ENGINEERING PLANS

HARBOR HILL RESIDENCES & GLEN HILL WAY EXTENSION

City of Rockwall, Texas

Harbor Hill Index Of Drawings

	Cover Sheet
	Final Plat
GN	Rockwall General Notes
SP	Site Plan
C1.1	Paving Plan
C2.1	Grading Plan
C2.2	Grading Plan
C3.1	Existing Drainage Area
C3.2	Drainage Area Map
C4.1	Storm Sewer Plan
C4.2	Storm Sewer Profiles
C5.1	Utility Plan
C5.2	Utility Profiles
C6.1	Erosion Control Plan
C6.2	Erosion Control Details
C7.1	Construction Details
C7.2	Construction Details

Landscape

LP0.01	Landscape Plan
TS-1	Tree Survey/Mitigation

Structural

Retaining Wall Plans

TxDOT Details

SETP-CD	Safety End Treatment

Vicinity Map
NTS

Prepared For

DBA Architects

111 S. Kentucky Street, Suite 210
McKinney, Texas 75069

Engineer

CROSS ENGINEERING CONSULTANTS
1720 W. Virginia Street, McKinney, Texas 75069
972.562.4409, Texas P.E. Firm No. F-5935

Glen Hill Way Index Of Drawings

	Cover Sheet
GN	Rockwall General Notes
C8.1	Paving Plan & Profile
C8.2	Grading Plan
C9.1	Drainage Area Map
C9.2	Storm Sewer Plan & Profile
C9.3	Gabion Plan
C10.1	Water Plan
C10.2	Sanitary Sewer Plan
C11.1	Erosion Control Plan
C11.2	Erosion Control Details
C12.1	Construction Details
C12.2	Construction Details

Landscape

LP0.02	Landscape Plan
TS-2	Tree Survey/Mitigation

Structural

Gabion Wall Details

TxDOT Details

CF(31)DAT-19	Metal Guard Beam Fence
CF(31)-19	Metal Guard Beam Fence
SMD(SLIP-1)-08	Sign Mounting Details
SMD(SLIP-2)-08	Sign Mounting Details
SMD(SLIP-3)-08	Sign Mounting Details
TSR(4)-13	Typical Sign Requirements

STATE OF TEXAS
E. ZACHARY CRIMES
12.2013
REGISTERED
PROFESSIONAL ENGINEER
5/17/2021

ISSUE DATES:
5/27/2020
8/10/2020
4/19/2021
5/17/2021

REVISIONS:	DATE	BY
Issued for Construction		
Revision 1		

HARBOR HILL RESIDENCES & GLEN HILL WAY EXTENSION

CECI Project No. 18090

ENGINEERING PLANS

HARBOR HILL RESIDENCES

City of Rockwall, Texas

Index Of Drawings

	Cover Sheet
	Final Plat
GN	Rockwall General Notes
SP	Site Plan
C1.1	Paving Plan
C2.1	Grading Plan
C2.2	Grading Plan
C3.1	Existing Drainage Area
C3.2	Drainage Area Map
C4.1	Storm Sewer Plan
C4.2	Storm Sewer Profiles
C5.1	Utility Plan
C5.2	Utility Profiles
C6.1	Erosion Control Plan
C6.2	Erosion Control Details
C7.1	Construction Details
C7.2	Construction Details

Landscape

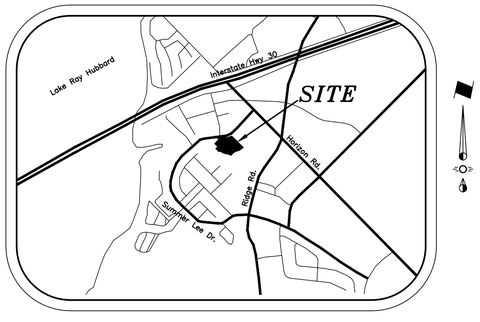
LP0.01	Landscape Plan
TS-1	Tree Survey/Mitigation

Structural

Retaining Wall Plans

TxDOT Details

SETP-CD	Safety End Treatment



Vicinity Map
NTS

Prepared For

DBA Architects

111 S. Kentucky Street, Suite 210
McKinney, Texas 75069

Engineer

CROSS ENGINEERING CONSULTANTS

1720 W. Virginia Street, McKinney, Texas 75069
972.562.4409, Texas P.E. Firm No. F-5935

STATE OF TEXAS
ZACHARY GRIMES
122013
REGISTERED
PROFESSIONAL ENGINEER
5/17/2021

ISSUE DATES:
8/10/2020
9/17/2020
11/30/2020
12/23/2020
1/22/2021
1/29/2021
4/19/2021
5/17/2021

REVISIONS:	DATE	BY
Issued for Permit Addendum 2		
Issued for Permit Addendum 3		
Issued for Permit Addendum 4		
Issued for Pricing II		
Issued for Permit Addendum 5		
Issued for Construction		
Revision 1		

CECI Project No. 18090

tnp

60 30 0 60

SCALE IN FEET
1" = 60'

EASEMENT LINE TABLE		
LINE	BEARING	DISTANCE
L1	S 44°14'46" W	24.00'
L2	N 45°45'14" W	18.00'
L3	N 45°45'14" W	24.00'
L4	S 44°14'46" W	14.73'
L5	S 00°45'14" E	20.24'
L6	S 44°14'46" W	22.22'
L7	S 45°45'14" E	24.00'
L8	N 44°14'46" E	20.00'
L9	S 45°45'14" E	20.00'
L10	N 44°14'46" E	24.00'
L11	N 00°45'14" W	20.24'
L12	N 44°14'46" E	14.73'
L13	S 82°07'02" W	15.00'
L14	S 07°53'01" E	35.00'
L15	N 82°07'02" E	13.96'
L16	S 81°14'05" W	39.41'
L17	S 08°45'57" E	20.00'
L18	N 81°14'05" E	47.60'
L19	S 45°45'21" E	3.93'
L20	S 00°45'12" E	15.36'
L21	S 01°55'40" W	41.24'
L22	S 44°14'48" W	13.72'
L23	S 01°55'40" W	46.63'
L24	S 06°59'04" W	49.30'
L25	N 83°00'56" W	20.00'
L26	N 06°59'04" E	31.25'
L27	S 44°14'46" W	6.32'
L28	N 45°45'14" W	20.00'
L29	N 44°14'46" E	13.96'
L30	S 03°16'53" E	15.03'
L31	N 86°43'04" E	20.00'
L32	N 03°16'53" W	15.00'
L33	N 68°07'24" W	26.05'
L34	N 21°52'36" E	20.00'
L35	S 68°07'24" E	22.45'
L36	S 68°07'24" E	39.91'
L37	N 21°52'36" E	20.00'
L38	N 68°07'24" W	44.20'
L39	S 44°14'57" W	33.17'
L40	S 64°06'59" W	158.28'
L41	S 59°17'11" W	27.40'
L42	S 30°42'49" E	18.18'
L43	S 89°38'16" W	28.42'
L44	S 44°20'31" W	11.64'
L45	S 50°58'05" W	28.09'
L46	S 59°16'12" W	30.92'
L47	S 79°49'49" W	25.16'
L48	N 72°17'04" W	39.07'
L49	N 75°29'27" W	75.00'
L50	N 56°34'24" W	33.38'
L51	N 59°31'30" W	13.19'
L52	S 38°11'45" W	10.06'
L53	N 48°13'22" W	64.05'
L54	S 74°35'59" W	29.61'
L55	S 56°07'51" W	26.76'
L56	N 45°45'14" W	39.38'
L57	N 88°33'39" W	84.45'
L58	N 50°18'42" E	31.14'
L59	N 48°41'38" E	29.47'
L60	N 89°34'41" E	16.93'
L61	N 81°48'25" E	18.83'
L62	N 77°01'04" E	35.40'
L63	N 53°18'41" E	44.30'
L64	N 35°58'45" E	44.01'
L65	N 10°09'27" W	23.35'
L66	N 39°06'27" E	24.60'
L67	N 15°43'15" E	31.48'
L68	S 85°16'07" E	20.51'
L69	S 74°06'59" W	2.01'
L70	N 14°33'19" W	16.16'
L71	N 76°46'24" E	2.01'
L72	N 70°49'38" W	2.01'
L73	N 20°04'44" E	16.00'
L74	S 70°30'57" E	1.99'
L75	S 74°08'05" E	1.83'
L76	S 14°16'56" W	15.97'
L77	N 77°18'02" W	2.07'
L78	N 83°32'54" E	3.00'
L79	S 08°02'04" E	15.97'
L80	S 80°22'57" W	3.08'
L81	N 65°01'07" E	3.15'
L82	S 26°32'49" E	15.81'
L83	S 61°53'15" W	3.10'
L84	S 32°40'47" E	49.94'
L85	N 58°19'15" E	2.13'
L86	S 31°40'45" E	16.00'
L87	S 58°19'15" W	1.85'
L88	S 32°40'47" E	40.29'
L89	S 87°24'58" W	2.01'
L90	S 03°54'44" E	16.16'
L91	N 84°45'33" E	2.01'
L92	N 81°42'51" W	2.01'
L93	S 06°57'27" W	16.16'
L94	S 84°22'16" E	2.01'

STREET CL LINE TABLE		
LINE	BEARING	DISTANCE
L1	N 32°40'47" W	112.31'

STREET CL CURVE TABLE					
CURVE	RADIUS	DELTA ANGLE	ARC LENGTH	CHORD BEARING	CHORD LENGTH
C1	300.00'	53°33'28"	280.43'	N 05°54'15" W	270.33'
C2	245.00'	3°04'15"	13.13'	N 19°20'22" E	13.13'

EASEMENT CURVE TABLE					
CURVE	RADIUS	DELTA ANGLE	ARC LENGTH	CHORD BEARING	CHORD LENGTH
C1	30.14'	22°47'08"	11.99'	S 03°33'19" E	11.91'
C2	38.04'	38°39'09"	25.66'	S 39°18'07" E	25.18'
C3	137.59'	13°16'58"	31.90'	S 54°04'39" E	31.83'
C4	30.00'	90°00'05"	47.12'	S 89°14'43" W	42.43'
C5	30.00'	89°59'55"	47.12'	N 00°45'17" W	42.43'
C6	113.11'	13°25'08"	26.49'	N 54°12'46" W	26.43'
C7	62.04'	23°55'33"	25.91'	N 47°08'16" W	25.72'
C8	41.84'	35°58'27"	26.27'	N 54°59'31" W	25.84'
C9	30.00'	52°52'31"	27.69'	S 17°48'30" W	26.71'
C10	74.00'	45°00'00"	58.12'	S 21°44'46" W	56.64'
C11	54.00'	31°48'25"	29.98'	S 16°39'27" E	29.59'
C12	30.00'	76°48'25"	40.22'	S 05°50'33" W	37.27'
C13	30.00'	90°00'00"	47.12'	N 89°14'46" E	42.43'
C14	30.00'	45°00'00"	23.56'	N 23°15'14" W	22.96'
C15	50.00'	45°00'00"	39.27'	N 21°44'46" E	38.27'
C16	54.00'	52°52'31"	49.83'	N 17°48'30" E	48.08'
C17	266.98'	5°11'30"	24.19'	S 19°27'38" W	24.18'
C18	266.98'	19°24'46"	90.46'	S 03°42'23" W	90.03'
C19	266.98'	15°33'47"	72.52'	S 17°14'45" E	72.30'
C20	266.98'	4°35'02"	21.36'	S 30°44'57" E	21.35'

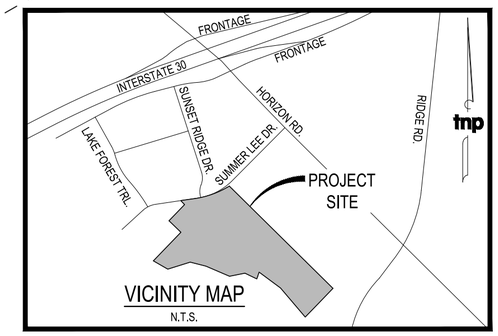
LEGEND

(C.M.) - CONTROLLING MONUMENT
IRF - IRON ROD FOUND
CIRF - CAPPED IRON ROD FOUND
NTS - NOT TO SCALE
R.O.W. - RIGHT OF WAY
INST. - INSTRUMENT
CAB. - CABINET
VOL. - VOLUME
NO. - NUMBER
PG. - PAGE
SF - SQUARE FEET
AC - ACRES
XS - CROSS SECTION
WSE - WATER SURFACE ELEVATION
V.E. - VISIBILITY EASEMENT
D.R.R.C.T. - DEED RECORDS ROCKWALL COUNTY, TEXAS
P.R.R.C.T. - PLAT RECORDS ROCKWALL COUNTY TEXAS
O.P.R.R.C.T. - OFFICIAL PUBLIC RECORDS ROCKWALL COUNTY TEXAS

EASEMENT TO BE ABANDONED BY THIS PLAT

NOTES:

1. BEARINGS ARE REFERENCED TO GRID NORTH OF THE TEXAS COORDINATE SYSTEM OF 1983 (NORTH CENTRAL ZONE 4202;NAD83(2011)EPOCH 2010) AND TIED TO THE CITY OF ROCKWALL GPS MONUMENT NETWORK
2. UNLESS OTHERWISE NOTED ALL CORNERS ARE A 5/8 INCH IRON ROD SET WITH CAP STAMPED "TNP"
3. BY GRAPHIC SCALE ONLY THE SUBJECT PROPERTY APPEARS TO LIE WITHIN ZONE X (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN), ACCORDING TO THE FLOOD INSURANCE RATE MAP (FIRM) NO. 48397C0040L DATED SEPTEMBER 26, 2008 OF THE NATIONAL INSURANCE RATE MAP PREPARED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY. THIS STATEMENT SHALL NOT CREATE LIABILITY ON THE PART OF THE SURVEYOR.
4. THE SURVEYOR, AS REQUIRED BY STATE LAW, IS RESPONSIBLE FOR SURVEYING INFORMATION ONLY AND BEARS NO RESPONSIBILITY FOR THE ACCURACY OF THE ENGINEERING DATA ON THIS PLAT.
5. IT SHALL BE THE POLICY OF THE CITY OF ROCKWALL TO WITHHOLD ISSUING BUILDING PERMITS UNTIL ALL STREETS, WATER, SEWER AND STORM DRAINAGE SYSTEMS HAVE BEEN ACCEPTED BY THE CITY. THE APPROVAL OF A PLAT BY THE CITY DOES NOT CONSTITUTE ANY REPRESENTATION, ASSURANCE OR GUARANTEE THAT ANY BUILDING WITHIN SUCH PLAT SHALL BE APPROVED, AUTHORIZED OR PERMIT THEREFORE ISSUED, NOR SHALL SUCH APPROVAL CONSTITUTE ANY REPRESENTATION, ASSURANCE OR GUARANTEE BY THE CITY OF THE ADEQUACY AND AVAILABILITY FOR WATER FOR PERSONAL USE AND FIRE PROTECTION WITHIN SUCH PLAT, AS REQUIRED UNDER ORDINANCE 83-54.
6. MINIMUM FINISH FLOOR ELEVATION OF LIVABLE FLOORS SHALL BE TWO (2) FEET ABOVE THE HIGHEST ADJACENT FLOODPLAIN ELEVATION FOR THE LOT.
7. ALL RETAINING WALLS FOR THE SIDEWALK ALONG GLEN HILL WAY SHALL BE REPAIRED, REPLACED AND MAINTAINED BY THE PROPERTY OWNER. WHERE THE WALL IS IN THE RIGHT OF WAY, THE ADJACENT PROPERTY OWNER SHALL MAINTAIN THE WALL.



VICINITY MAP
N.T.S.

FINAL PLAT OF
LOTS 1, 2 & 3 BLOCK A, HARBOR HILLS ADDITION

328,373 SQUARE FEET OR 7.538 ACRES

SITUATED IN THE EDWARD TEAL SURVEY, ABSTRACT 207
IN THE CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

BEING ALL OF A THREE TRACTS OF LAND DESCRIBED BY DEED TO HARBOR LAKE POINTE INVESTORS, LLC. AS RECORDED IN INSTRUMENT NUMBER 20170000002427, INSTRUMENT NUMBER 20170000003548, AND INSTRUMENT NUMBER 20150000011879 OF THE OFFICIAL PUBLIC RECORDS OF ROCKWALL COUNTY, TEXAS AND A PORTION OF TWO TRACTS OF LAND TO THE CITY OF ROCKWALL AS RECORDED IN VOLUME 4067, PAGE 188 AND VOLUME 5830, PAGE 133 OF THE DEED RECORDS OF ROCKWALL COUNTY, TEXAS

OWNER
CITY OF ROCKWALL
385 S. Goliad Street
Rockwall, TX 75087

OWNER
HARBOR LAKE POINTE INVESTORS, LLC.
2701 Sunset Ridge Drive Suite 607
Rockwall, TX 75032

CASE NO. P2020-036

PROJECT INFORMATION
Project No.: HHI 18363
Date: October 20, 2020
Drawn By: JM
Scale: 1"=60'

SHEET 1 of 2

tnp

SURVEYOR
TEAGUE NALL AND PERKINS, INC.
825 Watters Creek Boulevard, Suite M300
Allen, Texas 75013
214.461.9867 ph 214.461.9864 fx
T.B.P.L.S. Registration No. 10194381
www.tnpinc.com

Drawing: L:\Projects\HHI 18363 Harbor Hill Multi Family\Acad\Deliverables\Final_Plat\2020 10 20 HHI 18363 Harbor Hills Final Plat.dwg at Oct 27, 2020-8:30am by jmaddox

OWNERS CERTIFICATION

STATE OF TEXAS}
COUNTY OF ROCKWALL}

WHEREAS Harbor Lake Pointe Investors, LLC., and the City of Rockwall are the owners a tract of land situated in the Edward Teal Survey, Abstract 207 and being all of three tracts of land described by deed to Harbor Lake Pointe Investors, LLC. as recorded in Instrument Number 20170000002427, Instrument Number 20170000003548 and Instrument Number 20150000011879 of the Official Public Records of Rockwall County, Texas, and and a portion of two tracts of land to the City of Rockwall as recorded in Volume 4067, Page 188 and Volume 5830, Page 133 of the Deed Records of Rockwall County, Texas, also being all of Lot 3 and 4, Block 18 and a portion of Lot 2 and 4 and all of Lot 3, Block 16 of George Morton Estate as recorded in Cabinet A, slide 47 of the Plat Records of Rockwall County, Texas, also being a portion of Lot 6A, Lot 7A and Lot 8A of Isaac Brown's Land Partitioned to his Heirs as recorded in Cabinet A, Page 57 of the Plat Records of Rockwall County, Texas, and being more particularly described as follows:

BEGINNING at a 1/2 inch iron rod found the northwest corner of said Harbor Heights tract recorded in Instrument Number 20170000002427 also lying on the southerly line of Summer Lee Drive, a variable width right-of-way;

THENCE North 82 degrees 02 minutes 18 seconds East, along the southerly line of said Summer Lee Drive, a distance of 85.29 feet to a 5/8 inch iron rod with cap stamped "TNP" set for the beginning of a curve to the left;

THENCE along the southerly line of said Summer Lee Drive with said curve to the left having a radius of 532.50 feet, a central angle of 22 degrees 57 minutes 11 seconds, an arc length of 213.32 feet, a chord bearing of North 69 degrees 58 minutes 30 seconds East, a distance of 211.90 feet to a 5/8 inch iron rod with cap stamped "REALSEARCH" found for the west corner of Lot 1, Block A, Harbor Village Addition, an addition to the City of Rockwall as recorded in Cabinet J, Page 225 of the Plat Records of Rockwall County, Texas;

THENCE South 45 degrees 23 minutes 09 seconds East, along the southwest line of said Lot 1, Block A, a distance of 850.05 feet to a 1/2 inch iron rod with cap stamped "R.P.L.S. 5034" found for the south corner of same, also lying on the northwest line of Lot 1, Block A, Murphy Plaza No. 2, an addition to the City of Rockwall as recorded in Cabinet G, Slide 225 of the Plat Records of Rockwall County, Texas;

THENCE South 43 degrees 50 minutes 07 seconds West, along the northwest line of said Murphy Plaza, a distance of 118.52 feet to a 1 inch iron pipe found for the west corner of same, also for the north corner of Lot 29, Lake Ridge Estates, an addition to the City of Rockwall as recorded in Instrument Number 20200000017497 of the Official Public Records of Rockwall County, Texas;

THENCE South 44 degrees 09 minutes 43 seconds West, along the northwest line of said Lake Ridge Estates, a distance of 114.47 feet to a 5/8 inch iron rod with cap stamped "TNP" set for the southeast corner of the aforementioned Harbor Lake Pointe Investors, LLC. tract as recorded in Instrument Number 20150000011879;

THENCE along the southerly line of said Harbor Lake Point Investors tract recorded in Instrument Number 20150000011879 the following courses and distances:

North 40 degrees 22 minutes 36 seconds West, a distance of 222.70 feet to a 1/2 inch iron rod with cap stamped "R.P.L.S. 5034 found for corner;
North 53 degrees 26 minutes 19 seconds West, a distance of 155.56 feet to a 1/2 inch iron rod with cap stamped "R.P.L.S. 5034 found for corner;
South 18 degrees 52 minutes 54 seconds West, a distance of 41.84 feet to a 5/8 inch iron rod with cap stamped "TNP" set for corner;
North 64 degrees 10 minutes 42 seconds West, a distance of 76.86 feet to a 1/2 inch iron rod with cap stamped "R.P.L.S. 5034 found for corner;
South 78 degrees 40 minutes 46 seconds West, a distance of 91.81 feet to a 1/2 inch iron rod with cap stamped "R.P.L.S. 5034 found for corner;
North 66 degrees 47 minutes 13 seconds West, a distance of 149.92 feet to a 5/8 inch iron rod with cap stamped "TNP" set for corner;
North 75 degrees 44 minutes 56 seconds West, a distance of 94.66 feet to a 1/2 inch iron rod with cap stamped "R.P.L.S. 5034 found for corner;
South 72 degrees 39 minutes 31 seconds West, a distance of 137.23 feet to a 1/2 inch iron rod with cap stamped "R.P.L.S. 5034 found for corner;
North 60 degrees 03 minutes 55 seconds West, a distance of 97.14 feet to a 1/2 inch iron rod with cap stamped "R.P.L.S. 5034 found for corner lying on the southeast line of the aforementioned George Morton Estate;

THENCE North 43 degrees 58 minutes 21 seconds East along the southeast lineof said George Morton Estate, a distance of 231.86 feet to 5/8 inch iron rod with cap stamped "TNP" set for corner for the south corner of the aforementioned Harbor Lake Point Investors tract recorded in Instrument Number 20170000003548;

THENCE North 46 degrees 00 minutes 51 seconds West, along the southwest line of last mentioned Harbor Lake Point Investors tract, a distance of 96.85 feet to 5/8 inch iron rod with cap stamped "TNP" set for corner at the west corner of same;

THENCE North 43 degrees 59 minutes 52 seconds East, a distance of 131.88 feet to a 1/2 inch iron rod with cap stamped "WIER" found for ell corner of the aforementioned Harbor Lake Point Investors tract recorded in Instrument Number 20170000002427;

THENCE North 44 degrees 56 minutes 44 seconds West, along a southwest line of last mentioned Harbor Lake Point Investors tract, a distance of 32.66 feet to the POINT OF BEGINNING containing 328,373 square feet, or 7.538 acres of land.

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS:

STATE OF TEXAS}
COUNTY OF ROCKWALL}

We the undersigned owner's of the land shown on this plat, and designated herein as HARBOR HILLS ADDITION subdivision to the City of Rockwall, Texas, and whose name is subscribed hereto, hereby dedicate to the use of the public forever all streets, alleys, parks, water courses, drains, easements and public places thereon shown on the purpose and consideration therein expressed. We further certify that all other parties who have a mortgage or lien interest in the [HARBOR HILLS ADDITION subdivision have been notified and signed this plat. We understand and do hereby reserve the easement strips shown on this plat for the purposes stated and for the mutual use and accommodation of all utilities desiring to use or using same. I also understand the following;

1. No buildings shall be constructed or placed upon, over, or across the utility easements as described herein.
2. Any public utility shall have the right to remove and keep removed all or part of any buildings, fences, trees, shrubs, or other growths or improvements which in any way endanger or interfere with construction, maintenance or efficiency of their respective system on any of these easement strips; and any public utility shall at all times have the right of ingress or egress to, from and upon the said easement strips for purpose of construction, reconstruction, inspecting, patrolling, maintaining, and either adding to or removing all or part of their respective system without the necessity of, at any time, procuring the permission of anyone.
3. The City of Rockwall will not be responsible for any claims of any nature resulting from or occasioned by the establishment of grade of streets in the subdivision.
4. The developer and subdivision engineer shall bear total responsibility for storm drain improvements.
5. The developer shall be responsible for the necessary facilities to provide drainage patterns and drainage controls such that properties within the drainage area are not adversely affected by storm drainage from the development.
6. No house dwelling unit, or other structure shall be constructed on any lot in this addition by the owner or any other person until the developer and/or owner has complied with all requirements of the Subdivision Regulations of the City of Rockwall regarding improvements with respect to the entire block on the street or streets on which property abuts, including the actual installation of streets with the required base and paving, curb and gutter, water and sewer, drainage structures, storm structures, storm sewers, and alleys, all according to the specifications of the City of Rockwall; or
7. Property owner shall be responsible for maintaining, repairing, and replacing all systems within the drainage and detention easements.

Until an escrow deposit, sufficient to pay for the cost of such improvements, as determined by the city's engineer and/or city administrator,computed on a private commercial rate basis, has been made with the city secretary, accompanied by an agreement signed by the developer and/or owner, authorizing the city to make such improvements at prevailing private commercial rates, or have the same made by a contractor and pay for the same out of the escrow deposit, should the developer and/or owner fail or refuse to install the required improvements within the time stated in such written agreement, but in no case shall the City be obligated to make such improvements itself. Such deposit may be used by the owner and/or developer as progress payments as the work progresses in making such improvements by making certified requisitions to the city secretary, supported by evidence of work done; or

Until the developer and/or owner files a corporate surety bond with the city secretary in a sum equal to the cost of such improvements for the designated area, guaranteeing the installation thereof within the time stated in the bond, which time shall be fixed by the city council of the City of Rockwall.

We further acknowledge that the dedications and/or exaction's made herein are proportional to the impact of the Subdivision upon the public services required in order that the development will comport with the present and future growth needs of the City; I (we), my (our) successors and assigns hereby waive any claim, damage, or cause of action that I (we) may have as a result of the dedication of exactions made herein.

HARBOR HILLS POINTE INVESTORS, LLC.

_____
Representative:

STATE OF TEXAS}
COUNTY OF ROCKWALL}

Before me, the undersigned authority, on this day personally appeared _____, known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that he executed the same for the purpose and consideration therein stated.

Given upon my hand and seal of office this _____day of _____, 2020.

_____
Notary Public in and for the State of Texas

_____
My Commission Expires:

SURVEYOR'S CERTIFICATE

NOW, THEREFORE KNOW ALL MEN BY THESE PRESENTS:

THAT I, Brian J. Maddox, do hereby certify that I prepared this plat from an actual and accurate survey of the land, and that the corner monuments shown thereon were properly placed under my personal supervision.

GIVEN UNDER MY HAND AND SEAL OF OFFICE THIS THE ____ DAY OF _____, 2020

_____
BRIAN J. MADDOX, R.P.L.S. NO. 5430

RECOMMENDED FOR FINAL APPROVAL

_____ _____ _____
Planning and Zoning Commission Date

APPROVED
I hereby certify that the above and foregoing plat of HARBOR HILLS ADDITION, an addition to the City of Rockwall, Texas, was approved by the City Council of the City of Rockwall on the _____ day of _____, 2020.

This approval shall be invalid unless the approved plat for such addition is recorded in the office of the County Clerk of Rockwall County, Texas, within one hundred eighty (180) days from said date of final approval.

WITNESS OUR HANDS, this ____ day of _____, 2020.

_____ _____ _____
Mayor, City of Rockwall City Secretary City Engineer

FINAL PLAT OF
LOTS 1, 2 & 3 BLOCK A, HARBOR HILLS ADDITION

328,373 SQUARE FEET OR 7.538 ACRES

SITUATED IN THE EDWARD TEAL SURVEY, ABSTRACT 207
IN THE CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

BEING ALL OF A THREE TRACTS OF LAND DESCRIBED BY DEED TO HARBOR LAKE POINTE INVESTORS, LLC. AS RECORDED IN INSTRUMENT NUMBER 20170000002427, INSTRUMENT NUMBER 20170000003548, AND INSTRUMENT NUMBER 20150000011879 OF THE OFFICIAL PUBLIC RECORDS OF ROCKWALL COUNTY, TEXAS AND A PORTION OF TWO TRACTS OF LAND TO THE CITY OF ROCKWALL AS RECORDED IN VOLUME 4067, PAGE 188 AND VOLUME 5830, PAGE 133 OF THE DEED RECORDS OF ROCKWALL COUNTY, TEXAS

OWNER
CITY OF ROCKWALL
385 S. Goliad Street
Rockwall, TX 75087

OWNER
HARBOR LAKE POINTE INVESTORS, LLC.
2701 Sunset Ridge Drive Suite 607
Rockwall, TX 75032

CASE NO. P2020-036

PROJECT INFORMATION
Project No.: HHI 18363
Date: October 20, 2020
Drawn By: JM
Scale: 1"=60'

SHEET 2 of 2

SURVEYOR
TEAGUE NALL AND PERKINS, INC.
825 Watters Creek Boulevard, Suite M300
Allen, Texas 75013
214.461.9867 ph 214.461.9864 fx
T.B.P.L.S. Registration No. 10194381
www.tnpinc.com

Drawing: L:\Projects\HHI 18363 Harbor Hill Multi Family\Acad\Deliverables\Final_Plat\2020 10 20 HHI 18363 Harbor Hills Final Plat.dwg at Oct 27, 2020-8:30am by jmaddox

GENERAL ITEMS

1. All construction shall conform to the requirements set forth in the City of Rockwall's Engineering Department's "Standards of Design and Construction" and the "Standard Specifications for Public Works Construction" by the North Texas Central Council of Governments, 5th edition amended by the City of Rockwall. The CONTRACTOR shall reference the latest City of Rockwall standard details provided in the Rockwall Engineering Departments "Standards of Design and Construction" manual for details not provided in these plans. The CONTRACTOR shall possess one set of the NCTCOG Standard Specifications and Details and the City of Rockwall's "Standards of Design and Construction" manual on the project site at all times
2. Where any conflicting notes, details or specifications occur in the plans the City of Rockwall General Construction Notes, Standards, Details and Specifications shall govern unless detail or specification is more strict.
3. The City of Rockwall Engineering Departments "Standards of Design and Construction" can be found online at: http://www.rockwall.com/engr.asp
4. All communication between the City and the CONTRACTOR shall be through the Engineering Construction Inspector and City Engineer or designated representative only. It is the responsibility of the CONTRACTOR to contact the appropriate department for inspections that do not fall under this approved engineering plan set.
5. Prior to construction, CONTRACTOR shall have in their possession all necessary permits, plans, licenses, etc.
6. The CONTRACTOR shall have at least one original stamped and signed set of approved engineering plans and specifications on-site and in their possession at all times. A stop work order will be issued if items are not on-site. Copies of the approved plans will not be substituted for the required original "approved plans to be on-site".
7. All material submittals, concrete batch designs and shop drawings required for City review and approval shall be submitted by the CONTRACTOR to the City sufficiently in advance of scheduled construction to allow no less than 10 business days for review and response by the City.
8. All site dimensions are referenced to the face of curb or edge of pavement unless otherwise noted.
9. The City requires ten (10%) percent-two (2) year maintenance bond for paving, paving improvements, water systems, wastewater systems, storm sewer systems including detention systems, and associated fixtures and structures which are located within the right-of-ways or defined easements. The two (2) year maintenance bond is to state "from date of City acceptance" as the starting time.
10. A review of the site shall be conducted at twenty (20) months into the two (2) year maintenance period. The design engineer or their designated representative and the CONTRACTOR shall be present to walk the site with the City of Rockwall Engineering Inspection personnel.

EROSION CONTROL & VEGETATION

1. The CONTRACTOR or developer shall be responsible, as the entity exercising operational control, for all permitting as required by the Environmental Protection Agency (EPA) and the Texas Commission on Environmental Quality (TCEQ). This includes, but is not limited to, preparation of the Storm Water Pollution Prevention Plan (SWPPP), the Construction Site Notice (CSN), the Notice of Intent (NOI), the Notice of Termination (NOT) and any Notice of Change (NOC) and is required to pay all associated fees
2. Erosion control devices as shown on the erosion control plan for the project shall be installed prior to the start of land disturbing activities.
3. All erosion control devices are to be installed in accordance with the approved plans, specifications and Storm Water Pollution Prevention Plan (SWPPP) for the project. Erosion control devices shall be placed and in working order prior to start of construction. Changes are to be reviewed and approved by the design engineer and the City of Rockwall prior to implementation.
4. If the Erosion Control Plans and Storm Water Pollution Prevention Plan (SWPPP) as approved cannot appropriately control erosion and off-site sedimentation from the project, the erosion control plan and/or the SWPPP is required to be revised and any changes reported to the Texas Commission on Environmental Quality (TCEQ), when applicable.
5. All erosion control devices shall be inspected weekly by the CONTRACTOR and after all major rain events, or more frequently as dictated in the project Storm Water Pollution Prevention Plan (SWPPP). CONTRACTOR shall provide copies of inspection's reports to the engineering inspection after each inspection.
6. The CONTRACTOR shall not dispose of waste and any materials into streams, waterways or floodplains. The CONTRACTOR shall secure all excavation at the end of each day and dispose of all excess materials.
7. CONTRACTOR shall take all available precautions to control dust. CONTRACTOR shall control dust by sprinkling water or other means as approved by the City Engineer.
8. CONTRACTOR shall establish grass and maintain the seeded area, including watering, until a "Permanent Stand of Grass" is obtained at which time the project will be accepted by the City. A "Stand of Grass" (not winter rye or weeds) shall consist of 75% to 80% coverage of all disturbed areas and a minimum of one-inch (1") in height as determined by the City. No bare spots will be allowed. Re-seeding will be required in all washed areas and areas that don't grow.
9. All City right-of-ways shall be sodded if disturbed. No artificial grass is allowed in any City right-of-way and/or easements.
10. All adjacent streets/alleys shall be kept clean at all times
11. CONTRACTOR shall keep construction site clean at all times, immediately contain all debris and trash, all debris and trash shall be removed at the end of each work day, and all vegetation on the construction site 10-inches or taller in height must be cut immediately.
12. Suspension of all construction activities for the project will be enforced by the City if any erosion control requirements are not meet. Work may commence after deficiency has been rectified.
13. During construction of the project, all soil stockpiles and borrow areas shall be stabilized or protected with sediment trapping measures. The CONTRACTOR is responsible for the temporary protection and permanent stabilization of all soil stockpiles on-site as well as borrow areas and soil intentionally transported from the project site.
14. Where construction vehicles access routes intersect paved or public roads/alleys, construction entrances shall be installed to minimize the transport of sediment by vehicular tracking onto paved surfaces. Where sediment is transferred onto paved or public surfaces, the surface shall be immediately cleaned. Sediment shall be removed from the surface by shoveling or sweeping and transported to a sediment disposal area. Pavement washing shall be allowed only after sediment is removed in this manner.
15. All drainage inlets shall be protected from siltation, ineffective or unmaintained protection devices shall be immediately replaced and the inlet and storm system cleaned. Flushing is not an acceptable method of cleaning.
16. During all dewatering operations, water shall be pumped into an approved filtering device prior to discharge into a receiving outlet.

TRAFFIC CONTROL

1. All new Detouring or Traffic Control Plans are required to be submitted to the City for review and approval a minimum of 21 calendar days prior to planned day of implementation.
2. When the normal function of the roadway is suspended through closure of any portion of the right-of-way, temporary construction work zone traffic control devices shall be installed to effectively guide the motoring public through the area. Consideration for road user safety, worker safety, and the efficiency of road user flow is an integral element of every traffic control zone.
3. All traffic control plans shall be prepared and submitted to the Engineering Department in accordance with the standards identified in Part VI of the most recent edition of the TMUTCD. Lane closures will not occur on roadways without an approval from the Rockwall Engineering Department and an approved traffic control plan. Traffic control plans shall be required on all roadways as determined by the City Engineer or the designated representative.
4. All traffic control plans must be prepared, signed, and sealed by an individual that is licensed as a professional engineer in the State of Texas. All traffic control plans and copies of work zone certification must be submitted for review and approval a minimum of three (3) weeks prior to the anticipated temporary traffic control.
5. The CONTRACTOR executing the traffic control plan shall notify all affected property owners two (2) weeks prior to any the closures in writing and verbally.
6. Any deviation from an approved traffic control plan must be reviewed by the City Engineer or the designated representative. If an approved traffic control plan is not adhered to, the CONTRACTOR will first receive a verbal warning and be required to correct the problem immediately. If the deviation is not corrected, all construction work will be suspended, the lane closure will be removed, and the roadway opened to traffic.
7. All temporary traffic control devices shall be removed as soon as practical when they are no longer needed. When work is suspended for short periods of time at the end of the workday, all temporary traffic control devices that are no longer appropriate shall be removed or covered. The first violation of this provision will result in a verbal warning to the construction foreman. Subsequent violations will result in suspension of all work at the job site for a minimum of 48 hours. All contractors working on City funded projects will be charged one working day for each 24 hour closure.
8. Lane closures on any major or minor arterial will not be permitted between the hours of 6:00 am to 9:00 am and 3:30 pm to 7:00 pm. Where lane closures are needed in a school area, they will not be permitted during peak hours of 7:00 am – 9:00 am and 3:00 pm to 5:00 pm. Closures may be adjusted according to the actual start-finish times of the actual school with approval by the City Engineer. The first violation of this provision will result in a verbal warning to the construction foreman. Subsequent violations will result in suspension of all work at the job site for a minimum of 48 hours. All contractors working on City funded projects will be charged one working day for each 24 hour closure of a roadway whether they are working or not.
9. No traffic signs shall be taken down without permission from the City.
10. No street/roadway will be allowed to be fully closed.

UTILITY LINE LOCATES

1. It is the CONTRACTOR's responsibility to notify utility companies to arrange for utility locates at least 48 hours prior to beginning construction. The completeness and accuracy of the utility data shown on the plans is not guaranteed by the design engineer or the City. The CONTRACTOR is responsible for verifying the depth and location of existing underground utilities proper to excavating, trenching, or drilling and shall be required to take any precautionary measures to protect all lines shown and .or any other underground utilities not on record or not shown on the plans.
2. The CONTRACTOR shall be responsible for damages to utilities
3. CONTRACTOR shall adjust all City of Rockwall utilities to the final grades.
4. All utilities shall be placed underground.
5. CONTRACTOR shall be responsible for the protection of all existing main lines and service lines crossed or exposed by construction operations. Where existing mains or service lines are cut, broken or damaged, the CONTRACTOR shall immediately make repairs to or replace the entire service line with same type of original construction or better. The City of Rockwall can and will intervene to restore service if deemed necessary and charge the CONTRACTOR for labor, equipment, material and loss of water if repairs aren't made in a timely manner by the CONTRACTOR.
6. The City of Rockwall (City utilities) is not part of the Dig Tess or Texas one Call – 811 – line locate system. All City of Rockwall utility line locates are to be scheduled with the City of Rockwall Service Center. 972-771-7730. A 48-hour advance notice is required for all non-emergency line locates.
7. Underground utility lines shall be installed in accordance with the following standards in addition to other applicable criteria:
   a. No more than 500 linear feet of trench may be opened at one time.
   b. Material used for backfilling trenches shall be properly compacted to 95% standard density in order to minimize erosion, settlement, and promote stabilization that the geotechnical engineer recommends.
   c. Applicable safety regulations shall be complied with.
11. This plan details pipes up to 5 feet from the building. Refer to the building plans for building connections. CONTRACTOR shall supply and install pipe adapters as necessary.
12. All underground lines shall be installed, inspected, and approved prior to backfilling.
13. All concrete encasement shall have a minimum of 28 days compressive strength at 3,000 psi (min. 5.5 sack mix).

WATER LINE NOTES

1. The CONTRACTOR shall maintain existing water service at all times during construction.
2. Proposed water lines shall be AWWA C900-16 PVC Pipe (blue in color) for all sizes, DR 14 (PC 305) for pipeline sizes 12-inch and smaller, and DR 18 (PC 235) for 14-inch and larger water pipelines unless otherwise shown on water plan and profiles sheets. Proposed water lines shall be constructed with minimum cover of 4 feet for 6-inch through 8-inch, 5 feet for 12-inch through 18-inch and 6 feet for 20-inch and larger.
3. Proposed water line embedment shall be NCTCOG Class 'B-3' as amended by the City of Rockwall's engineering standards of design and construction manual.
4. CONTRACTOR shall coordinate the shutting down of all water lines with the City of Rockwall Engineering Inspector and Water Department. The City shall operate all water valves. Allow 5 business days from the date of notice to allow City personnel time to schedule a shut down. Two additional days are required for the CONTRACTOR to notify residents in writing of the shut down after the impacted area has been identified. Water shut downs impacting businesses during their normal operation hours is not allowed. CONTRACTOR is required to coordinate with the Rockwall Fire Department regarding any fire watch requirements as well as any costs incurred when the loss of fire protection to a structure occurs.
5. CONTRACTOR shall furnish and install gaskets on water lines between all dissimilar metals and at valves (both existing and proposed).
6. All fire hydrants and valves removed and salvaged shall be returned to the City of Rockwall Municipal Service Center.
7. Blue EMS pads shall be installed at every change in direction, valve, curb stop and service tap on the proposed water line and every 250'.
8. All water valve hardware and valve extensions, bolts, nuts and washers shall be 316 stainless steel.
9. All fire hydrants bolts, nuts and washers that are buried shall be 316 stainless steel.
10. Abandoned water lines to remain in place shall be cut and plugged and all void spaces within the abandoned line shall be filled with grout, flowable fill or an expandable permanent foam product. Valves to be abandoned in place shall have any extensions and the valve box removed and shall be capped in concrete.
11. All fire hydrants will have a minimum of 5 feet of clearance around the appurtenance including but not limited to parking spaces and landscaping.
12. All joints are to be megalug joints with thrust blocking.
13. Water and sewer mains shall be kept 10 feet apart (parallel) or when crossing 2 feet vertical clearance.
14. CONTRACTOR shall maintain a minimum of 4 feet of cover on all water lines.
15. All domestic and irrigation services are required to have a testable backflow device with a double check valve installed per the City of Rockwall regulations at the property line and shown on plans.

WASTEWATER LINE NOTES

1. The CONTRACTOR shall maintain existing wastewater service at all times during construction.
2. Wastewater line for 4-inch through 15-inch shall be Green PVC – SDR 35 (ASTM D3034) [less 10 ft cover] and SDR 26 (ASTM D3034) [10 ft or more cover]. For 18-inch and lager wastewater line shall be Green PVC – PS 46 (ASTM F679) [less 10 ft cover] and PS 115 (ASTM F679) [10 ft or more cover]. No services will be allowed on a sanitary sewer line deeper than 10 feet.
3. Proposed wastewater line embedment shall be NCTCOG Class 'H' as amended by the City of Rockwall's public works standard design and construction manual.
4. Green EMS pads shall be installed at every 250', manhole, clean out and service lateral on proposed wastewater lines.
5. CONTRACTOR shall CCTV all existing wastewater lines that are to be abandoned to ensure that all laterals are accounted for and transferred to proposed wastewater lines prior to abandonment.
6. All abandoned wastewater and force main lines shall be cut and plugged and all void spaces within the abandoned line shall be filled with grout, flowable fill or an expandable permanent foam product.
7. Existing manholes and cleanouts not specifically called to be relocated shall be adjusted to match final grades.
8. All wastewater pipes and public services shall be inspected by photographic means (television and DVD) prior to final acceptance and after franchise utilities are installed. The CONTRACTOR shall furnish a DVD to the Engineering Construction Inspector for review. Pipes shall be cleaned prior to TV inspection of the pipes. Any sags, open joints, cracked pipes, etc. shall be repaired or removed by the CONTRACTOR at the CONTRACTOR's expense. A television survey will be performed as part of the final testing in the twentieth (20^{th}) month of the maintenance period.
9. All manholes (public or private) shall be fitted with inflow prevention. The inflow prevention shall conform to the measures called out in standard detail R-5031.
10. All new or existing manholes being modified shall have corrosion protection being Raven Liner 405 epoxy coating, ConShield, or approved equal.. Consheild must have terracotta color dye mixed in the precast and cast-in-place concrete. Where connections to existing manholes are made the CONTRACTOR shall rehab manhole as necessary and install a 125 mil thick coating of Raven Liner 405 or approved equal.
11. All new or existing manholes that are to be placed in pavement shall be fitted with a sealed (gasketed) rim and cover to prevent inflow.
12. If an existing wastewater main or trunk line is called out to be replaced in place a wastewater bypassing pump plan shall be required and submitted to the Engineering Construction Inspector and City Engineer for approval prior to implementation. Bypass pump shall be fitted with an auto dialer and conform to the City's Noise Ordinance. Plan shall be to the City sufficiently in advance of scheduled construction to allow no less than 10 business days for review and response by the City.
13. CONTRACTOR shall maintain a minimum of 4 feet of cover on all wastewater lines.

GENERAL CONSTRUCTION NOTES
Sheet 1 of 2
October 2020

CITY OF ROCKWALL
ENGINEERING DEPARTMENT

385 S. Goliad
Rockwall, Texas 75087

P (972) 771-7746
F (972) 771-7748

DEMOLITION, REMOVAL, DISPOSAL AND EXCAVATION NOTES

1. All pavements to be removed and replaced shall be saw cut to full depth along neat squared lines shown in the plans.
2. Proposed concrete pavement shall be constructed with longitudinal butt construction joints at all connections to existing concrete pavement.
3. All public concrete pavement to be removed and replaced shall be full panel replacement, 1-inch thicker and on top of 6-inch thick compacted flexbase.
4. No excess excavated material shall be deposited in low areas or along natural drainage ways without written permission from the affected property owner and the City of Rockwall. No excess excavation shall be deposited in the City Limits without a permit from the City of Rockwall. If the CONTRACTOR places excess materials in these areas without written permission, the CONTRACTOR will be responsible for all damages resulting from such fill and shall remove the material at their own cost.

PAVING AND GRADING

1. All detention systems are to be installed and verified for design compliance along with the associated storm sewer and outflow structures, prior to the start of any paving operations (including building foundations). Erosion protection shall be placed at the pond outflow structures, silt fence along the perimeter of the pond along with any of the associated erosion BMPs noted on the erosion control plan, and the sides and bottom of the detention system shall have either sod or anchored seeded curlex installed prior to any concrete placement.
2. All paving roadway, driveways, fire lanes, drive-isles, parking, dumpster pads, etc. sections shall have a minimum thickness, strength, reinforcement, joint type, joint spacing and subgrade treatment shall at a minimum conform to the City standards of Design and Construction and table below.

Street/Pavement Type	Minimum Thickness (inches)	Streng th 28-Day (psi)	Minimum Cement (sacks / CY)		Steel Reinforcement	
			Machine placed	Hand Placed	Bar #	Spacing (O.C.E.W.)
Arterial	10”	3,600	6.0	6.5	#4 bars	18”
Collector	8”	3,600	6.0	6.5	#4 bars	18”
Residential	6”	3,600	6.0	6.5	#3 bars	24”
Alley	7”-5”-7”	3,600	6.0	6.5	#3 bars	24”
Fire Lane	6”	3,600	6.0	6.5	#3 bars	24”
Driveways	6”	3,600	6.0	6.5	#3 bars	24”
Barrier Free Ramps	6”	3,600	N/A	6.5	#3 bars	24”
Sidewalks	4”	3,000	N/A	5.5	#3 bars	24”
Parking Lot/Drive Aisles	5”	3,000	5.0	5.5	#3 bars	24”
Dumpster Pads	7”	3,600	6.0	6.5	#3 bars	24”

3. Reinforcing steel shall be tied (100%). Reinforcing steel shall be set on plastic chairs. Bar laps shall be minimum 30 diameters. Sawed transverse dummy joints shall be spaced every 15 feet or 1.25 time longitudinal butt joint spacing whichever is less. Sawing shall occur within 5 to 12 hours after the pour, including sealing. Otherwise, the section shall be removed and longitudinal butt joint constructed.
4. No sand shall be allowed under any paving.
5. All concrete mix design shall be submitted to the City for review and approval prior to placement.
6. Fly ash may be used in concrete pavement locations provided that the maximum cement reduction does not exceed 20% by weight per C.Y. of concrete. The fly ash replacement shall be 1.25 lbs. per 1.0 lb. cement reduction.
7. All curb and gutter shall be integral (monolithic) with the pavement.
8. All fill shall be compacted by sheep's foot roller to a minimum 95% standard proctor. Maximum loose lift for compaction shall be 8 inches. All lifts shall be tested for density by an independent laboratory. All laboratory compaction reports shall be submitted to the City Engineering Construction Inspector once results are received. All reports will be required prior to final acceptance.
9. All concrete compression tests and soil compaction/density tests are required to be submitted to the City’s Engineering Inspector immediately upon results.
10. All proposed sidewalks shall include barrier free ramps at intersecting streets, alleys, etc. Barrier free ramps (truncated dome plate in Colonial or brick red color) shall meet current City and ADA requirements and be approved by the Texas Department of Licensing and Regulation (TDLR).
11. All public sidewalks shall be doweled into pavement where it abuts curbs and driveways. Expansion joint material shall be used at these locations.
12. All connection of proposed concrete pavement to existing concrete pavement shall include a longitudinal butt joint as the load transfer device. All longitudinal butt joints shall be clean, straight and smooth (not jagged in appearance)
13. Cracks formed in concrete pavement shall be repaired or removed by the CONTRACTOR at the City's discretion. CONTRACTOR shall replace existing concrete curbs, sidewalk, paving, a gutters as indicated on the plans and as necessary to connect to the existing infrastructure, including any damage caused by the CONTRACTOR.
14. All residential lots will require individual grading plans submitted during the building permit process that correspond with the engineered grading and drainage area plans.
15. Approval of this plan is not an authorization to grade adjacent properties when the plans or field conditions warrant off-site grading. Written permission must be obtained and signed from the affected property owner(s) and temporary construction easements may be required. The written permission shall be provided to the City as verification of approval by the adjacent property owner(s). Violation of this requirement will result in suspension of all work at the job site until issue has been rectified.
16. All cut or fill slopes of non-paved areas shall be a maximum of 4:1 and minimum of 1%.
17. CONTRACTOR agrees to repair any damage to property and the public right-of-way in accordance with the City Standards of Design and Construction.
18. CONTRACTOR shall protect all monuments, iron pins/rods, and property corners during construction.
19. CONTRACTOR shall ensure positive drainage so that runoff will drain by gravity flow to new or existing drainage inlets or sheet flow per these approved plans.

DRAINAGE / STORM SEWER NOTES

1. The CONTRACTOR shall maintain drainage at all times during construction. Ponding of water in streets, drives, trenches, etc. will not be allowed. Existing drainage ways shall not be blocked or removed unless explicitly stated in the plans or written approval is given by the City.
2. All structural concrete shall be 4200 psi compressive strength at 28 days minimum 7.0 sack mix, air entrained, unless noted otherwise. Fly ash shall not be allowed in any structural concrete.
3. Proposed storm sewer embedment shall be NCTCOG Class 'B' as amended by the City of Rockwall's Engineering Department Standards of Design and Construction Manual.
4. All public storm pipe shall be a minimum of 18-inch reinforced concrete pipe (RCP), Class III, unless otherwise noted.
5. All storm pipe entering structures shall be grouted to assure connection at the structure is watertight.
6. All storm structures shall have a smooth uniform poured mortar invert from invert in to invert out.
7. All storm sewer manholes in paved areas shall be flush with the paving grade, and shall have traffic bearing ring and covers.
8. All storm sewer pipes and laterals shall be inspected by photographic means (television and DVD) prior to final acceptance and after franchise utilities are installed. The CONTRACTOR shall furnish a DVD to the Engineering Construction Inspector for review. Pipes shall be cleaned prior to TV inspection of the pipes. Any sags, open joints, cracked pipes, etc. shall be repaired or removed by the CONTRACTOR at the CONTRACTOR’s expense. A television survey will be performed as part of the final testing in the twentieth (20^{th}) month of the maintenance period.

RETAINING WALLS

1. All retaining walls, regardless of height, will be reviewed and approved by the City Engineering Department
2. All retaining walls (including foundation stem walls), regardless of height, will be constructed of rock/stone/brick or rock/stone/brick faced. No smooth concrete walls are allowed. Wall materials shall be the same for all walls on the project.
3. All portions, including footings, tie-backs, and drainage backfill, of the wall shall be on-site and not encroach into any public easements or right-of-way. The entire wall shall be in one lot and shall not be installed along a lot line.
4. All walls 3 feet and taller will be designed and signed/sealed by a registered professional engineer in the State of Texas. The wall design engineer is required to inspect the wall construction and supply a signed/sealed letter of wall construction compliance to the City of Rockwall along with wall as-builts prior to City Engineering acceptance.
5. No walls are allowed in detention easements. A variance to allow retaining walls in a detention easement will require approval by the Planning and Zoning Commission with appeals being heard by the City Council.

FINAL ACCEPTANCE AND RECORD DRWINGS/AS-BUILTS

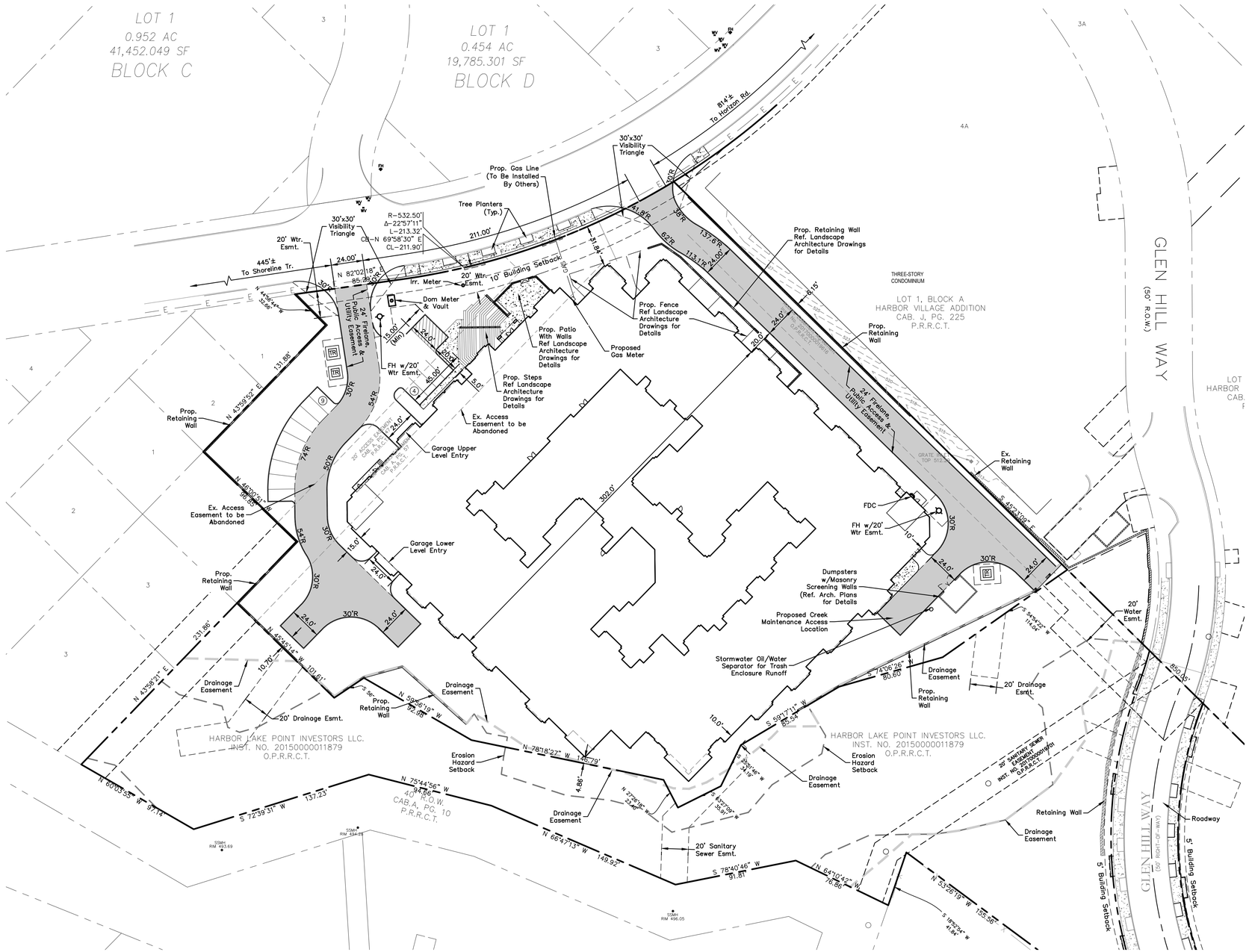
1. Final Acceptance shall occur when all the items on the Checklist for Final Acceptance have been completed and signed-off by the City. An example of the checklist for final acceptance has been included in the Appendix of the Standards of Design and Construction. Items on the checklist for final acceptance will vary per project and additional items not shown on the check list may be required.
2. After improvements have been constructed, the developer shall be responsible for providing to the City “As Built” or “Record Drawings”. The Design Engineer shall furnish all digital files of the project formatted in Auto Cad 14, or 2000 format or newer and Adobe Acrobat (.pdf) format with a CD-ROM disk or flash drive. The disk or drive shall include a full set of plans along with any landscaping, wall plans, and details sheets.
3. Submit 1-set of printed drawings of the “Record Drawings” containing copies of all sheets to the Engineering Construction Inspector for the project. The printed sheets will be reviewed by the inspector PRIOR to producing the “Record Drawing” digital files on disk or flash drive. This will allow any revisions to be addressed prior to producing the digital files.
4. Record Drawing Disk drawings shall have the Design Engineers seal, signature and must be stamped and dated as “Record Drawings” or “As Built Drawings” on all sheets.
5. The City of Rockwall will not accept any Record Drawing disk drawings which include a disclaimer. A disclaimer shall not directly or indirectly state or indicate that the design engineer or the design engineer’s surveyor/surveyors did not verify grades after construction, or that the Record Drawings were based solely on information provided by the construction contractor/contractors. Any Record Drawings which include like or similar disclaimer verbiage will not be accepted by the City of Rockwall.
6. Example of Acceptable Disclaimer: “To the best of our knowledge ABC Engineering, Inc., hereby states that this plan is As-Built. This information provided is based on surveying at the site and information provided by the contractor.”

