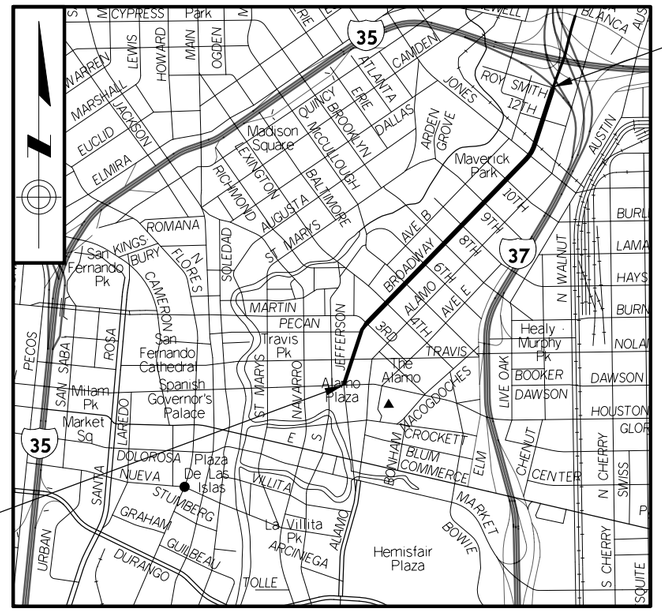
CITY OF SAN ANTONIO

PUBLIC WORKS DEPARTMENT

BROADWAY ST
E. HOUSTON ST TO IH-35



SPECIFICATIONS ADOPTED BY THE CITY OF SAN ANTONIO, JUNE 2008 AND THE TEXAS DEPARTMENT OF TRANSPORTATION, NOVEMBER 1, 2014 AND SPECIFICATION ITEMS LISTED AND DATED AS FOLLOWS. SHALL GOVERN ON THIS PROJECT.

TDLR INSPECTION REQUIRED
TDLR NO. EAB _____

100% DESIGN
AUGUST 14, 2020

TCI PROJECT NUMBER
23-01561

CITY OF SAN ANTONIO
PUBLIC WORKS DEPARTMENT

THROUGH INNOVATION AND DEDICATION, WE BUILD AND MAINTAIN SAN ANTONIO'S INFRASTRUCTURE

AECOM
AECOM Technical Services Inc. F-3580
122 E Pecan St, Suite 400
San Antonio, Texas 78205
(210) 296-2000

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DWAYNE S. HAMILTON, P.E. — 8/28/2020 DATE

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PUNARVASU BHAKTA, P.E. — 8/28/2020 DATE

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KELSEY E. SCONIERS, P.E. — 8/28/2020 DATE

NO	DATE	REVISION	APPROVED
-	-	-	-

AECOM
AECOM Technical Services Inc. F- 3580
112 Pecan Street
Suite 400
San Antonio, Texas 78205
(214) 741-7777

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CITY OF SAN ANTONIO
PUBLIC WORKS DEPARTMENT

BROADWAY ST

INDEX OF SHEETS

BROADWAY ST

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SUBMITTAL	PROJECT NUMBER	DATE
100%	23-01561	8/28/2020
DRWN BY:	DSGN BY:	CHKD BY:	SHEET NO.
			2

PLOTTED ON: 8/28/2020 @ 12:24:49 PM
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KELSEY E. SCONIERS, P.E. — 8/27/2020 DATE

NO	DATE	REVISION	APPROVED
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AECOM
AECOM Technical Services Inc. F- 3580
112 Pecan Street
Suite 400
San Antonio, Texas 78205
(214) 741-7777

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CITY OF SAN ANTONIO
PUBLIC WORKS
DEPARTMENT

BROADWAY ST

INDEX OF SHEETS

BROADWAY ST

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SUBMITTAL	PROJECT NUMBER		DATE
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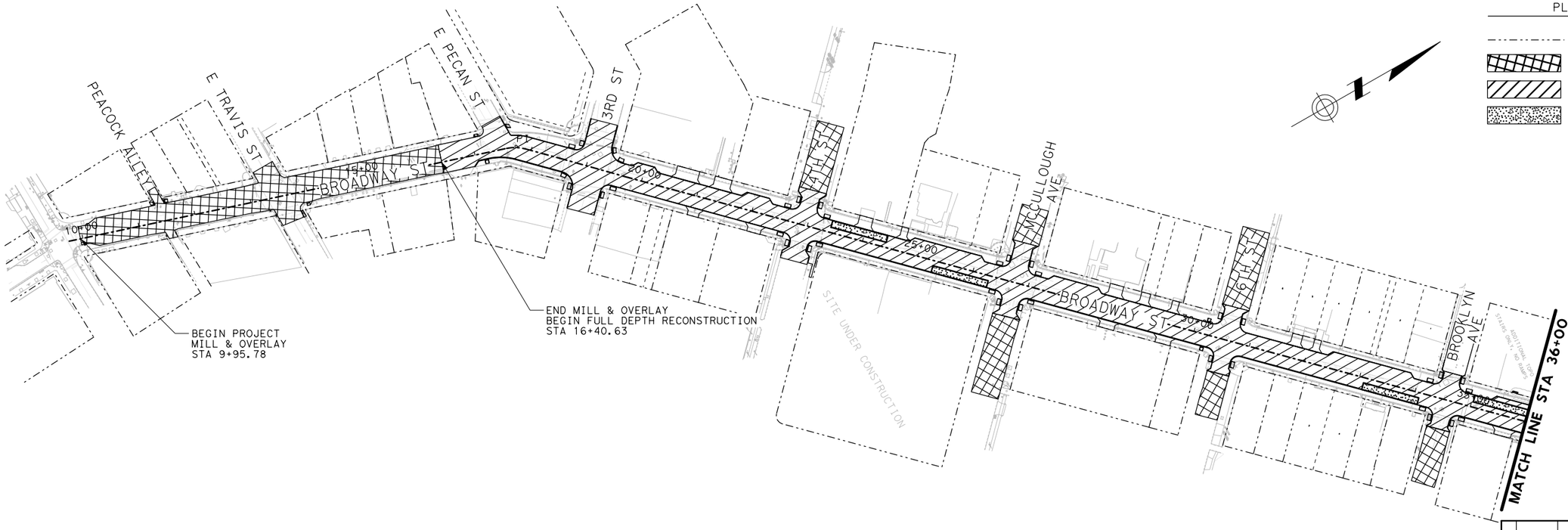

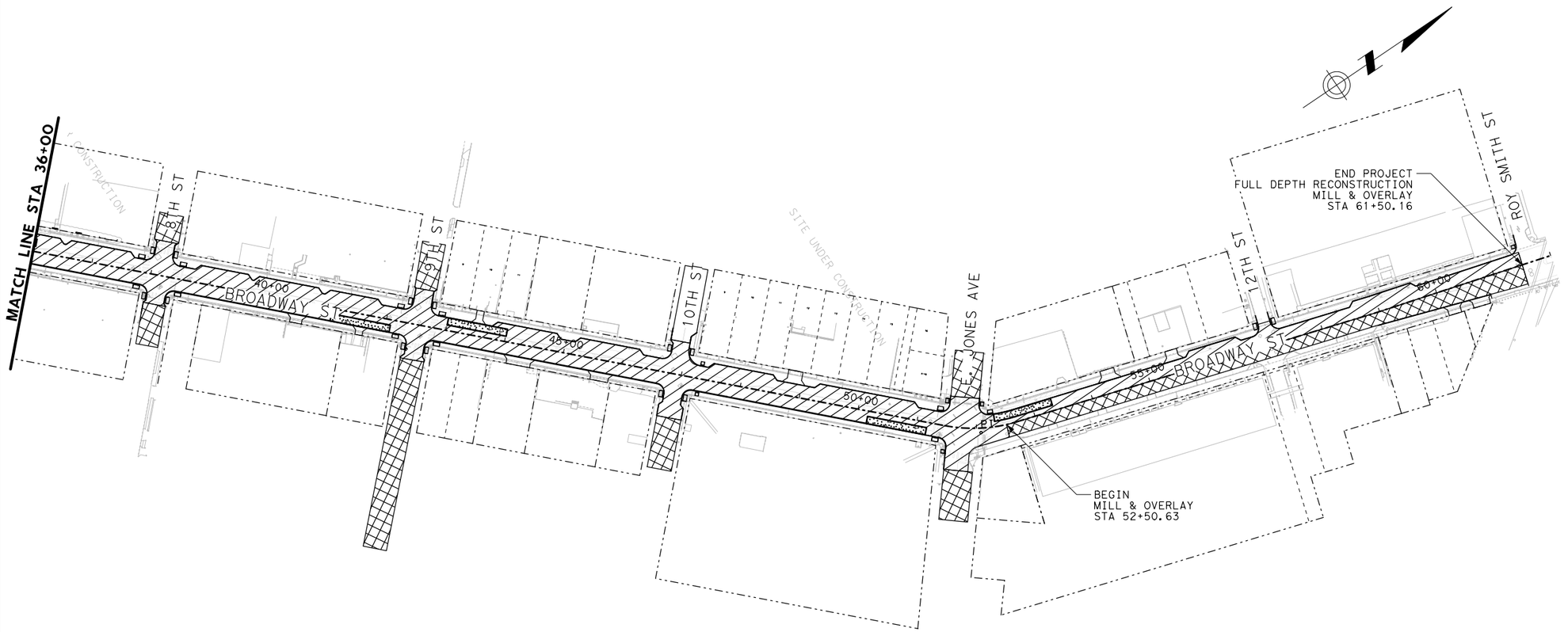

PLAN VIEW LEGEND

- EXISTING RIGHT OF WAY
- MILL AND OVERLAY
- FULL DEPTH RECONSTRUCTION
- CONC. BUS PAD

NO	DATE	REVISION	APPROVED
-	-	-	-

GRAPHIC SCALE (IN FEET)

100 50 0 100 200 300

1" = 200'

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NAME	P.E.	DATE

AECOM
AECOM Technical Services Inc. F- 3580
112 Pecan Street
Suite 400
San Antonio, Texas 78205
(214) 741-7777

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BROADWAY ST

PROJECT LAYOUT

BROADWAY STREET

BRDWY-PROJ-LAY.dgn			SHEET 1 OF 1
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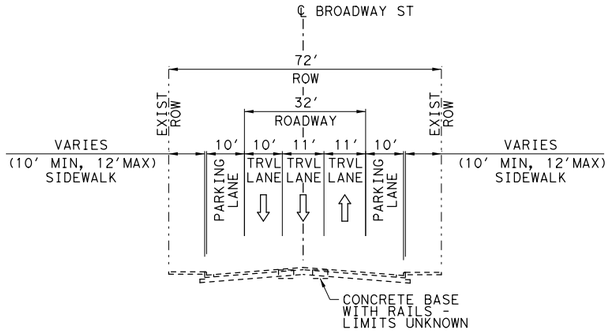
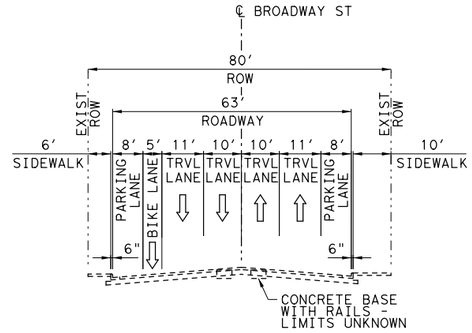
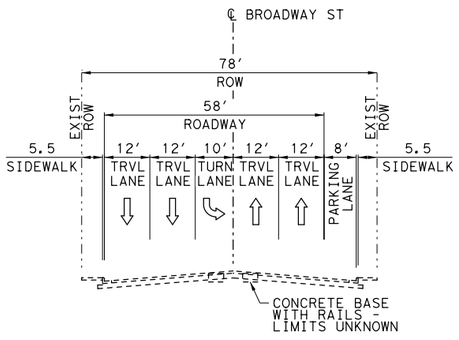


BROADWAY ST
EXISTING TYPICAL SECTION
HOUSTON TO 3RD STREET
3 TRAVEL LANES & 2 PARKING LANES



BROADWAY ST
EXISTING TYPICAL SECTION
E. JONES AVENUE TO ROY SMITH STREET
4 TRAVEL LANES, 1 BIKE LANE & 2 PARKING LANES



BROADWAY ST
EXISTING TYPICAL SECTION
3RD STREET TO E. JONES AVENUE
4 TRAVEL LANES, 1 PARKING LANE & 1 TURN LANE

NO	DATE	REVISION	APPROVED
-	-	-	-

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AECOM
AECOM Technical Services Inc. F- 3580
112 Pecan Street
Suite 400
San Antonio, Texas 78205
(214) 741-7777

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CITY OF SAN ANTONIO
PUBLIC WORKS DEPARTMENT

BROADWAY ST

ROADWAY TYPICALS

BROADWAY STREET
EXISTING TYPICAL SECTION

BRDWY-RDWY-TYP-001.dgn			SHEET 1 OF 2
SUBMITTAL	PROJECT NUMBER		DATE
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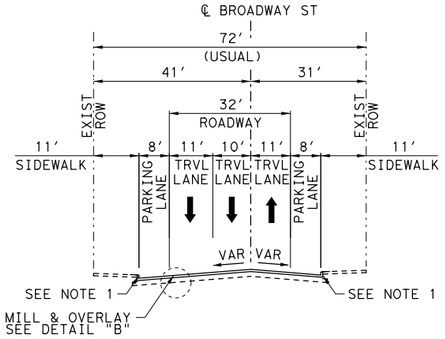
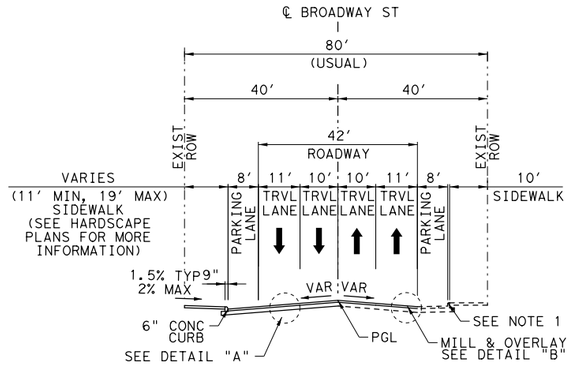


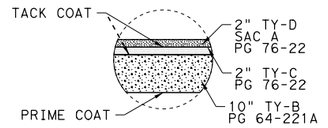
BROADWAY ST
PROPOSED TYPICAL SECTION
HOUSTON ST TO PECAN ST
3 TRAVEL LANES & 2 PARKING LANES



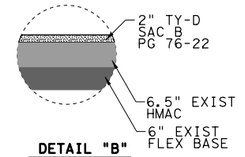
BROADWAY ST
PROPOSED TYPICAL SECTION
E. JONES AVENUE TO STA 59+00.00
4 TRAVEL LANES & VARIABLE MEDIAN

NOTES:

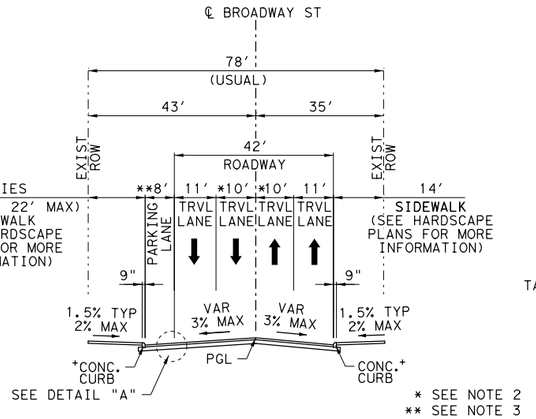
1. EXISTING CURB TO REMAIN.
2. FROM E. PECAN ST. TO 3RD ST. THE WIDTH IS 11′.
3. FROM E. PECAN ST. TO 3RD ST. NO PARKING LANE.
4. THE WIDTH OF ISLAND MEDIAN VARIES FROM 0-11.5′.
5. AFTER REMOVAL OF 2" OF EXISTING MATERIAL, THE TOP OF THE EXPOSED "BASE" MAY BE CONCRETE, ASPHALT, OR FLEXIBILE BASE. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO PLACEMENT OF PROPOSED HMAC OVERLAY. PROOF ROLLING SHALL BE COMPLETED TO DEFINE AREAS OF WEAKNESS. AREAS OF WEAKNESS SHALL BE REPAIRED FULL DEPTH.
6. IF CONCRETE BASE WITH RAILS IS ENCOUNTERED AND REMOVAL IS DETERMINED TO NOT BE REQUIRED OR COST PROHIBITIVE, PLACE FIRST LIFT OF HMAC BASE, ADD GEOGRID FULL WIDTH OF RAIL PLUS 6 FEET ADDITIONAL WIDTH FROM EACH OUTSIDE RAIL, AND CONTINUE TO PLACE REMAINDER OF PROPOSED PAVEMENT SECTION. PAVEMENT PERFORMANCE MAY BE COMPRIMISED.
7. PROPOSED CURB SOUTH OF BROOKLYN AVENUE SHALL BE SQUARE CURB SHOWN IN DETAIL "C". PROPOSED CURB NORTH OF BROOKLYN AVENUE SHALL BE CURB SHOWN ON MISCELLANEOUS DETAILS SHEET.



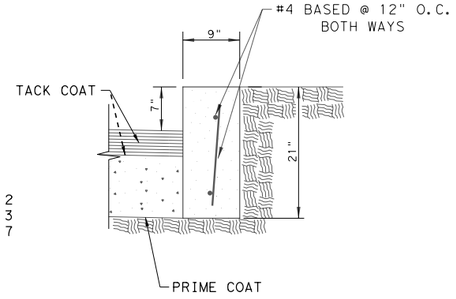
DETAIL "A"
N. T. S.
SEE NOTE 6



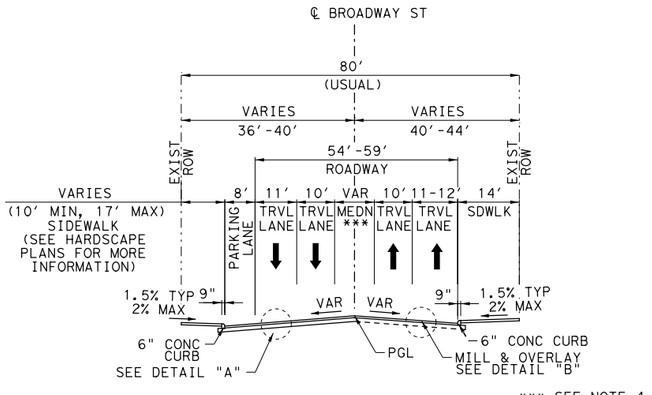
DETAIL "B"
N. T. S.
SEE NOTES 5 & 6



BROADWAY ST
PROPOSED TYPICAL SECTION
PECAN ST TO E. JONES AVENUE
4 TRAVEL LANES & 1 PARKING LANE



DETAIL "C"
CURB SOUTH OF BROOKLYN AVE
N. T. S.



BROADWAY ST
PROPOSED TYPICAL SECTION
STA 59+00.00 TO ROY SMITH ST
4 TRAVEL LANES & VARIABLE MEDIAN

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Suite 400
San Antonio, Texas 78205
(214) 741-7777

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BROADWAY ST

ROADWAY TYPICALS

BROADWAY STREET PROPOSED TYPICAL SECTION

BRDWY-RDWY-TYP-002.dgn			SHEET 2 OF 2
SUBMITTAL	PROJECT NUMBER		DATE
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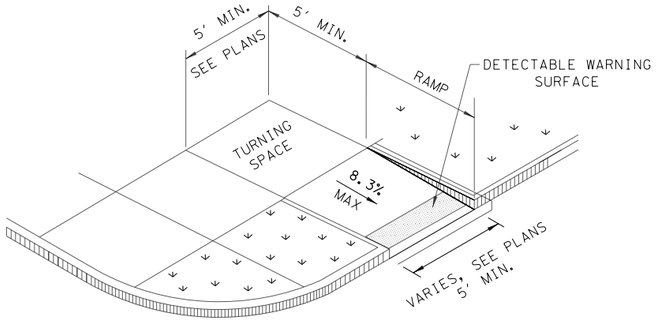
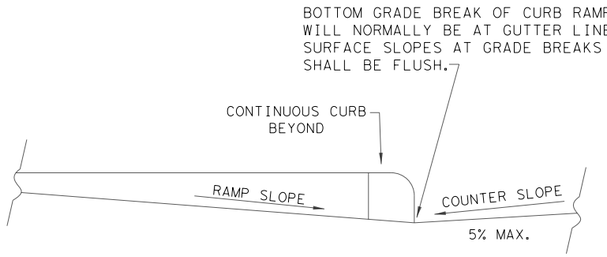
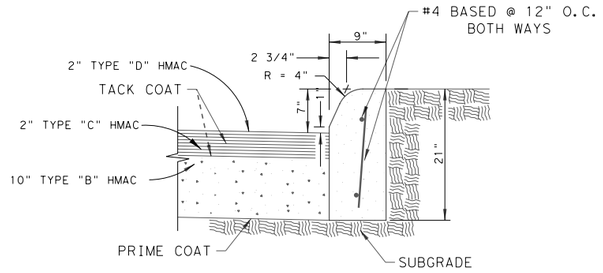
			6



CURB RAMP (TxDOT TYPE 1 MOD)



TYPICAL SECTION OF CURB RAMP AT CONNECTION TO ROADWAY



CONCRETE CURB

FOR USE WHEN CURB IS NOT ADJACENT TO BIOFILTRATION BED
FOR CURB NORTH OF BROOKLYN
NOT TO SCALE

NO	DATE	REVISION	APPROVED
-	-	-	-

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Suite 400
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BROADWAY ST

MISCELLANEOUS DETAILS

BRDWY-RDWY-MISC-002.dgn			SHEET 1 OF 1
SUBMITTAL	PROJECT NUMBER		DATE
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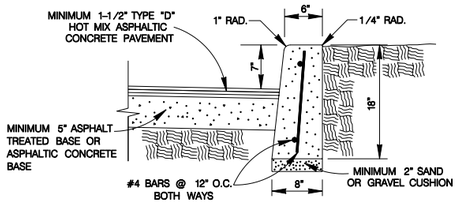
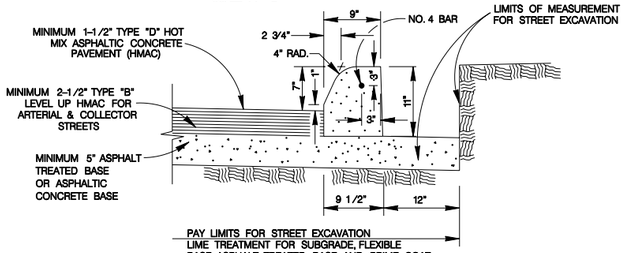
			75



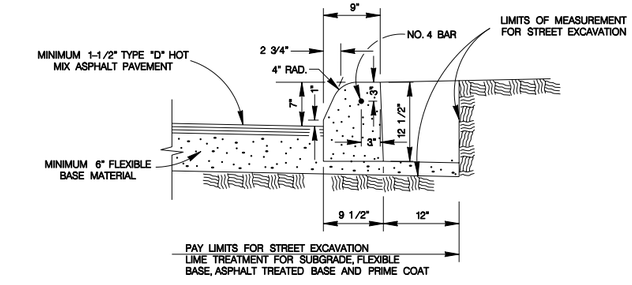
HEADER CURB

ITEM 500 ON SAND OR GRAVEL
SCALE : 1"=2'



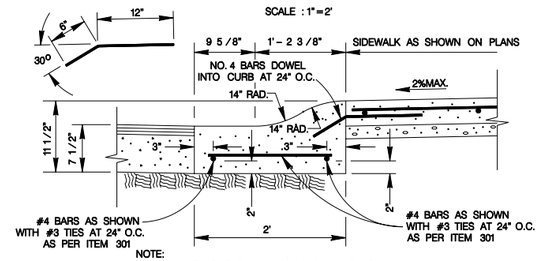
CONCRETE CURB

ITEM 500 ON ASPHALT TREATED BASE OR ASPHALTIC CONCRETE BASE
SCALE : 1"=2'



CONCRETE CURB

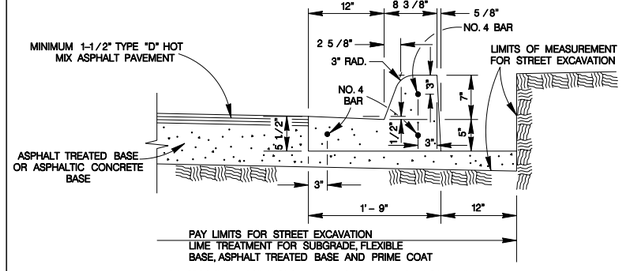
ITEM 500 ON FLEXIBLE BASE MATERIAL
SCALE : 1"=2'



NOTE:
CURB TRANSITIONS SHALL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN ITEM 500 CONCRETE CURBING

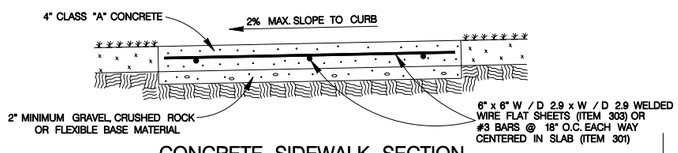
MOUNTABLE CURB

ITEM 500 ON COMPACTED SUBGRADE
SCALE : 1"=2'



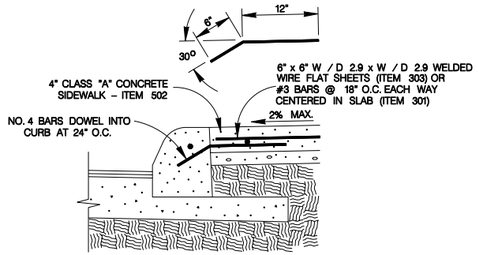
TYPICAL CURB & GUTTER DETAIL

ITEM 500 ON ASPHALT TREATED BASE OR ASPHALTIC CONCRETE BASE
SCALE : 1"=2'



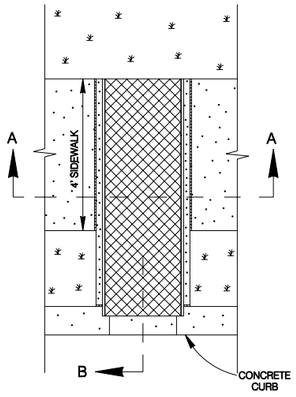
CONCRETE SIDEWALK SECTION

ITEM 502
SCALE : 1"=2'



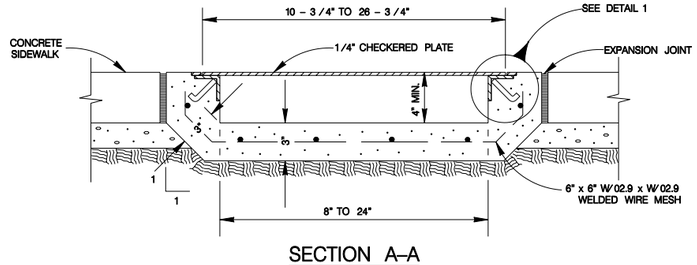
CONCRETE SIDEWALK ABUTTING CURB SECTION

ITEM 502
SCALE : 1"=2'



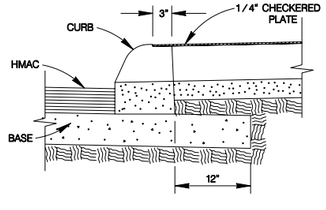
CONCRETE SIDEWALK DRAIN DETAIL

SCALE : 1"=4'



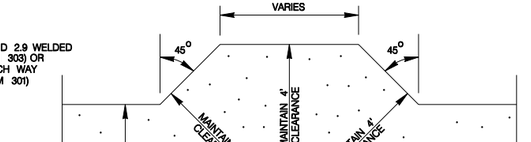
SECTION A–A

SCALE=1 : 12



SECTION B

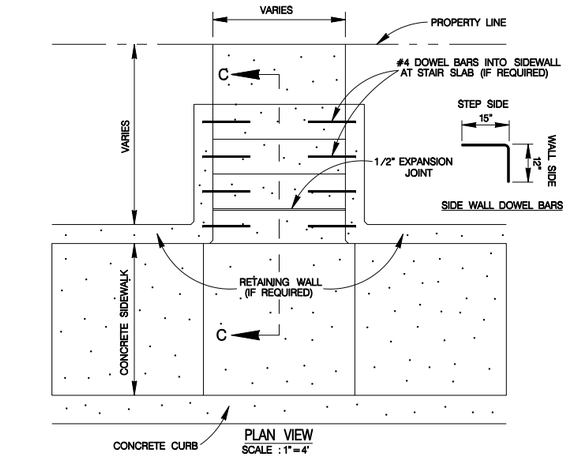
SCALE : 1"=2'



NOTE :
THIS DETAIL TO BE USED WHENEVER A POWER POLE ENCROACHES ON SIDEWALK. A MINIMUM UNOBSTRUCTED CLEARANCE OF 4' IS TO BE MAINTAINED AROUND THE POLE AT THE LOCATIONS.

CONCRETE SIDEWALK @ UTILITY POWER POLE DETAIL

SCALE : 1"=4'

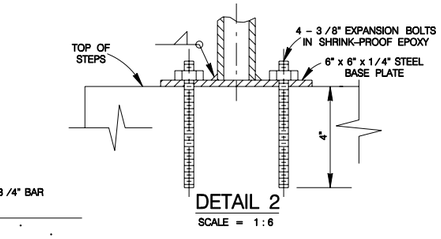


PLAN VIEW

SCALE : 1"=4'

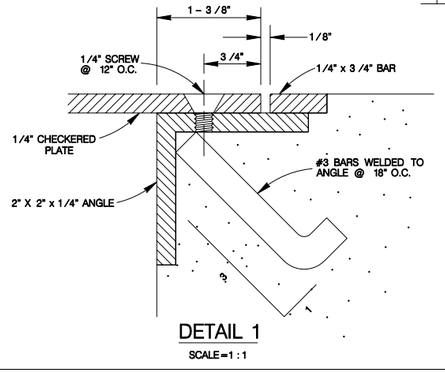
CONCRETE STEPS

ITEM 524



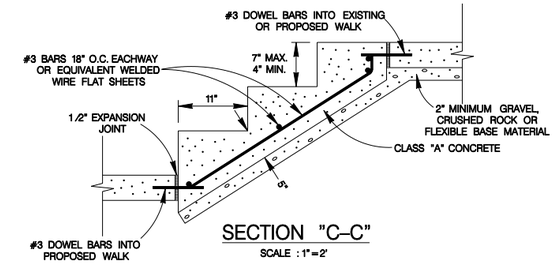
DETAIL 2

SCALE = 1 : 6



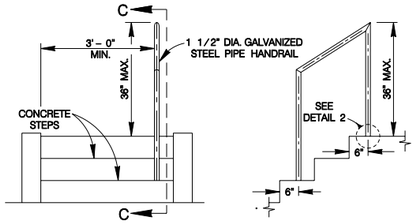
DETAIL 1

SCALE=1 : 1



SECTION "C–C"

SCALE : 1"=2'

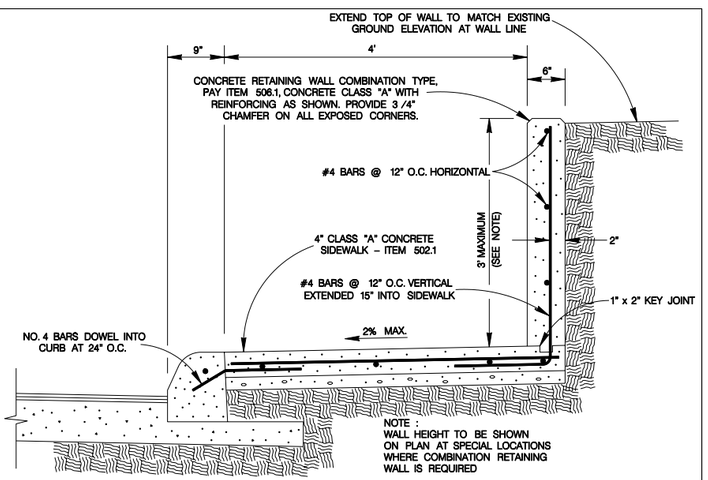


PIPE HANDRAIL DETAIL

PROFILE VIEW
SCALE : 1"=4'

SECTION "D–D"

FRONT VIEW
SCALE : 1"=4'



NOTE :
WALL HEIGHT TO BE SHOWN ON PLAN AT SPECIAL LOCATIONS WHERE COMBINATION RETAINING WALL IS REQUIRED

CONCRETE RETAINING WALL – COMBINATION TYPE

ITEM 506
SCALE : 1"=2'

NOTES :
1. PLACE STEPS TO CONFORM WITH PROPOSED PARKWAY GRADING
2. 1–1/2" DIA. GALVANIZED STEEL PIPE HANDRAIL REQUIRED ON ONE SIDE OF THE STEPS WHEN 3 OR MORE RISERS ARE USED, OR AS DESIGNED BY ENGINEER. TO BE PAID UNDER ITEM 522

HANDRAIL FOR CONCRETE STEPS

ITEM 522

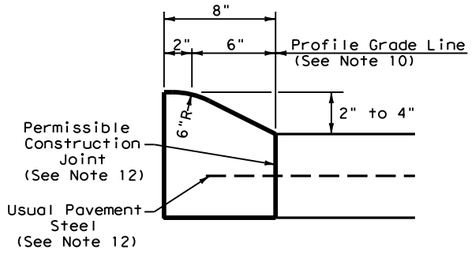
MAY 2009

CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

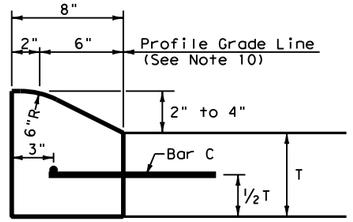
MISCELLANEOUS CONSTRUCTION STANDARDS I

100 % SUBMITTAL	PROJECT NO.: 23-01561		DATE: 08/13/2020
DRWN. BY: V. VASQUEZ	DSGN. BY:	CHKD. BY: R.S. HOSSEINI, P.E.	SHEET NO.: 78 OF 412

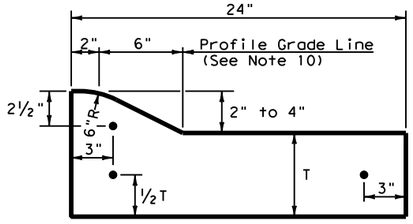
DATE:
FILE:



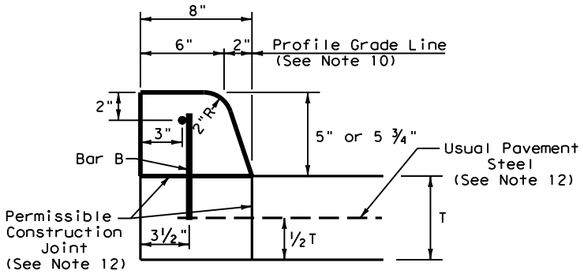
TYPE I CURB (MONOLITHIC)
2" - 4" HEIGHT



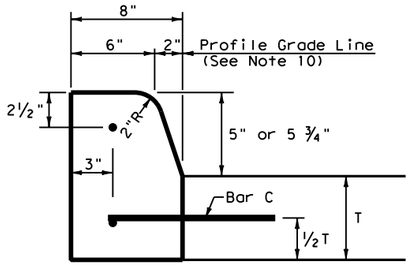
TYPE I CURB
2" - 4" HEIGHT



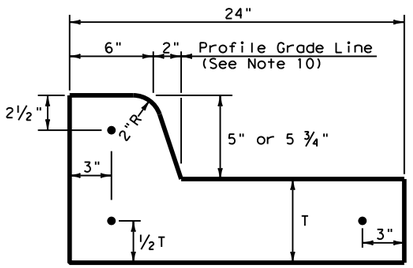
TYPE I CURB AND GUTTER
2" - 4" HEIGHT



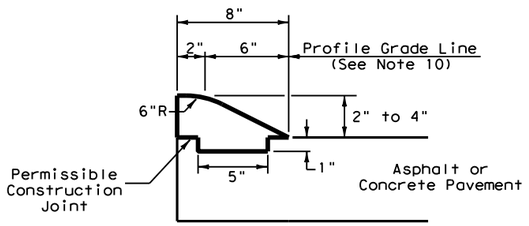
TYPE II CURB (MONOLITHIC)
5" - 5 ¾" HEIGHT



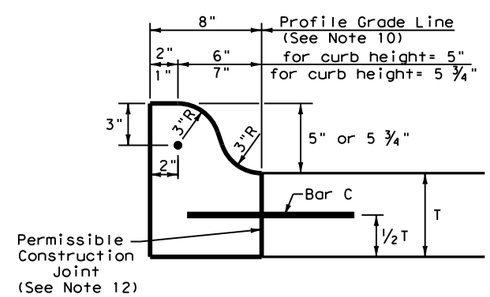
TYPE II CURB
5" - 5 ¾" HEIGHT



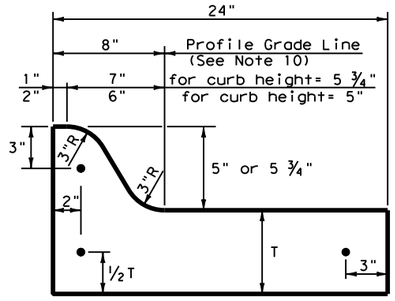
TYPE II CURB AND GUTTER
5" - 5 ¾" HEIGHT



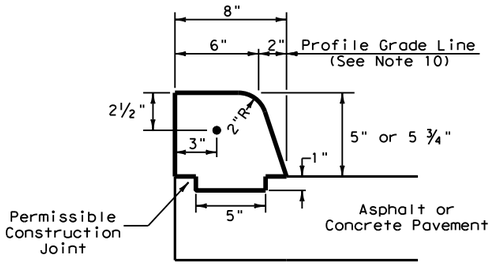
TYPE III CURB (KEYED)
2" - 4" HEIGHT



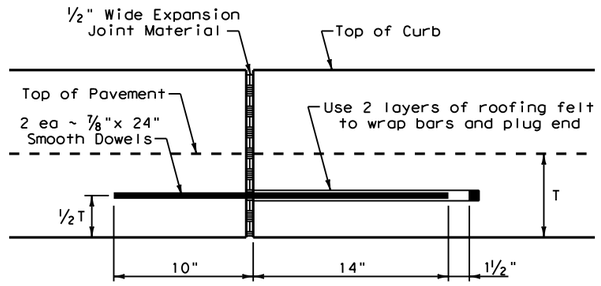
TYPE IIa CURB
5" - 5 ¾" HEIGHT



TYPE IIa CURB AND GUTTER
5" - 5 ¾" HEIGHT

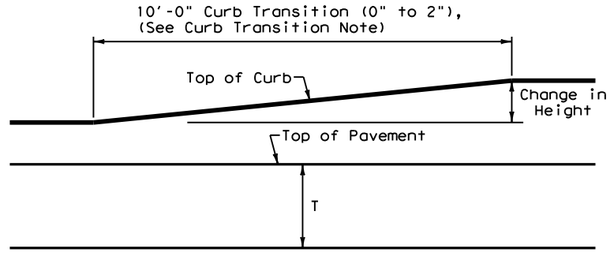


TYPE IV CURB (KEYED)
5" - 5 ¾" HEIGHT



EXPANSION JOINT DETAIL

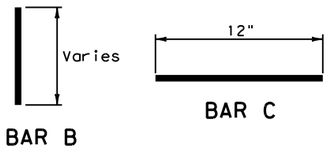
Curb Transition Note:
Field conditions may require a longer or shorter transition, and shall be shown elsewhere in the plans, or as directed by the Engineer.



