Southwest Engineers
Engineering Texas Since 1978

Public Infrastructure
Land Development
Land & ROW Acquisition

TBPELS No. F-1909

January 6, 2025

Pauline Gray
Lead AES
GBA
1500 County Road 269, Leander, TX 78464

RE: Boyce Street Mixed-Use Development
101 West Boyce Street, Manor, TX, 78653
Permit No.: 2024-P-1645-SP
SWE Project No. 1168-001-24

Dear Mrs. Gray:

Below please find our responses to the comments dated December 18, 2024:

1. Please add an Engineer's seal (sign and signature) to the waiver request letter.

Comment Response: The Waiver Request Letter is signed and sealed with this update submittal.

2. Add to the letter that you are requesting a waiver to the City of Austin Drainage Criteria Manual (DCM) Section 1.2.2.D which states Stormwater runoff peak flow rates shall not be increased at any point of discharge from a site for the two (2), ten (10), 25 and 100-year storm frequency events. Austin DCM has been adopted by the City of Manor.

Comment Response: The statement above is now included with the revised waiver request letter.

3. On your resubmittal, please submit one single pdf files with all the exhibits attached.

Comment Response: As requested, one single pdf file with all exhibits attached is provided with this update submittal.

4. Add a block to the Cover sheet saying A waiver to the City of Austin Drainage Criteria Manual (DCM) Section 1.2.2.D which states Stormwater runoff peak flow rates shall not be increased at any point of discharge from a site for the two (2), ten (10), 25 and 100-year storm frequency events was approved by the City of Manor on this date.

Comment Response: The statement above is now included on the Cover Sheet.

5. On the proposed Drainage Area Map (Sheet 8 of 30), clearly show the proposed storm sewer line. Currently, everything looks in gray scale and it is difficult to distinguish between existing and proposed infrastructure.

Comment Response: The proposed storm sewer line is now more prominent and shown darker on the Proposed Drainage Area Map (Sheet 8).

6. On the existing Drainage summary table, explain how the total POA A Q and POA B Q is adding up in each of the storms. Appears to be that the peaks are not adding in neither of the storms.

Comment Response: Due to various time of concentrations (lag times) for the drainage areas that contribute to each point-of-analysis (POA), localized peak flows for each contributing area occur at different time intervals. An overall peak flow at a POA that includes more than one drainage area cannot be calculated by adding each contributing peak flow. The peak flow for each POA is the highest flowrate observed from the summation of all the contributing area flowrates throughout the 24-hour storm event time series. Please refer to the HEC-HMS drainage model.

7. Add an additional table in the proposed drainage sheet, something like this:

	POA A Ex	POA A Pr	Exceedances
2-yr	6.1	8.5	2.4
10-yr	10.7	14	3.3
25-yr	13.8	17.7	3.9
100-yr	19	23.9	4.9

	POA B Ex	POA B Pr	Exceedances
2-yr	0.9	1.5	0.6
10-yr	1.6	2.3	0.7
25-yr	2.2	2.9	0.7
100-yr	3	3.8	0.8

Comment Response: The tables requested are now included on the Proposed Drainage Area Map (Sheet 8).

8. Add an additional table in the proposed drainage sheet related to total exceedances for site plan, something like this:

	Total Exceedances for Site Plan
2-yr	3.00
10-yr	4.00
25-yr	4.60
100-yr	5.70

Comment Response: The table requested is now included on the Proposed Drainage Area Map (Sheet 8).

9. All proposed storm drains that will be in the ROW or in a public drainage easement must meet DCM 5.2.0 design guidelines. The design guidelines rules shall be observed in the design of storm drain systems located in public right-of-way or public drainage easements to promote proper operation of these systems and to minimize maintenance requirements. The material and diameter of all public storm drains should be noted on the grading and drainage plan sheets. See DCM 5.2.0.J and DCM 5.3.3. If so, please provide plan and profile for this culvert/storm sewer system and a H&H model to justify the size and capacity. For Storm Sewer design.

Comment Response: The storm sewer design has been updated, plan and profile for the culvert and storm sewer is provided with this update submittal.

10. Provide H&H calculations (one cross section) for existing east side ditch of N Caldwell Steet between the proposed discharge point of storm sewer and Old Hwy 20

Comment Response: A cross section is provided for this location on the Existing Conveyance Drainage Area Map (Sheet 9), see cross section "Existing Roadside Ditch at POA-C2".

11. Provide H&H calculations for existing culvert along existing east side ditch on N Caldwell Steet which crosses Old Hwy 20.

Comment Response: A cross section is provided the existing culvert for this location on the Existing Conveyance Drainage Area Map (Sheet 9), see cross sections "Existing Culvert 25-yr", "Existing Culvert 100-yr".

12. We may comment on new material that is submitted in an update submittal for this waiver.

Comment Response: Comment noted.

If you have any questions or require additional information, please do not hesitate to contact me at any time at 512-222-4964.

Respectfully Submitted,

Campbell Key, P.E.
Round Rock Branch Manager

Southwest Engineers
Engineering Texas Since 1978

Public Infrastructure
Land Development
Land & ROW Acquisition

TBPELS No. F-1909

January 6, 2025

City of Manor
Attention: Pauline Gray & Michael Burrell
416 Gregg Street,
Manor Texas 78653

RE: Boyce Street Mixed-Use Development (2024-P-1645-SP)
101, 104, 107 & 108 West Boyce Street, Manor, TX 78653
Detention Waiver Request Letter
SWE Project No. 1168-001-24

Dear Ms. Gray & Mr. Burrell,

This Detention Waiver Request Letter is being submitted in support of the Site Plan application for the Boyce Street Mixed-Use Development (2024-P-1645-SP). This letter requests a waiver to the City of Austin Drainage Criteria Manual (DCM) Section 1.2.2.D which states Stormwater runoff peak flow rates shall not be increased at any point of discharge from a site for the two (2), ten (10), 25 and 100-year storm frequency events. Austin DCM has been adopted by the City of Manor. Please refer to the attached sheets for additional information and detailed calculations.

PROJECT SUMMARY

The property consists of four tracts that together equal 0.96 acres. In existing conditions, there are four (4) existing one-story residences with associated driveways that are to be demolished. The proposed mixed-use development consists of three (3) three-story buildings with associated parking and drives totaling approximately 49,304 square feet of impervious cover. The site is located at 101, 104, 107 & 108 W Boyce Street, Manor, Texas 78653.

DRAINAGE ANALYSIS

Drainage area maps depicting stormwater runoff flow patterns were created using topographic information provided by on-the-ground survey, as well as Geographic Information Systems (GIS). The project site is defined by one (1) major existing drainage area which drains primarily from northeast to southwest across the property toward a roadside channel in the Right-of-Way (ROW) of N. Caldwell Street. In proposed conditions, runoff will continue to drain northeast to southwest across the property, with grading and drainage facilities proposed for conveyance of runoff into the roadside channel.

The Existing and Proposed Drainage Area Maps (Sheets 7 and 8 from the site development plan set) show the existing and proposed runoff patterns for the site as well as drainage summary tables quantifying peak runoff flow rates taken at two (2) points of analysis (POA).

The Existing and Proposed Conveyance Drainage Area Maps (Sheets 9 and 10 from the site development plan set), show the existing and proposed runoff patterns for an area upstream of the site contributing to the roadside channel within the ROW of N. Caldwell Street.

The Urban Hydrology for Small Watersheds Technical Release 55 was used to determine the Curve Number (CN) and Time of Concentration (Tc) values for each drainage area. CN values used for existing and proposed conditions were based on the hydrologic soil group rating from the SCS Soils Conservation Survey for Williamson County, Texas and existing and proposed impervious cover.

Drainage analysis was conducted using NOAA Atlas 14 Precipitation Data to determine the peak runoff flow rates in both existing and proposed conditions at the various points of analysis for each of the 2-, 10-, 25-, and 100-YR storm events. As can be seen on the HEC-HMS Software (Version 4.11) was used to model the drainage analysis and obtain hydrologic summary calculations.

Our drainage analyses determined that the portion of existing roadside channel adjacent to the proposed Boyce Street Mixed Use Development receives stormwater runoff from approximately 13.5 acres upstream of the property, in addition to the area that includes the proposed development. POA C1 quantifies flows in the roadside channel immediately upstream of the proposed development, and POA C2 quantifies flows at a point in the channel immediately downstream of the proposed development. As shown in the Channel Report Cross Sections provided on The Existing and Proposed Conveyance Drainage Area Maps (Sheets 9 and 10), the slight increase in peak runoff flow rates caused by the proposed development is contained within the existing roadside channel and has no adverse impact on the existing drainage infrastructure. The tables below summarize parameters and flows for existing and proposed conditions.

