CONSTRUCTION PLANS FOR

TERRACINA PHASE 1

110 RESIDENTIAL LOT SUBDIVISION
AN ADDITION TO THE CITY OF ROCKWALL
ROCKWALL COUNTY, TEXAS
50.154 ACRES

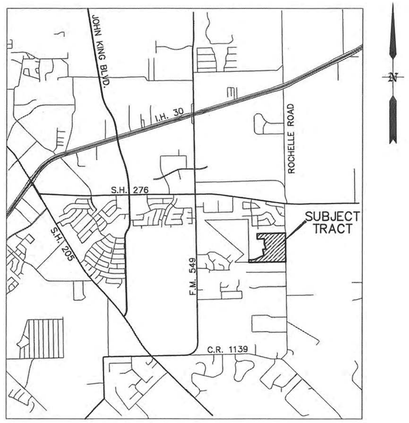
CONTACT INFORMATION:

City of Rockwall Mayor: Jim Pruitt

Rockwall Engineer and Public Works:
Amy Williams, P.E. (972) 771-7746

City Manager:
Rick Crowley (972) 771-7700

N.T.M.W.D. Engineer
Kevin McNeely (469) 626-4750



VICINITY MAP
N.T.S.

NTMWD NOTES

A. A North Texas Municipal Water District (NTMWD) 54"-inch water transmission pipeline is located within limits of construction.
B. Operation of heavy earthmoving equipment, compaction equipment or heavy construction equipment, such as concrete trucks, shall be restricted to specific crossing points across NTMWD easements, as approved by the NTMWD. The crossings shall be designated and verified to provide a minimum of five-feet of cover.
C. To assure that placing of significant loads over the NTMWD pipeline does not damage the existing pipeline, no materials shall be stockpiled on the NTMWD easement without authorization from the NTMWD. If the contractor desires to use NTMWD's easement for stockpile of materials, contact NTMWD Engineering at (972) 442-5405 so your plans for use of NTMWD's easement can be reviewed.
D. A minimum of 3 feet separation between bottom of pavement and top of NTMWD pipeline is required. In addition, if separation between bottom of pavement and top of pipeline is less than 3.5 feet, than a thickened pavement section is required.
E. Crossing of the NTMWD easement with other utilities, such as TV cable, phone, gas and electric, shall be coordinated with the NTMWD to avoid damage to the NTMWD facilities.
F. Outdoor lighting, landscaping, screening walls or other facilities shall not be installed in NTMWD easements without written approval of the NTMWD.
G. Unless otherwise shown or required, a minimum of two-foot clearance shall be provided for all utilities crossing the NTMWD pipelines.
H. "The contractor shall contact NTMWD Engineering at (972) 442-5405 at least 48 hours prior to performing any work in the vicinity of the NTMWD facilities."

*ALL RESPONSIBILITY FOR ADEQUACY OF DESIGN REMAINS WITH THE DESIGN ENGINEER. THE CITY OF ROCKWALL, IN REVIEWING AND RELEASING PLANS FOR CONSTRUCTION, ASSUMES NO RESPONSIBILITY FOR ADEQUACY OR ACCURACY OF DESIGN.

RECORD DRAWINGS

To the best of our knowledge Engineering Concepts & Design, L.P., hereby states that this plan is As-Built. This information provided is based on surveying at the site and information provided by the contractor.

RYAN C. KING, P.E. — DATE 8/3/2022

RELEASED FOR CONSTRUCTION
ALL RESPONSIBILITY FOR ADEQUACY OF DESIGN REMAINS WITH THE DESIGN ENGINEER. THE CITY OF ROCKWALL, IN REVIEWING AND RELEASING PLANS FOR CONSTRUCTION, ASSUMES NO RESPONSIBILITY FOR ADEQUACY OR ACCURACY OF DESIGN.

CITY — DATE 12-7-20

Sheet List Table	
Sheet Number	Sheet Title
1	COVER SHEET
2	FINAL PLAT 1
3	FINAL PLAT 2
4	FINAL PLAT 3
5	FINAL PLAT 4
6	PAVING PLAN ROCHELL 1
7	PAVING PLAN ROCHELL 2
8	PAVING SECTIONS ROCHELL 1
9	PAVING SECTIONS ROCHELL 2
10	TRAFFIC CONTROL PLAN ROCHELL 1
11	TRAFFIC CONTROL PLAN ROCHELL 2
12	PAVING PLAN GUADALUPE
13	PAVING PLAN MESA VERDE
14	PAVING PLAN HIDDEN COVE
15	PAVING PLAN LASALLE
16	PAVING PLAN OAKCREST
17	PAVING PLAN CAYMAN AND COPPERWOOD
18	PAVING PLAN TERRACINA
19	PAVING PLAN ACACIA AND SEDONA
20	GRADING PLAN KEY MAP
21	GRADING PLAN 1
22	GRADING PLAN 2
23	GRADING PLAN 3
24	DRAINAGE AREA EXISTING
25	DRAINAGE AREA PROPOSED
26	DRAINAGE AREA ULTIMATE
27	DRAINAGE CALCULATIONS
28	DETENTION POND 1
29	DETENTION POND 2
30	STORM OVERALL PLAN
31	STORM PLAN 1
32	STORM PLAN 2
33	STORM PLAN 3
34	STORM PLAN 4
35	STORM PLAN 5
36	STORM PLAN 6
37	STORM PLAN 7
38	UTILITY PLAN KEY MAP
39	UTILITY PLAN 1
40	UTILITY PLAN 2
41	SANITARY PROFILE 1
42	SANITARY PROFILE 2
43	SANITARY PROFILE 3
44	WATER LINE PROFILES
45	EROSION CONTROL PLAN
46	STREET LIGHT AND SIGNAGE PLAN
47	EROSION CONTROL DETAILS 1
48	EROSION CONTROL DETAILS 2
49	PAVING DETAILS
50	PAVING DETAILS 2
51	HANDRAIL DETAILS
52	WATER DETAILS 1
53	WATER DETAILS 2
54	SANITARY DETAILS
55	STORM DETAILS 1
56	STORM DETAILS 2
57	STORM DETAILS 3
58	STORM DETAILS 4
59	STORM DETAILS 5
60	STORM DETAILS 6
61	STORM DETAILS 7
62	RETAINING WALL PLAN
LS SHEETS	LIFT STATION DESIGN BY PERKINS ENGINEERING CONSULTANTS, INC.

FOR CONSTRUCTION
8/26/2020

TERRACINA PHASE 1
THE CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

CAUTION! EXISTING UTILITIES

CONTRACTOR SHOULD CALL 1-800-DIG-TESS PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITIES FOR EXISTING UTILITY LOCATIONS. EXISTING UTILITIES AND UNDERGROUND FACILITIES INDICATED ON THESE PLANS HAVE BEEN LOCATED FROM REFERENCE INFORMATION. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY BOTH HORIZONTALLY AND VERTICALLY THE LOCATION OF ALL EXISTING UTILITIES AND UNDERGROUND FACILITIES PRIOR TO CONSTRUCTION AND TO TAKE NECESSARY PRECAUTIONS IN ORDER TO PROTECT ALL FACILITIES ENCOUNTERED. THE CONTRACTOR SHALL PRESERVE AND PROTECT ALL EXISTING UTILITIES FROM DAMAGE DURING CONSTRUCTION.

BENCHMARKS:

CP 101 - Square cut on headwall west side of Rochelle road & 54' south of center of Polar Point Drive Elevation = 559.95
CP 103 - "X" in concrete east side of Rochelle Road, 1834' south of center of Polar Point Dr. Elevation = 564.54'
CP 104 - Capped 5/8" Iron rod east side of Rochelle Road & 1250' south of the center of Polar Point Dr. Elevation = 572.70'
CP 105 - Capped 5/8" Iron rod east side of Rochelle Road & 826' south of the center of Polar Point Dr. Elevation = 568.75'

DEVELOPER
BLOOMFIELD HOMES
1050 E. HIGHWAY 114
SUITE 210
SOUTHLAKE, TX 76092

CONTACT: DON DYKSTRA
PHONE: 817-416-1572
FAX: 817-416-1397

ENGINEERINGCONCEPTS & DESIGN, L.P.
ENGINEERING / PROJECT MANAGEMENT / CONSTRUCTION SERVICES - FIRM REG. #F-001145
201 WINDCO CIR, STE 200, WYLIE, TX 75098
972-941-8400 FAX: 972-941-8401 WWW.ECDLP.COM

REVISIONS:

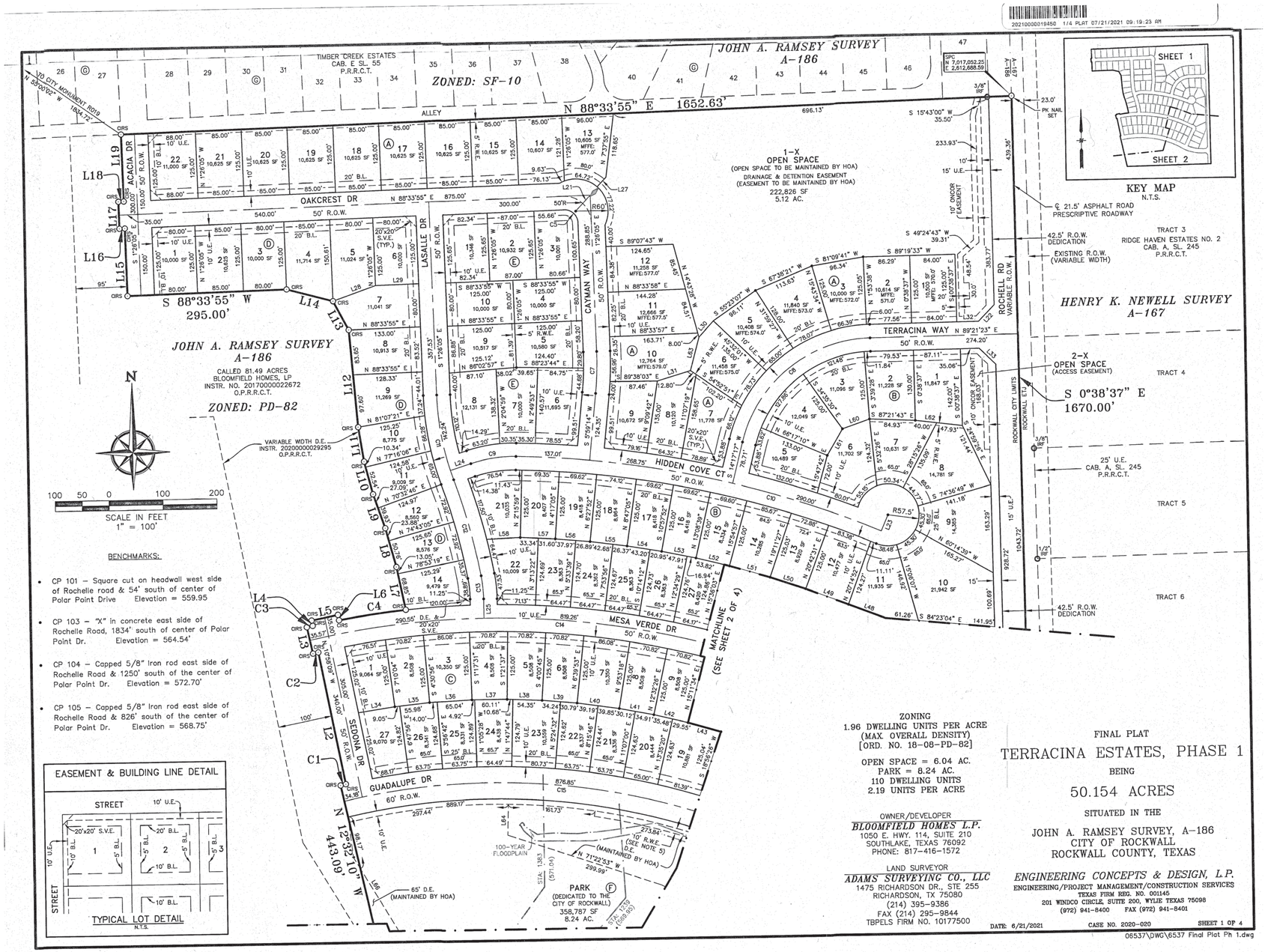
DATE: 8/26/2020
PROJECT NO.: 06537
DWG FILE NAME: 06537 CV.DWG

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF CONSTRUCTION. THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RYAN KING, P.E. 123635

STATE OF TEXAS — RYAN C. KING — 123635 — REGISTERED PROFESSIONAL ENGINEER — 8/26/2020

SHEET 1 OF 62

20210000019450 1/4 PLAT 07/21/2021 09:19:23 AM



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EASEMENT & BUILDING LINE DETAIL

ZONING
1.96 DWELLING UNITS PER ACRE
(MAX OVERALL DENSITY)
[ORD. NO. 18-08-PD-82]

OPEN SPACE = 6.04 AC.
PARK = 8.24 AC.
110 DWELLING UNITS
2.19 UNITS PER ACRE

OWNER/DEVELOPER
BLOOMFIELD HOMES L.P.
1050 E. HWY. 114, SUITE 210
SOUTHLAKE, TEXAS 76092
PHONE: 817-416-1572

LAND SURVEYOR
ADAMS SURVEYING CO., LLC
1475 RICHARDSON DR., STE 255
RICHARDSON, TX 75080
(214) 395-9386
FAX (214) 295-9844
TBPELS FIRM NO. 10177500

FINAL PLAT

TERRACINA ESTATES, PHASE 1

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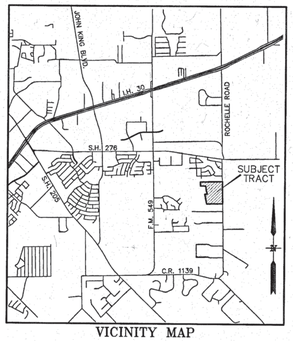
SITUATED IN THE

JOHN A. RAMSEY SURVEY, A-186
CITY OF ROCKWALL
ROCKWALL COUNTY, TEXAS

ENGINEERING CONCEPTS & DESIGN, L.P.
ENGINEERING/PROJECT MANAGEMENT/CONSTRUCTION SERVICES
TEXAS FIRM REG. NO. 001145
201 WINDCO CIRCLE SUITE 200, WYLIE TEXAS 75098
(972) 941-8400 FAX (972) 941-8401

DATE: 6/21/2021 CASE NO. 2020-020 SHEET 1 OF 4

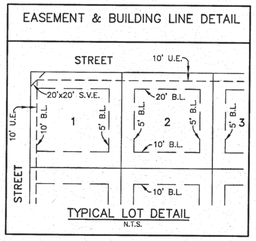
06537\DWG\6537 Final Plat Ph 1.dwg



VICINITY MAP
N.T.S.

KEY MAP
N.T.S.

EASEMENT & BUILDING LINE DETAIL



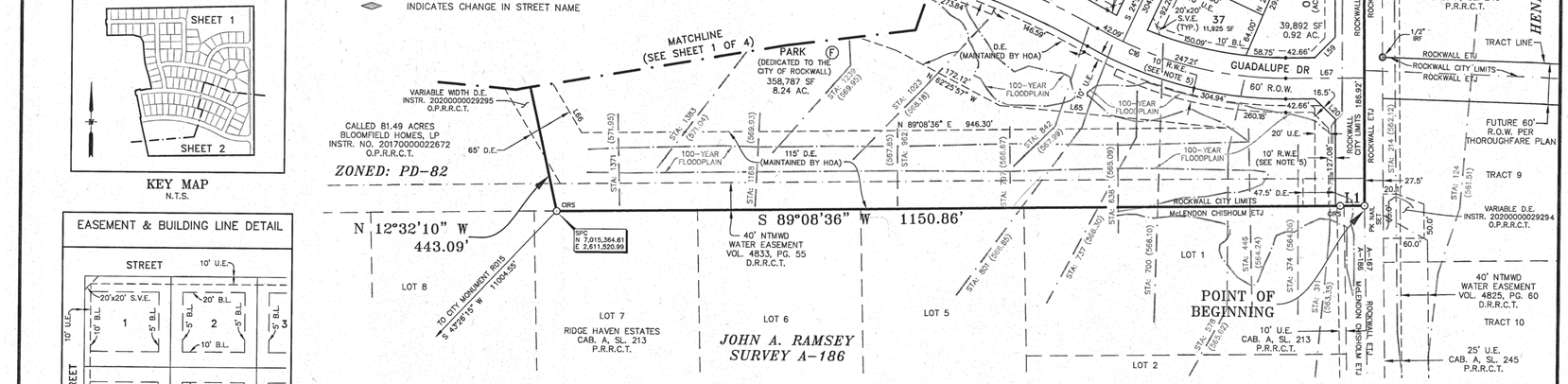
TYPICAL LOT DETAIL
N.T.S.

LEGEND

IRF	IRON ROD FOUND
CIRS	5/8 INCH IRON ROD SET WITH ADAMS SURVEYING COMPANY LLC CAP
FCP	FENCE CORNER POST FOUND
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
B.L.	BUILDING SETBACK LINE
U.E.	UTILITY EASEMENT
D.E.	DRAINAGE EASEMENT
R.W.E.	RETAINING WALL EASEMENT (TO BE MAINTAINED BY PROPERTY OWNER OR HOA)
S.V.E.	SIDEWALK & VISIBILITY EASEMENT
HOA	HOMEOWNERS' ASSOCIATION
MFFE	MINIMUM FINISHED FLOOR ELEVATION
SPC	STATE PLANE COORDINATES
◇	INDICATES CHANGE IN STREET NAME

N

100 50 0 100 200
SCALE IN FEET
1" = 100'



NOTES:

1. Bearings are based on Texas State Plane Coordinates. Projection: State Plane NAD83 Texas North Central Zone 4202, Lambert Conformal Conic, Feet (TX83-NCF).
2. 5/8-inch iron rods with "ADAMS SURVEYING COMPANY LLC cap have been set at the exterior boundary corners of this subdivision as shown or noted hereon. A 5/8-inch iron rod with "ADAMS SURVEYING COMPANY LLC cap will be set at the interior lot corners, angle points and points of curvature, whenever possible after construction for this subdivision has been completed.
3. By graphical plotting, the parcel shown hereon lies within Zone X, as delineated on the Rockwall County, Texas and Incorporated Areas, Flood Insurance Rate Map, Map Number 48397C0045L, dated September 26, 2008. Zone X is defined as "Areas determined to be outside the 0.2% annual chance floodplain." The Surveyor utilized the above referenced floodplain information for this determination and the Surveyor does not certify that revised floodplain information has or has not been published by FEMA or some other source. On occasion, greater floods can and will occur and flood heights may be increased by man-made or natural causes. The above flood statement shall not create liability on the part of the surveyor.
4. All Open Space tracts, Drainage, & Detention Easements will be maintained, repaired and replaced by the Homeowners Association.
5. Retaining Walls in the Park Area will be maintained, repaired and replaced by the Homeowners Association.
6. Driveway depth must be 25' or more between the front of garage and edge of sidewalk.
7. Retaining Walls in Residential Lots will be maintained, repaired and replaced by the Property Owners.
8. The flood information shown on this plat is based on the August 20, 2020 Terracina Detention Study completed by McLendon Hydrology and Engineering, LLC.

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TERRACINA ESTATES, PHASE 1

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06537\DWG\6537 Final Plat Ph 1.dwg

OWNER'S CERTIFICATE AND DEDICATION

STATE OF TEXAS
COUNTY OF TARRANT

WHEREAS BLOOMFIELD HOMES, LP, BEING THE OWNER OF A TRACT of land in the County of Rockwall, State of Texas, said tract being described as follows:

BEING a 50.154 acre tract of land situated in the John A. Ramsey Survey, Abstract 186, City of Rockwall, Rockwall County, Texas and being part of a called 81.49 acre tract of land described in deed to Bloomfield Homes, LP, recorded in Instrument 20170000022672, Deed Records, Rockwall County, Texas, said 50.154 acre tract being more particularly described by metes and bounds as follows:

BEGINNING at a PK Nail set for the southeast corner of said 81.49 acre tract in the center of Rochell Road, a 21.5 ft. asphalt Prescriptive Roadway (proposed 60 ft. right-of-way);

THENCE South 89 degrees 08 minutes 36 seconds West, with the south line of said 81.49 acre tract, a distance of 35.63 feet to a 1/2-inch iron rod with cap stamped ADAMS SURVEYING CO. set for the northeast corner of Lot 1, Ridge Haven Estates, an addition to Rockwall County, recorded in Cabinet A, Slide 213, Plat Records, Rockwall County, Texas;

THENCE South 89 degrees 08 minutes 36 seconds West, with the common line of said 81.49 acre tract and said Ridge Haven Estates, a distance of 1150.86 feet to a 1/2-inch iron rod with cap stamped ADAMS SURVEYING CO. set for corner;

THENCE North 12 degrees 32 minutes 10 seconds West, a distance of 443.09 feet to a 1/2-inch iron rod with cap stamped ADAMS SURVEYING CO. set for the beginning of a non-tangent curve to the right having a radius of 1280.00 feet, whose chord bears North 77 degrees 41 minutes 16 seconds East, a distance of 10.00 feet;

THENCE Northeasterly, with said curve to the right, through a central angle of 00 degrees 26 minutes 52 seconds, an arc distance of 10.00 feet to a 1/2-inch iron rod with cap stamped ADAMS SURVEYING CO. set for the end of said curve;

THENCE North 10 degrees 58 minutes 09 seconds West, a distance of 250.04 feet to a 1/2-inch iron rod with cap stamped ADAMS SURVEYING CO. set for the beginning of a non-tangent curve to the left having a radius of 1530.00 feet, whose chord bears South 77 degrees 54 minutes 26 seconds West, a distance of 10.00 feet;

THENCE Southwesterly, with said curve to the left, through a central angle of 00 degrees 22 minutes 28 seconds, an arc distance of 10.00 feet to a 1/2-inch iron rod with cap stamped ADAMS SURVEYING CO. set for the end of said curve;

THENCE North 12 degrees 16 minutes 48 seconds West, a distance of 50.00 feet to a 1/2-inch iron rod with cap stamped ADAMS SURVEYING CO. set for the beginning of a non-tangent curve to the right having a radius of 1580.00 feet, whose chord bears North 77 degrees 55 minutes 20 seconds East, a distance of 11.15 feet;

THENCE Northeasterly, with said curve to the right, through a central angle of 00 degrees 24 minutes 15 seconds, an arc distance of 11.15 feet to a 1/2-inch iron rod with cap stamped ADAMS SURVEYING CO. set for the end of said curve;

THENCE North 10 degrees 58 minutes 09 seconds West, a distance of 10.20 feet to a 1/2-inch iron rod with cap stamped ADAMS SURVEYING CO. set for corner;

THENCE North 79 degrees 01 minutes 51 seconds East, a distance of 50.00 feet to a 1/2-inch iron rod with cap stamped ADAMS SURVEYING CO. set for corner;

THENCE South 10 degrees 58 minutes 09 seconds East, a distance of 10.20 feet to a 1/2-inch iron rod with cap stamped ADAMS SURVEYING CO. set for the beginning of a non-tangent curve to the right having a radius of 1580.00 feet, whose chord bears North 82 degrees 12 minutes 29 seconds East, a distance of 125.19 feet;

THENCE Northeasterly, with said curve to the right, through a central angle of 04 degrees 32 minutes 28 seconds, an arc distance of 125.23 feet to a 1/2-inch iron rod with cap stamped ADAMS SURVEYING CO. set for the end of said curve;

THENCE North 11 degrees 22 minutes 18 seconds West, a distance of 81.90 feet to a 1/2-inch iron rod with cap stamped ADAMS SURVEYING CO. set for corner;

THENCE North 15 degrees 12 minutes 53 seconds West, a distance of 74.64 feet to a 1/2-inch iron rod with cap stamped ADAMS SURVEYING CO. set for corner;

THENCE North 18 degrees 37 minutes 29 seconds West, a distance of 67.02 feet to a 1/2-inch iron rod with cap stamped ADAMS SURVEYING CO. set for corner;

THENCE North 14 degrees 35 minutes 37 seconds West, a distance of 62.88 feet to a 1/2-inch iron rod with cap stamped ADAMS SURVEYING CO. set for corner;

THENCE North 09 degrees 02 minutes 55 seconds West, a distance of 64.32 feet to a 1/2-inch iron rod with cap stamped ADAMS SURVEYING CO. set for corner;

THENCE North 04 degrees 38 minutes 17seconds West, a distance of 181.25 feet to a 1/2-inch iron rod with cap stamped ADAMS SURVEYING CO. set for corner;

THENCE North 27 degrees 50 minutes 10 seconds West, a distance of 60.72 feet to a 1/2-inch iron rod with cap stamped ADAMS SURVEYING CO. set for corner;

THENCE North 74 degrees 39 minutes 57 seconds West, a distance of 88.77 feet to a 1/2-inch iron rod with cap stamped ADAMS SURVEYING CO. set for corner;

THENCE South 88 degrees 33 minutes 55 seconds West, a distance of 295.00 feet to a 1/2-inch iron rod with cap stamped ADAMS SURVEYING CO. set for corner;

THENCE North 01 degrees 26 minutes 05 seconds West, a distance of 125.00 feet to a 1/2-inch iron rod with cap stamped ADAMS SURVEYING CO. set for corner;

THENCE South 88 degrees 33 minutes 55 seconds West, a distance of 10.00 feet to a 1/2-inch iron rod with cap stamped ADAMS SURVEYING CO. set for corner;

THENCE North 01 degrees 26 minutes 05 seconds West, a distance of 50.00 feet to a 1/2-inch iron rod with cap stamped ADAMS SURVEYING CO. set for corner;

THENCE North 88 degrees 33 minutes 55 seconds East, a distance of 10.00 feet to a 1/2-inch iron rod with cap stamped ADAMS SURVEYING CO. set for corner;

THENCE North 01 degrees 26 minutes 05 seconds West, a distance of 125.00 feet to a 1/2-inch iron rod with cap stamped ADAMS SURVEYING CO. set for corner in the common line of said 81.49 acre tract and Timber Creek Estates, an addition to the City of Rockwall, recorded in Cabinet E, Slide 55 of said Plat Records;

THENCE North 88 degrees 33 minutes 55 seconds East, with the common line of said 81.49 acre tract and said Timber Creek Estates, a distance of 1652.63 feet to a PK Nail set for the northeast corner of said 81.49 acre tract in the center of said Rochell Road;

THENCE South 00 degrees 38 minutes 37 seconds East, with the east line of said 81.49 acre tract and along the center of said Rochell Road, a distance of 1670.00 feet to the POINT OF BEGINNING AND CONTAINING 2,184,726 square feet or 50.154 acres of land.

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS:

I (we) the undersigned owner of the land shown on this plat, and designated herein as the TERRACINA, PHASE 1, an addition to the City of Rockwall, Texas, and whose name is subscribed hereto, hereby dedicates 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. I (we) further certify that all other parties who have a mortgage or lien interest in the TERRACINA, PHASE 1 have been notified and signed this plat. I (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 (we) also understand the following;

1. No structures 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

   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.
7. Property Owner shall be responsible for maintaining, repairing and replacing all systems within the drainage and detention easements.

I (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.

FOR: BLOOMFIELD HOMES, LP,
a Texas limited partnership
BY: Bloomfield Properties, Inc.
a Texas corporation, General Partner

BY: _____
Donald J. Dykstra, President

STATE OF TEXAS
COUNTY OF TARRANT

Before me, the undersigned authority, on this day personally appeared Donald J. Dykstra, 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 under my hand and seal of office this 23rd day of June, 2021.

_____
Notary Public in and for the State of Texas
My Commission Expires: 01-06-2024

VANESSA VALDEZ
Notary Public, State of Texas
Comm. Expires 01-06-2024
Notary ID 132004-6

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TEXAS FIRM REG. NO. 001145
201 WINDCO CIRCLE, SUITE 200, WYLIE TEXAS 75098
(972) 941-8400 FAX (972) 941-8401

DATE: 6/21/2021 CASE NO. 2020-020 SHEET 3 OF 4

LINE TABLE		
NO.	DIRECTION	DISTANCE
L1	S 89°08'36" W	35.63'
L2	N 10°58'09" W	250.04'
L3	N 12°16'48" W	50.00'
L4	N 10°58'09" W	10.20'
L5	N 79°01'51" E	50.00'
L6	S 10°58'09" E	10.20'
L7	N 11°22'18" W	81.90'
L8	N 15°12'53" W	74.64'
L9	N 18°37'29" W	67.02'
L10	N 14°35'37" W	62.88'
L11	N 9°02'55" W	64.32'
L12	N 4°38'17" W	181.25'
L13	N 27°50'10" W	60.72'
L14	N 74°39'57" W	88.77'
L15	N 1°26'05" W	125.00'
L16	S 88°33'55" W	10.00'
L17	N 1°26'05" W	50.00'
L18	N 88°33'55" E	10.00'
L19	N 1°26'05" W	125.00'
L20	N 45°38'37" W	42.43'
L21	N 43°33'55" E	40.00'
L22	N 44°21'23" E	42.43'
L23	S 23°14'44" W	32.50'
L24	N 72°15'55" E	39.95'
L25	S 0°15'48" E	36.06'
L26	N 72°06'38" E	40.00'
L27	N 42°44'04" E	24.67'
L28	N 70°48'45" E	84.00'
L29	N 88°33'55" E	80.00'
L30	S 42°25'07" W	40.52'
L31	N 73°25'41" E	64.63'
L32	N 89°21'23" E	40.14'
L33	N 45°38'37" W	42.43'
L34	N 81°26'23" E	68.21'

LINE TABLE		
NO.	DIRECTION	DISTANCE
L35	N 84°09'30" E	65.03'
L36	N 87°05'46" E	79.04'
L37	S 89°57'57" E	65.03'
L38	S 87°18'49" E	65.03'
L39	S 84°39'41" E	65.03'
L40	S 81°43'25" E	79.04'
L41	S 78°47'08" E	65.03'
L42	S 76°08'00" E	65.03'
L43	S 73°31'09" E	63.50'
L44	S 70°52'25" E	65.58'
L45	S 67°55'52" E	79.04'
L46	S 64°59'35" E	65.03'
L47	S 62°11'52" E	76.17'
L48	S 68°55'06" E	73.11'
L49	S 68°55'06" E	84.36'
L50	S 70°54'56" E	69.57'
L51	S 73°23'45" E	78.51'
L52	S 75°47'40" E	63.55'
L53	S 77°56'45" E	64.86'
L54	S 80°07'31" E	64.86'
L55	S 82°22'31" E	69.05'
L56	S 84°37'32" E	64.86'
L57	S 86°48'23" E	64.94'
L58	N 87°52'02" E	62.41'
L59	N 44°21'23" E	42.43'
L60	N 70°52'31" E	53.34'
L61	N 30°44'04" E	56.36'
L62	S 82°47'59" E	87.93'
L63	N 15°13'03" E	64.00'
L64	N 1°32'54" E	57.24'
L65	N 84°47'48" W	333.62'
L66	S 30°57'58" E	189.60'
L67	S 89°21'23" W	115.16'

CURVE TABLE						
CURVE	DELTA	RADIUS	TANGENT	LENGTH	CHORD BEARING	CHORD
C1	000°26'52"	1280.00'	5.00'	10.00'	S 77°41'16" W	10.00'
C2	000°22'28"	1530.00'	5.00'	10.00'	S 77°54'26" W	10.00'
C3	000°24'15"	1580.00'	5.57'	11.15'	S 77°55'20" W	11.15'
C4	004°32'28"	1580.00'	62.65'	125.23'	S 82°12'29" W	125.19'
C5	090°00'00"	25.00'	25.00'	39.27'	N 46°26'05" W	35.36'
C6	086°41'40"	25.00'	23.60'	37.83'	N 18°28'13" W	34.32'
C7	007°25'19"	600.00'	38.92'	77.72'	N 2°16'35" E	77.67'
C8	075°04'06"	250.00'	192.07'	327.55'	S 51°49'20" W	304.62'
C9	019°29'25"	250.00'	42.94'	85.04'	S 82°00'38" W	84.63'
C10	021°29'24"	1855.00'	352.01'	695.75'	N 77°29'58" W	691.68'
C11	018°23'27"	500.00'	80.94'	160.49'	S 10°37'48" E	159.80'
C12	009°39'31"	1100.00'	92.94'	185.43'	N 14°59'46" W	185.21'
C13	009°54'13"	250.00'	21.66'	43.21'	N 5°12'54" W	43.16'
C14	042°12'11"	1555.00'	600.07'	1145.39'	N 81°10'42" W	1119.67'
C15	041°45'32"	1250.00'	476.81'	911.04'	N 81°39'24" W	891.01'
C16	029°51'59"	555.00'	148.02'	289.30'	S 75°42'37" E	286.04'

SURVEYOR'S DECLARATION

NOW, THEREFORE KNOW ALL MEN BY THESE PRESENTS:

That I, Paul Hubert, do hereby declare that this plat was prepared under my supervision, 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 SEAL OF OFFICE THIS THE 21st DAY OF June, 2021.

Paul Hubert

PAUL HUBERT
REGISTERED PROFESSIONAL LAND SURVEYOR
STATE OF TEXAS NO. 1942

APPROVAL CERTIFICATE

Planning & Zoning Commission, Chairman — Date 6/29/21

APPROVED:
I hereby certify that the above and foregoing plat of an addition to the City of Rockwall, Texas, was approved by the City Council of the City of Rockwall on the 15 day of June, 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 6th day of July, 2021

Mayor, City of Rockwall — Kristie Cole, City Secretary — City Engineer

ZONING
1.96 DWELLING UNITS PER ACRE
(MAX. OVERALL DENSITY)
[ORD. NO. 18-08-PD-82]

OPEN SPACE = 6.04 AC.
PARK = 8.24 AC.
110 DWELLING UNITS
2.19 UNITS PER ACRE

OWNER/DEVELOPER
BLOOMFIELD HOMES L.P.
1050 E. HWY. 114, SUITE 210
SOUTHLAKE, TEXAS 76092
PHONE: 817-416-1572

LAND SURVEYOR
ADAMS SURVEYING CO., LLC
1475 RICHARDSON DR., STE 255
RICHARDSON, TX 75080
(214) 395-9386
FAX (214) 295-9844
TBPELS FIRM NO. 10177500

Filed and Recorded
Official Public Records
Jennifer Fagg, County Clerk
Rockwall County, Texas
07/21/2021 09:19:23 AM
$200.00
20210000019450

FINAL PLAT

TERRACINA ESTATES, PHASE 1

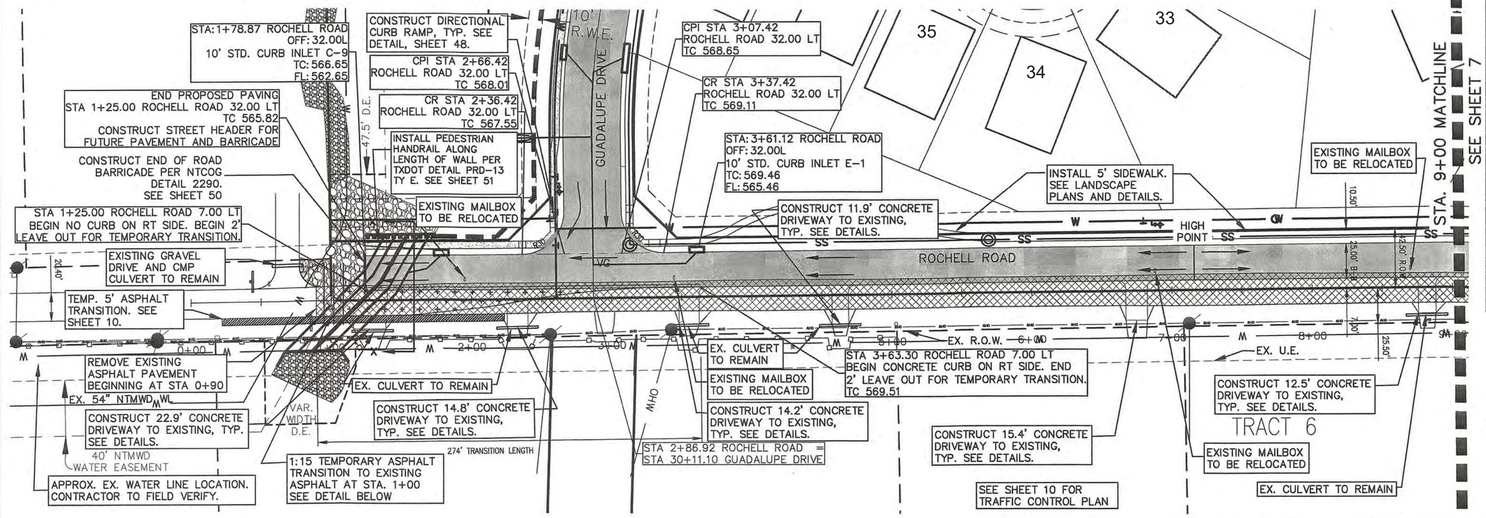
BEING

50.154 ACRES

SITUATED IN THE

JOHN A. RAMSEY SURVEY, A-186
CITY OF ROCKWALL
ROCKWALL COUNTY, TEXAS

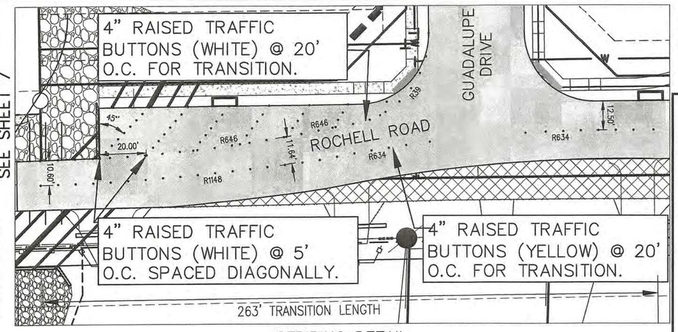
ENGINEERING CONCEPTS & DESIGN, L.P.
ENGINEERING/PROJECT MANAGEMENT/CONSTRUCTION SERVICES
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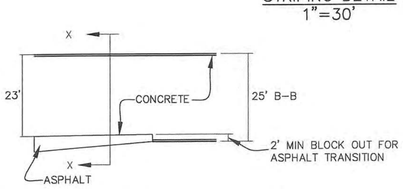
REMOVE ALL EXISTING MAILBOXES AND PLACE TEMPORARILY ON EAST SIDE OF ROCHELL ROAD DURING CONSTRUCTION. INSTALL PERMANENT MAILBOX ON WEST SIDE OF ROCHELL AFTER CONSTRUCTION IS COMPLETE.

ALL R.O.W. TO BE SODDED PRIOR TO ACCEPTANCE

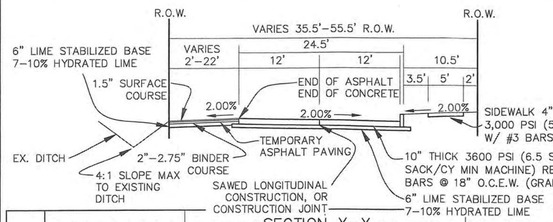
*ALL RESPONSIBILITY FOR ADEQUACY OF DESIGN REMAINS WITH THE DESIGN ENGINEER. THE CITY OF ROCKWALL, IN REVIEWING AND RELEASING PLANS FOR CONSTRUCTION, ASSUMES NO RESPONSIBILITY FOR ADEQUACY OR ACCURACY OF DESIGN.
*SEE "NTMWD NOTES" SHEET 1



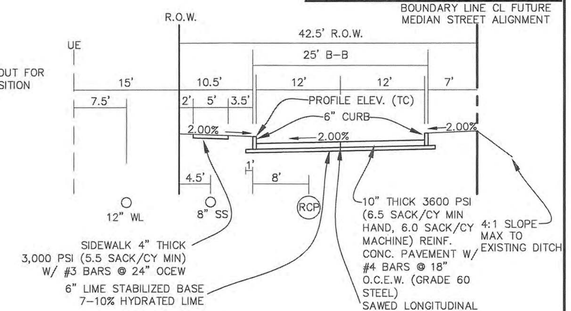
STRIPING DETAIL
1"=30'



TEMPORARY TRANSITION DETAIL
N.T.S.

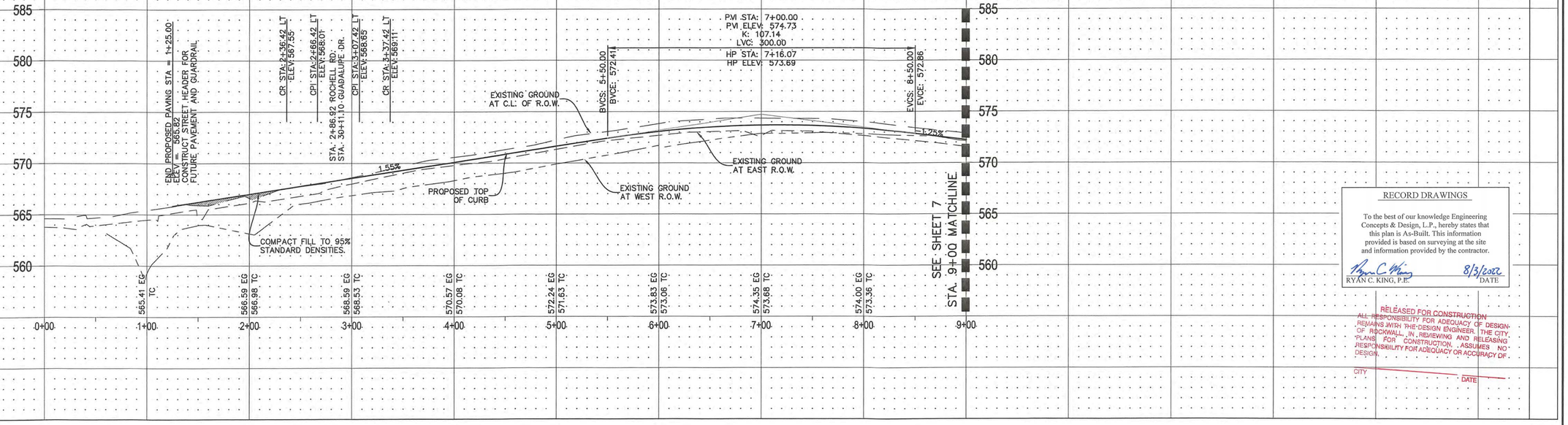


SECTION X-X
N.T.S.

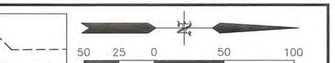


½ M4D (DIVIDED FOUR LANE)
N.T.S.

ROCHELL ROAD (0+00 – 9+00)



PROFILE VERTICAL
SCALE 1"=5'



LEGEND

- MATCHLINE
- PROPOSED ROAD
- EXISTING ROAD
- TEMPORARY ASPHALT
- W — PROPOSED WATER LINE
- W — EXISTING WATER LINE
- SS — PROPOSED SANITARY LINE
- SS — EXISTING SANITARY LINE
- PROPOSED STORM LINE
- EXISTING STORM LINE
- R.O.W. CENTER LINE
- R.O.W. LINE LINE
- EXISTING UTILITY POLE
- OHW — EXISTING OVERHEAD UTILITY
- EXISTING METAL FENCE
- EXISTING WOOD FENCE
- BOUNDARY LINE CL FUTURE MEDIAN STREET ALIGNMENT

RECORD DRAWINGS

To the best of our knowledge Engineering Concepts & Design, L.P., hereby states that this plan is As-Built. This information provided is based on surveying at the site and information provided by the contractor.

RYAN C. KING, P.E. 8/3/2022 DATE

RELEASED FOR CONSTRUCTION
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CITY DATE

CAUTION! EXISTING UTILITIES

CONTRACTOR SHOULD CALL 1-800-DIG-TESS PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITIES FOR EXISTING UTILITY LOCATIONS. EXISTING UTILITIES AND UNDERGROUND FACILITIES INDICATED ON THESE PLANS HAVE BEEN LOCATED FROM REFERENCE INFORMATION. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY BOTH HORIZONTALLY AND VERTICALLY THE LOCATION OF ALL EXISTING UTILITIES AND UNDERGROUND FACILITIES PRIOR TO CONSTRUCTION AND TO TAKE NECESSARY PRECAUTIONS IN ORDER TO PROTECT ALL FACILITIES ENCOUNTERED. THE CONTRACTOR SHALL PRESERVE AND PROTECT ALL EXISTING UTILITIES FROM DAMAGE DURING CONSTRUCTION.

BENCHMARKS:
CP 101 - Square cut on headwall west side of Rochelle road & 54' south of center of Polar Point Drive Elevation = 559.95
CP 103 - "X" in concrete east side of Rochelle Road, 1834' south of center of Polar Point Dr. Elevation = 564.54'
CP 104 - Capped 5/8" Iron rod east side of Rochelle Road & 1250' south of the center of Polar Point Dr. Elevation = 572.70'
CP 105 - Capped 5/8" Iron rod east side of Rochelle Road & 826' south of the center of Polar Point Dr. Elevation = 568.75'

ENGINEERINGCONCEPTS & DESIGN, L.P.
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201 WINDCO CIR, STE 200, WYLIE, TX 75098
972-941-8400 FAX: 972-941-8401 WWW.ECDLP.COM

REVISIONS:

DRAWN: RCK	DATE:
CHECKED: RKH	DATE: 8/26/2020
PROJECT NO.: 06537	
DWG FILE NAME: 06537 PV.DWG	

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF CONSTRUCTION. THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RYAN C. KING, P.E. 123635

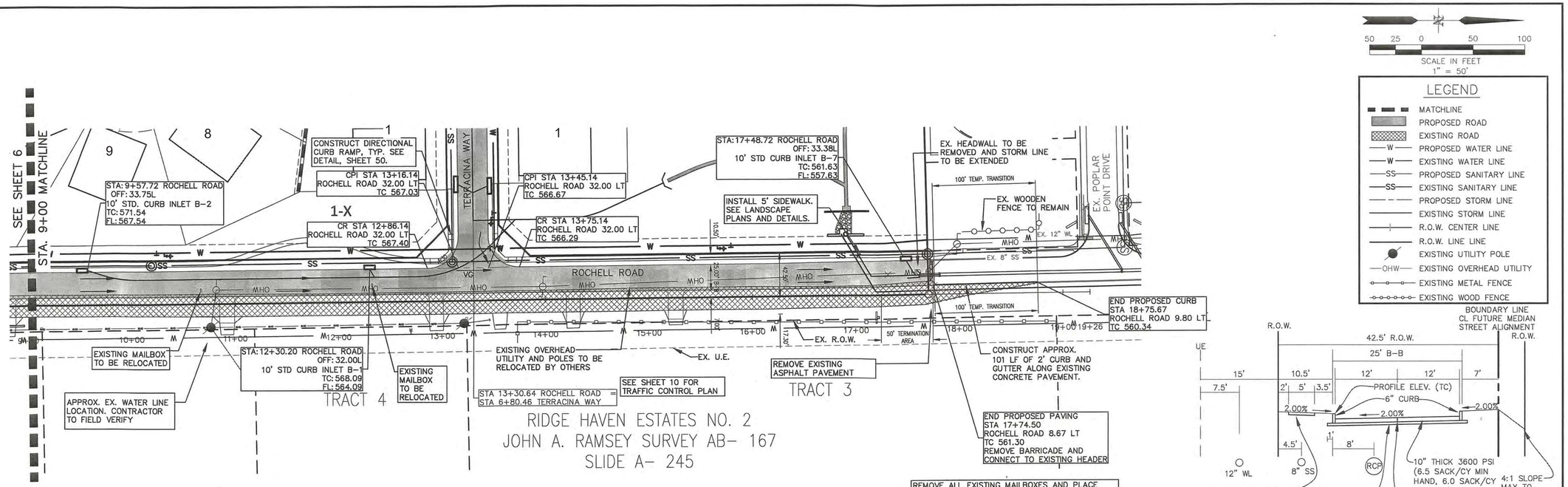
STATE OF TEXAS · RYAN C. KING · 123635 · REGISTERED PROFESSIONAL ENGINEER · 8/26/2020

PAVING PLAN ROCHELL 1

TERRACINA PHASE 1

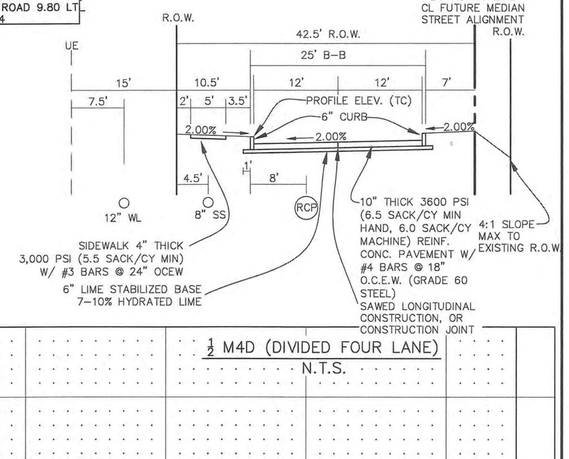
CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

SHEET 6 OF 62

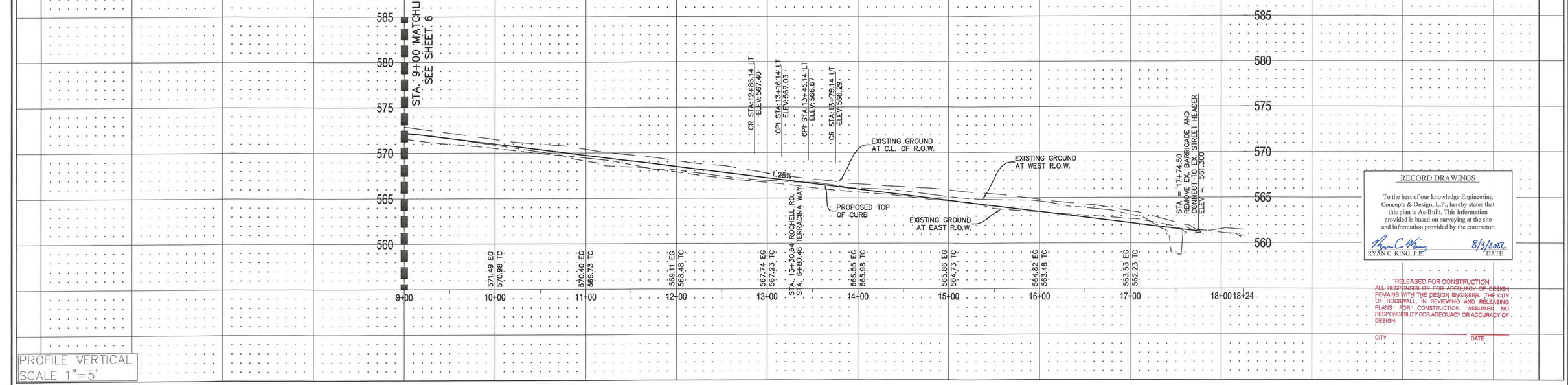


ROCHELL ROAD (9+00 – 17+75)

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*SEE "NTMWD NOTES" SHEET 1



½ M4D (DIVIDED FOUR LANE)
N.T.S.



PROFILE VERTICAL
SCALE 1"=5'

RECORD DRAWINGS

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RYAN C. KING, P.E. — 8/3/2022 DATE

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CITY _____ DATE _____

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STATE OF TEXAS — RYAN C. KING — 123635 — REGISTERED PROFESSIONAL ENGINEER — 8/26/2020

PAVING PLAN ROCHELL 2

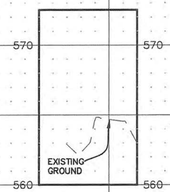
TERRACINA PHASE 1

CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

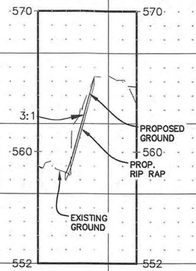
SHEET 7 OF 62

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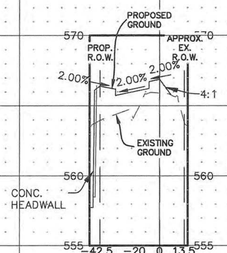
PROFILE VERTICAL
SCALE 1"=5'



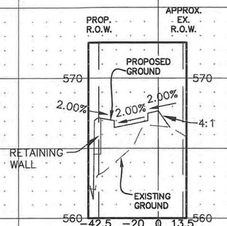
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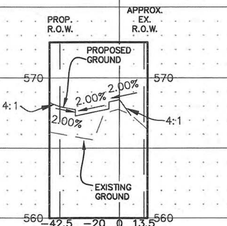
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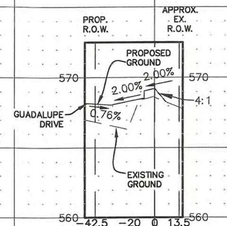
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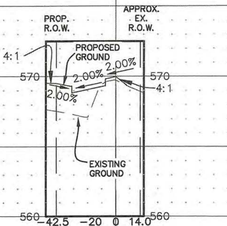
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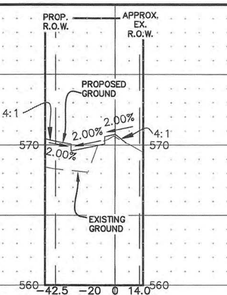
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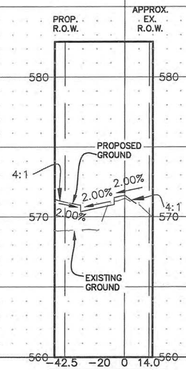
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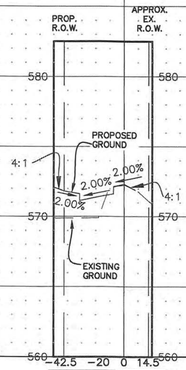
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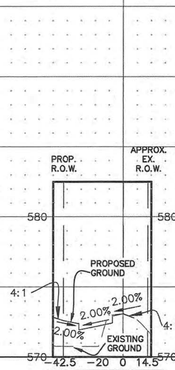
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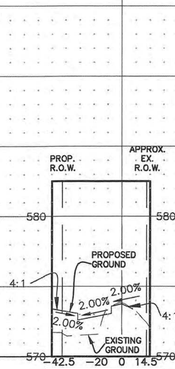
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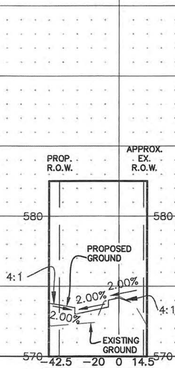
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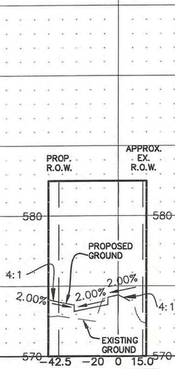
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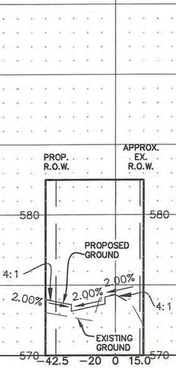
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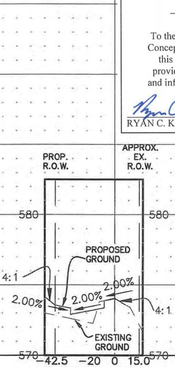
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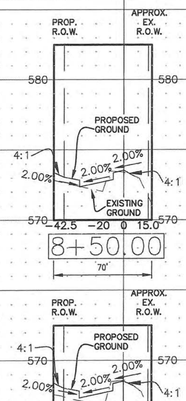
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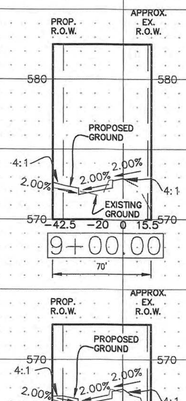
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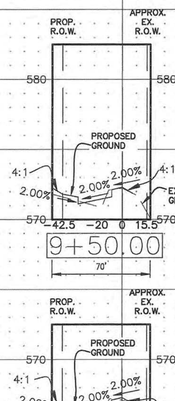
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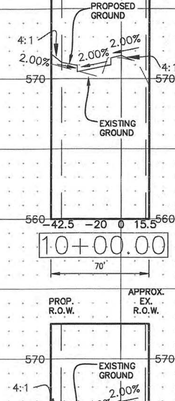
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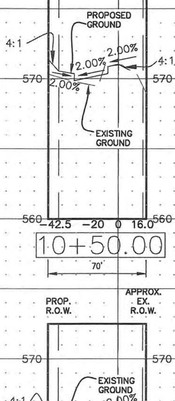
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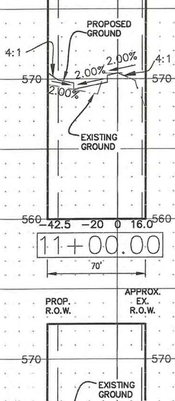
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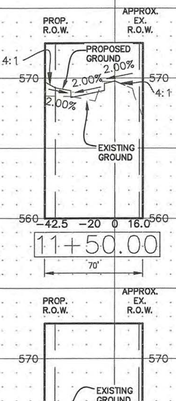
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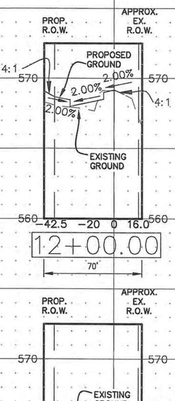
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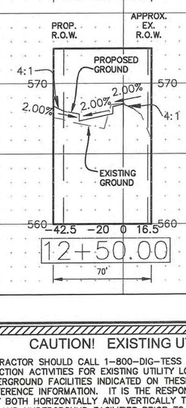
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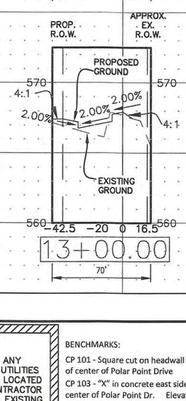
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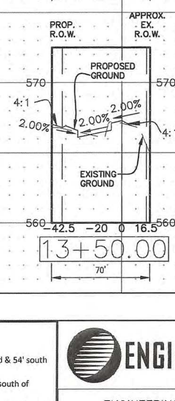
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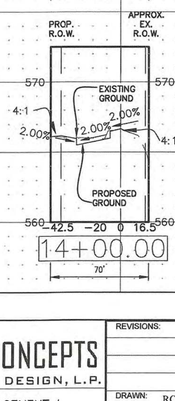
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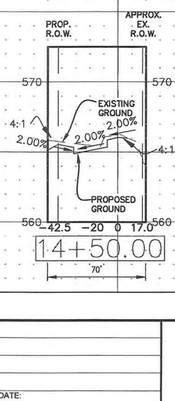
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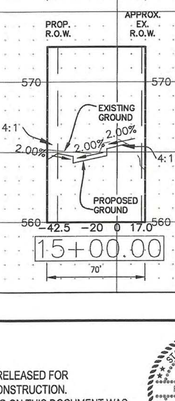
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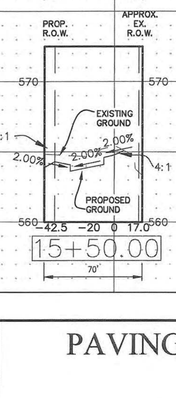
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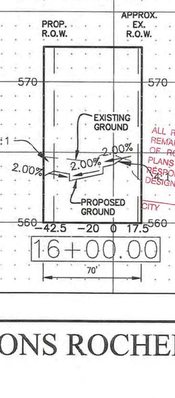
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15+00.00



15+50.00



16+00.00

RECORD DRAWINGS

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RYAN C. KING, P.E. 8/3/2022 DATE

50 25 0 50 100
SCALE IN FEET
1" = 50'

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REVISIONS:	
DRAWN: RCK	DATE:
CHECKED: RKH	DATE: 8/26/2020
PROJECT NO.: 06537	
DWG FILE NAME: 06537 PV.DWG	

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STATE OF TEXAS
RYAN C. KING
123635
REGISTERED PROFESSIONAL ENGINEER
8/26/2020

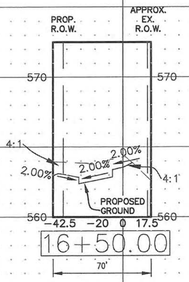
PAVING SECTIONS ROCHELL 1

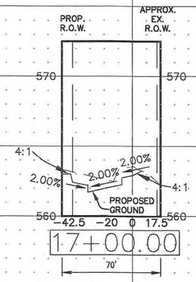
TERRACINA PHASE 1

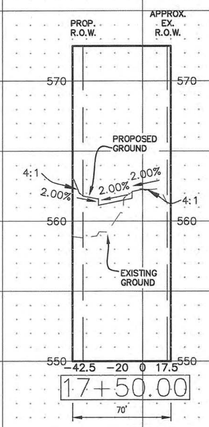
CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

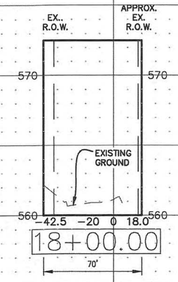
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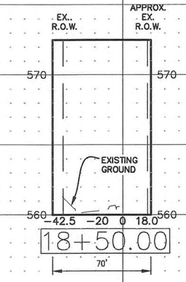
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* SEE "NTMD NOTES" SHEET 1





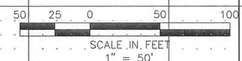












STA 17+74.36
END PROPOSED PAVING

PROFILE VERTICAL
SCALE 1"=5'

RECORD DRAWINGS

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RYAN C. KING, P.E. 8/3/2022 DATE

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STATE OF TEXAS — RYAN C. KING — 123635 — REGISTERED PROFESSIONAL ENGINEER — 8/26/2020

PAVING SECTIONS ROCHELL 2

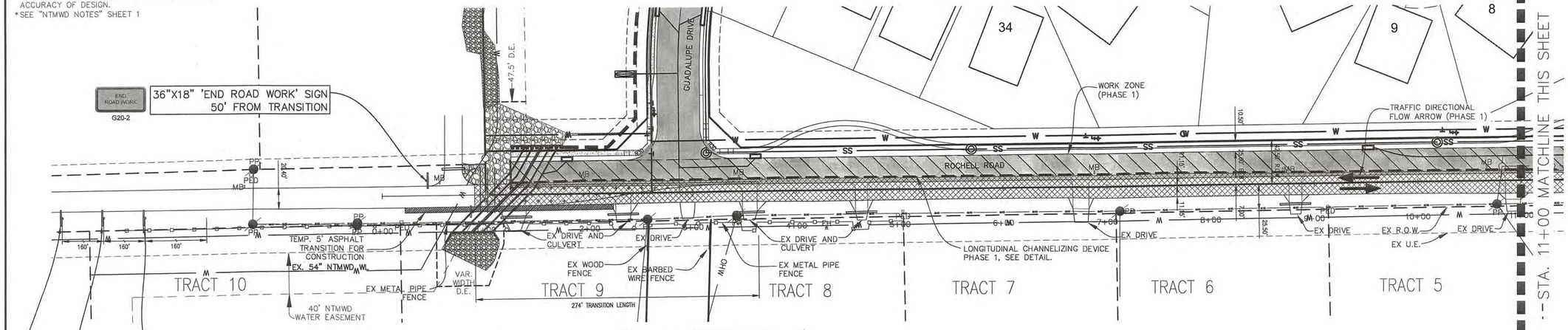
TERRACINA PHASE 1

CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

SHEET 9 OF 62

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* SEE "NTMWD NOTES" SHEET 1

ROCHELL ROAD (0+00 – 11+00) PHASE 1



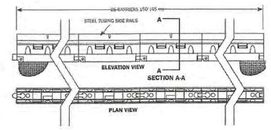
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SCALE IN FEET
1" = 50'

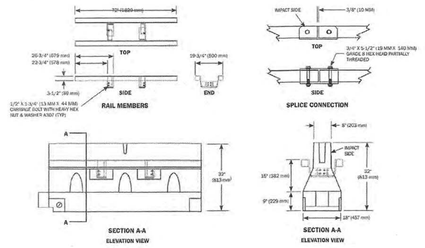
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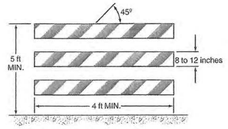
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Specifications
- (2) **Box Beam Rails:** 72" (1830 mm) x 3-1/2" (89 mm) x 3-1/2" (89 mm) x 1/4" (6.4 mm), A500 grade B
- (4) **Steel Brackets:** Grade A36 steel
- (4) **Box Beam Connection Bolts:** 3/4" (19 mm) x 1 3/4" (44 mm), A307 carriage bolt, nut, washer
- (2) **Splice Brackets:** Grade A36 steel
- (4) **Box Beam Splice Bolts:** 3/4" (19 mm) x 5 1/2" (140 mm), grade 8 hex bolt, nut, washer



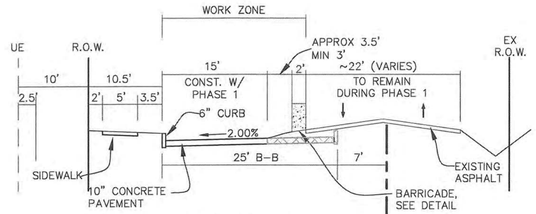




TYPE III BARRICADE DETAIL
TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, FIGURE 6F-7.

