYPICAL CONCRETE STORM CONFLICT MANHOLE	HCE PROJECT NO. P241-01	
STANDARD DESIGN MANUAL CITY OF MERCEDES	SHEET NO. STM - 2	01/2021

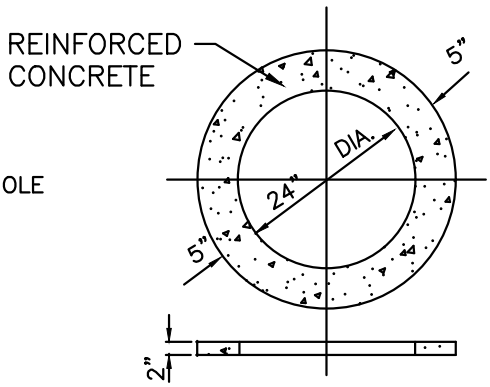
GENERAL NOTES AS
PER TYPICAL CONCRETE STORM
MANHOLE DETAIL.



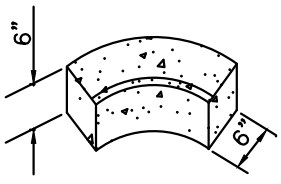
W
4'
5'
6'

STORM PIPE DIAM.	Y
24"	2'
30"	2.5'
36"	3'
42"	3.5'
48"	4'





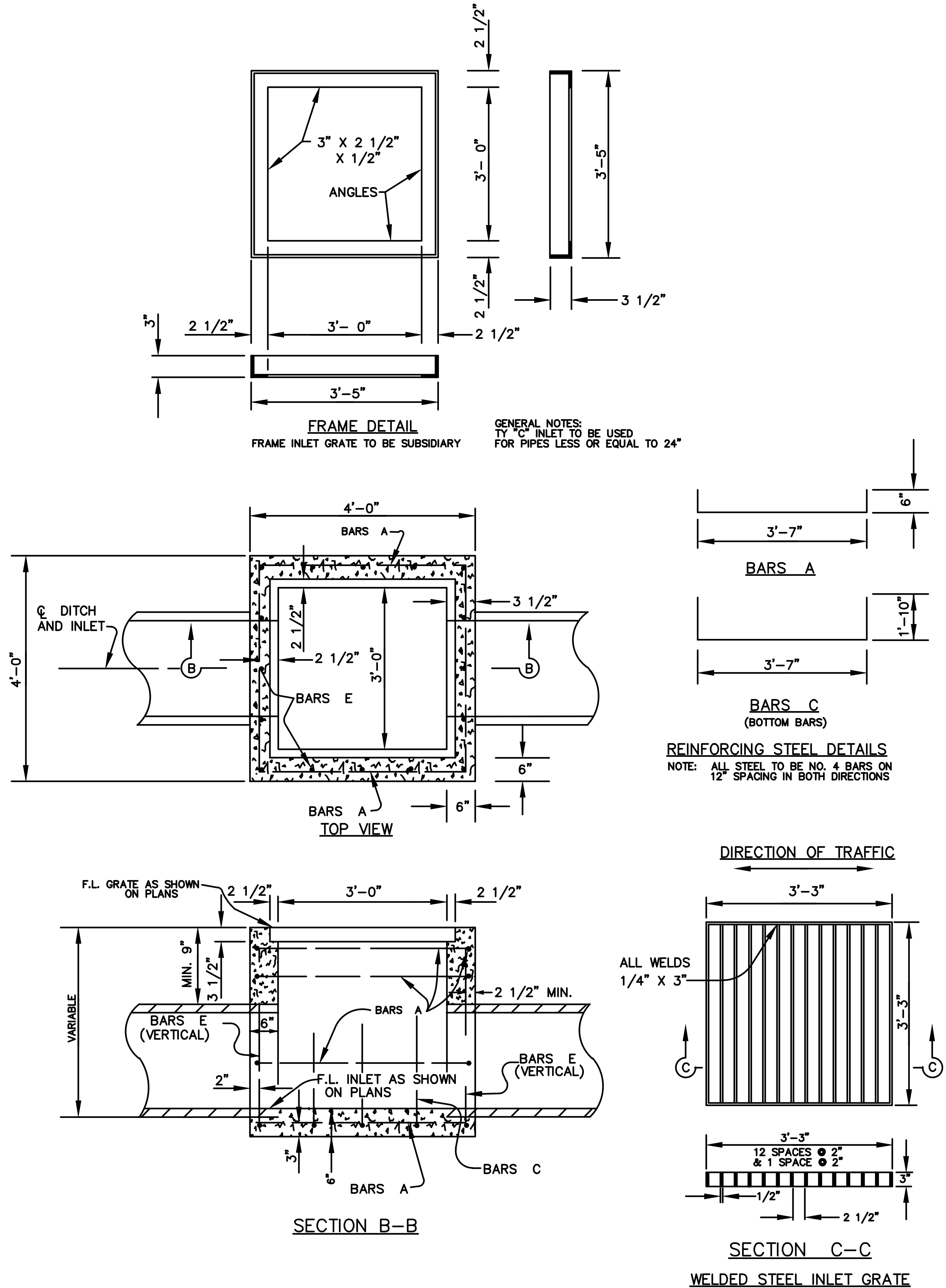
THROAT RING



SEGMENTAL BLOCK

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

DRAINAGE IMPROVEMENT DETAILS **CONCRETE CONFLICT STORM SEWER MANHOLE**	HCE PROJECT NO. P241-01	
STANDARD DESIGN MANUAL **CITY OF MERCEDES**	SHEET NO. STM - 3	01/2021



city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

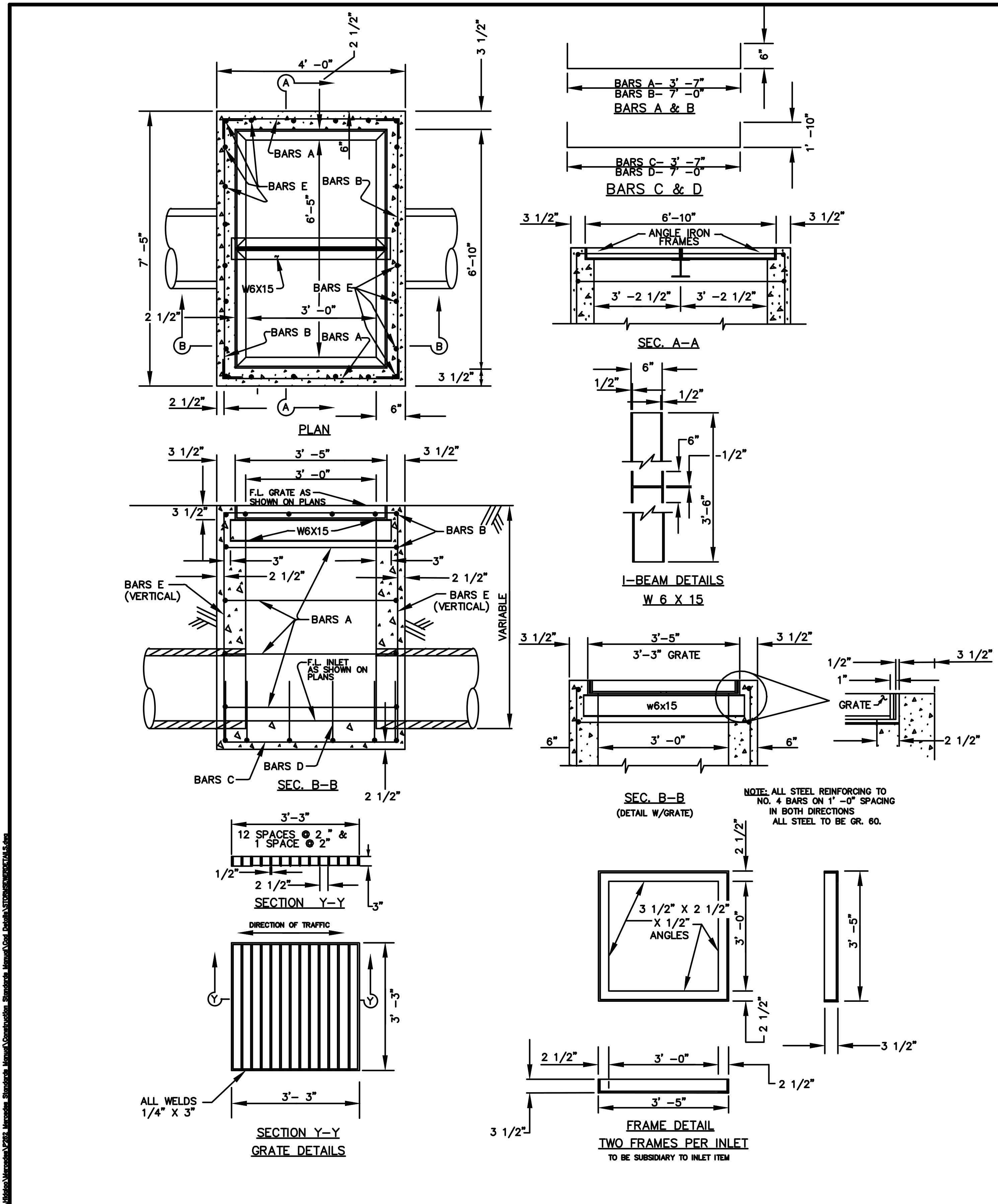
DRAINAGE IMPROVEMENT DETAILS
TYPE 'C' PRECAST INLET

HCE PROJECT NO.
P241-01

STANDARD DESIGN MANUAL
CITY OF MERCEDES

SHEET NO.
STM - 4

01/2021



city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

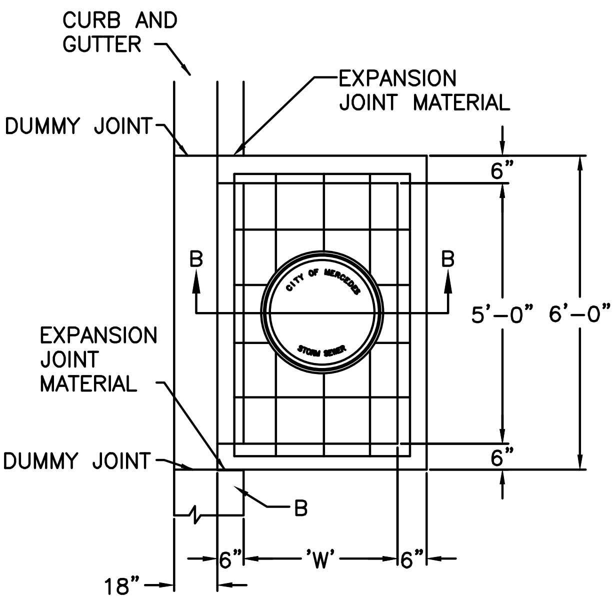
DRAINAGE IMPROVEMENT DETAILS
TYPE 'CC' PRECAST INLET

HCE PROJECT NO.
P241-01

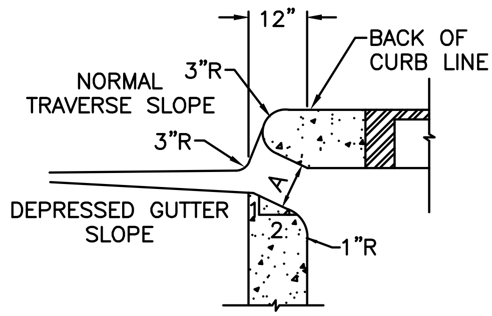
STANDARD DESIGN MANUAL
CITY OF MERCEDES

SHEET NO.
STM - 5

01/2021

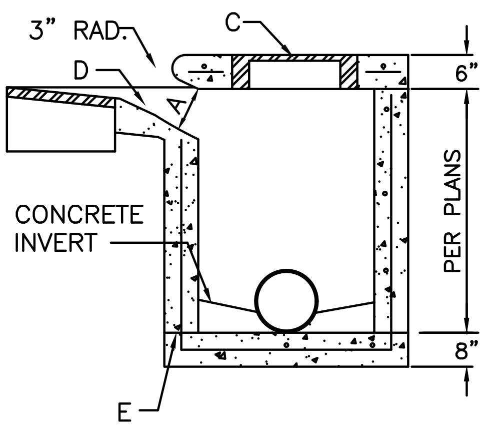


TOP VIEW
TYPE "A"
INLET



THROAT DETAIL

INLET TYPE	W	MAX. PIPE SIZE ALLOW (DIA.)
A	3'–0"	24"
A–1	4'–0"	36"
A–2	5'–0"	48"
A–3	6'–0"	60"



GENERAL NOTES:

1. TRANSITION NORMAL GUTTER TO INLET FLOW SLOPE APPROX. 3".
2. INLETS SHALL BE COMPOSED OF PRE–CAST SECTIONS, CAST IN PLACE OR A COMBINATION OF BOTH.
3. 6" GRAVEL BEDDING IS REQUIRED IF UNSTABLE SOIL OR GROUND WATER IS FOUND.

CONSTRUCTION NOTES:

A. 5" CLEAR OPENINGS.
B. CURB & GUTTER SECTION.
C. C.I. MANHOLE RING & COVER SHALL BE ALAMO 860–22 OR EQUAL 20, 3/8"
D. DEPRESS 2" BELOW NORMAL GUTTER.
E. ALL REINFORCING NO. 4 BARS 12" O.C.E.W.

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

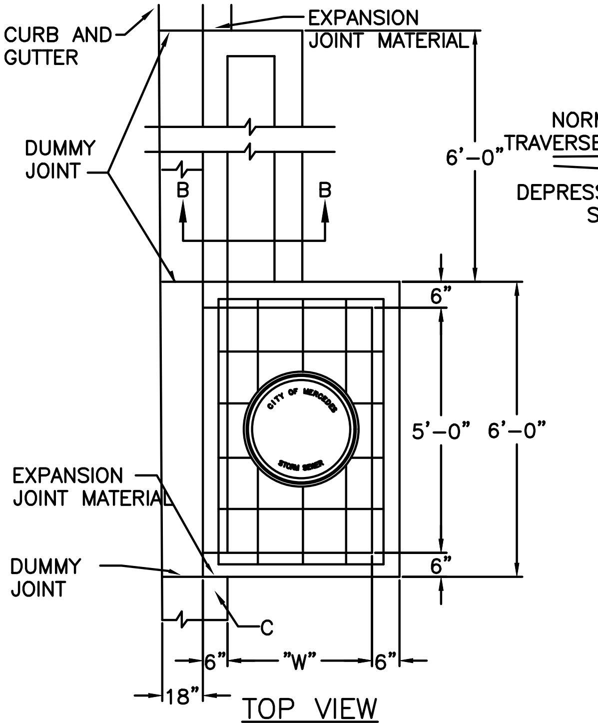
DRAINAGE IMPROVEMENT DETAILS
TYPE 'A' INLET

HCE PROJECT NO.
P241-01

STANDARD DESIGN MANUAL
CITY OF MERCEDES

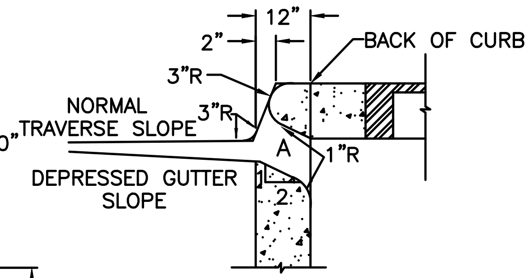
SHEET NO.
STM - 6

01/2021

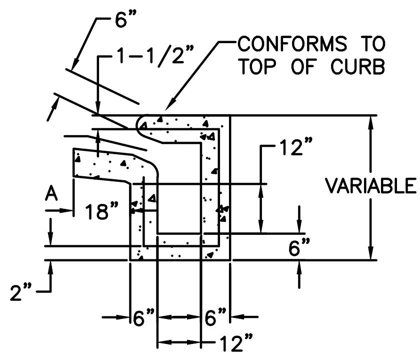


TOP VIEW

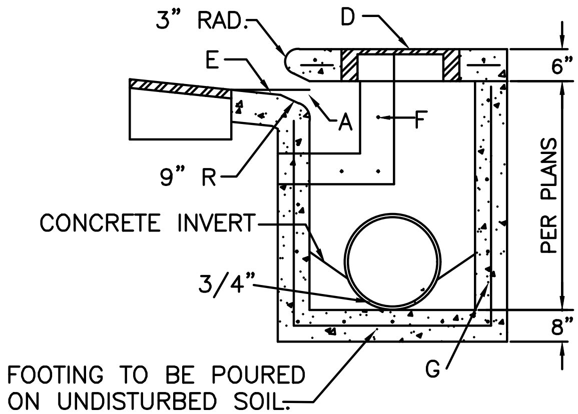
TYPE "A" INLET WITH INLET EXTENSION



THROAT DETAIL



INLET EXTENSION
SECTION B–B



INLET TYPE	W	MAX PIPE SIZE ALLOW (DIA.)
A	3'–0"	24"
A–1	4'–0"	36"
A–2	5'–0"	48"
A–3	6'–0"	60"

NOTE: FOR ON–GRADE INLET, INLET EXTENSION SHALL BE PLACED UPSTREAM.

GENERAL NOTES:

1. SLOPE BOTTOM OF INLET EXTENSION 1/2" PER FOOT TOWARD INLET.
2. EXTENSION TO INLET TO BE MADE IN INCREMENTS OF 3'–0" OR 6'–0" ONLY.
3. INLET EXTENSION MUST BE APPROVED BY CITY ENGINEERING PRIOR TO CONSTRUCTION.
4. TRANSITION NORMAL GUTTER TO INLET FLOW SLOPE APPROX. 3".
5. INLETS SHALL BE COMPOSED OF PRE–CAST SECTIONS, CAST IN PLACE OR A COMBINATION OF BOTH.
6. 6" GRAVEL BEDDING IS REQUIRED IF UNSTABLE SOIL OR GROUND WATER IS FOUND.

CONSTRUCTION NOTES:

A. 5" CLEAR OPENINGS.
B. 6" X 6" CONCRETE SUPPORT USED WHEN EXTENSION BOX CALLED FOR.
C. REGULAR CURB & GUTTER SECTION.
D. C.I. MANHOLE RING & COVER SHALL BE ALAMO 860–22 OR EQUAL 20, 3/8"
E. DEPRESS 2" BELOW NORMAL GUTTER.
F. DOWEL BARS. IF NOT PRE–CAST
G. ALL REINFORCING NO. 4 BARS 12" O.C.E.W.

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

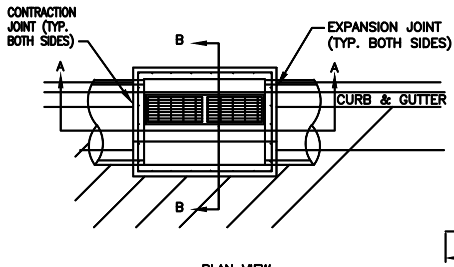
DRAINAGE IMPROVEMENT DETAILS
TYPE 'A' INLET W/ EXTENSION

HCE PROJECT NO.
P241-01

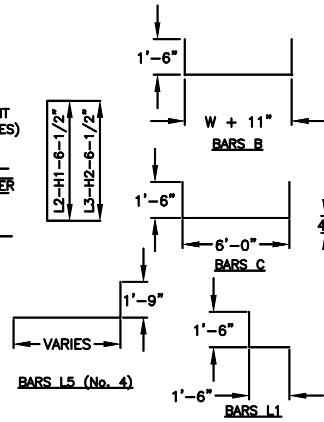
STANDARD DESIGN MANUAL
CITY OF MERCEDES

SHEET NO.
STM - 7

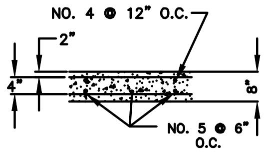
01/2021



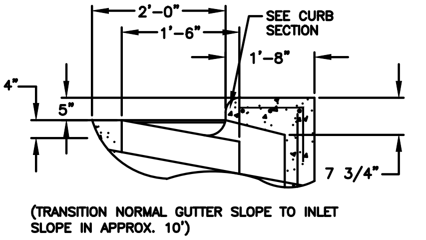
PLAN VIEW



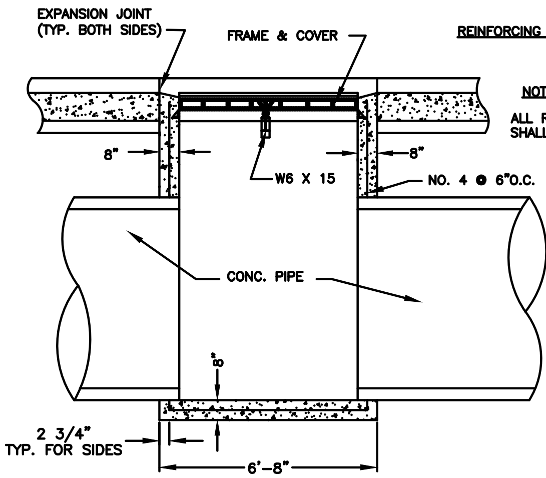
REINFORCING STEEL DETAILS



DETAIL "A"

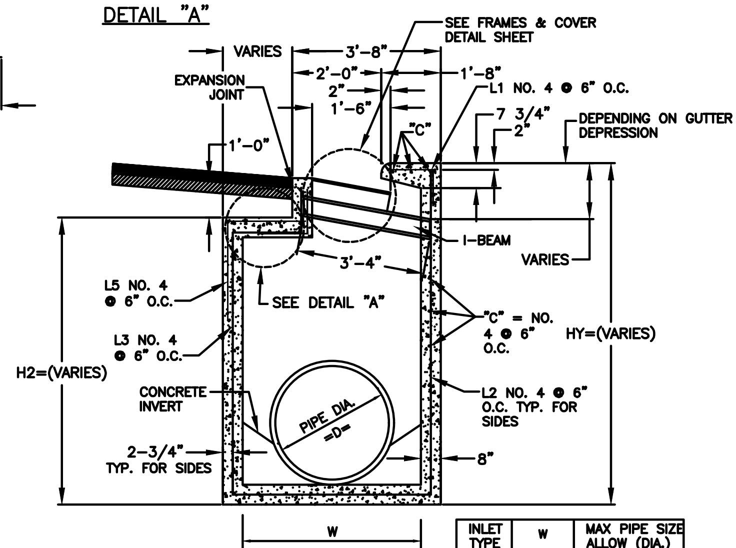


CURB SECTION DETAIL



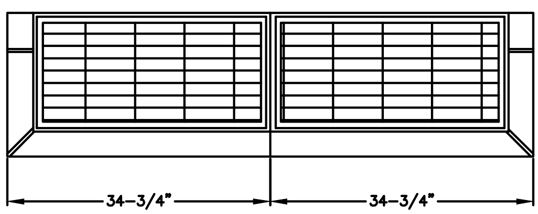
SECTION A–A

NOTE:
ALL REINFORCING BARS SHALL BE GRADE 60.

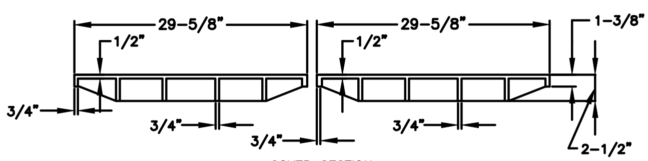


SECTION B–B

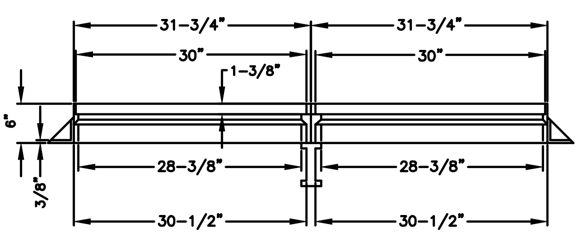
INLET TYPE	W	MAX PIPE SIZE ALLOW (DIA.)
F	3'-0"	24"
F-1	4'-0"	36"
F-2	5'-0"	48"
F-3	6'-0"	60"



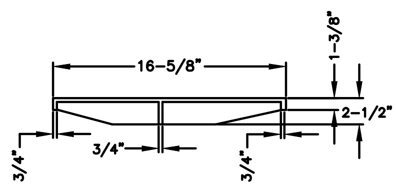
FRAMES AND COVER TOP VIEW



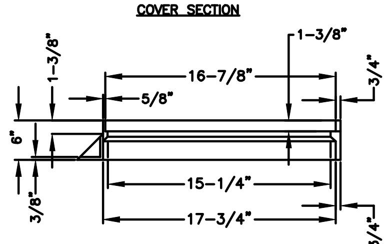
COVER SECTION



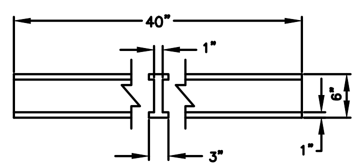
FRAME SECTION



COVER SECTION



FRAME SECTION



I-BEAM DETAILS (W6 X 15)

NOTES
1. ALL STEEL TO BE No. 4 BARS AT 6" SPACING IN BOTH DIRECTIONS.
2. SLOPE BOTTOM OF INLET EXTENSION 1/2" PER FT. TOWARD INLET.
3. ALL FRAMES AND GRATES USED IN PAVED AREAS SHALL BE A36 GR. 50 STRUCTURAL STEEL. ALL WELDING SHALL BE IN ACCORDANCE WITH ITEM "STEEL STRUCTURES" OR ITEM "FIELD WELDING" AS REQUIRED.
4. INLETS SHALL BE COMPOSED OF PRE-CAST SECTIONS, CAST IN PLACE OR A COMBINATION OF BOTH.
5. 6" GRAVEL BEDDING IS REQUIRED IF UNSTABLE SOIL OR GROUND WATER IS FOUND.

ESTIMATED WEIGHT – LBS.

COVER 110 LBS. EACH
FRAME 155 LBS. EACH
I-BEAM 82 LBS.

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

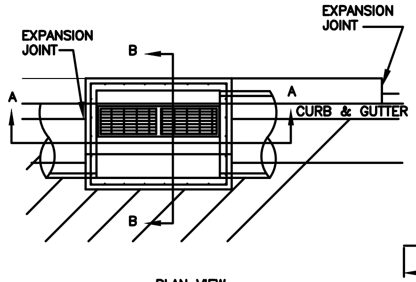
DRAINAGE IMPROVEMENT DETAILS
TYPE 'F' INLET

HCE PROJECT NO.
P241-01

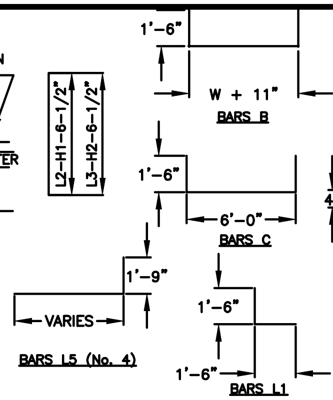
STANDARD DESIGN MANUAL
CITY OF MERCEDES

SHEET NO.
STM - 8

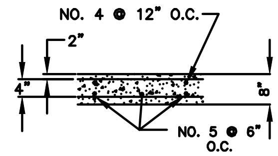
01/2021



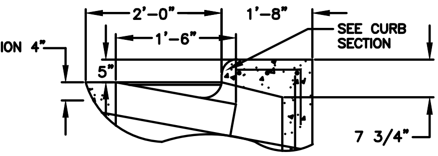
PLAN VIEW



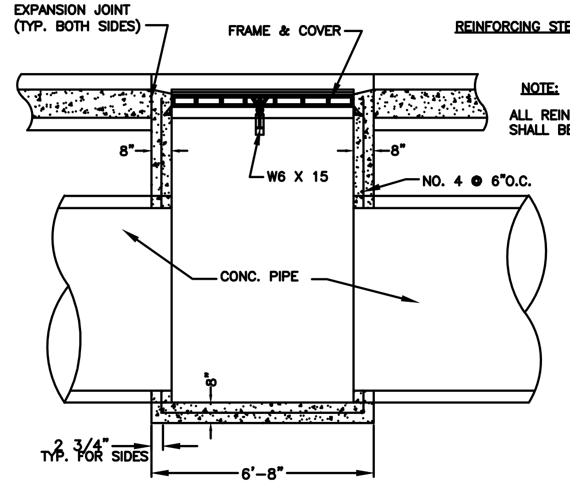
REINFORCING STEEL DETAILS



DETAIL "A"



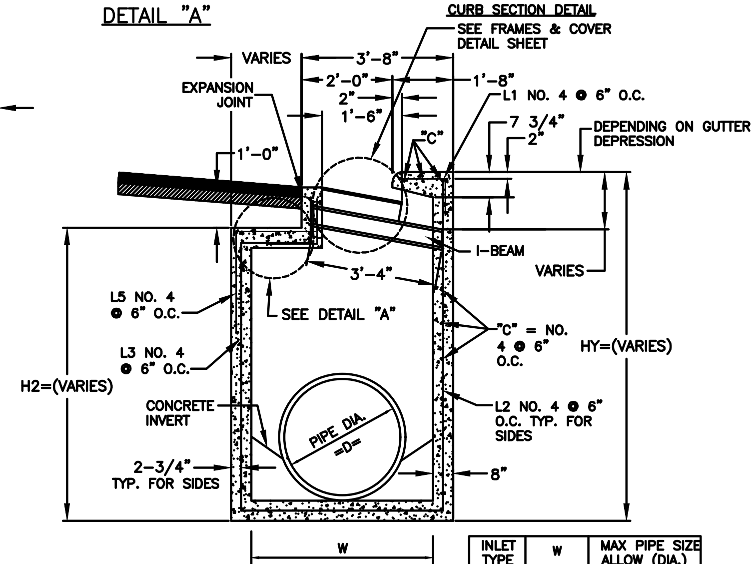
(TRANSITION NORMAL GUTTER SLOPE TO INLET SLOPE IN APPROX. 10')



SECTION A-A

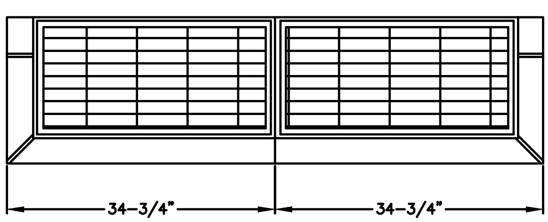
NOTE:

ALL REINFORCING BARS SHALL BE GRADE 60.

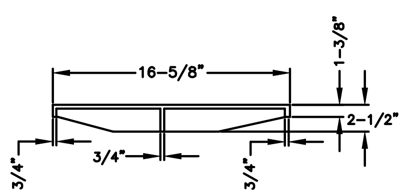


SECTION B-B

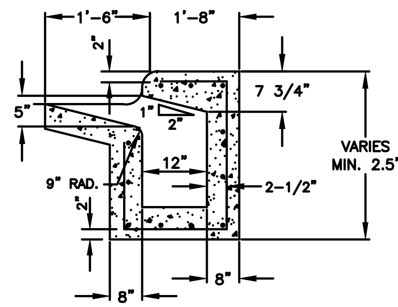
INLET TYPE	W	MAX PIPE SIZE ALLOW (DIA.)
F	3'-0"	24"
F-1	4'-0"	36"
F-2	5'-0"	48"
F-3	6'-0"	60"



FRAMES AND COVER TOP VIEW

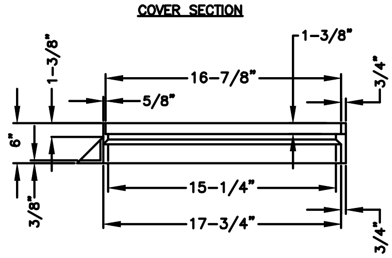


COVER SECTION

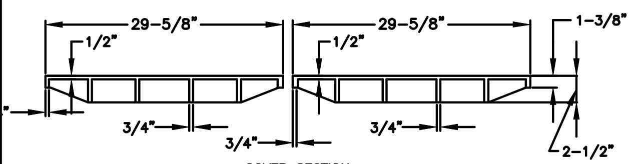


INLET EXTENSION

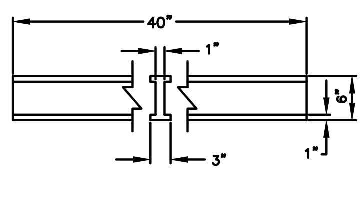
MATCH EXIST. CURB SECTION CURB CAN BE TYPE "A" (BARRIER) OR TYPE "B" (MOUNTABLE)



FRAME SECTION



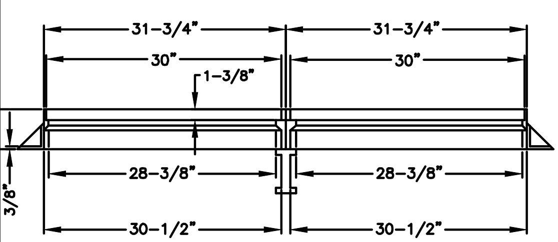
COVER SECTION



I-BEAM DETAILS (W6 X 15)

NOTES

1. ALL STEEL TO BE No. 4 BARS AT 6" SPACING IN BOTH DIRECTIONS.
2. SLOPE BOTTOM OF INLET EXTENSION 1/2" PER FT. TOWARD INLET.
3. ALL FRAMES AND GRATES USED IN PAVED AREAS SHALL BE A36 GR. 50 STRUCTURAL STEEL. ALL WELDING SHALL BE IN ACCORDANCE WITH ITEM "STEEL STRUCTURES" OR ITEM "FIELD WELDING" AS REQUIRED.
4. INLETS SHALL BE COMPOSED OF PRE-CAST SECTIONS, CAST IN PLACE OR A COMBINATION OF BOTH.
5. 6" GRAVEL BEDDING IS REQUIRED IF UNSTABLE SOIL OR GROUND WATER IS FOUND.



FRAME SECTION

ESTIMATED WEIGHT – LBS.

COVER 110 LBS. EACH
FRAME 155 LBS. EACH
I-BEAM 82 LBS.

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

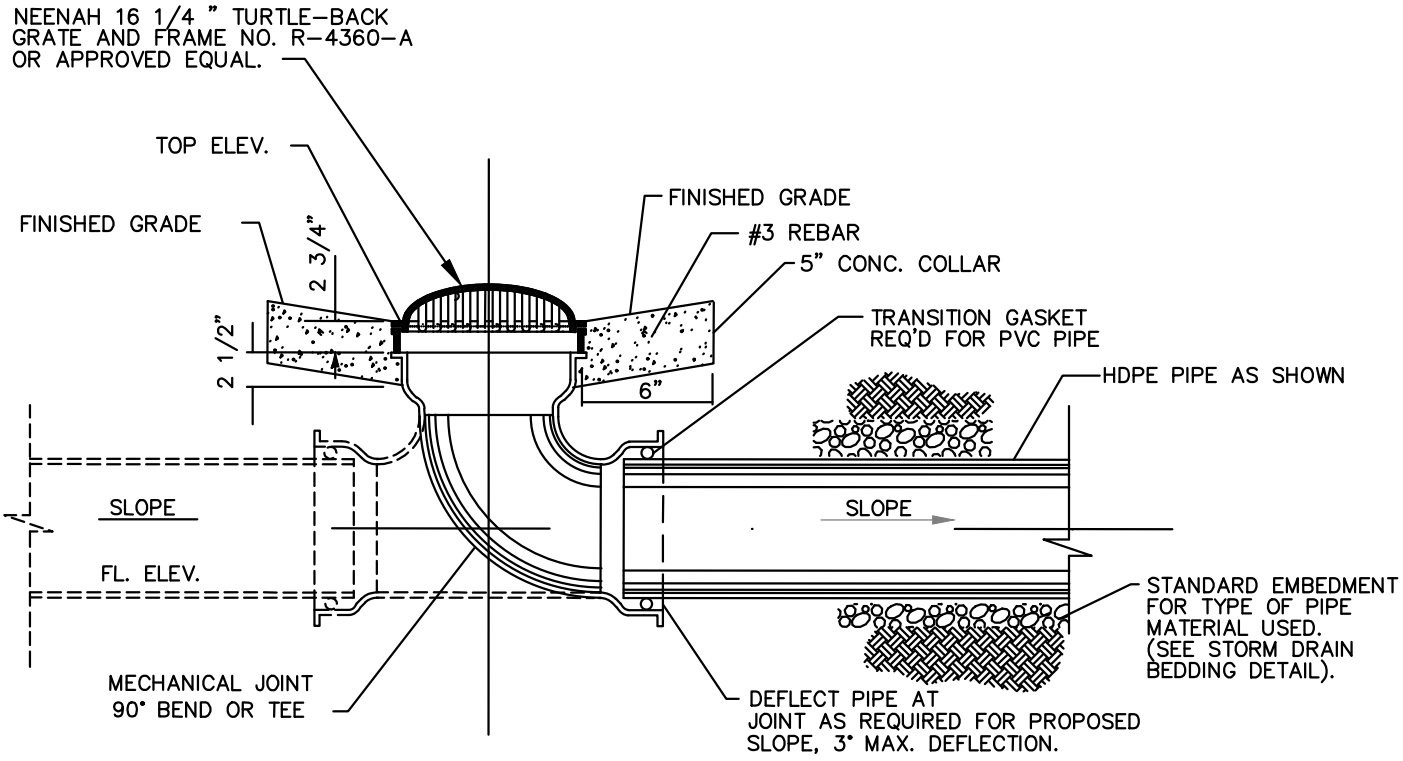
DRAINAGE IMPROVEMENT DETAILS
TYPE 'F' INLET W/ EXTENSION

HCE PROJECT NO.
P241-01

STANDARD DESIGN MANUAL
CITY OF MERCEDES

SHEET NO.
STM - 9

01/2021



city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

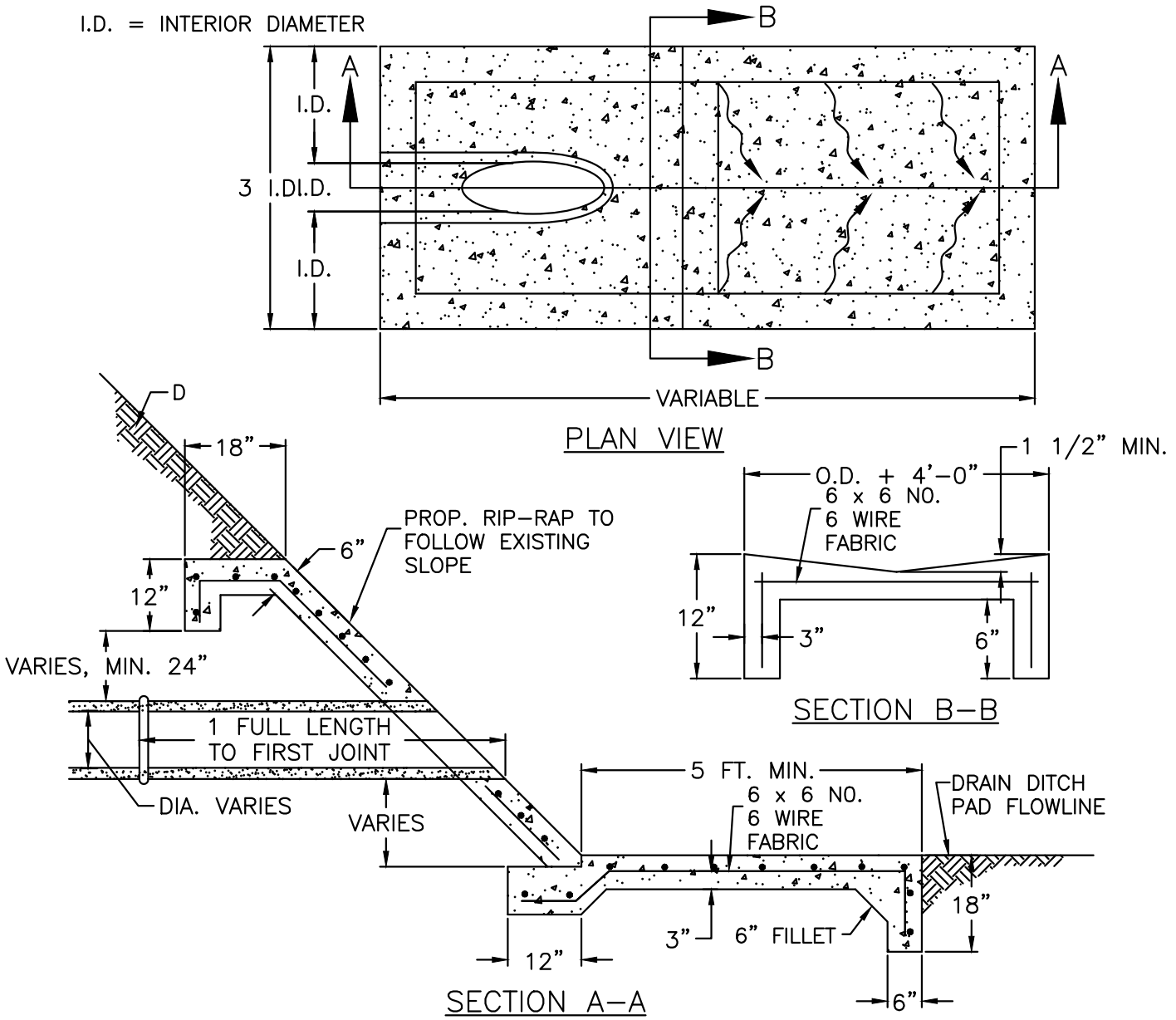
DRAINAGE IMPROVEMENT DETAILS
TYPICAL LANDSCAPE INLET

HCE PROJECT NO.
P241-01

STANDARD DESIGN MANUAL
CITY OF MERCEDES

SHEET NO.
STM - 10

01/2021



GENERAL NOTES:

1. CONCRETE TO HAVE 3000 P.S.I. MIN. AT 28 DAY COMPRESSIVE STRENGTH.
2. ALL STEEL TO BE GRADE 60.
3. MIN. 90% COMPACTION STD. PROCTOR DENSITY
4. STANDARD DETAIL FOR CITY OF MERCEDES DITCHES

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

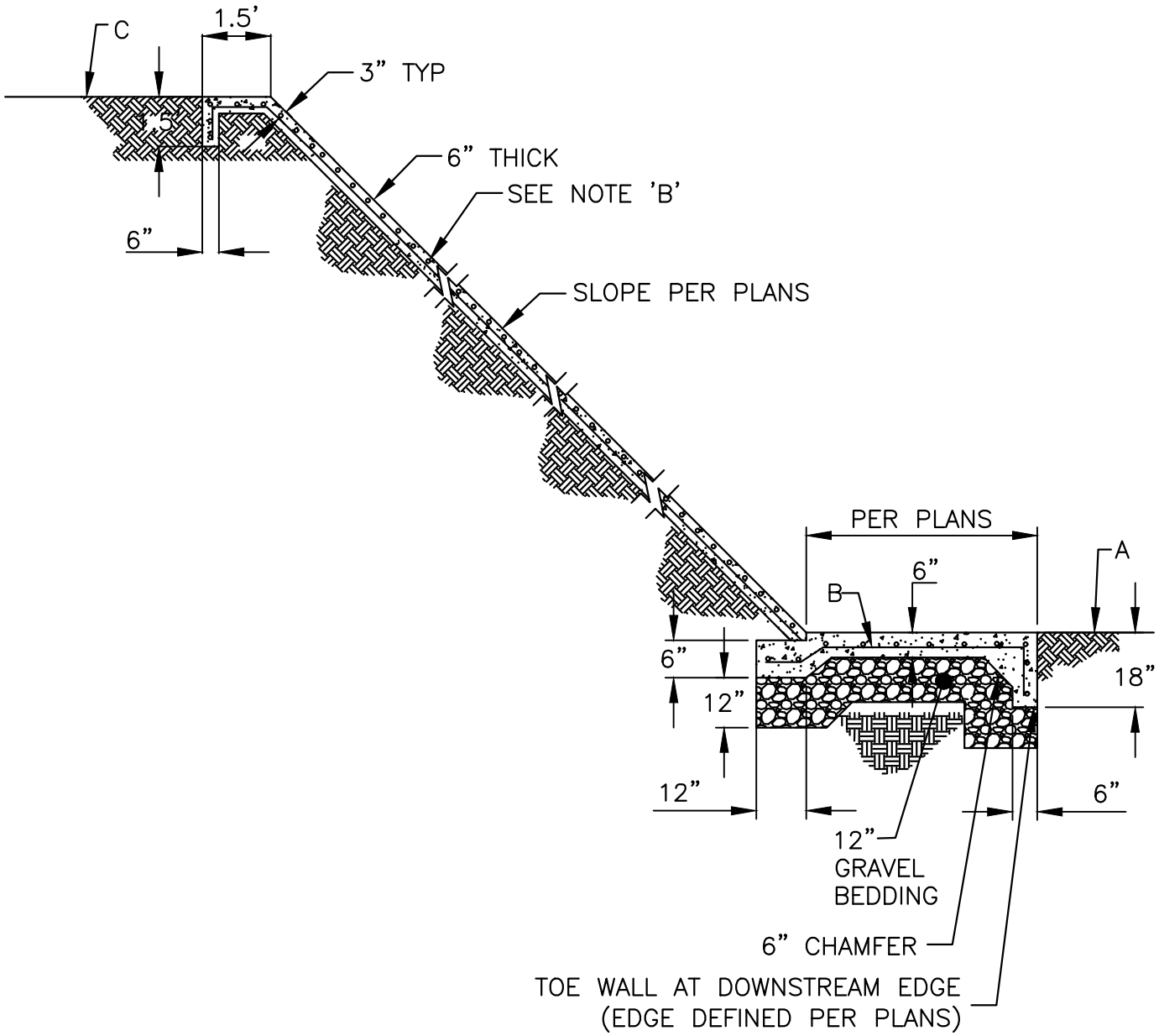
DRAINAGE IMPROVEMENT DETAILS
CONCRETE SLOPED-END SECTION

HCE PROJECT NO.
P241-01

STANDARD DESIGN MANUAL
CITY OF MERCEDES

SHEET NO.
STM - 11

01/2021



CONSTRUCTION NOTES:

