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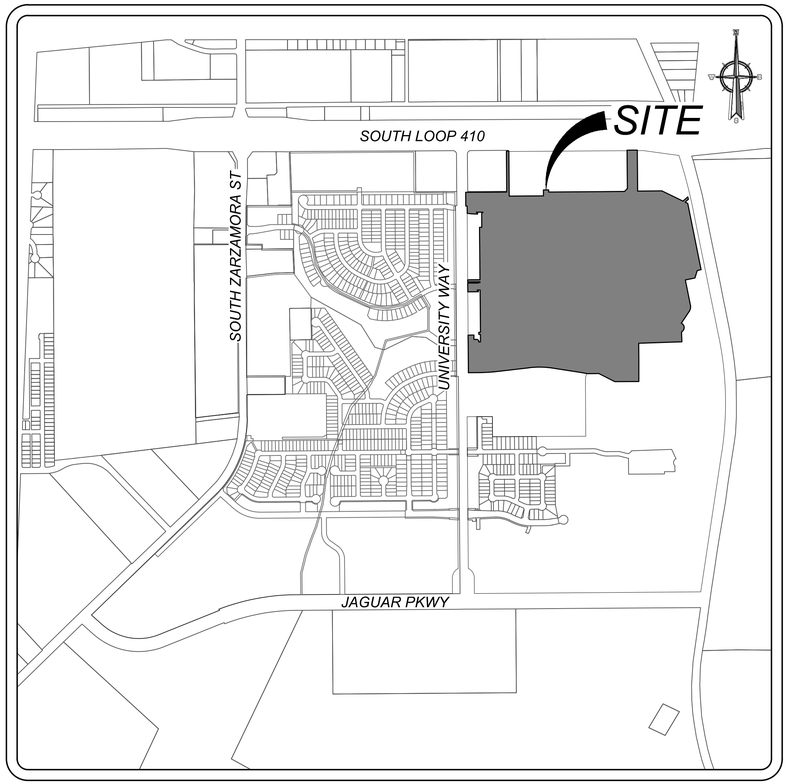
VIDA SAN ANTONIO PHASE 5

BEXAR COUNTY, TEXAS

UTILITY, DRAINAGE, STREET, SANITARY SEWER & WATER IMPROVEMENTS



LOCATION MAP

N.T.S.

OWNER/DEVELOPER:
SOUTHSTAR AT VERANO, LLC
2055 CENTRAL PLAZA, SUITE 110
NEW BRAUNFELS, TEXAS 78130

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PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
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3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#:F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: CV3911024

SHEET TITLE: COVER SHEET

SHEET NUMBER: 0.0

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

By: SJOSEPH
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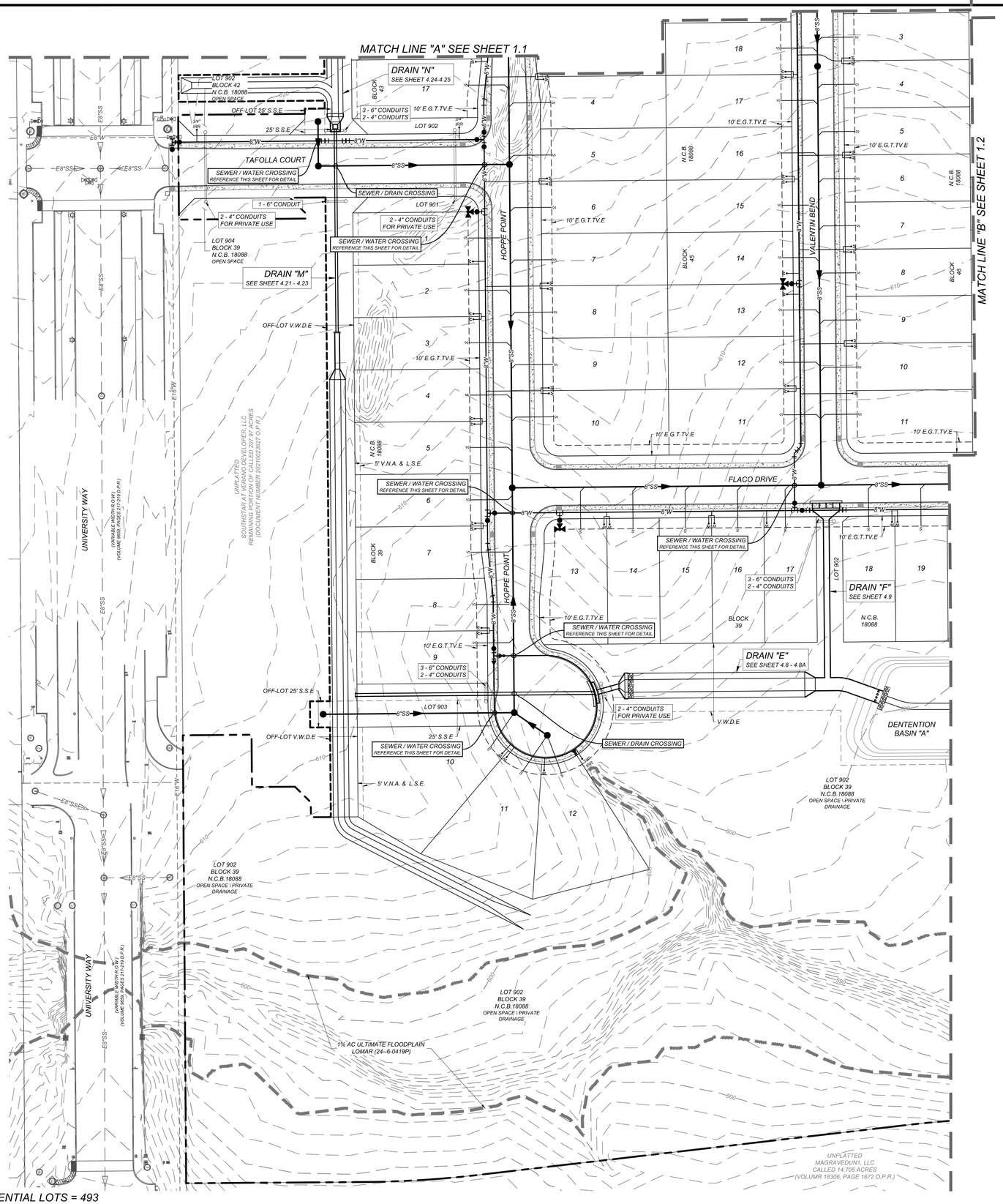

LEGEND

PROPOSED WATER MAIN	=	W
PROPOSED WATER SERVICE & METER BOX	=	
PROPOSED WATER 3/4" IRRIGATION SERVICE & METER BOX	=	
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED 100 WATT STREETLIGHT	=	
PROPOSED 250 WATT STREETLIGHT	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	SS
PROPOSED SANITARY SEWER LATERAL	=	
ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT	=	E.G.T.TV.E
SANITARY SEWER EASEMENT	=	S.S.E
DRAINAGE EASEMENT	=	D.E
VARIABLE WIDTH CLEAR VISION EASEMENT	=	V.W.C.V.E
VEHICULAR NON-ACCESS LANDSCAPE EASEMENT	=	V.N.A. & L.S.E
EXISTING WATER MAIN	=	EW
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING SANITARY SEWER MAIN	=	ESS
EXISTING SANITARY SEWER MANHOLE	=	ESS
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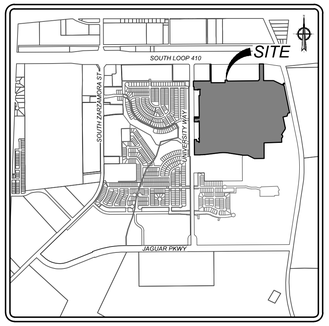
EXISTING GUY WIRE/OVERHEAD ELECTRIC	=	OHE
EXISTING STREET LIGHT	=	



LOCATION MAP
N.T.S.

TRENCH EXCAVATION SAFETY PROTECTION

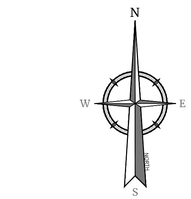
CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

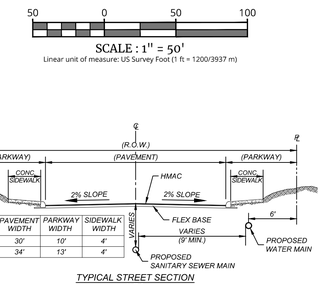
COMPACTION NOTE:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING 98% COMPACTION ON ALL TRENCH BACKFILL AND PAYING FOR THE TESTS TO BE PERFORMED BY A THIRD PARTY. COMPACTION TESTS WILL BE DONE AT ONE LOCATION POINT RANDOMLY SELECTED OR AS INDICATED BY THE SAWS INSPECTOR/TEST ADMINISTRATOR, PER EACH 12 INCH LOOSE LIFT PER 400 LINEAR FEET AT A MINIMUM. PERMITS AND/OR WILL NOT BE ACCEPTED AND FINALIZED BY SAWS WITHOUT THIS REQUIREMENT BEING MET AND VERIFIED BY PROVIDING ALL NECESSARY DOCUMENTED TEST RESULTS.

DRY UTILITY CONDUIT NOTE:

CONDUIT LOCATIONS SHOWN ON PLAN ARE FOR GEOGRAPHICAL PURPOSES ONLY AND ARE APPROXIMATE. CONTRACTOR TO INSTALL PROPOSED CONDUITS IN ACCORDANCE WITH DRY UTILITY PURVEYOR'S SPECIFICATIONS. CONTRACTOR TO VERIFY THE CONDUIT LOCATIONS AND SIZES BASED ON THE DRY UTILITY PURVEYOR'S PLAN.

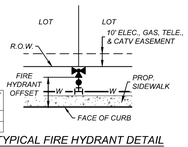




SCALE : 1" = 50'
Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)

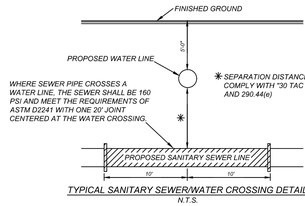
TYPE	PAVEMENT WIDTH	PARKWAY WIDTH	SIDEWALK WIDTH
50' R.O.W.	30'	10'	4'
60' R.O.W.	34'	13'	4'

TYPICAL STREET SECTION
N.T.S.

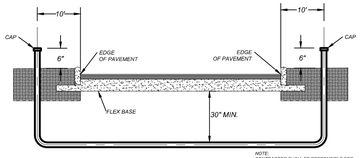


SIDEWALK WIDTH	FIRE HYDRANT OFFSET
4'	5.0' MIN
6'	7.0' MIN

TYPICAL FIRE HYDRANT DETAIL
NOT-TO-SCALE



TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
N.T.S.



NOTE:
CONTRACTOR SHALL BE RESPONSIBLE FOR PLACING CONDUIT SLEEVES FOR EACH CPS FACILITY AT ALL STREETS AND DRAIN CROSSING IF BUILT AHEAD OF CPS CONSTRUCTION. SLEEVES MUST ALSO BE LOCATED FOR CPS CREWS DURING CONSTRUCTION. REFER TO ITEM I SEE THIS SHEET FOR CONDUIT CROSSING DETAIL AND SCHEDULE.

TYPICAL CONDUIT DETAIL
N.T.S.

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PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

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SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

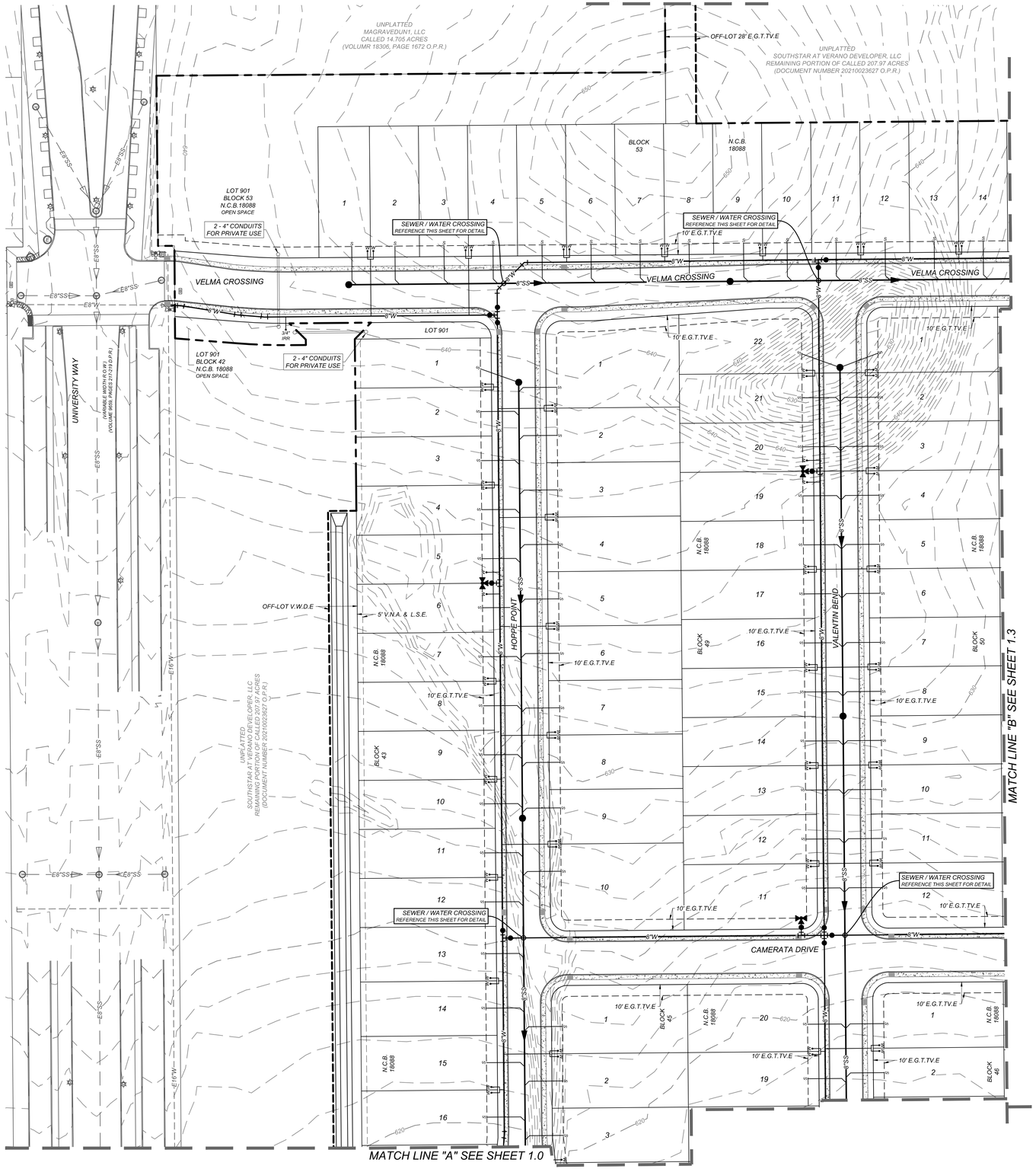
PROJECT NUMBER: 391-10-24
DRAWING NAME: OU3911024

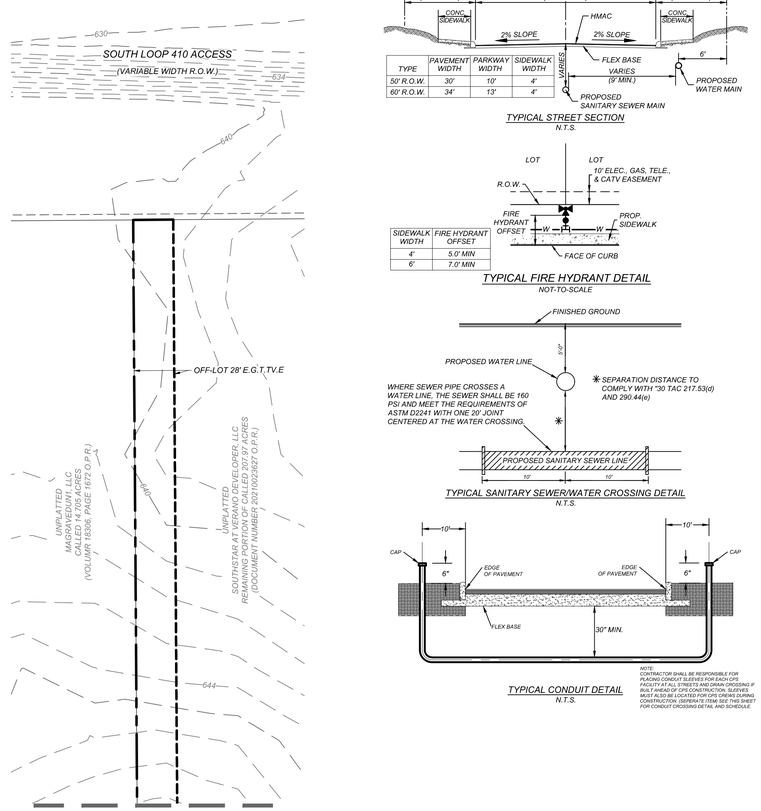
SHEET TITLE:
OVERALL UTILITY PLAN
(1 OF 6)

SHEET NUMBER: 1.0

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

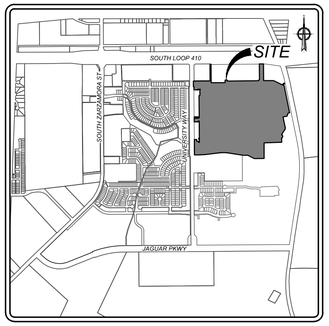
By: SDSEPH





LEGEND

PROPOSED WATER MAIN	=	W
PROPOSED WATER SERVICE & METER BOX	=	W
PROPOSED WATER 3/4" IRRIGATION SERVICE & METER BOX	=	W
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED 100 WATT STREETLIGHT	=	
PROPOSED 250 WATT STREETLIGHT	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	SS
PROPOSED SANITARY SEWER LATERAL	=	
ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT	=	E.G.T.TV.E
SANITARY SEWER EASEMENT	=	S.S.E
DRAINAGE EASEMENT	=	D.E
VARIABLE WIDTH CLEAR VISION EASEMENT	=	V.W.C.V.E
VEHICULAR NON-ACCESS LANDSCAPE EASEMENT	=	V.N.A. & L.S.E
EXISTING WATER MAIN	=	EW
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING SANITARY SEWER MAIN	=	ESS
EXISTING SANITARY SEWER MANHOLE	=	ESS
EXISTING OVERHEAD ELECTRIC W/POWER POLE	=	OHE
EXISTING GUY WIRE/OVERHEAD ELECTRIC	=	OHE
EXISTING STREET LIGHT	=	



LOCATION MAP
N.T.S.

TRENCH EXCAVATION SAFETY PROTECTION
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DRY UTILITY CONDUIT NOTE:
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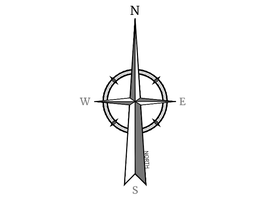



SCALE : 1" = 50'
Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)

TYPE	PAVEMENT WIDTH	PARKWAY WIDTH	SIDEWALK WIDTH
50' R.O.W.	30'	10'	4'
60' R.O.W.	34'	13'	4'

TYPICAL STREET SECTION
N.T.S.

SIDEWALK WIDTH	FIRE HYDRANT OFFSET
4'	5.0' MIN
6'	7.0' MIN

TYPICAL FIRE HYDRANT DETAIL
NOT-TO-SCALE

TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
N.T.S.

NOTE:
CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL CPS ENERGY FACILITIES FACILITY AT ALL STREETS AND DRIVEWAY CROSSING IF BUILT AHEAD OF CPS CONSTRUCTION. SLEEVES MUST ALSO BE LOCATED FOR CPS CREWS DURING CONSTRUCTION. (SEPERATE ITEM) SEE THIS SHEET FOR CONDUIT CROSSING DETAIL AND SCHEDULE.

TYPICAL CONDUIT DETAIL
N.T.S.

RESIDENTIAL LOTS = 493

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BEXAR COUNTY
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3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#:F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

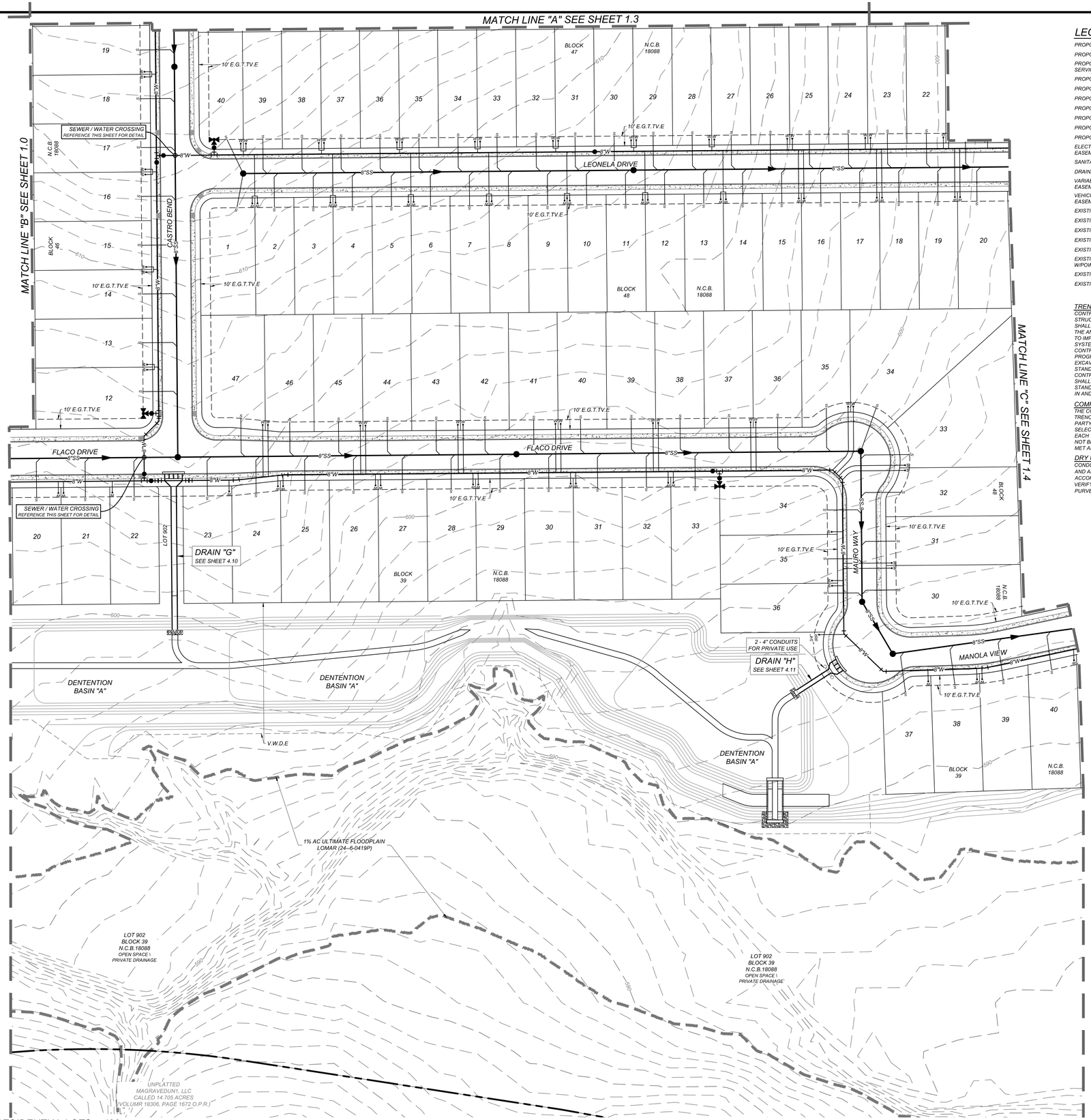
PROJECT NUMBER:	DRAWING NAME:
391-10-24	OU3911024

SHEET TITLE:
OVERALL UTILITY PLAN
(2 OF 6)

SHEET NUMBER:
1.1

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

w:\OU3911024.dwg\1.1 By: SJOSEPH



LEGEND

PROPOSED WATER MAIN	=	W
PROPOSED WATER SERVICE & METER BOX	=	W
PROPOSED WATER 3/4" IRRIGATION SERVICE & METER BOX	=	W
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED 100 WATT STREETLIGHT	=	
PROPOSED 250 WATT STREETLIGHT	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	SS
PROPOSED SANITARY SEWER LATERAL	=	S
ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT	=	E.G.T.TV.E
SANITARY SEWER EASEMENT	=	S.S.E
DRAINAGE EASEMENT	=	D.E
VARIABLE WIDTH CLEAR VISION EASEMENT	=	V.W.C.V.E
VEHICULAR NON-ACCESS LANDSCAPE EASEMENT	=	V.N.A. & L.S.E
EXISTING WATER MAIN	=	EW
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING SANITARY SEWER MAIN	=	ESS
EXISTING SANITARY SEWER MANHOLE	=	ESS
EXISTING OVERHEAD ELECTRIC W/POWER POLE	=	OHE
EXISTING GUY WIRE/OVERHEAD ELECTRIC	=	OHE
EXISTING STREET LIGHT	=	

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

COMPACTION NOTE:

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DRY UTILITY CONDUIT NOTE:

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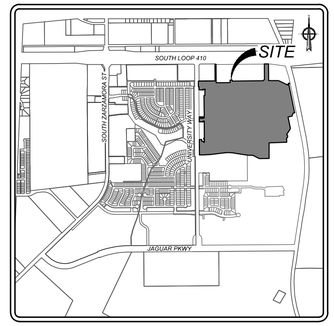
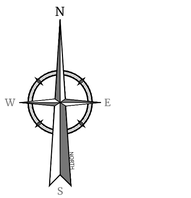


LOCATION MAP

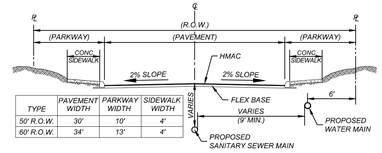
N.T.S.



50 0 50 100

SCALE : 1" = 50'

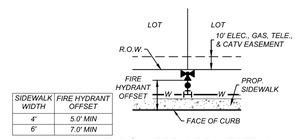
Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)



TYPE	PAVEMENT WIDTH	PARKWAY WIDTH	SIDEWALK WIDTH
50' R.O.W.	30'	10'	4'
60' R.O.W.	34'	13'	4'

TYPICAL STREET SECTION

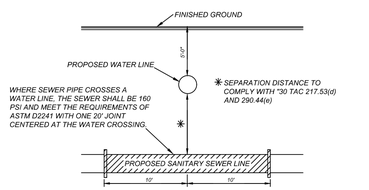
N.T.S.



SIDEWALK WIDTH	FIRE HYDRANT OFFSET
4'	5.0' MIN
6'	7.0' MIN

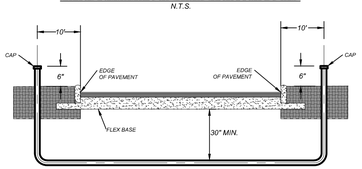
TYPICAL FIRE HYDRANT DETAIL

NOT-TO-SCALE



TYPICAL SANITARY SEWER/WATER CROSSING DETAIL

N.T.S.



NOTE:
CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING CPS ENERGY FACILITY AT ALL STREETS AND DRAIN CROSSING IF BUILT AHEAD OF CPS CONSTRUCTION. SLEEVES MUST ALSO BE LOCATED FOR CPS CREWS DURING CONSTRUCTION. (SEPERATE ITEM) SEE THIS SHEET FOR CONDUIT CROSSING DETAIL AND SCHEDULE.

TYPICAL CONDUIT DETAIL

N.T.S.

Colliers Engineering & Design

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FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

REV	DATE	DRAWN BY	DESCRIPTION

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FOR

VIDA SAN ANTONIO PHASE 5

PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design

SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#:F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER:	DRAWING NAME:
391-10-24	OU3911024

SHEET TITLE:

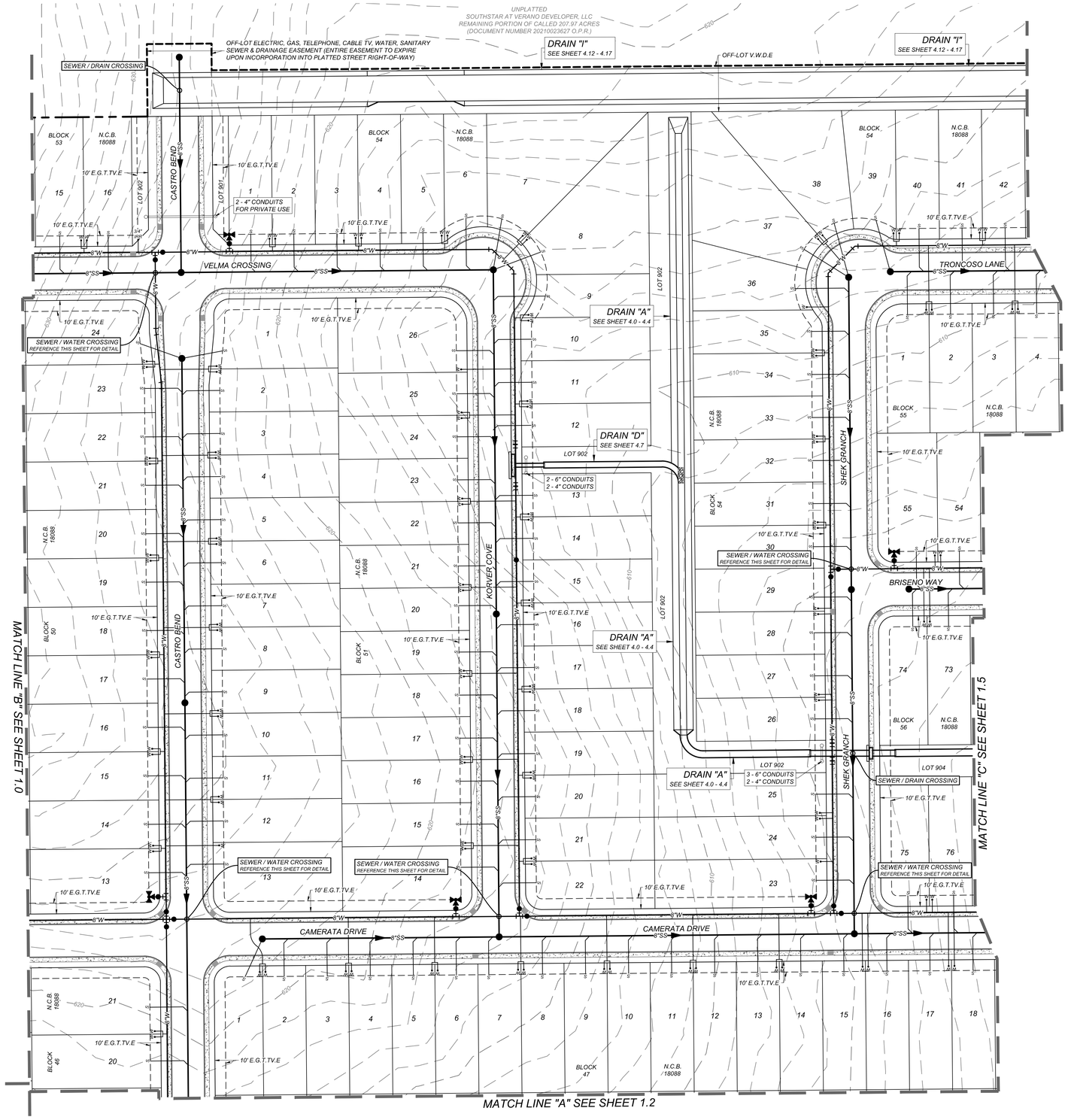
OVERALL UTILITY PLAN (3 OF 6)

SHEET NUMBER:

1.2

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

w:\OU3911024.dwg\1.2 By: SJOSEPH



RESIDENTIAL LOTS = 493

LEGEND

PROPOSED WATER MAIN	=	W
PROPOSED WATER SERVICE & METER BOX	=	3/4"
PROPOSED WATER 3/4" IRRIGATION SERVICE & METER BOX	=	3/4"
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED 100 WATT STREETLIGHT	=	
PROPOSED 250 WATT STREETLIGHT	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	SS
PROPOSED SANITARY SEWER LATERAL	=	SS
ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT	=	E.G.T.TV.E
SANITARY SEWER EASEMENT	=	S.S.E
DRAINAGE EASEMENT	=	D.E
VARIABLE WIDTH CLEAR VISION EASEMENT	=	V.W.C.V.E
VEHICULAR NON-ACCESS LANDSCAPE EASEMENT	=	V.N.A. & L.S.E
EXISTING WATER MAIN	=	EW
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING SANITARY SEWER MAIN	=	ESS
EXISTING SANITARY SEWER MANHOLE	=	ESS
EXISTING OVERHEAD ELECTRIC W/POWER POLE	=	OHE
EXISTING GUY WIRE/OVERHEAD ELECTRIC	=	OHE
EXISTING STREET LIGHT	=	

TRENCH EXCAVATION SAFETY PROTECTION

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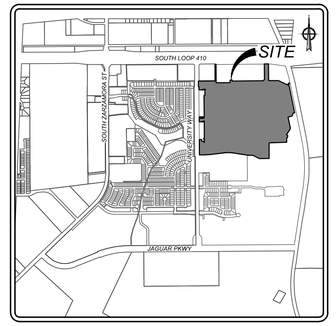
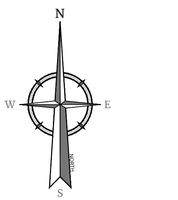


LOCATION MAP

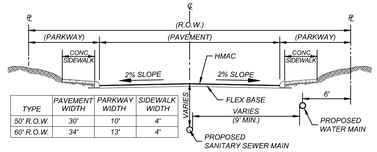
N.T.S.



50 0 50 100

SCALE : 1" = 50'

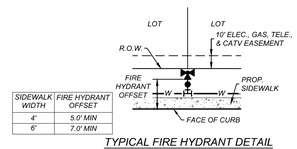
Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)



TYPE	PAVEMENT WIDTH	PARKWAY WIDTH	SIDEWALK WIDTH
50' R.O.W.	30'	10'	4'
60' R.O.W.	34'	13'	4'

TYPICAL STREET SECTION

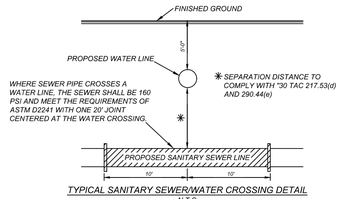
N.T.S.



SIDEWALK WIDTH	FIRE HYDRANT OFFSET
4'	5.0' MIN
6'	7.0' MIN

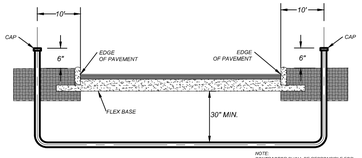
TYPICAL FIRE HYDRANT DETAIL

NOT-TO-SCALE



TYPICAL SANITARY SEWER/WATER CROSSING DETAIL

N.T.S.



NOTE:
CONTRACTOR SHALL BE RESPONSIBLE FOR PLACING CONDUIT SLEEVES FOR EACH DRY UTILITY PURVEYOR'S CONDUIT CROSSING. IF BUILT AHEAD OF CPS CONSTRUCTION, SLEEVES MUST ALSO BE LOCATED FOR CPS CREWS DURING CONSTRUCTION. (SEPERATE ITEM) SEE THIS SHEET FOR CONDUIT CROSSING DETAIL AND SCHEDULE.

TYPICAL CONDUIT DETAIL

N.T.S.

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REV	DATE	DRAWN BY	DESCRIPTION

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: OU3911024

SHEET TITLE:
OVERALL UTILITY PLAN
(4 OF 6)

SHEET NUMBER:
1.3

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

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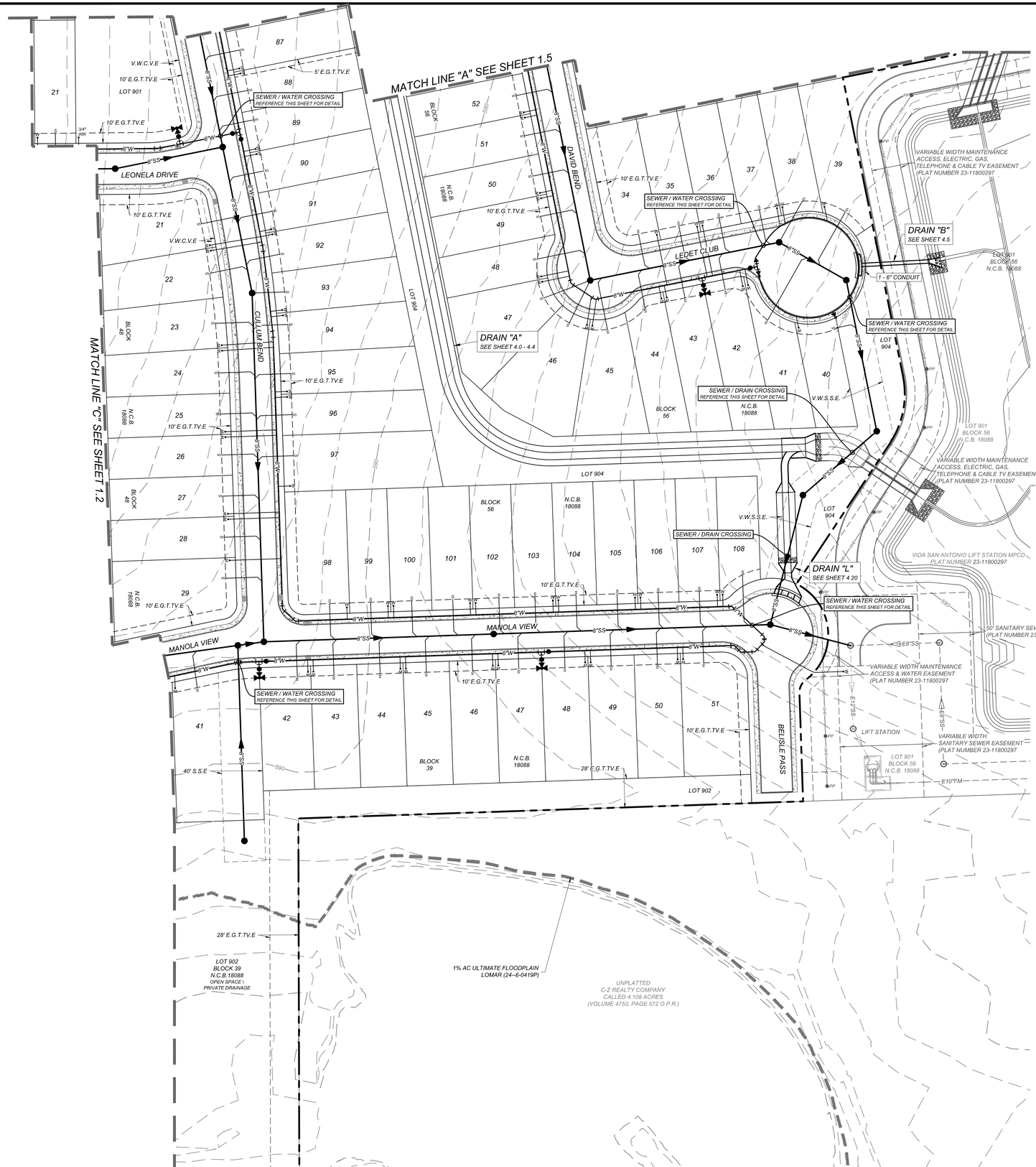

LEGEND

PROPOSED WATER MAIN	=	W
PROPOSED WATER SERVICE & METER BOX	=	W
PROPOSED WATER 3/4" IRRIGATION SERVICE & METER BOX	=	W
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED 100 WATT STREETLIGHT	=	
PROPOSED 250 WATT STREETLIGHT	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	SS
PROPOSED SANITARY SEWER LATERAL	=	S
ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT	=	E.G.T.TV.E
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EXISTING WATER MAIN	=	EW
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING SANITARY SEWER MAIN	=	ESS
EXISTING SANITARY SEWER MANHOLE	=	ESS
EXISTING OVERHEAD ELECTRIC W/POWER POLE	=	OHE
EXISTING GUY WIRE/OVERHEAD ELECTRIC	=	OHE
EXISTING STREET LIGHT	=	

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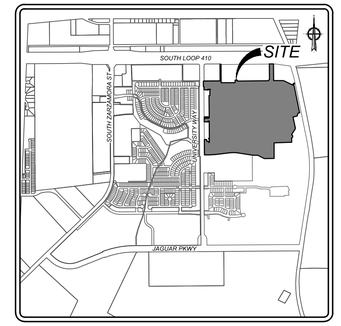
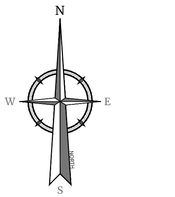
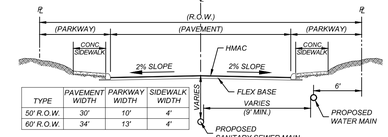


LOCATION MAP
N.T.S.



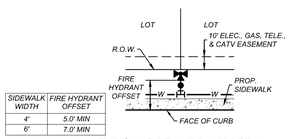
50 0 50 100

SCALE : 1" = 50'
Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)



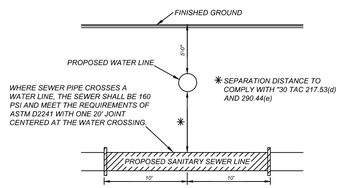
TYPE	PAVEMENT WIDTH	PARKWAY WIDTH	SIDEWALK WIDTH
50' R.O.W.	30'	10'	4'
60' R.O.W.	34'	13'	4'

TYPICAL STREET SECTION
N.T.S.

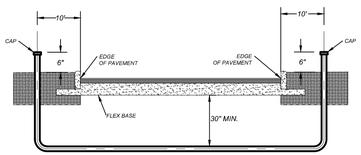


SIDEWALK WIDTH	FIRE HYDRANT OFFSET
4'	5.0' MIN
6'	7.0' MIN

TYPICAL FIRE HYDRANT DETAIL
NOT-TO-SCALE



TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
N.T.S.



TYPICAL CONDUIT DETAIL
N.T.S.

NOTE:
CONTRACTOR SHALL BE RESPONSIBLE FOR PLACING CONDUIT SLEEVES FOR EACH CPS FACILITY AT ALL STREETS AND DRAIN CROSSING. IF CONDUIT IS NOT PLACED BEFORE PAVING, IT MUST ALSO BE LOCATED FOR CPS CREWS DURING CONSTRUCTION. (SEP#9472 ITEM) SEE THIS SHEET FOR CONDUIT CROSSING DETAIL AND SCHEDULE.

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www.colliersengineering.com

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REV	DATE	DRAWN BY	DESCRIPTION

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14305
TBPLS Firm#: 10194500

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER:	DRAWING NAME:
391-10-24	OU3911024

SHEET TITLE:
OVERALL UTILITY PLAN
(5 OF 6)

SHEET NUMBER:
1.4

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

\\ROU391102A.dwg\1.4 By: SDSEPH

MATCH LINE "D" SEE THIS SHEET

MATCH LINE "C" SEE SHEET 1.3

MATCH LINE "A" SEE SHEET 1.4

UNPLATTED SOUTHSTAR AT VERANO INVESTMENT, LLC REMAINING PORTION OF CALLED 207.97 ACRES (DOCUMENT NUMBER 20210023627 O.P.R.)

UNPLATTED SOUTHSTAR AT VERANO DEVELOPER, LLC REMAINING PORTION OF CALLED 207.97 ACRES (DOCUMENT NUMBER 20210023627 O.P.R.)

VARIABLE WIDTH MAINTENANCE ACCESS, ELECTRIC, GAS, TELEPHONE & CABLE TV EASEMENT (PLAT NUMBER 23-11800297

VIDA SAN ANTONIO LIFT STATION (MPCD PLAT NUMBER 23-11800297)

DRAIN "K" SEE SHEET 4.19

DRAIN "I" SEE SHEET 4.12 - 4.17

DRAIN "A" SEE SHEET 4.0 - 4.4

DRAIN "C" SEE SHEET 4.6

DRAIN "J" SEE SHEET 4.18

DRAIN "O" SEE SHEET 4.26

NAVAIRA LANE

TRONCOSO LANE

BRISENO WAY

CAMERATA DRIVE

CULLUM BEND

DAVID BEND

KEYHOLE COURT

BLOCK 54

BLOCK 55

BLOCK 56

BLOCK 47

N.C.B. 18088

LOT 901

LOT 902

LOT 903

LOT 904

1 - 6" CONDUIT

2 - 4" CONDUITS FOR PRIVATE USE

3 - 6" CONDUITS 2 - 4" CONDUITS

4 - 6" CONDUITS 2 - 4" CONDUITS

SEWER / WATER CROSSING REFERENCE THIS SHEET FOR DETAIL

SEWER / DRAIN CROSSING

OFF-LOT V.W.D.E

OFF-LOT 14' E.G.T.TV.E

OFF-LOT 25' S.S.E

14' E.G.T.TV.E

10' E.G.T.TV.E

5' E.G.T.TV.E

30' S.S.E

24' S.S.E

V.W.C.V.E

8"W

8"SS

RESIDENTIAL LOTS = 493

LEGEND

PROPOSED WATER MAIN	=	W
PROPOSED WATER SERVICE & METER BOX	=	5/8"
PROPOSED WATER 3/4" IRRIGATION SERVICE & METER BOX	=	3/4"
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED 100 WATT STREETLIGHT	=	
PROPOSED 250 WATT STREETLIGHT	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	SS
PROPOSED SANITARY SEWER LATERAL	=	S
ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT	=	E.G.T.TV.E
SANITARY SEWER EASEMENT	=	S.S.E
DRAINAGE EASEMENT	=	D.E
VARIABLE WIDTH CLEAR VISION EASEMENT	=	V.W.C.V.E
VEHICULAR NON-ACCESS LANDSCAPE EASEMENT	=	V.N.A. & L.S.E
EXISTING WATER MAIN	=	EW
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING SANITARY SEWER MAIN	=	ESS
EXISTING SANITARY SEWER MANHOLE	=	ESS
EXISTING OVERHEAD ELECTRIC W/POWER POLE	=	OHE OHE
EXISTING GUY WIRE/OVERHEAD ELECTRIC	=	OHE
EXISTING STREET LIGHT	=	

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

COMPACTION NOTE:

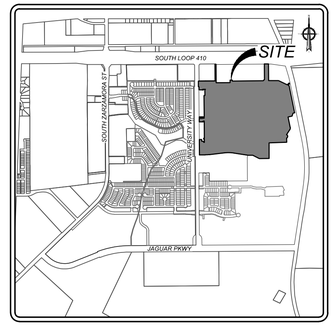
THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING 98% COMPACTION ON ALL TRENCH BACKFILL AND PAYING FOR THE TESTS TO BE PERFORMED BY A THIRD PARTY. COMPACTION TESTS WILL BE DONE AT ONE LOCATION POINT RANDOMLY SELECTED OR AS INDICATED BY THE SAWS INSPECTOR/TEST ADMINISTRATOR, PER EACH 12 INCH LOOSE LIFT PER 400 LINEAR FEET AT A MINIMUM. PERMITS AND/OR WILL NOT BE ACCEPTED AND FINALIZED BY SAWS WITHOUT THIS REQUIREMENT BEING MET AND VERIFIED BY PROVIDING ALL NECESSARY DOCUMENTED TEST RESULTS.

DRY UTILITY CONDUIT NOTE:

CONDUIT LOCATIONS SHOWN ON PLAN ARE FOR GEOGRAPHICAL PURPOSES ONLY AND ARE APPROXIMATE. CONTRACTOR TO INSTALL PROPOSED CONDUITS IN ACCORDANCE WITH DRY UTILITY PURVEYOR'S SPECIFICATIONS. CONTRACTOR TO VERIFY THE CONDUIT LOCATIONS AND SIZES BASED ON THE DRY UTILITY PURVEYOR'S PLAN.

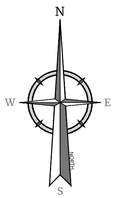
CAUTION!!:

THE CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITED TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT ARISE SHOULD BE COMMUNICATED TO THE ENGINEER IMMEDIATELY AND PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL CONTACT 1-800-DIG-TESS A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND THE REPAIR SHALL BE AT CONTRACTOR'S SOLE EXPENSE WHETHER THE UTILITY IS SHOWN ON THESE PLANS OR NOT.



LOCATION MAP

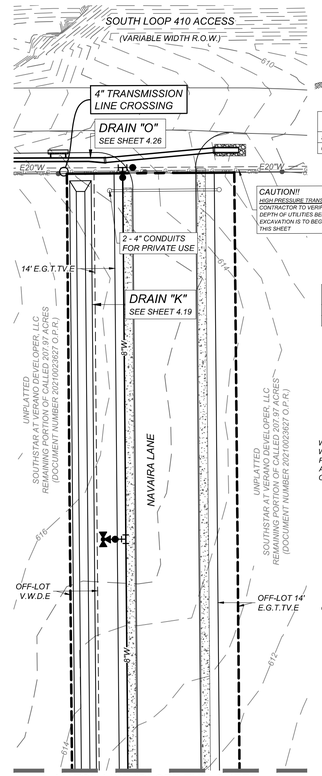
N.T.S.



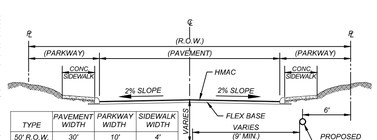
50 0 50 100

SCALE : 1" = 50'

Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)



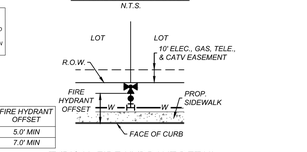
CAUTION!!
HIGH PRESSURE TRANSMISSION LINE! CONTRACTOR TO VERIFY LOCATION AND DEPTH OF UTILITIES BEFORE ANY EXCAVATION IS TO BEGIN. SEE NOTE ON THIS SHEET



TYPE	PAVEMENT WIDTH	PARKWAY WIDTH	SIDEWALK WIDTH
50' R.O.W.	30'	10'	4'
60' R.O.W.	34'	13'	4'

TYPICAL STREET SECTION

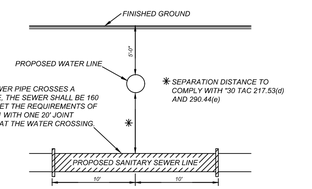
N.T.S.



SIDEWALK WIDTH	FIRE HYDRANT OFFSET
4'	5.0' MIN
6'	7.0' MIN

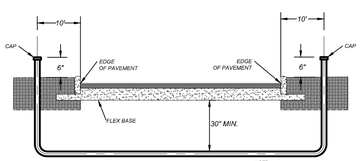
TYPICAL FIRE HYDRANT DETAIL

NOT-TO-SCALE



TYPICAL SANITARY SEWER/WATER CROSSING DETAIL

N.T.S.



TYPICAL CONDUIT DETAIL

N.T.S.

NOTE:
THE CONTRACTOR SHALL BE RESPONSIBLE FOR PLACING CONDUIT SLEEVES FOR EACH CPS FACILITY AT ALL STREETS AND DRAIN CROSSING IF BUILT AHEAD OF CPS CONSTRUCTION. SLEEVES MUST ALSO BE LOCATED FOR CPS CREWS DURING CONSTRUCTION. REFERENCE CPS NOTES AND DETAILS FOR CONDUIT CROSSING DETAIL AND SCHEDULE

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FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

REV	DATE	DRAWN BY	DESCRIPTION

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design

SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
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COLLIERS ENGINEERING & DESIGN, INC.
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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER:	DRAWING NAME:
391-10-24	OU3911024

SHEET TITLE:

OVERALL UTILITY PLAN (6 OF 6)

SHEET NUMBER:

1.5

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

\\df02\391\024.dwg\1.5 By: SDOSPH

Ultimate Conditions

STUDY POINT	AREA	(Acres)	C	TCARRY-OVER	Tovrl (min)	Tsc (min)	Tch (min)	Ttot (min)	I5 (in/hr)	I25 (in/hr)	I100 (in/hr)	Q5 (ft3/s)	Q25 (ft3/s)	Q100 (ft3/s)
33	DA-33	2.32	0.79		14.00	0.00	5.00	19	4.63	6.37	7.93	8.46	11.63	14.48
34	DA-34	2.80	0.96		14.00	0.00	9.00	23	4.21	5.77	7.17	11.32	15.51	19.27
35	DA-35	0.77	0.96		5.00	1.00	2.00	8	6.75	9.48	11.85	4.99	7.01	8.76
36a	DA-36a	2.75	0.96		13.00	0.00	4.00	17	4.91	6.76	8.42	12.96	17.85	22.23
				CAPTURED RUNOFF FROM 1 ~ 10' CURB INLET ON GRADE								5.73	6.67	7.39
	DA-36a-1	1.53	0.96	REMAINING RUNOFF FROM 1 ~ 10' CURB INLET ON GRADE								7.23	11.18	14.84
	DA-36b	0.72	0.96											
36b	DA-36a-1 + DA-36b	2.25	0.96	PT.36a	17.00	0.00	1.00	18	4.76	6.56	8.16	10.28	14.17	17.63
36bb	DA-36a + DA-36b	3.47	0.96	PT.36b	18.00	0.00	1.00	19	4.63	6.37	7.93	15.42	21.22	26.42
36c	DA-36c	2.11	0.96		14.00	0.00	2.00	16	5.06	6.99	8.71	10.25	14.16	17.64
36d	DA-36a + DA-36b + DA-36c	5.58	0.96	PT.36bb	19.00	0.00	1.00	20	4.51	6.21	7.71	24.16	33.27	41.30
36e	DA-36e	6.99	0.77		14.00	0.00	6.00	20	4.51	6.21	7.71	24.27	33.42	41.50
	DA-36f	0.96	0.77											
36f	PT.36d + PT.36e + DA-36f	13.53	0.85	PT.36e	20.00	0.00	2.00	22	4.30	5.91	7.34	49.36	67.84	84.25
	DA-36g	0.05	0.77											
36g	PT.36f + PT.37 + DA-36g	22.65	0.82	PT.36f	22.00	0.00	0.00	22	4.30	5.91	7.34	79.55	109.34	135.80
37	DA-37	9.07	0.77		14.00	1.00	6.00	21	4.40	6.05	7.52	30.73	42.25	52.52
38a	DA-38a	6.51	0.77		14.00	1.00	5.00	20	4.51	6.21	7.71	22.61	31.13	38.65
	DA-38b	4.76												
38b	PT.36c + PT.37 + PT.38a + PT.39 + DA-38b	24.46	SEE STORM WATER MANAGEMENT PLAN											
39	DA-39	4.12	0.77		14.00	1.00	5.00	20	4.51	6.21	7.71	14.31	19.70	24.46
40a	DA-40a	7.98	0.72		14.00	0.00	5.00	19	4.63	6.37	7.93	26.58	36.57	45.53
40b	DA-40b	3.44	0.77		14.00	0.00	2.00	16	5.06	6.99	8.71	13.40	18.52	23.07
40c	DA-40c	3.43	0.70		14.00	1.00	5.00	20	4.51	6.21	7.71	10.83	14.91	18.51
41a	DA-41a	0.87	0.77		14.00	0.00	1.00	15	5.24	7.24	9.03	3.51	4.85	6.05
	DA-41b	1.11	0.77											
41b	PT.40a + PT.41a + DA-41b	9.96	0.73	PT.40a	19.00	0.00	3.00	22	4.30	5.91	7.34	31.24	42.94	53.33
	DA-41c	2.70	0.77											
41c	PT.40b + PT.41b + DA-41c	16.10	0.74	PT.41b	22.00	0.00	6.00	28	3.81	5.22	6.48	45.70	62.61	77.72
	DA-41d	3.93	0.77											
41d	PT.40c + PT.41c + DA-41d	23.46	0.74	PT.41c	28.00	0.00	7.00	35	3.39	4.65	5.77	59.06	81.01	100.52
42a	DA-42a	7.81	0.77		13.00	1.00	11.00	25	4.04	5.53	6.86	24.30	33.26	41.25
	DA-42b	2.78	0.77											
42b	PT.42a + DA-42b	10.59	0.77	PT.42a	25.00	0.00	3.00	28	3.81	5.22	6.48	31.07	42.57	52.84
43	DA-43	8.54	0.77		13.00	1.00	9.00	23	4.21	5.77	7.17	27.68	37.94	47.15
	DA-44	0.57	0.77											
44	PT.41d + PT.42b + DA-44	34.62	0.75	PT.41d	35.00	0.00	1.00	36	3.34	4.58	5.68	86.89	119.15	147.76
45	DA-45	0.13	0.96		5.00	0.00	2.00	7	7.05	9.89	12.37	0.88	1.23	1.54
46	DA-46	8.03	0.79		14.00	0.00	8.00	22	4.30	5.91	7.34	27.27	37.49	46.56
47a	DA-47a	9.76	0.96		9.00	9.00	1.00	19	4.63	6.37	7.93	43.38	59.68	74.30
	DA-47b	3.57	0.96											
47b	DA-47b	13.33	0.96	PT.47a	19.00	0.00	6.00	25	4.04	5.53	6.86	51.70	70.77	87.79
47c	DA-47c	3.21	0.96		20.00	5.00	4.00	29	3.74	5.13	6.36	11.53	15.81	19.60
	DA-47cc	0.04	0.96											
47cc	PT.47b + PT.47c + DA-47cc	16.58	0.96	PT.47c	29.00	0.00	0.00	29	3.74	5.13	6.36	59.53	81.65	101.23
	DA-47d	9.40	0.92											
47d	PT.47cc + DA-47d	25.98	0.94	PT.47cc	29.00	0.00	9.00	38	3.25	4.45	5.52	79.73	109.17	135.42
	DA-47e	0.54	0.77											
47e	PT.46 + PT.47d + DA-47e	34.55	0.91	PT.47d	38.00	0.00	2.00	40	3.15	4.33	5.37	98.57	135.49	168.03
	DA-48	4.82												
48	PT.43 + PT.44 + PT.47e + DA-48	82.53	SEE STORM WATER MANAGEMENT PLAN											
	DA-49	5.64												
49	PT.48 + DA-49	88.17	SEE STORM WATER MANAGEMENT PLAN											
50a	DA-50a	2.69	0.96		5.00	1.00	15.00	21	4.40	6.05	7.52	11.36	15.62	19.42
	DA-50b	0.90	0.96											
50b	PT.50a + DA-50b	3.59	0.96		21.00	0.00	4.00	25	4.04	5.53	6.86	13.92	19.06	23.64

LEGEND

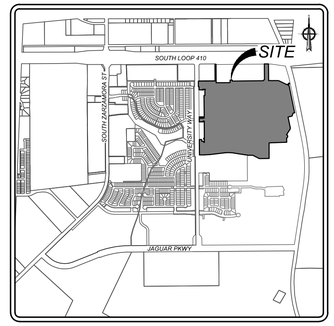
- STUDY POINT = (A)
- DRAINAGE AREA BOUNDARY =
- EXISTING CONTOURS = — 602 —
- FLOW ARROW =
- PROPOSED UNIT =
- FLOW PATH =

N W E S

200 0 200 400

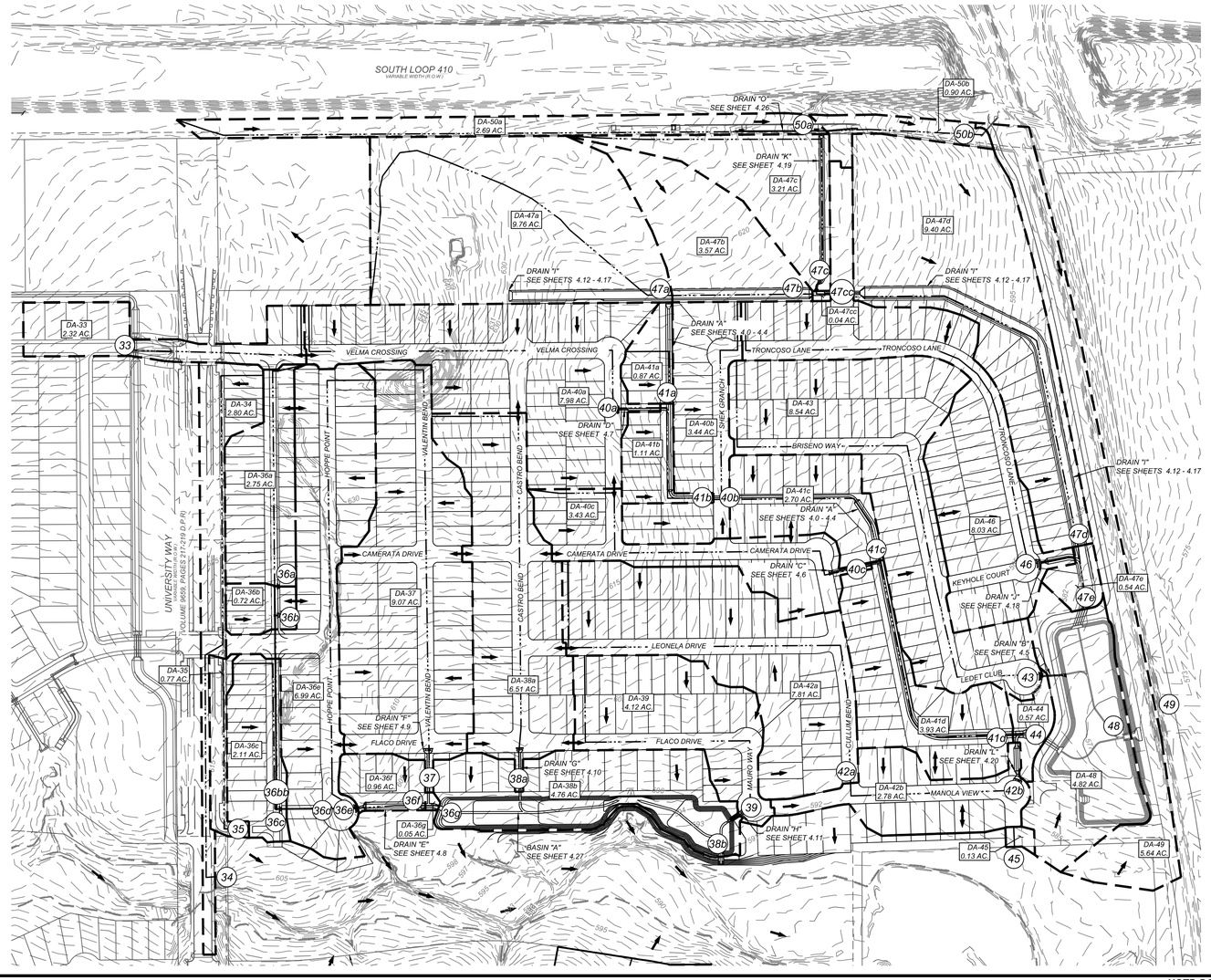
SCALE : 1" = 200'

Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)



LOCATION MAP

N.T.S.



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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
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TBPE Firm#: F-14909
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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

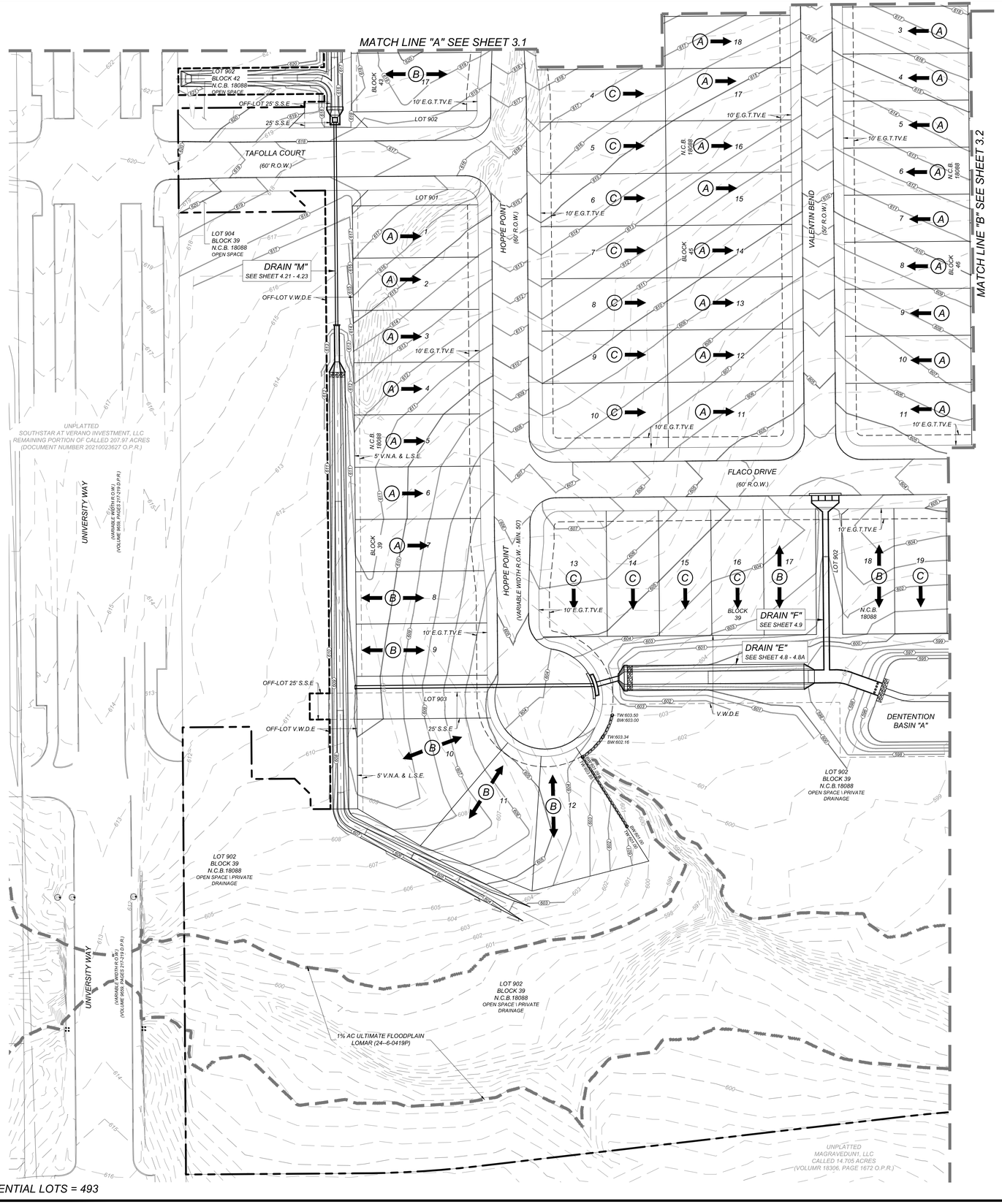
PROJECT NUMBER:	DRAWING NAME:
391-10-24	MD3911024

SHEET TITLE:
MASTER DRAINAGE PLAN

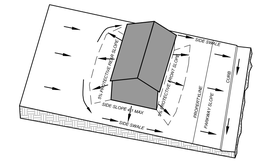
SHEET NUMBER:
2.0

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

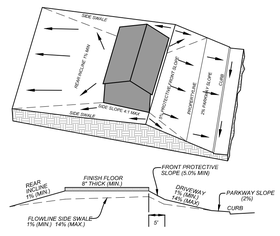
M:\MD3911024.dwg 2.0 By: SOSEPH



RESIDENTIAL LOTS = 493



TYPE 'A' LOT GRADING



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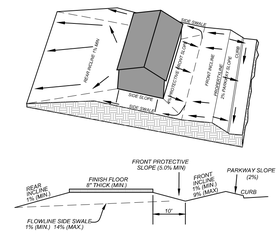
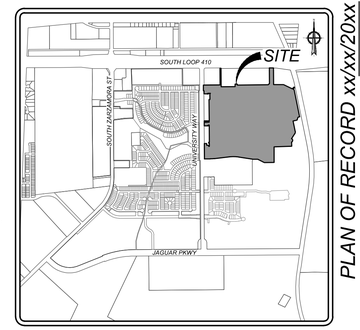
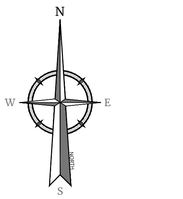


TYPE 'C' LOT GRADING



LOCATION MAP
N.T.S.



50 0 50 100

SCALE : 1" = 50'
Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)

LEGEND

G.E.T.TV.E. = GAS, ELECTRIC, TELEPHONE & CABLE EASEMENT
= FLOW ARROW
(A) = LOT GRADE TYPE
= PROPOSED DRIVEWAY LOCATION
H.P. = HIGH POINT

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7. ALL ELEVATIONS AND CONTOURS SHOWN ON THIS GRADING PLAN REFLECT FINISHED GRADES. THE THICKNESS OF PAVEMENT, CURBS, AND SIDEWALKS MUST BE SUBTRACTED TO OBTAIN SUBGRADE ELEVATIONS.
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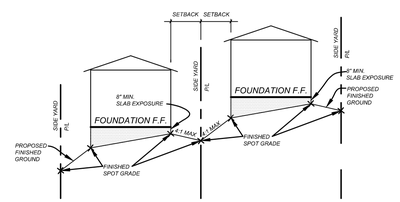

TYPICAL SIDE YARD GRADING
N.T.S.

PLAN OF RECORD xx/xx/20xx

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REV	DATE	DRAWN BY	DESCRIPTION

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#:F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

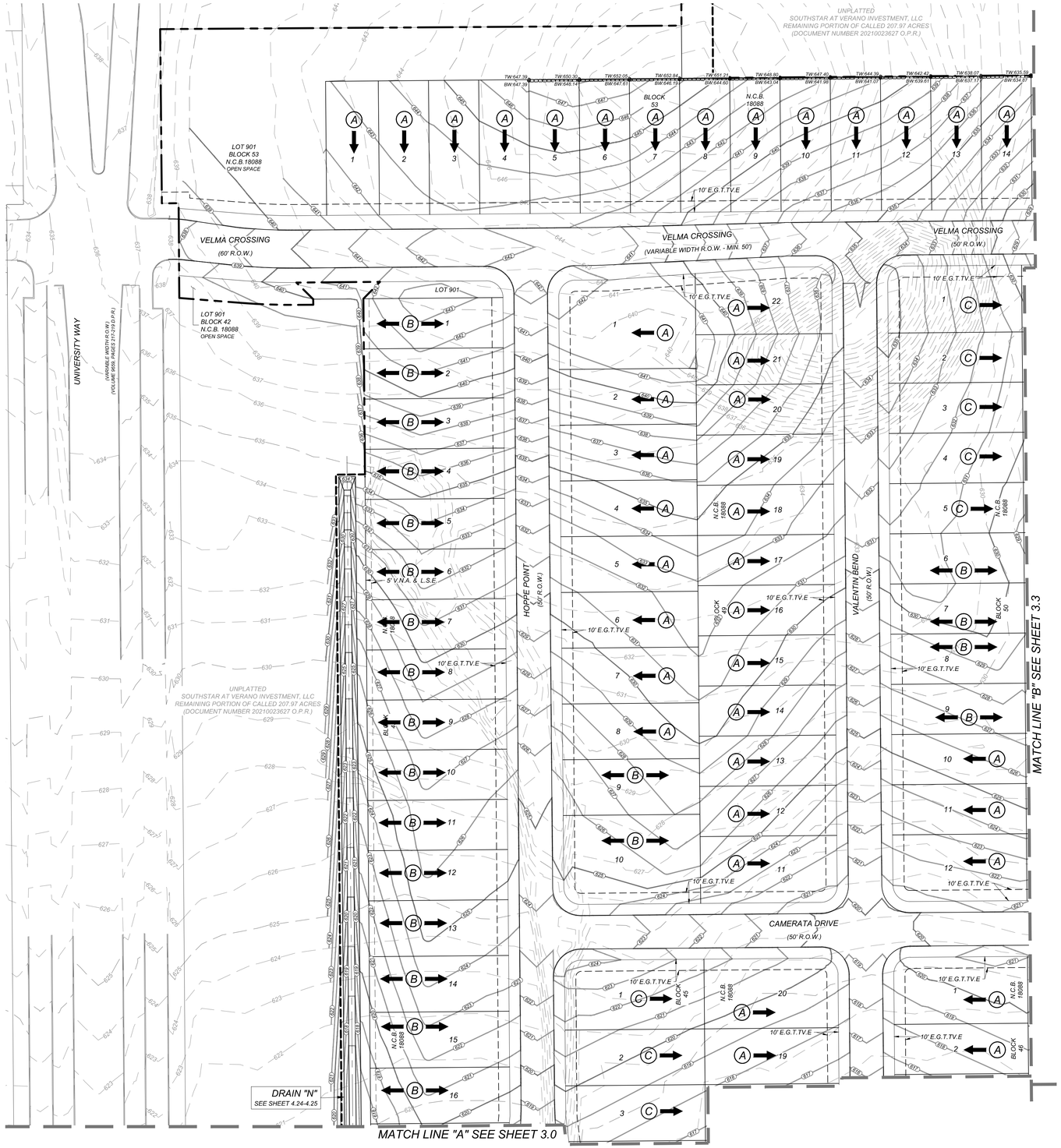
PROJECT NUMBER: 391-10-24
DRAWING NAME: GR3911024

SHEET TITLE: GRADING PLAN (1 OF 6)

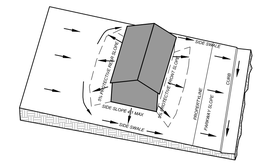
SHEET NUMBER: 3.0

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

H:\GR3911024.dwg\3.0 By: SJOSEPH



RESIDENTIAL LOTS = 493



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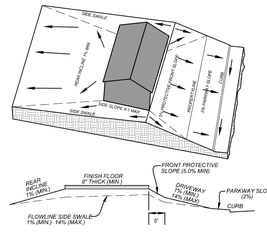
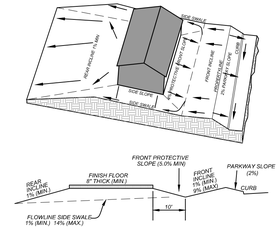


TYPE 'B' LOT GRADING



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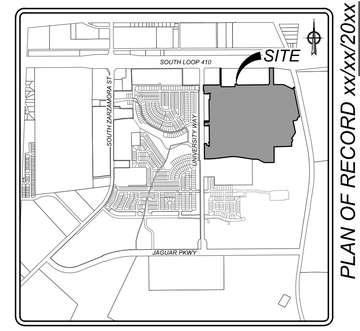
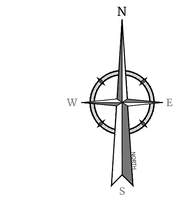


LOCATION MAP
N.T.S.



50 0 50 100

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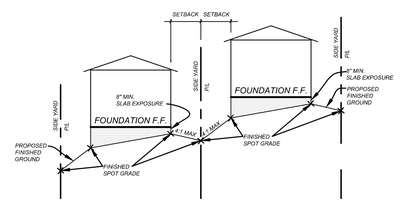

TYPICAL SIDE YARD GRADING
N.T.S.

PLAN OF RECORD xx/xx/20xx

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REV	DATE	DRAWN BY	DESCRIPTION

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

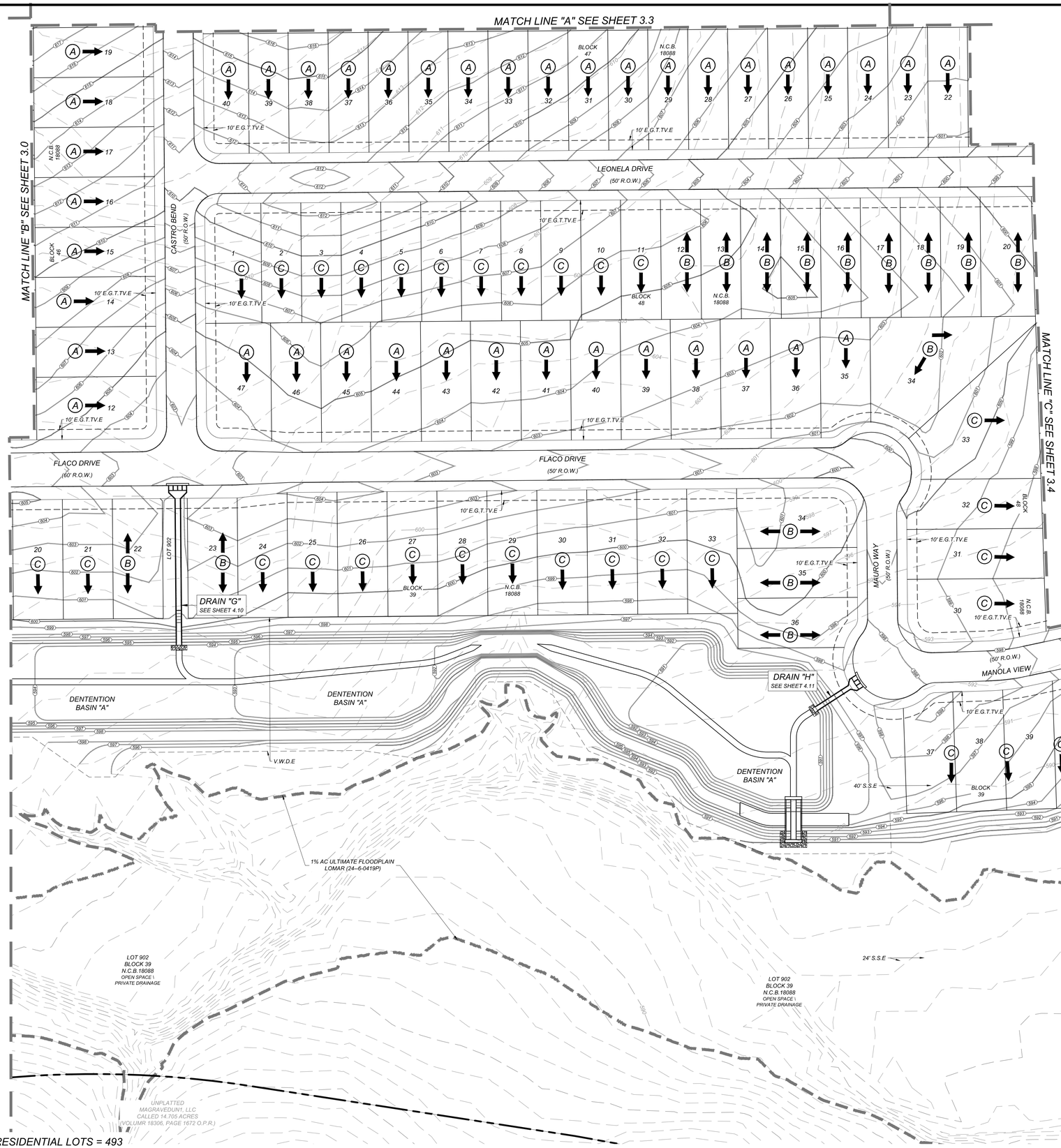
PROJECT NUMBER: 391-10-24
DRAWING NAME: GR3911024

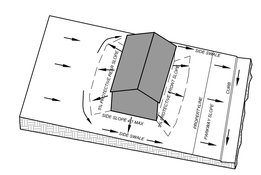
SHEET TITLE:
GRADING PLAN (2 OF 6)

SHEET NUMBER:
3.1

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

W:\GR3911024.dwg\3.1 By: SJOSEPH





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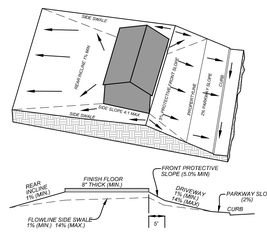

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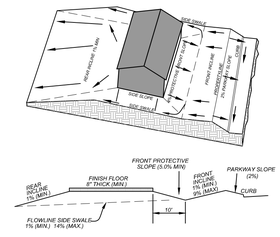

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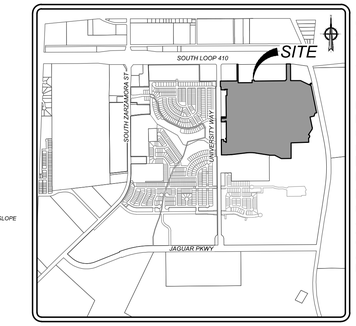
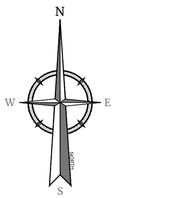


LOCATION MAP
N.T.S.



50 0 50 100

SCALE : 1" = 50'

Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)

LEGEND

G.E.T.TV.E.	=	GAS, ELECTRIC, TELEPHONE & CABLE EASEMENT
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H.P.	=	HIGH POINT

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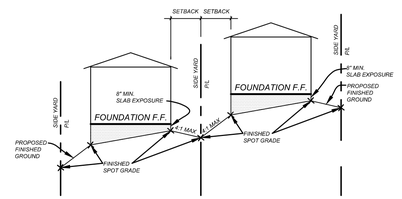

TYPICAL SIDE YARD GRADING
N.T.S.

PLAN OF RECORD xx/xx/20xx

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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

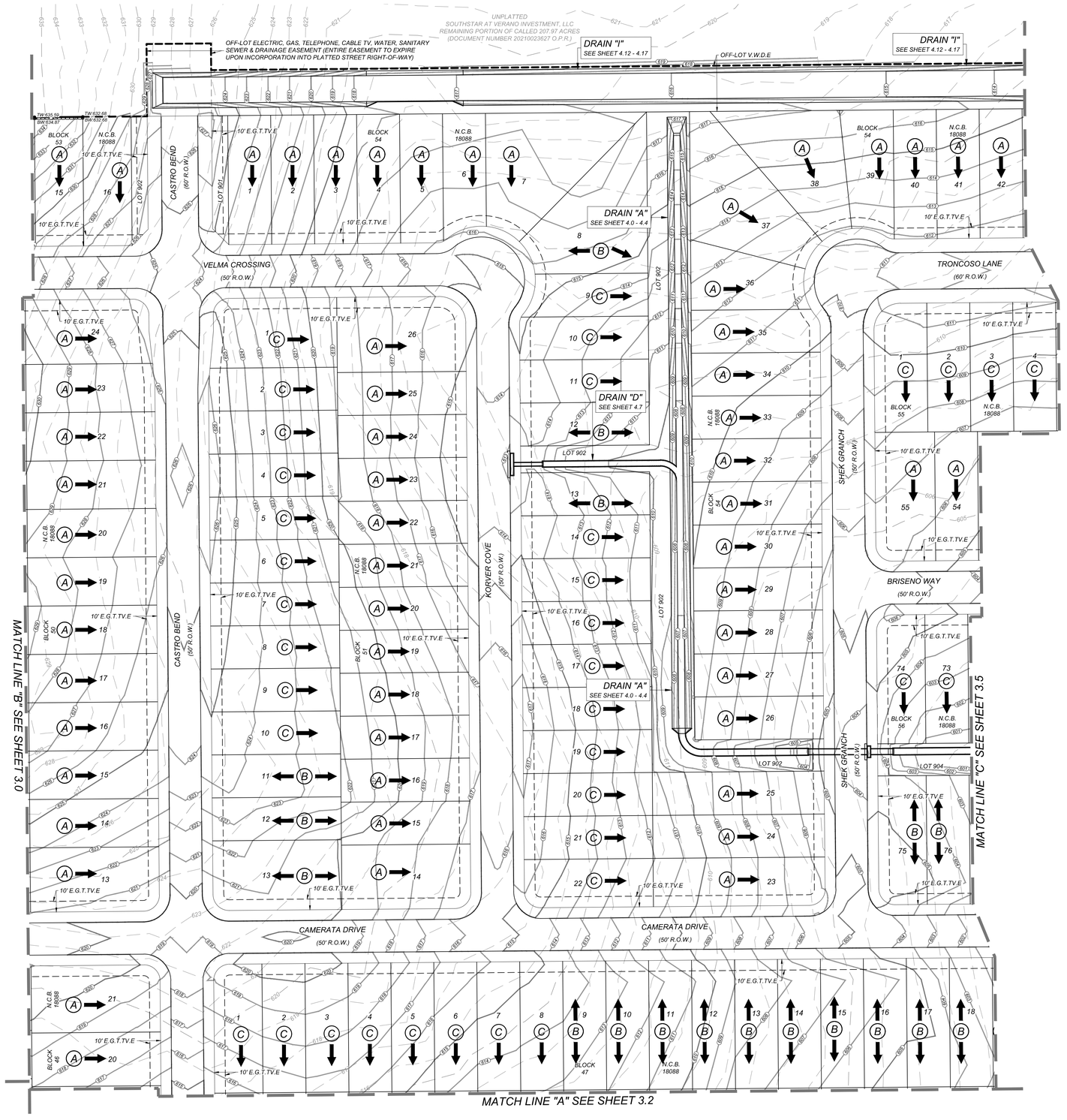
PROJECT NUMBER: 391-10-24
DRAWING NAME: GR3911024

SHEET TITLE: GRADING PLAN (3 OF 6)

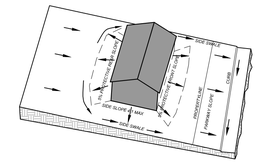
SHEET NUMBER: 3.2

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

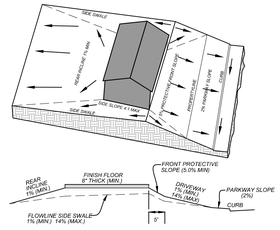
w:\GR3911024.dwg\3.2 By: SDSEPH



RESIDENTIAL LOTS = 493



TYPE 'A' LOT GRADING



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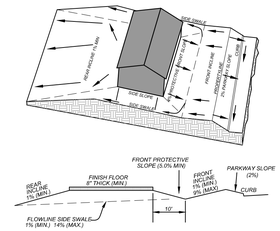
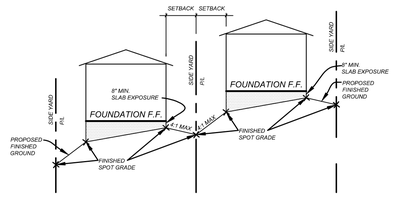
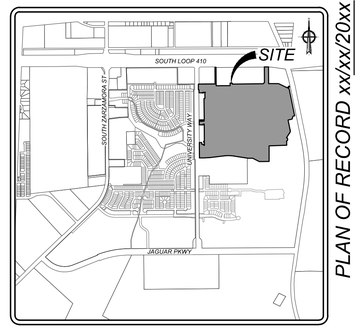


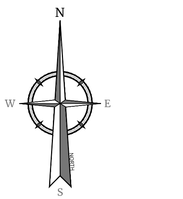
TYPE 'C' LOT GRADING



TYPICAL SIDE YARD GRADING
N.T.S.



LOCATION MAP
N.T.S.



50 0 50 100

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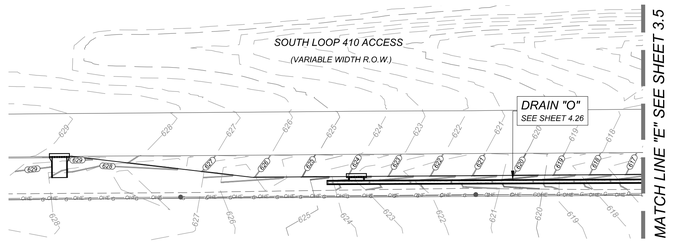

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FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

REV	DATE	DRAWN BY	DESCRIPTION

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: GR3911024

SHEET TITLE: GRADING PLAN (4 OF 6)

SHEET NUMBER: 3.3

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

By: SOSEPH
I:\#GR3911024.dwg\3.3

PLAN OF RECORD xx/xx/20xx

MATCH LINE "A" SEE SHEET 3.5

MATCH LINE "C" SEE SHEET 3.2

LEONELA DRIVE (50' R.O.W.)

CULLUM BEND (50' R.O.W.)

DAVID BEND (50' R.O.W.)

LEDET CLUB (50' R.O.W.)

MANOLA VIEW (50' R.O.W.)

BELISLE PASS (50' R.O.W.)

LOT 901 — 10' E.G.T.TV.E — V.W.C.V.E

LOT 904

LOT 902

BLOCK 48 — BLOCK 56 — BLOCK 39

N.C.B. 18088

DRAIN "A" SEE SHEET 4.0 - 4.4

DRAIN "B" SEE SHEET 4.5

DRAIN "L" SEE SHEET 4.20

30' S.S.E

28' E.G.T.TV.E

VARIABLE WIDTH MAINTENANCE ACCESS, ELECTRIC, GAS, TELEPHONE & CABLE TV EASEMENT (PLAT NUMBER 23-11800297

VIDA SAN ANTONIO LIFT STATION MPCD PLAT NUMBER 23-11800297

50' SANITARY SEWER EASEMENT (PLAT NUMBER 23-11800297

VARIABLE WIDTH SANITARY SEWER EASEMENT (PLAT NUMBER 23-11800297

LIFT STATION

WALL

TW:586.67 BW:585.50

TW:585.99 BW:583.99

TW:585.24 BW:583.38

TW:584.53 BW:584.00

TW:584.35 BW:583.85

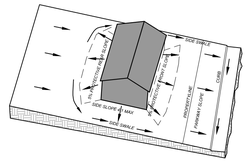
LOT 901 BLOCK 56 N.C.B. 18088

LOT 902 BLOCK 39 N.C.B.18088 OPEN SPACE \ PRIVATE DRAINAGE

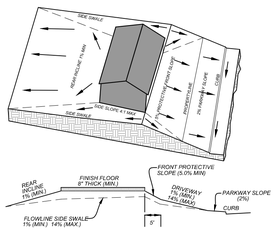
1% AC ULTIMATE FLOODPLAIN LOMAR (24--6-0419P)

UNPLATTED C-Z REALTY COMPANY CALLED 4.108 ACRES (VOLUME 4753, PAGE 572 O.P.R.)

RESIDENTIAL LOTS = 493



TYPE 'A' LOT GRADING



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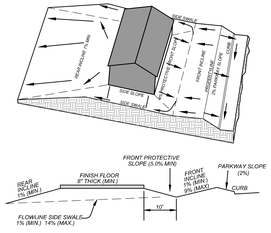
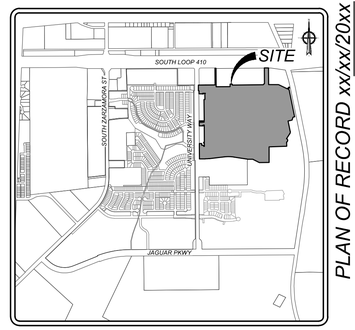
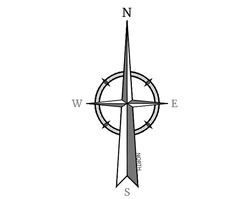


TYPE 'C' LOT GRADING



LOCATION MAP
N.T.S.



50 0 50 100

SCALE : 1" = 50'

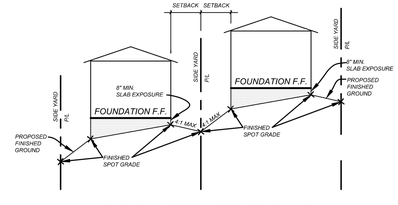
Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)

LEGEND

G.E.T.TV.E.	=	GAS, ELECTRIC, TELEPHONE & CABLE EASEMENT
→	=	FLOW ARROW
A	=	LOT GRADE TYPE
	=	PROPOSED DRIVEWAY LOCATION
H.P.	=	HIGH POINT

GENERAL NOTES:

1. ELEVATION SHOWN ON FOUNDATION IS FOR FINISHED FLOOR.
2. CONTRACTOR SHALL PROVIDE OWNER ALL NECESSARY DENSITY TESTS FOR FILL LOTS AS REQUIRED BY HUD SPECIFICATIONS.
3. HOME BUILDER SHALL REFER TO THE APPROVED SUBDIVISION PLAT TO CONFIRM ALL BUILDING SETBACKS PRIOR TO ANY FOUNDATION WORK.
4. AS SOON AS PRACTICAL HOME BUILDER SHALL ESTABLISH VEGETATION (HYDROMULCH, SEEDING, SODDING, ETC...) TO PREVENT EROSION FROM OCCURRING.
5. CONTRACTOR SHALL CONTACT ENGINEER REGARDING ANY QUESTIONS ON THE INTENT OF THIS PLAN.
6. POSITIVE DRAINAGE SHALL BE MAINTAINED ON ALL SURFACE AREAS WITHIN THE SCOPE OF THIS PROJECT. DRAINAGE SHALL BE DIRECTED AWAY FROM ALL BUILDING FOUNDATIONS AND TOWARDS THE PROPER DRAINAGE EASEMENT OR STREET RIGHT OF WAY ACCORDING TO THE MASTER DRAINAGE PLAN FOR THE PROJECT. CONTRACTOR SHOULD TAKE PRECAUTIONS NOT TO ALLOW PONDING OF WATER.
7. ALL ELEVATIONS AND CONTOURS SHOWN ON THIS GRADING PLAN REFLECT FINISHED GRADES. THE THICKNESS OF PAVEMENT, CURBS, AND SIDEWALKS MUST BE SUBTRACTED TO OBTAIN SUBGRADE ELEVATIONS.
8. GRADING PLAN IS INTENDED FOR USE IN LOT GRADING ONLY. CONTRACTOR SHOULD REFER TO CONSTRUCTION DRAWINGS FOR ALL OTHER GRADES, INCLUDING, BUT NOT LIMITED TO, CHANNELS, ROADS, AND DETENTION PONDS.
9. CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE ALL SWALES.



TYPICAL SIDE YARD GRADING
N.T.S.

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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24

DRAWING NAME: GR3911024

SHEET TITLE: GRADING PLAN (5 OF 6)

SHEET NUMBER: 3.4

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

w:\GR3911024.dwg\3.4 By: SJOSEPH

MATCH LINE "D" SEE THIS SHEET

UNPLATTED SOUTHSTAR AT VERANO INVESTMENT, LLC REMAINING PORTION OF CALLED 207.97 ACRES (DOCUMENT NUMBER 20210023627 O.P.R.)

UNPLATTED SOUTHSTAR AT VERANO INVESTMENT, LLC REMAINING PORTION OF CALLED 207.97 ACRES (DOCUMENT NUMBER 20210023627 O.P.R.)

VARIABLE WIDTH MAINTENANCE ACCESS, ELECTRIC, GAS, TELEPHONE & CABLE TV EASEMENT (PLAT NUMBER 23-11800297

DRAIN "K" SEE SHEET 4.19

DRAIN "I" SEE SHEET 4.12 - 4.17

DRAIN "I" SEE SHEET 4.12 - 4.17

14' E.G.T.TV.E

30' S.S.E

OFF-LOT V.W.D.E

OFF-LOT 14' E.G.T.TV.E

OFF-LOT V.W. D.E

OFF-LOT V.W.D.E

OFF-LOT 25' S.S.E

24' S.S.E

OFF-LOT V.W.D.E

NAVAIRA LANE (70' R.O.W.)

TRONCOSO LANE (60' R.O.W.)

TRONCOSO LANE (VARIABLE WIDTH R.O.W. - MIN. 50')

TRONCOSO LANE (50' R.O.W.)

BRISENO WAY (50' R.O.W.)

CAMERATA DRIVE (50' R.O.W.)

CULLUM BEND (50' R.O.W.)

DAVID BEND (50' R.O.W.)

KEYHOLE COURT (50' R.O.W.)

BLOCK 54 — N.C.B. 18088 — LOT 903

BLOCK 55 — N.C.B. 18088 — LOT 902

BLOCK 56 — N.C.B. 18088 — LOT 901

BLOCK 55 — N.C.B. 18088 — LOT 904

BLOCK 56 — N.C.B. 18088 — LOT 903

BLOCK 55 — N.C.B. 18088 — LOT 904

BLOCK 56 — N.C.B. 18088 — LOT 901

BLOCK 47 — N.C.B. 18088 — LOT 904

BLOCK 56 — N.C.B. 18088 — LOT 903

10' E.G.T.TV.E

V.W.C.V.E

DRAIN "A" SEE SHEET 4.0 - 4.4

DRAIN "C" SEE SHEET 4.6

DRAIN "A" SEE SHEET 4.0 - 4.4

DRAIN "J" SEE SHEET 4.18

MATCH LINE "C" SEE SHEET 3.3

MATCH LINE "A" SEE SHEET 3.4

MATCH LINE "E" SEE SHEET 3.3

SOUTH LOOP 410 ACCESS (VARIABLE WIDTH R.O.W.)

DRAIN "O" SEE SHEET 4.26

DRAIN "K" SEE SHEET 4.19

14' E.G.T.TV.E

OFF-LOT V.W.D.E

OFF-LOT 14' E.G.T.TV.E

UNPLATTED SOUTHSTAR AT VERANO INVESTMENT, LLC REMAINING PORTION OF CALLED 207.97 ACRES (DOCUMENT NUMBER 20210023627 O.P.R.)

NAVAIRA LANE (70' R.O.W.)

UNPLATTED SOUTHSTAR AT VERANO INVESTMENT, LLC REMAINING PORTION OF CALLED 207.97 ACRES (DOCUMENT NUMBER 20210023627 O.P.R.)

MATCH LINE "D" SEE THIS SHEET

IW:587.39
BW:587.39

RESIDENTIAL LOTS = 493

GENERAL NOTES:

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2. CONTRACTOR SHALL PROVIDE OWNER ALL NECESSARY DENSITY TESTS FOR FILL LOTS AS REQUIRED BY HUD SPECIFICATIONS.
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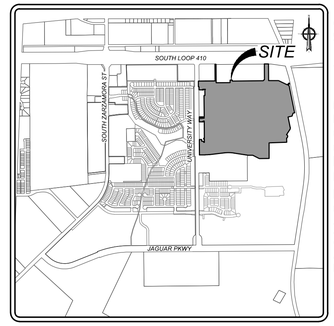
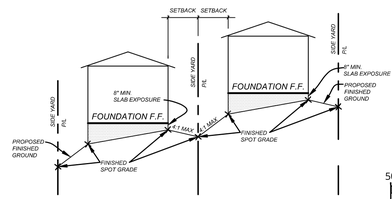
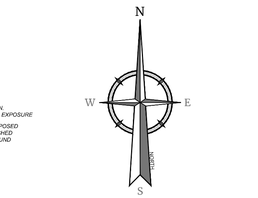
7. ALL ELEVATIONS AND CONTOURS SHOWN ON THIS GRADING PLAN REFLECT FINISHED GRADES, THE THICKNESS OF PAVEMENT, CURBS, AND SIDEWALKS MUST BE SUBTRACTED TO OBTAIN SUBGRADE ELEVATIONS.
8. GRADING PLAN IS INTENDED FOR USE IN LOT GRADING ONLY. CONTRACTOR SHOULD REFER TO CONSTRUCTION DRAWINGS FOR ALL OTHER GRADES, INCLUDING, BUT NOT LIMITED TO, CHANNELS, ROADS, AND DETENTION PONDS.
9. CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE ALL SWALES.



LOCATION MAP
N.T.S.



TYPICAL SIDE YARD GRADING
N.T.S.

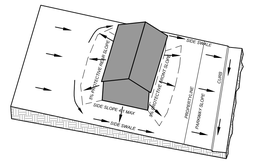


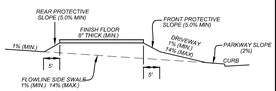
50 0 50 100

SCALE : 1'' = 50'
Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)

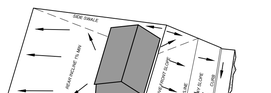
LEGEND

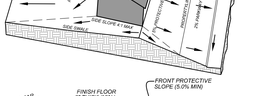
G.E.T.TV.E. = GAS, ELECTRIC, TELEPHONE & CABLE EASEMENT
= FLOW ARROW
(A) = LOT GRADE TYPE
= PROPOSED DRIVEWAY LOCATION
H.P. = HIGH POINT





TYPE 'A' LOT GRADING





TYPE 'B' LOT GRADING





TYPE 'C' LOT GRADING

PLAN OF RECORD xx/xx/20xx

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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER:	DRAWING NAME:
391-10-24	GR3911024

SHEET TITLE:
GRADING PLAN (6 OF 6)

SHEET NUMBER:
3.5

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

\\PCGFS01\1024\dwg\3.5 By: SDOSEPH

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY. SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

CAUTION!!:

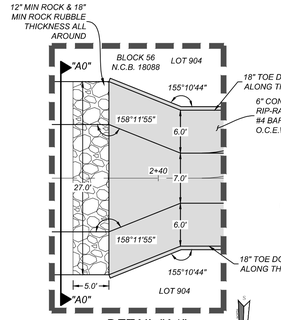
THE CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITED TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCT BANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT ARISE SHOULD BE COMMUNICATED TO THE ENGINEER IMMEDIATELY AND PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL CONTACT 1-800-DIG-TESS A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND THE REPAIR SHALL BE AT CONTRACTOR'S SOLE EXPENSE WHETHER THE UTILITY IS SHOWN ON THESE PLANS OR NOT.

NOTE:

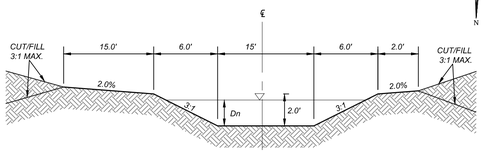
1. ALL CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF NOT LESS THAN 3000 PSI IN 28 DAYS.

2. ANY DISTURBED AREAS WILL BE VEGETATED BY SEEDING OR SODDING. EIGHTY-FIVE PERCENT OF THE DISTURBED SURFACE AREA MUST HAVE ESTABLISHED VEGETATION BEFORE THE CITY OF SAN ANTONIO WILL ACCEPT.

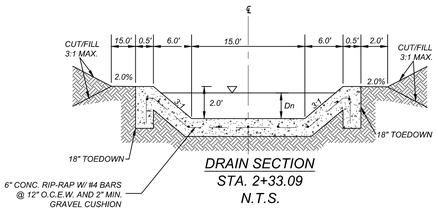
3. AT THE PRE-FINAL INSPECTION: THE ENGINEER MUST ISSUE CERTIFICATION TO THE CITY INSPECTOR THAT THE TURF REINFORCEMENT MAT (TRM) WAS INSTALLED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. THE CERTIFICATION MUST ALSO NOTE THAT THE MATERIAL AND INSTALLATION HAS MET CITY AND MANUFACTURER SPECIFICATIONS.



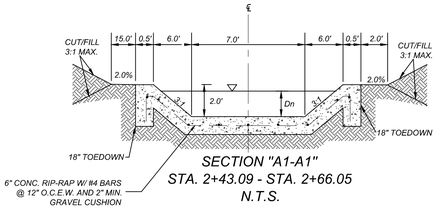
DETAIL "A1"
SCALE: 1"=10'



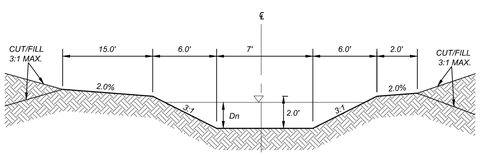
SECTION "A0-A0"
STA. 2+20.45 - STA. 2+33.09
N.T.S.



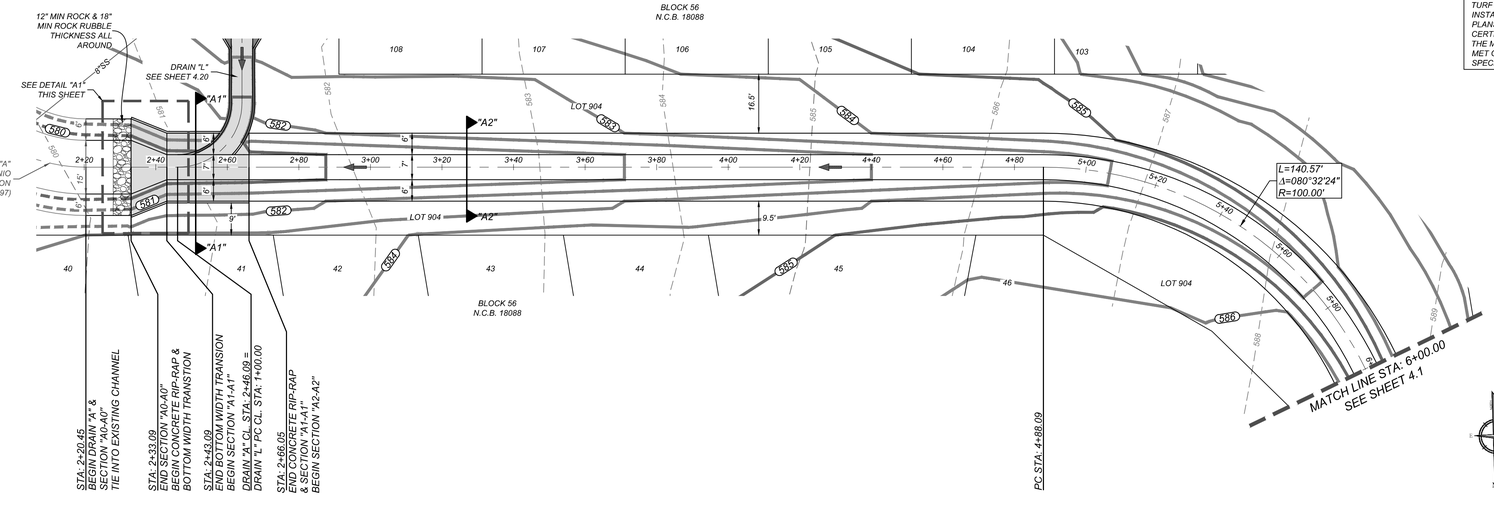
DRAIN SECTION
STA. 2+33.09
N.T.S.



SECTION "A1-A1"
STA. 2+43.09 - STA. 2+66.05
N.T.S.



SECTION "A2-A2"
STA. 2+66.05 - STA. 12+94.60
N.T.S.



DRAIN "A"
STA: 2+20.45 - 6+00.00

HORZ SCALE: 1"=20'
VERT SCALE: 1"=5'

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REV	DATE	DRAWN BY	DESCRIPTION

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: DR3911024 - A

SHEET TITLE:
DRAIN "A" PLAN & PROFILE (1 OF 5)

SHEET NUMBER:
4.0

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

I:\ROJ\cm\DR3911024 - A.dwg 4.0 By: ROGELIO.BERRONES

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

CAUTION!!:

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NOTE:

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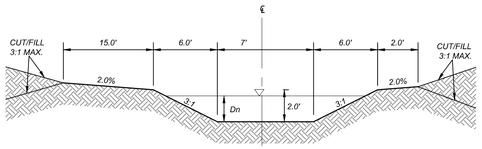
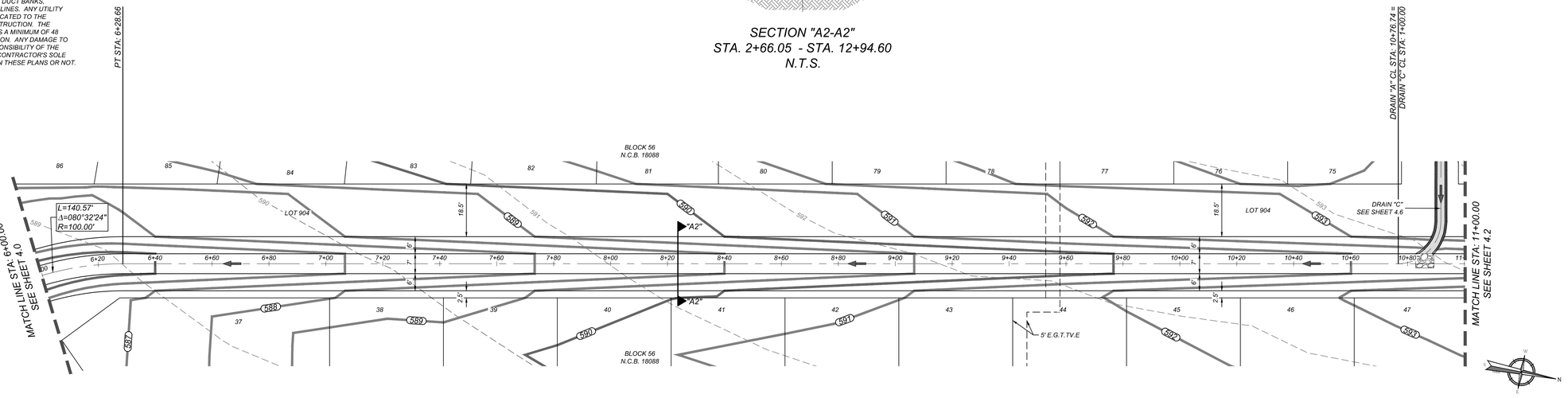
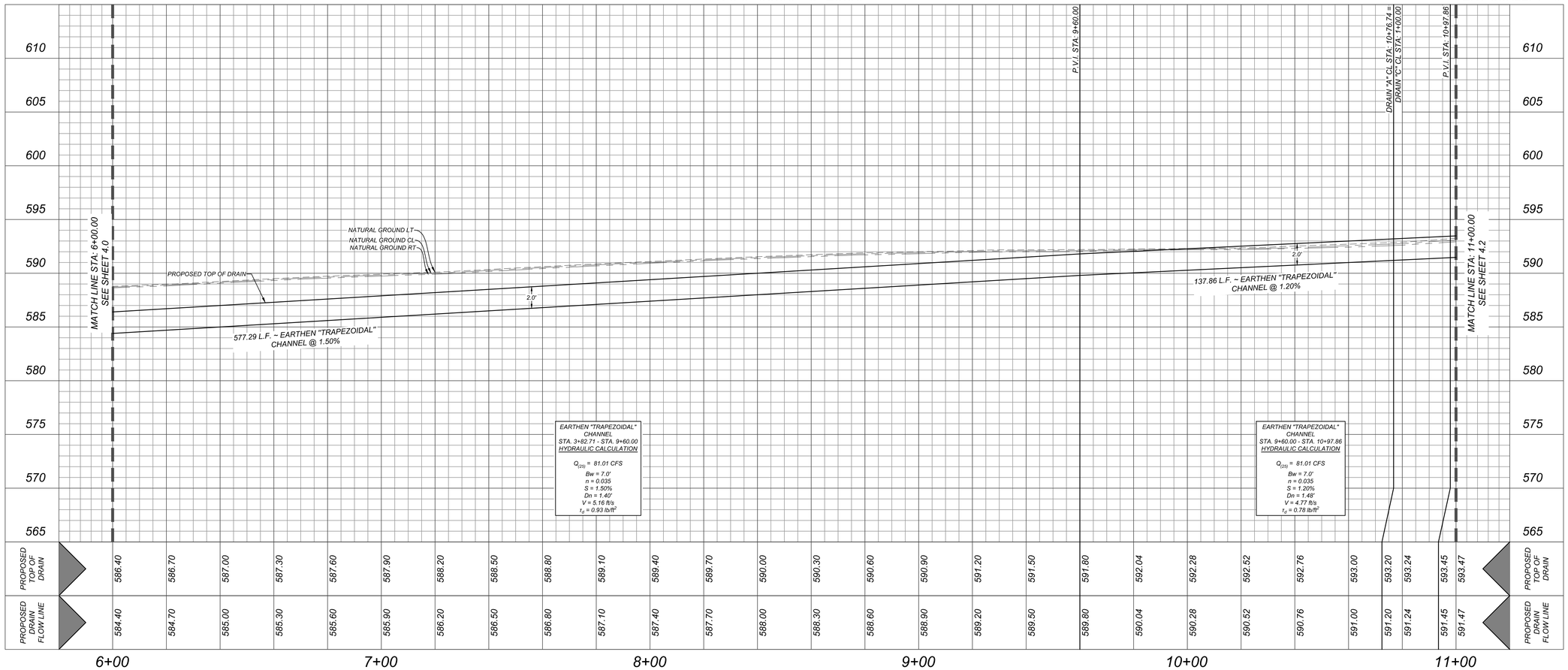


SECTION "A2-A2"
STA. 2+66.05 - STA. 12+94.60
N.T.S.



DRAIN "A"
STA: 6+00.00 - 9+20.00

HORZ SCALE: 1"=20'
VERT SCALE: 1"=5'



| | | |

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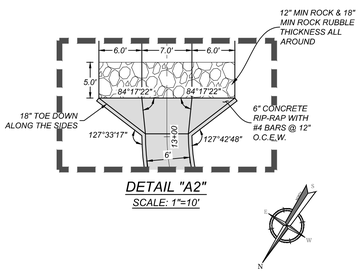
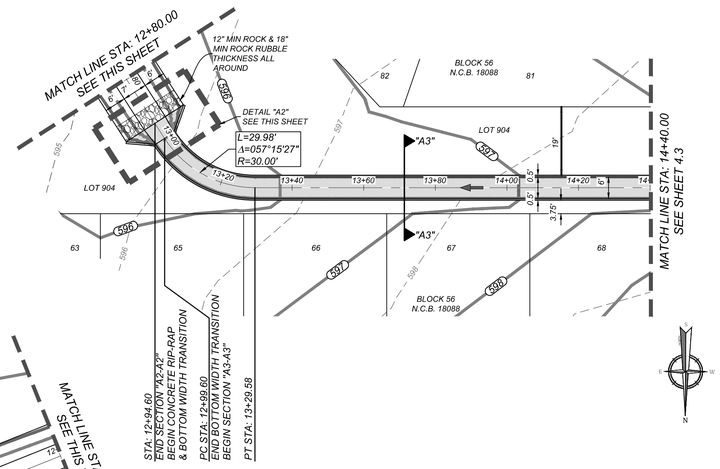
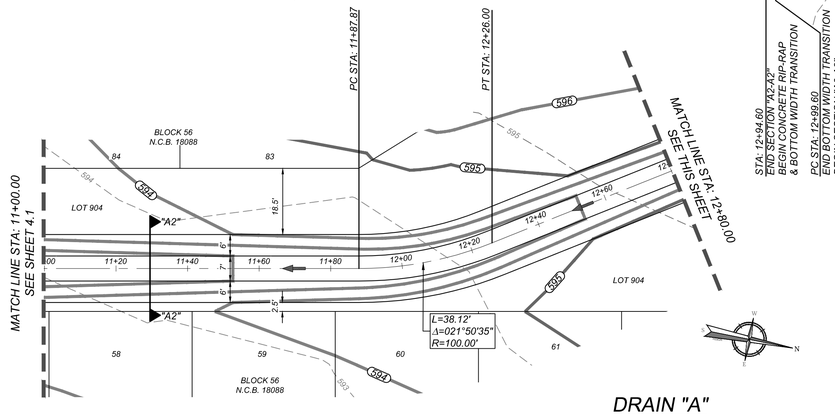


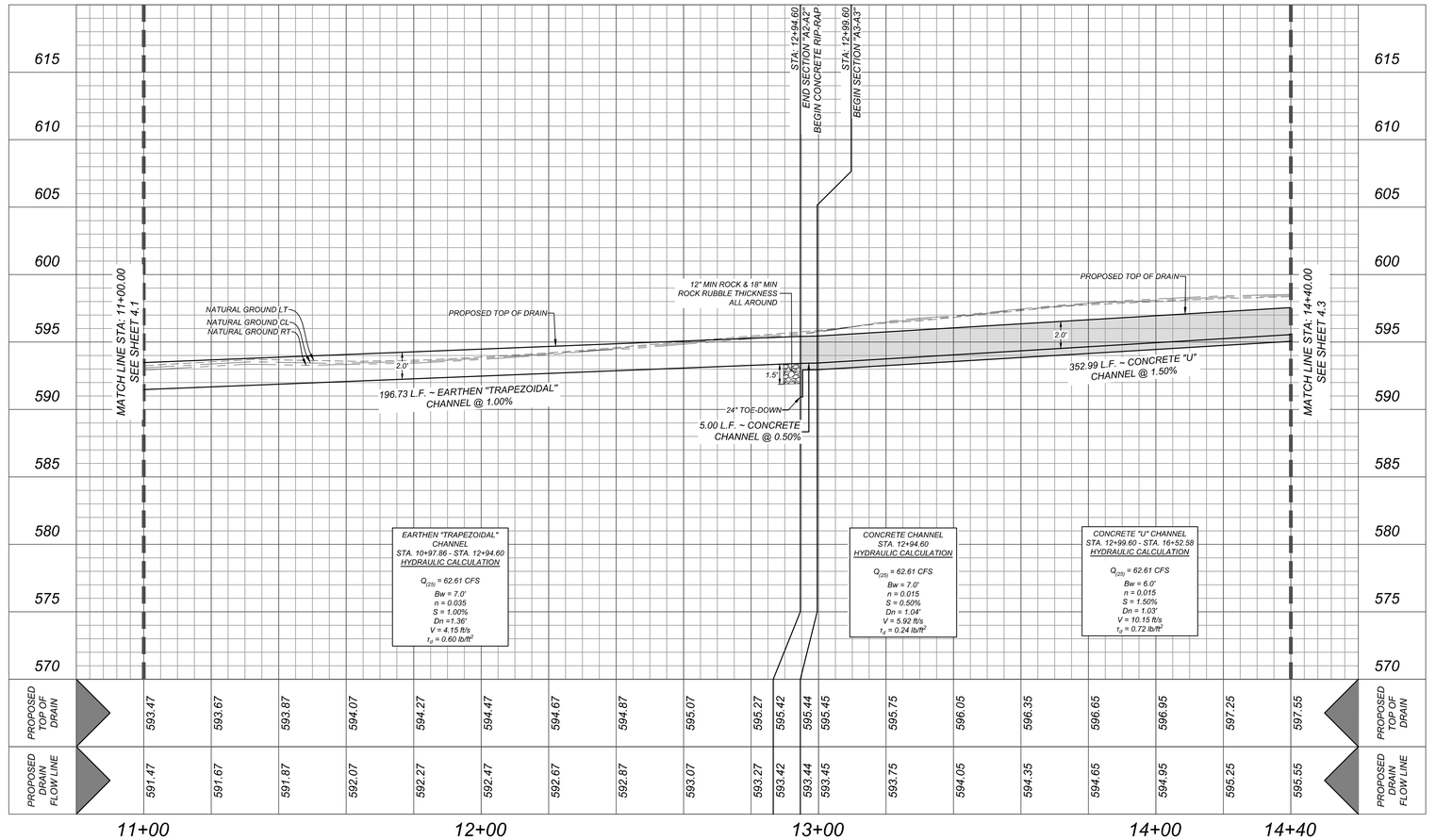
DETAIL "A2"
SCALE: 1"=10'

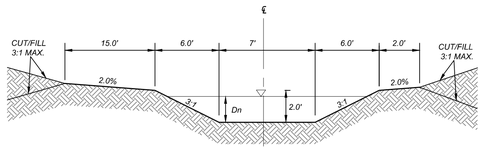




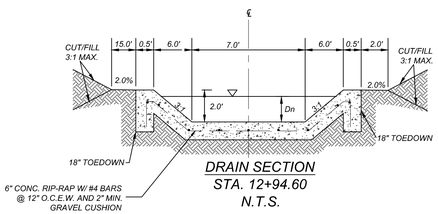
DRAIN "A"
STA: 11+00.00 - 14+40.00

HORZ SCALE: 1"=20'
VERT SCALE: 1"=5'

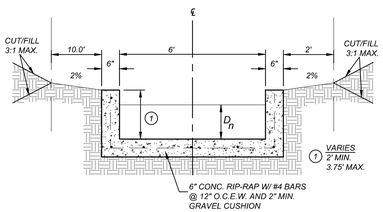




SECTION "A2-A2"
STA. 2+66.05 - STA. 12+94.60
N.T.S.



DRAIN SECTION
STA. 12+94.60
N.T.S.



SECTION "A3-A3"
STA. 12+99.60 - STA. 16+76.42
STA. 17+56.42 - STA. 18+83.69
N.T.S.

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REV	DATE	DRAWN BY	DESCRIPTION

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PLAT# 24-11800334

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BEXAR COUNTY
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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: DR3911024 - A

SHEET TITLE:
DRAIN "A" PLAN & PROFILE (3 OF 5)

SHEET NUMBER: 4.2

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In:\ROJ\proj\391011024 - A.dwg\4.2 By: ROGELIO.BERRONES

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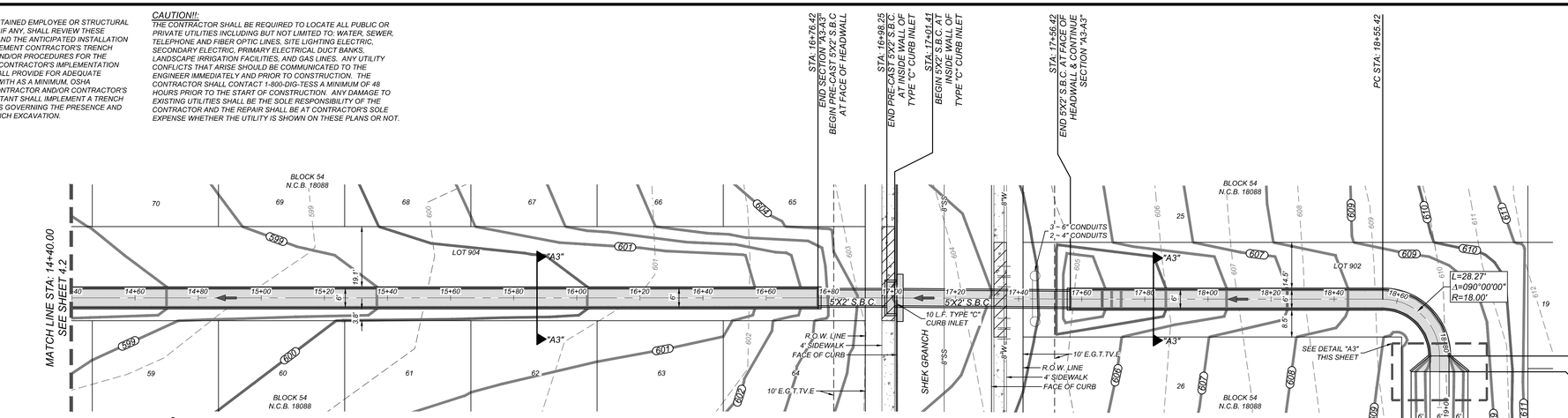


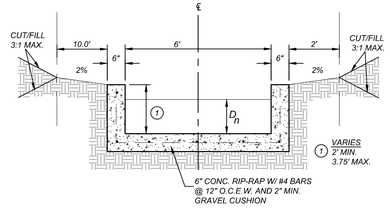
CURB OPENING HYDRAULIC CALCULATION

$L = \frac{Q_{25}}{Ch^{3/2}}$

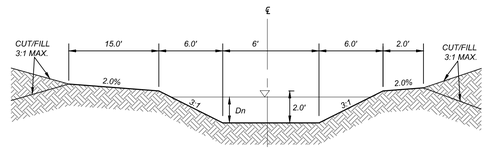
$L = \frac{18.52}{(3.087)\ (0.79)^{3/2}}$

$L = 8.54$ L.F.

