



**PERMIT APPLICATION REVIEW FORM FOR
CABLE, CONDUIT, AND POLE LINE ACTIVITY
IN FORT BEND COUNTY**

**Fort Bend County
Engineering Department**
301 Jackson Suite 401
Richmond, Texas 77469
281.633.7500
Permits@fortbendcountytx.gov

☒ **Right of Way Permit**
☐ **Commercial Driveway Permit**

Permit No: 2017-16468

The following "Notice of Proposed Cable, Conduit, and/or Pole Line activity in Fort Bend County" and accompanying attachments have been reviewed and the notice conforms to appropriate regulations set by Commissioner's Court of Fort Bend County, Texas.

(1) COMPLETE APPLICATION FORM:

- ☒ a. Name of road, street, and/or drainage ditch affected.
- ☒ b. Vicinity map showing course of directions
- ☒ c. Plans and specifications

(2) BOND:

<input type="checkbox"/>	County Attorney, approval when applicable.		
<input checked="" type="checkbox"/>	Perpetual bond currently posted.	Bond No: [REDACTED]	Amount: \$50,000.00
<input type="checkbox"/>	Performance bond submitted.	Bond No: _____	Amount: _____
<input type="checkbox"/>	Cashier's Check	Check No: _____	Amount: _____

(3) DRAINAGE DISTRICT APPROVAL (WHEN APPLICABLE):

Drainage District Approval

Date

We have reviewed this project and agree it meets minimum requirements.

Charles O. Ay

Permit Administrator

10/27/2017

Date

CONSTRUCTION
OF
WATER, SANITARY & DRAINAGE FACILITIES
BELLAIRE BLVD UTILITY
EXTENSION & DETENTION
FOR
GRAND MISSION MUNICIPAL
UTILITY DISTRICT NO. 2
FORT BEND COUNTY, TEXAS

INDEX OF DRAWINGS

<u>SHEET No.</u>	<u>TITLE</u>
1	COVER SHEET & INDEX
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3	GENERAL CONSTRUCTION LAYOUT - PAVING & DRAINAGE
4	GENERAL CONSTRUCTION LAYOUT - SIGNING & PAVEMENT MARKING PLAN
5	GENERAL CONSTRUCTION LAYOUT - DETENTION PLAN
6	CONSTRUCTION NOTES

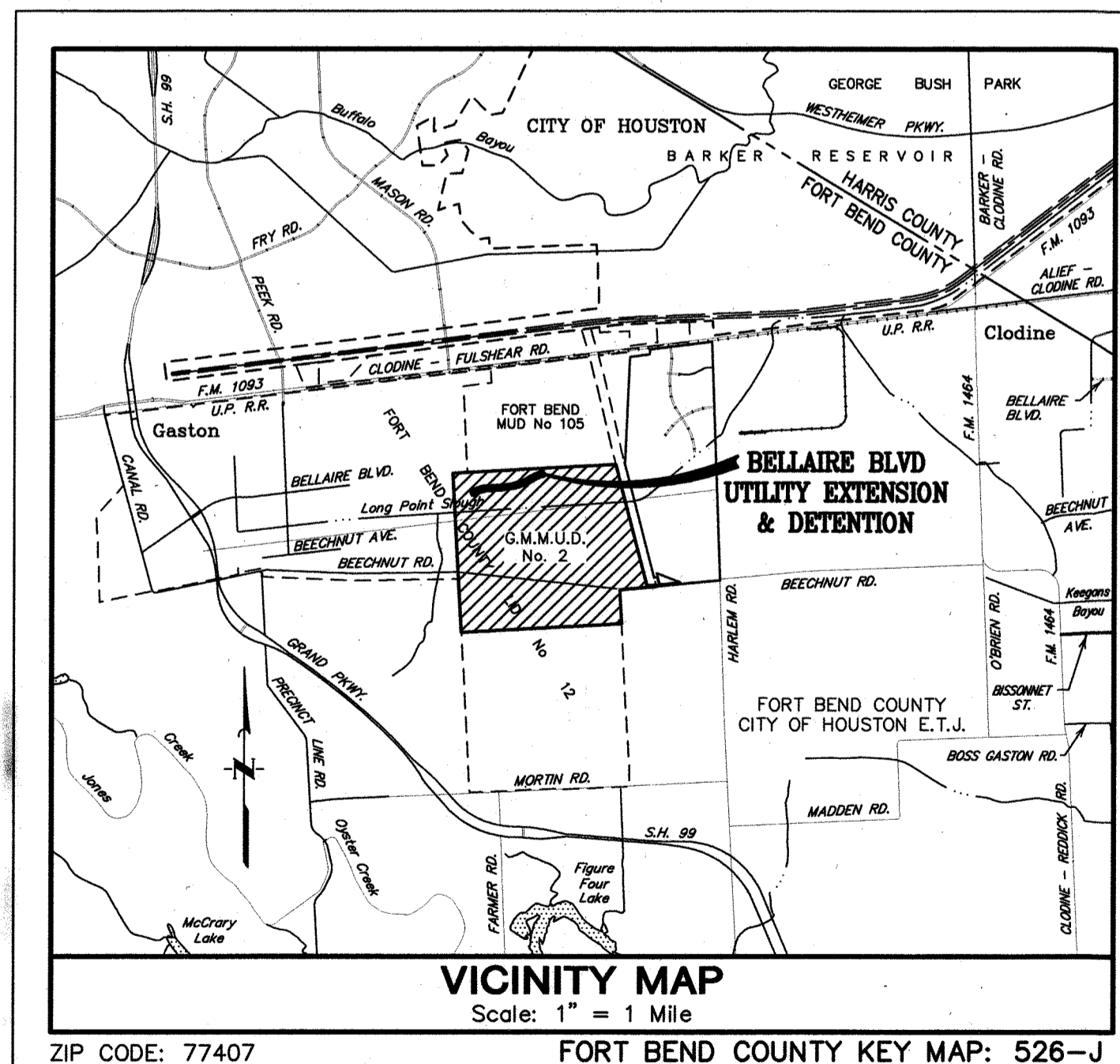
PLAN & PROFILE

<u>STREET NAME</u>	<u>STATION</u>
7 BELLAIRE BOULEVARD - PLAN VIEW	7+00.00 TO 12+00.00
8 BELLAIRE BOULEVARD - PROFILE VIEW	
9 BELLAIRE BOULEVARD - PLAN VIEW	12+00.0 TO 17+00.00
10 BELLAIRE BOULEVARD - PROFILE VIEW	
11 BELLAIRE BOULEVARD - PLAN VIEW	17+00.00 TO 22+00.00
12 BELLAIRE BOULEVARD - PROFILE VIEW	
13 BELLAIRE BOULEVARD - PLAN VIEW	22+00.00 TO 27+00.00
14 BELLAIRE BOULEVARD - PROFILE VIEW	
15 BELLAIRE BOULEVARD - PLAN VIEW	27+00.00 TO 32+00.00
16 BELLAIRE BOULEVARD - PROFILE VIEW	
17 DETENTION POND - BASELINE A & BASELINE B	

DETAILS

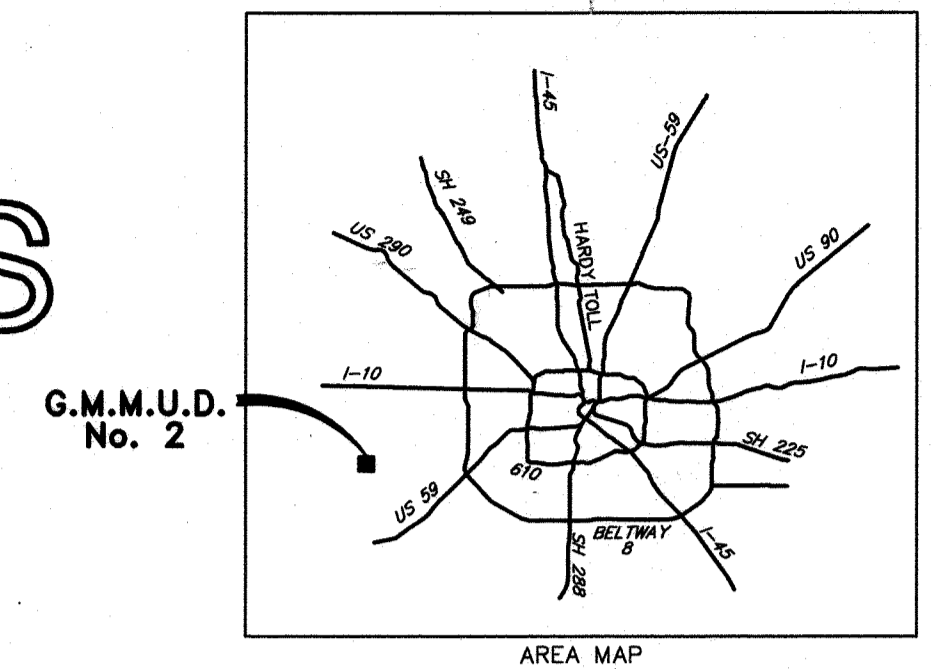
18	MISCELLANEOUS DETAILS
19	GRADING
20	STORM WATER POLLUTION PREVENTION PLAN
21	STORM WATER POLLUTION PREVENTION PLAN DETAILS
22	DRAINAGE DETAILS

APPROVED FOR
CONSTRUCTION



SEPTEMBER 2017

JC JONES CARTER
Texas Board of Professional Engineers Registration No. F-439
22330 Merchants Way, Suite 170, Katy, TX 77449 (832) 913-4000



NOTES:

These plans were prepared to meet or exceed the specifications and requirements of City of Houston and Fort Bend County as currently amended. Approval by Fort Bend County will be deemed void if construction has not begun within one year of approval date. Construction shall not begin before the plat of this section is filed in the Fort Bend County Map Records. Construction will be monitored under the supervision of a licensed professional engineer of JONES CARTER, INC. Contractor shall notify the Fort Bend County Engineering Department at least 48 hours prior to commencement at construction@fortbendcountytx.gov.

I, Blair M. Bozoarth, a Professional Engineer licensed in the State of Texas do hereby certify that these plans were prepared under my supervision to meet or exceed the specifications and requirements of Fort Bend County, Texas.

Blair M. Bozoarth
Blair M. Bozoarth, P.E. 9-7-17
Date

Contractor shall notify the City of Houston, Department of Public Works and Engineering, office of the City Engineer, 48 hours before starting work on this project. Telephone No. 832-394-9098

FORT BEND COUNTY ENGINEER

ENGINEER: *Richard M. Stollis* RICHARD M. STOLLS, P.E.

DATE: 10/11/17
THESE SIGNATURES ARE VOID IF CONSTRUCTION HAS NOT COMMENCED IN ONE (1) YEAR FROM DATE OF APPROVAL.

APPROVED: *Max* DEVELOPMENT COORDINATOR

DATE: 10/5/17

TEXAS811 NOTIFICATION SYSTEM
CALL BEFORE YOU DIG!!!
www.texas811.org/
1-800-344-8377

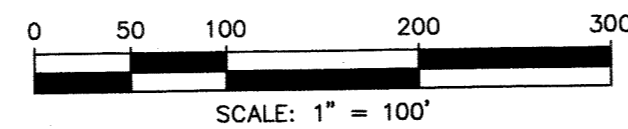
See email dated 9/1/17 from Blair M. Bozoarth, PE, District Engineer for G.M.M.U.D. No. 2, concerning dedication of unrecorded easements for this project.

ILMS No. 17068700
C.O.H. LOG No. 17-1130

SURVEYED BY: FB NO.:	
NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES	
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
WATER <i>Bozoarth</i> 9/14/17	TRAFFIC & TRANSPORTATION
WASTEWATER <i>Bozoarth</i> 9/14/17	STORM WATER QUALITY
STORM <i>Bozoarth</i> 9-14-17	FACILITIES
STREET & BRIDGE	
CITY ENGINEER	FOR CITY OF HOUSTON USE ONLY CITY DWG NO.
DIRECTOR OF PUBLIC WORKS AND ENGINEERING <i>Bozoarth</i> 9/14/17	88956
SHEET No: 1 OF 22	

LEGEND

EXISTING	PROPOSED	
		WATERLINE w/ GATE VALVE
		FLUSH VALVE w/ GATE VALVE
		PLUG & CLAMP w/ BLOW OFF
		SANITARY SEWER w/ MANHOLE
		SANITARY STACK
		SANITARY LEAD
		STORM SEWER w/ MANHOLE
		STORM SEWER w/ INLET
		SWALE CENTERLINE
		NATURAL GROUND CONTOUR
		UTILITY EASEMENT
		WATERLINE EASEMENT
		SANITARY SEWER EASEMENT
		STORM SEWER EASEMENT
		DRAINAGE EASEMENT
		AERIAL EASEMENT



UNDERGROUND UTILITY NOTE
CONTRACTOR TO FIELD VERIFY ALL EXISTING UTILITIES INCLUDING CENTERPOINT ENERGY FACILITIES AND AT&T TEXAS/SWBT FACILITIES PRIOR TO COMMENCEMENT OF CONSTRUCTION. LOCATIONS ARE APPROXIMATE AND RESPONSIBILITY IS THAT OF CONTRACTOR TO VERIFY LOCATION AND DEPTH.

100-YEAR FLOOD PLAIN
ACCORDING TO MAP NO. 48157C0130L OF THE FEDERAL EMERGENCY MANAGEMENT AGENCY'S FLOOD INSURANCE RATE MAPS DATED APRIL 2, 2014, THE SUBJECT TRACT IS LOCATED PARTIALLY WITHIN:
- SHADED ZONE X, DEFINED AS AREAS OF 0.2% ANNUAL CHANCE FLOOD AREAS OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS LESS THAN 1 FOOT OR WITH DRAINAGE AREAS LESS THAN 1 SQUARE MILE; AND AREAS PROTECTED BY LEVEES FROM 1% ANNUAL CHANCE FLOOD
- UNSHADED ZONE "X", DEFINED AS AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.

THIS FLOOD STATEMENT DOES NOT IMPLY THAT THE PROPERTY OR STRUCTURES THEREON WILL BE FREE FROM FLOODING OR FLOOD DAMAGE. ON RARE OCCASIONS FLOODS CAN AND WILL OCCUR AND FLOOD HEIGHTS MAY BE INCREASED BY MAN-MADE OR NATURAL CAUSES. THIS FLOOD STATEMENT SHALL NOT CREATE LIABILITY ON THE PART OF THE SURVEYOR.

NOTE: THE 100-YEAR FLOOD ELEVATION IS APPROXIMATELY 92.3 FEET AS PER THE FEMA INSURANCE RATE MAP FOR FORT BEND COUNTY, TEXAS COMMUNITY PANEL NO. 48157C0130L, DATED APRIL 2, 2014. THE 100-YR FLOOD PLAIN, ELEVATION 92.3, IS CONTAINED IN THE CHANNEL SOUTH OF THE DETENTION POND.

BENCH MARK
ELEVATIONS SHOWN HEREON ARE BASED ON NATIONAL GEODETIC SURVEY MONUMENT DESIGNATION HGCSO 66, PID NO. AW5411 HAVING PUBLISHED INFORMATION AS FOLLOWS:

LATITUDE 29 43' 58.13317" NORTH
LONGITUDE 95 50' 45.96836" WEST NAD 83
ELEVATION 136.6 FEET NAVD 88

I.B.M. B
BEING A CUT SQUARE LOCATED ON THE BACK OF CURB ON THE NORTH SIDE OF THE WESTBOUND LANE OF BELLAIRE BOULEVARD, 1 FOOT FROM THE END OF BACK OF CURB AT THE DEAD END.

ELEVATION = 96.18, NAVD 88.

I.B.M. D
BEING A CUT SQUARE ON THE BULLNOSE OF THE MEDIAN ON BEECHNUT STREET AT THE WEST ENTRANCE TO DAVID CROCKETT MIDDLE SCHOOL.

ELEVATION = 93.70, NAVD 88.

TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT ENERGY AT 713-207-2222
For your safety, you are required by Texas Law to call 811 at least 48 hours before you dig so that underground lines can be marked. This verification does not fulfill your obligation to call 811.

VERIFICATION OF PRIVATE UTILITY LINES
Date: 9/28/17
Signature: [Signature]
Date: 9/28/17
Signature: [Signature]
APPROVED: [Signature] DEVELOPMENT COORDINATOR

DATE: 10/3/17

NO.	DATE	REVISIONS	APP.

GRAND MISSION MUNICIPAL UTILITY
DISTRICT NO. 2
FORT BEND COUNTY, TEXAS

J.C. JONES CARTER
Texas Board of Professional Engineers Registration No. F-439
22330 Merchants Way, Suite 170, Katy, TX 77449 (832) 913-4000

**BELLAIRE BLVD UTILITY
EXTENSION & DETENTION
GENERAL CONSTRUCTION LAYOUT**
**WATER AND
SANITARY SEWER**

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY
AFTER DATE OF SIGNATURES

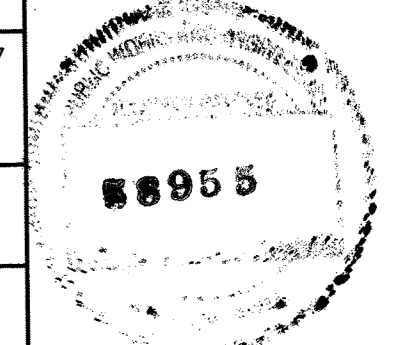
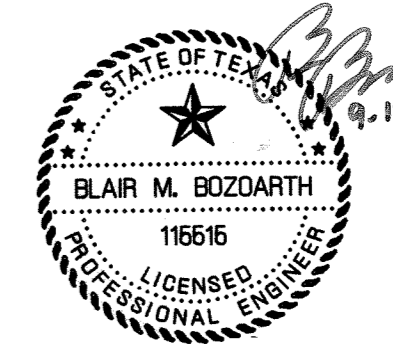
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER	TRAFFIC & STREET/BIDGE
WASTEWATER	STORM WATER QUALITY
STORM	FACILITIES

FILE NO: 95298-0168-00
JOB NO: 95298-0168-00
DATE: SEPTEMBER 2017
DCN. BY: CES
DWG. BY: EPV
SCALE: 1"=100'
SHEET No. 2 OF 22

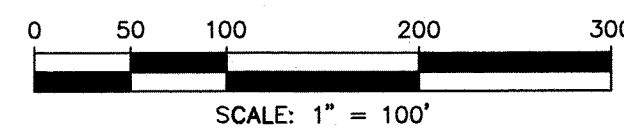
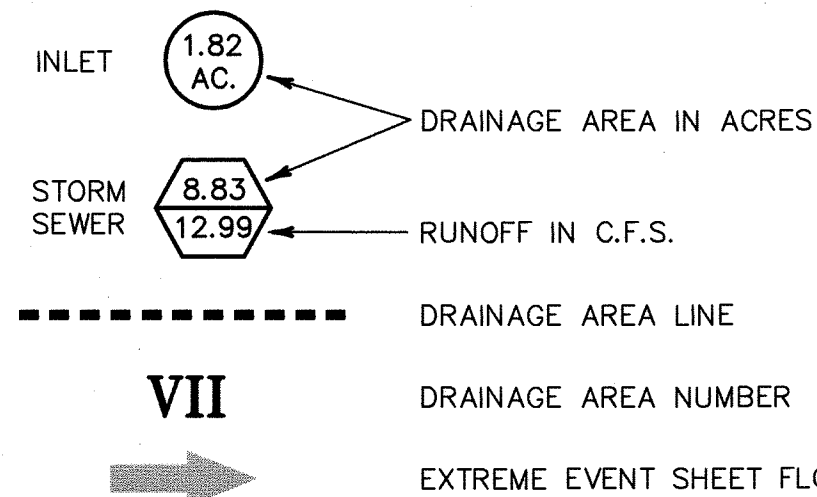
FOR CITY OF HOUSTON USE ONLY
CITY DWG NO.
DATE: SEPTEMBER 2017
DCN. BY: CES
DWG. BY: EPV
SCALE: 1"=100'
SHEET No. 2 OF 22

**APPROVED FOR
CONSTRUCTION**



LEGEND

EXISTING	PROPOSED	
		WATERLINE w/ GATE VALVE
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		STORM SEWER w/ MANHOLE
		STORM SEWER w/ INLET
		SWALE CENTERLINE
		NATURAL GROUND CONTOUR
		UE
		WLE
		SSE
		STM SE
		DE
		AE



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ETJ DETENTION PLANS INFORMATION:

- Storm Water Detention Plan is provided in Construction of Detention Basin Excavation Phase II (COH Log No. 06-1438, COH DWG No. 42935)
Engineering Firm: JonesCarter
Date Signed and Approved By: February 2007
- Storm Water Drainage Design Report
Report Title: Drainage and Detention Analysis for 640 Acre Development
Date: February 2008
Engineering Firm: JonesCarter
Date of Acknowledgement by Fort Bend County: July 5, 2008
Amendment:
Date: December 2006
Engineering Firm: JonesCarter
Date of Acknowledgement by Fort Bend County LID No. 12: January 2007
- Increased Impervious Cover = 3.881 Acres
Detention Rate Required = 0.60 Acre-Feet/Acre
Detention Rate Provided = 0.67 Acre-Feet/Acre

BENCH MARK

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APPROVED: DEVELOPMENT COORDINATOR

DATE: 10/6/17

NO.	DATE	REVISIONS	APP.

GRAND MISSION MUNICIPAL UTILITY
DISTRICT NO. 2
FORT BEND COUNTY, TEXAS

JC JONES CARTER
Texas Board of Professional Engineers Registration No. F-439
22330 Merchants Way, Suite 170, Katy, TX 77449 (832) 913-4000

BELLAIRE BLVD UTILITY
EXTENSION & DETENTION
GENERAL CONSTRUCTION LAYOUT
PAVING & DRAINAGE

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY
AFTER DATE OF SIGNATURES

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER	TRAFFIC & STREET/BIDGE
MASTWATER	STORM WATER QUALITY
STORM	FACILITIES

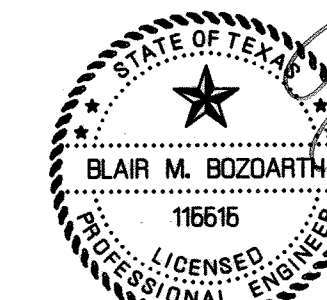
FILE NO: _____
JOB NO: 05298-0168-00

DATE: SEPTEMBER 2017
DGN BY: CES
DWG BY: EPV

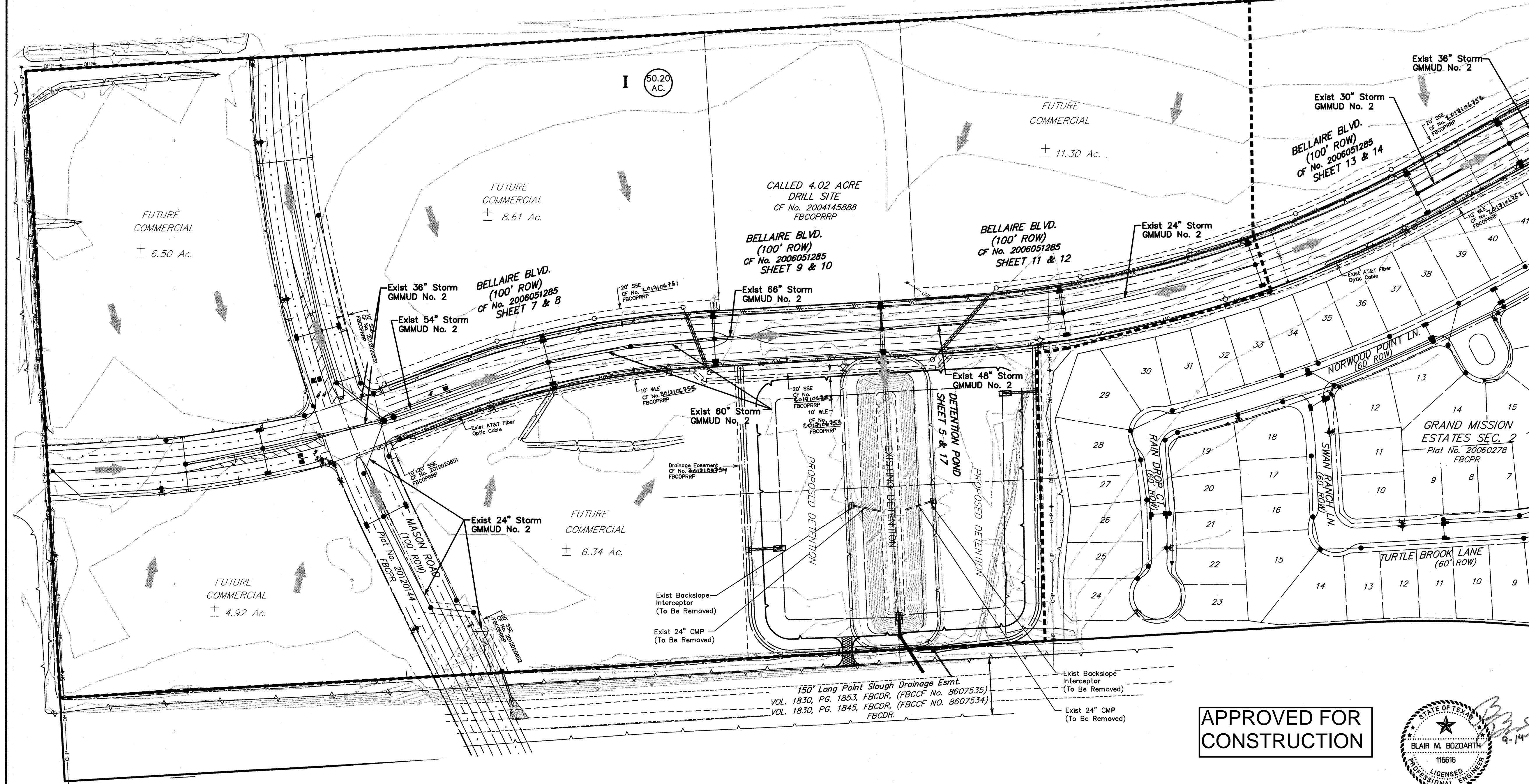
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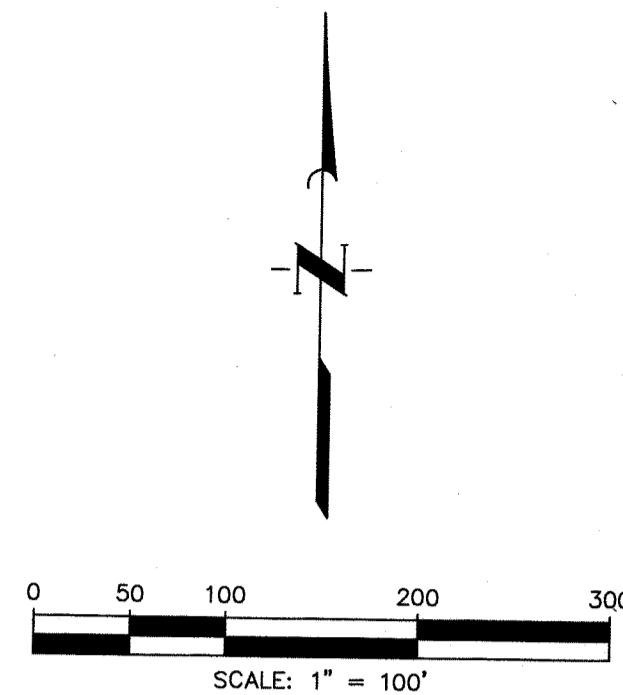
SHEET No. 3 OF 22

FOR CITY OF HOUSTON USE ONLY
CITY DWG NO.



APPROVED FOR
CONSTRUCTION





LEGEND

- STOP SIGN WITH STREET NAME SIGN
- STREET NAME SIGNS ONLY
- WHEELCHAIR RAMP
- TYPE III BARRICADE
- EXIST TYPE III BARRICADE

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100-YEAR FLOOD PLAIN

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POND.

APPROVED: *[Signature]*
DEVELOPMENT COORDINATOR

DATE: 10/5/17

NO.	DATE	REVISIONS	APP.