EXISTING CONVEYANCE DRAINAGE SUMMARY TABLE
(NRCS METHOD)

AREA NAME	OS-C	POA C1	C	OS-C1	OS-C2	POA C2
Drainage Area (ac.)	13.50	-	1.66	0.21	0.25	-
CN #	80	-	80	80	80	-
% Impervious	95%	-	29%	77%	88%	-
Tc (hrs)	0.529	-	0.083	0.083	0.083	-
2 year Discharge (cfs)	37.4	37.4	6.4	1.0	1.3	39.9
10 year Discharge (cfs)	56.6	56.6	11.2	1.6	2.0	60.8
25 year Discharge (cfs)	69.8	69.8	14.4	2.0	2.4	75.0
100 year Discharge (cfs)	91.9	91.9	19.8	2.6	3.2	99.1

PROPOSED CONVEYANCE DRAINAGE SUMMARY TABLE

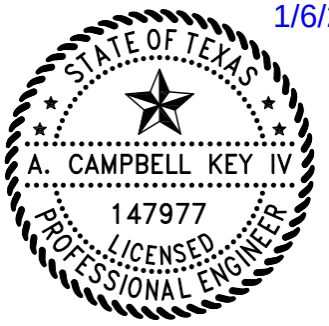
(NRCS METHOD)

AREA NAME	OS-C	POA C1	C	OS-C1	OS-C2	POA C2
Drainage Area (ac.)	13.50	-	1.66	0.21	0.25	-
CN #	80	-	80	80	80	-
% Impervious	95%	-	87%	77%	88%	-
Tc (hrs)	0.529	-	0.083	0.083	0.083	-
2 year Discharge (cfs)	37.4	37.4	8.4	1.0	1.3	40.3
10 year Discharge (cfs)	56.6	56.6	12.9	1.6	2	61.1
25 year Discharge (cfs)	69.8	69.8	15.9	2.0	2.4	75.3
100 year Discharge (cfs)	91.9	91.9	21.0	2.6	3.2	99.3

If you have any questions or require additional information, please don't hesitate to contact me at (512) 222-4964.

1/6/2025

Respectfully submitted,

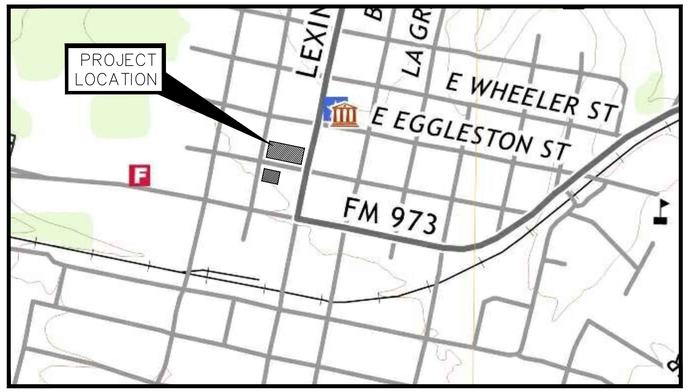


Campbell Key, P.E.
Round Rock Branch Manager

DETENTION WAIVER SUBMITTAL PACKAGE
FOR
BOYCE STREET MIXED-USE DEVELOPMENT

101, 104, 107 & 108 WEST BOYCE STREET
MANOR, TRAVIS COUNTY, TEXAS 78653
JANUARY 2025

SWE PROJECT # 1168-001-24



LOCATION MAP
SCALE
1" = 2000'

A WAIVER TO THE CITY OF AUSTIN DRAINAGE CRITERIA MANUAL (DCM) SECTION 1.2.2.D WHICH STATES STORMWATER RUNOFF PEAK FLOW RATES SHALL NOT BE INCREASED AT ANY POINT OF DISCHARGE FROM A SITE FOR THE TWO (2), TEN (10), 25 AND 100-YEAR STORM FREQUENCY EVENTS WAS APPROVED BY THE CITY OF MANOR ON _____ ___ , 2025.

1/6/2025

STATE OF TEXAS
A. CAMPBELL KEY IV
147977
LICENSED
PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A. CAMPBELL KEY IV, PE #147977 ON THE DATE INDICATED. ANY ALTERATIONS OF THIS SEALED DOCUMENT WITHOUT PROPER NOTIFICATION TO THE RESPONSIBLE ENGINEER IS AN OFFENSE UNDER THE TEXAS ENGINEERING PRACTICE ACT.

NOTE: APPROVAL OF THESE PLANS BY THE CITY OF MANOR INDICATES COMPLIANCE WITH APPLICABLE CITY REGULATIONS ONLY. APPROVAL BY OTHER GOVERNMENTAL ENTITIES MAY BE REQUIRED PRIOR TO THE START OF CONSTRUCTION. THE APPLICANT IS RESPONSIBLE FOR DETERMINING WHAT ADDITIONAL APPROVALS MAY BE NECESSARY.

RELEASE OF THIS APPLICATION DOES NOT CONSTITUTE A VERIFICATION OF ALL DATA, INFORMATION, AND CALCULATIONS SUPPLIED BY THE APPLICANT. THE ENGINEER OF RECORD IS SOLELY RESPONSIBLE FOR THE COMPLETENESS, ACCURACY, AND ADEQUACY OF HIS/HER SUBMITTAL, WHETHER OR NOT THE APPLICATION IS REVIEWED FOR CODE COMPLIANCE BY CITY ENGINEER.

Southwest Engineers
TBPE NO. F-1909
www.swengineers.com

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P: 830.672.7546 F:830.672.2034

CENTRAL TEXAS
205 Cimarron Park Loop, Ste. B, Buda TX 78610
P: 512.312.4336

0 15 30 60
HORIZONTAL SCALE: 1"=30'

LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- DRAINAGE AREA
- TIME OF CONCENTRATION
- POINT OF ANALYSIS
- DRAINAGE FLOW DIRECTION
- DRAINAGE AREA LABEL
- INLET LABEL

NOTES:

1. ON-SITE SURVEY TOPOGRAPHIC INFORMATION PROVIDED BY ALL STAR LAND SURVEYING OBTAINED ON SEPTEMBER 14, 2023.
2. OFF-SITE TOPOGRAPHIC INFORMATION OBTAINED FROM TNRIS.

EXISTING DRAINAGE SUMMARY TABLE
(NRCS METHOD)

AREA NAME	A	OS A	POA A	B	OS B	POA B
Drainage Area (ac.)	0.66	1.29	-	0.30	0.06	-
CN #	80	80	-	80	80	-
% Impervious	23%	35%	-	13%	11%	-
Tc (hrs)	0.222	0.083	-	0.249	0.083	-
2 year Discharge (cfs)	1.6	5.1	6.1	0.7	0.2	0.9
10 year Discharge (cfs)	2.9	8.9	10.7	1.4	0.4	1.6
25 year Discharge (cfs)	3.8	11.3	13.8	1.8	0.5	2.2
100 year Discharge (cfs)	5.2	15.5	19.0	2.5	0.7	3.0

TIME OF CONCENTRATION - EXISTING

DRAINAGE AREA	SHEET FLOW				SHALLOW CONCENTRATED FLOW				CHANNEL FLOW (GUTTER)			Total Tc (MIN.)	Total Tc (HRS.)	Total Tlag (MIN.)
	L FT	SLOPE (FT/FT)	n	Tc sheet (MIN.)	L FT	SLOPE (FT/FT)	Paved? Y or N	Tc Shallow (MIN.)	L FT	Vavg (FT/S)	Tc Channel (MIN.)			
A	100.000	0.010	0.24	16.6	190	0.011	N	1.9	0	4.00	0.00	18.5	0.309	11.129
OS A	100.000	0.015	0.011	1.2	89	0.028	Y	0.4	0	4.00	0.00	5.0	0.083	3.000
B	100.000	0.015	0.24	14.1	66	0.008	N	0.8	0	4.00	0.00	14.9	0.249	8.957
OS B	17.000	0.015	0.24	3.4	78	0.010	Y	0.7	0	4.00	0.00	5.0	0.083	3.000

TEXAS ONE CALL SYSTEM
1-800-245-4545

UNDER PENALTY OF LAW, THE CONTRACTOR IS REQUIRED TO CONTACT THE TEXAS ONE CALL SYSTEM AT LEAST 48 HOURS BEFORE STARTING EXCAVATION.

NOTE: ALL RESPONSIBILITY FOR THE ADEQUACY OF THESE PLANS REMAINS WITH THE ENGINEER WHO PREPARES THEM. IN APPROVING THESE PLANS, THE CITY OF MANOR MUST RELY UPON THE ADEQUACY OF THE WORK OF THE DESIGN ENGINEER.

CAUTION - ELECTRICITY PRESENT

THE GENERAL CONTRACTOR AND ALL SUBCONTRACTORS THAT ENTER OR WORK ON THIS PROJECT ARE RESPONSIBLE FOR LOCATING, USING ONE-CALL OR THE ELECTRIC UTILITIES THEMSELVES, ALL OVERHEAD AND UNDERGROUND ELECTRICAL OF ANY NATURE AND FOR SAFEGUARDING ALL PERSONNEL ON THIS PROJECT, INCLUDING ANY OFF-SITE WORK AREAS SHOWN ON THE PLAN, FROM ANY INTERFERENCE WITH THE ELECTRIC LINES OR FROM DAMAGING, DIGGING UP OR UNCOVERING THE ELECTRIC LINES, GETTING A LADDER IN HARMS WAY OR ANY OTHER ACTIVITY OF ANY NATURE THAT COULD HARM ANY INDIVIDUAL IN ANY MANNER. THIS RESPONSIBILITY HEREBY REMOVES THE ENGINEER AND THE OWNER FROM ANY LIABILITY OF ANY NATURE.

