

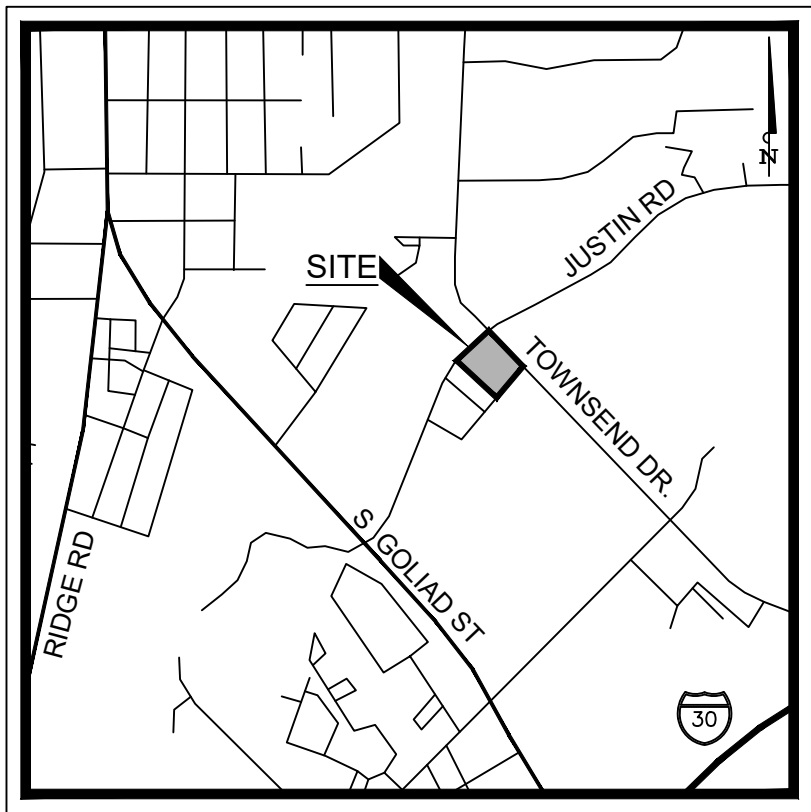
CIVIL PLANS

RCAD ROCKWALL

LOFLAND INDUSTRIAL PARK ADDITION
LOT 1A-R1, BLOCK A

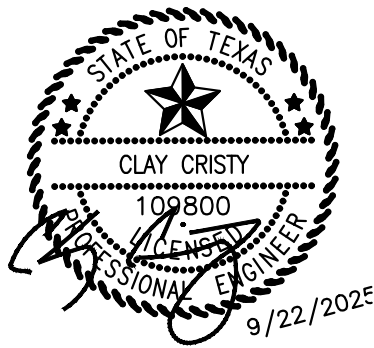
814 JUSTIN ROAD
ROCKWALL, TX 75087

MAP ID: 2-4



VICINITY MAP
N.T.S.

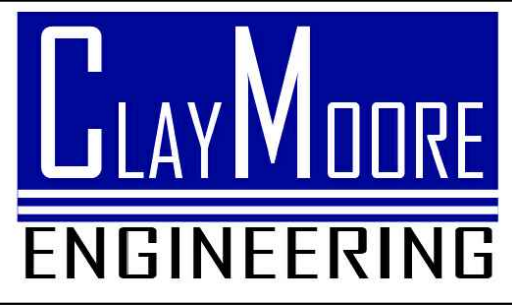
PLAN SUBMITTAL LOG	
DESCRIPTION	SUBMITTAL DATE
1ST SUBMITTAL	3/10/2021
2ND SUBMITTAL	5/21/2021
3RD SUBMITTAL	7/29/2021
CONSTRUCTION ASBUILTS	9/22/2025



SHEET LIST TABLE		
SHEET NUMBER	SHEET TITLE	REVISION DATE
C-0	COVER	9/22/2025
	PROPOSED REPLAT	9/22/2025
SP-1	APPROVED SITE PLAN	9/22/2025
C-1	GENERAL NOTES	9/22/2025
C-2	CITY GENERAL NOTES	9/22/2025
C-3	CITY GENERAL NOTES	9/22/2025
C-4	DEMOLITION PLAN	9/22/2025
C-5	EROSION CONTROL PLAN	9/22/2025
C-6	EROSION CONTROL DETAILS	9/22/2025
C-7	DIMENSION CONTROL AND PAVING PLAN	9/22/2025
C-8	GRADING PLAN	9/22/2025
C-9	EXISTING DRAINAGE AREA MAP	9/22/2025
C-10	PROPOSED DRAINAGE AREA MAP	9/22/2025
C-11	STORM DRAIN PLAN	9/22/2025
C-12	STORM DRAIN PROFILES	9/22/2025
C-13	STORM DRAIN HGL CALCULATIONS	9/22/2025
C-14	DETENTION POND A CALCULATIONS	9/22/2025
C-15	DETENTION POND B CALCULATIONS	9/22/2025
C-16	DETENTION POND C CALCULATIONS	9/22/2025
C-16.01	IMPERVIOUS AREA DELTA CALCULATIONS	9/22/2025
C-17	UTILITY PLAN	9/22/2025
C-18	PRIVATE CONSTRUCTION DETAILS	9/22/2025
C-19	CITY CONSTRUCTION DETAILS	9/22/2025
	CONTECH DETENTION SYSTEM (1 OF 12)	
	CONTECH DETENTION SYSTEM (2 OF 12)	
	CONTECH DETENTION SYSTEM (3 OF 12)	
	CONTECH DETENTION SYSTEM (4 OF 12)	
	CONTECH DETENTION SYSTEM (5 OF 12)	
	CONTECH DETENTION SYSTEM (6 OF 12)	
	CONTECH DETENTION SYSTEM (7 OF 12)	
	CONTECH DETENTION SYSTEM (8 OF 12)	
	CONTECH DETENTION SYSTEM (9 OF 12)	
	CONTECH DETENTION SYSTEM (10 OF 12)	
	CONTECH DETENTION SYSTEM (11 OF 12)	
	CONTECH DETENTION SYSTEM (12 OF 12)	
L-1	LANDSCAPE PLAN	5/10/2021
L-2	PLANTING DETAILS & SPECIFICATIONS	5/10/2021
TD-1	TREE DISPOSITION PLAN	5/10/2021
TD-2	TREE DISPOSITION SPECS AND DETAILS	5/10/2021

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.

ENGINEER



TEXAS REGISTRATION #14199
1903 CENTRAL DR.
SUITE #406
BEDFORD, TX 76021
PH: 817.281.0572
FAX 817.281.0574
CONTACT: DREW DONOSKY, PE
EMAIL: DREW@CLAYMOOREENG.COM

OWNER

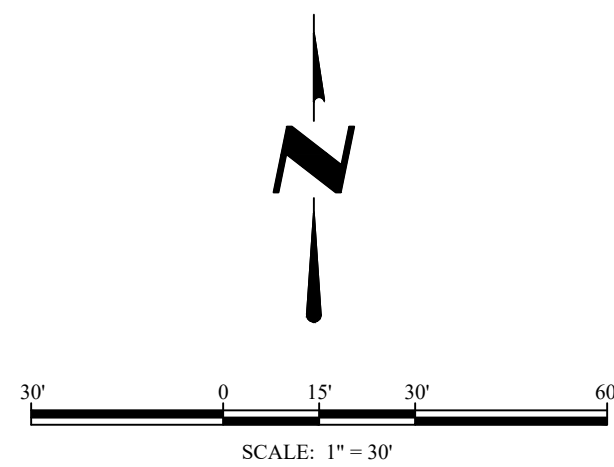
CENTRAL APPRAISAL DISTRICT OF ROCKWALL
841 JUSTIN ROAD
ROCKWALL, TX 75087
PH: (972) 771 2034
CONTACT: KEVIN PASSONS

SEPTEMBER 2025

PROBABLE START OF CONSTRUCTION: 07/2021

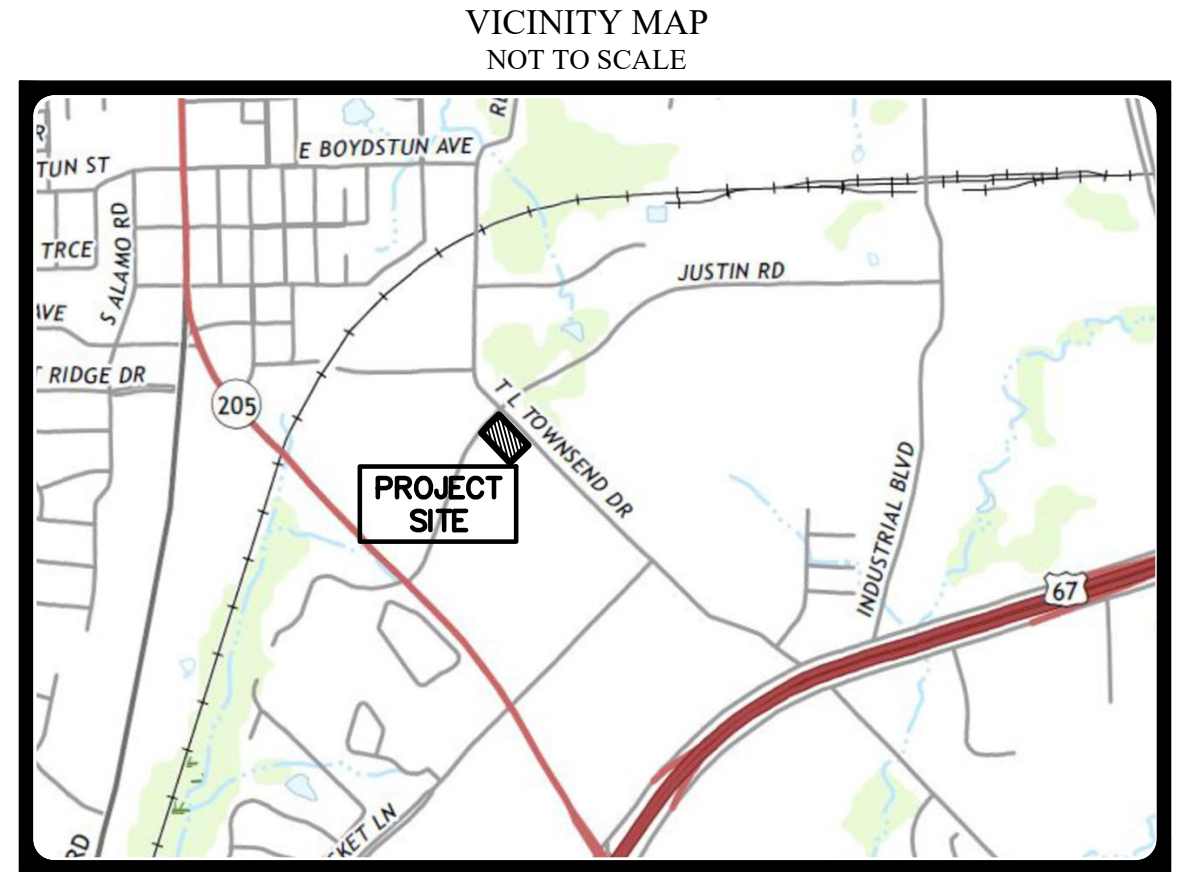
This drawing has been revised to show those changes during the
construction process reported by the contractor to ClayMoore
Engineering, Inc. and considered to be significant. This drawing is
not guaranteed to be "As Built" but is based on the information made
available.
By: *CSG* Date: 09/22/2025

STOP!
CALL BEFORE YOU DIG
DIG TESS
1-800-DIG-TESS
(@ least 72 hours prior to digging)



CURVE CHART				
CURVE	RADIUS	DELTA	LENGTH	BEARING
C1	20.00'	89°53'02"	31.38'	S 88°41'29" E
C2	44.00'	89°48'49"	68.97'	N 88°39'23" W
C3	20.00'	90°50'55"	31.71'	S 88°08'19" E
C4	20.00'	90°48'38"	31.70'	S 89°09'17" E