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**BELLAIRE BLVD UTILITY
EXTENSION & DETENTION
GENERAL CONSTRUCTION LAYOUT
SIGNING & PAVEMENT
MARKING PLAN**

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

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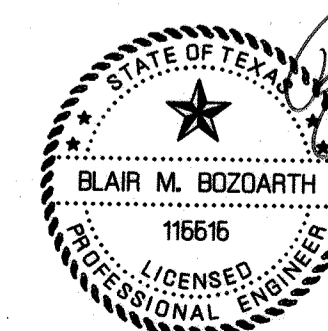
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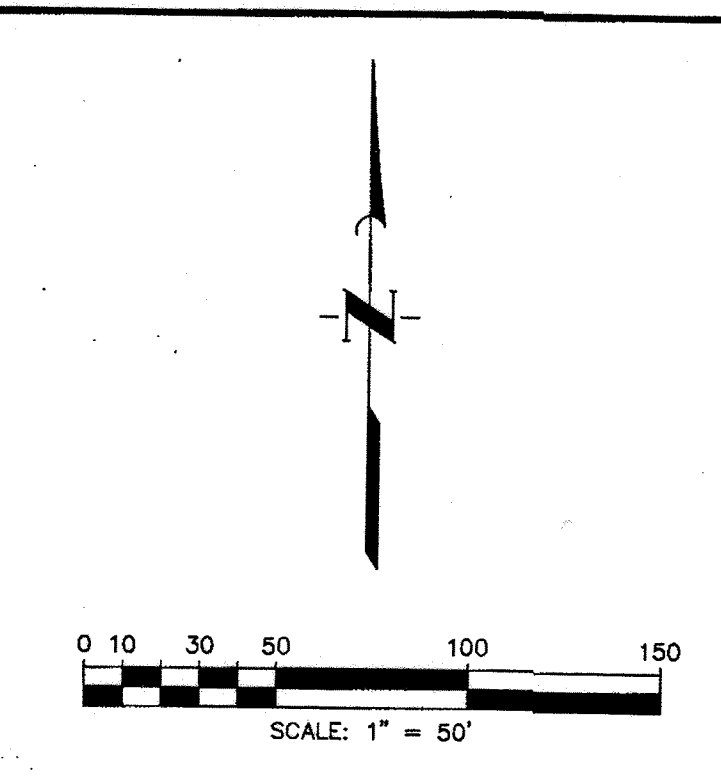
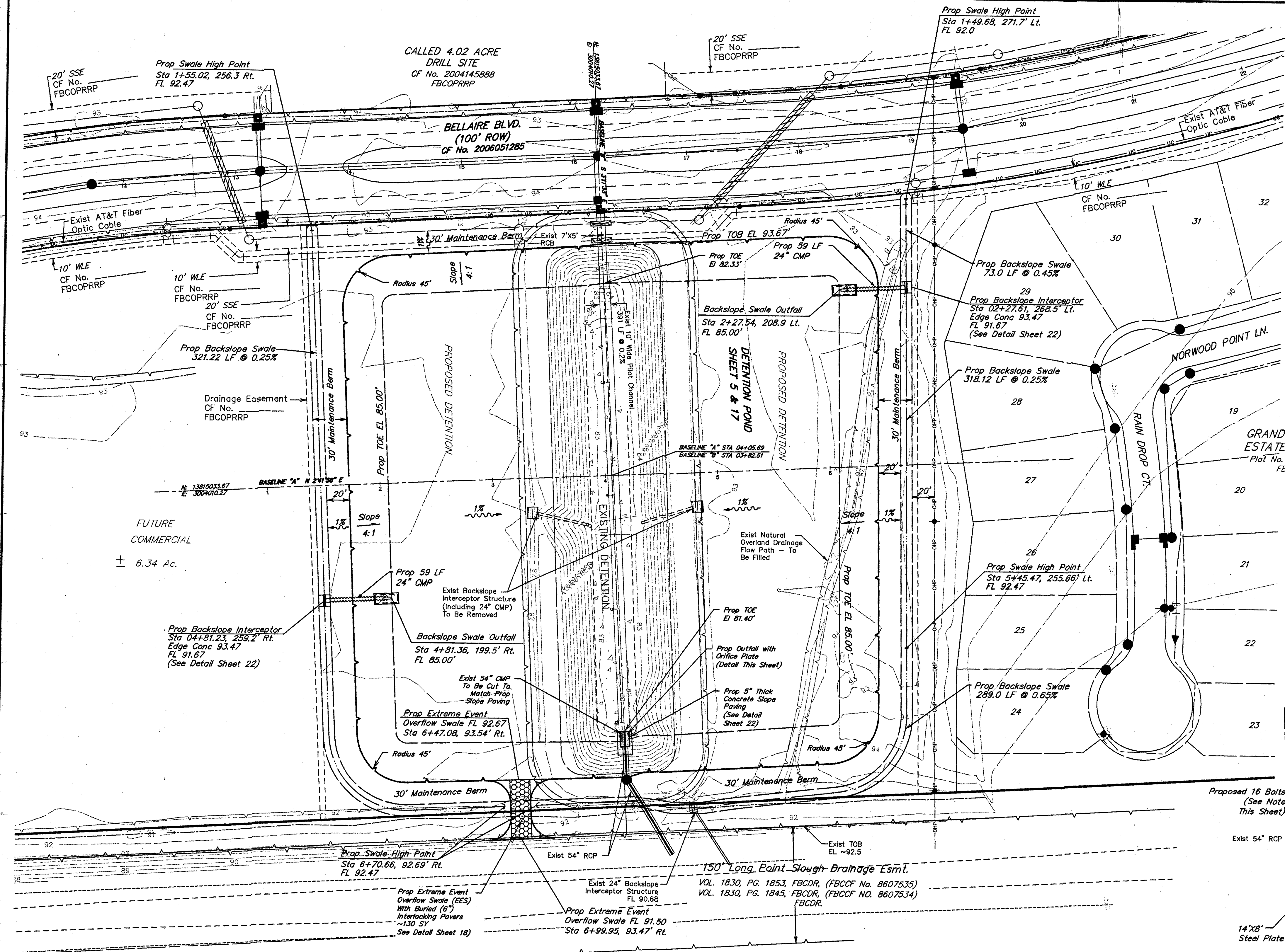
DATE: SEPTEMBER 2017
DGN. BY: CES
DWG. BY: EPV
SCALE: 1"=100'

FOR CITY OF HOUSTON USE ONLY
CITY DWG NO.
58955

SHEET No. 4 OF 22

**APPROVED FOR
CONSTRUCTION**





DETENTION SUMMARY TABLE	
Drainage Area	Prop. Basin Expansion 50.2 acres
Detention Storage Required	30.1 ac-ft
Detention Storage Provided	36.6 ac-ft
Detention Storage Rate Provided	0.73 ac-ft/ac
Maximum Release Rate	12.66 cfs
100-year WSEL	92.67
Top of Bank Elevation	93.67
Bottom Elevation (Lowest Flowline El.)	80.90
Control/Outfall Structure	Exist 54" RCP with 12" Orifice Plate (See Detail Sheet 5)
Ownership & Maintenance Responsibility	Grand Mission MUD No. 2

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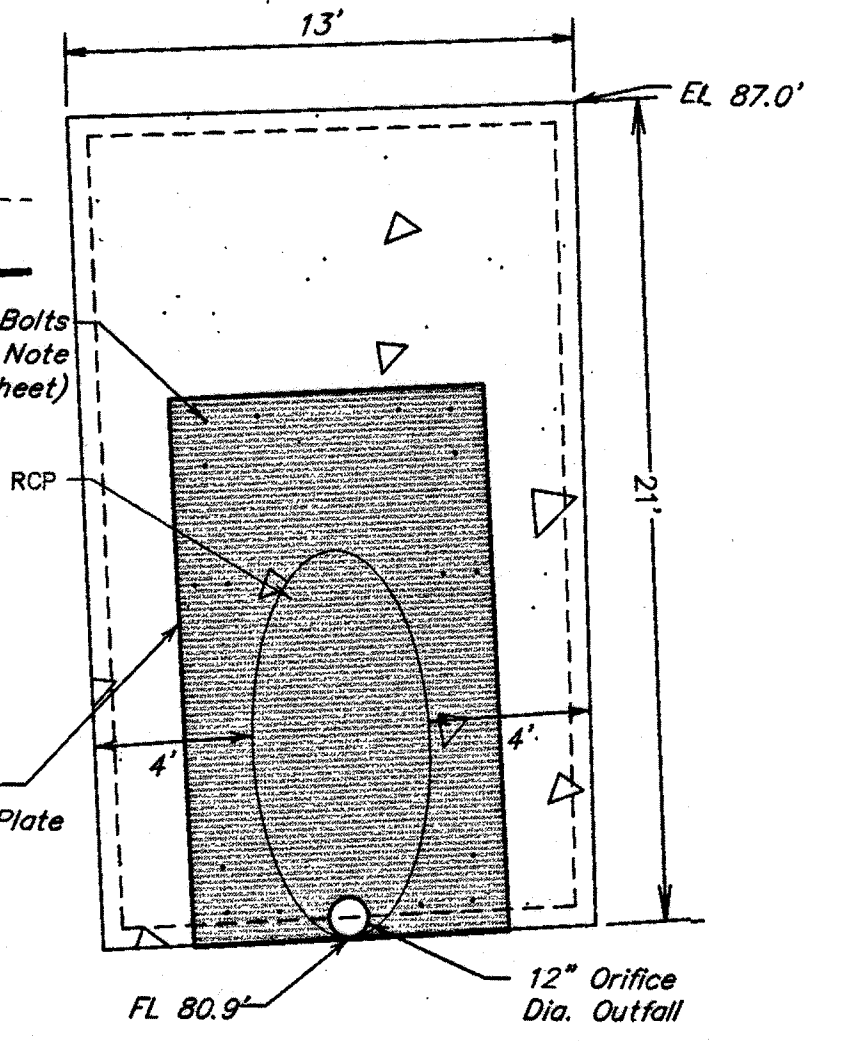
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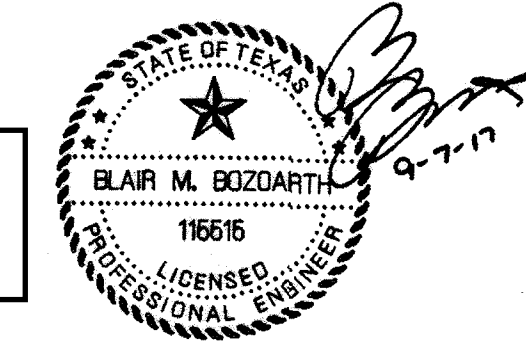
NOTE
ALL PLATES SHALL BE 3/8-INCH THICK GALVANIZED STEEL.
ALL BOLTS SHALL BE 1/2 -INCH DIAMETER AND EMBEDDED 4 1/4-INCH USING HILTI HY-150
ALL BOLTS SHALL BE MINIMUM OF 3" FROM EDGE OF CONCRETE TO CENTERLINE OF BOLT
ALL BOLT SPACING AND PLATE DIMENSIONS TYPICAL FOR BOTH RESTRICTORS



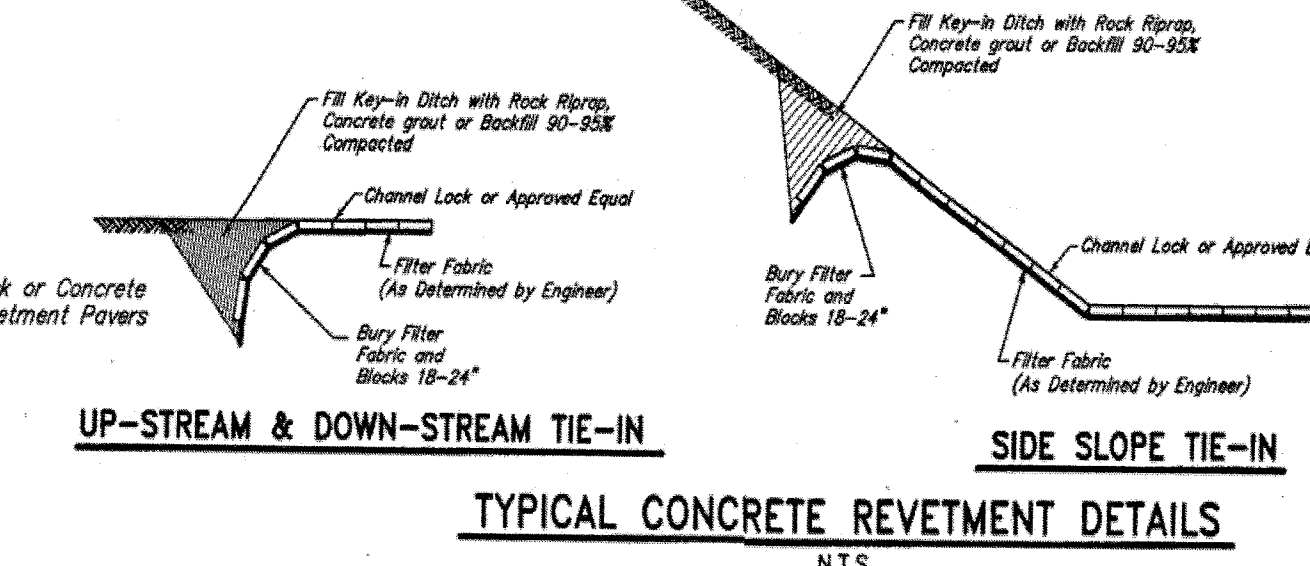
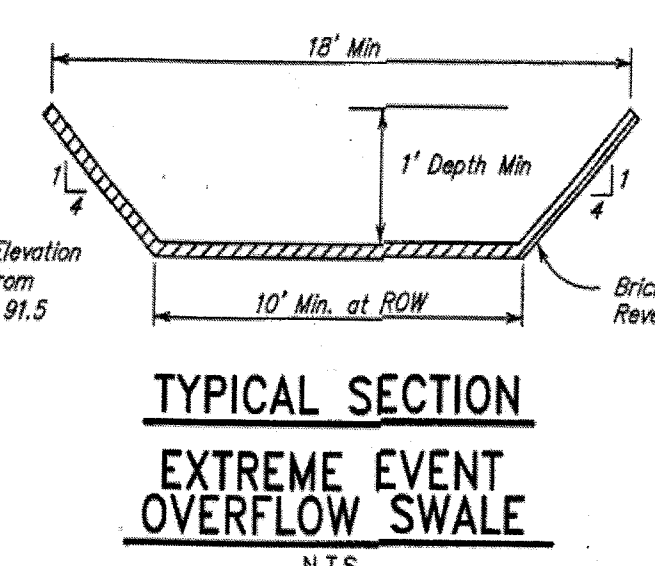
ORIFICE CALCULATIONS		
$Q = CA \sqrt{2GH}$		
FOR A 12" ORIFICE PLATE SIZED FOR 100-YR WSE		
VARIABLE	VALUE	UNITS
C (Coefficient)	0.60	-
A (Area)	0.79	FT ²
G (Gravity Constant)	32.20	FT/S ²
H (Head, Top of Pipe to WSE)	10.77	FT
Q (Flow)	12.48	CFS

DIMENSION DETAIL OF OUTFALL PLATE
N.T.S.

APPROVED FOR CONSTRUCTION



UNDERGROUND UTILITY NOTE
CONTRACTOR TO FIELD VERIFY ALL EXISTING UTILITIES INCLUDING CENTERPOINT ENERGY FACILITIES AND AT&T TEXAS/SWBT FACILITIES PRIOR TO COMMENCEMENT OF CONSTRUCTION. LOCATIONS ARE APPROXIMATE AND RESPONSIBILITY IS THAT OF CONTRACTOR TO VERIFY LOCATION AND DEPTH.



APPROVED: *[Signature]* DEVELOPMENT COORDINATOR

DATE: 10/11/17

NO.	DATE	REVISIONS	APP.

GRAND MISSION MUNICIPAL UTILITY
DISTRICT NO. 2
FORT BEND COUNTY, TEXAS

JONES CARTER
Texas Board of Professional Engineers Registration No. F-439
22330 Merchants Way, Suite 170, Katy, TX 77449 (832) 913-4000

**BELLAIRE BLVD UTILITY
EXTENSION & DETENTION
GENERAL CONSTRUCTION LAYOUT
DETENTION PLAN**

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY
AFTER DATE OF SIGNATURES

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER	TRAFFIC & STREET/BIDGE
WASTEWATER	STORM WATER QUALITY
STORM	FACILITIES

FILE NO: _____
JOB NO: 95298-0168-00

DATE: SEPTEMBER 2017
DGN. BY: CES
DWG. BY: EPV

SCALE: 1"=50'

SHEET NO. 5 OF 22



APPROVED FOR
CONSTRUCTION

BELLAIRE BOULEVARD (100' ROW)

UNDERGROUND UTILITY NOTE

CONTRACTOR TO FIELD VERIFY ALL EXISTING UTILITIES INCLUDING CENTERPOINT ENERGY FACILITIES AND AT&T TEXAS/SWBT FACILITIES PRIOR TO COMMENCEMENT OF CONSTRUCTION. LOCATIONS ARE APPROXIMATE AND RESPONSIBILITY IS THAT OF CONTRACTOR TO VERIFY LOCATION AND DEPTH.

EXISTING SWALES NOTE

CONTRACTOR TO ENSURE NO ADVERSE EFFECTS ON THE EXISTING ROAD SIDE SWALES AND TO ENSURE POSITIVE DRAINAGE OF THE SWALES UPON COMPLETION OF CONSTRUCTION.

100-YEAR FLOOD PLAIN

ACCORDING TO MAP NO. 48157C0130L OF THE FEDERAL EMERGENCY MANAGEMENT AGENCY'S FLOOD INSURANCE RATE MAPS DATED APRIL 2, 2014. THE SUBJECT TRACT IS LOCATED PARTIALLY WITHIN:
- SHADED ZONE X, DEFINED AS AREAS OF 0.2% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS LESS THAN 1 FOOT OR WITH DRAINAGE AREAS LESS THAN 1 SQUARE MILE; AND AREAS PROTECTED BY LEVEES FROM 1% ANNUAL CHANCE FLOOD.
- UNSHADED ZONE "X": DEFINED AS AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.

THIS FLOOD STATEMENT DOES NOT IMPLY THAT THE PROPERTY OR STRUCTURES THEREON WILL BE FREE FROM FLOODING OR FLOOD DAMAGE. ON RARE OCCASIONS FLOODS CAN AND WILL OCCUR AND FLOOD HEIGHTS MAY BE INCREASED BY MAN-MADE OR NATURAL CAUSES. THIS FLOOD STATEMENT SHALL NOT CREATE LIABILITY ON THE PART OF THE SURVEYOR.

NOTE: THE 100-YEAR FLOOD ELEVATION IS APPROXIMATELY 92.3 FEET AS PER THE FEMA INSURANCE RATE MAP FOR FORT BEND COUNTY, TEXAS COMMUNITY PANEL NO. 48157C0130L, DATED APRIL 2, 2014. THE 100-YR FLOOD PLAIN, ELEVATION 92.3, IS CONTAINED IN THE CHANNEL SOUTH OF THE DETENTION POND.

STANDARD MANHOLE CONNECTION NOTE

CONTRACTOR SHALL USE CARE TO MAKE OPENING IN WALL OF EXISTING MANHOLE. OPENING SHALL NOT BE MORE THAN 3", NOR LESS THAN 1" GREATER IN DIAMETER THAN THE OUTSIDE DIAMETER OF THE PROPOSED PIPE. PROPOSED PIPE SHALL NOT PROTRUDE MORE THAN 3" PAST THE INSIDE FACE OF MANHOLE WALL. FILL ENTIRE VOID AROUND PIPE WITH NON-SHRINK WATERPROOF GROUT OR USE BOOT AND BREAKOUT/SHAPE INVERT. BACKFILL EXCAVATION AROUND EXISTING MANHOLE WITH CEMENT SAND. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFICATION OF ALL EXISTING UTILITY LOCATIONS. ALL EXISTING UTILITIES ARE SHOWN IN APPROX. LOCATIONS ONLY.

BENCH MARK

ELEVATIONS SHOWN HEREON ARE BASED ON NATIONAL GEODETIC SURVEY MONUMENT DESIGNATION HGSD 66, PID NO. AW5411 HAVING PUBLISHED INFORMATION AS FOLLOWS:

LATITUDE 29 43' 58.13317" NORTH
LONGITUDE 95 50' 45.96836" WEST NAD 83
ELEVATION 136.6 FEET NAVD 88

T.B.M. B

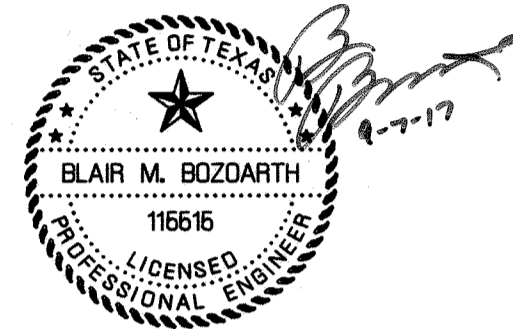
BEING A CUT SQUARE LOCATED ON THE BACK OF CURB ON THE NORTH SIDE OF THE WESTBOUND LANE OF BELLAIRE BOULEVARD, 1 FOOT FROM THE END OF BACK OF CURB AT THE DEAD END.

ELEVATION = 96.18, NAVD 88.

T.B.M. D

BEING A CUT SQUARE ON THE BULLNOSE OF THE MEDIAN ON BEECHNUT STREET AT THE WEST ENTRANCE TO DAVID CROCKETT MIDDLE SCHOOL.

ELEVATION = 93.70, NAVD 88.



APPROVED: *Blair M. Bozarth* DEVELOPMENT COORDINATOR

DATE: 10/6/17

TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT ENERGY AT 713-207-2222

NOTICE: For your safety, you are required by Texas Law to call 811 at least 48 hours before you dig so that underground lines can be marked. This Verification does not fulfill your obligation to call 811.

VERIFICATION OF PRIVATE UTILITY LINES

Signature: *Blair M. Bozarth* Date: 9/28/17

CenterPoint Energy/Natural Gas Facilities Verification ONLY. (This Signature verifies that you have shown CPE Natural Gas lines correctly - not to be used for conflict verification.) (See service lines are not shown.) Signature Valid for six months.

Signature: *Blair M. Bozarth* Date: 9/28/17

CenterPoint Energy/Underground Electrical Facilities Verification ONLY. (This Signature verifies existing underground facilities - not to be used for conflict verification.) Signature Valid for six months.

Signature: *Blair M. Bozarth* Date: 9-27-17

Approved for AT&T Texas/SWBT underground conduit facilities only. Signature Valid for one year.

NO. DATE REVISIONS APP.

GRAND MISSION MUNICIPAL UTILITY
DISTRICT NO. 2
FORT BEND COUNTY, TEXAS

JONES CARTER
Texas Board of Professional Engineers Registration No. F-439
22330 Merchants Way, Suite 170, Katy, TX 77449 (832) 913-4000

BELLAIRE BLVD UTILITY
EXTENSION & DETENTION
BELLAIRE BOULEVARD
PROFILE VIEW
7+00.00 TO 12+00.00

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY
AFTER DATE OF SIGNATURES

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER: *Blair M. Bozarth* 9/28/17
WASTEWATER: *Blair M. Bozarth* 9/28/17
STORM: *Blair M. Bozarth* 9/28/17
STREET & BRIDGE: *Blair M. Bozarth* 9/28/17

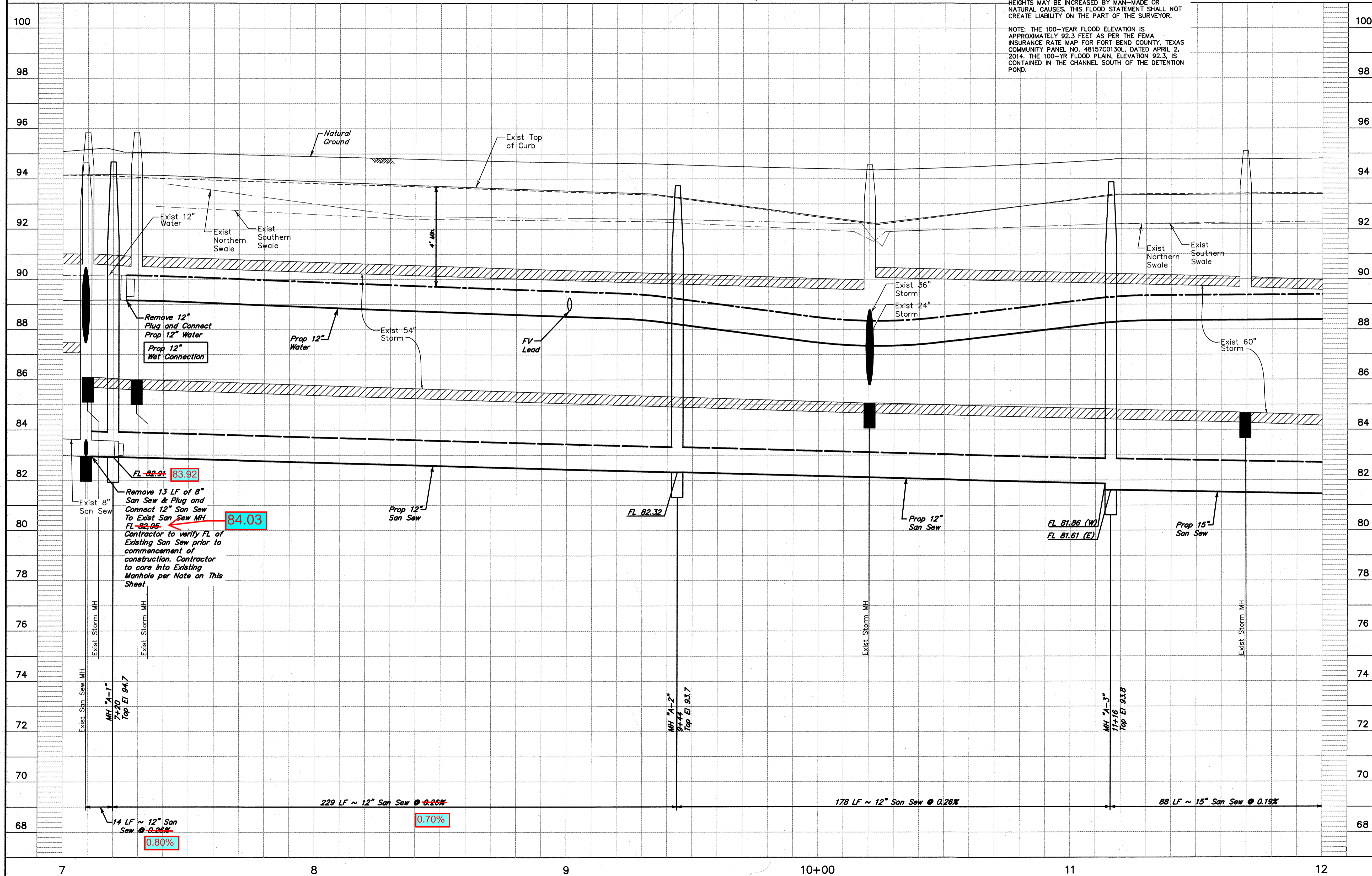
FILE NO: _____
JOB NO: 05298-0168-00

DATE: SEPTEMBER 2017
DGN. BY: CES
DWG. BY: EPV

SCALE: 1"=20' H.
1"=2' V.

SHEET No. 8 OF 22

88955



Curve Data
Δ = 1721.11'
R = 1500.00'
T = 228.91'
L = 454.31'

0 5 10 20 40 60
SCALE: 1" = 20'

SANITARY SEWER/WATERLINE CROSSING PROTECTION REQUIREMENT
CONTRACTOR TO FIELD VERIFY ALL EXISTING UTILITIES INCLUDING CENTERPOINT ENERGY FACILITIES AND AT&T TEXAS/SWBT FACILITIES PRIOR TO COMMENCEMENT OF CONSTRUCTION. LOCATIONS ARE APPROXIMATE AND RESPONSIBILITY IS THAT OF CONTRACTOR TO VERIFY LOCATION AND DEPTH.