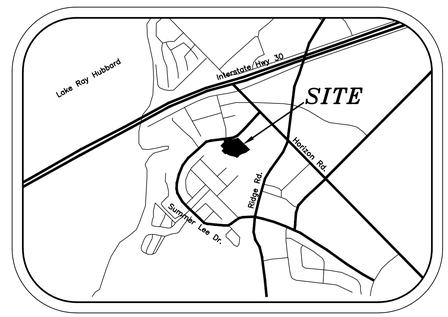
GENERAL CONSTRUCTION NOTES
Sheet 2 of 2
October 2020

CITY OF ROCKWALL
ENGINEERING DEPARTMENT

385 S. Goliad
Rockwall, Texas 75087

P (972) 771-7746
F (972) 771-7748





Vicinity Map
NTS

LEGEND

- Firelane, Public Access & Utility Esmt.
- Proposed Sidewalk
- Ex. Concrete
- Proposed Retaining Wall
- Proposed Wheel Stop Typical
- Existing Fire Hydrant
- Proposed Fire Hydrant
- BFR — Barrier Free Ramp

0 40 100

GRAPHIC SCALE
1"=40'

SYNOPSIS

Address:	2400 Summer Lee Drive Rockwall, Texas 75032
Zoning:	PD-32
Proposed Use:	Multifamily
Lot Area:	4.032 Acres (175,656 sf)
Building Areas:	

Garage Lower Level	96,539 sf
Garage Upper Level	96,627 sf
Building Level 1	77,352 sf
Building Level 2	77,419 sf
Building Level 3	77,459 sf
Building Level 4	77,459 sf
Total Bldg Area:	502,855 sf

Lot Coverage:	44.04% (Level 1 Area 77,352 sf)
Floor Area Ratio:	2.86 : 1

ENGINEER:
Cross Engineering Consultants, Inc.
131 S. Tennessee St.
McKinney, Texas 75069
Phone (972) 562-4409
Fax (972) 562-4471
Contact: Jon David Cross, P.E.

ARCHITECT:
DBA Architects
111 S. Kentucky Street, Suite 210
McKinney, Texas 75069
Phone (888) 900-4905
Contact: Bryan Moore

SURVEYOR:
Teague Nall and Perkins, Inc.
825 Watters Creek Blvd., Suite M300
Allen, Texas 75013
Phone (214) 461-9867
Fax (214) 461-9864
Contact: Brian Maddox, RPLS

NOTE: THIS IS NOT A CONSTRUCTION DOCUMENT.
THIS DOCUMENT IS FOR CONCEPTUAL PLANNING PURPOSES ONLY.

Issued for Construction: 04-19-2021

Issue Dates:	Revisions:	Date:
4 09/17/2020	1	05/17/2021
5 11/30/2020	2	
6 12/23/2020	3	
7 01/22/2021	4	
8 01/29/2021	5	
9 04/19/2021	6	

CROSS ENGINEERING CONSULTANTS
1720 W. Virginia Street, McKinney, Texas 75069
972.562.4409 Texas P.E. Firm No. F-5935

Drawn By:	Checked By:	Scale:
C.E.C.I.	C.E.C.I.	1"=40'

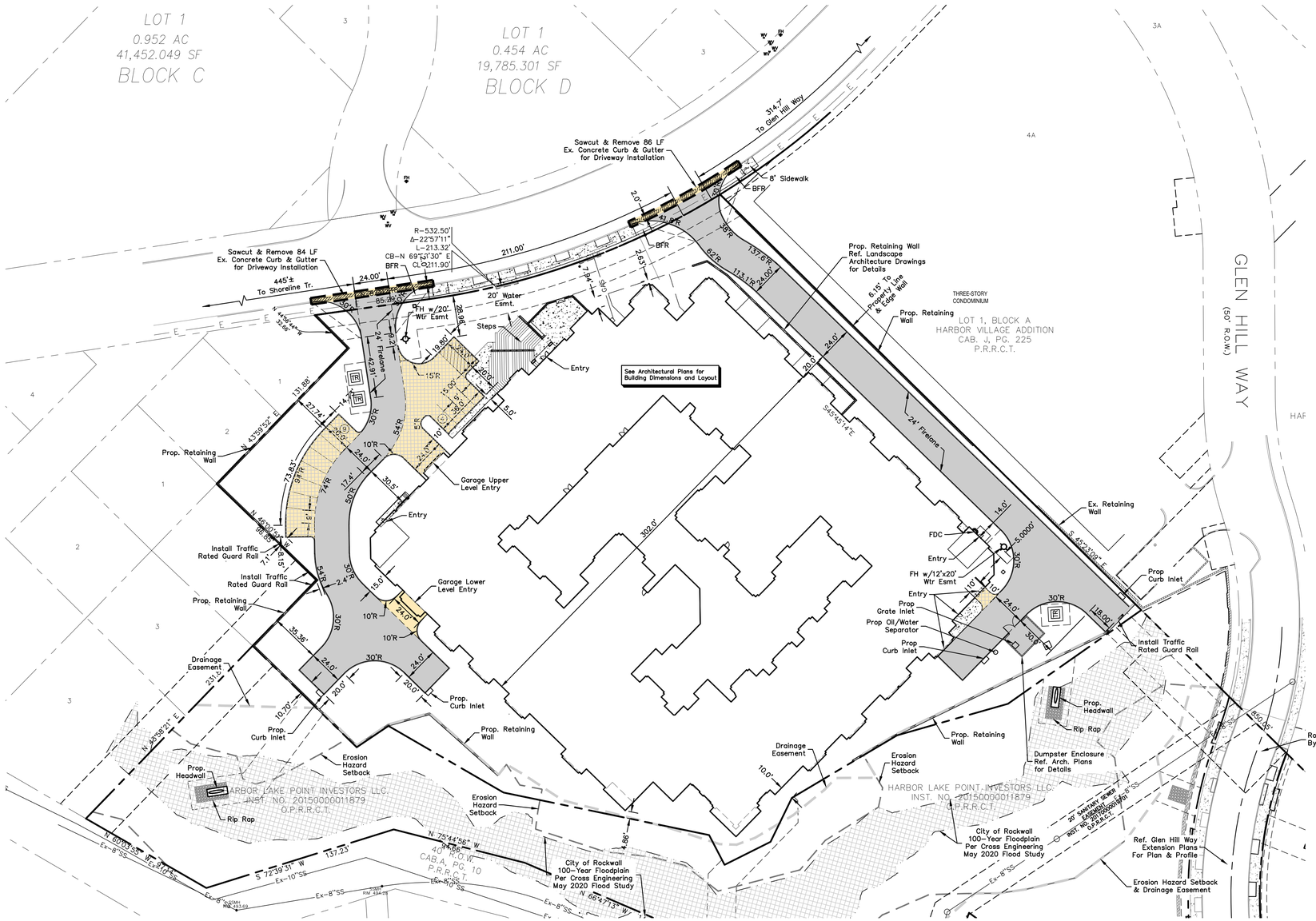
STATE OF TEXAS — C. Zachary Grimes — 122013 — REGISTERED PROFESSIONAL ENGINEER — 5/17/2021

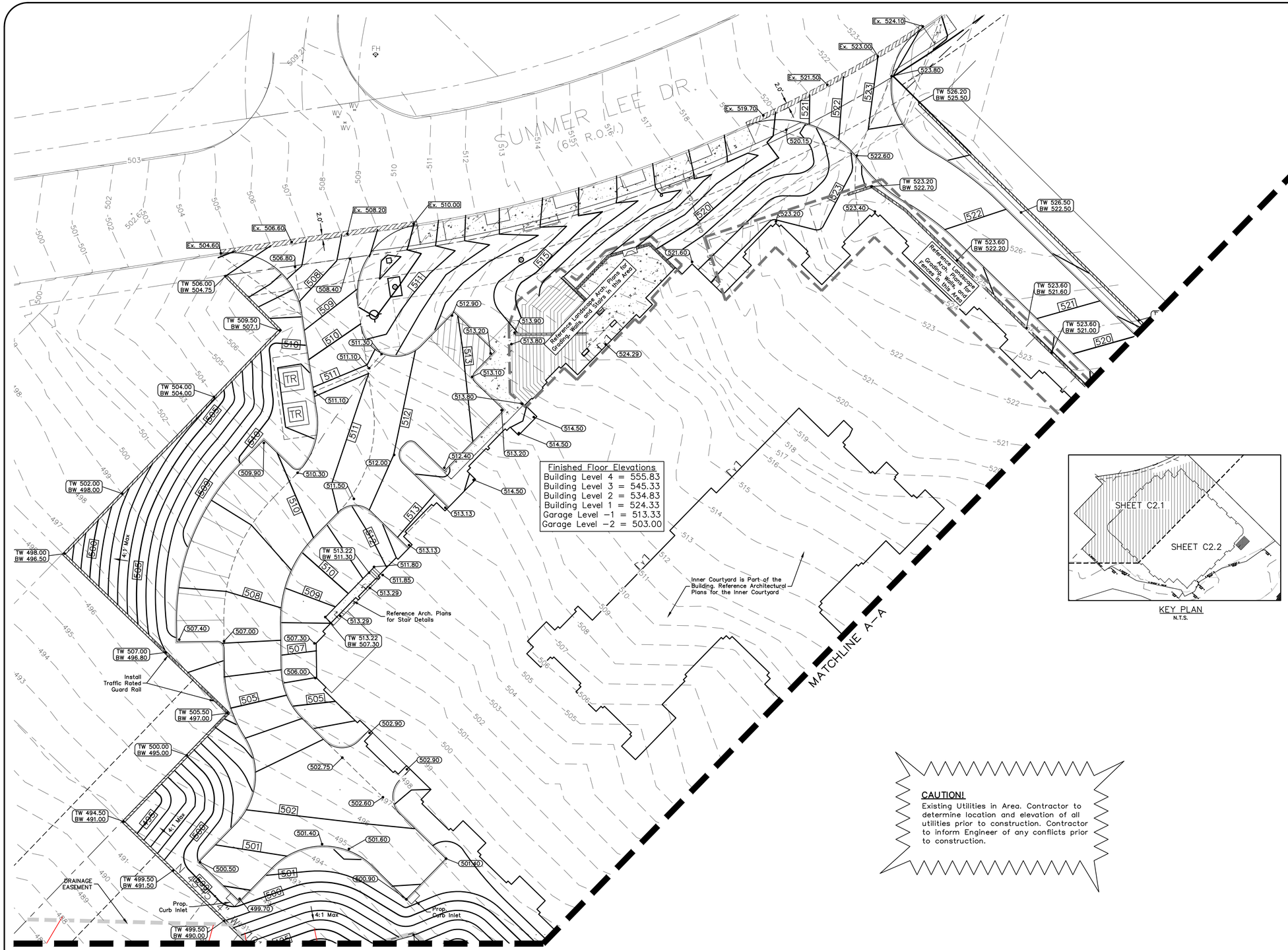
SITE PLAN
HARBOR HILL RESIDENCES
SUMMER LEE DRIVE
ROCKWALL, TEXAS

Sheet No. SP

Project No. 18090

HARBOR HILL RESIDENCES - ROCKWALL


LOT 1
0.952 AC
41,452.049 SF
BLOCK C
LOT 1
0.454 AC
19,785.301 SF
BLOCK D
GLEN HILL WAY
(50' R.O.W.)
LOT 1, BLOCK A
HARBOR VILLAGE ADDITION
CAB. J, PG. 225
P.R.R.C.T.
THREE-STORY CONDOMINIUM
Sawcut & Remove 86 LF Ex. Concrete Curb & Gutter for Driveway Installation
Sawcut & Remove 84 LF Ex. Concrete Curb & Gutter for Driveway Installation
314.7' To Glen Hill Way
445'± To Shoreline Tr.
8' Sidewalk
BFR
R=532.50'
Δ=22°57'11"
L=213.32'
CB=N 69°31'30" E
CL=211.90'
211.00'
20' Water Esmt.
FH w/20' Wtr Esmt
Steps
Entry
See Architectural Plans for Building Dimensions and Layout
Prop. Retaining Wall Ref. Landscape Architecture Drawings for Details
6.15' To Property Line & Edge Wall
Prop. Retaining Wall
24' Firelane
Ex. Retaining Wall
Garage Upper Level Entry
Garage Lower Level Entry
Entry
FDC
FH w/12'x20' Wtr Esmt
Prop Grate Inlet
Prop Oil/Water Separator
Prop Curb Inlet
Prop Curb Inlet
Install Traffic Rated Guard Rail
Prop. Headwall
Rip Rap
Dumpster Enclosure Ref. Arch. Plans for Details
Drainage Easement
Erosion Hazard Setback
Erosion Hazard Setback & Drainage Easement
Roadway Extension By Others
Ref. Glen Hill Way Extension Plans For Plan & Profile
HARBOR LAKE POINT INVESTORS LLC
INST. NO. 20150000011879
O.P.R.R.C.T.
City of Rockwall 100-Year Floodplain Per Cross Engineering May 2020 Flood Study
40' R.O.W.
CAB.A, PG. 10
P.R.R.C.T.
20' SANITARY SEWER EASEMENT INST. NO. 20150000011879 O.P.R.R.C.T.
Prop. Retaining Wall
Drainage Easement
Prop. Curb Inlet
Prop. Headwall
Rip Rap
Erosion Hazard Setback
Prop. Retaining Wall
Install Traffic Rated Guard Rail
Prop. Retaining Wall
Drainage Easement
Prop. Curb Inlet
Prop. Curb Inlet
Prop. Retaining Wall
Erosion Hazard Setback
Prop. Headwall
Rip Rap
HARBOR LAKE POINT INVESTORS LLC
INST. NO. 20150000011879
O.P.R.R.C.T.
City of Rockwall 100-Year Floodplain Per Cross Engineering May 2020 Flood Study
Ex-8" SS
Ex-10" SS
RIM 394.69
INV. 383.69
Ex-8" SS
RIM 394.68
Ex-8" SS
Ex-8" SS
Ex-8" SS



GENERAL/DRAINAGE NOTES

1. All materials and construction shall be in accordance with the City of Rockwall Standard Specifications and Construction Standards, and Standard Specifications for Public Works Construction prepared by North Central Texas Council of Governments (5th Edition).

2. Existing utilities are shown schematically and are for the contractors guidance only. The location and/or elevation of existing utilities as shown on these plans are based on records of the various utility companies, and, where possible, measurements taken in the field. The contractor must call the appropriate utility company at least 72 hours prior to any excavation to request exact field location of utilities.

3. The contractor shall be responsible for protecting all existing improvements in the construction of this project. The contractor is responsible for repairs of damage to any existing improvements during construction. Repairs shall be equal to or better than condition prior to construction.

4. All storm sewer pipe 18" and larger shall be Class III RCP. All storm sewer pipe 15" and smaller shall be PVC drainage pipe or approved equal (and be private).

5. Contractor shall be responsible for maintaining trench safety requirements in accordance with the latest standards of O.S.H.A. or any other agency having jurisdiction for excavation and trenching procedures. Contractor shall provide and implement a trench safety plan complying with O.S.H.A.

6. All RCP pipe joints shall have Ram–Neck joint sealer, in the absence of a City Standard for joint sealant.

7. All roof drain laterals shall be 0.50% min. slope.

8. All fill to be compacted to 95% standard density using a sheep's foot roller.

9. No portion of the wall including footing or tie backs to be offsite or in any easement. All walls to be rock or stone no smooth concrete.

10. Contractor is responsible for adjusting all utilities and drainage to final grade.

11. All retaining walls to be rock or stone compatible design to the building and PD–32 design standards.

12. Maximum ground slope is 4:1 without a retaining wall.

LEGEND

- 513.00 — Proposed Spot Elevation
- Ex. 501.35 — Existing Spot Elevation
- 508 — Proposed Contour
- 515 — Existing Contour
- Valley
- Highpoint
- Property Line
- Proposed Retaining Wall

CAUTION!
Existing Utilities in Area. Contractor to determine location and elevation of all utilities prior to construction. Contractor to inform Engineer of any conflicts prior to construction.

STOP!
CALL BEFORE YOU DIG
Texas 811 Know what's below.
(@ least 72 hours prior to digging)

Issued for Construction: 04-19-2021

Issue Dates:	Revisions:	Date:
4 09/17/2020	1	05/17/2021
5 11/30/2020	2	
6 12/23/2020	3	
7 01/22/2021	4	
8 01/29/2021	5	
9 04/19/2021	6	

CROSS ENGINEERING CONSULTANTS
1720 W. Virginia Street, McKinney, Texas 75069
972.562.4409 Texas P.E. Firm No. F-5935

Drawn By:	Checked By:	Scale:
C.E.C.I.	C.E.C.I.	1"=20'

STATE OF TEXAS · ZACHARY GRIMES · 122013 · REGISTERED PROFESSIONAL ENGINEER · 5/17/2021

GRADING PLAN

HARBOR HILL RESIDENCES

SUMMER LEE DRIVE
ROCKWALL, TEXAS

Sheet No. C2.1

Project No. 18090

HARBOR HILL RESIDENCES - ROCKWALL

GENERAL/DRAINAGE NOTES

1. All materials and construction shall be in accordance with the City of Rockwall Standard Specifications and Construction Standards, and Standard Specifications for Public Works Construction prepared by North Central Texas Council of Governments (5th Edition).

2. Existing utilities are shown schematically and are for the contractors guidance only. The location and/or elevation of existing utilities as shown on these plans are based on records of the various utility companies, and, where possible, measurements taken in the field. The contractor must call the appropriate utility company at least 72 hours prior to any excavation to request exact field location of utilities.

3. The contractor shall be responsible for protecting all existing improvements in the construction of this project. The contractor is responsible for repairs of damage to any existing improvements during construction. Repairs shall be equal to or better than condition prior to construction.

4. All storm sewer pipe 18" and larger shall be Class III RCP. All storm sewer pipe 15" and smaller shall be PVC drainage pipe or approved equal (and be private).

5. Contractor shall be responsible for maintaining trench safety requirements in accordance with the latest standards of O.S.H.A. or any other agency having jurisdiction for excavation and trenching procedures. Contractor shall provide and implement a trench safety plan complying with O.S.H.A.

6. All RCP pipe joints shall have Ram-Neck joint sealer, in the absence of a City Standard for joint sealant.

7. All roof drain laterals shall be 0.50% min. slope.

8. All fill to be compacted to 95% standard density using a sheep's foot roller.

9. No portion of the wall including footing or tie backs to be offsite or in any easement. All walls to be rock or stone no smooth concrete.

10. Contractor is responsible for adjusting all utilities and drainage to final grade.

11. All retaining walls to be rock or stone compatible design to the building and PD-32 design standards.

12. Maximum ground slope is 4:1 without a retaining wall.

0 20 60

GRAPHIC SCALE
1"=20'

LEGEND

- 513.00 — Proposed Spot Elevation
- Ex. 501.35 — Existing Spot Elevation
- 508 — Proposed Contour
- 515 — Existing Contour
- Valley
- Highpoint
- Property Line
- Proposed Retaining Wall

CAUTION!
Existing Utilities in Area. Contractor to determine location and elevation of all utilities prior to construction. Contractor to inform Engineer of any conflicts prior to construction.

SHEET C2.1
SHEET C2.2

KEY PLAN
N.T.S.

MATCHLINE A-A

TW 524.00
BW 521.20

TW 523.60
BW 519.20

TW 521.50
BW 519.30

TW 517.00
BW 517.00

Reference Landscape Arch. Plans for Grading, Walls, and Fences in this Area

S45°45'11"E

Ex.
TW 512.44
BW 512.37

Ex.
TW 510.80
BW 508.93

Ex.
TW 509.48
BW 506.75

Ex.
TW 509.25
BW 506.75

Prop. Curb Inlet

TW 509.00
BW 497.00

Prop. Curb Inlet

TW 507.50
BW 500.00

Ex.
TW 509.53
BW 502.48

Install Traffic Rated Guard Rail

TW 509.00
BW 497.00

Inner Courtyard is Part of the Building. Reference Architectural Plans for the Inner Courtyard

Finished Floor Elevations
Building Level 4 = 555.83
Building Level 3 = 545.33
Building Level 2 = 534.83
Building Level 1 = 524.33
Garage Level -1 = 513.33
Garage Level -2 = 503.00

Access Point For Creek Maintenance

S 74°06'26" W
80.60'

DRAINAGE EASEMENT & EROSION HAZARD SETBACK

TW 511.00
BW 502.00

TW 510.00
BW 501.75

Prop. Headwall

City of Rockwall 100-Year Floodplain Per Cross Engineering May 2020 Flood Study

TW 502.00
BW 501.00

TW 500.00
BW 500.00

EROSION HAZARD SETBACK

DRAINAGE EASEMENT

Reference Arch. Plans for Building Foundation Wall

EROSION HAZARD SETBACK

TW 498.50
BW 491.00

TW 494.00
BW 491.00

DRAINAGE EASEMENT

TW 491.00
BW 489.00

EROSION HAZARD SETBACK

TW 493.00
BW 492.00

Prop. Headwall

City of Rockwall 100-Year Floodplain Per Cross Engineering May 2020 Flood Study

REFERENCE GLEN HILL WAY EXTENSION PLANS FOR WSE CROSS SECTIONS

N 59°56'19" W
92.98'

N 78°18'2" W
499.50'

N 79°
23.26'

S 11°17'11" W
80.54'

20' SANITARY SEWER EASEMENT INST. NO. 20170000019701 O.P.R.R.C.T.

XS: 1850.94ft 100-Yr WSE: 500.46ft

XS: 1808.34ft 100-Yr WSE: 500.46ft

XS: 1443.10ft 100-Yr WSE: 498.61ft

XS: 1320.14ft 100-Yr WSE: 496.76ft

XS: 1698.42ft 100-Yr WSE: 496.71ft

XS: 1687.52ft 100-Yr WSE: 496.63ft

XS: 1651.50ft 100-Yr WSE: 496.15ft

XS: 1619.08ft 100-Yr WSE: 495.60ft

XS: 1579.77ft 100-Yr WSE: 495.

XS: 1529.94ft 100-Yr

XS: 1310.74ft 100-Yr WSE: 492.26ft

XS: 1285.55ft 100-Yr WSE: 491.

XS: 1230.01ft 100-Yr WSE: 489.45ft

XS: 1183.50ft 100-Yr WSE: 488.69ft

XS: 1138.94ft 100-Yr WSE: 487.30ft

XS: 1291.01ft 100-Yr WSE: 489.04ft

STOP!
CALL BEFORE YOU DIG
Texas 811 Know what's below.
(@ least 72 hours prior to digging)

Issued for Construction: 04-19-2021

Issue Dates:	Revisions:	Date:
4 09/17/2020	1	05/17/2021
5 11/30/2020	2	
6 12/23/2020	3	
7 01/22/2021	4	
8 01/29/2021	5	
9 04/19/2021	6	

CROSS ENGINEERING CONSULTANTS
1720 W. Virginia Street
McKinney, Texas 75069
972.562.4409
Texas P.E. Firm No. F-5935

Drawn By:	Checked By:	Scale:
C.E.C.I.	C.E.C.I.	1"=20'

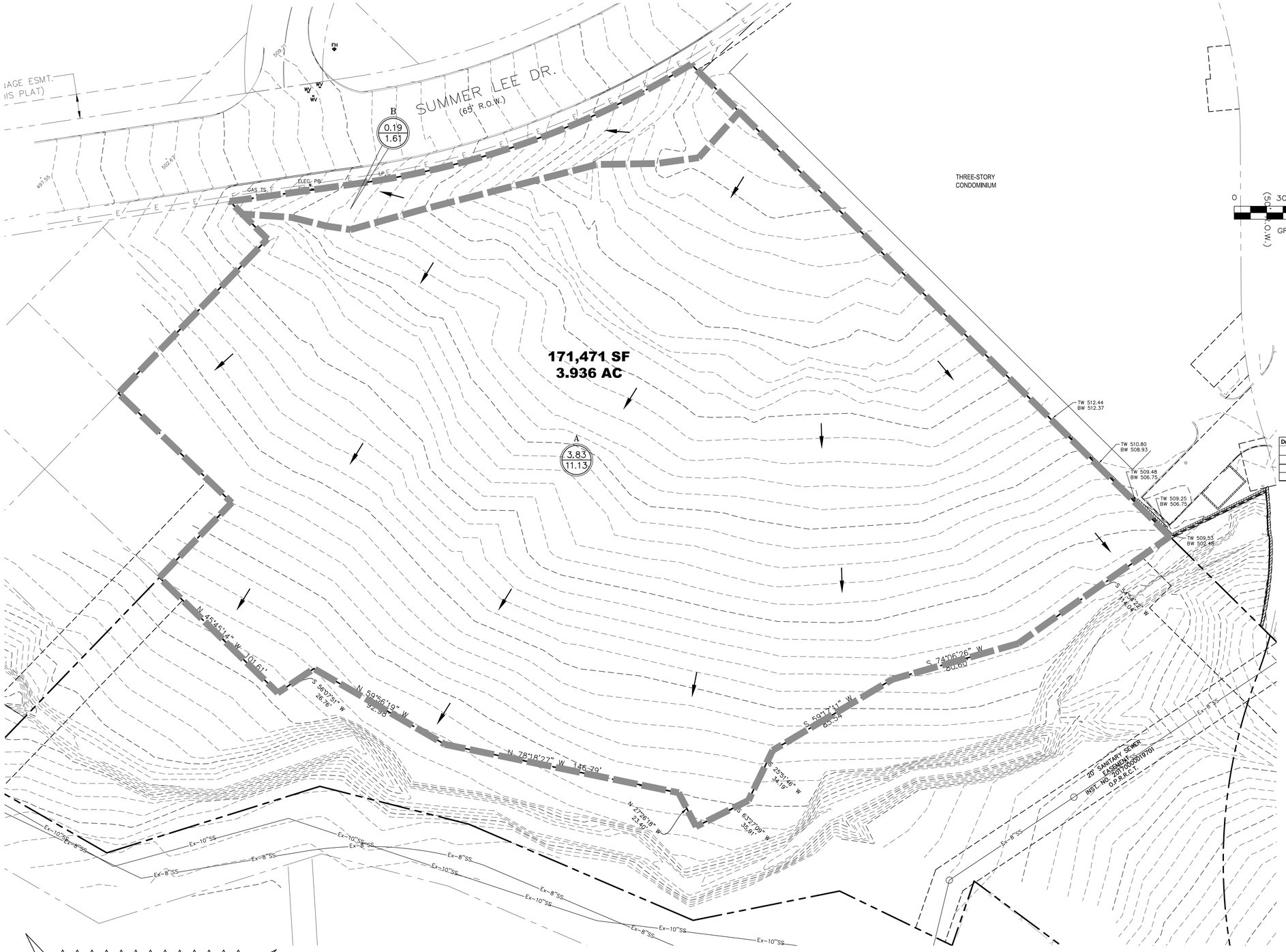
STATE OF TEXAS — ZACHARY J. GRIMES — 122013 — REGISTERED PROFESSIONAL ENGINEER — 04/19/2021

GRADING PLAN
HARBOR HILL RESIDENCES
SUMMER LEE DRIVE
ROCKWALL, TEXAS

Sheet No. C2.2

Project No. 18090

HARBOR HILL RESIDENCES - ROCKWALL.



GENERAL/DRAINAGE NOTES

1. All materials and construction shall be in accordance with the City of Rockwall Standard Specifications and Construction Standards, and Standard Specifications for Public Works Construction prepared by North Central Texas Council of Governments (5th Edition).

2. Existing utilities are shown schematically and are for the contractors guidance only. The location and/or elevation of existing utilities as shown on these plans are based on records of the various utility companies, and, where possible, measurements taken in the field. The contractor must call the appropriate utility company at least 72 hours prior to any excavation to request exact field location of utilities.

3. The contractor shall be responsible for protecting all existing improvements in the construction of this project. The contractor is responsible for repairs of damage to any existing improvements during construction. Repairs shall be equal to or better than condition prior to construction.

4. All storm sewer pipe 18" and larger shall be Class III RCP. All storm sewer pipe 15" and smaller shall be PVC drainage pipe or approved equal (and be private).

5. Contractor shall be responsible for maintaining trench safety requirements in accordance with the latest standards of O.S.H.A. or any other agency having jurisdiction for excavation and trenching procedures. Contractor shall provide and implement a trench safety plan complying with O.S.H.A.

6. All RCP pipe joints shall have Ram-Neck joint sealer, in the absence of a City Standard for joint sealant.

7. All roof drain laterals shall be 0.50% min. slope.

Drainage Area No.	Drainage Area (Acres)	Time of Concentration (minutes)	K_{100}	Runoff Coefficient C	100-Year Event I_{100} (in/hr)	100-Year Event Q_{100} (cfs)	Remarks
A	3.83	20	1.00	0.35	8.30	11.13	Drains to Creek
B	0.19	20	1.00	0.35	8.30	1.61	Drains to Summer Lee

DRAINAGE LEGEND

- A — Drainage Area Number
- X.XX / X.XX — Acres / Q_{100}
- Drainage Divide Line
- Direction of Flow

DRAINAGE CRITERIA

$Q = C\ I\ A$
$C = 0.70$
$I_{100} = 9.80$
$tc = 10$ min.

CAUTION!
Existing Utilities in Area. Contractor to determine location and elevation of all utilities prior to construction. Contractor to inform Engineer of any conflicts prior to construction.

BENCHMARK:

City Benchmark:
COR-7-Aluminum Disk Stamped " City of Rockwall Survey Monument" Located on the south side of Summer Lee Dr. ±275 feet west of intersection of Summer Lee Dr and Ridge Road, ±1 foot south of curb line. ELEVATION: 567.52

Site Benchmark:
No. 1-"X" Cut on rim of water valve located on the north side of Summer Lee Dr. approx. 915 feet easterly from the intersection of Sunset Ridge Dr. ELEVATION: 548.55

No. 2-"X" Cut on southeast corner of curb inlet located on the east side of Shoreline Tr. approx. 480 feet northerly from the north side of Summer Lee Dr. ELEVATION: 474.56

STOP!
CALL BEFORE YOU DIG
Texas 811 Know what's below.
(@ least 72 hours prior to digging)

Issued for Construction: 04-19-2021

Issue Dates:	Revisions:	Date:
4 09/17/2020	1	05/17/2021
5 11/30/2020	2	
6 12/23/2020	3	
7 01/22/2021	4	
8 01/29/2021	5	
9 04/19/2021	6	

CROSS ENGINEERING CONSULTANTS
1720 W. Virginia Street, McKinney, Texas 75069
972.562.4409 Texas P.E. Firm No. F-5935

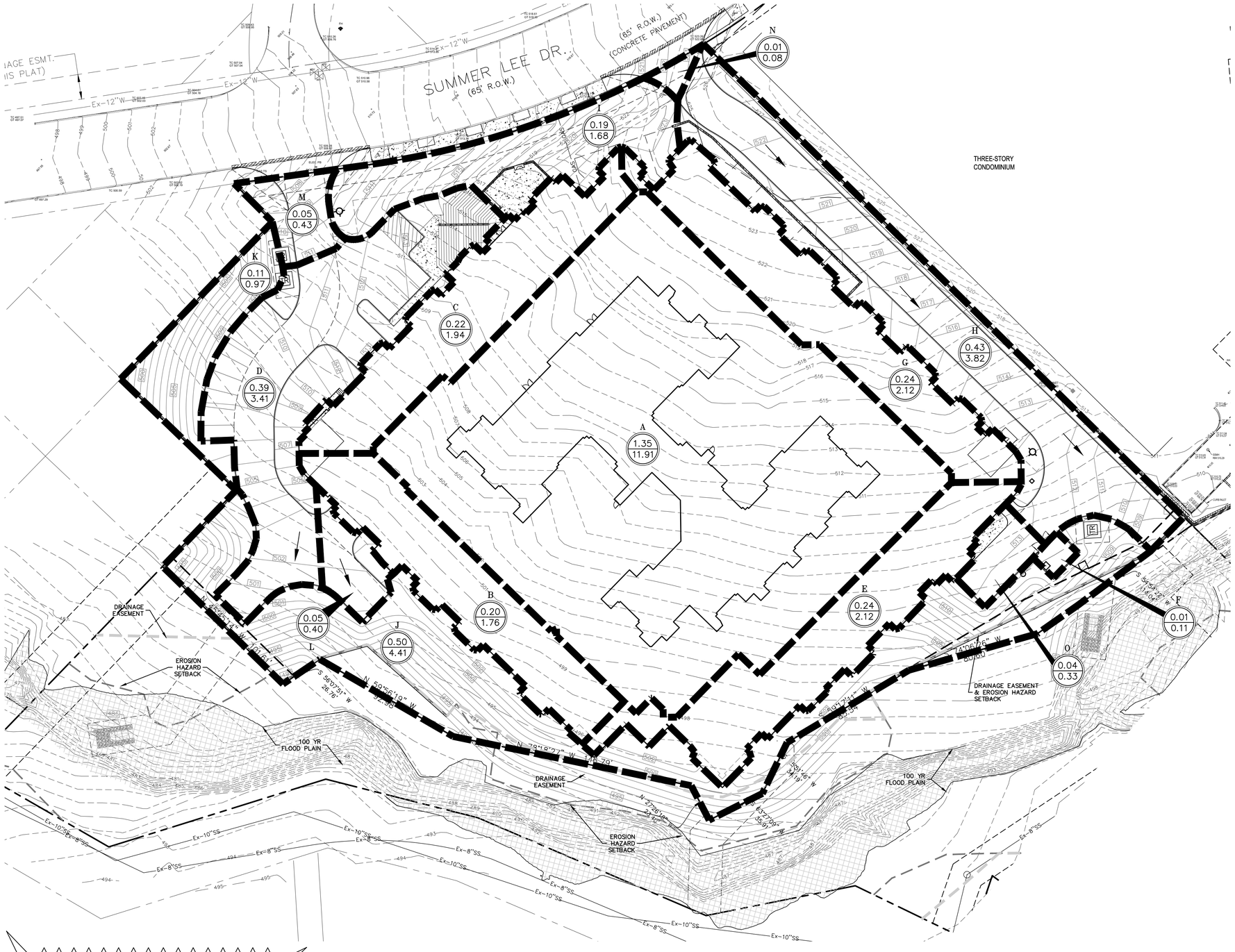
Drawn By:	Checked By:	Scale:
C.E.C.I.	C.E.C.I.	1"=30'

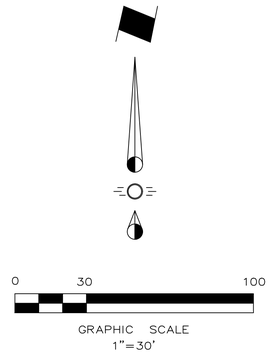
STATE OF TEXAS — ZACHARY CECIL CRIMES — 122013 — REGISTERED PROFESSIONAL ENGINEER — 9/17/2021

EXISTING DRAINAGE AREA
HARBOR HILL RESIDENCES
SUMMER LEE DRIVE
ROCKWALL, TEXAS

Sheet No. C3.1
Project No. 18090

HARBOR HILL RESIDENCES - ROCKWALL





GENERAL/DRAINAGE NOTES

1. All materials and construction shall be in accordance with the City of Rockwall Standard Specifications and Construction Standards, and Standard Specifications for Public Works Construction prepared by North Central Texas Council of Governments (5th Edition).

2. Existing utilities are shown schematically and are for the contractors guidance only. The location and/or elevation of existing utilities as shown on these plans are based on records of the various utility companies, and, where possible, measurements taken in the field. The contractor must call the appropriate utility company at least 72 hours prior to any excavation to request exact field location of utilities.

3. The contractor shall be responsible for protecting all existing improvements in the construction of this project. The contractor is responsible for repairs of damage to any existing improvements during construction. Repairs shall be equal to or better than condition prior to construction.

4. All storm sewer pipe 18" and larger shall be Class III RCP. All storm sewer pipe 15" and smaller shall be PVC drainage pipe or approved equal (and be private).

5. Contractor shall be responsible for maintaining trench safety requirements in accordance with the latest standards of O.S.H.A. or any other agency having jurisdiction for excavation and trenching procedures. Contractor shall provide and implement a trench safety plan complying with O.S.H.A.

6. All RCP pipe joints shall have Ram-Neck joint sealer, in the absence of a City Standard for joint sealant.

7. All roof drain laterals shall be 0.50% min. slope.

Drainage Area Runoff Calculations

Drainage Area No.	Drainage Area (Acres)	Time of Concentration (minutes)	K_{100}	Runoff Coefficient C	100-Year Event I_{100} (in/hr)	100-Year Event Q_{100} (cfs)	Remarks
A	1.35	10	1.00	0.90	9.80	11.91	Courtyard & Roof Drainage
B	0.20	10	1.00	0.90	9.80	1.76	Roof Drains
C	0.22	10	1.00	0.90	9.80	1.94	Roof Drains
D	0.39	10	1.00	0.90	9.80	3.41	5' Curb Inlet
E	0.24	10	1.00	0.90	9.80	2.12	Roof Drains
F	0.01	10	1.00	0.90	9.80	0.11	Drains to 5' Inlet & Contech CDS1515-3-C separator
G	0.24	10	1.00	0.90	9.80	2.12	Roof Drains
H	0.43	10	1.00	0.90	9.80	3.82	5' Curb Inlet
I	0.19	10	1.00	0.90	9.80	1.68	Landscape Drains
J	0.50	10	1.00	0.90	9.80	4.41	Sheet Flow to Creek
K	0.11	10	1.00	0.90	9.80	0.97	Sheet Flow to the West
L	0.05	10	1.00	0.90	9.80	0.40	5' Curb Inlet
M	0.05	10	1.00	0.90	9.80	0.43	Sheet Flow to Summer Lee Drive
N	0.01	10	1.00	0.90	9.80	0.08	Sheet Flow to Summer Lee Drive
O	0.04	10	1.00	0.90	9.80	0.33	5' Curb Inlet

Curb Inlet Calculations

Drainage Area No.	Drainage Area (Acres)	Time of Concentration (minutes)	Runoff Coefficient C	100-Year Event I_{100} (in/hr)	100-Year Event Q_{100} (cfs)	Inlet Length (ft)	Inlet Type	On-Grad/Sag	Inlet Capacity* cfs
D	0.39	10	0.90	9.80	3.41	5.00	Curb	Sag	6.99
F	0.01	10	0.90	9.80	0.11	5.00	Curb	Sag	6.99
H	0.47	10	0.90	9.80	4.15	5.00	Curb	Sag	6.99
L	0.05	10	0.90	9.80	0.40	5.00	Curb	Sag	6.99
O	0.04	10	0.90	9.80	0.33	5.00	Curb	Sag	6.99

*Capacities per Figure 3.10: Standard Curb Inlet Capacity Sag/Low Point from City of Rockwall Standards of Design & Construction & assuming a depth of 0.5 feet.

DRAINAGE LEGEND

A ← Drainage Area Number
X.XX Acres
X.XX Q_{100}
Drainage Divide Line
Direction of Flow

DRAINAGE CRITERIA

Q = C I A
C = 0.90
I_{100} = 9.80
tc = 10 min.

CAUTION!
Existing Utilities in Area. Contractor to determine location and elevation of all utilities prior to construction. Contractor to inform Engineer of any conflicts prior to construction.

BENCHMARK:

City Benchmark:
COR-7-Aluminum Disk Stamped " City of Rockwall Survey Monument" Located on the south side of Summer Lee Dr. ±275 feet west of intersection of Summer Lee Dr and Ridge Road, ±1 foot south of curb line. ELEVATION: 567.52

Site Benchmark:
No. 1-"X" Cut on rim of water valve located on the north side of Summer Lee Dr. approx. 915 feet easterly from the intersection of Sunset Ridge Dr. ELEVATION: 548.55

No. 2-"X" Cut on southeast corner of curb inlet located on the east side of Shoreline Tr. approx. 480 feet northerly from the north side of Summer Lee Dr. ELEVATION: 474.56

STOP!
CALL BEFORE YOU DIG
Texas811 Know what's below.
(@ least 72 hours prior to digging)

Issued for Construction: 04-19-2021

Issue Dates:	Revisions:	Date:
4 09/17/2020	1	05/17/2021
5 11/30/2020	2	
6 12/23/2020	3	
7 01/22/2021	4	
8 01/29/2021	5	
9 04/19/2021	6	

CROSS ENGINEERING CONSULTANTS
1720 W. Virginia Street
McKinney, Texas 75069
972.562.4409
Texas P.E. Firm No. F-5935

Drawn By:	Checked By:	Scale:
C.E.C.I.	C.E.C.I.	1"=30'

STATE OF TEXAS · ZACHARY C. GRIMES · 122013 · REGISTERED PROFESSIONAL ENGINEER · 04/19/2021

DRAINAGE AREA MAP
HARBOR HILL RESIDENCES
SUMMER LEE DRIVE
ROCKWALL, TEXAS

Sheet No. C3.2
Project No. 18090

HARBOR HILL RESIDENCES - ROCKWALL

GENERAL/DRAINAGE NOTES

1. All materials and construction shall be in accordance with the City of Rockwall Standard Specifications and Construction Standards, and Standard Specifications for Public Works Construction prepared by North Central Texas Council of Governments (5th Edition).

2. Existing utilities are shown schematically and are for the contractors guidance only. The location and/or elevation of existing utilities as shown on these plans are based on records of the various utility companies, and, where possible, measurements taken in the field. The contractor must call the appropriate utility company at least 72 hours prior to any excavation to request exact field location of utilities.

3. The contractor shall be responsible for protecting all existing improvements in the construction of this project. The contractor is responsible for repairs of damage to any existing improvements during construction. Repairs shall be equal to or better than condition prior to construction.

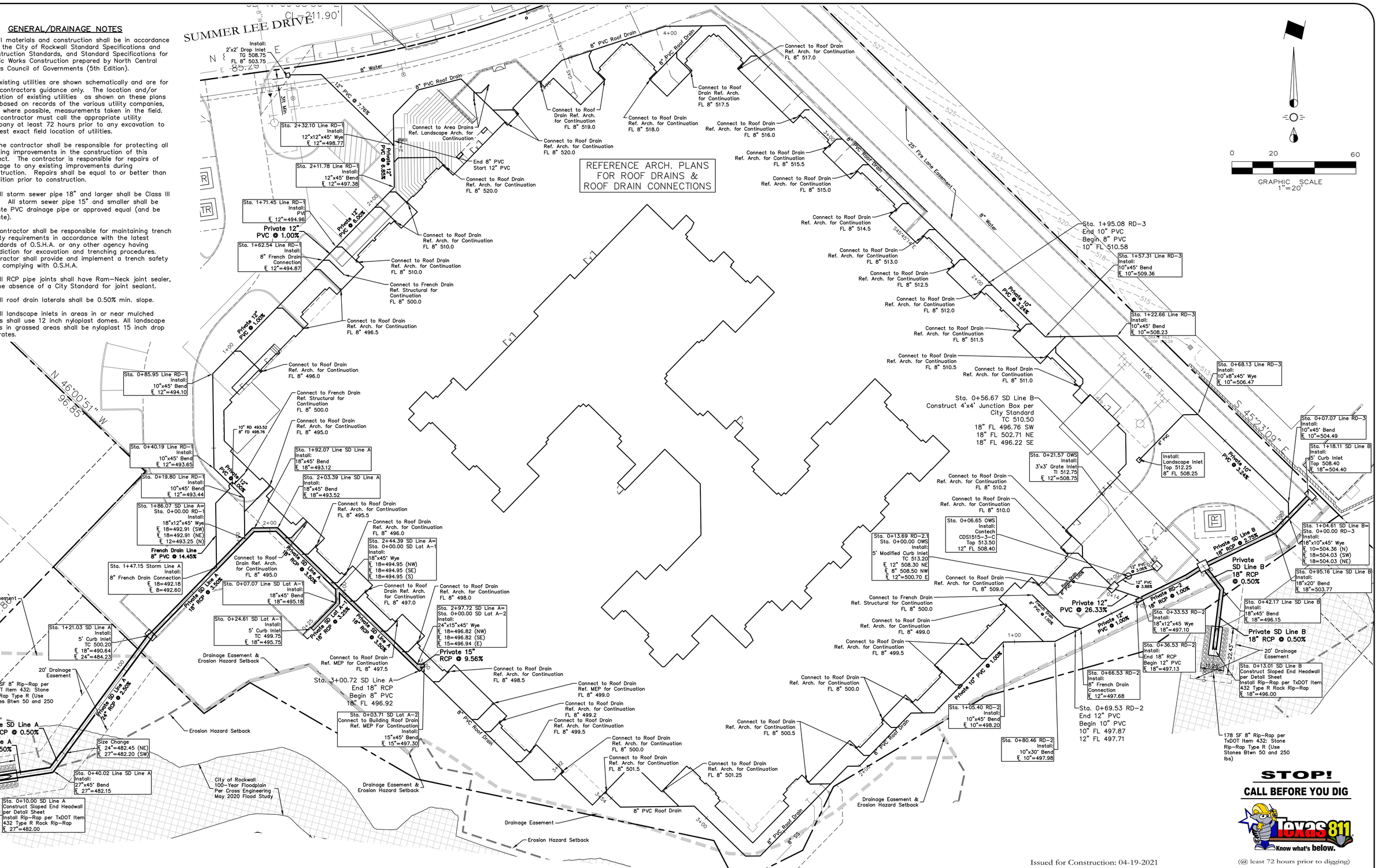
4. All storm sewer pipe 18" and larger shall be Class III RCP. All storm sewer pipe 15" and smaller shall be private PVC drainage pipe or approved equal (and be private).

5. Contractor shall be responsible for maintaining trench safety requirements in accordance with the latest standards of O.S.H.A. or any other agency having jurisdiction for excavation and trenching procedures. Contractor shall provide and implement a trench safety plan complying with O.S.H.A.

6. All RCP pipe joints shall have Ram-Neck joint sealer, in the absence of a City Standard for joint sealant.

7. All roof drain laterals shall be 0.50% min. slope.

8. All landscape inlets in areas in or near mulched areas shall use 12 inch nyloplast domes. All landscape inlets in grassed areas shall be nyloplast 15 inch drop in grates.



BENCHMARK:

City Benchmark:
COR-7-Aluminum Disk Stamped " City of Rockwall Survey Monument" Located on the south side of Summer Lee Dr. ±275 feet west of intersection of Summer Lee Dr and Ridge Road, ±1 foot south of curb line. ELEVATION: 567.52

Site Benchmark:
No. 1-"X" Cut on rim of water valve located on the north side of Summer Lee Dr. approx. 915 feet easterly from the intersection of Sunset Ridge Dr. ELEVATION: 548.55

No. 2-"X" Cut on southeast corner of curb inlet located on the east side of Shoreline Tr. approx. 480 feet northerly from the north side of Summer Lee Dr. ELEVATION: 474.56

Issue Dates:	Revisions:	Date:
4 09/17/2020	1	05/17/2021
5 11/30/2020	2	
6 12/23/2020	3	
7 01/22/2021	4	
8 01/29/2021	5	
9 04/19/2021	6	

CROSS ENGINEERING CONSULTANTS
1720 W. Virginia Street
McKinney, Texas 75069
972.562.4409
Texas P.E. Firm No. F-5935

Drawn By:	Checked By:	Scale:
C.E.C.I.	C.E.C.I.	1"=20'

STATE OF TEXAS · ZACHARY CECIL GRIMES · 122013 · REGISTERED · PROFESSIONAL ENGINEER · 5/17/2021

STORM SEWER PLAN
HARBOR HILL RESIDENCES
SUMMER LEE DRIVE
ROCKWALL, TEXAS

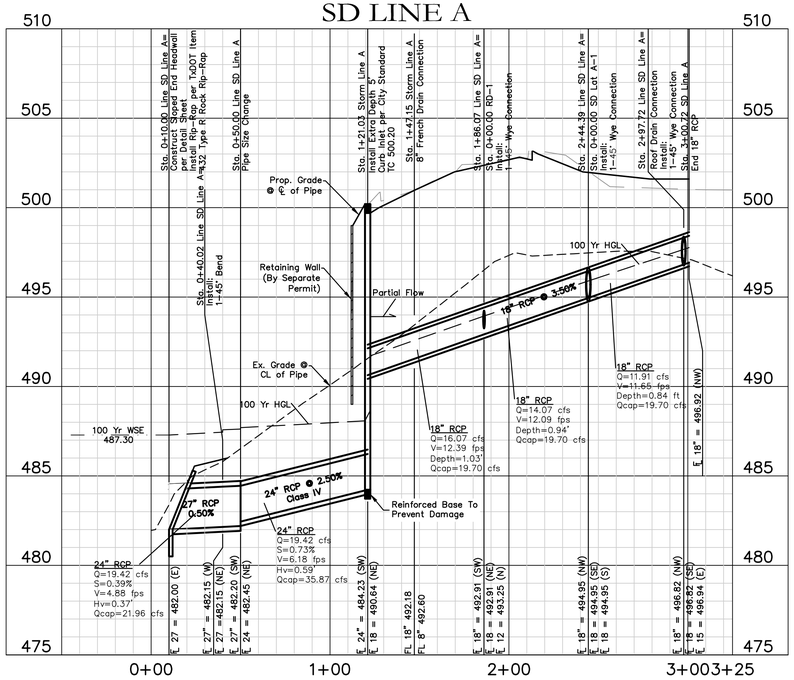
Sheet No. C4.1
Project No. 18090

Issued for Construction: 04-19-2021

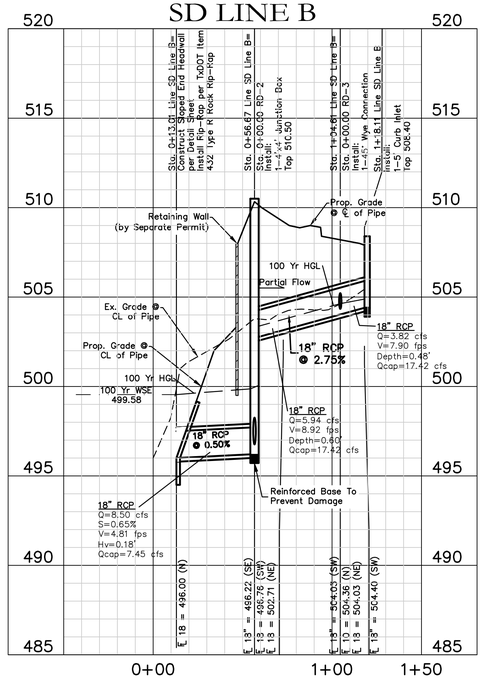
STOP! CALL BEFORE YOU DIG
Texas 811 Know what's below.
(@ least 72 hours prior to digging)

HARBOR HILL RESIDENCES - ROCKWALL.