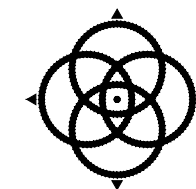
LINE TABLE		
LINE	BEARING	DISTANCE
L1	S 43°44'58" E	7.50'
L2	N 46°15'02" E	10.00'
L3	S 43°44'58" E	20.00'
L4	S 46°15'02" W	10.00'
L5	S 46°15'02" W	22.11'
L6	N 46°15'02" E	25.00'
L7	N 46°15'02" E	11.50'
L8	S 46°15'02" W	3.22'
L9	N 46°15'02" E	11.50'
L10	S 43°44'58" E	33.00'
L11	S 43°44'58" E	33.00'
L12	S 46°15'02" W	25.00'
L13	S 46°15'02" W	25.00'
L16	N 52°29'44" W	39.46'
L17	N 49°17'47" W	46.55'
L18	S 79°39'06" E	22.17'



SURVEYOR'S NOTES:

- Bearings and distances are based on Texas State Plane Coordinate System, Texas North Central Zone 4202 North American Datum of 1983 (NAD 83) (U.S. Foot) with a combined scale factor of 1.000146135.
- This property lies within Zone "X" Unshaded of the Flood Insurance Rate Map for Rockwall County, Texas and Incorporated Areas, map no. 48397C0040L, dated September 26, 2008, via scaled map location and graphic plotting.
- Notice: Selling a portion of this addition by metes and bounds is a violation of City subdivision ordinance and state platting statutes and is subject to fines and withholding of utilities and building certificates.
- The purpose of this plat is to add easements to an existing lot of record.
- It shall be the policy of the City of Rockwall to withhold issuing building permits until all streets, water, sewer and storm drainage systems have been accepted by the City. The approval of a plat by the City does not constitute any representation, assurance or guarantee that any building within such plat shall be approved, authorized or permit therefore issued, nor shall such approval constitute any representation, assurance or guarantee by the City of the adequacy and availability for water for personal use and fire protection within such plat, as required under Ordinance 83-54.
- Property owner shall be responsible for maintaining, repairing, and replacing all systems within the drainage and detention easements.

REPLAT
LOFLAND INDUSTRIAL
PARK ADDITION
LOT 2, BLOCK A
Being a Replat of Lot 1A-R, Block A
Lofland Industrial Park Addition,
An Addition to the City of Rockwall
As recorded in Cabinet F, Page 318,
Plat Records, Rockwall County, Texas
-- 2021 --



WINDROSE
LAND SURVEYING | PLATTING

220 ELM STREET, SUITE 200 | LEWISVILLE, TX 75057 | 214.217.2544
FIRM REGISTRATION NO. 10194331 | WINDROSESERVICES.COM

DRAWN BY: G.L.C. DATE: 03/09/2021 CHECKED BY: M.P. JOB NO.: D56412

OWNER/DEVELOPER
The Central Appraisal
District of Rockwall County
841 Justin Road,
Rockwall, Texas 75087

Point of Contact:
Grayson CeBallos
972-370-5871
grayson.ceballos@windroseservices.com
Last Revision Date: 10/04/2021

Clay Moore
ENGINEERING
1903 Central Drive Suite #406
Bedford, Texas 76021
Phone: 817-281-0572

LEGEND OF ABBREVIATIONS

- D.R.R.C.T. DEED RECORDS, ROCKWALL COUNTY, TEXAS
- O.P.R.R.C.T. OFFICIAL PUBLIC RECORDS, ROCKWALL COUNTY, TEXAS
- P.R.R.C.T. PLAT RECORDS, ROCKWALL COUNTY, TEXAS
- ROW RIGHT OF WAY
- IRS 1/2 INCH CAPPED REBAR STAMPED "WINDROSE" SET
- C.M. CONTROLLING MONUMENT

STATE OF TEXAS §
COUNTY OF ROCKWALL §

WHEREAS The Central Appraisal District of Rockwall County are the owners of a 1.608 acre tract of land situated in the B.J. Lewis Survey, Abstract Number 225, being all of Lot 1A-R, Block A of Lofland Industrial Park Addition, an addition to the City of Rockwall, as recorded in Cabinet E, Page 318, Plat Records, Rockwall County, Texas, being a tract of land described to The Central Appraisal District of Rockwall County, as recorded in Volume 1303, Page 01, Deed Records, Rockwall County, Texas and being more particularly described by metes and bounds as follows: (Bearings and Distances are based on the State Plane Coordinate System, Texas North Central Zone (4202), North American Datum of 1983 (NAD83) (US Foot) with a combined scale factor of 1.00015063);

COMMENCING from a 1/2 inch rebar found for the easternmost corner of Lot 1, Block A of Village Green Residence Addition, an addition to the City of Rockwall, as recorded in Instrument Number 20190000000728, Plat Records, Rockwall County, Texas, also being a point on the south right-of-way line of T.L. Townsend Drive (Called an 85 foot right-of-way as shown in Instrument Number 20190000000728, Plat Records, Rockwall County, Texas);

THENCE North 45 degrees 28 minutes 27 seconds West, with the south right-of-way line of said T.L. Townsend Drive, with a north line of said Lot 1, a distance of 126.84 feet to a 1/2 inch rebar found for an exterior "ell" corner of said Lot 1;

THENCE North 43 degrees 31 minutes 29 seconds West, with the south right-of-way line of said T.L. Townsend Drive, same being a north line of said Lot 1, a distance of 245.00 feet to a point for the northermost corner of said Lot 1, same being the easternmost northeast corner of Lot 1, Block A of Alders At Rockwall as recorded in Instrument Number 20190000010606, Plat Records, Rockwall County, Texas from which a 1/2 inch rebar found bears South 15 degrees 36 minutes West, a distance of 0.3 feet;

THENCE North 43 degrees 31 minutes 29 seconds West, with the south right-of-way line of said T.L. Townsend Drive, with the northeasternmost line of said second referenced Lot 1, a distance of 43.95 feet to an "X" Cut set in concrete for the easternmost corner of said Lot 1A-R, same being the easternmost northwest corner of said second referenced Lot 1 and said point being THE POINT OF BEGINNING;

THENCE South 46 degrees 08 minutes 01 seconds West, departing the south right-of-way line of said T.L. Townsend Drive, with a northwest line of said second referenced Lot 1, same being the southeastern line of said Lot 1A-R, a distance of 205.24 feet to a 1/2 inch rebar capped "WINDROSE" set for the easternmost corner of Lot 1-R, Block A of Justin Drive Professional Park, LTD, an addition to the City of Rockwall, as recorded in Cabinet E, Page 228, Plat Records Rockwall County, Texas;

THENCE North 43 degrees 42 minutes 25 seconds West, departing a north line of said second referenced Lot 1, with an east line of said Lot 1-R, a distance of 334.27 feet to a 1/2 inch rebar capped "WINDROSE" set for the northern most corner of said Lot 1-R and lying on the south right-of-way line of Justin Drive (Called a 60 foot right-of-way as shown in Cabinet E, Page 318, Plat Records, Rockwall County, Texas) and being the beginning of a curve to the right with a radius of 970.00 feet, a central angle of 07 degrees 55 minutes 40 seconds and a chord bearing and distance of North 42 degrees 08 minutes 37 seconds East, a distance of 134.11 feet;

THENCE with said curve to the right, with the east right-of-way line of said Justin Drive, an arc length of 134.22 feet to an "X" Cut set in concrete for corner;

THENCE North 46 degrees 15 minutes 02 seconds East, with the southeast right-of-way line of said Justin Drive, a distance of 71.23 feet to an "X" Cut set in concrete at the intersection of the southeast right-of-way line of said Justin Drive, same being the southwest right-of-way line of said T.L. Townsend Drive;

THENCE South 43 degrees 44 minutes 58 seconds East, with the southwest right-of-way line of said T.L. Townsend Drive, a distance of 343.46 feet to THE POINT OF BEGINNING and containing 70,055 square feet or 1.608 acres of land, more or less.

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS

I (we) the undersigned owner(s) of the land shown on this plat, and designated herein as the **Lofland Industrial Park Addition** subdivision to the City of Rockwall, Texas, and whose name is subscribed hereto, hereby dedicate to the use of the public forever all streets, alleys, parks, water courses, drains, easements and public places thereon shown on the purpose and consideration therein expressed. I (we) further certify that all other parties who have a mortgage or lien interest in the **Lofland Industrial Park Addition** subdivision 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:

- No buildings shall be constructed or placed upon, over, or across the utility easements as described herein.
- 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 easements 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.
- 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.
- The developer and subdivision engineer shall bear total responsibility for storm drain improvements.
- 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.
- 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 compiled 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 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 improvmeetns 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.

I (we) further acknowledge that the dedications and/or exaction's made herein are proportional to the impact of the Suvdivision 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.

The Central Appraisal District of Rockwall County

Authorized Representative - Signature

Printed Name

Title

Date

STATE OF TEXAS §
COUNTY OF §

BEFORE ME, the undersigned authority, a Notary Public in and for the State of Texas, on this day personally appeared _____, known to me to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that he/she executed the same for the purposes and consideration therein expressed.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this _____ day of _____ 20____.

Notary Public in and for the State of Texas

STATE OF TEXAS §
COUNTY OF DENTON §

This is to certify that I, Mark N. Peeples, a Registered Professional Land Surveyor of the State of Texas, have platted the subdivision from an actual survey on the ground, and that this plat correctly represents that survey made by me or under my direction and supervision.

Mark N. Peeples, R.P.L.S.
No. 6443

STATE OF TEXAS §
COUNTY OF DENTON §

BEFORE ME, the undersigned authority, a Notary Public in and for the State of Texas, on this day personally appeared Mark N. Peeples, 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 purposes and consideration therein expressed.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this _____ day of _____ 20____.

Notary Public in and for the State of Texas

APPROVAL:

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 ____ day of _____, 20____.

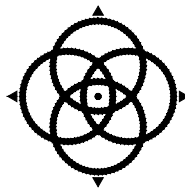
This approval shall be invalid unless the approved plat for such addition is recorded in the office of the County Clerk of Rockwall, County, Texas. Within one hundred eighty (180) days from said date of final approval.

Mayor, City of Rockwall

City Secretary

Planning and Zoning Chairman

City Engineer



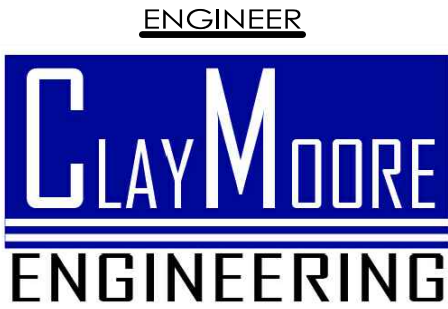
WINDROSE
LAND SURVEYING | PLATTING

220 ELM STREET, SUITE 200 | LEWISVILLE, TX 75057 | 214.217.2544
FIRM REGISTRATION NO. 10194331 | WINDROSESERVICES.COM

DRAWN BY: G.L.C. DATE: 03/09/2021 CHECKED BY: M.P. JOB NO.: D56412

Point of Contact:
Grayson CeBallos
972-370-5871

grayson.ceballos@windroseservices.com
Last Revision Date: 10/04/2021



1903 Central Drive Suite #406
Bedford, Texas 76021
Phone: 817-281-0572

OWNER/DEVELOPER

The Central Appraisal
District of Rockwall County
841 Justin Road,
Rockwall, Texas 75087

REPLAT
LOFLAND INDUSTRIAL
PARK ADDITION
LOT 2, BLOCK A

Being a Replat of Lot 1A-R, Block A
Lofland Industrial Park Addition,
An Addition to the City of Rockwall
As recorded in Cabinet F, Page 318,
Plat Records, Rockwall County, Texas