UNDERGROUND UTILITY NOTE
CONTRACTOR TO ENSURE NO ADVERSE EFFECTS ON THE EXISTING ROAD SIDE SWALES AND TO ENSURE POSITIVE DRAINAGE OF THE SWALES UPON COMPLETION OF CONSTRUCTION.

100-YEAR FLOOD PLAIN
ACCORDING TO MAP NO. 48157C0130L OF THE FEDERAL EMERGENCY MANAGEMENT AGENCY'S FLOOD INSURANCE RATE MAPS DATED APRIL 2, 2014. THE SUBJECT TRACT IS LOCATED PARTIALLY WITHIN:
- SHADED ZONE "X", DEFINED AS AREAS OF 0.2% ANNUAL CHANCE FLOOD' AREAS OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS LESS THAN 1' FOOT OR WITH DRAINAGE AREAS LESS THAN 1 SQUARE MILE, AND AREAS PROTECTED BY LEVEES FROM 1% ANNUAL CHANCE FLOOD
- UNSHADED ZONE "X": DEFINED AS AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.

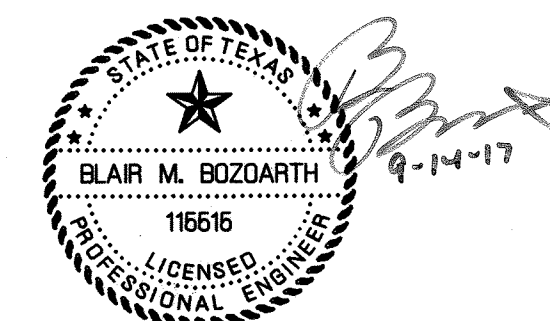
THIS FLOOD STATEMENT DOES NOT IMPLY THAT THE PROPERTY OR STRUCTURES THEREON WILL BE FREE FROM FLOODING OR FLOOD DAMAGE. ON RARE OCCASIONS FLOODS CAN AND WILL OCCUR AND FLOOD HEIGHTS MAY BE INCREASED BY MAN-MADE OR NATURAL CAUSES. THIS FLOOD STATEMENT SHALL NOT CREATE LIABILITY ON THE PART OF THE SURVEYOR.

NOTE: THE 100-YEAR FLOOD ELEVATION IS APPROXIMATELY 92.3 FEET AS PER THE FEMA INSURANCE RATE MAP FOR FORT BEND COUNTY, TEXAS COMMUNITY PANEL NO. 48157C0130L, DATED APRIL 2, 2014. THE 100-YR FLOOD PLAIN, ELEVATION 92.3, IS CONTAINED IN THE CHANNEL SOUTH OF THE DETENTION POND.

BENCH MARK
ELEVATIONS SHOWN HEREON ARE BASED ON NATIONAL GEODETIC SURVEY MONUMENT DESIGNATION HGCSO 66, PID NO. AW5411 HAVING PUBLISHED INFORMATION AS FOLLOWS:
LATITUDE 29 43' 58.13317" NORTH
LONGITUDE 95 50' 45.96836" WEST NAD 83
ELEVATION 136.6 FEET NAVD 88

T.B.M. B
BEING A CUT SQUARE LOCATED ON THE BACK OF CURB ON THE NORTH SIDE OF THE WESTBOUND LANE OF BELLAIRE BOULEVARD, 1 FOOT FROM THE END OF BACK OF CURB AT THE DEAD END.
ELEVATION = 96.18, NAVD 88.

T.B.M. D
BEING A CUT SQUARE ON THE BULLNOSE OF THE MEDIAN ON BEECHNUT STREET AT THE WEST ENTRANCE TO DAVID CROCKETT MIDDLE SCHOOL.
ELEVATION = 93.70, NAVD 88.



APPROVED: *Blair M. Bozarth*
DEVELOPMENT COORDINATOR

DATE: 10/5/17

TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT ENERGY AT 713-207-2222
NOTICE:
For your safety, you are required by Texas Law to call 811 at least 48 hours before you dig so that underground lines can be marked. This verification does not fulfill your obligation to call 811.

VERIFICATION OF PRIVATE UTILITY LINES

Hammer Date: 9/25/17
This Signature verifies that you have shown CPE Natural Gas lines correctly - not to be used for conflict verification. (One signature lines are not shown.)
Signature Valid for six months.

Hammer Date: 9/25/17
This Signature verifies existing underground facilities - not to be used for conflict verification.
Signature Valid for six months.

ctmc Date: 9-27-17
Approved for AT&T Texas/SWBT underground conduit facilities only.
Signature Valid for one year.

NO. DATE REVISIONS APP.

GRAND MISSION MUNICIPAL UTILITY
DISTRICT NO. 2
FORT BEND COUNTY, TEXAS

JONES CARTER
Texas Board of Professional Engineers Registration No. F-439
22330 Merchants Way, Suite 170, Katy, TX 77449 (832) 913-4000

**BELLAIRE BLVD UTILITY
EXTENSION & DETENTION
BELLAIRE BOULEVARD
PLAN VIEW
12+00.0 TO 17+00.00**

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY
AFTER DATE OF SIGNATURES

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER *D. S. Smith* 10/1/17
WASTEWATER *W. P. Smith* 9/14/17
STORM *C. A. Smith* 9/14/17
STREET & BRIDGE

TRAFFIC & TRANSPORTATION
STORM WATER QUALITY
FACILITIES

FILE NO.:
JOB NO.: 05298-0168-00

DATE: SEPTEMBER 2017
DGN. BY: CES
DWG. BY: EPV

SCALE: 1"=20' H.
1"=2' V.

SHEET No. 9 OF 22

FOR CITY OF HOUSTON USE ONLY
CITY DWG NO.

58955

APPROVED FOR
CONSTRUCTION

CALLED 4.02 ACRE
DRILL SITE
CF No. 2004145888
FBCOPRRP

BELLAIRE BLVD.
(100' ROW)
CF NO. 2006051285
FBCOPRRP

PROPOSED DETENTION POND

EXISTING DETENTION POND

APPROVED FOR
CONSTRUCTION

BELLAIRE BOULEVARD (100' ROW)

100-YEAR FLOOD PLAIN
ACCORDING TO MAP NO. 48157C0130L OF THE FEDERAL EMERGENCY MANAGEMENT AGENCY'S FLOOD INSURANCE RATE MAPS DATED APRIL 2, 2014. THE SUBJECT TRACT IS LOCATED PARTIALLY WITHIN:
- SHADED ZONE X: DEFINED AS AREAS OF 0.2% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS LESS THAN 1 FOOT OR WITH DRAINAGE AREAS LESS THAN 1 SQUARE MILE; AND AREAS PROTECTED BY LEVEES FROM 1% ANNUAL CHANCE FLOOD
- UNSHADED ZONE "X": DEFINED AS AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.

THIS FLOOD STATEMENT DOES NOT IMPLY THAT THE PROPERTY OR STRUCTURES THEREON WILL BE FREE FROM FLOODING OR FLOOD DAMAGE. ON RARE OCCASIONS FLOODS CAN AND WILL OCCUR AND FLOOD HEIGHTS MAY BE INCREASED BY MAN-MADE OR NATURAL CAUSES. THIS FLOOD STATEMENT SHALL NOT CREATE LIABILITY ON THE PART OF THE SURVEYOR.

NOTE: THE 100-YEAR FLOOD ELEVATION IS APPROXIMATELY 92.3 FEET AS PER THE FEMA INSURANCE RATE MAP FOR FORT BEND COUNTY, TEXAS COMMUNITY PANEL NO. 48157C0130L, DATED APRIL 2, 2014. THE 100-YR FLOOD PLAIN, ELEVATION 92.3, IS CONTAINED IN THE CHANNEL SOUTH OF THE DETENTION POND.

UNDERGROUND UTILITY NOTE
CONTRACTOR TO FIELD VERIFY ALL EXISTING UTILITIES INCLUDING CENTERPOINT ENERGY FACILITIES AND AT&T TEXAS/SWBT FACILITIES PRIOR TO COMMENCEMENT OF CONSTRUCTION. LOCATIONS ARE APPROXIMATE AND RESPONSIBILITY IS THAT OF CONTRACTOR TO VERIFY LOCATION AND DEPTH.

EXISTING SWALES NOTE
CONTRACTOR TO ENSURE NO ADVERSE EFFECTS ON THE EXISTING ROAD SIDE SWALES AND TO ENSURE POSITIVE DRAINAGE OF THE SWALES UPON COMPLETION OF CONSTRUCTION.

BENCH MARK
ELEVATIONS SHOWN HEREON ARE BASED ON NATIONAL GEODETIC SURVEY MONUMENT DESIGNATION HGSD 66, PID NO. AW5411 HAVING PUBLISHED INFORMATION AS FOLLOWS:

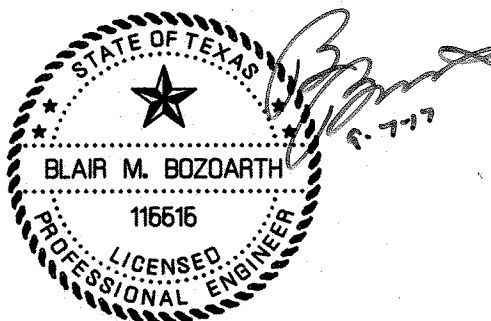
LATITUDE 29 43' 58.13317" NORTH
LONGITUDE 95 50' 45.96836" WEST NAD 83
ELEVATION 136.6 FEET NAVD 88

T.B.M. B
BEING A CUT SQUARE LOCATED ON THE BACK OF CURB ON THE NORTH SIDE OF THE WESTBOUND LANE OF BELLAIRE BOULEVARD, 1 FOOT FROM THE END OF BACK OF CURB AT THE DEAD END.

ELEVATION = 96.18, NAVD 88.

T.B.M. D
BEING A CUT SQUARE LOCATED ON THE BULLNOSE OF THE MEDIAN ON BEECHNUT STREET AT THE WEST ENTRANCE TO DAVID CROCKETT MIDDLE SCHOOL.

ELEVATION = 93.70, NAVD 88.



APPROVED: *Magid* DEVELOPMENT COORDINATOR

DATE: 10/6/17

TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT ENERGY AT 713-207-2222
NOTICE:
For your safety, you are required by Texas Law to call 811 at least 48 hours before you dig so that underground lines can be marked. This Verification does not fulfill your obligation to call 811.

VERIFICATION OF PRIVATE UTILITY LINES

Hummer Date: 9/28/17

NOTICE:
(This Signature verifies that you have shown CHP Natural Gas lines correctly - not to be used for conflict verification.) (See service lines are not shown.)
Signature Valid for six months.

Hummer Date: 9/28/17

NOTICE:
(This Signature verifies that you have shown CHP Natural Gas lines correctly - not to be used for conflict verification.) (See service lines are not shown.)
Signature Valid for six months.

CAMC Date: 9-27-17

NOTICE:
(This Signature verifies that you have shown CHP Natural Gas lines correctly - not to be used for conflict verification.) (See service lines are not shown.)
Signature Valid for six months.

Approved for AT&T Texas/SWBT underground conduit facilities only.
Signature Valid for one year.

Signature Valid for one year.

Signature Valid for one year.

Signature Valid for one year.

Signature Valid for one year.

Signature Valid for one year.

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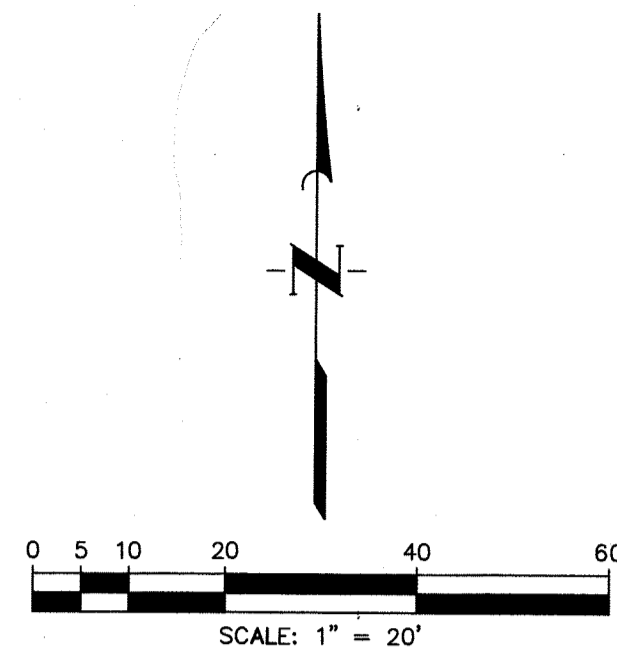
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UNDERGROUND UTILITY NOTE
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EXISTING SWALES NOTE
CONTRACTOR TO ENSURE NO ADVERSE EFFECTS ON THE EXISTING ROAD SIDE SWALES AND TO ENSURE POSITIVE DRAINAGE OF THE SWALES UPON COMPLETION OF CONSTRUCTION.

POWER POLE BRACING NOTE
CONTRACTOR TO COORDINATE WITH CENTERPOINT ENERGY ON BRACING EXISTING POWER POLES WITHIN WORK ZONE.

100-YEAR FLOOD PLAIN
ACCORDING TO MAP NO. 48157C0130L OF THE FEDERAL EMERGENCY MANAGEMENT AGENCY'S FLOOD INSURANCE RATE MAPS DATED APRIL 2, 2014. THE SUBJECT TRACT IS LOCATED PARTIALLY WITHIN:
- SHADED ZONE X, DEFINED AS AREAS OF 0.2% ANNUAL CHANCE FLOOD' AREAS OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS LESS THAN 1 FOOT OR WITH DRAINAGE AREAS LESS THAN 1 SQUARE MILE; AND AREAS PROTECTED BY LEVEES FROM 1% ANNUAL CHANCE FLOOD
- UNSHADED ZONE "X": DEFINED AS AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.

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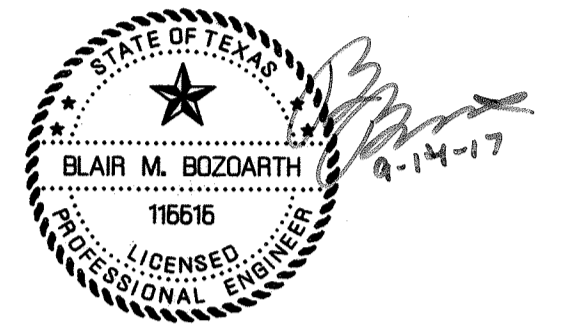
NOTE: THE 100-YEAR FLOOD ELEVATION IS APPROXIMATELY 92.3 FEET AS PER THE FEMA INSURANCE RATE MAP FOR FORT BEND COUNTY, TEXAS COMMUNITY PANEL NO. 48157C0130L, DATED APRIL 2, 2014. THE 100-YR FLOOD PLAIN, ELEVATION 92.3, IS CONTAINED IN THE CHANNEL SOUTH OF THE DETENTION POND.

Curve Data
 $\Delta = 25^{\circ}31'16''$
 $R = 2000.00'$
 $T = 452.94'$
 $L = 890.86'$

BENCH MARK
ELEVATIONS SHOWN HEREON ARE BASED ON NATIONAL GEODETIC SURVEY MONUMENT DESIGNATION HGCSO 66, PID NO. AW5411 HAVING PUBLISHED INFORMATION AS FOLLOWS:
LATITUDE $29^{\circ}43'58.13317''$ NORTH
LONGITUDE $95^{\circ}50'45.96836''$ WEST NAD 83
ELEVATION 136.6 FEET NAVD 88

T.B.M. B
BEING A CUT SQUARE LOCATED ON THE BACK OF CURB ON THE NORTH SIDE OF THE WESTBOUND LANE OF BELLAIRE BOULEVARD, 1 FOOT FROM THE END OF CURB AT THE DEAD END.
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T.B.M. D
BEING A CUT SQUARE ON THE BULLNOSE OF THE MEDIAN ON BEECHNUT STREET AT THE WEST ENTRANCE TO DAVID CROCKETT MIDDLE SCHOOL.
ELEVATION = 93.70, NAVD 88.



APPROVED: *Blair M. Bozarth*
DEVELOPMENT COORDINATOR

DATE: 10/16/17

TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT ENERGY AT 713-207-2222.
NOTICE:
For your safety, you are required by Texas Law to call 811 at least 48 hours before you dig so that underground lines can be marked. This Verification does not fulfill your obligation to call 811.

VERIFICATION OF PRIVATE UTILITY LINES

Blair M. Bozarth Date: 9/28/17
CenterPoint Energy/Natural Gas Facilities Verification ONLY.
(This Signature verifies that you have shown OHP Natural Gas lines correctly - not to be used for conflict verification.) (See service lines are not shown.)
Signature Valid for six months.

Blair M. Bozarth Date: 9/28/17
CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY.
(This Signature verifies existing underground facilities - not to be used for conflict verification.)
Signature Valid for six months.

C.M.C. Date: 9-27-17
Approved for AT&T Texas/SWBT underground conduit facilities only.
Signature Valid for one year.

NO.	DATE	REVISIONS	APP.

GRAND MISSION MUNICIPAL UTILITY
DISTRICT NO. 2
FORT BEND COUNTY, TEXAS

J.C. JONES | CARTER
Texas Board of Professional Engineers Registration No. F-439
22330 Merchants Way, Suite 170, Katy, TX 77449 (832) 913-4000

**BELLAIRE BLVD UTILITY
EXTENSION & DETENTION
BELLAIRE BOULEVARD
PLAN VIEW
17+00.00 TO 22+00.00**

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY
AFTER DATE OF SIGNATURES

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER <i>Blair M. Bozarth</i> 9/14/17	TRAFFIC & TRANSPORTATION
WASTEWATER <i>Blair M. Bozarth</i> 9/14/17	STORM WATER QUALITY
STORM <i>C.M.C.</i> 9-14-17	FACILITIES
STREET & BRIDGE	

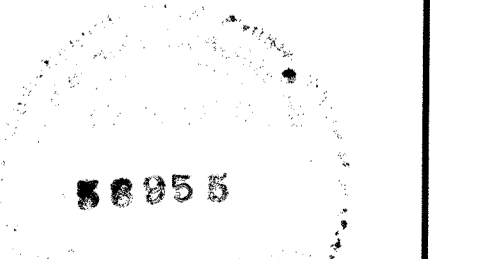
FILE NO: _____
JOB NO: 05298-0168-00

DATE: SEPTEMBER 2017
DGN. BY: CES
DWG. BY: EPV

SCALE: 1"=20' H.
1"=2' V.

SHEET No. 11 OF 22

FOR CITY OF HOUSTON USE ONLY
CITY DWG NO.



FUTURE
COMMERCIAL
± 11.30 Ac.

BELLAIRE BLVD.
(100' ROW)
CF NO. 2006051285
FBCOPRRP

GRAND MISSION
ESTATES SEC. 2
Plat No. 20060278
FBCPR

APPROVED FOR
CONSTRUCTION

APPROVED FOR
CONSTRUCTION

BELLAIRE BOULEVARD (100' ROW)

100-YEAR FLOOD PLAIN
ACCORDING TO MAP NO. 48157C0130L OF THE FEDERAL EMERGENCY MANAGEMENT AGENCY'S FLOOD INSURANCE RATE MAPS DATED APRIL 2, 2014. THE SUBJECT TRACT IS LOCATED PARTIALLY WITHIN:
- SHADED ZONE "X", DEFINED AS AREAS OF 0.2% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS LESS THAN 1 FOOT OR WITH DRAINAGE AREAS LESS THAN 1 SQUARE MILE; AND AREAS PROTECTED BY LEVEES FROM 1% ANNUAL CHANCE FLOOD
- UNSHADED ZONE "X": DEFINED AS AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.

THIS FLOOD STATEMENT DOES NOT IMPLY THAT THE PROPERTY OR STRUCTURES THEREON WILL BE FREE FROM FLOODING OR FLOOD DAMAGE. ON RARE OCCASIONS FLOODS CAN AND WILL OCCUR AND FLOOD HEIGHTS MAY BE INCREASED BY MAN-MADE OR NATURAL CAUSES. THIS FLOOD STATEMENT SHALL NOT CREATE LIABILITY ON THE PART OF THE SURVEYOR.

NOTE: THE 100-YEAR FLOOD ELEVATION IS APPROXIMATELY 92.3 FEET AS PER THE FEMA INSURANCE RATE MAP FOR FORT BEND COUNTY, TEXAS COMMUNITY PANEL NO. 48157C0130L, DATED APRIL 2, 2014. THE 100-YR FLOOD PLAIN, ELEVATION 92.3, IS CONTAINED IN THE CHANNEL SOUTH OF THE DETENTION POND.

UNDERGROUND UTILITY NOTE
CONTRACTOR TO FIELD VERIFY ALL EXISTING UTILITIES INCLUDING CENTERPOINT ENERGY FACILITIES AND AT&T TEXAS/SWBT FACILITIES PRIOR TO COMMENCEMENT OF CONSTRUCTION. LOCATIONS ARE APPROXIMATE AND RESPONSIBILITY IS THAT OF CONTRACTOR TO VERIFY LOCATION AND DEPTH.

EXISTING SWALES NOTE
CONTRACTOR TO ENSURE NO ADVERSE EFFECTS ON THE EXISTING ROAD SIDE SWALES AND TO ENSURE POSITIVE DRAINAGE OF THE SWALES UPON COMPLETION OF CONSTRUCTION.

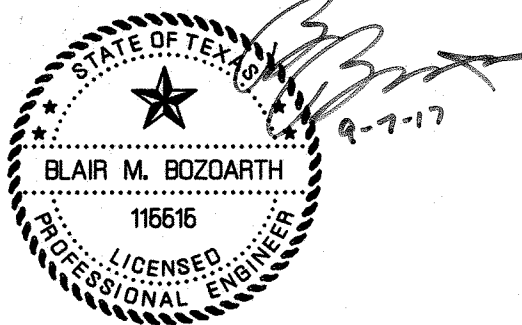
BENCH MARK
ELEVATIONS SHOWN HEREON ARE BASED ON NATIONAL GEODETIC SURVEY MONUMENT DESIGNATION HGCD 66, PID NO. AW5411 HAVING PUBLISHED INFORMATION AS FOLLOWS:
LATITUDE 29 43' 58.13317" NORTH
LONGITUDE 95 50' 45.96836" WEST NAD 83
ELEVATION 136.6 FEET NAVD 88

T.B.M. B
BEING A CUT SQUARE LOCATED ON THE BACK OF CURB ON THE NORTH SIDE OF THE WESTBOUND LANE OF BELLAIRE BOULEVARD, 1 FOOT FROM THE END OF BACK OF CURB AT THE DEAD END.

ELEVATION = 96.18, NAVD 88.

T.B.M. D
BEING A CUT SQUARE ON THE BULLNOSE OF THE MEDIAN ON BEECHNUT STREET AT THE WEST ENTRANCE TO DAVID CROCKETT MIDDLE SCHOOL.

ELEVATION = 93.70, NAVD 88.



APPROVED: *Magid* DEVELOPMENT COORDINATOR

DATE: 10/6/17

TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT ENERGY AT 713-207-2222
For your safety, you are required by Texas Law to call 811 at least 48 hours before you dig so that underground lines can be marked. This Verification does not fulfill your obligation to call 811.

VERIFICATION OF PRIVATE UTILITY LINES

Signature Date: 9/28/17
CenterPoint Energy/Natural Gas Facilities Verification ONLY.
(This Signature verifies that you have shown CPE Natural Gas lines correctly - not to be used for conflict verification.) (See service lines are not shown.)
Signature Valid for six months.

Signature Date: 9/28/17
CenterPoint Energy/Underground Electrical Facilities Verification ONLY.
(This Signature verifies that you have shown CPE Underground Electrical lines correctly - not to be used for conflict verification.) (See service lines are not shown.)
Signature Valid for six months.

Signature Date: 9-27-17
Approved for AT&T Texas/SWBT underground conduit facilities only.
Signature Valid for one year.

NO.	DATE	REVISIONS	APP.

GRAND MISSION MUNICIPAL UTILITY
DISTRICT NO. 2
FORT BEND COUNTY, TEXAS

JONES CARTER
Texas Board of Professional Engineers Registration No. F-439
22330 Merchants Way, Suite 170, Katy, TX 77449 (832) 913-4000

**BELLAIRE BLVD UTILITY
EXTENSION & DETENTION
BELLAIRE BOULEVARD
PROFILE VIEW
17+00.00 TO 22+00.00**

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY
AFTER DATE OF SIGNATURES

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

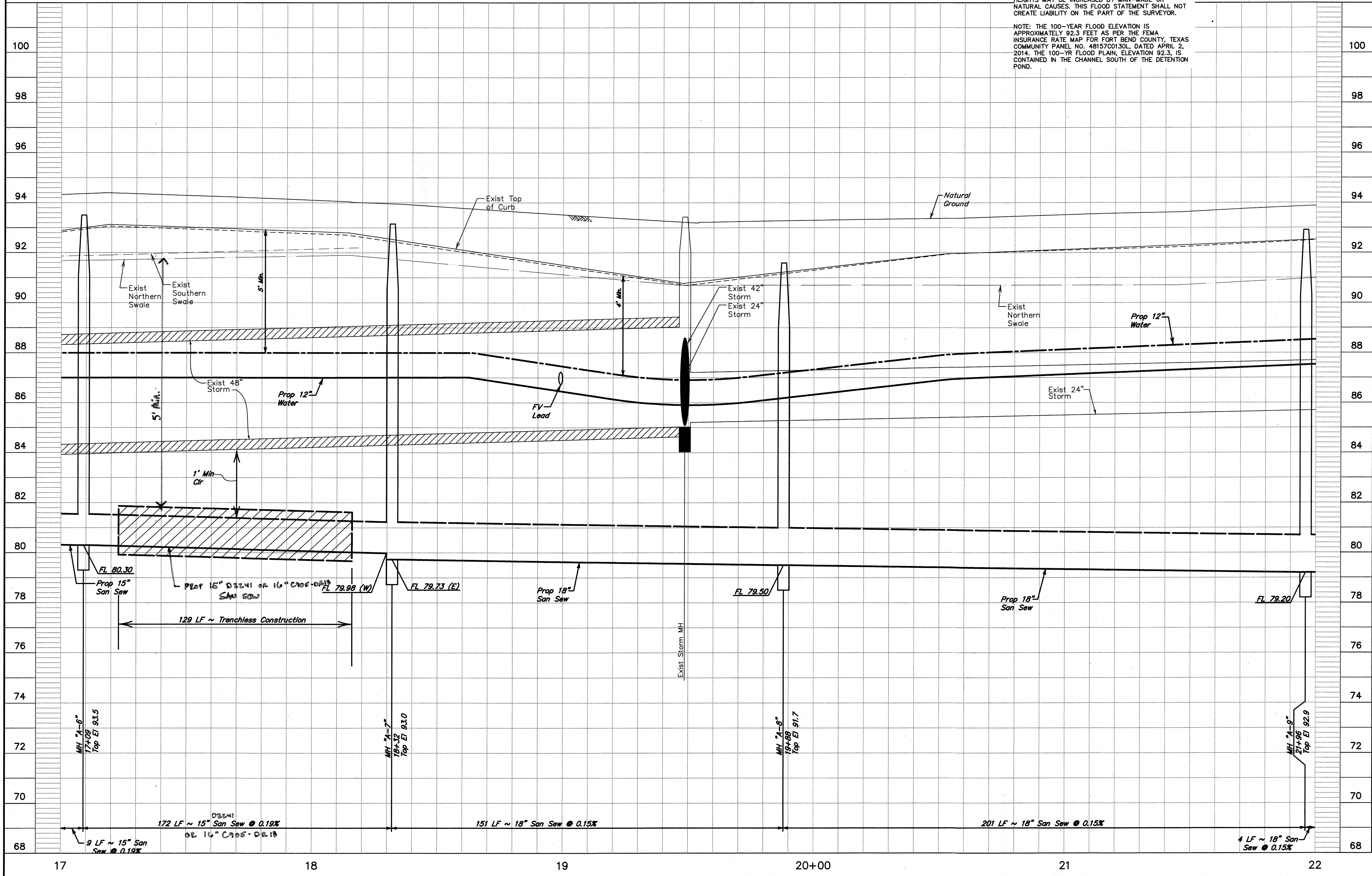
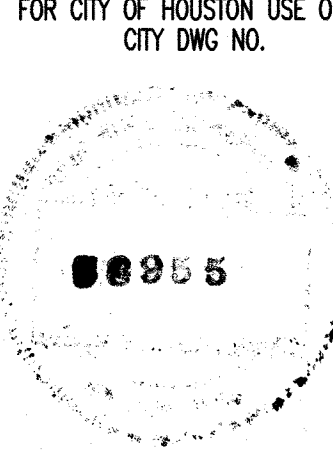
WATER	TRAFFIC & TRANSPORTATION
<i>Signature</i> 9/28/17	
<i>Signature</i> 9/28/17	STORM WATER QUALITY
<i>Signature</i> 9-24-17	FACILITIES
<i>Signature</i> 9-24-17	

FILE NO: _____
JOB NO: 05298-0168-00

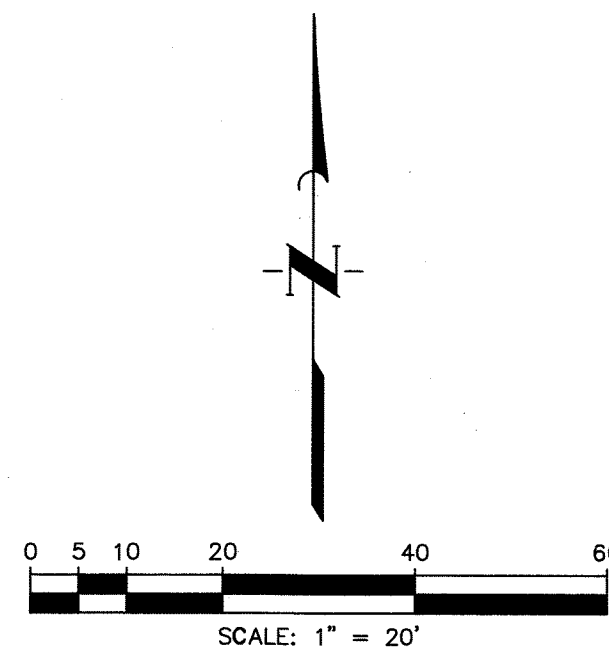
DATE: SEPTEMBER 2017
DGN. BY: CES
DWG. BY: EPV

SCALE: 1"=20' H.
1"=2' V.