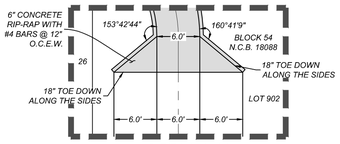
∴ USE 10.0 L.F. CURB OPENING



SECTION "A3-A3"
STA. 12+99.60 - STA. 16+76.42
STA. 17+56.42 - STA. 18+83.69
N.T.S.



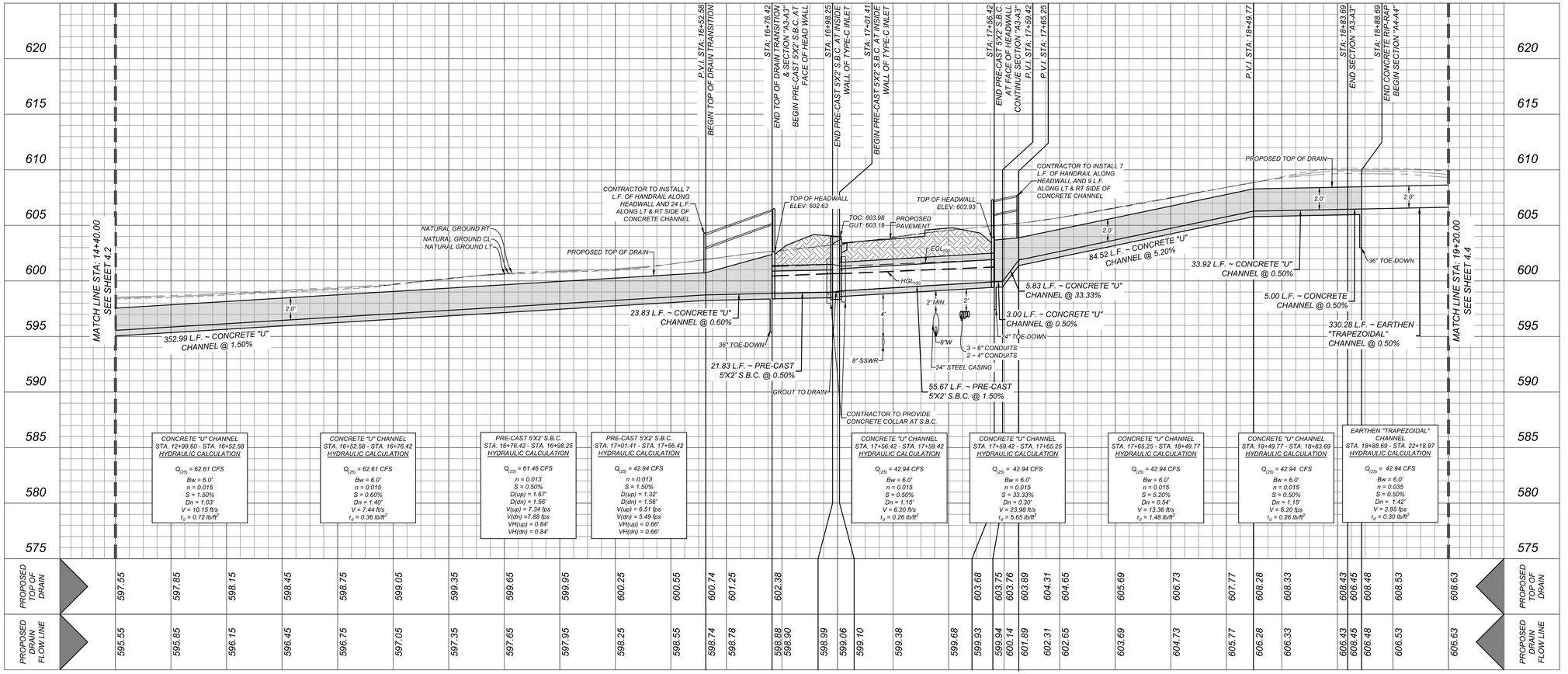
SECTION "A4-A4"
STA. 18+88.69 - STA. 24+50.69
N.T.S.



DETAIL "A3"
SCALE: 1"=10'

HORZ SCALE: 1"=20'
VERT SCALE: 1"=5'

DRAIN "A"
STA: 14+40.00 - 19+20.00



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REV	DATE	DRAWN BY	DESCRIPTION
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PROJECT NUMBER: 391-10-24
DRAWING NAME: DR3911024 - A

SHEET TITLE:
DRAIN "A" PLAN & PROFILE
(4 OF 5)

SHEET NUMBER:
4.3

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By: ROGELIO.BERRONES

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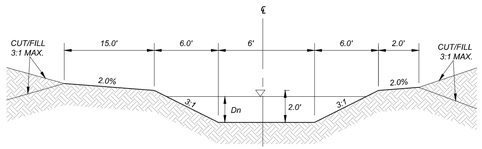
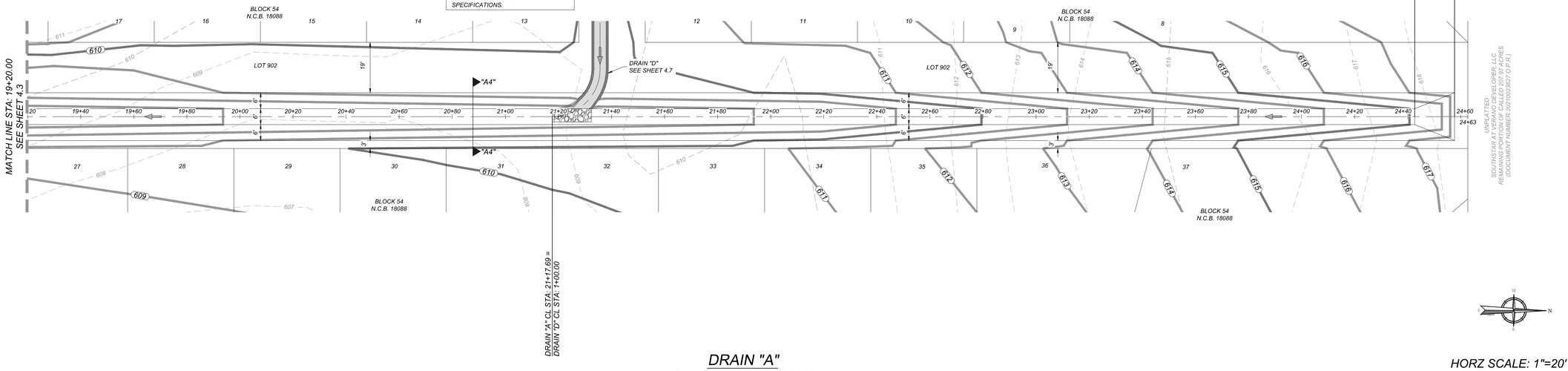
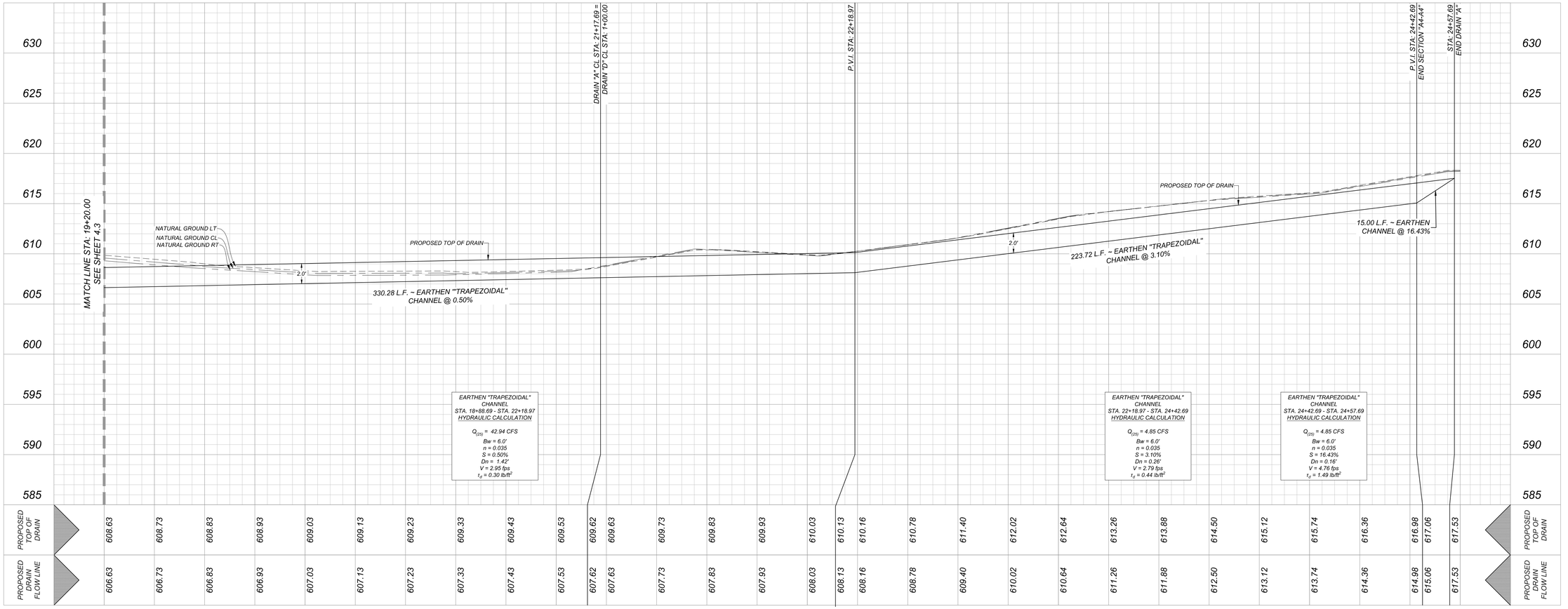


SECTION "A4-A4"
STA. 18+88.69 - STA. 24+42.69
N.T.S.



DRAIN "A"
STA: 19+20.00 - END

HORZ SCALE: 1"=20'
VERT SCALE: 1"=5'



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SHEET NUMBER:
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By: RGCELIO.BERMOMES
M:\Drawn\3911024 - A.dwg\4.4

TRENCH EXCAVATION SAFETY PROTECTION

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NOTE:

1. ALL CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF NOT LESS THAN 3000 PSI IN 28 DAYS.

2. ANY DISTURBED AREAS WILL BE VEGETATED BY SEEDING OR SODDING. EIGHTY-FIVE PERCENT OF THE DISTURBED SURFACE AREA MUST HAVE ESTABLISHED VEGETATION BEFORE THE CITY OF SAN ANTONIO WILL ACCEPT.

3. AT THE PRE-FINAL INSPECTION: THE ENGINEER MUST ISSUE CERTIFICATION TO THE CITY INSPECTOR THAT THE TURF REINFORCEMENT MAT (TRM) WAS INSTALLED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. THE CERTIFICATION MUST ALSO NOTE THAT THE MATERIAL AND INSTALLATION HAS MET CITY AND MANUFACTURER SPECIFICATIONS.

BAFFLE BLOCK CALCULATIONS
(ST. ANTHONY FALLS METHOD)

Q25 = 37.94 CFS
BOTTOM WIDTH UPSTREAM =3.03 FT
BOTTOM WIDTH DOWNSTREAM = 6.21 FT
Y1 = 1.80' (DEPTH BEFORE JUMP)
Y2 = 1.43' (DEPTH AFTER JUMP)

WIDTH OF BLOCKS = 0.75(Y1) = 0.45 FT. (USE 1.5 FT.)
SPACE BETWEEN BLOCKS = 0.75(Y1) = 1.35 FT. (USE 1.5 FT.)
HEIGHT OF BLOCKS = Y1 = 1.80 FT. (USE 2 FT.)
OF BLOCKS ACROSS BOTTOM = 2

% OF FLOOR COVERED WITH BLOCKS = 2 (1.5 FT) / 6.21 FT = 48%
(% MUST BE BETWEEN 40% AND 55%)

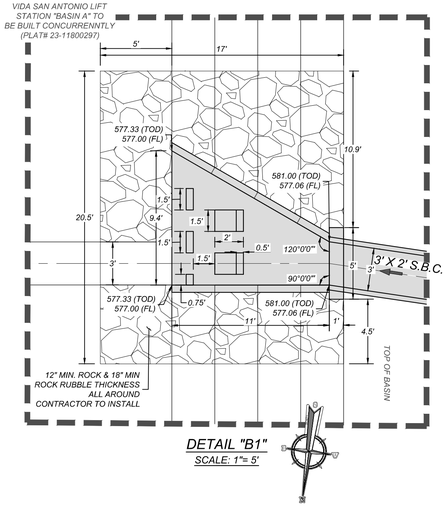
DEPTH OF TAILWATER (Y2)
FROUDE NUMBER BEFORE JUMP = F1 = 0.91
FROUDE NUMBER AFTER JUMP = F2 = 0.42

LENGTH OF BASIN = LB = 4.5(Y2)/F1^0.76 = 3.67 FT.

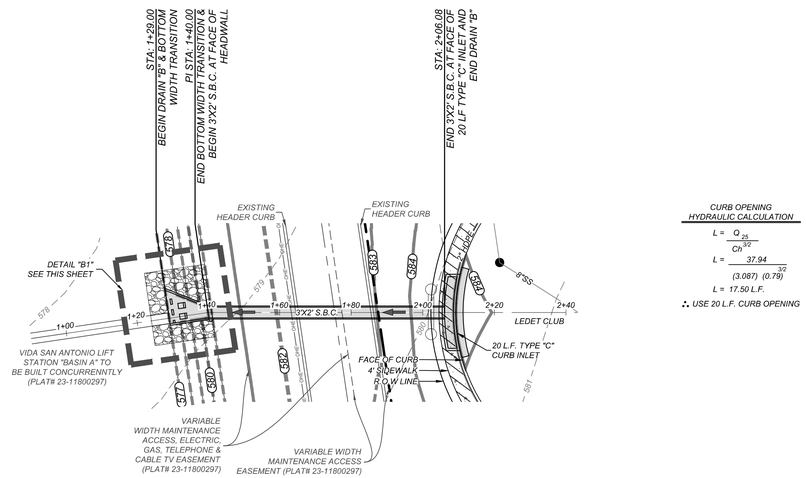
DISTANCE TO FLOOR BLOCKS = LB/3 = 3.67 FT. (USE 5.50 FT.)

HEIGHT OF MAX TAILWATER DEPTH:
Z = Y2/3 = 0.48 FT.
Y2' = (1.10 - F1^2 / 120) * Y2 = 1.57
H = Z + Y2' = 2.05 FT.

VELOCITY AFTER JUMP:
V = Q/A
A = Y2 * B
A = 1.43' * 6.21 = 8.88 SQ. FT.
V = 37.94/ 8.88 = 4.27 F.P.S.



DETAIL "B1"
SCALE: 1"= 5'



CURB OPENING HYDRAULIC CALCULATION

$$L = \frac{Q_{25}}{Cn^{3/2}}$$

$$L = \frac{37.94}{(3.087)\ (0.79)^{3/2}}$$

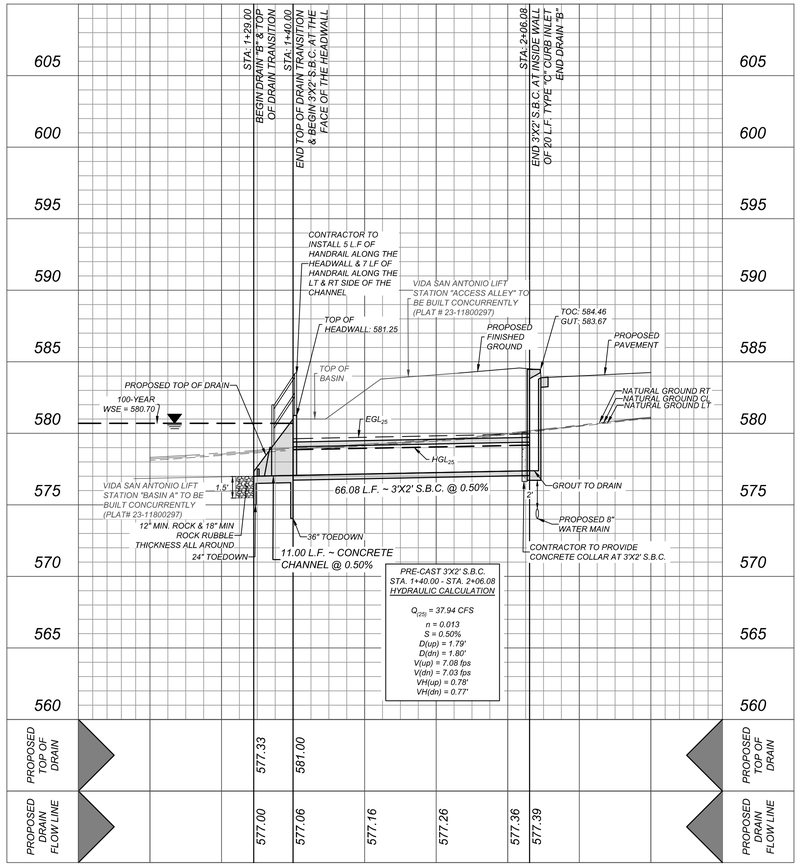
$L = 17.50$ L.F.

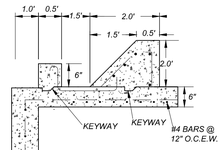
∴ USE 20 L.F. CURB OPENING



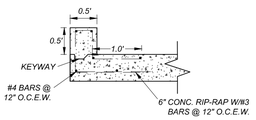
DRAIN "B"
STA: 1+00.00 - END

HORZ SCALE: 1"=20'
VERT SCALE: 1"=5'





TYPICAL BAFFLE BLOCK DETAIL
N.T.S.
DRAIN "B"



TYPICAL END SILL DETAIL
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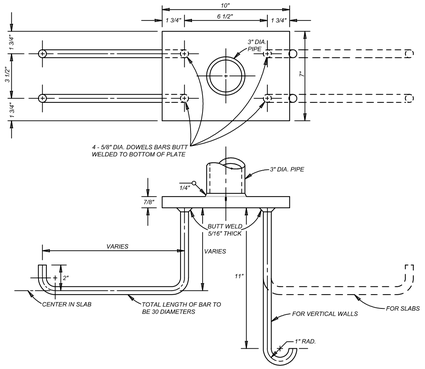
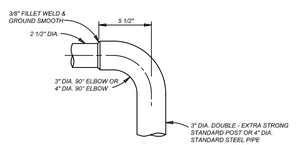
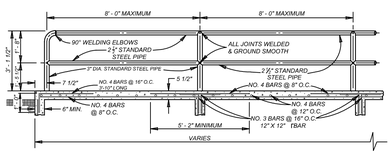


PIPE ANCHORAGE DETAILS
N.T.S.



DETAIL OF 90° WELDING ELBOWS
N.T.S.

* A NEAT END SECTION, SATISFACTORY TO THE ENGINEER, FROM SUBMITTED SHOP DRAWINGS, MAY BE USED IN LIEU OF THE 90° WELDING ELBOW SHOWN.



TYPICAL SIDEWALK BRIDGE & SIDEWALK PIPE RAILING SECTION
N.T.S.

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REV	DATE	DRAWN BY	DESCRIPTION

THIS DOCUMENT IS RELEASED BY AUTHORITY OF OMAR A. ESPINOSA, P.E. # 125560 FOR BID SET ONLY AND NOT TO BE USED FOR CONSTRUCTION.

FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: DR3911024 - BCD

SHEET TITLE:
DRAIN "B" PLAN & PROFILE

SHEET NUMBER:
4.5

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

I:\Drawings\DR3911024 - BCD.dwg 4.5 By: ROGELIO.BERBONES

TRENCH EXCAVATION SAFETY PROTECTION

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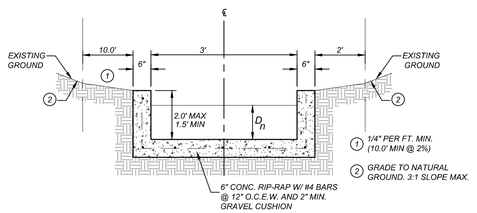
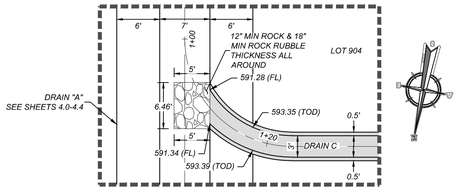
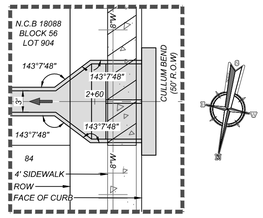


SECTION "C1-C1"
STA. 1+17.93 - STA. 2+54.56
N.T.S.



DETAIL "C1"
SCALE: 1"=10'



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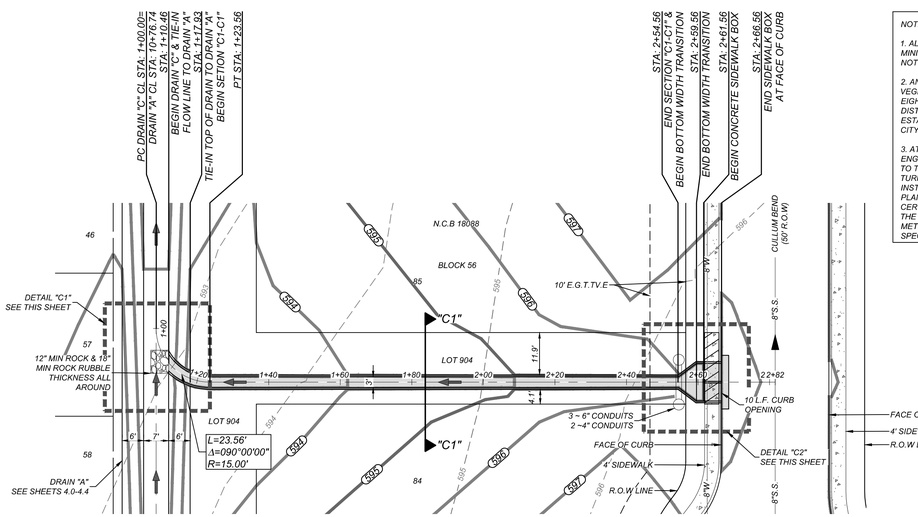

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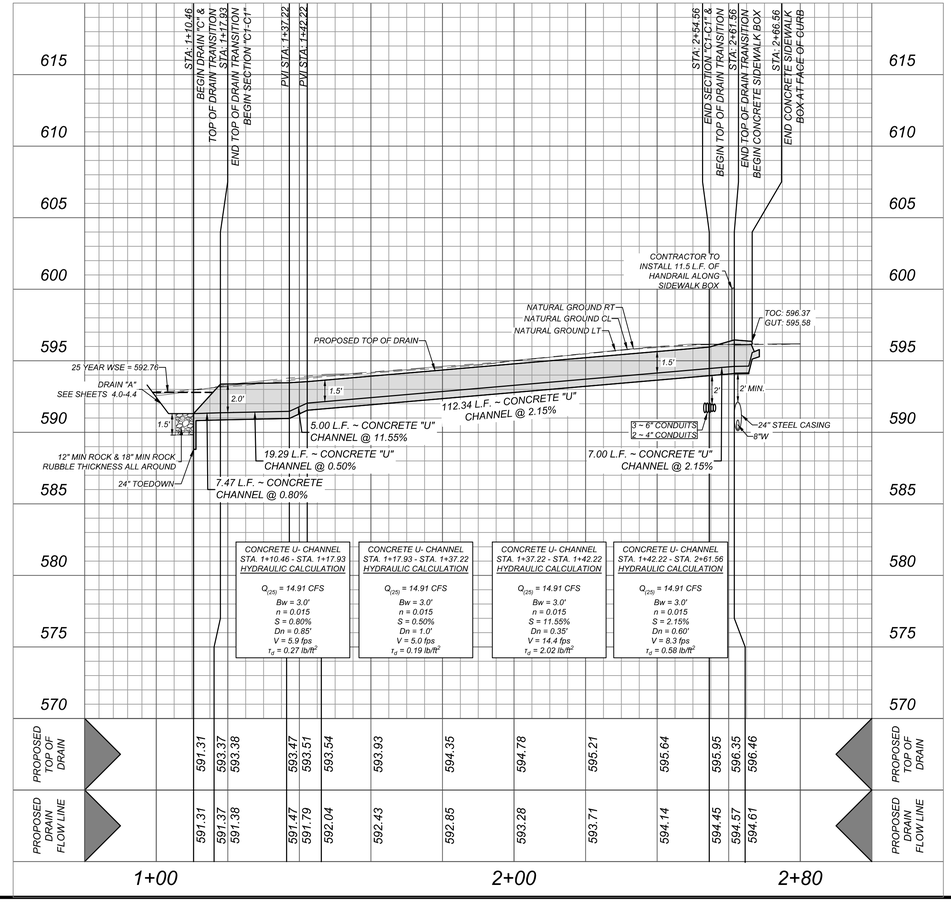
$$L = \frac{14.91}{(3.087)\ (0.79)^{3/2}}$$

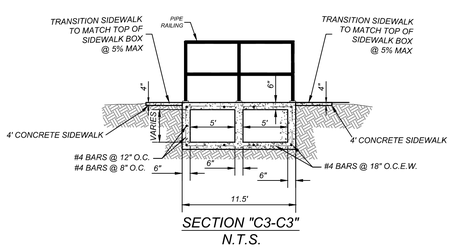
$L = 6.88$ L.F.

∴ *USE 10.0 L.F. CURB OPENING*

DRAIN "C"
STA: 1+00.00 - END

HORZ SCALE: 1"=20'
VERT SCALE: 1"=5'





SECTION "C3-C3"
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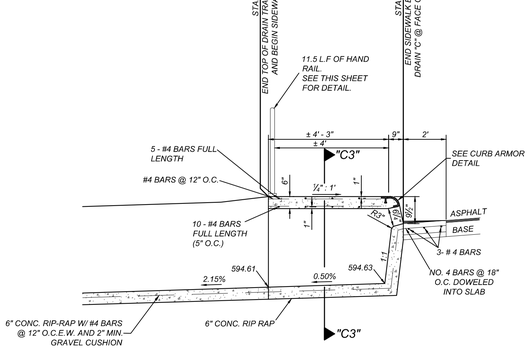
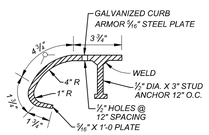
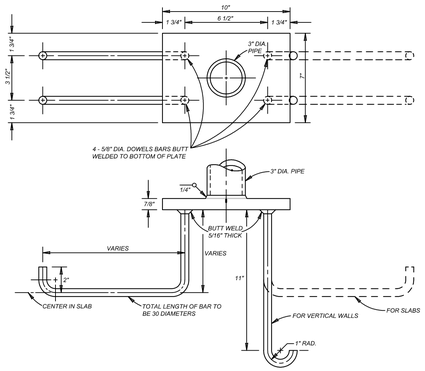


SIDEWALK BOX DETAIL
N.T.S.



CURB ARMOR DETAIL
N.T.S.



PIPE ANCHORAGE DETAILS
N.T.S.

DETAIL OF 90° WELDING ELBOWS
N.T.S.

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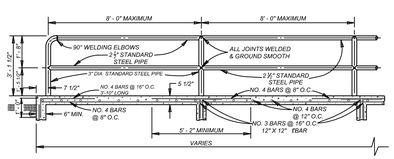

TYPICAL SIDEWALK BRIDGE & SIDEWALK PIPE RAILING SECTION
N.T.S.

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REV	DATE	DRAWN BY	DESCRIPTION

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14309
TBPLS Firm#: 10194350

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: DR3911024 - BCD

SHEET TITLE: DRAIN "C" PLAN & PROFILE

SHEET NUMBER: 4.6

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

w:\Drain\DR3911024 - BCD.dwg\4.6 By: ROCELIO BERMONES

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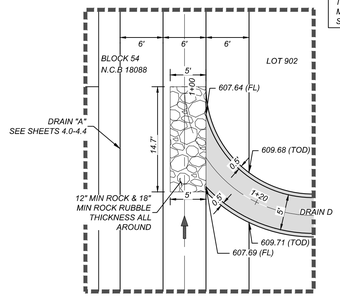

DETAIL "D1"
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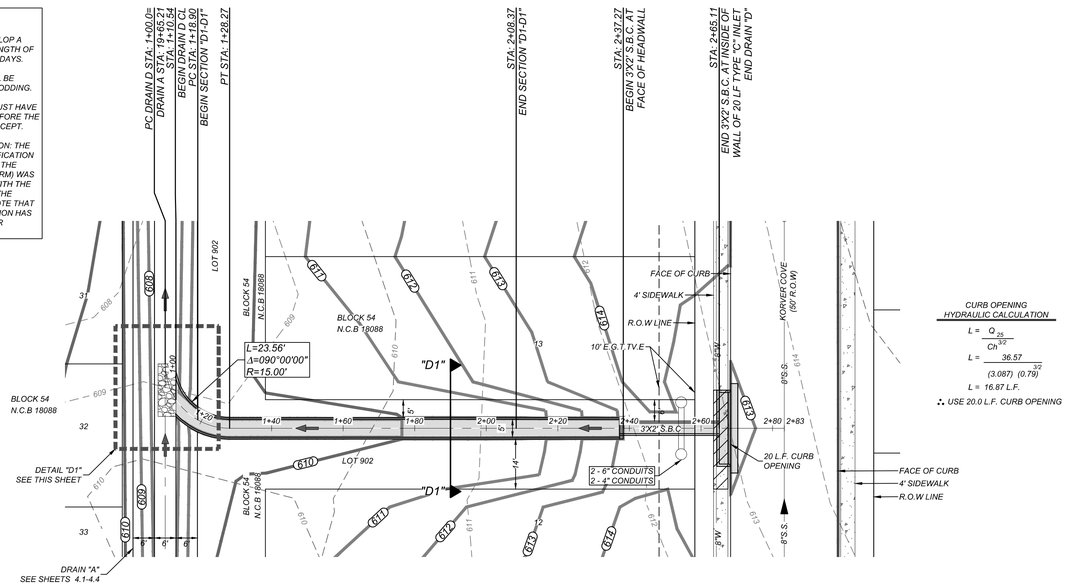

CURB OPENING HYDRAULIC CALCULATION

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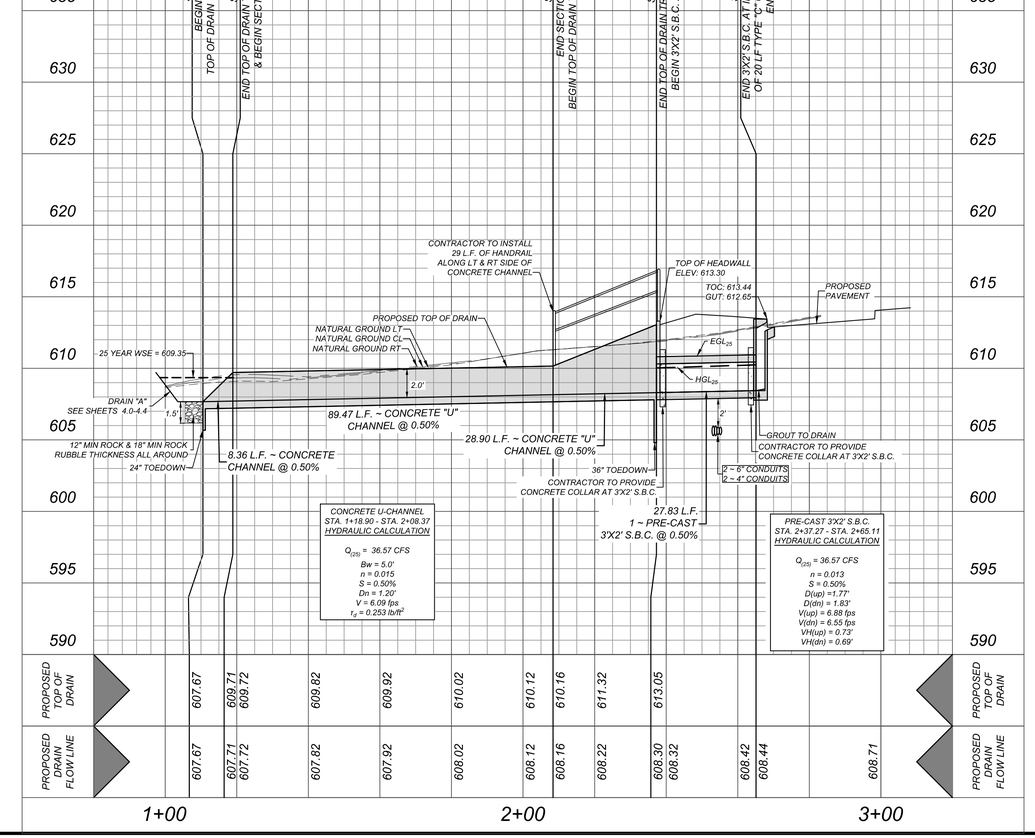
$$L = \frac{36.57}{(3.087)\ (0.79)^{3/2}}$$

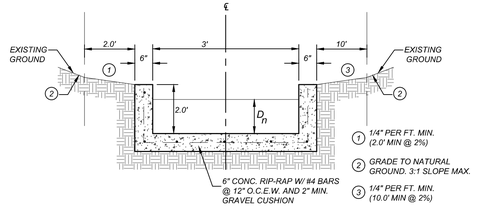
$$L = 16.87\ \text{L.F.}$$

∴ *USE 20.0 L.F. CURB OPENING*

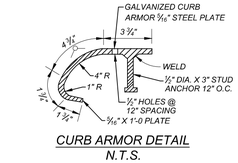
DRAIN "D"
STA: 1+00.00 - END

HORZ SCALE: 1"=20'
VERT SCALE: 1"=5'

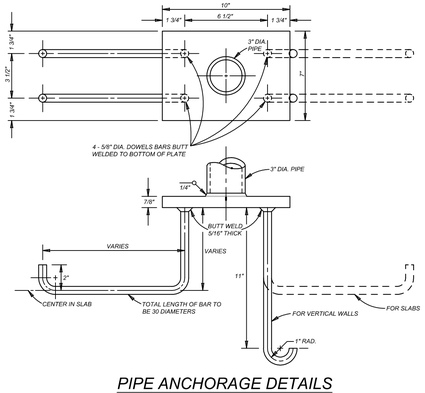




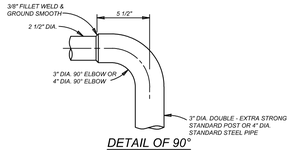
SECTION "D1-D1"
STA: 1+18+90 - STA: 2+08.37
N.T.S.



CURB ARMOR DETAIL
N.T.S.



PIPE ANCHORAGE DETAILS
N.T.S.



DETAIL OF 90° WELDING ELBOWS
N.T.S.

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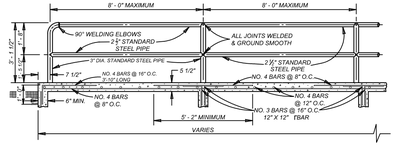

TYPICAL SIDEWALK BRIDGE & SIDEWALK PIPE RAILING SECTION
N.T.S.

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Formerly Known as KFW

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FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

REV	DATE	DRAWN BY	DESCRIPTION

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: DR3911024 - BCD

SHEET TITLE: DRAIN "D" PLAN & PROFILE

SHEET NUMBER: 4.7

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

I:\Drawings\DR3911024 - BCD.dwg 4.7 By: RDOELLER/BCRONES

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

CAUTION!!:

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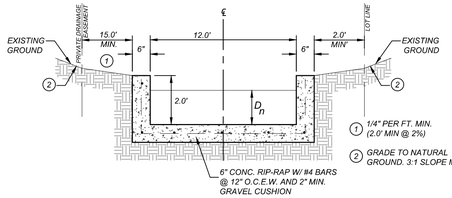
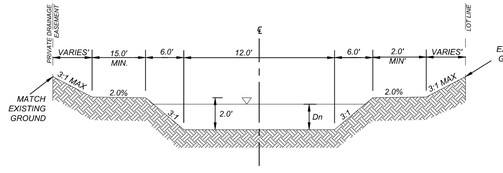


SECTION "E1-E1"
STA. 1+41.10 - STA. 1+60.66
STA. 1+65.66 - STA. 1+75.00
N.T.S.



SECTION "E2-E2"
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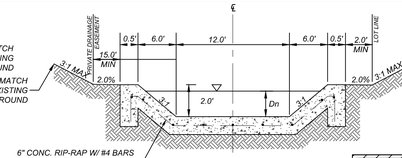

SECTION "E3-E3"
STA. 1+85.00
STA. 3+53.80 - STA. 3+56.80
N.T.S.

CHANNEL LINING:

AREA'S EXCEEDING CITY OF SAN ANTONIO PERMISSIBLE SHEAR STRESS WILL BE REINFORCED WITH PROPOSED TURF REINFORCEMENT MAT (TRM) AS APPROVED BY CITY OF SAN ANTONIO STANDARD SPECIFICATIONS UNDER CONSTRUCTION ITEM 554.

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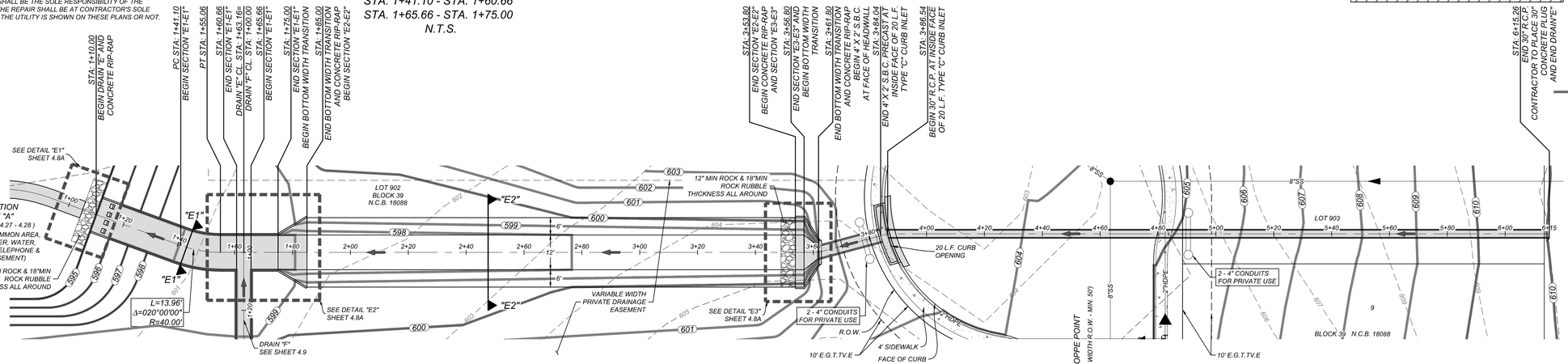


DRAIN "E"
STA: 1+10.00 - END

LEGEND

735	=	EXISTING CONTOUR
735	=	PROPOSED CONTOUR
	=	FLOW ARROW
C.B.	=	COUNTY BLOCK
R.O.W.	=	RIGHT OF WAY
E.G.T.TV.E.	=	ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT

CURB OPENING HYDRAULIC CALCULATION

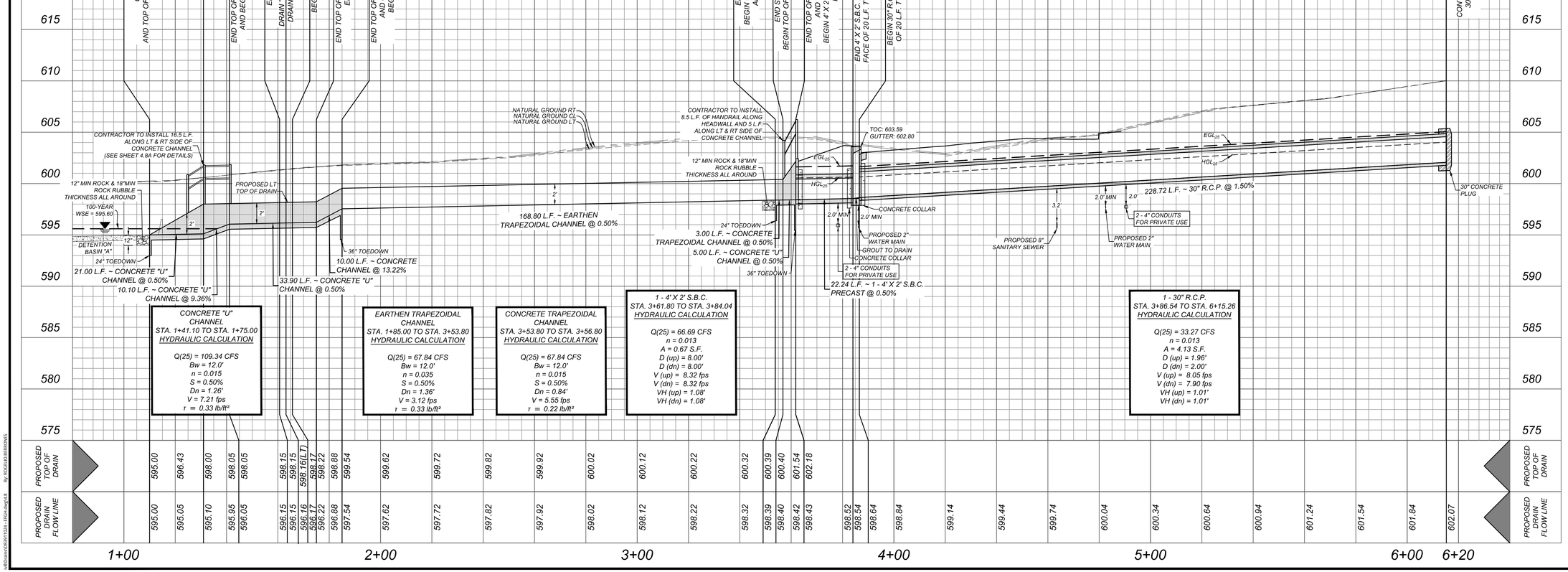
$$L = \frac{Q_{25}}{Ch^{3/2}}$$

$$L = \frac{33.42}{(3.087)\ (0.79)^{3/2}}$$

L = 15.62 L.F.

∴ *USE 20.0 L.F. CURB OPENING*

HORZ SCALE: 1"=20'
VERT SCALE: 1"=5'



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PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
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AS SHOWN	AUGUST 2024	-	OE

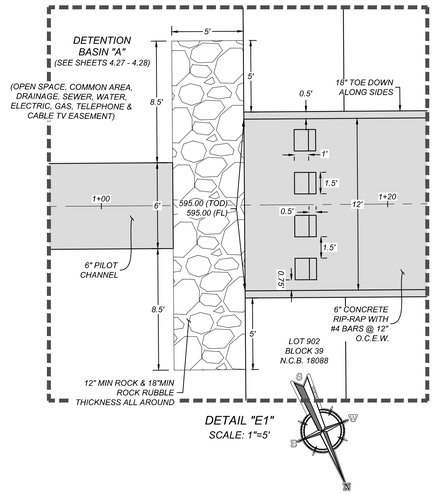
PROJECT NUMBER: 391-10-24
DRAWING NAME: DR3911024 - EFGH

SHEET TITLE: DRAIN "E" PLAN & PROFILE

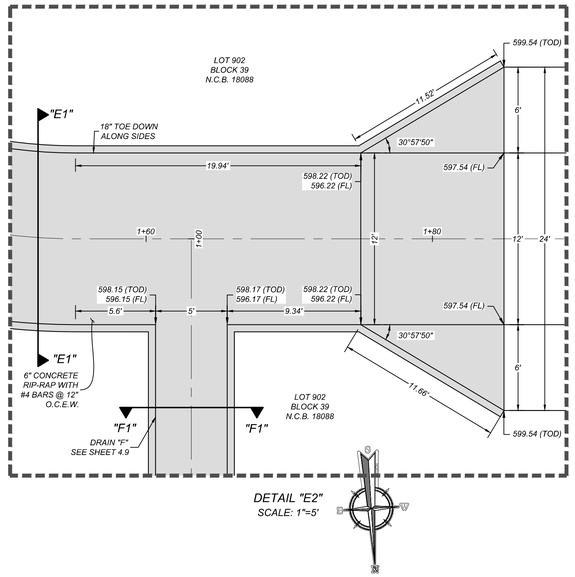
SHEET NUMBER: 4.8

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

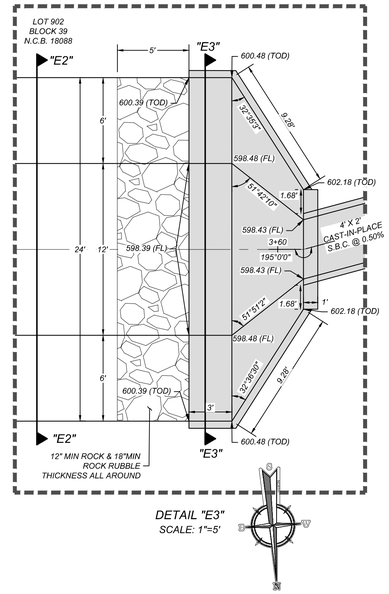
w:\Drawing\391\391-1024 - EFGH.dwg\4.8 By: ROGELIO.BERMONES



DETAIL "E1"
SCALE: 1"=5'



DETAIL "E2"
SCALE: 1"=5'



DETAIL "E3"
SCALE: 1"=5'

BAFFLE BLOCK CALCULATIONS
(ST. ANTHONY FALLS METHOD

Q25 =109.34 CFS
BOTTOM WIDTH UPSTREAM = 12.00 FT
BOTTOM WIDTH DOWNSTREAM =12.00 FT
Y1 = 1.26' (DEPTH BEFORE JUMP)
Y2 = 1.79' (DEPTH AFTER JUMP)

WIDTH OF BLOCKS = 0.75(Y1) = 0.95 FT. (USE 1.5 FT.)
SPACE BETWEEN BLOCKS = 0.75(Y1) = 0.95 FT. (USE 1.5 FT.)
HEIGHT OF BLOCKS = Y1 = 1.26 FT. (USE 1.5 FT.)
OF BLOCKS ACROSS BOTTOM = 4

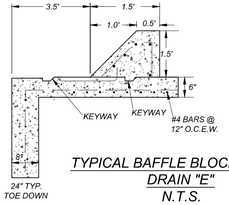
% OF FLOOR COVERED WITH BLOCKS = [4 (1.5 FT) / 12] * 100 = 50%
(% MUST BE BETWEEN 40% AND 55%)

DEPTH OF TAILWATER (Y2)
FROUDE NUMBER BEFORE JUMP = F1 = 0.67
FROUDE NUMBER AFTER JUMP = F2 = 0.67
LENGTH OF BASIN = LB = 4.5(Y2)/F1*0.76 = 10.92 FT. (USE 15.0 FT.)

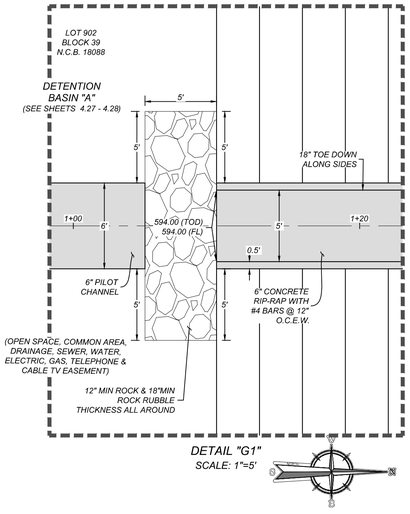
DISTANCE TO FLOOR BLOCKS = LB/3 = 5.0 FT (USE 5.0 FT.)

HEIGHT OF MAX TAILWATER DEPTH:
Z = Y2/3 = 0.60 FT.
Y'2' = 0.85 * Y2 = 1.52'
H = Z + Y'2' = 2.12 FT.

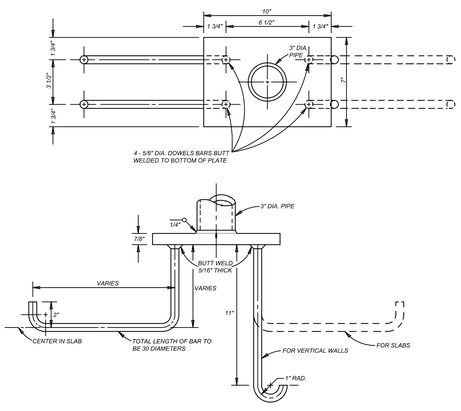
VELOCITY AFTER JUMP:
V = Q/A
A = Y2 * BOTTOM WIDTH
A = 1.79 * 12 = 21.48 SQ. FT.
V = 109.34/21.48 = 5.09 F.P.S.



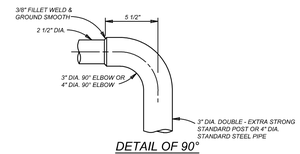
TYPICAL BAFFLE BLOCK DETAIL
DRAIN "E"
N.T.S.



DETAIL "G1"
SCALE: 1"=5'



PIPE ANCHORAGE DETAILS
N.T.S.



DETAIL OF 90°
WELDING ELBOWS
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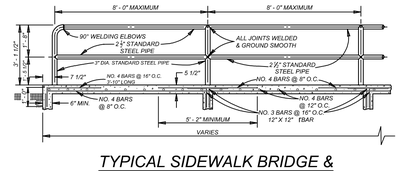

TYPICAL SIDEWALK BRIDGE &
SIDEWALK PIPE RAILING SECTION
N.T.S.

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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: DR3911024 - EFGH

SHEET TITLE:
DRAIN "E" & "G" DETAILS

SHEET NUMBER:
4.8A

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

By: ROGELIO.BERRONES
n:\ftDrains\DR3911024 - EFGH.dwg\4.8A

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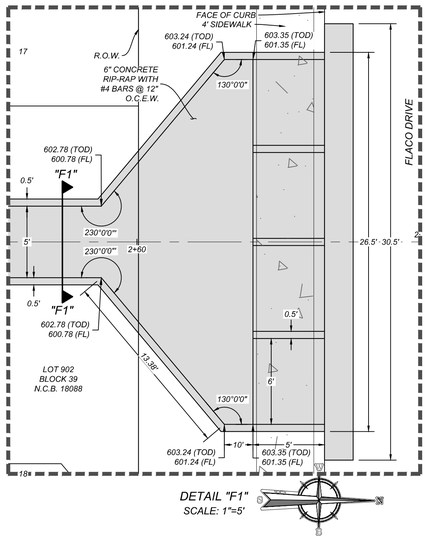
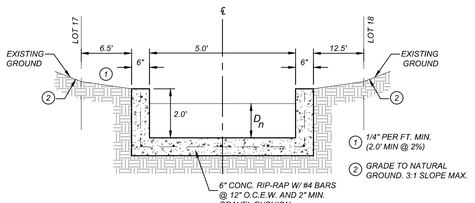


DETAIL "F1"
SCALE: 1"=5'



SECTION "F1-F1"
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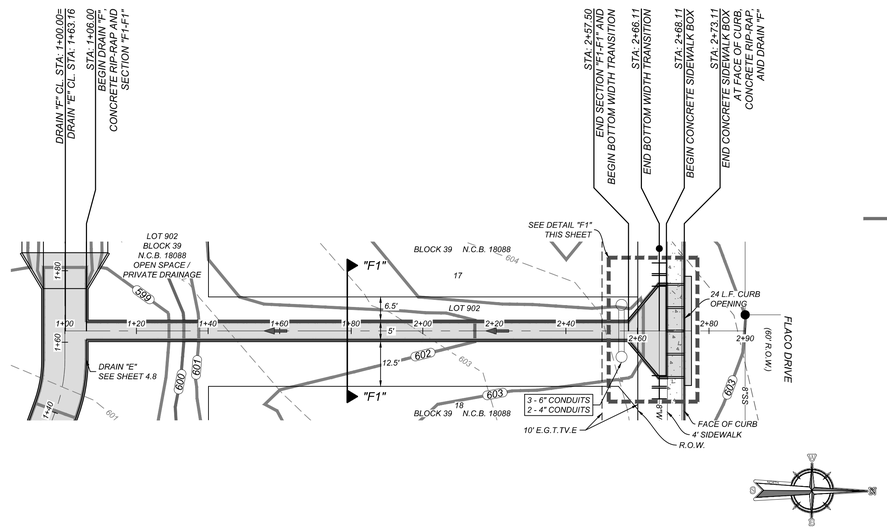
N.T.S.



DRAIN "F"
STA: 1+06.00 - END

HORZ SCALE: 1"=20'
VERT SCALE: 1"=5'

CHANNEL LINING:

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LEGEND

735	=	EXISTING CONTOUR
735	=	PROPOSED CONTOUR
	=	FLOW ARROW
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E.G.T.TV.E.	=	ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT

CURB OPENING HYDRAULIC CALCULATION

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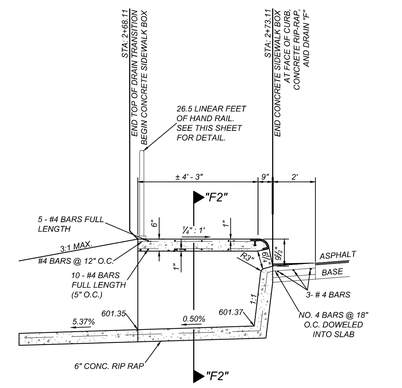
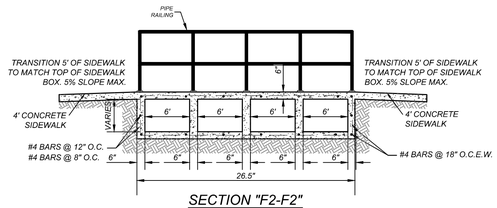
$$L = \frac{42.25}{(3.087)\ (0.79)^{3/2}}$$

$L = 19.49$ L.F.

∴ *USE 24.0 L.F. CURB OPENING*



SIDEWALK BOX DETAIL
N.T.S.



SECTION "F2-F2"
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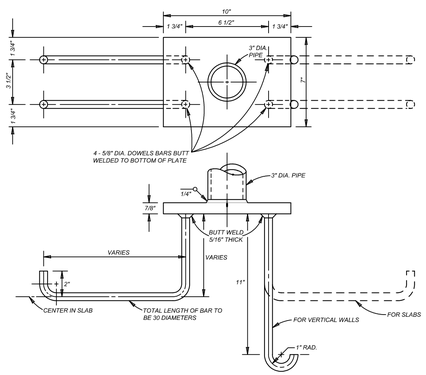
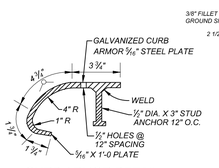
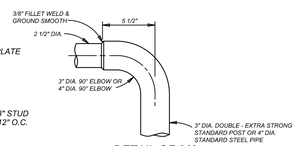


PIPE ANCHORAGE DETAILS
N.T.S.



CURB ARMOR DETAIL
N.T.S.



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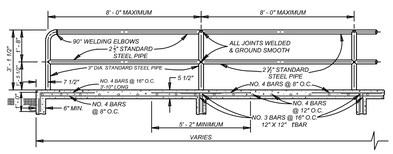

TYPICAL SIDEWALK BRIDGE &
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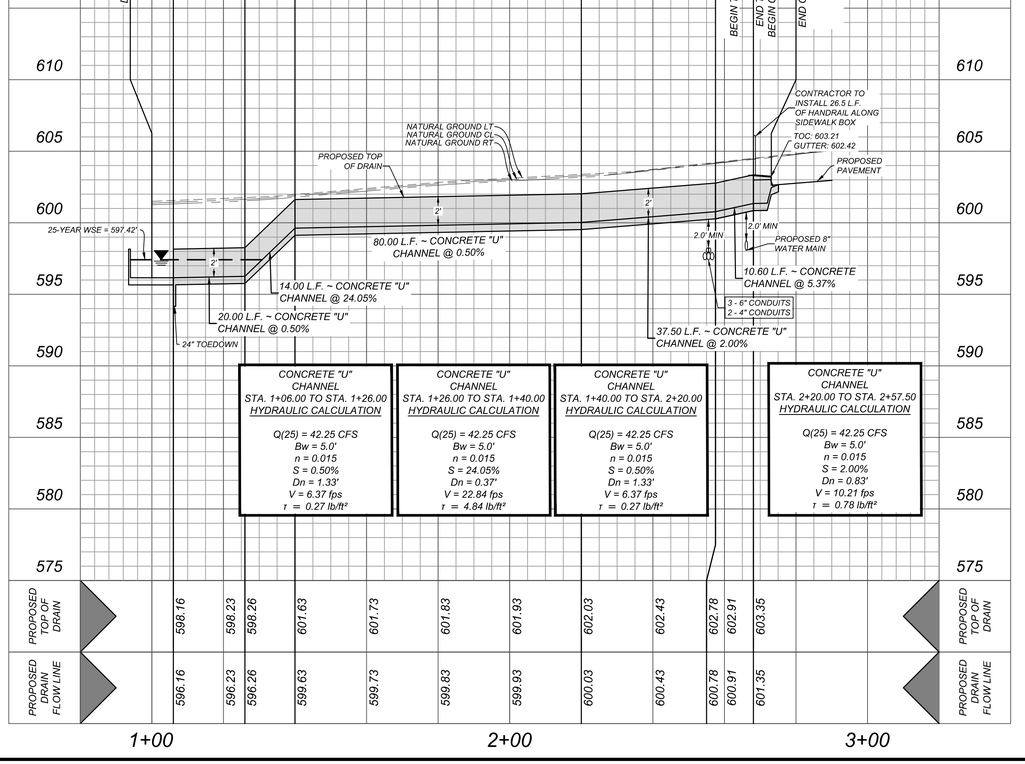
N.T.S.



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REV	DATE	DRAWN BY	DESCRIPTION

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: DR3911024 - EFGH

SHEET TITLE:
DRAIN "F" PLAN & PROFILE

SHEET NUMBER: 4.9

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

I:\Projects\DR3911024 - EFGH_Dwg\4.9 By: ROGELIO BERRONES

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

CAUTION!!:
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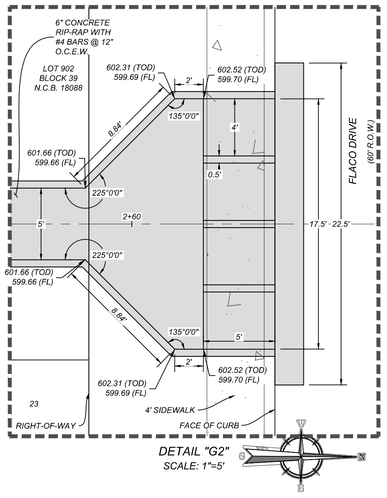


DETAIL "G2"
SCALE: 1"=5'

CHANNEL LINING:

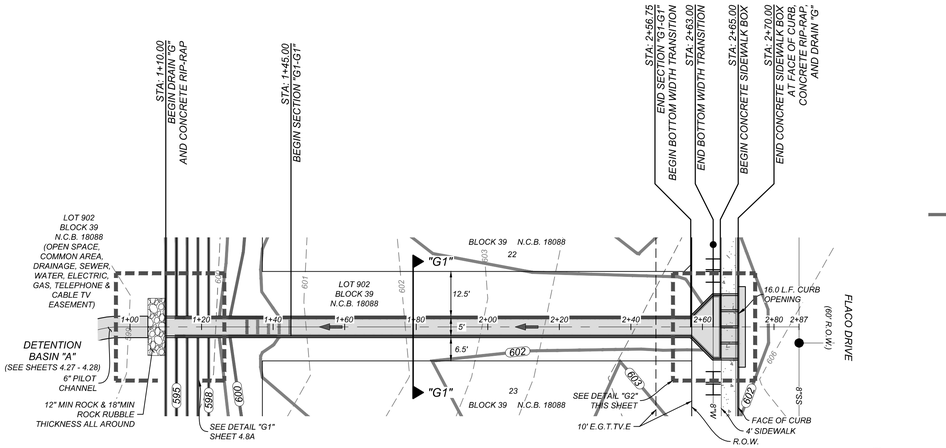
AREA'S EXCEEDING CITY OF SAN ANTONIO PERMISSIBLE SHEAR STRESS WILL BE REINFORCED WITH PROPOSED TURF REINFORCEMENT MAT (TRM) AS APPROVED BY CITY OF SAN ANTONIO STANDARD SPECIFICATIONS UNDER CONSTRUCTION ITEM 554.

NOTE:

1. ALL CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF NOT LESS THAN 3000 PSI IN 28 DAYS.

2. ANY DISTURBED AREAS WILL BE VEGETATED BY SEEDING OR SODDING. EIGHTY-FIVE PERCENT OF THE DISTURBED SURFACE AREA MUST HAVE ESTABLISHED VEGETATION BEFORE THE CITY OF SAN ANTONIO WILL ACCEPT.

3. AT THE PRE-FINAL INSPECTION: THE ENGINEER MUST ISSUE CERTIFICATION TO THE CITY INSPECTOR THAT THE TURF REINFORCEMENT MAT (TRM) WAS INSTALLED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. THE CERTIFICATION MUST ALSO NOTE THAT THE MATERIAL AND INSTALLATION HAS MET CITY AND MANUFACTURER SPECIFICATIONS.



LEGEND

735	=	*EXISTING CONTOUR*
735	=	*PROPOSED CONTOUR*
	=	*FLOW ARROW*
C.B.	=	*COUNTY BLOCK*
R.O.W.	=	*RIGHT OF WAY*
E.G.T.TV.E.	=	*ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT*

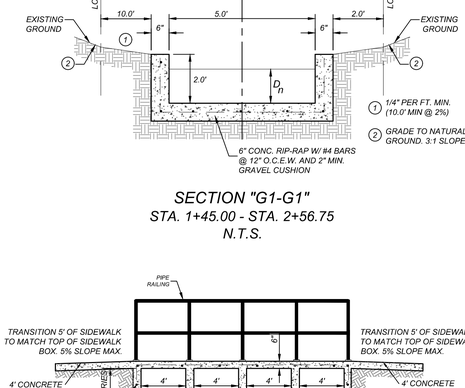
CURB OPENING HYDRAULIC CALCULATION

$$L = \frac{Q_{25}}{Ch^{3/2}}$$

$$L = \frac{31.13}{(3.087)\ (0.79)^{3/2}}$$

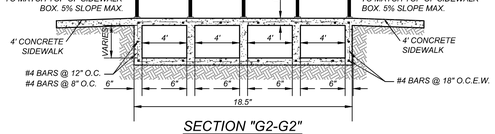
$L = 14.36$ L.F.

∴ *USE 16.0 L.F. CURB OPENING*

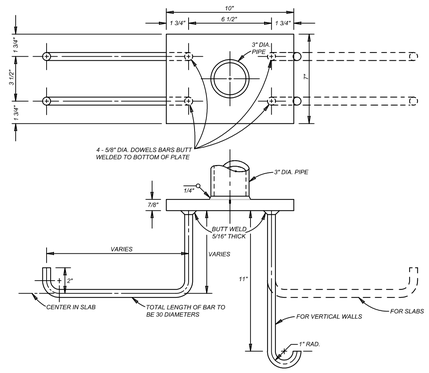


SIDEWALK BOX DETAIL
N.T.S.

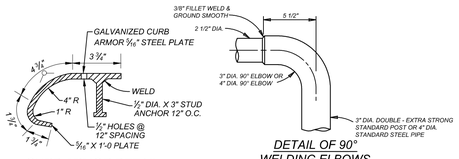
SECTION "G1-G1"
STA. 1+45.00 - STA. 2+56.75
N.T.S.



SECTION "G2-G2"
N.T.S.



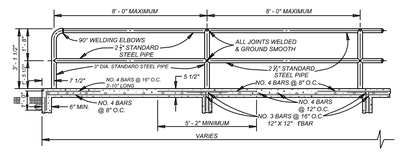
PIPE ANCHORAGE DETAILS
N.T.S.



CURB ARMOR DETAIL
N.T.S.

DETAIL OF 90° WELDING ELBOWS
N.T.S.

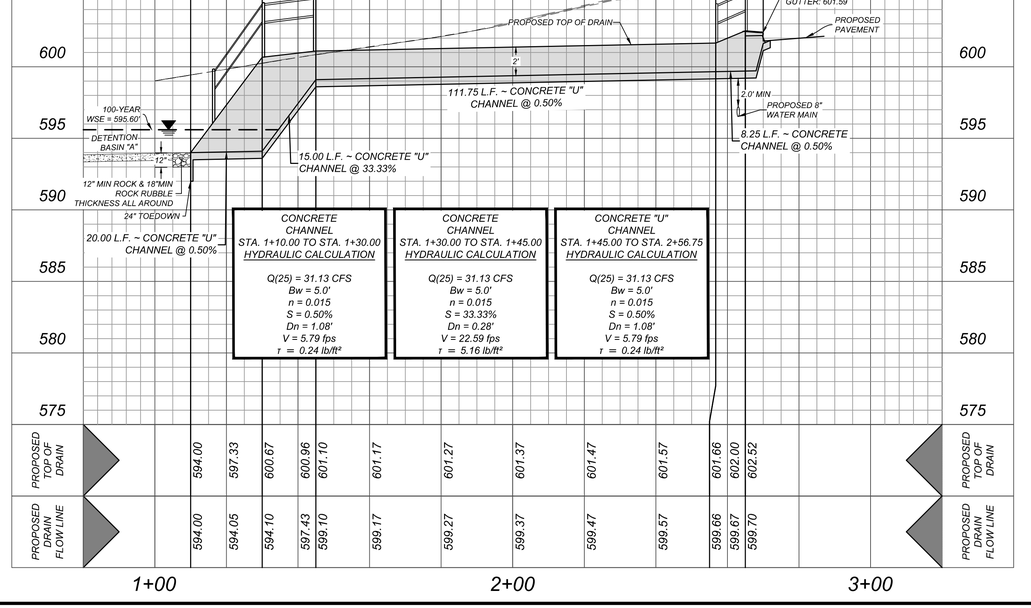
* *A NEAT END SECTION, SATISFACTORY TO THE ENGINEER, FROM SUBMITTED SHOP DRAWINGS, MAY BE USED IN LIEU OF THE 90° WELDING ELBOW SHOWN.*



TYPICAL SIDEWALK BRIDGE & SIDEWALK PIPE RAILING SECTION
N.T.S.

DRAIN "G"
STA: 1+10.00 - END

HORZ SCALE: 1"=20'
VERT SCALE: 1"=5'



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REV	DATE	DRAWN BY	DESCRIPTION

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PLAT# 24-11800334

SAN ANTONIO
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TEXAS

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Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: DR3911024 - EFGH

SHEET TITLE:
DRAIN "G" PLAN & PROFILE

SHEET NUMBER:
4.10

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

w:\Drawings\DR3911024 - FEGH.dwg4.10 By: ROCELIO BERRONES

TRENCH EXCAVATION SAFETY PROTECTION

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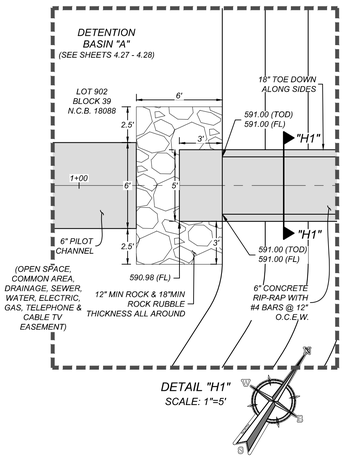
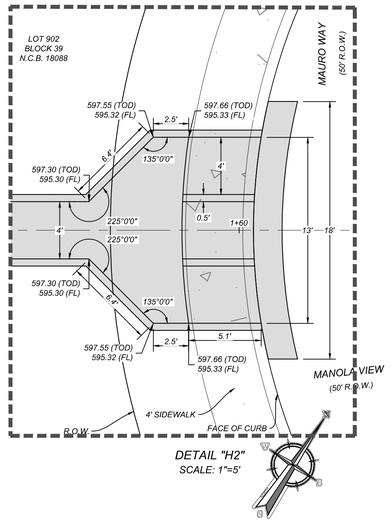
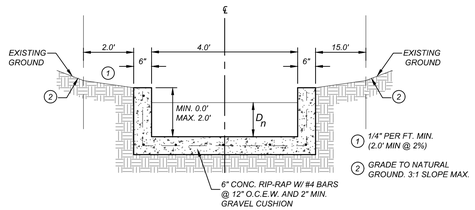


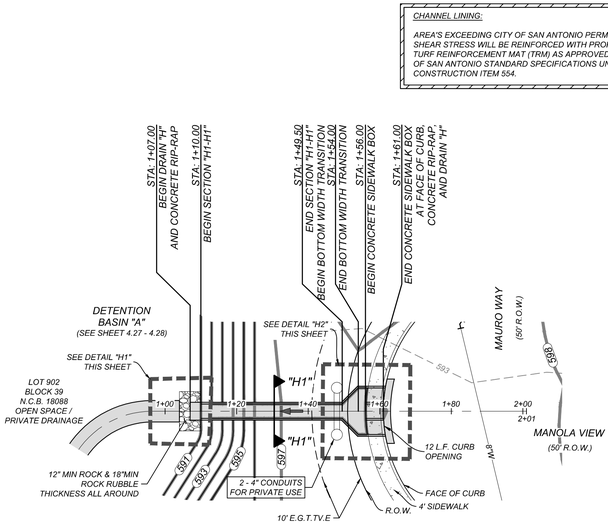
DETAIL "H1"
SCALE: 1"=5'



DETAIL "H2"
SCALE: 1"=5'



SECTION "H1-H1"
STA. 1+10.00 - STA. 1+49.50
N.T.S.



DRAIN "H"
STA: 1+07.00 - END

HORZ SCALE: 1"=20'
VERT SCALE: 1"=5'

CHANNEL LINING:

AREA'S EXCEEDING CITY OF SAN ANTONIO PERMISSIBLE SHEAR STRESS WILL BE REINFORCED WITH PROPOSED TURF REINFORCEMENT MAT (TRM) AS APPROVED BY CITY OF SAN ANTONIO STANDARD SPECIFICATIONS UNDER CONSTRUCTION ITEM 554.

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LEGEND

735	=	*EXISTING CONTOUR*
735	=	*PROPOSED CONTOUR*
	=	*FLOW ARROW*
C.B.	=	*COUNTY BLOCK*
R.O.W.	=	*RIGHT OF WAY*
E.G.T.TV.E.	=	*ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT*

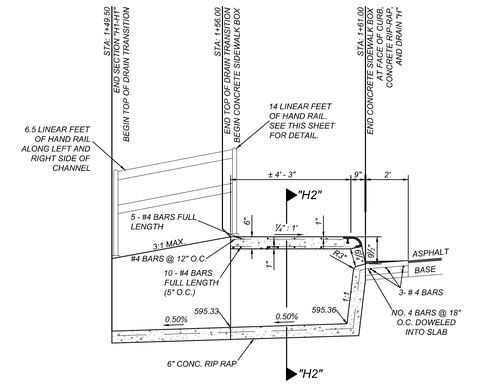
CURB OPENING HYDRAULIC CALCULATION

$$L = \frac{Q_{25}}{Cn^{3/2}}$$

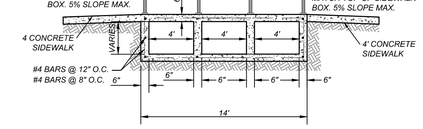
$$L = \frac{19.70}{(3.087)\ (0.79)^{3/2}}$$

$L = 9.09$ L.F.

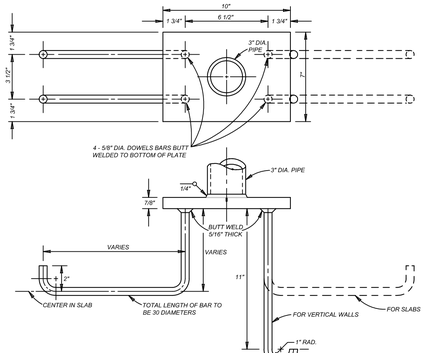
∴ *USE 12.0 L.F. CURB OPENING*



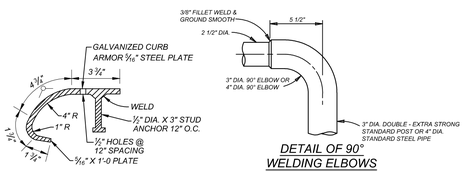
SIDEWALK BOX DETAIL
N.T.S.



SECTION "H2-H2"
N.T.S.



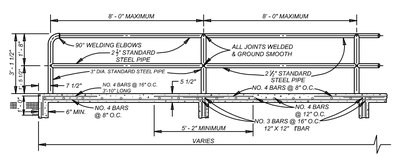
PIPE ANCHORAGE DETAILS
N.T.S.



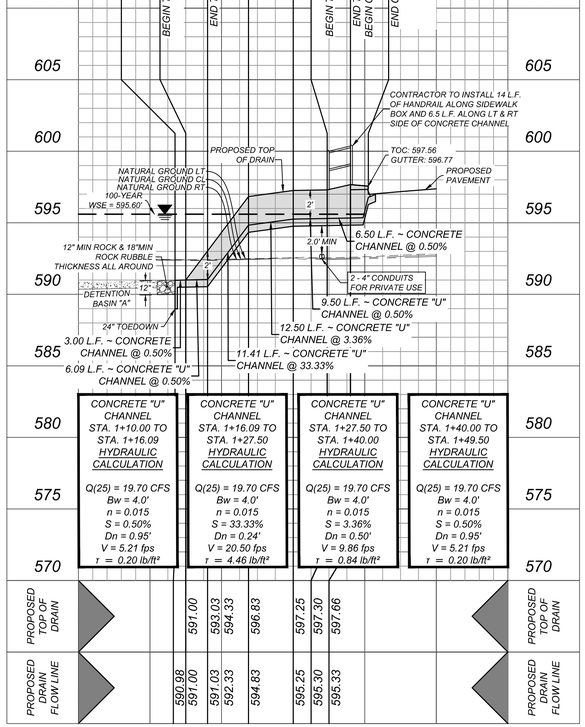
CURB ARMOR DETAIL
N.T.S.

DETAIL OF 90° WELDING ELBOWS
N.T.S.

★ *A NEAT END SECTION, SATISFACTORY TO THE ENGINEER, FROM SUBMITTED SHOP DRAWINGS, MAY BE USED IN LIEU OF THE 90° WELDING ELBOW SHOWN.*



TYPICAL SIDEWALK BRIDGE & SIDEWALK PIPE RAILING SECTION
N.T.S.



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REV	DATE	DRAWN BY	DESCRIPTION

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

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SAN ANTONIO (KFW)
3421 Paesanos Parkway
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TBPE Firm#: F-14909
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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

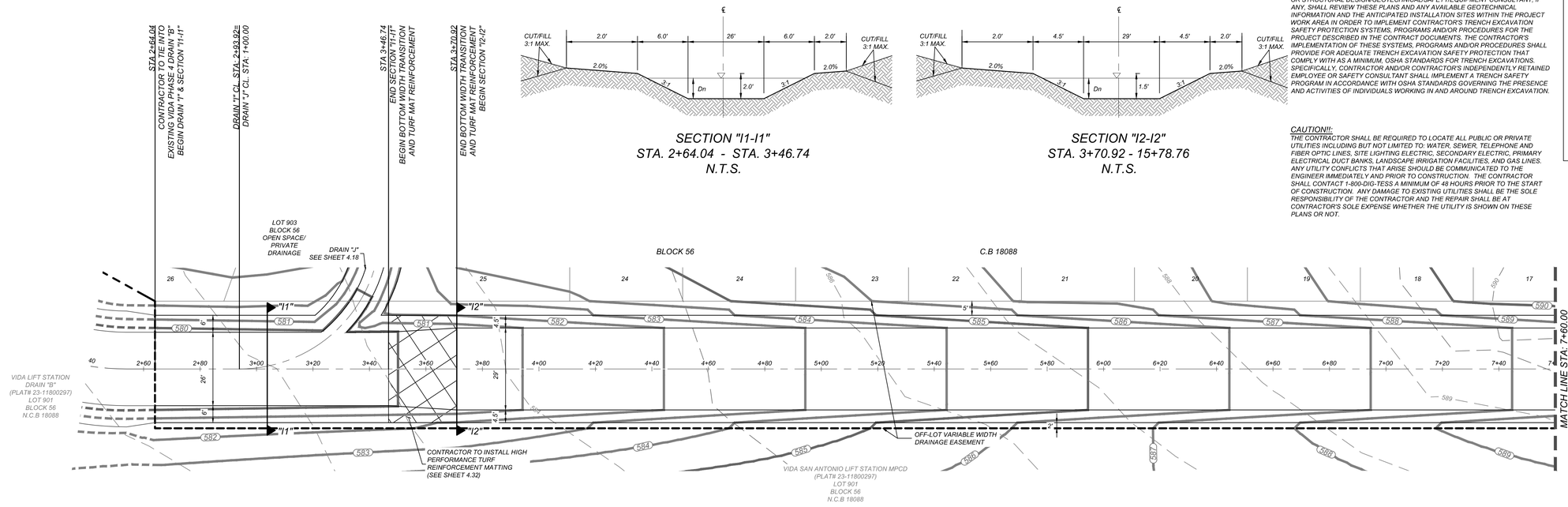
PROJECT NUMBER: 391-10-24
DRAWING NAME: DR3911024 - EFGH

SHEET TITLE:
DRAIN "H" PLAN & PROFILE

SHEET NUMBER:
4.11

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

I:\Drawings\391-10-24 - FEGH.dwg\4.11 By: ROCELIO BERRONES



SECTION "I1-I1"
STA. 2+64.04 - STA. 3+46.74
N.T.S.

SECTION "I2-I2"
STA. 3+70.92 - 15+78.76
N.T.S.

TRENCH EXCAVATION SAFETY PROTECTION

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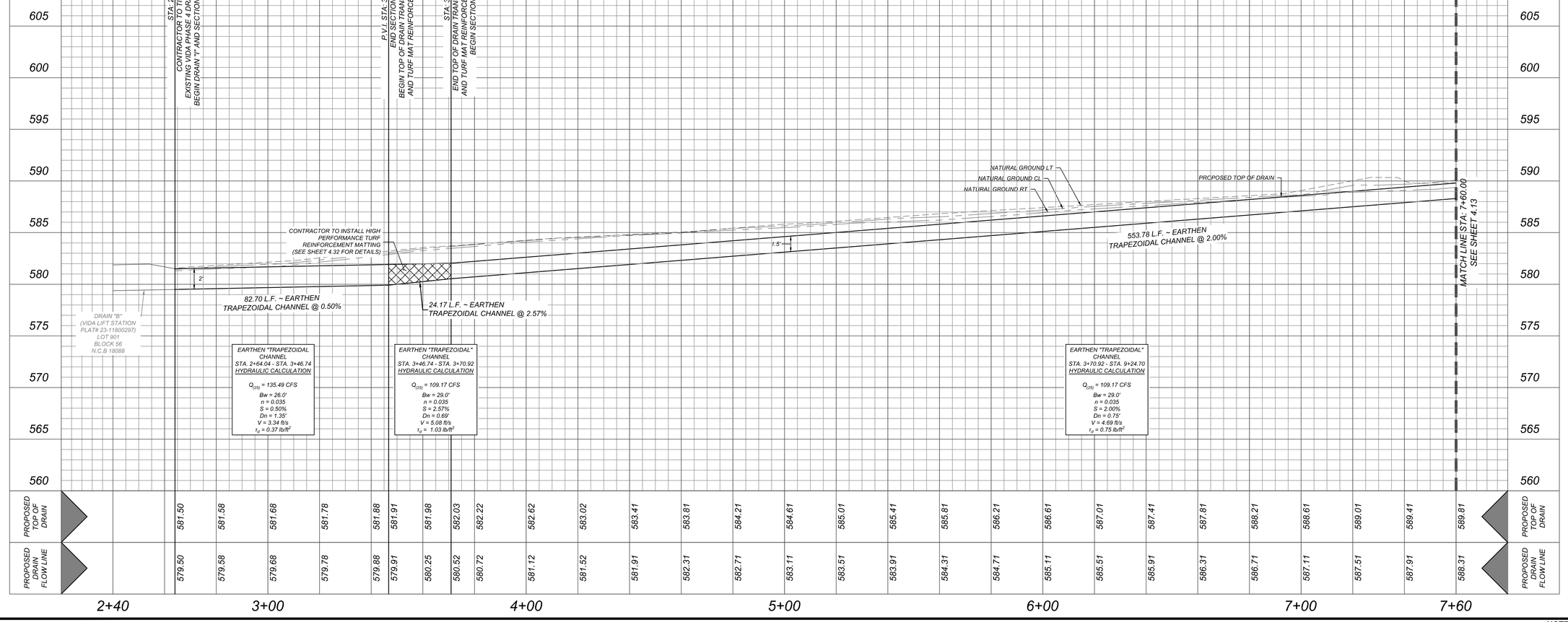
DRAIN "I"
STA: 2+64.04 -7+60.00

HORZ SCALE: 1"=20'
VERT SCALE: 1"=5'



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FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

REV	DATE	DRAWN BY	DESCRIPTION

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: DR3911024 - I

SHEET TITLE:
DRAIN "I" PLAN & PROFILE
(1 OF 6)

SHEET NUMBER:
4.12

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

By: ABEL MONTALVO
I:\ByDrains\DR3911024 - I.dwg\4.12

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

CAUTION!!:

THE CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITED TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCT BANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT ARISE SHOULD BE COMMUNICATED TO THE ENGINEER IMMEDIATELY AND PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL CONTACT 1-800-DIG-TESS A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND THE REPAIR SHALL BE AT CONTRACTOR'S SOLE EXPENSE WHETHER THE UTILITY IS SHOWN ON THESE PLANS OR NOT.

NOTE:

1. ALL CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF NOT LESS THAN 3000 PSI IN 28 DAYS.

2. ANY DISTURBED AREAS WILL BE VEGETATED BY SEEDING OR SODDING. EIGHTY-FIVE PERCENT OF THE DISTURBED SURFACE AREA MUST HAVE ESTABLISHED VEGETATION BEFORE BEXAR COUNTY WILL ACCEPT.

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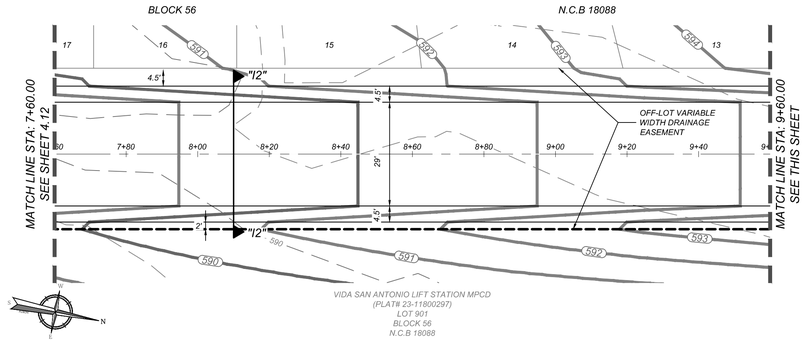
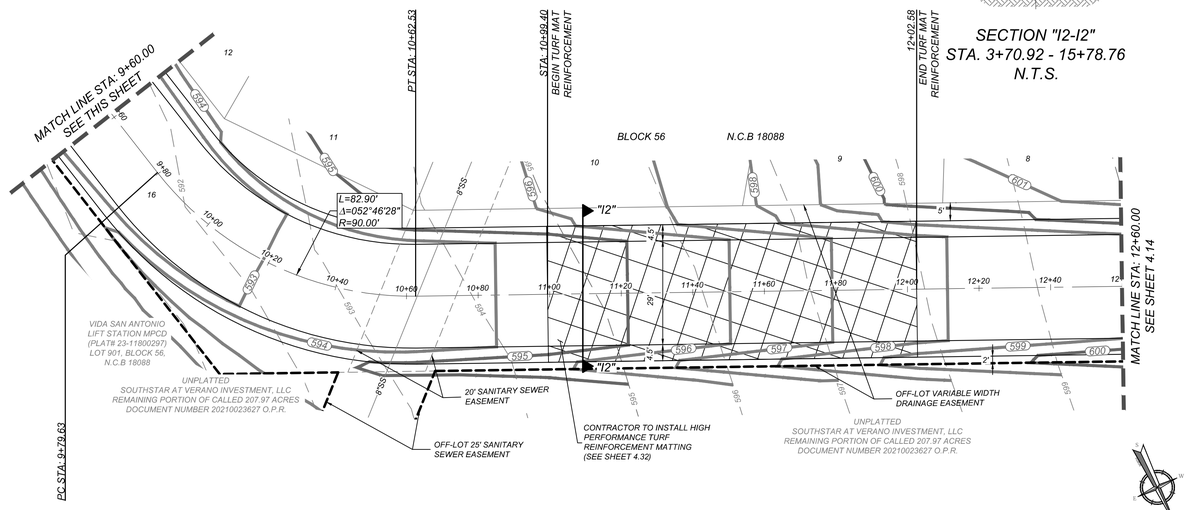
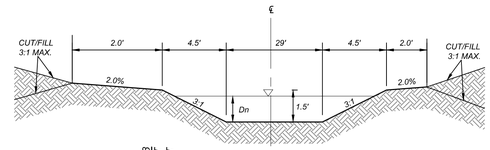


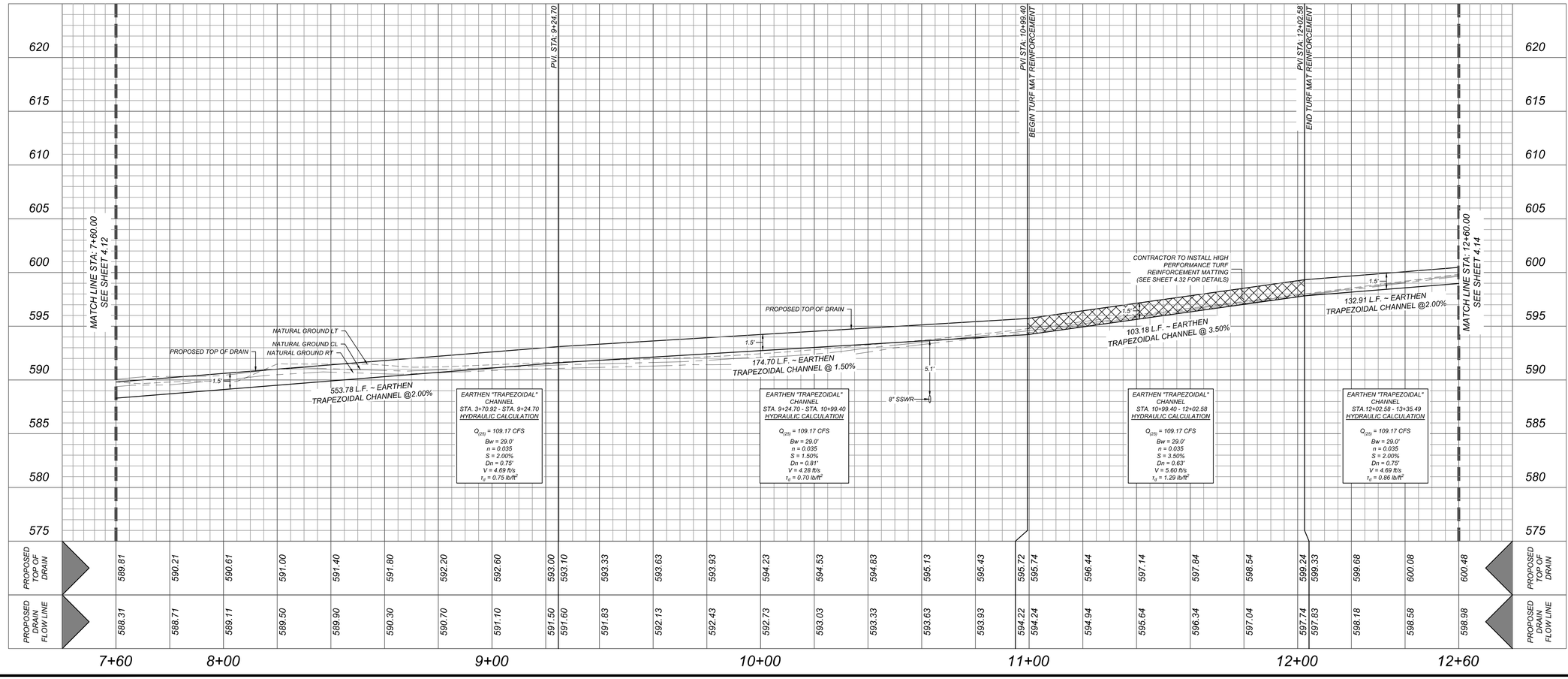




SECTION "I2-I2"
STA. 3+70.92 - 15+78.76
N.T.S.

HORZ SCALE: 1"=20'
VERT SCALE: 1"=5'

DRAIN "I"
STA: 7+60.00 - 12+60.00



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REV	DATE	DRAWN BY	DESCRIPTION

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PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

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COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14309
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: DR3911024 - I

SHEET TITLE:
DRAIN "I" PLAN & PROFILE (2 OF 6)

SHEET NUMBER:
4.13

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

By: ABEL MONTALVO

TRENCH EXCAVATION SAFETY PROTECTION

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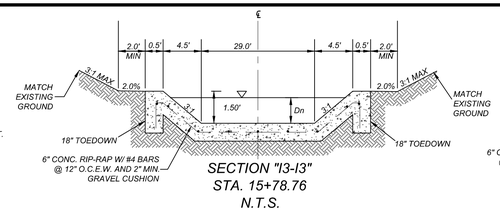
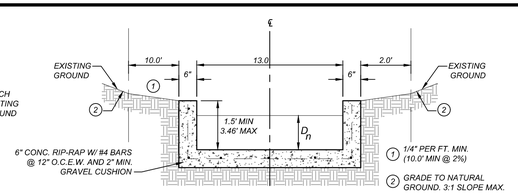


SECTION "I3-I3"
STA. 15+78.76
N.T.S.



SECTION "I4-I4"
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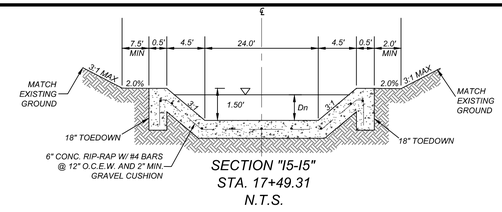
N.T.S.



SECTION "I5-I5"
STA. 17+49.31
N.T.S.

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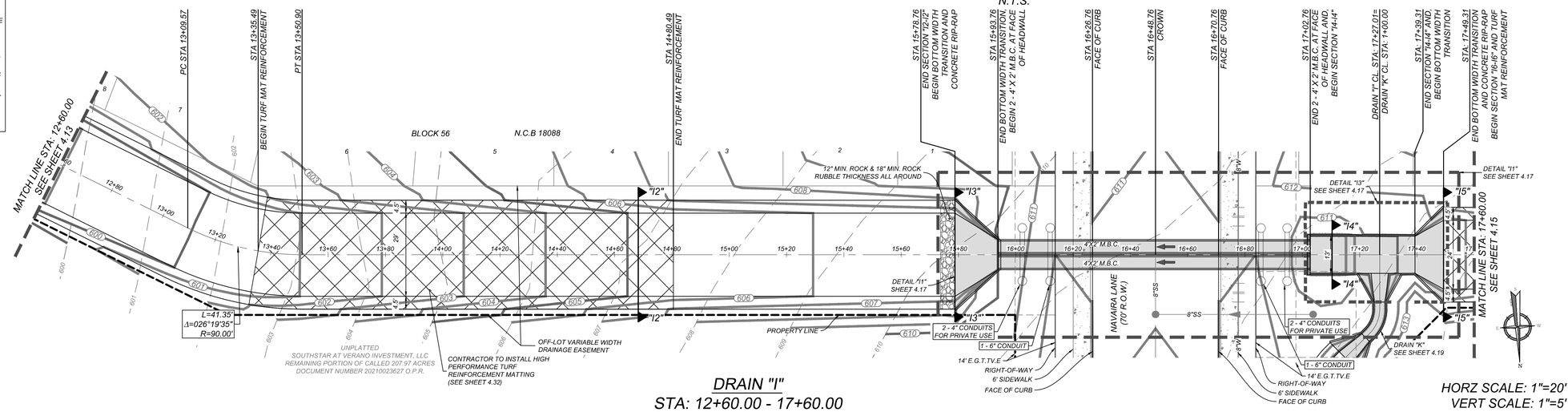
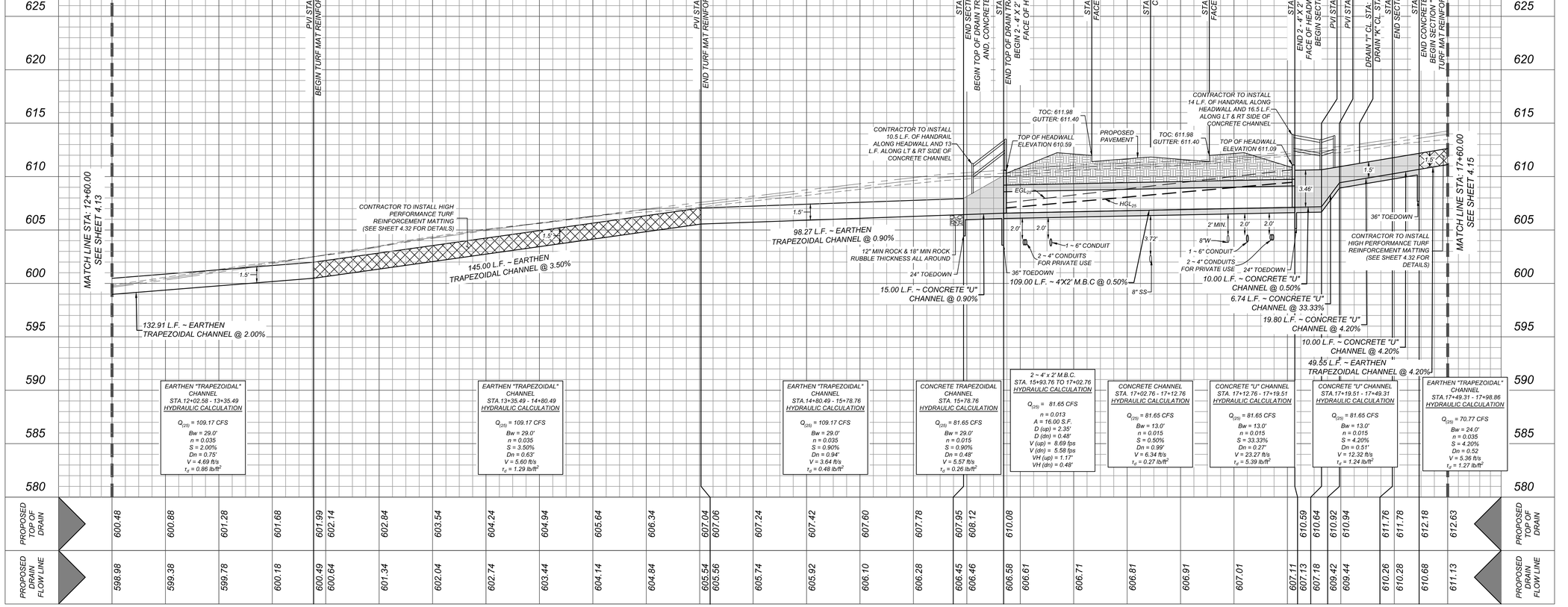


DRAIN "I"
STA: 12+60.00 - 17+60.00

HORZ SCALE: 1"=20'
VERT SCALE: 1"=5'



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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER:	DRAWING NAME:
391-10-24	DR3911024 - I

SHEET TITLE:
DRAIN "I" PLAN & PROFILE (3 OF 6)

SHEET NUMBER:
4.14

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

w:\RD\civil\DR3911024 - I.dwg\C4.14 By: ABEL MONTALVO

TRENCH EXCAVATION SAFETY PROTECTION

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2. *ANY DISTURBED AREAS WILL BE VEGETATED BY SEEDING OR SODDING. EIGHTY-FIVE PERCENT OF THE DISTURBED SURFACE AREA MUST HAVE ESTABLISHED VEGETATION BEFORE BEXAR COUNTY WILL ACCEPT.*
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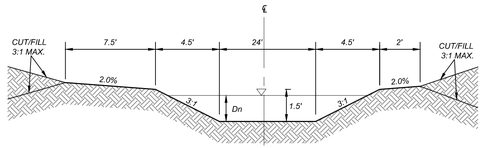
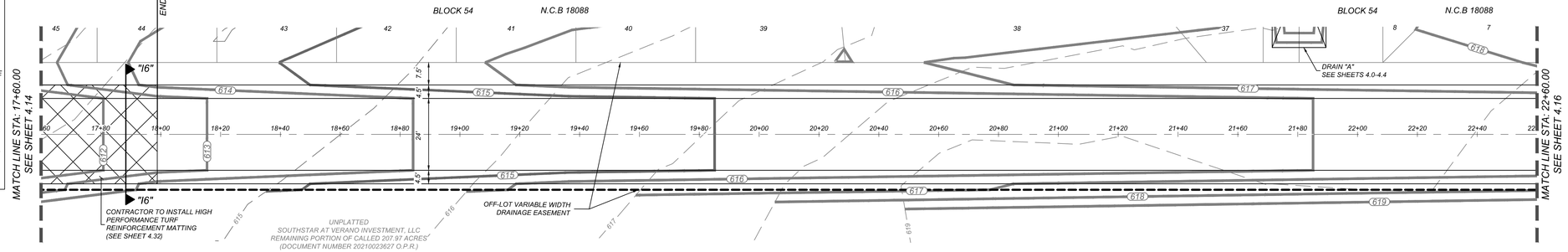


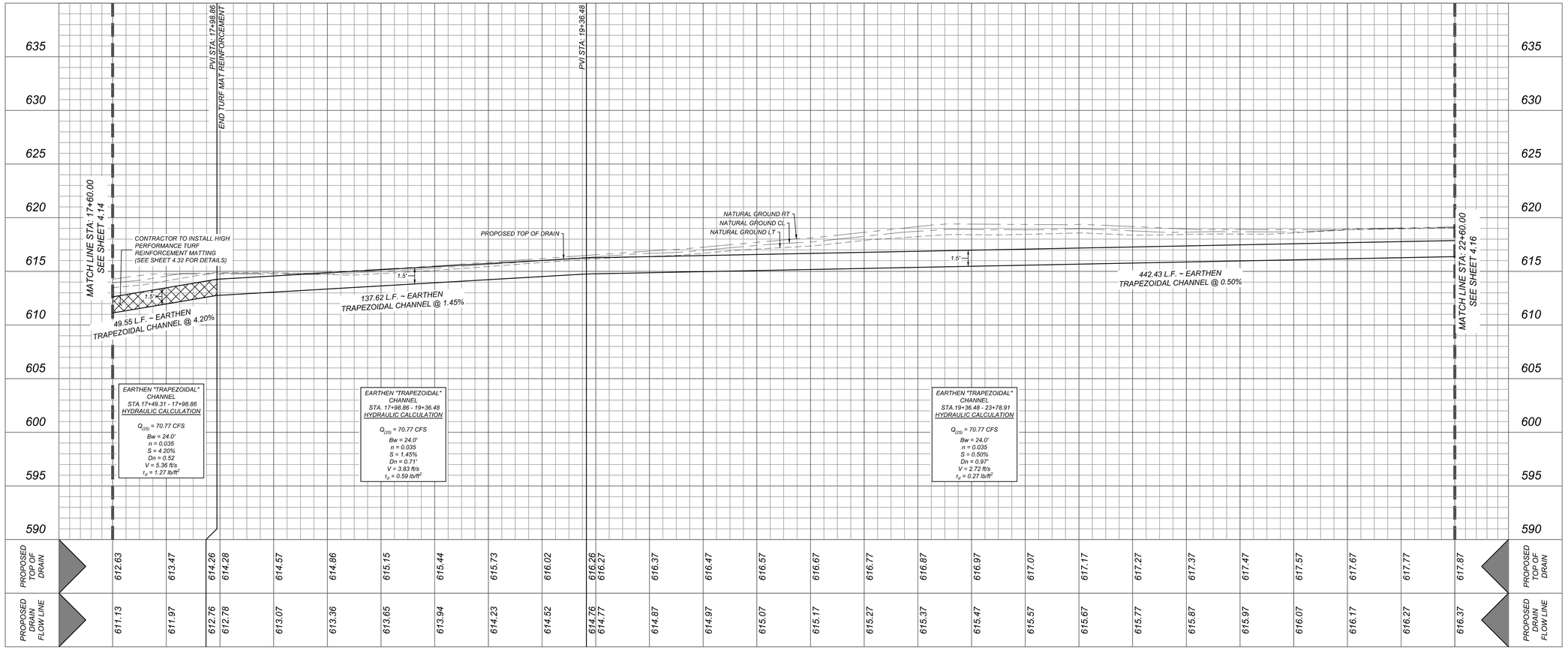
SECTION "I6-I6"
STA. 17+49.31 - 23+78.91
STA. 24+69.01 - 26+63.17
N.T.S.





DRAIN "I"
STA: 17+60.00 - 22+60.00

HORZ SCALE: 1"=20'
VERT SCALE: 1"=5'



EARTHEN "TRAPEZOIDAL" CHANNEL
STA.17+49.31 - 17+98.86
HYDRAULIC CALCULATION

$Q_{(25)}$ = 70.77 CFS
Bw = 24.0'
n = 0.035
S = 4.20%
Dn = 0.52
V = 5.36 ft/s
τ_d = 1.27 lb/ft²

EARTHEN "TRAPEZOIDAL" CHANNEL
STA. 17+98.86 - 19+36.48
HYDRAULIC CALCULATION

$Q_{(25)}$ = 70.77 CFS
Bw = 24.0'
n = 0.035
S = 1.45%
Dn = 0.71'
V = 3.83 ft/s
τ_d = 0.59 lb/ft²

EARTHEN "TRAPEZOIDAL" CHANNEL
STA. 19+36.48 - 23+78.91
HYDRAULIC CALCULATION

$Q_{(25)}$ = 70.77 CFS
Bw = 24.0'
n = 0.035
S = 0.50%
Dn = 0.97'
V = 2.72 ft/s
τ_d = 0.27 lb/ft²

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PROJECT NUMBER:	DRAWING NAME:
391-10-24	DR3911024 - I

SHEET TITLE:
DRAIN "I" PLAN & PROFILE
(4 OF 6)

SHEET NUMBER:
4.15

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

\\R\Drains\DR3911024 - I.dwg 4.15 By: ABEL.MONTALVO

TRENCH EXCAVATION SAFETY PROTECTION

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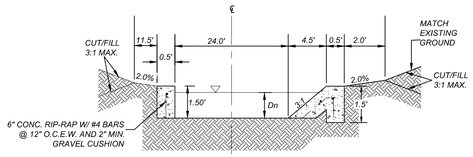

SECTION "I7-I7"
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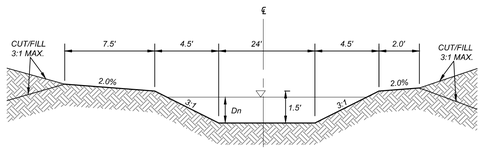
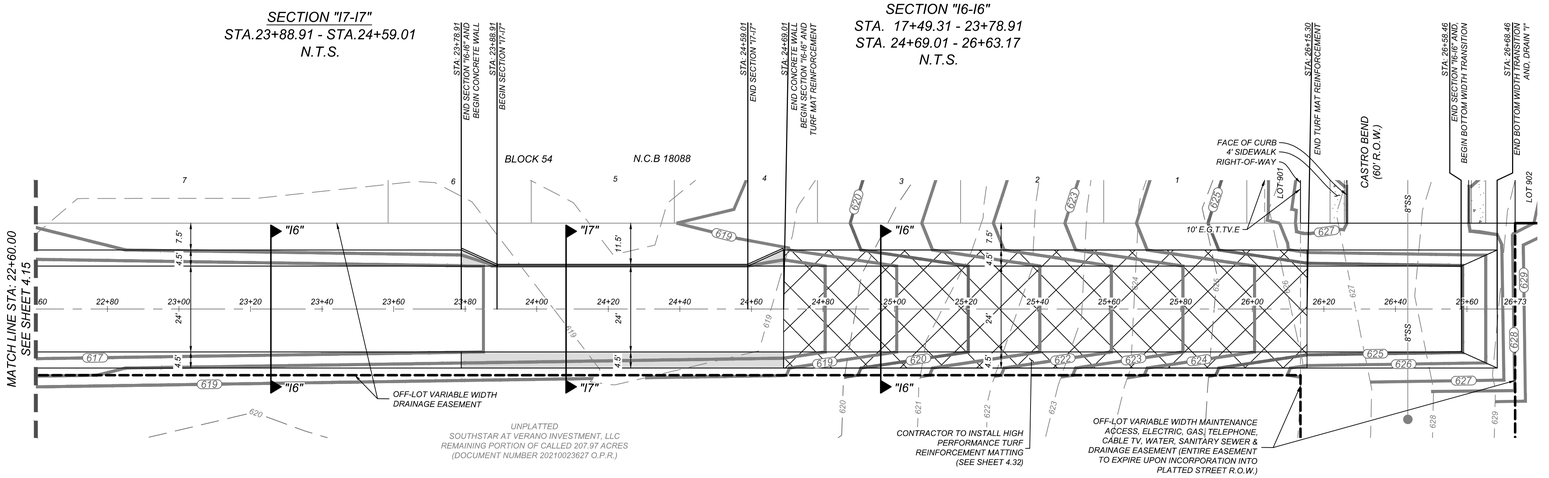
N.T.S.

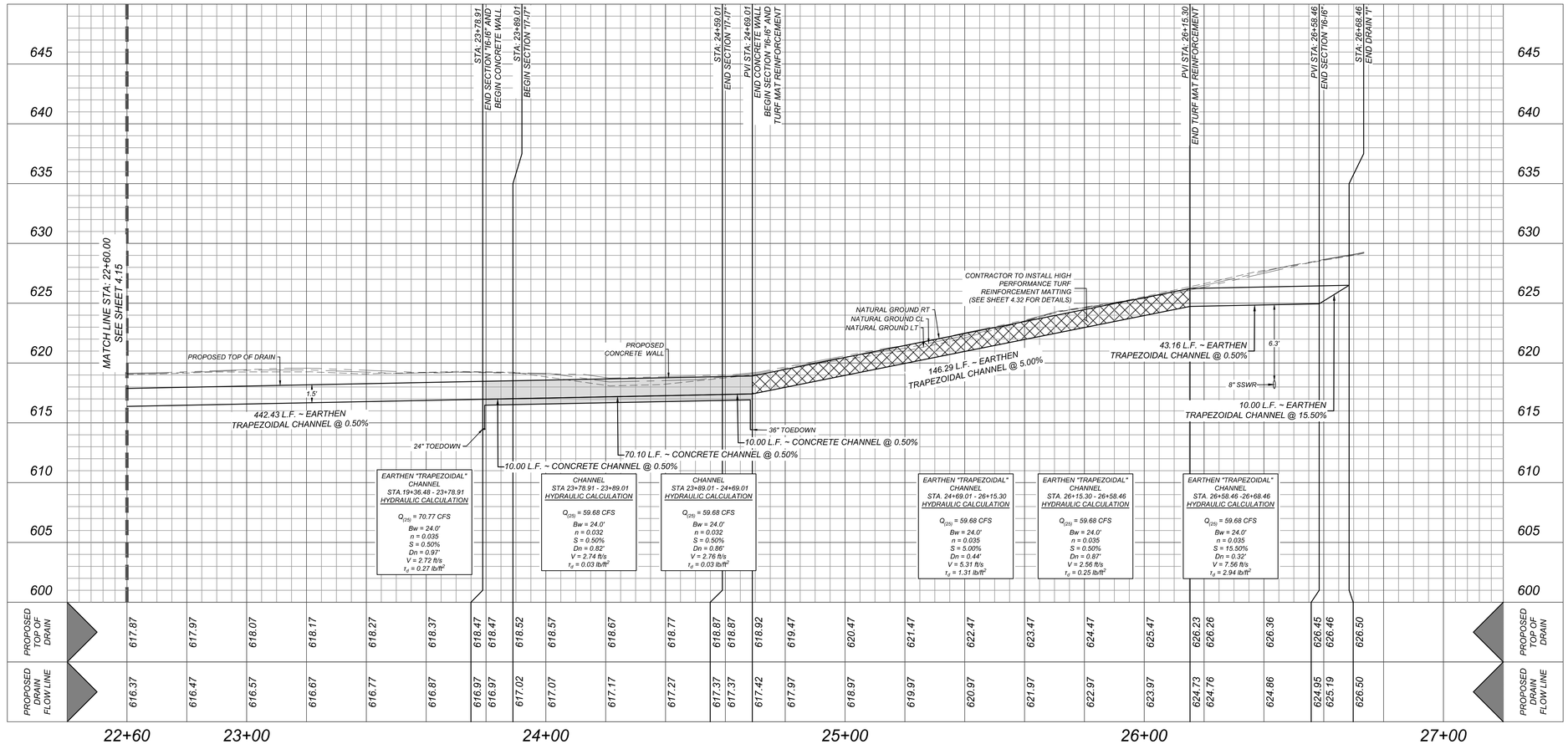


SECTION "I6-I6"
STA. 17+49.31 - 23+78.91
STA. 24+69.01 - 26+63.17
N.T.S.



DRAIN "I"
STA: 22+60.00 - END

HORZ SCALE: 1"=20'
VERT SCALE: 1"=5'



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REV	DATE	DRAWN BY	DESCRIPTION
-	-	-	-

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

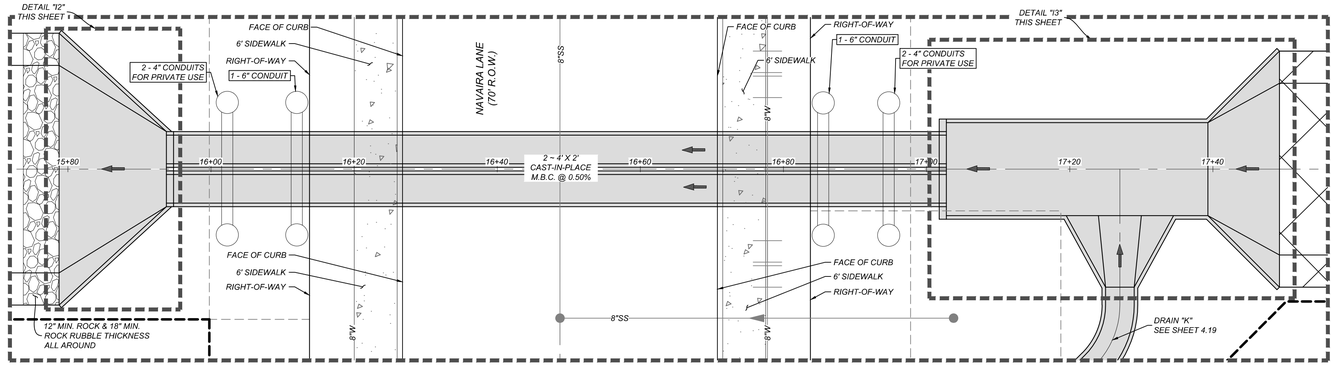
PROJECT NUMBER: 391-10-24
DRAWING NAME: DR3911024 - I

SHEET TITLE:
DRAIN "I" PLAN & PROFILE (5 OF 6)

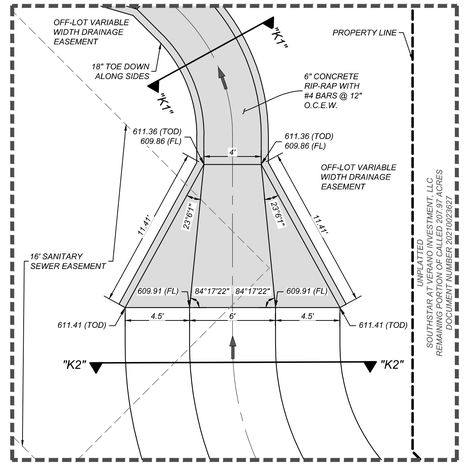
SHEET NUMBER: 4.16

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

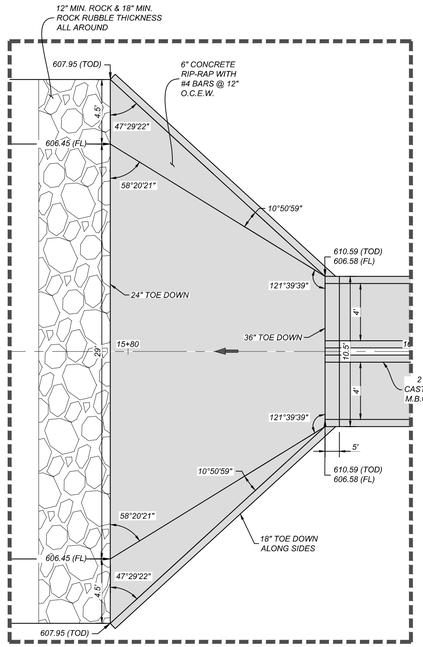
I:\dfDrains\DR3911024 - I.dwg(4.16 By: ABEL.MONTALVO



DETAIL "I1"
1" = 10'



DETAIL "K1"
1" = 5'



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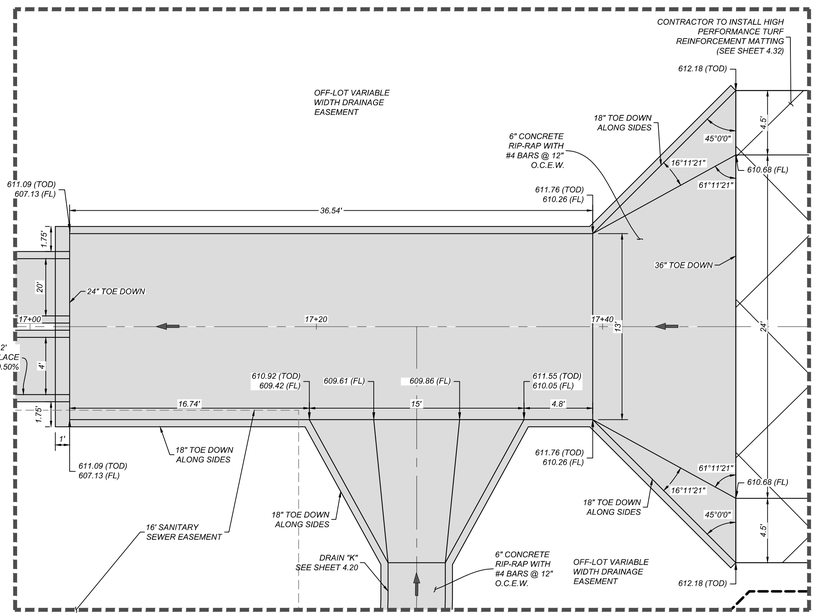
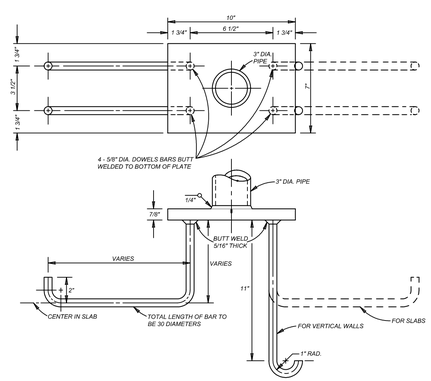
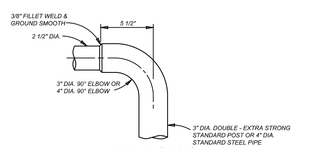


DETAIL "I3"
1" = 5'

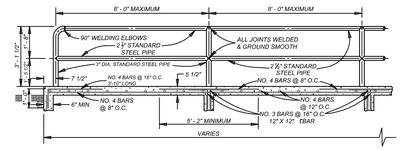


PIPE ANCHORAGE DETAILS
N.T.S.



DETAIL OF 90° WELDING ELBOWS
N.T.S.

* A NEAT END SECTION, SATISFACTORY TO THE ENGINEER, FROM SUBMITTED SHOP DRAWINGS, MAY BE USED IN LIEU OF THE 90° WELDING ELBOW SHOWN.



TYPICAL SIDEWALK BRIDGE & SIDEWALK PIPE RAILING SECTION
N.T.S.

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FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

REV	DATE	DRAWN BY	DESCRIPTION

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COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14009
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: DR3911024 - I

SHEET TITLE:
DRAIN "I" PLAN & PROFILE (6 OF 6)

SHEET NUMBER:
4.17

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

w:\Drawing\DR3911024 - I.dwg\4.17 By: ABEL.MONTALVO

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

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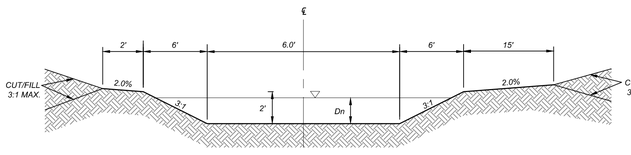
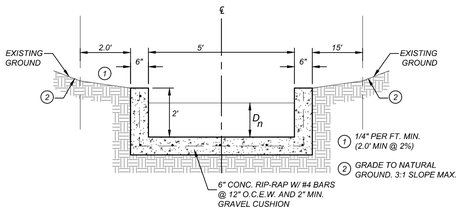
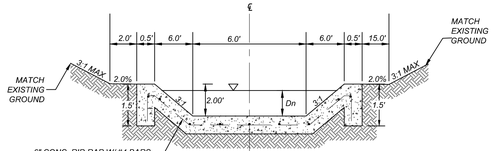


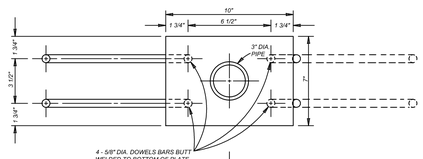
SECTION "J1-J1"
STA: 1+45.10 - STA: 2+35.80
N.T.S.



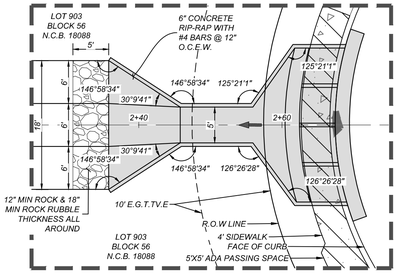
SECTION "J2-J2"
STA. 2+45.80 - STA. 2+55.94
N.T.S.



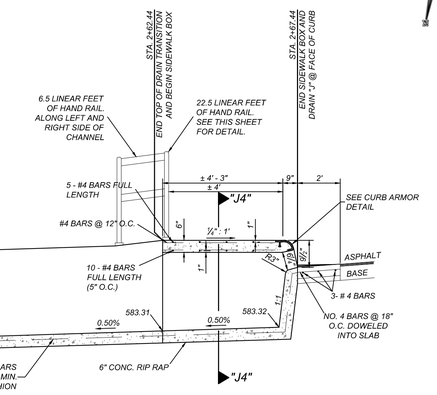
DRAIN SECTION "J3-J3"
STA.2+35.80
N.T.S.



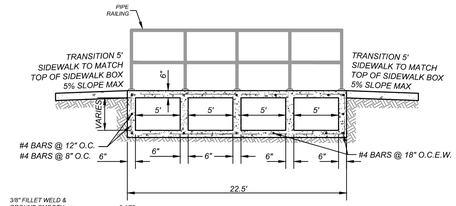
PIPE ANCHORAGE DETAILS
N.T.S.



DETAIL "J1"
SCALE: 1" = 10'



SIDEWALK BOX DETAIL
N.T.S.



SECTION "J4-J4"
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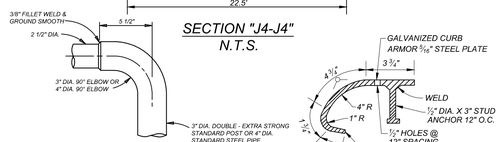
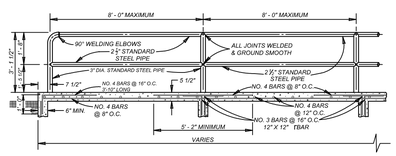


DETAIL OF 90° WELDING ELBOWS
N.T.S.

* *A NEAT END SECTION, SATISFACTORY TO THE ENGINEER, FROM SUBMITTED SHOP DRAWINGS, MAY BE USED IN LIEU OF THE 90° WELDING ELBOW SHOWN.*

CURB ARMOR DETAIL
N.T.S.



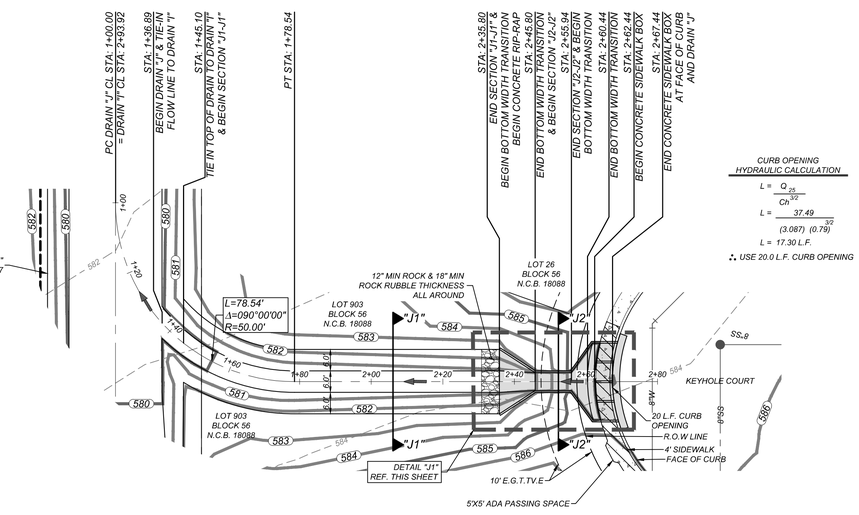
TYPICAL SIDEWALK BRIDGE & SIDEWALK PIPE RAILING SECTION
N.T.S.