CITY CASE NO: P2021-047

-- 2021 --

PLOTTED BY: CLAY CRISTY
 PLOT DATE: 9/22/2022 4:53 PM
 LOCATION: 7/19/2022 5:53 PM
 LAST SAVED: 7/19/2022 5:53 PM

APPROVED: I HEREBY CERTIFY THAT THE ABOVE AND FOREGOING SITE PLAN FOR A DEVELOPMENT IN THE CITY OF ROCKWALL, TEXAS, WAS APPROVED BY THE PLANNING & ZONING COMMISSION OF THE CITY OF ROCKWALL ON THE _____ DAY OF _____
 WITNESS OUR HANDS, THIS _____ DAY OF _____
 DIRECTOR OF PLANNING & ZONING

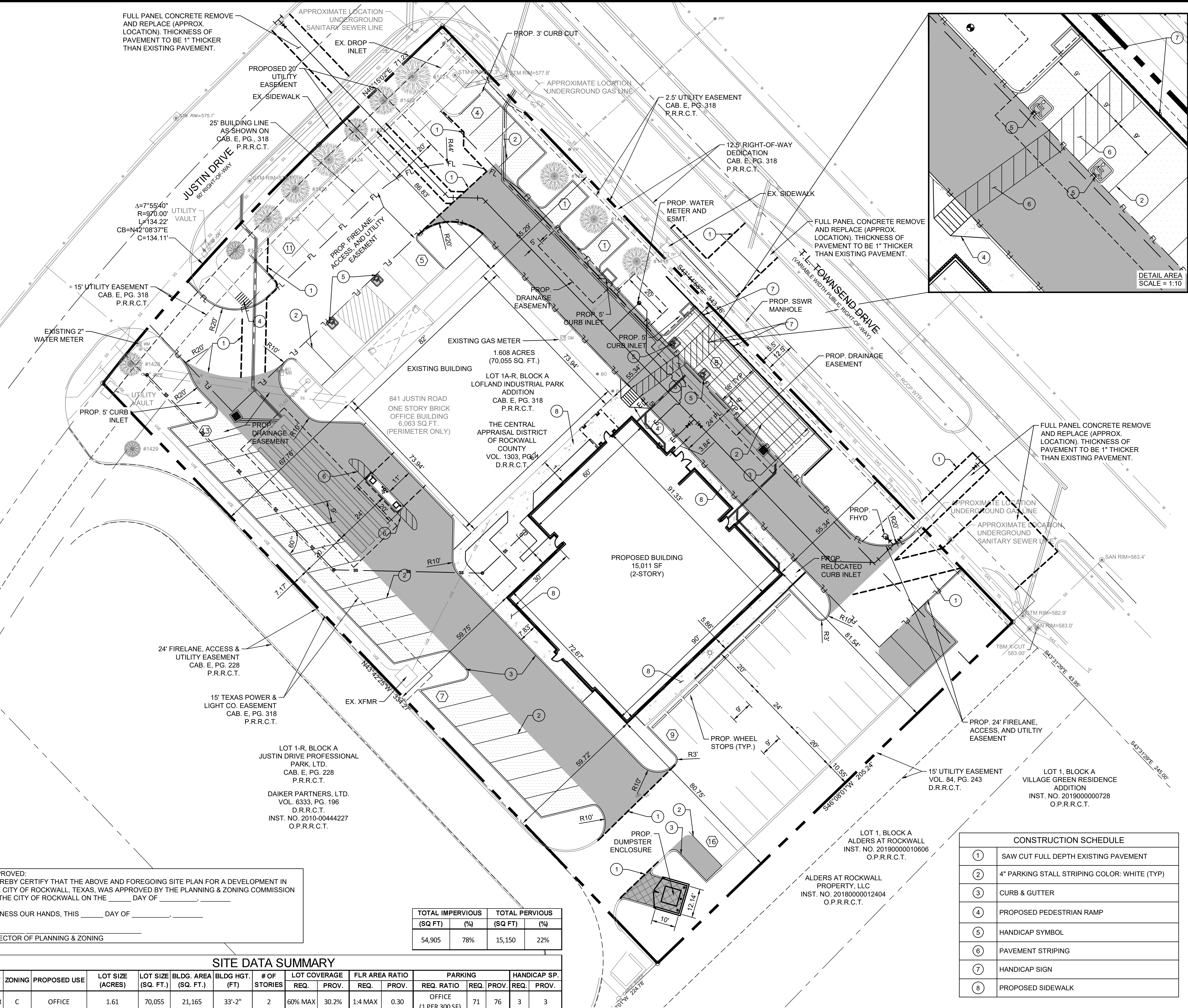
SITE DATA SUMMARY																	
LOT	ZONING	PROPOSED USE	LOT SIZE (ACRES)	LOT SIZE (SQ. FT.)	BLDG. AREA (SQ. FT.)	BLDG HGT. (FT)	# OF STORIES	LOT COVERAGE		FLR AREA RATIO		PARKING				HANDICAP SP.	
								REQ.	PROV.	REQ.	PROV.	REQ. RATIO	REQ.	PROV.	REQ.	PROV.	
1A-R	C	OFFICE	1.61	70,055	21,165	33'-2"	2	60% MAX	30.2%	1:4 MAX	0.30	OFFICE (1 PER 300 SF)		71	76	3	3

TOTAL IMPERVIOUS		TOTAL PERVIOUS	
(SQ. FT.)	(%)	(SQ. FT.)	(%)
54,905	78%	15,150	22%

CONSTRUCTION SCHEDULE	
①	SAW CUT FULL DEPTH EXISTING PAVEMENT
②	4" PARKING STALL STRIPING COLOR: WHITE (TYP)
③	CURB & GUTTER
④	PROPOSED PEDESTRIAN RAMP
⑤	HANDICAP SYMBOL
⑥	PAVEMENT STRIPING
⑦	HANDICAP SIGN
⑧	PROPOSED SIDEWALK

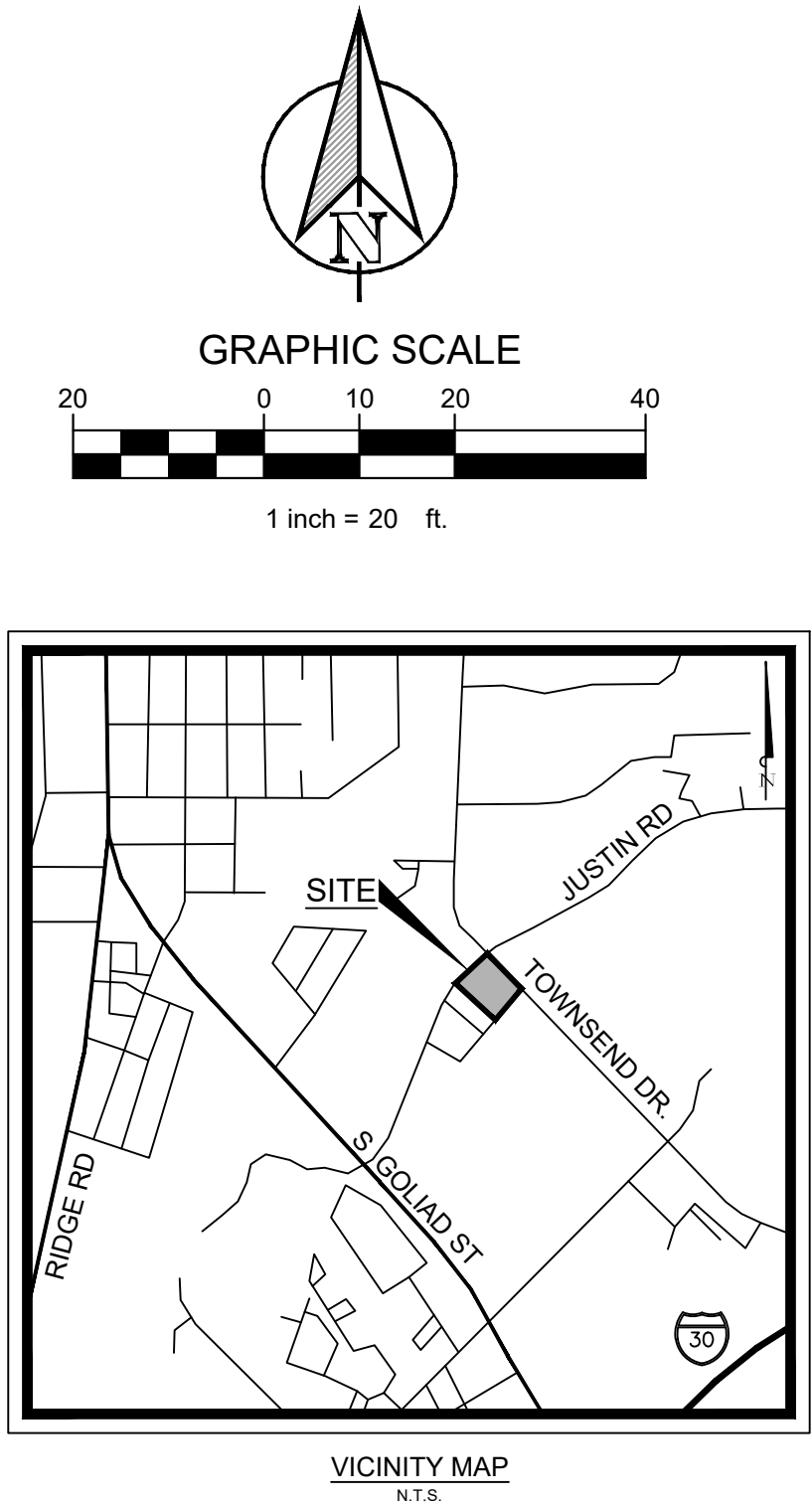
CASE # : SP2021-001		
OWNER: CENTRAL APPRAISAL DISTRICT OF ROCKWALL 841 JUSTIN ROAD ROCKWALL, TX 75087 PH: 972-771-2034		
APPLICANT: CLAYMOORE ENGINEERING, INC. 1903 CENTRAL DRIVE, SUITE #406 BEDFORD, TX 76021 PH: 817.281.0572		
CONTACT NAME: CLAY CRISTY		
LEGAL DESCRIPTION: LOT 1A-R, BLOCK A, LOFLAND INDUSTRIAL PARK ADDITION		
CITY: ROCKWALL	STATE: TEXAS	
COUNTY: ROCKWALL	SURVEY: B.J.T. LEWIS	ABSTRACT NO. 255

DESIGN: CWP	SHEET SP-1
DRAWN: CWP/SD	
CHECKED: CLC	
DATE: 3/9/2022	File No: 2020-130



LEGEND	
[Pattern]	5" STANDARD DUTY CONCRETE PAVEMENT
[Pattern]	6" HEAVY DUTY CONCRETE PAVEMENT
[Pattern]	7" DUMPSTER AREA CONCRETE PAVEMENT
[Pattern]	SIDEWALK CONCRETE PAVEMENT
[Line]	PROPOSED CONCRETE CURB AND GUTTER
[Symbol]	PARKING COUNT
[Line]	FULL-DEPTH SAWCUT
[Line]	PROPOSED FIRE LANE STRIPPING

NOTES:
 1. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
 2. REFER TO ARCHITECTURAL PLANS FOR BUILDING DIMENSIONS AND EXACT DOOR LOCATIONS.
 3. PROPERTY HAS BEEN PREVIOUSLY PLATTED.
 4. NO PROPOSED SIGNAGE ON SITE. EXISTING SIGNAGE TO BE UTILIZED.
 5. EXISTING SITE LIGHTING TO BE UTILIZED, NO ADDITIONAL ON SITE LIGHTING PROPOSED.
 6. NO EXISTING OR PROPOSED FENCING ON SITE.
 7. EXISTING STORM SYSTEM SIZED FOR FULLY DEVELOPED CONDITION ON SITE. NO DETENTION REQUIRED. REFER TO CAPITAL IMPROVEMENT PROJECT OF TOWNSEND BLVD PREPARED BY WEIR AND ASSOCIATES, INC. (DATED 7/27/07) FOR DETAILS.