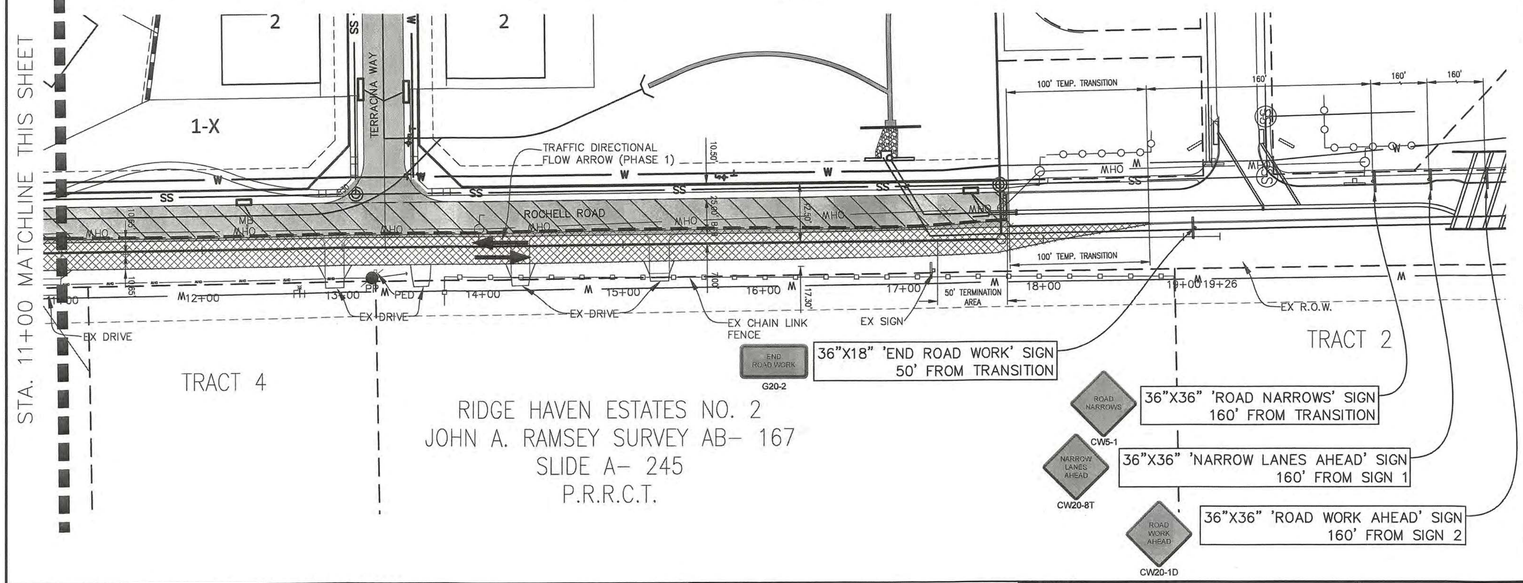
ROCHELL ROAD CONSTRUCTION SEQUENCE OF EVENTS:

PHASE 1
1) NOTIFY CITY 48 HOURS IN ADVANCE
2) PLACE BARRICADE
3) INSTALL TEMPORARY TRAFFIC CONTROL
4) CONSTRUCT 15' CONCRETE PAVING LANE
5) CONSTRUCT TEMPORARY 5' ASPHALT TRANSITION AT SOUTHERN END

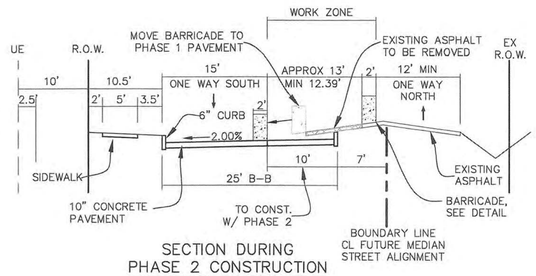


SECTION DURING PHASE 1 CONSTRUCTION
N.T.S.

ROCHELL ROAD (11+00 – 17+75) PHASE 1

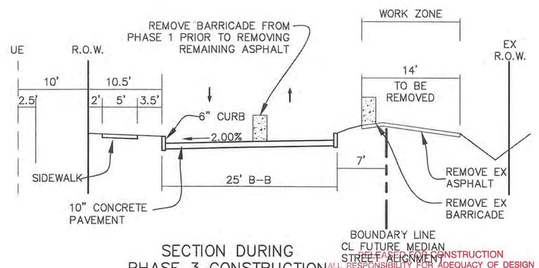


PHASE 2
1) MOVE BARRICADE TO PHASE 1 PAVEMENT
2) PLACE BARRICADE ON EXISTING ASPHALT
3) MOVE SOUTHBOUND TRAFFIC TO NEW CONCRETE, MOVE NORTHBOUND TRAFFIC TO EXISTING ASPHALT
4) REMOVE EXISTING ASPHALT BETWEEN BARRICADES
5) CONSTRUCT 10' CONCRETE PAVING LANE



SECTION DURING PHASE 2 CONSTRUCTION
N.T.S.

PHASE 3
2) REMOVE BARRICADE ON NEW CONCRETE PAVING
5) INSTALL TRANSITIONS
6) MOVE NORTHBOUND TRAFFIC TO NEW CONCRETE
7) REMOVE BARRICADE ON EXISTING ASPHALT
7) REMOVE EXISTING ASPHALT
8) SOD DISTURBED R.O.W. AREA
9) CONSTRUCT DRIVEWAY CONNECTIONS TO NEW ROCHELL ROAD



SECTION DURING PHASE 3 CONSTRUCTION
N.T.S.

NOTE:
EXISTING ESTATE LOTS TO HAVE ACCESS AT ALL TIMES. DRIVEWAYS TO BE CONSTRUCTED ONE SIDE AT A TIME TO MAINTAIN ACCESS.

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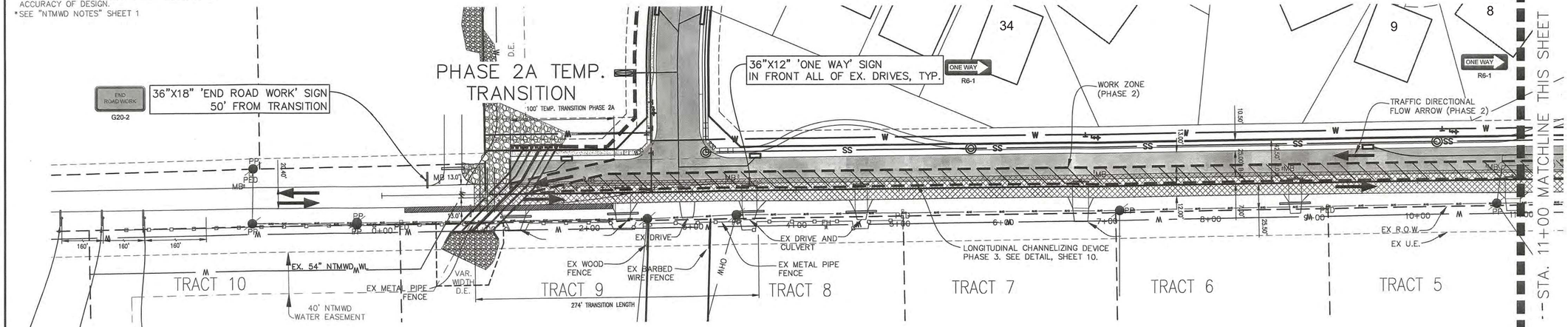
TRAFFIC CONTROL PLAN ROCHELL 1 TERRACINA PHASE 1

CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

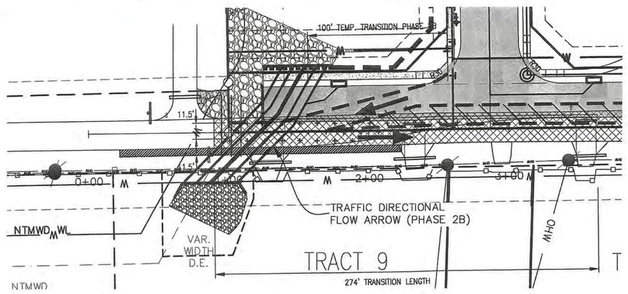
SHEET 10 OF 62

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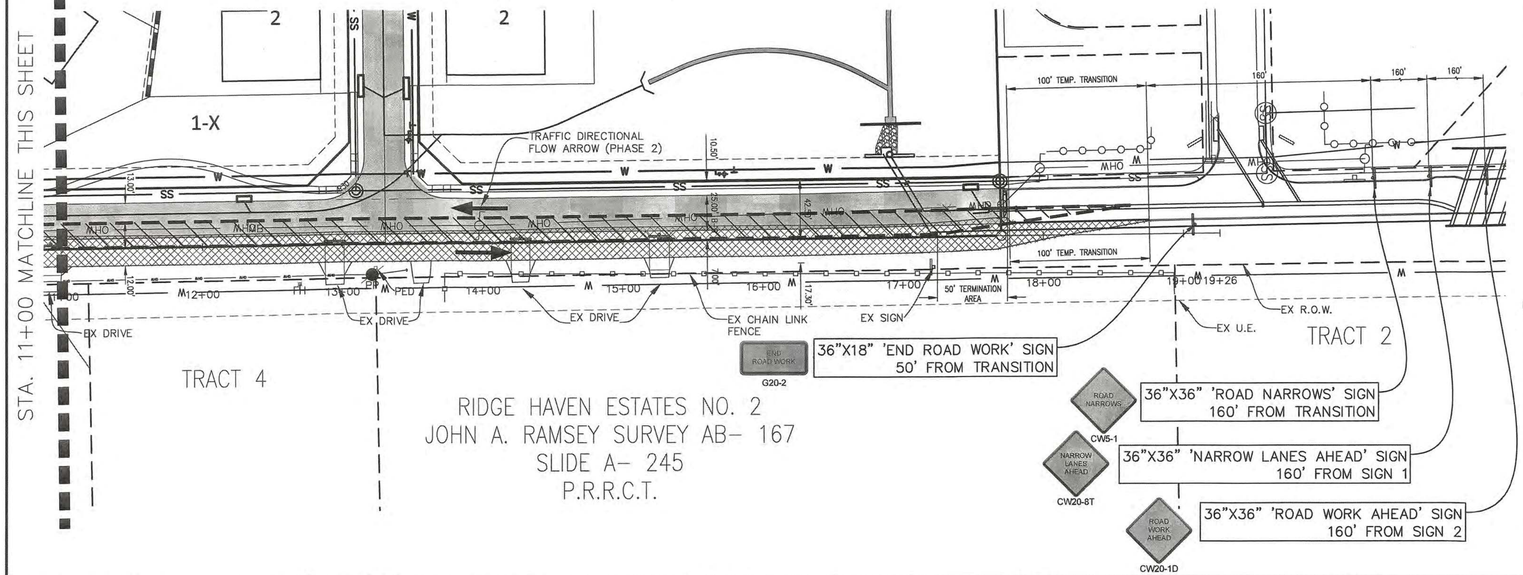
ROCHELL ROAD (0+00 – 11+00) PHASE 2



PHASE 2B TEMP. TRANSITION

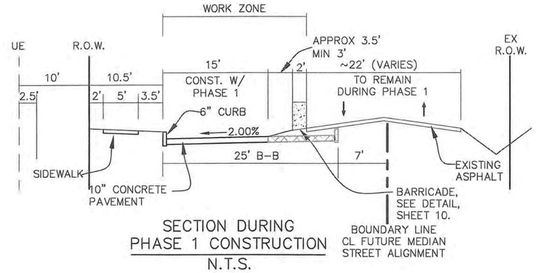


ROCHELL ROAD (11+00 – 17+75) PHASE 2



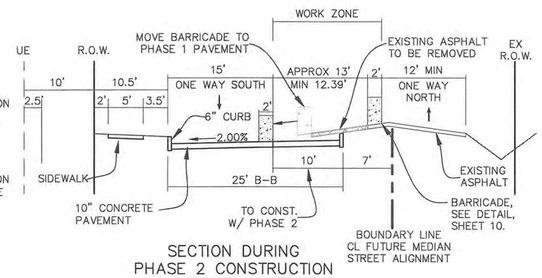
ROCHELL ROAD CONSTRUCTION SEQUENCE OF EVENTS:

PHASE 1
1) NOTIFY CITY 48 HOURS IN ADVANCE
2) PLACE BARRICADE
3) INSTALL TEMPORARY TRAFFIC CONTROL
4) CONSTRUCT 15' CONCRETE PAVING LANE
5) CONSTRUCT TEMPORARY ASPHALT TRANSITION AT SOUTHERN END



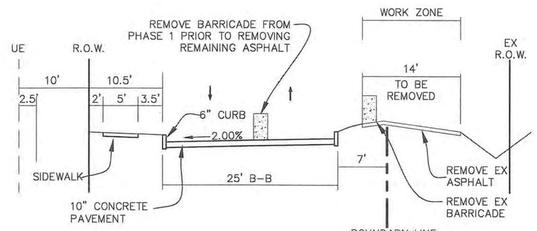
SECTION DURING PHASE 1 CONSTRUCTION
N.T.S.

PHASE 2A
1) MOVE BARRICADE TO PHASE 1 PAVEMENT
2) PLACE BARRICADE ON EXISTING ASPHALT
3) PLACE BARRICADE FOR PHASE 2A TEMP. TRANSITION
4) MOVE SOUTHBOUND TRAFFIC TO NEW CONCRETE, MOVE NORTHBOUND TRAFFIC TO EXISTING ASPHALT
5) REMOVE EXISTING ASPHALT BETWEEN BARRICADES
6) CONSTRUCT 10' CONCRETE PAVING LANE UP TO PHASE 2A TEMP. TRANSITION
7) PLACE BARRICADE FOR PHASE 2B TEMP. TRANSITION
8) CONSTRUCT REMAINING 10' CONCRETE PAVING LANE



SECTION DURING PHASE 2 CONSTRUCTION
N.T.S.

PHASE 3
2) REMOVE BARRICADE ON NEW CONCRETE PAVING
5) INSTALL TRANSITIONS
6) MOVE NORTHBOUND TRAFFIC TO NEW CONCRETE
7) REMOVE BARRICADE ON EXISTING ASPHALT
7) REMOVE EXISTING ASPHALT
8) SOD DISTURBED R.O.W. AREA
9) CONSTRUCT DRIVEWAY CONNECTIONS TO NEW ROCHELL ROAD



SECTION DURING PHASE 3 CONSTRUCTION
N.T.S.

NOTE:
EXISTING ESTATE LOTS TO HAVE ACCESS AT ALL TIMES. DRIVEWAYS TO BE CONSTRUCTED ONE SIDE AT A TIME TO MAINTAIN ACCESS.

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CITY _____ DATE _____

RECORD DRAWINGS

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RYAN C. KING, P.E. 8/3/2022 DATE

SCALE IN FEET
1" = 50'

CAUTION! EXISTING UTILITIES

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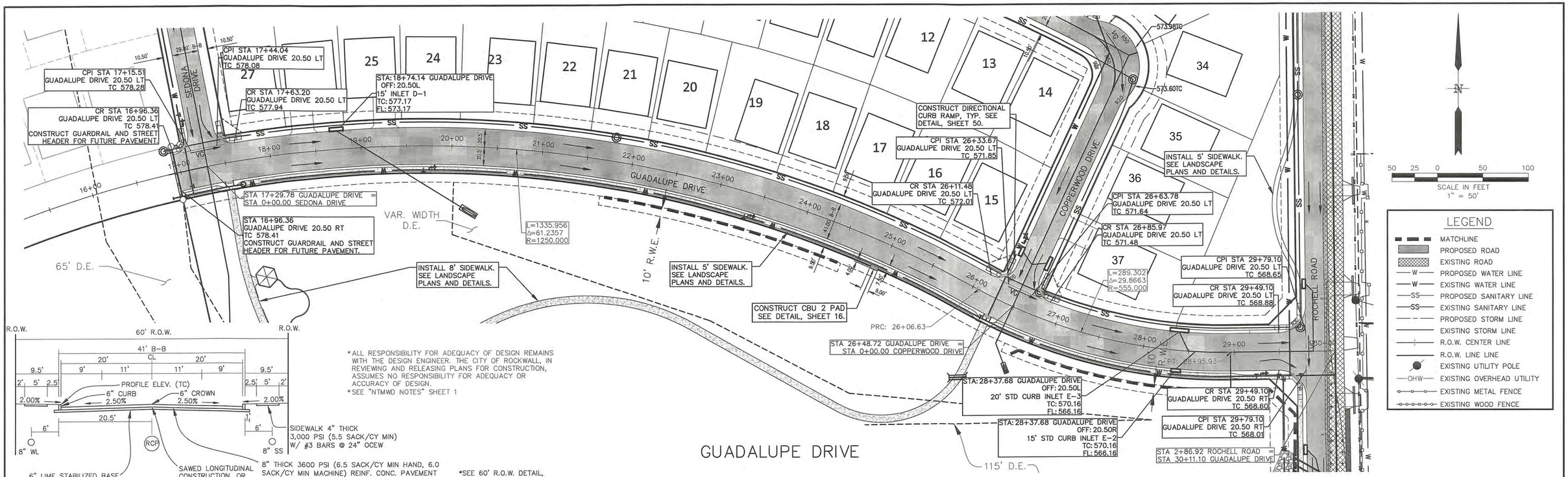
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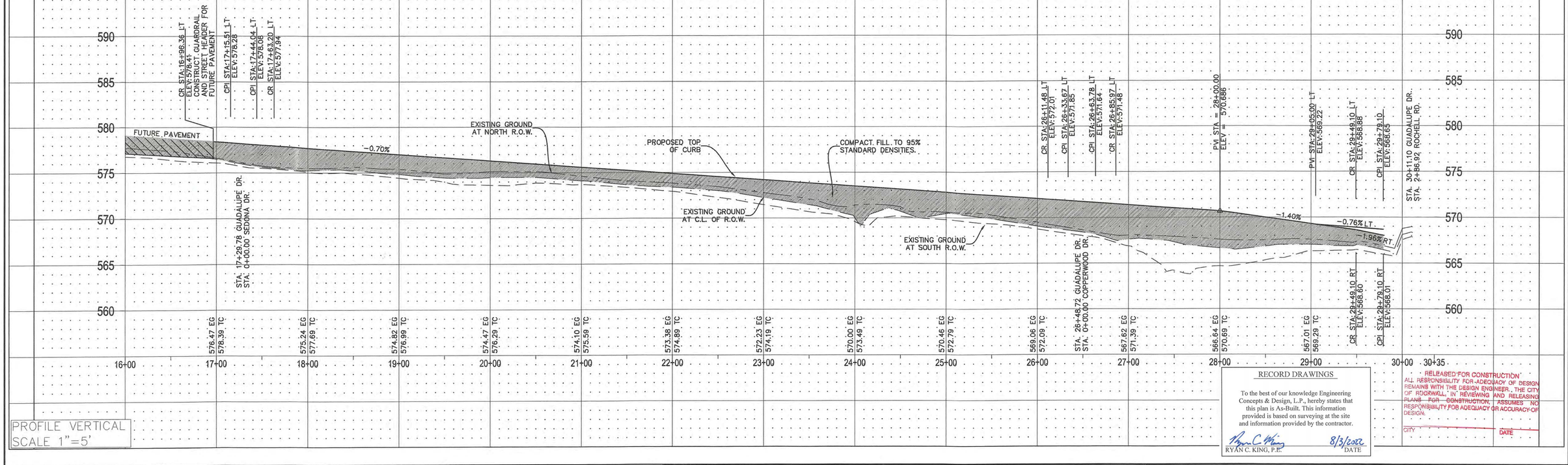
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TRAFFIC CONTROL PLAN
ROCHELL 2
TERRACINA PHASE 1
CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

SHEET 11 OF 62





PROFILE VERTICAL
SCALE 1"=5'

RECORD DRAWINGS

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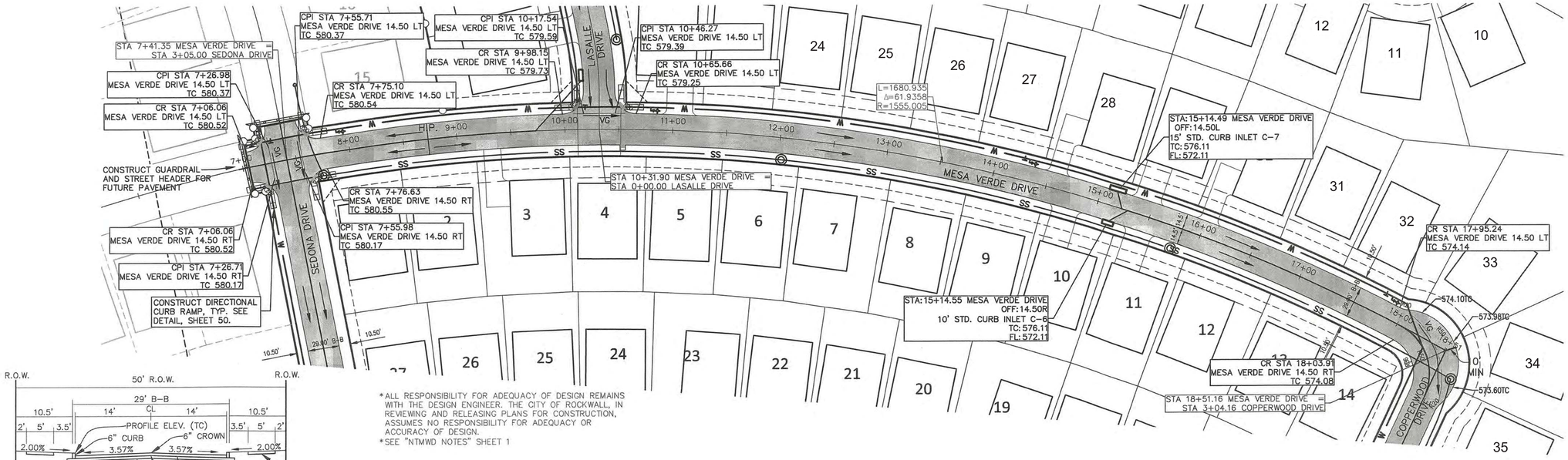
STATE OF TEXAS
RYAN C. KING
123635
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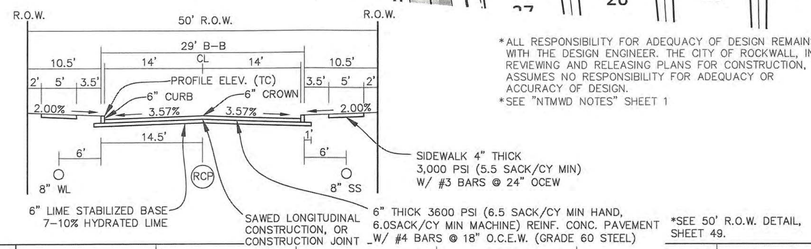
PAVING PLAN GUADALUPE

TERRACINA PHASE 1

CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

SHEET 12 OF 62

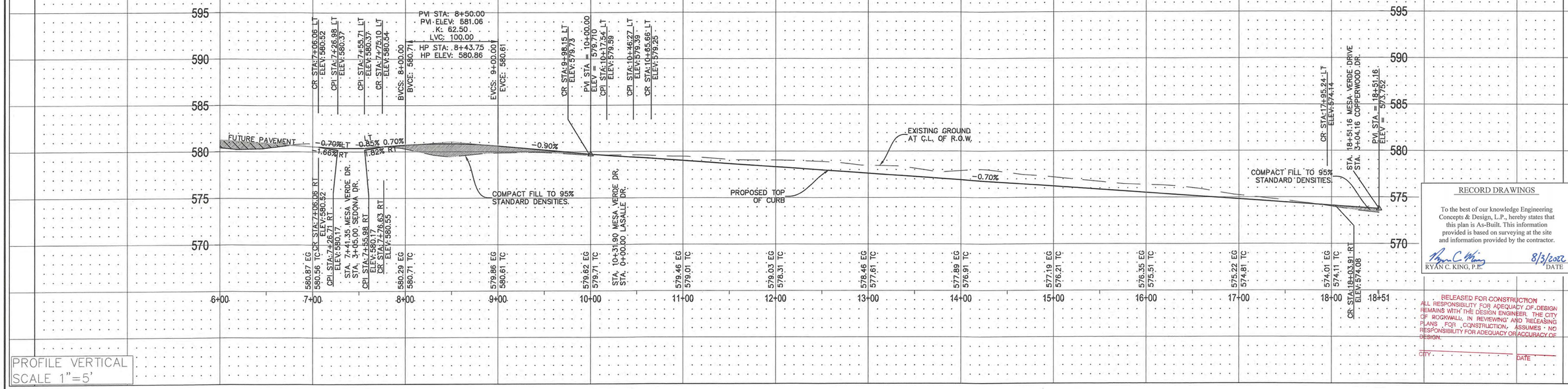




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*SEE "NTMWD NOTES" SHEET 1

*SEE 50' R.O.W. DETAIL, SHEET 49.

MESA VERDE DRIVE



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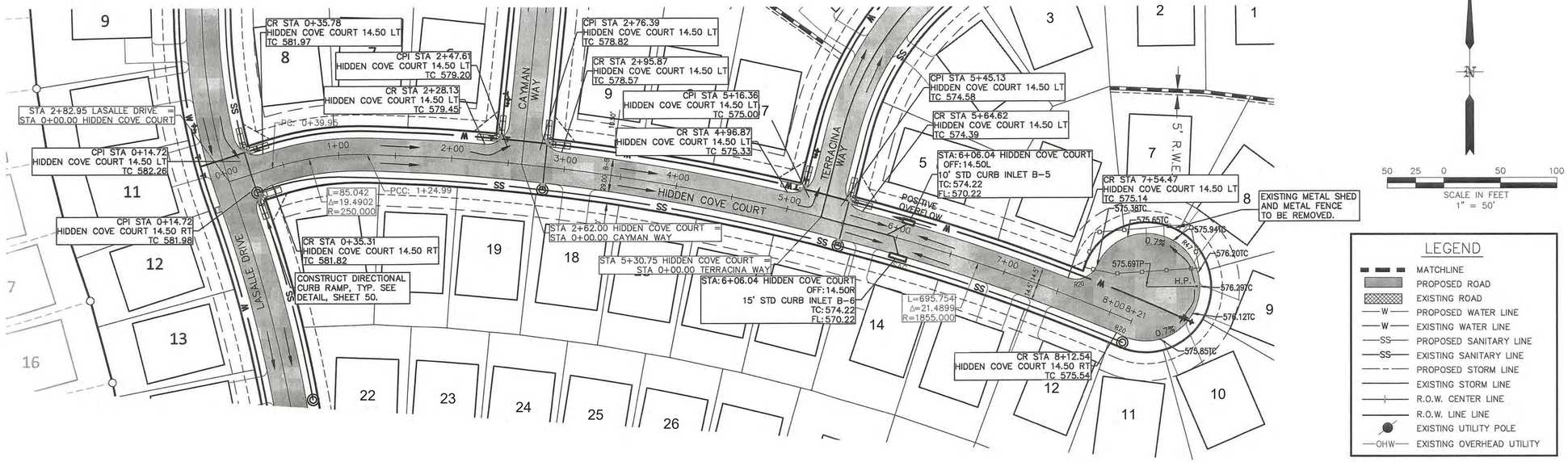
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PAVING PLAN MESA VERDE

TERRACINA PHASE 1

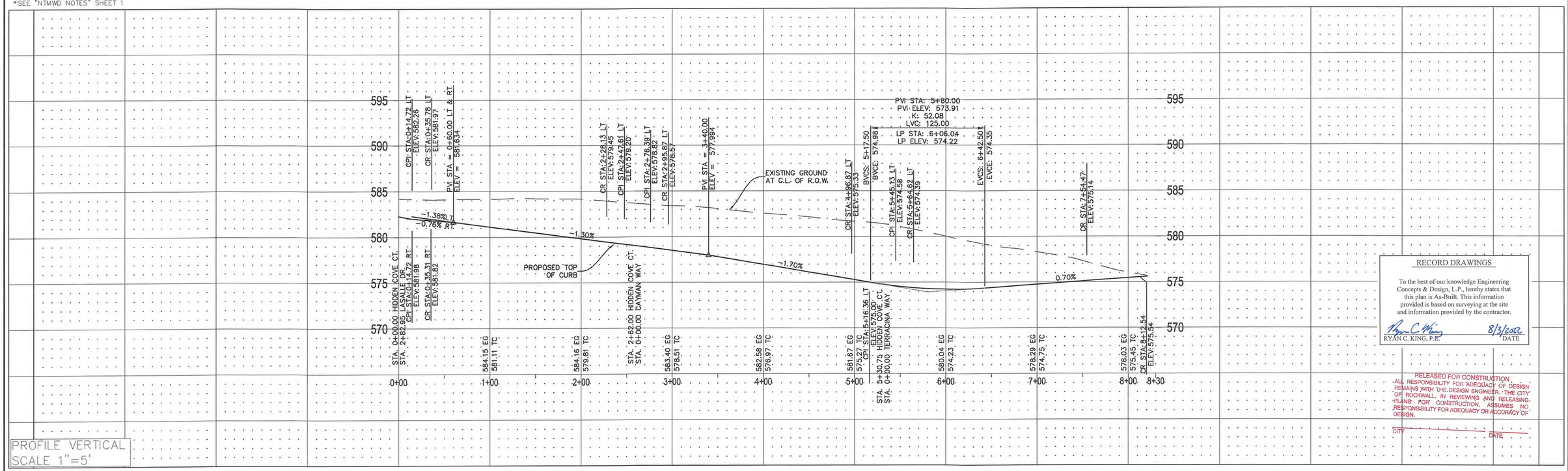
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SHEET 13 OF 62



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HIDDEN COVE COURT



PROFILE VERTICAL
SCALE 1"=5'

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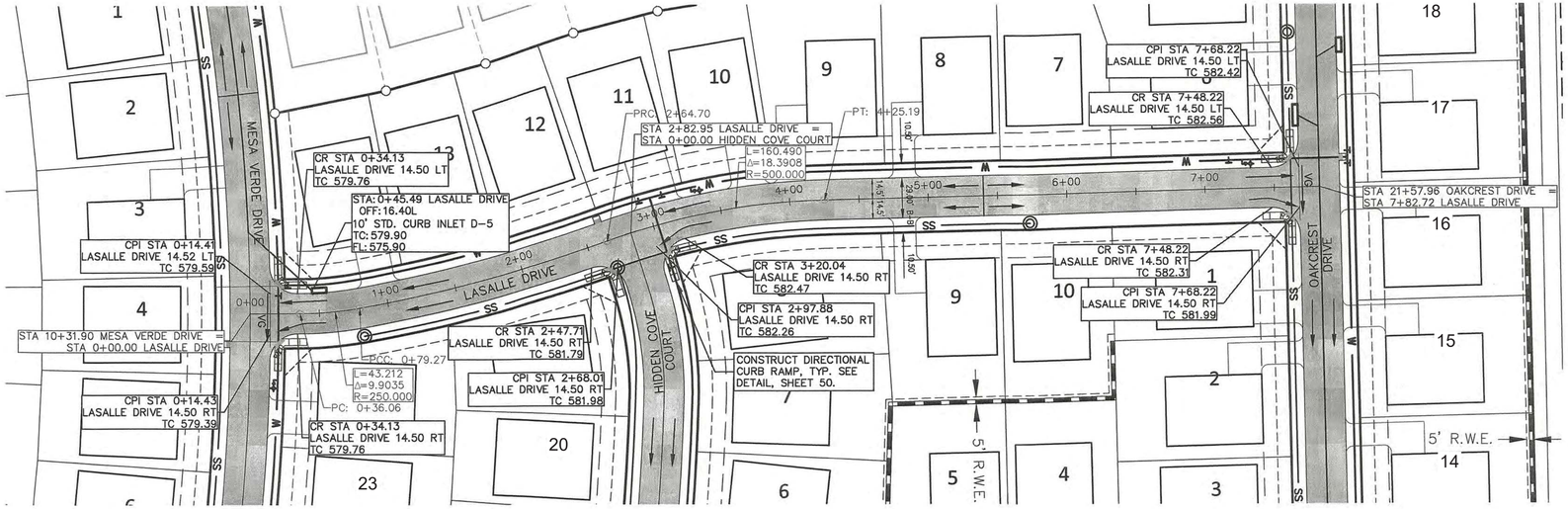
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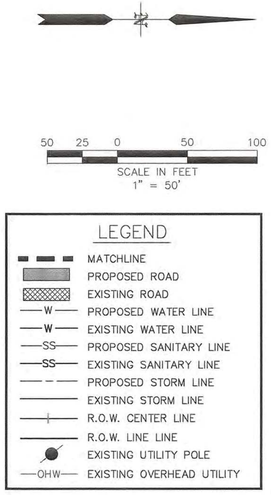
PAVING PLAN HIDDEN COVE

TERRACINA PHASE 1

CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

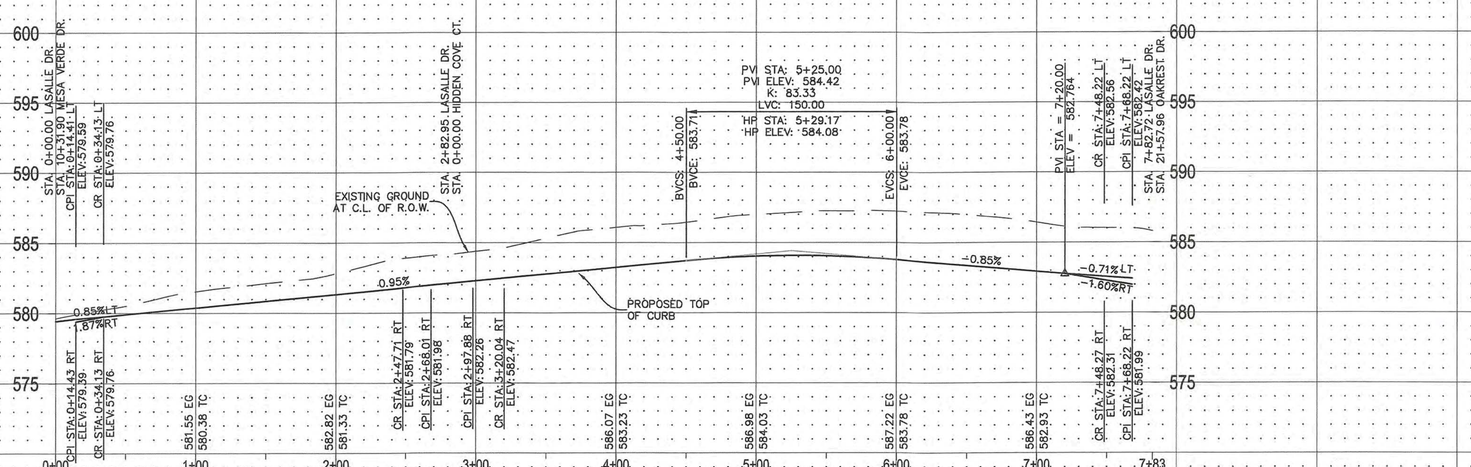
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LASALLE DRIVE



PROFILE VERTICAL
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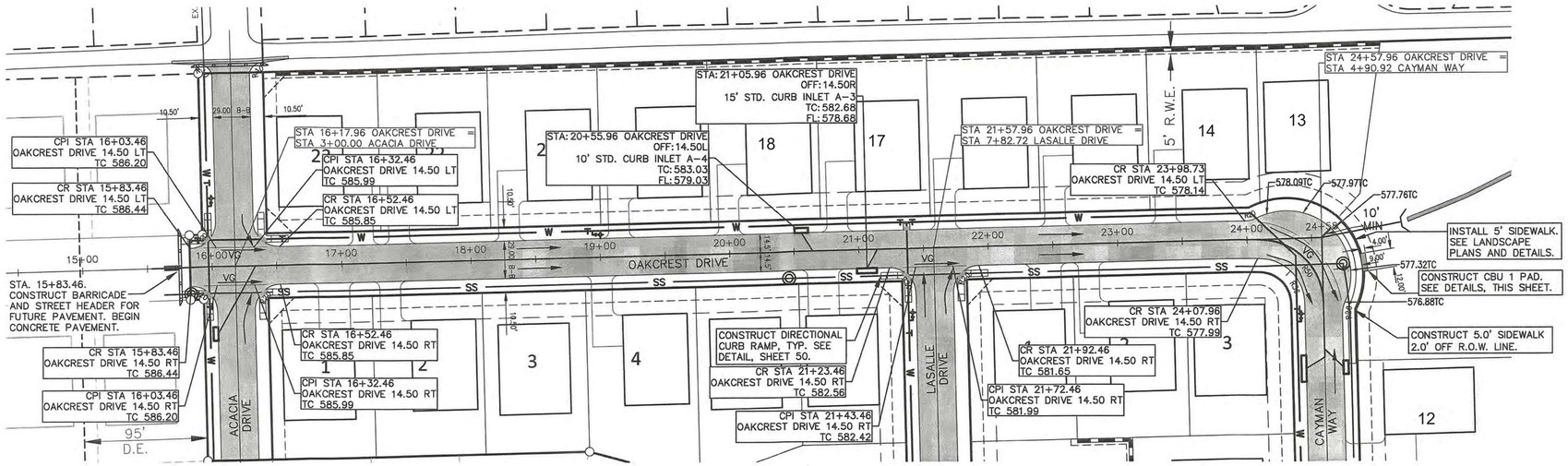
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PAVING PLAN LASALLE

TERRACINA PHASE 1

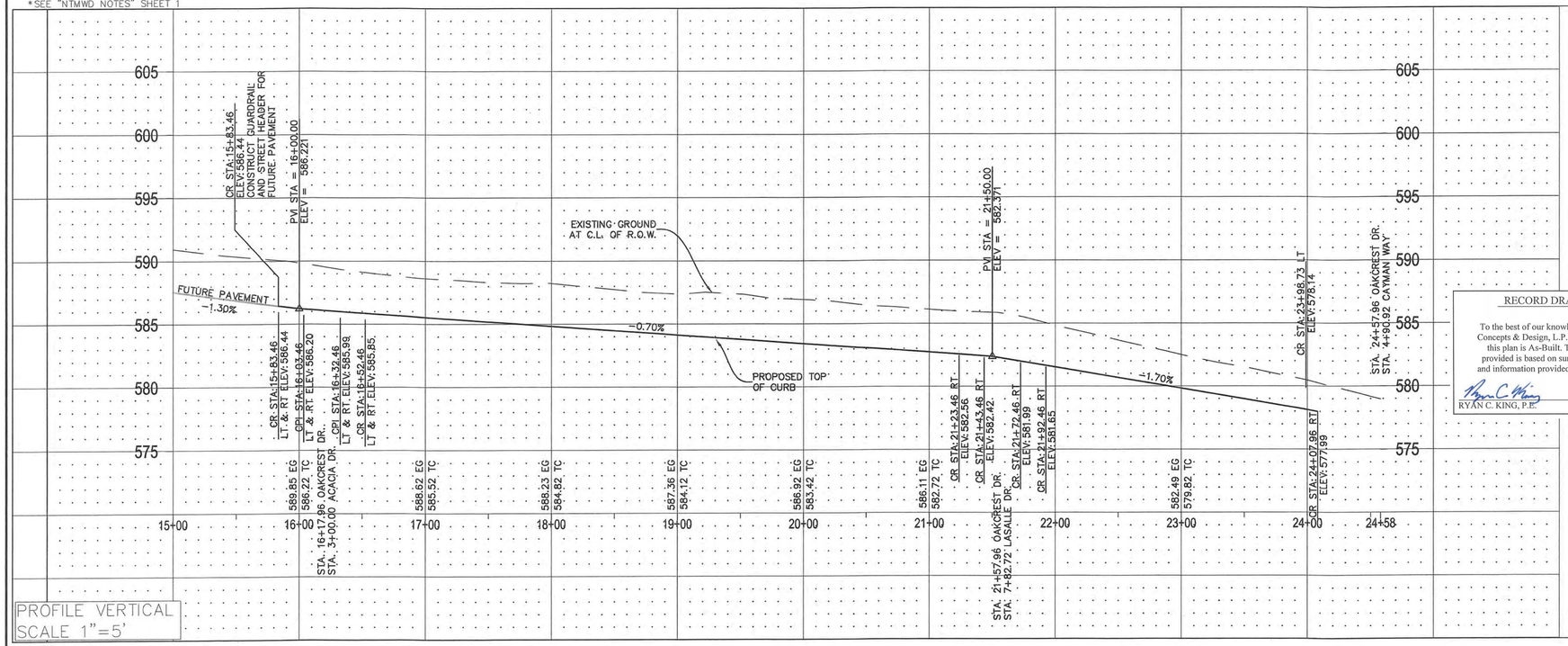
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SHEET 15 OF 62

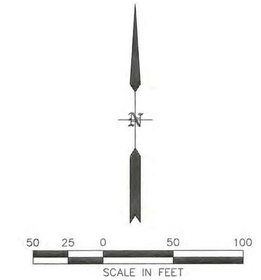


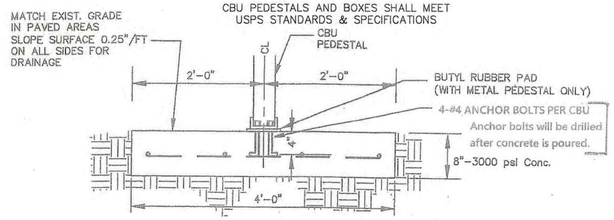
OAKCREST DRIVE

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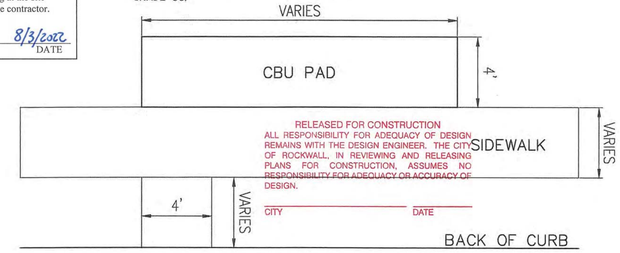


PROFILE VERTICAL
SCALE 1"=5'





NOTES:
1. CONCRETE SHALL HAVE A COMPRESSIVE STRENGTH OF 3000 PSI @ 28 DAYS. CONTAIN 4% MIN.-6% MAX. AIR ENTRAINMENT AND BE PLACED WITH A 3.50-4.50 SLUMP IN ACCORDANCE WITH ACI 301.
2. REINFORCING STEEL RODS SHALL CONFORM TO ASTM A615, GRADE 60.



CBU PAD DETAIL
N.T.S.

RECORD DRAWINGS

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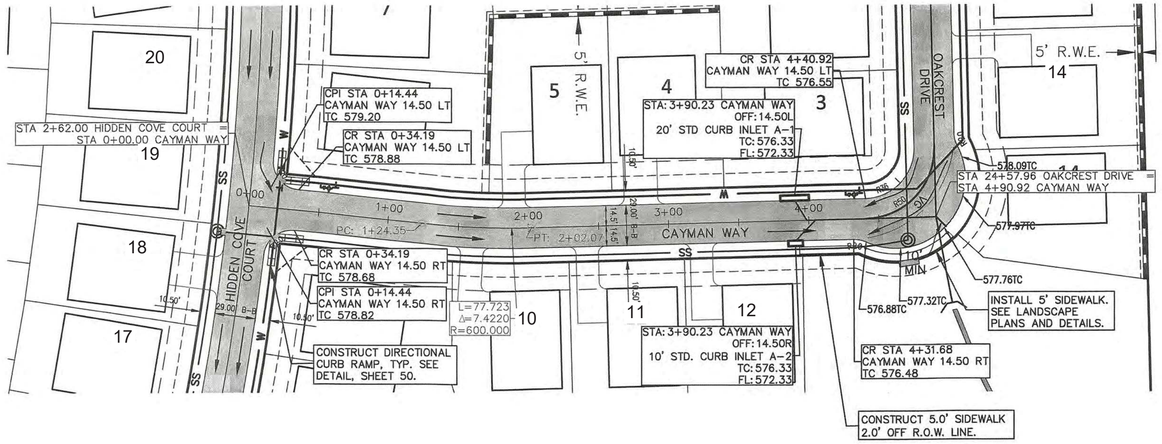
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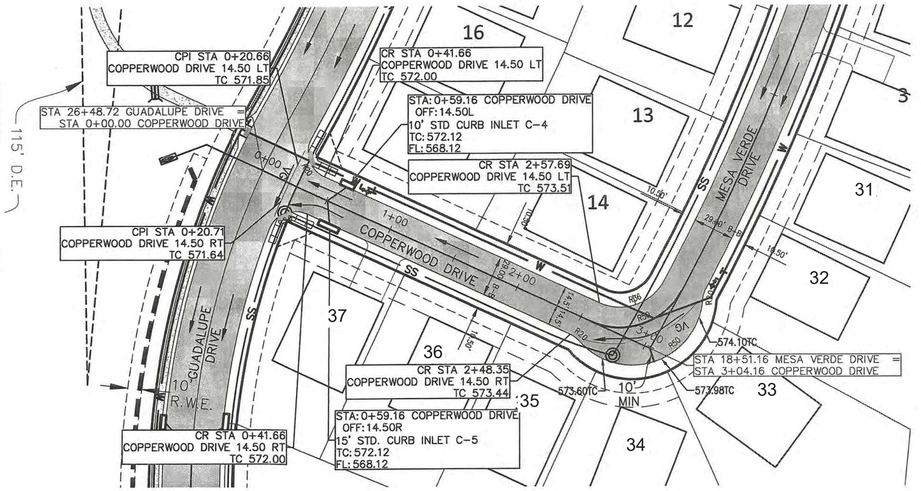
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PAVING PLAN OAKCREST
TERRACINA PHASE 1
CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

SHEET 16 OF 62



CAYMAN WAY



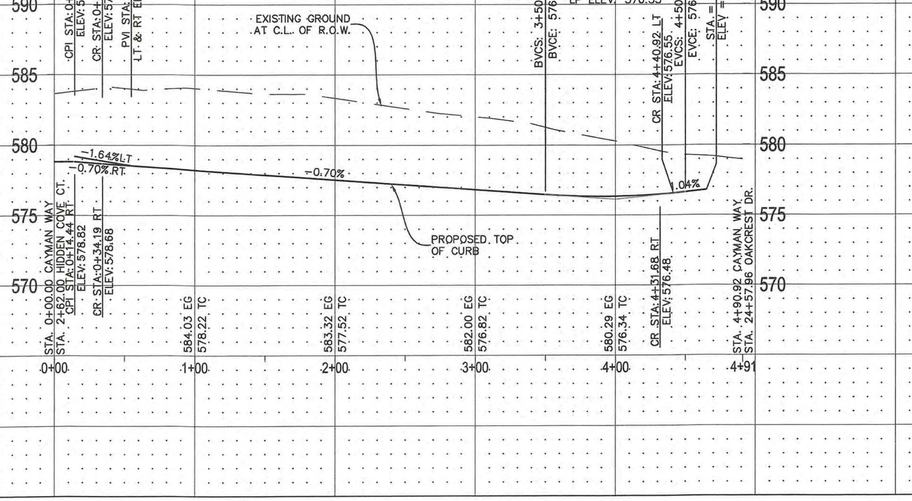
COPPERWOOD DRIVE

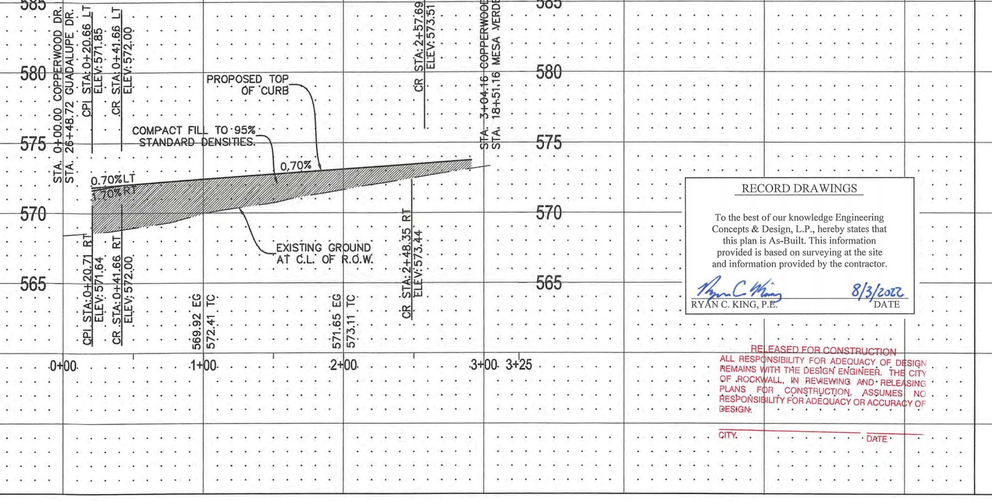
50 25 0 50 100
SCALE IN FEET
1" = 50'

LEGEND

- MATCHLINE
- PROPOSED ROAD
- EXISTING ROAD
- W — PROPOSED WATER LINE
- W — EXISTING WATER LINE
- SS — PROPOSED SANITARY LINE
- SS — EXISTING SANITARY LINE
- PROPOSED STORM LINE
- EXISTING STORM LINE
- R.O.W. CENTER LINE
- R.O.W. LINE LINE
- EXISTING UTILITY POLE
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PROFILE VERTICAL
SCALE 1"=5'

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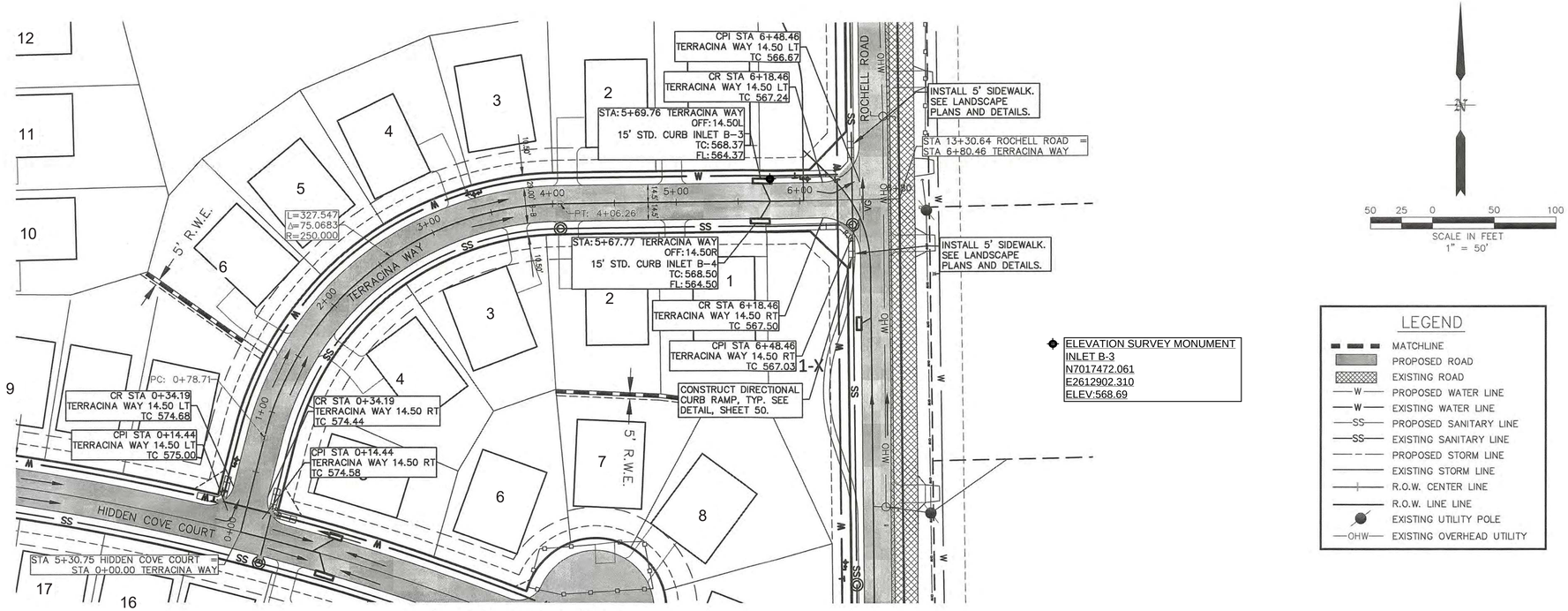
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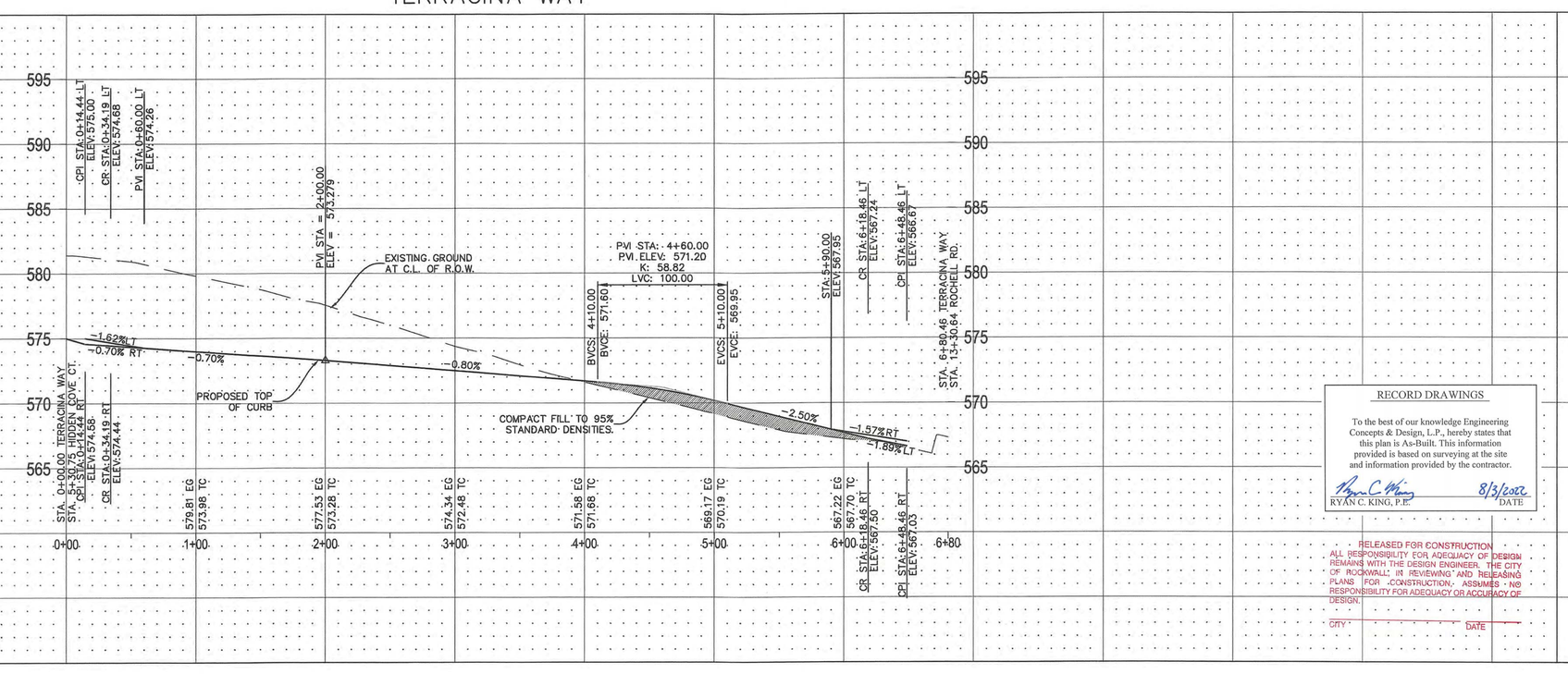
PAVING PLAN CAYMAN AND COPPERWOOD TERRACINA PHASE 1

CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

SHEET 17 OF 62



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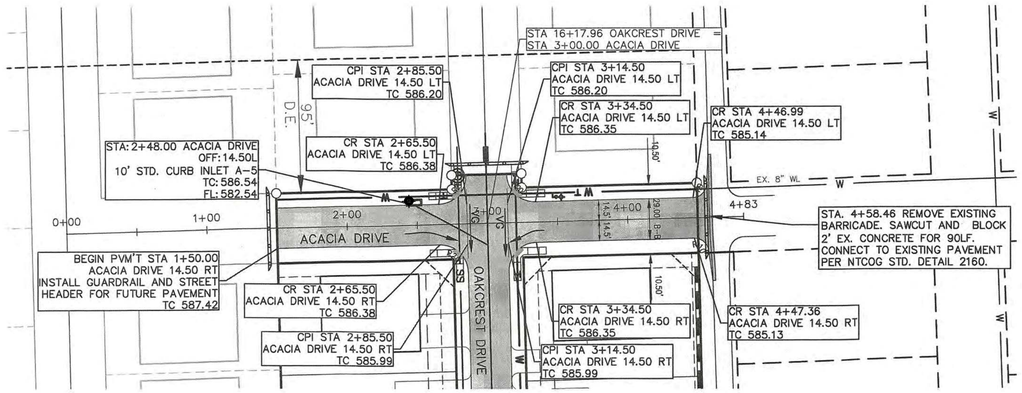
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PAVING PLAN TERRACINA

TERRACINA PHASE 1

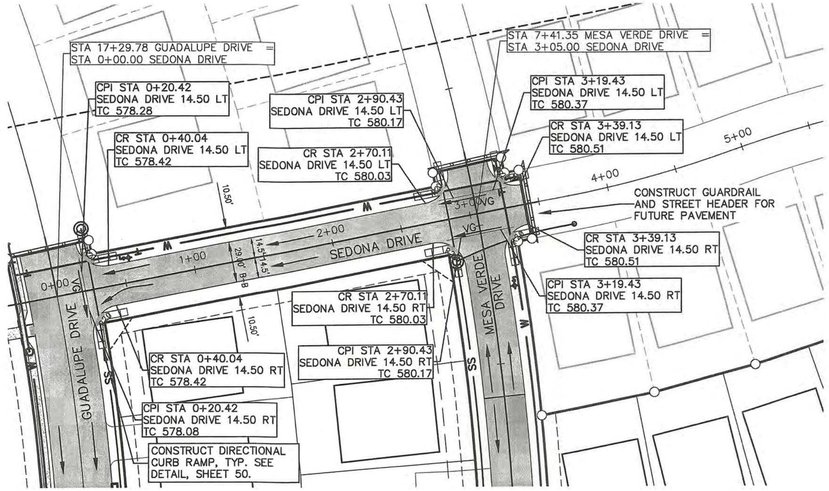
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SHEET 18 OF 62

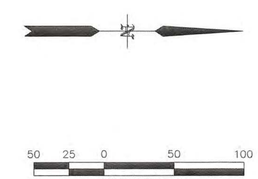


◆ ELEVATION SURVEY MONUMENT
INLET A-5
N7017645.391
E2611362.168
ELEV:586.84

ACACIA DRIVE



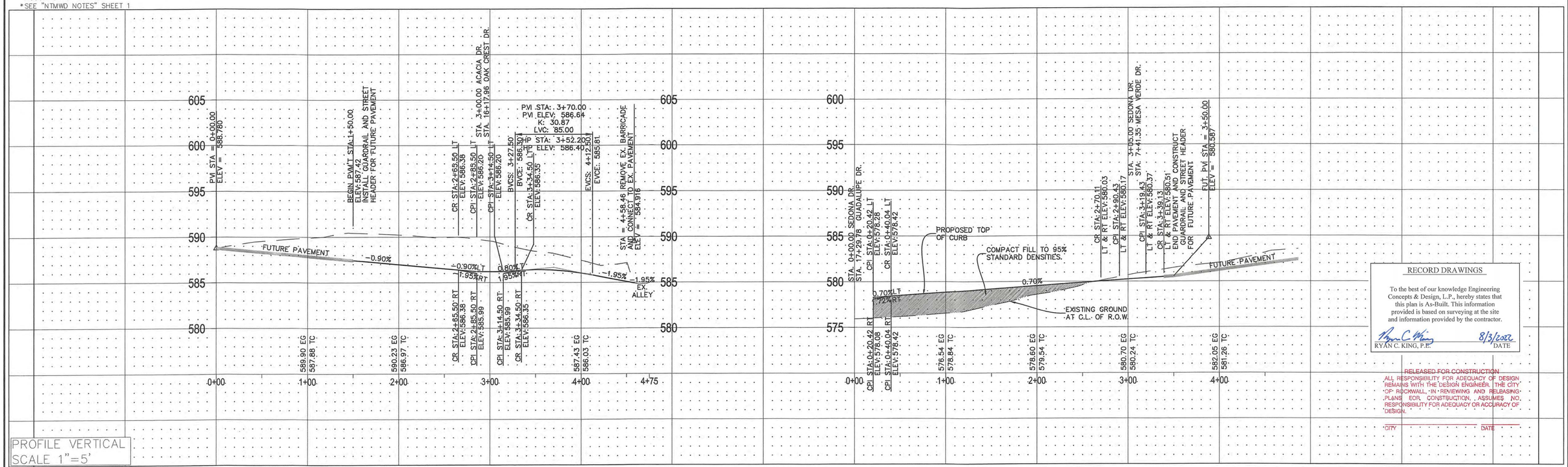
SEDONA DRIVE



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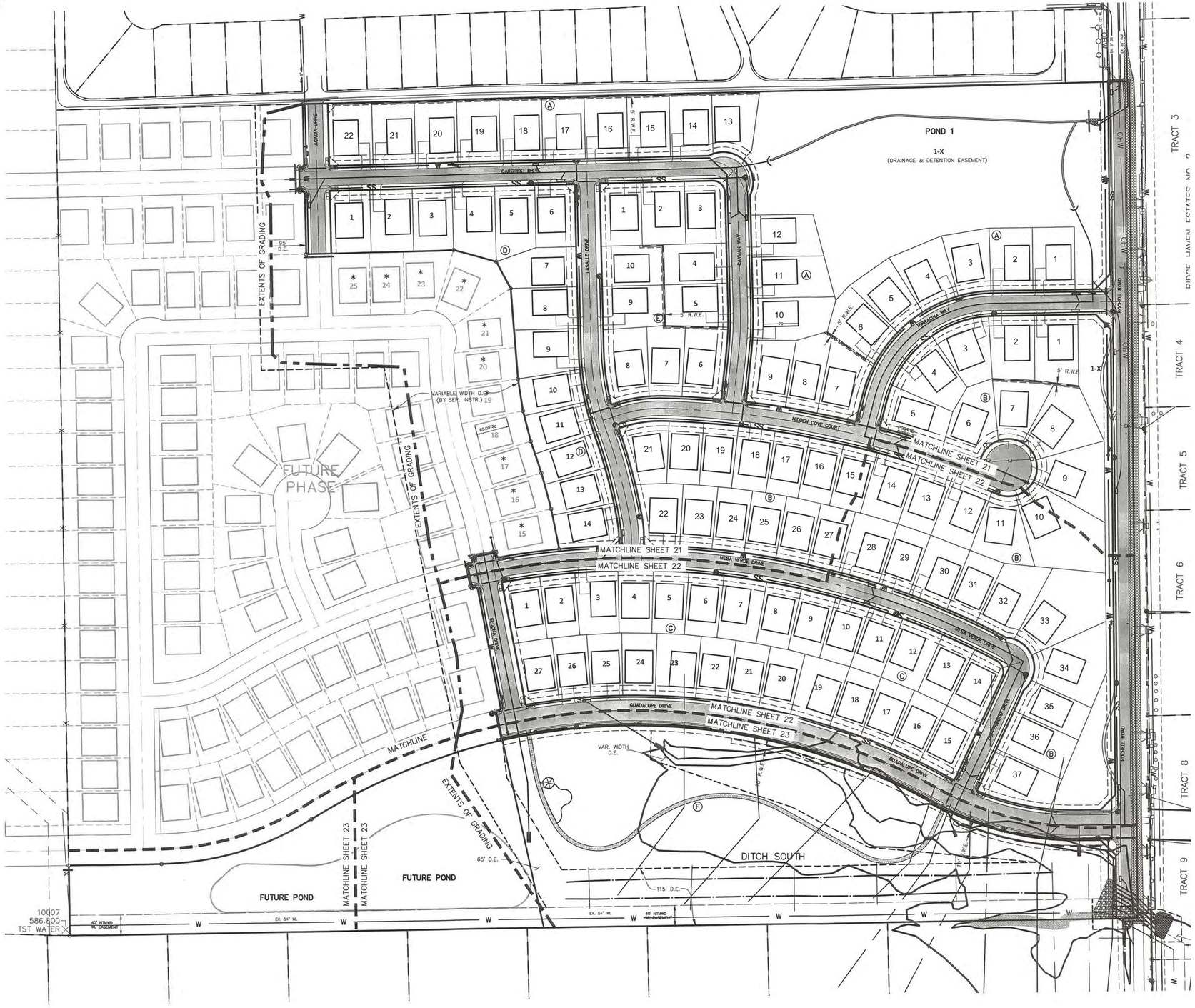
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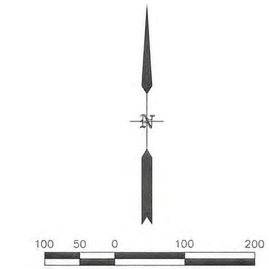
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PAVING PLAN ACACIA AND SEDONA
TERRACINA PHASE 1
CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

SHEET 19 OF 62

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LEGEND

- MATCHLINE
- EXTENTS OF GRADING
- 545 PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- 560 EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- RETAINING WALL

FUTURE PADS WITH AN "*" SHALL BE GRADED WITH TERRACINA PHASE 1

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GRADING PLAN KEY MAP

TERRACINA PHASE 1

CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

SHEET 20 OF 62

GRADE TO PROP. HEADWALL FL ELEV.