CURB TRANSITION
Note: To be paid for as Highest Curb

General Notes

1. All materials and construction shall be in accordance with Item 529, "Concrete Curb, Gutter, and Combined Curb and Gutter."
2. Concrete shall be Class A.
3. When reinforcing bars are used, they shall be No. 4 unless otherwise shown. The use of synthetic fiber in lieu of steel reinforcing is acceptable, provided the fiber producer is on the Department Producer List (MPL), maintained by TxDOT, Construction Division.
4. Round exposed sharp edges with a rounding tool, to a minimum radius of ¼ inch.
5. All existing curbs and driveways to be removed shall be sawed or removed at existing joints.
6. Where concrete curb is placed on existing concrete pavement, the pavement shall be drilled and the reinforcing bars grouted in place.
7. Expansion and contraction joints shall be constructed to match pavement joints in all curbs and curb and gutter adjacent to jointed concrete pavement. Where placement of curb or curb and gutter is not adjacent to concrete pavement, expansion joints shall be provided at structures, curb returns at streets, and at locations directed by The Engineer.
8. Vertical and horizontal dowel bars and transverse reinforcing bars shall be placed at four feet C-C.
9. Dimension 'T' shown is the thickness of concrete pavement. When curb is installed adjacent to flexible pavement dimension 'T' is 8" maximum.
10. Usual profile grade line. Refer to typical sections and plan-profile sheets for exact locations.
11. One-half inch expansion joint material shall be provided where curb or curb and gutter is adjacent to sidewalk or riprap.
12. When vertical permissible construction joints are used, resulting in a longitudinal construction joint in the pavement, the longitudinal pavement steel shall be placed in accordance with pavement details shown elsewhere in the plans for longitudinal construction joints. Reinforcing steel for curb section shall then conform to that required for concrete curb.



BAR B

BAR C

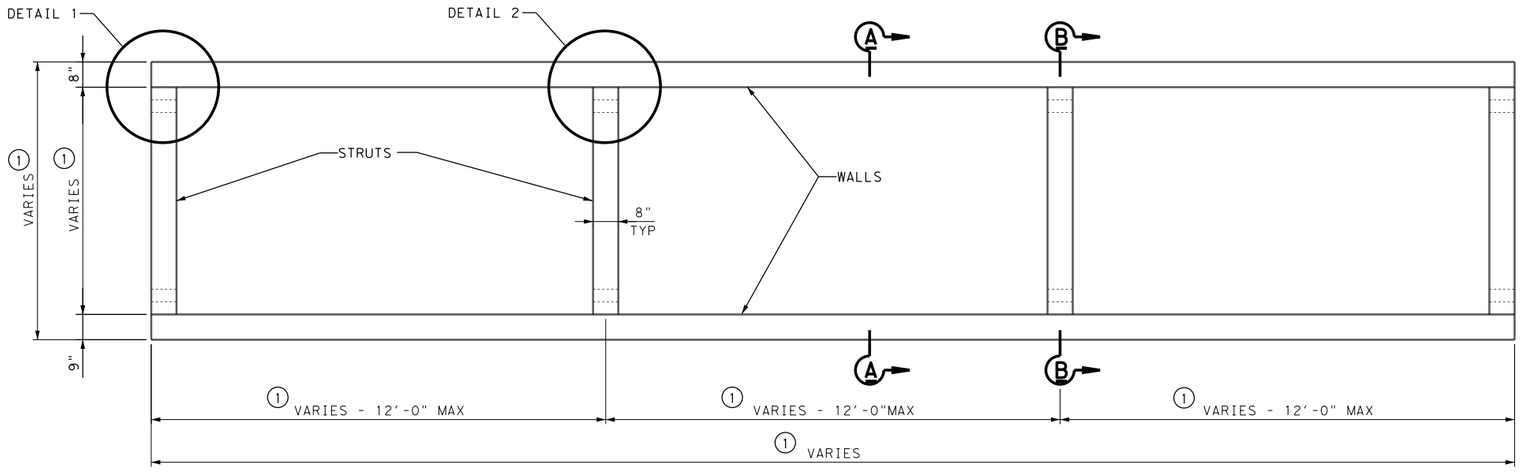
Texas Department of Transportation

Design Division Standard

CONCRETE CURB AND CURB AND GUTTER

CCCG-12

FILE: cccg12.dgn	DN: TxDOT	CK: AM	DW: VP	CK: VP	
© TxDOT: 1995	CONT	SECT	JOB	HIGHWAY	
REVISIONS			23-01561		
UPDATED 2012 - VP	DIST	COUNTY		SHEET NO.	
				86	



3 CELL STORM WATER PLANTER - PLAN

1 PLANTER DIMENSIONS VARY. SEE ROADWAY DRAWINGS.

NOTES

CAST-IN-PLACE UNITS SHOULD BE CONSTRUCTED TO CONFORM TO THE ACTUAL GEOMETRIC LAYOUTS SHOWN ON THE BIORETENTION BED WALL LAYOUT PLAN SHEETS. THE MAXIMUM LENGTH OF WALLS BETWEEN STRUTS SHALL BE 12 FEET. USE ANGLE BREAKS AT STRUT LOCATIONS TO ALLOW WALLS TO BE CHORDED ALONG CURVED SECTIONS.

A CAD FILE WILL BE AVAILABLE AT CONTRACTOR'S REQUEST TO ASSIST IN GENERATING COORDINATES FOR CONTROL POINTS ALONG WALLS.

USE THREE CELL UNITS WHEREVER POSSIBLE. TWO CELL AND SINGLE CELL UNITS SHOWN SHOULD ONLY BE USED AS NEEDED TO COMPLETE A CONTINUOUS LENGTH OF STORM WATER PLANTER.

USE CLASS C CONCRETE WITH f'c = 3600 PSI.

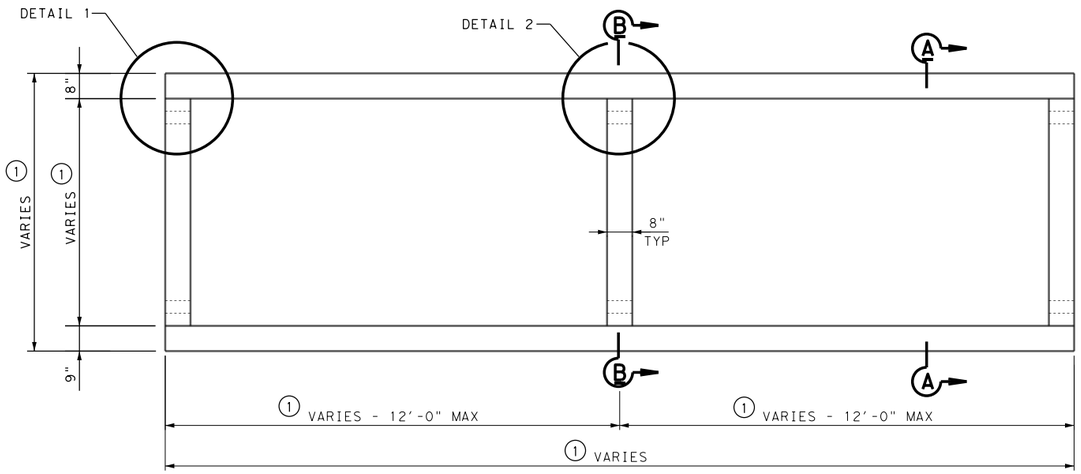
USE GRADE 60 REINFORCEMENT

CONTRACTOR TO DEVELOP TEMPORARY EXCAVATION PLANS FOR CONSTRUCTION AND UNIT INSTALLATION. REFER TO GEOTECH REPORT FOR SOIL STABILITY REQUIREMENTS.

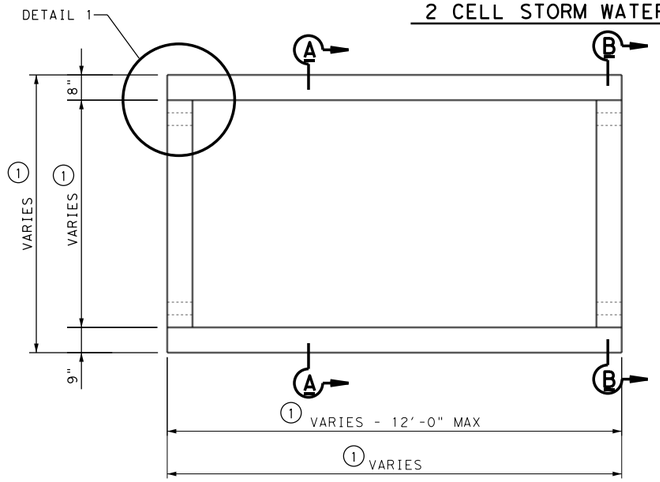
BACKFILL TO BE ALTERNATED ON EACH SIDE AND SOIL LIFTS SHALL NOT EXCEED 2 FEET TO STABILIZE THE STRUCTURE AND ELIMINATE ANY LATERAL MOVEMENT.

SEE SHEET 2 OF 2 FOR DETAILS NOT SHOWN HERE.

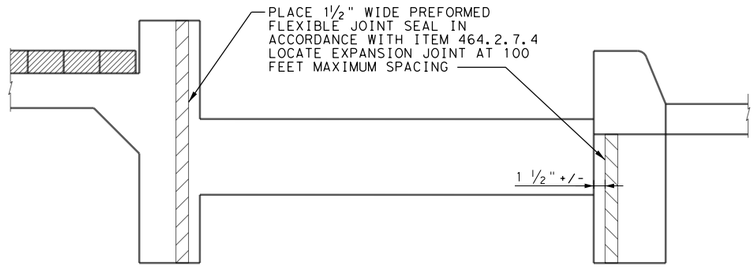
ALL CONSTRUCTION JOINTS SHALL BE ROUGHENED TO A MINIMUM OF 1/4" AMPLITUDE.



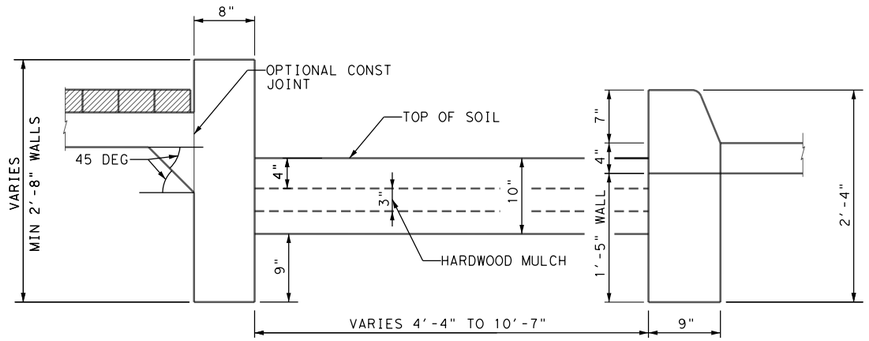
2 CELL STORM WATER PLANTER - PLAN



1 CELL STORM WATER PLANTER - PLAN



JOINT SEALANT DETAIL



SECTION A-A

NO	DATE	REVISION	APPROVED
-	-	-	-

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NAME	P.E.	DATE
RAMA GONTINA	116559	8/27/2020

AECOM
AECOM Technical Services Inc. F-3580
112 Pecan Street
Suite 400
San Antonio, Texas 78205
(214) 741-7777

SUNDT

CITY OF SAN ANTONIO
PUBLIC WORKS DEPARTMENT

BROADWAY ST

STORM WATER PLANTER STRUCTURAL DETAILS

SHEET 1 OF 2

BRDWY-RDWY-PS-003.dgn

SUBMITTAL	PROJECT NUMBER		DATE
100%	23-01561		8/27/2020
DRWN BY:	DSGN BY:	CHKD BY:	SHEET NO.
			145

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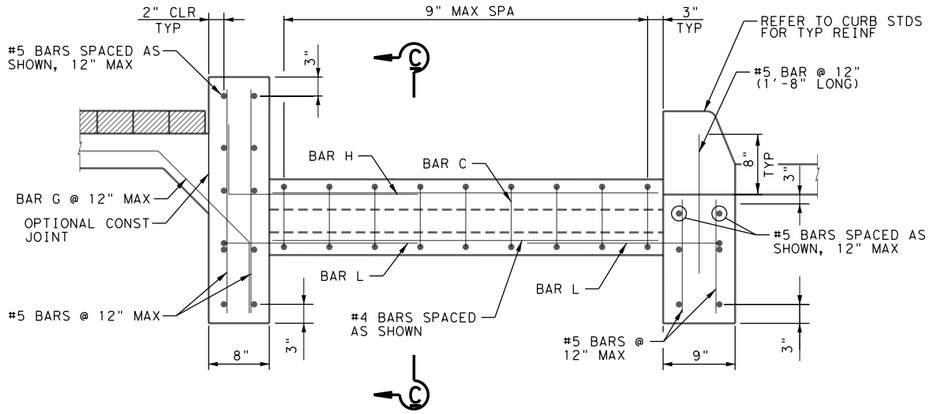
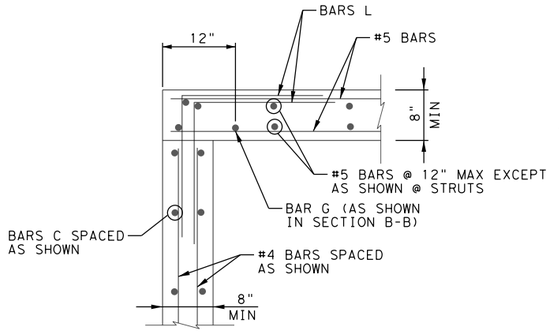
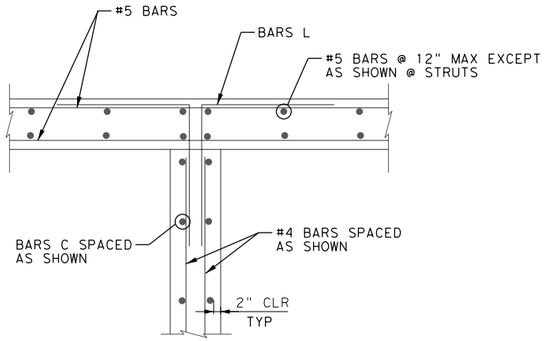


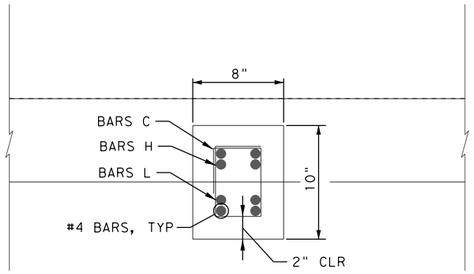
SECTION B-B



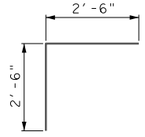
DETAIL 1



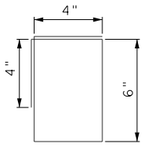
DETAIL 2



SECTION C-C



BARS L (#5)



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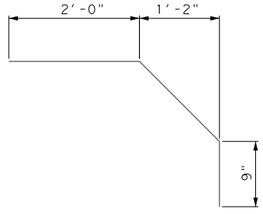

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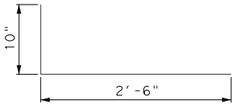

BARS H (#4)

NOTE: AT CONTRACTOR'S OPTION, 9" LEG MAY BE ELIMINATED WITH DRILL AND EPOXY OPTION. EMBED BAR G MIN 6" INTO WALL AS SHOWN. USE HILTI HIT RE-500 V3 OR EQUIVALENT EPOXY.

NO	DATE	REVISION	APPROVED
-	-	-	-

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RAMA GONTINA	116559	8/27/2020
NAME	P.E.	DATE

AECOM
AECOM Technical Services Inc. F- 3580
112 Pecan Street
Suite 400
San Antonio, Texas 78205
(214) 741-7777

SUNDT

CITY OF SAN ANTONIO
PUBLIC WORKS DEPARTMENT

BROADWAY ST

STORM WATER PLANTER STRUCTURAL DETAILS

SHEET 2 OF 2

BRDWY-RDWY-PS-004.dgn

SUBMITTAL	PROJECT NUMBER	DATE
100%	23-01561	8/27/2020

DRWN BY:	DSGN BY:	CHKD BY:	SHEET NO.
			146

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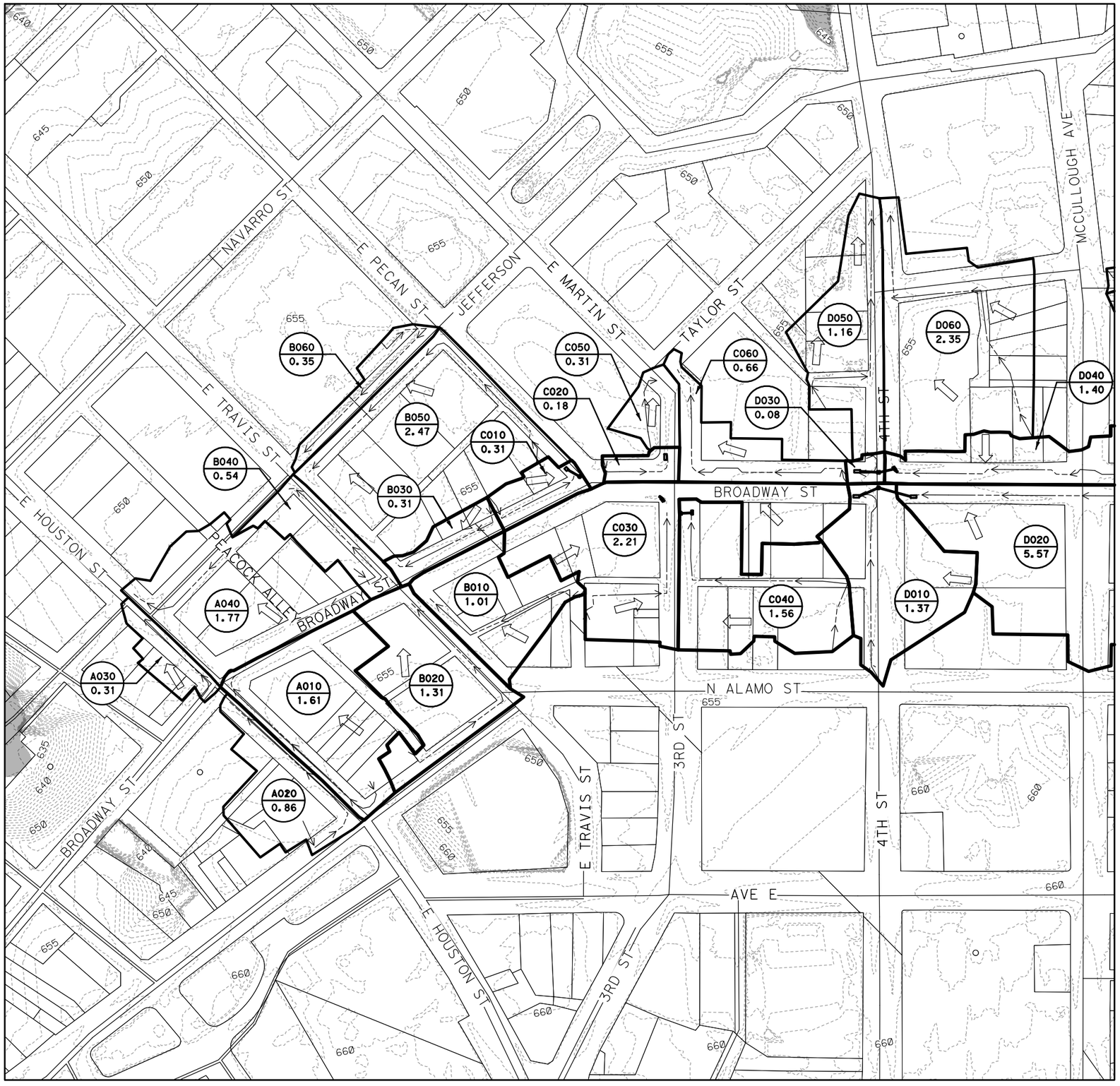

NOTES:

1. CONTOURS USED ARE FROM MOBILE LIDAR PRODUCED FOR PROJECT AND THE 2017 LIDAR PROVIDED BY THE SAN ANTONIO RIVER AUTHORITY.
2. FEMA MAP 48029C0415G DATED SEPTEMBER 29, 2010 FLOODPLAIN DESIGNATION ZONE AE.

LEGEND

- DRAINAGE FLOW ARROW
- FLOW OF CHANNEL
- DRAINAGE AREA BOUNDARY
- DRAINAGE AREA BOUNDARY (TO EXIST INLETS TO REMAIN)
- XXXX / XX.XX — DRAINAGE AREA IDENTIFICATION / DRAINAGE AREA (ACRES)
- HP — HIGH POINT
- LP — LOW POINT
- CHANNEL
- TC FLOW PATH
- 100-YR FLOODPLAIN

NO	DATE	REVISION	APPROVED
-	-	-	-

100 50 0 100 200 300

1" = 200'

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NAME	P.E.	DATE
DWAYNE S. HAMILTON	80967	8/28/2020

MAESTAS
11550 IH 10 WEST, STE. 350
SAN ANTONIO, TX 78230
(210) 366-1988
TBPE No.: F-333
TBPLS No.: 10194506

AECOM
AECOM Technical Services Inc. F- 3580
112 Pecan Street
Suite 400
San Antonio, Texas 78205
(214) 741-7777

SUNDT

CITY OF SAN ANTONIO
PUBLIC WORKS DEPARTMENT

BROADWAY ST

DRAINAGE AREA MAP

BROADWAY STREET

BRDWY-DRNG-DA-001.dgn			SHEET 1 OF 3
SUBMITTAL	PROJECT NUMBER		DATE
100%	23-01561		8/28/2020
DRWN BY:	DSGN BY:	CHKD BY:	SHEET NO.
			147

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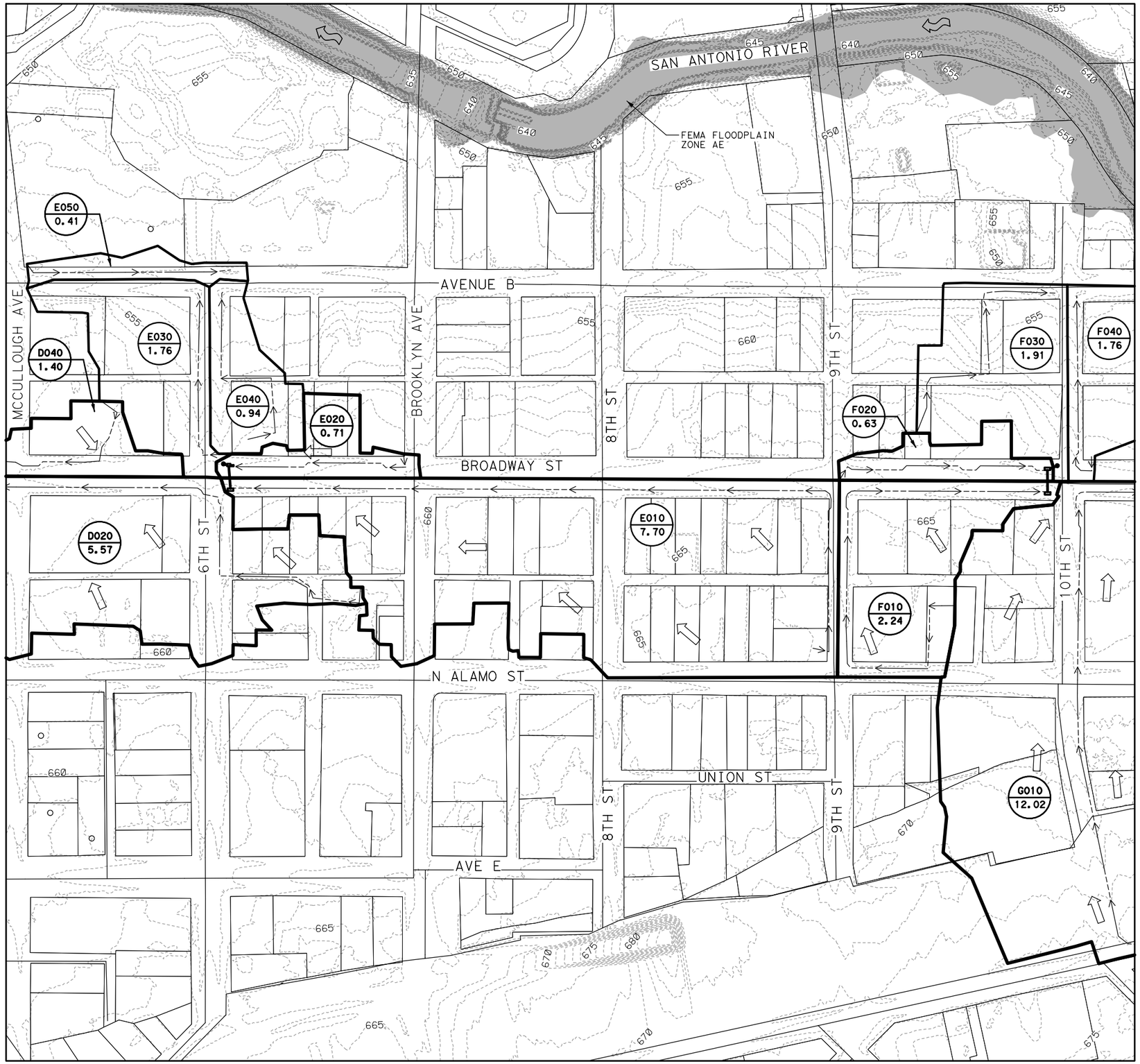

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2. FEMA MAP 48029C0415G DATED SEPTEMBER 29, 2010 FLOODPLAIN DESIGNATION ZONE AE.

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- HP — HIGH POINT
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NO	DATE	REVISION	APPROVED
-	-	-	-

100 50 0 100 200 300

1" = 200'

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DWAYNE S. HAMILTON	80967	8/28/2020
NAME	P.E.	DATE

MAESTAS
11550 IH 10 WEST, STE. 350
SAN ANTONIO, TX 78230
(210) 366-1988
TBPE No.: F-333
TBPLS No.: 10194506

AECOM
AECOM Technical Services Inc. F- 3580
112 Pecan Street
Suite 400
San Antonio, Texas 78205
(214) 741-7777

SUNDT

CITY OF SAN ANTONIO
PUBLIC WORKS
DEPARTMENT

BROADWAY ST

DRAINAGE AREA MAP

BROADWAY STREET

BRDWY-DRNG-DA-002.dgn			SHEET 2 OF 3
SUBMITTAL	PROJECT NUMBER		DATE
100%	23-01561		8/28/2020
DRWN BY:	DSGN BY:	CHKD BY:	SHEET NO.
			148

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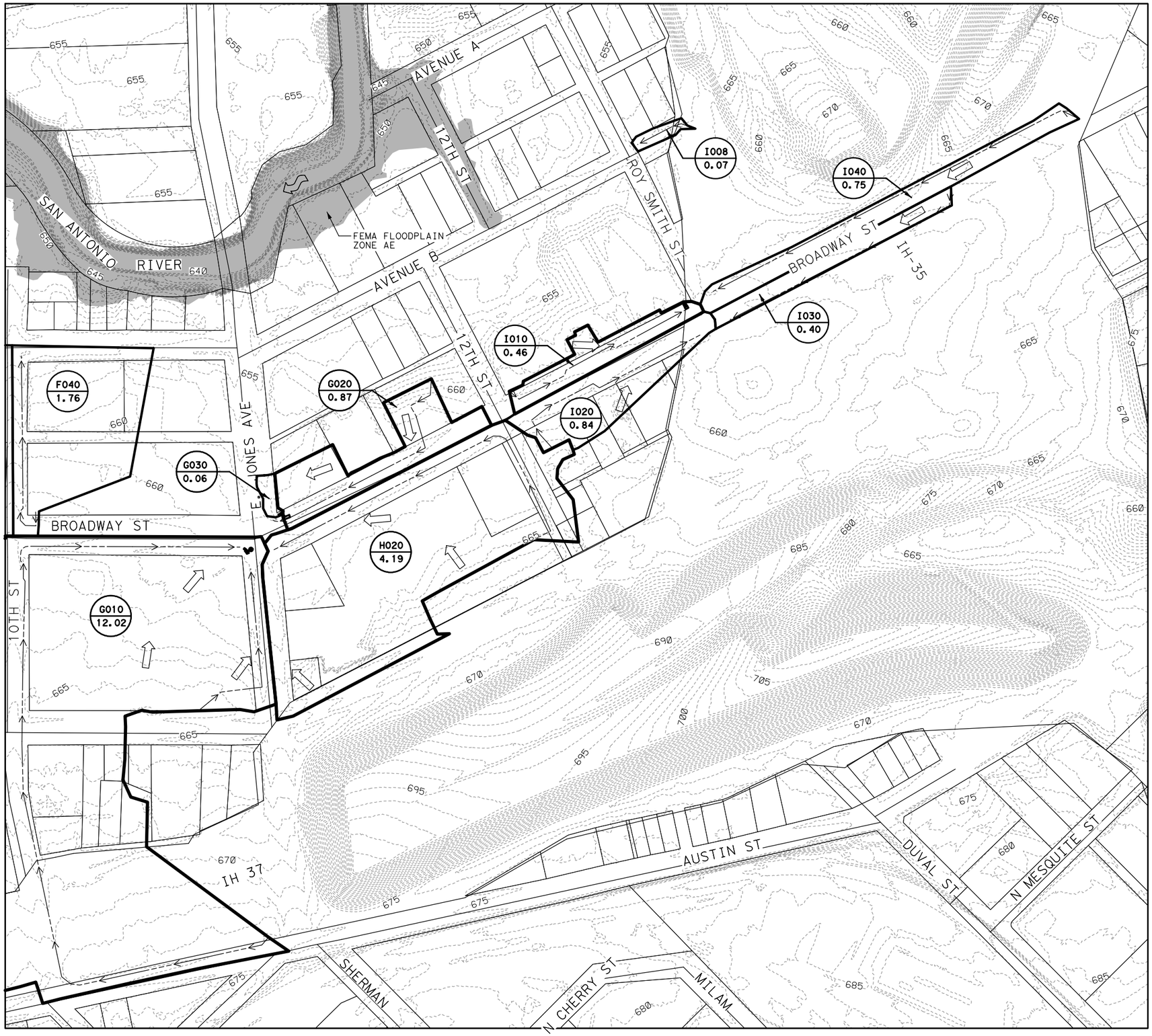
DESIGN FILENAME: c:\pwworking\aecom_ds16_na\ort15225\d0278787\BRDWY-DRNG-DA-002.dgn

PLOTTED ON: 2:29:17 PM
DESIGN FILENAME: c:\pwworking\aecom_ds16_na\ort15225\d0278787\BRDWY-DRNG-DA-002.dgn



NOTES:

1. CONTOURS USED ARE FROM MOBILE LIDAR PRODUCED FOR PROJECT AND THE 2017 LIDAR PROVIDED BY THE SAN ANTONIO RIVER AUTHORITY.
2. FEMA MAP 48029C0415G DATED SEPTEMBER 29, 2010 FLOODPLAIN DESIGNATION ZONE AE.