NO.	REVISION	DATE

STATE OF TEXAS
A. CAMPBELL KEY IV
147977
LICENSED PROFESSIONAL ENGINEER
1/6/2025

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P: 512.312.4336

WARNING
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DRAWN BY: APCG / BS

CHECKED BY: HCD

EXISTING DRAINAGE AREA MAP

BOYCE STREET MIXED-USE DEVELOPMENT

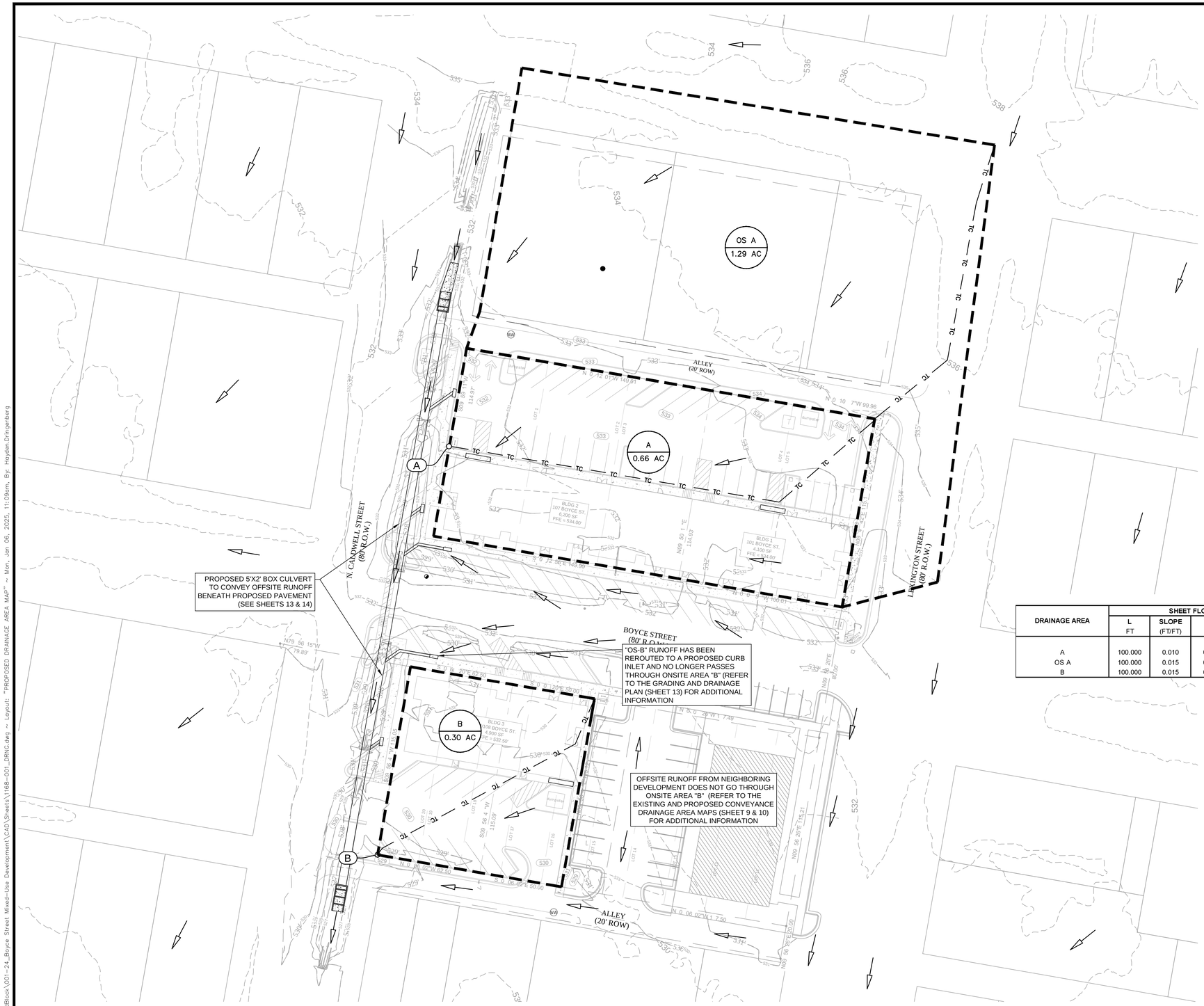
101, 104, 107 & 108 W BOYCE STREET, MANOR, TEXAS, 78653

PROJECT NO. 1168-001-24

DRAWING NO. _____

SHEET 7 OF 31

1168-001-24



0 15 30 60

HORIZONTAL SCALE: 1"=30'

LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- DRAINAGE AREA
- TIME OF CONCENTRATION
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- INLET LABEL

NOTES:

1. ON-SITE SURVEY TOPOGRAPHIC INFORMATION PROVIDED BY ALL STAR LAND SURVEYING OBTAINED ON SEPTEMBER 14, 2023.
2. OFF-SITE TOPOGRAPHIC INFORMATION OBTAINED FROM TNRIS.

PROPOSED DRAINAGE SUMMARY TABLE (NRCS METHOD)

AREA NAME	A	OS A	POA A	B	POA B
Drainage Area (ac.)	0.66	1.29	-	0.30	-
CN #	80	80	-	80	-
% Impervious	89%	35%	-	83%	-
Tc (hrs)	0.083	0.083	-	0.083	-
2 year Discharge (cfs)	3.4	5.1	8.5	1.5	1.5
10 year Discharge (cfs)	5.2	8.9	14.0	2.3	2.3
25 year Discharge (cfs)	6.3	11.3	17.7	2.9	2.9
100 year Discharge (cfs)	8.4	15.5	23.9	3.8	3.8

TIME OF CONCENTRATION - PROPOSED

DRAINAGE AREA	SHEET FLOW				SHALLOW CONCENTRATED FLOW				CHANNEL FLOW (GUTTER)			Total Tc (MIN.)	Total Tc (HRS.)	Total Tlag (MIN.)
	L FT	SLOPE (FT/FT)	n	Tc sheet (MIN.)	L FT	SLOPE (FT/FT)	Paved? Y or N	Tc Shallow (MIN.)	L FT	Vavg (FT/S)	Tc Channel (MIN.)			
A	100.000	0.010	0.011	1.4	190	0.011	Y	1.5	0	4.00	0.00	5.0	0.083	3.000
OS A	100.000	0.015	0.011	1.2	89	0.028	Y	0.4	0	4.00	0.00	5.0	0.083	3.000
B	100.000	0.015	0.011	1.2	66	0.008	Y	0.6	0	4.00	0.00	5.0	0.083	3.000

	POA A EX	POA A PR	Exceedances
2-yr	6.1	8.5	2.4
10-yr	10.7	14	3.3
25-yr	13.8	17.7	3.9
100-yr	19	23.9	4.9

	POA B EX	POA B PR	Exceedances
2-yr	0.9	1.5	0.6
10-yr	1.6	2.3	0.7
25-yr	2.2	2.9	0.7
100-yr	3	3.8	0.8

	Total Exceedances for Site Plan
2-yr	3
10-yr	4
25-yr	4.6
100-yr	5.7

TEXAS ONE CALL SYSTEM
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UNDER PENALTY OF LAW, THE CONTRACTOR IS REQUIRED TO CONTACT THE TEXAS ONE CALL SYSTEM AT LEAST 48 HOURS BEFORE STARTING EXCAVATION.

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NO.	REVISION	DATE

1/6/2025

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DRAWN BY: APCG / BS

CHECKED BY: HCD

PROPOSED DRAINAGE AREA MAP

BOYCE STREET MIXED-USE DEVELOPMENT

101, 104, 107 & 108 W BOYCE STREET, MANOR, TEXAS, 78653

PROJECT NO. 1168-001-24

DRAWING NO.

SHEET 8 OF 31

1168-001-24

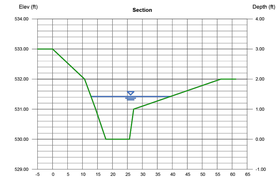
Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Wednesday, Dec 4 2024

Existing Roadside Ditch at POA-C1

User-defined		Highlighted	
Invert Elev (ft)	= 530.00	Depth (ft)	= 1.42
Slope (%)	= 1.66	Q (cfs)	= 91.90
N-Value	= 0.030	Area (sqft)	= 18.53
		Velocity (ft/s)	= 4.96
Calculations		Wetted Perim (ft)	= 27.02
Compute by:	Known Q	Crit Depth, Yc (ft)	= 1.45
Known Q (cfs)	= 91.90	Top Width (ft)	= 26.49
		EGL (ft)	= 1.80

(Sta, El, n)-(Sta, El, n)...
(0.00, 533.60)-(18.79, 532.08, 0.030)-(14.40, 531.00, 0.030)-(17.60, 530.08, 0.030)-(25.76, 530.00, 0.030)-(27.10, 531.28, 0.030)-(34.23, 532.00, 0.030)



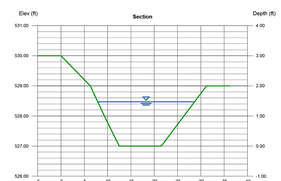
Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Wednesday, Dec 4 2024

Existing Roadside Ditch at POA-C2

User-defined		Highlighted	
Invert Elev (ft)	= 527.00	Depth (ft)	= 1.47
Slope (%)	= 0.80	Q (cfs)	= 99.10
N-Value	= 0.030	Area (sqft)	= 23.92
		Velocity (ft/s)	= 4.52
Calculations		Wetted Perim (ft)	= 21.13
Compute by:	Known Q	Crit Depth, Yc (ft)	= 1.28
Known Q (cfs)	= 99.10	Top Width (ft)	= 20.75
		EGL (ft)	= 1.79