SEE SHEET 28 FOR DETENTION POND 1 DETAILS

1-X
(DRAINAGE & DETENTION EASEMENT)

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ACACIA DRIVE

OAKCREST DRIVE

LASALLE DRIVE

CAYMAN WAY

ROCHELL ROAD

TERRACINA WAY

HIDDEN COVE COURT

MESA VERDE DRIVE

FUTURE PHASE

VARIABLE WIDTH D.E. (BY SEP. INSTR.)

5' R.W.E.

POSITIVE OVERFLOW

EXISTING METAL SHED AND METAL FENCE TO BE REMOVED.

MATCHLINE SHEET 22

Q=2.87 cfs
D_{ditch}=5.00 ft
D_{flow}=0.47 ft
S=0.010 ft/ft
n=0.030
V=1.86 fps

Q=20.65 cfs
D_{ditch}=3.00 ft
D_{flow}=0.81 ft
S=0.003 ft/ft
n=0.030
V=2.62 fps

4:1 10:1 4:1 20:1

SECTION A DITCH SECTION

SECTION B DITCH SECTION

SCALE IN FEET
1" = 50'

LEGEND

- MATCHLINE
- 545 PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- 560 EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED RETAINING WALL
- 558.1 PROPOSED ELEVATION
- 543.45TC PROPOSED TOP OF CURB

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GRADING NOTES:
1. ALL WALLS SHALL BE ON ONE LOT INCLUDING FOOTINGS, TIE BACKS, OR STRUCTURAL FILL.
2. ALL COMPACTION TO BE 95% STANDARD DENSITY USING A SHEEP FOOT ROLLER. SEE GEOTECH REPORT.
3. ALL FINAL ELEVATIONS TO BE VERIFIED PRIOR TO CITY ACCEPTANCE.
4. WALLS 3' AND TALLER MUST BE ENGINEERED AND APPROVED BEFORE CONSTRUCTION.
5. MAX. SLOPE IS 4:1 OR 25%.
6. ALL RETAINING WALLS TO BE ROCK OR STONE FACE. NO SMOOTH CONCRETE WALLS.

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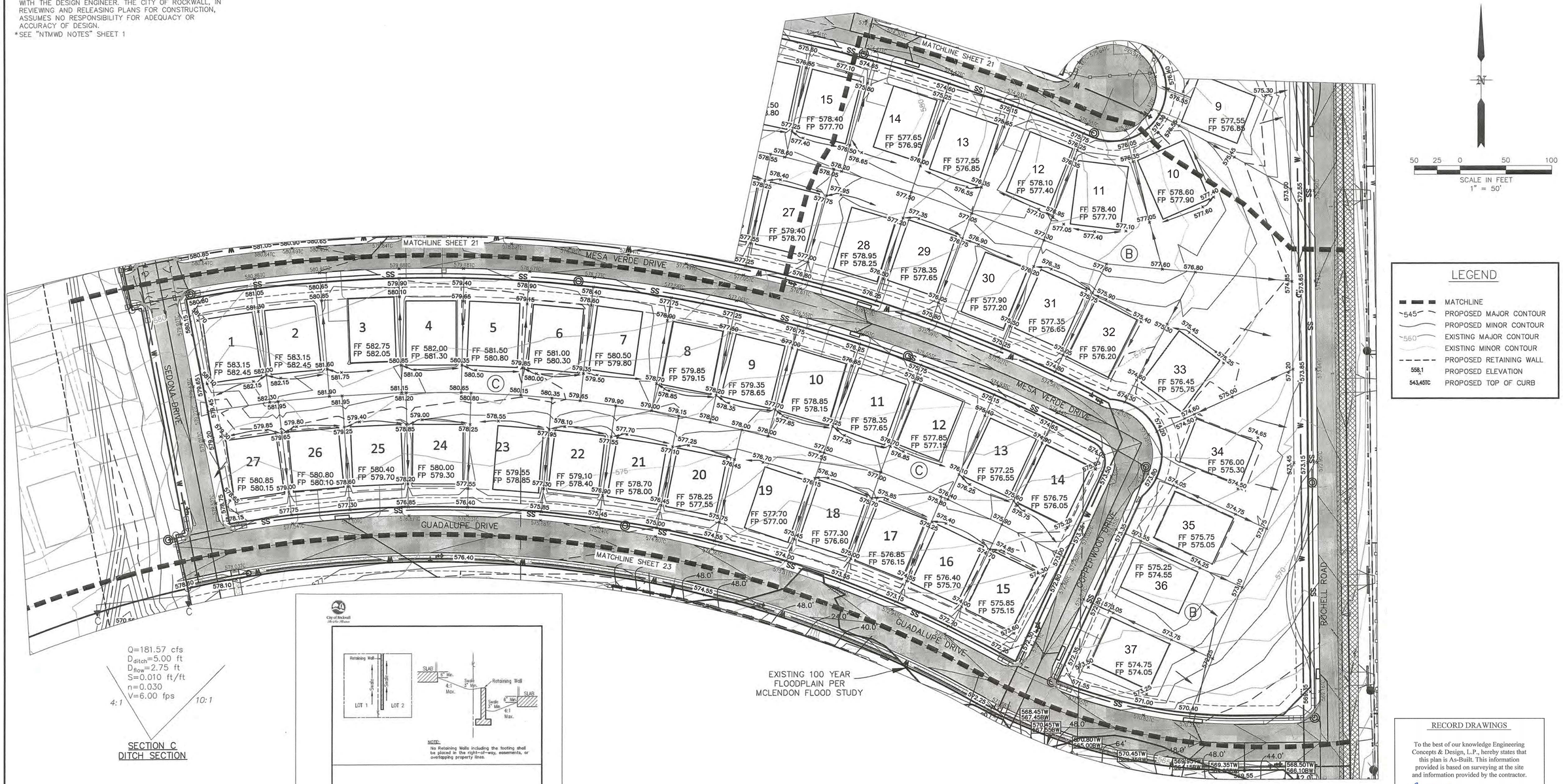
GRADING PLAN 1

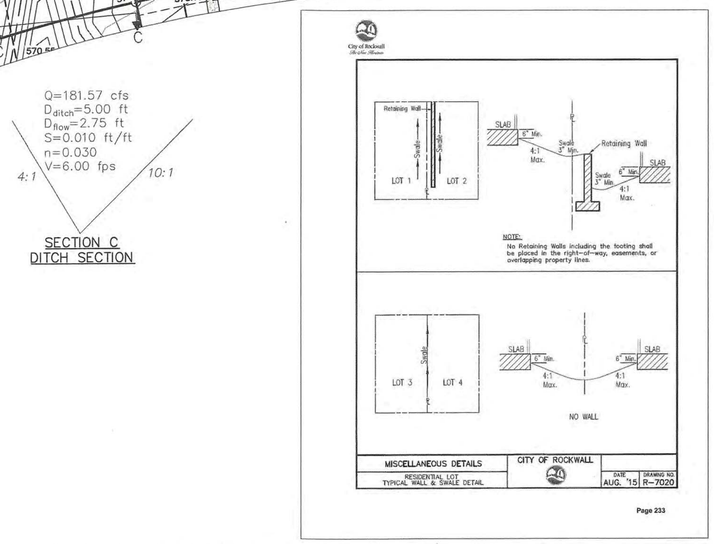
TERRACINA PHASE 1

CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

SHEET 21 OF 62

*ALL RESPONSIBILITY FOR ADEQUACY OF DESIGN REMAINS WITH THE DESIGN ENGINEER. THE CITY OF ROCKWALL, IN REVIEWING AND RELEASING PLANS FOR CONSTRUCTION, ASSUMES NO RESPONSIBILITY FOR ADEQUACY OR ACCURACY OF DESIGN.
*SEE "NTMWD NOTES" SHEET 1





SECTION C
DITCH SECTION

LEGEND

- MATCHLINE
- 545 PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- 560 EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED RETAINING WALL
- 558.1 PROPOSED ELEVATION
- 543.45TC PROPOSED TOP OF CURB

RECORD DRAWINGS

To the best of our knowledge Engineering Concepts & Design, L.P., hereby states that this plan is As-Built. This information provided is based on surveying at the site and information provided by the contractor.

RYAN C. KING, P.E. — DATE 8/3/2022

GRADING NOTES:
1. ALL WALLS SHALL BE ON ONE LOT INCLUDING FOOTINGS, TIE BACKS, OR STRUCTURAL FILL.
2. ALL COMPACTION TO BE 95% STANDARD DENSITY USING A SHEEP FOOT ROLLER. SEE GEOTECH REPORT.
3. ALL FINAL ELEVATIONS TO BE VERIFIED PRIOR TO CITY ACCEPTANCE.
4. WALLS 3' AND TALLER MUST BE ENGINEERED AND APPROVED BEFORE CONSTRUCTION.
5. MAX. SLOPE IS 4:1 OR 25%.
6. ALL RETAINING WALLS TO BE ROCK OR STONE FACE. NO SMOOTH CONCRETE WALLS.

RELEASED FOR CONSTRUCTION
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CITY _____ DATE _____

CAUTION! EXISTING UTILITIES

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BENCHMARKS:
CP 101 - Square cut on headwall west side of Rochelle road & 54' south of center of Polar Point Drive Elevation = 559.95
CP 103 - "X" in concrete east side of Rochelle Road, 1834' south of center of Polar Point Dr. Elevation = 564.54'
CP 104 - Capped 5/8" Iron rod east side of Rochelle Road & 1250' south of the center of Polar Point Dr. Elevation = 572.70'
CP 105 - Capped 5/8" Iron rod east side of Rochelle Road & 826' south of the center of Polar Point Dr. Elevation = 568.75'

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201 WINDCO CIR, STE 200, WYLIE, TX 75098
972-941-8400 FAX: 972-941-8401 WWW.ECDLP.COM

REVISIONS:

DRAWN:	RCK	DATE:
CHECKED:	RKH	DATE: 8/26/2020
PROJECT NO.:	06537	
DWG FILE NAME:	06537 GR.DWG	

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STATE OF TEXAS — RYAN C. KING — 123635 — REGISTERED PROFESSIONAL ENGINEER — 8/26/2020

GRADING PLAN 2

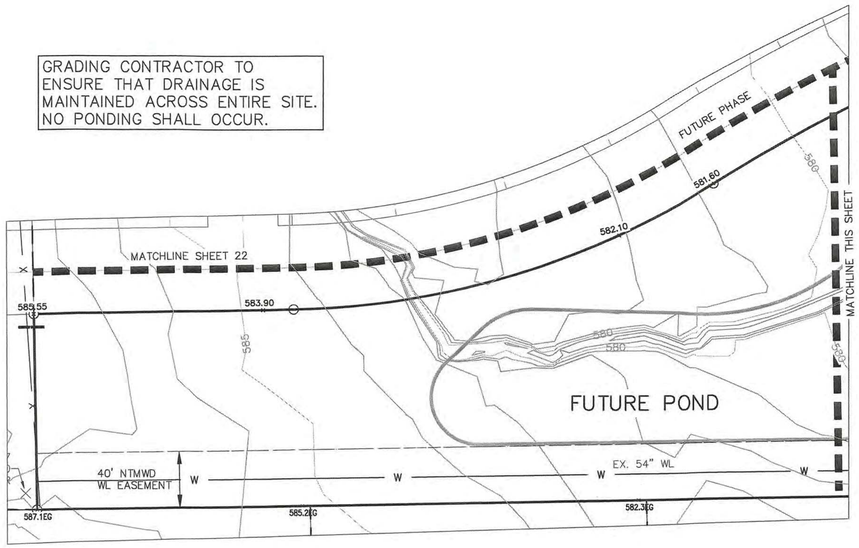
TERRACINA PHASE 1

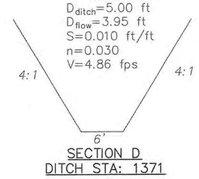
CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

SHEET 22 OF 62

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*SEE "NTMWD NOTES" SHEET 1

GRADING CONTRACTOR TO ENSURE THAT DRAINAGE IS MAINTAINED ACROSS ENTIRE SITE. NO PONDING SHALL occur.



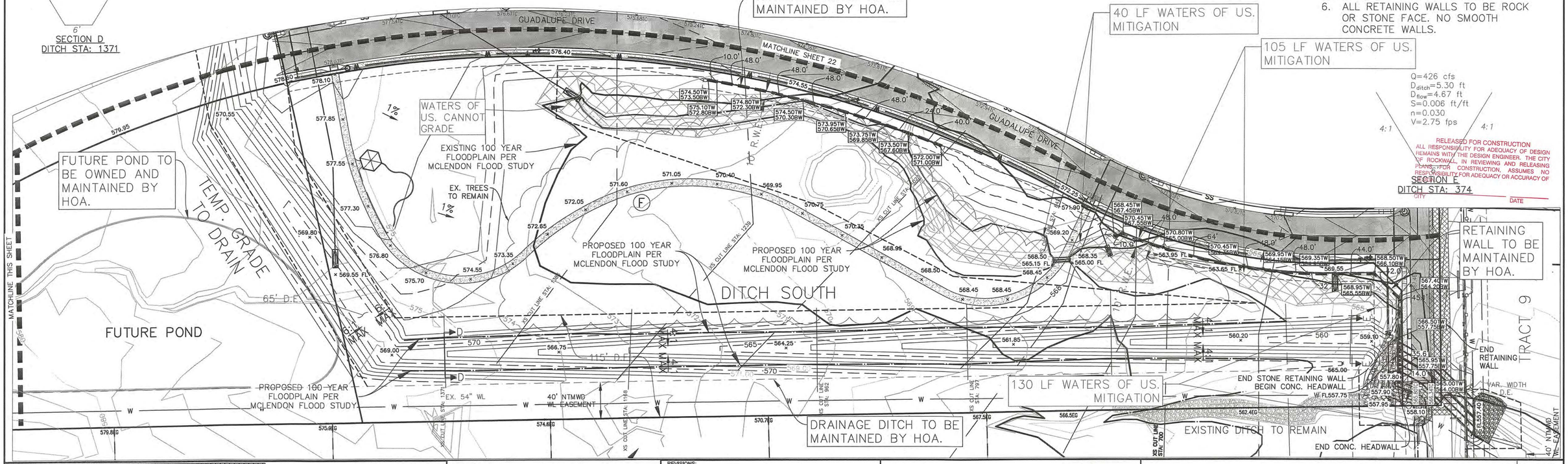


SECTION D
DITCH STA: 1371

RETAINING WALL TO BE MAINTAINED BY HOA.

40 LF WATERS OF US. MITIGATION

105 LF WATERS OF US. MITIGATION



Q=426 cfs
D_{ditch}=5.30 ft
D_{flow}=4.67 ft
S=0.006 ft/ft
n=0.030
V=2.75 fps
4:1
4:1

SECTION E
DITCH STA: 374

RELEASED FOR CONSTRUCTION
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BY DATE

RECORD DRAWINGS

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RYAN C. KING, P.E. 8/3/2022 DATE

N

50 25 0 50 100
SCALE IN FEET
1" = 50'

LEGEND

- MATCHLINE
- 545 PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- 560 EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED RETAINING WALL
- 558.1 PROPOSED ELEVATION
- 543.45TC PROPOSED TOP OF CURB
- WATERS OF US. CANNOT GRADE

PARK NOTES:
1. PUBLIC PARK TO BE MAINTAINED BY HOA.
2. FULL IRRIGATION ALL TURF/LANDSCAPE.
3. IRRIGATION MUST MEET ALL CITY OF ROCKWALL PARKS & REC. IRRIGATION SPECS.

GRADING NOTES:
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REVISIONS:	
DRAWN: RCK	DATE:
CHECKED: RKH	DATE: 8/26/2020
PROJECT NO.: 06537	
DWG FILE NAME: 06537 GR.DWG	

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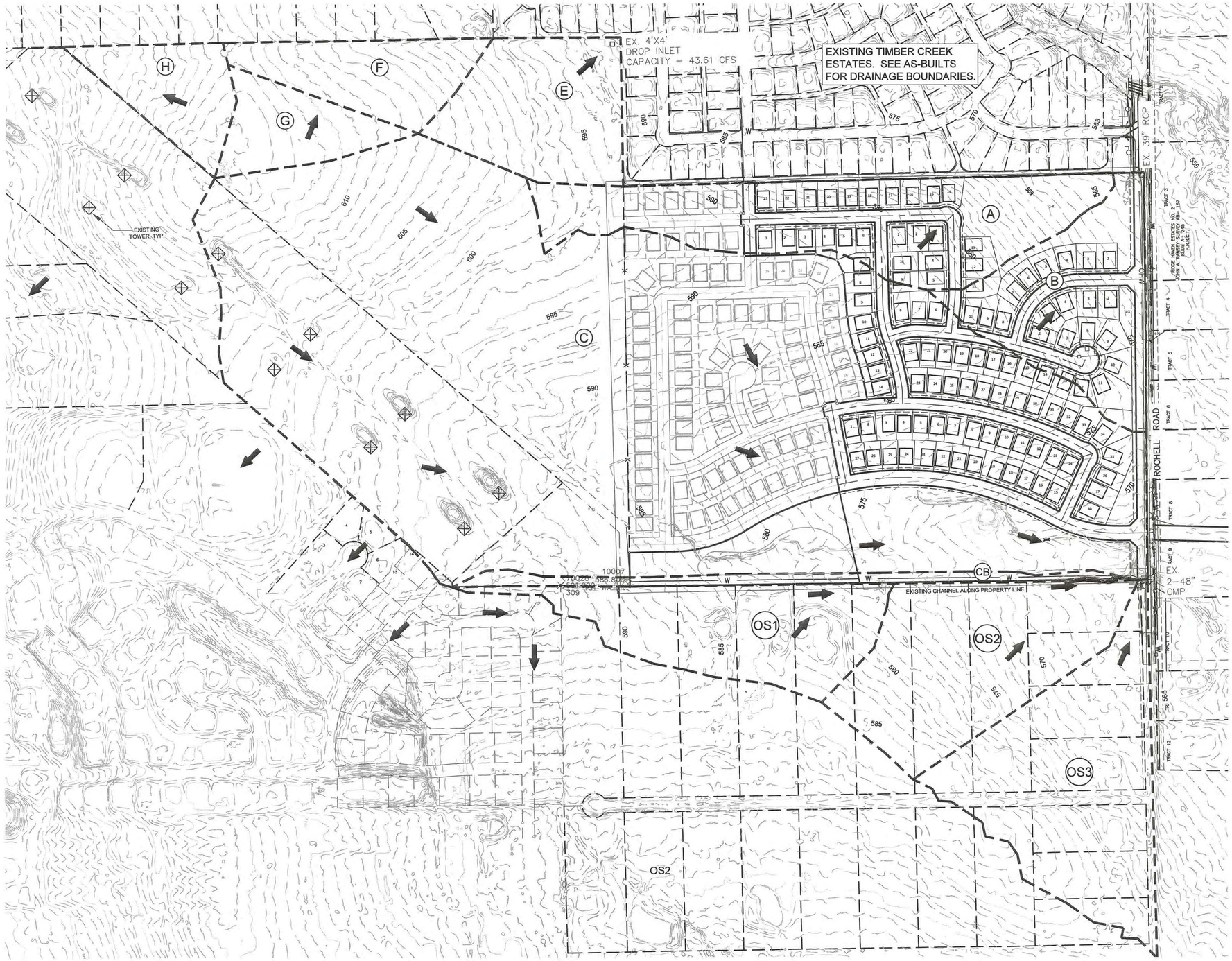
STATE OF TEXAS — RYAN C. KING — 123635 — REGISTERED PROFESSIONAL ENGINEER — 8/26/2020

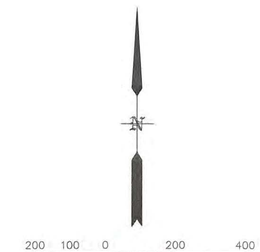
GRADING PLAN 3

TERRACINA PHASE 1

CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

SHEET 23 OF 62





LEGEND

- DRAINAGE AREA BOUNDARY
- 560 EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- (D) EXISTING DRAINAGE AREA

Existing Drainage Area Calculations

Drainage Area	Area (AC)	Tc (Min)	C	K	I_{100} (in/hr)	Q_{100} (cfs)	Description
A	15.86	20.00	0.35	1.00	8.30	46.07	96.42cfs accepted by Ex. 39" RCP
B	10.75	20.00	0.35	1.00	8.30	31.23	96.42cfs accepted by Ex. 39" RCP
C	110.41	20.00	0.35	1.00	8.30	320.74	
CB	2.67	20.00	0.35	1.00	8.30	7.76	TO EX. IMPROVED CHANNEL
E	8.88	20.00	0.35	1.00	8.30	25.80	
F	5.76	20.00	0.35	1.00	8.30	16.73	Accounted for by adjacent property
G	4.39	20.00	0.35	1.00	8.30	12.75	Not accounted for by adj. property
H	4.67	20.00	0.35	1.00	8.30	13.57	
OS-1	11.40	10.00	0.50	1.00	9.80	55.86	TO EX. IMPROVED CHANNEL
OS-2	13.83	10.00	0.50	1.00	9.80	67.77	TO EX. IMPROVED CHANNEL
OS-3	16.43	10.00	0.50	1.00	9.80	80.51	TO ROCHELL ROAD

EXISTING OFFSITE CONTOURS PROVIDED BY THE TEXAS NATURAL RESOURCES INFORMATION SYSTEM 2009.

RECORD DRAWINGS

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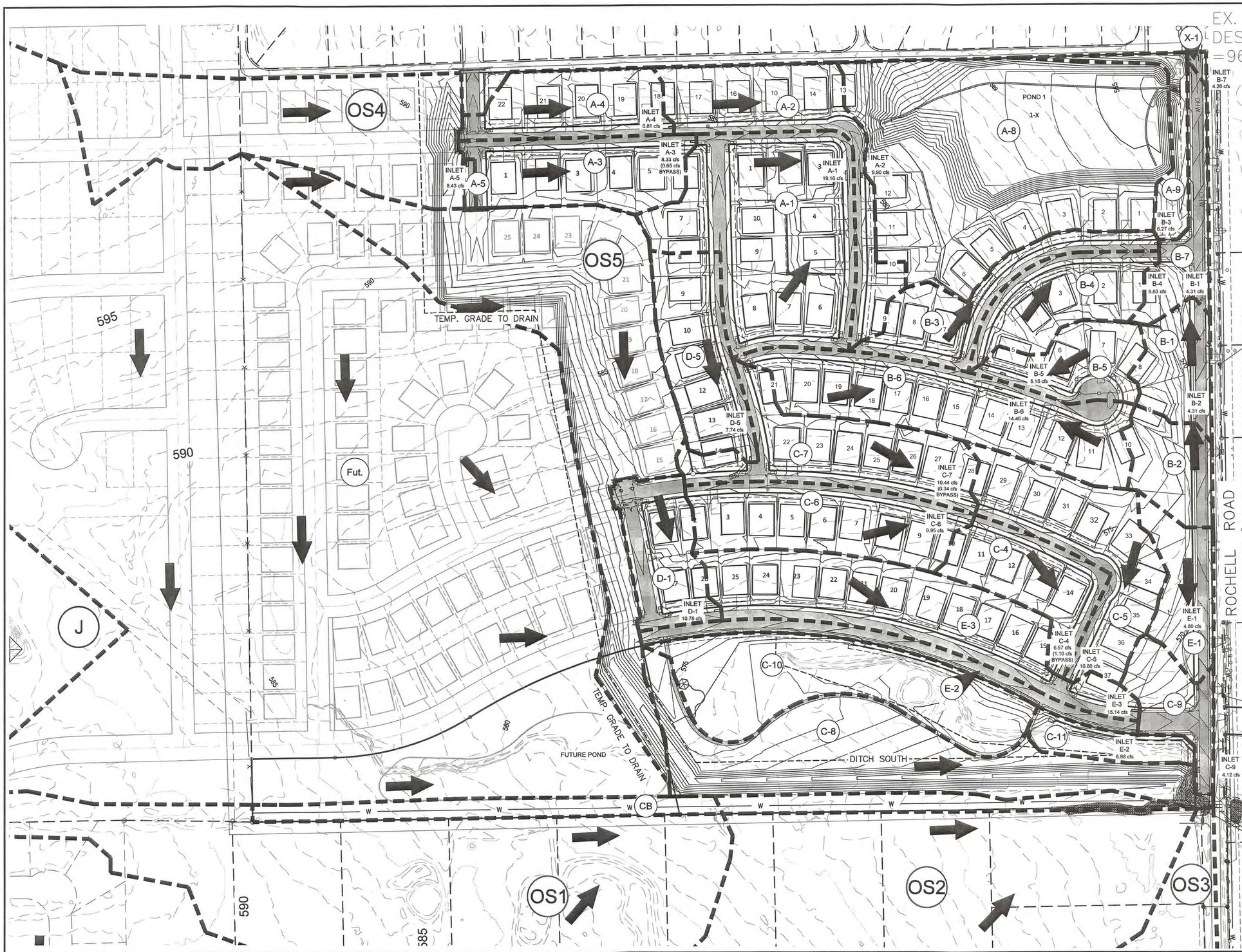
STATE OF TEXAS — RYAN C. KING — 123635 — REGISTERED PROFESSIONAL ENGINEER — 8/26/2020

DRAINAGE AREA EXISTING

TERRACINA PHASE 1

CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

SHEET 24 OF 62



Proposed Drainage Area Calculations

Drainage Area	Area (AC)	Tc (min)	C	K	I_{100} (in/hr)	Q_{100} (cfs)	Description
A-1	3.91	10.00	0.50	1.00	9.80	19.16	To Inlet A-1
A-2	2.02	10.00	0.50	1.00	9.80	9.90	To Inlet A-2
A-3	1.70	10.00	0.50	1.00	9.80	8.34	To Inlet A-3
A-4	1.39	10.00	0.50	1.00	9.80	6.82	To Inlet A-4
A-5	0.06	10.00	0.50	1.00	9.80	0.30	To Inlet A-5
A-8	6.63	10.00	0.50	1.00	9.80	32.50	Pond 1 Open Space
A-9	0.58	10.00	0.50	1.00	9.80	2.86	Bypass Pond 1
B-1	0.88	10.00	0.50	1.00	9.80	4.31	To Inlet B-1
B-2	0.88	10.00	0.50	1.00	9.80	4.31	To Inlet B-2
B-3	1.28	10.00	0.50	1.00	9.80	6.27	To Inlet B-3
B-4	1.35	10.00	0.50	1.00	9.80	6.63	To Inlet B-4
B-5	1.05	10.00	0.50	1.00	9.80	5.15	To Inlet B-5
B-6	2.95	10.00	0.50	1.00	9.80	14.46	To Inlet B-6
B-7	0.87	10.00	0.50	1.00	9.80	4.26	To Inlet B-7 (Bypass Pond 1)
E-1	0.98	10.00	0.50	1.00	9.80	4.80	To Inlet E-1
E-2	0.79	10.00	0.50	1.00	9.80	3.87	To Inlet E-2
E-3	3.09	10.00	0.50	1.00	9.80	15.14	To Inlet E-3
C-4	1.34	10.00	0.50	1.00	9.80	6.57	To Inlet C-4
C-5	2.21	10.00	0.50	1.00	9.80	10.83	To Inlet C-5
C-6	2.03	10.00	0.50	1.00	9.80	9.95	To Inlet C-6
C-7	2.13	10.00	0.50	1.00	9.80	10.44	To Inlet C-7
C-8	3.89	10.00	0.50	1.00	9.80	19.06	Open Space Bypass
C-9	0.84	10.00	0.50	1.00	9.80	4.12	To Inlet C-9
C-10	2.95	10.00	0.50	1.00	9.80	14.46	Open Space Bypass
C-11	0.58	10.00	0.50	1.00	9.80	2.84	Open Space Bypass
D-1	1.22	10.00	0.50	1.00	9.80	5.99	To Inlet D-1
D-5	1.58	10.00	0.50	1.00	9.80	7.74	To Inlet D-5
FUT.	53.86	20.00	0.35	1.00	8.30	156.46	Open Space
CB	1.84	20.00	0.35	1.00	8.30	5.35	To Ex. Improved Channel
J	22.71	20.00	0.35	1.00	8.30	65.97	Open Space
OS1	11.40	10.00	0.50	1.00	9.80	55.86	To Detention Pond 2
OS2	13.83	10.00	0.50	1.00	9.80	67.77	To Ex. Improved Channel
OS3	16.43	10.00	0.50	1.00	9.80	80.51	To Rochell Rd.
OS4	4.51	20.00	0.35	1.00	8.30	13.10	To Line A Headwall
OS5	6.56	20.00	0.35	1.00	8.30	19.06	To Temp. Grade to Drain
X-1	0.05	10.00	0.50	1.00	9.80	0.25	Bypass Pond 1

RECORD DRAWINGS

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RYAN C. KING, P.E. 8/3/2022
DATE

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CITY DATE

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STATE OF TEXAS — RYAN C. KING — 123635 — REGISTERED PROFESSIONAL ENGINEER — 8/26/2020

DRAINAGE AREA PROPOSED

TERRACINA PHASE 1

CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

SHEET 25 OF 62



RECORD DRAWINGS

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RYAN C. KING, P.E. — 8/3/2022 DATE

200 100 0 200 400

SCALE IN FEET
1" = 200'

LEGEND

- DRAINAGE AREA BOUNDARY
- 560 EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- (D) EXISTING DRAINAGE AREA

Ultimate Drainage Area Calculations

Drainage Area	Area (AC)	Tc (min)	C	K	I_{100} (in/hr)	Q_{100} (cfs)	Description
A-1	3.91	10.00	0.50	1.00	9.80	19.16	To Inlet A-1
A-2	2.02	10.00	0.50	1.00	9.80	9.90	To Inlet A-2
A-3	1.70	10.00	0.50	1.00	9.80	8.33	To Inlet A-3
A-4	1.39	10.00	0.50	1.00	9.80	6.81	To Inlet A-4
Fut. A-5	1.72	10.00	0.50	1.00	9.80	8.43	To Inlet A-5
Fut. A-6	1.74	10.00	0.50	1.00	9.80	8.53	Future Inlet
Fut. A-7	2.04	10.00	0.50	1.00	9.80	10.00	Future Inlet
A-8	6.63	10.00	0.50	1.00	9.80	32.49	Pond 1 Open Space
A-9	0.58	10.00	0.50	1.00	9.80	2.86	Bypass Pond 1
B-1	0.88	10.00	0.50	1.00	9.80	4.31	To Inlet B-1
B-2	0.88	10.00	0.50	1.00	9.80	4.31	To Inlet B-2
B-3	1.28	10.00	0.50	1.00	9.80	6.27	To Inlet B-3
B-4	1.35	10.00	0.50	1.00	9.80	6.63	To Inlet B-4
B-5	1.05	10.00	0.50	1.00	9.80	5.15	To Inlet B-5
B-6	2.95	10.00	0.50	1.00	9.80	14.46	To Inlet B-6
B-7	0.87	10.00	0.50	1.00	9.80	4.26	To Inlet B-7 (Bypass Pond 1)
E-1	0.98	10.00	0.50	1.00	9.80	4.80	To Inlet C-1
E-2	1.42	10.00	0.50	1.00	9.80	6.98	To Inlet C-2
E-3	3.09	10.00	0.50	1.00	9.80	15.14	To Inlet C-3
C-4	1.34	10.00	0.50	1.00	9.80	6.57	To Inlet C-4
C-5	2.21	10.00	0.50	1.00	9.80	10.83	To Inlet C-5
C-6	2.03	10.00	0.50	1.00	9.80	9.95	To Inlet C-6
C-7	2.13	10.00	0.50	1.00	9.80	10.44	To Inlet C-7
C-8	3.79	10.00	0.50	1.00	9.80	18.56	Open Space Bypass
C-9	0.84	10.00	0.50	1.00	9.80	4.12	To Inlet C-9
C-10	2.95	10.00	0.50	1.00	9.80	14.46	Open Space Bypass
C-11	0.58	10.00	0.50	1.00	9.80	2.84	Open Space Bypass
D-1	2.20	10.00	0.50	1.00	9.80	10.78	To Inlet D-1
D-5	1.58	10.00	0.50	1.00	9.80	7.74	To Inlet D-5
D-8	4.03	10.00	0.50	1.00	9.80	19.75	Future Pond Open Space
Fut. D-2	3.38	10.00	0.50	1.00	9.80	16.56	To System D
Fut. D-3	2.07	10.00	0.50	1.00	9.80	10.14	To System D
Fut. D-4	2.14	10.00	0.50	1.00	9.80	10.49	To System D
Fut. D-6	2.69	10.00	0.50	1.00	9.80	13.20	To System D
Fut. D-7	2.33	10.00	0.50	1.00	9.80	11.43	To System D
Fut. G-1	3.05	10.00	0.50	1.00	9.80	14.94	To System G
Fut. G-2	2.22	10.00	0.50	1.00	9.80	10.90	To System G
Fut. G-3	1.86	10.00	0.50	1.00	9.80	9.10	To System G
Fut. 1	3.06	10.00	0.50	1.00	9.80	14.99	Sheet Flow to North
Fut. 2	8.68	10.00	0.50	1.00	9.80	42.53	To Ex. 4'x4' Drop Inlet
Fut. 3	42.60	10.00	0.50	1.00	9.80	208.74	To Future Detention Pond
Fut. 4	3.22	10.00	0.50	1.00	9.80	15.78	Sheet Flow to West
J	22.71	20.00	0.35	1.00	8.30	65.97	To Future Detention Pond
CB	1.84	20.00	0.35	1.00	8.30	5.35	To Ex. Improved Channel
OS1	11.40	10.00	0.50	1.00	9.80	55.86	To Future Detention Pond
OS2	13.83	10.00	0.50	1.00	9.80	67.77	To Ex. Improved Channel
OS3	16.43	10.00	0.50	1.00	9.80	80.51	To Rochell Rd.
X-1	0.05	10.00	0.50	1.00	9.80	0.25	Bypass Pond 1

RELEASED FOR CONSTRUCTION
* ALL RESPONSIBILITY FOR ADEQUACY OF DESIGN REMAINS WITH THE DESIGN ENGINEER. THE CITY OF ROCKWALL, IN REVIEWING AND RELEASING PLANS FOR CONSTRUCTION, ASSUMES NO RESPONSIBILITY FOR ADEQUACY OR ACCURACY OF DESIGN.
BY
DATE

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* SEE "NTMWD NOTES" SHEET 1

CAUTION! EXISTING UTILITIES

CONTRACTOR SHOULD CALL 1-800-DIG-TESS PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITIES FOR EXISTING UTILITY LOCATIONS. EXISTING UTILITIES AND UNDERGROUND FACILITIES INDICATED ON THESE PLANS HAVE BEEN LOCATED FROM REFERENCE INFORMATION. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY BOTH HORIZONTALLY AND VERTICALLY THE LOCATION OF ALL EXISTING UTILITIES AND UNDERGROUND FACILITIES PRIOR TO CONSTRUCTION AND TO TAKE NECESSARY PRECAUTIONS IN ORDER TO PROTECT ALL FACILITIES ENCOUNTERED. THE CONTRACTOR SHALL PRESERVE AND PROTECT ALL EXISTING UTILITIES FROM DAMAGE DURING CONSTRUCTION.

BENCHMARKS:

CP 101 - Square cut on headwall west side of Rochelle road & 54' south of center of Polar Point Drive Elevation = 559.95

CP 103 - "X" in concrete east side of Rochelle Road, 1834' south of center of Polar Point Dr. Elevation = 564.54'

CP 104 - Capped 5/8" iron rod east side of Rochelle Road & 1250' south of the center of Polar Point Dr. Elevation = 572.70'

CP 105 - Capped 5/8" iron rod east side of Rochelle Road & 826' south of the center of Polar Point Dr. Elevation = 568.75'

ENGINEERINGCONCEPTS & DESIGN, L.P.
ENGINEERING / PROJECT MANAGEMENT / CONSTRUCTION SERVICES - FIRM REG. #F-001145
201 WINDCO CIR, STE 200, WYLIE, TX 75098
972-941-8400 FAX: 972-941-8401 WWW.ECDLP.COM

REVISIONS:

DRAWN: RCK	DATE:
CHECKED: RKH	DATE: 8/26/2020
PROJECT NO.: 06537	
DWG FILE NAME: 06537 DA.DWG	

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF CONSTRUCTION. THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RYAN C. KING, P.E. 123635

STATE OF TEXAS — RYAN C. KING — 123635 — REGISTERED PROFESSIONAL ENGINEER — 8/26/2020

DRAINAGE AREA ULTIMATE

TERRACINA PHASE 1

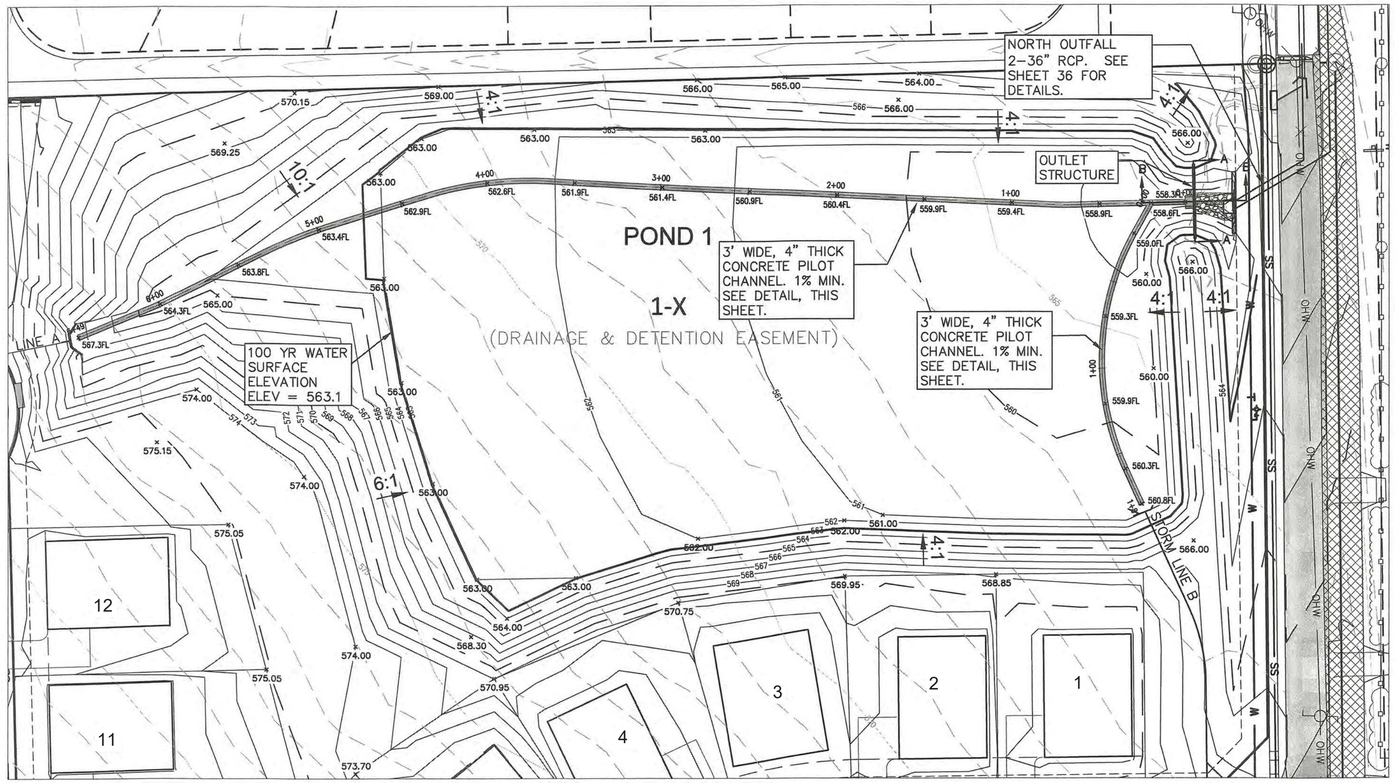
CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

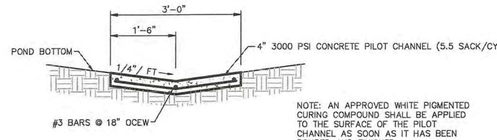
SHEET 26 OF 62

* ALL RESPONSIBILITY FOR ADEQUACY OF DESIGN REMAINS WITH THE DESIGN ENGINEER. THE CITY OF ROCKWALL, IN REVIEWING AND RELEASING PLANS FOR CONSTRUCTION, ASSUMES NO RESPONSIBILITY FOR ADEQUACY OR ACCURACY OF DESIGN.
* SEE "NTMWD NOTES" SHEET 1

Pipe Calculations

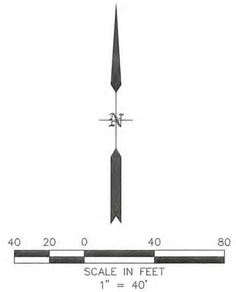
Line Desc.	Upstream Sta.	Downstream Sta.	Dist. Btwn. Points	Area Number	D A (AC)	Coeff., CK	Increm. CA	Accum-ulated CA	Time at Upstream	Design Storm Freq.	Rainfall Intensity, I (in/hr)	Storm Water Runoff, Q (cfs)	Cum. Runoff Q (cfs)	Number of barrels	Storm Sewer Diameter, Ø (in)	RCP Span (ft)	RCP Rise (ft)	Type	Area of Pipe (ft²)	Wetted Perimeter of Pipe (ft)	Hydraulic Radius of Pipe (ft)	Mann. Coeff. (in)	Flowline Elevation Up-stream	Flowline Elevation Down-stream	Slope of Storm Pipe (%)	Velocity in Storm Pipe (fps)	Hydraulic Gradient Slope, S_f (ft/ft)	Storm Sewer Capacity Q (cfs)	Partial Flow	L*Sf	V1²/2g	V2²/2g	Head Loss Coeff, Ki	Velocity Head Loss Upstream (ft)	Inlet and Bend Losses	Flow Time Distance (V*60) (min)	Flow Time of Downstream Sta. (min)	Down-stream HGL	Upstream HGL	Starting HGL	Top of Curb Elevation	HGL Below Top of Curb	Remarks
A	2	3	4	17/36	18	19	20	21	22	23	24	25	25	5	6	7	8	9	10	11	12	13	14	15	16	28	30	26	27	31	34	35	37	38	38	29		33	32	39	40	41	42
A	996.16	940.01	56.15	End	3.78	0.50	1.89	1.89	10.00	100-YR	9.80	18.52	18.52	1	24	0	0	RCP	3.14	6.28	0.50	0.0130	578.43	578.02	0.70%	5.90	0.0067	18.93	No	0.376		0.54	0.38	0.00	0.20	0.16	10.16	582.20	582.40		586.55	4.15	
A	940.01	937.01	3.00	PipeSize		0.50	0.00	1.89	10.16	100-YR	9.78	0.00	18.52	1	24	0	0	RCP	3.14	6.28	0.50	0.0130	578.04	578.02	0.70%	5.90	0.0067	18.93	Yes	0.020	0.54	0.54	1.00	0.00	0.00	0.01	10.17	581.82	581.82				
A	937.01	506.16	430.85	A-5	1.72	0.50	0.86	2.75	10.17	100-YR	9.78	8.41	26.93	1	24	0	0	RCP	3.14	6.28	0.50	0.0130	578.02	575.00	0.70%	8.57	0.0142	26.93	Yes	6.106	0.54	1.14	1.00	0.60	0.00	0.84	11.00	581.20	581.80				
A	506.16	456.16	50.00	MH	1.39	0.50	0.70	3.45	11.00	100-YR	9.63	6.69	33.62	1	30	0	0	RCP	4.91	7.85	0.63	0.0130	574.17	573.47	1.40%	6.85	0.0067	48.53	No	0.336	1.14	0.73	1.00	-0.21	0.00	0.12	11.13	575.30	575.09				
A	456.16	112.53	343.63	A-3	1.70	0.50	0.85	4.30	11.13	100-YR	9.60	8.16	41.78	1	30	0	0	RCP	4.91	7.85	0.63	0.0130	573.47	568.66	1.40%	8.51	0.0104	48.53	No	3.567	0.73	1.13	1.00	0.40	0.00	0.67	11.80	574.57	574.96				
A	112.53	50.00	62.53	MH	5.93	0.50	2.97	7.26	11.80	100-YR	9.49	28.13	69.91	1	42	0	0	RCP	9.62	11.00	0.88	0.0130	567.66	567.35	0.50%	7.27	0.0048	71.14	No	0.302	1.13	0.82	1.00	-0.15	0.00	0.14	11.94	571.15	571.00	570.85			
A-1	109.05	92.31	16.74	INL A1	3.91	0.50	1.96	1.96	10.00	100-YR	9.80	19.16	19.16	1	24	0	0	RCP	3.14	6.28	0.50	0.0130	572.33	568.82	22.27%	6.10	0.0072	106.76	No	0.120		0.58	1.25	0.00	0.72	0.05	10.05	573.02	573.75		576.33	2.58	
A-1	92.31	86.18	6.13	45 BEND		0.50	0.00	1.96	10.05	100-YR	9.80	0.00	19.16	1	30	0	0	RCP	4.91	7.85	0.63	0.0130	568.32	568.29	0.50%	3.90	0.0022	29.00	No	0.013	0.58	0.72	0.02	0.09	0.03	0.07	10.07	572.79	572.90				
A-1	86.18	0.00	86.18	LAT A2	2.02	0.50	1.01	2.97	10.07	100-YR	9.79	9.89	29.05	1	30	0	0	RCP	4.91	7.85	0.63	0.0130	568.29	567.86	0.50%	5.92	0.0050	29.05	Yes	0.432	0.24	0.54	1.00	0.31	0.00	0.24	10.31	572.47	572.78	572.04			
A-1				MH A						100-YR																					0.54	0.82	0.25	0.68	0.20					7.27					
A-2	20.51	0.00	20.51	INL A-2	2.02	0.50	1.01	1.01	10.00	100-YR	9.90	9.90	9.90	1	21	0	0	RCP	2.41	5.50	0.44	0.0130	572.33	569.67	17.87%	4.12	0.0039	66.98	No	0.080		0.26	1.25	0.00	0.33	0.08	10.08	573.84	574.17	573.76	576.33	2.16	
A-2				WYE A-1						100-YR																5.92			0.26	0.54	0.35	0.45	0.19					573.12					
A-3	16.74	0.00	16.74	INL A-3	1.70	0.50	0.85	0.85	10.00	100-YR	9.80	8.33	8.33	1	18	0	0	RCP	1.77	4.71	0.38	0.0130	578.92	573.97	28.11%	4.71	0.0063	55.69	Yes	0.105		0.35	1.25	0.00	0.43	0.06	10.06	576.07	576.50	575.96	582.68	6.18	
A-3				WYE A						100-YR																8.51			0.35	1.13	0.35	1.00	0.39					574.57					
A-4	16.74	0.00	16.74	INLT A-4	1.39	0.50	0.70	0.70	10.00	100-YR	9.80	6.81	6.81	1	18	0	0	RCP	1.77	4.71	0.38	0.0130	579.12	574.67	26.02%	3.85	0.0042	53.58	Yes	0.070		0.23	1.25	0.00	0.29	0.07	10.07	576.27	576.56	576.20	583.03	6.47	
A-4				MH A						100-YR																6.85			0.23	0.73	0.35	0.65	0.25					575.36					
A-5	60.04	0.00	60.04	INL A-5	1.72	0.50	0.86	0.86	10.00	100-YR	9.80	8.43	8.43	1	21	0	0	RCP	2.41	5.50	0.44	0.0130	582.54	578.14	16.53%	3.50	0.0028	64.42	No	0.170		0.19	1.25	0.00	0.24	0.29	10.29	582.84	583.08	582.67	586.54	3.46	
A-5				WYE A						100-YR																8.57			0.19	1.14	0.35	1.07	0.40					581.20					
B	936.57	919.51	17.06	INL B-6	2.95	0.50	1.48	1.48	10.00	100-YR	9.80	14.46	14.46	1	24	0	0	RCP	3.14	6.28	0.50	0.0130	570.22	569.78	2.60%	4.60	0.0041	36.48	Yes	0.070		0.33	1.25	0.00	0.41	0.06	10.06	571.08	571.49		574.22	2.73	
B	919.51	913.17	6.34	BEND		0.50	0.00	1.48	10.06	100-YR	9.80	0.00	14.46	1	24	0	0	RCP	3.14	6.28	0.50	0.0130	569.78	569.75	0.50%	4.60	0.0041	16.00	Yes	0.026	0.33	0.33	0.43	0.00	0.14	0.02	10.08	570.86	571.01				
B	913.17	852.94	60.23	LAT B-5	1.05	0.50	0.53	2.00	10.08	100-YR	9.79	5.14	19.60	1	24	0	0	RCP	3.14	6.28	0.50	0.0130	569.75	569.44	0.50%	6.24	0.0075	19.60	Yes	0.452	0.33	0.60	1.00	0.28	0.00	0.16	10.25	570.56	570.84				
B	852.94	446.69	406.25	MH		0.50	0.00	2.00	10.25	100-YR	9.76	0.00	19.60	1	24	0	0	RCP	3.14	6.28	0.50	0.0130	569.44	564.57	1.20%	6.24	0.0075	24.77	Yes	1.049	0.60	0.60	0.55	0.00	0.33	1.09	11.33	569.78	570.11				
B	446.69	276.81	169.88	MH		0.50	0.00	2.00	11.33	100-YR	9.57	0.00	19.60	1	24	0	0	RCP	3.14	6.28	0.50	0.0130	564.57	562.53	1.20%	6.24	0.0075	24.78	Yes	1.275	0.60	0.60	0.55	0.00	0.33	0.45	11.79	566.70	566.73				
B	276.81	250.00	26.81	MH	2.63	0.50	1.32	3.32	11.79	100-YR	9.48	12.50	32.09	1	30	0	0	RCP	4.91	7.85	0.63	0.0130	562.03	561.95	0.30%	6.54	0.0061	32.09	No	0.164	0.60	0.66	1.00	0.06	0.00	0.07	11.85	565.37	565.43				
B	250.00	212.01	37.99	MH		0.50	0.00	3.32	11.85	100-YR	9.48	0.00	32.09	1	30	0	0	RCP	4.91	7.85	0.63	0.0130	561.95	561.84	0.30%	6.54	0.0061	32.09	No	0.233	0.66	0.66	0.55	0.00	0.32	0.10	11.95	564.84	565.20				
B	212.01	209.01	3.00	PipeSize		0.50	0.00	3.32	11.95	100-YR	9.48	0.00	32.09	1	36	0	0	RCP	7.07	9.42	0.75	0.0130	561.34	561.13	0.20%	4.54	0.0023	32.09	No	0.007	0.66	0.66	0.55	0.00	0.32	1.00	0.17	0.00	0.01	11.96	564.78	564.60				
B	209.01	58.90	150.11	LINE B-1	1.76	0.50	0.88	4.20	11.96	100-YR	9.46	8.32	40.41	1	36	0	0	RCP	7.07	9.42	0.75	0.0130	561.13	561.03	0.20%	5.72	0.0037	40.41	No	0.551	0.32	0.51	1.00	0.19	0.00	0.44	12.40	564.58	564.77	564.03			
B-1	433.03	416.33	16.70	INL B-2	0.88	0.50	0.44	0.44	10.00	100-YR	9.80	4.31	4.31	1	18	0	0	RCP	1.77	4.71	0.38	0.0130	566.48	566.09	3.45%	2.44	0.0017	19.51	Yes	0.028		0.09	1.25	0.00	0.12	0.13	10.13	566.31	566.43		571.57	5.14	
B-1	416.33	157.67	258.66	45 BEND		0.50	0.00	0.44	10.13	100-YR	9.79	0.00	4.31	1	18	0	0	RCP	1.77	4.71	0.38	0.0130	566.09	562.83	1.20%	2.44	0.0017	11.51	Yes	0.436	0.09	0.09	1.00	0.03	0.00	0.03	1.77	11.88	566.25	566.28				
B-1	157.67	154.67	3.00	PipeSize		0.50	0.00	0.44	11.88	100-YR	9.47	0.00	4.31	1	21	0	0	RCP	2.41	5.50	0.44	0.0130	562.58	562.57	0.40%	1.79	0.0007	10.02	No	0.002	0.09	0.09	1.00	-0.02	0.00	0.03	11.91	565.83	565.81				
B-1	154.67	0.00	154.67	LAT B-2	0.88	0.50	0.44	0.88	11.91	100-YR	9.47	4.17	8.48	1	21	0	0	RCP	2.41	5.50	0.44	0.0130	562.57	561.95	0.40%	1.52	0.0029	10.02	No	0.443	0.09	0.19	1.00	0.14	0.00	0.73	12.64	565.69	565.83	565.25			
B-1				MH B						100-YR																5.72			0.19	0.51	0.50	0.41	0.25					564.58					
B-2	9.24	0.00	9.24	INL B-1	0.88	0.50	0.44	0.44	10.00	100-YR	9.80	4.31	4.31	1	21	0	0	RCP	2.41	5.50	0.44	0.0130	564.09	562.57	16.45%	1.79	0.0007	64.22	No	0.007		0.05	1.25	0.00	0.06	0.09	10.09	565.96	566.02	565.95	568.09	2.07	
B-2				WYE B-1						100-YR																1.52			0.05	0.19	0.50	0.17	0.10					565.69					
B-3	15.84	0.00	15.84	INL B-3	1.28	0.50	0.64	0.64	10.00	100-YR	9.80	6.27	6.27	1	24	0	0	RCP	3.14	6.28	0.50	0.0130	564.37	562.53	11.61%	2.00	0.0008	77.08	No	0.012		0.06	1.25	0.00	0.08	0.13	10.13	566.25	566.33	566.24	568.37	2.04	
B-3				MH B						100-YR																6.54			0.06	0.66	0.35	0.64	0.23					565.37					
B-4	16.74	0.00	16.74	INL B-4	1.35	0.50	0.68	0.68	10.00	100-YR	9.80	6.63	6.63	1	21	0	0	RCP	2.41	5.50	0.44	0.0130	564.50	562.78	10.27%	2.76	0.0018	50.78	No	0.029		0.12	1.25	0.00	0.15	0.10	10.10	566.25	566.40	566.22	568.50	2.10	
B-4				MH B						100-YR																6.54			0.12	0.66	0.35	0.62	0.23					565.37					
B-5	20.96	0.00	20.96	INL B-5	1.05	0.50	0.53	0.53	10.00	100-YR	9.80	5.15	5.15	1	18	0	0	RCP	1.77	4.71	0.38	0.0130	570.22	570.00	1.07%	2.91	0.0024	10.87	Yes	0.050		0.13	1.25	0.00	0.16	0.12	10.12	571.45	571.62	571.40	574.22	2.60	
B-5				WYE B						100-YR																6.24			0.13	0.60	0.50	0.54	0.30					570.56					
C	846.26	829.42	16.84	INL C-7	2.13	0.50	1.07	1.07	10.00	100-YR	9.80	10.44	10.44	1	18	0	0	RCP	1.77	4.71	0.38	0.0130	572.11	569.36	16.32%	5.91	0.0099	42.44	No	0.166		0.54	1.25	0.00	0.68	0.05	10.05	573.31	573.98		576.11	2.13	
C	829.42	823.53	5.89	BEND		0.50	0.00	1.07	10.05	100-YR	9.80	0.00	10.44	1	24	0	0	RCP	3.14	6.28	0.50	0.0130	568.86	568.74	2.00%	3.32	0.0021	31.99	No	0.013	0.54	0.57	0.43	-0.03	0.07	0.03	10.08	573.10	573.14				
C	823.53	501.28	322.25	WYE C-6	2.03	0.50	1.02	2.08	10.08	100-YR	9.79	9.04	20.38	1	24	0	0	RCP	3.14	6.28	0.50	0.0130	568.74	567.78	0.30%	6.49	0.0081	20.38	No	2.615	0.17	0.65	1.00	0.48	0.00	0.83	10.91	572.60	573.08				
C	501.28	247.90	253.38	MH		0.50	0.00	2.08	10.91	100-YR	9.64	0.00	20.38	1	30	0	0	RCP	4.91	7.85	0.63	0.0130	567.53	567.28	0.50%	4.15	0.0025	29.00	No	0.625	0.65	0.27	0.55	-0.05	0.15	1.02	11.92	569.89	569.99				
C	247.90	152.97	94.93	MH	3.55	0.50	1.78	3.86	11.92	100-YR	9.46	16.80	37.18	1	30	0	0	RCP	4.91	7.85	0.63	0.0130	565.08	564.74	0.98%	7.57	0.0082	40.60	No	0.780	0.27	0.89	1.00	0.02	0.00	0.21	12.13	568.64	569.25				
C	152.97	117.98	34.99	BEND		0.50	0.00	3.86	12.13	100-YR	9.43	0.00	37.18	1	30	0	0	RCP	4.91	7.85	0.63	0.0130	565.08	564.74	0.98%	7.57	0.0082	40.60	No	0.287	0.89	0.89	0.37	0.00	0.33	0.08	12.21	567.53	567.86	567.24			
C-4	16.74	0.00	16.74	INL C-4	1.34	0.50	0.67	0.67	10.00	100-YR	9.80	6.57	6.57	1	18	0	0	RCP	1.77	4.71	0.38	0.0130	566.52	568.12	9.57%	3.72	0.0039	32.50	No	0.065		0.21	1.25	0.00	0.27	0.08	10.08	568.33	570.10	569.76	572.12	2.02	
C-4				MH C						100-YR																7.57			0.21	0.89	0.35	0.82	0.31					568.64					
C-5	16.74	0.00	16.74	INL C-5	2.21	0.50	1.11	1.11	10.00	100-YR	9.80	10.83	10.83	1	24	0	0	RCP	3.14	6.28	0.50	0.0130	566.27	568.12	11.07%	3.45	0.0023	75.27	No	0.038		0.18	1.25	0.00	0.23	0.08	10.08	569.81	570.04	569.77	572.12	2.08	
C-5				MH C						100-YR																7.57			0.18	0.89	0.35	0.83	0.31					568.64					
C-6	20.36	0.00	20.36	INL C-6	2.03	0.50	1.02	1.02	10.00	100-YR	9.80	9.95	9.95	1	21	0	0	RCP	2.41	5.50	0.44	0.0130	568.87	572.11	15.92%	4.14	0.0039	63.22	No	0.080		0.27	1.25	0.00	0.33	0.08	10.08	573.53	573.86	573.45	576.11	2.25	
C-6				WYE C						100-YR																6.49			0.27	0.65	0.50	0.52	0.33					572.60					
E	155.74	132.18	23.56	INL E-3	3.09	0.50	1.55	1.55	10.00	100-YR	9.80	15.14	15.14	1	24	0	0	RCP	3.14	6.28	0.50	0.0130	566.16	565.16	4.26%	4.82	0.0045	46.69	No	0.106		0.36	1.25	0.00	0.45	0.08	10.08	567.00	567.45		570.16	2.71	
E	132.18	124.57	7.61	BEND		0.50	0.00	1.55	10.08	100-YR	9.79	0.00	15.14	1	24	0	0	RCP	3.14	6.28	0.50	0.0130	565.15	564.83	4.26%	4.82	0.0045	46.69	No	0.034	0.36	0.36	1.00	0.00	0.00	0.03	10.11	566.90	566.90				
E	124.57	85.75	38.82	WYE E2	1.42	0.50	0.71	2.26	10.11	100-YR	9.79	6.97	22.11	1	24	0	0	RCP	3.14	6.28	0.50	0.0130	564.83	563.67	3.00%	7.04	0.0096	39.18	No	0.371	0.36	0.77	1.00	0.41	0.00	0.09	10.20	566.45	566.86				
E	85.75	25.00	60.75	MH E	0.98	0.50	0.49	2.75	10.20	100-YR	9.77	4.79	26.90	1	30	0	0	RCP	4.91	7.85	0.63	0.0130	563.17	562.93	0.40%	5.48	0.0043	26.90	No	0.261	0.77	0.47	0.25	0.27	0.12	0.18	10.38	565.69	566.08	565.43			
E-1	168.67	157.36	11.31	INL E-1	0.98	0.50	0.49	0.49	10.00	100-YR	9.80	4.80	4.80	1	21	0	0	RCP	2.41	5.50	0.44	0.0130	565.46	565.26	1.80%	2.00	0.0009	21.26	No	0.010		0.06	1.25	0.00	0.08	0.09	10.09	566.47	566.55		569.46	2.91	
E-1	157.36	91.16	66.20	BEND		0.50	0.00	0.49	10.09	100-YR	9.79	0.00	4.80	1	21	0	0	RCP	2.41	5.50	0.44	0.0130	565.26	564.07	1.80%	2.00	0.0009	21.26	No	0.061	0.06	0.06	1.00	0.02	0.00	0.02	0.55	10.65	566.44	566.46			
E-1	91.16	0.00	91.16	MH E-1		0.50	0.00	0.49	10.65	100-YR	9.69	0.00	4.80	1	21	0	0	RCP	2.41	5.50	0.44	0.0130	564.07	563.54	0.57%	2.00	0.0009	11.96	No	0.084	0.06	0.06	0.55	0.00	0.03	0.76	11.41	566.34	566.38	566.26			
E-1				MH E																						5.48			0.06	0.47	0.25	0.45	0.12					565.69					
E-2	28.50	0.00	28.50	INL E-2	1.42	0.50	0.71	0.71	10.00	100-YR	9.80	6.98	6.98	1	18	0	0	RCP	1.77	4.71	0.38	0.0130	566.16	565.08	3.78%	3.95	0.0044	20.42	No	0.126		0.24	1.25	0.00	0.30	0.12	10.12	567.61	567.91	567.49	570.16	2.25	
E-2				WYE E						100-YR																7.04			0.24	0.77	0.50	0.65	0.38					566.45					
D	753.35	709.22	44.13	END	5.03	0.50	2.51	2.51	10.00	100-YR	9.80	24.62	24.62	1	30	0	0	RCP	4.91	7.85	0.63	0.0130	571.64	571.20	0.80%	5.02	0.0036	36.69	No	0.159		0.39	1.00	0.00	0.00	0.15	10.15	575.17	575.17		580.48	5.31	
D	709.22	404.22	305.00	MH	5.79	0.50	2.90	5.41	10.15	100-YR	9.78	28.31	52.94	1	42	0	0	RCP	9.62	11.00	0.88	0.0130	569.38	568.77	0.80%	5.50	0.0028	89.59	No	0.845	0.39	0.47	1.00	0.08	0.00	0.00	0.92	11.07	574.93	575.01				
D	404.22	282.20	122.02	MH		0.50	0.00	5.41	11.07	100-YR	9.61	0.00	52.94	1	48	0	0	RCP	12.57	12.57	1.00	0.0130	569.38	568.77	0.30%	4.21	0.0014	78.68	No	0.166	0.47	0.28	1.00	-0.10	0.00	0.00	0.48	11.55	574.19	574.09				
D	282.20	162.50	119.70	BEND	3.38	0.50	1.69	7.10	11.55	100-YR	9.53	16.10	69.04	1	48	0	0	RCP	12.57	12.57	1.00	0.0130	567.77	567.12	0.30%	5.49	0.0023	78.68	No	0.277	0.28	0.47	1.00	0.19	0.00	0.00	0.36	11.92	573.83	574.02	573.55			
D-1	181.78	1.13	180.65	INL D-1	2.20	0.50	1.10	1.10	10.00	100-YR	9.80	10.78	10.78	1	18	0	0	RCP	1.77	4.71	0.38	0.0130	572.66	570.92	4.00%	6.10	0.0105	21.01	No	1.903		0.58	1.25	0.00	0.72	0.49	10.49	573.31	574.04	571.41	577.17	3.13	
D-2	43.42	0.00	43.42	END	3.38	0.50	1.69	1.69	10.00	100-YR	9.80	16.56	16.56	1	24	0	0	RCP	3.14	6.28	0.50	0.0130	572.66	570.92	4.00%	5.27	0.0054	45.24	No	0.233		0.43	1.00	0.00	0.00	0.14	10.14	574.65	574.65	574.42	578.48	3.83	
D-2				MH D						100-YR																4.21			0.41	0.28	0.25	0.17	0.07					574.19					
D-3	45.28	0.00	45.28	END	4.21	0.50	2.11	2.11	10.00	100-YR	9.80	20.63	20.63	1	24	0	0	RCP	3.14	6.28	0.50	0.0130	574.09	570.38	4.00%	6.57	0.0083	45.24	No	0.377		0.67	1.00	0.00	0.00	0.11	10.11	575.73	575.73	575.35	580.59	4.86	
D-3				MH D						100-YR																5.50			0.67	0.47	0.25	0.30	0.12					574.93					
D-5	294.11	231.53	62.58	INL D-5	1.58	0.50	0.79	0.79	10.00	100-YR	9.80	7.74	7.74	1	21	0	0	RCP	2.41	5.50	0.44	0.0130	575.90	574.78	1.68%	3.22	0.0024	20.54	Yes	0.149		0.16	1.25	0.00	0.20	0.32	10.32	576.24	576.44		579.90	3.46	
D-5	231.53	0.00	231.53	BEND		0.50	0.00	0.79	10.32	100-YR	9.75	0.00	7.74	1	21	0	0	RCP	2.41	5.50	0.44	0.0130	574.78	570.38	1.41%	3.22	0.0024	18.81	No	0.553	0.16	0.16	0.37	0.00	0.06	1.20	11.52	576.03	576.09	575.48			
D-5				MH D						100-YR																5.50			0.16	0.47	0.25	0.43	0.12					574.93					
F	34.27	15.73	18.54	INL D-1	5.15	0.50	2.58	2.58	10.00	100-YR	9.80	25.24	25.24	2	24	0	0	RCP	3.14	6.28	0.50	0.0130	565.14	564.98	0.89%	8.03	0.0124	25.24	No	0.231		1.00	1.00	0.00





