

REFERENCES

McCLURE & BROWNE
ENGINEERING/SURVEYING, INC.
Engineer Reg. No. F-458 · Survey Reg. No. 101033-00



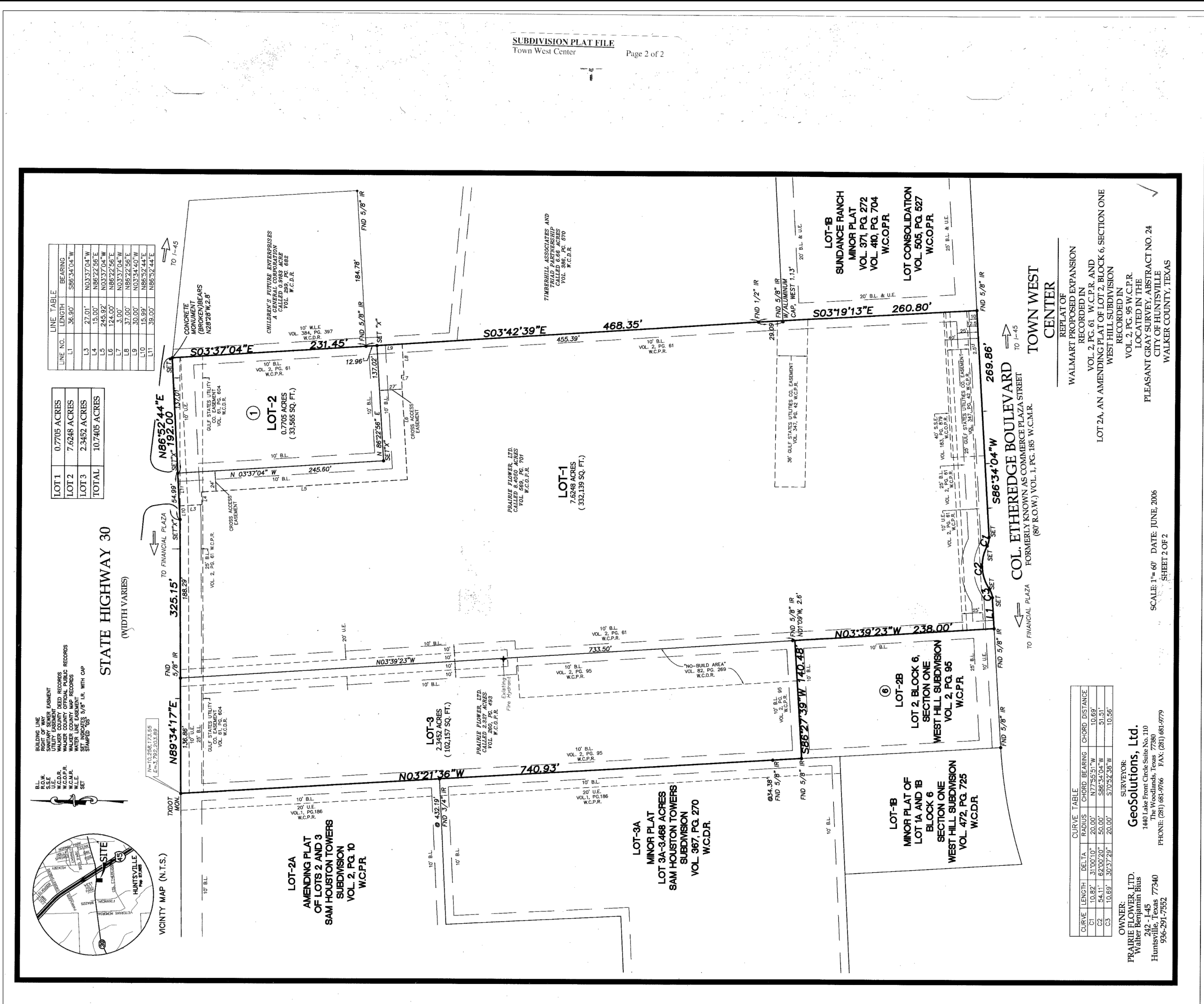
Final Plat

West Hill - NW Freeway

MBESI No. 1048-0028

SHEET NO.

CO.1

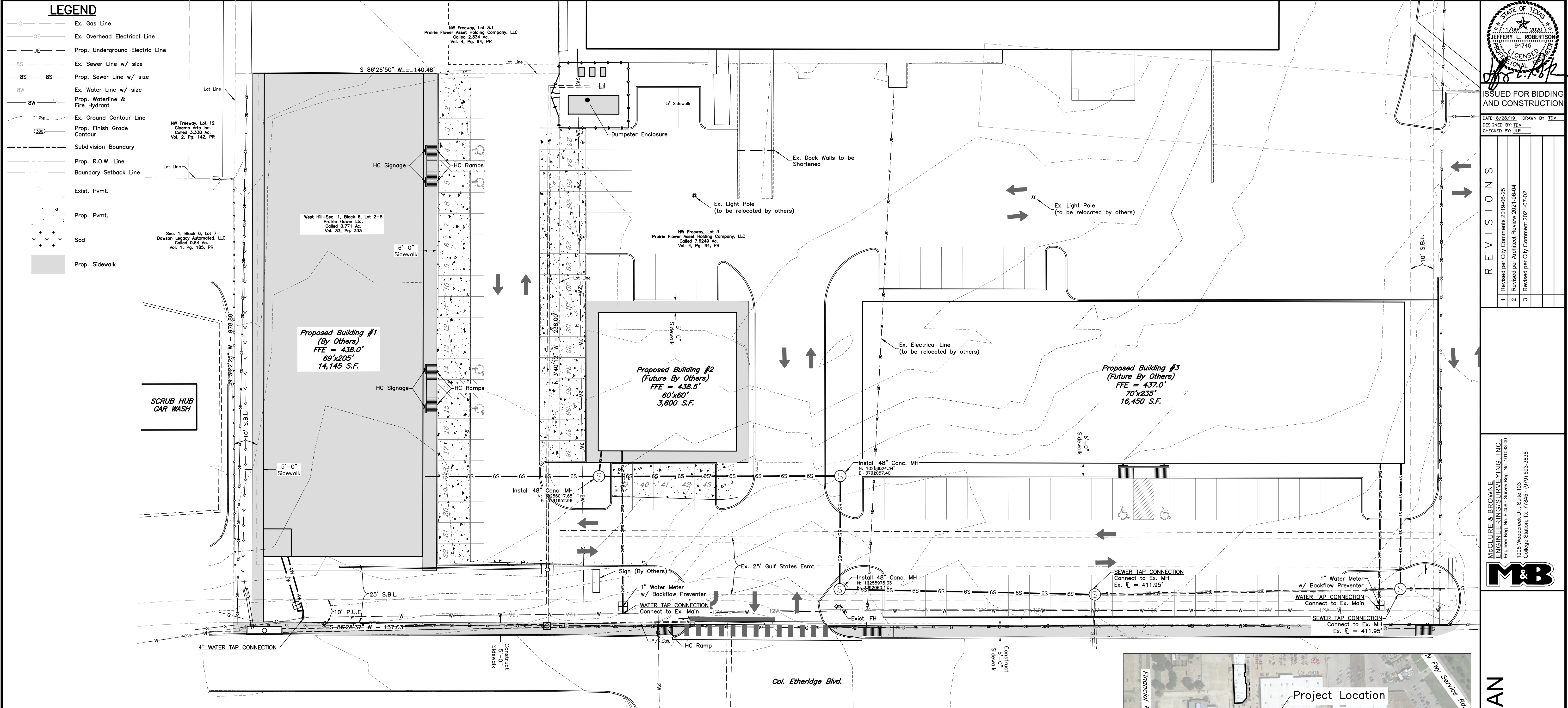


ENGINEERING DEPARTMENT
CITY OF HUNTSVILLE, TX
REVIEWED FOR CONSTRUCTION PERMIT

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DATE: _____



GENERAL CONSTRUCTION NOTES:

- It shall be the responsibility of the Contractor to verify the exact location of all existing underground utilities. Furthermore, the Contractor shall contact all utility company representatives a minimum of 48 hours in advance of any excavation.
- City of Huntsville: Water & Sewer Departments @ 936-294-5762
- The Contractor shall report all inconsistencies and contradictions in the design to the Engineer, before the start of construction.
- All construction shall be in accordance with the current Construction Drawings found herein. All testing shall be performed in accordance with the technical specifications. All inspection shall be coordinated with the staff of the City Engineer of Huntsville.
- In lieu of using the construction materials indicated in these plans, the Contractor shall obtain written approval from the Engineer for any substitution.
- The Contractor is responsible for all construction safety. Construction Drawings do not include necessary components for construction safety.
- Trench Safety shall be conducted in accordance with O.S.H.A. Standard 29 CFR Part 1926 Subpart P.
- TRENCHING AND BACKFILLING: The backfilling of all trenches within structural areas shall be accomplished with cement stabilized sand placed to within 6" of street subgrade. The backfilling of all trenches outside of structural areas shall be placed so as to achieve 95% Standard Proctor Density. All backfilling shall be between optimum and 4 percent (4%) above optimum moisture content. Testing shall be provided by a certified laboratory at the Owner's expense to verify these standards. Any retesting due to substandard work shall be at the expense of the Contractor. Structural areas shall include all sidewalks and paved areas. For streets, alleys and parking areas, the limits of the structural areas shall extend 5' beyond the curb lines or other paved areas.
- Location of existing buried utilities, where shown, is approximated only. Other utilities may be present that are not shown on the Construction Drawings. The Contractor shall be responsible for locating and protecting all buried utilities.
- It is the responsibility of the Contractor to comply with all State and Federal Regulations regarding construction activities near energized overhead power lines. Additionally, the contractor shall coordinate all proposed work and procedures with Entergy.
- The Contractor shall be responsible for all storm water pollution prevention associated with this project. The Contractor shall use all means necessary to prevent the transportation of sediment from the project site. The Contractor shall comply with TCEQ - TPDES storm water requirements. See sheet C2.1 for erosion control information and notes.
- All materials and labor not identified as a Separate Bid Item shall be considered subsidiary to the item in which it is used.
- The Contractor will be responsible for providing the project construction staking as to line and grade.
- Trenches may be left open overnight if properly covered or barricaded to prevent pedestrian and vehicular access.
- All dimensions are marked from back of curb or edge of pavement, unless noted otherwise.
- All Concrete Pavement shall be 6" thick with #4 at 18" O.C.E.W. All Pavement shall be placed over 6" stabilized subgrade, unless noted otherwise.
- Contractor shall provide a proposed expansion/contraction joint layout for the Engineer's review and approval prior to constructing driveways and parking lot areas.
- All parking lot striping shall be 6" wide yellow stripes.
- All pavement striping and symbols relating to handicap accessibility shall be installed in strict accordance with A.D.A. (Americans with Disabilities Act) and T.A.S. (Texas Accessibility Standards) requirements and standards.
- All sidewalks and associated ramps and accessible routes should be constructed in accordance with current A.D.A. and T.A.S. requirements.
- All concrete shall be 3,000 p.s.i., unless noted otherwise.
- All reinforcement shall be Grade 60, unless noted otherwise.
- All finished slopes are 4:1, unless noted otherwise.
- Sewer Service Line shall be installed as per the City of Huntsville Plumbing Code.
- Water Service Line shall be installed as per the City of Huntsville Plumbing Code.
- Landscape Plans shall be provided by others.
- Irrigation Plans shall be provided by others.
- This development is not in the 100-year flood hazard area as per Flood Insurance Rate Map, Map Number 48471C0370D, effective August 16, 2011.
- The contractor shall obtain necessary permits from the City of Huntsville before tapping water and sewer mains. Contact person for obtaining the permit is Tammy Gann, Development Services Coordinator, (936) 294-5760, tgann@huntsvilletx.gov.

EXCAVATION, EMBANKMENT AND COMPACTED FILL:

- Prior to any excavation or embankment activity, the top six inches (6") of topsoil shall be removed and stockpiled for reuse on the completed surface. (drainage and utility easements, etc). This work is considered subsidiary to payment for Excavation.
- All vegetation, topsoil containing organic material and other deleterious material within the slopes, driveway area or easement area should be cleared and grubbed at the beginning of the earthwork construction. Any pockets of soft or weak soils encountered should be excavated to firm soil.
- All Excavation and Embankment within the public ROW and Utility Easements shall conform with current city criteria.
- In all other areas, each layer of embankment shall be composed of material so graded that the density and uniformity of the surface layer may be secured by the Ordinary Compaction Method. Ordinary Compaction consists of rolling and sprinkling each embankment layer in layers not to exceed eight inches (8") of loose depth and compacted to a minimum of 95% Standard Proctor Density (ASTM D698) at a moisture content within 2% of optimum moisture. Should the graded area, for any reason or cause, lose the required stability of finish, it shall be re-compact and refinished at the Contractor's expense.
- Existing Ground, as presented on all drawings associated with this project, is based on a field survey (GPS/Total Station) performed by McClure & Browne Engineering/Surveying, Inc.
- All soil not used as part of this project shall become the property of the Contractor. The Contractor shall be responsible for the disposal of the material off-site.
- Cut/Fill Quantities:
 - 7.1. Cut = ±159 C.Y.
 - 7.2. Fill = ±4,463 C.Y.

WATER AND SANITARY SEWER DEMANDS:

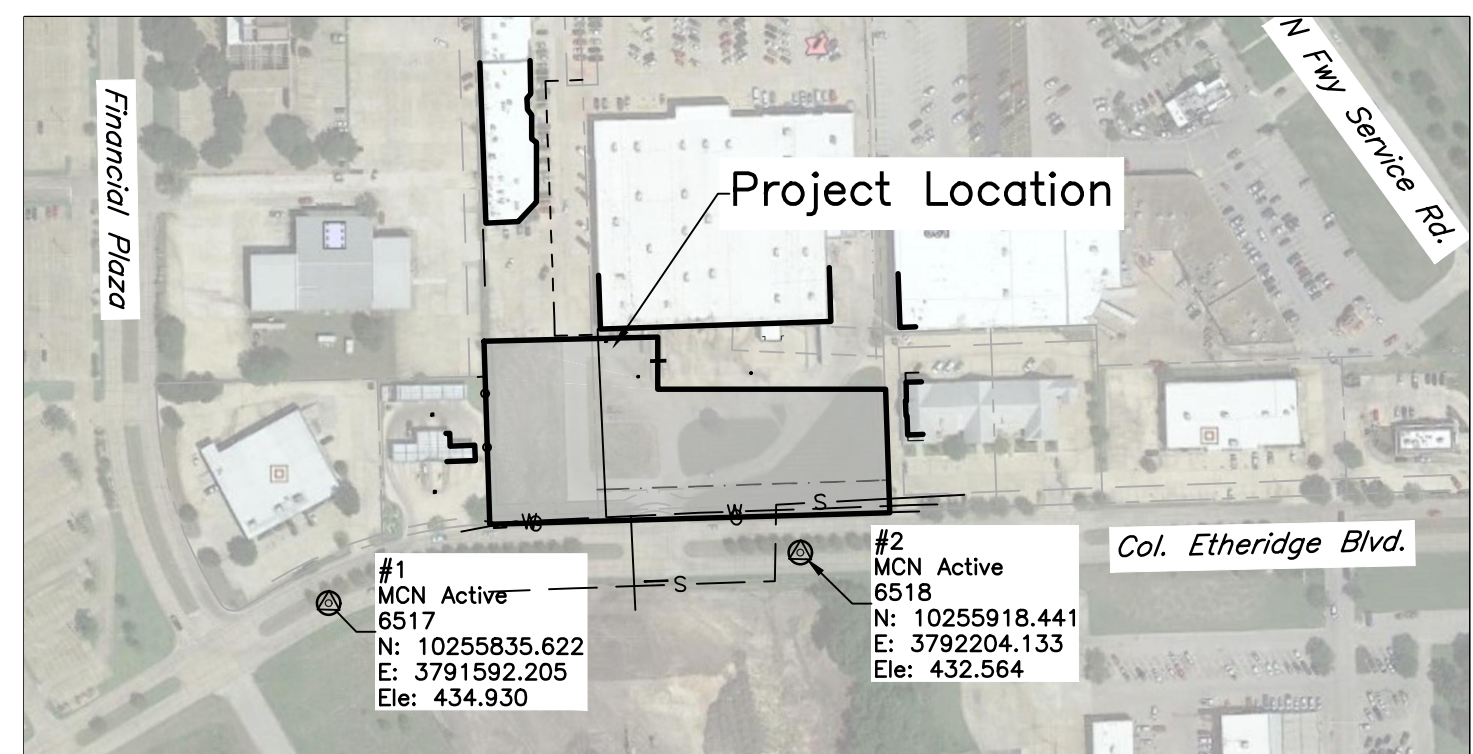
- See sheet C5.1 for Sanitary Sewer Wastewater demand calculations.
- See sheet C6.1 for Water demand calculations.
- Backflow preventors shall be installed on all fire lines and located in the water-closets of each building.
- All Backflow devices must be installed and tested upon installation.

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HORIZONTAL AND VERTICAL CONTROL DATA:

- Control Point data for horizontal and vertical data for the project are as follows (Contact Mike Namken with Namken Surveying and Construction, Inc. for additional control point data.):
 - Control Point #1 : C.O.H. Mon. 6517
Description: 1/2" I.R. w/ 2 1/2" C.O.H. Cap w/ 3" Conc.
N: 10255835.622
E: 3791592.205
Elev: 434.930
 - Control Point #2 : C.O.H. Mon. 6518
Description: 1/2" I.R. w/ 2 1/2" C.O.H. Cap w/ 3" Conc.
N: 10255918.441
E: 3792204.133
Elev: 432.564
- The Contractor shall verify the accuracy of each point compared to the other points. If the deviation is more than 0.1' for Northing, Easting or Elevation, the Contractor shall notify the Engineer immediately. (C.O.H. Mon. = City of Huntsville, Monument)
- Topographic and contour data obtained from survey data provided by McClure & Browne Engineering/Surveying, Inc.
- Boundary shown is based on survey data provided by McClure & Browne Engineering/Surveying, Inc.

NOTE: LOCATION OF EXISTING BURIED UTILITIES, WHERE SHOWN, IS APPROXIMATE ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND PROTECTING ALL BURIED UTILITIES.



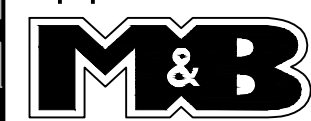
ISSUED FOR BIDDING
AND CONSTRUCTION

DATE: 8/28/19 DRAWN BY: TDW
DESIGNED BY: TDW
CHECKED BY: JLR

REVISIONS

- | NO. | REVISION | DATE |
|-----|---|------|
| 1 | Revised per City Comments 2019-08-25 | |
| 2 | Revised per Architect Review 2021-06-04 | |
| 3 | Revised per City Comment 2021-07-02 | |

McClure & Browne
ENGINEERING/SURVEYING, INC.
Engineer Reg. No. F-458 - Survey Reg. No. 10103-00
1008 Woodcrest Dr., Suite 103
College Station, TX 77845 (979) 693-3838



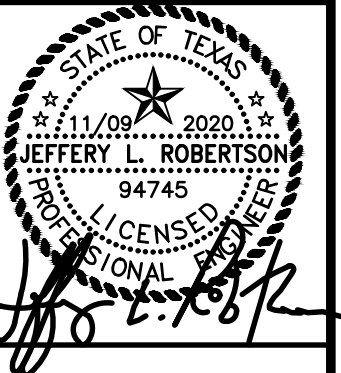
OVERALL SITE PLAN

West Hill - NW Freeway
MBESI No. 1048-0028

SHEET NO.

G1.1

10480028-002-G1.1



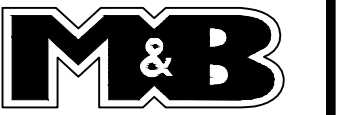
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College Station, TX 77845 (979) 695-3838



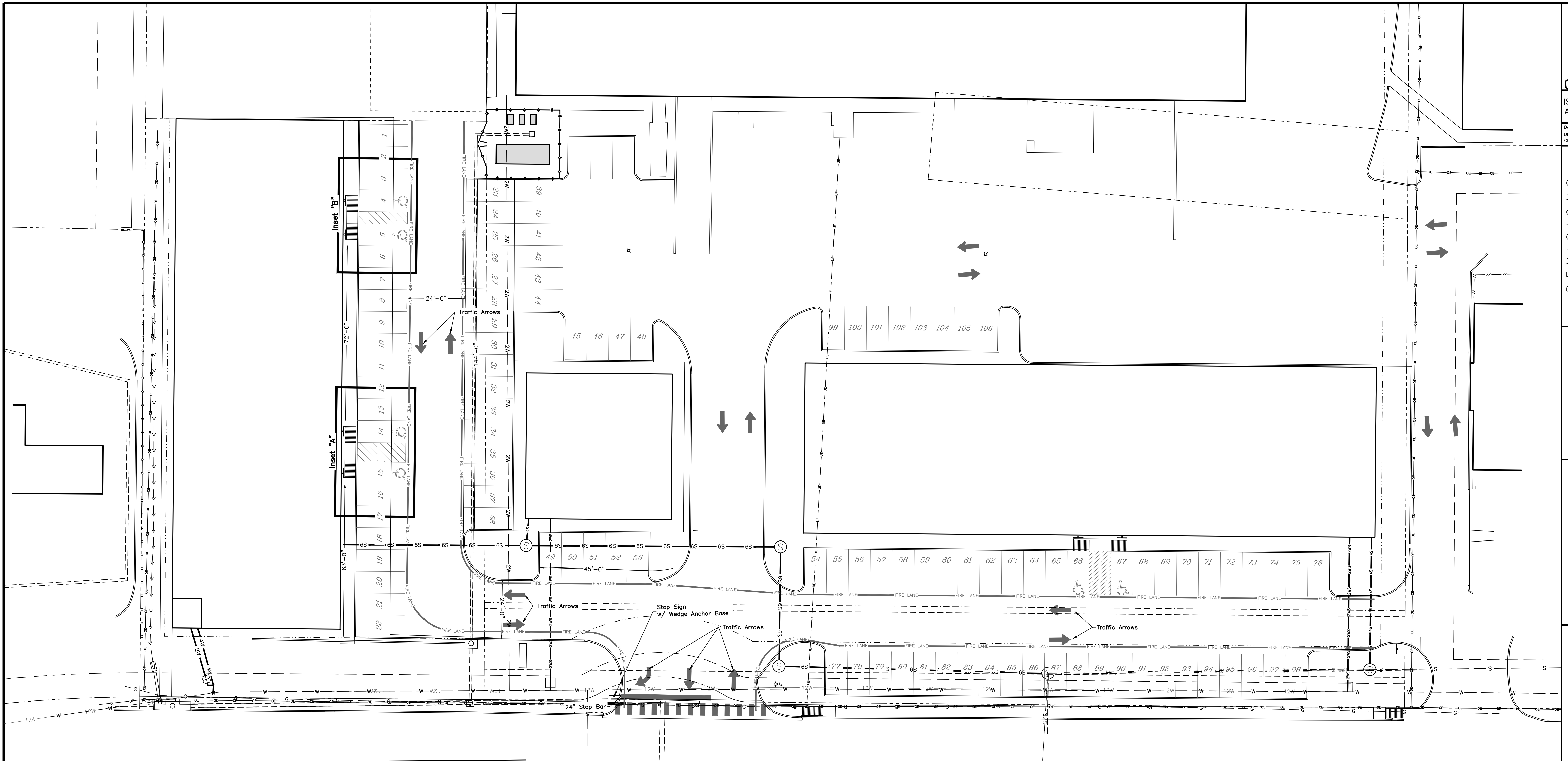
Parking and Striping Plan

West Hill - NW Freeway
MBESI No. 1048-0028

SHEET NO.

G1.2

10480028-002-C1.2



PARKING & STRIPING PLAN

SCALE: Hor: 1" = 20'

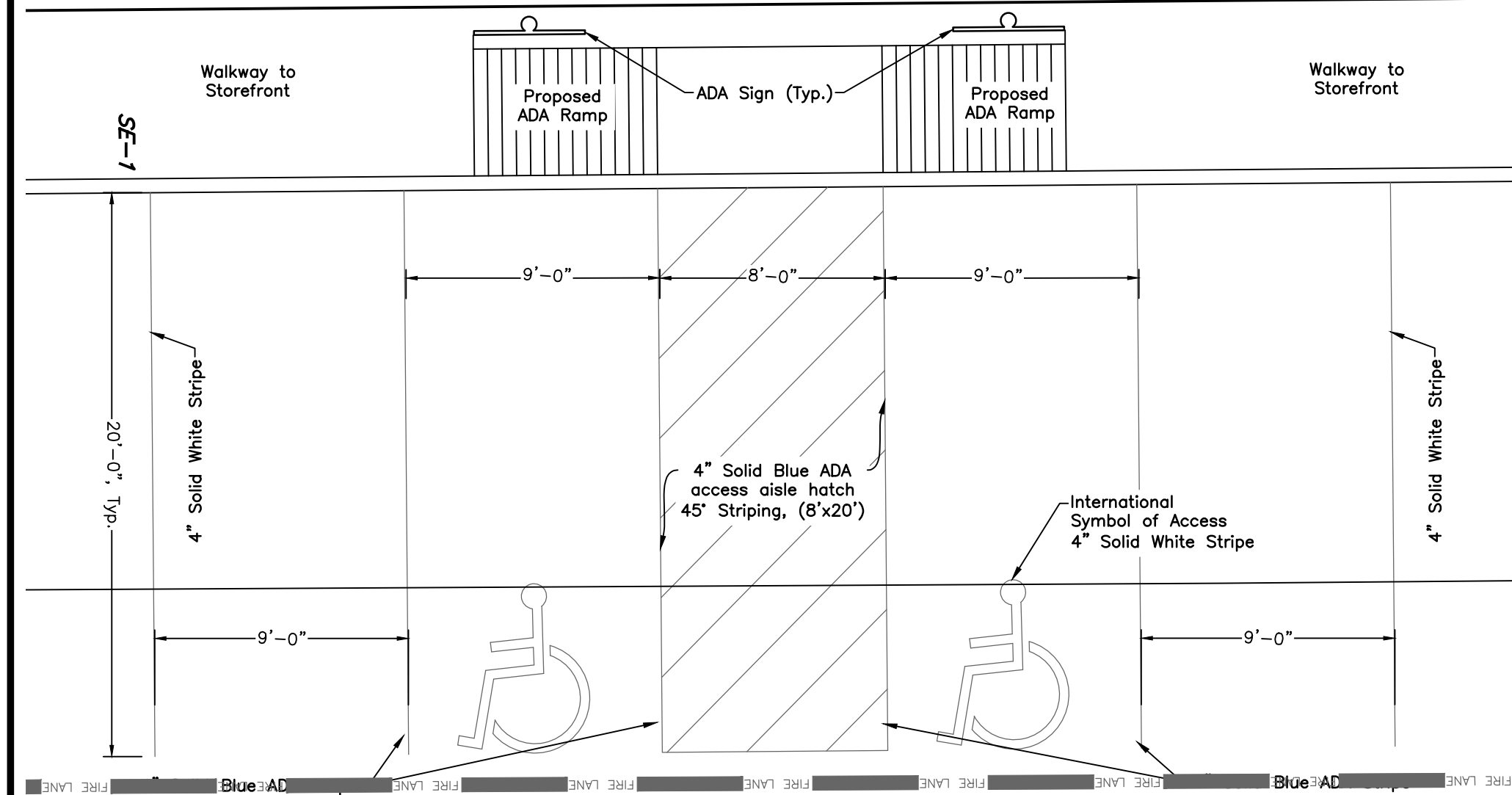


ENGINEERING DEPARTMENT
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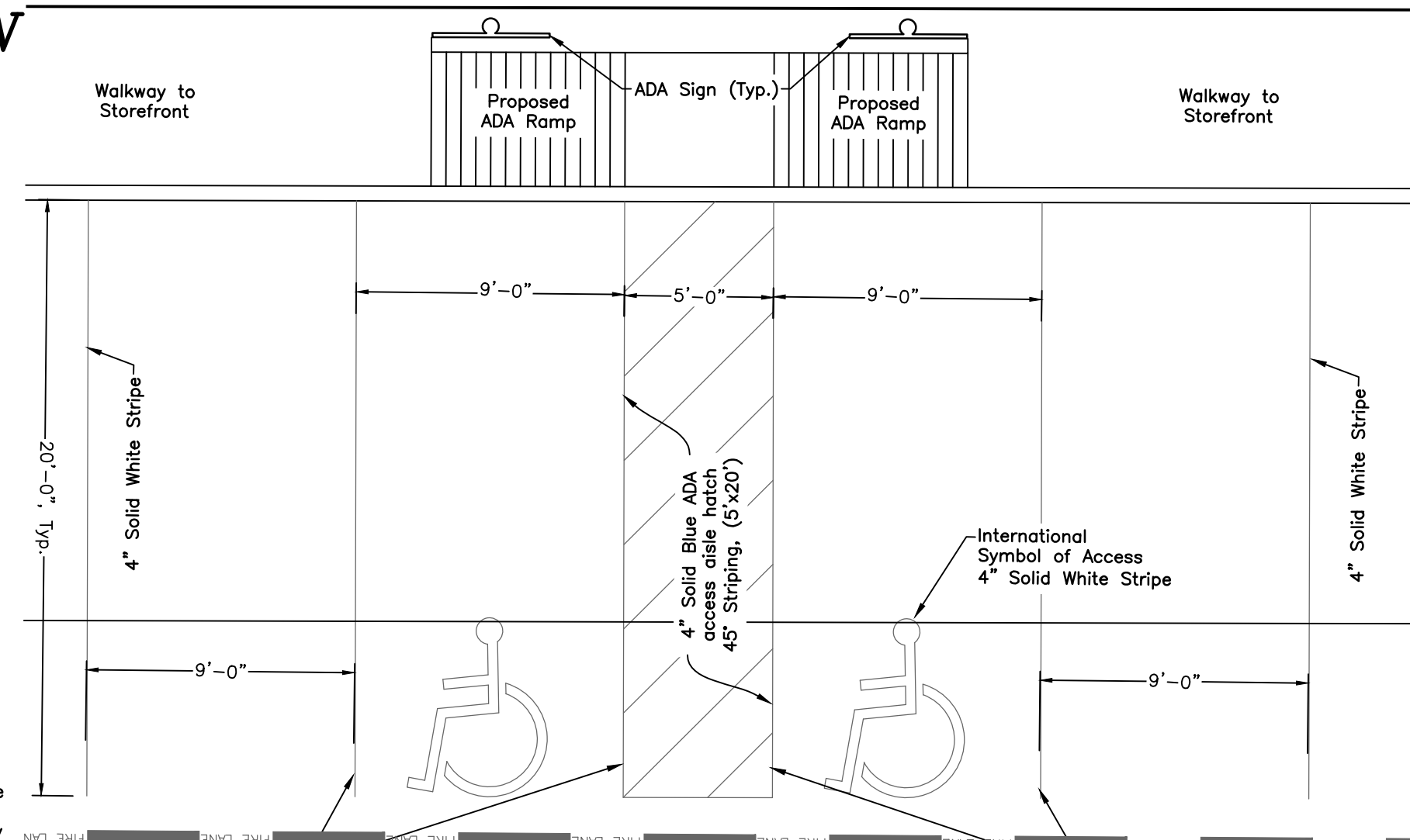
REVIEWED BY: _____

DATE: _____



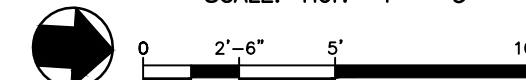
Inset "A"

SCALE: Hor: 1" = 5'



Inset "B"

SCALE: Hor: 1" = 5'



NOTE:

- All striping, letters, symbols and shapes shall be reflective striping provided and installed in accordance with TxDOT Item 666 - ReflectORIZED Pavement Markings (current edition) and shall be Type 1 Material (Hot Applied Thermoplastic).
- Fire Hydrant Markers shall be installed at the centerline of the road adjacent to all existing hydrants within the project limits. Marker shall be a blue 4" x 4" raised reflective marker.
- Parking plan to be reviewed and approved by the Building Official.
- Parking layout noted is for informational purposes only - related to civil site plans.

THESE PLANS DO NOT INCLUDE NECESSARY
COMPONENTS FOR CONSTRUCTION SAFETY.

NOTE: LOCATION OF EXISTING BURIED UTILITIES,
WHERE SHOWN, IS APPROXIMATE ONLY. THERE MAY
EXIST UTILITIES WHICH ARE NOT SHOWN. THE
CONTRACTOR SHALL BE RESPONSIBLE FOR
LOCATING AND PROTECTING ALL BURIED UTILITIES.