LEGEND

- DRAINAGE FLOW ARROW
- FLOW OF CHANNEL
- DRAINAGE AREA BOUNDARY
- DRAINAGE AREA BOUNDARY (TO EXIST INLETS TO REMAIN)
- XXXX / XX.XX — DRAINAGE AREA IDENTIFICATION / DRAINAGE AREA (ACRES)
- HP — HIGH POINT
- LP — LOW POINT
- CHANNEL
- TC FLOW PATH
- 100-YR FLOODPLAIN

NO	DATE	REVISION	APPROVED
-	-	-	-

100 50 0 100 200 300

1" = 200'

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Suite 400
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PUBLIC WORKS DEPARTMENT

BROADWAY ST

DRAINAGE AREA MAP

BROADWAY STREET

BRDWY-DRNG-DA-003.dgn			SHEET 3 OF 3
SUBMITTAL	PROJECT NUMBER		DATE
100%	23-01561		8/28/2020
DRWN BY:	DSGN BY:	CHKD BY:	SHEET NO.
			149

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TIME OF CONCENTRATION CALCULATIONS

Area ID	Overland Flow (P2 = 3.99)					Shallow Concentrated Flow				Tc total
						Reach 1				
	L	slope	Ground	N	Tsheet	Length	slope (ft/ft)	surface	Tsc1	
A010	28	0.004	Concrete	0.011	5.0	400.5	0.012	paved	3.0	**8.0**
A020	54	0.004	Roof	0.011	5.0	395.6	0.011	paved	3.1	**8.1**
A030	23	0.023	Concrete	0.011	5.0	197.8	0.018	paved	1.2	**6.2**
A040	32	0.022	Concrete	0.011	5.0	532.3	0.008	paved	4.9	**9.9**
B010	48	0.015	Concrete	0.011	5.0	299.2	0.005	paved	3.5	**8.5**
B020	66.6	0.004	Roof	0.011	5.0	448.9	0.008	paved	4.1	**9.1**
B030	48.2	0.004	Roof	0.011	5.0	203.7	0.002	paved	3.7	**8.7**
B040	42.6	0.004	Roof	0.011	5.0	273.1	0.010	paved	2.2	**7.2**
B050	66.8	0.018	Roof	0.011	5.0	581.9	0.004	paved	7.5	**12.5**
B060	90.3	0.022	Concrete	0.011	5.0	329.5	0.004	paved	4.3	**9.3**
C010	48.6	0.036	Concrete	0.011	5.0	179.79	0.002	paved	3.3	**8.3**
C020	31.1	0.050	Concrete	0.011	5.0	137.5	0.006	paved	1.5	**6.5**
C030	45.0	0.022	Concrete	0.011	5.0	319.1	0.004	paved	4.1	**9.1**
C040	131.1	0.005	Concrete	0.011	5.0	414.5	0.007	paved	4.1	**9.1**
C050	109.8	0.050	Concrete	0.011	5.0	39.4	0.020	paved	0.2	**5.2**
C060	31.6	0.017	Concrete	0.011	5.0	484.9	0.004	paved	6.3	**11.3**
D010	42.5	0.018	Concrete	0.011	5.0	357.7	0.005	paved	4.1	**9.1**
D020	118.7	0.006	Concrete	0.011	5.0	1081.7	0.006	paved	11.5	**16.5**
D030	20.7	0.039	Concrete	0.011	5.0	63.8	0.007	paved	0.6	**5.6**
D040	88.1	0.008	Concrete	0.011	5.0	600.08	0.004	paved	7.8	**12.8**
D050	51.1	0.004	Roof	0.011	5.0	434.1	0.012	paved	3.3	**8.3**
D060	128.7	0.006	Concrete	0.011	5.0	493.5	0.014	paved	3.4	**8.4**
E010	31.1	0.004	Concrete	0.011	5.0	1444.2	0.005	paved	16.8	**21.8**
E020	25.7	0.033	Concrete	0.011	5.0	338.9	0.005	paved	3.9	**8.9**
E030	55.8	0.022	Concrete	0.011	5.0	317.2	0.017	paved	2.0	**7.0**
E040	53.6	0.004	Roof	0.011	5.0	367.4	0.018	paved	2.2	**7.2**
E050	20.6	0.027	Concrete	0.011	5.0	375.9	0.008	paved	3.4	**8.4**
F010	100.4	0.01	Concrete	0.011	5.0	929.01	0.006	paved	9.8	**14.8**
F020	30	0.025	Concrete	0.011	5.0	393.4	0.006	paved	4.2	**9.2**
F030	97.2	0.004	Roof	0.011	5.0	416.3	0.018	paved	2.5	**7.5**
F040	27.1	0.030	Concrete	0.011	5.0	359.9	0.022	paved	2.0	**7.0**
G020	100	0.05	Roof	0.011	5.0	371.4	0.007	paved	3.6	**8.6**
G030	34	0.034	Concrete	0.011	5.0	57.9	0.025	paved	0.3	**5.3**
H010	20	0.03	Concrete	0.011	5.0	1704.1	0.008	paved	15.6	**20.6**
H020	37.1	0.004	Roof	0.011	5.0	711.9	0.008	paved	6.5	**11.5**
I008	48.4	0.018	Grass	0.15	5.1	76.1	0.015	paved	0.5	**5.6**
I010	24.8	0.030	Concrete	0.011	5.0	382.1	0.005	paved	4.4	**9.4**
I020	69	0.043	Roof/Conc.	0.011	5.0	378.6	0.007	paved	3.7	**8.7**
I030	38.4	0.024	Concrete	0.011	5.0	484.5	0.006	paved	5.1	**10.1**
I040	56.3	0.005	Concrete	0.011	5.0	752.1	0.007	paved	7.4	**12.4**

RATIONAL METHOD CALCULATIONS

Basin	Precipitation Area	AREA (AC)	Tc (min)	C	Intensity (in/hr)		Flows (cfs)	
					I - 25YR	I - 100YR	Q - 25YR	Q - 100YR
Proposed Conditions								
A010	3	1.61	8.0	0.96	9.54	11.97	**14.72**	**18.47**
A020	3	0.86	8.1	0.96	9.54	11.97	**7.88**	**9.89**
A030	3	0.31	6.2	0.96	10.43	13.08	**3.08**	**3.86**
A040	3	1.77	9.9	0.96	8.82	11.05	**15.00**	**18.79**
B010	3	1.01	8.5	0.96	9.54	11.97	**9.27**	**11.63**
B020	3	1.31	9.1	0.96	9.17	11.49	**11.52**	**14.45**
B030	3	0.31	8.7	0.96	9.17	11.49	**2.72**	**3.41**
B040	3	0.54	7.2	0.96	9.95	12.49	**5.11**	**6.41**
B050	3	2.47	12.5	0.96	7.89	9.85	**18.70**	**23.36**
B060	3	0.35	9.3	0.82	9.17	11.49	**2.63**	**3.30**
C010	3	0.31	8.3	0.96	9.54	11.97	**2.80**	**3.51**
C020	3	0.18	6.5	0.96	10.43	13.08	**1.78**	**2.23**
C030	3	2.21	9.1	0.96	9.17	11.49	**19.41**	**24.34**
C040	3	1.56	9.1	0.96	9.17	11.49	**13.76**	**17.26**
C050	3	0.31	5.2	0.96	11.00	13.79	**3.25**	**4.07**
C060	3	0.66	11.3	0.96	8.50	10.64	**5.39**	**6.75**
D010	3	1.37	9.1	0.96	9.17	11.49	**12.01**	**15.07**
D020	3	5.57	16.5	0.96	7.07	8.79	**37.80**	**47.03**
D030	3	0.08	5.6	0.96	10.43	13.08	**0.84**	**1.05**
D040	3	1.40	12.8	0.96	7.89	9.85	**10.64**	**13.29**
D050	3	1.16	8.3	0.96	9.54	11.97	**10.65**	**13.36**
D060	3	2.35	8.4	0.96	9.54	11.97	**21.54**	**27.02**
E010	3	7.70	21.8	0.96	5.98	7.41	**44.15**	**54.74**
E020	3	0.71	8.9	0.96	9.17	11.49	**6.27**	**7.87**
E030	3	1.76	7.0	0.96	9.95	12.49	**16.85**	**21.14**
E040	3	0.94	7.2	0.96	9.95	12.49	**8.96**	**11.24**
E050	3	0.41	8.4	0.96	9.54	11.97	**3.79**	**4.75**
F010	3	2.24	14.8	0.96	7.32	9.12	**15.76**	**19.63**
F020	3	0.63	9.2	0.96	9.17	11.49	**5.58**	**6.99**
F030	3	1.91	7.5	0.96	9.54	11.97	**17.48**	**21.93**
F040	3	1.76	7.0	0.96	9.95	12.49	**16.84**	**21.12**
G020	3	0.87	8.6	0.96	9.17	11.49	**7.69**	**9.64**
G030	3	0.06	5.3	0.96	11.00	13.79	**0.65**	**0.82**
H010	3	12.02	20.6	0.81	6.12	7.59	**59.75**	**74.11**
H020	3	4.19	11.5	0.96	8.19	10.24	**32.94**	**41.20**
I008	3	0.07	5.6	0.76	10.43	13.08	**0.54**	**0.68**
I010	3	0.46	9.4	0.96	9.17	11.49	**4.07**	**5.11**
I020	3	0.84	8.7	0.96	9.17	11.49	**7.35**	**9.21**
I030	3	0.40	10.1	0.96	8.82	11.05	**3.39**	**4.25**
I040	3	0.75	12.4	0.96	8.19	10.24	**5.93**	**7.42**

IMPERVIOUS AREA CALCULATIONS (RUNOFF "C" VALUE)

	Slope		> 1% to ≤ 3%	> 1% to ≤ 3%	> 1% to ≤ 3%	> 1% to ≤ 3%	> 1% to ≤ 3%	> 1% to ≤ 3%	
			Undeveloped - Range (Grass Cover 50 - 75% of Area)	Large Lot Residential - R20, RE	Average Residential - R-5, R-6	Closely Built Residential and Schools - MF, R-4	Densely Developed Areas - D, MXD, NC, TOD, TND	Business or Commercial Areas - Pavement / Buildings, O, C, I-1, I-2	
Development Condition	Drainage Area	Area (ac)	0.41	0.57	0.67	0.77	0.88	0.96	Composite Runoff Coefficient
UD	**A010**	**1.61**						1.61	**0.96**
UD	**A020**	**0.86**						0.86	**0.96**
UD	**A030**	**0.31**						0.31	**0.96**
UD	**A040**	**1.77**						1.77	**0.96**
UD	**B010**	**1.01**						1.01	**0.96**
UD	**B020**	**1.31**						1.31	**0.96**
UD	**B030**	**0.31**						0.31	**0.96**
UD	**B040**	**0.54**						0.54	**0.96**
UD	**B050**	**2.47**						2.47	**0.96**
UD	**B060**	**0.35**	0.09					0.26	**0.82**
UD	**C010**	**0.31**						0.31	**0.96**
UD	**C020**	**0.18**						0.18	**0.96**
UD	**C030**	**2.21**						2.21	**0.96**
UD	**C040**	**1.56**						1.56	**0.96**
UD	**C050**	**0.31**						0.31	**0.96**
UD	**C060**	**0.66**					0.00	0.66	**0.96**
UD	**D010**	**1.37**						1.37	**0.96**
UD	**D020**	**5.57**					0.00	5.57	**0.96**
UD	**D030**	**0.08**						0.08	**0.96**
UD	**D040**	**1.40**						1.40	**0.96**
UD	**D050**	**1.16**						1.16	**0.96**
UD	**D060**	**2.35**						2.35	**0.96**
UD	**E010**	**7.70**						7.70	**0.96**
UD	**E020**	**0.71**						0.71	**0.96**
UD	**E030**	**1.76**						1.76	**0.96**
UD	**E040**	**0.94**						0.94	**0.96**
UD	**E050**	**0.41**						0.41	**0.96**
UD	**F010**	**2.24**						2.24	**0.96**
UD	**F020**	**0.63**						0.63	**0.96**
UD	**F030**	**1.91**						1.91	**0.96**
UD	**F040**	**1.76**						1.76	**0.96**
UD	**G020**	**0.87**						0.87	**0.96**
UD	**G030**	**0.06**						0.06	**0.96**
UD	**H010**	**12.02**	3.02			0.34	0.61	8.05	**0.81**
UD	**H020**	**4.19**						4.19	**0.96**
UD	**I008**	**0.07**	0.03					0.04	**0.76**
UD	**I010**	**0.46**						0.46	**0.96**
UD	**I020**	**0.84**						0.84	**0.96**
UD	**I030**	**0.40**						0.40	**0.96**
UD	**I040**	**0.75**						0.75	**0.96**

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PUBLIC WORKS DEPARTMENT

BROADWAY ST

HYDROLOGIC COMPUTATIONS

BRDWY-HYD-COMP.dgn			SHEET 1 OF 1
SUBMITTAL	PROJECT NUMBER		DATE
100%	23-01561		8/28/2020
DRWN BY:	DSGN BY:	CHKD BY:	SHEET NO.
			150

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GEOPAK HYDRAULIC CONVEYANCE

Link	U.S. Node	D.S. Node	Actual Length (ft)	Hyd. Length (ft)	N Value	% Slope	No. Barrels	Rise (ft)	Fs	Soffit U.S. EL	Soffit D.S. EL	Invert U.S. EL	Invert D.S. EL	Unif. Depth (ft)	Unif. Vel. (fps)	Act. Vel. D.S. (fps)	Act. Depth U.S. (ft)	Act. Depth D.S. (ft)	HGL U.S. EL*	HGL D.S. EL*	EGL U.S. EL**	EGL D.S. EL**	Sum Tc (min)	Q 25 Yr (cfs)	Sum Area (ac)	U.S. Node Junction Loss (ft)***	D.S. Node Junction Loss (ft)***	Avg C Value	Rainfall Intensity
C010	C010	C012	25.84	28.35	0.013	0.50	1	1.50	0.01	651.04	650.91	649.54	649.41	0.56	3.66	1.25	1.50	1.50	654.25	654.51	654.25	654.51	8.43	2.21	0.31	0.00	0.00	0.96	9.43
C012	C012	C015	163.69	163.69	0.013	0.95	1	1.50	0.01	650.75	649.19	649.25	647.69	0.47	4.62	1.25	1.50	1.50	654.51	654.76	654.51	654.76	9.13	2.21	2.51	0.00	0.00	0.96	9.13
C015	C015	C027	44.49	44.49	0.013	6.79	1	1.50	0.37	648.50	645.48	647.00	643.98	1.50	39.92	38.91	1.50	1.50	654.76	654.70	654.76	654.70	9.30	68.76	4.08	0.00	0.00	0.96	9.07
C017	C017	C015	46.25	46.25	0.013	2.88	1	1.50	0.35	650.52	649.19	649.02	647.69	1.50	38.70	37.72	1.50	1.50	654.68	654.76	654.68	654.76	9.13	66.66	2.51	0.00	0.00	0.96	9.13
C020	C020	C025	35.27	40.27	0.013	11.99	1	1.00	0.12	650.23	646.00	649.23	645.00	0.25	11.10	2.22	1.00	1.00	654.75	654.62	654.75	654.62	9.31	1.74	4.26	0.00	0.00	0.96	9.06
C025	C025	C052	85.85	88.35	0.013	0.25	1	2.67	0.08	645.86	645.65	643.20	642.98	2.67	27.68	26.98	2.67	2.67	654.62	653.12	654.62	653.12	9.37	150.71	4.26	0.00	0.00	0.96	9.06
C027	C027	C025	22.74	22.74	0.013	0.25	2	2.00	0.09	645.25	645.20	643.25	643.20	2.00	24.36	23.74	2.00	2.00	654.70	654.62	654.70	654.62	9.31	149.18	4.26	0.00	0.00	0.96	9.06
C030	C030	C017	9.01	12.96	0.013	2.88	1	1.50	0.35	650.78	650.52	649.28	649.02	1.50	38.70	37.72	1.50	1.50	654.59	654.68	654.59	654.68	9.11	66.66	2.21	0.00	0.00	0.96	9.14
C032	C032	C027	34.55	36.55	0.013	0.25	2	2.00	0.03	645.34	645.25	643.34	643.25	2.00	13.17	12.84	2.00	2.00	654.75	654.70	654.75	654.70	9.30	80.65	4.08	0.00	0.00	0.96	9.07
C035	C035	C032	76.68	80.68	0.013	0.90	1	3.00	0.01	647.10	646.41	644.10	643.41	3.00	11.71	11.41	3.00	3.00	654.74	654.75	654.74	654.75	9.25	80.65	1.56	0.00	0.00	0.96	9.12
C040	C040	C035	18.45	22.28	0.013	5.75	1	1.50	0.06	647.16	646.10	645.66	644.60	0.38	10.10	2.03	1.50	1.50	654.74	654.74	654.74	654.74	9.14	3.58	1.56	0.00	0.00	0.96	9.12
C045	C045	C035	126.04	130.54	0.013	0.40	1	3.00	0.01	647.61	647.10	644.61	644.10	3.00	11.19	10.91	3.00	3.00	655.05	654.74	655.05	654.74	9.14	77.09	1.56	0.00	0.00	0.96	9.12
C050	C050	C055	9.72	9.72	0.013	15.00	1	1.00	0.15	646.05	644.59	645.05	643.59	0.33	14.32	4.09	1.00	1.00	652.71	652.71	652.71	652.71	11.35	3.21	5.22	0.00	0.00	0.96	8.39
C052	C052	C055	32.11	34.61	0.013	0.50	1	2.67	0.08	645.59	645.43	642.92	642.76	2.67	27.68	26.98	2.67	2.67	653.12	652.71	653.12	652.71	11.35	150.71	5.22	0.00	0.00	0.96	8.39
C055	C055	C-OUT	12.09	12.09	0.013	0.10	1	2.67	0.09	645.43	645.41	642.76	642.75	2.67	28.24	27.53	2.67	2.67	652.71	652.90	652.71	652.90	11.36	153.77	5.22	0.00	0.00	0.96	0.00
C060	C060	C055	40.98	42.81	0.013	15.00	1	1.50	0.15	651.82	645.67	650.32	644.17	0.29	13.89	1.89	1.50	1.50	652.43	652.71	652.43	652.71	11.35	3.33	5.22	0.00	0.00	0.96	8.39
D010	D010	D015	39.89	44.89	0.013	6.22	1	1.50	0.06	651.44	648.96	649.94	647.46	0.81	15.31	8.45	1.50	1.50	655.27	655.34	655.27	655.34	16.58	14.93	6.94	0.00	0.00	0.96	6.94
D015	D015	D035	24.91	28.91	0.013	0.48	1	2.00	0.02	648.23	648.11	646.23	646.11	2.00	11.85	11.55	2.00	2.00	655.34	655.31	655.34	655.31	16.62	36.30	8.43	0.00	0.00	0.96	6.93
D020	D020	D015	62.71	67.71	0.013	0.38	1	1.50	0.05	652.93	652.69	651.43	651.19	1.50	14.14	13.78	1.50	1.50	655.63	655.34	655.63	655.34	16.58	24.35	6.94	0.00	0.00	0.96	6.94
D030	D030	D035	32.96	39.96	0.013	4.70	1	1.50	0.05	651.22	649.67	649.72	648.17	0.20	6.16	0.48	1.50	1.50	655.20	655.31	655.20	655.31	16.62	0.86	8.43	0.00	0.00	0.96	6.93
D035	D035	D055	495.89	500.39	0.014	0.52	1	2.50	0.01	648.51	645.95	646.01	643.45	2.50	8.60	8.38	2.50	2.50	655.31	651.20	655.31	651.66	17.59	41.15	11.95	0.00	0.00	0.96	6.93
D040	D040	D035	27.11	31.58	0.013	13.69	1	1.50	0.14	651.79	648.08	650.29	646.58	0.39	15.74	3.24	1.50	1.50	655.35	655.31	655.35	655.31	16.62	5.73	8.43	0.00	0.00	0.96	6.93
D050	D050	D055	14.00	18.33	0.014	1.02	1	1.00	0.01	647.08	646.94	646.08	645.94	0.84	4.83	4.31	1.00	1.00	650.89	650.89	650.89	650.89	17.59	3.39	11.95	0.00	0.00	0.96	6.93
D055	D055	D-OUT	3.02	5.52	0.014	0.50	1	2.50	0.01	645.90	645.88	643.40	643.38	2.50	8.41	8.19	2.50	2.50	650.89	650.90	650.89	650.90	17.60	40.22	11.95	0.00	0.00	0.96	0.00
D060	D060	D055	24.53	28.86	0.014	1.02	1	1.00	0.01	647.18	646.93	646.18	645.93	1.00	5.28	5.15	1.00	1.00	650.91	650.89	650.91	650.89	17.59	4.04	11.95	0.00	0.00	0.96	6.93
E010	E010	E020	43.25	47.56	0.013	0.49	1	1.50	0.02	654.95	654.74	653.45	653.24	1.50	9.96	9.71	1.50	1.50	658.43	658.31	658.43	658.31	21.88	17.16	8.41	0.00	0.00	0.96	6.00
E020	E020	E025	5.91	12.91	0.013	0.17	1	2.00	0.01	655.24	655.23	653.24	653.23	2.00	6.70	6.53	2.00	2.00	658.31	658.17	658.31	658.17	21.91	20.51	8.41	0.00	0.00	0.96	6.00
E025	E025	E035	313.83	317.83	0.013	1.61	1	1.50	0.03	654.27	649.22	652.77	647.72	1.50	11.91	11.61	1.50	1.50	658.17	652.54	658.17	652.54	22.36	20.51	10.18	0.00	0.00	0.96	5.93
E030	E030	E035	25.11	29.61	0.013	0.49	1	1.50	0.02	649.33	649.21	647.83	647.71	1.50	10.18	9.92	1.50	1.50	652.33	652.54	652.33	652.54	22.36	17.53	10.18	0.00	0.00	0.96	5.93
E035	E035	E040	28.06	32.56	0.013	0.50	1	1.25	0.20	648.52	648.38	647.27	647.13	1.25	25.66	25.01	1.25	1.25	652.54	652.58	652.54	652.58	22.38	30.69	11.11	0.00	0.00	0.96	5.93
E040	E040	E055	44.24	48.74	0.013	0.80	1	1.50	0.10	648.53	648.18	647.03	646.68	1.50	20.90	20.37	1.50	1.50	652.58	652.67	652.58	652.67	22.42	36.00	11.53	0.00	0.00	0.96	5.92
E050	E050	E055	10.42	14.92	0.013	1.97	1	2.00	0.02	649.58	649.38	647.58	647.38	0.46	6.77	1.19	2.00	2.00	652.60	652.67	652.60	652.67	22.42	3.73	11.53	0.00	0.00	0.96	5.92
E055	E055	E-OUT	5.83	7.83	0.013	1.00	1	2.00	0.02	648.58	648.52	646.58	646.52	2.00	12.50	12.19	2.00	2.00	652.67	652.67	652.67	652.67	22.43	38.29	11.53	0.00	0.00	0.96	0.00
F010	F010	F020	43.17	46.84	0.013	0.49	1	1.50	0.01	659.51	659.30	658.01	657.80	1.50	5.53	5.39	1.50	1.50	662.05	662.06	662.05	662.06	14.94	9.52	2.88	0.00	0.00	0.96	7.34
F020	F020	F025	14.86	19.86	0.013	0.23	1	1.50	0.01	659.30	659.26	657.80	657.76	1.50	7.48	7.29	1.50	1.50	662.06	661.83	662.06	661.83	14.99	12.88	2.88	0.00	0.00	0.96	7.34
F025	F025	F035	339.07	339.07	0.014	2.89	1	1.00	0.13	658.57	648.78	657.57	647.78	1.00	16.83	16.40	1.00	1.00	661.83	653.16	661.83	653.16	15.32	12.88	6.55	0.00	0.00	0.96	7.24
F030	F030	F035	13.56	15.39	0.014	0.39	1	0.67	2.44	650.50	650.44	649.83	649.78	0.67	55.44	54.04	0.67	0.67	653.16	653.16	653.16	653.16	15.32	18.88	6.55	0.00	0.00	0.96	7.24
F035	F035	F-OUT	4.53	4.53	0.014	1.00	1	1.00	1.21	648.78	648.73	647.78	647.73	1.00	51.15	49.85	1.00	1.00	653.16	653.16	653.16	653.16	15.32	39.15	6.55	0.00	0.00	0.96	0.00
F040	F040	F035	39.38	41.22	0.014	0.73	1	0.67	1.94	650.75	650.46	650.08	649.79	0.67	49.43	48.18	0.67	0.67	653.60	653.16	653.60	653.16	15.32	16.83	6.55	0.00	0.00	0.96	7.24
G020	G020	G025	6.72	12.67	0.013	0.60	1	1.50	0.01	657.64	657.60	656.14	656.10	0.91	4.96	3.24	1.50	1.41	657.70	657.51	657.87	657.84	8.64	5.59	0.87	0.00	0.00	0.96	9.32
G025	G025	G026	4.08	6.08	0.022	0.49	1	1.25	0.02	657.35	657.33	656.10	656.08	1.25	4.67	5.51	1.25	0.96	657.51	657.04	657.84	657.52	8.66	5.59	0.87	0.00	0.00	0.96	9.32
G026	G026	G027	12.48	12.48	0.014	4.01	1	1.25	0.04	657.33	656.83	656.08	655.58	0.60	9.62	8.02	0.96	0.69	657.04	656.27	657.52	657.27	8.69	5.59	0.87	0.00	0.61	0.96	9.32
G027	G027	G028	5.30	5.30	0.014	3.96	1	1.25	0.04	656.83	656.62	655.58	655.37	0.60	9.57	4.56	1.25	1.25	656.88	656.67	657.27	656.93	8.70	5.59	0.87	0.61	0.00	0.96	9.32
G028	G028	G030	70.75	73.25	0.013	4.44	1	1.50	0.04	656.87	653.73	655.37	652.23	0.51	10.43	3.16	1.30	1.50	656.67	656.47	656.93	656.53	8.81	5.59	0.94	0.00	0.00	0.96	9.24
G030	G030	G-OUT	118.40	120.90	0.014	1.39	1	2.00	0.01	654.23	652.59	652.23	650.59	0.67	6.52	1.93	2.00	2.00	656.47	656.36	656.53	656.42	9.12	6.07	0.94	0.00	0.00	0.96	0.00
H010	H010	H014	7.14	9.62	0.013	0.28	1	1.50	0.35	657.44	657.42	655.94	655.92	1.50	38.66	37.68	1.50	1.50	660.04	660.05	660.04	660.05	20.60	66.59	16.22	0.00	0.00	0.85	6.18
H013	H013	H-OUT	48.25	48.25	0.010	2.51	1	3.00	0.33	648.21	647.00	645.21	644.00	3.00	77.26	75.31	3.00	3.00	654.81	650.50	654.81	650.50	20.79	532.33	16.22	0.00	0.00	0.85	0.00
H014	H014	H013	461.84	461.84	0.013	0.99	1	4.00	0.12	653.80	649.21	649.80	645.21	4.00	43.46	42.36	4.00	4.00	660.05	654.81	660.05	654.81	20.78	532.33	16.22	0.00	0.00	0.85	6.18
H015	H015	H014	10.15	12.65	0.013	0.79	1	4.00	0.09	653.93	653.85	649.93	649.85	4.00	38.73	37.75	4.00	4.00	660.04	660.05	660.04	660.05	20.60	474.34	16.22	0.00	0.00	0.85	6.18
H017	H017	H015	25.01	29.51	0.022	3.08	1	3.00	0.03	654.28	653.51	651.28	650.51	1.66	10.18	5.77	3.00	3.00	659.99	660.04	659.99	660.04	11.59	40.81	4.19	0.00	0.00	0.96	8.32
H020	H020	H017	14.44	21.44	0.013	8.10	1	3.00	0.08	655.49	654.32	652.49	651.32	0.25	9.56	0.38	3.00	3.00	660.05	659.99	660.05	659.99	11.54	2.67	4.19	0.00	0.00	0.96	8.33
I005	I005	I-OUT	5.41	5.41	0.013	1.00	1	4.50	0.07	650.20	650.15	645.70	645.65	4.50	35.75	34.84	4.50	4.50	657.15	657.14	657.15	657.14	12.60	554.14	2.52	0.00	0.00	0.95	0.00
I008	I008	I005	25.01	25.01	0.013	5.00	1	1.00	0.05	653.33	652.08	652.33	651.08	0.13	4.81	0.37	1.00	1.00	657.14	657.15	657.14	657.15	12.60	0.29	2.52	0.00	0.00	0.95	8.01
I010	I010	I012	1.50	5.33	0.013	2.00	1	1.50	0.02	657.36	657.33	655.86	655.83	0.46	6.62	1.73	1.50	1.50	660.12	660.17	660.12	660.17	9.41	3.05	0.46	0.00	0.00	0.96	9.03
I012	I012	I015	40.87	45.87	0.022	5.00	1	1.00	0.05	656.83	654.79	655.83	653.79	0.59	6.38	3.88	1.00	1.00	660.17	660.14	660.17	660.14	12.45	3.05	2.45	0.00	0.00	0.96	8.06
I015	I015	I005	332.45	335.45	0.013	1.00	1	4.50	0.07	653.52	650.20	649.02	645.70	4.50	35.74	34.84	4.50	4.50	660.14	657.15	660.14	657.15	12.60	554.10	2.52	0.00	0.00	0.95	8.01
I020	I020	I025	32.83	38.33	0.013	11.99	1	1.50	0.12	657.42	653.48	655.92	651.98	0.46	16.18	4.21	1.50	1.50	660.31	660.26	660.31	660.26	10.15	7.44	1.24	0.00	0.00	0.96	8.77
I025	I025	I015	51.48	57.48	0.013	0.41	1	4.50	0.07	653.89	653.68	649.39	649.18	4.50	35.30	34.41	4.50	4.50	660.26	660.14	660.26	660.14	12.45	547.30	2.45	0.00	0.00	0.96	8.06
I030	I030	I025	21.07	29.07	0.022	16.10	1	1.00	0.16	656.61	653.22	655.61	652.22	0.44	10.15	4.30	1.00	1.00	660.22	660.26	660.22	660.26	10.15	3.38	1.24	0.00	0.00	0.96	8.77
I040	I040	I015	21.41	29.41	0.013	5.00	1	1.00	0.05	656.83	655.76	655.83	654.76	0.58	10.74	6.43	1.00	1.00	660.15	660.14	660.15	660.14	12.45	5.05	2.45	0.00	0.00	0.96	8.06
I045	I045	I025	28.17	31.17	0.013	0.28	1	4.50	0.06	654.02	653.94	649.52	649.44	4.50	34.63	33.76	4.50	4.50	660.37	660.26	660.37	660.26	10.15	536.89	1.24	0.00	0.00	0.96	8.77

* THE HGL ELEVATIONS FOR NODES THAT WERE CALCULATED ABOVE CURB HEIGHT (0.58') IN THE GEOPAK DRAINAGE MODELS WERE ADJUSTED TO TO THE PEAK SURFACE FLOW WATER SURFACE ELEVATIONS OBTAINED FROM AN XPSWMM MODEL (25 YEAR FREQUENCY) PROVIDED IN THE XPSWMM REPORT.

** EGL ELEVATIONS ARE SET EQUAL TO HGL ELEVATIONS FOR ALL NODES THAT USED ADJUSTED SURFACE FLOW ELEVATIONS FROM THE XPSWMM MODEL.

*** JUNCTION LOSSES ARE SET EQUAL TO 0.00' FOR EVERY NODE THAT HAS AN ADJUSTED HGL VALUE (SEE ABOVE NOTES).

- EXCESSIVELY HIGH VELOCITIES SHOWN ARE A RESULT OF GEOPAK MODELING LIMITATIONS, HIGH IMPUT FLOWS AND UNDERSIZED EXISTING PIPES THAT ARE NOT BEING UPGRADED OR REPLACED IN THIS PROJECT.

NOTES:

STORM SEWER SYSTEMS WERE TRUNCATED UPSTREAM AND DOWNSTREAM FROM MODELS PRESENTED IN PREVIOUS TECHNICAL MEMORANDUMS. FOR SUPPORTING DATA AND DOCUMENTATION FOR THIS ANALYSIS, SEE REPORT TITLED "DRAINAGE REPORT, BROADWAY DESIGN BUILD PHASE I PROJECT", DATED FEBRUARY 3, 2020.