TEXAS FIRM #14180
CLAYMOORE ENGINEERING
 1903 CENTRAL DRIVE, SUITE #406
 BEDFORD, TX 76021
 PHONE 817.281.0572
 WWW.CLAYMOOREENGINEERING.COM

STATE OF TEXAS
 CLAY CRISTY
 100800
 PROFESSIONAL ENGINEER
 9/22/2022

ROCKWALL CAD
814 JUSTIN ROAD
ROCKWALL, TX 75087

SITE PLAN

PLOTTED BY: CLAY CRISTY
 PLOT DATE: 7/29/2021 4:46 PM
 LOCATION: Z:\PROJECTS\PROJECTS\2020-136 ROAD ROCKWALL\CADD\SHEETS\CIVIL PLANS\C-3 CITY GENERAL NOTES.DWG
 LAST SAVED: 7/29/2021 11:37 PM

GENERAL NOTES

- ALL MATERIAL AND CONSTRUCTION SHALL CONFORM TO THE CITY'S DESIGN STANDARDS. IF NO CITY STANDARD IS APPLICABLE, MATERIAL AND CONSTRUCTION SHALL CONFORM TO THE "NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION"
- THE CONTRACTOR SHALL BE RESPONSIBLE TO FURNISH ALL MATERIALS AND LABOR TO CONSTRUCT THE FACILITY AS SHOWN AND DESCRIBED IN THE CONSTRUCTION DOCUMENTS IN ACCORDANCE WITH THE APPROPRIATE APPROVING AUTHORITIES, SPECIFICATIONS AND REQUIREMENTS. ALL WORK REQUIRED BY THESE PLANS SHALL BE CONDUCTED IN CONFORMANCE WITH CURRENT SAFETY CODES AND STANDARDS WITH JURISDICTION OVER THIS PROJECT.
- THE CONTRACTOR SHALL CONTACT ALL FRANCHISE UTILITY COMPANIES TO HAVE THEM LOCATE EXISTING UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL COORDINATE THE EXACT LOCATION AND DEPTH OF ALL FRANCHISE UTILITY SERVICES AND ANY REQUIRED RELOCATION AND/OR EXTENSIONS. SERVICES SHOWN ON THE PLANS, IF ANY, ARE CONCEPTUAL.
- THE CONTRACTOR SHALL PROTECT ALL PUBLIC AND PRIVATE UTILITIES IN THE CONSTRUCTION OF THIS PROJECT. ALL MANHOLES, CLEANOUTS, VALVE BOXES, POWER POLES, SIGNS, FIRE HYDRANTS, ETC., MUST BE ADJUSTED TO PROPER GRADE BY THE CONTRACTOR PRIOR TO AND AFTER PLACING OF PERMANENT PAVING. UTILITIES MUST BE MAINTAINED TO PROPER LINE AND GRADE DURING CONSTRUCTION OF THE PAVING FOR THIS PROJECT.
- BRACING OF UTILITY POLES MAY BE REQUIRED BY UTILITY COMPANIES WHEN TRENCHING OR EXCAVATION IS IN CLOSE PROXIMITY TO THE POLES. THE COST OF BRACING POLES WILL BE BORNE BY THE CONTRACTOR. THERE IS NO SEPARATE PAY ITEM FOR THIS WORK. THE COST IS INCIDENTAL TO THE VARIOUS PAY ITEMS FOR INSTALLATION OF PIPE.
- THE LOCATIONS, ELEVATIONS, AND DIMENSIONS OF EXISTING UTILITIES SHOWN ON THE PLANS WERE OBTAINED FROM AVAILABLE RECORDS AND ARE CONSIDERED APPROXIMATE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY LOCATIONS, ELEVATIONS, AND DIMENSIONS OF ADJACENT AND/OR CONFLICTING UTILITIES SUFFICIENTLY IN ADVANCE OF CONSTRUCTION IN ORDER THAT ADJUSTMENTS CAN BE MADE TO PROVIDE ADEQUATE CLEARANCES. THE CONTRACTOR SHALL PRESERVE AND PROTECT PUBLIC UTILITIES AT ALL TIMES DURING CONSTRUCTION. ANY DAMAGE TO UTILITIES RESULTING FROM CONTRACTOR'S OPERATIONS SHALL BE RESTORED AT THE CONTRACTOR'S EXPENSE. THE ENGINEER SHALL BE NOTIFIED WHEN PROPOSED FACILITY GRADES CONFLICT WITH EXISTING UTILITY GRADES.
- THE CONTRACTOR SHALL IMMEDIATELY REPAIR OR REPLACE ANY PHYSICAL DAMAGE TO PRIVATE PROPERTY, INCLUDING, BUT NOT LIMITED TO FENCES, WALLS, PAVEMENT, GRASS, TREES, AND LAWN SPRINKLER AND IRRIGATION SYSTEMS AT NO COST TO THE OWNER. THIS WORK SHALL BE SUBSIDIARY TO THE CONTRACT (UNLESS OTHERWISE NOTED) AND IS NOT A SEPARATE PAY ITEM.
- THE CONTRACTOR SHALL REMOVE SURPLUS MATERIAL FROM THE PROJECT AREA. THIS WORK SHALL BE SUBSIDIARY TO THE CONTRACT AND IS NOT A SEPARATE PAY ITEM.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS PRIOR TO CONSTRUCTION.
- THE CONTRACTOR SHALL HAVE AVAILABLE AT THE JOB SITE AT ALL TIMES A COPY OF THE CONTRACT DOCUMENTS INCLUDING PLANS, SPECIFICATIONS, AND SPECIAL CONDITIONS, COPIES OF ANY REQUIRED CONSTRUCTION PERMITS, EROSION CONTROL PLANS, SWPPP AND INSPECTION REPORTS.
- ANY DISCREPANCIES ON THE DRAWINGS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ARCHITECT AND ENGINEER BEFORE COMMENCING WORK. NO FIELD CHANGES OR DEVIATIONS FROM DESIGN SHALL BE MADE WITHOUT PRIOR APPROVAL OF THE OWNER AND NOTIFICATION TO THE ENGINEER. NO CONSIDERATION WILL BE GIVEN TO CHANGE ORDERS FOR WHICH THE OWNER AND ENGINEER WERE NOT CONTACTED PRIOR TO CONSTRUCTION OF THE AFFECTED ITEM.
- ALL COPIES OF COMPACTION, CONCRETE AND OTHER REQUIRED TEST RESULTS SHALL BE SENT TO THE ARCHITECT, CIVIL ENGINEER, CONTRACTOR AND OWNER DIRECTLY FROM THE TESTING AGENCY.
- ALL NECESSARY INSPECTIONS AND/OR CERTIFICATIONS REQUIRED BY CODES, JURISDICTIONAL AGENCIES AND/OR UTILITY SERVICE COMPANIES SHALL BE OBTAINED BY THE CONTRACTOR PRIOR TO BUILDING POSSESSION AND THE FINAL CONNECTION OF SERVICES.
- CONTRACTOR SHALL VERIFY BENCHMARKS AND DATUM PRIOR TO COMMENCING CONSTRUCTION OR STAKING OF IMPROVEMENTS.
- CONTRACTOR SHALL THOROUGHLY CHECK COORDINATION OF CIVIL, LANDSCAPE, MEP, ARCHITECTURAL, AND OTHER PLANS PRIOR TO COMMENCING CONSTRUCTION. OWNER AND ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCY PRIOR TO COMMENCING WITH CONSTRUCTION.
- ALL HORIZONTAL DIMENSIONS GIVEN ARE TO FACE OF CURB AND TO PIPE CENTERLINES UNLESS OTHERWISE NOTED ON PLANS.
- THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING RELOCATION AND INSTALLATION OF FRANCHISE UTILITIES NECESSARY FOR ON AND OFF SITE CONSTRUCTION. PAYMENT FOR RELOCATION AND INSTALLATION WILL BE NEGOTIATED ONCE IDENTIFIED.
- ALL CUT OR FILL SLOPES SHALL BE 4:1 OR FLATTER UNLESS OTHERWISE SHOWN.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTROL OF DUST AND DIRT RISING AND SCATTERING IN THE AIR DURING CONSTRUCTION AND SHALL PROVIDE WATER SPRINKLING OR OTHER SUITABLE METHODS OF CONTROL. THE CONTRACTOR SHALL COMPLY WITH ALL GOVERNING REGULATIONS PERTAINING TO ENVIRONMENTAL PROTECTION.
- UPON COMPLETION OF CONSTRUCTION, THE CONTRACTOR SHALL PROVIDE THE CIVIL ENGINEER A COPY OF RECORD DRAWINGS IDENTIFYING ALL DEVIATIONS OR VARIATIONS FROM THE ORIGINAL PLANS.
- CONTRACTOR SHALL GIVE NOTICE TO ALL AFFECTED PARTIES AND ALL AUTHORIZED INSPECTORS, SUPERINTENDENTS, OR PERSONS IN CHARGE OF PRIVATE AND PUBLIC UTILITIES OR RAILROADS AFFECTED BY HIS OPERATIONS, AT LEAST 48 HOURS PRIOR TO COMMENCEMENT OF WORK.
- ALL "RECORD" DIMENSIONS SHALL CONFORM TO THE DESIGN DIMENSIONS PLUS OR MINUS 0.02 FEET. ALL "RECORD" SLOPES SHALL CONFORM TO THE DESIGNED SLOPES PLUS OR MINUS 0.005 FOOT/FOOT.
- CONTRACTOR SHALL CONTACT CITY BUILDING OFFICIAL TO LEARN OF ANY UNUSUAL CONSTRUCTION SEQUENCING REQUIREMENTS THAT THE CITY MAY REQUIRE. THE CONTRACTOR IS CAUTIONED THAT THIS AND PERHAPS OTHER SUCH REQUIREMENTS MAY EXIST AND IT IS THE CONTRACTOR'S RESPONSIBILITY TO INVESTIGATE AND COMPLY WITH THEM.

PAVING AND STRIPING NOTES

- THE REINFORCED PORTLAND CEMENT CONCRETE SHOULD HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3,000 PSI AT 28 DAYS FOR STANDARD DUTY CONCRETE AND 3,600 PSI FOR MEDIUM DUTY CONCRETE AND DUMPSTER AREAS, AND A MINIMUM REINFORCING OF #3 BARS @ 18" O.C.E.W. AND SHALL STRICTLY ADHERE TO DETAILS INCLUDED IN THIS SET. A BASE SUB-GRADE PER THE GEOTECHNICAL REPORT IS REQUIRED BENEATH ALL PAVING.
- TESTING OF MATERIALS REQUIRED FOR THE CONSTRUCTION OF THE PAVING IMPROVEMENTS SHALL BE PERFORMED BY AN AGENCY, APPROVED BY THE OWNER, FOR TESTING MATERIALS. PROCUREMENT OF THE TESTING LABORATORY AND THE PAYMENT OF SUCH TESTING SERVICES SHALL BE MADE BY THE OWNER. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ENSURE, BY THE STANDARD TESTING PROCEDURES, THAT THE WORK CONSTRUCTED MEETS THE REQUIREMENTS OF THE CITY AND PROJECT SPECIFICATIONS.
- ALL SIGNS, PAVEMENT MARKINGS, AND OTHER TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES"
- THE CONTRACTOR SHALL REVIEW LOCATION OF ALL TRAFFIC CONTROL DEVICES WITH THE OWNER PRIOR TO INSTALLATION.
- SEE M.E.P. PLANS FOR LOCATION OF PROPOSED SLEEVING AND CONDUITS.
- ALL HANDICAP RAMPING, STRIPING, AND PAVEMENT MARKINGS SHALL CONFORM TO THE MOST RECENT VERSION OF THE AMERICANS WITH DISABILITIES ACT OF 1994 AND THE TEXAS ARCHITECTURAL BARRIERS ACT OF 1994, AND ALL ADDENDUMS OR UPDATES.
- CONTRACTOR SHALL SUBMIT A PAVEMENT JOINTING PLAN TO THE ENGINEER AND OWNER PRIOR TO THE BEGINNING OF ANY CONCRETE PAVING WORK.
- ANY EXISTING CONCRETE OR ASPHALT SHOWN TO BE REMOVED SHALL BE PROPERLY DISPOSED OF BY THE CONTRACTOR OFF SITE. THIS WORK SHALL BE SUBSIDIARY TO THE CONTRACT AND IS NOT A SEPARATE PAY ITEM.
- CONSTRUCTION JOINTS SHALL BE REQUIRED AT INTERRUPTIONS OF PAVING OPERATIONS SUCH AS THOSE OCCURRING AT THE END OF THE DAY OR DUE TO WEATHER OR EQUIPMENT BREAKDOWN. PLACE AT LONGITUDINAL CONSTRUCTION OR ISOLATION JOINT LOCATIONS.
- CONTRACTOR TO INSTALL CONSTRUCTION JOINTS IN CONCRETE PAVEMENT AT ALL PCS AND AS CONVENIENT TO PHASING OF POURS. CONCRETE PAVEMENT TO BE CONSTRUCTED WITH ISOLATION JOINTS AROUND THE PERIMETER OF ANY BLOCK OUT IN PAVEMENT AND SAWED DUMMY JOINTS EVERY 12' IN BOTH DIRECTIONS.
- ALL JOINTS ARE TO CONTINUE THROUGH THE CURB.
- RADIAL JOINTS SHALL BE NO SHORTER THAN 24".
- ALL CONSTRUCTION JOINTS SHALL BE SAWED, CLEANED OF DEBRIS, BLOWN DRY AND IMMEDIATELY SEALED WITH HOT POURED RUBBER JOINT SEALING COMPOUND.
- NO SAND ALLOWED UNDERNEATH PAVING.