NOTE: AN APPROVED WHITE PIGMENTED CURING COMPOUND SHALL BE APPLIED TO THE SURFACE OF THE PILOT CHANNEL AS SOON AS IT HAS BEEN POURED AND FINISHED.

PILOT CHANNEL DETAIL
NTS



LEGEND

545	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
560	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	PROPOSED RETAINING WALL
558.1	PROPOSED ELEVATION
543.45TC	PROPOSED TOP OF CURB

NOTES:
1. ALL DETENTION SYSTEMS TO BE COMPLETED PER PLAN AND FUNCTIONING PRIOR TO ANY PAVING CONSTRUCTION. THE BOTTOM AND SIDES TO HAVE EITHER ANCHORED CURLEX OR SOD. MUST BE SEEDED WITH ANNUAL GRASS SEED.
2. NO CITY ACCEPTANCE UNTIL 75%-80% OF ALL DISTURBED AREA TO HAVE 1" MINIMUM STAND OF ANNUAL GRASS (NO WINTER RYE OR SIMILAR.

STAGE STORAGE - POND 1

	Elevation (FT)	Pond Surface (SF)	Volume (CF)	Cum. Volume (CF)
	558.50	0	0.0	0.0
	559.00	2440	610.0	610.0
	560.00	20067	11253.5	11863.5
	561.00	48460	34263.5	46127.0
	561.80	70141	47440.3	93567.3
5YR	562.00	75561	62010.5	108137.5
	562.10	78735	7714.8	115852.3
10YR	562.40	88257	32763.5	140901.0
25YR	562.60	94604	51049.6	159187.1
	563.00	107300	91430.5	199568.0
100YR	563.10	108086	10769.3	210337.3
	564.00	115161	111230.5	310798.5
	565.00	123059	119110.0	429908.5
	566.00	131887	127473.0	557381.5

Output Summary North Pond

	5YR	10YR	25YR	100YR
Pre-Q (cfs)	78	96	115	148
*Fut-Prop Inflow (cfs)	126	152	178	226
Fut-Prop Outflow (cfs)	67	80	90	119
Fut-PropPeak WSE (ft)	562.1	562.4	562.6	563.1
**Fut-Prop Peak Sto. (ac-ft)	2.57	3.12	3.73	4.78
Clogged***				563.6

*Includes interim phases + proposed future condition
***HECHMS computes volume with conical method.
**1st weir stage as blocked

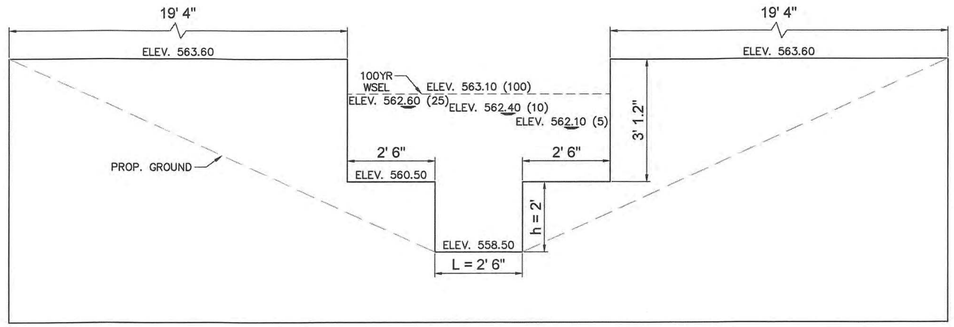
Outlet Works

Stage 1	Weir
L (ft)	2.5
Crest (ft-MSL)	558.5
c	*
Stage 2	**Weir**
L (ft)	5
Crest (ft-MSL)	560.5
c	*

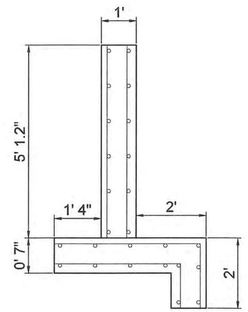
*submerged condition

Elev-Area-Volume-Discharge

EL (ft)	Area (ac)	Cum. Vol. (ac-ft)	Discharge (cfs)
558.5	0	0	0
559	0.06	0.02	0.1
560	0.46	0.28	12.3
561	1.11	1.06	27.3
561.8	1.61	2.15	55.2
562	1.73	2.48	63.9
562.3	1.95	3.03	77.6
562.6	2.17	3.65	88.6
563	2.46	4.58	113.5
563.1	2.48	4.83	119.4
564	2.84	7.13	171.2
565	2.83	9.86	356.1
566	3.03	12.79	660



SECTION A-A



SECTION B-B

OUTFALL STRUCTURE
N.T.S.

NOTES:
1. 12" THICK CLASS F 4200 PSI CONCRETE FOR ENTIRE STRUCTURE. 6.5 SACK/CY MIN.
2. #4 BARS @ 12" O.C.E.W.

POND 1 DRAINAGE AREAS

DA	Pre-Developed Area (AC)	Developed Area (AC)	Bypass Area (AC)	Flow Through Area (AC)
A	15.86			
B	10.75			
A-1		3.91		
A-2		2.02		
A-3		1.70		
A-4		1.39		
Fut. A-5		1.72		
Fut. A-6		1.74		
Fut. A-7		2.04		
A-8		6.63		
B-1		0.88		
B-2		0.88		
B-3		1.28		
B-4		1.35		
B-5		1.05		
B-6		2.95		
B-7		0.87	0.87	
TOTAL	26.61	30.41	0.87	0.00

Noth Pond Rating Curve HECRAS

WSE (ft)	Q (cfs)
558.5	0
559.02	0.1
559.82	10
560.59	20
561.15	30
561.42	40
561.68	50
561.91	60
562.14	70
562.35	80
562.64	90
562.79	100
562.94	110
563.11	120
563.28	130
563.48	140
564.48	200
564.8	300
564.98	350
565.47	500
565.78	600
566	660

RECORD DRAWINGS

To the best of our knowledge Engineering Concepts & Design, L.P., hereby states that this plan is As-Built. This information provided is based on surveying at the site and information provided by the contractor.

RYAN C. KING, P.E. — 8/3/2022 DATE

RELEASED FOR CONSTRUCTION
ALL RESPONSIBILITY FOR ADEQUACY OF DESIGN REMAINS WITH THE DESIGN ENGINEER. THE CITY OF ROCKWALL, IN REVIEWING AND RELEASING PLANS FOR CONSTRUCTION, ASSUMES NO RESPONSIBILITY FOR ADEQUACY OR ACCURACY OF DESIGN.

CITY — DATE

* ALL RESPONSIBILITY FOR ADEQUACY OF DESIGN REMAINS WITH THE DESIGN ENGINEER. THE CITY OF ROCKWALL, IN REVIEWING AND RELEASING PLANS FOR CONSTRUCTION, ASSUMES NO RESPONSIBILITY FOR ADEQUACY OR ACCURACY OF DESIGN.
* SEE 'NTMWD NOTES' SHEET 1

*REFER TO TERRACINA DETENTION STUDY PREPARED BY McLENDON HYDROLOGY ENGINEERING, LLC JANUARY 2020.

CAUTION! EXISTING UTILITIES

CONTRACTOR SHOULD CALL 1-800-DIG-TESS PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITIES FOR EXISTING UTILITY LOCATIONS. EXISTING UTILITIES AND UNDERGROUND FACILITIES INDICATED ON THESE PLANS HAVE BEEN LOCATED FROM REFERENCE INFORMATION. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY BOTH HORIZONTALLY AND VERTICALLY THE LOCATION OF ALL EXISTING UTILITIES AND UNDERGROUND FACILITIES PRIOR TO CONSTRUCTION AND TO TAKE NECESSARY PRECAUTIONS IN ORDER TO PROTECT ALL FACILITIES ENCOUNTERED. THE CONTRACTOR SHALL PRESERVE AND PROTECT ALL EXISTING UTILITIES FROM DAMAGE DURING CONSTRUCTION.

BENCHMARKS:
CP 101 - Square cut on headwall west side of Rochelle road & 54' south of center of Polar Point Drive Elevation = 559.95
CP 103 - "X" in concrete east side of Rochelle Road, 1834' south of center of Polar Point Dr. Elevation = 564.54'
CP 104 - Capped 5/8" Iron rod east side of Rochelle Road & 1250' south of the center of Polar Point Dr. Elevation = 572.70'
CP 105 - Capped 5/8" Iron rod east side of Rochelle Road & 826' south of the center of Polar Point Dr. Elevation = 568.75'

ENGINEERINGCONCEPTS & DESIGN, L.P.
ENGINEERING / PROJECT MANAGEMENT / CONSTRUCTION SERVICES - FIRM REG. #F-001145
201 WINDCO CIR, STE 200, WYLIE, TX 75098
972-941-8400 FAX: 972-941-8401 WWW.ECDLP.COM

REVISIONS:

DRAWN: RCK DATE:
CHECKED: RKH DATE: 8/26/2020
PROJECT NO.: 06537
DWG FILE NAME: 06537 DET.DWG

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF CONSTRUCTION. THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RYAN C. KING, P.E. 123635

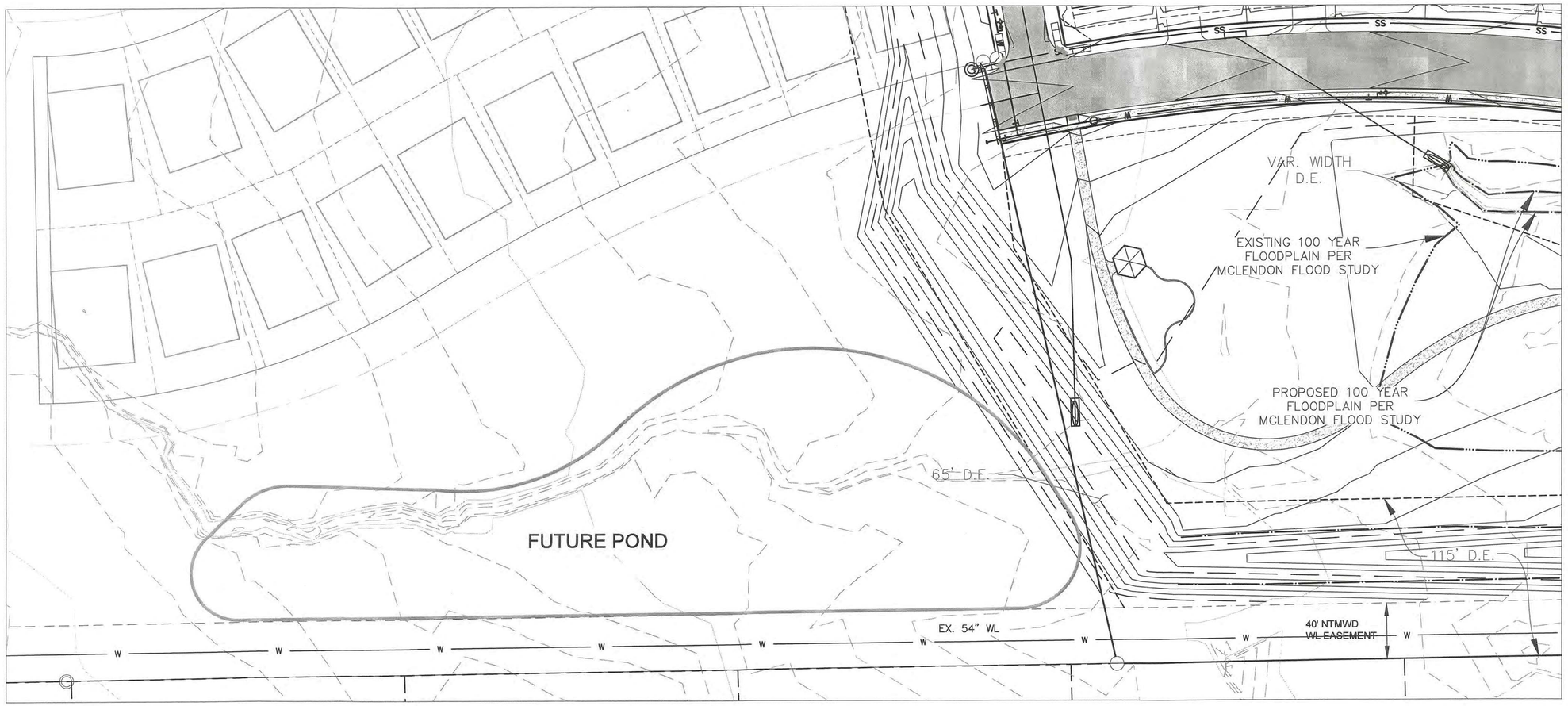
STATE OF TEXAS — RYAN C. KING — 123635 — REGISTERED PROFESSIONAL ENGINEER — 8/26/2020

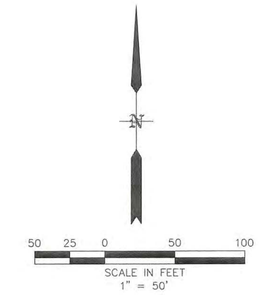
DETENTION POND 1

TERRACINA PHASE 1

CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

SHEET 28 OF 62





LEGEND

545	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
560	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	PROPOSED RETAINING WALL
558.1	PROPOSED ELEVATION
543.45TC	PROPOSED TOP OF CURB

NOTES:
1. WORK FOR FUTURE POND TO BE PERFORMED WITH FUTURE PHASE OF DEVELOPMENT.
2. FUTURE POND TO CONTAIN DRAINAGE SYSTEM D, E, FUT 3, J, OS1.

Ultimate Drainage Area Calculations

Drainage Area	Area (AC)	Tc (min)	C	K	I_{100} (in/hr)	Q_{100} (cfs)	Description
A-1	3.91	10.00	0.50	1.00	9.80	19.16	To Inlet A-1
A-2	2.02	10.00	0.50	1.00	9.80	9.90	To Inlet A-2
A-3	1.70	10.00	0.50	1.00	9.80	8.33	To Inlet A-3
A-4	1.39	10.00	0.50	1.00	9.80	6.81	To Inlet A-4
Fut. A-5	1.72	10.00	0.50	1.00	9.80	8.43	To Inlet A-5
Fut. A-6	1.74	10.00	0.50	1.00	9.80	8.53	Future Inlet
Fut. A-7	2.04	10.00	0.50	1.00	9.80	10.00	Future Inlet
A-8	6.63	10.00	0.50	1.00	9.80	32.49	Pond 1 Open Space
A-9	0.58	10.00	0.50	1.00	9.80	2.86	Bypass Pond 1
B-1	0.88	10.00	0.50	1.00	9.80	4.31	To Inlet B-1
B-2	0.88	10.00	0.50	1.00	9.80	4.31	To Inlet B-2
B-3	1.28	10.00	0.50	1.00	9.80	6.27	To Inlet B-3
B-4	1.35	10.00	0.50	1.00	9.80	6.63	To Inlet B-4
B-5	1.05	10.00	0.50	1.00	9.80	5.15	To Inlet B-5
B-6	2.95	10.00	0.50	1.00	9.80	14.46	To Inlet B-6
B-7	0.87	10.00	0.50	1.00	9.80	4.26	To Inlet B-7 (Bypass Pond 1)
E-1	0.98	10.00	0.50	1.00	9.80	4.80	To Inlet C-1
E-2	1.42	10.00	0.50	1.00	9.80	6.98	To Inlet C-2
E-3	3.09	10.00	0.50	1.00	9.80	15.14	To Inlet C-3
C-4	1.34	10.00	0.50	1.00	9.80	6.57	To Inlet C-4
C-5	2.21	10.00	0.50	1.00	9.80	10.83	To Inlet C-5
C-6	2.03	10.00	0.50	1.00	9.80	9.95	To Inlet C-6
C-7	2.13	10.00	0.50	1.00	9.80	10.44	To Inlet C-7
C-8	3.79	10.00	0.50	1.00	9.80	18.56	Open Space Bypass
C-9	0.84	10.00	0.50	1.00	9.80	4.12	To Inlet C-9
C-10	2.95	10.00	0.50	1.00	9.80	14.46	Open Space Bypass
C-11	0.58	10.00	0.50	1.00	9.80	2.84	Open Space Bypass
D-1	2.20	10.00	0.50	1.00	9.80	10.78	To Inlet D-1
D-5	1.58	10.00	0.50	1.00	9.80	7.74	To Inlet D-5
D-8	4.03	10.00	0.50	1.00	9.80	19.75	Future Pond Open Space
Fut. D-2	3.38	10.00	0.50	1.00	9.80	16.56	To System D
Fut. D-3	2.07	10.00	0.50	1.00	9.80	10.14	To System D
Fut. D-4	2.14	10.00	0.50	1.00	9.80	10.49	To System D
Fut. D-6	2.69	10.00	0.50	1.00	9.80	13.20	To System D
Fut. D-7	2.33	10.00	0.50	1.00	9.80	11.43	To System D
Fut. G-1	3.05	10.00	0.50	1.00	9.80	14.94	To System G
Fut. G-2	2.22	10.00	0.50	1.00	9.80	10.90	To System G
Fut. G-3	1.86	10.00	0.50	1.00	9.80	9.10	To System G
Fut. 1	3.06	10.00	0.50	1.00	9.80	14.99	Sheet Flow to North
Fut. 2	8.68	10.00	0.50	1.00	9.80	42.53	To Ex. 4'x4' Drop Inlet
Fut. 3	42.60	10.00	0.50	1.00	9.80	208.74	To Future Detention Pond
Fut. 4	3.22	10.00	0.50	1.00	9.80	15.78	Sheet Flow to West
J	22.71	20.00	0.35	1.00	8.30	65.97	To Future Detention Pond
CB	1.84	20.00	0.35	1.00	8.30	5.35	To Ex. Improved Channel

RECORD DRAWINGS

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RYAN C. KING, P.E. — DATE 8/3/2022

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CITY _____ DATE _____

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ENGINEERINGCONCEPTS & DESIGN, L.P.
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REVISIONS:

DRAWN: RCK DATE:
CHECKED: RKH DATE: 8/26/2020
PROJECT NO.: 06537
DWG FILE NAME: 06537 DET.DWG

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STATE OF TEXAS — RYAN C. KING — 123635 — REGISTERED PROFESSIONAL ENGINEER — 8/26/2020

DETENTION POND 2

TERRACINA PHASE 1

CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

SHEET 29 OF 62



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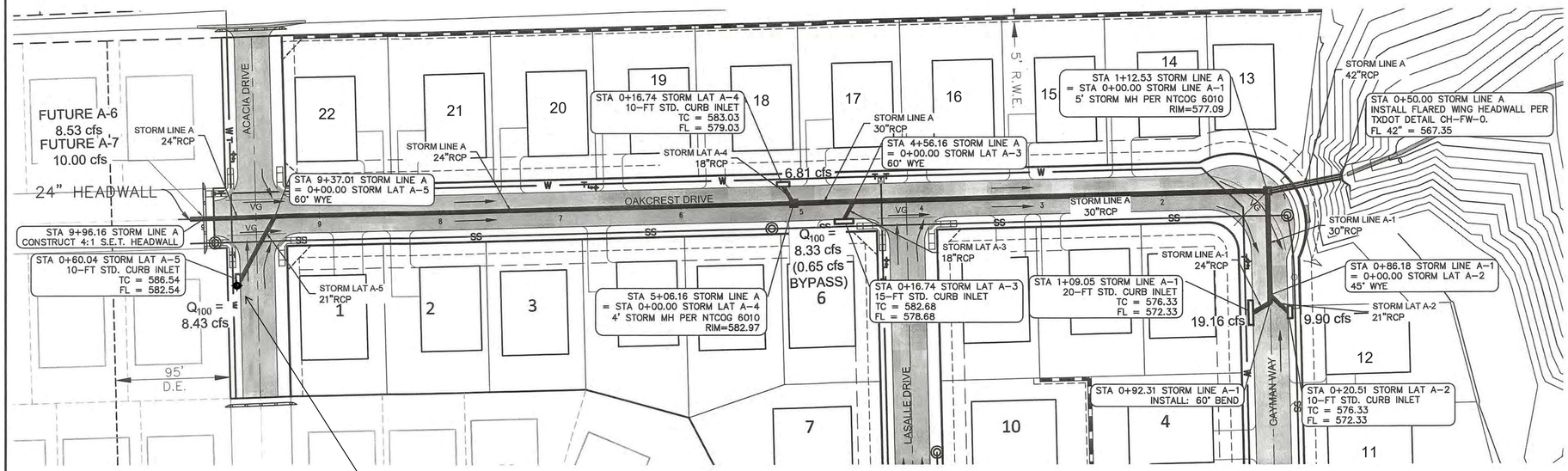
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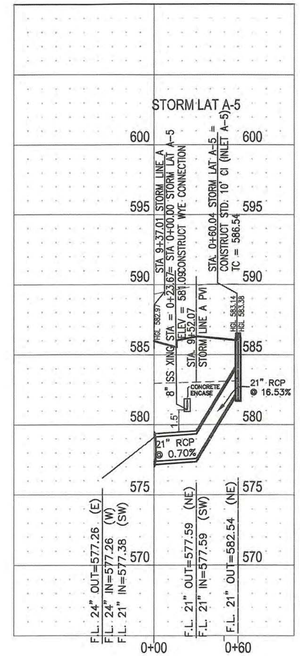
STORM OVERALL PLAN

TERRACINA PHASE 1

CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

SHEET 30 OF 62





50 25 0 50 100
SCALE IN FEET
1" = 50'

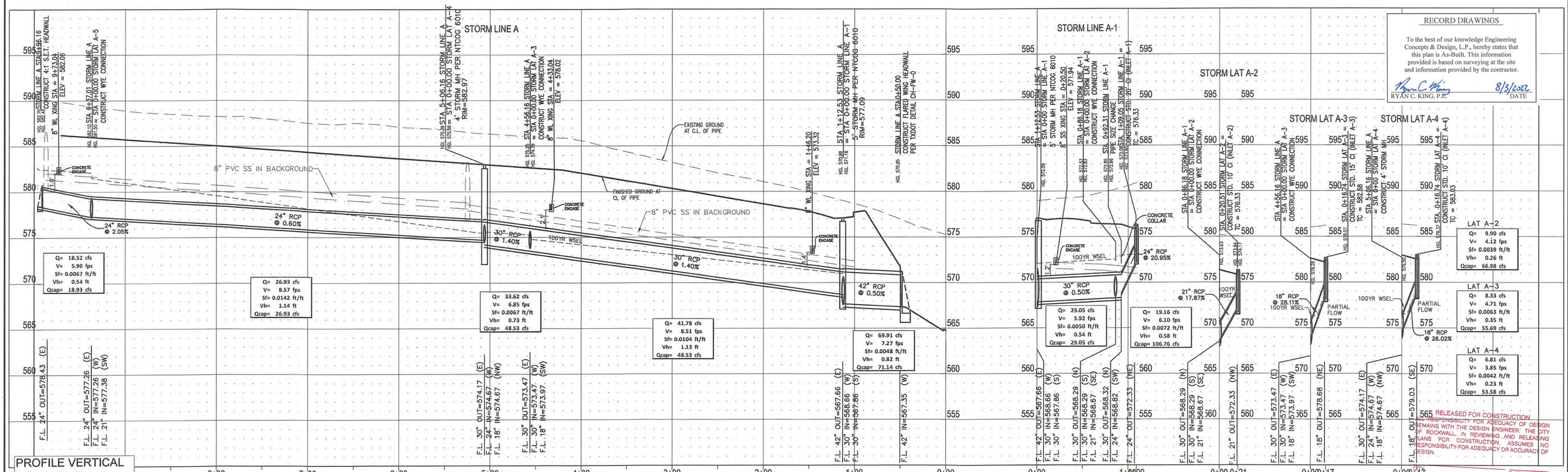
LEGEND

- MATCHLINE
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- R.O.W. LINE LINE
- EXISTING UTILITY POLE
- OHW — EXISTING OVERHEAD UTILITY

LAT A-5

Q=	8.43 cfs
V=	3.50 fps
Sf=	0.0028 ft/ft
Vh=	0.19 ft
Qcap=	64.42 cfs

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PROFILE VERTICAL
SCALE 1"=5'

RECORD DRAWINGS

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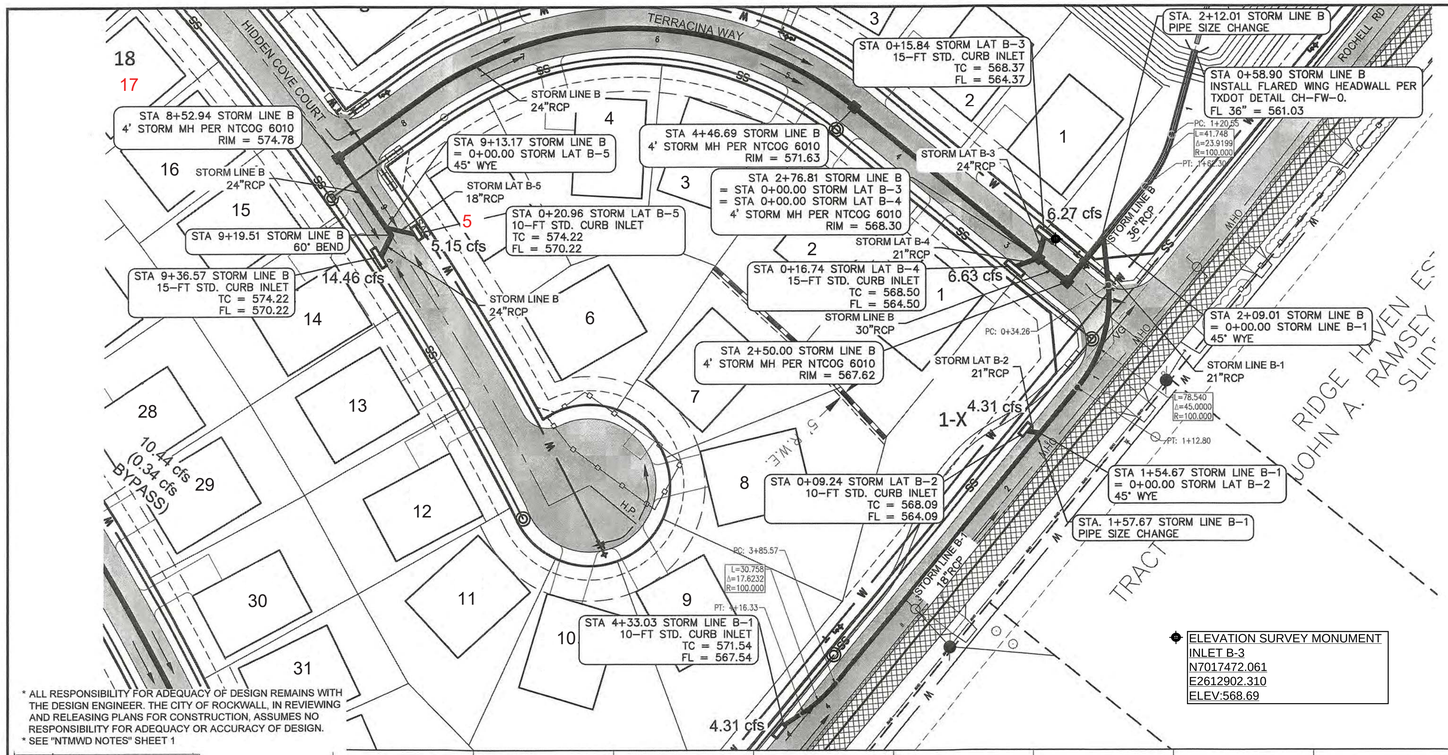
STATE OF TEXAS — RYAN C. KING — 123635 — REGISTERED PROFESSIONAL ENGINEER — 8/26/2020

STORM PLAN 1

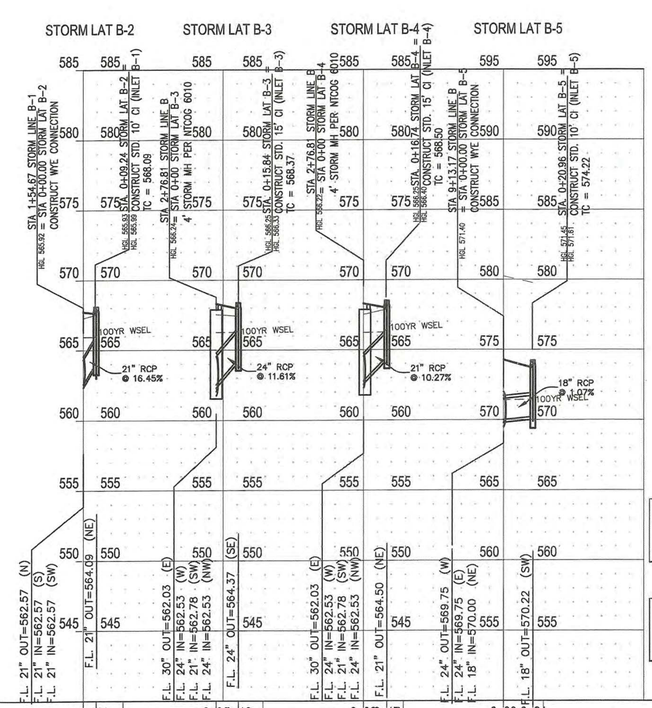
TERRACINA PHASE 1

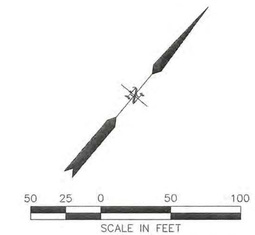
CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

SHEET 31 OF 62



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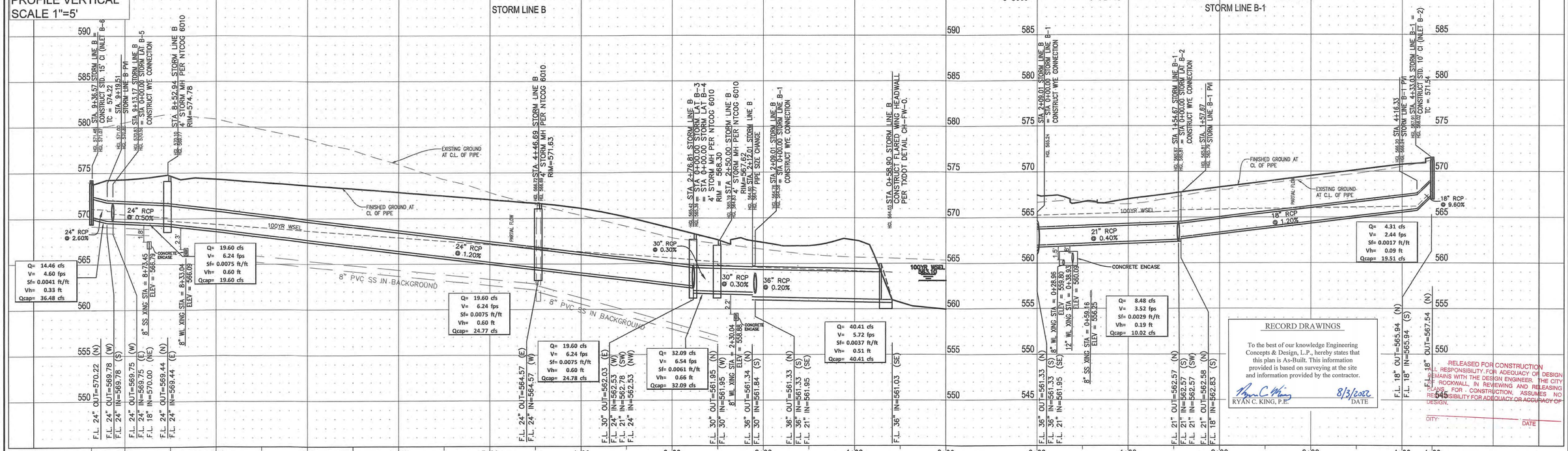
LAT B-2
Q= 4.31 cfs
V= 1.79 fps
Sf= 0.0007 ft/ft
Vh= 0.05 ft
Qcap= 64.27 cfs

LAT B-4
Q= 6.63 cfs
V= 2.76 fps
Sf= 0.0018 ft/ft
Vh= 0.12 ft
Qcap= 50.78 cfs

LAT B-3
Q= 6.27 cfs
V= 2.00 fps
Sf= 0.0008 ft/ft
Vh= 0.06 ft
Qcap= 77.08 cfs

LAT B-5
Q= 5.15 cfs
V= 2.91 fps
Sf= 0.0024 ft/ft
Vh= 0.13 ft
Qcap= 10.87 cfs

PROFILE VERTICAL
SCALE 1"=5'



RECORD DRAWINGS

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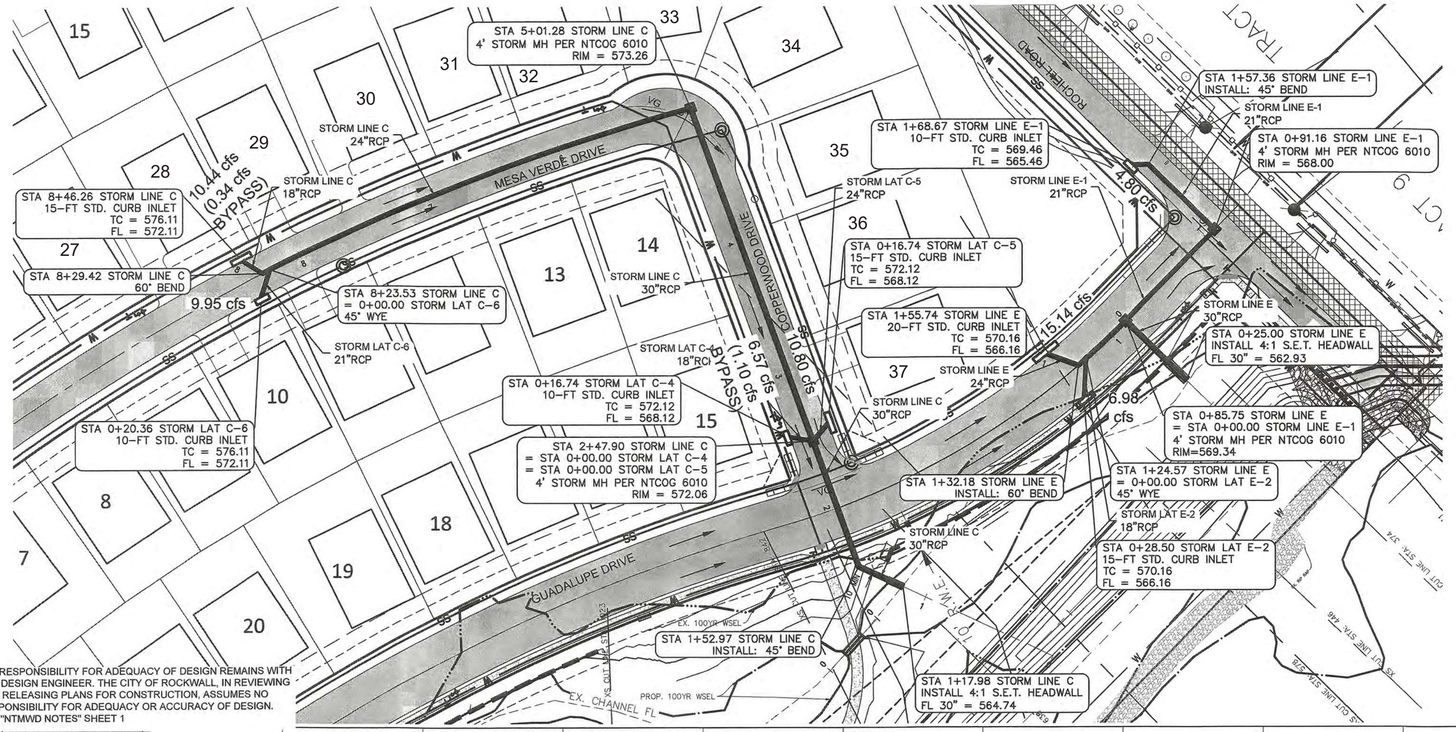
STATE OF TEXAS — RYAN C. KING — 123635 — REGISTERED PROFESSIONAL ENGINEER — 8/26/2020

STORM PLAN 2

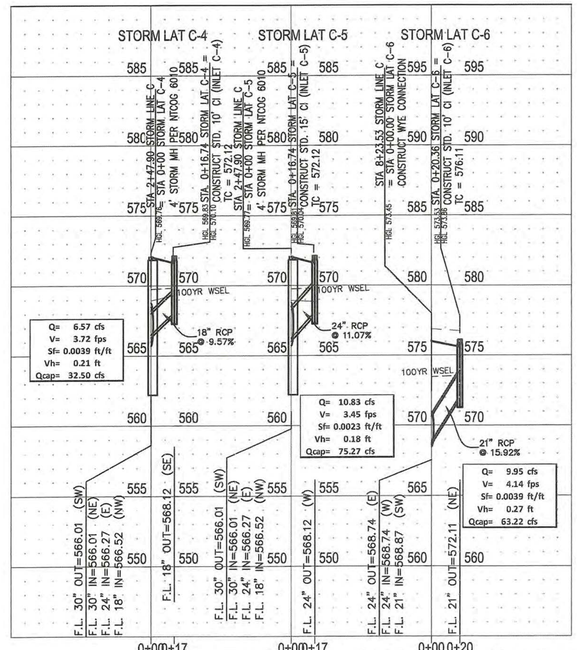
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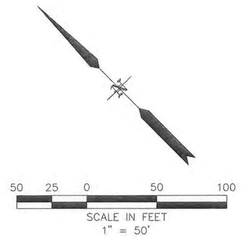
CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

SHEET 32 OF 62



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LEGEND

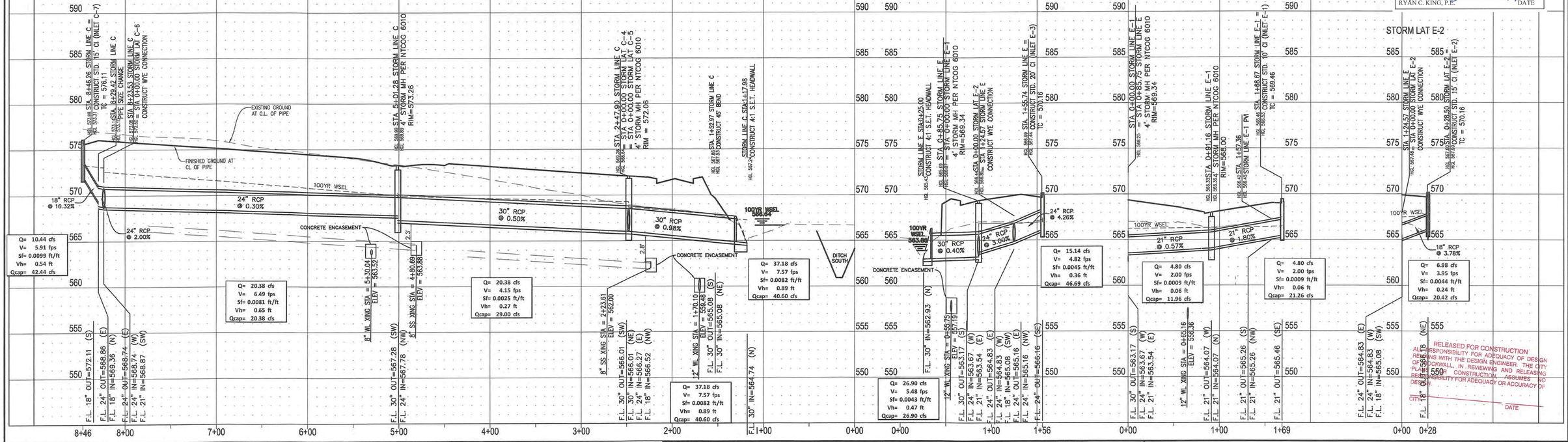
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RYAN C. KING, P.E. — DATE 8/3/2022

PROFILE VERTICAL
SCALE 1"=5'



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AS NOTED
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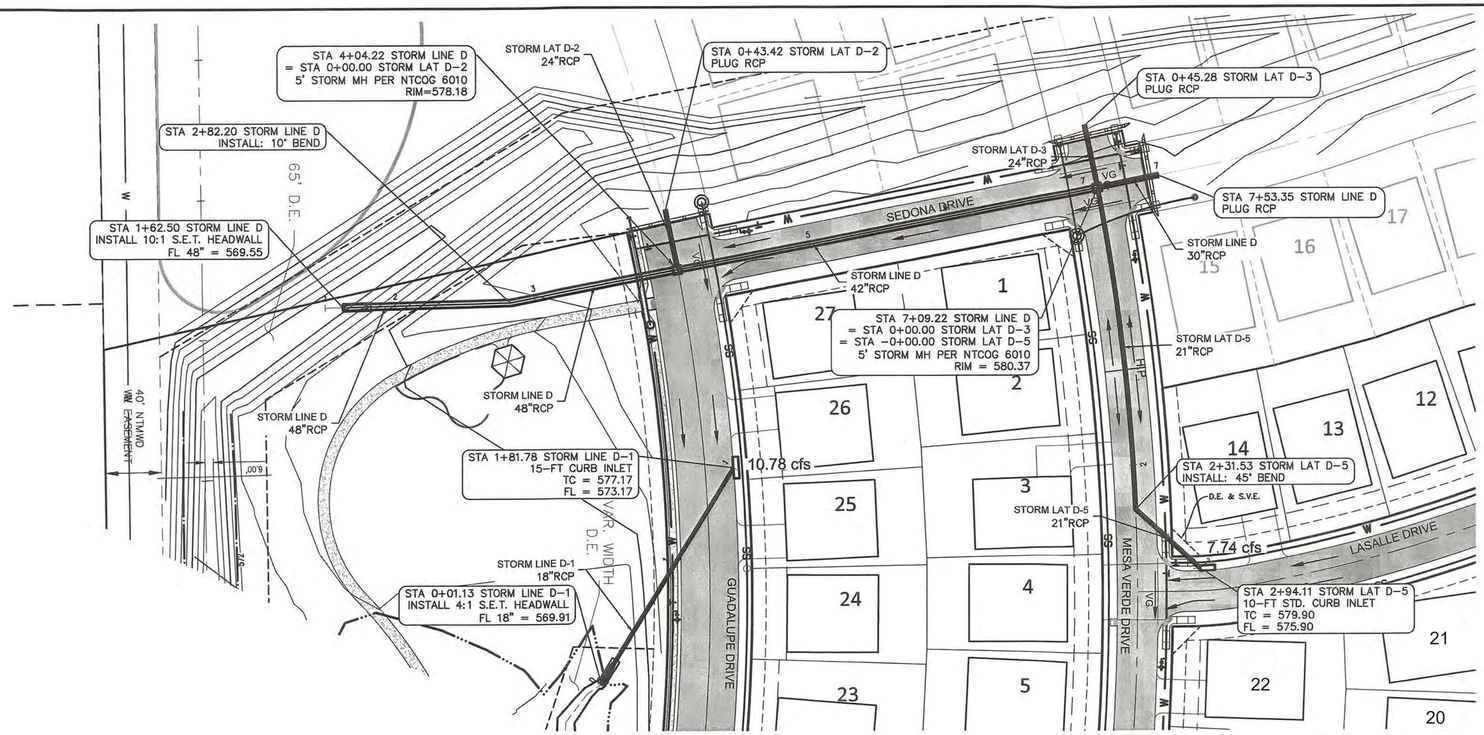
STATE OF TEXAS — RYAN C. KING — 123635 — REGISTERED PROFESSIONAL ENGINEER — 8/26/2020

STORM PLAN 3

TERRACINA PHASE 1

CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

SHEET 33 OF 62



50 25 0 50 100

SCALE IN FEET
1" = 50'

LEGEND

- MATCHLINE
- W — PROPOSED WATER LINE
- W — EXISTING WATER LINE
- SS — PROPOSED SANITARY LINE
- SS — EXISTING SANITARY LINE
- PROPOSED STORM LINE
- EXISTING STORM LINE
- R.O.W. CENTER LINE
- R.O.W. LINE LINE
- EXISTING UTILITY POLE
- OHW — EXISTING OVERHEAD UTILITY

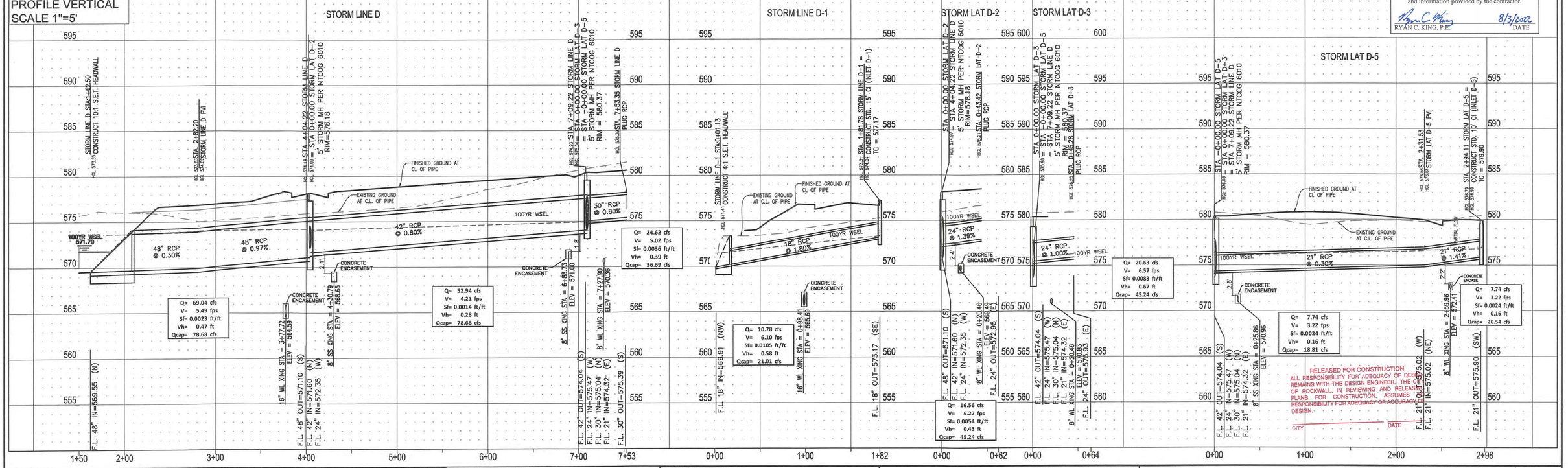
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* SEE "NTMWD NOTES" SHEET 1

RECORD DRAWINGS

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PROFILE VERTICAL
SCALE 1"=5'



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BENCHMARKS:
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CHECKED:	RKH	DATE:	8/26/2020
PROJECT NO.:	06537		
DWG FILE NAME:	06537 ST.DWG		

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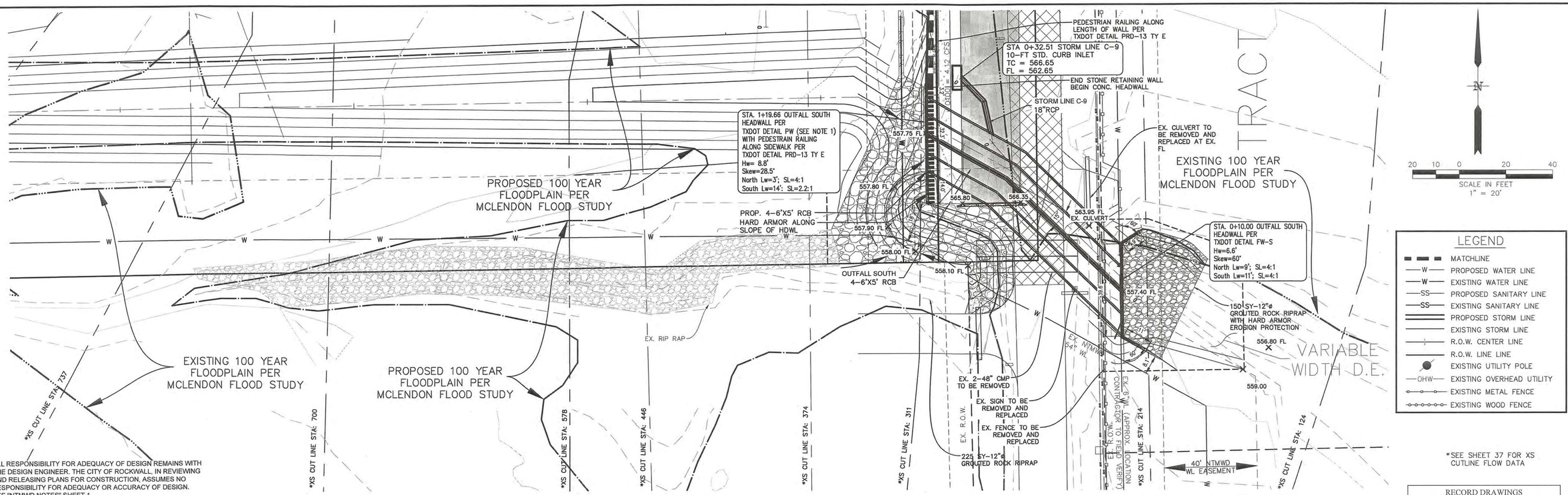
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STORM PLAN 4

TERRACINA PHASE 1

CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

SHEET 34 OF 62



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* SEE "NTMWD NOTES" SHEET 1

*SEE SHEET 37 FOR XS CUTLINE FLOW DATA

PROFILE VERTICAL
SCALE 1"=5'

50 25 0 50 100
SCALE IN FEET
1" = 50'

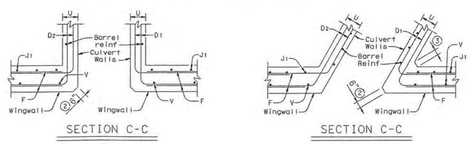
CAUTION! EXISTING UTILITIES
MINIMUM OF 72 HOURS ADVANCE NOTICE REQUIRED TO SCHEDULE NTMWD LINE LOCATOR.
LINE LOCATOR MUST BE ON-SITE DURING EXCAVATION FOR VERIFICATION AND LOCATION OF FACILITIES.
CONTACT NTMWD LINE LOCATORS AT 469-626-4569.

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NOTE 1:
USE MODIFIED SECTION C-C BELOW FOR UPSTREAM HEADWALL CHAMFER ON 3 SIDES
SEE TXDOT DETAIL MODIFIED PW, SHEET 58 .



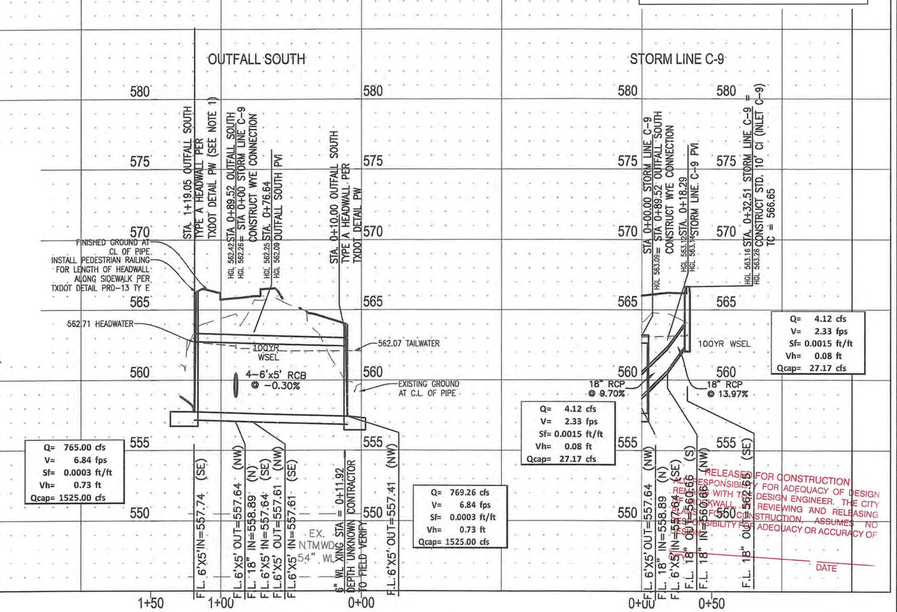
TXDOT HEADWALL DETAIL PW MODIFICATION
N.T.S.