DATE: 8/28/19 DRAWN BY: TDM
DESIGNED BY: TDM
CHECKED BY: JLR

REVISIONS

R E V I S I O N	
1	Revised per City Comments 2019-06-25
2	Revised per Architect Review 2021-06-04
3	Revised per City Comment 2021-07-02

McCLURE & BROWNE
ENGINEERING/SURVEYING, INC.
Engineer Reg. No. 7-458 Survey Reg. No. 101035-00
1008 Woodcreek Dr., Suite 103
College Station, Tx. 77845 - (979) 693-3838

Overall Parking Plan

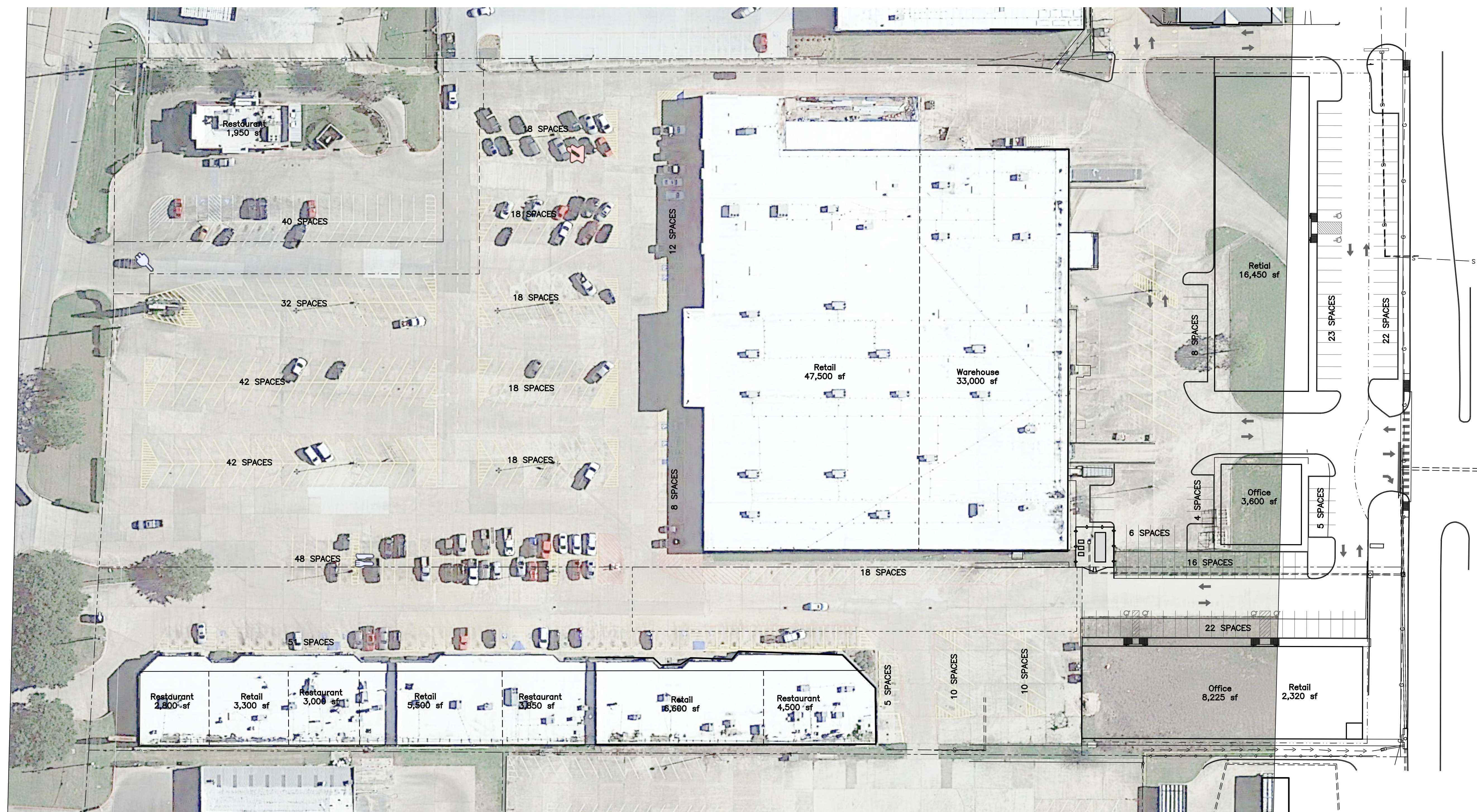
West Hill - NW Freeway

MBESI No. 1048-0028

SHEET NO.

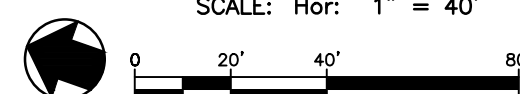
C1.3

10480028-002-G1.3



OVERALL PARKING PLAN

SCALE: Hor: 1" = 40'



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PARKING ANALYSIS:

PARKING ANALYSIS:	
Retail: 1 parking space per 250 sf	
Existing Building Area:	62,290 sf
Proposed Building Area:	18,770 sf
Total Area:	81,670 sf
Parking Required:	327

Office: 1 parking space per 300 sf
Proposed Building Area: 11,825 sf
Parking Required: 39

Restaurant: 1 parking space per 150 sf
Proposed Building Area: 16,100 sf
Parking Required: 107

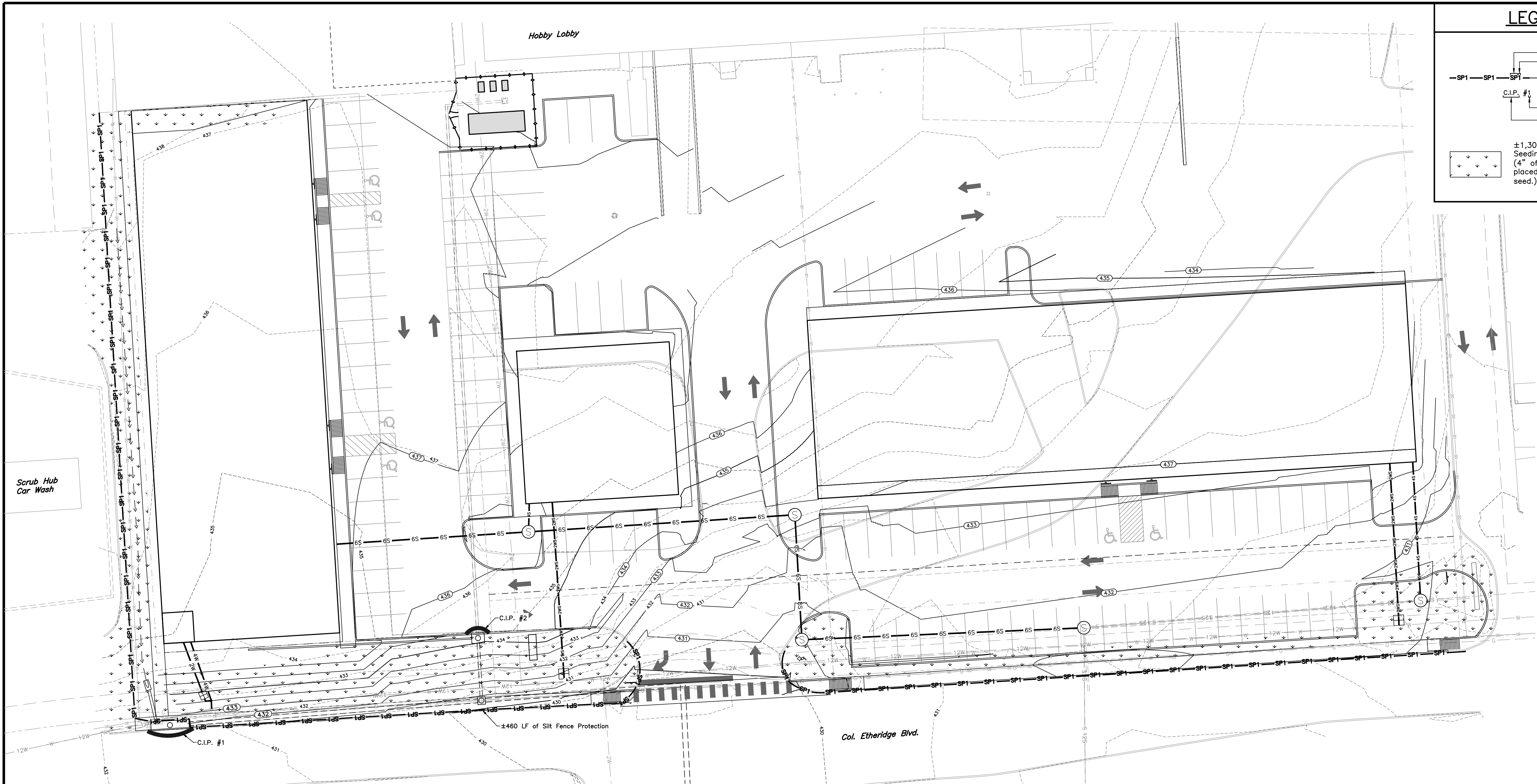
Warehouse (Shipping and Receiving): 1 parking space per 1000 sf
Proposed Building Area: 33,000 sf
Parking Required: 33

Total Required Parking Spaces: 506 spaces

Parking Spaces Provided	
New Parking Lot Spaces:	106 spaces
<u>Existing Parking (Hobby Lobby Site)</u>	<u>408 spaces</u>
Total	514 spaces

Handicap Spaces Required :	10 spaces
Total Handicap Spaces Provided:	17 spaces

Cross Access Agreement Walker County Records Instrument #69647 dated 2021/06/24.



GENERAL EROSION CONTROL NOTES:

- It is the responsibility of the Contractor to prepare and maintain a Storm Water Pollution Prevention Plan in accordance with EPA requirements for storm water discharges associated with construction activity under General Permit, USACE 33 CFR, & Section 404 of the Clean Water Act, & Texas Pollutant Discharge Elimination System (TPDES) General Permit No. TXR150000 as administered by the Texas Commission on Environmental Quality (TCEQ).
- The Contractor shall not allow sediment to leave the work area or enter any adjoining channels. Additional measures to those shown on this plan and described in these notes may be required to prevent sediment from leaving the work area. The Contractor shall be responsible for clean-up and restoration to original condition, including establishment or re-vegetation of any lands or channels affected should construction sediment be found outside of limits of construction work.
- All disturbed areas are to have establishment of grass as outlined below. Contractor is responsible for watering, maintenance and establishment of grass for a period of 90 days beyond project acceptance. Contractor to guarantee all planted material growth and coverage for a period of 6 months. Growth and coverage shall be defined as 100% of the planted area with uniform coverage of grass greater than 1" in height with no bare spots greater than 2 square feet. A Second application of fiber-mulch is required for bare spots not meeting coverage requirement within 60 days of initial application. Areas adjacent to the building and within the development to receive block sodding and/or landscaping are not included in this requirement.
- Contractor is to maintain erosion control throughout duration of the project such that all work areas are to plan grades once vegetation is established. Insure sediment is not transported downstream from project via hay bales or silt fence installation. If erosion is observed in the field, additional erosion controls shall be installed.
- Silt fencing is to be installed per detail. In lieu of silt fencing, contractor may use straw bale barriers or continuous extruded fabric berm filled with 3/4" gravel upon approval of the Engineer. Sediment to be cleaned from silt fencing or other sediment control devices when depth of sediment reaches $\pm 1/3$ total height of device. Contractor is to insure erosion control devices are consistently installed and properly maintained.

NOI & NOI INFORMATION:

The site is approximately 0.77 acres and is located on the North side of Col. Etheridge Blvd. and is approx. 1,300 ft. East of the intersection of Col. Etheridge Blvd. and N Fwy Service Rd in Huntsville, TX. The site is situated at Latitude: 30°42'57"N and Longitude: 95°34'24"W. The site activity will consist of parking lot construction and general infrastructure improvements such as grading/paving, drainage improvements, and utility infrastructure improvements. The only source of pollution is the erosion of exposed soil. Storm water from the site sheet flows into one of two on-site drainage inlets. The Contractor is responsible for containing all sediment on-site by utilizing siltation control devices, wash down areas, or seeding and sodding applications. It is the responsibility of the contractor to utilize whatever techniques that are necessary to prevent erosion from this construction.

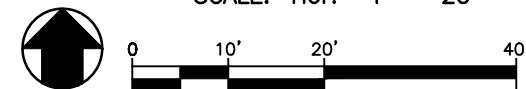
SWPPP STATEMENT

The proposed project is proposing to meet TCEQ Regulatory Requirements for SWP3 as follows:

- Identify that the Work is to be performed under the General Permit to Discharge PTDES Effective Date 03-05-18 Construction General Permit TXR150000
- Identify which coverage is required, i.e., <1 acre, 1-5 acres, >5 acres
- List Bullet Point of requirements under the type of coverage required, including if applicable Contractor to:
 - Prepare and Implement SWP3
 - Submit NOI to TCEQ
 - Post Site Notice
 - Submit copy of NOI to COH Engineering Department

EROSION CONTROL PLAN

SCALE: Hor: 1" = 20'



NOTES:

- ACCESS/EXIT DRIVE SHALL BE CONSTRUCTED OF 1-1/2" TO 3-1/2" STONES MEETING ASTM D448. DRIVE SHALL BE A MIN. OF 6" THICK.
- STONE SHALL BE PLACED ON MIRAFI 700x FABRIC ON A PREPARED SUBGRADE.
- DRESS WITH ADDITIONAL STONE AS NEEDED.
- STONE IS TO BE MAINTAINED IN A CONDITION THAT WILL PREVENT MUD TRACKING FROM TIRES BY CONSTRUCTION TRAFFIC.
- LOCATION & NUMBER OF CONSTRUCTION EXITS SHALL BE DETERMINED BY CONTRACTOR AND APPROVED BY ENGINEER.

TYPICAL CONSTRUCTION ACCESS/EXIT DRIVE
N.T.S.

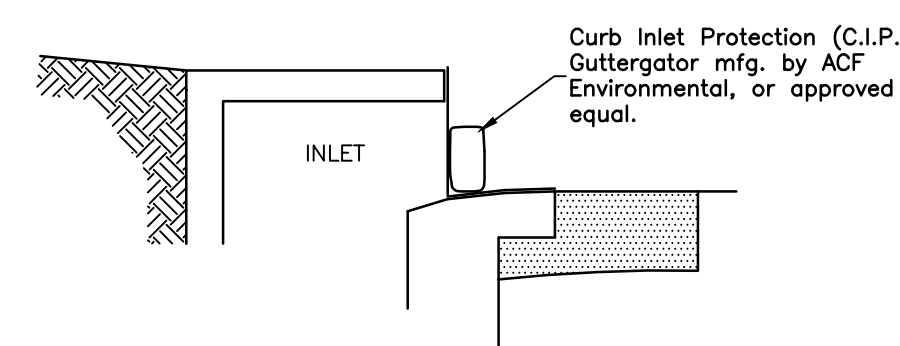
CURB INLET PROTECTION
SCALE: N.T.S.

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NOTES:

- The Gutterator shall be installed in accordance with the manufacturer's recommendations.
- The Gutterator shall span the entire opening of the curb inlet. For inlet openings greater than 12', multiple Gutterators shall be used.

LEGEND

- Silt Protection
Designates Type
- Prop. Silt Protection
- Designates Number
- Prop. Inlet Protection
- Curb Inlet Protection
(Grate Inlet Protection)

±1,303 SY of Hydro Seeding & Fiber Mulch (4" of Topsoil shall be placed prior to placing seed.)



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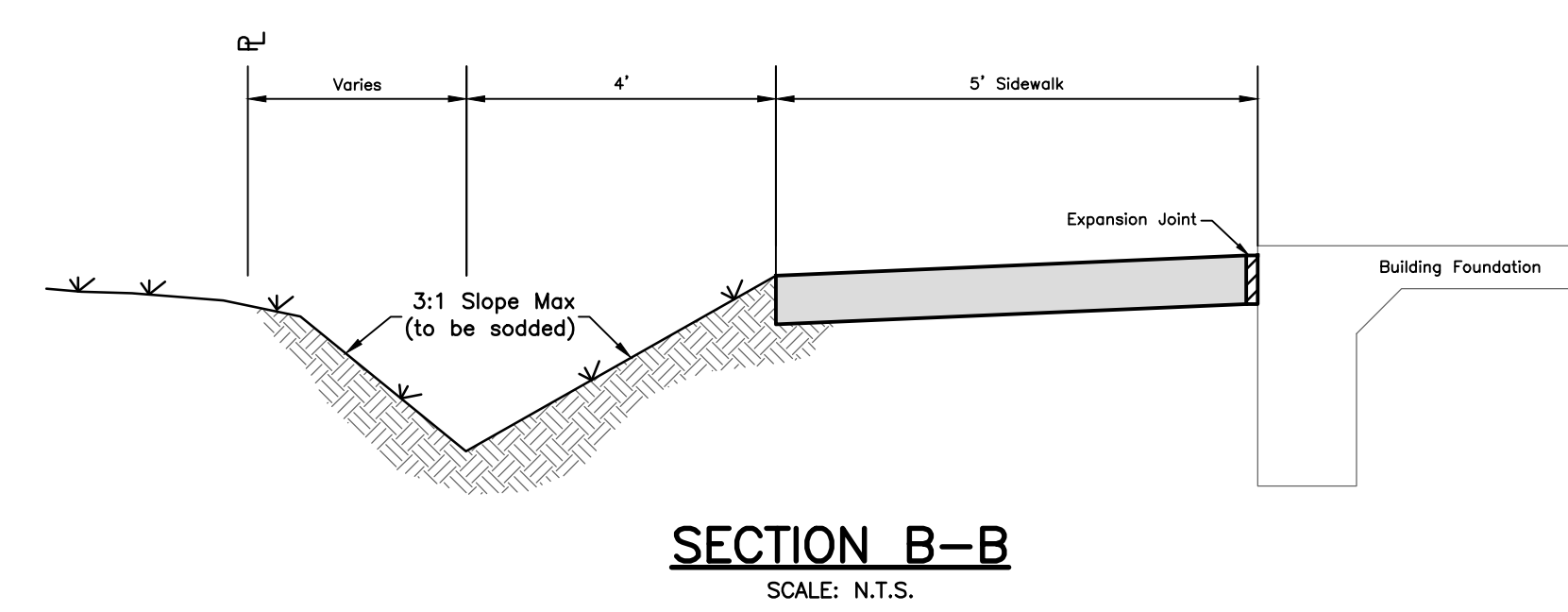
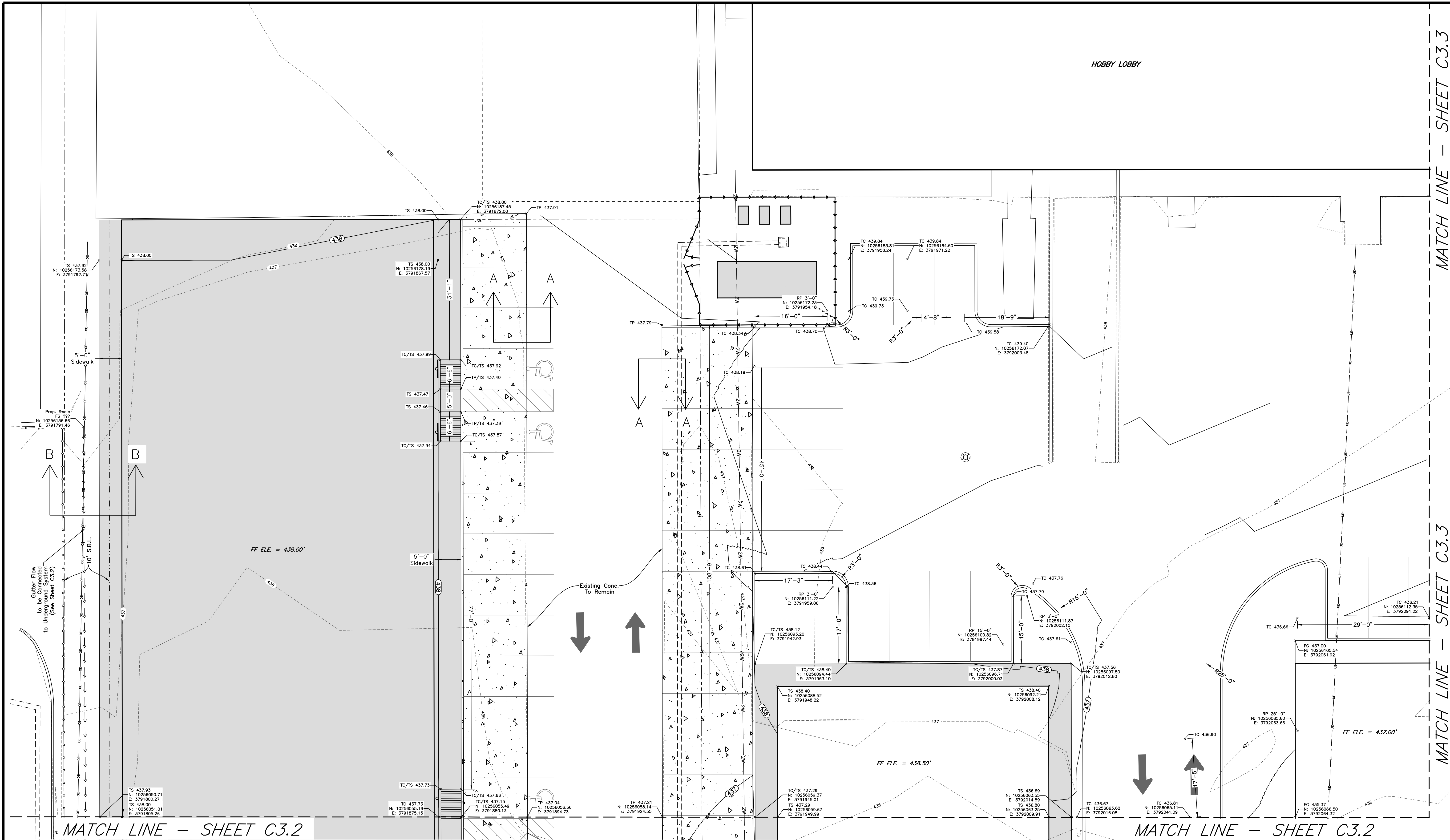
Erosion Control Plan

West Hill - NW Freeway
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SHEET NO.

G2.1

10480028-002-G2.1

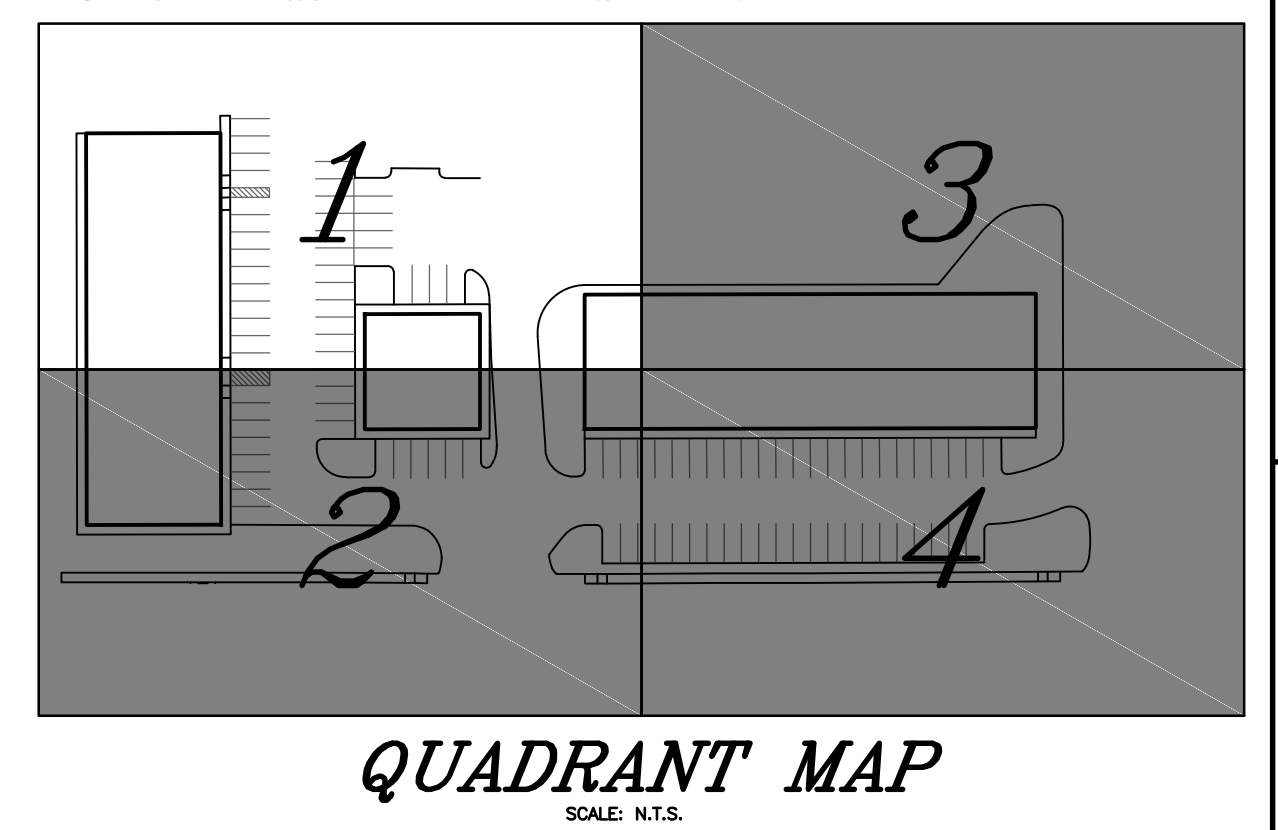
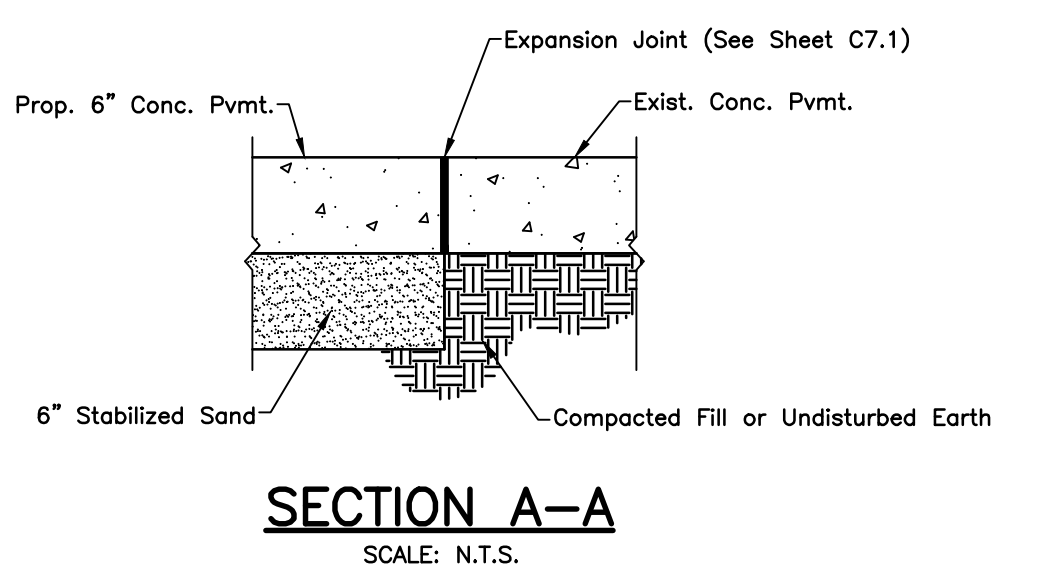


QUADRANT 1
SCALE: Hor: 1" = 10'

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STATE OF TEXAS
JEFFERY L. ROBERTSON
Professional Engineer
No. 94745
Exp. 11/08

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M&B

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MBESI No. 1048-0028

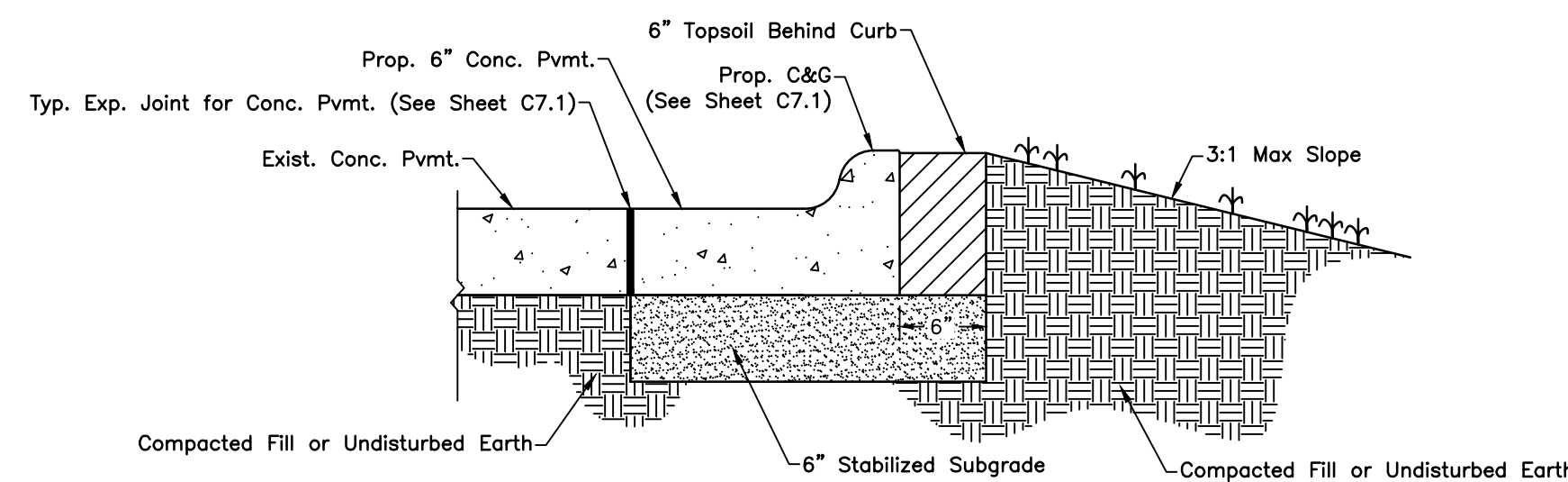
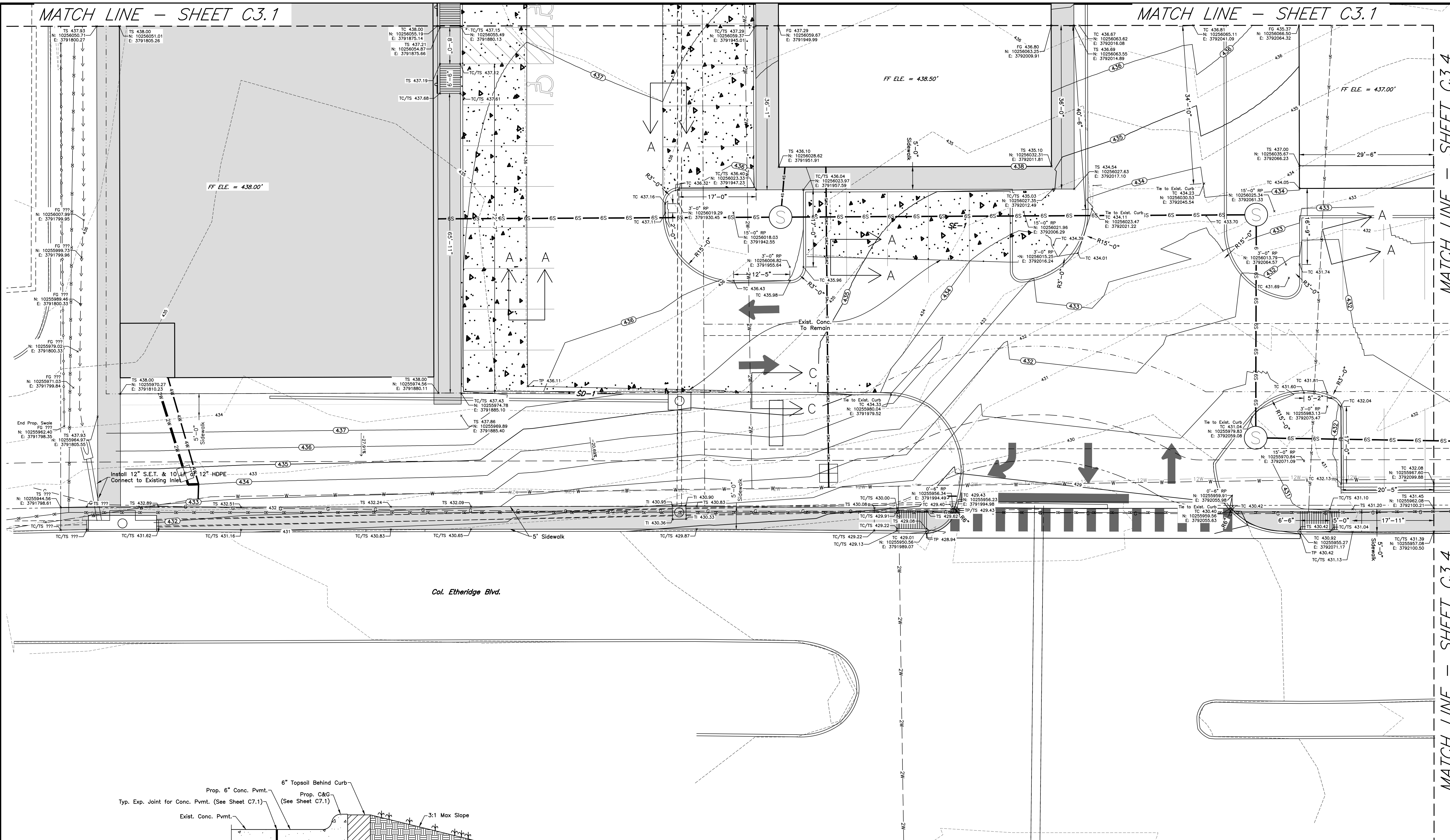
SITE GRADING - QUADRANT 1

SHEET NO. **C3.1**

10480028-002-C3.1

MATCH LINE - SHEET C3.1

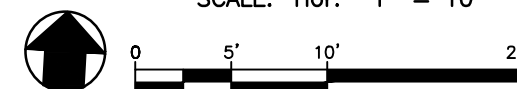
MATCH LINE - SHEET C3.1



SECTION C-C
SCALE: N.T.S.