A. DRAIN DITCH FLOW–LINE.
B. 6"X6"X NO. 6 WIRE FABRIC
C. MIN. 95% COMPACTION STD. PROCTOR DENSITY ON ALL FILL MATERIAL

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

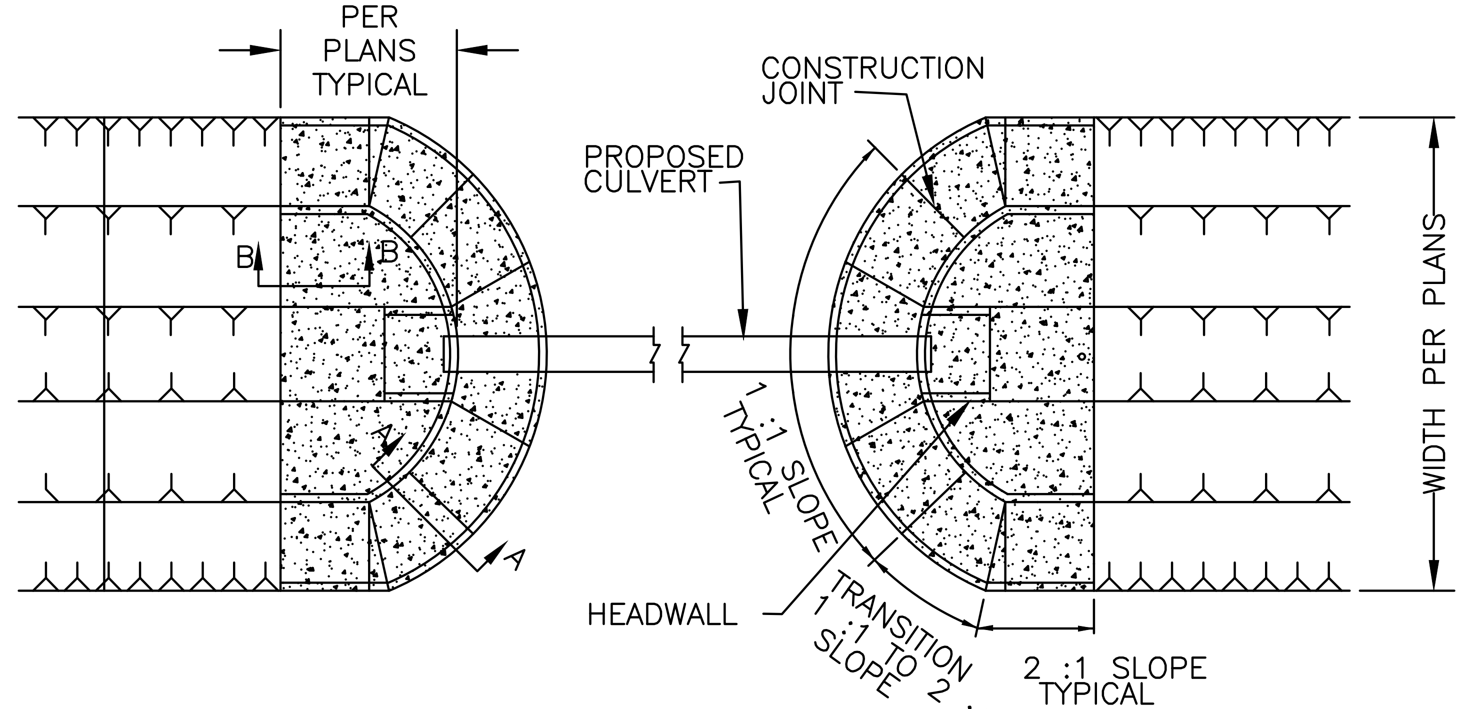
DRAINAGE IMPROVEMENT DETAILS
CONCRETE RIP RAP SLOPE PROTECTION (1 OF 2)

HCE PROJECT NO.
P241-01

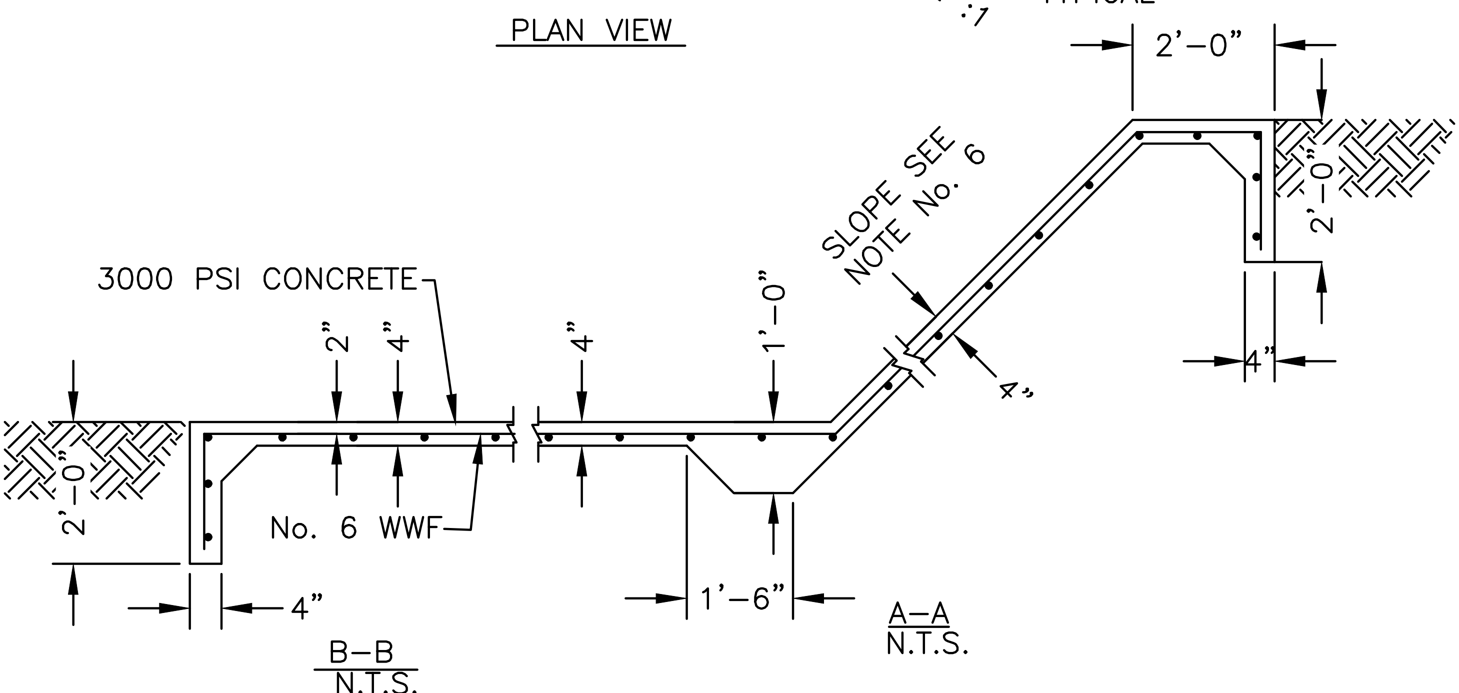
STANDARD DESIGN MANUAL
CITY OF MERCEDES

SHEET NO.
STM - 12

01/2021



PLAN VIEW



PROFILES

NOTES

1. 3000 PSI. CONCRETE REINFORCE WITH No. 6 WELDED WIRE FABRIC.
2. APPLY MEMBRANE CURING COMPOUND AT A RATE OF 1-GALLON / 180 S.F.
3. BROOM FINISH RIP-RAP.
4. CONSTRUCTION JOINT AT 10'-0" C-C.
5. EXPANSION JOINT AT 30'-0" C-C.
6. BEGIN SIDE SLOPE OF RIP-RAP AT 1:1 AND TRANSITION TO 2:1 SLOPE AS NOTED IN DETAIL.

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

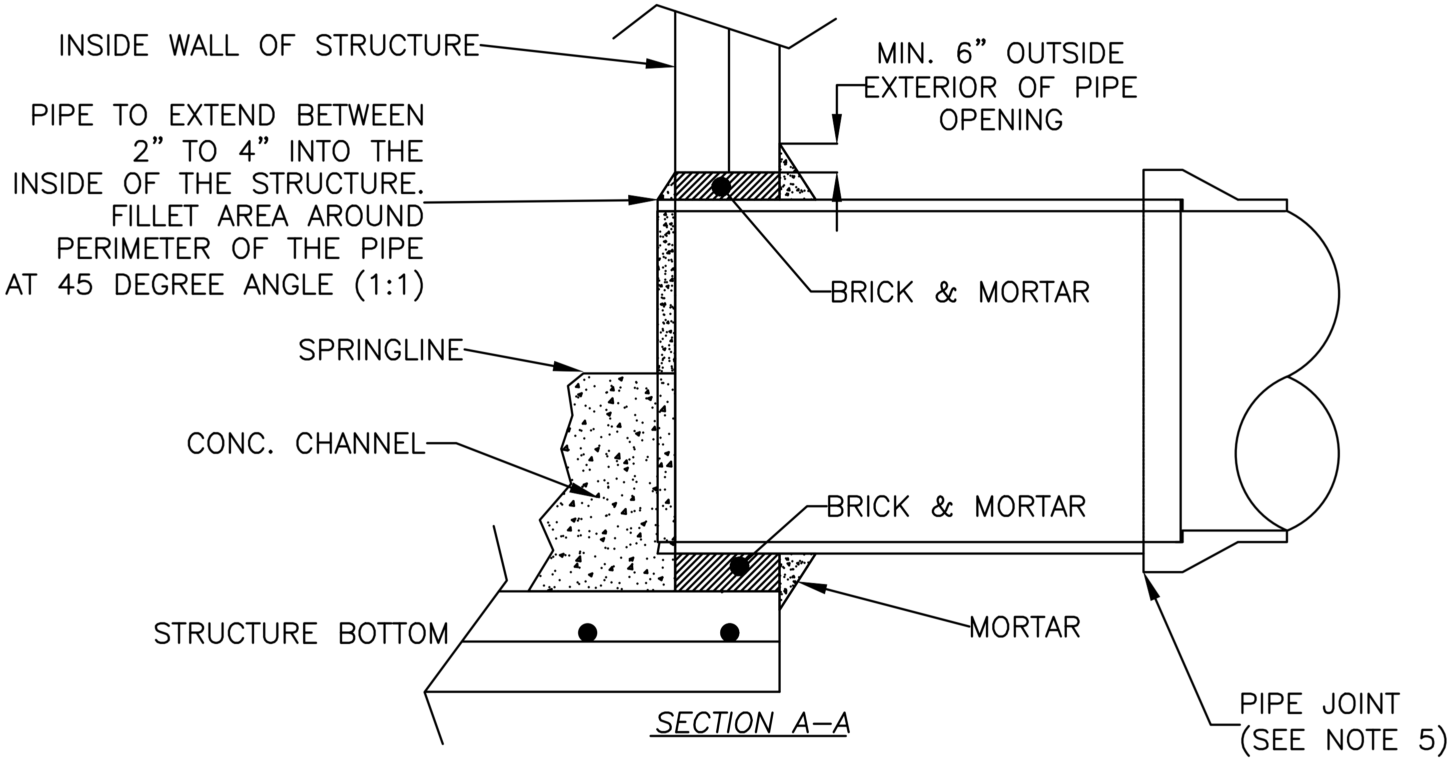
DRAINAGE IMPROVEMENT DETAILS
CONCRETE RIP RAP SLOPE PROTECTION (2 OF 2)

HCE PROJECT NO.
P241-01

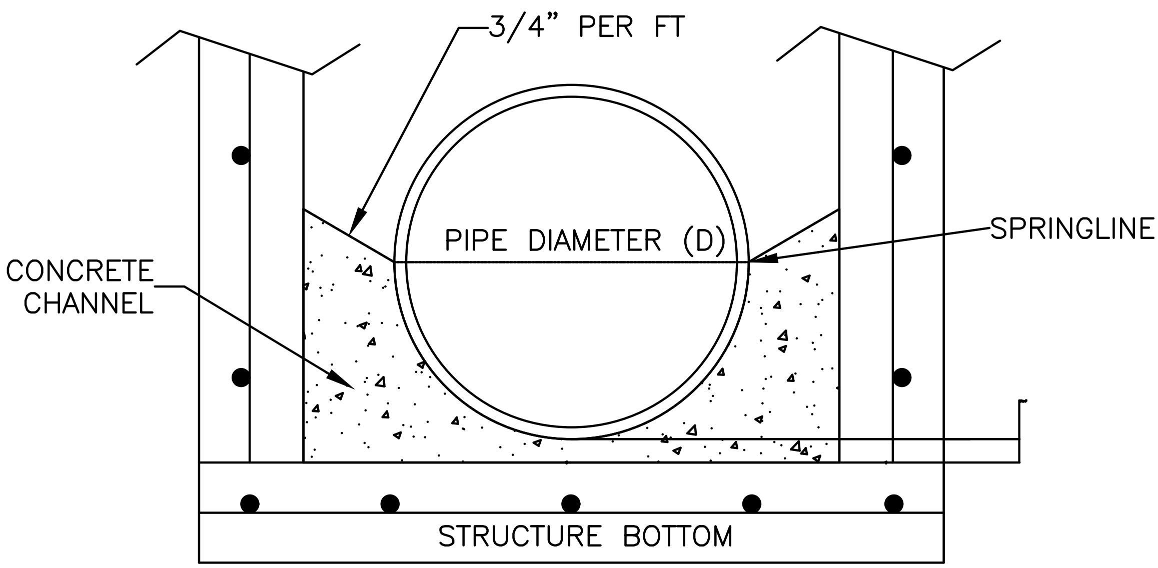
STANDARD DESIGN MANUAL
CITY OF MERCEDES

SHEET NO.
STM - 13

01/2021



SECTION A–A

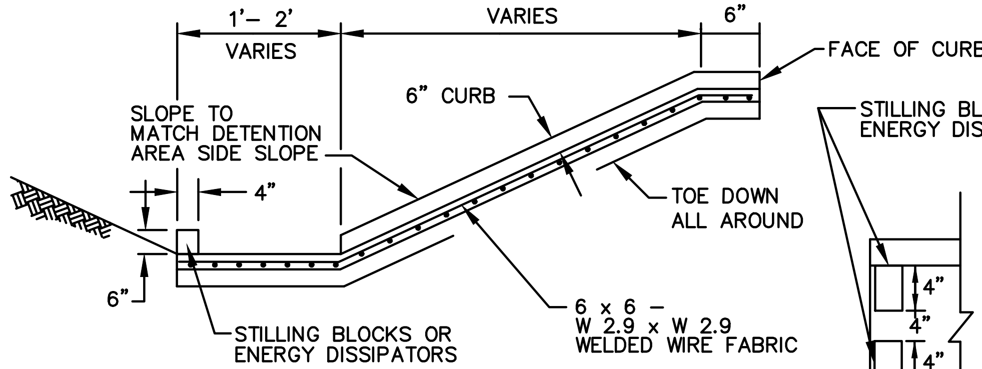


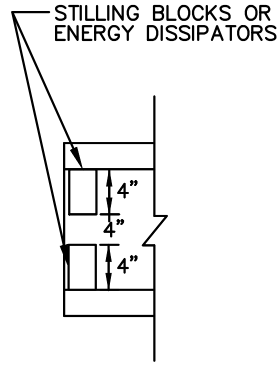
SECTION B–B

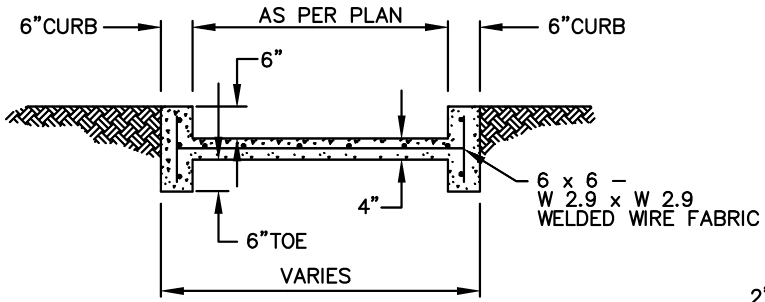
GENERAL NOTES:

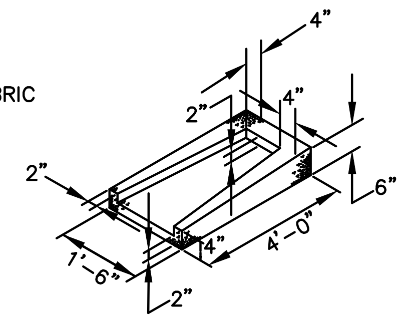
1. CONCRETE CHANNEL TO EXTEND THRU ENTIRE STRUCTURE, FROM INLET PIPE TO OUTLET PIPE.
2. CONCRETE TO HAVE A MIN. 28 DAY COMPRESSIVE STRENGTH OF 3000 P.S.I.
3. ALL MORTAR TO BE NON–SHRINK MORTAR.
4. PIPE OPENING IN STRUCTURE TO BE NO MORE THAN 8 INCHES WIDER THAN THE OUTSIDE DIAMETER OF THE PIPE.
5. NO PIPE JOINTS ALLOWED WITHIN 3 FEET OF THE OUTSIDE WALL OF THE STRUCTURE.

city of mercedes 400 South Ohio, Mercedes, Texas 78570 (956) 565 – 3114	**DRAINAGE IMPROVEMENT DETAILS CONCRETE PIPE STRUCTURE CONNECTION**	HCE PROJECT NO. P241-01	
	STANDARD DESIGN MANUAL CITY OF MERCEDES	SHEET NO. STM - 14	01/2021

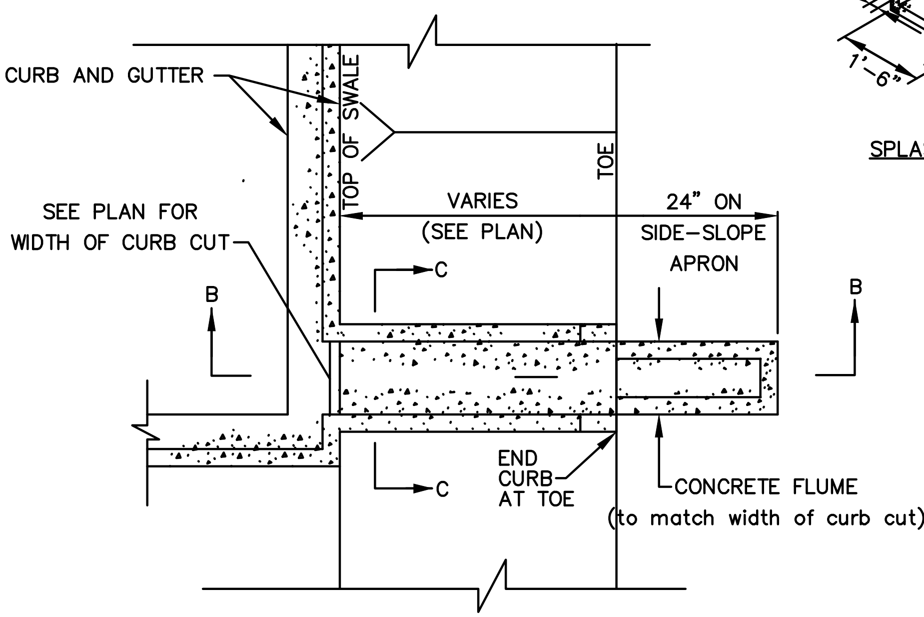




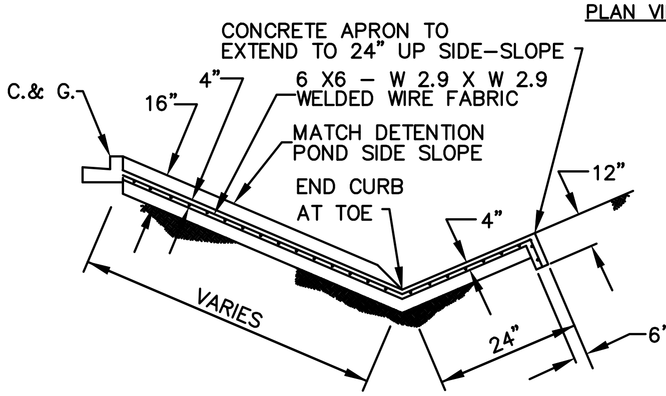




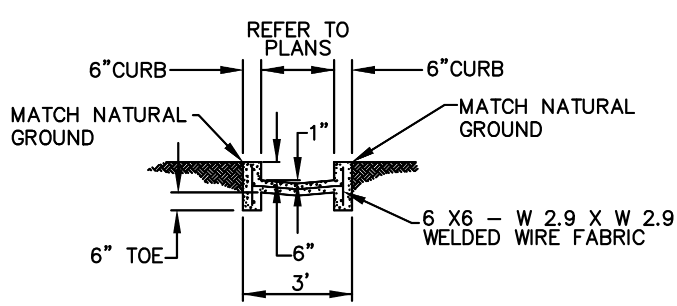
SPLASH BLOCK DETAIL



PLAN VIEW

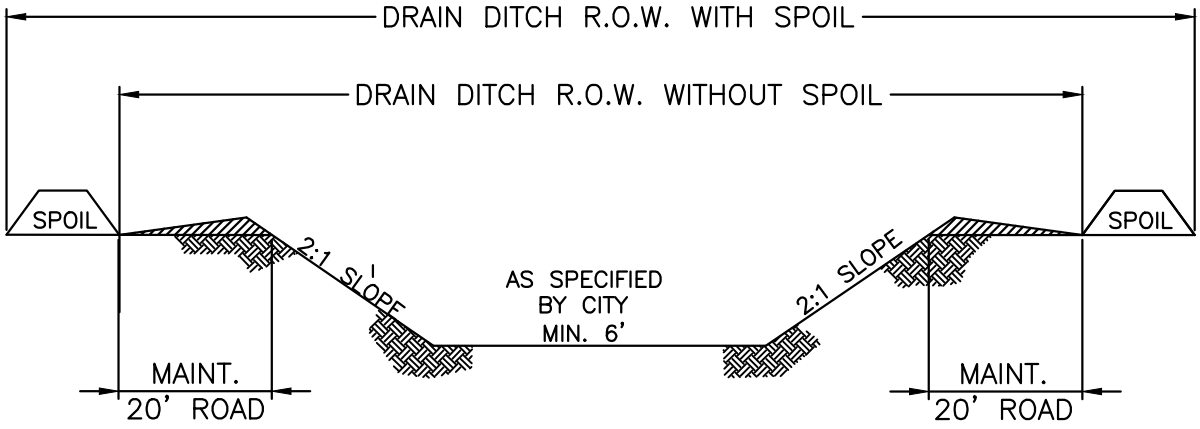


CROSS SECTION B–B



CROSS SECTION C–C

city of mercedes 400 South Ohio, Mercedes, Texas 78570 (956) 565 – 3114	**DRAINAGE IMPROVEMENT DETAILS TYPICAL CONCRETE FLUME**	HCE PROJECT NO. P241-01	
	STANDARD DESIGN MANUAL CITY OF MERCEDES	SHEET NO. STM - 15	01/2021



NOTE: R.O.W. WIDTH MUST BE APPROVED BY OTHER ENTITIES ALSO I.E., IRRIGATION AND OR DRAINAGE DISTRICTS.

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

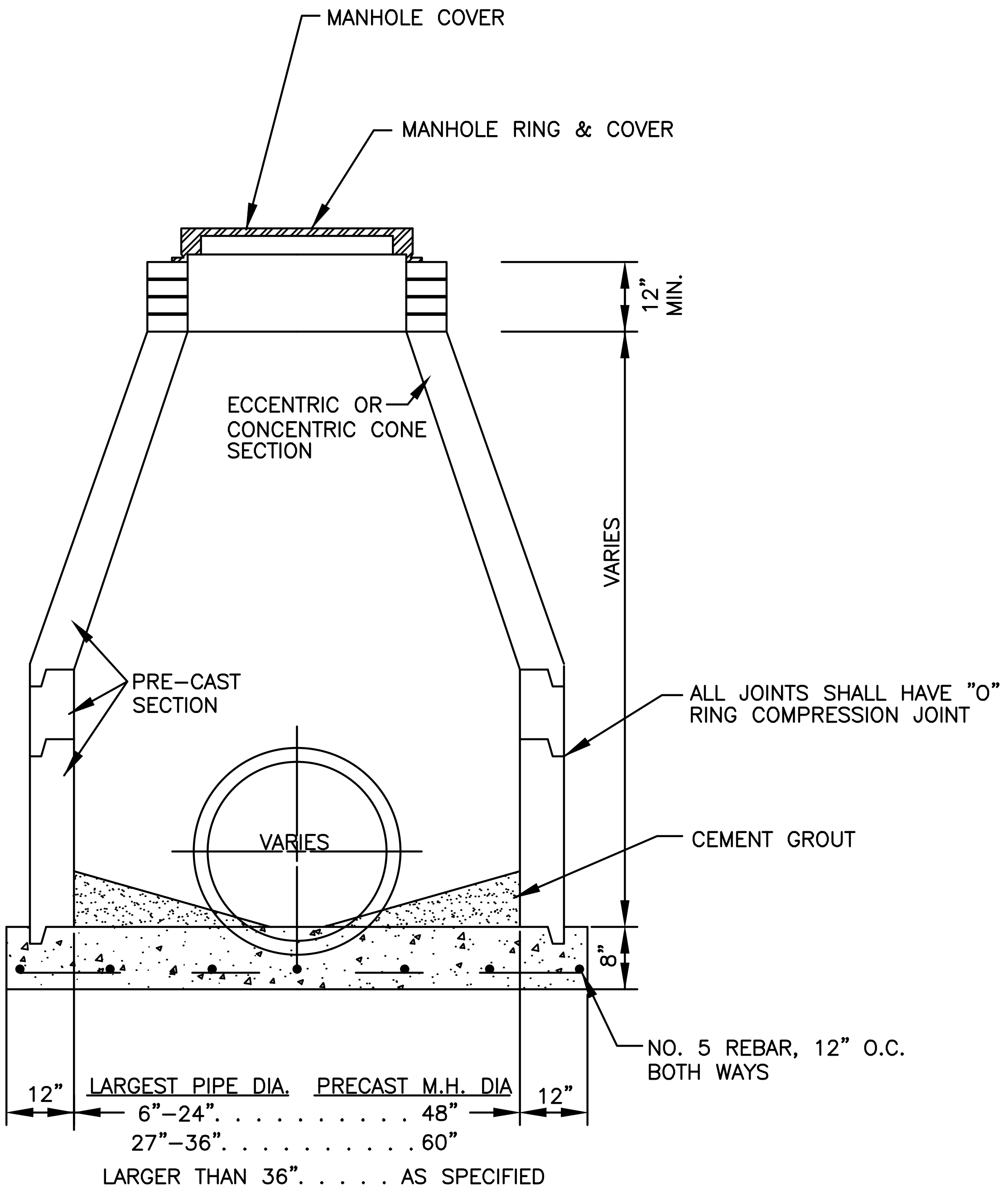
DRAINAGE IMPROVEMENT DETAILS
TYPICAL DITCH CROSS SECTION

HCE PROJECT NO.
P241-01

STANDARD DESIGN MANUAL
CITY OF MERCEDES

SHEET NO.
STM - 16

01/2021



NOTE: NOT TO SCALE

NOTE:

1. MANHOLE SHALL BE PLACED ON 6-INCH SAND BEDDING.
2. SUBGRADE SHALL BE COMPACTED TO 95% DENSITY
3. 6' DIAMETER BY 12" CONCRETE COLLAR REQUIRED WHEN INSIDE PAVEMENT

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

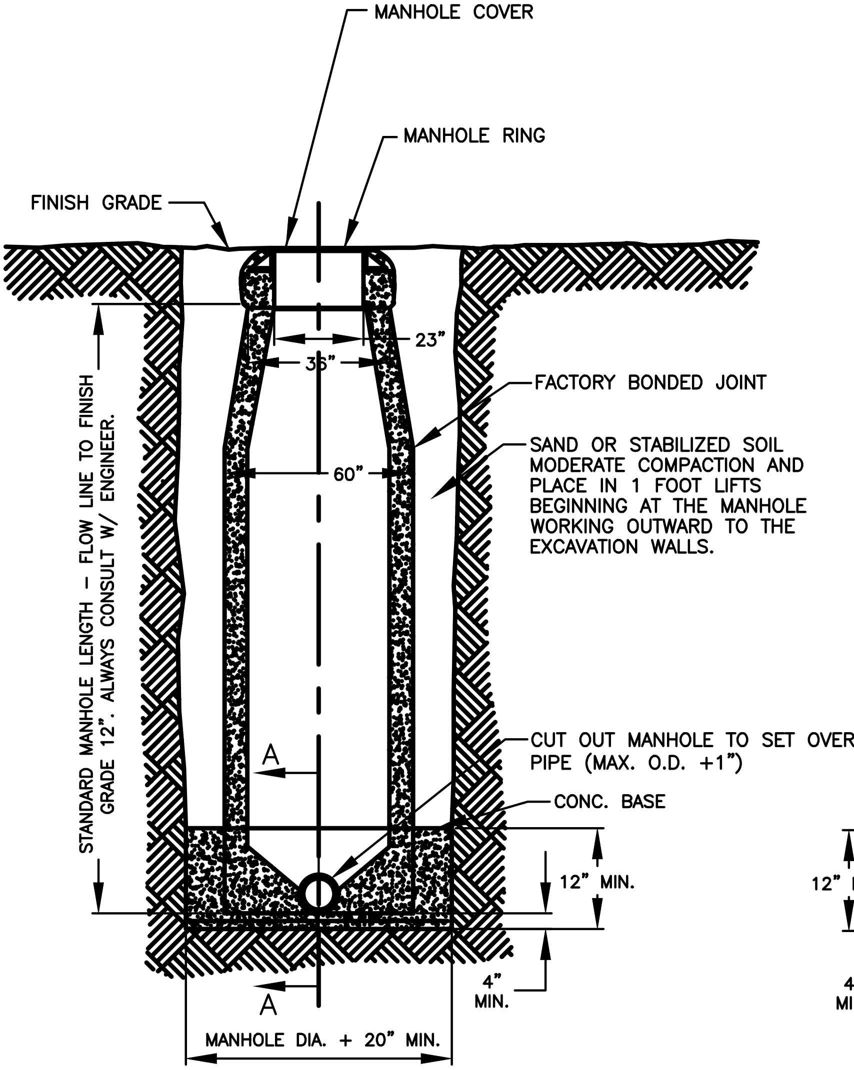
DRAINAGE IMPROVEMENT DETAILS
STANDARD STORM SEWER PRE-CAST CONCRETE MANHOLE

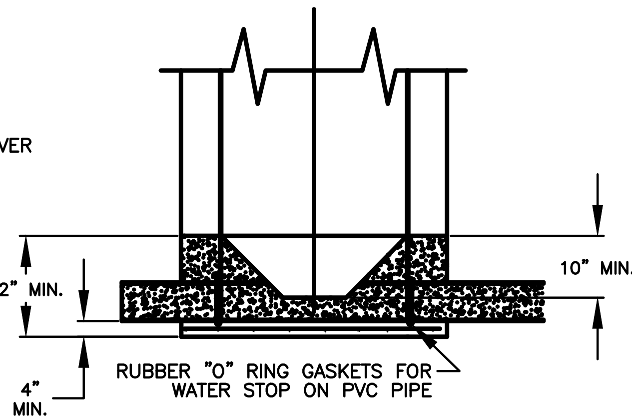
HCE PROJECT NO.
P241-01

STANDARD DESIGN MANUAL
CITY OF MERCEDES

SHEET NO.
STM - 17

01/2021





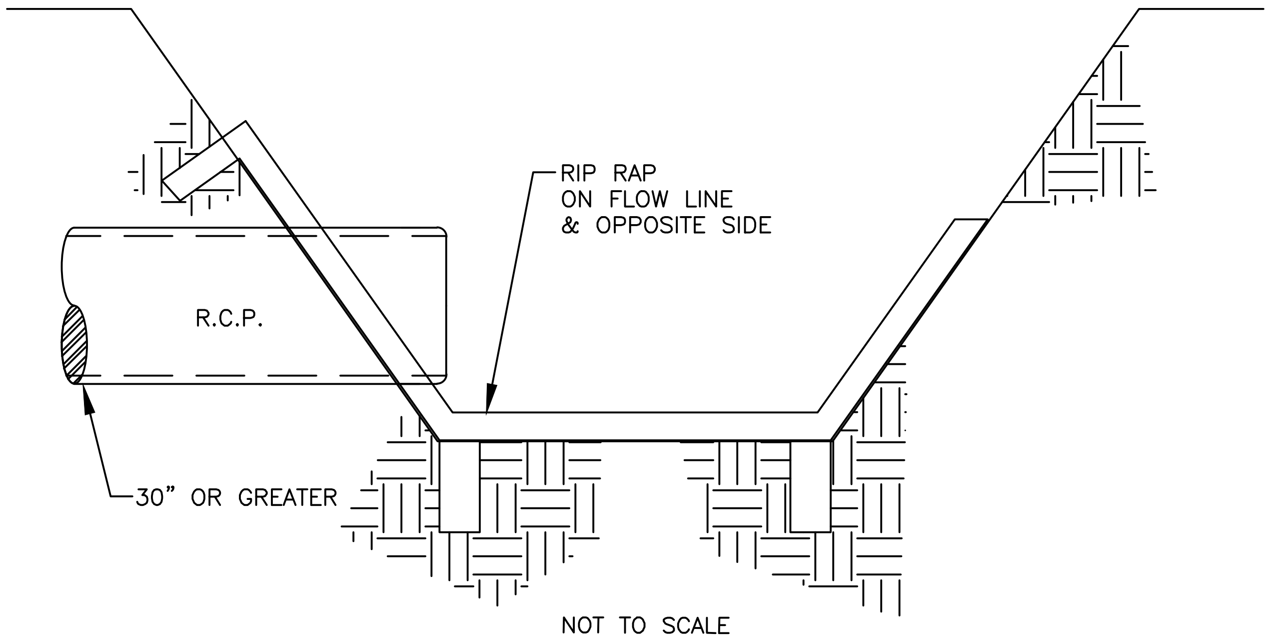
SECTION "A–A"

NOT TO SCALE

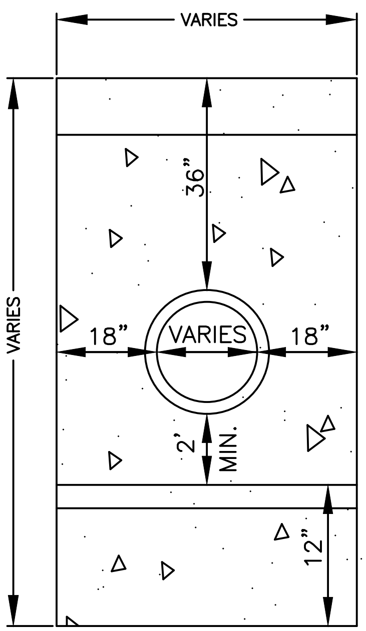
GENERAL NOTES

1. BEFORE ATTEMPTING TO INSTALL ANY MANHOLE BE SURE EXCAVATION HAS BEEN SHORED OR SLOPED PROPERLY.
2. CONCRETE BASE TO BE POURED IN PLACE IN TRENCH.
3. MANHOLE CUT–OUT TO BE MADE AT TIME OF INSTALLATION.
4. MANHOLE TO BE INSTALLED BY INSERTING INTO WET CONCRETE BASE.
5. FUTURE CONNECTIONS. IF A SEALANT BETWEEN PIPE & MANHOLE IS NEEDED USE STAUFFER CHEMICAL SWS940RTV SILICONE SEALANT OR EQUAL.
6. USE 4'–0" INSIDE DIAMETER (ID) PRECAST SECTION FOR SEWERS WHOSE NOMINAL SIZE IS 24" OR SMALLER.
7. USE 5'–0" ID SECTION FOR SEWER SIZES 30"–36"
8. USE 6'–0" ID SECTIONS FOR SEWERS LARGER THEN 30".
9. MANHOLE SHALL BE PLACED ON 6–INCH SAND BEDDING.
10. SUBGRADE SHALL BE COMPACTED TO 95% DENSITY
11. 6' DIAMETER BY 12" CONCRETE COLLAR REQUIRED WHEN INSIDE PAVEMENT

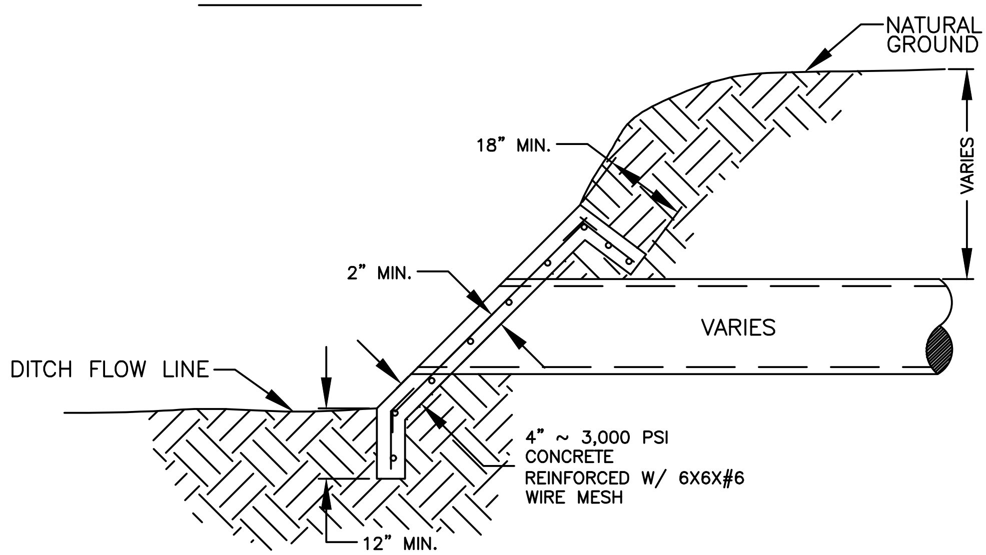
city of mercedes 400 South Ohio, Mercedes, Texas 78570 (956) 565 – 3114	**DRAINAGE IMPROVEMENT DETAILS CAST-IN-PLACE 4' DIA. CONCRETE STORM SEWER MANHOLE**	HCE PROJECT NO. P241-01	
	STANDARD DESIGN MANUAL CITY OF MERCEDES	SHEET NO. STM - 18	01/2021



NOT TO SCALE



DETAIL



city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

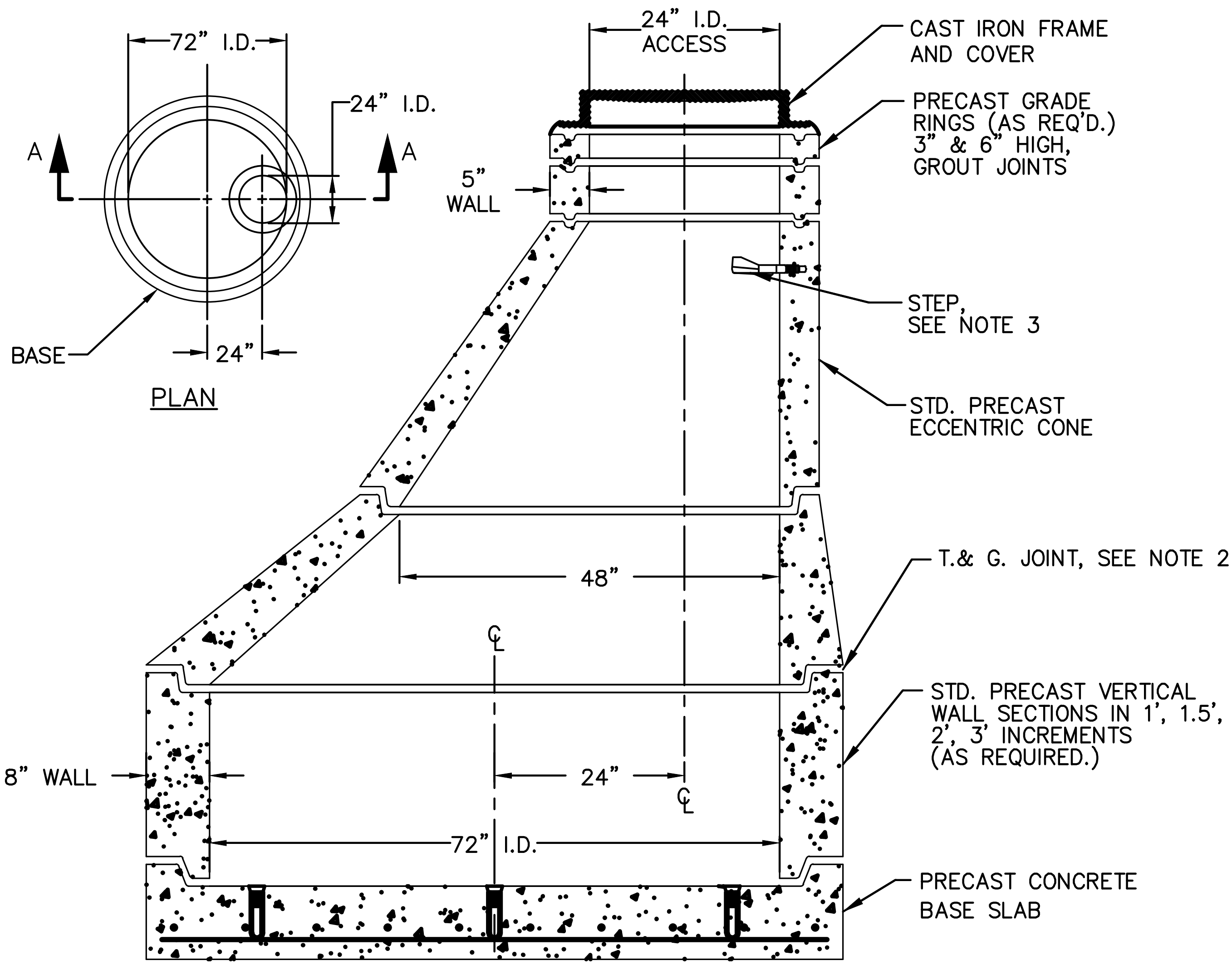
DRAINAGE IMPROVEMENT DETAILS
CAST-IN-PLACE CONCRETE RIP-RAP

HCE PROJECT NO.
P241-01

STANDARD DESIGN MANUAL
CITY OF MERCEDES

SHEET NO.
STM - 19

01/2021

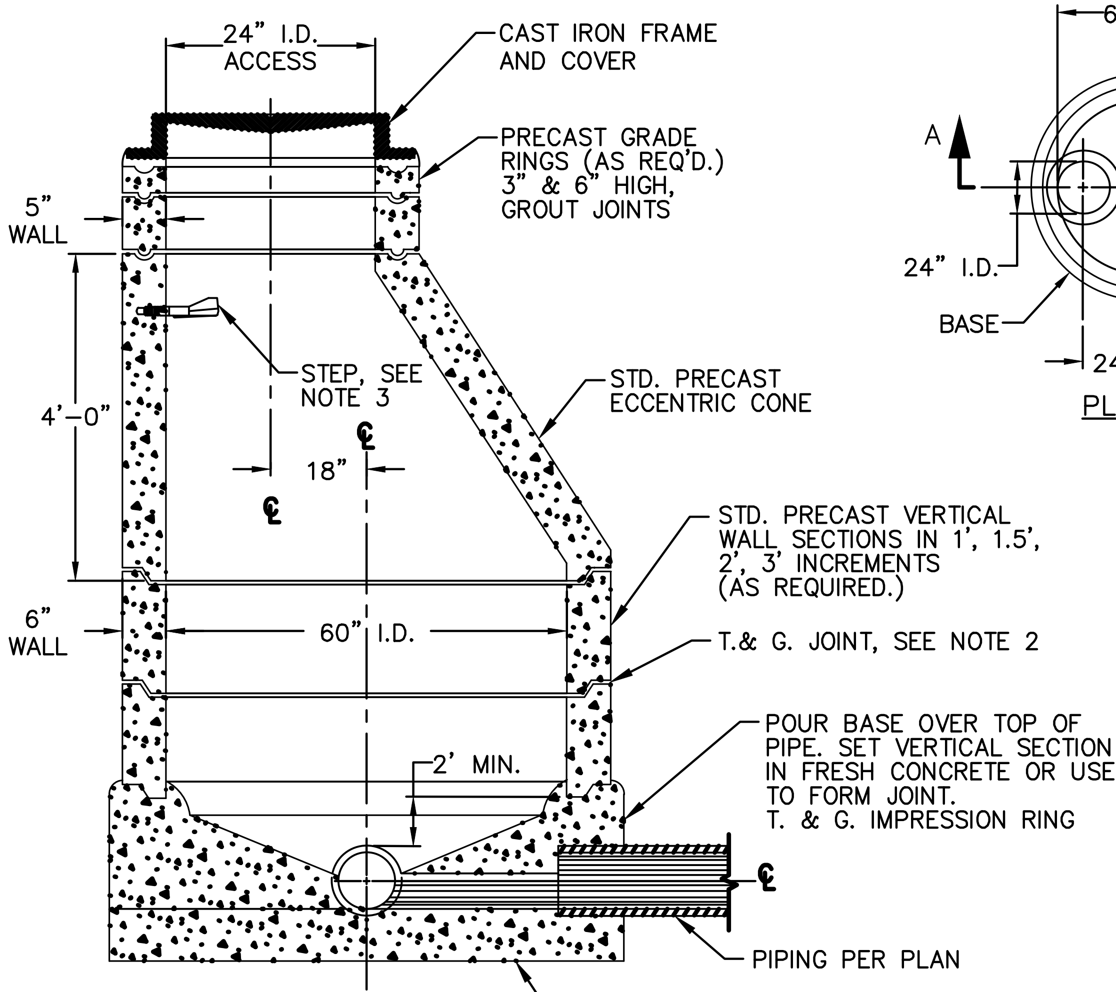


SECTION A–A

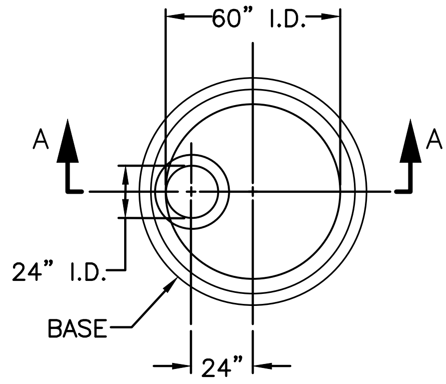
NOTES :

1. PRECAST MANHOLE MATERIAL IS MANUFACTURED TO ASTM SPECIFICATION C–478.
2. ALL JOINTS SHALL BE SEALED WITH JOINT COMPOUND OR GROUTED WITH 1:3 MORTAR MIX.
3. POLYPROPYLENE ENCASED STEEL REINFORCED STEPS SUPPLIED, WHEN REQUIRED.
4. WEIGHT OF TAPER = 2,050 LBS. VERTICALS = 2,100 LBS./FT.

city of mercedes 400 South Ohio, Mercedes, Texas 78570 (956) 565 – 3114	**DRAINAGE IMPROVEMENT DETAILS 72 - INCH ECCENTRIC STORM MANHOLE**	HCE PROJECT NO. P241-01	
	STANDARD DESIGN MANUAL CITY OF MERCEDES	SHEET NO. STM - 20	01/2021



SECTION A–A

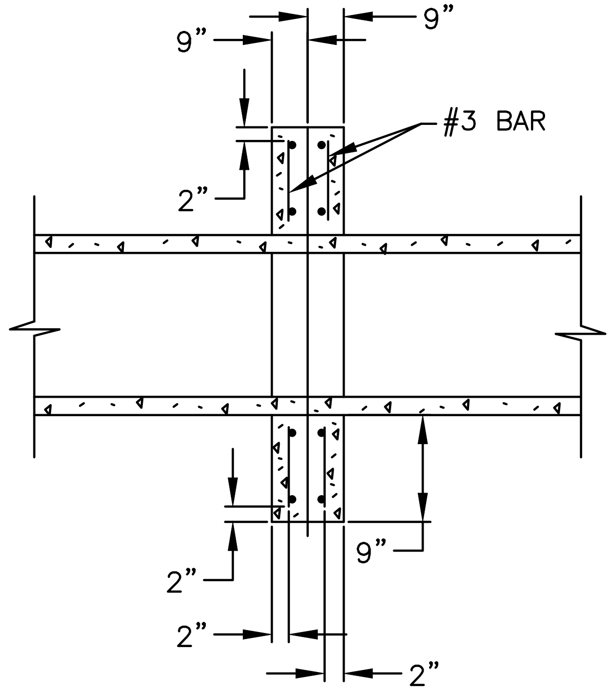


PLAN

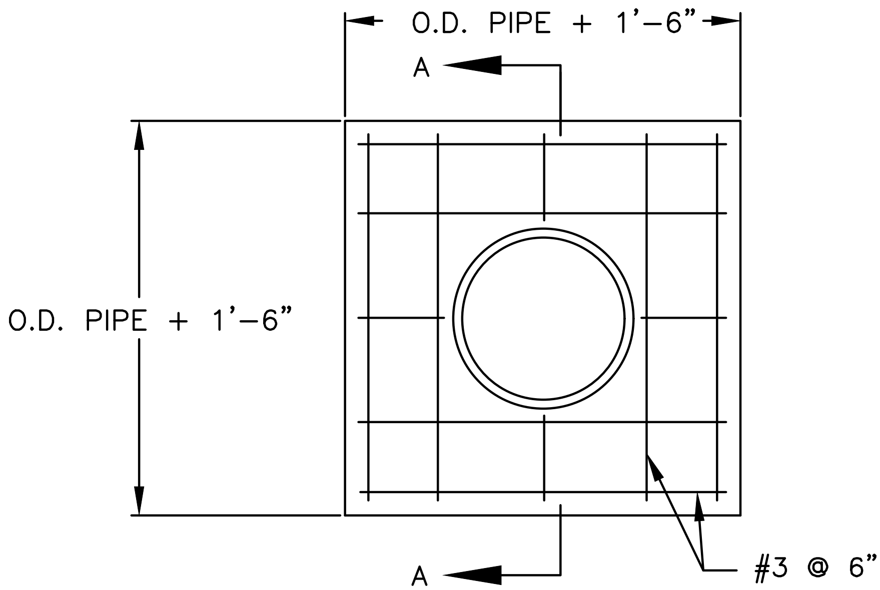
NOTES :

1. PRECAST MANHOLE MATERIAL IS MANUFACTURED TO ASTM SPECIFICATION C–478.
2. ALL JOINTS SHALL BE SEALED WITH JOINT COMPOUND OR GROUTED WITH 1:3 MORTAR MIX.
3. POLYPROPYLENE ENCASED STEEL REINFORCED STEPS SUPPLIED, WHEN REQUIRED.
4. WEIGHT OF TAPER = 4,100 LBS.
   VERTICALS = 1,300 LBS/FT.

city of mercedes 400 South Ohio, Mercedes, Texas 78570 (956) 565 – 3114	**DRAINAGE IMPROVEMENT DETAILS** **60 - INCH ECCENTRIC STORM MANHOLE**	HCE PROJECT NO. P241-01	
	STANDARD DESIGN MANUAL **CITY OF MERCEDES**	SHEET NO. STM - 21	01/2021



SECTION A–A



FRONT ELEVATION

NOTE:

1. NO BLOCK OR OTHER FILLER ALLOWED.
2. NOTCH ALL SIDES IN TO UNDISTURBED SOIL.
3. COLLAR MUST BE ADEQUATELY FRAMED USING WOOD OR OTHER ACCEPTABLE MATERIAL.