South Outfall Culvert at Rochelle Road

*Existing Structure to be replaced	
Existing Q100 (cfs)	765
Existing U/S WSE (ft)	565.44
Existing D/S WSE (ft)	562.56

Proposed 4@ 6'x5' RCBs	
Culvert Hydra	Interim
Q100 (cfs)	765
U/S WSE (ft)	562.71
D/S WSE (ft)	562.07
D/S Vel (ft/s)	6.84

**Refer to Terracina Detention Study prepared by McLendon Hydrology and Engineering, LLC Aug 2020.



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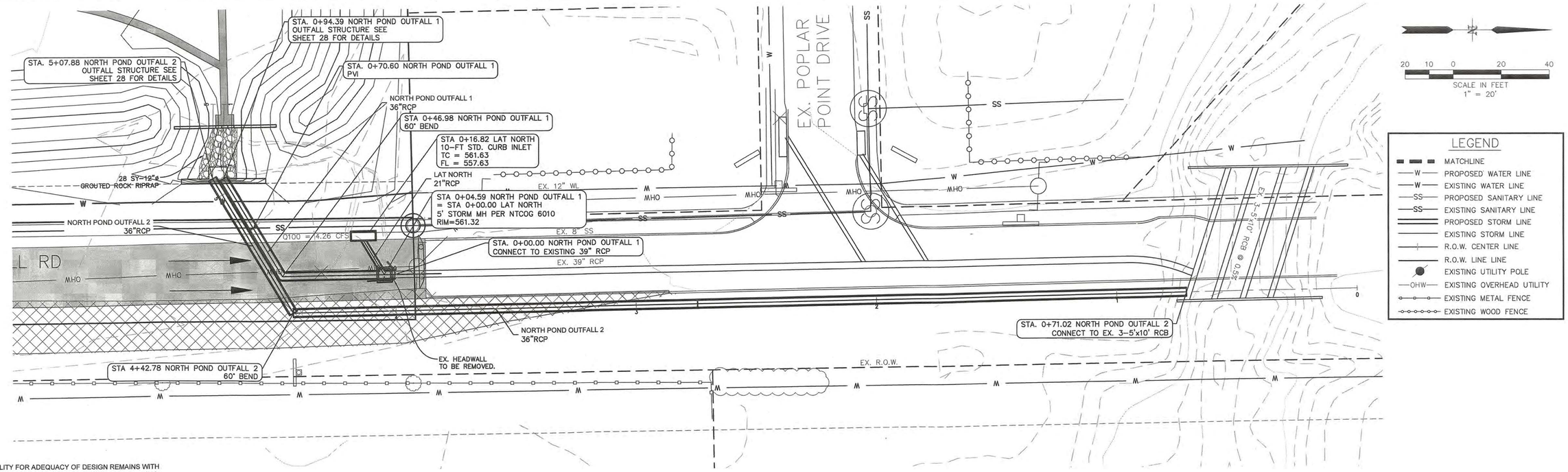
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STORM PLAN 5

TERRACINA PHASE 1

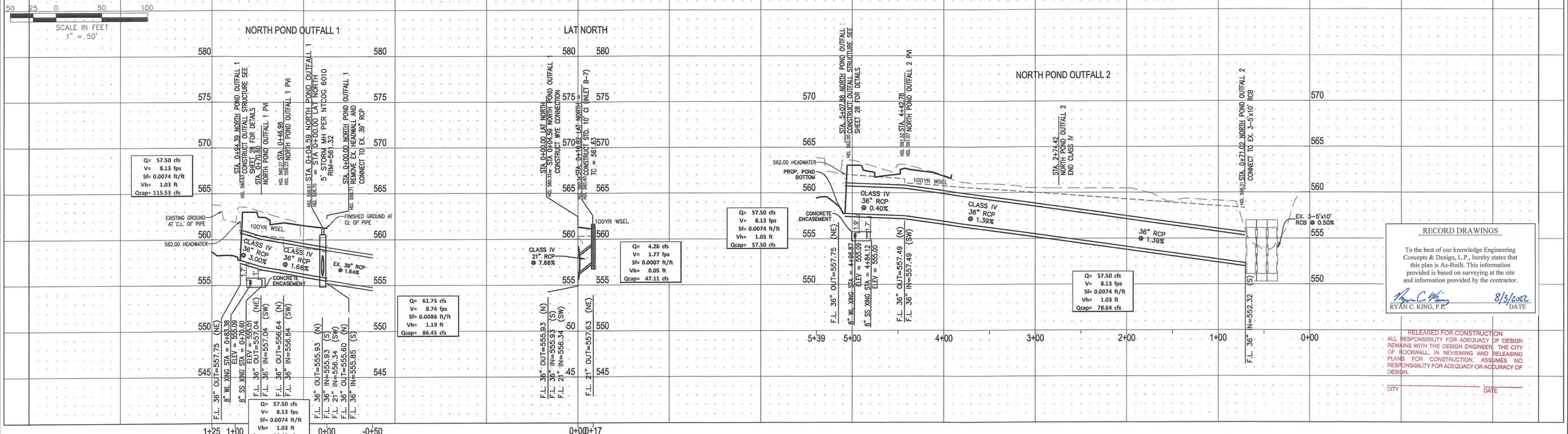
CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

SHEET 35 OF 62



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PROFILE VERTICAL SCALE 1"=5'



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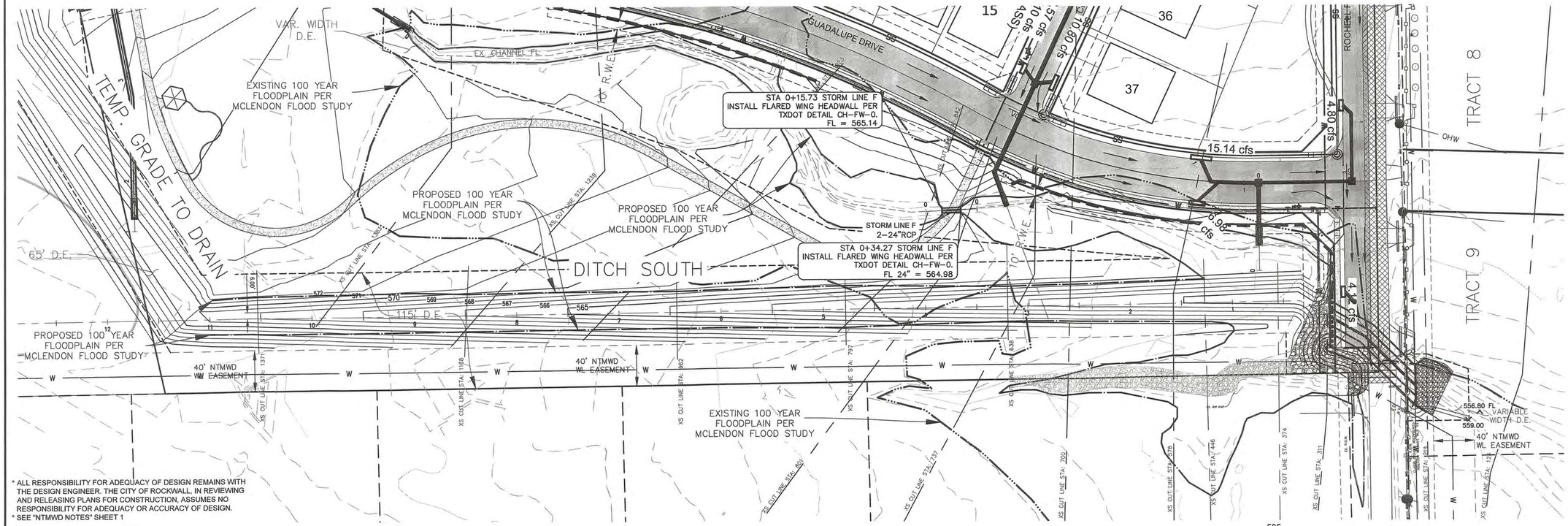
CITY _____ DATE _____

STORM PLAN 6

TERRACINA PHASE 1

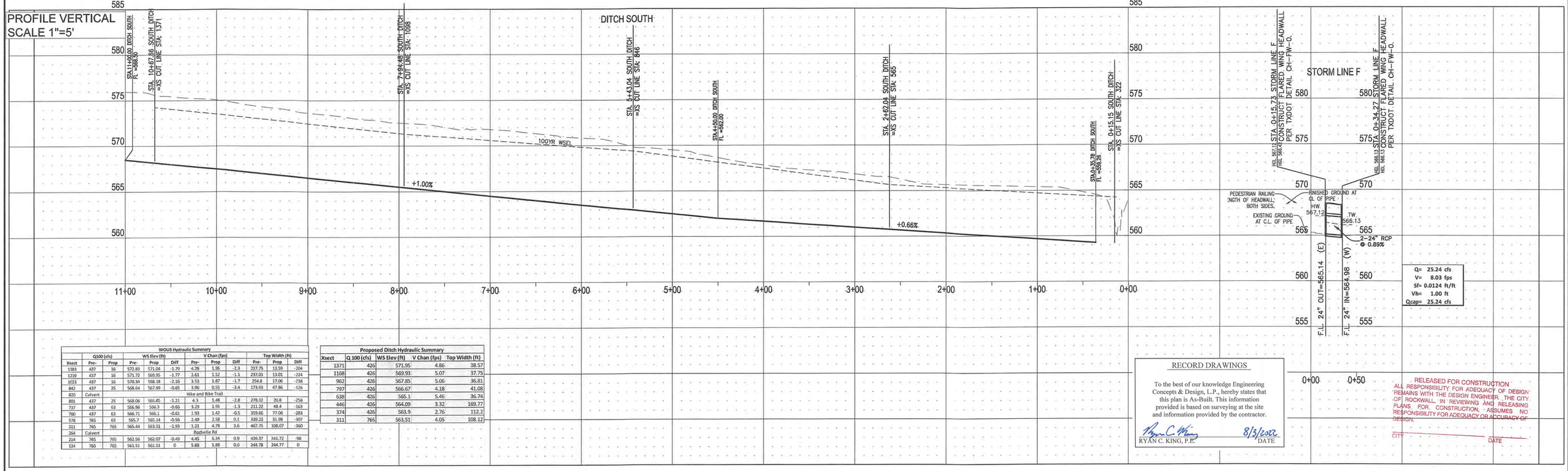
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PROFILE VERTICAL
SCALE 1"=5'



WOUS Hydraulic Summary

	Q100 (cfs)		WS Elev (ft)			V Chan (fps)			Top Width (ft)		
Xsect	Pre-	Prop	Pre-	Prop	Diff	Pre-	Prop	Diff	Pre-	Prop	Diff
1383	437	16	572.83	571.04	-1.79	4.26	1.96	-2.3	217.75	13.59	-204
1239	437	16	571.72	569.95	-1.77	2.61	1.52	-1.1	237.03	13.01	-224
1023	437	16	570.34	568.18	-2.16	3.53	1.87	-1.7	254.8	17.06	-238
842	437	25	568.64	567.99	-0.65	3.96	0.55	-3.4	173.93	47.86	-126
820	Culvert		Hike and Bike Trail								
801	437	25	568.06	565.85	-1.21	4.1	1.48	-2.8	278.32	20.8	-258
737	437	63	566.96	566.3	-0.66	3.29	1.95	-1.3	211.22	48.4	-163
700	437	63	566.71	565.1	-0.61	1.93	1.42	-0.5	359.66	77.06	-283
578	765	63	565.7	565.14	-0.56	2.49	2.58	0.1	339.23	31.98	-307
313	765	765	565.44	563.51	-1.93	1.21	4.78	3.6	467.75	108.07	-360
264	Culvert		Rochelle Rd								
214	765	765	562.56	562.07	-0.49	6.46	5.34	0.9	439.37	341.72	-98
124	765	765	561.51	561.51	0	5.88	5.88	0.0	244.78	244.77	0

Proposed Ditch Hydraulic Summary

Xsect	Q 100 (cfs)	WS Elev (ft)	V Chan (fps)	Top Width (ft)
1371	426	571.95	4.86	38.57
1168	426	569.93	5.07	37.75
962	426	567.85	5.06	36.81
797	426	566.67	4.18	41.08
638	426	565.1	5.46	36.74
446	426	564.09	3.32	169.77
374	426	563.9	2.76	112.2
311	765	563.51	4.05	108.12

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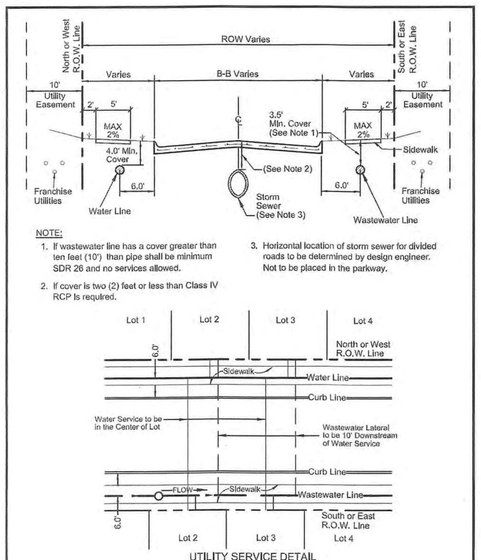
STORM PLAN 7

TERRACINA PHASE 1

CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

SHEET 37 OF 62

City of Rockwall
The Next Horizon



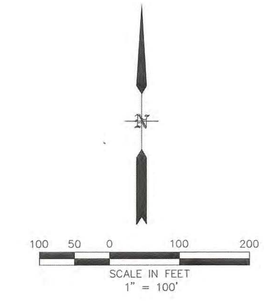
NOTE:

1. If wastewater line has a cover greater than ten feet (10') than pipe shall be minimum SDR 26 and no services allowed.
2. If cover is two (2) feet or less than Class IV RCP is required.
3. Horizontal location of storm sewer for divided roads to be determined by design engineer. Not to be placed in the parkway.

UTILITY SERVICE DETAIL

GENERAL UNDERGROUND CONDUIT	CITY OF ROCKWALL	
UTILITIES LOCATION DETAIL		DATE: AUG. '15 / DRAWING NO.: R-3000





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UTILITY PLAN KEY MAP

TERRACINA PHASE 1

CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

SHEET 38 OF 62

REMOVE EX. 8" PLUG AND CONNECT TO EXISTING 8" WL

EX. 8" WL

INSTALL 8" WATER LINE

INSTALL: 1–8" CROSS 1–8"x6" TEE 1–FH ASSEMBLY 4–8" VALVES 1–8" PLUG

INSTALL: 1–8"x6" TEE 1–FH ASSEMBLY 1–8" VALVES

INSTALL: 1–8" TEE 2–8" VALVES

INSTALL: 2–8" 45° BENDS

5' R.W.E.

10' U.E.

OAKCREST DRIVE

ACACIA DRIVE

LASALLE DRIVE

CAYMAN WAY

ROCHELL ROAD

TERRACINA WAY

HIDDEN COVE COURT

8" PVC SS-4

8" PVC SS-3

8" PVC SS-2

8" PVC SS-5

SS-4 STA: 13+84.48
CONSTRUCT 4' CONC. MH
RIM: 586.56
INV OUT: 581.36 8" PVC

20 LF STUB OUT FOR FUTURE CONNECTION.

SS-4 STA: 9+22.22
CONSTRUCT 4' CONC. MH
RIM: 583.22
INV OUT: 577.92 8" PVC

SS-4 STA: 4+93.95
CONSTRUCT 4' CONC. MH
RIM: 576.84
INV OUT: 571.51 8" PVC

L=51.810
Δ=9.8950
R=300.000

PC: 4+42.14

SS-3 STA: 8+20.84
CONSTRUCT 4' CONC. MH
RIM: 584.09
INV OUT: 578.61 8" PVC

PT: 2+25.34

L=80.378
Δ=7.4220
R=620.500

PC: 1+44.96

PT: 6+72.99

L=153.208
Δ=18.3069
R=479.500

PCC: 4+34.66

L=78.923
Δ=22.1887
R=203.796

PT: 5+13.58

SS-6 STA. 0+00.00 =
SS-3 STA: 5+19.78
CONSTRUCT 4' CONC. MH
RIM: 582.04
INV OUT: 573.59 8" PVC

SS-4 STA. 0+00.00 =
SS-3 STA: 2+65.78
CONSTRUCT 4' CONC. MH
RIM: 578.86
INV OUT: 569.29 8" PVC

L=434.659
Δ=13.5513
R=1837.764

L=266.295
Δ=8.3170
R=1834.500

SS-5 STA: 2+66.29
CONSTRUCT 4' CONC. MH
RIM: 575.74
INV OUT: 570.05 8" PVC

1 STA. 0+00 12" WL–1
REMOVE EX. 12" PLUG AND CONNECT TO EXISTING 12" WL
INSTALL:
1–12" VALVE

EX. WOODEN FENCE TO REMAIN

SS-1 STA: 0+00.00
CONSTRUCT 4' CONC. MH
REMOVE EX. CLEANOUT
CONNECT TO EX. 8" SS
RIM: 561.42
INV OUT: 554.00 8" PVC

STA 2+00 12" WL–1
INSTALL:
1–12"x6" TEE
1–FH ASSEMBLY

1-X
(DRAINAGE & DETENTION EASEMENT)

STA 4+18 12" WL–1
INSTALL:
1–12"x8" TEE
1–8"x6" TEE
1–FH ASSEMBLY
2–12" VALVES
1–8" VALVE
1–10' CONC ENCASEMENT

INSTALL 12" WATER LINE

8" SDR–26 PVC SS–1

INSTALL: 1–8"x6" TEE 1–FH ASSEMBLY 1–8" VALVE

INSTALL: 3–35 LF OF 4" PVC SLEEVE FOR FUTURE USE, TYP. (SEE DETAIL, SHEET 53)

SS-2 STA. 0+00.00 =
SS-1 STA: 4+59.32
CONSTRUCT 4' CONC. MH
RIM: 566.85
INV OUT: 556.31 8" SDR–26 PVC

SS-2 STA: 2+36.20
CONSTRUCT 4' CONC. MH
RIM: 571.75
INV OUT: 561.90 8" PVC

L=300.688
Δ=75.0683
R=229.500

STA 5+50 12" WL–1
INSTALL:
(2" IRRIGATION SERVICE WITH TESTABLE CHECK

SS-2 STA: 5+36.89
CONSTRUCT 4' CONC. MH
RIM: 574.25
INV OUT: 565.41 8" PVC

SS-3 STA. 0+00.00 =
SS-5 STA. 0+00.00 =
SS-2 STA: 6+36.22
CONSTRUCT 4' CONC. MH
RIM: 574.63
INV OUT: 567.10 8" PVC

SS-1 STA: 7+50.00
CONSTRUCT 5' CONC. MH
RIM: 570.84
INV OUT: 557.37 8" SDR–26 PVC

INSTALL: 1–8"x6" REDUCER 1–FH ASSEMBLY

STA 7+35 12" WL–1
INSTALL:
1–12"x6" TEE
1–FH ASSEMBLY
1–12" VALVE

INSTALL: 1–8" TEE 1–8"x6" TEE 1–FH ASSEMBLY 3–8" VALVES

INSTALL: 1–8" TEE 1–8"x6" TEE 1–FH ASSEMBLY 2–8" VALVES

VARIABLE WIDTH D.E. (BY SEP. INSTR.)

MATCHLINE SHEET 40

N

50 25 0 50 100
SCALE IN FEET
1" = 50'

LEGEND

- MATCHLINE
- PROPOSED WATER LINE
- EXISTING WATER LINE
- PROPOSED SANITARY LINE
- EXISTING SANITARY LINE
- PROPOSED STORM LINE
- EXISTING STORM LINE
- R.O.W. LINE LINE
- EXISTING UTILITY POLE
- EXISTING OVERHEAD UTILITY
- PROPOSED SANITARY SERVICE
- PROPOSED WATER SERVICE

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*SEE "NTMWD NOTES" SHEET 1

RECORD DRAWINGS

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RYAN C. KING, P.E. 8/3/2022 DATE

CAUTION! EXISTING UTILITIES

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BENCHMARKS:

CP 101 - Square cut on headwall west side of Rochelle road & 54' south of center of Polar Point Drive Elevation = 559.95

CP 103 - "X" in concrete east side of Rochelle Road, 1834' south of center of Polar Point Dr. Elevation = 564.54'

CP 104 - Capped 5/8" iron rod east side of Rochelle Road & 1250' south of the center of Polar Point Dr. Elevation = 572.70'

CP 105 - Capped 5/8" iron rod east side of Rochelle Road & 826' south of the center of Polar Point Dr. Elevation = 568.75'

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201 WINDCO CIR, STE 200, WYLIE, TX 75098
972-941-8400 FAX: 972-941-8401 WWW.ECDLP.COM

REVISIONS:
1 8/3/2022 MOVE 12" VALVE TO STA. 0+00 (AS–BUILT)

DRAWN: RCK DATE:
CHECKED: RKH DATE: 8/26/2020
PROJECT NO.: 06537
DWG FILE NAME: 06537 UT.DWG

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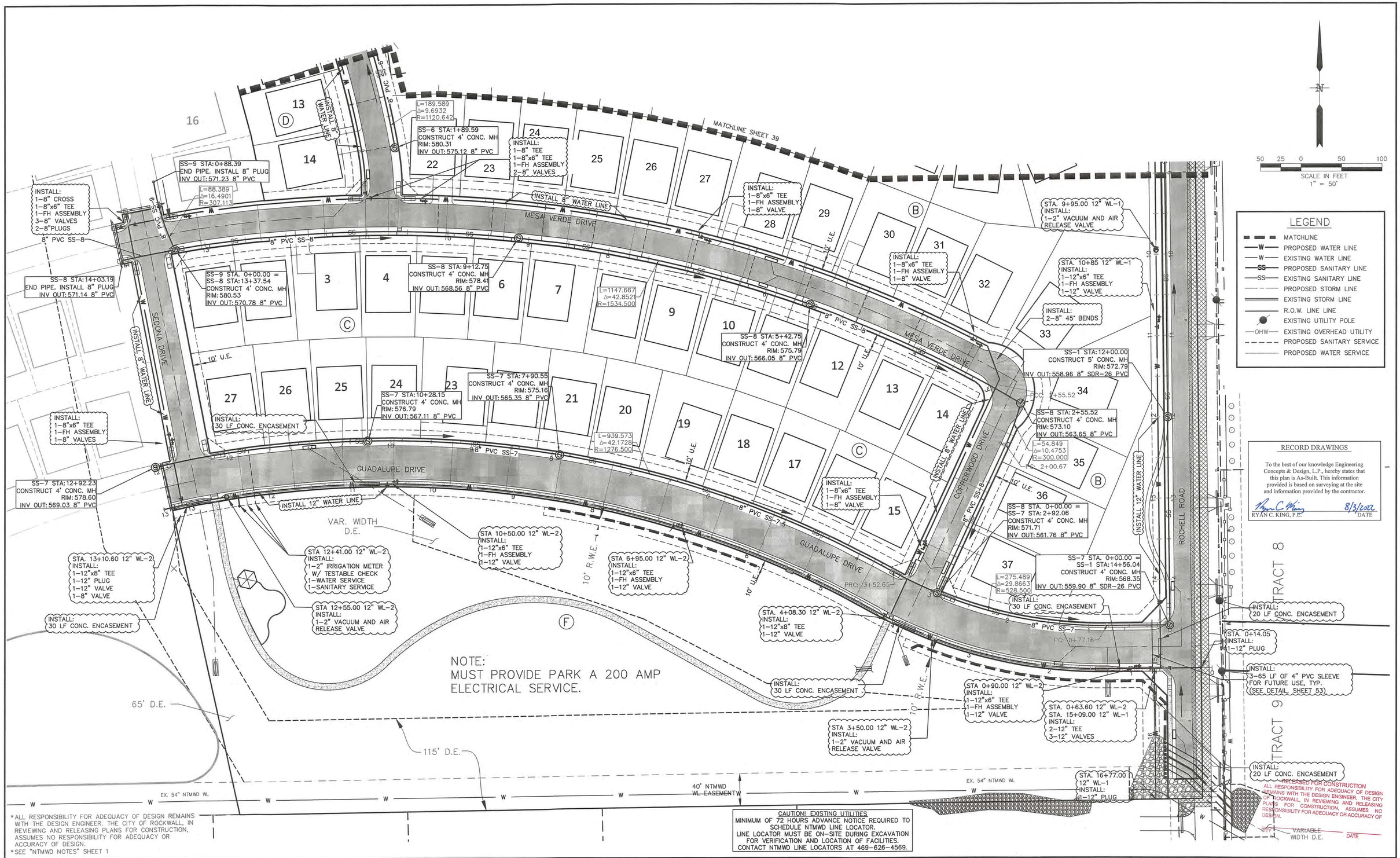
STATE OF TEXAS · RYAN C. KING · 123635 · REGISTERED PROFESSIONAL ENGINEER · 8/3/2022

UTILITY PLAN 1

TERRACINA PHASE 1

CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

SHEET 39 OF 62



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* SEE "NTMWD NOTES" SHEET 1

CAUTION! EXISTING UTILITIES

MINIMUM OF 72 HOURS ADVANCE NOTICE REQUIRED TO SCHEDULE NTMWD LINE LOCATOR. LINE LOCATOR MUST BE ON–SITE DURING EXCAVATION FOR VERIFICATION AND LOCATION OF FACILITIES. CONTACT NTMWD LINE LOCATORS AT 469–626–4569.

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BY _____ DATE _____

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STATE OF TEXAS — RYAN C. KING — 123635 — REGISTERED PROFESSIONAL ENGINEER — 8/26/2020

UTILITY PLAN 2

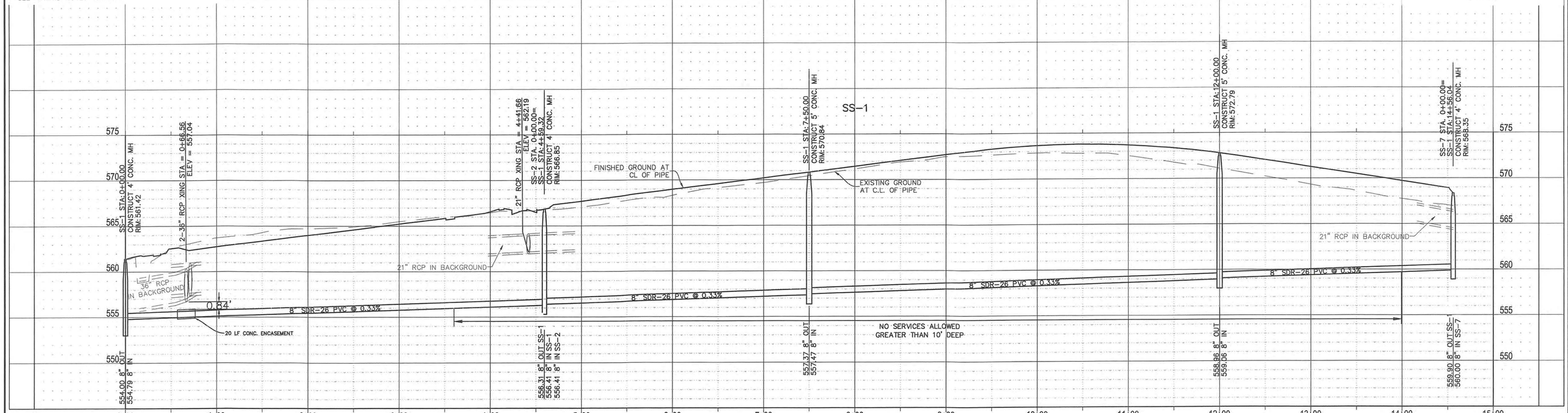
TERRACINA PHASE 1

CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

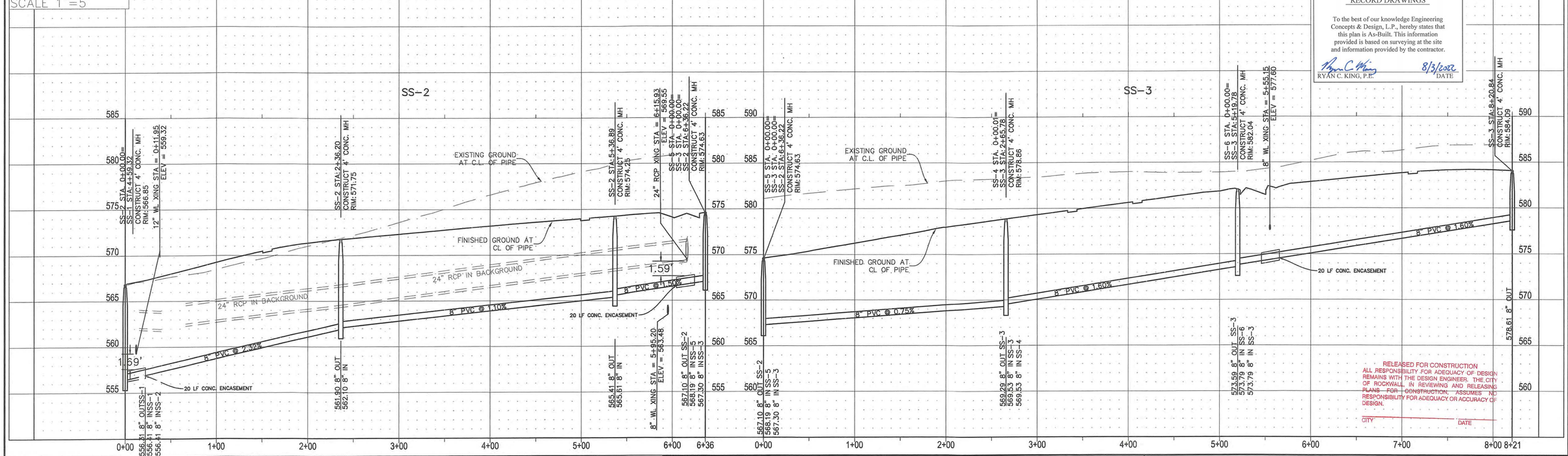
SHEET 40 OF 62

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SCALE IN FEET
1" = 50'



PROFILE VERTICAL
SCALE 1"=5'



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SANITARY PROFILE 1

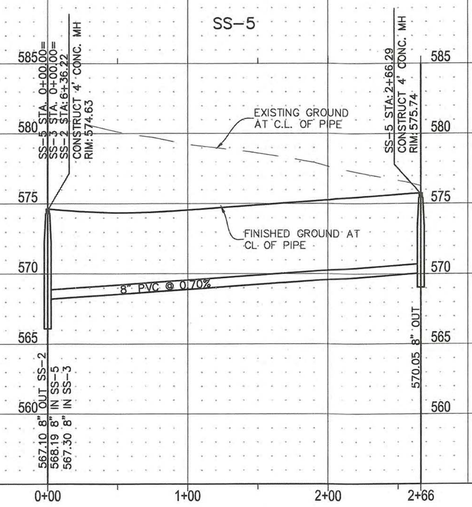
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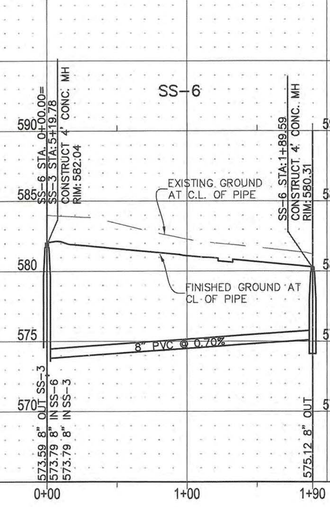
CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

SHEET 41 OF 62

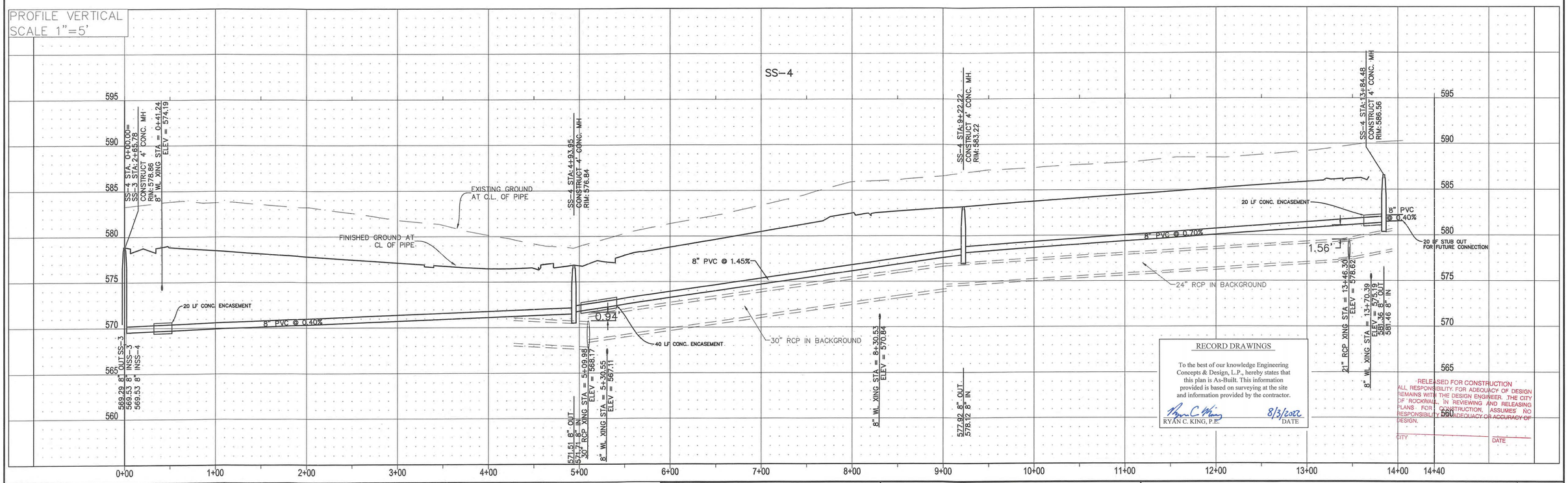
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SCALE IN FEET
1" = 50'





PROFILE VERTICAL
SCALE 1"=5'



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CITY — DATE

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CHECKED: RKH	DATE: 8/26/2020
PROJECT NO.: 06537	
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STATE OF TEXAS — RYAN C. KING — 123635 — REGISTERED PROFESSIONAL ENGINEER — 8/26/2020

SANITARY PROFILE 2

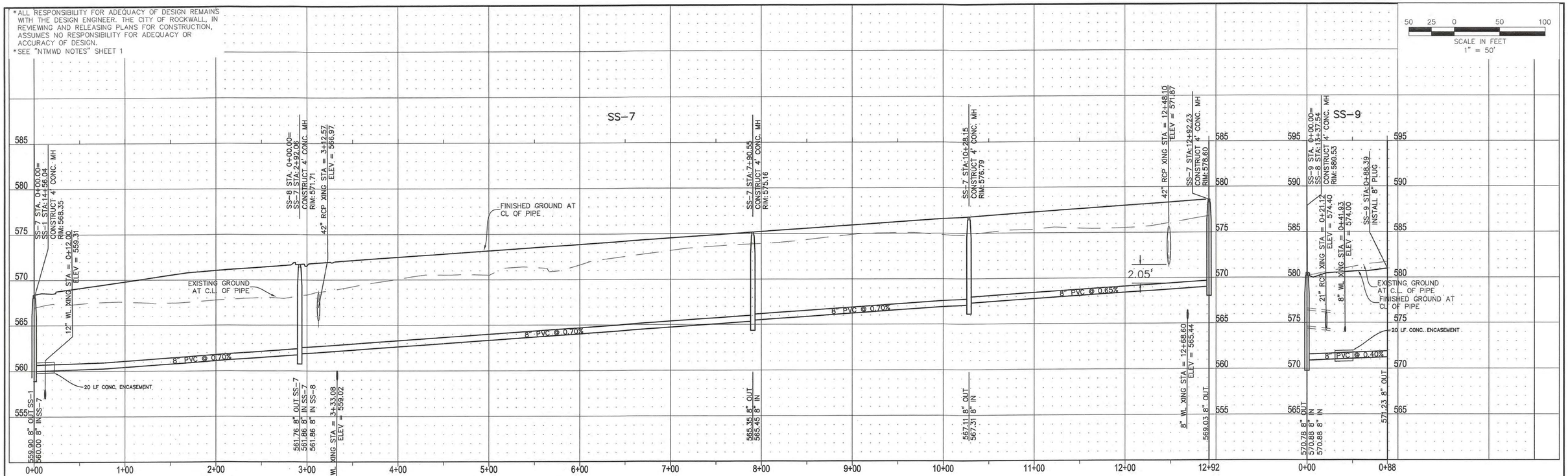
TERRACINA PHASE 1

CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

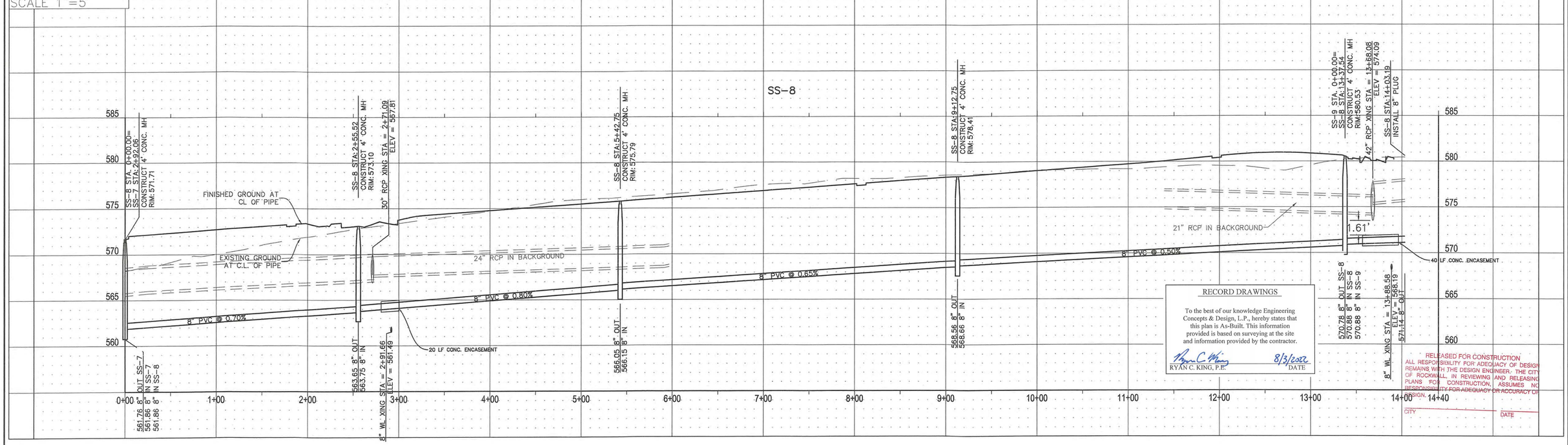
SHEET 42 OF 62

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PROFILE VERTICAL
SCALE 1"=5'



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STATE OF TEXAS — RYAN C. KING — 123635 — REGISTERED PROFESSIONAL ENGINEER — 8/26/2020

SANITARY PROFILE 3

TERRACINA PHASE 1

CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

SHEET 43 OF 62

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SCALE IN FEET
1" = 50'

12 INCH WATER LINE – 1

STA. 0+00 REMOVE EX. 12" PLUG AND CONNECT TO EX. 12" WL
2–36" RCP XING STA = 0+72.98 ELEV = 557.37
STA. 2+00 INSTALL: 1–12"x6" TEE, 1–FH ASSEMBLY, 1–12" VALVE
STA. 4+18 INSTALL: 1–12"x8" TEE, 2–12" VALVES
21" RCP XING STA = 4+25.46 ELEV = 562.11
Station=4+59.27 Source Elevation=559.190
STA. 5+50 INSTALL: 1–2" IRRIGATION SERVICE WITH TESTABLE CHECK
STA. 7+35 INSTALL: 1–12"x8" TEE, 1–FH ASSEMBLY, 1–12" VALVE
PVI STA: 9+99.79
PVI ELEV: 567.94
K: 23.81
LVC: 100.00
BVCS: 9+49.79
BVCE: 567.69
EVCS: 10+49.79
EVCE: 566.69
STA. 10+85 INSTALL: 1–12"x6" TEE, 1–FH ASSEMBLY, 1–12" VALVE
8" SS XING STA = 14+55.99 ELEV = 560.04
21" RCP XING STA = 14+82.49 ELEV = 564.85
STA. 15+09 INSTALL: 2–12" TEE, 1–12" VALVE
RETAINING WALL
FINISHED GROUND AT CL OF PIPE
EXISTING GROUND AT C.L. OF PIPE
PROPOSED 12" WATER LINE
STA. 9+95 INSTALL: 1–2" VACUUM AND AIR RELEASE VALVE
1.70%
-2.50%
-1.00%
0.33%
1.30%
0.76'
1.91'
6.06'
1.98'
10 LF CONC. ENCASEMENT
CONC. ENCASEMENT
20 LF CONC. ENCASEMENT
PVI STA = 0+73.22 ELEV = 555.142
PVI STA = 3+28.86 ELEV = 558.485
PVI STA = 4+25.46 ELEV = 558.784
PVI STA = 5+76.46 ELEV = 560.747
PVI STA: 14+45.55
PVI ELEV: 556.80
K: 66.67
LVC: 100.00
BVCS: 13+95.55 BVCE: 558.05
EVCS: 14+95.55 EVCE: 556.30
FL 554.90 | FL 555.49 | FL 556.79 | FL 558.09 | FL 558.70 | FL 559.75 | FL 561.15 | FL 562.85 | FL 564.55 | FL 566.24 | FL 567.41 | FL 565.44 | FL 562.94 | FL 560.44 | FL 557.94 | FL 556.25
8" SS XING STA = 4+59.27 ELEV = 556.86
-0+25 0+00 | 1+00 | 2+00 | 3+00 | 4+00 | 5+00 | 6+00 | 7+00 | 8+00 | 9+00 | 10+00 | 11+00 | 12+00 | 13+00 | 14+00 | 15+00 | 16+00
THIS SHEET STA. 16+00 MATCHLINE

PROFILE VERTICAL
SCALE 1"=5'

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12 INCH WATER LINE – 1 (CON'T)

STA. 16+77 INSTALL: 1–12" PLUG
STA. 16+67.11 ELEV = 546.00
54" NTMWD WL XING
6'x4' RCB IN BACKGROUND
-1.00%
FL 555.25

12 INCH WATER LINE – 2

STA. 0+14.05 INSTALL: 1–12" PLUG
STA. 0+80.00 INSTALL: 1–12"x6" TEE, 1–FH ASSEMBLY, 1–12" VALVE
STA. 0+83.60 INSTALL: 2–12" TEE, 2–12" VALVES
30" RCP XING STA = 1+28.77 ELEV = 562.78
FINISHED GROUND AT CL OF PIPE
PVI STA = 3+20.21 ELEV = 565.864
STA. 3+50.00 INSTALL: 1–2" VACUUM AND AIR RELEASE VALVE
42" RCP XING STA = 3+87.79 ELEV = 564.97
STA. 4+08.30 INSTALL: 1–12"x8" TEE, 1–12" VALVE
STA. 6+95.00 INSTALL: 1–12"x6" TEE, 1–FH ASSEMBLY, 1–12" VALVE
EXISTING GROUND AT C.L. OF PIPE
PROPOSED 12" WATER LINE
STA. 10+50.00 INSTALL: 1–12"x6" TEE, 1–FH ASSEMBLY, 1–12" VALVE
18" RCP XING STA = 10+81.28 ELEV = 571.67
STA. 12+41.00 INSTALL: 1–2" IRRIGATION SERVICE WITH TESTABLE CHECK
STA. 12+55.00 INSTALL: 1–2" VACUUM AND AIR RELEASE VALVE
48" RCP XING STA = 12+90.15 ELEV = 570.78
STA. 13+10.60 INSTALL: 1–12"x8" TEE, 1–12" VALVE, 1–12" PLUG
1.35%
0.54%
0.57%
0.43%
4.18'
4.41'
100.00%
INSTALL: 2–12" 45° VERTICAL BENDS
30 LF CONC. ENCASEMENT
FL 562.89 | FL 564.24 | FL 565.59 | FL 566.88 | FL 567.45 | FL 568.02 | FL 568.59 | FL 569.16 | FL 569.74 | FL 570.31 | FL 570.88 | FL 565.47
16+00 | 16+90 | 0+00 | 1+00 | 2+00 | 3+00 | 4+00 | 5+00 | 6+00 | 7+00 | 8+00 | 9+00 | 10+00 | 11+00 | 12+00 | 13+00 | 13+50
THIS SHEET STA. 16+00 MATCHLINE

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CP 101 - Square cut on headwall west side of Rochelle road & 54' south of center of Polar Point Drive Elevation = 559.95
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REVISIONS:

DRAWN:	RCK	DATE:
CHECKED:	RKH	DATE: 8/26/2020
PROJECT NO.:	06537	
DWG FILE NAME:	06537 UT.DWG	

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STATE OF TEXAS · RYAN C. KING · 123635 · REGISTERED PROFESSIONAL ENGINEER · 8/26/2020

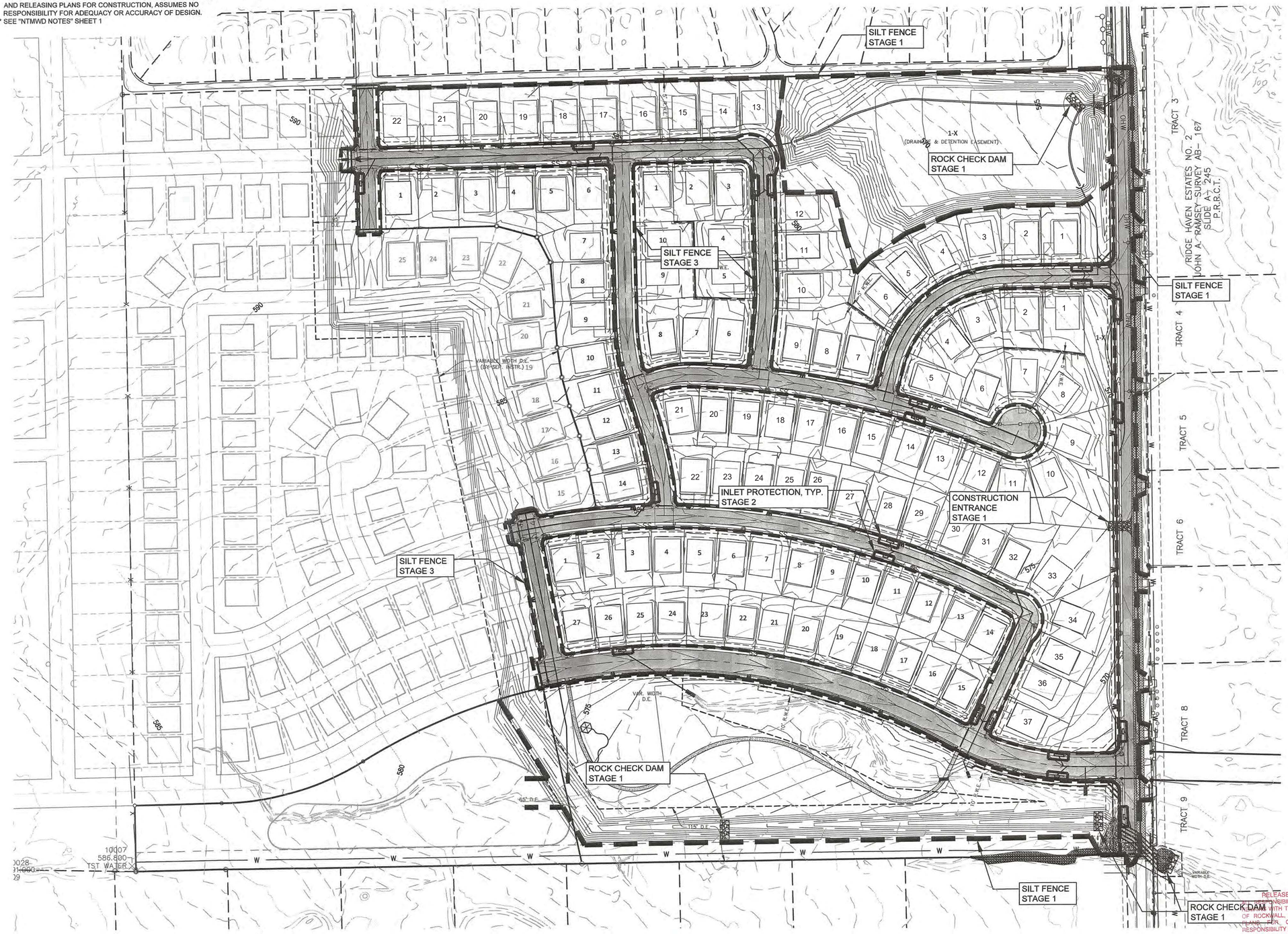
WATER LINE PROFILES

TERRACINA PHASE 1

CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

SHEET 44 OF 62

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* SEE "NTMWD NOTES" SHEET 1



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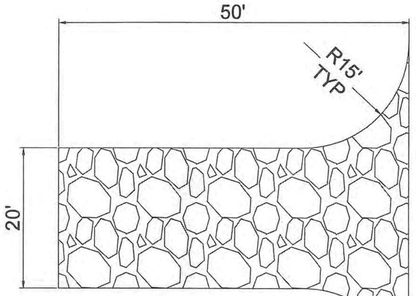
RYAN C. KING, P.E. 8/3/2022 DATE

N

100 50 0 100 200
SCALE IN FEET
1" = 100'

LEGEND

- 560 EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- SILT FENCE STAGE 1
- SILT FENCE STAGE 2
- ROCK CHECK DAM STAGE 1
- INLET PROTECTION STAGE 2



CONSTRUCTION ENTRANCE DETAIL
N.T.S

STAGE ONE (PRIOR TO START OF ROUGH GRADING)
1. SILT FENCE TO BE INSTALLED AS SHOWN ON PLAN OR AS REQUIRED.
2. INSTALL ROCK CHECK DAMS AT EXISTING OUTFALLS.
3. INSTALL ROCK CHECK DAMS AS SHOWN AT COMPLETION OF ROUGH GRADING IN THE AREA.

STAGE 2 (AFTER UTILITY CONSTRUCTION AND PRIOR TO PAVING CONSTRUCTION)
1. SILT FENCE SHALL BE PLACED AROUND TOP OF INLETS UNTIL TOPPED OUT, PREVENT EROSION MATERIAL FROM ENTERING STORM SEWER SYSTEM.

STAGE 3 (AFTER PAVING CONSTRUCTION)
1. SILT FENCE SHALL BE PLACED IN ROW ALONG PAVEMENT AS SHOWN WHERE REQUIRED BY SLOPE CONDITIONS.
2. ALL PARKWAYS AND DISTURBED AREA IN STREET R.O.W. TO BE SEEDED WITH GRASS AND CURLEX (ANCHORED) AS PER CITY STANDARDS.
3. VEGETATION TO BE ESTABLISHED IN ALL OFFSITE DISTURBED AREAS.
4. SOD IS REQUIRED IN ROCHELL R.O.W. ON ANY DISTURBED AREAS
5. 75%–80% OF ALL DISTURBED AREA TO HAVE A MINIMUM OF 1" STAND OF ANNUAL GRASS (NO RYE OR WEEDS) PRIOR TO CITY ACCEPTANCE.

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SITE ACREAGE: 50.154 AC
DISTURBED ACREAGE: 57.398 AC

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DWG FILE NAME:	06537 EC.DWG		

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STATE OF TEXAS · RYAN C. KING · 123635 · REGISTERED PROFESSIONAL ENGINEER · 8/26/2020

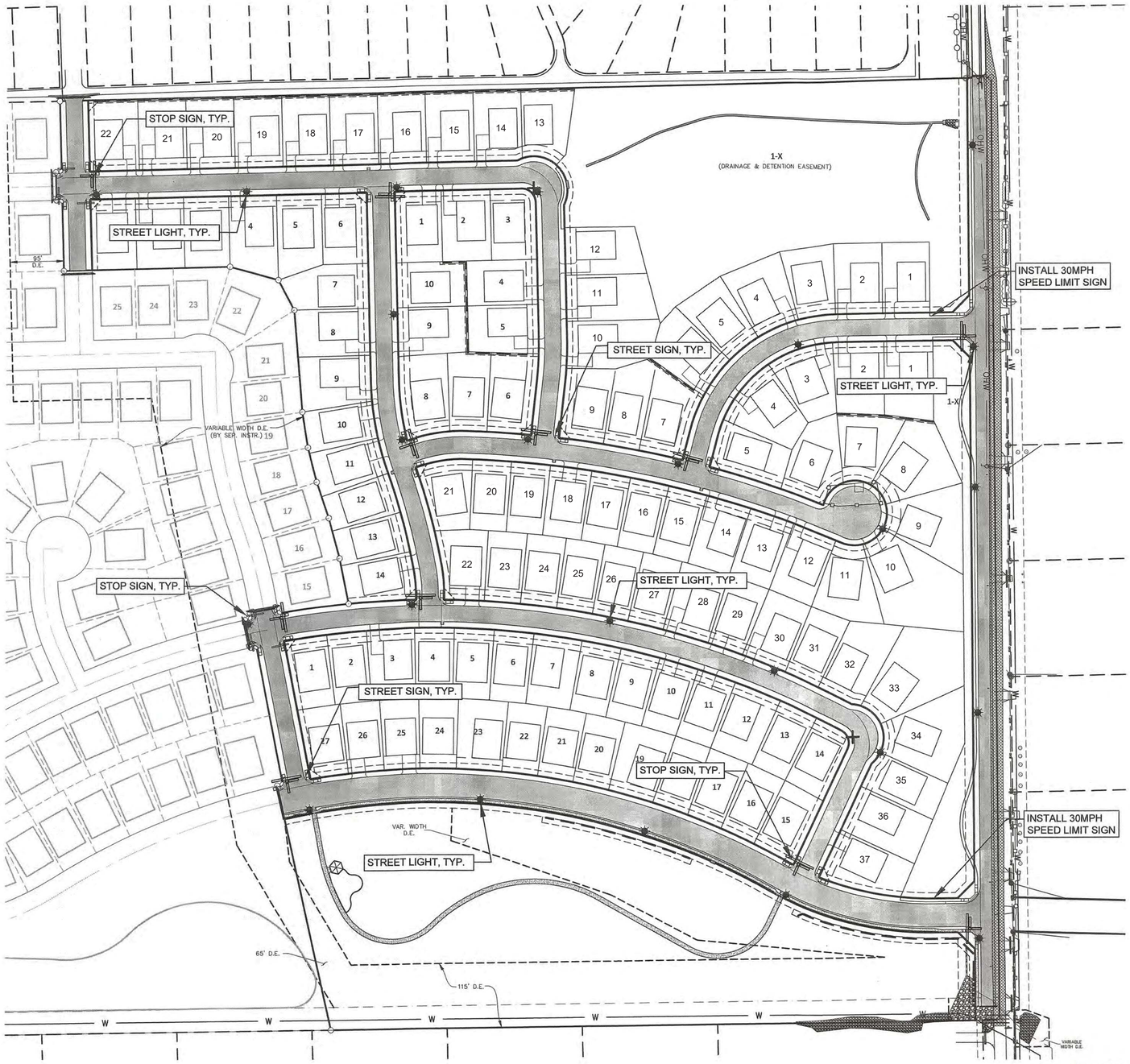
EROSION CONTROL PLAN

TERRACINA PHASE 1

CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

SHEET 45 OF 62

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* SEE "NTMWD NOTES" SHEET 1



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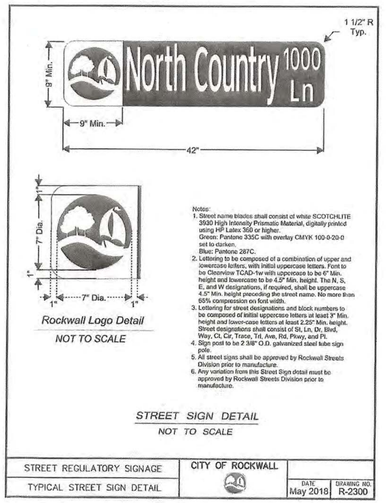
RYAN C. KING, P.E. — 8/3/2022 DATE

100 50 0 100 200
SCALE IN FEET
1" = 100'

LEGEND

- STREET SIGN
- STOP SIGN
- STOP & STREET SIGN
- STREET LIGHT

Street Name Blades



STREET REGULATORY SIGNAGE	CITY OF ROCKWALL	
TYPICAL STREET SIGN DETAIL	DATE: May 2018	DRAWING NO.: R-2300

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NOTES:
MINIMUM 200 AMP ELECTRIC SERVICE REQUIRED FOR IRRIGATION & FUTURE AMENITIES.

A SAMPLE SIGN MUST BE SUBMITTED FOR APPROVAL BY THE CITY PRIOR TO FABRICATION OF ALL STREET SIGNS.

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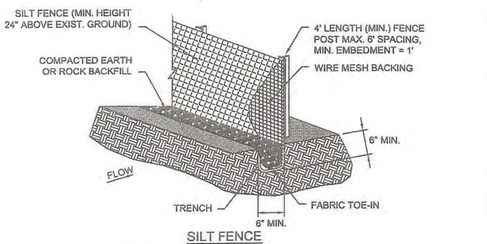
STATE OF TEXAS — RYAN C. KING — 123635 — LICENSED PROFESSIONAL ENGINEER — 8/26/2020

STREET LIGHT AND SIGNAGE PLAN

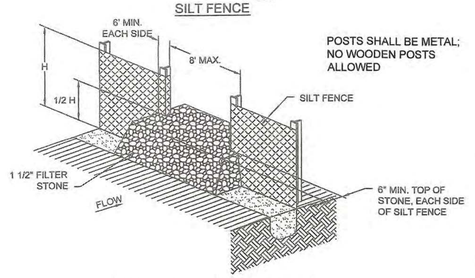
TERRACINA PHASE 1

CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

SHEET 46 OF 62



SILT FENCE



POSTS SHALL BE METAL; NO WOODEN POSTS ALLOWED

STONE OVERFLOW STRUCTURE

SILT FENCE	North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE 201.5	DATE OCT. '04	STANDARD DRAWING NO. 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.

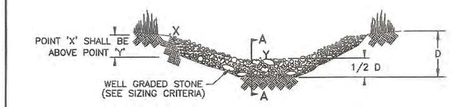
5. INSPECTION SHALL BE AS SPECIFIED IN THE SWPPP. REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.

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

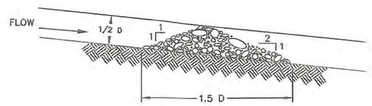
7. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF HALF THE HEIGHT OF THE FENCE. THE SILT SHALL BE DISPOSED OF AT AN APPROVED SITE AND IN SUCH A MANNER AS TO NOT CONTRIBUTE TO ADDITIONAL SILTATION.

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

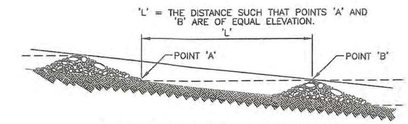
SILT FENCE	North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE 201.5	DATE OCT. '04	STANDARD DRAWING NO. 1020B



VIEW LOOKING UPSTREAM



SECTION A – A



SPACING BETWEEN CHECK DAMS

ROCK CHECK DAM	North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE 201.9	DATE OCT. '04	STANDARD DRAWING NO. 1060A

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 SIZE WIRE MESH TO CONTAIN STONE AND BURIED A MINIMUM OF (6") SIX INCHES.**

RECORD DRAWINGS

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RYAN C. KING, P.E. 8/3/2022 DATE

ROCK CHECK DAM	North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE 201.9	DATE OCT. '04	STANDARD DRAWING NO. 1060B

STABILIZED CONSTRUCTION ENTRANCE GENERAL NOTES:

1. STONE SHALL BE 4" TO 6" INCH DIAMETER COARSE AGGREGATE. **NO CRUSHED CONCRETE ALLOWED.**

2. LENGTH SHALL **50' MINIMUM AND MINIMUM WIDTH SHALL BE 20'**

3. THE THICKNESS SHALL NOT BE LESS THAN 12 INCHES. **NO CRUSHED CONCRETE ALLOWED**

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.

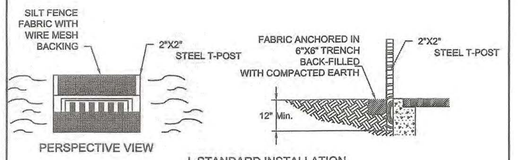
6. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PAVED SURFACES. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO PAVED SURFACES MUST BE REMOVED IMMEDIATELY.

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.

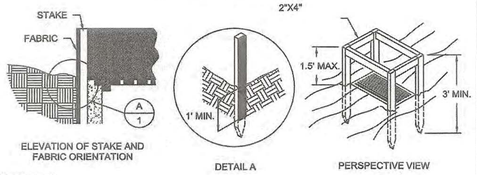
9. INSPECTION SHALL BE AS SPECIFIED IN THE SWPPP.