QUADRANT 2

SCALE: Hor: 1" = 10'



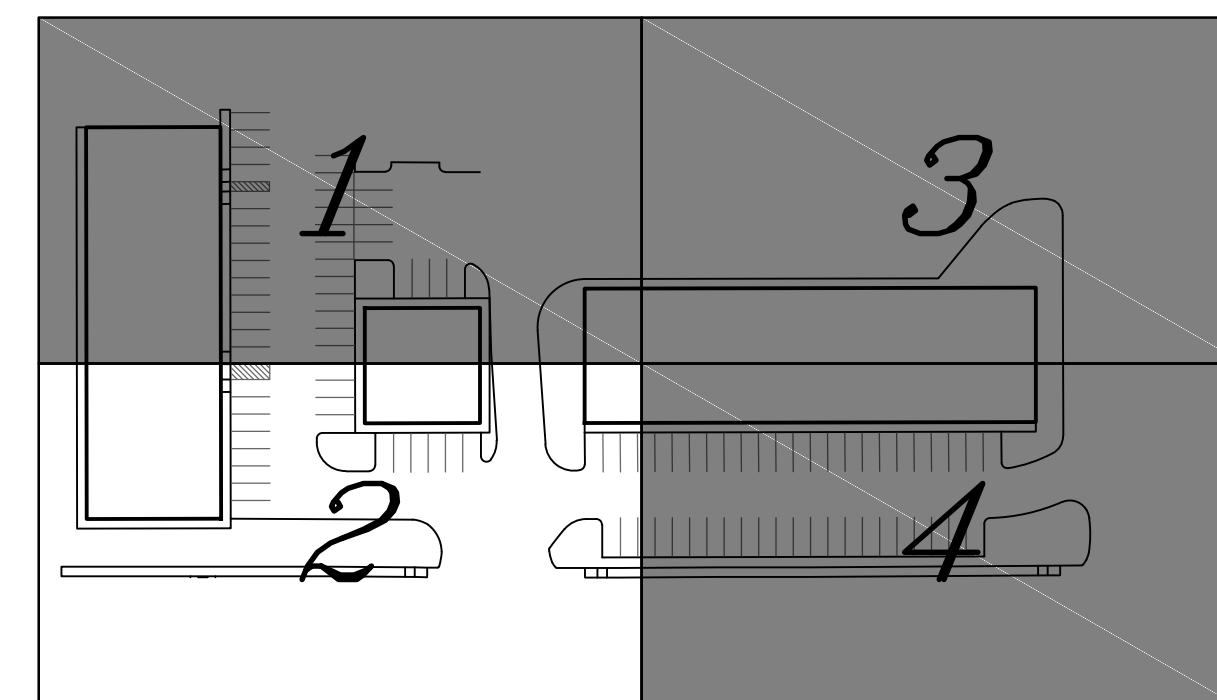
NOTES:
1. Roof will drain to an underground system connected to storm drain SD-1.

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QUADRANT MAP
SCALE: N.T.S.

Site Grading - Quadrant 2

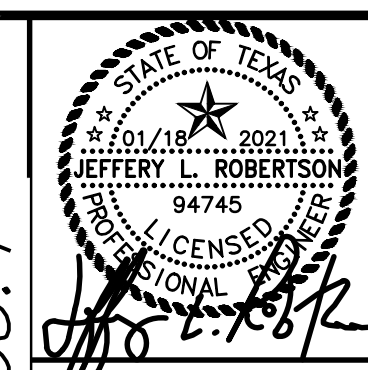
West Hill - NW Freeway

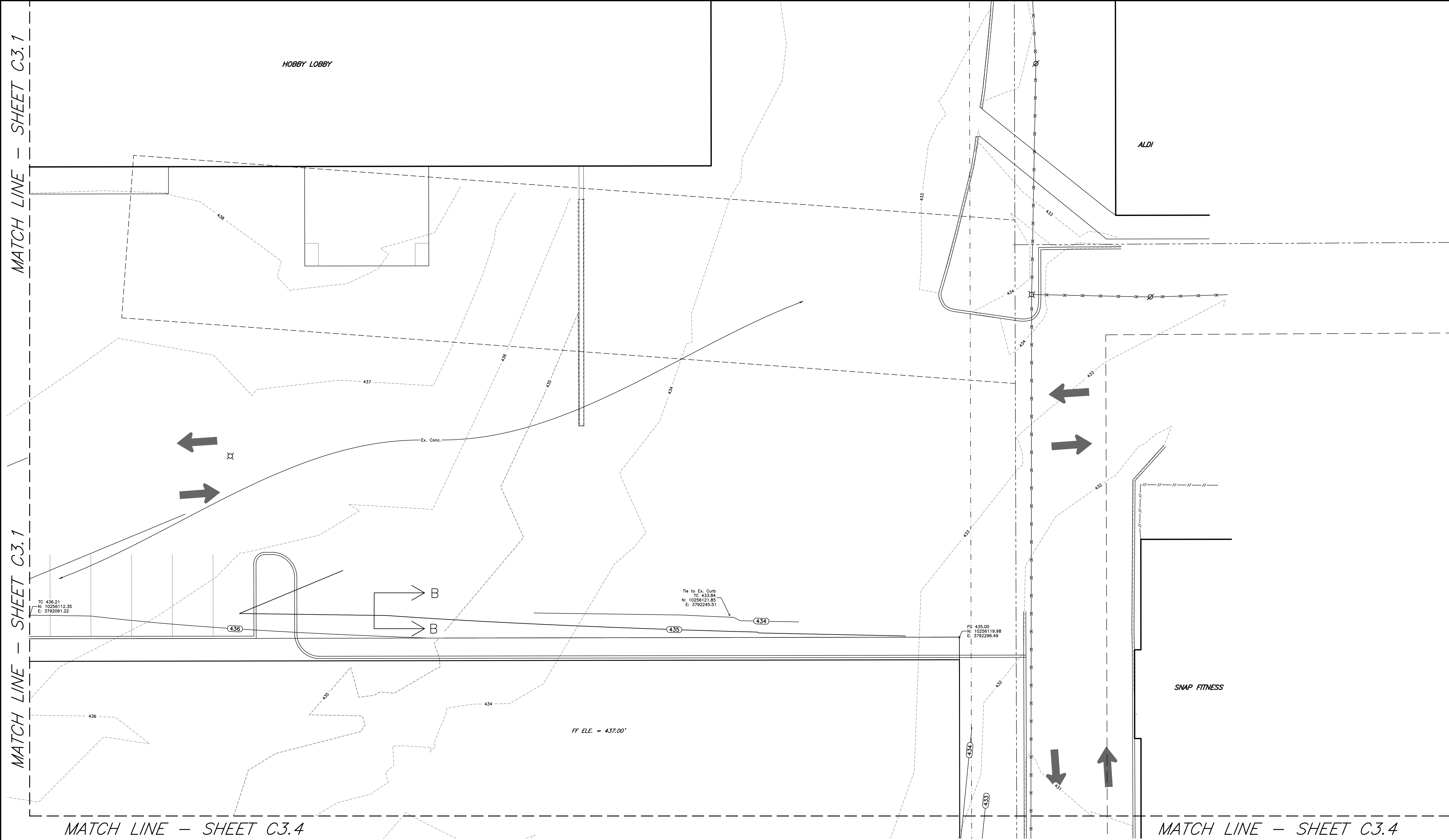
MBESI No. 1048-0028

REVISIONS

DATE: 8/28/19 DRAWN BY: TDW
DESIGNED BY: TDW
CHECKED BY: JLB

ISSUED FOR BIDDING
AND CONSTRUCTION





MATCH LINE - SHEET C3.1

MATCH LINE - SHEET C3.1

MATCH LINE - SHEET C3.4

MATCH LINE - SHEET C3.4

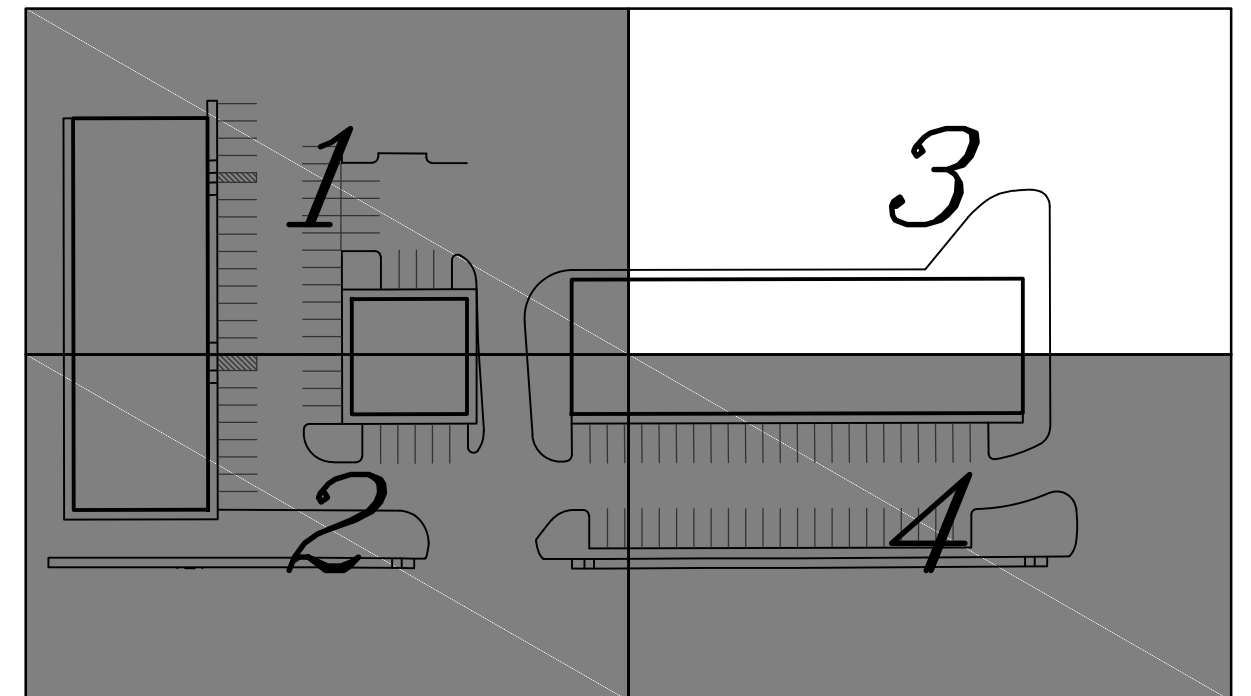
QUADRANT 3
SCALE: Hor: 1" = 10'
0 5' 10' 20'

ENGINEERING DEPARTMENT
CITY OF HUNTSVILLE, TX
REVIEWED FOR CONSTRUCTION PERMIT

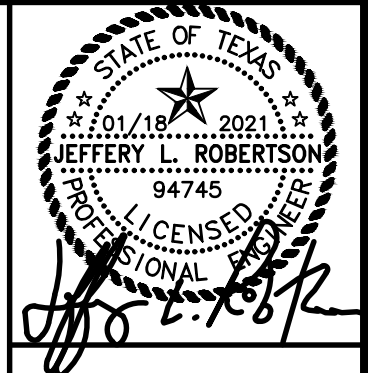
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REVIEWED BY: _____

DATE: _____



QUADRANT MAP
SCALE: N.T.S.



ISSUED FOR BIDDING
AND CONSTRUCTION

DATE: 8/28/19 DRAWN BY: TOM
DESIGNED BY: TOM
CHECKED BY: JLR

REVISIONS

McCLURE & BROWNE
ENGINEERING/SURVEYING, INC.
Engineer Reg. No. F-458 - Survey Reg. No. 101033-00
1008 Woodcrest Dr., Suite 103
College Station, TX 77845 (979) 695-3838
M&B

Site Grading - Quadrant 3

West Hill - NW Freeway
MBESI No. 1048-0028

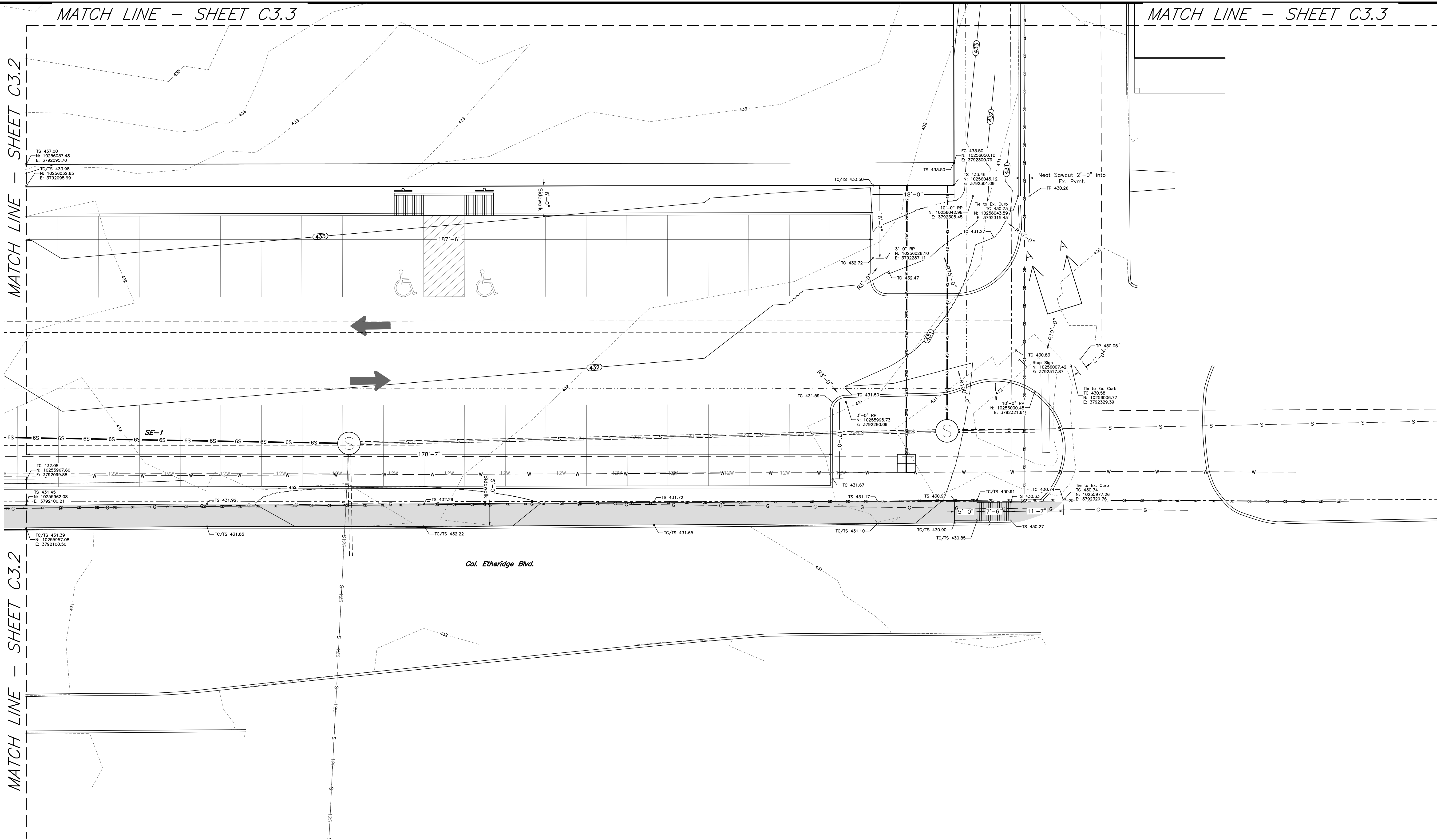
SHEET NO.

C3.3


10480028-002-C3.3

MATCH LINE - SHEET C3.2

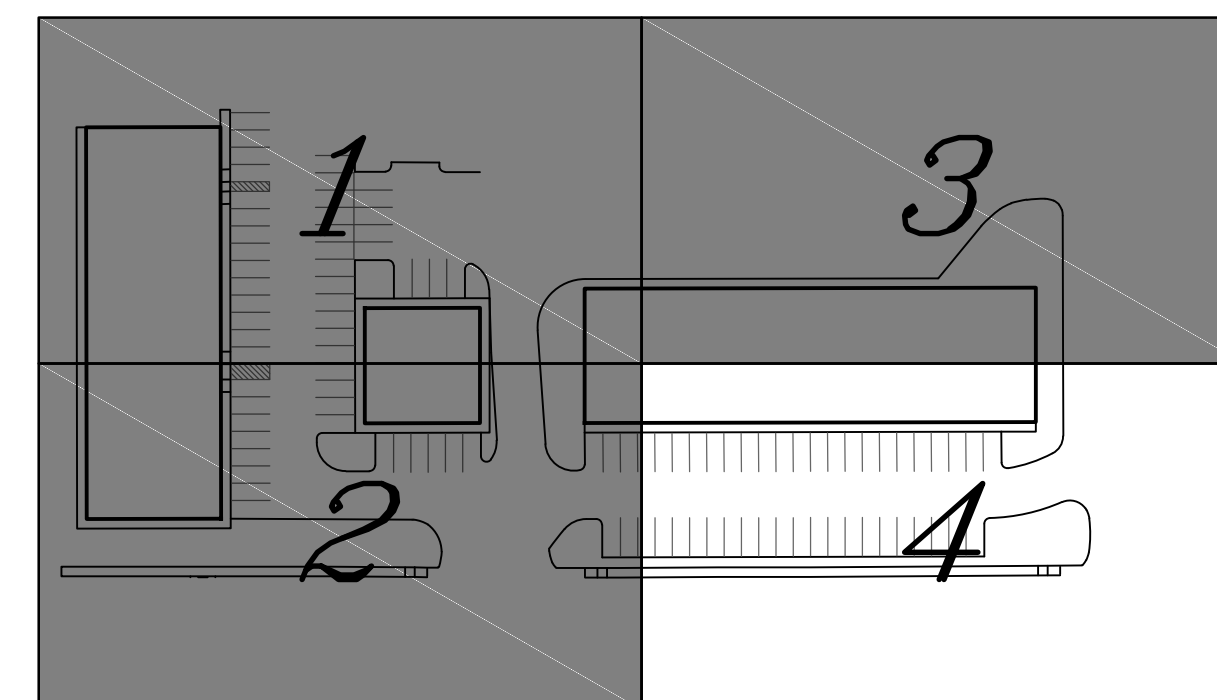
MATCH LINE - SHEET C3.2



SCALE: Hor: 1" = 10'

A north arrow pointing upwards and a horizontal scale bar marked from 0 to 20 feet in increments of 5 feet.

DATE: _____



SCALE: N.T.S.



DATE: 8/28/19 DRAWN BY: TDM
DESIGNED BY: TDM
CHECKED BY: JLR

REVISIONS

McCLURE & BROWNE
ENGINEERING/SURVEYING, INC.
Engineer Reg. No. F-458 · Survey Reg. No. 101033-00



Site Grading - Quadrant 4

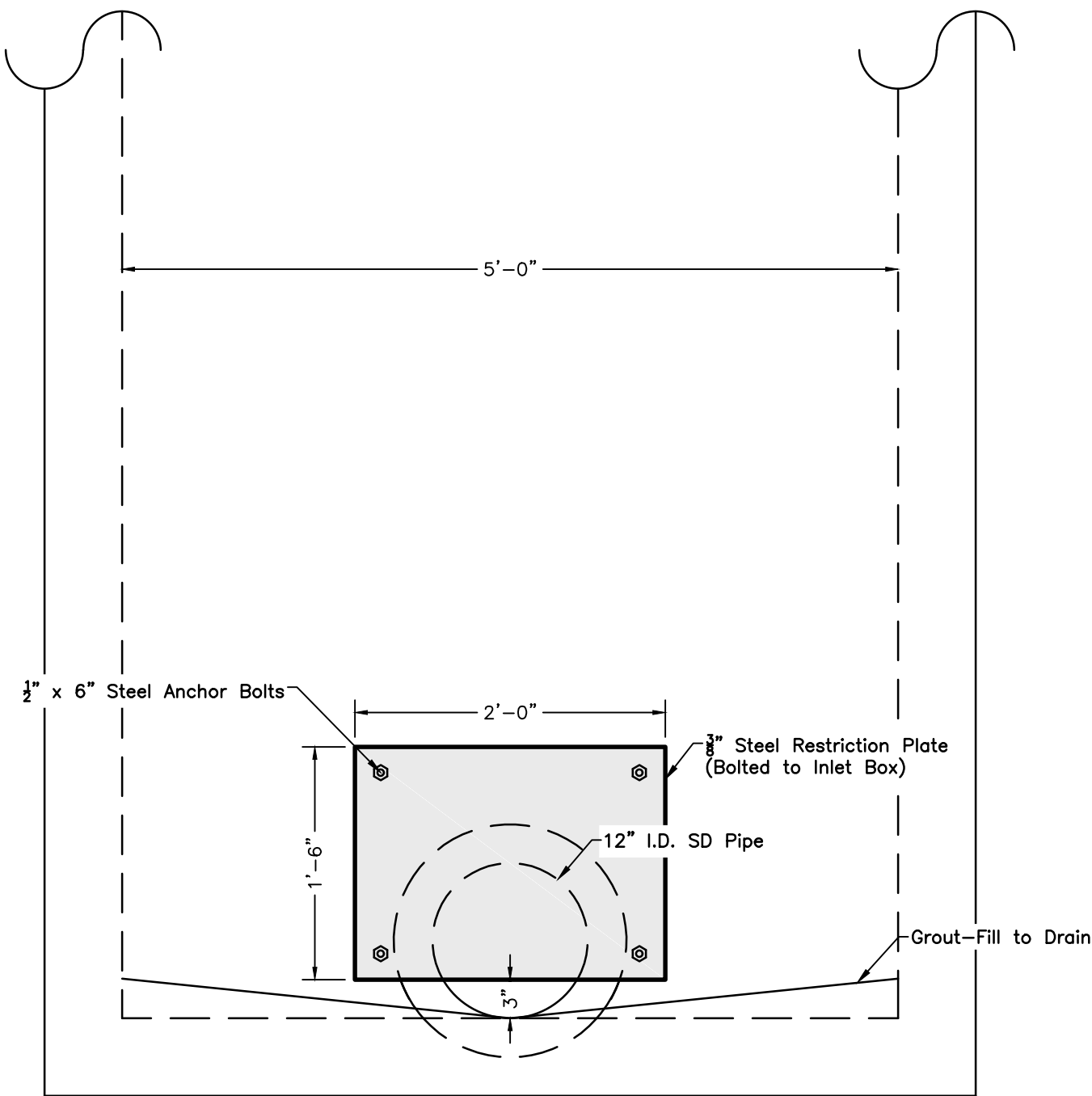
West Hill - NW Freeway

MBESI No. 1048-0028

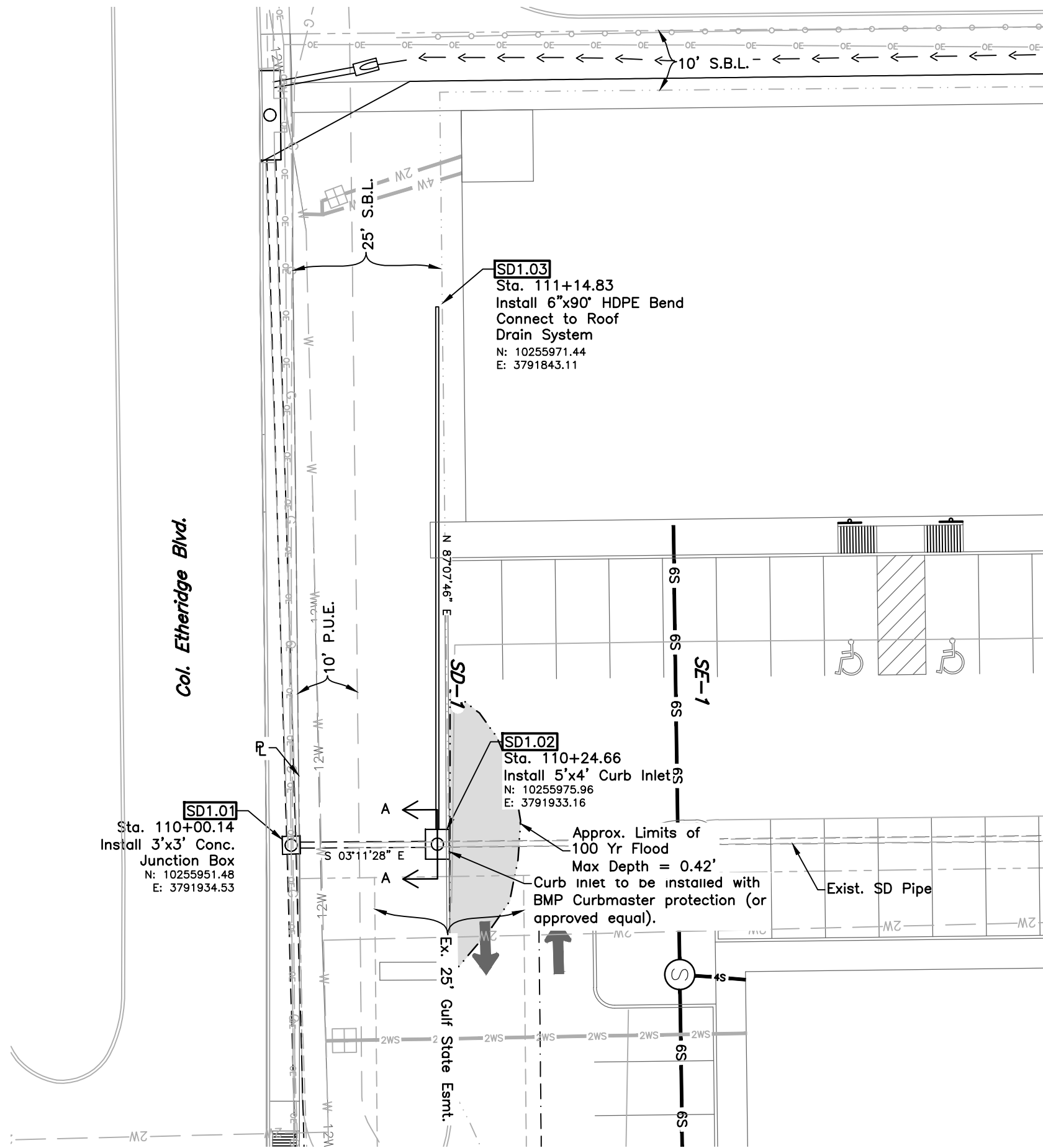
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C3.4

10480028-002-C3

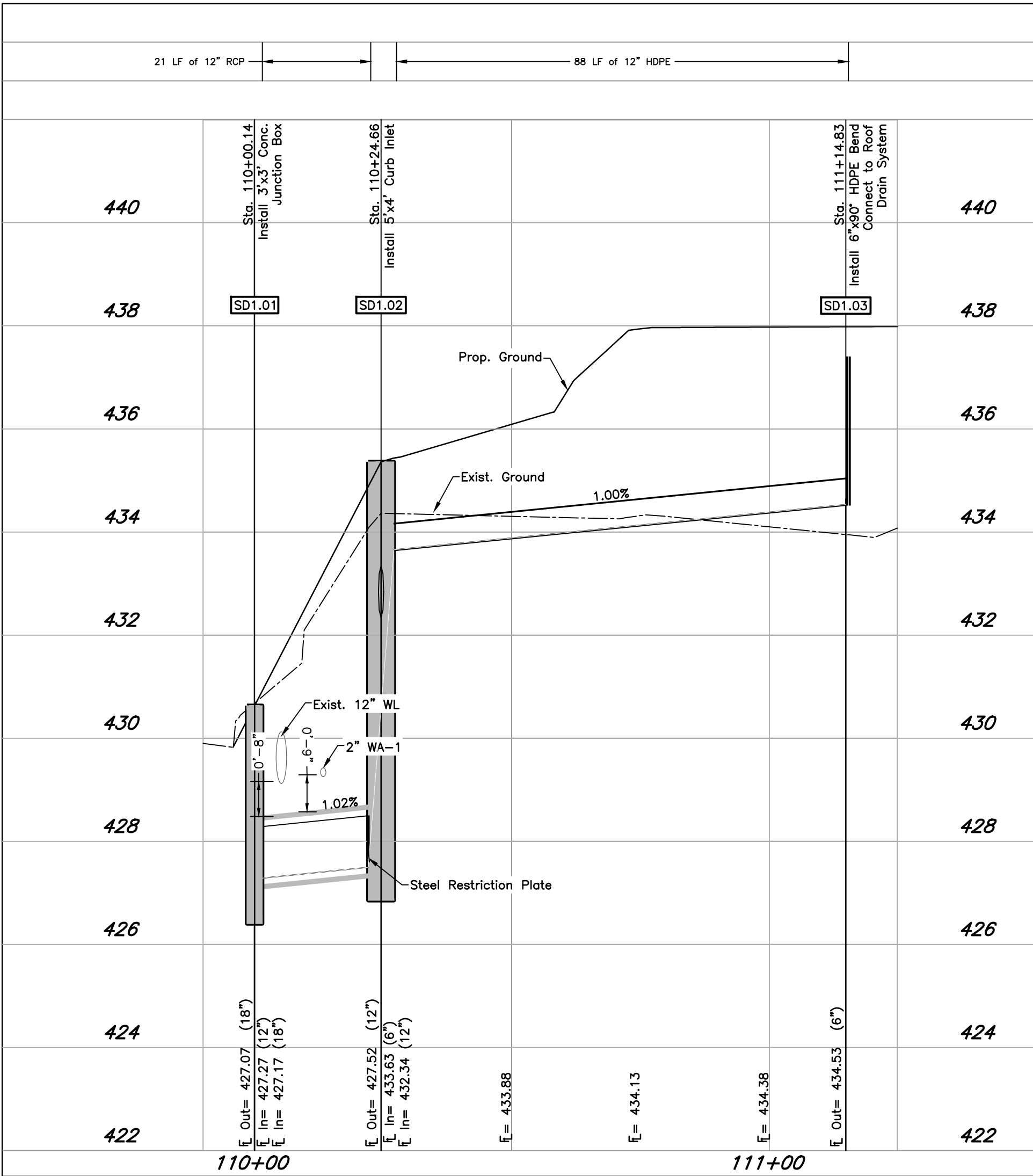


Section A-A
SCALE: N.T.S.



NOTES:
1. Roof drain system to be designed by others and tied into proposed storm drain system.