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

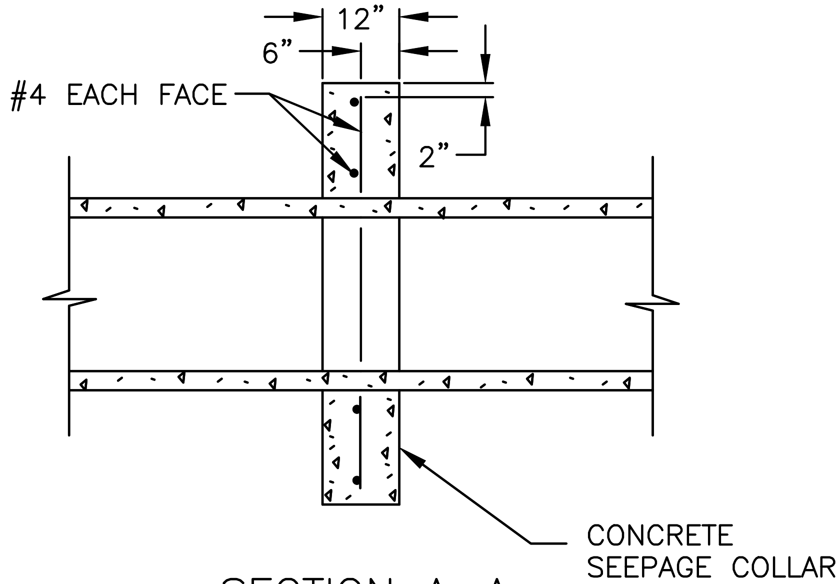
DRAINAGE IMPROVEMENT DETAILS
CONCRETE PIPE COLLAR

HCE PROJECT NO.
P241-01

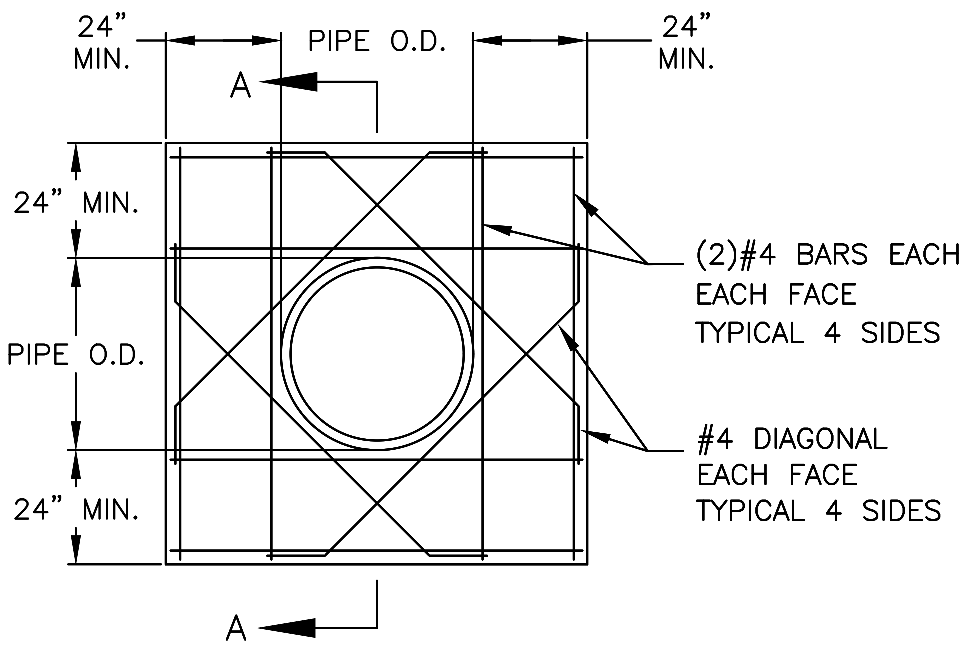
STANDARD DESIGN MANUAL
CITY OF MERCEDES

SHEET NO.
STM - 22

01/2021



SECTION A–A
N.T.S.



FRONT ELEVATION
N.T.S.

NOTE:

1. NO BLOCK OR OTHER FILLER ALLOWED.
2. NOTCH ALL SIDES IN TO UNDISTURBED SOIL.
3. COLLAR MUST BE ADEQUATELY FRAMED USING WOOD OR OTHER ACCEPTABLE MATERIAL.
4. SEEPAGE COLLAR SHALL BE CONTRUCTED UPSTREAM OF OUTFALL AT DRAINAGE R.O.W.

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

DRAINAGE IMPROVEMENT DETAILS
CONCRETE SEEPAGE COLLAR

HCE PROJECT NO.
P241-01

STANDARD DESIGN MANUAL
CITY OF MERCEDES

SHEET NO.
STM - 23

01/2021

Section 10
Street and Roadway Policy

10.1 General

The purpose of this section is to outline the general requirements for the design of roadways within the City and provide typical details for construction. The City of Mercedes's City Engineer should be consulted if any deviations from these standards are anticipated before and during construction. In cases where design limitations or physical barriers restrict compliance with the provisions of this section, alternatives are to be considered by the City Engineer. All street and roadway improvements shall conform to the City of Mercedes's Code of Ordinances and the adopted Thoroughfare Plan.

10.2 Standards for Public Roads

A. The following table shows the minimum specifications for the design of streets and roadways. These specifications do not govern any state highways within the city and state highways shall conform to meet the Texas Department of Transportation specifications. All street pavements shall be designed by a Geotechnical Engineer. Design of pavements shall be submitted to the City Engineer for approval.

Table 4-1 Street Classification/Flexible Pavements Standards

Characteristic	Street Classification			
	Local	**Collector**	**Minor Arterial**	**Principal Arterial**
Street Width (back of curb to back of curb (B-B)	32' B-B to 40' B-B[4]	40' B-B[4] to 44' B-B	52' B-B to 65' B-B	65' B-B and Greater
Minimum Structural Section				
Subgrade[1]	8 inches	8 inches	12 inches	12 inches
Flexible Base[2]	8 inches	10 inches	12 inches	12 inches
Hot Mix Asphaltic Concrete (HMAC)[3]	2 inches	2 ½ inches	3 inches	3 inches
Min. Transverse Slope	2%	2%	2.5%	2.5%
Min. Longitudinal Slope	0.2%	0.2%	0.2%	0.2%
Min. Width of Curb and Gutter	18 inches	18 inches	24 inches	24 inches

A. Subgrade should be compacted to 95% maximum dry density, as determined by the standard proctor (ASTM D698) and treated with lime at an applicable rate if the plasticity index of the soils is greater than 20. All compacted subgrade shall extend to a minimum of 1 foot behind the proposed back of curb.

B. The flexible base shall be compacted to 98% maximum dry density, as determined by the standard proctor (ASTM D698) and treated with lime at an applicable rate if the plasticity index of the soils is greater than 12. All compacted flexible base shall extend to a minimum of 1 foot behind the proposed back of curb.

C. All hot mix asphaltic concrete shall consist of Type ”D”, crushed limestone aggregate and be compacted to 95% of the maximum theoretical dry density.

D. 40’ B-B may be designated as a local or collector street depending on the streets function.

E. Corner clips and radius dimension given in the table below shall govern on all City intersections with the exception of intersections on TxDOT right-of-way.

Table 4-2 Corner Clip & Radius Dimensions

Corner Clip / Radius Dimension					
Roadway Type	Minor Residential (50’ ROW)	Residential Collector (60’ ROW)	Collector (80’ ROW)	Minor Arterial (100’ ROW)	Principal Arterial (120’ ROW)
Minor Residential (50’ ROW)	(15’ / 20’)	(20’ / 20’)	(30’ / 25’)	(40’ / 30’)	(50’ / 35’)
Residential Collector (60’ ROW)	(20’ / 20’)	(20’ / 25’)	(30’ / 30’)	(40’ / 35’)	(50’ / 40’)
Collector (80’ ROW)	(30’ / 25’)	(30’ / 30’)	(30’ / 35’)	(40’ / 40’)	(50’ / 50’)
Minor Arterial (100’ ROW)	(40’ / 30’)	(40’ / 35’)	(40’ / 40’)	(40’ / 50’)	(50’ / 50’)
Principal Arterial (120’ ROW)	(50’ / 35’)	(50’ / 40’)	(50’ / 50’)	(50’ / 50’)	(50’ / 50’)

10.3 Standards for Private Roads

A. Public road standards in Section A above apply to any private roads within the City of Mercedes.

B. The width of access agreements for private roads are to be established as the same width required for public street right-of-way.

C. Street light standards for public roads shall be applied to private roads.

10.4 Testing Requirements

A. Material testing should be performed by a Professional Geotechnical Engineer licensed to practice in the State of Texas.

B. Material testing shall be paid by the developer through the Material Testing Fee (3%). Additional funds may be required if additional costs are incurred, and must be paid for before final acceptance of the subdivision.

C. The following table shows the testing requirements for material types in a typical roadway.

Table 4-3 Material Testing Requirements

Material Type	Testing Requirement	
Subgrade	1 test for every 1,000 square yards of street area for compaction and depth using standard proctor compaction test	
Flexible Base	1 test for every 1,000 square yards of street area for compaction and depth using standard proctor compaction test	
Hot Mix Asphaltic Concrete (HMAC)	1 test for every 1,500 square yards of street area for thickness verification using core samples	
Concrete	**Curb & Gutter**	**Concrete Pavement**
	3 cylinders for every 1,500 linear feet of curb and gutter to be broken at 7 and 28 days	3 cylinders for every 1,000 square yards, slump & air test for every 1,000 square yards

10.5 Sidewalk Requirements

A. All sidewalk and ramp construction shall meet the accessibility standards provided in the Texas Accessibility Standards (Texas Civil Statutes, Article 9102).

B. Four (4) foot wide sidewalks required on minor residential streets, five (5) foot wide sidewalks required on collector, arterial, and major thoroughfares.

C. Sidewalk alignment shall match existing alignment in the area.

D. If applicable, on perimeter street sidewalks, the developers shall pave these during the plat development stage.

E. In residential zones, sidewalk shall be constructed 2 feet or more from back of curb according to *Ordinance. No. 2014-24, § II, 12-16-2014* unless otherwise approved by the Planning Director and City Engineer. In commercial zones, sidewalks should be constructed 2 feet or more from back of curb whenever possible.

F. Sidewalks should be constructed with a minimum of four (4) inch thick concrete, reinforced with 6" x 6" No. 6-gauge wire fabric or No. 3 bars at O.C.E.W. (On Centers Each Way).

G. All concrete shall be 5-sack concrete and shall have a minimum compressive strength of 3000 psi at 28 days.

H. Sidewalk shall slope toward the street with a maximum transverse slope of ¼ inch per foot (2%), 1-inch above the top of curb, and a maximum longitudinal slope of ½ inch per foot (5%).

I. Subgrade and 2" sand cushion should be compacted to 90% standard proctor.

J. Bar lift, plastic chairs or approved equal shall be installed to keep reinforcement at center of concrete thickness.

K. Contraction joints shall be placed at every 6 feet and expansion joints at every 30 feet.

L. Exposed aggregate concrete is not allowed. Concrete sidewalks shall be non-slip broom finished transverse to the walkway.

M. Ramps shall be placed at all intersection with roadways or where required by law/City. Curb and Gutter must be saw cut at the location of the proposed ramp.

10.6 Street Light Requirements

A. Table 4-4 below shows the City of Mercedes street light requirements.

Table 4-4 Streetlight Spacing & Requirements

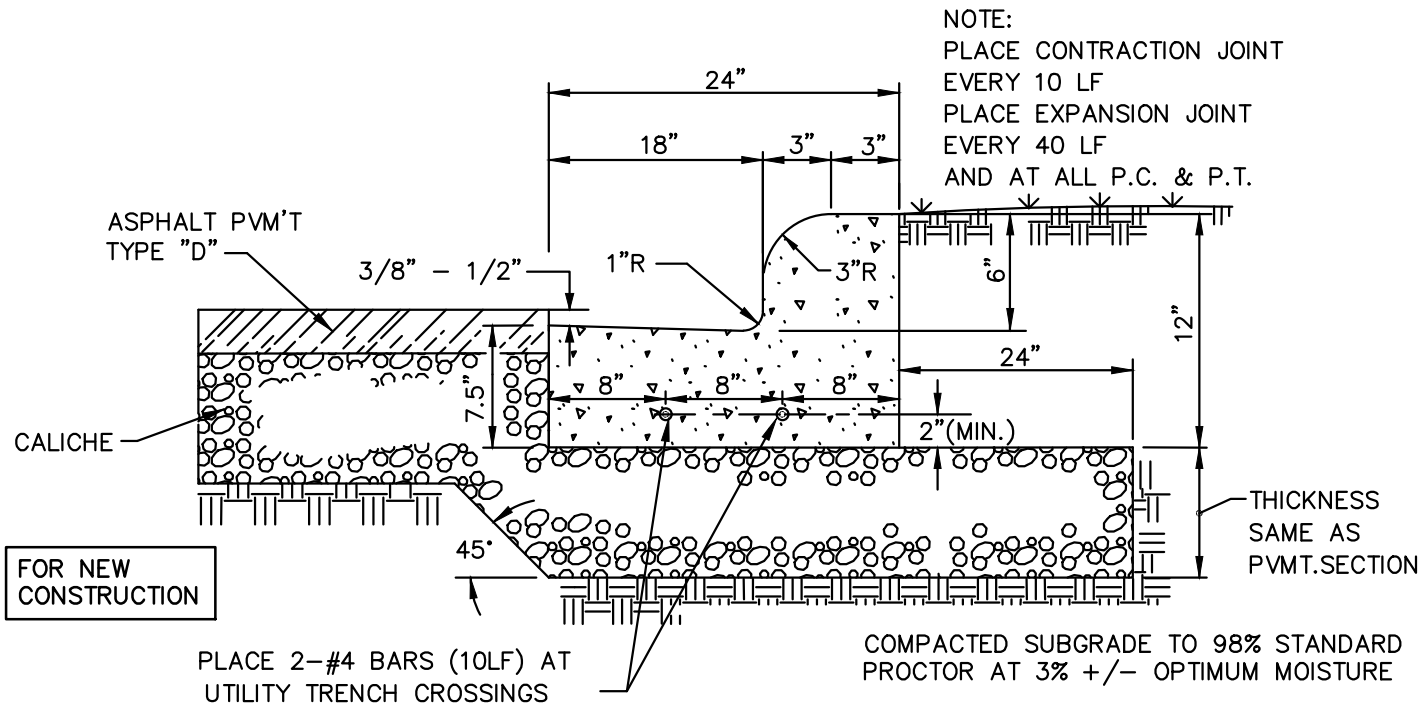
Streetlights Standards				
Street Type	**Fixture Type**	**Luminosity (Lumens)**	**Minimum Spacing**	**Maximum Spacing**
Arterial or Principle Arterial	High-Pressure Sodium Vapor	27,500	200 feet	250 feet
Residential Collector	High-Pressure Sodium Vapor	27,500	250 feet	300 feet
Minor Residential, Option 1	High-Pressure Sodium Vapor	27,500	N/A	400 feet
Minor Residential, Option 2	High-Pressure Sodium Vapor	16,000	N/A	200 feet

B. Streetlights shall be installed at intersections, cul-de-sacs, and any other location considered necessary by the Planning Director and/or the City Engineer within the subdivision and any street adjacent to it.

C. The initial cost of streetlight improvements is collected from the developer. For developments that are private subdivisions, the governing H.O.A. shall be responsible for the cost of maintenance and operation.

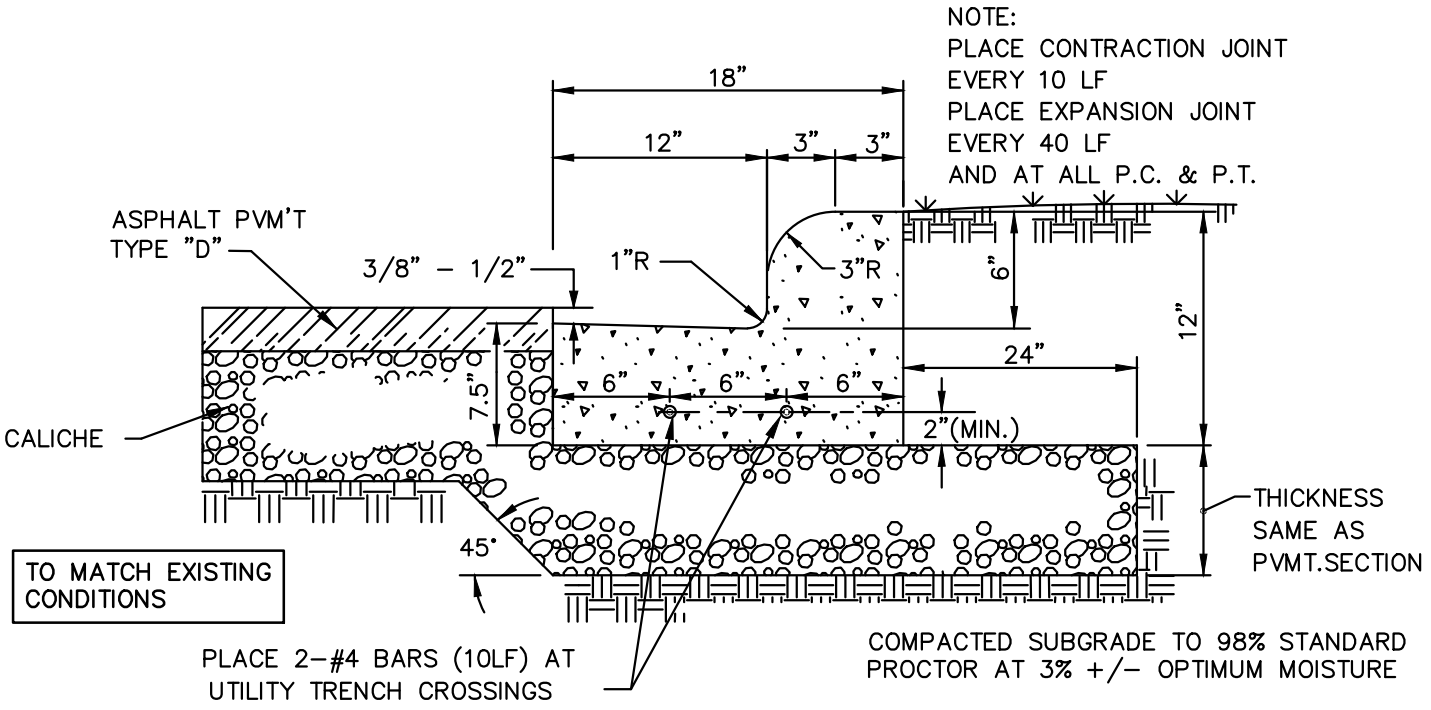
D. Existing streetlights within a subdivision or along the adjacent streets to the subdivision shall be upgraded to the proper luminary level referenced in Table 4-4 Streetlight Requirements & Spacing during the platting and approval process and the building permit stage.

10.7 Street and Roadway Improvement Details



24" CURB & GUTTER SECTION

NTS



18" CURB & GUTTER SECTION

NTS

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

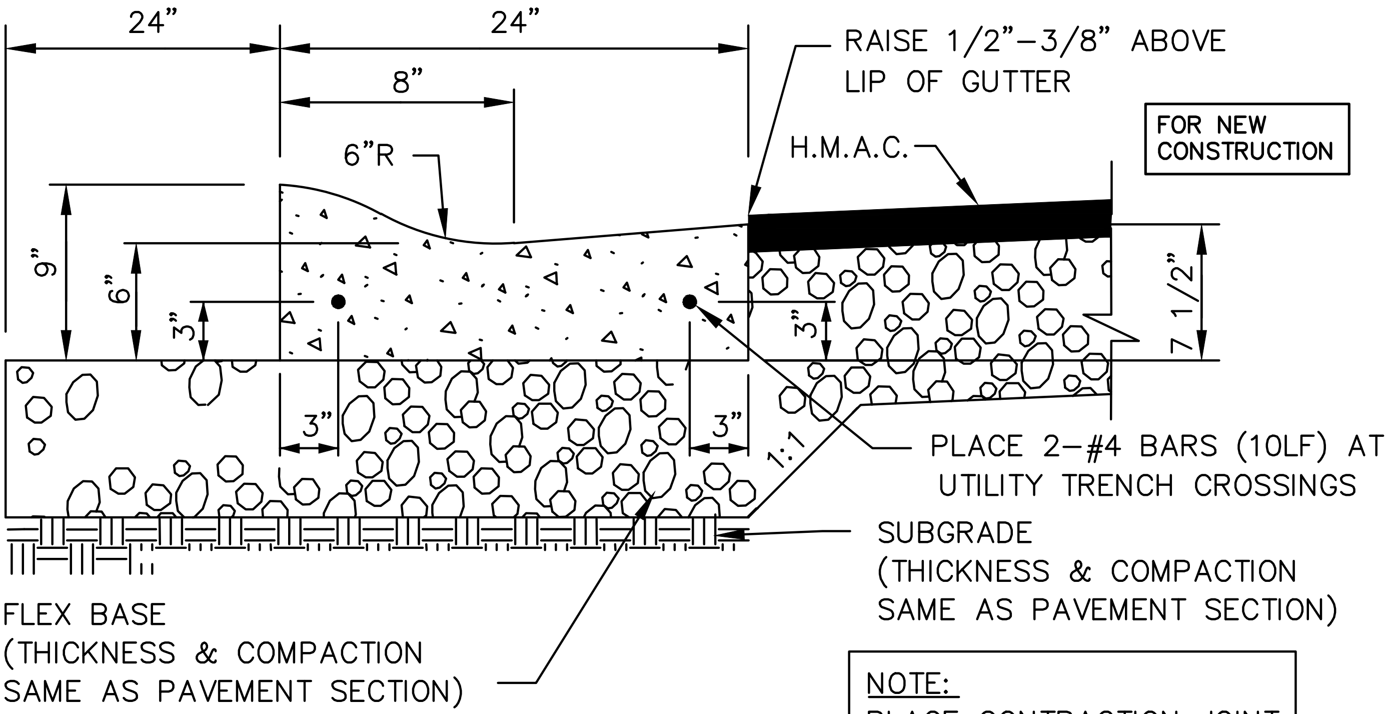
PAVEMENT & ROADWAY IMPROVEMENT DETAILS
TYPICAL CONCRETE CURB & GUTTER

HCE PROJECT NO.
P241-01

STANDARD DESIGN MANUAL
CITY OF MERCEDES

SHEET NO.
ST - 1

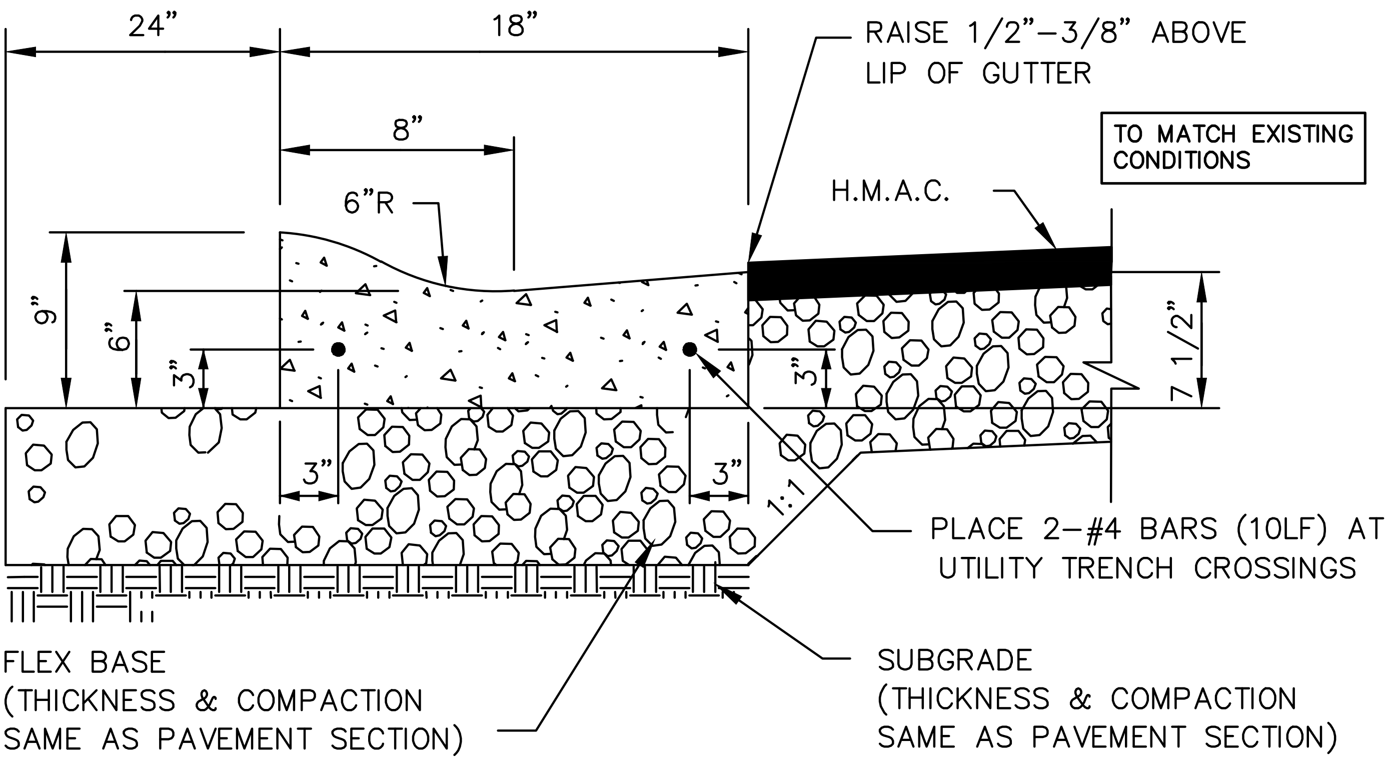
01/2021



24" ROLL-OVER CURB & GUTTER SECTION

NTS

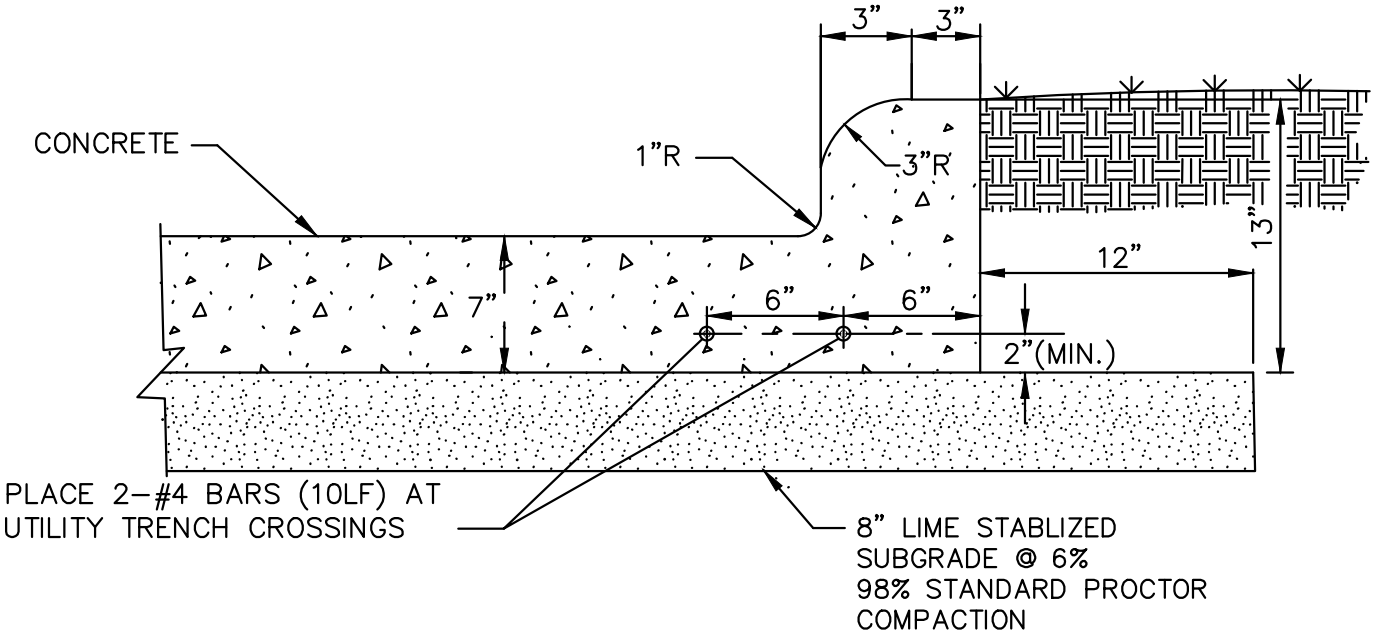
NOTE:
PLACE CONTRACTION JOINT EVERY 10 L.F., PLACE EXPANSION JOINT EVERY 40 L.F. AND AT ALL P.C. & P.T.



18" ROLL-OVER CURB & GUTTER SECTION

NTS

city of mercedes 400 South Ohio, Mercedes, Texas 78570 (956) 565 – 3114	**PAVEMENT & ROADWAY IMPROVEMENT DETAILS** **TYPICAL CONCRETE ROLL-OVER CURB & GUTTER**	HCE PROJECT NO. P241-01	
	STANDARD DESIGN MANUAL **CITY OF MERCEDES**	SHEET NO. ST - 2	01/2021