NOTE:

1. ALL CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF NOT LESS THAN 3000 PSI IN 28 DAYS.

2. ANY DISTURBED AREAS WILL BE VEGETATED BY SEEDING OR SODDING. EIGHTY-FIVE PERCENT OF THE DISTURBED SURFACE AREA MUST HAVE ESTABLISHED VEGETATION BEFORE THE CITY OF SAN ANTONIO WILL ACCEPT.

3. AT THE PRE-FINAL INSPECTION: THE ENGINEER MUST ISSUE CERTIFICATION TO THE CITY INSPECTOR THAT THE TURF REINFORCEMENT MAT (TRM) WAS INSTALLED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. THE CERTIFICATION MUST ALSO NOTE THAT THE MATERIAL AND INSTALLATION HAS MET CITY AND MANUFACTURER SPECIFICATIONS.



CURB OPENING HYDRAULIC CALCULATION

$$L = \frac{Q_{25}}{Cn^{3/2}}$$

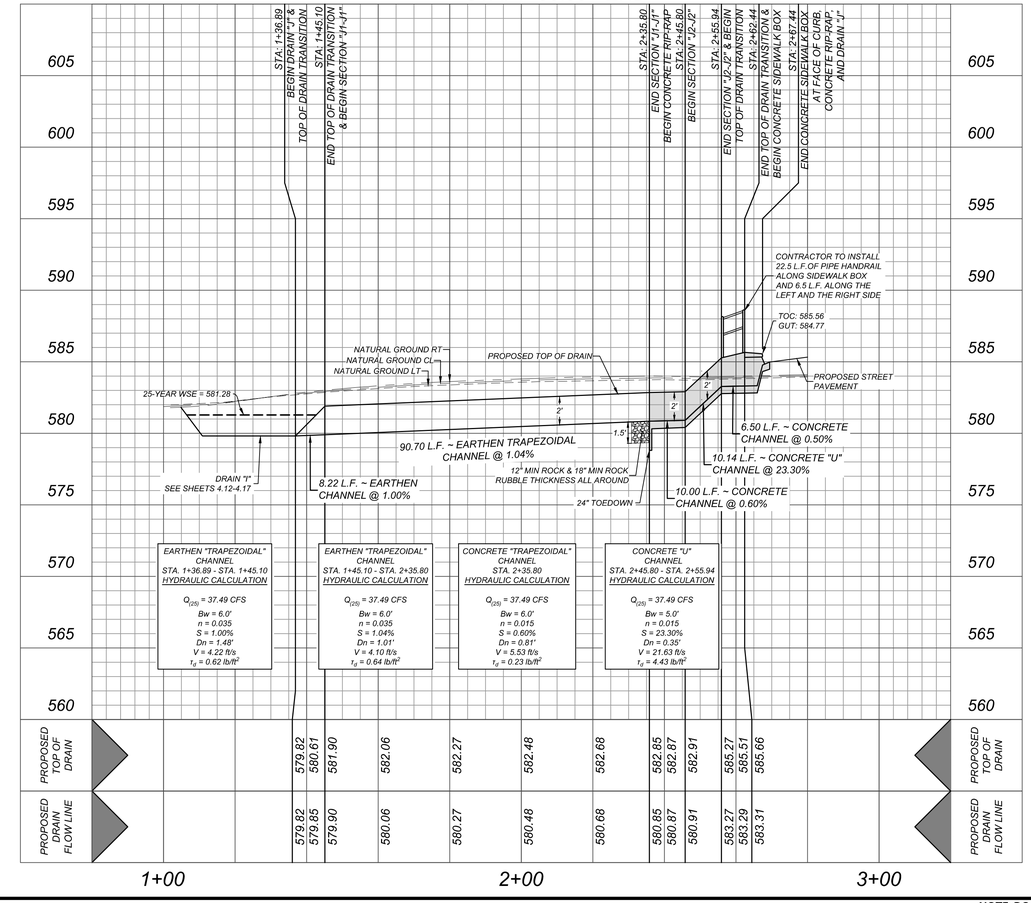
$$L = \frac{37.49}{(3.087)\ (0.79)^{3/2}}$$

$L = 17.30$ L.F.

∴ *USE 20.0 L.F. CURB OPENING*

DRAIN "J"
STA: 1+00.00 - END

HORZ SCALE: 1"=20'
VERT SCALE: 1"=5'



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FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

REV	DATE	DRAWN BY	DESCRIPTION

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TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: DR3911024 - J

SHEET TITLE: DRAIN "J" PLAN & PROFILE

SHEET NUMBER: 4.18

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

I:\ACD\civil\391\1024 - J.dwg\4.18 By: ABEL.MONTALVO

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

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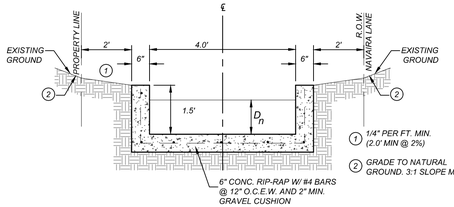
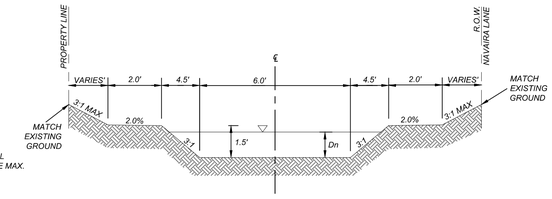
CHANNEL LINING:

AREA'S EXCEEDING CITY OF SAN ANTONIO PERMISSIBLE SHEAR STRESS WILL BE REINFORCED WITH PROPOSED TURF REINFORCEMENT MAT (TRM) AS APPROVED BY CITY OF SAN ANTONIO STANDARD SPECIFICATIONS UNDER CONSTRUCTION ITEM 554.



SECTION "K1-K1"
STA. 1+16.50 - STA. 1+30.44
N.T.S.



SECTION "K2-K2"
STA. 1+40.44 - STA. 5+77.26
N.T.S.

NOTE:

1. ALL CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF NOT LESS THAN 3000 PSI IN 28 DAYS.

2. ANY DISTURBED AREAS WILL BE VEGETATED BY SEEDING OR SODDING. EIGHTY-FIVE PERCENT OF THE DISTURBED SURFACE AREA MUST HAVE ESTABLISHED VEGETATION BEFORE THE CITY OF SAN ANTONIO WILL ACCEPT.

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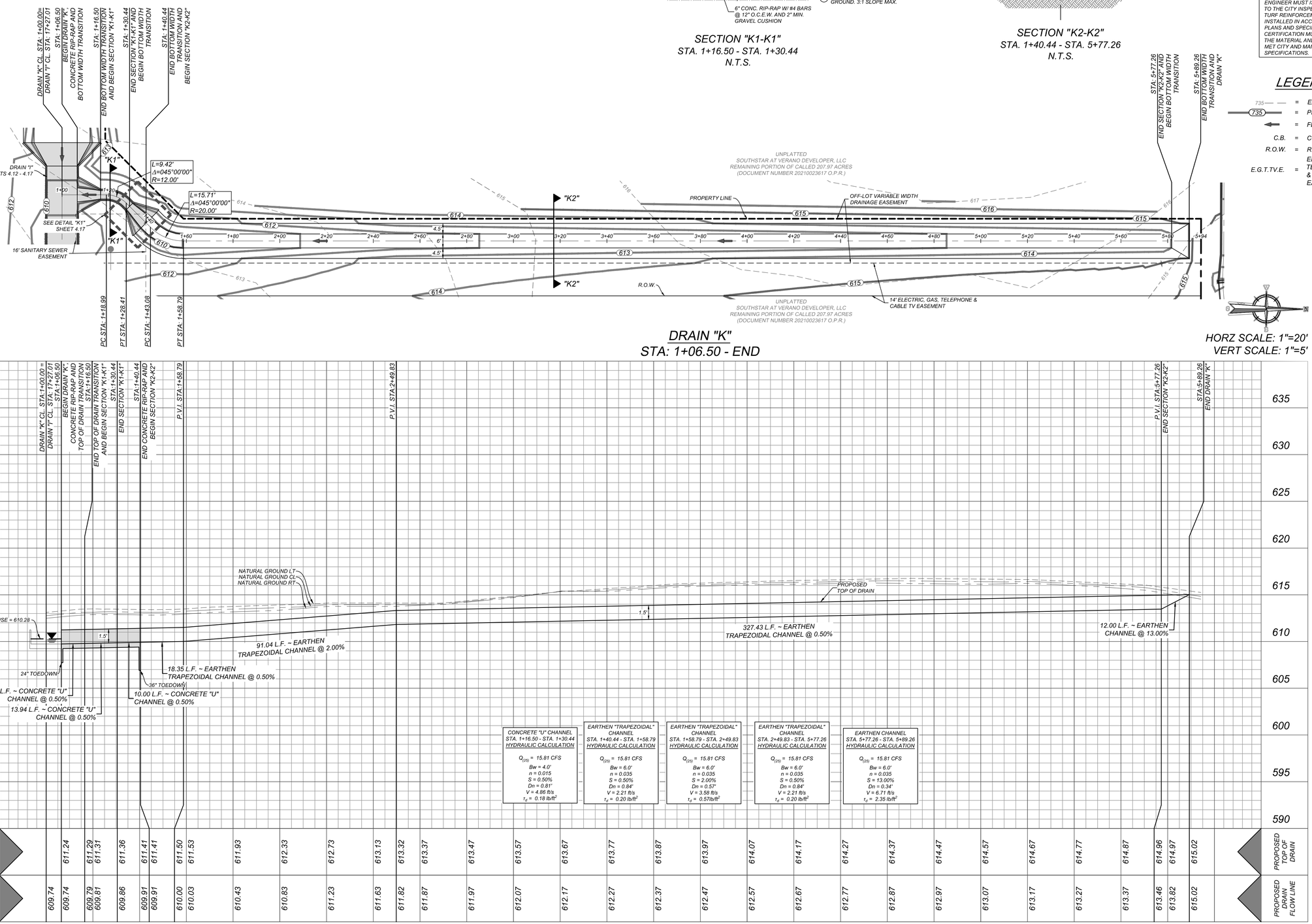

DRAIN "K"
STA: 1+06.50 - END

LEGEND

735	=	EXISTING CONTOUR
735	=	PROPOSED CONTOUR
	=	FLOW ARROW
C.B.	=	COUNTY BLOCK
R.O.W.	=	RIGHT OF WAY
E.G.T.TV.E.	=	ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT

HORZ SCALE: 1"=20'
VERT SCALE: 1"=5'

CONCRETE "U" CHANNEL
STA. 1+16.50 - STA. 1+30.44
HYDRAULIC CALCULATION
$Q_{(25)}$ = 15.81 CFS
Bw = 4.0'
n = 0.015
S = 0.50%
Dn = 0.81'
V = 4.86 ft/s
τ_d = 0.18 lb/ft²

EARTHEN "TRAPEZOIDAL" CHANNEL
STA. 1+40.44 - STA. 1+58.79
HYDRAULIC CALCULATION
$Q_{(25)}$ = 15.81 CFS
Bw = 6.0'
n = 0.035
S = 0.50%
Dn = 0.84'
V = 2.21 ft/s
τ_d = 0.20 lb/ft²

EARTHEN "TRAPEZOIDAL" CHANNEL
STA. 1+58.79 - STA. 2+49.83
HYDRAULIC CALCULATION
$Q_{(25)}$ = 15.81 CFS
Bw = 6.0'
n = 0.035
S = 2.00%
Dn = 0.57'
V = 3.58 ft/s
τ_d = 0.57lb/ft²

EARTHEN "TRAPEZOIDAL" CHANNEL
STA. 2+49.83 - STA. 5+77.26
HYDRAULIC CALCULATION
$Q_{(25)}$ = 15.81 CFS
Bw = 6.0'
n = 0.035
S = 0.50%
Dn = 0.84'
V = 2.21 ft/s
τ_d = 0.20 lb/ft²

EARTHEN CHANNEL
STA. 5+77.26 - STA. 5+89.26
HYDRAULIC CALCULATION
$Q_{(25)}$ = 15.81 CFS
Bw = 6.0'
n = 0.035
S = 13.00%
Dn = 0.34'
V = 6.71 ft/s
τ_d = 2.35 lb/ft²

| | | |

TRENCH EXCAVATION SAFETY PROTECTION

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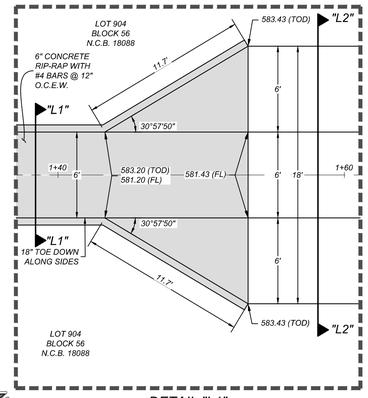
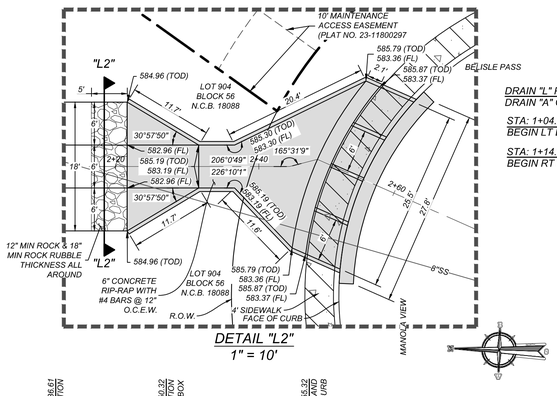
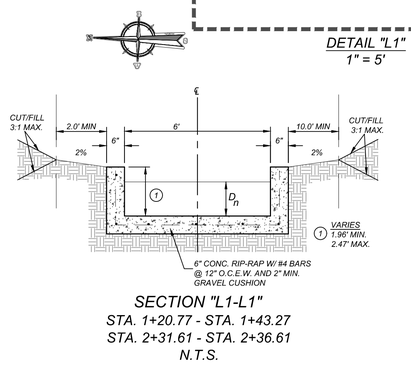


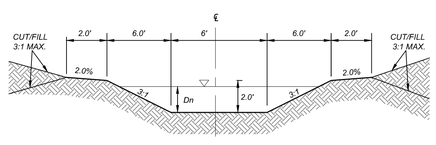
DETAIL "L1"
1" = 5'



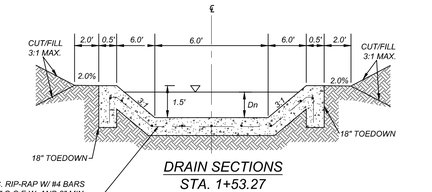
DETAIL "L2"
1" = 10'



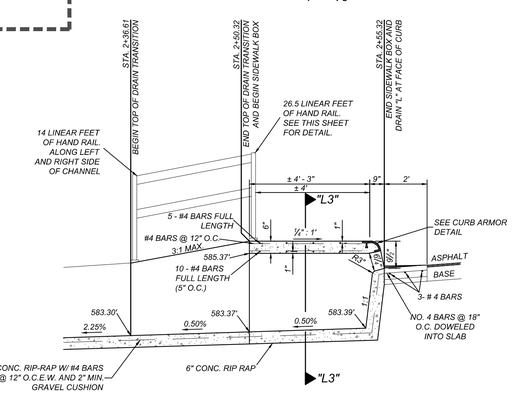
SECTION "L1-L1"
STA. 1+20.77 - STA. 1+43.27
STA. 2+31.61 - STA. 2+36.61
N.T.S.

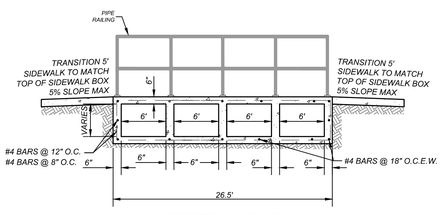


SECTION "L2-L2"
STA. 1+53.27 - STA. 2+21.61
N.T.S.

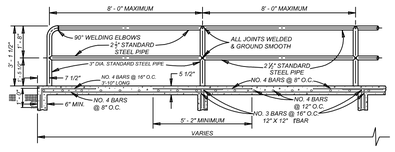


DRAIN SECTIONS
STA. 1+53.27
STA. 2+21.61
N.T.S.

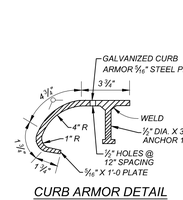




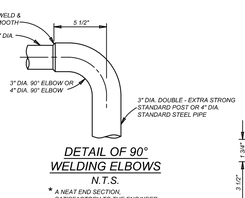
SECTION "L3-L3"
N.T.S.



TYPICAL SIDEWALK BRIDGE &
SIDEWALK PIPE RAILING SECTION
N.T.S.

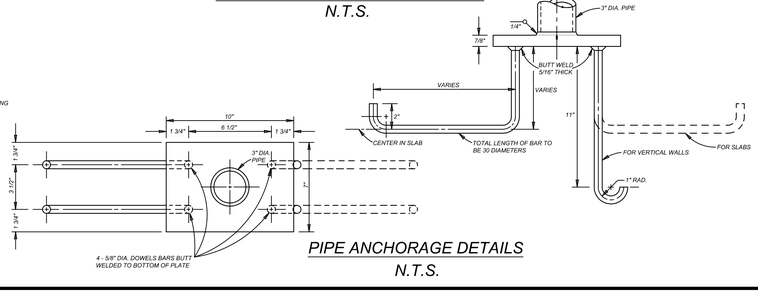


CURB ARMOR DETAIL
N.T.S.



DETAIL OF 90°
WELDING ELBOWS
N.T.S.

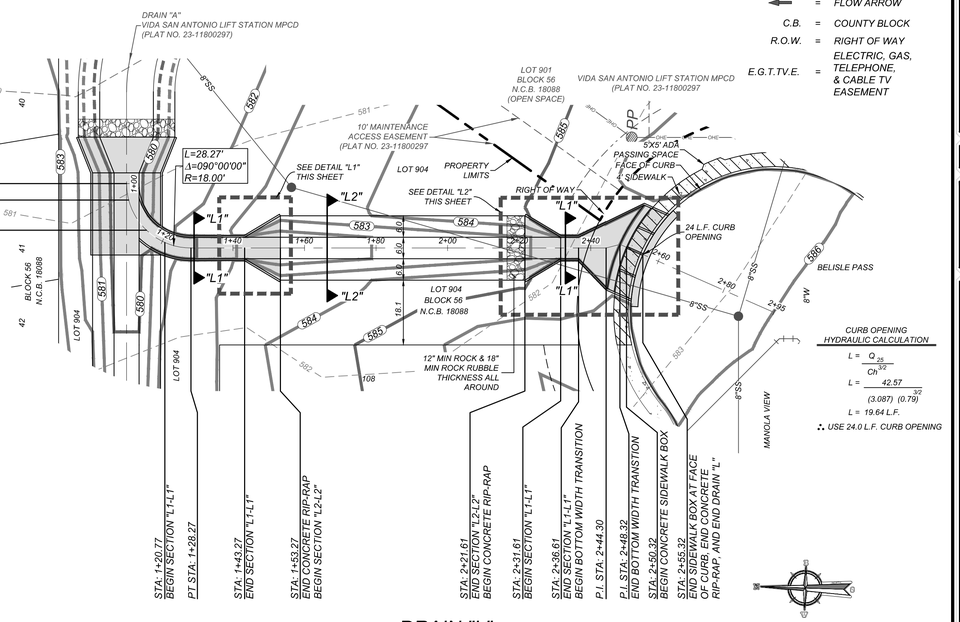
* A NEAT END SECTION, SATISFACTORY TO THE ENGINEER, FROM SUBMITTED SHOP DRAWINGS, MAY BE USED IN LIEU OF THE 90° WELDING ELBOW SHOWN.



PIPE ANCHORAGE DETAILS
N.T.S.

LEGEND

- 735 — — = EXISTING CONTOUR
- 735 = PROPOSED CONTOUR
- = FLOW ARROW
- C.B. = COUNTY BLOCK
- R.O.W. = RIGHT OF WAY
- E.G.T.TV.E. = ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT



CURB OPENING
HYDRAULIC CALCULATION

$$L = \frac{Q_{25}}{Ch^{\frac{3}{2}}}$$

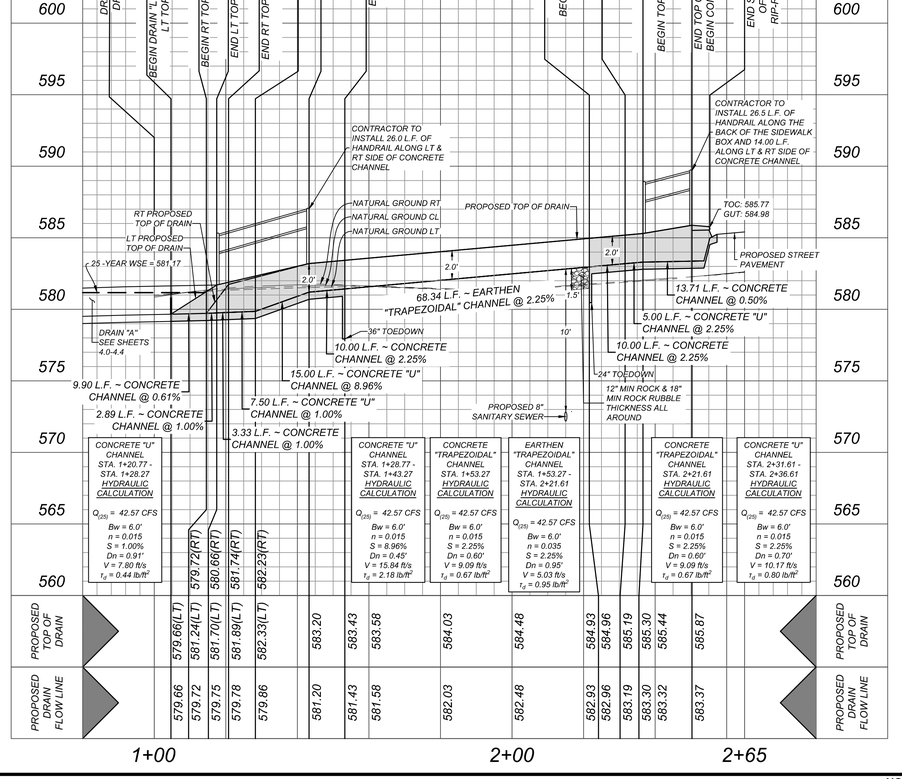
$$L = \frac{42.57}{(3.087)\ (0.79)^{\frac{3}{2}}}$$

$L = 19.64$ L.F.

∴ USE 24.0 L.F. CURB OPENING

DRAIN "L"
STA: 1+00.00 - END

HORZ SCALE: 1"=20'
VERT SCALE: 1"=5'



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REV	DATE	DRAWN BY	DESCRIPTION

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: DR3911024 - L

SHEET TITLE: DRAIN "L" PLAN & PROFILE

SHEET NUMBER: 4.20

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

W:\Drawings\DR3911024 - L.dwg\4.20 By: ABEL.MONTALVO

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

CAUTION!!!

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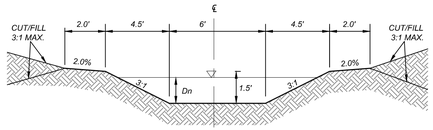
NOTE:

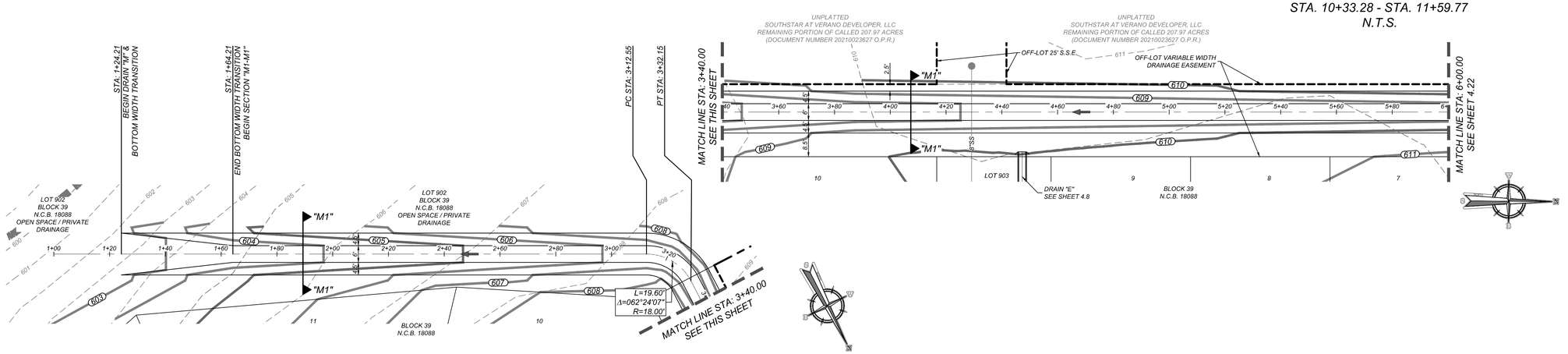
1. ALL CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF NOT LESS THAN 3000 PSI IN 28 DAYS.

2. ANY DISTURBED AREAS WILL BE VEGETATED BY SEEDING OR SODDING. EIGHTY-FIVE PERCENT OF THE DISTURBED SURFACE AREA MUST HAVE ESTABLISHED VEGETATION BEFORE THE CITY OF SAN ANTONIO WILL ACCEPT.

3. AT THE PRE-FINAL INSPECTION: THE ENGINEER MUST ISSUE CERTIFICATION TO THE CITY INSPECTOR THAT THE TURF REINFORCEMENT MAT (TRM) WAS INSTALLED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. THE CERTIFICATION MUST ALSO NOTE THAT THE MATERIAL AND INSTALLATION HAS MET CITY AND MANUFACTURER SPECIFICATIONS.

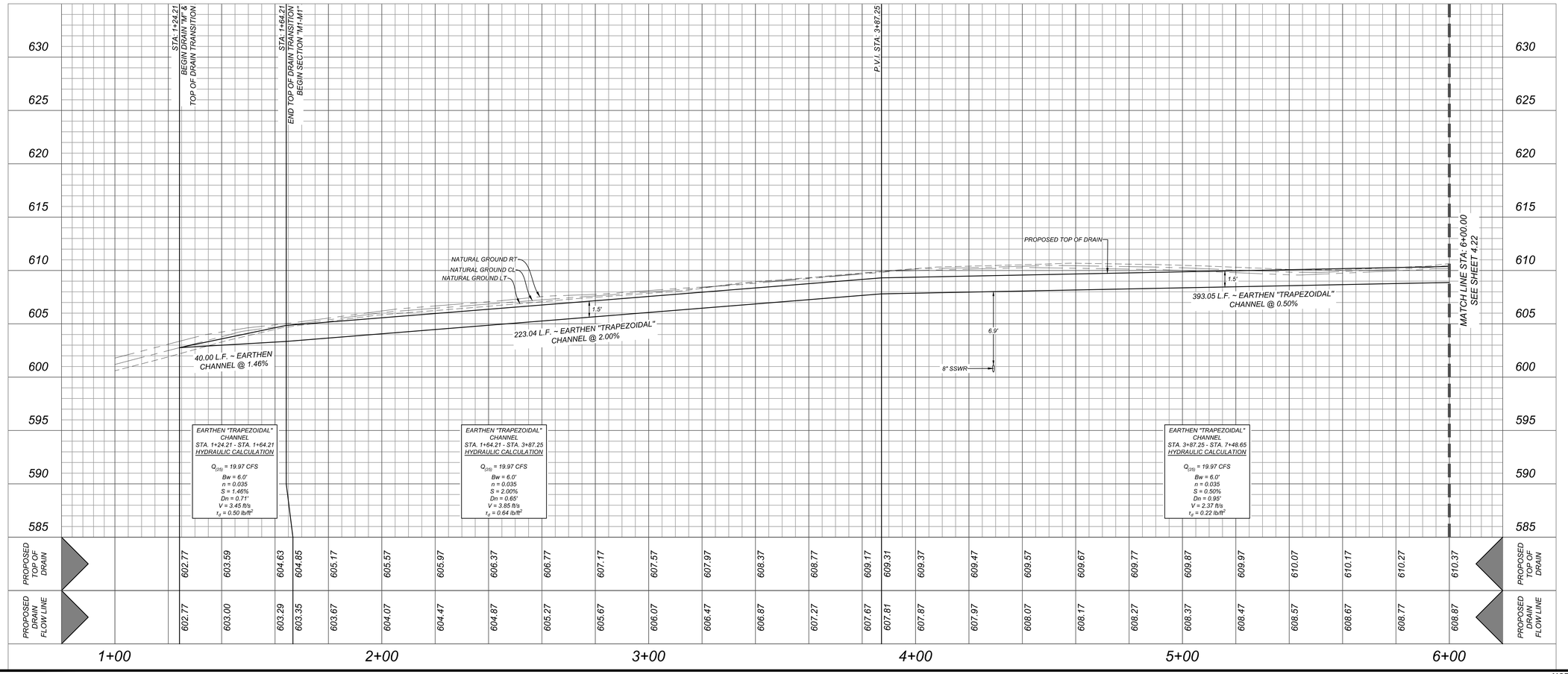


SECTION "M1-M1"
STA. 1+64.21 - STA. 7+48.65
STA. 10+02.66 - STA. 10+12.64
STA. 10+33.28 - STA. 11+59.77
N.T.S.



DRAIN "M"
STA: 1+00.00 - STA: 6+00.00

HORZ SCALE: 1"=20'
VERT SCALE: 1"=5'



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REV	DATE	DRAWN BY	DESCRIPTION

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: DR3911024 - MNO

SHEET TITLE: DRAIN "M" PLAN & PROFILE (1 OF 3)

SHEET NUMBER: 4.21

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

By: ABEL.MONTALVO
n:\fb2\dwn\0f3911024 - MNO.dwg\4.21

TRENCH EXCAVATION SAFETY PROTECTION

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NOTE:

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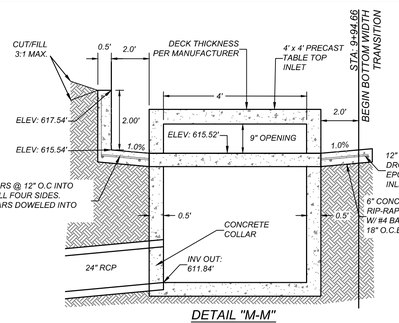
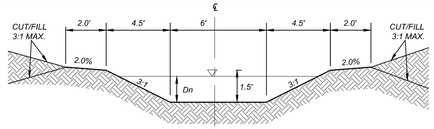
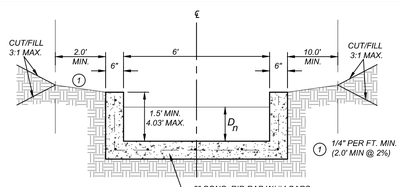


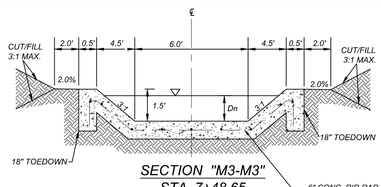
DETAIL "M-M" 4-WAY INLET
N.T.S.



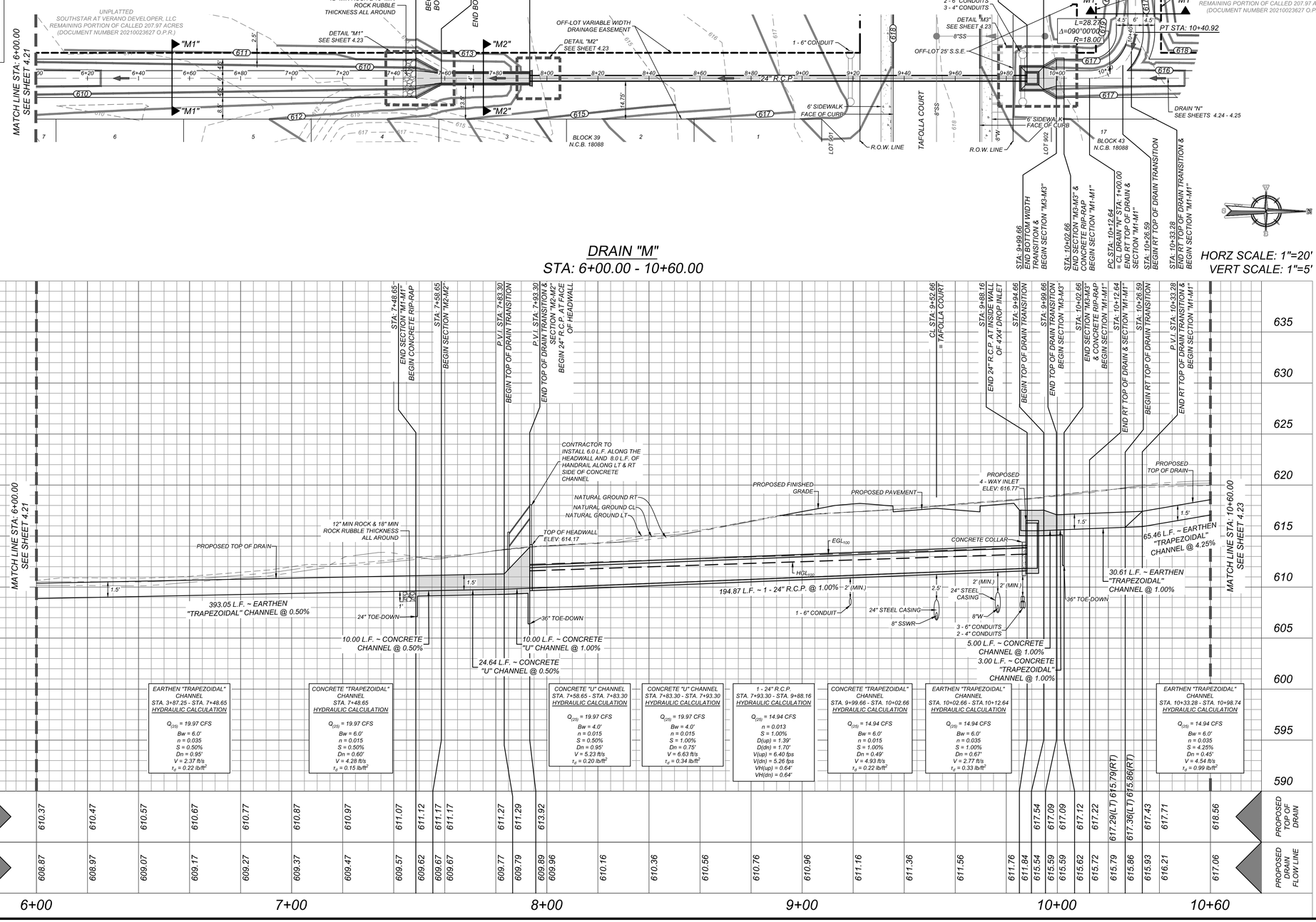
SECTION "M1-M1"
STA. 1+64.21 - STA. 7+48.65
STA. 10+02.66 - STA. 10+12.64
STA. 10+33.28 - STA. 11+59.77
N.T.S.



SECTION "M2-M2"
STA. 7+58.65 - STA. 7+93.30
N.T.S.



SECTION "M3-M3"
STA. 7+48.65
STA. 9+94.66 - STA. 9+99.66
N.T.S.



DRAIN "M"
STA: 6+00.00 - 10+60.00

HORZ SCALE: 1"=20'
VERT SCALE: 1"=5'

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REV	DATE	DRAWN BY	DESCRIPTION

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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: DR3911024 - MNO

SHEET TITLE: DRAIN "M" PLAN & PROFILE (2 OF 3)

SHEET NUMBER: 4.22

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

By: ABEL MONTALVO

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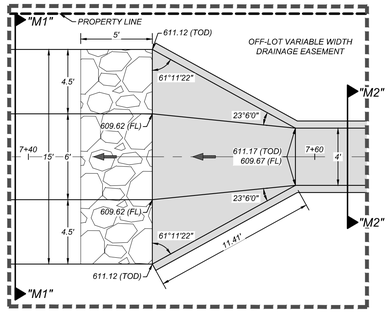
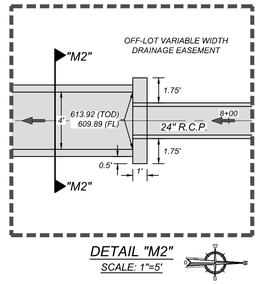
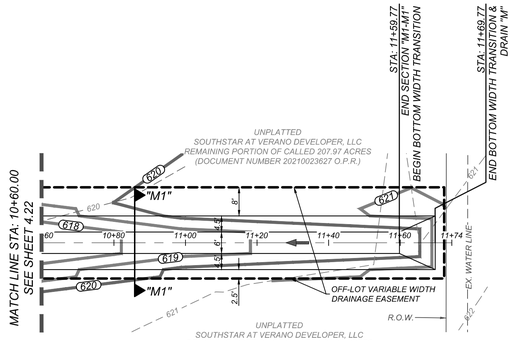
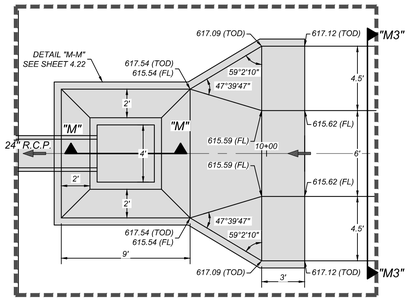


DETAIL "M1"
SCALE: 1"=5'

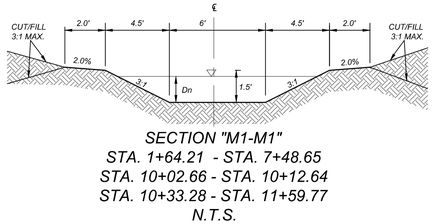


DETAIL "M2"
SCALE: 1"=5'





DETAIL "M3"
SCALE: 1"=5'

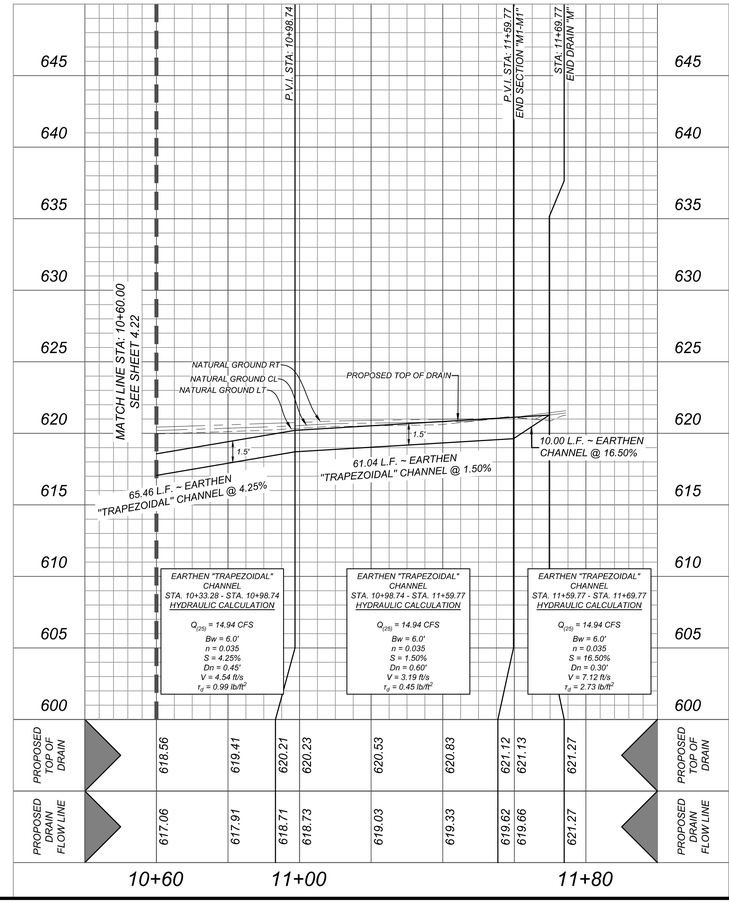


SECTION "M1-M1"
STA. 1+64.21 - STA. 7+48.65
STA. 10+02.66 - STA. 10+12.64
STA. 10+33.28 - STA. 11+59.77
N.T.S.



HORZ SCALE: 1"=20'
VERT SCALE: 1"=5'

DRAIN "M"
STA: 10+60.00 - END



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FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

REV	DATE	DRAWN BY	DESCRIPTION

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14309
TBPLS Firm#: 10194500

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: DR3911024 - MNO

SHEET TITLE: DRAIN "M" PLAN & PROFILE (3 OF 3)

SHEET NUMBER: 4.23

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

M:\ENGineering\391\1024-LAND.dwg\4.23 By: ABEL.MONTALVO

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

CAUTION!!!

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NOTE:

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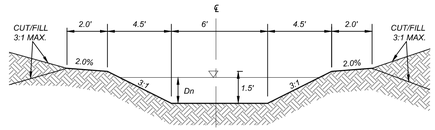
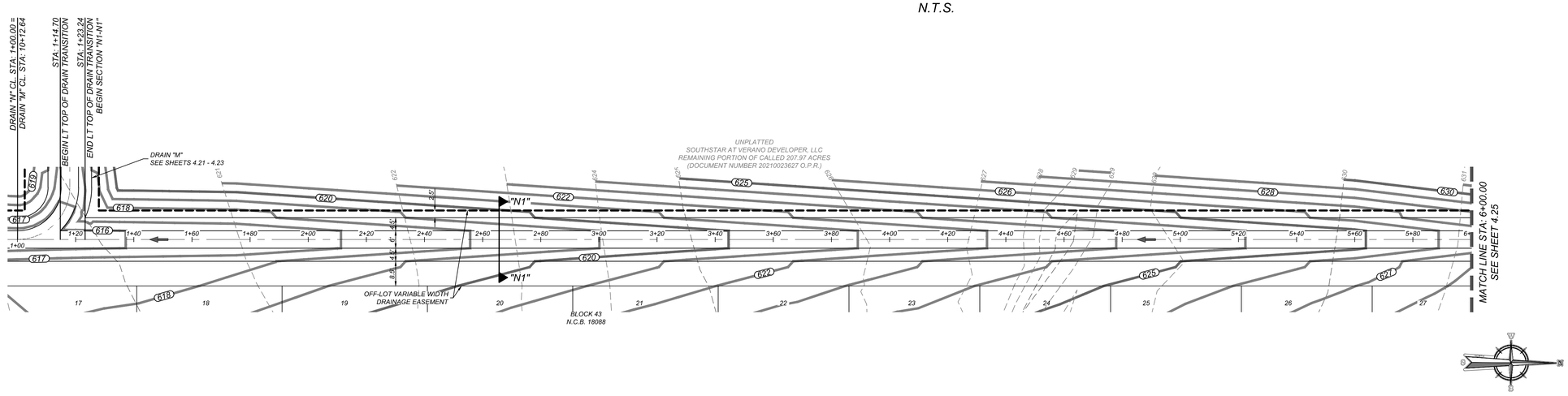
3. AT THE PRE-FINAL INSPECTION: THE ENGINEER MUST ISSUE CERTIFICATION TO THE CITY INSPECTOR THAT THE TURF REINFORCEMENT MAT (TRM) WAS INSTALLED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. THE CERTIFICATION MUST ALSO NOTE THAT THE MATERIAL AND INSTALLATION HAS MET CITY AND MANUFACTURER SPECIFICATIONS.



SECTION "N1-N1"
STA. 1+23.24 - STA. 7+15.91
N.T.S.



DRAIN "N"
STA: 1+00.00 - STA: 6+00.00

HORZ SCALE: 1"=20'
VERT SCALE: 1"=5'

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REV	DATE	DRAWN BY	DESCRIPTION

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: DR3911024 - MNO

SHEET TITLE: DRAIN "N" PLAN & PROFILE (1 OF 2)

SHEET NUMBER: 4.24

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

By: ABEL.MONTALVO
n:\ftDrains\391\1024 - MNO.dwg\4.24

TRENCH EXCAVATION SAFETY PROTECTION

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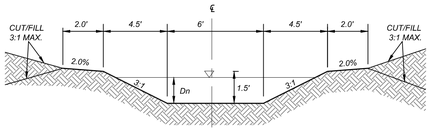
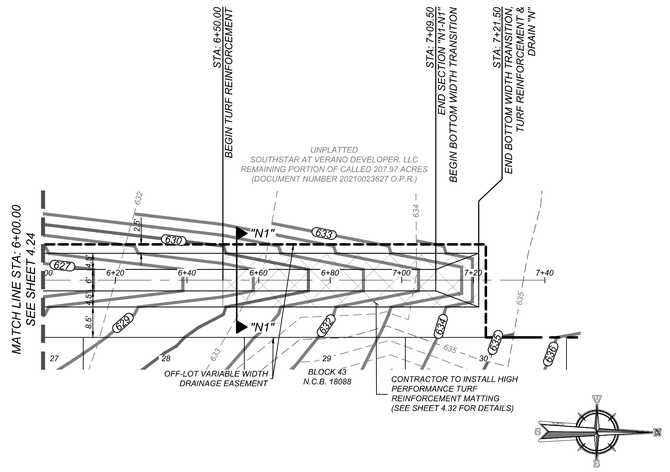
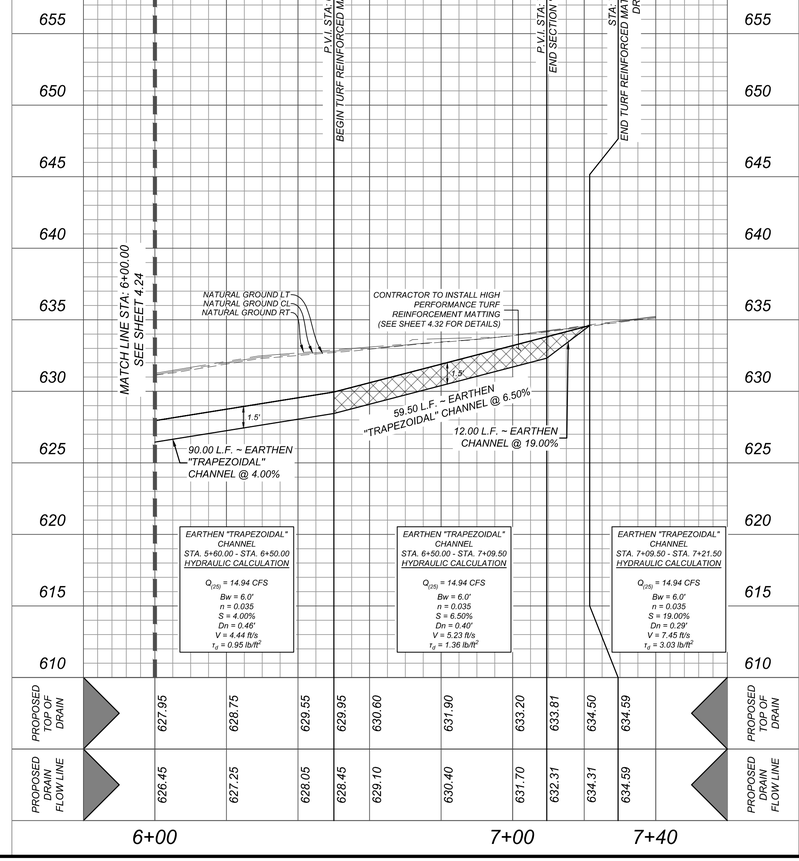


SECTION "N1-N1"
STA. 1+23.24 - STA. 7+09.50
N.T.S.



DRAIN "N"
STA: 6+00.00 - END

HORZ SCALE: 1"=20'
VERT SCALE: 1"=5'



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REV	DATE	DRAWN BY	DESCRIPTION

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PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
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SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER:	DRAWING NAME:
391-10-24	DR3911024 - MNO

SHEET TITLE:
DRAIN "N" PLAN & PROFILE (2 OF 2)

SHEET NUMBER:
4.25

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

By: ABEL.MONTALVO
n:\RD\civil\DR3911024 - MNO.dwg\4.25

TRENCH EXCAVATION SAFETY PROTECTION

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TX-DOT NOTE:

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NOTE:

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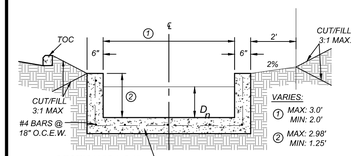
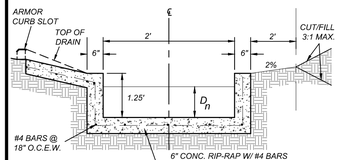
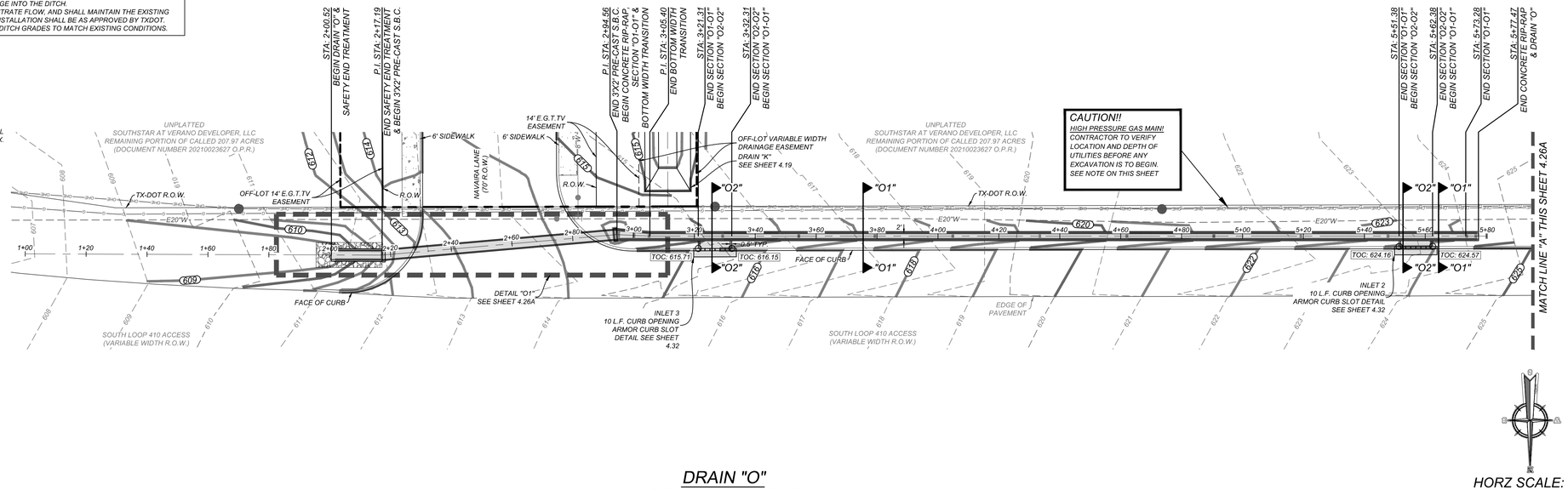


SECTION "O1-O1"
STA. 2+94.56 - STA. 3+21.31
STA. 3+32.31 - STA. 5+51.38
STA. 5+62.38 - STA. 5+73.28
N.T.S.



SECTION "O2-O2"
STA. 3+21.31 - STA. 3+32.31
STA. 5+51.38 - STA. 5+62.38
N.T.S.



DRAIN "O"
STA: 1+00.00 - END

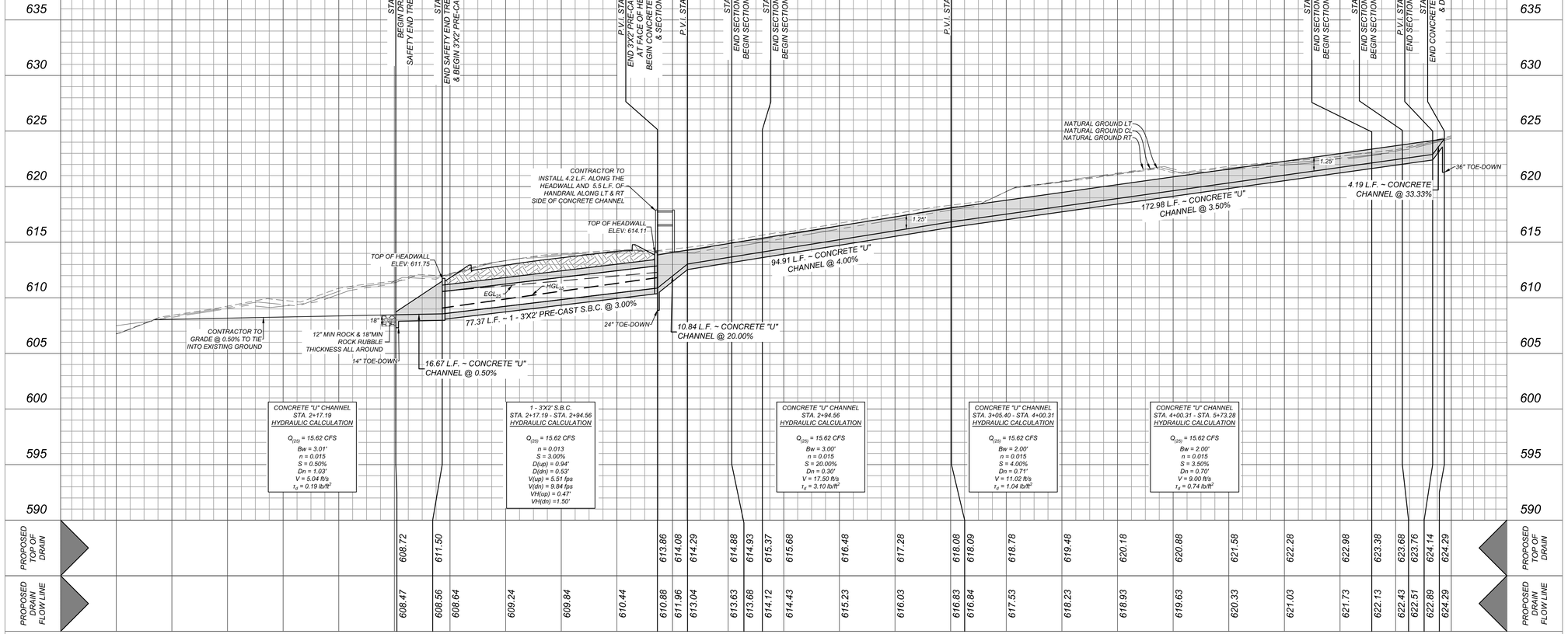
HORZ SCALE: 1"=20'
VERT SCALE: 1"=5'

INLET 2 ~ CURB OPENING HYDRAULIC CALCULATION

Q_{25} = 1.89 CFS
∴ USE 1 ~ 10' CURB INLET ON GRADE
$Q\ CAPTURED_{25}$ = 1.58 CFS
$Q\ REMAINING_{25}$ = 0.31 CFS
*INLET CAPACITY WAS DETERMINED USING HYDRAFLOW EXPRESS. REFER TO THE SWMP REPORT FOR DETAILED CALCULATIONS.

INLET 3 ~ CURB OPENING HYDRAULIC CALCULATION

Q_{25} = 2.94 CFS
∴ USE 1 ~ 10' CURB INLET ON GRADE
$Q\ CAPTURED_{25}$ = 2.09 CFS
$Q\ REMAINING_{25}$ = 0.85 CFS
*INLET CAPACITY WAS DETERMINED USING HYDRAFLOW EXPRESS. REFER TO THE SWMP REPORT FOR DETAILED CALCULATIONS.



CONCRETE "U" CHANNEL STA. 2+17.19 - STA. 2+94.56 HYDRAULIC CALCULATION
$Q_{(25)}$ = 15.62 CFS
Bw = 3.01'
n = 0.015
S = 0.50%
Dn = 1.03'
V = 5.04 ft/s
τ_d = 0.19 lb/ft²

1 - 3'X2' S.B.C. STA. 2+17.19 - STA. 2+94.56 HYDRAULIC CALCULATION
$Q_{(25)}$ = 15.62 CFS
n = 0.013
S = 3.00%
D(up) = 0.94'
D(dn) = 0.53'
V(up) = 5.51 fps
V(dn) = 9.84 fps
VH(up) = 0.47'
VH(dn) = 1.50'

CONCRETE "U" CHANNEL STA. 2+94.56 - STA. 3+05.40 HYDRAULIC CALCULATION
$Q_{(25)}$ = 15.62 CFS
Bw = 3.00'
n = 0.015
S = 20.00%
Dn = 0.30'
V = 17.50 ft/s
τ_d = 3.10 lb/ft²

CONCRETE "U" CHANNEL STA. 3+05.40 - STA. 4+00.31 HYDRAULIC CALCULATION
$Q_{(25)}$ = 15.62 CFS
Bw = 2.00'
n = 0.015
S = 4.00%
Dn = 0.71'
V = 11.02 ft/s
τ_d = 1.04 lb/ft²

CONCRETE "U" CHANNEL STA. 4+00.31 - STA. 5+73.28 HYDRAULIC CALCULATION
$Q_{(25)}$ = 15.62 CFS
Bw = 2.00'
n = 0.015
S = 3.50%
Dn = 0.70'
V = 9.00 ft/s
τ_d = 0.74 lb/ft²

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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: DR3911024 - MNO

SHEET TITLE:
DRAIN "O" PLAN & PROFILE (1 OF 2)

SHEET NUMBER:
4.26

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

W:\Drawings\391\1024 - MNO\dwg\4.26 By: ABEL.MONTALVO

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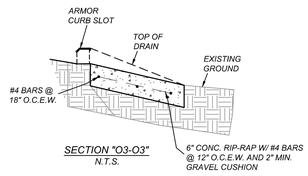
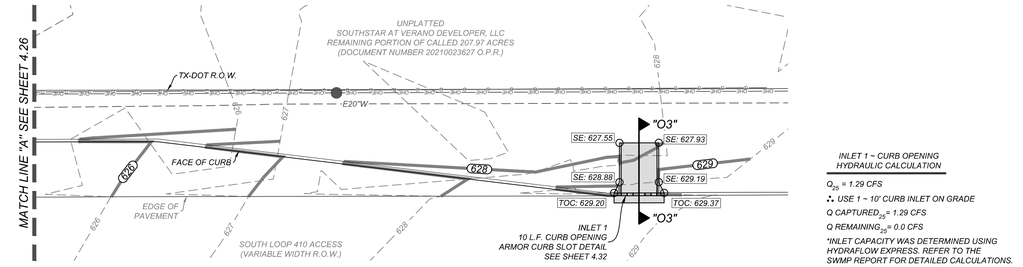
3. AT THE PRE-FINAL INSPECTION: THE ENGINEER MUST ISSUE CERTIFICATION TO THE CITY INSPECTOR THAT THE TURF REINFORCEMENT MAT (TRM) WAS INSTALLED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. THE CERTIFICATION MUST ALSO NOTE THAT THE MATERIAL AND INSTALLATION HAS MET CITY AND MANUFACTURER SPECIFICATIONS.



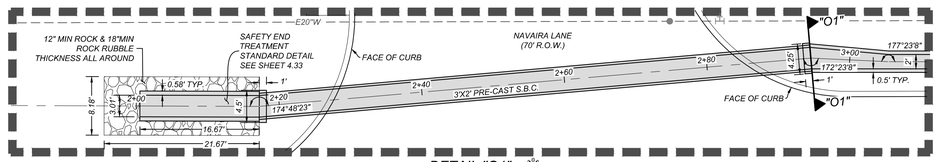
SECTION "O3-O3"
N.T.S.



INLET 1 ~ CURB OPENING HYDRAULIC CALCULATION

Q_{25} = 1.29 CFS
∴ USE 1 ~ 10' CURB INLET ON GRADE
Q CAPTURED$_{25}$= 1.29 CFS
Q REMAINING$_{25}$= 0.0 CFS

**INLET CAPACITY WAS DETERMINED USING HYDRAFLOW EXPRESS. REFER TO THE SWMP REPORT FOR DETAILED CALCULATIONS.*



DETAIL "O1"
SCALE: 1"=10'

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REV	DATE	DRAWN BY	DESCRIPTION

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: DR3911024 - MNO

SHEET TITLE:
DRAIN "O" PLAN & PROFILE (2 OF 2)

SHEET NUMBER:
4.26A

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

x:\ENGdata\DR3911024 - MNO.dwg\4.26A By: ABEL.MONTALVO

NOTE:

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3. ALL EARTHEN CHANNELS MUST NOT EXCEED 3:1 SIDE SLOPES (MAX).

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TRENCH EXCAVATION SAFETY PROTECTION

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LEGEND

- FLOW ARROW
- 706 — EXISTING CONTOURS
- 707 — PROPOSED CONTOURS
- PROPERTY LINE
- POINT # 707.00 TOE — PROPOSED SPOT ELEVATION (TOE OF SLOPE)
- POINT # 707.00 INV — PROPOSED SPOT ELEVATION (INVERT OF CHANNEL)

NOTE:

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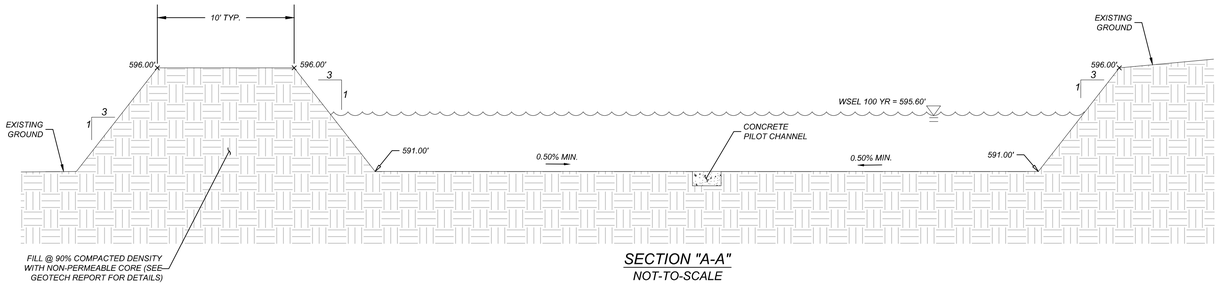
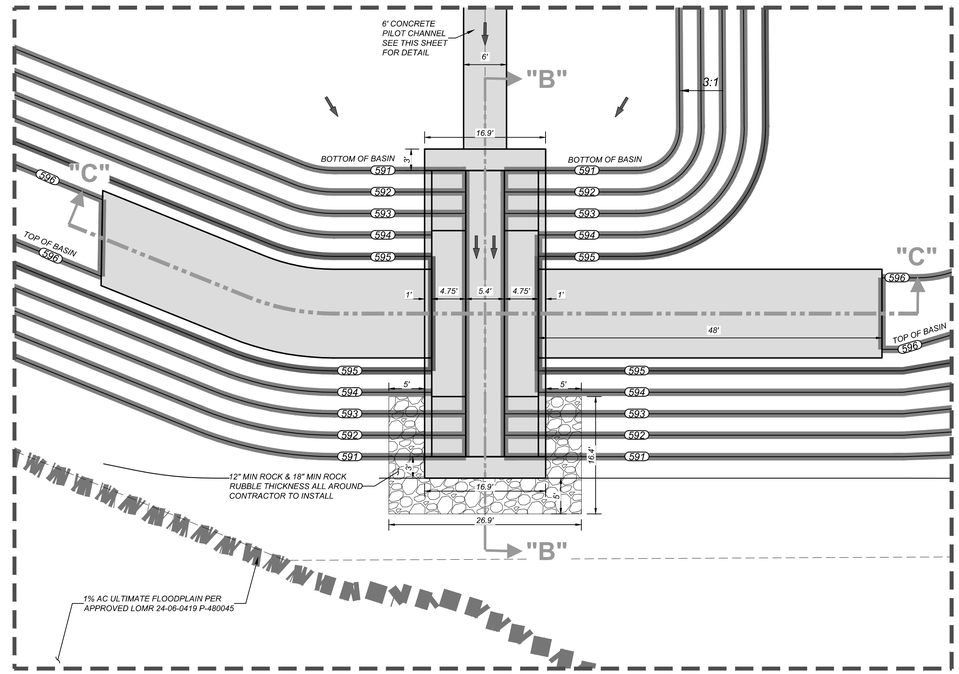
CONCRETE CHANNEL OUTFALL

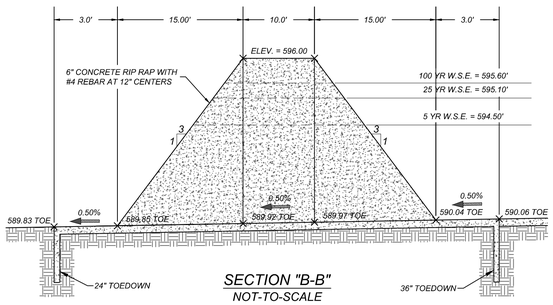
HYDRAULIC CALCULATION
Q(25) = 195.90 CFS
Bw = 16.90'
n = 0.015
Pw = 19.78 FT.
A = 24.35 S.F.
S = 0.50%
Dn = 1.44'
V = 8.05 fps
VH = 1.01'



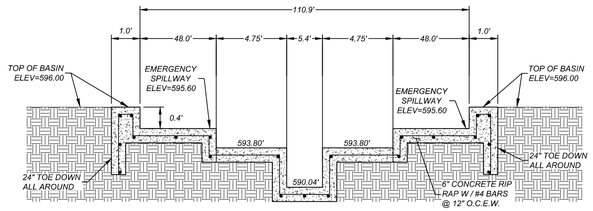
SECTION "A-A"
NOT-TO-SCALE



DETAIL "A"
SCALE: 1" = 10'



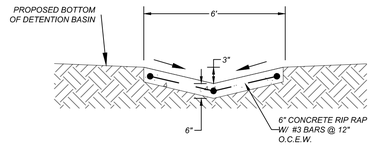
SECTION "B-B"
NOT-TO-SCALE



SECTION "C-C"
EMERGENCY OVERFLOW WEIR
NOT-TO-SCALE

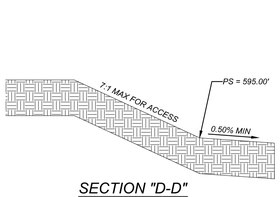
EMERGENCY SPILLWAY CALCULATION

* REFERENCE STORM WATER MANAGEMENT PLAN



TYPICAL PILOT CHANNEL
NOT-TO-SCALE

SCALE : 1"=40'
0' 40' 120'
80'



SECTION "D-D"
NOT-TO-SCALE

PROPOSED DISCHARGE						
Q1	=	81.90		WSEL1	=	593.80
Q5	=	132.90		WSEL5	=	594.50
Q25	=	195.90		WSEL25	=	595.10
Q100	=	250.50		WSEL100	=	595.60

STAGE(FT)	STORAGE (FT^3)	ELEVATION
0	0	588.50
0.50	2,030	589
1.50	41,487	590
2.50	147,745	591
3.50	292,549	592
4.50	443,536	593
5.50	600,737	594
6.50	764,194	595

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

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REV	DATE	DRAWN BY	DESCRIPTION

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194500

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: BA3911024 - A

SHEET TITLE:
BASIN "A" PLAN
(1 OF 2)

SHEET NUMBER:
4.27

By: ABEL.MONTALVO
I:\BD\civil\BA3911024 - A.dwg(4.27

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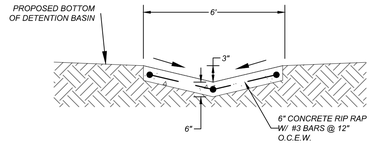
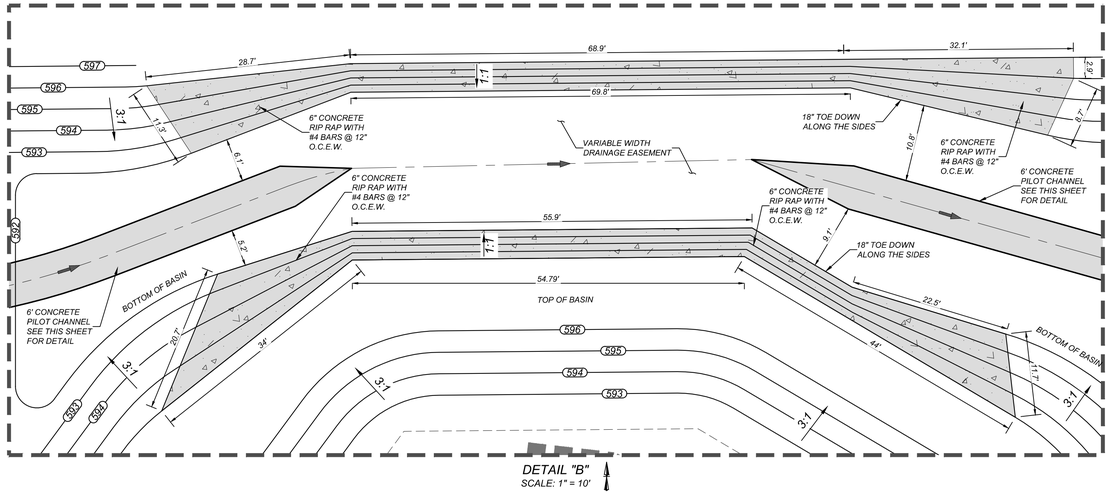


TYPICAL PILOT CHANNEL
NOT-TO-SCALE



DETAIL "B"
SCALE: 1" = 10'

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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: BA3911024 - A

SHEET TITLE:
BASIN "A" PLAN
(2 OF 2)

SHEET NUMBER:
4.28

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

By: ABEL.MONTALVO
n:\ftDrawings\BA3911024 - A.dwg\4.28

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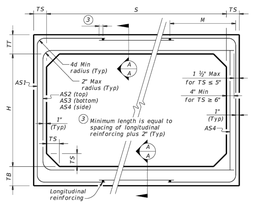
DATE:
FILE:

BOX DATA

SECTION DIMENSIONS					Fill Height	M (Min)	REINFORCING (sq. in. / ft.) (2)							(1) Lift Weight
S (ft.)	H (ft.)	TT (in.)	TB (in.)	TS (in.)	(ft.)	(in.)	AS1	AS2	AS3	AS4	AS5	AS7	AS8	(tons)
3	2	7	6	4	< 2	-	0.17	0.25	0.16	0.10	0.17	0.17	0.14	3.3
3	2	4	4	4	2 < 3	31	0.13	0.19	0.18	0.10	-	-	-	2.4
3	2	4	4	4	3 – 5	31	0.10	0.11	0.12	0.10	-	-	-	2.4
3	2	4	4	4	10	31	0.10	0.10	0.10	0.10	-	-	-	2.4
3	2	4	4	4	15	31	0.10	0.13	0.13	0.10	-	-	-	2.4
3	2	4	4	4	20	31	0.11	0.17	0.17	0.10	-	-	-	2.4
3	2	4	4	4	25	31	0.14	0.21	0.21	0.10	-	-	-	2.4
3	2	4	4	4	30	31	0.17	0.25	0.25	0.10	-	-	-	2.4
3	2	4	4	4	35	31	0.20	0.29	0.30	0.10	-	-	-	2.4
3	3	7	6	4	< 2	-	0.17	0.27	0.17	0.10	0.17	0.17	0.14	3.7
3	3	4	4	4	2 < 3	31	0.10	0.22	0.21	0.10	-	-	-	2.8
3	3	4	4	4	3 – 5	31	0.10	0.14	0.14	0.10	-	-	-	2.8
3	3	4	4	4	10	31	0.10	0.11	0.11	0.10	-	-	-	2.8
3	3	4	4	4	15	31	0.10	0.14	0.15	0.10	-	-	-	2.8
3	3	4	4	4	20	31	0.10	0.18	0.19	0.10	-	-	-	2.8
3	3	4	4	4	25	31	0.10	0.23	0.23	0.10	-	-	-	2.8
3	3	4	4	4	30	31	0.12	0.27	0.28	0.10	-	-	-	2.8
3	3	4	4	4	35	31	0.14	0.32	0.32	0.10	-	-	-	2.8



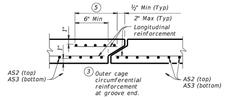
CORNER OPTION "A" CORNER OPTION "B"

FILL HEIGHT 2 FT AND GREATER

CORNER OPTION "A" CORNER OPTION "B"

FILL HEIGHT LESS THAN 2 FT

4 Length is equal to spacing of longitudinal reinforcing plus 2". (10" Min) (Typ)



SECTION A-A

(Showing top and bottom slab joint reinforcement.)

MATERIAL NOTES:
Provide 0.03 sq. in./ft. minimum longitudinal reinforcement at each face in slabs and walls. This minimum requirement may be met by the transverse wires when wire mesh reinforcement is used.
Provide Class H concrete (f'c = 5,000 psi).

GENERAL NOTES:
Designs shown conform to ASTM C1577. Refer to ASTM C1577 for information or details not shown.
See Box Culverts Precast Miscellaneous Details (SCP-MD) standard sheet for details and notes not shown.
In lieu of furnishing the designs shown on this sheet, the contractor may furnish an alternate design that is equal to or exceeds the box design for the design fill height in the table. Submit shop plans for alternate designs in accordance with Item "Precast Concrete Structural Members (Fabrication)."

HL93 LOADING

Texas Department of Transportation | Bridge Division Standard

SINGLE BOX CULVERTS PRECAST
3'-0" SPAN

SCP-3

FILE: CD-SCP03-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	DIST	COUNTY		SHEET NO.

(1) For box length = 8'-0"

(2) AS1 thru AS4, AS7 and AS8 are minimum required areas of reinforcement per linear foot of box length. AS5 is minimum required area of reinforcement per linear foot of box width.

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DATE:
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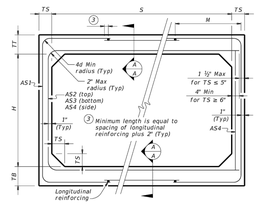
BOX DATA

SECTION DIMENSIONS					Fill Height	M (Min)	REINFORCING (sq. in. / ft.) (2)							(1) Lift Weight
S (ft.)	H (ft.)	TT (in.)	TB (in.)	TS (in.)	(ft.)	(in.)	AS1	AS2	AS3	AS4	AS5	AS7	AS8	(tons)
4	2	7.5	6	5	< 2	-	0.18	0.27	0.15	0.12	0.18	0.18	0.14	4.5
4	2	5	5	5	2 < 3	38	0.18	0.19	0.17	0.12	-	-	-	3.6
4	2	5	5	5	3 – 5	38	0.13	0.13	0.13	0.12	-	-	-	3.6
4	2	5	5	5	10	38	0.12	0.12	0.12	0.12	-	-	-	3.6
4	2	5	5	5	15	38	0.14	0.16	0.16	0.12	-	-	-	3.6
4	2	5	5	5	20	38	0.18	0.20	0.21	0.12	-	-	-	3.6
4	2	5	5	5	25	38	0.23	0.25	0.25	0.12	-	-	-	3.6
4	2	5	5	5	30	38	0.28	0.30	0.30	0.12	-	-	-	3.6
4	3	7.5	6	5	< 2	-	0.18	0.31	0.18	0.12	0.18	0.18	0.14	5.0
4	3	5	5	5	2 < 3	38	0.15	0.23	0.20	0.12	-	-	-	4.1
4	3	5	5	5	3 – 5	38	0.12	0.16	0.16	0.12	-	-	-	4.1
4	3	5	5	5	10	38	0.12	0.14	0.14	0.12	-	-	-	4.1
4	3	5	5	5	15	38	0.12	0.18	0.18	0.12	-	-	-	4.1
4	3	5	5	5	20	38	0.14	0.23	0.24	0.12	-	-	-	4.1
4	3	5	5	5	25	38	0.17	0.29	0.29	0.12	-	-	-	4.1
4	3	5	5	5	30	38	0.21	0.35	0.35	0.12	-	-	-	4.1
4	4	7.5	6	5	< 2	-	0.18	0.33	0.20	0.12	0.18	0.18	0.14	5.5
4	4	5	5	5	2 < 3	38	0.12	0.26	0.23	0.12	-	-	-	4.6
4	4	5	5	5	3 – 5	38	0.12	0.18	0.18	0.12	-	-	-	4.6
4	4	5	5	5	10	38	0.12	0.15	0.15	0.12	-	-	-	4.6
4	4	5	5	5	15	38	0.12	0.19	0.20	0.12	-	-	-	4.6
4	4	5	5	5	20	38	0.12	0.25	0.25	0.12	-	-	-	4.6
4	4	5	5	5	25	38	0.14	0.31	0.31	0.12	-	-	-	4.6
4	4	5	5	5	30	38	0.17	0.37	0.37	0.12	-	-	-	4.6



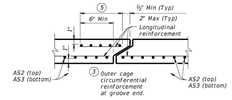
CORNER OPTION "A" CORNER OPTION "B"

FILL HEIGHT 2 FT AND GREATER

CORNER OPTION "A" CORNER OPTION "B"

FILL HEIGHT LESS THAN 2 FT

4 Length is equal to spacing of longitudinal reinforcing plus 2". (10" Min) (Typ)



SECTION A-A

(Showing top and bottom slab joint reinforcement.)

MATERIAL NOTES:
Provide 0.03 sq. in./ft. minimum longitudinal reinforcement at each face in slabs and walls. This minimum requirement may be met by the transverse wires when wire mesh reinforcement is used.
Provide Class H concrete (f'c = 5,000 psi).

GENERAL NOTES:
Designs shown conform to ASTM C1577. Refer to ASTM C1577 for information or details not shown.
See Box Culverts Precast Miscellaneous Details (SCP-MD) standard sheet for details and notes not shown.
In lieu of furnishing the designs shown on this sheet, the contractor may furnish an alternate design that is equal to or exceeds the box design for the design fill height in the table. Submit shop plans for alternate designs in accordance with Item "Precast Concrete Structural Members (Fabrication)."

HL93 LOADING

Texas Department of Transportation | Bridge Division Standard

SINGLE BOX CULVERTS PRECAST
4'-0" SPAN

SCP-4

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REVISIONS	DIST	COUNTY		SHEET NO.

(1) For box length = 8'-0"

(2) AS1 thru AS4, AS7 and AS8 are minimum required areas of reinforcement per linear foot of box length. AS5 is minimum required area of reinforcement per linear foot of box width.

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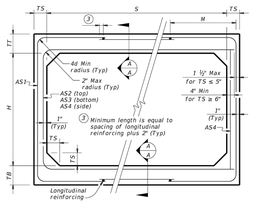
BOX DATA

SECTION DIMENSIONS					Fill Height	M (Min)	REINFORCING (sq. in. / ft.) (2)							(1) Lift Weight
S (ft.)	H (ft.)	TT (in.)	TB (in.)	TS (in.)	(ft.)	(in.)	AS1	AS2	AS3	AS4	AS5	AS7	AS8	(tons)
5	2	8	7	6	< 2	-	0.19	0.27	0.18	0.14	0.19	0.19	0.17	6.0
5	2	6	6	6	2 < 3	44	0.22	0.20	0.16	0.14	-	-	-	5.1
5	2	6	6	6	3 – 5	44	0.16	0.14	0.14	0.14	-	-	-	5.1
5	2	6	6	6	10	36	0.15	0.14	0.14	0.14	-	-	-	5.1
5	2	6	6	6	15	36	0.20	0.18	0.18	0.14	-	-	-	5.1
5	2	6	6	6	20	36	0.26	0.23	0.24	0.14	-	-	-	5.1
5	2	6	6	6	25	36	0.33	0.29	0.29	0.14	-	-	-	5.1
5	2	6	6	6	30	36	0.39	0.34	0.35	0.14	-	-	-	5.1
5	3	8	7	6	< 2	-	0.19	0.31	0.21	0.14	0.19	0.19	0.17	6.6
5	3	6	6	6	2 < 3	45	0.18	0.24	0.19	0.14	-	-	-	5.7
5	3	6	6	6	3 – 5	36	0.14	0.17	0.16	0.14	-	-	-	5.7
5	3	6	6	6	10	36	0.14	0.16	0.17	0.14	-	-	-	5.7
5	3	6	6	6	15	35	0.16	0.21	0.22	0.14	-	-	-	5.7
5	3	6	6	6	20	35	0.21	0.27	0.28	0.14	-	-	-	5.7
5	3	6	6	6	25	35	0.26	0.33	0.34	0.14	-	-	-	5.7
5	3	6	6	6	30	35	0.31	0.41	0.41	0.14	-	-	-	5.7
5	4	8	7	6	< 2	-	0.19	0.33	0.24	0.14	0.19	0.19	0.17	7.2
5	4	6	6	6	2 < 3	45	0.16	0.27	0.22	0.14	-	-	-	6.3
5	4	6	6	6	3 – 5	45	0.14	0.19	0.18	0.14	-	-	-	6.3
5	4	6	6	6	10	36	0.14	0.18	0.18	0.14	-	-	-	6.3
5	4	6	6	6	15	35	0.14	0.23	0.24	0.14	-	-	-	6.3
5	4	6	6	6	20	35	0.17	0.30	0.31	0.14	-	-	-	6.3
5	4	6	6	6	25	35	0.21	0.37	0.38	0.14	-	-	-	6.3
5	4	6	6	6	30	35	0.25	0.44	0.45	0.14	-	-	-	6.3
5	5	8	7	6	< 2	-	0.19	0.35	0.26	0.14	0.19	0.19	0.17	7.8
5	5	6	6	6	2 < 3	45	0.14	0.29	0.24	0.14	-	-	-	6.9
5	5	6	6	6	3 – 5	45	0.14	0.21	0.20	0.14	-	-	-	6.9
5	5	6	6	6	10	45	0.14	0.19	0.20	0.14	-	-	-	6.9
5	5	6	6	6	15	36	0.14	0.24	0.25	0.14	-	-	-	6.9
5	5	6	6	6	20	35	0.15	0.31	0.32	0.14	-	-	-	6.9
5	5	6	6	6	25	35	0.18	0.38	0.39	0.14	-	-	-	6.9
5	5	6	6	6	30	35	0.21	0.46	0.47	0.14	-	-	-	6.9



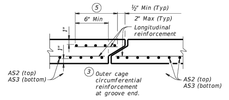
CORNER OPTION "A" CORNER OPTION "B"

FILL HEIGHT 2 FT AND GREATER

CORNER OPTION "A" CORNER OPTION "B"

FILL HEIGHT LESS THAN 2 FT

4 Length is equal to spacing of longitudinal reinforcing plus 2". (10" Min) (Typ)



SECTION A-A

(Showing top and bottom slab joint reinforcement.)

MATERIAL NOTES:
Provide 0.03 sq. in./ft. minimum longitudinal reinforcement at each face in slabs and walls. This minimum requirement may be met by the transverse wires when wire mesh reinforcement is used.
Provide Class H concrete (f'c = 5,000 psi).

GENERAL NOTES:
Designs shown conform to ASTM C1577. Refer to ASTM C1577 for information or details not shown.
See Box Culverts Precast Miscellaneous Details (SCP-MD) standard sheet for details and notes not shown.
In lieu of furnishing the designs shown on this sheet, the contractor may furnish an alternate design that is equal to or exceeds the box design for the design fill height in the table. Submit shop plans for alternate designs in accordance with Item "Precast Concrete Structural Members (Fabrication)."

HL93 LOADING

Texas Department of Transportation | Bridge Division Standard

SINGLE BOX CULVERTS PRECAST
5'-0" SPAN

SCP-5

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(1) For box length = 8'-0"

(2) AS1 thru AS4, AS7 and AS8 are minimum required areas of reinforcement per linear foot of box length. AS5 is minimum required area of reinforcement per linear foot of box width.

DISCLAIMER:
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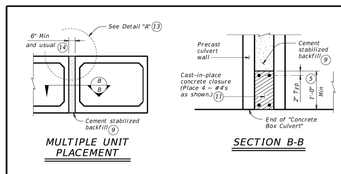


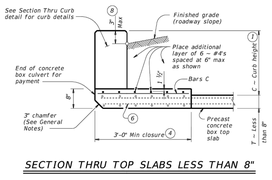
MULTIPLE UNIT PLACEMENT

SECTION B-B

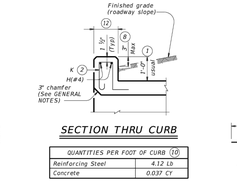
DETAIL "A" (13)

WINGWALL CONNECTION

(Also applies to safety end treatment.)

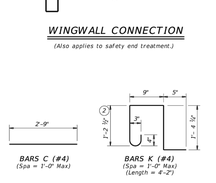


SECTION THRU TOP SLABS LESS THAN 8"



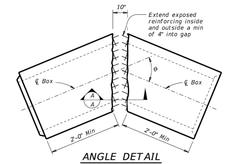
SECTION THRU CURB

QUANTITIES PER FOOT OF CURB (10)	
Reinforcing Steel	4.12 Lb
Concrete	0.037 CY

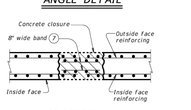


BARS C (#4) (5pa = 1'-0" Max)

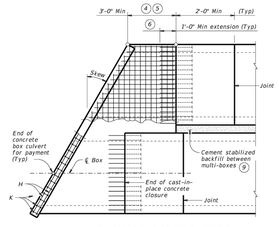
BARS K (#4) (5pa = 1'-0" Max) (Length = 4'-2")



ANGLE DETAIL



SECTION A-A



PLAN OF SKEWED ENDS

(Showing multi-box placement.)

(1) 0" Min to 5'-0" Max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail, bicycle rail, or curbs taller than 1'-0, refer to the Extended Curb Details (ECD) standard sheet. For structures with T631 or T631LS bridge rail other than those shown on the ECD, refer to the Bridge Details (T631-CM) standard sheet. Refer to the Box Culvert Rail Mounting Details (RAC) standard sheet for structures with bridge rail other than T631 or T631LS.

(2) For curbs less than 1'-0" high, tilt Bars K or reduce bar height as necessary to maintain cover. For curbs less than 3" high, Bars K may be omitted.

(3) Extend curb, wingwall, or safety end treatment reinforcing into concrete closure. Bend or trim, as necessary, any reinforcing that does not fit into closure area.

(4) Provide a 3'-0" Min cast-in-place concrete closure. Break back boxes in the field or cast boxes short. Provide bands of reinforcing in the closure that are the same size and spacing as the reinforcing bands in the box sections. Provide longitudinal bars consisting of 4 – #4's Max within the closure. Except where shown otherwise, construct the cast-in-place closure flush with the inside and outside faces of the precast box section.

(5) For multiple unit placements, adjust the length of the closure for the interior walls as necessary. Provide a 3'-0" Min cast-in-place closure in the top slab, bottom slab, and exterior wall. See Section B-B detail when interior walls are cast full length.

(6) Extend precast box reinforcing a minimum of 1'-0" into concrete closure (Typ).

(7) Place bands of reinforcing matching the inside and outside face reinforcing in the gaps of the top and bottom slabs. Place a band matching the outside face reinforcing of the wall in the gaps of the walls (placed in the outside face only). Tack weld the bands to the exposed reinforcing at each point of contact.

(8) For vehicle safety, the following requirements must be met:
- For structures without bridge rail, construct curbs no more than 3" above finished grade.
- For structures with bridge rail, construct curbs flush with finished grade.

Reduce curb heights, if necessary, to meet the above requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.

(9) Cement stabilized backfill between boxes is considered part of the box culvert for payment.

(10) All curb concrete and reinforcing is considered part of the box culvert for payment.

(11) Any additional concrete and reinforcing required for the closures will be considered subsidiary to the box culvert for payment.

(12) 1'-0" typical. 2'-3" when the Box Culvert Rail Mounting Details (RAC) standard sheet is referred to elsewhere in the plans.

(13) For multiple unit placement with overlay, with 1 to 2 course surface treatment, or with the top slab as the final riding surface, provide wall closure as shown in Detail "A".

(14) This dimension may be increased with approval of the Engineer to allow the precast boxes to be tunneled or jacked in accordance with Item 476, "Jacking, Boring, or Tunneling Pipe or Box." No payment will be made for any additional material in the gap between adjacent boxes.

MATERIAL NOTES:
Provide Grade 60 reinforcing steel.
Provide ASTM A1064 welded wire reinforcement.
Provide Class C concrete (f'c = 3,600 psi) for the closures.
Provide cement stabilized backfill meeting the requirements of Item 400, "Excavation and Backfill for Structures."
Any additional concrete required for the closures will be considered subsidiary to the box culvert.

GENERAL NOTES:
Designed according to AASHTO LRFD Bridge Design Specifications.
Refer to the Single Box Culverts Precast (SCP) standard sheets for details and notes not shown.
Chamfer the bottom edge of the top slab closure 3 inches at culvert closure ends.

Cover dimensions are clear dimensions, unless noted otherwise.
Reinforcing bars dimensions are out-to-out of bars.

HL93 LOADING

Texas Department of Transportation | Bridge Division Standard

BOX CULVERTS PRECAST MISCELLANEOUS DETAILS

SCP-MD

FILE: CD-SCP-MD-20.dgn	DN: GAF	CK: LRFB	DW: BRYLT/JDT	CK: GAF
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FOR
VIDA SAN ANTONIO PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

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3421 Paesanos Parkway
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COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
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DRAWING NAME: DRDT3911024

SHEET TITLE:
DRAIN DETAILS (1 OF 5)

SHEET NUMBER:
4.29

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TABLE OF DIMENSIONS AND REINFORCING STEEL
(Wings for one structure end)

Maximum Wingwall Height Hw	Dimensions W	X	Y	Z	Variable Reinforcing Bars J1 Size	Bars J1 Spa	Bars J2 Size	Bars J2 Spa	Estimated Quantities per ft of wing length (2-wings) ③ Reinf (Lb/Ft)	Conc (CY/Ft)
2'-6"	2'-5"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	33.73	0.248
3'-0"	2'-5"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	37.07	0.261
3'-6"	2'-5"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	37.74	0.273
4'-0"	2'-5"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	38.41	0.285
4'-6"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	41.75	0.330
5'-0"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	45.09	0.343
5'-6"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	45.75	0.355
6'-0"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	46.42	0.367
7'-0"	3'-8"	1'-9"	1'-3"	7"	#4	1'-0"	#4	1'-0"	52.77	0.414
8'-0"	4'-2"	2'-0"	1'-6"	8"	#5	1'-0"	#4	1'-0"	60.19	0.486
9'-0"	4'-8"	2'-3"	1'-9"	8"	#4	6"	#4	6"	81.49	0.535
10'-0"	5'-2"	2'-6"	2'-0"	8"	#5	6"	#4	6"	97.25	0.584
11'-0"	5'-8"	2'-9"	2'-3"	8"	#6	6"	#5	6"	133.65	0.634
12'-0"	6'-2"	3'-0"	2'-6"	9"	#7	6"	#5	6"	162.29	0.721
13'-0"	6'-8"	3'-3"	2'-9"	11"	#7	6"	#5	6"	178.80	0.856
14'-0"	7'-2"	3'-6"	3'-0"	1'-0"	#8	6"	#5	6"	216.78	0.959
15'-0"	7'-8"	4'-0"	3'-0"	1'-1"	#9	6"	#6	6"	283.06	1.068
16'-0"	8'-2"	4'-6"	3'-0"	1'-3"	#9	6"	#6	6"	297.02	1.234

TABLE OF WINGWALL REINFORCING
(2-wings)

Bar	Size	No.	Spa
D	#5	–	1'-0"
E	#4	–	1'-0"
F	#4	–	1'-0"
G	#6	4	–
M	#4	4	–
P	#4	–	1'-0"
R	#5	6	–
V	#4	–	1'-0"

TABLE OF ESTIMATED CULVERT TOEWALL QUANTITIES

Bar	Size	No.	Spa
L	#4	–	1'-6"
Q	#4	1	–
Reinf (Lb/Ft)			2.45
Conc (CY/Ft)			0.037

WING DIMENSION FORMULAS:
(All values are in feet.)

$Hw = H + T + C - 0.250'$
$A = (Hw - 0.333'(SL))$
$B = (A)$ tangent $(30°)$
$Lw = (A) \div$ cosine $(30°)$

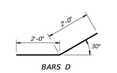
For cast-in-place culverts:
$Ltw = (N) (S) + (N + 1) (U)$

For precast culverts:
$Ltw = (N) (2U + S) + (N - 1) (0.5)$

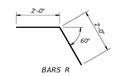
Total wingwall area (two wings – SF) = $(Hw + 0.333') (Lw)$

Hw = Height of wingwall
SL:1 = Side slope ratio (horizontal:1 vertical)
Lw = Length of wingwall
Ltw = Culvert toewall length
N = Number of culvert spans

See applicable box culvert standard sheet for H, S, T, and U values.



BARS D



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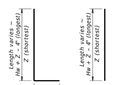
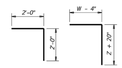


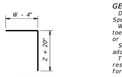
BARS J1



BARS V



BARS L



BARS J2

1) Extend Bars P 3'-0" minimum into bottom slab of box culvert.

2) Adjust as necessary to maintain 1 1#2" clear cover and 4" minimum between bars.

3) Quantities shown are based on an average wing height for two wings (one structure end). To determine total quantities for two wings, multiply the tabulated values by Lw.

4) Recommended values of side slope are: 2:1, 3:1, 4:1, and 6:1.

5) When shown elsewhere on the plans, construct 5" deep concrete riprap. Payment for riprap is as required by Item 432, "Riprap." Unless otherwise shown on the plans or directed by the Engineer, provide a 6" wide by 1'-6" deep reinforced concrete toewall along all edges of the riprap adjacent to natural ground; reinforce the toewall by extending typical riprap reinforcing into the toewall; and extend construction joints or grooved joints oriented in the direction of flow across the full distance of the riprap at intervals of approximately 20'. When such riprap is provided, the culvert toewall shown in SECTION B-B will not be required.

6) At Contractor's option, culvert toewall may be ended flush with wingwall toewall. Adjust reinforcing as needed.

7) 0" Min to 5'-0" Max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail or curbs taller than 1'-0, refer to the Extended Curb Details (ECD) standard sheet. For structures with T631 or T631LS bridge rail, refer to the Mounting Details for T631 & T631LS Rails (T631-CM) standard sheet. Refer to the Box Culvert Rail Mounting Details (RAC) standard sheet for structures with bridge rail other than T631 or T631LS.

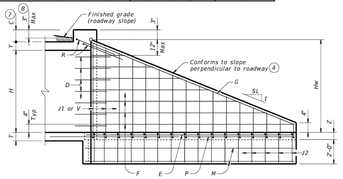
8) For vehicle safety, the following requirements must be met:
- For structures without bridge rail, construct curbs flush with finished grade.
- For structures with bridge rail, construct curbs flush with finished grade.

Reduce curb heights, if necessary, to meet the above requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.

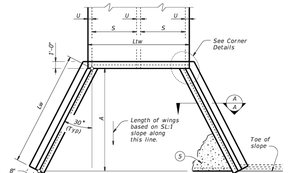
MATERIAL NOTES:
Provide Class C concrete (f'c=3,600 psi).
Provide Grade 60 reinforcing steel.
Provide galvanized reinforcing steel if required elsewhere in the plans.
In riprap concrete synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing unless noted otherwise.

GENERAL NOTES:
Designed according to AASHTO LRFD Bridge Design Specifications.
When structure is founded on solid rock, depth of toewalls for culverts and wingwalls may be reduced or eliminated as directed by the Engineer.
See Box Culvert Supplement (BCS) standard sheet for additional dimensions and information.
The quantities for concrete and reinforcing steel resulting from the formulas given on this sheet are for Contractor's information only.

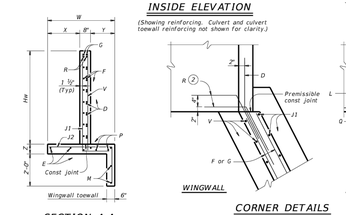
Cover dimensions are clear dimensions, unless noted otherwise. Reinforcing dimensions are out-to-out of bars.



INSIDE ELEVATION
(Showing reinforcing. Culvert and culvert toewall reinforcing not shown for clarity.)

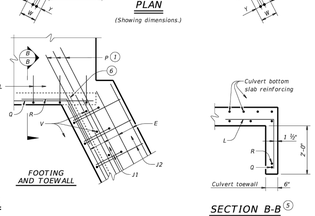


PLAN
(Showing dimensions and 30° skew.)



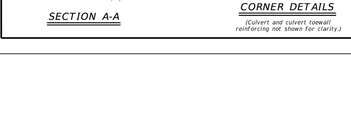
SECTION A-A

WINGWALL

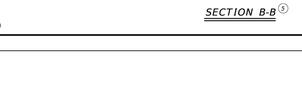


FOOTING AND TOEWALL

SECTION B-B ⑤

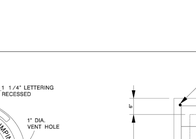


INSIDE ELEVATION
(Showing reinforcing. Culvert and culvert toewall reinforcing not shown for clarity.)

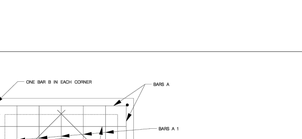


PLAN
(Showing dimensions and 30° skew.)

SECTION A-A



WINGWALL



FOOTING AND TOEWALL

SECTION B-B ⑤



BARS DS
(Short wing)



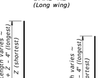
BARS DL
(Long wing)



BARS RS
(Short wing)

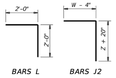


BARS RL
(Long wing)



BARS J1

BARS V



BARS L

BARS J2

1) Extend Bars P 3'-0" minimum into bottom slab of box culvert.

2) Adjust as necessary to maintain 1 1#2" clear cover and 4" minimum between bars.

3) Quantities shown are based on an average wing height for two wings (one structure end). To determine total quantities for two wings, multiply the tabulated values by 0.5 x (A + Lw).

4) Recommended values of side slope are: 2:1, 3:1, 4:1, and 6:1.

5) When shown elsewhere on the plans, construct 5" deep concrete riprap. Payment for riprap is as required by Item 432, "Riprap." Unless otherwise shown on the plans or directed by the Engineer, provide a 6" wide by 1'-6" deep reinforced concrete toewall along all edges of the riprap adjacent to natural ground; reinforce the toewall by extending typical riprap reinforcing into the toewall; and extend construction joints or grooved joints oriented in the direction of flow across the full distance of the riprap at intervals of approximately 20'. When such riprap is provided, the culvert toewall shown in SECTION B-B will not be required.

6) At Contractor's option, culvert toewall may be ended flush with wingwall toewall. Adjust reinforcing as needed.

7) Applicable values of skew are: 15°, 30°, and 45°.

8) Typical wingwall angle for all skews.

9) 0" Min to 5'-0" Max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail or curbs taller than 1'-0, refer to the Extended Curb Details (ECD) standard sheet. For structures with T631 or T631LS bridge rail, refer to the Mounting Details for T631 & T631LS Rails (T631-CM) standard sheet. Refer to the Box Culvert Rail Mounting Details (RAC) standard sheet for structures with bridge rail other than T631 or T631LS.

10) For vehicle safety, the following requirements must be met:
- For structures without bridge rail, construct curbs no more than 3" above finished grade.
- For structures with bridge rail, construct curbs flush with finished grade.

Reduce curb heights, if necessary, to meet the above requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.

MATERIAL NOTES:
Provide Class C concrete (f'c=3,600 psi).
Provide Grade 60 reinforcing steel.
Provide galvanized reinforcing steel if required elsewhere in the plans.
In riprap concrete, synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing in riprap concrete unless noted otherwise.

GENERAL NOTES:
Designed according to AASHTO LRFD Bridge Design Specifications.
When structure is founded on solid rock, depth of toewalls for culverts and wingwalls may be reduced or eliminated as directed by the Engineer.
See Box Culvert Supplement (BCS) standard sheet for additional dimensions and information.
The quantities for concrete and reinforcing steel resulting from the formulas given on this sheet are for Contractor's information only.

Cover dimensions are clear dimensions, unless noted otherwise. Reinforcing dimensions are out-to-out of bars.

Texas Department of Transportation — Bridge Division Standard

CONCRETE WINGWALLS WITH FLARED WINGS FOR 0° SKEW BOX CULVERTS

FW-0

FILE: CD-FW0-20.dgn	DN: GAF	CK: CAT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	DIST	COUNTY		SHEET NO.

Texas Department of Transportation — Bridge Division Standard

CONCRETE WINGWALLS WITH FLARED WINGS FOR SKEWED BOX CULVERTS

FW-S

FILE: CD-FWS-20.dgn	DN: GAF	CK: CAT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	DIST	COUNTY		SHEET NO.

COVER SECTION

MANHOLE LID & RING DETAIL
SCALE: 1 : 16

NOTES FOR MANHOLE LID AND RING

1. FOR LID DESIGN OUTSIDE OF CITY OF SAN ANTONIO, DELETE "SAN ANTONIO PUBLIC WORKS DEPT.".
2. CASTING NUMBER AND MANUFACTURER'S I.D. ON LID AND RING.
3. LOAD BEARING CAPABILITY OF HS-20 MINIMUM.
4. THE LOAD BEARING SURFACES SHALL BE MACHINE GROUND.
5. THE COMBINED WEIGHT OF THE MANHOLE RING AND COVER MUST BE AT LEAST 260 LBS.

TOP SLAB PLAN VIEW
SCALE: 1" = 2'-0"

BARS A
SCALE: 1" = 2'-0"

BARS C
SCALE: 1" = 2'-0"

ESTIMATED QUANTITIES FOR "H" = 4'-6"					
REINFORCING STEEL					
BAR	NO.	SIZE	SPACE	LENGTH	WEIGHT
A	18	4	8" +/-	7'-6 1/2"	79
A 1	10	4	8" +/-	4'-0 1/2"	27
B	4	4	AS SHOWN	5'-7"	15
B 1	20	4	8" +/-	4'-7"	61
C	12	4	9" +/-	18'-6"	148
J	4	4	AS SHOWN	2'-8"	6
TOTAL REINFORCING STEEL					336 Lbs. *
CLASS A CONCRETE					2.10 CY *

* FOR CONTRACTOR'S INFORMATION ONLY. QUANTITIES VARY WITH "H". SEE INLET & MANHOLE SUMMARY SHEETS FOR "H".

SIDE VIEW WALL
SCALE: 1" = 2'-0"

SECTION A-A
SCALE: 1" = 2'-0"

GENERAL NOTES:

1. ALL BARS INTERCEPTING THE RING AND COVER OPENING AND PIPE OPENINGS, SHALL BE FIELD CUT
2. CONCRETE SHALL BE CLASS "A", 3000 PSIN 28 DAYS.
3. ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER OF BARS.
4. ALL EXPOSED CORNERS SHALL HAVE 3/4" CHAMFER
5. PAYMENT FOR ALL EXCAVATION, BACKFILLING, CONCRETE, REINFORCING STEEL, RING, AND COVER SHALL BE INCLUDED IN THE UNIT COST OF ITEM 403 "STORM SEWER JUNCTION BOXES AND INLETS".

JANUARY 2005

CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

4-WAY INLET STANDARDS

☐ SUBMITTAL | PROJECT NO.: | DATE:
DRWN. BY M. SANTOYA, P.E. | DSGN. BY: | CHKD. BY: | SHEET NO.: | OF

1. CONCRETE FOR STRUCTURE SHALL BE CLASS "A," 3,000 P.S.I. AT 28 DAYS.
2. ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4".
3. REINFORCING STEEL SHALL BE NEW BILLET STEEL, INTERMEDIATE GRADE, ASTM. A-15. THE DEFORMATION SHALL CONFORM TO ASTM. A-305.
4. ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER OF BARS.
5. ALL BARS INTERCEPTING MANHOLE OPENING AND REINFORCED CONCRETE PIPE SHALL BE FIELD-CUT.
6. WHERE LAPPING OF BARS IS REQUIRED, A MINIMUM LAP OF 33 DIAMETERS SHALL BE USED.
7. INVERT OF JUNCTION BOX TO BE SHAPED WITH CONCRETE FILL (3,000 P.S.I. MIN.) TO EFFECT DRAINAGE TO OUTLET PIPE. COST SUBSIDIARY TO CLASS "A" CONCRETE (JUNCTION BOXES).

PIPE FLUSH WITH INVERT

CONCRETE COLLAR DETAIL
(NOT TO SCALE)

PROTRUDING PIPE IS FOR DROP STRUCTURE ONLY

JANUARY 2006

STANDARD PLANS
CITY OF SAN ANTONIO, TEXAS
DEVELOPMENT SERVICES

CONCRETE COLLAR DETAIL

DRAWN BY: ANDREW WINTER, P.E.	DATE:	REVISIONS	SCALE: SEE ABOVE
CHECKED BY: SAM DENT, P.E.			DATE: 19 JANUARY 2006
			SHEET: 1 OF 1

Colliers Engineering & Design

www.colliersengineering.com

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Formerly Known as KFW ENGINEERS & SURVEYING

811 PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION OF EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN ANY STATE
Texas One Call System
FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

REV	DESCRIPTION	DRAWN BY	DATE

THIS DOCUMENT IS RELEASED BY AUTHORITY OF OMAR A. ESPINOSA, P.E. # 125560 FOR BID SET ONLY AND NOT TO BE USED FOR CONSTRUCTION.

FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

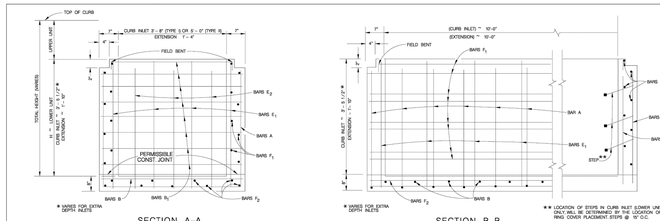
PROJECT NUMBER: 391-10-24
DRAWING NAME: DRDT3911024

SHEET TITLE:
DRAIN DETAILS (2 OF 5)

SHEET NUMBER:
4.30

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

By: ROGELIO.BERRONES
i:\ROnorm\0907391\1024.dwg\4.30



REINFORCING STEEL

LOWER UNIT 10' X 3'-8" (TYPE I)

BAR	NO.	SIZE	SPAC.	LENGTH
A	12	#4	12"	VARIES
B	11	#4	12"	4'-4"
B_1	VARIES	#4	12"	4'-4"
B_2	20	#4	18"±	VARIES
E_2	6	#4	18"±	VARIES
F_1	VARIES	#4	12"±	10'-10"
F_2	9	#4	——	10'-10"

LOWER UNIT 10' X 5'– 0" (TYPE II)

BAR	NO.	SIZE	SPAC.	LENGTH
A	12	#4	12"	VARIES
B	11	#4	12"	6'-10"
B_1	VARIES	#4	12"	6'-10"
E_1	22	#4	18"±	VARIES
E_2	6	#4	18"±	VARIES
F_1	VARIES	#4	12"±	10'-10"
F_2	11	#4	——	10'-10"

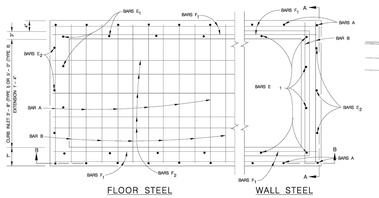
GENERAL NOTES

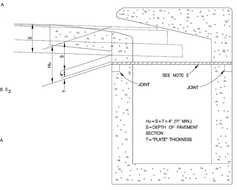
1. 9' INLETS AND 5' EXTENSIONS MUST BE IN ACCORDANCE WITH THE LATEST TXDOT CURB INLET TYPE "C" AND EXTENSION TYPE S (S–C).
2. TYPE C-II INLET TO BE USED ONLY WHEN STORM DRAIN PIPE IS IN-LINE WITH CURB INLET AND APPROVED BY THE ENGINEER.
3. QUANTITIES SHOWN ARE FOR CONTRACTORS INFORMATION ONLY.
4. CONCRETE FOR STRUCTURES SHALL BE CLASS "A", 3000 PSI IN 28 DAYS.
5. ALL DIMENSIONS PERTAINING TO REINFORCING STEEL ARE TO CENTER OF BARS.
6. ALL REINFORCING STEEL SHALL HAVE A MINIMUM COVER OF 1 1/2".
7. ALL REINFORCING STEEL SHALL CONFORM TO A.S.T.M A-615, GRADE 60 REQUIREMENTS.
8. ALL EXPOSED CORNERS SHALL BE CHAMFERED 3 /4".
9. DEPRESSION SLAB SHALL RECEIVE A WOOD FLOAT FINISH.
10. FACE OF INLET TO CONFORM TO FACE OF CURB LINE.
11. ALL BARS INTERCEPTING MANHOLE RING & COVER SHALL BE CUT OR BENT.
12. PAYMENT FOR ALL EXCAVATION, BACK-FILLING, CONCRETE, REINFORCING STEEL, RING AND COVER, CURB ARMOR AND STEPS SHALL BE INCLUDED IN THE UNIT COST OF ITEM 403 "STORM SEWER JUNCTION BOXES AND INLETS".
13. CAST IRON MANHOLE RING AND COVER TO BE PLACED NEXT TO OUTLET PIPE, EXCEPT FOR VERTICAL OUTLET PIPE IN WHICH CASE MANHOLE RING AND COVER WILL BE OFFSET.
14. GALVANIZED BOLTS, NUTS, WASHERS, PLATES AND GASKETS ARE SUBSIDIARY TO INLETS.
15. THE CONTRACTOR SHALL PROVIDE AN ADEQUATE MEANS TO LIFT AND PLACE THE INLETS, WHEN USING PRECAST UNITS.
16. ALL BARS AT PIPE BLOCKOUT LOCATIONS SHALL BE CUT OR BENT.
17. ALL LOWER UNITS SHALL RECEIVE INVERT MORTAR SHAPING.
18. PIPE BLOCKOUTS IN INLET WALLS SHOULD NOT EXCEED 3" BEYOND THE OUTER SHELL OF THE PIPE, TAKING INTO ACCOUNT THE SWOW OF THE PIPE AS NECESSARY. CONSTRUCTION JOINT MAY BE RAISED A MAXIMUM OF 6".

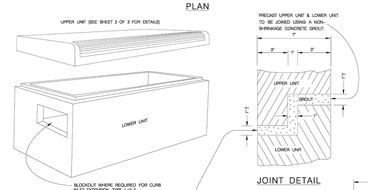
PHASE CONSTRUCTION

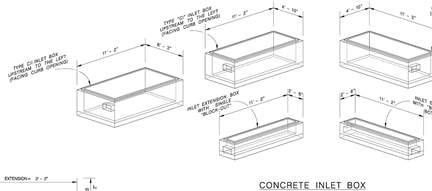
NOTES FOR PHASE CONSTRUCTION (WHEN DIRECTED BY THE ENGINEER)

1. THE CURB INLET AND EXTENSION SHALL BE CONSTRUCTED TO A DEPTH 1"to"2" BELOW THE INLET AND EXTENSION GUTTER LINE ELEVATION.
2. CAP THE CURB INLET AND EXTENSION WITH A STEEL PLATE APPROVED BY THE ENGINEER AND CONSTRUCT THE ROADWAY OVER THE PLATE.
3. AFTER THE ROADWAY IS COMPLETED, BUT PRIOR TO THE FINAL HMAC OVERLAY, SAW CUT THE PAVEMENT, REMOVE THE PLATE AND COMPLETE THE UPPER PORTION OF THE CURB INLET AND /OR EXTENSION.









MAY 2009

CITY OF SAN ANTONIO

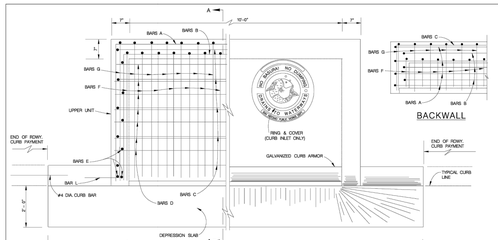
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

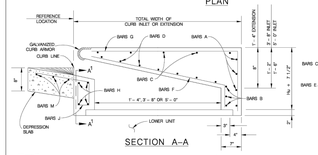
TYPE "C" INLET (TYPE I & II) & INLET EXTENSION STANDARDS

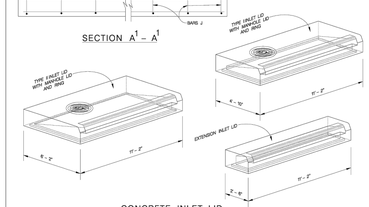
SHEET 1 OF 3

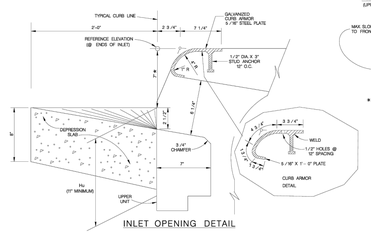
NO.	SUBMITTAL	PROJECT NO.:	DATE:

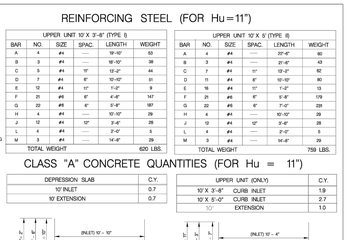
DRAWN BY: V. VASQUEZ DESIGN BY: J.E. MALTOS, P.E. CHKD. BY: R.S. HOSSEINI, P.E. SHEET NO.: ___ OF ___











REINFORCING STEEL (FOR Hu = 11")

UPPER UNIT 10' X 3'-8" (TYPE I)

BAR	NO.	SIZE	SPAC.	LENGTH	WEIGHT
A	6	#4	——	19'-10"	59
B	3	#4	——	18'-10"	36
C	5	#4	9"	13'-2"	44
D	7	#4	6"	10'-10"	80
E	12	#4	11"	1'-3"	9
F	21	#5	6"	4'-8"	147
G	22	#5	6"	5'-8"	187
H	4	#4	——	10'-10"	29
J	12	#4	12"	3'-8"	29
L	4	#4	——	2'-0"	5
M	3	#4	——	14'-8"	29
TOTAL WEIGHT					620 LBS.

UPPER UNIT 10' X 5'-0" (TYPE II)

BAR	NO.	SIZE	SPAC.	LENGTH	WEIGHT
A	6	#4	——	19'-10"	59
B	3	#4	——	21'-6"	43
C	7	#4	11"	13'-2"	62
D	11	#4	6"	10'-10"	80
E	16	#4	11"	1'-3"	13
F	25	#5	6"	5'-8"	178
G	22	#5	6"	7'-0"	231
H	4	#4	——	10'-10"	29
J	12	#4	12"	3'-8"	29
L	4	#4	——	2'-0"	5
M	3	#4	——	14'-8"	29
TOTAL WEIGHT					759 LBS.

CLASS "A" CONCRETE QUANTITIES (FOR Hu = 11")

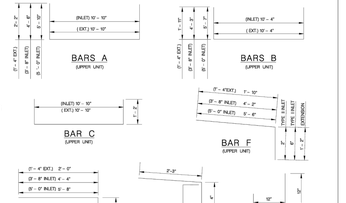
DEPRESSION SLAB	C.Y.
10' INLET	0.7
10' EXTENSION	0.7

UPPER UNIT (ONLY)	C.Y.
10' X 3'-8" CURB INLET	1.9
10' X 5'-0" CURB INLET	2.7
EXTENSION	1.0

NOTES FOR MANHOLE LID AND RING

1. FOR LID DESIGN OUTSIDE OF CITY OF SAN ANTONIO, DELETE "SAN ANTONIO PUBLIC WORKS DEPT."
2. CASTING NUMBER AND MANUFACTURER'S I.D. ON LID AND RING.
3. LOAD BEARING CAPABILITY OF H5-20 MINIMUM.
4. THE LOAD BEARING SURFACES SHALL BE MACHINE GROUND.
5. THE COMBINED WEIGHT OF THE MANHOLE RING AND COVER MUST BE AT LEAST 280 LBS.

SEE SHEET 1 OF 3 FOR GENERAL NOTES.





MAY 2009

CITY OF SAN ANTONIO

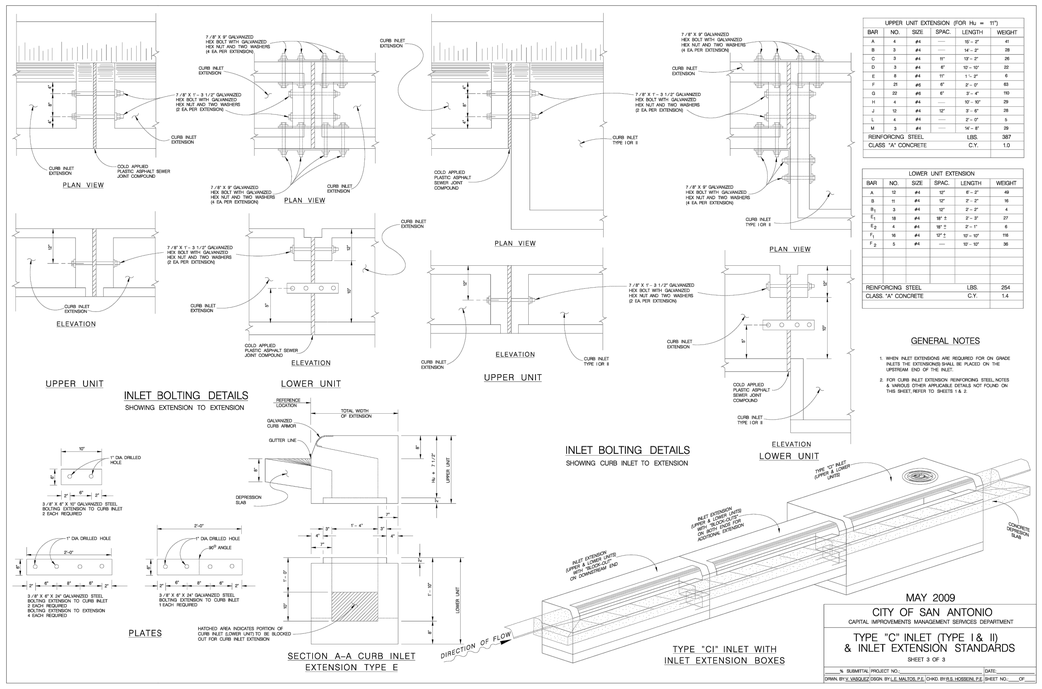
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

TYPE "C" INLET (TYPE I & II) & INLET EXTENSION STANDARDS

SHEET 2 OF 3

NO.	SUBMITTAL	PROJECT NO.:	DATE:

DRAWN BY: V. VASQUEZ DESIGN BY: J.E. MALTOS, P.E. CHKD. BY: R.S. HOSSEINI, P.E. SHEET NO.: ___ OF ___



UPPER UNIT EXTENSION (FOR H_U = 11")

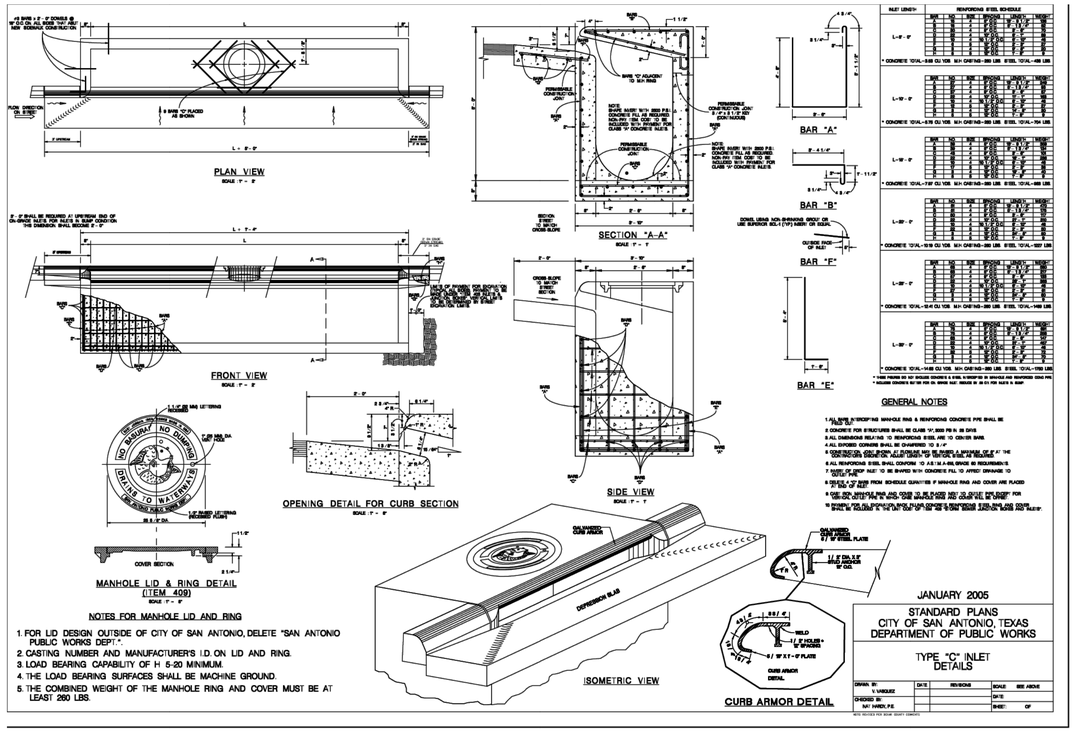
BAR	NO.	SIZE	SPAC.	LENGTH	WEIGHT
A	6	#4	——	10'– 2"	41
B	3	#4	——	14'– 2"	28
C	3	#4	——	10'– 2"	20
D	3	#4	6"	10'– 10"	22
E	8	#4	11"	1'– 3"	6
F	21	#6	6"	2'– 0"	63
G	22	#6	6"	3'– 4"	110
H	4	#4	——	10'– 10"	29
J	12	#4	12"	3'– 8"	29
L	4	#4	——	2'– 0"	5
M	3	#4	——	14'– 8"	29
REINFORCING STEEL				LBS.	387
CLASS "A" CONCRETE				C.Y.	1.0

LOWER UNIT EXTENSION

BAR	NO.	SIZE	SPAC.	LENGTH	WEIGHT
A	12	#4	12"	6'– 2"	49
B	11	#4	12"	2'– 2"	16
B_1	3	#4	12"	2'– 2"	4
E_1	18	#4	18"±	2'– 3"	27
E_2	6	#4	18"±	2'– 1"	8
F_1	16	#4	12"±	10'– 10"	116
F_2	5	#4	——	10'– 10"	36
REINFORCING STEEL				LBS.	254
CLASS "A" CONCRETE				C.Y.	1.4

GENERAL NOTES

1. WHEN INLET EXTENSIONS ARE REQUIRED FOR ON GRADE INLETS, THE EXTENSIONS SHALL BE PLACED ON THE UPSTREAM END OF THE INLET.
2. FOR CURB INLET EXTENSION REINFORCING STEEL NOTES & VARIOUS OTHER APPLICABLE DETAILS NOT FOUND ON THIS SHEET, REFER TO SHEETS 1 & 3.