SHEET No. 12 OF 22



Curve Data
Δ = 25°31'16"
R = 2000.00'
T = 452.94'
L = 890.86'



UNDERGROUND UTILITY NOTE
CONTRACTOR TO FIELD VERIFY ALL EXISTING UTILITIES INCLUDING CENTERPOINT ENERGY FACILITIES AND AT&T TEXAS/SWBT FACILITIES PRIOR TO COMMENCEMENT OF CONSTRUCTION. LOCATIONS ARE APPROXIMATE AND RESPONSIBILITY IS THAT OF CONTRACTOR TO VERIFY LOCATION AND DEPTH.

EXISTING SWALES NOTE
CONTRACTOR TO ENSURE NO ADVERSE EFFECTS ON THE EXISTING ROAD SIDE SWALES AND TO ENSURE POSITIVE DRAINAGE OF THE SWALES UPON COMPLETION OF CONSTRUCTION.

POWER POLE BRACING NOTE
CONTRACTOR TO COORDINATE WITH CENTERPOINT ENERGY ON BRACING EXISTING POWER POLES WITHIN WORK ZONE.

100-YEAR FLOOD PLAIN
ACCORDING TO MAP NO. 48157C0130L OF THE FEDERAL EMERGENCY MANAGEMENT AGENCY'S FLOOD INSURANCE RATE MAPS DATED APRIL 2, 2014, THE SUBJECT TRACT IS LOCATED PARTIALLY WITHIN:
- SHADED ZONE "X", DEFINED AS AREAS OF 0.2% ANNUAL CHANCE FLOOD AREAS OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS LESS THAN 1 FOOT OR WITH DRAINAGE AREAS LESS THAN 1 SQUARE MILE; AND AREAS PROTECTED BY LEVEES FROM 1% ANNUAL CHANCE FLOOD
- UNSHADED ZONE "X", DEFINED AS AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.

THIS FLOOD STATEMENT DOES NOT IMPLY THAT THE PROPERTY OR STRUCTURES THEREON WILL BE FREE FROM FLOODING OR FLOOD DAMAGE, ON RARE OCCASIONS FLOODS CAN AND WILL OCCUR AND FLOOD HEIGHTS MAY BE INCREASED BY MAN-MADE OR NATURAL CAUSES. THIS FLOOD STATEMENT SHALL NOT CREATE LIABILITY ON THE PART OF THE SURVEYOR.

NOTE: THE 100-YEAR FLOOD ELEVATION IS APPROXIMATELY 92.3 FEET AS PER THE FEMA INSURANCE RATE MAP FOR FORT BEND COUNTY, TEXAS COMMUNITY PANEL NO. 48157C0130L, DATED APRIL 2, 2014. THE 100-YR FLOOD PLAIN, ELEVATION 92.3, IS CONTAINED IN THE CHANNEL SOUTH OF THE DETENTION POND.

BENCH MARK
ELEVATIONS SHOWN HEREON ARE BASED ON NATIONAL GEODETIC SURVEY MONUMENT DESIGNATION HGCS 66, PID NO. AW5411 HAVING PUBLISHED INFORMATION AS FOLLOWS:

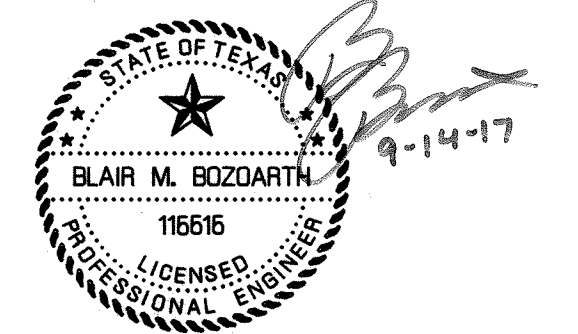
LATITUDE 29 43' 58.13317" NORTH
LONGITUDE 95 50' 45.96836" WEST NAD 83
ELEVATION 136.6 FEET NAVD 88

T.B.M. B
BEING A CUT SQUARE LOCATED ON THE BACK OF CURB ON THE NORTH SIDE OF THE WESTBOUND LANE OF BELLAIRE BOULEVARD, 1 FOOT FROM THE END OF BACK OF CURB AT THE DEAD END.

ELEVATION = 96.18, NAVD 88.

T.B.M. D
BEING A CUT SQUARE ON THE BULLNOSE OF THE MEDIAN ON BEECHNUT STREET AT THE WEST ENTRANCE TO DAVID CROCKETT MIDDLE SCHOOL.

ELEVATION = 93.70, NAVD 88.



APPROVED: *Maxid* DEVELOPMENT COORDINATOR

DATE: 10/6/17

TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT ENERGY AT 713-207-2222

NOTICE:
For your safety, you are required by Texas Law to call 811 at least 48 hours before you dig so that underground lines can be marked. This Verification does not fulfill your obligation to call 811.

VERIFICATION OF PRIVATE UTILITY LINES

Signature: *Blair M. Bozarth* Date: 9/28/17

Signature: *Blair M. Bozarth* Date: 9/29/17

Signature: *Blair M. Bozarth* Date: 9-27-17

Signature: *Blair M. Bozarth* Date: 9-27-17

Signature: *Blair M. Bozarth* Date: 9-27-17

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Signature: *Blair M. Bozarth* Date: 9-27-17

Signature: *Blair M. Bozarth* Date: 9-27-17

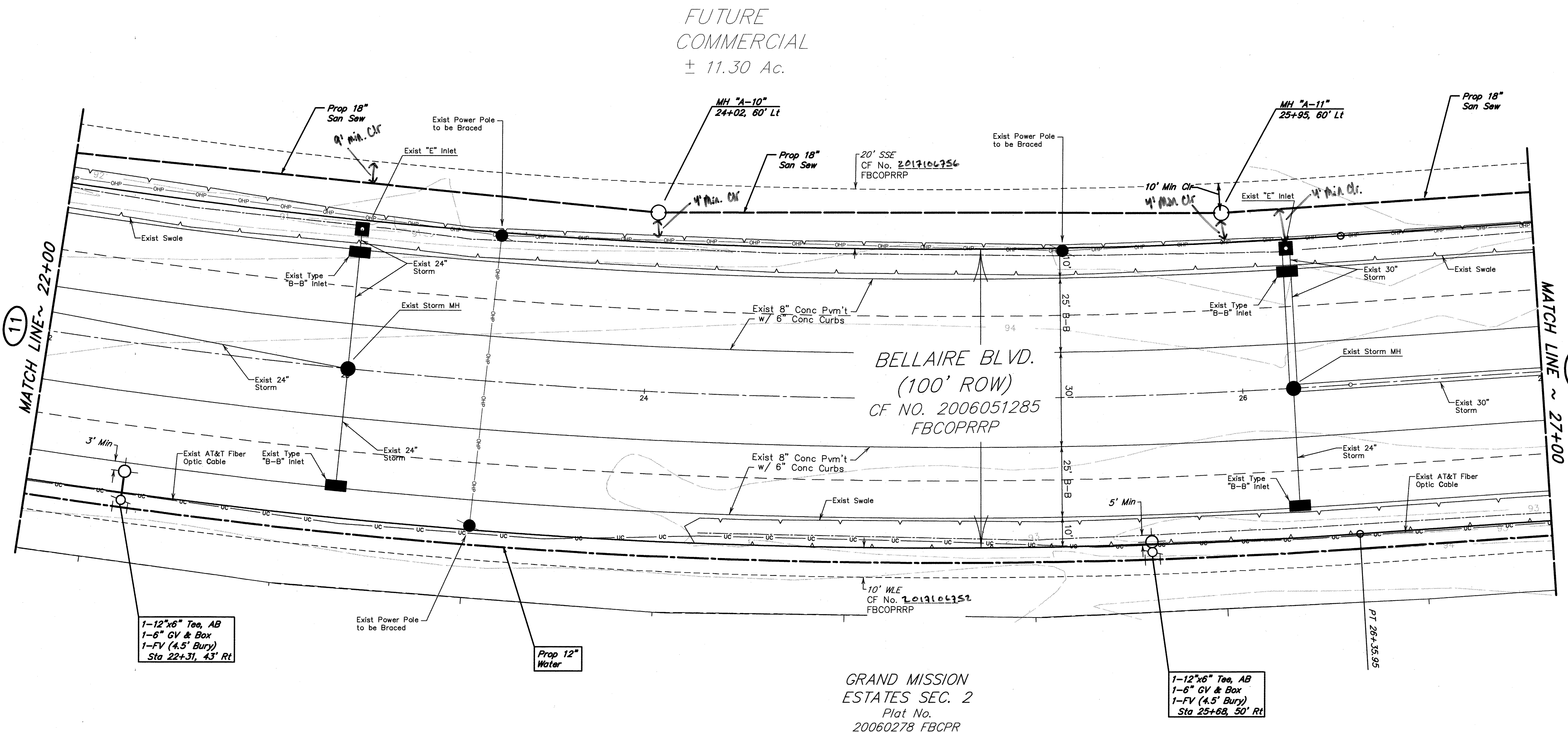
Signature: *Blair M. Bozarth* Date: 9-27-17

Signature: *Blair M. Bozarth* Date: 9-27-17

Signature: *Blair M. Bozarth* Date: 9-27-17

Signature: *Blair M. Bozarth* Date: 9-27-17

Signature: *Blair M. Bozarth* Date: 9-27-17



APPROVED FOR
CONSTRUCTION

APPROVED FOR
CONSTRUCTION

BELLAIRE BOULEVARD (100' ROW)

100-YEAR FLOOD PLAIN
ACCORDING TO MAP NO. 48157C0130L OF THE FEDERAL EMERGENCY MANAGEMENT AGENCY'S FLOOD INSURANCE RATE MAPS DATED APRIL 2, 2014, THE SUBJECT TRACT IS LOCATED PARTIALLY WITHIN:
- SHADED ZONE "X", DEFINED AS AREAS OF 0.2% ANNUAL CHANCE FLOOD AREAS OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS LESS THAN 1 FOOT OR WITH DRAINAGE AREAS LESS THAN 1 SQUARE MILE; AND AREAS PROTECTED BY LEVEES FROM 1% ANNUAL CHANCE FLOOD
- UNSHADED ZONE "X", DEFINED AS AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.

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NOTE: THE 100-YEAR FLOOD ELEVATION IS APPROXIMATELY 92.3 FEET AS PER THE FEMA INSURANCE RATE MAP FOR FORT BEND COUNTY, TEXAS COMMUNITY PANEL NO. 48157C0130L, DATED APRIL 2, 2014. THE 100-YR FLOOD PLAIN, ELEVATION 92.3, IS CONTAINED IN THE CHANNEL SOUTH OF THE DETENTION POND.

UNDERGROUND UTILITY NOTE
CONTRACTOR TO FIELD VERIFY ALL EXISTING UTILITIES INCLUDING CENTERPOINT ENERGY FACILITIES AND AT&T TEXAS/SWBT FACILITIES PRIOR TO COMMENCEMENT OF CONSTRUCTION. LOCATIONS ARE APPROXIMATE AND RESPONSIBILITY IS THAT OF CONTRACTOR TO VERIFY LOCATION AND DEPTH.

EXISTING SWALES NOTE
CONTRACTOR TO ENSURE NO ADVERSE EFFECTS ON THE EXISTING ROAD SIDE SWALES AND TO ENSURE POSITIVE DRAINAGE OF THE SWALES UPON COMPLETION OF CONSTRUCTION.

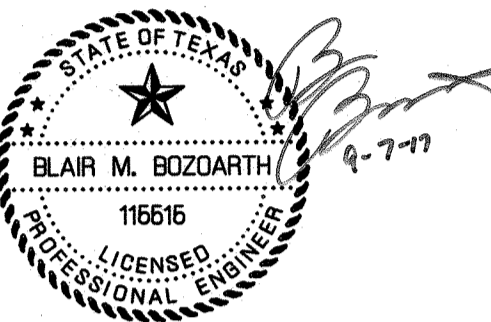
BENCH MARK
ELEVATIONS SHOWN HEREON ARE BASED ON NATIONAL GEODETIC SURVEY MONUMENT DESIGNATION HGSD 66, PID NO. AW5411 HAVING PUBLISHED INFORMATION AS FOLLOWS:
LATITUDE 29 43' 58.13317" NORTH
LONGITUDE 95 50' 45.96836" WEST NAD 83
ELEVATION 136.6 FEET NAVD 88

T.B.M. B
BEING A CUT SQUARE LOCATED ON THE BACK OF CURB ON THE NORTH SIDE OF THE WESTBOUND LANE OF BELLAIRE BOULEVARD, 1 FOOT FROM THE END OF BACK OF CURB AT THE DEAD END.

ELEVATION = 96.18, NAVD 88.

T.B.M. D
BEING A CUT SQUARE ON THE BULLNOSE OF THE MEDIAN ON BEACONUT STREET AT THE WEST ENTRANCE TO DAVID CROCKETT MIDDLE SCHOOL.

ELEVATION = 93.70, NAVD 88.



APPROVED: *Blair M. Bozarth*
DEVELOPMENT COORDINATOR

DATE: 10/5/17

TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT ENERGY AT 713-207-2222
NOTICE:
For your safety, you are required by Texas Law to call 811 at least 48 hours before you dig so that underground lines can be marked. This verification does not fulfill your obligation to call 811.

VERIFICATION OF PRIVATE UTILITY LINES

Signature Date: 9/28/17

CenterPoint Energy/Natural Gas Facilities Verification ONLY.
(This Signature verifies that you have shown CPE Natural Gas lines correctly - not to be used for conflict verification.) (See website for more details.)
Signature Valid for six months.

Signature Date: 9/28/17

CenterPoint Energy/Underground Electrical Facilities Verification ONLY.
(This Signature verifies existing underground facilities - not to be used for conflict verification.)
Signature Valid for six months.

Signature Date: 9-27-17

Approved for AT&T Texas/SWBT underground conduit facilities only.
Signature Valid for one year.

NO. DATE REVISIONS APP.

GRAND MISSION MUNICIPAL UTILITY
DISTRICT NO. 2
FORT BEND COUNTY, TEXAS

JC JONES CARTER
Texas Board of Professional Engineers Registration No. F-439
22330 Merchants Way, Suite 170, Katy, TX 77449 (832) 913-4000

BELLAIRE BLVD UTILITY
EXTENSION & DETENTION
BELLAIRE BOULEVARD
PROFILE VIEW
22+00.00 TO 27+00.00

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY
AFTER DATE OF SIGNATURES

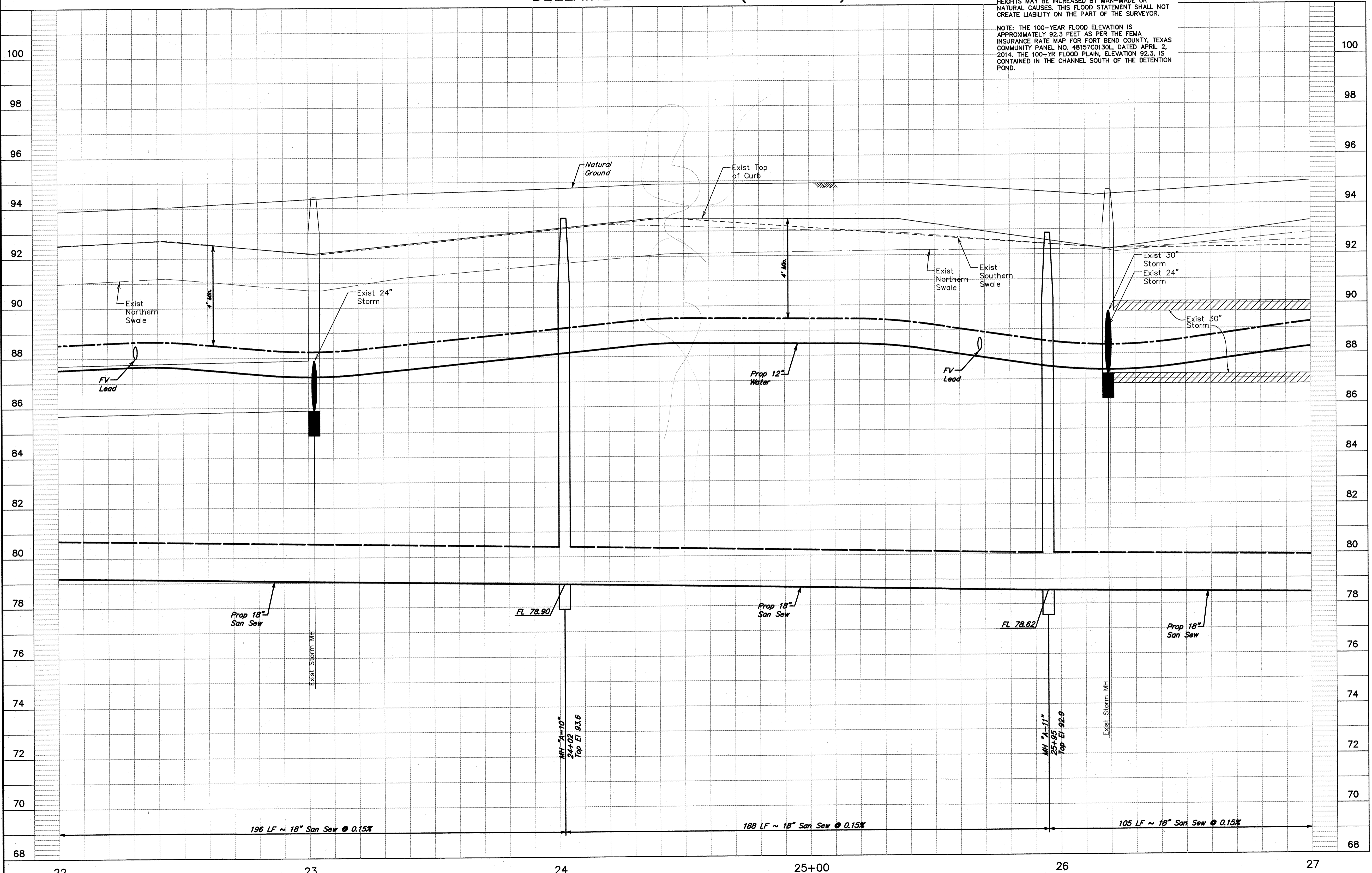
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

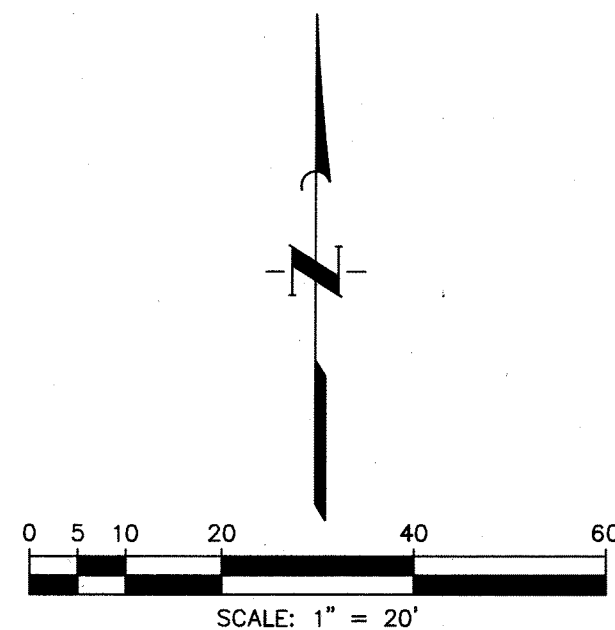
WATER	TRAFFIC & TRANSPORTATION
WASTEWATER	STORM WATER QUALITY
STORM	FACILITIES
STREET & BRIDGE	

FILE NO: _____
JOB NO: 05298-0168-00

DATE: SEPTEMBER 2017
DCN. BY: CES
DWG. BY: EPV
SCALE: 1"=20' H.
1"=2' V.

SHEET No. 14 OF 22





Curve Data
 $\Delta = 08'02.37''$
 $R = 2000.00'$
 $T = 140.62'$
 $L = 280.77'$

UNDERGROUND UTILITY NOTE
CONTRACTOR TO FIELD VERIFY ALL EXISTING UTILITIES INCLUDING CENTERPOINT ENERGY FACILITIES AND AT&T TEXAS/SWBT FACILITIES PRIOR TO COMMENCEMENT OF CONSTRUCTION. LOCATIONS ARE APPROXIMATE AND RESPONSIBILITY IS THAT OF CONTRACTOR TO VERIFY LOCATION AND DEPTH.

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POWER POLE BRACING NOTE
CONTRACTOR TO COORDINATE WITH CENTERPOINT ENERGY ON BRACING EXISTING POWER POLES WITHIN WORK ZONE.

100-YEAR FLOOD PLAIN
ACCORDING TO MAP NO. 48157C0130L OF THE FEDERAL EMERGENCY MANAGEMENT AGENCY'S FLOOD INSURANCE RATE MAPS DATED APRIL 2, 2014, THE SUBJECT TRACT IS LOCATED PARTIALLY WITHIN:
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BENCH MARK
ELEVATIONS SHOWN HEREON ARE BASED ON NATIONAL GEODETIC SURVEY MONUMENT DESIGNATION HGCD 66, PID NO. AWS411 HAVING PUBLISHED INFORMATION AS FOLLOWS:

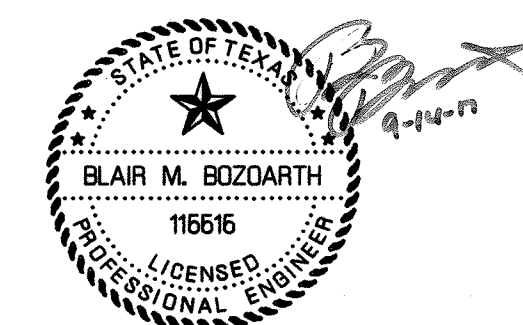
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T.B.M. D
BEING A CUT SQUARE ON THE BULLNOSE OF THE MEDIAN ON BEECHNUT STREET AT THE WEST ENTRANCE TO DAVID CROCKETT MIDDLE SCHOOL.

ELEVATION = 93.70, NAVD 88.



APPROVED: *May 15/17*
DEVELOPMENT COORDINATOR

DATE: 10/5/17

TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT ENERGY AT 713-207-2222

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Signature Date: 9/28/17

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Signature Valid for six months.

Signature Date: 9/28/17

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Signature Valid for six months.

Signature Date: 9-27-17

Approved for AT&T Texas/SWBT underground conduit facilities only.
Signature Valid for one year.

Signature Date: 9-27-17

Approved for AT&T Texas/SWBT underground conduit facilities only.
Signature Valid for one year.

Signature Date: 9-27-17

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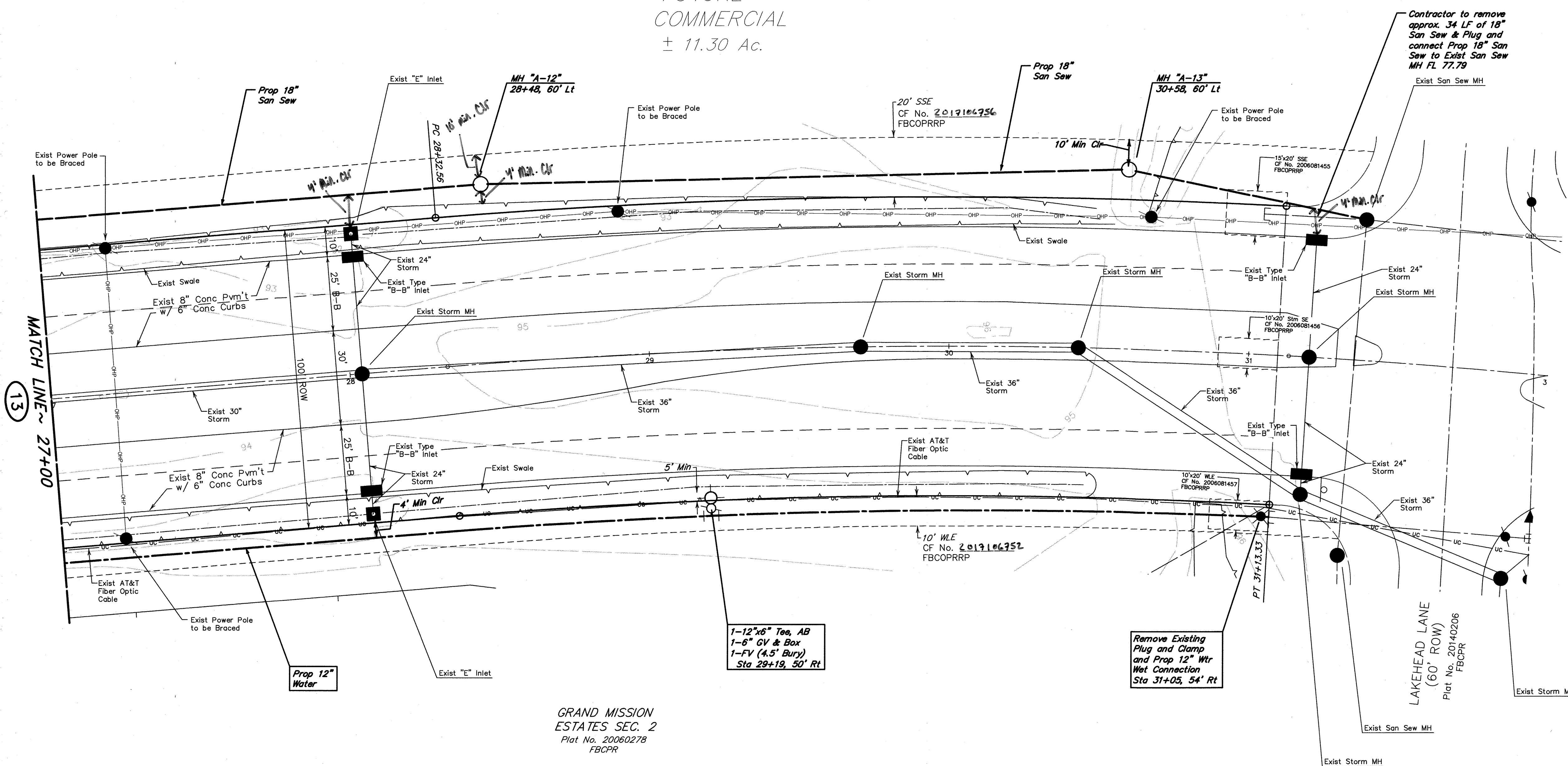
Signature Date: 9-27-17

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Signature Date: 9-27-17

Approved for AT&T Texas/SWBT underground conduit facilities only.
Signature Valid for one year.