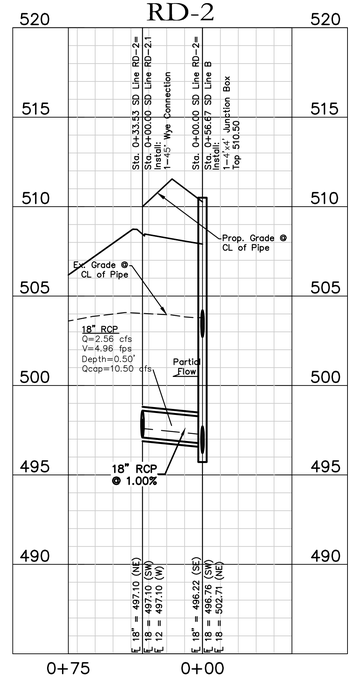
(Private) SD LINE A



(Private) SD LINE B



(Private) RD-2



Sytem ID	DS Sta	US Sta	Length	Pipe Diameter	Area	Wetted Perimeter	Hydraulic Radius	Mannings n	DS Flowline	US Flowline	Slope	Drainage Areas	Runoff Coeff C	Area	CA	Acumulated CA	Tc	Rainfall Intensity	Q 100	Q Capacity	Partial Flow	Velocity	Friction Slope	Friction Loss	Hv	K	Head Loss	HGL DS	HGL US	Top of Curb
			ft	in	ft2	ft	ft		ft	ft	ft/ft			Acres			min	(in/hr)	cfs	cfs		ft/s	ft/ft	ft	ft		ft	ft	ft	ft
A	121.03	121.03	-	-	-	-	-	-	-	-	-	A,B,C,D,L	0.90	2.21	1.98	1.98	10.00	9.80	19.42	-	Yes	-		-	-	-	488.78	-	500.20
0	50.00	121.03	71.03	24	3.14	6.28	0.5	0.013	482.45	484.23	0.025	-	0.90	0	0	1.98	10.00	9.80	19.42	35.87	No	6.18	0.0073	0.52	0.59	1.00	0.59	487.67	488.19	-
A	40.02	50.00	9.98	27	3.98	7.07	0.5625	0.013	482.15	482.2	0.005	-	0.90	0	0	1.98	10.00	9.80	19.42	21.96	No	4.88	0.0039	0.04	0.37	0.21	0.08	487.55	487.59	-
A	10.00	40.02	30.02	27	3.98	7.07	0.5625	0.013	482	482.15	0.005	-	0.90	0	0	1.98	10.00	9.80	19.42	21.96	No	4.88	0.0039	0.12	0.37	0.37	0.14	487.3	487.42	-

Sytem ID	DS Sta	US Sta	Length	Pipe Diameter	Area	Wetted Perimeter	Hydraulic Radius	Mannings n	DS Flowline	US Flowline	Slope	Drainage Areas	Runoff Coeff C	Area	CA	Acumulated CA	Tc	Rainfall Intensity	Q 100	Q Capacity	Partial Flow	Velocity	Friction Slope	Friction Loss	Hv	K	Head Loss	HGL DS	HGL US	Top of Curb
			ft	in	ft2	ft	ft		ft	ft	ft/ft			Acres			min	(in/hr)	cfs	cfs		ft/s	ft/ft	ft	ft		ft	ft	ft	ft
B	56.67	56.67	0	18	-	-	-	-	-	-	-	E,F,G,H,0	0.90	0.96	0.87	0.87	10.00	9.80	8.50	-	Yes	-	-	-	-	-	500.04	-	-
B	13.01	56.67	43.66	18	1.77	4.71	0.375	0.013	496	496.2	0.005	-	0.90	0	0	0.87	10.00	9.80	8.50	7.45	No	4.81	0.0065	0.28	0.36	0.5	0.18	499.58	499.86	-

Sytem ID	DS Sta	US Sta	Length	Pipe Diameter	Area	Wetted Perimeter	Hydraulic Radius	Mannings n	DS Flowline	US Flowline	Slope	Drainage Areas	Runoff Coeff C	Area	CA	Acumulated CA	Tc	Rainfall Intensity	Q 100	Q Capacity	Partial Flow	Velocity	Friction Slope	Friction Loss	Hv	K	Head Loss	HGL DS	HGL US	Top of Curb
			ft	in	ft2	ft	ft		ft	ft	ft/ft			Acres			min	(in/hr)	cfs	cfs		ft/s	ft/ft	ft	ft		ft	ft	ft	ft
RD-2	0	33.53	33.53	18	1.77	4.71	0.38	0.013	496.76	497.10	0.01	E, F, & O	0.90	0.29	0.26	0.26	10.00	9.80	2.56	10.50	Yes	1.45	0.01	0.22	0.36	0.50	0.18	504.36	504.58	-

STOP!
CALL BEFORE YOU DIG
Texas811 Know what's below.
(@ least 72 hours prior to digging)

Issued for Construction: 04-19-2021

Issue Dates:	Revisions:	Date:
4 09/17/2020	1	05/17/2021
5 11/30/2020	2	
6 12/23/2020	3	
7 01/22/2021	4	
8 01/29/2021	5	
9 04/19/2021	6	

CROSS ENGINEERING CONSULTANTS
1720 W. Virginia Street, McKinney, Texas 75069
972.562.4409, Texas P.E. Firm No. F-5935

Drawn By:	Checked By:	Scale:
C.E.C.I.	C.E.C.I.	H:1"=40' V:1"=4'

STATE OF TEXAS — Zachary Cross — 121013 — REGISTERED PROFESSIONAL ENGINEER — 5/19/2021

STORM SEWER PROFILES

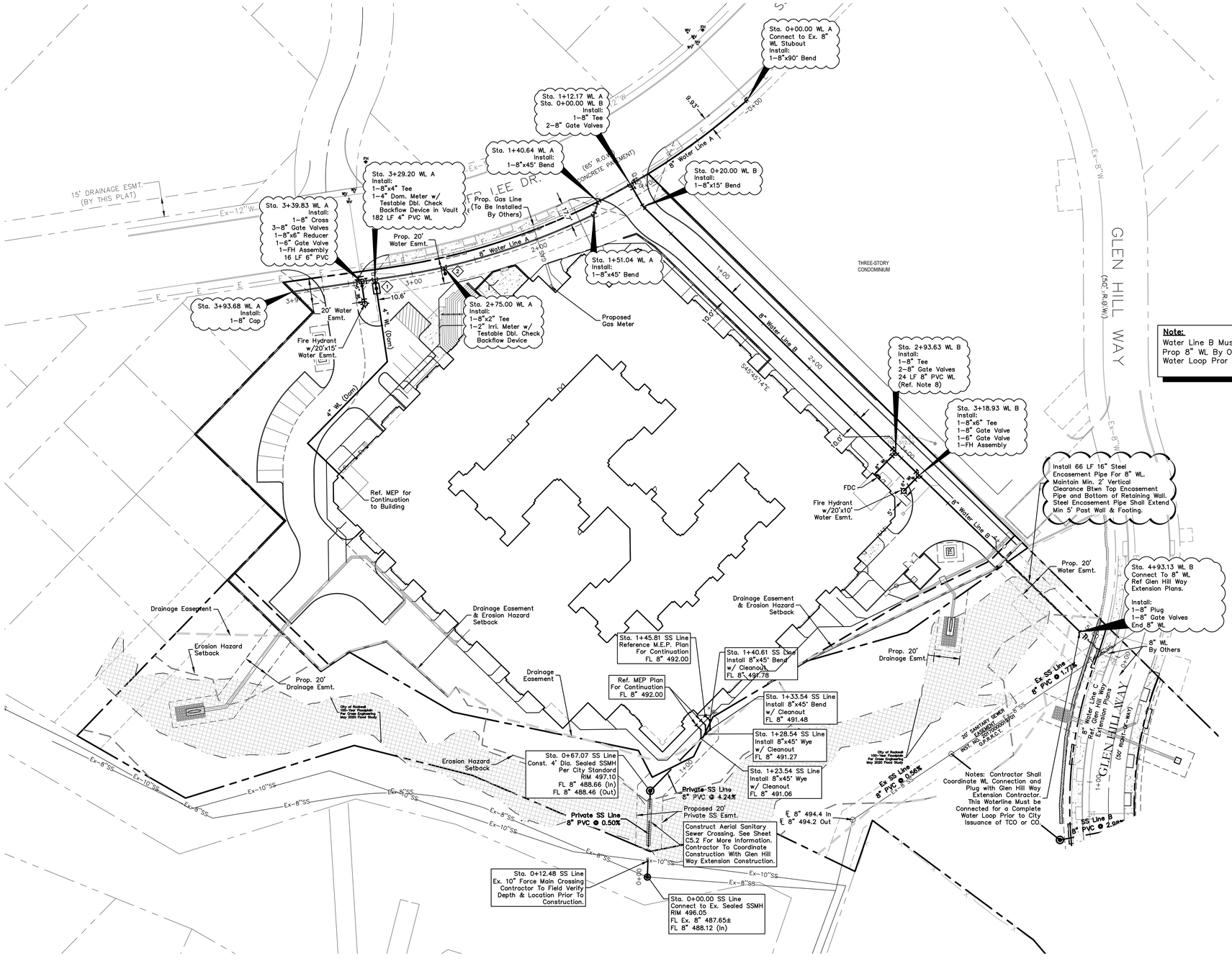
HARBOR HILL RESIDENCES

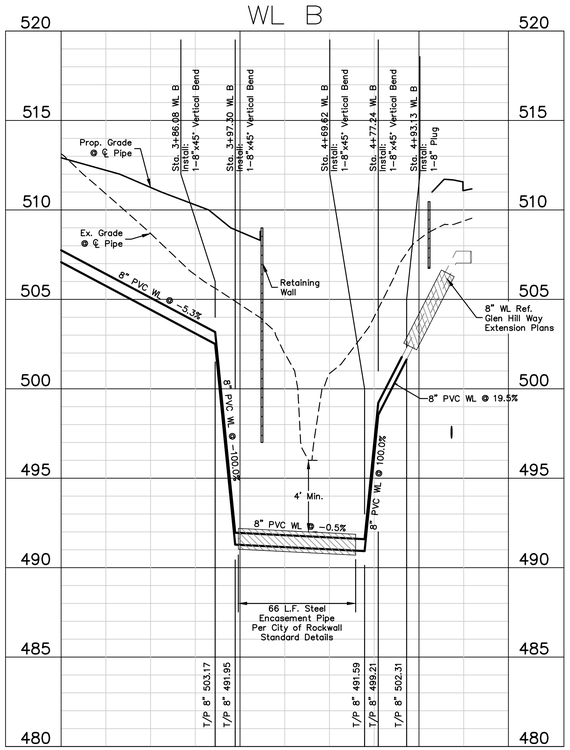
SUMMER LEE DRIVE
ROCKWALL, TEXAS

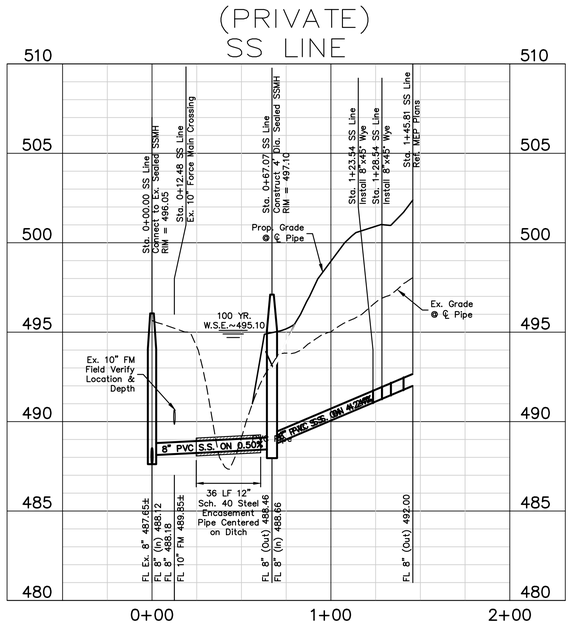
Sheet No. C4.2

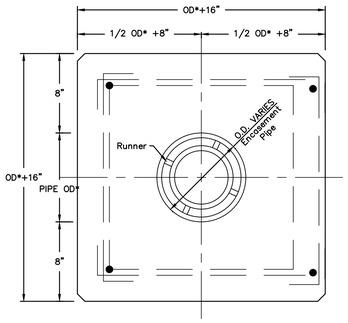
Project No. 18090

HARBOR HILL RESIDENCES - ROCKWALL

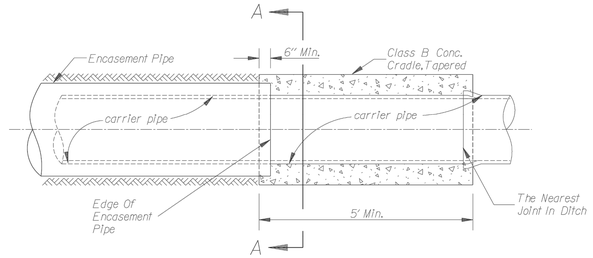

Sta. 0+00.00 WL A
Connect to Ex. 8" WL Stubout
Install:
1-8"x90° Bend
Sta. 1+12.17 WL A
Sta. 0+00.00 WL B
Install:
1-8" Tee
2-8" Gate Valves
Sta. 1+40.64 WL A
Install:
1-8"x45° Bend
Sta. 3+29.20 WL A
Install:
1-8"x4" Tee
1-4" Dom. Meter w/ Testable Dbl. Check Backflow Device in Vault
182 LF 4" PVC WL
Sta. 3+39.83 WL A
Install:
1-8" Cross
3-8" Gate Valves
1-8"x6" Reducer
1-6" Gate Valve
1-FH Assembly
16 LF 6" PVC
Sta. 3+93.68 WL A
Install:
1-8" Cap
Sta. 2+75.00 WL A
Install:
1-8"x2" Tee
1-2" Irri. Meter w/ Testable Dbl. Check Backflow Device
Sta. 1+51.04 WL A
Install:
1-8"x45° Bend
Sta. 0+20.00 WL B
Install:
1-8"x15° Bend
Sta. 2+93.63 WL B
Install:
1-8" Tee
2-8" Gate Valves
24 LF 8" PVC WL
(Ref. Note 8)
Sta. 3+18.93 WL B
Install:
1-8"x6" Tee
1-8" Gate Valve
1-6" Gate Valve
1-FH Assembly
Install 66 LF 16" Steel Encasement Pipe For 8" WL. Maintain Min. 2' Vertical Clearance Btwn Top Encasement Pipe and Bottom of Retaining Wall. Steel Encasement Pipe Shall Extend Min 5' Past Wall & Footing.
Sta. 4+93.13 WL B
Connect To 8" WL Ref Glen Hill Way Extension Plans.
Install:
1-8" Plug
1-8" Gate Valves
End 8" WL
8" WL By Others
Ref Glen Hill Way Extension Plans
Ref Water Line C
Ref Glen Hill Way Extension Plans
Sta. 1+40.61 SS Line
Install 8"x45° Bend w/ Cleanout
FL 8" 491.78
Sta. 1+33.54 SS Line
Install 8"x45° Bend w/ Cleanout
FL 8" 491.48
Sta. 1+28.54 SS Line
Install 8"x45° Wye w/ Cleanout
FL 8" 491.27
Sta. 1+23.54 SS Line
Install 8"x45° Wye w/ Cleanout
FL 8" 491.06
Sta. 1+45.81 SS Line
Reference M.E.P. Plan For Continuation
FL 8" 492.00
Ref. MEP Plan For Continuation
FL 8" 492.00
Sta. 0+67.07 SS Line
Const. 4' Dia. Sealed SSMH Per City Standard
RIM 497.10
FL 8" 488.66 (In)
FL 8" 488.46 (Out)
Sta. 0+12.48 SS Line
Ex. 10" Force Main Crossing
Contractor To Field Verify Depth & Location Prior To Construction.
Sta. 0+00.00 SS Line
Connect to Ex. Sealed SSMH
RIM 496.05
FL Ex. 8" 487.65±
FL 8" 488.12 (In)
Private SS Line
8" PVC @ 4.24%
Private SS Line
8" PVC @ 0.50%
Ex SS Line
8" PVC @ 0.50%
Ex SS Line
8" PVC @ 1.77%
SS Line B
8" PVC @ 2.88%
Proposed 20' Private SS Esmt.
Construct Aerial Sanitary Sewer Crossing. See Sheet C5.2 For More Information. Contractor To Coordinate Construction With Glen Hill Way Extension Construction.
E 8" 494.4 In
E 8" 494.2 Out
Notes: Contractor Shall Coordinate WL Connection and Plug with Glen Hill Way Extension Contractor. This Waterline Must be Connected for a Complete Water Loop Prior to City Issuance of TCO or CO
8" Water Line A
8" Water Line B
Prop. Gas Line (To Be Installed By Others)
Proposed Gas Meter
Prop. 20' Water Esmt.
20' Water Esmt.
Fire Hydrant w/20'x15' Water Esmt.
Fire Hydrant w/20'x10' Water Esmt.
FDC
4" WL (Dom)
4" WL (Dom)
Ref. MEP for Continuation to Building
Prop. 20' Drainage Esmt.
Prop. 20' Drainage Esmt.
Drainage Easement
Drainage Easement & Erosion Hazard Setback
Drainage Easement & Erosion Hazard Setback
Drainage Easement
Erosion Hazard Setback
Erosion Hazard Setback
15' DRAINAGE ESMT. (BY THIS PLAT)
(65' R.O.W.) CONCRETE PAVEMENT
THREE-STORY CONDOMINIUM
GLEN HILL WAY
(50' R.O.W.)
(80' R.O.W.)
20' SANITARY SEWER INST. NO. 20090000019000 O.P.R.R.C.T.
City of Rockwall 100-Year Floodplain Per Crown Engineering May 2020 Flood Study
Ex-8"SS
Ex-10"SS
Ex-8"W
Ex-12"W
Ex-8"W
Ex-8"W
Ex-8



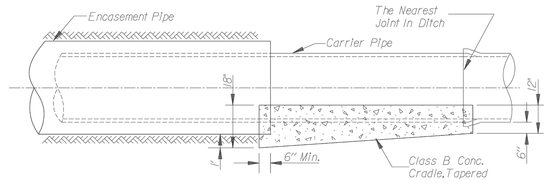




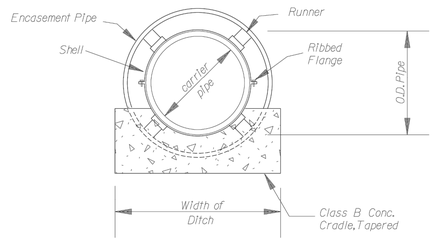
AERIAL CROSSING CONCRETE COLLAR DETAIL
NTS



PLAN VIEW



PROFILE VIEW



SECTION A-A

TUNNEL APPROACHES WITH CASING SPACERS
NTS

NOTE:
SANITARY SEWER AERIAL CROSSING DETAILS ON THIS SHEET PROVIDED FOR REFERENCE AND BIDDING PURPOSES ONLY. CONTRACTOR TO PROVIDE PLANS FOR THE AERIAL CROSSING SIGNED AND SEALED BY A STRUCTURAL ENGINEER LICENSED IN THE STATE OF TEXAS PRIOR TO CONSTRUCTION. STRUCTURAL ENGINEER AND CONTRACTOR TO COORDINATE DESIGN AND CONSTRUCTION OF AERIAL CROSSING WITH PROPOSED CREEK IMPROVEMENTS INCLUDED IN THE NEARBY GLEN HILL WAY EXTENSION PROJECT.

STOP!
CALL BEFORE YOU DIG
Texas811 Know what's below.
(@ least 72 hours prior to digging)

Issued for Construction: 04-19-2021

BENCHMARK:

City Benchmark:
COR-7-Aluminum Disk Stamped " City of Rockwall Survey Monument" Located on the south side of Summer Lee Dr. ±275 feet west of intersection of Summer Lee Dr and Ridge Road, ±1 foot south of curb line. ELEVATION: 567.52

Site Benchmark:
No. 1-"X" Cut on rim of water valve located on the north side of Summer Lee Dr. approx. 915 feet easterly from the intersection of Sunset Ridge Dr. ELEVATION: 548.55

No. 2-"X" Cut on southeast corner of curb inlet located on the east side of Shoreline Tr. approx. 480 feet northerly from the north side of Summer Lee Dr. ELEVATION: 474.56

Issue Dates:	Revisions:	Date:
4 09/17/2020	1	05/17/2021
5 11/30/2020	2	
6 12/23/2020	3	
7 01/22/2021	4	
8 01/29/2021	5	
9 04/19/2021	6	

CROSS ENGINEERING CONSULTANTS
1720 W. Virginia Street
McKinney, Texas 75069
972.562.4409
Texas P.E. Firm No. F-5935

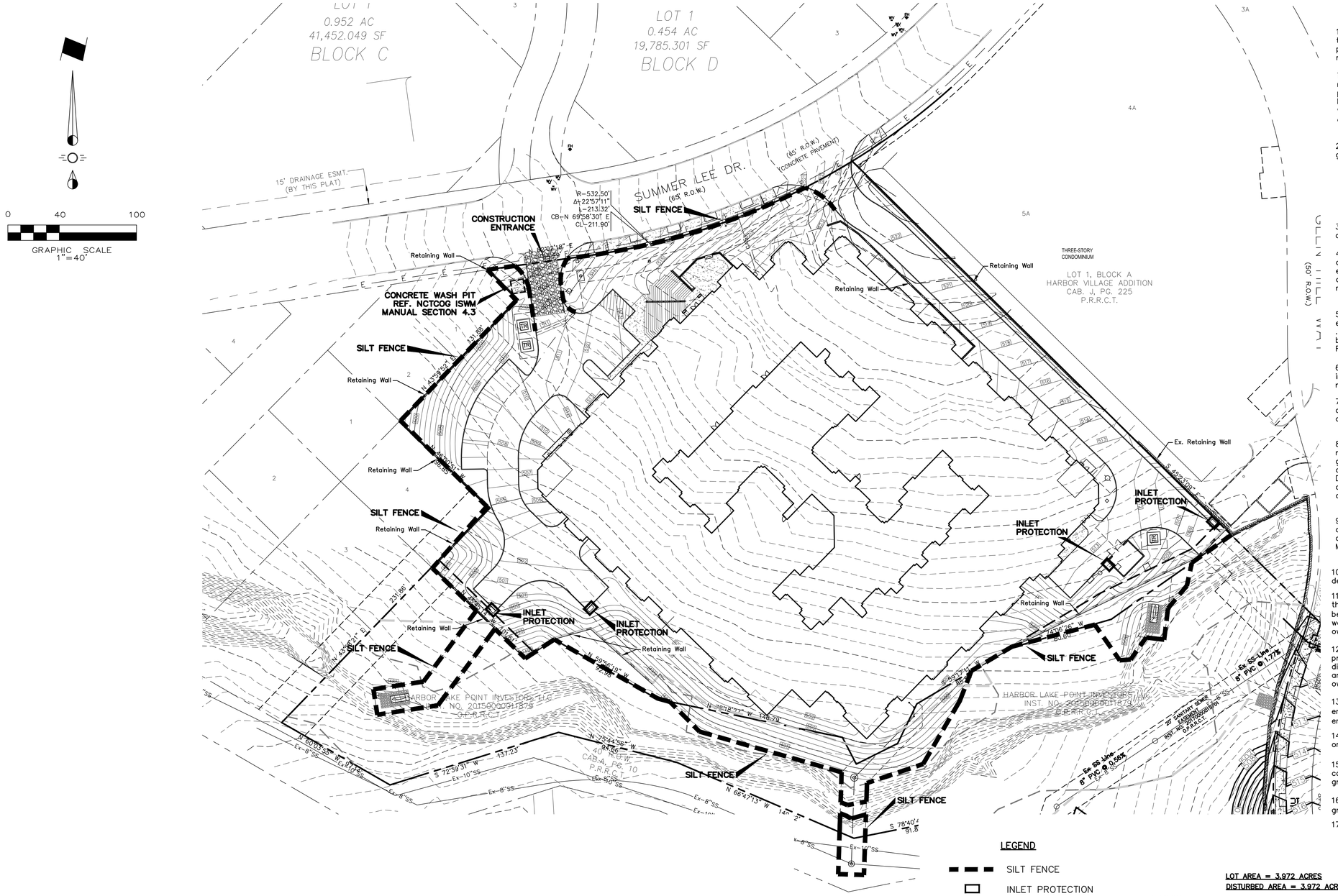
Drawn By:	Checked By:	Scale:
C.E.C.I.	C.E.C.I.	H: 1"=40' V: 1"=4'

STATE OF TEXAS Zachary Cramer 122013 REGISTERED PROFESSIONAL ENGINEER 04/19/2021

UTILITY PROFILES
HARBOR HILL RESIDENCES
SUMMER LEE DRIVE
ROCKWALL, TEXAS

Sheet No. C5.2
Project No. 18090

HARBOR HILL RESIDENCES - ROCKWALL



0 40 100

GRAPHIC SCALE
1"=40'

LOT AREA = 3.972 ACRES
DISTURBED AREA = 3.972 ACRES

PHASING

1. INSTALL SILT FENCE AND CONSTRUCTION ENTRANCE.
2. INSTALL INLET PROTECTION WHEN INLET AND FRONT PAVING ARE COMPLETE.
3. REMOVE SILT FENCE AT PAVING CONNECTION POINTS FOR DRIVE CONNECTIONS.
4. REMOVE CONSTRUCTION ENTRANCE AFTER ALL INTERIOR CONSTRUCTION IS COMPLETE AND POUR ENTRY PAVING.
5. REMOVE SILT FENCE AND INLET PROTECTION WHEN PERMANENT BMP'S ARE IN PLACE.

STORMWATER POLLUTION PREVENTION NOTES

1. It is the intent of the information provided on this sheet to be used as the general guidelines of the storm water pollution prevention plan for this project to establish a minimum basis of compliance with federal regulations.

The storm water pollution prevention plan shall meet the requirements for storm water discharges from construction sites published in the tpdes general permit no. Txr 150000, dated March 5, 2013, issued pursuant to section 26.040 of the texas water code and section 402 of the clean water act, by the texas commission on environmental quality (tceq).

2. The storm water pollution prevention plan should address three goals:
   a) diversion of upslope water around disturbed areas of the site;
   b) limit the exposure of disturbed areas to the shortest duration possible; and
   c) removal of sediment from storm water before it leaves the site.

3. The contractor shall have the storm water pollution prevention plan available onsite.

4. The contractor must amend plans whenever there is a change in design, construction, operation, or maintenance of the plan, or when the existing plan proves ineffective. Modifications including design and all additional materials and work shall be accomplished by the contractor at no additional expense to the owner.

5. Stabilization measures are to be inspected at a minimum of once every 7 days and within 24 hours after any storm event greater than .05 inches. Repairs and inadequacies revealed by the inspection must be implemented within 1 calendar day following the inspection. Rain gauge shall be placed on-site to measure and record.

6. An inspection report that summarizes inspection activates and implementation of the storm water pollution prevention plan shall be retained and made part of the plan.

7. All contractors and subcontractors identified in the plan must certify as to an understanding of the npdes general permit before conducting any activity identified in the pollution prevention plan.

8. The contractor shall adopt appropriate construction site management practices to prevent the discharge of oils, grease, paints, gasoline, and other pollutants to storm water. Appropriate practices can include:
Designating areas for equipment maintenance and repair; regular collection of wastes; conveniently located waste receptacles; and designating and controlling equipment washdown.

9. The contractor shall amend or modify this plan as required by construction means, methods, and sequence. Modifications shall not compromise the intent of the requirements of the law and this plan. Modifications shall not be basis for additional cost to the owner.

10. Areas of construction elsewhere on the jobsite shall conform to the detail shown on the plans.

11. Borrow areas, if excavated, shall be protected and stabilized utilizing the plan details. All work shall conform to governmental requirements and become part of the storm water pollution prevention plan (swp3). This work shall be done by the contractor at no additional expense to the owner.

12. All non-paved areas shall be mulched and seeded with erosion protection immediately upon completion of final grading. This includes all ditches and embankments. The contractor shall maintain final grading and keep seeded areas watered until fully established and accepted by owner.

13. The contractor shall construct a stabilized construction entrance/exit at designated traffic entrance/exit points prior to entering/exiting onto any paved roadway.

14. The contractor shall construct a silt fence at all locations shown on plans. The silt fence shall be constructed as detailed this sheet.

15. All disturbed ground areas shall be re-vegetated with a combination of perennial rye and bermuda, upon completion of final grading.

16. 75%-80% of all disturbed areas to have a minimum 1" stand of grass (no rye or weeds) prior to engineering acceptance/co.

17. All Right-of-ways to be sodded prior to acceptance.

STOP!
CALL BEFORE YOU DIG
Texas 811 Know what's below.
(@ least 72 hours prior to digging)

Issued for Construction: 04-19-2021

Issue Dates:	Revisions:	Date:
4 09/17/2020	1	05/17/2021
5 11/30/2020	2	
6 12/23/2020	3	
7 01/22/2021	4	
8 01/29/2021	5	
9 04/19/2021	6	

CROSS ENGINEERING CONSULTANTS
1720 W. Virginia Street
McKinney, Texas 75069
972.562.4409
Texas P.E. Firm No. F-5935

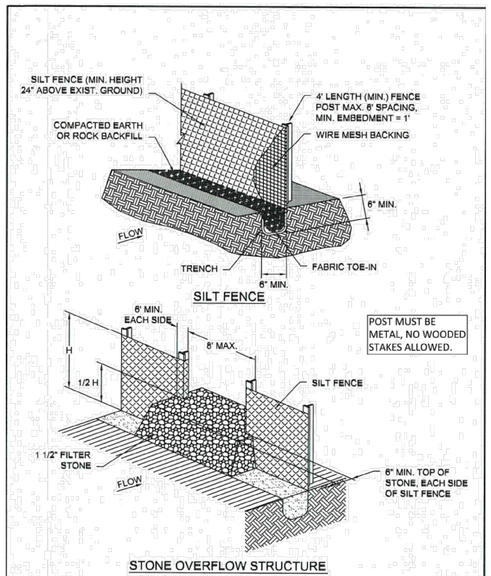
Drawn By:	Checked By:	Scale:
C.E.C.I.	C.E.C.I.	1"=40'

STATE OF TEXAS — ZACHARY J. GRIMES — 122013 — REGISTERED PROFESSIONAL ENGINEER — 5/17/2021

EROSION CONTROL PLAN
HARBOR HILL RESIDENCES
SUMMER LEE DRIVE
ROCKWALL, TEXAS

Sheet No. C6.1
Project No. 18090

HARBOR HILL RESIDENCES - ROCKWALL



SILT FENCE	CITY OF ROCKWALL	STANDARD SPECIFICATION REFERENCE 202.5 *	DATE Mar. 2018	STANDARD DRAWING NO. R-1020A

Page 249

SILT FENCE GENERAL NOTES:

1. POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF ONE FOOT.

2. THE TOE OF THE SILT FENCE SHALL BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWNSLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW. WHERE FENCE CANNOT BE TRENCHED IN (e.g. PAVEMENT), WEIGHT FABRIC FLAP WITH ROCK ON UPHILL SIDE TO PREVENT FLOW FROM SEEPING UNDER FENCE.

3. 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.

4. SILT FENCE SHOULD BE SECURELY FASTENED TO EACH SUPPORT POST OR TO WIRE BACKING, WHICH IN TURN IS ATTACHED TO THE FENCE POST. THERE SHALL BE A 3 FOOT OVERLAP, SECURELY FASTENED WHERE ENDS OF FABRIC MEET.

5. INSPECTION SHALL BE AS SPECIFIED IN THE SWPPP. REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.

6. SILT FENCE SHALL BE REMOVED WHEN FINAL STABILIZATION IS ACHIEVED OR ANOTHER EROSION OR SEDIMENT CONTROL DEVICE IS EMPLOYED.

7. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF HALF THE HEIGHT OF THE FENCE. THE SILT SHALL BE DISPOSED OF AT AN APPROVED SITE AND IN SUCH A MANNER AS TO NOT CONTRIBUTE TO ADDITIONAL SILTATION.

8. FILTER STONE SHALL BE WRAPPED IN FILTER FABRIC AND BURIED SIX (6") INCHES MINIMUM.

SILT FENCE	CITY OF ROCKWALL	STANDARD SPECIFICATION REFERENCE 202.5 *	DATE Mar. 2018	STANDARD DRAWING NO. R-1020B

Page 250

ROCK CHECK DAM GENERAL NOTES:

1. STONE SHALL BE WELL GRADED WITH SIZE RANGE FROM 1½ TO 3½ INCHES IN DIAMETER DEPENDING ON EXPECTED FLOWS.

2. THE CHECK DAM SHALL BE INSPECTED AS SPECIFIED IN THE SWPPP AND SHALL BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.

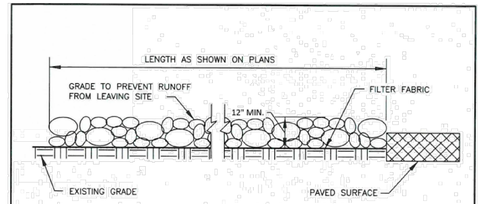
3. WHEN SILT REACHES A DEPTH EQUAL TO ONE-THIRD OF THE HEIGHT OF THE CHECK DAM OR ONE FOOT, WHICHEVER IS LESS, THE SILT SHALL BE REMOVED AND DISPOSED OF PROPERLY.

4. WHEN THE SITE HAS ACHIEVED FINAL STABILIZATION OR ANOTHER EROSION OR SEDIMENT CONTROL DEVICE IS EMPLOYED, THE CHECK DAM AND ACCUMULATED SILT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED MANNER.

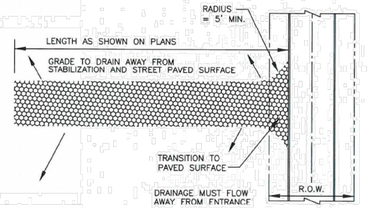
5. FILTER STONE SHALL BE WRAPPED IN APPROPRIATE SIZED WIRE MESH TO CONTAIN STONE AND BURIED SIX (6") INCHES MINIMUM.

ROCK CHECK DAM	CITY OF ROCKWALL	STANDARD SPECIFICATION REFERENCE 202.9 *	DATE Mar. 2018	STANDARD DRAWING NO. R-1060B

Page 251



PROFILE VIEW
N.T.S.



PLAN VIEW
N.T.S.

Note: No crushed concrete or recycled concrete allowed.

STABILIZED CONSTRUCTION ENTRANCE	CITY OF ROCKWALL	STANDARD SPECIFICATION REFERENCE 202.11 *	DATE Mar. 2018	STANDARD DRAWING NO. R-1070A

Page 252

STABILIZED CONSTRUCTION ENTRANCE GENERAL NOTES:

1. STONE SHALL BE 4 TO 6 INCH DIAMETER COARSE AGGREGATE.

2. MINIMUM LENGTH SHALL BE 50 FEET AND WIDITH SHALL BE 20 FEET.

3. THE THICKNESS SHALL NOT BE LESS THAN 12 INCHES.

4. THE WIDTH SHALL BE NO LESS THAN THE FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS.

5. WHEN NECESSARY, VEHICLES SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO A PUBLIC ROADWAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE WITH DRAINAGE FLOWING AWAY FROM BOTH THE STREET AND THE STABILIZED ENTRANCE. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATERCOURSE USING APPROVED METHODS.

6. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PAVED SURFACES. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO PAVED SURFACES MUST BE REMOVED IMMEDIATELY.

7. THE ENTRANCE MUST BE PROPERLY GRADED OR INCORPORATE A DRAINAGE SWALE TO PREVENT RUNOFF FROM LEAVING THE CONSTRUCTION SITE.

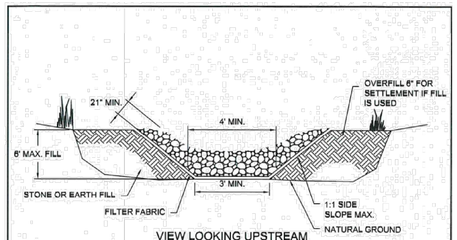
8. PREVENT SHORTCUTTING OF THE FULL LENGTH OF THE CONSTRUCTION ENTRANCE BY INSTALLING BARRIERS AS NECESSARY.

9. INSPECTION SHALL BE AS SPECIFIED IN THE SWPPP.

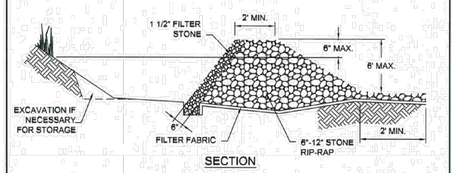
10. NO CRUSHED OR RECYCLED CONCRETE ALLOWED.

STABILIZED CONSTRUCTION ENTRANCE	CITY OF ROCKWALL	STANDARD SPECIFICATION REFERENCE 202.11 *	DATE Mar. 2018	STANDARD DRAWING NO. R-1070B

Page 253



VIEW LOOKING UPSTREAM

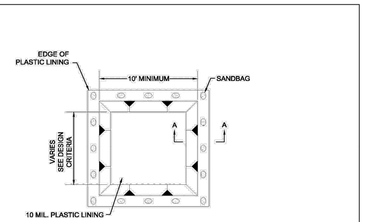


SECTION

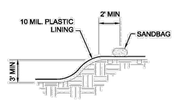
NOTE: FILTER STONE SHALL BE WRAPPED IN APPROPRIATE SIZED WIRE MESH TO CONTAIN STONE.

STONE OUTLET SEDIMENT TRAP	CITY OF ROCKWALL	STANDARD SPECIFICATION REFERENCE 202.12 *	DATE Mar. 2018	STANDARD DRAWING NO. R-1090

Page 254



CONCRETE WASHOUT PLAN VIEW
N.T.S.



CONCRETE WASHOUT SECTION A-A
N.T.S.

NOTE: SANDBAGS MAY BE REPLACED BY A SOIL BERM TO ANCHOR THE PLASTIC LINING.

Figure 4.1 Schematics of Concrete Washout Containment

STOP!
CALL BEFORE YOU DIG
Texas811 Know what's below.
(@ least 72 hours prior to digging)

Issued for Construction: 04-19-2021

Issue Dates:	Revisions:	Date:
4 09/17/2020	1	05/17/2021
5 11/30/2020	2	
6 12/23/2020	3	
7 01/22/2021	4	
8 01/29/2021	5	
9 04/19/2021	6	

CROSS ENGINEERING CONSULTANTS
1720 W. Virginia Street McKinney, Texas 75069
972.562.4409 Texas P.E. Firm No. F-5935

Drawn By:	Checked By:	Scale:
C.E.C.I.	C.E.C.I.	1"=50'

STATE OF TEXAS · ZACHARY · GRIMES · 122013 · REGISTERED · PROFESSIONAL ENGINEER
5/17/2021

EROSION CONTROL DETAILS
HARBOR HILL RESIDENCES
SUMMER LEE DRIVE
ROCKWALL, TEXAS

Sheet No. C6.2
Project No. 18090

HARBOR HILL RESIDENCES - ROCKWALL

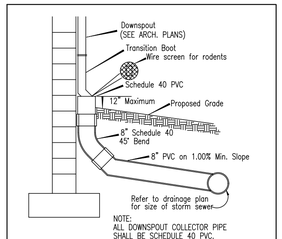
City of Rockwall
"The Texas Lakeside"

Note: Storm sewer headwalls, wingwalls, box culverts and safety pipe runners shall be per Texas Department of Transportation Standard Details and made part of the City of Rockwall Standard Details.

TxDOT Standard Drawings

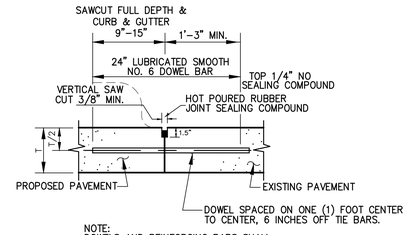
Drawings shall be modified as follows:

1. All concrete for structures shall be Class F (4200 psi, minimum 7.0 sack cement).
2. No fly ash is allowed in concrete for structures.



DOWNSPOUT DETAIL

NOT TO SCALE

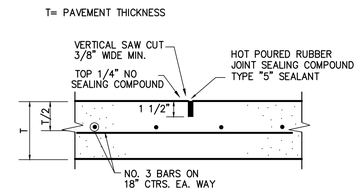


NOTE:
DOWELS AND REINFORCING BARS SHALL
BE SUPPORTED BY AN APPROVED DEVICE.

LONGITUDINAL BUTT JOINT

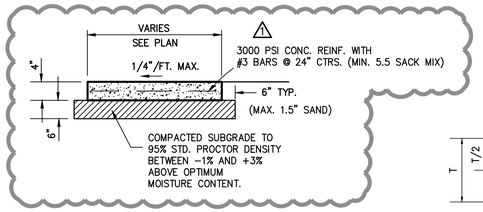
N.T.S.

NOTES:
1. NO. 5 SMOOTH DOWEL BAR MAY BE USED IN 5 INCH AND 6 INCH PAVEMENT THICKNESS.
2. LONGITUDINAL BUTT CONSTRUCTION MAY BE UTILIZED IN PLACE OF LONGITUDINAL HINGED (KEYWAY) JOINT AT CONTRACTORS OPTION.
3. DOWEL BARS SHALL BE DRILLED INTO PAVEMENT HORIZONTALLY BY USE OF A MECHANICAL RIG.
4. DRILLED BY HAND IS NOT ACCEPTABLE, PUSHING DOWEL BARS INTO GREEN CONCRETE NOT ACCEPTABLE.



MAXIMUM SPACING IS 15' CTRS. (TYP.)

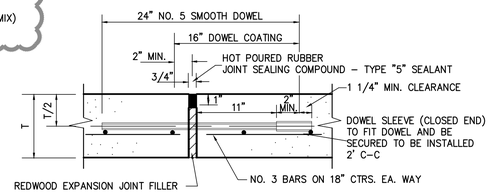
SAWED DUMMY (CONTROL) JOINT



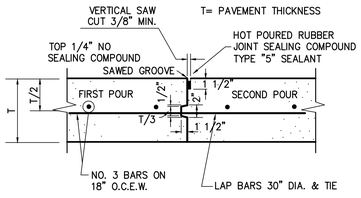
SIDEWALK DETAIL

N.T.S.

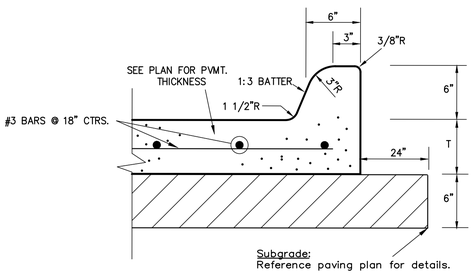
NOTE:
DOWELS AND REINFORCING BARS SHALL
BE SUPPORTED BY AN APPROVED DEVICE.



EXPANSION JOINT



CONSTRUCTION JOINT



PAVEMENT SECTION WITH CURB

Note: All materials and construction shall be in accordance with the City of Rockwall Standard Specifications and Construction Standards, and Standard Specifications for Public Works Construction prepared by North Central Texas Council of Governments (Latest Revision), and to the regulations of The Texas Commission on Environmental Quality.

⚠ Revised Sidewalk Details

Issued for Construction: 04-19-2021

Issue Dates:	Revisions: Date:
4 09/17/2020	1 05/17/2021
5 11/30/2020	2
6 12/23/2020	3
7 01/22/2021	4
8 01/29/2021	5
9 04/19/2021	6

CROSS ENGINEERING CONSULTANTS
1720 W. Virginia Street
McKinney, Texas 75069
972.562.4409
Texas P.E. Firm No. F-5935

Drawn By:	Checked By:	Scale:
C.E.C.I.	C.E.C.I.	

STATE OF TEXAS · ZACHARY C. GRIMES · 122013 · REGISTERED · PROFESSIONAL ENGINEER · 5/17/2021

CONSTRUCTION DETAILS

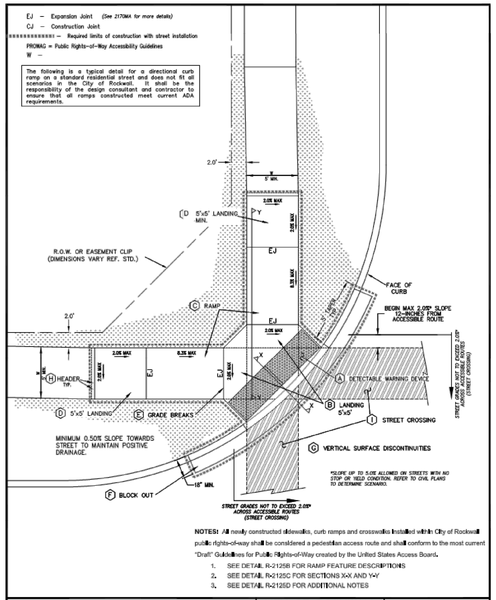
HARBOR HILL RESIDENCES

SUMMER LEE DRIVE
ROCKWALL, TEXAS

Sheet No. C7.1

Project No. 18090

HARBOR HILL RESIDENCES - ROCKWALL



NOTES: All newly constructed sidewalks, curb ramps and crosswalks installed within City of Rockwall public rights-of-way shall be considered a pedestrian access route and shall conform to the most current "Draft" Guidelines for Public Rights-of-Way created by the United States Access Board.

1. SEE DETAIL R-2125B FOR RAMP FEATURE DESCRIPTIONS
2. SEE DETAIL R-2125C FOR SECTIONS X-X AND Y-Y
3. SEE DETAIL R-2125D FOR ADDITIONAL NOTES

DIRECTIONAL CURB RAMP	CITY OF ROCKWALL	DATE	DRAWING NO.
		MAR. '17	R-2125A

Page 269

(A) Detectable Warning Devices (DWD) shall be pre-manufactured cast-in-place truncated dome plates installed to the manufacturer's specifications, and shall meet all ADA requirements. No Brick Pavers allowed. Color to be approved by the City. DWD shall be 24 inches in length for the full width of the street connection starting at the back of curb. A maximum 2-inch border shall be allowed on the sides of the DWD for proper installation.

(B) Also known as "Clear Space" per ADA PROWAG, the City requires a minimum landing space of 5-foot by 5-foot at the bottom of every ramp. This landing space shall have a cross slope in both directions that does not exceed 2.0% and shall be wholly outside the parallel vehicular travel path.

(C) The ramp component of the directional curb ramp shall have a continuous longitudinal slope more than 5% and less than 8.3%. The ramp shall also have a cross slope of no more than 2.0% Length of ramp can vary, but shall not exceed 15 feet to achieve desired elevation change.

(D) Also known as "Turning Space" per ADA PROWAG, a minimum landing space of 5-foot by 5-foot shall be at the top of every ramp. This landing (turning) space shall have a cross slope in both directions that does not exceed 2.0%. Landing must match width of sidewalk and length shall be the same distance ("Squared" Landing).

(E) All curb ramps shall have grade breaks at the top and bottom that are perpendicular to the direction of the ramp run. Where the ends of the bottom grade break are less than or equal to 5 feet, the DWD shall be placed within the ramp at the bottom grade break. Where either end of the bottom grade break is greater than 5 feet, the DWD shall be placed behind the back of the curb.

(F) Paving contractor shall leave block out with a keyway joint installed, minimum of 18 inches measured from back of curb. Block out shall be poured monolithically with Curb Ramp. Concrete shall tie to street paving with a keyway joint per NCTCOG detail 2050. No curb shall be constructed where a DWD is provided. The curb on either side shall have a typical 5 foot taper to transition from the standard 6-inch curb height to be flush with ramp.

(G) All work associated with accessible routes shall be installed flush with all features to minimize vertical surface discontinuities. Each segment along accessible route shall be flush with no more (zero tolerance) than a ¼-inch grade separation (elevation difference), or ½-inch grade separation if beveled (bevel slope shall not be steeper than 50%).

(H) A sidewalk header shall be constructed at ends of all work performed.

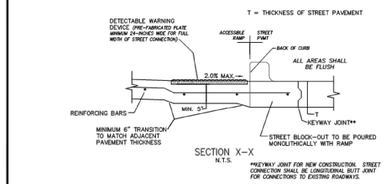
(I) Street crossings shall adhere to same guidelines as other accessible routes within public right-of-way, and shall be for the full width of the in-line accessible route. Cross slope shall not exceed 2%. New street construction shall incorporate all ADA design requirements. It shall be the responsibility of the Design Professional and Contractor to ensure all street crossings meet the requirements of PROWAG. Street alterations on existing streets to bring to compliance shall be at the City Engineer's discretion.

(J) All curbs constructed as part of an ADA Ramp shall match City curb standards.

** See PROWAG special design considerations when street crossing has no stop or yield condition.*

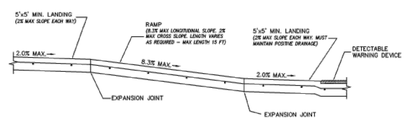
DIRECTIONAL CURB RAMP	CITY OF ROCKWALL	DATE	DRAWING NO.
		MAR. '17	R-2125B

Page 270



SECTION X–X
N.T.S.

**KEYWAY JOINT FOR NEW CONSTRUCTION. STREET CONNECTION SHALL BE LONGITUDINAL BUTT JOINT FOR CONNECTIONS TO EXISTING ROADWAYS.



SECTION Y–Y
N.T.S.

NOTE: ALL SIDEWALK CURB RAMPS WILL BE 3,600 PSI (6.5 SACK/CY) CONCRETE.

DIRECTIONAL CURB RAMP	CITY OF ROCKWALL	DATE	DRAWING NO.
		MAR. '17	R-2125C

Page 271

PEDESTRIAN ACCESSIBILITY (WITHIN PUBLIC R.O.W.)

All newly constructed sidewalks, curb ramps and crosswalks installed within City of Rockwall public rights-of-way shall be considered a pedestrian access route and shall conform to the most current Guidelines for Public Rights-of-Way created by the United States Access Board.

CURB RAMPS

1. All slopes shown are MAXIMUM ALLOWABLE. Lesser slopes that will still drain properly should be used. Adjust curb ramp length or grade of approach sidewalks as directed.
2. Landings shall be 5'x 5' minimum with a maximum 2% slope in the transverse and longitudinal directions..
3. Clear space at the bottom of curb ramps shall be a minimum of 5'x 5' wholly contained within the crosswalk and wholly outside the parallel vehicular travel path.
4. Maximum allowable cross slope on sidewalk and curb ramp surfaces is 2%.
5. Additional information on curb ramp location, design, light reflective value and texture may be found in the most current edition of the Texas Accessibility Standards (TAS) and 16 TAC 68.102. Federal guidelines shall supersede any conflicts.
6. Crosswalk dimensions, crosswalk markings and stop bar locations shall be as shown elsewhere in the plans. At intersections where crosswalk markings are not required, curb ramps and accessible routes shall align with theoretical crosswalks unless otherwise directed.
7. Handrails are not required on curb ramps.
8. Provide a flush transition where the curb ramps connect to the street.
9. Accessible routes are considered "ramps" when longitudinal slopes are between 5% and 8.3% (maximum allowable). Sidewalks under 5% longitudinal slope are deemed accessible routes and must follow all applicable guidelines.

DETECTABLE WARNING DEVICE

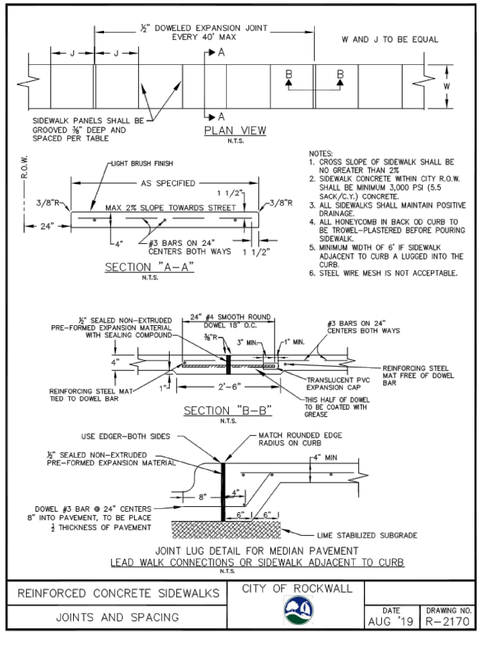
10. Curb ramps must contain a detectable warning surface that consists of raised truncated domes complying with Section 705 of the TAS. The surface must contrast visually with adjoining surfaces. Furnish and install an approved cast-in-place dark red detectable warning surface material adjacent to uncolored concrete, unless specified elsewhere in the plans.
11. Detectable Warning Materials shall be truncated dome plates in the color approved by the City. Install products in accordance with manufacturer's specifications.
12. Detectable warning surfaces must be slip resistant and not allow water to accumulate.
13. Detectable warning surfaces shall be a minimum of 24" in depth in the direction of pedestrian travel, and extend the full width of the curb ramp or landing where the pedestrian access route enters the street.
14. Detectable warning surfaces shall be located so that the edge nearest the curb line is at the back of curb. When placed on the ramp, align the rows of domes to be perpendicular to the grade break between the ramp run and the street. Where detectable warning surfaces are provided on a surface with a slope that is less than 5 percent, dome orientation is less critical. Detectable warning surfaces may be curved along the corner radius.

SIDEWALKS

15. Provide clear ground space at operable ports, including pedestrian push buttons. Operable ports shall be placed within one or more reach ranges specified in TAS 308.
16. Place traffic signal or illumination poles, ground boxes, controller boxes, signs, drainage facilities and other items so as not to obstruct the pedestrian access route or clear ground space.
17. Street grades and cross slopes shall be as shown elsewhere in the plans.
18. Changes in level greater than 1/4 inch are not permitted (1/2 inch with bevel).
19. The least possible grade should be used to maximize accessibility. The running slope of sidewalks and crosswalks within the public right of way may follow the grade of the parallel roadway. Where a continuous grade greater than 5% must be provided, handrails may be desirable to improve accessibility. Handrails may also be needed to protect pedestrians from potentially hazardous conditions. If provided, handrails shall comply with TAS 505.
20. Handrail extensions shall not protrude into the usable landing area or into intersecting pedestrian routes.

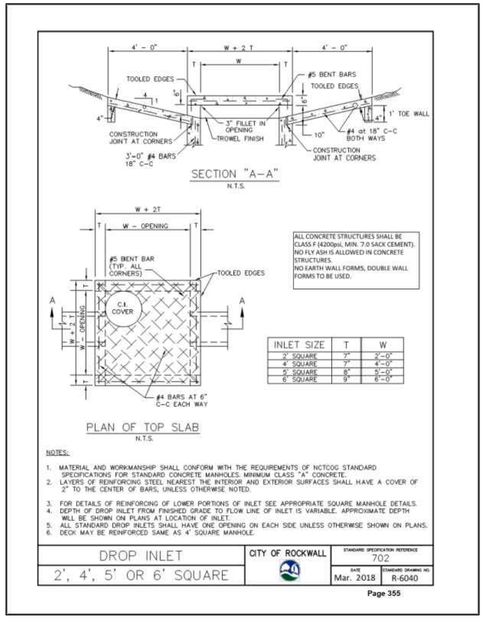
DIRECTIONAL CURB RAMP	CITY OF ROCKWALL	DATE	DRAWING NO.
		MAR. '17	R-2125D

Page 272



REINFORCED CONCRETE SIDEWALKS	CITY OF ROCKWALL	DATE	DRAWING NO.
JOINTS AND SPACING		AUG '19	R-2170

Page 277



INLET SIZE	T	W
2' SQUARE	7"	2'–0"
4' SQUARE	7"	4'–0"
5' SQUARE	8"	5'–0"
6' SQUARE	9"	6'–0"

NOTES:

1. MATERIAL AND WORKMANSHIP SHALL CONFORM WITH THE REQUIREMENTS OF NCTCOG STANDARD SPECIFICATIONS FOR STANDARD CONCRETE MANHOLES. MINIMUM CLASS "A" CONCRETE.
2. LAYERS OF REINFORCING STEEL NEAREST THE INTERIOR AND EXTERIOR SURFACES SHALL HAVE A COVER OF 2" TO THE CENTER OF BARS, UNLESS OTHERWISE NOTED.
3. FOR DETAILS OF REINFORCING OF LOWER PORTIONS OF INLET SEE APPROPRIATE SQUARE MANHOLE DETAILS.
4. DEPTH OF DROP INLET FROM FINISHED GRADE TO FLOW LINE OF INLET IS VARIABLE. APPROXIMATE DEPTH WILL BE SHOWN ON PLANS AT LOCATION OF INLET.
5. ALL STANDARD DROP INLETS SHALL HAVE ONE OPENING ON EACH SIDE UNLESS OTHERWISE SHOWN ON PLANS.
6. DECK MAY BE REINFORCED SAME AS 4' SQUARE MANHOLE.

DROP INLET	CITY OF ROCKWALL	STANDARD SPECIFICATION REFERENCE	702
2', 4', 5' OR 6' SQUARE		DATE	STANDARD DRAWING NO.
		Mar. 2018	R-6040

Page 355

Note: All materials and construction shall be in accordance with the City of Rockwall Standard Specifications and Construction Standards, and Standard Specifications for Public Works Construction prepared by North Central Texas Council of Governments (Latest Revision), and to the regulations of The Texas Commission on Environmental Quality.

Issued for Construction: 04-19-2021

Issue Dates:	Revisions:	Date:
4 09/17/2020	1	05/17/2021
5 11/30/2020	2	
6 12/23/2020	3	
7 01/22/2021	4	
8 01/29/2021	5	
9 04/19/2021	6	

CROSS ENGINEERING CONSULTANTS
1720 W. Virginia Street
McKinney, Texas 75069
972.562.4409
Texas P.E. Firm No. F-5935

Drawn By:	Checked By:	Scale:
C.E.C.I.	C.E.C.I.	

STATE OF TEXAS – ZACHARY E. GRIMES – 122013 – REGISTERED PROFESSIONAL ENGINEER – 5/17/2021

CONSTRUCTION DETAILS
HARBOR HILL RESIDENCES
SUMMER LEE DRIVE
ROCKWALL, TEXAS

Sheet No. C7.2

Project No. 18090

HARBOR HILL RESIDENCES - ROCKWALL.

LANDSCAPE REQUIREMENTS

THIS PLAN MEETS OR EXCEEDS THE FOLLOWING STANDARDS:

PD-32 HARBOR DISTRICT
INTERIOR SUBDISTRICT

LOT INFO

TOTAL SITE AREA: 3.97 AC (173,010 S.F.)
TOTAL DEVELOPED AREA: 3.97.6 AC (173,010 S.F.)
TOTAL IMPERVIOUS SURFACE: 123,980 S.F. (72%)
TOTAL PERVIOUS SURFACE: 49,030 S.F. (28%)

LANDSCAPE PERCENTAGE

REQUIRED: 25% LANDSCAPE PERCENTAGE
173,010 S.F. X 25% = 43,252 S.F. (0.99 AC)
PROVIDED: 49,030 S.F. (28%)

PARKING LOT LANDSCAPE

REQUIRED: (1) TREE PER 8 SURFACE PARKING SPOTS
17 SURFACE PARKING / 8 = 2.1 TREES
PROVIDED: (4) TREES

PARKING GARAGES

REQUIRED: A MINIMUM OF 25% OF EXPOSED GARAGE FACADE MUST BE SCREENED WITH VINES ON A GREENSCREEN OR CABLE TYPE SYSTEM
PROVIDED: 25%+ EXPOSED GARAGE FACADE SCREENED WITH VINES

STREET FRONTAGE

REQUIRED: 8' SIDEWALK WITH 5' X 10' TREE LEAVE-OUTS 30' O.C. SUMMER LEE DR. TO USE CEDAR ELM TREES ALONG R.O.W.
PROVIDED: (4) TREES IN 5' X 10' TREE LEAVEOUTS

IRRIGATION NOTES

THE OWNER SHALL BE RESPONSIBLE FOR THE HEALTH AND VITALITY OF PLANT MATERIAL THROUGH IRRIGATION OF ALL LANDSCAPED AREAS, TURF AND PLANT MATERIALS, AND SHALL:

1. PROVIDE A MOISTURE LEVEL IN AN AMOUNT AND FREQUENCY ADEQUATE TO SUSTAIN GROWTH OF THE PLANT MATERIALS ON A PERMANENT BASIS.
2. BE IN PLACE AND OPERATIONAL AT THE TIME OF THE LANDSCAPE INSPECTION FOR CERTIFICATE OF OCCUPANCY.
3. BE MAINTAINED AND KEPT OPERATIONAL AT ALL TIMES TO PROVIDE FOR EFFICIENT WATER DISTRIBUTION.

COMPLIANCE WITH STATE LAW. ALL IRRIGATION SYSTEMS SHALL COMPLY WITH THE IRRIGATION CODE OF CHAPTER 10, ARTICLE XVI OF THE CITY OF ROCKWALL CODE OF ORDINANCES, AND ALL APPLICABLE STATE LAWS, AS MAY BE AMENDED.

GENERAL NOTES

NO TREES WITHIN 5' OF UTILITIES.

FURNITURE SCHEDULE

6' BENCH

COLLECTION: SCARBOROUGH
MODEL: 72" WITH CENTER ARM
COLOR: BLACK
QUANTITY: (2)

TRASH RECEPTACLE

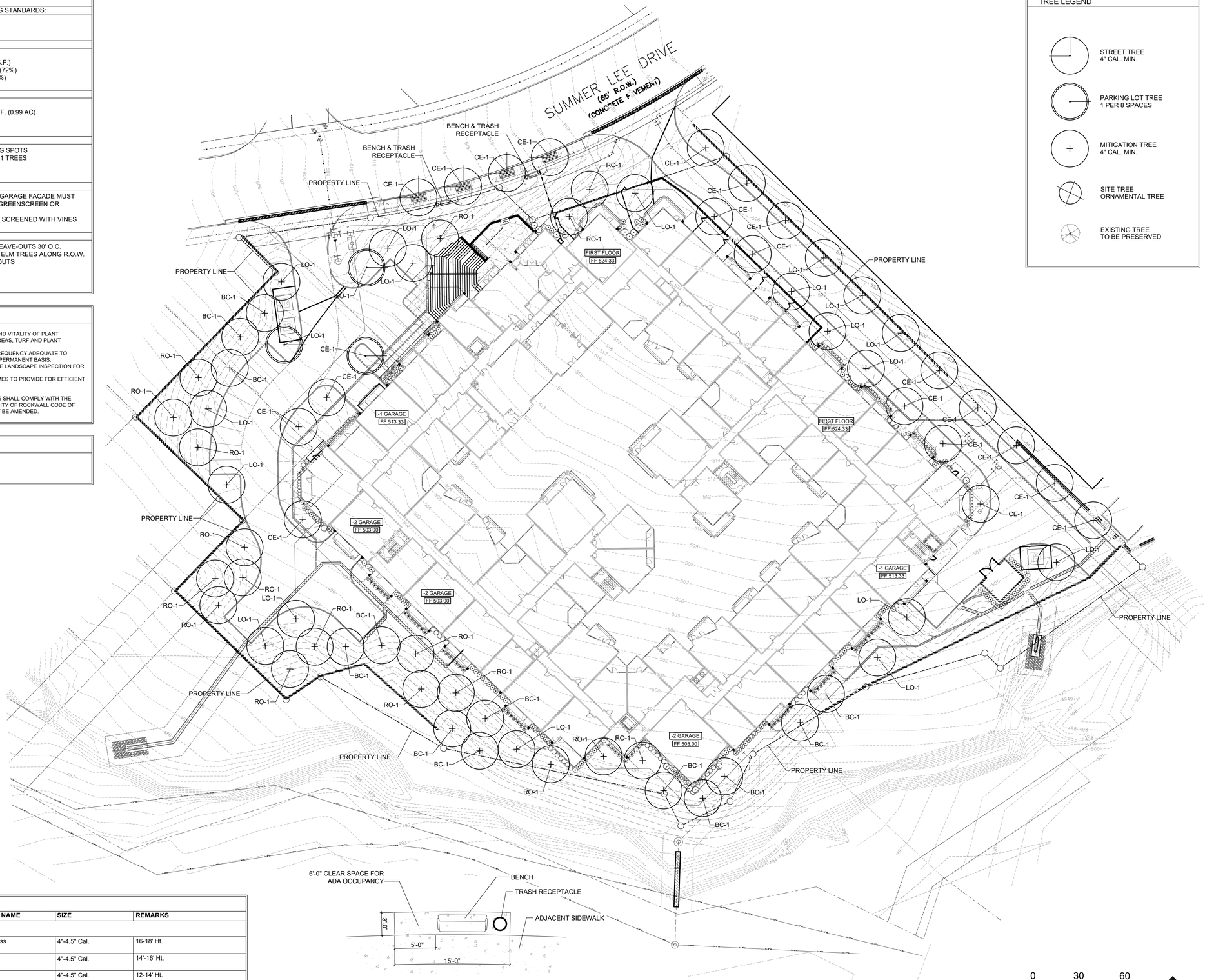
COLLECTION: SCARBOROUGH
MODEL: SIDE OPENING / VERTICAL STRAP
COLOR: BLACK
QUANTITY: (2)

*Surface mount all equipment per manufacturer's specifications

LANDSCAPE FORMS
WWW.LANDSCAPEFORMS.COM

TREE LEGEND

- STREET TREE 4" CAL. MIN.
- PARKING LOT TREE 1 PER 8 SPACES
- MITIGATION TREE 4" CAL. MIN.
- SITE TREE ORNAMENTAL TREE
- EXISTING TREE TO BE PRESERVED



PLANT LIST

SYM.	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	REMARKS
		SHADE TREES			
BC	13	Taxodium distichum	Bald Cypress	4"-4.5" Cal.	16-18' Ht.
LO	21	Quercus virginiana	Live Oak	4"-4.5" Cal.	14'-16' Ht.
CE	21	Ulmus crassifolia	Cedar Elm	4"-4.5" Cal.	12-14' Ht.
RO	17	Quercus shumardii	Red Oak	4"-4.5" Cal.	14'-16' Ht.