NO	DATE	REVISION	APPROVED
-	-	-	-

PRELIMINARY
FOR REVIEW ONLY
THESE DOCUMENTS ARE PRELIMINARY AND SUBJECT TO CHANGE. THEY ARE NOT INTENDED FOR CONSTRUCTION OR PERMIT PURPOSES. THEY WERE PREPARED BY, OR UNDER THE SUPERVISION OF:

DWAYNE S. HAMILTON	80967	8/28/2020
NAME	P.E.	DATE

MAESTAS
11550 IH 10 WEST, STE. 350
SAN ANTONIO, TX 78230
(210) 366-1988
TBPE No.: F-133
TBPLS No.: 10194506

AECOM
AECOM Technical Services Inc. F- 3580
112 Pecan Street
Suite 400
San Antonio, Texas 78205
(214) 741-7777

SUNDT

CITY OF SAN ANTONIO
PUBLIC WORKS DEPARTMENT

BROADWAY ST

HYDRAULIC COMPUTATIONS

BRDWY-HYDRAULIC-COMP-001.dgn	SHEET 1 OF 3	
SUBMITTAL	PROJECT NUMBER	DATE
100%	23-01561	8/28/2020
DRWN BY:	DSGN BY:	CHKD BY:	SHEET NO.
			151

INLET HYDRAULICS

Inlet ID	Station	Type	Profile Type	Q 25 YR (cfs)	Capac (cfs)	By Pass Flow (cfs)	By Pass Flow Received (cfs)	By Pass Node ID	Inlet Curb Length (ft)	Inlet Length Req'd (ft)	Computed Ponded Width (ft)	Computed Ponded Depth (ft)	% Street Slope
C010	17+20.58	Curb	On Grade	2.77	2.21	0.56	0.00	B050	5	8.51	14.95	0.30	0.20
C020	18+86.83	Curb	Sag	1.74	13.92	0.00	0.00	0	10	30.36	7.53	0.15	n/a
C030	18+79.46	Curb	Sag	66.66	15.85	0.00	47.30	0	10	25.46	988.24	5.73	n/a
C040	19+33.51	Curb	On Grade	13.72	3.58	10.14	0.00	C030	5	32.30	19.19	0.40	1.10
C050	18+65.87	Curb and Grate	Sag	3.21	10.82	0.00	0.00	0	2.5	n/a	17.73	0.41	n/a
C060	19+09.46	Curb	On Grade	5.34	3.33	2.00	0.00	0	5	11.91	16.62	0.42	0.20
D010	22+41.93	Curb	On Grade	52.10	14.93	37.17	40.12	C030	10	58.45	42.17	0.72	0.25
D020	23+48.94	Curb	On Grade	64.47	24.35	40.12	27.25	D010	10	43.17	34.95	1.05	0.30
D030	22+43.27	Curb	On Grade	0.86	0.86	0.00	0.00	C060	10	3.76	8.58	0.24	0.12
D040	23+12.29	Curb	On Grade	10.72	5.73	4.99	0.00	D060	10	28.88	39.53	0.36	0.24
D050	22+67.80	Curb	On Grade	10.53	3.39	7.14	0.00	0	5	25.79	16.27	0.39	1.00
D060	23+06.84	Curb	On Grade	26.20	4.04	22.16	4.99	0	5	56.22	31.00	0.43	1.20
E010	30+97.12	Curb	On Grade	44.41	17.16	27.25	0.00	D020	10	42.07	30.09	0.81	0.45
E020	30+96.18	Curb	On Grade	6.30	5.63	0.68	0.00	E030	10	14.07	12.72	0.42	0.46
E030	30+29.83	Curb	Sag	17.53	7.92	0.00	0.68	0	5	12.43	29.36	1.59	n/a
E040	30+86.41	Curb	Sag	8.88	8.80	0.00	0.00	0	5	12.43	18.92	0.59	n/a
E050	30+95.95	Curb	Sag	3.73	8.80	0.00	0.00	0	5	12.43	9.97	0.33	n/a
F010	46+52.90	Curb	On Grade	15.89	9.52	6.37	0.00	H010	10	25.10	19.63	0.55	0.50
F020	46+52.42	Curb	On Grade	5.54	4.52	1.02	0.00	F030	10	16.41	11.59	0.34	0.90
F030	46+67.59	Curb	Sag	18.88	6.95	0.00	1.02	0	5	10.59	97.63	2.73	n/a
F040	47+10.02	Curb	Sag	16.83	6.95	0.00	0.00	0	5	10.59	83.57	2.17	n/a
G020	52+40.90	Curb	On Grade	7.82	5.59	2.23	0.00	0	10	19.92	12.66	0.38	1.00
G030	52+20.63	Curb	On Grade	0.64	0.64	0.00	0.00	0	7.5	5.89	5.37	0.13	1.20
H010	51+51.88	Curb	Sag	66.59	15.85	0.00	6.37	0	10	12.43	1430.04	5.72	n/a
H020	52+02.77	Curb	On Grade	33.59	2.67	30.93	0.00	0	10	222.56	335.91	0.17	0.40
I008	61+98.60	Curb and Grate	On Grade	0.55	0.29	0.26	0.00	0	1.5	n/a	8.55	0.09	1.60
I010	61+29.26	Curb	On Grade	4.02	3.05	0.97	0.00	0	5	9.17	18.45	0.41	0.10
I020	61+28.00	Curb	Sag	7.44	8.80	0.00	0.00	0	5	0.00	28.96	0.52	n/a
I030	61+95.37	Curb	Sag	3.38	13.92	0.00	0.00	0	10	0.00	9.22	0.23	n/a
I040	61+97.08	Curb	On Grade	5.85	5.05	0.80	0.00	0	10	14.96	16.97	0.37	0.33

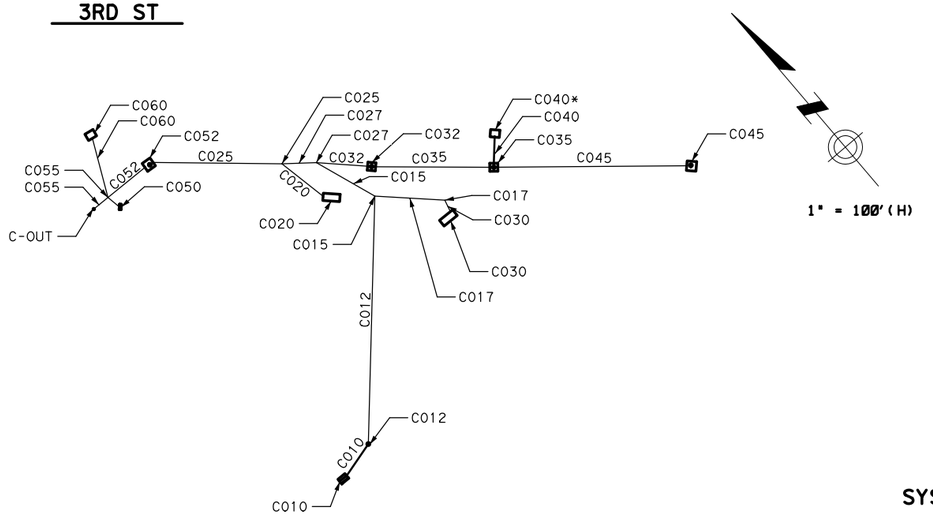
INLET CONFIGURATION

Inlet ID	Node - Station	Offset	T/C Elev.	Inlet Type	Inlet Profile Type	Inlet Spread Slope	Inlet Length	Inlet Curb Dep.	Inlet Curb Height	Curb Dep. Width	Max Ponded Width	Max Ponded Depth
C010	17+20.58	-55.36	653.70	Curb	On Grade	0.02	5	0.25	0.50	1.50	18	0.58
C020	18+86.83	-47.84	653.12	Curb	Sag	0.03	10	0.21	0.52	2.00	24	0.58
C030	18+79.46	28.61	653.52	Curb	Sag	0.01	10	0.21	0.52	2.00	25	0.58
C040	19+33.51	56.03	653.66	Curb	On Grade	0.02	5	0.21	0.52	2.00	23	0.58
C050	18+65.87	-186.74	652.34	Curb and Grate	Sag	0.02	2.5	0.25	0.50	1.50	24	0.58
C060	19+09.46	-208.29	652.28	Curb	On Grade	0.03	5	0.21	0.52	2.00	22	0.58
D010	22+41.93	21.00	655.11	Curb	On Grade	0.02	10	0.21	0.52	2.00	21	0.58
D020	23+48.94	21.00	655.42	Curb	On Grade	0.03	10	0.21	0.52	2.00	21	0.58
D030	22+43.27	-21.00	654.94	Curb	On Grade	0.03	10	0.21	0.52	2.00	21	0.58
D040	23+12.29	-26.16	655.27	Curb	On Grade	0.01	10	0.21	0.52	2.00	22	0.58
D050	22+67.80	-514.30	650.89	Curb	On Grade	0.02	5	0.21	0.52	2.00	20.5	0.58
D060	23+06.84	-515.13	651.18	Curb	On Grade	0.01	5	0.21	0.52	2.00	20	0.58
E010	30+97.12	21.00	658.43	Curb	On Grade	0.03	10	0.21	0.52	2.00	20	0.58
E020	30+96.18	-21.00	658.27	Curb	On Grade	0.03	10	0.21	0.52	2.00	21	0.58
E030	30+29.83	-348.50	652.33	Curb	Sag	0.05	5	0.21	0.52	2.00	25	0.58
E040	30+86.41	-351.16	652.58	Curb	Sag	0.03	5	0.21	0.52	2.00	25	0.58
E050	30+95.95	-390.93	652.58	Curb	Sag	0.03	5	0.21	0.52	2.00	20	0.58
F010	46+52.90	21.00	662.06	Curb	On Grade	0.03	10	0.21	0.52	2.00	21	0.58
F020	46+52.42	-21.00	662.01	Curb	On Grade	0.03	10	0.21	0.52	2.00	21	0.58
F030	46+67.59	-357.78	653.33	Curb	Sag	0.03	5	0.21	0.42	2.00	18	0.58
F040	47+10.02	-351.58	653.58	Curb	Sag	0.03	5	0.21	0.42	2.00	20	0.58
G020	52+40.90	-21.07	660.08	Curb	On Grade	0.03	10	0.21	0.52	2.00	22	0.58
G030	52+20.63	-110.37	658.15	Curb	On Grade	0.03	7.5	0.21	0.52	2.00	18	0.58
H010	51+51.88	26.82	659.94	Curb	Sag	0	10	0.21	0.52	2.00	21	0.58
H020	52+02.77	30.60	659.92	Curb	On Grade	0	10	0.21	0.52	2.00	28	0.58
I008	61+98.60	-348.97	656.84	Curb and Grate	On Grade	0.01	1.5	0.22	0.45	1.50	15	0.58
I010	61+29.26	-21.00	659.99	Curb	On Grade	0.02	5	0.21	0.52	2.00	22	0.58
I020	61+28.00	38.10	659.77	Curb	Sag	0.02	5	0.21	0.52	2.00	37	0.58
I030	61+95.37	39.87	659.97	Curb	Sag	0.03	10	0.21	0.52	2.00	30	0.58
I040	61+97.08	-26.73	659.63	Curb	On Grade	0.02	10	0.21	0.52	2.00	36	0.58

NOTES:

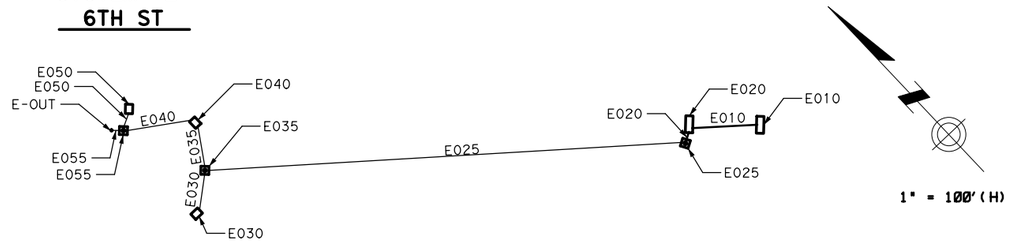
1. STORM SEWER SYSTEMS WERE TRUNCATED UPSTREAM AND DOWNSTREAM FROM MODELS PRESENTED IN PREVIOUS TECHNICAL MEMORANDUMS. FOR SUPPORTING DATA AND DOCUMENTATION FOR THIS ANALYSIS, SEE REPORT TITLED "DRAINAGE REPORT, BROADWAY DESIGN BUILD PHASE I PROJECT", DATED FEBRUARY 3, 2020.
2. INLET LENGTHS PROVIDED MAY BE SIGNIFICANTLY LESS THAN LENGTHS REQUIRED. THIS IS DUE TO EITHER EXISTING INLETS TO REMAIN THAT ARE ALREADY UNDERSIZED OR INLETS BEING REPLACED THAT ARE MATCHING THE EXISTING LENGTHS. INLET SIZES ARE NOT BEING UPGRADED SINCE THE EXISTING TRUNKLINES TO REMAIN ARE ALREADY SURCHARGED AND HAVE NO FURTHER CAPACITY FOR INCREASED FLOWS. CONSULT THE CORRESPONDING BROADWAY DESIGN BUILD DRAINAGE REPORT FOR FURTHER INFORMATION.
3. INLETS SHOWN AS CURB & GRATE ARE EXISTING INLETS TO REMAIN. A GRATE CLOGGING FACTOR OF 50% WAS USED FOR THESE EXISTING INLETS.

SYSTEM "C"
3RD ST

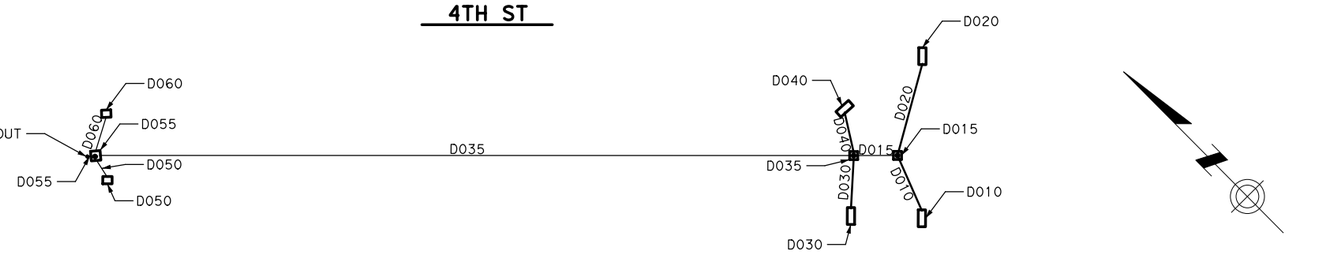


* INLET C040 IS TO BE CONSTRUCTED AS A TY B INLET BUT WAS MODELED AS A 5' TY C INLET FOR SIMPLICITY. THIS METHOD ASSUMES A 100% CLOGGING FACTOR FOR THE GRATE ON THE TY B INLET WHICH IS A CONSERVATIVE APPROACH.

SYSTEM "E"
6TH ST



SYSTEM "D"
4TH ST



NO	DATE	REVISION	APPROVED
-	-	-	-

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DWAYNE S. HAMILTON	80967	8/28/2020
NAME	P.E.	DATE

MAESTAS
1155D IH 10 WEST, STE. 350
SAN ANTONIO, TX 78230
(210) 366-1988
TBPE No.: F-333
TBPLS No.: 10194506

AECOM
AECOM Technical Services Inc. F- 3580
112 Pecan Street
Suite 400
San Antonio, Texas 78205
(214) 741-7777

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CITY OF SAN ANTONIO
PUBLIC WORKS
DEPARTMENT

BROADWAY ST

HYDRAULIC COMPUTATIONS

BRDWY-HYDRAULIC-COMP-002.dgn			SHEET 2 OF 3
SUBMITTAL	PROJECT NUMBER		DATE
100%	23-01561		8/28/2020
DRWN BY:	DSGN BY:	CHKD BY:	SHEET NO.
			152

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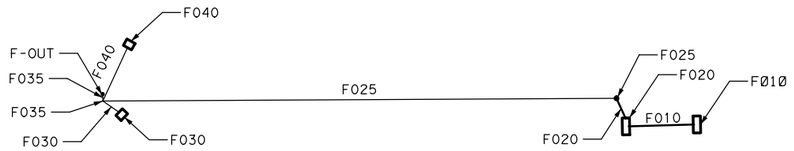
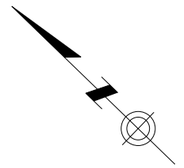
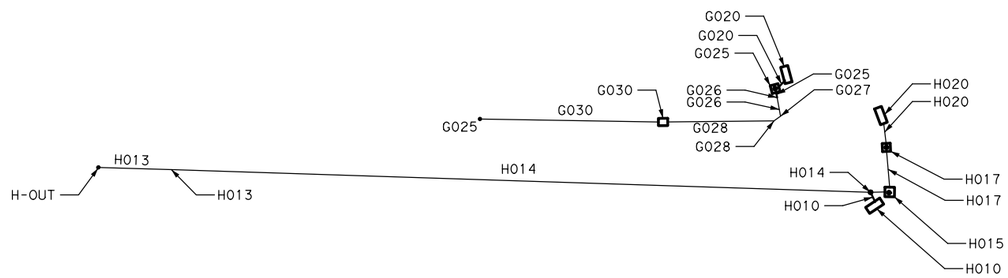
SYSTEM "F"
10TH ST

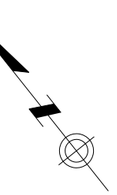




1" = 100'(H)

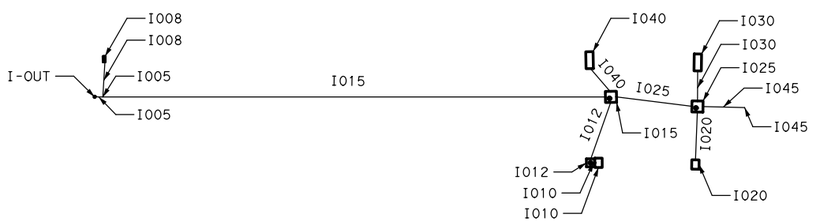
SYSTEMS "G" & "H"
E JONES AVE

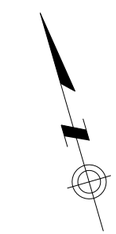




1" = 100'(H)

SYSTEM "I"
ROY SMITH ST





1" = 100'(H)

NOTES:

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NO	DATE	REVISION	APPROVED
-	-	-	-

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DWAYNE S. HAMILTON	80967	8/28/2020
NAME	P.E.	DATE

MAESTAS
11550 IH 10 WEST, STE. 350
SAN ANTONIO, TX 78230
(210) 366-1988
TBPE No.: F-333
TBPLS No.: 10194506

AECOM
AECOM Technical Services Inc. F- 3580
112 Pecan Street
Suite 400
San Antonio, Texas 78205
(214) 741-7777

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CITY OF SAN ANTONIO
PUBLIC WORKS
DEPARTMENT

BROADWAY ST

HYDRAULIC COMPUTATIONS

BRDWY-HYDRAULIC-COMP-003.dgn			SHEET 3 OF 3
SUBMITTAL	PROJECT NUMBER		DATE
100%	23-01561		8/28/2020
DRWN BY:	DSGN BY:	CHKD BY:	SHEET NO.
			153

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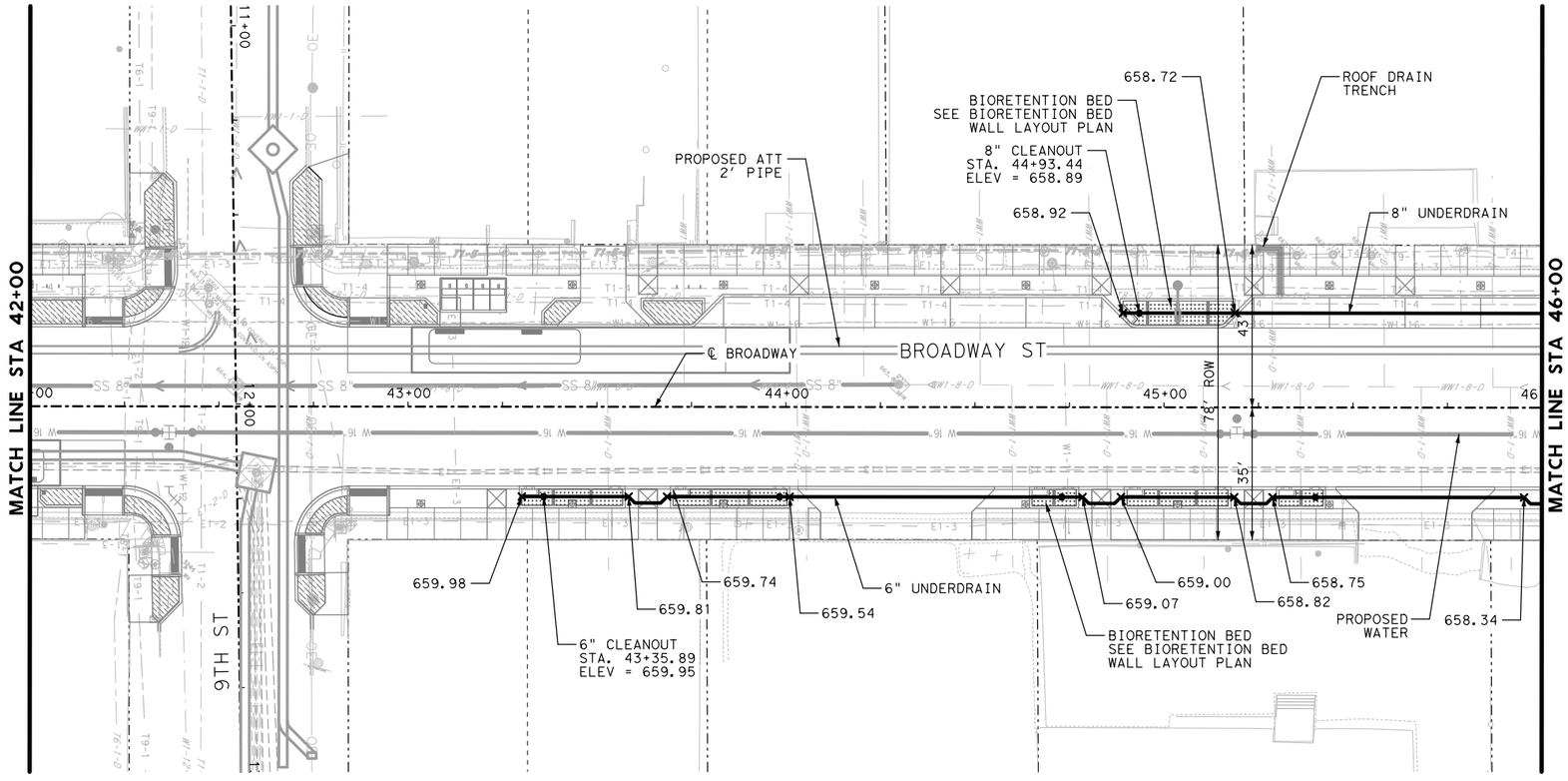

LEGEND

DI - DROP INLET
I-AD - AREA DITCH INLET
GI - GRATE INLET
CI - CURB INLET
SD - SLOTTED RAIL
MH - MANHOLE
JB - JUNCTION BOX
TY - TYPE

FLOW OF CHANNEL
XXX — INLET IDENTIFICATION
DITCH
XX-XXX — JUNCTION/NAME
PLUG
CLEANOUT
FL ELEV

NOTES:

1. ALL EXISTING STORM SEWERS SHOWN TO BE ABANDONED SHALL BE CUT AND PLUGGED AS REQUIRED TO REMOVE INLETS AND LATERAL SECTIONS NECESSARY FOR CONSTRUCTING NEW LATERALS AND PROPOSED UTILITIES.
2. ALL UNDERDRAINS PLACED UNDER PROPOSED BIORETENTION BEDS AND SECTIONS OF PERMEABLE PAVING SHALL CONSIST OF PERFORATED PVC PIPE OF THE APPROPRIATE SIZE SHOWN. SEE BIORETENTION BED DETAILS FOR PERFORATION TYPE.
3. ALL UNDERDRAINS PLACED UNDER AREAS OF TRAFFIC LOADING (DRIVEWAYS, PARKING AREAS AND STREETS) SHALL CONSIST OF SCHEDULE 80 PVC PIPE OF THE APPROPRIATE SIZE SHOWN.
4. DETAILS FOR BIORETENTION BEDS, LANDSCAPING BEDS, ROOF DRAIN TRENCHES AND PIPES, CLEAN -OUTS, PERFORATED PIPES, AND RELATED CONNECTIONS ARE PROVIDED IN THE HARDSCAPE PLAN DETAIL SHEETS.

NO	DATE	REVISION	APPROVED
-	-	-	-

GRAPHIC SCALE (IN FEET)
20 10 0 20 40 60
1" = 40' (H)

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MAESTAS
11550 IH 10 WEST, STE. 350
SAN ANTONIO, TX 78230
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AECOM
AECOM Technical Services Inc. F- 3580
112 Pecan Street
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San Antonio, Texas 78205
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CITY OF SAN ANTONIO
PUBLIC WORKS DEPARTMENT

BROADWAY ST

DRAINAGE PLAN SHEETS

BROADWAY STREET
STA 42+00.00 TO STA 46+00.00

ESTIMATED QUANTITIES				
COSA ITEMS	DESCRIPTION	UNIT	EST	FINAL
618.X	8 INCH/PVC SCHEDULE 40	LF	30	
618.X	8 INCH/PVC SCHEDULE 80	LF	82	
618.X	6 INCH/PVC SCHEDULE 40	LF	184	
618.X	6 INCH/PVC SCHEDULE 80	LF	86	
SAWS ITEMS				
854	TWO WAY CLEAN OUT 8"	EA	1	
854	TWO WAY CLEAN OUT 6"	EA	4	

NOTES:

5. ALL EXISTING AND PROPOSED LATERAL CONNECTIONS SHALL HAVE CONCRETE COLLARS.
6. INLET STATION AND OFFSET CALL OUTS ARE TO CENTER FACE OF INLETS.
7. ALL MANHOLE LIDS FOR INLETS AND MANHOLES SHALL BE LOCKING AS PER DETAIL ON MISCELLANEOUS DETAILS SHEET 1.
8. ALL INLETS SHALL HAVE A PIPE SCREEN CONNECTOR BMP INSTALLED AT ALL EXISTING LATERALS. SEE SPECIAL SPECIFICATION.

BRDWY-DRNG-PP-009.dgn — SHEET 9 OF 13

SUBMITTAL	PROJECT NUMBER	DATE
100%	23-01561	8/28/2020

DRWN BY:	DSGN BY:	CHKD BY:	SHEET NO.
			162

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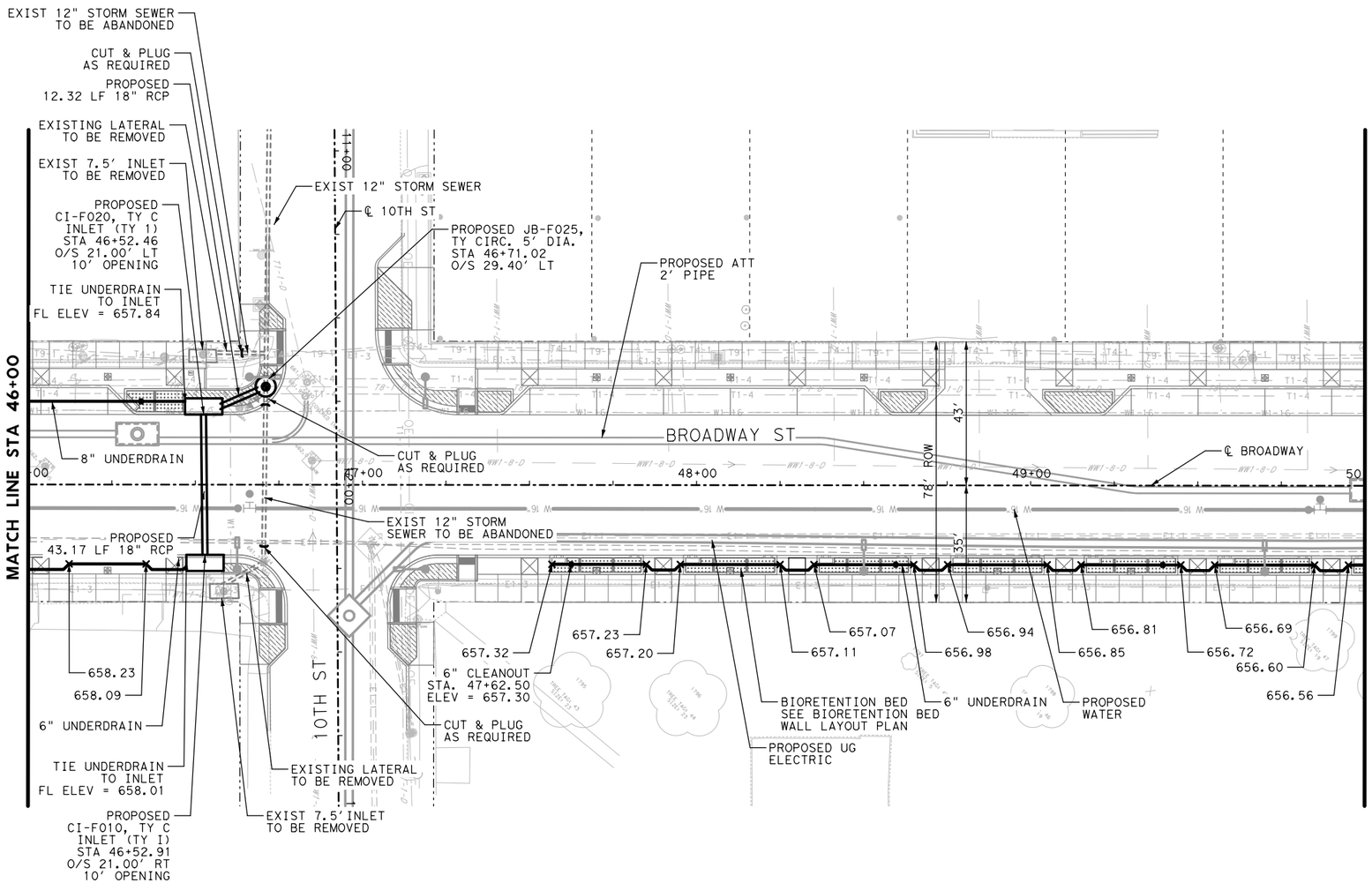

LEGEND

DI - DROP INLET
I-AD - AREA DITCH INLET
GI - GRATE INLET
CI - CURB INLET
SD - SLOTTED RAIL
MH - MANHOLE
JB - JUNCTION BOX
TY - TYPE

- FLOW OF CHANNEL
- XXX — INLET IDENTIFICATION
- DITCH
- XX-XXX — JUNCTION/NAME
- PLUG
- CLEANOUT
- FL ELEV

NOTES:

1. ALL EXISTING STORM SEWERS SHOWN TO BE ABANDONED SHALL BE CUT AND PLUGGED AS REQUIRED TO REMOVE INLETS AND LATERAL SECTIONS NECESSARY FOR CONSTRUCTING NEW LATERALS AND PROPOSED UTILITIES.
2. ALL UNDERDRAINS PLACED UNDER PROPOSED BIORETENTION BEDS AND SECTIONS OF PERMEABLE PAVING SHALL CONSIST OF PERFORATED PVC PIPE OF THE APPROPRIATE SIZE SHOWN. SEE BIORETENTION BED DETAILS FOR PERFORATION TYPE.
3. ALL UNDERDRAINS PLACED UNDER AREAS OF TRAFFIC LOADING (DRIVEWAYS, PARKING AREAS AND STREETS) SHALL CONSIST OF SCHEDULE 80 PVC PIPE OF THE APPROPRIATE SIZE SHOWN.
4. DETAILS FOR BIORETENTION BEDS, LANDSCAPING BEDS, ROOF DRAIN TRENCHES AND PIPES, CLEAN-OUTS, PERFORATED PIPES, AND RELATED CONNECTIONS ARE PROVIDED IN THE HARDSCAPE PLAN DETAIL SHEETS.

NO	DATE	REVISION	APPROVED
-	-	-	-

GRAPHIC SCALE (IN FEET)
20 10 0 20 40 60
1" = 40' (H)

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PUBLIC WORKS DEPARTMENT

BROADWAY ST

DRAINAGE PLAN SHEETS

BROADWAY STREET
STA 46+00.00 TO STA 50+00.00

ESTIMATED QUANTITIES				
COSA ITEMS	**DESCRIPTION**	**UNIT**	**EST**	**FINAL**
401.1	REINFORCED CONCRETE PIPE (CLASS III) (18" DIA)	LF	56	
403.8	INLET TYPE I (COMPLETE) (10 FT)	EA	2	
407.X	CONCRETE COLLARS	EA	8	
550.1	TRENCH EXCAVATION SAFETY PROTECTION	LF	56	
618.X	8 INCH/PVC SCHEDULE 40	LF	18	
618.X	8 INCH/PVC SCHEDULE 80	LF	30	
618.X	6 INCH/PVC SCHEDULE 40	LF	301	
SAWS ITEMS				
854	TWO WAY CLEAN OUT 8"	EA	1	
854	TWO WAY CLEAN OUT 6"	EA	3	
TXDOT ITEMS				
465 6003	MANH (COMPL)(PRM)(60 IN)	EA	1	

NOTES:

5. ALL EXISTING AND PROPOSED LATERAL CONNECTIONS SHALL HAVE CONCRETE COLLARS.
6. INLET STATION AND OFFSET CALL OUTS ARE TO CENTER FACE OF INLETS.
7. ALL MANHOLE LIDS FOR INLETS AND MANHOLES SHALL BE LOCKING AS PER DETAIL ON MISCELLANEOUS DETAILS SHEET 1.
8. ALL INLETS SHALL HAVE A PIPE SCREEN CONNECTOR BMP INSTALLED AT ALL EXISTING LATERALS. SEE SPECIAL SPECIFICATION.

BRDWY-DRNG-PP-010.dgn — **SHEET 10 OF 13**

SUBMITTAL	PROJECT NUMBER	DATE
100%	23-01561	8/28/2020

DRWN BY:	DSGN BY:	CHKD BY:	SHEET NO.
			163

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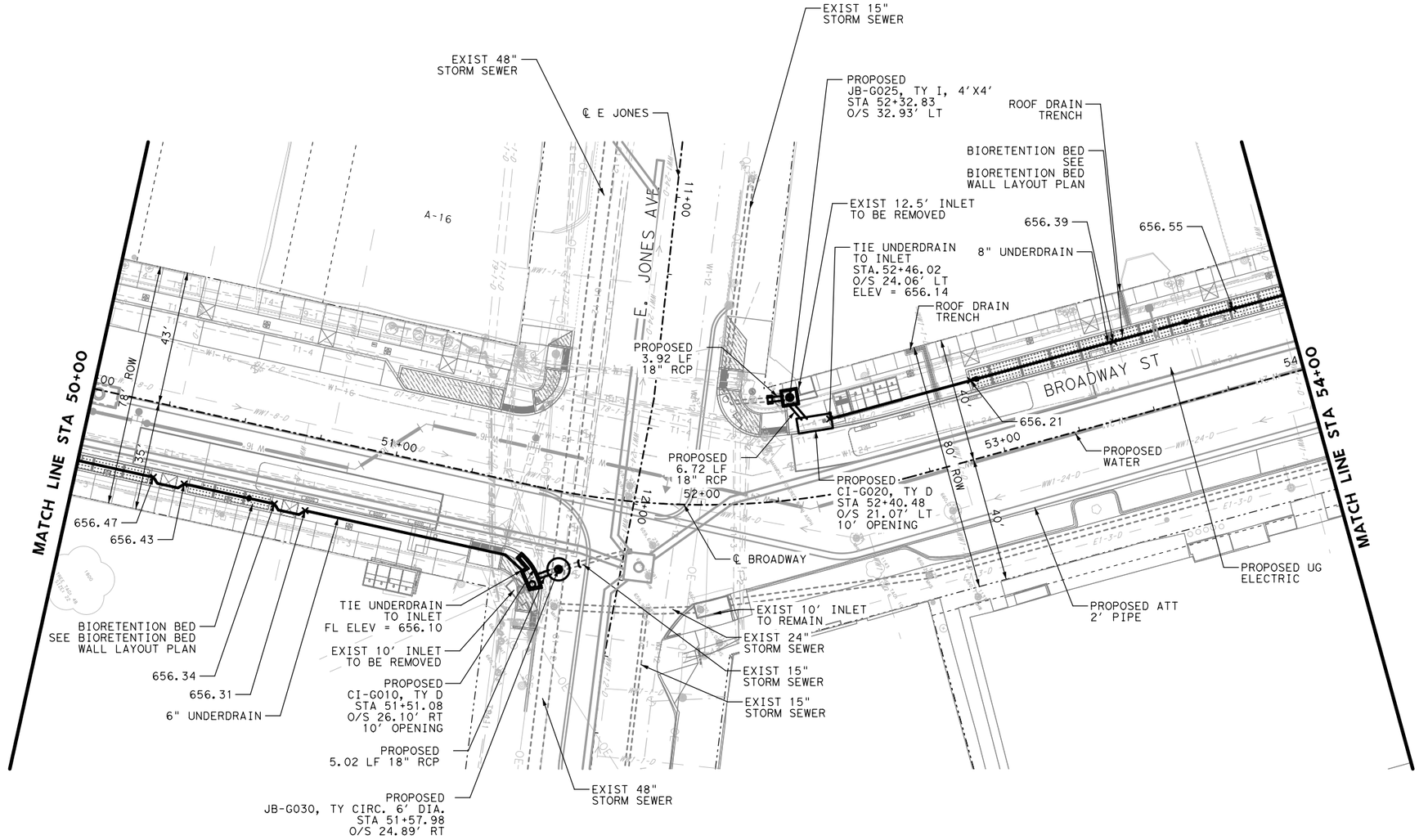

LEGEND

DI - DROP INLET
I-AD - AREA DITCH INLET
GI - GRATE INLET
CI - CURB INLET
SD - SLOTTED RAIL
MH - MANHOLE
JB - JUNCTION BOX
TY - TYPE

- FLOW OF CHANNEL
- XXX — INLET IDENTIFICATION
- DITCH
- XX-XXX — JUNCTION/NAME
- PLUG
- CLEANOUT
- FL ELEV

NOTES:

1. ALL EXISTING STORM SEWERS SHOWN TO BE ABANDONED SHALL BE CUT AND PLUGGED AS REQUIRED TO REMOVE INLETS AND LATERAL SECTIONS NECESSARY FOR CONSTRUCTING NEW LATERALS AND PROPOSED UTILITIES.
2. ALL UNDERDRAINS PLACED UNDER PROPOSED BIORETENTION BEDS AND SECTIONS OF PERMEABLE PAVING SHALL CONSIST OF PERFORATED PVC PIPE OF THE APPROPRIATE SIZE SHOWN. SEE BIORETENTION BED DETAILS FOR PERFORATION TYPE.
3. ALL UNDERDRAINS PLACED UNDER AREAS OF TRAFFIC LOADING (DRIVEWAYS, PARKING AREAS AND STREETS) SHALL CONSIST OF SCHEDULE 80 PVC PIPE OF THE APPROPRIATE SIZE SHOWN.
4. DETAILS FOR BIORETENTION BEDS, LANDSCAPING BEDS, ROOF DRAIN TRENCHES AND PIPES, CLEAN-OUTS, PERFORATED PIPES, AND RELATED CONNECTIONS ARE PROVIDED IN THE HARDSCAPE PLAN DETAIL SHEETS.