INLET LENGTH	REINFORCING STEEL SCHEDULE						
	BAR	NO.	SIZE	SPACING	LENGTH	SHAPE	WEIGHT
L=9'-0"	A	3	#4	12"	6'-2"	STR	12
	B	3	#4	12"	2'-2"	STR	4
	B_1	3	#4	12"	2'-2"	STR	4
	E_1	18	#4	18"±	2'-3"	STR	27
	E_2	6	#4	18"±	2'-1"	STR	8
	F_1	16	#4	12"±	10'-10"	STR	116
	F_2	5	#4	——	10'-10"	STR	36
	* CONCRETE 10'-0"L.–5.66 CU.YDS. W.H. CHEETAH–399 LBS. STEEL 10'-0"L.–408 LBS.						
L=9'-0"	A	3	#4	12"	6'-2"	STR	12
	B	3	#4	12"	2'-2"	STR	4
	B_1	3	#4	12"	2'-2"	STR	4
	E_1	18	#4	18"±	2'-3"	STR	27
	E_2	6	#4	18"±	2'-1"	STR	8
	F_1	16	#4	12"±	10'-10"	STR	116
	F_2	5	#4	——	10'-10"	STR	36
	* CONCRETE 10'-0"L.–5.66 CU.YDS. W.H. CHEETAH–399 LBS. STEEL 10'-0"L.–408 LBS.						
L=9'-0"	A	3	#4	12"	6'-2"	STR	12
	B	3	#4	12"	2'-2"	STR	4
	B_1	3	#4	12"	2'-2"	STR	4
	E_1	18	#4	18"±	2'-3"	STR	27
	E_2	6	#4	18"±	2'-1"	STR	8
	F_1	16	#4	12"±	10'-10"	STR	116
	F_2	5	#4	——	10'-10"	STR	36
	* CONCRETE 10'-0"L.–5.66 CU.YDS. W.H. CHEETAH–399 LBS. STEEL 10'-0"L.–408 LBS.						
L=9'-0"	A	3	#4	12"	6'-2"	STR	12
	B	3	#4	12"	2'-2"	STR	4
	B_1	3	#4	12"	2'-2"	STR	4
	E_1	18	#4	18"±	2'-3"	STR	27
	E_2	6	#4	18"±	2'-1"	STR	8
	F_1	16	#4	12"±	10'-10"	STR	116
	F_2	5	#4	——	10'-10"	STR	36
	* CONCRETE 10'-0"L.–5.66 CU.YDS. W.H. CHEETAH–399 LBS. STEEL 10'-0"L.–408 LBS.						
L=9'-0"	A	3	#4	12"	6'-2"	STR	12
	B	3	#4	12"	2'-2"	STR	4
	B_1	3	#4	12"	2'-2"	STR	4
	E_1	18	#4	18"±	2'-3"	STR	27
	E_2	6	#4	18"±	2'-1"	STR	8
	F_1	16	#4	12"±	10'-10"	STR	116
	F_2	5	#4	——	10'-10"	STR	36
	* CONCRETE 10'-0"L.–5.66 CU.YDS. W.H. CHEETAH–399 LBS. STEEL 10'-0"L.–408 LBS.						

* THESE PIECES DO NOT INCLUDE CONCRETE & STEEL IN STRUCTURE IN SEPARATE AND REMOVABLE CONCRETE PIECE.
* INCLUDE CONCRETE DO NOT FOR DO WORK SEE SHEETS 1 & 2 FOR NOTE & ADDP.

GENERAL NOTES

1. ALL BARS IN STRUCTURE AND MANHOLE RING & REINFORCING CONCRETE PIPE SHALL BE GRADE 60.
2. CONCRETE FOR STRUCTURES SHALL BE CLASS "A", 3000 PSI IN 28 DAYS.
3. ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER BARS.
4. ALL EXPOSED CORNERS SHALL BE CHAMFERED TO 3 /4".
5. REINFORCING STEEL SHALL HAVE A MINIMUM COVER OF 1 1/2" AT THE DEPRESSION SLAB, 1" AT CURB INLET AND 1/2" AT ALL OTHER LOCATIONS.
6. ALL REINFORCING STEEL SHALL CONFORM TO A.S.T.M A-615, GRADE 60 REQUIREMENTS.
7. FACES OF INLET TO BE SHAPED WITH CONCRETE FILL TO APPROX DRAINAGE TO CURB LINE.
8. DIMENSIONS AND WEIGHTS FROM SCHEDULE QUANTITIES IF MANHOLE RING AND COVER ARE PLACED ON SIDE OF INLET.
9. FOR LID DESIGN OUTSIDE OF CITY OF SAN ANTONIO, DELETE "SAN ANTONIO PUBLIC WORKS DEPT." FROM MANHOLE LID & RING.
10. REMOVAL AND DISPOSAL OF EXISTING PAVEMENT, CONCRETE, STEEL, ROCK, AND OTHER MATERIAL ENCOUNTERED IN THE CONSTRUCTION OF THE INLET SHALL BE SUBSIDIARY TO THE ITEM "CURB INLETS".

JANUARY 2005

STANDARD PLANS
CITY OF SAN ANTONIO, TEXAS
DEPARTMENT OF PUBLIC WORKS

TYPE "C" INLET (TYPE I & II) DETAILS

DRAWN BY:	DATE:	REVISIONS	SCALE: SEE ABOVE
V. VASQUEZ			DATE:
CHECKED BY:			SHEET: OF
RAY HAWK, P.E.			

NOTE: REVISED PER SCALE SHEET CHANGES

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE
PROJECT NUMBER: 391-10-24	DRAWING NAME: DRDT3911024		

SHEET TITLE:
DRAIN DETAILS (3 OF 5)

SHEET NUMBER:
4.31

REV	DESCRIPTION	DRAWN BY	DATE

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By: ADGELIO.BERROMES
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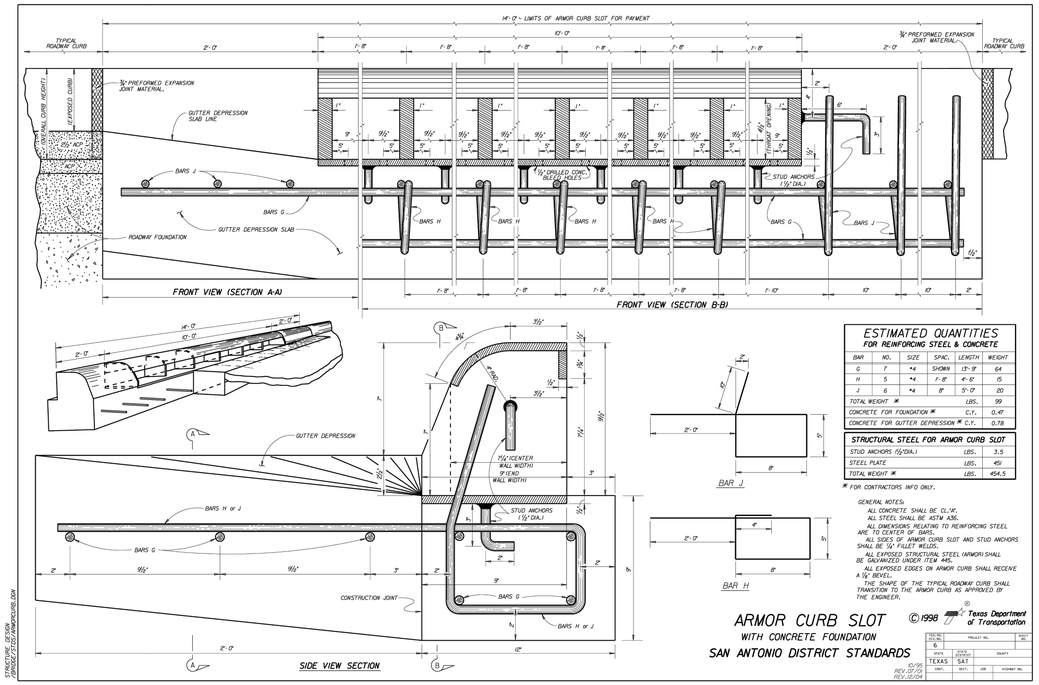


ESTIMATED QUANTITIES
FOR REINFORCING STEEL & CONCRETE

BAR	NO.	SIZE	SPAC.	LENGTH	WEIGHT
G	7	#4	SHOWN	13'-9"	64
H	5	#4	1'-8"	4'-8"	15
J	6	#4	8"	5'-0"	20
TOTAL WEIGHT *				LBS.	99
CONCRETE FOR FOUNDATION *				C.Y.	0.49
CONCRETE FOR GUTTER DEPRESSION *				C.Y.	0.78

STRUCTURAL STEEL FOR ARMOR CURB SLOT		
STUD ANCHORS (½"DIA.)	LBS.	3.5
STEEL PLATE	LBS.	451
TOTAL WEIGHT *	LBS.	454.5

* FOR CONTRACTORS INFO ONLY.

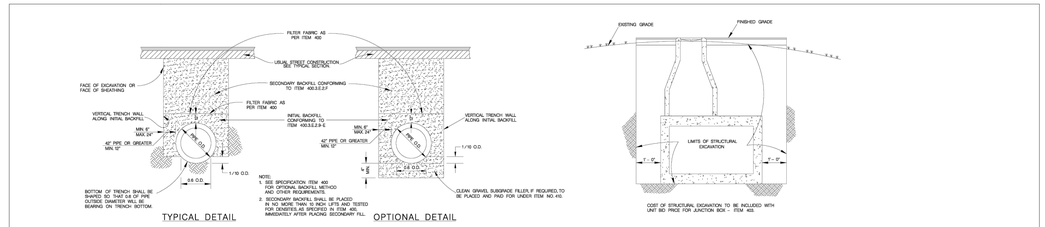
GENERAL NOTES:
ALL CONCRETE SHALL BE CL."A".
ALL STEEL SHALL BE ASTM A36.
ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER OF BARS.
ALL SIDES OF ARMOR CURB SLOT AND STUD ANCHORS SHALL BE ¼" FILLET WELDS.
ALL EXPOSED STRUCTURAL STEEL (ARMOR) SHALL BE GALVANIZED UNDER ITEM 445.
ALL EXPOSED EDGES ON ARMOR CURB SHALL RECEIVE A ¼" BEVEL.
THE SHAPE OF THE TYPICAL ROADWAY CURB SHALL TRANSITION TO THE ARMOR CURB AS APPROVED BY THE ENGINEER.

ARMOR CURB SLOT
WITH CONCRETE FOUNDATION
SAN ANTONIO DISTRICT STANDARDS

©1998 Texas Department of Transportation

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6			
STATE	DISTRICT	COUNTY	
TEXAS	SAT		
CONT.	SECT.	JOB	HIGHWAY NO.

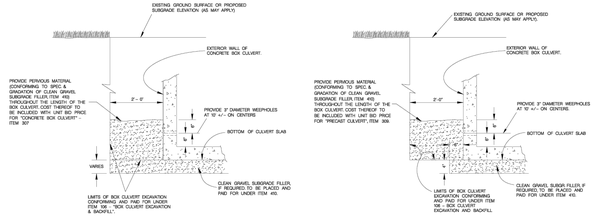
6/1/95
REV. 10/1/01
REV. 10/1/04



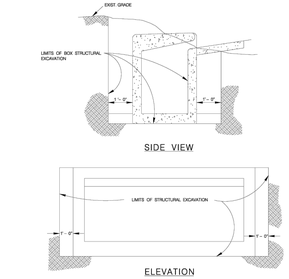
PIPE BEDDING & BACKFILL DETAILS

COST OF STRUCTURAL EXCAVATION TO BE INCLUDED WITH UNIT BID PRICE FOR JUNCTION BOX - ITEM 423.

STRUCTURAL EXCAVATION AT JUNCTION BOXES
NO SCALE



CONCRETE BOX CULVERT



COST OF STRUCTURAL EXCAVATION TO BE INCLUDED WITH UNIT BID PRICE FOR INLETS - ITEM 423.

STRUCTURAL EXCAVATIONS AT DRAINAGE INLETS
NO SCALE

MAY 2009

CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

PIPE BEDDING & MISCELLANEOUS DRAINAGE DETAILS

__% SUBMITTAL PROJECT NO._____ DATE:_____
DRAWN BY:_____ DESIGN BY:_____ CHKD BY:_____ SHEET NO.____ OF____

REV	DATE	DRAWN BY	DESCRIPTION

LANDLOK 200 INSTALLATION DETAILS
CHANNEL DETAILS

810 BRUCKER GREEN BOERNE, TEXAS 78006
Phone: 830-816-7518
Fax: 830-816-7519
Reg. Firm #F-11899

DATE	DESCRIPTION
10/1/04	ADDED NOT TO SCALE
10/1/04	ADDED "U"
10/1/04	ADDED "TRAPEZOIDAL FLOW"

SHEET
OF

LANDLOK® TRM

Product Data
LANDLOK® 450

LANDLOK® 450 turf reinforcement mat (TRM) features X3® technology that consists of a dense web of interlocking, multi-lobed polypropylene fibers positioned between two biaxially oriented nets and mechanically bound together by parallel stitching with polypropylene thread. The TRM is designed to accelerate seedling emergence, exhibit high resiliency, and possess strength and elongation properties to limit stretching in a saturated condition. Every component of LANDLOK® 450 is stabilized against chemical and ultraviolet degradation which are normally found in a natural soil environment. Furthermore, the TRM contains no biodegradable components.

LANDLOK® 450 conforms to the property values listed below[1] and is manufactured at a Propex facility having achieved ISO 9001:2008 certification. Propex performs internal Manufacturing Quality Control (MQC) tests that have been accredited by the Geosynthetic Accreditation Institute – Laboratory Accreditation Program (GAI-LAP).

PROPERTY	TEST METHOD	ENGLISH	METRIC
ORIGIN OF MATERIALS			
% U.S. Manufactured		100%	100%
PHYSICAL			
Mass/Unit Area [2]	ASTM D-6566	10.0 oz/yd²	339 g/m²
Thickness [2]	ASTM D-6525	0.50 in	12.7 mm
Light Penetration (% Passing) [2]	ASTM D-6567	20%	20%
Color	Visual	Green or Tan	
MECHANICAL			
Tensile Strength [2]	ASTM D-6818	425 x 350 lbs/ft	6.2 x 5.1 kN/m
Elongation [2]	ASTM D-6818	50%	50%
Resiliency [2]	ASTM D-6524	90%	90%
Flexibility [2]	ASTM D-6575	0.026 in-lb	30,000 mg-cm
ENDURANCE			
UV Resistance % Retained at 1,000 hrs [2]	ASTM D-4355	80%	80%
PERFORMANCE			
Velocity (Vegetated) [2, 3]	Large Scale	18 ft/sec	5.5 m/sec
Shear Stress (Vegetated) [2, 3]	Large Scale	10 lb/ft²	479 Pa
Manning's n (Unvegetated) [2, 4]	Calculated	0.025	0.025
Seedling Emergence [2]	ASTM D-7322	409%	409%
ROLL SIZES		8 ft x 140 ft 16 ft x 140 ft 16 ft x 348.75 ft	2.45 m x 42.7 m 4.88 m x 42.7 m 4.88 m x 106.3 m

NOTES:
1. The property values listed above are effective 01/22/2020 and are subject to change without notice.
2. Values represent testing at time of manufacture and are shown as typical values.
3. Maximum permissible velocity and shear stress has been obtained through vegetated testing programs featuring specific soil types, vegetation classes, flow conditions, and failure criteria. These conditions may not be relevant to every project nor are they replicated by other manufacturers. Please contact Propex for further information.
4. Calculated as typical values from large-scale flexible channel lining test programs with a flow depth of 6 to 12 inches.

Propex GEOSOLUTIONS

ENGINEERED EARTH SOLUTIONS™
www.propexglobal.com

Propex Operating Company, LLC · 4019 Industry Drive · Chattanooga, TN 37416 · ph 800 621 1273 · ph 423 855 1466

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: DRDT3911024

SHEET TITLE:
DRAIN DETAILS (4 OF 5)

SHEET NUMBER:
4.32

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

By:ADGELIO.BEIRNES
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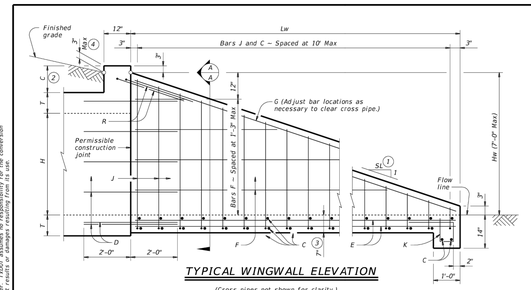
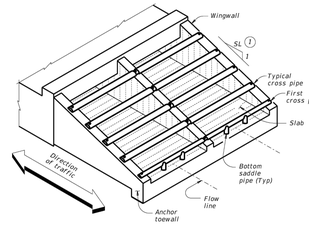


TYPICAL WINGWALL ELEVATION

(Cross pipes not shown for clarity.)



ISOMETRIC VIEW OF TYPICAL INSTALLATION

(Showing bolted anchor option.)

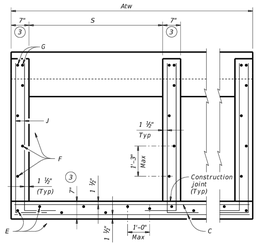
WING DIMENSION CALCULATIONS:

Hw = H + T + C – 0.250'
Lw = (Hw – 0.250') (SL)

For cast-in-place culverts:
Atw = (N) (S) + (N + 1) (U)
For precast culverts:
Atw = (N) (2U + S) + (N – 1) (0.500')

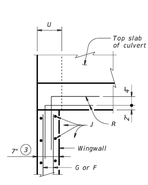
Total Wingwall Area (SF)
= (0.5) (Hw + 0.250') (Lw) (N – 1)
Total Concrete Volume (CY)
= [(Wingwall Area) (0.583') +
(Lw) (Atw) (0.583') +
(Atw) (1.000') (1.167' – 0.583')] ÷ (27)
Total Reinforcing (LB)
= (1.55) (Lw) (Atw) +
(4.43) (Atw) +
(K) (Hw) (N + 1) (Lw)

C = Height of curb above top of top slab (feet)
Hw = Height of wingwall (feet)
K = Constant value for use in formulas
Slope SL:1 K
6:1 – 10.41
Atw = Anchor toewall length (feet)
Lw = Length of wingwall (feet)
N = Number of culvert barrels
SL:1 = Side slope ratio (horizontal : 1 vertical)
See applicable box culvert standard for H, S, T, and U values.



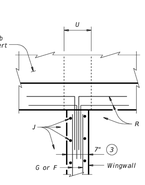
SECTION A-A

(Showing typical wingwall and wing slab reinforcing. Pipe runners not shown for clarity.)



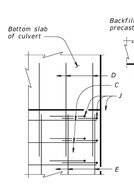
AT TOP OF EXTERIOR WINGWALL

(Cast-in-place culvert)



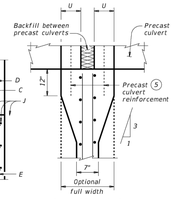
AT TOP OF INTERIOR WINGWALL

(Cast-in-place culvert)



AT OUTSIDE OF BOTTOM SLAB

(Cast-in-place culvert)



AT INTERIOR WINGWALL

(Precast culvert)

PLAN VIEWS OF CORNER DETAILS

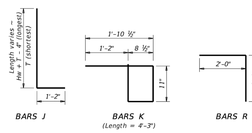
MATERIAL NOTES:

Provide Grade 60 reinforcing steel.
Provide galvanized reinforcing steel if required elsewhere in the plans. Adjust reinforcing as necessary to provide a minimum clear cover of 1½".
Provide Class "C" concrete (f'c = 3,600 psi).
Provide pipe runners, cross pipes, and anchor pipes meeting the requirements of ASTM A53 (Type E or S, Gr B), ASTM A500 Gr B, or API 5L/X52.
Provide ASTM A307 bolts.
Galvanize all steel components, except the concrete reinforcing, unless required elsewhere in the plans, after fabrication.
Repair galvanizing damaged during transport or construction in accordance with Item 445, "Galvanizing."

GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications.
The safety end treatments shown herein are intended for use in those installations where out of control vehicles are likely to traverse the openings approximately perpendicular to the cross pipes.
Cross pipes are designed for a traversing load of 10,000 pounds at yield as recommended by Research Report 280-2F, "Safety Treatment of Roadside Parallel-Drainage Structures", Texas Transportation Institute, March 1981.
The quantities for concrete, reinforcing steel, and cross pipes resulting from the formulas given herein are for Contractor's information only.
See the Box Culvert Supplement (BCS) standard sheet for additional dimensions and information.
Alternate design drawings bearing the seal of a professional engineer will be acceptable for precast construction of the safety end treatments.

Cover dimensions are clear dimensions, unless noted otherwise. Reinforcing dimensions are out-to-out of bars.



BARS J | **BARS K** (Length = 4'-3") | **BARS R**

TABLE OF REINFORCING BAR SIZES AND SPACING

Bar	Size	Spacing
C	#4	10" Max
D	#4	Match F and E
E	#4	1'- 0" Max
F	#4	1'- 3" Max
G	#6	As shown
J	#4	10" Max
K	#4	1'- 0" Max
R	#4	As shown

1. Provide 6:1 or flatter slope.
2. 0" Min to 5'-0" Max. Estimated curb heights are shown elsewhere in the plans. For structures without railing and curbs taller than 1'-0", refer to Extended Curb Details the Extended Curb Details (ECD) standard sheet.
3. Wingwall and slab thicknesses may be the same as the adjacent culvert wall and slab thicknesses (7" Minimum). If thicknesses greater than the minimum (7") are used, no changes will be made in quantities and no additional compensation will be allowed.
4. For vehicle safety, reduce height, if necessary, to provide a maximum 3" projection above finished grade. No changes will be made in quantities and no additional compensation will be allowed for this work.
5. For culverts with C = 0", the precast culvert reinforcing may extend 1'-0" minimum into wingwall. Wingwall bars D and R may be omitted. Otherwise, refer to the Wingwall Connection detail on the Box Culvert Precast Miscellaneous Details (SCP-MD) standard sheet.

SHEET 1 OF 2

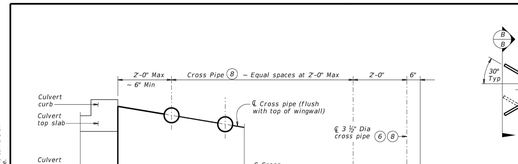
Texas Department of Transportation | **Bridge Division Standard**

SAFETY END TREATMENT

FOR BOX CULVERTS
(MAXIMUM Hw = 7'-0")
TYPE 1 ~ PARALLEL DRAINAGE

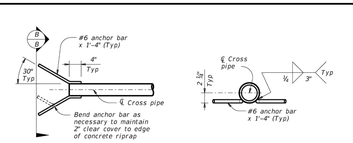
SETB-PD

FILE:	setbpdte-22.dgn	DN: GAT	CK: CAT	DW: TxDOT	CK: TxDOT
© TxDOT	February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS					
08-2022 – Wing dimensions		DIST	COUNTY		SHEET NO.



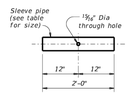
TYPICAL WINGWALL INSIDE ELEVATION

(Showing installation of cross pipes.)



PART PLAN | SECTION B-B

OPTIONAL ANCHOR BAR DETAILS

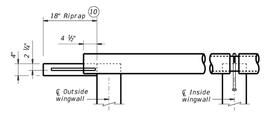


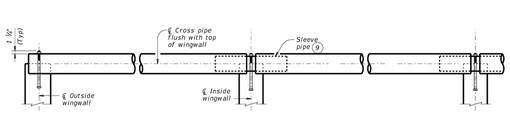
SLEEVE PIPE DETAILS (9)

REQUIRED PIPE SIZES (8)		
Culvert Span Sizes	Cross Pipe Size	Sleeve Pipe Size (9)
First Pipe	3 ½" STD	2 ½" STD
30" to 42"	4" STD	3" STD
48" to 72"	5" STD	4" STD
78" to 120"	6" STD	5" STD

STANDARD PIPE SIZES		
Pipe Size	Pipe O.D.	Pipe I.D.
2 ½" STD	2.875"	2.469"
3" STD	3.500"	3.068"
3 ½" STD	4.000"	3.548"
4" STD	4.500"	4.026"
5" STD	5.563"	5.047"
6" STD	6.625"	6.065"

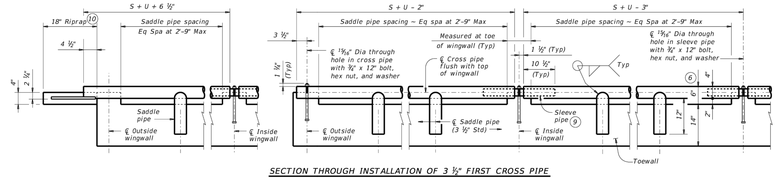
6. The proper installation of the first cross pipe is critical for vechicle saftey. Place the top of the first cross pipe as no more than 6" above the flow line.
7. Always install the third cross pipe from the bottom of the culvert using a bolted connection. Take care to ensure that concrete does not flow into this cross pipe so as to permit disassembly of the bolted connection to allow cleanout access.
8. Provide cross pipes and sleeve pipes (if required) as shown in the Required Pipe Sizes table. Provide 3 1#2" saddle pipes for the 3 1#2" first cross pipe.
9. At Contractor's option, make the cross pipe continuous across the inside wingwalls. If this option is selected, omit the sleeve pipe and make a 15#16" diameter throughhole in the cross pipe to accept the anchor bolt at the centerline of each interior wingwall.
10. Provide riprap when using the Optional Anchor Bar details. Riprap is included in the bid price for Safety End Treatment. Provide riprap in accordance with Item 432, "Riprap".





SECTION THROUGH INSTALLATION OF TYPICAL FULL CROSS PIPE

(Anchor details and dimensions are similar to those shown below in Section Through Installation of 3 ½" First Cross Pipe detail.)



SECTION THROUGH INSTALLATION OF 3 ½" FIRST CROSS PIPE

OUTSIDE CULVERT BARREL WITH OPTIONAL ANCHOR BARS & RIPRAP | OUTSIDE CULVERT BARREL WITH BOLTED ANCHOR | INSIDE CULVERT BARREL

CROSS PIPE INSTALLATION DETAILS

SHEET 2 OF 2

Texas Department of Transportation | **Bridge Division Standard**

SAFETY END TREATMENT

FOR BOX CULVERTS
(MAXIMUM Hw = 7'-0")
TYPE 1 ~ PARALLEL DRAINAGE

SETB-PD

FILE:	setbpdte-22.dgn	DN: GAT	CK: CAT	DW: TxDOT	CK: TxDOT
© TxDOT	February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS					
08-2022 – Wing dimensions		DIST	COUNTY		SHEET NO.

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DATE:
FILE:

By: ROGELIO.BERRONES
n:/ftp/cmn/080739110.24/wp24.33

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VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

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AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: DRDT3911024

SHEET TITLE: DRAIN DETAILS (5 OF 5)

SHEET NUMBER: 4.33

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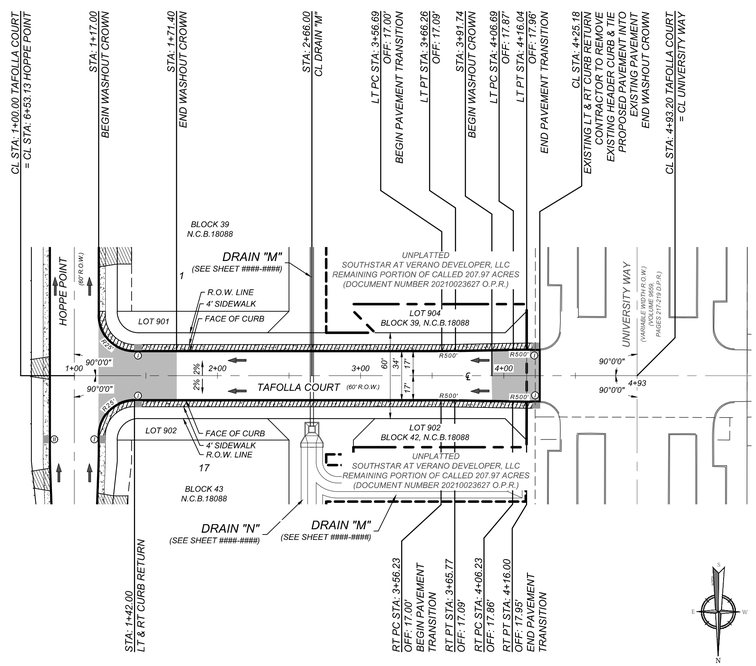
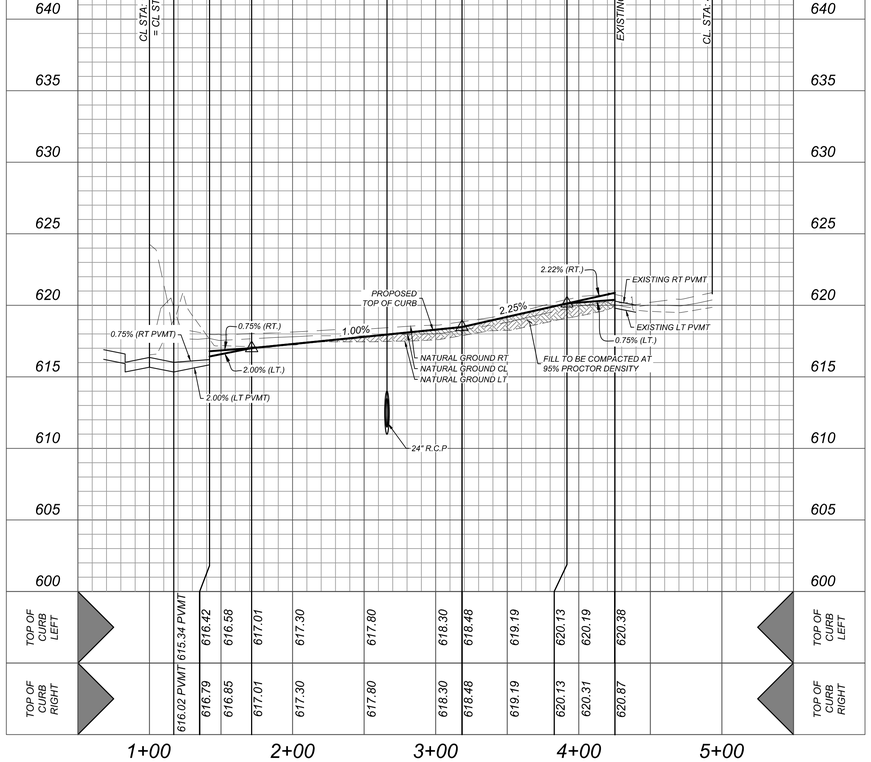


LEGEND

R.O.W.	=	*RIGHT OF WAY*
E.G.T.TV.E.	=	*ELECTRIC, GAS, TELEPHONE & CABLE EASEMENT*
	=	*FLOW ARROW*
	=	*WASHOUT CROWN*
I	=	*WHEELCHAIR RAMP TYPE I SEE SHEET 5.19*
II	=	*WHEELCHAIR RAMP TYPE II SEE SHEET 5.19*
V	=	*WHEELCHAIR RAMP TYPE V SEE SHEET 5.19*
	=	*SIDEWALK TO BE CONSTRUCTED BY DEVELOPER*
	=	*SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION*
	=	*PROPOSED DRIVEWAY LOCATION*
H.P.	=	*HIGH POINT*

TAFOLLA COURT
STA: 1+00.00 - END

HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'



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PHASE 5
PLAT# 24-11800334

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BEXAR COUNTY
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3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
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SHEET TITLE:
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PLAN & PROFILE

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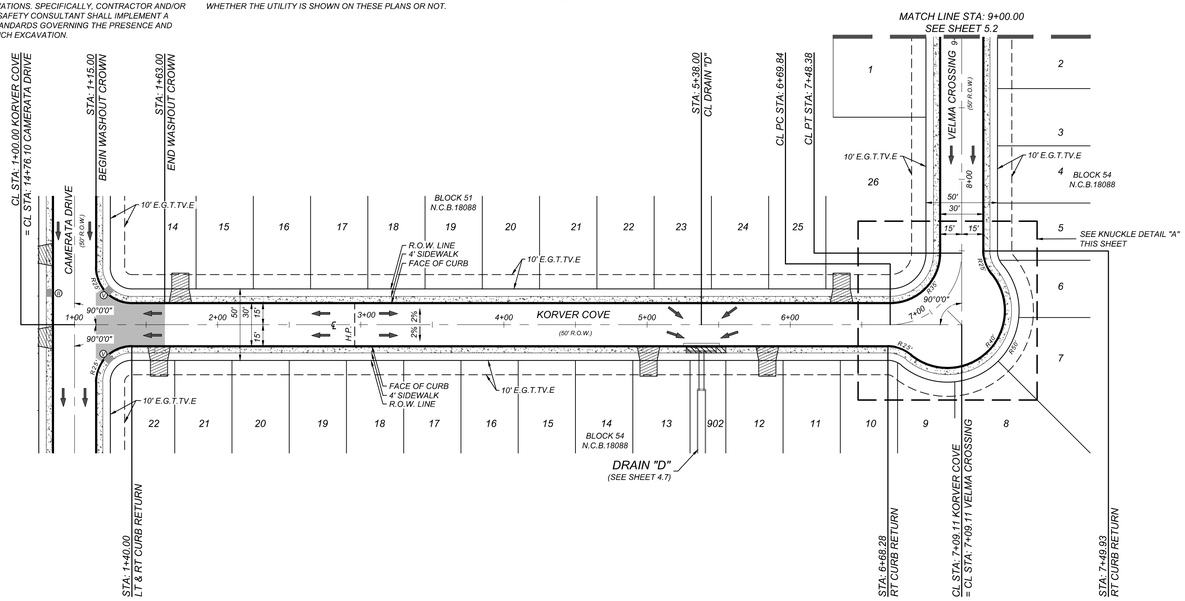

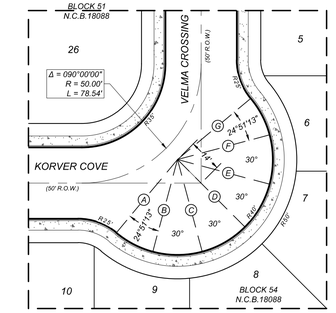



KNUCKLE DETAIL "A"

SCALE: 1" = 30'

KNUCKLESAC ELEVATIONS	
STATION	TOP OF CURB ELEVATIONS
A	615.26
B	615.55
C	615.82
D	615.96
E	615.98
F	615.89
G	615.76

LEGEND

R.O.W.	=	RIGHT OF WAY
E.G.T.TV.E.	=	ELECTRIC, GAS, TELEPHONE & CABLE EASEMENT
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H.P.	=	HIGH POINT

KORVER COVE & VELMA CROSSING
STA: 1+00.00 - 9+00.00

HORZ SCALE: 1"=50'
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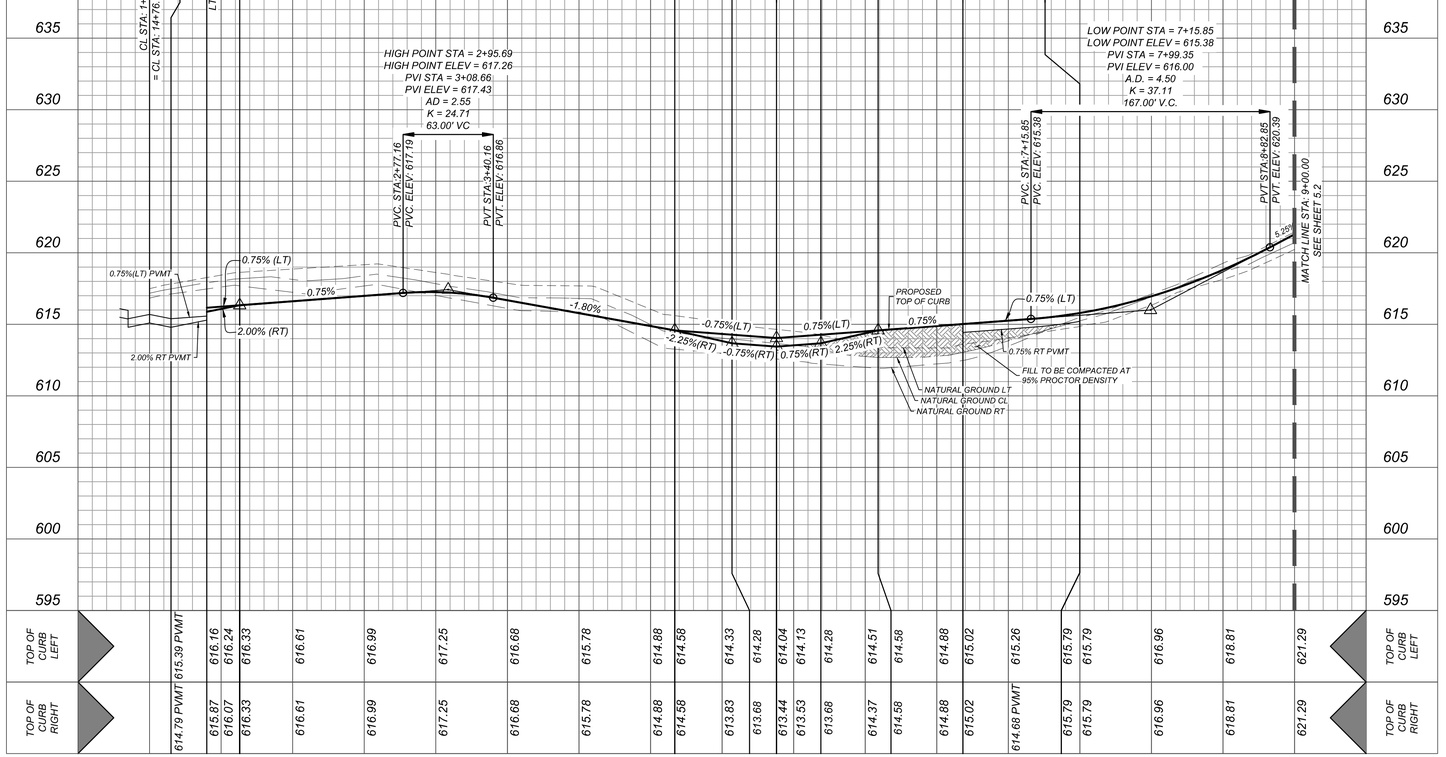

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3421 Paesanos Parkway
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Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

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AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: STPP3911024_B

SHEET TITLE:
KORVER COVE & VELMA CROSSING PLAN & PROFILE (1 OF 2)

SHEET NUMBER:
5.1

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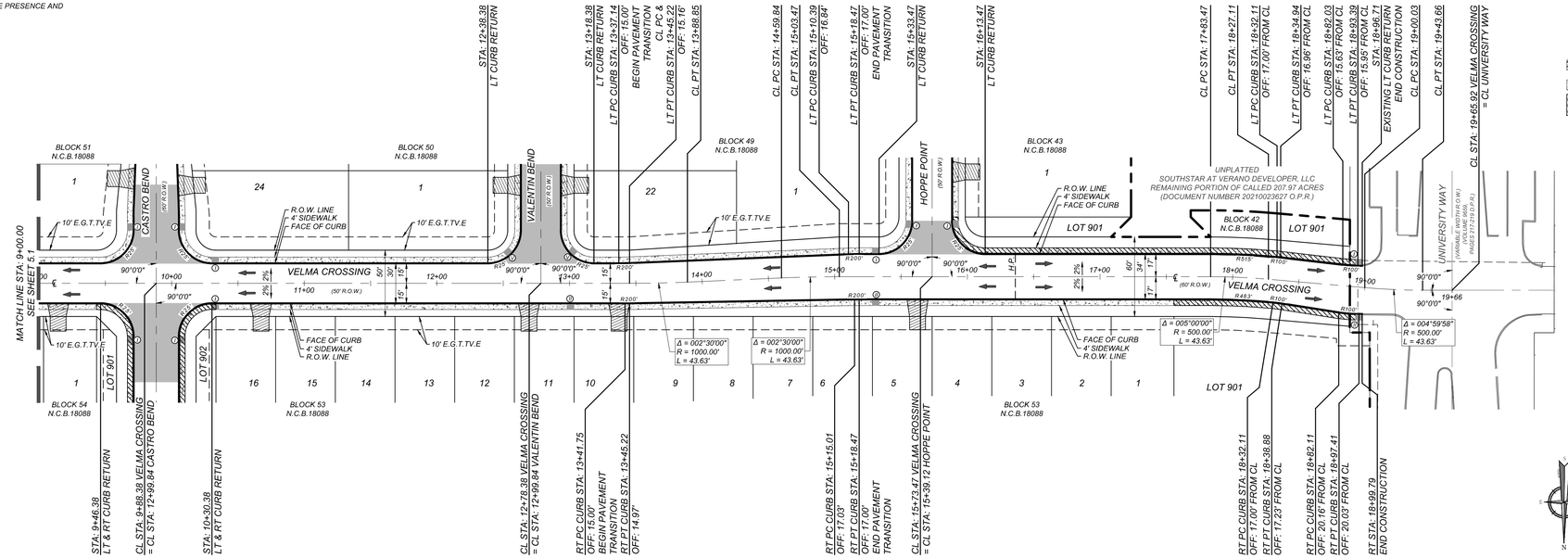
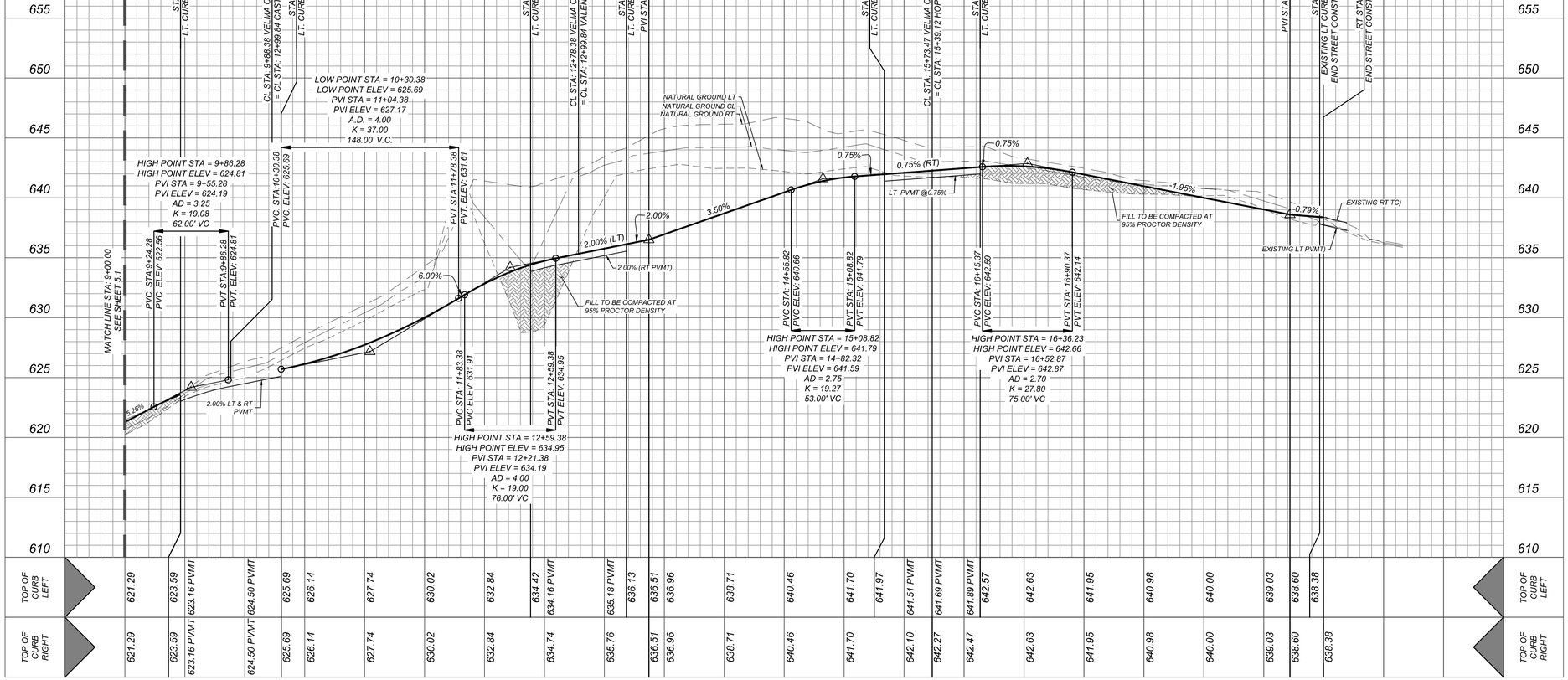
LEGEND

R.O.W.	=	RIGHT OF WAY
E.G.T.TV.E.	=	ELECTRIC, GAS, TELEPHONE & CABLE EASEMENT
	=	FLOW ARROW
	=	WASHOUT CROWN
I	=	WHEELCHAIR RAMP TYPE I SEE SHEET 5.19
II	=	WHEELCHAIR RAMP TYPE II SEE SHEET 5.19
V	=	WHEELCHAIR RAMP TYPE V SEE SHEET 5.19
	=	SIDEWALK TO BE CONSTRUCTED BY DEVELOPER
	=	SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION
	=	PROPOSED DRIVEWAY LOCATION
H.P.	=	HIGH POINT



VELMA CROSSING
STA: 9+00.00 - END

HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'



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REV	DATE	DRAWN BY	DESCRIPTION
-	-	-	-

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: STP93911024_B

SHEET TITLE: VELMA CROSSING PLAN & PROFILE (2 OF 2)

SHEET NUMBER: 5.2

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

In:\STREETS\STP93911024_B.dwg\L2 By: SJOSEPH

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

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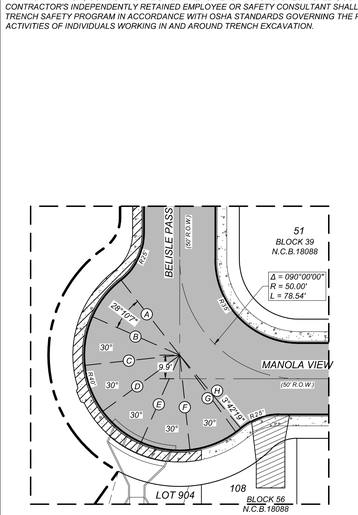
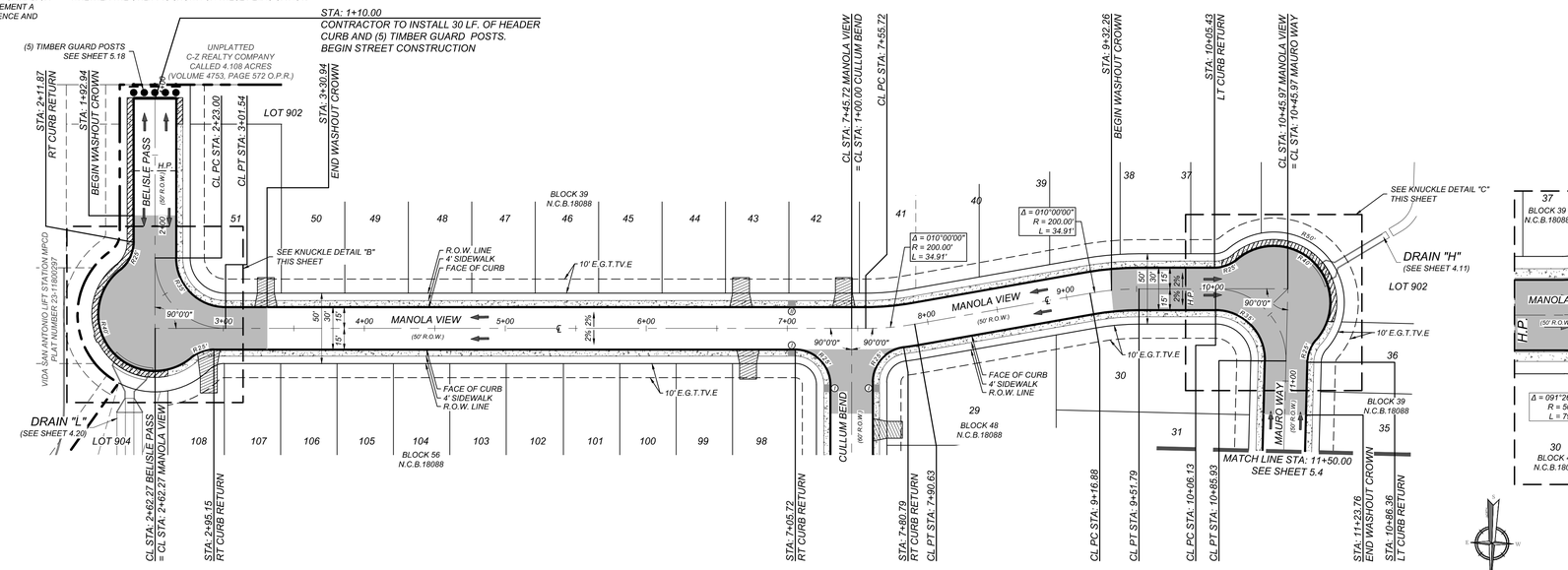
LEGEND

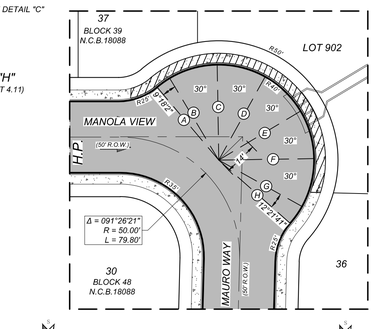
- R.O.W. = RIGHT OF WAY
- E.G.T.TV.E. = ELECTRIC, GAS, TELEPHONE & CABLE EASEMENT
- = FLOW ARROW
- = WASHOUT CROWN
- (I) = WHEELCHAIR RAMP TYPE I SEE SHEET 5.19
- (II) = WHEELCHAIR RAMP TYPE II SEE SHEET 5.19
- (V) = WHEELCHAIR RAMP TYPE V SEE SHEET 5.19
- = SIDEWALK TO BE CONSTRUCTED BY DEVELOPER
- = SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION
- = PROPOSED DRIVEWAY LOCATION
- H.P. = HIGH POINT



KNUCKLE DETAIL "B"

SCALE: 1" = 30'





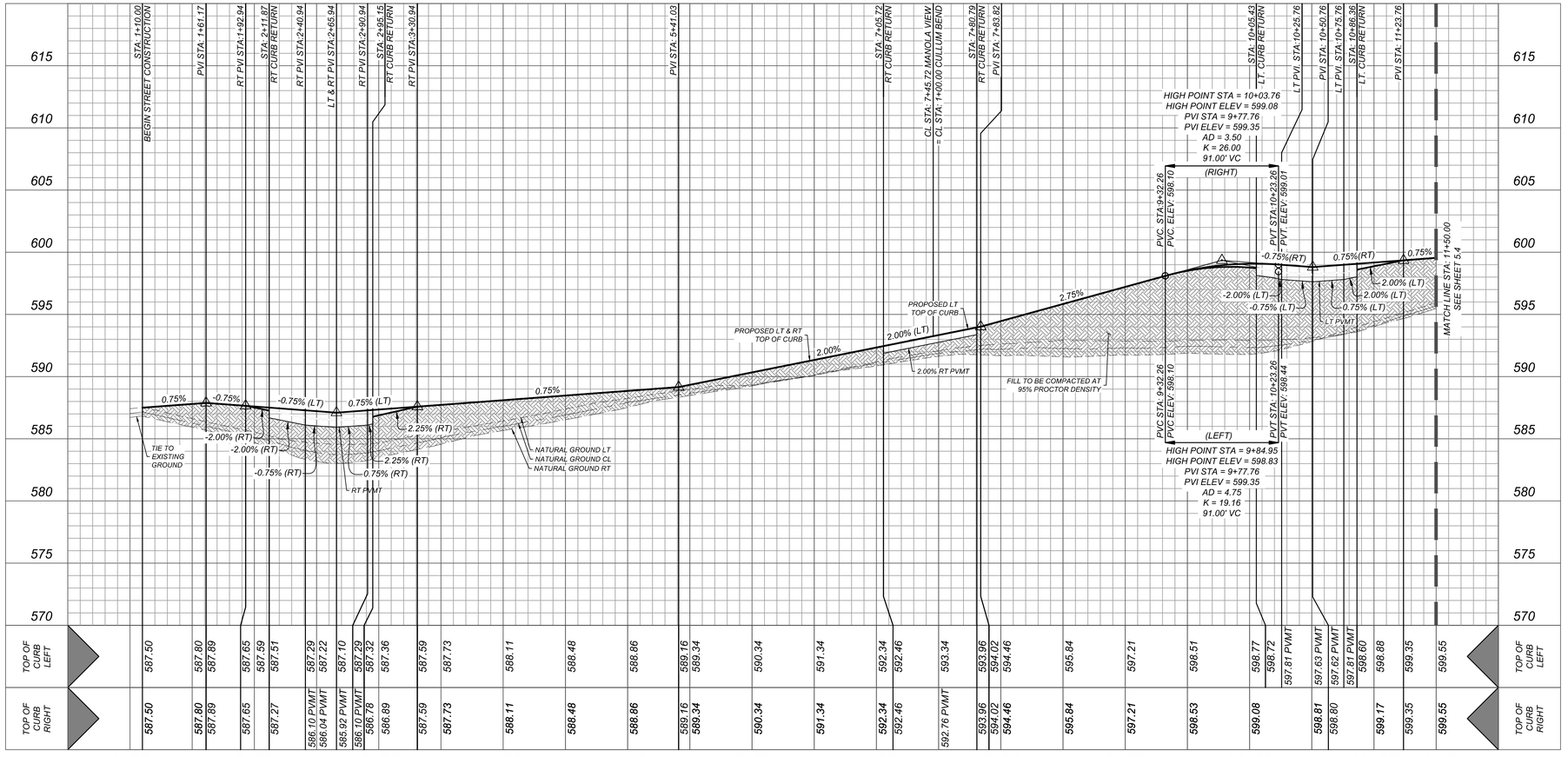
KNUCKLE DETAIL "C"

SCALE: 1" = 30'

BELISLE PASS, MANOLA VIEW & MAURO WAY

STA: 1+10.00 - 11+50.00

HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'



KNUCKLESAC ELEVATIONS	
STATION	TOP OF CURB ELEVATIONS
A	586.78
B	586.47
C	586.21
D	585.99
E	585.77
F	586.16
G	586.40
H	586.44
I	586.77

KNUCKLESAC ELEVATIONS	
STATION	TOP OF CURB ELEVATIONS
A	598.45
B	598.32
C	597.98
D	597.78
E	597.56
F	597.86
G	598.08
H	598.24

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REV	DATE	DRAWN BY	DESCRIPTION

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: STPP3911024_C

SHEET TITLE:
BELISLE PASS, MANOLA VIEW & MAURO WAY PLAN & PROFILE (1 OF 2)

SHEET NUMBER: 5.3

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

M:\STREET\STPP3911024_C.dwg\5.3 By: SJOSEPH

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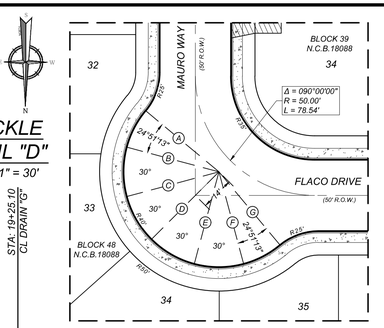
KNUCKLE DETAIL "D"

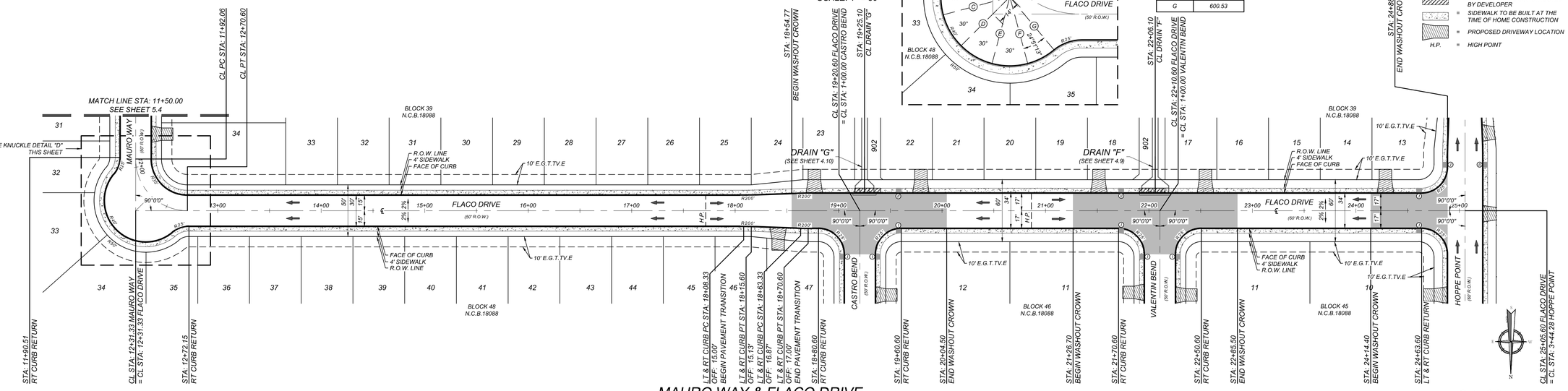
SCALE: 1" = 30'



KNUCKLESAC ELEVATIONS	
STATION	TOP OF CURB ELEVATIONS
A	600.09
B	600.38
C	600.65
D	600.79
E	600.81
F	600.70
G	600.53

LEGEND

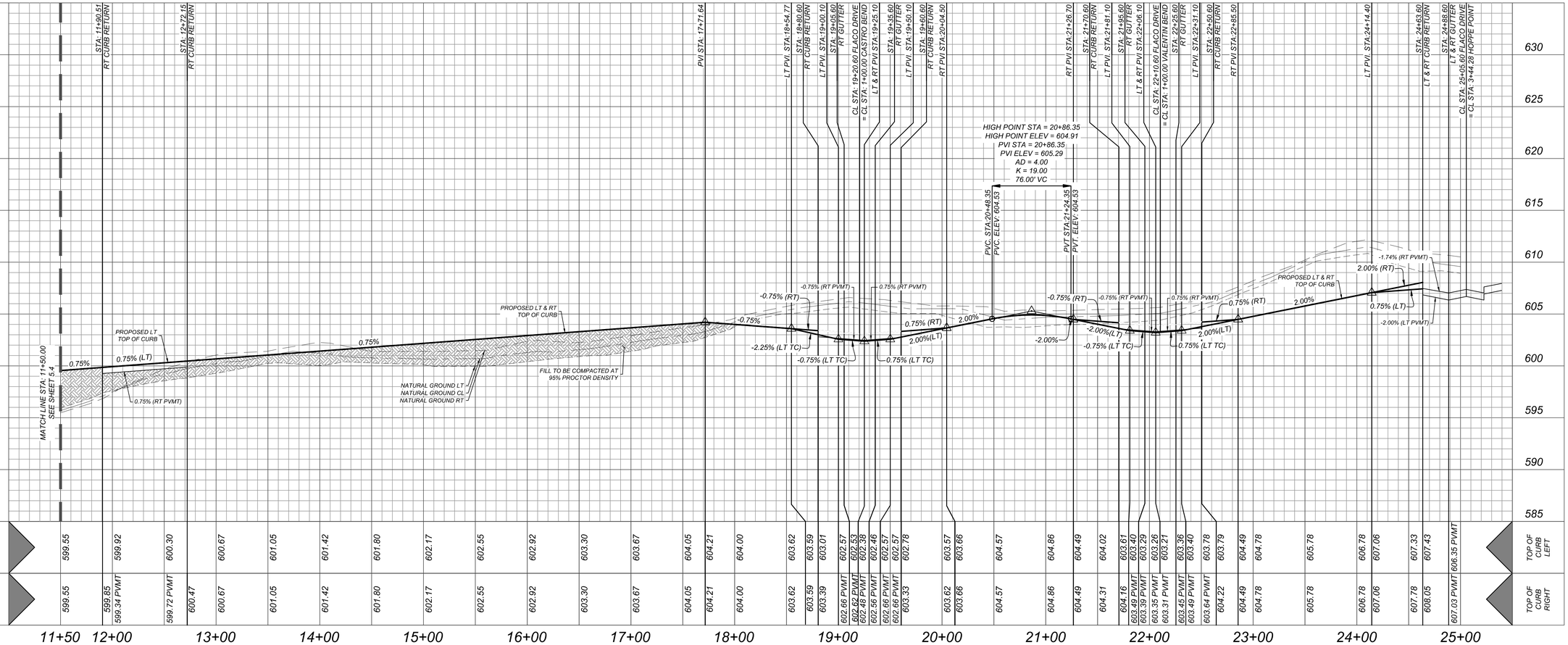
R.O.W.	=	RIGHT OF WAY
E.G.T.TV.E.	=	ELECTRIC, GAS, TELEPHONE & CABLE EASEMENT
	=	FLOW ARROW
	=	WASHOUT CROWN
I	=	WHEELCHAIR RAMP TYPE I SEE SHEET 5.19
II	=	WHEELCHAIR RAMP TYPE II SEE SHEET 5.19
V	=	WHEELCHAIR RAMP TYPE V SEE SHEET 5.19
	=	SIDEWALK TO BE CONSTRUCTED BY DEVELOPER
	=	SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION
	=	PROPOSED DRIVEWAY LOCATION
H.P.	=	HIGH POINT



MAURO WAY & FLACO DRIVE

STA: 11+50.00 - END

HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'



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REV	DATE	DRAWN BY	DESCRIPTION

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VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14309
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: STPP3911024_C

SHEET TITLE:
MAURO WAY & FLACO DRIVE
PLAN & PROFILE (2 OF 2)

SHEET NUMBER:
5.4

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

I:\STREETS\STPP3911024_C.dwg\5.4 By: SJOSEPH

TRENCH EXCAVATION SAFETY PROTECTION

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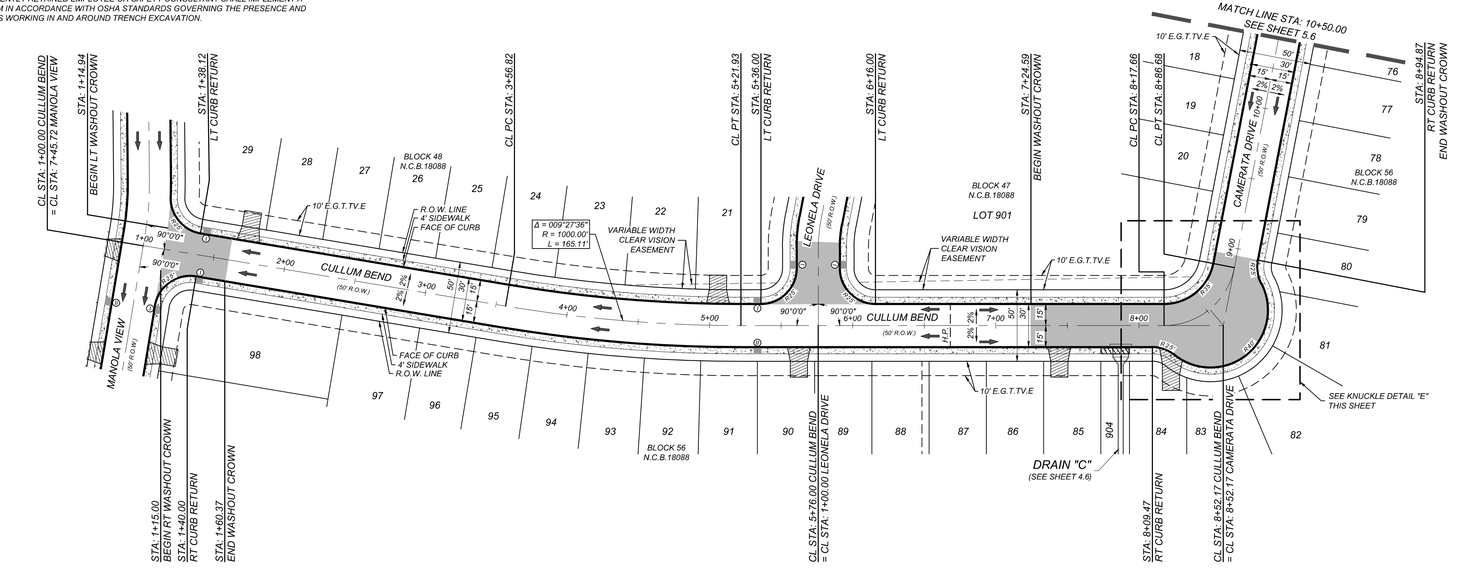

LEGEND

R.O.W.	=	RIGHT OF WAY
E.G.T.TV.E.	=	ELECTRIC, GAS, TELEPHONE & CABLE EASEMENT
	=	FLOW ARROW
	=	WASHOUT CROWN
I	=	WHEELCHAIR RAMP TYPE I SEE SHEET 5.19
II	=	WHEELCHAIR RAMP TYPE II SEE SHEET 5.19
V	=	WHEELCHAIR RAMP TYPE V SEE SHEET 5.19
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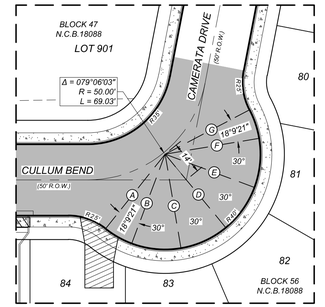
H.P.	=	HIGH POINT



KNUCKLESAC ELEVATIONS

STATION	TOP OF CURB ELEVATIONS
A	596.92
B	597.21
C	597.61
D	597.90
E	598.07
F	598.12
G	598.09

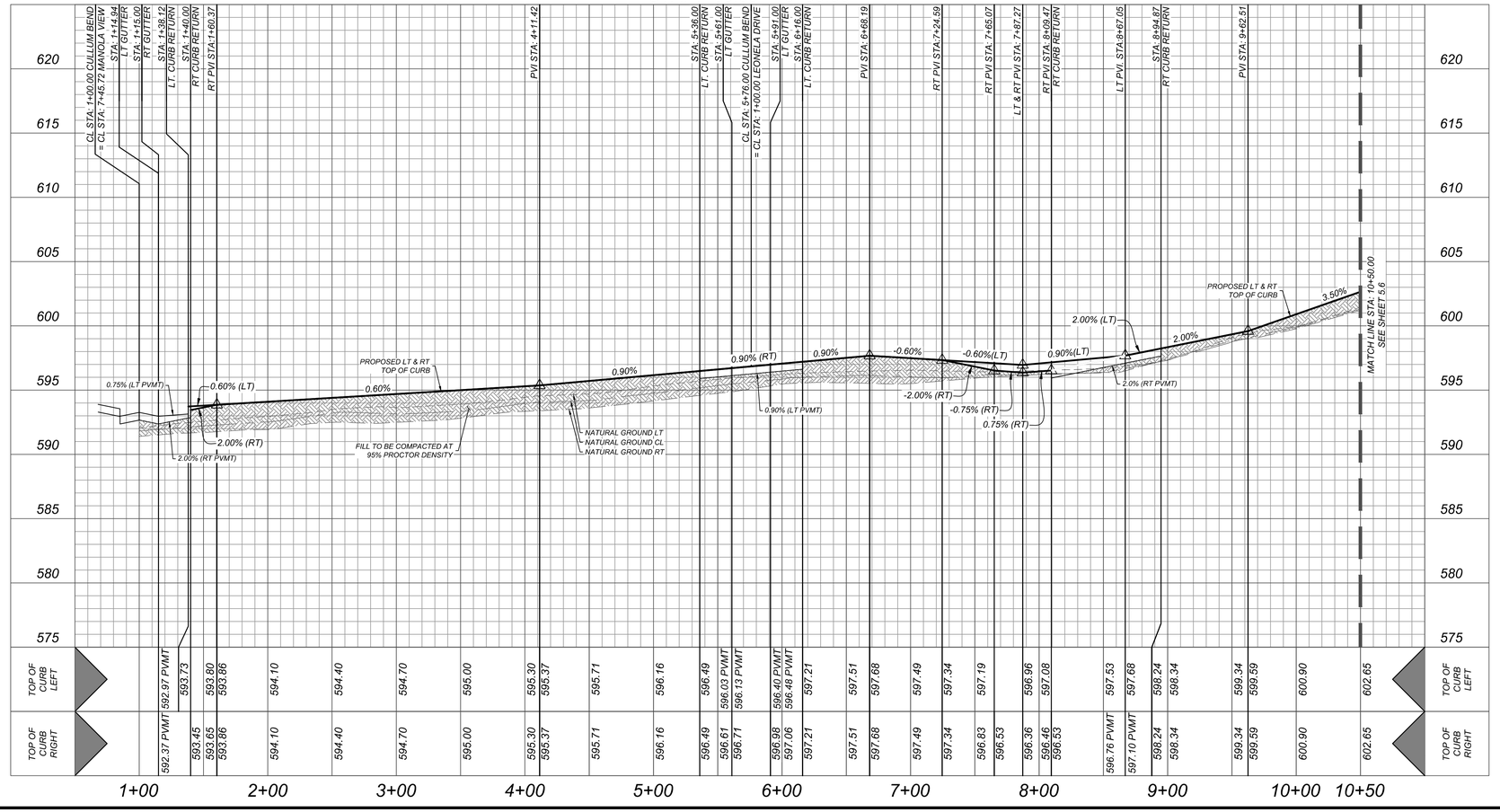
KNUCKLE DETAIL "E"

SCALE: 1" = 30'

CULLUM BEND & CAMERATA DRIVE

STA: 1+00.00 - 10+50.00

HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'



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REV	DATE	DRAWN BY	DESCRIPTION

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PHASE 5
PLAT# 24-11800334

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BEXAR COUNTY
TEXAS

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SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: STPP3911024_D

SHEET TITLE: CULLUM BEND & CAMERATA DRIVE PLAN & PROFILE (1 OF 2)

SHEET NUMBER: 5.5

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

M:\STREETS\STPP3911024_D.dwg[S.5 By: SJOSEPH

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

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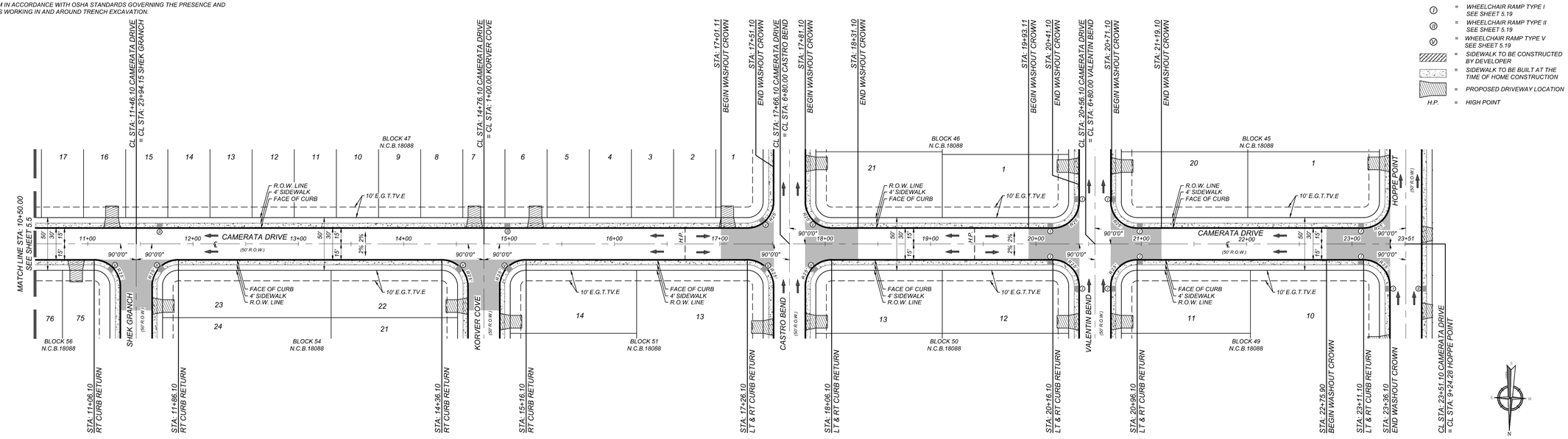
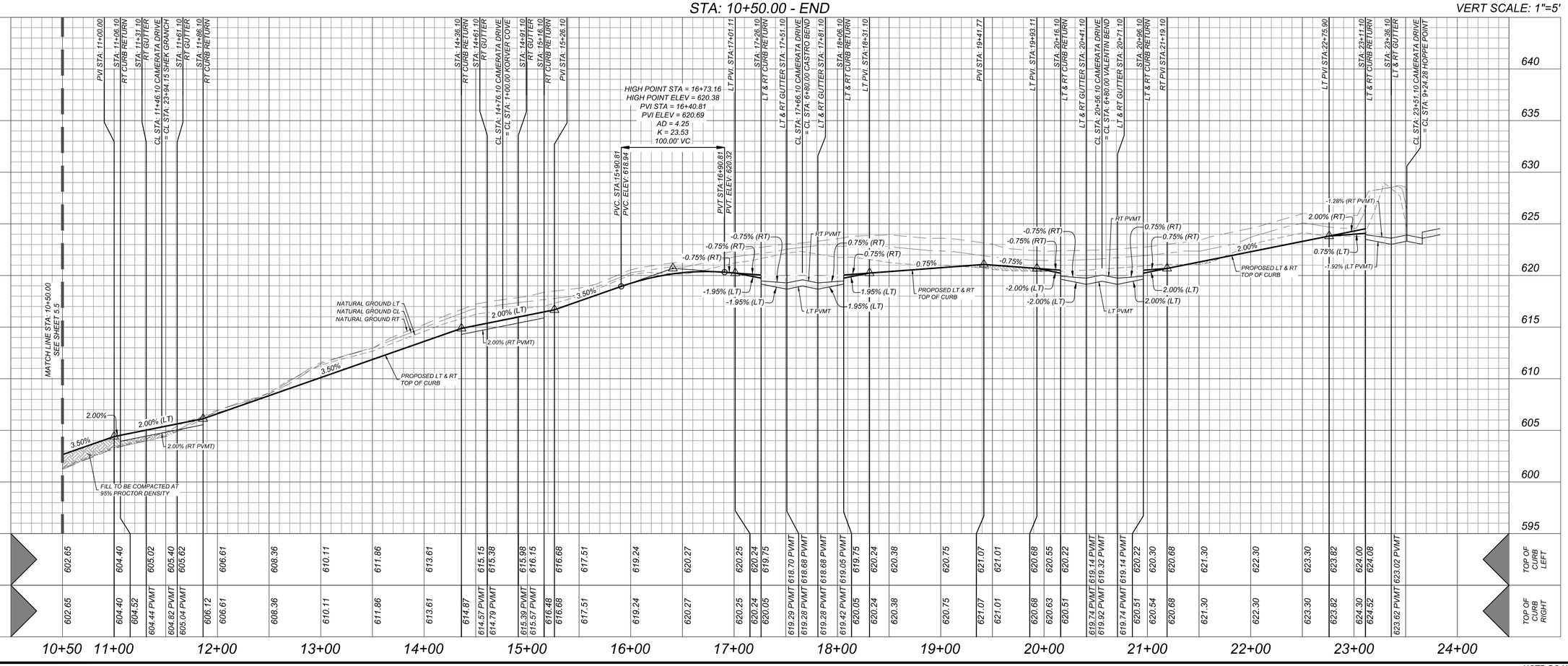
LEGEND

R.O.W.	=	RIGHT OF WAY
E.G.T.TV.E.	=	ELECTRIC, GAS, TELEPHONE & CABLE EASEMENT
	=	FLOW ARROW
	=	WASHOUT CROWN
Ⓘ	=	WHEELCHAIR RAMP TYPE I SEE SHEET 5.19
Ⓘ	=	WHEELCHAIR RAMP TYPE II SEE SHEET 5.19
Ⓥ	=	WHEELCHAIR RAMP TYPE V SEE SHEET 5.19
	=	SIDEWALK TO BE CONSTRUCTED BY DEVELOPER
	=	SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION
	=	PROPOSED DRIVEWAY LOCATION
H.P.	=	HIGH POINT



CAMERATA DRIVE
STA: 10+50.00 - END

HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'



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REV	DATE	DRAWN BY	DESCRIPTION

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: STPP3911024_D

SHEET TITLE:
CAMERATA DRIVE PLAN & PROFILE (2 OF 2)

SHEET NUMBER:
5.6

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

In:\STREETS\STPP3911024_D.dwg|5.6 By: SJOSEPH

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

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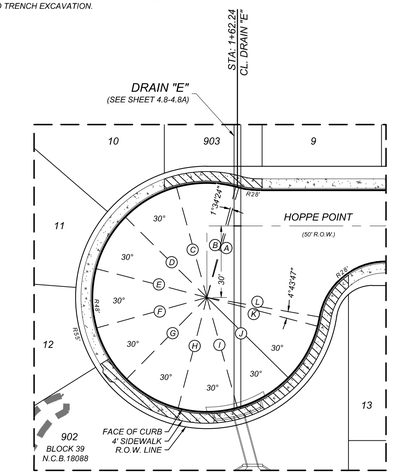
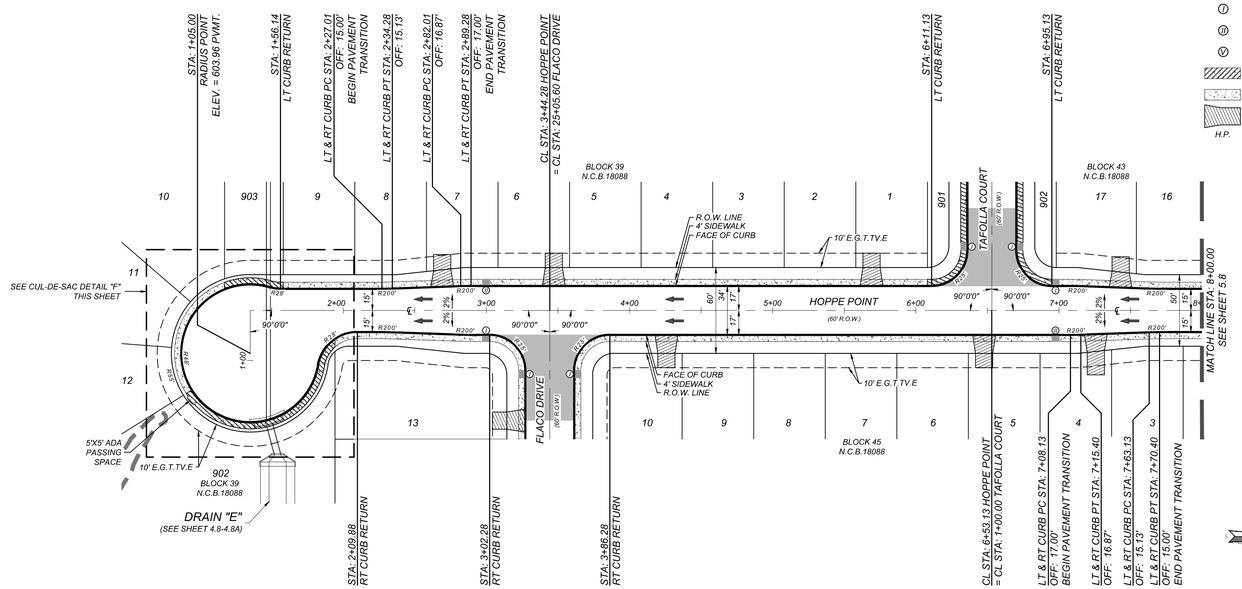


CUL-DE-SAC DETAIL "F"

SCALE: 1" = 30'

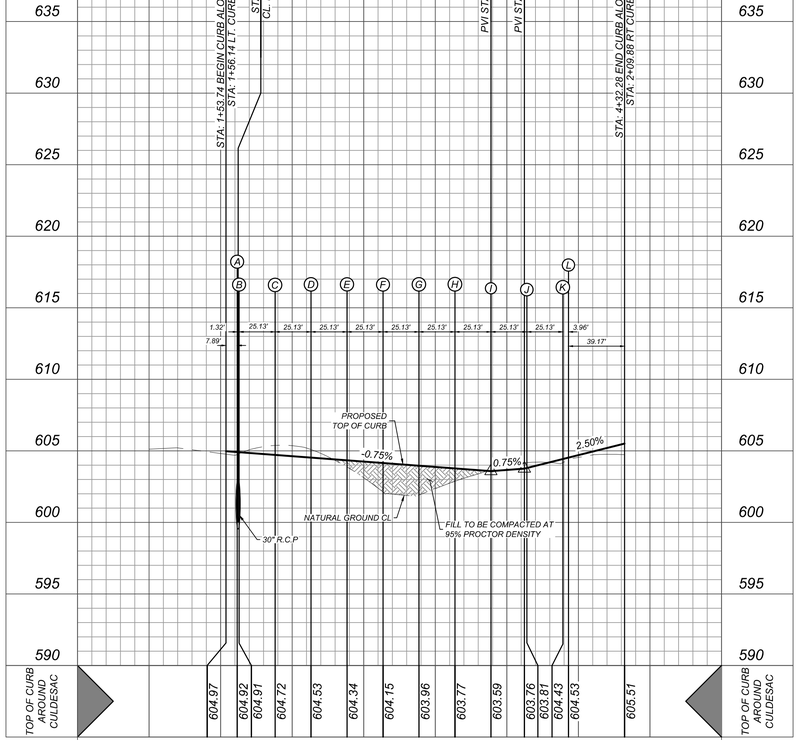


LEGEND

R.O.W.	=	RIGHT OF WAY
E.G.T.TV.E.	=	ELECTRIC, GAS, TELEPHONE & CABLE EASEMENT
	=	FLOW ARROW
	=	WASHOUT CROWN
(I)	=	WHEELCHAIR RAMP TYPE I SEE SHEET 5.19
(II)	=	WHEELCHAIR RAMP TYPE II SEE SHEET 5.19
(V)	=	WHEELCHAIR RAMP TYPE V SEE SHEET 5.19
	=	SIDEWALK TO BE CONSTRUCTED BY DEVELOPER
	=	SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION
	=	PROPOSED DRIVEWAY LOCATION
H.P.	=	HIGH POINT

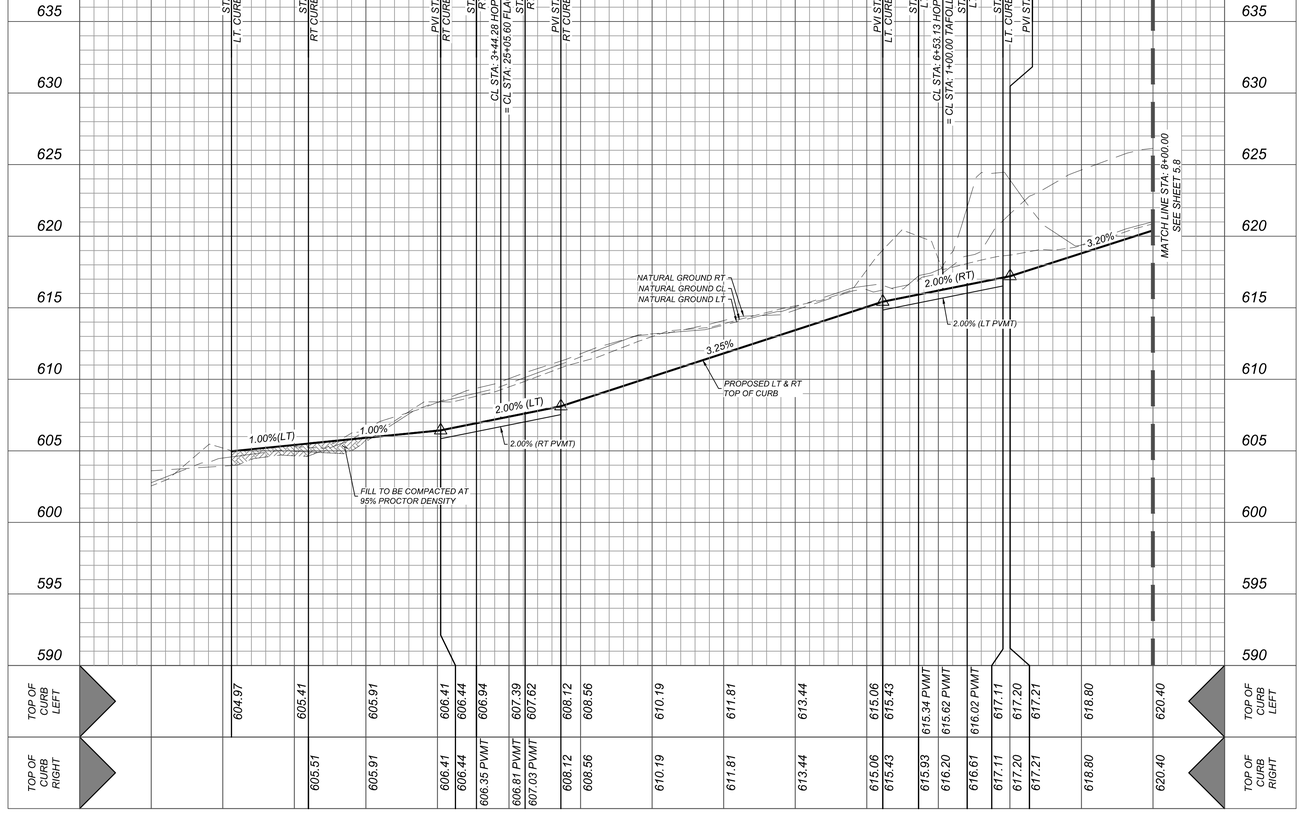
HOPPE POINT
CUL-DE-SAC

HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'



HOPPE POINT
STA: 1+00.00 - 8+00.00

HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'



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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: STPP3911024_E

SHEET TITLE:
HOPPE POINT
PLAN & PROFILE
(1 OF 2)

SHEET NUMBER: 5.7

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

I:\ASTREETS\STPP3911024_E.dwg(5.7 By:SJOSEPH

TRENCH EXCAVATION SAFETY PROTECTION

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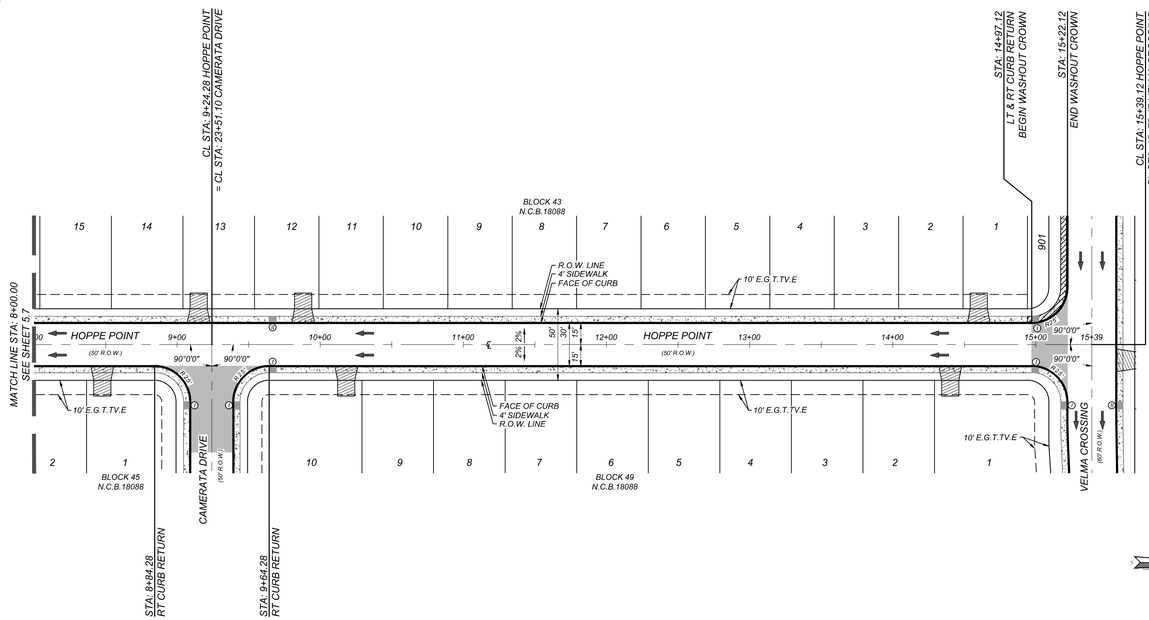
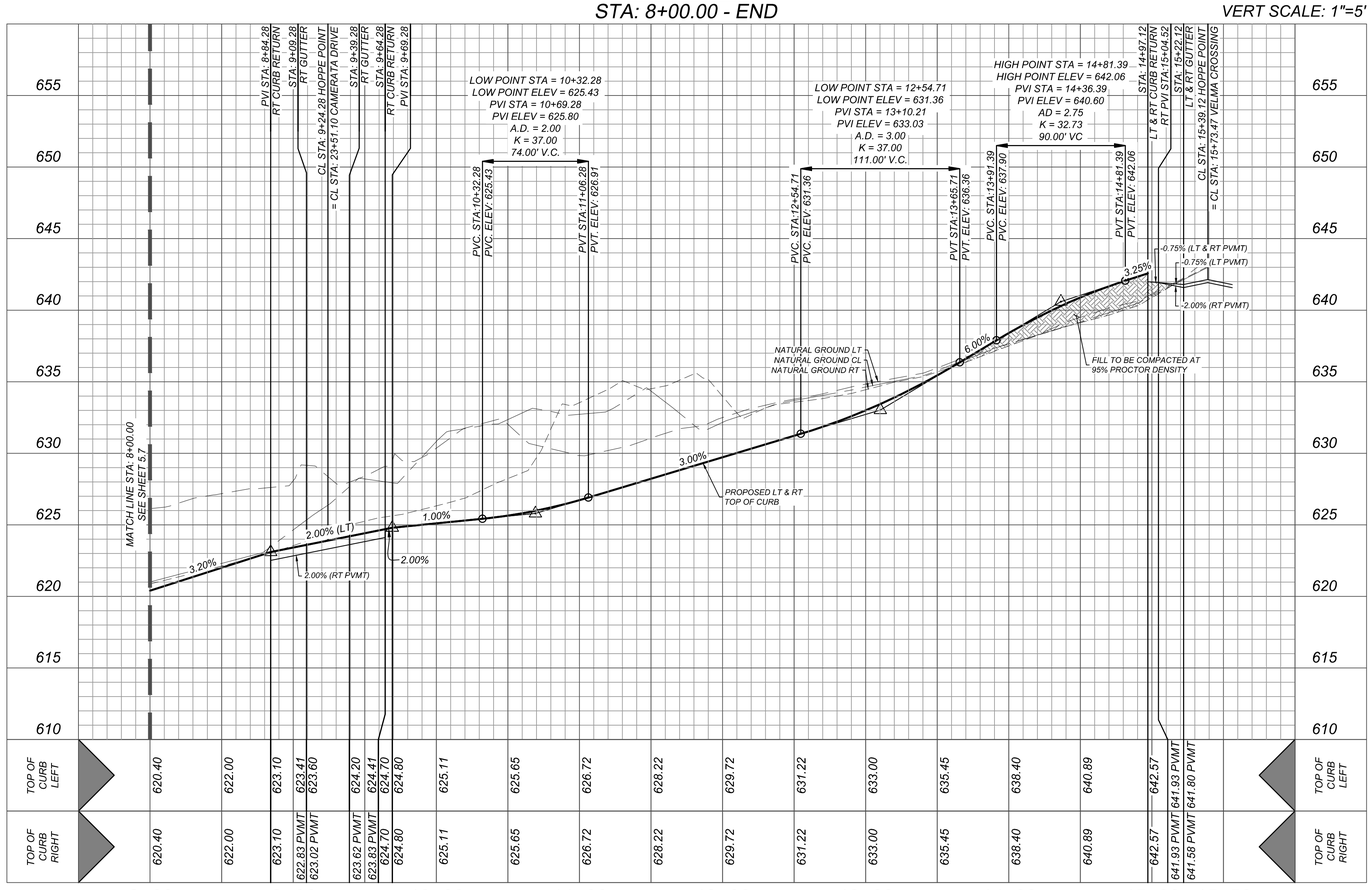


LEGEND

R.O.W.	=	RIGHT OF WAY
E.G.T.TV.E.	=	ELECTRIC, GAS, TELEPHONE & CABLE EASEMENT
	=	FLOW ARROW
	=	WASHOUT CROWN
(I)	=	WHEELCHAIR RAMP TYPE I SEE SHEET 5.19
(II)	=	WHEELCHAIR RAMP TYPE II SEE SHEET 5.19
(V)	=	WHEELCHAIR RAMP TYPE V SEE SHEET 5.19
	=	SIDEWALK TO BE CONSTRUCTED BY DEVELOPER
	=	SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION
	=	PROPOSED DRIVEWAY LOCATION
H.P.	=	HIGH POINT

HOPPE POINT
STA: 8+00.00 - END

HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'



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REV	DATE	DRAWN BY	DESCRIPTION

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VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14309
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: STPP3911024_E

SHEET TITLE:
HOPPE POINT
PLAN & PROFILE
(2 OF 2)

SHEET NUMBER:
5.8

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

In:\STREETS\STPP3911024_E.dwg\5.8 By: SJOSEPH

TRENCH EXCAVATION SAFETY PROTECTION

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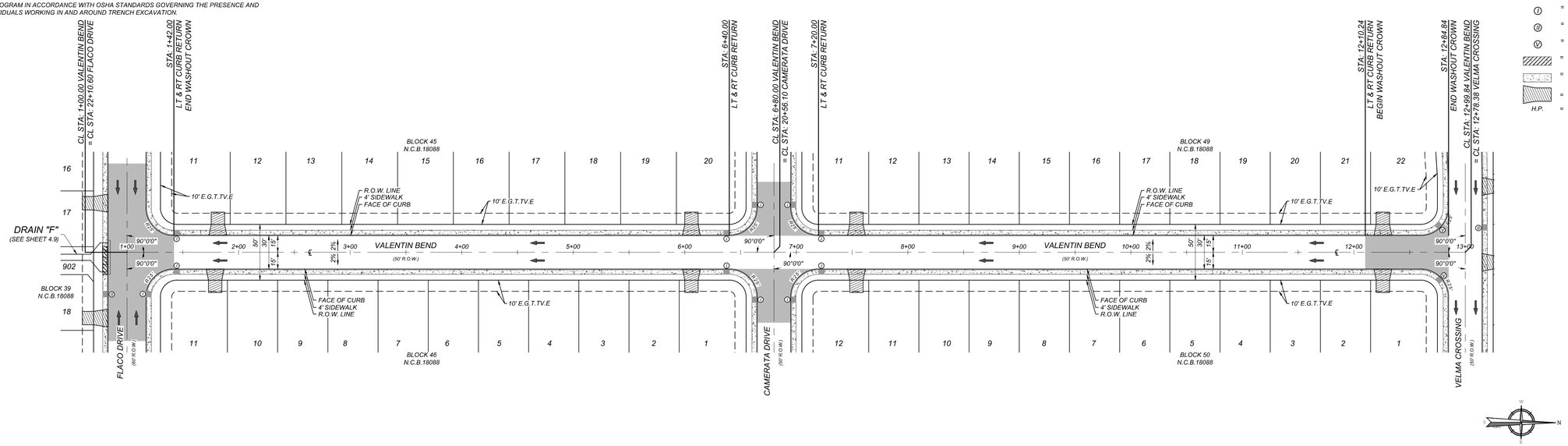
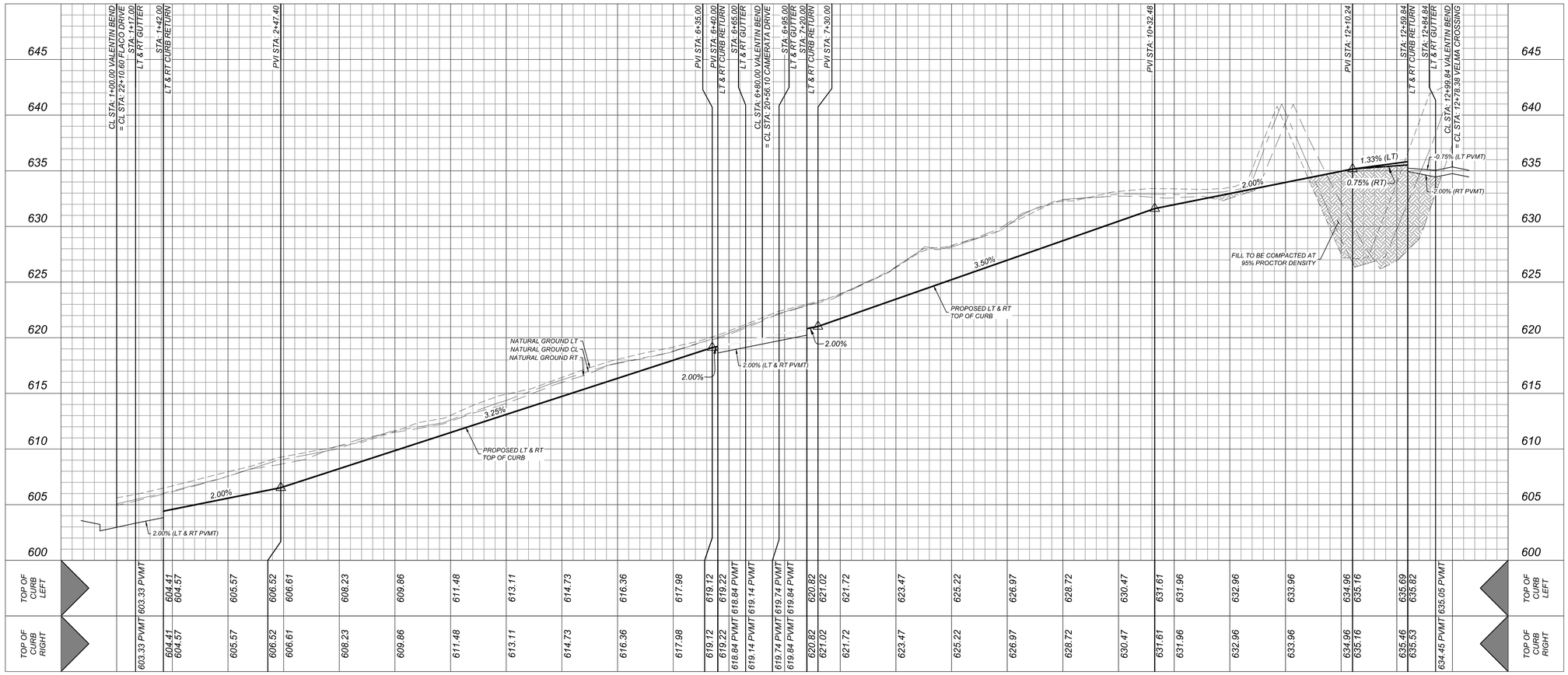
LEGEND

R.O.W.	=	RIGHT OF WAY
E.G.T.TV.E.	=	ELECTRIC, GAS, TELEPHONE & CABLE EASEMENT
	=	FLOW ARROW
	=	WASHOUT CROWN
I	=	WHEELCHAIR RAMP TYPE I SEE SHEET 5.19
II	=	WHEELCHAIR RAMP TYPE II SEE SHEET 5.19
V	=	WHEELCHAIR RAMP TYPE V SEE SHEET 5.19
	=	SIDEWALK TO BE CONSTRUCTED BY DEVELOPER
	=	SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION
	=	PROPOSED DRIVEWAY LOCATION
H.P.	=	HIGH POINT



VALENTIN BEND
STA: 1+00.00 - END

HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'



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REV	DATE	DRAWN BY	DESCRIPTION

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FOR
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PHASE 5
PLAT# 24-11800334

SAN ANTONIO
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3421 Paesanos Parkway
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COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: STP39311024_F

SHEET TITLE:
VALENTIN BEND
PLAN & PROFILE

SHEET NUMBER: 5.9

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

I:\&STREETS\STP39311024_F.dwg(5.9 By: SJOSEPH

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

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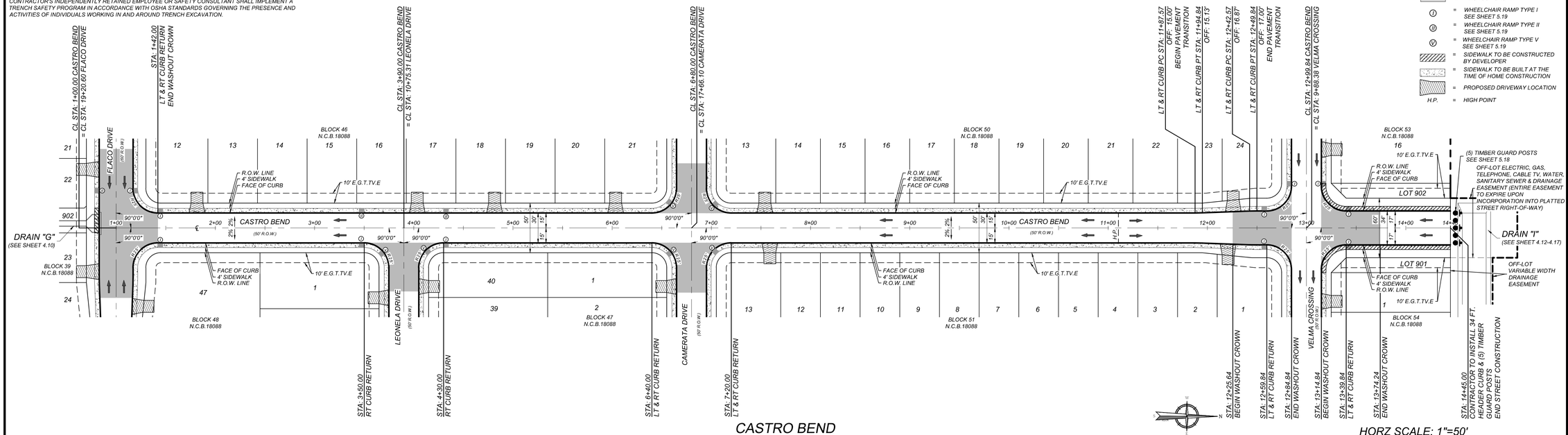
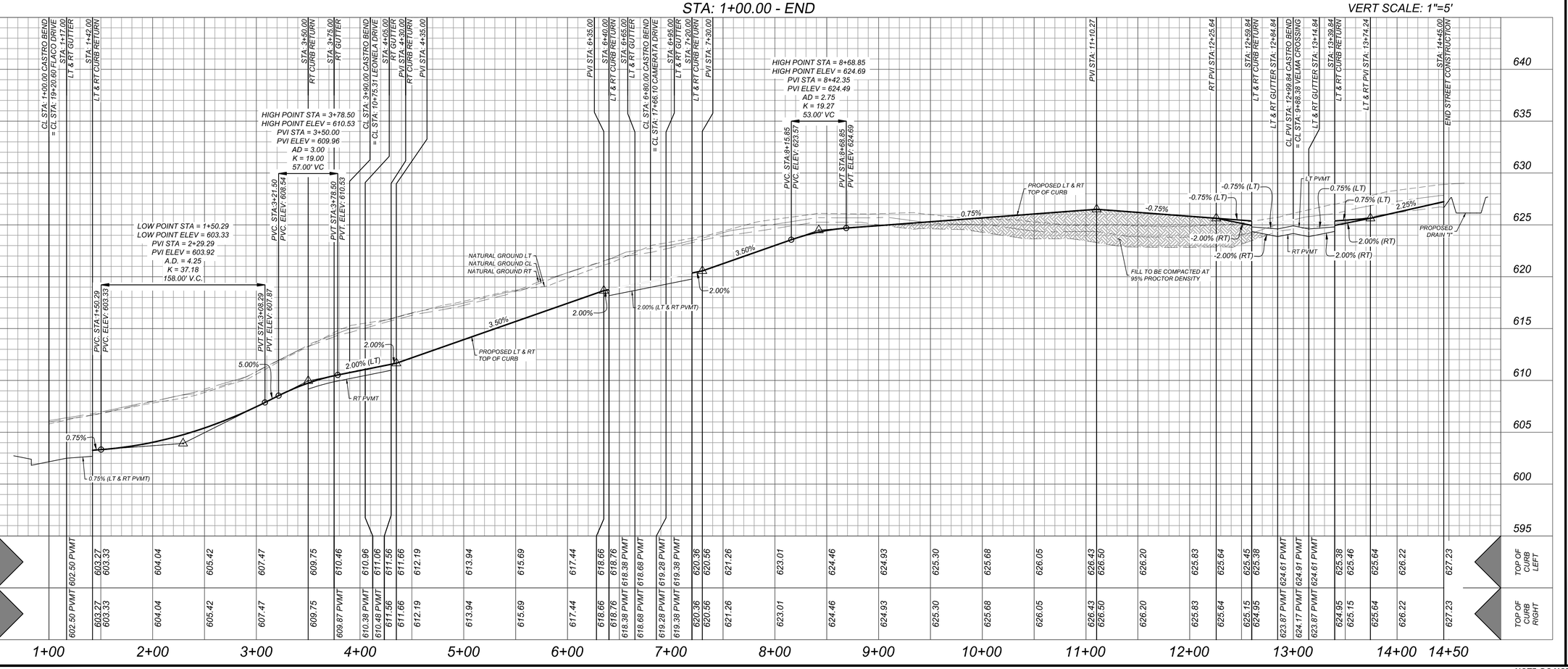
LEGEND

- R.O.W. = RIGHT OF WAY
- E.G.T.TV.E. = ELECTRIC, GAS, TELEPHONE & CABLE EASEMENT
- = FLOW ARROW
- = WASHOUT CROWN
- (I) = WHEELCHAIR RAMP TYPE I SEE SHEET 5.19
- (II) = WHEELCHAIR RAMP TYPE II SEE SHEET 5.19
- (V) = WHEELCHAIR RAMP TYPE V SEE SHEET 5.19
- = SIDEWALK TO BE CONSTRUCTED BY DEVELOPER
- = SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION
- = PROPOSED DRIVEWAY LOCATION
- H.P. = HIGH POINT



CASTRO BEND
STA: 1+00.00 - END

HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'



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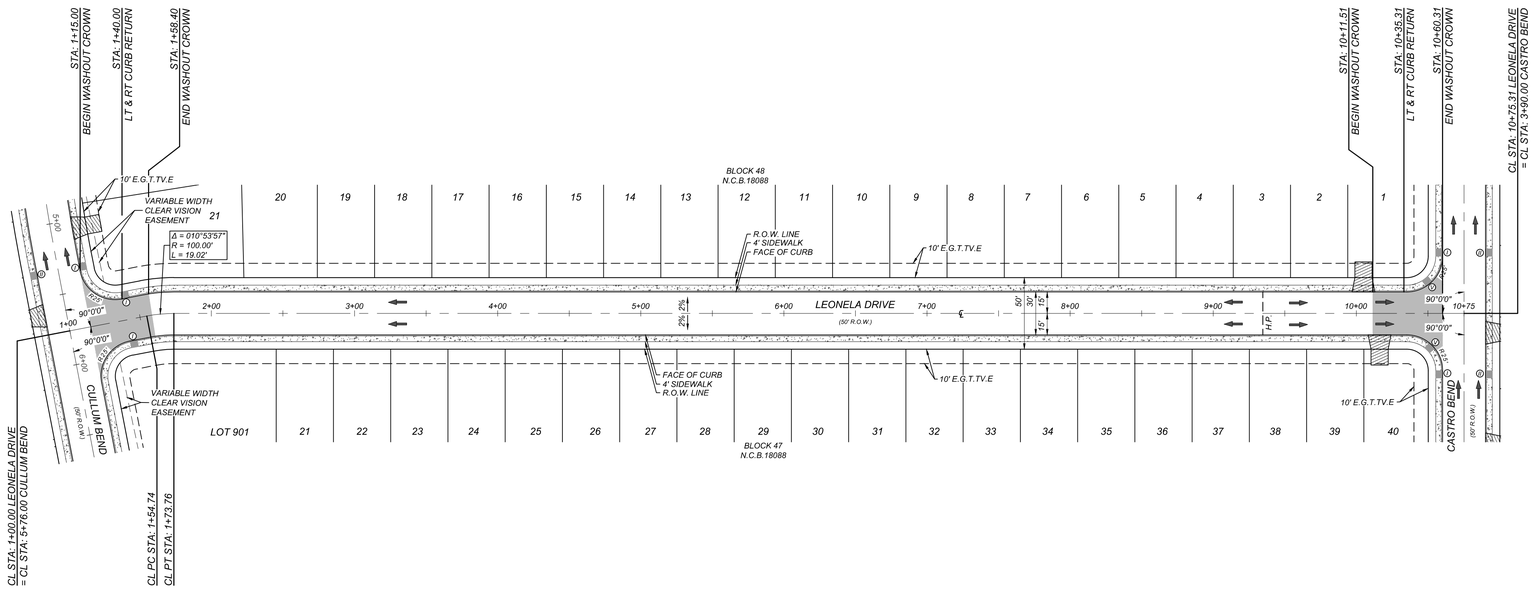
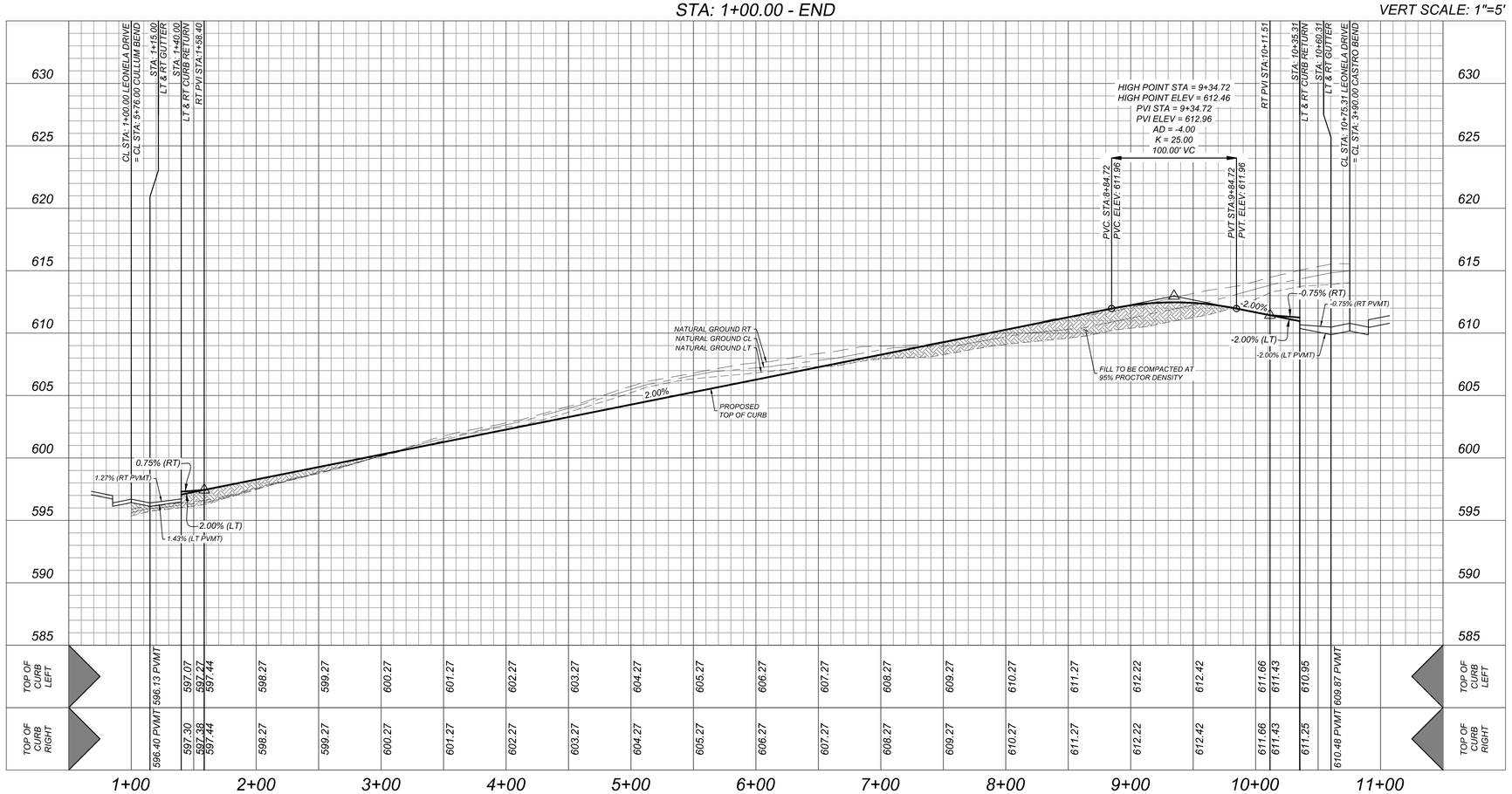




LEONELA DRIVE
STA: 1+00.00 - END

HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'



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REV	DATE	DRAWN BY	DESCRIPTION

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: STP93911024_H

SHEET TITLE: LEONELA DRIVE PLAN & PROFILE

SHEET NUMBER: 5.11

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

In:\STREETS\STP93911024_H.dwg|5.11 By: SJOSEPH

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

CAUTION!!:

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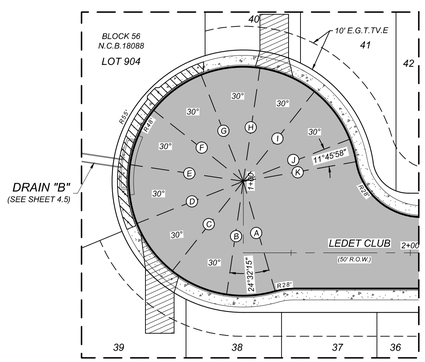
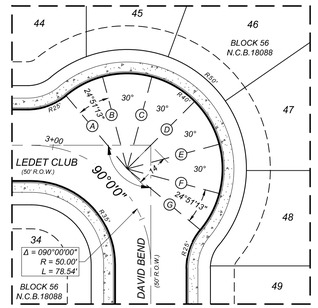
KNUCKLESAC ELEVATIONS

STATION	TOP OF CURB ELEVATIONS
A	586.40
B	586.67
C	586.76
D	586.86
E	586.96
F	587.05
G	587.12



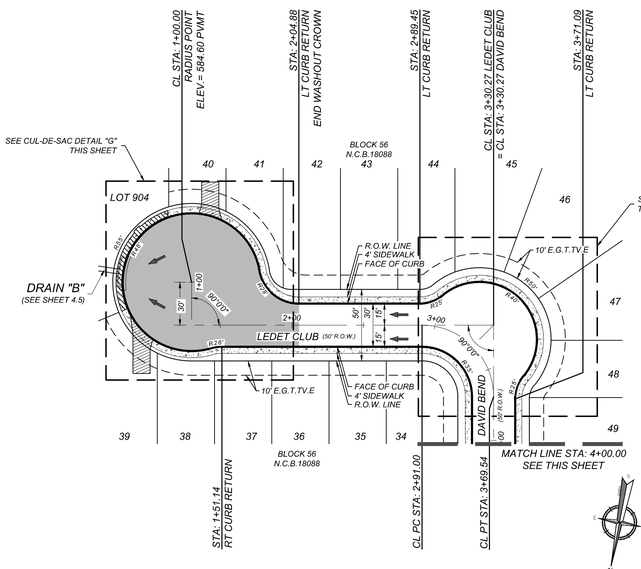
CUL-DE-SAC DETAIL "G"

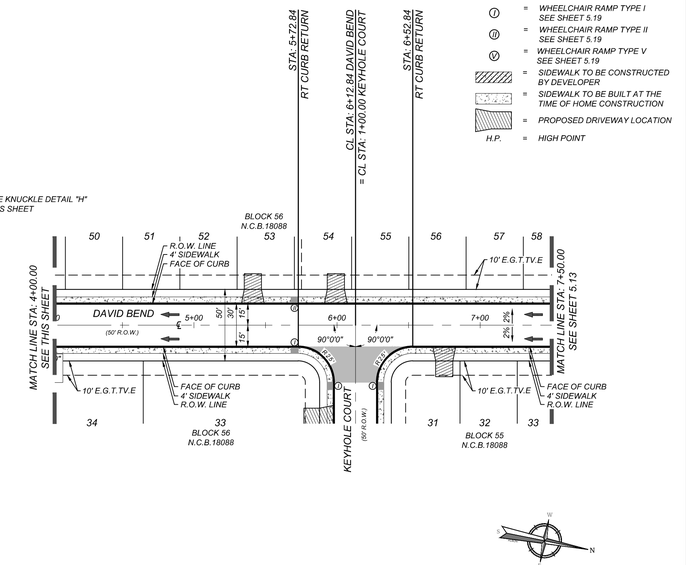
SCALE: 1" = 30'



KNUCKLE DETAIL "H"

SCALE: 1" = 30'



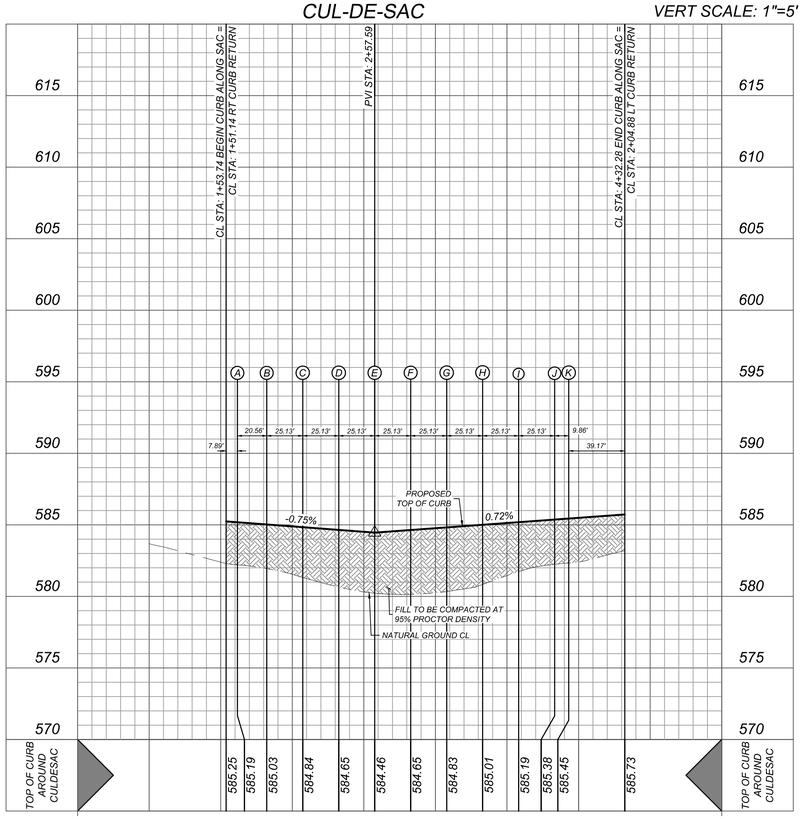


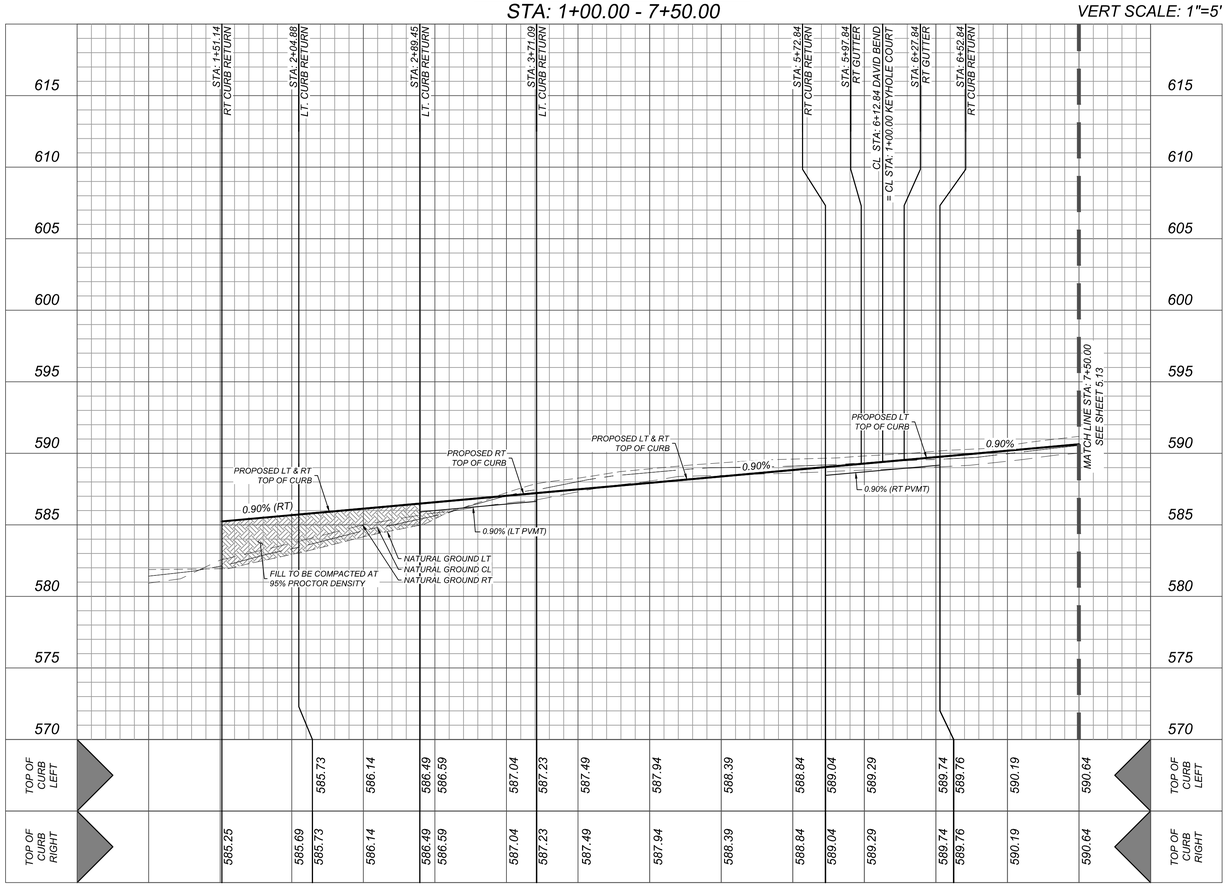
LEDET CLUB & DAVID BEND
STA: 1+00.00 - 7+50.00

HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'

LEDET CLUB CUL-DE-SAC

HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'





LEGEND

R.O.W.	=	RIGHT OF WAY
E.G.T.TV.E.	=	ELECTRIC, GAS, TELEPHONE & CABLE EASEMENT
	=	FLOW ARROW
	=	WASHOUT CROWN
(I)	=	WHEELCHAIR RAMP TYPE I SEE SHEET 5.19
(II)	=	WHEELCHAIR RAMP TYPE II SEE SHEET 5.19
(V)	=	WHEELCHAIR RAMP TYPE V SEE SHEET 5.19
	=	SIDEWALK TO BE CONSTRUCTED BY DEVELOPER
	=	SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION
	=	PROPOSED DRIVEWAY LOCATION
H.P.	=	HIGH POINT

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PLAT# 24-11800334

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San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14309
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: STP93911024_I

SHEET TITLE:
LEDET CLUB & DAVID BEND PLAN & PROFILE (1 OF 2)

SHEET NUMBER: 5.12

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

m:\STREETS\STP93911024_I.dwg\5.12 By: SJOSEPH

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

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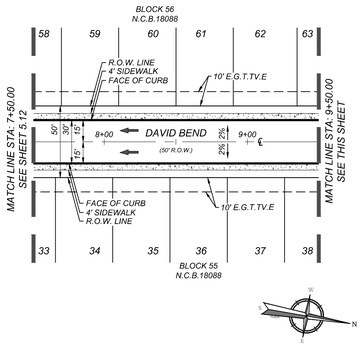
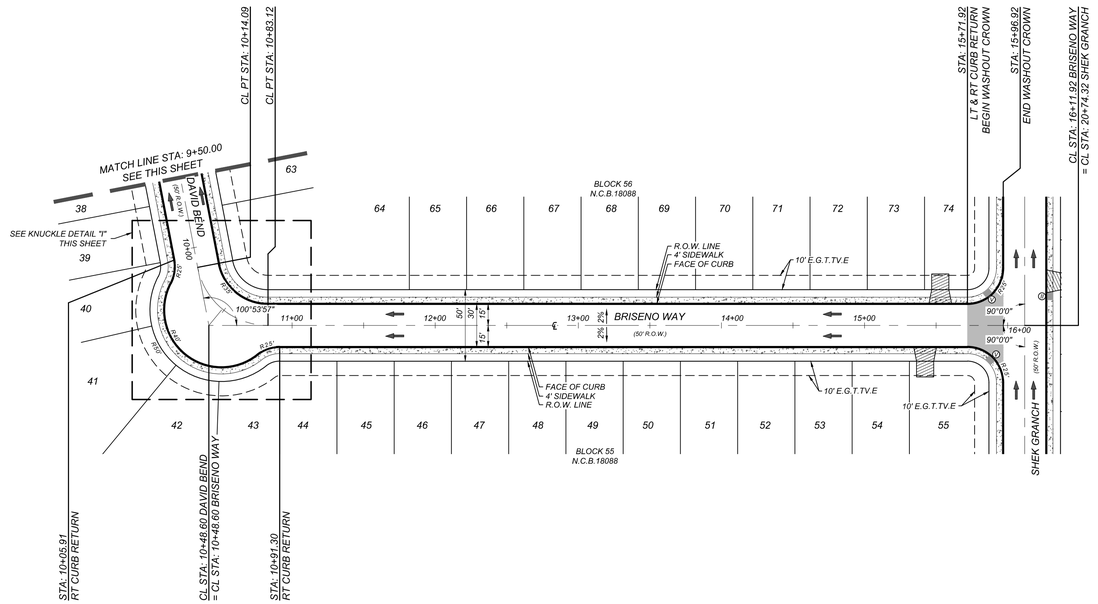




LEGEND

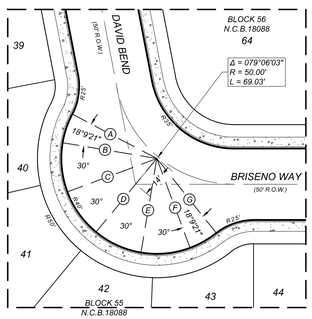
R.O.W.	=	RIGHT OF WAY
E.G.T.TV.E.	=	ELECTRIC, GAS, TELEPHONE & CABLE EASEMENT
	=	FLOW ARROW
	=	WASHOUT CROWN
I	=	WHEELCHAIR RAMP TYPE I SEE SHEET 5.19
II	=	WHEELCHAIR RAMP TYPE II SEE SHEET 5.19
V	=	WHEELCHAIR RAMP TYPE V SEE SHEET 5.19
	=	SIDEWALK TO BE CONSTRUCTED BY DEVELOPER
	=	SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION
	=	PROPOSED DRIVEWAY LOCATION
H.P.	=	HIGH POINT



HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'

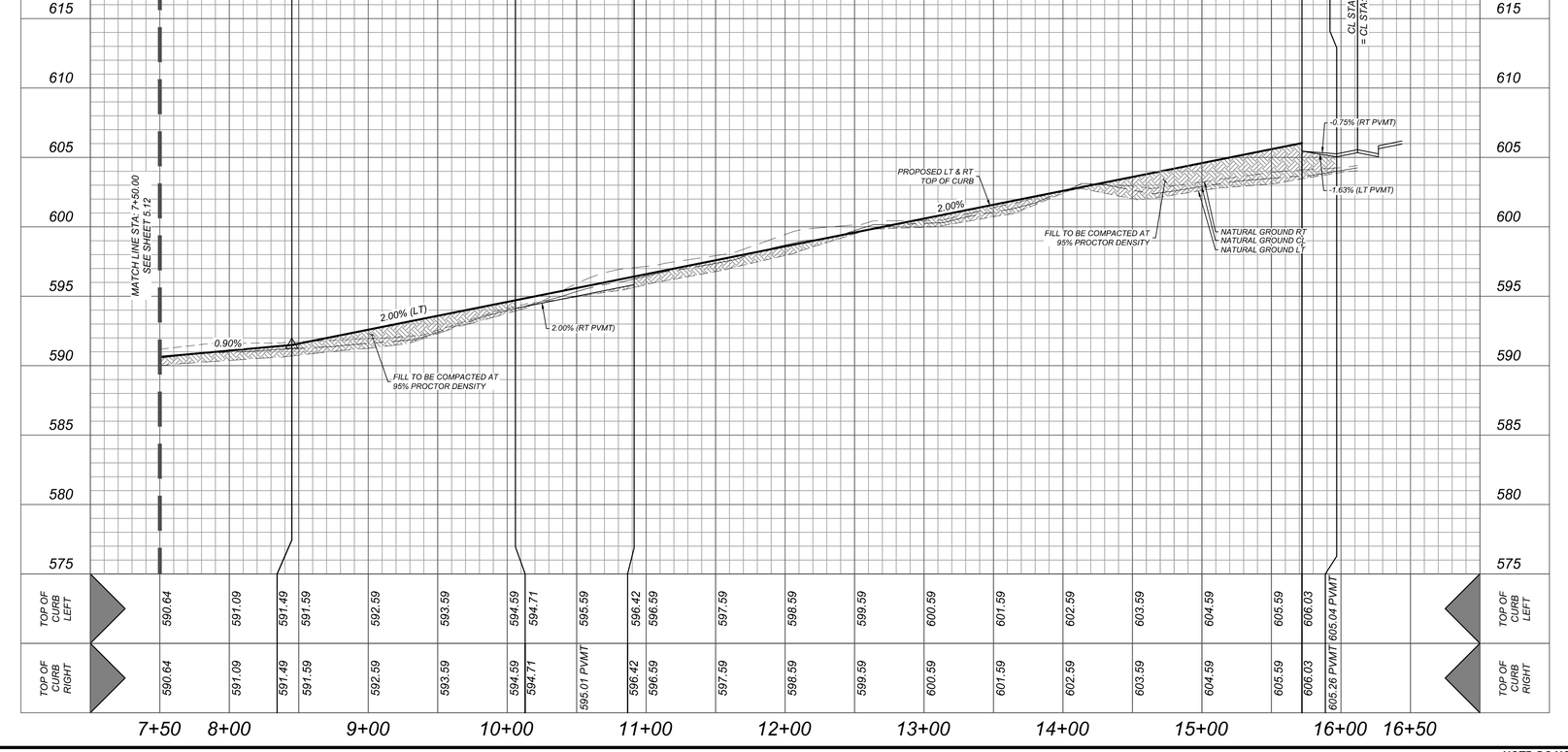
DAVID BEND & BRISENO WAY
STA: 7+50.00 - END

KNUCKLESAC ELEVATIONS	
STATION	TOP OF CURB ELEVATIONS
A	594.98
B	595.11
C	595.33
D	595.56
E	595.79
F	596.02
G	596.15



KNUCKLE DETAIL "I"
SCALE: 1" = 30'





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VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

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3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: STPP3911024_I

SHEET TITLE:
DAVID BEND & BRISENO WAY
PLAN & PROFILE (2 OF 2)

SHEET NUMBER:
5.13

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M:\STREETS\STPP3911024_I.dwg\S.13 By: SJOSEPH

TRENCH EXCAVATION SAFETY PROTECTION

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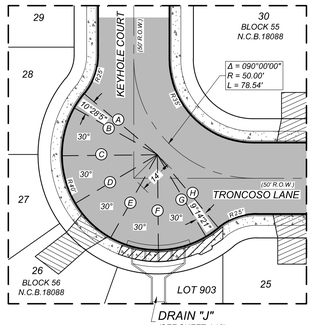
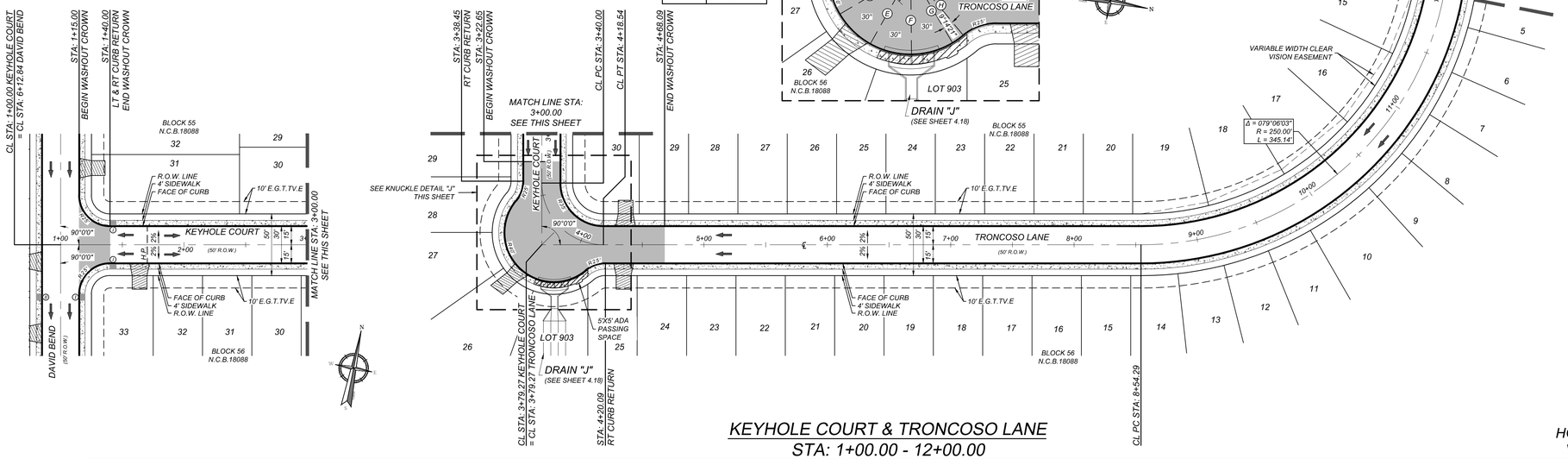
KNUCKLESAC ELEVATIONS	
STATION	TOP OF CURB ELEVATIONS
A	586.66
B	586.51
C	586.25
D	586.02
E	585.78
F	585.56
G	586.01
H	586.12



KNUCKLE DETAIL "J"

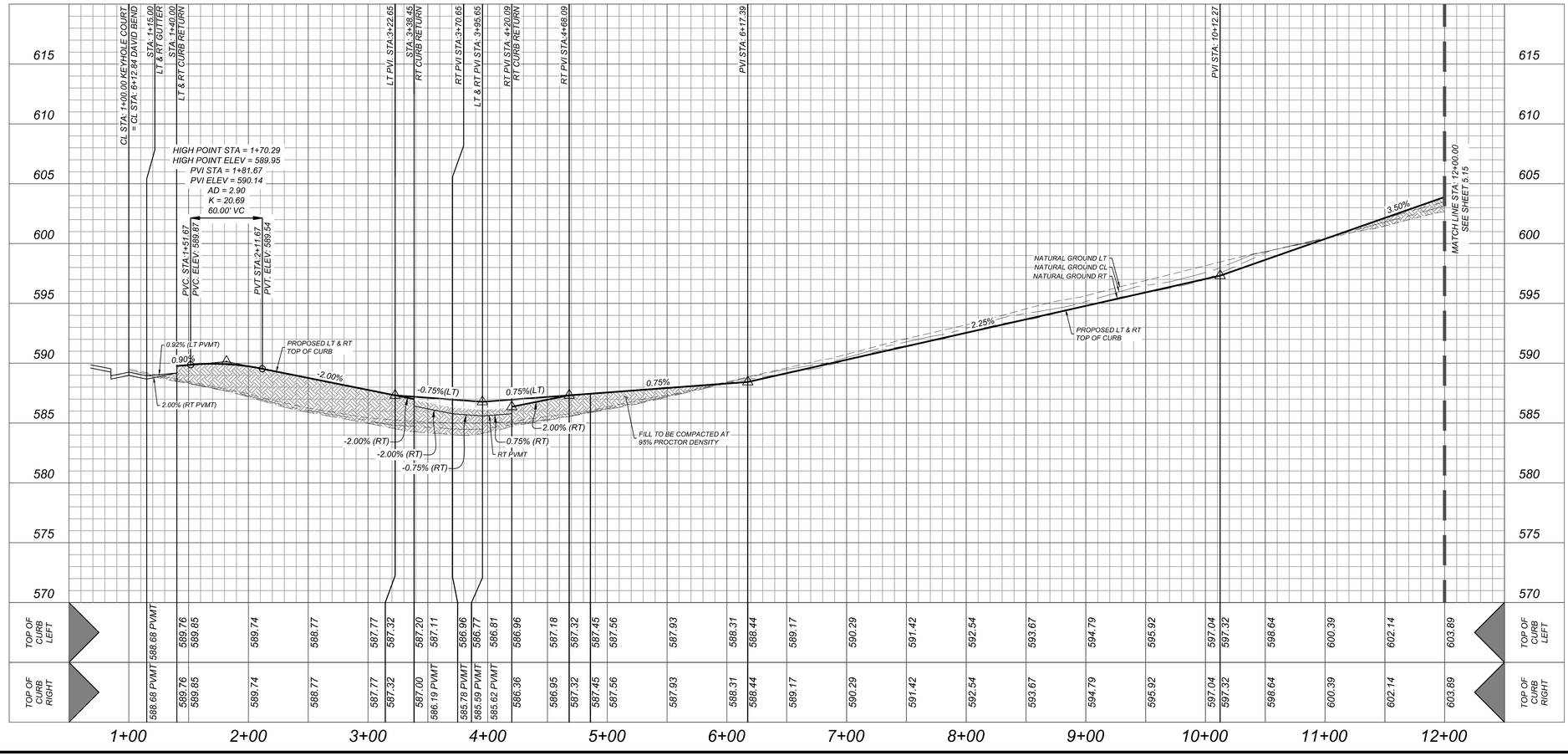
SCALE: 1" = 30'



KEYHOLE COURT & TRONCOSO LANE

STA: 1+00.00 - 12+00.00

HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'



LEGEND

R.O.W.	=	RIGHT OF WAY
E.G.T.TV.E.	=	ELECTRIC, GAS, TELEPHONE & CABLE EASEMENT
	=	FLOW ARROW
	=	WASHOUT CROWN
(I)	=	WHEELCHAIR RAMP TYPE I SEE SHEET 5.19
(II)	=	WHEELCHAIR RAMP TYPE II SEE SHEET 5.19
(V)	=	WHEELCHAIR RAMP TYPE V SEE SHEET 5.19
	=	SIDEWALK TO BE CONSTRUCTED BY DEVELOPER
	=	SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION
	=	PROPOSED DRIVEWAY LOCATION
H.P.	=	HIGH POINT

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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: STPP3911024_J

SHEET TITLE: KEYHOLE COURT & TRONCOSO LANE PLAN & PROFILE (1 OF 3)

SHEET NUMBER: 5.14

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

M:\STREETS\STPP3911024_J.dwg\S.14 By: SJOSEPH

TRENCH EXCAVATION SAFETY PROTECTION

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LEGEND

R.O.W.	=	RIGHT OF WAY
E.G.T.TV.E.	=	ELECTRIC, GAS, TELEPHONE & CABLE EASEMENT
	=	FLOW ARROW
	=	WASHOUT CROWN
Ⓘ	=	WHEELCHAIR RAMP TYPE I SEE SHEET 5.19
Ⓘ	=	WHEELCHAIR RAMP TYPE II SEE SHEET 5.19
Ⓥ	=	WHEELCHAIR RAMP TYPE V SEE SHEET 5.19
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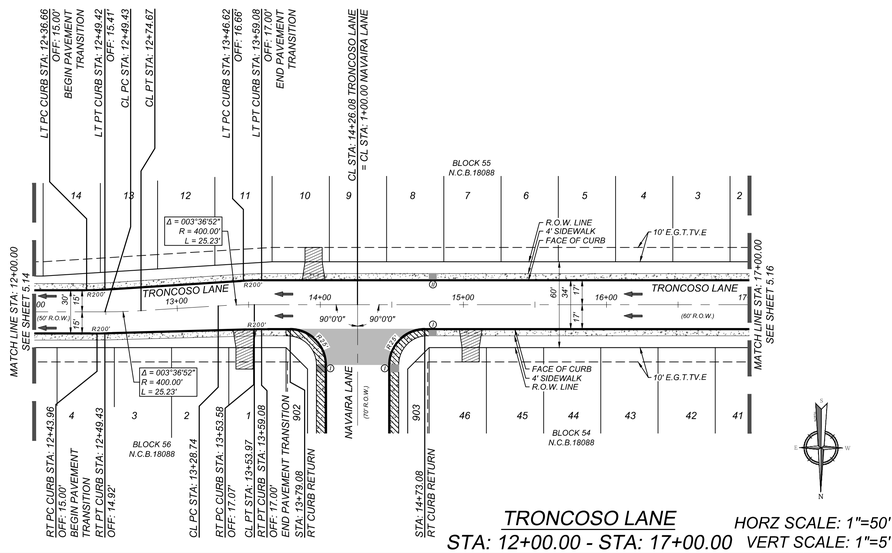
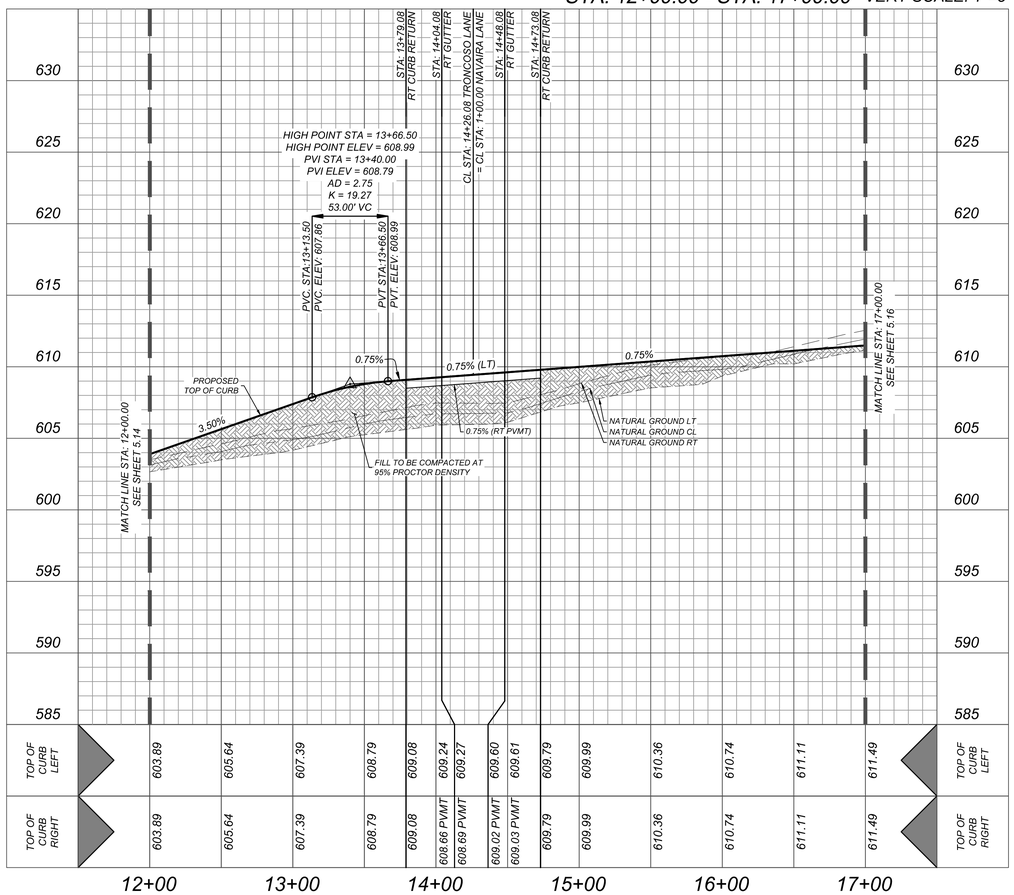


TRONCOSO LANE

STA: 12+00.00 - STA: 17+00.00

HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'



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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: STPP39110241.j

SHEET TITLE: TRONCOSO LANE PLAN & PROFILE (2 OF 3)

SHEET NUMBER: 5.15

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

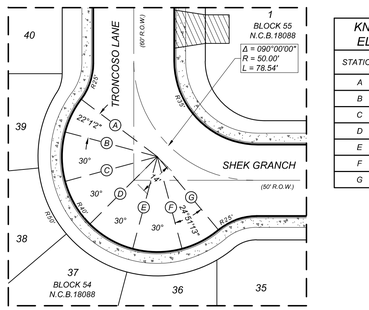
By: SJOSEPH
\\ATX\TNET\TSS\STPP39110241.j.dwg|5.15

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

CAUTION!!:

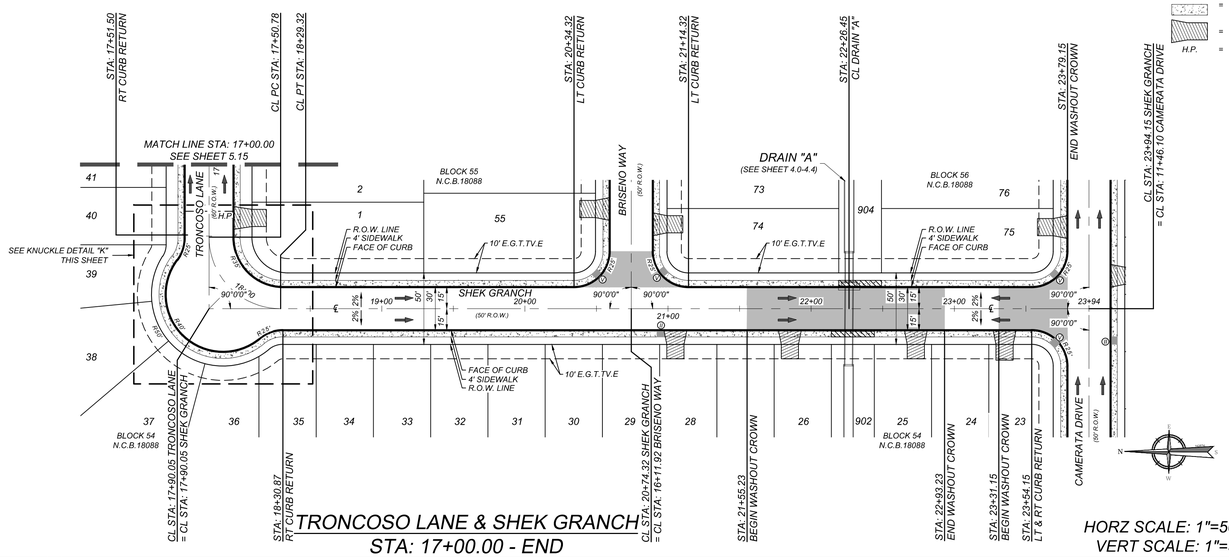
THE CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITED TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCT BANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT ARISE SHOULD BE COMMUNICATED TO THE ENGINEER IMMEDIATELY AND PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL CONTACT 1-800-DIG-TESS A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND THE REPAIR SHALL BE AT CONTRACTOR'S SOLE EXPENSE WHETHER THE UTILITY IS SHOWN ON THESE PLANS OR NOT.



KNUCKLESAC ELEVATIONS	
STATION	TOP OF CURB ELEVATIONS
A	611.60
B	611.69
C	611.68
D	611.54
E	611.27
F	610.88
G	610.48

KNUCKLE DETAIL "K"

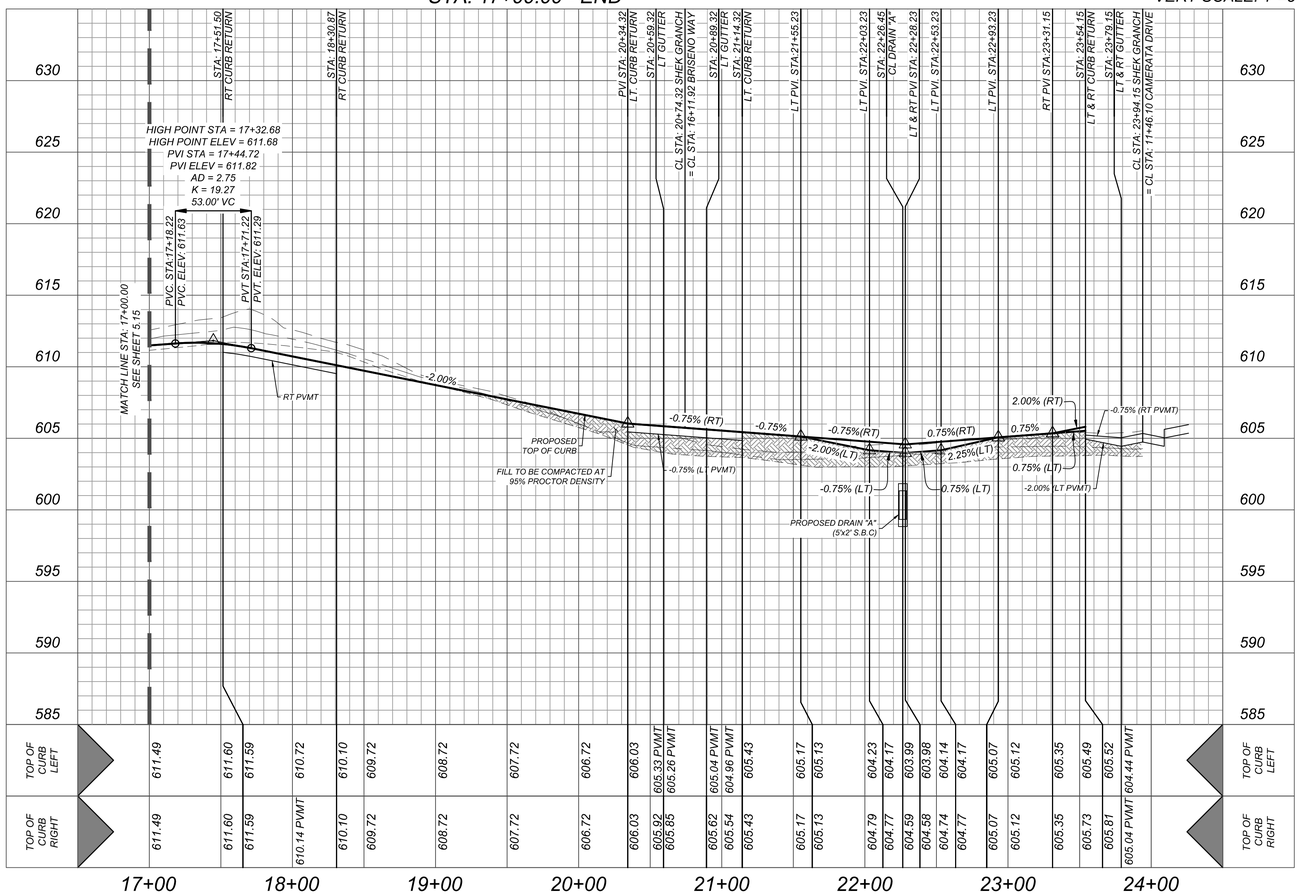
SCALE: 1" = 30'



TRONCOSO LANE & SHEK GRANCH

STA: 17+00.00 - END

HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'



LEGEND

R.O.W.	=	RIGHT OF WAY
E.G.T.TV.E.	=	ELECTRIC, GAS, TELEPHONE & CABLE EASEMENT
	=	FLOW ARROW
	=	WASHOUT CROWN
Ⓘ	=	WHEELCHAIR RAMP TYPE I SEE SHEET 5.19
Ⓘ	=	WHEELCHAIR RAMP TYPE II SEE SHEET 5.19
Ⓥ	=	WHEELCHAIR RAMP TYPE V SEE SHEET 5.19
	=	SIDEWALK TO BE CONSTRUCTED BY DEVELOPER
	=	SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION
	=	PROPOSED DRIVEWAY LOCATION
H.P.	=	HIGH POINT

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REV	DATE	DRAWN BY	DESCRIPTION

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: STPP3911024_I

SHEET TITLE:
TRONCOSO LANE & SHEK GRANCH PLAN & PROFILE (3 OF 3)

SHEET NUMBER: 5.16

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M:\STREET\STPP3911024_I.dwg5.16 By: SJOSEPH

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LEGEND

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	=	FLOW ARROW
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Ⓘ	=	WHEELCHAIR RAMP TYPE I SEE SHEET 5.19
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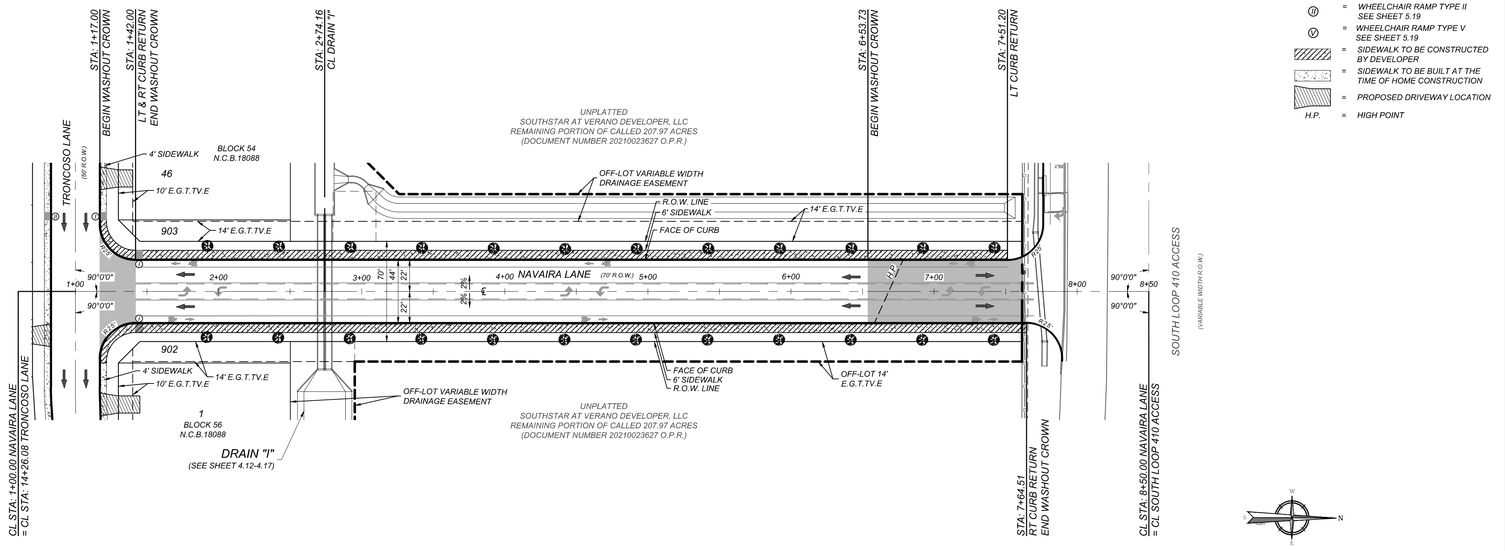
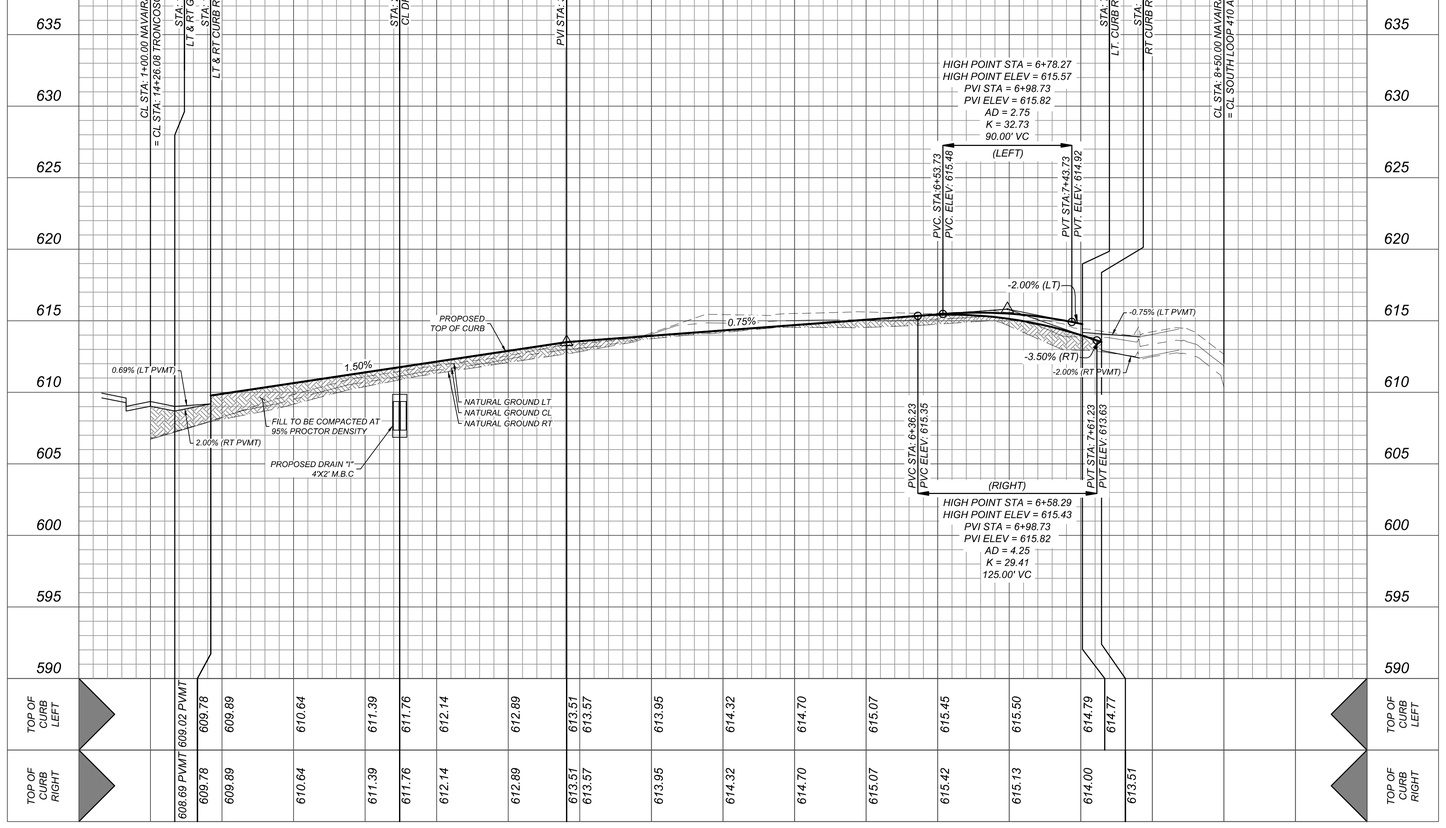


NAVAIRA LANE
STA: 1+00.00 - END

HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'



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PROJECT NUMBER: 391-10-24
DRAWING NAME: STP3911024.K

SHEET TITLE:
NAVAIRA LANE
PLAN & PROFILE

SHEET NUMBER:
5.17

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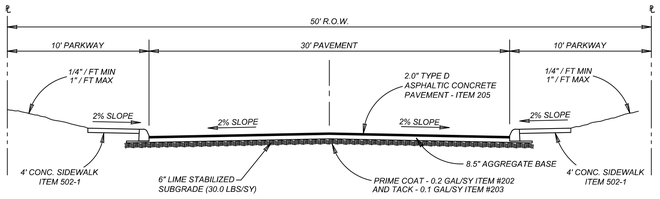
K:\STREETS\STP3911024.K.dwg|5.17 By: SJOSEPH



TYPICAL LOCAL "A" STREET SECTION

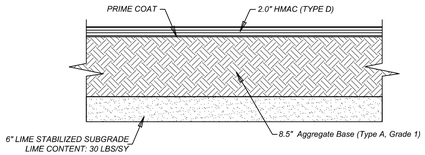
NOT TO SCALE

USE LOCAL "A" STREET SECTION FOR STREETS BELOW:

KORVER COVE - STA: 1+00.00 - STA: 7+09.11
VELMA CROSSING - STA: 7+09.11 - STA: 13+37.14
BELISLE PASS - STA: 1+10.00 - STA: 2+62.27
MANOLA VIEW - STA: 2+62.27 - STA: 10+45.97
MAURO WAY - STA: 10+45.97 - STA: 12+31.33
FLACO DRIVE - STA: 12+31.33 - STA: 18+08.33
CULLUM BEND - STA: 1+00.00 - STA: 8+52.17
CAMERATA DRIVE - STA: 8+52.17 - END
HOPPE POINT - STA: 1+00.00 - STA: 2+27.01
HOPPE POINT - STA: 7+70.40 - END
VALENTIN BEND - STA: 1+00.00 - END

CASTRO BEND - STA: 1+00.00 - END
LEONELA DRIVE - STA: 1+00.00 - END
KEYHOLE COURT - STA: 1+00.00 - STA: 3+79.27
TRONCOSO LANE - STA: 3+79.27 - STA: 12+36.66
SHEK GRANCH - STA: 17+90.05 - END
LEDET CLUB - STA: 1+00.00 - STA: 3+30.27
DAVID BEND - STA: 3+30.27 - STA: 10+48.60
BRISENO WAY - STA: 10+48.60 - END

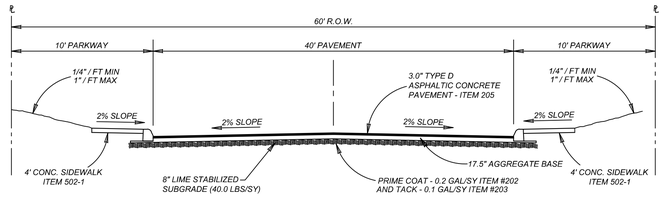
Pavement Section
2.0" HMAC Type "D"
8.5" Aggregate Base (Type A, Grade 1)
6" Lime Stablized Subgrade(30 LBS/SY)
Total: 16.5"
Structural No: 2.55
CBR: 3.0
REQUIRED IF SUBGRADE PI > 20



ASPHALT PAVEMENT DETAIL

NOT-TO-SCALE

DETAIL FOR ALL LOCAL TYPE A



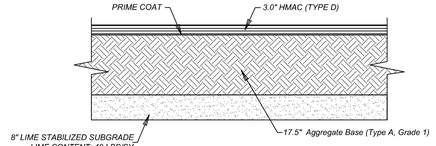
TYPICAL LOCAL "B" STREET SECTION

NOT TO SCALE

USE LOCAL "B" STREET SECTION FOR STREETS BELOW:

TAFOLLA COURT - STA: 1+00.00 - END
VELMA CROSSING - STA: 13+37.14 - END
FLACO DRIVE - STA: 18+08.33 - END
HOPPE POINT - STA: 2+27.01 - STA: 7+70.40
TRONCOSO LANE - STA: 12+36.66 - 17+90.05

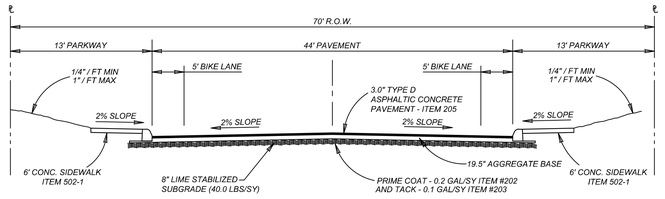
Pavement Section
3.0" HMAC Type "D"
17.5" Aggregate Base (Type A, Grade 1)
8" Lime Stablized Subgrade(40 LBS/SY)
Total: 28.5"
Structural No: 4.41
CBR: 3.0
REQUIRED IF SUBGRADE PI > 20



ASPHALT PAVEMENT DETAIL

NOT-TO-SCALE

DETAIL FOR ALL LOCAL TYPE B



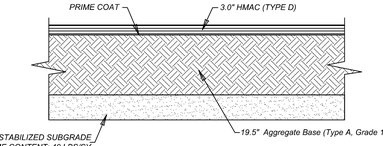
COLLECTOR STREET SECTION

NOT TO SCALE

USE COLLECTOR STREET SECTION FOR STREET BELOW:

NAVAIRA LANE - STA: 1+00.00 - END

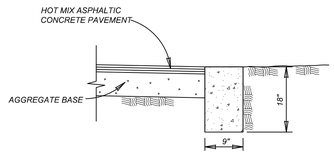
Pavement Section
3.0" HMAC Type "D"
19.5" Aggregate Base (Type A, Grade 1)
8" Lime Stablized Subgrade(40 LBS/SY)
Total: 30.5"
Structural No: 4.69
CBR: 3.0
REQUIRED IF SUBGRADE PI > 20



ASPHALT PAVEMENT DETAIL

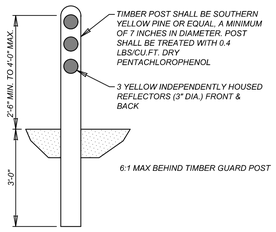
NOT-TO-SCALE

DETAIL FOR ALL LOCAL TYPE B



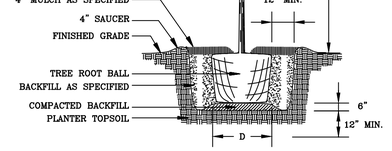
HEADER CURB

ITEM 500 ON SAND OR GRAVEL
NOT TO SCALE



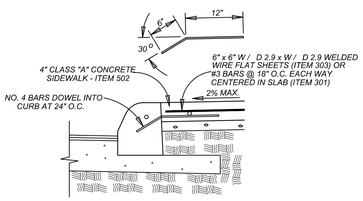
TIMBER GUARD POST DETAIL

NOT-TO-SCALE



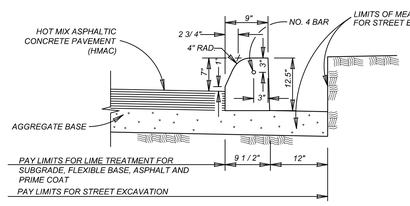
NEW TREE PLANTING DETAIL

N.T.S



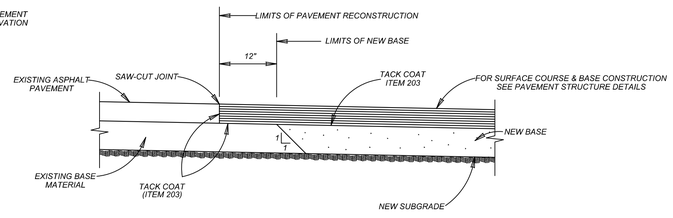
CONCRETE SIDEWALK
ABUTTING CURB SECTION

ITEM 502
NOT TO SCALE



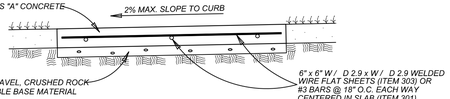
CONCRETE CURB

ITEM 500 ON ASPHALT TREATED BASE OR ASPHALTIC CONCRETE BASE
NOT TO SCALE



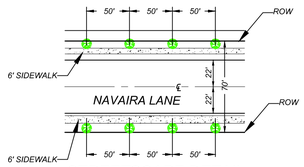
PAVEMENT JUNCTION DETAILS

NOT TO SCALE



CONCRETE SIDEWALK SECTION

ITEM 502
NOT TO SCALE



STREETSCAPE DETAIL
STA: 1+00.00 - END

N.T.S.

STREETSCAPE TREE PLANTING NOTES:

1. SPECIES OF TREES TO BE DETERMINED BY DEVELOPER'S PROJECT LANDSCAPE ARCHITECT TO CONFORM WITH THE STREETSCAPE PLANTING STANDARDS.
2. DEVELOPER TO PROVIDE IRRIGATION ON PLANTED STREET TREES FOR A MINIMUM OF 3 YEARS.
3. ALL LANDSCAPING SHALL COMPLY WITH THE CLEAR VISION AREAS DEFINED BY THE LATEST VERSION OF AASHTO'S "A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS."
4. TYPES OF TREES AND SPACING ARE BASED ON UNDERGROUND ELECTRIC. IF OVERHEAD ELECTRIC IS REQUIRED BY CPS, PLANS WILL BE REVISED TO REFLECT CHANGES IN SIZE, TYPE AND SPACING OF TREES, PER THE UDC.
5. STREETSCAPE TREES AND LANDSCAPING SHALL BE LOCATED OUTSIDE THE HORIZONTAL CLEAR ZONE AND OUTSIDE CLEAR VISION AREAS.

NOTES:
1. PAVEMENT DESIGN THICKNESS BASED ON GEOTECHNICAL REPORT BY INTEC, L.P., PROJECT NO. S241250 DATED 10/07/24.
2. REFERENCE PROJECT GEOTECHNICAL REPORT AND PROJECT SPECIFICATION FOR ADDITIONAL REQUIREMENTS AND ALTERNATE PAVEMENT SECTIONS.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING MATERIAL TESTING. TESTING TO BE PAID BY OWNER.
4. GEOTECHNICAL ENGINEER TO BE ON SITE TO MAKE FINAL SUBGRADE DETERMINATION. CHANGES TO THIS PAVEMENT DESIGN SHALL BE SUBMITTED TO COSA-DSD PRIOR TO PLACEMENT OF BASE MATERIAL.

GENERAL NOTES:

1. THE SUBGRADE SOILS SHOULD BE TESTED FOR SOLUBLE SULPHATE CONTENT PRIOR TO INSTALLATION OF THE LIME OR CEMENT.
2. THE APPLICATION RATE OF LIME SHALL BE DETERMINED BASED ON LABORATORY TESTING AND SHALL BE THE LOWEST PERCENTAGE OF LIME THAT PROVIDES AN UNCONFINED COMPRESSIVE STRENGTH (UCS) AT 7-DAYS OF AT LEAST 160 PSI IN ACCORDANCE WITH ASTM D5102 STANDARD TEST METHODS FOR UNCONFINED COMPRESSIVE STRENGTH OF COMPACTED SOIL-LIME MIXTURES (PROCEDURE B) (IN ADDITION, CURING SHOULD OCCUR FOR 7 DAYS AT 40° AND SPECIMENS SHOULD BE SUBJECT TO 24-HR CAPILLARY SOAK PRIOR TO TESTING.

FOR CONSTRUCTION VERIFICATION THE FOLLOWING SHALL BE CONDUCTED IN THE FIELD.

1. AFTER INITIAL MIXING THE SOIL-LIME MIXTURE SHALL MELLOW FOR A PERIOD OF TWO TO THREE (2 - 3) DAYS. MAINTAIN MOISTURE DURING MELLOWING;
2. AFTER MELLOWING AND FINAL MIXING, THE PULVERIZATION SHALL BE CHECKED USING THE FOLLOWING CRITERIA (REMOVE NON-SLAKING AGGREGATES RETAINED ON THE ½ INCH SIEVE FROM THE SAMPLE):
   - MINIMUM PASSING 1 ¾" SIEVE 100
   - MINIMUM PASSING ½" SIEVE 85
   - MINIMUM PASSING NO. 4 SIEVE 60
3. SAMPLE SOIL-LIME MIXTURE FOR DETERMINATION OF MAXIMUM DRY DENSITY (MDD). IN THE LABORATORY, MOLD SPECIMENS TO 95% OF MDD AT OPTIMUM MOISTURE CONTENT AND VERIFY UCS TO BE AT LEAST 160 PSI IN ACCORDANCE WITH PROCEDURE OUTLINED ABOVE FOR MIXTURE DESIGN.
4. COMPACT AND CHECK FIELD DENSITY (MINIMUM OF 95% OF MDD REQUIRED)
5. CURE FOR AN ADDITIONAL 2 TO 5 DAYS (TOTAL MELLOWING AND CURING TIME SHOULD TOTAL AT LEAST 5 DAYS).
6. VERIFY DEPTH OF LIME STABILIZED LAYER TO DEPTH AS NOTED ON PLAN TO WITHIN ± 1.0 INCH.

NOTES:

ANY FILL USED TO RAISE THE SUBGRADE:
- SHOUD NOT CONTAIN ANY DELETERIOUS MATERIAL.
- SHOULD HAVE A CBR VALUE OF 3.0 OR GREATER
- SHOULD NOT HAVE GRAVELS LARGER THAN 3 INCH IN SIZE
- SHOULD HAVE THE "LIME PERCENTAGE/APPLICATION RATE" RE-RUN
- PRIOR TO INSTALLATION
- PI SHOULD BE LESS THAN 45

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TEXAS

Colliers Engineering & Design
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COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

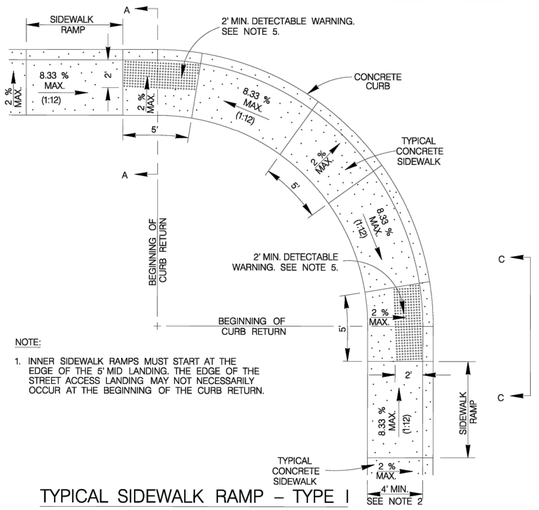
SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: STDT3911024

SHEET TITLE:
TYPICAL STREET DETAILS

SHEET NUMBER:
5.18

w:\STREETS\STDT3911024.dwg 5.18 By: SPOSEPH



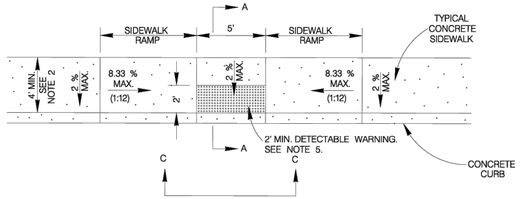
NOTE:

1. INNER SIDEWALK RAMPS MUST START AT THE EDGE OF THE 5' MID LANDING. THE EDGE OF THE STREET ACCESS LANDING MAY NOT NECESSARILY OCCUR AT THE BEGINNING OF THE CURB RETURN.

TYPICAL SIDEWALK RAMP – TYPE I

SIDEWALK ABUTS THE CURB

SCALE : 1" = 10'



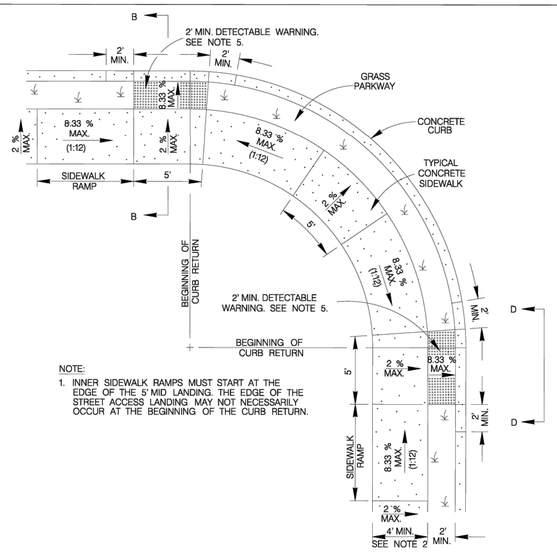
TYPICAL SIDEWALK RAMP – TYPE II

USED AT TEE INTERSECTIONS WHERE SIDEWALK ABUTS CURB

SCALE : 1" = 10'

GENERAL NOTES

1. WHEN POSSIBLE SIDEWALKS SHOULD BE PLACED NEXT TO THE PROPERTY LINE, ALLOWING A MININMUM OF 1 FOOT BUFFER. DEVIATION OF THE PATHWAY FROM A STRAIGHT LINE IS ENCOURAGED TO AVOID TREES OR OTHER OBSTRUCTIONS.
2. FOR LOCAL TYPE "A" STREETS, SIDEWALKS SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF 4' AND IF SEPARATED FROM THE CURB, THE SIDEWALK SHALL BE LOCATED A MINIMUM OF 2' FROM THE BACK OF CURB.
3. FOR OTHER THAN LOCAL TYPE "A" STREETS, SIDEWALKS SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF 4' AND SEPARATED A MINIMUM OF 2' FROM THE BACK OF CURB OR AS AN OPTION, THE SIDEWALK SHALL HAVE A MINIMUM WIDTH OF 6' WHEN LOCATED AT THE BACK OF CURB.
4. SIDEWALK RAMP LENGTHS PRESENTED IN TABLE 1 ARE GUIDELINES ONLY. SIDEWALK RAMP LENGTHS SHALL BE OF SUFFICIENT LENGTH TO MAINTAIN 8.33% (1:12) MAXIMUM SLOPE.
5. ALL CURB–RAMPS OR LANDINGS ABUTTING THE CROSSWALK SHALL HAVE A DETECTABLE WARNING 24 INCHES DEEP (IN THE DIRECTION OF PEDESTRIAN TRAVEL) AND EXTENDING THE FULL WIDTH OF THE CURB RAMP OR LANDING. THE DETECTABLE WARNING SHALL CONSIST OF RAISED TRUNCATED DOMES, ALIGNED IN A GRID PATTERN WITH A DIAMETER OF A NOMINAL 0.9 INCHES (23 MM), A HEIGHT OF NOMINAL 0.2 INCHES (5 MM) AND A CENTER–TO–CENTER SPACING OF NOMINAL 2.35 INCHES (60 MM). THE DETECTABLE WARNING SURFACE SHALL BE A CAST–IN–PLACE TILE CONFORMING TO THE CITY OF SAN ANTONIO STANDARD SPECIFI–CATIONS OR PAVERS CONFORMING TO TXDOT STANDARD PED–05, PEDESTRIAN FACILITIES.
6. DETECTABLE WARNINGS SHALL CONTRAST VISUALLY WITH ADJOINING SURFACES, EITHER LIGHT–ON–DARK, OR DARK–ON–LIGHT. THE MATERIAL USED TO PROVIDE CONTRAST SHALL BE AN INTEGRAL PART OF THE WALKING SURFACE.
7. SIDEWALK RAMP TYPE V SHALL BE USED ONLY WHERE THERE IS SIGNIFICANT RESTRICTION WITHIN THE PARKWAY TO CONSTRUCT TYPE I OR TYPE III RAMPS.
8. CONSTRUCTION OF ALL WHEELCHAIR RAMPS TO BE INCLUDED UNDER ITEMS "500 – CONCRETE CURB, GUTTER, AND CONCRETE CURB AND GUTTER" AND / OR "502 – CONCRETE SIDEWALKS". RAMP SURFACE SHALL BE BRUSH FINISHED.
9. THESE DETAILS ARE FOR REFERENCE ONLY. ACTUAL LOCATIONS OF WHEELCHAIR RAMPS TO BE SHOWN ON CONSTRUCTION PLANS. CITY CONSTRUCTION INSPECTOR CAN ADJUST LOCATIONS FOR SAFETY OR UTILITY CLEARANCE.
10. SIDEWALKS LESS THAN 5 FEET IN WIDTH SHALL BE PROVIDED WITH A PASSING SPACE AT A MAXIMUM SPACING OF 200 FEET.
11. WHEELCHAIR RAMP SHALL BE CONSTRUCTED WITH 4" CLASS "A" CONCRETE AND 2" MINIMUM GRAVEL, CRUSHED ROCK OR FLEXIBLE BASE MATERIAL.
12. REINFORCING STEEL SHALL BE #3 BARS AT 18" O.C.E.W. OR 6" x 6" – W2.9 x W2.9 WIRE MESH.
13. SIDEWALK GRADES SHALL NOT EXCEED THE GRADE ESTABLISHED FOR THE ADJACENT ROADWAY, ANY SIDEWALK CONSTRUCTION THAT DEVIATES FROM THE NATURAL GRADE OF THE ROADWAY TO CREATE A GRADE STEEPER THAN THE EXISTING ROADWAY WILL REQUIRE RAMPS, HANDRAILS AND RESTING PLATFORMS TO BE CONSTRUCTED IN ACCORDANCE WITH ADA AND TAS STANDARDS.
14. SIDEWALK CROSS GRADE SHALL HAVE A MAXIMUM SLOPE OF 2%. LANDINGS SHALL HAVE A MAXIMUM SLOPE OF 2% IN ANY DIRECTION.
15. THE CHANGE OF GRADE BETWEEN ADJACENT SURFACES SHALL BE LESS THAN 11%. THE CHANGE OF GRADE SHALL BE DEFINED AS THE ALGEBRAIC DIFFERENCE OF THE ADJACENT SURFACE SLOPES. IN THE CASE OF A STREET ACCESS RAMP DESIGNED AT THE 8.33% MAXIMUM SLOPE, THE ADJACENT PAVEMENT CROSS SLOPE SHALL BE LESS THAN 2.67% (I.E. 8.33–(–2.67) = 11). IN ADDITION, THE ADJACENT PAVEMENT CROSS SLOPE SHALL BE LESS THAN OR EQUAL TO 5%.
16. IF THE CHANGE OF GRADE BETWEEN ADJACENT SURFACES IS GREATER THAN OR EQUAL TO 11%, A LEVELING STRIP, 2 FEET IN LENGTH, SHALL BE PROVIDED TO TRANSITION THE ADJACENT SURFACES.
17. ADA COMPLIANCE IN ALTERATIONS INCLUDE ONLY THAT WORK WITHIN THE LIMITS, BOUNDARIES OR SCOPE OF A PLANNED PROJECT.



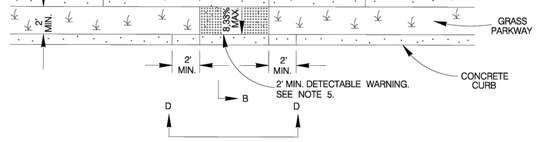
NOTE:

1. INNER SIDEWALK RAMPS MUST START AT THE EDGE OF THE 5' MID LANDING. THE EDGE OF THE STREET ACCESS LANDING MAY NOT NECESSARILY OCCUR AT THE BEGINNING OF THE CURB RETURN.

TYPICAL SIDEWALK RAMP – TYPE III

SIDEWALK SEPARATED FROM CURB

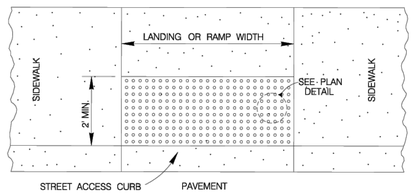
SCALE : 1" = 10'



TYPICAL SIDEWALK RAMP – TYPE IV

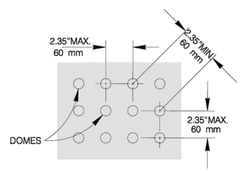
USED AT TEE INTERSECTIONS WHERE SIDEWALK IS SEPARATED FROM CURB

SCALE : 1" = 10'



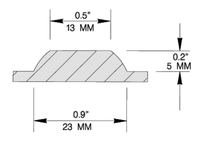
DETECTABLE WARNING SURFACE

SCALE : 1" = 4'



PLAN DETAIL

NO SCALE

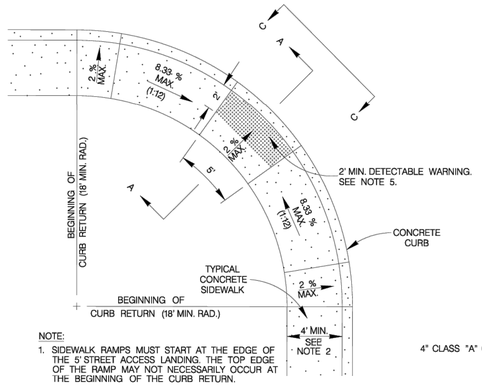


DOME SECTION

NO SCALE

NOTE:

STAMPED CONCRETE TRUNCATED DOMES WILL NOT BE ALLOWED TO BE USED FOR DETECTABLE WARNING ON WHEELCHAIR RAMPS. CONTRACTOR MUST SUBMIT TRUNCATED DOME INFORMATION THAT IS TO BE USED ON WHEELCHAIR RAMPS TO THE PROJECT MANAGER FOR APPROVAL AT LEAST 30 DAYS PRIOR TO INSTALLATION.



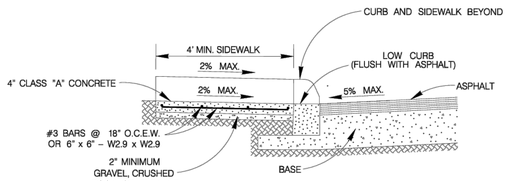
NOTE:

1. SIDEWALK RAMPS MUST START AT THE EDGE OF THE 5' STREET ACCESS LANDING. THE TOP EDGE OF THE RAMP MAY NOT NECESSARILY OCCUR AT THE BEGINNING OF THE CURB RETURN.
2. TYPE V RAMPS MUST HAVE 18' MIN. RADIUS.

TYPICAL SIDEWALK RAMP – TYPE V

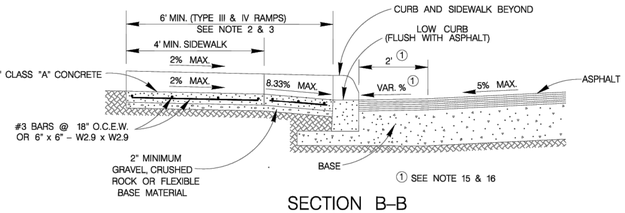
SIDEWALK ABUTS CURB

SCALE : 1" = 10'



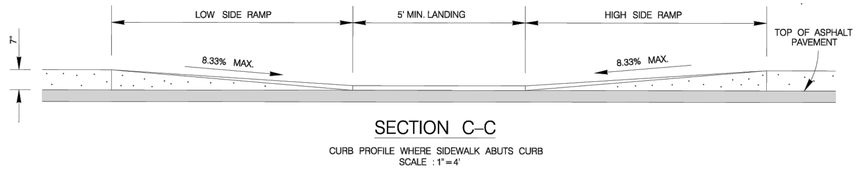
SECTION A–A

SCALE : 1" = 4'



SECTION B–B

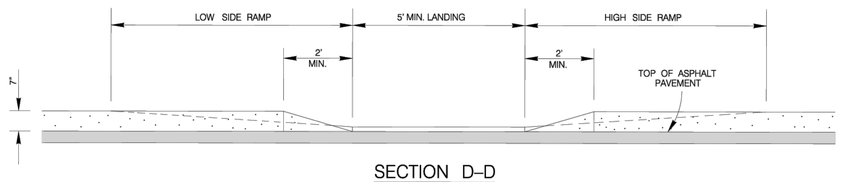
SCALE : 1" = 4'



SECTION C–C

CURB PROFILE WHERE SIDEWALK ABUTS CURB

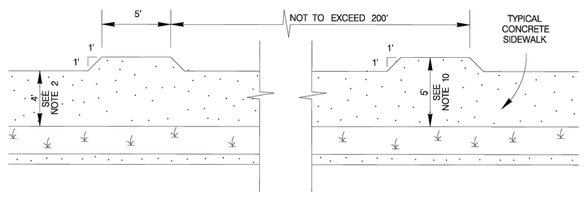
SCALE : 1" = 4'



SECTION D–D

CURB PROFILE WHERE SIDEWALK IS SEPARATED FROM CURB

SCALE : 1" = 4'



SIDEWALK PASSING SPACE

SCALE : 1" = 10'

TABLE 1 (SEE NOTE 4)		
GUTTER SLOPE	SIDEWALK RAMP LENGTH (1:12)	
	LOW SIDE	HIGH SIDE
1%	5'–6"	7'–2"
2%	5'–0"	8'–4"
3%	4'–6"	10'–0"
4%	4'–2"	12'–6"
5%	3'–10"	16'–8"

MAY 2009

CITY OF SAN ANTONIO

CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

WHEELCHAIR RAMP STANDARDS

____% SUBMITTAL	PROJECT NO.:____		DATE:____
DRWN. BY: V. VASQUEZ	DSGN. BY:____	CHKD. BY: R.S. HOSSEINI, P.E.	SHEET NO.: ___OF___

Colliers Engineering & Design

www.colliersengineering.com

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REV	DATE	DRAWN BY	DESCRIPTION

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FOR

VIDA SAN ANTONIO PHASE 5

PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design

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COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24

DRAWING NAME: STDT3911024

SHEET TITLE: WHEELCHAIR RAMP DETAILS

SHEET NUMBER: 5.19

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

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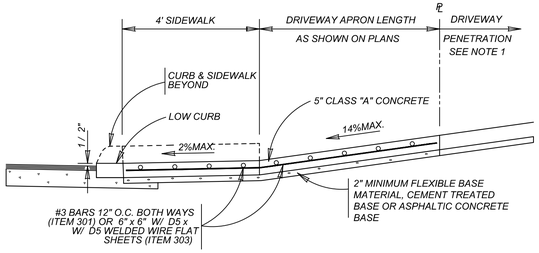
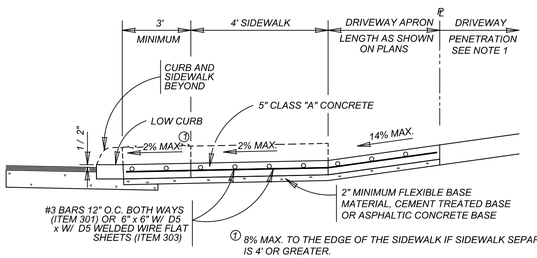


TYPICAL RESIDENTIAL DRIVEWAY SECTION

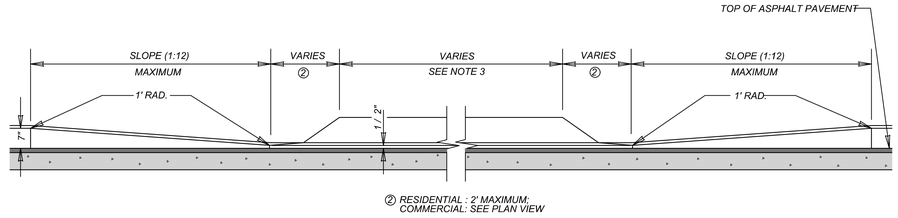
WITH SIDEWALK ABUTTING CURB
ITEM 503.1



① 8% MAX. TO THE EDGE OF THE SIDEWALK IF SIDEWALK SEPARATION IS 4' OR GREATER.

TYPICAL RESIDENTIAL DRIVEWAY SECTION

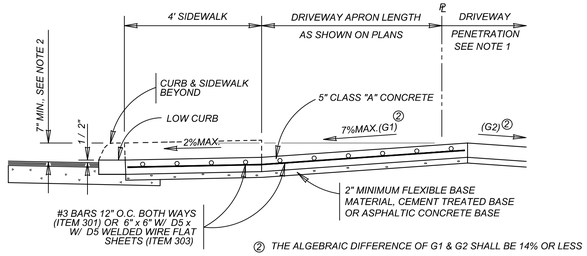
WITH SIDEWALK SEPARATED FROM CURB
ITEM 503.1



② RESIDENTIAL : 2' MAXIMUM;
COMMERCIAL: SEE PLAN VIEW

CURB PROFILE AT DRIVEWAY

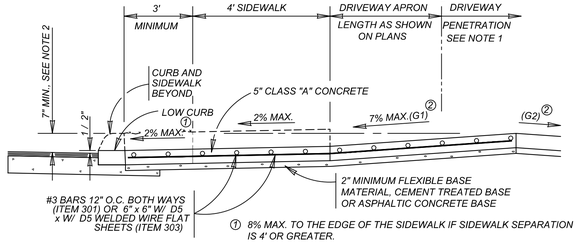
WITH SIDEWALK ABUTTING CURB



② THE ALGEBRAIC DIFFERENCE OF G1 & G2 SHALL BE 14% OR LESS

TYPICAL RESIDENTIAL DRIVEWAY SECTION

WHERE PROPERTY IS LOWER THAN STREET & SIDEWALK IS ABUTTING CURB
ITEM 503.1

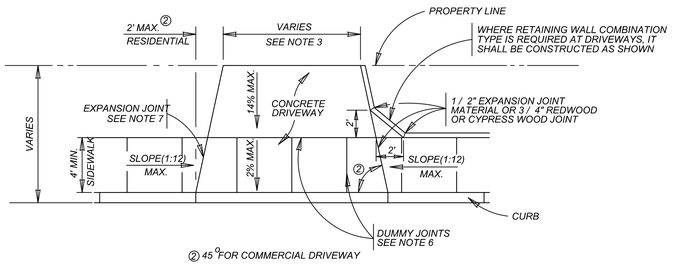


① 8% MAX. TO THE EDGE OF THE SIDEWALK IF SIDEWALK SEPARATION IS 4' OR GREATER.

② THE ALGEBRAIC DIFFERENCE OF G1 & G2 SHALL BE 14% OR LESS

TYPICAL RESIDENTIAL DRIVEWAY SECTION

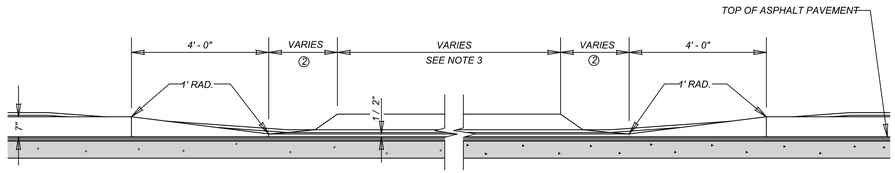
WHERE PROPERTY IS LOWER THAN STREET & SIDEWALK IS SEPARATED FROM CURB
ITEM 503.1



② 45° FOR COMMERCIAL DRIVEWAY

TYPICAL DRIVEWAY PLAN VIEW

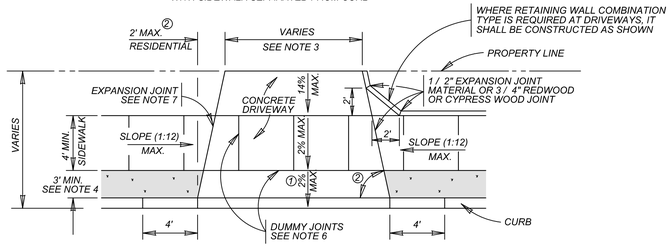
WITH SIDEWALK ABUTTING CURB



② RESIDENTIAL : 2' MAXIMUM;
COMMERCIAL: SEE PLAN VIEW

CURB PROFILE AT DRIVEWAY

WITH SIDEWALK SEPARATED FROM CURB

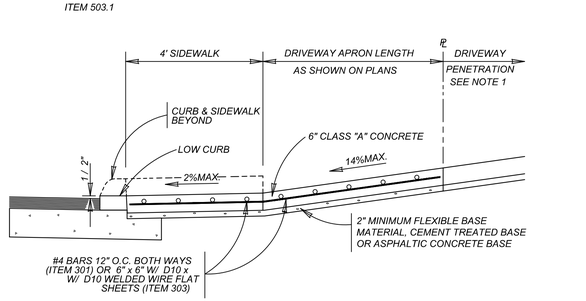


① 8% MAX. TO THE EDGE OF THE SIDEWALK IF SIDEWALK SEPARATION IS 4' OR GREATER.

② 45° FOR COMMERCIAL DRIVEWAY

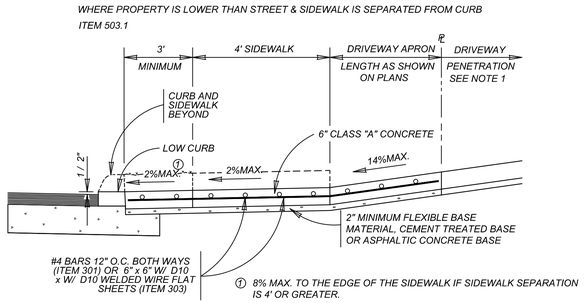
TYPICAL DRIVEWAY PLAN VIEW

WITH SIDEWALK SEPARATED FROM CURB



TYPICAL COMMERCIAL DRIVEWAY SECTION

WITH SIDEWALK ABUTTING CURB
ITEM 503.2



① 8% MAX. TO THE EDGE OF THE SIDEWALK IF SIDEWALK SEPARATION IS 4' OR GREATER.

TYPICAL COMMERCIAL DRIVEWAY SECTION

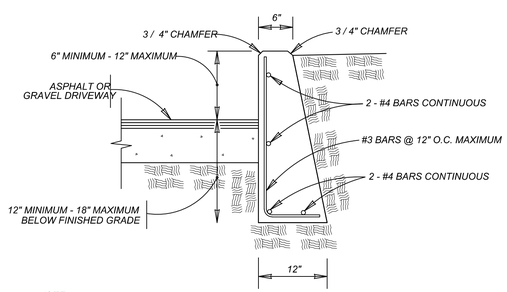
WITH SIDEWALK SEPARATED FROM CURB
ITEM 503.2

CONCRETE DRIVEWAY NOTES

1. DRIVEWAY PENETRATION REFERS TO A PORTION OF THE DRIVEWAY THAT MAY BE NECESSARY TO RECONSTRUCT WITHIN PRIVATE PROPERTY TO COMPLY WITH A MAXIMUM DRIVEWAY SLOPE. THIS PORTION OF THE DRIVEWAY SHALL BE PAID FOR UNDER THE FOLLOWING ITEMS AS MAY APPLY:
   A.) CONCRETE DRIVEWAY PAID FOR UNDER ITEM NO. 503.1 OR 503.2.
   B.) ASPHALTIC CONCRETE DRIVEWAY PAID FOR UNDER ITEM NO. 503.4 AND SHALL INCLUDE A MINIMUM OF 1" ASPHALT TYPE 'D' & 6" FLEXIBLE BASE
   C.) GRAVEL DRIVEWAY PAID FOR UNDER ITEM NO. 503.5 AND SHALL INCLUDE A MINIMUM OF 6" FLEXIBLE BASE
2. 7" MINIMUM HEIGHT WILL NOT NECESSARILY OCCUR AT THE PROPERTY LINE. IT MAY OCCUR WITHIN THE RIGHT OF WAY OR WITHIN THE DRIVEWAY PENETRATION ON PRIVATE PROPERTY.
3. THE PROPOSED DRIVEWAY SHOULD MATCH THE EXISTING WIDTH AT THE PROPERTY LINE BUT UNLESS AUTHORIZED BY THE CITY TRAFFIC ENGINEER, THE WIDTH SHALL BE WITHIN THE FOLLOWING VALUES:

TYPE	MINIMUM	MAXIMUM
RESIDENTIAL	10'	20'
COMMERCIAL - ONE WAY	12'	20'
COMMERCIAL - TWO WAY	24'	30'

4. FOR LOCAL TYPE "A" STREETS, SIDEWALK SHALL HAVE A MINIMUM WIDTH OF 4' AND IF SEPARATED FROM THE CURB, THE SIDEWALK SHALL BE LOCATED A MINIMUM OF 3' FROM THE BACK OF CURB.
5. FOR OTHER THAN LOCAL TYPE "A" STREETS, THE SIDEWALK SHALL HAVE A MINIMUM WIDTH OF 4' AND SEPARATED A MINIMUM OF 3' FROM THE BACK OF CURB OR, AS AN OPTION, THE SIDEWALK SHALL HAVE A MINIMUM WIDTH OF 6' WHEN LOCATED AT THE BACK OF CURB.
6. DUMMY JOINTS PARALLEL TO THE CURB SHALL BE PLACED WHERE THE SIDEWALK MEETS THE DRIVEWAY. DUMMY JOINTS PERPENDICULAR TO THE CURB, AND WITHIN THE BOUNDARIES OF THE PARALLEL DUMMY JOINTS, SHALL BE PLACED AT INTERVALS EQUAL TO THE WIDTH OF THE SIDEWALK.
7. A MINIMUM OF TWO ROUND AND SMOOTH DOWEL BARS 3 /8" IN DIAMETER AND 18" IN LENGTH SHALL BE SPACED 18" APART AT EACH EXPANSION JOINT.
8. SIDEWALK RAMP LENGTHS SHALL BE OF SUFFICIENT LENGTH TO MAINTAIN 8.33% (1:12) MAXIMUM SLOPE. WHERE SIDEWALKS CROSS DRIVEWAYS, SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2%.
9. SIDEWALK RAMP SURFACE SHALL BE BRUSH FINISHED.



NOTE:
1. COST OF REINFORCEMENT TO BE INCLUDED IN UNIT COST OF ITEM 307.1.
2. CONCRETE RETAINING WALL COMBINATION TYPE SHALL BE USED FOR CONCRETE DRIVEWAYS.

DRIVEWAY - CONCRETE RETAINING WALL

ON COMPACTED SUBGRADE
ITEM 307.1

MAY 2009

CITY OF SAN ANTONIO

CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

CONCRETE DRIVEWAY STANDARDS

% SUBMITTAL	PROJECT NO.:	DATE:
DRWN. BY: V. VASQUEZ	DSGN. BY:	CHKD. BY: R.S. HOSSEINI, P.E. SHEET NO.: OF

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VIDA SAN ANTONIO
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PLAT# 24-11800334

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BEXAR COUNTY
TEXAS

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San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

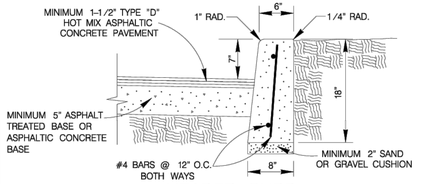
PROJECT NUMBER:	DRAWING NAME:
391-10-24	STDT3911024

SHEET TITLE:
CONCRETE DRIVEWAY DETAILS

SHEET NUMBER:
5.20

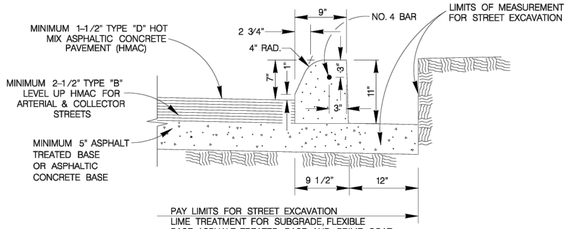
NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

By: SJOSEPH
\\RCSTREETS\STDT3911024.dwg\5.20



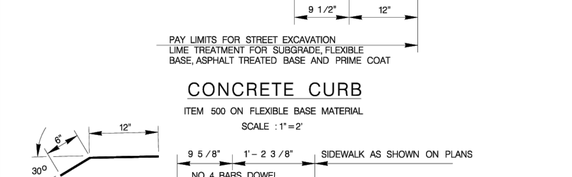
HEADER CURB

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



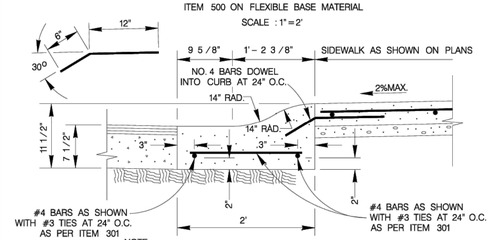
CONCRETE CURB

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



CONCRETE CURB

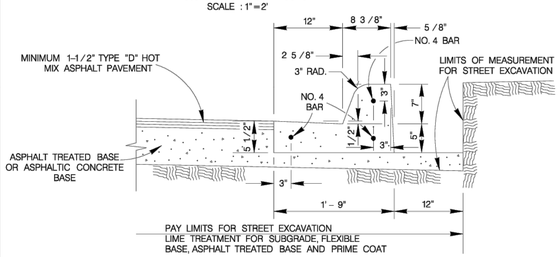
ITEM 500 ON FLEXIBLE BASE MATERIAL
SCALE : 1"=2'



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

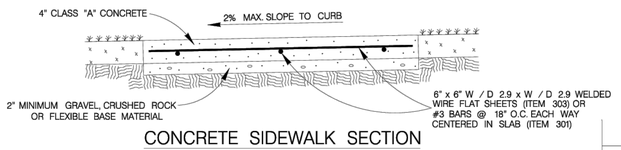
MOUNTABLE CURB

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



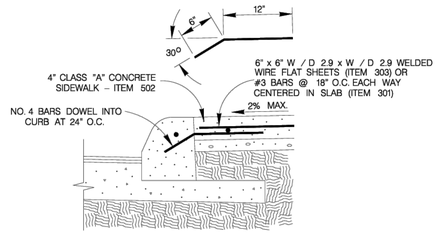
TYPICAL CURB & GUTTER DETAIL

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



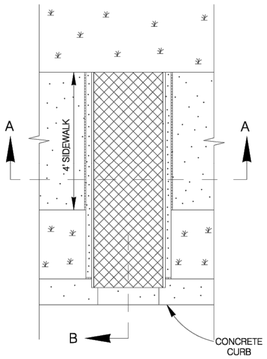
CONCRETE SIDEWALK SECTION

ITEM 502
SCALE : 1"=2'



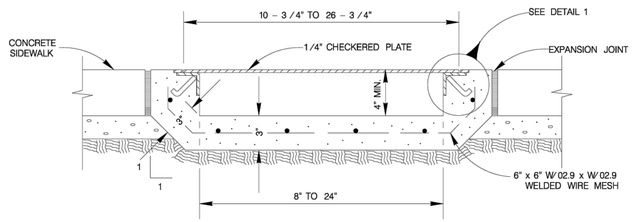
CONCRETE SIDEWALK ABUTTING CURB SECTION

ITEM 502
SCALE : 1"=2'



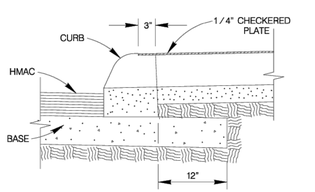
CONCRETE SIDEWALK DRAIN DETAIL

SCALE : 1"=4'



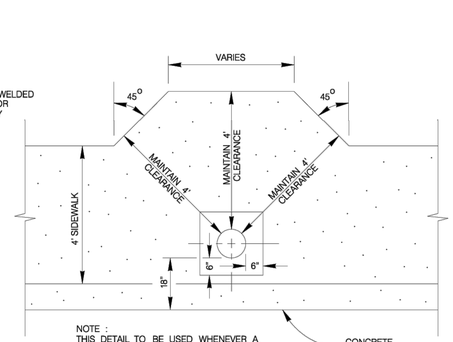
SECTION A–A

SCALE=1 : 12



SECTION B

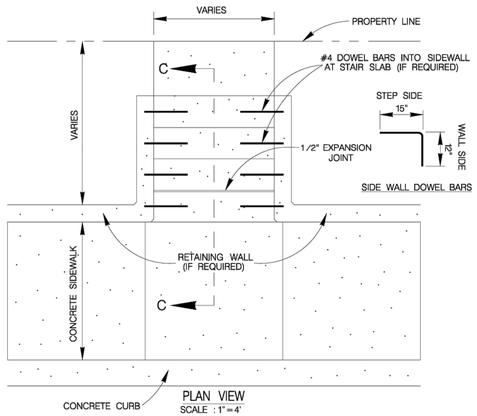
SCALE : 1"=2'



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'

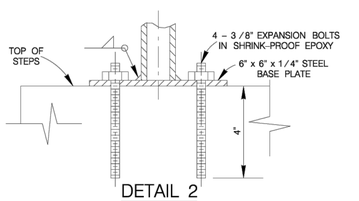


PLAN VIEW

SCALE : 1"=4'

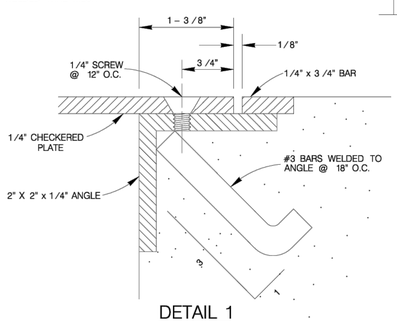
CONCRETE STEPS

ITEM 524



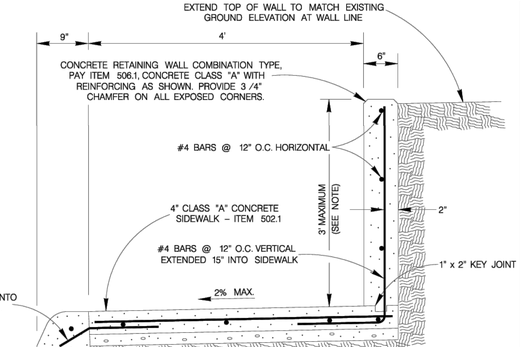
DETAIL 2

SCALE = 1 : 6



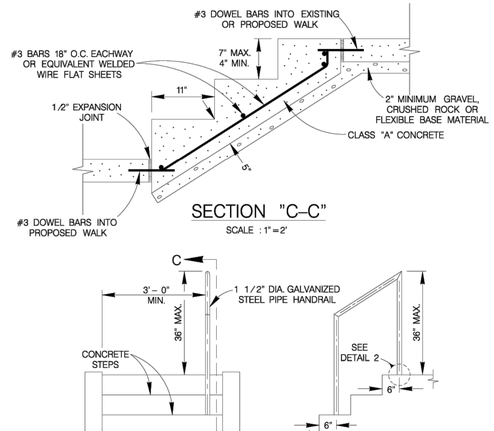
DETAIL 1

SCALE=1 : 1



CONCRETE RETAINING WALL – COMBINATION TYPE

ITEM 506
SCALE : 1"=2'



SECTION "C–C"

SCALE : 1"=2'

PIPE HANDRAIL DETAIL

PROFILE VIEW
SCALE : 1"=4'

SECTION "D–D"

FRONT VIEW
SCALE : 1"=4'

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

_____% SUBMITTAL	PROJECT NO.:_____	DATE:_____
DRWN. BY: V. VASQUEZ	DSGN. BY:_____	CHKD. BY: R.S. HOSSEINI, P.E.	SHEET NO.:____OF____

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FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

REV	DATE	DRAWN BY	DESCRIPTION

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

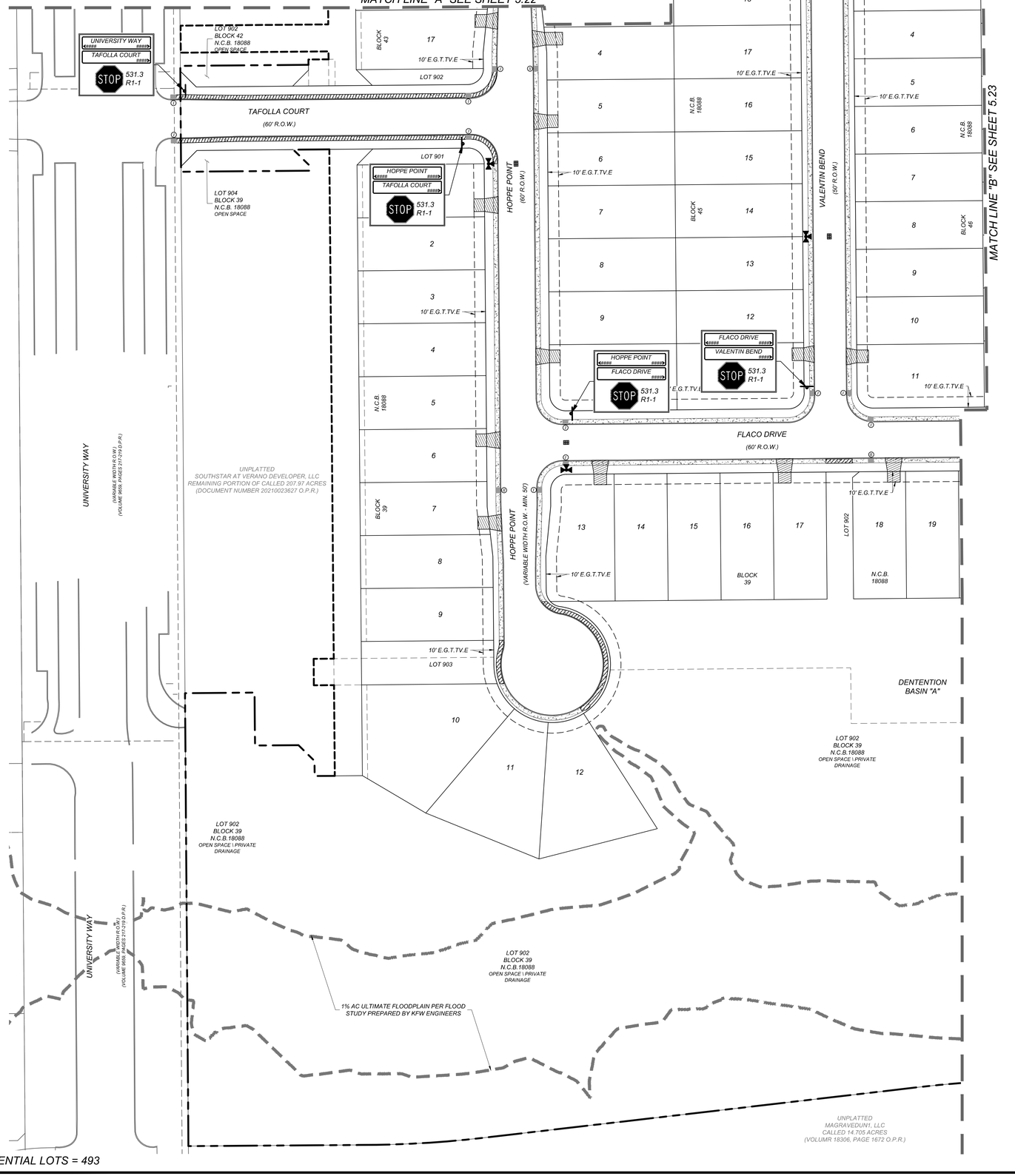
PROJECT NUMBER: 391-10-24
DRAWING NAME: STDT3911024

SHEET TITLE:
MISCELLANEOUS CONSTRUCTION STANDARDS I

SHEET NUMBER:
5.20A

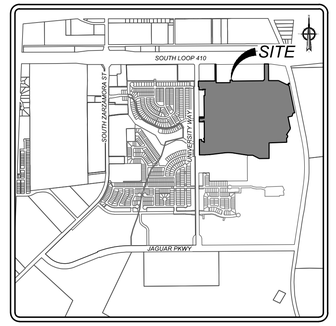
NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

I:\ACSTREETS\STDT3911024.dwg 5.20A By: SJOSEPH

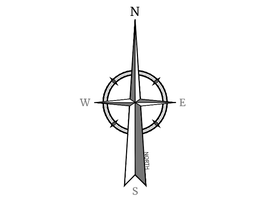


LEGEND

NEW CITY BLOCK	=	N.C.B
ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT	=	E.G.T.TV.E
SANITARY SEWER EASEMENT	=	S.S.E
DRAINAGE EASEMENT	=	D.E
VARIABLE WIDTH CLEAR VISION EASEMENT	=	V.W.C.V.E
WHEELCHAIR RAMP TYPE I SEE SHEET 5.19	=	(I)
WHEELCHAIR RAMP TYPE II SEE SHEET 5.19	=	(II)
WHEELCHAIR RAMP TYPE V SEE SHEET 5.19	=	(V)
SIDEWALK TO BE CONSTRUCTED BY DEVELOPER	=	
SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION	=	
DRIVEWAY LOCATION	=	



LOCATION MAP
N.T.S.



50 0 50 100

SCALE : 1" = 50'
Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)

SYMBOL		ITEM NUMBER
STOP	R1-1 30 X 30	531.03
STREET NAME #####	STANDARD COSA STREET NAME SIGN STD X 9	531.59
	OM4-3 END-OF-ROADWAY MARKER	531.56
DEAD END	W14-1A 36" x 8"	531.58
	TYPE II BLUE PAVEMENT MARKER	537.8

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REV	DATE	DRAWN BY	DESCRIPTION

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

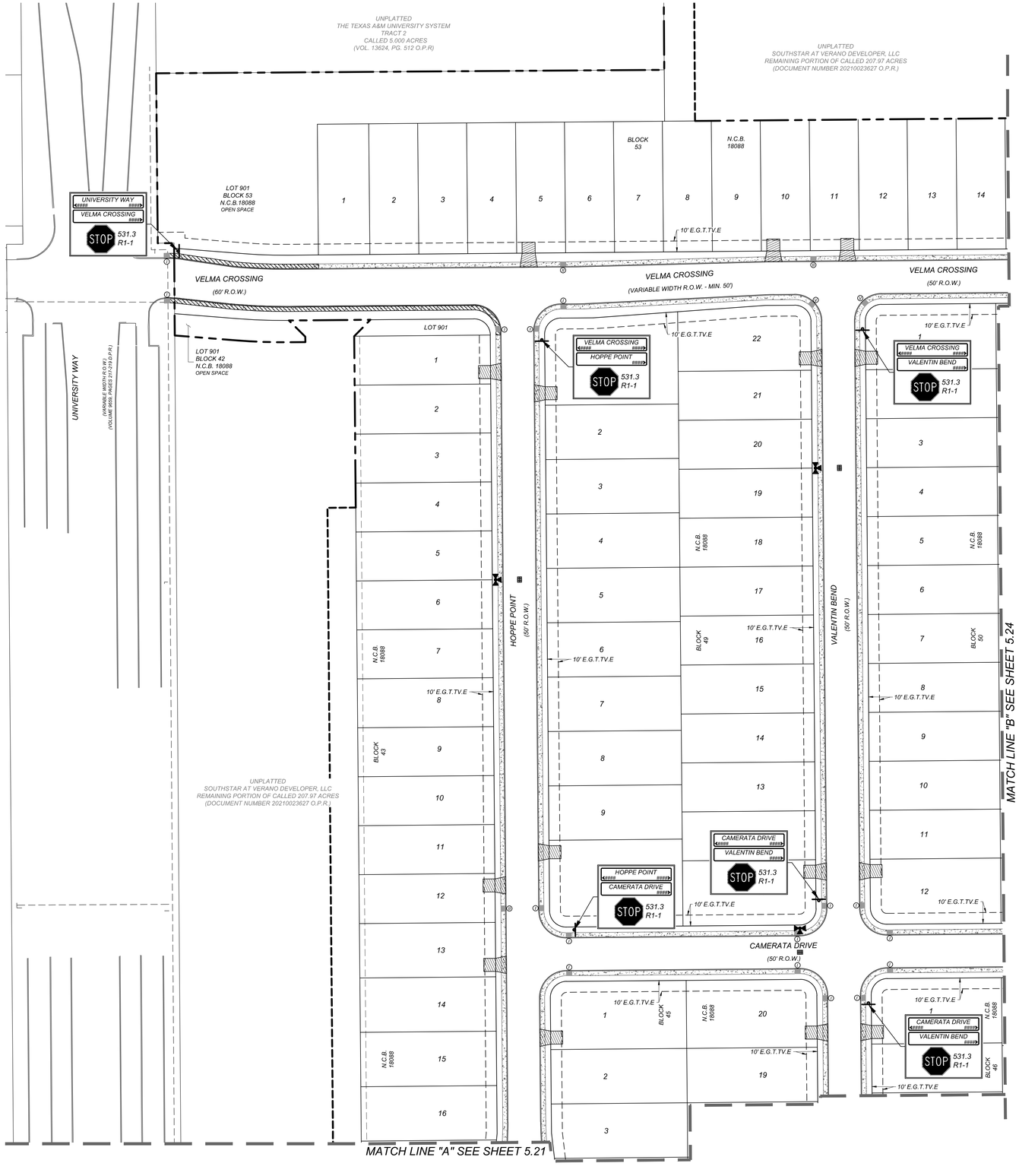
PROJECT NUMBER: 391-10-24
DRAWING NAME: TS3911024

SHEET TITLE: TRAFIC SIGNAGE & PEDESTRIAN ACCESSIBILITY PLAN (1 OF 6)

SHEET NUMBER: 5.21

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

By: SOSEPH
I:\ROT\RET\TS3911024.dwg[5.21

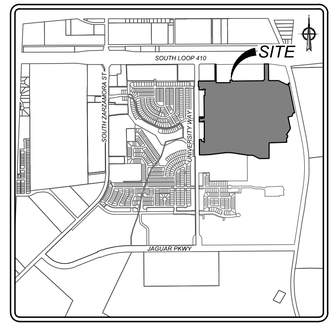


UNPLATTED
SOUTHSTAR AT VERANO DEVELOPER, LLC
REMAINING PORTION OF CALLED 207.97 ACRES
(DOCUMENT NUMBER 20210023627 O.P.R.)

RESIDENTIAL LOTS = 493

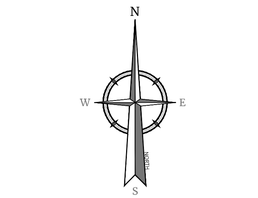
LEGEND

NEW CITY BLOCK	=	N.C.B
ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT	=	E.G.T.TV.E
SANITARY SEWER EASEMENT	=	S.S.E
DRAINAGE EASEMENT	=	D.E
VARIABLE WIDTH CLEAR VISION EASEMENT	=	V.W.C.V.E
WHEELCHAIR RAMP TYPE I SEE SHEET 5.19	=	(I)
WHEELCHAIR RAMP TYPE II SEE SHEET 5.19	=	(II)
WHEELCHAIR RAMP TYPE V SEE SHEET 5.19	=	(V)
SIDEWALK TO BE CONSTRUCTED BY DEVELOPER	=	
SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION	=	
DRIVEWAY LOCATION	=	



LOCATION MAP

N.T.S.



50 0 50 100

SCALE : 1" = 50'

Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)

SYMBOL		ITEM NUMBER
STOP	R1-1 30 X 30	531.03
STREET NAME	STANDARD COSA STREET NAME SIGN STD X 9	531.59
	OM4-3 END-OF-ROADWAY MARKER	531.56
DEAD END	W14-1A 36" x 8"	531.58
	TYPE II BLUE PAVEMENT MARKER	537.8

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PLAT# 24-11800334

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BEXAR COUNTY
TEXAS

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SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14309
TBPLS Firm#: 10194500

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

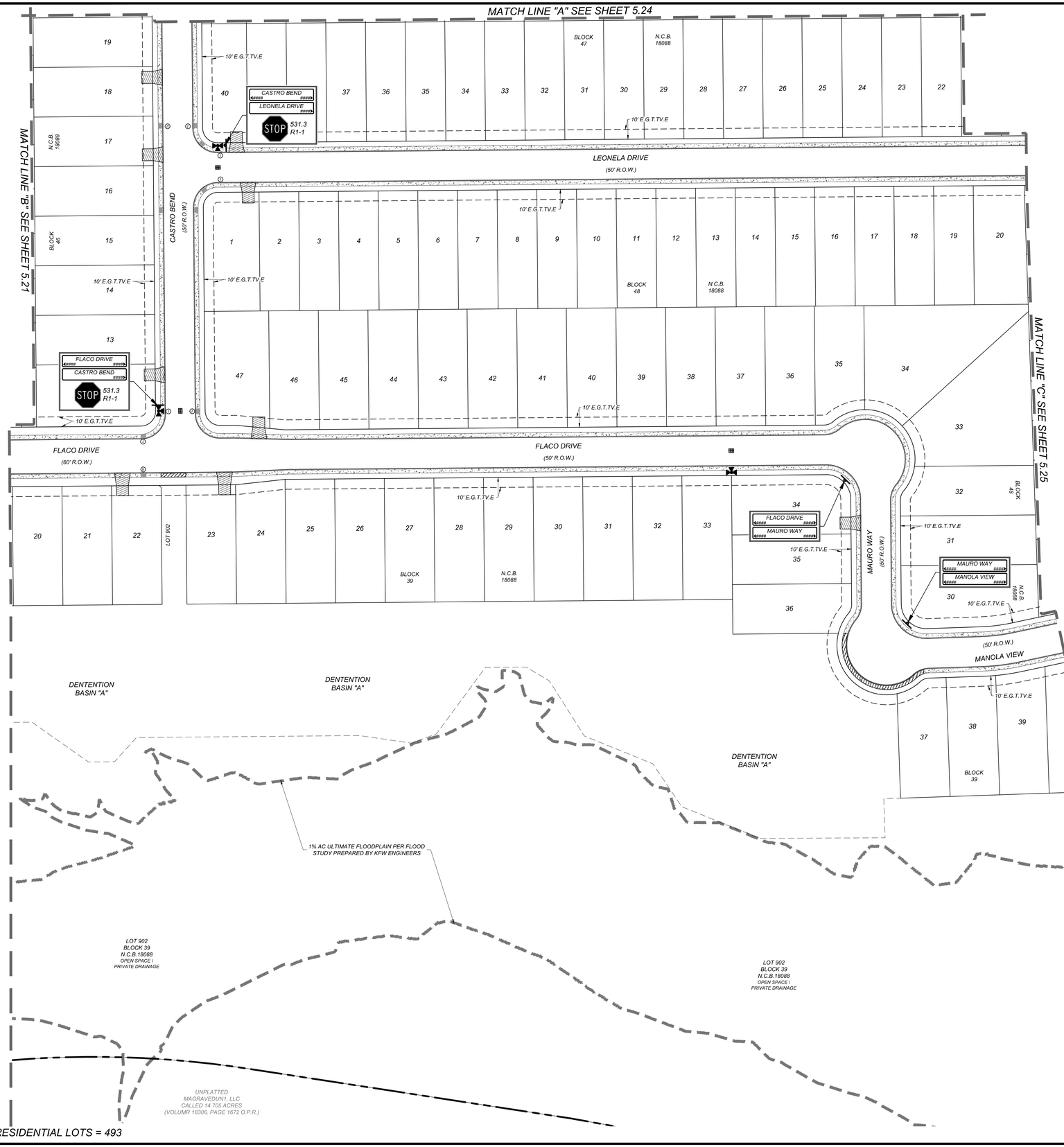
PROJECT NUMBER: 391-10-24
DRAWING NAME: TS3911024

SHEET TITLE: TRAFIC SIGNAGE & PEDESTRIAN ACCESSIBILITY PLAN (2 OF 6)

SHEET NUMBER: 5.22

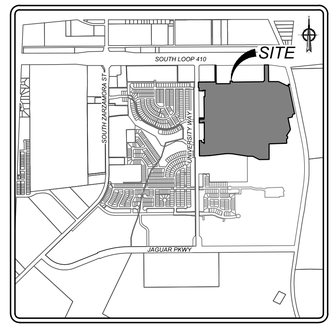
NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

M:\SITES\TS3911024\dwg\5.22 By: SDOEPH

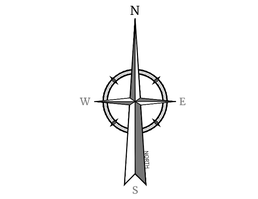


LEGEND

NEW CITY BLOCK	=	N.C.B
ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT	=	E.G.T.TV.E
SANITARY SEWER EASEMENT	=	S.S.E
DRAINAGE EASEMENT	=	D.E
VARIABLE WIDTH CLEAR VISION EASEMENT	=	V.W.C.V.E
WHEELCHAIR RAMP TYPE I SEE SHEET 5.19	=	(I)
WHEELCHAIR RAMP TYPE II SEE SHEET 5.19	=	(II)
WHEELCHAIR RAMP TYPE V SEE SHEET 5.19	=	(V)
SIDEWALK TO BE CONSTRUCTED BY DEVELOPER	=	
SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION	=	
DRIVEWAY LOCATION	=	



LOCATION MAP
N.T.S.



50 0 50 100

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Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)

SYMBOL		ITEM NUMBER
STOP	R1-1 30 X 30	531.03
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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

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SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

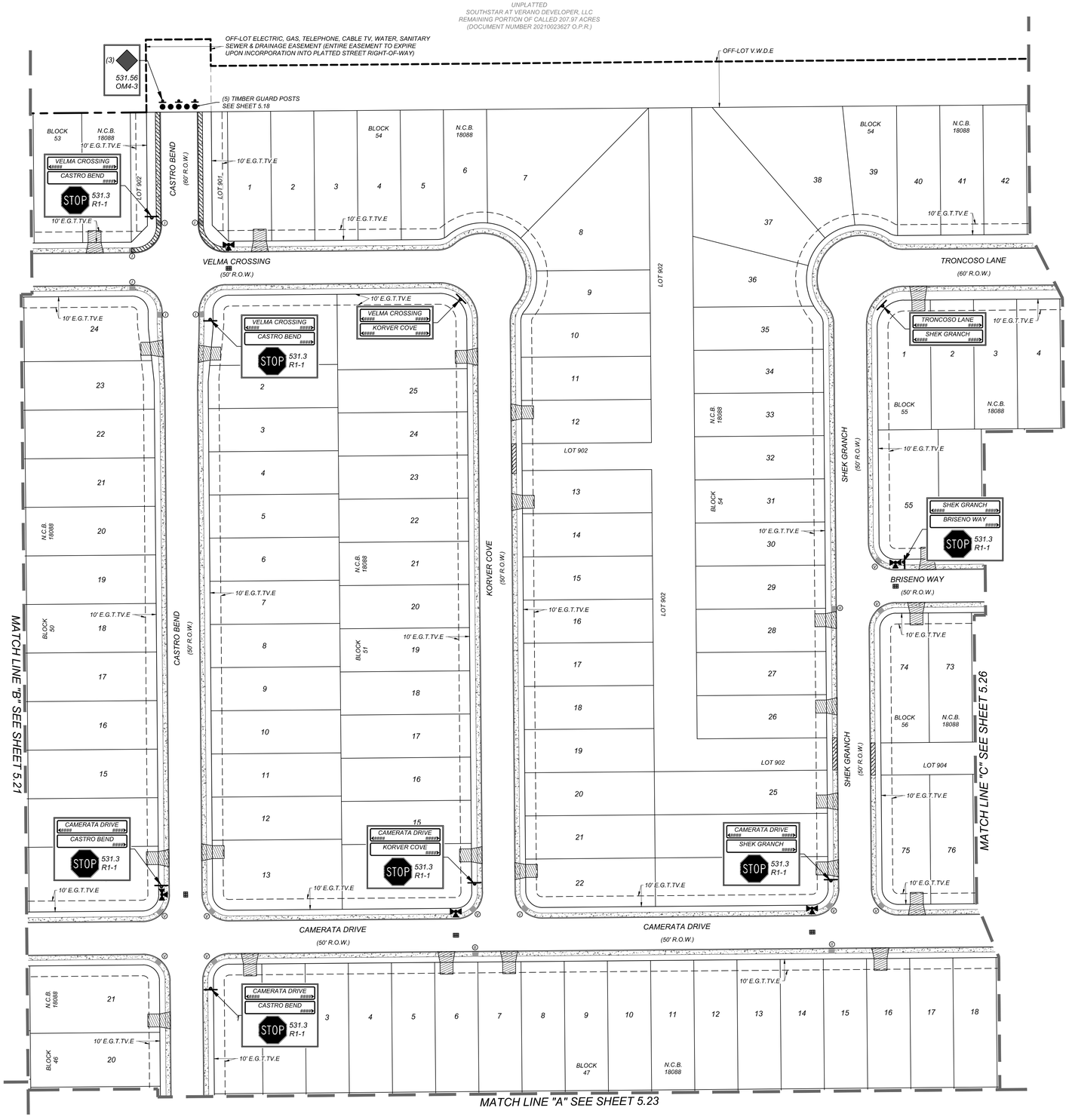
PROJECT NUMBER: 391-10-24
DRAWING NAME: TS3911024

SHEET TITLE: TRAFIC SIGNAGE & PEDESTRIAN ACCESSIBILITY PLAN (3 OF 6)

SHEET NUMBER: 5.23

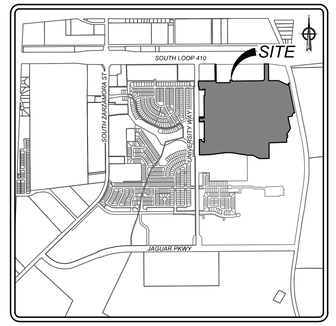
NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

w:\STREETS\TS3911024.dwg\5.23 By: SJOSEPH

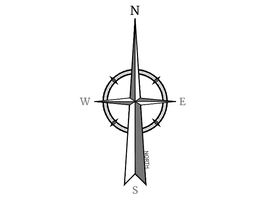


LEGEND

NEW CITY BLOCK	=	N.C.B
ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT	=	E.G.T.TV.E
SANITARY SEWER EASEMENT	=	S.S.E
DRAINAGE EASEMENT	=	D.E
VARIABLE WIDTH CLEAR VISION EASEMENT	=	V.W.C.V.E
WHEELCHAIR RAMP TYPE I SEE SHEET 5.19	=	(I)
WHEELCHAIR RAMP TYPE II SEE SHEET 5.19	=	(II)
WHEELCHAIR RAMP TYPE V SEE SHEET 5.19	=	(V)
SIDEWALK TO BE CONSTRUCTED BY DEVELOPER	=	
SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION	=	
DRIVEWAY LOCATION	=	



LOCATION MAP
N.T.S.



SYMBOL		ITEM NUMBER
STOP	R1-1 30 X 30	531.03
STREET NAME #####	STANDARD COSA STREET NAME SIGN STD X 9	531.59
	OM4-3 END-OF-ROADWAY MARKER	531.56
DEAD END	W14-1A 36" x 8"	531.58
	TYPE II BLUE PAVEMENT MARKER	537.8

RESIDENTIAL LOTS = 493

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PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION OF EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN ANY STATE
FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

REV	DATE	DRAWN BY	DESCRIPTION

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

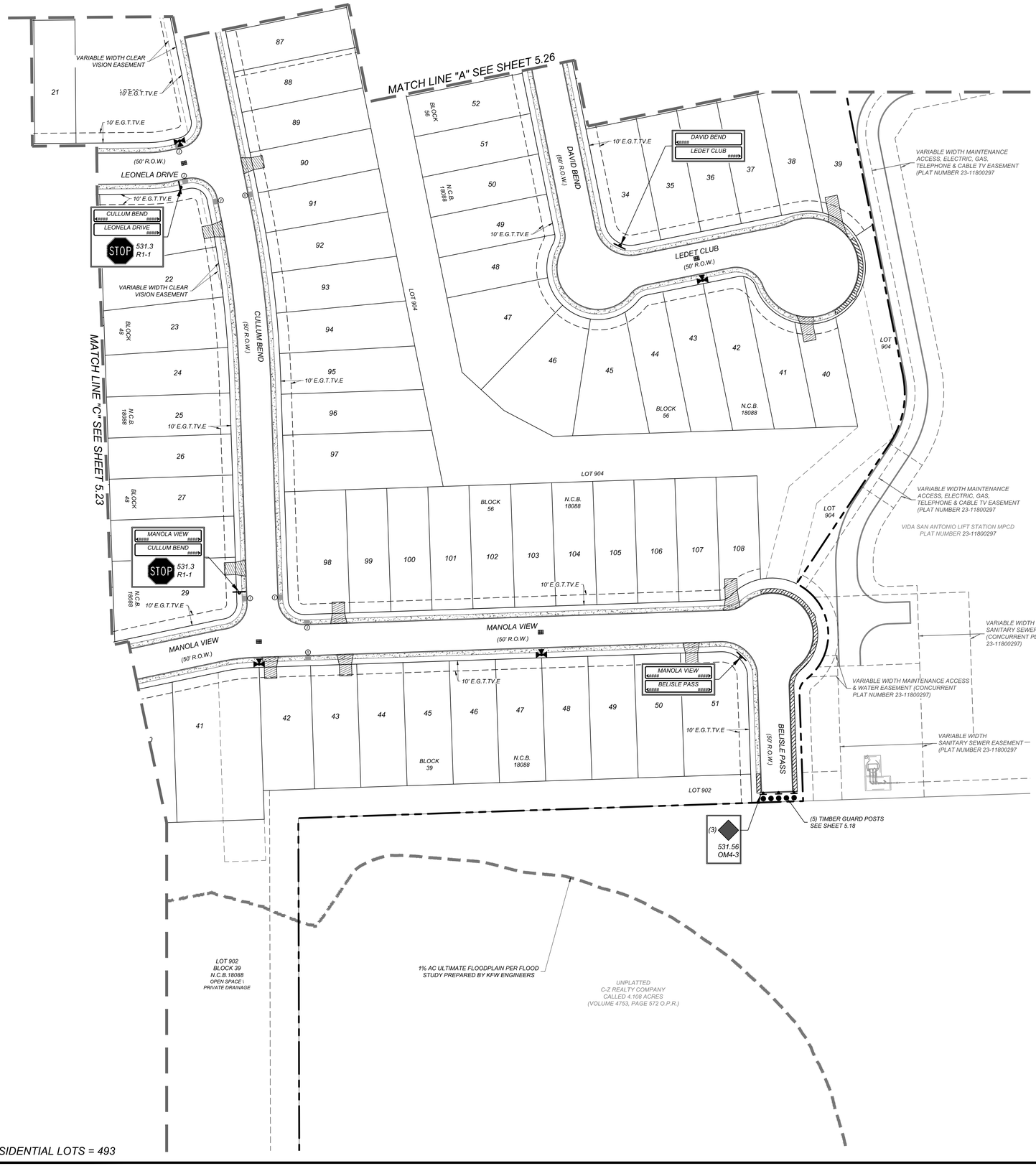
PROJECT NUMBER: 391-10-24
DRAWING NAME: TS3911024

SHEET TITLE: TRAFIC SIGNAGE & PEDESTRIAN ACCESSIBILITY PLAN (4 OF 6)

SHEET NUMBER: 5.24

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

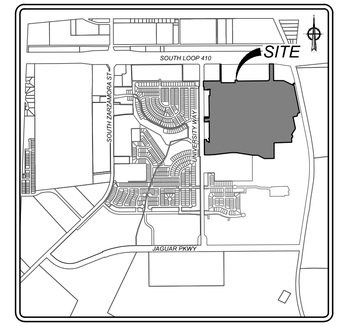
By: SJOSEPH
n:\STREETS\TS3911024.dwg\5.24



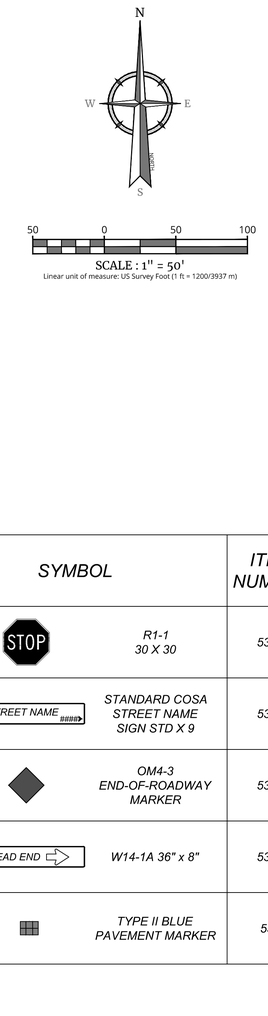
RESIDENTIAL LOTS = 493

LEGEND

NEW CITY BLOCK	=	N.C.B
ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT	=	E.G.T.TV.E
SANITARY SEWER EASEMENT	=	S.S.E
DRAINAGE EASEMENT	=	D.E
VARIABLE WIDTH CLEAR VISION EASEMENT	=	V.W.C.V.E
WHEELCHAIR RAMP TYPE I SEE SHEET 5.19	=	(I)
WHEELCHAIR RAMP TYPE II SEE SHEET 5.19	=	(II)
WHEELCHAIR RAMP TYPE V SEE SHEET 5.19	=	(V)
SIDEWALK TO BE CONSTRUCTED BY DEVELOPER	=	
SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION	=	
DRIVEWAY LOCATION	=	



LOCATION MAP
N.T.S.



SCALE : 1" = 50'
Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)

SYMBOL		ITEM NUMBER
STOP	R1-1 30 X 30	531.03
STREET NAME #####	STANDARD COSA STREET NAME SIGN STD X 9	531.59
	OM4-3 END-OF-ROADWAY MARKER	531.56
DEAD END	W14-1A 36" x 8"	531.58
	TYPE II BLUE PAVEMENT MARKER	537.8

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REV	DATE	DRAWN BY	DESCRIPTION

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14305
TBPLS Firm#: 10194500

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: TS3911024

SHEET TITLE:
TRAFIC SIGNAGE & PEDESTRIAN ACCESSIBILITY PLAN (5 OF 6)

SHEET NUMBER:
5.25

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

w:\STREETS\TS3911024.dwg\05.25 By: JOSEPH

MATCH LINE "D" SEE THIS SHEET

UNPLATTED SOUTHSTAR AT VERANO DEVELOPER, LLC REMAINING PORTION OF CALLED 207.97 ACRES (DOCUMENT NUMBER 20210023627 O.P.R.)

14' E.G.T.TV.E
OFF-LOT V.W.D.E
OFF-LOT V.W.D.E
30' S.S.E
OFF-LOT 14' E.G.T.TV.E
OFF-LOT V.W. D.E
OFF-LOT V.W.D.E
OFF-LOT 25' S.S.E
VARIABLE WIDTH MAINTENANCE ACCESS, ELECTRIC, GAS, TELEPHONE & CABLE TV EASEMENT (PLAT NUMBER 23-11800297

BLOCK 54 | N.C.B. 18088 | 43 | 44 | 14' E.G.T.TV.E | 10' E.G.T.TV.E

TRONCOSO LANE
NAVAIRA LANE
STOP 531.3 R1-1
LOT 903
NAVAIRA LANE (70' R.O.W.)
LOT 902
14' E.G.T.TV.E
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33
BLOCK 56 | N.C.B. 18088
10' E.G.T.TV.E
20' S.S.E

TRONCOSO LANE
(60' R.O.W.)
TRONCOSO LANE
(VARIABLE WIDTH R.O.W. - MIN. 50')

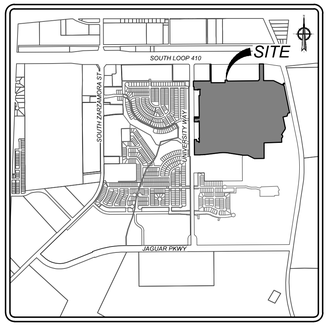
5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
10' E.G.T.TV.E
BLOCK 55 | N.C.B. 18088
VARIABLE WIDTH CLEAR VISION EASEMENT
OFF-LOT V.W.D.E
TRONCOSO LANE (50' R.O.W.)
VIDA SAN ANTONIO LIFE STATION MFCD PLAT NUMBER 23-11800297

53 52 51 50 49 48 47 46 45 44 43 42 41 40 39 38 37 36 35 34 33 32 31 30 29 28
BLOCK 55 | N.C.B. 18088
10' E.G.T.TV.E
BRISENO WAY
(50' R.O.W.)