FUTURE
COMMERCIAL
± 11.30 Ac.



1-12"x6" Tee, AB
1-6" CV & Box
1-FV (4.5' Bury)
Sta 29+19, 30' Rt

Remove Existing
Plug and Clamp
and Prop 12" Wtr
Wet Connection
Sta 31+05, 54' Rt

GRAND MISSION
ESTATES SEC. 2
Plot No. 20060278
FBCPR

APPROVED FOR
CONSTRUCTION

FILE NO: _____
JOB NO: 05298-0168-00

DATE: SEPTEMBER 2017
DGN. BY: CES
DWG. BY: EPV

SCALE: 1"=20' H.
1"=2' V.

SHEET No. 15 OF 22

FOR CITY OF HOUSTON USE ONLY
CITY DWG NO.



APPROVED FOR
CONSTRUCTION

BELLAIRE BOULEVARD (100' ROW)

100-YEAR FLOOD PLAIN

ACCORDING TO MAP NO. 48157C0130L OF THE FEDERAL EMERGENCY MANAGEMENT AGENCY'S FLOOD INSURANCE RATE MAPS DATED APRIL 2, 2014, THE SUBJECT TRACT IS LOCATED PARTIALLY WITHIN:
- SHADED ZONE X, DEFINED AS AREAS OF 0.2% ANNUAL CHANCE FLOOD' AREAS OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS LESS THAN 1 FOOT OR WITH DRAINAGE AREAS LESS THAN 1 SQUARE MILE; AND AREAS PROTECTED BY LEVEES FROM 1% ANNUAL CHANCE FLOOD
- UNSHADED ZONE "X": DEFINED AS AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.

THIS FLOOD STATEMENT DOES NOT IMPLY THAT THE PROPERTY OR STRUCTURES THEREON WILL BE FREE FROM FLOODING OR FLOOD DAMAGE. ON RARE OCCASIONS FLOODS CAN AND WILL OCCUR AND FLOOD HEIGHTS MAY BE INCREASED BY MAN-MADE OR NATURAL CAUSES. THIS FLOOD STATEMENT SHALL NOT CREATE LIABILITY ON THE PART OF THE SURVEYOR.

NOTE: THE 100-YEAR FLOOD ELEVATION IS APPROXIMATELY 92.3 FEET AS PER THE FEMA INSURANCE RATE MAP FOR FORT BEND COUNTY, TEXAS COMMUNITY PANEL NO. 48157C0130L, DATED APRIL 2, 2014. THE 100-YR FLOOD PLAIN, ELEVATION 92.3, IS CONTAINED IN THE CHANNEL SOUTH OF THE DETENTION POND.

UNDERGROUND UTILITY NOTE

CONTRACTOR TO FIELD VERIFY ALL EXISTING UTILITIES INCLUDING CENTERPOINT ENERGY FACILITIES AND AT&T TEXAS/SWBT FACILITIES PRIOR TO COMMENCEMENT OF CONSTRUCTION. LOCATIONS ARE APPROXIMATE AND RESPONSIBILITY IS THAT OF CONTRACTOR TO VERIFY LOCATION AND DEPTH.

EXISTING SWALES NOTE

CONTRACTOR TO ENSURE NO ADVERSE EFFECTS ON THE EXISTING ROAD SIDE SWALES AND TO ENSURE POSITIVE DRAINAGE OF THE SWALES UPON COMPLETION OF CONSTRUCTION.

BENCH MARK

ELEVATIONS SHOWN HEREON ARE BASED ON NATIONAL GEODETIC SURVEY MONUMENT DESIGNATION HGCS 66, PID NO. AWS411 HAVING PUBLISHED INFORMATION AS FOLLOWS:

LATITUDE 29 43' 58.13317" NORTH
LONGITUDE 95 50' 45.96836" WEST NAD 83
ELEVATION 136.6 FEET NAVD 88

T.B.M. B

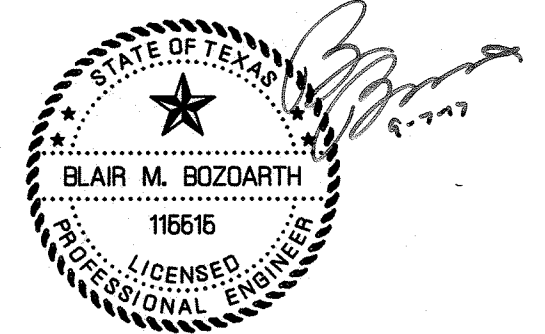
BEING A CUT SQUARE LOCATED ON THE BACK OF CURB ON THE NORTH SIDE OF THE WESTBOUND LANE OF BELLAIRE BOULEVARD, 1 FOOT FROM THE END OF BACK OF CURB AT THE DEAD END.

ELEVATION = 96.18, NAVD 88.

T.B.M. D

BEING A CUT SQUARE ON THE BULLNOSE OF THE MEDIAN ON BEACHNUT STREET AT THE WEST ENTRANCE TO DAVID CROCKETT MIDDLE SCHOOL.

ELEVATION = 93.70, NAVD 88.



APPROVED: *Maxine* DEVELOPMENT COORDINATOR

DATE: 10/5/17

TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT ENERGY AT 713-207-2222
NOTICE:
For your safety, you are required by Texas Law to call 811 at least 48 hours before you dig so that underground lines can be marked. This verification does not fulfill your obligation to call 811.

VERIFICATION OF PRIVATE UTILITY LINES

CenterPoint Energy/Natural Gas Facilities Verification ONLY.
(This Signature verifies that you have shown CPE Natural Gas lines correctly - not to be used for conflict verification.)
Signature valid for six months.
Date: 9/28/17

CenterPoint Energy/Electrical Facilities Verification ONLY.
(This Signature verifies existing underground facilities - not to be used for conflict verification.)
Signature valid for six months.
Date: 9/28/17

C&M
Approved for AT&T Texas/SWBT underground conduit facilities only.
Signature valid for one year.
Date: 9-27-17

NO.	DATE	REVISIONS	APP.
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GRAND MISSION MUNICIPAL UTILITY
DISTRICT NO. 2
FORT BEND COUNTY, TEXAS

JCG JONES CARTER
Texas Board of Professional Engineers Registration No. F-439
22330 Merchants Way, Suite 170, Katy, TX 77449 (832) 913-4000

**BELLAIRE BLVD UTILITY
EXTENSION & DETENTION
BELLAIRE BOULEVARD
PROFILE VIEW
27+00.00 TO 32+00.00**

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY
AFTER DATE OF SIGNATURES

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER	TRAFFIC & TRANSPORTATION
WASTEWATER	STORM WATER QUALITY
STORM	FACILITIES
STREET & BRIDGE	

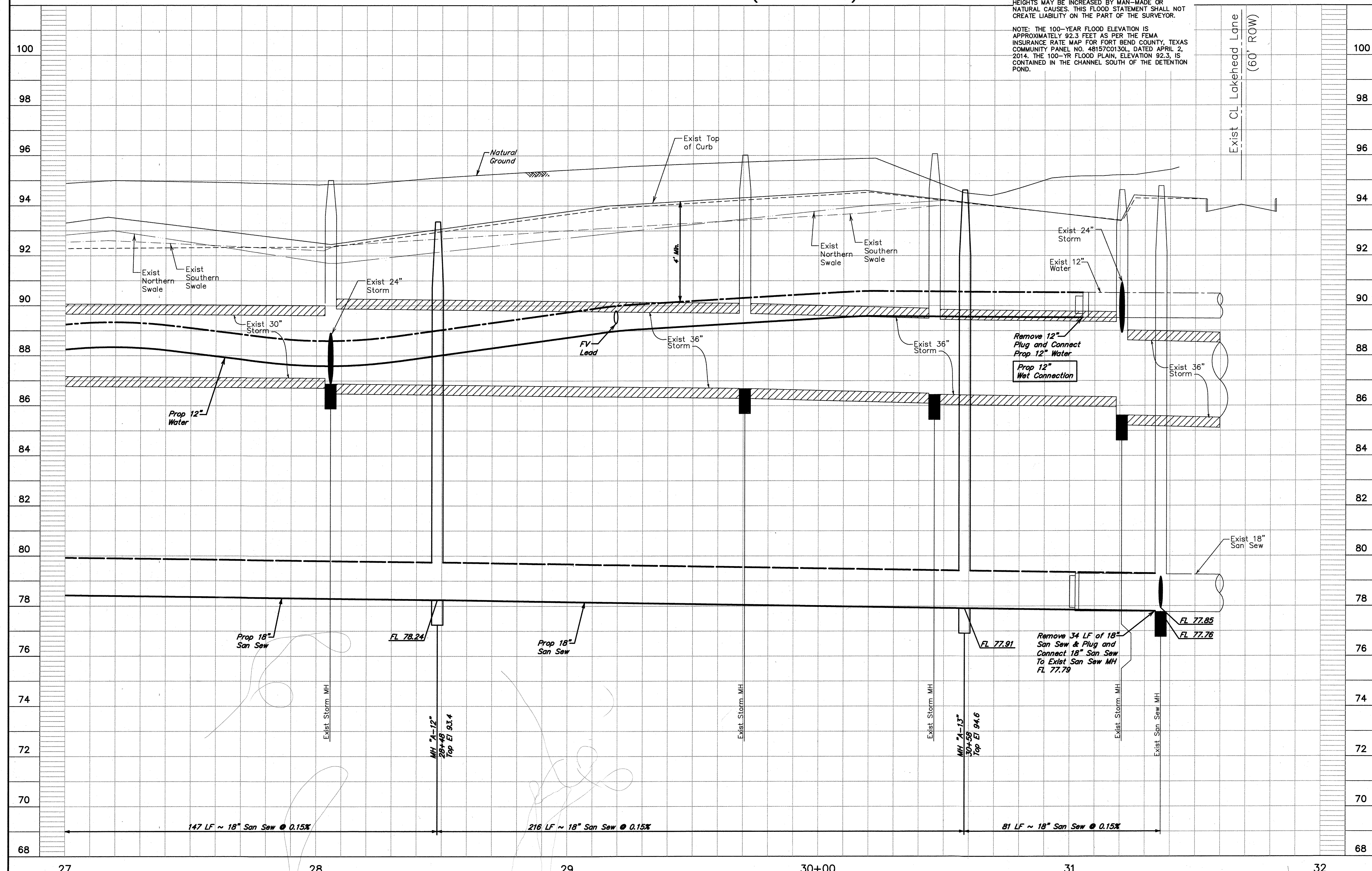
FILE NO:
JOB NO: 05298-0168-00

DATE: SEPTEMBER 2017
DGN. BY: CES
DWG. BY: EPV

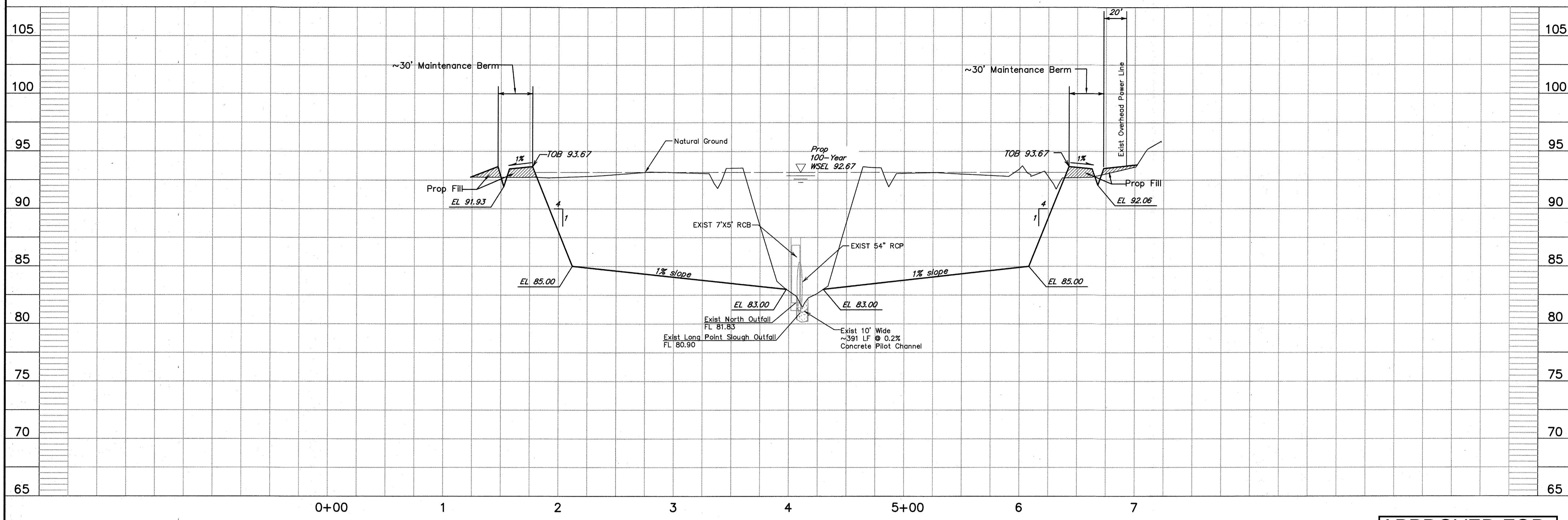
SCALE: 1"=20' H.
1"=2' V.

SHEET NO. 16 OF 22

FOR CITY OF HOUSTON USE ONLY
CITY DWG. NO.
58955



BASELINE A



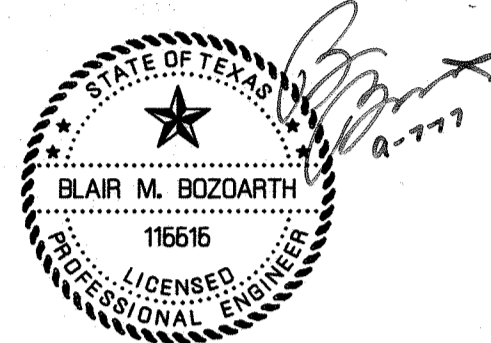
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LONGITUDE 95 50' 45.96836" WEST NAD 83
ELEVATION 136.6 FEET NAVD 88

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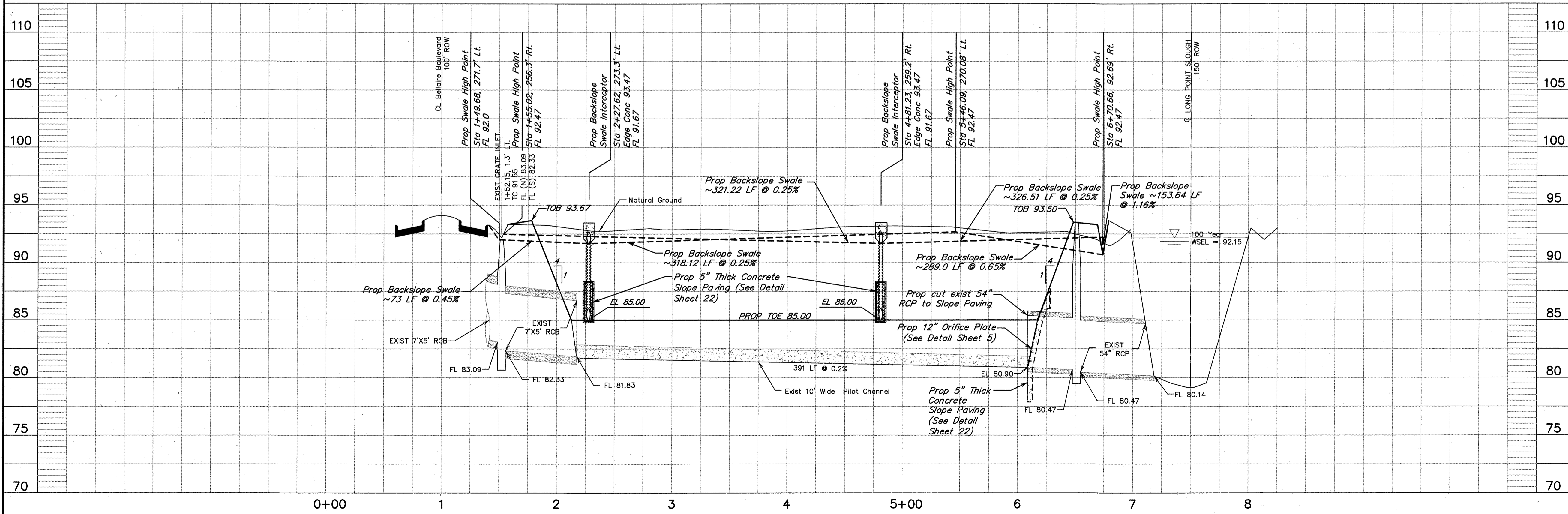
APPROVED: *[Signature]*
DEVELOPMENT COORDINATOR

DATE: 10/5/17

TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT ENERGY AT 713-207-2222		
NOTICE: For your safety, you are required by Texas Law to call 811 at least 48 hours before you dig so that underground lines can be marked. This Verification does not fulfill your obligation to call 811.		
VERIFICATION OF PRIVATE UTILITY LINES		
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CenterPoint Energy/Natural Gas Facilities Verification ONLY. (This Signature verifies that you have shown CNP Natural Gas lines correctly - not to be used for conflict verification.) (Gas service lines are not shown.) Signature Valid for six months.		
<i>[Signature]</i>	Date:	9/28/17
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<i>[Signature]</i>	Date:	9-27-17
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature Valid for one year.		

APPROVED FOR
CONSTRUCTION

BASELINE B



NO.	DATE	REVISIONS	APP.
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GRAND MISSION MUNICIPAL UTILITY
DISTRICT NO. 2
FORT BEND COUNTY, TEXAS



BELLAIRE BLVD UTILITY
EXTENSION & DETENTION
POND
BASELINE A
BASELINE B

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY
AFTER DATE OF SIGNATURES

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

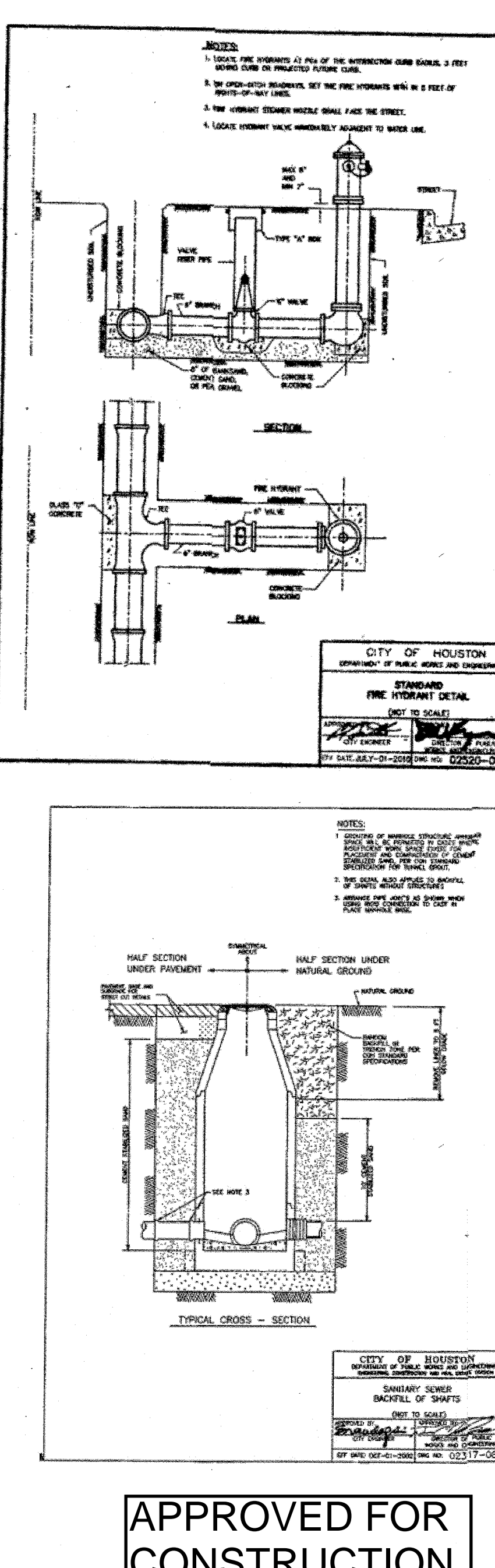
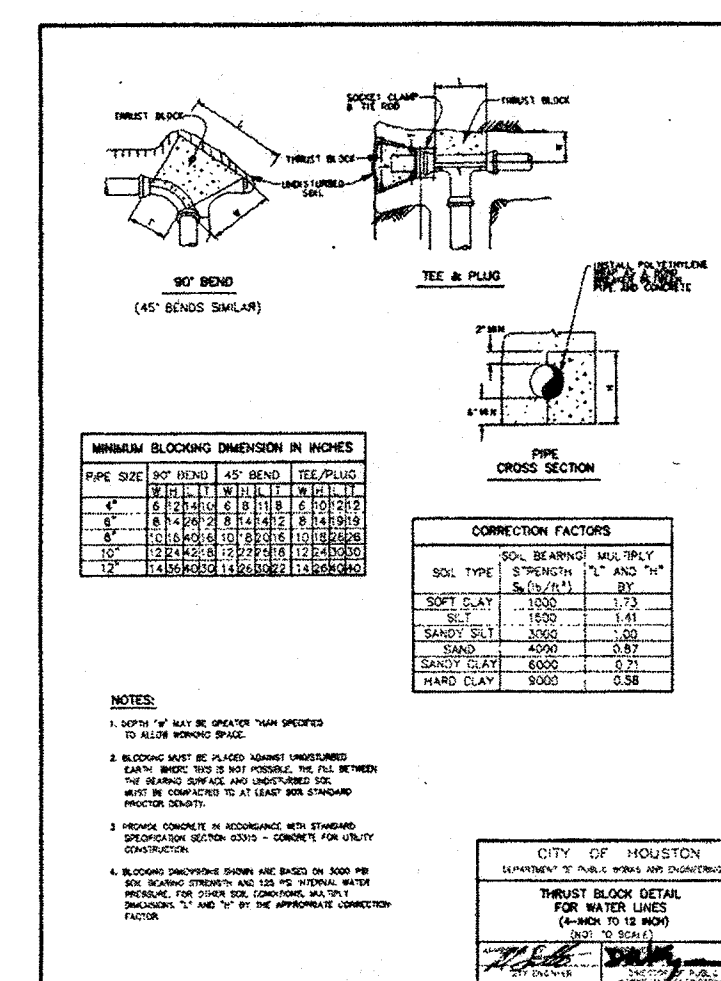
WATER	TRAFFIC & TRANSPORTATION
WASTEWATER	STORM WATER QUALITY
STORM	FACILITIES
STREET & BRIDGE	

FILE NO: 05298-0168-00
JOB NO: 05298-0168-00

DATE: SEPTEMBER 2017
DGN. BY: CES
DWG. BY: EPV

SCALE: 1"=50' H.
1"=5' V.

SHEET No. 17 OF 22




STATE OF TEXAS
★
BLAIR M. BOZDARTH
116616
LICENSED
PROFESSIONAL ENGINEER

[Signature]
9-7-17

APPROVED: *[Signature]* DEVELOPMENT COORDINATOR

DATE: 10/11/17

NO.	DATE	REVISIONS			APP.
GRAND MISSION MUNICIPAL UTILITY DISTRICT NO. 2 FORT BEND COUNTY, TEXAS					
		JONES CARTER			
Texas Board of Professional Engineers Registration No. F-43 22330 Merchants Way, Suite 170, Katy, TX 77449 (832) 913-4000					
BELLAIRE BLVD UTILITY EXTENSION & DETENTION					
MISCELLANEOUS DETAILS					
NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES					
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING					
WATER	TRAFFIC & STREET/BRIDGE				
<i>[Signature]</i> 10/9/17					
WASTEWATER	STORM WATER QUALITY				
<i>[Signature]</i> 10/9/17					
STORM	FACILITIES				
<i>[Signature]</i> 9-11-17					

GRADING NOTES

- LINES AND GRADES ON THIS GRADING PLAN DO NOT IMPLY AUTHORIZATION TO PERFORM ANY GRADING WORK ON OTHER PROPERTIES. THE CONTRACTOR IS RESPONSIBLE TO OBTAIN SUCH APPROVALS FROM THE ENGINEER PRIOR TO COMMENCING WORK.
- THE CONTRACTOR SHALL COMPLETE ALL EXCAVATION ACTIVITIES TO THE LINES AND GRADES SHOWN BY THIS PLAN. UNIFORM SMOOTH GRADING OF ALL AREAS SHALL BE ACCOMPLISHED. ALL AREAS TO BE STRAIGHT GRADED FROM ELEVATION TO ELEVATION AS SHOWN. THE FINISHED SURFACE SHALL BE REASONABLY SMOOTH AND FREE FROM IRREGULARITIES.
- THE CONTRACTOR MAY FIELD ADJUST THE PROPOSED LOCATION AND ROUTING OF SURFACE DRAINAGE SWALES TO OPTIMIZE DRAINAGE, AS REQUIRED. CONTRACTOR TO OBTAIN APPROVAL FROM ENGINEER PRIOR TO MAKING ADJUSTMENTS (NO SEPARATE PAY).
- LOT AREAS THAT ARE TO RECEIVE FILL SHALL BE PREPARED AS FOLLOWS (NO SEPARATE PAY)
 - AREAS TO RECEIVE FILL WITH EXISTING GRASS OR SHRUBBERY HIGHER THAN 2 FEET MUST BE MOVED PRIOR TO THE PLACEMENT OF FILL STAKES.
 - CLEARING OF SCATTERED TREES UP TO 4 INCH CALIPER IN AREAS DESIGNATED TO RECEIVE FILL IS INCIDENTAL TO THE CONTRACT. INCLUDE COSTS IN PRICE BID FOR LOT GRADING.
 - AREAS TO RECEIVE FILL WILL BE STRIPPED TO A DEPTH OF 3 INCHES. STRIPPINGS SHALL BE STOCKPILED AND THEN SPREAD EVENLY ON THE SURFACE OF FILLED AREAS. FINAL LOT ELEVATIONS ARE BASED ON FINISH GRADES WITH STRIPPING SPREAD ON GRADED AREAS. STRIPPINGS PLACED WITHIN FUTURE BUILDING PADS TO BE PLACED NO MORE THAN 3 INCHES THICK AND COMPACTED.
 - CONTRACTOR TO PROOF ROLL ALL LOTS WITHIN THE PROJECT BOUNDARY AS PART OF LOT GRADING. PRIOR TO THE PLACEMENT OF ANY MATERIAL ON NATIVE EARTH, THE AREA SHALL BE PROOF ROLLED. THE NATIVE SOIL SHALL BE ROLLED WITH SUFFICIENT INTENSITY TO BRING OUT WEAK SPOTS IN THE SUB-GRADE WHICH WOULD OTHERWISE FAIL DURING THE CONSTRUCTION PROCESS. THE PROOF ROLLING SHALL BE COMPLETED WITH EQUIPMENT WEIGHING AT LEAST 20 TONS WITH TIRE PRESSURES BETWEEN 50 PSI AND 150 PSI. A MINIMUM OF TWO COVERAGE'S OF THE PROOF ROLLER WILL BE REQUIRED. EACH SUCCEEDING TRIP OF THE PROOF ROLLER SHALL BE OFFSET BY NOT GREATER THAN ONE TIRE WIDTH. ROLLERS SHALL BE OPERATED AT SPEEDS BETWEEN 2 AND 6 MPH. SHOULD SOFT UNSTABLE AREAS APPEAR IN THE LOTS, THE CONTRACTOR SHALL REMOVE THE UNSTABLE MATERIAL AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL REPLACE THIS WITH A SUITABLE MATERIAL COMPACTED AS REQUIRED (NO SEPARATE PAY FOR A DEPTH UP TO 1.5 FOOT).
- PLACEMENT OF FILL SHALL NOT CREATE PONDING ON ADJACENT LOTS OR PROPERTY.
- LOT FILL SHALL BE PLACED IN A MAXIMUM LOOSE LIFTS OF 8 INCHES OF LESS AND COMPACTED TO 95% OF MAXIMUM DENSITY AT OPTIMUM TO +5% MOISTURE CONTENT AS DETERMINED BY AASHTO TEST METHOD T-99.
- ALL EXISTING DRAINAGE SWALES IN FILL AREAS SHALL BE STRIPPED OF ANY VEGETATION, CLEANED AND MUCKED OUT TO SUITABLE SUBGRADE MATERIAL AND THEN FILLED AS SHOWN WITH EXCAVATION MATERIAL IN MAXIMUM 8 INCH LOOSE LIFTS, WITH EACH LIFT COMPACTED TO AT LEAST 95% PROCTOR DENSITY AS DETERMINED BY AASHTO TEST METHOD T-99.
- ENGINEER WILL PROVIDE APPROXIMATE BACK LOT LINE FINISH ELEVATIONS. CONTRACTOR SHALL VERIFY FINAL LOT GRADES AND ELEVATIONS TIED TO PROJECT BENCH MARK. CONTRACTOR SHALL INCLUDE COST IN BID ITEM FOR LOT GRADING.
- EROSION CONTROL MEASURES ARE TO BE COMPLETELY IMPLEMENTED PRIOR TO ANY GRADING WORK.
- FINAL PAYMENT SHALL BE CONTINGENT ON THE ENGINEER'S VERIFICATION THAT LOT GRADING IS IN ACCORDANCE WITH THE GRADING PLAN, AND THAT SOIL COMPACTION TESTS WERE PERFORMED AS REQUIRED.
- ALL LOTS SHALL BE GRADED SO THAT NO PORTION OF ANY LOT SHALL DRAIN ONTO OR ACROSS ANY OTHER LOT, BUT SHALL DRAIN DIRECTLY TO STREET UNLESS DESIGNATED OTHER THAN TYPE "A" GRADING.