STORM SEWER NOTES

- CONTRACTOR SHALL FIELD VERIFY THE VERTICAL AND HORIZONTAL LOCATIONS OF ALL EXISTING UTILITIES PRIOR TO START OF CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND CONSTRUCTION MANAGER IMMEDIATELY IF A CONFLICT IS DISCOVERED.
- CONTRACTOR SHALL VERIFY AND COORDINATE ALL DIMENSIONS SHOWN, INCLUDING THE HORIZONTAL AND VERTICAL LOCATION OF CURB INLETS, GRATE INLETS, AND ALL UTILITIES CROSSING THE STORM SEWER. FLOW LINES AND RIMS OF PROPOSED INLETS SHALL BE VERIFIED WITH THE PROPOSED GRADE PRIOR TO CONSTRUCTION.
- THE END OF ALL STORM SEWER LATERALS THAT CONNECT TO WORK BY PLUMBER SHALL BE TIGHTLY PLUGGED OR CAPPED AND MARKED 5.0 FEET OUTSIDE THE BUILDING UNTIL FINAL CONNECTIONS ARE MADE BY PLUMBING CONTRACTOR.
- THE SITE UTILITY CONTRACTOR SHALL PROVIDE ALL MATERIALS AND APPURTENANCES NECESSARY FOR COMPLETE INSTALLATION OF THE STORM SEWER.
- CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL CONSTRUCTION PERMITS.
- THE GENERAL CONTRACTOR AND ALL SUBCONTRACTORS SHALL VERIFY THE SUITABILITY OF ALL EXISTING AND PROPOSED SITE CONDITIONS INCLUDING GRADES AND DIMENSIONS BEFORE COMMENCEMENT OF CONSTRUCTION. THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES.
- EXISTING MANHOLE TOPS AND ALL OTHER DRAINAGE FACILITIES SHALL BE ADJUSTED AS REQUIRED TO MATCH FINAL GRADES AS SHOWN ON GRADING PLAN. NO SEPARATE PAY ITEM.
- ALL RCP SHALL BE CLASS 3 OR APPROVED EQUAL.

STORM SEWER DISCHARGE AUTHORIZATION

- IF THE TOTAL DISTURBED AREA EXCEEDS ONE (1) ACRE A NOTICE OF INTENT (N.O.I.) SHALL BE SUBMITTED BY THE CONTRACTOR TO THE TCEQ NO LESS THAN 48 HOURS PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES.
- ALL CONTRACTORS AND SUBCONTRACTORS PROVIDING SERVICES RELATED TO THE SWPPP SHALL SIGN A CONTRACTOR CERTIFICATION STATEMENT ACKNOWLEDGING THEIR RESPONSIBILITIES AS SPECIFIED IN THE SWPPP.
- A COPY OF THE SWPPP, INCLUDING CONTRACTOR CERTIFICATIONS AND ANY REVISIONS, SHALL BE SUBMITTED TO THE CITY AND FILED WITH THE CONSTRUCTION PLANS, AND SHALL BE RETAINED ON-SITE DURING CONSTRUCTION.
- A NOTICE OF TERMINATION (N.O.T.) SHALL BE SUBMITTED TO THE TCEQ BY THE CONTRACTOR WHEN THE SITE HAS 100% OF THE DISTURBED AREAS STABILIZED AND THE SITE NO LONGER HAS STORM WATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITIES (CONSTRUCTION), OR THE N.O.T. PERMITTEE OR CO-PERMITTEE NO LONGER HOLDS OPERATIONAL CONTROL OF THE CONSTRUCTION.

WATER NOTES

- EXISTING UTILITY DATA IS PROVIDED FOR INFORMATION ONLY. ALTHOUGH THIS DATA IS SHOWN AS ACCURATELY AS POSSIBLE, THE CONTRACTOR IS CAUTIONED THAT THE DEVELOPER AND THE ENGINEER NEITHER ASSUMES NOR IMPLIES ANY RESPONSIBILITY FOR THE ACCURACY OF THIS DATA.
- THE CONTRACTOR IS TO VERIFY LOCATION AND ELEVATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION.
- HORIZONTAL AND VERTICAL BLOCKING FOR WATER LINES HAS BEEN OMITTED FOR CLARITY. HOWEVER, BLOCKING SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY STANDARDS AND SPECIFICATIONS.
- TRENCHES WHICH LAY OUTSIDE EXISTING OR FUTURE PAVEMENTS SHALL BE BACK FILLED ABOVE THE TOP OF THE EMBEDMENT WITH TYPE 'C' BACKFILL MATERIALS. WHEN TYPE 'C' BACKFILL MATERIAL IS NOT SUITABLE AND AT THE DIRECTION OF THE ENGINEER TYPE 'B' MATERIAL SHALL BE USED. ALL BACKFILL MATERIAL SHALL BE COMPACTED TO A MINIMUM OF 95% PROCTOR DENSITY BY MEANS OF TAMPING ONLY. TRENCHES WHICH CROSS UNDER EXISTING OR FUTURE PAVEMENT SHALL BE BACK FILLED PER FIGURE 'A' WITH 95% PROCTOR STANDARD DENSITY OF -2, +4 OF OPTIMUM MOISTURE CONTENT.
- TOP OF WATER LINES SHALL BE A MINIMUM OF 42" BELOW TOP OF CURB EXCEPT WHERE SHOWN OTHERWISE IN THESE PLANS.
- FIRE HYDRANTS SHALL BE A MINIMUM 3' BEHIND THE FACE OF THE CURB UNLESS OTHERWISE DIRECTED BY THE CITY. FIRE HYDRANTS AND VALVES AS SHOWN ON THESE PLANS ARE SYMBOLIC ONLY.
- CORPORATION STOPS SHALL BE TESTED FOR FULL FLOW WHEN THE SYSTEM IS PRESSURE TESTED.
- ALL NEW WATER MAINS SHALL BE FULLY PURGED.
- ALL 6", 8", 10" & 12" WATER MAINS SHALL BE PVC AWWA C900, DR-14. ALL WATER MAINS USING POLY-WRAPPED DUCTILE IRON PIPE SHALL BE CLASS 51.
- FITTINGS SHALL BE DUCTILE IRON AND MECHANICAL JOINT TYPE, WITH "COR-BLUE" BOLTS AND SHALL BE CLASS 250.

SANITARY SEWER NOTES

- EXISTING UTILITY DATA IS PROVIDED FOR INFORMATION ONLY. ALTHOUGH THIS DATA IS SHOWN AS ACCURATELY AS POSSIBLE, THE CONTRACTOR IS CAUTIONED THAT THE DEVELOPER AND THE ENGINEER NEITHER ASSUMES NOR IMPLIES ANY RESPONSIBILITY FOR THE ACCURACY OF THIS DATA.
- THE CONTRACTOR IS TO VERIFY LOCATION AND ELEVATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION.
- TRENCHES WHICH LIE OUTSIDE EXISTING PAVEMENTS SHALL BE BACKFILLED ABOVE THE TOP OF THE EMBEDMENT WITH TYPE "C" BACKFILL MATERIAL. WHEN TYPE "C" BACKFILL MATERIAL IS NOT SUITABLE AND AT THE DIRECTION OF THE ENGINEER, TYPE "B" MATERIAL SHALL BE USED. ALL BACKFILL MATERIAL SHALL BE COMPACTED TO A MINIMUM OF 90% OF THE MAXIMUM DRY DENSITY BY MEANS OF TAMPING ONLY. TRENCHES THAT CROSS UNDER EXISTING OR FUTURE PAVEMENT SHALL BE BACKFILLED AND COMPACTED TO A MINIMUM OF 95% OF THE MAXIMUM DRY DENSITY WITH MOISTURE CONTENT-2 AND +4% OF OPTIMUM MOISTURE CONTENT.
- TYPICAL LOCATION OF SANITARY SEWER PIPE SHALL BE A MINIMUM OF 4'-0" BELOW TOP OF CURB EXCEPT WHERE SHOWN OTHERWISE IN THESE PLANS.
- ALL FLEXIBLE SANITARY SEWER MAINS SHALL BE TESTED WITH STANDARD 5% DEFLECTION MANDREL.
- ALL SANITARY SEWER LINES SHALL BE CAPPED WITH AN APPROPRIATE CAP AT THE END OF EACH WORKDAY.
- WHEN EXISTING GRADES ARE LOWER THAN PROPOSED MAINS, THE FILL AREA OVER THE PIPE SHALL BE FILLED AND COMPACTED TO A MINIMUM OF 95% OF THE MAXIMUM DRY DENSITY TO THE PROPOSED FINISHED GRADE PRIOR TO INSTALLING ANY MAIN.
- ALL SEWER SERVICES SHALL BE CONSTRUCTED OF SDR-35 PIPE.

TRAFFIC CONTROL NOTES

- CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL PLANS TO THE OWNER, AT LEAST 48 HOURS PRIOR TO CONSTRUCTION ACTIVITY.
- ALL TRAFFIC CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD), LATEST VERSION.
- THE CONTRACTOR SHALL COVER EXISTING SIGNS AND OBLITERATE EXISTING PAVEMENT MARKINGS THAT CONFLICT WITH THE INTENT OF THESE TRAFFIC CONTROL PLANS TO AVOID CONFUSION TO THE TRAVELING PUBLIC.
- THE CONTRACTOR SHALL UNCOVER EXISTING SIGNS AND REPLACE PAVEMENT MARKINGS IN-KIND AS ORIGINALLY CONFIGURED AT THE END OF THE CONSTRUCTION OPERATIONS AND PRIOR TO FINAL ACCEPTANCE BY THE OWNER.
- ALL TEMPORARY SIGNS, BARRICADES, WARNING LIGHTS AND OTHER MISCELLANEOUS TRAFFIC CONTROL MEASURES SHALL BE REMOVED AND ORIGINAL TRAFFIC CONTROL MEASURES REPLACED AT THE END OF THE CONTRACTOR'S CONSTRUCTION OPERATIONS.