(Sta, El, n)-(Sta, El, n)...
(0.00, 529.50)-(4.38, 528.00, 0.030)-(9.22, 528.00, 0.030)-(12.50, 527.00, 0.030)-(21.52, 527.00, 0.030)-(26.37, 528.80, 0.030)-(31.22, 529.00, 0.030)

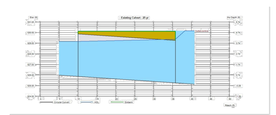


Culvert Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Monday, Jan 6 2025

Existing Culvert - 25 yr

Invert Elev Dn (ft)	= 525.87	Calculations	
Pipe Length (ft)	= 25.74	Qmin (cfs)	= 39.90
Slope (%)	= -2.37	Qmax (cfs)	= 74.60
Invert Elev Up (ft)	= 525.26	Tailwater Elev (ft)	= (dc+D)/2
Rise (in)	= 48.0		
Shape	= Circular	Highlighted	
Span (in)	= 48.0	Qtotal (cfs)	= 73.90
No. Barrels	= 1	Qpipe (cfs)	= 73.19
n-Value	= 0.012	Qovertop (cfs)	= 0.71
Culvert Type	= Circular Concrete	Veloc Dn (ft/s)	= 6.61
Culvert Entrance	= Square edge w/headwall (C)	Veloc Up (ft/s)	= 5.85
Coeff. K,M,c,Y,k	= 0.0098, 2, 0.0398, 0.67, 0.5	HGL Dn (ft)	= 529.16
		HGL Up (ft)	= 529.37
Embankment		Hw Elev (ft)	= 530.16
Top Elevation (ft)	= 530.11	Hw/D (ft)	= 1.23
Top Width (ft)	= 25.73	Flow Regime	= Outlet Control
Crest Width (ft)	= 24.80		

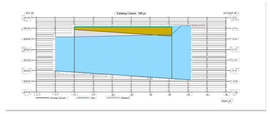


Culvert Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Monday, Jan 6 2025

Existing Culvert - 100 yr

Invert Elev Dn (ft)	= 525.87	Calculations	
Pipe Length (ft)	= 25.74	Qmin (cfs)	= 39.90
Slope (%)	= -2.37	Qmax (cfs)	= 99.10
Invert Elev Up (ft)	= 525.26	Tailwater Elev (ft)	= (dc+D)/2
Rise (in)	= 48.0		
Shape	= Circular	Highlighted	
Span (in)	= 48.0	Qtotal (cfs)	= 79.90
No. Barrels	= 1	Qpipe (cfs)	= 79.01
n-Value	= 0.012	Qovertop (cfs)	= 0.89
Culvert Type	= Circular Concrete	Veloc Dn (ft/s)	= 6.82
Culvert Entrance	= Square edge w/headwall (C)	Veloc Up (ft/s)	= 6.05
Coeff. K,M,c,Y,k	= 0.0098, 2, 0.0398, 0.67, 0.5	HGL Dn (ft)	= 529.19
		HGL Up (ft)	= 529.40
Embankment		Hw Elev (ft)	= 530.26
Top Elevation (ft)	= 530.11	Hw/D (ft)	= 1.25
Top Width (ft)	= 25.73	Flow Regime	= Outlet Control
Crest Width (ft)	= 24.80		



0 50 100 200

HORIZONTAL SCALE: 1"=100'

LEGEND

- EXISTING CONTOURS (700)
- PROPOSED CONTOURS (700)
- DRAINAGE AREA
- TIME OF CONCENTRATION (TC — TC)
- POINT OF ANALYSIS (A–1)
- DRAINAGE FLOW DIRECTION
- DRAINAGE AREA LABEL (DA / ACRES)
- INLET LABEL (#)

NOTES:

1. ON-SITE SURVEY TOPOGRAPHIC INFORMATION PROVIDED BY ALL STAR LAND SURVEYING OBTAINED ON SEPTEMBER 14, 2023.
2. OFF-SITE TOPOGRAPHIC INFORMATION OBTAINED FROM TNRIS.

EXISTING CONVEYANCE DRAINAGE SUMMARY TABLE (NRCS METHOD)

AREA NAME	OS-C	POA C1	C	OS-C1	OS-C2	POA C2
Drainage Area (ac.)	13.50	-	1.66	0.21	0.25	-
CN #	80	-	80	80	80	-
% Impervious	95%	-	29%	77%	88%	-
Tc (hrs)	0.529	-	0.083	0.083	0.083	-
2 year Discharge (cfs)	37.4	37.4	6.4	1.0	1.3	39.9
10 year Discharge (cfs)	56.6	56.6	11.2	1.6	2.0	60.8
25 year Discharge (cfs)	69.8	69.8	14.4	2.0	2.4	75.0
100 year Discharge (cfs)	91.9	91.9	19.8	2.6	3.2	99.1

TIME OF CONCENTRATION - CONVEYANCE

DRAINAGE AREA	SHEET FLOW				SHALLOW CONCENTRATED FLOW				CHANNEL FLOW (GUTTER)			Total Tc	Total Tc	Total Tlag
	L FT	SLOPE (FT/FT)	n	Tc sheet (MIN.)	L FT	SLOPE (FT/FT)	Paved? Y or N	Tc Shallow (MIN.)	L FT	Vavg (FT/S)	Tc Channel (MIN.)	(MIN.)	(HRS.)	(MIN.)
OS-C	100.000	0.000	0.011	22.4	192	0.010	Y	1.6	1774	4.00	7.39	31.3	0.522	18.808
OS-C1	100.000	0.005	0.011	1.9	183	0.005	Y	2.1	0	4.00	0.00	5.0	0.083	3.000
OS-C2	100.000	0.005	0.011	1.9	29	0.005	Y	0.3	0	4.00	0.00	5.0	0.083	3.000
C	100.000	0.010	0.011	1.4	214	0.010	Y	1.8	0	4.00	0.00	5.0	0.083	3.000

TEXAS ONE CALL SYSTEM
1-800-245-4545

UNDER PENALTY OF LAW, THE CONTRACTOR IS REQUIRED TO CONTACT THE TEXAS ONE CALL SYSTEM AT LEAST 48 HOURS BEFORE STARTING EXCAVATION.

NOTE: ALL RESPONSIBILITY FOR THE ADEQUACY OF THESE PLANS REMAINS WITH THE ENGINEER WHO PREPARES THEM. IN APPROVING THESE PLANS, THE CITY OF MANOR MUST RELY UPON THE ADEQUACY OF THE WORK OF THE DESIGN ENGINEER.