72 71 70 69 68 67 66 65 63 62 61 60 59 58 57 56 55 54 53
BLOCK 56 | N.C.B. 18088
10' E.G.T.TV.E
BRISENO WAY
DAVID BEND
DAVID BEND (50' R.O.W.)
BLOCK 56 | N.C.B. 18088
10' E.G.T.TV.E
BLOCK 55 | N.C.B. 18088
10' E.G.T.TV.E
BLOCK 56

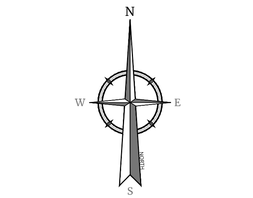
KEYNOTES:

- ③ = 8" SOLID WHITE STRIPE
- ④ = LEFT TURN ARROW PAVEMENT MARKING THERMOPLASTIC LINES
- ⑤ = BICYCLE PAVEMENT MARKING THERMOPLASTIC LINES
- ⑥ = ARROW PAVEMENT MARKING THERMOPLASTIC LINES
- ⑦ = 4" BROKEN YELLOW THERMOPLASTIC LINES WITH TYPE II A-A RPMS
- ⑧ = 4" SOLID YELLOW THERMOPLASTIC LINES



LOCATION MAP

N.T.S.



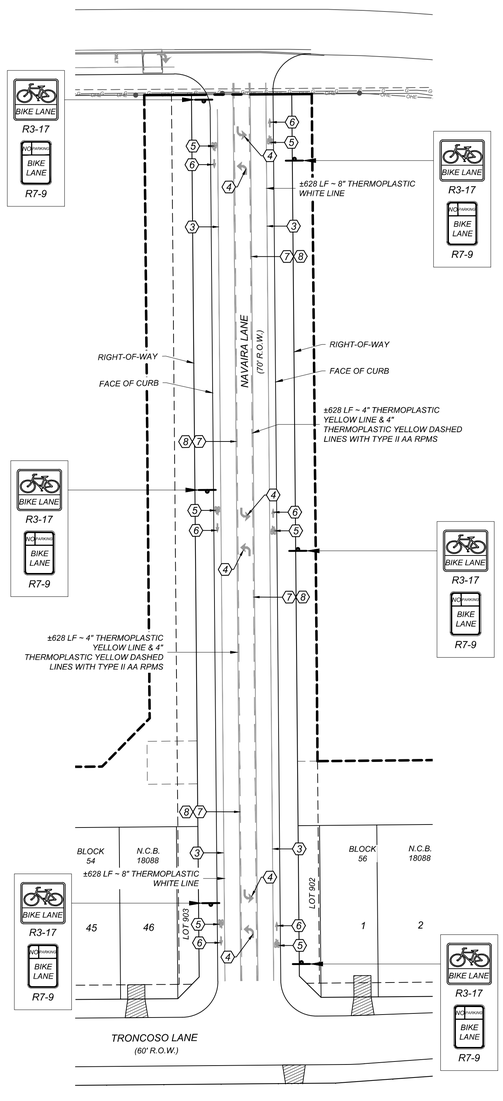
50 0 50 100

SCALE : 1" = 50'

Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)

SOUTH LOOP 410 ACCESS

(VARIABLE WIDTH R.O.W.)



RESIDENTIAL LOTS = 493

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REV	DATE	DRAWN BY	DESCRIPTION

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: TS3911024

SHEET TITLE: STRIPING PLAN

SHEET NUMBER: 5.27

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

By: SOSEPH
n:\STREETS\TS3911024.dwg(5.27

GENERAL NOTES

1.) THE EXISTING SIGNS LOCATED ON THE JOBSITE ARE THE PROPERTY OF THE CITY OF SAN ANTONIO. THROUGHOUT THE PERIOD OF THE CONTRACT, THE CONTRACTOR SHALL PROTECT THESE SIGNS SUCH THAT THEY ARE NOT DAMAGED IN THE COURSE OF CONSTRUCTION ACTIVITY. SUCH PROTECTION SHALL INCLUDE THE PERIOD AFTER SIGNS ARE REMOVED FROM INSTALLATION AND STORED BY THE CONTRACTOR OR DELIVERED TO TRAFFIC OPERATIONS. THE ASSISTANT TRAFFIC SUPERINTENDENT (207-7765) MUST BE NOTIFIED 48 HOURS IN ADVANCE PRIOR TO DELIVERY.

2.) AFTER SIGNS ARE REMOVED FROM INSTALLATION AND ARE BEING STORED BY THE CONTRACTOR, THE CONTRACTOR SHALL CONTACT THE TRAFFIC OPERATIONS SECTION OF THE PUBLIC WORKS DEPARTMENT (207-7765) AND ARRANGE FOR A CONVENIENT TIME TO DELIVER CITY SIGNS AND POLES.

3.) PRIOR TO THE START OF CONSTRUCTION, ALL EXISTING SIGNS WITHIN THE AREA OF CONSTRUCTION WILL BE INVENTORIED AND DOCUMENTED JOINTLY BY THE TRAFFIC ENGINEERING (207-7720) CONSTRUCTION INSPECTION AND THE CONTRACTOR. THIS DOCUMENT WILL BE JOINTLY SIGNED BY BOTH PARTIES REFLECTING THE SIGN TYPE, SIGN SIZE, SIGN CONDITION, SIGN LOCATION, REFLECTIVITY ADEQUACY, ETC. THE CONTRACTOR IS HELD ACCOUNTABLE FOR THESE SIGNS THROUGHOUT THE PROJECT AND AT THE PROJECTS COMPLETION.

4.) ALL GROUND MOUNTED SHALL USE HIGH INTENSITY REFLECTIVE SHEETING.

5.) ALL OVERHEAD SIGNS SHALL USE DIAMOND GRADE REFLECTIVE SHEETING.

6.) ALL BLANKS TO BE ALUMINUM ALLOY NO. 5052-H38.

7.) "T" DENOTES THICKNESS OF SIGN BLANKS.

8.) ALL HOLES SHALL BE 3/8 " DIAMETER DRILLED OR PUNCHED AS SHOWN ON EACH BLANK DETAIL AND SHALL BE FREE OF BURRS AND/OR ROUGH EDGES.

9.) SIGN BLANK CORNERS TO BE ROUNDED AS SHOWN ON EACH DETAIL.

10.) ALL SIGN BLANK TO BE ETCHED, DEGREASED, AND HAVE AN ALODINE FINISH PRIOR TO APPLICATION OF LEGENDS.

11.) ALL DETAILS ARE NOT TO SCALE.

12.) ALL DIMENSIONS ARE IN INCHES.

13.) ALL SIGNS SHALL BE MANUFACTURED AND INSTALLED IN CONFORMANCE TO THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVISES AND STANDARD HIGHWAY SIGNS (FHWA) LATEST EDITION.

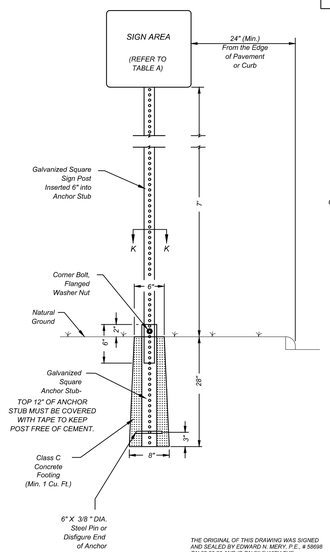
14.) REINSTALLATION OF PREVIOUSLY EXISTING SIGNS, WHERE REQUIRED BY THE CITY TRAFFIC ENGINEER, SHALL BE AT THE CONTRACTOR'S EXPENSE.

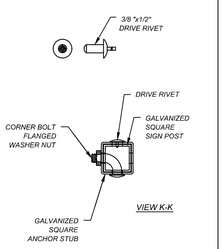
TYPICAL GROUND SIGN INSTALLATION

METAL TUBING	SIGN AREA	
	< 10 SQ. FT.	> 10 SQ. FT.
GALVANIZED SQUARE SIGN POST (Perforated)	1-3/4" x 1-3/4" (14 Guage)	2" x 2" (12 Guage)
GALVANIZED SQUARE ANCHOR STUB (Perforated)	2" X 2" (14 Guage)	2-1/4" x 2-1/4" (14 Guage)

TABLE A

TYPE "U" MOUNT
PERFORATED SQUARE METAL TUBING (DRIVEABLE)





THE ORIGINAL OF THIS DRAWING WAS SIGNED AND SEALED BY EDWARD N. MERY, P.E., # 58698 ON 02.06.06 AND IS ON FILE WITH THE TRAFFIC ENGINEERING DIVISION OF THE PUBLIC WORKS DEPARTMENT, CITY OF SAN ANTONIO.

NO.	REVISION	BY:	DATE:
X	XXX	XXX	XXX

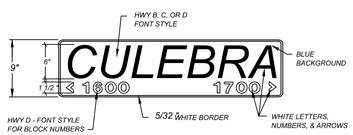
CITY OF SAN ANTONIO
TRAFFIC ENGINEERING DIVISION
DEPARTMENT OF PUBLIC WORKS

TRAFFIC SIGN STANDARDS

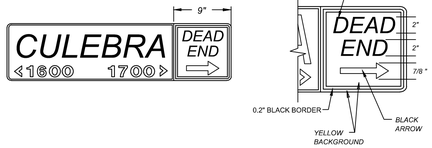
GENERAL NOTES AND GROUND SIGN MOUNTING

TE-SGN(1)-06

DSND:ENM	APVD: JDF	DATE: 1.30.06		SHT. NO.
DRWN:FG	APVD: ENM	DATE: 2.6.06		1 OF 4
RVSD:	APVD:	DATE:	SCALE: NOT TO SCALE	



9" D3 - STREET NAME SIGN



NEW 9" D3 w/ DEAD END OR NO OUTLET SIGNAGE

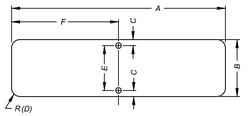
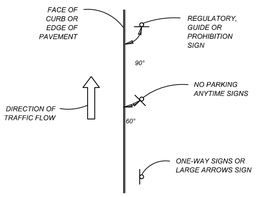


TABLE - D3 SIGNS

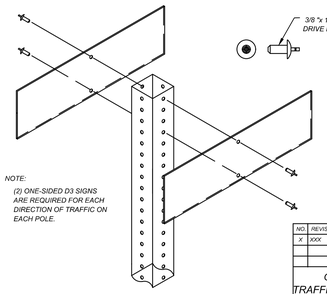
A	B	C	D	E	F	T
24"	9"	1/2"	3/4"	8"	12"	0.125"
30"	9"	1/2"	3/4"	8"	15"	0.125"
36"	9"	1/2"	3/4"	8"	18"	0.125"
42"	9"	1/2"	3/4"	8"	21"	0.125"
48"	9"	1/2"	3/4"	8"	24"	0.125"
54"	9"	1/2"	3/4"	8"	27"	0.125"

NOTE: A 30" LONG OR GREATER PLATE SHALL BE USED WHEN A "DEAD END" OR "NO OUTLET" SUPPLEMENT IS REQUIRED.

HEIGHT	9" (228 mm)
LENGTH	24" (600mm) MIN. 54 (1350mm) MAX. 6" (150mm) INCREMENTS OF LENGTH
THICKNESS	0.125" (3mm)
SUBSTRATE	ALUMINUM ALLOY, 5052-H38 (ASTM B-209) GOLD CHROMATE FINISH
SIGN FACE MATERIALS	BLUE FILM OVER HIGH INTENSITY FP-85, SECTION 718 AND L-S-300C
LEGENDS AND SYMBOLS	SERIES D (USUAL) SERIES C OR B FOR MAXIMUM LENGTH SIGN BLANK, IF NECESSARY
COLOR	WHITE LEGEND ON BLUE BACKGROUND
LETTER TRACKING	10%



TYPICAL GROUND MOUNTED SIGN PLACEMENT



NOTE:
(2) ONE-SIDED D3 SIGNS ARE REQUIRED FOR EACH DIRECTION OF TRAFFIC ON EACH POLE.

D3 SIGN TO POLE INSTALLATION

THE ORIGINAL OF THIS DRAWING WAS SIGNED AND SEALED BY EDWARD N. MERY, P.E., # 58698 ON 02.06.06 AND IS ON FILE WITH THE TRAFFIC ENGINEERING DIVISION OF THE PUBLIC WORKS DEPARTMENT, CITY OF SAN ANTONIO.

NO.	REVISION	BY:	DATE:
X	XXX	XXX	XXX

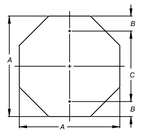
CITY OF SAN ANTONIO
TRAFFIC ENGINEERING DIVISION
DEPARTMENT OF PUBLIC WORKS

TRAFFIC SIGN STANDARDS

D3 STREET NAME SIGN AND SIGN MOUNTING

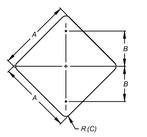
TE-SGN(2)-06

DSND:ENM	APVD: JDF	DATE: 1.30.06		SHT. NO.
DRWN:FG	APVD: ENM	DATE: 2.6.06		2 OF 4
RVSD:	APVD:	DATE:	SCALE: NOT TO SCALE	



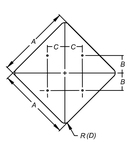
OCTAGONAL

A	B	C	T
24	3	18	0.080
30	3	24	0.080
36	3	30	0.100



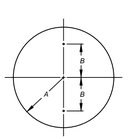
DIAMOND (A)

A	B	C	T
18	9	1 1/2	0.080
24	12	1 1/2	0.080
30	15	1 7/8	0.080
36	18	2 1/4	0.100



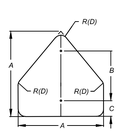
DIAMOND (B)

A	B	C	D	T
48	15	15	3	0.100



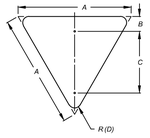
CIRCLE

A	B	T
18	15	0.100



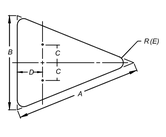
PENTAGON (SCHOOL)

A	B	C	D	T
36	24	3	2 1/4	0.100



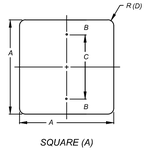
EQUILATERAL TRIANGLE

A	B	C	D	T
36	2	24	2	0.100



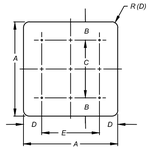
ISOSCELES TRIANGLE

A	B	C	D	E	T
40	30	7 1/2	12	1 7/8	0.100
48	36	9	15	2 1/4	0.100



SQUARE (A)

A	B	C	D	T
18	1 1/2	15	1 1/2	0.080
24	3	18	1 1/2	0.080
30	3	24	1 7/8	0.080



SQUARE (B)

A	B	C	D	E	F	T
48	6	36	9	30	3	0.100

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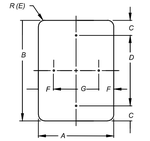
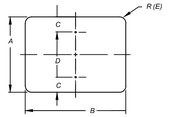


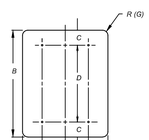
VERTICAL / HORIZONTAL RECTANGLE

A	B	C	D	E	F	G	T
12	18	1 1/2	15	1 1/2	1 1/2	9	0.080
12	36	3	30	1 1/2	1 1/2	9	0.080
18	24	1 1/2	21	1 1/2	1 1/2	15	0.080
24	30	3	24	1 1/2	3	18	0.080
24	36	3	30	1 1/2	3	18	0.080
24	48	6	36	1 7/8	3	18	0.080
30	36	3	30	1 7/8	3	24	0.080



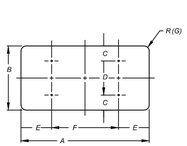
HORIZONTAL RECTANGLE

A	B	C	D	E	T
6	12	1	4	1/4	0.080
6	18	1	4	1/4	0.080
20	36	1 1/2	17	1 1/2	0.080



VERTICAL RECTANGLE

A	B	C	D	E	F	G	T
5	7 3/4	1/2	6 3/4	1/2	4	1/4	0.100
48	60	6	48	9	30	3	0.100



HORIZONTAL RECTANGLE

A	B	C	D	E	F	G	T
48	24	2	20	2	44	1 7/8	0.100
48	36	3	30	3	42	2 1/4	0.100
60	24	2	20	2	56	1 1/2	0.100
60	36	3	30	3	54	2 1/4	0.100
48	30	3	24	3	42	1 7/8	0.100
60	30	3	24	3	54	1 7/8	0.100

NO.	REVISION	BY:	DATE:
X	XXX	X	XXX

CITY OF SAN ANTONIO
TRAFFIC ENGINEERING DIVISION
DEPARTMENT OF PUBLIC WORKS

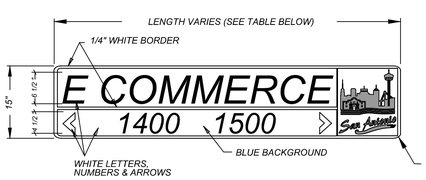
TRAFFIC SIGN STANDARDS

GROUND MOUNTED SIGN SIZES

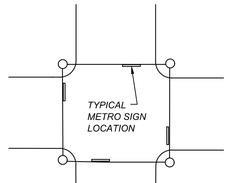
TE-SGN(3)-06

DSND:ENM	APVD: JDF	DATE: 1.30.06		SHT. NO.
DRWN:FG	APVD: ENM	DATE: 2.6.06		3 OF 4
RVSD:	APVD:	DATE:	SCALE: NOT TO SCALE	

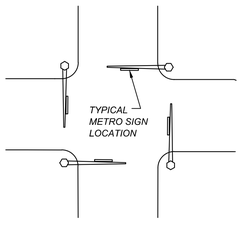
TYPICAL METRO SIGN PLACEMENT



15" METRO - STREET NAME SIGNS

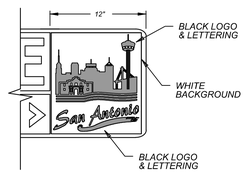


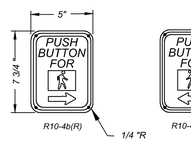
SPAN WIRE INSTALLATION



MAST ARM INSTALLATION

15" METRO w/ CITY SKY LINE





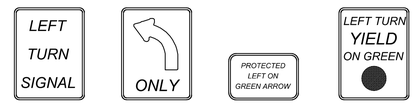
PEDESTRIAN PUSHBUTTON SIGNS

THE ORIGINAL OF THIS DRAWING WAS SIGNED AND SEALED BY EDWARD N. MERY, P.E., # 58698 ON 02.06.06 AND IS ON FILE WITH THE TRAFFIC ENGINEERING DIVISION OF THE PUBLIC WORKS DEPARTMENT, CITY OF SAN ANTONIO.

HEIGHT	15" (381 mm)
LENGTH	48" (1200 mm) MIN. 72" (1800 mm) MAX.** 1' (300mm) INCREMENTS OF LENGTH
THICKNESS	0.125" (3mm)
SUBSTRATE	ALUMINUM ALLOY, 5052-H38 (ASTM B-209) GOLD CHROMATE FINISH
SIGN FACE MATERIALS	BLUE FILM OVER DIAMOND GRADE FP-85, SECTION 718 AND L-S-300C
LEGENDS AND SYMBOLS	SERIES D (USUAL) SERIES C OR B FOR MAXIMUM LENGTH SIGN BLANK, IF NECESSARY
COLOR	WHITE LEGEND ON BLUE BACKGROUND
LETTER TRACKING	17% (USUAL) 10% (MIN.)

** SIGN PLATE LONGER THAN 72" MUST BE APPROVED BY THE CITY TRAFFIC ENGINEER

* DIAMOND GRADE SHEETING 5052-H38 ALUMINUM SUBSTRATE



LEFT TURN SIGNS

NO.	REVISION	BY:	DATE:
X	XXX	X	X

CITY OF SAN ANTONIO
TRAFFIC ENGINEERING DIVISION
DEPARTMENT OF PUBLIC WORKS

TRAFFIC SIGN STANDARDS

METRO STREET NAME SIGN AND SIGN PLACEMENT

TE-SGN(4)-06

DSND:ENM	APVD: JDF	DATE: 1.30.06		SHT. NO.
DRWN:FG	APVD: ENM	DATE: 2.6.06		4 OF 4
RVSD:	APVD:	DATE:	SCALE: NOT TO SCALE	

RESIDENTIAL LOTS = 493

Colliers Engineering & Design
www.colliersengineering.com
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811 PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION OF EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN ANY STATE
FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

REV	DATE	DRAWN BY	DESCRIPTION

THIS DOCUMENT IS RELEASED BY AUTHORITY OF OMAR A. ESPINOSA, P.E. # 125560 FOR BID SET ONLY AND NOT TO BE USED FOR CONSTRUCTION.

FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14309
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: TS3911024

SHEET TITLE: STREET SIGNAGE DETAILS

SHEET NUMBER: 5.28

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

M:\STREETS\TS3911024.dwg\5.28 By: SOSEPH

SIGN SUPPORT DESCRIPTIVE CODES

(Descriptive Codes correspond to project estimate and quantities sheets)

SM RD SGN ASSM TY XXXXX(X)XX(X-XXXX)

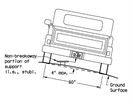
Post Type
- FRP = Fiberglass Reinforced Plastic Pipe (see SMD(FRP))
- TWT = Thin-Walled Tubing (see SMD(TWT))
- 10WG = 10 GWG Tubing (see SMD(SLIP-1) to (SLIP-3))
- SBS = Schedule 80 Pipe (see SMD(SLIP-1) to (SLIP-3))

Number of Posts (1 or 2)

Anchor Type
- UA = Universal Anchor - Concreted (see SMD(FRP) and (TWT))
- UB = Universal Anchor - Bolted Down (see SMD(FRP) and (TWT))
- RS = Wedge Anchor Steel - (see SMD(TWT))
- RA = Wedge Anchor Aluminum - (see SMD(TWT))
- SA = Slipbase - Concreted (see SMD(SLIP-1) to (SLIP-3))
- SB = Slipbase - Bolted Down (see SMD(SLIP-1) to (SLIP-3))

Sign Mounting Designation
- P = Prefab. "Frido" (see SMD(SLIP-1) to (SLIP-3), (TWT), (FRP))
- T = Prefab. "T" (see SMD(SLIP-1) to (SLIP-3), (TWT))
- U = Prefab. "U" (see SMD(SLIP-1) to (SLIP-3))
- F = Flange
- (123) or 2021 = Number of Extensions (see SMD(SLIP-1) to (SLIP-3), (TWT))
- BM = Extended Wind Beam (see SMD(SLIP-1) to (SLIP-3))
- WC = 1.12 W/Y Wing Channel (see SMD(SLIP-1) to (SLIP-3))
- EWA, = Extruded Aluminum Sign Panels (see SMD(SLIP-3))

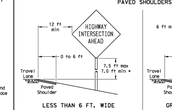
REQUIRED CLEARANCE FOR BREAKAWAY SUPPORT



To avoid vehicle undercarriage snagging, any substantial meeting of a breakaway support, such as a nut on a bolt, that is located more than 4 inches above a non-breakaway (i.e., typical space between wheel paths).

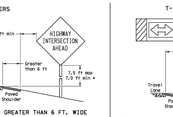
SIGN LOCATION

PAVED SHOULDERS



LESS THAN 6 FT. WIDE

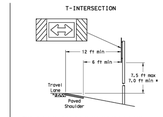
When the shoulder is 6 ft. or less in width, the sign shall be placed at least 12 ft. from the edge of the travel lane.



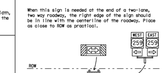
GREATER THAN 6 FT. WIDE

When the shoulder is greater than 6 ft in width, the sign shall be placed at least 6 ft. from the edge of the shoulder.

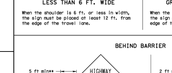
T-INTERSECTION



When this sign is needed at the end of a two-lane, two way roadway, the right edge of the sign should be in line with the centerline of the roadway, as close to 90° as practical.



BEHIND BARRIER



BEHIND GUARDRAIL

*Sign clearance based on distance required for proper guard rail or concrete barrier performance.



BEHIND CONCRETE BARRIER

* Signs shall be mounted using the following condition that results in the greatest sign elevation:

(1) a distance of 7 ft a maximum of 7.5 feet above the edge of the travel lane, or

(2) a distance of 7 ft a maximum of 7.5 feet above the grade of the base of the support when sign is installed on the backslope.

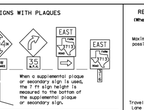
The maximum values may be increased when directed by the Engineer.

See the Traffic Operations Division website for detailed drawings of sign slopes, Triangular Slipbase System components and Design Anchor System components.

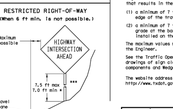
The website address is:
http://www.txdot.gov/publications/traffic.htm

TYPICAL SIGN ATTACHMENT DETAIL

Single Signs



Back-to-Back Signs



Bolts used to mount sign panels to the clamps are 5/16-18 UNC galvanized square head with nut, lock washer and nylon washer, flat washer. The bolt length is 1 inch for aluminum.

When two slipbase are used to mount signs back-to-back, use a 5/16-18 UNC galvanized hex head per ASTM A307 with nut and helical-spring lock washer. The approximate bolt lengths for various post sizes and sign clamp types are given in the table at right. The bolt length may have to be adjusted depending upon field conditions.

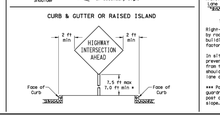
Sign clamps may be either the specific size clamp or the universal clamps.

Pipe Diameter	Approximate Bolt Length	
	Specific Clamp	Universal Clamp
2" nominal	3"	3 or 3 1/2"
2 1/2" nominal	3 or 3 1/2"	3 1/2 or 4"
3" nominal	3 1/2 or 4"	4 1/2"

SIGNS WITH PLAQUES

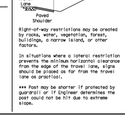
When a supplemental plaque or secondary sign is used, the 7 ft sign height is measured to the bottom of the supplemental plaque or secondary sign.

CURB & GUTTER OR RAISED ISLAND



RESTRICTED RIGHT-OF-WAY

(When 6 ft min. is not possible.)



Sign-of-way restrictions may be created by ponds, waters, vegetation, forest, buildings, a narrow island, or other feature.

In situations where a lateral restriction prevents the minimum horizontal clearance from the edge of the travel lane, signs should be placed as far from the travel lane as practical.

** Post may be shorter if protected by guardrail or if Engineer determines the post could not be hit due to extreme slope.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS GENERAL NOTES & DETAILS

SMD(GEN)-08

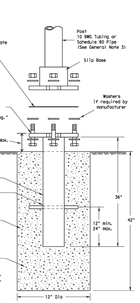
©TxDOT July 2002	No. 1997	Dec. 1998	No. 2001	Dec. 2002
9-08 REVISIONS	Sept. 2007	JUN		HIGHWAY
	FILE:	DateCK:	DWGT CK:	

254

DISCLAIMER: The use and application of the Texas Engineering Practice Act. No liability of any kind is assumed by the Texas Department of Transportation for any reason whatsoever arising out of the preparation or use of this standard.

DATED: 2002

TRIANGULAR SLIPBASE INSTALLATION GENERAL REQUIREMENTS



SM RD SGN ASSM TY XXXXX(10)(A)(X-XXXX)

NOTE

There are various devices approved for the Trilangular Slipbase System. Please reference the Material Producer List for approved slip base systems. http://www.txdot.gov/business/producer_list.htm The devices shall be installed per manufacturers' recommendations. Installation procedures shall be provided to the Engineer by Contractor.

GENERAL NOTES:

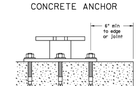
1. Slip base shall be permanently marked to indicate manufacturer, method, design, and location of installation as subject to approval of the TxDOT Traffic Standards Engineer.
2. Material used as post with this system shall conform to the following specifications:
   10 GWG Tubing (2.375" outside diameter)
   Tubing shall be ASTM A500 Grade B.
   Seamless or electric-resistance welded steel tubing or pipe
   Sheet shall be HSLAS or SS per ASTM A1011 or ASTM A1008
   Other sheets may be used if they meet the following:
   55,000 PSI minimum yield strength
   75,000 PSI minimum tensile strength
   20% minimum elongation in 2"
   Wall thickness (uncoated) shall be within the range of 0.127" to 0.134".
   Schedule 80 Pipe (2.875" outside diameter) ASTM A53, Grade B
   Galvanization per ASTM A123 or ASTM A653 G210, for preconcreted steel tubing ASTM A653, recoat tube outside diameter weld seam by metallizing with zinc wire per ASTM B833.
   Schedule 80 Pipe (2.875" outside diameter)
   0.276" nominal wall thickness
   Seamless or ERW per ASTM A53, Grade B
   Other seamless or electric-resistance welded steel tubing or pipe with equivalent outside diameter and wall thickness may be used if they meet the following:
   55,000 PSI minimum yield strength
   75,000 PSI minimum tensile strength
   20% minimum elongation in 2"
   Wall thickness (uncoated) shall be within the range of 0.248" to 0.304".
   Outside diameter (uncoated) shall be within the range of 2.835" to 2.895".
   Galvanization per ASTM A123
3. See the Traffic Operations Division website for detailed drawings of slipbase and Texas Universal Triangular Slipbase System components. The website address is: http://www.txdot.gov/publications/traffic.htm
4. Slip supports shall not be spliced except where shown. Slip support posts shall not be spliced.

ASSEMBLY PROCEDURE

Foundation
1. Prepare 12-inch diameter by 42-inch deep hole. If solid rock is encountered, the depth of the foundation may be reduced such that it is embedded a minimum of 18 inches into the solid rock.
2. Place reinforcement steel and non-reinforced concrete footing (shall be used unless noted otherwise in the plans). Foundation should have approx. 2.0 sf of concrete. Cross A concrete. Finish concrete above ground line with a multiple-edger or trowel to prevent ponding. Top of foundation shall be crowned to drain away from post. Allow a minimum of 4 days to set, unless otherwise directed by the Engineer.
3. Push the slip and of the slip base stub into the center of the concrete. Rotate the stub back and forth while pushing it down into the concrete to assure good contact between the concrete and stub. Check with a level to assure that the stub is plumb. Finish the concrete around the stub as shown.
4. Plumb the stub. Allow a minimum of 4 days to set, unless otherwise directed by the Engineer.
5. The triangular slipbase system is multidirectional and is designed to release when struck from any direction.

Support
1. Cut support so that the bottom of the sign will be 7 to 7.5 feet above the edge of the roadway i.e., edge of the closest lane) when slip plate is below the edge of pavement or 7 to 7.5 feet above the top of the plate when the slip plate is above the edge of the roadway. The nut shall be plumb and aligned.
2. Attach sign to support using connections shown. When multiple signs are installed on the same support, ensure the minimum clearance between each sign is maintained. See SMD(SLIP-3) for clearances based on sign types.

CONCRETE ANCHOR



SM RD SGN ASSM TY XXXXX(10)(A)(X-XXXX)

Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end, a heavy hex nut per ASTM A563 and hardened washer per ASTM F436. The stud bolt shall have minimum yield and ultimate tensile strengths of 50 and 75 ksi, respectively. Nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing." Top of bolt shall extend at least flush with top of nut when installed. The anchor, when installed in 4000 psi normal-weight concrete with a 3 5/8" minimum embedment, shall have a minimum allowable tension and shear of 2450 and 1525 pst, respectively. Adhesive type anchors shall have stud bolts installed with Type III epoxy per DMS-6100, "Epoxies and Adhesives." Adhesive anchors may be loaded after adequate epoxy cure time per the manufacturer's recommendations.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-1)-08

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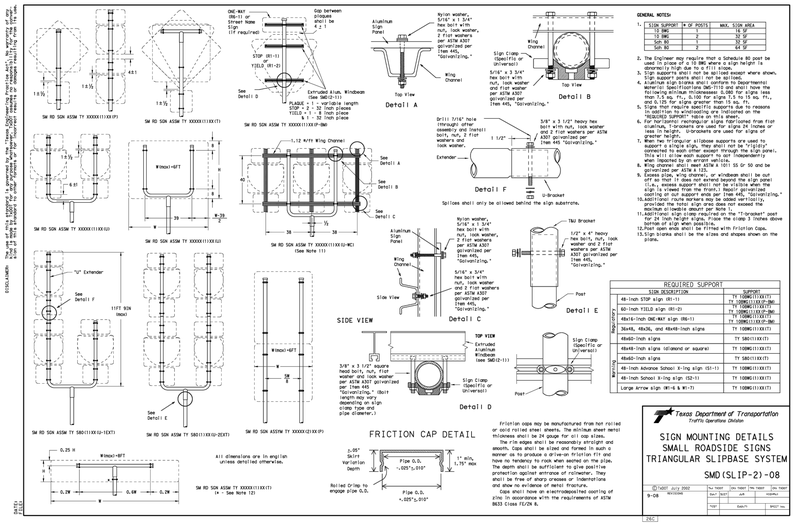
DATED: 2002


SM RD SGN ASSM TY XXXXX(11)XX(FP)
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SM RD SGN ASSM TY XXXXX(11)XX(U-BM)
SM RD SGN ASSM TY XXXXX(11)XX(U-WC)
SM RD SGN ASSM TY XXXXX(11)XX(WC)
SM RD SGN ASSM TY TWT(XX)(A)(P)
SM RD SGN ASSM TY TWT(XX)(A)(T)
SM RD SGN ASSM TY TWT(XX)(A)(UP)
SM RD SGN ASSM TY TWT(XX)(A)(UT)
SM RD SGN ASSM TY TWT(XX)(A)(WP)
SM RD SGN ASSM TY TWT(XX)(A)(WT)
SM RD SGN ASSM TY TWT(XX)(B)(P)
SM RD SGN ASSM TY TWT(XX)(B)(T)
SM RD SGN ASSM TY TWT(XX)(B)(UP)
SM RD SGN ASSM TY TWT(XX)(B)(UT)
SM RD SGN ASSM TY TWT(XX)(B)(WP)
SM RD SGN ASSM TY TWT(XX)(B)(WT)
SM RD SGN ASSM TY SBS(11)XX(EXT)
SM RD SGN ASSM TY SBS(11)XX(U-EXT)
SM RD SGN ASSM TY XXXXX(21)XX(P)
SM RD SGN ASSM TY XXXXX(11)XX(U-MC)
(See Note 11)
SM RD SGN ASSM TY XXXXX(11)XX(U-EXT)
SM RD SGN ASSM TY XXXXX(11)XX(T)
(• See Note 12)
All dimensions are in english unless detailed otherwise.
SM RD SGN ASSM TY XXXXX(11)XX(T)
(• See Note 12)
Gap between post and shoe shall be ≤ 2 1
ONE-WAY Sign Street Name Sign (if required)
STOP (R1-1)
YIELD (R1-2)
See Detail D
Extruded Alum. Windbeam (See SMD(SI-1))
FLAGS = 1 - variable length
STOP = 2 - 32 inch plates
YIELD = 2 - 36 inch plates
4 - 1 - 30 inch plate
Aluminum Sign Panel
Wing Channel
Top View
Detail A
Nylon washer, 5/16" x 1 3/4" hex bolt with nut, lock washer, 2 flat washers per ASTM A307 galvanized per Item 445, "Galvanizing."
Slip Clamp (Specific or Universal)
Wing Channel
Top View
Detail B
Drill 7/16" hole through other assembly and install bolt, nut, 2 flat washers and lock washer.
1 1/2"
Extender
Detail F
Splices shall only be allowed behind the slip substrate.
5/8" x 3 1/2" heavy hex bolt with nut, lock washer and 2 flat washers per ASTM A307 galvanized per Item 445 "Galvanizing."
U-Bracket
Nylon washer, 5/16" x 1 3/4" hex bolt with nut, lock washer and 2 flat washers per ASTM A307 galvanized per Item 445, "Galvanizing."
Aluminum Sign Panel
Wing Channel
Side View
Detail C
TBU Bracket
1/2" x 4" heavy hex bolt, nut, 2 lock washer and 2 flat washers per ASTM A307 galvanized per Item 445, "Galvanizing."
Post
Detail E
Sign Clamp (Specific or Universal)
Post
Detail D
SIDE VIEW
TOP VIEW
Extruded Aluminum Windbeam (See SMD(SI-1))
3/8" x 3 1/2" square head bolt, nut, flat washer and lock washer per ASTM A307 galvanized per Item 445 "Galvanizing." (Bolt length may vary depending on sign clamp type and pipe diameter.)
FRICTION CAP DETAIL
.05" Skirt Variation Depth
Roller Crimp to engage pipe O.D.
Pipe O.D. +.025"-.010"
1" min, 1.75" max
Pipe O.D. +.025"-.010"
Friction caps may be manufactured from hot rolled or cold rolled steel sheets. The minimum sheet metal thickness shall be 24 gauge for all cap sizes.
The rim edges shall be reasonably straight and smooth. The rim shall be rolled or swaged in such a manner as to produce a driven-on friction fit and have no tendency to rock when seated on the pipe. The depth shall be sufficient to give positive protection against entrance of rainwater. They shall be free of sharp creases or indentations and show no evidence of metal fracture.
Caps shall have an electrodeposited coating of zinc in accordance with the requirements of ASTM B633 Class FE/ZN 5.

GENERAL NOTES:

1. | SIGN SUPPORT | # OF POSTS | MAX. SIGN AREA |
   |---|---|---|
   | 10 GWG | 1 | 12 SF |
   | 10 GWG | 2 | 30 SF |
   | Sch 80 | 1 | 12 SF |
   | Sch 80 | 2 | 64 SF |
2. The Engineer may require that a Schedule 80 post be used in place of a 10 GWG where a sign height is abnormally high due to a fill slope.
3. Slip supports shall not be spliced except where shown. Slip support posts shall not be spliced.
4. Aluminum sign blanks shall conform to Departmental Material Specification DMS-7130, "Sign Blanks" and the following minimum thicknesses: 0.080 for signs less than 7.5 sq. ft., 0.100 for signs 7.5 to 15 sq. ft., and 0.125 for signs greater than 15 sq. ft.
5. Signs that require specific supports due to reasons other than those shown in this sheet, such as "REDUCED SUPPORT" table on this sheet.
6. For horizontal rectangular signs fabricated from flat sheet aluminum, the minimum sign height is 12 inches or less in height. Stiffeners are used for signs of greater height.
7. Triangular or circular slipbase supports are used to support a single sign, they shall not be "rigidly" connected to each other except through the sign panel. They shall be designed to release independently when impacted by an errant vehicle.
8. Wing channel shall meet ASTM A 1011 SS Gr 50 and be hot-dip galvanized after forming.
9. Excess plate, wing channel, or windbeam shall be cut off so that it does not extend beyond the sign panel on the non-impacting side of the sign when the face of the sign is viewed from the front. Repair galvanized coating on cut support ends per Item 445, "Galvanizing." Support ends shall be square cut and deburred, and provided the total sign area does not exceed the maximum allowable amount per Note 11.
10. Additional sign clamp required on the "T-bracket" post for the 1-foot sign when the sides 3 inches above bottom of sign when panel is.
11. Post open ends shall be fitted with Friction Caps.
12. Sign blanks shall be the sizes and shapes shown on the plans.

REQUIRED SUPPORT	
SIGN DESCRIPTION	SUPPORT
48-inch STOP sign (R1-1)	TY 10GWG(11)(A)(T)
60-inch YIELD sign (R1-2)	TY 10GWG(11)(A)(T) TY SCH80(11)(A)(T)
48x16-inch ONE-WAY sign (R6-1)	TY 10GWG(11)(A)(T)
36x48, 48x36, and 48x48-inch signs	TY 10GWG(11)(A)(T)
48x60-inch signs	TY SBS(11)(A)(T)
48x48-inch signs (diamond or square)	TY 10GWG(11)(A)(T)
60x60-inch signs	TY SBS(11)(A)(T)
48-inch Advance School X-ing sign (S1-1)	TY 10GWG(11)(A)(T)
48-inch School X-ing sign (S2-1)	TY 10GWG(11)(A)(T)
Large Arrow sign (W1-6 & W1-7)	TY 10GWG(11)(A)(T)

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS WEDGE & UNIVERSAL ANCHOR WITH THIN WALL TUBING POST

SMD(TWT)-08

©TxDOT July 2002	No. 1997	Dec. 1998	No. 2001	Dec. 2002
9-08 REVISIONS	Sept. 2007	JUN		HIGHWAY
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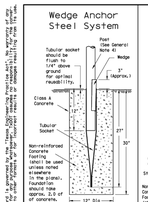
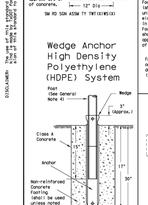
DATED: 2002

Wedge Anchor Steel System



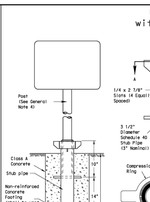
SM RD SGN ASSM TY TWT(XX)(RS)(P)

Wedge Anchor High Density Polyethylene (HDPE) System

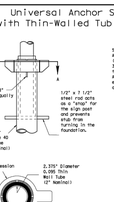


SM RD SGN ASSM TY TWT(XX)(RA)(P)

Universal Anchor System with Thin-Walled Tubing Post

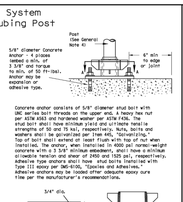


SM RD SGN ASSM TY TWT(XX)(UA)(P)



Plastic insert must be used when using the TWT with either Universal Anchor Systems or the Wedge Anchor Systems. The insert should be approx. 10" long and cover the tubing from just above the top of the stub pipe to the bottom of the slip joint when using the Universal Anchor Systems. The insert should be cut to approx. 4 1/2" when used with the Bolt Down Universal Anchor Systems.

Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end, a heavy hex nut per ASTM A563 and hardened washer per ASTM F436. The stud bolt shall have minimum yield and ultimate tensile strengths of 50 and 75 ksi, respectively. Nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing." Top of bolt shall extend at least flush with top of nut when installed. The anchor, when installed in 4000 psi normal-weight concrete with a 3 5/8" minimum embedment, shall have a minimum allowable tension and shear of 2450 and 1525 pst, respectively. Adhesive type anchors shall have stud bolts installed with Type III epoxy per DMS-6100, "Epoxies and Adhesives." Adhesive anchors may be loaded after adequate epoxy cure time per the manufacturer's recommendations.

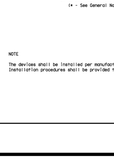


SM RD SGN ASSM TY TWT(XX)(UB)(P)

Sign Installation Using a Prefabricated T-Bracket for Thin-Wall Tubing Post



SM RD SGN ASSM TY TWT(XX)(T)
(• See General Note 6)



NOTE

The devices shall be inanclud per manufacturer's recommendations. Installation procedures shall be provided to the Engineer by Contractor.

GENERAL NOTES:

1. The Wedge Anchor System and the Universal Anchor System with thin wall tubing post may be used to support up to 15 square feet of sign area.
2. The tubular socket, wedge and prefabricated T-bracket shall be permanently marked to indicate manufacturer, method, design, and location of marking are subject to the approval of the TxDOT Traffic Standards Engineer.
3. Except for posts 10 GWG tubing, clamps, bure and bolts, all components shall be prequalified. A list of prequalified vendors may be obtained from the Material Producer List web page. The website address is: http://www.txdot.gov/business/producer_list.htm
4. Material used as post with this system shall conform to the following specifications:
   10 GWG Tubing (2.375" outside diameter) (TWT)
   0.095" nominal wall thickness
   Seamless or electric-resistance welded steel tubing
   Tubing shall be ASTM A500 Grade B or ASTM A1008
   Other sheets may be used if they meet the following:
   55,000 PSI minimum yield strength
   75,000 PSI minimum tensile strength
   20% minimum elongation in 2"
   Wall thickness (uncoated) shall be within the range of .087" to .099"
   Outside diameter (uncoated) shall be within the range of 2.369" to 2.381"
   Galvanization per ASTM 123 or ASTM A653 G210, for preconcreted steel tubing (ASTM A653, recoat tube outside diameter weld seam by metallizing with zinc wire per ASTM B833.
5. Sign blanks shall be the sizes and shapes shown on the plans.
6. Slip supports shall not be spliced except where shown for 24" high signs. Place splice at least 3" above bottom of sign when possible.
7. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
8. See the Traffic Operations Division website for detailed drawings of sign slopes and Design Anchor System components. The website address is: http://www.txdot.gov/publications/traffic.htm

WEDGE ANCHOR SYSTEM INSTALLATION PROCEDURE

1. Dig foundation hole. Where solid rock is encountered at ground level, the foundation shall be a minimum depth of 18", When solid rock is encountered below ground level, the foundation shall extend in the solid rock a minimum depth of 18" or provide a minimum foundation depth of 30". If solid rock is encountered, the socketshalb may be reduced in length as required to a minimum length of 18". Any material removed from the socketshalb shall be used for backfill between the bottom and the clearance requirements given on SMD(SUA) must be followed. The inner surfaces of the socketshalb must remain free of concrete or other debris.
2. The Engineer may permit batches of concrete less than 2 cubic yards to be mixed with a portable, mortar driven concrete mixer. For small placements less than 5.5 cubic yards, hand mixing in a suitable container may be allowed by the Engineer. Place concrete into hole until 1" to approximately flush with the ground. Concrete shall be Class A.
3. Insert base post in foundation hole. Hold post until top of socket is approximately 1/4 " above the concrete footing.
4. Plumb the socket. Allow a minimum 4 days for concrete to set, unless otherwise directed by Engineer.
5. Wrench the sign to the sign post.
6. Level and plumb the sign support and align sign face with roadway.
7. Drive the wedge into the socket to secure post. This will leave approximately 3 inches of the wedge exposed.

UNIVERSAL ANCHOR SYSTEM INSTALLATION PROCEDURE

1. Dig foundation hole. Where solid rock is encountered at ground level, the foundation shall be a minimum depth of 18", When solid rock is encountered below ground level, the foundation shall extend in the solid rock a minimum depth of 18" or provide a minimum foundation depth of 30". If solid rock is encountered, the socketshalb may be reduced in length as required to a minimum length of 18". Any material removed from the socketshalb shall be used for backfill between the bottom and the clearance requirements given on SMD(SUA) must be followed. The inner surfaces of the socketshalb must remain free of concrete or other debris.
2. Insert base post in hole to depths shown and backfill hole with concrete.
3. Level and plumb the base post using a torpedo level and allow concrete adequate time to set. The bottom of the slots provided in the stub pipe shall remain above the top of the concrete foundation.
4. Plumb the sign to the sign post.
5. Install graphic insert around bottom of post.
6. Insert sign post into base post. Lower until the post comes to rest on steel rod. Sign post must be at least 3" above bottom of sign when panel is. Typical, the top of compression ring will be approximately level with the top of stub post when optimally installed.
7. Check sign post by hand to ensure it is unable to turn. If loose, increase the tightening of the compression ring.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS UNIVERSAL ANCHOR SYSTEM WITH THIN WALL TUBING POST

SMD(TWT)-08

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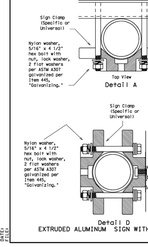
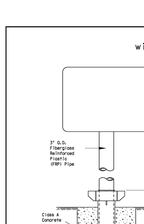
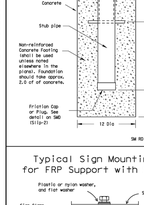
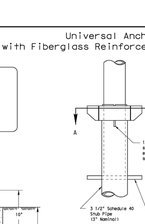
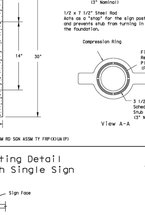
DATED: 2002

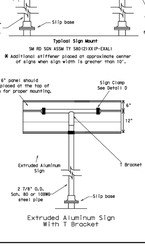


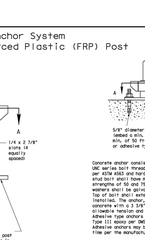


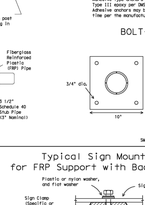


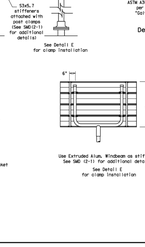












REQUIRED SUPPORT	
SIGN DESCRIPTION	SUPPORT
48-inch STOP sign (R1-1)	TY 10GWG(11)(A)(T)
60-inch YIELD sign (R1-2)	TY 10GWG(11)(A)(T) TY SCH80(11)(A)(T)
48x16-inch ONE-WAY sign (R6-1)	TY 10GWG(11)(A)(T)
36x48, 48x36, and 48x48-inch signs	TY 10GWG(11)(A)(T)
48x60-inch signs	TY SBS(11)(A)(T)
48x48-inch signs (diamond or square)	TY 10GWG(11)(A)(T)
60x60-inch signs	TY SBS(11)(A)(T)
48-inch Advance School X-ing sign (S1-1)	TY 10GWG(11)(A)(T)
48-inch School X-ing sign (S2-1)	TY 10GWG(11)(A)(T)
Large Arrow sign (W1-6 & W1-7)	TY 10GWG(11)(A)(T)

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-3)-08

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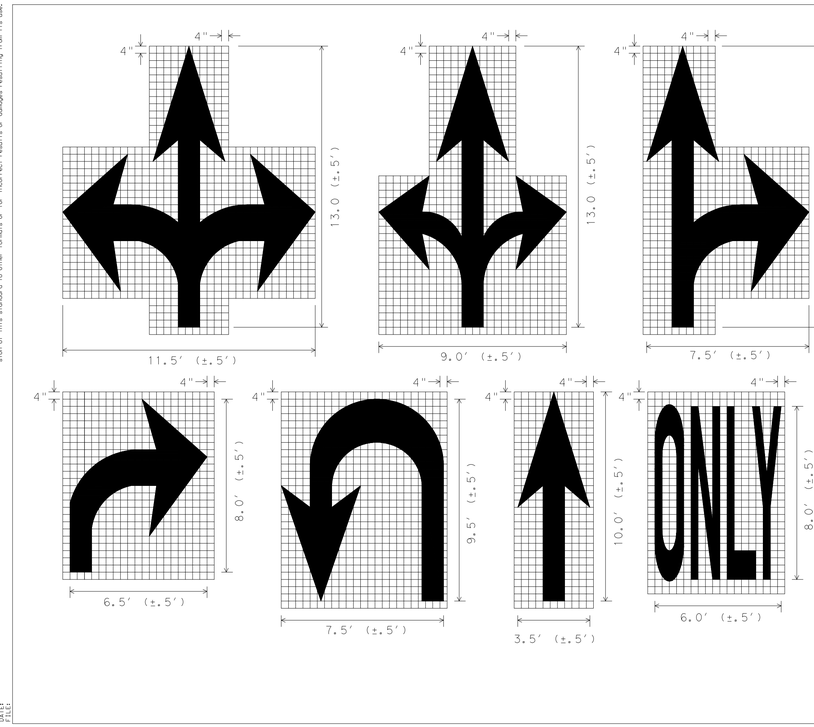

GENERAL NOTES:

1. Minimum 8 foot white markings should be used, unless otherwise noted. If message consists of more than one word, it should be placed with first word nearest the driver.
2. These details are standard size for normal installations. Sizes may be reduced approximately one-third for low speed urban conditions; larger sizes may be needed for freeways, above average speed conditions or other critical locations.
3. The longitudinal space between markings should be at least four times the height of the markings, on low speed roads, but should not exceed ten times the height under any condition.
4. Markings considered appropriate for use when warranted include the following:
   - A. Regulatory
     - STOP
     - RIGHT (LEFT) TURN ONLY
     - 25 MPH
     - SYMBOL ARROWS
   - B. Warning
     - STOP AHEAD
     - SIGNAL AHEAD
     - SCHOOL
     - SCHOOL X-ING
     - PED X-ING
     - R X R (see RCPM standard)
   - C. Guide
     - US XXX
     - ROUTE XXX
     - STATE XXX
     - Other words or symbols may be necessary under certain conditions.
5. Uncontrolled use of pavement markings can result in driver confusion. Word and symbol markings should be no more than three lines.
6. The word "STOP" shall not be used on the pavement unless accompanied by a Stop line and Stop sign. The word "STOP" shall not be placed on the pavement in advance to a stop line, unless every vehicle is required to stop at all times.
7. Pavement markings should generally be no more than one lane in width, with School messages being the exception. For details of School and School crossing pavement markings, refer to Part VII of the "Texas Manual on Uniform Traffic Control Devices".
8. Spacing between letters should be approximately 4 inches. The width of letters may vary depending on the width of the travel lanes.
9. Lane-Use arrow markings may be used to convey either guidance or mandatory messages. Arrows used to convey a mandatory movement must be accompanied by standard signs and the pavement marking word "ONLY".
10. Pavement markings are to be located as specified elsewhere in the plans.

SPACING BETWEEN LINES OF PAVEMENT MARKINGS	
MPH	SPACING
≤45	MINIMUM 4 TIMES THE LETTER HEIGHT
>45	MINIMUM - 4 TIMES THE LETTER HEIGHT MAXIMUM - 10 TIMES THE LETTER HEIGHT

Texas Department of Transportation
Traffic Operations Division

STANDARD PAVEMENT MARKINGS (ARROWS)

PM(6)-01

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REVISIONS	CONT	SECT	JOB	HIGHWAY
	DIST	COUNTY		SHEET NO.

22H

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DATE:
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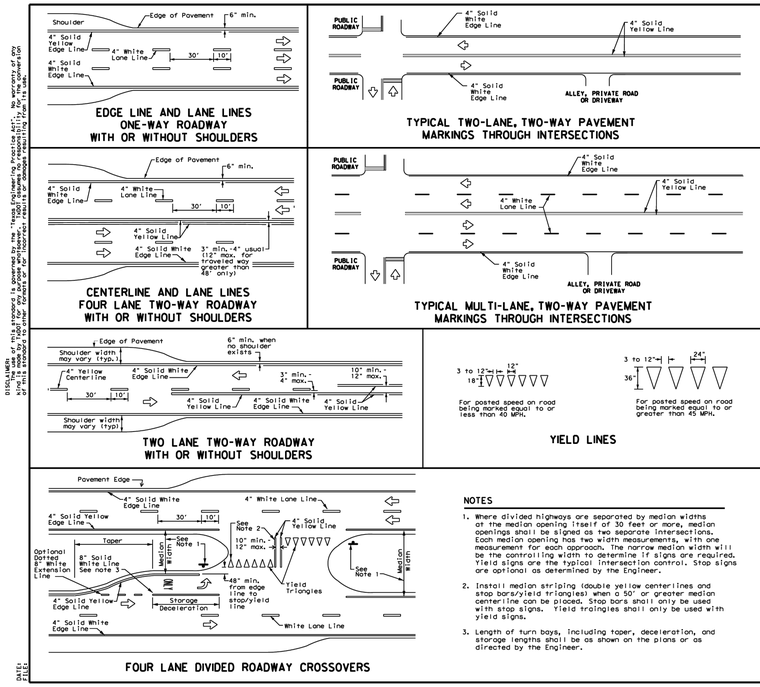

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DATE:
FILE:

NOTES

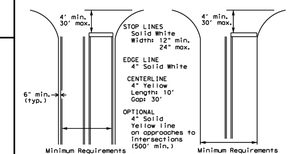
1. Where divided highways are separated by median widths at the median opening itself of 30 feet or more, median openings shall be signed as two separate intersections. Each median opening has two width measurements, with one measurement for each approach. The narrow median width will be the controlling width to determine if signs are required. Yield signs are the typical intersection control. Stop signs are optional as determined by the Engineer.
2. Install median striping (double yellow centerlines and stop bars/yield triangles) when a 50' or greater median centerline can be placed. Stop bars shall only be used with stop signs. Yield traingles shall only be used with yield signs.
3. Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer.

GENERAL NOTES

1. Edgeline striping shall be as shown in the plans or as directed by the Engineer. The edgeline should not be placed less less than 6 inches from the edge of pavement. This distance may vary due to pavement raveling or other conditions. Edgelines are not required in curb and gutter sections of roadways.
2. The traveled way includes only that portion of the roadway used for vehicular travel. It does not include the parking lanes, sidewalks, berms and shoulders. The traveled ways shall be measured from the inside of edgeline to the inside of edgeline of a two lane roadway.

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



GUIDE FOR PLACEMENT OF STOP LINES, EDGE LINE & CENTERLINE

Based on Traveled Way and Pavement Widths for Undivided Highways

Texas Department of Transportation
Traffic Safety Division Standard

TYPICAL STANDARD PAVEMENT MARKINGS

PM(1)-20

FILE:	pm1-20.dgn	DN:	CK:	DW:	CK:
©TxDOT	November 1978	CONT	SECT	JOB	HIGHWAY
REVISIONS		DIST	COUNTY		SHEET NO.
9-98 3-02					
5-00 2-12					
8-00 6-20					

22H-1

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FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

REV	DATE	DRAWN BY	DESCRIPTION

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

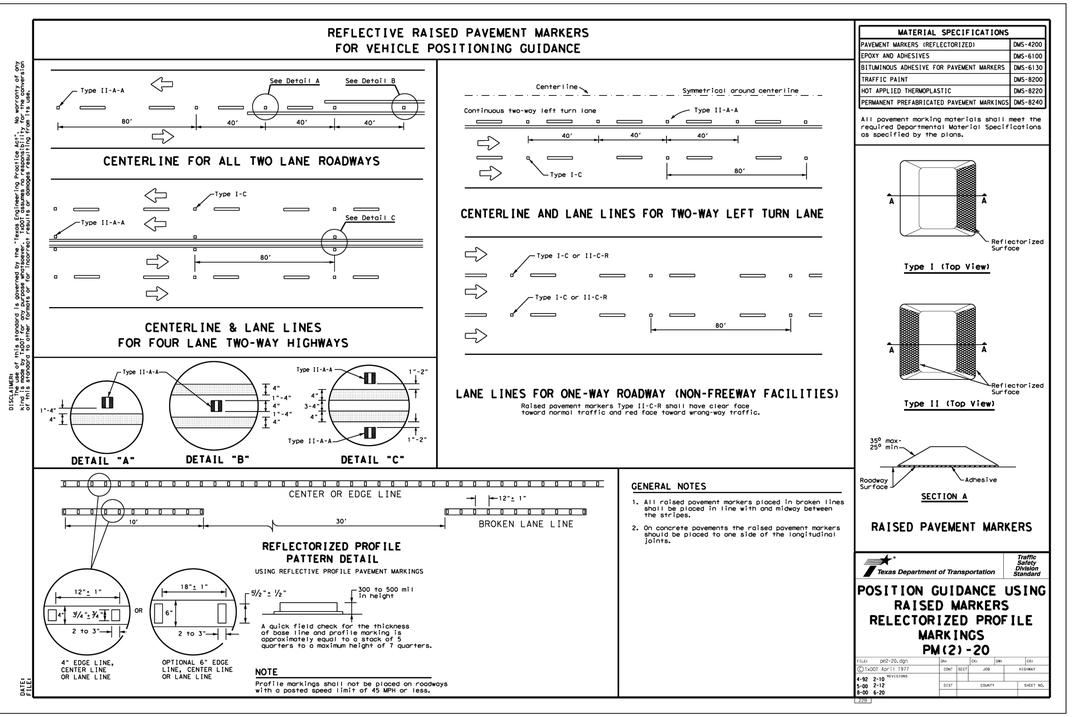
SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194500

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE
PROJECT NUMBER: 391-10-24	DRAWING NAME: TS3911024		

SHEET TITLE:
STREET SIGNAGE DETAILS

SHEET NUMBER:
5.30



MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.

GENERAL NOTES

1. All raised pavement markers placed in broken lines shall be placed in line with and midway between the stripes.
2. On concrete pavements the raised pavement markers should be placed to one side of the longitudinal joints.

Texas Department of Transportation
Traffic Safety Division Standard

POSITION GUIDANCE USING RAISED MARKERS RELECTORIZED PROFILE MARKINGS

PM(2)-20

FILE:	pm2-20.dgn	DN:	CK:	DW:	CK:
©TxDOT	April 1977	CONT	SECT	JOB	HIGHWAY
REVISIONS		DIST	COUNTY		SHEET NO.
4-92 2-10					
5-00 2-12					
8-00 6-20					

22H-2

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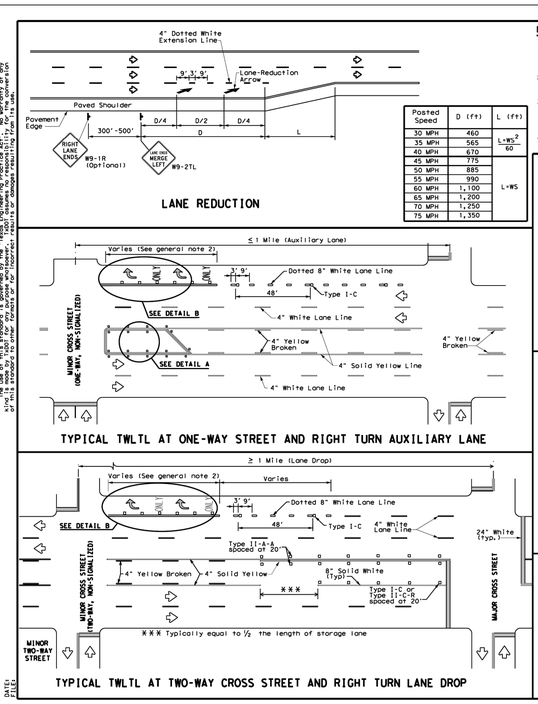
DATE:
FILE:



GENERAL NOTES

1. Lane use word and arrow markings shall be used where through lanes approaching an intersection become mandatory turn lanes. Lane use word and arrow markings should be used in auxiliary lanes of substantial length. Lane use arrow markings or word and arrow markings may be used in other lanes and turn bays for emphasis. Details for words and arrows are as shown in the Standard Highway Sign Designs for Texas.
2. When lane-use words and arrow markings are used, two sets of arrows should be used if the length of the bay is greater than 180 feet. When a single lane use arrow or word and arrow marking is used for a short turn lane, it should be located at or near the upstream end of the full-width turn lane.
3. Use raised pavement marker Type I-C with undivided highways, flush medians and two way left turn lanes. Use raised pavement marker Type II-C-R with divided highways and raised medians.
4. Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer.

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.

Texas Department of Transportation
Traffic Safety Division Standard

TWO-WAY LEFT TURN LANES, RURAL LEFT TURN BAYS, AND LANE REDUCTION PAVEMENT MARKINGS

PM(3)-20

FILE:	pm3-20.dgn	DN:	CK:	DW:	CK:
©TxDOT	April 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS		DIST	COUNTY		SHEET NO.
5-00 2-10					
8-00 2-12					
7-03 6-20					

22H-3

RESIDENTIAL LOTS = 493

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

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VIDA SAN ANTONIO PHASE 5

BEXAR COUNTY, TEXAS

SANITARY SEWER IMPROVEMENTS

SAWS CONSTRUCTION NOTES
COUNTER PERMIT AND GENERAL CONSTRUCTION PERMIT
January 2022

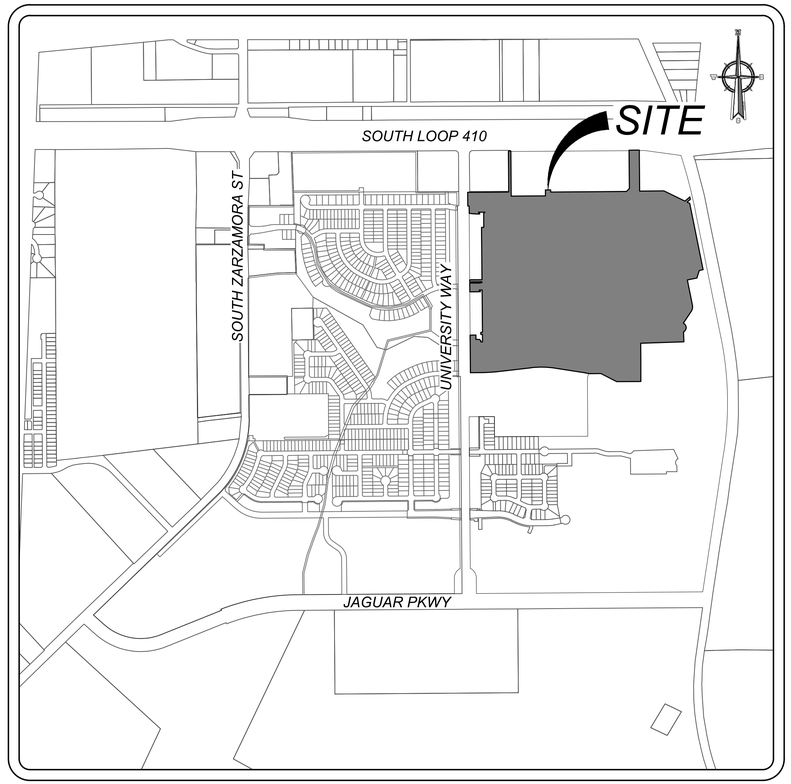
General Section

1. *All materials and construction procedures within the scope of this contract shall be approved by the San Antonio Water System (SAWS) and comply with the Plans, Specifications, General Conditions and with the following as applicable:*
   - *A. Current Texas Commission on Environmental Quality (TCEQ) "Design Criteria for Domestic Wastewater System", Texas Administrative Code (TAC) Title 30 Part 1 Chapter 217 and "Public Drinking Water", TAC Title 30 Part 1 Chapter 290.*
   - *B. Current TXDOT "Standard Specifications for Construction of Highways, Streets and Drainage".*
   - *C. Current "San Antonio Water System Standard Specifications for Water and Sanitary Sewer Construction".*
   - *D. Current City of San Antonio "Standard Specifications for Public Works Construction".*
   - *E. Current City of San Antonio "Utility Excavation Criteria Manual" (UECM).*
2. *The contractor shall not proceed with any pipe installation work until they obtain a copy of the approved Counter Permit or General Construction Permit (GCP) from the consultant and has been notified by SAWS Construction Inspection Division to proceed with the work and has arranged a meeting with the inspector and consultant for the work requirements. Work completed by the contractor without an approved Counter Permit and/or a GCP will be subject to removal and replacement at the expense of the contractors and/or the developer.*
3. *The Contractor shall obtain the SAWS Standard Details from the SAWS website, http://www.saws.org/business_center/specs. Unless otherwise noted within the design plans.*
4. *The Contractor is to make arrangements with the SAWS Construction Inspection Division at (210) 233-2973, on notification procedures that will be used to notify affected home residents and/or property owners 48 hours prior to beginning any work.*
5. *Location and depth of existing utilities and service laterals shown on the plans are understood to be approximate. Actual locations and depths must be field verified by the Contractor at least 1 week prior to construction. It shall be the Contractor's responsibility to locate utility service lines as required for construction and to protect them during construction at no cost to SAWS.*
6. *The Contractor shall verify the exact location of underground utilities and drainage structures at least 1-2 weeks prior to construction whether shown on plans or not. Please allow up to 7 business days for locates requesting pipe location markers on SAWS facilities. The following contact information are supplied for verification purposes:*
   - *SAWS Utility Locates: http://www.saws.org/Service/Locates*
   - *COSA Drainage (210) 207-0724 or (210) 207-6026*
   - *COSA Traffic Signal Operations (210) 206-8480*
   - *COSA Traffic Signal Damages (210) 207-3951*
   - *Texas State Wide One Call Locator 1-800-545-6005 or 811*
7. *The Contractor shall be responsible for restoring existing fences, curbs, streets, driveways, sidewalks, landscaping and structures to its original or better condition if damages are made as a result of the project's construction.*
8. *All work in Texas Department of Transportation (TxDOT) and/or Bexar County right-of-way shall be done in accordance with respective construction specifications and permit requirements.*
9. *The Contractor shall comply with City of San Antonio or other governing municipality's tree ordinances when excavating near trees.*
10. *The Contractor shall not place any waste materials in the 100-year Flood Plain without first obtaining an approved Flood Plain Permit.*
11. *Holiday Work: Contractors will not be allowed to perform SAWS work on SAWS recognized holidays. Request should be sent to constworkreq@saws.org. Weekend Work: Contractors are required to notify the SAWS Inspection Construction Department 48 hours in advance to request weekend work. Request should be sent to constworkreq@saws.org. Any and all SAWS utility work installed without holiday/weekend approval will be subject to be uncovered for proper inspection.*
12. *Compaction note (Item 804): The contractor shall be responsible for meeting the compaction requirements on all trench backfill and for paying for the tests performed by a third party. Compaction tests will be done at one location point randomly selected, or as indicated by the SAWS Inspector and/or the test administrator, per each 12-inch loose lift per 400 linear feet at a minimum. This project will not be accepted and finalized by SAWS without this requirement being met and verified by providing all necessary documented test results.*
13. *A copy of all testing reports shall be forwarded to SAWS Construction Inspection Division.*

Sewer Notes

1. *The Contractor is responsible for ensuring that no Sanitary Sewer Overflow (SSO) occurs as a result of their work. All contractor personnel responsible for SSO prevention and control shall be trained on proper response. Should an SSO occur, the contractor shall:*
   - *A. Identify the source of the SSO and notify SAWS Emergency Operations Center (EOC) immediately at (210) 233-2014. Provide the address of the spill and an estimated volume or flow.*
   - *B. Attempt to eliminate the source of the SSO.*
   - *C. Contain sewage from the SSO to the extent of preventing a possible contamination of waterways.*
   - *D. Clean up spill site (return contained sewage to the collection system if possible) and properly dispose of contaminated soil/materials.*
   - *E. Clean the affected sewer mains and remove any debris.*
   - *F. Meet all post-SSO requirements as per the EPA Consent Decree, including line cleaning and televising the affected sewer mains (at SAWS direction) within 24 hours.*

   Should the Contractor fail to address an SSO immediately and to SAWS satisfaction, they will be responsible for all costs incurred by SAWS, including any fines from EPA, TCEQ and/or any other Federal, State or Local Agencies. No separate measurement or payment shall be made for this work. All work shall be done according to guidelines set by the TCEQ and SAWS.
2. *If bypass pumping is required, the Contractor shall perform such work in accordance with SAWS Standard Specification for Water and Sanitary Sewer Construction, Item No. 864, "Bypass Pumping".*
3. *Prior to tie-ins, any shutdowns of existing force mains of any size must be coordinated with the SAWS Construction Inspection Division at (210) 233-2973 at least one week in advance of the shutdown. The Contractor must also provide a sequence of work as related to the tie-ins; this is at no additional cost to SAWS or the project and it is the responsibility of the Contractor to sequence the work accordingly.*
4. *Sewer pipe where water line crosses shall be 160 psi and meet the requirements of ASTM D2241, TAC 217.53 and TCEQ 290.44(e)(4)(B). Contractor shall center a 20' joint of 160 psi pressure rated PVC at the proposed water crossing.*
5. *ELEVATIONS POSTED FOR TOP OF MANHOLES ARE FOR REFERENCE ONLY: It shall be the responsibility of the Contractor to make allowances and adjustments for top of manholes to match the finished grade of the project's improvements. (NSPI)*
6. *Spills, Overflows, or Discharges of Wastewater: All spills, overflows, or discharges of wastewater, recycled water, petroleum products, or chemicals must be reported immediately to the SAWS Inspector assigned to the Counter Permit or General Construction Permit (GCP). This requirement applies to every spill, overflow, or discharge regardless of size.*
7. *Manhole and all pipe testing (including the TV inspection) must be performed and passed prior to Final Field Acceptance by SAWS Construction Inspection Division, as per the SAWS Specifications For Water and Sanitary Sewer Construction.*
8. *All PVC pipe over 14 feet of cover shall be extra strength with minimum pipe stiffness of 115 psi.*



LOCATION MAP

N.T.S.

OWNER/DEVELOPER:
SOUTHSTAR AT VERANO, LLC
2055 CENTRAL PLAZA, SUITE 110
NEW BRAUNFELS, TEXAS 78130

INDEX

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LOWER - SOUTH SEWERSHED - DOS RIOS \ LEON CREEK W.R.C.

DEVELOPER'S NAME: SOUTHSTAR AT VERANO, LLC		
DEVELOPER'S ADDRESS: 2055 CENTRAL PLAZA, SUITE 110		
CITY: NEW BRAUNFELS	*STATE: TEXAS*	*ZIP: 78130*
PHONE#:	*FAX#:*	*TOTAL ACREAGE: 112.0 ACRES*
SAWS BLOCK MAP#: 154536		*TOTAL EDU'S: 493*
TOTAL LINEAR FOOTAGE OF PIPE: 15,589 LF ~ 8" SDR 26		*PLAT NO.: 24-11800334*
NUMBER OF LOTS: 493	*SAWS JOB#: 24-1646*	

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER:	DRAWING NAME:
391-10-24	CVO53911024

SHEET TITLE:
SANITARY SEWER COVER SHEET

SHEET NUMBER:
6.0

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

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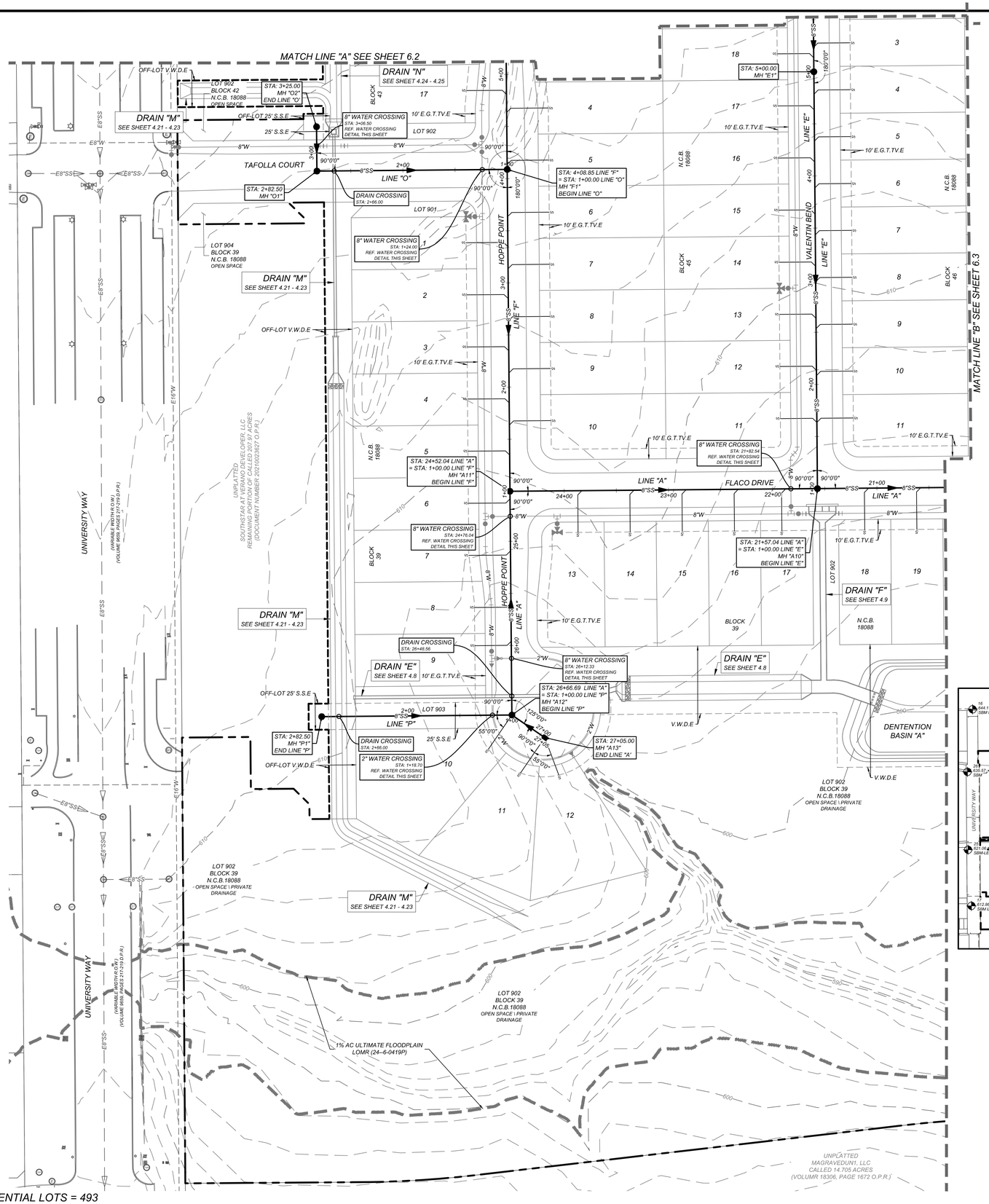
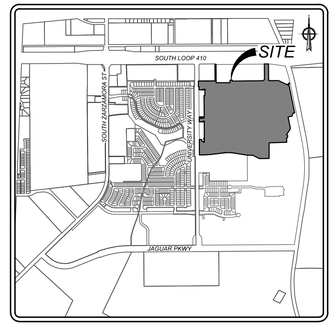


LEGEND

PROPOSED WATER MAIN	=	W
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	SS
PROPOSED SANITARY SEWER LATERAL	=	
ELECTRIC, GAS, TELEPHONE & CABLE TV EASEMENT	=	E.G.T.TV.E
SANITARY SEWER EASEMENT	=	S.S.E
DRAINAGE EASEMENT	=	D.E
VARIABLE WIDTH DRIANAGE EASEMENT	=	V.W.D.E
VARIABLE WIDTH CLEAR VISION EASEMENT	=	V.W.C.V.E
EXISTING WATER MAIN	=	EW
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING SANITARY SEWER MAIN	=	ESS
EXISTING SANITARY SEWER MANHOLE	=	ESS



LOCATION MAP

N.T.S.

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

COMPACTION NOTE:

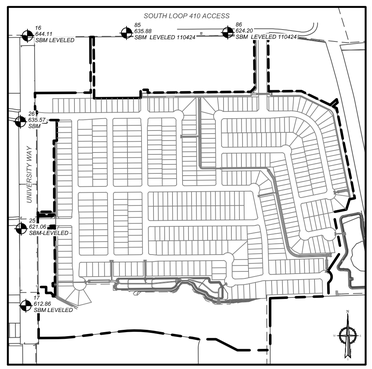
THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING 98% COMPACTION ON ALL TRENCH BACKFILL AND PAYING FOR THE TESTS TO BE PERFORMED BY A THIRD PARTY. COMPACTION TESTS WILL BE DONE AT ONE LOCATION POINT RANDOMLY SELECTED OR AS INDICATED BY THE SAWS INSPECTOR/TEST ADMINISTRATOR, PER EACH 12 INCH LOOSE LIFT PER 400 LINEAR FEET AT A MINIMUM. PERMITS AND/OR WILL NOT BE ACCEPTED AND FINALIZED BY SAWS WITHOUT THIS REQUIREMENT BEING MET AND VERIFIED BY PROVIDING ALL NECESSARY DOCUMENTED TEST RESULTS.

DRY UTILITY CONDUIT NOTE:

CONDUIT LOCATIONS SHOWN ON PLAN ARE FOR GEOGRAPHICAL PURPOSES ONLY AND ARE APPROXIMATE. CONTRACTOR TO INSTALL PROPOSED CONDUITS IN ACCORDANCE WITH DRY UTILITY PURVEYOR'S SPECIFICATIONS. CONTRACTOR TO VERIFY THE CONDUIT LOCATIONS AND SIZES BASED ON THE DRY UTILITY PURVEYOR'S PLAN.

NOTES:

1. *SEWER PIPE WHERE WATER LINE CROSSES SHALL BE MEET THE REQUIREMENTS OF ASTM D2241. CONTRACTOR SHALL CENTER A 20 FOOT JOINT OF 160 P.S.I. PRESSURE RATED P.V.C. AT THE PROPOSED WATER CROSSING (NO SEPARATE PAY ITEM). REFERENCE SHEET 6.1, SANITARY SEWER GENERAL NOTES, S.A.W.S. CRITERIA FOR SEWER MAIN CONSTRUCTION IN THE VICINITY OF WATER MAINS.*
2. *REF. THIS SHEET FOR BENCHMARK INFORMATION.*
3. *PIPE TYPE DESIGNATIONS ARE SDR 26.*
4. *REF. THIS SHEET FOR TYPICAL SANITARY SEWER / WATER CROSSING DETAIL.*
5. *ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT SHALL BE IN ACCORDANCE WITH THE SAN ANTONIO WATER SYSTEM (SAWS) STANDARD SPECIFICATIONS.*



BENCHMARK MAP

SCALE: NOT-TO-SCALE

BENCHMARKS

BM # 17
DESC: SBM
N:13664122.55
E:2120283.46
ELEV: 612.86

BM # 25
DESC: SBM-LEVELED
N:13664768.55
E:2120243.96
ELEV: 621.06

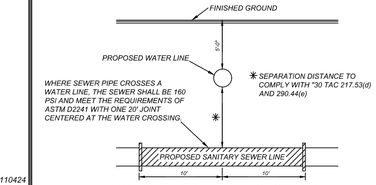
BM # 26
DESC: SBM
N:13665664.64
E:2120237.44
ELEV: 635.57

BM # 16
DESC: SBM LEVELED
N:13666384.92
E:2120296.56
ELEV: 644.11

BM # 85
DESC: SBM LEVELED 110424
N:13666408.83
E:2121126.88
ELEV: 635.88

BM # 86
DESC: SBM LEVELED 110424
N:13666412.82
E:2121975.89
ELEV: 624.20

* *CONTRACTOR TO RUN LEVEL LOOP THROUGH BM'S PROVIDED TO CONFIRM BEFORE CONSTRUCTION. CONTACT ENGINEER/SURVEYOR IMMEDIATELY IF ELEVATIONS DO NOT MATCH THOSE SHOWN.*



TYPICAL SANITARY SEWER/WATER CROSSING DETAIL

N.T.S.

CAUTION!!:

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LOWER - SOUTH SEWERSHED - DOS RIOS \ LEON CREEK W.R.C.

DEVELOPER'S NAME: SOUTHSTAR AT VERANO, LLC

DEVELOPER'S ADDRESS: 2055 CENTRAL PLAZA, SUITE 110

CITY: NEW BRAUNFELS STATE: TEXAS ZIP: 78130

PHONE#: FAX#: TOTAL ACREAGE: 112.0 ACRES

SAWS BLOCK MAP#: 154536 TOTAL EDU'S: 493

TOTAL LINEAR FOOTAGE OF PIPE: 15,589 LF ~ 8" SDR 26 PLAT NO.: 24-11800334

NUMBER OF LOTS: 493 SAWS JOB#: 24-1646

N

W E

S

50 0 50 100

SCALE : 1" = 50'

Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)

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REV	DATE	DRAWN BY	DESCRIPTION
	-	-	-

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#:F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: 053911024

SHEET TITLE:
OVERALL SANITARY SEWER PLAN (1 OF 6)

SHEET NUMBER:
6.1

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

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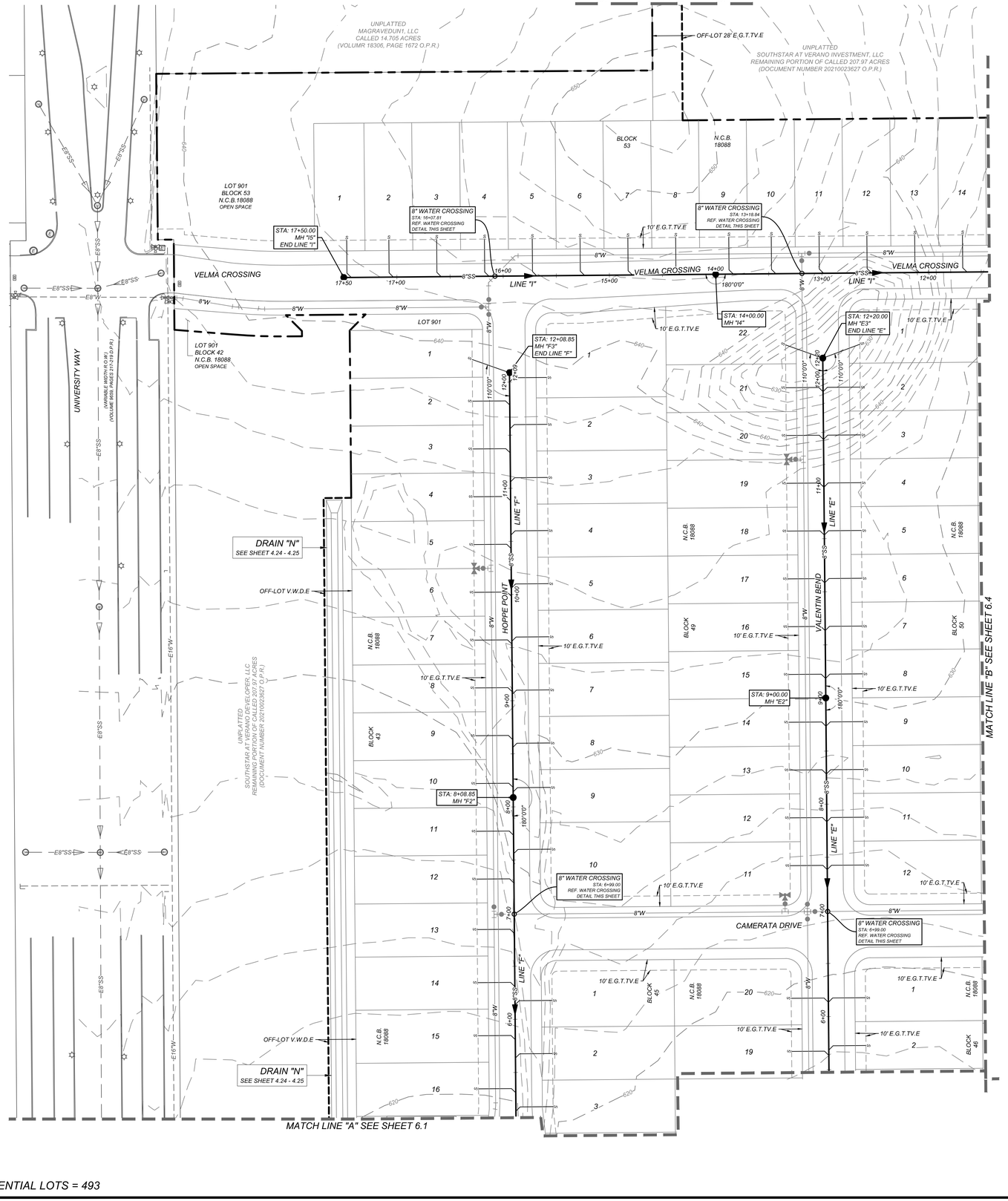
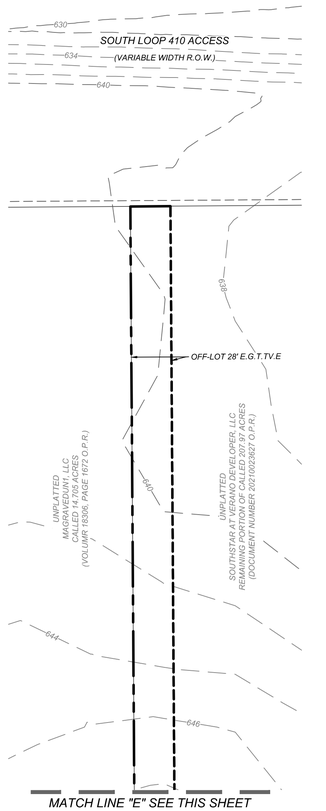
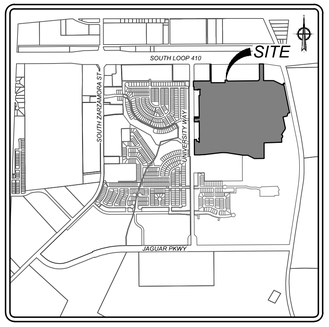


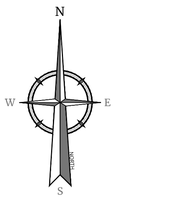


LEGEND

PROPOSED WATER MAIN	=	W
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	SS
PROPOSED SANITARY SEWER LATERAL	=	
ELECTRIC, GAS, TELEPHONE & CABLE TV EASEMENT	=	E.G.T.TV.E
SANITARY SEWER EASEMENT	=	S.S.E
DRAINAGE EASEMENT	=	D.E
VARIABLE WIDTH DRIANAGE EASEMENT	=	V.W.D.E
VARIABLE WIDTH CLEAR VISION EASEMENT	=	V.W.C.V.E
EXISTING WATER MAIN	=	EW
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING SANITARY SEWER MAIN	=	ESS
EXISTING SANITARY SEWER MANHOLE	=	ESS



LOCATION MAP
N.T.S.



50 0 50 100

SCALE : 1" = 50'

Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)

TRENCH EXCAVATION SAFETY PROTECTION

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DRY UTILITY CONDUIT NOTE:

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NOTES:

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2. *REF. THIS SHEET FOR BENCHMARK INFORMATION.*
3. *PIPE TYPE DESIGNATIONS ARE SDR 26.*
4. *REF. THIS SHEET FOR TYPICAL SANITARY SEWER / WATER CROSSING DETAIL.*
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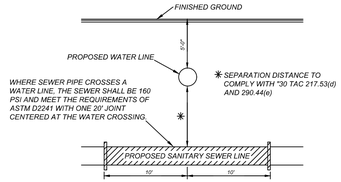

TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
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LOWER - SOUTH SEWERSHED - DOS RIOS \ LEON CREEK W.R.C.

DEVELOPER'S NAME: SOUTHSTAR AT VERANO, LLC			
DEVELOPER'S ADDRESS: 2055 CENTRAL PLAZA, SUITE 110			
CITY: NEW BRAUNFELS	STATE: TEXAS	ZIP: 78130	
PHONE#:	FAX#:	TOTAL ACREAGE: 112.0 ACRES	
SAWS BLOCK MAP#: 154536		TOTAL EDU'S: 493	
TOTAL LINEAR FOOTAGE OF PIPE: 15,589 LF ~ 8" SDR 26		PLAT NO.: 24-11800334	
NUMBER OF LOTS: 493	SAWS JOB#: 24-1646		

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

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REV	DESCRIPTION	DRAWN BY	DATE

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

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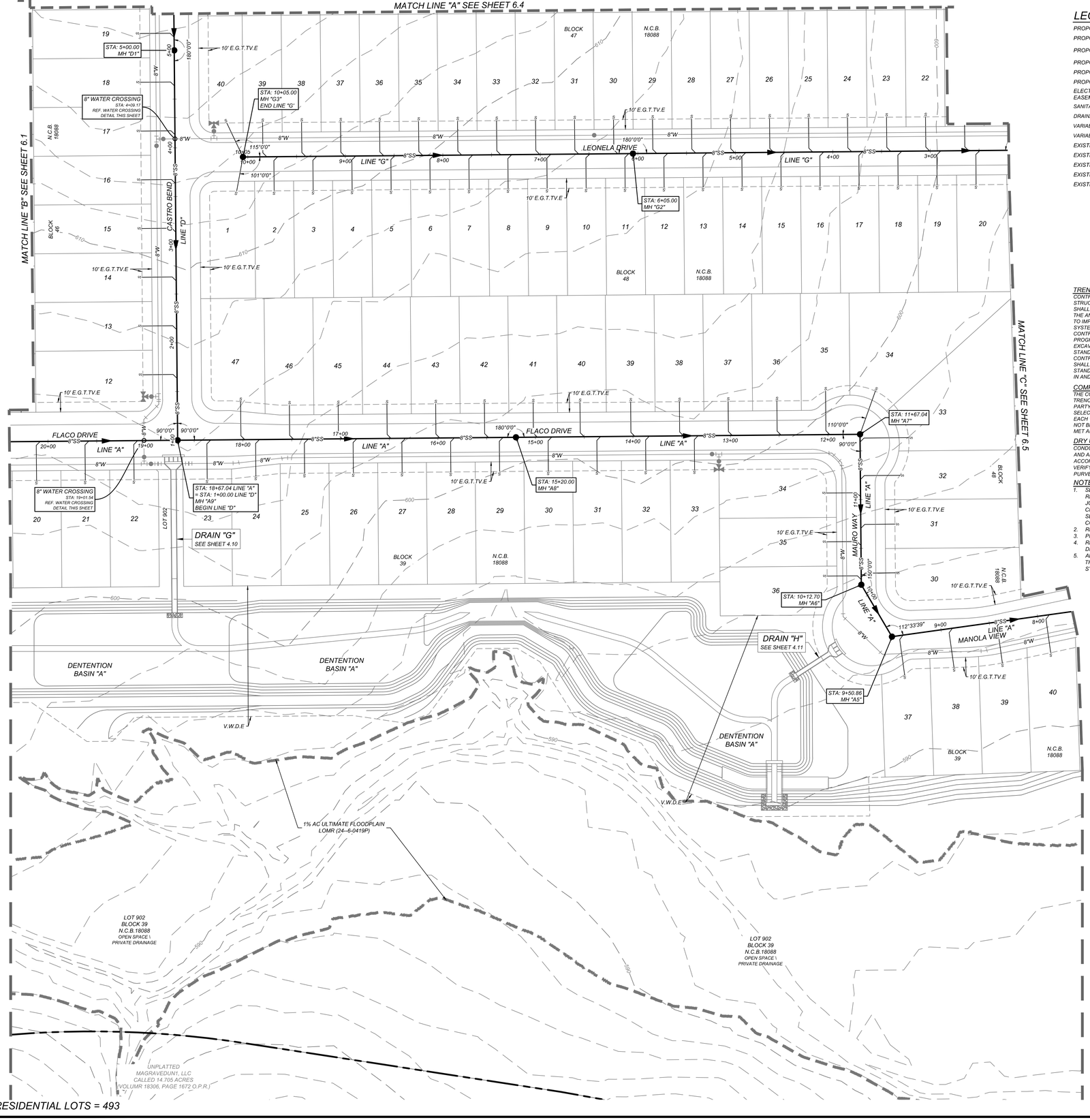
SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: 053911024

SHEET TITLE:
OVERALL SANITARY SEWER PLAN (2 OF 6)

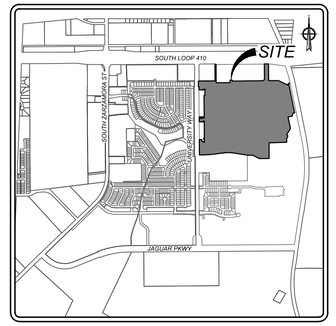
SHEET NUMBER:
6.2

M:\RESTRICT\053911024.dwg\6.2 by: SDISFPH



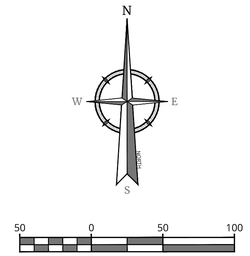
LEGEND

PROPOSED WATER MAIN	=	W
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	SS
PROPOSED SANITARY SEWER LATERAL	=	
ELECTRIC, GAS, TELEPHONE & CABLE TV EASEMENT	=	E.G.T.TV.E
SANITARY SEWER EASEMENT	=	S.S.E
DRAINAGE EASEMENT	=	D.E
VARIABLE WIDTH DRIANAGE EASEMENT	=	V.W.D.E
VARIABLE WIDTH CLEAR VISION EASEMENT	=	V.W.C.V.E
EXISTING WATER MAIN	=	EW
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING SANITARY SEWER MAIN	=	ESS
EXISTING SANITARY SEWER MANHOLE	=	ESS



LOCATION MAP

N.T.S.



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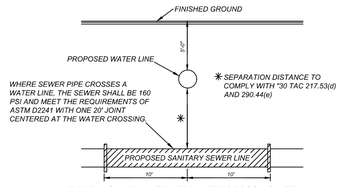

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CITY: NEW BRAUNFELS	STATE: TEXAS	ZIP: 78130
PHONE#:	FAX#:	TOTAL ACREAGE: 112.0 ACRES
SAWS BLOCK MAP#: 154536		TOTAL EDU'S: 493
TOTAL LINEAR FOOTAGE OF PIPE: 15,589 LF ~ 8" SDR 26		PLAT NO.: 24-11800334
NUMBER OF LOTS: 493	SAWS JOB#: 24-1646	

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FOR

VIDA SAN ANTONIO PHASE 5

PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER:	DRAWING NAME:
391-10-24	OS3911024

SHEET TITLE:

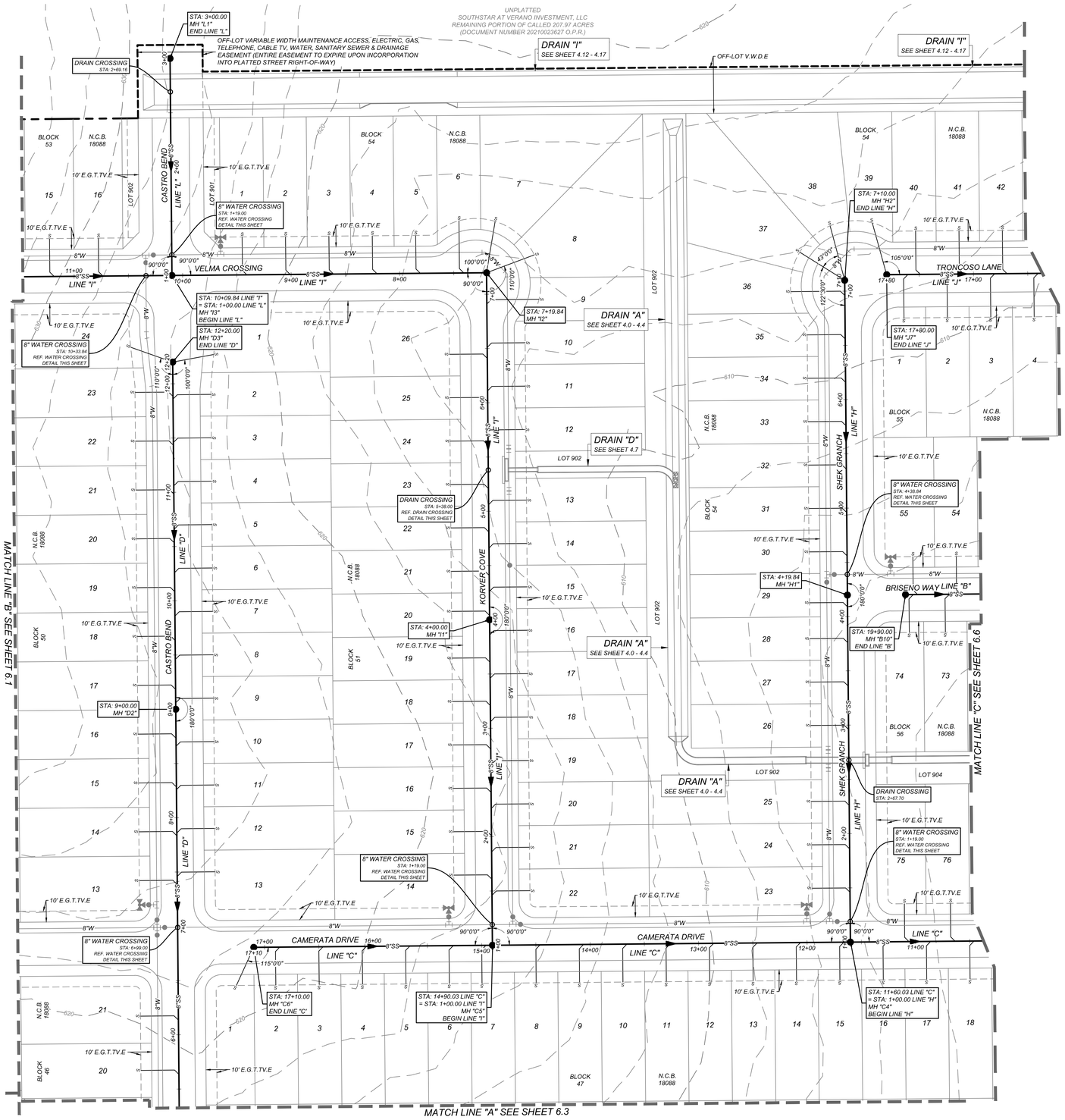
OVERALL SANITARY SEWER PLAN (3 OF 6)

SHEET NUMBER:

6.3

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

W:\GIS\WORK\391\1024.dwg\6.3 By: SOSEPH



LEGEND

PROPOSED WATER MAIN	=	W
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	SS
PROPOSED SANITARY SEWER LATERAL	=	
ELECTRIC, GAS, TELEPHONE & CABLE TV EASEMENT	=	E.G.T.TV.E
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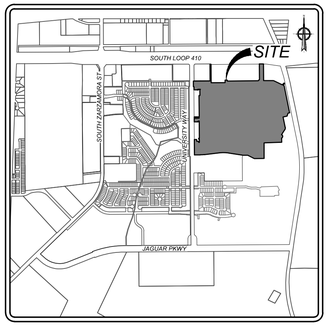
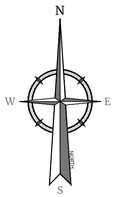


LOCATION MAP

N.T.S.





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Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)

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3. *PIPE TYPE DESIGNATIONS ARE SDR 26.*
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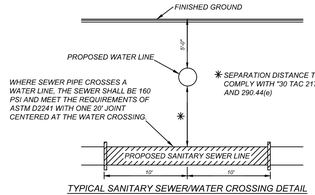
5. *ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT SHALL BE IN ACCORDANCE WITH THE SAN ANTONIO WATER SYSTEM (SAWS) STANDARD SPECIFICATIONS.*



TYPICAL SANITARY SEWER/WATER CROSSING DETAIL

N.T.S.

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MANHOLE NOTE:

ALL MANHOLES MUST BE WATERTIGHT, WITH WATERTIGHT RINGS AND COVERS. THESE MANHOLES MUST BE VENTED PER SAWS DETAIL DD852-02.

LOWER - SOUTH SEWERSHED - DOS RIOS \ LEON CREEK W.R.C.

DEVELOPER'S NAME: SOUTHSTAR AT VERANO, LLC			
DEVELOPER'S ADDRESS: 2055 CENTRAL PLAZA, SUITE 110			
CITY: NEW BRAUNFELS	STATE: TEXAS	ZIP: 78130	
PHONE#:	FAX#:	TOTAL ACREAGE: 112.0 ACRES	
SAWS BLOCK MAP#: 154536		TOTAL EDU'S: 493	
TOTAL LINEAR FOOTAGE OF PIPE: 15,589 LF ~ 8" SDR 26		PLAT NO.: 24-11800334	
NUMBER OF LOTS: 493	SAWS JOB#: 24-1646		

RESIDENTIAL LOTS = 493

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FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

REV	DATE	DRAWN BY	DESCRIPTION

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FOR

VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design

SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24

DRAWING NAME: 053911024

SHEET TITLE:

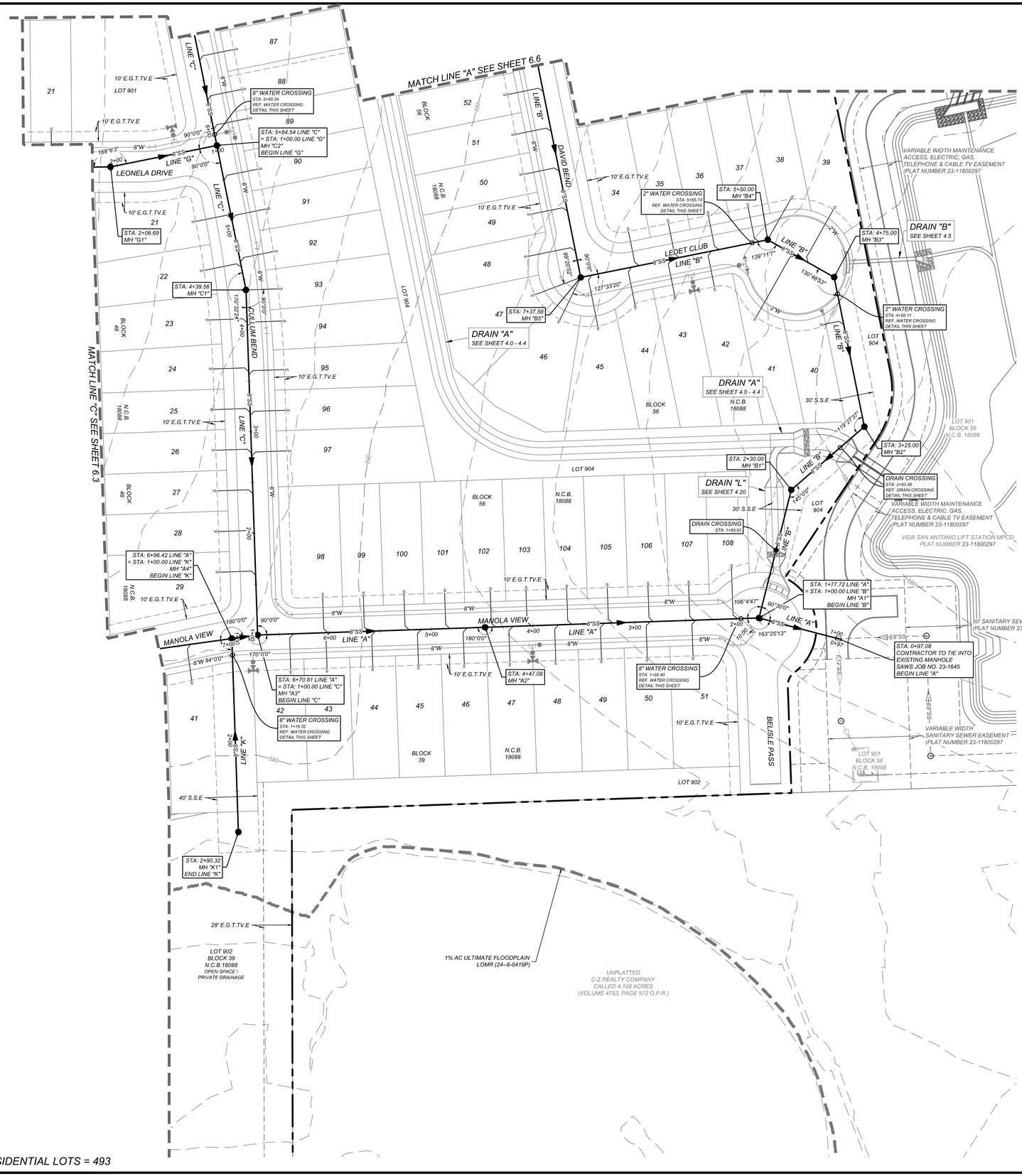
OVERALL SANITARY SEWER PLAN (4 OF 6)

SHEET NUMBER:

6.4

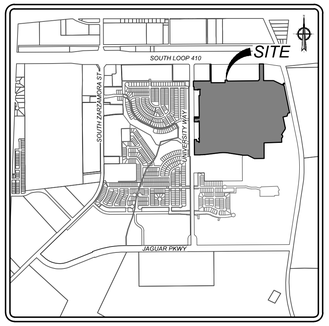
NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

M:\ESTWTR\DS\391102\4.dwg\6.4 By: SDISPH



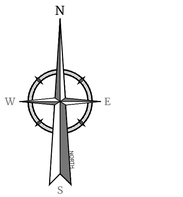
LEGEND

PROPOSED WATER MAIN	=	W
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	SS
PROPOSED SANITARY SEWER LATERAL	=	
ELECTRIC, GAS, TELEPHONE & CABLE TV EASEMENT	=	E.G.T.TV.E
SANITARY SEWER EASEMENT	=	S.S.E
DRAINAGE EASEMENT	=	D.E
VARIABLE WIDTH DRIANAGE EASEMENT	=	V.W.D.E
VARIABLE WIDTH CLEAR VISION EASEMENT	=	V.W.C.V.E
EXISTING WATER MAIN	=	EW
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING SANITARY SEWER MAIN	=	ESS
EXISTING SANITARY SEWER MANHOLE	=	ESS



LOCATION MAP

N.T.S.



50 0 50 100

SCALE : 1" = 50'

Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)

TRENCH EXCAVATION SAFETY PROTECTION

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COMPACTION NOTE:

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DRY UTILITY CONDUIT NOTE:

CONDUIT LOCATIONS SHOWN ON PLAN ARE FOR GEOGRAPHICAL PURPOSES ONLY AND ARE APPROXIMATE. CONTRACTOR TO INSTALL PROPOSED CONDUITS IN ACCORDANCE WITH DRY UTILITY PURVEYOR'S SPECIFICATIONS. CONTRACTOR TO VERIFY THE CONDUIT LOCATIONS AND SIZES BASED ON THE DRY UTILITY PURVEYOR'S PLAN.

NOTES:

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2. REF. THIS SHEET FOR BENCHMARK INFORMATION.
3. PIPE TYPE DESIGNATIONS ARE SDR 26.
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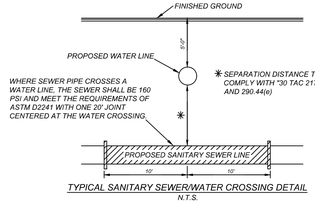

TYPICAL SANITARY SEWER/WATER CROSSING DETAIL

N.T.S.

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MANHOLE NOTE:

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LOWER - SOUTH SEWERSHED - DOS RIOS \ LEON CREEK W.R.C.

DEVELOPER'S NAME: SOUTHSTAR AT VERANO, LLC			
DEVELOPER'S ADDRESS: 2055 CENTRAL PLAZA, SUITE 110			
CITY: NEW BRAUNFELS	STATE: TEXAS	ZIP: 78130	
PHONE#:	FAX#:	TOTAL ACREAGE: 112.0 ACRES	
SAWS BLOCK MAP#: 154536		TOTAL EDU'S: 493	
TOTAL LINEAR FOOTAGE OF PIPE: 15,589 LF ~ 8" SDR 26		PLAT NO.: 24-11800334	
NUMBER OF LOTS: 493	SAWS JOB#: 24-1646		

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REV	DESCRIPTION	DRAWN BY	DATE

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FOR

VIDA SAN ANTONIO PHASE 5

PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design

SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24

DRAWING NAME: 053911024

SHEET TITLE:

OVERALL SANITARY SEWER PLAN (5 OF 6)

SHEET NUMBER: 6.5

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Ix4\GENERIC\S391\1024.dwg\6.5 By: SDSEPH

MATCH LINE "D" SEE THIS SHEET

UNPLATTED SOUTHSTAR AT VERANO INVESTMENT, LLC REMAINING PORTION OF CALLED 207.97 ACRES (DOCUMENT NUMBER 20210023627 O.P.R.)

UNPLATTED SOUTHSTAR AT VERANO INVESTMENT, LLC REMAINING PORTION OF CALLED 207.97 ACRES (DOCUMENT NUMBER 20210023627 O.P.R.)

VARIABLE WIDTH MAINTENANCE ACCESS, ELECTRIC, GAS, TELEPHONE & CABLE TV EASEMENT

VIDA SAN ANTONIO LIFT STATION (WPCD PLAT NUMBER 22419001)

LOT 902, BLOCK 56, N.C.B. 18088

VARIABLE WIDTH MAINTENANCE ACCESS & WATER EASEMENT (PLAT NUMBER 23-11800297)

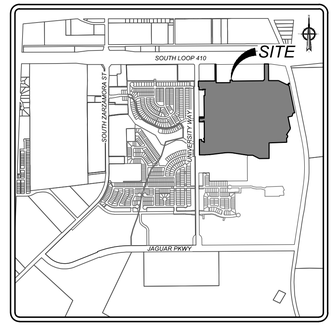
MATCH LINE "C" SEE SHEET 6.4

MATCH LINE "A" SEE SHEET 6.5

RESIDENTIAL LOTS = 493

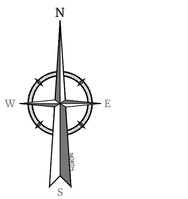
LEGEND

PROPOSED WATER MAIN	=	W
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	SS
PROPOSED SANITARY SEWER LATERAL	=	
ELECTRIC, GAS, TELEPHONE & CABLE TV EASEMENT	=	E.G.T.TV.E
SANITARY SEWER EASEMENT	=	S.S.E
DRAINAGE EASEMENT	=	D.E
VARIABLE WIDTH DRIANAGE EASEMENT	=	V.W.D.E
VARIABLE WIDTH CLEAR VISION EASEMENT	=	V.W.C.V.E
EXISTING WATER MAIN	=	EW
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING SANITARY SEWER MAIN	=	ESS
EXISTING SANITARY SEWER MANHOLE	=	ESS



LOCATION MAP

N.T.S.



50 0 50 100

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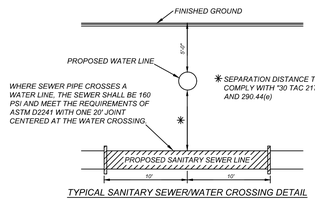

TYPICAL SANITARY SEWER/WATER CROSSING DETAIL

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LOWER - SOUTH SEWERSHED - DOS RIOS \ LEON CREEK W.R.C.

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DEVELOPER'S ADDRESS: 2055 CENTRAL PLAZA, SUITE 110		
CITY: NEW BRAUNFELS	STATE: TEXAS	ZIP: 78130
PHONE#:	FAX#:	TOTAL ACREAGE: 112.0 ACRES
SAWS BLOCK MAP#: 154536		TOTAL EDU'S: 493
TOTAL LINEAR FOOTAGE OF PIPE: 15,589 LF ~ 8" SDR 26		PLAT NO.: 24-11800334
NUMBER OF LOTS: 493	SAWS JOB#: 24-1646	

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REV	DATE	DRAWN BY	DESCRIPTION

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

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SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
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TBPE Firm#: F-14909
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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24

DRAWING NAME: 053911024

SHEET TITLE: OVERALL SANITARY SEWER PLAN (6 OF 6)

SHEET NUMBER: 6.6

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

I:\WORKPATH\CS391\1024.dwg\6.6 By: SOSEPH

TRENCH EXCAVATION SAFETY PROTECTION

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2. REF. SHEET 6.2 FOR BENCHMARK INFORMATION.
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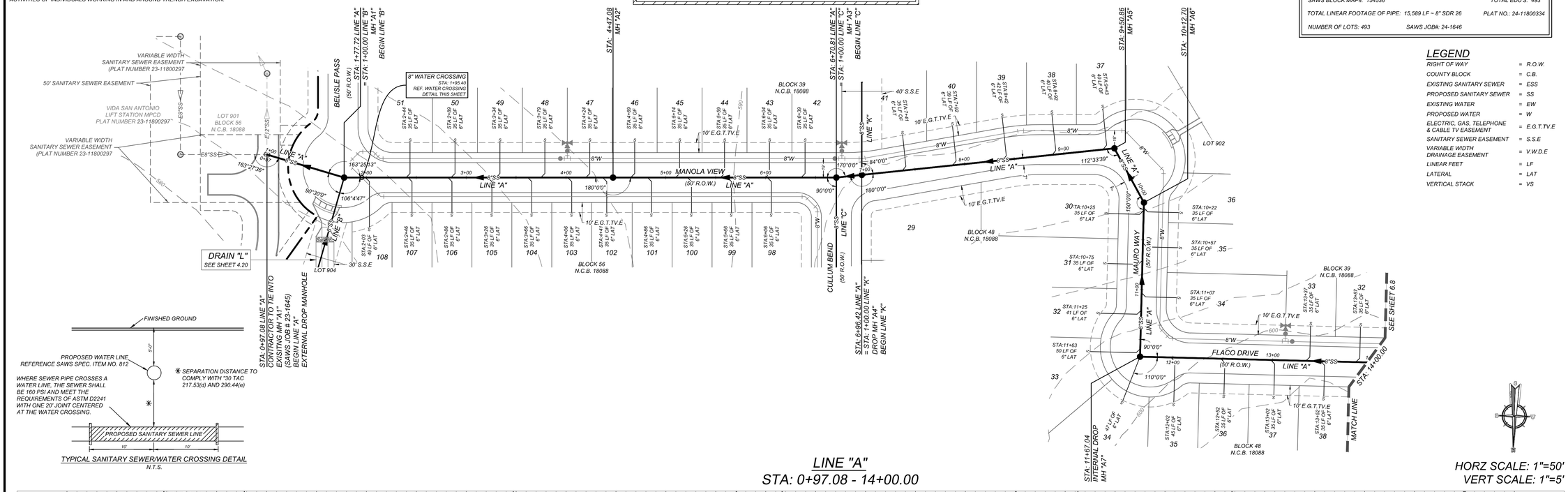
SAWS BLOCK MAP#: 154536 TOTAL EDU'S: 493
TOTAL LINEAR FOOTAGE OF PIPE: 15,589 LF ~ 8" SDR 26 PLAT NO.: 24-11800334
NUMBER OF LOTS: 493 SAWS JOB#: 24-1646

LEGEND

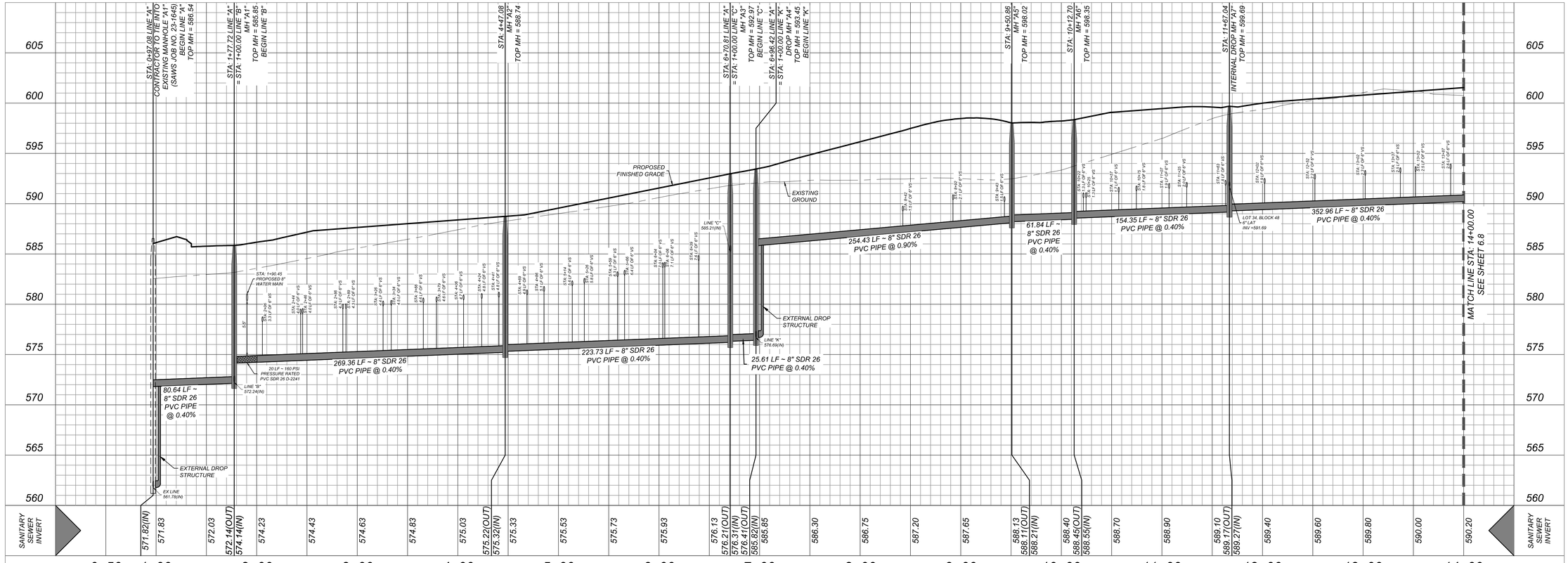
RIGHT OF WAY	=	R.O.W.
COUNTY BLOCK	=	C.B.
EXISTING SANITARY SEWER	=	ESS
PROPOSED SANITARY SEWER	=	SS
EXISTING WATER	=	EW
PROPOSED WATER	=	W
ELECTRIC, GAS, TELEPHONE & CABLE TV EASEMENT	=	E.G.T.TV.E
SANITARY SEWER EASEMENT	=	S.S.E
VARIABLE WIDTH DRAINAGE EASEMENT	=	V.W.D.E
LINEAR FEET	=	LF
LATERAL	=	LAT
VERTICAL STACK	=	VS



TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
N.T.S.

LINE "A"
STA: 0+97.08 - 14+00.00

HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'



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FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

REV	DATE	DRAWN BY	DESCRIPTION

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14309
TBPLS Firm#: 10194500

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: SSPP3911024_A

SHEET TITLE: LINE "A" PLAN & PROFILE (1 OF 2)

SHEET NUMBER: 6.7

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

By: SDSSEPH
I:\KSTEVENS\SPP3911024_A.dwg 6.7

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

NOTES:

1. *SEWER PIPE WHERE WATER LINE CROSSES SHALL BE MEET THE REQUIREMENTS OF ASTM D2241. CONTRACTOR SHALL CENTER A 20 FOOT JOINT OF 160 P.S.I. PRESSURE RATED P.V.C. AT THE PROPOSED WATER CROSSING (NO SEPARATE PAY ITEM). REFERENCE SHEET 6.0, SANITARY SEWER GENERAL NOTES, S.A.W.S. CRITERIA FOR SEWER MAIN CONSTRUCTION IN THE VICINITY OF WATER MAINS.*
2. *REF. SHEET 6.2 FOR BENCHMARK INFORMATION.*
3. *PIPE TYPE DESIGNATIONS ARE SDR 26.*
4. *REF. THIS SHEET FOR TYPICAL SANITARY SEWER / WATER CROSSING DETAIL.*
5. *ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT SHALL BE IN ACCORDANCE WITH THE SAN ANTONIO WATER SYSTEM (SAWS) STANDARD SPECIFICATIONS.*

CAUTION!!:

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MANHOLE NOTE:

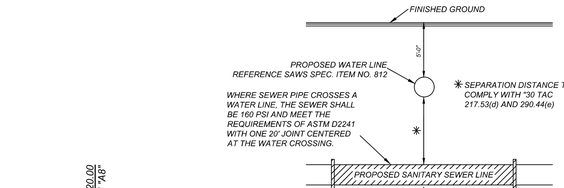
ALL MANHOLES MUST BE WATERTIGHT, WITH WATERTIGHT RINGS AND COVERS. THESE MANHOLES MUST BE VENTED PER SAWS DETAIL DD852-02.