ESTIMATED QUANTITIES

COSA ITEMS	DESCRIPTION	UNIT	EST	FINAL
401.1	REINFORCED CONCRETE PIPE (CLASS III) (18" DIA)	LF	16	
403.1	JUNCTION BOX (4' X 4' X 4')	EA	1	
403.8	INLET TYPE I (COMPLETE) (10 FT)	EA	1	
403.13	SPECIAL INLET (TYPE D)	EA	1	
407.X	CONCRETE COLLARS	EA	10	
550.1	TRENCH EXCAVATION SAFETY PROTECTION	LF	16	
618.X	8 INCH/PVC SCHEDULE 40	LF	152	
618.X	6 INCH/PVC SCHEDULE 40	LF	152	
SAWS ITEMS				
854	TWO WAY CLEAN OUT 8"	EA	2	
854	TWO WAY CLEAN OUT 6"	EA	1	
TXDOT ITEMS				
465.6004	MANH (COMPL)(PRM)(72 IN)	EA	1	

NOTES:

5. ALL EXISTING AND PROPOSED LATERAL CONNECTIONS SHALL HAVE CONCRETE COLLARS.
6. INLET STATION AND OFFSET CALL OUTS ARE TO CENTER FACE OF INLETS.
7. ALL MANHOLE LIDS FOR INLETS AND MANHOLES SHALL BE LOCKING AS PER DETAIL ON MISCELLANEOUS DETAILS SHEET 1.
8. ALL INLETS SHALL HAVE A PIPE SCREEN CONNECTOR BMP INSTALLED AT ALL EXISTING LATERALS. SEE SPECIAL SPECIFICATION.

NO	DATE	REVISION	APPROVED
-	-	-	-

GRAPHIC SCALE (IN FEET)
20 10 0 20 40 60
1" = 40' (H)

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BROADWAY ST

DRAINAGE PLAN SHEETS

BROADWAY STREET
STA 50+00.00 TO STA 54+00.00

BRDWY-DRNG-PP-011.dgn			SHEET 11 OF 13
SUBMITTAL	PROJECT NUMBER		DATE
100%	23-01561		8/28/2020
DRWN BY:	DSGN BY:	CHKD BY:	SHEET NO.
			164

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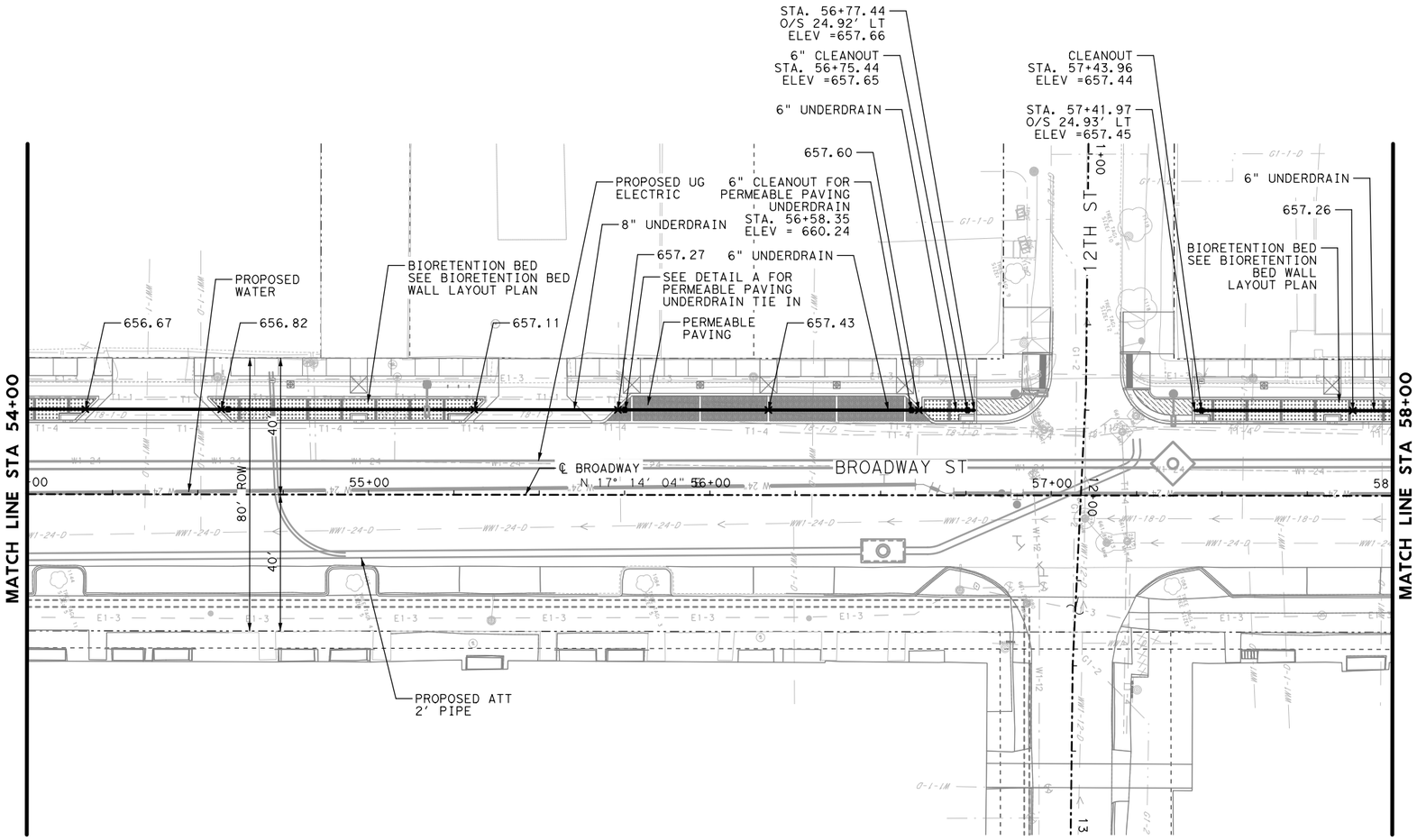

LEGEND

DI - DROP INLET
I-AD - AREA DITCH INLET
GI - GRATE INLET
CI - CURB INLET
SD - SLOTTED RAIL
MH - MANHOLE
JB - JUNCTION BOX
TY - TYPE

- FLOW OF CHANNEL
- XXX — INLET IDENTIFICATION
- DITCH
- XX-XXX — JUNCTION/NAME
- PLUG
- CLEANOUT
- FL ELEV

NOTES:

1. ALL EXISTING STORM SEWERS SHOWN TO BE ABANDONED SHALL BE CUT AND PLUGGED AS REQUIRED TO REMOVE INLETS AND LATERAL SECTIONS NECESSARY FOR CONSTRUCTING NEW LATERALS AND PROPOSED UTILITIES.
2. ALL UNDERDRAINS PLACED UNDER PROPOSED BIORETENTION BEDS AND SECTIONS OF PERMEABLE PAVING SHALL CONSIST OF PERFORATED PVC PIPE OF THE APPROPRIATE SIZE SHOWN. SEE BIORETENTION BED DETAILS FOR PERFORATION TYPE.
3. ALL UNDERDRAINS PLACED UNDER AREAS OF TRAFFIC LOADING (DRIVEWAYS, PARKING AREAS AND STREETS) SHALL CONSIST OF SCHEDULE 80 PVC PIPE OF THE APPROPRIATE SIZE SHOWN.
4. DETAILS FOR BIORETENTION BEDS, LANDSCAPING BEDS, ROOF DRAIN TRENCHES AND PIPES, CLEAN-OUTS, PERFORATED PIPES, AND RELATED CONNECTIONS ARE PROVIDED IN THE HARDSCAPE PLAN DETAIL SHEETS.

NO	DATE	REVISION	APPROVED
-	-	-	-

GRAPHIC SCALE (IN FEET)
20 10 0 20 40 60
1" = 40' (H)

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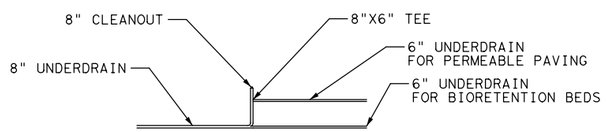
DWAYNE S. HAMILTON	80967	8/28/2020
NAME	P.E.	DATE



DETAIL A

ESTIMATED QUANTITIES				
COSA ITEMS	DESCRIPTION	UNIT	EST	FINAL
618.X	8 INCH/PVC SCHEDULE 40	LF	101	
618.X	8 INCH/PVC SCHEDULE 80	LF	75	
618.X	6 INCH/PVC SCHEDULE 40	LF	76	
618.X	6 INCH/PVC SCHEDULE 80	LF	170	
SAWS ITEMS				
854	TWO WAY CLEAN OUT 8"	EA	2	
854	TWO WAY CLEAN OUT 6"	EA	3	

NOTES:

5. ALL EXISTING AND PROPOSED LATERAL CONNECTIONS SHALL HAVE CONCRETE COLLARS.
6. INLET STATION AND OFFSET CALL OUTS ARE TO CENTER FACE OF INLETS.
7. ALL MANHOLE LIDS FOR INLETS AND MANHOLES SHALL BE LOCKING AS PER DETAIL ON MISCELLANEOUS DETAILS SHEET 1.
8. ALL INLETS SHALL HAVE A PIPE SCREEN CONNECTOR BMP INSTALLED AT ALL EXISTING LATERALS. SEE SPECIAL SPECIFICATION.

MAESTAS
11550 IH 10 WEST, STE. 350
SAN ANTONIO, TX 78230
(210) 366-1988
TBPE No.: F-333
TBPLS No.: 10194506

AECOM
AECOM Technical Services Inc. F- 3580
112 Pecan Street
Suite 400
San Antonio, Texas 78205
(214) 741-7777

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CITY OF SAN ANTONIO
PUBLIC WORKS DEPARTMENT

BROADWAY ST

DRAINAGE PLAN SHEETS

BROADWAY STREET
STA 54+00.00 TO STA 58+00.00

BRDWY-DRNG-PP-012.dgn — SHEET 12 OF 13

SUBMITTAL	PROJECT NUMBER	DATE
100%	23-01561	8/28/2020

DRWN BY:	DSGN BY:	CHKD BY:	SHEET NO.
			165

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PLOTTED ON: 8/28/2020 @ 2:33:21 PM
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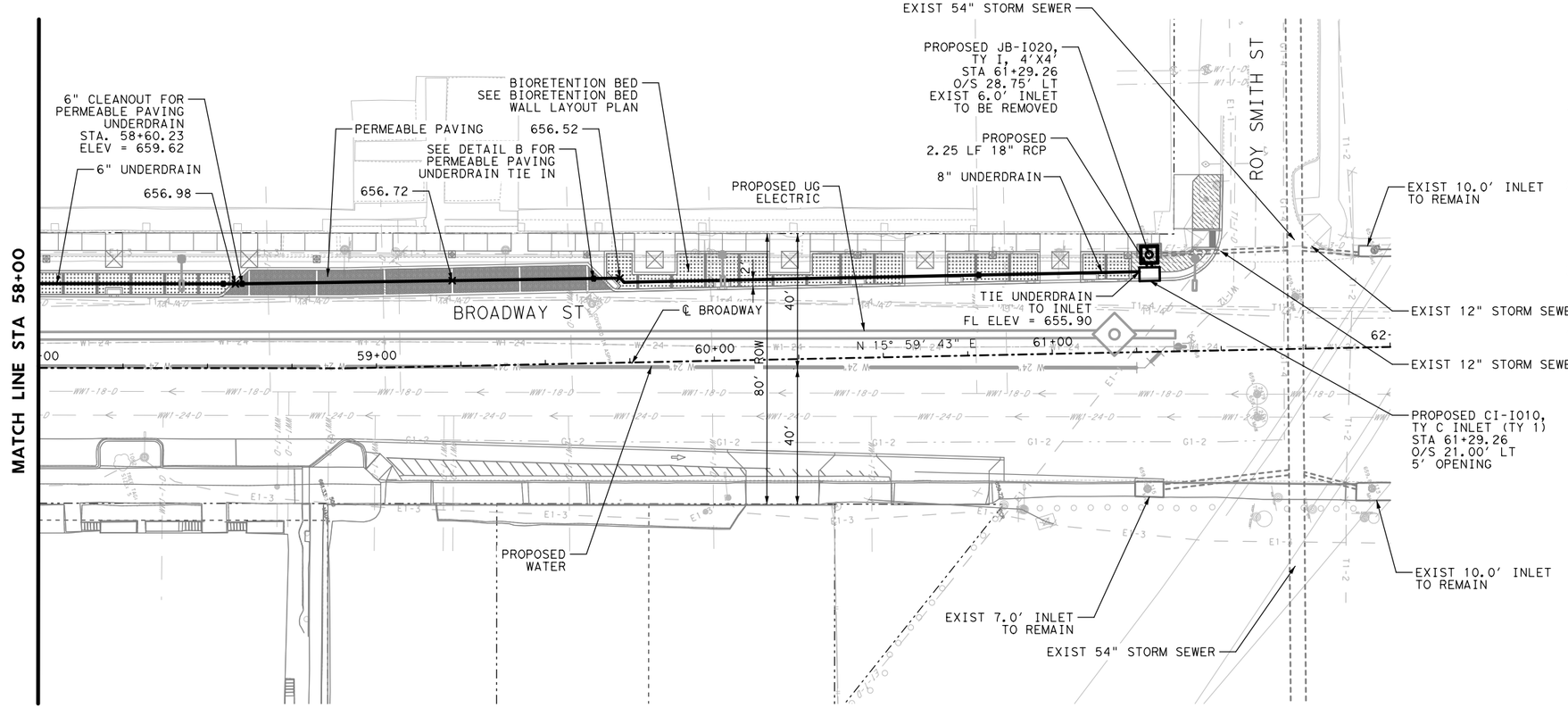

LEGEND

DI - DROP INLET
I-AD - AREA DITCH INLET
GI - GRATE INLET
CI - CURB INLET
SD - SLOTTED RAIL
MH - MANHOLE
JB - JUNCTION BOX
TY - TYPE

- FLOW OF CHANNEL
- XXX — INLET IDENTIFICATION
- DITCH
- XX-XXX — JUNCTION/NAME
- PLUG
- CLEANOUT
- FL ELEV

NOTES:

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NO	DATE	REVISION	APPROVED
-	-	-	-

GRAPHIC SCALE (IN FEET)
20 10 0 20 40 60
1" = 40' (H)

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DWAYNE S. HAMILTON	80967	8/28/2020
NAME	P.E.	DATE

MAESTAS
11550 IH 10 WEST, STE. 350
SAN ANTONIO, TX 78230
(210) 366-1988
TBPE No.: F-333
TBPLS No.: 10194506

AECOM
AECOM Technical Services Inc. F- 3580
112 Pecan Street
Suite 400
San Antonio, Texas 78205
(214) 741-7777

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CITY OF SAN ANTONIO
PUBLIC WORKS DEPARTMENT

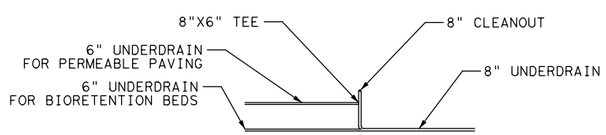
BROADWAY ST

DRAINAGE PLAN SHEETS

BROADWAY STREET
STA 58+00.00 TO END PROJECT

BRDWY-DRNG-PP-013.dgn			SHEET 13 OF 13
SUBMITTAL	PROJECT NUMBER		DATE
100%	23-01561		8/28/2020
DRWN BY:	DSGN BY:	CHKD BY:	SHEET NO.
			166

ESTIMATED QUANTITIES				
COSA ITEMS	DESCRIPTION	UNIT	EST	FINAL
401.1	REINFORCED CONCRETE PIPE (CLASS III) (18" DIA)	LF	3	
403.1	JUNCTION BOX (4' X 4' X 4')	EA	1	
403.7	INLET TYPE 1 (COMPLETE) (5FT)	EA	1	
407.X	CONCRETE COLLARS	EA	4	
550.1	TRENCH EXCAVATION SAFETY PROTECTION	LF	3	
618.X	8 INCH/PVC SCHEDULE 40	LF	162	
618.X	6 INCH/PVC SCHEDULE 40	LF	59	
618.X	6 INCH/PVC SCHEDULE 80	LF	213	
SAWS ITEMS				
854	TWO WAY CLEAN OUT 8"	EA	2	
854	TWO WAY CLEAN OUT 6"	EA	2	



DETAIL B

NOTES:

5. ALL EXISTING AND PROPOSED LATERAL CONNECTIONS SHALL HAVE CONCRETE COLLARS.
6. INLET STATION AND OFFSET CALL OUTS ARE TO CENTER FACE OF INLETS.
7. ALL MANHOLE LIDS FOR INLETS AND MANHOLES SHALL BE LOCKING AS PER DETAIL ON MISCELLANEOUS DETAILS SHEET 1.
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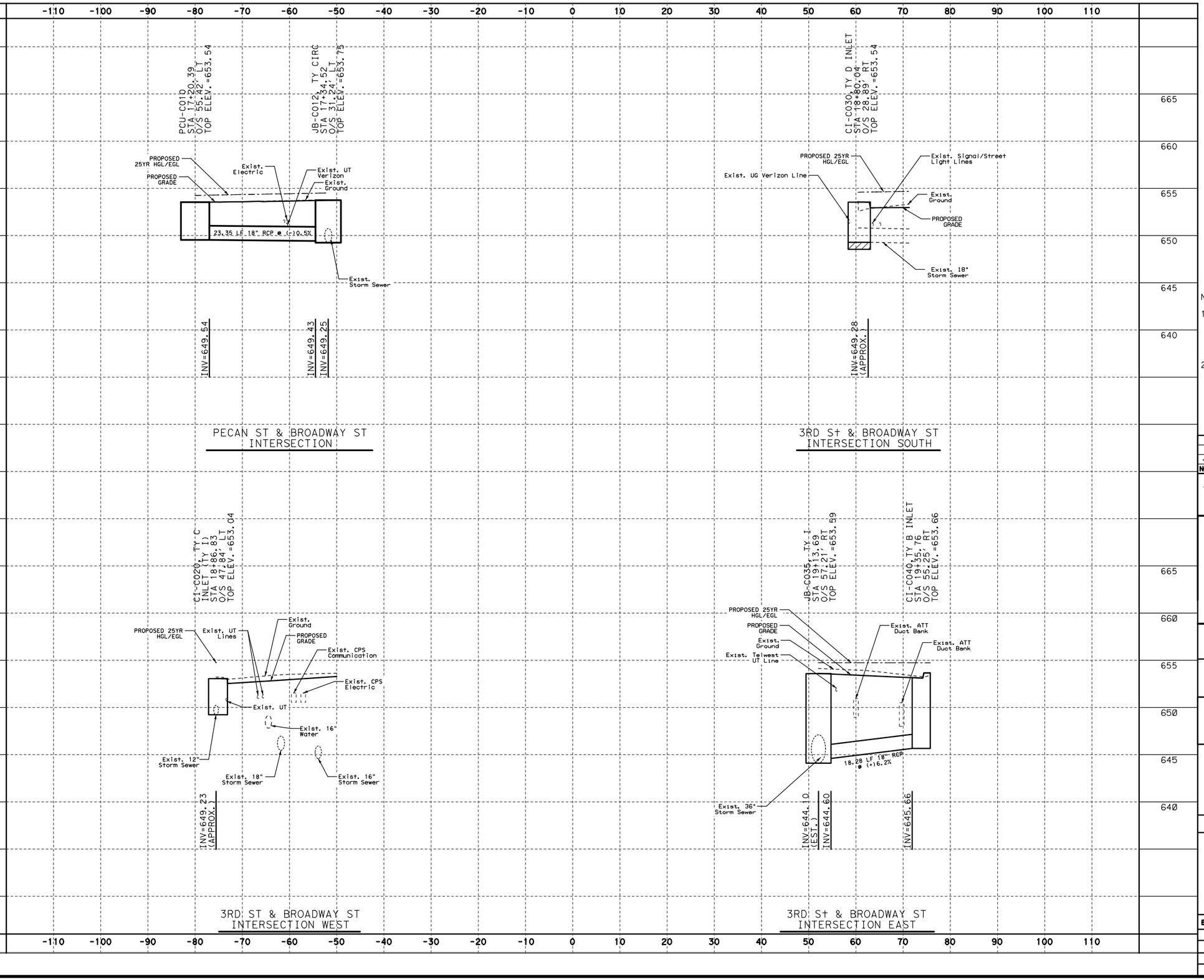

NOTES:

1. ALL EXISTING STORM DRAIN LATERAL AND PROPOSED UNDERDRAIN TIE-INS SHALL BE INSTALLED WITH A CONCRETE COLLAR. SEE DRAINAGE DETAIL SHEET FOR COLLAR DETAIL.
2. EGL ELEVATIONS ARE SET EQUAL TO HGL ELEVATIONS FOR ALL INLETS AND JUNCTIONS THAT USED ADJUSTED SURFACE FLOW ELEVATIONS FROM THE XPSWMM MODEL.

NO	DATE	REVISION	APPROVED
-	-	-	-

GRAPHIC SCALE (IN FEET)
10 5 0 10 20 30
1" = 20'

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Suite 400
San Antonio, Texas 78205
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CITY OF SAN ANTONIO
PUBLIC WORKS DEPARTMENT

BROADWAY ST

STORM SYSTEM LATERAL PROFILES

BROADWAY STREET
E PECAN ST TO 4TH ST

BRDWY-DRNG-XSEC-001.dgn **SHEET 1 OF 3**

SUBMITTAL	PROJECT NUMBER	DATE
100%	23-01561	8/28/2020

DRWN BY:	DSGN BY:	CHKD BY:	SHEET NO.
			167

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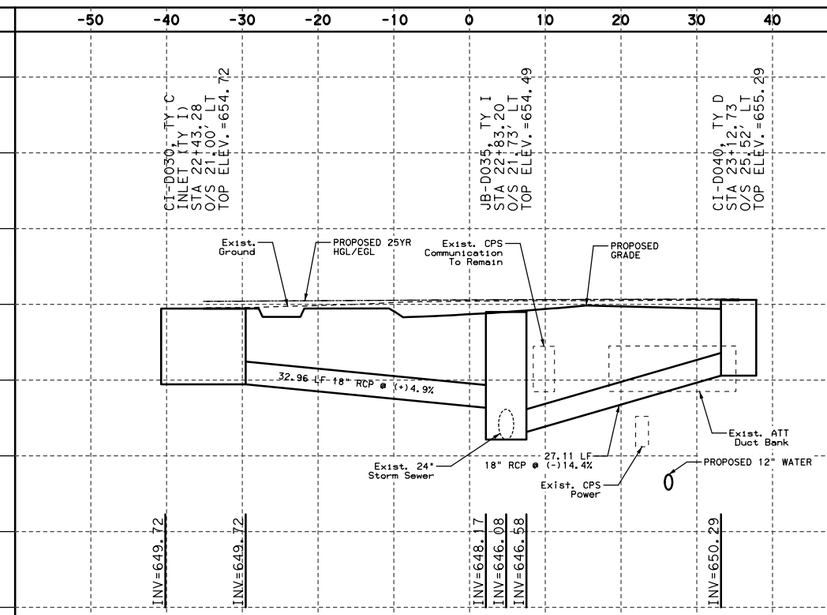

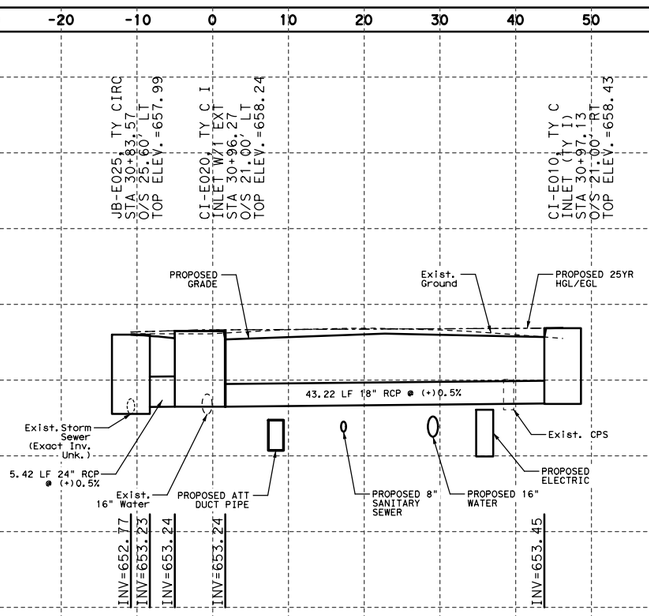

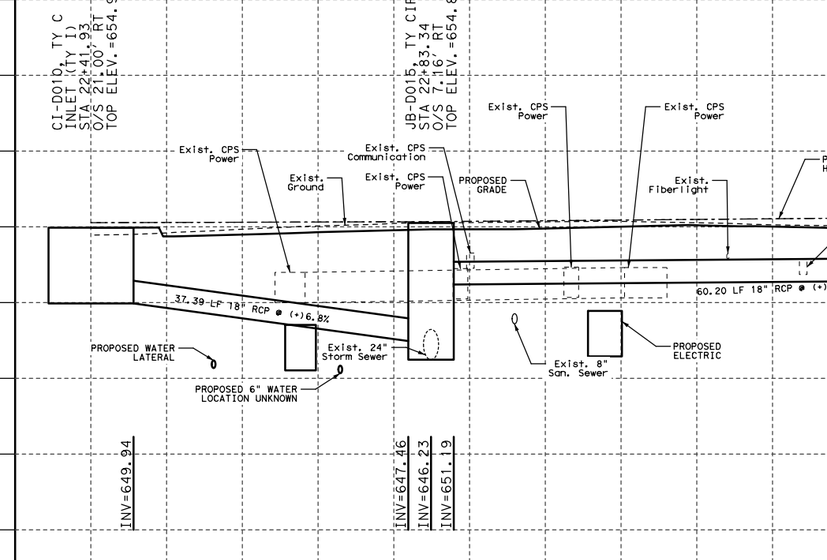

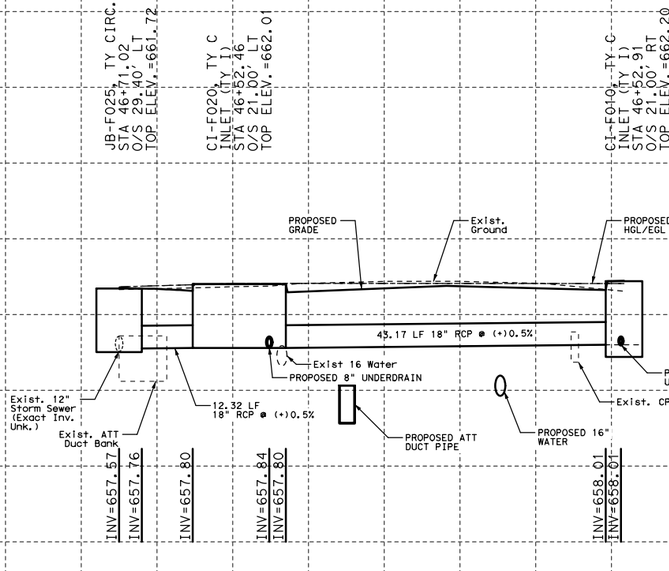

NOTES:

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2. EGL ELEVATIONS ARE SET EQUAL TO HGL ELEVATIONS FOR ALL INLETS AND JUNCTIONS THAT USED ADJUSTED SURFACE FLOW ELEVATIONS FROM THE XPSWMM MODEL.

NO	DATE	REVISION	APPROVED
-	-	-	-

GRAPHIC SCALE (IN FEET)
10 5 0 10 20 30
1" = 20'

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CITY OF SAN ANTONIO
PUBLIC WORKS DEPARTMENT

BROADWAY ST

STORM SYSTEM LATERAL PROFILES

BROADWAY STREET
4TH ST TO JONES AVE

BRDWY-DRNG-XSEC-002.dgn			SHEET 2 OF 3
SUBMITTAL	PROJECT NUMBER		DATE
100%	23-01561		8/28/2020
DRWN BY:	DSGN BY:	CHKD BY:	SHEET NO.
			168

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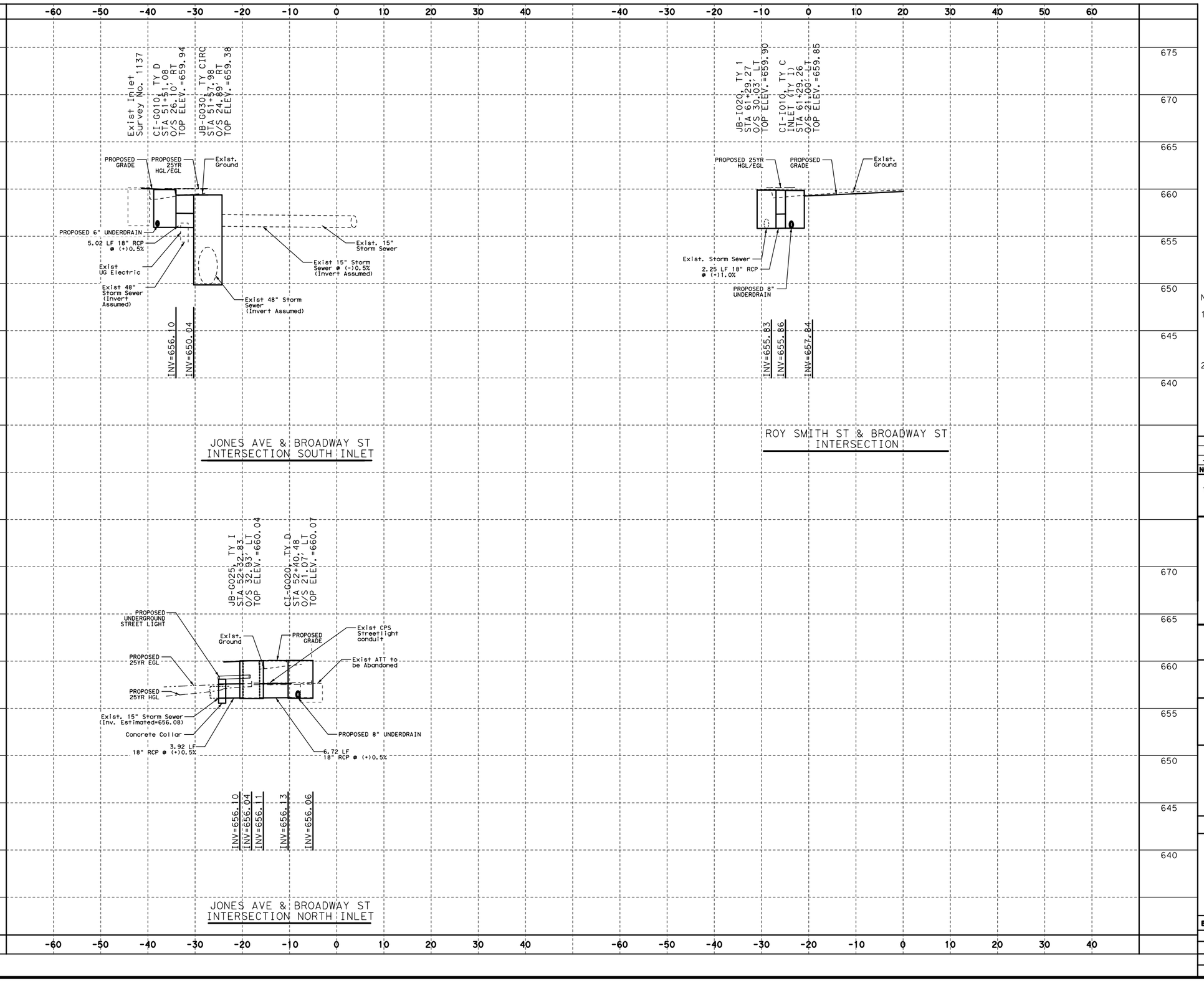

NOTES:

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NO	DATE	REVISION	APPROVED
-	-	-	-

GRAPHIC SCALE (IN FEET)
10 5 0 10 20 30
1" = 20'

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DWAYNE S. HAMILTON	80967	8/28/2020

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CITY OF SAN ANTONIO
PUBLIC WORKS
DEPARTMENT

BROADWAY ST

STORM SYSTEM LATERAL PROFILES

BROADWAY STREET
E JONES AVE TO ROY SMITH ST

BRDWY-DRNG-XSEC-003.dgn			SHEET 3 OF 3
SUBMITTAL	PROJECT NUMBER		DATE
100%	23-01561		8/28/2020
DRWN BY:	DSGN BY:	CHKD BY:	SHEET NO.
			169

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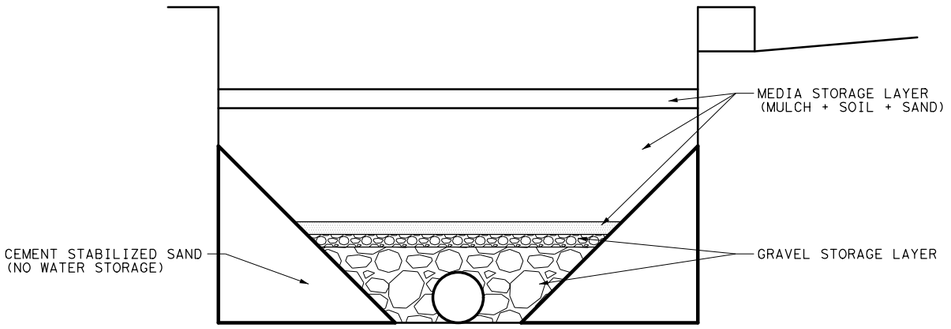
IMPERVIOUS AREA CALCULATIONS (RUNOFF "C" VALUE)

	Slope		> 1% to ≤ 3%	> 1% to ≤ 3%	> 1% to ≤ 3%	> 1% to ≤ 3%	> 1% to ≤ 3%	> 1% to ≤ 3%	> 1% to ≤ 3%	
			Undeveloped - Forest or Range (Grass Cover > 75% of Area)	Undeveloped - Range (Grass Cover 50 - 75% of Area)	Large Lot Residential - R20, RE	Average Residential - R-5, R-6	Closely Built Residential and Schools - MF, R-4	Densely Developed Areas - D, MXD, NC, TOD, TND	Business or Commercial Areas - Pavement / Buildings, O, C, I-1, I-2	
Development Condition	Drainage Area	Area (ac)	0.39	0.41	0.57	0.67	0.77	0.88	0.96	Composite Runoff Coefficient
UD	F010	2.05	0.01						2.04	0.96
UD	F020	0.56	0.01						0.56	0.95
UD	G010	5.13	0.02	1.19			0.34	0.62	2.96	0.81
UD	G020	0.56	0.03						0.53	0.93
UD	G022	0.08							0.08	0.96
UD	G024	0.02	0.00						0.02	0.91
UD	I010	0.24	0.02						0.22	0.91
UD	I012	0.17							0.17	0.96
UD	I014	0.13	0.02						0.11	0.89



TYPICAL BIORETENTION SECTION

NOT TO SCALE
REFER TO BIORETENTION BED DETAILS IN
HARDSCAPE PLANS FOR FURTHER DETAIL

WATER QUALITY CAPACITY OF SECTION =
SF AREA MEDIA SORAGE AREA * AVG POROSITY OF MEDIA (0.35)
+ SF AREA GRAVEL STORAGE AREA * AVG POROSITY OF GRAVEL (0.40)
+ BED WIDTH * ALLOWED PONDING DEPTH (0.5')

WATER QUALITY VOLUME CALCULATIONS

							WQV Supplied			
LID Ty	LID DA	WQV Demand (cf)	C Value	Px, Rainfall Depth Treated (in.)	DA Area (sf)	DA Area (ac)	Total BMP SA (sq ft)	Typical Feature Width (ft)	Approx. WQV Per 100 SF Bed Feature (CF)	WQV Supplied (cf)
BioRet	F010	500	0.96	0.07	89459.0	2.05	410.1	4.33	122	500
BioRet	F020	331	0.95	0.17	24481.2	0.56	260.9	6.33	131	342
BioRet	G010	1008	0.81	0.07	223299.4	5.13	831	4.33	122	1014
BioRet	G020	1543	0.93	0.82	24226.1	0.56	1188.4	6.33	131	1557
PP	G022	249	0.96	0.85	3650.4	0.08	632.5	7.25	2.5	250
BioRet	G024	104	0.91	1.62	848.6	0.02	80.3	6.33	131	105
BioRet	I010	1234	0.91	1.57	10384.3	0.24	945.2	Varies	131	1238
PP	I012	302	0.96	0.51	7391.4	0.17	768.0	7.25	3.0	304
BioRet	I014	907	0.89	2.15	5679.7	0.13	693.6	6.33	131	909

NOTES:

DUE TO THE SET LOCATIONS AND DIMENSIONS OF THE BIORETENTION CELLS,
THESE CALCULATIONS ARE PROVIDED TO SHOW THE ACTUAL RAINFALL DEPTHS
AND ACTUAL VOLUME TREATED PER THE INDIVIDUAL CONTRIBUTING DRAINAGE AREA.
BIORETENTION CELLS WERE GROUPED IN THE CALCULATIONS FOR EACH INDIVIDUAL AREAS.