STABILIZED CONSTRUCTION ENTRANCE	North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE 201.11	DATE OCT. '04	STANDARD DRAWING NO. 1070B



PERSPECTIVE VIEW

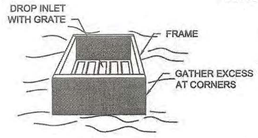
I. STANDARD INSTALLATION



ELEVATION OF STAKE AND FABRIC ORIENTATION

DETAIL A

PERSPECTIVE VIEW

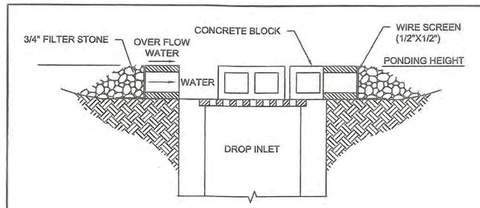


PERSPECTIVE VIEW

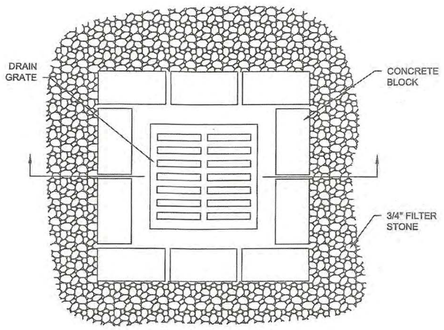
SPECIFIC APPLICATION:
THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE THE INLET DRAINS A RELATIVELY FLAT AREA (SLOPE NO GREATER THAN 5 %) WHERE THE INLET SHEET OR OVER-LAND FLOWS (NOT TO EXCEED 1 C.F.S.) ARE TYPICAL. THE METHOD SHALL NOT APPLY TO INLETS RECEIVING CONCENTRATED FLOWS SUCH AS IN STREETS OR HIGHWAY MEDIANS.

II. ALTERNATE INSTALLATION

INLET PROTECTION FILTER BARRIER	North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE 201.14	DATE OCT. '04	STANDARD DRAWING NO. 1120

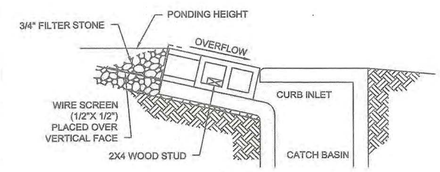


CROSS SECTION

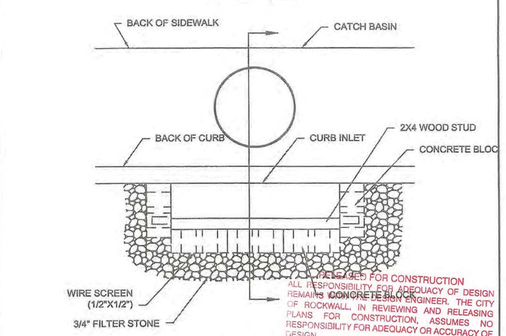


PLAN VIEW

INLET PROTECTION–DROP BLOCK AND GRAVEL	North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE 201.14	DATE OCT. '04	STANDARD DRAWING NO. 1130



CROSS SECTION



PLAN VIEW

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INLET PROTECTION–CURB BLOCK AND GRAVEL	North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE 201.14	DATE OCT. '04	STANDARD DRAWING NO. 1140

CAUTION! EXISTING UTILITIES

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BENCHMARKS:

CP 101 - Square cut on headwall west side of Rochelle road & 54' south of center of Polar Point Drive Elevation = 559.95

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201 WINDCO CIR, STE 200, WYLIE, TX 75098
972-941-8400 FAX: 972-941-8401 WWW.ECDLP.COM

REVISIONS:

DRAWN: RCK DATE:
CHECKED: RKH DATE: 8/26/2020
PROJECT NO.: 06537
DWG FILE NAME: 06537 DT.DWG

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF CONSTRUCTION. THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RYAN C. KING, P.E. 123635

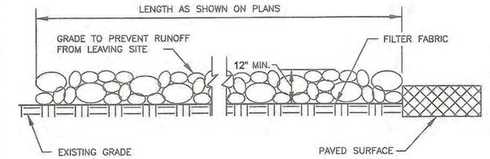
STATE OF TEXAS RYAN C. KING 123635 REGISTERED PROFESSIONAL ENGINEER 8/26/2020

EROSION CONTROL DETAILS 1

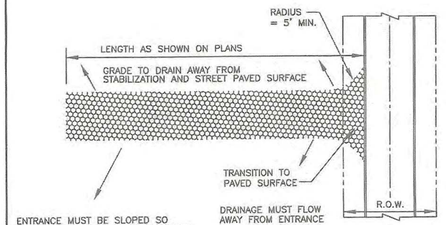
TERRACINA PHASE 1

CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

SHEET 47 OF 62

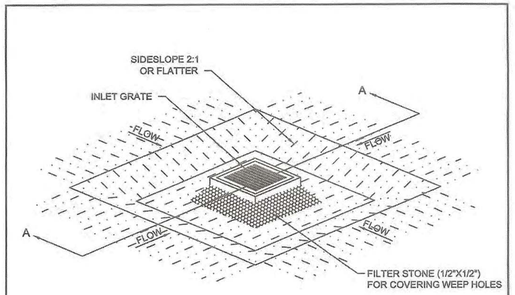


PROFILE VIEW
N.T.S.

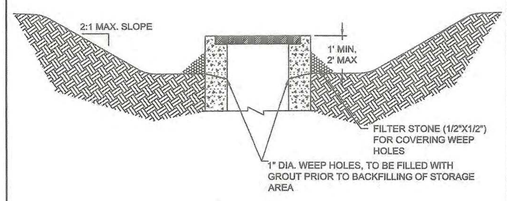


PLAN VIEW
N.T.S.

STABILIZED CONSTRUCTION ENTRANCE	North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE 201.10
		DATE OCT. '04 / STANDARD DRAWING NO. 1070A



ISOMETRIC PLAN VIEW



SECTION A-A

INLET PROTECTION EXCAVATED IMPOUNDMENT	North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE 201.14
		DATE OCT. '04 / STANDARD DRAWING NO. 1150

RECORD DRAWINGS

To the best of our knowledge Engineering Concepts & Design, L.P., hereby states that this plan is As-Built. This information provided is based on surveying at the site and information provided by the contractor.

RYAN C. KING, P.E. — 8/3/2022 DATE

RELEASED FOR CONSTRUCTION
ALL RESPONSIBILITY FOR ADEQUACY OF DESIGN REMAINS WITH THE DESIGN ENGINEER. THE CITY OF ROCKWALL, IN REVIEWING AND RELEASING PLANS FOR CONSTRUCTION, ASSUMES NO RESPONSIBILITY FOR ADEQUACY OR ACCURACY OF DESIGN.

CITY — DATE

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REVISIONS:

DRAWN:	RCK	DATE:
CHECKED:	RKH	DATE: 8/26/2020
PROJECT NO.:	06537	
DWG FILE NAME:	06537 DT.DWG	

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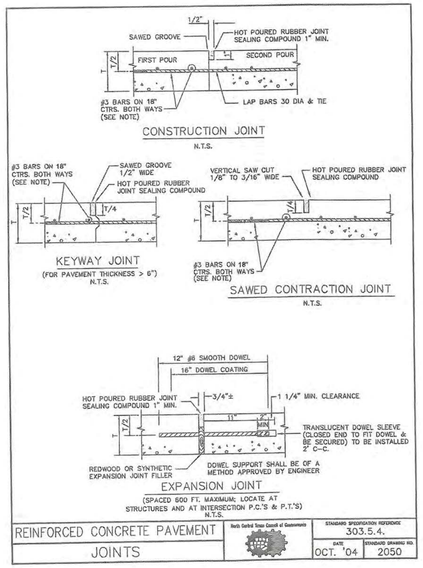
STATE OF TEXAS — RYAN C. KING — 123635 — REGISTERED PROFESSIONAL ENGINEER — 8/26/2020

EROSION CONTROL DETAILS 2

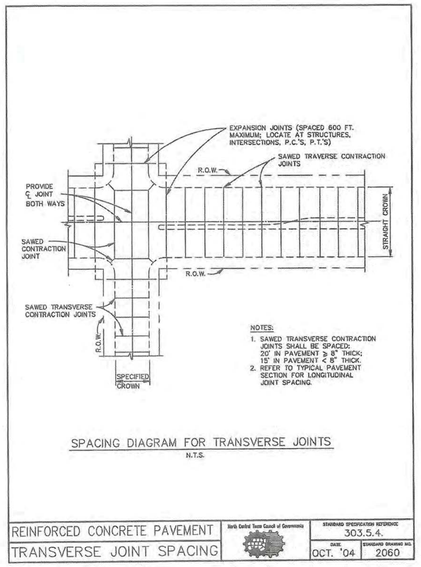
TERRACINA PHASE 1

CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

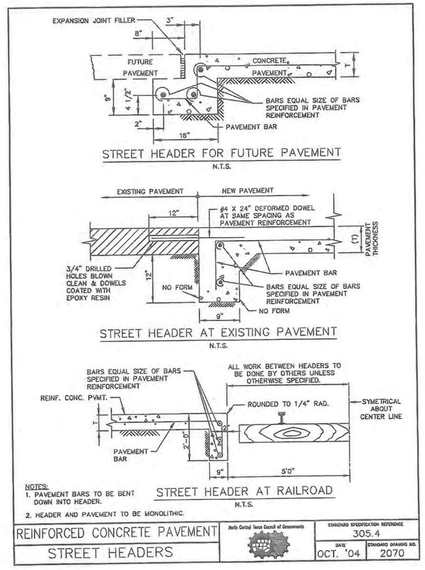
SHEET 48 OF 62



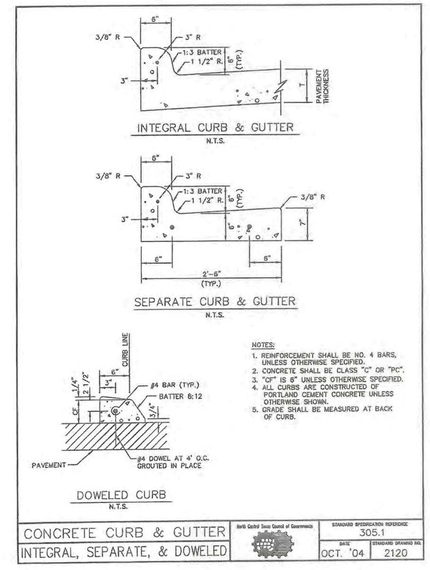
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JOINTS		DATE OCT. '04 / STANDARD DRAWING NO. 2050



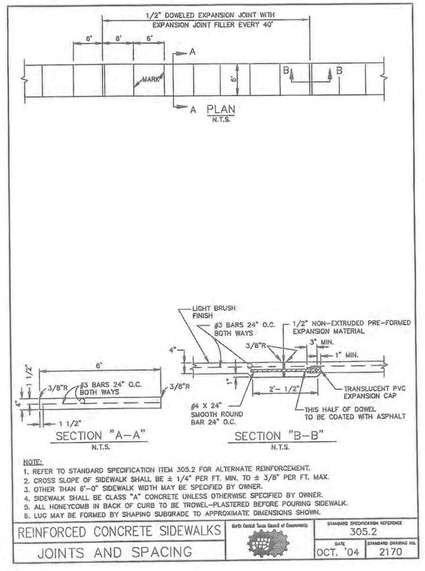
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TRANSVERSE JOINT SPACING		DATE OCT. '04 / STANDARD DRAWING NO. 2060



REINFORCED CONCRETE PAVEMENT	North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE 305.4
STREET HEADERS		DATE OCT. '04 / STANDARD DRAWING NO. 2070

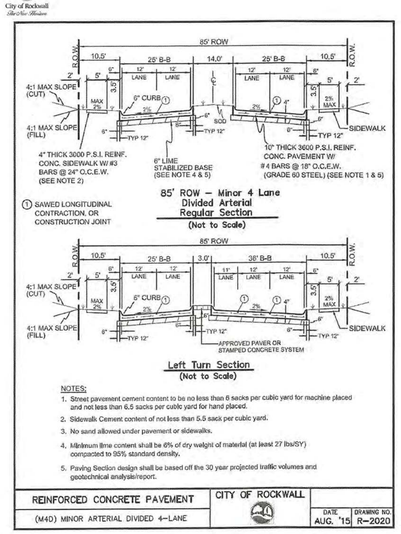


CONCRETE CURB & GUTTER	North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE 305.1
INTEGRAL, SEPARATE, & DOWELED		DATE OCT. '04 / STANDARD DRAWING NO. 2120



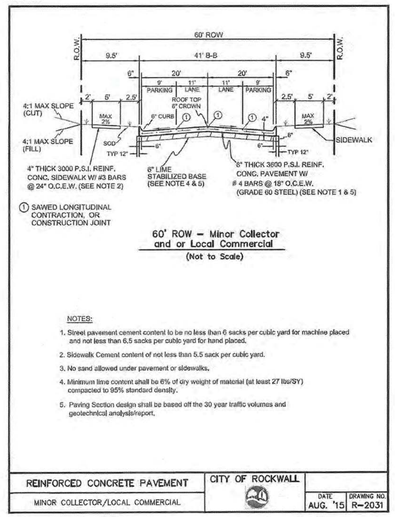
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JOINTS AND SPACING		DATE OCT. '04 / STANDARD DRAWING NO. 2170

City of Rockwall
The Texas Timeless



NOTES:
1. Street pavement cement content to be no less than 6 sacks per cubic yard for machine placed and not less than 6.5 sacks per cubic yard for hand placed.
2. Sidewalk Cement content of not less than 5.5 sack per cubic yard.
3. No sand allowed under pavement or sidewalks.
4. Minimum lime content shall be 6% of dry weight of material (at least 27 lbs/SY) compacted to 95% standard density.
5. Paving Section design shall be based off the 30 year projected traffic volumes and geotechnical analysis/report.

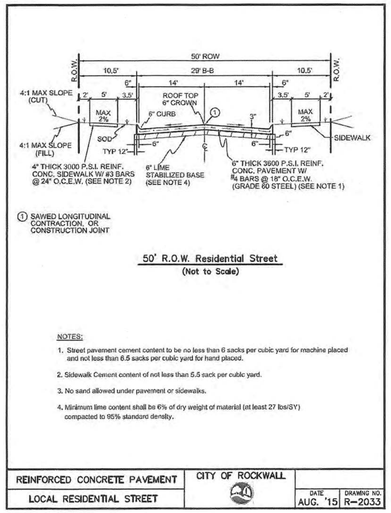
REINFORCED CONCRETE PAVEMENT	CITY OF ROCKWALL	
(M4D) MINOR ARTERIAL DIVIDED 4-LANE		DATE AUG. '15 / DRAWING NO. R-2020



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REINFORCED CONCRETE PAVEMENT	CITY OF ROCKWALL	
MINOR COLLECTOR/LOCAL COMMERCIAL		DATE AUG. '15 / DRAWING NO. R-2031

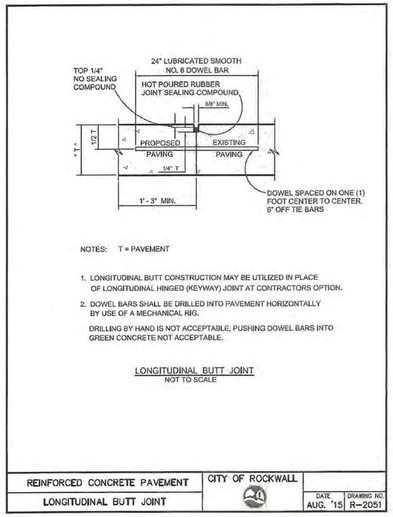
City of Rockwall
The Texas Timeless



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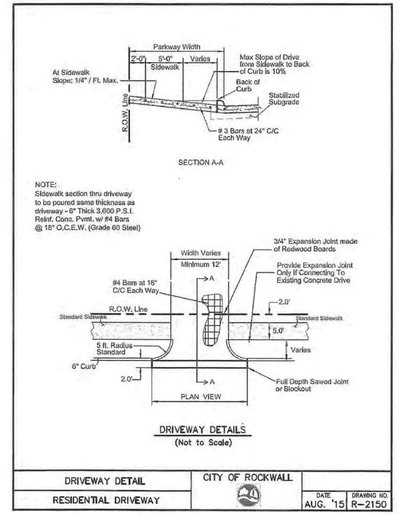
REINFORCED CONCRETE PAVEMENT	CITY OF ROCKWALL	
LOCAL RESIDENTIAL STREET		DATE AUG. '15 / DRAWING NO. R-2033

City of Rockwall
The Texas Timeless



REINFORCED CONCRETE PAVEMENT	CITY OF ROCKWALL	
LONGITUDINAL BUTT JOINT		DATE AUG. '15 / DRAWING NO. R-2051

City of Rockwall
The Texas Timeless



DRIVEWAY DETAIL	CITY OF ROCKWALL	
RESIDENTIAL DRIVEWAY		DATE AUG. '15 / DRAWING NO. R-2150

RECORD DRAWINGS

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RYAN C. KING, P.E. — 8/3/2022 DATE

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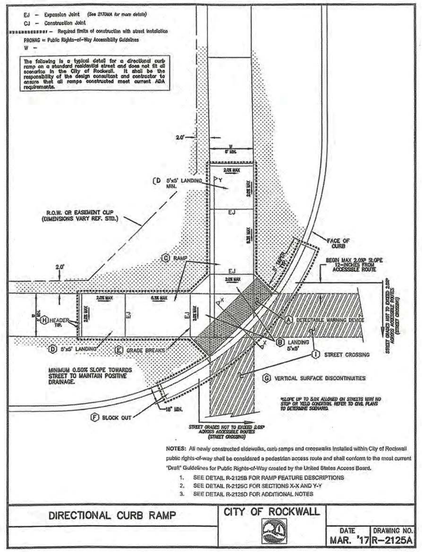
STATE OF TEXAS — RYAN C. KING — 123635 — REGISTERED PROFESSIONAL ENGINEER — 8/26/2020

PAVING DETAILS

TERRACINA PHASE 1

CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

SHEET 49 OF 62



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

(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%).

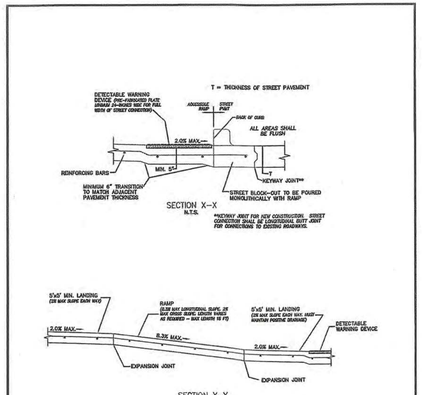
(H) A sidewalk header shall be constructed at ends of all work performed.

(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 2.0%. 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



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

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.

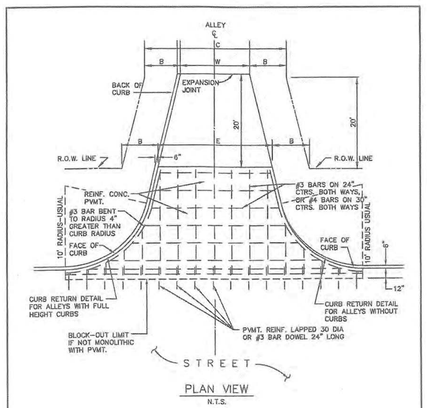
DETECTABLE WARNING DEVICE

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

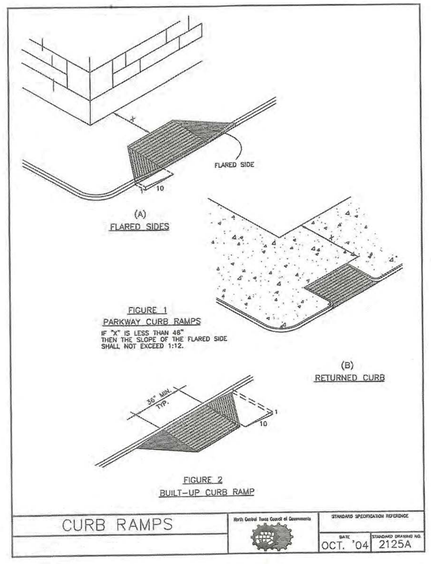
15. Provide clear ground space at operable parts, including pedestrian push buttons. Operable parts shall be placed within one or more reach ranges specified in TAS 308.
16. Place traffic signal or illumination poles, ground boxes, controller boxes, signs, drainage facilities and other items so as not 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	DRAWING NO.
		MAR. '17	R-2125D



ALLEY WIDTH (W)	R.O.W. WIDTH (C)	B	E
10'	15'	2' – 6"	12'
12'	17'	2' – 6"	14'
16'	21'	2' – 6"	18'
20'	25'	2' – 6"	22'

ALLEY APPROACH RADIUS RETURN TYPE	North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE	
		305.2	
		DATE: OCT. '04	STANDARD DRAWING NO. 2160



CURB RAMPS	North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE	
		DATE: OCT. '04	STANDARD DRAWING NO. 2125A

CURB RAMPS NOTES:

GENERAL REQUIREMENTS
CURB RAMPS SHALL BE CONSTRUCTED AS PER THE REQUIREMENTS AND SPECIFICATIONS OF THE TEXAS ACCESSIBILITY STANDARDS AND THE ADA & ABA ACCESSIBILITY GUIDELINES FOR BUILDINGS AND FACILITIES. (FEDERAL REGISTER/ VOL. 69, NO. 141, FRIDAY, JULY 23, 2004)

LOCATION:
CURB RAMPS UNDER THESE PROVISIONS, SHALL BE WHEREVER AN ACCESSIBLE ROUTE CROSSES A CURB.

SLOPE:
SLOPES ON CURB RAMPS SHALL BE MEASURED AS FOLLOWS: (Yx = VERTICAL:HORIZONTAL)
A) TRANSITIONS FROM RAMPS TO WALKS, GUTTERS, OR STREETS SHALL BE FLUSH AND FREE OF ABRUPT CHANGES.
B) MAXIMUM SLOPES OF ADJOINING GUTTERS, ROAD SURFACE IMMEDIATELY ADJACENT TO THE CURB OR ACCESSIBLE ROUTE SHALL NOT EXCEED 1:20.
C) THE LEAST POSSIBLE SLOPE SHALL BE USED FOR ANY RAMP. THE MAXIMUM SLOPE OF A RAMP IN NEW CONSTRUCTION SHALL BE 1:12. THE MAXIMUM RISE FOR ANY RUN SHALL BE 30" (760 MM). CURB RAMPS AND RAMPS TO BE CONSTRUCTED ON EXISTING SITES OR IN EXISTING BUILDINGS OR FACILITIES MAY HAVE SLOPES AND RISES IF SPACE LIMITATIONS PROHIBIT THE USE OF A 1:12 SLOPE OR LESS, AS FOLLOWS:
   1. A SLOPE BETWEEN 1:10 AND 1:12 IS ALLOWED FOR A MAXIMUM RISE OF 6".
   2. A SLOPE BETWEEN 1:8 AND 1:10 IS ALLOWED FOR A MAXIMUM OF 3"
   A SLOPE STEEPER THAN 1:8 IS NOT ALLOWED.

RAMP WIDTH:
THE MINIMUM WIDTH OF A CURB RAMP SHALL BE 36" EXCLUSIVE OF FLARED SIDES.

SURFACE:
SURFACES OF CURB RAMPS, SHALL BE STABLE FIRM, AND SLIP RESISTANT. SURFACE TEXTURES SHALL CONSIST OF EXPOSED CRUSHED STONE AGGREGATE, ROUGHENED CONCRETE, RUBBER, RAISED ABRASIVE STRIPS, OR GROOVES. EXTENDING THE FULL WIDTH AND DEPTH OF THE CURB RAMP. SURFACES THAT ARE RAISED, ETCHED, OR GROOVED IN A WAY THAT WOULD ALLOW WATER TO ACCUMULATE ARE PROHIBITED. FOR PURPOSES OF WARNING, THE FULL WIDTH AND DEPTH OF CURB RAMPS SHALL HAVE A LIGHT REFLECTIVE VALUE AND TEXTURE THAT SIGNIFICANTLY CONTRASTS WITH THAT OF ADJOINING PEDESTRIAN ROUTES.

SIDES OF CURB RAMPS:
IF A CURB RAMP IS LOCATED WHERE PEDESTRIANS MUST WALK ACROSS THE RAMP, OR WHERE IT IS NOT PROTECTED BY HANDRAILS OR GUARDRAILS, IT SHALL HAVE FLARED SIDES. THE MAXIMUM SLOPE OF THE FLARE SHALL BE 1:10 (SEE FIG. 1 (A)) CURB RAMPS WITH RETURNED CURBS MAY BE USED WHERE PEDESTRIANS WOULD NOT WALK ACROSS THE RAMP. (SEE FIG. 1 (B))

BUILT-UP RAMPS:
BUILT-UP CURB RAMPS SHALL BE LOCATED SO THEY DO NOT PROJECT INTO VEHICULAR TRAFFIC LANES (SEE FIG. 2)

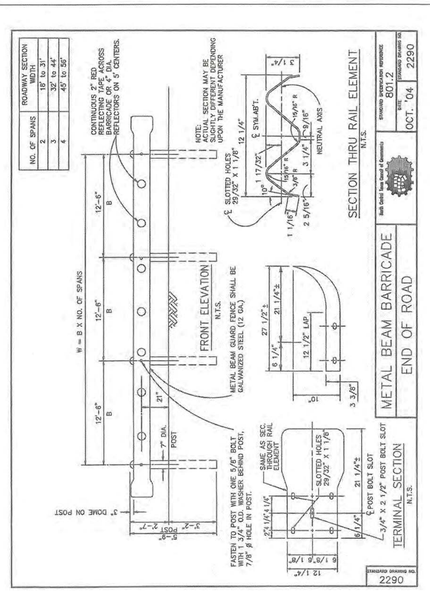
OBSTRUCTIONS:
CURB RAMPS SHALL BE LOCATED OR PROTECTED TO PREVENT THEIR OBSTRUCTION BY PARKED VEHICLES.

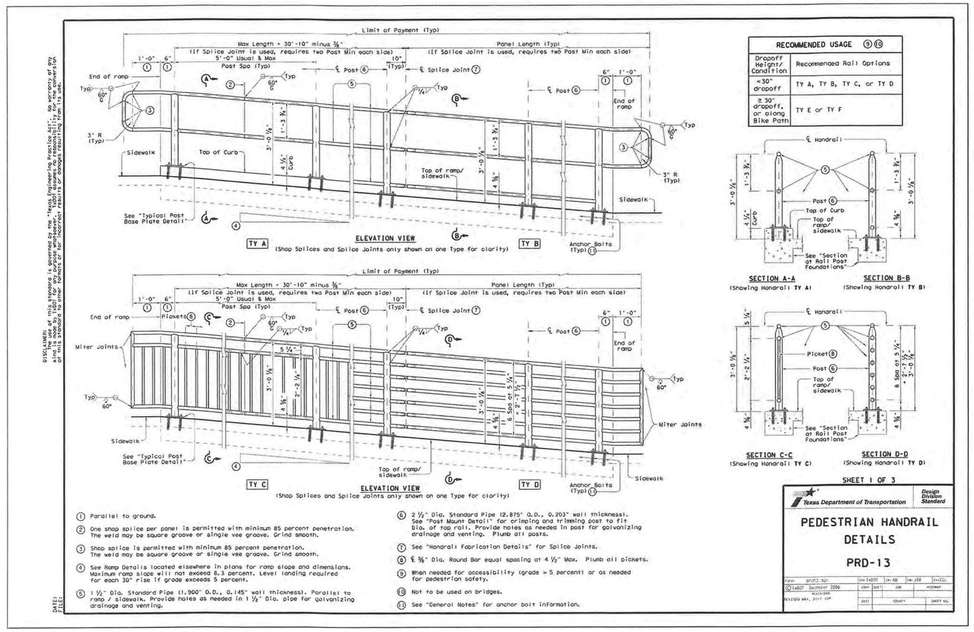
LOCATION AT MARKED CROSSINGS:
CURB RAMPS AT MARKED CROSSINGS SHALL BE WHOLLY CONTAINED WITHIN THE MARKINGS, EXCLUDING ANY FLARED SIDES.

DIAGONAL CURB RAMPS:
IF DIAGONAL (OR CORNER TYPE) CURB RAMPS HAVE RETURNED CURBS OR OTHER WELL DEFINED EDGES, SUCH EDGES SHALL BE PARALLEL TO THE DIRECTION OF PEDESTRIAN FLOW. THE BOTTOM OF DIAGONAL CURB RAMPS SHALL HAVE 48" (1220 MM) MINIMUM. IF DIAGONAL CURB RAMPS ARE PROVIDED AT MARKED CROSSINGS, THE 48" (1220 MM) CLEAR SPACE SHALL BE WITHIN THE MARKINGS. IF DIAGONAL CURB RAMPS HAVE FLARED SIDES, THEY SHALL ALSO HAVE AT LEAST A 24" (610 MM) LONG SEGMENT OF STRAIGHT CURB LOCATED ON EACH SIDE OF THE CURB RAMP AND WITHIN THE MARKED CROSSING. ANY RAISED ISLANDS IN CROSSINGS SHALL BE CUT THROUGH LEVEL WITH THE STREET OR HAVE CURB RAMPS AT BOTH SIDES AND A LEVEL AREA AT LEAST 48" (1220 MM) LONG BETWEEN THE CURB RAMPS IN THE PART OF THE ISLAND INTERSECTED BY THE CROSSINGS.

CONSTRUCTION
(A.) THE CONTRACTOR SHALL SAWCUT, REMOVE AND DISPOSE OFF-SITE THE REQUIRED EXISTING CONCRETE SIDEWALK, CURB AND GUTTER, TO CONSTRUCT THE PROPOSED RAMPS.
(B.) CONCRETE SIDEWALKS AND RAMPS SHALL BE MINIMUM 4" THICK, 4000 PSI, 6 SACK CONCRETE, REINFORCED WITH #3 BARS AT 14" CENTERS BOTH WAYS, PLACED OVER A 2" THICK SAND CUSHION EMBEDMENT.
(C.) THE CONTRACTOR SHALL USE 1" PREMOLDED EXPANSION JOINT MATERIAL BETWEEN THE PROPOSED SIDEWALKS AND RAMPS AT THE BACK OF CURBS, AND AT JOINTS AT NO EXTRA PAY.
(D.) DUMMY JOINT REQUIRED EVERY 4' IN 4' WIDE SIDEWALKS AND EVERY 5' IN 6' WIDE SIDEWALK.

CURB RAMPS	North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE	
		DATE: OCT. '04	STANDARD DRAWING NO. 2125B


ROADWAY SECTION
NO. OF SPANS
2
3
4
15' to 31'
32' to 44'
45' to 59'
CONSTRUCTION 3" RED REFLECTIVE TAPE ACROSS BARRICADE OR 4" DIA. REFLECTIVE DISK 3' CENTERS.
NOTE: SECTION MAY BE SECTIONAL OR FIELD BENDING UPON THE MANUFACTURER
3/4" ø
3/16"
3 1/4"
NEUTRAL AXIS
SECTION THRU RAIL ELEMENT
N.T.S.
STANDARD SPECIFICATION REFERENCE
801.2
DATE: OCT. '04
STANDARD DRAWING NO.
2290
W = (# X NO. OF SPANS)
12'-6"
B
12'-6"
B
12'-6"
B
FRONT ELEVATION
N.T.S.
5' DIA. POST
5' DUKE ON POST
2'-6"
2'-6"
C SLOTTED HOLES 35/32" X 1 1/8"
1 17/32"
5" DIA.
1 1/16"
2 5/16"
3 1/4"
3/4" ø
1/2" ø
1/2" ø
1/2



RECOMMENDED USAGE	⑤	⑥
Dropoff Height/ Condition	Recommended Rail Options	
≤ 30" dropoff	TY A, TY B, TY C, or TY D	
≥ 30" dropoff, or along Bike Path	TY E or TY F	

① Parallel to ground.

② One shop splice per panel is permitted with minimum 85 percent penetration. The weld may be square groove or single vee groove. Grind smooth.

③ Shop splice is permitted with minimum 85 percent penetration. The weld may be square groove or single vee groove. Grind smooth.

④ See Ramp Details located elsewhere in plans for ramp slope and dimensions. Maximum ramp slope will not exceed 8.3 percent. Level landing required for each 30" rise if grade exceeds 5 percent.

⑤ 1 ½" Dia. Standard Pipe (1.900" O.D., 0.145" wall thickness). Parallel to ramp / sidewalk. Provide holes as needed in 1 ½" Dia. pipe for galvanizing drainage and venting.

⑥ 2 ½" Dia. Standard Pipe (2.875" O.D., 0.203" wall thickness). See "Post Mount Detail" for crimping and trimming post to fit Dia. of top rail. Provide holes as needed in post for galvanizing drainage and venting. Plumb all posts.

⑦ See "Handrail Fabrication Details" for Splice Joints.

⑧ ⅝" Dia. Round Bar equal spacing at 4 ½" Max. Plumb all pickets.

⑨ When needed for accessibility (grade > 5 percent) or as needed for pedestrian safety.

⑩ Not to be used on bridges.

⑪ See "General Notes" for anchor bolt information.

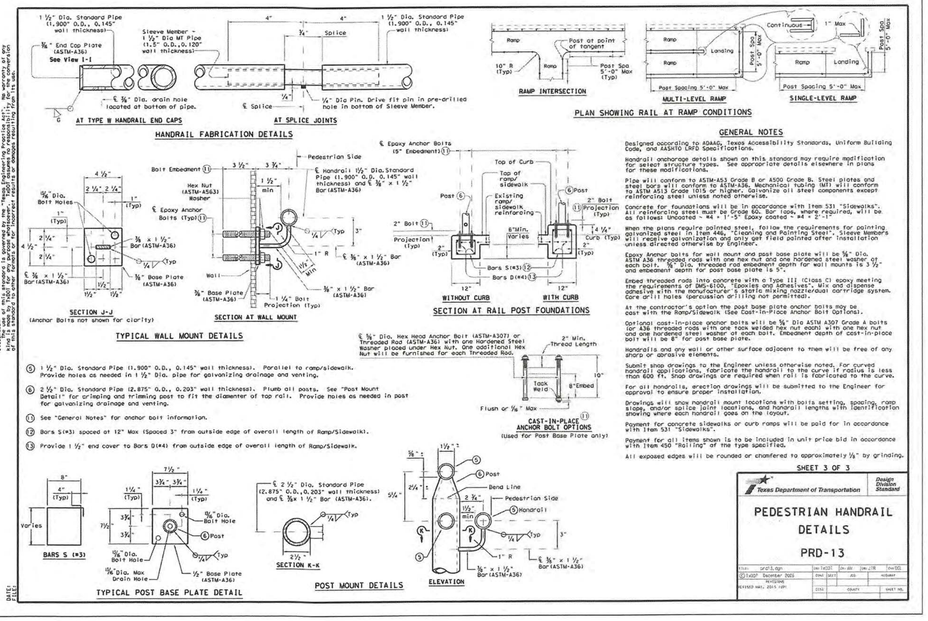
SHEET 1 OF 3

Texas Department of Transportation — Design Division Standard

PEDESTRIAN HANDRAIL DETAILS

PRD-13

FILE:	prd13.dgn	DN: TxDOT	CK: RK	DW: JJR	CK: DL
©TxDOT December 2006		CONT	SECT	JOB	HIGHWAY
REVISIONS					
8/31/2020 REV. 2015 10M		DIST	COUNTY		SHEET NO.



GENERAL NOTES

Designed according to ADAAG, Texas Accessibility Standards, Uniform Building Code, and AASHTO LRFD Specifications.

Handrail anchorage details shown on this standard may require modification for select structure types. See appropriate details elsewhere in plans for these modifications.

Pipe will conform to ASTM-A53 Grade B or A500 Grade B, Steel plates and bars will conform to ASTM-A36. Structural tubing and pipe will conform to ASTM-A513 Grade 1015 or higher. Galvanize all steel components except reinforcing steel unless noted otherwise.

Concrete for foundations will be in accordance with Item 531 "Sidewalks". Use Class A concrete for all other work. For cast-in-place, where required, will be as follows: Unpainted - #4 = 1'-5" Epoxy coated - #4 = 2'-1"

When the plans require painted steel, follow the requirements for painting galvanized steel in Item 446, "Cleaning and Painting Steel". Sleeve Members will receive galvanization and only get field painted after installation unless directed otherwise by Engineer.

Epoxy Anchor bolts for wall mount and post base plate will be ⅝" Dia. ASTM A36 threaded rods with one hex nut and one hardened steel washer at each bolt. ⅝" Dia. threaded rod embedment depth for wall mounts is 3 ½" and embedment depth for post base plate is 5".

Embed threaded rods into concrete with a Type III (Class C) epoxy meeting the requirements of DMS-6100, "Epoxies and Adhesives". Mix and dispense adhesive with the manufacturer's static mixing nozzle/dual cartridge system. Core drill holes (percussion drilling not permitted).

At the contractor's option the post base plate anchor bolts may be cast with the Ramp/Sidewalk (See Cast-In-Place Anchor Bolt Options).

Optional cast-in-place anchor bolts will be ⅝" Dia ASTM A307 Grade A bolts (or A36 threaded rods with one rack welded hex nut each) with one hex nut and one hardened steel washer at each bolt. Embedment depth of cast-in-price bolt will be 8" for post base plate.

Handrails and any wall or other surface adjacent to them will be free of any sharp or abrasive elements.

Submit shop drawings to the Engineer unless otherwise noted, for curved handrail applications, fabricate the handrail to the curve if radius is less than 600 Ft. Shop drawings are required when rail is fabricated to the curve.

For rail monorails, erection drawings will be submitted to the Engineer for approval to ensure proper installation.

Drawings will show monorail mount locations with bolts setting, spacing, rake of posts, anchor bolt details, mountains, and handrail lengths with identification showing where each handrail goes on the layout.

Payment for concrete sidewalks or curb ramps will be paid for in accordance with Item 531 "Sidewalks".

Payment for all items shown is to be included in unit price bid in accordance with Item 450 "Railing" of the type specified.

All exposed edges will be rounded or chamfered to approximately ⅛" by grinding.

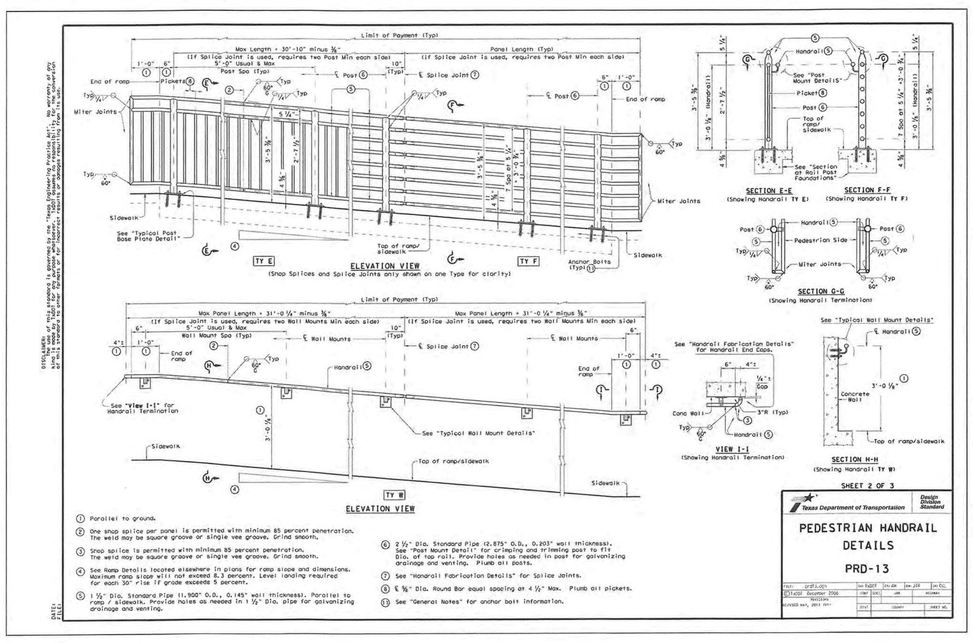
SHEET 3 OF 3

Texas Department of Transportation — Design Division Standard

PEDESTRIAN HANDRAIL DETAILS

PRD-13

FILE:	prd13.dgn	DN: TxDOT	CK: RK	DW: JJR	CK: DL
©TxDOT December 2006		CONT	SECT	JOB	HIGHWAY
REVISIONS					
8/31/2020 REV. 2015 10M		DIST	COUNTY		SHEET NO.



① Parallel to ground.

② One shop splice per panel is permitted with minimum 85 percent penetration. The weld may be square groove or single vee groove. Grind smooth.

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④ See Ramp Details located elsewhere in plans for ramp slope and dimensions. Maximum ramp slope will not exceed 8.3 percent. Level landing required for each 30" rise if grade exceeds 5 percent.

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⑥ 2 ½" Dia. Standard Pipe (2.875" O.D., 0.203" wall thickness). See "Post Mount Detail" for crimping and trimming post to fit Dia. of top rail. Provide holes as needed in post for galvanizing drainage and venting. Plumb all posts.

⑦ See "Handrail Fabrication Details" for Splice Joints.

⑧ ⅝" Dia. Round Bar equal spacing at 4 ½" Max. Plumb all pickets.

⑨ When needed for accessibility (grade > 5 percent) or as needed for pedestrian safety.

⑩ Not to be used on bridges.

⑪ See "General Notes" for anchor bolt information.

SHEET 2 OF 3

Texas Department of Transportation — Design Division Standard

PEDESTRIAN HANDRAIL DETAILS

PRD-13

FILE:	prd13.dgn	DN: TxDOT	CK: RK	DW: JJR	CK: DL
©TxDOT December 2006		CONT	SECT	JOB	HIGHWAY
REVISIONS					
8/31/2020 REV. 2015 10M		DIST	COUNTY		SHEET NO.

RECORD DRAWINGS

To the best of our knowledge Engineering Concepts & Design, L.P., hereby states that this plan is As-Built. This information provided is based on surveying at the site and information provided by the contractor.

RYAN C. KING, P.E. — 8/3/2022 DATE

RELEASED FOR CONSTRUCTION
ALL RESPONSIBILITY FOR ADEQUACY OF DESIGN REMAINS WITH THE DESIGN ENGINEER. THE CITY OF ROCKWALL, IN REVIEWING AND RELEASING PLANS FOR CONSTRUCTION, ASSUMES NO RESPONSIBILITY FOR ADEQUACY OR ACCURACY OF DESIGN.

CITY — DATE

CAUTION! EXISTING UTILITIES

CONTRACTOR SHOULD CALL 1-800-DIG-TESS PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITIES FOR EXISTING UTILITY LOCATIONS. EXISTING UTILITIES AND UNDERGROUND FACILITIES INDICATED ON THESE PLANS HAVE BEEN LOCATED FROM REFERENCE INFORMATION. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY BOTH HORIZONTALLY AND VERTICALLY THE LOCATION OF ALL EXISTING UTILITIES AND UNDERGROUND FACILITIES PRIOR TO CONSTRUCTION AND TO TAKE NECESSARY PRECAUTIONS IN ORDER TO PROTECT ALL FACILITIES ENCOUNTERED. THE CONTRACTOR SHALL PRESERVE AND PROTECT ALL EXISTING UTILITIES FROM DAMAGE DURING CONSTRUCTION.

BENCHMARKS:

CP 101 - Square cut on headwall west side of Rochelle road & 54' south of center of Polar Point Drive Elevation = 559.95

CP 103 - "X" in concrete east side of Rochelle Road, 1834' south of center of Polar Point Dr. Elevation = 564.54'

CP 104 - Capped 5/8" Iron rod east side of Rochelle Road & 1250' south of the center of Polar Point Dr. Elevation = 572.70'

CP 105 - Capped 5/8" Iron rod east side of Rochelle Road & 826' south of the center of Polar Point Dr. Elevation = 568.75'

ENGINEERINGCONCEPTS & DESIGN, L.P.

ENGINEERING / PROJECT MANAGEMENT / CONSTRUCTION SERVICES - FIRM REG. #F-001145
201 WINDCO CIR, STE 200, WYLIE, TX 75098
972-941-8400 FAX: 972-941-8401 WWW.ECDLP.COM

REVISIONS:

DRAWN: RCK — DATE:
CHECKED: RKH — DATE: 8/26/2020
PROJECT NO.: 06537
DWG FILE NAME: 06537 DT.DWG

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF CONSTRUCTION. THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RYAN C. KING, P.E. 123635

STATE OF TEXAS — RYAN C. KING — 123635 — REGISTERED PROFESSIONAL ENGINEER — 8/26/2020

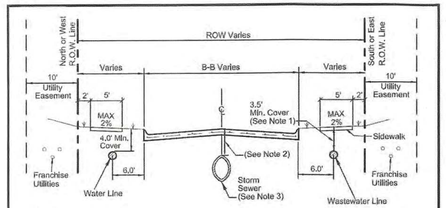
HANDRAIL DETAILS

TERRACINA PHASE 1

CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

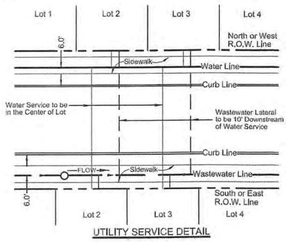
SHEET 51 OF 62

City of Rockwall
The New Horizon



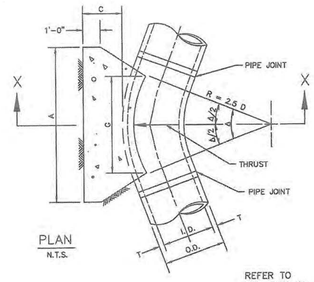
NOTE:

1. If wastewater line has a cover greater than ten feet (10') than pipe shall be minimum SDR 26 and no services allowed.
2. If cover is two (2) feet or less than Class IV RCP is required.
3. Horizontal location of storm sewer for divided roads to be determined by design engineer. Not to be placed in the parkway.



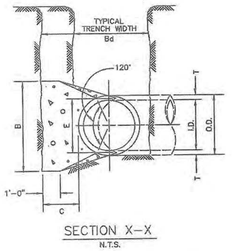
UTILITY SERVICE DETAIL

GENERAL UNDERGROUND CONDUIT	CITY OF ROCKWALL	DATE	DRAWING NO.
UTILITIES LOCATION DETAIL		AUG. '15	R-3000



PLAN
N.T.S.

REFER TO STD. DWG. No. 4040 FOR GENERAL NOTES.



SECTION X–X
N.T.S.

HORIZONTAL THRUST BLOCK	North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE	
AT PIPE BEND		502.4	
		DATE	STANDARD DRAWING NO.
		OCT. '04	4010A

I.D. (IN.)	T (IN.)	Δ = 11.25° C (FT.)	Δ = 22.50° C (FT.)	E (FT.)
4,6,8	0.4	1.5	1.5	0.9
10,12	0.5	1.5	1.5	1.2
16,18	0.6	1.5	1.5	1.6
20	0.7	1.5	1.5	1.8
24	0.9	1.5	1.5	2.1
30	2.9	1.5	1.9	2.6
36	4.5	1.5	2.3	3.3
42	5.0	1.8	2.6	3.8
48	5.5	2.0	3.0	4.3
54	6.0	2.3	3.4	4.8
60	6.5	2.5	3.8	5.3
66	6.8	2.8	4.1	5.7
72	7.5	3.0	4.5	6.3
78	7.5	3.3	4.9	6.7
84	8.0	3.5	5.3	7.2
90	8.5	3.8	5.6	7.7
96	9.0	4.0	6.0	8.2

I.D. (IN.)	Δ = 11.25° G (FT.)	THRUST (TONS)	EARTH A (FT.)	EARTH B (FT.)	EARTH VOL. (C.Y.)	ROCK A (FT.)	ROCK B (FT.)	ROCK VOL. (C.Y.)	I.D. (IN.)	Δ = 22.50° G (FT.)	THRUST (TONS)	EARTH A (FT.)	EARTH B (FT.)	EARTH VOL. (C.Y.)	ROCK A (FT.)	ROCK B (FT.)	ROCK VOL. (C.Y.)
4,6,8	0.4	1.0	1.0	1.5	0.1	1.0	1.0	0.1	4,6,8	0.8	2.0	1.5	1.5	0.1	1.0	1.0	0.1
10,12	0.6	2.2	1.5	1.5	0.1	1.0	1.5	0.1	10,12	1.1	4.4	2.0	2.5	0.3	1.5	1.5	0.1
16,18	0.8	5.0	2.0	2.5	0.3	1.5	2.0	0.2	16,18	1.6	9.9	3.0	3.5	0.6	2.0	2.5	0.3
20	0.9	6.2	2.0	3.5	0.4	1.5	3.0	0.3	20	1.8	12.3	3.5	3.5	0.7	2.0	3.0	0.4
24	1.1	8.9	3.0	3.5	0.5	1.5	3.0	0.3	24	2.2	17.7	4.0	4.5	1.0	3.0	3.5	0.5
30	1.4	10.4	3.0	3.5	0.6	2.0	3.5	0.4	30	2.7	20.7	5.0	4.5	1.5	3.0	4.0	0.8
36	1.7	15.0	3.5	4.5	0.9	2.0	4.0	0.5	36	3.3	29.8	5.5	5.5	2.3	4.0	4.0	1.3
42	1.9	20.4	4.5	5.0	1.5	2.5	5.0	0.8	42	3.8	40.5	7.0	6.0	3.9	4.5	5.0	2.1
48	2.2	26.6	4.5	6.0	2.0	2.5	6.0	1.1	48	4.4	52.9	8.0	7.0	5.7	4.5	6.0	2.8
54	2.5	33.7	6.0	6.0	3.0	3.0	6.0	1.4	54	4.9	67.0	9.0	8.0	8.0	6.0	6.0	4.1
60	2.7	41.6	6.0	7.0	3.8	3.0	7.0	1.8	60	5.5	82.7	9.5	9.0	10.8	6.0	7.0	5.3
66	3.0	50.3	6.5	8.0	5.1	3.5	8.0	2.7	66	6.0	100.1	10.5	10.0	14.1	8.5	8.0	7.2
72	3.3	59.9	7.5	8.0	6.3	4.0	8.0	3.3	72	6.6	119.1	11.0	11.0	17.6	7.5	8.0	9.1
78	3.6	70.2	8.0	9.0	8.1	4.0	9.0	3.9	78	7.1	139.8	12.0	12.0	22.5	8.0	9.0	11.7
84	3.8	81.5	8.5	10.0	10.3	4.5	10.0	5.3	84	7.6	162.1	13.0	12.5	27.2	8.5	10.0	14.8
90	4.1	93.5	9.5	10.0	12.2	5.0	10.0	6.3	90	8.2	186.1	14.0	13.5	33.7	9.5	10.0	17.7
96	4.4	106.4	10.0	11.0	15.0	5.0	11.0	7.4	96	8.7	211.7	15.0	14.5	41.2	10.0	11.0	21.8

TABLES OF DIMENSIONS AND QUANTITIES

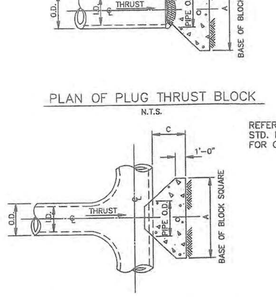
HORIZONTAL THRUST BLOCK	North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE	
AT PIPE BEND		502.4	
		DATE	STANDARD DRAWING NO.
		OCT. '04	4010B

I.D. (IN.)	Δ = 30° G (FT.)	THRUST (TONS)	EARTH A (FT.)	EARTH B (FT.)	EARTH VOL. (C.Y.)	ROCK A (FT.)	ROCK B (FT.)	ROCK VOL. (C.Y.)	I.D. (IN.)	Δ = 45° G (FT.)	THRUST (TONS)	EARTH A (FT.)	EARTH B (FT.)	EARTH VOL. (C.Y.)	ROCK A (FT.)	ROCK B (FT.)	ROCK VOL. (C.Y.)
4,6,8	1.0	2.6	2.0	1.5	0.2	1.0	1.5	0.1	4,6,8	1.5	3.9	2.0	2.0	0.2	1.5	1.5	0.1
10,12	1.5	5.9	2.5	2.5	0.3	2.0	1.5	0.2	10,12	2.2	8.7	3.5	2.5	0.5	2.0	2.5	0.3
16,18	2.2	13.2	3.5	4.0	0.8	2.5	3.0	0.4	16,18	3.2	19.5	4.5	4.5	1.2	3.0	3.5	0.6
20	2.4	16.3	4.5	4.0	1.0	3.0	3.0	0.5	20	3.6	24.1	5.5	4.5	1.5	3.5	3.5	0.7
24	2.9	23.4	5.0	4.0	1.4	3.5	3.5	0.7	24	4.3	34.8	6.0	4.5	2.3	4.5	4.0	1.1
30	3.5	27.5	6.5	5.0	1.9	3.5	4.0	0.9	30	5.4	40.6	8.5	5.0	3.2	5.5	4.0	1.6
36	4.4	39.5	7.0	6.0	3.4	4.5	4.5	1.6	36	6.5	58.5	10.0	6.0	5.3	6.5	4.5	2.6
42	5.1	53.8	8.0	7.0	5.1	5.5	5.0	2.5	42	7.5	79.6	11.5	7.0	8.1	8.0	5.0	4.2
48	5.8	70.3	9.0	8.0	7.4	6.0	6.0	3.7	48	8.6	104.0	13.0	8.0	11.9	9.0	6.0	6.3
54	6.5	89.0	10.0	9.0	10.3	7.0	6.5	5.3	54	9.7	131.5	15.0	9.0	17.1	10.5	6.5	8.9
60	7.3	110.0	11.0	10.0	13.9	7.5	7.5	7.3	60	10.7	162.4	16.5	10.0	23.1	11.0	7.5	12.0
66	8.0	132.9	12.5	11.0	18.9	8.5	8.0	9.6	66	11.8	196.5	18.0	11.0	30.1	12.0	8.5	18.2
72	8.7	158.2	13.5	12.0	24.0	9.0	9.0	12.3	72	12.9	233.9	19.5	12.0	38.6	14.0	8.5	20.7
78	9.4	185.6	14.5	13.0	30.0	10.0	9.5	15.6	78	13.9	274.5	21.5	13.0	49.8	14.5	9.5	25.9
84	10.1	215.3	15.5	14.0	37.1	10.5	10.5	19.5	84	15.0	318.4	23.0	14.0	61.2	15.5	10.5	32.6
90	10.9	247.1	16.5	15.0	45.0	11.5	11.0	23.9	90	16.1	365.5	24.5	15.0	74.5	17.5	10.5	39.6
96	11.6	281.2	18.0	16.0	55.5	12.5	11.5	28.9	98	17.1	415.6	26.0	16.0	89.5	18.5	11.5	48.5

I.D. (IN.)	Δ = 67.50° G (FT.)	THRUST (TONS)	EARTH A (FT.)	EARTH B (FT.)	EARTH VOL. (C.Y.)	ROCK A (FT.)	ROCK B (FT.)	ROCK VOL. (C.Y.)	I.D. (IN.)	Δ = 90° G (FT.)	THRUST (TONS)	EARTH A (FT.)	EARTH B (FT.)	EARTH VOL. (C.Y.)	ROCK A (FT.)	ROCK B (FT.)	ROCK VOL. (C.Y.)
4,6,8	2.1	5.6	3.0	2.0	0.3	2.0	1.5	0.2	4,6,8	2.7	7.1	5.0	1.5	0.4	2.0	2.0	0.2
10,12	3.1	12.6	5.5	2.5	0.8	3.5	2.0	0.4	10,12	4.0	18.0	6.5	2.5	1.0	3.5	2.5	0.5
16,18	4.7	28.3	7.5	4.0	1.9	5.5	3.0	0.9	16,18	6.0	36.0	9.0	4.0	2.4	4.5	4.0	1.0
20	5.2	34.9	9.0	4.0	2.3	5.5	3.5	1.2	20	6.6	44.4	10.0	4.5	3.1	6.0	4.0	1.5
24	6.2	50.3	11.5	4.5	3.5	6.5	4.0	1.6	24	7.9	64.0	14.5	4.5	5.0	8.0	4.0	2.1
30	7.8	58.9	12.0	5.0	4.8	7.5	4.0	2.2	30	9.9	75.0	15.0	5.0	8.7	10.0	4.0	3.3
36	9.4	84.9	14.5	6.0	8.2	9.5	4.5	3.8	36	11.9	108.0	18.0	6.0	11.4	12.0	4.5	5.3
42	10.9	115.5	17.0	7.0	12.8	11.0	5.5	6.3	42	13.9	147.0	21.0	7.0	17.8	14.0	5.5	8.7
48	12.5	150.9	19.0	8.0	18.4	13.0	6.0	9.2	48	15.9	192.0	24.0	8.0	26.2	16.0	6.0	12.4
54	14.0	191.0	21.5	9.0	26.0	15.0	6.5	12.9	54	17.9	243.0	27.0	9.0	36.9	18.0	7.0	18.1
60	15.6	235.8	24.0	10.0	35.6	16.0	7.5	17.6	60	19.9	299.8	30.0	10.0	50.3	20.0	7.5	24.0
66	17.1	285.3	26.0	11.0	46.0	18.0	8.0	23.0	66	21.8	362.8	33.0	11.0	66.2	22.0	8.5	32.5
72	18.7	339.5	28.5	12.0	57.8	19.0	9.0	28.4	72	23.8	431.6	36.0	12.0	85.6	24.0	9.0	41.0
78	20.2	398.5	31.0	13.0	75.7	21.0	9.5	37.4	78	25.7	506.7	39.0	13.0	108.2	26.0	10.0	53.2
84	21.8	462.1	33.5	14.0	94.7	22.0	10.5	46.5	84	27.7	587.7	42.0	14.0	134.4	28.0	10.5	64.8
90	23.3	530.5	35.5	15.0	114.4	24.5	11.0	58.2	90	29.6	674.6	45.0	15.0	164.9	30.0	11.5	81.2
96	24.9	603.6	38.0	16.0	138.9	25.5	12.0	70.0	98	31.6	767.5	48.0	16.0	199.0	32.0	12.0	95.1

TABLES OF DIMENSIONS AND QUANTITIES

HORIZONTAL THRUST BLOCK	North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE	
AT PIPE BEND		502.4	
		DATE	STANDARD DRAWING NO.
		OCT. '04	4010C



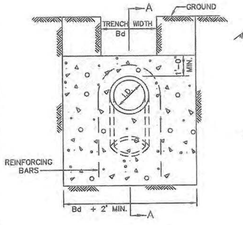
PLAN OF PLUG THRUST BLOCK
N.T.S.

REFER TO STD. DWG. No. 4040 FOR GENERAL NOTES.

PLAN OF TEE THRUST BLOCK
N.T.S.

I.D. (IN.)	THRUST (TONS)	C (FT.)	EARTH A (FT.)	EARTH VOL. (C.Y.)	ROCK A (FT.)	ROCK VOL. (C.Y.)
4,6,8	3.1	1.5	2.5	0.3	2.0	0.2
10,12	11.3	1.5	3.5	0.6	2.5	0.3
16,18	25.5	2.0	5.5	1.6	4.0	0.9
20	31.5	2.0	6.0	1.9	4.0	0.9
24	45.2	2.5	7.0	3.1	5.0	1.7
30	53.0	3.0	7.5	4.1	5.5	2.4
36	78.3	4.0	9.0	7.2	6.5	4.2
42	104.0	4.5	10.5	11.0	7.5	6.2
48	136.0	5.0	12.0	15.6	8.5	8.7
54	172.0	5.5	13.5	21.4	9.5	11.9
60	212.0	6.0	15.0	28.4	10.5	15.7
66	257.0	6.5	16.5	36.8	11.5	20.5
72	305.0	7.5	17.5	47.2	12.5	27.2
78	358.0	8.0	19.0	58.9	13.5	33.2
84	415.0	8.5	20.5	72.3	14.5	41.2
90	477.0	9.0	22.0	87.7	15.5	49.7
96	543.0	9.5	23.5	104.6	16.5	61.0

HORIZONTAL THRUST BLOCK	North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE	
AT TEES AND PLUGS		502.4	
		DATE	STANDARD DRAWING NO.
		OCT. '04	4020



ELEVATION "B–B"
N.T.S.

SECTION "A–A"
N.T.S.

REFER TO STD. DWG. No. 4040 FOR GENERAL NOTES.