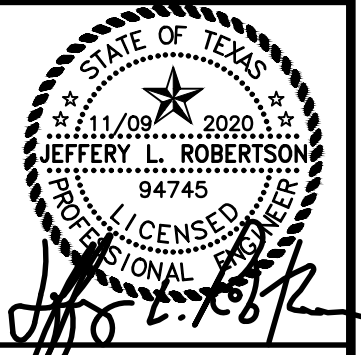
STORM DRAIN SD-1
SCALE: Hor: 1" = 20'
Vert: 1" = 2'



ENGINEERING DEPARTMENT
CITY OF HUNTSVILLE, TX
REVIEWED FOR CONSTRUCTION PERMIT

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ISSUED FOR BIDDING
AND CONSTRUCTION

DATE: 8/28/19 DRAWN BY: TDW
DESIGNED BY: TDW
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REVISIONS

- | NO. | DESCRIPTION | DATE |
|-----|---|------|
| 1 | Revised per City Comments 2019-06-25 | |
| 2 | Revised per Architect Review 2021-06-04 | |
| 3 | Revised per City Comment 2021-07-02 | |

McCLURE & BROWNE
ENGINEERING/SURVEYING, INC.
Engineer Reg. No. F-458 - Survey Reg. No. 101033-00
1008 Woodcrest Dr., Suite 103
College Station, TX 77845 (979) 693-3838

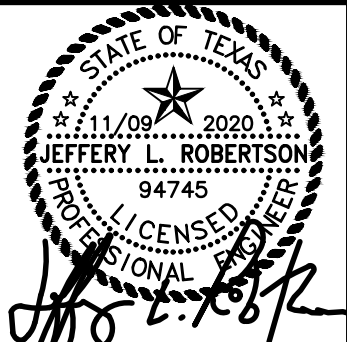


Storm Drain Plan
and Profile
West Hill - NW Freeway
MBESI No. 1048-0028

SHEET NO.

C4.1

10480028--002--C4.1



ISSUED FOR BIDDING
AND CONSTRUCTION

DATE: 8/28/19 DRAWN BY: TDW
DESIGNED BY: TDW
CHECKED BY: JLR

REVISIONS

- 1 Revised per City Comments 2019-06-25
- 2 Revised per Architect Review 2021-06-04
- 3 Revised per City Comment 2021-07-02

McCLURE & BROWNE
ENGINEERING/SURVEYING, INC.
Engineer Reg. No. F-458 Survey Reg. No. 101033-00
1008 Woodmead Dr., Suite 103
College Station, TX 77845 (979) 693-3838



Sanitary Sewer
Plan and Profile
West Hill - NW Freeway
MBESI No. 1048-0028

SHEET NO.

G5.1

10480028-002-C5.1

NOTE:
MANHOLE BASE SHALL BE PLACED ON FIRM
SURGRADE. ADDITION OF CEMENT STABILIZED
SAND OR GRAVEL MAY BE REQUIRED TO
STABILIZE FOUNDATION.

IN EXISTING MANHOLE, PLACE PVC
ELBOW ON BENCH, GROUT NEW BENCH
TO SPRINGLINE AND TROWEL SMOOTH.
FORM SMOOTH CHANNEL TO INVERT.

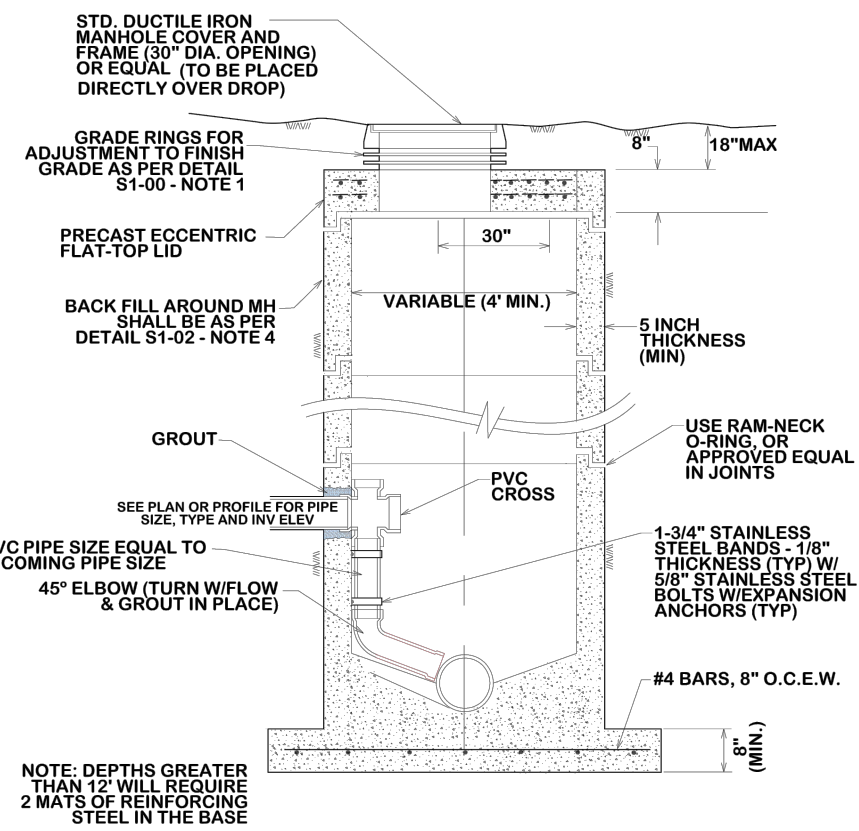
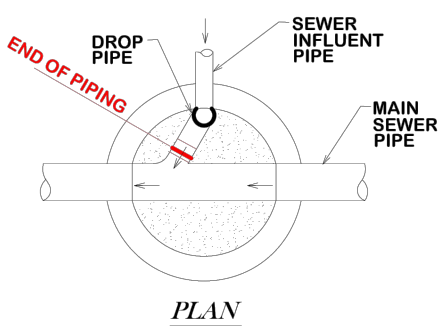
ALL NEW CONNECTION AT EXISTING
MANHOLES SHALL BE BY CORING ONLY.

MANHOLE BOOTS SHALL BE SIZED SAME
AS INCOMING PIPE.

CROSS MUST BE A MINIMUM 24" BELOW
CONE SECTION.

5 FOOT DIAMETER MANHOLE WILL BE
REQUIRED FOR DROPS 12" AND GREATER.

IF THERE ARE TWO DROPS INSIDE MANHOLE
ON OPPOSING SIDES, THEN MANHOLE LID
SHOULD BE CENTERED BETWEEN THE TWO
DROPS.



INSIDE DROP MANHOLE

WASTEWATER DEMANDS					
Unit Description	Projected WW flowrate (g/ksf/d)	SF	Acres	Total Flow (gpd)	Peak Flow (gpd)
Commercial Lease Space #1	442	14280	0.328	6,312	25,247
Commercial Lease Space #2	442	3600	0.083	1,591	6,365
Commercial Lease Space #3	442	16450	0.378	7,271	29,084
Total				6,312	25,247

Peak Hour or Day Demand = 4.0

gpd - gallons per day

g/c/d - gallons per capita per day

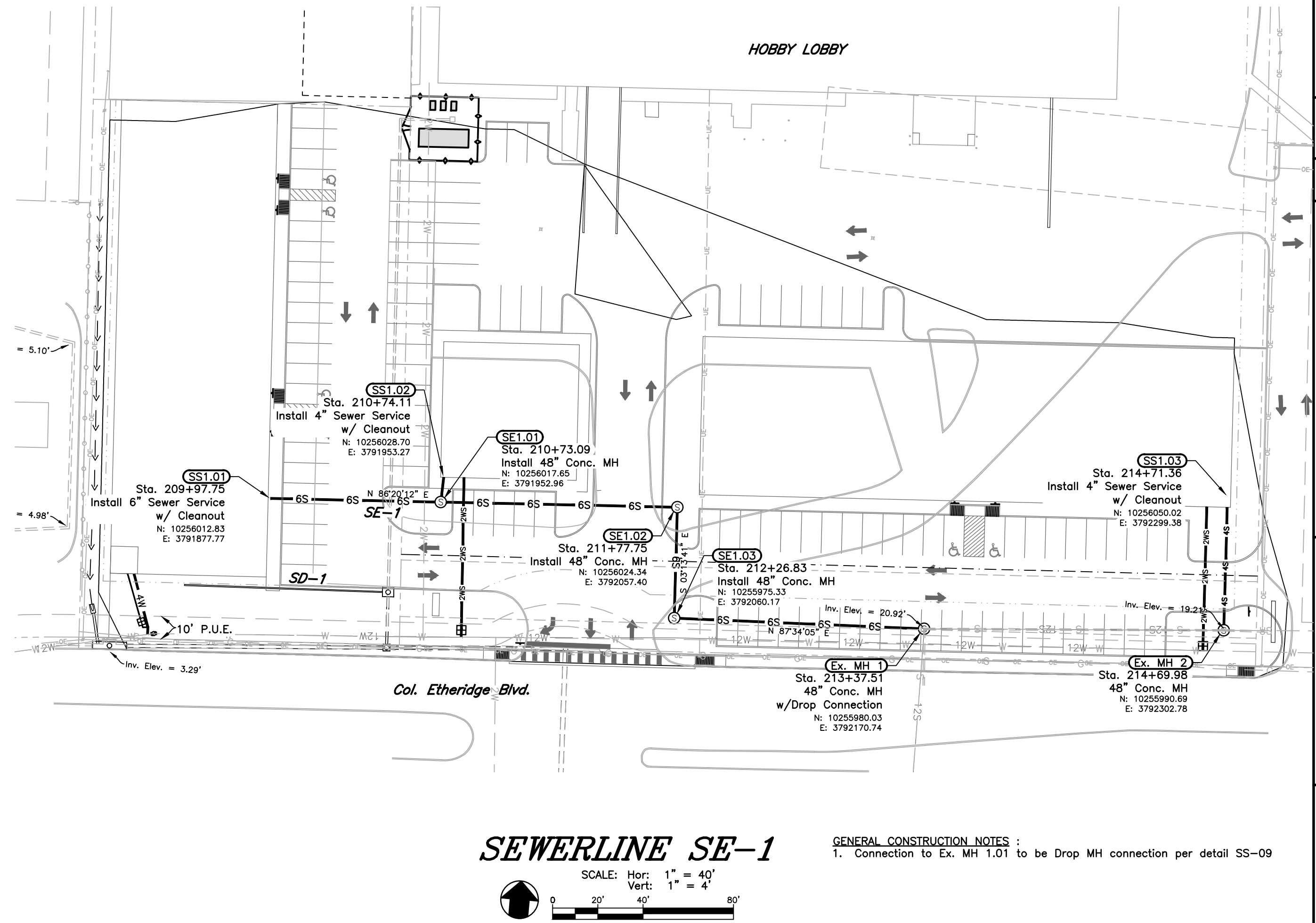
g/ksf/d - gallons per 1,000 square feet per day

ENGINEERING DEPARTMENT
CITY OF HUNTSVILLE, TX
REVIEWED FOR CONSTRUCTION PERMIT

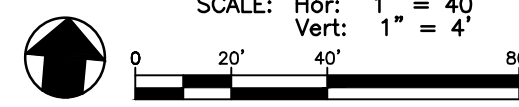
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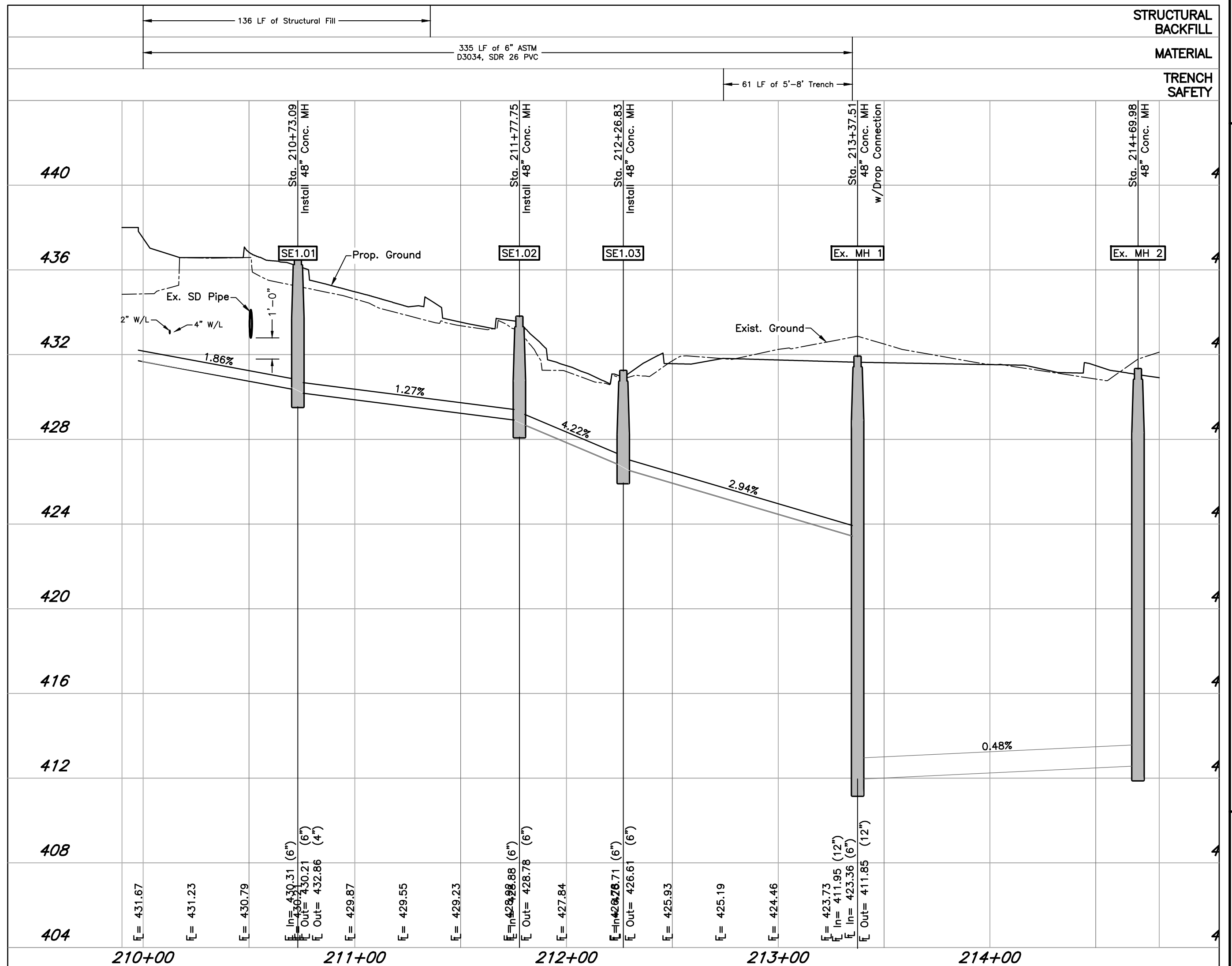
DATE: _____



SEWERLINE SE-1



GENERAL CONSTRUCTION NOTES :
1. Connection to Ex. MH 1.01 to be Drop MH connection per detail SS-09



Peak Hour or Day Demand = 1.75
g/c/d - gallons per capita per day
g/ksf/d - gallons per 1,000 square feet per day

REVIEWED BY: _____

DATE: _____



NOTES:
1. Contractor to pot-hole and locate existing waterline to verify depth. All depths are assumed and must be field verified.



West Hill - NW Freeway

GENERAL CONSTRUCTION NOTES (ISSUE DATE: 06-19-18) (THESE NOTES ARE CONSIDERED SUPPLEMENTAL TO THE WATER, SANITARY SEWER, AND STORM SEWER CONSTRUCTION NOTES)

LOCATES AND PERMITTING

1. THE LOCATION OF AT&T (COMMUNICATIONS), CENTERPOINT ENERGY (OAS), ENTERGY (AKA GULF STATE UTILITIES - ELBCTR), MID-SOUTH SYNERGY (ELECTRIC), WALKER COUNTY CABLEVISION, SUDEN LINK CABLE, PHELPS WATER, WALKER COUNTY SUD, AND OTHER UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL REQUEST THE EXACT LOCATION OF THESE FACILITIES BY CALLING THE UTILITY COORDINATING COMMITTEE AT PHONE NUMBER 800-545-6805 OR 811, AT LEAST 48-HOURS BEFORE COMMENCING WORK. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH OCCUR DUE TO HIS FAILURE TO REQUEST THE LOCATION AND PRESERVATION OF THESE UNDERGROUND FACILITIES.

2. CONTRACTOR SHALL CONTACT THE CITY OF HUNTSVILLE UTILITIES AT 936-294-5733 AND ENGINEERING DEPARTMENT AT 936-294-5789 A MINIMUM OF 48-HOURS PRIOR TO BEGINNING ANY WORK. WHEN APPLICABLE, CONTRACTOR SHALL NOTIFY TEXAS DEPARTMENT OF TRANSPORTATION AREA ENGINEER 48-HOURS PRIOR TO CONSTRUCTION IN THE STATES RIGHTS-OF-WAY AT 936-293-3462.

3. CONTRACTOR TO BE RESPONSIBLE TO OBTAIN ALL REQUIRED CONSTRUCTION PERMITS INCLUDING WALKER COUNTY, TXDOT AND CITY OF HUNTSVILLE.

ENERGIZED OVERHEAD POWER LINE

1. CHAPTER 752 OF THE TEXAS HEALTH AND SAFETY CODE PROHIBITS ALL ACTIVITIES IN WHICH IT IS POSSIBLE FOR PERSONS, EQUIPMENT, OR MATERIALS TO COME WITHIN SIX FEET OF AN ENERGIZED OVERHEAD POWER LINE. FEDERAL REGULATION, TITLE 29, PART 1910.1001 AND PART 1926.400(A)(15), ALSO CONTAIN MINIMUM CLEARANCE REQUIREMENTS FROM ANY ENERGIZED POWER LINE. INDIVIDUALS ARE RESPONSIBLE FOR THEIR OWN SAFETY AND CONTRACTORS AND OWNERS ARE LEGALLY RESPONSIBLE FOR THE SAFETY OF THEIR WORKERS UNDER THESE LAWS. IF YOU OR YOUR COMPANY MUST WORK NEAR OVERHEAD POWER LINES, CALL 1-800-ENTERGY TO BEGIN THE PROCESS OF DE-ENERGIZING OR RELOCATING THE POWER LINES AT YOUR EXPENSE. FAILURE TO DO SO COULD LEAD TO THE DEATH OR SERIOUS INJURY TO YOU OR SOMEONE ELSE AS WELL AS BE A VIOLATION OF THE ABOVE LAWS POTENTIALLY SUBJECTING YOU TO CRIMINAL AND CIVIL PENALTIES.

SURVEYING AND DIMENSIONAL CONTROL

1. ALL SURVEY CONTROL POINTS AND BENCHMARKS ARE REPORTED AS FOLLOWS: HORIZONTAL COORDINATES (EXPRESSED IN U.S. SURVEY FEET UNITS) AND BEARINGS HEREON ARE REFERRING TO THE TEXAS COORDINATE SYSTEM OF 1983, CENTRAL ZONE AND BASED ON THE POSITION OF THE NATIONAL GEODETIC SURVEY (NGS) PRIMARY AIRPORT CONTROL STATION "T9 A" HAVING PUBLISHED NAD 83 (1993) COORDINATES OF N=1,124,437.762 METERS AND E=1,154,389.433 METERS. LINEAR DIMENSIONS (EXPRESSED IN U.S. SURVEY FEET) ARE "NAD83 GRID" UNIT AND MAY BE CONVERTED TO "GEODETIC HORIZONTAL" UNITS BY DIVIDING BY A COMBINED SCALE FACTOR OF 0.9998. ELEVATIONS ARE EXPRESSED IN U.S. SURVEY FEET AND REFERRED TO THE (NGS) NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).

2. CONTRACTOR SHALL VERIFY HORIZONTAL AND VERTICAL LOCATIONS OF ALL UTILITIES PRIOR TO CONSTRUCTION TO DETERMINE POTENTIAL CONFLICTS AND VERIFY THAT THE BORING OPERATION AND PIPE INSTALLATION CAN BE ACCOMPLISHED WITHOUT CONFLICTING WITH EXISTING UTILITIES.

3. CONTRACTOR IS RESPONSIBLE FOR HIS OWN HORIZONTAL AND VERTICAL CONTROL. REFERENCE POINTS AND CONSTRUCTION STAKING IS INCIDENTAL TO THE PROJECT.

4. ALIGNMENT, CENTERLINE CURVE DATA, AND STATIONING TO BE DETERMINED FROM APPROVED AND/OR RECORDED SUBDIVISION OR ROAD RIGHT-OF-WAY PLAT.

5. PUBLIC EASEMENTS DENOTED ON THIS PLAN ARE HEREBY DEDICATED TO THE PUBLIC FOREVER. ANY PUBLIC UTILITY, INCLUDING THE CITY OF HUNTSVILLE, SHALL HAVE THE RIGHT AT ALL TIMES, OF INGRESS AND EGRESS TO AND FROM AND UPON SAID EASEMENTS FOR THE PURPOSE OF CONSTRUCTION, RECONSTRUCTION, INSPECTION, PATROLLING, MAINTAINING AND ADDING TO OR REMOVING ALL OR PART OF ITS RESPECTIVE SYSTEMS WITHOUT THE NECESSITY OF ANY TIME OF PROCURING THE PERMISSION OF THE PROPERTY OWNER. ANY PUBLIC UTILITY, INCLUDING THE CITY OF HUNTSVILLE, SHALL HAVE THE RIGHT TO MOVE AND KEEP MOVED ALL OR PART OF ANY BUILDING, FENCES, TREES, SHRUBS, OTHER GROWTHS OR IMPROVEMENTS THAT IN ANY WAY ENDANGER OR INTERFERE WITH THE CONSTRUCTION, MAINTENANCE OR EFFICIENCY OF ITS RESPECTIVE SYSTEMS ON ANY OF THE EASEMENTS SHOWN ON THIS PLAT. NEITHER THE CITY OF HUNTSVILLE OR ANY PUBLIC UTILITY SHALL BE RESPONSIBLE FOR THE REPLACING OR REIMBURSING THE PROPERTY OWNER DUE TO REMOVAL OR RELOCATION OF ANY OBSTRUCTION ON THE PUBLIC EASEMENTS.

6. ALL DIMENSIONS SHOWN ARE APPROXIMATE AND NEED TO BE FIELD VERIFIED BY THE CONTRACTOR. HORIZONTAL AND VERTICAL ALIGNMENT CHANGES ARE TO BE APPROVED BY THE CITY.

7. ALL EXISTING UNDERGROUND UTILITIES ARE NOT GUARANTEED TO BE COMPLETED OR DEFINITE, BUT WERE OBTAINED FROM THE BEST INFORMATION AVAILABLE. CONTRACTOR HAS SOLE RESPONSIBILITY FOR FIELD VERIFICATION OF ALL EXISTING FACILITIES SHOWN ON DRAWINGS. CONTRACTOR SHALL COORDINATE ALL CONFLICTS WITH THE APPROPRIATE GOVERNING AGENCY.

DEPARTMENT OF ENGINEERING & MAPPING/ENGINEERING DIVISION CITY OF HUNTSVILLE, TEXAS

NAME: CONSTRUCTION NOTES CATEGORY: GENERAL FACILITY DRAWN DATE: 11/22/2016 DRAWN BY: WLIII SCALE: N.T.S. APPROVED BY: YSR

CITY OF HUNTSVILLE STANDARD DETAILS CONSTRUCTION NOTES

REV# ISSUER DATE APPROVER SHEET

0 MAM 07/10/2018 GF-01

GENERAL CONSTRUCTION NOTES (CONTINUED)

OSHA - TRENCH SAFETY

1. CONTRACTOR SHALL IMPLEMENT THE TRENCH SAFETY SYSTEM REQUIREMENTS OF THE FEDERAL, STATE, AND LOCAL SAFETY AND HEALTH REGULATIONS AND THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA), 29 CFR, PART 1926 SUBPART P, EXCAVATION AND THE TEXAS HEALTH AND SAFETY CODE, CHAPTER 756. MISCELLANEOUS HAZARDOUS CONDITIONS.

2. NO EXCAVATIONS SHALL BE LEFT OPEN OVERNIGHT. ALL EXCAVATIONS WHICH CANNOT BE BACKFILLED OVERNIGHT FOR THE INSTALLATION OF MANHOLES, SANITARY SEWER LINES, AND OTHER UTILITIES SHALL BE COVERED WITH STEEL SHEETING, WHEN IN PAVED AREAS, 3/4" PLYWOOD, WOOD PLANKING OR SOME OTHER MATERIAL APPROVED BY THE CITY IN OTHER AREAS. THE EXCAVATION AREA MUST BE WELL PROTECTED WITH TRAFFIC BARRICADES EQUIPPED WITH FLASHING YELLOW LIGHTS.

3. ALL EXCAVATION AREAS MUST BE COMPLETELY CORDONED OFF WITH A MINIMUM OF TWO STRANDS OF YELLOW PLASTIC CONSTRUCTION TAPE, ACCEPTABLE TO THE CITY, THE TAPE SHALL BE SUPPORTED WITH ENOUGH INTERMEDIATE SUPPORTS TO AVOID EXCESSIVE SAGGING. THE TAPE MAY BE TIED TO TRAFFIC BARRICADES WITH FLASHING YELLOW LIGHTS AND WOODEN LATH FOR SUPPORT. WHERE EXCAVATIONS EXTEND BEYOND THE EXISTING BACK OF CURB OR EDGE OF PAVEMENT, ADEQUATE BARRICADES WITH FLASHING YELLOW LIGHTS SHALL BE INSTALLED TO PROTECT PEDESTRIAN TRAFFIC.

STREETS, TRAFFIC CONTROL

1. WHEN ANY STREET OR ANY SECTION OF A STREET IS CLOSED, THE CONTRACTOR SHALL FURNISH AND MAINTAIN ADEQUATE BARRICADES, WARNING AND DIRECTING SIGNS, RED FLAGS AND LIGHTS AT THE END OF EACH STREET AND AT ALL INTERSECTIONS ALONG THE STREET WITHIN THE LIMIT OF THE WORK AREA. ALL EXPENSE INCURRED FOR THE ABOVE REQUIREMENTS SHALL BE BORNE BY THE CONTRACTOR. ALL WARNING SIGNS AND BARRICADES SHALL CONFORM TO THE LATEST EDITION OF THE TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. CONTRACTOR TO NOTIFY PROPER AUTHORITIES PRIOR TO ANY STREET OR PARTIAL STREET CLOSING.

2. CONTRACTOR SHALL MAINTAIN AT LEAST ONE LANE OF TRAFFIC IN EACH DIRECTION DURING WORKING HOURS.

3. OFF-DUTY UNIFORMED POLICE OFFICER(S) ARE REQUIRED TO DIRECT TRAFFIC WHERE TRAFFIC LANES ARE BLOCKED.

4. CONTRACTOR SHALL MAINTAIN ACCESS TO ALL PROPERTIES AFFECTED BY THIS CONSTRUCTION BY MEANS OF ANCHORED STEEL PLATES, BY BACKFILLING IMMEDIATELY AFTER CONSTRUCTION, AND/OR BY PLACING SHELL OR LIMESTONE SURFACES FOR TEMPORARY DRIVEWAY PURPOSES. CONTRACTOR'S ATTENTION IS DIRECTED TO HS-20 LOAD RATED ACCESS REQUIREMENTS FOR ALL SUCH AREA.

5. CONTRACTOR IS RESPONSIBLE FOR PROVIDING BARRICADES, FLAGMEN, ETC. TO CONFORM TO SAFETY REQUIREMENTS FOR THE CITY OF HUNTSVILLE AND TEXAS DEPARTMENT OF TRANSPORTATION.

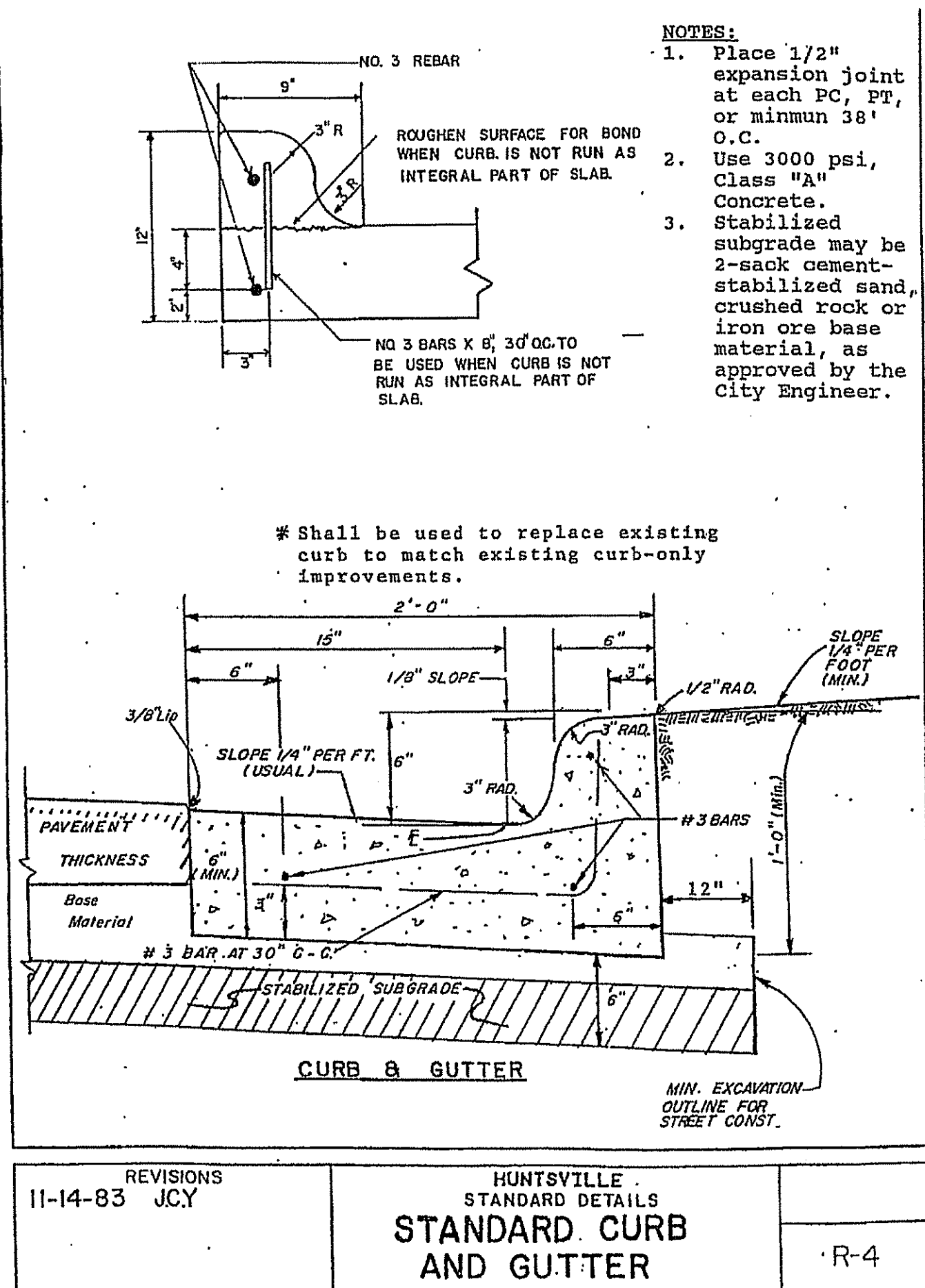
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GENERAL CONSTRUCTION NOTES (CONTINUED)

CONTRACTOR ADDITIONAL RESPONSIBILITIES

1. EXISTING PAVEMENTS, CURBS, SIDEWALKS AND DRIVEWAYS DAMAGED OR REMOVED DURING CONSTRUCTION SHALL BE REPLACED TO THE ORIGINAL OR BETTER CONDITIONS.

2. CONTRACTOR IS RESPONSIBLE FOR EXAMINING ALL EXISTING FENCES AND REPAIRING THEM EQUAL TO OR BETTER THAN THEIR EXISTING CONDITION. THE COST FOR REPAIRING OR RESETTling EXISTING FENCES AND FENCE POST SHALL BE INCLUDED IN THE OTHER ITEMS OF WORK IN THE PROJECT.

3. CONTRACTOR SHALL CLEAN AND DRESS UP EACH DAY'S WORK AREA PRIOR TO PROCEEDING WITH THE NEXT DAY'S WORK. ADEQUATE POSITIVE DRAINAGE SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION.