NO	DATE	REVISION	APPROVED
-	-	-	-

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DWAYNE S. HAMILTON 80967 8/28/2020
NAME P.E. DATE

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112 Pecan Street
Suite 400
San Antonio, Texas 78205
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CITY OF SAN ANTONIO
PUBLIC WORKS DEPARTMENT

BROADWAY ST

LID FEATURE COMPUTATIONS

BRDWY-LID-CALCS.dgn			SHEET 1 OF 1
SUBMITTAL	PROJECT NUMBER		DATE
100%	23-01561		8/28/2020
DRWN BY:	DSGN BY:	CHKD BY:	SHEET NO.
			172

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LEGEND

- DRAINAGE FLOW ARROW
- FLOW OF CHANNEL
- LID DRAINAGE AREA BOUNDARY
- XXXX / XX.XX — DRAINAGE AREA IDENTIFICATION / DRAINAGE AREA (ACRES)
- HP — HIGH POINT
- LP — LOW POINT
- CHANNEL
- BIORETENTION BED
- PERMEABLE PAVING

NO	DATE	REVISION	APPROVED
-	-	-	-

50 25 0 50 100 150

1" = 100'

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SUNDT

CITY OF SAN ANTONIO
PUBLIC WORKS
DEPARTMENT

BROADWAY ST

LID DRAINAGE AREA MAP

BROADWAY STREET

BRDWY-DRNG-LID-DA-001.dgn			SHEET 1 OF 2
SUBMITTAL	PROJECT NUMBER		DATE
100%	23-01561		8/28/2020
DRWN BY:	DSGN BY:	CHKD BY:	SHEET NO.
			173

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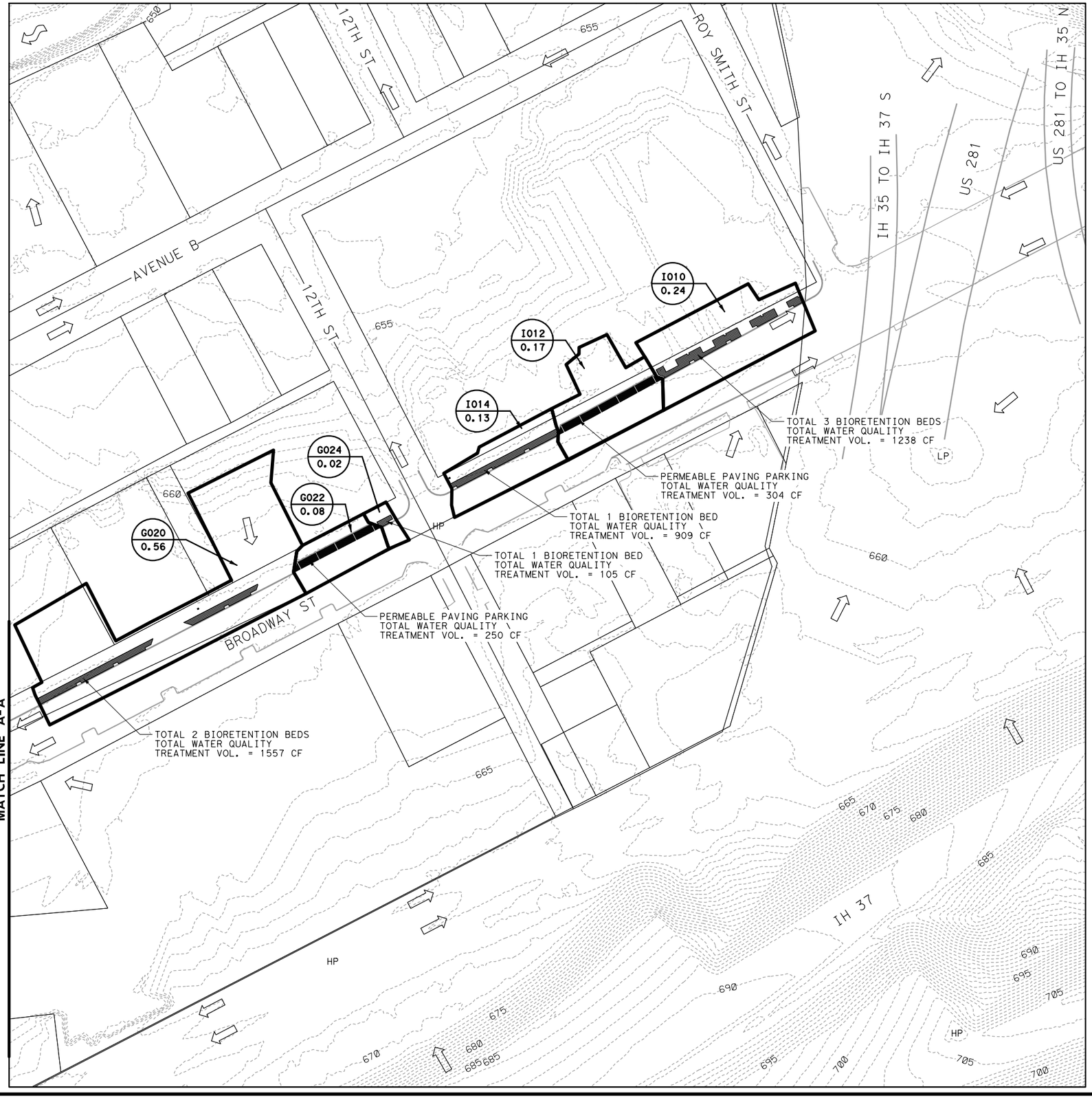

LEGEND

- DRAINAGE FLOW ARROW
- FLOW OF CHANNEL
- LID DRAINAGE AREA BOUNDARY
- XXXX / XX.XX — DRAINAGE AREA IDENTIFICATION / DRAINAGE AREA (ACRES)
- HP — HIGH POINT
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- CHANNEL
- BIORETENTION BED
- PERMEABLE PAVING

NO	DATE	REVISION	APPROVED
-	-	-	-

50 25 0 50 100 150

1" = 100'

PRELIMINARY
FOR REVIEW ONLY

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NAME	P.E.	DATE
DWAYNE S. HAMILTON	80967	8/28/2020

MAESTAS
11550 IH 10 WEST, STE. 350
SAN ANTONIO, TX 78230
(210) 366-1988
TBPE No.: F-333
TBPLS No.: 10194506

AECOM
AECOM Technical Services Inc. F- 3580
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Suite 400
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PUBLIC WORKS DEPARTMENT

BROADWAY ST

LID DRAINAGE AREA MAP

BROADWAY STREET

BRDWY-DRNG-LID-DA-002.dgn — SHEET 2 OF 2

SUBMITTAL	PROJECT NUMBER	DATE
100%	23-01561	8/28/2020

DRWN BY:	DSGN BY:	CHKD BY:	SHEET NO.
			174

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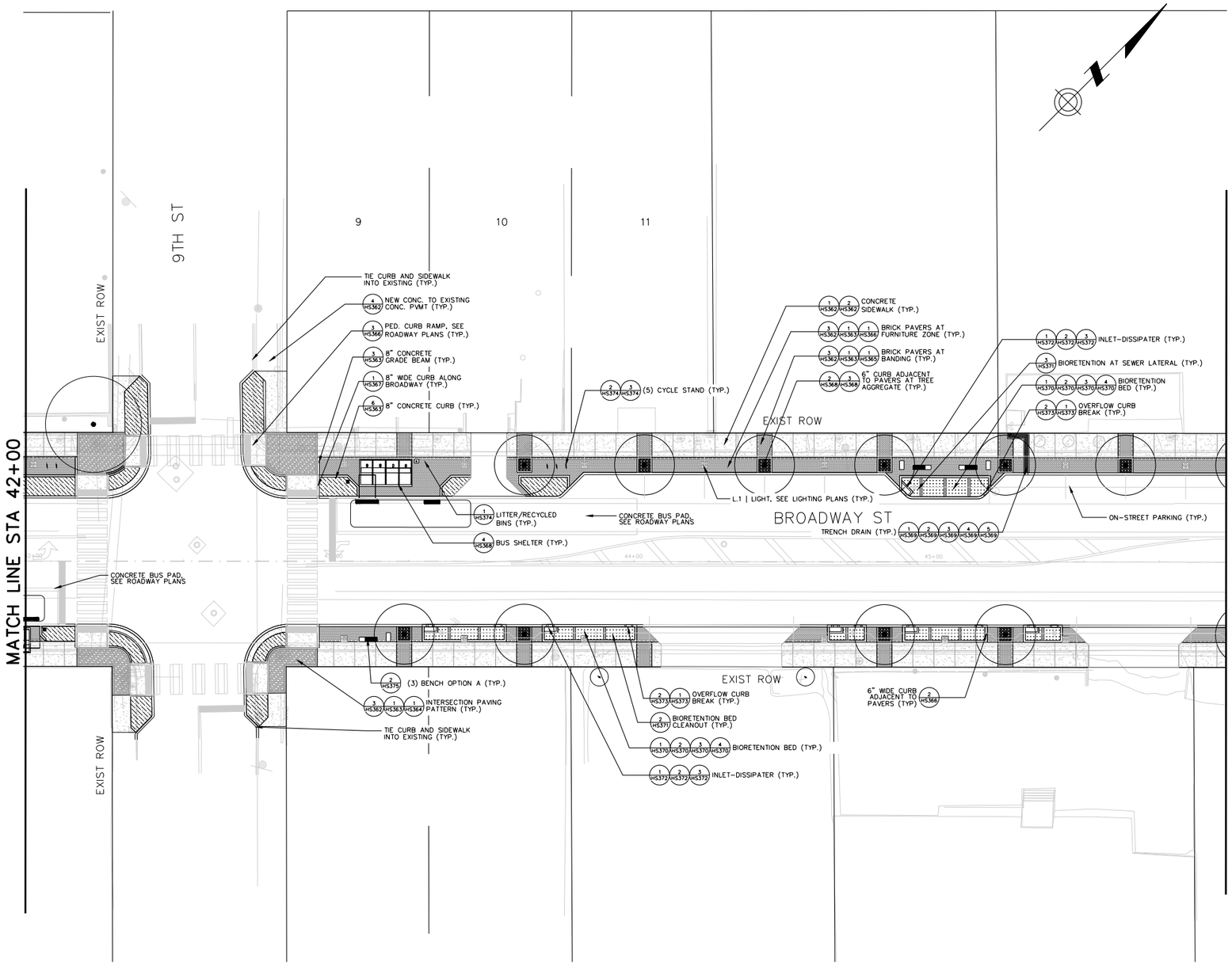

PLAN VIEW LEGEND

- BRICK PAVERS– RUNNINGBOND PATTERN PARALLEL TO DIRECTION OF TRAVEL
- BRICK PAVERS– RUNNINGBOND PATTERN PERPENDICULAR TO DIRECTION OF TRAVEL
- BRICK PAVERS– CORNER TREATMENTS AT INTERSECTIONS
- BRICK PAVERS– HERRINGBONE PATTERN
- PERMEABLE PAVERS– HERRINGBONE PATTERN
- LANDSCAPE BED
- BIORETENTION BED
- NEW LIGHT
- RECYCLE BIN
- TRASH BIN
- BENCH A – REF. 2/HS057
- BENCH B – REF. 1/HS058
- BENCH C – REF. 2/HS058
- BENCH D – REF. 1/HS059
- NEW CYCLE STAND
- AGGREGATE AT TREEWELL

CAUTION: CONTRACTOR TO REFER TO HISTORIC PRESERVATION SHEETS

NO	DATE	REVISION	APPROVED
-	-	-	-

GRAPHIC SCALE (IN FEET)
20 10 0 20 40 60
1" = 40'

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201 GROVETON
San Antonio, Texas 78210
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CITY OF SAN ANTONIO
TRANSPORTATION & CAPITAL IMPROVEMENTS

BROADWAY ST

HARDSCAPE PLAN

BROADWAY STREET
STA 42+00.00 TO STA 46+00.00

BRDWY-HARDSCAPE PLAN.DWG			SHEET 344 OF 412
SUBMITTAL	PROJECT NUMBER		DATE
100% CD'S	19000		8/27/2020
DRWN BY:	DSGN BY:	CHKD BY:	SHEET NO.
DO	DO	MP	HS 344

PLOTTED ON: 8/27/20 @ 4:29:47 PM
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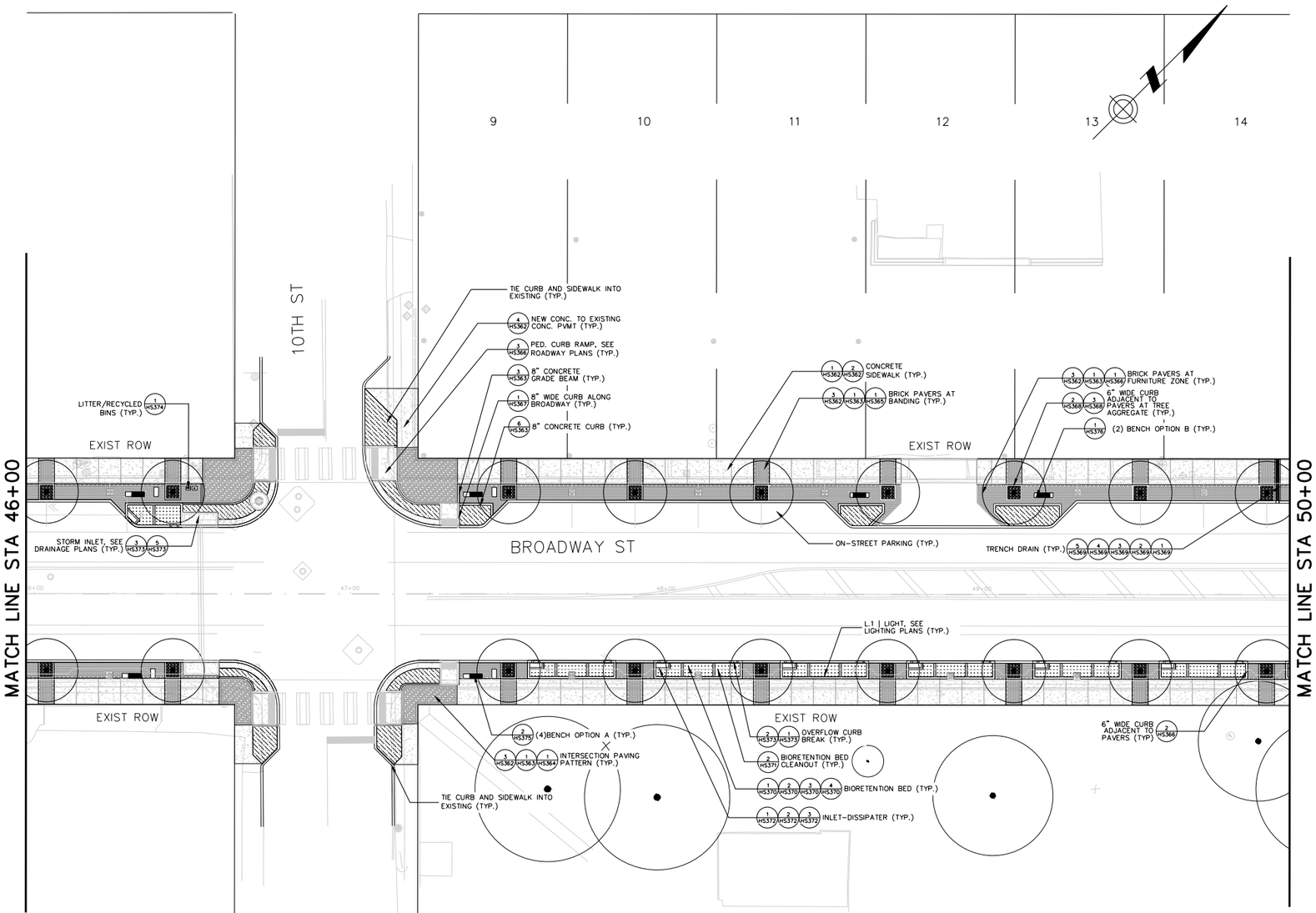

PLAN VIEW LEGEND

- BRICK PAVERS– RUNNINGBOND PATTERN PARALLEL TO DIRECTION OF TRAVEL
- BRICK PAVERS– RUNNINGBOND PATTERN PERPENDICULAR TO DIRECTION OF TRAVEL
- BRICK PAVERS– CORNER TREATMENTS AT INTERSECTIONS
- BRICK PAVERS– HERRINGBONE PATTERN
- PERMEABLE PAVERS– HERRINGBONE PATTERN
- LANDSCAPE BED
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- NEW LIGHT
- RECYCLE BIN
- TRASH BIN
- BENCH A – REF. 2/HS057
- BENCH B – REF. 1/HS058
- BENCH C – REF. 2/HS058
- BENCH D – REF. 1/HS059
- NEW CYCLE STAND
- AGGREGATE AT TREEWELL

CAUTION: CONTRACTOR TO REFER TO HISTORIC PRESERVATION SHEETS

NO	DATE	REVISION	APPROVED
-	-	-	-

GRAPHIC SCALE (IN FEET)
20 10 0 20 40 60
1" = 40'

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TRANSPORTATION & CAPITAL IMPROVEMENTS

BROADWAY ST

HARDSCAPE PLAN

BROADWAY STREET
STA 46+00.00 TO STA 50+00.00

BRDWY-HARDSCAPE PLAN.DWG			SHEET 345 OF 412
SUBMITTAL	PROJECT NUMBER		DATE
100% CD'S	19000		8/27/2020
DRWN BY:	DSGN BY:	CHKD BY:	SHEET NO.
DO	DO	MP	HS 345

PLOTTED ON: 8/27/20 @ 4:29:47 PM
DESIGN FILENAME: Z:\00 PROJECTS\BROADWAY PHASE I (19000)\04 CD\SHEETS\03-LS\BRDWY-HARDSCAPE PLAN.DWG

PLOTTED ON: 8/14/20 @ 4:29:47 PM
DESIGN FILENAME: Z:\00 PROJECTS\BROADWAY PHASE I (19000)\04 CD\SHEETS\03-LS\BRDWY-HARDSCAPE PLAN.DWG

PLAN VIEW LEGEND

- BRICK PAVERS– RUNNINGBOND PATTERN PARALLEL TO DIRECTION OF TRAVEL
- BRICK PAVERS– RUNNINGBOND PATTERN PERPENDICULAR TO DIRECTION OF TRAVEL
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- BENCH C – REF. 2/HS058
- BENCH D – REF. 1/HS059
- NEW CYCLE STAND
- AGGREGATE AT TREEWELL

CAUTION: CONTRACTOR TO REFER TO HISTORIC PRESERVATION SHEETS

NO	DATE	REVISION	APPROVED
-	-	-	-

GRAPHIC SCALE (IN FEET)
20 10 0 20 40 60
1" = 40'

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112 Pecan Street
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(214) 741-7777

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TRANSPORTATION & CAPITAL IMPROVEMENTS

BROADWAY ST

HARDSCAPE PLAN

BROADWAY STREET
STA 50+00.00 TO STA 54+00.00

BRDWY-HARDSCAPE PLAN.DWG			SHEET 346 OF 412
SUBMITTAL	PROJECT NUMBER		DATE
100% CD'S	19000		8/27/2020
DRWN BY:	DSGN BY:	CHKD BY:	SHEET NO.
DO	DO	MP	HS 346

PLOTTED ON: 8/27/20 @ 4:29:47 PM
DESIGN FILENAME: Z:\00 PROJECTS\BROADWAY PHASE I (19000)\04 CD\SHEETS\03-LSIBRDWY-HARDSCAPE PLAN.DWG

PLOTTED ON: 8/14/20 @ 4:29:47 PM
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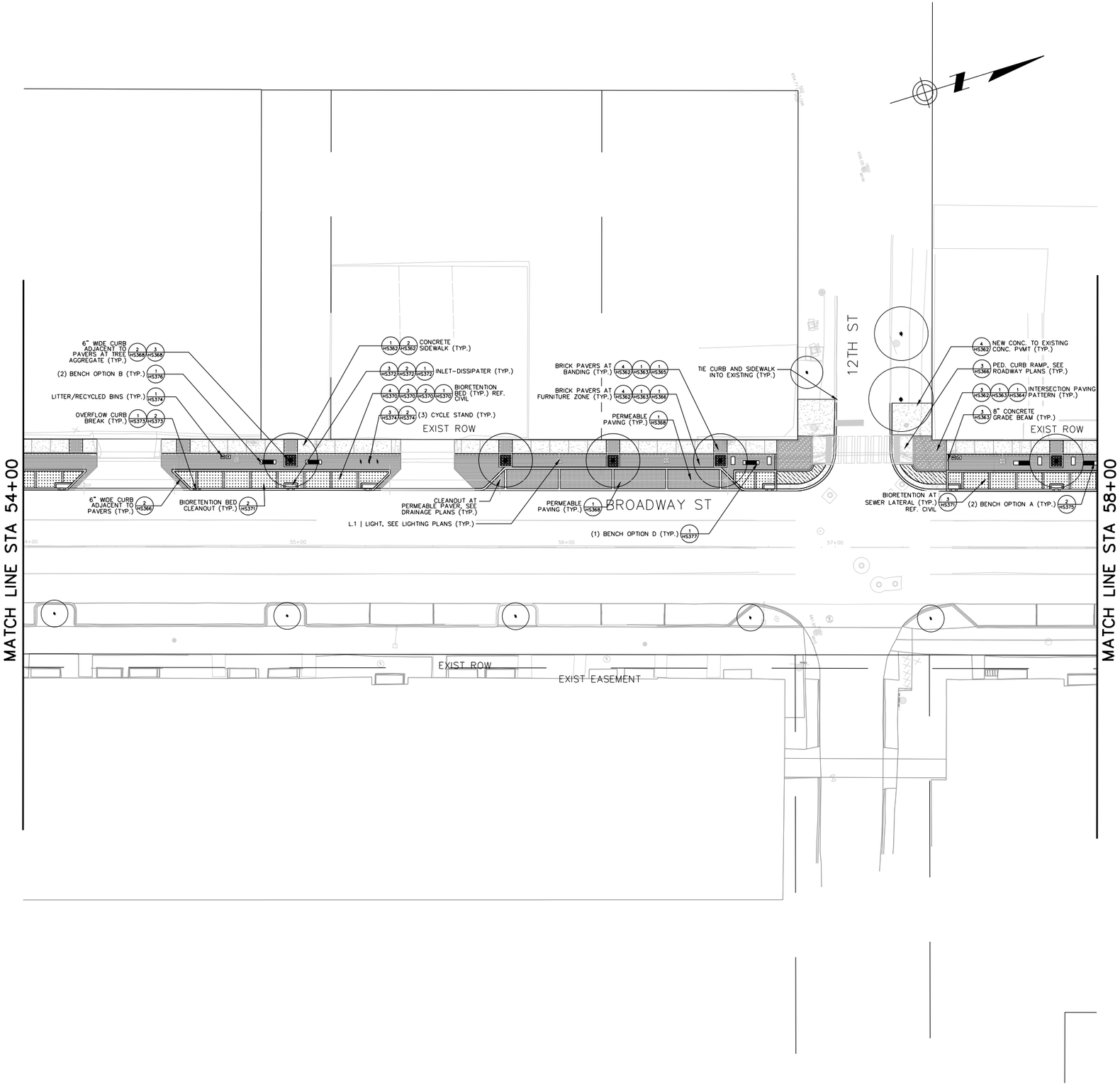

PLAN VIEW LEGEND

- BRICK PAVERS– RUNNINGBOND PATTERN PARALLEL TO DIRECTION OF TRAVEL
- BRICK PAVERS– RUNNINGBOND PATTERN PERPENDICULAR TO DIRECTION OF TRAVEL
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- BENCH B – REF. 1/HS058
- BENCH C – REF. 2/HS058
- BENCH D – REF. 1/HS059
- NEW CYCLE STAND
- AGGREGATE AT TREEWELL

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NO	DATE	REVISION	APPROVED
-	-	-	-

GRAPHIC SCALE (IN FEET)
20 10 0 20 40 60
1" = 40'

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112 Pecan Street
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San Antonio, Texas 78205
(214) 741-7777

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TRANSPORTATION & CAPITAL IMPROVEMENTS

BROADWAY ST

HARDSCAPE PLAN

BROADWAY STREET
STA 54+00.00 TO STA 58+00.00

BRDWY-HARDSCAPE PLAN.DWG		SHEET 347 OF 412	
SUBMITTAL	PROJECT NUMBER		DATE
100% CD'S	19000		8/27/2020
DRWN BY:	DSGN BY:	CHKD BY:	SHEET NO.
DO	DO	MP	HS 347

PLOTTED ON: 8/27/20 @ 4:29:47 PM
DESIGN FILENAME: Z:\00 PROJECTS\BROADWAY PHASE I (19000)\04 CD\SHEETS\03-LS\BRDWY-HARDSCAPE PLAN.DWG

PLOTTED ON: 8/14/20 @ 4:29:47 PM
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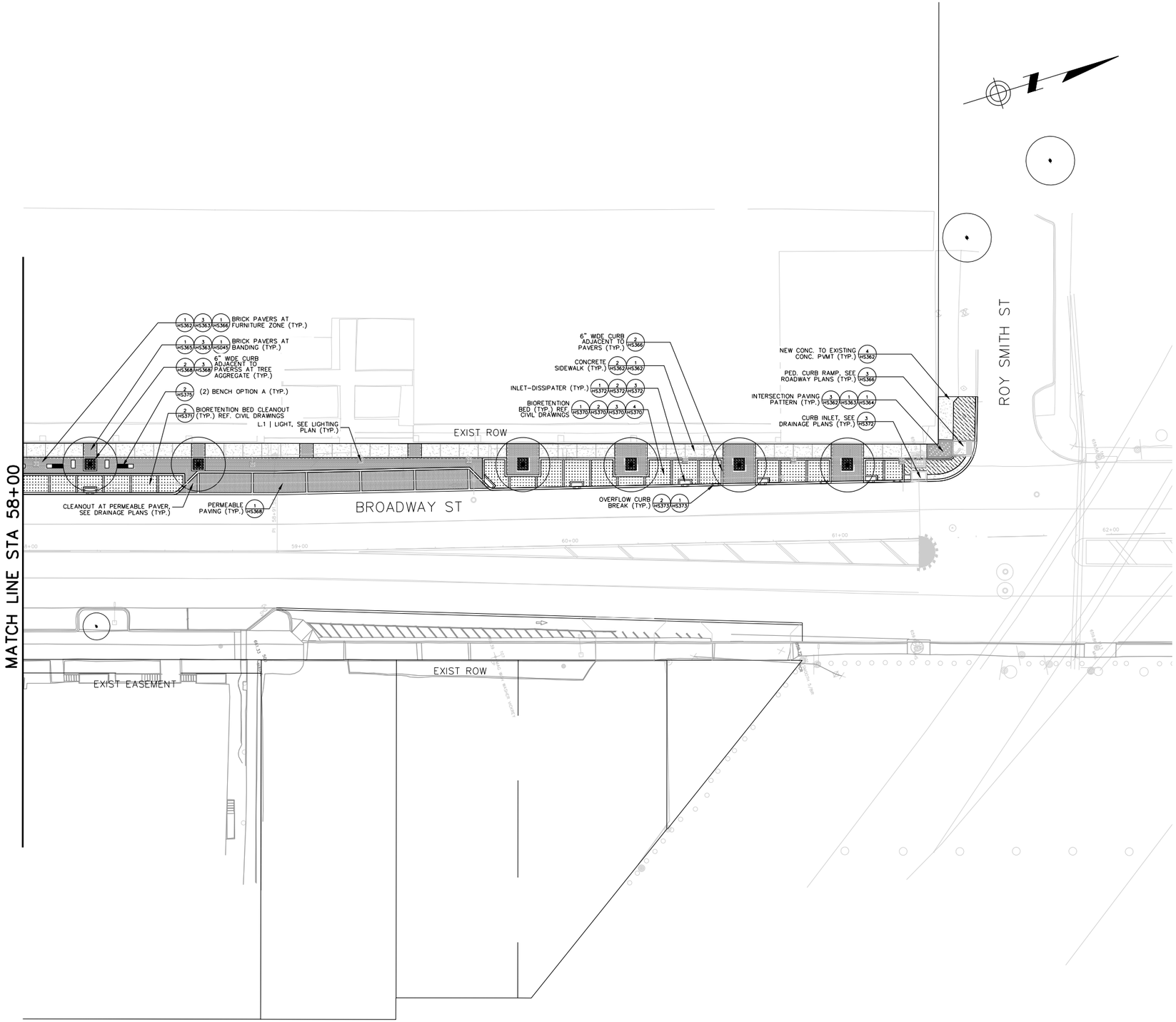

PLAN VIEW LEGEND

- BRICK PAVERS- RUNNINGBOND PATTERN PARALLEL TO DIRECTION OF TRAVEL
- BRICK PAVERS- RUNNINGBOND PATTERN PERPENDICULAR TO DIRECTION OF TRAVEL
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NO	DATE	REVISION	APPROVED
-	-	-	-

GRAPHIC SCALE (IN FEET)
20 10 0 20 40 60
1" = 40'

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San Antonio, Texas 78210
(210) 314-5582

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AECOM Technical Services Inc. F- 3580
112 Pecan Street
Suite 400
San Antonio, Texas 78205
(214) 741-7777

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TRANSPORTATION & CAPITAL IMPROVEMENTS

BROADWAY ST

HARDSCAPE PLAN

BROADWAY STREET
STA 58+00.00 TO END PROJECT

BRDWY-HARDSCAPE PLAN.DWG		SHEET 348 OF 412	
SUBMITTAL	PROJECT NUMBER		DATE
100% CD'S	19000		8/27/2020
DRWN BY:	DSGN BY:	CHKD BY:	SHEET NO.
DO	DO	MP	HS 348