Δ	11.25°		22.50°		30°		45°		67.50°		90°		Δ
I.D. (IN.)	THRUST (TONS)	VOL. (C.Y.)	THRUST (TONS)	VOL. (C.Y.)	THRUST (TONS)	VOL. (C.Y.)	THRUST (TONS)	VOL. (C.Y.)	THRUST (TONS)	VOL. (C.Y.)	THRUST (TONS)	VOL. (C.Y.)	I.D. (IN.)
4,6,8	1.0	0.5	2.0	1.0	2.5	1.3	3.8	1.8	4.8	2.3	5.0	2.5	4,6,8
10,12	2.2	1.1	4.3	2.2	5.7	2.8	8.0	4.0	10.5	5.2	11.3	5.7	10,12
16,18	5.0	2.5	9.7	4.8	12.7	6.4	18.0	9.0	23.5	11.8	25.5	12.7	16,18
20	6.1	3.1	12.0	6.0	15.7	7.9	22.2	11.1	29.2	14.5	31.4	15.7	20
24	8.2	4.4	17.3	8.7	22.6	11.3	32.0	16.0	41.8	20.9	45.2	22.6	24
30	10.5	5.2	20.3	10.1	26.5	13.3	37.5	18.8	49.0	24.5	53.1	26.5	30
36	14.9	7.5	29.2	14.6	38.2	19.1	54.0	27.0	70.5	35.3	76.4	38.2	36
42	20.3	10.1	39.8	19.9	52.0	26.0	73.5	36.7	96.0	48.0	104.0	52.0	42
48	26.5	13.2	51.9	26.0	67.9	33.9	96.0	48.0	126.0	62.7	136.0	67.9	48
54	33.5	16.8	65.7	32.9	85.9	42.9	122.0	60.7	159.0	79.4	172.0	85.9	54
60	41.4	20.7	81.2	40.8	106.0	53.0	150.0	75.0	196.0	98.0	212.0	106.0	60
66	50.1	25.0	98.2	49.1	128.0	64.2	182.0	90.7	237.0	119.0	257.0	128.0	66
72	59.6	29.8	117.0	58.4	153.0	76.3	216.0	108.0	282.0	141.0	305.0	153.0	72
78	69.9	35.0	137.0	68.6	179.0	90.0	254.0	127.0	331.0	166.0	358.0	179.0	78
84	81.1	40.5	159.0	79.5	208.0	104.0	294.0	147.0	384.0	192.0	416.0	208.0	84
90	93.1	46.5	183.0	91.3	239.0	119.0	337.0	169.0	441.0	221.0	477.0	239.0	90
96	108.0	53.0	208.0	104.0	272.0	136.0	384.0	192.0	502.0	251.0	543.0	272.0	96

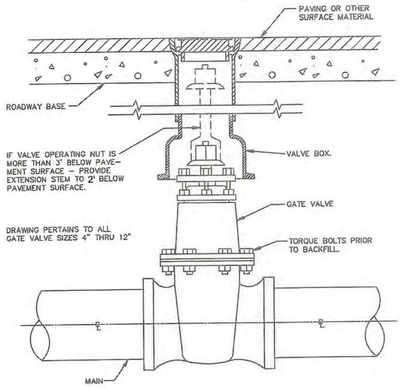
VERTICAL THRUST BLOCK	North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE	
AT PIPE BEND		502.4	
		DATE	STANDARD DRAWING NO.
		OCT. '04	4030

GENERAL NOTES FOR ALL THRUST BLOCKS:

1. CONCRETE FOR BLOCKING SHALL BE CLASS "B".
2. ALL CALCULATIONS ARE BASED ON INTERNAL PRESSURE OF 200 PSI FOR DUCTILE IRON, P.V.C., AND 150 PSI FOR CONCRETE PIPE.
3. VOLUMES OF THRUST BLOCKS ARE NET VOLUMES OF CONCRETE TO BE FURNISHED. THE CORRESPONDING WEIGHT OF THE CONCRETE (CLASS "B") IS EQUAL TO OR GREATER THAN THE VERTICAL COMPONENT OF THE THRUST ON THE VERTICAL BEND.
4. WALL THICKNESS (T) ASSUMED HERE FOR ESTIMATING PURPOSES ONLY.
5. POUR CONCRETE FOR BLOCK AGAINST UNDISTURBED EARTH.
6. DIMENSIONS MAY BE VARIED AS REQUIRED BY FIELD CONDITIONS WHERE AND AS DIRECTED BY THE ENGINEER. THE VOLUME OF CONCRETE BLOCKING SHALL NOT BE LESS THAN SHOWN HERE.
7. THE SOIL BEARING PRESSURES ARE BASED ON 1000 LBS./S.F. IN SOIL AND 2000 LBS./S.F. IN ROCK.
8. USE POLYETHYLENE WRAP OR EQUAL BETWEEN CONCRETE AND BEND, TEE, OR PLUG TO PREVENT THE CONCRETE FROM STICKING TO IT.
9. CONCRETE SHALL NOT EXTEND BEYOND JOINTS.

THRUST BLOCK	North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE	
GENERAL NOTES		502.4	
		DATE	STANDARD DRAWING NO.
		OCT. '04	4040

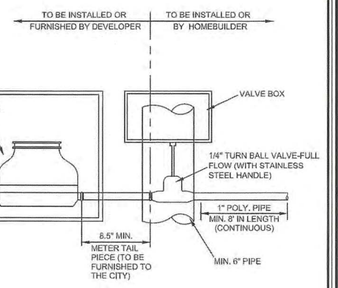
NOTE:
IN UNPAVED AREAS, INSTALL 2' x 2' x 6" CONCRETE VALVE PAD FLUSH WITH THE TOP OF VALVE BOX. REINFORCE WITH #3 BARS ON 6" CENTERS BOTH WAYS.



GATE VALVE BOX AND EXTENSION STEM
N.T.S.

GATE VALVE 4" TO 12" BOX & EXTENSION STEM	North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE	
		502.6	
		DATE	STANDARD DRAWING NO.
		OCT. '04	4050

City of Rockwall
The New Horizon



NOTE:
VALVE BOX TO BE TRAFFIC RATED IF UNDER PAVING.

SINGLE SERVICE METER TAIL CONNECTION
NOT TO SCALE

WATER METER DETAIL	CITY OF ROCKWALL	DATE	DRAWING NO.
SINGLE SERVICE		AUG. '15	R-4145

RECORD DRAWINGS

To the best of our knowledge Engineering Concepts & Design, L.P., hereby states that this plan is As-Built. This information provided is based on surveying at the site and information provided by the contractor.

RYAN C. KING, P.E. — 8/3/2022 DATE

RELEASED FOR CONSTRUCTION
ALL RESPONSIBILITY FOR ADEQUACY OF DESIGN REMAINS WITH THE DESIGN ENGINEER. THE CITY OF ROCKWALL, IN REVIEWING AND RELEASING PLANS FOR CONSTRUCTION, ASSUMES NO RESPONSIBILITY FOR ADEQUACY OR ACCURACY OF DESIGN.

CITY _____ DATE _____

CAUTION! EXISTING UTILITIES

CONTRACTOR SHOULD CALL 1–800–DIG–TESS PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITIES FOR EXISTING UTILITY LOCATIONS. EXISTING UTILITIES AND UNDERGROUND FACILITIES INDICATED ON THESE PLANS HAVE BEEN LOCATED FROM REFERENCE INFORMATION. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY BOTH HORIZONTALLY AND VERTICALLY THE LOCATION OF ALL EXISTING UTILITIES AND UNDERGROUND FACILITIES PRIOR TO CONSTRUCTION AND TO TAKE NECESSARY PRECAUTIONS IN ORDER TO PROTECT ALL FACILITIES ENCOUNTERED. THE CONTRACTOR SHALL PRESERVE AND PROTECT ALL EXISTING UTILITIES FROM DAMAGE DURING CONSTRUCTION.

BENCHMARKS:

CP 101 - Square cut on headwall west side of Rochelle road & 54' south of center of Polar Point Drive Elevation = 559.95
CP 103 - "X" in concrete east side of Rochelle Road, 1834' south of center of Polar Point Dr. Elevation = 564.54'
CP 104 - Capped 5/8" Iron rod east side of Rochelle Road & 1250' south of the center of Polar Point Dr. Elevation = 572.70'
CP 105 - Capped 5/8" Iron rod east side of Rochelle Road & 826' south of the center of Polar Point Dr. Elevation = 568.75'

ENGINEERINGCONCEPTS & DESIGN, L.P.
ENGINEERING / PROJECT MANAGEMENT / CONSTRUCTION SERVICES - FIRM REG. #F-001145
201 WINDCO CIR, STE 200, WYLIE, TX 75098
972-941-8400 FAX: 972-941-8401 WWW.ECDLP.COM

REVISIONS:	
DRAWN: RCK	DATE:
CHECKED: RKH	DATE: 8/26/2020
PROJECT NO.: 06537	
DWG FILE NAME: 06537 DT.DWG	

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF CONSTRUCTION. THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RYAN C. KING, P.E. 123635

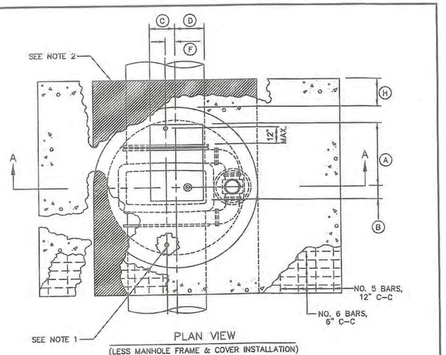
STATE OF TEXAS — RYAN C. KING — 123635 — REGISTERED PROFESSIONAL ENGINEER — 8/26/2020

WATER DETAILS 1

TERRACINA PHASE 1

CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

SHEET 52 OF 62



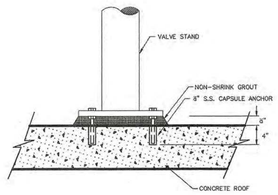
PLAN VIEW
(LESS MANHOLE FRAME & COVER INSTALLATION)
N.T.S.

GATE VALVE SIZE	DIMENSION TABLE											
	A	B	C	D	E	F	G	H	J	K	L	M
16"	20"	20"	12"	12"	44 1/2"	1"	48"	12"	10"	24"	12"	16"
18"	20"	20"	12"	12"	51 3/8"	2"	48"	12"	12"	24"	12"	18"
20"	22"	18"	12"	12"	56 5/8"	1"	54"	12"	12"	24"	16"	20"
24"	26"	14"	12"	12"	64 3/8"	1"	60"	18"	14"	30"	18"	24"
30"	28"	12"	12"	12"	80 5/8"	3"	66"	18"	18"	30"	20"	30"
36"	32"	8"	12"	12"	90 1/16"	4"	72"	18"	18"	36"	24"	36"
42"	34"	6"	15"	9"	107 3/4"	5"	78"	24"	20"	36"	30"	42"
48"	36"	4"	14"	10"	121 5/8"	4"	90"	24"	28"	42"	36"	48"
54"	36"	4"	9"	15"	142 1/2"	3"	102"	24"	32"	46"	40"	54"

NOTES:
1. PROVIDE CORPORATION AND CURB STOPS A MAXIMUM OF 12" FROM EACH END OF GATE VALVE, AS SHOWN. CORPORATION AND CURB STOP SIZES SHALL BE 1" FOR 16", 20", AND 24" NOMINAL PIPE DIAMETERS, 2" FOR 30" AND LARGER DIAMETERS. 2" TAPS SHALL BE MADE AS A 2" FLANGED OUTLET WITH INSULATED ADAPTOR KIT. COPPER RISERS SHALL BE PROVIDED BETWEEN THE CORPORATION AND CURB STOPS. CURB STOPS SHALL BE INSTALLED AT AN ELEVATION 12" ABOVE THE TOP SURFACE OF VAULT BOTTOM SLAB.
2. POLYURETHANE CUSHION PAD.

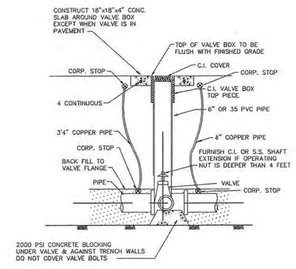
VAULT CONSTRUCTION	North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE: 702.4
VERTICAL GATE VALVE ≥ 16"		DATE: OCT. '04 / STANDARD DRAWING NO.: 4070A

15103A

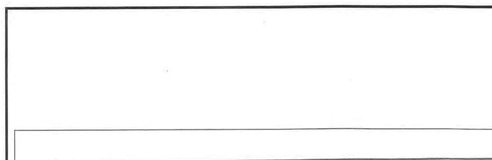


BUTTERFLY VALVE
VALVE STAND MOUNTING
SCALE: N.T.S.

15103



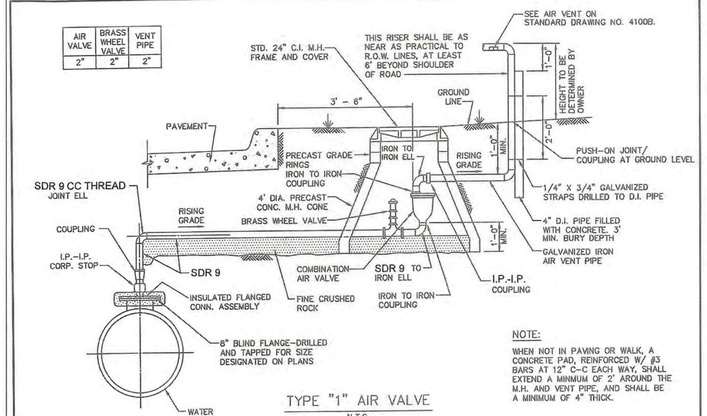
BUTTERFLY VALVE INSTALLATION DETAIL
NO SCALE



NOTES:
1. ALL SLEEVES TO BE 4" PVC SCH. 40 PIPE UNLESS OTHERWISE NOTED OR SPECIFIED.
2. ALL JOINTS TO BE SOLVENT WELDED AND WATERTIGHT.
3. MECHANICALLY TAMP TO 95% PROCTOR.

SLEEVE DETAIL
N.T.S.

AIR VALVE	BRASS WHEEL VALVE	VENT PIPE
2"	2"	2"



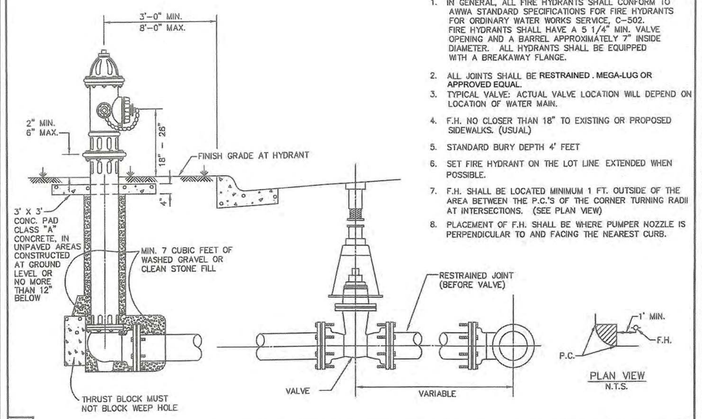
TYPE "1" AIR VALVE
N.T.S.

NOTE:
WHEN NOT IN PAVING OR WALK, A CONCRETE PAD, REINFORCED W/ #3 BARS AT 12" C-C EACH WAY, SHALL EXTEND A MINIMUM OF 2' AROUND THE M.H. AND VENT PIPE, AND SHALL BE A MINIMUM OF 4" THICK.

COMBINATION AIR VACUUM VALVE TYPE "1"	North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE: 502.6
		DATE: OCT. '04 / STANDARD DRAWING NO.: 4090

4090 STANDARD DRAWING NO.

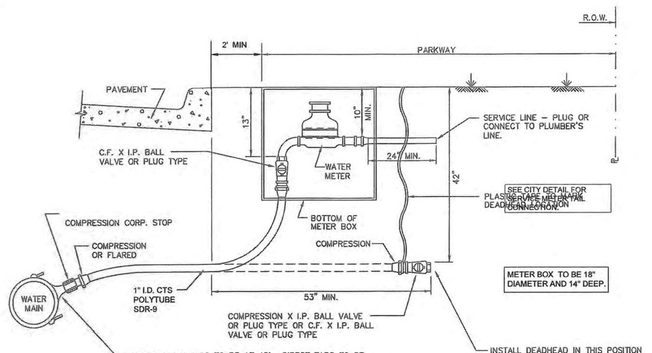
NOTES:
1. IN GENERAL, ALL FIRE HYDRANTS SHALL CONFORM TO AWWA STANDARD SPECIFICATIONS FOR FIRE HYDRANTS FOR ORDINARY WATER WORKS SERVICE, C-502. FIRE HYDRANTS SHALL HAVE A 5 1/4" MIN. VALVE OPENING AND A BARREL APPROXIMATELY 7" INSIDE DIAMETER. ALL HYDRANTS SHALL BE EQUIPPED WITH A BREAKAWAY FLANGE.
2. ALL JOINTS SHALL BE **RESTRAINED . MEGA-LUG OR APPROVED EQUAL.**
3. TYPICAL VALVE: ACTUAL VALVE LOCATION WILL DEPEND ON LOCATION OF WATER MAIN.
4. F.H. NO CLOSER THAN 18' TO EXISTING OR PROPOSED SIDEWALKS. (USUAL)
5. STANDARD BURY DEPTH 4' FEET
6. SET FIRE HYDRANT ON THE LOT LINE EXTENDED WHEN POSSIBLE.
7. F.H. SHALL BE LOCATED MINIMUM 1 FT. OUTSIDE OF THE AREA BETWEEN THE P.C.'S OF THE CORNER TURNING RADII AT INTERSECTIONS. (SEE PLAN VIEW)
8. PLACEMENT OF F.H. SHALL BE WHERE PUMPER NOZZLE IS PERPENDICULAR TO AND FACING THE NEAREST CURB.



PLAN VIEW
N.T.S.

FIRE HYDRANT INSTALLATION	North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE: 502.3
		DATE: OCT. '04 / STANDARD DRAWING NO.: 4120

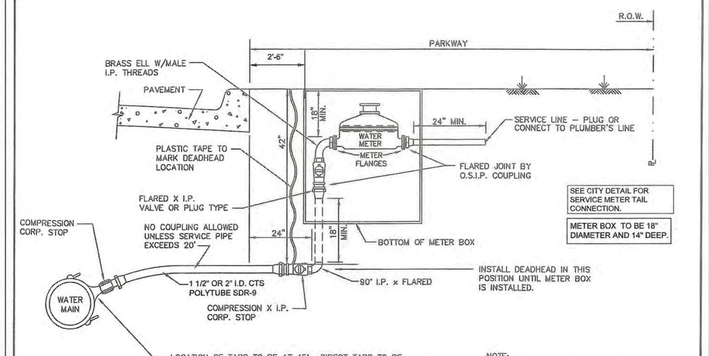
4120 STANDARD DRAWING NO.



NOTE:
LOCATION OF METER BOX WITHIN PARKWAY SHALL BE SPECIFIED BY OWNER. IF THE LOCATION INTERSECTS A SIDEWALK, METER BOX SHALL BE PLACED IN THE CENTER OF SIDEWALK.

WATER SERVICE INSTALLATION 3/4" OR 1" LINE	North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE: 502.10
		DATE: OCT. '04 / STANDARD DRAWING NO.: 4130

4130 STANDARD DRAWING NO.



NOTE:
LOCATION OF METER BOX WITHIN THE AVAILABLE PARKWAY SHALL BE SPECIFIED BY OWNER. IF THE LOCATION INTERSECTS A SIDEWALK, METER BOX SHALL BE PLACED IN CENTER OF SIDEWALK.

WATER SERVICE INSTALLATION 1 1/2" OR 2" LINE	North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE: 502.10
		DATE: OCT. '04 / STANDARD DRAWING NO.: 4140

4140 STANDARD DRAWING NO.

RECORD DRAWINGS

To the best of our knowledge Engineering Concepts & Design, L.P., hereby states that this plan is As-Built. This information provided is based on surveying at the site and information provided by the contractor.

RYAN C. KING, P.E. — DATE 8/3/2022

RELEASED FOR CONSTRUCTION
ALL RESPONSIBILITY FOR ADEQUACY OF DESIGN REMAINS WITH THE DESIGN ENGINEER. THE CITY OF ROCKWALL IN REVIEWING AND RELEASING PLANS FOR CONSTRUCTION, ASSUMES NO RESPONSIBILITY FOR ADEQUACY OR ACCURACY OF DESIGN.

CITY _____ DATE _____

CAUTION! EXISTING UTILITIES

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BENCHMARKS:
CP 101 - Square cut on headwall west side of Rochelle road & 54' south of center of Polar Point Drive Elevation = 559.95
CP 103 - "X" in concrete east side of Rochelle Road, 1834' south of center of Polar Point Dr. Elevation = 564.54'
CP 104 - Capped 5/8" Iron rod east side of Rochelle Road & 1250' south of the center of Polar Point Dr. Elevation = 572.70'
CP 105 - Capped 5/8" Iron rod east side of Rochelle Road & 826' south of the center of Polar Point Dr. Elevation = 568.75'

ENGINEERINGCONCEPTS & DESIGN, L.P.
ENGINEERING / PROJECT MANAGEMENT / CONSTRUCTION SERVICES - FIRM REG. #F-001145
201 WINDCO CIR, STE 200, WYLIE, TX 75098
972-941-8400 FAX: 972-941-8401 WWW.ECDLP.COM

REVISIONS:

DRAWN: RCK	DATE:
CHECKED: RKH	DATE: 8/26/2020
PROJECT NO.: 06537	
DWG FILE NAME: 06537 DT.DWG	

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF CONSTRUCTION. THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RYAN C. KING, P.E. 123635

STATE OF TEXAS — RYAN C. KING — 123635 — REGISTERED PROFESSIONAL ENGINEER — 8/26/2020

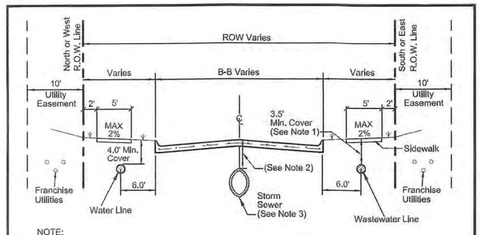
WATER DETAILS 2

TERRACINA PHASE 1

CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

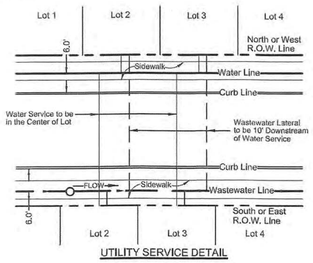
SHEET 53 OF 62

City of Rockwall
Texas



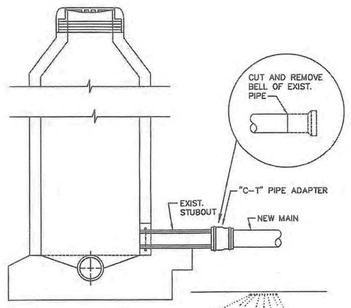
NOTE:

1. If wastewater line has a cover greater than ten feet (10') than pipe shall be minimum SDR 26 and no services allowed.
2. If cover is two (2) feet or less than Class IV RCP is required.
3. Horizontal location of storm sewer for divided roads to be determined by design engineer. Not to be placed in the parkway.

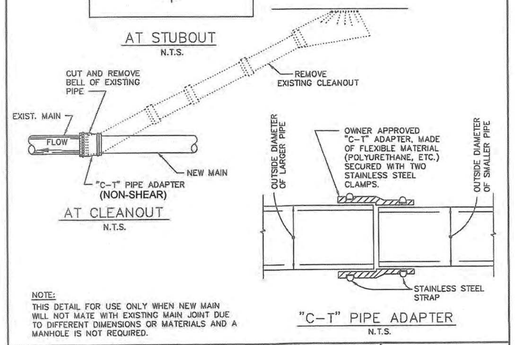


UTILITY SERVICE DETAIL

GENERAL UNDERGROUND CONDUIT	CITY OF ROCKWALL	
UTILITIES LOCATION DETAIL		DATE: AUG. '15 / DRAWING NO.: R-3000



AT STUBOUT
N.T.S.

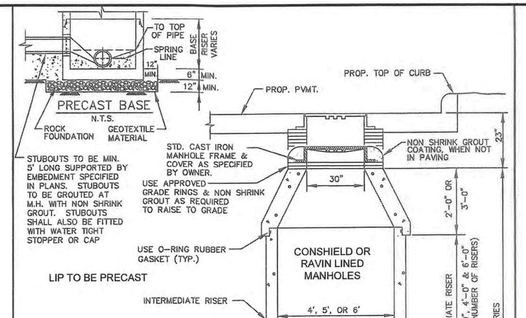


AT CLEANOUT
N.T.S.

"C-1" PIPE ADAPTER
N.T.S.

NOTE:
THIS DETAIL FOR USE ONLY WHEN NEW MAIN WILL NOT MATE WITH EXISTING MAIN JOINT DUE TO DIFFERENT DIMENSIONS OR MATERIALS AND A MANHOLE IS NOT REQUIRED.

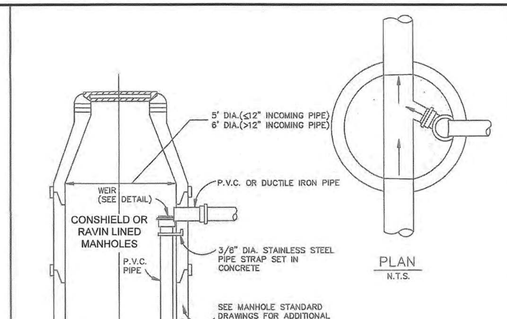
WASTEWATER MAIN TIE-IN	North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE: 502.10
AT CLEANOUT OR M.H. STUBOUT		DATE: OCT. '04 / STANDARD DRAWING NO.: 5010



NOTES:

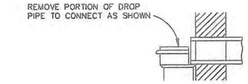
1. FIRST MAIN LINE JOINT TO BE A MIN. OF 5' LONG WITH CONC. CRADLE (FROM SAME POUR AS BASE) UNDER THE ENTIRE LENGTH.
2. IF FALSE M.H. BOTTOMS ARE REQUIRED, THEY SHALL BE CONSTRUCTED, INSTALLED AND REMOVED PER STD. DWG. NO. 5100.
3. WHERE M.H.'S ARE OUTSIDE OF PAVEMENT, FRAME & COVER SHALL BE CENTERED IN 5'x5' CONCRETE PAD CLASS "A" CONCRETE, 4" THICK

WASTEWATER MANHOLE	North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE: 502.1
PRECAST		DATE: OCT. '04 / STANDARD DRAWING NO.: 5020



PLAN
N.T.S.

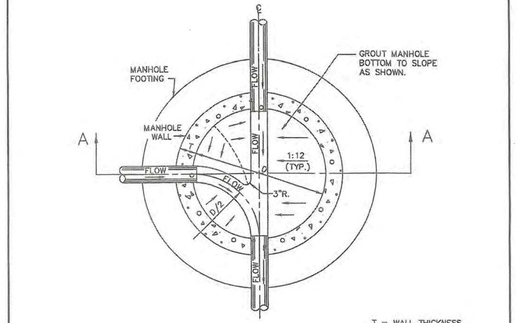
ELEVATION
N.T.S.

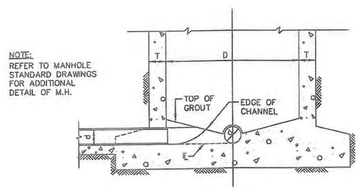


WEIR DETAIL
N.T.S.

NOTE:
FLOW LINE OF SURCHARGE LINE NORMALLY PLACED AT TOP OF EXISTING WASTEWATER LINE UNLESS NOTED OTHERWISE ON PLANS.

WASTEWATER MANHOLE	North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE: 502.1
INSIDE DROP CONNECTION		DATE: OCT. '04 / STANDARD DRAWING NO.: 5080

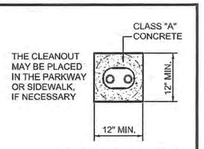


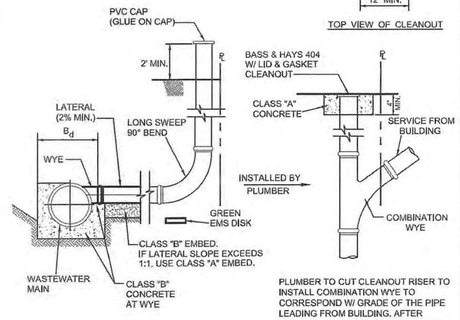


WASTEWATER MANHOLE	North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE: 502.1
LINE INTERSECTION		DATE: OCT. '04 / STANDARD DRAWING NO.: 5090

City of Rockwall
Texas

CLASS CONCRETE	BAGS CEMENT PER C.Y.	MIN. STRENGTH 28 - DAY PSI
A	5.5	3000
B	4	2000

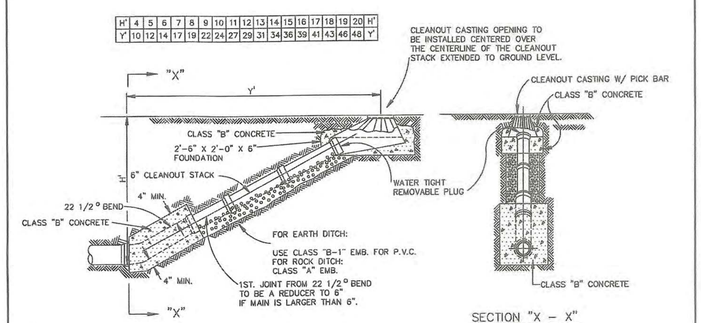




PLUMBER TO CUT CLEANOUT RISER TO INSTALL COMBINATION WYE TO CORRESPOND W/ GRADE OF THE PIPE LEADING FROM BUILDING. AFTER INSTALLATION OF THE WYE, INSERT CLEANOUT INTO THE TOP OF THE RISOR.

WASTEWATER LATERAL	CITY OF ROCKWALL	
CONNECTIONS - RESIDENTIAL		DATE: AUG. '15 / DRAWING NO.: R-5120

H'	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	H'
Y'	10	12	14	17	19	22	24	27	29	31	34	36	39	41	43	46	48	Y'



NOTES:

1. IF CLEANOUT IS PLACED IN ADVANCE OF PAVEMENT PLACE SAND AROUND CLEANOUT CASTING IN LIEU OF CLASS "B" CONCRETE.
2. IF CLEANOUT IS OUTSIDE OF PAVEMENT, CENTER CASTING IN 15"x15" CLASS "A" CONCRETE PAD "4" THICK.

PROFILE VIEW
N.T.S.

SECTION "X - X"
N.T.S.

PVC ONLY, NO CLAY PIPE

WASTEWATER MAIN	North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE: 502.2
CLEANOUT		DATE: OCT. '04 / STANDARD DRAWING NO.: 5110

DRAWING NO. 5110

RECORD DRAWINGS

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RYAN C. KING, P.E. — DATE: 8/3/2022

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CITY _____ DATE _____

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ENGINEERINGCONCEPTS & DESIGN, L.P.
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201 WINDCO CIR, STE 200, WYLIE, TX 75098
972-941-8400 FAX: 972-941-8401 WWW.ECDLP.COM

REVISIONS:

DRAWN: RCK DATE:
CHECKED: RKH DATE: 8/26/2020
PROJECT NO.: 06537
DWG FILE NAME: 06537 DT.DWG

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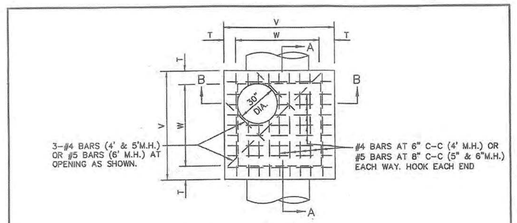
STATE OF TEXAS — RYAN C. KING — 123635 — REGISTERED PROFESSIONAL ENGINEER — 8/26/2020

SANITARY DETAILS

TERRACINA PHASE 1

CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

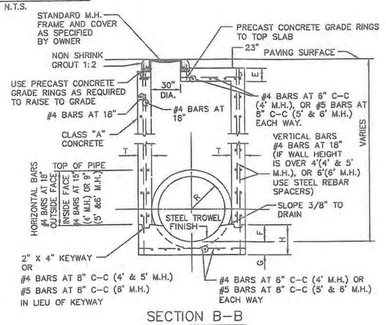
SHEET 54 OF 62



PLAN
N.T.S.

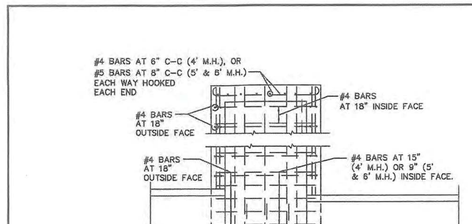
M.H. SIZE(W)	V	T	E	F	G	H
4'	5'-4"	8"	6"	9"	6"	1'-3"
5'	6'-4"	9"	6"	12"	8"	1'-8"
6'	7'-6"	9"	9"	16"	10"	2'-2"

TABLE OF DIMENSIONS
N.T.S.

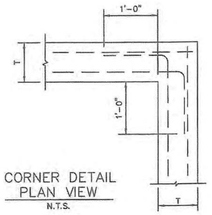


SECTION B-B
N.T.S.

STORM WATER MANHOLE	North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE 502.1	
4', 5', OR 6' SQUARE		DATE OCT. '04	STANDARD DRAWING NO. 6010A



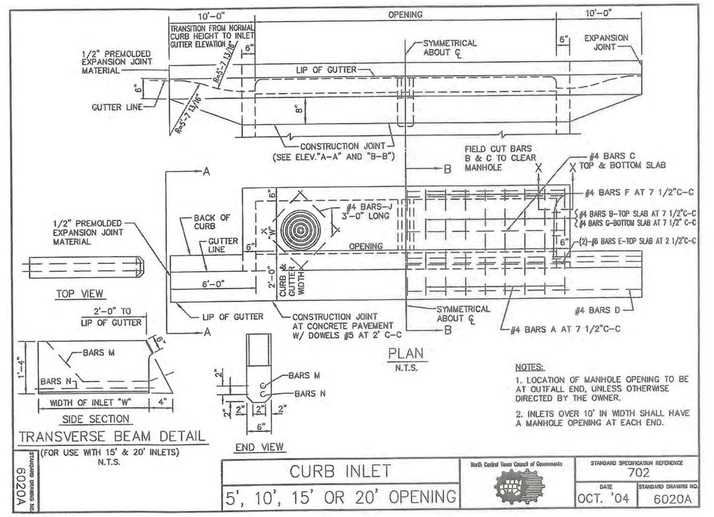
SECTION A-A
N.T.S.



CORNER DETAIL
PLAN VIEW
N.T.S.

NOTES:
1. SLOPE INVERT OF MANHOLE AS INDICATED ON PLAN-PROFILE SHEET.
2. LAYERS OF REINFORCING STEEL NEAREST THE INTERIOR AND EXTERIOR SURFACE SHALL HAVE A COVER OF 2" TO THE CENTER OF BARS, UNLESS OTHERWISE NOTED.

STORM WATER MANHOLE	North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE 502.1	
4', 5', OR 6' SQUARE		DATE OCT. '04	STANDARD DRAWING NO. 6010B



TRANSVERSE BEAM DETAIL
(FOR USE WITH 15' & 20' INLETS)
N.T.S.

NOTES:
1. LOCATION OF MANHOLE OPENING TO BE AT OUTFALL END, UNLESS OTHERWISE DIRECTED BY THE OWNER.
2. INLETS OVER 10' IN WIDTH SHALL HAVE A MANHOLE OPENING AT EACH END.

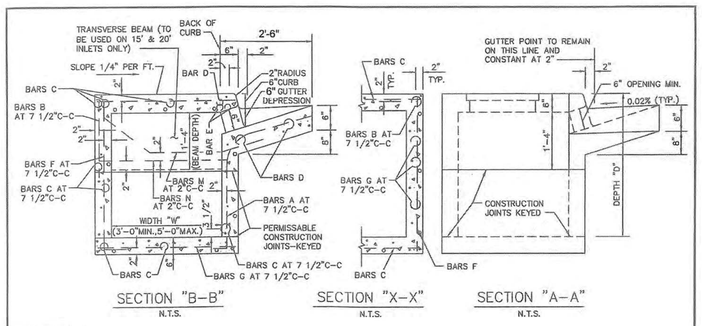
6020A	CURB INLET 5', 10', 15' OR 20' OPENING	North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE 702	
			DATE OCT. '04	STANDARD DRAWING NO. 6020A

NOTES FOR ALL STORM DETAILS THIS SHEET:
1. ALL CONCRETE FOR STRUCTURES SHALL BE CLASS F (4200 PSI, MINIMUM 7.0 SACK CEMENT).
2. NO FLY ASH ALLOWED IN CONCRETE FOR STRUCTURES.

RECORD DRAWINGS

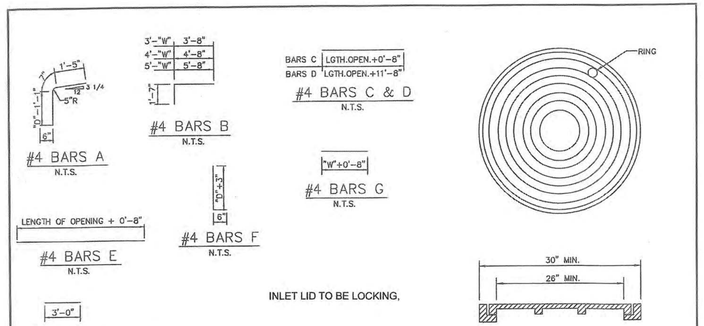
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RYAN C. KING, P.E. — 8/3/2022 DATE



GENERAL NOTES:
2. REINFORCING BARS SHALL BE STANDARD GRADE STEEL, DEFORMED REINFORCING BARS OF A DIAMETER AND LENGTH AS SHOWN.
3. CHAMFER ALL EXPOSED CORNERS 3/4" EXCEPT WHERE OTHERWISE NOTED.
4. DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTERS OF BARS.
5. FIELD CUT AND BEND BARS AS NECESSARY TO ACCOMODATE STORM SEWER PIPE.
6. RING AND COVER SHALL BE APPROVED BY THE OWNER AND INSTALLED BY THE CONTRACTOR.

6020B	CURB INLET CROSS SECTION & INLET THROAT	North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE 702	
			DATE OCT. '04	STANDARD DRAWING NO. 6020B



N.T.S.

6020C	CURB INLET REBAR & M.H. FRAME & COVER	North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE 702	
			DATE OCT. '04	STANDARD DRAWING NO. 6020C

BILL OF REINFORCING STEEL

DEPTH "D"	ALL WIDTHS AND LENGTHS	OPENING LENGTH "L" = 5ft				OPENING LENGTH "L" = 10ft				OPENING LENGTH "L" = 15 ft						OPENING LENGTH "L" = 20 ft									
		Widths "W" 3ft 4ft 5ft				Widths "W" 3ft 4ft 5ft				Widths "W" 3ft 4ft 5ft						Widths "W" 3ft 4ft 5ft									
		BARS A	BARS B	BARS C	BARS D	BARS E	BARS F	BARS A	BARS B	BARS C	BARS D	BARS E	BARS F	BARS A	BARS B	BARS C	BARS D	BARS E	BARS F	BARS G	BARS M	BARS N	BARS A	BARS B	BARS C
		C	D	E	J	F	F	F	A	B	C	F	F	F	A	B	C	F	F	F	A	B	G	M	N
3'-6"	17	3	2	4	20	24	28	10	10	20	28	32	36	18	18	28	36	40	44	26	26	36	2	2	44
3'-9"	18	"	"	"	"	"	"	"	"	20	"	"	"	"	"	28	"	"	"	"	"	36	"	"	"	"	"
4'-0"	19	"	"	"	"	"	"	"	"	24	"	"	"	"	"	32	"	"	"	"	"	40	"	"	"	"	"
4'-3"	19	"	"	"	"	"	"	"	"	24	"	"	"	"	"	32	"	"	"	"	"	40	"	"	"	"	"
4'-6"	21	"	"	"	"	"	"	"	"	26	"	"	"	"	"	34	"	"	"	"	"	42	"	"	"	"	"
4'-9"	21	"	"	"	"	"	"	"	"	26	"	"	"	"	"	34	"	"	"	"	"	42	"	"	"	"	"
5'-0"	21	"	"	"	"	"	"	"	"	26	"	"	"	"	"	34	"	"	"	"	"	42	"	"	"	"	"
5'-3"	23	"	"	"	"	"	"	"	"	28	"	"	"	"	"	36	"	"	"	"	"	44	"	"	"	"	"
5'-6"	23	"	"	"	"	"	"	"	"	28	"	"	"	"	"	36	"	"	"	"	"	44	"	"	"	"	"
5'-9"	25	"	"	"	"	"	"	"	"	30	"	"	"	"	"	38	"	"	"	"	"	46	"	"	"	"	"
6'-0"	25	"	"	"	"	"	"	"	"	30	"	"	"	"	"	38	"	"	"	"	"	46	"	"	"	"	"
6'-3"	26	"	"	"	"	"	"	"	"	30	"	"	"	"	"	38	"	"	"	"	"	46	"	"	"	"	"
6'-6"	27	"	"	"	"	"	"	"	"	32	"	"	"	"	"	40	"	"	"	"	"	48	"	"	"	"	"
6'-9"	27	"	"	"	"	"	"	"	"	32	"	"	"	"	"	40	"	"	"	"	"	48	"	"	"	"	"
7'-0"	28	"	"	"	"	"	"	"	"	34	"	"	"	"	"	42	"	"	"	"	"	50	"	"	"	"	"
7'-3"	29	"	"	"	"	"	"	"	"	34	"	"	"	"	"	42	"	"	"	"	"	50	"	"	"	"	"
7'-6"	30	"	"	"	"	"	"	"	"	34	"	"	"	"	"	42	"	"	"	"	"	50	"	"	"	"	"
7'-9"	31	"	"	"	"	"	"	"	"	38	"	"	"	"	"	44	"	"	"	"	"	52	"	"	"	"	"
8'-0"	31	"	"	"	"	"	"	"	"	36	"	"	"	"	"	44	"	"	"	"	"	52	"	"	"	"	"
8'-3"	32	"	"	"	"	"	"	"	"	36	"	"	"	"	"	44	"	"	"	"	"	52	"	"	"	"	"
8'-6"	33	"	"	"	"	"	"	"	"	38	"	"	"	"	"	46	"	"	"	"	"	54	"	"	"	"	"
8'-9"	34	"	"	"	"	"	"	"	"	38	"	"	"	"	"	46	"	"	"	"	"	54	"	"	"	"	"
9'-0"	35	"	"	"	"	"	"	"	"	40	"	"	"	"	"	48	"	"	"	"	"	56	"	"	"	"	"
9'-3"	36	"	"	"	"	"	"	"	"	40	"	"	"	"	"	48	"	"	"	"	"	56	"	"	"	"	"
9'-6"	37	"	"	"	"	"	"	"	"	42	"	"	"	"	"	50	"	"	"	"	"	58	"	"	"	"	"
10'-0"	38	"	"	"	"	"	"	"	"	42	"	"	"	"	"	50	"	"	"	"	"	58	"	"	"	"	"

NOTE:
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6020D	CURB INLET BILL OF REINFORCING STEEL	North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE 702	
			DATE OCT. '04	STANDARD DRAWING NO. 6020D

RELEASED FOR CONSTRUCTION
ALL RESPONSIBILITY FOR ADEQUACY OF DESIGN REMAINS WITH THE DESIGN ENGINEER. THE CITY OF ROCKWALL, IN REVIEWING AND RELEASING PLANS FOR CONSTRUCTION, ASSUMES NO RESPONSIBILITY FOR ADEQUACY OR ACCURACY OF DESIGN.

CITY — DATE

CAUTION! EXISTING UTILITIES

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CP 101 - Square cut on headwall west side of Rochelle road & 54' south of center of Polar Point Drive Elevation = 559.95
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ENGINEERINGCONCEPTS & DESIGN, L.P.
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201 WINDCO CIR, STE 200, WYLIE, TX 75098
972-941-8400 FAX: 972-941-8401 WWW.ECDLP.COM

REVISIONS:

DRAWN:	RCK	DATE:
CHECKED:	RKH	DATE: 8/26/2020
PROJECT NO.:	06537	
DWG FILE NAME:	06537 DT.DWG	

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF CONSTRUCTION. THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RYAN C. KING, P.E. 123635

STATE OF TEXAS — RYAN C. KING — 123635 — REGISTERED PROFESSIONAL ENGINEER — 8/26/2020

STORM DETAILS 1

TERRACINA PHASE 1

CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

SHEET 55 OF 62

SUMMARY OF QUANTITIES FOR CURB INLETS

DEPTH "D"	5'–0" OPENING						10'–0" OPENING						15'–0" OPENING						20'–0" OPENING					
	WIDTH 3'–0"		WIDTH 4'–0"		WIDTH 5'–0"		WIDTH 3'–0"		WIDTH 4'–0"		WIDTH 5'–0"		WIDTH 3'–0"		WIDTH 4'–0"		WIDTH 5'–0"		WIDTH 3'–0"		WIDTH 4'–0"		WIDTH 5'–0"	
	CONC C.Y.	STEEL LBS.	CONC C.Y.	STEEL LBS.	CONC C.Y.	STEEL LBS.	CONC C.Y.	STEEL LBS.	CONC C.Y.	STEEL LBS.	CONC C.Y.	STEEL LBS.	CONC C.Y.	STEEL LBS.	CONC C.Y.	STEEL LBS.	CONC C.Y.	STEEL LBS.	CONC C.Y.	STEEL LBS.	CONC C.Y.	STEEL LBS.	CONC C.Y.	STEEL LBS.
3'–6"	2.62	306	2.95	332	3.28	373	4.12	479	4.64	521	5.20	564	5.69	667	6.40	721	7.10	775	7.20	846	8.11	909	9.03	976
3'–9"	2.76	309	3.04	341	3.39	373	4.23	494	4.78	536	5.34	579	5.87	687	6.55	741	7.30	796	7.42	874	8.34	937	9.27	1010
4'–0"	2.78	328	3.14	364	3.49	399	4.38	518	4.92	565	5.48	610	6.05	718	6.77	776	7.49	835	7.64	909	8.58	976	9.51	1046
4'–3"	2.87	334	3.23	370	3.59	406	4.51	526	5.06	573	5.64	619	6.22	729	6.95	787	7.69	847	7.87	922	8.81	990	9.75	1061
4'–6"	2.95	356	3.32	394	3.69	431	4.64	558	5.20	607	5.79	656	6.40	770	7.14	830	7.88	891	8.09	973	9.04	1043	9.99	1115
4'–9"	3.03	361	3.41	410	3.79	438	4.77	568	5.34	616	5.94	685	6.57	780	7.32	841	8.07	903	8.31	986	9.27	1056	10.23	1129
5'–0"	3.12	367	3.51	416	3.90	445	4.90	574	5.47	624	6.09	674	6.75	791	7.51	853	8.27	915	8.53	999	9.50	1070	10.47	1144
5'–3"	3.20	383	3.60	424	4.00	465	5.03	600	5.61	652	6.23	704	6.93	827	7.69	890	8.46	955	8.76	1044	9.73	1118	10.71	1194
5'–6"	3.28	389	3.69	430	4.10	472	5.16	608	5.75	661	6.38	713	7.11	837	7.88	901	8.66	967	8.98	1057	9.97	1131	10.95	1208
5'–9"	3.37	405	3.78	451	4.20	495	5.29	635	5.89	690	6.53	744	7.28	874	8.07	940	8.85	1007	9.20	1102	10.20	1178	11.19	1258
6'–0"	3.45	415	3.88	460	4.30	504	5.42	646	6.03	702	6.68	757	7.45	888	8.25	954	9.05	1022	9.42	1119	10.43	1198	11.43	1278
6'–3"	3.53	425	3.97	470	4.41	515	5.55	661	6.17	718	6.83	773	7.63	908	8.44	975	9.24	1044	9.64	1147	10.68	1223	11.67	1305
6'–6"	3.62	437	4.06	486	4.51	532	5.68	681	6.31	739	6.97	797	7.81	935	8.62	1005	9.43	1057	9.87	1178	10.89	1258	11.92	1340
6'–9"	3.70	441	4.15	490	4.61	537	5.81	688	6.45	747	7.12	808	7.98	945	8.81	1015	9.63	1066	10.09	1191	11.12	1272	12.15	1355
7'–0"	3.78	460	4.25	510	4.71	580	5.94	716	6.59	777	7.27	837	8.16	981	8.99	1053	9.82	1126	10.31	1237	11.35	1319	12.40	1404
7'–3"	3.86	465	4.34	516	4.81	567	8.07	724	6.72	785	7.42	846	8.33	992	9.18	1065	10.02	1138	10.53	1249	11.59	1333	12.64	1418
7'–6"	3.95	477	4.43	529	4.91	570	6.20	742	6.88	804	7.57	866	8.51	1016	9.36	1089	10.21	1163	10.75	1290	11.82	1365	12.88	1451
7'–9"	4.03	491	4.53	544	5.02	597	6.33	762	7.00	828	7.71	880	8.67	1040	9.55	1116	10.41	1193	10.98	1313	12.05	1399	13.12	1498
8'–0"	4.12	496	4.62	550	5.12	604	6.46	770	7.14	834	7.86	899	8.86	1051	9.73	1129	10.80	1205	11.20	1325	12.28	1412	13.36	1510
8'–3"	4.20	504	4.71	559	5.22	613	6.59	784	7.28	849	8.01	915	9.04	1089	9.92	1149	10.80	1228	11.42	1353	12.51	1440	13.60	1529
8'–6"	4.28	519	4.80	576	5.32	632	6.71	804	7.42	871	8.16	938	9.21	1107	10.10	1176	10.99	1257	11.64	1385	12.74	1474	13.84	1565
8'–9"	4.37	528	4.90	586	5.42	643	6.84	819	7.56	886	8.31	954	9.39	1119	10.29	1199	11.18	1280	11.87	1410	12.97	1500	14.06	1592
9'–0"	4.45	545	4.99	605	5.53	664	6.97	842	7.70	912	8.46	982	9.56	1148	10.47	1231	11.38	1313	12.09	1447	13.21	1539	14.32	1631
9'–3"	4.53	554	5.08	614	5.63	674	7.10	858	7.84	929	8.60	999	9.74	1169	10.66	1252	11.57	1335	12.31	1474	13.44	1563	14.56	1660
9'–6"	4.62	568	5.17	630	5.73	692	7.23	878	7.97	950	8.75	1022	9.92	1195	10.84	1280	11.77	1365	12.53	1505	13.67	1600	14.80	1696
10'–0"	4.78	582	5.36	645	5.93	708	7.49	900	8.11	974	9.05	1048	10.27	1227	11.21	1312	12.16	1398	12.98	1546	14.13	1642	15.28	1739

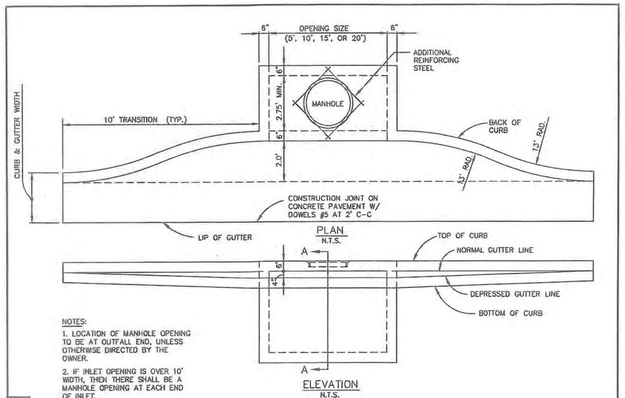
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30209 — TXDOT STANDARD

CURB INLET
SUMMARY OF QUANTITIES

North Central Texas Council of Governments

STANDARD SPECIFICATION REFERENCE: 702
DATE: OCT. '04 | STANDARD DRAWING NO.: 6020E



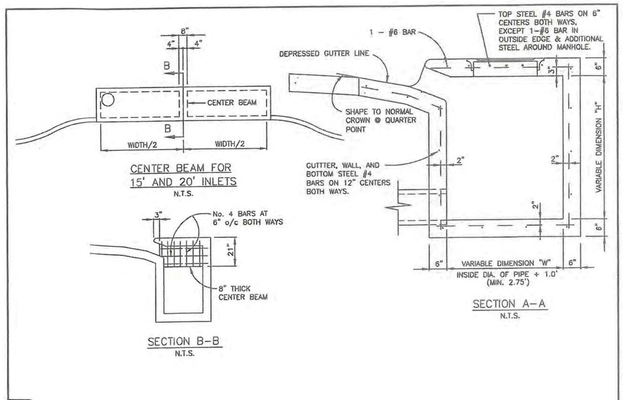
NOTES:
1. LOCATION OF MANHOLE OPENING TO BE AT OUTFALL END, UNLESS OTHERWISE DIRECTED BY THE OWNER.
2. IF INLET OPENING IS OVER 10' WIDTH, THEN THERE SHALL BE A MANHOLE OPENING AT EACH END OF INLET.

90009 — TXDOT STANDARD

CURB INLET RECESSED
5', 10', 15' OR 20' OPENING

North Central Texas Council of Governments

STANDARD SPECIFICATION REFERENCE: 702
DATE: OCT. '04 | STANDARD DRAWING NO.: 6030A

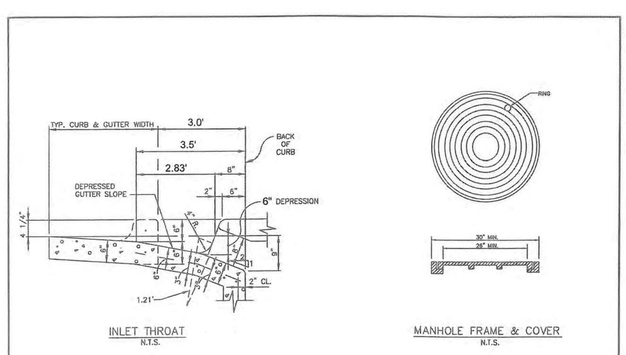


80009 — TXDOT STANDARD

CURB INLET RECESSED
CROSS SECTION & CENTER BEAM

North Central Texas Council of Governments

STANDARD SPECIFICATION REFERENCE: 702
DATE: OCT. '04 | STANDARD DRAWING NO.: 6030B



INLET LID TO BE LOCKING.

30009 — TXDOT STANDARD

CURB INLET RECESSED
INLET THROAT & M.H. FRAME & COVER

North Central Texas Council of Governments

STANDARD SPECIFICATION REFERENCE: 702
DATE: OCT. '04 | STANDARD DRAWING NO.: 6030C

GENERAL NOTES:

1. IN GENERAL, REINFORCING STEEL SHALL BE #4 BARS ON 12" CENTERS BOTH WAYS FOR GUTTER, BOTTOM SLAB ENDS, FRONT AND BACK WALLS, AND #4 BARS ON 6" CENTERS BOTH WAYS FOR TOP SLAB. AN ADDITIONAL #5 BAR SHALL BE PLACED IN THE FRONT EDGE OF THE TOP SLAB IN THE INLETS AND ADDITIONAL REINFORCING STEEL SHALL BE PLACED AROUND MANHOLES AS SHOWN.
2. ALL REINFORCING STEEL SHALL BE GRADE 60.
3. ALL EXPOSED CORNERS SHALL BE CHAMFERED ¾".
4. ALL REINFORCING STEEL SHALL HAVE A MINIMUM COVER OF 2" TO THE CENTERS OF THE BARS.
5. 10'–0" OF EXISTING CURB AND GUTTER UPSTREAM AND 10'–0" OF EXISTING CURB AND GUTTER DOWNSTREAM SHALL BE REMOVED AND REPOURED INTEGRALLY WITH EACH INLET.
6. ALL BACK FILLING SHALL BE PERFORMED BY MECHANICAL TAMPING TO 95% STANDARD PROCTOR DENSITY.

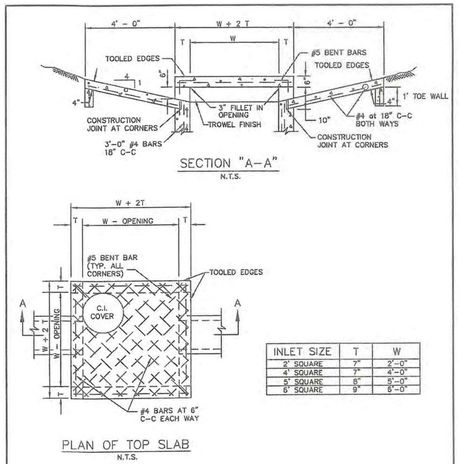
NOTES FOR ALL STORM DETAILS ON THIS SHEET:
1. ALL CONCRETE FOR STRUCTUTRES SHALL BE CLASS F (4200 PSI, MINIMUM 7.0 SACK CEMENT).
2. NO FLY ASH ALLOWED IN CONCRETE FOR STRUCTURES.

30009 — TXDOT STANDARD

CURB INLET RECESSED
GENERAL NOTES

North Central Texas Council of Governments

STANDARD SPECIFICATION REFERENCE: 702
DATE: OCT. '04 | STANDARD DRAWING NO.: 6030D



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

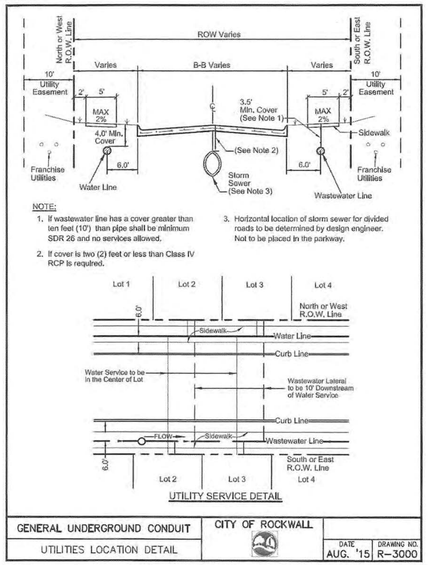
NOTES:
1. MATERIAL AND WORKMANSHIP SHALL CONFORM WITH THE REQUIREMENTS OF NCTCOG STANDARD SPECIFICATIONS FOR STANDARD CONCRETE MANHOLES. MINIMUM CLASS "A" CONCRETE.
2. LAYERS OF REINFORCING STEEL NEAREST THE INTERIOR AND EXTERIOR SURFACES SHALL HAVE A COVER OF 2" TO THE CENTER OF BARS, UNLESS OTHERWISE 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
2', 4', 5' OR 6' SQUARE

North Central Texas Council of Governments

STANDARD SPECIFICATION REFERENCE: 702
DATE: OCT. '04 | STANDARD DRAWING NO.: 6040

City of Rockwall
"Like Other Missions"



UTILITY SERVICE DETAIL

GENERAL UNDERGROUND CONDUIT
UTILITIES LOCATION DETAIL

CITY OF ROCKWALL

DATE: AUG. '15 | DRAWING NO.: R-3000

RECORD DRAWINGS

To the best of our knowledge Engineering Concepts & Design, L.P., hereby states that this plan is As-Built. This information provided is based on surveying at the site and information provided by the contractor.

RYAN C. KING, P.E. — 8/3/2022 DATE

RELEASED FOR CONSTRUCTION
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CITY _____ DATE _____

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ENGINEERING / PROJECT MANAGEMENT / CONSTRUCTION SERVICES - FIRM REG. #F-001145
201 WINDCO CIR, STE 200, WYLIE, TX 75098
972-941-8400 FAX: 972-941-8401 WWW.ECDLP.COM

REVISIONS:

DRAWN: RCK | DATE:
CHECKED: RKH | DATE: 8/26/2020
PROJECT NO.: 06537
DWG FILE NAME: 06537 DT.DWG

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF CONSTRUCTION. THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RYAN C. KING, P.E. 123635

STATE OF TEXAS — RYAN C. KING — 123635 — REGISTERED PROFESSIONAL ENGINEER — 8/26/2020

STORM DETAILS 2

TERRACINA PHASE 1

CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

SHEET 56 OF 62

TABLE OF VARIABLE DIMENSIONS AND QUANTITIES FOR ONE HEADWALL (4)

SLOPE	DIA OF PIPE, D	Values for one Pipe W	X	Y	L	Reinf (Lbs)	Conc (CY) (1)	Values to be added for each addt'l Pipe X and W	Reinf (Lbs)	Conc (CY) (1)
2:1	12"	4'- 7 1/2"	2'- 6"	2'-10"	3'- 3 1/4"	84	0.6	1'- 9"	20	0.2
	15"	5'- 5 3/4"	2'- 9 1/2"	3'- 4"	3'-10 1/4"	99	0.7	2'- 2"	24	0.3
	18"	6'- 4 1/4"	3'- 1"	3'-10"	4'- 5"	120	0.9	2'- 8"	32	0.3
	21"	7'- 2 3/4"	3'- 4 1/2"	4'- 4"	5'- 0"	137	1.1	3'- 1"	43	0.4
	24"	8'- 2 1/2"	3'- 9 1/2"	4'-10"	5'- 7"	158	1.3	3'- 7"	50	0.5
	27"	9'- 1"	4'- 1"	5'- 4"	6'- 2"	173	1.5	3'-11"	56	0.6
	30"	9'-11 1/2"	4'- 4 1/2"	5'-10"	6'- 8 3/4"	197	1.7	4'- 4"	65	0.8
	33"	10'-10"	4'- 8"	6'- 4"	7'- 3 3/4"	216	2.0	4'- 8"	71	0.9
	36"	11'- 8 1/4"	4'-11 1/2"	6'-10"	7'-10 3/4"	241	2.2	5'- 1"	81	1.0
	42"	13'- 5 1/4"	5'- 6 1/2"	7'-10"	9'- 0 1/2"	290	2.8	5'-10"	97	1.3
	48"	15'- 9"	6'- 1 1/2"	9'- 4"	10'- 9 1/4"	350	3.8	6'- 7"	117	1.7
	54"	17'- 5 3/4"	6'- 8 1/2"	10'- 4"	11'-11 1/4"	415	4.5	7'- 6"	151	2.1
	60"	19'- 2 3/4"	7'- 3 1/2"	11'- 4"	13'- 1"	469	5.3	8'- 3"	174	2.5
	66"	20'-11 1/2"	7'-10 1/2"	12'- 4"	14'- 3"	530	6.2	8'- 9"	194	2.9
	72"	22'- 8 1/2"	8'- 5 1/2"	13'- 4"	15'- 4 3/4"	587	7.1	9'- 4"	213	3.3
3:1	12"	6'- 3"	2'- 6"	4'- 3"	4'-11"	114	0.8	1'- 9"	22	0.2
	15"	7'- 5"	2'- 9 1/2"	5'- 0"	5'- 9 1/4"	133	1.1	2'- 2"	28	0.3
	18"	8'- 6 3/4"	3'- 1"	5'- 9"	6'- 7 3/4"	166	1.3	2'- 8"	37	0.5
	21"	9'- 8 3/4"	3'- 4 1/2"	6'- 6"	7'- 6"	189	1.6	3'- 1"	48	0.6
	24"	11'- 0"	3'- 9 1/2"	7'- 3"	8'- 4 1/2"	221	2.0	3'- 7"	58	0.7
	27"	12'- 2"	4'- 1"	8'- 0"	9'- 2 3/4"	245	2.3	3'-11"	67	0.8
	30"	13'- 4"	4'- 4 1/2"	8'- 9"	10'- 1 1/4"	287	2.7	4'- 4"	77	1.0
	33"	14'- 5 3/4"	4'- 8"	9'- 6"	10'-11 3/4"	310	3.1	4'- 8"	84	1.2
	36"	15'- 7 3/4"	4'-11 1/2"	10'- 3"	11'-10"	343	3.5	5'- 1"	96	1.4
	42"	17'-11 1/2"	5'- 6 1/2"	11'- 9"	13'- 6 3/4"	424	4.5	5'-10"	119	1.7
	48"	21'- 1 3/4"	6'- 1 1/2"	14'- 0"	16'- 2"	527	6.1	6'- 7"	146	2.3
	54"	23'- 5 1/2"	6'- 8 1/2"	15'- 6"	17'-10 3/4"	618	7.3	7'- 6"	186	2.9
	60"	25'- 9 1/4"	7'- 3 1/2"	17'- 0"	19'- 7 1/2"	707	8.7	8'- 3"	219	3.4
	66"	28'- 1"	7'-10 1/2"	18'- 6"	21'- 4 1/4"	797	10.1	8'- 9"	242	3.9
	72"	30'- 4 3/4"	8'- 5 1/2"	20'- 0"	23'- 1 1/4"	910	11.7	9'- 4"	272	4.4
4:1	12"	7'-10 3/4"	2'- 6"	5'- 8"	6'- 6 1/2"	144	1.1	1'- 9"	24	0.3
	15"	9'- 4"	2'- 9 1/2"	6'- 8"	7'- 8 1/2"	177	1.5	2'- 2"	32	0.4
	18"	10'- 9 1/2"	3'- 1"	7'- 8"	8'-10 1/4"	217	1.9	2'- 8"	42	0.5
	21"	12'- 2 3/4"	3'- 4 1/2"	8'- 8"	10'- 0"	254	2.3	3'- 1"	57	0.7
	24"	13'- 9 1/2"	3'- 9 1/2"	9'- 8"	11'- 2"	295	2.8	3'- 7"	67	0.9
	27"	15'- 3"	4'- 1"	10'- 8"	12'- 3 3/4"	328	3.3	3'-11"	77	1.0
	30"	16'- 8 1/4"	4'- 4 1/2"	11'- 8"	13'- 5 3/4"	379	3.8	4'- 4"	89	1.3
	33"	18'- 1 3/4"	4'- 8"	12'- 8"	14'- 7 1/2"	417	4.5	4'- 8"	101	1.4
	36"	19'- 7"	4'-11 1/2"	13'- 8"	15'- 9 1/4"	464	5.1	5'-1"	115	1.7
	42"	22'- 5 3/4"	5'- 6 1/2"	15'- 8"	18'- 1"	575	6.5	5'-10"	141	2.1
	48"	26'- 6 1/4"	6'- 1 1/2"	18'- 8"	21'- 6 3/4"	720	8.9	6'- 7"	175	2.8
	54"	29'- 5"	6'- 8 1/2"	20'- 8"	23'-10 1/4"	863	10.7	7'- 6"	226	3.6
	60"	32'- 3 3/4"	7'- 3 1/2"	22'- 8"	26'- 2"	984	12.7	8'- 3"	264	4.3
	66"	35'- 2 1/2"	7'-10 1/2"	24'- 8"	28'- 5 3/4"	1126	14.9	8'- 9"	300	4.9
	72"	38'- 1 1/4"	8'- 5 1/2"	26'- 8"	30'- 9 1/2"	1283	17.3	9'- 4"	334	5.6
6:1	12"	11'- 2"	2'- 6"	8'- 6"	9'- 9 3/4"	220	1.9	1'- 9"	28	0.4
	15"	13'- 2 1/4"	2'- 9 1/2"	10'- 0"	11'- 6 1/2"	264	2.5	2'- 2"	37	0.5
	18"	15'- 2 1/2"	3'- 1"	11'- 6"	13'- 3 1/4"	326	3.2	2'- 8"	50	0.7
	21"	17'- 2 3/4"	3'- 4 1/2"	13'- 0"	15'- 0 1/4"	381	3.9	3'- 1"	69	0.9
	24"	19'- 4 1/2"	3'- 9 1/2"	14'- 6"	16'- 9"	447	4.8	3'- 7"	80	1.2
	27"	21'- 4 3/4"	4'- 1"	16'- 0"	18'- 5 3/4"	506	5.7	3'-11"	96	1.4
	30"	23'- 5 1/4"	4'- 4 1/2"	17'- 6"	20'- 2 1/2"	587	6.7	4'- 4"	110	1.7
	33"	25'- 5 1/2"	4'- 8"	19'- 0"	21'-11 1/4"	667	7.8	4'- 8"	127	2.0
	36"	27'- 5 3/4"	4'-11 1/2"	20'- 6"	23'- 8"	727	9.0	5'- 1"	144	2.3
	42"	31'- 6 1/4"	5'- 6 1/2"	23'- 6"	27'- 1 1/2"	914	11.5	5'-10"	179	3.0
	48"	37'- 3 1/2"	6'- 1 1/2"	28'- 0"	32'- 4"	1181	15.9	6'- 7"	231	4.0
	54"	41'- 4 1/4"	6'- 8 1/2"	31'- 0"	35'- 9 1/2"	1412	19.2	7'- 6"	300	5.0
	60"	45'- 4 3/4"	7'- 3 1/2"	34'- 0"	39'- 3"	1619	22.9	8'- 3"	353	6.0

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ACC:

LEVELS DISPLAYED



ELEVATION
Showing dimensions

(1) Quantities shown are for concrete pipe and will increase slightly for metal pipe installations.