city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

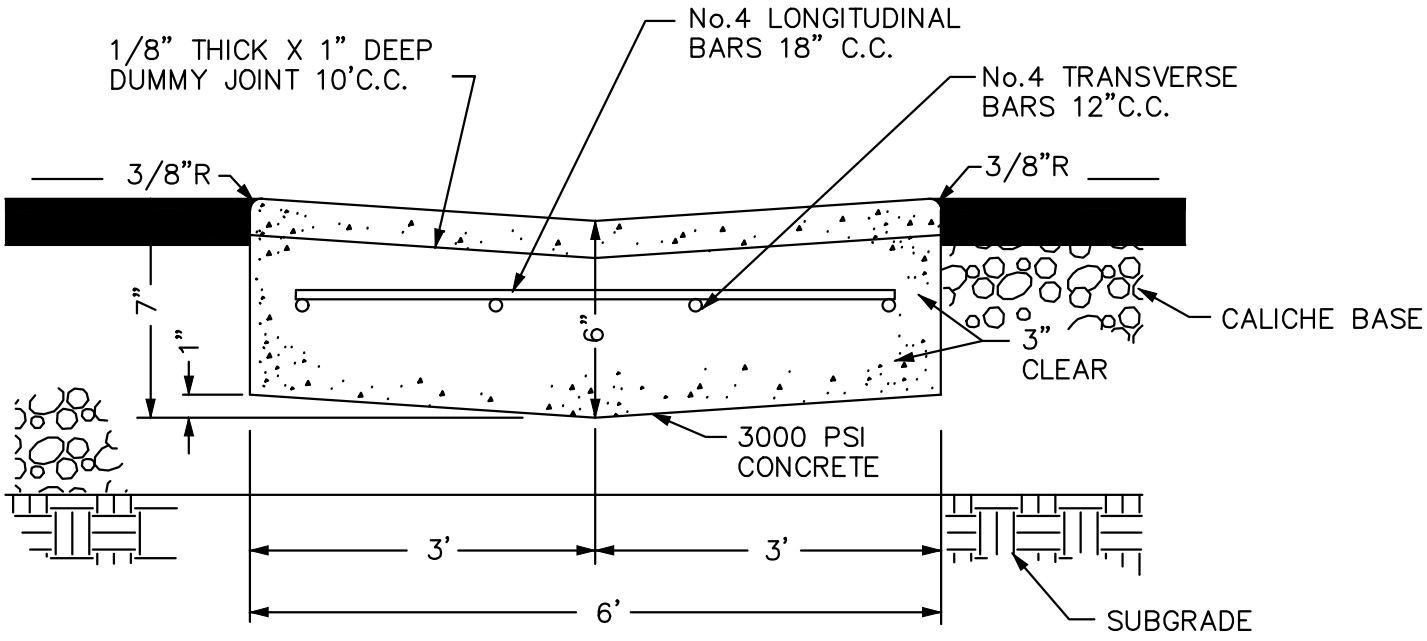
PAVEMENT & ROADWAY IMPROVEMENT DETAILS
TYPICAL CONCRETE MONOLITHIC CURB

HCE PROJECT NO.
P241-01

STANDARD DESIGN MANUAL
CITY OF MERCEDES

SHEET NO.
ST - 3

01/2021



city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

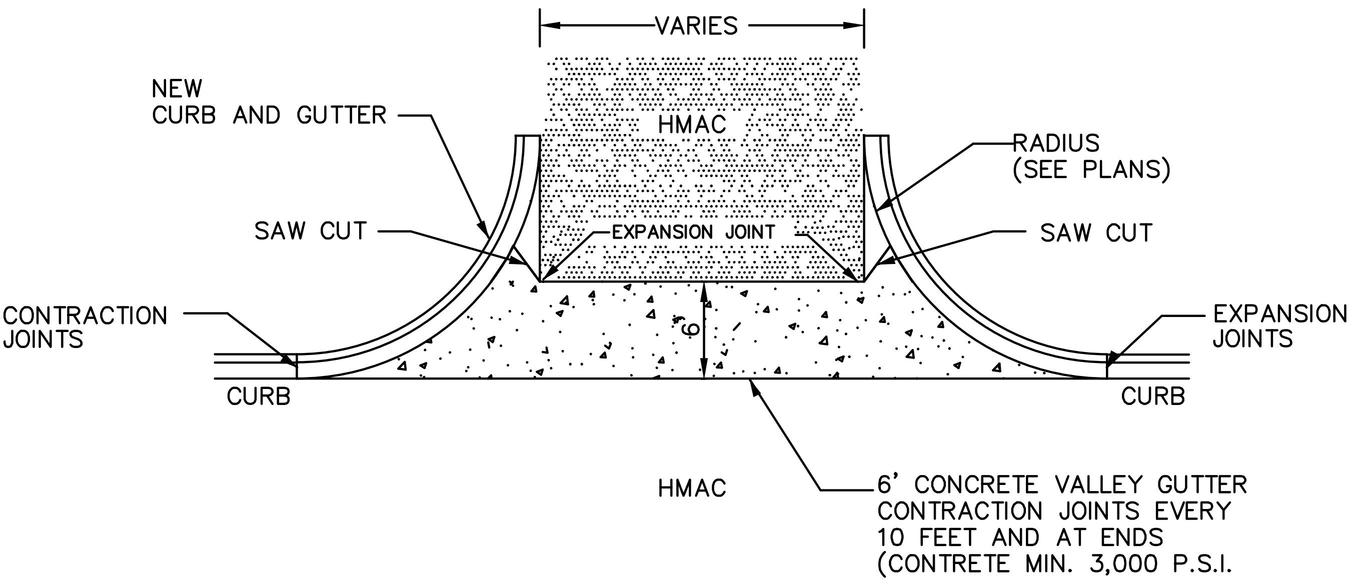
PAVEMENT & ROADWAY IMPROVEMENT DETAILS
CONCRETE VALLEY GUTTER

HCE PROJECT NO.
P241-01

STANDARD DESIGN MANUAL
CITY OF MERCEDES

SHEET NO.
ST - 4

01/2021



city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

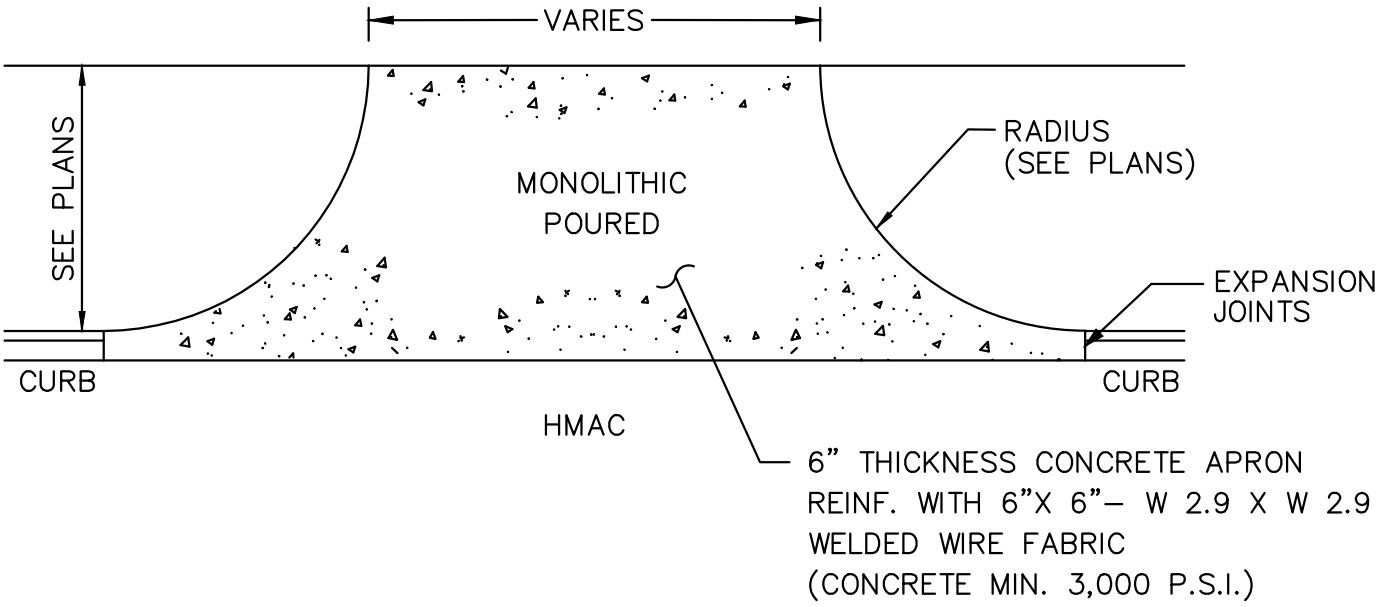
PAVEMENT & ROADWAY IMPROVEMENT DETAILS
CONCRETE VALLEY GUTTER SECTION

HCE PROJECT NO.
P241-01

STANDARD DESIGN MANUAL
CITY OF MERCEDES

SHEET NO.
ST - 5

01/2021



city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

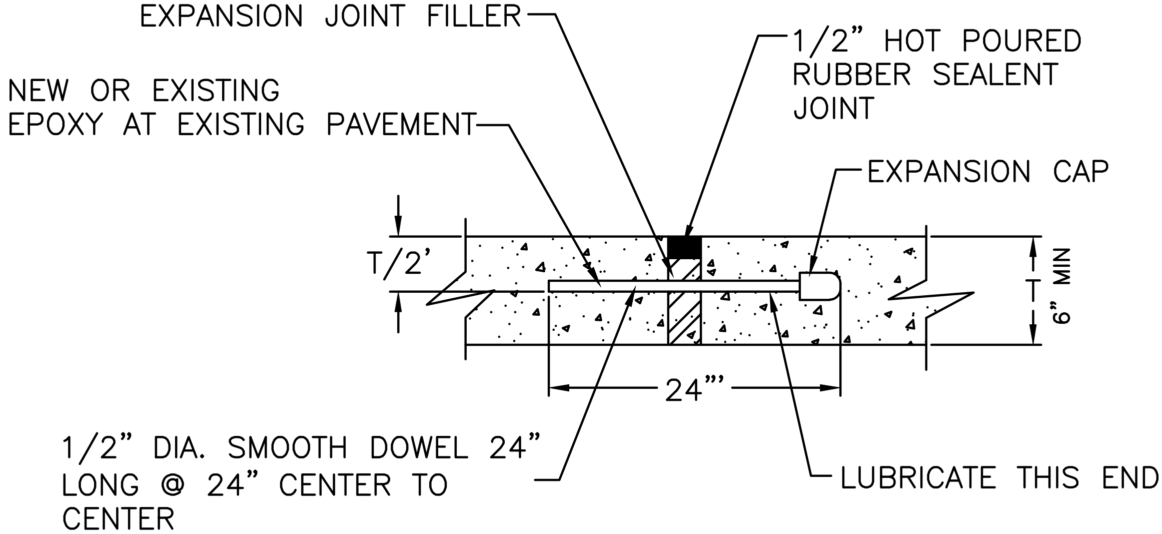
PAVEMENT & ROADWAY IMPROVEMENT DETAILS
TYPICAL CONCRETE APRON

HCE PROJECT NO.
P241-01

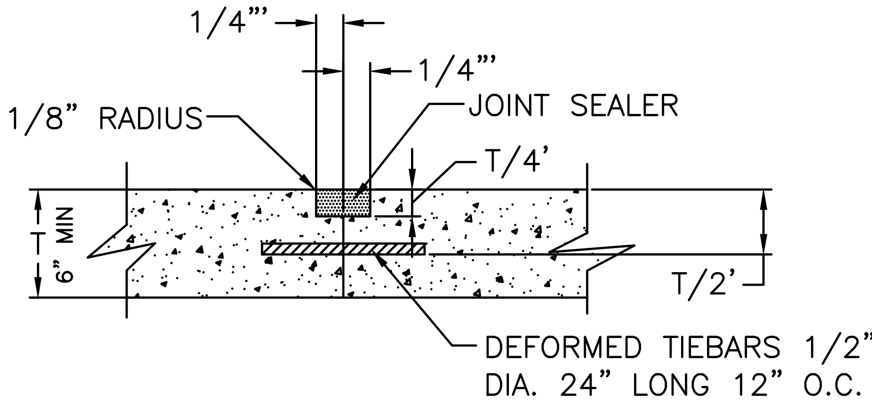
STANDARD DESIGN MANUAL
CITY OF MERCEDES

SHEET NO.
ST - 6

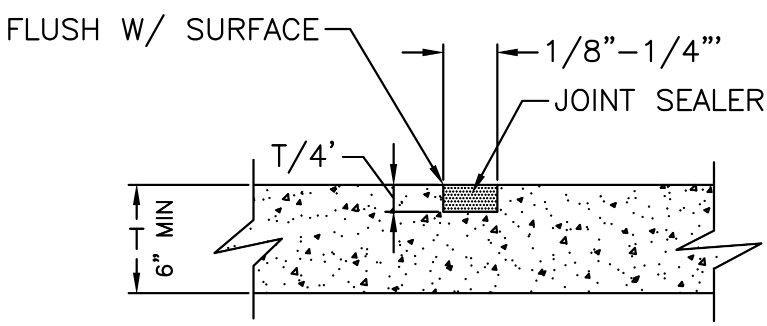
01/2021



EXPANSION JOINT



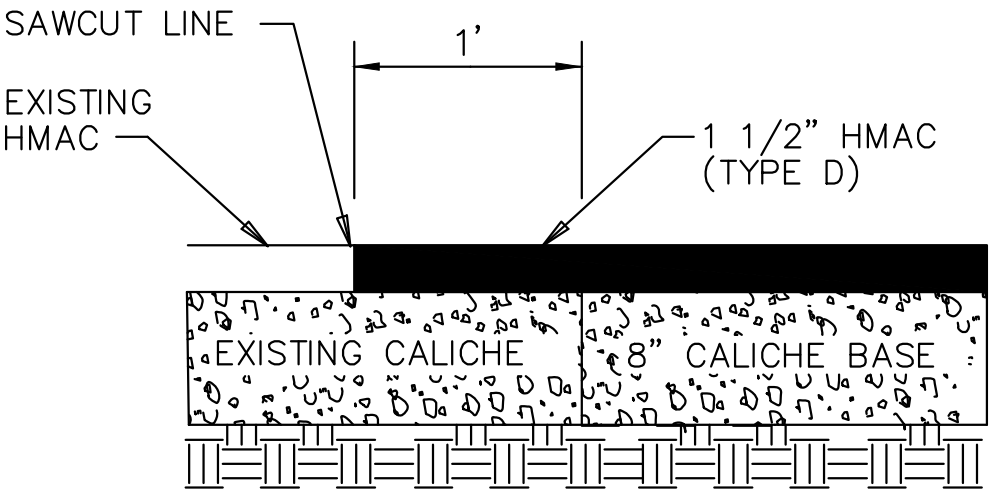
CONSTRUCTION JOINT



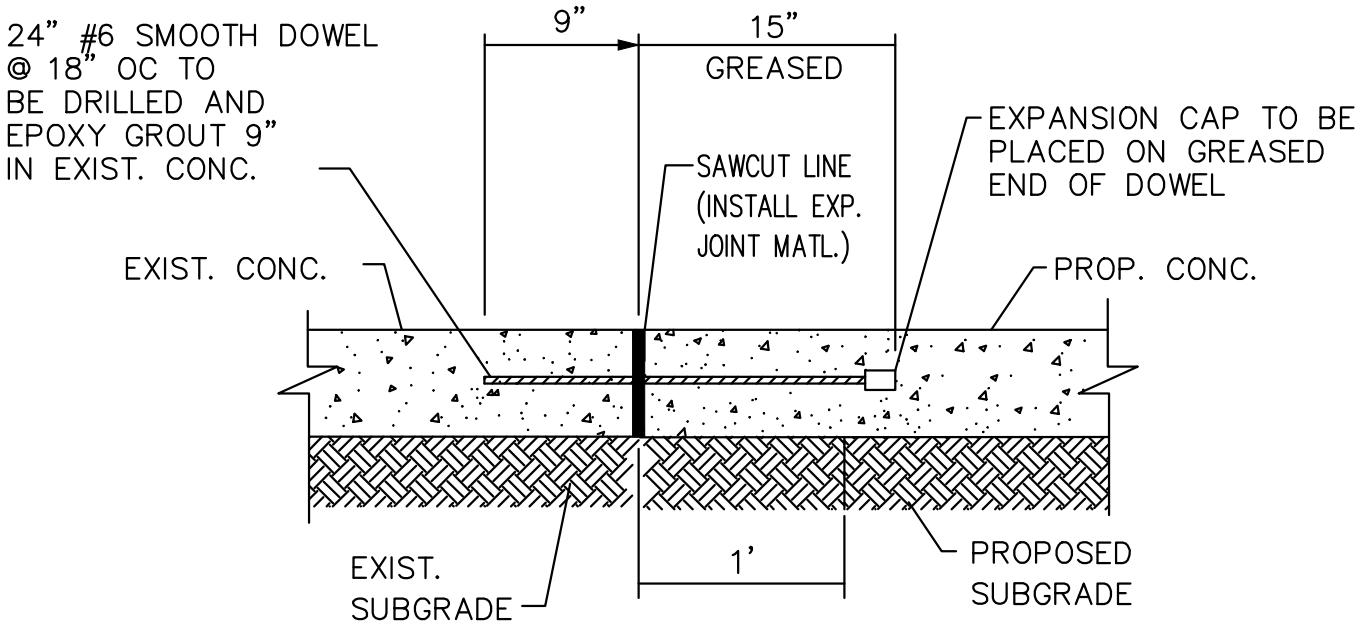
SAWED OR PREMOLDED STRIP
LONGITUDINAL OR TRANSVERSE

SAWED CONTRACTION JOINT

city of mercedes 400 South Ohio, Mercedes, Texas 78570 (956) 565 – 3114	**PAVEMENT & ROADWAY IMPROVEMENT DETAILS** **TYPICAL CONCRETE JOINT DETAILS**	HCE PROJECT NO. P241-01	
	STANDARD DESIGN MANUAL **CITY OF MERCEDES**	SHEET NO. ST - 7	01/2021



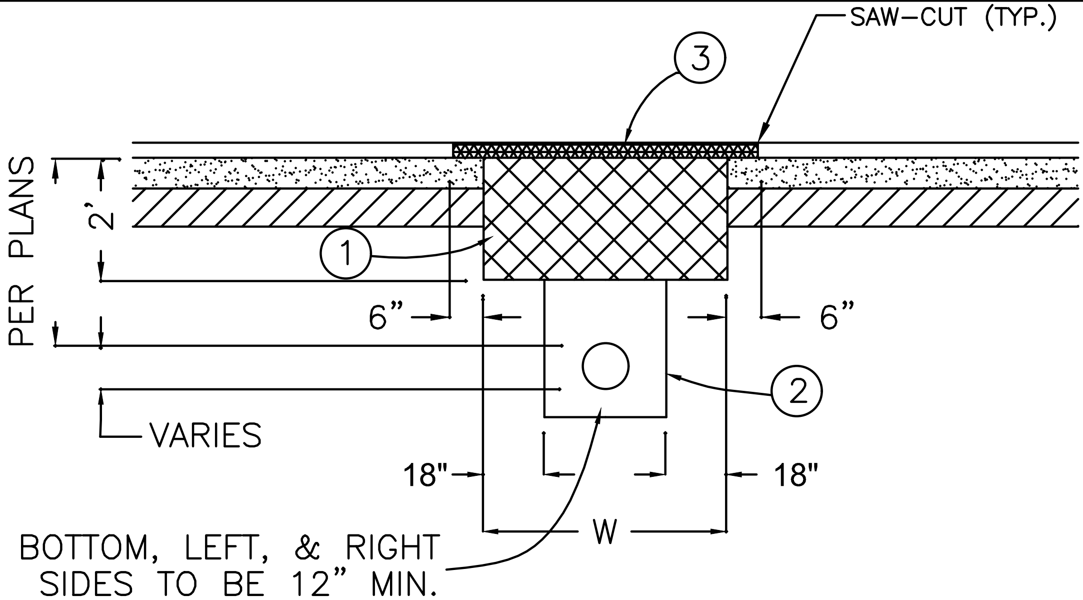
ASPHALT SAWCUT



CONCRETE SAWCUT

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

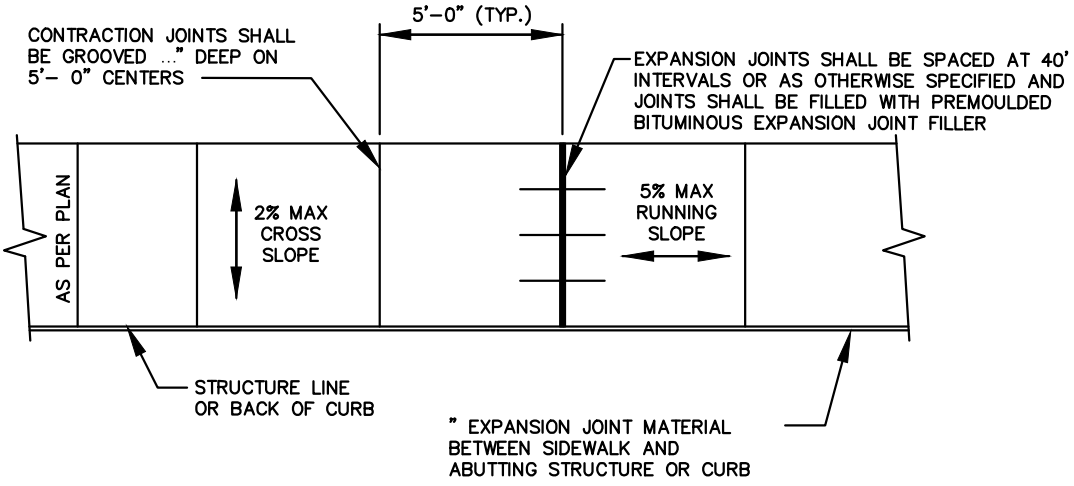
PAVEMENT & ROADWAY IMPROVEMENT DETAILS **TYPICAL SAWCUT DETAILS**	HCE PROJECT NO. P241-01	
STANDARD DESIGN MANUAL **CITY OF MERCEDES**	SHEET NO. ST - 8	01/2021



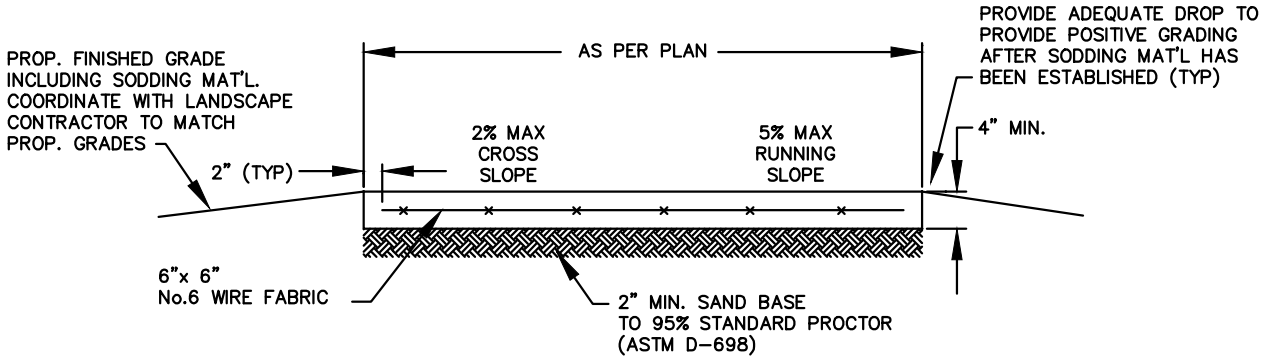
NOTES:

1. CONSTRUCT 2.0' DEEP X WIDTH AND LENGTH OF TRENCH WITH CALICHE. SEE SPECIFICATIONS #2 BELOW FOR COMPACTION REQUIREMENTS.
2. PROVIDE CLEAN BACKFILL. BACKFILL SHALL BE REPLACED IN 6" LAYERS. EACH LAYER SHALL BE MECHANICALLY COMPACTED TO A MINIMUM 95% DENSITY AS DETERMINED BY AASHTO T-99, METHOD "C".
3. TRENCH WIDTH (W)+12", MATCH EXISTING TYPE AND THICKNESS OF ASPHALT OR TYPE S-III. PAYMENT FOR PAVEMENT REPAIRS SHALL BE BASED UPON MAXIMUM WIDTH EQUAL TO W+1.0 FEET UNLESS OTHERWISE INDICATED ON PLANS. ANY REPAIRS OUTSIDE OF MAX. PAY WIDTH SHALL BE PROVIDED AT NO COST TO THE OWNER.
4. REPLACED BASE MATERIAL OVER TRENCH SHALL BE AS SHOWN ABOVE. BASE MATERIAL SHALL BE PLACED IN 6" LAYERS OR AS OTHERWISE APPROVED AND EACH LAYER THOROUGHLY MECHANICALLY COMPACTED TO (98%) DENSITY AS DETERMINED BY AASHTO T-180.
5. ASPHALT CONCRETE PAVEMENT JOINTS SHALL BE LAPPED AND FEATHERED.
6. ALL PAVEMENT JOINTS SHALL BE MECHANICALLY SAW CUT IN A STRAIGHT LINE EXTENDING FROM ONE END OF PATCH TO THE OTHER UNLESS OTHERWISE APPROVED BY CITY INSPECTOR.
7. SURFACE MATERIAL WILL BE CONSISTENT WITH EXISTING SURFACE AND PLACED IN ACCORDANCE WITH CITY OF MERCEDES REQUIREMENTS.
8. A MINIMUM OF TWO DENSITY TESTS SHALL BE TAKEN FOR EACH SIX (6) INCH LIFT OF SUB-GRADE FOR EVERY 100 LINEAR FEET OR PAVEMENT REPAIR WHEN REPAIR IS LONGITUDINAL AND PARALLEL TO ROADWAY CENTERLINE OR AT EACH OPEN CUT CROSSING WHEN PERPENDICULAR TO ROADWAY CENTERLINE.
9. WHEN THE SPECIFIED COMPACTED BASE IS GREATER THAN SIX AND ONE-HALF (6-1/2) INCHES THE BASE SHALL BE CONSTRUCTED IN TWO OR MORE COURSES.
10. PROCTORS FOR MATERIALS USED IN BACK-FILLING SHALL BE OBTAINED BY THE CITY'S CERTIFIED LABORATORY. DENSITY TESTS SHALL BE CONDUCTED BY THE CITY'S LABORATORY.
11. THE PERCENTAGE OF MAXIMUM DENSITY REQUIRED SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE CITY OF MERCEDES STANDARDS SPECIFICATIONS FOR CONSTRUCITON.
12. COST FOR ASPHALT REPAIR SHALL INCLUDE ALL TRENCH BACKFILL & COMPACTION, PAVEMENT SUBGRADE, BASE & ASPHALT PREPARATION, PLACEMENT AND COMPACTION.

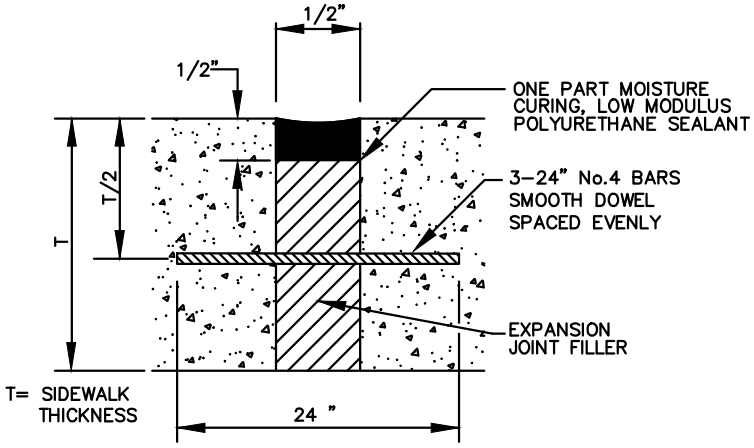
city of mercedes 400 South Ohio, Mercedes, Texas 78570 (956) 565 – 3114	**PAVEMENT & ROADWAY IMPROVEMENT DETAILS** **TYPICAL ASPHALT REPAIR**	HCE PROJECT NO. P241-01	
	STANDARD DESIGN MANUAL **CITY OF MERCEDES**	SHEET NO. ST - 9	01/2021



PLAN VIEW



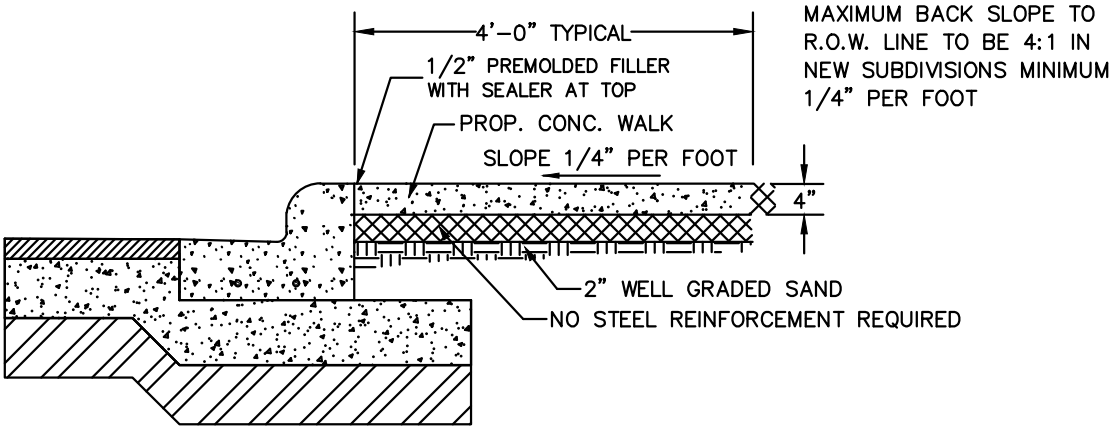
CROSS SECTION



SIDEWALK EXPANSION JOINT

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

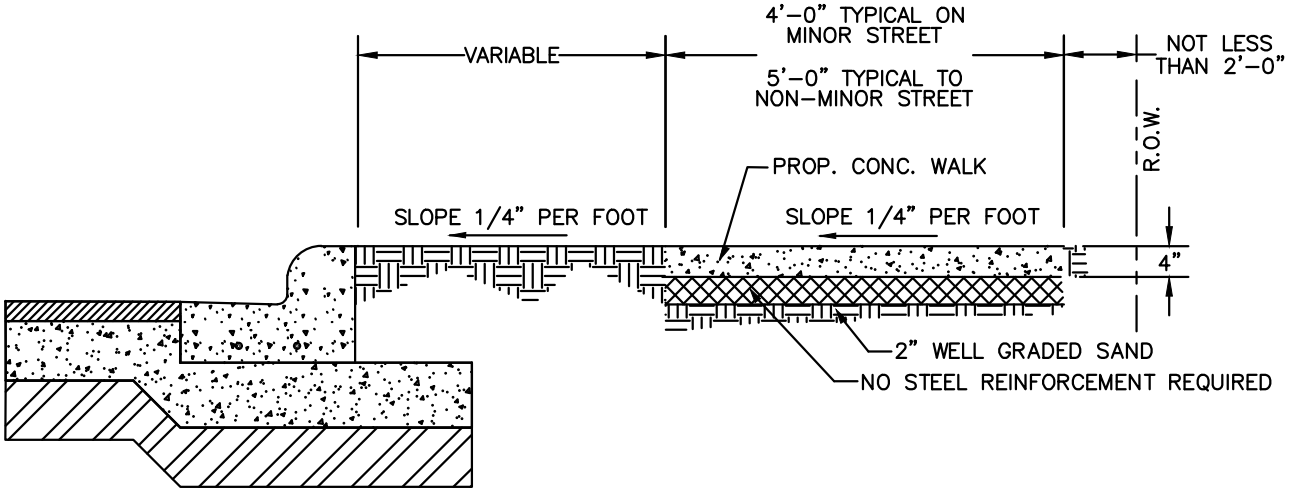
PAVEMENT & ROADWAY IMPROVEMENT DETAILS **TYPICAL CONCRETE SIDEWALK**		HCE PROJECT NO. P241-01
STANDARD DESIGN MANUAL **CITY OF MERCEDES**	SHEET NO. ST - 10	01/2021



DO NOT PLACE SIDEWALK OVER UTILITIES.

ALTERNATE LOCATION

ONLY APPROVED WHEN ADJACENT TO MINOR STREETS



TYPICAL SIDEWALK SECTION

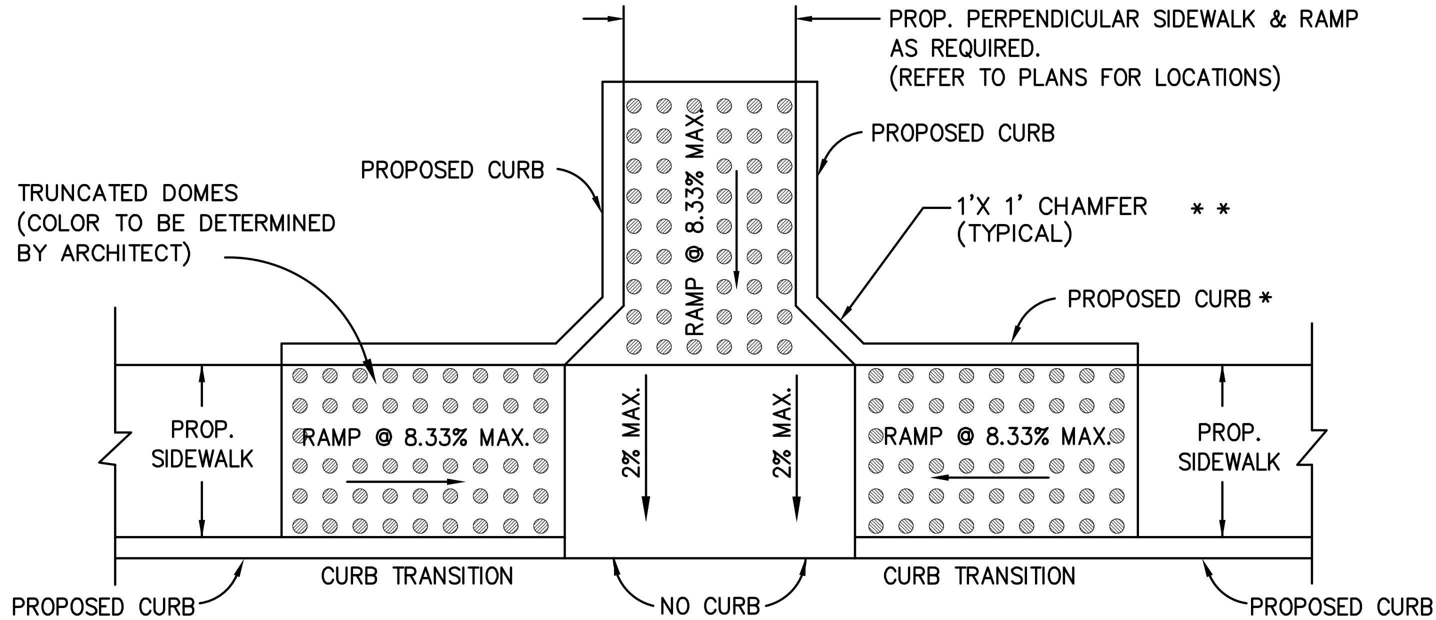
ALL SUBGRADE SHALL BE UNDISTURBED
THAT WHICH IS DISTURBED SHALL BE COMPACTED AT
90% STANDARD PROCTOR

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

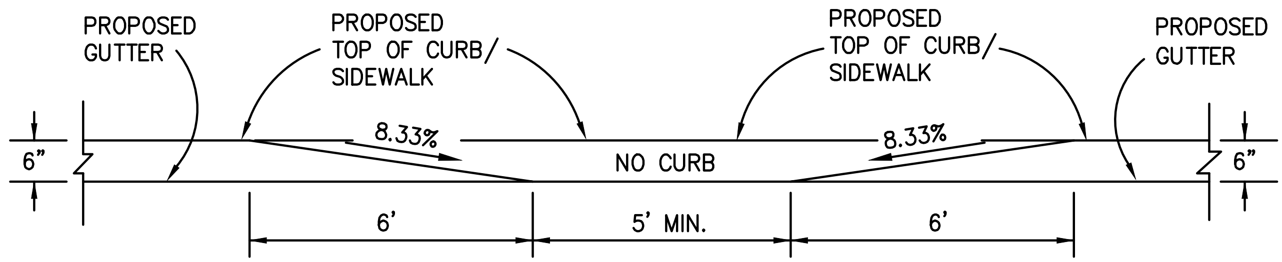
PAVEMENT & ROADWAY IMPROVEMENT DETAILS **TYPICAL SIDEWALK LOCATION DETAIL**	HCE PROJECT NO. P241-01	
STANDARD DESIGN MANUAL **CITY OF MERCEDES**	SHEET NO. ST - 11	01/2021

* CONTINUE CURB THROUGH LANDING
IF NO PERPENDICULAR RAMP IS REQUIRED.

* * USE 7' LANDING IF PERPENDICULAR RAMP
IS REQUIRED.



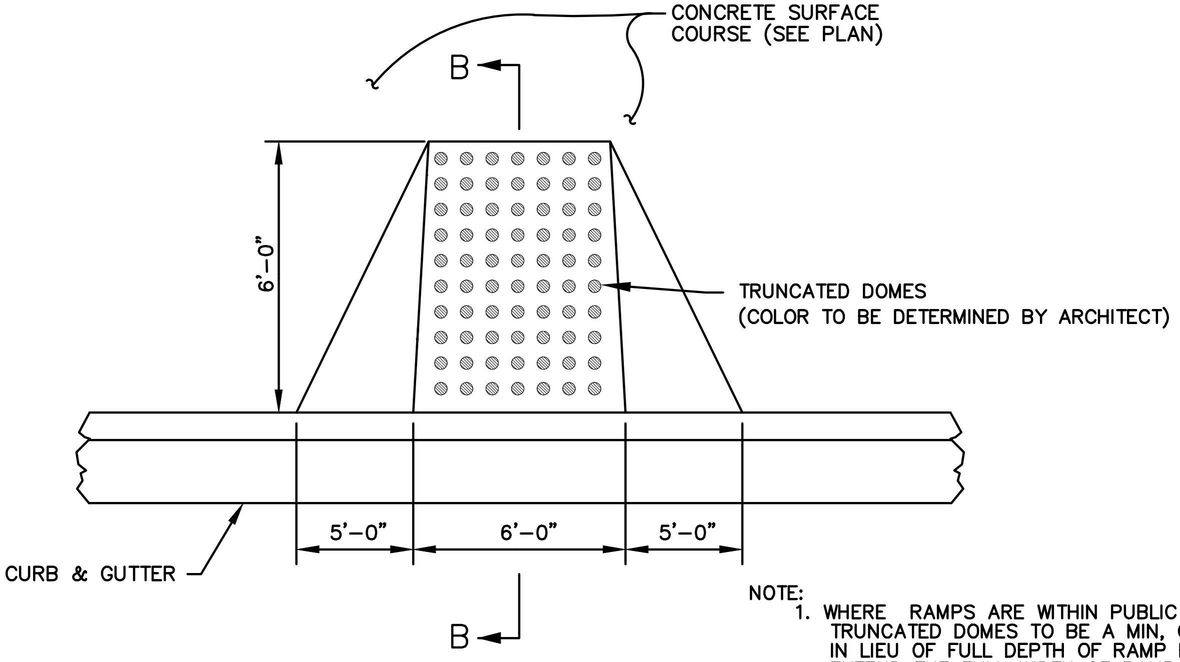
PLAN



PROFILE

NOTE:
1. WHERE RAMPS ARE WITHIN PUBLIC R-O-W, TRUNCATED DOMES TO BE A MIN, OF 24" IN DEPTH IN LIEU OF FULL DEPTH OF RAMP BUT MUST STILL EXTEND THE FULL WIDTH OF RAMP.
2. ALL RAMPS TO MEET TDLR LATEST EDITION.

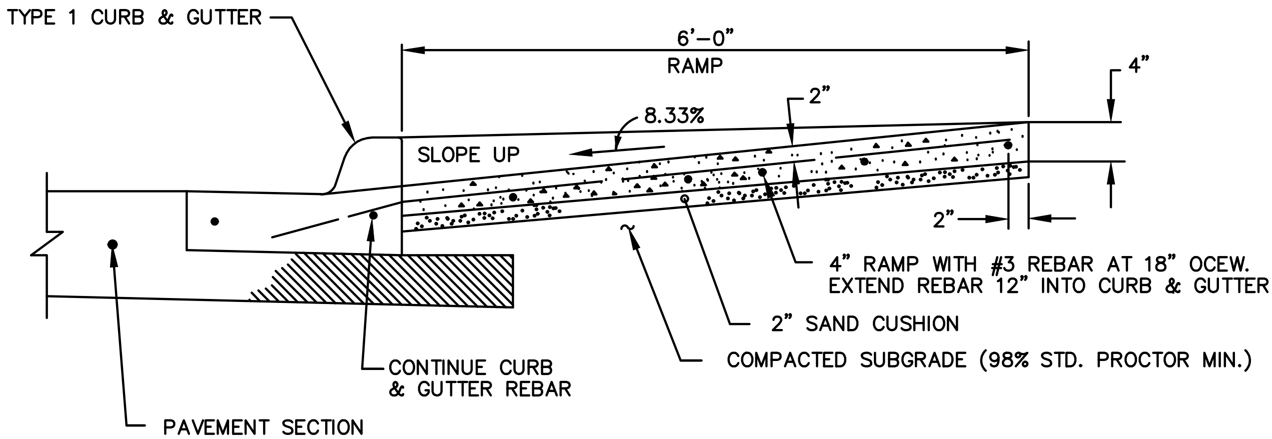
city of mercedes 400 South Ohio, Mercedes, Texas 78570 (956) 565 – 3114	**PAVEMENT & ROADWAY IMPROVEMENT DETAILS** **PARALLEL CONCRETE HANDICAP RAMP**	HCE PROJECT NO. P241-01	
	STANDARD DESIGN MANUAL **CITY OF MERCEDES**	SHEET NO. ST - 12	01/2021



PLAN

NOTE:
1. WHERE RAMPS ARE WITHIN PUBLIC R–O–W, TRUNCATED DOMES TO BE A MIN, OF 24" IN DEPTH IN LIEU OF FULL DEPTH OF RAMP BUT MUST STILL EXTEND THE FULL WIDTH OF RAMP.

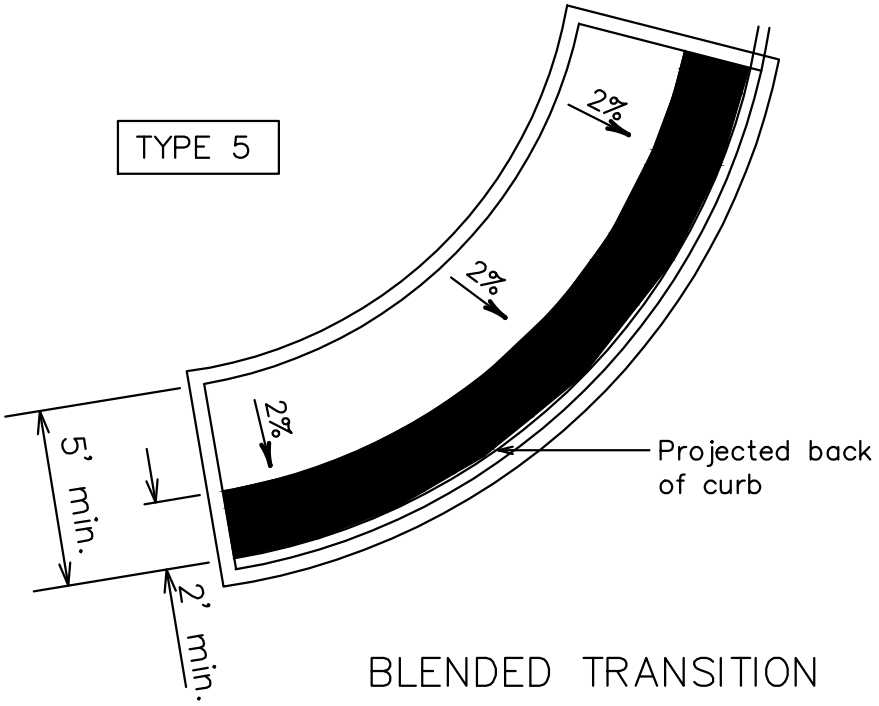
2. ALL RAMPS TO MEET TDLR LATEST EDITION.



SECTION "B–B"

city of mercedes 400 South Ohio, Mercedes, Texas 78570 (956) 565 – 3114	**PAVEMENT & ROADWAY IMPROVEMENT DETAILS** **PERPENDICULAR CONCRETE HANDICAP RAMP**	HCE PROJECT NO. P241-01	
	STANDARD DESIGN MANUAL **CITY OF MERCEDES**	SHEET NO. ST - 13	01/2021

TYPE 5



BLENDED TRANSITION

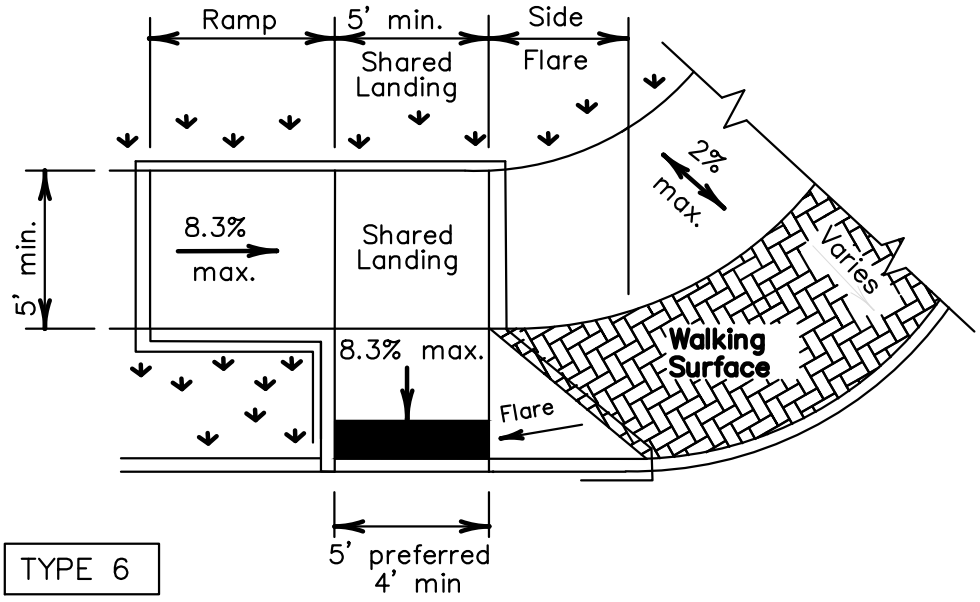
NOTES / LEGEND:

Denotes planting or non-walking surface not part of pedestrian circulation path.

Ramp Limits of Payment

Detectable Warning Surface

Planting or other non-walking surface or protect dropoff



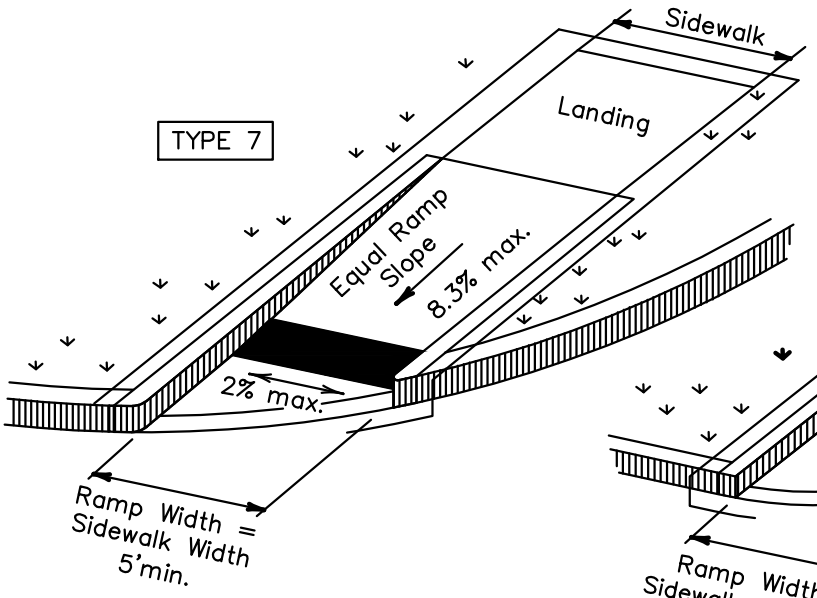
TYPE 6

COMBINATION CURB RAMPS

Cross slope not to

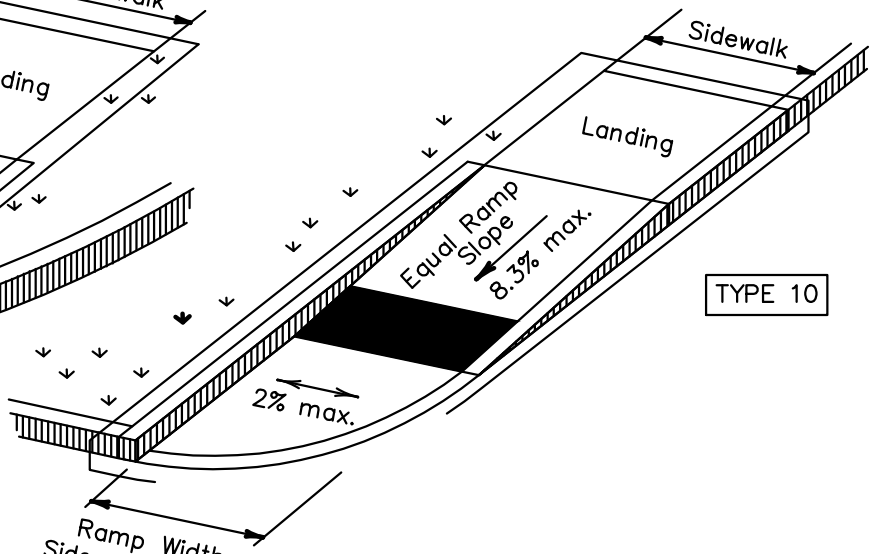
city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

PAVEMENT & ROADWAY IMPROVEMENT DETAILS **TYPICAL CONCRETE HANDICAP RAMPS**		HCE PROJECT NO. P241-01
STANDARD DESIGN MANUAL **CITY OF MERCEDES**	SHEET NO. ST - 14	01/2021



(Sidewalk set back from curb)

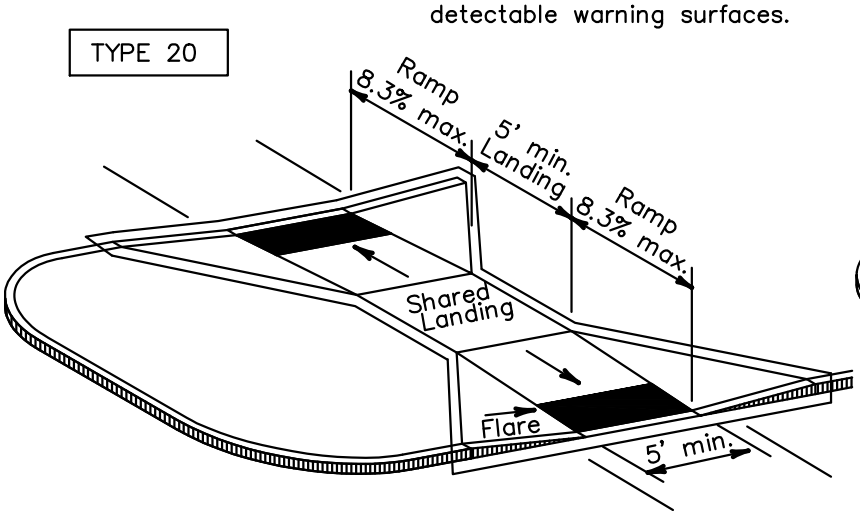
Cross slope not to exceed 2% on any portion of ramp, landing or transition to street.

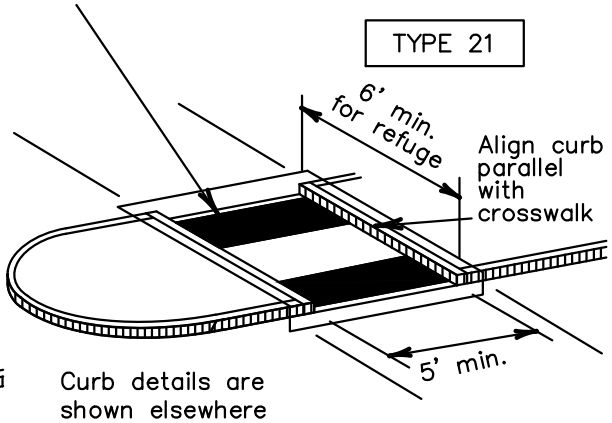


(Sidewalk adjacent to curb)

DIRECTIONAL RAMPS WITHIN RADIUS

Install detectable warning surface at each end of cut–through ramp with minimum 2' smooth surface between. If median is less than 6' wide, eliminate detectable warning surfaces.





Curb details are shown elsewhere in the plans.

NOTES / LEGEND:

Denotes planting or non–walking surface not part of pedestrian circulation path.

Ramp Limits of Payment

Detectable Warning Surface

CURB RAMPS AT MEDIAN ISLANDS

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

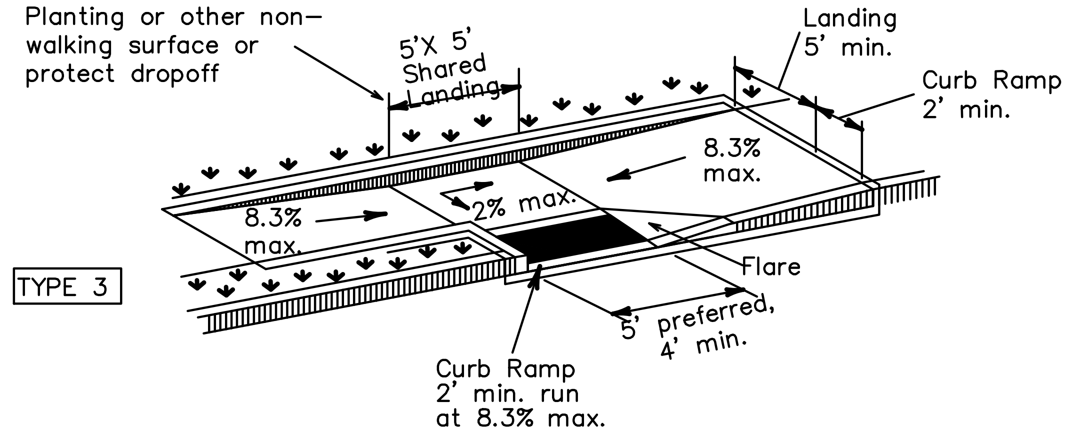
PAVEMENT & ROADWAY IMPROVEMENT DETAILS
TYPICAL CONCRETE HANDICAP RAMPS (CONT'D)

HCE PROJECT NO.
P241-01

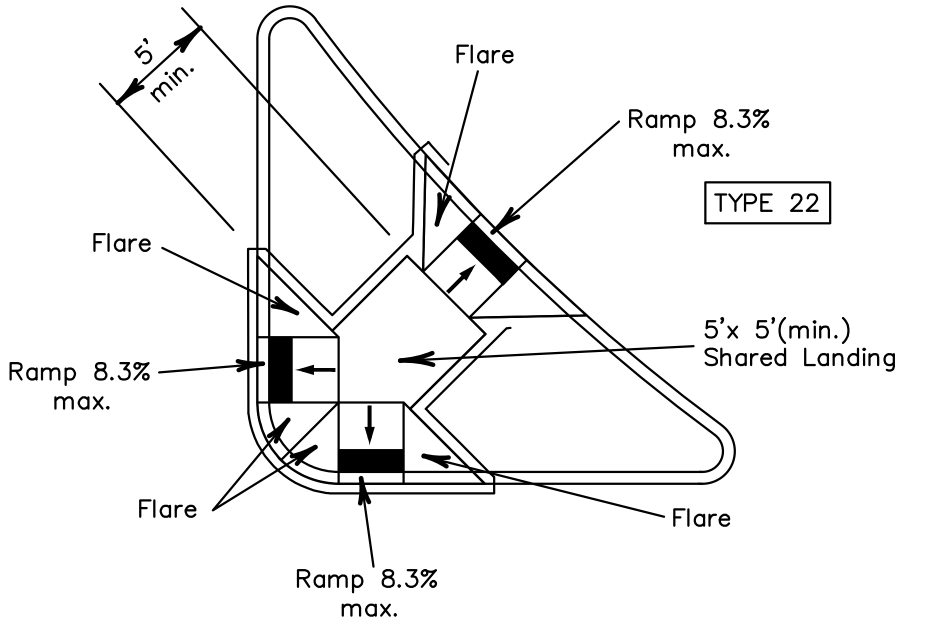
STANDARD DESIGN MANUAL
CITY OF MERCEDES

SHEET NO.
ST - 15

01/2021



OFFSET PARALLEL CURB RAMP



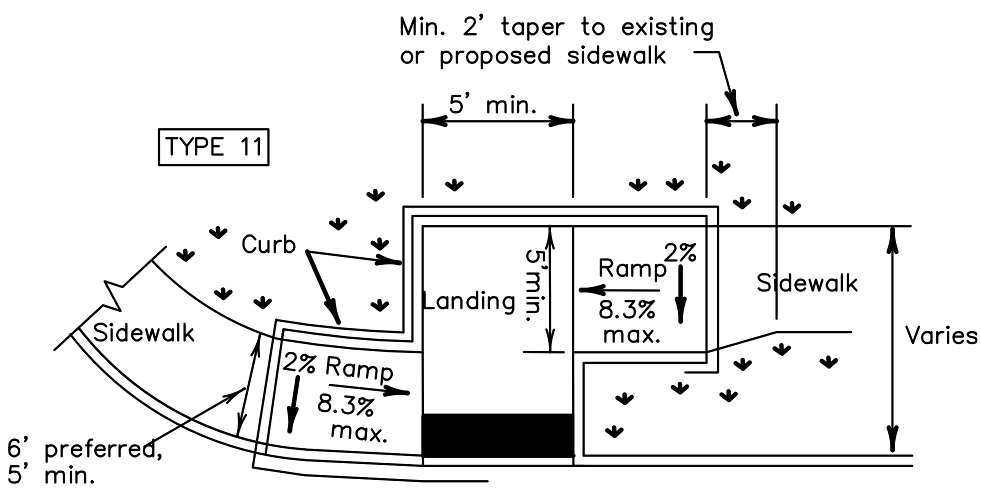
COMBINATION ISLAND RAMPS

NOTES / LEGEND:

Denotes planting or non–walking surface not part of pedestrian circulation path.