FILL VOLUME NOTE

TRACT 1:
APPROXIMATELY 13,100 C.Y. TO BRING SECTION TO GRADE

TRACT 2:
APPROXIMATELY 14,100 C.Y. TO BRING SECTION TO GRADE

TRACT 3:
APPROXIMATELY 12,400 C.Y. TO BRING SECTION TO GRADE

TRACT 4:
APPROXIMATELY 12,100 C.Y. TO BRING SECTION TO GRADE

LEGEND

- EXIST GROUND CONTOUR
- PROPOSED TOP OF CURB
- EXISTING TOP OF CURB
- EXIST GRAVEL ROAD
- EXIST SWALE
- FINISH ELEVATIONS
- GRADE BREAK LINE
- SLOPE OF FINISHED GRADE
- TRACT NUMBER

100-YEAR FLOOD PLAIN

ACCORDING TO MAP NO. 48157C0130L OF THE FEDERAL EMERGENCY MANAGEMENT AGENCY'S FLOOD INSURANCE RATE MAPS DATED APRIL 2, 2014. THE SUBJECT TRACT IS LOCATED PARTIALLY WITHIN:

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BENCH MARK

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T.B.M. B

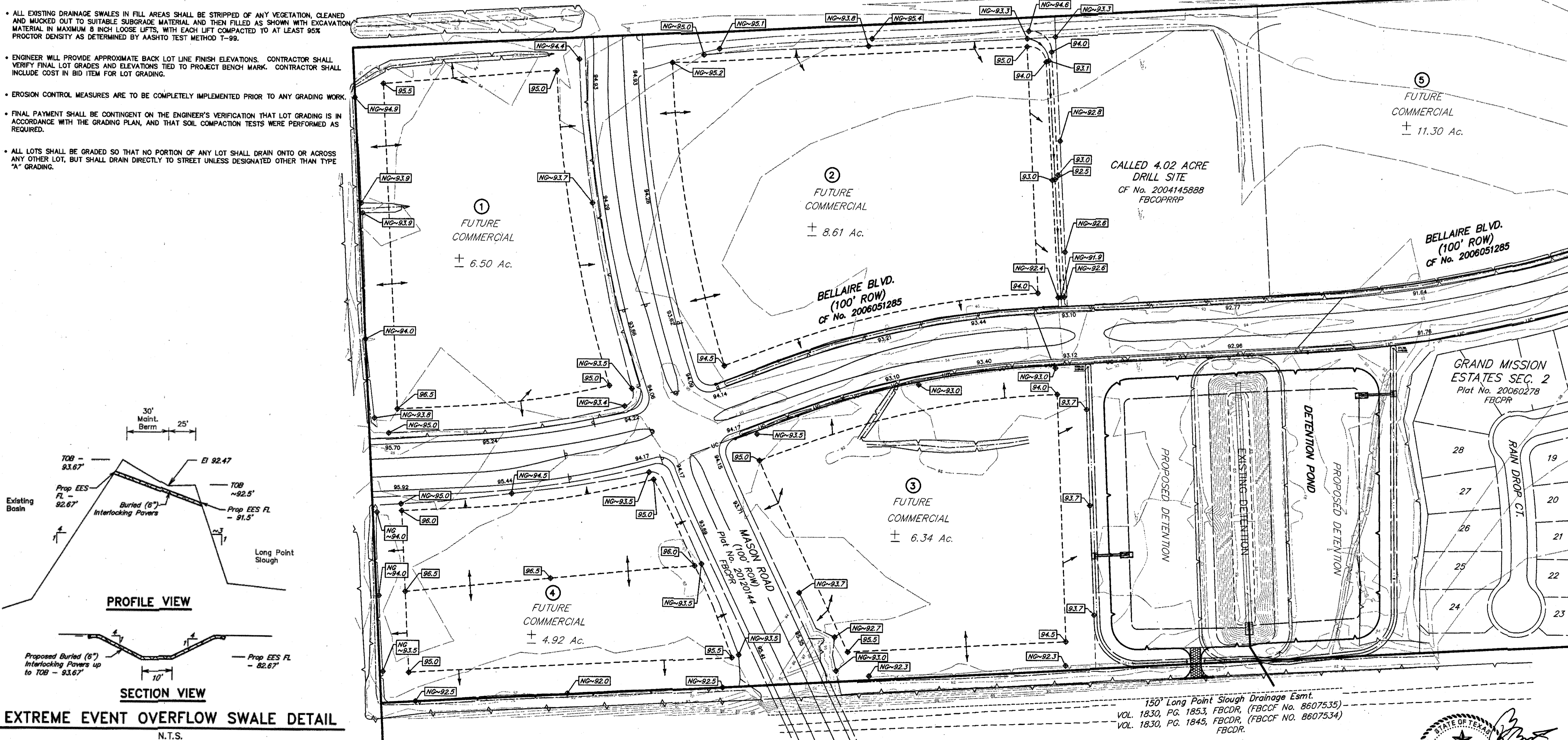
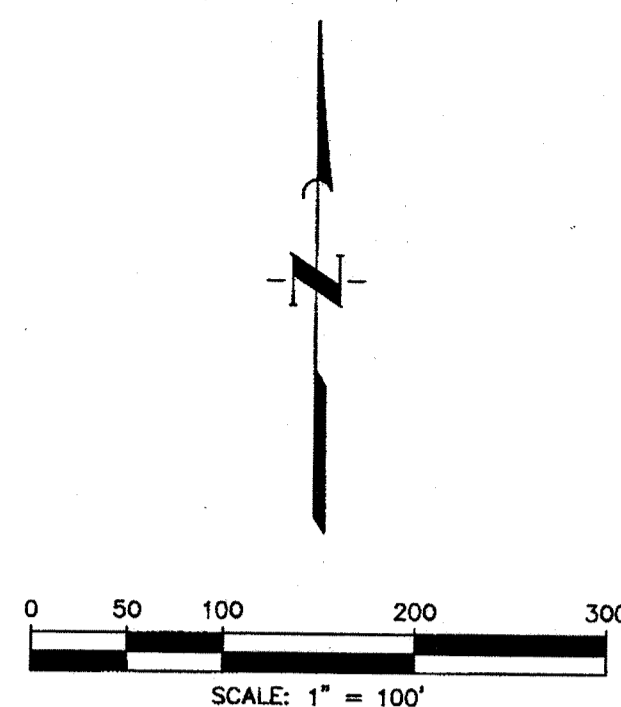
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ELEVATION = 96.18, NAVD 88.

T.B.M. D

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ELEVATION = 93.70, NAVD 88.



APPROVED: *Maggie D.*
DEVELOPMENT COORDINATOR

DATE: 10/11/17

NO.	DATE	REVISIONS	APP.

GRAND MISSION MUNICIPAL UTILITY
DISTRICT NO. 2
FORT BEND COUNTY, TEXAS

JC JONES CARTER
Texas Board of Professional Engineers Registration No. F-439
22330 Merchants Way, Suite 170, Katy, TX 77449 (832) 913-4000

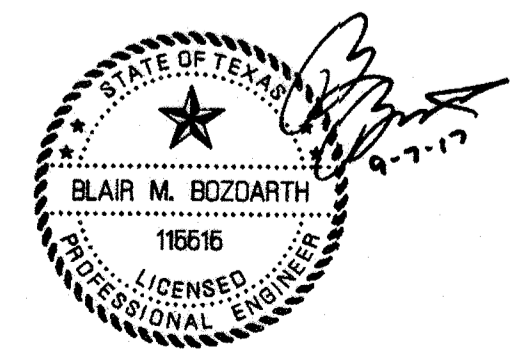
**BELLAIRE BLVD UTILITY
EXTENSION & DETENTION
GRADING**

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY
AFTER DATE OF SIGNATURES

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER	TRAFFIC & STREET/BIDGE
WASTEWATER	STORM WATER QUALITY
STORM	FACILITIES
FILE NO:	FOR CITY OF HOUSTON USE ONLY
JOB NO: 05298-0168-00	CITY DWG NO.
DATE: SEPTEMBER 2017	
DGN. BY: CES	
DWG. BY: EPV	
SCALE: N.T.S.	
SHEET No. 19 OF 22	

**APPROVED FOR
CONSTRUCTION**



MANHOLE/INLET PROTECTION NOTES

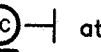


1. INLETS AND MANHOLES THAT ARE NOT COMPLETE AND/OR ARE SUBJECT TO CONVEYING STORM WATER FLOWS ARE TO BE PROTECTED TO PREVENT SEDIMENT FROM ENTERING THE PROPOSED OR EXISTING STORM SEWER SYSTEM.
2. PROTECTION SHALL CONSIST OF ONE LAYER OF 3x12-INCH OAK TIMBERS, ONE (1) INCH APART, COVERED WITH ONE LAYER OF WOVEN POLYPROPYLENE OR POLYESTER FILTER FABRIC (EXXON GTF 100s, PHILLIPS SUPAC 4WS(UV) OR APPROVED EQUAL) HELD IN PLACE WITH 1/2" STAPLES. TIMBERS SHALL BE HELD IN PLACE WITH TWO (2) 2x4's NAILED SECURELY TO EACH TIMBER OVER THE FILTER FABRIC. THE FILTER FABRIC SHALL EXTEND BEYOND THE PERIMETER OF THE OAK TIMBERS AS TO ENSURE ONE (1) FOOT OF BURY BETWEEN THE MANHOLE OR INLET AND THE SURROUNDING SOIL AS SHOWN.
3. FILTER FABRIC TO BE CLEANED OR REPLACED WHEN IT CEASES TO FUNCTION PROPERLY OR AS DIRECTED BY THE ENGINEER.
4. CONTRACTOR MAY SUBMIT PLANS FOR ALTERNATE METHODS OF PROTECTION. THESE ALTERNATE METHODS MUST BE APPROVED PRIOR TO USE IN THE FIELD.
5. NO SEPARATE PAYMENT SHALL BE MADE FOR INLET AND MANHOLE PROTECTION, INCLUDE THE COST IN THE UNIT PRICE FOR THE INLETS AND MANHOLES.

EROSION AND SEDIMENTATION CONTROL NOTES

1. PRIOR TO START OF CONSTRUCTION, CONTRACTOR SHALL INSTALL EROSION AND SEDIMENTATION CONTROLS AT LOCATION SHOWN ON PLANS.
2. CONTRACTOR SHALL INSPECT ALL EROSION AND SEDIMENTATION CONTROL SYSTEMS SPECIFIED HEREIN, AT A MINIMUM OF ONCE EVERY CALENDAR DAY.
3. CONTRACTOR SHALL MAINTAIN, REPAIR AND/OR REPLACE DAMAGED EROSION AND SEDIMENTATION CONTROL SYSTEM THROUGHOUT THE DURATION OF THE CONTRACT. (NO SEPARATE PAY).
4. CONTRACTOR SHALL PROVIDE PROTECTED STORAGE AREAS FOR CHEMICALS, PAINTS, SOLVENTS, FERTILIZERS, AND OTHER POTENTIALLY TOXIC MATERIALS.
5. CONTRACTOR SHALL LOCATE FUEL/MATERIAL STORAGE AREAS AWAY FROM STORM WATER CONVEYANCE SYSTEMS. CONTRACTOR SHALL USE SILT FENCING, HAY BALES, OR BERMS AROUND FUEL STORAGE AREAS. (NO SEPARATE PAY).
6. CONTRACTOR SHALL ADVISE OWNER IMMEDIATELY, VERBALLY, AND IN WRITING, OF ANY FUEL OR TOXIC MATERIAL SPILLS ONTO THE PROJECT/CONSTRUCTION AREA AND THE ACTION TAKEN TO REMEDY THE PROBLEM.
7. CONTRACTOR IS RESPONSIBLE FOR DISPOSING OF HIS FUELS, MATERIALS, AND CONTAMINATED EXCAVATIONS IN A LEGALLY APPROVED MANNER. (NO SEPARATE PAY).
8. CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE ENVIRONMENTAL LAWS.
9. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ADEQUATELY MAINTAINED SANITARY FACILITIES.
10. AT COMPLETION OF THE CONTRACT, OWNER AND/OR OWNER'S REPRESENTATIVE WITH THE CONTRACTOR SHALL EXAMINE EROSION AND SEDIMENTATION CONTROL SYSTEM BEFORE RELIEVING CONTRACTOR OF HIS MAINTENANCE RESPONSIBILITIES.
11. IF EROSION AND SEDIMENTATION CONTROL SYSTEM IS EXISTING FROM PRIOR CONTRACTS, OWNER AND/OR OWNER'S REPRESENTATIVES WITH THE CONTRACTOR SHALL EXAMINE THE EXISTING EROSION AND SEDIMENTATION CONTROL SYSTEM FOR DAMAGE PRIOR TO CONTRACTOR STARTING CONSTRUCTION OF THE CONTRACT. ANY DAMAGE NOTED AT THIS TIME SHALL BE REPAIRED AT OWNER'S EXPENSE.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR STREET CLEANING, ON A DAILY BASIS, ALL MUD AND DIRT DEPOSITED ON THE EXISTING PAVEMENT DUE TO HIS CONSTRUCTION ACTIVITY.
13. IF PAVING CONTRACTOR REMOVES OR PUNCTURES TIMBER GRATE TO ESTABLISH DRAINAGE, INLET MUST BE BE SURROUNDED BY FILTER FABRIC FENCE AS SHOWN IN DETAIL ON THIS SHEET.

INSTALLATION SEQUENCE

UTILITY CONTRACTOR:

1. Install  at start of construction.
2. Install  for Stage II inlets.
3. Install  x along back of curb, and as directed by Engineer.
4. Area within ROW and Adjacent Easements Disturbed during Construction of Utilities to be Hydro-Mulch Seeded upon completion of Utilities.

Utility Contractor to follow all protection requirements and complete all forms as listed in bound SWPPP.

EXISTING SWALES NOTE

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100-YEAR FLOOD PLAIN

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 ELEVATION 136.6 FEET NAVD 88

T.B.M. B

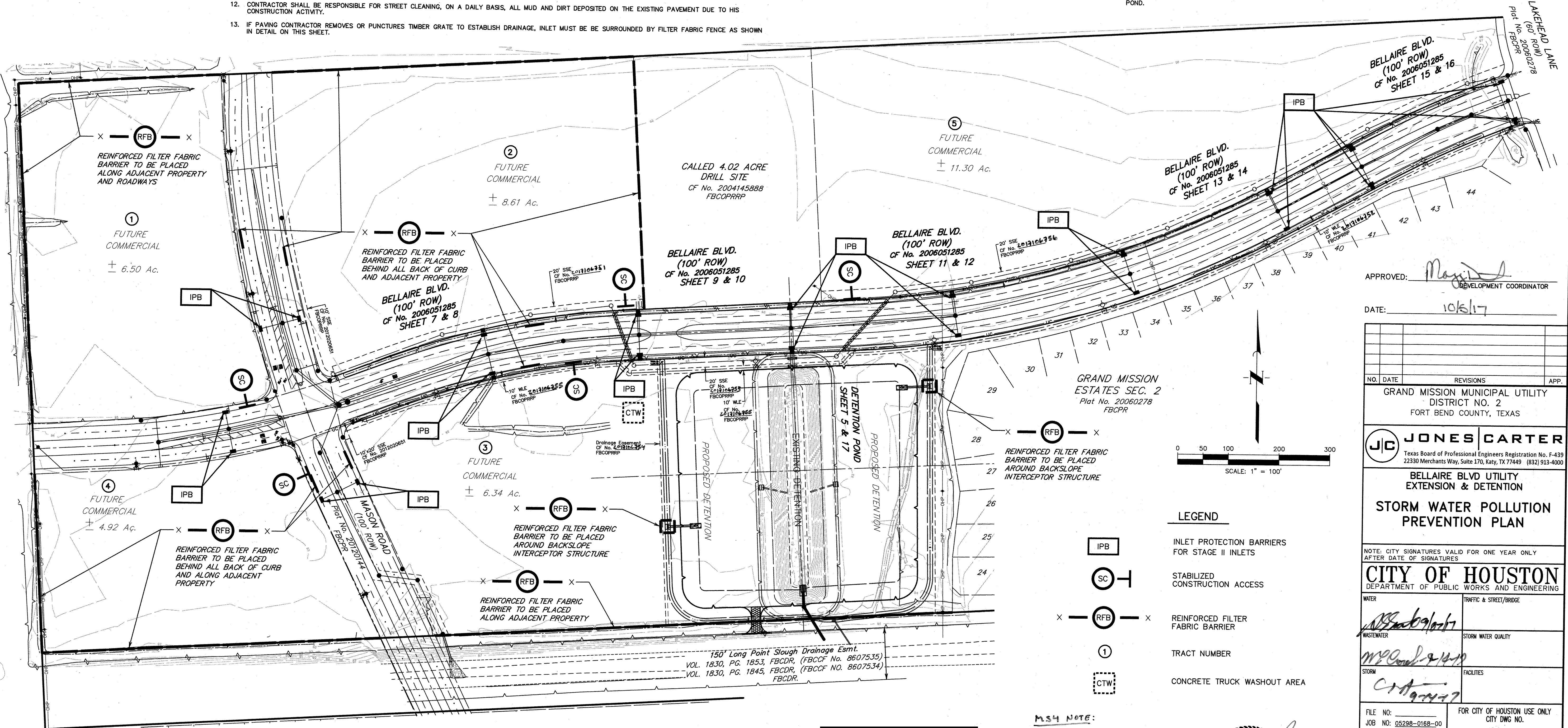
BEING A CUT SQUARE LOCATED ON THE BACK OF CURB ON THE NORTH SIDE OF THE WESTBOUND LANE OF BELLAIRE BOULEVARD, 1 FOOT FROM THE END OF BACK OF CURB AT THE DEAD END.

ELEVATION = 96.18, NAVD 88.

T.B.M. D

BEING A CUT SQUARE ON THE BULLNOSE OF THE MEDIAN ON BEECHNUT STREET AT THE WEST ENTRANCE TO DAVID CROCKETT MIDDLE SCHOOL.

ELEVATION = 93.70, NAVD 88.



APPROVED:  DEVELOPMENT COORDINATOR

DATE: 10/5/17

NO.	DATE	REVISIONS	APP.

GRAND MISSION MUNICIPAL UTILITY
 DISTRICT NO. 2
 FORT BEND COUNTY, TEXAS

JC JONES CARTER
 Texas Board of Professional Engineers Registration No. F-439
 22330 Merchants Way, Suite 170, Katy, TX 77449 (832) 913-4000

**BELLAIRE BLVD UTILITY
 EXTENSION & DETENTION
 STORM WATER POLLUTION
 PREVENTION PLAN**

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY
 AFTER DATE OF SIGNATURES

CITY OF HOUSTON
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER	TRAFFIC & STREET/BRIDGE
WASTEWATER	STORM WATER QUALITY
STORM	FACILITIES

FILE NO: 05298-0168-00
 JOB NO: 05298-0168-00

DATE: SEPTEMBER 2017
 DGN. BY: CES
 DWG. BY: EPV

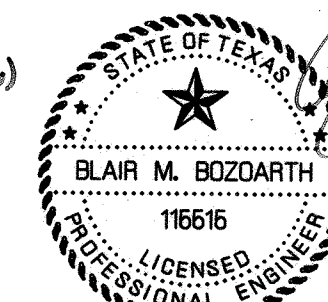
SCALE: 1"=100'

SHEET No. 20 OF 22

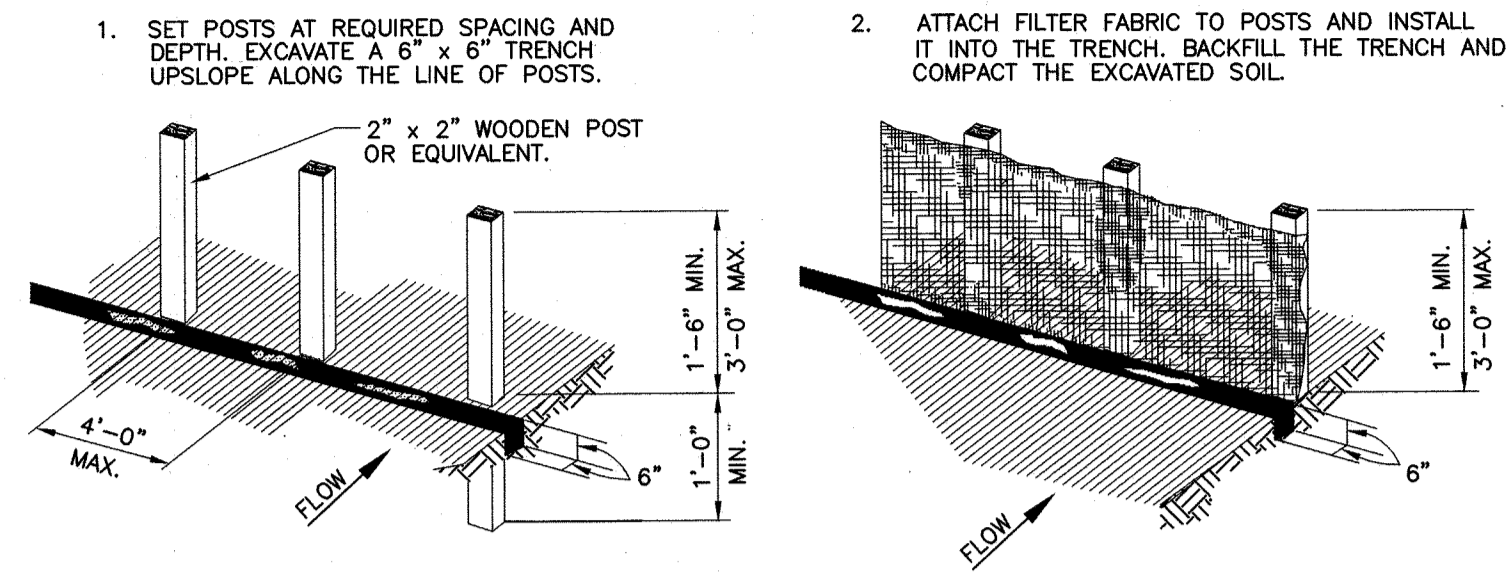
**APPROVED FOR
 CONSTRUCTION**

MS4 NOTE:

CONTRACTOR TO SUBMIT COPIES
 OF CONSTRUCTION SITE NOTICE (CSN)
 AND/OR NOTICE OF INTENT (NOI)
 TO MS4 OPERATOR PRIOR TO
 COMMENCEMENT OF CONSTRUCTION
 ACTIVITIES.



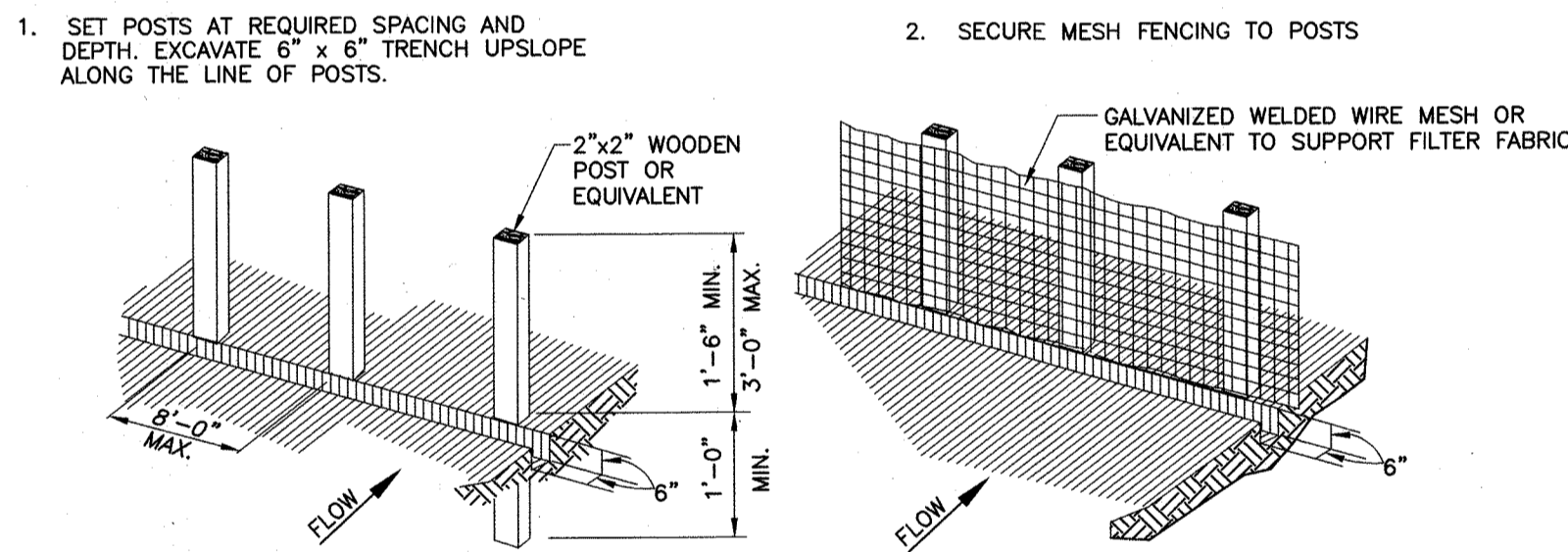
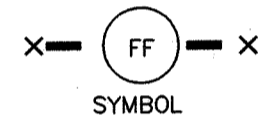
K:\05298\05298-0168-00 Bellair Blvd. Utility Extension & Detention.dwg Sep 06:2017 - 5:07pm BFA



GENERAL NOTES:

1. SET POSTS AT 4-FOOT MAXIMUM SPACING. IF FACTORY PREASSEMBLED FENCE WITH SUPPORT NETTING IS USED, SPACING OF POST MAY BE INCREASED TO 8 FEET MAXIMUM.
2. WHEN TWO SECTIONS OF FILTER FABRIC ADJOIN EACH OTHER, OVERLAP 6 INCHES AT THE POST, FOLD TOGETHER, AND ATTACH TO THE POSTS.
3. REMOVE SEDIMENT DEPOSITS WHEN SILT DEPTH REACHES ONE-THIRD OF THE HEIGHT OF THE FENCE.