CAUTION - ELECTRICITY PRESENT

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NO.	REVISION	DATE

1/6/2025

STATE OF TEXAS — A. CAMPBELL KEY IV — 147977 — LICENSED PROFESSIONAL ENGINEER

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DRAWN BY: APCG / BS

CHECKED BY: HCD

EXISTING CONVEYANCE DRAINAGE AREA MAP

BOYCE STREET MIXED-USE DEVELOPMENT

101, 104, 107 & 108 W BOYCE STREET, MANOR, TEXAS, 78653

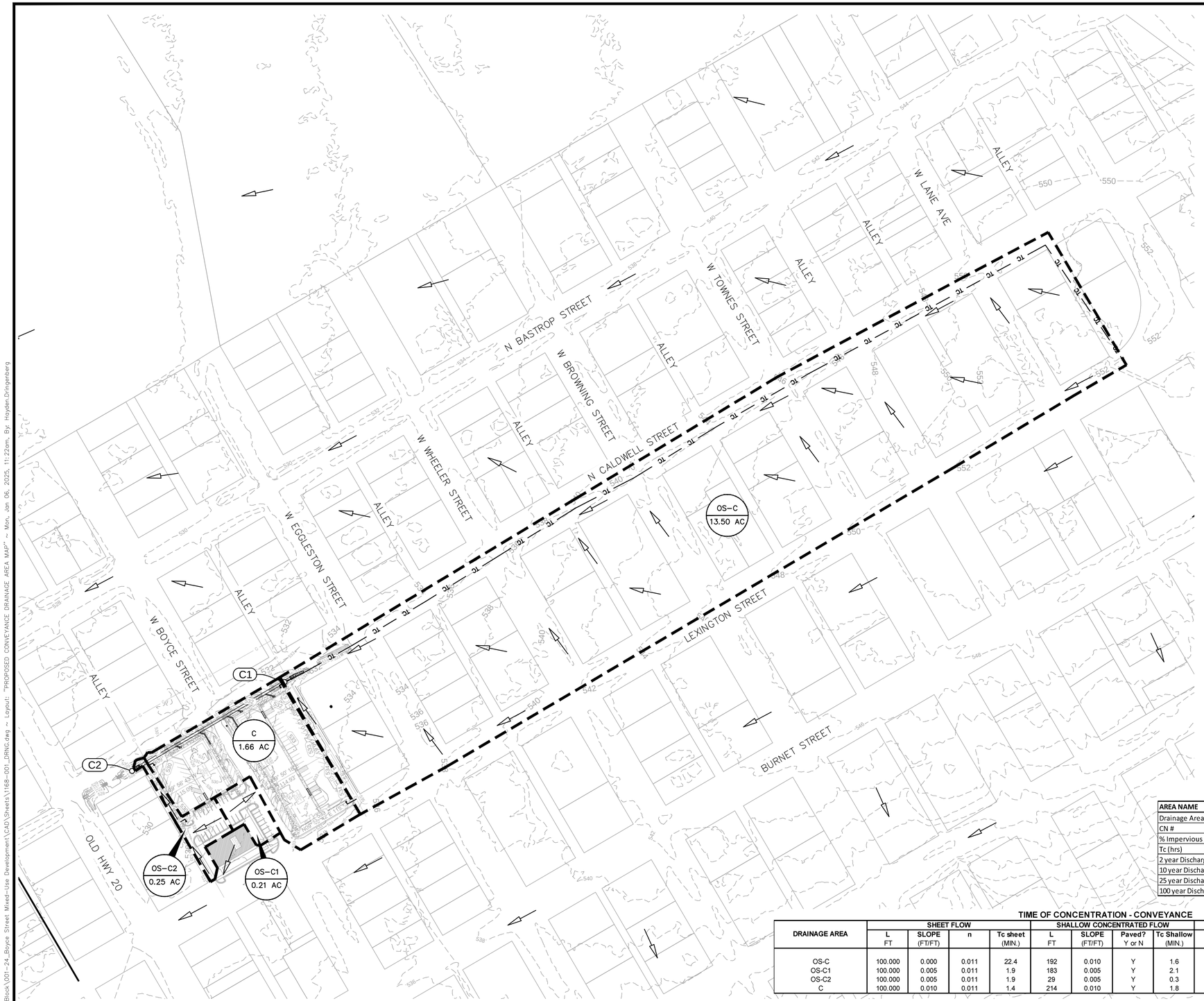
PROJECT NO. 1168-001-24

DRAWING NO.

SHEET 9 OF 31

1168-001-24

O:\Company Data\Clients\1168 - BuildBlock\001-24 Boyce Street Mixed-Use Development\CAD\Sheets\1168-001_DRNG.dwg ~ Layout: "EXISTING CONVEYANCE DRAINAGE AREA MAP" ~ Mon, Jan 06, 2025, 1:39pm, By: Hayden.Dringenberg



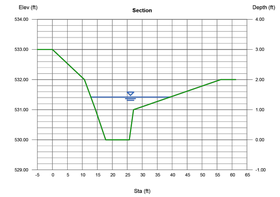
Channel Report

HydroFlow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. — Wednesday, Dec 4 2024

Existing Roadside Ditch at POA-C1

User-defined		Highlighted	
Invert Elev (ft)	= 530.00	Depth (ft)	= 1.42
Slope (%)	= 1.66	Q (cfs)	= 91.90
N-Value	= 0.030	Area (sqft)	= 18.53
		Velocity (ft/s)	= 4.96
Calculations		Wetted Perim (ft)	= 27.02
Compute by:	Known Q	Crit Depth, Yc (ft)	= 1.45
Known Q (cfs)	= 91.90	Top Width (ft)	= 26.49
		EGL (ft)	= 1.80

(Sta, El, n)-(Sta, El, n)...
(0.00, 535.00)-(5.74, 532.50, 0.030)-(14.40, 531.00, 0.030)-(17.80, 530.00, 0.030)-(25.70, 529.00, 0.030)-(27.10, 531.00, 0.030)-(28.20, 532.00, 0.030)



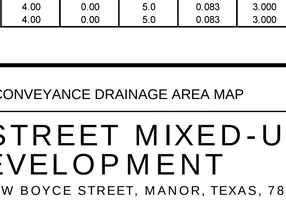
Channel Report

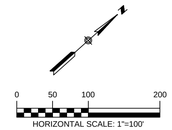
HydroFlow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. — Thursday, Dec 5 2024

Proposed Roadside Ditch at POA-C2

User-defined		Highlighted	
Invert Elev (ft)	= 527.00	Depth (ft)	= 1.47
Slope (%)	= 0.82	Q (cfs)	= 99.30
N-Value	= 0.030	Area (sqft)	= 21.92
		Velocity (ft/s)	= 4.53
Calculations		Wetted Perim (ft)	= 27.13
Compute by:	Known Q	Crit Depth, Yc (ft)	= 1.28
Known Q (cfs)	= 99.30	Top Width (ft)	= 20.75
		EGL (ft)	= 1.79

(Sta, El, n)-(Sta, El, n)...
(0.00, 530.00)-(9.58, 529.00, 0.030)-(18.32, 528.00, 0.030)-(12.00, 527.00, 0.030)-(21.52, 527.00, 0.030)-(24.37, 528.00, 0.030)-(31.21, 529.00, 0.030)





LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- DRAINAGE AREA
- TIME OF CONCENTRATION
- POINT OF ANALYSIS
- DRAINAGE FLOW DIRECTION
- DRAINAGE AREA LABEL (DA / ACRES)
- INLET LABEL (#)

NOTES:

1. ON-SITE SURVEY TOPOGRAPHIC INFORMATION PROVIDED BY ALL STAR LAND SURVEYING OBTAINED ON SEPTEMBER 14, 2023.
2. OFF-SITE TOPOGRAPHIC INFORMATION OBTAINED FROM TNRIS.

PROPOSED CONVEYANCE DRAINAGE SUMMARY TABLE
(NRCS METHOD)

AREA NAME	OS-C	POA C1	C	OS-C1	OS-C2	POA C2
Drainage Area (ac.)	13.50	-	1.66	0.21	0.25	-
CN #	80	-	80	80	80	-
% Impervious	95%	-	87%	77%	88%	-
Tc (hrs)	0.529	-	0.083	0.083	0.083	-
2 year Discharge (cfs)	37.4	37.4	8.4	1.0	1.3	40.3
10 year Discharge (cfs)	56.6	56.6	12.9	1.6	2	61.1
25 year Discharge (cfs)	69.8	69.8	15.9	2.0	2.4	75.3
100 year Discharge (cfs)	91.9	91.9	21.0	2.6	3.2	99.3

TIME OF CONCENTRATION - CONVEYANCE

DRAINAGE AREA	SHEET FLOW				SHALLOW CONCENTRATED FLOW				CHANNEL FLOW (GUTTER)			Total Tc	Total Tc	Total Tlag
	L FT	SLOPE (FT/FT)	n	Tc sheet (MIN.)	L FT	SLOPE (FT/FT)	Paved? Y or N	Tc Shallow (MIN.)	L FT	Vavg (FT/S)	Tc Channel (MIN.)	(MIN.)	(HRS.)	(MIN.)
OS-C	100.000	0.000	0.011	22.4	192	0.010	Y	1.6	1774	4.00	7.39	31.3	0.522	18.808
OS-C1	100.000	0.005	0.011	1.9	183	0.005	Y	2.1	0	4.00	0.00	5.0	0.083	3.000
OS-C2	100.000	0.005	0.011	1.9	29	0.005	Y	0.3	0	4.00	0.00	5.0	0.083	3.000
C	100.000	0.010	0.011	1.4	214	0.010	Y	1.8	0	4.00	0.00	5.0	0.083	3.000

TEXAS ONE CALL SYSTEM
1-800-245-4545

UNDER PENALTY OF LAW, THE CONTRACTOR IS REQUIRED TO CONTACT THE TEXAS ONE CALL SYSTEM AT LEAST 48 HOURS BEFORE STARTING EXCAVATION.

NOTE: ALL RESPONSIBILITY FOR THE ADEQUACY OF THESE PLANS REMAINS WITH THE ENGINEER WHO PREPARES THEM. IN APPROVING THESE PLANS, THE CITY OF MANOR MUST RELY UPON THE ADEQUACY OF THE WORK OF THE DESIGN ENGINEER.

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NO.	REVISION	DATE

1/6/2025

STATE OF TEXAS — A. CAMPBELL KEY IV — 147977 — LICENSED PROFESSIONAL ENGINEER

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PROPOSED CONVEYANCE DRAINAGE AREA MAP