4. CONTRACTOR SHALL ADEQUATELY PROTECT EXISTING STRUCTURES, UTILITIES, TREES, SHRUBS AND OTHER PERMANENT OBJECTS.

5. TREES WITHIN THE STREET RIGHT-OF-WAY SHALL NOT BE REMOVED OR DISTURBED, EXCEPT WHERE CALLED OUT TO BE REMOVED. WHERE TREE ROOTS MUST BE CUT, FOLLOW THE REPAIR METHODS DESCRIBED IN THE SPECIFICATIONS AND/OR DETAILED ON PLAN SHEETS.

6. THE CONTRACTOR SHALL CONDUCT THEIR OPERATIONS IN A MANNER SUCH THAT TRUCKS AND OTHER VEHICLES DO NOT CREATE A DIRT NUISANCE OR SAFETY HAZARD IN ANY STREETS, PUBLIC OR PRIVATE. CLEAN UP OF STREETS SHALL BE PERFORMED DAILY.

7. ANY AREA OF GRASS, WHICH IS DISTURBED OR DUG UP DURING THE CONSTRUCTION, SHALL BE REPLACED WITH ST. AUGUSTINE SOD OR GRASS THAT MATCHES THE GRASS REMOVED, REFERENCE SPECIFICATIONS AND/OR PLANS.

8. EXISTING PAVEMENTS, CURBS, SIDEWALKS AND DRIVEWAYS AND LANDSCAPING DAMAGED OR REMOVED DURING CONSTRUCTION BY THE CONTRACTOR SHALL BE REPLACED BY THE CONTRACTOR AT THEIR EXPENSE.

9. ADEQUATE DRAINAGE SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION AND ANY DRAINAGE DITCH OR STRUCTURE DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO THE SATISFACTION OF THE OWNING AUTHORITY. ALL CONSTRUCTION STORM RUNOFF SHALL COMPLY WITH THE SWP3 DEVELOPED FOR THE SITE AND IN COMPLIANCE WITH THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) REQUIREMENTS.

10. EXISTING PAVEMENTS, CURBS, SIDEWALKS AND DRIVEWAYS DAMAGED OR REMOVED DURING CONSTRUCTION SHALL BE REPLACED TO THE ORIGINAL OR BETTER CONDITIONS.

11. CONDITION OF THE FACILITIES, UPON COMPLETION OF JOB, SHALL BE AS GOOD OR BETTER THAN THE CONDITION PRIOR TO STARTING WORK. THE CONTRACTOR SHALL RESTORE ALL GRADES AND LANDSCAPING TO PRECONSTRUCTION CONDITIONS AND RE-ESTABLISH TURF AREAS DAMAGED BY THE CONSTRUCTION ACTIVITIES.

12. ALL EXCESS DIRT FROM EXCAVATION SHALL BE DISPOSED OF OFFSITE BY CONTRACTOR AT NO EXTRA PAY.

13. CONTRACTOR SHALL REMOVE ALL TRASH, EXCESS MATERIAL, DEBRIS, ETC. FROM THE SITE UPON COMPLETION OF THE PROJECT PRIOR TO INSPECTION AND APPROVAL BY THE APPROVING AGENCIES.

14. CONTRACTOR SHALL PROVIDE THE CITY OF HUNTSVILLE ONE SET OF (RECORD) DRAWINGS.

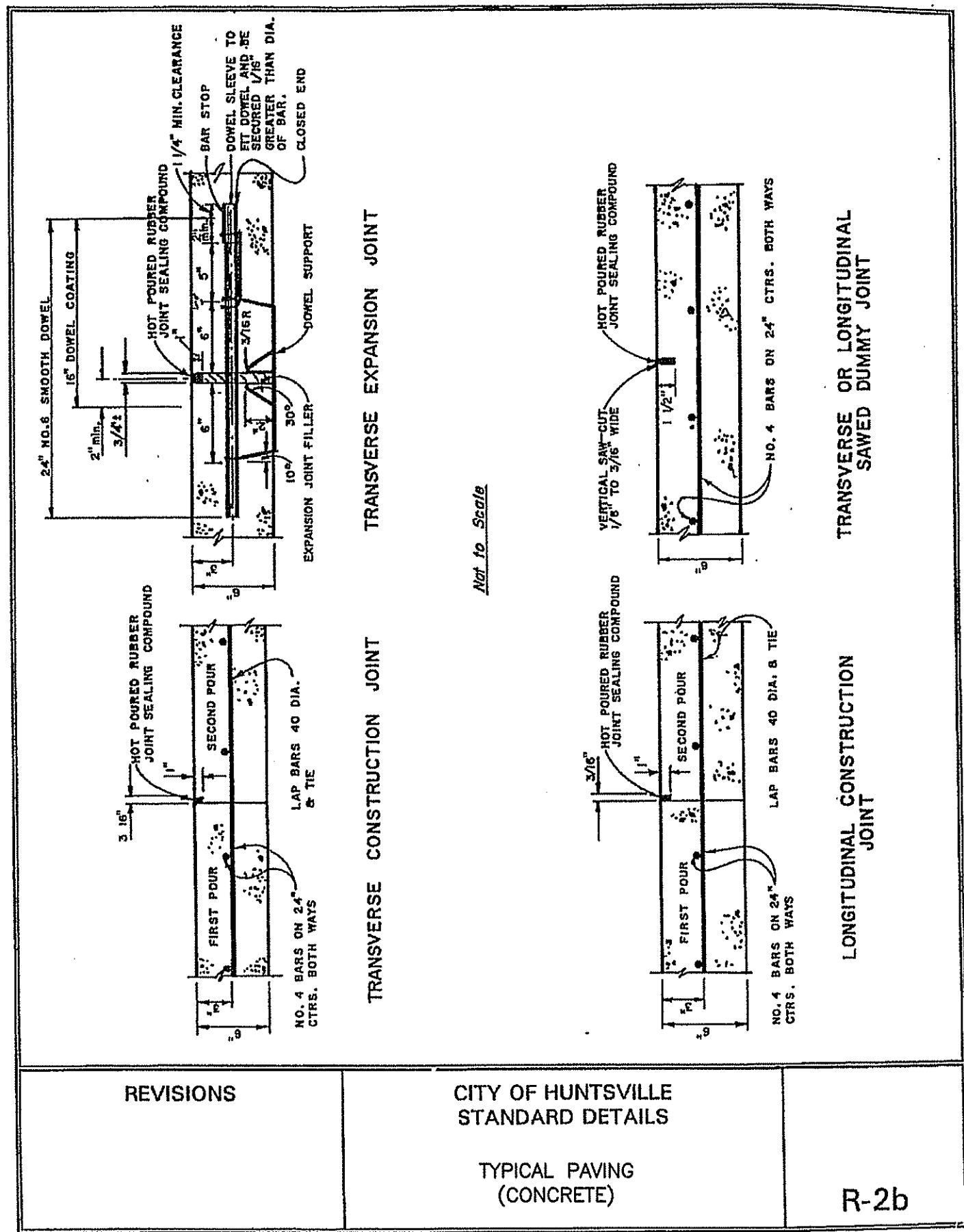
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STATE OF TEXAS
JEFFERY L. ROBERTSON
94745
LICENSED PROFESSIONAL ENGINEER

ISSUED FOR BIDDING AND CONSTRUCTION

DATE: 8/28/19 DRAWN BY: JDM
DESIGNED BY: JDM
CHECKED BY: JLR

REVISIONS

NO.	REVISION
1	Revised per City Comments 2016-06-25
2	Revised per Architect Review 2021-05-04
3	Revised per City Comment 2021-07-02

McCLURE & BROVARE
ENGINEERING & SURVEYING, INC.
Engineer Reg. No. 1-549 Survey Reg. No. 10033-00
1008 Woodcreek Dr., Suite 103
College Station, TX 77945 (979) 695-3838

General Construction & Paving Details

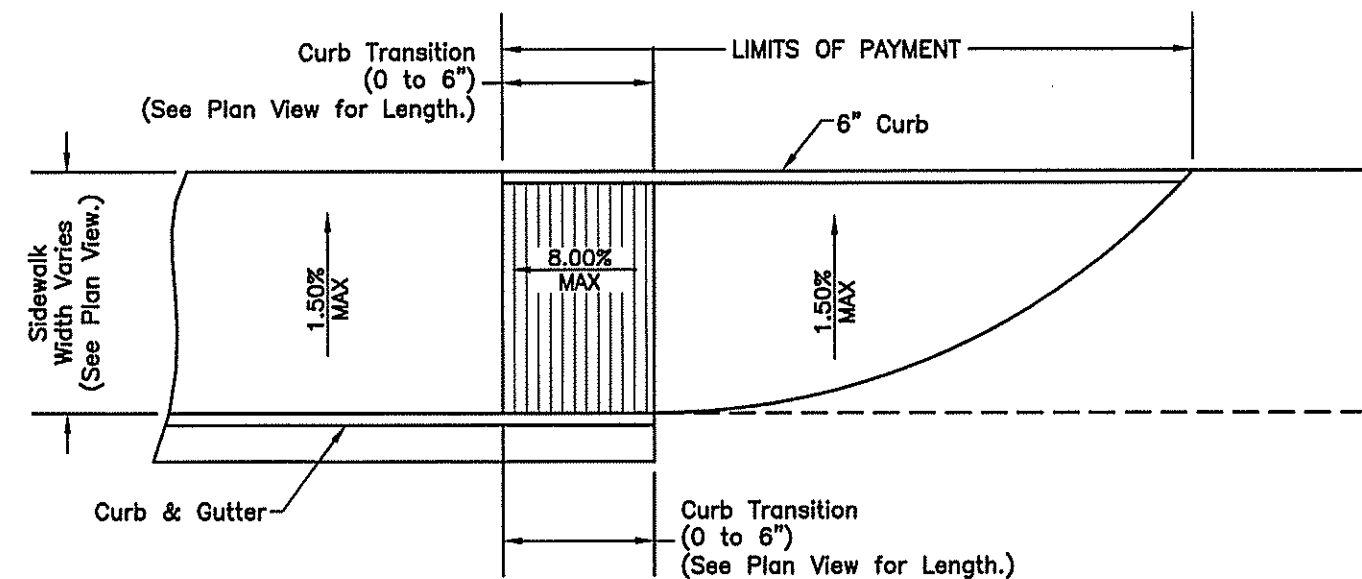
West Hill - NW Freeway

MBESI No. 1046-0028

SHEET NO.

C7.1

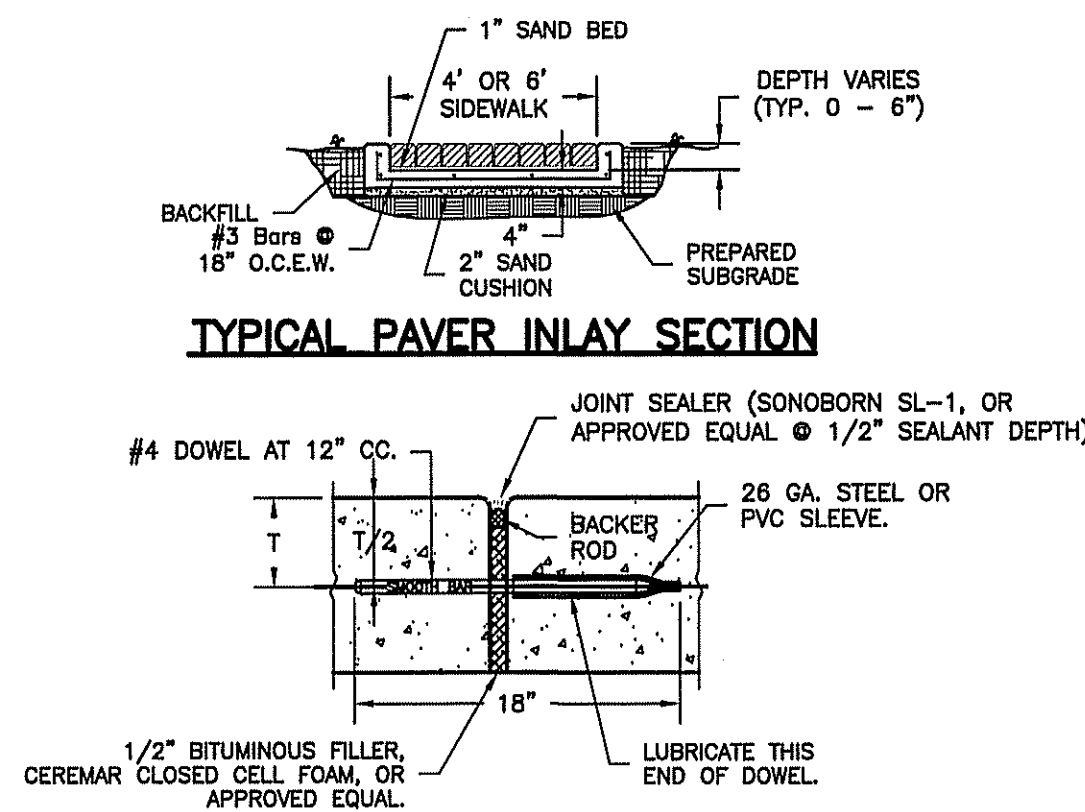
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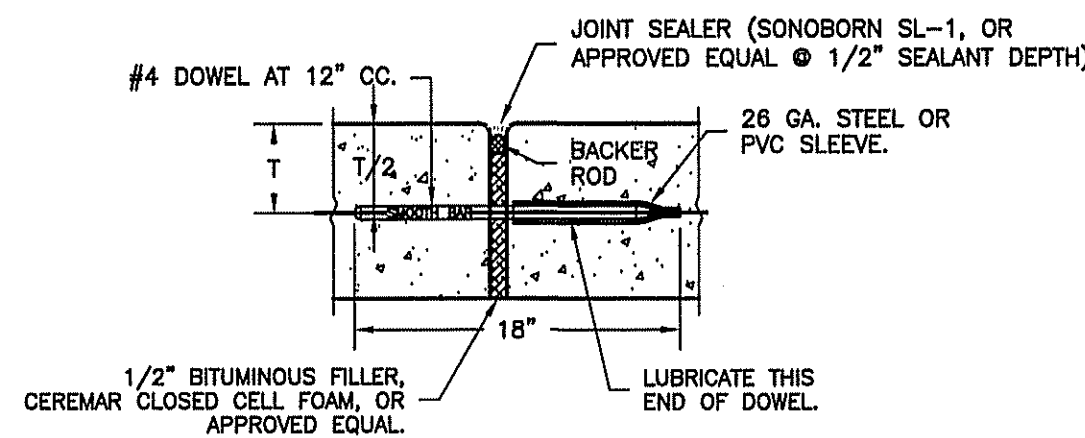
- NOTES:**
- Ramps shall be installed in accordance with Texas Accessibility Act (TAS) requirements.
 - Truncated domes shall be installed per manufacturer recommendations. The color shall be selected by Owner. Dome types shall be as follows:
New Construction: Armor-Tile Tactile Systems Cast in Place Tiles, or approved equal.
Rehab Construction: Armor-Tile Tactile Systems Surface Applied Tiles, or approved equal.
 - Ramp color shall be selected by Owner.
 - Ramp surfaces shall scored with a broom finish.
 - Ramps shall be doweled into curbs and adjacent sidewalks with #4 smooth dowels at 12" C.C.
 - Reinforcement size and spacing shall be the same as the sidewalk.

STANDARD SIDEWALK RAMP DETAILS

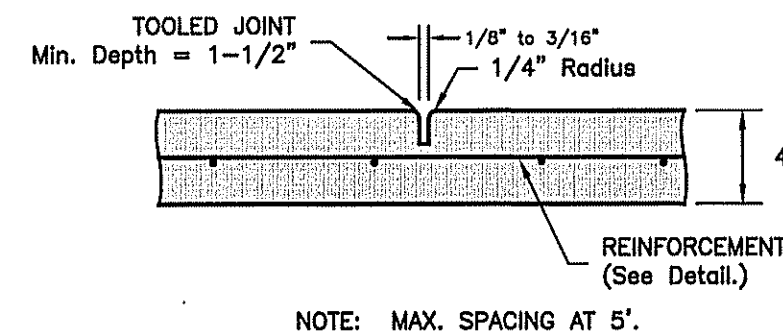
N.T.S.



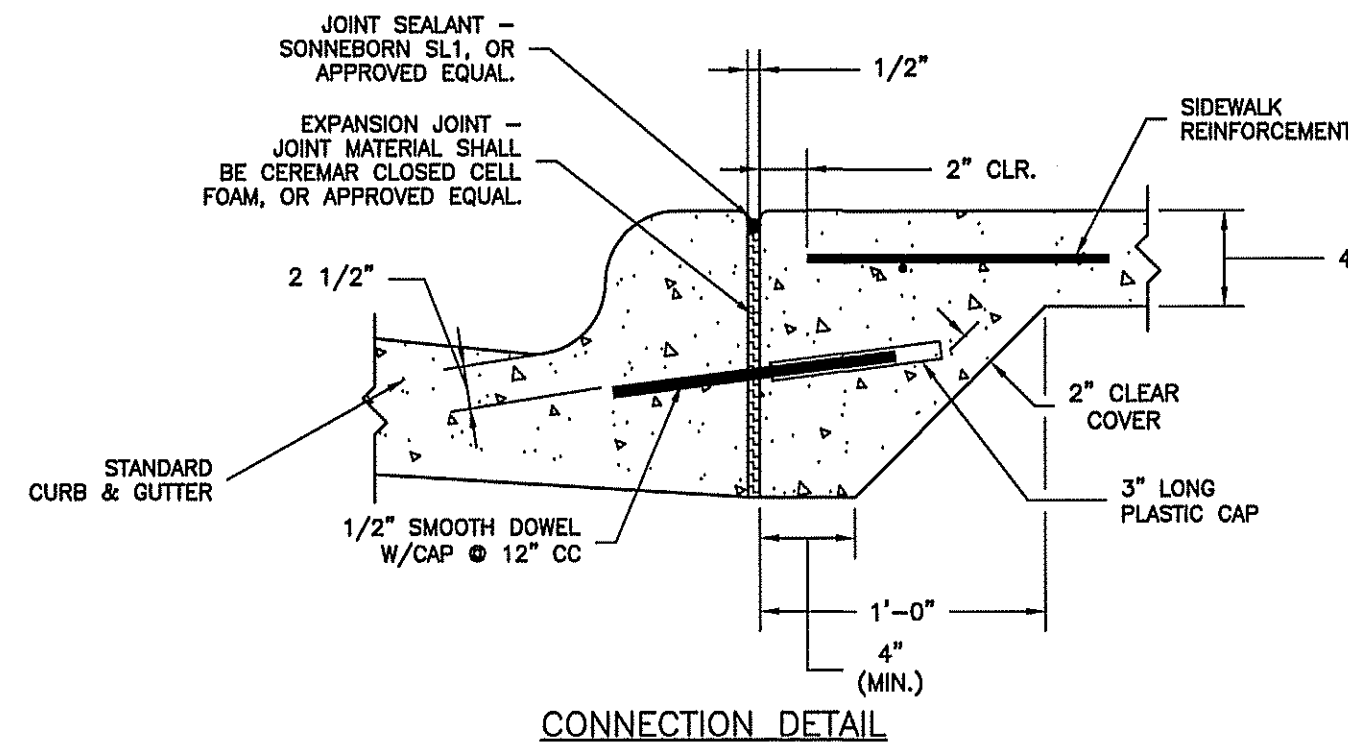
TYPICAL PAVER INLAY SECTION



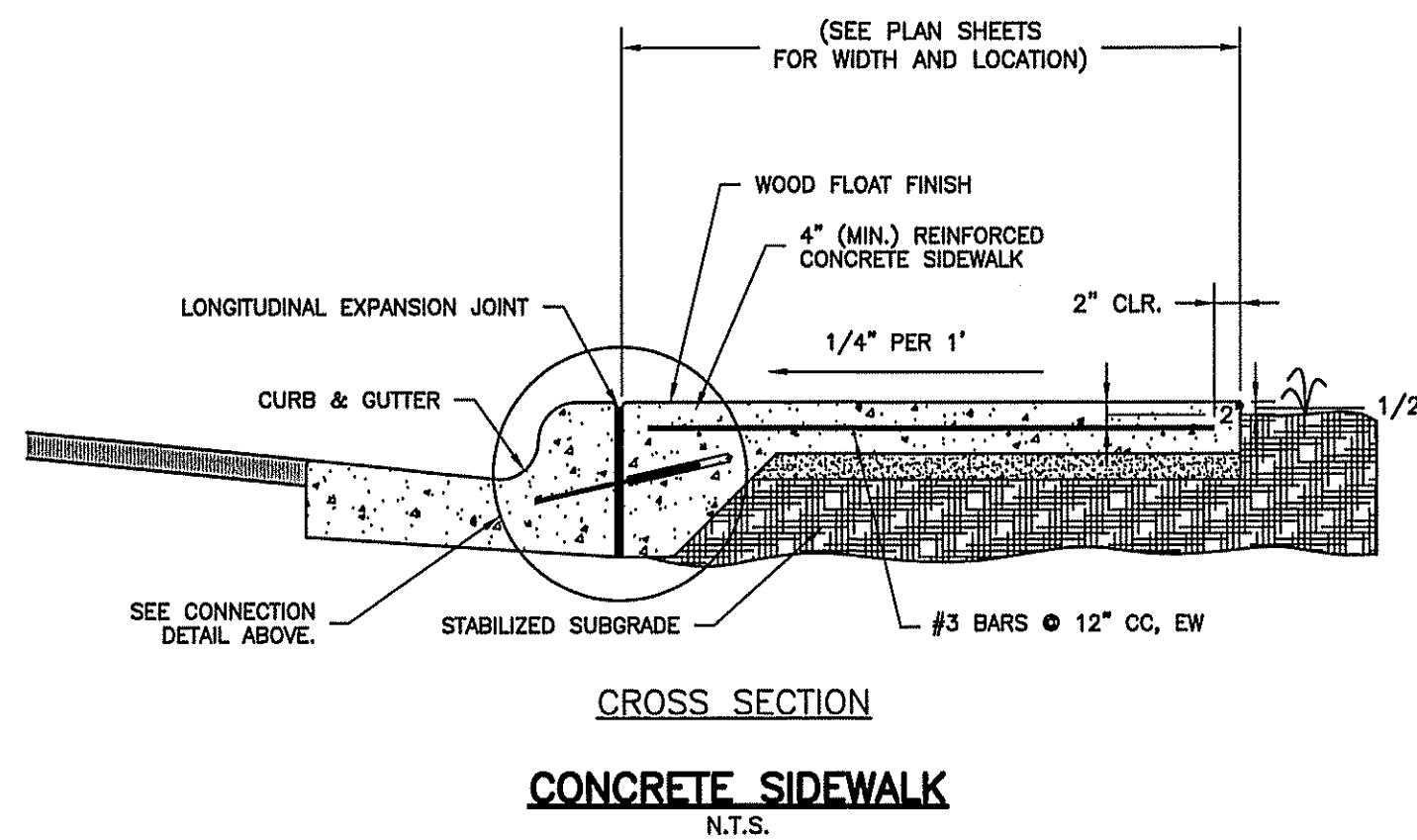
TYPICAL SIDEWALK EXPANSION JOINT



TYPICAL SIDEWALK CONTRACTION JOINT



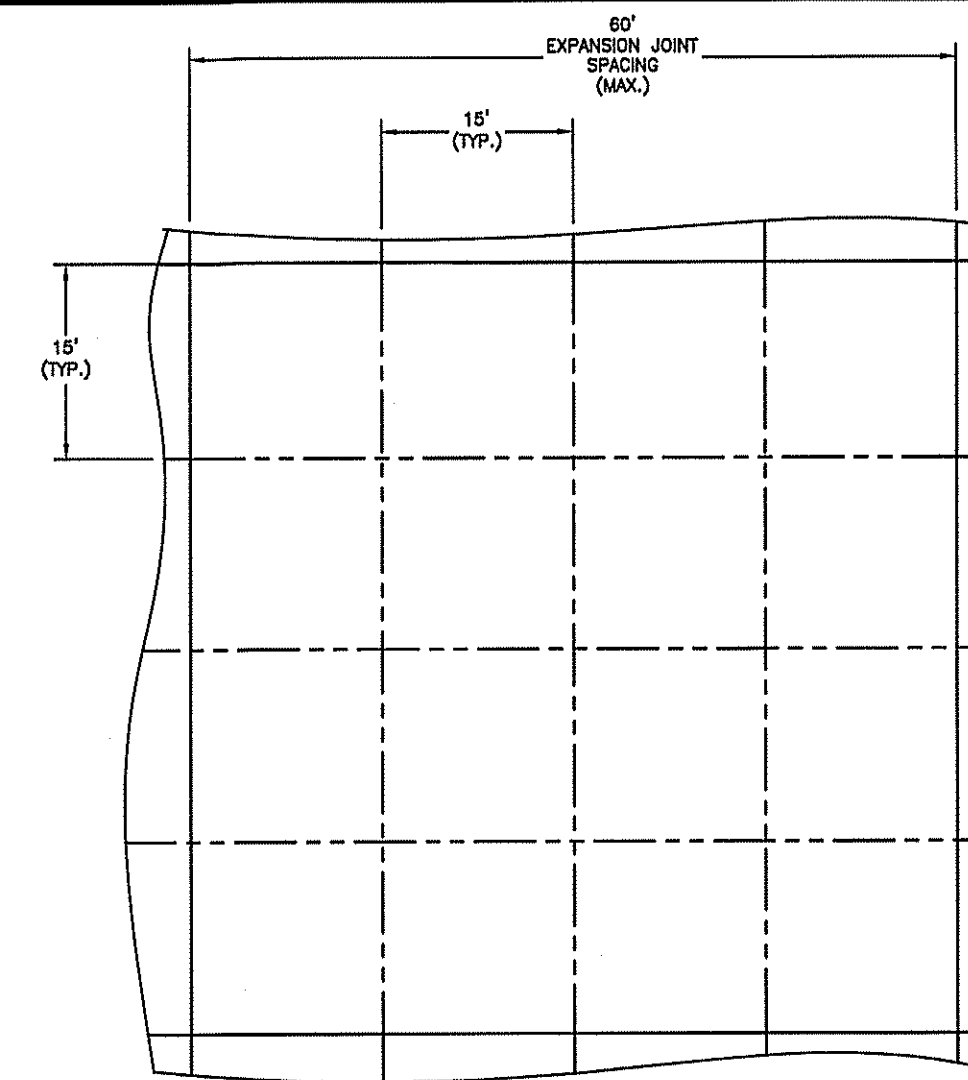
CONNECTION DETAIL



CROSS SECTION

CONCRETE SIDEWALK

N.T.S.

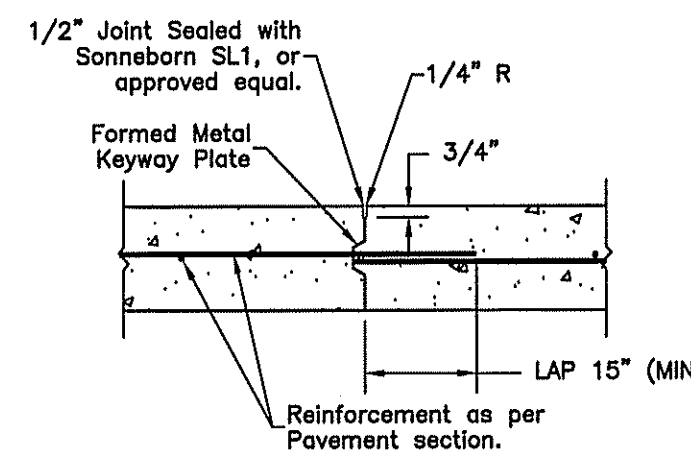


EXPANSION JOINT
KEYED CONSTRUCTION JOINT
OR SAW-CUT CONTRACTION JOINT

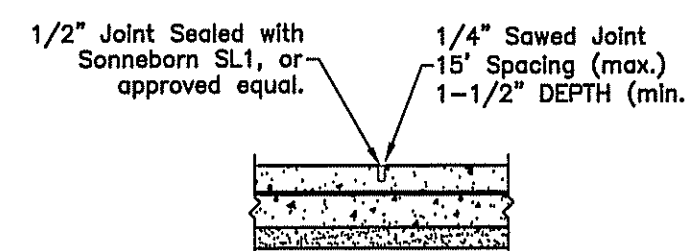
NOTE: SAW-CUT JOINTS SHALL BE INSTALLED WITHIN 24 HOURS OF PLACEMENT OF CONCRETE.

JOINT LAYOUT FOR CONCRETE PAVEMENT

SCALE: N.T.S.

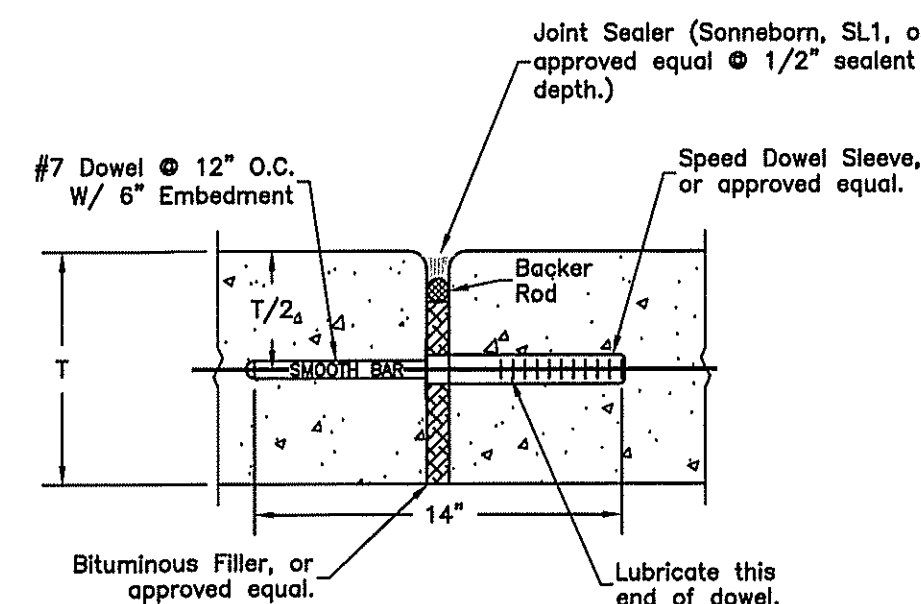


CONSTRUCTION JOINT - KEYED



- NOTES:**
- Saw-cut shall be installed within 24-Hrs. of placement of concrete.
 - Spacing shall be maximum of 15'.

CONTRACTION JOINT - SAWED

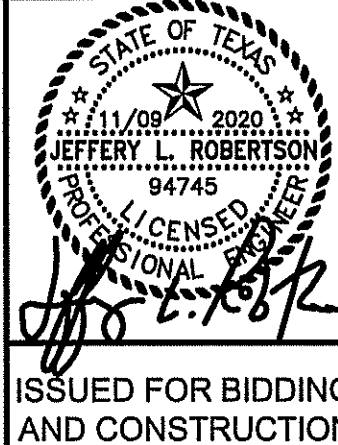


NOTE: 1. Spacing at 60' (max.).

TYP. EXPANSION JOINT FOR CONCRETE PAVEMENT

TYPICAL JOINTS FOR CONCRETE PAVEMENT

SCALE: N.T.S.



ISSUED FOR BIDDING AND CONSTRUCTION

DATE: 8/28/19 DRAWN BY: JDM
DESIGNED BY: JDM
CHECKED BY: JDM

REVISIONS

- | NO. | REVISION | DATE |
|-----|---|------------|
| 1 | Revised per City Comments 2019-05-25 | 2019-05-25 |
| 2 | Revised per Architect Review 2021-06-04 | 2021-06-04 |
| 3 | Revised per City Comment 2021-07-02 | 2021-07-02 |

McCLURE & BROVINE
ENGINEERS & SURVEYORS, INC.
Engineers Reg. No. 1-489 Survey Reg. No. 101033-010

1008 Woodcreek Dr., Suite 103
College Station, TX 77845 (979) 693-3638



General Construction
& Paving Details
West Hill - NW Freeway
MBES No. 1045-0028

SHEET NO.

C7.2

10450028-C7.2

1. ALIGNMENT, CENTERLINE CURVE DATA, AND STATIONING TO BE DETERMINED FROM APPROVED, RECORDED SUBDIVISION PLAT OR ROAD RIGHT-OF-WAY.

2. SEWER MAINS, MANHOLES AND LIFT STATIONS ARE TO BE DESIGNED, TO BE CONSTRUCTED AND TESTED IN ACCORDANCE WITH CITY OF HUNTSVILLE STANDARDS AND TCEQ TITLE 31 CHAPTER 317 OF THE TEXAS ADMINISTRATIVE CODE.