2 TYPICAL STREET FURNITURE LAYOUT
SCALE: NTS

1 LANDSCAPE PLAN
SCALE: 1" = 30'-0"

0 30 60
GRAPHIC SCALE IN FEET

N

ISSUES:
1 01-09-20 ISSUE FOR PERMIT

REVISIONS:
1 02-14-20
2 09-17-20 ADDENDUM #2

CLIENT:
DBA Architects
111 S. KENTUCKY
SUITE 210
MCKINNEY, TX 75069

CONTACT:
REUBEN MENDIOLA
(800) 900-4905
reuben@dba-architects.com

HARBOR HILL LUXURY RESIDENCES
ROCKWALL, TEXAS

mdg landscape architects
MEEKS DESIGN GROUP, INC.
1755 N. COLLINS BLVD., SUITE 300
RICHARDSON, TX 75080
PH (972) 690-7474
F (972) 690-7878

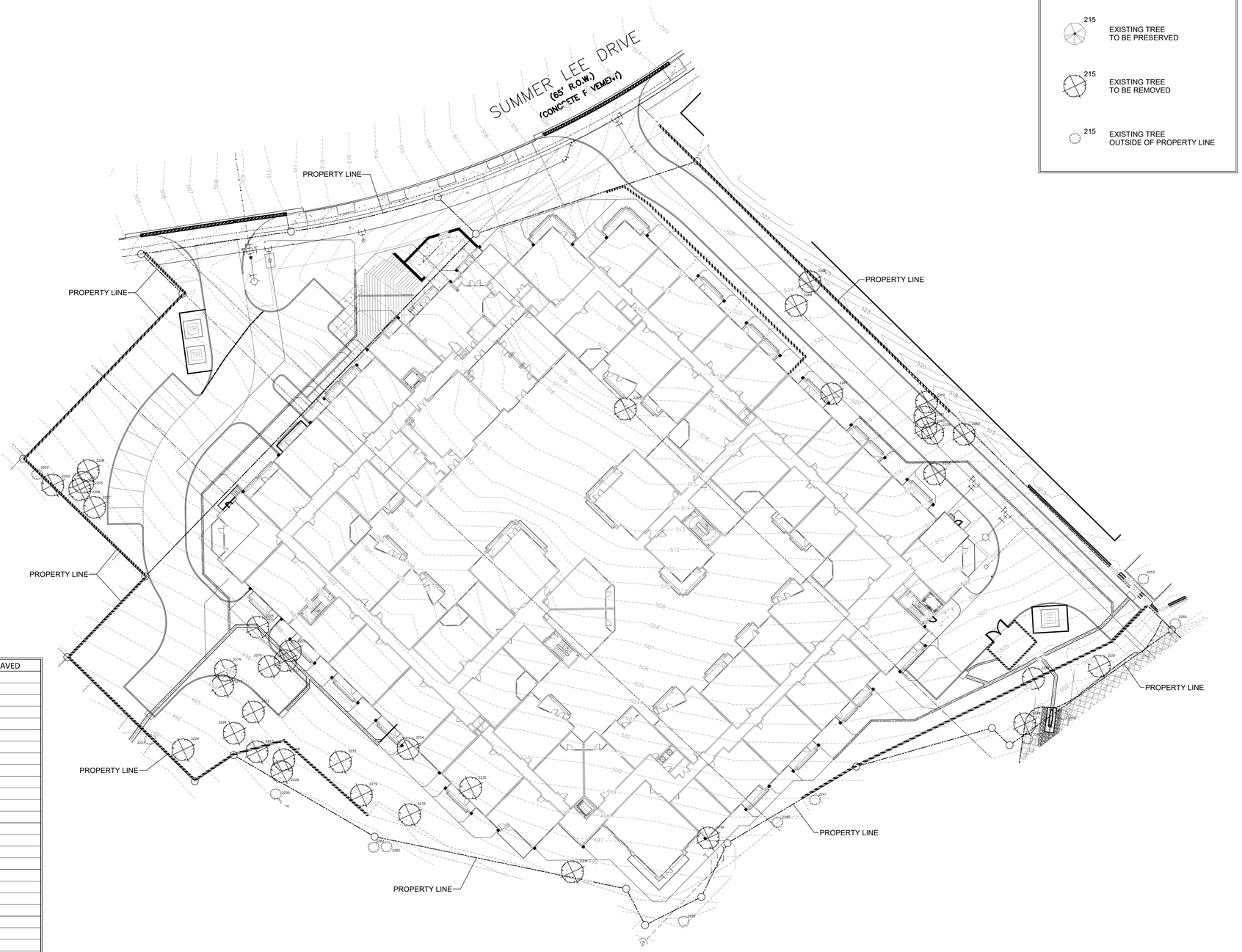
REGISTERED LANDSCAPE ARCHITECT
BRIAN H. BLACKMON
2485
STATE OF TEXAS
09-17-20

ISSUE FOR PERMIT

HARBOR HILL LUXURY RESIDENCES
ROCKWALL, TEXAS
JOB NUMBER: DBA-1804

LANDSCAPE PLAN

LP0.01



TREE LEGEND

215 EXISTING TREE TO BE PRESERVED

215 EXISTING TREE TO BE REMOVED

215 EXISTING TREE OUTSIDE OF PROPERTY LINE

TREE MITIGATION CALCULATIONS

TREE PRESERVATION

TOTAL INCHES ON SITE:	499 INCHES
TOTAL INCHES TO BE REMOVED:	499 INCHES
TOTAL INCHES TO BE PRESERVED:	0 INCHES
TOTAL PRESERVATION CREDITS:	0 INCHES
USABLE CREDITS (MAX 20% OF MITIGATION):	(0 INCHES)

TREE MITIGATION

REQUIRED: 398 INCHES TO BE MITIGATED
PROVIDED: (65) 4" CANOPY TREES = 260 INCHES PROVIDED
REMAINING INCHES TO BE PLANTED ON SITE OR PAID TO THE TREE FUND

GENERAL NOTES

NO TREES WITHIN 5' OF UTILITIES.

TREE TAG #	DIAMETER (in)	TREE TYPE	SAVE/REMOVE	INCHES MITGATED	INCHES SAVED
203	5	Elm	R	5	
204	8	Elm	R	8	
205	6	Elm	R	6	
206	6	Elm	R	6	
207	12	Cedar	R	6	
224	12	Cedar	R	6	
226	18	Pecan	R	18	
227	24	Pecan	R	24	
228	18	Pecan	R	18	
229	12	Cedar	R	6	
232	20	Pecan	R	20	
233	16	Cedar	R	8	
234	20	Cedar	R	10	
235	20	Pecan	R	20	
236	12	Cedar	R	6	
239	16	Oak	R	16	
248	12	Pecan	R	12	
249	12	Cedar	R	6	
251	16	Pecan	R	16	
258	20	Cedar	R	10	
259	18	Cedar	R	9	
260	18	Cedar	R	9	
261	12	Cedar	R	6	
262	24	Cedar	R	12	
263	30	Cedar	R	60	
265	12	Cedar	R	6	
266	12	Cedar	R	6	
267	12	Cedar	R	6	
268	12	Cedar	R	6	
272	14	Cedar	R	7	
273	8	Oak	R	8	
274	10	Oak	R	10	
275	12	Cedar	R	6	
276	6	Oak	R	6	
277	4	Oak	R	4	
278	6	Oak	R	6	
279	4	Oak	R	4	
		TOTAL:		398	0

1 TREE SURVEY/MITIGATION
SCALE: 1" = 30'-0"

0 30 60
GRAPHIC SCALE IN FEET

N

ISSUES:
1 01-09-20 ISSUE FOR PERMIT

REVISIONS:
1 02-14-20
2 09-17-20 ADDENDUM #2

CLIENT:
DBA Architects
111 S. KENTUCKY
SUITE 210
MCKINNEY, TX 75069

CONTACT:
REUBEN MENDIOLA
(800) 900-4905
reuben@dba-architects.com

HARBOR HILL
LUXURY RESIDENCES
ROCKWALL, TEXAS

mdg landscape architects
MEEKS DESIGN GROUP, INC.
1755 N. COLLINS BLVD., SUITE 300
RICHARDSON, TX 75080
PH (972) 690-7474
F (972) 690-7878

REGISTERED LANDSCAPE ARCHITECT
BRANDON H. BEARD
2485
STATE OF TEXAS
09-17-20

ISSUE FOR PERMIT

HARBOR HILL LUXURY RESIDENCES

ROCKWALL, TEXAS

JOB NUMBER: DBA-1804

TREE SURVEY/ MITIGATION

TS-1

SUMMER LEE DR.
(65' R.O.W.)

1/RW2 SET TOE OF WALL AT PROPERTY LINE. DO NOT CROSS PROPERTY LINE

2/RW2 SET TOE OF WALL AT PROPERTY LINE. DO NOT CROSS PROPERTY LINE

1/RW6 SET TOE OF WALL AT PROPERTY LINE. DO NOT CROSS PROPERTY LINE

1/RW2

Reference Landscape Arch. Plans for Grading, Walls and Stairs in this Area

Reference Arch. Plans for Stair Details

Inner Courtyard is Part of the Building. Reference Architectural Plans for the Inner Courtyard

Install Traffic Rated Guard Rail

Prop. Curb Inlet

DRAIN EASEM.

Finished Floor Elevations

Building Level 4	= 555.83
Building Level 3	= 545.33
Building Level 2	= 534.83
Building Level 1	= 524.33
Garage Level −1	= 513.33
Garage Level −2	= 503.00

MATCHLINE A-A

NOTE FROM FALKOFSKE: This plan was developed directly from the Cross Engineering Consultants, Inc. Grading Plan dated Jan. 9, 2020 and last revised on May 20, 2020, sheet C2.1. This plan is for the sole purpose of showing what retaining wall sections to use where and to comment on the site as necessary with regards to the retaining walls. Contractor shall review final Civil Plans for other notes with regard to the site prior to constructing Masonry Stone Retaining Walls.

KEY PLAN
N.T.S.

0 20
GRAPHIC SCALE
1"=20'

	DES.	DRN.	CHK.
DATE	03-20-20	03-20-20	03-20-20
BY	AMB	RL	AMB

NO.	DATE	REVISION	BY
3	08-07-20	UPDATED CALL OUTS	RLB
2	07-17-20	UPDATED CIVIL GRADING PLAN CALLOUTS	EG
1	05-26-20	UPDATED CIVIL GRADING PLAN	RL

Falkofske Engineering, Inc.
Structural Engineering Consultants
TX Reg. Engineering Firm F-4038
722 North Fielder Road
Arlington, Texas 76012
(817) 261-8300

The use of these plans and specifications is restricted to the original site for which they were prepared. Any reproduction or distribution is expressly restricted. Such use, or disclosure by any method, shall be at the user's risk and without liability to the preparer. These drawings and specifications are copyrighted and all rights and title remains in FALKOFSKE ENGINEERING.

MASONRY RETAINING WALLS – SITE PLAN MARKUP
HARBOR HILLS
SUMMER LEE DRIVE
ROCKWALL, TEXAS

WALLCO RETAINING WALLS, INC.
4800 S.E. LOOP 820
FORT WORTH, TEXAS 76140

STATE OF TEXAS
AARON M. BERKES
107154
LICENSED PROFESSIONAL ENGINEER
5-3-20

JOB NO. 151.20

SP1

0 20 60

GRAPHIC SCALE
1"=20'

NOTE FROM FALKOFSKE: This plan was developed directly from the Cross Engineering Consultants, Inc. Grading Plan dated Jan. 9, 2020 and last revised on May 20, 2020, sheet C2.2. This plan is for the sole purpose of showing what retaining wall sections to use where and to comment on the site as necessary with regards to the retaining walls. Contractor shall review final Civil Plans for other notes with regard to the site prior to constructing Masonry Stone Retaining Walls.

N.T.S.

MATCHLINE A–A

TW 524.00
BW 521.20

TW 523.60
BW 519.20

TW 521.50
BW 519.30

1/RW2

TW 517.00
BW 517.00

Ex.
TW 512.44
BW 512.37

Ex.
TW 510.80
BW 506.93

Ex.
TW 509.48
BW 506.75

Prop. Curb Inlet

Ex.
TW 509.28
BW 506.75

Ex.
TW 506.53
BW 505.48

1/RW4
TW 509.00
BW 497.00

Install Traffic Rated Guard Rail

TW 509.00
BW 497.00

TW 510.00
BW 501.75

1/RW3

Prop. Headwall

TW 511.00
BW 502.00

TW 510.50
BW 503.00

1/RW2

TW 502.00
BW 501.00

TW 500.00
BW 500.00

TW 507.50
BW 500.00

Prop. Curb Inlet

Prop. Curb Inlet

Inner Courtyard is Part of the Building. Reference Architectural Plans for the Inner Courtyard

Finished Floor Elevations
Building Level 4 = 555.83
Building Level 3 = 545.33
Building Level 2 = 534.83
Building Level 1 = 524.33
Garage Level –1 = 513.33
Garage Level –2 = 503.00

1/RW2 SET TOE OF WALL AT PROPERTY LINE. DO NOT CROSS PROPERTY LINE

1/RW2 SET TOE OF WALL AT PROPERTY LINE. DO NOT CROSS PROPERTY LINE

2/RW2 SET TOE OF WALL AT PROPERTY LINE. DO NOT CROSS PROPERTY LINE

2/RW2 SET TOE OF WALL AT PROPERTY LINE. DO NOT CROSS PROPERTY LINE

TW 494.00
BW 491.00

TW 498.50
BW 491.00

TW 495.00
BW 492.00

TW 495.00
BW 489.00

EROSION HAZARD SETBACK

DRAINAGE EASEMENT & EROSION HAZARD SETBACK

Reference Arch. Plans for Building Foundation Wall

EROSION HAZARD SETBACK

DRAINAGE EASEMENT

DRAINAGE EASEMENT

EROSION HAZARD SETBACK

City of Rockwall 100-Year Floodplain Per Cross Engineering April 2020 Flood Study

ty of Rockwall
–Year Floodplain
Cross Engineering
2020 Flood Study

20' SANITARY SEWER EASEMENT INST. NO. 20170000019701 O.P.R.R.C.T.

REFERENCE GLEN HILL WAY EXTENSION PLANS FOR WSE CROSS SECTIONS

	DES.	DRN.	CHK.
DATE	03-20-20	03-20-20	03-20-20
BY	AMB	RL	AMB

NO.	DATE	REVISION	BY
3	08-07-20	UPDATED CALL OUTS	RLB
2	07-17-20	UPDATED CIVIL GRADING PLAN CALLOUTS	EG
1	05-28-20	UPDATED CIVIL GRADING PLAN	RL

Falkofske Engineering, Inc.
Structural Engineering Consultants
TX Reg. Engineering Firm F-4038
722 North Fielder Road
Arlington, Texas 76012
(817) 261-8300

FALKOFSKE ENGINEERING

The use of these plans and specifications is restricted to the original site for which they were prepared. Any reproduction or distribution, in any form or by any methods, of these drawings and specifications or any portion thereof without the written consent of FALKOFSKE ENGINEERING is prohibited and title remains in FALKOFSKE ENGINEERING.

MASONRY RETAINING WALLS – SITE PLAN MARKUP
HARBOR HILLS
SUMMER LEE DRIVE
ROCKWALL, TEXAS

WALLCO RETAINING WALLS, INC.
4800 S.E. LOOP 820
FORT WORTH, TEXAS 76140

STATE OF TEXAS
AARON M. BERKES
107154
LICENSED PROFESSIONAL ENGINEER
8-3-20

JOB NO. 151.20

SP2

NO.	DATE	REVISION	BY
1	08-07-20	UPDATED CALL OUTS	RLB

	DATE	BY
DES.	03-20-20	AMB
DRN.	03-20-20	RL
CHK.	03-20-20	AMB

Falkofske Engineering, Inc.
Structural Engineering Consultants
TX Reg. Engineering Firm F-4038
722 North Fielder Road
Arlington, Texas 76012
(817) 261-8300

The use of these plans and specifications is restricted to the original site for which they were prepared and publication, reproduction or distribution is expressly prohibited. Any other reproduction, use, or disclosure by any method, electronic or otherwise, is prohibited. These drawings and specifications and the ideas incorporated herein, and title remains in FALKOFSKE ENGINEERING.

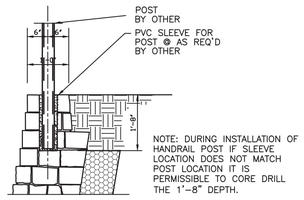
MASONRY RETAINING WALLS – SITE PLAN MARKUP
HARBOR HILLS
SUMMER LEE DRIVE
ROCKWALL, TEXAS

WALLCO RETAINING WALLS, INC.
4800 S.E. LOOP 820
FORT WORTH, TEXAS 76140

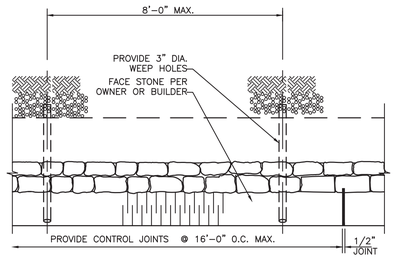
STATE OF TEXAS
AARON M. BERKES
107154
LICENSED
PROFESSIONAL ENGINEER
5-3-20

JOB NO. 151.20

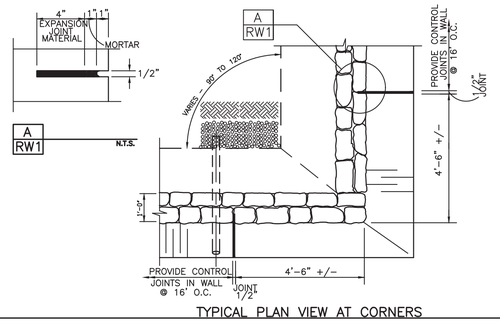
SP3



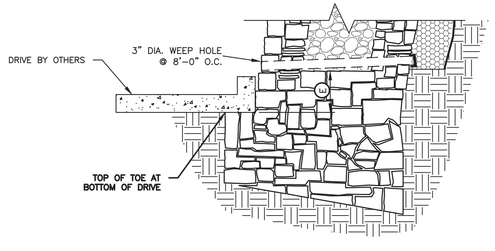
1 RW1 WALL SECTION W/HANDRAIL POST
CONTRACTOR OPTION N.T.S.



2 RW1 TYPICAL PLAN VIEW AT BASE N.T.S.



3 RW1 TYPICAL PLAN VIEW AT CORNERS N.T.S.



4 RW1 CROSS SECTION OF WALL
WITH CURB ON TOP OF TOE N.T.S.

GENERAL NOTES

1. Design

1.1. Design Codes

International Building Code, 2015 Edition

1.2. Geotechnical Report

Firm: RONE ENGINEERING, Inc.
Report No.: 16-21084 Dated: May 12, 2016
Allowable Bearing Capacity 1500 psf

1.3. Design Parameters

Soil Parameters:

Soil Type*	Friction Angle	Cohesion (psf)	Unit Weight (pcf)
Retained Backfill (On site clay)	26 deg	0 psf	120 pcf
Foundation Soils (1500 psf)	26 deg	0 psf	120 pcf

*See materials below for a description of each Soil Type.

Factors of Safety:

External Stability

a.	Minimum Factor of Safety Against Base Sliding (Static Condition)	1.5
b.	Minimum Factor of Safety Against Overturning	2.0
c.	Minimum Factor of Safety Against Global Stability	1.5
d.	Minimum Factor of Safety for Bearing Capacity	3.0

Design Loading:

Lateral earth pressures are calculated using Coulombs Lateral Earth Pressure Theory. Designs have been performed to accept loading per the proposed loading conditions based on the Civil Grading Plans. A live loading of 250 psf has been used for all walls supporting areas subject to firelane loading.

Retaining walls should not have solid fence (such as wood fence) placed on top of wall other than that shown on these plans. Retaining walls shall not have additional surcharge placed above wall other than that shown on these plans. Retaining walls shall not have slope at base or top of wall that exceed that which is shown on these plans. The retaining walls noted above require special design.

2. Materials

2.1. Soil Types

a. Retained Backfill
  a.a. On site clayey soils
  a.b. Properly compacted on-site fill soils, verification by others.

b. Foundation Soils (Allowable Bearing = 1500 psf min)
  b.a. Bearing on Stiff Natural Undisturbed Clayey or Sandy Soils or Compacted and Tested Fill Soils
  b.b. Friction Angle between Base of Wall and Soil - 17 deg
  b.c. Bearing in fill soils. Fill soils supporting the retaining walls shall be placed in accordance with the recommendations for the fill placement per the geotechincal report.

c. Drainage Material
  c.a. Free draining granular backfill, clean, non-plastic, relatively well-graded.

2.2. Dimension Stone

a. Average Density of masonry wall varies from 135pcf to 145pcf.
b. Stone size varies from 4" to 18".
c. Face stone shall be coordinated between contractor and owner/developer.
d. Recycled concrete 4" to 18" may be used in place of dimension stone, contractors option.

2.3. Rebar/Welded Wire Fabric (If Required)

a. All steel reinforcement shall be new billet steel conforming to ASTM A-615, Grade 60 with fy=60ksi.
b. All reinforcement shall not have deleterious material on it.
c. All welded wire fabric shall have minimum fy=65ksi and be hot dip galvanized.

2.4. Drainage Materials

a. Weep pipes shall be PVC or corrugated HDPE pipe.
b. Drainage zone shall be separated from retained backfill by mirafi 140N filter fabric or approved equal.

2.5 Portland Cement Mortar for Retaining Wall Construction.

The portland cement mortar used for construction of the masonry stone retaining walls shall be provided with the following proportions per cubic yard of concrete. The portland cement mortar supplier shall provide "batch tickets" clearly indicating that the appropriate amount of materials are provided in each truck load. The batch tickets shall clearly indicate the amount batched, the date, the project name and shall be provided to Falkofske Engineering, Inc. for review, documentation, and file.

Contents	Amount per cubic yard	Specific Gravity	Volume ft^3
Type 1 Portland cement:	451 lbs	3.15	2.29
Type F Fly Ash	113 lbs	2.93	0.62
Fine Aggregate (sand):	2746 lbs	2.59	16.99
Potable Water	367 lbs	44 Gallons	5.88
Sika Air (or equivalent)	(AS REQ'D) oz	4.5%	1.22
			27.0 Total

Note: the portland cement mortar supplier material weights may vary slightly based on the specific gravity of the materials used.

Concrete retarders may be used at the discretion of the masonry wall contractor. A greater amount of retarder is typically used during hot periods and a less amount of retarder is typically used during cool weather.

Please note that the above proportions will provide a portland cement mortar with a compressive strength of about f'c = 2500 psi. Falkofske Engineering, Inc. does not require any concrete testing provided the above proportions are verified by way of the "batch tickets".

3. Construction

3.1 Preparation Work

a. Prior to grading or excavation of the site, confirm the location of the retaining walls and all underground features, including utility location within the area of construction. Ensure surrounding structures are protected from effects of wall excavation, and construction.
b. Coordinate installation of underground utilities and other improvements with wall installation.

3.2 Excavation

a. If a mortared footing is over-excavated, then the dimension stone shall be placed mortared. If a dry stone footing is over excavated, then the dimension stone does not need to be mortared.
b. Fill over-excavated area in front of the wall footing with compacted on site soils before the wall construction exceeds 4 feet in height.
c. In areas where the walls are installed in a cut, the required excavation shall extend horizontally to the extent of the width of the retaining wall. The wall may be built to the cut. If the wall is over cut, then soil shall either be compacted or the drainage zone may be widened.

3.3 Wall Construction

a. The wall shall be constructed to the dimensions as shown on these plans. Front leads, back leads,and string lines shall be set for each wall. Care shall be taken to install the mortar zones the correct thickness, and to place drainage behind the wall as required.
b. Control joints shall be installed at a maximum of 16'-0" o.c. per these plans.
c. Weep pipes shall be placed at 8'-0" o.c. max.
d. Face rock type shall be coordinated between the architect, owner, and retaining wall contractor.

3.4 Retained Backfill Placement

a. Retained backfill shall be placed per the recommendations of the geotechnical engineer, but should not be less than 93% Standard Proctor Maximum Dry Density (ASTM D698).
b. Fill should be placed in maximum 8" thick compacted lifts.
c. Large compaction equipment (equipment heavier than 7,500 lb) shall remain a minimum of 1.5x the height of the wall away from the back of the wall for a period of 2 weeks from the time of construction.
d. After a period of 2 weeks from the time of construction large compaction equipment may be used behind the wall but shall stay a minimum of 5'-0" away from the back of the wall.
e. Soil placed with in 5'-0" of the back of the wall shall be placed using handheld compaction equipment.
f. If the wall is in a cut situation the wall may be built up to the cut. If the wall is overcut the drainage zone may be widened to the cut or compacted fill may be placed between the drainage zone and the cut.

3.6 Retaining Wall Performance, Maintenance, and Other Comments

a. Control joints are provided in the retaining wall to allow for minor movements due to settlement and shrink swell of the soils. Some cracking may occur in the face of the retaining wall. This cracking, if minor (less than 3/8"), may be cosmetically repaired as desired.
b. The retaining walls are designed to allow surface water to flow over the tops of the retaining walls. Care should be taken during and after construction to not allow water to pond behind the retaining walls, as this can have a negative impact on the stability of the retaining walls.
c. If downspouts are located near the back of the retaining wall they should either be plumbed through the retaining wall to drain below the wall or collected and tied into the storm sewer system. Perforated subsurface pipes shall not be used behind the retaining walls.
d. Positive drainage over the top of the walls shall be maintained throughout the life of the structure. If swales are placed behind the wall they shall remain clean and free draining. If water is found to be ponding in the swale it shall be fixed to allow water to freely drain as soon as possible.
e. Any broken sprinklers behind the retaining wall shall be turned off and repaired as soon as possible.

3.7 Cold Weather Construction of Retaining Walls

Construction Requirements for temperatures between 40°F and 32°F:

a. Water and aggregates used in mortar shall not be heated above 140°F.
b. Mortar sand or mixing water shall be heated to produce mortar temperatures between 40°F and 120°F at the time of mixing.

Construction Requirements for temperatures between 32°F and 25°F:

a. The guidelines above for construction requirements for temperatures between 40°F and 32°F and the following shall be met.
b. The mortar temperature shall be maintained above freezing until used in masonry stone retaining wall.
c. Visible ice and snow shall be removed from the top surface of existing foundations and masonry to receive new construction. These surfaces shall be heated to above freezing, using methods that do not result in damage.
d. Newly constructed masonry shall be completely covered with weather-resistive membrane for 48 hours after being completed.

Construction Requirements for temperatures between 25°F and 20°F:

a. The guidelines above for construction requirements for temperatures between 40°F and 32°F, the construction guidelines for temperatures between 32°F and 25°F , and the following shall be met.
b. Masonry (raw stone) surfaces under construction shall be heated to 40°F.
c. Wind breaks or enclosures shall be provided when the wind velocity exceeds 15 miles per hour.
d. Newly constructed masonry shall be completely covered with weather-resistive insulating blankets, or equal protection, for 48 hours after being completed.

The above procedures comes from sections 2104.3.2.1, 2104.3.2.2, 2104.3.2.3, 2104.3.3.3, and 2104.3.3.4 of the International Building Code, and is in compliance with Masonry Standards Joint Committee recommendations for cold weather construction of masonry structures.

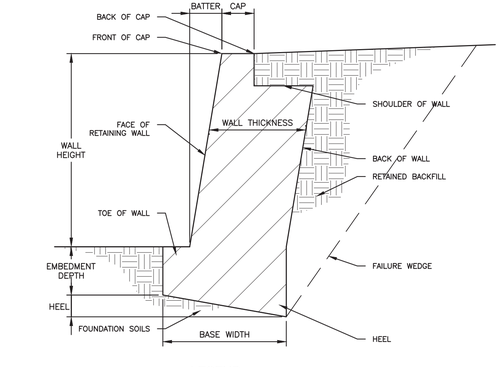
4. Construction Observations

4.1 Construction Observations by Falkofske Engineering, Inc.

a. Falkofske Engineering, Inc. will perform construction observation, but only as a means of verification of the contractors quality control performance.
b. Falkofske Engineering, Inc. will act as the Special Inspector for this project. Contractor shall contact Falkofske Engineering to set up inspections, at least 1 day before construction starts.
c. All required materials testing shall be performed by an approved materials testing laboratory.
d. Falkofske Engineering, inc. is not responsible for means, methods, and material furnished by the retaining wall contractor.

4.2 Construction Observations by Others

a. Construction observations as required by the city shall be coordinated by the contractor.



LEGEND

NO.	DATE	BY	REVISION

DES. —
DRN. RL
CHK. AMB
DATE 03-20-20
BY AMB

Falkofske Engineering, Inc.
Structural Engineering Consultants
TX Reg. Engineering Firm F-4038
722 North Fielder Road
Arlington, Texas 76012
(817) 261-8300

FALKOFSKE ENGINEERING

The use of these plans and specifications is restricted to the original site for which they were prepared and publication or reproduction for distribution is expressly limited. Such uses, reproduction or distribution by any method, in whole or in part, is prohibited. These drawings and specifications remain the property of the Falkofske Engineering and title remains in FALKOFSKE ENGINEERING.

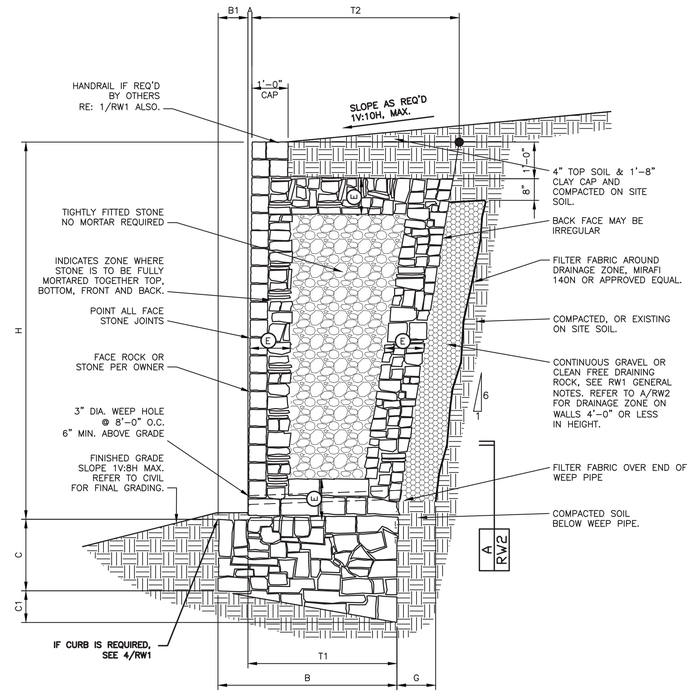
MASONRY RETAINING WALLS – NOTES & STANDARD DETAILS
HARBOR HILLS
SUMMER LEE DRIVE
ROCKWALL, TEXAS

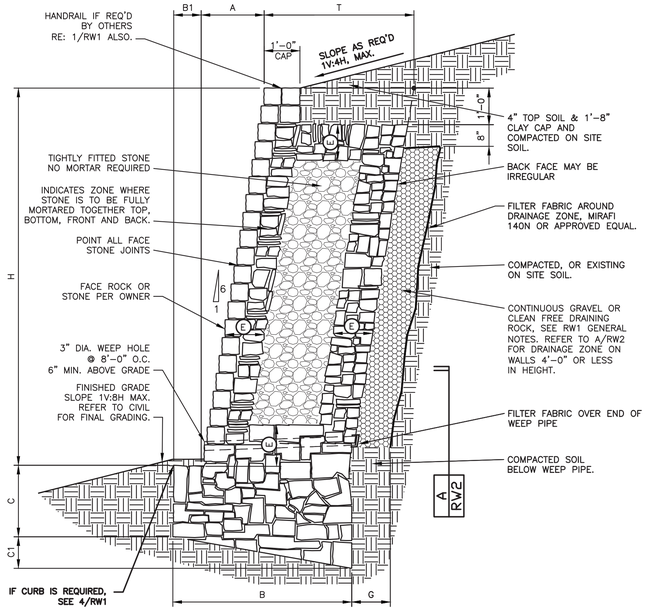
WALLCO RETAINING WALLS, INC.
4800 S.E. LOOP 820
FORT WORTH, TEXAS 76140

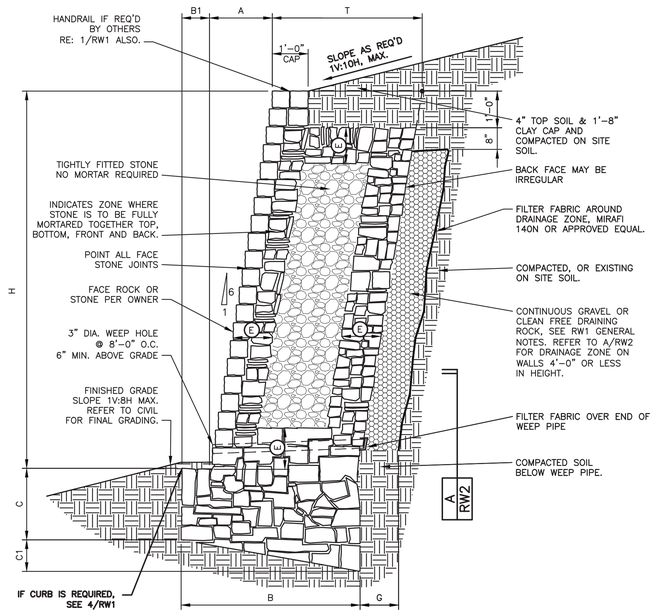
STATE OF TEXAS
AARON M. BERKES
107154
LICENSED
PROFESSIONAL ENGINEER
3-20-2020

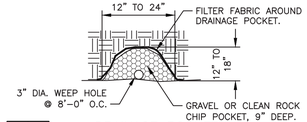
JOB NO. 151.20

RW1









A / RW2 — DRAINAGE POCKET
WALLS 4'-0" OR LESS

MASONRY WALL SCHEDULE
1500 psf – BEARING CAPACITY (STIFF NATURAL UNDISTURBED SOILS OR COMPACTED AND TESTED SOILS SEE GENERAL NOTES SHEET RW1)

WALL HEIGHT H	BASE WIDTH B	TOE B1	BASE DEPTH (TOE) C	BASE DEPTH (HEEL) C1	BATTER A	FULLY MORTARED ZONE E	THICKNESS OF WALL T1	THICKNESS OF WALL T2	DRAINAGE ZONE THICKNESS G	BEARING CAPACITY
1'-0"	1'-0"	0'-0"	0'-6"	0'-2"	1/4"	FULLY MORTARED	1'-0"	1'-2"	SEE A/RW2	1500 psf
2'-0"	1'-2"	0'-2"	0'-9"	0'-3"	1/2"	FULLY MORTARED	1'-0"	1'-4"	SEE A/RW2	
3'-0"	1'-6"	0'-3"	0'-9"	0'-4"	3/4"	FULLY MORTARED	1'-3"	1'-9"	SEE A/RW2	
4'-0"	2'-1"	0'-5"	1'-0"	0'-5"	1"	FULLY MORTARED	1'-8"	2'-4"	SEE A/RW2	
5'-0"	2'-9"	0'-7"	1'-3"	0'-6"	0'-1 1/4"	0'-8"	2'-2"	3'-0"	1'-0"	
6'-0"	3'-5"	0'-10"	1'-6"	0'-8"	0'-1 1/2"	0'-10"	2'-7"	3'-7"	1'-0"	
7'-0"	4'-0"	1'-0"	1'-9"	0'-9"	0'-1 3/4"	0'-10"	3'-0"	4'-2"	1'-0"	
8'-0"	4'-10"	1'-4"	2'-3"	0'-11"	0'-2"	1'-0"	3'-6"	4'-10"	1'-0"	

WALL DESIGN CRITERIA

BEARING Qa	SLOPE TOP β	SLOPE BOT β1	ACTIVE PRESSURE Ka	PASSIVE PRESSURE Kp	FRICTION ANGLE BASE δ	SLOPE OF BACK OF WALL α	SURCHARGE q
1500PSF	5.71 deg	7.13 deg	26 deg	26 deg	17 deg	99.46 deg	0 psf

USE THIS SCHEDULE FOR 3/RW2

MASONRY WALL SCHEDULE
1500 psf – BEARING CAPACITY (HARD NATURAL UNDISTURBED SOILS SEE GENERAL NOTES SHEET RW1)

WALL HEIGHT H	BASE WIDTH B	TOE B1	BASE DEPTH (TOE) C	BASE DEPTH (HEEL) C1	BATTER A	FULLY MORTARED ZONE E	THICKNESS OF WALL T	DRAINAGE ZONE THICKNESS G	BEARING CAPACITY
1'-0"	1'-0"	0'-0"	0'-6"	0'-2"	0'-2"	FULLY MORTARED	1'-0"	1'-0"	1500 psf
2'-0"	1'-4"	0'-2"	0'-9"	0'-3"	0'-4"	FULLY MORTARED	1'-2"	1'-0"	
3'-0"	1'-9"	0'-3"	0'-9"	0'-4"	0'-6"	FULLY MORTARED	1'-6"	1'-0"	
4'-0"	2'-7"	0'-4"	1'-0"	0'-6"	0'-8"	FULLY MORTARED	2'-3"	1'-0"	
5'-0"	3'-3"	0'-5"	1'-3"	0'-7"	0'-10"	0'-8"	2'-10"	1'-0"	
6'-0"	4'-0"	0'-7"	1'-6"	0'-9"	1'-0"	0'-10"	3'-5"	1'-0"	
7'-0"	4'-10"	0'-9"	1'-9"	0'-10"	1'-2"	0'-10"	4'-1"	1'-0"	
8'-0"	5'-8"	0'-10"	2'-3"	1'-0"	1'-4"	1'-0"	4'-10"	1'-0"	
9'-0"	6'-10"	0'-11"	2'-6"	1'-3"	1'-6"	1'-0"	5'-11"	1'-0"	
10'-0"	7'-7"	1'-0"	3'-0"	1'-5"	1'-8"	1'-2"	6'-7"	1'-0"	1700 psf
11'-0"	8'-5"	1'-1"	3'-6"	1'-6"	1'-10"	1'-2"	7'-4"	1'-0"	1900 psf

WALL DESIGN CRITERIA

BEARING Qa	SLOPE TOP β	SLOPE BOT β1	ACTIVE PRESSURE Ka	PASSIVE PRESSURE Kp	FRICTION ANGLE BASE δ	SLOPE OF BACK OF WALL α	SURCHARGE q
1500PSF	14 deg	7.13 deg	26 deg	26 deg	17 deg	99.46 deg	0 psf

USE THIS SCHEDULE FOR 2/RW2

MASONRY WALL SCHEDULE
1500 psf – BEARING CAPACITY (STIFF NATURAL UNDISTURBED SOILS SEE GENERAL NOTES SHEET RW1)

WALL HEIGHT H	BASE WIDTH B	TOE B1	BASE DEPTH (TOE) C	BASE DEPTH (HEEL) C1	BATTER A	FULLY MORTARED ZONE E	THICKNESS OF WALL T	DRAINAGE ZONE THICKNESS G	BEARING CAPACITY
1'-0"	1'-0"	0'-0"	0'-6"	0'-2"	0'-2"	FULLY MORTARED	1'-0"	SEE A/RW2	1500 psf
2'-0"	1'-2"	0'-2"	0'-9"	0'-3"	0'-4"	FULLY MORTARED	1'-0"	SEE A/RW2	
3'-0"	1'-7"	0'-3"	0'-9"	0'-4"	0'-6"	FULLY MORTARED	1'-4"	SEE A/RW2	
4'-0"	2'-3"	0'-4"	1'-0"	0'-5"	0'-8"	FULLY MORTARED	1'-11"	SEE A/RW2	
5'-0"	2'-9"	0'-5"	1'-3"	0'-6"	0'-10"	0'-8"	2'-4"	1'-0"	
6'-0"	3'-5"	0'-7"	1'-6"	0'-8"	1'-0"	0'-10"	2'-10"	1'-0"	
7'-0"	4'-1"	0'-9"	1'-9"	0'-9"	1'-2"	0'-10"	3'-4"	1'-0"	
8'-0"	4'-11"	0'-11"	2'-3"	0'-11"	1'-4"	1'-0"	4'-0"	1'-0"	
9'-0"	5'-11"	1'-1"	2'-6"	1'-1"	1'-6"	1'-0"	4'-10"	1'-0"	
10'-0"	6'-8"	1'-3"	3'-0"	1'-2"	1'-8"	1'-2"	5'-5"	1'-0"	1600 psf
11'-0"	7'-4"	1'-4"	3'-6"	1'-4"	1'-10"	1'-2"	6'-0"	1'-3"	1700 psf

WALL DESIGN CRITERIA

BEARING Qa	SLOPE TOP β	SLOPE BOT β1	ACTIVE PRESSURE Ka	PASSIVE PRESSURE Kp	FRICTION ANGLE BASE δ	SLOPE OF BACK OF WALL α	SURCHARGE q
1500PSF	5.71 deg	7.13 deg	26 deg	26 deg	17 deg	99.46 deg	0 psf

USE THIS SCHEDULE FOR 1/RW2

3 / RW2 — TYPICAL VERTICAL WALL SECTION – 1V:10H MAX SLOPE ABOVE WALL
BEARING IN CLAYEY OR SANDY SOILS — 3/4" = 1'-0"

2 / RW2 — TYPICAL WALL SECTION
BEARING IN CLAYS
MAX. SLOPE ABOVE WALL 1V:4H
MAX. SLOPE BELOW WALL 1V:8H

1 / RW2 — TYPICAL WALL SECTION – 1V:10H MAX SLOPE ABOVE WALL
1V:8H MAX SLOPE BELOW WALL
BEARING IN CLAYEY OR SANDY SOILS — 1/2" = 1'-0"

	DES.	DRN.	CHK.
DATE	03-20-20	03-20-20	03-20-20
BY	AMB	RL	AMB

NO.	DATE	REVISION	BY
1	05-26-20	UPDATED RETAINING WALL DETAILS	RL

Falkofske Engineering, Inc.
Structural Engineering Consultants
Texas Registration F-4038
722 North Fielder Road
Arlington, Texas 76012
(817) 261-8300

The use of these plans and specifications shall be restricted to the original site for which they were prepared. Any reproduction or distribution is expressly prohibited. Any copy, reproduction, reuse, disclosure by any method, or assignment to third parties of these drawings and specifications without the written consent of Falkofske Engineering, Inc. remains in FALKOFSKE ENGINEERING.

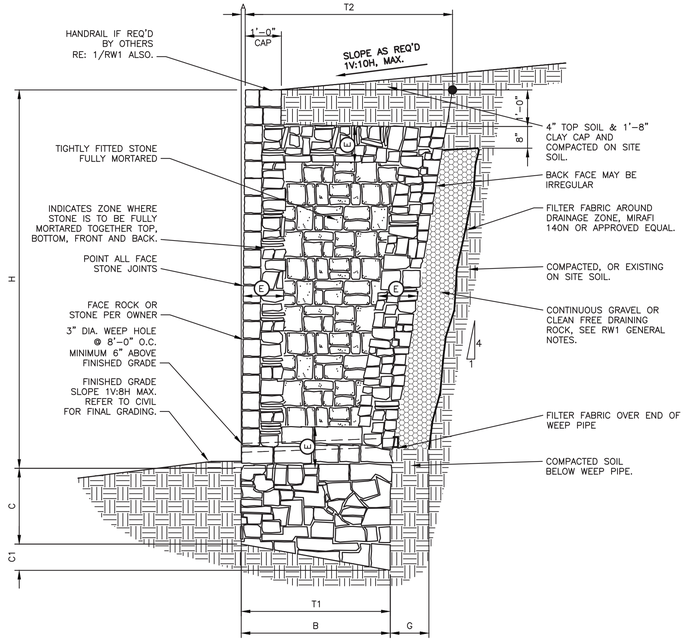
MASONRY RETAINING WALLS
HARBOR HILLS
SUMMER LEE DRIVE
ROCKWALL, TEXAS

WALLCO RETAINING WALLS, INC.
4800 S.E. LOOP 820
FORT WORTH, TEXAS 76140

STATE OF TEXAS
AARON M. BERKES
107154
LICENSED PROFESSIONAL ENGINEER
5-26-20

JOB NO. 151.20

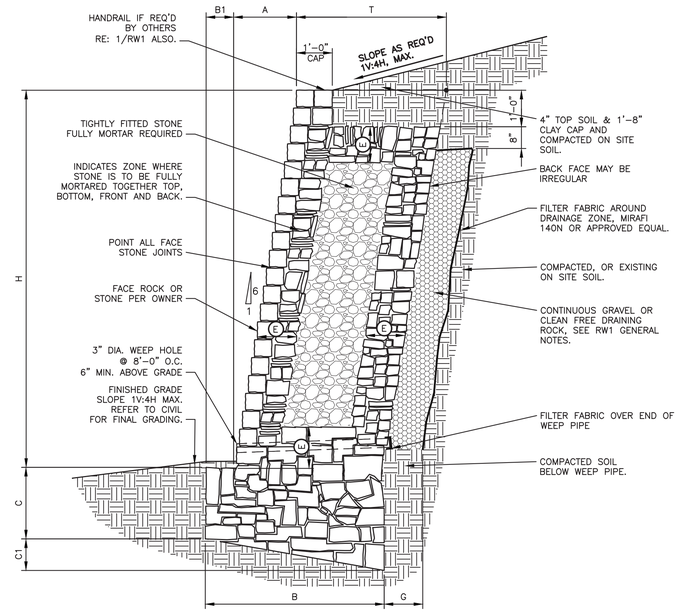
RW2



MASONRY WALL SCHEDULE 2500 psf – BEARING CAPACITY (STIFF NATURAL UNDISTURBED SOILS OR COMPACTED AND TESTED SOILS SEE GENERAL NOTES SHEET RW1)									
WALL HEIGHT H	BASE WIDTH B	BASE DEPTH (TOE) C	BASE DEPTH (HEEL) C1	BATTER A	FULLY MORTARED ZONE E	THICKNESS OF WALL T1	THICKNESS OF WALL T2	DRAINAGE ZONE THICKNESS G	BEARING CAPACITY
4'-0"	2'-0"	1'-0"	0'-5"	0'-1"	FULLY MORTARED	2'-0"	3'-0"	1'-0"	1500 psf
5'-0"	2'-6"	1'-3"	0'-6"	0'-1 1/4"	FULLY MORTARED	2'-6"	3'-9"	1'-0"	
6'-0"	3'-0"	1'-6"	0'-7"	0'-1 1/2"	FULLY MORTARED	3'-0"	4'-6"	1'-0"	1850 psf
7'-0"	3'-6"	1'-9"	0'-8"	0'-1 1/2"	FULLY MORTARED	3'-6"	5'-3"	1'-0"	2150 psf
WALL DESIGN CRITERIA									
BEARING Qa	SLOPE TOP β	SLOPE BOT β1	ACTIVE PRESSURE θa	PASSIVE PRESSURE θp	FRICTION ANGLE BASE δ	SLOPE OF BACK OF WALL α	SURCHARGE q		
1500PSF	5.71 deg	7.13 deg	26 deg	26 deg	17 deg	104.04 deg	0 psf		

USE THIS SCHEDULE FOR 2/RW3

2 / RW3 TYPICAL VERTICAL WALL SECTION – 1V:10H MAX SLOPE ABOVE WALL
BEARING IN CLAYEY OR SANDY SOILS
3/4" = 1'-0"



MASONRY WALL SCHEDULE 1500 psf – BEARING CAPACITY (STIFF NATURAL UNDISTURBED SOILS OR COMPACTED AND TESTED SOILS SEE GENERAL NOTES SHEET RW1)									
WALL HEIGHT H	BASE WIDTH B	TOE B1	BASE DEPTH (TOE) C	BASE DEPTH (HEEL) C1	BATTER A	FULLY MORTARED ZONE E	THICKNESS OF WALL T	DRAINAGE ZONE THICKNESS G	BEARING CAPACITY
5'-0"	3'-6"	0'-5"	3'-0"	0'-8"	0'-10"	0'-9"	3'-1"	1'-0"	
6'-0"	4'-3"	0'-6"	3'-6"	0'-9"	1'-0"	1'-0"	3'-9"	1'-0"	1500 psf
7'-0"	5'-2"	0'-7"	4'-0"	0'-11"	1'-2"	1'-0"	4'-7"	1'-0"	
8'-0"	6'-1"	0'-8"	4'-6"	1'-1"	1'-4"	1'-3"	5'-5"	1'-0"	
9'-0"	7'-3"	0'-9"	5'-0"	1'-3"	1'-6"	1'-3"	6'-6"	1'-0"	
10'-0"	8'-1"	0'-10"	6'-0"	1'-6"	1'-8"	1'-6"	7'-3"	1'-0"	2000 psf
11'-0"	9'-0"	1'-0"	7'-0"	1'-7"	1'-10"	1'-6"	8'-0"	1'-0"	
WALL DESIGN CRITERIA									
BEARING Qa	SLOPE TOP β	SLOPE BOT β1	ACTIVE PRESSURE θa	PASSIVE PRESSURE θp	FRICTION ANGLE BASE δ	SLOPE OF BACK OF WALL α	SURCHARGE q		
1500psf	14 deg	14 deg	26 deg	26 deg	17 deg	99.46 deg	0 psf		

USE THIS SCHEDULE FOR 1/RW3

1 / RW3 TYPICAL WALL SECTION – 1V:4H MAX SLOPE ABOVE WALL
1V:4H MAX SLOPE BELOW WALL
BEARING IN CLAYEY SOILS
1/2" = 1'-0"

NO.	DATE	REVISION	BY
			RL
1	05-26-20	UPDATED RETAINING WALL DETAILS	RL

	DES.	DRN.	CHK.
DATE	03-20-20	03-20-20	03-20-20
BY	AMB	RL	AMB

Falkofske Engineering, Inc.
Structural Engineering Consultants
Texas Registration F-4038
722 North Fielder Road
Arlington, Texas 76012
(817) 261-8300
FALKOFSKE ENGINEERING

The use of these plans and specifications is restricted to the original site for which they were prepared and publication thereof is expressly limited to such use. Reproduction or distribution without the written permission of FALKOFSKE ENGINEERING is prohibited. Title to these drawings and specifications remains in FALKOFSKE ENGINEERING and the common law copyright thereto is reserved.

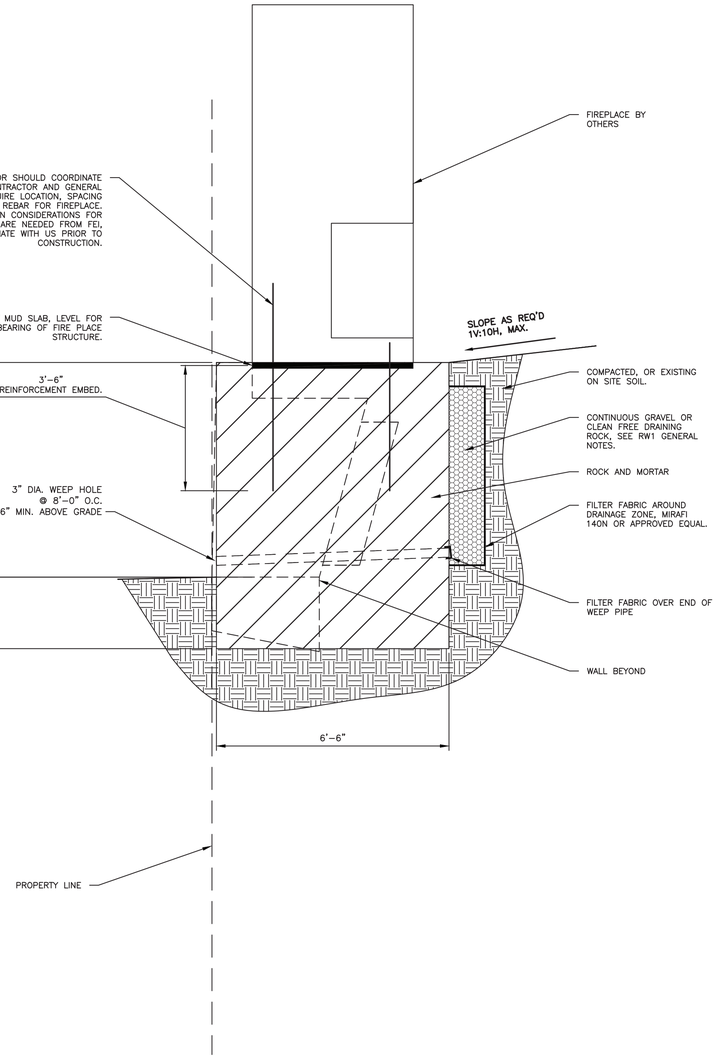
MASONRY RETAINING WALLS
HARBOR HILLS
SUMMER LEE DRIVE
ROCKWALL, TEXAS

WALLCO RETAINING WALLS, INC.
4800 S.E. LOOP 820
FORT WORTH, TEXAS 76140

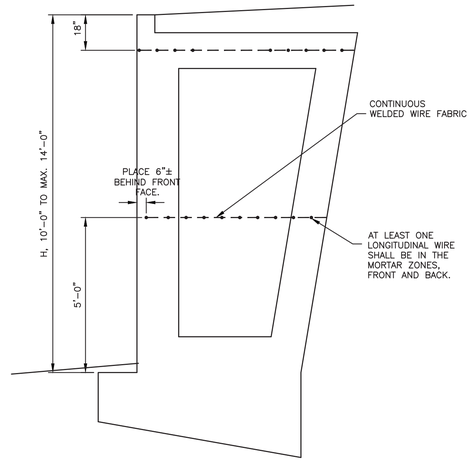
STATE OF TEXAS
AARON M. BERKES
107154
LICENSED PROFESSIONAL ENGINEER
5-26-20

JOB NO. 151.20

RW3



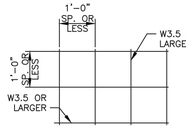
2 RW4 RETAINING WALL, PEDESTAL FOR FIREPLACE STRUCTURE



WALLS 10'-0" TO 12'-0" TALL

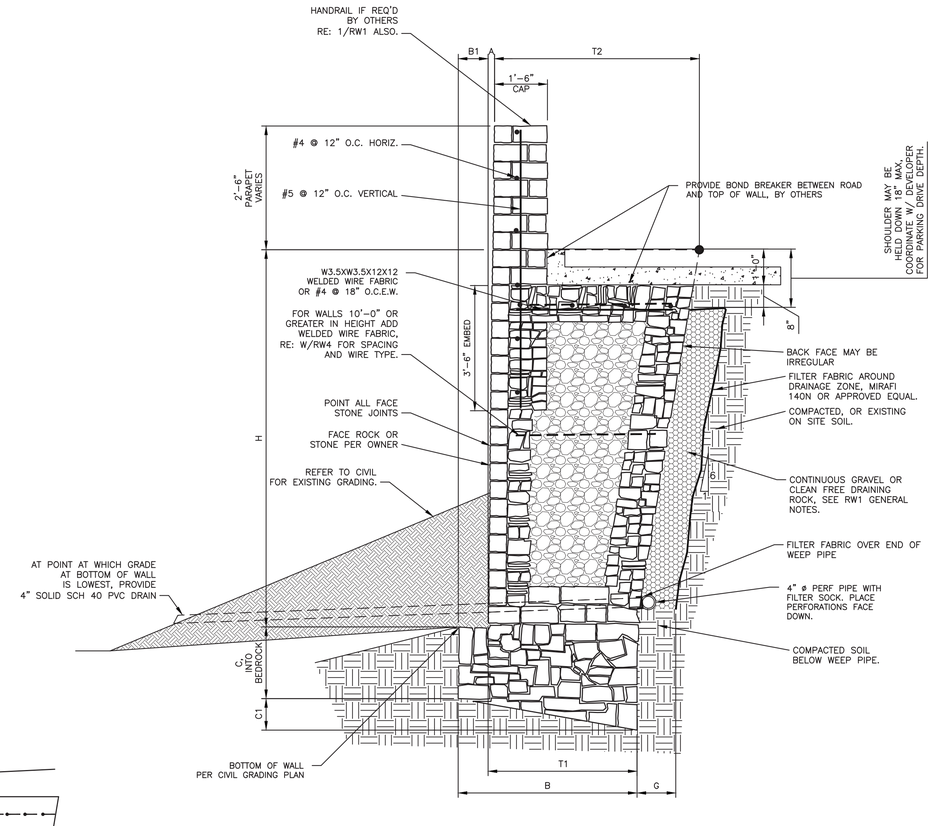
W RW4 WIRE SPACING FOR WALLS - VERTICAL FACE WALLS 10'-0" AND GREATER

LEGEND



NOTES:

1. USE WELDED WIRE FABRIC W3.5xW3.5x12x12
2. W3.5 HAS A DIAMETER = 0.211", SIZE MAY BE LARGER.
3. WIRE SPACING MAY BE 1'-0" OR LESS
4. WIRE SHALL BE GALVANIZED.
5. WIRE SHALL BE CONTINUOUS IN WALLS 10'-0" AND GREATER.



CONTRACTOR OPTION: WALL MAY BE FULLY MORTARED WITH NO WIRE.

NOTE: RETAINING WALL HAS BEEN DESIGNED FOR FIRELANE SURCHARGE AND FOR VEHICULAR IMPACT LOADING.