(2) For vehicle safety, curbs shall project no more than 3" above finished grade. Curb heights shall be reduced, if necessary, to meet these requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.

(3) Provide a 1'-0" footing as shown where required to maintain 4" Min cover for pipes.

(4) Quantities shown are for one structure end only (one headwall).

(5) Min Length = 6" + 3" x $\left(\frac{12 \times H - 7}{12 \times L}\right)$

Max Length = 12 x H - 3" x $\left(\frac{12 \times H - 7}{12 \times L}\right)$ - 1"

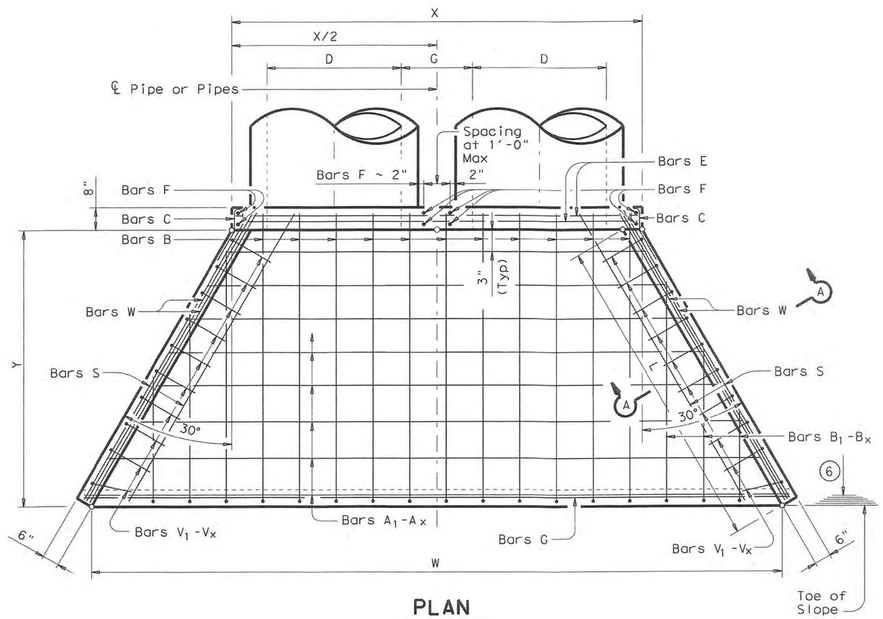
(6) Lengths of wings based on SL:1 Slope along this line.

TABLE OF REINFORCING STEEL (4)

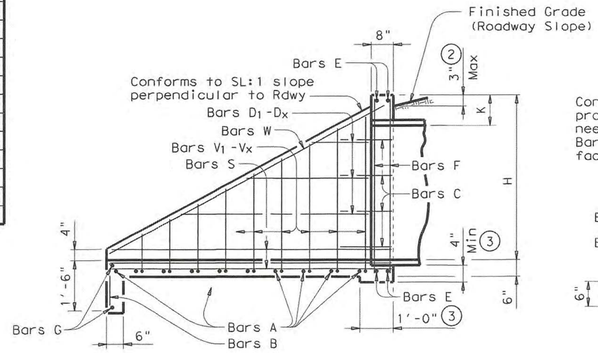
Bar	Size	Spa	No.
A	# 4	1'-0"	~
B	# 3	1'-6"	~
C	# 4	1'-0"	~
D	# 3	1'-0"	~
E	# 5	~	4
F	# 5	~	~
G	# 3	~	2
S	# 4	~	6
V	# 4	1'-0"	~
W	# 5	~	4

TABLE OF CONSTANT DIMENSIONS

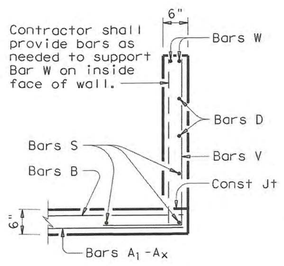
DIA OF PIPE, D	G	K	H
12"	9"	1'- 0"	2'- 0"
15"	11"	1'- 0"	2'- 3"
18"	1'- 2"	1'- 0"	2'- 6"
21"	1'- 4"	1'- 0"	2'- 9"
24"	1'- 7"	1'- 0"	3'- 0"
27"	1'- 8"	1'- 0"	3'- 3"
30"	1'-10"	1'- 0"	3'- 6"
33"	1'-11"	1'- 0"	3'- 9"
36"	2'- 1"	1'- 0"	4'- 0"
42"	2'- 4"	1'- 0"	4'- 6"
48"	2'- 7"	1'- 3"	5'- 3"
54"	3'- 0"	1'- 3"	5'- 9"
60"	3'- 3"	1'- 3"	6'- 3"
66"	3'- 3"	1'- 3"	6'- 9"
72"	3'- 4"	1'- 3"	7'- 3"



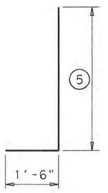
PLAN



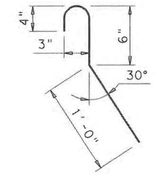
TYPICAL WING ELEVATION



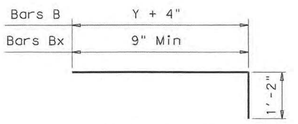
SECTION A-A



BARS V



BARS C
(2'-0" long)



BARS B & B_1 -B_x

GENERAL NOTES:

Designed according to AASHTO LRFD Specifications.

Reinforcing steel shall be placed with the center of the outside layer of bars 2" from the surface of the concrete.

All reinforcing steel shall be Grade 60.

All concrete shall be Class "C" and shall have a minimum compressive strength of 3600 psi.

No bridge rails of any type may be mounted directly to these culvert headwalls.

ALL CONCRETE STRUCTURES SHALL BE CLASS F (4200 PSI, MINIMUM 6.5 SACK CEMENT).
NO FLY ASH ALLOWED IN CONCRETE FOR STRUCTURES.

RECORD DRAWINGS

To the best of our knowledge Engineering Concepts & Design, L.P., hereby states that this plan is As-Built. This information provided is based on surveying at the site and information provided by the contractor.

RYAN C. KING, P.E. — 8/3/2022 DATE

Texas Department of Transportation
Bridge Division

CONCRETE HEADWALLS WITH FLARED WINGS FOR 0° SKEW PIPE CULVERTS

CH-FW-0

FILE: chfw00se.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: GAF
©TxDOT February 2010	DISTRICT	FEDERAL AID PROJECT		SHEET
REVISIONS				
	COUNTY	CONTROL	SECT	JOB	HIGHWAY

CAUTION! EXISTING UTILITIES

CONTRACTOR SHOULD CALL 1-800-DIG-TESS PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITIES FOR EXISTING UTILITY LOCATIONS. EXISTING UTILITIES AND UNDERGROUND FACILITIES INDICATED ON THESE PLANS HAVE BEEN LOCATED FROM REFERENCE INFORMATION. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY BOTH HORIZONTALLY AND VERTICALLY THE LOCATION OF ALL EXISTING UTILITIES AND UNDERGROUND FACILITIES PRIOR TO CONSTRUCTION AND TO TAKE NECESSARY PRECAUTIONS IN ORDER TO PROTECT ALL FACILITIES ENCOUNTERED. THE CONTRACTOR SHALL PRESERVE AND PROTECT ALL EXISTING UTILITIES FROM DAMAGE DURING CONSTRUCTION.

BENCHMARKS:

CP 101 - Square cut on headwall west side of Rochelle road & 54' south of center of Polar Point Drive Elevation = 559.95

CP 103 - "X" in concrete east side of Rochelle Road, 1834' south of center of Polar Point Dr. Elevation = 564.54'

CP 104 - Capped 5/8" Iron rod east side of Rochelle Road & 1250' south of the center of Polar Point Dr. Elevation = 572.70'

CP 105 - Capped 5/8" Iron rod east side of Rochelle Road & 826' south of the center of Polar Point Dr. Elevation = 568.75'

ENGINEERINGCONCEPTS & DESIGN, L.P.
ENGINEERING / PROJECT MANAGEMENT / CONSTRUCTION SERVICES - FIRM REG. #F-001145
201 WINDCO CIR, STE 200, WYLIE, TX 75098
972-941-8400 FAX: 972-941-8401 WWW.ECDLP.COM

REVISIONS:

DRAWN: RCK	DATE:
CHECKED: RKH	DATE: 8/26/2020
PROJECT NO.: 06537	
DWG FILE NAME: 06537 DT.DWG	

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF CONSTRUCTION. THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RYAN C. KING, P.E. 123635

STATE OF TEXAS — RYAN C. KING — 123635 — REGISTERED PROFESSIONAL ENGINEER — 8/26/2020

STORM DETAILS 3

TERRACINA PHASE 1

CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

SHEET 57 OF 62

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ACC:

LEVELS DISPLAYED

1

TABLE OF DIMENSIONS & REINFORCING STEEL
(Wings for One Structure End)

Dimensions					Variable Reinforcing				Estimated ④ Quantities per ft of wing (2~Wings)		Estimated Quantities per ft of Toewall (1~Toewall)	
					Bars J1		Bars J2					
Maximum Wingwall Height Hw	W	X	Y	Z	Size	Spa	Size	Spa	Reinf (Lb/Ft)	Conc (CY/Ft)	Reinf (Lb/Ft)	Conc (CY/Ft)
2'-6"	2'-10"	10"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	43.13	0.406	6.85	0.071
2'-9"	2'-10"	10"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	43.80	0.424	6.85	0.071
3'-0"	2'-10"	10"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	44.47	0.444	6.85	0.071
3'-3"	2'-10"	10"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	47.81	0.462	6.85	0.071
3'-6"	2'-10"	10"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	48.48	0.480	6.85	0.071
4'-0"	3'- 2"	1'- 2"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	50.26	0.532	6.85	0.071
4'-6"	3'- 2"	1'- 2"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	54.27	0.568	6.85	0.071
5'-0"	3'- 9"	1'- 7"	1'- 2"	7"	#4	1'-0"	#4	1'-0"	57.94	0.632	6.96	0.075
5'-6"	3'- 9"	1'- 7"	1'- 2"	7"	#4	1'-0"	#4	1'-0"	61.95	0.668	6.96	0.075
6'-0"	4'- 4"	2'- 0"	1'- 4"	7"	#5	1'-0"	#5	1'-0"	75.16	0.730	7.07	0.078
6'-6"	4'- 4"	2'- 0"	1'- 4"	7"	#5	1'-0"	#5	1'-0"	79.54	0.768	7.07	0.078
7'-0"	5'- 0"	2'- 3"	1'- 9"	8"	#5	1'-0"	#5	1'-0"	86.65	0.864	8.07	0.093
7'-6"	5'- 0"	2'- 3"	1'- 9"	8"	#5	1'-0"	#5	1'-0"	91.03	0.902	8.07	0.093
8'-0"	5'- 6"	2'- 8"	1'-10"	8"	#5	6"	#5	6"	133.54	0.962	8.13	0.095
8'-6"	5'- 6"	2'- 8"	1'-10"	8"	#5	6"	#5	6"	138.96	1.000	8.13	0.095
9'-6"	6'- 0"	2'-10"	2'- 2"	9"	#5	6"	#5	6"	151.43	1.136	8.41	0.110
10'-6"	6'- 5"	3'- 0"	2'- 5"	9"	#6	6"	#5	6"	190.76	1.234	8.57	0.117
11'-6"	7'- 2"	3'- 6"	2'- 8"	11"	#6	6"	#6	6"	224.62	1.438	9.52	0.140
12'-6"	7'- 8"	3'- 9"	2'-11"	1'- 0"	#7	6"	#6	6"	277.90	1.592	9.74	0.157
13'-6"	8'- 2"	4'- 0"	3'- 2"	1'- 2"	#8	6"	#6	6"	343.21	1.804	10.02	0.186
14'-6"	8'-10"	4'- 5"	3'- 5"	1'- 4"	#9	6"	#6	6"	427.43	2.046	10.30	0.218
15'-6"	9'- 6"	4'-10"	3'- 8"	1'- 6"	#9	6"	#7	6"	484.01	2.302	11.24	0.253
16'-0"	9'-11"	5'- 0"	3'-11"	1'- 7"	#9	6"	#7	6"	500.21	2.448	11.47	0.279

TABLE OF WINGWALL REINFORCING (2~Wings)

Bar	Size	No.	Spa
D1	#5	~	1'-0"
D2	#5	~	1'-0"
E1	#4	~	1'-0"
F	#4	~	1'-0"
G	#5	~	1'-0"
M1	#4	4	~
P	#4	~	1'-0"
V	#4	~	1'-0"

TABLE OF TOEWALL REINFORCING

Bar	Size	No	Spa
J3	#4	~	1'-0"
M2	#4	2	~
E2	#4	~	1'-0"

WING DIMENSION CALCULATIONS:

Formulas: (All values are in Feet)

Hw = H + T + C

Lw = (Hw) (SL) ÷ Cosine (Φ)

For Cast-in-place culverts:

Ltw = [(N) (S) + (N + 1) (U)] ÷ (Cosine Φ)

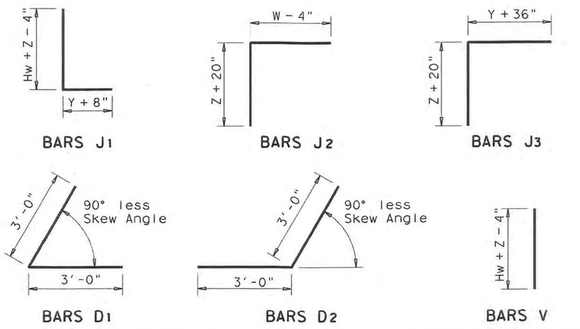
For Precast culverts:

Ltw = [(N) (2 U + S) + (N − 1) (0.5')] ÷ (Cosine Φ)

Total Wingwall Area (Two Wings ~ S.F.) = (2) (Hw) (Lw)

Hw = Height of Wingwall
Lw = Length of Wingwall
Ltw = Culvert Toewall Length
N = Number of Culvert Spans
SL:1 = Channel Slope ratio. (Horizontal: 1 Vertical, Usual value is 2:1)
Φ = Culvert Skew

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



1. Skew Angle = 0°
2. At discharge end, chamfer must be 6".
3. For 15° Skew ~ 1"
   For 30° Skew ~ 2"
   For 45° Skew ~ 3"
4. Quantities shown are for two wings. To determine total quantities for two wings, multiply the tabulated values by Lw.
5. Provide weepholes for Hw = 5'-0" and greater. Fill around weepholes with coarse gravel.
6. Extend Bars E1 1'-6" minimum into the bottom slab of the culvert.
7. Lap Bars M1 1'-6" minimum with Bars M2.
8. Bars G shall be equally spaced at 1'-0" maximum, placed as shown. There shall be at least 4 Bars G per wing.
9. 0" min to 5'-0" max. For T6 or C6 Rail, see T6-CM standard for additional details. For all other rail types, refer to the RAC standard. For curbs without rail and greater than 1'-0" high, see ECD standard for additional details. Estimated curb heights are shown elsewhere in the plans.
10. For vehicle safety, the following requirements must be met:
    - For structures without bridge rail, curbs shall project no more than 3" above finished grade.
    - For structures with bridge rail, curbs shall be flush with finished grade.

    Curb heights shall be reduced, if necessary, to meet the above requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.
11. 1'-0" typical. 2'-0" typical when RAC standard is referenced elsewhere in the plans.

GENERAL NOTES:

Designed according to current AASHTO Standard and Interim Specifications.

All reinforcing steel shall be Grade 60.

All concrete shall be Class "C" and shall have a minimum compressive strength of 3600 psi.

All reinforcing bars shall be adjusted to provide a minimum of 1 ¼" clear cover.

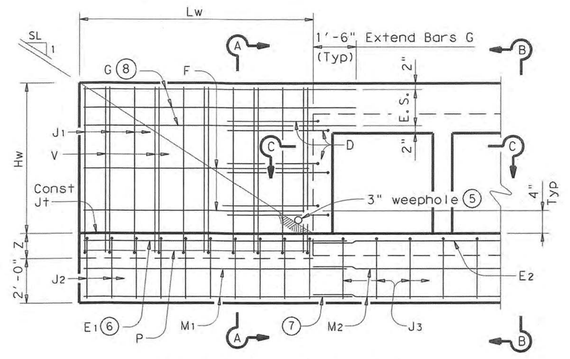
When structure is founded on solid rock, depth of toewalls for culverts and wingwalls may be reduced or eliminated as directed by the Engineer.

See BCS sheet for additional dimensions and information.

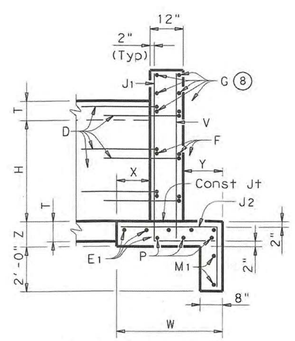
The quantities for concrete and reinforcing steel resulting from the formulas given on this sheet are for Contractor's information only.

ALL CONCRETE STRUCTURES SHALL BE CLASS F (4200 PSI, MINIMUM 6.5 SACK CEMENT).

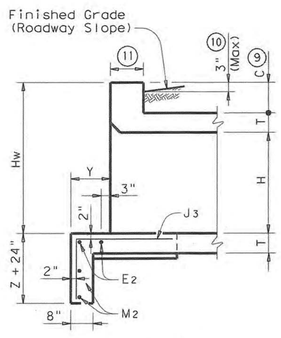
NO FLY ASH ALLOWED IN CONCRETE FOR STRUCTURES.



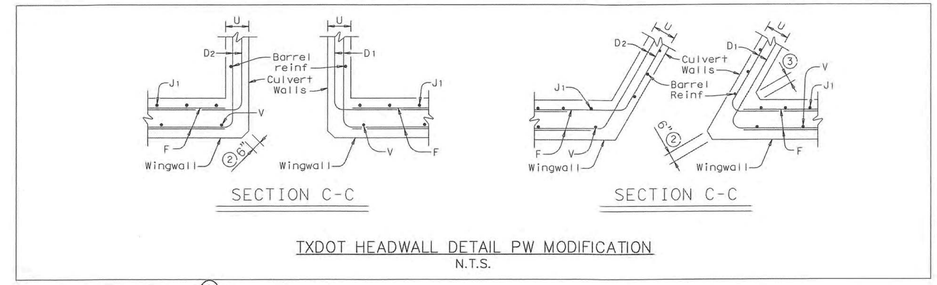
PARTIAL ELEVATION



SECTION A-A
(Showing Wing Reinf)



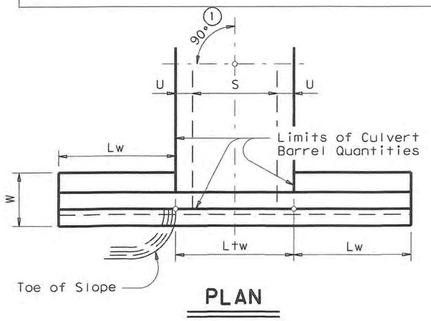
SECTION B-B
(Showing Toewall Reinf)



SECTION C-C

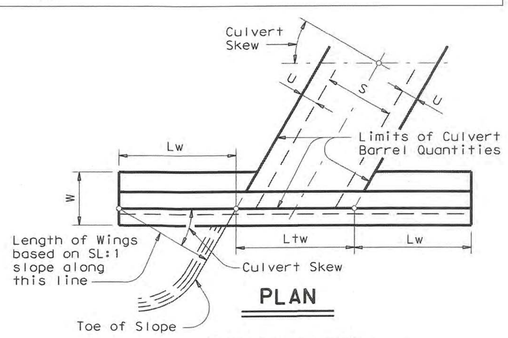
SECTION C-C

TXDOT HEADWALL DETAIL PW MODIFICATION
N.T.S.



PLAN

DETAILS FOR NON-SKEWED BOX CULVERTS



PLAN

DETAILS FOR SKEWED BOX CULVERTS
(Showing 30° Skew)

RECORD DRAWINGS

To the best of our knowledge Engineering Concepts & Design, L.P., hereby states that this plan is As-Built. This information provided is based on surveying at the site and information provided by the contractor.

RYAN C. KING, P.E. 8/3/2022 DATE

Texas Department of Transportation
Bridge Division

CONCRETE WINGWALLS WITH PARALLEL WINGS FOR SKEWED AND NON-SKEWED BOX CULVERTS

PW

FILE: dwstde01.dgn	DN: GAF	CK: CAT	DW: TxDOT	CK: GAF
©TxDOT May 2005	DISTRICT	FEDERAL AID PROJECT		SHEET
REVISIONS				
*SECTION C-C HAS BEEN MODIFIED FOR THE WIDTH OF THE CHAMFER	COUNTY	CONTROL	SECT	JOB	HIGHWAY

CAUTION! EXISTING UTILITIES

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BENCHMARKS:
CP 101 - Square cut on headwall west side of Rochelle road & 54' south of center of Polar Point Drive Elevation = 559.95
CP 103 - "X" in concrete east side of Rochelle Road, 1834' south of center of Polar Point Dr. Elevation = 564.54'
CP 104 - Capped 5/8" iron rod east side of Rochelle Road & 1250' south of the center of Polar Point Dr. Elevation = 572.70'
CP 105 - Capped 5/8" iron rod east side of Rochelle Road & 826' south of the center of Polar Point Dr. Elevation = 568.75'

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CHECKED: RKH	DATE: 8/26/2020	
PROJECT NO.: 06537		
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STATE OF TEXAS · RYAN C. KING · 123635 · REGISTERED PROFESSIONAL ENGINEER · 8/26/2020

STORM DETAILS 4

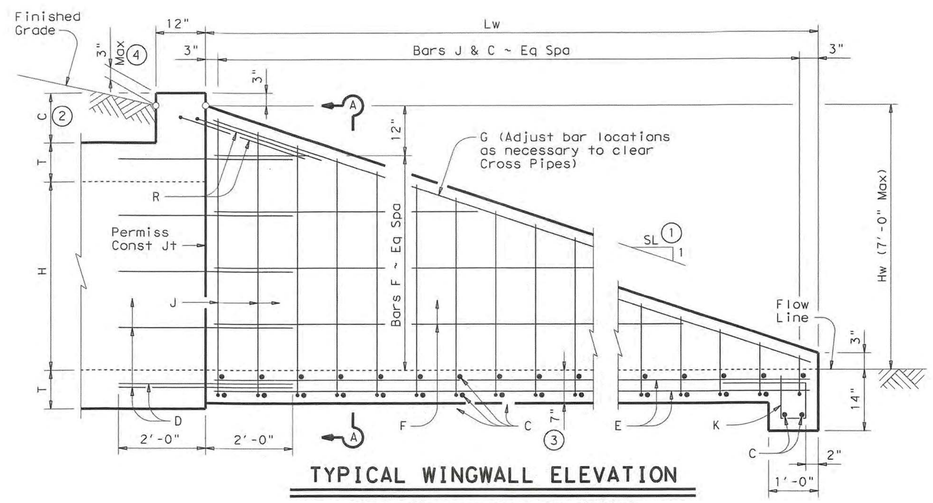
TERRACINA PHASE 1

CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

SHEET 58 OF 62

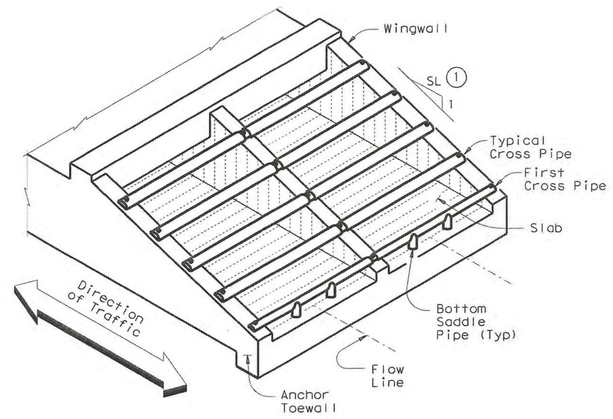
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DATE:
FILE:



TYPICAL WINGWALL ELEVATION

(Cross Pipes not shown for clarity)



ISOMETRIC VIEW OF TYPICAL INSTALLATION

(Showing Bolted Anchor Option)

Formulas: (All values are in Feet)

Hw = H + T + C - 0.250'

Lw = (Hw - 0.250') (SL)

For Cast-in-place culverts:

Atw = (N) (S) + (N + 1) (U)

For Precast culverts:

Atw = (N) (2U + S) + (N - 1) (0.500')

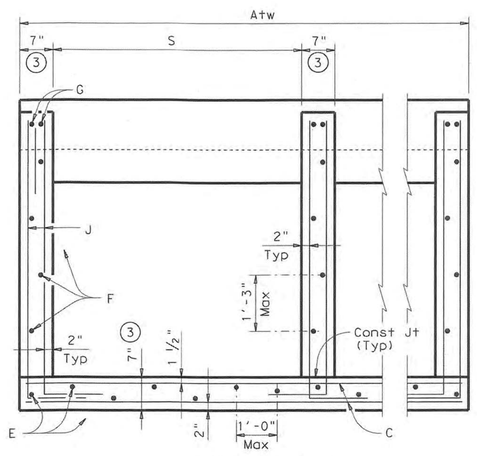
Total Wingwall Area (S.F.)
= (0.5) (Hw + 0.250') (Lw) (N + 1)

Total Concrete Volume (C.Y.)
= [(Wingwall Area) (0.583') +
(Lw) (Atw) (0.583') +
(Atw) (1.000') (1.167' - 0.583')] ÷ (27)

Total Reinforcing (Lbs)
= (1.55) (Lw) (Atw) +
(4.43) (Atw) +
(K) (Hw) (N + 1) ($\sqrt{Lw}$)

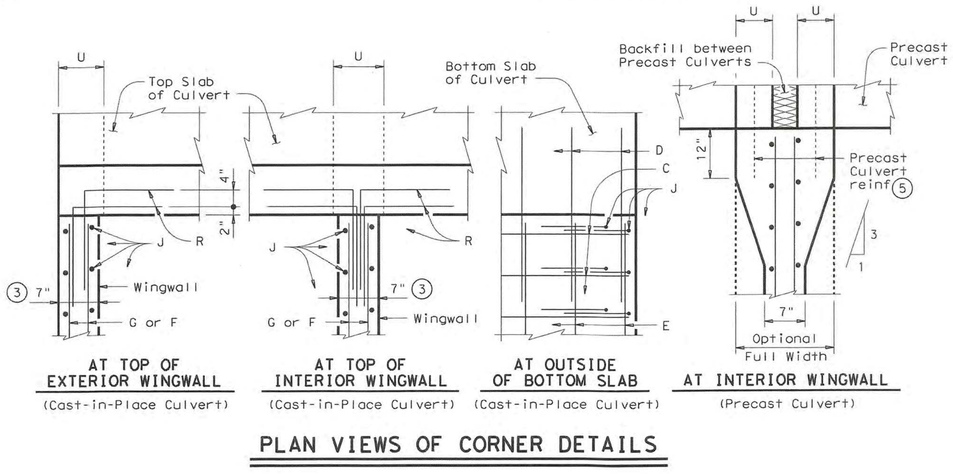
C = Height of Curb above top of Top Slab
Hw = Height of Wingwall
K = Constant Value for use in formulas
Slope SL:1 K
6:1 ~ 10.41
Atw = Anchor Toewall Length
Lw = Length of Wingwall
N = Number of Culvert Barrels
S = Clear Span of each Barrel
SL:1 = Side Slope Ratio (Horizontal : 1 Vertical)

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



SECTION A-A

(Showing typical Wingwall and Wing Slab reinforcing)
(Pipe Runners not shown for clarity)



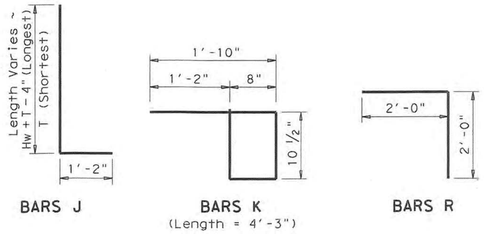
AT TOP OF EXTERIOR WINGWALL (Cast-in-Place Culvert)

AT TOP OF INTERIOR WINGWALL (Cast-in-Place Culvert)

AT OUTSIDE OF BOTTOM SLAB (Cast-in-Place Culvert)

AT INTERIOR WINGWALL (Precast Culvert)

PLAN VIEWS OF CORNER DETAILS



BARS J

BARS K (Length = 4'-3")

BARS R

TABLE OF REINFORCING BAR SIZES & SPACING		
Bar	Size	Spacing
C	#4	10" Max
D	#4	match F & E
E	#4	1'- 0" Max
F	#4	1'- 3" Max
G	#6	Shown
J	#4	10" Max
K	#4	1'- 0" Max
R	#4	Shown

1. Slope will be 6:1 or flatter.
2. 0" min to 5'-0" max. Estimated curb heights are shown elsewhere in the plans. For structures without railing and curbs taller than 1'-0", refer to ECD standard.
3. Wingwall and slab thicknesses may be the same as the adjacent culvert wall and slab thicknesses (7" Minimum). If thicknesses greater than the minimum (7") are used, no changes will be made in quantities and no additional compensation will be allowed.
4. For vehicle safety, curbs shall project no more than 3" above finished grade. Curb heights shall be reduced, if necessary, to meet these requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.
5. For Culverts with C = 0", the precast culvert reinforcing may extend 1'-0" minimum into Wingwall. Wingwall Bars D and R may be omitted. Otherwise, refer to the "Wingwall Connection Detail" on the SCP-MD standard.

GENERAL NOTES:

Designed according to AASHTO LRFD Specifications.

The Safety End Treatments shown herein are intended for use in those installations where out of control vehicles are likely to traverse the openings approximately perpendicular to the Cross Pipes.

Cross Pipes are designed for a traversing load of 10,000 pounds at yield as recommended by Research Report 280-2F, "Safety Treatment of Roadside Parallel-Drainage Structures", Texas Transportation Institute, March 1981.

All concrete shall be Class "C" and shall have a minimum compressive strength of 3600 psi.

All reinforcing steel shall be Grade 60. All reinforcing shall be adjusted as necessary to provide a minimum clear cover of 1 ¼".

The quantities for concrete, reinforcing steel, and Cross Pipes resulting from the formulas given herein are for Contractor's information only.

Cross Pipes, Sleeve Pipes, and Saddle 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 the concrete reinforcing, shall be galvanized after fabrication. Galvanizing damaged during transport or construction shall be repaired in accordance with the specifications.

See BCS standard sheet for additional dimensions and information.

Alternate design drawings bearing the seal of a professional engineer will be acceptable for precast construction of the Safety End Treatments.

RECORD DRAWINGS

To the best of our knowledge Engineering Concepts & Design, L.P., hereby states that this plan is As-Built. This information provided is based on surveying at the site and information provided by the contractor.

RYAN C. KING, P.E. — 8/3/2022 DATE

ALL CONCRETE STRUCTURES SHALL BE CLASS F (4200 PSI, MINIMUM 6.5 SACK CEMENT).
NO FLY ASH ALLOWED IN CONCRETE FOR STRUCTURES.

SHEET 1 OF 2

Texas Department of Transportation — Bridge Division Standard

SAFETY END TREATMENT

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

SETB-PD

FILE: setbpdse.dgn	DN: GAF	CK: CAT	DW: JRP	CK: GAF
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	DIST	COUNTY		SHEET NO.

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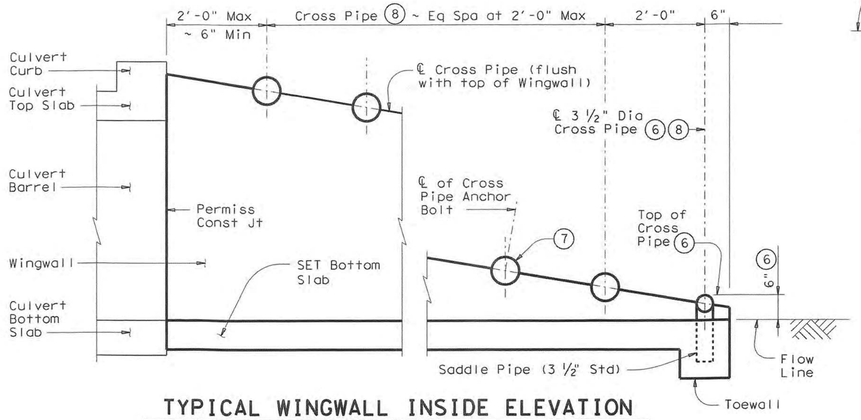
STORM DETAILS 5

TERRACINA PHASE 1

CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

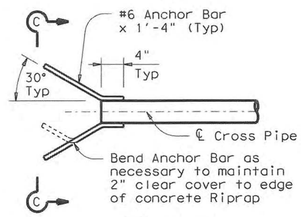
SHEET 59 OF 62

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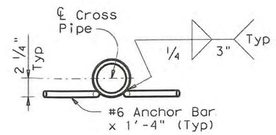


TYPICAL WINGWALL INSIDE ELEVATION

(Showing installation of Cross Pipes)

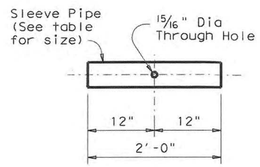


PART PLAN

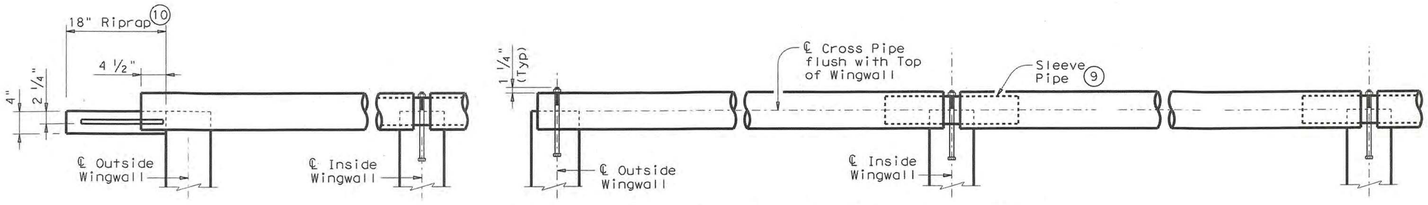


SECTION C-C

OPTIONAL ANCHOR BAR DETAILS

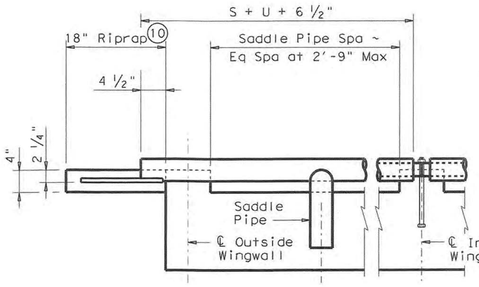


SLEEVE PIPE DETAILS (9)

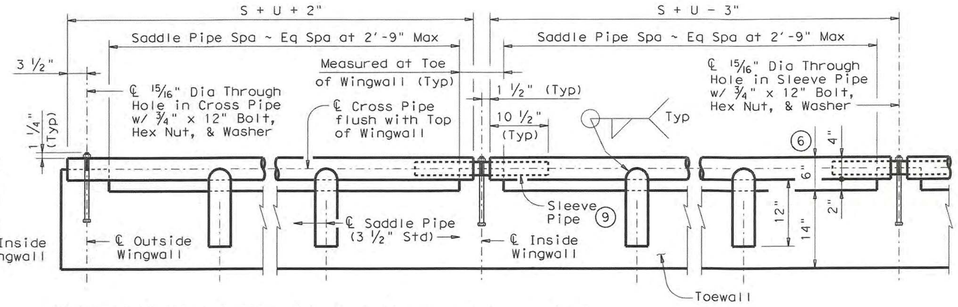


SECTION THROUGH INSTALLATION OF TYPICAL FULL CROSS PIPE

(Anchor details and dimensions are similar to those shown below in SECTION THROUGH INSTALLATION OF 3 ½" FIRST CROSS PIPE detail.)



OUTSIDE CULVERT BARREL WITH OPTIONAL ANCHOR BARS & RIPRAP



SECTION THROUGH INSTALLATION OF 3 ½" FIRST CROSS PIPE

OUTSIDE CULVERT BARREL WITH BOLTED ANCHOR

INSIDE CULVERT BARREL

CROSS PIPE INSTALLATION DETAILS

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

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

(6) The proper installation of the first Cross Pipe is critical for vehicle safety. The top of the first Cross Pipe must be placed at no more than 6" above the flow line.

(7) The third Cross Pipe from the bottom of the Culvert shall always be installed using a bolted connection. Care shall be taken to ensure that concrete does not flow into this Cross Pipe so as to permit disassembly of the bolted connection to allow cleanout access.

(8) Cross Pipes and Sleeve Pipes (if required) shall be as shown in the REQUIRED PIPE SIZES table. Saddle Pipes for the 3 ½" first Cross Pipe shall also be 3 ½".

(9) At Contractor's option, the Cross Pipe may be continuous across the Inside Wingwalls. If such option is selected, the Sleeve Pipe shall be omitted and a 15/16" diameter through hole made in the Cross Pipe to accept the anchor bolt at the centerline of each Interior Wingwall.

(10) Riprap will be required when using the optional Anchor Bar details and shall be included in the Price Bid for Safety End Treatment. Such Riprap shall be concrete Riprap in accordance with Item 432, "Riprap".

RECORD DRAWINGS

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RYAN C. KING, P.E. — 8/3/2022 DATE

SHEET 2 OF 2

Texas Department of Transportation — Bridge Division Standard

SAFETY END TREATMENT

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

SETB-PD

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REVISIONS	DIST	COUNTY		SHEET NO.

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FILE:

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STORM DETAILS 6

TERRACINA PHASE 1

CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

SHEET 60 OF 62

TABLE OF DIMENSIONS & REINFORCING STEEL
(Wings for One Structure End)

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

TABLE OF WINGWALL REINFORCING (2~Wings)

Bar	Size	No.	Spa
DL	#5	~	1'-0"
DS	#5	~	1'-0"
E	#4	~	1'-0"
F	#4	~	1'-0"
G	#6	4	~
M	#4	4	~
P	#4	~	1'-0"
RS	#5	3	~
RL	#5	3	~
V	#4	~	1'-0"

TABLE OF ESTIMATED CULVERT TOEWALL QUANTITIES

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

WING DIMENSION CALCULATIONS:

Formulas: (All values are in Feet)

Hw = H + T + C − 0.250'

A = (Hw − 0.333') (SL)

B = (A) [Tangent (θ + 15°)]

Lw = (A) ÷ [Cosine (θ + 15°)]

For Cast-in-place culverts:

Ltw = [(N) (S) + (N+1) (U)] ÷ (Cosine θ)

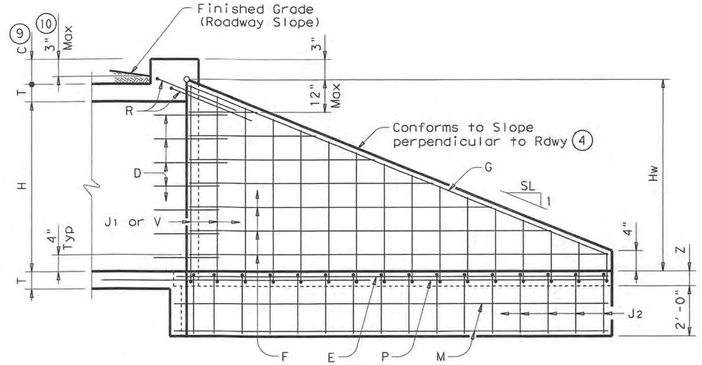
For Precast culverts:

Ltw = [(N) (2U+S) + (N−1) (0.500')] ÷ (Cosine θ)

Total Wingwall Area (Two Wings ~ S.F.) = (0.5) (Hw + 0.333') (Lw + A)

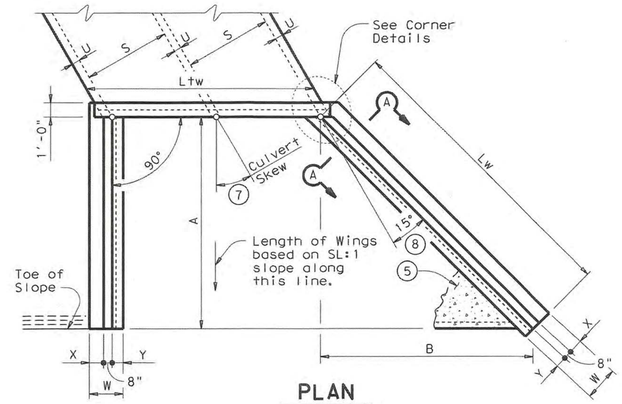
Hw = Height of Wingwall
SL:1 = Side Slope Ratio (Horizontal:1 Vertical)
A = Length of Short Wingwall
Lw = Length of Long Wingwall
Ltw = Culvert Toewall Length
N = Number of Culvert Spans
θ = Culvert Skew

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



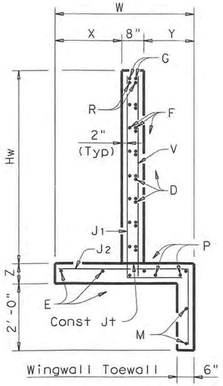
INSIDE ELEVATION

(Showing reinforcing. Culvert and Culvert Toewall reinforcing not shown for clarity.)

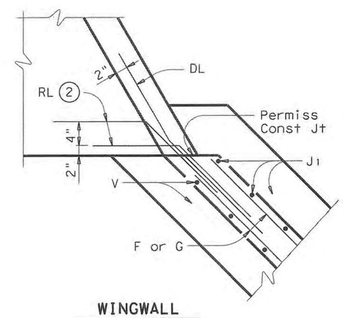


PLAN

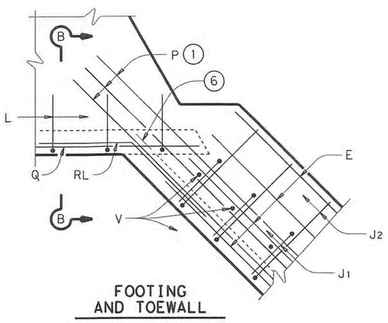
(Showing dimensions and 30° Skew.)



SECTION A-A



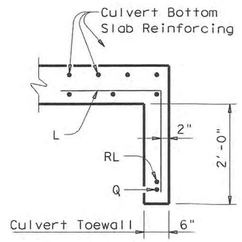
WINGWALL



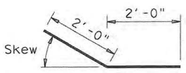
FOOTING AND TOEWALL

CORNER DETAILS

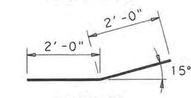
(Culvert and Culvert Toewall reinforcing not shown for clarity.)



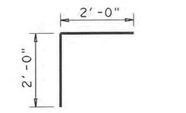
SECTION B-B (5)



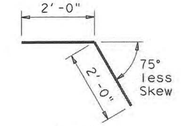
BARS DS
(Short Wing)



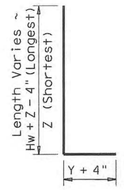
BARS DL
(Long Wing)



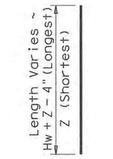
BARS RS
(Short Wing)



BARS RL
(Long Wing)



BARS J1



BARS V

BARS L

BARS J2

1. Extend Bars P 3'-0" minimum into bottom slab of Box Culvert.
2. Adjust to fit as necessary to maintain 1 1/4" clear cover and 4" minimum between bars.
3. Quantities shown are based on an average wing height for two wings (one structure end). To determine total quantities for two wings multiply the tabulated values by 0.5 x (A+Lw).
4. Recommended values of Slope are: 2:1, 3:1, 4:1, & 6:1.
5. When shown elsewhere on the plans, a 5" deep concrete riprap shall be constructed. Payment for riprap shall be as required by Item 432, "Riprap". Unless otherwise shown on the plans or directed by the Engineer, the riprap shall have a 6" wide by 1'-6" deep reinforced concrete toewall along all edges adjacent to natural ground; the toewall shall be reinforced by extending typical riprap reinforcing into the toewall; construction joints or grooved joints, oriented in the direction of flow, shall extend across the full distance of the riprap, at intervals of approximately 20'. When such riprap is provided, the culvert toewall shown in SECTION B-B will not be required.
6. At Contractor's option, Culvert Toewall may be ended flush with Wingwall Toewall. Adjust reinforcing from that shown as necessary.
7. Applicable values of of Skew are: 15°, 30°, and 45°.
8. Typical wingwall angle for all skews.
9. 0" min to 5'-0" max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail, bicycle rail or curbs taller than 1'-0", refer to ECD standard. For structures with T6 bridge rail, refer to T6-CM standard. For structures with traffic rail, other than T6, refer to RAC standard.
10. For vehicle safety, curb heights and wall heights shall be reduced, if necessary, to provide a maximum 3" projection above finished grade. No changes will be made in quantities and no additional compensation will be allowed for this work.

GENERAL NOTES:

Designed according to AASHTO LRFD Specifications.

All reinforcing steel shall be Grade 60.

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.

All concrete shall be Class "C" and shall have a minimum compressive strength of 3600 psi.

All reinforcing bars shall be adjusted to provide a minimum of 1 1/4" clear cover.

When structure is founded on solid rock, depth of toewalls for culverts and wingwalls may be reduced or eliminated as directed by the Engineer.

See BCS sheet for additional dimensions and information.

The quantities for concrete and reinforcing steel resulting from the formulas given on this sheet are for Contractor's information only.

RECORD DRAWINGS

To the best of our knowledge Engineering Concepts & Design, L.P., hereby states that this plan is As-Built. This information provided is based on surveying at the site and information provided by the contractor.

RYAN C. KING, P.E. — DATE 8/3/2022

Texas Department of Transportation — Bridge Division Standard

CONCRETE WINGWALLS WITH FLARED WINGS FOR SKEWED BOX CULVERTS

FW-S

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

DISCLAIMER:
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DATE:
FILE:

CAUTION! EXISTING UTILITIES

CONTRACTOR SHOULD CALL 1-800-DIG-TESS PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITIES FOR EXISTING UTILITY LOCATIONS. EXISTING UTILITIES AND UNDERGROUND FACILITIES INDICATED ON THESE PLANS HAVE BEEN LOCATED FROM REFERENCE INFORMATION. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY BOTH HORIZONTALLY AND VERTICALLY THE LOCATION OF ALL EXISTING UTILITIES AND UNDERGROUND FACILITIES PRIOR TO CONSTRUCTION AND TO TAKE NECESSARY PRECAUTIONS IN ORDER TO PROTECT ALL FACILITIES ENCOUNTERED. THE CONTRACTOR SHALL PRESERVE AND PROTECT ALL EXISTING UTILITIES FROM DAMAGE DURING CONSTRUCTION.

BENCHMARKS:

CP 101 - Square cut on headwall west side of Rochelle road & 54' south of center of Polar Point Drive Elevation = 559.95

CP 103 - "X" in concrete east side of Rochelle Road, 1834' south of center of Polar Point Dr. Elevation = 564.54'

CP 104 - Capped 5/8" Iron rod east side of Rochelle Road & 1250' south of the center of Polar Point Dr. Elevation = 572.70'

CP 105 - Capped 5/8" Iron rod east side of Rochelle Road & 826' south of the center of Polar Point Dr. Elevation = 568.75'

ENGINEERINGCONCEPTS & DESIGN, L.P.
ENGINEERING / PROJECT MANAGEMENT / CONSTRUCTION SERVICES - FIRM REG. #F-001145
201 WINDCO CIR, STE 200, WYLIE, TX 75098
972-941-8400 FAX: 972-941-8401 WWW.ECDLP.COM

REVISIONS:

DRAWN:	RCK	DATE:	
CHECKED:	RKH	DATE:	8/26/2020
PROJECT NO.:	06537		
DWG FILE NAME:	06537 DT.DWG		

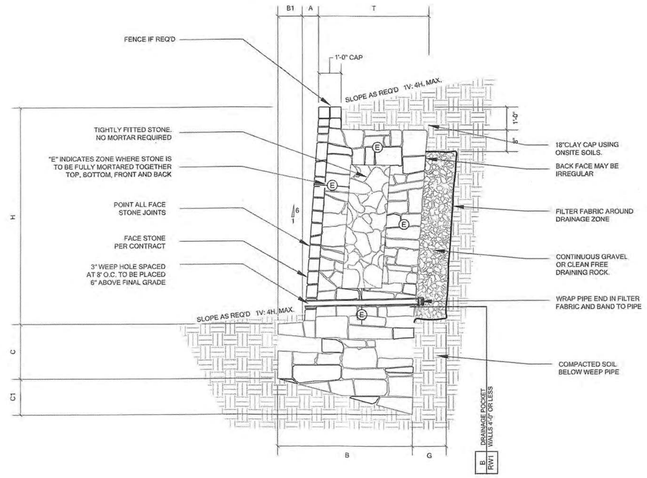
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF CONSTRUCTION. THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY RYAN C. KING, P.E. 123635

STATE OF TEXAS — RYAN C. KING — 123635 — REGISTERED PROFESSIONAL ENGINEER — 8/26/2020

STORM DETAILS 7

TERRACINA PHASE 1
CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

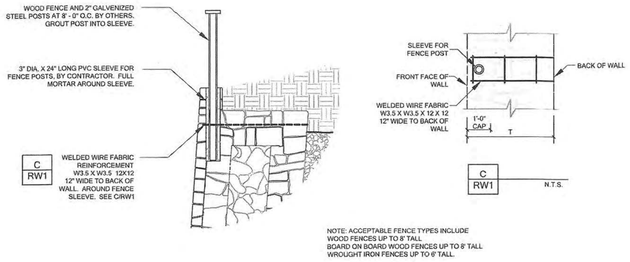
SHEET 61 OF 62



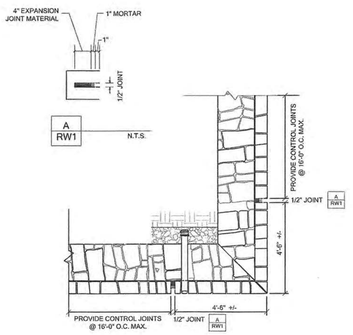
RW1/1 MASONRY WALL SCHEDULE -1500 psf - 6V:1H BATTER									
BEARING CAPACITY ON NATURAL SOIL OR COMPACTED AND TESTED FILLS									
WALL HEIGHT	BASE WIDTH	TOE	BASE DEPTH (TOE)	BASE DEPTH (HEEL)	BATTER	FULLY MORTARED ZONE	THICKNESS OF WALL	DRAINAGE ZONE THICKNESS	BEARING CAPACITY
H	B	B1	C	C1	A	E	T	G	
1' - 0"	1' - 0"	0' - 0"	0' - 9"	0' - 2"	0' - 2"	FULLY	1' - 0"	SEE B/RW1	1500 psf
2' - 0"	1' - 3"	0' - 0"	0' - 10"	0' - 3"	0' - 4"	FULLY	1' - 3"	SEE B/RW1	
3' - 0"	1' - 8"	0' - 0"	0' - 11"	0' - 4"	0' - 6"	FULLY	1' - 8"	SEE B/RW1	
4' - 0"	2' - 1"	0' - 1"	1' - 0"	0' - 5"	0' - 8"	FULLY	2' - 0"	SEE B/RW1	
5' - 0"	2' - 6"	0' - 1"	1' - 3"	0' - 5"	0' - 10"	0' - 11"	2' - 5"	0' - 10"	
6' - 0"	3' - 4"	0' - 4"	1' - 7"	0' - 7"	1' - 0"	1' - 0"	3' - 0"	1' - 0"	
7' - 0"	4' - 0"	0' - 7"	1' - 11"	0' - 9"	1' - 2"	1' - 2"	3' - 5"	1' - 2"	
8' - 0"	4' - 9"	0' - 9"	2' - 1"	0' - 10"	1' - 4"	1' - 4"	4' - 0"	1' - 4"	
9' - 0"	5' - 9"	1' - 5"	2' - 6"	1' - 0"	1' - 6"	1' - 5"	4' - 4"	1' - 6"	

WALL DESIGN CRITERIA							
BEARING	SLOPE TOP	SLOPE BOT	ACTIVE PRESSURE	PASSIVE PRESSURE	COEFFICIENT OF FRICTION	SLOPE OF BACK OF WALL	SURCHARGE
Q_a	β	β_1	ϕ_a	ϕ_p		α	q
1500 psf	14.3 deg	14.3 deg	26 deg	26 deg	0.3	99.5 deg	0 psf

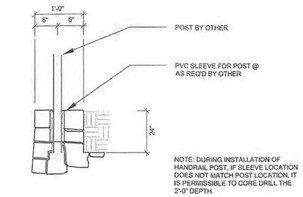
RW1/1 MASONRY WALL W/ 6V:1H BATTER
SCALE: N.T.S.



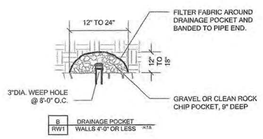
DETAIL OF WALL WITH WELDED WIRE FABRIC FOR FENCE SLEEVE
RW1/3
SCALE: N.T.S.

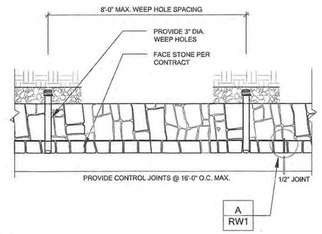


RW1/4 TYPICAL PLAN VIEW AT CORNER
SCALE: N.T.S.



RW1/2 WALL SECTION W/ FENCE POST
SCALE: N.T.S.





RW1/5 TYPICAL PLAN VIEW AT BASE
SCALE: N.T.S.

1. Design Building Code
International Building Code, 2015 Edition

2. Geotechnical Report
Firm: RONE ENGINEERING
Project No: 18-22482
Dated: October 3, 2018
Allowable Bearing Capacity: 1500psf

3. Geotechnical Criteria
Bearing on Stiff Natural Undisturbed Clayey Soils or Compacted and Tested Soils
Allowable Bearing: 1500 psf, minimum bearing on compacted and tested soils or undisturbed cuts

Coefficient of Friction between Base of Wall and Soil - 0.30
Backfill Soil Parameters:
Backfill Soil - Natural Clays or Fill Soils
Backfill Angle of Internal Friction PHI = 26 degrees

Base Soil Parameters:
Soil at Toe - natural, Undisturbed or Fill Soils
Angle of Internal Friction PHI = 26 degrees
The backfill soil angle of internal friction referred to above is a composite angle of internal friction and includes both cohesion and angle of internal friction of the soils.

The use of very wet or very dry backfill soil should be avoided. The use of heavy equipment within 3'-0" of the wall could damage the wall and should be avoided.

Locate base of walls on undisturbed or properly compacted soil.

4. Materials
Average density of masonry stone wall varies from 135 pcf to 145 pcf. Size of stone within wall varies from 4" to 18". Crushed concrete with or without rebar is acceptable to be used in the wall construction.

Drainage zone materials may be composed of clean gravel or stone ranging from 1" to 5". Crushed concrete is acceptable provided it is clean and generally free of dust or other deletrious materials.

Portland Cement Mortar for Retaining Wall Construction.

The Portland cement mortar used for construction of the above grade portion 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 concrete mixer truck load. The batch tickets shall clearly indicate the amount batched, the date, the project name and shall be provided to DirtSavers, LLC. for review, documentation, and file.

Contents	Amount per cubic yard	
Type F Fly Ash:	94	lbs.
Fine Aggregate (sand):	3,250	lbs.
Potable Water:	235	lbs.
Type 1 Portland Cement:	376	lbs.
Admixture Eucon 100:	48	oz. average

Concrete retarders such as "Eucon 100 Retarder" may be used at the discretion of the masonry wall contractor. A greater amount of retarder (about 64 ounces) is typically used during hot periods and a less amount of retarder (about 32 ounces) 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 = 2000 psi. DirtSavers, LLC. does not require any concrete testing provided the above proportions are verified by way of the "batch tickets".

5. Construction Reviews
DirtSavers, LLC. shall be called for construction review of masonry wall.

6. Retaining Wall Design Constraints
Retaining walls should not have solid fence placed on top of wall other than that shown on these plans.
Retaining walls shall not have additional surcharge placed above the wall other than that shown on these plans.
Retaining walls shall not have slope at base or top of wall that exceeds that which is shown on these plans.
The retaining walls noted above require special design.

Minor variations in the construction of the retaining walls from these documents may be accepted at the discretion of the design engineer.

RECORD DRAWINGS

To the best of our knowledge Engineering Concepts & Design, L.P., hereby states that this plan is As-Built. This information provided is based on surveying at the site and information provided by the contractor.

RYAN C. KING, P.E. 8/3/2022 DATE

RELEASED FOR CONSTRUCTION
ALL RESPONSIBILITY FOR ADEQUACY OF DESIGN REMAINS WITH THE DESIGN ENGINEER. THE CITY OF ROCKWALL, IN REVIEWING AND RELEASING PLANS FOR CONSTRUCTION, ASSUMES NO RESPONSIBILITY FOR ADEQUACY OR ACCURACY OF DESIGN.

CITY DATE

DIRTSAVERS
PO BOX 566
ALEDO, TX 76008
PH: 469.834.7446
F-14138

ROCK STEADY WALLS
817.606.9245
rocksteadywalls@gmail.com

TERRACINA PHASE 1
MASONRY RETAINING WALLS
CITY OF ROCKWALL, TEXAS

No.	Date	Item
		REVISIONS

DB: MAM CHK'D: MAM APP'D: MAM

STATE OF TEXAS
MICHAEL A. MARSHALL
110099
LICENSED PROFESSIONAL ENGINEER
02.12.2019

RETAINING WALL DETAILS AND NOTES

Project No.	RW021219-1
Date	02.12.2019
Last Revision	02.12.2019

RW1