Ramp Limits of Payment

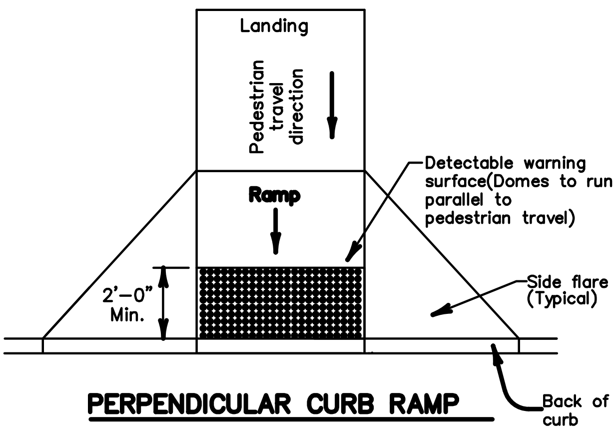
Detectable Warning Surface



OFFSET PARALLEL CURB RAMP

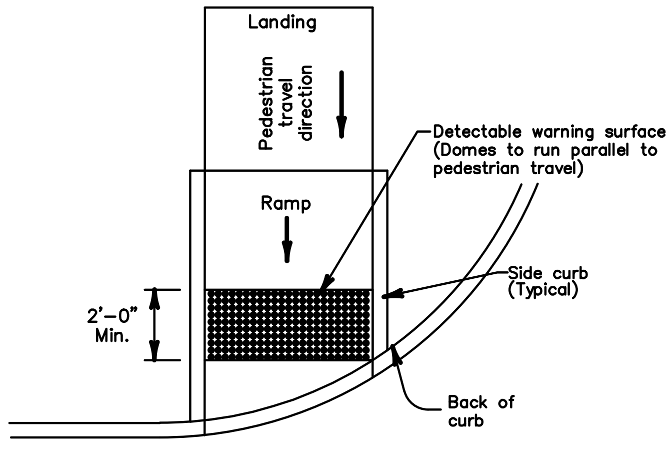
city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

PAVEMENT & ROADWAY IMPROVEMENT DETAILS TYPICAL CONCRETE HANDICAP RAMPS (CONT'D)	HCE PROJECT NO. P241-01		
STANDARD DESIGN MANUAL CITY OF MERCEDES	SHEET NO. ST - 16	01/2021	



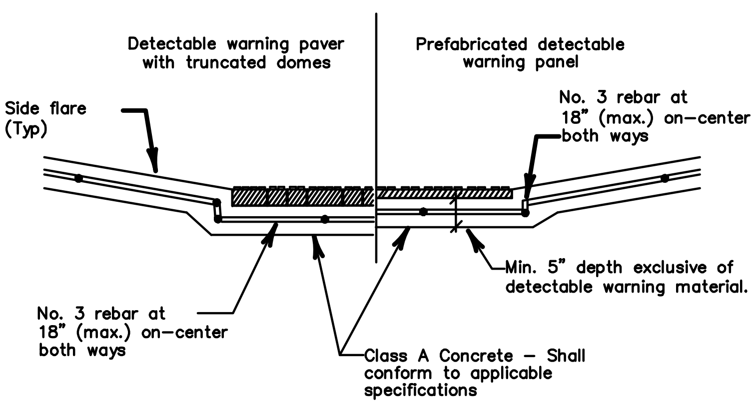
PERPENDICULAR CURB RAMP

Typical placement of detectable warning surface on sloping ramp run.

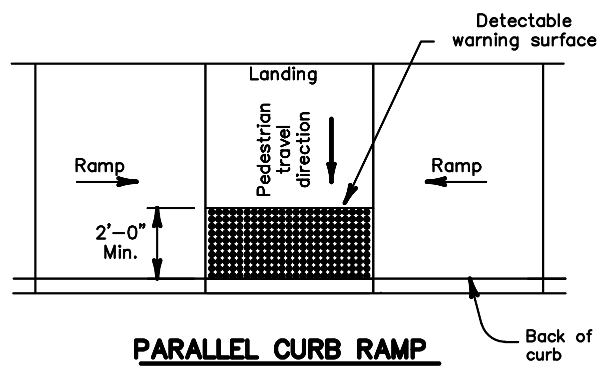


DIRECTIONAL CURB RAMP

Typical placement of detectable warning surface on sloping ramp run.



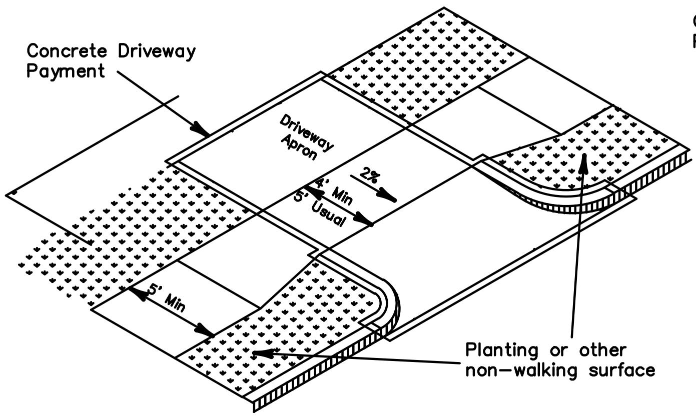
SECTION: CURB RAMP AT DETECTABLE WARNING



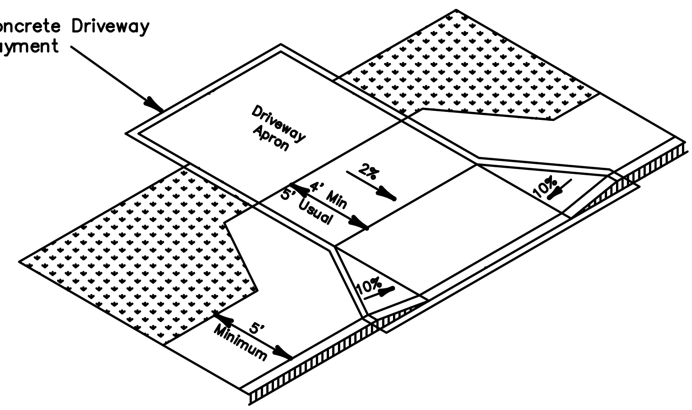
PARALLEL CURB RAMP

Typical placement of detectable warning surface on landing at street edge.

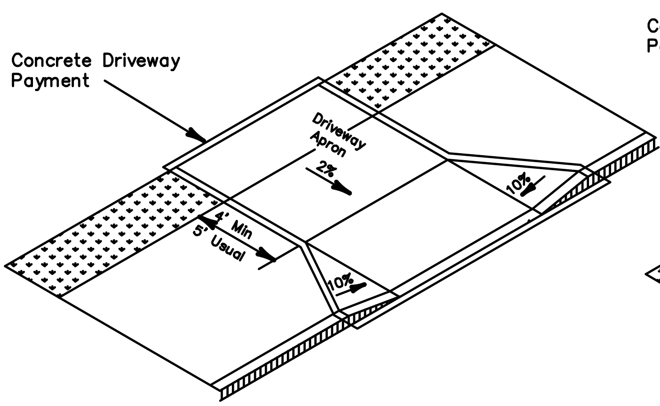
city of mercedes 400 South Ohio, Mercedes, Texas 78570 (956) 565 – 3114	**PAVEMENT & ROADWAY IMPROVEMENT DETAILS** **DETECTABLE WARNING DETAIL**	HCE PROJECT NO. P241-01	
	STANDARD DESIGN MANUAL **CITY OF MERCEDES**	SHEET NO. ST - 17	01/2021



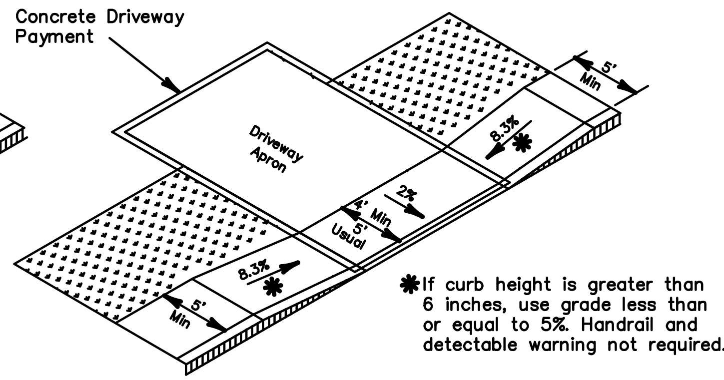
Setback sidewalk



Apron offset sidewalk



Wide sidewalk



Ramp sidewalk

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

PAVEMENT & ROADWAY IMPROVEMENT DETAILS
TYPICAL DRIVEWAY RAMPS

HCE PROJECT NO.
P241-01

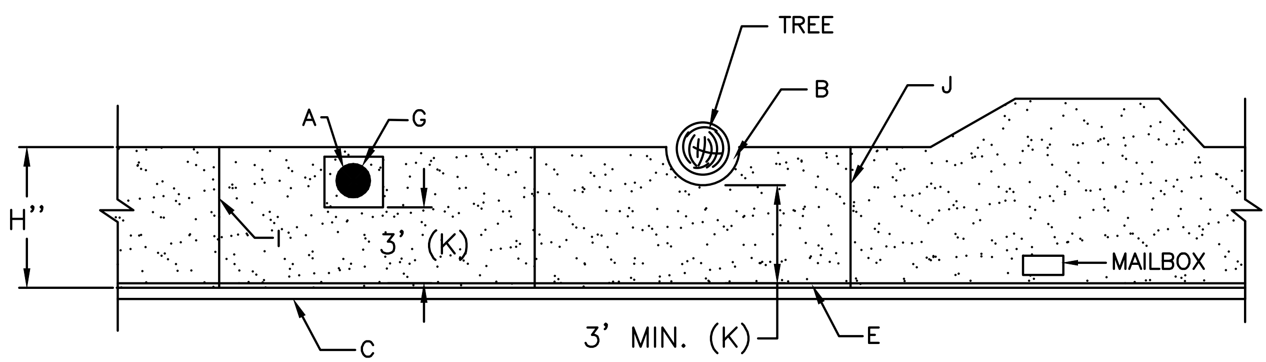
STANDARD DESIGN MANUAL
CITY OF MERCEDES

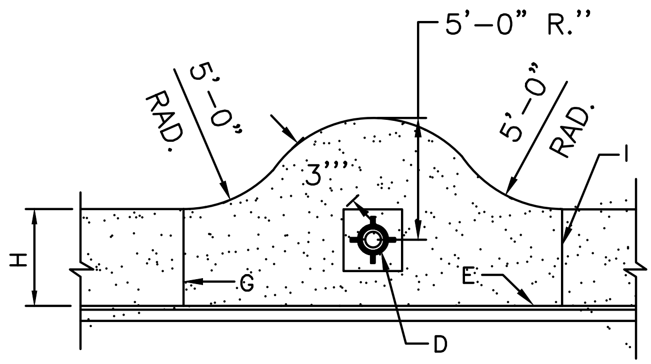
SHEET NO.
ST - 18

01/2021

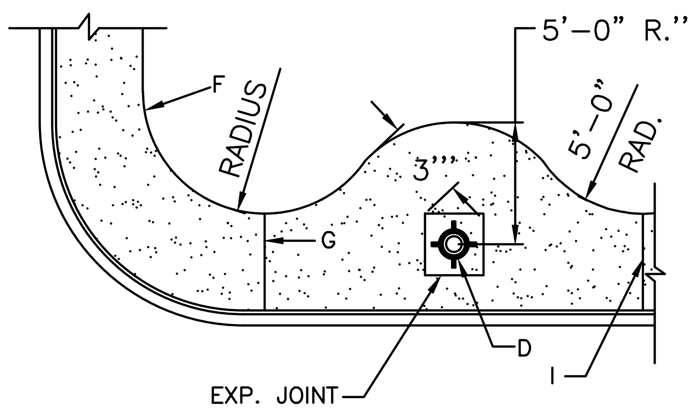
CONSTRUCTION NOTES:

A. POWER POLE OR OTHER OBSTRUCTION.
B. LEAVE 6" CLEARANCE AROUND TREE TRUNKS.
C. TOP OF CURB.
D. FIRE HYDRANT.
E. BACK OF CURB.
F. EXTERIOR EDGE OF SIDEWALK TO BE TANGENT TO ARCS.
G. PROVIDE 1/2" PREFORMED EXPANSION JOINT MATERIAL WHERE SIDEWALK ABUTS POWER POLES, FIRE HYDRANTS, MAILBOXES OR OTHER IMMOVABLE OBJECTS.
H. SIDEWALK WIDTH.
I. CONTRACTION JOINT.
J. EXPANSION JOINT.
K. 4' MINIMUM ON MINOR AND PRINCIPAL ARTERIAL





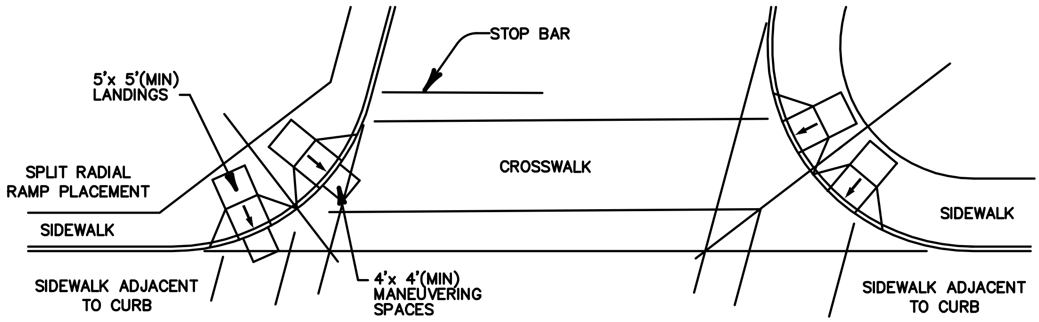
ON STRAIGHT STRETCH



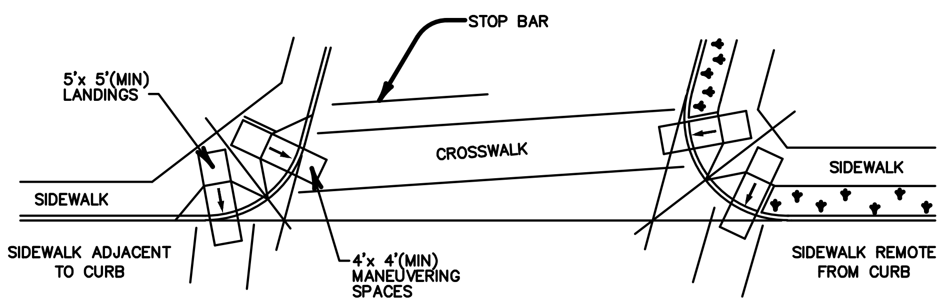
AT CURB RETURN

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

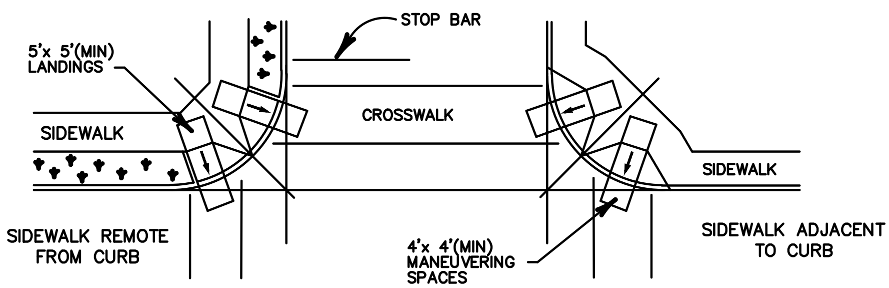
PAVEMENT & ROADWAY IMPROVEMENT DETAILS SIDEWALK OBSTRUCTIONS DETAIL	HCE PROJECT NO. P241-01	
STANDARD DESIGN MANUAL CITY OF MERCEDES	SHEET NO. ST - 19	01/2021



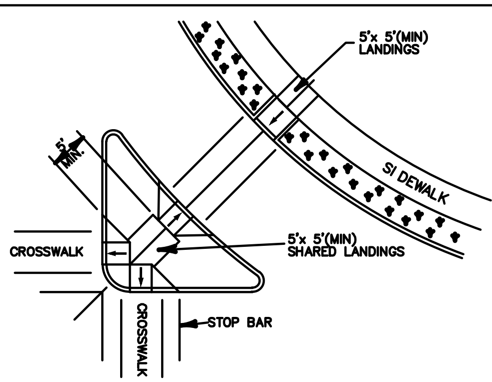
SKEWED INTERSECTION WITH "LARGE" RADIUS



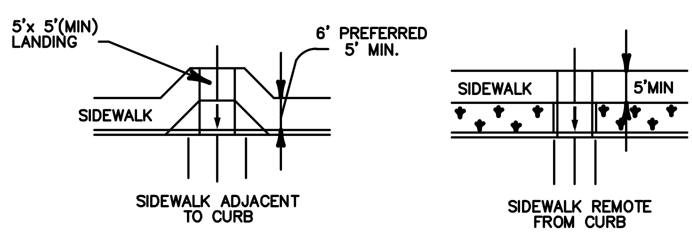
SKEWED INTERSECTION WITH "SMALL" RADIUS



NORMAL INTERSECTION WITH "SMALL" RADIUS

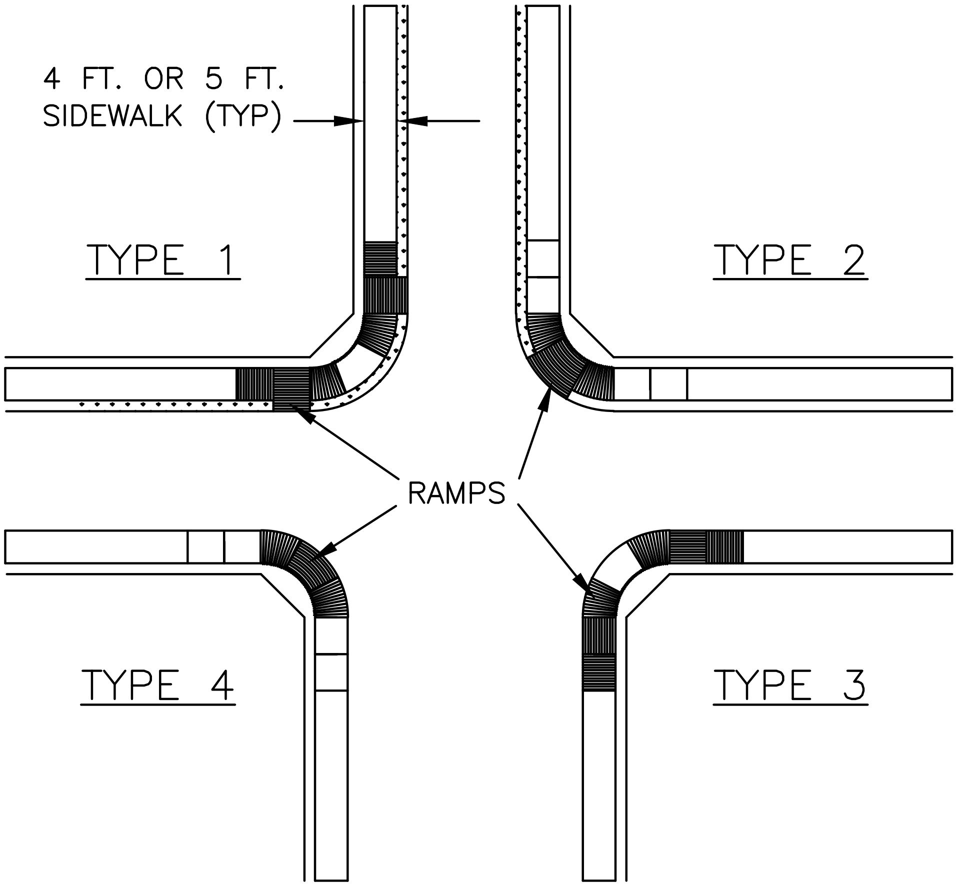


AT INTERSECTION
W/FREE RIGHT TURN & ISLAND



MID-BLOCK PLACEMENT
PERPENDICULAR RAMPS

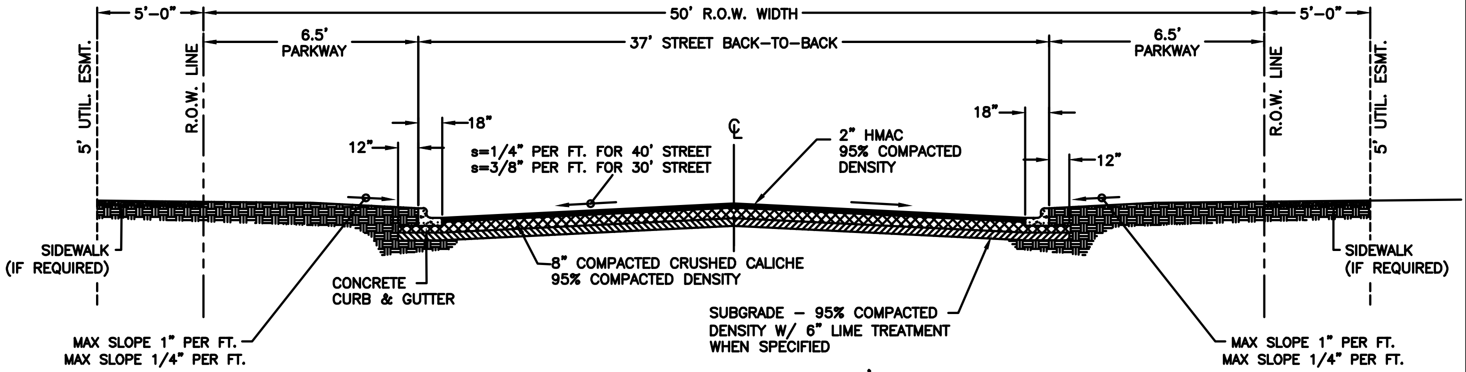
city of mercedes 400 South Ohio, Mercedes, Texas 78570 (956) 565 – 3114	**PAVEMENT & ROADWAY IMPROVEMENT DETAILS** **TYPICAL INTERSECTION RAMPS**	HCE PROJECT NO. P241-01	
	STANDARD DESIGN MANUAL **CITY OF MERCEDES**	SHEET NO. ST - 20	01/2021



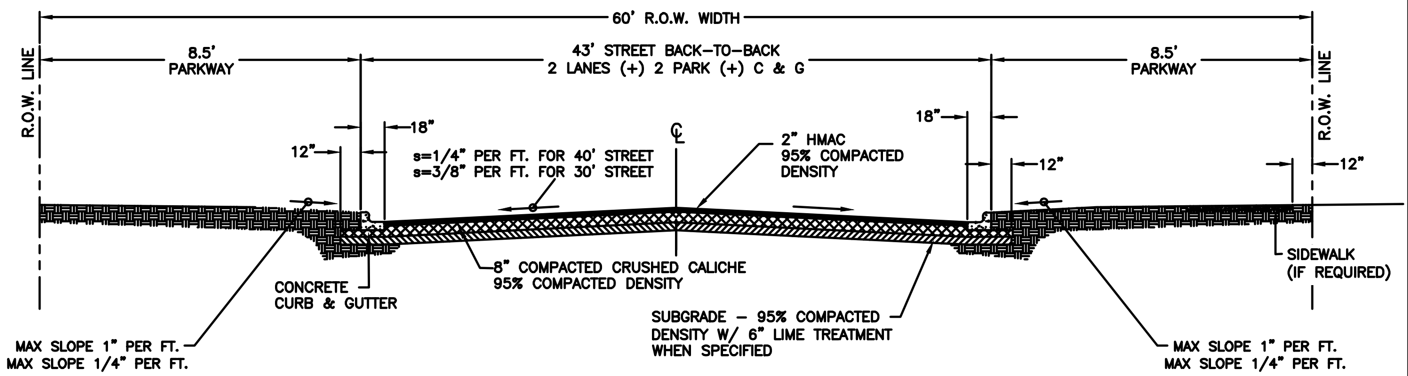
GENERAL NOTES:

1. WHERE AN INADEQUATE AREA FOR A WHEELCHAIR RAMP EXISTS, THE CITY ENGINEER WILL SPECIFY LOCATION OF RAMP(S).
2. ALL CURB RADII ARE 25 FEET UNLESS OTHERWISE SPECIFIED.
3. WHEELCHAIR RAMPS SHALL BE PROVIDED AT ALL CORNERS OF STREET INTERSECTION WHERE THERE IS AN EXISTING OR PROPOSED SIDEWALK AND CURB AND GUTTER. RAMPS SHALL ALSO BE PROVIDED AT LOCATIONS AT MID BLOCK IN THE VICINITY OF HOSPITALS, MEDICAL CENTERS AND ATHLETIC STADIUMS.
4. SLOPE SIDEWALK FROM P.C. OR P.T. OF CURB RETURN TO MID POINT OF CURB RETURN.

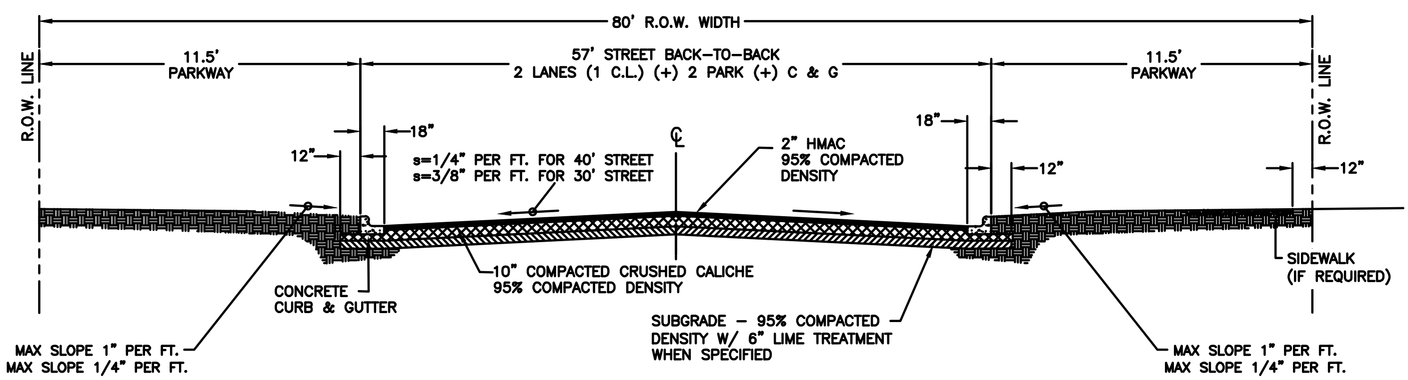
city of mercedes 400 South Ohio, Mercedes, Texas 78570 (956) 565 – 3114	**PAVEMENT & ROADWAY IMPROVEMENT DETAILS** **SIDEWALK LOCATION FOR COLLECTOR STREETS**	HCE PROJECT NO. P241-01	
	STANDARD DESIGN MANUAL **CITY OF MERCEDES**	SHEET NO. ST - 21	01/2021



TYPICAL PAVING DETAIL FOR 37' B–B STREETS
RESIDENTIAL AND CUL–DE–SAC MINOR STREETS

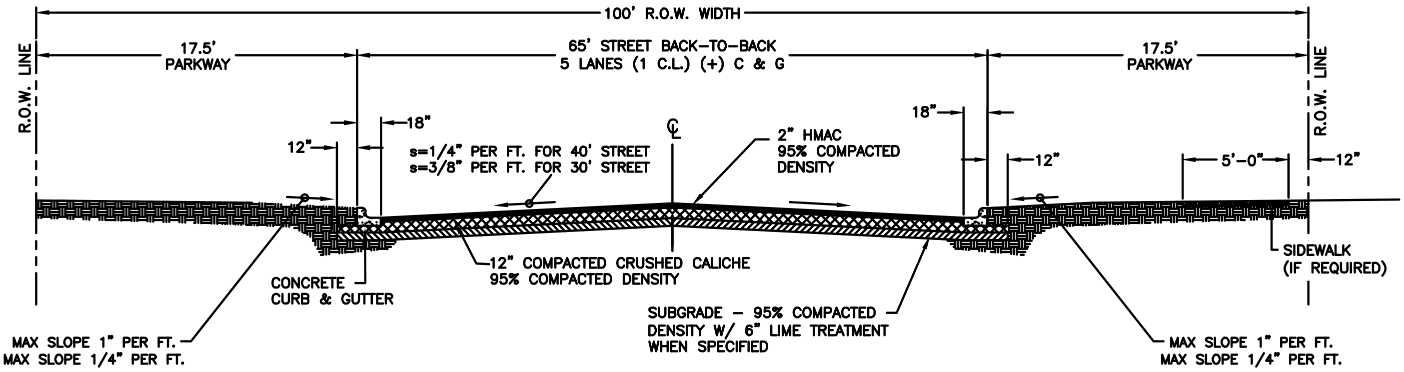


TYPICAL PAVING DETAIL FOR 43' B–B STREETS
RESIDENTIAL COLLECTOR

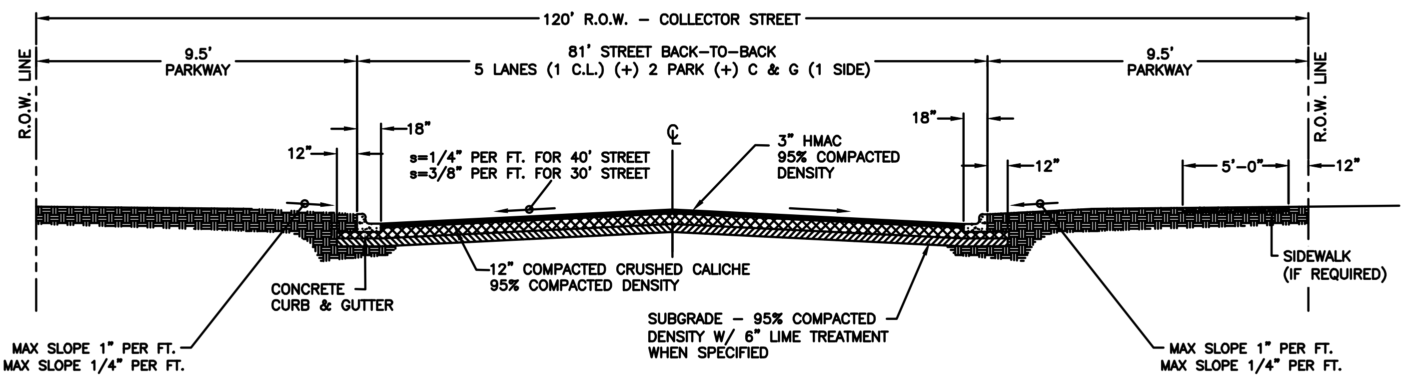


TYPICAL PAVING DETAIL FOR 57' B–B STREETS
MINOR AND MAJOR THOROUGHFARES

city of mercedes 400 South Ohio, Mercedes, Texas 78570 (956) 565 – 3114	**PAVEMENT & ROADWAY IMPROVEMENT DETAILS** **LOCAL STREET SECTION DETAILS**	HCE PROJECT NO. P241-01	
	STANDARD DESIGN MANUAL **CITY OF MERCEDES**	SHEET NO. ST - 22	01/2021

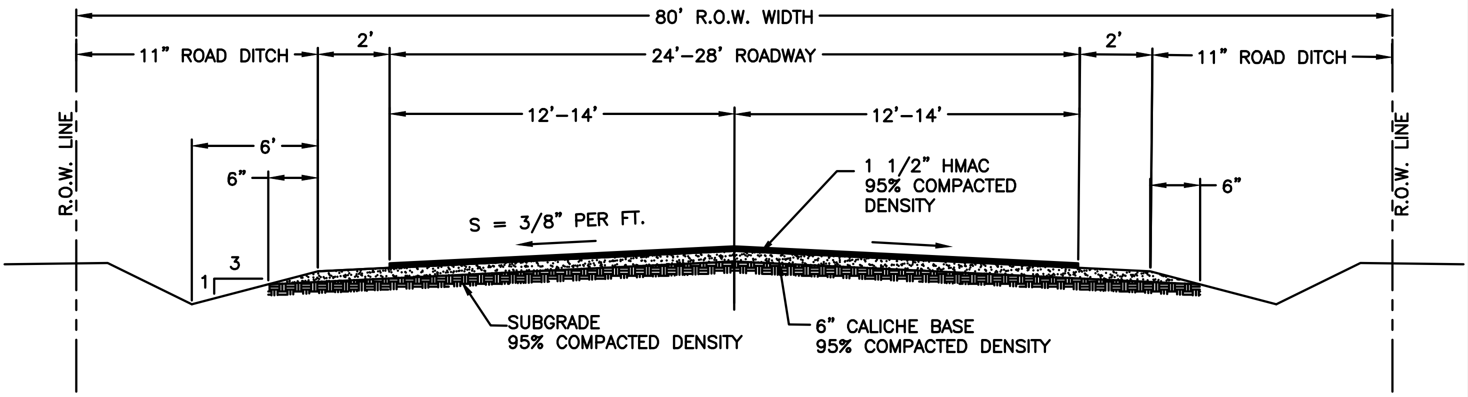


TYPICAL PAVING DETAIL FOR 65' B-B STREETS
RESIDENTIAL COLLECTOR

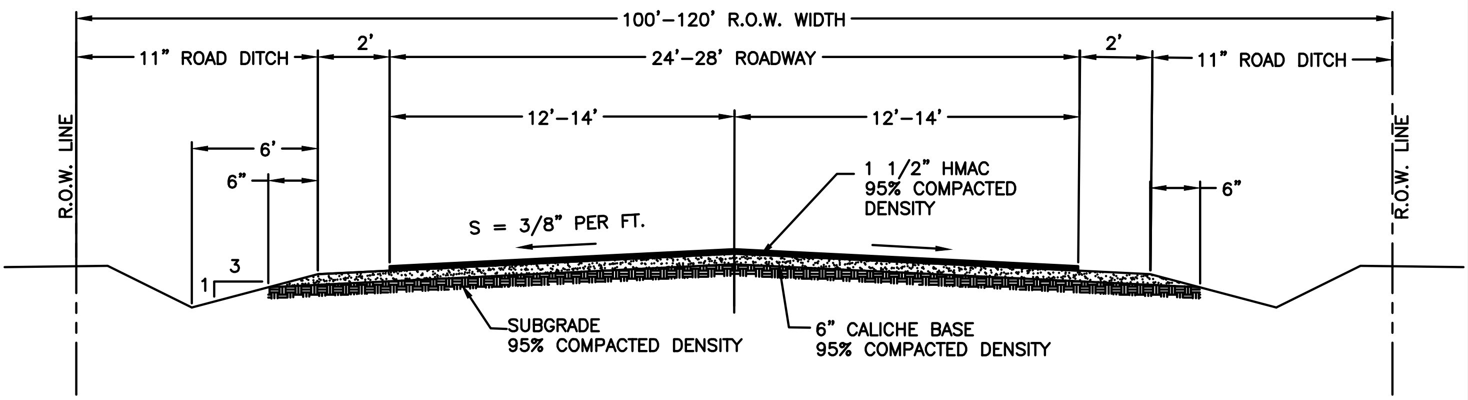


TYPICAL PAVING DETAIL FOR 81' B-B STREETS
MINOR AND MAJOR THOROUGHFARES

city of mercedes 400 South Ohio, Mercedes, Texas 78570 (956) 565 – 3114	**PAVEMENT & ROADWAY IMPROVEMENT DETAILS** **LOCAL STREET SECTION DETAILS (CONT'D)**	HCE PROJECT NO. P241-01	
	STANDARD DESIGN MANUAL **CITY OF MERCEDES**	SHEET NO. ST - 23	01/2021



TYPICAL RURAL PAVING SECTION



TYPICAL RURAL PAVING SECTION
PRINCIPAL THOROUGHFARES

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

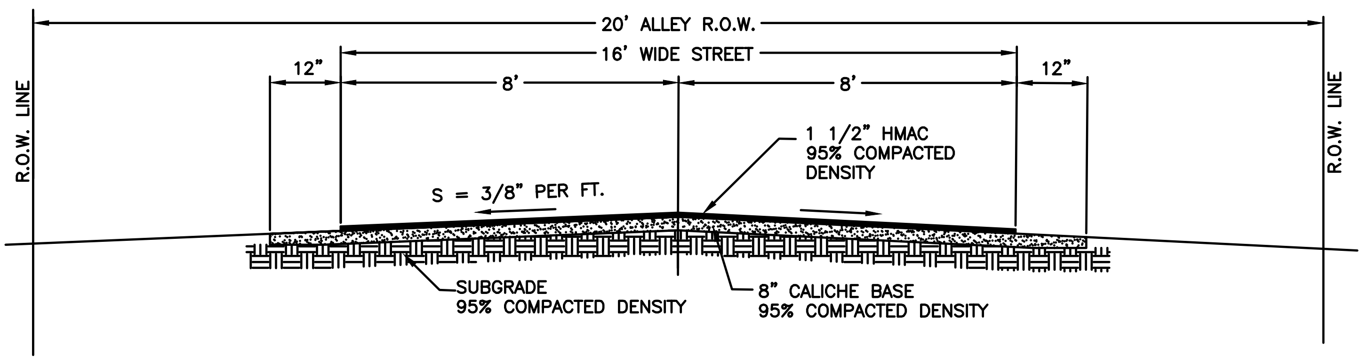
PAVEMENT & ROADWAY IMPROVEMENT DETAILS
LOCAL STREET SECTION

HCE PROJECT NO.
P241-01

STANDARD DESIGN MANUAL
CITY OF MERCEDES

SHEET NO.
ST - 24

01/2021

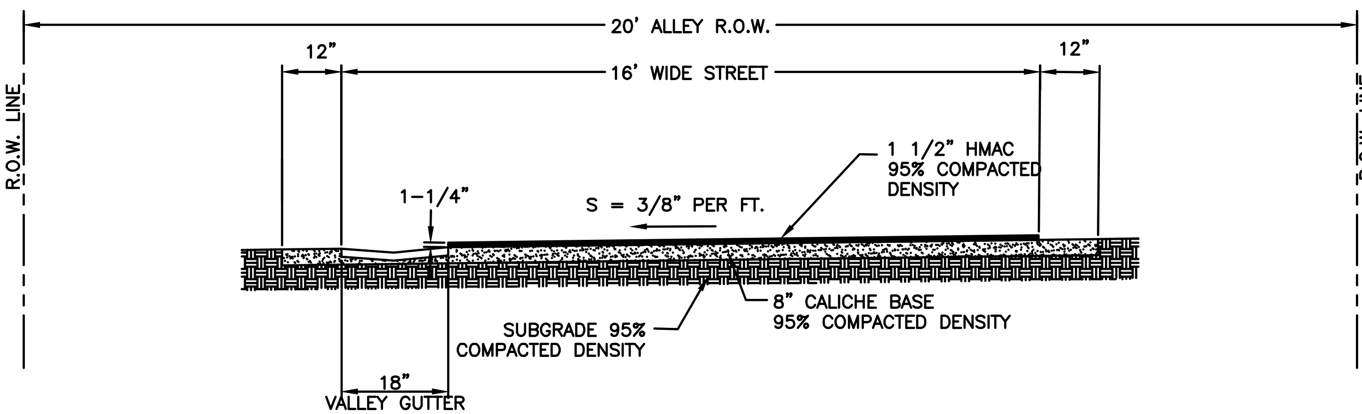


TYPICAL PAVING DETAIL FOR 16' WIDE ALLEY IN 20' R.O.W.

NOTE:

1. ALLEY'S SHALL BE GRADED FOR DRAINAGE WITH DESIGN SHOWN ON FINAL PLANS.

2. ALL INTERSECTING ALLEYS TO HAVE A 10' RADIUS.



TYPICAL PAVING DETAIL
FOR 16' WIDE ALLEY IN 20' R.O.W.

*ALTERNATE/ WITH 18" VALLEY GUTTER

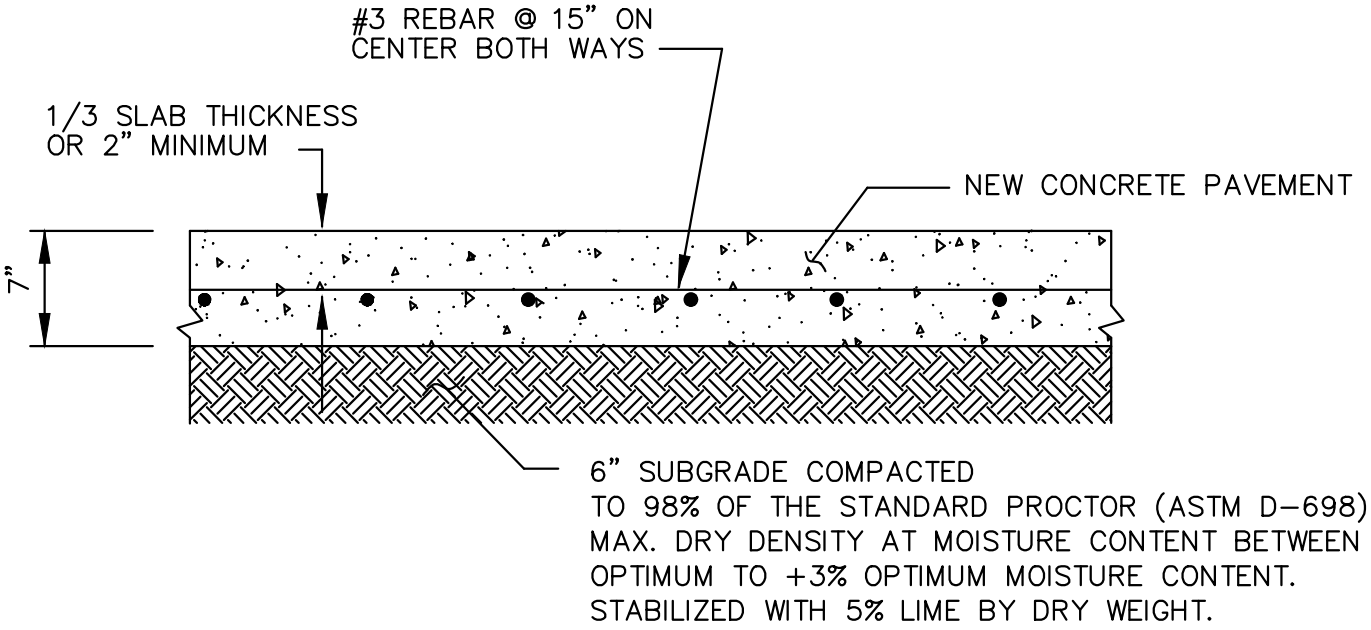
NOTE:

1. ALLEYS SHALL BE GRADED FOR DRAINAGE WITH DESIGN SHOWN ON FINAL PLANS.

2. ALL INTERSECTING ALLEYS TO HAVE A 10' RADIUS.

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

PAVEMENT & ROADWAY IMPROVEMENT DETAILS LOCAL STREET SECTION	HCE PROJECT NO. P241-01		
STANDARD DESIGN MANUAL CITY OF MERCEDES	SHEET NO. ST - 26	01/2021	



PAVEMENT SECTION:

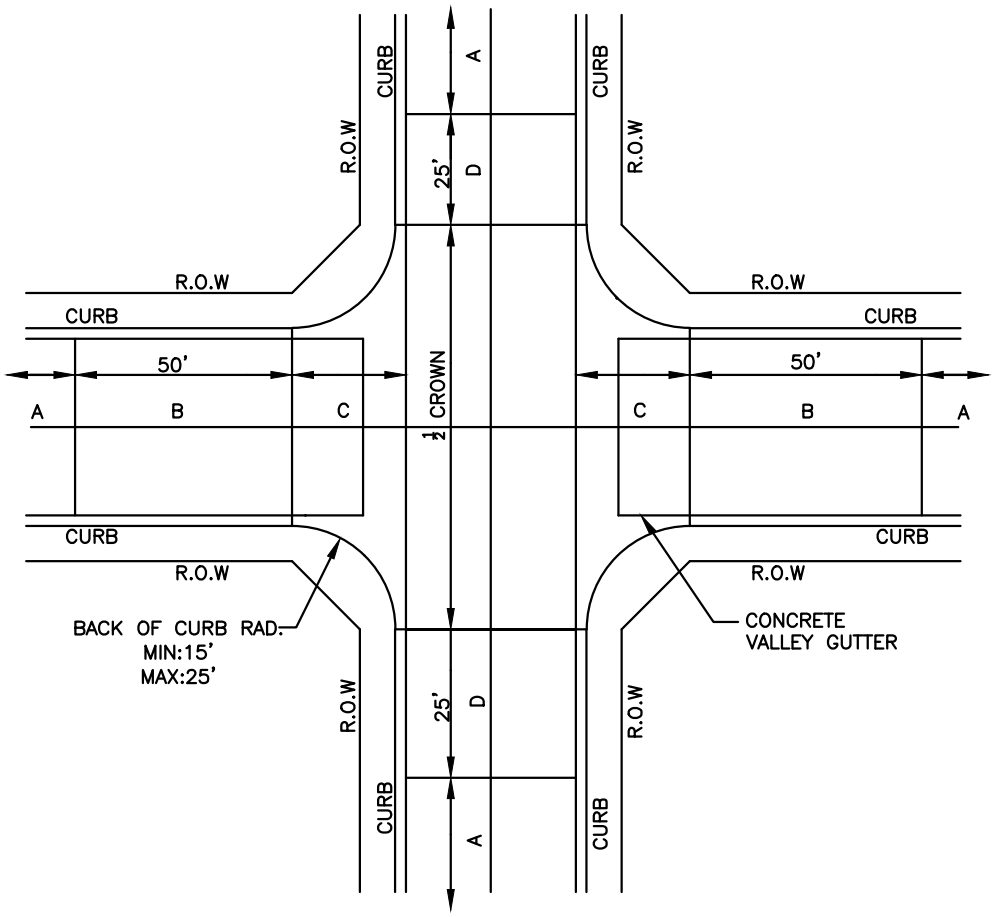
CONCRETE MIN. 4,000 PSI @28 DAYS
CONTRACTOR TO CUT 15' x 15' CONTROL JOINTS.
EXPANSION JOINTS NOT TO EXCEED 45 FT.