3. TAC 317.2 REQUIRES LOW-PRESSURE AIR TESTS TO CONFORM TO THE PROCEDURE DESCRIBED IN ASTM C928, C924, F-1417 OR OTHER APPROPRIATE PROCEDURES. FOR SAFETY REASONS, AIR TESTING OF SECTIONS OF PIPE SHALL BE LIMITED TO LINES LESS THAN 36-INCH AVERAGE INSIDE DIAMETER. LINES 36-INCH IN DIAMETER OR LARGER MAY BE AIR TESTED AT EACH JOINT.

4. DEFLECTION TESTING OF ALL FLEXIBLE AND SEMI-RIGID PIPE SHALL BE CONDUCTED AFTER THE FINAL BACKFILL HAS BEEN IN PLACE FOR AT LEAST 30 DAYS. NO PIPE SHALL EXCEED A DEFLECTION OF 2%. THE DEFLECTION TEST IS TO BE RUN USING A RIGID MANDEL AND SHALL HAVE A DIAMETER EQUAL TO 95% OF THE INSIDE DIAMETER OF THE PIPE. TEST SHALL BE PERFORMED WITHOUT MECHANICAL PULLING DEVICES. ALL TESTS TO BE WITNESSED AND APPROVED BY THE CITY OF HUNTSVILLE.

5. MAINTAIN 12-INCH MINIMUM CLEARANCE AT CROSSINGS BETWEEN ALL OTHER UTILITY LINES, STORM SEWERS, AND CULVERTS UNLESS OTHERWISE NOTED.

6. SEWER TRENCHES UNDER OR WITHIN THREE (3) FOOT OF PROPOSED OR FUTURE PAVEMENT TO BE BACKFILLED WITH CEMENT SAND (1.5 SACKS PER TON) BACKFILL AS SPECIFIED, TO WITHIN ONE (1) FOOT OF SUBGRADE. BEDDING WILL BE CLASS AA, WHERE CEMENT-SAND BACKFILL IS USED FOR SANITARY SEWERS. INCLUDE COST OF BACKFILL IN UNIT PRICE BID PER LINEAR FOOT OF PIPE. CLASS C GRAVEL REQUIRED WITH 6" BEDDING & 6" ABOVE/AROUND PIPE.

7. ALL PROPOSED GRAVITY SANITARY SEWER LINES WILL BE SDR 26 PVC PIPE AND EIGHT (8) INCH MINIMUM ID, UNLESS APPROVED OTHERWISE. DUCTILE IRON MAY BE USED, BUT MUST BE APPROVED BY THE CITY ENGINEER ON A CASE BY CASE BASIS.

8. BEDDING FOR ALL TYPES OF SANITARY SEWER PIPE SHALL BE CLASS C GRAVEL 6" BELOW, AROUND & ABOVE PIPE. ALL SEWER LINES TO BE INSPECTED BY THE CITY OF HUNTSVILLE PRIOR TO BACKFILL. ADDITIONAL BACKFILL SHALL BE SELECT BACKFILL COMPACTED IN 6" LIFTS.

9. FOR PVC PIPE, USE MANHOLE WATERSTOP GASKET AND CLAMP ASSEMBLY AT MANHOLE CONNECTIONS (NO SEPARATE PAY).

10. SANITARY SEWER MANHOLES SHALL BE PRECAST OR POURED IN PLACE MONOLITHIC CONCRETE AND BACKFILLED WITH CEMENT- SAND AS SPECIFIED (NO SEPARATE PAY). MANHOLES WILL BE EXHAUSTION TESTED AS SPECIFIED BY THE CITY OF HUNTSVILLE.

11. ALL FAR-SIDE LEADS SHALL BE FOUR (4) INCHES OR SIX (6) INCHES AT 1.0% MIN. SLOPE. SIX (6) INCH ABS WILL NOT BE ACCEPTABLE. ALL FAR SIDE LEADS (OPEN-CUT OR BORED AND JACKED) SHALL BE DUCTILE IRON, 150 PSI THICKNESS CLASS 50, PVC, DR-18, SDR 26, OR SCHEDULE 40 (PLUMBING REQUIRES SCHEDULE 40).

12. ALL PRECAST CONCRETE AND POURED-IN-PLACE CONCRETE MANHOLES SHALL HAVE THE TOP EIGHTEEN (18) INCHES CONSTRUCTED OF PRECAST RINGS AND TO EXTEND THREE (3) TO SIX (6)" ABOVE NATURAL GRADE.

13. THE INTERIOR OF ALL MANHOLES SHALL HAVE A PROTECTIVE COATING. THIS COATING SHALL BE AS DESCRIBED BELOW OR BE AN ALTERNATE COATING PROVIDING THE SAME OR BETTER LEVEL OF PROTECTION, AS APPROVED BY THE CITY ENGINEER. THE INTERIOR MANHOLE COATING SYSTEM SHALL CONSIST OF A HEAVY COAT OF A HEAVY COAT OF A MODIFIED POLYAMINE EPOXY (TNEPEC SERIES 435 PERMA-GLAZE OR ACCEPTED EQUIVALENT) APPLIED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. MINIMUM TOTAL DRY FILM THICKNESS SHALL BE 15 MILS. THE EXTERNAL MANHOLE COATING SHALL CONSIST OF A BITUMINOUS COATING.

14. STUBS OR LEADS SERVING TWO LOTS SHALL HAVE A MINIMUM 6" SERVICE WYE AND CLEANOUT WITH PLUGS (NO SEPARATE PAY). THE WYE SHALL BE LOCATED WITHIN THE STREET RIGHT-OF-WAY OR AN ADJOINING UTILITY EASEMENT. THE 6" SERVICE LINE WITH A 6" DUAL 4" WYE SHALL HAVE A 6" CLEANOUT.

15. STACKS SERVING NEAR-SIDE AND FAR-SIDE LOTS SHALL HAVE A SERVICE WYE AND CLEANOUTS WITH PLUGS FOR THE NEAR-SIDE LOT (NO SEPARATE PAY).

16. ALL DUCTILE IRON PIPE & FITTINGS SHALL BE 150 PSI THICKNESS CLASS 50 WITH EIGHT (8) MIL BLACK VIRGIN POLYETHYLENE WRAP AS SPECIFIED. ALL PVC PIPE SHALL HAVE RUBBER GASKET JOINTS.

17. MANHOLE RIMS IN NONPAVED AREAS ARE TO BE SET AT THE ELEVATIONS SHOWN ON THE PLANS INITIALLY, AFTER PAVING AND GRADING IS COMPLETE. RIMS ARE TO BE ADJUSTED TO THREE (3) TO SIX (6) INCHES ABOVE FINAL GRADE AND BLACK DRESS DIRT TO PROVIDE DRAINAGE AWAY FROM MANHOLE.

18. ALL PVC PIPE SHALL HAVE RUBBER GASKET EQUIPPED BELL AND SPIGOT JOINTS. SOLVENT WELDED JOINTS WILL NOT BE APPROVED FOR THIS PROJECT.


19. ALL GRADE CHANGES AT MANHOLES IN EXCESS OF 2-FEET SHALL BE ACCOMPLISHED WITH DROP MANHOLE CONNECTIONS, REFERENCE CITY DETAILS.

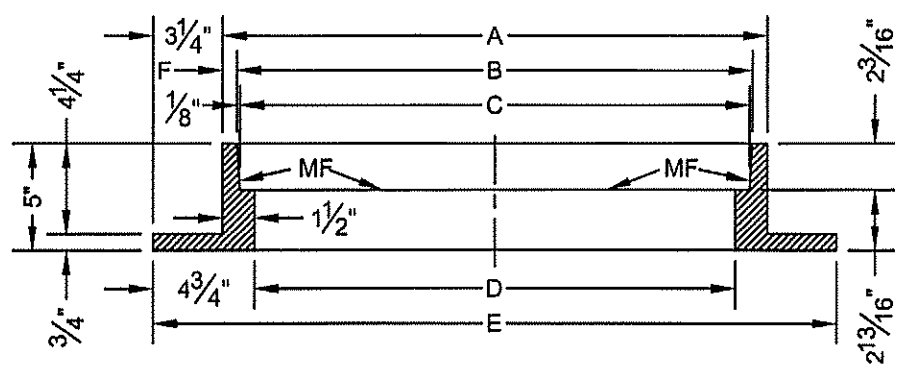
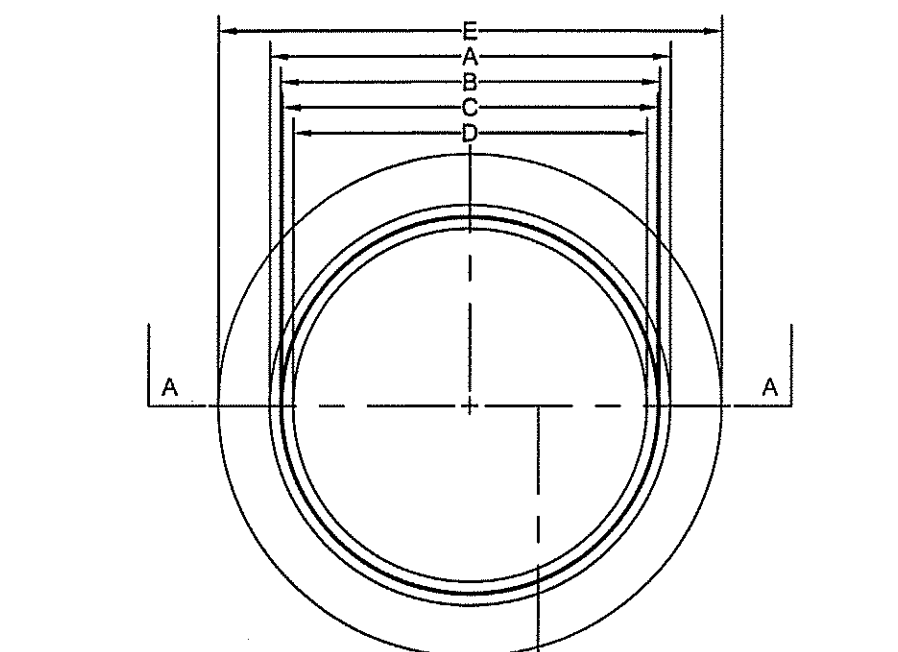
20. THE UTILITY CONTRACTOR IS RESPONSIBLE FOR LOCATING AND MARKING -ALL STACKS AND FAR-SIDE LEADS AFTER THE PAVING IN THIS SECTION IS COMPLETE.

21. A 1/4-INCH DEEP NOTCH SHALL BE CUT IN THE CURB AND PAINTED WITH A RED LINE ADJACENT TO THE STACK OR LEAD.

22. IF STAKES ARE LEFT IN THE GROUND AT THE STACKS AND LEADS AFTER CONSTRUCTION OF UTILITIES, THEN AN EFFORT WILL BE MADE TO PRESERVE THEM DURING PAVING CONSTRUCTION. HOWEVER, IF THESE STAKES ARE KNOCKED OUT FOR ANY REASON, THE UTILITY CONTRACTOR REMAINS RESPONSIBLE FOR LOCATING AND MARKING THE FACILITIES AS DESCRIBED ABOVE.

23. CONTRACTOR SHALL PROVIDE THE CITY OF HUNTSVILLE ONE SET OF (RECORD) DRAWINGS.

ENGINEERING DEPARTMENT		CITY OF HUNTSVILLE STANDARD DETAILS				
CITY OF HUNTSVILLE, TEXAS		SANITARY SEWER CONSTRUCTION NOTES				
NAME: SS CONSTRUCTION NOTES	 City Service Center 448 State Highway 75 Huntsville, TX 77320	REV#	ISSUER	DATE	APPROVER	SHEET
DRAWN DATE: 11/07/2016		0	MAM	07/10/2018		1 OF 1
DRAWN BY: WLSIII		1	MAM	08/02/2019	RAM	
SCALE: N.T.S.		2	MAM	09/30/2019	RAM	SS-01
APPROVED BY: YSR		3	MAM	03/17/2021	RAM	



NOTES:

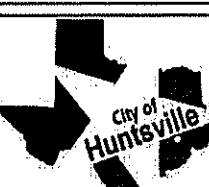
1. MATCHING SURFACES MARKED "MF" TO BE FINISHED OF ANY IRREGULARITIES THAT WOULD PREVENT A SNUG FIT.

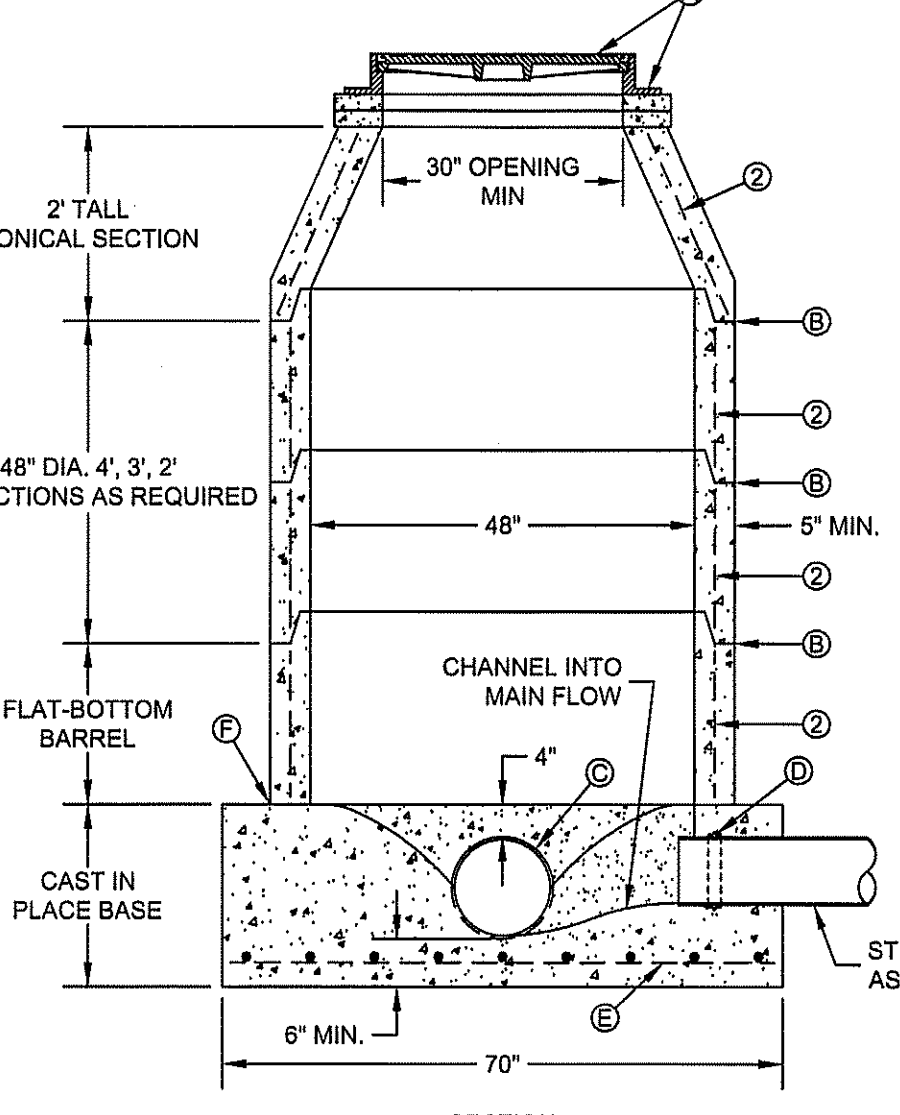
2. CASTING TO BE SMOOTH & VOID OF AIR HOLES.

3. CASTING MUST MEET REQUIREMENTS OF AASHTO M306-07.

4. AS-CAST DIMENSIONS MAY VARY 1/8"± PER FOOT (AASH TO M306-07).

5. WEIGHT MAY VARY 5%± (AASH TO M306-07).

DEPARTMENT OF ENGINEERING & MAPPING/ENGINEERING DIVISION		CITY OF HUNTSVILLE STANDARD DETAILS				
CITY OF HUNTSVILLE, TEXAS		MANHOLE RING				
NAME: MANHOLE RING	 City Service Center 448 State Highway 75 Huntsville, TX 77320	REV#	ISSUER	DATE	APPROVER	SHEET
CATEGORY: SEWER		0	MAM	08/10/2018		1 OF 1
DRAWN DATE: 11/02/2016						
DRAWN BY: WLSIII						SS-11
SCALE: N.T.S.						
APPROVED BY: YSR						



CONSTRUCTION KEY NOTES:

A. MANHOLE RING AND COVER. SET FRAME AND COVER FLUSH WITH ROADWAY SURFACE OR FINISHED GRADE.

B. ALL JOINTS TO BE TONGUE, GROOVE AND SEALED WITH RAM-NEK OR APPROVED EQUAL.

C. ON MAINLINE, PIPE IS TO BE LAID THRU AND UPPER HALF CUT OUT.

D. PIPE GASKET.

E. NO. 4 REBARS 8" ON CENTER, BOTH WAYS.

F. SEAL ALL AROUND WITH RAM-NEK OR APPROVED EQUAL.

NOTES:

1. MANHOLE TYPE "A1" SHALL BE USED FOR LINES 21" AND SMALLER, NOT TO BE USED IN GROUNDWATER CONDITIONS.

2. PRE-CAST MANHOLE SECTIONS SHALL BE OF REINFORCED CONCRETE CONFORMING TO ASTM C-478 AND SHALL MEET HS-20 LOADING.


3. CEMENT SHALL BE TYPE I-II, PER ASTM C-150, AND MUST CONTAIN A MINIMUM OF 4% FLY ASH OF THE TOTAL MANHOLE WEIGHT.

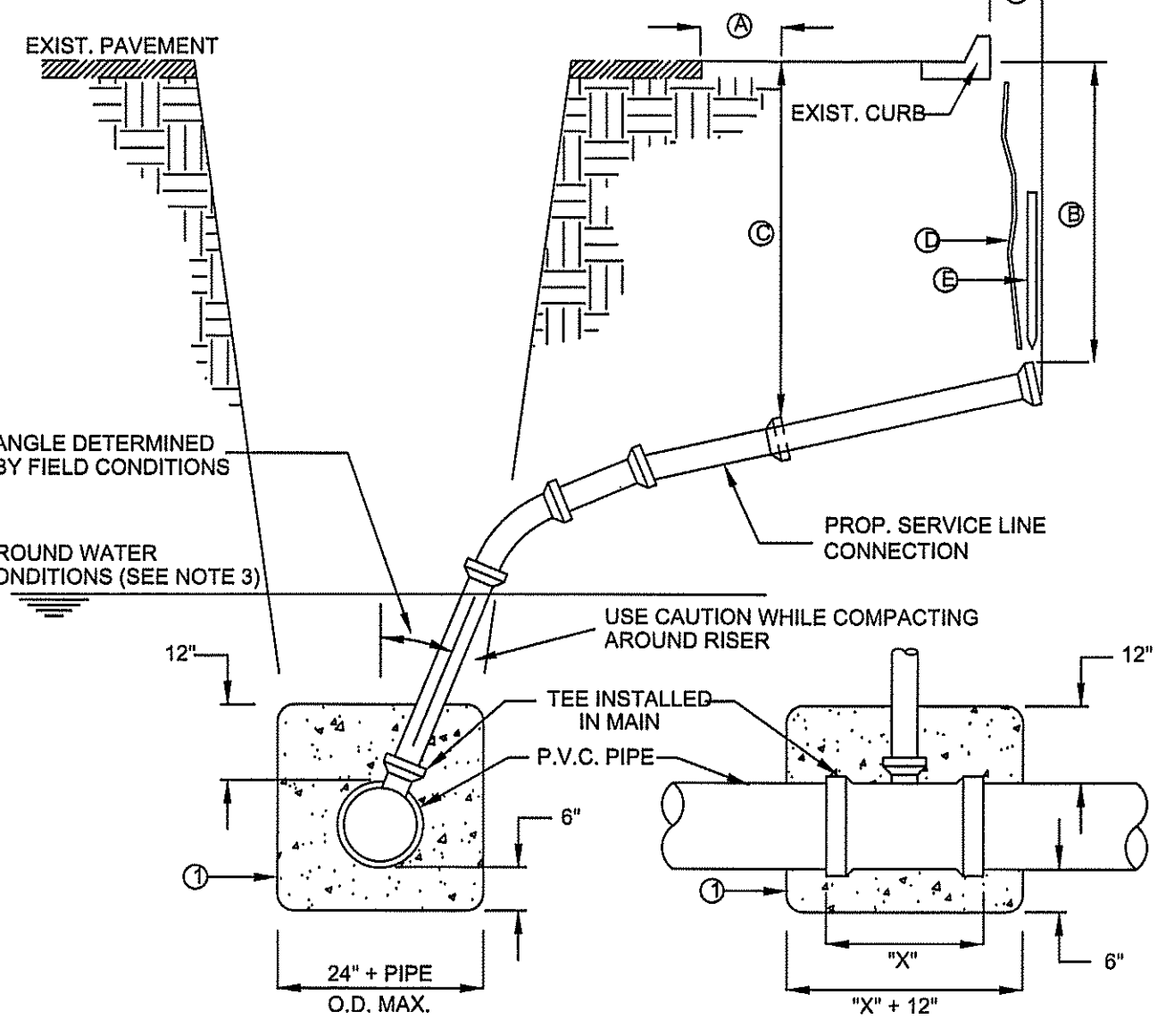
4. THE BASE SHALL BE CAST IN PLACE CONCRETE (MINIMUM 28 DAY COMPRESSIVE STRENGTH 4000 PSI.) POURED ON UNDISTURBED OR THOROUGHLY COMPACTED SUB-BASE.

5. MANUFACTURER TO PROVIDE LIFTERS OF ADEQUATE SIZE AS NEEDED.

6. THE SUBGRADE UNDER THE BASE SHALL BE COMPACTED TO 95% DENSITY IN ACCORDANCE WITH ASTM D-1557.

7. THE INTERIOR MANHOLE COATING SHALL CONSIST OF A HEAVY COAT MODIFIED POLYAMINE EPOXY (TNEPEC SERIES 435 PERMA-GLAZE OR ACCEPTED EQUIVALENT) APPLIED IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. MINIMUM TOTAL DRY FILM THICKNESS FOR 4" DIAMETER MANHOLE SHALL BE 15 MILS. MINIMUM TOTAL DRY FILM THICKNESS FOR WET WELLS SHALL BE 60 MILS.

DEPARTMENT OF ENGINEERING & MAPPING/ENGINEERING DIVISION		CITY OF HUNTSVILLE STANDARD DETAILS				
CITY OF HUNTSVILLE, TEXAS		MANHOLE TYPE "A1"				
NAME: MANHOLE TYPE "A1"	 City Service Center 448 State Highway 75 Huntsville, TX 77320	REV#	ISSUER	DATE	APPROVER	SHEET
CATEGORY: SEWER		0	MAM	08/10/2018		1 OF 1
DRAWN DATE: 11/02/2016						
DRAWN BY: WLSIII						SS-03
SCALE: N.T.S.						
APPROVED BY: YSR						



CONSTRUCTION KEY NOTES:

A. CONTRACTOR TO INSTALL SEWER SERVICE LINE FROM THE MAIN TO A LOCATION 6" BEHIND THE CURB OR 18" BEYOND THE EDGE OF PAYMENT, UNLESS CONDITIONS REQUIRE OTHERWISE.

B. 18" FOR STANDARD SUBDIVISION, 3.5' FOR SUBDIVISIONS WITH ON-SITE PONDING OR FLAT TERRAIN.

C. RISERS OR LATERALS EXTENDING BEYOND EXISTING PAVING SHALL BE INSTALLED TO 3.5' MINIMUM TOP OF GROUND OR PAVEMENT, UNLESS CONDITIONS REQUIRE OTHERWISE.

D. PLASTIC METALLIC MARKING TAPE RISING TO WITHIN 6" OF GROUND SURFACE OR METALLIC DISK.

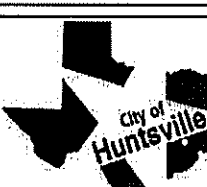
E. WOODEN STAKE (1"x2"x36") VERTICALLY PLACED AT PLUGGED END OF PROPOSED SERVICE LINE.

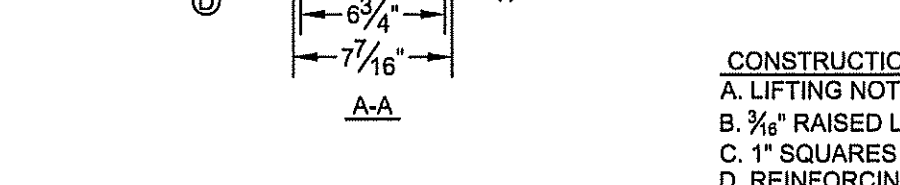
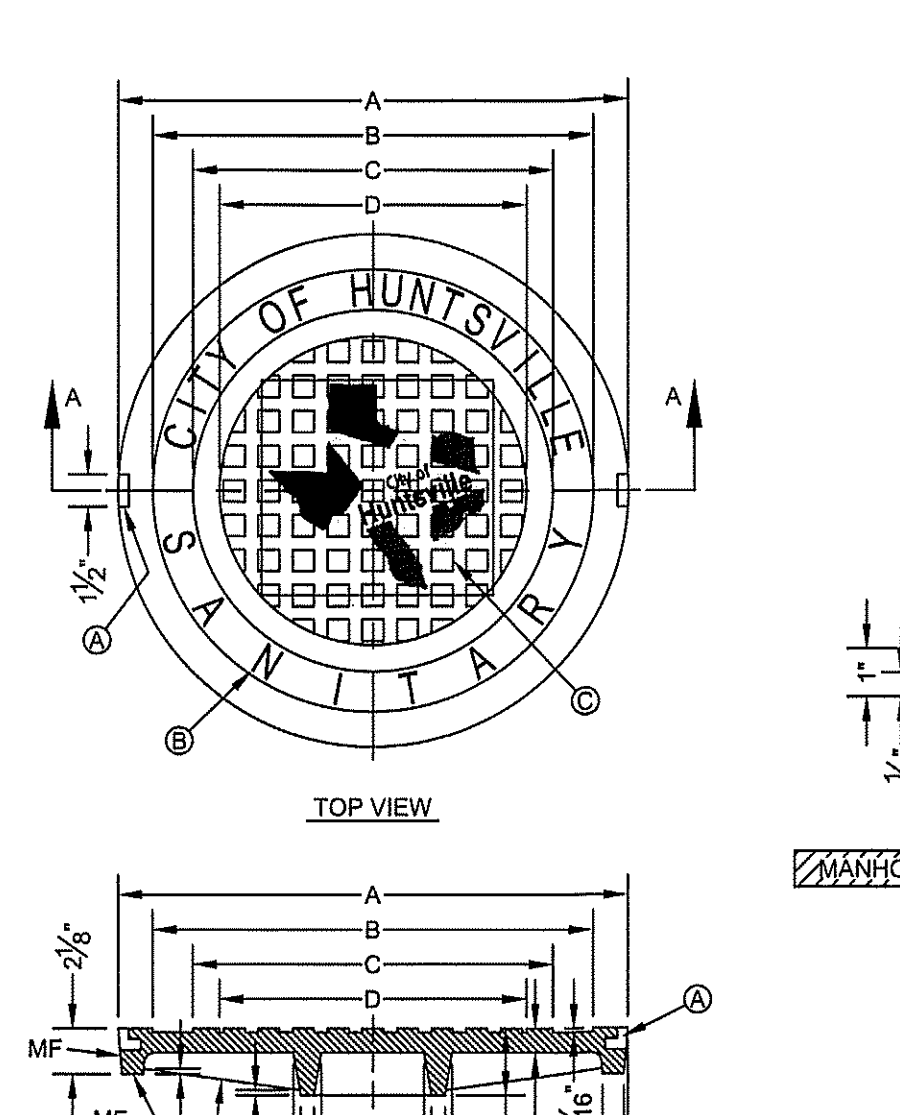
NOTES:

1. IN GROUNDWATER CONDITIONS ONLY, P.V.C. SADDLES OR TEES ARE TO BE ENCASED WITH CLASS B CONCRETE.

2. UNDER CERTAIN CONDITIONS FIELD INVESTIGATIONS WILL BE REQUIRED TO DETERMINE THE ADEQUACY OF THE DEPTH ON THE LATERAL.

3. WHEN GROUND WATER IS ENCOUNTERED SERVICE RISER SHALL BE EXTENDED ABOVE ANTICIPATE WATER TABLE LEVEL.

DEPARTMENT OF ENGINEERING & MAPPING/ENGINEERING DIVISION		CITY OF HUNTSVILLE STANDARD DETAILS				
CITY OF HUNTSVILLE, TEXAS		SEWER SERVICE RISER AND SERVICE LINE CONNECTION				
NAME: SERVICE RISER AND LINE	 City Service Center 448 State Highway 75 Huntsville, TX 77320	REV#	ISSUER	DATE	APPROVER	SHEET
CATEGORY: SEWER		0	MAM	07/10/2018		1 OF 1
DRAWN DATE: 11/02/2016						
DRAWN BY: WLSIII						SS-15
SCALE: N.T.S.						
APPROVED BY: YSR						



CONSTRUCTION KEY NOTES:

A. LIFTING NOTCH.

B. 3/4" RAISED LETTERING.

C. 1" SQUARES (3/4" TALL) WITH 3/8" SPACE BETWEEN.

D. REINFORCING RIBS.

E. SLOT.

NOTES:


1. MATCHING SURFACES MARKED "MF" TO BE FINISHED OF ANY IRREGULARITIES THAT WOULD PREVENT A SNUG FIT.

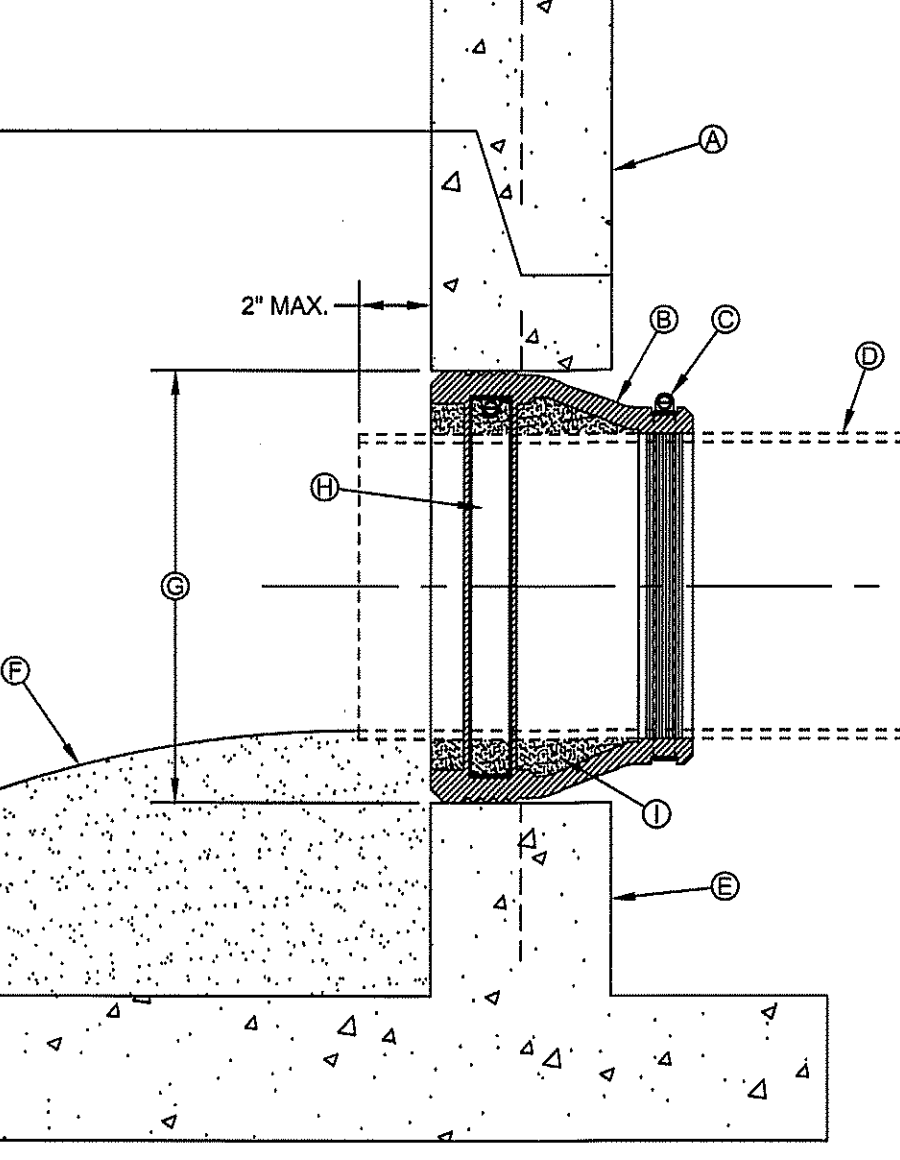
2. CASTING TO BE SMOOTH & VOID OF AIR HOLES.