EROSION CONTROL NOTES

- THE CONTRACTOR SHALL COMPLY WITH ALL FEDERAL, STATE, AND LOCAL EROSION, CONSERVATION, AND SILTATION ORDINANCES. THE CONTRACTOR SHALL USE SEDIMENT FILTERS OR OTHER MEASURES APPROVED BY THE ENGINEER AND CONSTRUCTION MANAGER TO PREVENT SILT AND CONSTRUCTION DEBRIS FROM CLOGGING STORM SEWER PIPES OR PROPOSED OR EXISTING INLETS, OR FROM BEING TRANSPORTED TO ADJACENT PROPERTIES AND STREET RIGHT-OF-WAYS. ALL EROSION CONTROL DEVICES SHALL BE INSTALLED PRIOR TO SITE DISTURBANCE AND SHALL REMAIN IN PLACE UNTIL FINAL GRADING AND PAVING IS COMPLETE AND PERMANENT SOIL STABILIZATION IS ACHIEVED.
- CONSTRUCTION OPERATIONS SHALL BE MANAGED SO THAT AS MUCH OF THE SITE AS POSSIBLE IS LEFT COVERED WITH EXISTING TOPSOIL AND VEGETATION.
- ALL SLOPES AND AREAS DISTURBED BY CONSTRUCTION SHALL BE GRADED SMOOTH. THE AREAS SHALL THEN BE SEEDED (OR SODDED), IRRIGATED, AND MAINTAINED UNTIL PERMANENT STAND OF GRASS IS ACHIEVED WITH A MINIMUM OF 70% COVERAGE. UNLESS OTHERWISE NOTED, PRIVATE LAWN AREAS AND PARKWAYS IN FRONT OF PRIVATE LAWN AREAS DISTURBED BY CONSTRUCTION SHALL BE REPLACED WITH BLOCK SOD SIMILAR TO THAT EXISTING.
- CONTRACTOR SHALL CONSTRUCT A STABILIZED CONSTRUCTION ENTRANCE AT ALL PRIMARY POINTS OF ACCESS. CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ALL CONSTRUCTION TRAFFIC UTILIZES THE STABILIZED ENTRANCE AT ALL TIMES FOR INGRESS/EGRESS TO THE SITE.
- CONSTRUCTION ENTRANCE:
 - MINIMUM SIZE STONE: 4-6 INCHES DIAMETER
 - THICKNESS: NOT LESS THAN 12-INCHES
 - LENGTH: 50-FEET MINIMUM
 - WIDTH: NOT LESS THAN 20-FEET MINIMUM OF ALL POINTS OF INGRESS AND EGRESS.
 - MAINTENANCE REQUIREMENTS: AS NECESSARY TO PREVENT TRACKING OR FLOWING MUD INTO PUBLIC RIGHT-OF-WAY OR PARKING AREAS.

- SITE ENTRY AND EXIT LOCATIONS SHALL BE MAINTAINED IN A CONDITION WHICH SHALL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC ROADWAYS. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ON A PUBLIC ROADWAY SHALL BE REMOVED IMMEDIATELY. WHEN WASHING IS REQUIRED TO REMOVE SEDIMENT PRIOR TO ENTRANCE TO A PUBLIC ROADWAY, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE WHICH DRAINS INTO AN APPROVED SEDIMENT BASIN. ALL FINES IMPOSED FOR TRACKING ONTO PUBLIC ROADS SHALL BE PAID BY THE CONTRACTOR.
- CONTRACTOR IS RESPONSIBLE FOR PROPER MAINTENANCE OF THE REQUIRED EROSION CONTROL DEVICES THROUGHOUT THE ENTIRE CONSTRUCTION PROCESS. EROSION CONTROLS SHALL BE REPAIRED OR REPLACED AS INSPECTION DEEMS NECESSARY, OR AS DIRECTED BY THE OWNER'S REPRESENTATIVE. ACCUMULATED SILT IN ANY EROSION CONTROL DEVICE SHALL BE REMOVED AND SHALL BE DISTRIBUTED ON SITE IN A MANNER NOT CONTRIBUTING TO ADDITIONAL SILTATION. THE CONTRACTOR IS RESPONSIBLE FOR RE-ESTABLISHING ANY EROSION CONTROL DEVICE WHICH IS DISTURBED.
- THE CONTRACTOR SHALL MAINTAIN ADEQUATE SITE DRAINAGE DURING ALL PHASES OF CONSTRUCTION. THE CONTRACTOR SHALL USE FILTER BARRIER (OR OTHER METHOD APPROVED BY THE ENGINEER AND CITY) AS REQUIRED TO PREVENT ADVERSE OFF SITE IMPACTS OR STORM WATER QUALITY FROM SILT AND CONSTRUCTION DEBRIS FLOWING ONTO ADJACENT PROPERTIES AS REQUIRED BY THE CITY.
- BEFORE ANY EARTHWORK IS DONE, THE CONTRACTOR SHALL STAKE OUT AND MARK THE LIMITS OF CONSTRUCTION AND OTHER ITEMS ESTABLISHED BY THE PLANS. THE CONTRACTOR SHALL PROTECT AND PRESERVE CONTROL POINTS AT ALL TIMES DURING THE COURSE OF THE PROJECT. THE GRADING CONTRACTOR SHALL PROVIDE ALL NECESSARY ENGINEERING AND SURVEYING FOR LINE AND GRADE CONTROL POINTS RELATED TO EARTHWORK.
- CONTRACTOR STAGING AREA TO BE AGREED UPON BY OWNER PRIOR TO BEGINNING CONSTRUCTION.
- THE CONTRACTOR MUST REVIEW AND MAINTAIN A COPY OF THE STORM WATER POLLUTION PREVENTION PLAN WITH ALL CONDITIONS, ATTACHMENTS, EXHIBITS, AND PERMIT MODIFICATIONS IN GOOD CONDITION AT THE CONSTRUCTION SITE. THE COMPLETE PERMIT MUST BE AVAILABLE FOR REVIEW UPON REQUEST BY THE T.C.E.Q. OR THE GOVERNING CITY.

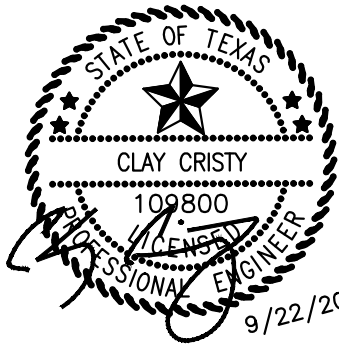
GRADING NOTES

- IF A GRADING PERMIT IS REQUIRED FROM THE CITY PRIOR TO STARTING CONSTRUCTION, CONTRACTOR IS RESPONSIBLE FOR OBTAINING PERMIT AND PAYING ALL ASSOCIATED FEES.
- CONTRACTOR SHALL FIELD VERIFY HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR PROTECTING EXISTING UTILITIES (SHOWN OR NOT SHOWN) WITHIN SCOPE OF CONSTRUCTION. IF ANY EXISTING UTILITIES ARE DAMAGED, THE CONTRACTOR SHALL REPLACE THEM AT HIS OWN EXPENSE.
- ALL SPOT ELEVATIONS SHOWN ARE TO TOP OF PAVING SURFACE OR FINISHED EARTH GRADE UNLESS NOTED OTHERWISE.
- CONTRACTOR TO ENSURE POSITIVE DRAINAGE FROM THE EXISTING AND PROPOSED BUILDINGS AND NO PONDING IN PAVED AREAS. CONTRACTOR ADJUSTMENTS TO SPOT GRADES TO MAINTAIN POSITIVE DRAINAGE IS ALLOWED WITH THE PRIOR APPROVAL OF THE ENGINEER. CONTRACTOR SHALL CONTACT THE ENGINEER PRIOR TO PAVING IF ANY AREAS OF POOR DRAINAGE ARE ENCOUNTERED.
- THE CONTRACTOR SHALL PROTECT ALL MANHOLE COVERS, VALVE COVERS, VAULT LIDS, FIRE HYDRANTS, POWER POLES, GUY WIRES, AND TELEPHONE BOXES WHICH ARE TO REMAIN IN PLACE AND UNDISTURBED DURING CONSTRUCTION.
- ALL EXISTING CONCRETE PAVING, CHANNEL IMPROVEMENTS, SIDEWALK, STRUCTURES AND CURB DEMOLITION SHALL BE REMOVED IN THE ENTIRETY AND DISPOSED OF BY THE CONTRACTOR, OFFSITE UNLESS OTHERWISE DIRECTED BY THE OWNER OR ENGINEER.
- ALL CLEARING, GRADING, COMPACTION AND SUBGRADE PREPARATION SHALL BE IN ACCORDANCE TO THE GEOTECHNICAL REPORT.
- GRADING CONTRACTOR TO COORDINATE WITH THE FRANCHISE UTILITY COMPANIES FOR ANY REQUIRED UTILITY ADJUSTMENTS AND/OR RELOCATIONS.
- THE CONTRACTOR SHALL CALCULATE HIS OWN EARTHWORK QUANTITIES AND USE TO DETERMINE HIS BID ACCORDINGLY.
- BEFORE PLACING PAVEMENT, CONTRACTOR SHALL VERIFY THAT SUITABLE HANDICAPPED ROUTES (PER A.D.A. & T.A.S) EXIST TO AND FROM EVERY DOOR. IN NO CASE SHALL HANDICAP RAMP SLOPES EXCEED 1 VERTICAL TO 12 HORIZONTAL. IN NO CASE SHALL SIDEWALK CROSS SLOPES EXCEED 2.0 PERCENT. IN NO CASE SHALL LONGITUDINAL SIDEWALK SLOPES EXCEED 5.0 PERCENT. CONTRACTOR SHALL CONTACT ENGINEER PRIOR TO PAVING IF ANY EXCESSIVE SLOPES ARE ENCOUNTERED. NO CONTRACTOR CHANGE ORDERS WILL BE ACCEPTED FOR A.D.A. AND T.A.S. COMPLIANCE ISSUES.

TEXAS FIRM #141189



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ROCKWALL CAD
 814 JUSTIN ROAD
 ROCKWALL, TX 75087

No.	DATE	GRADING AND UTILITIES		BY
		REVISION		

GENERAL NOTES

DESIGN: CWP
 DRAWN: CWP/PSD
 CHECKED: CLC
 DATE: 7/29/2021

SHEET

C-1

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.

File No: 2020-136

PLOTTED BY: CLAY CRISTY
PLOT DATE: 9/29/2025 5:05 PM
LOCATION: Z:\PROJECTS\PROJECTS\2020-136 ROAD ROCKWALL\CADD\SHEETS\CIVIL PLANS\C-3 CITY GENERAL NOTES.DWG
LAST SAVED: 7/29/2021 11:37 PM

GENERAL ITEMS

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

EROSION CONTROL & VEGETATION

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

- removed from the surface by shoveling or sweeping and transported to a sediment disposal area. Pavement washing shall be allowed only after sediment is removed in this manner.
- All drainage inlets shall be protected from siltation, ineffective or unmaintained protection devices shall be immediately replaced and the inlet and storm system cleaned. Flushing is not an acceptable method of cleaning.
 - During all dewatering operations, water shall be pumped into an approved filtering device prior to discharge into a receiving outlet.

TRAFFIC CONTROL

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

UTILITY LINE LOCATES


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

WATER LINE NOTES

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

WASTEWATER LINE NOTES

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

	GENERAL CONSTRUCTION NOTES	
	Sheet 1 of 2	
	October 2020	
	CITY OF ROCKWALL ENGINEERING DEPARTMENT	
	385 S. Goliad Rockwall, Texas 75087	P (972) 771-7746 F (972) 771-7748

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ADEQUACY OR ACCURACY OF DESIGN.