BOYCE STREET MIXED-USE DEVELOPMENT

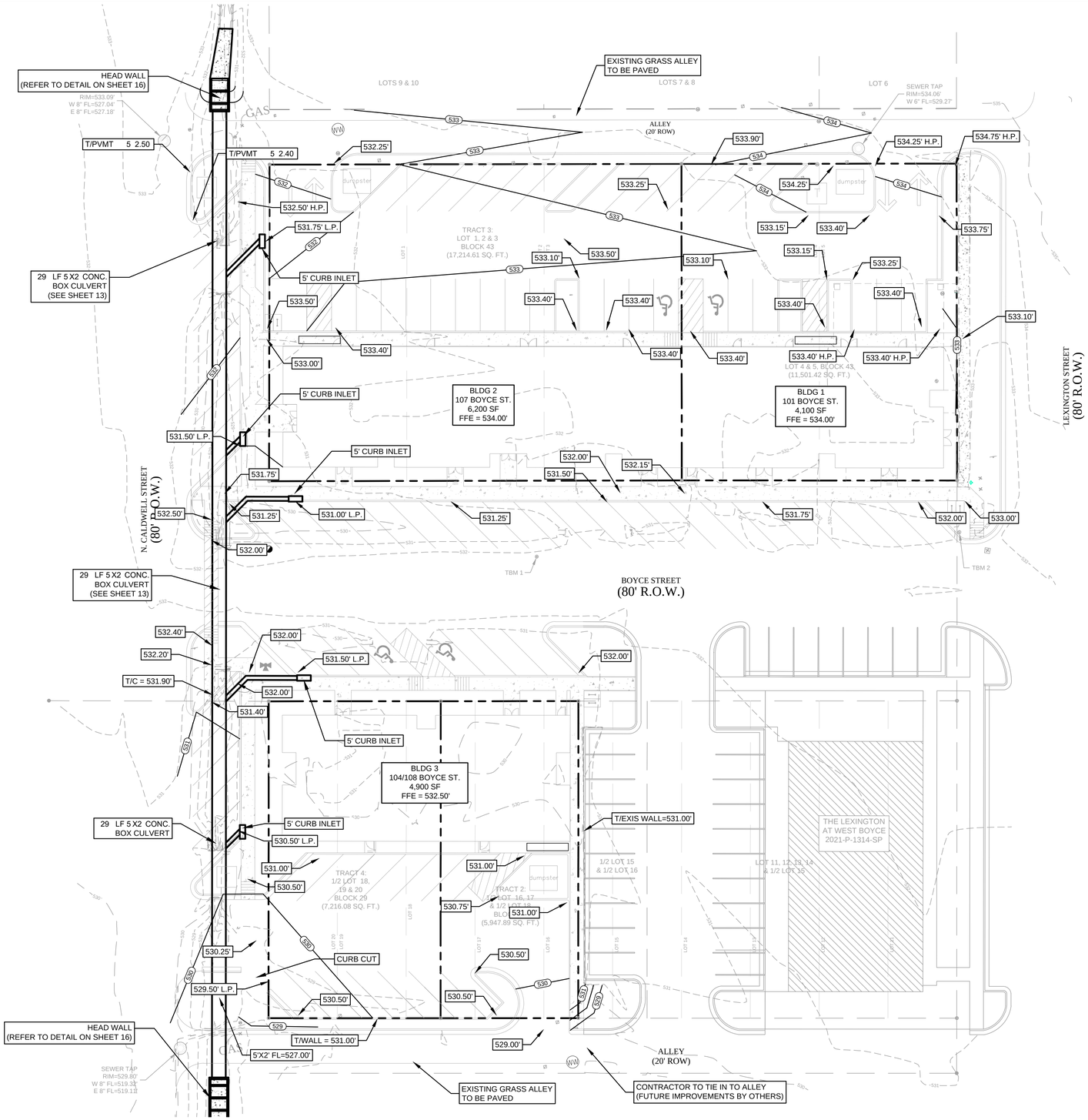
101, 104, 107 & 108 W BOYCE STREET, MANOR, TEXAS, 78653

PROJECT NO. 1168-001-24

DRAWING NO. _____

SHEET 10 OF 31

1168-001-24



0 10 20 40

HORIZONTAL SCALE: 1"=20'

LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- PROPOSED SPOT ELEVATION
- PROPOSED STORM DRAIN

TEXAS ONE CALL SYSTEM
1-800-245-4545

UNDER PENALTY OF LAW, THE CONTRACTOR IS REQUIRED TO CONTACT THE TEXAS ONE CALL SYSTEM AT LEAST 48 HOURS BEFORE STARTING EXCAVATION.

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NO.	REVISION	DATE

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STATE OF TEXAS
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GRADING AND DRAINAGE PLAN

BOYCE STREET MIXED-USE DEVELOPMENT

101, 104, 107 & 108 W BOYCE STREET, MANOR, TEXAS, 78653

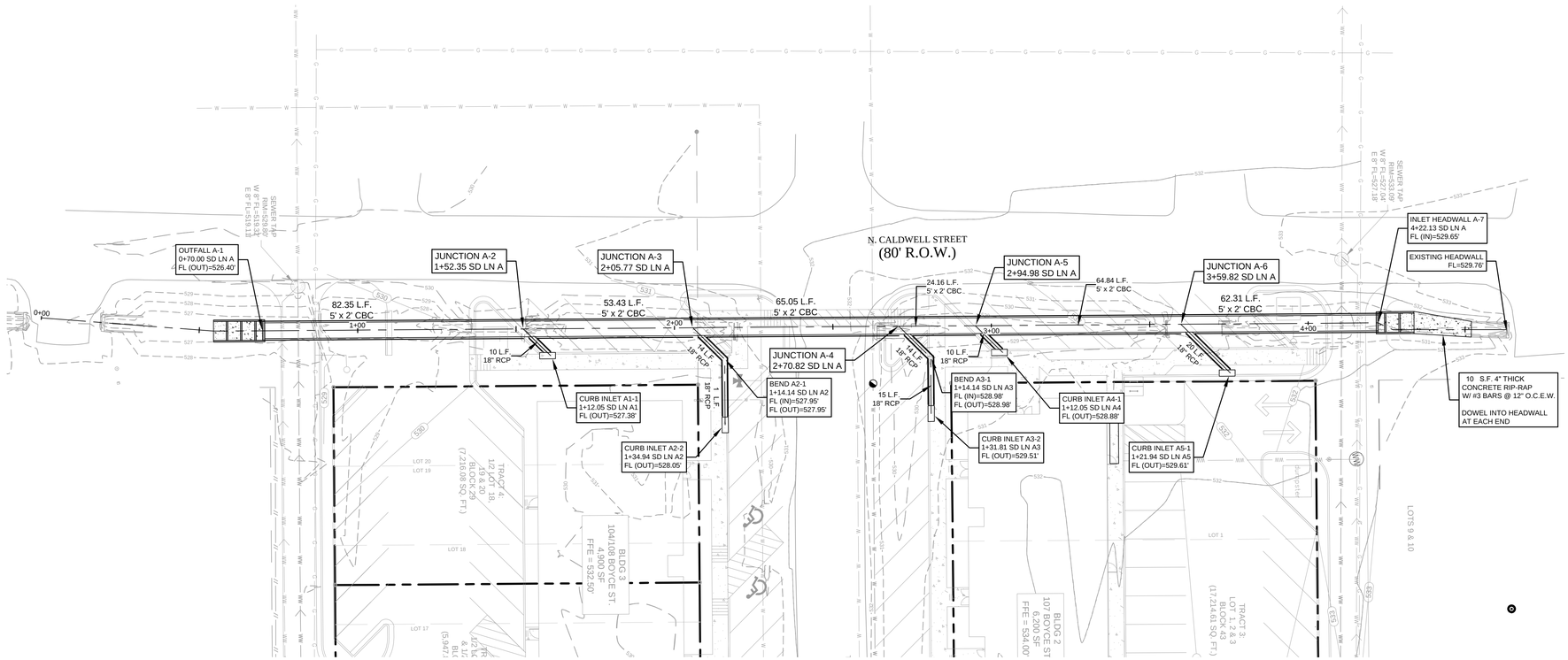
PROJECT NO. 1168-001-24

DRAWING NO.

SHEET 13 OF 31

1168-001-24

O:\Company\Jobs\Clients\1168 - BuildBlock\001-24 Boyce Street Mixed-Use Development\CAD\Sheets\1168-001_GRAD.dwg ~ Layout: "GRADING AND DRAINAGE PLAN" ~ Mon, Jan 06, 2025, 11:09am, By: Hayden.Dringenberg

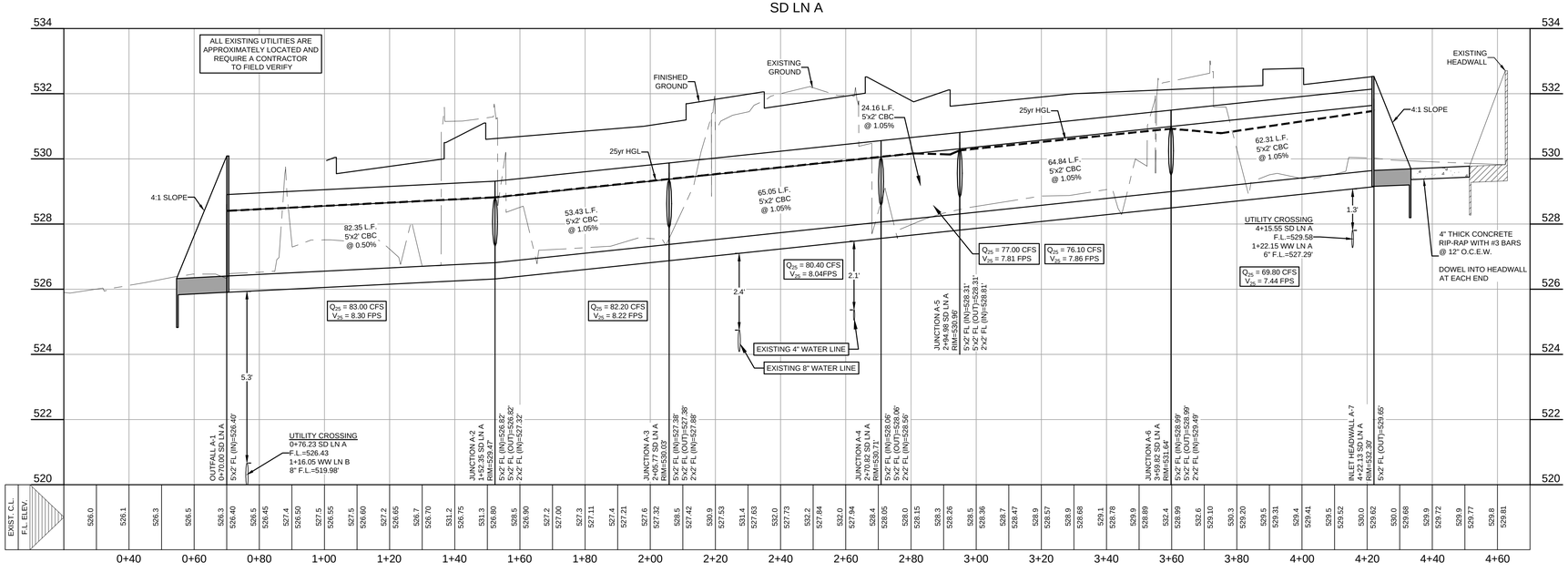


0 10 20 40

HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1"=2'

LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- WATER LINE
- WASTEWATER LINE
- OVERHEAD ELECTRIC LINE
- STORM DRAIN PIPE
- CURB INLET

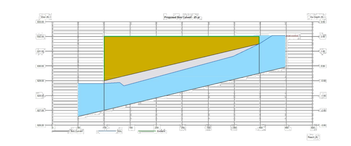


Culvert Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Friday, Apr 19 2024

Proposed Box Culvert - 25 yr

Invert Elev Dn (ft)	= 527.00	**Calculations**	
Pipe Length (ft)	= 298.01	Qmin (cfs)	= 39.90
Slope (%)	= 0.84	Qmax (cfs)	= 74.60
Invert Elev Up (ft)	= 529.50	Tailwater Elev (ft)	= (dc+D)/2
Rise (in)	= 24.0		
Shape	= Box	**Highlighted**	
Span (in)	= 60.0	Qtotal (cfs)	= 59.90
No. Barrels	= 1	Qpipe (cfs)	= 59.16
n-Value	= 0.012	Qovertop (cfs)	= 0.74
Culvert Type	= Rectagular Concrete	Veloc Dn (ft/s)	= 6.52
Culvert Entrance	= Tapered inlet throat	Veloc Up (ft/s)	= 7.25
Coeff. K,M,c,Y,k	= 0.475, 0.667, 0.0179, 0.97, 0.2	HGL Dn (ft)	= 528.82
		HGL Up (ft)	= 531.13
Embankment		Hw Elev (ft)	= 532.06
Top Elevation (ft)	= 532.00	Hw/D (ft)	= 1.28
Top Width (ft)	= 298.00	Flow Regime	= Inlet Control
Crest Width (ft)	= 22.00		

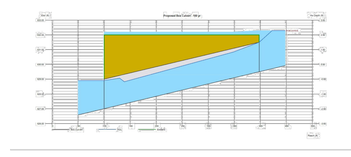


Culvert Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Friday, Apr 19 2024

Proposed Box Culvert - 100 yr

Invert Elev Dn (ft)	= 527.00	**Calculations**	
Pipe Length (ft)	= 298.01	Qmin (cfs)	= 39.90
Slope (%)	= 0.84	Qmax (cfs)	= 98.30
Invert Elev Up (ft)	= 529.50	Tailwater Elev (ft)	= (dc+D)/2
Rise (in)	= 24.0		
Shape	= Box	**Highlighted**	
Span (in)	= 60.0	Qtotal (cfs)	= 79.90
No. Barrels	= 1	Qpipe (cfs)	= 69.45
n-Value	= 0.012	Qovertop (cfs)	= 10.45
Culvert Type	= Rectagular Concrete	Veloc Dn (ft/s)	= 7.28
Culvert Entrance	= Tapered inlet throat	Veloc Up (ft/s)	= 7.65
Coeff. K,M,c,Y,k	= 0.475, 0.667, 0.0179, 0.97, 0.2	HGL Dn (ft)	= 528.91
		HGL Up (ft)	= 531.32
Embankment		Hw Elev (ft)	= 532.29
Top Elevation (ft)	= 532.00	Hw/D (ft)	= 1.40
Top Width (ft)	= 298.00	Flow Regime	= Inlet Control
Crest Width (ft)	= 22.00		



NO.	REVISION	DATE

1/6/2025

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CHECKED BY: HCD

STORM LINE 'A' PLAN & PROFILE

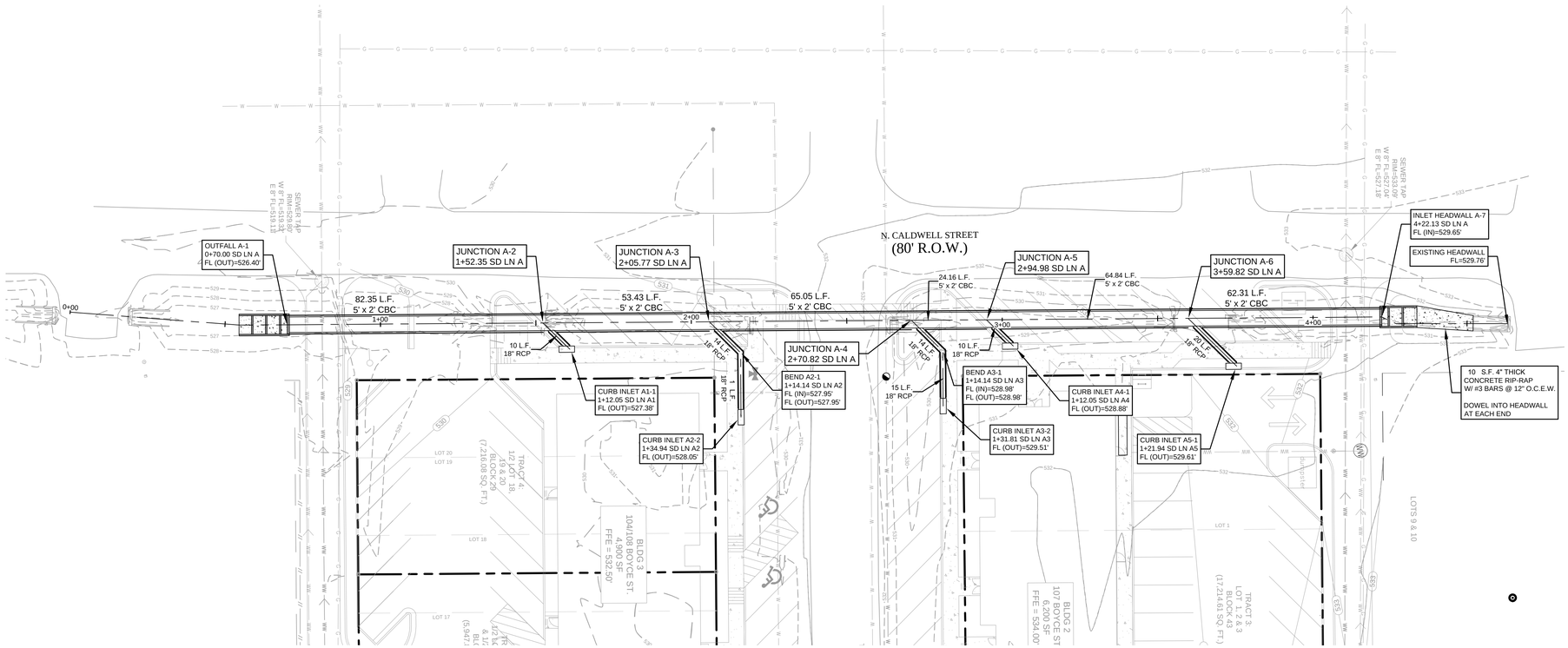
BOYCE STREET MIXED-USE DEVELOPMENT

101, 104, 107 & 108 W BOYCE STREET, MANOR, TEXAS, 78653

PROJECT NO. 1168-001-24

DRAWING NO.