3. CASTING MUST MEET REQUIREMENTS OF AASHTO M306-07.

4. AS-CAST DIMENSIONS MAY VARY 1/8"± PER FOOT (AASHTO M306-07).

5. WEIGHT MAY VARY 5%± (AASHTO M306-07).

DEPARTMENT OF ENGINEERING & MAPPING/ENGINEERING DIVISION		CITY OF HUNTSVILLE STANDARD DETAILS				
CITY OF HUNTSVILLE, TEXAS		SEWER MANHOLE COVER				
NAME: MANHOLE COVER	 City Service Center 448 State Highway 75 Huntsville, TX 77320	REV#	ISSUER	DATE	APPROVER	SHEET
CATEGORY: SEWER		0	MAM	08/10/2018		1 OF 1
DRAWN DATE: 11/02/2016						
DRAWN BY: WLSIII						SS-10
SCALE: N.T.S.						
APPROVED BY: YSR						



CONSTRUCTION KEY NOTES:

A. PRECAST MANHOLE BARREL.

B. FLEXIBLE CONNECTOR.

C. PIPE CLAMP SS 316.

D. APPROVED PIPE.

E. PRECAST MANHOLE BASE.

F. GROUT AS REQUIRED TO FORM SMOOTH CHANNEL TO MANHOLE INVERT.

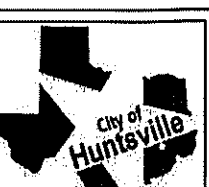
G. PIPE OPENINGS/KNOCKOUTS AS REQUIRED TO FIT PIPE SIZE.

H. EXPANSION BAND SS 316.

I. FILL SPACE WITH GROUT.

NOTES:

1. MANHOLE CONNECTOR SHALL BE KOR-N-SEAL OR EQUAL MEETING THE REQUIREMENTS OF ASTM C-923. CONNECTOR SHALL BE FURNISHED BY CONTRACTOR.

DEPARTMENT OF ENGINEERING & MAPPING/ENGINEERING DIVISION		CITY OF HUNTSVILLE STANDARD DETAILS				
CITY OF HUNTSVILLE, TEXAS		PIPE CONNECTION TO MANHOLE				
NAME: PIPE CONNECT TO MANHOLE	 City Service Center 448 State Highway 75 Huntsville, TX 77320	REV#	ISSUER	DATE	APPROVER	SHEET
CATEGORY: SEWER		0	MAM	07/10/2018		1 OF 1
DRAWN DATE: 11/02/2016						
DRAWN BY: WLSIII						SS-26
SCALE: N.T.S.						
APPROVED BY: YSR						

STATE OF TEXAS
11/07/2016
JEFFERY L. ROBERTSON
94745
REGISTERED PROFESSIONAL ENGINEER
ISSUED FOR BIDDING AND CONSTRUCTION
DATE: 8/29/19 DRAWN BY: JDM
DESIGNED BY: JDM
CHECKED BY: JDM

REVISIONS

NO.	DESCRIPTION	DATE
1	Revised per City Comments 2019-06-25	
2	Revised per Architect Review 2021-08-04	
3	Revised per City Comment 2021-07-02	

McCLURE & BROVINE
ENGINEERING & SURVEYING, INC.
Engineer Reg. No. F-465 Survey Reg. No. 01033-010
1008 Woodcreek Dr., Suite 103
College Station, TX 77840 (979) 695-3858

Sanitary Sewer
Construction Details
West Hill - NW Freeway
MBES No. 104E-0028

SHEET NO.

C7.3

1048028-C7.3

WATERLINE CONSTRUCTION NOTES

1. ALL WATERLINE CONSTRUCTION TO BE ACCOMPLISHED IN ACCORDANCE WITH THE LATEST EDITION OF THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS AS CODIFIED UNDER TITLE 30 TEXAS ADMINISTRATIVE CODE (30 TAC), CHAPTER 290.

2. ALL WATERLINES TO BE LOCATED INSIDE PUBLIC ROAD RIGHTS-OF-WAYS AND PUBLIC EASEMENTS. CITY REPRESENTATIVE TO INSPECT & APPROVE PRIOR TO BACKFILL.

3. ALL WATER MAINS 4" TO 16" SHALL BE C-909 (DR-18) AND ALL WATER MAINS 20" TO 24" SHALL BE C-900 (DR-18).

4. TWELVE (12) INCH OR SMALLER WATERMAINS TO HAVE A MINIMUM COVER OF FOUR (4) FEET. VARY FLOW LINE UNIFORMLY FROM DEPTH AND LOCATION SHOWN IN PLANS.

5. WATERLINE FITTINGS TO BE CAST OR DUCTILE IRON WITH POLYETHYLENE WRAP AS SPECIFIED UNLESS OTHERWISE NOTED.

6. MAINTAIN 12-INCH MINIMUM CLEARANCE AT CROSSINGS BETWEEN ALL WATERLINES AND ALL UTILITIES INCLUDING STORM SEWERS AND CULVERTS UNLESS OTHERWISE NOTED.

7. WATERLINES SHALL BE BEDDED AS SHOWN IN THE CITY OF HUNTSVILLE DETAILS. ALL WATER LINES TO BE INSPECTED BY CITY OF HUNTSVILLE DETAILS.

8. WATERLINE TRENCHES UNDER OR WITHIN THREE (3) FEET OF PROPOSED OR FUTURE PAVEMENT SHALL BE BACKFILLED PER THE CITY OF HUNTSVILLE DETAILS.

9. ALL 2" THRU 12" GATE VALVES FOR THIS PROJECT SHALL BE IN ACCORDANCE WITH AWWA C509 AND BE MANUFACTURED BY MUELLER, AMERICAN-DARLING, OR APPROVED EQUAL RESILIENT SEAT GATE VALVES AND SHALL OPEN IN A COUNTER CLOCKWISE DIRECTION ONLY. VALVES ON ALL TAPPING SLEEVES ARE TO BE OF THE SAME TYPE.

10. VALVES TO BE LOCATED OPPOSITE PROPERTY CORNER WHERE APPROPRIATE.

11. ALL VALVE BOXES SHALL BE ADJUSTED TO FINISHED GRADE AFTER PAVING IS COMPLETE.

12. ALL FIRE HYDRANTS SHALL BE MANUFACTURED BY MUELLER OR AMERICAN-DARLING. EQUIP EACH FIRE HYDRANT WITH TWO (2) TWO AND ONE-HALF (2 1/2) INCH NOMINAL INSIDE DIAMETER HOSE NOZZLES AND ONE (1) FOUR AND ONE-HALF (4 1/2) INCH NOMINAL INSIDE DIAMETER PUMPER NOZZLES WITH NATIONAL STANDARD THREADS ON EACH NOZZLE.

13. CONTRACTOR SHALL PROVIDE ADEQUATE THRUST BLOCKING TO WITHSTAND TEST PRESSURES SPECIFIED BY THE TCEQ AND THE CITY OF HUNTSVILLE STANDARD DETAILS.

14. ALL WATERLINE TESTING SHALL BE WITNESSED AND APPROVED BY THE CITY OF HUNTSVILLE.

15. 12-GAUGE LOCATOR WIRE TO BE INSTALLED ON ALL WATER LINES & FORCE MAINS, TO BE ACCESSIBLE AT VALVE STACKS.

16. ALL TS&VS SHALL BE FULL BODY - STAINLESS STEEL.

17. 1 WATER SAMPLE PER 1000 FEET SHALL BE SUBMITTED TO A TEXAS DEPARTMENT OF HEALTH APPROVED LABORATORY AND SHALL BE FREE OF ANY CONTAMINATES, PRIOR TO BEING PUT IN SERVICE.

18. DISINFECTION OF NEW AND REPAIRED WATER MAINS SHALL BE IN CONFORMANCE WITH AWWA C651. ALL NEW WATER MAINS SHALL BE DISINFECTED BEFORE THEY ARE PLACED IN SERVICE. ALL WATER MAINS TAKEN OUT OF SERVICE FOR INSPECTING, REPAIRING OR OTHER ACTIVITY, WHICH MIGHT LEAD TO CONTAMINATION OF WATER, SHALL BE DISINFECTED BEFORE THEY ARE RETURNED TO SERVICE. (NO SEPARATE PAY)

19. CONTRACTOR TO INSTALL RAY-O-LITE OR EQUAL 4" X 4" BLUE REFLECTORIZED PAVEMENT MARKERS 6" OFF CENTER OF ROADWAY ON FIRE HYDRANT SIDE OF STREET.

20. WATERLINE 8" OR GREATER SHALL BE CONSTRUCTED SUCH THAT ALL CROSSINGS WITH SANITARY SEWER OR SANITARY SEWER LEADS SHALL CENTER ONE FULL SECTION OF WATERLINE AT THE SANITARY SEWER CROSSING. WATERLINE SHALL BE AT LEAST 2 FEET ABOVE SANITARY LINE. WHERE WATERLINE CROSSES UNDER SANITARY SEWER LINES, WATERLINE SEGMENT SHALL BE ENCASED IN PIPE AT LEAST TWO NOMINAL PIPE DIAMETERS LARGER THAN WATERLINE AND MAINTAIN 1-FOOT VERTICAL CLEARANCE FROM SANITARY LINE.

21. WHERE WATERLINE CROSSES UNDER SANITARY SEWER LINE, BOTH SEGMENTS MUST PASS A PRESSURE AND LEAKAGE TEST AS SPECIFIED BY TCEQ UNDER 30 TAC, CHAPTER 290 AND IN AWWA C600 STANDARDS.

22. ALL VALVE BOXES SHALL BE ERECTED PLUMBED & BE FREE OF DEBRIS.

DEPARTMENT OF ENGINEERING & MAPPING/ENGINEERING DIVISION
CITY OF HUNTSVILLE, TEXAS

City Service Center
448 State Highway 75
Huntsville, TX 77320

CITY OF HUNTSVILLE STANDARD DETAILS

WATERLINE CONSTRUCTION NOTES

REV#

ISSUER

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07/31/2018

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W-01

DOUBLE STRAP SADDLE

1" POLYETHYLENE TUBING (BLUE)

FORD #B94-324W OR EQUIVALENT STRAIGHT YOKE BALL VALVE W/ PAD WING.

WATER METER & BOX

WATER MAIN

PLAN - SINGLE SERVICE

FIN. GRADE

24" MIN. IN UNPAVED AREAS
36" MIN. IN PAVED AREAS (SEE NOTE 5)

12" - 15"

WATER METER & BOX

R/W LINE

TYP.

45°

TYPICAL SECTION

NOTES:

1. CUSTOMER POINT OF SERVICE IS TYPICALLY AT THE LOCATION WHERE CUSTOMER PLUMBING IS ATTACHED TO THE YOKE NUT.

2. 3/4" COPPER TUBING FOR 3/4" X 3/4" METER INSTALLATION. 1" COPPER TUBING FOR 1" METER INSTALLATION.

3. HDPE SHALL BE 200 PSI NSF APPROVED, SDR 9, MEETING ASTM D1248. TUBING SHALL BE ENDOT ENDOTRACE (OR APPROVED EQUAL).

4. REDUCED PRESSURE BACKFLOW PREVENTERS ARE REQUIRED FOR ALL COMMERCIAL SERVICES AND SHALL BE INSTALLED BY A CERTIFIED TECHNICIAN AT OWNERS EXPENSE.

5. ALL SERVICE TAPS SHALL BE NO CLOSER THAN 2'-0" STAGGERED INTERVAL OR WITHIN 2'-0" OF BELL OR SPIGOT ENDS.

6. IN AREAS TO BE PAVED PROVIDE A 2" MIN. PVC SCHEDULE 40 SLEEVE FOR PE-TUBING. SLEEVE SHALL EXTEND A MIN. OF 2' BEHIND BACK OF CURB AT EACH SIDE OF ROAD.

7. WATER METERS INSTALLED IN AREAS SERVED BY RECLAIMED WATER SHALL BE EQUIPPED WITH A DUAL CHECK BACKFLOW PREVENTER.

8. WATER METERS IN AREA SERVED WITH AN ALTERNATE IRRIGATION SUPPLY SHALL BE EQUIPPED WITH BACKFLOW PREVENTION TO BE APPROVED FOR USE BY CITY OF HUNTSVILLE.

9. THE CITY OF HUNTSVILLE WILL MAKE ALL STANDARD RESIDENTIAL WATER SERVICE CONNECTIONS, UNLESS WRITTEN APPROVAL TO DO OTHERWISE HAS BEEN GRANTED BY THE CITY.

DEPARTMENT OF ENGINEERING & MAPPING/ENGINEERING DIVISION
CITY OF HUNTSVILLE, TEXAS

City Service Center
448 State Highway 75
Huntsville, TX 77320

CITY OF HUNTSVILLE STANDARD DETAILS

WATER SERVICE CONNECTION
5/8", 3/4", 1-1/2", AND 2" METERS

REV#

ISSUER

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W-03

"X" x 12"

4'-0" MIN.

2'-0" MIN.

2'-0" MIN.

TRENCH WIDTH VARIES

PLAN

1" MIN.

SECTION

CONSTRUCTION KEY NOTES:

A. CONCRETE THRUST BLOCKING.

B. TAPPING SLEEVE.

C. RISER INSTALLATION.

D. TAPPING VALVE.

E. VALVE ENDS FOR TYPE OF PIPE INSTALLED.

F. 2-#5 REBAR HAIRPINS, PAINT UNEMBEDDED PORTION OF BARS WITH 2-COATS OF COAL TAR EPOXY, THEN COVER WITH 2" MINIMUM OF CEMENT MORTAR.

G. CONCRETE VALVE SUPPORT.

H. NEW WATER LINE TO BE INSTALLED.

I. UNDISTURBED EARTH.

J. EXISTING WATER MAIN TO BE TAPPED.

NOTES:

1. THRUST BLOCKING SHALL EXTEND TO UNDISTURBED EARTH.

2. TAPPING SLEEVE SHALL BE 18" MINIMUM FROM ANY BELL, COUPLING, VALVE OR FITTING LOCATED ALONG EXISTING WATER LINE TO BE TAPPED.

3. REPLACE EXCAVATED MATERIAL WITH CEMENT STABILIZED BACKFILL PRIOR TO PAVING.

4. JOINTS AND BOLTS SHALL BE CLEAR OF CONCRETE.

5. INSTALL PERMANENT THRUST BLOCKING UNDER VALVE BEFORE TAP IS MADE. JOINTS AND BOLTS TO BE CLEAR OF CONCRETE.

6. 3" TAPS AND LARGER SHALL BE SMITH-BLAIR STAINLESS STEEL TAPPING SLEEVE AND BOLTS.

DEPARTMENT OF ENGINEERING & MAPPING/ENGINEERING DIVISION
CITY OF HUNTSVILLE, TEXAS

City Service Center
448 State Highway 75
Huntsville, TX 77320

CITY OF HUNTSVILLE STANDARD DETAILS

TAPPING SLEEVE AND VALVE INSTALLATION

REV#

ISSUER

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RAM

W-06

6" COVER - 3" COVER

30" OPENING

(SECTION A-A) TOP VIEW OF LID

8"

30" OPENING

5'-8"

LID

PANEL C

PANEL D

(SECTION B-B) SIDE VIEW

ASSEMBLY

1 1/2" COVER

2"

TOP VIEW OF PANEL D

7'-0"

FRONT VIEW OF LID

7'-0"

FRONT VIEW OF PANEL C

2'-3 3/4"

1'-3"

5'-8"

FRONT VIEW OF PANEL D

SIDE VIEW

CONSTRUCTION KEY NOTES:

A. NO. 4 REBAR AT 8" ON CENTER, BOTH WAYS.

B. NO. 4 REBAR AT 12" ON CENTER, BOTH WAYS (TOP LAYER).

C. NO. 4 REBAR AT 8" ON CENTER, LONG SPAN (BOTTOM LAYER).

D. NO. 5 REBAR AT 4 1/2" ON CENTER, SHORT SPAN (BOTTOM LAYER).

E. MANHOLE RING INTEGRALLY CAST & CENTERED ON LID. SET LID SO COVER IS FLUSH WITH TOP SURFACE OF LID.

NOTES:

1. WATER CEMENT RATIO 0.5 OR LESS BY WEIGHT OR NOT MORE THAN 5.5 GALLONS PER SACK.

2. REINFORCING SHALL COMPLY WITH ASTM A615 GRADE 60 STEEL FY=60000 PSI.

3. BAR BENDING AND PLACEMENT TO COMPLY WITH LATEST ACI STANDARDS.

4. LIFTERS FOR HANDLING SHALL BE INSTALLED PER MANUFACTURER'S REQUIREMENTS AND RATED TO HANDLE THE WEIGHT.

5. METER BOX SHALL BE MODULAR; CONCRETE TO HAVE A MINIMUM 28 DAYS COMPRESSIVE STRENGTH OF 4000 PSI.

DEPARTMENT OF ENGINEERING & MAPPING/ENGINEERING DIVISION
CITY OF HUNTSVILLE, TEXAS

City Service Center
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CITY OF HUNTSVILLE STANDARD DETAILS

METER BOX TYPE "F"
FOR 3" AND LARGER SERVICE INSTALLATION (H2O LOADING)

REV#

ISSUER

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W-48

WITHIN STREET RIGHT-OF-WAY

OUTSIDE STREET RIGHT-OF-WAY AS APPROVED BY CITY ENGINEER

T-OUT & PAVEMENT RESURFACING

EXISTING PAVEMENT

RESTORE TO PRE-EXISTING CONDITIONS OR BETTER

CEMENT STABILIZED ROCK 2 SACK PER YARD BACKFILL (SEE NOTE 3)

SHORING/TRENCH CLEARANCE WIDTH TABLE

10" nom. (in.)

8" min. (in.)

4-10

9

12-16

12

18-21

16

24-30

18

36-72

24

VARIABLE DEPTH OF CUT

PIPE ZONE

D/2

SHORING/TRENCH CLEARANCE WIDTH SEE TABLE ABOVE

3'-0" PIPE BEDDING AND PIPE ZONE MATERIAL CEMENT STABILIZED SAND

BACKFILL (SEE NOTE 2)

TRACER WIRE (SEE NOTE 4)

NOTES:

1. THESE TRENCH BACKFILL REQUIREMENTS APPLY TO ALL PUBLIC UTILITY PIPES.

2. FOR TRENCHES 12" WIDE OR LESS IN STREETS WITH CLASSIFICATIONS HIGHER THAN RESIDENTIAL, USE SELECT FILL. FOR ALL OTHER TRENCHES, USE 3/4" - 0" AGGREGATE COMPACTED TO 95% OF MAX DENSITY.

3. USE SELECT BACKFILL COMPACTED TO 90% OF MAX DENSITY.

4. TRACER WIRE SHALL BE PLACED ABOVE NON-METALLIC PIPE AND 2 FEET BELOW FINISHED GRADE.

5. RESTORE TO ORIGINAL CONDITIONS OR BETTER.

ENGINEERING DEPARTMENT
CITY OF HUNTSVILLE, TEXAS

City Service Center
448 State Highway 75
Huntsville, TX 77320

CITY OF HUNTSVILLE STANDARD DETAILS

PIPE TRENCH BACKFILL

REV#

ISSUER

DATE

APPROVER

SHEET

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07/31/2018

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MAM

10/1/2019

RAM

W-54

EXCAVATION LIMITS 6" PIPE DIA. 6"

FINISHED GRADE

EXCAVATION LIMITS 6" PIPE DIA. 6"

EXISTING GRANULAR MATERIAL

CLASS - 1

EXCAVATION LIMITS 6" PIPE DIA. 6"

FINISHED GRADE

EXCAVATION LIMITS 6" PIPE DIA. 6"

GRANULAR EMBEDMENT (SELECTED - SAND, GRAVEL, ETC.)

CLASS - 2

EXCAVATION LIMITS 6" PIPE DIA. 6"

FINISHED GRADE

EXCAVATION LIMITS 6" PIPE DIA. 6"

GRANULAR EMBEDMENT (SELECTED - SAND, GRAVEL, ETC.)

CLASS - 3

EXCAVATION LIMITS 6" PIPE DIA. 6"

FINISHED GRADE

EXCAVATION LIMITS 6" PIPE DIA. 6"

2000 PSI CONCRETE

CLASS - 4

NOTES:

1. CLASS OF BEDDING REQUIRED SHALL BE BASED ON THE TYPE OF SOIL ENCOUNTERED IN EXCAVATION.

2. MINIMUM TRENCH WIDTH SHALL BE PIPE OUTSIDE DIAMETER (O.D.) + 12 INCHES.

3. BACKFILL ABOVE THE BEDDING SHALL CONFORM TO "UTILITY TRENCH REPAIR" STANDARD DRAWING, SHEET 2 OF 2.

4. REFER TO STANDARD SPECIFICATION ITEMS FOR MATERIAL AND CONSTRUCTION REQUIREMENTS.

5. ALL TRENCHES WITHIN 3 FEET OF EXISTING CURB MUST BE BACKFILLED WITH 2 SACK PER CUBIC YARD CEMENT STABILIZED SAND.

DEPARTMENT OF ENGINEERING & MAPPING/ENGINEERING DIVISION
CITY OF HUNTSVILLE, TEXAS

City Service Center
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CITY OF HUNTSVILLE STANDARD DETAILS

PIPE BEDDING CLASSES I - IV

REV#

ISSUER

DATE

APPROVER

SHEET

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07/31/2018

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MAM

10/1/2019

RAM

W-55

STATE OF TEXAS

1/09/2020

JEFFERY L. ROBERTSON

64745

ISSUED FOR BIDDING AND CONSTRUCTION

DATE: 8/28/19 DRAWN BY: JTM

DESIGNED BY: JTM

CHECKED BY: JLR

REVISIONS

1. Revised per City Comments 2019-06-25

2. Revised per Architect Review 2021-06-04

3. Revised per City Comment 2021-07-02

McCLURE & BROWNE ENGINEERING/SURVEYING, INC.

Engineer Reg. No. F-488 Survey Reg. No. 10103506

1008 Woodcreek Dr., Suite 103 College Station, TX 77845 (979) 692-3658

MBES No. 1048-0028

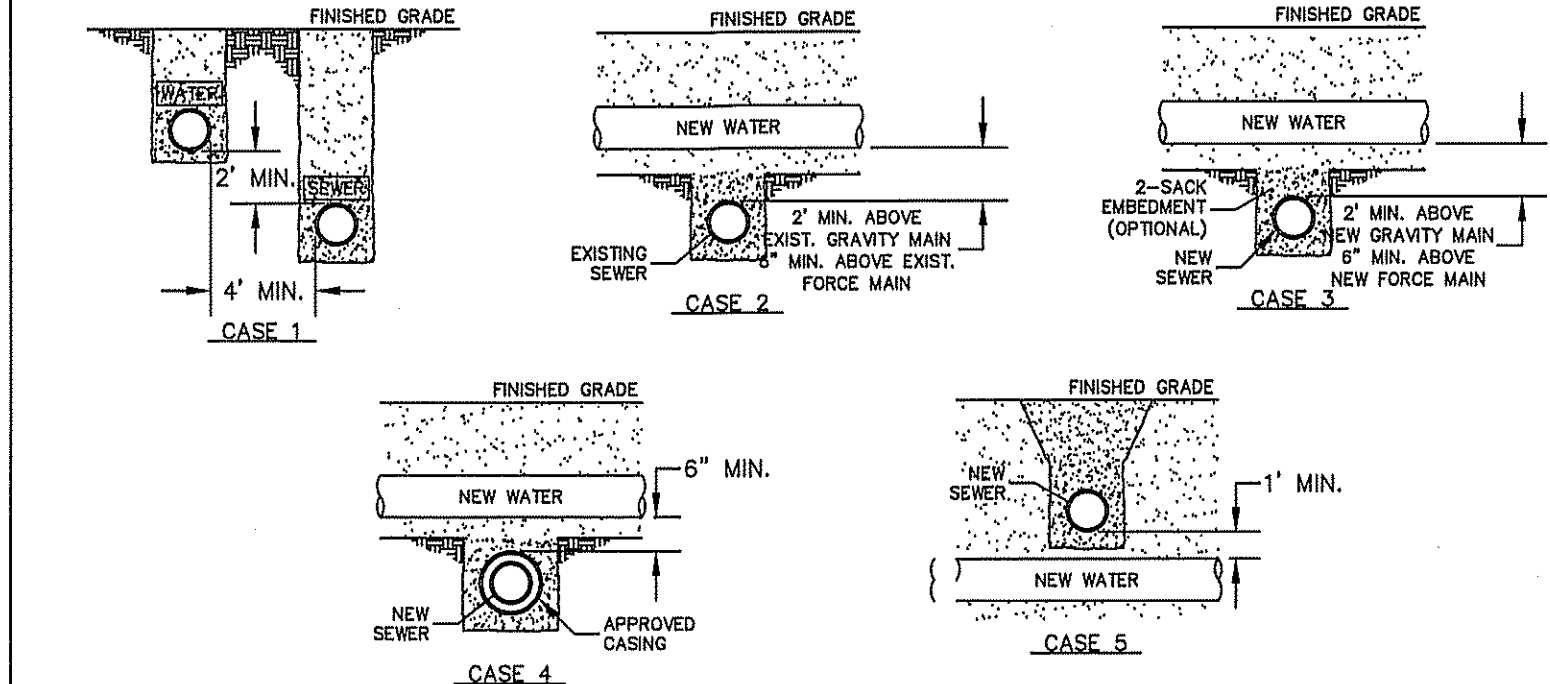
Waterline Construction Details

West Hill - NW Freeway

SHEET NO.

G7.4

10480028-07.0



GENERAL NOTES:
1. NEW OR EXISTING POTABLE WATER AND SANITARY SEWER MAINS.
2. SEPARATION DISTANCES SHALL FOLLOW TEXAS COMMISSION ON ENVIRONMENTAL QUALITY STANDARD REQUIREMENTS.

CONSTRUCTION KEY NOTES:
WHEN STANDARD NINE (9) FOOT SEPARATION DISTANCE CANNOT BE ACHIEVED, SEPARATION SHALL BE DETERMINED ACCORDING TO THE FOLLOWING CONDITIONS:

CASE 1. GRAVITY SANITARY SEWER MAIN OR FORCE MAIN PARALLEL TO POTABLE WATER MAIN (PER TCEQ §290.44(a)(4)(A)).
• LOCATION: WATER ABOVE SEWER OR FORCE MAIN.
• SEWER MATERIALS: EXISTING GRAVITY MAIN (PVC SDR35 OR CLAY) OR FORCE MAIN TO REMAIN IF NOT LEAKING-IF LEAKING, MUST BE REPLACED WITH PVC (150 PSI) OR DI. NEW GRAVITY MAIN OR FORCE MAIN REQUIRES PVC (150 PSI) OR DI.
• SEPARATE TRENCHES SHALL BE USED.

CASE 2. NEW POTABLE WATER MAIN CROSSING EXISTING GRAVITY SANITARY SEWER MAIN OR EXISTING FORCE MAIN (PER TCEQ §290.44(a)(4)(B)(i) AND §290.44(a)(4)(B)(ii)).
• LOCATION: WATER ABOVE SEWER OR FORCE MAIN.
• SEWER MATERIALS: EXISTING GRAVITY MAIN (PVC SDR35 OR CLAY) OR FORCE MAIN TO REMAIN IF NOT LEAKING-IF LEAKING, REPLACE ONE PIPE SEGMENT PER CASE 3 REQUIREMENTS.
• CENTER ONE SEGMENT OF WATER PIPE OVER SEWER MAIN OR FORCE MAIN.
• MINIMUM PIPE SEGMENT LENGTH FOR WATER PIPE SHALL BE 18 FEET LONG.

CASE 3. NEW POTABLE WATER MAIN CROSSING NEW GRAVITY SANITARY SEWER MAIN OR NEW FORCE MAIN (PER TCEQ §290.44(a)(4)(B)(i), §290.44(a)(4)(B)(ii), AND §290.44(a)(4)(B)(iii)).
• LOCATION: WATER ABOVE SEWER OR FORCE MAIN.
• SEWER MATERIALS: NEW GRAVITY MAIN - PVC (150 PSI) OR DI REQUIRED, CENTER UNDER WATER MAIN. NEW FORCE MAIN - PVC (150 PSI) OR DI REQUIRED, FORCE MAIN TO BE EMBEDDED IN CEMENT STABILIZED BACKFILL THE TOTAL LENGTH OF ONE PIPE PLUS 12" BEYOND THE JOINT AT EACH END.
• CENTER ONE SEGMENT OF WATER PIPE OVER SEWER PIPE OR FORCE MAIN.
• MINIMUM PIPE SEGMENT LENGTH FOR WATER AND SEWER SHALL BE 18 FEET LONG.
• FOR NEW GRAVITY SEWER ONLY, IN LIEU OF PVC (150PSI) OR DI, INSTALL ONE PIPE SEGMENT OF SDR35 SEWER MAIN MUST BE EMBEDDED IN CEMENT STABILIZED BACKFILL THE TOTAL LENGTH OF ONE PIPE PLUS 12" BEYOND THE JOINT AT EACH END.

CASE 4. NEW POTABLE WATER MAIN CROSSING NEW GRAVITY SANITARY SEWER MAIN OR NEW FORCE MAIN (PER TCEQ §290.44(a)(4)(B)(i)(II)).
• LOCATION: WATER ABOVE SEWER OR FORCE MAIN.
• SEWER MATERIALS: NEW GRAVITY MAIN - SDR35 ACCEPTABLE, NEW FORCE MAIN - PVC (150PSI) OR DI REQUIRED. IN ADDITION, SEWER MAIN OR FORCE MAIN MUST BE ENCASED IN DI OR STEEL, TWO NOMINAL SIZES LARGER THAN MAIN AND AT LEAST 18 FEET LONG. CENTER CASING PIPE ON WATER MAIN.

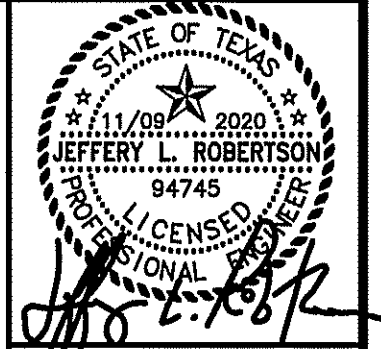
CASE 5. NEW GRAVITY SANITARY SEWER MAIN OR NEW FORCE MAIN CROSSING NEW POTABLE WATER MAIN (PER TCEQ §290.44(a)(4)(B)(i)(III)).
• LOCATION: SEWER OR FORCE MAIN ABOVE WATER.
• NEW GRAVITY MAIN OR FORCE MAIN REQUIRES ONE PIPE SEGMENT OF PVC (150 PSI) OR DI. IN ADDITION, WATER MUST BE DI OR STEEL OR ENCASED IN DI OR STEEL, TWO NOMINAL SIZES LARGER THAN MAIN AND AT LEAST 18 FEET LONG.
• CENTER ONE SEGMENT OF SEWER PIPE ON WATER MAIN.