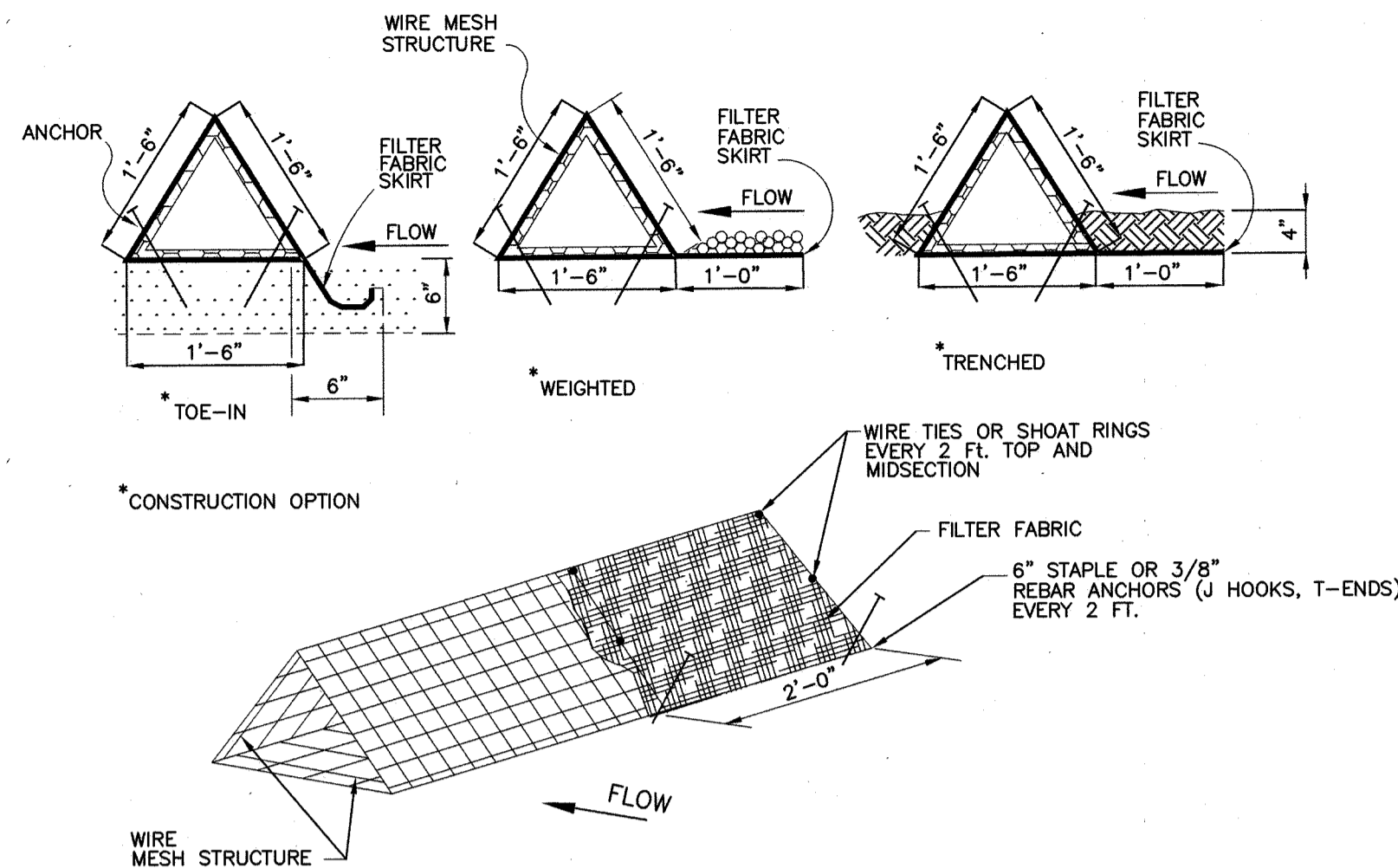
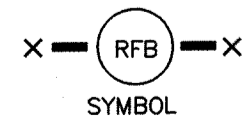
FILTER FABRIC FENCE



GENERAL NOTES:

1. SECURELY FASTEN MESH FENCING TO POSTS WITH STAPLES OR TIE WIRES.
2. SECURELY FASTEN FILTER FABRIC TO MESH FENCING.
3. WHEN TWO SECTIONS OF FILTER FABRIC ADJOIN EACH OTHER, OVERLAP 6 INCHES AT A POST, FOLD TOGETHER, AND ATTACH TO A POST.
4. REMOVE SEDIMENT DEPOSITS WHEN SILT REACHES ONE-THIRD OF THE HEIGHT OF THE FENCE IN DEPTH.

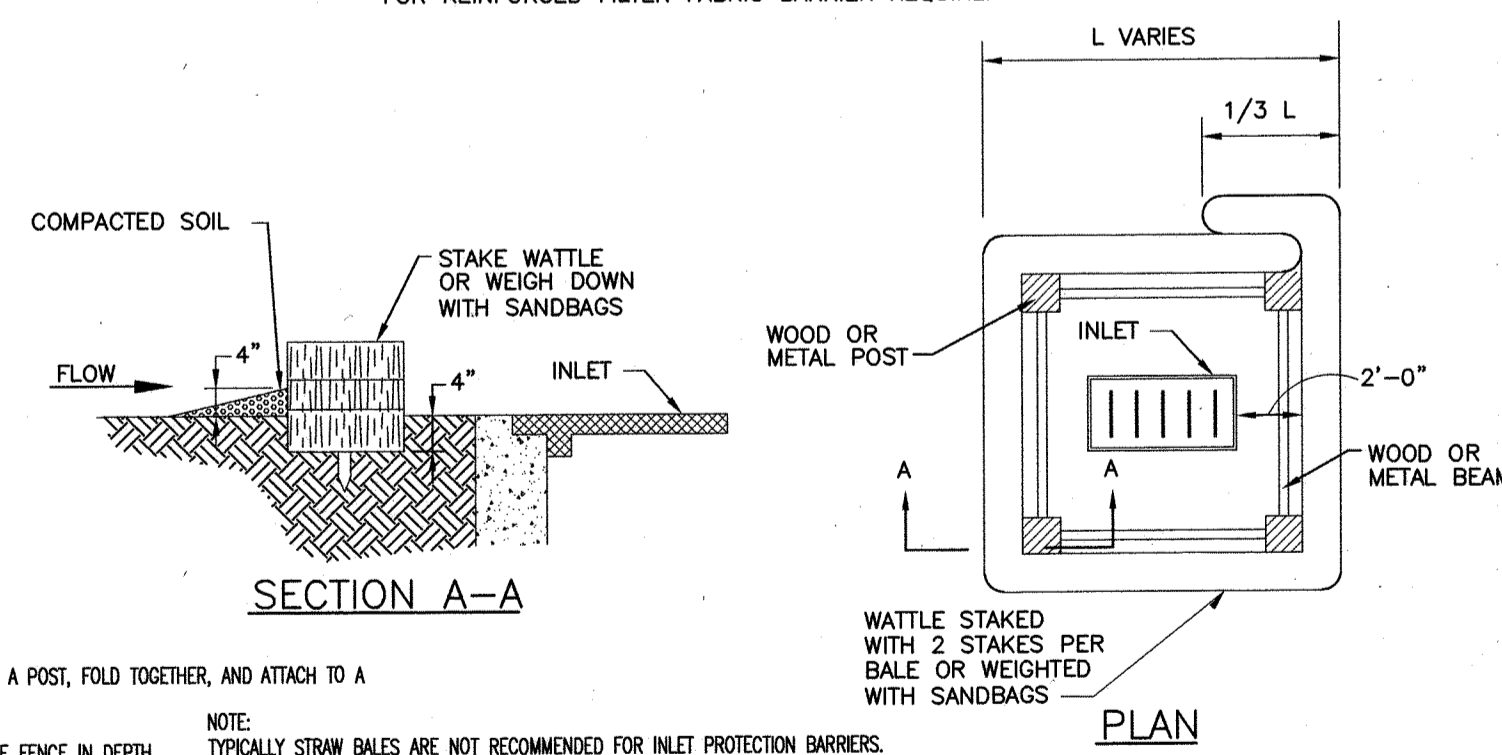
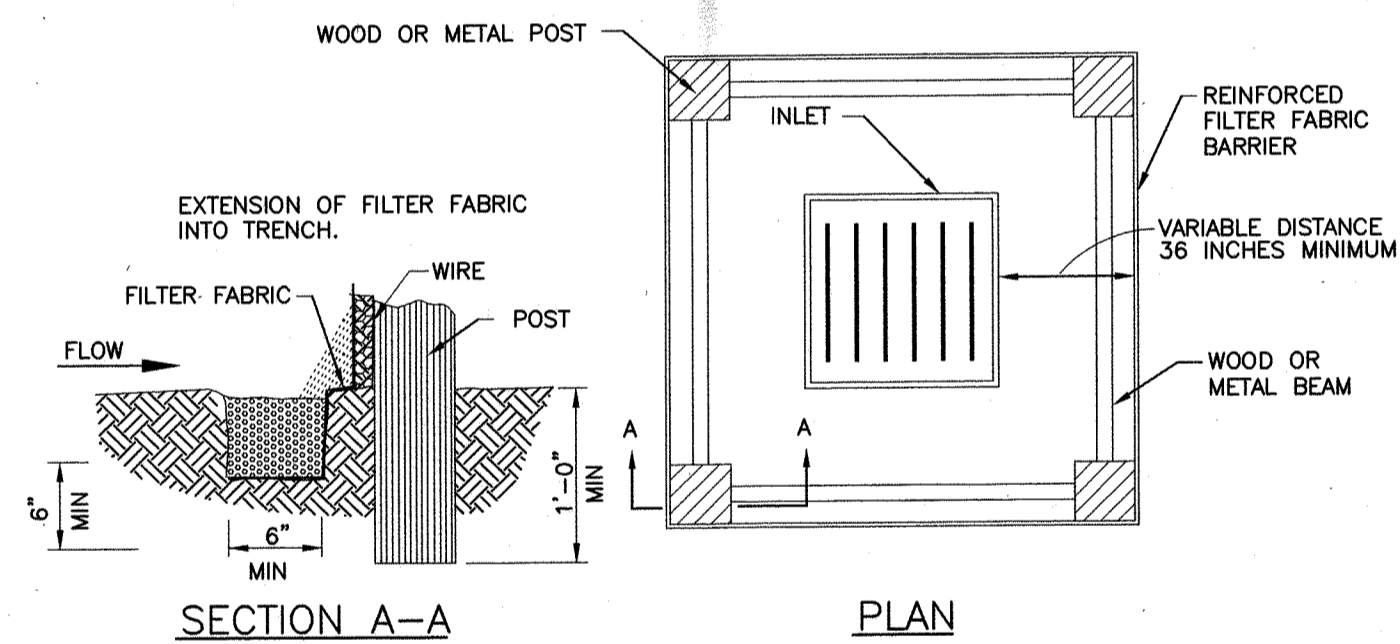
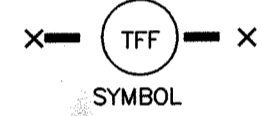
**REINFORCED
FILTER FABRIC BARRIER**



GENERAL NOTES:

1. PLACE BARRIER IN A ROW WITH ENDS TIGHTLY ADJUTING THE ADJACENT BARRIER.
2. USING ONE CONTINUOUS SECTION OF FILTER FABRIC, WRAP FABRIC AROUND WIRE MESH AND EXTEND FABRIC TO FORM SKIRT ON THE UPSTREAM SIDE.
3. WEIGHT SKIRT WITH A CONTINUOUS LAYER OF 3-INCH TO 5-INCH OPEN GRADED ROCK, OR TOE IN SKIRT WITH SIX INCHES WITH MECHANICALLY COMPACTED MATERIAL.
4. SECURELY ANCHOR BARRIER AND SKIRT IN PLACE USING 6-INCH WIRE STAPLES ON 2-FOOT CENTERS ON BOTH EDGES, OR STAKE USING 18-INCH BY 3/8 INCH REBAR (T-ENDS, J-HOOKS).
5. FILTER FABRIC SHALL BE LAPPED OVER ENDS 6 INCHES TO COVER SEAM JOINTS. FASTEN JOINTS WITH GALVANIZED SHOOT RINGS OR EQUIVALENT.
6. THE BARRIER STRUCTURE SHALL BE WELDED WIRE MESH, 18 INCHES ON EACH SIDE.

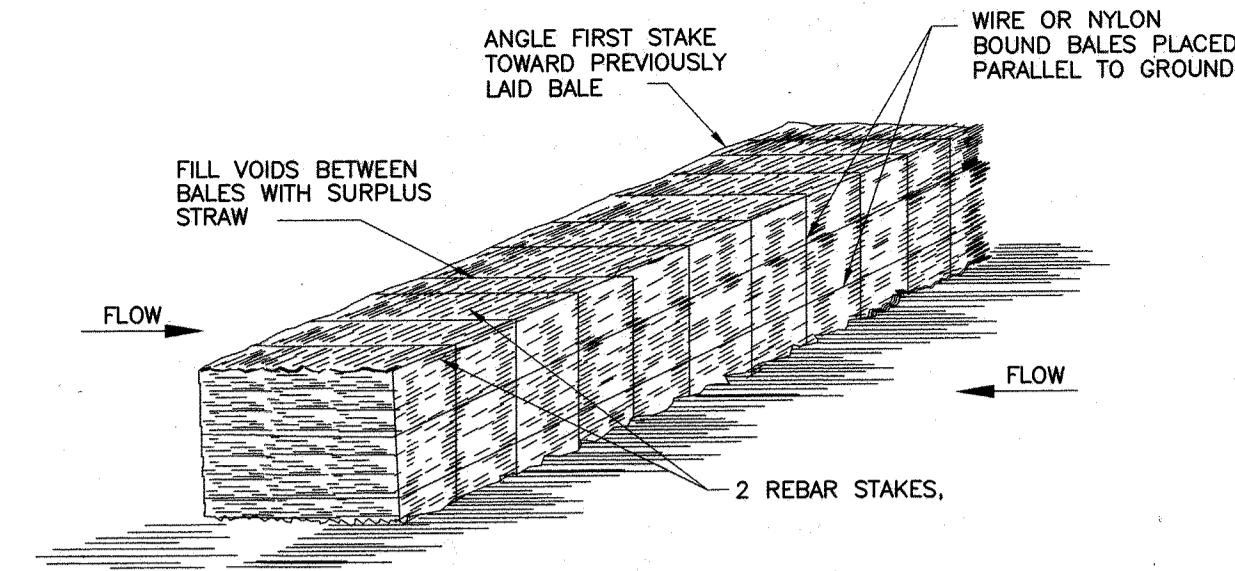
**TRIANGULAR
FILTER FABRIC FENCE**



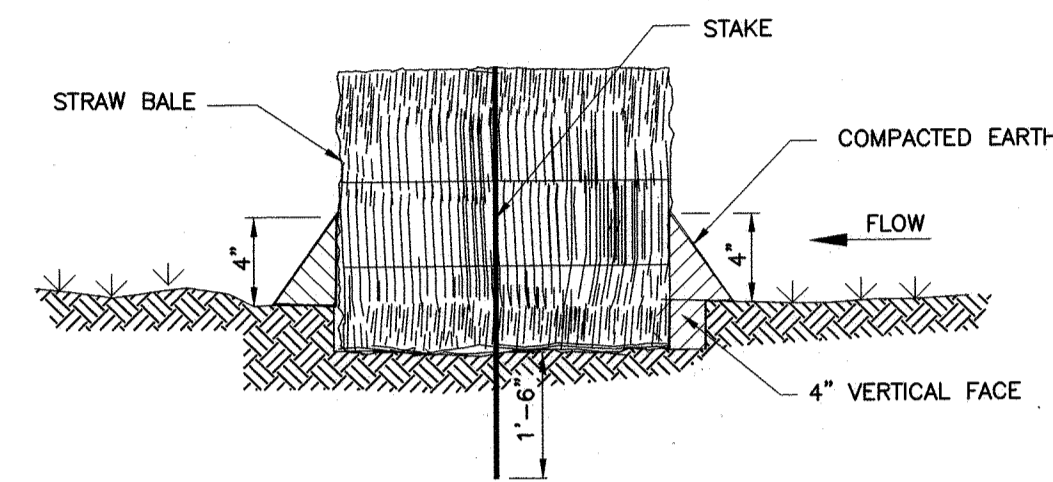
**INLET PROTECTION BARRIERS
FOR STAGE I INLETS**



APPROVED FOR
CONSTRUCTION



STRAW BALE FENCE

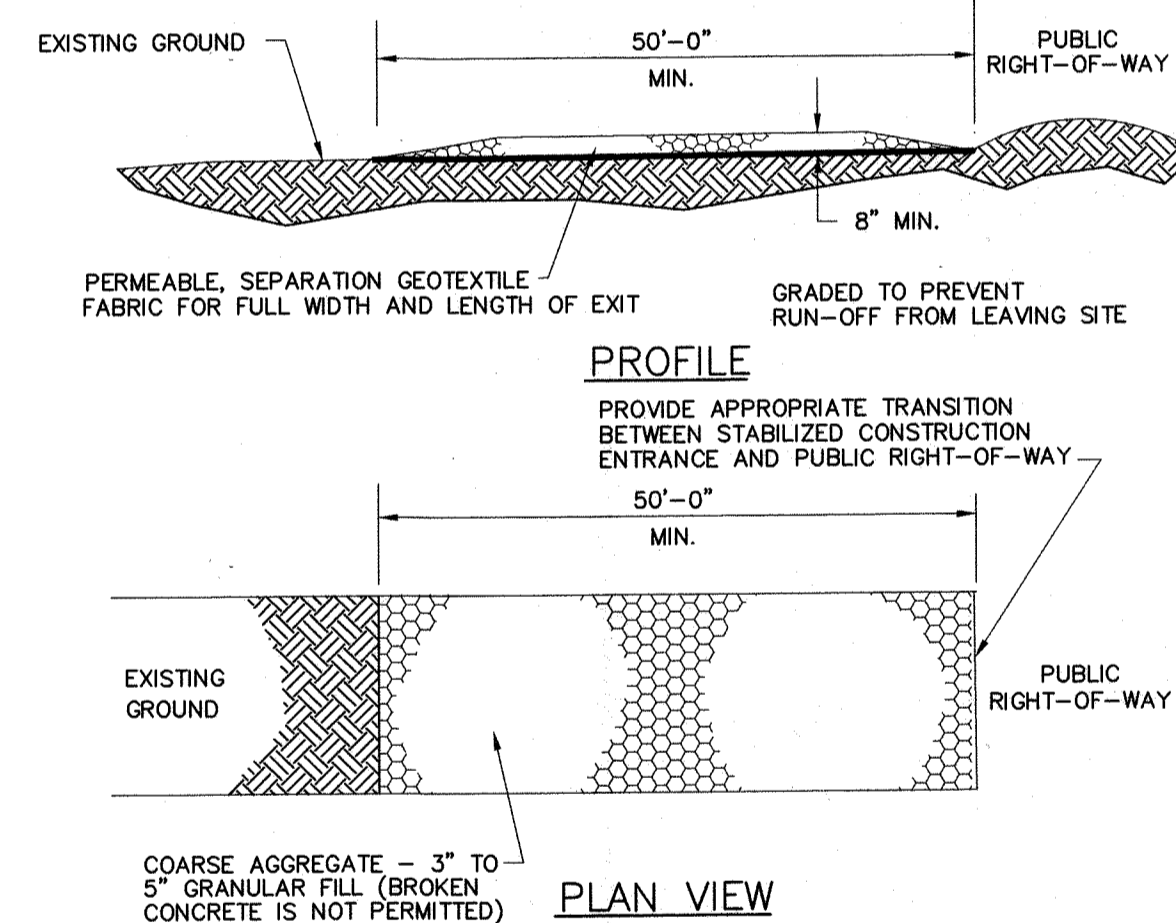
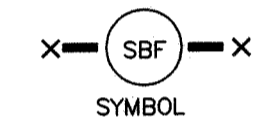


SECTION

GENERAL NOTES:

1. LIMIT USE TO ONSITE SWALES FOR PURPOSES OF LOW FLOW VELOCITY DISSIPATION FOR EROSION CONTROL. USE STRAW BALE FENCES TO TREAT OVERLAND FLOW ONLY. DO NOT USE STRAW BALE FENCES TO TREAT FLOW IN CHANNELS.
2. PLACE BALES IN A ROW WITH ENDS TIGHTLY ADJUTING ADJACENT BALES. FILL THE VOIDS BETWEEN BALES WITH SURPLUS STRAW. PLACE BALES WITH BINDING PARALLEL TO GROUND SURFACE.
3. IMBED EACH BALE AT LEAST 4 INCHES IN THE SOIL.
4. SECURELY ANCHOR BALES IN PLACE BY REBAR STAKES. DRIVE STAKES THROUGH THE BALES AND AT LEAST 18 INCHES INTO THE GROUND. ANGLE THE STAKE IN EACH BALE TOWARD THE PREVIOUS BALE TO FORCE THE BALES TOGETHER.
5. BIND BALES WITH WIRE OR NYLON ROPE TIED ACROSS THE STRAW BALES.
6. REPLACE WITH NEW STRAW BALE FENCE EVERY TWO MONTHS.
7. WATTLES STAKED INTO THE GROUND ARE A PREFERRED SUBSTITUTE FOR STRAW BALE FENCES.

STRAW BALE FENCE

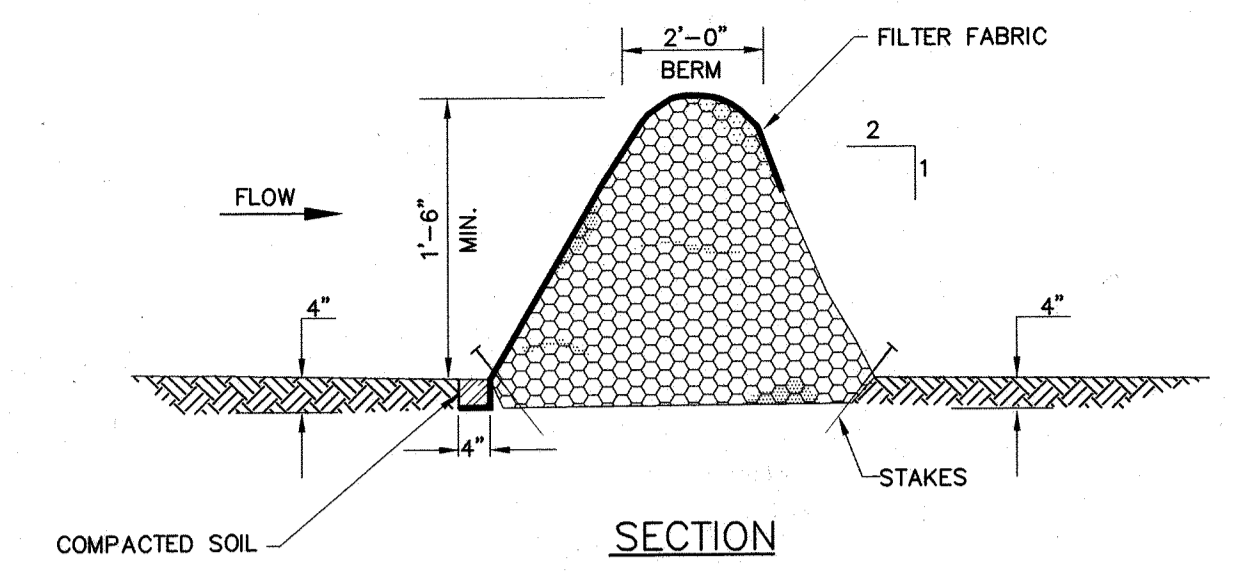
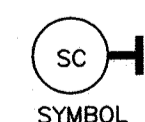


PLAN VIEW

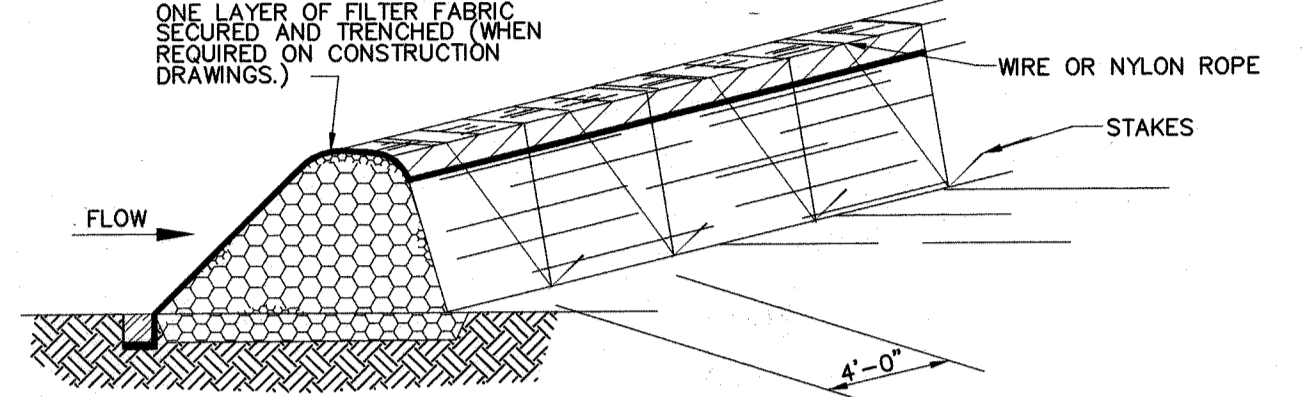
GENERAL NOTES:

1. MINIMUM LENGTH IS AS SHOWN ON CONSTRUCTION DRAWINGS OR 50 FEET, WHICHEVER IS MORE.
2. CONSTRUCT AND MAINTAIN CONSTRUCTION EXIT WITH CONSTANT WIDTH ACROSS ITS LENGTH, INCLUDING ALL POINTS OF INGRESS OR EGRESS.
3. UNLESS SHOWN ON THE CONSTRUCTION DRAWINGS, STABILIZATION FOR OTHER AREAS WILL HAVE THE SAME AGGREGATE THICKNESS AND WIDTH REQUIREMENTS AS THE STABILIZED CONSTRUCTION EXIT.
4. WHEN SHOWN ON THE CONSTRUCTION DRAWINGS, WIDEN OR LENGTHEN STABILIZED AREA TO ACCOMMODATE A TRUCK WASHING AREA. PROVIDE OUTLET SEDIMENT TRAP FOR THE TRUCK WASHING AREA.
5. PROVIDE PERIODIC TOP DRESSING WITH ADDITIONAL COARSE AGGREGATE TO MAINTAIN THE REQUIRED DEPTH OR WHEN SURFACE BECOMES PACKED WITH MUD.
6. PERIODICALLY TURN AGGREGATE TO EXPOSE A CLEAN DRIVING SURFACE.
7. ALTERNATIVE METHODS OF CONSTRUCTION INCLUDE:
 - CEMENT STABILIZED SOIL: COMPACTED CEMENT STABILIZED SOIL, LIMESTONE AGGREGATE, OR OTHER FILL MATERIAL IN AN APPLICATION OF THICKNESS OF 8 INCHES.
 - WOOD MATS: OAK OR OTHER HARDWOOD TIMBERS PLACED EDGE TO EDGE AND ACROSS SUPPORT WOODEN BEAMS WHICH ARE PLACED ON TOP OF EXISTING SOIL IN AN APPLICATION THICKNESS OF 6 INCHES.
 - STEEL MATS: PERFORATED MATS PLACED ACROSS PERPENDICULAR SUPPORT MEMBERS.