LOWER - SOUTH SEWERSHED - DOS RIOS \ LEON CREEK W.R.C.

DEVELOPER'S NAME: SOUTHSTAR AT VERANO, LLC		
DEVELOPER'S ADDRESS: 2055 CENTRAL PLAZA, SUITE 110		
CITY: NEW BRAUNFELS	STATE: TEXAS	ZIP: 78130
PHONE#:	FAX#:	TOTAL ACREAGE: 112.0 ACRES
SAWS BLOCK MAP#: 154536		TOTAL EDU'S: 493
TOTAL LINEAR FOOTAGE OF PIPE: 15,589 LF ~ 8" SDR 26		PLAT NO.: 24-11800334
NUMBER OF LOTS: 493	SAWS JOB#: 24-1646	

LEGEND

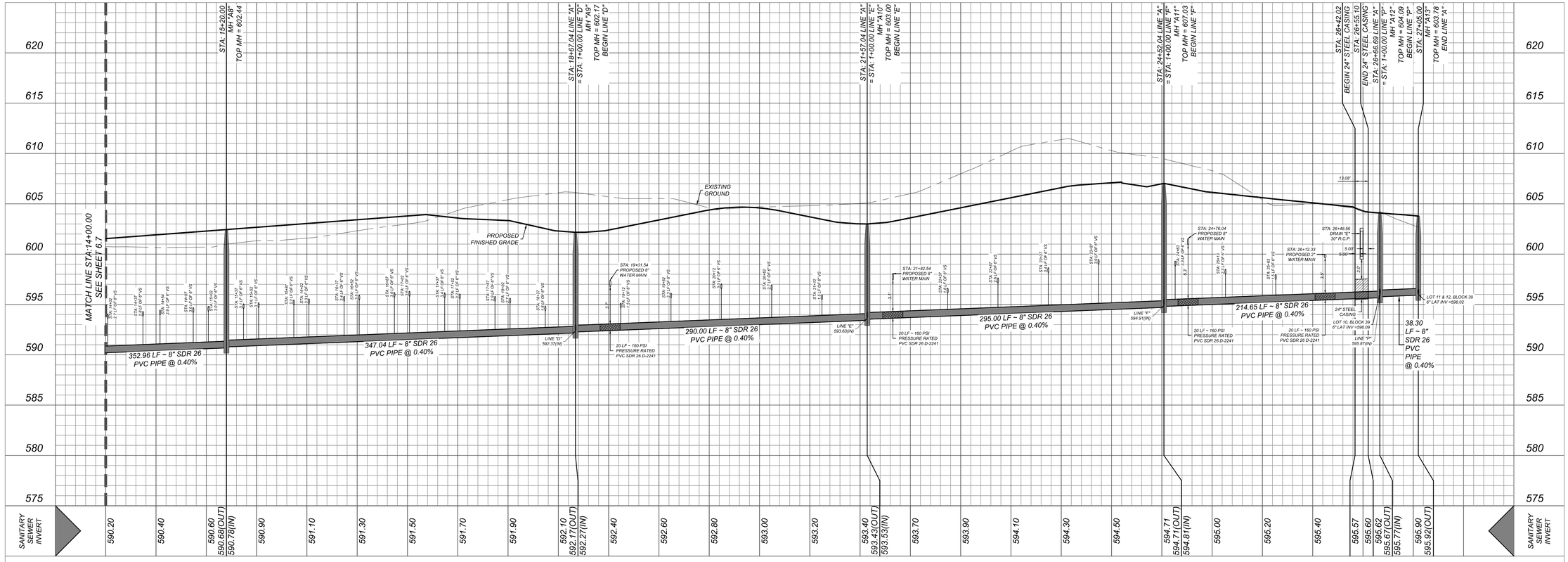
RIGHT OF WAY	=	R.O.W.
COUNTY BLOCK	=	C.B.
EXISTING SANITARY SEWER	=	ESS
PROPOSED SANITARY SEWER	=	SS
EXISTING WATER	=	EW
PROPOSED WATER	=	W
ELECTRIC, GAS, TELEPHONE & CABLE TV EASEMENT	=	E.G.T.TV.E
SANITARY SEWER EASEMENT	=	S.S.E
VARIABLE WIDTH DRAINAGE EASEMENT	=	V.W.D.E
LINEAR FEET	=	LF
LATERAL	=	LAT
VERTICAL STACK	=	VS



TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
N.T.S.

LINE "A"
STA: 14+00.00 - END

HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'



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REV	DATE	DRAWN BY	DESCRIPTION

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design

SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14309
TBPLS Firm#: 10194500

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: SSPP3911024_A

SHEET TITLE:
LINE "A" PLAN & PROFILE (2 OF 2)

SHEET NUMBER: 6.8

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

By: SDSSPH
M:\ESTW\ENG\SPP3911024_A.dwg/6.8

TRENCH EXCAVATION SAFETY PROTECTION

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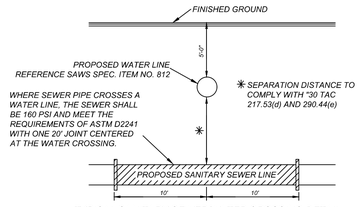

TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
N.T.S.

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2. *REF. SHEET 6.2 FOR BENCHMARK INFORMATION.*
3. *PIPE TYPE DESIGNATIONS ARE SDR 26.*
4. *REF. THIS SHEET FOR TYPICAL SANITARY SEWER / WATER CROSSING DETAIL.*
5. *ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT SHALL BE IN ACCORDANCE WITH THE SAN ANTONIO WATER SYSTEM (SAWS) STANDARD SPECIFICATIONS.*

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MANHOLE NOTE:
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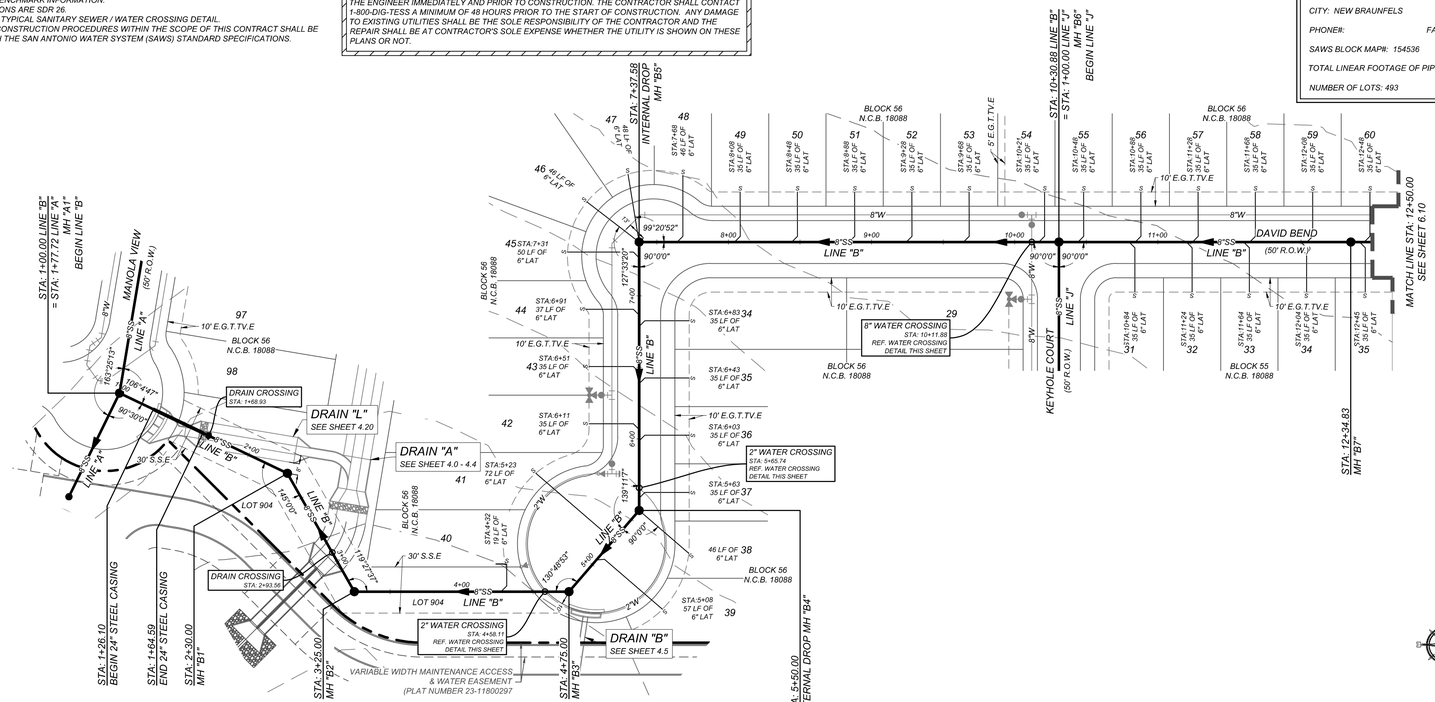
LOWER - SOUTH SEWERSHED - DOS RIOS \ LEON CREEK W.R.C.

DEVELOPER'S NAME: SOUTHSTAR AT VERANO, LLC			
DEVELOPER'S ADDRESS: 2055 CENTRAL PLAZA, SUITE 110			
CITY: NEW BRAUNFELS	STATE: TEXAS	ZIP: 78130	
PHONE#:	FAX#:	TOTAL ACREAGE: 112.0 ACRES	
SAWS BLOCK MAP#: 154536		TOTAL EDU'S: 493	
TOTAL LINEAR FOOTAGE OF PIPE: 15,589 LF ~ 8" SDR 26		PLAT NO.: 24-11800334	
NUMBER OF LOTS: 493	SAWS JOB#: 24-1646		

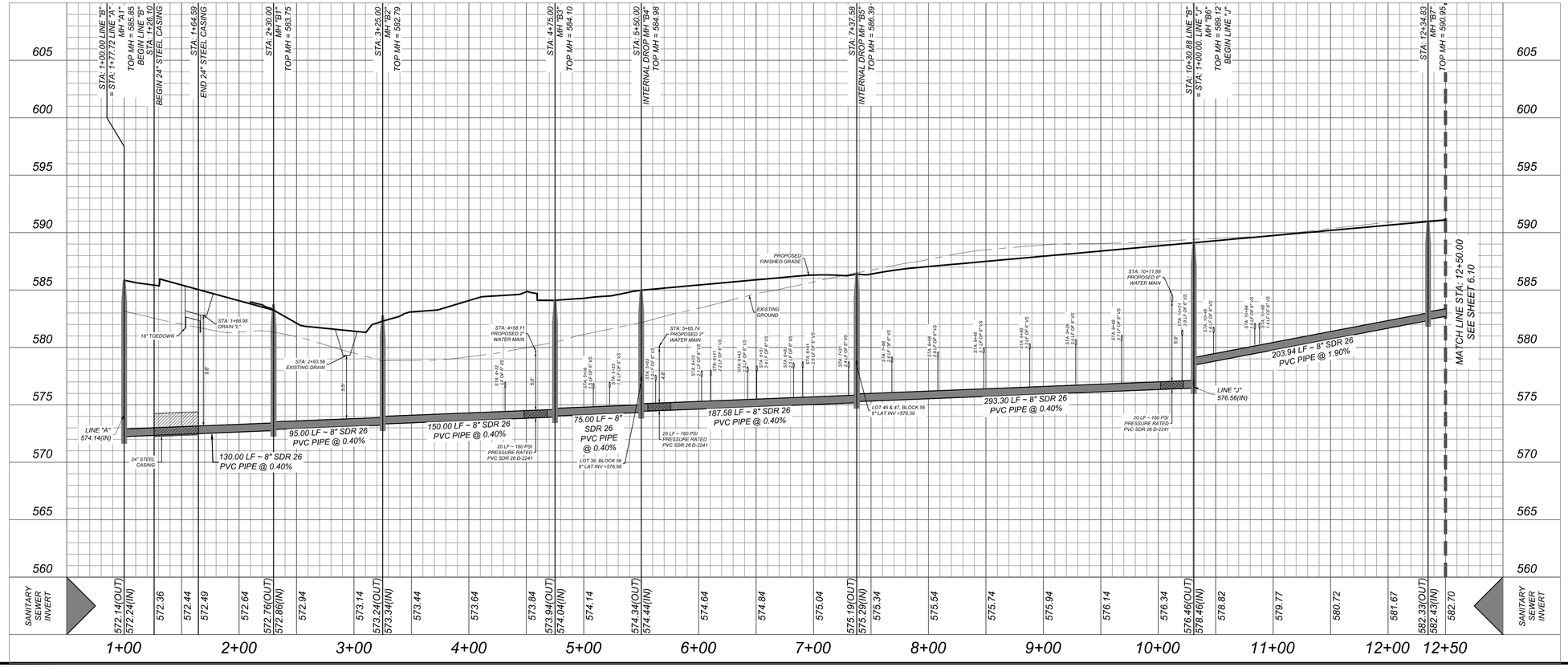


LINE "B"
STA: 1+00.00 - 12+50.00

HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'

LEGEND

RIGHT OF WAY	=	R.O.W.
COUNTY BLOCK	=	C.B.
EXISTING SANITARY SEWER	=	ESS
PROPOSED SANITARY SEWER	=	SS
EXISTING WATER	=	EW
PROPOSED WATER	=	W
ELECTRIC, GAS, TELEPHONE & CABLE TV EASEMENT	=	E.G.T.TV.E
SANITARY SEWER EASEMENT	=	S.S.E
VARIABLE WIDTH DRAINAGE EASEMENT	=	V.W.D.E
LINEAR FEET	=	LF
LATERAL	=	LAT
VERTICAL STACK	=	VS



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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: SSPP3911024_B

SHEET TITLE: LINE "B" PLAN & PROFILE (1 OF 2)

SHEET NUMBER: 6.9

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

In:\ES\WEN\SSPP3911024_B.dwg\6.9 By: SDSSEPH

TRENCH EXCAVATION SAFETY PROTECTION

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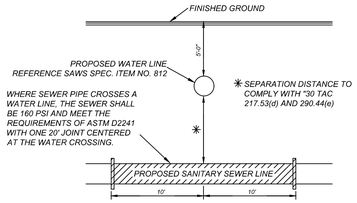

TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
N.T.S.

NOTES:

1. *SEWER PIPE WHERE WATER LINE CROSSES SHALL BE MEET THE REQUIREMENTS OF ASTM D2241. CONTRACTOR SHALL CENTER A 20 FOOT JOINT OF 160 P.S.I. PRESSURE RATED P.V.C. AT THE PROPOSED WATER CROSSING (NO SEPARATE PAY ITEM). REFERENCE SHEET 6.0, SANITARY SEWER GENERAL NOTES, S.A.W.S. CRITERIA FOR SEWER MAIN CONSTRUCTION IN THE VICINITY OF WATER MAINS.*
2. *REF. SHEET 6.2 FOR BENCHMARK INFORMATION.*
3. *PIPE TYPE DESIGNATIONS ARE SDR 26.*
4. *REF. THIS SHEET FOR TYPICAL SANITARY SEWER / WATER CROSSING DETAIL.*
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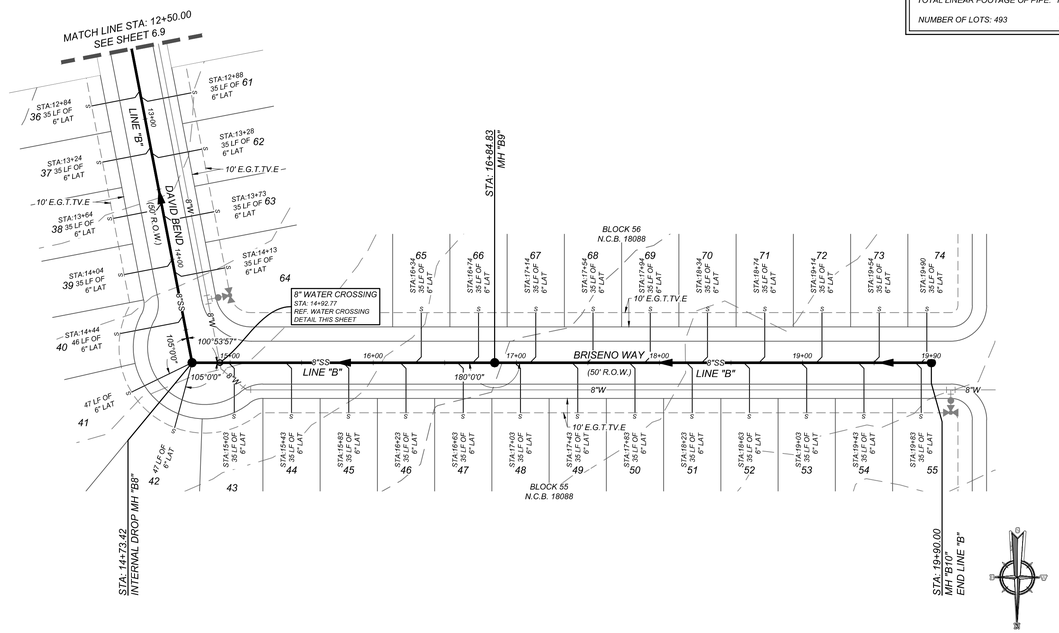
LOWER - SOUTH SEWERSHED - DOS RIOS \ LEON CREEK W.R.C.

DEVELOPER'S NAME: SOUTHSTAR AT VERANO, LLC		
DEVELOPER'S ADDRESS: 2055 CENTRAL PLAZA, SUITE 110		
CITY: NEW BRAUNFELS	STATE: TEXAS	ZIP: 78130
PHONE#:	FAX#:	TOTAL ACREAGE: 112.0 ACRES
SAWS BLOCK MAP#: 154536		TOTAL EDU'S: 493
TOTAL LINEAR FOOTAGE OF PIPE: 15,589 LF ~ 8" SDR 26		PLAT NO.: 24-11800334
NUMBER OF LOTS: 493	SAWS JOB#: 24-1646	

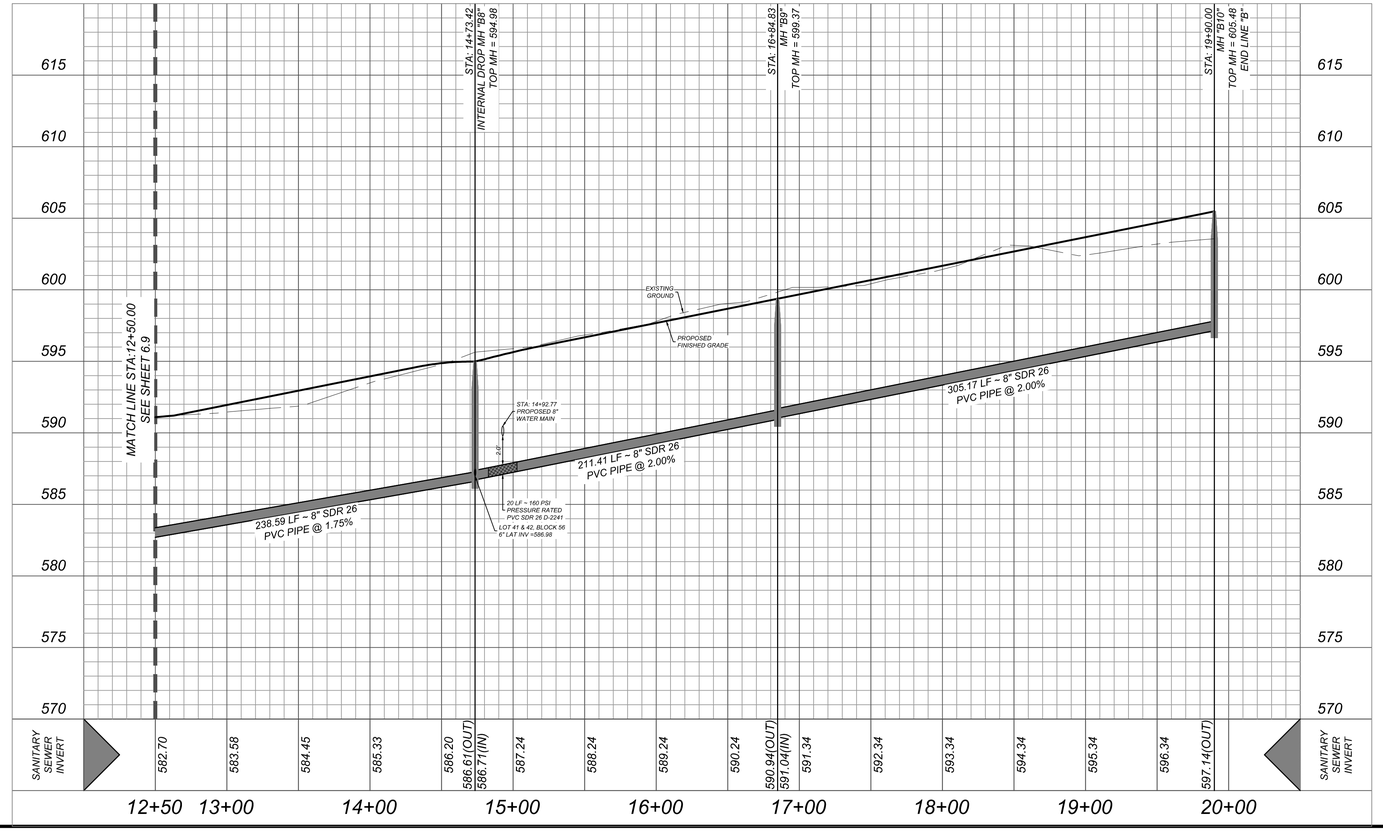
LEGEND

RIGHT OF WAY	=	R.O.W.
COUNTY BLOCK	=	C.B.
EXISTING SANITARY SEWER	=	ESS
PROPOSED SANITARY SEWER	=	SS
EXISTING WATER	=	EW
PROPOSED WATER	=	W
ELECTRIC, GAS, TELEPHONE & CABLE TV EASEMENT	=	E.G.T.TV.E
SANITARY SEWER EASEMENT	=	S.S.E
VARIABLE WIDTH DRAINAGE EASEMENT	=	V.W.D.E
LINEAR FEET	=	LF
LATERAL	=	LAT
VERTICAL STACK	=	VS



LINE "B"
STA: 12+50.00 - END

HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'



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REV	DATE	DRAWN BY	DESCRIPTION

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

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TBPE Firm#: F-14909
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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER:	DRAWING NAME:
391-10-24	SSPP3911024_B

SHEET TITLE:
LINE "B" PLAN & PROFILE
(2 OF 2)

SHEET NUMBER:
6.10

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

I:\RESIWER\SSPP3911024_B.dwg6.10 By: SDOSPH

TRENCH EXCAVATION SAFETY PROTECTION

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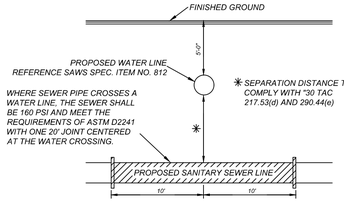

TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
N.T.S.

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3. *PIPE TYPE DESIGNATIONS ARE SDR 26.*
4. *REF. THIS SHEET FOR TYPICAL SANITARY SEWER / WATER CROSSING DETAIL.*
5. *ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT SHALL BE IN ACCORDANCE WITH THE SAN ANTONIO WATER SYSTEM (SAWS) STANDARD SPECIFICATIONS.*

CAUTION!!:
THE CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITED TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT ARISE SHOULD BE COMMUNICATED TO THE ENGINEER IMMEDIATELY AND PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL CONTACT 1-800-DIG-TESS A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND THE REPAIR SHALL BE AT CONTRACTOR'S SOLE EXPENSE WHETHER THE UTILITY IS SHOWN ON THESE PLANS OR NOT.

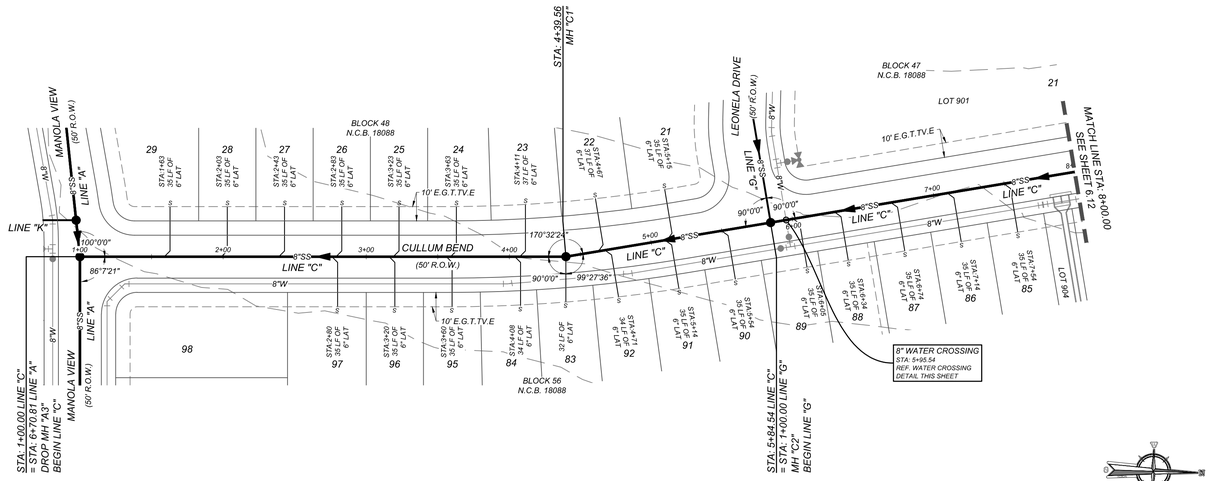
MANHOLE NOTE:
ALL MANHOLES MUST BE WATERTIGHT, WITH WATERTIGHT RINGS AND COVERS. THESE MANHOLES MUST BE VENTED PER SAWS DETAIL DD852-02.

LOWER - SOUTH SEWERSHED - DOS RIOS \ LEON CREEK W.R.C.

DEVELOPER'S NAME: SOUTHSTAR AT VERANO, LLC
DEVELOPER'S ADDRESS: 2055 CENTRAL PLAZA, SUITE 110
CITY: NEW BRAUNFELS STATE: TEXAS ZIP: 78130
PHONE#: FAX#: TOTAL ACREAGE: 112.0 ACRES
SAWS BLOCK MAP#: 154536 TOTAL EDU'S: 493
TOTAL LINEAR FOOTAGE OF PIPE: 15,589 LF ~ 8" SDR 26 PLAT NO.: 24-11800334
NUMBER OF LOTS: 493 SAWS JOB#: 24-1646

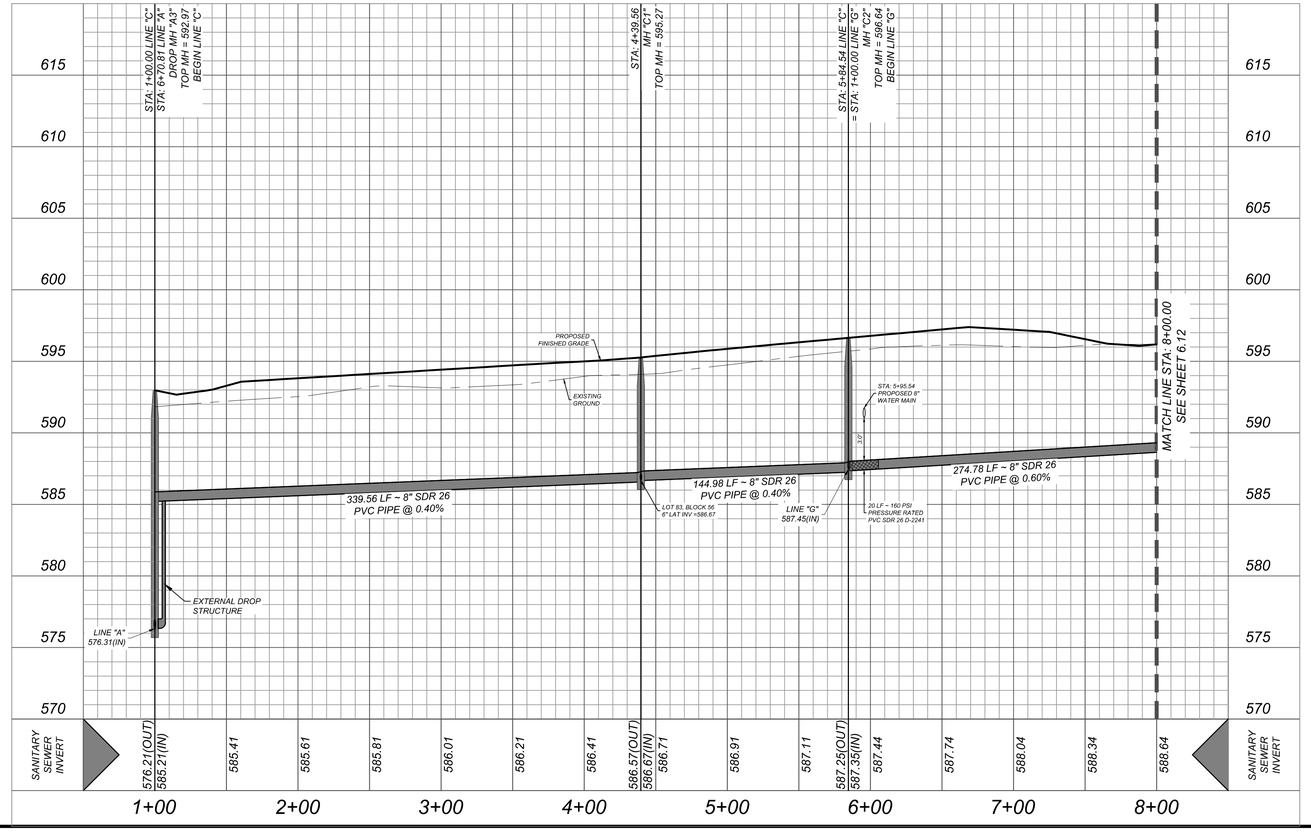
LEGEND

RIGHT OF WAY	=	*R.O.W.*
COUNTY BLOCK	=	*C.B.*
EXISTING SANITARY SEWER	=	*ESS*
PROPOSED SANITARY SEWER	=	*SS*
EXISTING WATER	=	*EW*
PROPOSED WATER	=	*W*
ELECTRIC, GAS, TELEPHONE & CABLE TV EASEMENT	=	*E.G.T.TV.E*
SANITARY SEWER EASEMENT	=	*S.S.E*
VARIABLE WIDTH DRAINAGE EASEMENT	=	*V.W.D.E*
LINEAR FEET	=	*LF*
LATERAL	=	*LAT*
VERTICAL STACK	=	*VS*



LINE "C"
STA: 1+00.00 - 8+00.00

HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'



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FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

REV	DATE	DRAWN BY	DESCRIPTION
	-	-	-

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: SSPP3911024_C

SHEET TITLE:
LINE "C" PLAN & PROFILE
(1 OF 2)

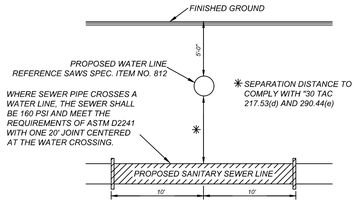
SHEET NUMBER:
6.11

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

I:\RESIWERKS\SPP3911024_C.dwg(6.11 By: SDOSPH

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.



TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
N.T.S.

NOTES:

1. *SEWER PIPE WHERE WATER LINE CROSSES SHALL BE MEET THE REQUIREMENTS OF ASTM D2241. CONTRACTOR SHALL CENTER A 20 FOOT JOINT OF 160 P.S.I. PRESSURE RATED P.V.C. AT THE PROPOSED WATER CROSSING (NO SEPARATE PAY ITEM). REFERENCE SHEET 6.0, SANITARY SEWER GENERAL NOTES, S.A.W.S. CRITERIA FOR SEWER MAIN CONSTRUCTION IN THE VICINITY OF WATER MAINS.*
2. *REF. SHEET 6.2 FOR BENCHMARK INFORMATION.*
3. *PIPE TYPE DESIGNATIONS ARE SDR 26.*
4. *REF. THIS SHEET FOR TYPICAL SANITARY SEWER / WATER CROSSING DETAIL.*
5. *ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT SHALL BE IN ACCORDANCE WITH THE SAN ANTONIO WATER SYSTEM (SAWS) STANDARD SPECIFICATIONS.*

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MANHOLE NOTE:

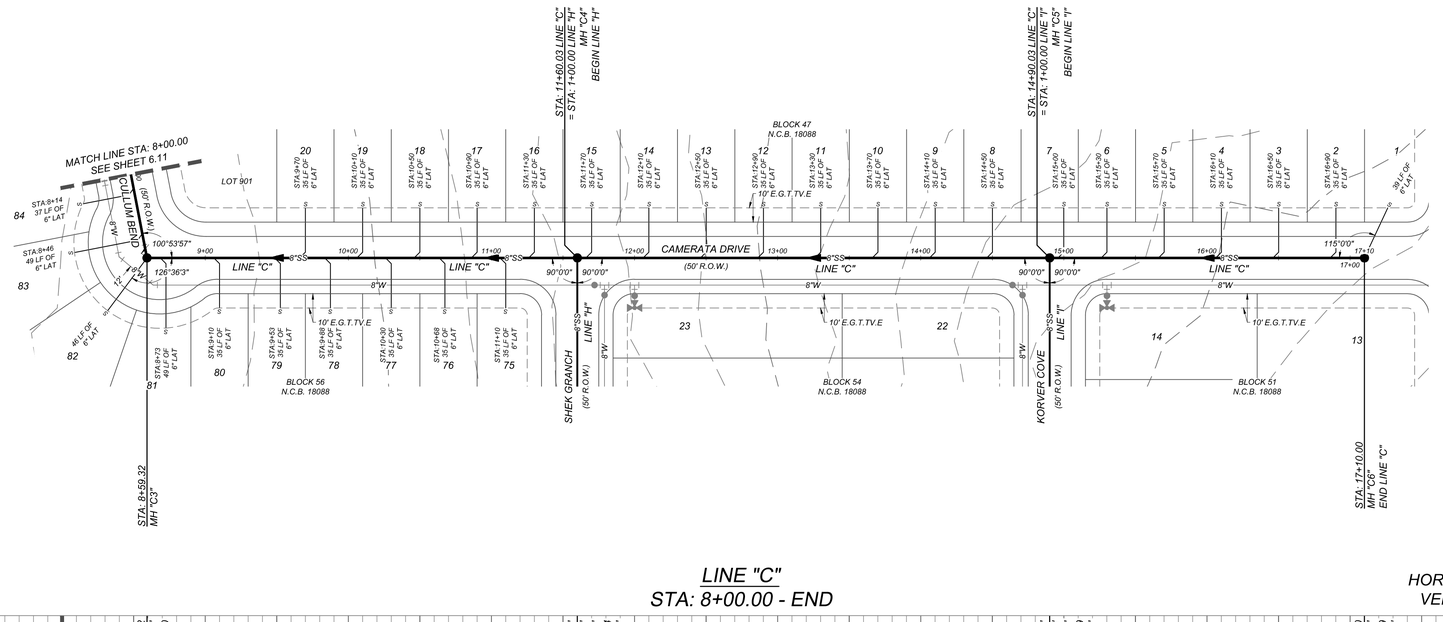
ALL MANHOLES MUST BE WATERTIGHT, WITH WATERTIGHT RINGS AND COVERS. THESE MANHOLES MUST BE VENTED PER SAWS DETAIL DD852-02.

LOWER - SOUTH SEWERSHED - DOS RIOS \ LEON CREEK W.R.C.

DEVELOPER'S NAME: SOUTHSTAR AT VERANO, LLC
DEVELOPER'S ADDRESS: 2055 CENTRAL PLAZA, SUITE 110
CITY: NEW BRAUNFELS STATE: TEXAS ZIP: 78130
PHONE#: FAX#: TOTAL ACREAGE: 112.0 ACRES
SAWS BLOCK MAP#: 154536 TOTAL EDU'S: 493
TOTAL LINEAR FOOTAGE OF PIPE: 15,589 LF ~ 8" SDR 26 PLAT NO.: 24-11800334
NUMBER OF LOTS: 493 SAWS JOB#: 24-1646

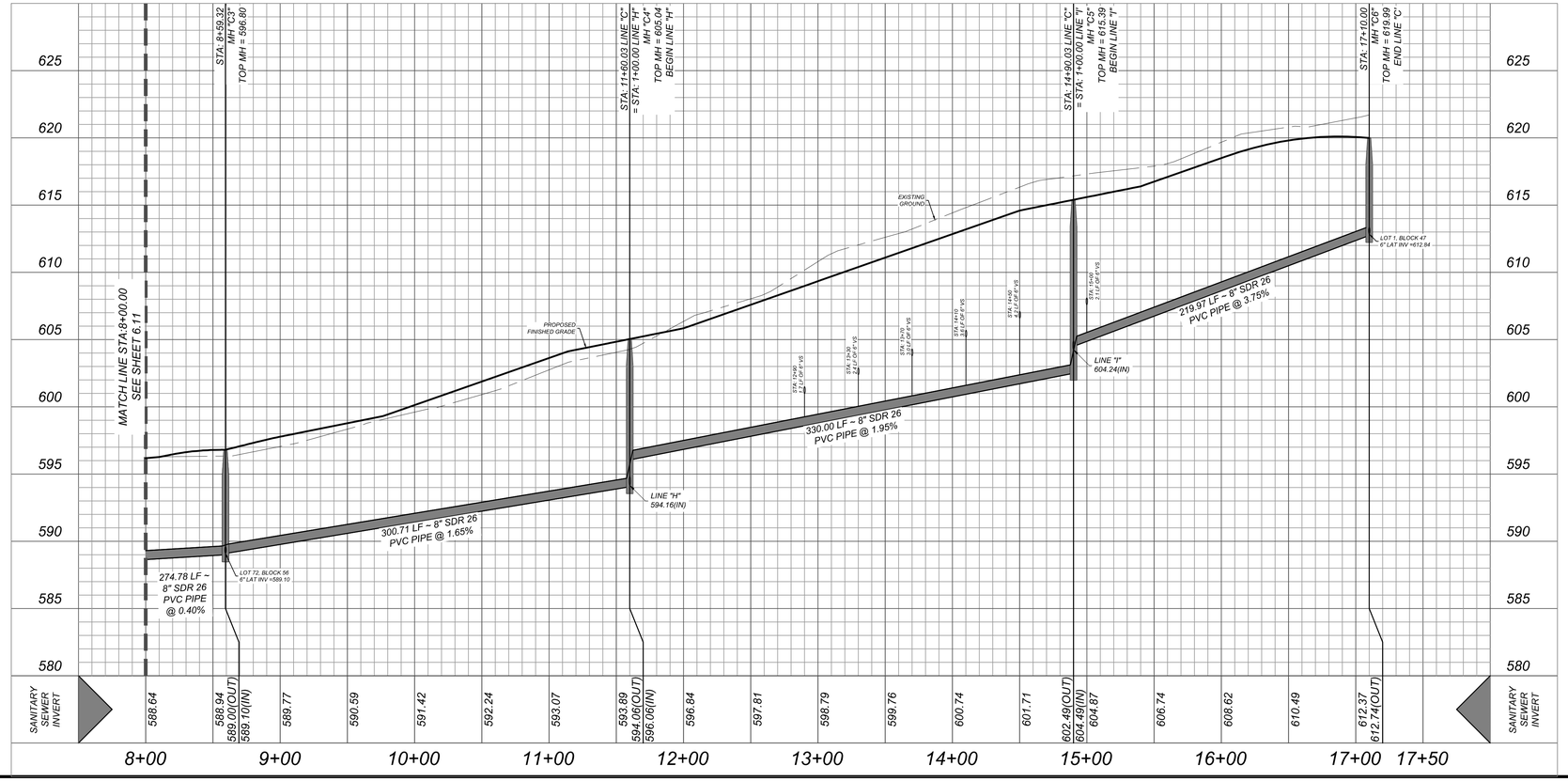
LEGEND

RIGHT OF WAY	=	*R.O.W.*
COUNTY BLOCK	=	*C.B.*
EXISTING SANITARY SEWER	=	*ESS*
PROPOSED SANITARY SEWER	=	*SS*
EXISTING WATER	=	*EW*
PROPOSED WATER	=	*W*
ELECTRIC, GAS, TELEPHONE & CABLE TV EASEMENT	=	*E.G.T.TV.E*
SANITARY SEWER EASEMENT	=	*S.S.E*
VARIABLE WIDTH DRAINAGE EASEMENT	=	*V.W.D.E*
LINEAR FEET	=	*LF*
LATERAL	=	*LAT*
VERTICAL STACK	=	*VS*



LINE "C"
STA: 8+00.00 - END

HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'



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REV	DATE	DRAWN BY	DESCRIPTION

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14309
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: SSPP3911024_C

SHEET TITLE:
LINE "C" PLAN & PROFILE (2 OF 2)

SHEET NUMBER:
6.12

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

I:\RESTWEN\SSPP3911024_C.dwg\6.12 By: SDOSPH

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

NOTES:

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2. *REF. SHEET 6.2 FOR BENCHMARK INFORMATION.*
3. *PIPE TYPE DESIGNATIONS ARE SDR 26.*
4. *REF. THIS SHEET FOR TYPICAL SANITARY SEWER / WATER CROSSING DETAIL.*
5. *ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT SHALL BE IN ACCORDANCE WITH THE SAN ANTONIO WATER SYSTEM (SAWS) STANDARD SPECIFICATIONS.*

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MANHOLE NOTE:

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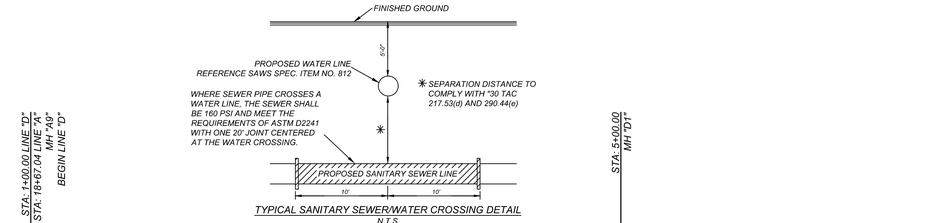
LOWER - SOUTH SEWERSHED - DOS RIOS \ LEON CREEK W.R.C.

DEVELOPER'S NAME: SOUTHSTAR AT VERANO, LLC		
DEVELOPER'S ADDRESS: 2055 CENTRAL PLAZA, SUITE 110		
CITY: NEW BRAUNFELS	STATE: TEXAS	ZIP: 78130
PHONE#:	FAX#:	TOTAL ACREAGE: 112.0 ACRES
SAWS BLOCK MAP#: 154536		TOTAL EDU'S: 493
TOTAL LINEAR FOOTAGE OF PIPE: 15,589 LF ~ 8" SDR 26		PLAT NO.: 24-11800334
NUMBER OF LOTS: 493	SAWS JOB#: 24-1646	

LEGEND

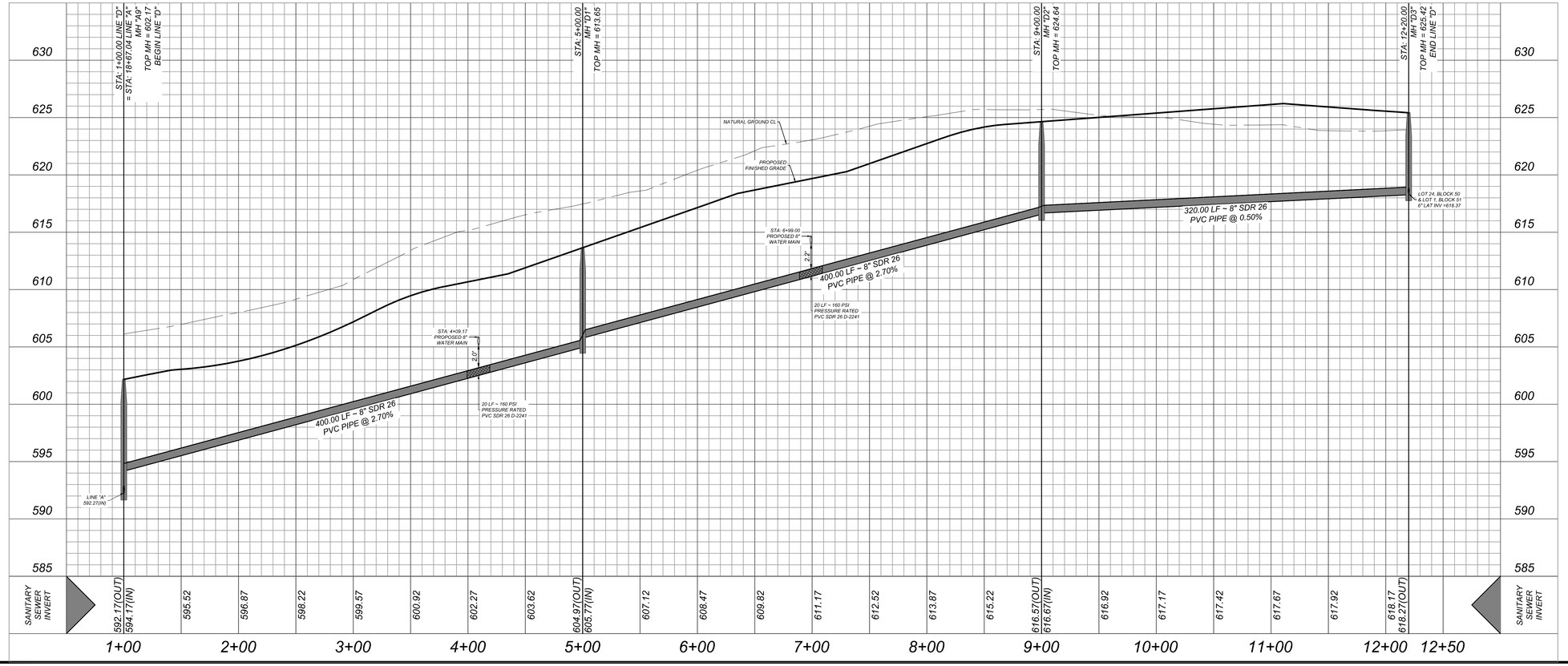
RIGHT OF WAY	=	R.O.W.
COUNTY BLOCK	=	C.B.
EXISTING SANITARY SEWER	=	ESS
PROPOSED SANITARY SEWER	=	SS
EXISTING WATER	=	EW
PROPOSED WATER	=	W
ELECTRIC, GAS, TELEPHONE & CABLE TV EASEMENT	=	E.G.T.TV.E
SANITARY SEWER EASEMENT	=	S.S.E
VARIABLE WIDTH DRAINAGE EASEMENT	=	V.W.D.E
LINEAR FEET	=	LF
LATERAL	=	LAT
VERTICAL STACK	=	VS



TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
N.T.S.

LINE "D"
STA: 1+00.00 - END

HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'



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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14309
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: SSPP3911024_D

SHEET TITLE:
LINE "D" PLAN & PROFILE

SHEET NUMBER:
6.13

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

I:\RESIVER\SSPP3911024_D.dwg\6.13 By: SJOSEPH

TRENCH EXCAVATION SAFETY PROTECTION

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NOTES:

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3. *PIPE TYPE DESIGNATIONS ARE SDR 26.*
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LOWER - SOUTH SEWERSHED - DOS RIOS \ LEON CREEK W.R.C.

DEVELOPER'S NAME: SOUTHSTAR AT VERANO, LLC

DEVELOPER'S ADDRESS: 2055 CENTRAL PLAZA, SUITE 110

CITY: NEW BRAUNFELS STATE: TEXAS ZIP: 78130

PHONE#: FAX#: TOTAL ACREAGE: 112.0 ACRES

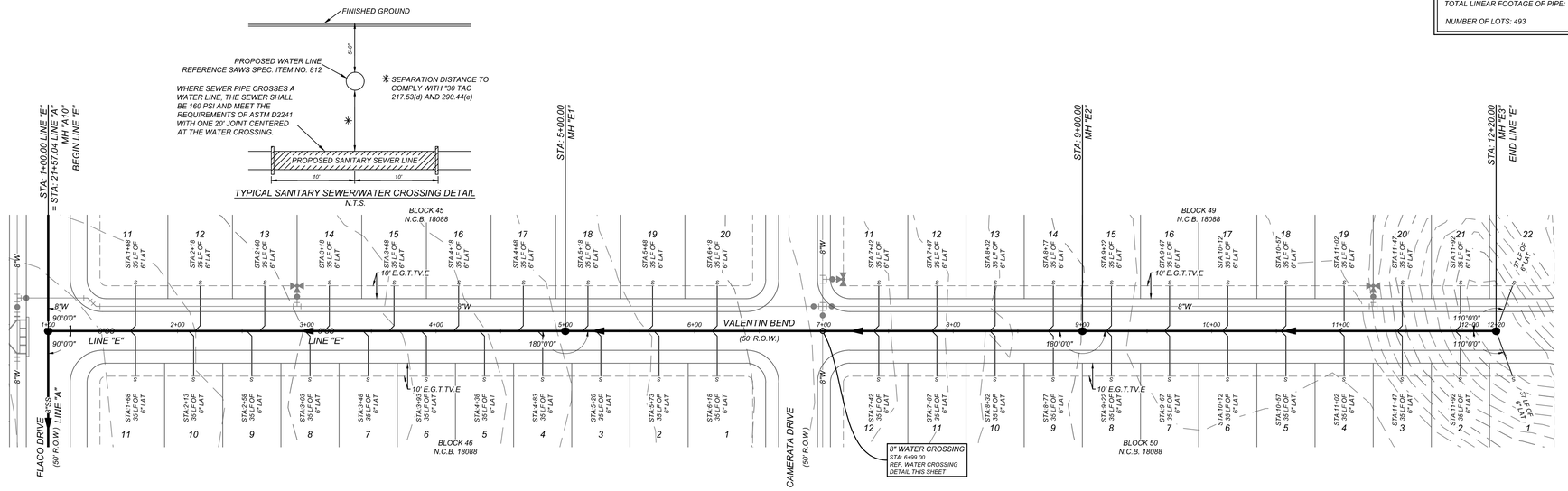
SAWS BLOCK MAP#: 154536 TOTAL EDU'S: 493

TOTAL LINEAR FOOTAGE OF PIPE: 15,589 LF ~ 8" SDR 26 PLAT NO.: 24-11800334

NUMBER OF LOTS: 493 SAWS JOB#: 24-1646

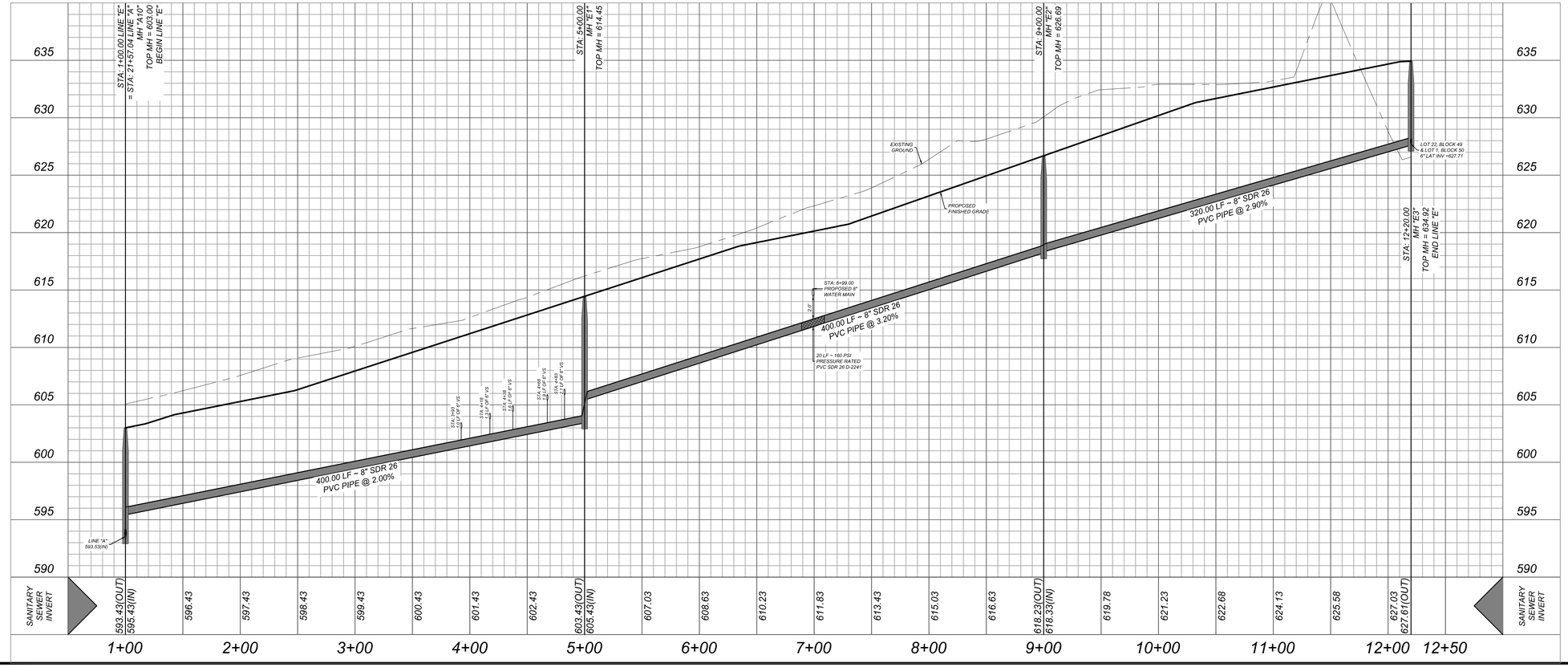
LEGEND

RIGHT OF WAY	=	*R.O.W.*
COUNTY BLOCK	=	*C.B.*
EXISTING SANITARY SEWER	=	*ESS*
PROPOSED SANITARY SEWER	=	*SS*
EXISTING WATER	=	*EW*
PROPOSED WATER	=	*W*
ELECTRIC, GAS, TELEPHONE & CABLE TV EASEMENT	=	*E.G.T.TV.E*
SANITARY SEWER EASEMENT	=	*S.S.E*
VARIABLE WIDTH DRAINAGE EASEMENT	=	*V.W.D.E*
LINEAR FEET	=	*LF*
LATERAL	=	*LAT*
VERTICAL STACK	=	*VS*



LINE "E"
STA: 1+00.00 - END

HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'



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REV	DATE	DRAWN BY	DESCRIPTION

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: SSPP3911024_E

SHEET TITLE: LINE "E" PLAN & PROFILE

SHEET NUMBER: 6.14

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

I:\RESIWEN\SSPP3911024_E.dwg 6.14 By: SDOSPH

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

NOTES:

1. SEWER PIPE WHERE WATER LINE CROSSES SHALL BE MEET THE REQUIREMENTS OF ASTM D2241. CONTRACTOR SHALL CENTER A 20 FOOT JOINT OF 160 P.S.I. PRESSURE RATED P.V.C. AT THE PROPOSED WATER CROSSING (NO SEPARATE PAY ITEM). REFERENCE SHEET 6.0, SANITARY SEWER GENERAL NOTES, S.A.W.S. CRITERIA FOR SEWER MAIN CONSTRUCTION IN THE VICINITY OF WATER MAINS.
2. REF. SHEET 6.2 FOR BENCHMARK INFORMATION.
3. PIPE TYPE DESIGNATIONS ARE SDR 26.
4. REF. THIS SHEET FOR TYPICAL SANITARY SEWER / WATER CROSSING DETAIL.
5. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT SHALL BE IN ACCORDANCE WITH THE SAN ANTONIO WATER SYSTEM (SAWS) STANDARD SPECIFICATIONS.

CAUTION!!:

THE CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITED TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT ARISE SHOULD BE COMMUNICATED TO THE ENGINEER IMMEDIATELY AND PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL CONTACT 1-800-DIG-TESS A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND THE REPAIR SHALL BE AT CONTRACTOR'S SOLE EXPENSE WHETHER THE UTILITY IS SHOWN ON THESE PLANS OR NOT.

MANHOLE NOTE:

ALL MANHOLES MUST BE WATERTIGHT, WITH WATERTIGHT RINGS AND COVERS. THESE MANHOLES MUST BE VENTED PER SAWS DETAIL DD852-02.

LOWER - SOUTH SEWERSHED - DOS RIOS \ LEON CREEK W.R.C.

DEVELOPER'S NAME: SOUTHSTAR AT VERANO, LLC

DEVELOPER'S ADDRESS: 2055 CENTRAL PLAZA, SUITE 110

CITY: NEW BRAUNFELS STATE: TEXAS ZIP: 78130

PHONE#: FAX#: TOTAL ACREAGE: 112.0 ACRES

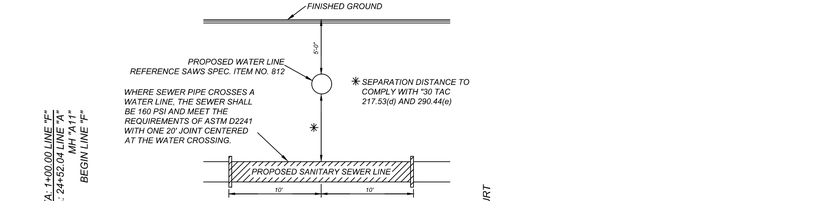
SAWS BLOCK MAP#: 154536 TOTAL EDU'S: 493

TOTAL LINEAR FOOTAGE OF PIPE: 15,589 LF ~ 8" SDR 26 PLAT NO.: 24-11800334

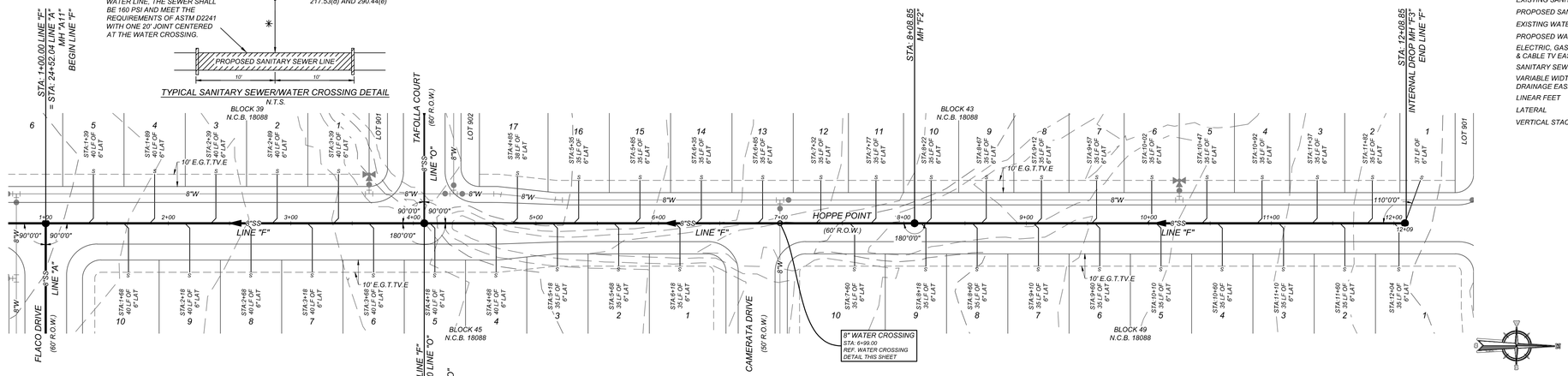
NUMBER OF LOTS: 493 SAWS JOB#: 24-1646

LEGEND

RIGHT OF WAY	=	R.O.W.
COUNTY BLOCK	=	C.B.
EXISTING SANITARY SEWER	=	ESS
PROPOSED SANITARY SEWER	=	SS
EXISTING WATER	=	EW
PROPOSED WATER	=	W
ELECTRIC, GAS, TELEPHONE & CABLE TV EASEMENT	=	E.G.T.TV.E
SANITARY SEWER EASEMENT	=	S.S.E
VARIABLE WIDTH DRAINAGE EASEMENT	=	V.W.D.E
LINEAR FEET	=	LF
LATERAL	=	LAT
VERTICAL STACK	=	VS

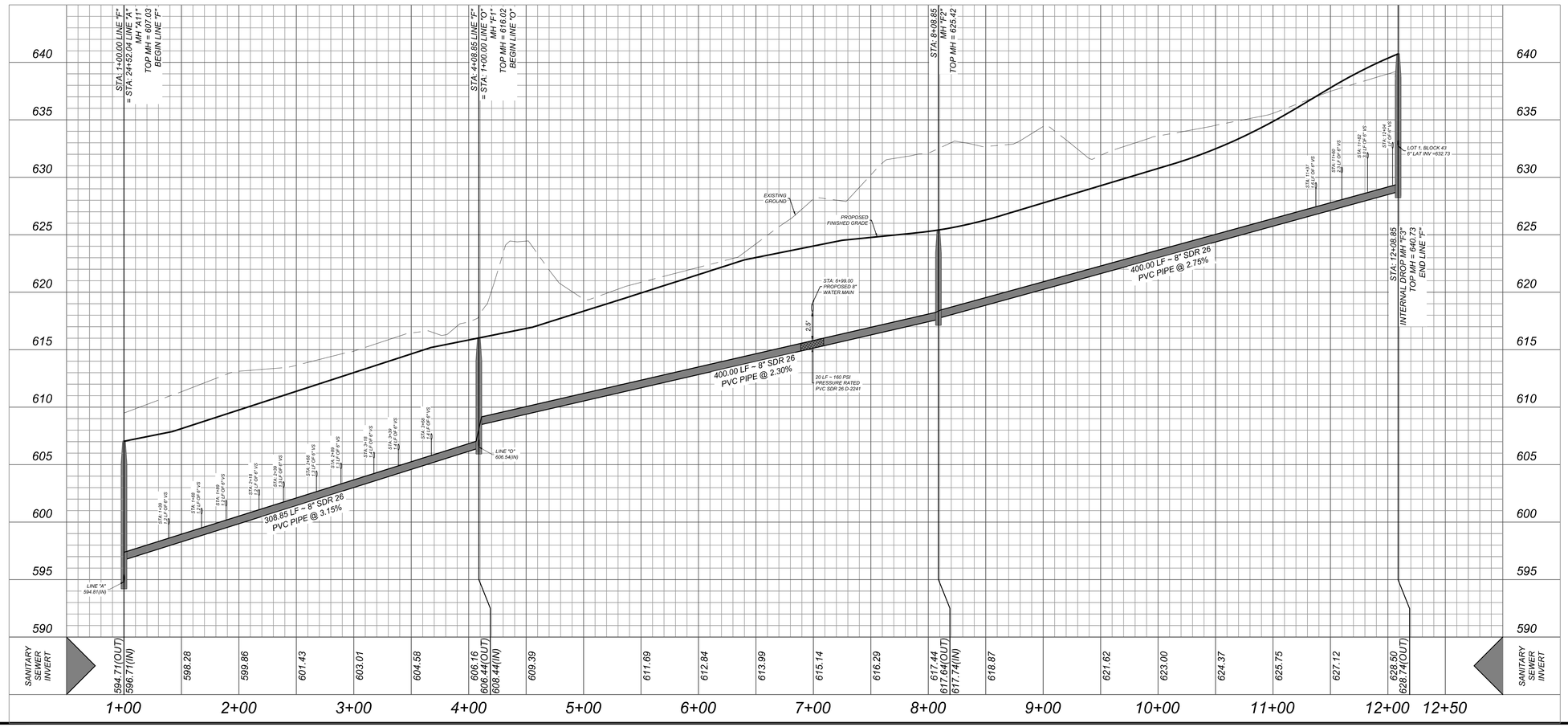


TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
N.T.S.



LINE "F"
STA: 1+00.00 - END

HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'



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FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

REV	DATE	DRAWN BY	DESCRIPTION

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: SSPP3911024_F

SHEET TITLE:
LINE "F" PLAN & PROFILE

SHEET NUMBER:
6.15

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

I:\RSTWER\SSPP3911024_F.dwg\6.15 By: SJOSEPH

TRENCH EXCAVATION SAFETY PROTECTION

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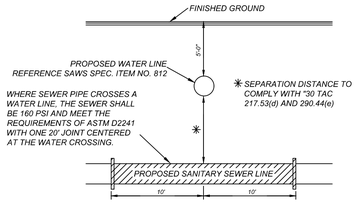

TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
N.T.S.

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3. *PIPE TYPE DESIGNATIONS ARE SDR 26.*
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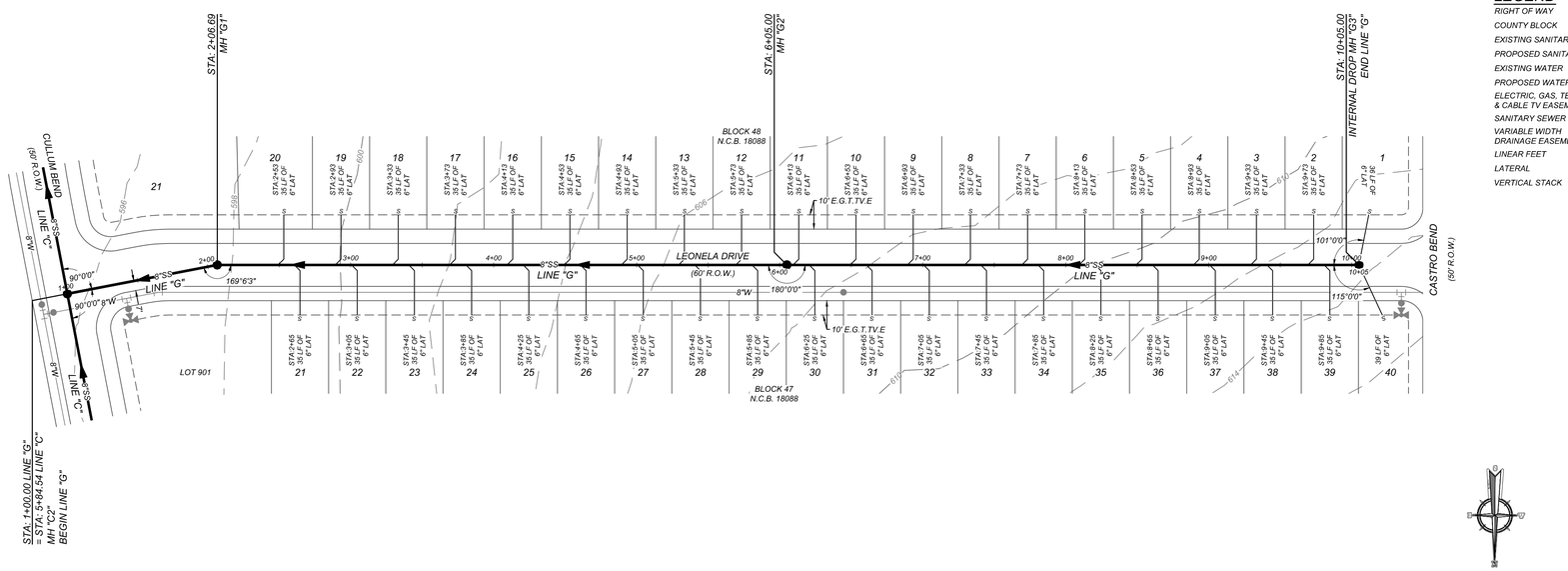
LOWER - SOUTH SEWERSHED - DOS RIOS \ LEON CREEK W.R.C.

DEVELOPER'S NAME: SOUTHSTAR AT VERANO, LLC
DEVELOPER'S ADDRESS: 2055 CENTRAL PLAZA, SUITE 110
CITY: NEW BRAUNFELS STATE: TEXAS ZIP: 78130
PHONE#: FAX#: TOTAL ACREAGE: 112.0 ACRES
SAWS BLOCK MAP#: 154536 TOTAL EDU'S: 493
TOTAL LINEAR FOOTAGE OF PIPE: 15,589 LF ~ 8" SDR 26 PLAT NO.: 24-11800334
NUMBER OF LOTS: 493 SAWS JOB#: 24-1646

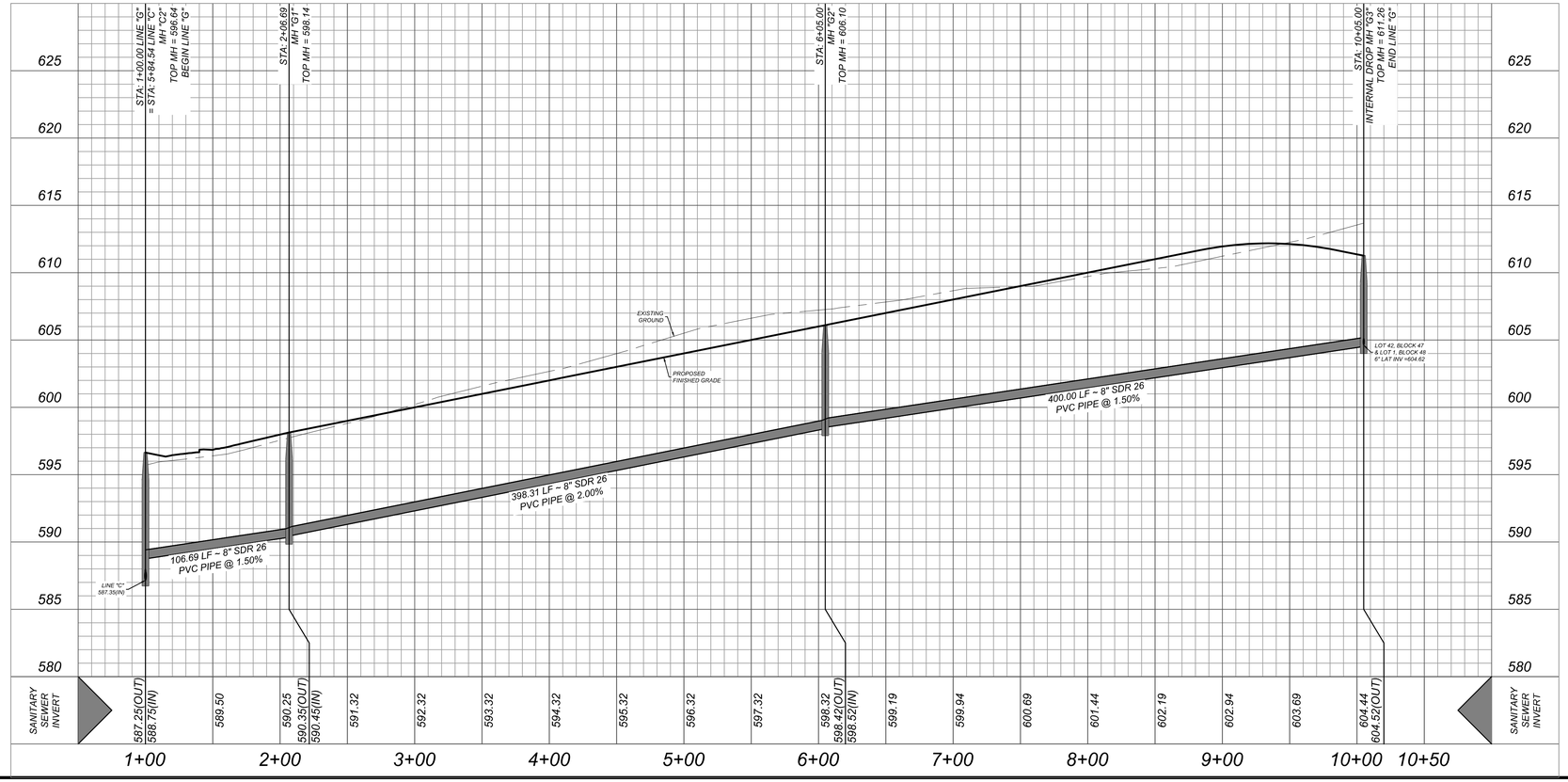
LEGEND

RIGHT OF WAY	=	*R.O.W.*
COUNTY BLOCK	=	*C.B.*
EXISTING SANITARY SEWER	=	*ESS*
PROPOSED SANITARY SEWER	=	*SS*
EXISTING WATER	=	*EW*
PROPOSED WATER	=	*W*
ELECTRIC, GAS, TELEPHONE & CABLE TV EASEMENT	=	*E.G.T.TV.E*
SANITARY SEWER EASEMENT	=	*S.S.E*
VARIABLE WIDTH DRAINAGE EASEMENT	=	*V.W.D.E*
LINEAR FEET	=	*LF*
LATERAL	=	*LAT*
VERTICAL STACK	=	*VS*



HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'

LINE "G"
STA: 1+00.00 - END



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FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

REV	DATE	DRAWN BY	DESCRIPTION
	-	-	-

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14309
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: SSPP3911024_G

SHEET TITLE: LINE "G" PLAN & PROFILE

SHEET NUMBER: 6.16

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

M:\ESTIMATING\SSPP3911024_G.dwg 6.16 By: SJOSEPH

TRENCH EXCAVATION SAFETY PROTECTION

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2. *REF. SHEET 6.2 FOR BENCHMARK INFORMATION.*
3. *PIPE TYPE DESIGNATIONS ARE SDR 26.*
4. *REF. THIS SHEET FOR TYPICAL SANITARY SEWER / WATER CROSSING DETAIL.*
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CAUTION!!:

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LOWER - SOUTH SEWERSHED - DOS RIOS \ LEON CREEK W.R.C.

DEVELOPER'S NAME: SOUTHSTAR AT VERANO, LLC

DEVELOPER'S ADDRESS: 2055 CENTRAL PLAZA, SUITE 110

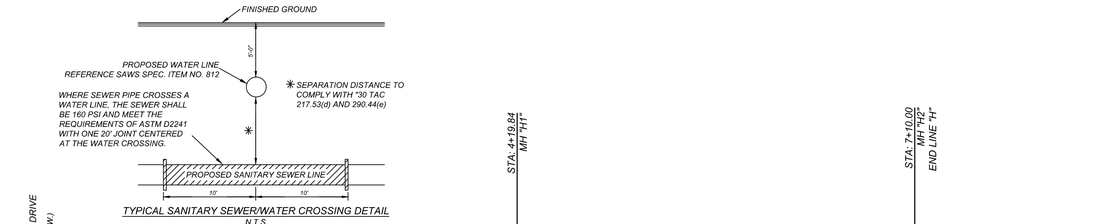
CITY: NEW BRAUNFELS STATE: TEXAS ZIP: 78130

PHONE#: FAX#: TOTAL ACREAGE: 112.0 ACRES

SAWS BLOCK MAP#: 154536 TOTAL EDU'S: 493

TOTAL LINEAR FOOTAGE OF PIPE: 15,589 LF ~ 8" SDR 26 PLAT NO.: 24-11800334

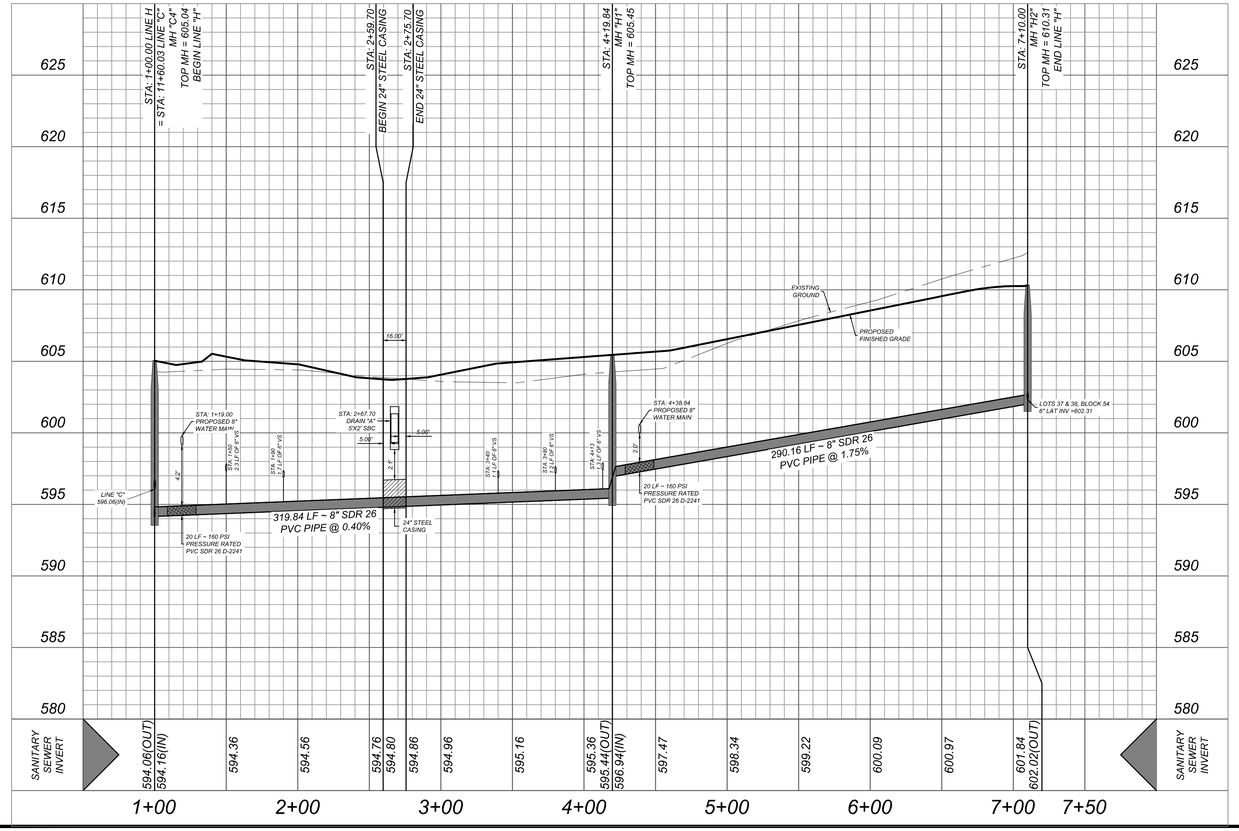
NUMBER OF LOTS: 493 SAWS JOB#: 24-1646

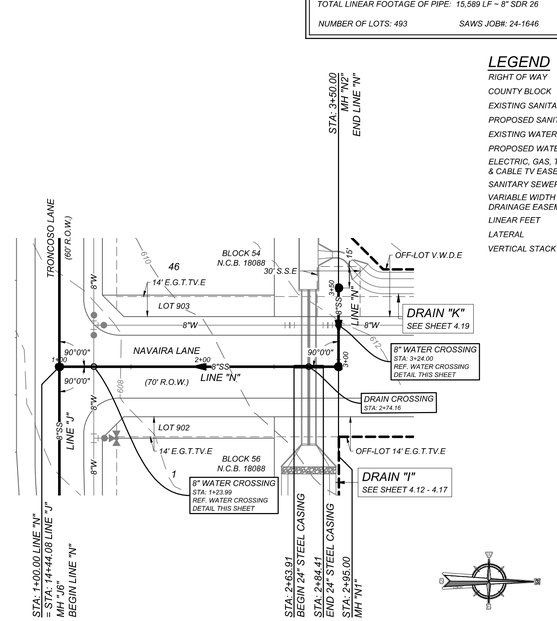


TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
N.T.S.

LINE "H"
STA: 1+00.00 - END

HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'



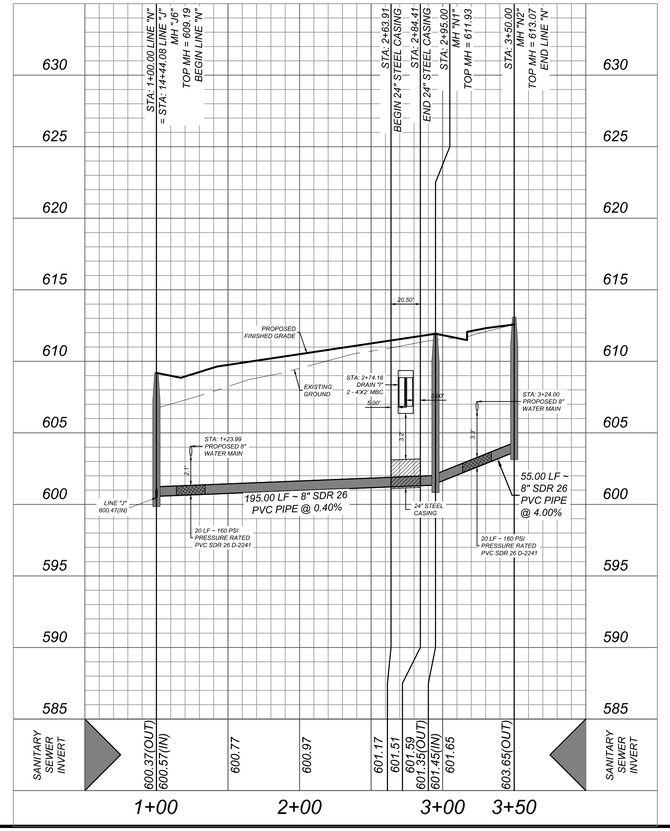


LEGEND

RIGHT OF WAY	=	*R.O.W.*
COUNTY BLOCK	=	*C.B.*
EXISTING SANITARY SEWER	=	*ESS*
PROPOSED SANITARY SEWER	=	*SS*
EXISTING WATER	=	*EW*
PROPOSED WATER	=	*W*
ELECTRIC, GAS, TELEPHONE & CABLE TV EASEMENT	=	*E.G.T.TV.E*
SANITARY SEWER EASEMENT	=	*S.S.E*
VARIABLE WIDTH DRAINAGE EASEMENT	=	*V.W.D.E*
LINEAR FEET	=	*LF*
LATERAL	=	*LAT*
VERTICAL STACK	=	*VS*

LINE "N"
STA: 1+00.00 - END

HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'



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REV	DATE	DRAWN BY	DESCRIPTION

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

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3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194500

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: SSPP3911024_HN

SHEET TITLE: LINE "H" & "N" PLAN & PROFILE

SHEET NUMBER: 6.17

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

I:\SESWR\SSPP3911024_HN.dwg\6.17 By: ABEL.MONTALVO

TRENCH EXCAVATION SAFETY PROTECTION

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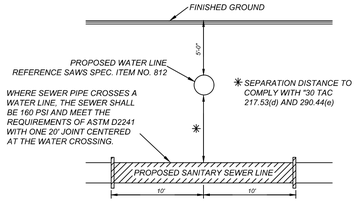

TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
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NUMBER OF LOTS: 493 SAWS JOB#: 24-1646

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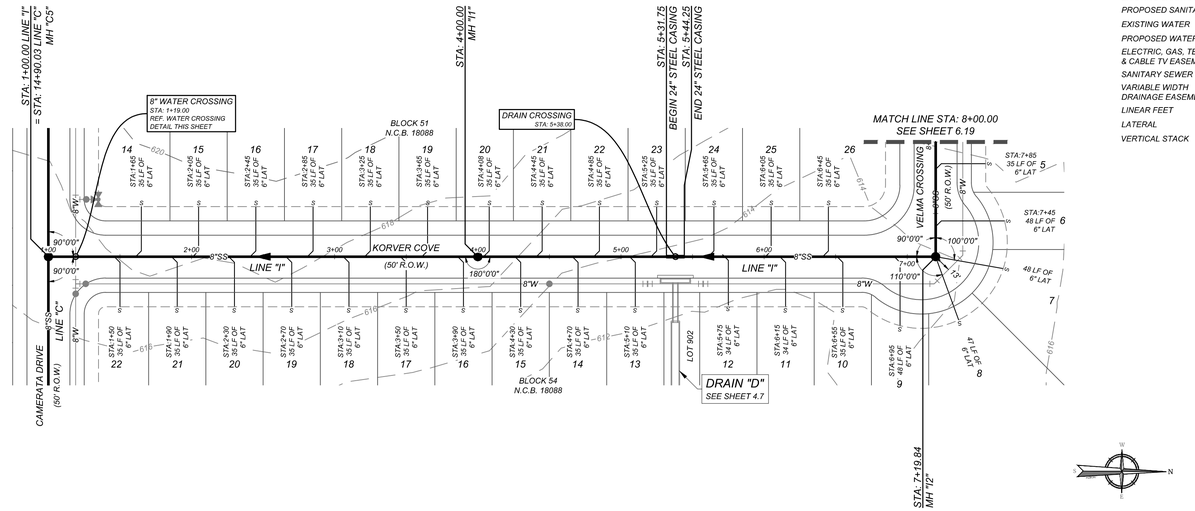
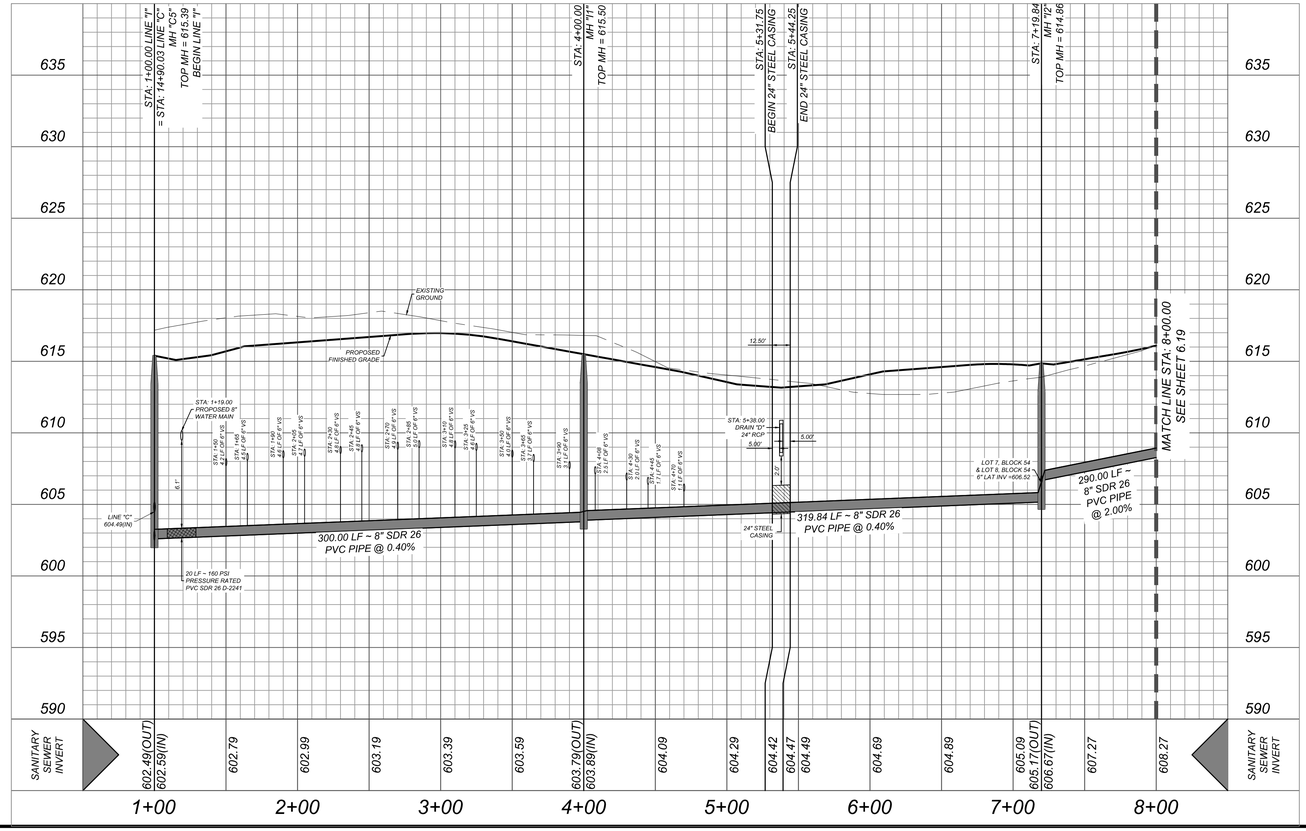
COUNTY BLOCK	=	*C.B.*
EXISTING SANITARY SEWER	=	*ESS*
PROPOSED SANITARY SEWER	=	*SS*
EXISTING WATER	=	*EW*
PROPOSED WATER	=	*W*
ELECTRIC, GAS, TELEPHONE & CABLE TV EASEMENT	=	*E.G.T.TV.E*
SANITARY SEWER EASEMENT	=	*S.S.E*
VARIABLE WIDTH DRAINAGE EASEMENT	=	*V.W.D.E*
LINEAR FEET	=	*LF*
LATERAL	=	*LAT*
VERTICAL STACK	=	*VS*



LINE "I"
STA: 1+00.00 - 8+00.00

HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'



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REV	DATE	DRAWN BY	DESCRIPTION

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: SSPP3911024_I

SHEET TITLE:
LINE "I" PLAN & PROFILE
(1 OF 2)

SHEET NUMBER:
6.18

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

I:\KFW\ENGR\SSPP3911024_I.dwg|6.18 By: ABEL.MONTALVO

TRENCH EXCAVATION SAFETY PROTECTION

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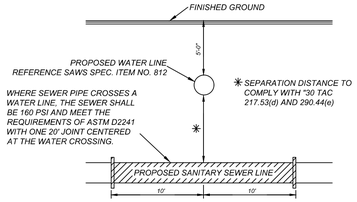

TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
N.T.S.

NOTES:

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2. *REF. SHEET 6.2 FOR BENCHMARK INFORMATION.*
3. *PIPE TYPE DESIGNATIONS ARE SDR 26.*
4. *REF. THIS SHEET FOR TYPICAL SANITARY SEWER / WATER CROSSING DETAIL.*
5. *ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT SHALL BE IN ACCORDANCE WITH THE SAN ANTONIO WATER SYSTEM (SAWS) STANDARD SPECIFICATIONS.*

CAUTION!!:

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MANHOLE NOTE:

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LOWER - SOUTH SEWERSHED - DOS RIOS \ LEON CREEK W.R.C.

DEVELOPER'S NAME: SOUTHSTAR AT VERANO, LLC
DEVELOPER'S ADDRESS: 2055 CENTRAL PLAZA, SUITE 110
CITY: NEW BRAUNFELS STATE: TEXAS ZIP: 78130
PHONE#: FAX#: TOTAL ACREAGE: 112.0 ACRES
SAWS BLOCK MAP#: 154536 TOTAL EDU'S: 493
TOTAL LINEAR FOOTAGE OF PIPE: 15,589 LF ~ 8" SDR 26 PLAT NO.: 24-11800334
NUMBER OF LOTS: 493 SAWS JOB#: 24-1646

LEGEND

RIGHT OF WAY	=	R.O.W.
COUNTY BLOCK	=	C.B.
EXISTING SANITARY SEWER	=	ESS
PROPOSED SANITARY SEWER	=	SS
EXISTING WATER	=	EW
PROPOSED WATER	=	W
ELECTRIC, GAS, TELEPHONE & CABLE TV EASEMENT	=	E.G.T.TV.E
SANITARY SEWER EASEMENT	=	S.S.E
VARIABLE WIDTH DRAINAGE EASEMENT	=	V.W.D.E
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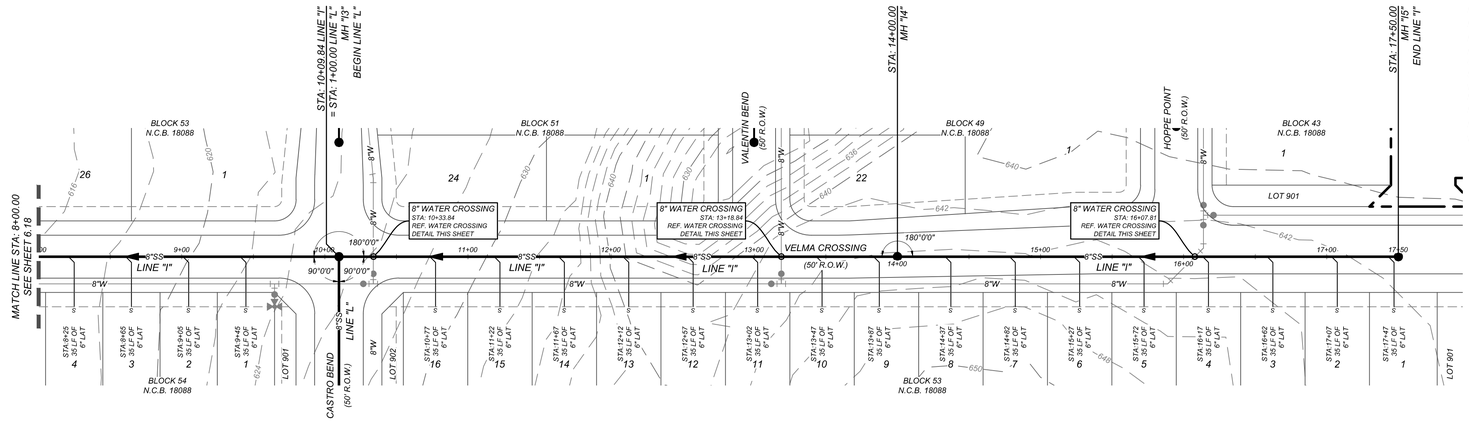
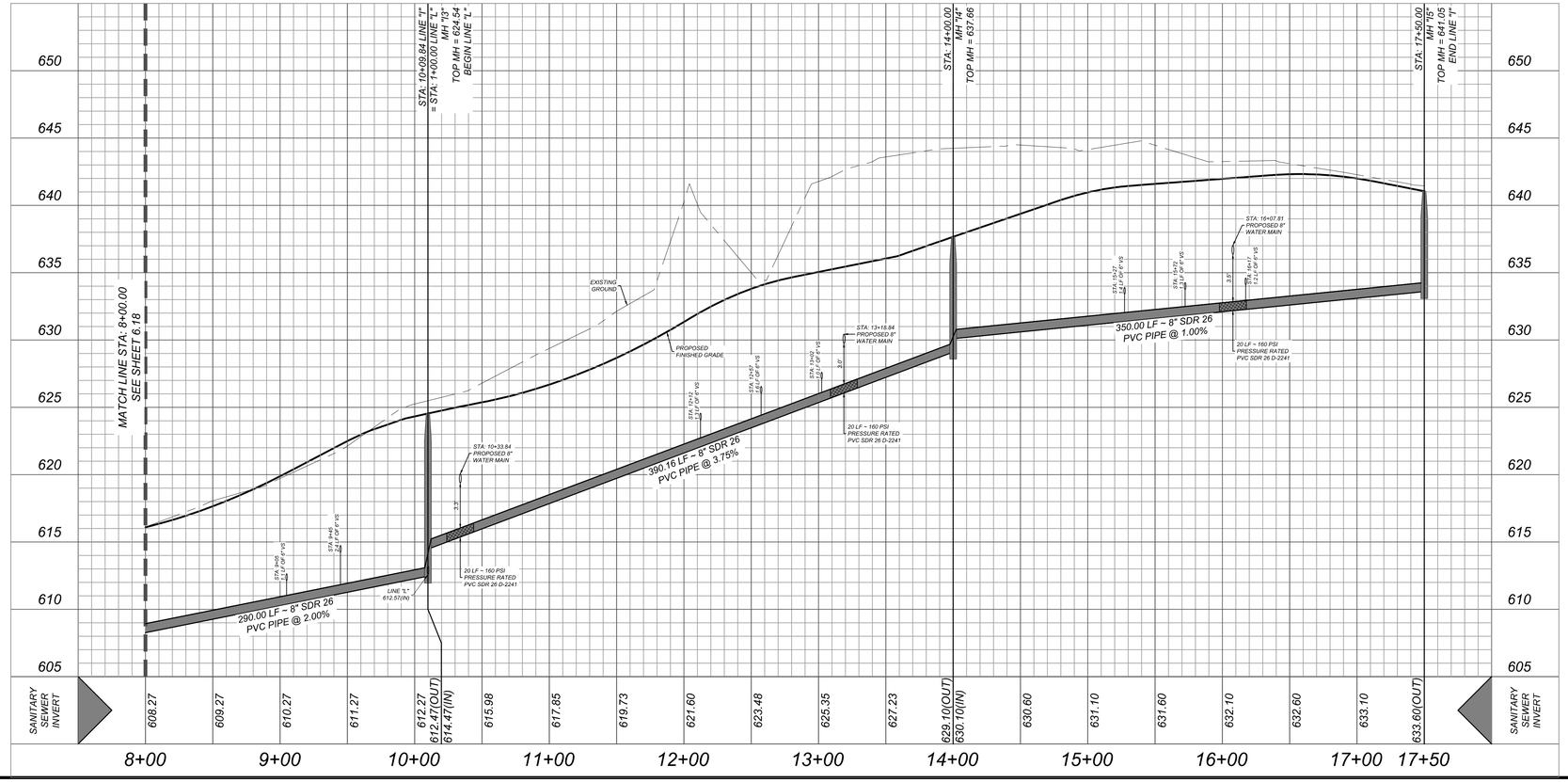


LINE "I"
STA: 8+00.00 - END

HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'



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REV	DATE	DRAWN BY	DESCRIPTION

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PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

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Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: SSPP3911024_I

SHEET TITLE: LINE "I" PLAN & PROFILE (2 OF 2)

SHEET NUMBER: 6.19

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

I:\RESIWER\SSPP3911024_I.dwg\6.19 By: ABEL.MONTALVO

TRENCH EXCAVATION SAFETY PROTECTION

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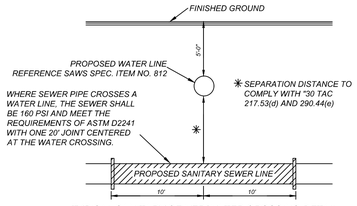

TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
N.T.S.

NOTES:

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2. *REF. SHEET 6.2 FOR BENCHMARK INFORMATION.*
3. *PIPE TYPE DESIGNATIONS ARE SDR 26.*
4. *REF. THIS SHEET FOR TYPICAL SANITARY SEWER / WATER CROSSING DETAIL.*
5. *ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT SHALL BE IN ACCORDANCE WITH THE SAN ANTONIO WATER SYSTEM (SAWS) STANDARD SPECIFICATIONS.*

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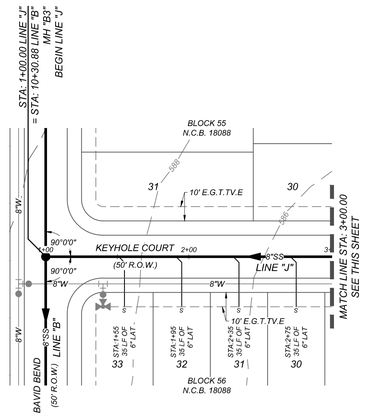
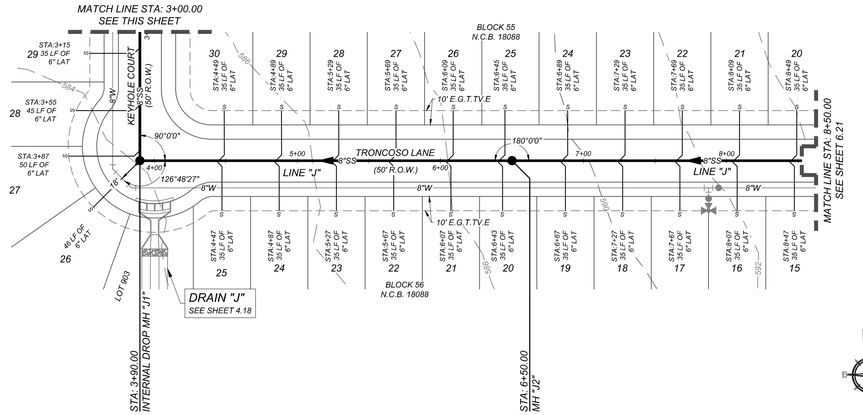
LOWER - SOUTH SEWERSHED - DOS RIOS \ LEON CREEK W.R.C.

DEVELOPER'S NAME: SOUTHSTAR AT VERANO, LLC
DEVELOPER'S ADDRESS: 2055 CENTRAL PLAZA, SUITE 110
CITY: NEW BRAUNFELS STATE: TEXAS ZIP: 78130
PHONE#: FAX#: TOTAL ACREAGE: 112.0 ACRES
SAWS BLOCK MAP#: 154536 TOTAL EDU'S: 493
TOTAL LINEAR FOOTAGE OF PIPE: 15,589 LF ~ 8" SDR 26 PLAT NO.: 24-11800334
NUMBER OF LOTS: 493 SAWS JOB#: 24-1646

LEGEND

RIGHT OF WAY	=	*R.O.W.*
COUNTY BLOCK	=	*C.B.*
EXISTING SANITARY SEWER	=	*ESS*
PROPOSED SANITARY SEWER	=	*SS*
EXISTING WATER	=	*EW*
PROPOSED WATER	=	*W*
ELECTRIC, GAS, TELEPHONE & CABLE TV EASEMENT	=	*E.G.T.TV.E*
SANITARY SEWER EASEMENT	=	*S.S.E*
VARIABLE WIDTH DRAINAGE EASEMENT	=	*V.W.D.E*
LINEAR FEET	=	*LF*
LATERAL	=	*LAT*
VERTICAL STACK	=	*VS*

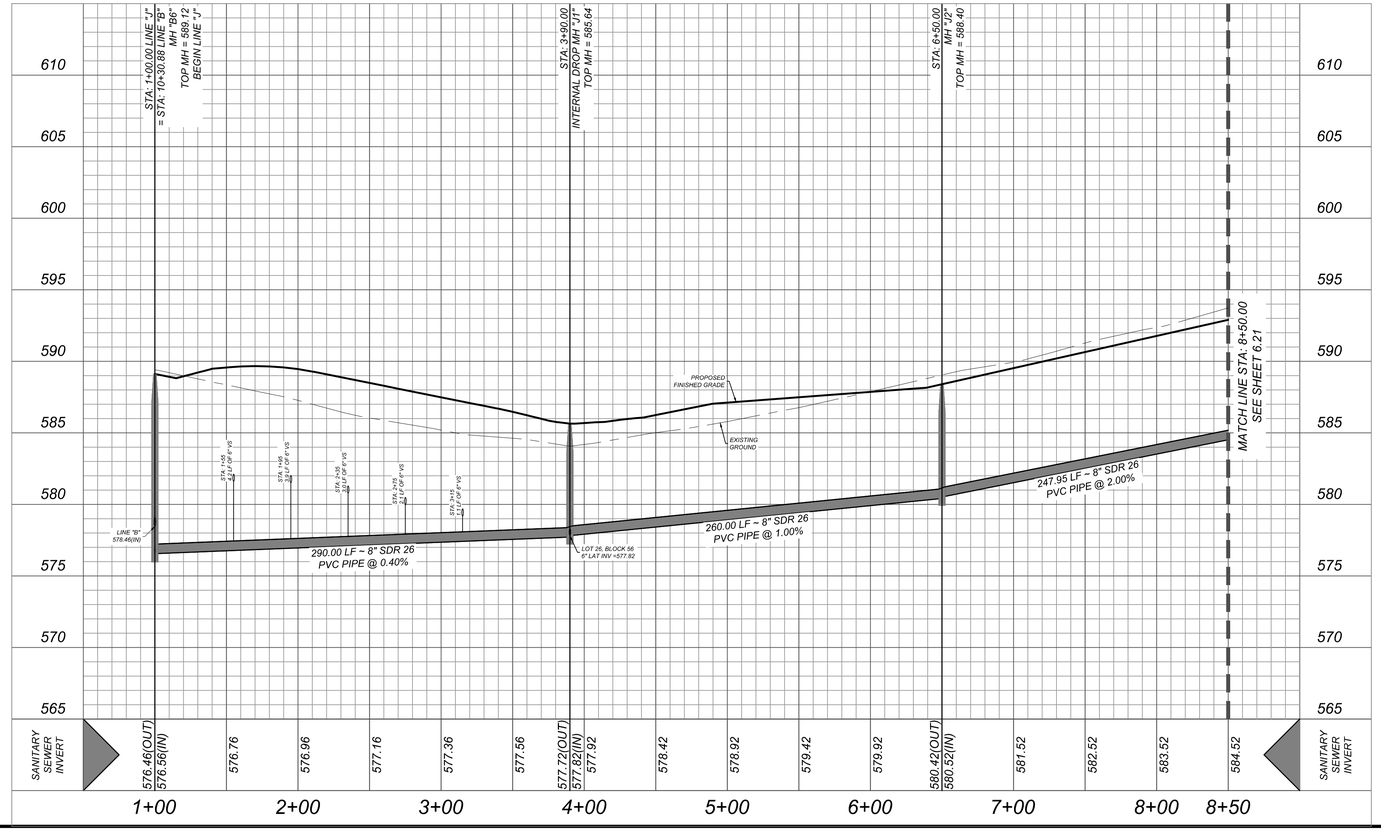






HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'

LINE "J"
STA: 1+00.00 - 8+50.00



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PLAT# 24-11800334

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COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: SSPP3911024_J

SHEET TITLE:
LINE "J" PLAN & PROFILE
(1 OF 2)

SHEET NUMBER:
6.20

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M:\ESTIMATE\SSPP3911024_J.dwg\6.20 By: ABEL.MONTALVO

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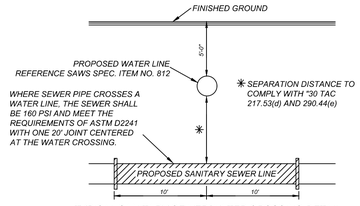

TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
N.T.S.

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DEVELOPER'S NAME: SOUTHSTAR AT VERANO, LLC
DEVELOPER'S ADDRESS: 2055 CENTRAL PLAZA, SUITE 110
CITY: NEW BRAUNFELS STATE: TEXAS ZIP: 78130
PHONE#: FAX#: TOTAL ACREAGE: 112.0 ACRES
SAWS BLOCK MAP#: 154536 TOTAL EDU'S: 493
TOTAL LINEAR FOOTAGE OF PIPE: 15,589 LF ~ 8" SDR 26 PLAT NO.: 24-11800334
NUMBER OF LOTS: 493 SAWS JOB#: 24-1646

LEGEND

RIGHT OF WAY	=	*R.O.W.*
COUNTY BLOCK	=	*C.B.*
EXISTING SANITARY SEWER	=	*ESS*
PROPOSED SANITARY SEWER	=	*SS*
EXISTING WATER	=	*EW*
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ELECTRIC, GAS, TELEPHONE & CABLE TV EASEMENT	=	*E.G.T.TV.E*
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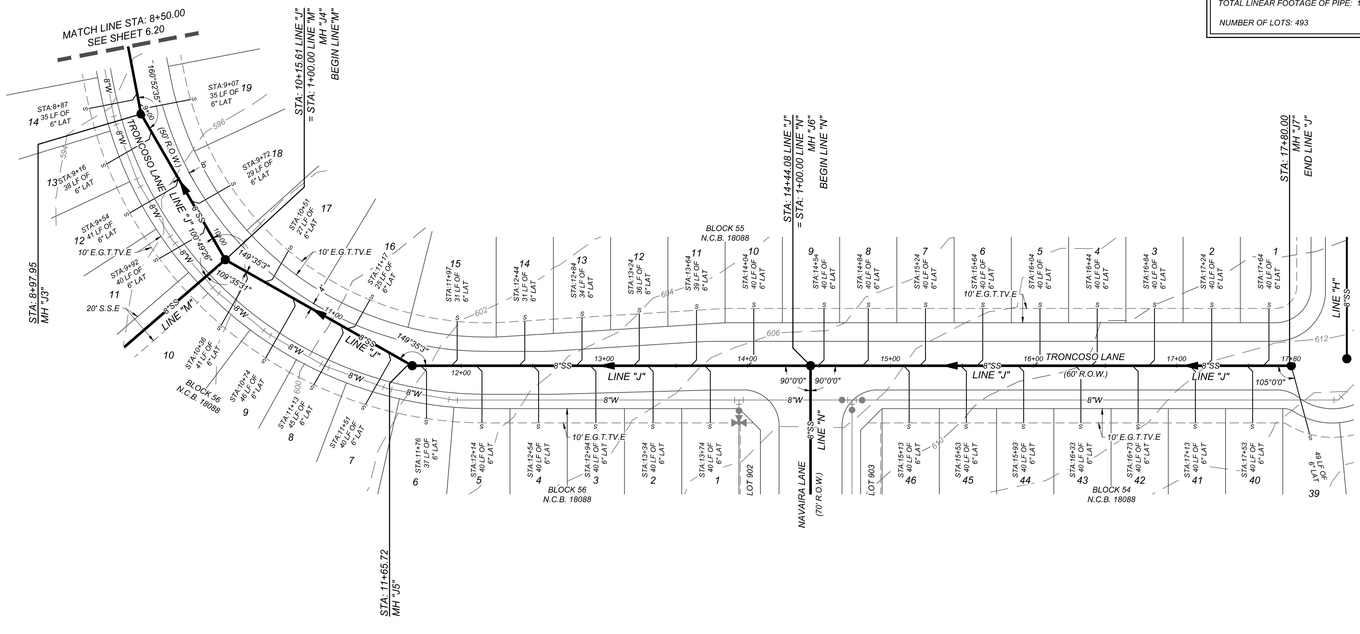
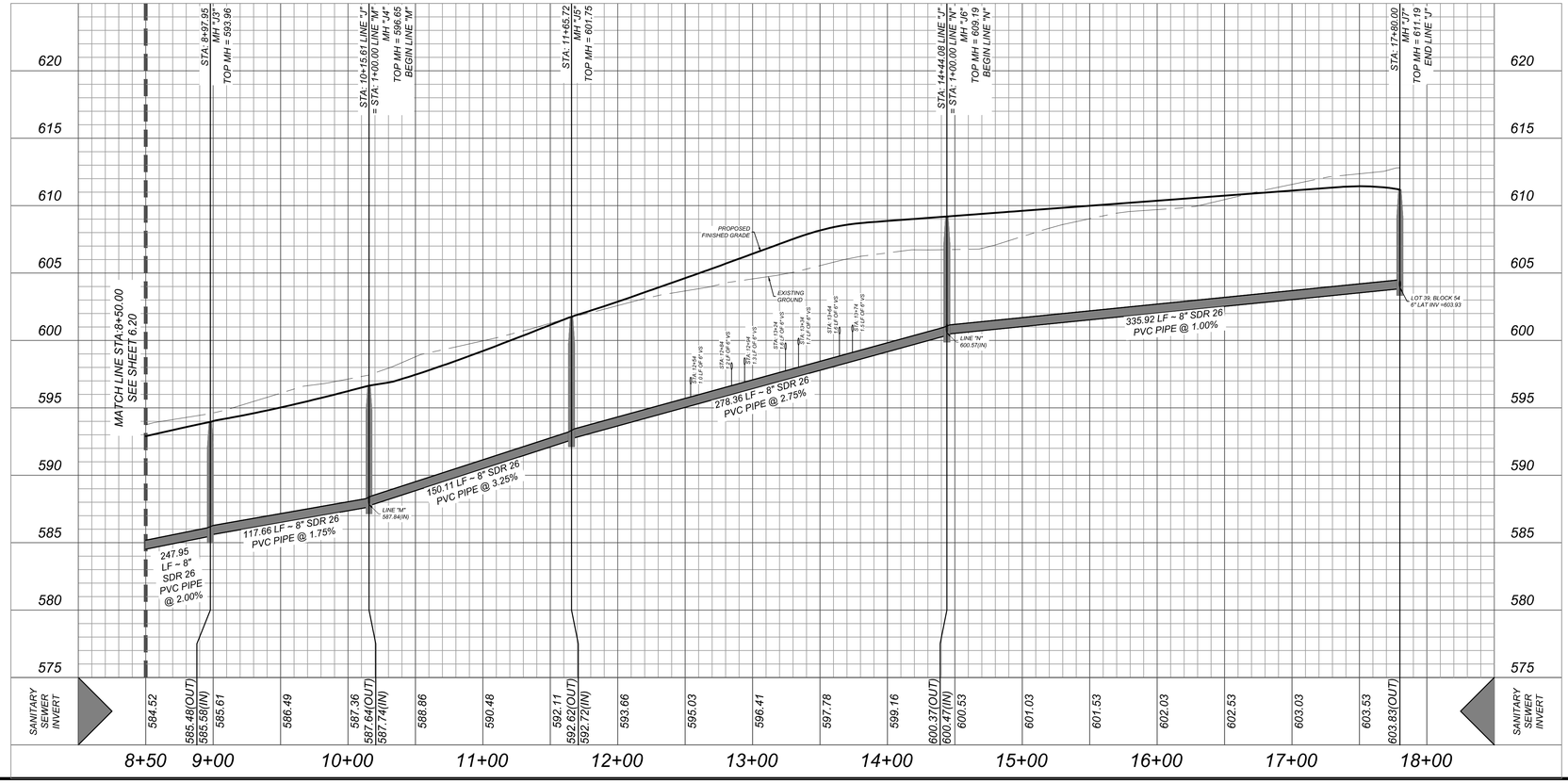


LINE "J"
STA: 8+50.00 - END

HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'



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DRAWING NAME: SSPP3911024_J

SHEET TITLE: LINE "J" PLAN & PROFILE (2 OF 2)

SHEET NUMBER: 6.21

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

I:\RESIVER\SSPP3911024_J.dwg\6.21 By: ABEL.MONTALVO

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

NOTES:

1. SEWER PIPE WHERE WATER LINE CROSSES SHALL BE MEET THE REQUIREMENTS OF ASTM D2241. CONTRACTOR SHALL CENTER A 20 FOOT JOINT OF 160 P.S.I. PRESSURE RATED P.V.C. AT THE PROPOSED WATER CROSSING (NO SEPARATE PAY ITEM). REFERENCE SHEET 6.0, SANITARY SEWER GENERAL NOTES, S.A.W.S. CRITERIA FOR SEWER MAIN CONSTRUCTION IN THE VICINITY OF WATER MAINS.
2. REF. SHEET 6.2 FOR BENCHMARK INFORMATION.
3. PIPE TYPE DESIGNATIONS ARE SDR 26.
4. REF. THIS SHEET FOR TYPICAL SANITARY SEWER / WATER CROSSING DETAIL.
5. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT SHALL BE IN ACCORDANCE WITH THE SAN ANTONIO WATER SYSTEM (SAWS) STANDARD SPECIFICATIONS.

CAUTION!!:

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MANHOLE NOTE:

ALL MANHOLES MUST BE WATERTIGHT, WITH WATERTIGHT RINGS AND COVERS. THESE MANHOLES MUST BE VENTED PER SAWS DETAIL DD852-02.

LOWER - SOUTH SEWERSHED - DOS RIOS \ LEON CREEK W.R.C.

DEVELOPER'S NAME: SOUTHSTAR AT VERANO, LLC

DEVELOPER'S ADDRESS: 2055 CENTRAL PLAZA, SUITE 110

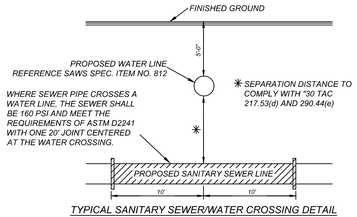
CITY: NEW BRAUNFELS STATE: TEXAS ZIP: 78130

PHONE#: FAX#: TOTAL ACREAGE: 112.0 ACRES

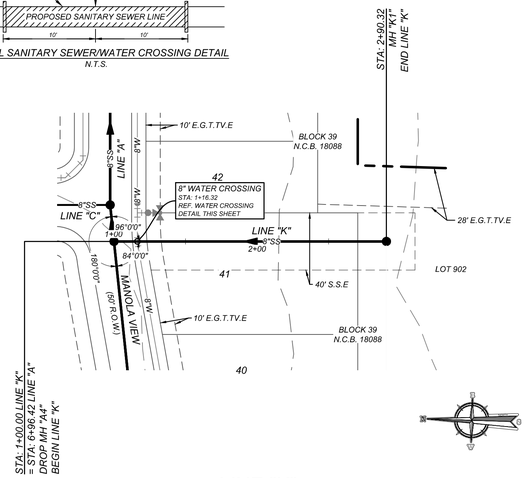
SAWS BLOCK MAP#: 154536 TOTAL EDU'S: 493

TOTAL LINEAR FOOTAGE OF PIPE: 15,589 LF ~ 8" SDR 26 PLAT NO.: 24-11800334

NUMBER OF LOTS: 493 SAWS JOB#: 24-1646



TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
N.T.S.



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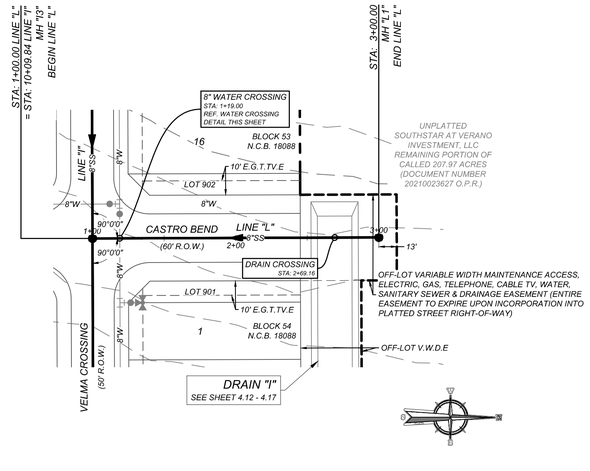
VERT SCALE: 1"=5'



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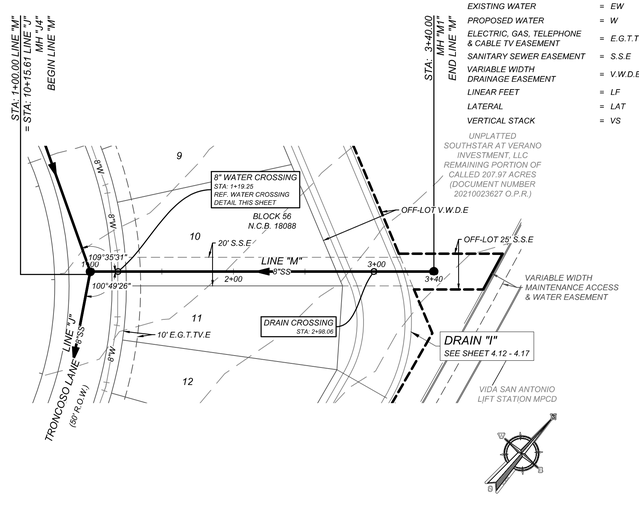

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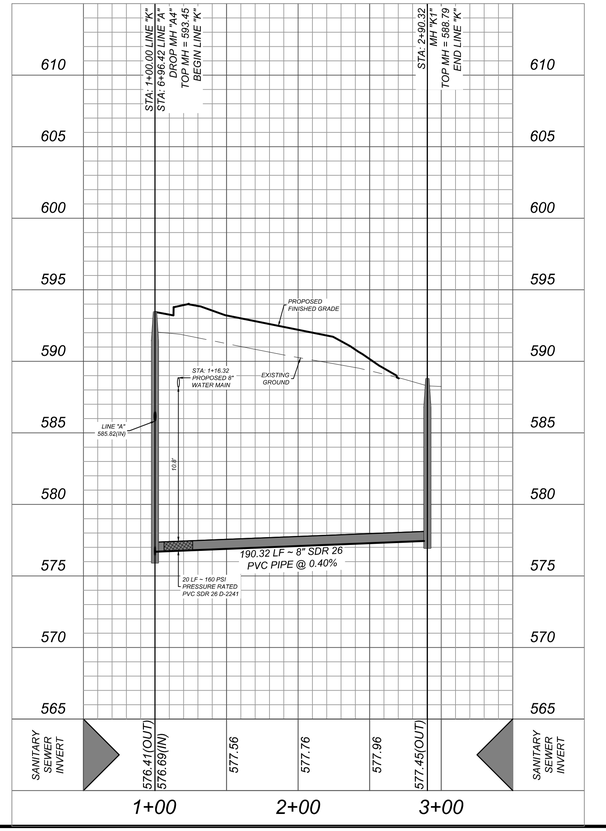

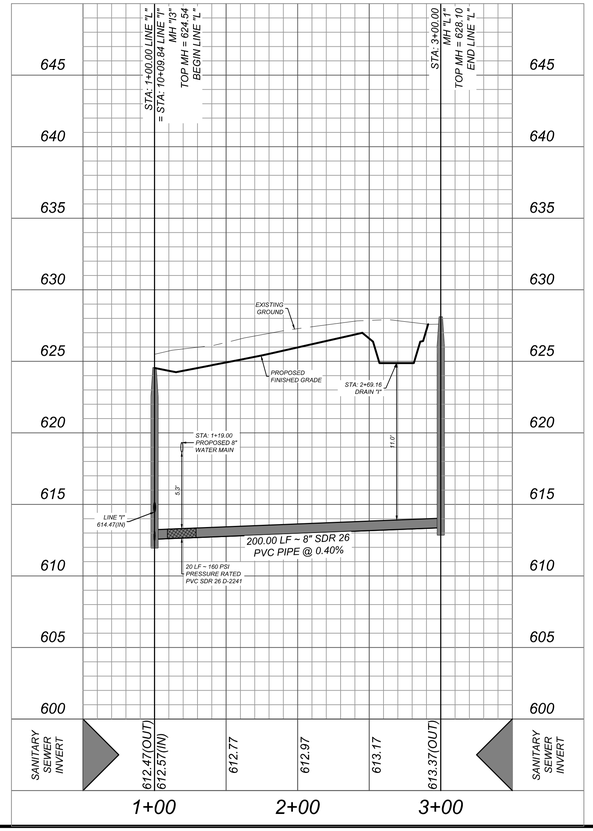

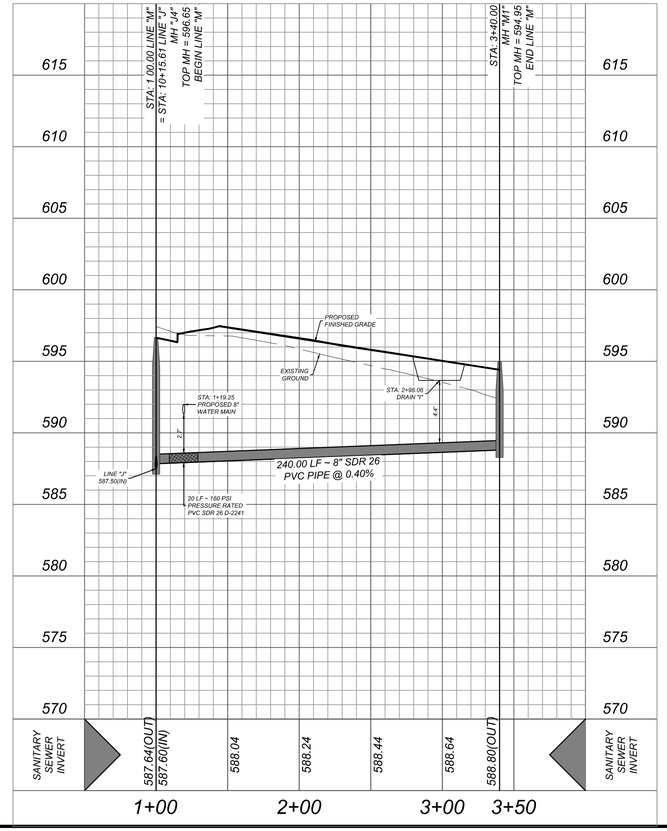

By: ABEL.MONTALVO
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FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

REV	DESCRIPTION	DRAWN BY	DATE

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194500

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: SSPP3911024_KLM

SHEET TITLE:
LINE "K", "L" & "M"
PLAN & PROFILE

SHEET NUMBER: 6.22

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

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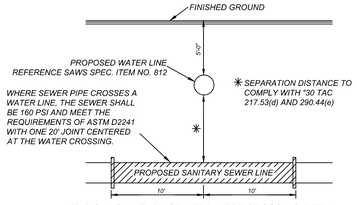

TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
N.T.S.