CONTRACTOR TO USE #6 DOWELS 24 " LONG
@ 24" ON CENTER ON NEW CONSTRUCTION
JOINTS WHERE NEW PAVEMENTS ARE
POURED ON TWO SEPARATE DAYS.
(12" OF DOWEL TO BE GREASED)

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

PAVEMENT & ROADWAY IMPROVEMENT DETAILS **TYPICAL CONCRETE PAVEMENT**		HCE PROJECT NO. P241-01
STANDARD DESIGN MANUAL **CITY OF MERCEDES**	SHEET NO. ST - 27	01/2021

NOTE:
TYPICAL FOR THE INTERSECTION OF TWO LOCAL STREETS. ALL OTHER INTERSECTIONS SHALL BE APPROVED BY CITY ENGINEER.



GENERAL NOTES:

1. REDUCE NORMAL CROWN TO NO CROWN SECTION WHEN APPROACHING PERPENDICULAR TO VALLEY GUTTER.
2. REDUCE NORMAL CROWN TO HALF CROWN SECTION WHEN STREET IS PARALLEL TO VALLEY GUTTER.
3. FOR "T" INTERSECTION THE THROUGH STREET WILL RETAIN NORMAL CROWN & THE LEG OF THE "T" WILL REDUCE NORMAL CROWN TO NO CROWN SECTION WHEN APPROACHING PERPENDICULAR TO VALLEY GUTTER.
4. CONSTRUCTION PLANS WILL DETAIL "T" INTERSECTION WHEN DRAINAGE FLOWS ACROSS THROUGH STREET OF INTERSECTION.
5. CONSTRUCTION PLANS WILL SPECIFY RADII CURB RETURNS.
6. VALLEY GUTTER SHALL BE 6 FEET WIDE PER STANDARD DETAIL.

CONSTRUCTION NOTES:

A. NORMAL CROWN FOR RESIDENTIAL STREET.
B. TRANSITION SECTION FROM FULL CROWN TO NO CROWN SECTION.
C. NO CROWN SECTION.
D. TRANSITION SECTION FROM FULL CROWN TO HALF CROWN SECTION.

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

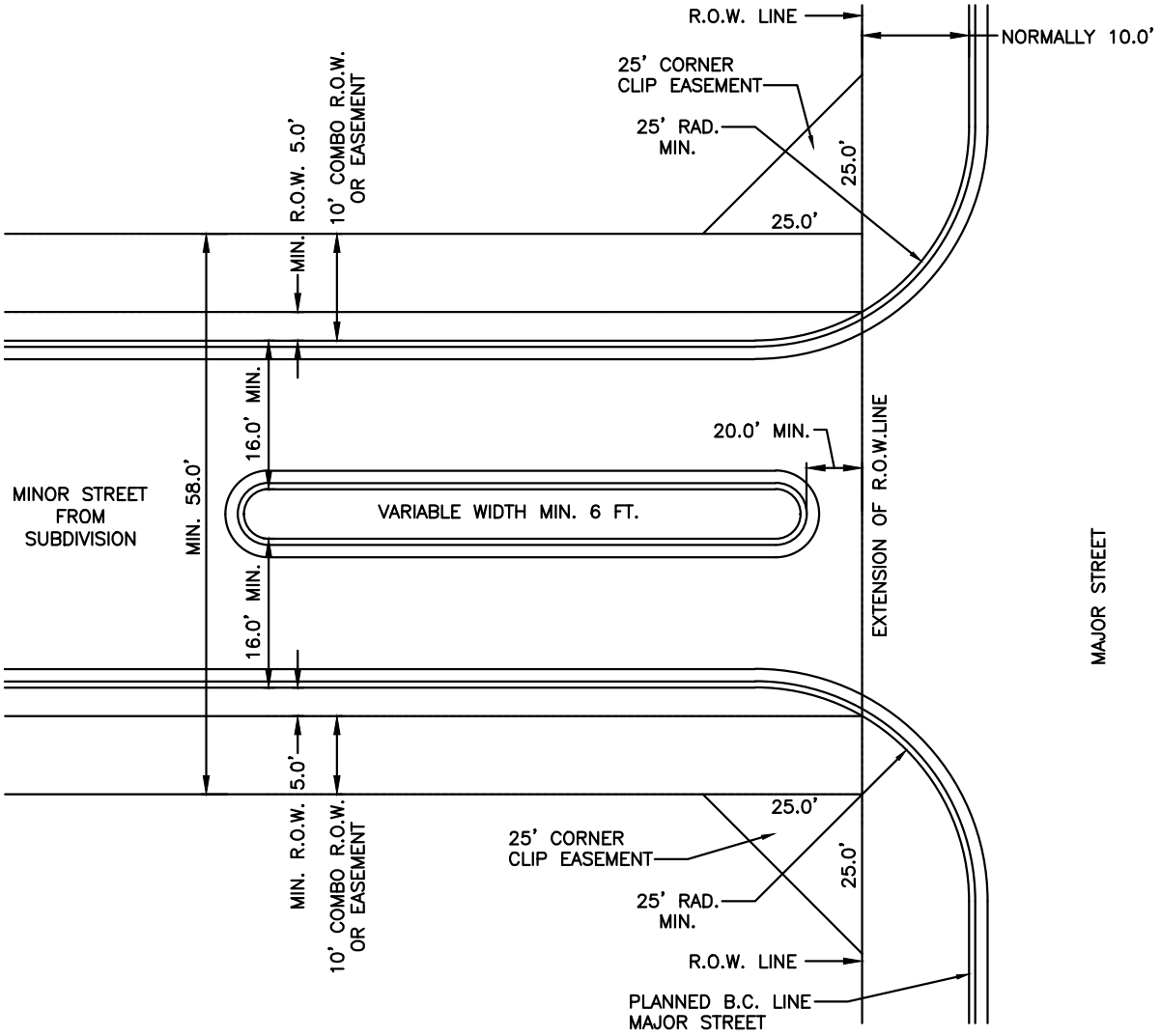
PAVEMENT & ROADWAY IMPROVEMENT DETAILS
LOCAL STREET INTERSECTION

HCE PROJECT NO.
P241-01

STANDARD DESIGN MANUAL
CITY OF MERCEDES

SHEET NO.
ST - 28

01/2021



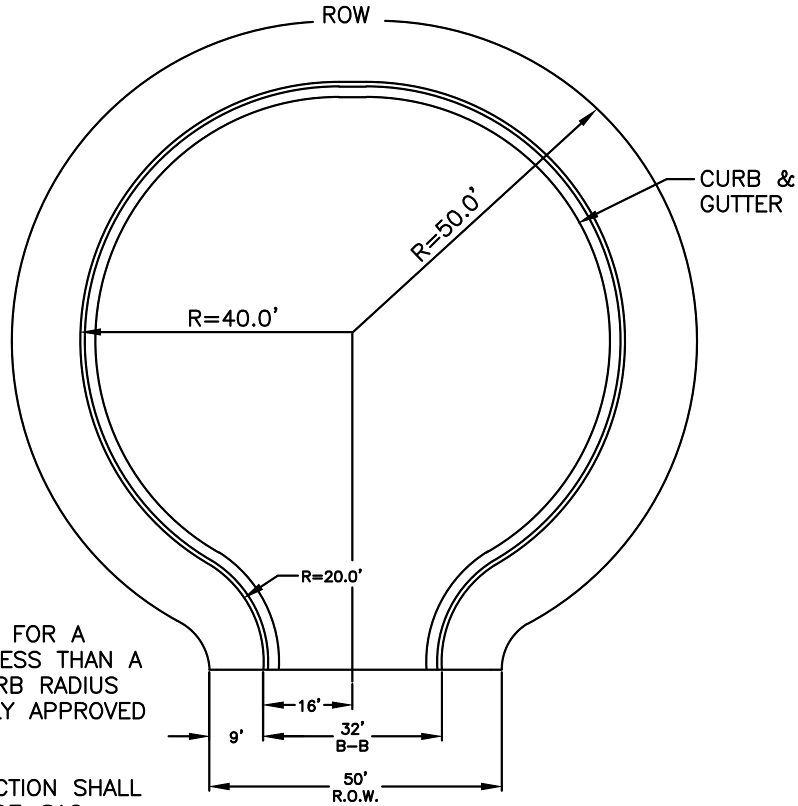
NOTE:

LENGTH OF MEDIAN AND TRANSITION TO BE DETERMINED BY CITY ENGINEER AND APPROVED BY CITY, TO ALLOW ACCESS TO ADJACENT LOTS.

DEVELOPER MUST PROVIDE A MEDIAN REMOVAL FEE, TO BE ESCROWED, AT 120% OF HAVING SAID MEDIAN REMOVED, PAVED, ETC.

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

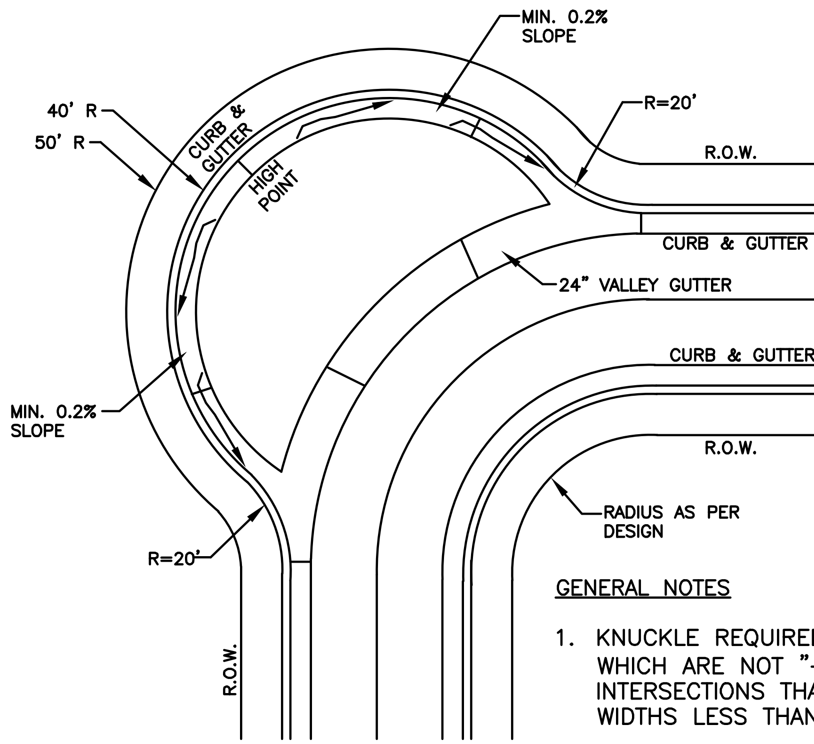
PAVEMENT & ROADWAY IMPROVEMENT DETAILS **TYPICAL MEDIAN DETAIL**	HCE PROJECT NO. P241-01	
STANDARD DESIGN MANUAL **CITY OF MERCEDES**	SHEET NO. ST - 29	01/2021



GENERAL NOTES:

1. ANY DESIGN CALLING FOR A CUL-DE-SAC WITH LESS THAN A 40 FT. BACK OF CURB RADIUS MUST BE INDIVIDUALLY APPROVED BY CITY ENGINEER.

2. LOCAL PAVEMENT SECTION SHALL BE USED FOR CUL-DE-SAC PAVEMENT.



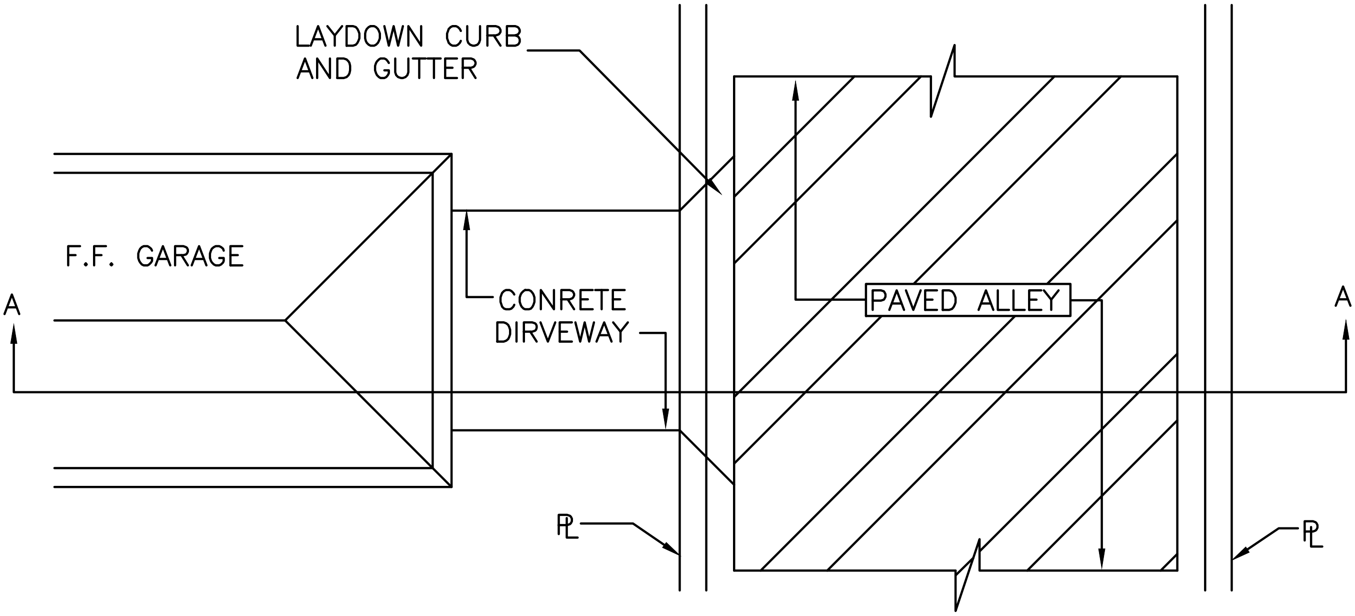
KNUCKLE

GENERAL NOTES

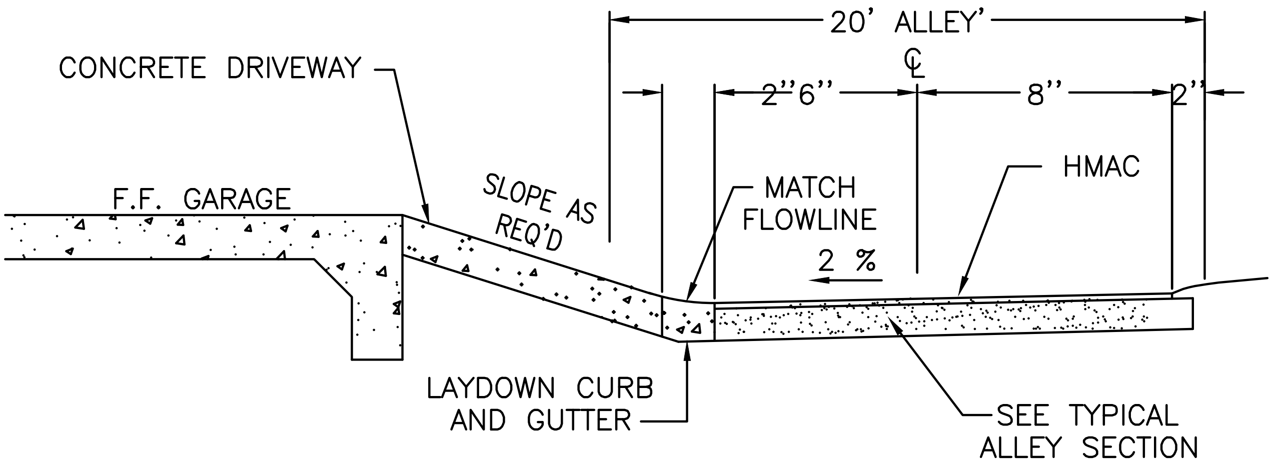
1. KNUCKLE REQUIRED AT INTERSECTIONS WHICH ARE NOT "+" ,"T", OR "Y" INTERSECTIONS THAT HAVE PAVEMENT WIDTHS LESS THAN 40 FEET.

2. DEVIATIONS SHALL BE SUBMITTED TO THE CITY ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION.

city of mercedes 400 South Ohio, Mercedes, Texas 78570 (956) 565 – 3114	**PAVEMENT & ROADWAY IMPROVEMENT DETAILS** **TYPICAL CUL-DE-SAC AND KNUCKLE DETAIL**	HCE PROJECT NO. P241-01	
	STANDARD DESIGN MANUAL **CITY OF MERCEDES**	SHEET NO. ST - 30	01/2021



PLAN VIEW

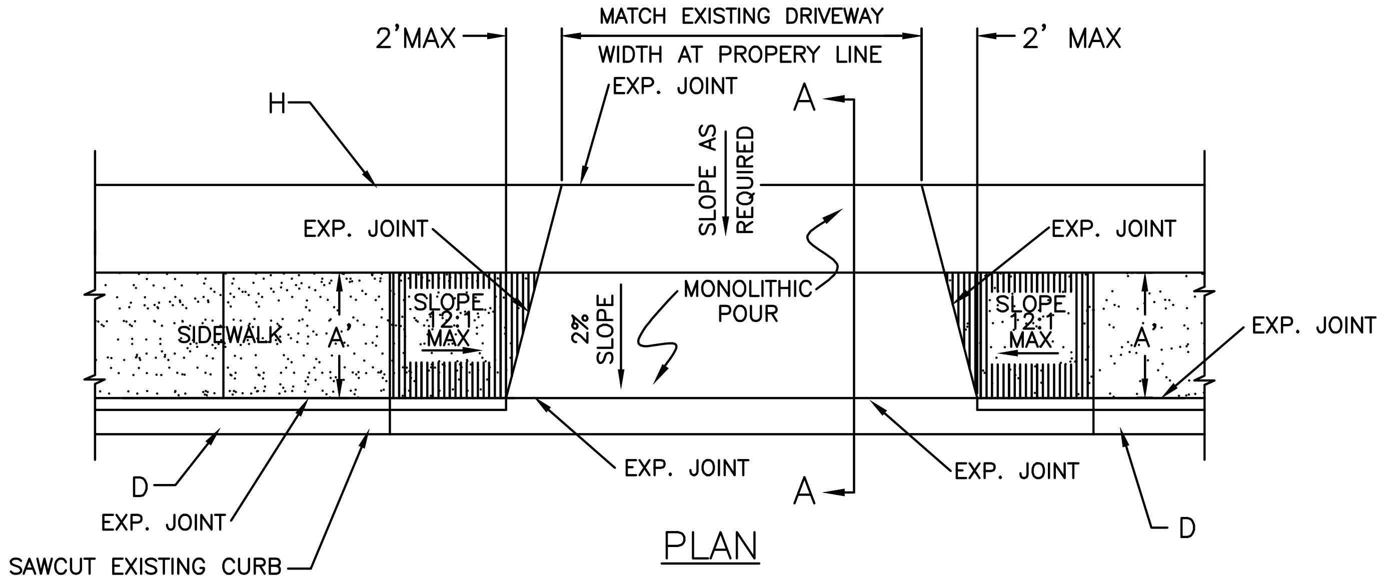


SECTION A–A

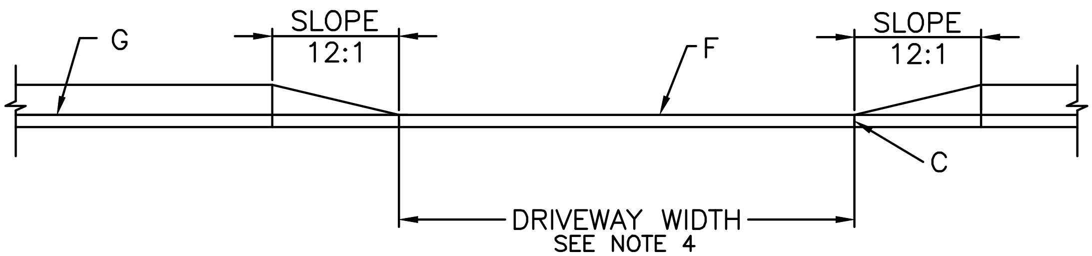
city of mercedes 400 South Ohio, Mercedes, Texas 78570 (956) 565 – 3114	**PAVEMENT & ROADWAY IMPROVEMENT DETAILS** **TYPICAL ALLEY & DRIVEWAY INTERSECTION**	HCE PROJECT NO. P241-01
	STANDARD DESIGN MANUAL **CITY OF MERCEDES**	SHEET NO. ST - 31 — 01/2021

GENERAL NOTES

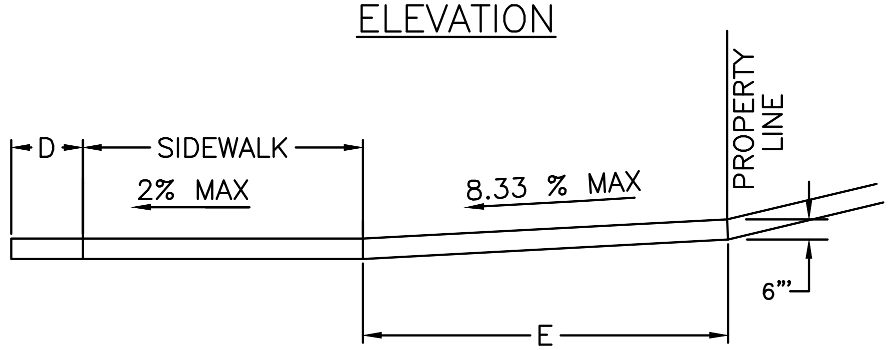
1. DEVIATIONS FROM THESE STANDARDS SHALL BE SUBMITTED TO THE CITY ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION.
2. USE 1/2" EXPANSION JOINT WHERE SIDEWALK OR DRIVEWAY APRON ABUTS BUILDING, FENCES,WALLS OR OTHER IMMOVABLE OBJECTS.
3. DRIVEWAY APRON WIDER THAN 18 FT (NOMINAL) SHALL HAVE A SAWED CONSTRUCTION JOINT AT MIDPOINT. DRIVEWAY APRON WIDER THAN 36 FT. SHALL HAVE AN EXPANSION JOINT EQUALLY SPACED AT MID-POINT OF DRIVEWAY.
4. MAXIMUM DRIVEWAY APRON WIDTHS SHALL BE:
   RESIDENTIAL: 24 FT MAX.
   COMMERCIAL: 45 FT MAX.
5. SUBGRADE UNDER DRIVEWAY APRON SHALL BE COMPACTED TO 95% MIN. DENSITY TO A DEPTH OF 6".
6. DRIVEWAY APRON SHALL HAVE A MINIMUM THICKNESS OF 6" AND BE PLACED USING 3000 P.S.I. CONCRETE WITH 6"X6" WELDED WIRE MESH, NO. 3 BARS @ 12" O.C.E.W. OR NO. 4 @ 18" O.C.E.W.
7. CURB CUT MUST BE A MINIMUM OF 6 FT FROM SIDE YARD PROPERTY LINE.
8. CURB CUT MUST BE A MINIMUM OF 25 FT FROM THE PROJECTION OF THE CLOSEST THROUGH LANE AT A STREET INTERSECTION.
9. CONCRETE SHALL HAVE A BROOM FINISH. BRICK PAVERS, EXPOSED AGGREGATE; RIVER-BRICK FINISH, TILE ARE NOT PERMITTED WITHIN THE R.O.W.
10. MEMBRANE CURING COMPOUND SHALL BE APPLIED AT A MINIMUM OF 1 GALLON PER 180 SQUARE FEET OF AREA AFTER SURFACE FINISH HAS BEEN COMPLETED.
11. ALL CONCRETE APRONS SHALL INCLUDE SUBGRADE & BASE CONSISTENT WITH THE ADJACENT ROADWAY. THE COSTS FOR THE SUBGRADE AND BASE FOR THE CONCRETE APRON SHALL BE INCLUDED IN THE UNIT PRICE FOR THE CONCRETE APRON.



PLAN



ELEVATION



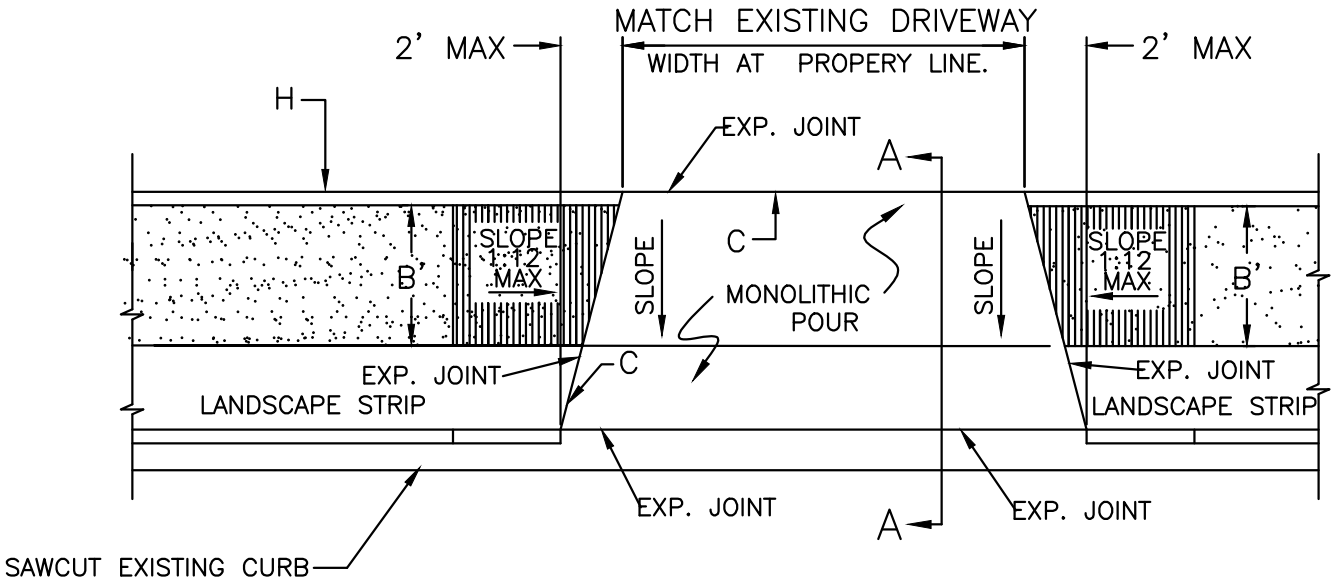
SECTION A–A

LEGEND:

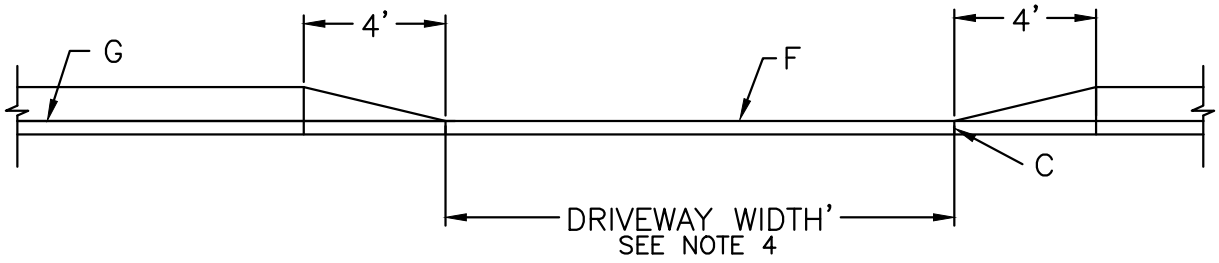
A. CURB TYPE SIDEWALK.
B. OFFSET SIDEWALK.
C. 1/2" EXPANSION JOINT AT PROPERTY LINE ADJACENT SIDEWALK AND ALONG BACK OF CURB.
D. CURB & GUTTER.
E. SLOPE TO BE ADJUSTED TO PROVIDE A UNIFORM TRANSITION BETWEEN SIDEWALK & DRIVEWAY APRON 12:1 SLOPE MAX.
F. TOP OF DRIVEWAY APRON.
G. TOP OF CURB.
H. PROPERTY LINE.

SIDEWALK ADJACENT TO CURB

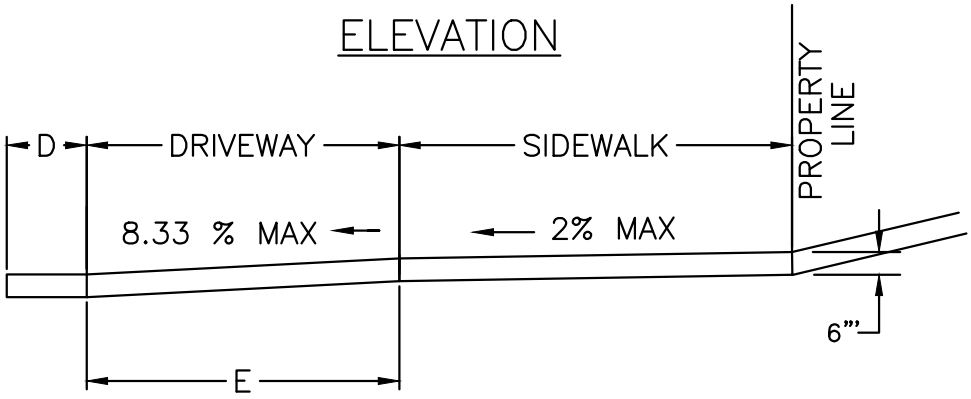
city of mercedes 400 South Ohio, Mercedes, Texas 78570 (956) 565 – 3114	**PAVEMENT & ROADWAY IMPROVEMENT DETAILS CONCRETE DRIVEWAY APRON (2 OF 4)**	HCE PROJECT NO. P241-01	
	STANDARD DESIGN MANUAL CITY OF MERCEDES	SHEET NO. ST - 33	01/2021



PLAN



ELEVATION



SECTION A–A

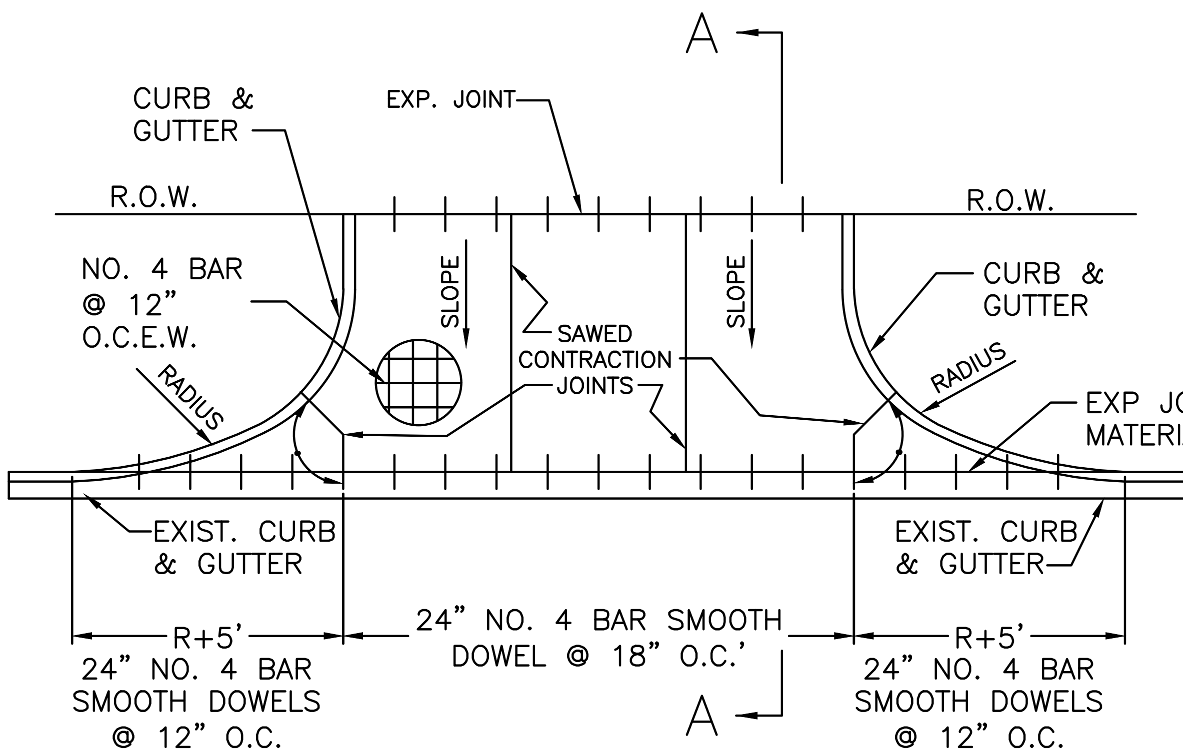
LEGEND:

A. CURB TYPE SIDEWALK.
B. OFFSET SIDEWALK.
C. 1/2" EXPANSION JOINT AT PROPERTY LINE ADJACENT SIDEWALK AND ALONG BACK OF CURB.
D. CURB & GUTTER.
E. SLOPE TO BE ADJUSTED TO PROVIDE A UNIFORM TRANSITION BETWEEN SIDEWALK & DRIVEWAY APRON 12:1 SLOPE MAX.
F. TOP OF DRIVEWAY APRON.
G. TOP OF CURB.
H. PROPERTY LINE.

SIDEWALK OFFSET FROM CURB

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

PAVEMENT & ROADWAY IMPROVEMENT DETAILS **CONCRETE DRIVEWAY APRON (3 OF 4)**	HCE PROJECT NO. P241-01	
STANDARD DESIGN MANUAL **CITY OF MERCEDES**	SHEET NO. ST - 34	01/2021



NOTE:

DRIVEWAY FOR INDUSTRIAL ZONED PROPERTY TO BE APPROVED BY CITY ENGINEER.

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

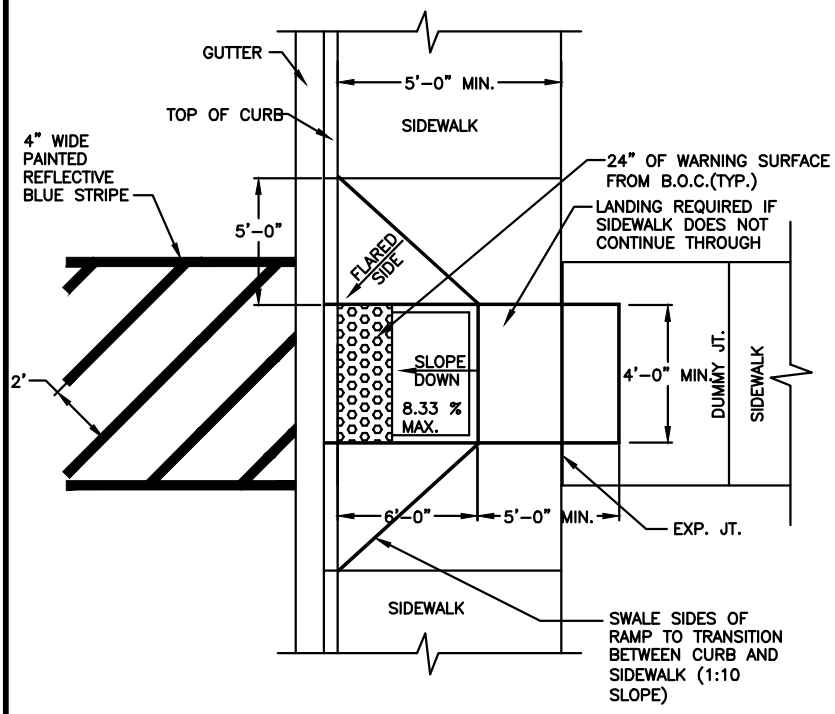
PAVEMENT & ROADWAY IMPROVEMENT DETAILS
CONCRETE DRIVEWAY APRON (4 OF 4)

HCE PROJECT NO.
P241-01

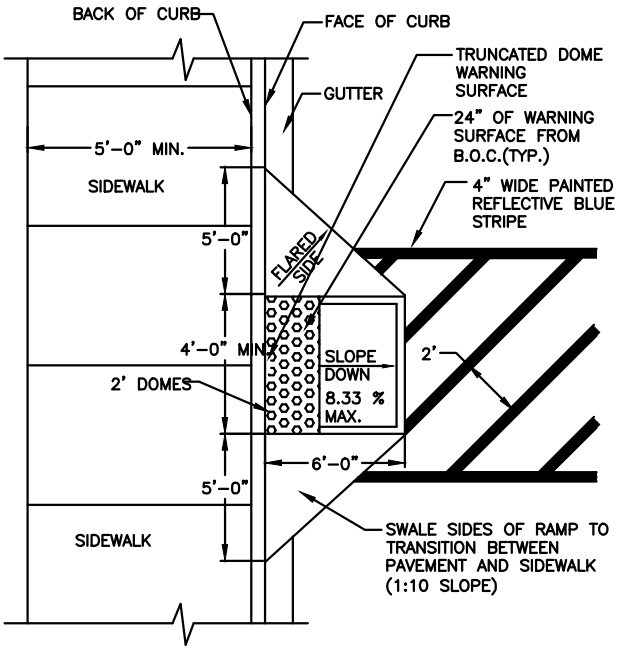
STANDARD DESIGN MANUAL
CITY OF MERCEDES

SHEET NO.
ST - 35

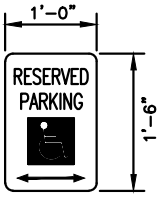
01/2021



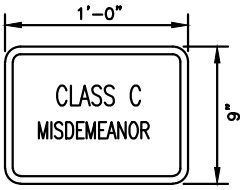
TYPICAL HANDICAP RAMP BUILT INTO SIDEWALK
N.T.S.



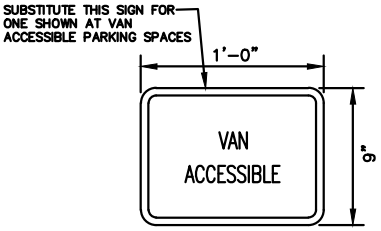
TYPICAL HANDICAP RAMP BUILT ON TOP OF PARKING LOT
N.T.S.



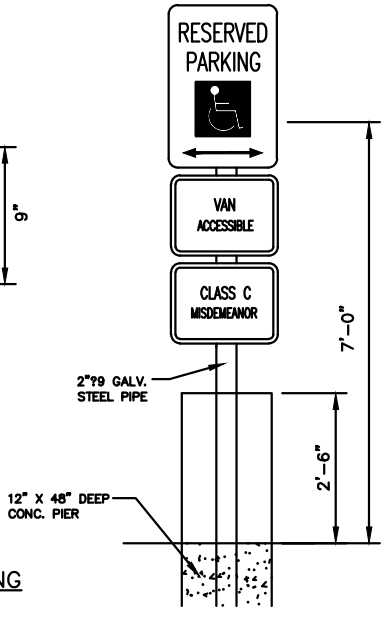
PRIMARY SIGN
N.T.S.



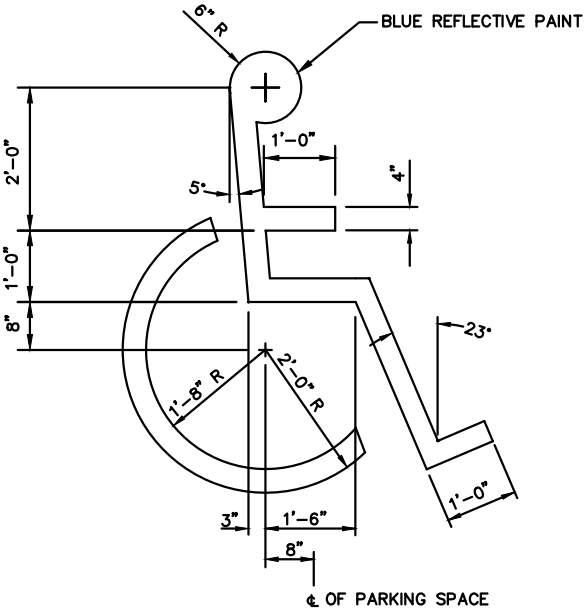
PENALTY SIGN
N.T.S.



SUPPLEMENTARY SIGN
N.T.S.



ACCESSIBLE PARKING SIGN
N.T.S.



ACCESSIBLE STRIPING LOGO
N.T.S.