MASONRY WALL SCHEDULE
1500 psf – BEARING CAPACITY (STIFF NATURAL UNDISTURBED SOILS OR COMPACTED AND TESTED SOILS SEE GENERAL NOTES SHEET RW1)

WALL HEIGHT H	BASE WIDTH B	TOE B1	BASE DEPTH (TOE) C	BASE DEPTH (HEEL) C1	BATTER A	FULLY MORTARED ZONE E	THICKNESS OF WALL T1	THICKNESS OF WALL T2	DRAINAGE ZONE THICKNESS G	BEARING CAPACITY
10'-0"	7'-1"	1'-10"	4'-0"	1'-3"	0'-2 1/2"	FULLY MORTARED	5'-3"	6'-11"	1'-0"	3050 psf
11'-0"	7'-6"	2'-0"	4'-0"	1'-4"	0'-2 3/4"	FULLY MORTARED	5'-6"	7'-4"	1'-3"	3150 psf
12'-0"	8'-1"	2'-2"	4'-0"	1'-6"	0'-3"	FULLY MORTARED	5'-11"	7'-11"	1'-3"	3200 psf

WALL DESIGN CRITERIA

BEARING Qa	SLOPE TOP β	SLOPE BOT β1	ACTIVE PRESSURE Ka	PASSIVE PRESSURE Kp	FRICTION ANGLE BASE δ	SLOPE OF BACK OF WALL α	SURCHARGE q
1500PSF	0 deg	7.13 deg	26 deg	26 deg	17 deg	99.46 deg	250 psf

USE THIS SCHEDULE FOR 1/RW4

1 RW4 TYPICAL VERTICAL WALL SECTION - 250 PSF FIRELANE SURCHARGE
1V:8H MAX SLOPE BELOW WALL
BEARING IN CLAYEY OR SANDY SOILS
3/4" = 1'-0"

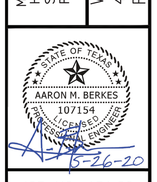
	DATE	BY	DESCRIPTION
DES.	03-20-20	AMB	
DRN.	03-20-20	RL	
CHK.	03-20-20	AMB	1 05-26-20 UPDATED RETAINING WALL DETAILS RL
			NO. DATE REVISION BY

Falkofske Engineering, Inc.
Structural Engineering Consultants
Texas Registration F-4038
722 North Fielder Road
Arlington, Texas 76012
(817) 261-8300
FALKOFSKE ENGINEERING

The use of these plans and specifications is restricted to the original site for which they were prepared and publication or reproduction or distribution is expressly prohibited. Any use, reproduction, reuse, disclosure by any method of these drawings and specifications without the written permission of FALKOFSKE ENGINEERING remains in effect.

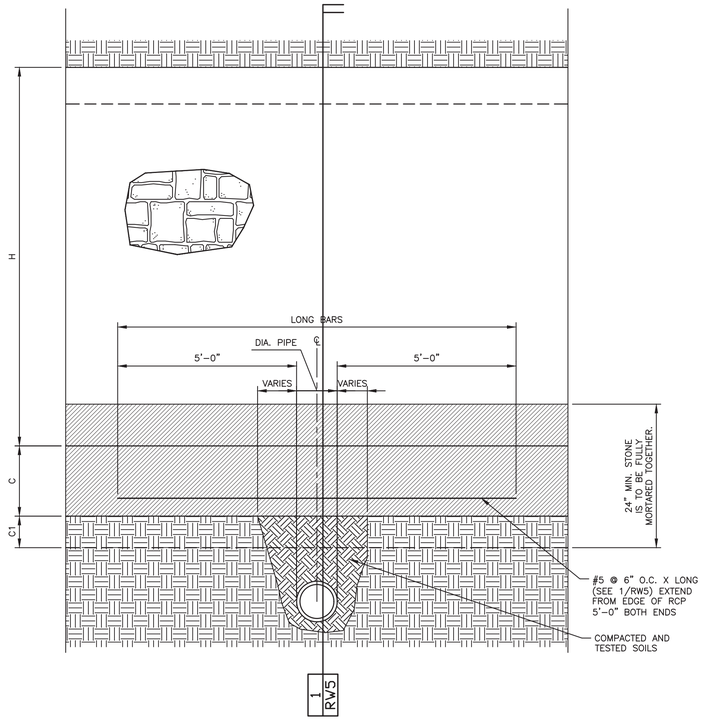
MASONRY RETAINING WALLS
HARBOR HILLS
SUMMER LEE DRIVE
ROCKWALL, TEXAS

WALLCO RETAINING WALLS, INC.
4800 S.E. LOOP 820
FORT WORTH, TEXAS 76140

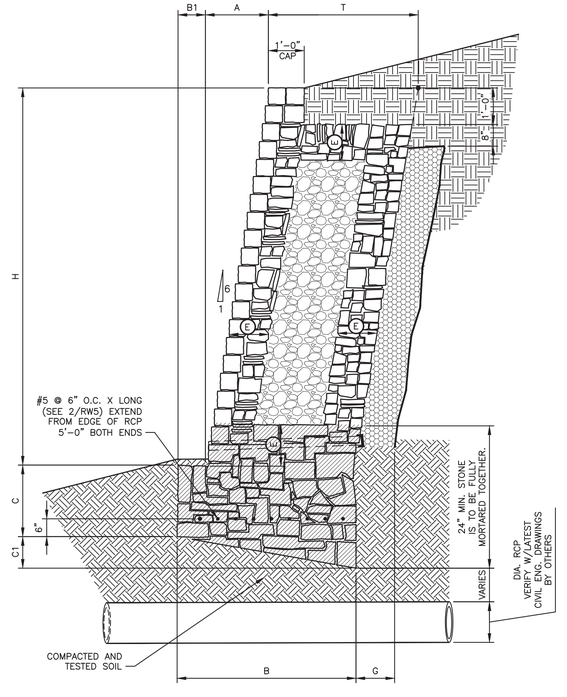


JOB NO. 151.20

RW4



2
RW5 WALL ELEVATION W/RCP BELOW WALL



1
RW5 WALL SECTION W/RCP BELOW WALL

	DATE	BY		
DES.	03-20-20	AMB		
DRN.	03-20-20	EJC		
CHK.	03-20-20	AMB		
NO.	DATE	REVISION		BY

Falkofske Engineering, Inc.
Structural Engineering Consultants
Texas Registration F-4038
722 North Fielder Road
Arlington, Texas 76012
(817) 261-8300

The use of these plans and specifications is restricted to the original site for which they were prepared. Any reproduction or distribution is prohibited. Any other reproduction, use, or disclosure by any method in whole or in part is prohibited. These drawings and specifications are the property of FALKOFSKE and title remains in FALKOFSKE exclusively.

MASONRY RETAINING WALLS
HARBOR HILLS
SUMMER LEE DRIVE
ROCKWALL, TEXAS

WALLCO RETAINING WALLS, INC.
4800 S.E. LOOP 820
FORT WORTH, TEXAS 76140

STATE OF TEXAS
AARON M. BERKES
107154
LICENSED
PROFESSIONAL ENGINEER
3-20-2020

JOB NO. 151.20

RW5

NOTE: RETAINING WALL HAS BEEN DESIGNED FOR FIRELANE SURCHARGE AND FOR VEHICULAR IMPACT LOADING.

MASONRY WALL SCHEDULE
1600 psf – BEARING CAPACITY (CUTOFF NATURAL UNDISTURBED SOILS OR COMPACTED AND TESTED SOILS SEE GENERAL NOTES SHEET RW6)

WALL HEIGHT H	BASE WIDTH B	TOE B1	BASE DEPTH (TOE) C	BASE DEPTH (HEEL) C1	BATTER A	FULLY MORTARED ZONE E	THICKNESS OF WALL T	DRAINAGE ZONE THICKNESS G	BEARING CAPACITY
6'-0"	5'-3"	1'-6"	2'-0"	1'-0"	1'-0"	FULLY MORTARED	3'-9"	1'-0"	1500 psf
7'-0"	5'-7"	1'-6"	2'-0"	1'-1"	1'-2"	FULLY MORTARED	4'-1"	1'-0"	
8'-0"	6'-4"	1'-6"	2'-0"	1'-2"	1'-4"	FULLY MORTARED	4'-11"	1'-0"	
9'-0"	7'-0"	1'-6"	2'-3"	1'-3"	1'-6"	FULLY MORTARED	5'-6"	1'-0"	
10'-0"	7'-6"	1'-6"	2'-6"	1'-4"	1'-8"	FULLY MORTARED	6'-0"	1'-0"	1800 psf
11'-0"	8'-0"	1'-6"	2'-9"	1'-5"	1'-10"	FULLY MORTARED	6'-6"	1'-3"	2000 psf

WALL DESIGN CRITERIA

BEARING Qa	SLOPE TOP β	SLOPE BOT β1	ACTIVE PRESSURE Φa	PASSIVE PRESSURE Φp	FRICTION ANGLE BASE δ	SLOPE OF BACK OF WALL α	SURCHARGE q
1500PSF	0 deg	7.13 deg	26 deg	26 deg	17 deg	99.46 deg	250 psf

USE THIS SCHEDULE FOR 2/RW6

1 / RW6 — TYPICAL WALL SECTION – 250PSF FIRELANE SURCHARGE
1V:10H MAX SLOPE ABOVE WALL, 1V:8H MAX SLOPE BELOW WALL
BEARING IN CLAYEY SOILS
1/2" = 1'-0"

NO.	DATE	REVISION	BY

DES. 05-26-20 AMB
DRN. 05-26-20 RL
CHK. 05-26-20 AMB

Falkofske Engineering, Inc.
Structural Engineering Consultants
TX Reg. Engineering Firm F-4038
722 North Fielder Road
Arlington, Texas 76012
(817) 261-8300

The use of these plans and specifications is restricted to the original site for which they were prepared. Any reproduction or distribution is prohibited. Any other reproduction, use, or disclosure by any method, in whole or in part, is prohibited. These drawings and specifications and title remains in FALKOFSKE Consultants.

MASONRY RETAINING WALLS
HARBOR HILLS
SUMMER LEE DRIVE
ROCKWALL, TEXAS

WALLCO RETAINING WALLS, INC.
4800 S.E. LOOP 820
FORT WORTH, TEXAS 76140

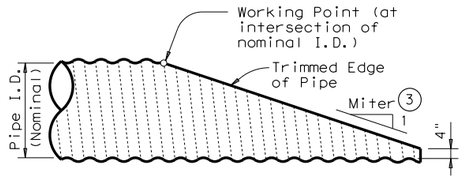
STATE OF TEXAS
AARON M. BERKES
107154
LICENSED PROFESSIONAL ENGINEER
5-26-20

JOB NO. 151.20

RW6

DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

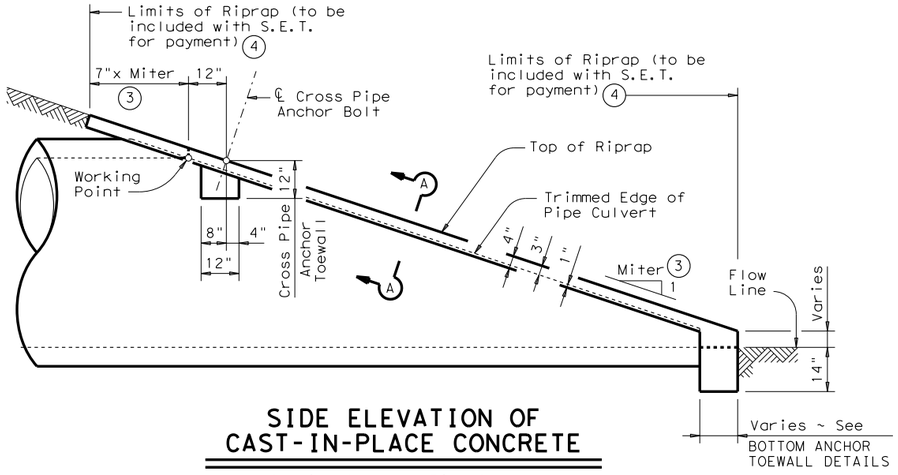
DATE:
FILE:



NOTE: All Pipe Runners, calculations, and dimensions are based on the pipe culverts mitered as shown in this detail. Alternate styles of mitered ends will require that appropriate adjustments be made to the values presented on this standard.

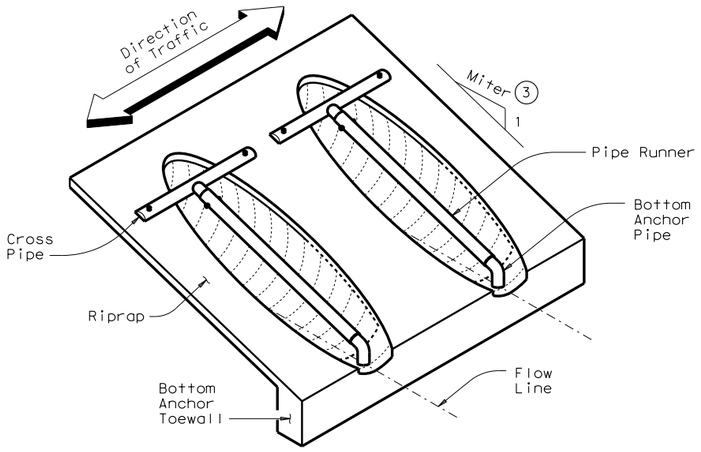
SIDE ELEVATION OF TYPICAL PIPE CULVERT MITER

(Showing Corrugated Metal Pipe Culvert.
Details of Concrete Pipe Culvert are similar.)



SIDE ELEVATION OF CAST-IN-PLACE CONCRETE

(Showing Concrete Pipe Culvert.
Details of Corrugated Metal Pipe Culvert are similar.
Pipe Runners not shown for clarity)



ISOMETRIC VIEW OF TYPICAL INSTALLATION

(Showing installation with no skew.)

CROSS PIPE LENGTHS & PIPE RUNNER LENGTHS (1)(2)

Nominal Culvert I.D.	Pipe Culvert Spa ~ G	Cross Pipe Length	Pipe Runner Length											
			3:1 Side Slope				4:1 Side Slope				6:1 Side Slope			
			0° Skew	15° Skew	30° Skew	45° Skew	0° Skew	15° Skew	30° Skew	45° Skew	0° Skew	15° Skew	30° Skew	45° Skew
24"	1'- 7"	3'- 5"	N/A	N/A	N/A	5'-10"	N/A	N/A	N/A	8'- 1"	N/A	N/A	N/A	12'- 9"
27"	1'- 8"	3'- 8"	N/A	N/A	5'- 5"	6'-11"	N/A	N/A	7'- 7"	9'- 7"	N/A	N/A	11'-11"	14'-11"
30"	1'-10"	3'-11"	N/A	N/A	6'- 4"	8'- 0"	N/A	N/A	8'- 9"	11'- 0"	N/A	N/A	13'- 8"	17'- 0"
33"	1'-11"	4'- 2"	6'- 2"	6'- 5"	7'- 3"	9'- 1"	8'- 6"	8'-10"	10'- 0"	12'- 5"	13'- 3"	13'- 9"	15'- 5"	19'- 2"
36"	2'- 1"	4'- 5"	6'-11"	7'- 3"	8'- 2"	10'- 2"	9'- 6"	9'-11"	11'- 2"	13'-10"	14'- 9"	15'- 3"	17'- 2"	21'- 3"
42"	2'- 4"	4'-11"	8'- 6"	8'-10"	9'-11"	12'- 4"	11'- 7"	12'- 0"	13'- 6"	16'- 8"	17'- 9"	18'- 5"	20'- 8"	25'- 7"
48"	2'- 7"	5'- 5"	10'- 1"	10'- 5"	11'- 9"	N/A	13'- 7"	14'- 2"	15'-10"	N/A	20'- 9"	21'- 6"	24'- 2"	N/A
54"	3'- 0"	5'-11"	11'- 8"	12'- 1"	N/A	N/A	15'- 8"	16'- 3"	N/A	N/A	23'-10"	24'- 8"	N/A	N/A
60"	3'- 3"	6'- 5"	13'- 3"	N/A	N/A	N/A	17'- 9"	N/A	N/A	N/A	26'-10"	N/A	N/A	N/A

TYPICAL PIPE CULVERT MITERS (3)

Side Slope	0° Skew	15° Skew	30° Skew	45° Skew
3:1	3:1	3.106:1	3.464:1	4.243:1
4:1	4:1	4.141:1	4.619:1	5.657:1
6:1	6:1	6.212:1	6.928:1	8.485:1

CONDITIONS WHERE PIPE RUNNERS ARE NOT REQUIRED (2)

Nominal Culvert I.D.	Single Pipe Culvert	Multiple Pipe Culverts
12" thru 21"	Skews thru 45°	Skews thru 45°
24"	Skews thru 45°	Skews thru 30°
27"	Skews thru 30°	Skews thru 15°
30"	Skews thru 15°	Skews thru 15°
33"	Skews thru 15°	Always required
36"	Normal (No Skew)	Always required
42" to 60"	Always required	Always required

STANDARD PIPE SIZES & MAX PIPE RUNNER LENGTHS (1)

Pipe Size	Pipe O.D.	Pipe I.D.	Max Pipe Runner Length
2" STD	2.375"	2.067"	N/A
3" STD	3.500"	3.068"	10'- 0"
4" STD	4.500"	4.026"	19'- 8"
5" STD	5.563"	5.047"	34'- 2"

ESTIMATED CONCRETE RIPRAP QUANTITIES (CY) (5)

Nominal Culvert I.D.	3:1 Side Slope				4:1 Side Slope				6:1 Side Slope			
	0° Skew	15° Skew	30° Skew	45° Skew	0° Skew	15° Skew	30° Skew	45° Skew	0° Skew	15° Skew	30° Skew	45° Skew
12"	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.6	0.7	0.7	0.7	0.8
15"	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.8	0.9
18"	0.5	0.5	0.6	0.6	0.6	0.7	0.7	0.8	0.8	0.8	0.9	1.0
21"	0.6	0.6	0.6	0.7	0.7	0.7	0.8	0.9	0.9	0.9	1.0	1.2
24"	0.6	0.7	0.7	0.8	0.8	0.8	0.8	1.0	1.0	1.0	1.1	1.3
27"	0.7	0.7	0.8	0.9	0.8	0.9	0.9	1.1	1.1	1.1	1.2	1.4
30"	0.8	0.8	0.8	0.9	0.9	0.9	1.0	1.2	1.2	1.2	1.3	1.6
33"	0.8	0.8	0.9	1.0	1.0	1.0	1.1	1.3	1.3	1.4	1.5	1.7
36"	0.9	0.9	0.9	1.1	1.1	1.1	1.2	1.4	1.4	1.5	1.6	1.8
42"	1.0	1.0	1.1	1.3	1.2	1.3	1.3	1.6	1.6	1.7	1.8	2.1
48"	1.1	1.1	1.2	N/A	1.4	1.4	1.5	N/A	1.9	1.9	2.1	N/A
54"	1.3	1.3	N/A	N/A	1.6	1.6	N/A	N/A	2.1	2.1	N/A	N/A
60"	1.4	N/A	N/A	N/A	1.7	N/A	N/A	N/A	2.3	N/A	N/A	N/A

(1) Size of Pipe Runner shall be as shown in the tables. Cross Pipe shall be the same size as the Pipe Runner. Cross Pipe Stub Out and Bottom Anchor Pipe shall be the next smaller size pipe as shown in the STANDARD PIPE SIZES table.

(2) This standard allows for the placement of only one pipe runner across each culvert pipe opening. In order to limit the clear opening to be traversed by an errant vehicle, the following conditions must be met:

For 60" culvert pipes, the skew must not exceed 0°.
For 54" culvert pipes, the skew must not exceed 15°.
For 48" culvert pipes, the skew must not exceed 30°.
For all culvert pipe sizes 42" and less, the skew must not exceed 45°.

If the above conditions cannot be met, the designer should consider using a safety end treatment with flared wings. For further information, refer to the TxDOT "Roadway Design Manual".

(3) Miter = Slope of Mitered Pipe Culvert End

(4) Riprap placed beyond the limits shown will be paid as Concrete Riprap in accordance with Item 432, "Riprap".

(5) Quantities shown are for one end of one reinforced Concrete Pipe Culvert. For multiple Pipe Culverts or for Corrugated Metal Pipe Culverts, quantities will need to be adjusted. Riprap quantities are for Contractor's information only.

1. All Concrete for Structure Shall be Class F (4200 psi 7.0 sack Cement).
2. No Fly Ash is Allowed for Structures.

Texas Department of Transportation

Bridge Division Standard

SAFETY END TREATMENT

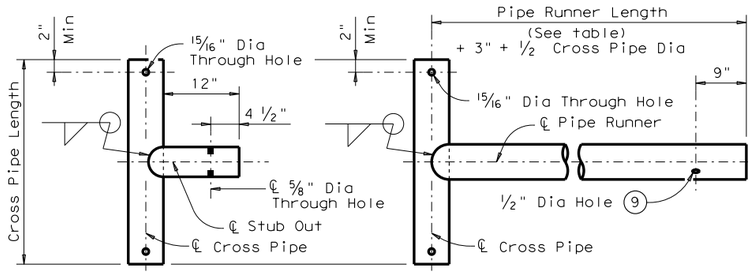
FOR 12" DIA TO 60" DIA
PIPE CULVERTS
TYPE II ~ CROSS DRAINAGE

SETP-CD

FILE: setpcdse.dgn	DN: GAF	CK: CAT	DW: JRP	CK: GAF
©TxDOT February 2010	CONT	SECT	JOB	HIGHWAY
REVISIONS				
11-10: Add note for synthetic fibers.	DIST	COUNTY		SHEET NO.

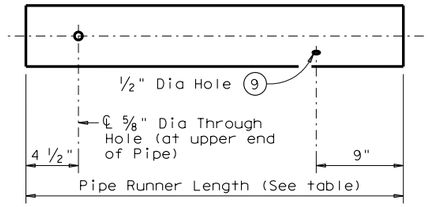
DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE:
FILE:



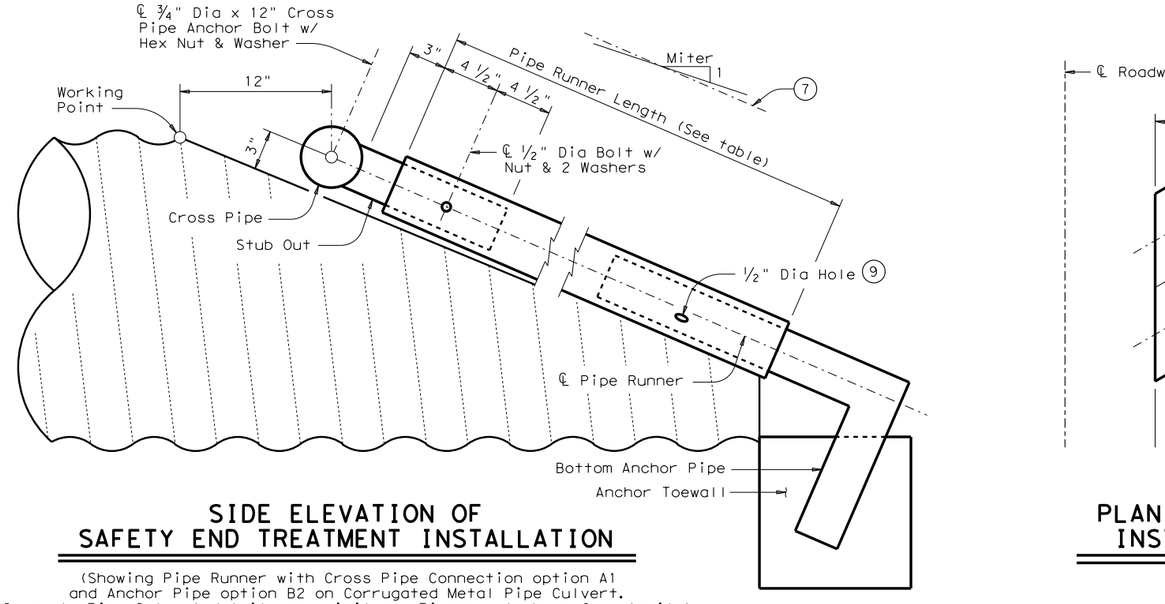
OPTION A1 OPTION A2

CROSS PIPE AND CONNECTIONS DETAILS



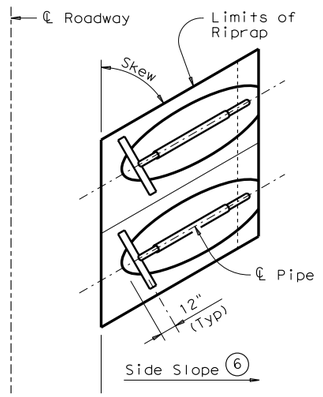
NOTE: The separate Pipe Runner shown is required when Cross Pipe Connection Option A1 is used.

PIPE RUNNER DETAILS

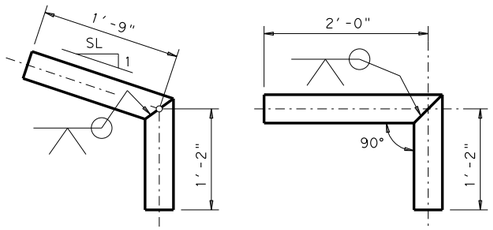


SIDE ELEVATION OF SAFETY END TREATMENT INSTALLATION

(Showing Pipe Runner with Cross Pipe Connection option A1 and Anchor Pipe option B2 on Corrugated Metal Pipe Culvert. Concrete Pipe Culvert details are similar. Riprap not shown for clarity)

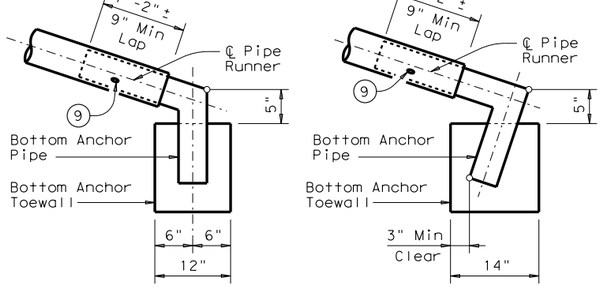


PLAN OF SKEWED INSTALLATION



OPTION B1 OPTION B2

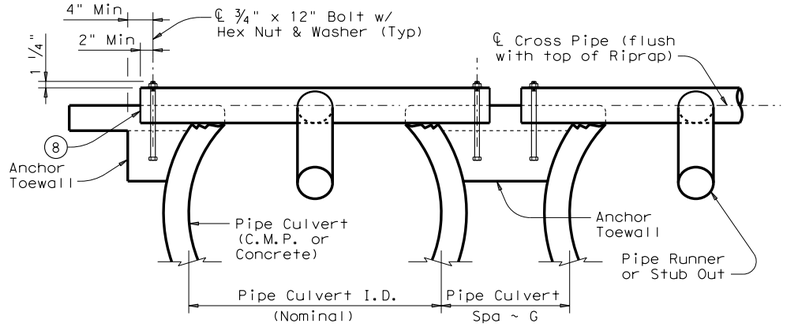
BOTTOM ANCHOR PIPE DETAILS (10)



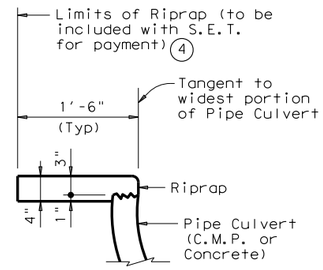
OPTION B1 OPTION B2

BOTTOM ANCHOR TOEWALL DETAILS

(Culvert & Riprap not shown for clarity)



SHOWING CROSS PIPE & ANCHOR TOEWALL



SHOWING TYPICAL PIPE CULVERT & RIPRAP

SECTION A-A

(4) Riprap placed beyond the limits shown will be paid as Concrete Riprap in accordance with Item 432, "Riprap".

(6) Recommended values of side slope are 3:1, 4:1, & 6:1. All quantities, calculations, and dimensions shown herein are based on these recommended values. Slope of 3:1 or flatter is required for vehicle safety.

(7) Note that actual slope of Pipe Runner may vary slightly from Side Slope of Riprap and trimmed Culvert Pipe edge.

(8) Care shall be taken to ensure that Riprap concrete does not flow into the Cross Pipe so as to permit disassembly of the bolted connection to allow cleanout access.

(9) After installation, the 1/2" hole shall be inspected to ensure that the lap of the Pipe Runner with the Bottom Anchor Pipe is adequate.

(10) At fabricator's option, a heat bend to a smooth 5" radius or a manufactured elbow (of the same material as the Runner) may be substituted for the mitered and welded joint in the Bottom Anchor Pipe.

GENERAL NOTES:

Pipe Runners are designed for a traversing load of 1,800 pounds at yield as recommended by Research Report 280-1, "Safety Treatment of Roadside Cross-Drainage Structures", Texas Transportation Institute, March 1981.

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 Pipe Runners.

Riprap and all necessary inverts shall be Concrete Riprap conforming to the requirements of Item 432, "Riprap".

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.

Payment for riprap and toewall is included in the Price Bid for each Safety End Treatment.

Pipe Runners, Cross Pipes, and Anchor Pipes shall conform to the requirements of ASTM A53 (Type E or S, Grade B), ASTM A500 (Grade B), or API 5LX52.

Bolts and nuts shall conform to ASTM A307.

All steel components, except concrete reinforcing, shall be galvanized after fabrication. Galvanizing damaged during transport or construction shall be repaired in accordance with the specifications.

Texas Department of Transportation

Bridge Division Standard

SAFETY END TREATMENT

FOR 12" DIA TO 60" DIA
PIPE CULVERTS
TYPE II ~ CROSS DRAINAGE

SETP-CD

FILE: setpcdse.dgn	DN: GAF	CK: CAT	DW: JRP	CK: GAF
©TxDOT February 2010	CONT	SECT	JOB	HIGHWAY
REVISIONS				
11-10: Add note for synthetic fibers.	DIST	COUNTY		SHEET NO.

ENGINEERING PLANS

GLEN HILL WAY EXTENSION

City of Rockwall, Texas

Index Of Drawings

	Cover Sheet
GN	Rockwall General Notes
C8.1	Paving Plan & Profile
C8.2	Grading Plan
C9.1	Drainage Area Map
C9.2	Storm Sewer Plan & Profile
C9.3	Gabion Plan
C10.1	Water Plan
C10.2	Sanitary Sewer Plan
C11.1	Erosion Control Plan
C11.2	Erosion Control Details
C12.1	Construction Details
C12.2	Construction Details

Landscape

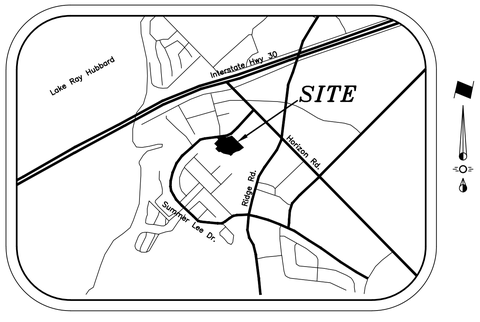
LP0.02	Landscape Plan
TS-2	Tree Survey/Mitigation

Structural

Gabion Wall Details	

TxDOT Details

GF(31)DAT-19	Metal Guard Beam Fence
GF(31)-19	Metal Guard Beam Fence
SMD(SLIP-1)-08	Sign Mounting Details
SMD(SLIP-2)-08	Sign Mounting Details
SMD(SLIP-3)-08	Sign Mounting Details
TSR(4)-13	Typical Sign Requirements



Vicinity Map
NTS

Prepared For

DBA Architects

111 S. Kentucky Street, Suite 210
McKinney, Texas 75069

Engineer

CROSS ENGINEERING CONSULTANTS
1720 W. Virginia Street, McKinney, Texas 75069
972.562.4409, Texas P.E. Firm No. F-5935

STATE OF TEXAS
JOHN D. CROSS
94739
LICENSED
PROFESSIONAL ENGINEER
5/17/21

ISSUE DATES:
4/15/2020
5/26/2020
8/10/2020
2/26/2021
4/7/2021
4/19/2021
5/17/2021

REVISIONS:	DATE	BY
Issued for Construction		

GLEN HILL WAY EXTENSION

CECI Project No. 18090

GENERAL ITEMS

1. All construction shall conform to the requirements set forth in the City of Rockwall's Engineering Department's "Standards of Design and Construction" and the "Standard Specifications for Public Works Construction" by the North Texas Central Council of Governments, 5th edition amended by the City of Rockwall. The CONTRACTOR shall reference the latest City of Rockwall standard details provided in the Rockwall Engineering Departments "Standards of Design and Construction" manual for details not provided in these plans. The CONTRACTOR shall possess one set of the NCTCOG Standard Specifications and Details and the City of Rockwall's "Standards of Design and Construction" manual on the project site at all times
2. Where any conflicting notes, details or specifications occur in the plans the City of Rockwall General Construction Notes, Standards, Details and Specifications shall govern unless detail or specification is more strict.
3. The City of Rockwall Engineering Departments "Standards of Design and Construction" can be found online at: http://www.rockwall.com/engr.asp
4. All communication between the City and the CONTRACTOR shall be through the Engineering Construction Inspector and City Engineer or designated representative only. It is the responsibility of the CONTRACTOR to contact the appropriate department for inspections that do not fall under this approved engineering plan set.
5. Prior to construction, CONTRACTOR shall have in their possession all necessary permits, plans, licenses, etc.
6. The CONTRACTOR shall have at least one original stamped and signed set of approved engineering plans and specifications on-site and in their possession at all times. A stop work order will be issued if items are not on-site. Copies of the approved plans will not be substituted for the required original "approved plans to be on-site".
7. All material submittals, concrete batch designs and shop drawings required for City review and approval shall be submitted by the CONTRACTOR to the City sufficiently in advance of scheduled construction to allow no less than 10 business days for review and response by the City.
8. All site dimensions are referenced to the face of curb or edge of pavement unless otherwise noted.
9. The City requires ten (10%) percent-two (2) year maintenance bond for paving, paving improvements, water systems, wastewater systems, storm sewer systems including detention systems, and associated fixtures and structures which are located within the right-of-ways or defined easements. The two (2) year maintenance bond is to state "from date of City acceptance" as the starting time.
10. A review of the site shall be conducted at twenty (20) months into the two (2) year maintenance period. The design engineer or their designated representative and the CONTRACTOR shall be present to walk the site with the City of Rockwall Engineering Inspection personnel.

EROSION CONTROL & VEGETATION

1. The CONTRACTOR or developer shall be responsible, as the entity exercising operational control, for all permitting as required by the Environmental Protection Agency (EPA) and the Texas Commission on Environmental Quality (TCEQ). This includes, but is not limited to, preparation of the Storm Water Pollution Prevention Plan (SWPPP), the Construction Site Notice (CSN), the Notice of Intent (NOI), the Notice of Termination (NOT) and any Notice of Change (NOC) and is required to pay all associated fees
2. Erosion control devices as shown on the erosion control plan for the project shall be installed prior to the start of land disturbing activities.
3. All erosion control devices are to be installed in accordance with the approved plans, specifications and Storm Water Pollution Prevention Plan (SWPPP) for the project. Erosion control devices shall be placed and in working order prior to start of construction. Changes are to be reviewed and approved by the design engineer and the City of Rockwall prior to implementation.
4. If the Erosion Control Plans and Storm Water Pollution Prevention Plan (SWPPP) as approved cannot appropriately control erosion and off-site sedimentation from the project, the erosion control plan and/or the SWPPP is required to be revised and any changes reported to the Texas Commission on Environmental Quality (TCEQ), when applicable.
5. All erosion control devices shall be inspected weekly by the CONTRACTOR and after all major rain events, or more frequently as dictated in the project Storm Water Pollution Prevention Plan (SWPPP). CONTRACTOR shall provide copies of inspection's reports to the engineering inspection after each inspection.
6. The CONTRACTOR shall not dispose of waste and any materials into streams, waterways or floodplains. The CONTRACTOR shall secure all excavation at the end of each day and dispose of all excess materials.
7. CONTRACTOR shall take all available precautions to control dust. CONTRACTOR shall control dust by sprinkling water or other means as approved by the City Engineer.
8. CONTRACTOR shall establish grass and maintain the seeded area, including watering, until a "Permanent Stand of Grass" is obtained at which time the project will be accepted by the City. A "Stand of Grass" (not winter rye or weeds) shall consist of 75% to 80% coverage of all disturbed areas and a minimum of one-inch (1") in height as determined by the City. No bare spots will be allowed. Re-seeding will be required in all washed areas and areas that don't grow.
9. All City right-of-ways shall be sodded if disturbed. No artificial grass is allowed in any City right-of-way and/or easements.
10. All adjacent streets/alleys shall be kept clean at all times
11. CONTRACTOR shall keep construction site clean at all times, immediately contain all debris and trash, all debris and trash shall be removed at the end of each work day, and all vegetation on the construction site 10-inches or taller in height must be cut immediately.
12. Suspension of all construction activities for the project will be enforced by the City if any erosion control requirements are not meet. Work may commence after deficiency has been rectified.
13. During construction of the project, all soil stockpiles and borrow areas shall be stabilized or protected with sediment trapping measures. The CONTRACTOR is responsible for the temporary protection and permanent stabilization of all soil stockpiles on-site as well as borrow areas and soil intentionally transported from the project site.
14. Where construction vehicles access routes intersect paved or public roads/alleys, construction entrances shall be installed to minimize the transport of sediment by vehicular tracking onto paved surfaces. Where sediment is transferred onto paved or public surfaces, the surface shall be immediately cleaned. Sediment shall be removed from the surface by shoveling or sweeping and transported to a sediment disposal area. Pavement washing shall be allowed only after sediment is removed in this manner.
15. All drainage inlets shall be protected from siltation, ineffective or unmaintained protection devices shall be immediately replaced and the inlet and storm system cleaned. Flushing is not an acceptable method of cleaning.
16. During all dewatering operations, water shall be pumped into an approved filtering device prior to discharge into a receiving outlet.

TRAFFIC CONTROL

1. All new Detouring or Traffic Control Plans are required to be submitted to the City for review and approval a minimum of 21 calendar days prior to planned day of implementation.
2. When the normal function of the roadway is suspended through closure of any portion of the right-of-way, temporary construction work zone traffic control devices shall be installed to effectively guide the motoring public through the area. Consideration for road user safety, worker safety, and the efficiency of road user flow is an integral element of every traffic control zone.
3. All traffic control plans shall be prepared and submitted to the Engineering Department in accordance with the standards identified in Part VI of the most recent edition of the TMUTCD. Lane closures will not occur on roadways without an approval from the Rockwall Engineering Department and an approved traffic control plan. Traffic control plans shall be required on all roadways as determined by the City Engineer or the designated representative.
4. All traffic control plans must be prepared, signed, and sealed by an individual that is licensed as a professional engineer in the State of Texas. All traffic control plans and copies of work zone certification must be submitted for review and approval a minimum of three (3) weeks prior to the anticipated temporary traffic control.
5. The CONTRACTOR executing the traffic control plan shall notify all affected property owners two (2) weeks prior to any the closures in writing and verbally.
6. Any deviation from an approved traffic control plan must be reviewed by the City Engineer or the designated representative. If an approved traffic control plan is not adhered to, the CONTRACTOR will first receive a verbal warning and be required to correct the problem immediately. If the deviation is not corrected, all construction work will be suspended, the lane closure will be removed, and the roadway opened to traffic.
7. All temporary traffic control devices shall be removed as soon as practical when they are no longer needed. When work is suspended for short periods of time at the end of the workday, all temporary traffic control devices that are no longer appropriate shall be removed or covered. The first violation of this provision will result in a verbal warning to the construction foreman. Subsequent violations will result in suspension of all work at the job site for a minimum of 48 hours. All contractors working on City funded projects will be charged one working day for each 24 hour closure.
8. Lane closures on any major or minor arterial will not be permitted between the hours of 6:00 am to 9:00 am and 3:30 pm to 7:00 pm. Where lane closures are needed in a school area, they will not be permitted during peak hours of 7:00 am – 9:00 am and 3:00 pm to 5:00 pm. Closures may be adjusted according to the actual start-finish times of the actual school with approval by the City Engineer. The first violation of this provision will result in a verbal warning to the construction foreman. Subsequent violations will result in suspension of all work at the job site for a minimum of 48 hours. All contractors working on City funded projects will be charged one working day for each 24 hour closure of a roadway whether they are working or not.
9. No traffic signs shall be taken down without permission from the City.
10. No street/roadway will be allowed to be fully closed.

UTILITY LINE LOCATES

1. It is the CONTRACTOR's responsibility to notify utility companies to arrange for utility locates at least 48 hours prior to beginning construction. The completeness and accuracy of the utility data shown on the plans is not guaranteed by the design engineer or the City. The CONTRACTOR is responsible for verifying the depth and location of existing underground utilities proper to excavating, trenching, or drilling and shall be required to take any precautionary measures to protect all lines shown and .or any other underground utilities not on record or not shown on the plans.
2. The CONTRACTOR shall be responsible for damages to utilities
3. CONTRACTOR shall adjust all City of Rockwall utilities to the final grades.
4. All utilities shall be placed underground.
5. CONTRACTOR shall be responsible for the protection of all existing main lines and service lines crossed or exposed by construction operations. Where existing mains or service lines are cut, broken or damaged, the CONTRACTOR shall immediately make repairs to or replace the entire service line with same type of original construction or better. The City of Rockwall can and will intervene to restore service if deemed necessary and charge the CONTRACTOR for labor, equipment, material and loss of water if repairs aren't made in a timely manner by the CONTRACTOR.
6. The City of Rockwall (City utilities) is not part of the Dig Tess or Texas one Call – 811 – line locate system. All City of Rockwall utility line locates are to be scheduled with the City of Rockwall Service Center. 972-771-7730. A 48-hour advance notice is required for all non-emergency line locates.
7. Underground utility lines shall be installed in accordance with the following standards in addition to other applicable criteria:
   a. No more than 500 linear feet of trench may be opened at one time.
   b. Material used for backfilling trenches shall be properly compacted to 95% standard density in order to minimize erosion, settlement, and promote stabilization that the geotechnical engineer recommends.
   c. Applicable safety regulations shall be complied with.
11. This plan details pipes up to 5 feet from the building. Refer to the building plans for building connections. CONTRACTOR shall supply and install pipe adapters as necessary.
12. All underground lines shall be installed, inspected, and approved prior to backfilling.
13. All concrete encasement shall have a minimum of 28 days compressive strength at 3,000 psi (min. 5.5 sack mix).

WATER LINE NOTES

1. The CONTRACTOR shall maintain existing water service at all times during construction.
2. Proposed water lines shall be AWWA C900-16 PVC Pipe (blue in color) for all sizes, DR 14 (PC 305) for pipeline sizes 12-inch and smaller, and DR 18 (PC 235) for 14-inch and larger water pipelines unless otherwise shown on water plan and profiles sheets. Proposed water lines shall be constructed with minimum cover of 4 feet for 6-inch through 8-inch, 5 feet for 12-inch through 18-inch and 6 feet for 20-inch and larger.
3. Proposed water line embedment shall be NCTCOG Class 'B-3' as amended by the City of Rockwall's engineering standards of design and construction manual.
4. CONTRACTOR shall coordinate the shutting down of all water lines with the City of Rockwall Engineering Inspector and Water Department. The City shall operate all water valves. Allow 5 business days from the date of notice to allow City personnel time to schedule a shut down. Two additional days are required for the CONTRACTOR to notify residents in writing of the shut down after the impacted area has been identified. Water shut downs impacting businesses during their normal operation hours is not allowed. CONTRACTOR is required to coordinate with the Rockwall Fire Department regarding any fire watch requirements as well as any costs incurred when the loss of fire protection to a structure occurs.
5. CONTRACTOR shall furnish and install gaskets on water lines between all dissimilar metals and at valves (both existing and proposed).
6. All fire hydrants and valves removed and salvaged shall be returned to the City of Rockwall Municipal Service Center.
7. Blue EMS pads shall be installed at every change in direction, valve, curb stop and service tap on the proposed water line and every 250'.
8. All water valve hardware and valve extensions, bolts, nuts and washers shall be 316 stainless steel.
9. All fire hydrants bolts, nuts and washers that are buried shall be 316 stainless steel.
10. Abandoned water lines to remain in place shall be cut and plugged and all void spaces within the abandoned line shall be filled with grout, flowable fill or an expandable permanent foam product. Valves to be abandoned in place shall have any extensions and the valve box removed and shall be capped in concrete.
11. All fire hydrants will have a minimum of 5 feet of clearance around the appurtenance including but not limited to parking spaces and landscaping.
12. All joints are to be megalug joints with thrust blocking.
13. Water and sewer mains shall be kept 10 feet apart (parallel) or when crossing 2 feet vertical clearance.
14. CONTRACTOR shall maintain a minimum of 4 feet of cover on all water lines.
15. All domestic and irrigation services are required to have a testable backflow device with a double check valve installed per the City of Rockwall regulations at the property line and shown on plans.

WASTEWATER LINE NOTES

1. The CONTRACTOR shall maintain existing wastewater service at all times during construction.
2. Wastewater line for 4-inch through 15-inch shall be Green PVC – SDR 35 (ASTM D3034) [less 10 ft cover] and SDR 26 (ASTM D3034) [10 ft or more cover]. For 18-inch and lager wastewater line shall be Green PVC – PS 46 (ASTM F679) [less 10 ft cover] and PS 115 (ASTM F679) [10 ft or more cover]. No services will be allowed on a sanitary sewer line deeper than 10 feet.
3. Proposed wastewater line embedment shall be NCTCOG Class 'H' as amended by the City of Rockwall's public works standard design and construction manual.
4. Green EMS pads shall be installed at every 250', manhole, clean out and service lateral on proposed wastewater lines.
5. CONTRACTOR shall CCTV all existing wastewater lines that are to be abandoned to ensure that all laterals are accounted for and transferred to proposed wastewater lines prior to abandonment.
6. All abandoned wastewater and force main lines shall be cut and plugged and all void spaces within the abandoned line shall be filled with grout, flowable fill or an expandable permanent foam product.
7. Existing manholes and cleanouts not specifically called to be relocated shall be adjusted to match final grades.
8. All wastewater pipes and public services shall be inspected by photographic means (television and DVD) prior to final acceptance and after franchise utilities are installed. The CONTRACTOR shall furnish a DVD to the Engineering Construction Inspector for review. Pipes shall be cleaned prior to TV inspection of the pipes. Any sags, open joints, cracked pipes, etc. shall be repaired or removed by the CONTRACTOR at the CONTRACTOR's expense. A television survey will be performed as part of the final testing in the twentieth (20^{th}) month of the maintenance period.
9. All manholes (public or private) shall be fitted with inflow prevention. The inflow prevention shall conform to the measures called out in standard detail R-5031.
10. All new or existing manholes being modified shall have corrosion protection being Raven Liner 405 epoxy coating, ConShield, or approved equal.. Consheild must have terracotta color dye mixed in the precast and cast-in-place concrete. Where connections to existing manholes are made the CONTRACTOR shall rehab manhole as necessary and install a 125 mil thick coating of Raven Liner 405 or approved equal.
11. All new or existing manholes that are to be placed in pavement shall be fitted with a sealed (gasketed) rim and cover to prevent inflow.
12. If an existing wastewater main or trunk line is called out to be replaced in place a wastewater bypassing pump plan shall be required and submitted to the Engineering Construction Inspector and City Engineer for approval prior to implementation. Bypass pump shall be fitted with an auto dialer and conform to the City's Noise Ordinance. Plan shall be to the City sufficiently in advance of scheduled construction to allow no less than 10 business days for review and response by the City.
13. CONTRACTOR shall maintain a minimum of 4 feet of cover on all wastewater lines.

GENERAL CONSTRUCTION NOTES
Sheet 1 of 2
October 2020

CITY OF ROCKWALL
ENGINEERING DEPARTMENT

385 S. Goliad
Rockwall, Texas 75087

P (972) 771-7746
F (972) 771-7748

DEMOLITION, REMOVAL, DISPOSAL AND EXCAVATION NOTES

1. All pavements to be removed and replaced shall be saw cut to full depth along neat squared lines shown in the plans.
2. Proposed concrete pavement shall be constructed with longitudinal butt construction joints at all connections to existing concrete pavement.
3. All public concrete pavement to be removed and replaced shall be full panel replacement, 1-inch thicker and on top of 6-inch thick compacted flexbase.
4. No excess excavated material shall be deposited in low areas or along natural drainage ways without written permission from the affected property owner and the City of Rockwall. No excess excavation shall be deposited in the City Limits without a permit from the City of Rockwall. If the CONTRACTOR places excess materials in these areas without written permission, the CONTRACTOR will be responsible for all damages resulting from such fill and shall remove the material at their own cost.

PAVING AND GRADING

1. All detention systems are to be installed and verified for design compliance along with the associated storm sewer and outflow structures, prior to the start of any paving operations (including building foundations). Erosion protection shall be placed at the pond outflow structures, silt fence along the perimeter of the pond along with any of the associated erosion BMPs noted on the erosion control plan, and the sides and bottom of the detention system shall have either sod or anchored seeded curlex installed prior to any concrete placement.
2. All paving roadway, driveways, fire lanes, drive-isles, parking, dumpster pads, etc. sections shall have a minimum thickness, strength, reinforcement, joint type, joint spacing and subgrade treatment shall at a minimum conform to the City standards of Design and Construction and table below.

Street/Pavement Type	Minimum Thickness (inches)	Streng th 28-Day (psi)	Minimum Cement (sacks / CY)		Steel Reinforcement	
			Machine placed	Hand Placed	Bar #	Spacing (O.C.E.W.)
Arterial	10”	3,600	6.0	6.5	#4 bars	18”
Collector	8”	3,600	6.0	6.5	#4 bars	18”
Residential	6”	3,600	6.0	6.5	#3 bars	24”
Alley	7”-5”-7”	3,600	6.0	6.5	#3 bars	24”
Fire Lane	6”	3,600	6.0	6.5	#3 bars	24”
Driveways	6”	3,600	6.0	6.5	#3 bars	24”
Barrier Free Ramps	6”	3,600	N/A	6.5	#3 bars	24”
Sidewalks	4”	3,000	N/A	5.5	#3 bars	24”
Parking Lot/Drive Aisles	5”	3,000	5.0	5.5	#3 bars	24”
Dumpster Pads	7”	3,600	6.0	6.5	#3 bars	24”

3. Reinforcing steel shall be tied (100%). Reinforcing steel shall be set on plastic chairs. Bar laps shall be minimum 30 diameters. Sawed transverse dummy joints shall be spaced every 15 feet or 1.25 time longitudinal butt joint spacing whichever is less. Sawing shall occur within 5 to 12 hours after the pour, including sealing. Otherwise, the section shall be removed and longitudinal butt joint constructed.
4. No sand shall be allowed under any paving.
5. All concrete mix design shall be submitted to the City for review and approval prior to placement.
6. Fly ash may be used in concrete pavement locations provided that the maximum cement reduction does not exceed 20% by weight per C.Y. of concrete. The fly ash replacement shall be 1.25 lbs. per 1.0 lb. cement reduction.
7. All curb and gutter shall be integral (monolithic) with the pavement.
8. All fill shall be compacted by sheep's foot roller to a minimum 95% standard proctor. Maximum loose lift for compaction shall be 8 inches. All lifts shall be tested for density by an independent laboratory. All laboratory compaction reports shall be submitted to the City Engineering Construction Inspector once results are received. All reports will be required prior to final acceptance.
9. All concrete compression tests and soil compaction/density tests are required to be submitted to the City’s Engineering Inspector immediately upon results.
10. All proposed sidewalks shall include barrier free ramps at intersecting streets, alleys, etc. Barrier free ramps (truncated dome plate in Colonial or brick red color) shall meet current City and ADA requirements and be approved by the Texas Department of Licensing and Regulation (TDLR).
11. All public sidewalks shall be doweled into pavement where it abuts curbs and driveways. Expansion joint material shall be used at these locations.
12. All connection of proposed concrete pavement to existing concrete pavement shall include a longitudinal butt joint as the load transfer device. All longitudinal butt joints shall be clean, straight and smooth (not jagged in appearance)
13. Cracks formed in concrete pavement shall be repaired or removed by the CONTRACTOR at the City's discretion. CONTRACTOR shall replace existing concrete curbs, sidewalk, paving, a gutters as indicated on the plans and as necessary to connect to the existing infrastructure, including any damage caused by the CONTRACTOR.
14. All residential lots will require individual grading plans submitted during the building permit process that correspond with the engineered grading and drainage area plans.
15. Approval of this plan is not an authorization to grade adjacent properties when the plans or field conditions warrant off-site grading. Written permission must be obtained and signed from the affected property owner(s) and temporary construction easements may be required. The written permission shall be provided to the City as verification of approval by the adjacent property owner(s). Violation of this requirement will result in suspension of all work at the job site until issue has been rectified.
16. All cut or fill slopes of non-paved areas shall be a maximum of 4:1 and minimum of 1%.
17. CONTRACTOR agrees to repair any damage to property and the public right-of-way in accordance with the City Standards of Design and Construction.
18. CONTRACTOR shall protect all monuments, iron pins/rods, and property corners during construction.
19. CONTRACTOR shall ensure positive drainage so that runoff will drain by gravity flow to new or existing drainage inlets or sheet flow per these approved plans.

DRAINAGE / STORM SEWER NOTES

1. The CONTRACTOR shall maintain drainage at all times during construction. Ponding of water in streets, drives, trenches, etc. will not be allowed. Existing drainage ways shall not be blocked or removed unless explicitly stated in the plans or written approval is given by the City.
2. All structural concrete shall be 4200 psi compressive strength at 28 days minimum 7.0 sack mix, air entrained, unless noted otherwise. Fly ash shall not be allowed in any structural concrete.
3. Proposed storm sewer embedment shall be NCTCOG Class 'B' as amended by the City of Rockwall's Engineering Department Standards of Design and Construction Manual.
4. All public storm pipe shall be a minimum of 18-inch reinforced concrete pipe (RCP), Class III, unless otherwise noted.
5. All storm pipe entering structures shall be grouted to assure connection at the structure is watertight.
6. All storm structures shall have a smooth uniform poured mortar invert from invert in to invert out.
7. All storm sewer manholes in paved areas shall be flush with the paving grade, and shall have traffic bearing ring and covers.
8. All storm sewer pipes and laterals shall be inspected by photographic means (television and DVD) prior to final acceptance and after franchise utilities are installed. The CONTRACTOR shall furnish a DVD to the Engineering Construction Inspector for review. Pipes shall be cleaned prior to TV inspection of the pipes. Any sags, open joints, cracked pipes, etc. shall be repaired or removed by the CONTRACTOR at the CONTRACTOR’s expense. A television survey will be performed as part of the final testing in the twentieth (20^{th}) month of the maintenance period.

RETAINING WALLS

1. All retaining walls, regardless of height, will be reviewed and approved by the City Engineering Department
2. All retaining walls (including foundation stem walls), regardless of height, will be constructed of rock/stone/brick or rock/stone/brick faced. No smooth concrete walls are allowed. Wall materials shall be the same for all walls on the project.
3. All portions, including footings, tie-backs, and drainage backfill, of the wall shall be on-site and not encroach into any public easements or right-of-way. The entire wall shall be in one lot and shall not be installed along a lot line.
4. All walls 3 feet and taller will be designed and signed/sealed by a registered professional engineer in the State of Texas. The wall design engineer is required to inspect the wall construction and supply a signed/sealed letter of wall construction compliance to the City of Rockwall along with wall as-builts prior to City Engineering acceptance.
5. No walls are allowed in detention easements. A variance to allow retaining walls in a detention easement will require approval by the Planning and Zoning Commission with appeals being heard by the City Council.

FINAL ACCEPTANCE AND RECORD DRWINGS/AS-BUILTS

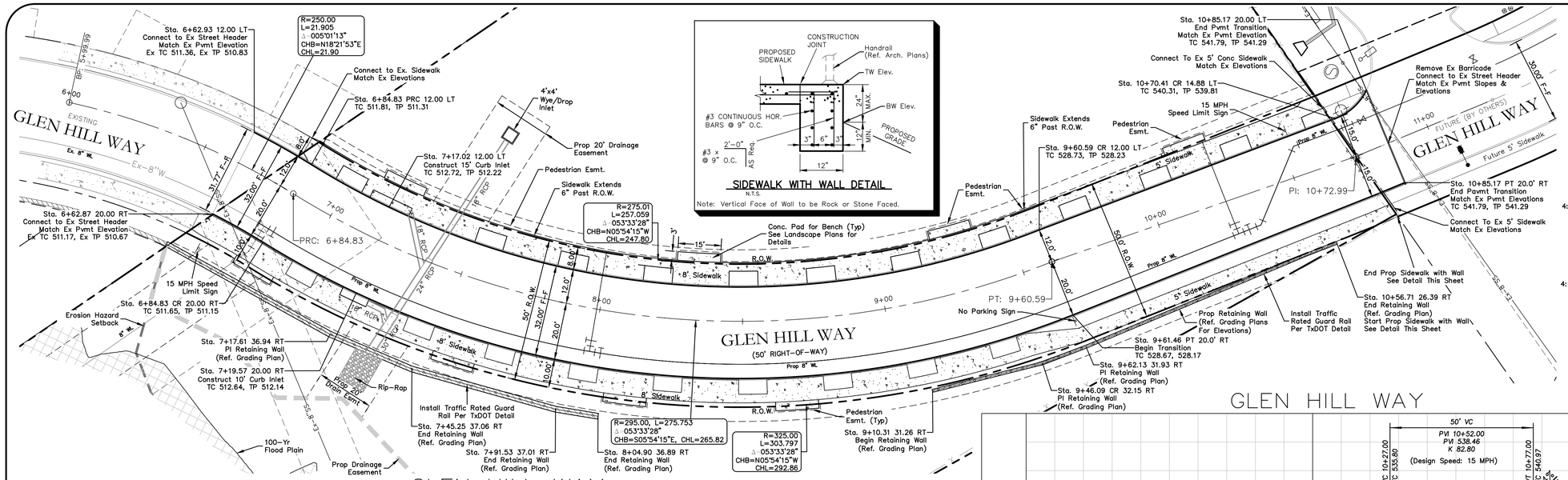
1. Final Acceptance shall occur when all the items on the Checklist for Final Acceptance have been completed and signed-off by the City. An example of the checklist for final acceptance has been included in the Appendix of the Standards of Design and Construction. Items on the checklist for final acceptance will vary per project and additional items not shown on the check list may be required.
2. After improvements have been constructed, the developer shall be responsible for providing to the City “As Built” or “Record Drawings”. The Design Engineer shall furnish all digital files of the project formatted in Auto Cad 14, or 2000 format or newer and Adobe Acrobat (.pdf) format with a CD-ROM disk or flash drive. The disk or drive shall include a full set of plans along with any landscaping, wall plans, and details sheets.
3. Submit 1-set of printed drawings of the “Record Drawings” containing copies of all sheets to the Engineering Construction Inspector for the project. The printed sheets will be reviewed by the inspector PRIOR to producing the “Record Drawing” digital files on disk or flash drive. This will allow any revisions to be addressed prior to producing the digital files.
4. Record Drawing Disk drawings shall have the Design Engineers seal, signature and must be stamped and dated as “Record Drawings” or “As Built Drawings” on all sheets.
5. The City of Rockwall will not accept any Record Drawing disk drawings which include a disclaimer. A disclaimer shall not directly or indirectly state or indicate that the design engineer or the design engineer’s surveyor/surveyors did not verify grades after construction, or that the Record Drawings were based solely on information provided by the construction contractor/contractors. Any Record Drawings which include like or similar disclaimer verbiage will not be accepted by the City of Rockwall.
6. Example of Acceptable Disclaimer: “To the best of our knowledge ABC Engineering, Inc., hereby states that this plan is As-Built. This information provided is based on surveying at the site and information provided by the contractor.”