ROCKWALL CAD
814 JUSTIN ROAD
ROCKWALL, TX 75087

REVISION		DATE	BY
NO.	DESCRIPTION		

CITY GENERAL NOTES

DESIGN: CWP
DRAWN: CWP/SD
CHECKED: CLC
DATE: 7/29/2021

SHEET

C-2

File No: 2020-136

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

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

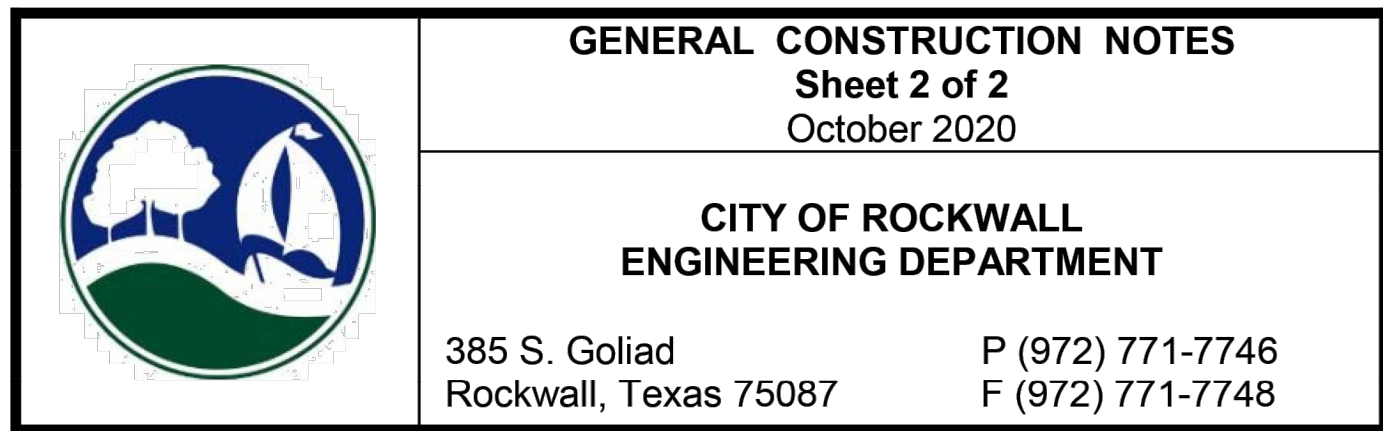
Arterial	10"	3,600	6.0	6.5	#4 bars	18"
Collector	8"	3,600	6.0	6.5	#4 bars	18"
Residential	6"	3,600	6.0	6.5	#3 bars	24"
Alley	7"-5"-7"	3,600	6.0	6.5	#3 bars	24"
Fire Lane	6"	3,600	6.0	6.5	#3 bars	24"
Driveways	6"	3,600	6.0	6.5	#3 bars	24"
Barrier Free Ramps	6"	3,600	N/A	6.5	#3 bars	24"
Sidewalks	4"	3,000	N/A	5.5	#3 bars	24"
Parking Lot/Drive Aisles	5"	3,000	5.0	5.5	#3 bars	24"
Dumpster Pads	7"	3,600	6.0	6.5	#3 bars	24"

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

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

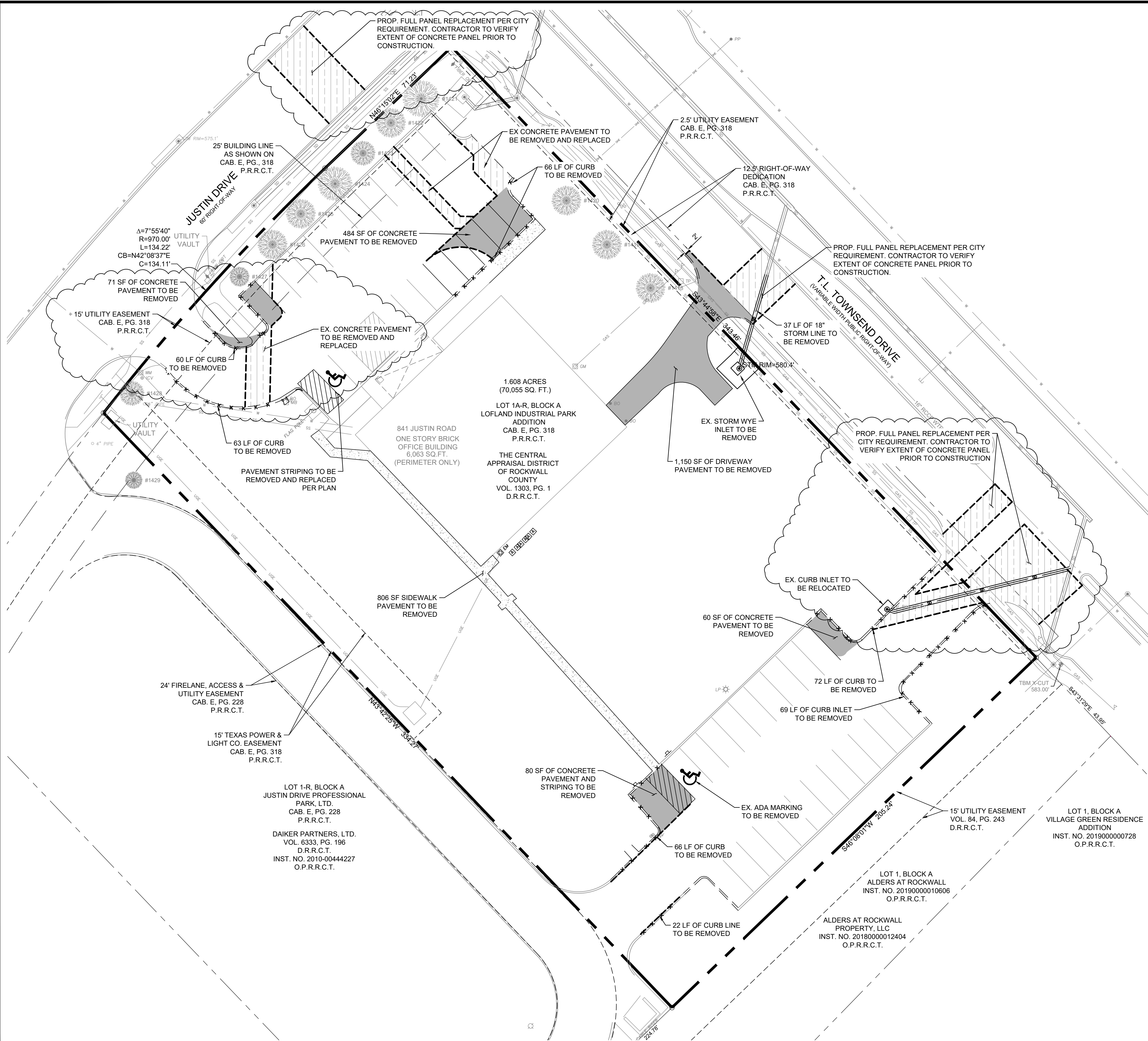
1. All retaining walls, regardless of height, will be reviewed and approved by the City Engineering Department.
2. All retaining walls (including foundation stem walls), regardless of height, will be constructed of rock/stone/brick or rock/stone/brick faced. No smooth concrete walls are allowed. Wall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

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



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PLOTTED BY: CLAY CRISTY
PLOT DATE: 9/22/2025 4:46 PM
LOCATION: Z:\PROJECTS\PROJECTS\2020-136 ROAD ROCKWALL\CADD\SHEETS\CIVIL PLANS\C-4 DEMOLITION PLAN.DWG
LAST SAVED: 7/29/2021 10:09 AM



LEGEND

	EXISTING CONCRETE PAVEMENT TO BE REMOVED
	EXISTING SIDEWALK TO BE REMOVED
	REMOVE AND REPLACE CONCRETE PAVEMENT FOR UTILITY INSTALLATION
	FULL-DEPTH SAWCUT
	EXISTING CURB TO BE REMOVED

GENERAL NOTES:

- THE LOCATION OF ALL EXISTING UTILITIES WERE OBTAINED FROM AVAILABLE INFORMATION. THE CONTRACTOR SHALL VERIFY EXACT LOCATION AND DEPTH OF UTILITY PRIOR TO BEGINNING CONSTRUCTION. CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
- ANY DISCREPANCIES IN THIS PLAN AND ACTUAL FIELD CONDITIONS SHALL BE REPORTED TO THE OWNER AND ENGINEER PRIOR TO THE START OF CONSTRUCTION.
- PRIOR TO STARTING CONSTRUCTION, THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY THAT ALL REQUIRED PERMITS AND APPROVALS HAVE BEEN OBTAINED. NO CONSTRUCTION SHALL BEGIN UNTIL ALL PERMITS HAVE BEEN RECEIVED.
- CONTRACTOR SHALL MAINTAIN THE SITE IN A MANNER SO THAT WORKERS AND PUBLIC SHALL BE PROTECTED FROM INJURY, AND ADJOINING PROPERTY PROTECTED FROM DAMAGE.
- CONTRACTOR SHALL REPAIR ANY DAMAGE DONE TO PRIVATE OR PUBLIC PROPERTY.
- CONTRACTOR TO ENSURE COMPLIANCE WITH ANY AND ALL LAND DISTURBANCE NOTIFICATIONS REQUIREMENTS, AND THAT ALL REQUIRED EROSION CONTROL MEASURES ARE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE STATE, LOCAL, OR FEDERAL REQUIREMENTS.
- CONTRACTOR TO PROVIDE PROPER NOTIFICATION TO UTILITY COMPANIES PRIOR TO REMOVAL OF ANY UTILITY LINES
- CONTRACTOR IS RESPONSIBLE FOR THE PROPER CITY, STATE, OR FEDERAL NOTIFICATIONS AND/OR FEES ASSOCIATED WITH THE DEMOLITION PRIOR TO COMMENCING.
- CONTRACTOR TO PROPERLY DISPOSE OF ALL DEMOLISHED MATERIAL OFF OF THE SITE.
- IF NOT SHOWN ON THE DEMOLITION DRAWINGS, THE CONTRACTOR SHALL REMOVE ALL EXISTING MATERIALS AS NECESSARY TO COMPLETE ALL NEW WORK AS REQUIRED BY OTHER PORTIONS OF THE CONTRACT DOCUMENTS.
- SALVAGE RIGHTS FOR ALL DEMOLISHED MATERIALS SHALL BE FIRST GIVEN TO THE OWNER. ANY MATERIALS NOT RETAINED BY THE OWNER SHALL BE REMOVED FROM THE SITE AND DISPOSED OF BY THE CONTRACTOR AT THE CONTRACTORS EXPENSE.
- THE CONTRACTOR IS RESPONSIBLE TO COMPLY WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS IN THE REMOVAL/DEMOLITION OF HAZARDOUS MATERIALS.
- CONTRACTOR IS RESPONSIBLE FOR ALL REGISTRATIONS, PERMITS AND FEES REQUIRED TO REMOVE & PROPERLY DISPOSE OF ALL DEMOLITION MATERIALS.
- DEMO CONTRACTOR IS RESPONSIBLE FOR OBTAINING APPROVALS AND NOTIFICATIONS TO ALL LOCAL, STATE AND FEDERAL AUTHORITIES.
- CONTRACTOR SHALL COORDINATE AND ASSUME ANY FEES ASSOCIATED WITH REMOVAL OF UTILITIES. ALL ABANDONED UTILITIES TO BE REMOVED & CAPPED.
- REFER TO SURVEY FOR LIMITS AND BOUNDARY OF PROPERTY.
- CONTRACTOR SHALL PROMPTLY REPAIR DAMAGES TO ADJACENT FACILITIES CAUSED BY DEMOLITION OPERATIONS.

UTILITY LOCATION NOTE:
THE LOCATION OF EXISTING UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE AND BASED ON EXISTING PLANS AND DATA FURNISHED BY UTILITY COMPANIES. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES THAT MAY CONFLICT WITH CONSTRUCTION. CALL 1-800-344-8377 TWO WORKING DAYS PRIOR TO CONSTRUCTION FOR ON-SITE LOCATIONS. ANY DAMAGE TO EXISTING UTILITIES SHALL BE REPAIRED AT CONTRACTORS EXPENSE, AT NO ADDITIONAL COST.

TBM #1 - ELEV. 583.00
AN "X" CUT SET ON CONCRETE CURB INLET LOCATED WITHIN T.L. TOWNSEND DRIVE (VARIABLE WIDTH) RIGHT-OF-WAY, APPROXIMATELY 3' EAST AND 0' SOUTH FROM A SANITARY SEWER MANHOLE LOCATED NEAR THE EASTERNMOST CORNER OF THE SUBJECT PROPERTY.

TBM #2 - ELEV. 575.63
AN "X" CUT SET ON CONCRETE LOCATED WITHIN JUSTIN DRIVE (60 FOOT PUBLIC RIGHT-OF-WAY), LOCATED APPROXIMATELY 143' WEST AND 96' SOUTH OF A STORM SEWER MANHOLE LOCATED ON A CONCRETE CURB INLET ALONG THE SOUTHEAST SIDE OF SAID JUSTIN ROAD.