PLOTTED ON: 8/27/20 @ 4:29:47 PM
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PLOTTED ON: 8/14/20 @ 4:29:47 PM
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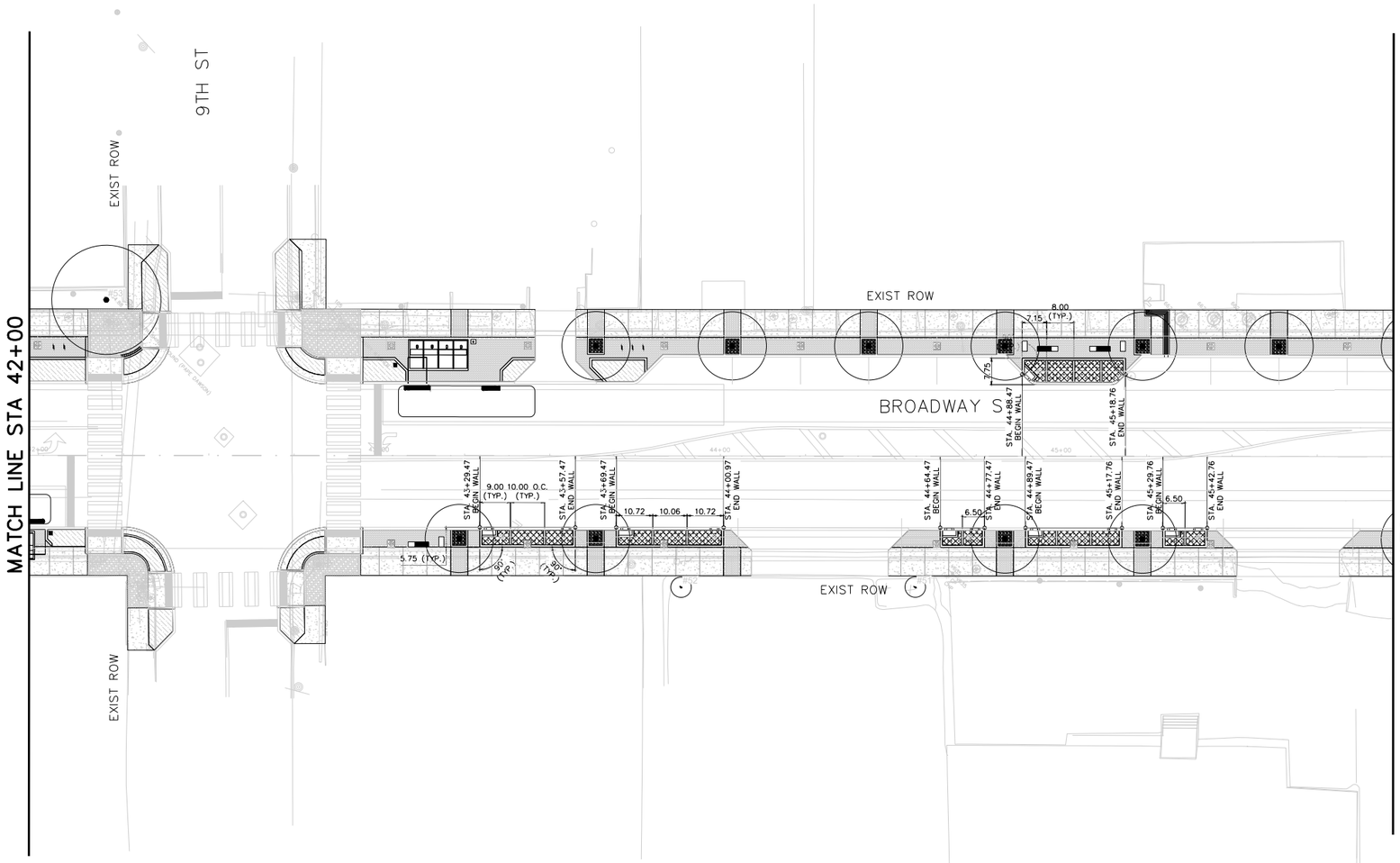

NO	DATE	REVISION	APPROVED
-	-	-	-

GRAPHIC SCALE (IN FEET)

20 10 0 20 40 60

1" = 40'

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(210) 314-5582

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112 Pecan Street
Suite 400
San Antonio, Texas 78205
(214) 741-7777

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CITY OF SAN ANTONIO
TRANSPORTATION & CAPITAL IMPROVEMENTS

BROADWAY ST

BIORETENTION BED WALL LAYOUT PLAN

BROADWAY STREET
STA 42+00.00 TO STA 46+00.00

BRDWY-LID PLAN.DWG			SHEET 357 OF 412
SUBMITTAL	PROJECT NUMBER		DATE
100% CD'S	19000		8/27/2020
DRWN BY:	DSGN BY:	CHKD BY:	SHEET NO.
DO	DO	MP	HS 357

PLOTTED ON: 8/27/20 @ 4:37:57 PM
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PLOTTED ON: 8/14/20 @ 4:37:57 PM
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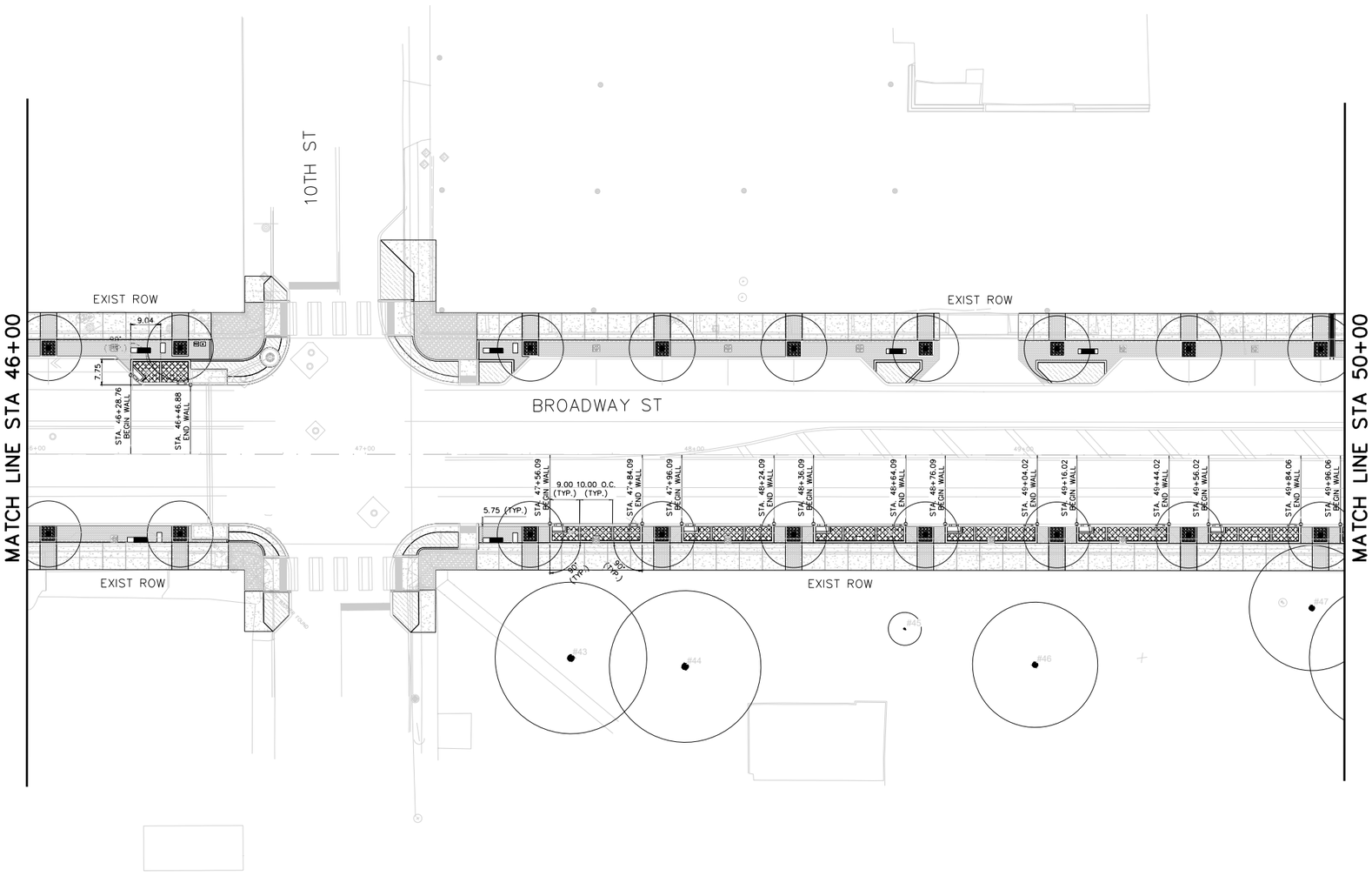

NO	DATE	REVISION	APPROVED
-	-	-	-

GRAPHIC SCALE (IN FEET)

20 10 0 20 40 60

1" = 40'

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112 Pecan Street
Suite 400
San Antonio, Texas 78205
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TRANSPORTATION & CAPITAL IMPROVEMENTS

BROADWAY ST

BIORETENTION BED WALL LAYOUT PLAN

BROADWAY STREET
STA 46+00.00 TO STA 50+00.00

BRDWY-LID PLAN.DWG			SHEET 358 OF 412
SUBMITTAL	PROJECT NUMBER		DATE
100% CD'S	19000		8/27/2020
DRWN BY:	DSGN BY:	CHKD BY:	SHEET NO.
DO	DO	MP	HS 358

PLOTTED ON: 8/27/20 @ 4:37:57 PM
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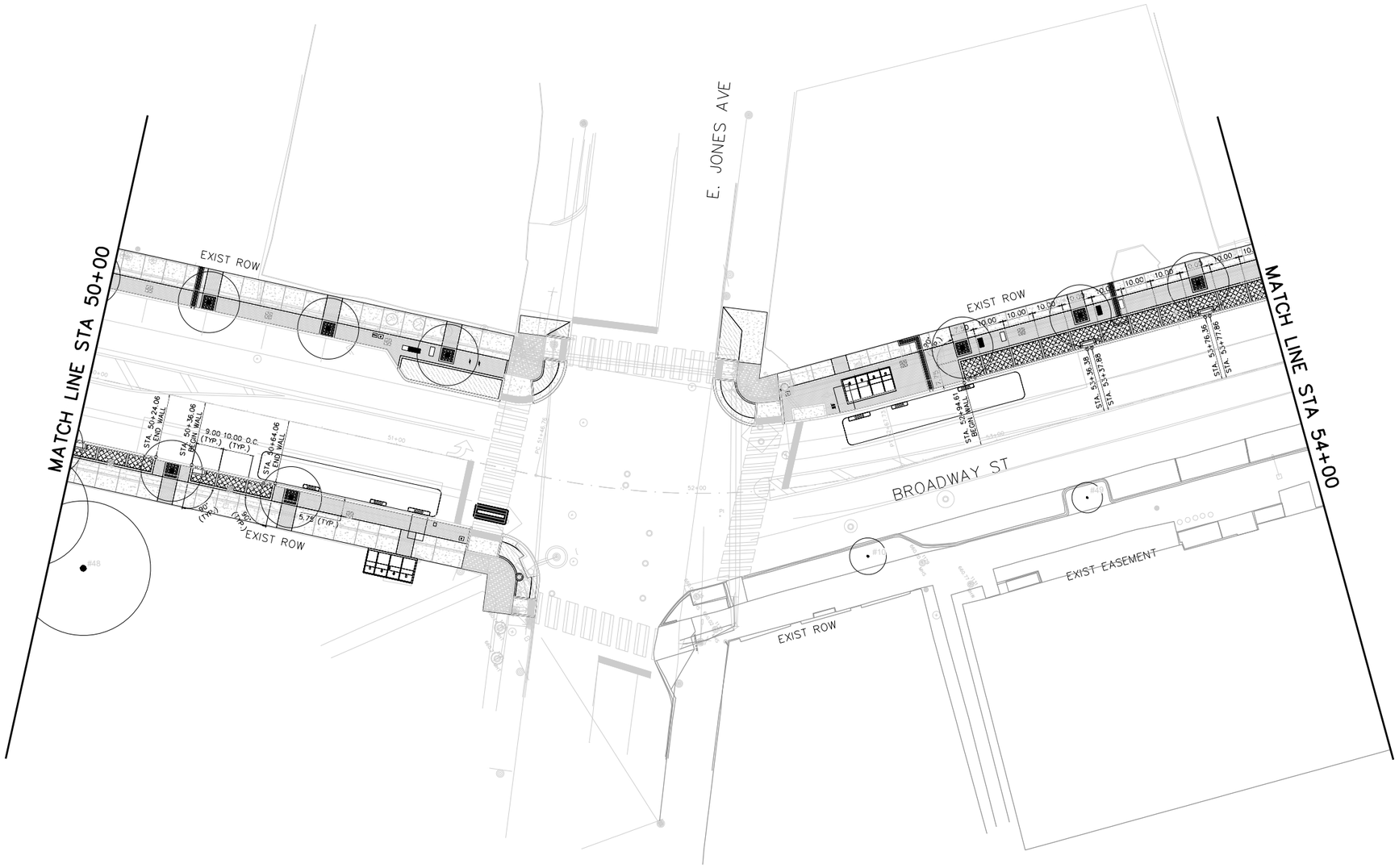

NO	DATE	REVISION	APPROVED
-	-	-	-

GRAPHIC SCALE (IN FEET)

20 10 0 20 40 60

1" = 40'

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TRANSPORTATION & CAPITAL IMPROVEMENTS

BROADWAY ST

BIORETENTION BED WALL LAYOUT PLAN

BROADWAY STREET
STA 50+00.00 TO STA 54+00.00

BRDWY-LID PLAN.DWG			SHEET 359 OF 412
SUBMITTAL	PROJECT NUMBER		DATE
100% CD'S	19000		8/27/2020
DRWN BY:	DSGN BY:	CHKD BY:	SHEET NO.
DO	DO	MP	HS 359

PLOTTED ON: 8/27/20 @ 4:37:57 PM
DESIGN FILENAME: Z:\00 PROJECTS\BROADWAY PHASE I (19000)\04 CD\SHEETS\03-LS\BRDWY-LID PLAN.DWG

PLOTTED ON: 8/14/20 @ 4:37:57 PM
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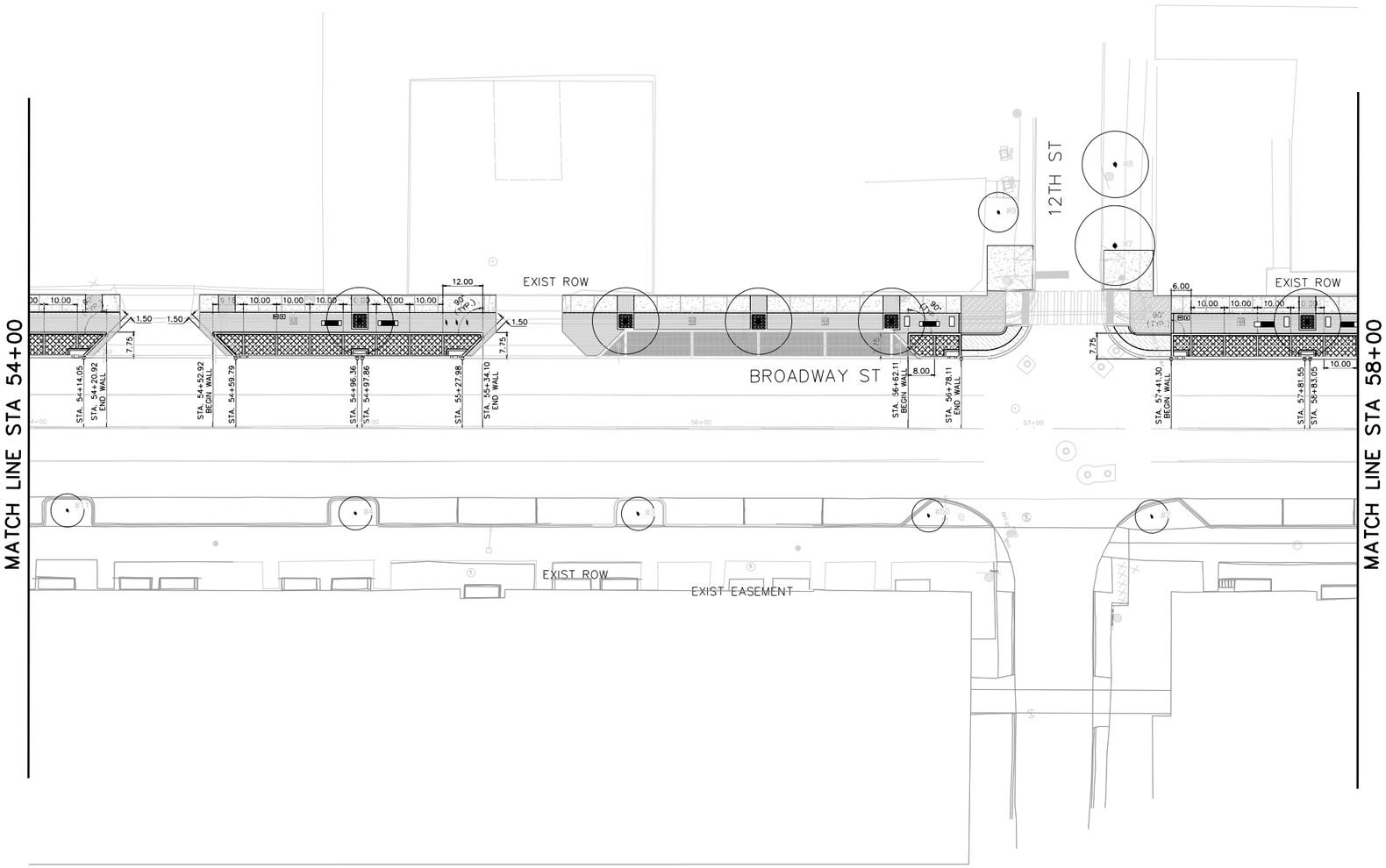

NO	DATE	REVISION	APPROVED
-	-	-	-

GRAPHIC SCALE (IN FEET)

20 10 0 20 40 60

1" = 40'

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CITY OF SAN ANTONIO
TRANSPORTATION & CAPITAL IMPROVEMENTS

BROADWAY ST

BIORETENTION BED WALL LAYOUT PLAN

BROADWAY STREET
STA 54+00.00 TO STA 58+00.00

BRDWY-LID PLAN.DWG			SHEET 360 OF 412
SUBMITTAL	PROJECT NUMBER		DATE
100% CD'S	19000		8/27/2020
DRWN BY:	DSGN BY:	CHKD BY:	SHEET NO.
DO	DO	MP	HS 360

PLOTTED ON: 8/27/20 @ 4:37:57 PM
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PLOTTED ON: 8/14/20 @ 4:37:57 PM
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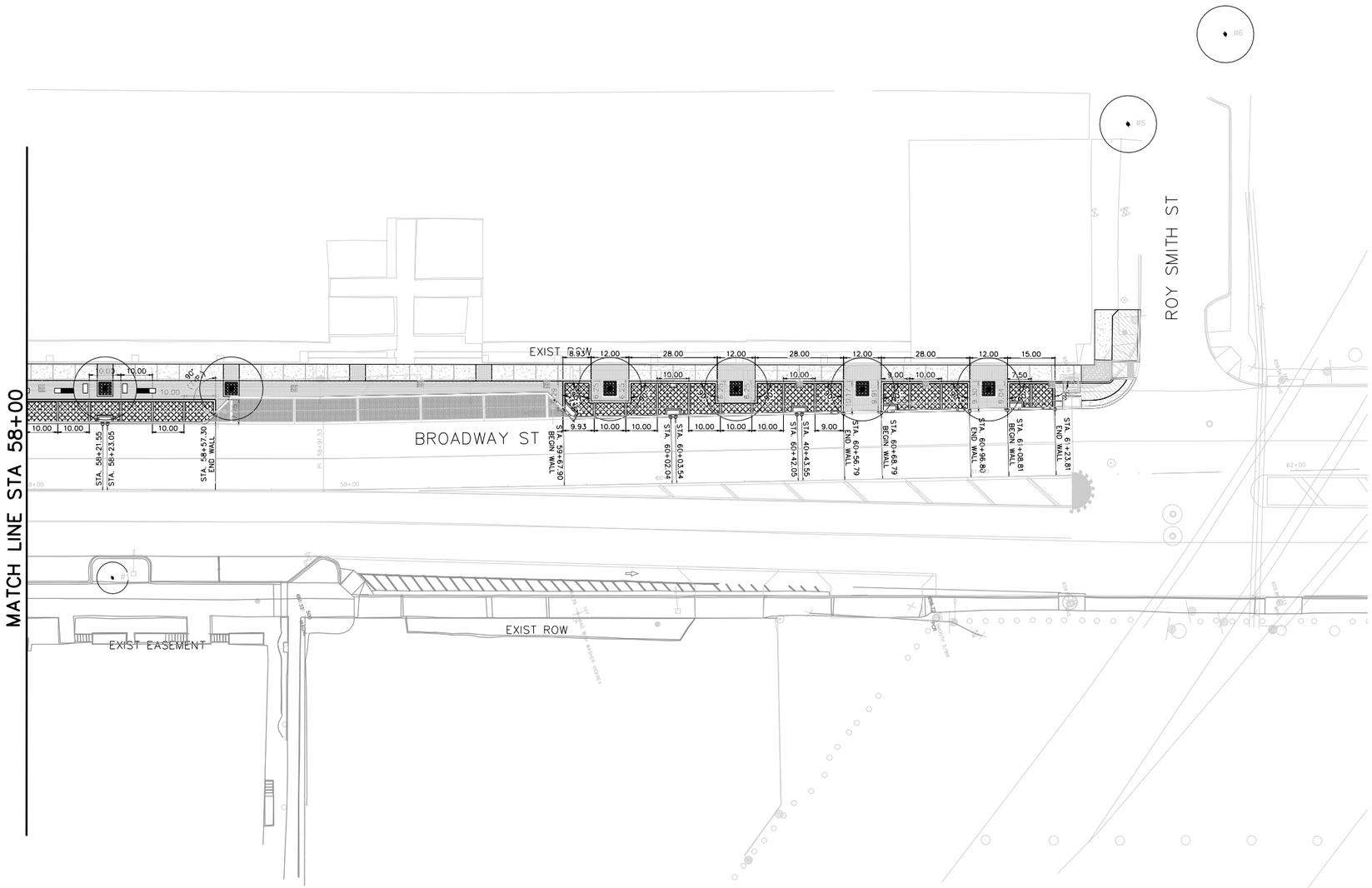

NO	DATE	REVISION	APPROVED
-	-	-	-

GRAPHIC SCALE (IN FEET)

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1" = 40'

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TRANSPORTATION & CAPITAL IMPROVEMENTS

BROADWAY ST

BIORETENTION BED WALL LAYOUT PLAN

BROADWAY STREET
STA 58+00.00 TO END PROJECT

BRDWY-LID PLAN.DWG			SHEET 361 OF 412
SUBMITTAL	PROJECT NUMBER		DATE
100% CD'S	19000		8/27/2020
DRWN BY:	DSGN BY:	CHKD BY:	SHEET NO.
DO	DO	MP	HS 361

PLOTTED ON: 8/27/20 @ 4:37:57 PM
DESIGN FILENAME: Z:\00 PROJECTS\BROADWAY PHASE I (19000)\04 CD\SHEETS\03-LS\BRDWY-LID PLAN.DWG

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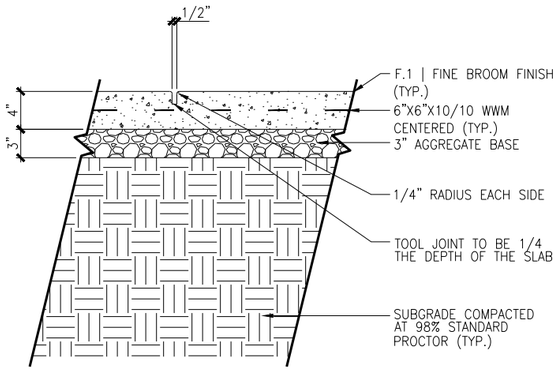
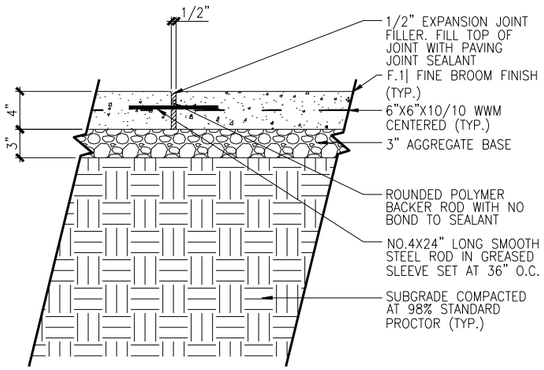


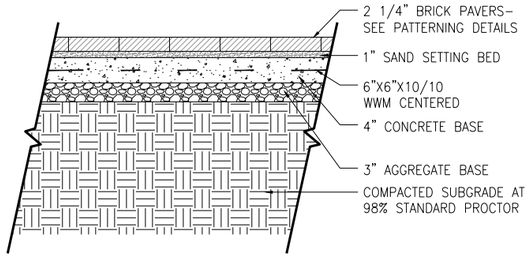
NOTE: FINE BROOM FINISH PERPENDICULAR TO PEDESTRIAN LINE OF TRAVEL (TYP.)

1 HS362 CONTROL JOINT – SIDEWALK
SCALE: 3/4" = 1'-0"



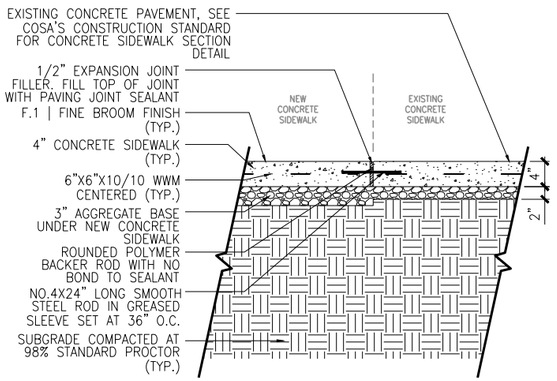
NOTE:
–FINE BROOM FINISH PERPENDICULAR TO PEDESTRIAN LINE OF TRAVEL (TYP.)
–CONCRETE EXPANSION JOINTS TO BE NO MORE THAN 30' O.C.

2 HS362 EXPANSION JOINT – SIDEWALK
SCALE: 3/4" = 1'-0"



NOTE:
–BRICK PAVER JOINTS TO BE SAND SWEPT WITH HIGH BOND POLYMERIC SAND PER MANUFACTURER SPECIFICATIONS
–BASIS OF DESIGN TO BE HP NEXTGEL JOINTING SAND BY TECHNISEAL OR APPROVED EQUAL

3 HS362 BRICK PAVERS
SCALE: 1/2"=1'-0"



NOTE: FINE BROOM FINISH PERPENDICULAR TO PEDESTRIAN LINE OF TRAVEL (TYP.)

4 HS362 NEW CONC. TO EXISTING CONC. PVMT.
SCALE: NOT TO SCALE

NO	DATE	REVISION	APPROVED
-	-	-	-

GRAPHIC SCALE (IN FEET)
20 10 0 20 40 60
1" = 40'

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TRANSPORTATION & CAPITAL IMPROVEMENTS

BROADWAY ST

HARDSCAPE DETAIL

BROADWAY STREET

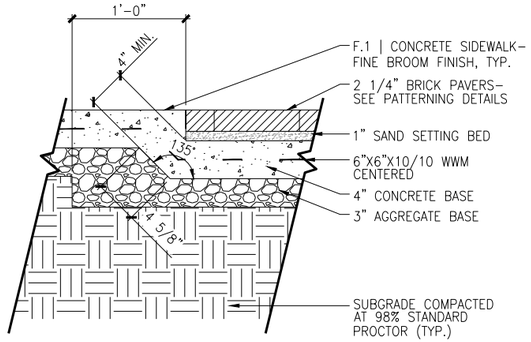
BRDWY-HARDSCAPE DETAILS.DWG SHEET 362 OF 412

SUBMITTAL	PROJECT NUMBER	DATE
100% CD'S	19000	8/27/2020

DRWN BY:	DSGN BY:	CHKD BY:	SHEET NO.
DO	DO	MP	HS 362

PLOTTED ON: 8/28/20 @ 1:02:20 PM
DESIGN FILENAME: Z:\00 PROJECTS\BROADWAY PHASE I (19000)\04 CD\SHEETS\03-LS\BRDWY-HARDSCAPE DETAILS.DWG

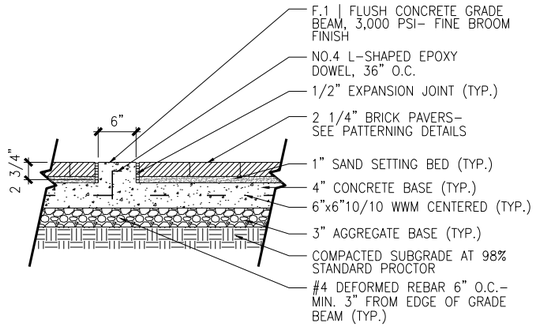
PLOTTED ON: 8/14/20 @ 1:02:20 PM
DESIGN FILENAME: Z:\00 PROJECTS\BROADWAY PHASE I (19000)\04 CD\SHEETS\03-LS\BRDWY-HARDSCAPE DETAILS.DWG



NOTE: CONCRETE SIDEWALK SURFACE TO HAVE FINE BROOM FINISH PERPENDICULAR TO PEDESTRIAN LINE OF TRAVEL

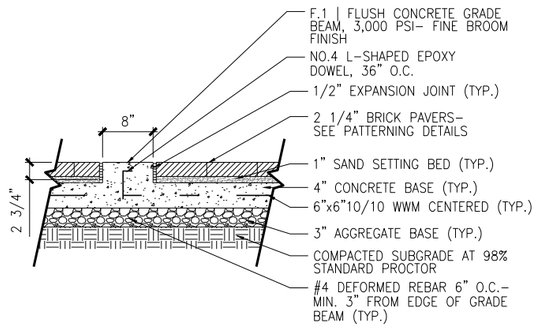
1 HS.36.3 CONC TO BRICK PAVING

SCALE: 3/4" = 1'-0"



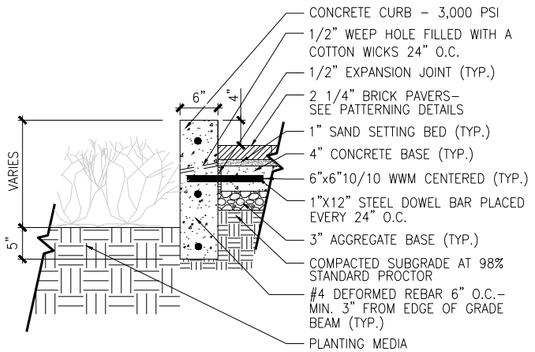
2 HS.36.3 6" CONCRETE GRADE BEAM

SCALE: 1/2"-1'-0"



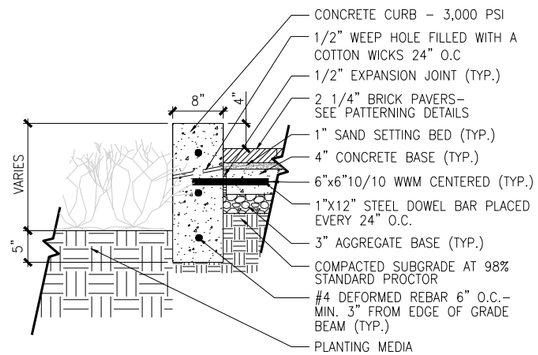
3 HS.36.3 8" CONCRETE GRADE BEAM

SCALE: 1/2"-1'-0"



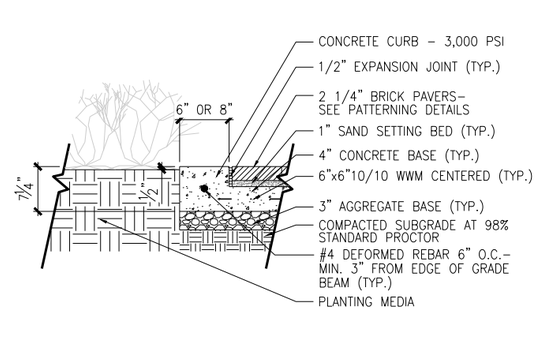
4 HS.36.3 6" CURB AT BIORETENTION BED

SCALE: 1/2"-1'-0"



5 HS.36.3 8" CURB AT BIORETENTION BED

SCALE: 1/2"-1'-0"



6 HS.36.3 CURB AT STANDARD PLANTING BED

SCALE: 1/2"-1'-0"

NO	DATE	REVISION	APPROVED
-	-	-	-

GRAPHIC SCALE (IN FEET)

20 10 0 20 40 60

1" = 40'

MP STUDIO
201 GROVETON
San Antonio, Texas 78210
(210) 314-5582

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AECOM Technical Services Inc. F- 3580
112 Pecan Street
Suite 400
San Antonio, Texas 78205
(214) 741-7777

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CITY OF SAN ANTONIO
TRANSPORTATION & CAPITAL IMPROVEMENTS

BROADWAY ST

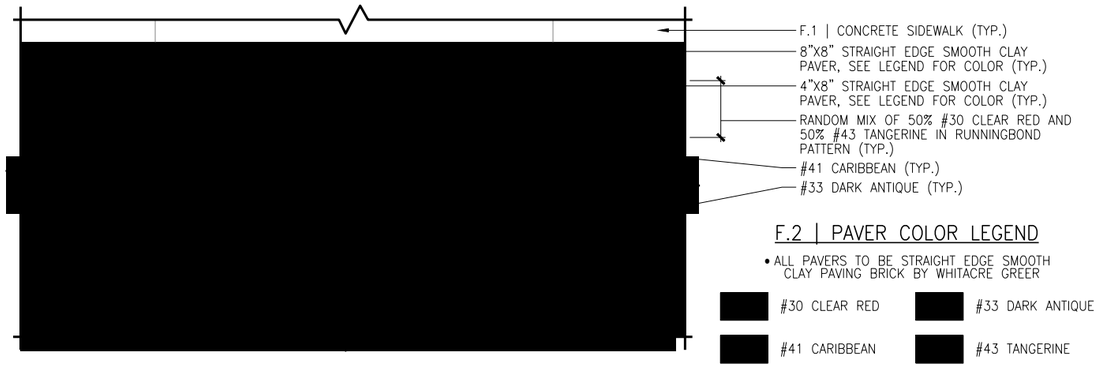
HARDSCAPE DETAIL

BROADWAY STREET

BRDWY-HARDSCAPE DETAILS.DWG		SHEET 363 OF 412	
SUBMITTAL	PROJECT NUMBER		DATE
100% CD'S	19000		8/27/2020
DRWN BY:	DSGN BY:	CHKD BY:	SHEET NO.
DO	DO	MP	HS 363

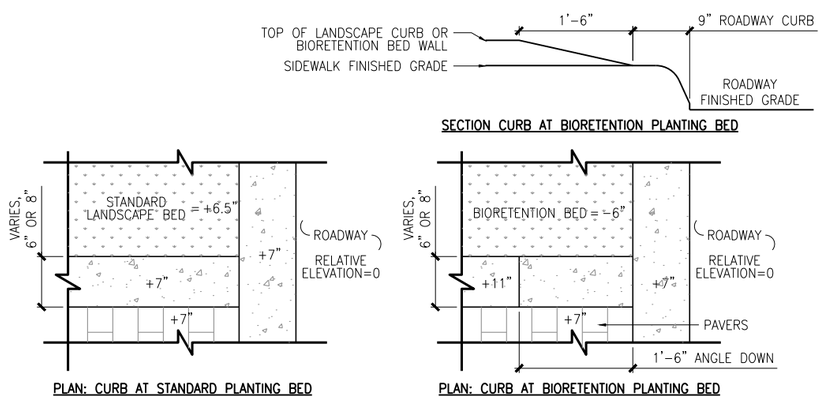
PLOTTED ON: 8/28/20 @ 1:02:20 PM
DESIGN FILENAME: Z:\00 PROJECTS\BROADWAY PHASE I (19000)\04 CD\SHEETS\03-LS\BRDWY-HARDSCAPE DETAILS.DWG

PLOTTED ON: 8/14/20 @ 1:02:20 PM
DESIGN FILENAME: Z:\00 PROJECTS\BROADWAY PHASE I (19000)\04 CD\SHEETS\03-LS\BRDWY-HARDSCAPE DETAILS.DWG



1 HS.366 PAVING PATTERN IN FURNITURE ZONE

SCALE: 3/8"=1'-0"



2 HS.366 CURB AT PLANTING

SCALE: 1/2"=1'-0"

NO	DATE	REVISION	APPROVED
-	-	-	-

GRAPHIC SCALE (IN FEET)

20 10 0 20 40 60

1" = 40'