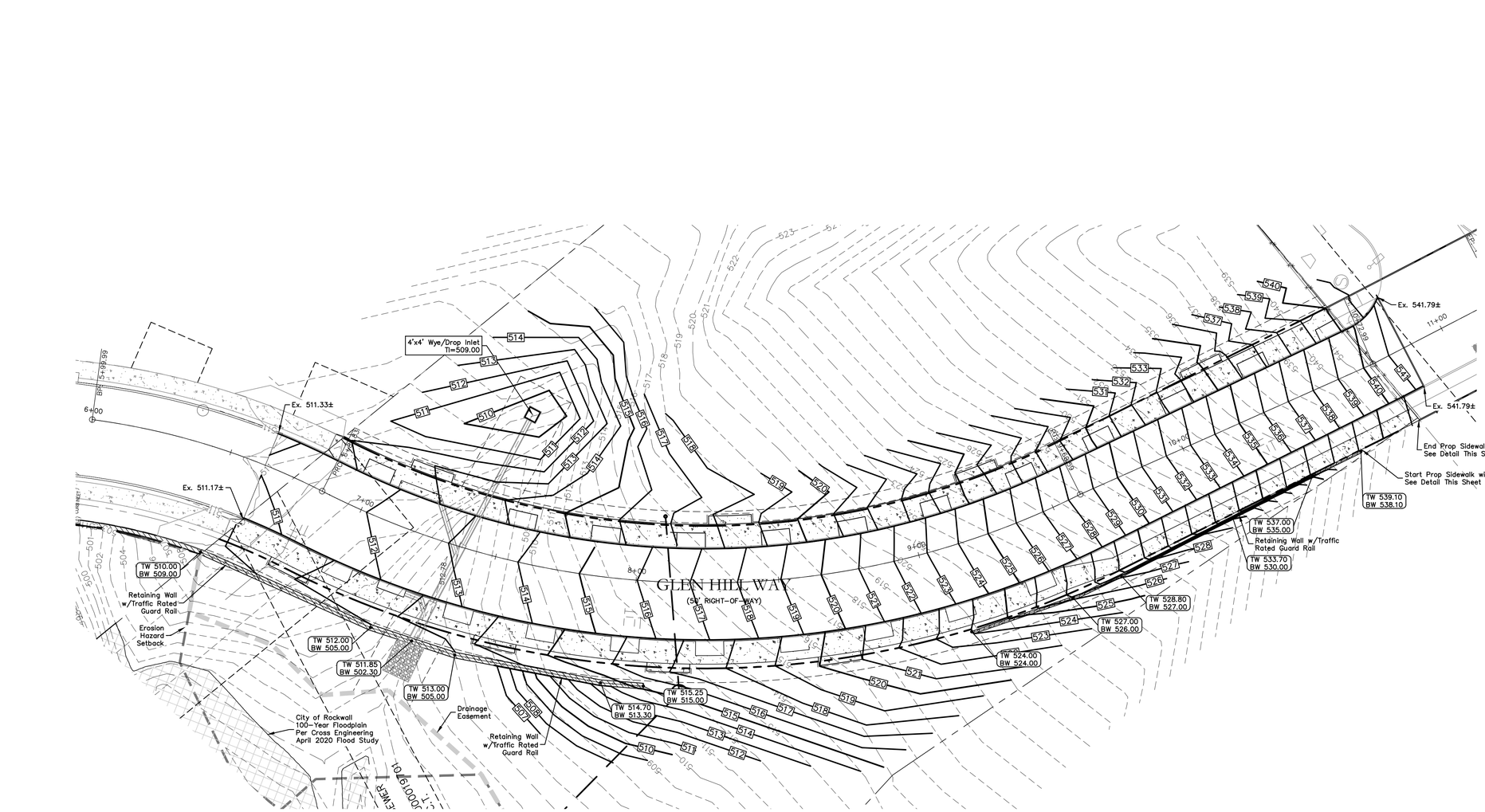
GENERAL CONSTRUCTION NOTES
Sheet 2 of 2
October 2020

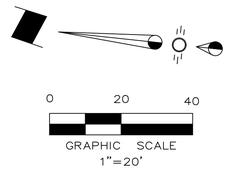
CITY OF ROCKWALL
ENGINEERING DEPARTMENT

385 S. Goliad
Rockwall, Texas 75087

P (972) 771-7746
F (972) 771-7748


GLEN HILL WAY
(50' RIGHT-OF-WAY)
Sta. 6+62.93 12.00 LT
Connect to Ex Street Header
Match Ex Pvmt Elevation
Ex TC 511.36, Ex TP 510.83
R=250.00
L=21.905
Δ 005°01'13"
CHB=N18°21'53"E
CHL=21.90
Connect to Ex. Sidewalk
Match Ex Elevations
Sta. 6+84.83 PRC 12.00 LT
TC 511.81, TP 511.31
4'x4'
Wye/Drop
Inlet
Prop 20' Drainage
Easement
Pedestrian Esmt.
Sidewalk Extends
6" Past R.O.W.
Sta. 7+17.02 12.00 LT
Construct 15' Curb Inlet
TC 512.72, TP 512.22
R=275.01
L=257.059
Δ 053°33'28"
CHB=N05°54'15"W
CHL=247.80
Conc. Pad for Bench (Typ)
See Landscape Plans for
Details
Sta. 6+62.87 20.00 RT
Connect to Ex Street Header
Match Ex Pvmt Elevation
Ex TC 511.17, Ex TP 510.67
PRC: 6+84.83
15 MPH Speed
Limit Sign
Sta. 6+84.83 CR 20.00 RT
TC 511.65, TP 511.15
Erosion Hazard
Setback
Sta. 7+17.61 36.94 RT
PI Retaining Wall
(Ref. Grading Plan)
Sta. 7+19.57 20.00 RT
Construct 10' Curb Inlet
TC 512.64, TP 512.14
Prop 20'
Drain Esmt.
Rip-Rap
Install Traffic Rated Guard
Rail Per TxDOT Detail
Sta. 7+45.25 37.06 RT
End Retaining Wall
(Ref. Grading Plan)
Sta. 7+91.53 37.01 RT
End Retaining Wall
(Ref. Grading Plan)
100-Yr
Flood Plain
Prop Drainage
Easement
R=295.00, L=275.753
Δ 053°33'28"
CHB=S05°54'15"E, CHL=265.82
R=325.00
L=303.797
Δ 053°33'28"
CHB=N05°54'15"W
CHL=292.86
Sta. 8+04.90 36.89 RT
End Retaining Wall
(Ref. Grading Plan)
Pedestrian
Esmt. (Typ)
Sta. 9+10.31 31.26 RT
Begin Retaining Wall
(Ref. Grading Plan)
Sta. 9+46.09 CR 32.15 RT
PI Retaining Wall
(Ref. Grading Plan)
Sta. 9+62.13 31.93 RT
PI Retaining Wall
(Ref. Grading Plan)
Sta. 9+61.46 PT 20.0' RT
Begin Transition
TC 528.67, 528.17
PT: 9+60.59
No Parking Sign
Prop Retaining Wall
(Ref. Grading Plans
For Elevations)
Install Traffic
Rated Guard Rail
Per TxDOT Detail
Sta. 10+56.71 26.39 RT
End Retaining Wall
(Ref. Grading Plan)
Start Prop Sidewalk with Wall
See Detail This Sheet
End Prop Sidewalk with Wall
See Detail This Sheet
Sidewalk Extends
6" Past R.O.W.
Sta. 9+60.59 CR 12.00 LT
TC 528.73, TP 528.23
Pedestrian
Esmt.
Sta. 10+85.17 20.00 LT
End Pvmt Transition
Match Ex Pvmt Elevation
TC 541.79, TP 541.29
Connect To Ex 5' Conc Sidewalk
Match Ex Elevations
Sta. 10+70.41 CR 14.88 LT
TC 540.31, TP 539.81
15 MPH
Speed Limit Sign
Remove Ex Barricade
Connect to Ex Street Header
Match Ex Pvmt Slopes &
Elevations
PI: 10+72.99
Sta. 10+85.17 PT 20.0' RT
End Pvmt Transition
Match Ex Pvmt Elevations
TC 541.79, TP 541.29
Connect To Ex 5' Sidewalk
Match Ex Elevations
FUTURE (BY OTHERS)
GLEN HILL WAY
Future 5' Sidewalk
30.00' F-F
Prop 8" WL
Ex-8"W
EXISTING
Ex. 8" WL
8' Sidewalk
5' Sidewalk
R.O.W.
50' R.O.W.
Prop 8" WL
Prop 8" WL
Prop 8" WL
18" RCP
24" RCP
15" RCP
8" WL
Erosion Hazard Setback
6' W.L.
55.6'-33'
55.6'-33'
55.6'-33'





GENERAL/DRAINAGE NOTES

1. All materials and construction shall be in accordance with the City of Rockwall Standard Specifications and Construction Standards, and Standard Specifications for Public Works Construction prepared by North Central Texas Council of Governments (5th Edition).

2. Existing utilities are shown schematically and are for the contractors guidance only. The location and/or elevation of existing utilities as shown on these plans are based on records of the various utility companies, and, where possible, measurements taken in the field. The contractor must call the appropriate utility company at least 72 hours prior to any excavation to request exact field location of utilities.

3. The contractor shall be responsible for protecting all existing improvements in the construction of this project. The contractor is responsible for repairs of damage to any existing improvements during construction. Repairs shall be equal to or better than condition prior to construction.

4. All storm sewer pipe 18" and larger shall be Class III RCP. All storm sewer pipe 15" and smaller shall be PVC drainage pipe or approved equal.

5. Contractor shall be responsible for maintaining trench safety requirements in accordance with the latest standards of O.S.H.A. or any other agency having jurisdiction for excavation and trenching procedures. Contractor shall provide and implement a trench safety plan complying with O.S.H.A.

6. All RCP pipe joints shall have Ram-Neck joint sealer, in the absence of a City Standard for joint sealant.

7. All roof drain laterals shall be 0.50% min. slope.

8. All fill to be compacted to 95% standard density using a sheep's foot roller.

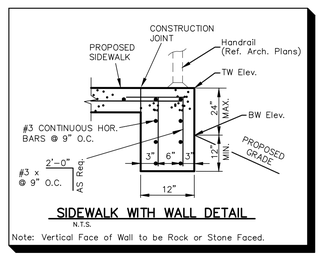
9. No portion of the wall including footing or tie backs to be offsite or in any easement. Walls to be rock or stone no smooth concrete.

10. Contractor is responsible for adjusting all utilities and drainage to final grade.

11. All retaining walls to be rock or stone compatible design to PD.32 Standaard and match existing walls.

LEGEND

- 513.00 — Proposed Spot Elevation
- Ex. 501.35 — Existing Spot Elevation
- 508 — Proposed Contour
- 515 — Existing Contour
- Property Line
- Proposed Retaining Wall



SIDEWALK WITH WALL DETAIL
N.T.S.

Note: Vertical Face of Wall to be Rock or Stone Faced.

CAUTION!
Existing Utilities in Area. Contractor to determine location and elevation of all utilities prior to construction. Contractor to inform Engineer of any conflicts prior to construction.

STOP!
CALL BEFORE YOU DIG

Texas811 Know what's below.

(@ least 72 hours prior to digging)

BENCHMARK:

City Benchmark:
COR-7-Aluminum Disk Stamped " City of Rockwall Survey Monument" Located on the south side of Summer Lee Dr. ±275 feet west of intersection of Summer Lee Dr and Ridge Road, ±1 foot south of curb line. ELEVATION: 567.52

Site Benchmark:
No. 1-"X" Cut on rim of water valve located on the north side of Summer Lee Dr. approx. 915 feet easterly from the intersection of Sunset Ridge Dr. ELEVATION: 548.55

No. 2-"X" Cut on southeast corner of curb inlet located on the east side of Shoreline Tr. approx. 480 feet northerly from the north side of Summer Lee Dr. ELEVATION: 474.56

Issue Dates:	Revisions:	Date:
2 5/26/2020	1	
3 9/22/2020	2	
4 2/26/2021	3	
5 4/07/2021	4	
6 4/19/2021	5	
7 5/17/2021	6	

Issued for Construction: 04-19-2021

CROSS ENGINEERING CONSULTANTS
1720 W. Virginia Street, McKinney, Texas 75069
972.562.4409 Texas P.E. Firm No. F-5935

Drawn By:	Checked By:	Scale:
C.E.C.I.	C.E.C.I.	1"=20'

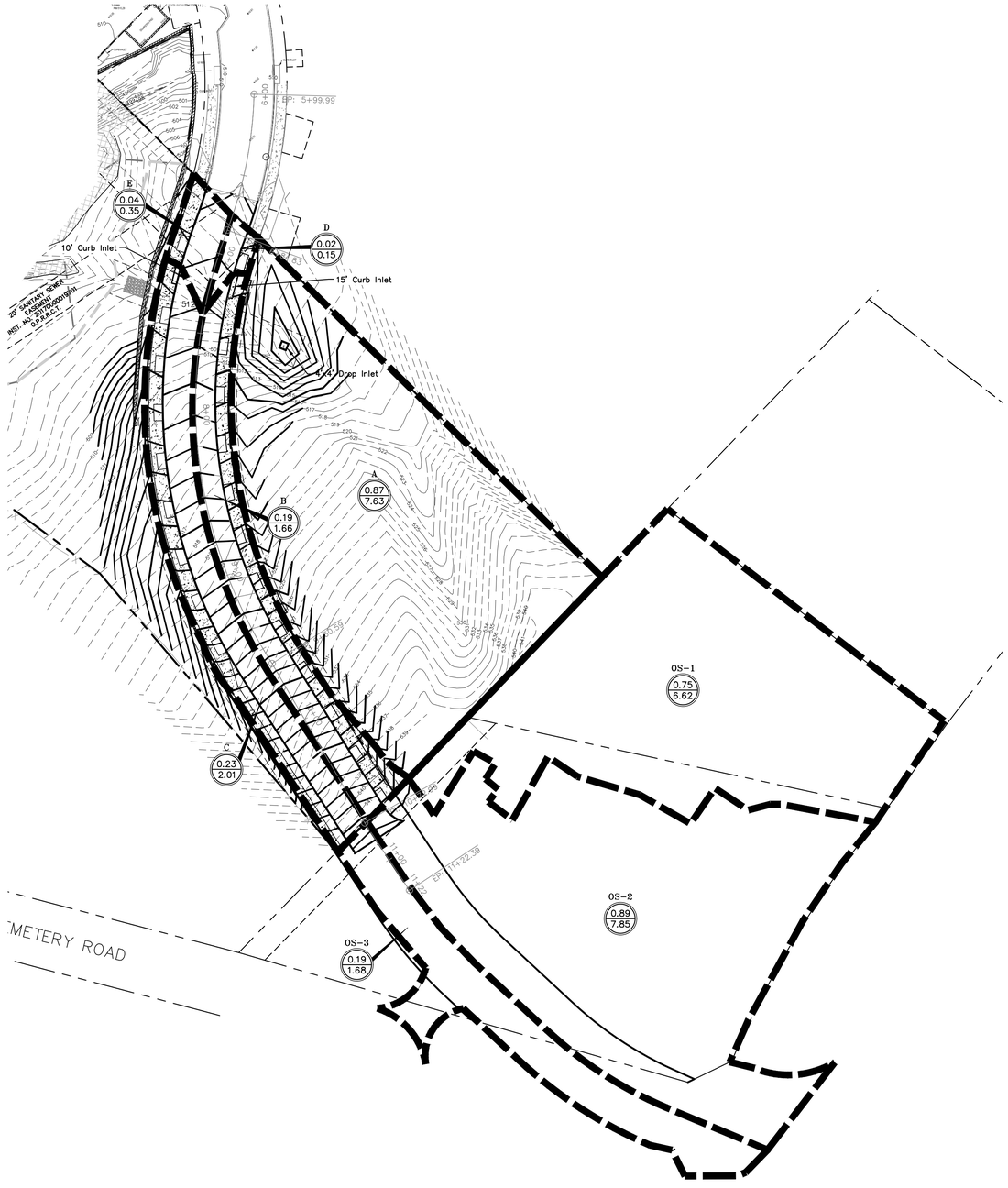
STATE OF TEXAS — CHAD E. CROSS — 94738 — Licensed PROFESSIONAL ENGINEER — 5/17/21

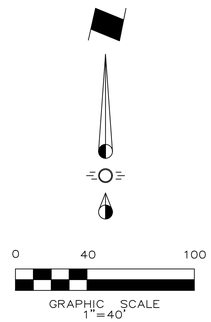
GRADING PLAN
GLEN HILL WAY EXTENSION
GLEN HILL WAY
ROCKWALL, TEXAS

Sheet No. C8.2

Project No. 18090

GLEN HILL WAY EXTENSION





GENERAL/DRAINAGE NOTES

1. All materials and construction shall be in accordance with the City of Rockwall Standard Specifications and Construction Standards, and Standard Specifications for Public Works Construction prepared by North Central Texas Council of Governments (5th Edition).

2. Existing utilities are shown schematically and are for the contractors guidance only. The location and/or elevation of existing utilities as shown on these plans are based on records of the various utility companies, and, where possible, measurements taken in the field. The contractor must call the appropriate utility company at least 72 hours prior to any excavation to request exact field location of utilities.

3. The contractor shall be responsible for protecting all existing improvements in the construction of this project. The contractor is responsible for repairs of damage to any existing improvements during construction. Repairs shall be equal to or better than condition prior to construction.

4. All storm sewer pipe 18" and larger shall be Class III RCP. All storm sewer pipe 15" and smaller shall be PVC drainage pipe or approved equal.

5. Contractor shall be responsible for maintaining trench safety requirements in accordance with the latest standards of O.S.H.A. or any other agency having jurisdiction for excavation and trenching procedures. Contractor shall provide and implement a trench safety plan complying with O.S.H.A.

6. All RCP pipe joints shall have Ram-Neck joint sealer, in the absence of a City Standard for joint sealant.

7. All roof drain laterals shall be 0.50% min. slope.

Drainage Area Runoff Calculations

Drainage Area No.	Drainage Area (Acres)	Time of Concentration (minutes)	K_{100}	Runoff Coefficient C	100-Year Event I_{100} (in/hr)	100-Year Event Q_{100} (cfs)	Remarks
A	0.87	10	1.00	0.90	9.80	7.63	To Area Inlet
B	0.19	10	1.00	0.90	9.80	1.66	15ft curb inlet on grade
C	0.23	10	1.00	0.90	9.80	2.01	5ft curb inlet on grade
D	0.02	10	1.00	0.90	9.80	0.15	Existing 10ft curb inlet
E	0.04	10	1.00	0.90	9.80	0.35	Existing 10ft curb inlet
OS-1	0.75	10	1.00	0.90	9.80	6.62	To Area Inlet
OS-2	0.89	10	1.00	0.90	9.80	7.85	15ft curb inlet on grade
OS-3	0.19	10	1.00	0.90	9.80	1.68	5ft curb inlet on grade

DRAINAGE LEGEND

A — Drainage Area Number

X.XX / X.XX — Acres / Q_{100}

Drainage Divide Line

Direction of Flow

DRAINAGE CRITERIA

Q = C I A
C = 0.90
I_{100} = 9.80
tc = 10 min.

CAUTION!
Existing Utilities in Area. Contractor to determine location and elevation of all utilities prior to construction. Contractor to inform Engineer of any conflicts prior to construction.

Curb Inlet Calculations

Inlet ID	Location: Alignment	Location: Station	Location: Offset	Design Freq.	Area Runoff: C	Area Runoff: Area ID	Area Runoff: i	Area Runoff: Area	Area Runoff: Runoff Q	Upstream Bypass	Thoroughfare type	On-Grad/Sag	Inlet Length	Road Slope	Inlet Capacity*	Inlet Bypass**
				yr			in/hr						ft	ft/ft	cfs	cfs
East CI	C	7+17	12.49 L	100	0.9	B & OS-2	9.80	1.08	9.51	0	Residential	On-Grade	15	0.033	8.89	0.62
West CI	C	7+20	12.51 R	100	0.9	C & OS-3	9.80	0.42	3.68	0	Residential	On-Grade	10	0.033	4.07	0.00

*Capacity interpolated from figure 3.8 of the City of Rockwall Standards of Design and Construction.
**Based on the provided drawings for the section of Glen Hill Way East of this proposed extension, the existing inlets in sag have sufficient capacity for the bypass flow.

BENCHMARK:

City Benchmark:
COR-7-Aluminum Disk Stamped " City of Rockwall Survey Monument" Located on the south side of Summer Lee Dr. ±275 feet west of intersection of Summer Lee Dr and Ridge Road, ±1 foot south of curb line. ELEVATION: 567.52

Site Benchmark:
No. 1-"X" Cut on rim of water valve located on the north side of Summer Lee Dr. approx. 915 feet easterly from the intersection of Sunset Ridge Dr. ELEVATION: 548.55

No. 2-"X" Cut on southeast corner of curb inlet located on the east side of Shoreline Tr. approx. 480 feet northerly from the north side of Summer Lee Dr. ELEVATION: 474.56

Issue Dates:	Revisions:	Date:
2	5/26/2020	1
3	9/22/2020	2
4	2/26/2021	3
5	4/07/2021	4
6	4/19/2021	5
7	5/17/2021	6

CROSS ENGINEERING CONSULTANTS
1720 W. Virginia Street
McKinney, Texas 75069
972.562.4409
Texas P.E. Firm No. F-5935

Drawn By: C.E.C.I. | Checked By: C.E.C.I. | Scale: 1"=40'

STATE OF TEXAS — JOHN E. CROSS — 94739 — LICENSED PROFESSIONAL ENGINEER — 5/17/21

Issued for Construction: 04-19-2021

DRAINAGE AREA MAP
GLEN HILL WAY EXTENSION
GLEN HILL WAY
ROCKWALL, TEXAS

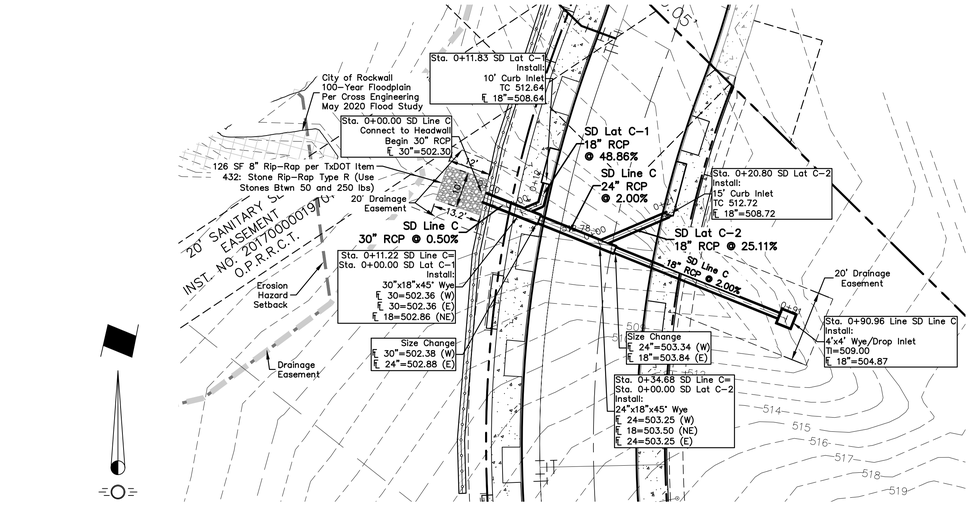
Sheet No. C9.1
Project No. 18090

STOP!
CALL BEFORE YOU DIG
Texas811 Know what's below.
(@ least 72 hours prior to digging)

GLEN HILL WAY EXTENSION

Sytem ID	DS Sta	US Sta	Length	Pipe Diameter	Area	Wetted Perimeter	Hydraulic Radius	Mannings n	DS Flowline	US Flowline	Slope	Drainage Areas	Runoff Coeff C	Area	CA	Acumulated CA	Tc	Rainfall Intensity	Q 100	Q Capacity	Partial Flow	Velocity	Friction Slope	Friction Loss	Hv	K	Head Loss	HGL DS	HGL US	Top of Curb/Inlet
			ft	in	ft2	ft	ft		ft	ft	ft/ft			Acres			min	(in/hr)	cfs	cfs		ft/s	ft/ft	ft	ft		ft	ft	ft	ft
C	90.96	90.96	-	-	-	-	-	-	-	-	-	A & OS-1	0.90	1.62	1.46	1.46	10.00	9.80	14.25	-	Yes	-	-	-	-	-	-	506.23	-	509.00
C	34.68	90.96	56.28	18	1.77	4.71	0.375	0.013	503.84	504.87	0.018	-	0.90	0	0	1.46	10.00	9.80	14.25	14.85	Yes	8.06	0.0073	0.41	0.59	1.00	0.59	505.23	505.64	-
C	11.22	34.68	23.46	24	3.14	6.28	0.5	0.013	502.88	503.34	0.020	B & OS-2	0.90	1.08	0.97	2.43	10.00	9.80	23.76	29.00	Yes	7.56	0.0039	0.09	0.37	0.44	0.16	504.98	505.07	-
C	0.00	11.22	11.22	30	4.91	7.85	0.625	0.013	502.3	502.38	0.007	C & OS-3	0.90	0.42	0.38	2.81	10.00	9.80	27.45	32.00	Yes	5.59	0.0039	0.04	0.37	0.37	0.14	504.8	504.84	-

Sytem ID	DS Sta	US Sta	Length	Pipe Diameter	Area	Wetted Perimeter	Hydraulic Radius	Mannings n	DS Flowline	US Flowline	Slope	Drainage Areas	Runoff Coeff C	Area	CA	Acumulated CA	Tc	Rainfall Intensity	Q 100	Q Capacity	Partial Flow	Velocity	Friction Slope	Friction Loss	Hv	K	Head Loss	HGL DS	HGL US	Top of Curb
			ft	in	ft2	ft	ft		ft	ft	ft/ft			Acres			min	(in/hr)	cfs	cfs		ft/s	ft/ft	ft	ft		ft	ft	ft	ft
C-1	0	11.83	11.83	18	1.77	4.71	0.38	0.013	502.86	508.65	0.49	C & OS-3	0.90	0.42	0.38	0.38	10.00	9.80	3.69	7.45	Yes	2.09	0.01	0.08	0.36	0.50	0.18	504.36	504.44	512.64
C-2	0	20.8	20.8	18	1.77	4.71	0.375	0.013	503.49	509	0.26	B & OS-2	0.90	1.08	0.97	1.35	10.00	9.80	9.51	7.45	Yes	5.38	0.0065	0.14	0.36	0.5	0.18	504.99	505.13	512.72



0 20 60

GRAPHIC SCALE
1"=20'

GENERAL/DRAINAGE NOTES

1. All materials and construction shall be in accordance with the City of Rockwall Standard Specifications and Construction Standards, and Standard Specifications for Public Works Construction prepared by North Central Texas Council of Governments (5th Edition).

2. Existing utilities are shown schematically and are for the contractors guidance only. The location and/or elevation of existing utilities as shown on these plans are based on records of the various utility companies, and, where possible, measurements taken in the field. The contractor must call the appropriate utility company at least 72 hours prior to any excavation to request exact field location of utilities.

3. The contractor shall be responsible for protecting all existing improvements in the construction of this project. The contractor is responsible for repairs of damage to any existing improvements during construction. Repairs shall be equal to or better than condition prior to construction.

4. All storm sewer pipe 18" and larger shall be Class III RCP. All storm sewer pipe 15" and smaller shall be private PVC drainage pipe or approved equal.

5. Contractor shall be responsible for maintaining trench safety requirements in accordance with the latest standards of O.S.H.A. or any other agency having jurisdiction for excavation and trenching procedures. Contractor shall provide and implement a trench safety plan complying with O.S.H.A.

6. All RCP pipe joints shall have Ram-Neck joint sealer, in the absence of a City Standard for joint sealant.

7. All roof drain laterals shall be 0.50% min. slope.

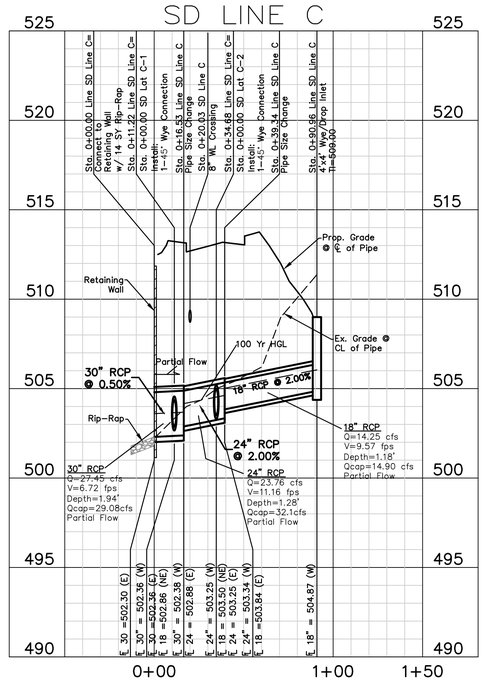
8. All landscape inlets in areas in or near mulched areas shall use 12 inch nyloplast domes. All landscape inlets in grassed areas shall be nyloplast 15 inch drop in grates.

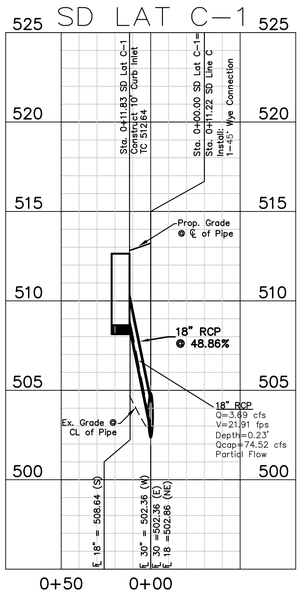
BENCHMARK:

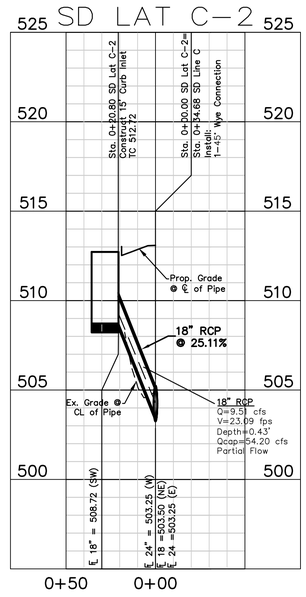
City Benchmark:
COR-7-Aluminum Disk Stamped " City of Rockwall Survey Monument" Located on the south side of Summer Lee Dr. ±275 feet west of intersection of Summer Lee Dr and Ridge Road, ±1 foot south of curb line.
ELEVATION: 567.52

Site Benchmark:
No. 1-"X" Cut on rim of water valve located on the north side of Summer Lee Dr. approx. 915 feet easterly from the intersection of Sunset Ridge Dr.
ELEVATION: 548.55

No. 2-"X" Cut on southeast corner of curb inlet located on the east side of Shoreline Tr. approx. 480 feet northerly from the north side of Summer Lee Dr.
ELEVATION: 474.56







SCALE:
Horizontal 1"=40'
Vertical 1"=4'

STOP!
CALL BEFORE YOU DIG
Texas 811 Know what's below.
(@ least 72 hours prior to digging)

Issued for Construction: 04-19-2021

Issue Dates:	Revisions:	Date:
2	5/26/2020	1
3	9/22/2020	2
4	2/26/2021	3
5	4/07/2021	4
6	4/19/2021	5
7	5/17/2021	6

CROSS ENGINEERING CONSULTANTS
1720 W. Virginia Street, McKinney, Texas 75069
972.562.4409, Texas P.E. Firm No. F-5935

Drawn By:	Checked By:	Scale:
C.E.C.I.	C.E.C.I.	As Shown

STATE OF TEXAS — CHAD E. CROSS — 94735 — LICENSED PROFESSIONAL ENGINEER — 5/17/21

STORM SEWER PLAN & PROFILE
GLEN HILL WAY EXTENSION
GLEN HILL WAY
ROCKWALL, TEXAS

Sheet No. C9.2
Project No. 18090

GLEN HILL WAY EXTENSION

0 20 60

GRAPHIC SCALE
1"=20'

N 45°45'44" W 101.61'

S 59°56'19" W 92.98'

S 20°16'51" W

N 78°18'27" W 146.71'

N 27°26'15" W 23.40'

S 63°27'09" W 35.91'

S 59°17'11" W 85.54'

S 74°06'26" W 80.60'

S 15°54'22" W 114.86'

Prop. Curb Inlet

Prop. Curb Inlet

DRAINAGE EASEMENT

EROSION HAZARD SETBACK

DRAINAGE EASEMENT & EROSION HAZARD SETBACK

DRAINAGE EASEMENT & EROSION HAZARD SETBACK

CONTRACTOR TO COORDINATE WITH HARBOR HILL APARTMENTS STRUCTURAL ENGINEER & CONTRACTOR FOR CONSTRUCTION OF GABIONS IN RELATION TO THE PROPOSED (BY OTHERS) SANITARY SEWER AERIAL CROSING. SEE SHEETS C5.1 & C5.2 OF HARBOR HILL PLANS FOR MORE INFORMATION.

Sanitary Sewer (by others)

Sanitary Sewer Manhole (by others)

DRAINAGE EASEMENT

EROSION HAZARD SETBACK

PROPOSED GABION

PROPOSED GABION

PROPOSED GABION

EROSION HAZARD SETBACK

EROSION HAZARD SETBACK

DRAINAGE EASEMENT

℄ CREEK

℄ CREEK

City of Rockwall 100-Year Floodplain Per Cross Engineering May 2020 Flood Study

City of Rockwall 100-Year Floodplain Per Cross Engineering May 2020 Flood Study

SANITARY SEWER EASEMENT INST. NO. 20170000019701 O.P.R.R.C.T.

Sanitary Sewer Aerial Crossing (by others)

XS:1292.34 100-Yr WSE:487.50ft

XS:1138.64 100-Yr WSE:487.91ft

XS:1183.5 100-Yr WSE:485.64ft

XS:1215.01 100-Yr WSE:489.04ft

XS:1253.01 100-Yr WSE:489.45ft

XS:1285.55 100-Yr WSE:490.02ft

XS:1310.74 100-Yr WSE:492.26ft

XS:1342.58 100-Yr WSE:493.13ft

XS:1379.56 100-Yr WSE:494.10ft

XS:1415.13 100-Yr WSE:494.47ft

XS:1444.83 100-Yr WSE:494.61ft

XS:1510.97 100-Yr WSE:495.10ft

XS:1549.74 100-Yr WSE:495.25ft

XS:1619.08 100-Yr WSE:495.60ft

XS:1651.50 100-Yr WSE:496.15ft

XS:1674.27 100-Yr WSE:496.63ft

XS:1688.54 100-Yr WSE:496.71ft

XS:1688.47 100-Yr WSE:496.76ft

XS:1720.44 100-Yr WSE:496.74ft

XS:1777.43 100-Yr WSE:496.61ft

XS:1834.56 100-Yr WSE:501.17ft

XS:1850.94 100-Yr WSE:501.52ft

XS:1880.67 100-Yr WSE:

Cross-Sections Shown & City of Rockwall 100-Year Floodplain Elelvations
Per Cross Engineering May 2020 Flood Study

LEGEND

- Proposed Drainage Easement
- Erosion Hazard Setback
- Proposed 100 Yr. Floodplain

Issued for Construction: 04-19-2021

BENCHMARK:

City Benchmark:
COR-7-Aluminum Disk Stamped " City of Rockwall Survey Monument" Located on the south side of Summer Lee Dr. ±275 feet west of intersection of Summer Lee Dr and Ridge Road, ±1 foot south of curb line. ELEVATION: 567.52

Site Benchmark:
No. 1-"X" Cut on rim of water valve located on the north side of Summer Lee Dr. approx. 915 feet easterly from the intersection of Sunset Ridge Dr. ELEVATION: 548.55

No. 2-"X" Cut on southeast corner of curb inlet located on the east side of Shoreline Tr. approx. 480 feet northerly from the north side of Summer Lee Dr. ELEVATION: 474.56

Issue Dates:	Revisions:	Date:
2 5/26/2020	1	
3 9/22/2020	2	
4 2/26/2021	3	
5 4/07/2021	4	
6 4/19/2021	5	
7 5/17/2021	6	

CROSS ENGINEERING CONSULTANTS
1720 W. Virginia Street McKinney, Texas 75069
972.562.4409 Texas P.E. Firm No. F-5935

Drawn By:	Checked By:	Scale:
C.E.C.I.	C.E.C.I.	1"=20'

STATE OF TEXAS
CHAD E. CROSS
94738
License
PROFESSIONAL ENGINEER
5/17/21

GABION PLAN

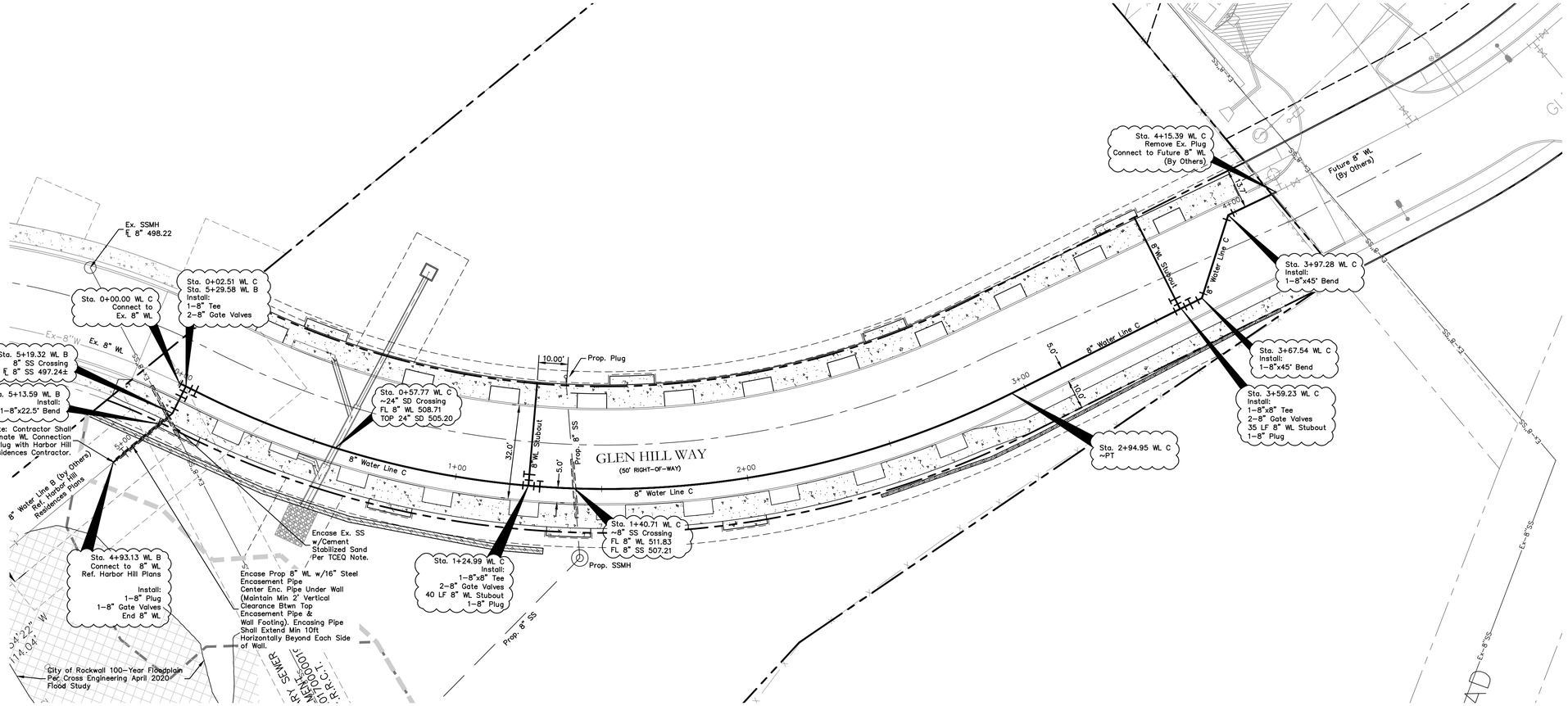
GLEN HILL WAY EXTENSION

GLEN HILL WAY
ROCKWALL, TEXAS

Sheet No. C9.3

Project No. 18090

GLEN HILL WAY EXTENSION



WATER & SANITARY SEWER NOTES

1. All materials and construction shall be in accordance with the City of Rockwall Standard Specifications and Construction Standards, and Standard Specifications for Public Works Construction prepared by North Central Texas Council of Governments (5th Edition), and to the regulations of The Texas Commission on Environmental Quality.

2. Existing utilities are shown schematically and are for the contractors guidance only. The location and/or elevation of existing utilities as shown on these plans are based on records of the various utility companies, and, where possible, measurements taken in the field. The contractor must call the appropriate utility company at least 72 hours prior to any excavation to request exact field location of utilities.

3. The contractor shall be responsible for protecting all existing improvements in the construction of this project. The contractor is responsible for repairs of damage to any existing improvements during construction. Repairs shall be equal to or better than condition prior to construction.

4. All sewer lines shall be PVC SDR–35.

5. All manhole rim grades must match finished grade in paved areas. Manholes constructed in landscape areas must have a final rim grade six inches (6") above final grade.

6. Proposed water lines shall be AWWA C900–16 PVC Pipe (blue in color) for all sizes, DR 14 (PC 305) for pipeline sizes 12–inch and smaller, and DR–18 (PC 235) for 14–inch and larger water pipelines unless otherwise shown on water plan and profile sheets. Proposed water lines shall be constructed with minimum cover of 4 feet for 6–inch through 8–inch, 5 feet for 12–inch through 18–inch and 6 feet for 20–inch and larger.

7. Contractor shall be responsible for maintaining trench safety requirements in accordance with the latest standards of O.S.H.A. or any other agency having jurisdiction for excavation and trenching procedures. Contractor shall provide and implement a trench safety plan complying with O.S.H.A.

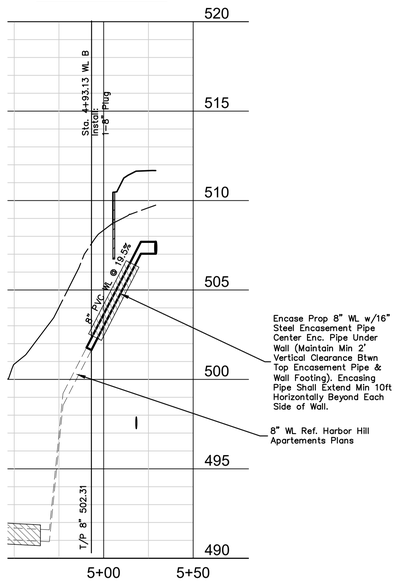
8. Fire sprinkler line shall be sized and installed by a state licensed contractor. Fire Line shown for reference only.

9. Fire protection rooms shall have no roof access, mopsinks, electrical panels, storage. Fire Protection rooms are for Fire Alarm and Control systems uses.

10. Must install green EMS disks on all sewer changes (turns, sizes, etc), connections to main, manholes, and cleanouts.

11. Must install blue EMS disks on all water line changes (turns, sizes, etc), every 250', valves, and service connections.

WL B Profile



Scale: 1"=40'H ; 1"=4'V

TCEQ Note:

Contractor shall center one segment of the waterline pipe over the sanitary sewer main such that the joints of the waterline pipe are equidistant and at least 9' horizontally from the centerline of the sanitary sewer main. The waterline shall be a minimum of 2' above the sanitary sewer main. The crossing shall be centered between joints of the sanitary sewer main. The sanitary sewer main shall be embedded in cement stabilized sand for the total of one pipe segment plus 12" beyond the joint on each end. Cement stabilized sand bedding shall have a minimum of 10% cement per cubic yard of cement stabilized sand mixture based on loose dry weight volume (at least 2.5 bags of cement per cubic yard of mixture). The cement stabilized sand bedding shall be a minimum of 6" above and 4" below the sanitary sewer main. Contractor shall use a minimum of 18' pipe segments at the crossings.

Note:

Existing Utilities Shown Per As–Built Documents. Contractor to Field Verify Location and Depth of All Utilities Prior to Construction and Notify Engineer of any Discrepancies.

LEGEND

- Property Line
- Proposed S.S. Line
- Proposed Water Line
- Proposed Fire Hydrant
- Proposed Water Tee
- Proposed Water Valve
- Proposed Water Bend
- Proposed Blow Off Valve
- Existing Fire Hydrant
- SS — Existing S.S. Line
- W — Existing Water Line
- UE — Existing Underground Elec
- GAS — Existing Gas Line
- Proposed Retaining Wall

STOP!

CALL BEFORE YOU DIG

Texas 811 Know what's below.

(@ least 72 hours prior to digging)

BENCHMARK:

City Benchmark:
COR–7–Aluminum Disk Stamped " City of Rockwall Survey Monument" Located on the south side of Summer Lee Dr. ±275 feet west of intersection of Summer Lee Dr and Ridge Road, ±1 foot south of curb line. ELEVATION: 567.52

Site Benchmark:
No. 1–"X" Cut on rim of water valve located on the north side of Summer Lee Dr. approx. 915 feet easterly from the intersection of Sunset Ridge Dr. ELEVATION: 548.55

No. 2–"X" Cut on southeast corner of curb inlet located on the east side of Shoreline Tr. approx. 480 feet northerly from the north side of Summer Lee Dr. ELEVATION: 474.56

Issue Dates:	Revisions:	Date:
2	5/26/2020	1
3	9/22/2020	2
4	2/26/2021	3
5	4/07/2021	4
6	4/19/2021	5
7	5/17/2021	6

Issued for Construction: 04-19-2021

CROSS ENGINEERING CONSULTANTS
1720 W. Virginia Street McKinney, Texas 75069
972.562.4409 Texas P.E. Firm No. F-5935

Drawn By:	Checked By:	Scale:
C.E.C.I.	C.E.C.I.	1"=20'

STATE OF TEXAS 94738 LICENSED PROFESSIONAL ENGINEER 5/17/21

WATER PLAN

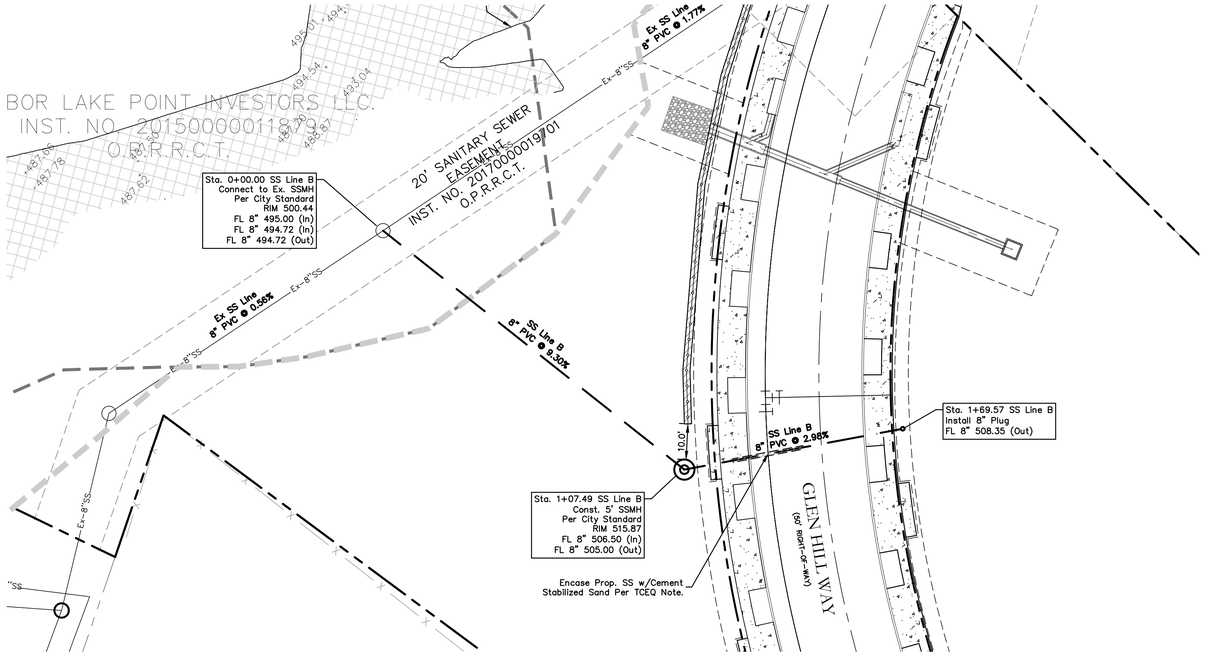
GLEN HILL WAY EXTENSION

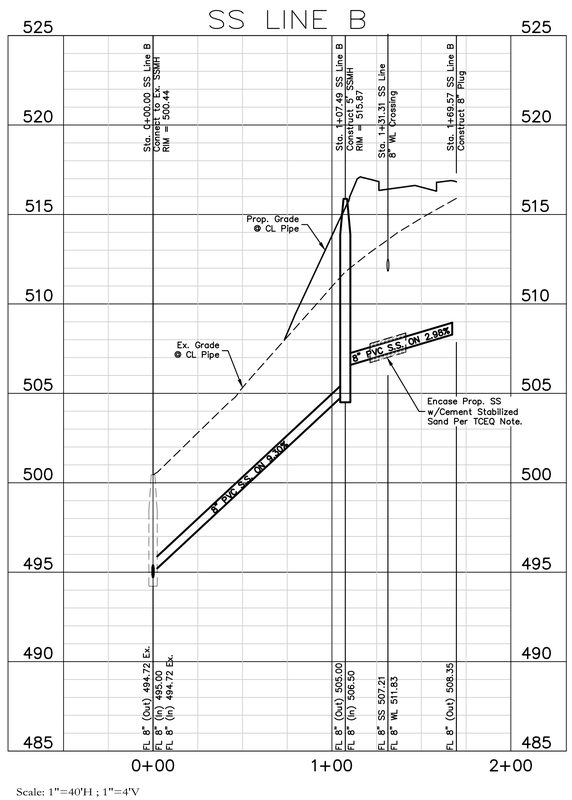
GLEN HILL WAY
ROCKWALL, TEXAS

Sheet No. C10.1

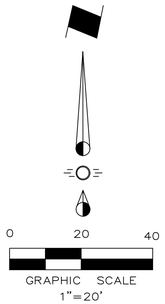
Project No. 18090

GLEN HILL WAY EXTENSION





Scale: 1"=40'H ; 1"=4'V



WATER & SANITARY SEWER NOTES

1. All materials and construction shall be in accordance with the City of Rockwall Standard Specifications and Construction Standards, and Standard Specifications for Public Works Construction prepared by North Central Texas Council of Governments (5th Edition), and to the regulations of The Texas Commission on Environmental Quality.

2. Existing utilities are shown schematically and are for the contractors guidance only. The location and/or elevation of existing utilities as shown on these plans are based on records of the various utility companies, and, where possible, measurements taken in the field. The contractor must call the appropriate utility company at least 72 hours prior to any excavation to request exact field location of utilities.

3. The contractor shall be responsible for protecting all existing improvements in the construction of this project. The contractor is responsible for repairs of damage to any existing improvements during construction. Repairs shall be equal to or better than condition prior to construction.

4. All sewer lines shall be PVC SDR-35.

5. All manhole rim grades must match finished grade in paved areas. Manholes constructed in landscape areas must have a final rim grade six inches (6") above final grade.

6. All water pipe 8" and larger shall be DR 14 (PC305) water pipe, conforming to AWWA C900-16 standards.

7. Contractor shall be responsible for maintaining trench safety requirements in accordance with the latest standards of O.S.H.A. or any other agency having jurisdiction for excavation and trenching procedures. Contractor shall provide and implement a trench safety plan complying with O.S.H.A.

8. Fire sprinkler line shall be sized and installed by a state licensed contractor. Fire Line shown for reference only.

9. Fire protection rooms shall have no roof access, mopsinks, electrical panels, storage. Fire Protection rooms are for Fire Alarm and Control systems uses.

10. Must install green EMS disks on all sewer changes (turns, sizes, etc), connections to main, manholes, and cleanouts.

11. Must install blue EMS disks on all water line changes (turns, sizes, etc), every 250', valves, and service connections.

TCEQ Note:

Contractor shall center one segment of the waterline pipe over the sanitary sewer main such that the joints of the waterline pipe are equidistant and at least 9' horizontally from the centerline of the sanitary sewer main. The waterline shall be a minimum of 2' above the sanitary sewer main. The crossing shall be centered between joints of the sanitary sewer main. The sanitary sewer main shall be embedded in cement stabilized sand for the total of one pipe segment plus 12" beyond the joint on each end. Cement stabilized sand bedding shall have a minimum of 10% cement per cubic yard of cement stabilized sand mixture based on loose dry weight volume (at least 2.5 bags of cement per cubic yard of mixture). The cement stabilized sand bedding shall be a minimum of 6" above and 4" below the sanitary sewer main. Contractor shall use a minimum of 18' pipe segments at the crossings.

Note:

Existing Utilities Shown Per As-Built Documents. Contractor to Field Verify Location and Depth of All Utilities Prior to Construction and Notify Engineer of any Discrepancies.

LEGEND

- Property Line
- Proposed S.S. Line
- Proposed Water Line
- Proposed Fire Hydrant
- Proposed Water Tee
- Proposed Water Valve
- Proposed Water Bend
- Proposed Blow Off Valve
- Existing Fire Hydrant
- SS — Existing S.S. Line
- W — Existing Water Line
- UE — Existing Underground Elec
- GAS — Existing Gas Line
- Proposed Retaining Wall

STOP!
CALL BEFORE YOU DIG
Texas 811 Know what's below.
(@ least 72 hours prior to digging)

Issued for Construction: 04-19-2021

BENCHMARK:

City Benchmark:
COR-7-Aluminum Disk Stamped " City of Rockwall Survey Monument" Located on the south side of Summer Lee Dr. ±275 feet west of intersection of Summer Lee Dr and Ridge Road, ±1 foot south of curb line. ELEVATION: 567.52

Site Benchmark:
No. 1-"X" Cut on rim of water valve located on the north side of Summer Lee Dr. approx. 915 feet easterly from the intersection of Sunset Ridge Dr. ELEVATION: 548.55

No. 2-"X" Cut on southeast corner of curb inlet located on the east side of Shoreline Tr. approx. 480 feet northerly from the north side of Summer Lee Dr. ELEVATION: 474.56

Issue Dates:	Revisions: Date:
2 5/26/2020	1
3 9/22/2020	2
4 2/26/2021	3
5 4/07/2021	4
6 4/19/2021	5
7 5/17/2021	6

CROSS ENGINEERING CONSULTANTS
1720 W. Virginia Street
McKinney, Texas 75069
972.562.4409
Texas P.E. Firm No. F-5935

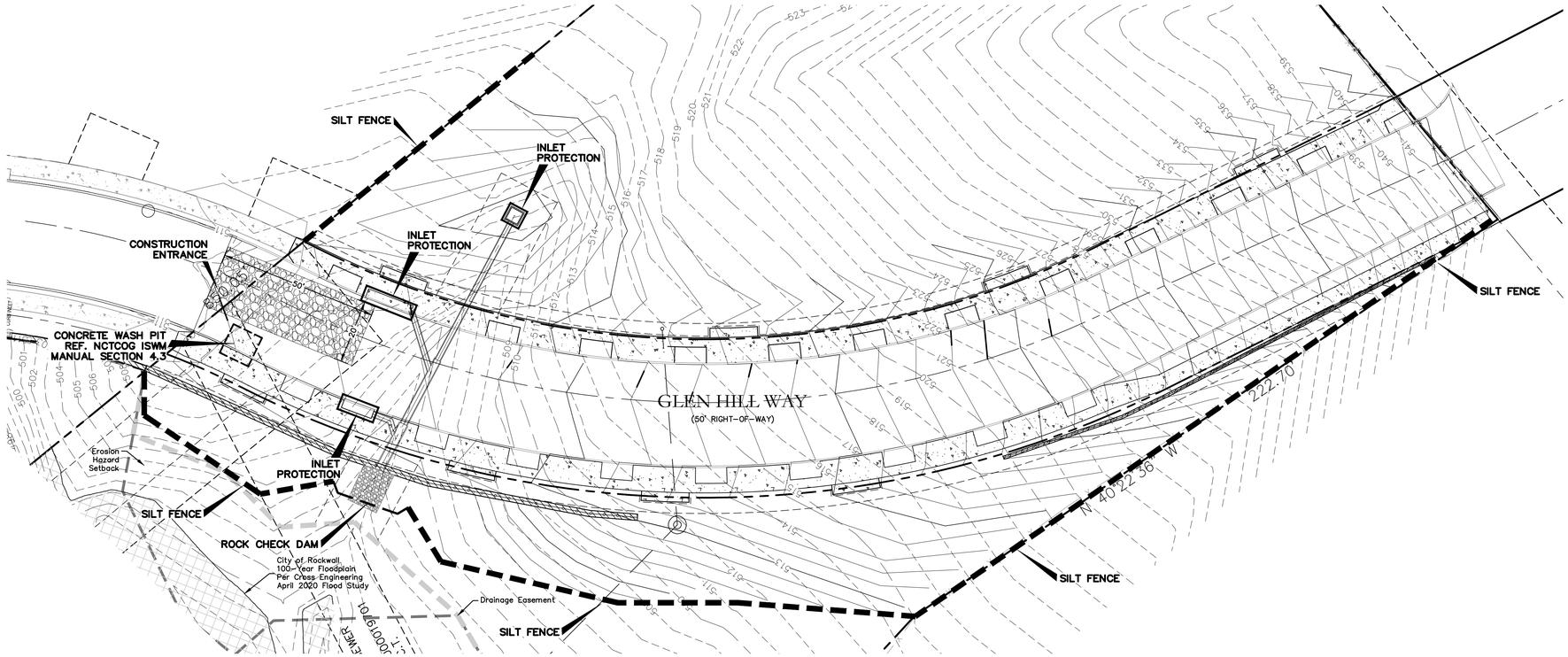
Drawn By:	Checked By:	Scale:
C.E.C.L.	C.E.C.L.	1"=20'

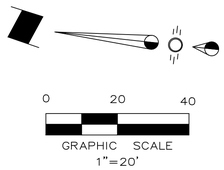
STATE OF TEXAS — CHRISTOPHER E. CROSS — 94738 — LICENSED PROFESSIONAL ENGINEER — 5/17/21

SANITARY SEWER PLAN
GLEN HILL WAY EXTENSION
GLEN HILL WAY
ROCKWALL, TEXAS

Sheet No. C10.2
Project No. 18090

GLEN HILL WAY EXTENSION





STORMWATER POLLUTION PREVENTION NOTES

1. It is the intent of the information provided on this sheet to be used as the general guidelines of the storm water pollution prevention plan for this project to establish a minimum basis of compliance with federal regulations.