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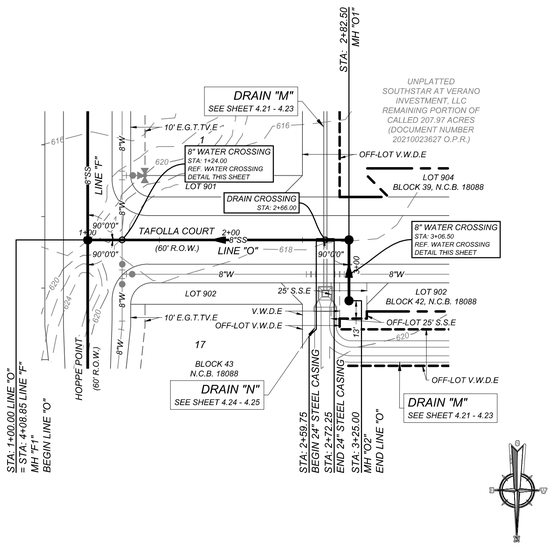
LOWER - SOUTH SEWERSHED - DOS RIOS \ LEON CREEK W.R.C.

DEVELOPER'S NAME: SOUTHSTAR AT VERANO, LLC
DEVELOPER'S ADDRESS: 2055 CENTRAL PLAZA, SUITE 110
CITY: NEW BRAUNFELS STATE: TEXAS ZIP: 78130
PHONE#: FAX#: TOTAL ACREAGE: 112.0 ACRES
SAWS BLOCK MAP#: 154536 TOTAL EDU'S: 493
TOTAL LINEAR FOOTAGE OF PIPE: 15,589 LF ~ 8" SDR 26 PLAT NO.: 24-11800334
NUMBER OF LOTS: 493 SAWS JOB#: 24-1646

LEGEND

RIGHT OF WAY	=	R.O.W.
COUNTY BLOCK	=	C.B.
EXISTING SANITARY SEWER	=	ESS
PROPOSED SANITARY SEWER	=	SS
EXISTING WATER	=	EW
PROPOSED WATER	=	W
ELECTRIC, GAS, TELEPHONE & CABLE TV EASEMENT	=	E.G.T.TV.E
SANITARY SEWER EASEMENT	=	S.S.E
VARIABLE WIDTH DRAINAGE EASEMENT	=	V.W.D.E
LINEAR FEET	=	LF
LATERAL	=	LAT
VERTICAL STACK	=	VS



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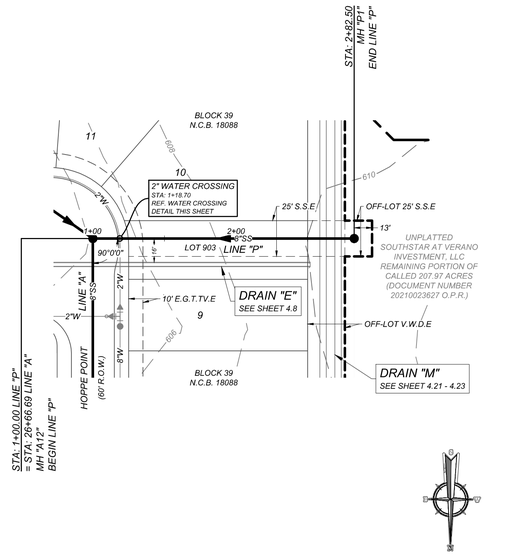
VERT SCALE: 1"=5'



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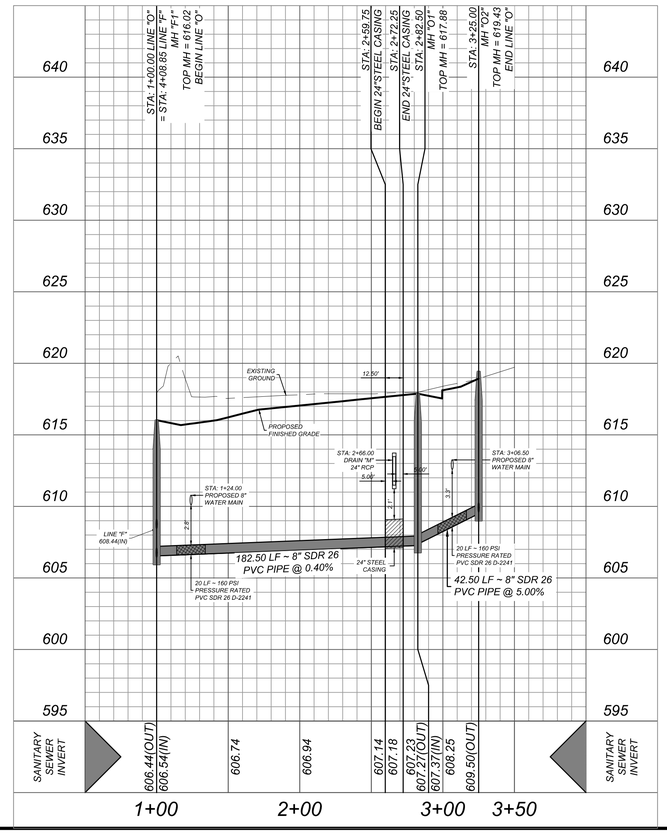

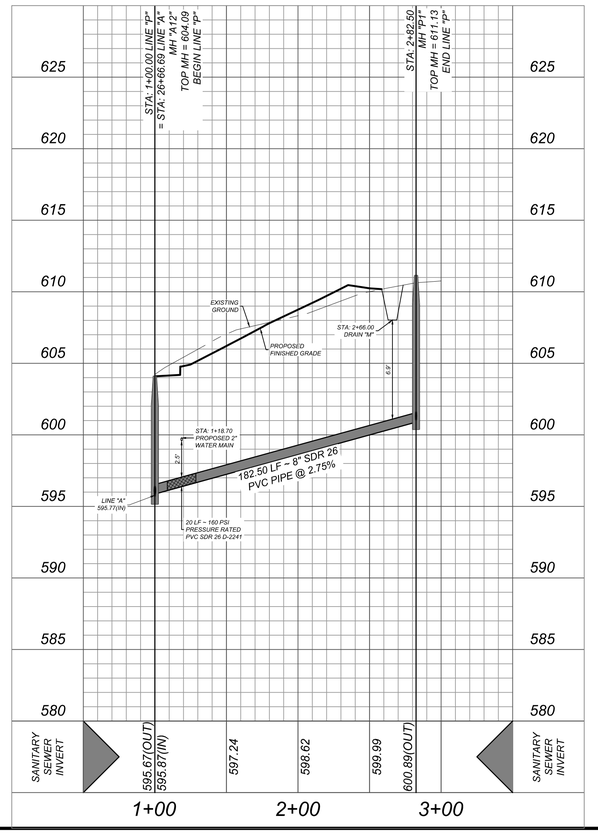

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REV	DESCRIPTION	DRAWN BY	DATE

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14309
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: SSPP3911024_OP

SHEET TITLE:
LINE "O" & "P"
PLAN & PROFILE

SHEET NUMBER: 6.23

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

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VIDA SAN ANTONIO PHASE 5

BEXAR COUNTY, TEXAS

WATER DISTRIBUTION PLAN

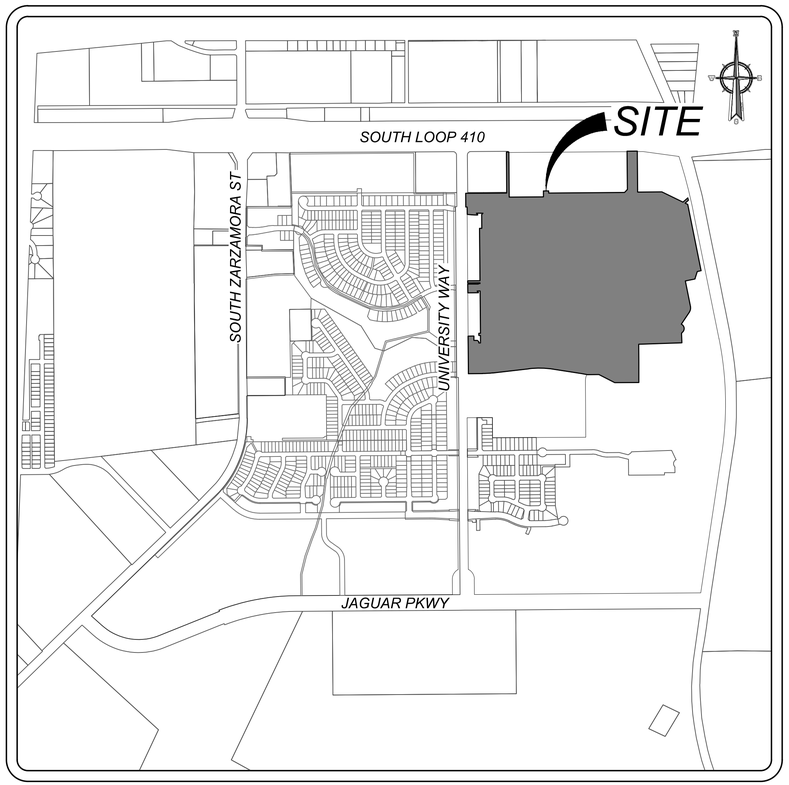
SAWS CONSTRUCTION NOTES
COUNTER PERMIT AND GENERAL CONSTRUCTION PERMIT
January 2022

General Section

1. ***All materials and construction procedures within the scope of this contract shall be approved by the San Antonio Water System (SAWS) and comply with the Plans, Specifications, General Conditions and with the following as applicable:***
   - ***A. Current Texas Commission on Environmental Quality (TCEQ) "Design Criteria for Domestic Wastewater System", Texas Administrative Code (TAC) Title 30 Part 1 Chapter 217 and "Public Drinking Water", TAC Title 30 Part 1 Chapter 290.***
   - ***B. Current TXDOT "Standard Specifications for Construction of Highways, Streets and Drainage".***
   - ***C. Current "San Antonio Water System Standard Specifications for Water and Sanitary Sewer Construction".***
   - ***D. Current City of San Antonio "Standard Specifications for Public Works Construction".***
   - ***E. Current City of San Antonio "Utility Excavation Criteria Manual" (UECM).***
2. ***The contractor shall not proceed with any pipe installation work until they obtain a copy of the approved Counter Permit or General Construction Permit (GCP) from the consultant and has been notified by SAWS Construction Inspection Division to proceed with the work and has arranged a meeting with the inspector and consultant for the work requirements. Work completed by the contractor without an approved Counter Permit and/or a GCP will be subject to removal and replacement at the expense of the contractors and/or the developer.***
3. ***The Contractor shall obtain the SAWS Standard Details from the SAWS website, http://www.saws.org/business_center/specs. Unless otherwise noted within the design plans.***
4. ***The Contractor is to make arrangements with the SAWS Construction Inspection Division at (210) 233-2973, on notification procedures that will be used to notify affected home residents and/or property owners 48 hours prior to beginning any work.***
5. ***Location and depth of existing utilities and service laterals shown on the plans are understood to be approximate. Actual locations and depths must be field verified by the Contractor at least 1 week prior to construction. It shall be the Contractor's responsibility to locate utility service lines as required for construction and to protect them during construction at no cost to SAWS.***
6. ***The Contractor shall verify the exact location of underground utilities and drainage structures at least 1-2 weeks prior to construction whether shown on plans or not. Please allow up to 7 business days for locates requesting pipe location markers on SAWS facilities. The following contact information are supplied for verification purposes:***
   - ***SAWS Utility Locates: http://www.saws.org/Service/Locates***
   - ***COSA Drainage (210) 207-0724 or (210) 207-6026***
   - ***COSA Traffic Signal Operations (210) 206-8480***
   - ***COSA Traffic Signal Damages (210) 207-3951***
   - ***Texas State Wide One Call Locator 1-800-545-6005 or 811***
7. ***The Contractor shall be responsible for restoring existing fences, curbs, streets, driveways, sidewalks, landscaping and structures to its original or better condition if damages are made as a result of the project's construction.***
8. ***All work in Texas Department of Transportation (TxDOT) and/or Bexar County right-of-way shall be done in accordance with respective construction specifications and permit requirements.***
9. ***The Contractor shall comply with City of San Antonio or other governing municipality's tree ordinances when excavating near trees.***
10. ***The Contractor shall not place any waste materials in the 100-year Flood Plain without first obtaining an approved Flood Plain Permit.***
11. ***Holiday Work: Contractors will not be allowed to perform SAWS work on SAWS recognized holidays. Request should be sent to constworkreq@saws.org. Weekend Work: Contractors are required to notify the SAWS Inspection Construction Department 48 hours in advance to request weekend work. Request should be sent to constworkreq@saws.org. Any and all SAWS utility work installed without holiday/weekend approval will be subject to be uncovered for proper inspection.***
12. ***Compaction note (Item 804): The contractor shall be responsible for meeting the compaction requirements on all trench backfill and for paying for the tests performed by a third party. Compaction tests will be done at one location point randomly selected, or as indicated by the SAWS Inspector and/or the test administrator, per each 12-inch loose lift per 400 linear feet at a minimum. This project will not be accepted and finalized by SAWS without this requirement being met and verified by providing all necessary documented test results.***
13. ***A copy of all testing reports shall be forwarded to SAWS Construction Inspection Division.***

Water Section

1. ***Prior to tie-ins, any shutdowns of existing mains of any size must be coordinated with the SAWS Construction Inspection Division at least one week in advance of the shutdown. The Contractor must also provide a sequence of work as related to the tie-ins; this is at no additional cost to SAWS or the project and it is the responsibility of the Contractor to sequence the work accordingly.***
   - ***For water mains 12" or higher: SAWS Emergency Operations Center (210) 233-2014***
2. ***Asbestos Cement (AC) pipe, also known as transite pipe which is known to contain asbestos containing material (ACM), may be located within the project limits. Special waste management procedures and health and safety requirements will be applicable when removal and/or disturbance of this pipe occurs. Such work is to be made under Special Specification Item No. 3000, "Special Specification for Handling Asbestos Cement Pipe".***
3. ***Valve removal: Where the contractor is to abandon a water main, the control valve located on the abandoning branch will be removed and replaced with a cap/plug. (NSPI)***
4. ***Suitable anchorage/thrust blocking or joint restraint shall be provided at all of the following main locations: dead ends, plugs, caps, tees, crosses, valves, and bends, in accordance with the Standard Drawings DD-839 Series and Item No. 839, in the SAWS Standard Specifications for Construction.***
5. ***All valves shall read "open right".***
6. ***PRVs Required: Contractor to verify that no portion of the tract is below ground elevation of 605 feet where the static pressure will normally exceed 80 PSI. At all such locations where the ground level is below 605 feet, the Developer or Builder shall install at each lot, on the customer's side of the meter, an approved type pressure regulator in conformance with the Plumbing Code of the City of San Antonio. No dual services allowed for any lot(s) if *PRV is/are required for such lot(s), only single service connections shall be allowed. *Note: A pressure regulator is also known as a pressure reducing valve (PRV).***
7. ***Pipe Disinfection with Dry HTH for Projects less than 800 linear feet. (Item No. 847.3): Mains shall be disinfected with dry HTH where shown in the contract documents or as directed by the Inspector, and shall not exceed a total length of 800 feet. This method of disinfection will also be followed for main repairs. The Contractor shall utilize all appropriate safety measure to protect his personnel during disinfection operations.***
8. ***Backflow Prevention Devices:***
   - ***All irrigation services within residential areas are required to have backflow prevention devices.***
   - ***All commercial backflow prevention devices must be approved by SAWS prior to installation.***
9. ***Final connection to the existing water main shall not be made until the water main has been pressure tested, chlorinated, and SAWS has released the main for tie-in and use.***
10. ***Division Valves: Division Valves shown on plans or not shown on plans but found in the field shall only be operated by SAWS Distribution and Collection staff and only with prior written approval of the SAWS Director of Production and Operations and proper coordination with all SAWS departments. Contractor shall provide written notification to the inspector a minimum of two weeks in advance to start the coordination process and will be informed by the Inspector when the division valve will be operated by the SAWS Distribution and Collection staff. The Division Valve can only be operated by SAWS Distribution and Collection staff member not the inspector or the contractor. Operation of a Division Valve without the express prior written approval of the SAWS Distribution and Collection staff will constitute a material breach of any written SAWS contract or permit in addition to subjecting the Contractor to liability for any and all fines, fees, or other damages, direct or consequential, that may arise from or be caused by the operation of the valve without prior written permission. Please be informed that the approval of the operation or opening or closing of a division valve can take several weeks for approval. Division Valves will also have a valve lid labeled Division Valve and a locking mechanism installed with a key. The lock and key mechanism will be paid for by the contractor but will be installed by SAWS Distribution and Collection staff.***



LOCATION MAP

N.T.S.

OWNER/DEVELOPER:
SOUTHSTAR AT VERANO, LLC
2055 CENTRAL PLAZA, SUITE 110
NEW BRAUNFELS, TEXAS 78130

INDEX

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SAWS PRESSURE ZONE 790

DEVELOPER'S NAME: SOUTHSTAR AT VERANO, LLC		
DEVELOPER'S ADDRESS: 2055 CENTRAL PLAZA, SUITE 110		
CITY: NEW BRAUNFELS	*STATE: TEXAS*	*ZIP: 78130*
PHONE#:	*FAX#:*	*TOTAL ACREAGE: 112.0 ACRES*
SAWS BLOCK MAP#: 148538		*TOTAL EDU'S: 505*
TOTAL LINEAR FOOTAGE OF PIPE:	*16,726 LF ~ 8" C-900* *639 LF ~ 2" HPDE*	*PLAT NO.: 24-11800334*
NUMBER OF LOTS: 493	*SAWS JOB#: 24-1174*	

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REV	DATE	DRAWN BY	DESCRIPTION

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: CVDW3911024

SHEET TITLE: WATER DISTRIBUTION COVER SHEET

SHEET NUMBER: 7.0

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

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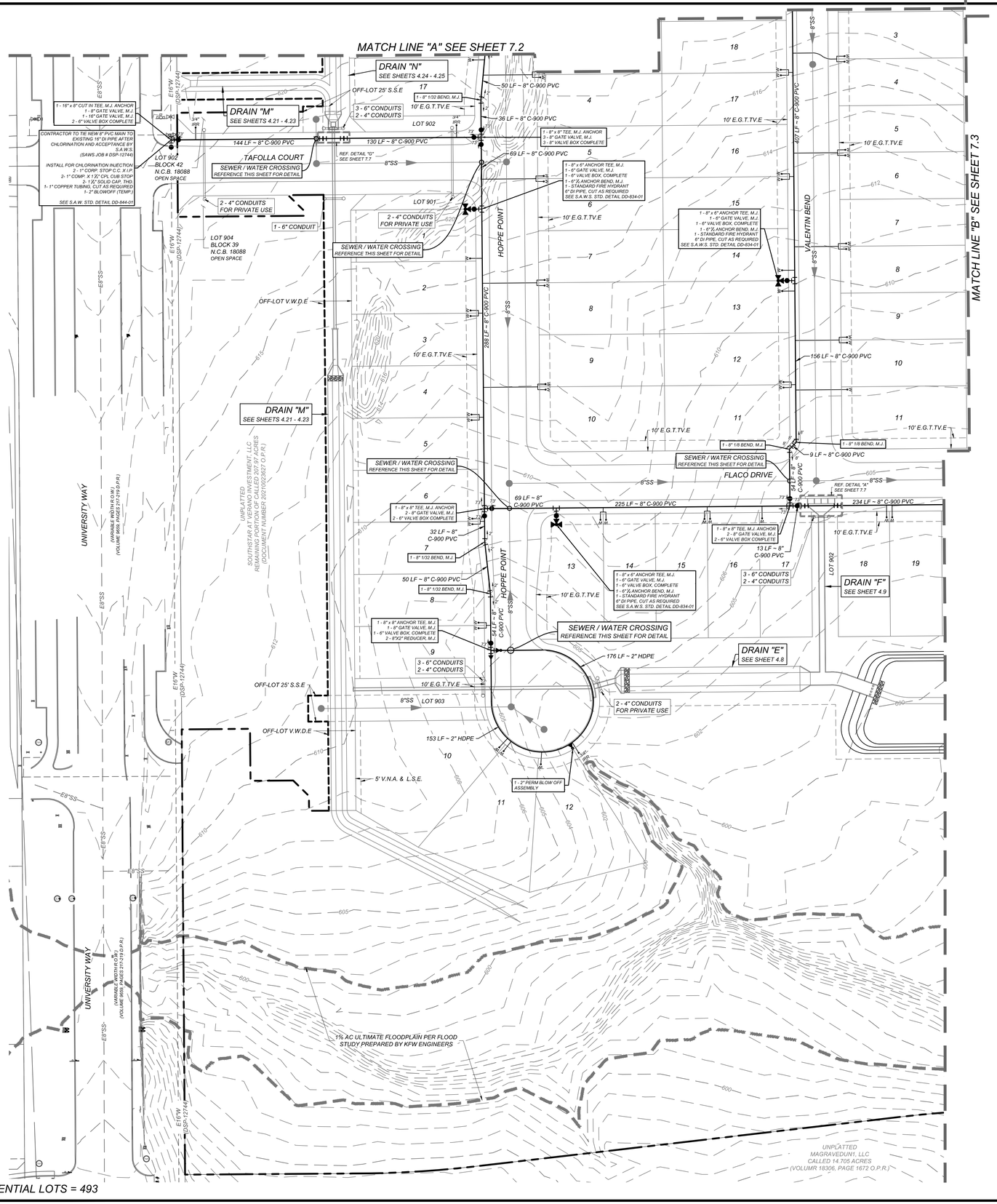
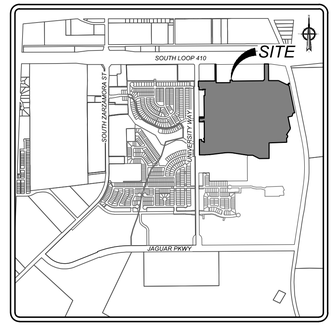


LEGEND

PROPOSED WATER MAIN	=	W
PROPOSED WATER SERVICE & METER BOX	=	
PROPOSED WATER 3/4" IRRIGATION SERVICE & METER BOX	=	
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	SS
ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT	=	E.G.T.TV.E
SANITARY SEWER EASEMENT	=	S.S.E
VARIABLE WIDTH DRAINAGE EASEMENT	=	V.W.D.E
VARIABLE WIDTH CLEAR VISION EASEMENT	=	V.W.C.V.E
EXISTING WATER MAIN	=	EW
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING SANITARY SEWER MAIN	=	ESS
EXISTING SANITARY SEWER MANHOLE	=	ESS



LOCATION MAP

N.T.S.

SCALE : 1" = 50'

Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

SAWS STANDARD NOTE:

ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT SHALL BE IN ACCORDANCE WITH THE SAN ANTONIO WATER SYSTEM (SAWS) STANDARD SPECIFICATIONS

FIRE FLOW NOTE:

IN AN EFFORT TO MEET THE CITY OF SAN ANTONIO'S FIRE FLOW REQUIREMENTS FOR THE PROPOSED RESIDENTIAL DEVELOPMENT, THE PUBLIC WATER MAIN SYSTEM HAS BEEN DESIGNED FOR A MINIMUM FIRE FLOW DEMAND OF 1,000 GPM AT 25 PSI RESIDUAL PRESSURE. THE FIRE FLOW REQUIREMENTS FOR INDIVIDUAL STRUCTURES WILL BE REVIEWED DURING THE BUILDING PERMIT PROCESS IN ACCORDANCE WITH THE PROCEDURES SET FORTH BY THE CITY OF SAN ANTONIO DIRECTOR OF DEVELOPMENT SERVICES DEPARTMENT AND THE SAN ANTONIO FIRE DEPARTMENT FIRE MARSHAL.

JOINT RESTRAINT NOTE:

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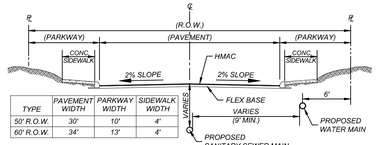
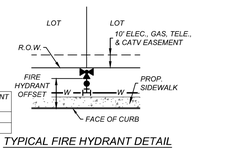


TYPE	PAVEMENT WIDTH	PARKWAY WIDTH	SIDEWALK WIDTH
50' R.O.W.	30'	10'	4'
60' R.O.W.	34'	13'	4'

TYPICAL STREET SECTION

N.T.S.



SIDEWALK WIDTH	FIRE HYDRANT OFFSET
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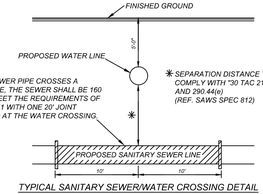
6'	7.0' MIN

TYPICAL FIRE HYDRANT DETAIL

NOT-TO-SCALE



TYPICAL SANITARY SEWER/WATER CROSSING DETAIL

N.T.S.

CAUTION!!:

THE CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITED TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT ARISE SHOULD BE COMMUNICATED TO THE ENGINEER IMMEDIATELY AND PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL CONTACT 1-800-DIG-TESS A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND THE REPAIR SHALL BE AT CONTRACTOR'S SOLE EXPENSE WHETHER THE UTILITY IS SHOWN ON THESE PLANS OR NOT.

SAWS PRESSURE ZONE 790

DEVELOPER'S NAME: SOUTHSTAR AT VERANO, LLC		
DEVELOPER'S ADDRESS: 2055 CENTRAL PLAZA, SUITE 110		
CITY: NEW BRAUNFELS	STATE: TEXAS	ZIP: 78130
PHONE#:	FAX#:	TOTAL ACREAGE: 112.0 ACRES
SAWS BLOCK MAP#: 148538		TOTAL EDU'S: 505
TOTAL LINEAR FOOTAGE OF PIPE:	16,726 LF ~ 8" C-900 639 LF ~ 2" HPDE	PLAT NO.: 24-11800334
NUMBER OF LOTS: 493	SAWS JOB#: 24-1174	

Colliers Engineering & Design

www.colliersengineering.com

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FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

REV	DATE	DRAWN BY	DESCRIPTION

THIS DOCUMENT IS RELEASED BY AUTHORITY OF OMAR A. ESPINOSA, P.E. # 125560 FOR BID SET ONLY AND NOT TO BE USED FOR CONSTRUCTION.

FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

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SAN ANTONIO (KFW)
3421 Paesanos Parkway
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Phone: 210.979.8444
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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
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PROJECT NUMBER:	DRAWING NAME:
391-10-24	OW3911024

SHEET TITLE:
WATER DISTRIBUTION PLAN (1 OF 7)

SHEET NUMBER:
7.1

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

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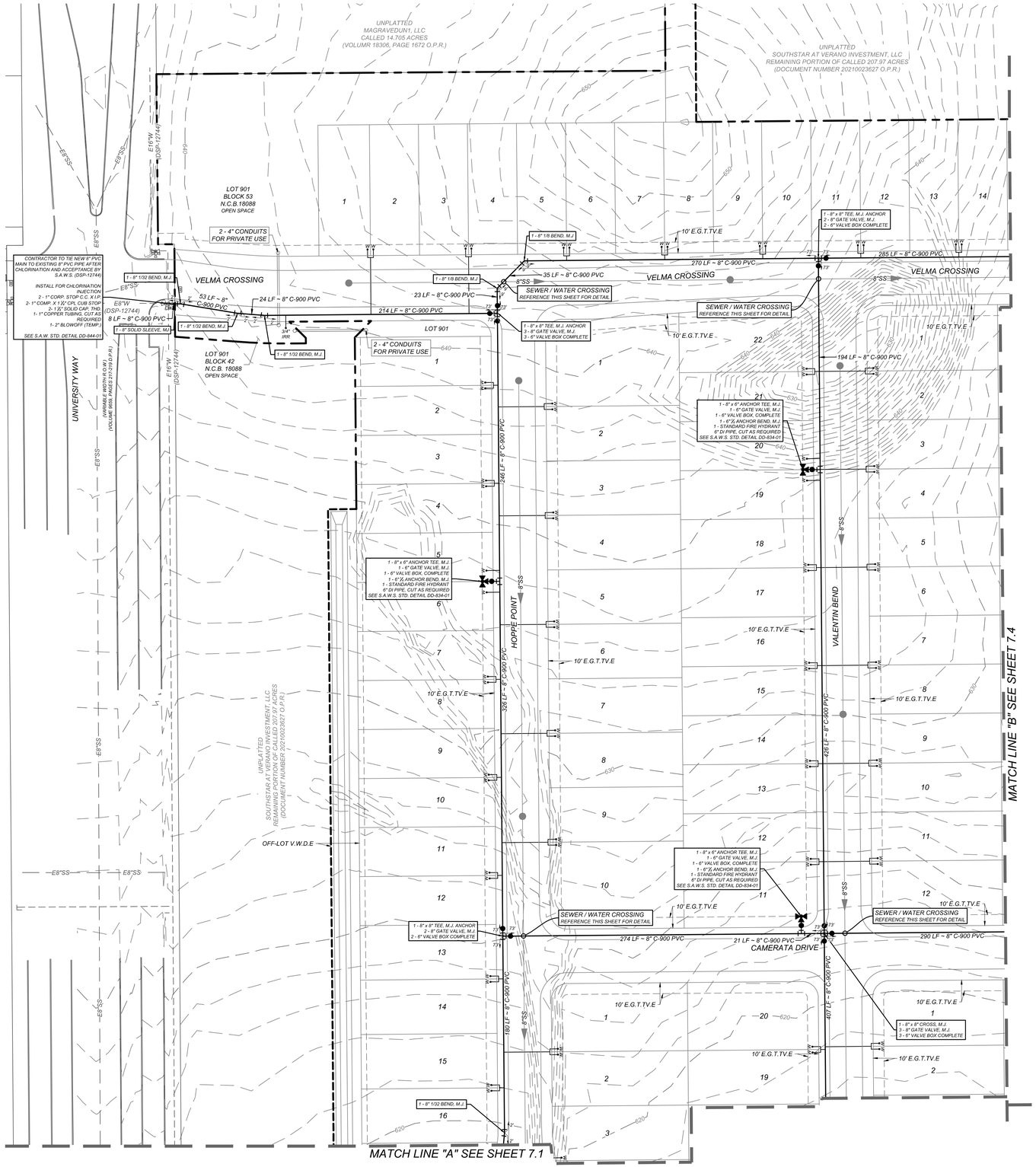

RESIDENTIAL LOTS = 493

LEGEND

PROPOSED WATER MAIN	=	W
PROPOSED WATER SERVICE & METER BOX	=	W
PROPOSED WATER 3/4" IRRIGATION SERVICE & METER BOX	=	W
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PROPOSED WATER VALVE	=	
PROPOSED SANITARY SEWER MAIN	=	SS
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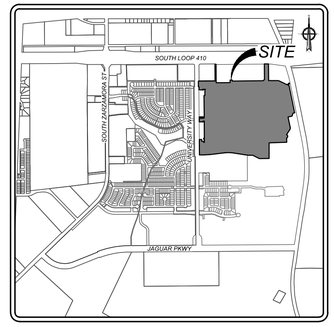

LOCATION MAP
N.T.S.

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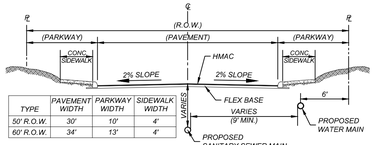

SCALE : 1" = 50'
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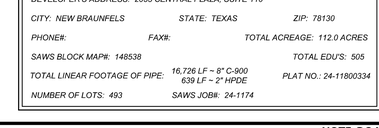

TYPE	PAVEMENT WIDTH	PARKWAY WIDTH	SIDEWALK WIDTH
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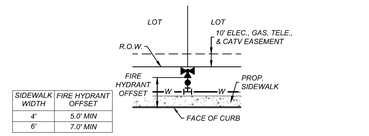
60' R.O.W.	34'	13'	4'

TYPICAL STREET SECTION
N.T.S.



SIDEWALK WIDTH	FIRE HYDRANT OFFSET
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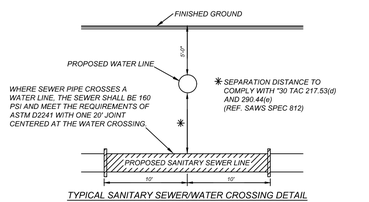
TYPICAL FIRE HYDRANT DETAIL
NOT-TO-SCALE



TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
N.T.S.

SAWS PRESSURE ZONE 790

DEVELOPER'S NAME: SOUTHSTAR AT VERANO, LLC			
DEVELOPER'S ADDRESS: 2055 CENTRAL PLAZA, SUITE 110			
CITY: NEW BRAUNFELS	STATE: TEXAS	ZIP: 78130	
PHONE#:	FAX#:	TOTAL ACREAGE: 112.0 ACRES	
SAWS BLOCK MAP#: 148538		TOTAL EDU'S: 505	
TOTAL LINEAR FOOTAGE OF PIPE:	16,726 LF ~ 8" C-900 639 LF ~ 2" HPDE	PLAT NO.: 24-11800334	
NUMBER OF LOTS: 493	SAWS JOB#: 24-1174		

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PHASE 5
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PROJECT NUMBER: 391-10-24
DRAWING NAME: OW3911024

SHEET TITLE:
WATER DISTRIBUTION PLAN (2 OF 7)

SHEET NUMBER:
7.2

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By: SDSEPH
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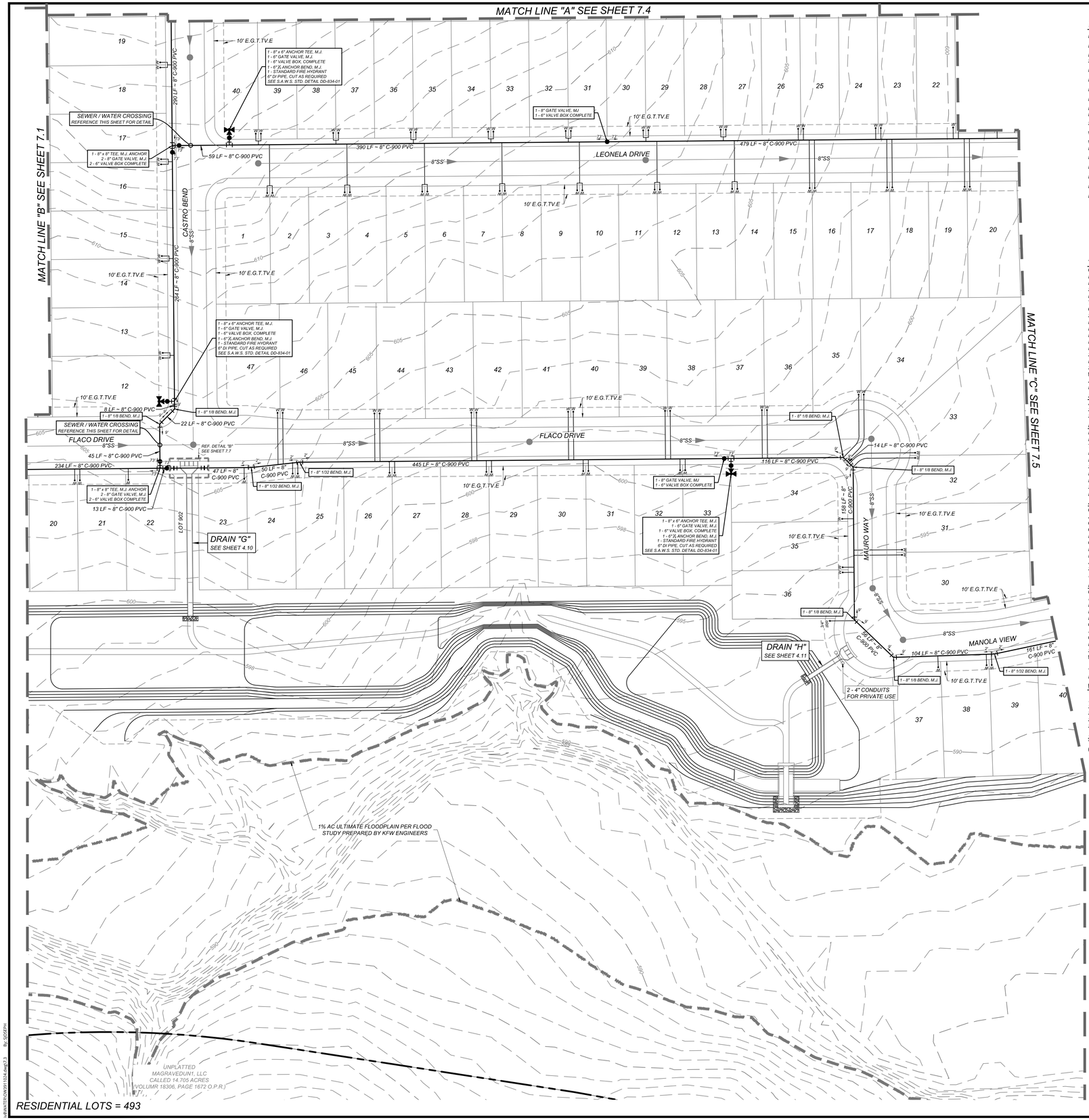

LEGEND

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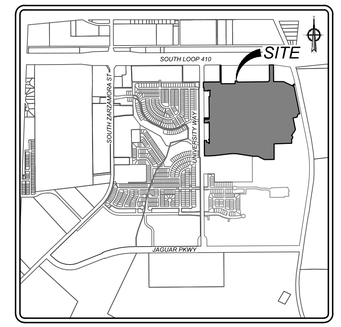

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CONTRACTOR TO VERIFY THAT NO PORTION OF THE TRACT IS BELOW GROUND ELEVATION OF 605 FEET WHERE THE STATIC PRESSURE WILL NORMALLY EXCEED 80 PSI. AT ALL SUCH LOCATIONS WHERE THE GROUND LEVEL IS BELOW 605 FEET, THE DEVELOPER OR BUILDER SHALL INSTALL AT EACH LOT, ON THE CUSTOMER'S SIDE OF THE METER, AN APPROVED TYPE PRESSURE REGULATOR IN CONFORMANCE WITH THE PLUMBING CODE OF THE CITY OF SAN ANTONIO. NO DUAL SERVICES ALLOWED FOR ANY LOT(S) IF "PRV IS / ARE REQUIRED FOR SUCH LOT(S), ONLY SINGLE SERVICE CONNECTIONS SHALL BE ALLOWED. WATER SERVICES WHERE PRV'S REQUIRED ARE DESIGNATED BY AN ASTERISK (*).

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WATER PLAN NOTES:
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SAWS NOTE:
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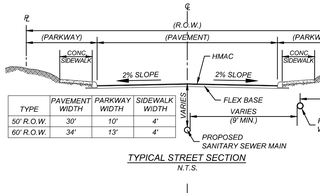
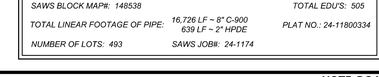
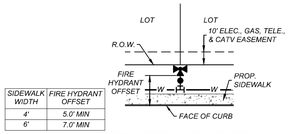




TYPE	PAVEMENT WIDTH	PARKWAY WIDTH	SIDEWALK WIDTH
50' R.O.W.	30'	10'	4'
60' R.O.W.	34'	13'	4'

TYPICAL STREET SECTION
N.T.S.



SIDEWALK WIDTH	FIRE HYDRANT OFFSET
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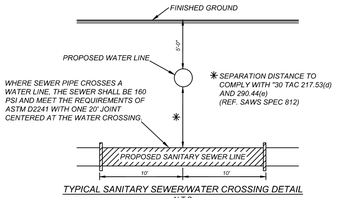
6'	7.0' MIN

TYPICAL FIRE HYDRANT DETAIL
NOT-TO-SCALE



TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
N.T.S.

SAWS PRESSURE ZONE 790

DEVELOPER'S NAME: SOUTHSTAR AT VERANO, LLC			
DEVELOPER'S ADDRESS: 2055 CENTRAL PLAZA, SUITE 110			
CITY: NEW BRAUNFELS	STATE: TEXAS	ZIP: 78130	
PHONE#:	FAX#:	TOTAL ACREAGE: 112.0 ACRES	
SAWS BLOCK MAP#: 148538		TOTAL EDU'S: 505	
TOTAL LINEAR FOOTAGE OF PIPE:	16,726 LF ~ 8" C-900 639 LF ~ 2" HPDE	PLAT NO.: 24-11800334	
NUMBER OF LOTS: 493	SAWS JOB#: 24-1174		

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REV	DATE	DRAWN BY	DESCRIPTION

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER:	DRAWING NAME:
391-10-24	OW3911024

SHEET TITLE:
WATER DISTRIBUTION PLAN (3 OF 7)

SHEET NUMBER:
7.3

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

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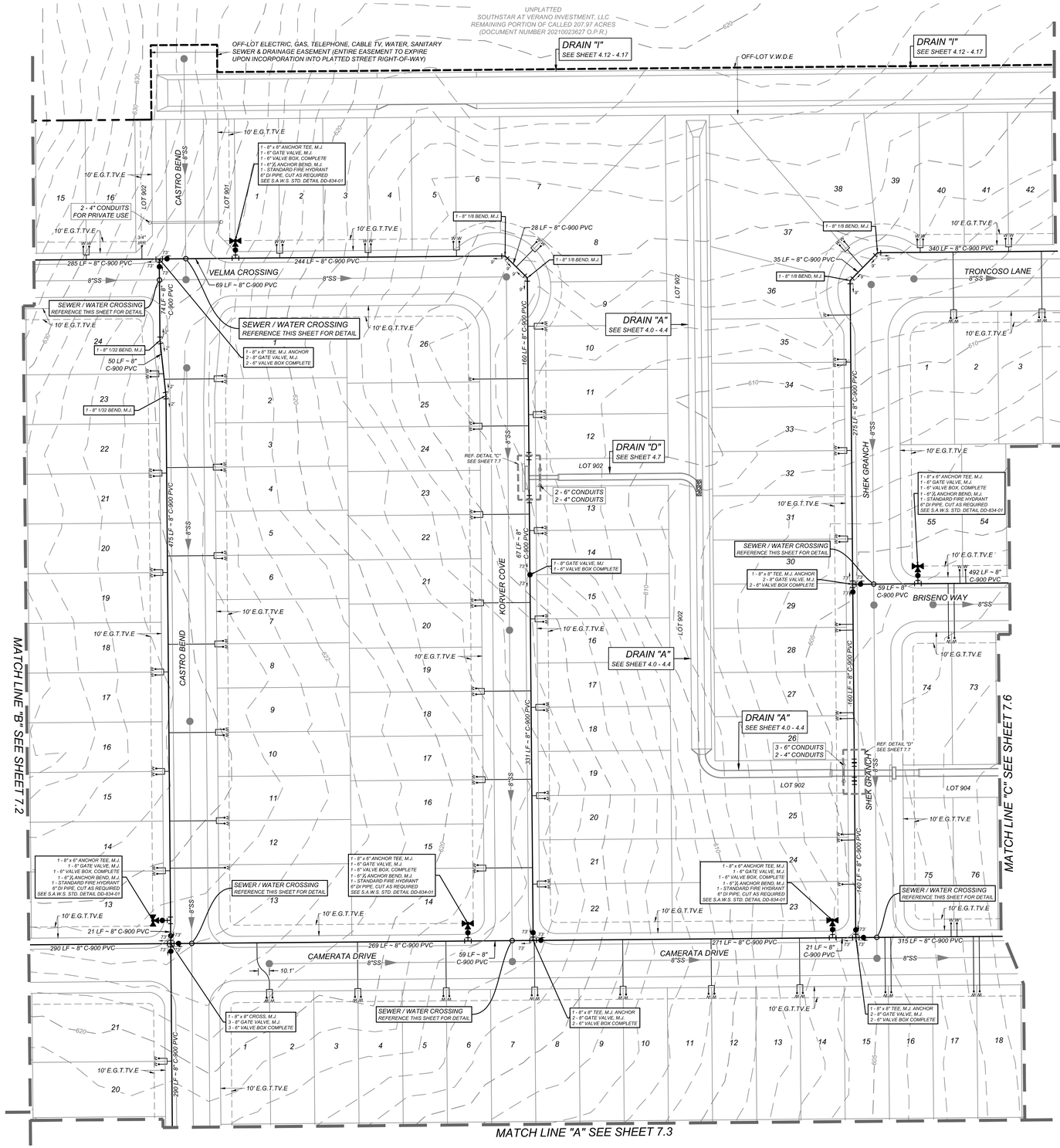
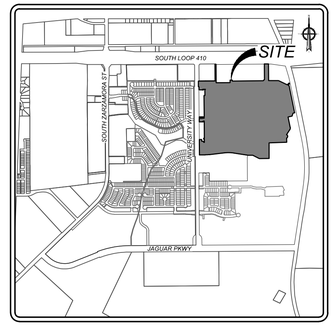


LEGEND

PROPOSED WATER MAIN	=	W
PROPOSED WATER SERVICE & METER BOX	=	W M
PROPOSED WATER 3/4" IRRIGATION SERVICE & METER BOX	=	W M
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	SS
ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT	=	E.G.T.TV.E
SANITARY SEWER EASEMENT	=	S.S.E
VARIABLE WIDTH DRAINAGE EASEMENT	=	V.W.D.E
VARIABLE WIDTH CLEAR VISION EASEMENT	=	V.W.C.V.E
EXISTING WATER MAIN	=	EW
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING SANITARY SEWER MAIN	=	ESS
EXISTING SANITARY SEWER MANHOLE	=	ESS



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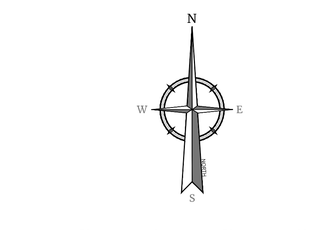
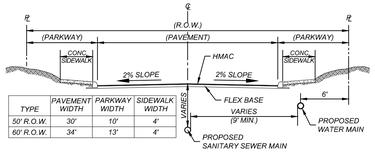


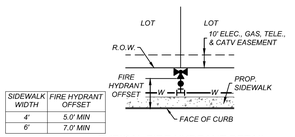
SCALE : 1" = 50'

Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)



TYPE	PAVEMENT WIDTH	PARKWAY WIDTH	SIDEWALK WIDTH
50' R.O.W.	30'	10'	4'
60' R.O.W.	34'	13'	4'

TYPICAL STREET SECTION
N.T.S.



SIDEWALK WIDTH	FIRE HYDRANT OFFSET
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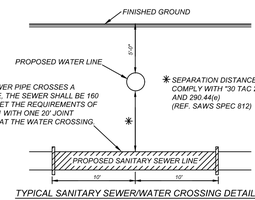
6'	7.0' MIN

TYPICAL FIRE HYDRANT DETAIL
NOT-TO-SCALE



TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
N.T.S.

SAWS PRESSURE ZONE 790

DEVELOPER'S NAME: SOUTHSTAR AT VERANO, LLC

DEVELOPER'S ADDRESS: 2055 CENTRAL PLAZA, SUITE 110

CITY: NEW BRAUNFELS STATE: TEXAS ZIP: 78130

PHONE#: FAX#: TOTAL ACREAGE: 112.0 ACRES

SAWS BLOCK MAP#: 148538 TOTAL EDU'S: 505

TOTAL LINEAR FOOTAGE OF PIPE: 16,726 LF ~ 8" C-900 / 639 LF ~ 2" HPDE PLAT NO.: 24-11800334

NUMBER OF LOTS: 493 SAWS JOB#: 24-1174

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

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REV	DATE	DRAWN BY	DESCRIPTION

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

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TBPE Firm#:F-14909
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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER:	DRAWING NAME:
391-10-24	OW3911024

SHEET TITLE:
WATER DISTRIBUTION PLAN (4 OF 7)

SHEET NUMBER:
7.4

By: SDSEPH
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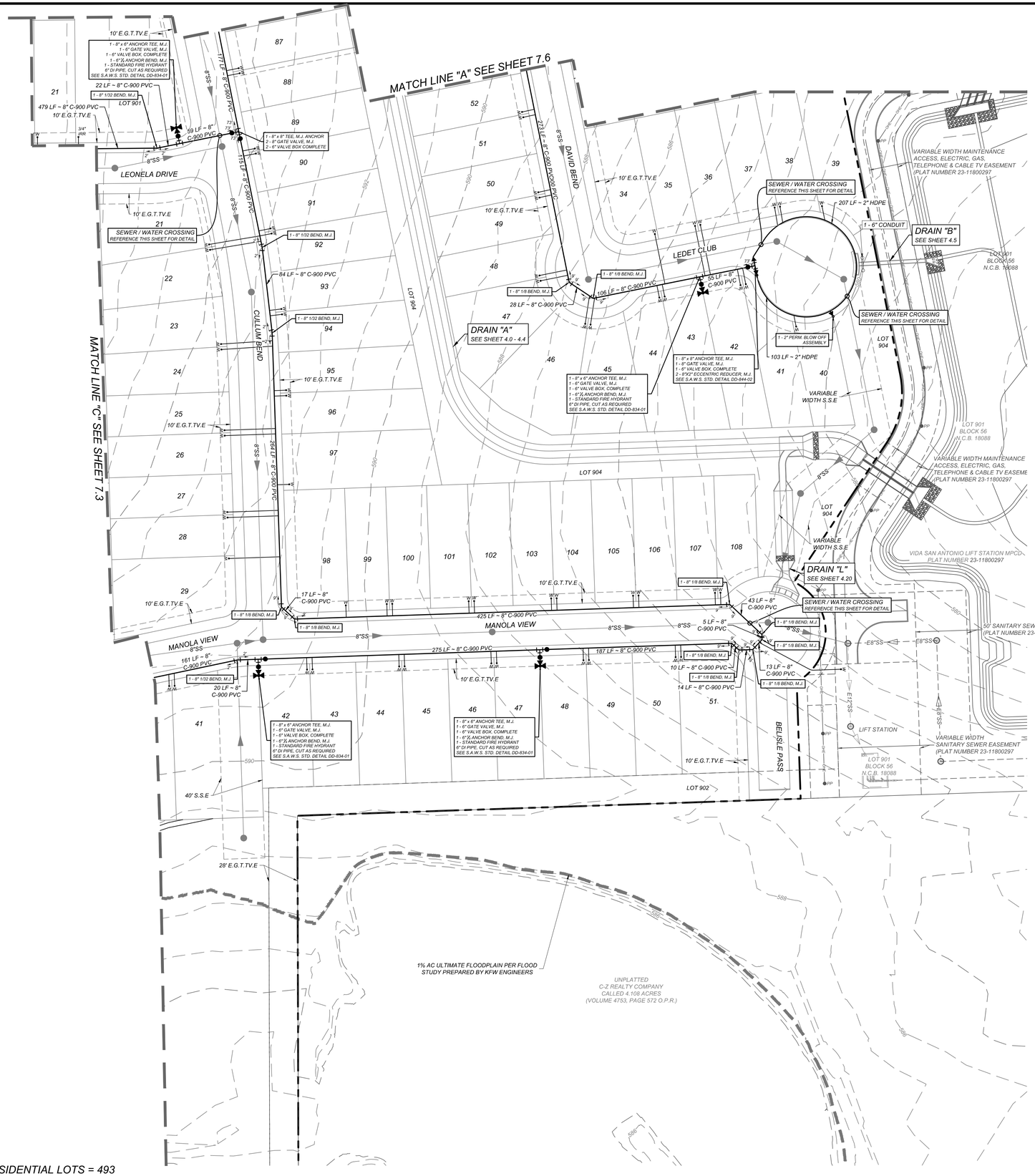

LEGEND

PROPOSED WATER MAIN	=	W
PROPOSED WATER SERVICE & METER BOX	=	W
PROPOSED WATER 3/4" IRRIGATION SERVICE & METER BOX	=	W
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	SS
ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT	=	E.G.T.TV.E
SANITARY SEWER EASEMENT	=	S.S.E
VARIABLE WIDTH DRAINAGE EASEMENT	=	V.W.D.E
VARIABLE WIDTH CLEAR VISION EASEMENT	=	V.W.C.V.E
EXISTING WATER MAIN	=	EW
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING SANITARY SEWER MAIN	=	ESS
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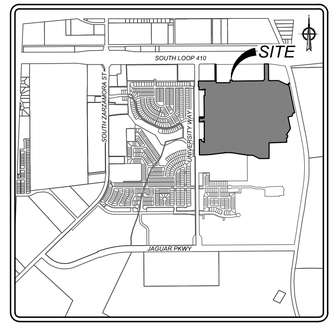
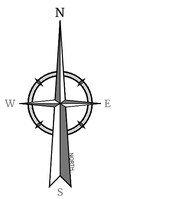


LOCATION MAP
N.T.S.



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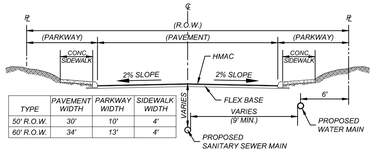

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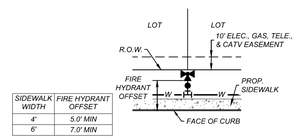

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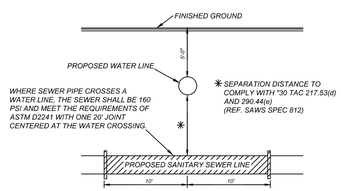

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DEVELOPER'S ADDRESS: 2055 CENTRAL PLAZA, SUITE 110	
CITY: NEW BRAUNFELS STATE: TEXAS	ZIP: 78130
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NUMBER OF LOTS: 493	SAWS JOB#: 24-1174

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

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AS SHOWN	AUGUST 2024	-	OE

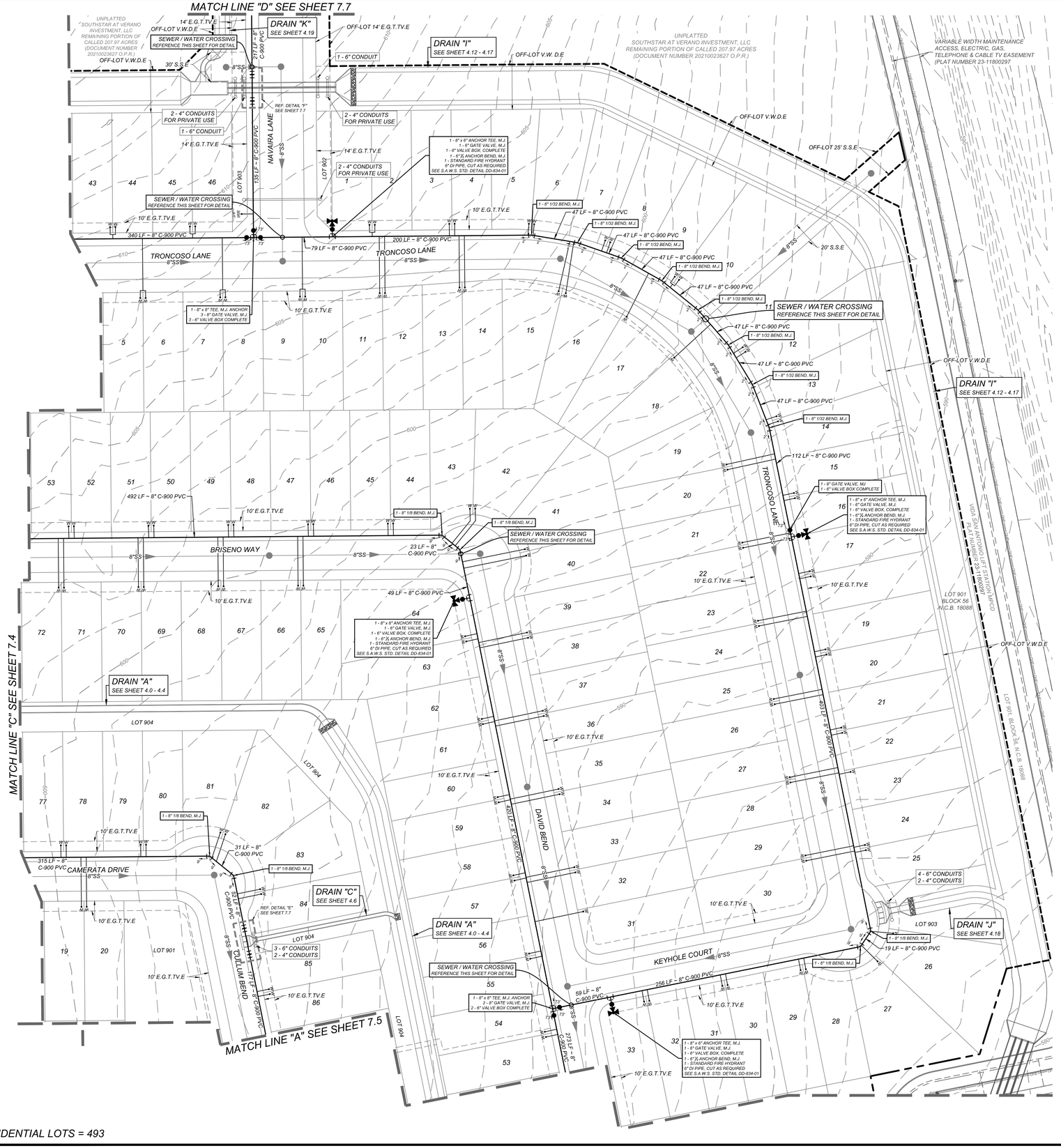
PROJECT NUMBER: 391-10-24
DRAWING NAME: GW3911024

SHEET TITLE:
WATER DISTRIBUTION PLAN (5 OF 7)

SHEET NUMBER:
7.5

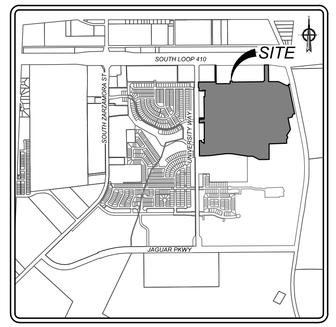
NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

N:\RIVATE\GW3911024.dwg[7.5 By: SOSEPH



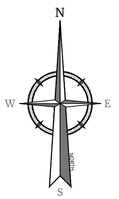
LEGEND

PROPOSED WATER MAIN	=	W
PROPOSED WATER SERVICE & METER BOX	=	W
PROPOSED WATER 3/4" IRRIGATION SERVICE & METER BOX	=	W
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	SS
ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT	=	E.G.T.TV.E
SANITARY SEWER EASEMENT	=	S.S.E
VARIABLE WIDTH DRAINAGE EASEMENT	=	V.W.D.E
VARIABLE WIDTH CLEAR VISION EASEMENT	=	V.W.C.V.E
EXISTING WATER MAIN	=	EW
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING SANITARY SEWER MAIN	=	ESS
EXISTING SANITARY SEWER MANHOLE	=	ESS



LOCATION MAP

N.T.S.



50 0 50 100

SCALE : 1" = 50'

Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

SAWS STANDARD NOTE:

ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT SHALL BE IN ACCORDANCE WITH THE SAN ANTONIO WATER SYSTEM (SAWS) STANDARD SPECIFICATIONS

FIRE FLOW NOTE:

IN AN EFFORT TO MEET THE CITY OF SAN ANTONIO'S FIRE FLOW REQUIREMENTS FOR THE PROPOSED RESIDENTIAL DEVELOPMENT, THE PUBLIC WATER MAIN SYSTEM HAS BEEN DESIGNED FOR A MINIMUM FIRE FLOW DEMAND OF 1,000 GPM AT 25 PSI RESIDUAL PRESSURE. THE FIRE FLOW REQUIREMENTS FOR INDIVIDUAL STRUCTURES WILL BE REVIEWED DURING THE BUILDING PERMIT PROCESS IN ACCORDANCE WITH THE PROCEDURES SET FORTH BY THE CITY OF SAN ANTONIO DIRECTOR OF DEVELOPMENT SERVICES DEPARTMENT AND THE SAN ANTONIO FIRE DEPARTMENT FIRE MARSHAL.

JOINT RESTRAINT NOTE:

CONTRACTOR SHALL INSTALL RETAINER GLANDS AT ALL FITTINGS AND PROVIDE JOINT RESTRAINING HARNESS OR FIELD LOCK GASKETS AT ALL JOINTS WITHIN THE LENGTH SHOWN. CONTRACTOR SHALL INSURE THAT ALL TEES, BENDS, VALVES, ETC. HAVE A MINIMUM OF 5 FT OF PIPE WITH NO JOINTS ON EACH SIDE OF THE FITTING. JOINT RESTRAINTS AND RETAINER GLANDS SHALL BE CALCULATED BY SAWS APPROVED PROGRAMS. THERE WILL BE NO SEPARATE PAY ITEM FOR RETAINER GLANDS AND OTHER JOINT RESTRAINING HARNESS AND GASKETS, BUT SHALL BE SUBSIDIARY TO THE UNIT COST PER LINEAL FOOT OF PIPE INSTALLED.

PRESSURE REDUCING VALVE (PRV) NOTE:

*CONTRACTOR TO VERIFY THAT NO PORTION OF THE TRACT IS BELOW GROUND ELEVATION OF 605 FEET WHERE THE STATIC PRESSURE WILL NORMALLY EXCEED 80 PSI. AT ALL SUCH LOCATIONS WHERE THE GROUND LEVEL IS BELOW 605 FEET, THE DEVELOPER OR BUILDER SHALL INSTALL AT EACH LOT, ON THE CUSTOMER'S SIDE OF THE METER, AN APPROVED TYPE PRESSURE REGULATOR IN CONFORMANCE WITH THE PLUMBING CODE OF THE CITY OF SAN ANTONIO. NO DUAL SERVICES ALLOWED FOR ANY LOT(S) IF "PRV IS / ARE REQUIRED FOR SUCH LOT(S), ONLY SINGLE SERVICE CONNECTIONS SHALL BE ALLOWED. WATER SERVICES WHERE PRV'S REQUIRED ARE DESIGNATED BY AN ASTERISK (*).*

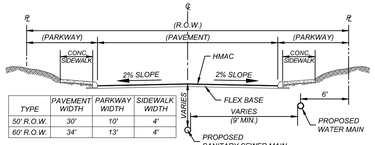
"NOTE: A PRESSURE REGULATOR IS ALSO KNOWN AS A PRESSURE REDUCING VALVE(PRV)

WATER PLAN NOTES:

1. ALL VALVES SHALL READ "OPEN RIGHT"
2. ALL PVC PIPE TO BE C-900 CLASS 235 (DR 18)
3. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT SHALL BE IN ACCORDANCE WITH THE SAN ANTONIO WATER SYSTEM (SAWS) STANDARD SPECIFICATIONS.

SAWS NOTE:

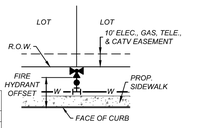
"SAWS REQUIRES GCPs AND COUNTER PERMIT TO USE LEAD FREE (<0.25% LEAD) FIRE HYDRANTS."



TYPE	PAVEMENT WIDTH	PARKWAY WIDTH	SIDEWALK WIDTH
50' R.O.W.	30'	10'	4'
60' R.O.W.	34'	13'	4'

TYPICAL STREET SECTION

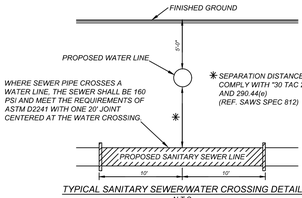
N.T.S.



SIDEWALK WIDTH	FIRE HYDRANT OFFSET
4'	5.0' MIN
6'	7.0' MIN

TYPICAL FIRE HYDRANT DETAIL

NOT-TO-SCALE



TYPICAL SANITARY SEWER/WATER CROSSING DETAIL

N.T.S.

SAWS PRESSURE ZONE 790

DEVELOPER'S NAME: SOUTHSTAR AT VERANO, LLC			
DEVELOPER'S ADDRESS: 2055 CENTRAL PLAZA, SUITE 110			
CITY: NEW BRAUNFELS	STATE: TEXAS	ZIP: 78130	
PHONE#:	FAX#:	TOTAL ACREAGE: 112.0 ACRES	
SAWS BLOCK MAP#: 148538		TOTAL EDU'S: 505	
TOTAL LINEAR FOOTAGE OF PIPE:	16,726 LF ~ 8" C-900 639 LF ~ 2" HPDE	PLAT NO.: 24-11800334	
NUMBER OF LOTS: 493	SAWS JOB#: 24-1174		

Colliers Engineering & Design

www.colliersengineering.com

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FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

REV	DATE	DRAWN BY	DESCRIPTION

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: OW3911024

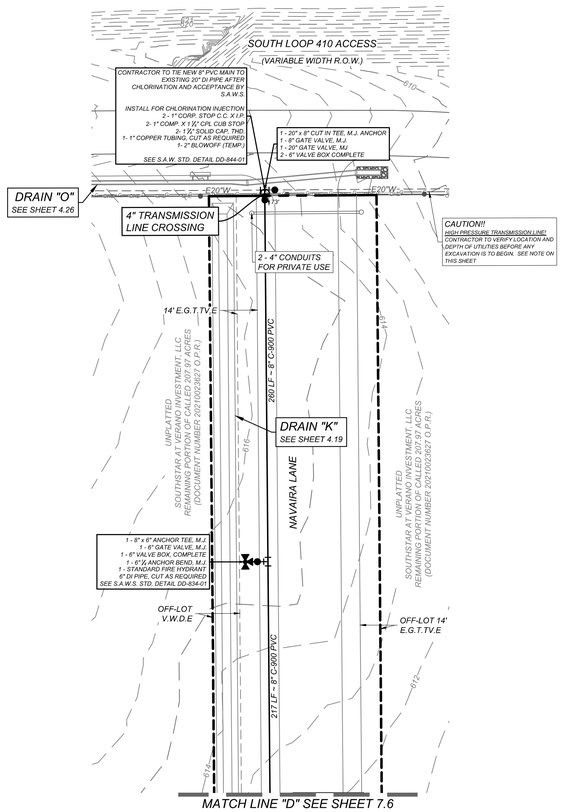
SHEET TITLE: WATER DISTRIBUTION PLAN (6 OF 7)

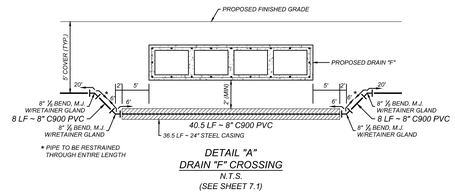
SHEET NUMBER: 7.6

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

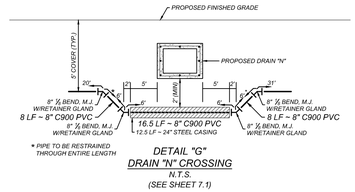
W:\WATER\OW3911024.dwg C.E. By: SDISPH

CAUTION!!:
THE CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITED TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT ARISE SHOULD BE COMMUNICATED TO THE ENGINEER IMMEDIATELY AND PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL CONTACT 1-800-DIG-TESS A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND THE REPAIR SHALL BE AT CONTRACTOR'S SOLE EXPENSE WHETHER THE UTILITY IS SHOWN ON THESE PLANS OR NOT.

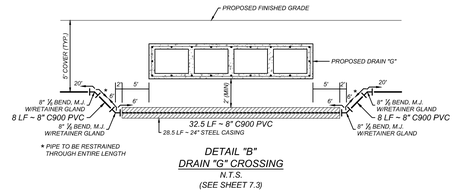




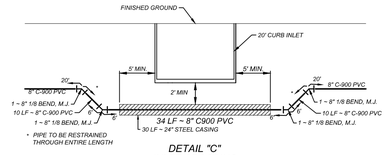
DETAIL "A"
DRAIN "F" CROSSING
N.T.S.
(SEE SHEET 7.1)



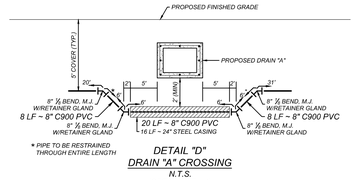
DETAIL "G"
DRAIN "N" CROSSING
N.T.S.
(SEE SHEET 7.1)



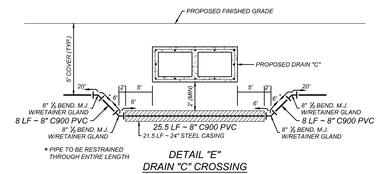
DETAIL "B"
DRAIN "G" CROSSING
N.T.S.
(SEE SHEET 7.3)



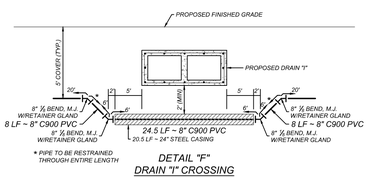
DETAIL "C"
INLET CROSSING
N.T.S.
(SEE SHEET 7.4)



DETAIL "D"
DRAIN "A" CROSSING
N.T.S.
(SEE SHEET 7.4)



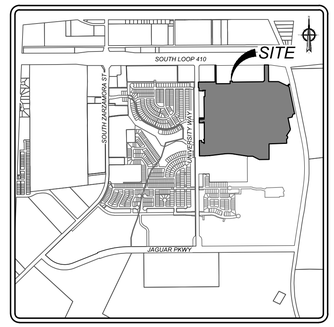
DETAIL "E"
DRAIN "C" CROSSING
N.T.S.
(SEE SHEET 7.6)



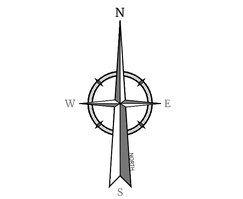
DETAIL "F"
DRAIN "I" CROSSING
N.T.S.
(SEE SHEET 7.6)

LEGEND

PROPOSED WATER MAIN	=	W
PROPOSED WATER SERVICE & METER BOX	=	W
PROPOSED WATER 3/4" IRRIGATION SERVICE & METER BOX	=	W
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	SS
ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT	=	*E.G.T.TV.E*
SANITARY SEWER EASEMENT	=	*S.S.E*
VARIABLE WIDTH DRAINAGE EASEMENT	=	*V.W.D.E*
VARIABLE WIDTH CLEAR VISION EASEMENT	=	*V.W.C.V.E*
EXISTING WATER MAIN	=	EW
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING SANITARY SEWER MAIN	=	ESS
EXISTING SANITARY SEWER MANHOLE	=	ESS

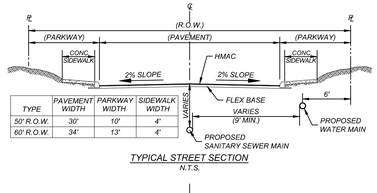


LOCATION MAP
N.T.S.



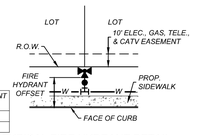
50 0 50 100

SCALE : 1" = 50'
Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)



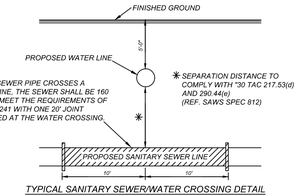
TYPE	PAVEMENT WIDTH	PARKWAY WIDTH	SIDEWALK WIDTH
50' R.O.W.	30'	10'	4'
60' R.O.W.	34'	13'	4'

TYPICAL STREET SECTION
N.T.S.



SIDEWALK WIDTH	FIRE HYDRANT OFFSET
4'	5.0' MIN
6'	7.0' MIN

TYPICAL FIRE HYDRANT DETAIL
NOT-TO-SCALE



TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
N.T.S.

TRENCH EXCAVATION SAFETY PROTECTION
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SAWS STANDARD NOTE:
ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT SHALL BE IN ACCORDANCE WITH THE SAN ANTONIO WATER SYSTEM (SAWS) STANDARD SPECIFICATIONS

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"NOTE: A PRESSURE REGULATOR IS ALSO KNOWN AS A PRESSURE REDUCING VALVE(PRV)

WATER PLAN NOTES:
1. ALL VALVES SHALL READ "OPEN RIGHT"
2. ALL PVC PIPE TO BE C-900 CLASS 235 (DR 18)
3. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT SHALL BE IN ACCORDANCE WITH THE SAN ANTONIO WATER SYSTEM (SAWS) STANDARD SPECIFICATIONS.

SAWS NOTE:
"SAWS REQUIRES GCPs AND COUNTER PERMIT TO USE LEAD FREE (<0.25% LEAD) FIRE HYDRANTS."

SAWS PRESSURE ZONE 790

DEVELOPER'S NAME:	*SOUTHSTAR AT VERANO, LLC*
DEVELOPER'S ADDRESS:	*2055 CENTRAL PLAZA, SUITE 110*
CITY:	*NEW BRAUNFELS*
STATE:	*TEXAS*
ZIP:	*78130*
PHONE#:	
FAX#:	
TOTAL ACREAGE:	*112.0 ACRES*
SAWS BLOCK MAP#:	*148538*
TOTAL EDU'S:	*505*
TOTAL LINEAR FOOTAGE OF PIPE:	*16,726 LF ~ 8" C-900 639 LF ~ 2" HPDE*
PLAT NO.:	*24-11800334*
NUMBER OF LOTS:	*493*
SAWS JOB#:	*24-1174*

RESIDENTIAL LOTS = 493

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REV	DATE	DRAWN BY	DESCRIPTION

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

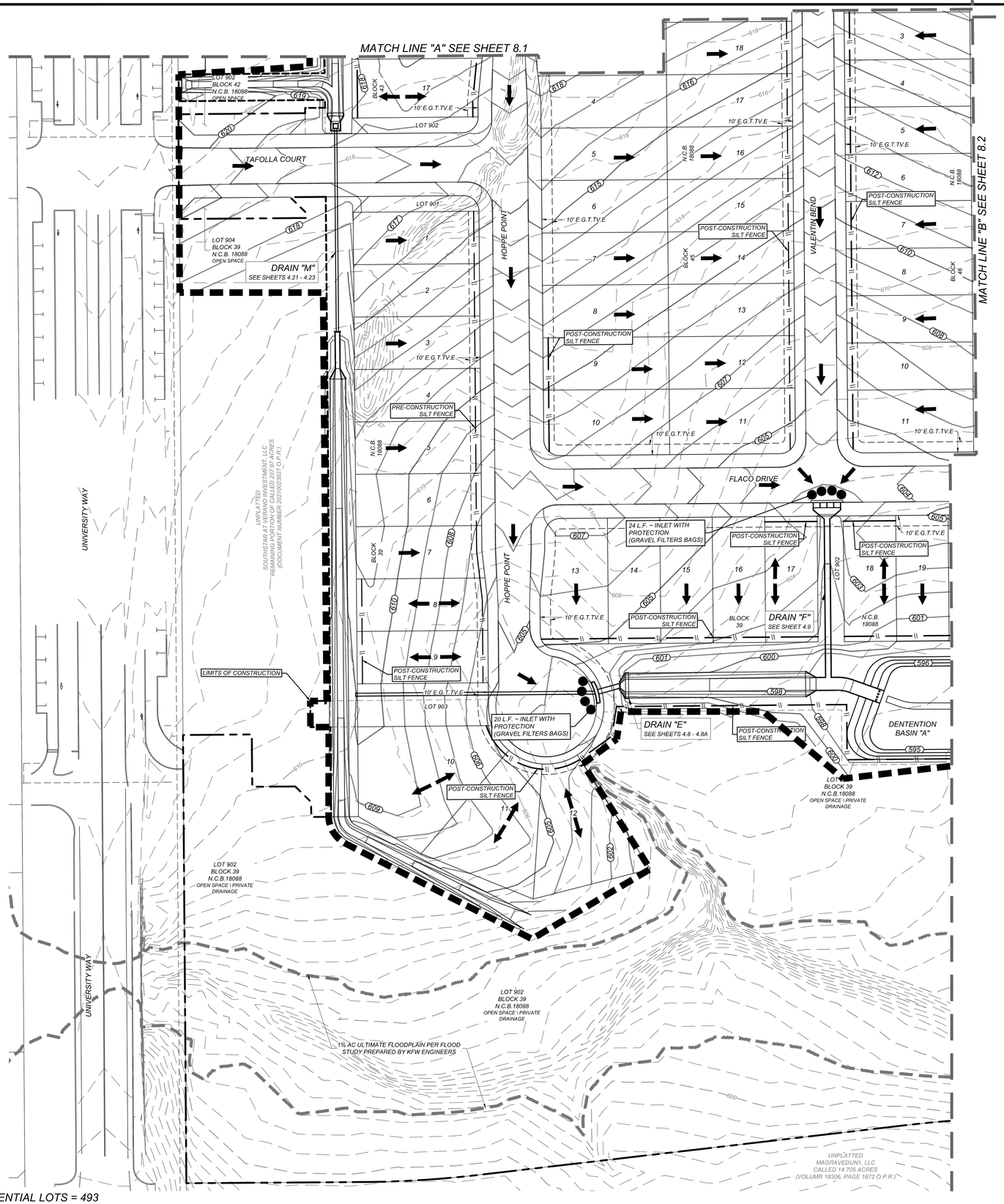
PROJECT NUMBER:	DRAWING NAME:
391-10-24	OW3911024

SHEET TITLE:
WATER DISTRIBUTION PLAN (7 OF 7)

SHEET NUMBER:
7.7

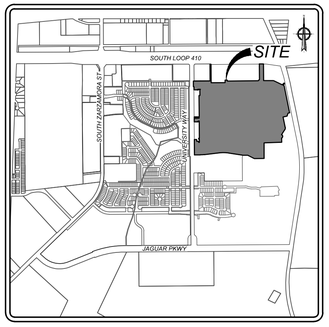
NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

w:\WATER\OW3911024.dwg 7.7 By: SDSEPH



LEGEND

LIMITS OF CONSTRUCTION	=	
EXISTING CONTOURS	=	570
PROPOSED CONTOURS	=	1008
FLOW ARROW	=	
SILT FENCE (PRE-CONSTRUCTION)	=	
SILT FENCE (POST CONSTRUCTION)	=	
TYPE 4 SACK GABIONS	=	
DISTURBED AREA	=	
STABILIZED CONSTRUCTION ENTRANCE/EXIT	=	
CONSTRUCTION EQUIPMENT, VEHICLE & MATERIALS STORAGE AREA.	=	
NATURAL VEGETATIVE BUFFER	=	
CONCRETE TRUCK WASHOUT PIT	=	
ROCK BERM	=	
INLET WITH PROTECTION (GRAVEL FILTERS BAGS)	=	
ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT (PLAT NUMBER 24-11800334)	=	E.G.T.TV.E



LOCATION MAP

N.T.S.

SCALE : 1" = 50'

Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)

COORDINATION NOTE:

1. CONTACT TIME WARNER TO COORDINATE CABLE TV SERVICE. (210) 244-0500
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5. CONTRACTOR TO COORDINATE WITH SAWS TO PLAN WATER AND SANITARY SEWER SERVICES (210) 704-7297
6. CONTRACTOR SHALL CONTACT 1-800-DIG-TESS A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION.

INSTALLATION:

1. ALL OPERATORS SHALL SUBMIT A NOTICE OF INTENT (NOI) AT LEAST 48 HOURS IN ADVANCE AND ALL BEST MANAGEMENT PRACTICES (BMP'S) SHALL BE IN PLACE PRIOR TO STARTING CONSTRUCTION ACTIVITIES.
2. CONTRACTOR TO ENSURE THAT STRUCTURAL BMP'S ARE INSTALLED WITHIN THE LIMITS OF THE SITE BOUNDARY.
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4. CONTRACTOR TO VERIFY SUFFICIENT VEGETATION IN AREAS DENOTED AS VEGETATED FILTER STRIP. IF INSUFFICIENT VEGETATION EXISTS, CONTRACTOR SHALL IMPLEMENT A DIFFERENT BEST MANAGEMENT PRACTICE AND WILL SHOW IT ON THIS PLAN WITH NOTATION IN THE MODIFICATIONS SECTION WITH THE SIGNATURE AND DATE OF THE RESPONSIBLE PARTY.

MAINTENANCE AND INSPECTION:

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SW3P MODIFICATIONS

DATE	SIGNATURE	DESCRIPTION

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FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

REV	DATE	DRAWN BY	DESCRIPTION

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

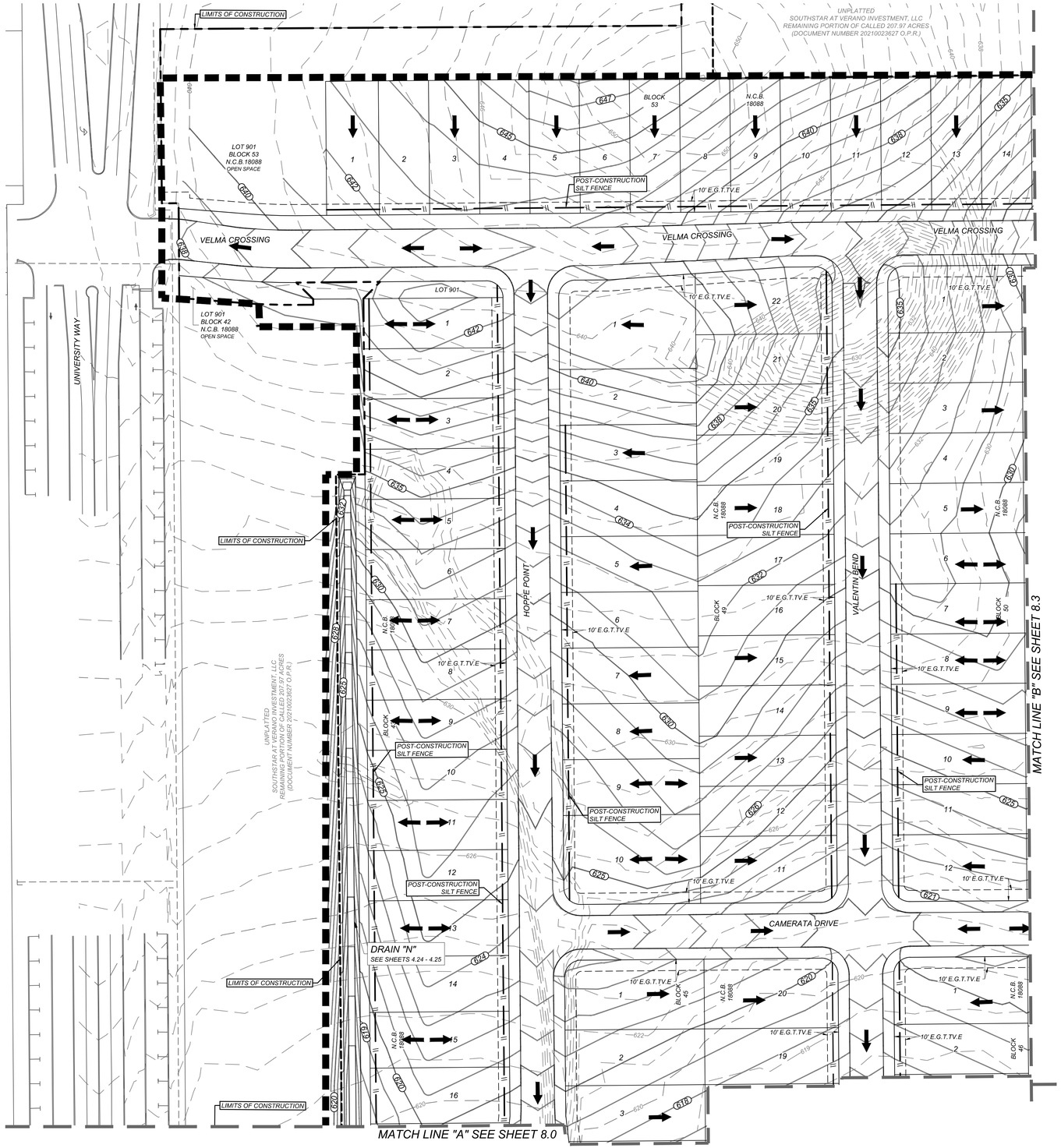
PROJECT NUMBER:	DRAWING NAME:
391-10-24	SW3P3911024

SHEET TITLE:
STORMWATER POLLUTION PREVENTION PLAN (1 OF 6)

SHEET NUMBER:
8.0

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

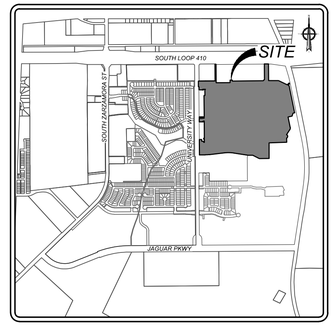
By: SJOSEPH
w:\SW3P3911024.dwg\8.0



RESIDENTIAL LOTS = 493

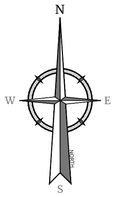
LEGEND

LIMITS OF CONSTRUCTION	=	
EXISTING CONTOURS	=	570
PROPOSED CONTOURS	=	1008
FLOW ARROW	=	
SILT FENCE (PRE-CONSTRUCTION)	=	
SILT FENCE (POST CONSTRUCTION)	=	
TYPE 4 SACK GABIONS	=	
DISTURBED AREA	=	
STABILIZED CONSTRUCTION ENTRANCE/EXIT	=	
CONSTRUCTION EQUIPMENT, VEHICLE & MATERIALS STORAGE AREA.	=	
NATURAL VEGETATIVE BUFFER	=	
CONCRETE TRUCK WASHOUT PIT	=	
ROCK BERM	=	
INLET WITH PROTECTION (GRAVEL FILTERS BAGS)	=	
ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT (PLAT NUMBER 24-11800334)	=	E.G.T.TV.E



LOCATION MAP

N.T.S.



50 0 50 100

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SW3P MODIFICATIONS

DATE	SIGNATURE	DESCRIPTION

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REV	DATE	DRAWN BY	DESCRIPTION

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#:F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: SW3P3911024

SHEET TITLE: STORMWATER POLLUTION PREVENTION PLAN (2 OF 6)

SHEET NUMBER: 8.1

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

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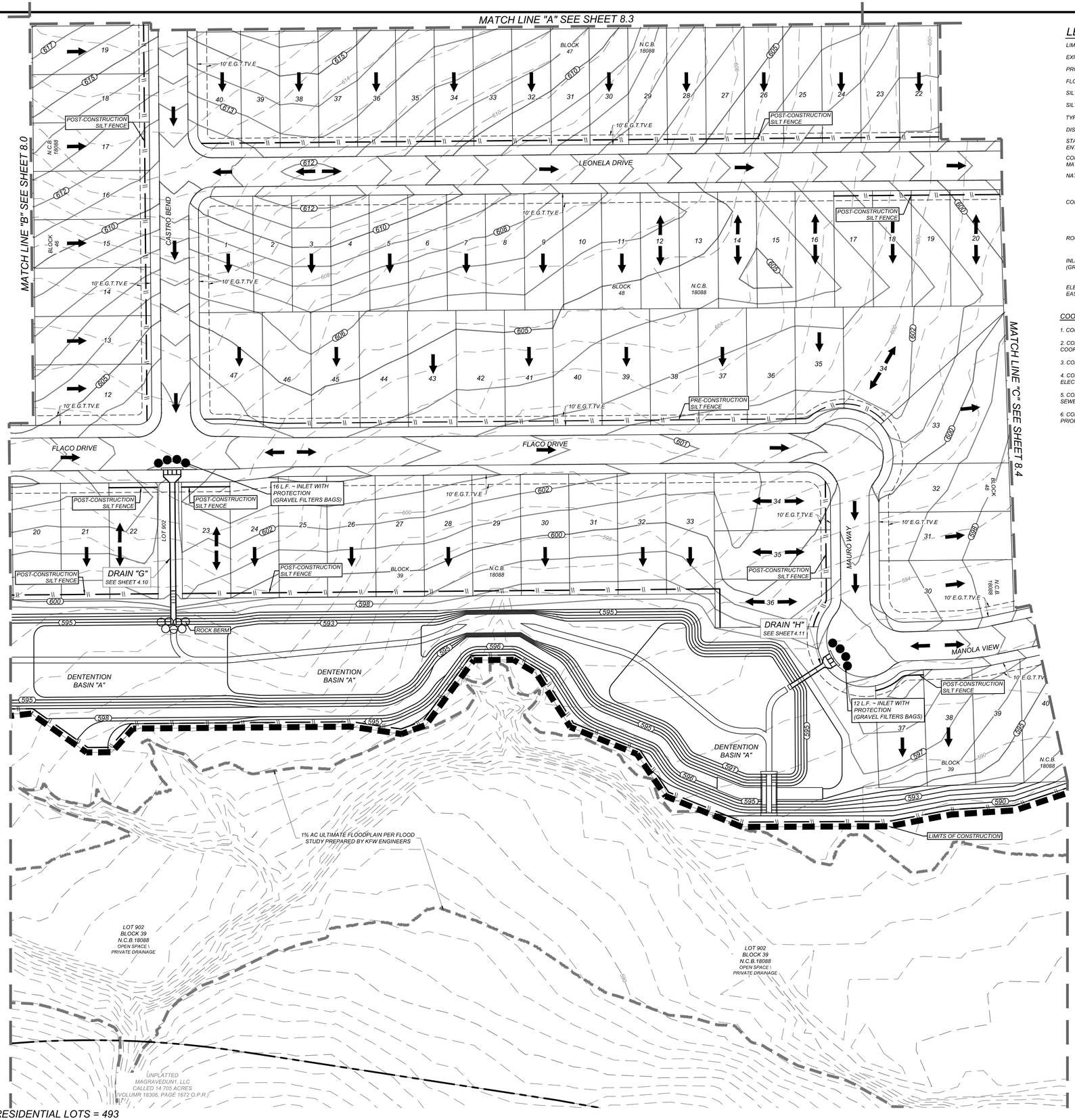
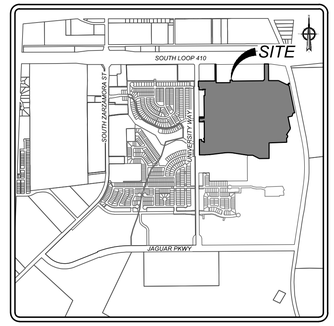
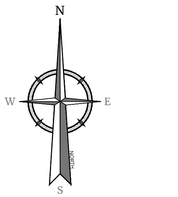


RESIDENTIAL LOTS = 493

LEGEND

LIMITS OF CONSTRUCTION	=	
EXISTING CONTOURS	=	570
PROPOSED CONTOURS	=	1008
FLOW ARROW	=	
SILT FENCE (PRE-CONSTRUCTION)	=	
SILT FENCE (POST CONSTRUCTION)	=	
TYPE 4 SACK GABIONS	=	
DISTURBED AREA	=	
STABILIZED CONSTRUCTION ENTRANCE/EXIT	=	
CONSTRUCTION EQUIPMENT, VEHICLE & MATERIALS STORAGE AREA.	=	
NATURAL VEGETATIVE BUFFER	=	
CONCRETE TRUCK WASHOUT PIT	=	
ROCK BERM	=	
INLET WITH PROTECTION (GRAVEL FILTERS BAGS)	=	
ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT (PLAT NUMBER 24-11800334)	=	E.G.T.TV.E





50 0 50 100

SCALE : 1" = 50'

Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)

COORDINATION NOTE:

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SW3P MODIFICATIONS

DATE	SIGNATURE	DESCRIPTION

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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER:	DRAWING NAME:
391-10-24	SW3P3911024

SHEET TITLE:
STORMWATER POLLUTION PREVENTION PLAN (3 OF 6)

SHEET NUMBER:
8.2

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

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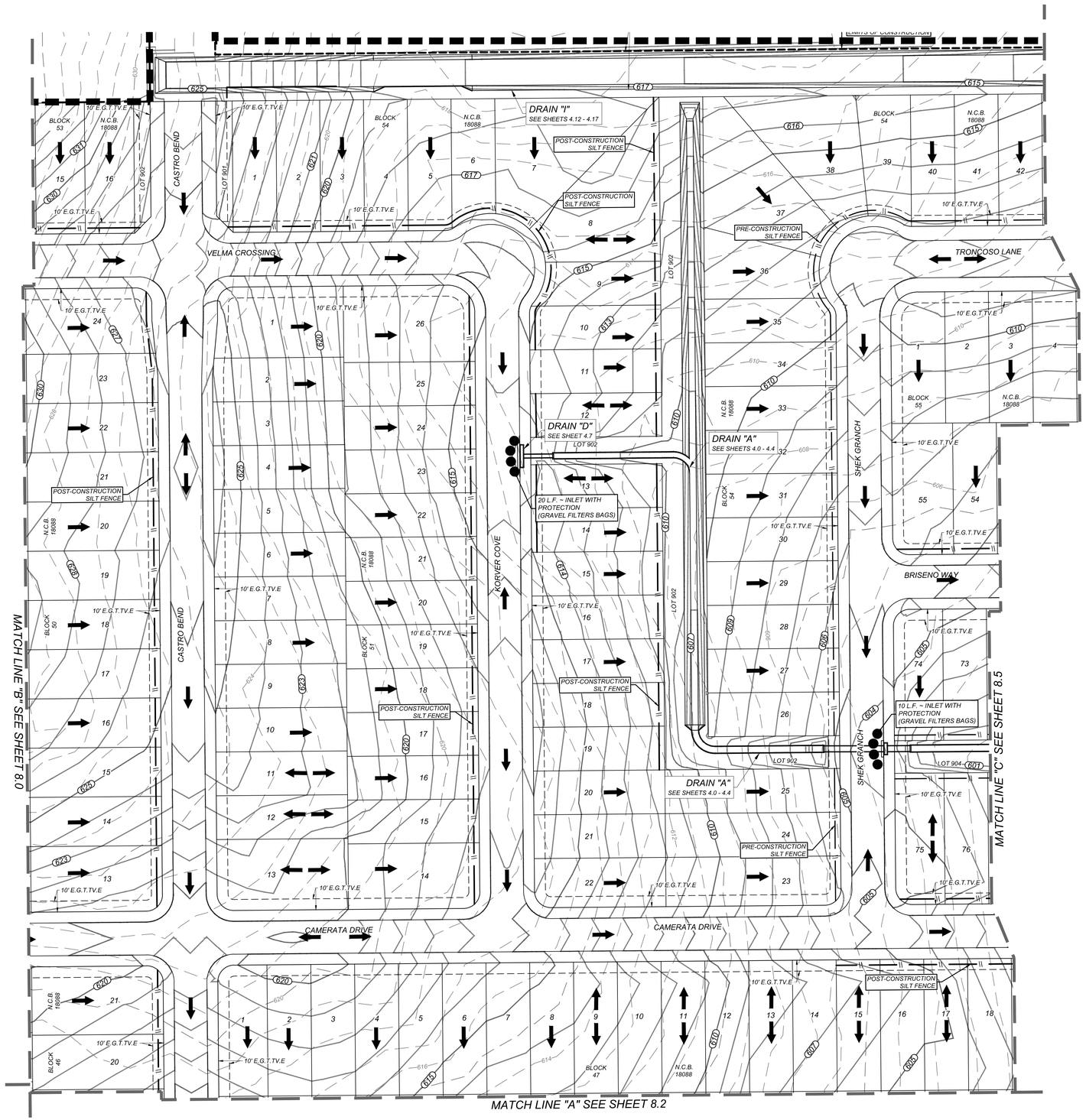

RESIDENTIAL LOTS = 493

LEGEND

LIMITS OF CONSTRUCTION	=	
EXISTING CONTOURS	=	570
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FLOW ARROW	=	
SILT FENCE (PRE-CONSTRUCTION)	=	
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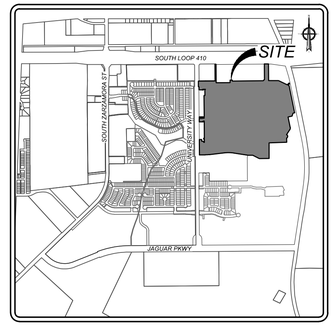
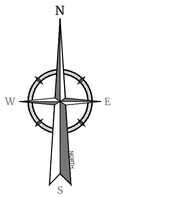


LOCATION MAP

N.T.S.



50 0 50 100

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SW3P MODIFICATIONS

DATE	SIGNATURE	DESCRIPTION

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REV	DATE	DRAWN BY	DESCRIPTION

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

SAN ANTONIO
BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

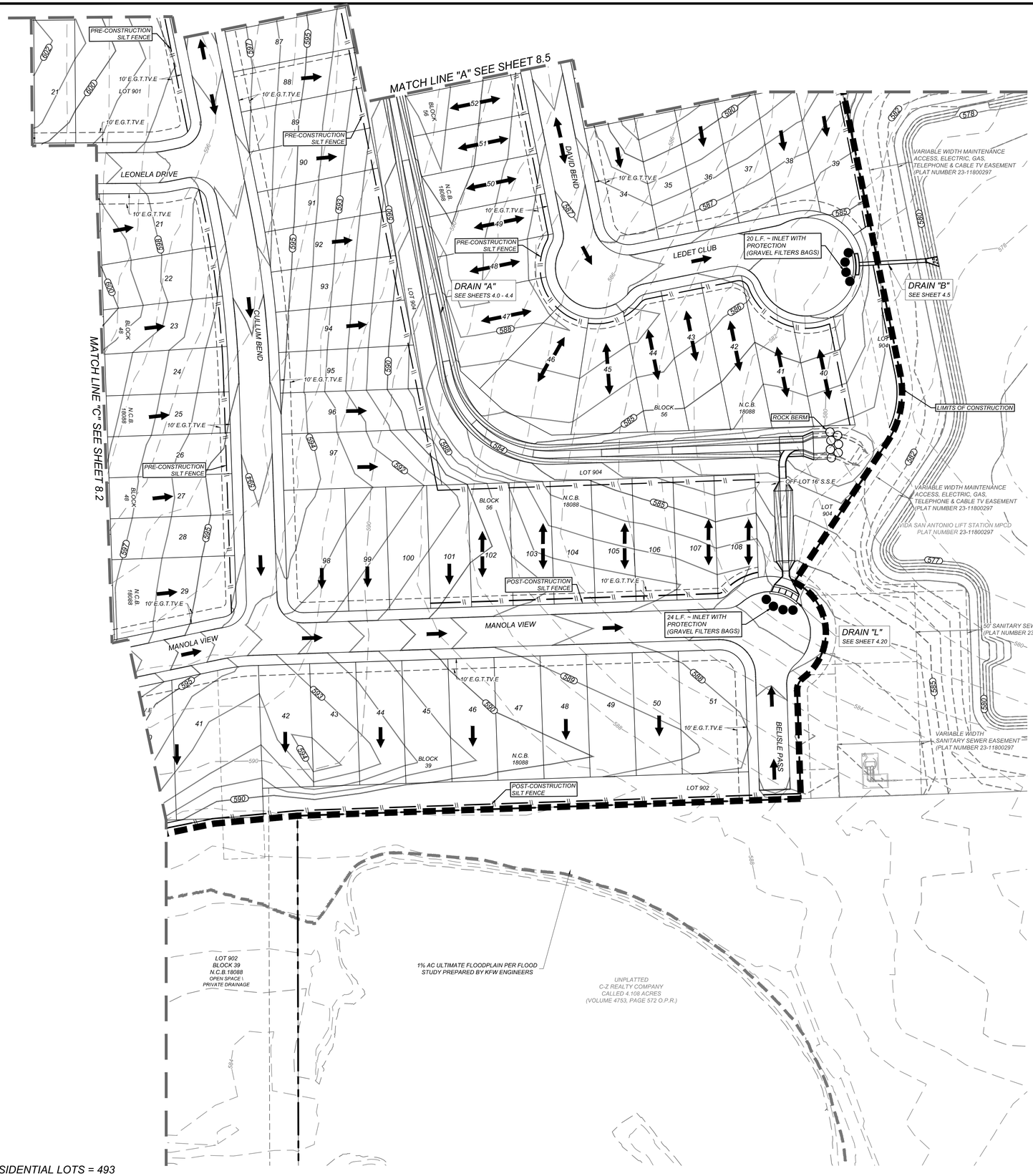
PROJECT NUMBER:	DRAWING NAME:
391-10-24	SW3P3911024

SHEET TITLE:
STORMWATER POLLUTION PREVENTION PLAN (4 OF 6)

SHEET NUMBER:
8.3

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

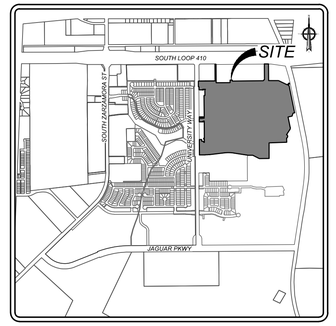
W:\SW3P\391102-4.dwg 8.3 By: SOSEPH



RESIDENTIAL LOTS = 493

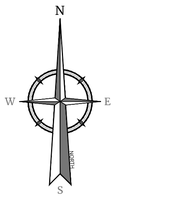
LEGEND

LIMITS OF CONSTRUCTION	=	
EXISTING CONTOURS	=	570
PROPOSED CONTOURS	=	1008
FLOW ARROW	=	
SILT FENCE (PRE-CONSTRUCTION)	=	
SILT FENCE (POST CONSTRUCTION)	=	
TYPE 4 SACK GABIONS	=	
DISTURBED AREA	=	
STABILIZED CONSTRUCTION ENTRANCE/EXIT	=	
CONSTRUCTION EQUIPMENT, VEHICLE & MATERIALS STORAGE AREA.	=	
NATURAL VEGETATIVE BUFFER	=	
CONCRETE TRUCK WASHOUT PIT	=	
ROCK BERM	=	
INLET WITH PROTECTION (GRAVEL FILTERS BAGS)	=	
ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT (PLAT NUMBER 24-11800334)	=	E.G.T.TV.E



LOCATION MAP

N.T.S.



50 0 50 100

SCALE : 1" = 50'

Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)

COORDINATION NOTE:

1. CONTACT TIME WARNER TO COORDINATE CABLE TV SERVICE. (210) 244-0500
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6. CONTRACTOR SHALL CONTACT 1-800-DIG-TESS A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION.

INSTALLATION:

1. ALL OPERATORS SHALL SUBMIT A NOTICE OF INTENT (NOI) AT LEAST 48 HOURS IN ADVANCE AND ALL BEST MANAGEMENT PRACTICES (BMP'S) SHALL BE IN PLACE PRIOR TO STARTING CONSTRUCTION ACTIVITIES.
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SW3P MODIFICATIONS

DATE	SIGNATURE	DESCRIPTION

Colliers Engineering & Design

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PHASE 5
PLAT# 24-11800334

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BEXAR COUNTY
TEXAS

Colliers Engineering & Design
SAN ANTONIO (KFW)
3421 Paesanos Parkway
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Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC
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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: SW3P3911024

SHEET TITLE: STORMWATER POLLUTION PREVENTION PLAN (5 OF 6)

SHEET NUMBER: 8.4

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

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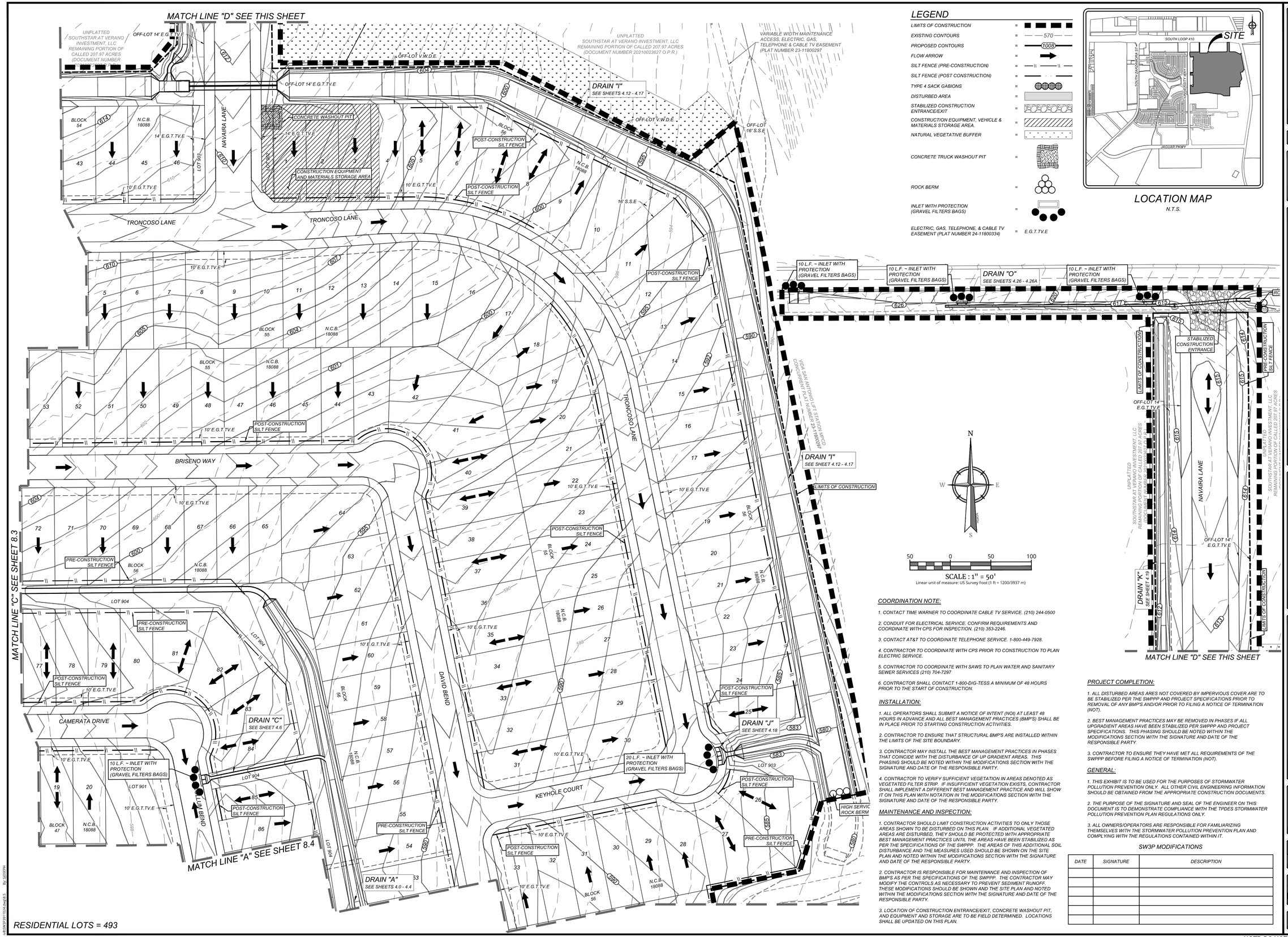

LEGEND

- LIMITS OF CONSTRUCTION =
- EXISTING CONTOURS = 570
- PROPOSED CONTOURS = 1008
- FLOW ARROW =
- SILT FENCE (PRE-CONSTRUCTION) =
- SILT FENCE (POST CONSTRUCTION) =
- TYPE 4 SACK GABIONS =
- DISTURBED AREA =
- STABILIZED CONSTRUCTION ENTRANCE/EXIT =
- CONSTRUCTION EQUIPMENT, VEHICLE & MATERIALS STORAGE AREA. =
- NATURAL VEGETATIVE BUFFER =
- CONCRETE TRUCK WASHOUT PIT =
- ROCK BERM =
- INLET WITH PROTECTION (GRAVEL FILTERS BAGS) =
- ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT (PLAT NUMBER 24-11800334) = E.G.T.TV.E

LOCATION MAP
N.T.S.

50 0 50 100

SCALE : 1" = 50'

Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)

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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

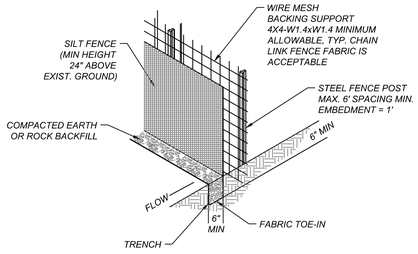
PROJECT NUMBER: 391-10-24
DRAWING NAME: SW3P3911024

SHEET TITLE: STORMWATER POLLUTION PREVENTION PLAN (6 OF 6)

SHEET NUMBER: 8.5

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

I:\KFW\SW3P3911024\Dwg\8.5 By: SDOSPIH



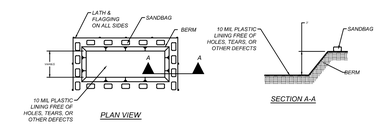
ISOMETRIC PLAN VIEW

Materials:

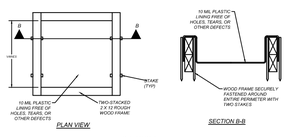
(1) Silt fence material should be polypropylene, polyethylene or polyamide woven or nonwoven fabric. The fabric width should be 36 inches, with a minimum unit weight of 4.5 oz/yd, mullen burst strength exceeding 190 lb/in2, ultraviolet stability exceeding 70%, and minimum apparent opening size of U.S. Sieve No. 30.
(2) Fence posts should be made of hot rolled steel, at least 4 feet long with Tee or Ybar cross section, surface painted or galvanized, minimum nominal weight 1.25 lb/ft2, and Brindell hardness exceeding 140.
(3) Woven wire backing to support the fabric should be galvanized 2" x 4" welded wire, 12 gauge minimum.

Installation:
(1) Steel posts, which support the silt fence, should be installed on a slight angle toward the anticipated runoff source. Post must be embedded a minimum of 1- foot deep and spaced not more than 8 feet on center. Where water concentrates, the maximum spacing should be 6 feet.
(2) Lay out fencing down-slope of disturbed area, following the contour as closely as possible. The fence should be sited so that the maximum drainage area is ¼ acre/i 00 feet of fence.
(3) The toe of the silt fence should be trenched in with a spade or mechanical trencher, so that the down- slope face of the trench is flat and perpendicular to the line of flow. Where fence cannot be trenched in (e.g., pavement or rock outcrop), weight fabric flap with 3 inches of pea gravel on uphill side to prevent flow from seeping under fence.
(4) The trench must be a minimum of 6 inches deep and 6 inches wide to allow for the silt fence fabric to be laid in the ground and backfilled with compacted material.
(5) Silt fence should be securely fastened to each steel support post or to woven wire, which is in turn attached to the steel fence post. There should be a 3-foot overlap, securely fastened where ends of fabric meet.
(6) Silt fence should be removed when the site is completely stabilized so as not to block or impede stone flow or drainage.

Inspection and Maintenance Guidelines:
(1) Inspect all fencing weekly, and after any rainfall.
(2) Remove sediment when buildup reaches 6 inches.
(3) Replace any torn fabric or install a second line of fencing parallel to the torn section.
(4) Replace or repair any sections crushed or collapsed in the course of construction activity. If a section of fence is obstructing vehicular access, consider relocating it to a spot where it will provide equal protection, but will not obstruct vehicles. A triangular filter dike may be preferable to a silt fence at common vehicle access points.
(5) When construction is complete, the sediment should be disposed of in a manner that will not cause additional siltation and the prior location of the silt fence should be revegetated. The fence itself should be disposed of in an approved landfill.



TYPE "BELOW GRADE"

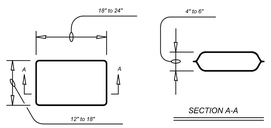


TYPE "ABOVE GRADE"

GENERAL NOTES:

- *DETAIL ABOVE ILLUSTRATES MINIMUM DIMENSIONS. PIT CAN BE INCREASED IN SIZE DEPENDING ON EXPECTED FREQUENCY OF USE.*
- *WASHOUT PIT SHALL BE LOCATED IN AN AREA EASILY ACCESSIBLE TO CONSTRUCTION TRAFFIC.*
- *WASHOUT PIT SHALL NOT BE LOCATED IN AREAS SUBJECT TO INUNDATION FROM STORM WATER RUNOFF AND AT LEAST 50 FEET FROM SENSITIVE FEATURES, STORM DRAINS, OPEN DITCHES, STREETS, OR STREAMS.*

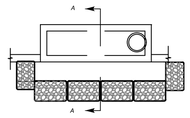
CONCRETE TRUCK WASHOUT PIT

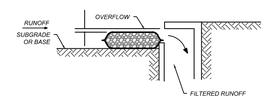


GENERAL NOTES:

- *THE FILTER BAG MATERIAL SHALL BE MADE OF POLYPROPYLENE, POLYETHYLENE OR POLYAMIDE WOVEN FABRIC, MIN UNIT WEIGHT OF 4 OUNCES/SY, MULLEN BURST STRENGTH EXCEEDING 300 PSI AND ULTRAVIOLET STABILITY EXCEEDING 70%.*
- *THE FILTER BAG SHALL BE FILLED WITH CLEAN, MEDIUM TO COARSE GRAVEL (0.31 TO 0.75 INCH DIAMETER).*

GRAVEL FILTER BAG DETAIL

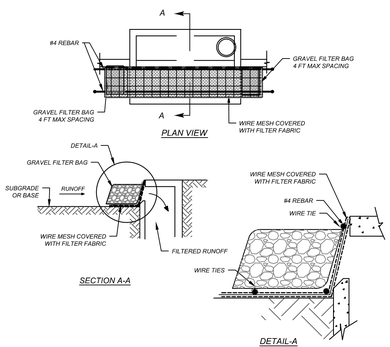




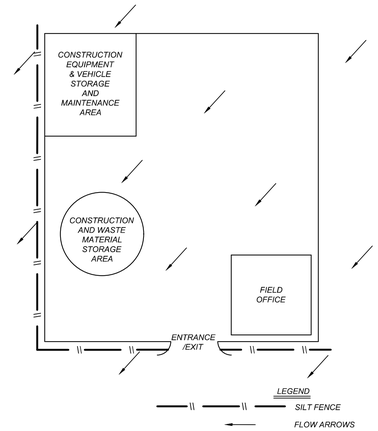
GENERAL NOTES:

- *ALL STORM DRAINAGE SYSTEMS INLETS SHOULD FILTER RUNOFF BEFORE THE WATER IS DISCHARGED INTO STREAMS OR ONTO ADJACENT PROPERTIES, UNLESS TREATMENT IS PROVIDED ELSEWHERE.*
- *IF NO ADDITIONAL DOWNSTREAM TREATMENT EXISTS, THE MAXIMUM DRAINAGE AREA TRIBUTARY TO AN AREA DRAIN INSTALLED WITH A GRAVEL FILTER SHOULD BE ONE ACRE.*
- *ALL CURB INLET GRAVEL FILTERS SHOULD BE INSPECTED AND REPAIRED AFTER EACH RUNOFF EVENT. SEDIMENT SHOULD BE REMOVED WHEN MATERIAL IS WITHIN THREE INCHES OF THE TOP OF THE CONCRETE BLOCKS. PERIODICALLY, THE GRAVEL SHOULD BE RAKED TO INCREASE INFILTRATION AND FILTERING OF RUNOFF WATERS.*

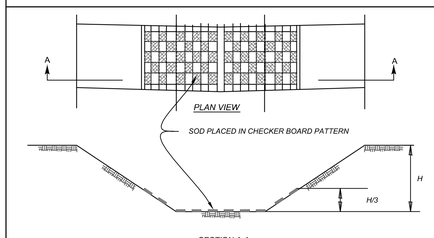
CURB INLET PROTECTION GRAVEL FILTER BAGS



CURB INLET PROTECTION (ALTERNATE)

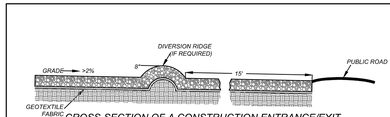


TYPICAL CONSTRUCTION STAGING AREA



- *CHANNEL TO BE STABILIZED WITH SOD PLACED IN A CHECKER BOARD PATTERN TON THE CHANNEL BOTTOM AND ON THE SIDES UP TO 1/3 THE DEPTH OF CHANNEL.*

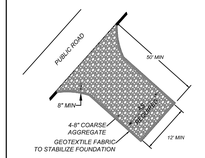
CHANNEL LINING



CROSS-SECTION OF A CONSTRUCTION ENTRANCE/EXIT

Materials:

(1) The aggregate should consist of 4 to 8 inch washed stone over a stable foundation as specified in the plan.
(2) The aggregate should be placed with a minimum thickness of 8 inches.
(3) The geotextile fabric should be designed specifically for use as a soil filtration media with an approximate weight of 6 oz/yd2, a mullen burst rating of 140 lb/in2, and an equivalent opening size greater than a number 50 sieve.
(4) If a washing facility is required, a level area with a minimum of 4 inch diameter washed stone or commercial rack should be included in the plans. Divert wastewater to a sediment trap or basin.

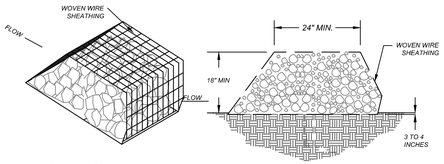


TEMPORARY CONSTRUCTION ENTRANCE/EXIT

Installation: (North Carolina, 1993)
(1) Avoid curves on public roads and steep slopes. Remove vegetation and other objectionable material from the foundation area. Grade crown foundation for positive drainage.
(2) The minimum width of the entrance/exit should be 12 feet or the full width of exit roadway, whichever is greater.
(3) The construction entrance should be at least 50 feet long.
(4) If the slope toward the road exceeds 2%, construct a ridge, 6 to 8 inches high with 3:1 (H:V) side slopes, across the foundation approximately 15 feet from the entrance to divert runoff away from the public road.
(5) Place geotextile fabric and grade foundation to improve stability, especially where wet conditions are anticipated.
(6) Place stone to dimensions and grade shown on plans. Leave surface smooth and slope for drainage.
(7) Divert all surface runoff and drainage from the stone pad to a sediment trap or basin.
(8) Install pipe under pad as needed to maintain proper public road drainage.

Inspection and Maintenance Guidelines:
(1) The entrance should be maintained in a condition, which will prevent tracking or flowing of sediment onto public rights-of-way. This may require periodic top dressing with additional stone as conditions demand and repair and/or cleanout of any measures used to trap sediment.
(2) All sediment spilled, dropped, washed or tracked onto public rights-of-way should be removed immediately by contractor.
(3) When necessary, wheels should be cleaned to remove sediment prior to entrance onto public right-of-way.
(4) When washing is required, it should be done on an area stabilized with crushed stone that drains into an approved sediment trap or sediment basin.
(5) All sediment should be prevented from entering any storm drain, ditch or water course by using approved methods.

STABILIZED CONSTRUCTION ENTRANCE / EXIT



ISOMETRIC PLAN VIEW

CROSS SECTION

Materials:
(1) The berm structure should be. secured with a woven wire sheathing having maximum opening of 1 inch and a minimum wire diameter of 20 gauge galvanized and should be secured with shoat rings.
(2) Clean, open graded 3- to 5-inch diameter rock should be used, except in areas where high velocities or large volumes of flow are expected, where 5- to 8-inch diameter rocks may be used.

Installation:
(1) Lay out the woven wire sheathing perpendicular to the flow line. The sheathing should be 20 gauge woven wire mesh with 1 inch openings.
(2) Berm should have a top width of 2 feet minimum with side slopes being 2:1 (H:V) or flatter.
(3) Place the rock along the sheathing as shown in the diagram Figure 1-28), to a height not less than 18".
(4) Wrap the wire sheathing around the rock and secure with tie wire so that the ends of the sheathing overlap at least 2 inches, airl the berm retains its shape when walked upon.
(5) Berm should be built along the contour at zero percent grade or as near as possible.
(6) The ends of the berm should be tied into existing upslope grade and the berm should be buried in a trench approximately 3 to 4 inches deep to prevent failure of the control.

Inspection and Maintenance Guidelines:
(1) Inspection should be made weekly and after each rainfall by the responsible party. For installations in streambeds, additional daily inspections should be made.
(2) Remove sediment and other debris when buildup reaches 6 inches and dispose of the accumulated silt in an approved manner that will not cause any additional siltation.
(3) Repair any loose wire sheathing.
(4) The berm should be reshaped as needed during inspection.
(5) The berm should be replaced when the structure ceases to function as intended due to silt accumulation among the rocks, washout, construction traffic damage, etc.
(6) The rock berm should be left in place until all upstream areas are stabilized and accumulated silt removed.

ROCK BERM

RESIDENTIAL LOTS = 493

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FOR
VIDA SAN ANTONIO
PHASE 5
PLAT# 24-11800334

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TEXAS

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TBPLS Firm#: 10194550

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	AUGUST 2024	-	OE

PROJECT NUMBER: 391-10-24
DRAWING NAME: SW3P3911024

SHEET TITLE: STORMWATER POLLUTION PREVENTION PLAN DETAILS

SHEET NUMBER: 8.6

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

w:\SW3P3911024.dwg\8.6 By: SDSEPH