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

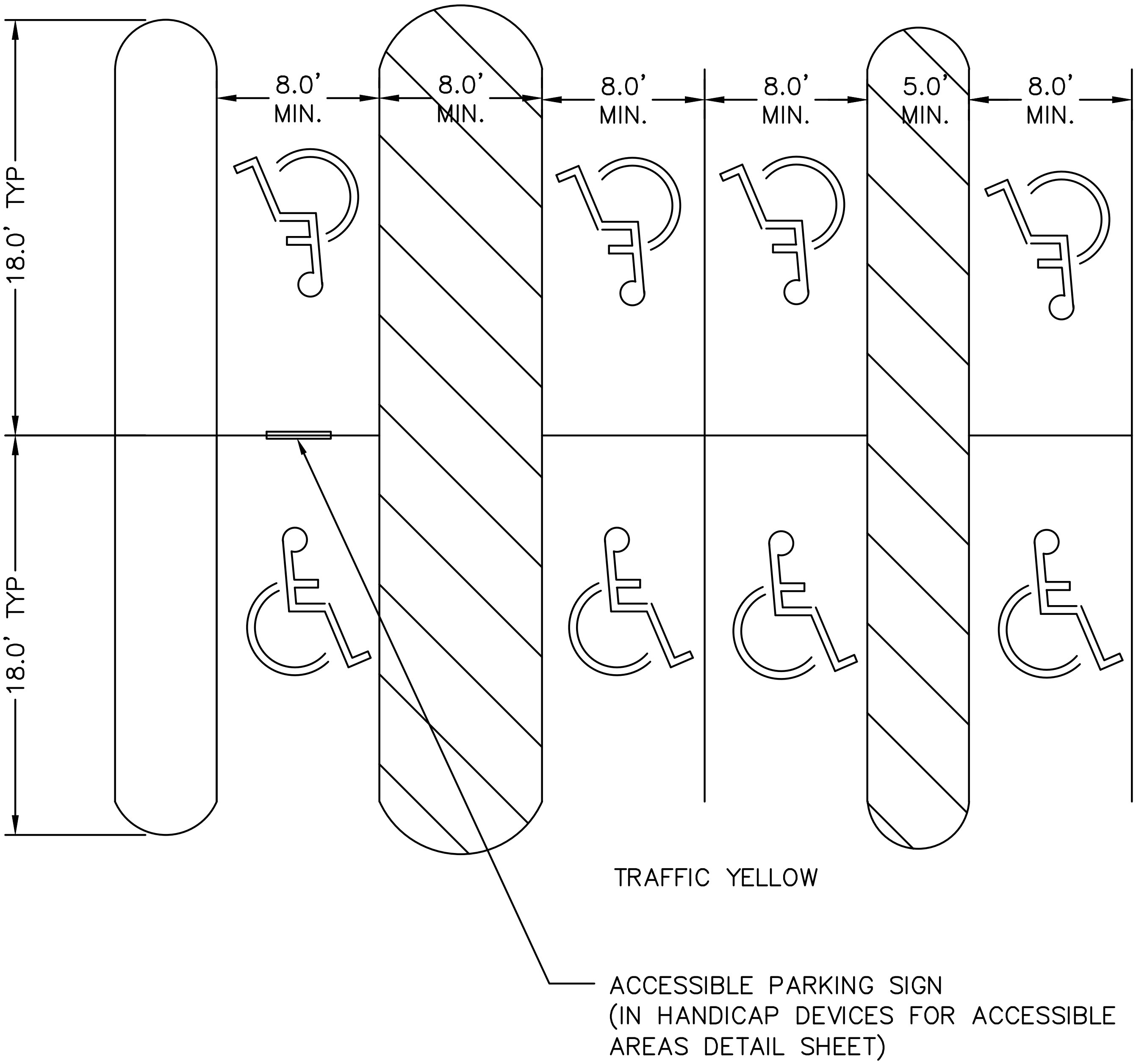
PAVEMENT & ROADWAY IMPROVEMENT DETAILS
HANDICAP DEVICES FOR ACCESSIBLE AREAS

HCE PROJECT NO.
P241-01

STANDARD DESIGN MANUAL
CITY OF MERCEDES

SHEET NO.
ST - 36

01/2021



city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

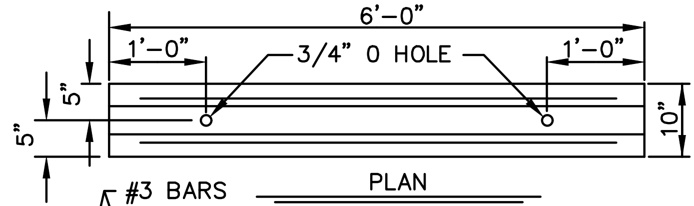
PAVEMENT & ROADWAY IMPROVEMENT DETAILS
TYPICAL STRIPING DETAIL FOR ACCESSIBLE AREAS

HCE PROJECT NO.
P241-01

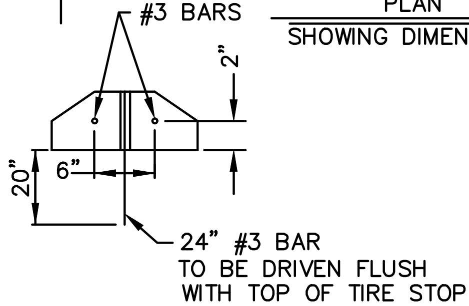
STANDARD DESIGN MANUAL
CITY OF MERCEDES

SHEET NO.
ST - 37

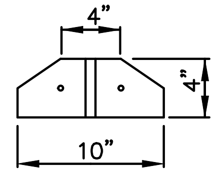
01/2021



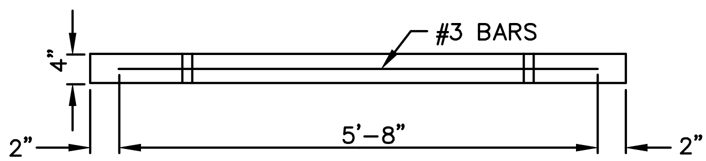
PLAN
SHOWING DIMENSIONS



CROSS SECTION
SHOWING STEEL

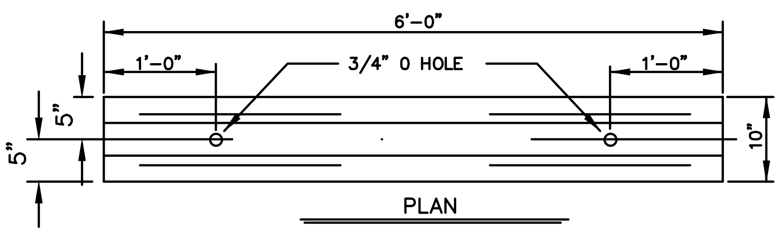


END VIEW
SHOWING DIMENSIONS

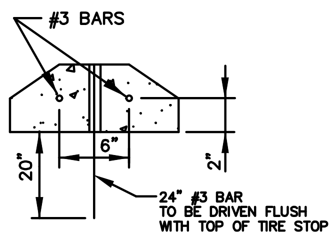


LONGITUDINAL SECTION
SHOWING STEEL

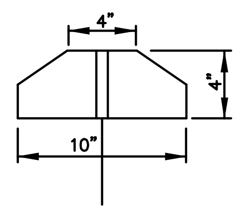
NOTE: ALL CONCRETE SHALL BE CLASS A.



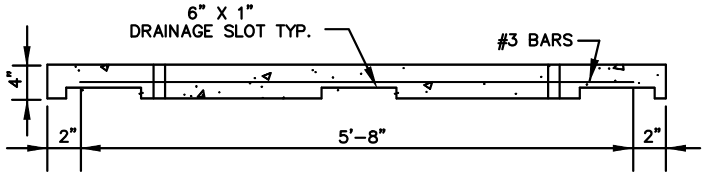
PLAN
SHOWING DIMENSIONS



CROSS SECTION
SHOWING STEEL



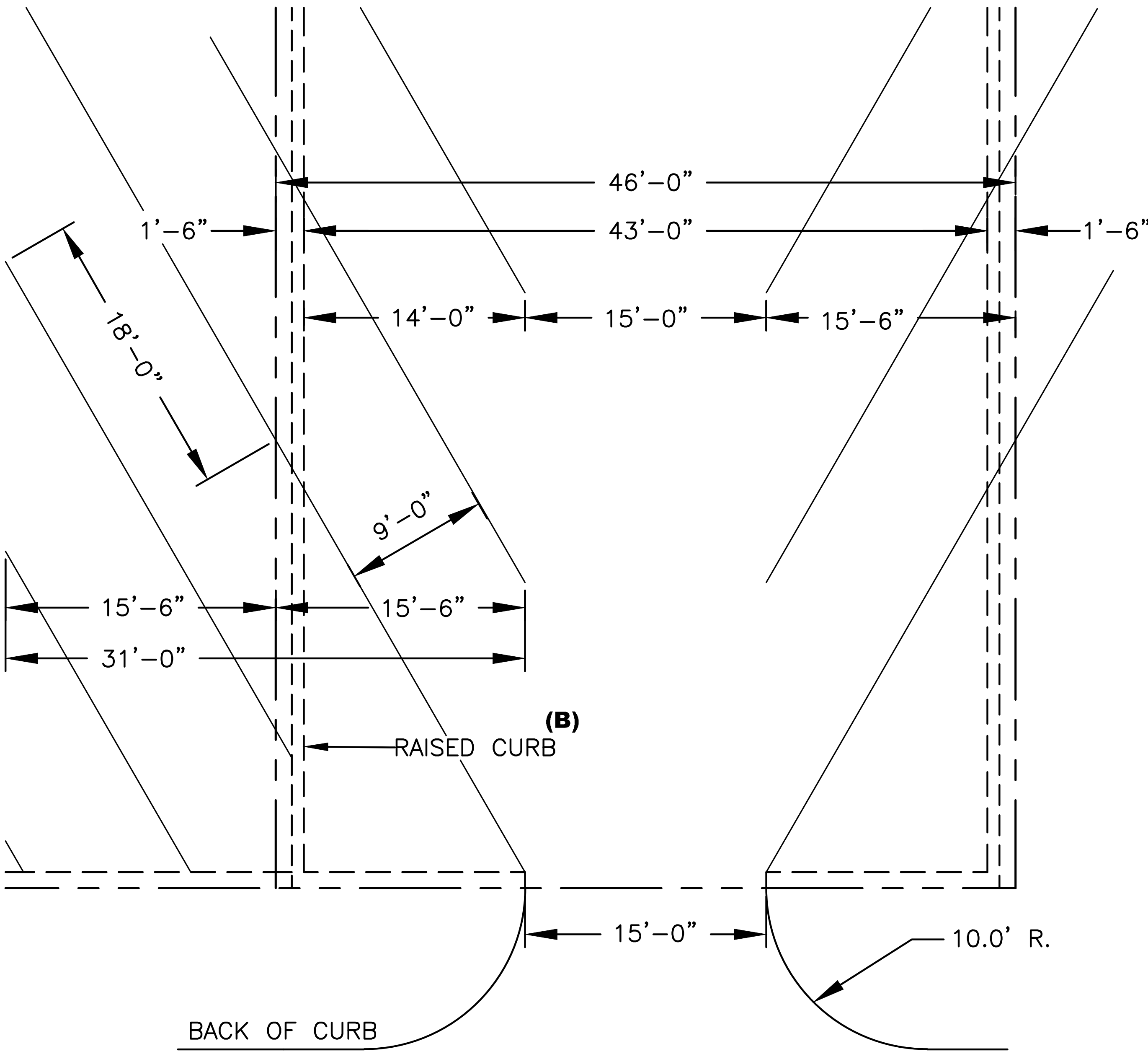
END VIEW
SHOWING DIMENSIONS



LONGITUDINAL SECTION
SHOWING STEEL

NOTE: ALL CONCRETE SHALL BE CLASS A

city of mercedes 400 South Ohio, Mercedes, Texas 78570 (956) 565 – 3114	**PAVEMENT & ROADWAY IMPROVEMENT DETAILS** **TYPICAL CONCRETE WHEEL STOPS**	HCE PROJECT NO. P241-01
	STANDARD DESIGN MANUAL **CITY OF MERCEDES**	SHEET NO. ST - 38 — 01/2021



NOTES:

(A) MINIMUM REQUIRED FOR SINGLE ROW OF PARKING

(B) TOP WIDTH 6"–INCREASE TO 10" IF COMMON BARRIER FOR TWO ROWS OF PARKING

(C) MINIMUM FOR ONE WAY TRAFFIC IN SHORT LOTS–INCREASE BY 5 FEET FOR TWO WY TRAFFIC

ALL DISTANCES SHOWN ARE ABSOLUTE MINIMUMS

LEGEND

PROPERTY LINES ——— — — ———

STALL LINES —————

30° PARKING

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

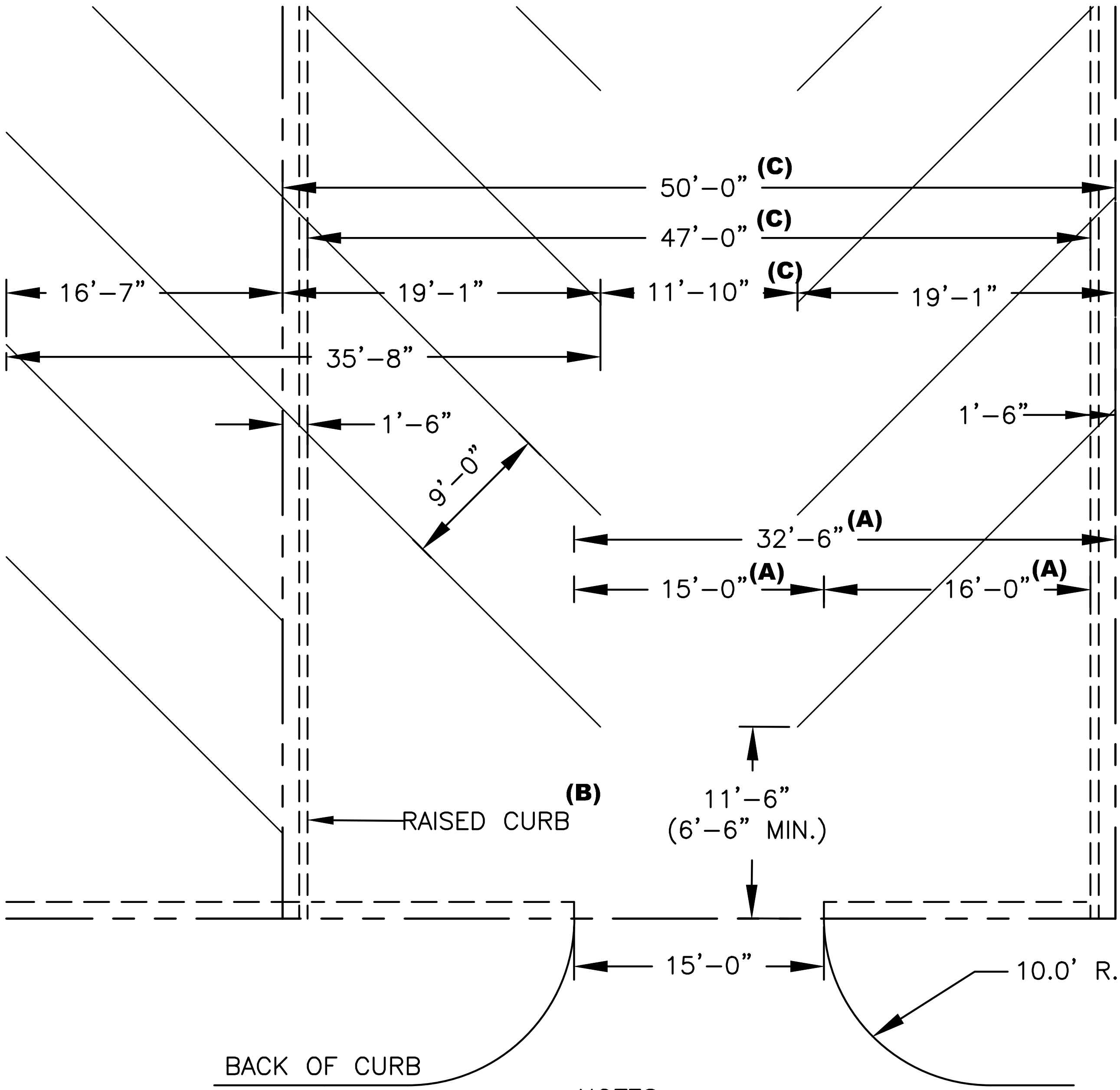
PAVEMENT & ROADWAY IMPROVEMENT DETAILS
30 DEGREE PARKING STALL LAYOUT

HCE PROJECT NO.
P241-01

STANDARD DESIGN MANUAL
CITY OF MERCEDES

SHEET NO.
ST - 39

01/2021



NOTES:

(A) MINIMUM REQUIRED FOR SINGLE ROW OF PARKING

(B) TOP WIDTH 6"–INCREASE TO 10" IF COMMON BARRIER FOR TWO ROWS OF PARKING

(C) MINIMUM FOR ONE WAY TRAFFIC IN SHORT LOTS–INCREASE BY 5 FEET FOR TWO WY TRAFFIC

ALL DISTANCES SHOWN ARE ABSOLUTE MINIMUMS

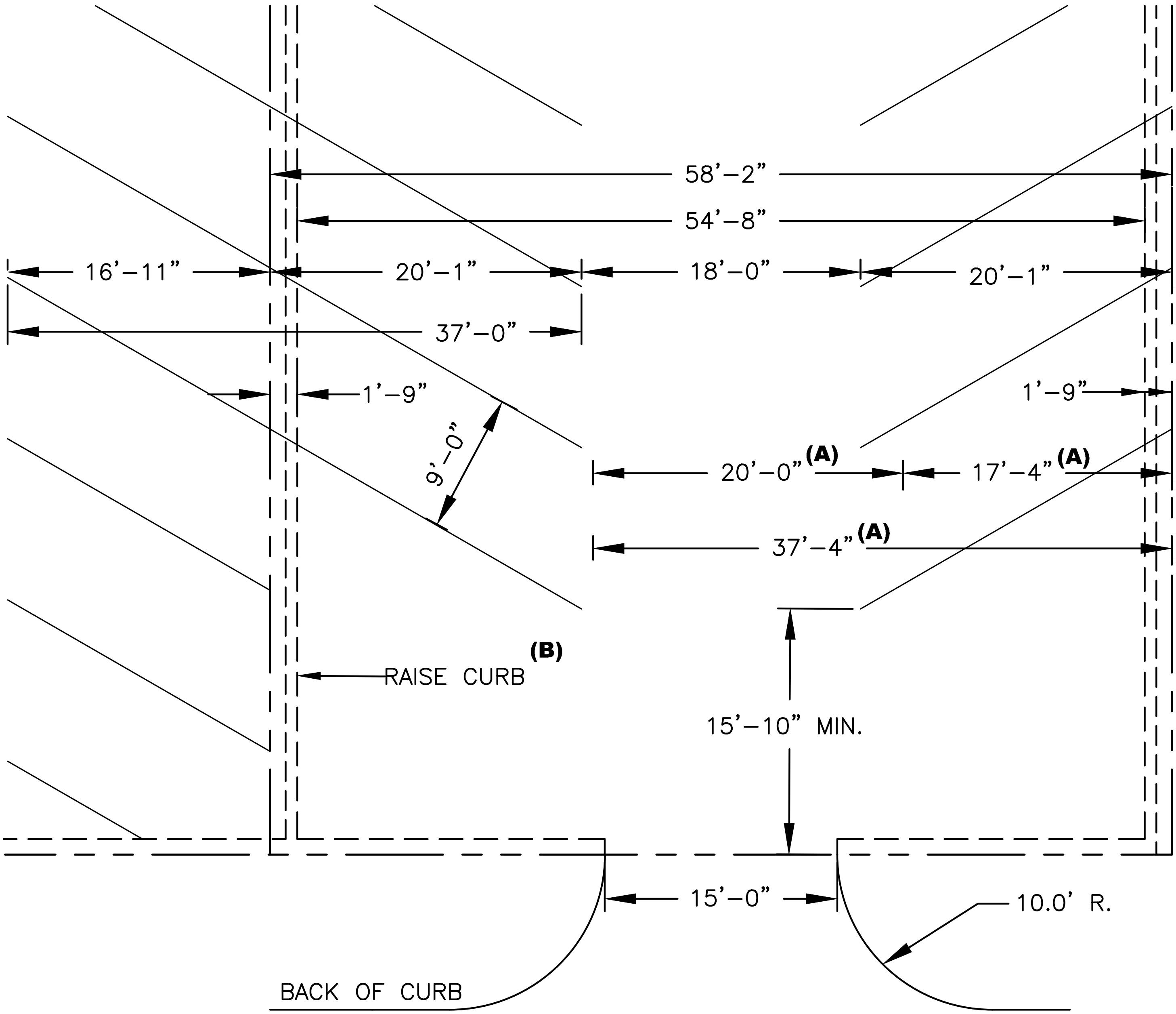
LEGEND

PROPERTY LINES ——— — — ———

STALL LINES ————————

45° PARKING

city of mercedes 400 South Ohio, Mercedes, Texas 78570 (956) 565 – 3114	**PAVEMENT & ROADWAY IMPROVEMENT DETAILS** **45 DEGREE PARKING STALL LAYOUT**	HCE PROJECT NO. P241-01
	STANDARD DESIGN MANUAL **CITY OF MERCEDES**	SHEET NO. ST - 40 — 01/2021



LEGEND

PROPERTY LINES — — — —

STALL LINES ————

60° PARKING

NOTES:

(A) MINIMUM REQUIRED FOR SINGLE ROW OF PARKING

(B) TOP WIDTH 6"–INCREASE TO 10" IF COMMON BARRIER FOR TWO ROWS OF PARKING

ALL DISTANCES SHOWN ARE ABSOLUTE MINIMUMS

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

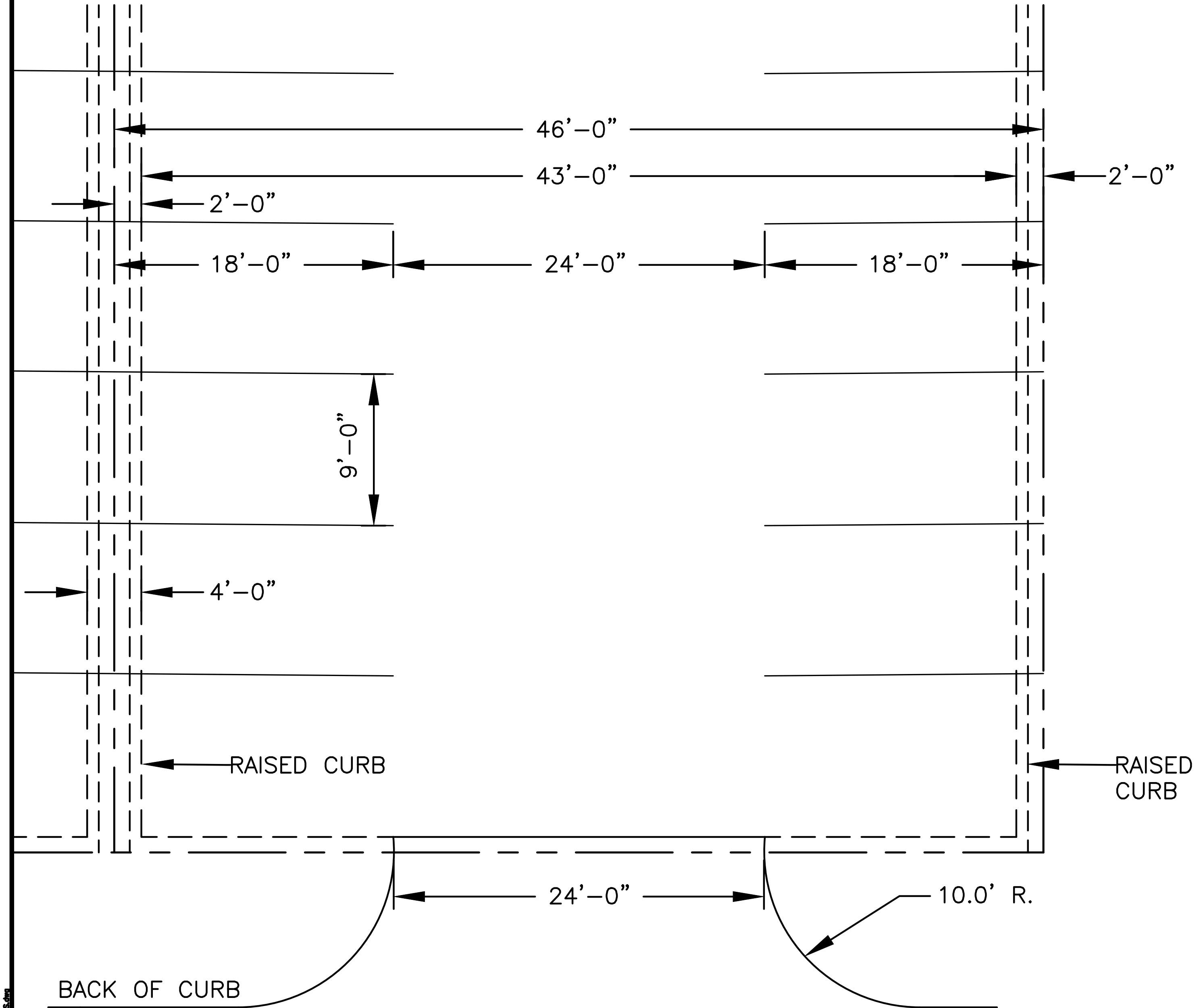
PAVEMENT & ROADWAY IMPROVEMENT DETAILS
60 DEGREE PARKING STALL LAYOUT

HCE PROJECT NO.
P241-01

STANDARD DESIGN MANUAL
CITY OF MERCEDES

SHEET NO.
ST - 41

01/2021



LEGEND

PROPERTY LINES

STALL LINES

NOTES:

ALL DISTANCES SHOWN ARE ABSOLUTE MINIMUMS

90° PARKING

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

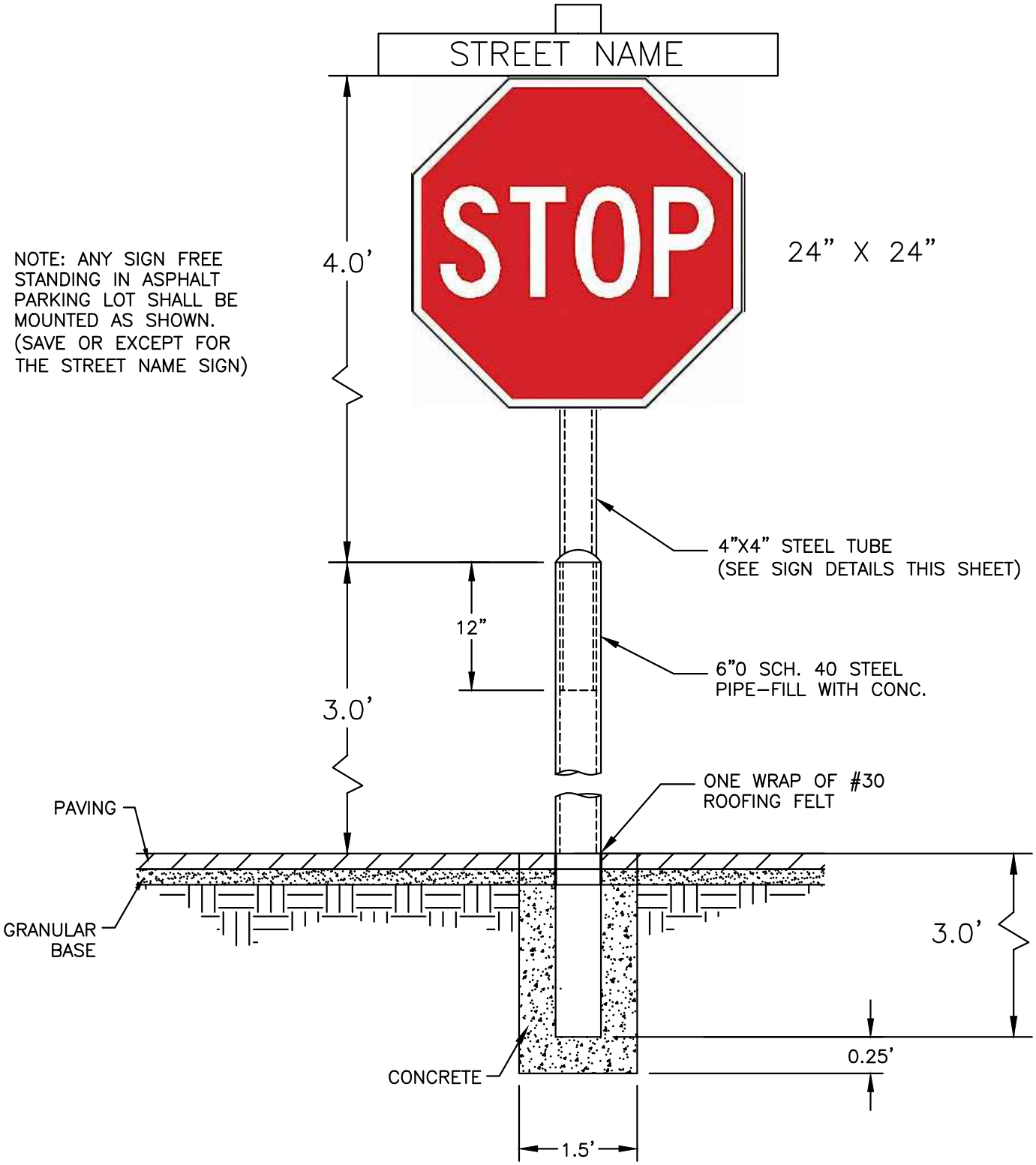
PAVEMENT & ROADWAY IMPROVEMENT DETAILS
90 DEGREE PARKING STALL LAYOUT

HCE PROJECT NO.
P241-01

STANDARD DESIGN MANUAL
CITY OF MERCEDES

SHEET NO.
ST - 42

01/2021



city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

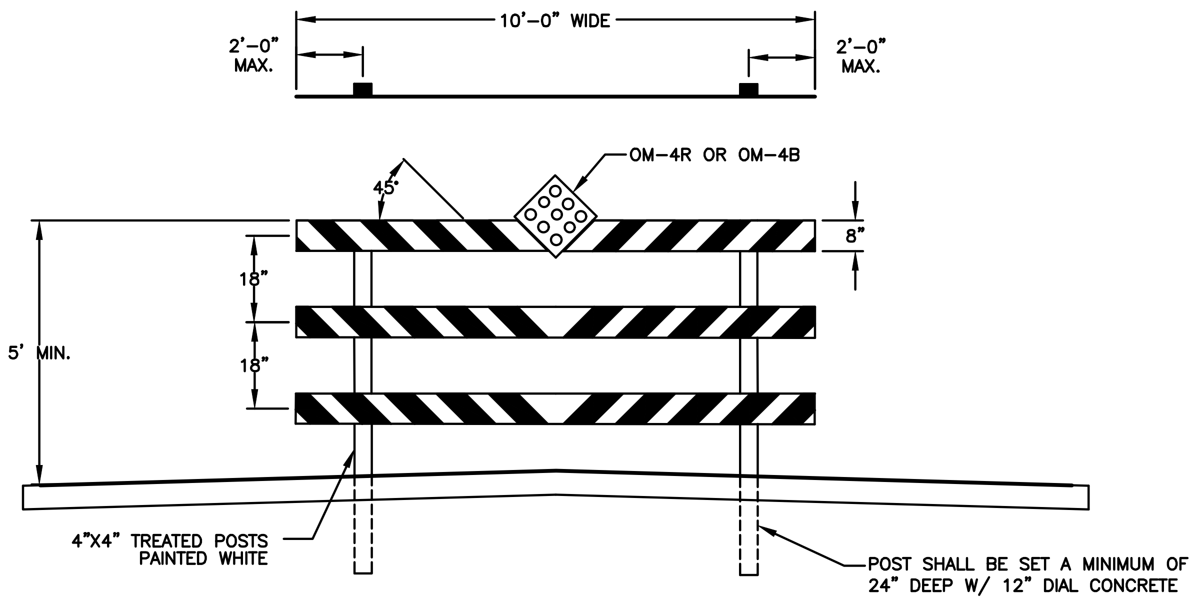
PAVEMENT & ROADWAY IMPROVEMENT DETAILS
TYPICAL STOP SIGN DETAIL

HCE PROJECT NO.
P241-01

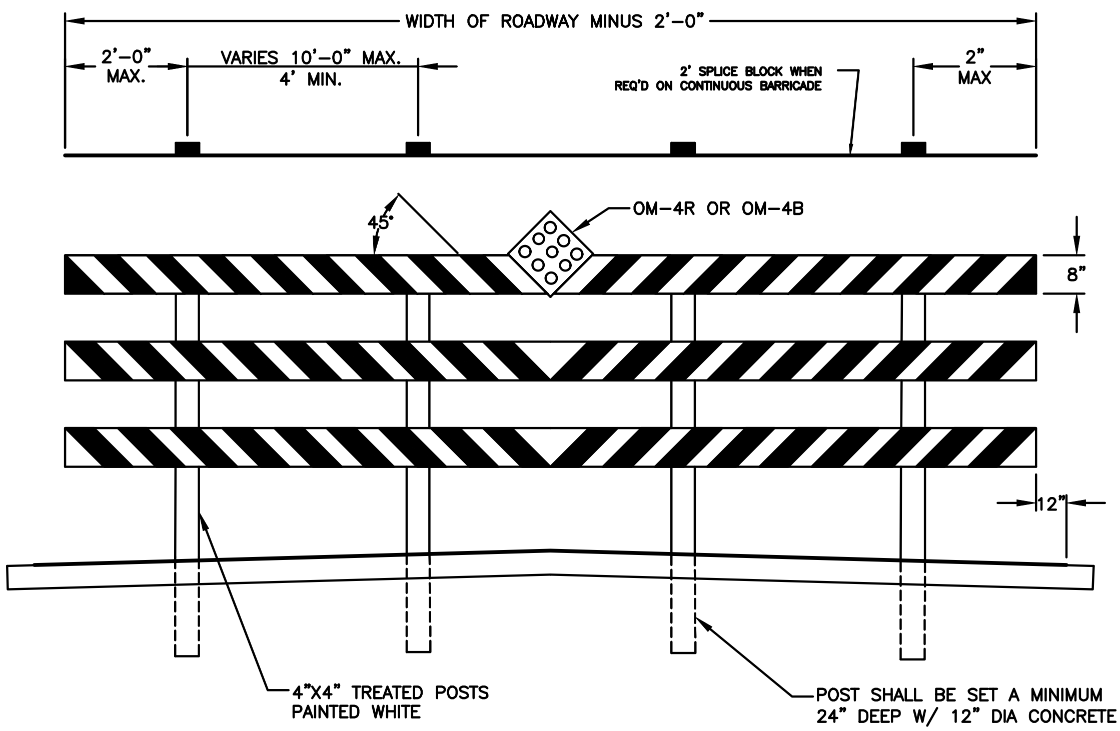
STANDARD DESIGN MANUAL
CITY OF MERCEDES

SHEET NO.
ST - 43

01/2021



TYPE IIIA BARRICADE
N.T.S.



TYPE III BARRICADE
DEAD–END STREET BARRICADE
N.T.S.

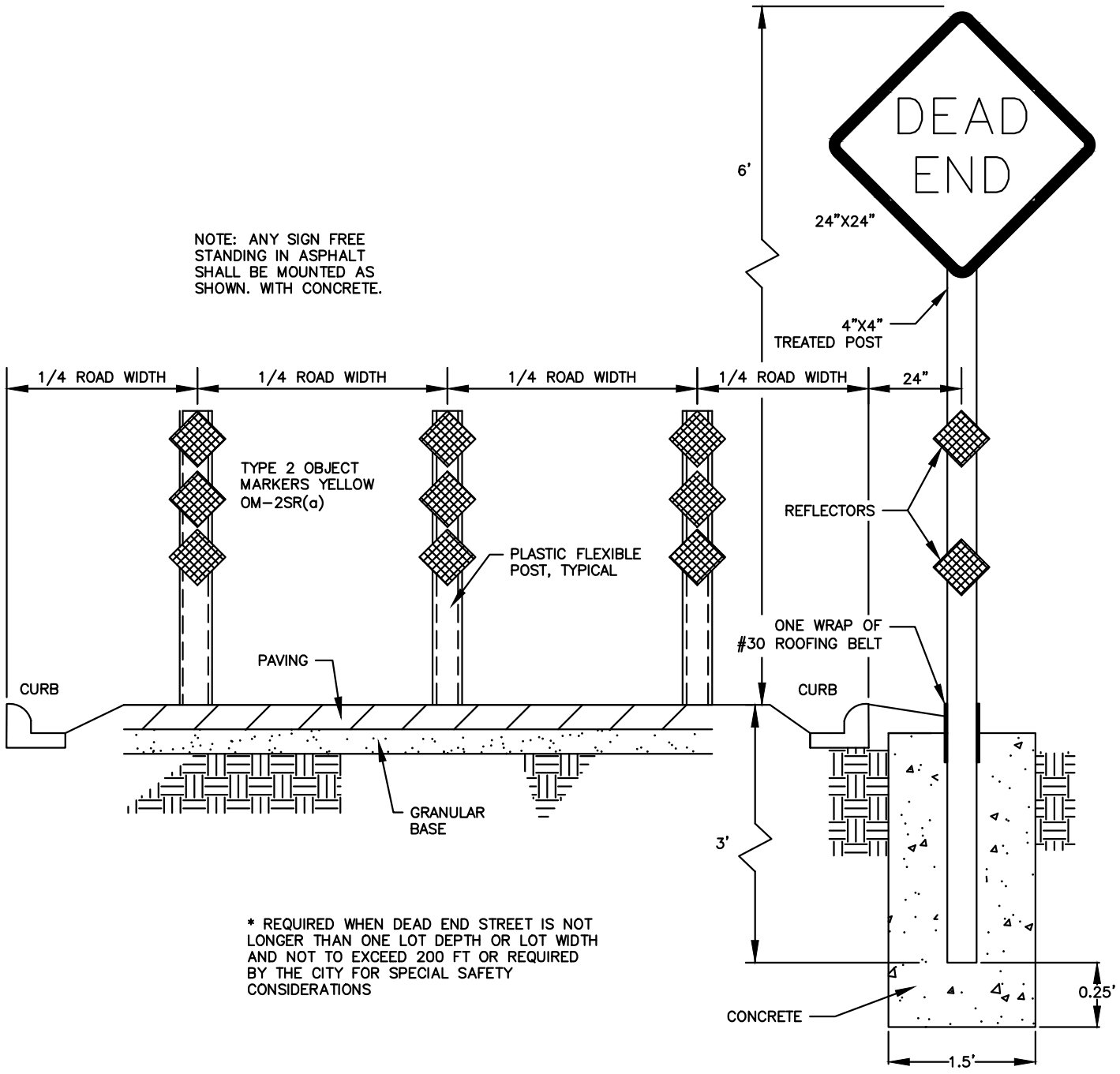
GENERAL NOTES:

1. WIDTH OF RAIL SHALL BE A MINIMUM OF TXT28", 2" NOMINAL SMOOTH LUMBER.
2. RAILS SHALL BE FASTENED TO EACH POST WITH " STEEL BOLTS WITH WASHER ON EACH SIDE BOLD THREADS SHALL BE PEENED.
3. THE RAILS SHALL RECEIVE TWO COATS OF WHITE OIL BASE OUTDOOR PAINT, THEN SHALL HAVE 6" WIDE REFLECTORIZED RED STRIPES OF TAPE PLACED ON 45' SLOPES, DOWN AND TOWARDS THE CENTER OF THE BARRICADE.
4. BARRICADES MAY BE CONSTRUCTED IN SECTIONS OF MAY BE CONTINUOUS ACROSS ROADWAY WIDTH. SPLICES ON CONTINUOUS RAIL BARRICADES SHALL BE POSTS AND SHALL HAVE A 2" SPLICE BLOCK ON BACK SIDE OF BE SAME MATERIAL AS RAIL.
5. 18" DIAMOND REFLECTORIZED RED PANEL OR 18" DIAMOND RED OR BLACK PANEL WITH 9–3" DIAL. RED REFLECTORS SYMMETRICALLY PLACED AT CENTER OR CENTER POST.

* REQUIRED WHEN DEAD END STREET IS LONGER THAN ONE LOT DEPTH OR LOT WIDTH OR DEAD END STREET EXCEEDS 200 FEET IN LENGTH. CITY WILL DETERMINE WHETHER TYPE III OR IIIA BARRICADE IS ACCEPTABLE.

city of mercedes 400 South Ohio, Mercedes, Texas 78570 (956) 565 – 3114	**PAVEMENT & ROADWAY IMPROVEMENT DETAILS** **TYPICAL BARRICADE DETAILS**	HCE PROJECT NO. P241-01	
	STANDARD DESIGN MANUAL **CITY OF MERCEDES**	SHEET NO. ST - 44	01/2021

NOTE: HARDWARE SHALL BE GALVANIZED STEEL.



city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

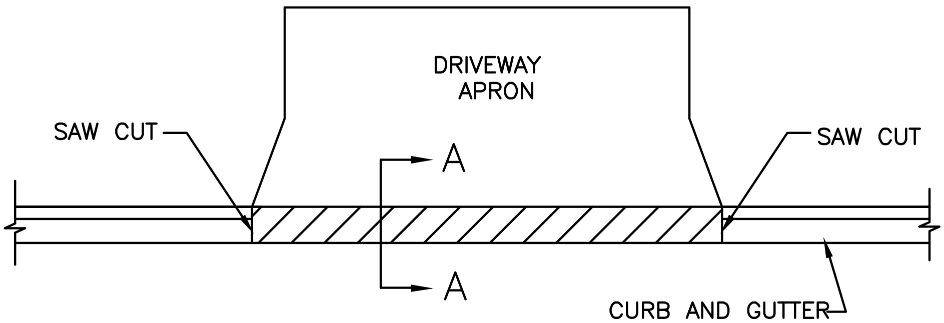
PAVEMENT & ROADWAY IMPROVEMENT DETAILS
TYPICAL DEAD END SIGN DETAIL

HCE PROJECT NO.
P241-01

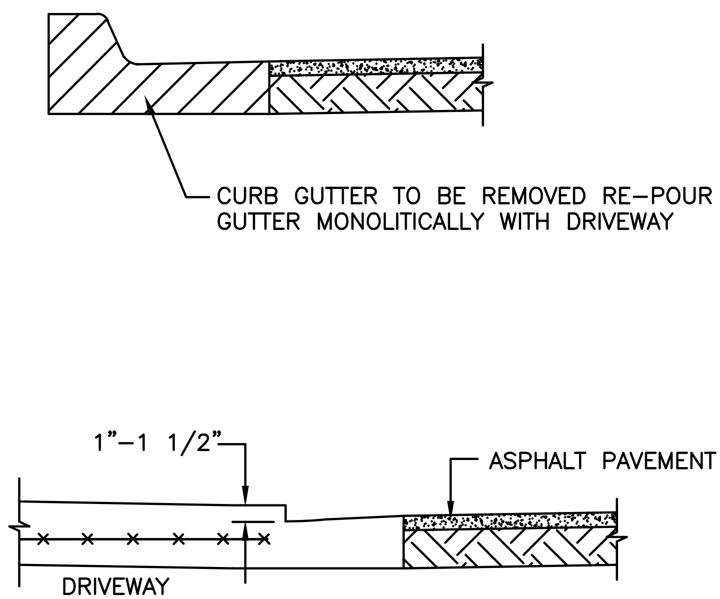
STANDARD DESIGN MANUAL
CITY OF MERCEDES

SHEET NO.
ST - 45

01/2021



PLAN VIEW



SECTION A-A

NOTE:

ANY PAVEMENT DAMAGE WILL REQUIRE A ASPHALT CUT AND RESTORE

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

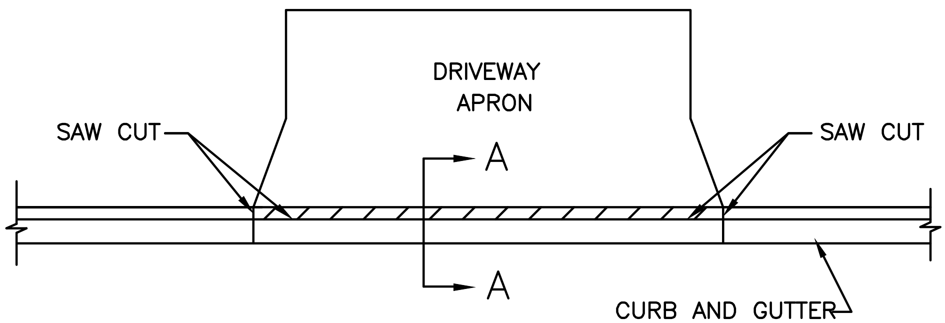
PAVEMENT & ROADWAY IMPROVEMENT DETAILS
CURB & GUTTER SAW CUT FOR DRIVEWAY DETAIL
OPTION 1

HCE PROJECT NO.
P241-01

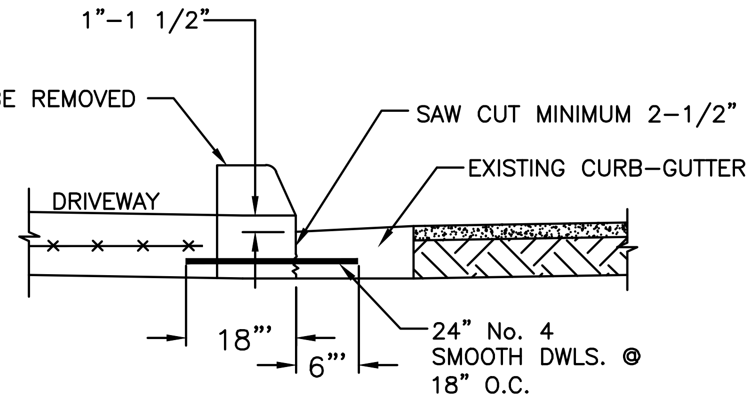
STANDARD DESIGN MANUAL
CITY OF MERCEDES

SHEET NO.
ST - 46

01/2021



PLAN VIEW



SECTION A–A

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

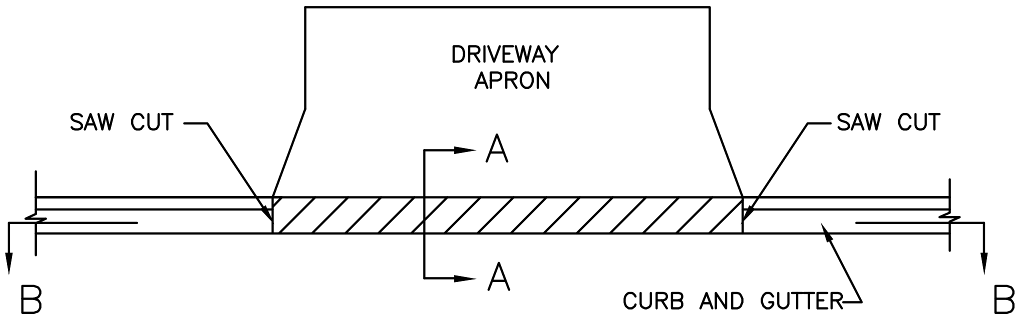
PAVEMENT & ROADWAY IMPROVEMENT DETAILS
CURB & GUTTER SAW CUT FOR DRIVEWAY DETAIL
OPTION 2

HCE PROJECT NO.
P241-01

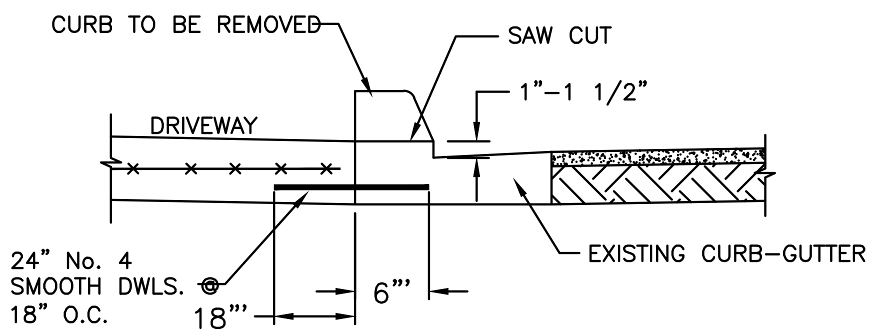
STANDARD DESIGN MANUAL
CITY OF MERCEDES

SHEET NO.
ST - 47

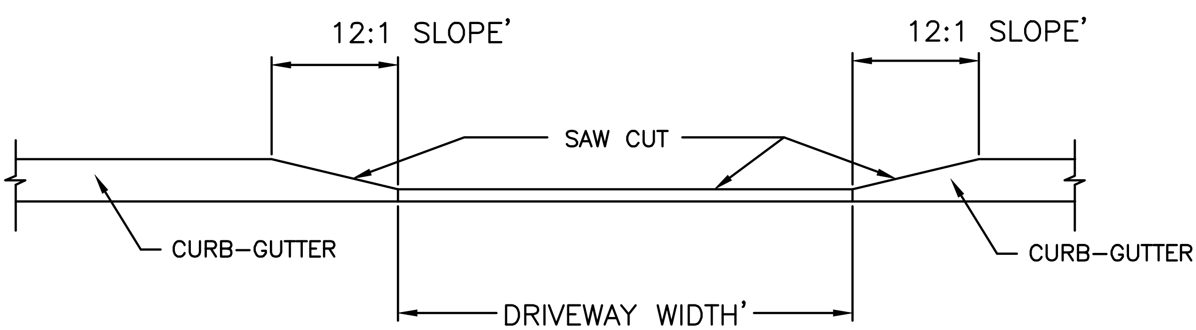
01/2021



PLAN VIEW



SECTION A-A



SECTION B-B

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

PAVEMENT & ROADWAY IMPROVEMENT DETAILS
CURB & GUTTER SAW CUT FOR DRIVEWAY DETAIL
OPTION 3

HCE PROJECT NO.
P241-01

STANDARD DESIGN MANUAL
CITY OF MERCEDES

01/2021

Section 11
Erosion Control Policy

11.1 General

The purpose of this section is to outline the general requirements and erosion control measures for developments within the City and the City's ETJ. The City of Mercedes's City Engineer should be consulted if any deviations from these standards are anticipated before and during construction. In cases where design limitations or physical barriers restrict compliance with the provisions of this section, alternatives are to be considered by the City Engineer. All storm water measures shall be in accordance with guidelines provided by the Texas Commission on Environmental Quality (TCEQ).