The storm water pollution prevention plan shall meet the requirements for storm water discharges from construction sites published in the tpdes general permit no. Txr 150000, dated March 5, 2013, issued pursuant to section 26.040 of the texas water code and section 402 of the clean water act, by the texas commission on environmental quality (tceq).

2. The storm water pollution prevention plan should address three goals:
   a) diversion of upslope water around disturbed areas of the site;
   b) limit the exposure of disturbed areas to the shortest duration possible; and
   c) removal of sediment from storm water before it leaves the site.

3. The contractor shall have the storm water pollution prevention plan available onsite.

4. The contractor must amend plans whenever there is a change in design, construction, operation, or maintenance of the plan, or when the existing plan proves ineffective. Modifications including design and all additional materials and work shall be accomplished by the contractor at no additional expense to the owner.

5. Stabilization measures are to be inspected at a minimum of once every 7 days and within 24 hours after any storm event greater than .05 inches. Repairs and inadequacies revealed by the inspection must be implemented within 1 calendar day following the inspection. Rain gauge shall be placed on-site to measure and record.

6. An inspection report that summarizes inspection activates and implementation of the storm water pollution prevention plan shall be retained and made part of the plan.

7. All contractors and subcontractors identified in the plan must certify as to an understanding of the npdes general permit before conducting any activity identified in the pollution prevention plan.

8. The contractor shall adopt appropriate construction site management practices to prevent the discharge of oils, grease, paints, gasoline, and other pollutants to storm water. Appropriate practices can include:
Designating areas for equipment maintenance and repair; regular collection of wastes; conveniently located waste receptacles; and designating and controlling equipment washdown.

9. The contractor shall amend or modify this plan as required by construction means, methods, and sequence. Modifications shall not compromise the intent of the requirements of the law and this plan. Modifications shall not be basis for additional cost to the owner.

10. Areas of construction elsewhere on the jobsite shall conform to the detail shown on the plans.

11. Borrow areas, if excavated, shall be protected and stabilized utilizing the plan details. All work shall conform to governmental requirements and become part of the storm water pollution prevention plan (swp3). This work shall be done by the contractor at no additional expense to the owner.

12. All non-paved areas shall be mulched and seeded with erosion protection immediately upon completion of final grading. This includes all ditches and embankments. The contractor shall maintain final grading and keep seeded areas watered until fully established and accepted by owner.

13. The contractor shall construct a stabilized construction entrance/exit at designated traffic entrance/exit points prior to entering/exiting onto any paved roadway.

14. The contractor shall construct a silt fence at all locations shown on plans. The silt fence shall be constructed as detailed this sheet.

15. All disturbed ground areas shall be re-vegetated with a combination of perennial rye and bermuda, upon completion of final grading.

16. 75%-80% of all disturbed areas to have a minimum 1" stand of grass (no rye or weeds) prior to engineering acceptance/co.

17. All Right-of-ways to be sodded prior to acceptance.

LEGEND

- SILT FENCE
- INLET PROTECTION
- TEMPORARY CONSTRUCTION ENTRANCE
- CONCRETE WASH PIT
- PROPERTY LINE

DISTURBED AREA = 0.90 ACRES

PHASING

1. INSTALL SILT FENCE AND CONSTRUCTION ENTRANCE
2. INSTALL INLET PROTECTION WHEN INLET AND FRONT PAVING ARE COMPLETE.
3. REMOVE SILT FENCE AT PAVING CONNECTION POINTS FOR DRIVE CONNECTIONS.
4. REMOVE CONSTRUCTION ENTRANCE AFTER ALL INTERIOR CONSTRUCTION IS COMPLETE AND POUR ENTRY PAVING.
5. REMOVE SILT FENCE AND INLET PROTECTION WHEN PERMANENT BMP'S ARE IN PLACE.

Texas 811 Know what's below.

Issued for Construction: 04-19-2021

Issue Dates:	Revisions:	Date:
2 5/26/2020	1	
3 9/22/2020	2	
4 2/26/2021	3	
5 4/07/2021	4	
6 4/19/2021	5	
7 5/17/2021	6	

CROSS ENGINEERING CONSULTANTS
1720 W. Virginia Street
McKinney, Texas 75069
972.562.4409
Texas P.E. Firm No. F-5935

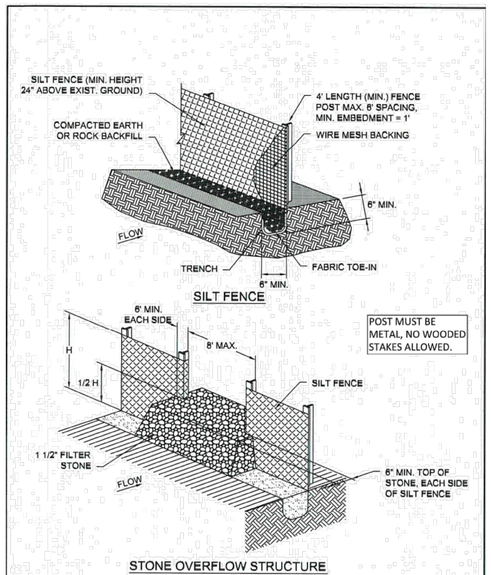
Drawn By:	Checked By:	Scale:
C.E.C.I.	C.E.C.I.	1"=20'

STATE OF TEXAS — CHRISTOPHER E. CROSS — 94738 — LICENSED PROFESSIONAL ENGINEER — 5/17/21

EROSION CONTROL PLAN
GLEN HILL WAY EXTENSION
GLEN HILL WAY
ROCKWALL, TEXAS

Sheet No. C11.1
Project No. 18090

GLEN HILL WAY EXTENSION



SILT FENCE	CITY OF ROCKWALL	STANDARD SPECIFICATION REFERENCE 202.5 *	DATE Mar. 2018	STANDARD DRAWING NO. R-1020A

SILT FENCE GENERAL NOTES:

1. POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF ONE FOOT.

2. THE TOE OF THE SILT FENCE SHALL BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWNSLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW. WHERE FENCE CANNOT BE TRENCHED IN (e.g. PAVEMENT), WEIGHT FABRIC FLAP WITH ROCK ON UPHILL SIDE TO PREVENT FLOW FROM SEEPING UNDER FENCE.

3. 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.

4. SILT FENCE SHOULD BE SECURELY FASTENED TO EACH SUPPORT POST OR TO WIRE BACKING, WHICH IN TURN IS ATTACHED TO THE FENCE POST. THERE SHALL BE A 3 FOOT OVERLAP, SECURELY FASTENED WHERE ENDS OF FABRIC MEET.

5. INSPECTION SHALL BE AS SPECIFIED IN THE SWPPP. REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.

6. SILT FENCE SHALL BE REMOVED WHEN FINAL STABILIZATION IS ACHIEVED OR ANOTHER EROSION OR SEDIMENT CONTROL DEVICE IS EMPLOYED.

7. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF HALF THE HEIGHT OF THE FENCE. THE SILT SHALL BE DISPOSED OF AT AN APPROVED SITE AND IN SUCH A MANNER AS TO NOT CONTRIBUTE TO ADDITIONAL SILTATION.

8. FILTER STONE SHALL BE WRAPPED IN FILTER FABRIC AND BURIED SIX (6") INCHES MINIMUM.

SILT FENCE	CITY OF ROCKWALL	STANDARD SPECIFICATION REFERENCE 202.5 *	DATE Mar. 2018	STANDARD DRAWING NO. R-1020B

ROCK CHECK DAM GENERAL NOTES:

1. STONE SHALL BE WELL GRADED WITH SIZE RANGE FROM 1½ TO 3½ INCHES IN DIAMETER DEPENDING ON EXPECTED FLOWS.

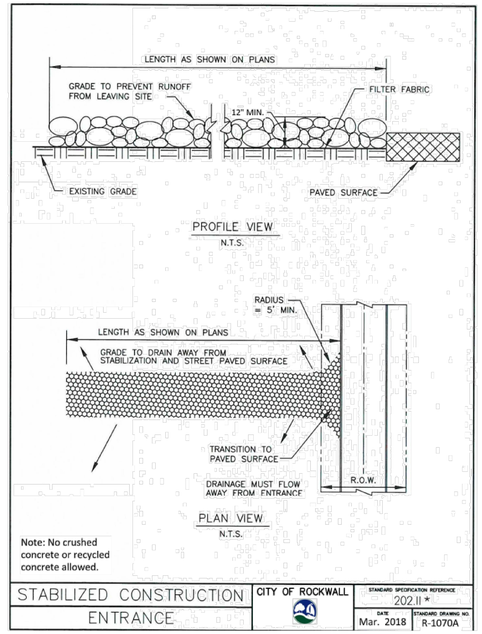
2. THE CHECK DAM SHALL BE INSPECTED AS SPECIFIED IN THE SWPPP AND SHALL BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.

3. WHEN SILT REACHES A DEPTH EQUAL TO ONE-THIRD OF THE HEIGHT OF THE CHECK DAM OR ONE FOOT, WHICHEVER IS LESS, THE SILT SHALL BE REMOVED AND DISPOSED OF PROPERLY.

4. WHEN THE SITE HAS ACHIEVED FINAL STABILIZATION OR ANOTHER EROSION OR SEDIMENT CONTROL DEVICE IS EMPLOYED, THE CHECK DAM AND ACCUMULATED SILT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED MANNER.

5. FILTER STONE SHALL BE WRAPPED IN APPROPRIATE SIZED WIRE MESH TO CONTAIN STONE AND BURIED SIX (6") INCHES MINIMUM.

ROCK CHECK DAM	CITY OF ROCKWALL	STANDARD SPECIFICATION REFERENCE 202.9 *	DATE Mar. 2018	STANDARD DRAWING NO. R-1060B



Note: No crushed concrete or recycled concrete allowed.

STABILIZED CONSTRUCTION ENTRANCE	CITY OF ROCKWALL	STANDARD SPECIFICATION REFERENCE 202.11 *	DATE Mar. 2018	STANDARD DRAWING NO. R-1070A

STABILIZED CONSTRUCTION ENTRANCE GENERAL NOTES:

1. STONE SHALL BE 4 TO 6 INCH DIAMETER COARSE AGGREGATE.

2. MINIMUM LENGTH SHALL BE 50 FEET AND WIDITH SHALL BE 20 FEET.

3. THE THICKNESS SHALL NOT BE LESS THAN 12 INCHES.

4. THE WIDTH SHALL BE NO LESS THAN THE FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS.

5. WHEN NECESSARY, VEHICLES SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO A PUBLIC ROADWAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE WITH DRAINAGE FLOWING AWAY FROM BOTH THE STREET AND THE STABILIZED ENTRANCE. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATERCOURSE USING APPROVED METHODS.

6. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PAVED SURFACES. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO PAVED SURFACES MUST BE REMOVED IMMEDIATELY.

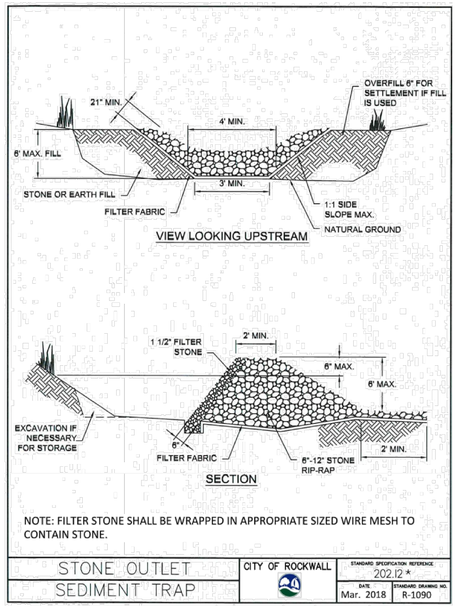
7. THE ENTRANCE MUST BE PROPERLY GRADED OR INCORPORATE A DRAINAGE SWALE TO PREVENT RUNOFF FROM LEAVING THE CONSTRUCTION SITE.

8. PREVENT SHORTCUTTING OF THE FULL LENGTH OF THE CONSTRUCTION ENTRANCE BY INSTALLING BARRIERS AS NECESSARY.

9. INSPECTION SHALL BE AS SPECIFIED IN THE SWPPP.

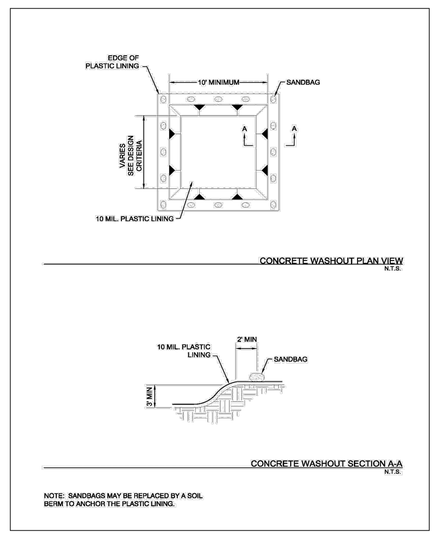
10. NO CRUSHED OR RECYCLED CONCRETE ALLOWED.

STABILIZED CONSTRUCTION ENTRANCE	CITY OF ROCKWALL	STANDARD SPECIFICATION REFERENCE 202.11 *	DATE Mar. 2018	STANDARD DRAWING NO. R-1070B



NOTE: FILTER STONE SHALL BE WRAPPED IN APPROPRIATE SIZED WIRE MESH TO CONTAIN STONE.

STONE OUTLET SEDIMENT TRAP	CITY OF ROCKWALL	STANDARD SPECIFICATION REFERENCE 202.12 *	DATE Mar. 2018	STANDARD DRAWING NO. R-1090



NOTE: SANDBAGS MAY BE REPLACED BY A SOIL BERM TO ANCHOR THE PLASTIC LINING.

Figure 4.1 Schematics of Concrete Washout Containment

Issued for Construction: 04-19-2021

Issue Dates:	Revisions:	Date:
2 5/26/2020	1	
3 9/22/2020	2	
4 2/26/2021	3	
5 4/07/2021	4	
6 4/19/2021	5	
7 5/17/2021	6	

CROSS ENGINEERING CONSULTANTS
1720 W. Virginia Street McKinney, Texas 75069
972.562.4409 Texas P.E. Firm No. F-5935

Drawn By:	Checked By:	Scale:
C.E.C.I.	C.E.C.I.	1"=50'

STATE OF TEXAS — CHRISTOPHER E. CROSS — 94738 — LICENSED PROFESSIONAL ENGINEER — 5/17/21

EROSION CONTROL DETAILS

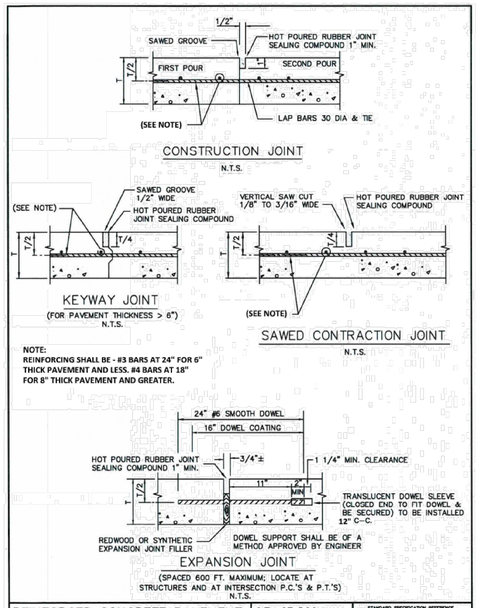
GLEN HILL WAY EXTENSION

GLEN HILL WAY
ROCKWALL, TEXAS

Sheet No. C11.2

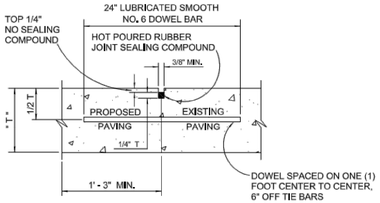
Project No. 18090

GLEN HILL WAY EXTENSION



REINFORCED CONCRETE PAVEMENT	CITY OF ROCKWALL	STANDARD SPECIFICATION REFERENCE 303.5.4
JOINTS		DATE Mar. 2018 / STANDARD DRAWING NO. R-2050

Page 266



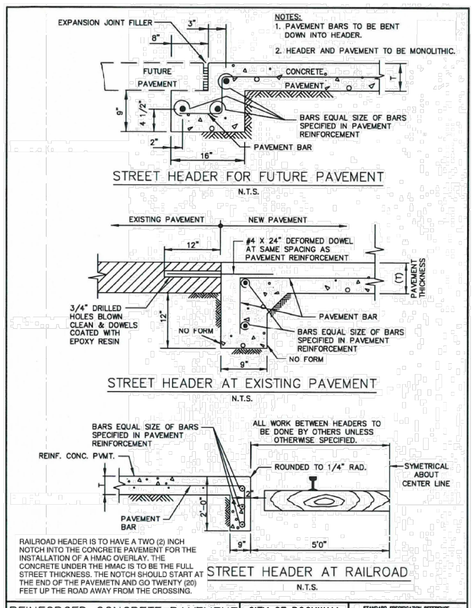
NOTES: T = PAVEMENT

1. LONGITUDINAL BUTT CONSTRUCTION MAY BE UTILIZED IN PLACE OF LONGITUDINAL HINGED (KEYWAY) JOINT AT CONTRACTORS OPTION.
2. DOWEL BARS SHALL BE DRILLED INTO PAVEMENT HORIZONTALLY BY USE OF A MECHANICAL RIG.
3. DRILLING BY HAND IS NOT ACCEPTABLE, PUSHING DOWEL BARS INTO GREEN CONCRETE NOT ACCEPTABLE.

LONGITUDINAL BUTT JOINT
NOT TO SCALE

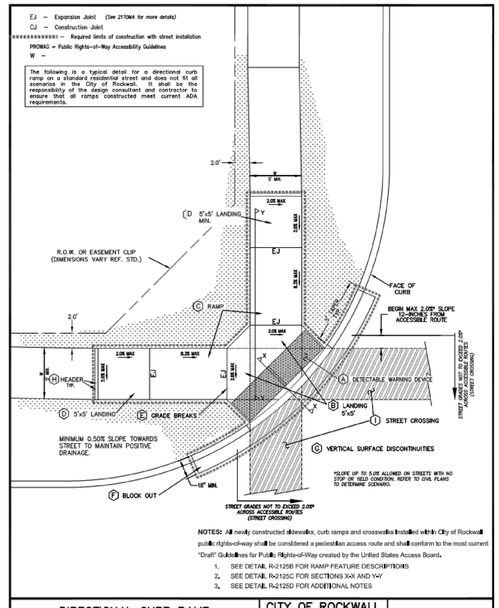
REINFORCED CONCRETE PAVEMENT	CITY OF ROCKWALL	
LONGITUDINAL BUTT JOINT		DATE OCT. '17 / DRAWING NO. R-2051

Page 267



REINFORCED CONCRETE PAVEMENT	CITY OF ROCKWALL	STANDARD SPECIFICATION REFERENCE 305.4
STREET HEADERS		DATE Mar. 2018 / STANDARD DRAWING NO. R-2070

Page 268



NOTES: All newly constructed sidewalks, curb ramps and crosswalks installed within City of Rockwall public rights-of-way shall be considered a pedestrian access route and shall conform to the most current "Draft" Guidelines for Public Rights-of-Way created by the United States Access Board.

1. SEE DETAIL R-2125B FOR RAMP FEATURE DESCRIPTIONS
2. SEE DETAIL R-2125C FOR SECTIONS X-X AND Y-Y
3. SEE DETAIL R-2125D FOR ADDITIONAL NOTES

DIRECTIONAL CURB RAMP	CITY OF ROCKWALL	
		DATE MAR. '17 / DRAWING NO. R-2125A

Page 269

A — Detectable Warning Devices (DWD) shall be pre-manufactured cast-in-place truncated dome plates installed to the manufacturer's specifications, and shall meet all ADA requirements. No Brick Pavers allowed. Color to be approved by the City. DWD shall be 24 inches in length for the full width of the street connection starting at the back of curb. A maximum 2-inch border shall be allowed on the sides of the DWD for proper installation.

B — Also known as "Clear Space" per ADA PROWAG, the City requires a minimum landing space of 5-foot by 5-foot at the bottom of every ramp. This landing space shall have a cross slope in both directions that does not exceed 2.0% and shall be wholly outside the parallel vehicular travel path.

C — The ramp component of the directional curb ramp shall have a continuous longitudinal slope more than 5% and less than 8.3%. The ramp shall also have a cross slope of no more than 2.0% Length of ramp can vary, but shall not exceed 15 feet to achieve desired elevation change.

D — Also known as "Turning Space" per ADA PROWAG, a minimum landing space of 5-foot by 5-foot shall be at the top of every ramp. This landing (turning) space shall have a cross slope in both directions that does not exceed 2.0%. Landing must match width of sidewalk and length shall be the same distance ("Squared" Landing).

E — All curb ramps shall have grade breaks at the top and bottom that are perpendicular to the direction of the ramp run. Where the ends of the bottom grade break are less than or equal to 5 feet, the DWD shall be placed within the ramp at the bottom grade break. Where either end of the bottom grade break is greater than 5 feet, the DWD shall be placed behind the back of the curb.

F — Paving contractor shall leave block out with a keyway joint installed, minimum of 18 inches measured from back of curb. Block out shall be poured monolithically with Curb Ramp. Concrete shall tie to street paving with a keyway joint per NCTCOG detail 2050. No curb shall be constructed where a DWD is provided. The curb on either side shall have a typical 5 foot taper to transition from the standard 6-inch curb height to be flush with ramp.

G — All work associated with accessible routes shall be installed flush with all features to minimize vertical surface discontinuities. Each segment along accessible route shall be flush with no more (zero tolerance) than a ¼-inch grade separation (elevation difference), or ½-inch grade separation if beveled (bevel slope shall not be steeper than 50%).

H — A sidewalk header shall be constructed at ends of all work performed.

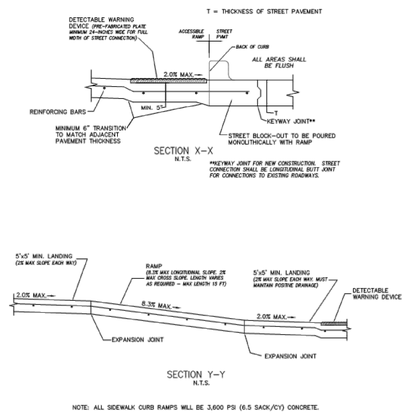
I — Street crossings shall adhere to same guidelines as other accessible routes within public right-of-way, and shall be for the full width of the in-line accessible route. Cross slope shall not exceed 2%*. New street construction shall incorporate all ADA design requirements. It shall be the responsibility of the Design Professional and Contractor to ensure all street crossings meet the requirements of PROWAG. Street alterations on existing streets to bring to compliance shall be at the City Engineer's discretion.

J — All curbs constructed as part of an ADA Ramp shall match City curb standards.

** See PROWAG special design considerations when street crossing has no stop or yield condition.*

DIRECTIONAL CURB RAMP	CITY OF ROCKWALL	
		DATE MAR. '17 / DRAWING NO. R-2125B

Page 270



NOTE: ALL SIDEWALK CURB RAMPS WILL BE 3,600 PSI (6.5 SACK/CY) CONCRETE.

DIRECTIONAL CURB RAMP	CITY OF ROCKWALL	
		DATE MAR. '17 / DRAWING NO. R-2125C

Page 271

PEDESTRIAN ACCESSIBILITY (WITHIN PUBLIC R.O.W.)

All newly constructed sidewalks, curb ramps and crosswalks installed within City of Rockwall public rights-of-way shall be considered a pedestrian access route and shall conform to the most current Guidelines for Public Rights-of-Way created by the United States Access Board.

CURB RAMPS:

1. All slopes shown are MAXIMUM ALLOWABLE. Lesser slopes that will still drain properly should be used. Adjust curb ramp length or grade of approach sidewalks as directed.
2. Landings shall be 5'x 5' minimum with a maximum 2% slope in the transverse and longitudinal directions..
3. Clear space at the bottom of curb ramps shall be a minimum of 5'x 5' wholly contained within the crosswalk and wholly outside the parallel vehicular travel path.
4. Maximum allowable cross slope on sidewalk and curb ramp surfaces is 2%
5. Additional information on curb ramp location, design, light reflective value and texture may be found in the most current edition of the Texas Accessibility Standards (TAS) and 16 TAC 68.102. Federal guidelines shall supersede any conflicts.
6. Crosswalk dimensions, crosswalk markings and stop bar locations shall be as shown elsewhere in the plans. At intersections where crosswalk markings are not required, curb ramps and accessible routes shall align with theoretical crosswalks unless otherwise directed.
7. Handrails are not required on curb ramps.
8. Provide a flush transition where the curb ramps connect to the street.
9. Accessible routes are considered "ramps" when longitudinal slopes are between 5% and 8.3% (maximum allowable). Sidewalks under 5% longitudinal slope are deemed accessible routes and must follow all applicable guidelines.

DETECTABLE WARNING DEVICE

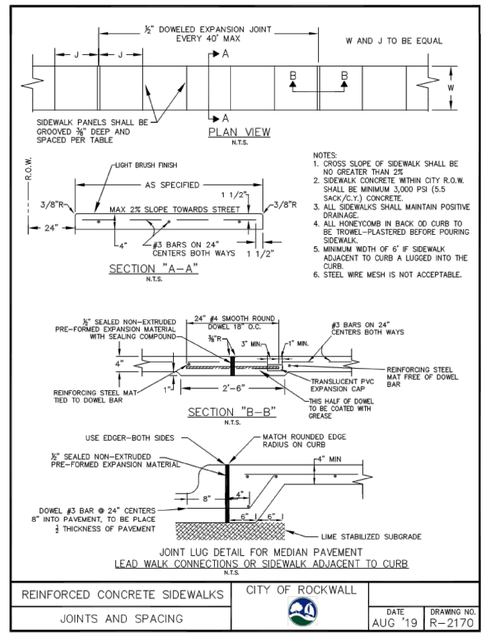
10. Curb ramps must contain a detectable warning surface that consists of raised truncated domes complying with Section 705 of the TAS. The surface must contrast visually with adjoining surfaces. Furnish and install an approved cast-in-place dark red detectable warning surface material adjacent to uncolored concrete, unless specified elsewhere in the plans.
11. Detectable Warning Materials shall be truncated dome plates in the color approved by the City. Install products in accordance with manufacturer's specifications.
12. Detectable warning surfaces must be slip resistant and not allow water to accumulate.
13. Detectable warning surfaces shall be a minimum of 24" in depth in the direction of pedestrian travel, and extend the full width of the curb ramp or landing where the pedestrian access route enters the street.
14. Detectable warning surfaces shall be located so that the edge nearest the curb line is at the back of curb. When placed on the ramp, align the rows of domes to be perpendicular to the grade break between the ramp run and the street. Where detectable warning surfaces are provided on a surface with a slope that is less than 5 percent, dome orientation is less critical. Detectable warning surfaces may be curved along the corner radius.

SIDEWALKS

15. Provide clear ground space at operable parts, including pedestrian push buttons. Operable parts shall be placed within one or more reach ranges specified in TAS 308.
16. Place traffic signal or illumination poles, ground boxes, controller boxes, signs, drainage facilities and other items so as not to obstruct the pedestrian access route or clear ground space.
17. Street grades and cross slopes shall be as shown elsewhere in the plans.
18. Changes in level greater than 1/4 inch are not permitted (1/2 inch with bevel).
19. The least possible grade should be used to maximize accessibility. The running slope of sidewalks and crosswalks within the public right of way may follow the grade of the parallel roadway. Where a continuous grade greater than 5% must be provided, handrails may be desirable to improve accessibility. Handrails may also be needed to protect pedestrians from potentially hazardous conditions. If provided, handrails shall comply with TAS 505.
20. Handrail extensions shall not protrude into the usable landing area or into intersecting pedestrian routes.

DIRECTIONAL CURB RAMP	CITY OF ROCKWALL	
		DATE MAR. '17 / DRAWING NO. R-2125D

Page 272



REINFORCED CONCRETE SIDEWALKS	CITY OF ROCKWALL	
JOINTS AND SPACING		DATE AUG '19 / DRAWING NO. R-2170

Page 277

Issued for Construction: 04-19-2021

Issue Dates:	Revisions:	Date:
2 5/26/2020	1	
3 9/22/2020	2	
4 2/26/2021	3	
5 4/07/2021	4	
6 4/19/2021	5	
7 5/17/2021	6	

CROSS ENGINEERING CONSULTANTS
1720 W. Virginia Street
McKinney, Texas 75069
972.562.4409
Texas P.E. Firm No. F-5935

Drawn By:	Checked By:	Scale:
C.E.C.I.	C.E.C.I.	

STATE OF TEXAS — CHRISTOPHER E. CROSS — 94738 — LICENSED PROFESSIONAL ENGINEER — 5/17/21

CONSTRUCTION DETAILS

GLEN HILL WAY EXTENSION

GLEN HILL WAY
ROCKWALL, TEXAS

Sheet No. C12.1

Project No. 18090

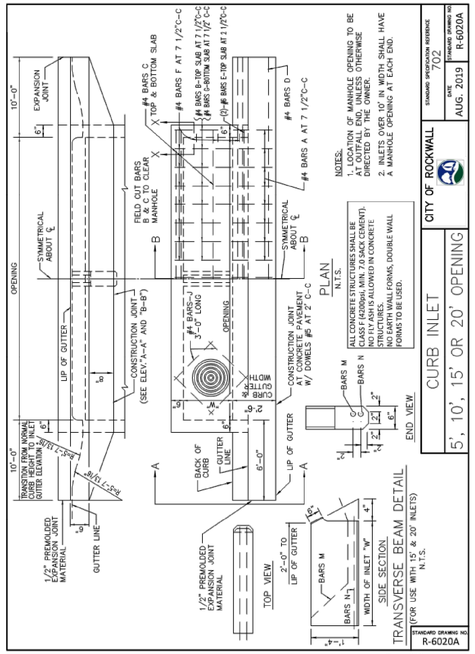
GLEN HILL WAY EXTENSION

GENERAL NOTES:

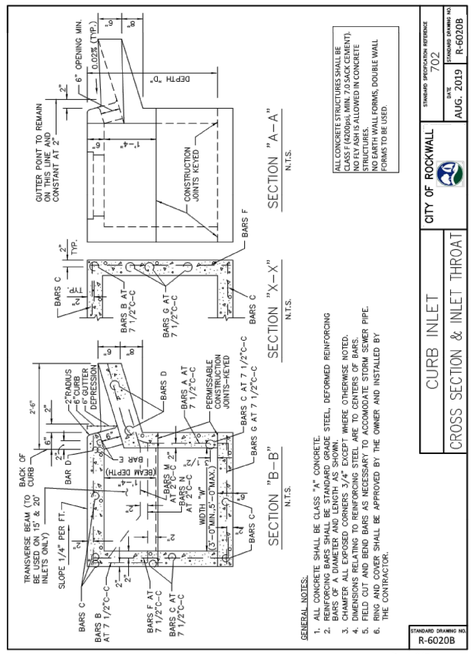
1. REINFORCED CONCRETE PAVEMENT:
   - A. ALL CURBS SHALL BE PLACED INTEGRAL WITH PAVEMENT UNLESS OTHERWISE APPROVED BY THE OWNER.
   - B. CURBS SHALL MEET THE SAME COMPRESSIVE STRENGTH AS SPECIFIED FOR THE PAVEMENT.
   - C. BAR LAPS SHALL BE 30 DIAMETERS.
   - D. REINFORCING BARS SHALL BE SUPPORTED BY CHAIRS OR OTHER DEVICES APPROVED BY THE OWNER.
2. SUBGRADE: (UNLESS OTHERWISE SPECIFIED BY OWNER)
   - A. SUBGRADE UNDER ALL PAVEMENTS SHALL BE STABILIZED TO A MINIMUM DEPTH OF SIX (6") INCHES WITH HYDRATEDLIME CEMENT. LABORATORY TESTS WILL BE PERFORMED TO DETERMINE THE AMOUNT OF LIME OR CEMENT TO USE.

PAVEMENT SYSTEMS	CITY OF ROCKWALL	STANDARD SPECIFICATION REFERENCE 302,303
GENERAL NOTES		DATE Mar. 2018 / STANDARD DRAWING NO. R-2190

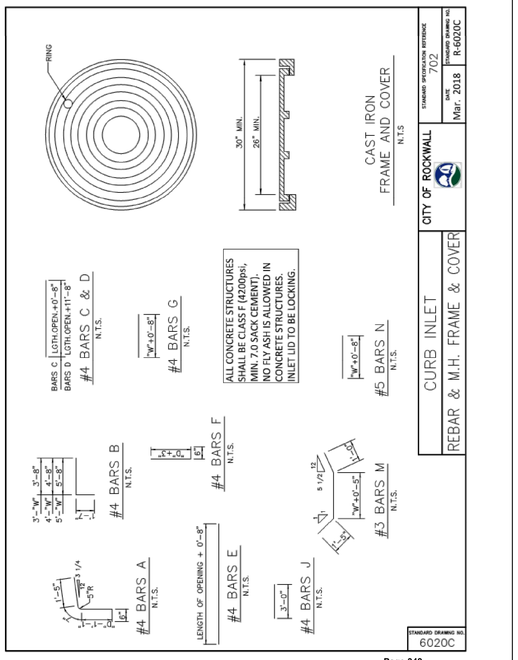
Page 279



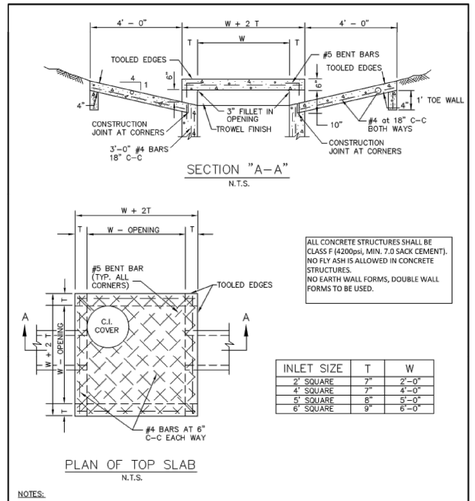
Page 346



Page 347



Page 348



INLET SIZE	T	W
2' SQUARE	7"	2'–0"
4' SQUARE	7"	4'–0"
5' SQUARE	8"	5'–0"
6' SQUARE	9"	6'–0"

NOTES:

1. MATERIAL AND WORKMANSHIP SHALL CONFORM WITH THE REQUIREMENTS OF NCTCOG STANDARD SPECIFICATIONS FOR STANDARD CONCRETE MANHOLES. MINIMUM CLASS "A" CONCRETE.
2. LAYERS OF REINFORCING STEEL NEAREST THE INTERIOR AND EXTERIOR SURFACES SHALL HAVE A COVER OF 2" TO THE CENTER OF BARS, UNLESS OTHERWISE NOTED.
3. FOR DETAILS OF REINFORCING OF LOWER PORTIONS OF INLET SEE APPROPRIATE SQUARE MANHOLE DETAILS.
4. DEPTH OF DROP INLET FROM FINISHED GRADE TO FLOW LINE OF INLET IS VARIABLE. APPROXIMATE DEPTH WILL BE SHOWN ON PLANS AT LOCATION OF INLET.
5. ALL STANDARD DROP INLETS SHALL HAVE ONE OPENING ON EACH SIDE UNLESS OTHERWISE SHOWN ON PLANS.
6. DECK MAY BE REINFORCED SAME AS 4' SQUARE MANHOLE.

DROP INLET	CITY OF ROCKWALL	STANDARD SPECIFICATION REFERENCE 702
2', 4', 5' OR 6' SQUARE		DATE Mar. 2018 / STANDARD DRAWING NO. R-6040

Page 355

Issued for Construction: 04-19-2021

Issue Dates:	Revisions:	Date:
2	5/26/2020	1
3	9/22/2020	2
4	2/26/2021	3
5	4/07/2021	4
6	4/19/2021	5
7	5/17/2021	6

CROSS ENGINEERING CONSULTANTS
1720 W. Virginia Street, McKinney, Texas 75069
972.562.4409, Texas P.E. Firm No. F-5935

Drawn By:	Checked By:	Scale:
C.E.C.I.	C.E.C.I.	

STATE OF TEXAS — 94739 — LICENSED — PROFESSIONAL ENGINEER — 5/17/21

CONSTRUCTION DETAILS

GLEN HILL WAY EXTENSION

GLEN HILL WAY
ROCKWALL, TEXAS

Sheet No. C12.2

Project No. 18090

GLEN HILL WAY EXTENSION

LANDSCAPE REQUIREMENTS

THIS PLAN MEETS OR EXCEEDS THE FOLLOWING STANDARDS:

PD-32 HARBOR DISTRICT
INTERIOR SUBDISTRICT

STREET FRONTAGE

REQUIRED: 8' SIDEWALK WITH 5' X 10' TREE LEAVE-OUTS 30' O.C.
TREES 30' O.C. ADJACENT SIDE OF R.O.W.
GLEN HILL WAY TO USE CEDAR ELM TREES ALONG R.O.W.

PROVIDED: (25) STREET TREES SPACED 30' O.C.

GENERAL NOTES

NO TREES WITHIN 5' OF UTILITIES.

FURNITURE SCHEDULE

6' BENCH

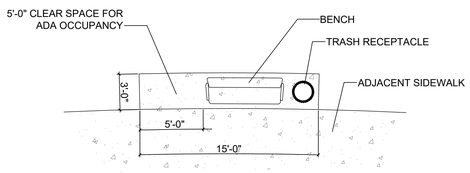
COLLECTION: SCARBOROUGH
MODEL: 72" WITH CENTER ARM
COLOR: BLACK
QUANTITY: (8)

TRASH RECEPTACLE

COLLECTION: SCARBOROUGH
MODEL: SIDE OPENING / VERTICAL STRAP
COLOR: BLACK
QUANTITY: (8)

*Surface mount all equipment per manufacturer's specifications

LANDSCAPE FORMS
WWW.LANDSCAPEFORMS.COM



2 TYPICAL STREET FURNITURE LAYOUT

SCALE: NTS

TREE LEGEND

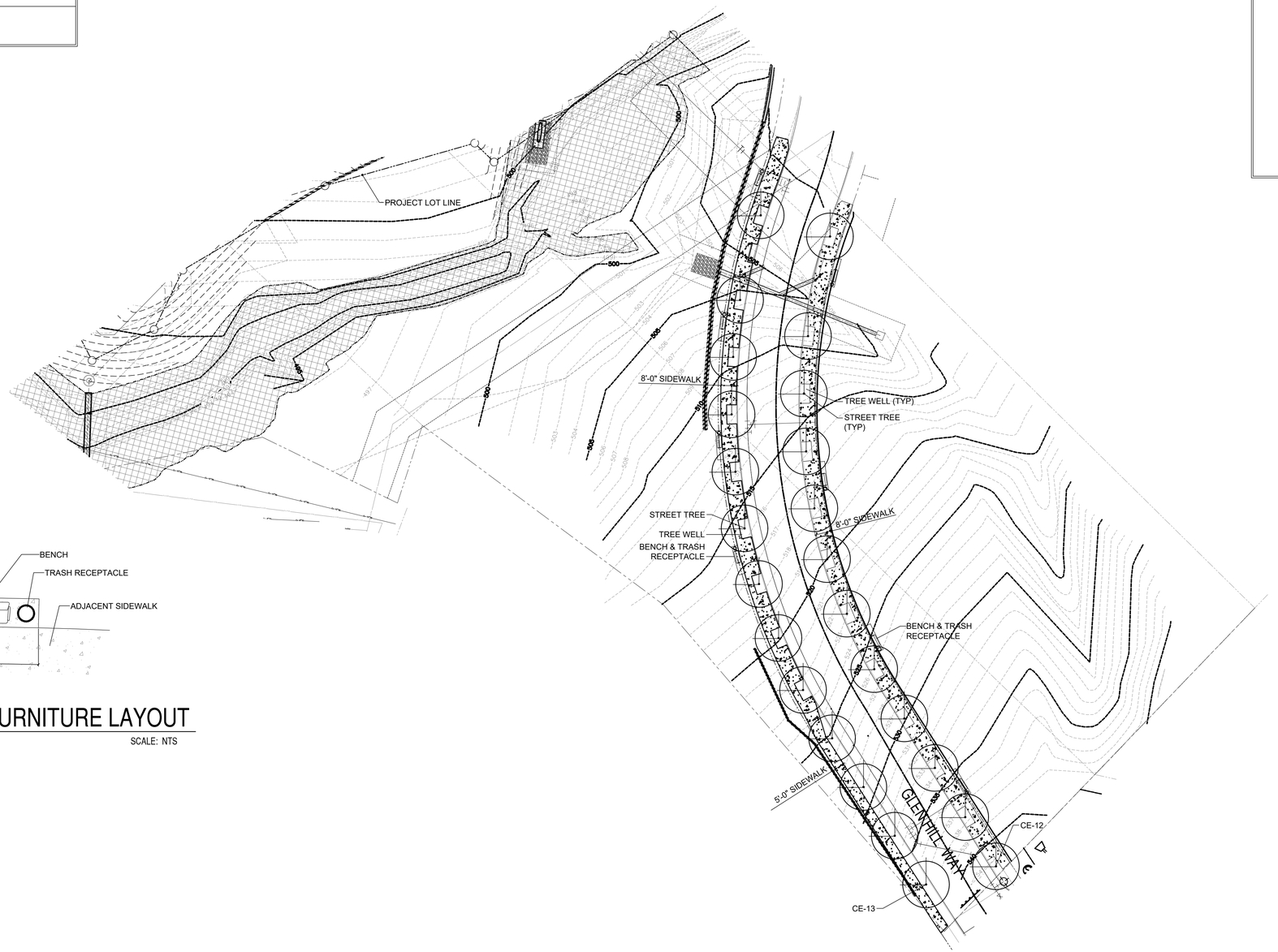
STREET TREE
4" CAL. MIN.

PARKING LOT TREE
1 PER 8 SPACES

MITIGATION TREE
4" CAL. MIN.

SITE TREE
ORNAMENTAL TREE

EXISTING TREE
TO BE PRESERVED



PLANT LIST

SYM.	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	REMARKS
		SHADE TREES			
BC	00	Taxodium distichum	Bald Cypress	4"-4.5" Cal.	16-18' Ht.
LO	00	Quercus virginiana	Live Oak	4"-4.5" Cal.	14'-16' Ht.
CE	25	Ulmus crassifolia	Cedar Elm	4"-4.5" Cal.	12-14' Ht.
RO	00	Quercus shumardii	Red Oak	4"-4.5" Cal.	14'-16' Ht.

1 LANDSCAPE PLAN

SCALE: 1" = 30'-0"

0 30 60
GRAPHIC SCALE IN FEET

N

ISSUES:

1	11-15-18	ISSUE FOR PERMIT
2	11-22-19	ISSUE FOR PERMIT REVIEW

REVISIONS:

1	12-04-18	PER CITY COMMENTS
2	05-27-20	PER CITY COMMENTS
3	10-02-20	GLENN HILL WAY REVISION

CLIENT:

DBA Architects
111 S. KENTUCKY
SUITE 210
MCKINNEY, TX 75069

CONTACT:
REUBEN MENDIOLA
(800) 900-4905
reuben@dba-architects.com

HARBOR HILL

ROCKWALL, TEXAS

mdg landscape architects
MEEKS DESIGN GROUP, INC.
1755 N. COLLINS BLVD., SUITE 300
RICHARDSON, TX 75080
PH (972) 690-7474
F (972) 690-7878

REGISTERED LANDSCAPE ARCHITECT
RICHARDSON H. MEEKS
2485
STATE OF TEXAS
10-02-20

ISSUE FOR PERMIT REVIEW

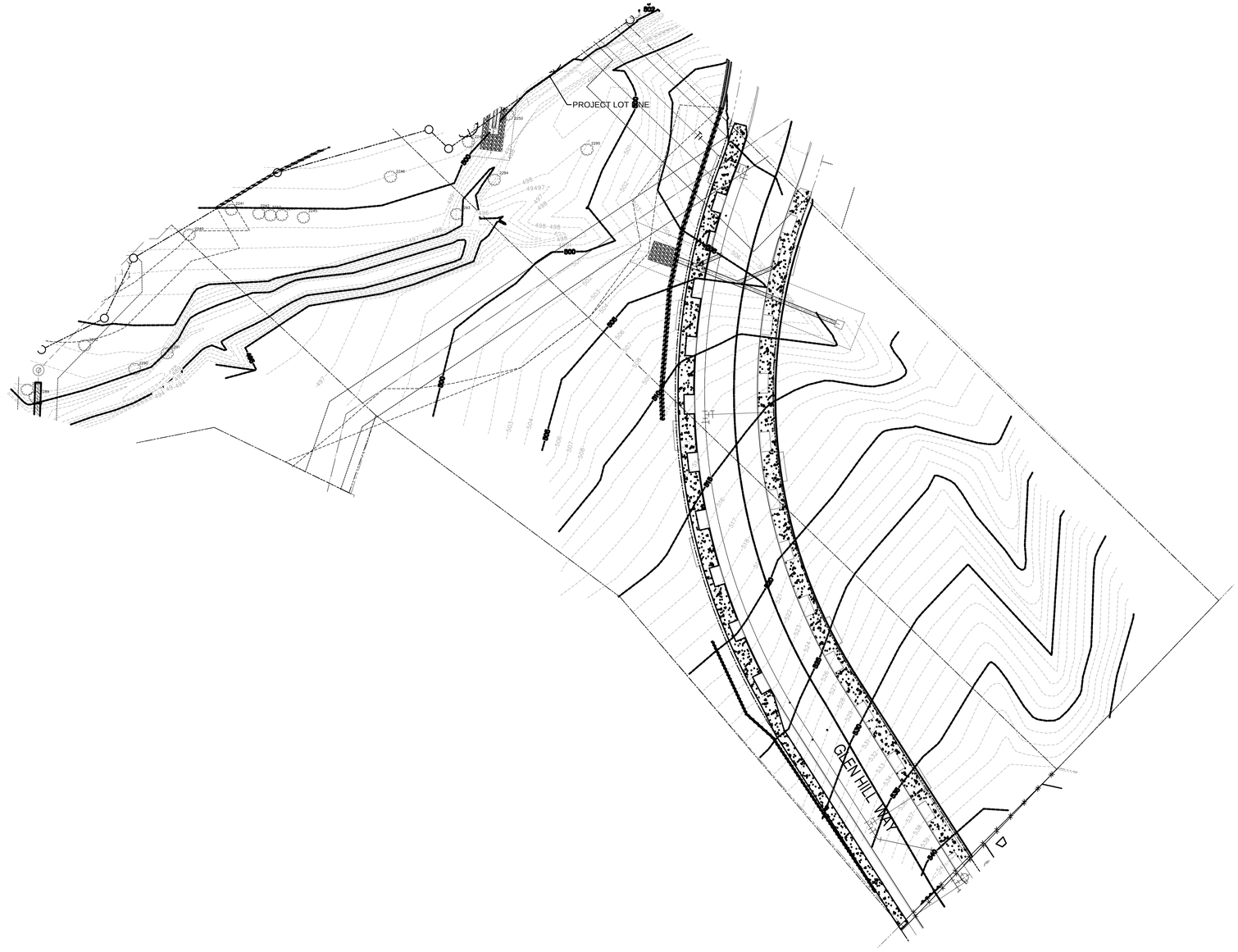
HARBOR HILL LUXURY RESIDENCES

ROCKWALL, TEXAS

JOB NUMBER: DBA-1601

LANDSCAPE PLAN

LP0.02



TREE LEGEND

215 EXISTING TREE TO BE PRESERVED

215 EXISTING TREE TO BE REMOVED

215 EXISTING TREE OUTSIDE OF PROPERTY LINE

1 TREE SURVEY/MITIGATION
SCALE: 1" = 30'-0"

0 30 60
GRAPHIC SCALE IN FEET

N

ISSUES:
1 11-15-18 ISSUE FOR PERMIT
2 11-22-19 ISSUE FOR PERMIT REVIEW

REVISIONS:
1 12-04-18 PER CITY COMMENTS
2 05-27-20 PER CITY COMMENTS
3 10-02-20 GLENN HILL WAY REVISION

CLIENT:
DBA Architects
111 S. KENTUCKY
SUITE 210
MCKINNEY, TX 75069

CONTACT:
REUBEN MENDIOLA
(800) 900-4905
reuben@dba-architects.com

HARBOR HILL
ROCKWALL, TEXAS

mdg landscape architects
MEEKS DESIGN GROUP, INC.
1755 N. COLLINS BLVD., SUITE 300
RICHARDSON, TX 75080
PH (972) 690-7474
F (972) 690-7878

REGISTERED LANDSCAPE ARCHITECT
BRADLEY N. MEEKS
2485
STATE OF TEXAS
10-02-20

ISSUE FOR PERMIT REVIEW

HARBOR HILL LUXURY RESIDENCES

ROCKWALL, TEXAS

JOB NUMBER: DBA-1601

TREE SURVEY/ MITIGATION

TS-2

0 20 60

GRAPHIC SCALE
1"=20'

NOTE FROM FALKOFSKE: This plan was developed directly from Cross Engineering. Gabion Plan dated December 03, 2020, Sheet C9.3. This plan is for the sole purpose of showing what retaining wall sections to use where and to comment on the site as necessary with regards to the retaining walls. Contractor shall review final Civil Plans for other notes with regard to the site prior to constructing Gabion Retaining Walls.

WALL 1

SEE RW2 FOR WALL ELEVATION

Sanitary Sewer (by others)

CONTRACTOR TO COORDINATE WITH HARBOR HILL APARTMENTS STRUCTURAL ENGINEER & CONTRACTOR FOR CONSTRUCTION OF GABIONS IN RELATION TO THE PROPOSED (BY OTHERS) SANITARY SEWER AERIAL CROSING. SEE SHEETS C5.1 & C5.2 OF HARBOR HILL PLANS FOR MORE INFORMATION.

Sanitary Sewer Manhole (by others)

DRAINAGE EASEMENT

EROSION HAZARD SETBACK

FINAL AERIAL CROSSING DETAILS SHALL BE COORDINATED WITH FALKOSKE BEFORE CONSTRUCTION OF THE GABION

PROPOSED GABION

DRAINAGE EASEMENT & EROSION HAZARD SETBACK

City of Rockwall 100-Year Floodplain Per Cross Engineering May 2020 Flood Study

SANITARY SEWER EASEMENT INST. NO. 20170000019761 O.P.R.R.C.T.

℄ CREEK

STA 0+00
STA 0+15
STA 0+35
STA 0+67
STA 0+99
STA 1+22
STA 1+52
STA 2+13
STA 2+40
STA 2+88
STA 2+99

N 78°18'27" W 146.19'

S 59°17'11" W 85.54'

S 74°06'26" W 80.60'

S 54°54'22" W 144.08'

N 27°26'19" W 234.49'

N 25°31'46" W 314.49'

XS: 1285.55 100-Yr WSE: 490.02ft
XS: 1310.74 100-Yr WSE: 492.26ft
XS: 1342.58 100-Yr WSE: 493.13ft
XS: 1379.56 100-Yr WSE: 494.10ft
XS: 1415.13 100-Yr WSE: 494.97ft
XS: 1444.83 100-Yr WSE: 494.61ft
XS: 1510.97 100-Yr WSE: 495.10ft
XS: 1549.74 100-Yr WSE: 495.25ft
XS: 1579.77 100-Yr WSE: 495.51ft
XS: 1619.08 100-Yr WSE: 495.90ft
XS: 1651.50 100-Yr WSE: 496.15ft
XS: 1684.54 100-Yr WSE: 496.71ft
XS: 1694.27 100-Yr WSE: 496.63ft
XS: 1698.47 100-Yr WSE: 496.76ft
XS: 1760.14 100-Yr WSE: 496.74ft
XS: 1777.43 100-Yr WSE: 496.61ft
XS: 1850.94 100-Yr WSE: 500.12ft
XS: 1865.58 100-Yr WSE: 500.46ft

LEGEND
- Proposed Drainage Easement
- Erosion Hazard Setback
- Proposed 100 Yr. Floodplain

	DES.	DRN.	CHK.
DATE	03-30-20	03-30-20	03-30-20
BY	JAJ	JAJ	AMB

NO.	DATE	REVISION	BY
2	02-03-21	UPDATED WALL ELEVATION	JAJ
1	05-21-20	UPDATED WALL DETAILS	JAJ

Falkofske Engineering, Inc.
Structural Engineering Consultants
Texas Registration F-4038
722 North Fielder Road
Arlington, Texas 76012
(817) 261-8300

FALKOFSKE ENGINEERING

The use of these plans and specifications is restricted to the original site for which they were prepared and publication thereof is expressly limited to such use. Any other reproduction, publication, or distribution by any method is prohibited. Title to these plans and specifications remains in FALKOFSKE ENGINEERING and the Architect/Engineer. Visual contact with these plans and specifications shall constitute prima facie evidence of acceptance of these restrictions.

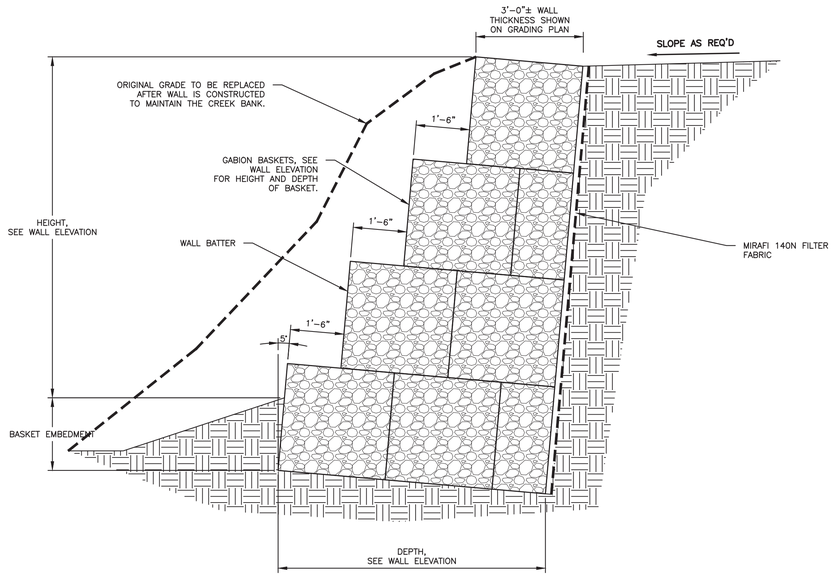
GABION RETAINING WALL – SITE PLAN
HARBOR HILL GABION WALL
SUMMER LEE DRIVE AND HORIZON ROAD
ROCKWALL, TEXAS

HARBOR LAKE POINTE INVESTOR'S, LLC
2701 SUNSET RIDGE, SUITE 607
ROCKWALL, TEXAS 75032

STATE OF TEXAS
Aaron Berkes
107154
LICENSED PROFESSIONAL ENGINEER
02-03-21

JOB NO. 191.20

SP1



1
RW1

TYPICAL CROSS SECTION OF GABION BASKET

CLOSING PROCESS

Edges are joined together, using the appropriate lacing techniques.
MANUAL: Continuous wire looped tightly around every other mesh opening, alternating single and double loops (fig. 5).
MECHANICAL: Using a pneumatic or hand power tool, employing stainless steel "C" shaped fasteners. For continuity and strength, the recommended spacing is 8 to 12 cm, Max 150mm (fig 4).

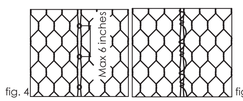


fig. 4

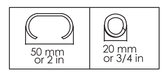
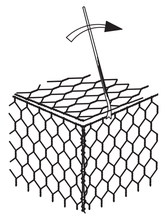
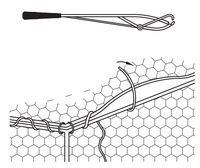
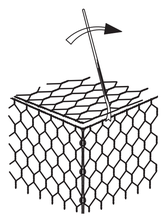


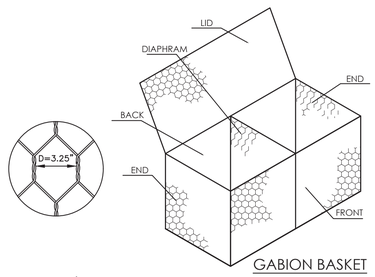
fig. 5

The stainless steel fastener has a diameter of 2 in open and ¾ in closed.









GABION BASKET

GENERAL NOTES

1. Design

1.1. Design Codes

International Building Code, 2015 Edition

1.2. Geotechnical Report

Firm: Rone Engineering
Report No. 16-21084 Dated: May 12, 2016
Allowable Bearing Capacity 2500psf

1.3. Design Parameters

Soil Parameters:

Soil Type*	Friction Angle	Cohesion (psf)	Unit Weight (pcf)
Retained Backfill	26 deg	0 psf	120 pcf
Foundation Soils	26 deg	0 psf	120 pcf

*See materials below for a description of each Soil Type.

Factors of Safety:

External Stability

a.	Minimum Factor of Safety Against Base Sliding (Static Condition)	1.5
b.	Minimum Factor of Safety Against Overturning	1.5
c.	Minimum Factor of Safety Against Global Stability	1.5
d.	Minimum Factor of Safety for Bearing Capacity	2.0

Design Loading:

Lateral earth pressures are calculated using Columbs Lateral Earth Pressure Theory. Designs have been performed to accept loading per the proposed loading conditions based on the Civil Grading Plans.

2. Materials

2.1. Soil Types

a. Retained Backfill - On site clayey soils
b. Foundation Soils - Bearing in Native soils
c. Unit Fill - Unit fill shall meet the specifications of the basket manufacturer.

2.2 Gabion Baskets

a. Gabion baskets shall be PVC coated baskets by macafferi. Installation shall be per the manufacturer recommendations.