SHEET 15 OF 31

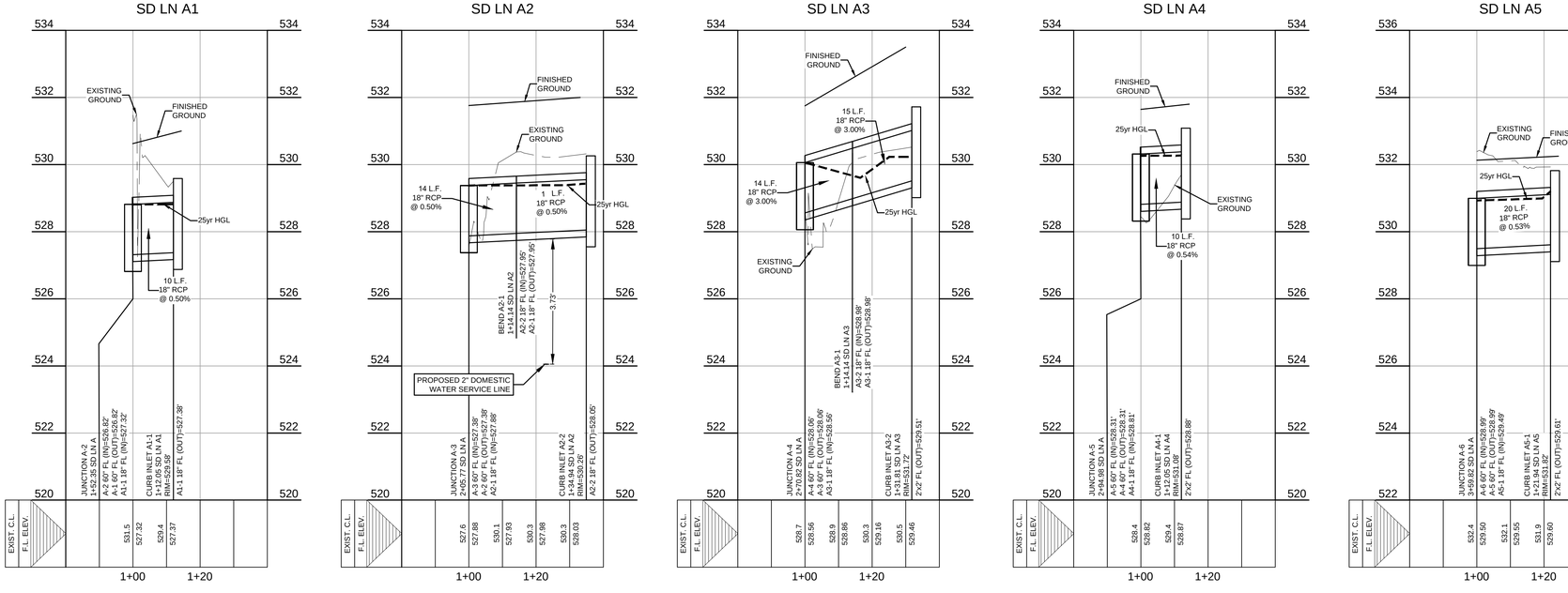


0 10 20 40

HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1"=2'

LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- WATER LINE
- WASTEWATER LINE
- OVERHEAD ELECTRIC LINE
- STORM DRAIN PIPE
- CURB INLET



NO.	REVISION	DATE

1/6/2025

STATE OF TEXAS
A. CAMPBELL KEY IV
147977
LICENSED
PROFESSIONAL ENGINEER

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY A. CAMPBELL KEY IV, PE #147977 ON THE DATE INDICATED. ANY ALTERATIONS OF THIS SEALED DOCUMENT WITHOUT PROPER NOTIFICATION TO THE RESPONSIBLE ENGINEER IS AN OFFENSE UNDER THE TEXAS ENGINEERING PRACTICE ACT.

Southwest Engineers
TBPE NO. F-1909
www.swengineers.com

HEADQUARTERS
307 Saint Lawrence Street, Gonzales TX 78629
P: 830.672.7546 F:830.672.2034

CENTRAL TEXAS
205 Cimarron Park Loop, Ste. B, Buda TX 78610
P: 512.312.4336

WARNING
IF THIS BAR DOES NOT MEASURE 1", THE DRAWING IS NOT TO SCALE

DRAWN BY: APCG / BS

CHECKED BY: HCD

STORM LATERALS PLAN & PROFILE

BOYCE STREET MIXED-USE DEVELOPMENT

101, 104, 107 & 108 W BOYCE STREET, MANOR, TEXAS, 78653

PROJECT NO. 1168-001-24

DRAWING NO.

SHEET 16 OF 31

1500 County Road 269
Leander, TX 78641

P.O. Box 229
Leander, Tx 78646-2029

Date: January 15, 2025

Jiwon Jung

2700 e 2nd st
Los Angeles CA 90033
bb.at.laca@gmail.com

Permit Number 2024-P-1645-SP
Job Address: 101 W Boyce St, Manor 78653

Dear Jiwon Jung,

The second submittal of the Detention Waiver Request, submitted by Jiwon Jung and received by our office on January 9, 2025, has been reviewed for conformance with the City of Manor Code of Ordinances Chapter 10, Section 10.02 ExhibitA Subdivision Ordinance 263B. We can offer the following comments based on our review (cleared comments stricken, new or uncleared comments in bold):

1. ~~Please add an Engineer's seal (sign and signature) to the waiver request letter.~~

2. ~~Add to the letter that you are requesting a waiver to the City of Austin Drainage Criteria Manual (DCM) Section 1.2.2.D which states Stormwater runoff peak flow rates shall not be increased at any point of discharge from a site for the two (2), ten (10), 25 and 100-year storm frequency events. Austin DCM has been adopted by the City of Manor.~~

3. ~~On your resubmittal, please submit one single pdf files with all the exhibits attached.~~

4. **Add a block to the Cover sheet saying, A waiver to the City of Austin Drainage Criteria Manual (DCM) Section 1.2.2.D which states Stormwater runoff peak flow rates shall not be increased at any point of discharge from a site for the two (2), ten (10), 25 and 100-year storm frequency events was approved by the City of Manor on this date.**

    a. **Comment remains until all comments are cleared. Language found on cover sheet.**

5. ~~On the proposed Drainage Area Map (Sheet 8 of 30), clearly show the proposed storm sewer line. Currently, everything looks in gray scale and it is difficult to distinguish between existing and proposed infrastructure.~~

6. ~~On the existing Drainage summary table, explain how the total POA A Q and POA B Q is adding up in each of the storms. Appears to be that the peaks are not adding in neither of the storms.~~

7. ~~Add an additional table in the proposed drainage sheet, something like this:~~

	~~POA A Ex~~	~~POA A Pr~~	~~Exceedances~~
~~2-yr~~	~~6.1~~	~~8.5~~	~~2.4~~
~~10-yr~~	~~10.7~~	~~14~~	~~3.3~~

25-yr	13.8	17.7	3.9
100-yr	19	23.9	4.9

	POA B Ex	POA B Pr	Exceedances
2-yr	0.9	1.5	0.6
10-yr	1.6	2.3	0.7
25-yr	2.2	2.9	0.7
100-yr	3	3.8	0.8

8. Add an additional table in the proposed drainage sheet related to total exceedances for site plan, something like this:

	Total Exceedances for Site Plan
2-yr	3.00
10-yr	4.00
25-yr	4.60
100-yr	5.70

9. **All proposed storm drains that will be in the ROW or in a public drainage easement must meet DCM 5.2.0 design guidelines. The design guidelines rules shall be observed in the design of storm drain systems located in public right-of-way or public drainage easements to promote proper operation of these systems and to minimize maintenance requirements. The material and diameter of all public storm drains should be noted on the grading and drainage plan sheets. See DCM 5.2.0.J and DCM 5.3.3. If so, please provide plan and profile for this culvert/storm sewer system and a H&H model to justify the size and capacity. For Storm Sewer design.**
    a. **Comment remains until all comments are cleared. Correct downstream elevation in printouts, make sure the profile matches the profile (invert El. 526.4). On profile for SD LN A, show grading from 0+70 to 1+00 (+/-). Is the 100-yr HGL contained the ROW? Did you model the SS line? Which model did you use?**

10. Provide H&H calculations (one cross section) for existing east side ditch of N Caldwell Steet between the proposed discharge point of storm sewer and Old Hwy 20.

11. **Provide H&H calculations for existing culvert along existing east side ditch on N Caldwell Steet which crosses Old Hwy 20.**

    a. **Comment remains. Provide H & H calculation for existing culvert at drive way (downstream of culvert discharge), ditch between this ex culvert at DW and Ex Culvert at W Parson St (Old Hwy 20) and culvert under W Parson St (Old Hwy 20).**

12. **We may comment on new material that is submitted in an update submittal for this waiver.**
    a. **Comment remains until all comments are cleared.**

Should you have questions regarding specific comments, please contact the staff member referenced under the section in which the comment occurs. Should you have questions or require additional information regarding the plan review process itself, please feel free to reach out to Jose Castillo directly. He can be reached by e-mail at jcastillo@gbateam.com.

Review of this submittal does not constitute verification that all data, information and calculations supplied by the applicant are accurate, complete, or adequate for the intended purpose. The engineer of record is solely responsible for the completeness, accuracy, and adequacy of his/her submittal, whether or not City Engineers review the application for Ordinance compliance.

Sincerely,

Pauline Gray
Lead AES GBA

1500 County Road 269
Leander, TX 78641

P.O. Box 229
Leander, Tx 78646-2029

Date: Wednesdy, December 18, 2024

Jiwon Jung

2700 e 2nd st
Los Angeles CA 90033
bb.at.laca@gmail.com

Permit Number 2024-P-1645-SP
Job Address: 101 W Boyce St, Manor 78653

Dear Jiwon Jung,

The submittal of the Detention Waiver Request, submitted by Jiwon Jung and received by our office on December 5, 2024, has been reviewed for conformance with the City of Manor Code of Ordinances Chapter 10, Section 10.02 ExhibitA Subdivision Ordinance 263B. We can offer the following comments based on our review:

1. Please add an Engineer's seal (sign and signature) to the waiver request letter.

2. Add to the letter that you are requesting a waiver to the City of Austin Drainage Criteria Manual (DCM) Section 1.2.2.D which states Stormwater runoff peak flow rates shall not be increased at any point of discharge from a site for the two (2), ten (10), 25 and 100-year storm frequency events. Austin DCM has been adopted by the City of Manor.

3. On your resubmittal, please submit one single pdf files with all the exhibits attached.

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5. On the proposed Drainage Area Map (Sheet 8 of 30), clearly show the proposed storm sewer line. Currently, everything looks in gray scale and it is difficult to distinguish between existing and proposed infrastructure.

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2-yr	6.1	8.5	2.4
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Sincerely,

Pauline Gray
Lead AES
GBA