DEPARTMENT OF ENGINEERING & MAPPING/ENGINEERING DIVISION
CITY OF HUNTSVILLE, TEXAS

City Service Center
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CITY OF HUNTSVILLE STANDARD DETAILS
SEPARATION DISTANCE
SANITARY SEWER AND POTABLE WATER

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0	MAM	07/31/2018		1 OF 1
				W-61



ISSUED FOR BIDDING AND CONSTRUCTION

DATE: 8/28/19 DRAWN BY: TDM
DESIGNED BY: TDM
CHECKED BY: JLR

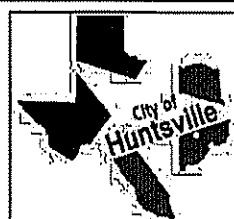
REVISIONS

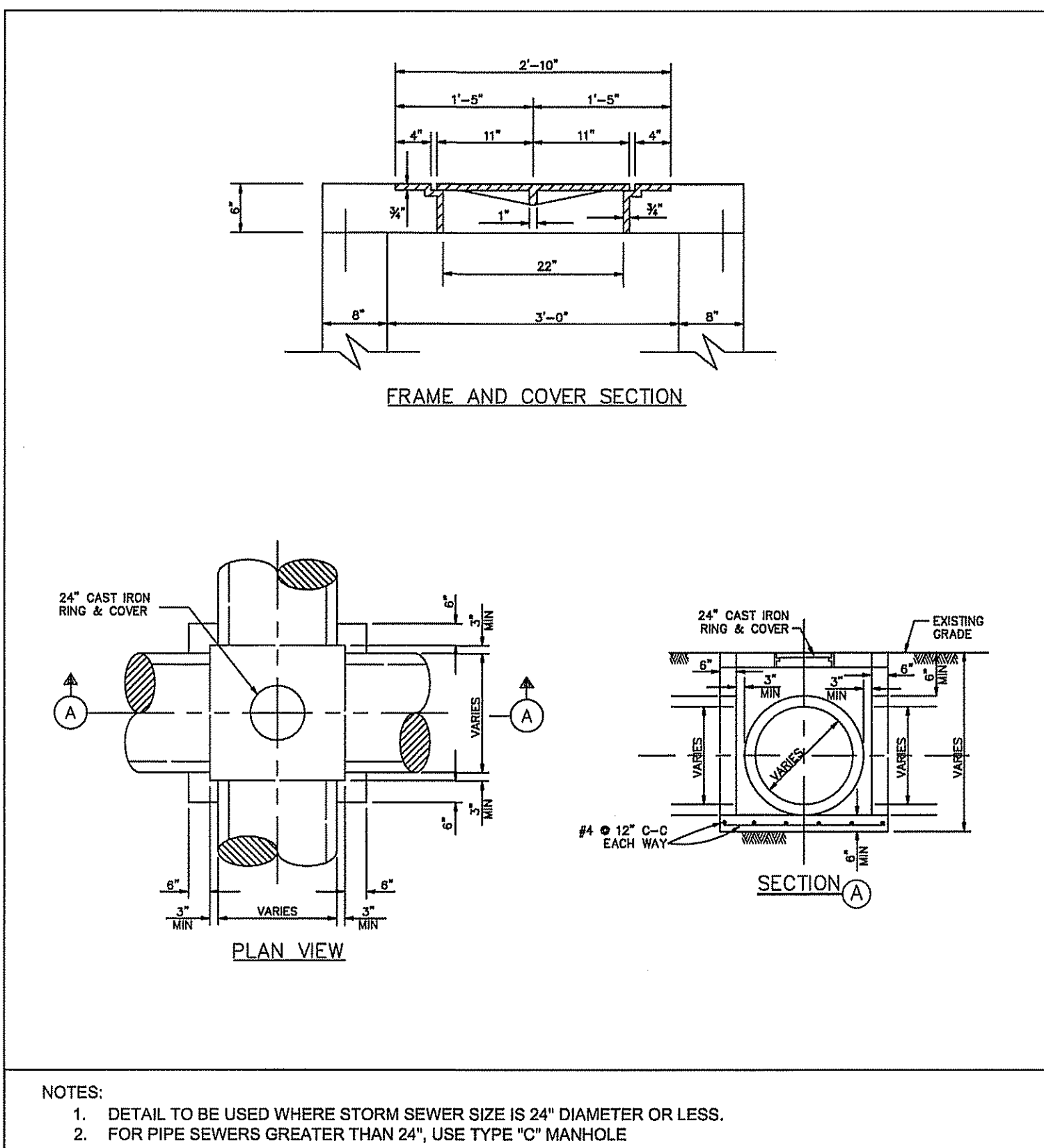
1	Revised per City Comments 2019-06-25	
2	Revised per Architect Review 2021-05-04	
3	Revised per City Comment 2021-07-02	


McCLURE & BROVINE
ENGINEERING/SURVEYING, INC.
Engineer Reg. No. F-4637 Survey Reg. No. 01033-00
1008 Woodcreek Dr., Suite 103
College Station, TX 77940 (979) 695-3938

Waterline
Construction Details
West Hill - NW Freeway
MBES No. 1945-0028

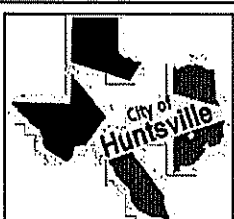
- STORM SEWER NOTES**
(THESE NOTES ARE CONSIDERED SUPPLEMENTAL TO THE GENERAL CONSTRUCTION NOTES)
- STORM SEWER CONSTRUCTION SHALL CONFORM TO THE CITY OF HUNTSVILLE SPECIFICATIONS FOR STORM SEWER CONSTRUCTION.
 - ALL STORM SEWER TO BE ASTM C-76, CLASS III REINFORCED CONCRETE PIPE WITH RUBBER GASKETED JOINTS CONFORMING TO ASTM C443. CLASS IV RCP REQUIRED UNDER PAVEMENT WITH LESS THAN 2' OF COVER.
 - ALL STORM SEWER INLETS SHALL BE BACKFILLED WITH CEMENT STABILIZED SAND (1.5 SACKS PER TON). ALL BEDDING SHALL BE CLASS "AA". ALL STORM SEWERS TO BE INSPECTED BY THE CITY PRIOR TO BACKFILL.
 - ALL STORM SEWER TRENCHES UNDER PROPOSED AND FUTURE PAVEMENT OR WITHIN THREE-FOOT (3') FROM BACK OF CURB TO BE BACKFILLED WITH CEMENT STABILIZED SAND (1.5 SACKS PER TON) TO A POINT OF ONE FOOT (1') BELOW PAVEMENT SUBGRADE. THE REMAINING BACKFILL TO BE MADE WITH COMPACTED SELECT MATERIAL. COST OF BACKFILL AND BEDDING TO BE INCLUDED IN UNIT PRICE PER LINEAR FOOT OF PIPE.
 - HIGH DENSITY POLYETHYLENE PIPE MAY BE SUBSTITUTED ON PRIVATE PROPERTY AND ON PUBLIC ROW (ON A CASE-BY-CASE BASIS), APPROVED BY THE CITY ENGINEER, FOR REINFORCED CONCRETE PIPE SUBJECT TO THE FOLLOWING:
 - FOR PIPES 36" AND SMALLER - CEMENT STABILIZED SAND PLACED BEFORE PIPE IS LAID, TO 7" MIN. BEDDING DEPTH. FOR SEWERS 42"-60" CEMENT STABILIZED SAND PLACED BEFORE PIPE IS LAID, TO 10" MIN. BEDDING DEPTH. THE SIDES SHALL BE 12" MIN. FROM EDGE OF TRENCH TO SPRING LINE.
 - CEMENT STABILIZED SAND SHALL BE THOROUGHLY RODDED, PLACED AND COMPACTED TO 95% STANDARD PROCTOR DENSITY 1'-0" ABOVE THE TOP OF PIPE, AFTER PIPE IS LAID.
 - PIPE AND FITTINGS: THE TYPES OF PIPE WILL BE INDICATED ON THE DRAWINGS BY THE FOLLOWING DESCRIPTION CONFORMING TO AASHTO M 252, AASHTO M 294, AND/OR AASHTO M 66-95, LATEST EDITION. PIPE DESCRIPTION: CPP (CORRUGATED POLYETHYLENE PIPE).
 - TYPE S (THIS PIPE SHALL HAVE A FULL CIRCULAR CROSS-SECTION, WITH AN OUTER CORRUGATED PIPE WALL AND A SMOOTH INNER LINE).

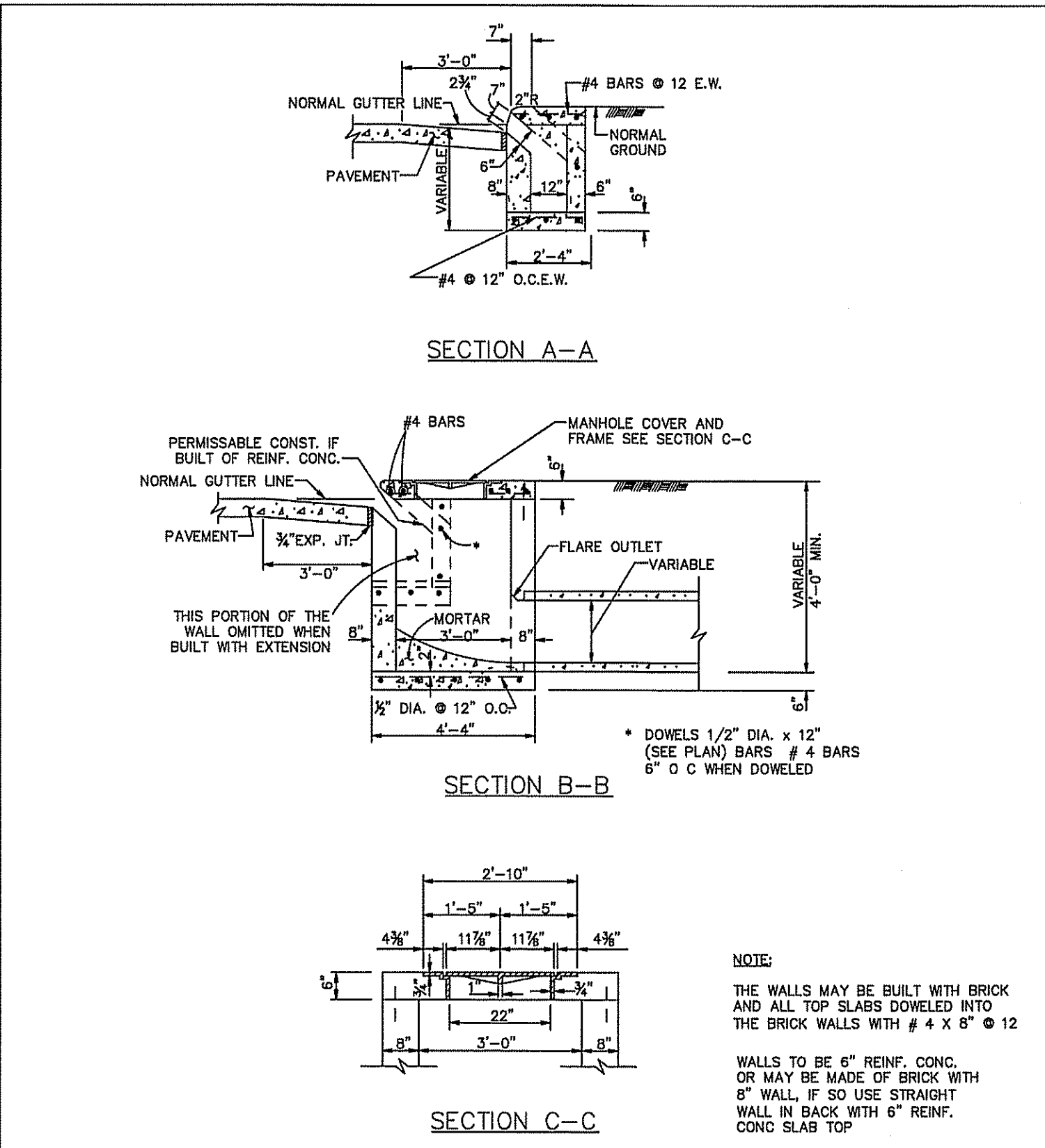
DEPARTMENT OF ENGINEERING & MAPPING/ENGINEERING DIVISION CITY OF HUNTSVILLE, TEXAS	 City Service Center 448 State Highway 75 Huntsville, TX 77320	CITY OF HUNTSVILLE STANDARD DETAILS CONSTRUCTION NOTES	REV# 0	ISSUER MAM	DATE 07/10/2018	APPROVER	SHEET 1 OF 1
NAME: CONSTRUCTION NOTES CATEGORY: STORM DRAINAGE DRAWN DATE: 11/22/2016 DRAWN BY: WLSH SCALE: N.T.S. APPROVED BY: YSR							SD-01




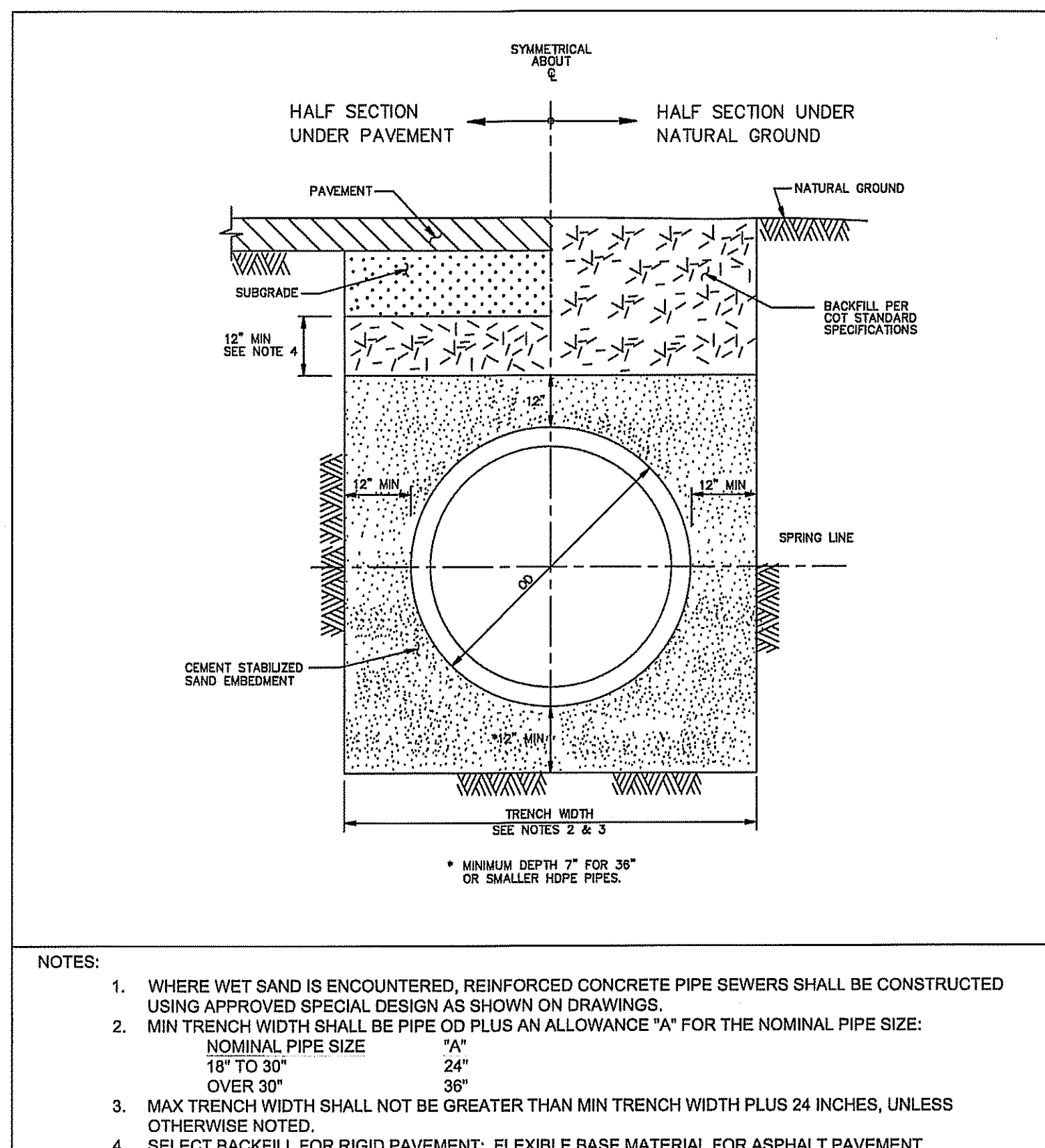
DEPARTMENT OF ENGINEERING & MAPPING/ENGINEERING DIVISION CITY OF HUNTSVILLE, TEXAS	 City Service Center 448 State Highway 75 Huntsville, TX 77320	CITY OF HUNTSVILLE STANDARD DETAILS STORM SEWER JUNCTION BOX FOR MAX 24" DIAMETER PIPE	REV# 0	ISSUER MAM	DATE 07/10/2018	APPROVER	SHEET 1 OF 1
NAME: STSW JUNCTION BOX CATEGORY: STORM DRAINAGE DRAWN DATE: 11/22/2016 DRAWN BY: WLSH SCALE: N.T.S. APPROVED BY: YSR							SD-13

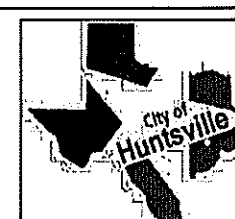
- PRIVATE DRAINAGE AND DETENTION POND OPERATION AND MAINTENANCE REQUIREMENTS**
- AS-BUILT REQUIREMENTS**
- PRIOR TO FACILITY OCCUPANCY, THE ENGINEER OF RECORD (EOR) WILL PROVIDE AS-BUILT DRAWINGS CERTIFYING THE POND SYSTEM DESIGN AND THE VALUE PROVIDED IS IN ACCORDANCE TO THE APPROVED PLANS. THE OWNER OR THEIR DESIGNATED REPRESENTATIVE WILL BE RESPONSIBLE FOR PROVIDING SIGNAGE IDENTIFYING THE RESPONSIBLE CONTACT AND PHONE NUMBER FOR CONTINUED OPERATION AND MAINTENANCE OF THE POND IN ACCORDANCE TO THE APPROVED PLANS.
- SITE INSPECTIONS AND REPORTING REQUIREMENTS**
- THE OWNER OR THEIR DESIGNATED REPRESENTATIVE WILL BE RESPONSIBLE FOR INSPECTING THE SITE TO ENSURE THAT ALL SYSTEMS ARE MAINTAINED AND ARE IN GOOD WORKING CONDITION.
- ROUTINE INSPECTIONS**
- ROUTINE INSPECTIONS WILL DICTATE MAINTENANCE REQUIREMENTS FOR GENERAL ITEMS AT THE SITE INCLUDING (IF APPLICABLE TO SITE), LOCKS, FENCING, SIGNAGE, AND ROAD ACCESS CONDITIONS.
 - DEFECTIVE OR MISSING LOCKS WILL BE REPLACED AND WILL BE KEPT TO MATCH ALL OTHER SITE LOCKS.
 - MISSING OR DAMAGED CHAIN LINK FENCE WILL BE REPAIRED OR REPLACED, AS NEEDED. FENCING REPAIR OR REPLACEMENT WILL BE IN ACCORDANCE WITH SPECIFICATIONS FROM THE ORIGINAL DESIGN PLANS.
 - DAMAGE OR MISSING SIGNS WILL BE REPLACED WITH A SIMILAR TYPE SIGN.
 - ROADWAY SURFACES WHICH ARE DAMAGED WILL BE REPAIRED IN ACCORDANCE TO THE ORIGINAL PLAN SPECIFICATIONS.
 - SURFACE WATER DITCHES AND DETENTION PONDS WILL BE OBSERVED FOR EROSION OR SEDIMENT BUILD-UP, WHICH COULD RESULT IN OVERTOPPING AND SEVERE EROSION DOWN-SLOPE.
- SPECIAL INSPECTIONS AFTER MAJOR HURRICANE OR TORNADO EVENTS**
- SPECIAL UNSCHEDULED INSPECTIONS WILL BE CONDUCTED AS NECESSARY AT THE SITE AFTER MAJOR HURRICANE OR TORNADO EVENTS. EVERY ATTEMPT WILL BE MADE TO HAVE THESE INSPECTIONS CONDUCTED WITHIN SEVERAL DAYS AFTER THE STORM EVENT TO ENSURE FENCING IS STILL IN PLACE AND MAJOR DAMAGE TO THE FACILITIES HAS NOT OCCURRED. ANY REPAIR WILL BE CONDUCTED AS SOON AS POSSIBLE.
- MONTHLY MAINTENANCE**
- THE MAJORITY OF THE SITE WAS PLANTED WITH A TYPE OF DEFINITIVE GRASS, AS NOTED ON THE PLANS. TYPICALLY, THESE AREAS WILL REQUIRE MOWING TWICE A MONTH FROM APRIL THROUGH OCTOBER, AND MONTHLY MOWING FROM NOVEMBER THROUGH MARCH.
- ANNUAL MAINTENANCE**
- ANNUAL MAINTENANCE OF THE SITE MAY INCLUDE FERTILIZING AND RESEEDING THE SITE, AS NECESSARY.
- SURFACE MAINTENANCE**
- INSPECTIONS PERFORMED AS PART OF THE SCHEDULED ROUTINE INSPECTIONS AT THE SITE WILL DICTATE MAINTENANCE REQUIREMENTS FOR THE SITE. THE ITEMS TO BE ROUTINELY INSPECTED INCLUDE SURFACE WATER RUNOFF CONTROL, PONDING WATER, PRESENCE OR EROSION OR GULLING, AND WHETHER OR NOT THE TOPSOIL AND VEGETATION ARE INTACT.
 - THE SITE WILL BE INSPECTED TO DETERMINE WHETHER IT DRAINS WITHOUT PONDING AND EROSION.
 - TOPSOIL WILL BE INSPECTED FOR EROSION, SETTLEMENT, AND CRACKING. TOPSOIL WILL BE ADDED AS NECESSARY TO MAINTAIN DRAINAGE CHARACTERISTICS IN ACCORDANCE WITH THE ORIGINAL SPECIFICATIONS.
 - TOPOGRAPHIC SURVEYING OF THE DETENTION POND AND STORM DRAINAGE SYSTEM MAY NEED TO BE PERIODICALLY PERFORMED TO VERIFY FUNCTIONALITY OF THE SYSTEM.
- SURFACE WATER MANAGEMENT SYSTEM MAINTENANCE**
- INSPECTIONS PERFORMED, AS PART OF THE SCHEDULED ROUTINE INSPECTIONS AT THE SITE WILL DICTATE MAINTENANCE REQUIREMENTS FOR THE SURFACE AFTER MANAGEMENT SYSTEM AT THE SITE. THE ITEMS TO BE ROUTINELY INSPECTED INCLUDE INLETS, CULVERTS, DRAINAGE PIPES, SEDIMENT CONTROLS, EROSION OF DRAINAGE DITCHES OR BERMS, AND THE CONDITION OF THE DETENTION POND.
 - INLETS CULVERTS AND PIPES WILL BE VISUALLY INSPECTED TO ENSURE THAT NO OBSTRUCTIONS ARE HINDERING THE PERFORMANCE OF THE SURFACE WATER DRAINAGE SYSTEM.
 - ANY SIGNIFICANT OBSTRUCTIONS FOUND WILL BE REMOVED.
 - INLETS ALSO WILL BE VISUALLY INSPECTED TO ENSURE THAT GRATES ARE IN PLACE.
 - ANY MISSING OR DAMAGED GRATES WILL BE REPLACED.
 - INLETS, CULVERTS, AND PIPES WILL BE VISUALLY INSPECTED FOR LEAKS OR STRUCTURAL DAMAGE.
 - ANY DAMAGED ITEMS WILL BE REPAIRED OR REPLACED IN ACCORDANCE TO WITH THE ORIGINAL SPECIFICATIONS.
 - AREAS ARE TO BE VISUALLY INSPECTED FOR SEDIMENT BUILD-UP INCLUDES DRAINAGE PIPES, DRAINAGE DITCHES AND THE AREA WITHIN THE POND SITE.
 - IF SEDIMENT BUILDUP OCCURS IN THE SURFACE WATER PIPING SYSTEM, THE SEDIMENT WILL BE CLEANED FROM THE PIPES TO MAINTAIN THEIR ORIGINAL HYDRAULIC CAPACITY.
 - IF SEDIMENT BUILDUP IS OBSTRUCTING THE NORMAL FLOW PATTERN IN THE DRAINAGE DITCHES, THE SEDIMENTS WILL BE REMOVED.
 - SURFACE WATER DITCHES AND DETENTION POND SIDE SLOPES WILL BE VISUALLY INSPECTED FOR EROSION AND GULLING.
 - IF EROSION OCCURS IN SURFACE WATER DITCHES, TOPSOIL WILL BE ADDED AS NECESSARY TO MAINTAIN DRAINAGE CHARACTERISTICS IN ACCORDANCE TO THE ORIGINAL PLANS.
 - IF EROSION OCCURS ON THE DETENTION POND SIDE SLOPES, A FILL MATERIAL WILL BE ADDED AS NECESSARY TO MAINTAIN THE ORIGINAL GRADE OF THE SLOPE.
 - THE DETENTION POND WILL BE VISUALLY INSPECTED FOR THE PRESENCE OF LITTER. ANY LITTER WILL BE REMOVED ON A CONTINUAL BASIS.
- EQUIPMENT REQUIREMENTS (WHEN APPLICABLE)**
- THE EQUIPMENT MAINTENANCE REQUIREMENTS WILL BE DETERMINED BASED UPON THE MANUFACTURERS RECOMMENDATIONS AND WILL BE INCLUDED ON THE DESIGN PLANS. AT A MINIMUM, LIFT STATIONS WILL REQUIRE DUPLEX SYSTEMS. THE ENGINEER OF RECORD WILL PROVIDE FOR CITY REVIEW EQUIPMENT OPERATION AND MAINTENANCE REQUIREMENTS.

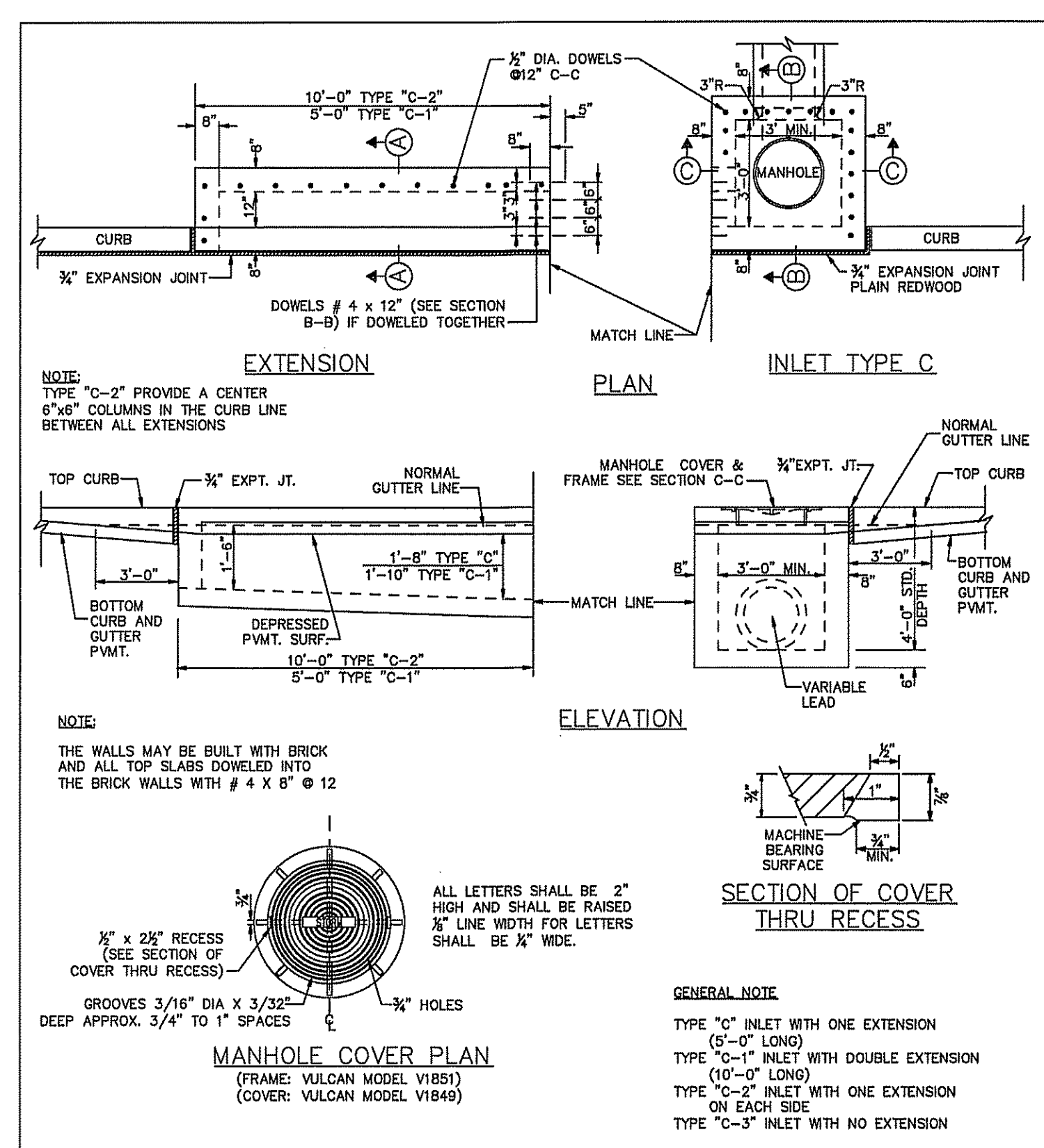
DEPARTMENT OF ENGINEERING & MAPPING/ENGINEERING DIVISION CITY OF HUNTSVILLE, TEXAS	 City Service Center 448 State Highway 75 Huntsville, TX 77320	CITY OF HUNTSVILLE STANDARD DETAILS CONSTRUCTION NOTES	REV# 0	ISSUER MAM	DATE 07/10/2018	APPROVER	SHEET 1 OF 1
NAME: CONSTRUCTION NOTES CATEGORY: STORM DRAINAGE DRAWN DATE: 11/22/2016 DRAWN BY: WLSH SCALE: N.T.S. APPROVED BY: YSR							SD-02

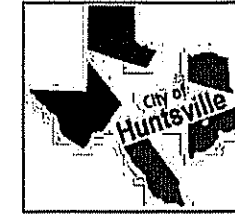


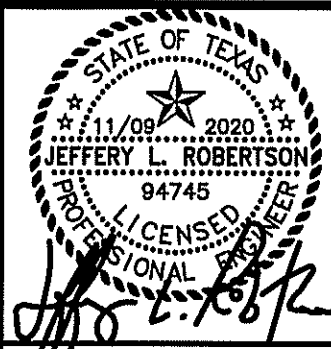
DEPARTMENT OF ENGINEERING & MAPPING/ENGINEERING DIVISION CITY OF HUNTSVILLE, TEXAS	 City Service Center 448 State Highway 75 Huntsville, TX 77320	CITY OF HUNTSVILLE STANDARD DETAILS TYPE "C", "C-1", "C-2" & "C-3" INLETS	REV# 0	ISSUER MAM	DATE 07/10/2018	APPROVER	SHEET 1 OF 1
NAME: TYPE C-C-1, C-2, C-3 INLETS CATEGORY: STORM DRAINAGE DRAWN DATE: 11/22/2016 DRAWN BY: WLSH SCALE: N.T.S. APPROVED BY: YSR							SD-22



DEPARTMENT OF ENGINEERING & MAPPING/ENGINEERING DIVISION CITY OF HUNTSVILLE, TEXAS	 City Service Center 448 State Highway 75 Huntsville, TX 77320	CITY OF HUNTSVILLE STANDARD DETAILS STORM BEDDING & BACKFILL FOR DRY STABLE TRENCH	REV# 0	ISSUER MAM	DATE 07/10/2018	APPROVER	SHEET 1 OF 1
NAME: ST BEDDING & BACKFILL CATEGORY: STORM DRAINAGE DRAWN DATE: 11/22/2016 DRAWN BY: WLSH SCALE: N.T.S. APPROVED BY: YSR							SD-04



DEPARTMENT OF ENGINEERING & MAPPING/ENGINEERING DIVISION CITY OF HUNTSVILLE, TEXAS	 City Service Center 448 State Highway 75 Huntsville, TX 77320	CITY OF HUNTSVILLE STANDARD DETAILS TYPE "C", "C-1", "C-2" & "C-3" INLETS	REV# 0	ISSUER MAM	DATE 07/10/2018	APPROVER	SHEET 1 OF 1
NAME: TYPE C-C-1, C-2, C-3 INLETS CATEGORY: STORM DRAINAGE DRAWN DATE: 11/22/2016 DRAWN BY: WLSH SCALE: N.T.S. APPROVED BY: YSR							SD-21



ISSUED FOR BIDDING
AND CONSTRUCTION

DATE: 8/28/20
DESIGNED BY: JLM
CHECKED BY: JLM

REVISIONS	1	Revised per City Comments 2018-06-25
	2	Revised per Architect Review 2021-08-04
	3	Revised per City Comment 2021-07-02

MACLURE & BROWNE ENGINEERING/SURVEYING, INC. Engineer Reg. No. 2458 - Survey Reg. No. 10103340 1008 Woodbrook Dr., Suite 103 College Station, Tx. 77845 (979) 693-3035	SD-04
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**Storm Sewer
Construction Details**
West Hill - NW Freeway
MBES No. 1048-0028

SHEET NO.	SD-04
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C7.6