3. Construction

3.1 Preparation Work

b. Contractor shall comply with federal, stat and local requirements for execution of the work, including local building codes and current OSHA excavation regulations. Provide excavation support as required to maintain stability of the area during excavation and wall construction and to protect existing structures, utilities, landscape features, or property or improvements.
c. Prior to grading or excavation of the site, confirm the location of the retaining walls and all underground features, including utility location within the area of construction. Ensure surrounding structures are protected from effects of wall excavation, and construction.
d. Coordinate installation of underground utilities and other improvements with wall installation.

3.2 Excavation

a. Excavate to lines and grades as shown on the wall elevations. take precautions to minimize over-excavation. Over-excavation shall be backfilled with either granular fill or with onsite fill materials compacted and tested to the recommendations of the geotechnical engineer.
b. In areas where soft, disturbed or otherwise unsuitable soils are encountered within the zone of the wall footprint, such unsuitable soils shall be over-excavated to the depths and extents required and replaced as noted in section (a) under excavation.
c. Fill over-excavated area in front of the wall face with compacted on site soils before the wall construction reaches 4 feet in height.

4. Construction Testing and Inspection (T&I)

4.1 Construction Observations by Falkofske Engineering, Inc.

a. Falkofske Engineering, Inc. will perfom construction observation, but only as a means of verification to the contractor quality control performance.
b. Falkofske Engineering, Inc. will act as the Special Inspector for this project. Contractor shall contact Falkofske Engineering to set up inspections, at least 1 day before construction starts.
c. All required materials testing shall be performed by an approved materials testing laboratory.

4.2 Construction Observations by Others

a. Construction observations as required by the city shall be coordinated by the contractor.

NO.	DATE	REVISION	BY
2	02-03-21	UPDATED WALL ELEVATION	JAJ
1	05-21-20	UPDATED WALL DETAILS	JAJ

	DES.	DRN.	CHK.
BY	JAJ	JAJ	AMB
DATE	03-30-20	03-30-20	03-30-20

Falkofske Engineering, Inc.
Structural Engineering Consultants
Texas Registration F-4038
722 North Fielder Road
Arlington, Texas 76012
(817) 261-8300

FALKOFSKE ENGINEERING

The use of these plans and specifications shall be restricted to the original site for which they were prepared, and publication, reproduction or distribution in any other reproduction, made, or disclosed to any unauthorized person without written permission. These drawings and specifications shall remain the property of FALKOFSKE and title remains in FALKOFSKE ENGINEERING.

GABION RETAINING WALL – NOTES & STANDARD DETAILS
HARBOR HILL GABION WALL
SUMMER LEE DRIVE AND HORIZON ROAD
ROCKWALL, TEXAS

HARBOR LAKE POINTE INVESTOR'S, LLC
2701 SUNSET RIDGE, SUITE 607
ROCKWALL, TEXAS 75032

STATE OF TEXAS
Aaron Berkes
107154
LICENSED
PROFESSIONAL ENGINEER
02-03-21

JOB NO. 191.20

RW1

WALL 1

WALL 1

LEGEND

- 3'X3'= 3' TALL X 3' DEEP GABION BASKETS, SEE SKETCH BELOW.
- DEPTH VARIES SEE WALL ELEVATION

NO	DATE	REVISION	BY
2	02-03-21	UPDATED WALL ELEVATION	JAJ
1	05-21-20	UPDATED WALL ELEVATION	JAJ

	DATE	BY
DES.	03-30-20	JAJ
DRN.	03-30-20	JAJ
CHK.	03-30-20	AMB

SCALE: 1" = 5'-0"

Falkofske Engineering, Inc.
Structural Engineering Consultants
Texas Registration F-4038
722 North Fielder Road
Arlington, Texas 76012
(817) 261-8300

FALKOFSKE ENGINEERING

The use of these plans and specifications is restricted to the original site for which they were prepared and publication thereof is expressly limited to such use. Any other reproduction, means, or publication of these plans, or any portion thereof, without the written permission of FALKOFSKE ENGINEERING is prohibited. They are not to be changed or assigned to any other project without the written permission of FALKOFSKE ENGINEERING.

GABION RETAINING WALL – WALL 1
HARBOR HILL GABION WALL
SUMMER LEE DRIVE AND HORIZON ROAD
ROCKWALL, TEXAS

HARBOR LAKE POINTE INVESTOR'S, LLC
2701 SUNSET RIDGE, SUITE 607
ROCKWALL, TEXAS 75032

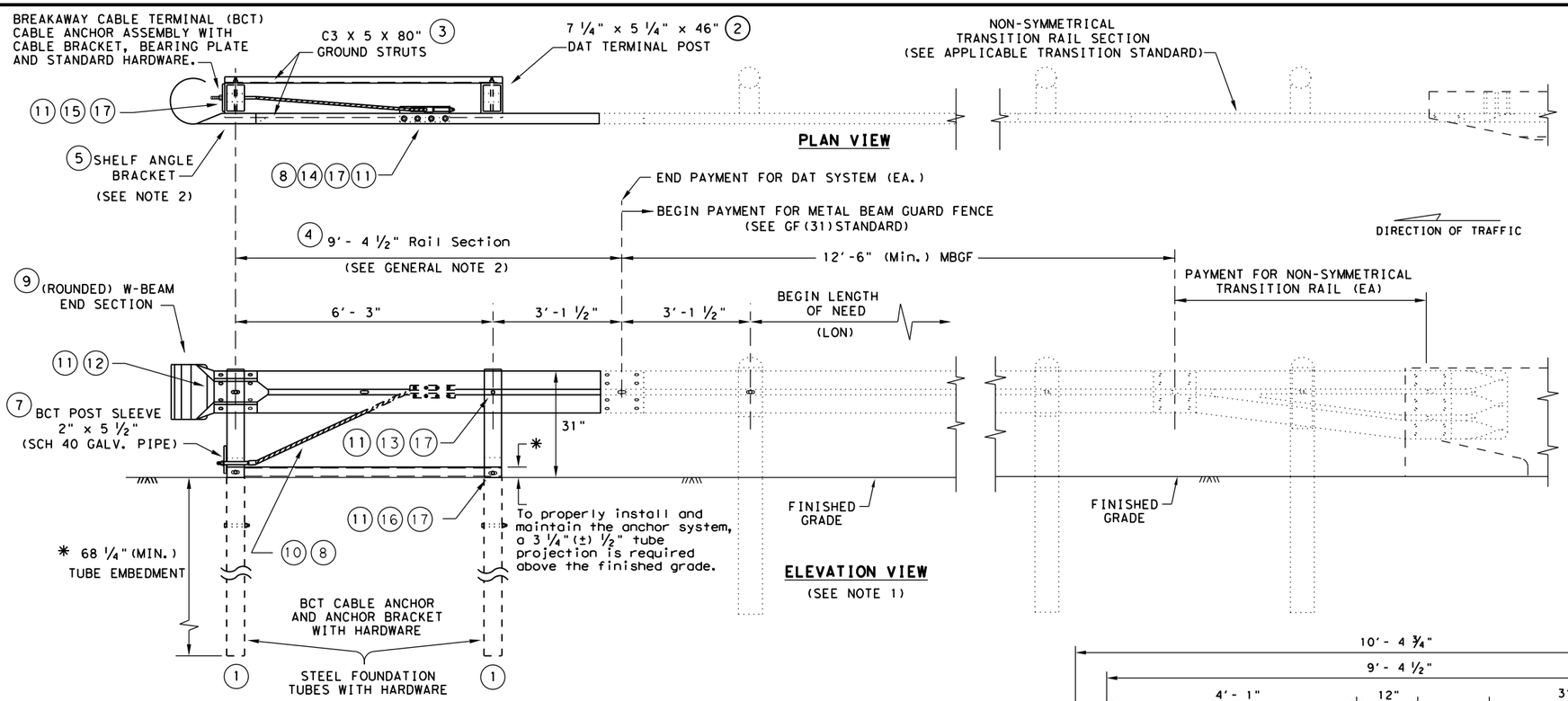
STATE OF TEXAS
Aaron Berkes
107154
LICENSED
PROFESSIONAL ENGINEER
02-03-21

JOB NO. 191.20

RW2

DISCLAIMER:
THE USE OF THIS STANDARD IS GOVERNED BY THE "TEXAS ENGINEERING PRACTICE ACT". NO WARRANTY OF ANY KIND IS MADE BY TXDOT FOR ANY PURPOSE WHATSOEVER. TXDOT ASSUMES NO RESPONSIBILITY FOR THE CONVERSION OF THIS STANDARD TO OTHER FORMATS OR FOR INCORRECT RESULTS OR DAMAGES RESULTING FROM ITS USE.

DATE:
FILE:



DOWNSTREAM ANCHOR TERMINAL (DAT)

NOTE: ONLY FOR DOWNSTREAM USE, WHEN LOCATED OUTSIDE THE HORIZONTAL CLEARANCE AREA OF OPPOSING TRAFFIC.

GENERAL NOTES

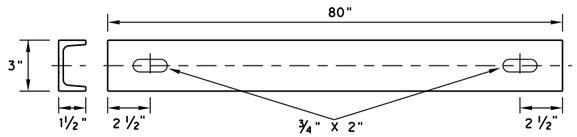
1. THE DETAIL SHOWN IS THE MINIMUM LENGTH OF NEED (LON) FOR A DOWNSTREAM ANCHOR TERMINAL (DAT) CONNECTED TO A CONCRETE RAIL.
2. THE RAIL SECTION AT THE END POST IS SUPPORTED BY THE SHELF ANGLE BRACKET. THE RAIL ELEMENT IS NOT ATTACHED TO THE END POST.
3. THE FOUNDATION TUBES SHALL NOT PROJECT MORE THAN 3 3/4" ABOVE THE FINISHED GRADE.
4. ALL HARDWARE FOR DAT SHALL BE ASTM A307 UNLESS OTHERWISE SHOWN.
5. REFER TO GF(31) SHEET FOR TERMINAL CONNECTION DETAILS.

MOW STRIP INSTALLATION

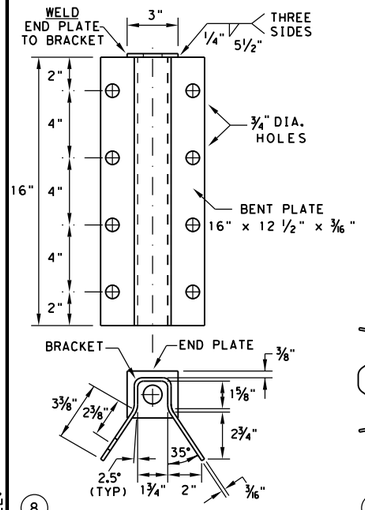
IF A MOW STRIP IS REQUIRED WITH THE DAT INSTALLATION THE LEAVE-OUT AREA AROUND THE STEEL FOUNDATION TUBES AND THE TWO CHANNEL STRUTS MAY BE OMITTED. THIS WILL REQUIRE A FULL POUR AT THE FOUNDATION TUBES.

#	(DAT) PARTS LIST	QTY
(1)	STEEL FOUNDATION TUBE	2
(2)	DAT TERMINAL POST	2
(3)	CHANNEL STRUT	2
(4)	TERMINAL RAIL ELEMENT	1
(5)	SHELF ANGLE BRACKET	1
(6)	BCT BEARING PLATE	1
(7)	BCT POST SLEEVE	1
(8)	GUARDRAIL ANCHOR BRACKET	1
(9)	(ROUNDED) W-BEAM END SECTION	1
(10)	BCT CABLE ANCHOR	1
(11)	RECESSED NUT, GUARDRAIL	20
(12)	1 1/4" BUTTON HEAD BOLT	4
(13)	10" BUTTON HEAD BOLT	2
(14)	5/8" X 2" HEX HEAD BOLT	8
(15)	5/8" X 8" HEX HEAD BOLT	4
(16)	5/8" X 10" HEX HEAD BOLT	2
(17)	5/8" FLAT WASHER	18

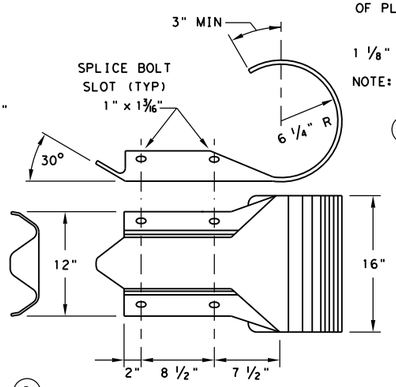
(4) TERMINAL RAIL ELEMENT FOR DAT



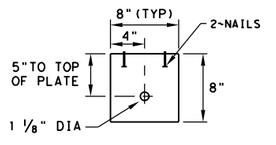
(3) CHANNEL STRUT
C3 X 5 X 80", GRADE A36



(8) GUARDRAIL ANCHOR BRACKET

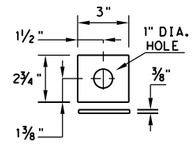


(9) W-BEAM END SECTION (ROUNDED) (12 GA.)

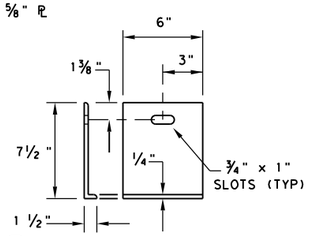


NOTE: DRIVE NAILS AND BEND OVER TO PREVENT PLATE ROTATION

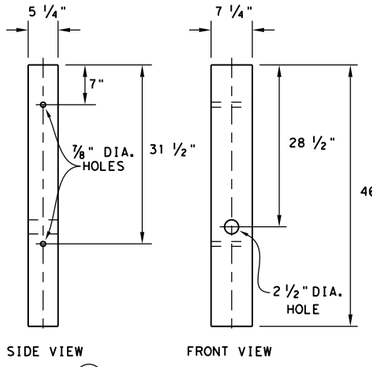
(6) BEARING PLATE
8"x 8"x 5/8" PL



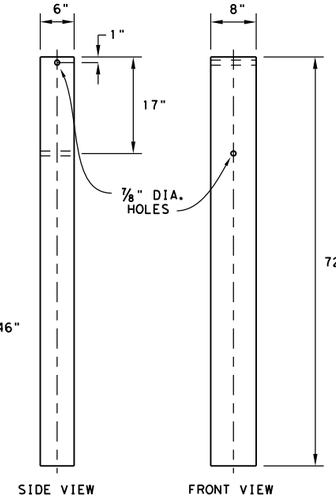
END PLATE



(5) SHELF ANGLE BRACKET



(2) TERMINAL POST
7 1/4"x 5 1/4"x 46" WOOD POST



(1) STEEL FOUNDATION TUBE
6"x 8"x 1/8" x 72" STEEL TUBE

Texas Department of Transportation

Design Division Standard

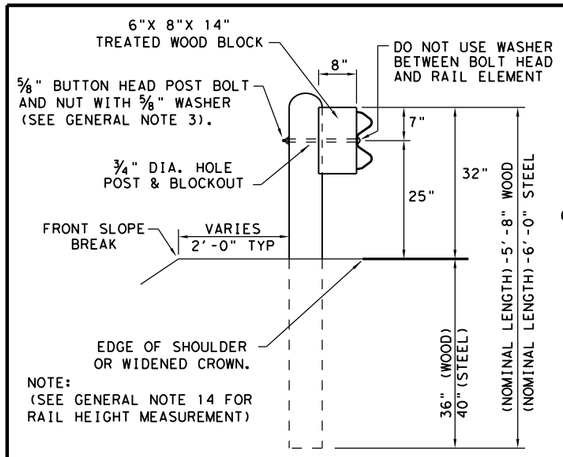
METAL BEAM GUARD FENCE
(DOWNSTREAM ANCHOR TERMINAL)
TL-3 MASH COMPLIANT

GF(31)DAT-19

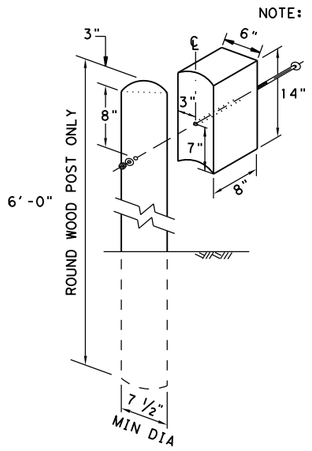
FILE: gf31dat19.dgn	DN: TxDOT	CK: KM	DW: VP	CK: CGL/AG
©TxDOT: NOVEMBER 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.

DISCLAIMER:
THE USE OF THIS STANDARD IS GOVERNED BY THE "TEXAS ENGINEERING PRACTICE ACT". NO WARRANTY OF ANY KIND IS MADE BY TXDOT FOR ANY PURPOSE WHATSOEVER. TXDOT ASSUMES NO RESPONSIBILITY FOR THE CONVERSION OF THIS STANDARD TO OTHER FORMATS OR FOR INCORRECT RESULTS OR DAMAGES RESULTING FROM ITS USE.

DATE:
FILE:

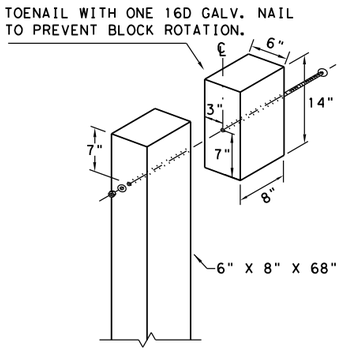


TYPICAL POST PLACEMENT

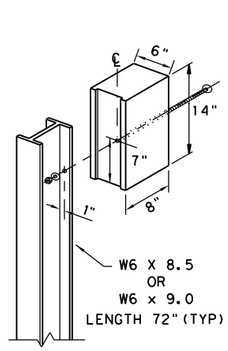


WOOD BLOCK TO ROUND WOOD POST

NOTE: TOENAIL WITH ONE 16D GALV. NAIL TO PREVENT BLOCK ROTATION.

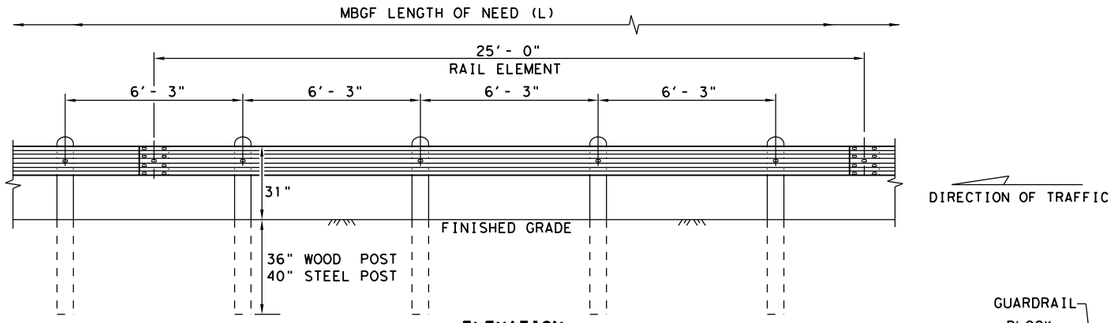


WOOD BLOCK TO RECTANGULAR WOOD POST



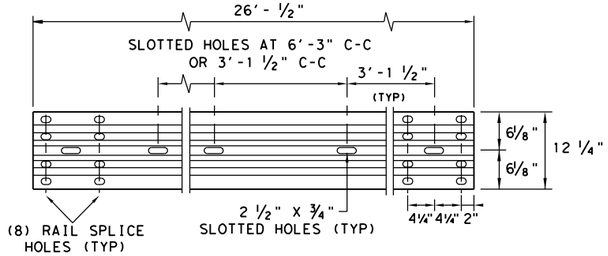
ROUTED WOOD BLOCK TO I-BEAM STEEL POST

NOTE: ** "WOOD" INDICATES DIMENSIONS FOR BOTH ROUND AND RECTANGULAR WOOD POST SYSTEMS.



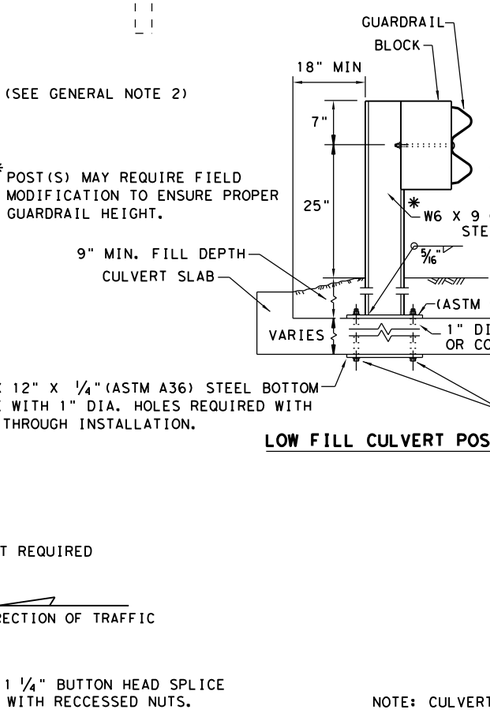
ELEVATION MID-SPAN RAIL SPLICE

SHOWING A 25'- 0" SECTION OF W-BEAM RAIL. (SEE GENERAL NOTE 2)



ELEVATION 25'- 0" (NOM.) W-BEAM SECTION

NOTES: SEE GENERAL NOTE 2 FOR ALLOWABLE RAIL TYPES.
SEE RAIL SPLICE DETAIL FOR REQUIRED HARDWARE.



LOW FILL CULVERT POST

NOTE: TWO INSTALLATION OPTIONS.

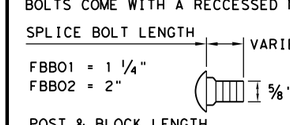
1. BOLT-THROUGH OPTION: REQUIRES A 6" MIN. SLAB THICKNESS. ⅞" DIA (ASTM A449) HEAVY HEX BOLTS WITH TWO HARDENED WASHER EACH AND HEAVY HEX NUTS.
   NOTE: BOLT LENGTH = SLAB PLUS 2 ¼" MIN.

2. EPOXY ANCHOR OPTION: THIS OPTION MAY ONLY BE USED IF THE CULVERT SLAB IS 9" MIN. THICK. THREADED ANCHOR RODS MUST BE ⅞" DIA. ASTM A449 OR A193 GRADE B7 WITH HEAVY HEX NUT, AND ONE HARDENED WASHER EACH. EMBED ANCHOR RODS 6" WITH HILTI HIT RE 500 EPOXY ADHESIVE. OTHER TYPE III CLASS C EPOXY ADHESIVES MEETING THE REQUIREMENTS OF DMS-6100, "EPOXIES AND ADHESIVES", MAY BE USED IF IT CAN BE DEMONSTRATED THAT THEY MEET OR EXCEED THE STRENGTH OF HILTI HIT RE 500 WITH THE SAME EMBEDMENT DEPTH AND THREADED ROD DIA. FOLLOW THE MANUFACTURER'S REQUIREMENTS FOR INSTALLING EPOXIED THREADED RODS. EXTEND RODS ¼" MIN. BEYOND NUT.

NOTE: CULVERTS OF 25 FT. OR LESS, SEE GF(31)LS STANDARD FOR "LONG SPAN" OPTION.

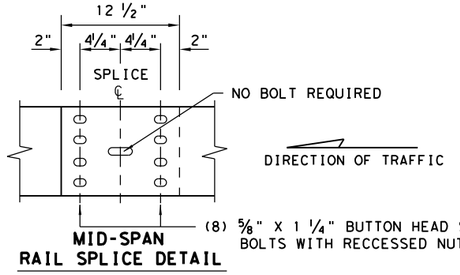
NOTE: TRANSISTIONS TO BRIDGE RAILS OR TRAFFIC BARRIERS.
SEE GF(31)TL3 TR STANDARD FOR HIGH-SPEED TL-3 TRANSITIONS.
SEE GF(31)TL2 TR STANDARD FOR LOW-SPEED TL-2 TRANSITIONS.

NOTE:
FOUR TYPES OF BUTTON-HEAD GUARD RAIL BOLTS COME WITH A RECCESSED NUT.



BUTTON HEAD BOLT

NOTE: SEE GENERAL NOTE 3 FOR SPLICE & POST BOLT DETAILS.



MID-SPAN RAIL SPLICE DETAIL

NOTE: GF(31), MID-SPAN RAIL SPLICES ARE REQUIRED WITH 6'-3" POST SPACINGS.

GENERAL NOTES

1. THE TYPE OF POST (ROUND WOOD POST, RECTANGULAR WOOD POST, OR STEEL POST) WILL BE AS SHOWN IN THE PLANS. THE EXACT POSITION OF MBGF SHALL BE SHOWN IN THE PLANS OR AS DIRECTED BY THE ENGINEER. STEEL POSTS TO BE GALVANIZED IN ACCORDANCE WITH ITEM 445, "GALVANIZING."
2. RAIL ELEMENTS SHALL MEET THE REQUIREMENTS OF ITEM 540, "METAL BEAM GUARD FENCE" EXCEPT AS MODIFIED IN THE PLANS. THE CONTRACTOR MAY FURNISH RAIL ELEMENTS OF 25'- 0", OR 12'- 6" (NOM.) LENGTHS. RAIL ELEMENTS MAY HAVE SLOTTED HOLES AT 3'-1 ½" C-C OR 6'-3" C-C. A SPECIAL LENGTH OF RAIL MAY BE MANUFACTURED TO ACCOMMODATE THE DOWNSTREAM ANCHOR TERMINAL (DAT) AND THE TRANSITION SECTIONS OF GUARDRAIL.
3. BUTTON HEAD "POST BOLTS & NUTS" SHALL MEET THE REQUIREMENTS OF (ASTM A307), AND SHALL BE OF SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND ⅝" WASHER (FWC16a) AND NOT MORE THAN 1" BEYOND IT. TRIM REMAINING BOLT LENGTH TO MEET REQUIRED LENGTH.
4. FITTINGS (BOLTS, NUTS, AND WASHERS) SHALL BE GALVANIZED IN ACCORDANCE WITH ITEM 445, "GALVANIZING." FITTINGS SHALL BE SUBSIDIARY TO THE BID ITEM.
5. CROWN SHALL BE WIDENED TO ACCOMMODATE THE METAL BEAM GUARD FENCE.
6. THE LATERAL APPROACH TO THE GUARD FENCE, SHALL HAVE A MAXIMUM SLOPE OF 1V:10H.
7. IF SHOWN ELSEWHERE IN THE PLANS OR AS DIRECTED BY THE ENGINEER, THE GUARD FENCE MAY BE FLARED AT A RATE OF 25:1 OR FLATTER.
8. UNLESS OTHERWISE SHOWN IN THE PLANS, GUARD FENCE PLACED IN THE VICINITY OF CURBS SHALL BE POSITIONED SO THAT THE FACE OF CURB IS LOCATED DIRECTLY BELOW OR BEHIND THE FACE OF THE RAIL. RAIL PLACED OVER CURBS SHALL BE INSTALLED SO THAT THE POST BOLT IS LOCATED APPROXIMATELY 25 INCHES ABOVE THE GUTTER PAN OR EDGE OF SHOULDER.
9. APPLICATIONS IN SOLID ROCK ARE ONLY ALLOWED WITH STEEL POSTS. IF SOLID ROCK IS ENCOUNTERED WITHIN 0 TO 18" OF THE FINISHED GRADE, DRILL A 24" DIA. HOLE, 24" INTO THE ROCK. IF SOLID ROCK IS ENCOUNTERED BELOW 18", DRILL A 12" DIA. HOLE, 12" INTO THE ROCK OR TO THE STANDARD EMBEDMENT DEPTH, WHICHEVER MAYBE LESS. ANY EXCESS POST LENGTH, AFTER MEETING THESE DEPTHS, MAY BE FIELD CUT TO ENSURE PROPER GUARDRAIL MOUNTING HEIGHT. BACKFILL WITH COARSE AGGREGATE MATERIAL.
10. POSTS SHALL NOT BE SET IN CONCRETE, OF ANY DEPTH.
11. SPECIAL FABRICATION WILL BE REQUIRED AT INSTALLATION LOCATIONS HAVING A CURVATURE OF LESS THAN 150 FT. RADIUS.
12. UNLESS OTHERWISE SHOWN IN THE PLANS, A COMPOSITE MATERIAL BLOCK THAT MEETS THE REQUIREMENTS OF DMS-7210, "COMPOSITE MATERIAL POSTS AND BLOCKS FOR METAL BEAM GUARD FENCE" MAY BE SUBSTITUTED FOR BLOCKS OF SIMILAR DIMENSIONS. THE CONSTRUCTION DIVISION, TXDOT MAINTAINS A MATERIAL PRODUCER LIST (MPL) FOR PRODUCERS OF MATERIALS CONFORMING TO DMS-7210 ONLY PRODUCERS ON THE MPL MAY FURNISH COMPOSITE MATERIAL BLOCKS.
13. FOR THE LOW FILL CULVERT OPTION, POSTS LOCATED PARTIALLY OR WHOLLY BETWEEN PRECAST BOX CULVERT UNITS, THE USE OF A CAST-IN-PLACE CONCRETE CLOSURE BETWEEN BOXES IS REQUIRED. THE LENGTH OF THE CAST-IN-PLACE CONCRETE CLOSURE SHALL ACCOMMODATE THE PLACEMENT OF THE LOW FILL CULVERT OPTION. SEE CONCRETE CLOSURE DETAILS ON BRIDGE STANDARD SCP-MD.
14. GUARDRAIL HEIGHT MEASUREMENT: WHEN THE GUARDRAIL IS LOCATED ABOVE PAVEMENT, MEASURE THE HEIGHT FROM THE PAVEMENT TO THE TOP OF THE W-BEAM RAIL. WHEN THE GUARDRAIL IS LOCATED UP TO 2 FT. OFF OF THE EDGE OF PAVEMENT OR FOR A PAVEMENT OVERLAY, USE A 10-FOOT STRAIGHTEDGE TO EXTEND THE PAVEMENT/SHOULDER SLOPE TO THE BACK OF RAIL, MEASURE FROM THE BOTTOM OF STRAIGHTEDGE TO THE TOP OF RAIL. FOR GUARDRAIL LOCATED DOWN A 10:1 SLOPE, MEASURE FROM THE NOMINAL TERRAIN.

Texas Department of Transportation

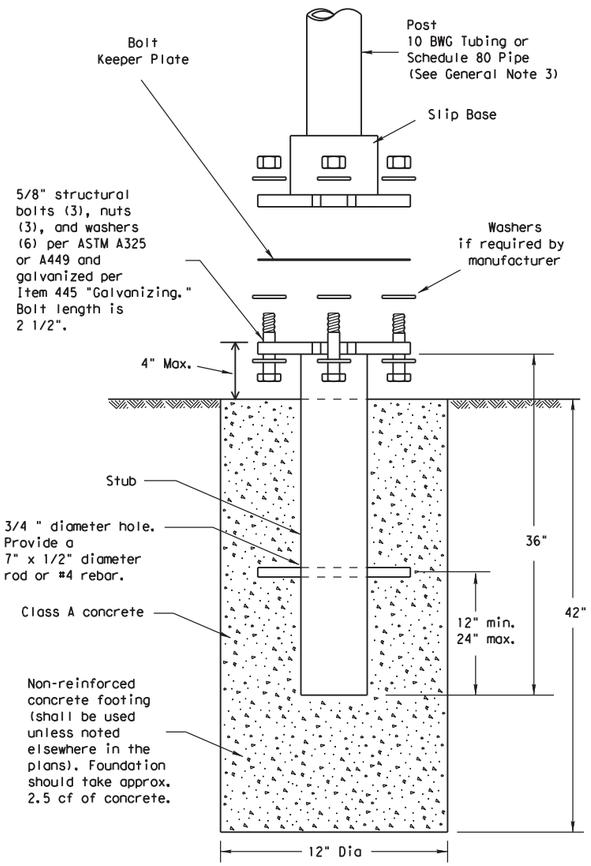
Design Division Standard

METAL BEAM GUARD FENCE
TL-3 MASH COMPLIANT
GF(31)-19

FILE: gf3119.dgn	DN: TxDOT	CK: KM	DW: VP	CK: CGL/AG
©TxDOT: NOVEMBER 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.

DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

TRIANGULAR SLIPBASE INSTALLATION GENERAL REQUIREMENTS



SM RD SGN ASSM TY XXXXX(X)SA(X-XXXX)

NOTE

There are various devices approved for the Triangular 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 marking are subject to approval of the TxDOT Traffic Standards Engineer.
2. Material used as post with this system shall conform to the following specifications:
   10 BWG Tubing (2.875" outside diameter)
   - 0.134" nominal wall thickness
   - Seamless or electric-resistance welded steel tubing or pipe
   - Steel shall be HSLAS Gr 55 per ASTM A1011 or ASTM A1008
   - Other steels may be used if they meet the following:
     - 55,000 PSI minimum yield strength
     - 70,000 PSI minimum tensile strength
     - 20% minimum elongation in 2"
   - Wall thickness (uncoated) shall be within the range of 0.122" to 0.138"
   - Outside diameter (uncoated) shall be within the range of 2.867" to 2.883"
   - Galvanization per ASTM A123 or ASTM A653 G210. For precoated steel tubing (ASTM A653), recoat tube outside diameter weld seam by metallizing with zinc wire per ASTM B833.

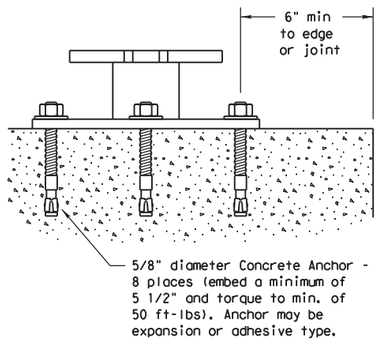
   Schedule 80 Pipe (2.875" outside diameter)
   - 0.276" nominal wall thickness
   - Steel tubing per ASTM A500 Gr C
   - Other seamless or electric-resistance welded steel tubing or pipe with equivalent outside diameter and wall thickness may be used if they meet the following:
     - 46,000 PSI minimum yield strength
     - 62,000 PSI minimum tensile strength
     - 21% 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 2.855" to 2.895"
   - Galvanization per ASTM A123
3. See the Traffic Operations Division website for detailed drawings of sign clamps and Texas Universal Triangular Slipbase System components. The website address is: http://www.txdot.gov/publications/traffic.htm
4. Sign supports shall not be spliced except where shown. Sign 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. The Engineer may permit batches of concrete less than 2 cubic yards to be mixed with a portable, motor-driven concrete mixer. For small placements less than 0.5 cubic yards, hand mixing in a suitable container may be allowed by Engineer. Concrete shall be Class A.
3. Push the pipe end 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. Continue to work the stub into the concrete until it is between 2 to 4 inches above the ground.
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 travelway (i.e., edge of the closest lane) when slip plate is below the edge of pavement or 7 to 7.5 feet above slip plate when the slip plate is above the edge of the travelway. The cut shall be plumb and straight.
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-2) for clearances based on sign types.

CONCRETE ANCHOR



SM RD SGN ASSM TY XXXXX(X)SB(X-XXXX)

Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end. Heavy hex nut per ASTM A563, and hardened washer per ASTM F436. The stud bolt shall have a minimum yield and ultimate tensile strength of 50 and 75 KSI, respectively. Nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing." 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. Top of bolt shall extend at least flush with top of the nut when installed. The anchor, when installed in 4000 psi normal-weight concrete with a 5 1/2" minimum embedment, shall have a minimum allowable tension and shear of 3900 and 3100 psi, respectively.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-1)-08

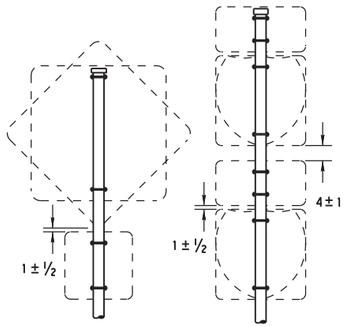
© TxDOT July 2002

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

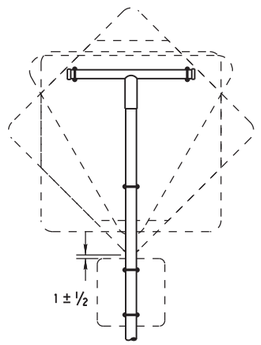
REVISIONS	CONT	SECT	JOB	HIGHWAY
9-08				
	DIST	COUNTY		SHEET NO.

DATE:
FILE:

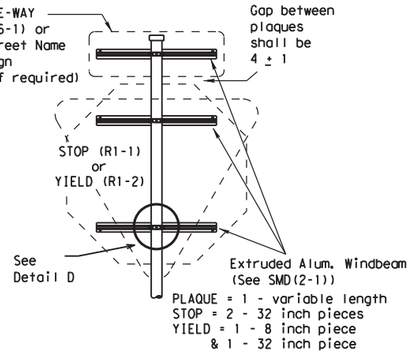
DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.



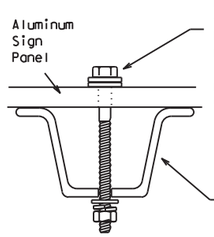
SM RD SGN ASSM TY XXXXX(1)XX(P)



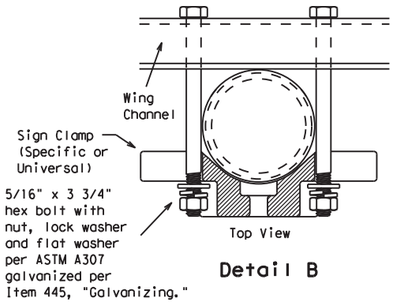
SM RD SGN ASSM TY XXXXX(1)XX(T)



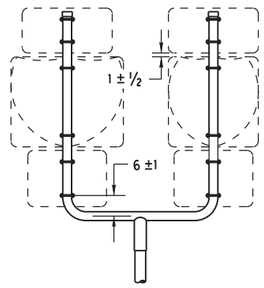
SM RD SGN ASSM TY XXXXX(1)XX(P-BM)



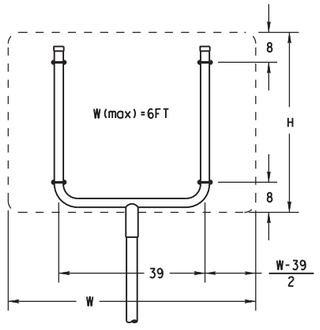
Detail A



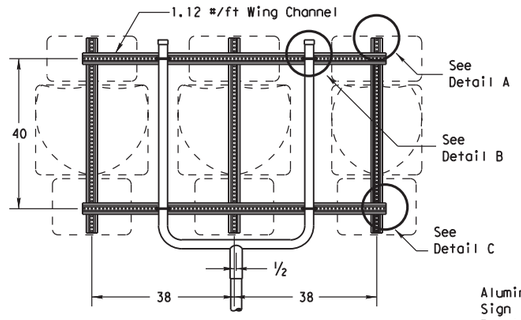
Detail B



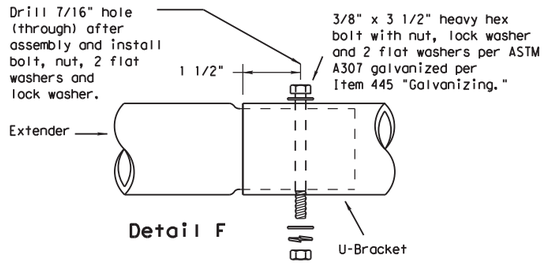
SM RD SGN ASSM TY XXXXX(1)XX(U)



SM RD SGN ASSM TY XXXXX(1)XX(U)

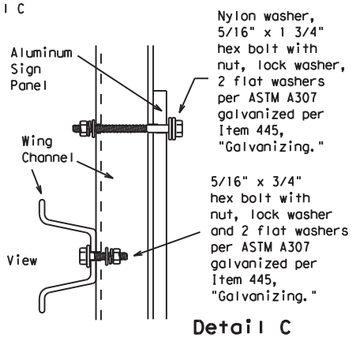


SM RD SGN ASSM TY XXXXX(1)XX(U-WC)
(See Note 11)

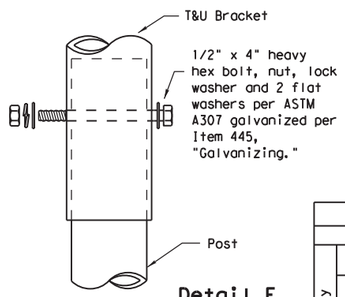


Detail F

Splices shall only be allowed behind the sign substrate.



Detail C



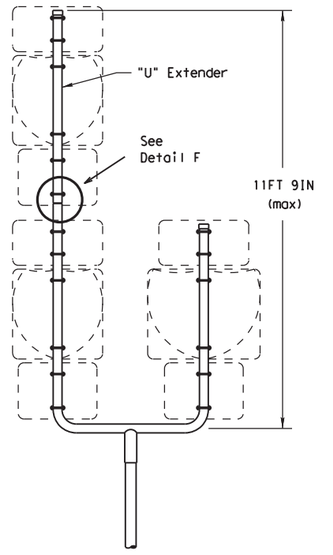
Detail E

GENERAL NOTES:

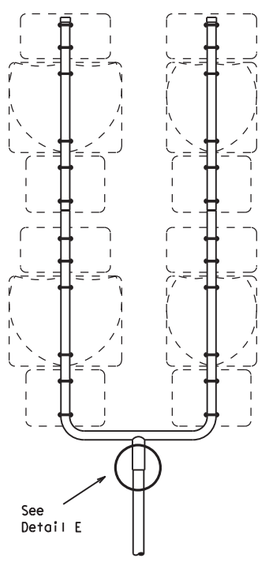
1.

SIGN SUPPORT	# OF POSTS	MAX. SIGN AREA
10 BWG	1	16 SF
10 BWG	2	32 SF
Sch 80	1	32 SF
Sch 80	2	64 SF

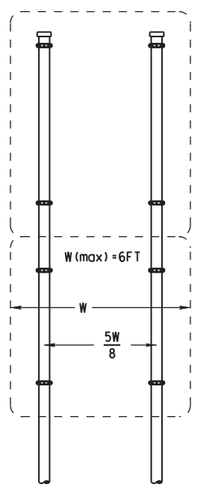
2. The Engineer may require that a Schedule 80 post be used in place of a 10 BWG where a sign height is abnormally high due to a fill slope.
3. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
4. Aluminum sign blanks shall conform to Departmental Material Specifications DMS-7110 and shall have 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 in addition to windloading are indicated on the "REQUIRED SUPPORT" table on this sheet.
6. For horizontal rectangular signs fabricated from flat aluminum, T-brackets are used for signs 24 inches or less in height. U-brackets are used for signs of greater height.
7. When two triangular slipbase supports are used to support a single sign, they shall not be "rigidly" connected to each other except through the sign panel. This will allow each support to act independently when impacted by an errant vehicle.
8. Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.
9. Excess pipe, wing channel, or windbeam shall be cut off so that it does not extend beyond the sign panel (i.e., excess support shall not be visible when the sign is viewed from the front.) Repair galvanized coating at cut support ends per Item 445, "Galvanizing."
10. Additional route markers may be added vertically, provided the total sign area does not exceed the maximum allowable amount per Note 1.
11. Additional sign clamp required on the "T-bracket" post for 24 inch height signs. Place the clamp 3 inches above bottom of sign when possible.
12. Post open ends shall be fitted with Friction Caps.
13. Sign blanks shall be the sizes and shapes shown on the plans.



SM RD SGN ASSM TY S80(1)XX(U-1EXT)

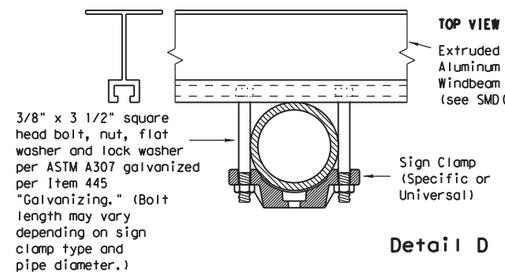


SM RD SGN ASSM TY S80(1)XX(U-2EXT)

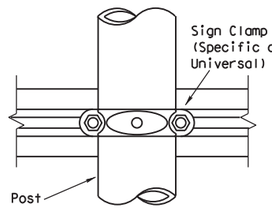


SM RD SGN ASSYM TY XXXXX(2)XX(P)

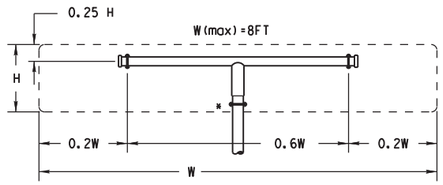
SIDE VIEW



Detail D



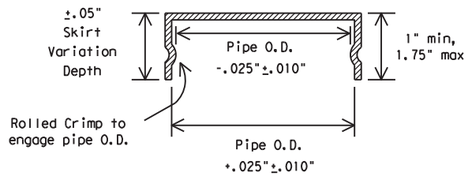
REQUIRED SUPPORT		
	SIGN DESCRIPTION	SUPPORT
Regulatory	48-inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	60-inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	48x16-inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
Warning	48x48-inch signs (diamond or square)	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
	48-inch Advance School X-ing sign (S1-1)	TY 10BWG(1)XX(T)
	48-inch School X-ing sign (S2-1)	TY 10BWG(1)XX(T)
	Large Arrow sign (W1-6 & W1-7)	TY 10BWG(1)XX(T)



All dimensions are in english unless detailed otherwise.

SM RD SGN ASSM TY XXXXX(1)XX(T)
(* - See Note 12)

FRICTION CAP DETAIL



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. Caps shall be sized and formed in such a manner as to produce a drive-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 8.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-2)-08

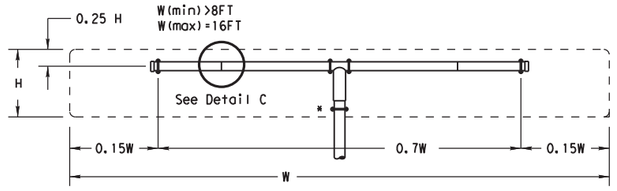
©TxDOT July 2002

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.

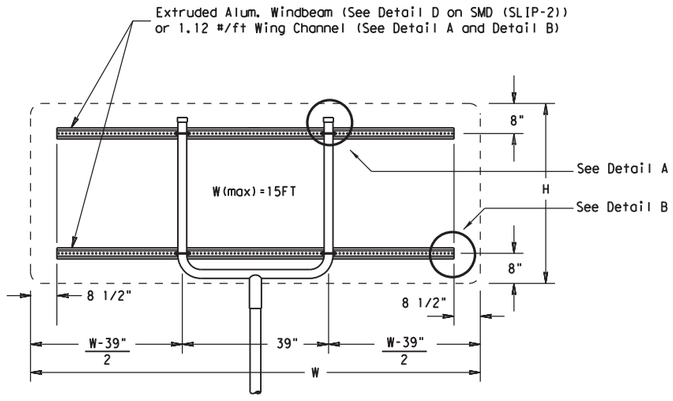
9-08 REVISIONS

DATE:
FILE:

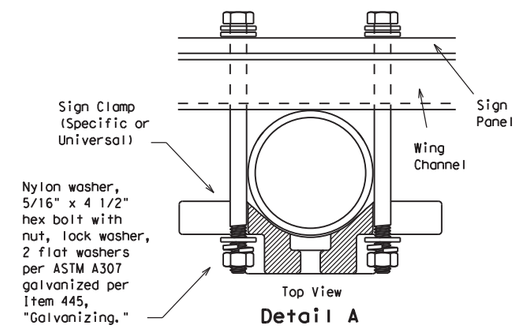
DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.



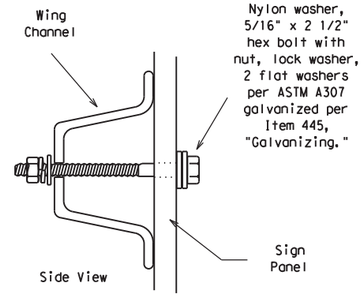
SM RD SGN ASSM TY XXXXX(1)XX(T-2EXT)
(* - See Note 12)



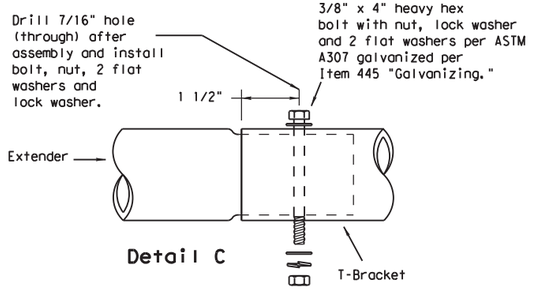
SM RD SGN ASSM TY XXXXX(1)XX(U-XX)



Detail A

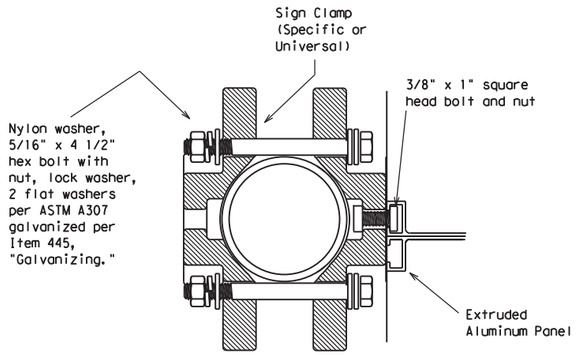


Detail B

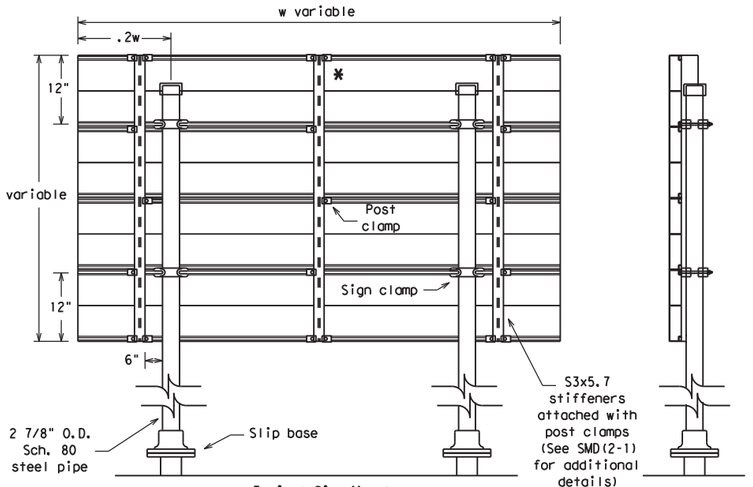


Detail C

Splices shall only be allowed behind the sign substrate.



Detail D
EXTRUDED ALUMINUM SIGN WITH T BRACKET

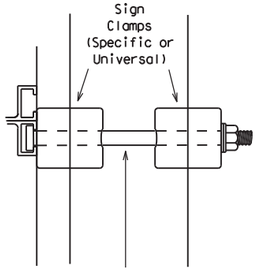


Typical Sign Mount

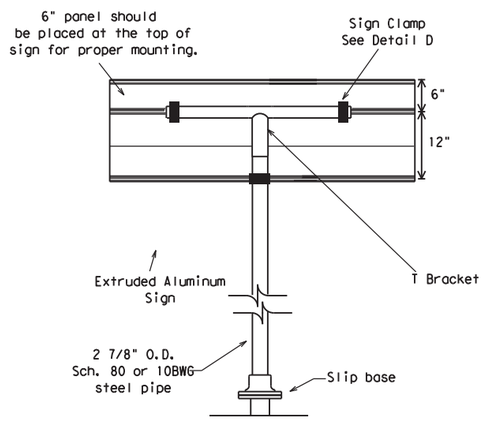
SM RD SGN ASSM TY S80(2)XX(P-EXAL)

* Additional stiffener placed at approximate center of signs when sign width is greater than 10'.

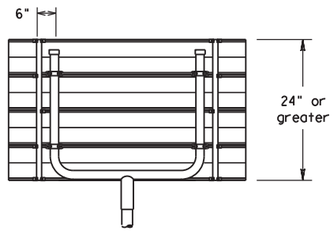
See Detail E
for clamp installation



Detail E



Extruded Aluminum Sign
With T Bracket



Use Extruded Alum. Windbeam as stiffeners
See SMD (2-1) for additional details

See Detail E
for clamp installation

GENERAL NOTES:

SIGN SUPPORT	# OF POSTS	MAX. SIGN AREA
10 BWG	1	16 SF
10 BWG	2	32 SF
Sch 80	1	32 SF
Sch 80	2	64 SF

1. See table above.
2. The Engineer may require that a Schedule 80 post be used in place of a 10 BWG where a sign height is abnormally high due to a fill slope.
3. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
4. Aluminum sign blanks shall conform to Departmental Material Specifications DMS-7110 and shall have 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 in addition to windloading are indicated on the "REQUIRED SUPPORT" table on this sheet.
6. For horizontal rectangular signs fabricated from flat aluminum, T-brackets are used for signs 24 inches or less in height. U-brackets are used for signs of greater height.
7. When two triangular slipbase supports are used to support a single sign, they shall not be "rigidly" connected to each other except through the sign panel. This will allow each support to act independently when impacted by an errant vehicle.
8. Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.
9. Excess pipe, wing channel, or windbeam shall be cut off so that it does not extend beyond the sign panel (i.e., excess support shall not be visible when the sign is viewed from the front.) Repair galvanized coating at cut support ends per Item 445, "Galvanizing."
10. Sign blanks shall be the sizes and shapes shown on the plans.
11. Additional sign clamp required on the "T-bracket" post for 24 inch high signs. Place the clamp 3 inches above bottom of sign when possible.
12. Post open ends shall be fitted with Friction Caps.

REQUIRED SUPPORT

	SIGN DESCRIPTION	SUPPORT
Regulatory	48-inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	60-inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	48x16-inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
Warning	48x48-inch signs (diamond or square)	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
	48-inch Advance School X-ing sign (S1-1)	TY 10BWG(1)XX(T)
	48-inch School X-ing sign (S2-1)	TY 10BWG(1)XX(T)
	Large Arrow sign (W1-6 & W1-7)	TY 10BWG(1)XX(T)

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS
SMALL ROADSIDE SIGNS
TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-3)-08

©TxDOT July 2002

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.

REVISIONS
9-08

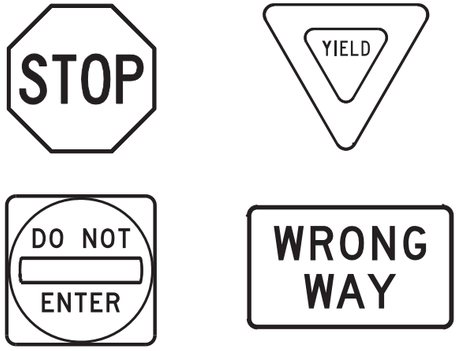
DATE:
FILE:

DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE:
FILE:

REQUIREMENTS FOR RED BACKGROUND REGULATORY SIGNS

(STOP, YIELD, DO NOT ENTER AND WRONG WAY SIGNS)



REQUIREMENTS FOR FOUR SPECIFIC SIGNS ONLY

SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	RED	TYPE B OR C SHEETING
BACKGROUND	WHITE	TYPE B OR C SHEETING
LEGEND & BORDERS	WHITE	TYPE B OR C SHEETING
LEGEND	RED	TYPE B OR C SHEETING

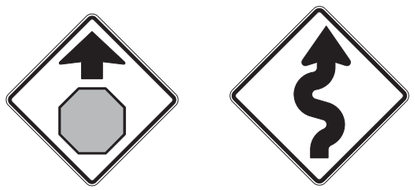
REQUIREMENTS FOR WHITE BACKGROUND REGULATORY SIGNS

(EXCLUDING STOP, YIELD, DO NOT ENTER AND WRONG WAY SIGNS)

TYPICAL EXAMPLES

SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	WHITE	TYPE A SHEETING
BACKGROUND	ALL OTHERS	TYPE B OR C SHEETING
LEGEND, BORDERS AND SYMBOLS	BLACK	ACRYLIC NON-REFLECTIVE FILM
LEGEND, BORDERS AND SYMBOLS	ALL OTHER	TYPE B OR C SHEETING

REQUIREMENTS FOR WARNING SIGNS



TYPICAL EXAMPLES

SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	FLOURESCENT YELLOW	TYPE B_{FL} OR C_{FL} SHEETING
LEGEND & BORDERS	BLACK	ACRYLIC NON-REFLECTIVE FILM
LEGEND & SYMBOLS	ALL OTHER	TYPE B OR C SHEETING

REQUIREMENTS FOR SCHOOL SIGNS

TYPICAL EXAMPLES

SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	WHITE	TYPE A SHEETING
BACKGROUND	FLOURESCENT YELLOW GREEN	TYPE B_{FL} OR C_{FL} SHEETING
LEGEND, BORDERS AND SYMBOLS	BLACK	ACRYLIC NON-REFLECTIVE FILM
SYMBOLS	RED	TYPE B OR C SHEETING

GENERAL NOTES

1. Signs to be furnished shall be as detailed elsewhere in the plans and/or as shown on sign tabulation sheet. Standard sign designs and arrow dimensions can be found in the "Standard Highway Sign Designs for Texas" (SHSD).
2. Sign legend shall use the Federal Highway Administration (FHWA) Standard Highway Alphabets (B, C, D, E, Emod or F).
3. Lateral spacing between letters and numerals shall conform with the SHSD, and any approved changes thereto. Lateral spacing of legend shall provide a balanced appearance when spacing is not shown.
4. Black legend and borders shall be applied by screening process or cut-out acrylic non-reflective black film to background sheeting, or combination thereof.
5. White legend and borders shall be applied by screening process with transparent colored ink, transparent colored overlay film to white background sheeting or cut-out white sheeting to colored background sheeting, or combination thereof.
6. Colored legend shall be applied by screening process with transparent colored ink, transparent colored overlay film or colored sheeting to background sheeting, or combination thereof.
7. Sign substrate shall be any material that meets the Departmental Material Specification requirements of DMS-7110 or approved alternative.
8. Mounting details for roadside mounted signs are shown in the "SMD series" Standard Plan Sheets.

ALUMINUM SIGN BLANKS THICKNESS	
Square Feet	Minimum Thickness
Less than 7.5	0.080
7.5 to 15	0.100
Greater than 15	0.125

DEPARTMENTAL MATERIAL SPECIFICATIONS	
ALUMINUM SIGN BLANKS	DMS-7110
SIGN FACE MATERIALS	DMS-8300

The Standard Highway Sign Designs for Texas (SHSD) can be found at the following website.

http://www.txdot.gov/

Texas Department of Transportation

Traffic Operations Division Standard

TYPICAL SIGN REQUIREMENTS

TSR(4)-13

FILE: tsr4-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT October 2003	CONT	SECT	JOB	HIGHWAY
REVISIONS				
12-03 7-13	DIST	COUNTY		SHEET NO.
9-08				