STABILIZED CONSTRUCTION ACCESS



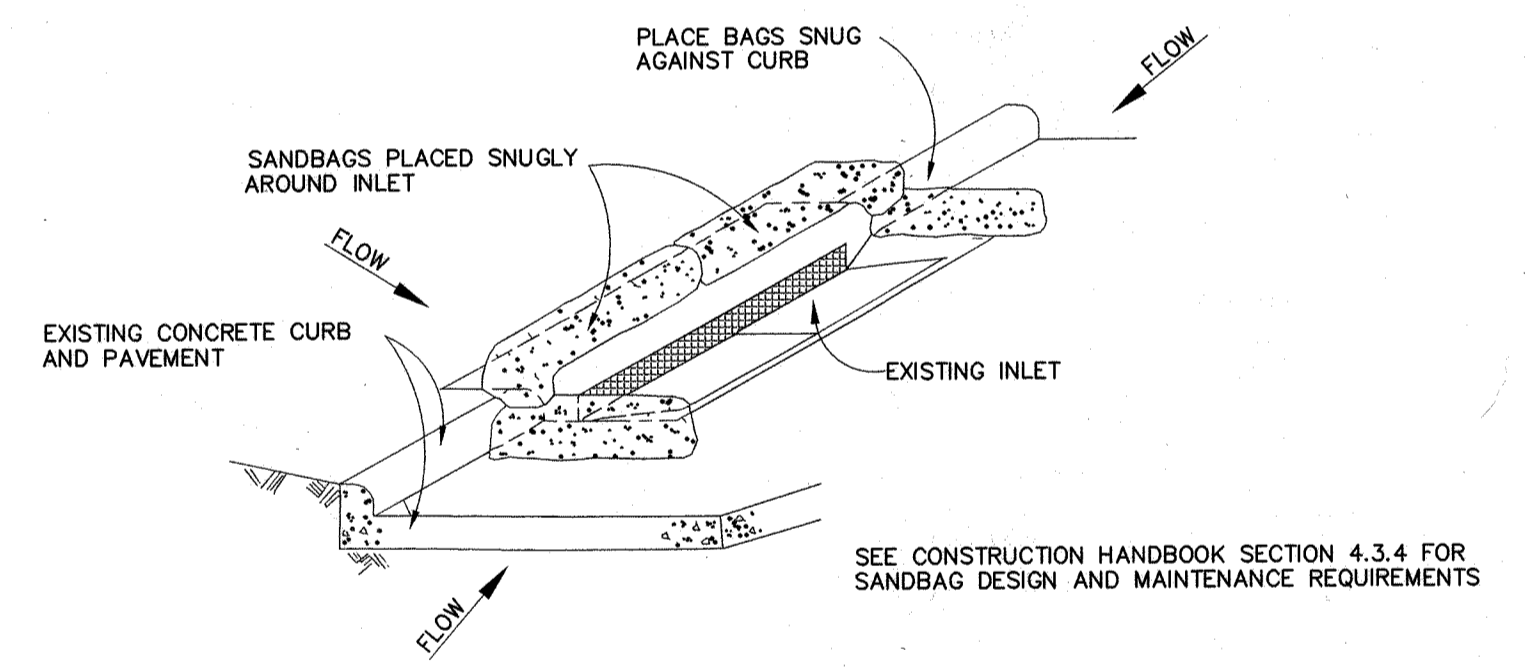
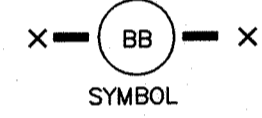
SECTION



GENERAL NOTES:

1. LIMIT USE TO ONSITE SWALES FOR PURPOSES OF LOW FLOW VELOCITY DISSIPATION FOR EROSION CONTROL. USE BRUSH BERMS TO TREAT OVERLAND FLOW ONLY. DO NOT USE BRUSH BERMS TO TREAT FLOW IN CHANNELS.
2. PLACE WOODY BRUSH AND BRANCHES HAVING A DIAMETER OF LESS THAN 2 INCHES WITH A 6-INCH OVERLAP. AVOID INCORPORATION OF ANNUAL WEEDS AND SOIL INTO BRUSH BERM.
3. MINIMUM HEIGHT OF THE BRUSH BERM IS 18 INCHES, MEASURED FROM THE TOP OF THE EXISTING GROUND AT THE UPSLOPE TOE TO THE TOP OF THE BERM.
4. HAND PLACE BRUSH BERMS ALONG CONTOUR LINES. MACHINE PLACEMENT OF BRUSH BERMS IS NOT PERMITTED.
5. IMBED BRUSH BERM AT LEAST 4 INCHES INTO THE SOIL.
6. ANCHOR BRUSH BERMS USING WIRE OR NYLON ROPE ACROSS THE BERM WITH A MINIMUM TENSION OF 50 POUNDS.
7. SECURELY TIE ROPE TO 18-INCH REBAR STAKES DRIVEN INTO THE GROUND ON 4-FOOT CENTERS ON BOTH SIDES OF THE BERM.
8. PERFORM MAINTENANCE AS NEEDED.

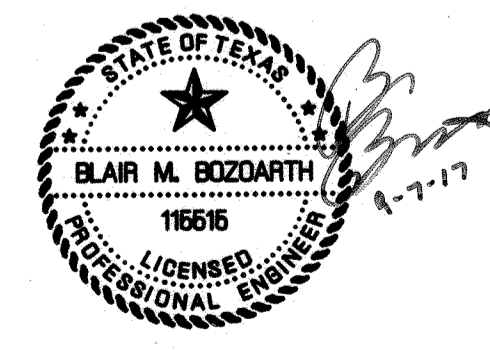
BRUSH BERM



GENERAL NOTES:

1. BAGS OR WATTLES CAN BE USED FOR THIS APPLICATION.
2. PROVIDE WOVEN OR UNWOVEN GEOTEXTILE FILTER FABRIC FOR BAGS.
3. PROVIDE COARSE SAND AND AGGREGATE MIX FOR FILL MATERIAL FOR BAGS. USE ONLY PARTICLES CONSISTING OF CLEAN, HARD, DURABLE MATERIALS FREE FROM ADHERENT COATINGS, SALT, ALKALI, DIRT, CLAY, LOAM, SHALE, SOFT OR FLAKY MATERIALS, OR ORGANIC AND INJURIOUS MATTER.
4. REMOVE SEDIMENT DEPOSIT WHEN THE SEDIMENT HAS ACCUMULATED TO ONE-THIRD THE HEIGHT OF THE BARRIER.

**INLET PROTECTION
BARRIERS FOR
STAGE II INLETS**

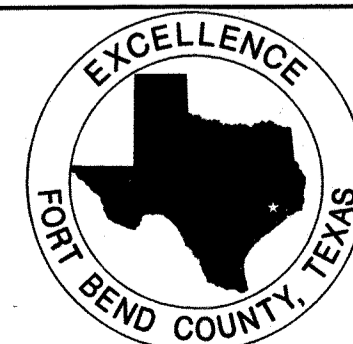


CONSTRUCTION HANDBOOK-
STORM WATER MANAGEMENT HANDBOOK
FOR CONSTRUCTION ACTIVITIES PREPARED BY
CITY OF HOUSTON, HARRIS COUNTY, AND
HARRIS COUNTY FLOOD CONTROL DISTRICT,
2001 EDITION.

JONES CARTER
Texas Board of Professional Engineers Registration No. F-439
22330 Merchants Way, Suite 170, Katy, TX 77449 (832) 913-6000

NO.	REVISIONS	DATE	NAME
1	CHANGED TITLE BLOCK	7/21/98	R.L.S.
2	ADDED CONTINENTAL CROSSWALK	8/3/98	ALP

FORT BEND COUNTY
ENGINEERING DEPARTMENT



BELLAIRE BLVD UTILITY EXTENSION & DETENTION			
DRAWN BY: R.L.S.	SHEET DESCRIPTION: STORM WATER POLLUTION PREVENTION PLAN DETAILS	JOB NO: 05298-0168-00	FILE NAME: PMDT.L
SCALE: N.T.S.	APPROVED BY: [Signature]	DATE: 6/27/01	SHT NO: 21 / 22

Mogil 10/5/17

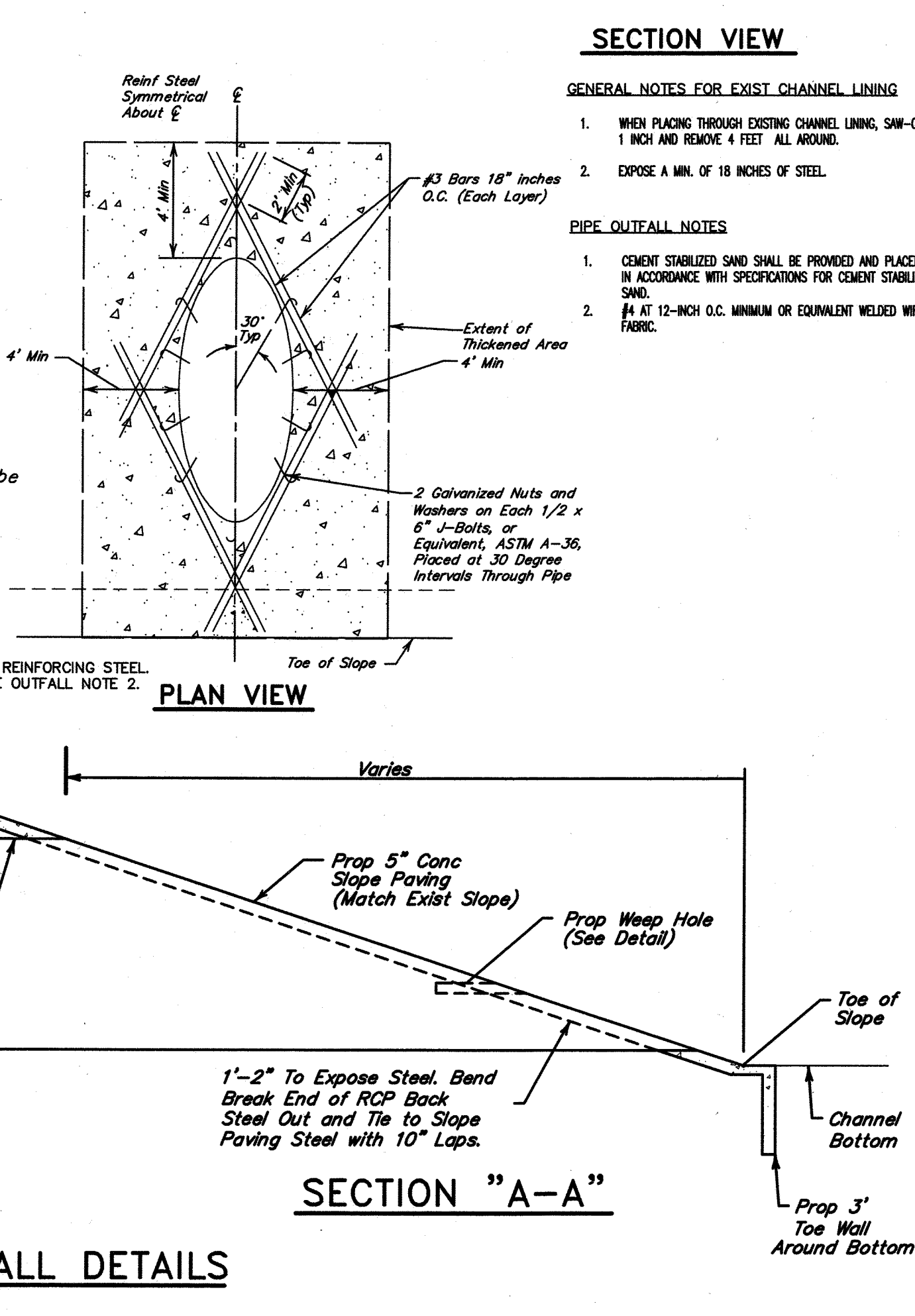
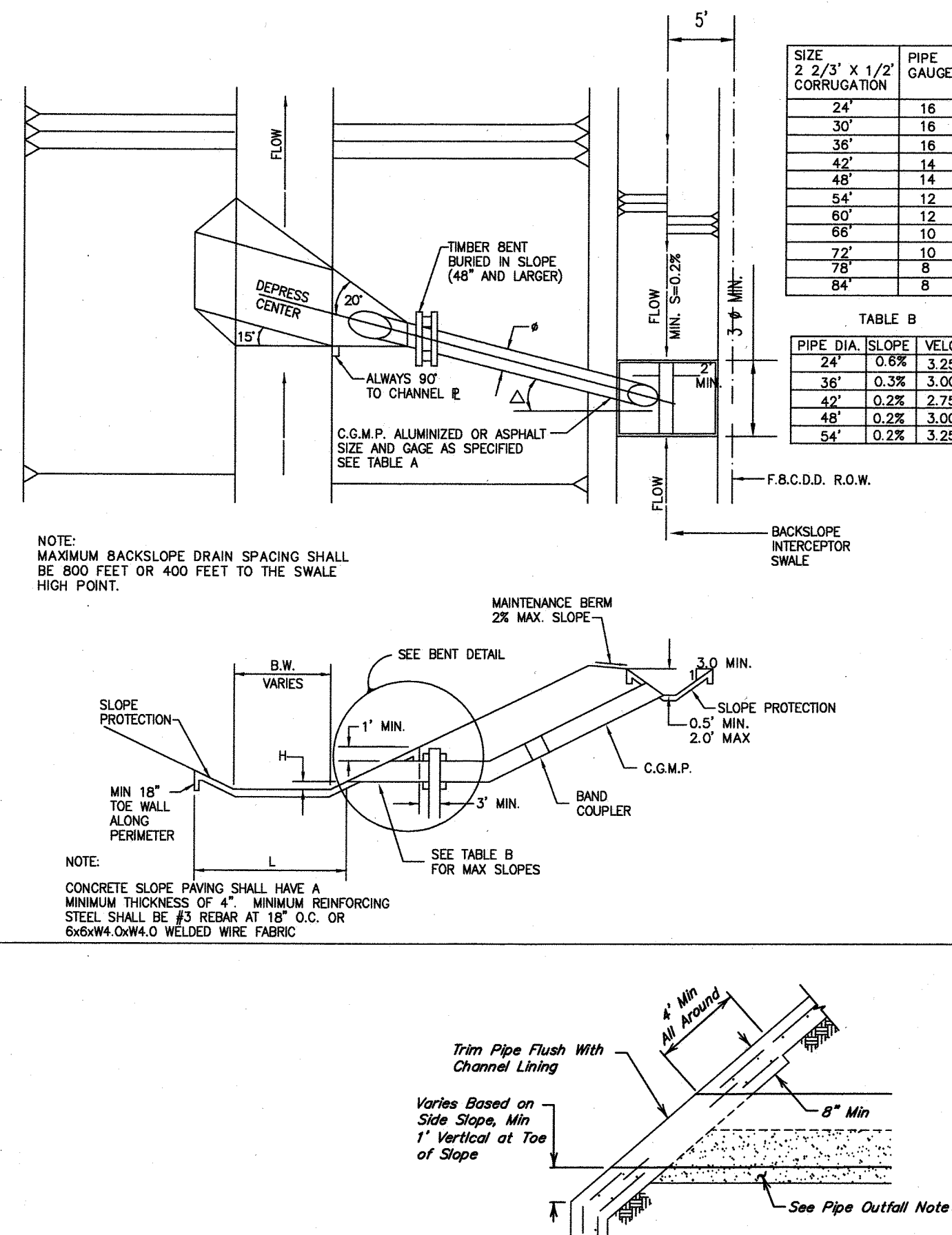


TABLE B

PIPE DIA.	SLOPE	VELOCITY
24"	0.8%	3.25 f.p.s
36"	0.3%	3.00 f.p.s
42"	0.2%	2.75 f.p.s
48"	0.2%	3.00 f.p.s
54"	0.2%	3.25 f.p.s

Δ PROP. 24" TO 42" Δ =

PROP. 48" AND LARGER Δ

H: FOR PIPE SIZES 24" TO 42"

H=3" MAX. AND 1" MIN.

FOR PIPE SIZES 48" AND LAR

H=1" MAX. AND MIN.

F

B.C.D.D. R.O.W.

L:

$\frac{B.W.}{PIPE \phi} \leq 7'-6"$

\rightarrow L
P
O

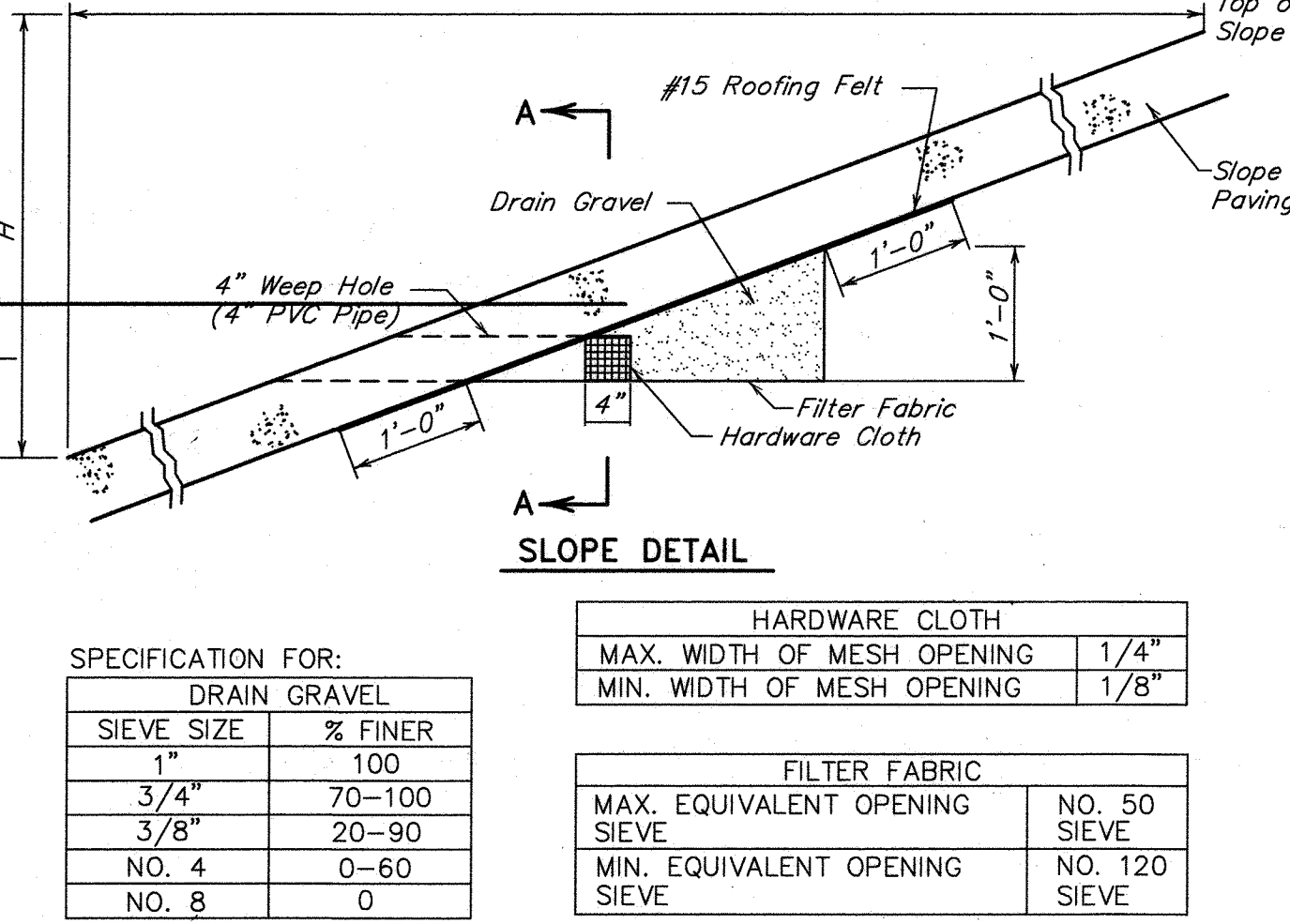
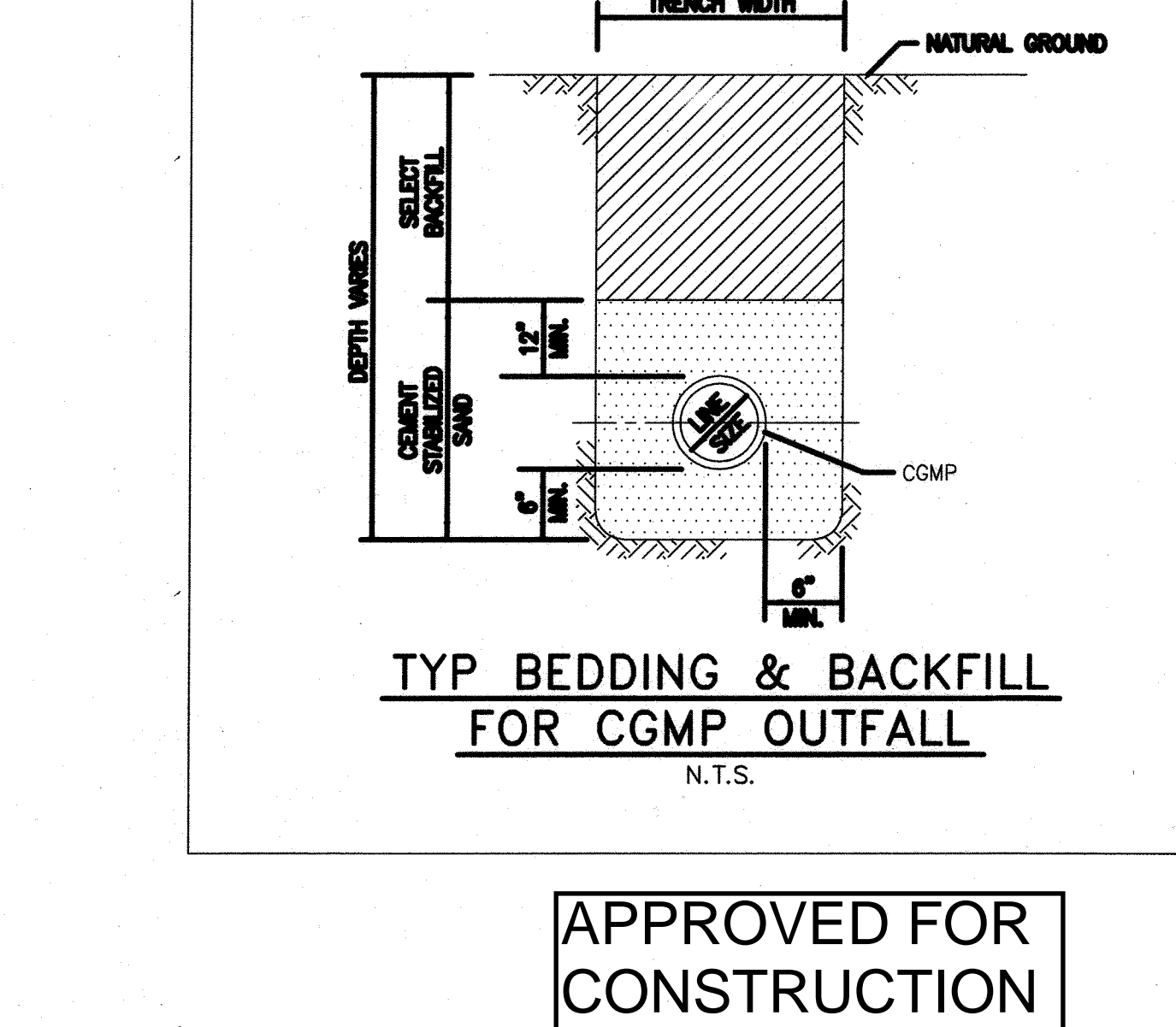
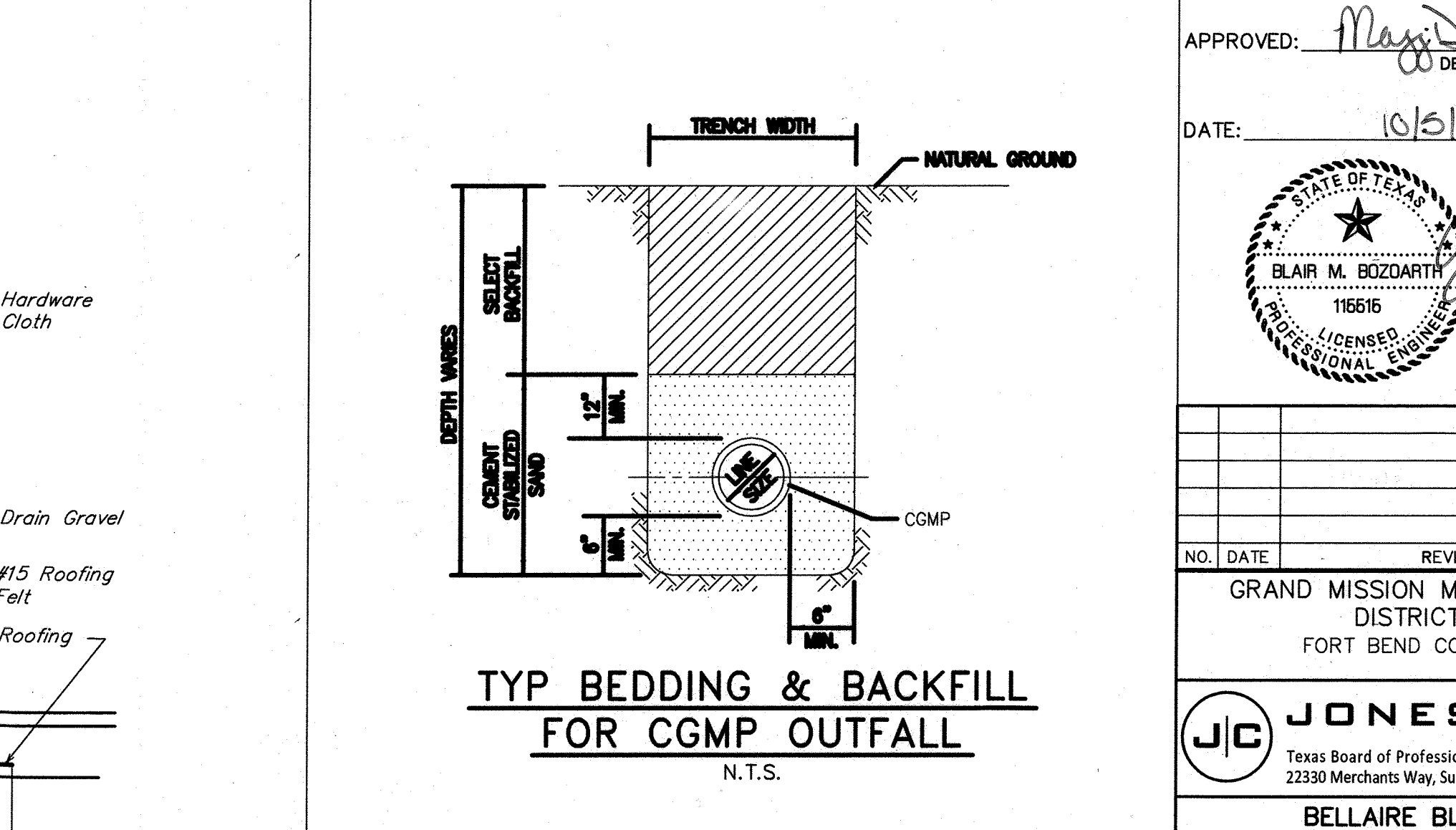
$\frac{B.W.}{PIPE \phi} > 7'-6"$

\rightarrow L
IN

BACKSLOPE

INTERCEPTOR

SWALE



K:\05298\05298-0168-00 Bellaire Blvd. Utility Extension & Detn\2 Design Phase\CAD\PLANS\BELLAIRE BLVD UTILITY EXTENSION & DETENTION.dwg Sep 06,2017 - 5:07pm BFA