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BROADWAY ST

HARDSCAPE DETAIL

BROADWAY STREET

BRDWY-HARDSCAPE DETAILS.DWG			SHEET 366 OF 412
SUBMITTAL	PROJECT NUMBER		DATE
100% CD'S	19000		8/27/2020
DRWN BY:	DSGN BY:	CHKD BY:	SHEET NO.
DO	DO	MP	HS 366

PLOTTED ON: 8/28/20 @ 1:02:20 PM
DESIGN FILENAME: Z:\00 PROJECTS\BROADWAY PHASE I (19000)\04 CD\SHEETS\03-LS\BRDWY-HARDSCAPE DETAILS.DWG

PLOTTED ON: 8/14/20 @ 1:02:20 PM
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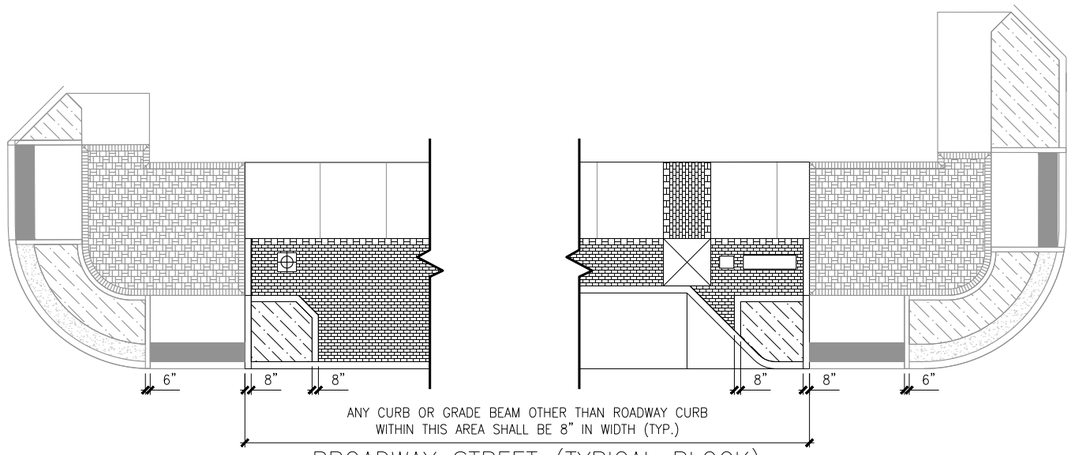
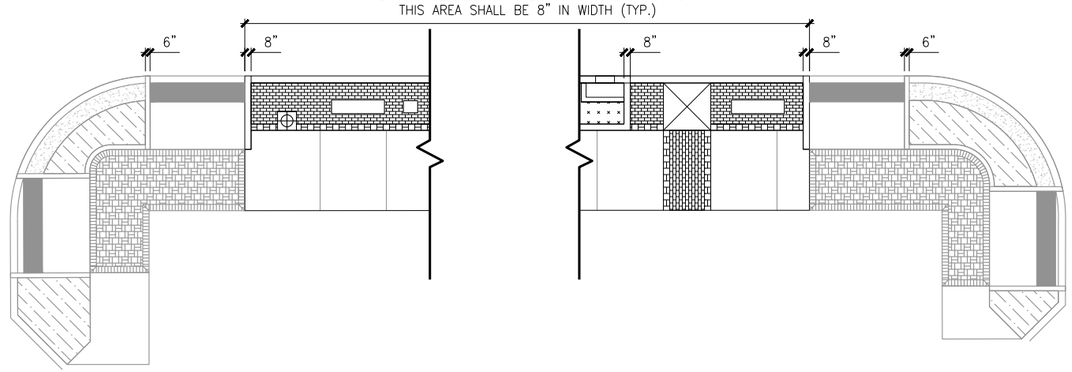


BROADWAY STREET (TYPICAL BLOCK)



1 / HS.367 — 8" CURB AND GRADE BEAM ALONG BROADWAY (TYPICAL BLOCK)

SCALE: 1/16"=1'-0"

NO	DATE	REVISION	APPROVED
-	-	-	-

GRAPHIC SCALE (IN FEET)

20 10 0 20 40 60

1" = 40'

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BROADWAY ST

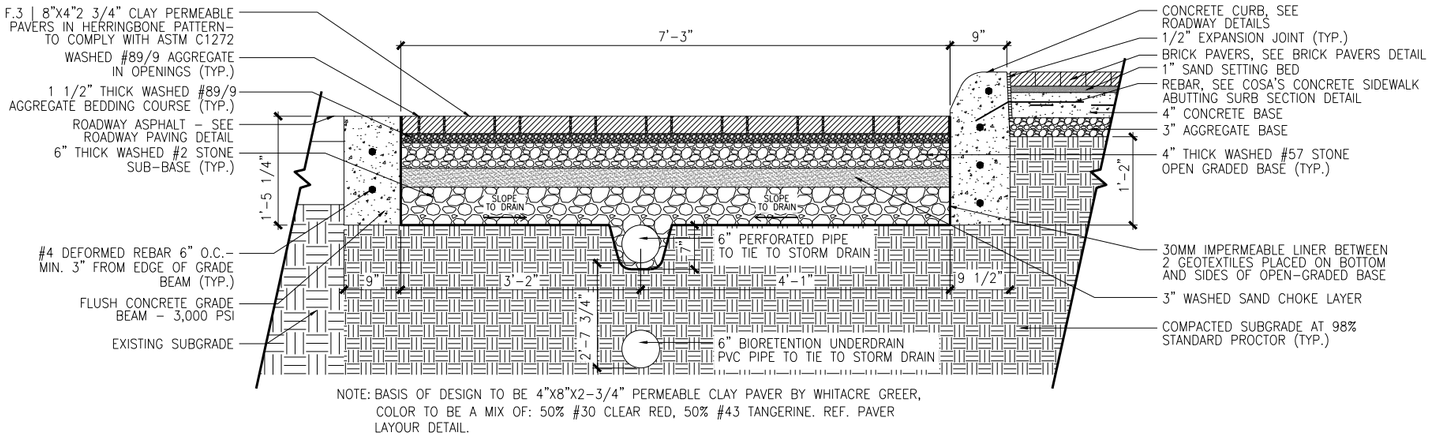
HARDSCAPE DETAIL

BROADWAY STREET

BRDWY-HARDSCAPE DETAILS.DWG		SHEET 367 OF 412	
SUBMITTAL	PROJECT NUMBER		DATE
100% CD'S	19000		8/27/2020
DRWN BY:	DSGN BY:	CHKD BY:	SHEET NO.
DO	DO	MP	HS 367

PLOTTED ON: 8/28/20 @ 1:02:20 PM
DESIGN FILENAME: Z:\00 PROJECTS\BROADWAY PHASE I (19000)\04 CD\SHEETS\03-LS\BRDWY-HARDSCAPE DETAILS.DWG

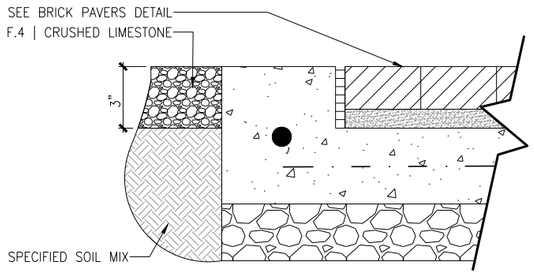
PLOTTED ON: 8/14/20 @ 1:02:20 PM
DESIGN FILENAME: Z:\00 PROJECTS\BROADWAY PHASE I (19000)\04 CD\SHEETS\03-LS\BRDWY-HARDSCAPE DETAILS.DWG



NOTE: BASIS OF DESIGN TO BE 4"X8"X2–3/4" PERMEABLE CLAY PAVER BY WHITACRE GREER, COLOR TO BE A MIX OF: 50% #30 CLEAR RED, 50% #43 TANGERINE. REF. PAVER LAYOUR DETAIL.

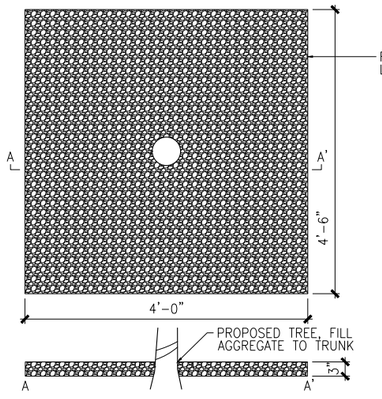
1 HS.368 PERMEABLE PAVING

SCALE: 1/2"=1'–0"



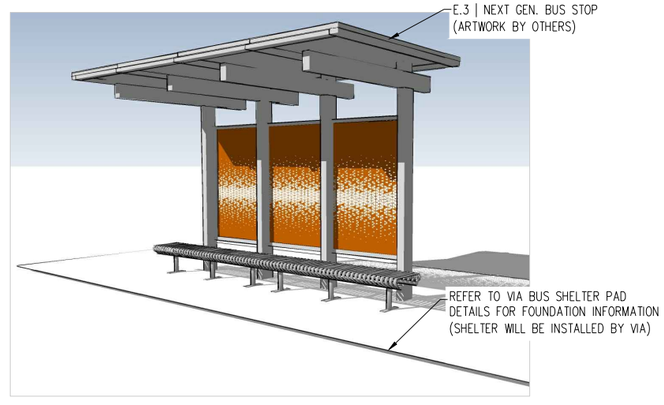
2 HS.368 AGGREGATE ADJ. TO PAVERS

SCALE: 3"=1'–0"



3 HS.368 AGGREGATE AT TREE WELL

SCALE: 3/8"=1'–0"



4 HS.368 VIA BUS SHELTERS (INSTALLED BY OTHERS)

REFERENCE IMAGE – NOT TO SCALE

NO	DATE	REVISION	APPROVED
-	-	-	-

GRAPHIC SCALE (IN FEET)

20 10 0 20 40 60

1" = 40'

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BROADWAY ST

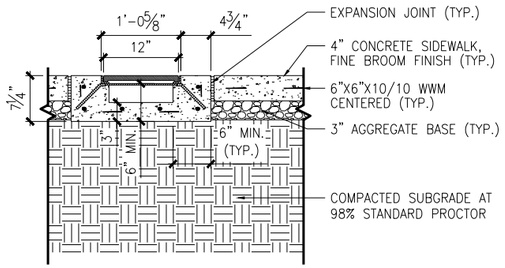
HARDSCAPE DETAIL

BROADWAY STREET

BRDWY-HARDSCAPE DETAILS.DWG SHEET 368 OF 412

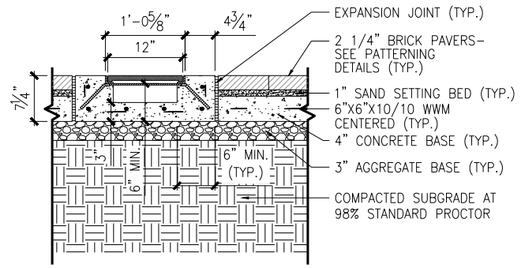
SUBMITTAL	PROJECT NUMBER	DATE
100% CD'S	19000	8/27/2020

DRWN BY:	DSGN BY:	CHKD BY:	SHEET NO.
DO	DO	MP	HS 368



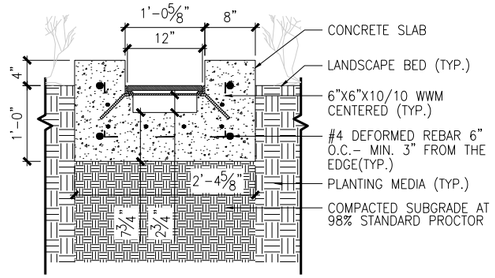
BETWEEN CONCRETE PAVING

1 HS369 TRENCH DRAIN
SCALE: 1/2"=1'-0"



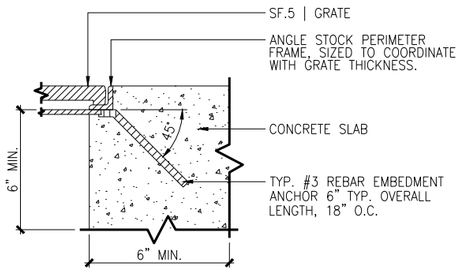
BETWEEN BRICK PAVING

2 HS369 TRENCH DRAIN
SCALE:1/2"=1'-0"



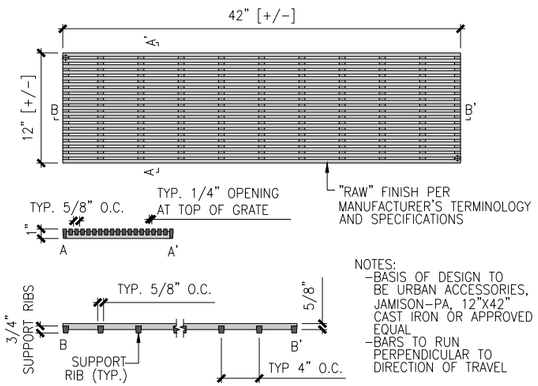
BETWEEN LANDSCAPE BEDS

3 HS369 TRENCH DRAIN
SCALE:1/2"=1'-0"



NOTE: BASIS OF DESIGN TO BE STANDARD FRAME INSTALLATION METHOD BY URBAN ACCESSORIES

4 HS369 TRENCH DRAIN GRATE FRAME
SCALE: 3"=1'-0"



5 HS369 TRENCH DRAIN GRATE
SCALE: 3/4" = 1'-0"

NO	DATE	REVISION	APPROVED
-	-	-	-

GRAPHIC SCALE (IN FEET)
20 10 0 20 40 60
1" = 40'

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TRANSPORTATION & CAPITAL IMPROVEMENTS

BROADWAY ST

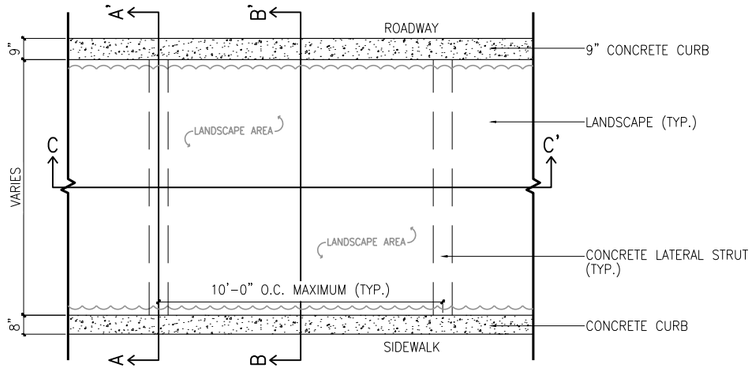
HARDSCAPE DETAIL

BROADWAY STREET

BRDWY-HARDSCAPE DETAILS.DWG		SHEET	369 OF 412
SUBMITTAL	PROJECT NUMBER		DATE
100% CD'S	19000		8/27/2020
DRWN BY:	DSGN BY:	CHKD BY:	SHEET NO.
DO	DO	MP	HS 369

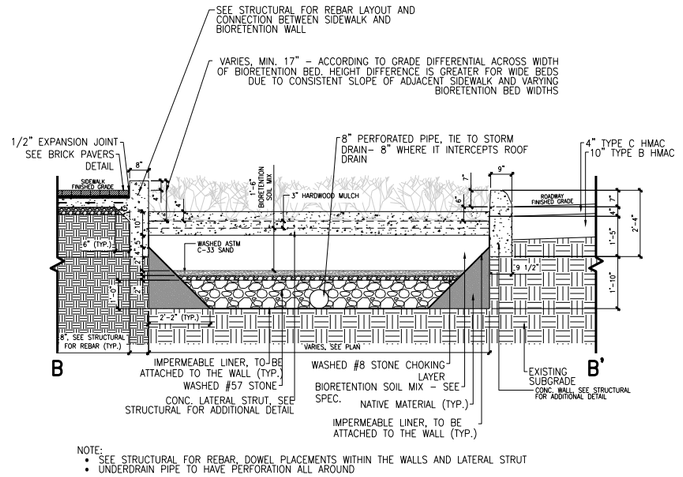
PLOTTED ON: 8/28/20 @ 1:02:20 PM
DESIGN FILENAME: Z:\00 PROJECTS\BROADWAY PHASE I (19000)\04 CD\SHEETS\03-LS\BRDWY-HARDSCAPE DETAILS.DWG

PLOTTED ON: 8/14/20 @ 1:02:20 PM
DESIGN FILENAME: Z:\00 PROJECTS\BROADWAY PHASE I (19000)\04 CD\SHEETS\03-LS\BRDWY-HARDSCAPE DETAILS.DWG



1 HS.370 **BIORETENTION BED – PLAN**

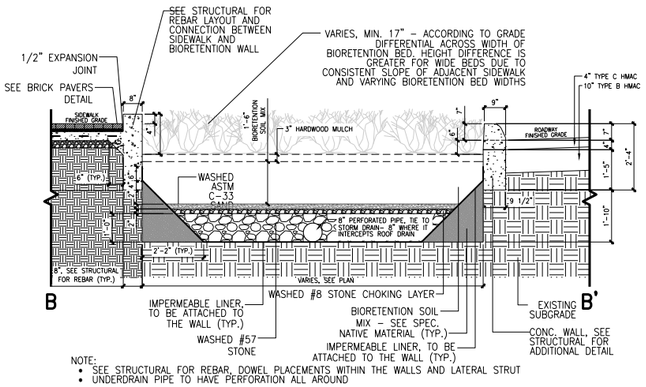
SCALE: 3/16"=1'-0"



NOTE:
- SEE STRUCTURAL FOR REBAR, DOWEL PLACEMENTS WITHIN THE WALLS AND LATERAL STRUT
- UNDERDRAIN PIPE TO HAVE PERFORATION ALL AROUND

2 HS.370 **A–A' – BIORETENTION SECTION WITH LATERAL STRUT**

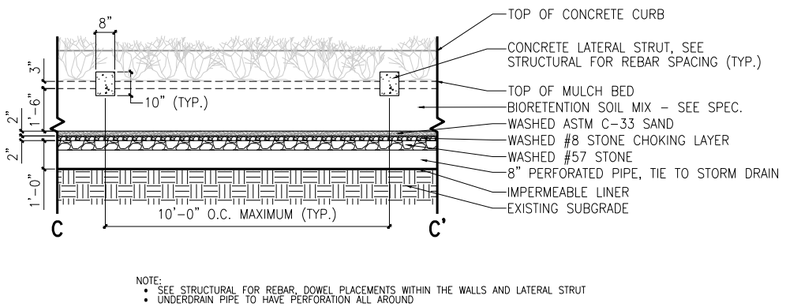
SCALE: 3/16"=1'-0"



NOTE:
- SEE STRUCTURAL FOR REBAR, DOWEL PLACEMENTS WITHIN THE WALLS AND LATERAL STRUT
- UNDERDRAIN PIPE TO HAVE PERFORATION ALL AROUND

3 HS.370 **B–B' – BIORETENTION SECTION W/O LATERAL STRUT**

SCALE: 3/16"=1'-0"



NOTE:
- SEE STRUCTURAL FOR REBAR, DOWEL PLACEMENTS WITHIN THE WALLS AND LATERAL STRUT
- UNDERDRAIN PIPE TO HAVE PERFORATION ALL AROUND

4 HS.370 **C–C' – LATERAL STRUT SPACING SECTION**

SCALE: 3/16"=1'-0"

NO	DATE	REVISION	APPROVED
-	-	-	-

GRAPHIC SCALE (IN FEET)

20 10 0 20 40 60

1" = 40'

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112 Pecan Street
Suite 400
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BROADWAY ST

HARDSCAPE DETAIL

BROADWAY STREET

BRDWY-HARDSCAPE DETAILS.DWG		SHEET 370 OF 412	
SUBMITTAL	PROJECT NUMBER		DATE
100% CD'S	19000		8/27/2020
DRWN BY:	DSGN BY:	CHKD BY:	SHEET NO.
DO	DO	MP	HS 370

PLOTTED ON: 8/28/20 @ 1:02:20 PM
DESIGN FILENAME: Z:\00 PROJECTS\BROADWAY PHASE I (19000)\04 CD\SHEETS\03-LS\BRDWY-HARDSCAPE DETAILS.DWG

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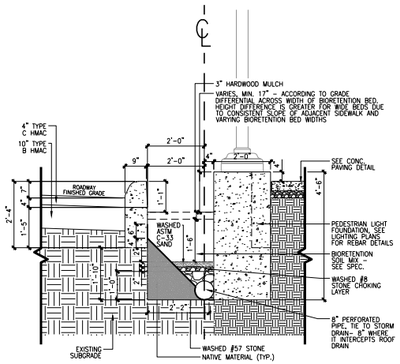
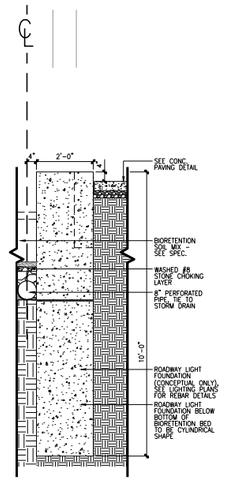
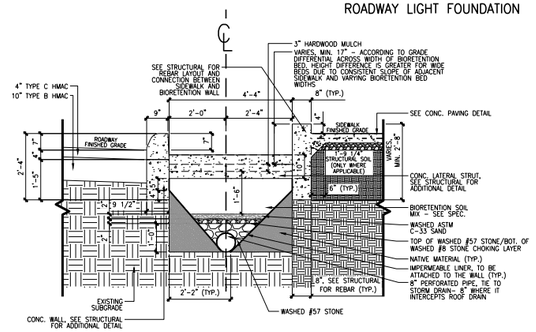
DESIGN FILENAME: Z:\00 PROJECTS\BROADWAY PHASE I (19000)\04 CD\SHEETS\03-LS\BRDWY-HARDSCAPE DETAILS.DWG



ADJACENT TO 2'X2'X5'-4" DEPTH
PEDESTRIAN LIGHT FOUNDATION



ADJACENT TO 2'X2'X10' DEPTH
ROADWAY LIGHT FOUNDATION

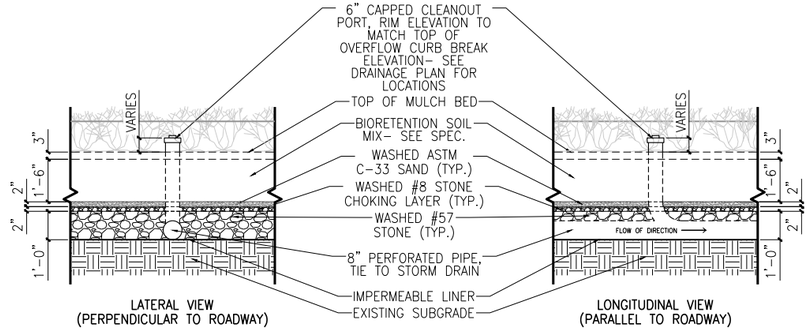


AT LATERAL STRUT LOCATION

NOTE:
- SEE STRUCTURAL FOR REBAR, DOWEL PLACEMENTS WITHIN THE WALLS AND LATERAL STRUT
- UNDERDRAIN PIPE TO HAVE PERFORATION ALL AROUND
- THERE SHALL BE 1/2" EXPANSION JOINT WHERE SEPARATE CONCRETE POURS MEET AT LIGHTING FOUNDATION
- DEPICTION OF LIGHTING FOUNDATION IS CONCEPTUAL ONLY. SEE LIGHTING PLANS FOR DETAILED INFORMATION

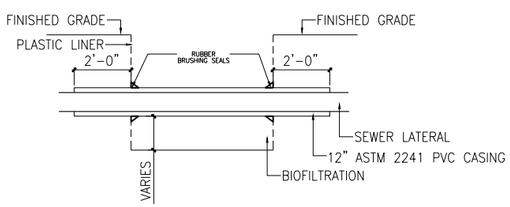
1 HS.371 EAST SIDE BIORETENTION SECTION

SCALE: 3/16"=1'-0"



2 HS.371 CLEANOUT AT BIORETENTION BED

SCALE: 3/16"=1'-0"



3 HS.371 BIORETENTION AT SEWER LATERAL

SCALE: 3/16"=1'-0"

NO	DATE	REVISION	APPROVED
-	-	-	-

GRAPHIC SCALE (IN FEET)
20 10 0 20 40 60
1" = 40'

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San Antonio, Texas 78210
(210) 314-5582

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AECOM Technical Services Inc. F- 3580
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San Antonio, Texas 78205
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BROADWAY ST

HARDSCAPE DETAIL

BROADWAY STREET

BRDWY-HARDSCAPE DETAILS.DWG		SHEET 371 OF 412	
SUBMITTAL	PROJECT NUMBER		DATE
100% CD'S	19000		8/27/2020
DRWN BY:	DSGN BY:	CHKD BY:	SHEET NO.
DO	DO	MP	HS 371

PLOTTED ON: 8/28/20 @ 1:02:20 PM
DESIGN FILENAME: Z:\00 PROJECTS\BROADWAY PHASE I (19000)\04 CD\SHEETS\03-LS\BRDWY-HARDSCAPE DETAILS.DWG

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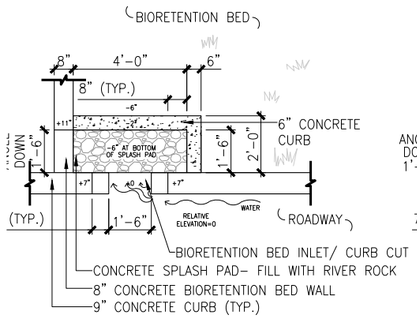
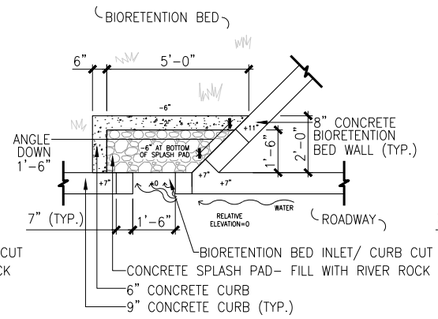
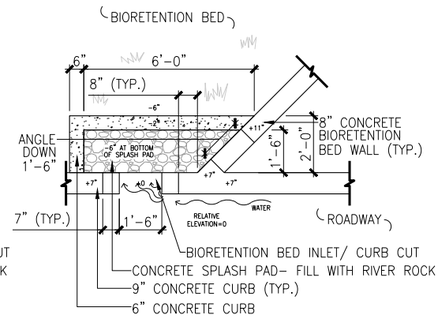
DESIGN FILENAME: Z:\00 PROJECTS\BROADWAY PHASE I (19000)\04 CD\SHEETS\03-LS\BRDWY-HARDSCAPE DETAILS.DWG



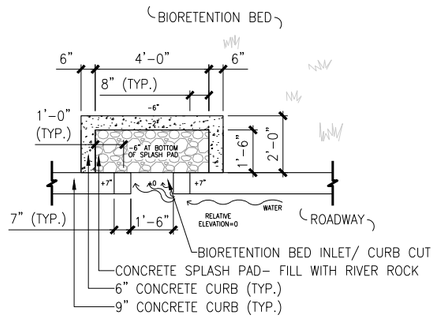
TYPE 1



TYPE 2



TYPE 3

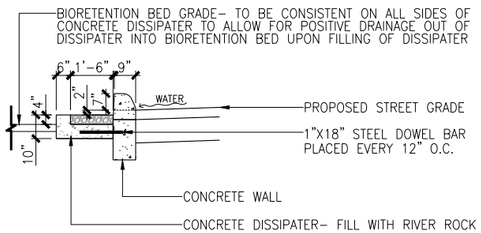


TYPE 4

NOTE: SEE BIORETENTION BED WALL LAYOUT PLAN FOR TYPE 3 CONCRETE DISSIPATER LOCATIONS

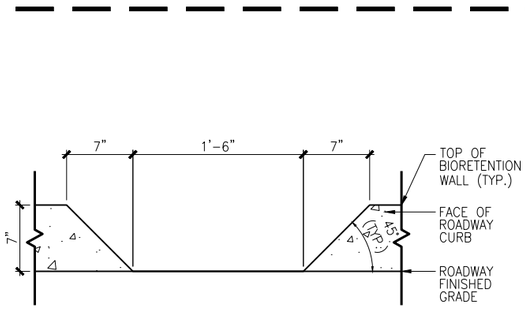
1 HS372 BIORETENTION BED CURB INLET & CONCRETE DISSIPATER – PLAN VIEW

SCALE: 3/16"=1'-0"



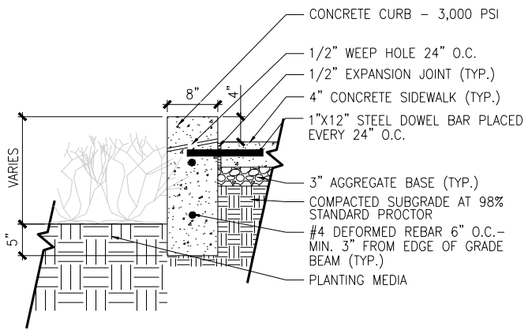
2 HS372 CONCRETE DISSIPATER – SECTION

SCALE: 3/16"=1'-0"



3 HS372 BIORETENTION CURB INLET – ELEVATION

SCALE: 3/4" = 1'-0"



4 HS372 8" CURB ADJACENT TO CONC. SIDEWALK

SCALE: 1/2"=1'-0"

NO	DATE	REVISION	APPROVED
-	-	-	-

GRAPHIC SCALE (IN FEET)

20 10 0 20 40 60

1" = 40'

MP STUDIO
201 GROVETON
San Antonio, Texas 78210
(210) 314-5582

AECOM
AECOM Technical Services Inc. F- 3580
112 Pecan Street
Suite 400
San Antonio, Texas 78205
(214) 741-7777

SUNDT

CITY OF SAN ANTONIO
TRANSPORTATION & CAPITAL IMPROVEMENTS

BROADWAY ST

HARDSCAPE DETAIL

BROADWAY STREET

BRDWY-HARDSCAPE DETAILS.DWG		SHEET 372 OF 412	
SUBMITTAL	PROJECT NUMBER		DATE
100% CD'S	19000		8/27/2020
DRWN BY:	DSGN BY:	CHKD BY:	SHEET NO.
DO	DO	MP	HS 372

PLOTTED ON: 8/28/20 @ 1:02:20 PM
DESIGN FILENAME: Z:\00 PROJECTS\BROADWAY PHASE I (19000)\04 CD\SHEETS\03-LSI\BRDWY-HARDSCAPE DETAILS.DWG

PLOTTED ON: 8/14/20 @ 1:02:20 PM
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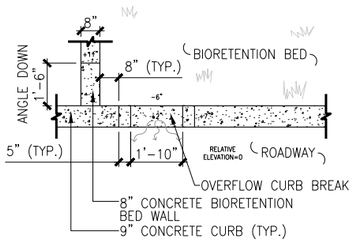
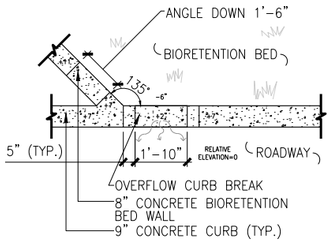
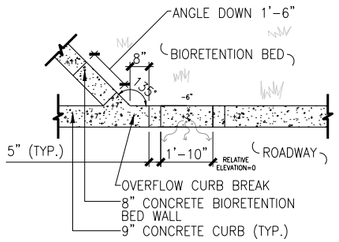


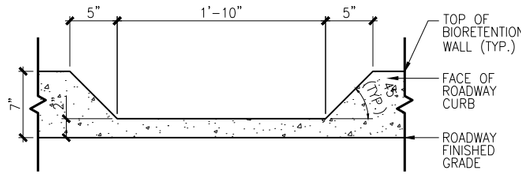
TYPE 1



TYPE 2



TYPE 3

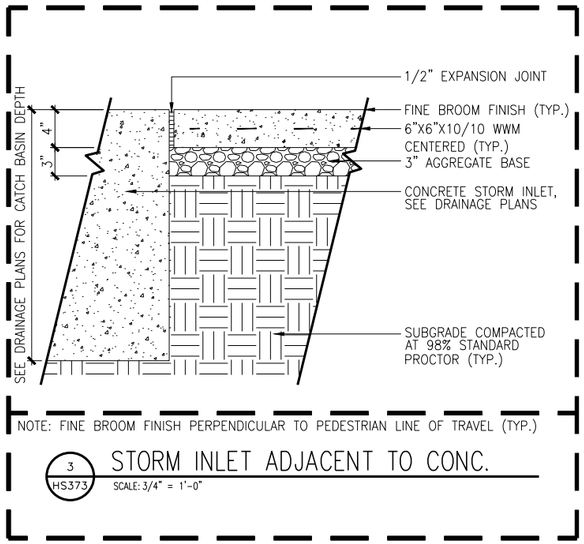


1 HS373 BIORETENTION BED OVERFLOW CURB BREAK – PLAN VIEW

SCALE: 3/16"=1'-0"

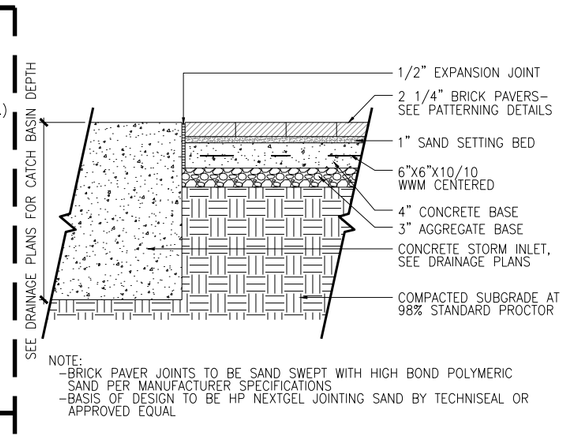
2 HS373 OVERFLOW CURB BREAK – ELEVATION

SCALE: 3/4" = 1'-0"



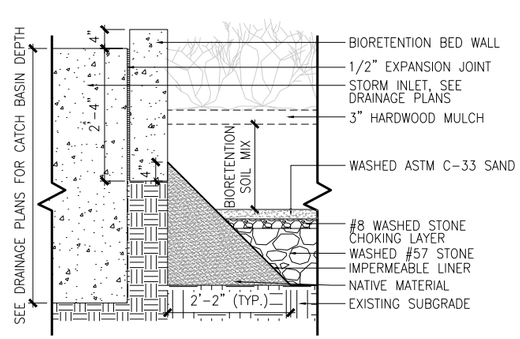
3 HS373 STORM INLET ADJACENT TO CONC.

SCALE: 3/4" = 1'-0"



4 HS373 STORM INLET ADJACENT TO PAVERS

SCALE: 1/2"-1'-0"



5 HS373 STORM INLET ADJ. TO BIORETENTION

SCALE: 3/8"=1'-0"

NO	DATE	REVISION	APPROVED
-	-	-	-

GRAPHIC SCALE (IN FEET)

20 10 0 20 40 60

1" = 40'

MP STUDIO
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San Antonio, Texas 78210
(210) 314-5582

AECOM
AECOM Technical Services Inc. F- 3580
112 Pecan Street
Suite 400
San Antonio, Texas 78205
(214) 741-7777

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BROADWAY ST

HARDSCAPE DETAIL

BROADWAY STREET

BRDWY-HARDSCAPE DETAILS.DWG		SHEET 373 OF 412	
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DO	DO	MP	HS 373

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