11.2 Erosion Control Permitting

All construction activity within the City of Mercedes or the City's ETJ shall be designed, constructed and coordinated in accordance to the following requirements.

A. Requirements for obtaining storm water general permit coverage for construction projects that will disturb 5 or more acres.

1. Review your facility's compliance history ranking

    a. If your facility is new or has a ranking of "high" or "average", continue to Step 2.
    b. If it is "poor", then your facility is not eligible for coverage under a general permit. You must apply for an individual permit instead.

2. Read the general permit (TXR150000) to make sure it applies to your situation.

3. Prepare and implement a Storm Water Pollution Prevention Plan (SWPPP). See details on Part III of General Permit TXR150000.

4. Submit and original completed Notice of Intent (NOI) form with an original signature and fee as noted on the NOI.

5. Before starting construction, post a copy of the Site Notice at the construction site. Leave the notice posted until construction is completed.

6. Site Notice for Primary Operators of Large Construction Activities.

7. Site Notice for Secondary Operators of Large Construction Activities.

B. Requirements for small construction sites that disturb from 1 to less than 5 acres.

1. Review your facility's compliance history ranking:

    a. If your facility does not have a compliance history ranking or has a ranking of "high" or "average", continue with Item 2.

    b. If it is "poor", then your facility is not eligible for coverage under a general permit but it may be eligible under an individual industrial wastewater permit.

2. Read the general permit (TXR150000) to make sure it applies to our situation.

3. Adhere to the requirements of the general permit (TXR150000).

4. Prepare and implement a Storm Water Pollution Prevention Plan (SWPPP). See details on Part III of General Permit TXR150000.

5. Sign and post a construction site notice.

6. At least 2 days before beginning construction, provide a copy of the site notice to the operator of any Municipal Separate Storm Water Sewer System (MS4) into which storm water will be discharged.

7. MS4s include streets, channels, gutters, ditches or anything else that is publicly owned and designed to collect or transport storm water.

8. As long as the requirements of the general permit are followed, there will be no fees, Notice of Intent (NOI), or Notice of Termination (NOT) required.

C. Requirements for small construction sites that disturb less than 1 acre.

1. Coverage under General Permit TXR150000 is not required if construction project disturbs less than 1 acre and not part of a larger common plan of development.

2. If the construction project affecting less than 1 acre is part of a larger plan, it must be considered under General Permit TXR150000.

3. Construction activity is part of a large plan of development if it is completed in one or more of the following ways:

    a. Separate stages

    b. Separate phases

    c. Combination with other construction activities

4. The development in phases is identified in plats, blueprints, marketing plans, contracts, building permits, public notice or hearing, zoning requests.

11.3 Erosion Control During Construction

A. Non-structural Erosion Control Measures

1. Non-Structural measures shall be utilized for watershed planning, minimizing disturbances to existing watercourses and adjacent properties, and reduce sediment transport.

B. Structural Erosion Control Measures

1. Structural measures shall be utilized to reduce sediment transport from disturbed areas due to rainfall runoff.

C. Performance Objectives: The primary performance objectives of an erosion control plan include:

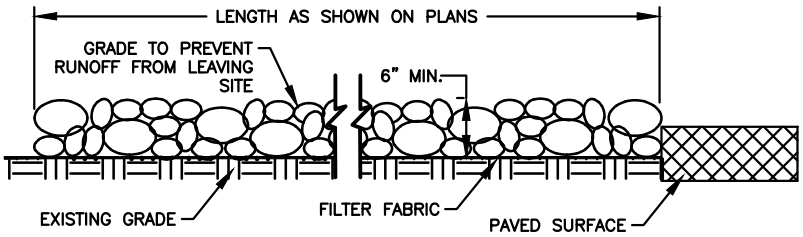
1. Conduct all land disturbance activities in a manner that effectively reduces accelerated soil erosion and reduces sediment transport and offsite deposition.

2. Design and construct all temporary or permanent facilities for the conveyance of water around, through, or from the disturbed area to limit the flow of the water non-erosive velocities.

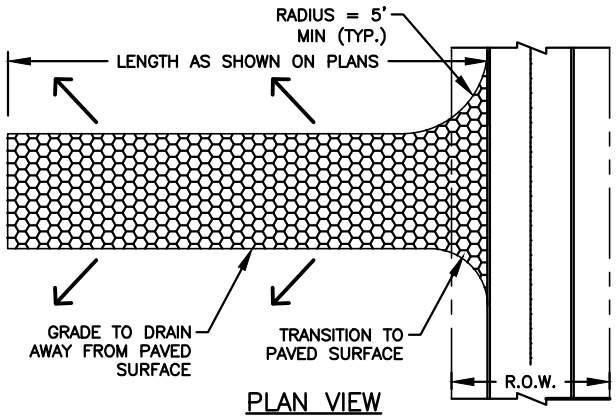
3. Remove sediment caused by accelerated soil erosion from surface runoff water before it leaves the site.

4. Stabilize the areas of land disturbance with permanent vegetative cover or storm water quality control measures.

11.1 Erosion Control Details



PROFILE VIEW
N.T.S.

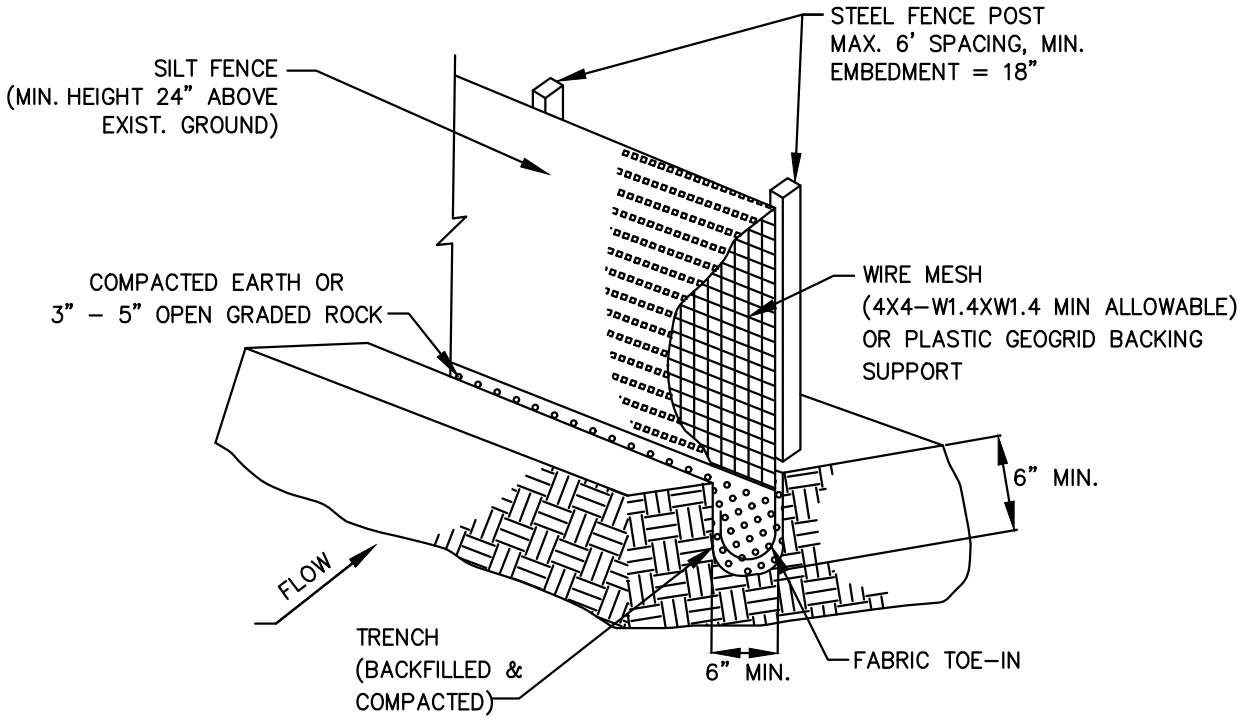


PLAN VIEW
N.T.S.

MINIMUM EXIT DIMENSIONS		
DISTURBED AREA	MIN. WIDTH OF EXIT	MIN. LENGTH OF EXIT
< 1 ACRE	15 FEET	20 FEET
≥ 1 ACRE BUT < 5 ACRE	25 FEET	50 FEET
≥ 5 ACRES	30 FEET	50 FEET

STABILIZED CONSTRUCTION ENTRANCE GENERAL NOTES:

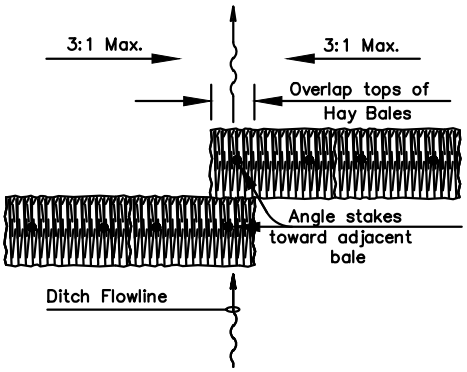
1. LIMIT SITE ACCESS TO ONE ROUTE DURING CONSTRUCTION, IF POSSIBLE; TWO ROUTES FOR LINEAR AND LARGER PROJECTS.
2. PREVENT TRAFFIC FROM AVOIDING OR SHORTCUTTING THE FULL LENGTH OF THE CONSTRUCTION EXIT BY INSTALLING BARRIERS. BARRIERS MAY CONSIST OF SILT FENCE, CONSTRUCTION SAFETY FENCING, OR SIMILAR BARRIERS.
3. DESIGN THE ACCESS POINT(S) TO BE AT THE UPSLOPE SIDE OF THE CONSTRUCTION SITE. DO NOT PLACE CONSTRUCTION ACCESS AT THE LOWEST POINT ON THE CONSTRUCTION SITE.
4. STABILIZED CONSTRUCTION EXITS ARE TO BE CONSTRUCTED SUCH THAT DRAINAGE ACROSS THE EXIT IS DIRECTED TO A CONTROLLED, STABILIZED OUTLET ONSITE WITH PROVISIONS FOR STORAGE, PROPER FILTRATION, AND REMOVAL OF WASH WATER.
5. THE EXIT MUST BE SLOPED AWAY FROM THE PAVED SURFACE SO THAT STORM WATER FROM THE SITE DOES NOT DISCHARGE THROUGH THE EXIT ONTO ROADWAYS.
6. MINIMUM WIDTH OF EXIT SHALL BE 15 FEET.
7. THE CONSTRUCTION EXIT MATERIAL SHALL BE A MINIMUM THICKNESS OF 6 INCHES. THE STONE OR RECYCLED CONCRETE USED SHALL BE 3–5 INCHES IN SIZE WITH LITTLE OR NO FINES.
8. THE GEO–TEXTILE FABRIC MUST MEET THE FOLLOWING CRITERIA:
   - TENSILE STRENGTH, ASTM D4632 TEST METHOD FOR GRAB BREAKING LOAD AND ELONGATION OF GEO–TEXTILES, 300 LBS.
   - PUNCTURE STRENGTH, ASTM D4833 TEST METHOD FOR INDEX PUNCTURE RESISTANCE OF GEO–TEXTILES, GEO–MEMBRANES, AND RELATED PRODUCTS, 120 LBS.
   - MULLEN BURST RATING, ASTM D3786 STANDARD TEST METHOD FOR HYDRAULIC BURSTING STRENGTH OF TEXTILE FABRICS–DIAPHRAGM BURSTING STRENGTH TESTER METHOD, 600 PSI.
   - APPARENT OPENING SIZE, ASTM D4751 TEST METHOD FOR DETERMINING APPARENT OPENING SIZE OF A GEO–TEXTILE, U.S. SIEVE NO. 40 (MAX)
9. WHEN NECESSARY, VEHICLES SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO A PUBLIC ROADWAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE WITH DRAINAGE FLOWING AWAY FROM BOTH THE STREET AND THE STABILIZED ENTRANCE. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATERCOURSE USING APPROVED METHODS.
10. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PAVED SURFACES. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO PAVED SURFACES MUST BE REMOVED IMMEDIATELY.



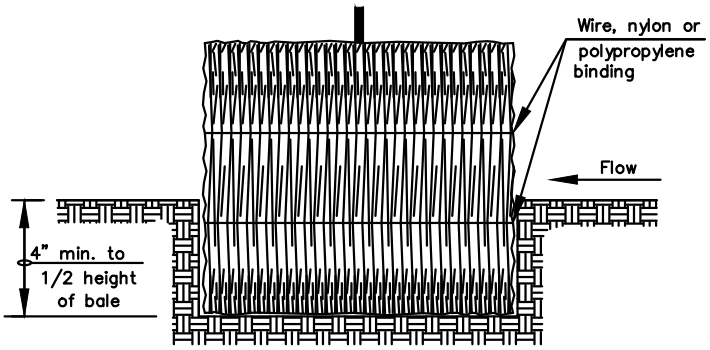
ISOMETRIC VIEW

SILT FENCE NOTES:

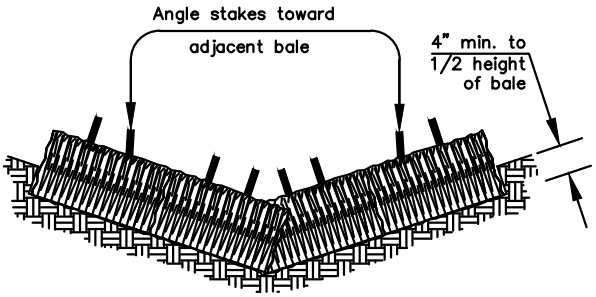
1. STEEL POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED WITH A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF 18".
2. THE TOE OF THE SILT FENCE SHALL BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWNSLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW. WHERE FENCE CANNOT BE TRENCHED IN WEIGHT FABRIC FLAP WITH WASHED GRAVEL ON UPHILL SIDE, AS NECESSARY, TO PREVENT FLOW UNDER FENCE.
3. THE TRENCH MUST BE A MINIMUM OF 6 INCHES DEEP AND 6 INCHES WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED.
4. SILT FENCE SHOULD BE SECURELY FASTENED TO EACH STEEL SUPPORT POST OR TO BACKING SUPPORT, WHICH IS IN TURN ATTACHED TO THE STEEL FENCE POST. FABRIC SHALL OVERLAP AT ABUTTING ENDS A MINIMUM OF 3 FEET AND SHALL BE JOINED SUCH THAT NO BYPASS OR LEAKAGE OCCURS.
5. INSPECTION SHALL BE MADE WEEKLY OR AFTER EACH RAINFALL. REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
6. SILT FENCE SHALL BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
7. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF 6 INCHES. THE SILT SHALL BE DISPOSED OF IN AN APPROVED SITE AND IN SUCH A MANNER AS TO NOT CONTRIBUTE TO ADDITIONAL SILTATION.



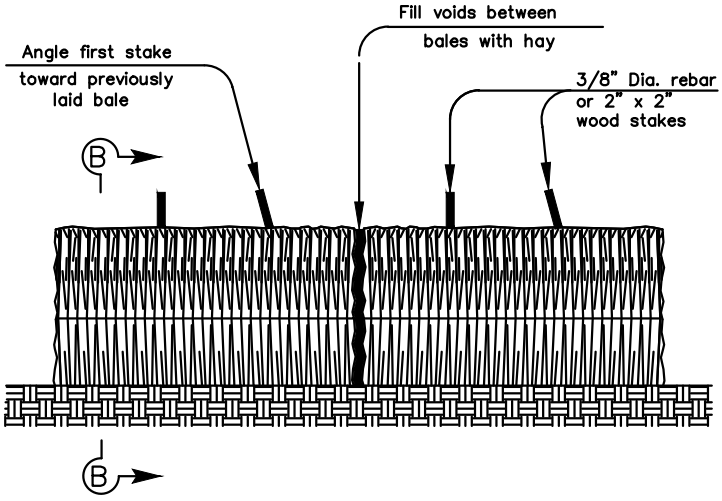
PLAN VIEW



SECTION B–B



PROFILE VIEW



GENERAL NOTES:

1. HAY BALES SHALL BE A MINIMUM OF 30" IN LENGTH AND WEIGH A MINIMUM OF 50LBS
2. HAY BALES SHALL BE BOUND BY EITHER WIRE OR NYLON OR POLYPROPYLENE STRING. THE BALES SHALL BE COMPOSED ENTIRELY OF VEGETATIVE MATTER.
3. HAY BALES SHALL BE EMBEDDED THE SOIL A MINIMUM OF 4" AND WHERE POSSIBLE, 1/2 THE HEIGHT OF THE BALE.
4. HAY BALES SHALL BE PLACED IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT BALES. THE BALES SHALL BE PLACED WITH BINDING PARALLEL TO THE GROUND.
5. HAY BALES SHALL BE SECURELY ANCHORED IN PLACE WITH 3/8" DIA. REBAR ON 2"X2" WOOD STAKES, DRIVEN THROUGH THE BALES. THE FIRST STAKE SHALL BE ANGLED TOWARDS THE PREVIOUSLY LAID BALE TO FORCE THE BALES TOGETHER.
6. THE GUIDELINES SHOWN HEREON ARE SUGGESTIONS ONLY AND MAY BE MODIFIED BY THE ENGINEER.
7. BALES SHOULD BE REPLACED USUALLY EVERY 2 MONTHS OR MORE OFTEN DURING WET WEATHER WHEN LOSS OF STRUCTURAL INTEGRITY IS ACCELERATED.

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

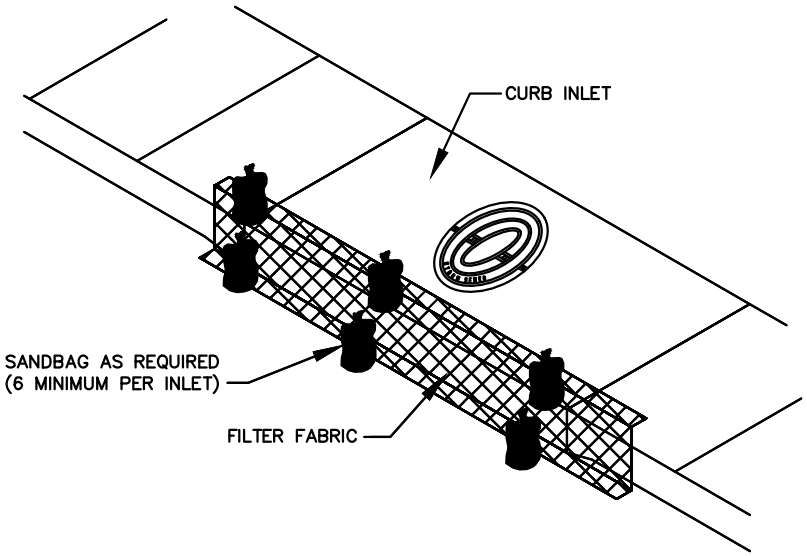
EROSION CONTROL DETAILS
TYPICAL BALED HAY INSTALLATION

HCE PROJECT NO.
P241-01

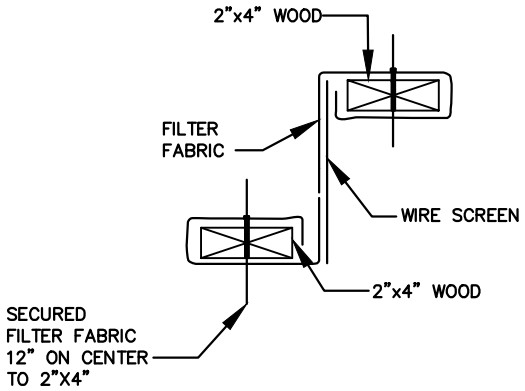
STANDARD DESIGN MANUAL
CITY OF MERCEDES

SHEET NO.
E - 3

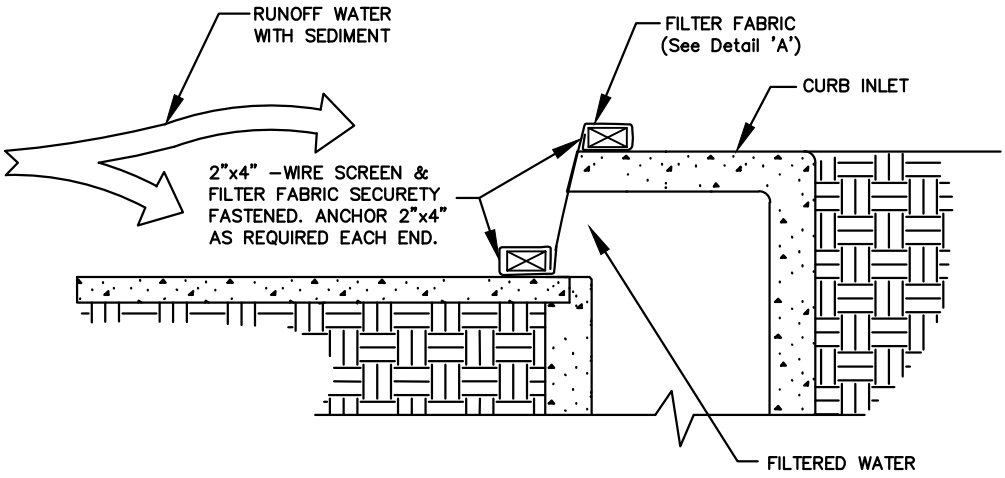
01/2021



ISOMETRIC VIEW



DETAIL 'A'
NTS

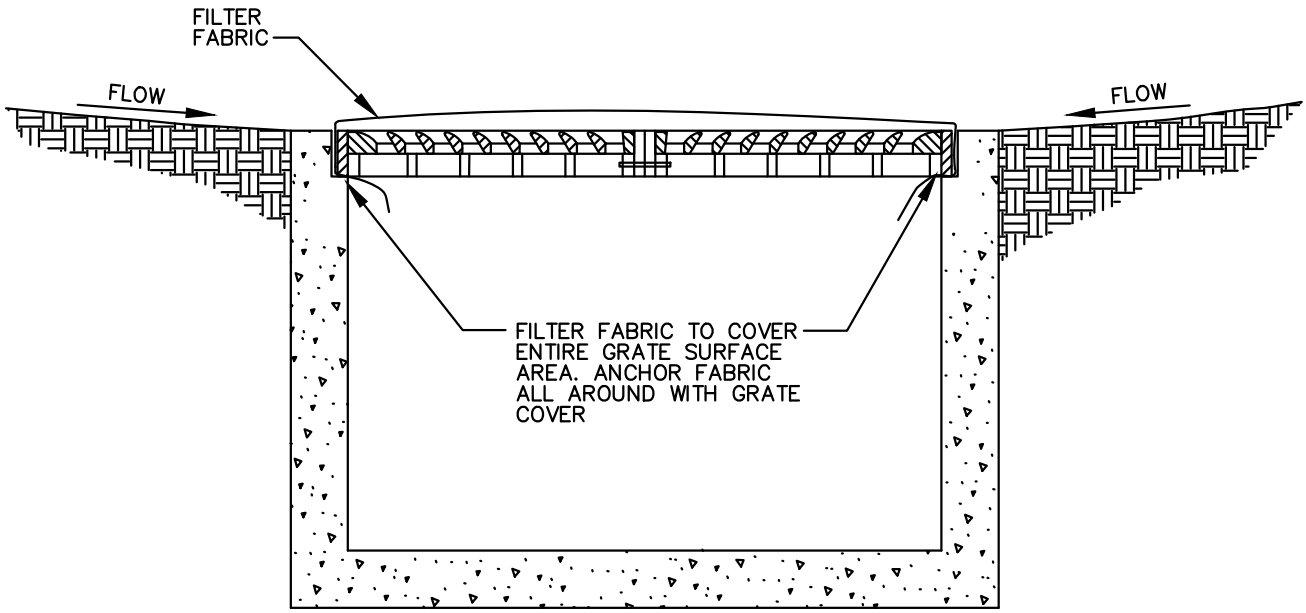


NOTE:

1. FILTER FABRIC CURB INLET PROTECTION TO BE REMOVED WHEN SITE IS FULLY STABILIZED.
2. FILTER FABRIC TO BE CLEANED AFTER EACH RAIN EVENT.
3. 2X4 LUMBER TO BE CUT AS REQUIRED TO FIT CONTOURS OF GUTTER LINE.
4. ALL BAGS TO BE USED FOR INLET PROTECTION TO BE U.V. RESISTANT.

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

EROSION CONTROL DETAILS **FILTER FABRIC CURB INLET PROTECTION**	HCE PROJECT NO. P241-01	
STANDARD DESIGN MANUAL **CITY OF MERCEDES**	SHEET NO. E - 4	01/2021



NOTE:

1. FILTER FABRIC CURB INLET PROTECTION TO BE REMOVED WHEN SITE IS FULLY STABILIZED.
2. FILTER FABRIC TO BE CLEARED AFTER EACH RAIN EVENT AT EACH INLET.

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

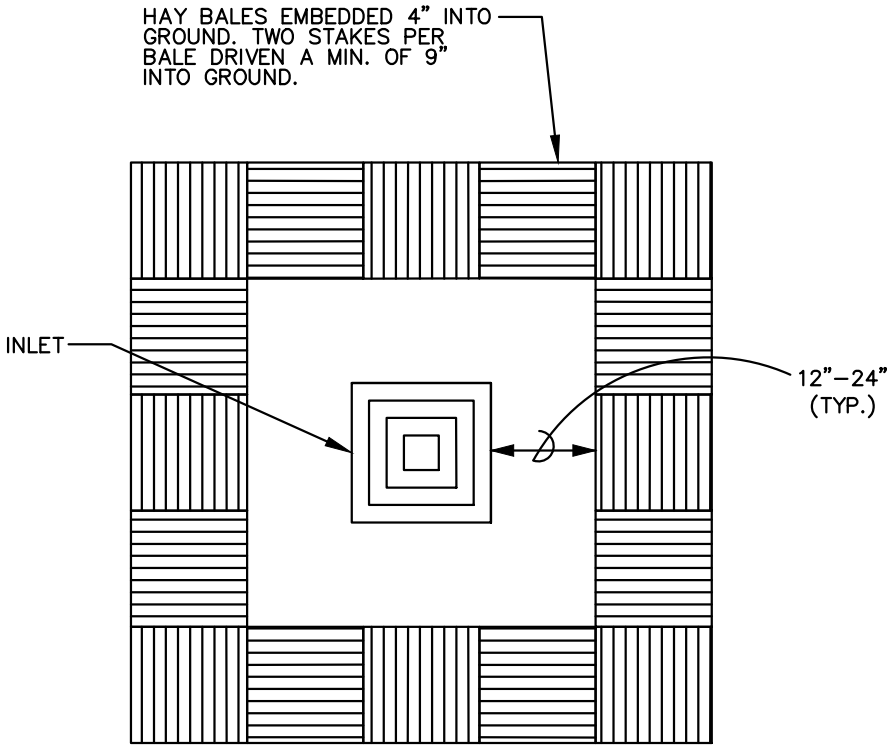
EROSION CONTROL DETAILS
FILTER FABRIC GRATE INLET PROTECTION

HCE PROJECT NO.
P241-01

STANDARD DESIGN MANUAL
CITY OF MERCEDES

SHEET NO.
E - 5

01/2021



GENERAL NOTES:

1. HAY BALES SHALL BE A MINIMUM OF 30" IN LENGTH AND WEIGH A MINIMUM OF 50 LBS
2. HAY BALES SHALL BE BOUND BY EITHER WIRE OR NYLON OR POLYPROPYLENE STRING. THE BALES SHALL BE COMPOSED ENTIRELY OF VEGETATIVE MATTER.
3. HAY BALES SHALL BE EMBEDDED THE SOIL A MINIMUM OF 4" AND WHERE POSSIBLE, 1/2 THE HEIGHT OF THE BALE.
4. HAY BALES SHALL BE PLACED IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT BALES. THE BALES SHALL BE PLACED WITH BINDING PARALLEL TO THE GROUND.
5. HAY BALES SHALL BE SECURELY ANCHORED IN PLACE WITH 3/8" DIA. REBAR ON 2"X2" WOOD STAKES, DRIVEN THROUGH THE BALES. THE FIRST STAKE SHALL BE ANGLED TOWARDS THE PREVIOUSLY LAID BALE TO FORCE THE BALES TOGETHER.
6. THE GUIDELINES SHOWN HEREON ARE SUGGESTIONS ONLY AND MAY BE MODIFIED BY THE ENGINEER.
7. BALES SHOULD BE REPLACED USUALLY EVERY 2 MONTHS OR MORE OFTEN DURING WET WEATHER WHEN LOSS OF STRUCTURAL INTEGRITY IS ACCELERATED.

city of mercedes
400 South Ohio,
Mercedes, Texas 78570
(956) 565 – 3114

EROSION CONTROL DETAILS **BALED HAY INLET PROTECTION**	HCE PROJECT NO. P241-01	
STANDARD DESIGN MANUAL **CITY OF MERCEDES**	SHEET NO. E - 6	01/2021

Attachment “A”
Resolution #83-85

RESOLUTION # 83-35

WHEREAS, the City Commission of the City of Mercedes desires to assist subdivision developers in the extension of adequate utility lines, and;

WHEREAS, the City of Mercedes further desires to make adequate services available for future developments, and;

WHEREAS, the present Utility Extension Policy is in need of revision;

THEREFORE, BE IT RESOLVED that the City of Mercedes adopt the attached UTILITY EXTENSION POLICY to serve as the official guide governing the extension of utility services to new subdivisions, to existing individual lots and subdivisions, and to oversizing of utility services to accommodate future development.

RESOLVED, THIS THE 2ND DAY OF NOVEMBER, 1983.

MAYOR OR MAYOR PRO-TEM

ATTEST:

JANE LUERA, CITY SECRETARY

CITY OF MERCEDES, TEXAS

UTILITY EXTENSION POLICY

SECTION I. DEFINITIONS:

A. City: Shall mean the City of Mercedes.

B. City's Cost: Shall mean the portion of the total cost of utility capacity in excess of the size required of the Developer and those immediate properties to be served.

C. Developer: Shall mean the person requesting the extension of utilities.

D. Development: Shall mean any new subdivision, whether residential, commercial or industrial.

E. Developer's Cost: Shall mean the total cost of utilities (including the Developer's share of a lift station if necessary) minus any pro-rata shares paid at the time of installation.

F. Extension: Shall mean the utility line laid from the existing City system to the perimeter of the proposed subdivision.

G. Ordinance: Shall mean City of Mercedes Ordinance #40, Subdivision Ordinance.

H. Pro-Rata Share: Shall mean the portion of the Developer's cost for the extension of utilities that has been assessed to each individual propertyowner.

I. Total Cost: Shall mean the total cost of the utility extension including engineering, administrative and contingency costs.

J. Utilities: Shall pertain to the installed cost including: labor, ditching, engineering and material of line, fire hydrants, valves, fittings, lift station and other appurtenances necessary to furnish water and sewer service to a subdivision, plus any administrative charges.

SECTION II. EXTENSION TO DEVELOPMENTS WITHIN THE CORPORATE LIMITS OF THE CITY OF MERCEDES SHALL BE IN THE MANNER HEREIN PRESCRIBED:

A. The cost to the Developer requesting the extension:

1. The Developer will pay 100% of the total cost of extensions from existing City utilities including the cost of R.O.W. acquisition, for utilities sufficient to provide service (including fire protection) and the City will pay for utilities in excess of the size required of the Developer. The Developer's cost will be reduced by the amount the other assessed property owners (according to Schedule I) contribute at the time of the installation but only up to a maximum of 50% of the total cost. If the City collects the pro-rata shares from all the assessed propertyowners at the time of installation, the Developer's cost would be reduced to 50% of the total cost of extension. The Developer may recover any pro-rata shares not paid to the City

at the time of installation up to a maximum of 50% of the total cost within a period of ten (10) years.

2. It shall be the Developer's obligation to acquire right-of-way needed to extend utility lines from their present terminus or nearest location to the Developer's property, the cost of which shall be reimbursable as set forth above. The location, width and cost of such right-of-way, the City may, at its option, assist in acquiring same.

3. The Developer shall pay in cash or provide an unconditional guarantee from a financial institution, approved by the City, for the Developer's share of the utility extensions as determined by the City. Such guarantees shall be filed with the City Manager of the City of Mercedes in letter form from the financial institution and signed by its principal loan officer. The letter shall state the name of the subdivision and shall list the improvements which the Developer is required to provide. This payment or guarantee must be filed with the City Manager of the City of Mercedes, prior to final plat approval.

4. The Developer who contributed in excess of his pro-rata charge for construction of a utility extension will be eligible for refunds. When assessed propertyowners who did not pay their pro-rata charge request service and pay their share, plus the additional costs set out in paragraph B.-4., the money will be refunded to the Developer up to a maximum of 50% of the total cost. Anything paid in excess of that shall be retained by the City. Any cost not recovered by the Developer within ten (10) years will be forfeited and no further reimbursement will be allowed.

B. The Cost to propertyowners where utilities are made available by the extension:

1. A pro-rata charge shall be assessed to each property where utilities are made available. The charge will be made according to the terms of the attached Schedule I.

2. The City may connect any future customer reasonably served from the utility extension, provided the customer has paid the pro-rata charge and tapping fee.

3. The entire cost of the utility extension minus any participation by the City or any other governmental agency must eventually be provided by the propertyowner or owners served by the extension.

4. Any customer not contributing their pro-rata charge at the time of installation of the utility extension who request service at a later date, must pay the pro-rata charge in full plus an additional five percent (5%), plus the tapping fee before service will be installed. The five percent (5%) surcharge shall be retained by the City to defray the cost of bookkeeping and financing for the utility extension and will be excluded from the computations for refunds.

5. Any conditions not covered by these regulations, or of such a nature that would result in an inequitable pro-rata charge to any customer, will be negotiated by the City Commission of the City of Mercedes at the time of installation of a proposed line extension.

C. The cost to the City:

1. If the City requires the Developer to oversize the utility line to be installed, the City will reimburse the Developer 100% for such cost.

2. On any development approved by the City Commission before May 1st in which oversizing is required, the City will be responsible for reimbursing the Developer the following City fiscal year for such cost. In the case of a development which is approved after May 1st, the City will not reimburse the Developer for oversizing until the second fiscal year following the installation of the utility lines.

SECTION III. EXTENSION TO INDIVIDUAL PROPERTIES WITHIN THE CORPORATE LIMITS OF THE CITY OF MERCEDES SHALL BE IN THE MANNER HEREIN PRESCRIBED:

A. The local resident requesting extension of utilities to his place of residence for his own personal use shall pay 50% of the total cost (including manholes and fire hydrants) of extension.

B. Provision for Right-of-Way Acquisition shall be in the manner herein prescribed: It shall be the obligation of the person requesting the utility extension to acquire the right-of-way needed to extend utility lines from their present terminus or nearest location to the requestor's property. Should the requestor be unable to acquire the needed right-of-way, the City may, at its own discretion, assist in acquiring same.

SECTION IV. EXTENSION TO PROPERTIES OR DEVELOPMENTS OUTSIDE THE CORPORATE LIMITS OF THE CITY OF MERCEDES SHALL BE IN THE MANNER HEREIN PRESCRIBED:

A. Properties outside the City limits that will be served by a utility extension will pay one and one-half (1½) times their pro-rata share to the City, to offset the additional costs to the utility system. Policies regarding payment, reimbursement of the Developer and the calculations and payment of pro-rata shares of participating propertyowners are the same as in Section II.

B. Extraterritorial utility service rates, for water and sewer, shall be one and one-half times those inside the City limits.

SECTION V. UTILITIES WITHIN A SUBDIVISION:

Developer shall pay the entire cost of the provision of utilities and of compliance with the Subdivision Ordinance within their subdivision. Utilities will be constructed to meet City specifications and requirements.

SCHEDULE I

CALCULATING THE PRO-RATA CHARGES

The pro-rata charge for each property where utilities are to become available by installation of a utility extension will be based on a point system according to the length of frontage, acreage, and distance from the origin of the extension to the end point of frontage.

For properties adjoining the right-of-way where the extension is located or adjoining either side of an alley, easement or unpaved road, points will be computed as follows:

10 points per lineal foot of frontage

500 points per acre of land

0.1 points per acre per lineal foot of distance from origin of the extension to the end of the properties' frontage.

(0.1 multiplied by the number of acres multiplied by the length of the extension)

The monetary value of each point is obtained by dividing the total number of points for all properties concerned into the total cost of the line extension (less the amount of participation by the City or any other governmental agency) and each property is then assessed proportionally by its number of points.

For properties where adequate water and sewer lines are already available on one side, a credit shall be applied as follows: Reduce the total number of points for the property by fifty percent (50%) in the calculations (See Parcel A in the attached "Example for Schedule I").

In making the calculations, it will be determined, in advance, which properties the utility extension is designed for and capable of serving. Each of these parcels of property will then be included in the calculations. If it is reasonably certain that a property will never tie on to the system, it will be omitted from the calculations. Any property owner would have to pay a pro-rata share based on the number of points for his property times the same cost per point that was used to calculate the other properties' share.

Properties that do not front on the utility extension right-of-way, but will be served by the extension, are still subject to the pro-rata assessment. The number of points are calculated the same way (Schedule I), but the points for the front footage are omitted. This is to offset the costs of running a line from the utility extension to the property (See Parcel E in the "Attached examples for Schedule I").

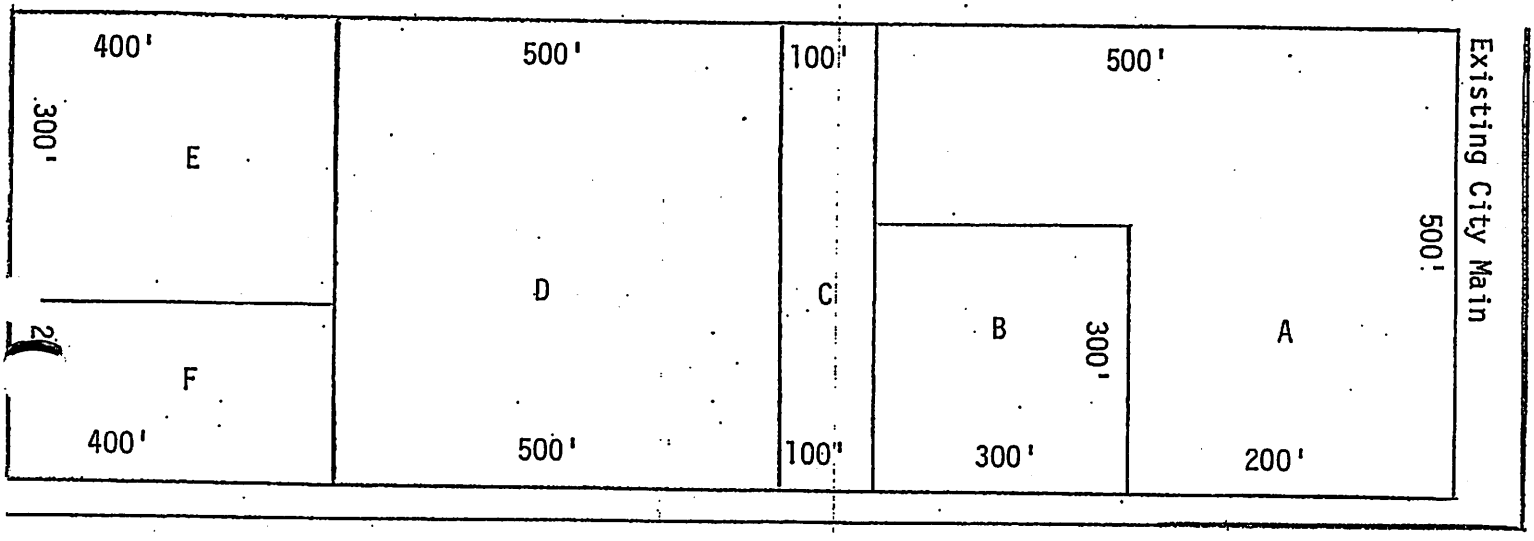
EXAMPLE FOR SCHEDULE I (Cont'd.)

	Points		Cost Per Point		Pro-Rata Charge
Parcel A -a = 3.67 x 500 = 1835 -d = 250 x 3.67 x 0.1 = 92 -f = 200 x 10 = 2000 = 3927 x .5 =	1964	x	.0862	=	169.30
Parcel B -a = 2.07 x 500 = 1035 -d = 550 x 2.07 x 0.1 = 114 -f = 300 x 10 = 3000 =	4149	x	.0862	=	357.64
Parcel C -a = 1.15 x 500 = 575 -d = 650 x 1.15 x 0.1 = 75 -f = 100 x 10 = 1000 =	1650	x	.0862	=	142.23
Parcel D -a = 5.74 x 500 = 2870 -d = 1150 x 5.74 x 0.1 = 600 -f = 500 x 10 = 5000 =	8530	x	.0862	=	735.29
Parcel E -a = 2.75 x 500 = 1377 -d = 1550 x 2.75 x 0.1 = 427 -f = 0. x 10 = 0 =	1840	x	.0862	=	155.50
Parcel F -a = 1.84 x 500 = 920 -d = 1550 x 1.84 x 0.1 = 285 -f = 400 x 10 = 4000 =	5205	x	.0862	=	448.67
Parcel G -a = 4.59 x 500 = 2295 -d = 1550 x 4.59 x 0.1 = 711 -f = 500 x 10 = 5000 =	8006	x	.0862	=	690.12
Parcel H -a = 9.18 x 500 = 4590 -d = 1050 x 9.18 x 0.1 = 482 -f = 1000 x 10 = 10000 =	15072	x	.0862	=	1299.21
TOTAL POINTS =	46380		TOTAL COST:	=	$ 4000.00

Cost Per Point $4000 ÷ 46380 pts. = 0.0862

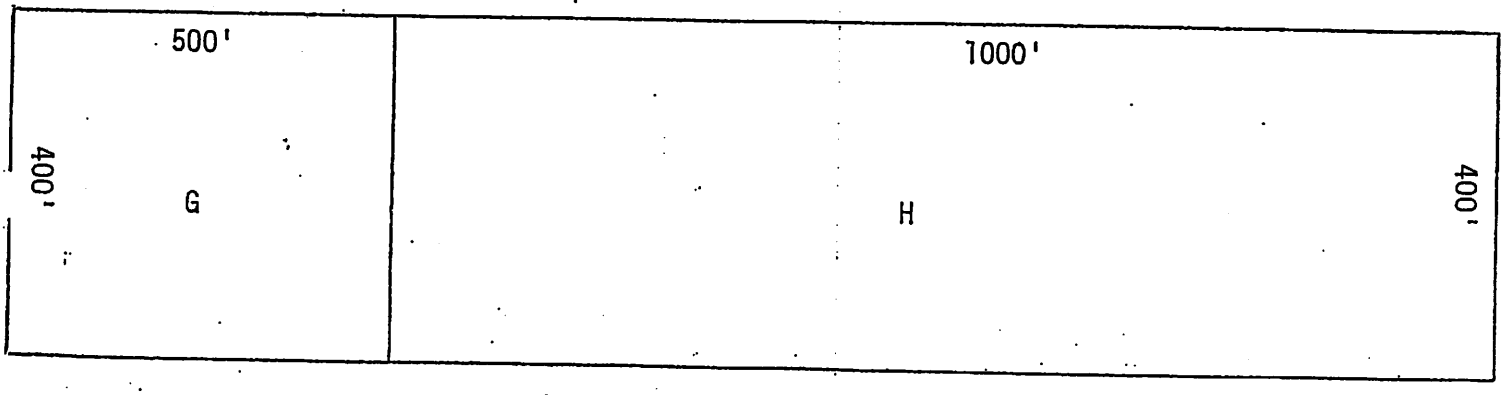
EXAMPLE FOR SCHEDULE I

1550' of 8" water line extension with total cost of $5,000.00 and City participation of $1,000.00. (Difference between cost of 6" line and 8" line)



Paved Highway

1550' x 8" Extension



a = Acreage

d = Distance from origin of extension to endpoint of frontage

f = Frontage