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.

TEXAS FIRM #14199
CLAY MOORE
ENGINEERING
PHONE: 972.261.0072
1980 CENTRAL DR., SUITE #400
ROCKWALL, TX 75087
WWW.CLMOOREENGINEERING.COM

ROCKWALL CAD
814 JUSTIN ROAD
ROCKWALL, TX 75087

No.	DATE	REVISION		BY
		GRADE AND UTILITIES		

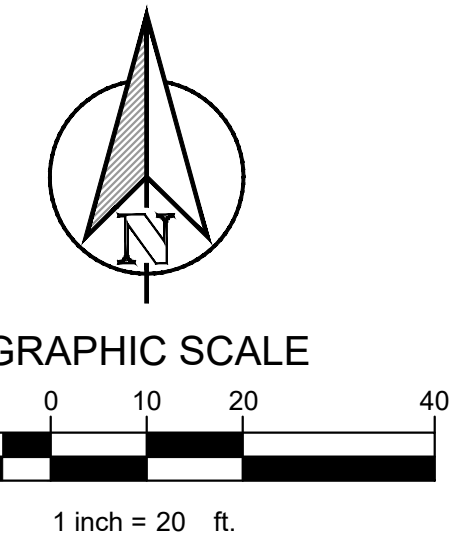
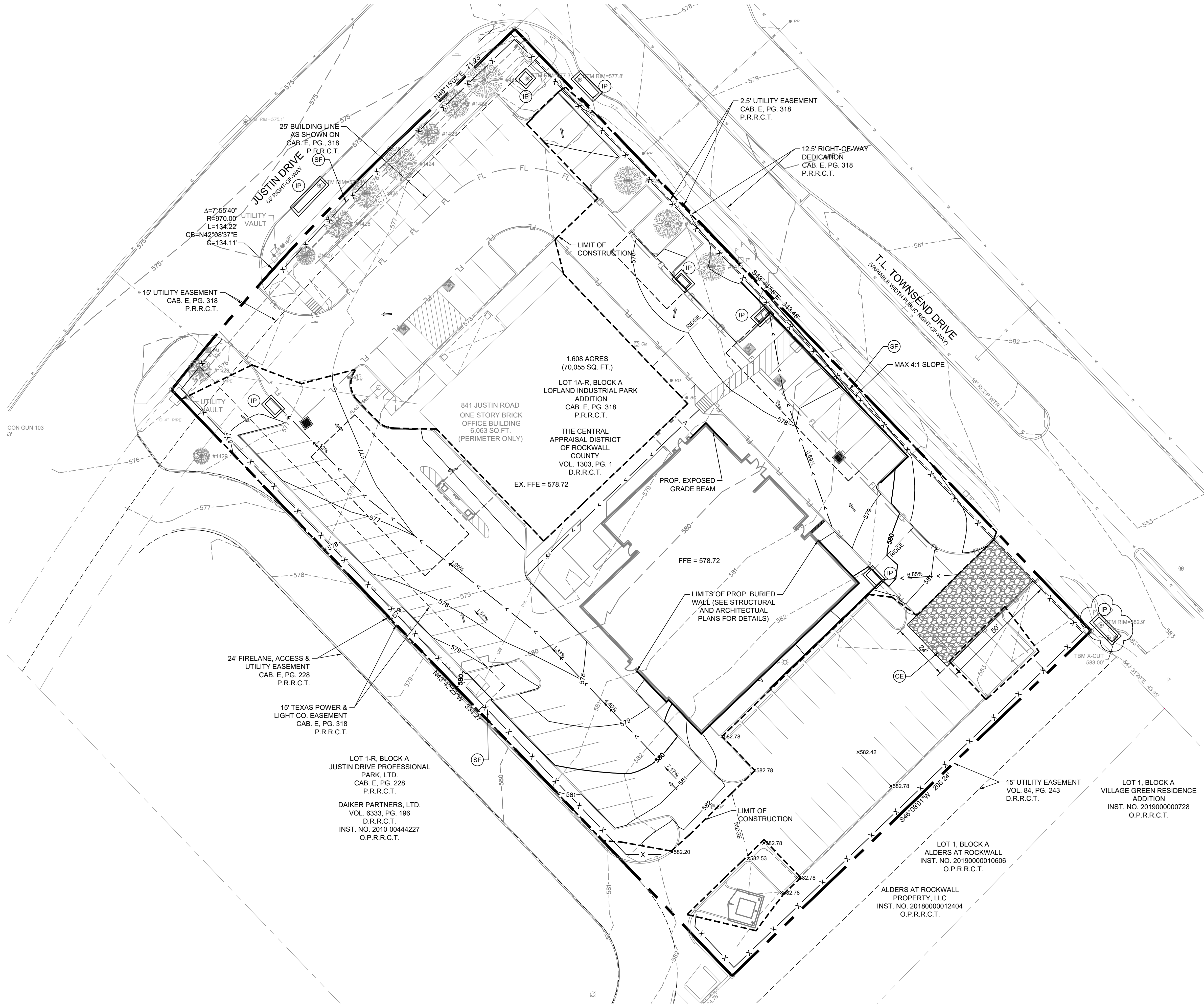
DEMOLITION PLAN

SHEET
C-4

DESIGN: CWP
DRAWN: CWP/SD
CHECKED: CLC
DATE: 7/29/2021

File No: 2020-136

PLOTTED BY: CLAY CRISTY
 PLOT DATE: 9/22/2023 4:48 PM
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 LAST SAVED: 7/29/2021 10:19 AM



LEGEND	
	DIRECTION OF FLOW
	EXISTING CONTOUR
	PROPOSED CONTOUR
	LIMITS OF CONSTRUCTION
	FILTER BARRIER
	CONSTRUCTION ENTRANCE
	INLET PROTECTION

ACREAGE SUMMARY	
ONSITE DISTURBED AREA	0.87 AC
OFFSITE DISTURBED AREA	0.00 AC
TOTAL DISTURBED AREA	0.87 AC

TBM #1 - ELEV. 583.00
 AN "X" CUT SET ON CONCRETE CURB INLET LOCATED WITHIN T.L. TOWNSEND DRIVE (VARIABLE WIDTH RIGHT-OF-WAY, APPROXIMATELY 3' EAST AND 0' SOUTH FROM A SANITARY SEWER MANHOLE LOCATED NEAR THE EASTERNMOST CORNER OF THE SUBJECT PROPERTY.

TBM #2 - ELEV. 575.63
 AND "X" CUT SET ON CONCRETE LOCATED WITHIN JUSTIN DRIVE (60 FOOT PUBLIC RIGHT-OF-WAY), LOCATED APPROXIMATELY 143' WEST AND 96' SOUTH OF A STORM SEWER MANHOLE LOCATED ON A CONCRETE CURB INLET ALONG THE SOUTHEAST SIDE OF SAID JUSTIN ROAD.

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.

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STATE OF TEXAS
 CLAY CRISTY
 100800
 PROFESSIONAL ENGINEER
 9/22/2023

ROCKWALL CAD
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ROCKWALL, TX 75087

No.	DATE	REVISION	BY

EROSION CONTROL PLAN
 SHEET
C-5

DESIGN: CWP
 DRAWN: CWP/SD
 CHECKED: CLC
 DATE: 7/29/2021

File No: 2020-136

PLOTTED BY: CLAY CRISTY
 PLOT DATE: 9/22/2025 4:48 PM
 LOCATION: Z:\PROJECTS\PROJECTS\2020-136 ROAD ROCKWALL\CADD\SHEETS\CIVIL PLANS\C-6 EROSION CONTROL DETAILS.DWG
 LAST SAVED: 5/6/2021 10:24 PM

STANDARD EROSION CONTROL GENERAL NOTES

1. EROSION CONTROL DEVICES AS SHOWN ON THE EROSION CONTROL PLAN FOR THE PROJECT SHALL BE INSTALLED PRIOR TO THE START OF LAND DISTURBING ACTIVITIES ON THE PROJECT.
2. ALL EROSION CONTROL DEVICES ARE TO BE INSTALLED IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS FOR THE PROJECT. CHANGES ARE TO BE APPROVED BEFORE CONSTRUCTION BY THE DESIGN ENGINEER AND THE CITY OF ROCKWALL.
3. IF THE EROSION CONTROL PLAN AS APPROVED CANNOT CONTROL EROSION AND OFF-SITE SEDIMENTATION FROM THE PROJECT THE EROSION CONTROL PLAN WILL BE REQUIRED TO BE REVISED AND/OR ADDITIONAL EROSION CONTROL DEVICES WILL BE REQUIRED ON SITE.
4. IF OFF-SITE BORROW OR SPOILS SITES ARE USED IN CONJUNCTION WITH THIS PROJECT, THIS INFORMATION SHALL BE DISCLOSED AND SHOWN ON THE EROSION CONTROL PLAN. OFF-SITE BORROW AND SPOILS AREAS ARE CONSIDERED PART OF EROSION CONTROL REQUIREMENTS. THESE AREAS SHALL BE STABILIZED WITH GROUND COVER PRIOR TO FINAL APPROVAL OF THE PROJECT.
5. INSPECTIONS SHALL BE MADE WEEKLY AND AFTER RAIN STORM EVENTS TO INSURE THAT THE DEVICES ARE FUNCTIONING PROPERLY. WHEN SEDIMENT OR MUD HAS CLOGGED THE VOID SPACES BETWEEN STONES OR MUD IS BEING TRACKED ONTO A PUBLIC ROADWAY THE AGGREGATE PAD MUST BE WASHED DOWN OR REPLACED. RUNOFF FROM THE WASH DOWN OPERATION SHALL NOT BE ALLOWED TO DRAIN DIRECTLY OFF SITE WITHOUT FIRST FLOWING THROUGH ANOTHER BMP TO CONTROL OFF SITE SEDIMENTATION. PERIODIC RE-GRADING OR THE ADDITION OF NEW STONE MAY BE REQUIRED TO MAINTAIN THE EFFICIENCY OF THE INSTALLATION.
6. CONTRACTOR SHALL HAVE A COPY OF THE SWPPP ON SITE AT ALL TIMES.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTAL OF N.O.I., N.O.T. AND ANY ADDITIONAL INFORMATION REQUIRED BY THE E.P.A. CONTRACTOR SHALL COMPLY WITH ALL T.C.E.Q. STORM WATER POLLUTION PREVENTION REQUIREMENTS.

EROSION CONTROL SCHEDULE AND PHASING

THE PROJECT SHALL GENERALLY CONFORM TO THE FOLLOWING:

PHASE 1 - DEMOLITION/GRADING

- A. CONSTRUCT TEMPORARY CONSTRUCTION ENTRANCE, SILT FENCE, AND TREE PROTECTION FENCE ACCORDING TO THE APPROXIMATE LOCATION SHOWN ON GRADING AND EROSION CONTROL PLAN, NOTES, AND DETAIL SHEETS.
- B. BEGIN CLEARING AND GRADING OF SITE.
- C. SEED AND REVEGETATE SLOPES WHERE SHOWN.

PHASE 2 - UTILITIES

- A. KEEP ALL STORM WATER POLLUTION PREVENTION MEASURES IN PLACE.
- B. INSTALL STORM DRAINS AS SPECIFIED ON PLAN SHEETS.
- C. INSTALL INLET PROTECTION.

PHASE 3 - PAVING

- A. KEEP ALL STORM WATER POLLUTION PREVENTION MEASURES IN PLACE. REMOVE AS NEEDED TO PAVE.
- B. STABILIZE SUBGRADE.
- C. PAVE PARKING LOT AND SIDEWALKS AS SPECIFIED ON PLAN SHEETS.
- D. REMOVE TEMPORARY CONSTRUCTION ENTRANCE.
- E. MAINTAIN INLET PROTECTION.

PHASE 4 - LANDSCAPING AND SOIL STABILIZATION

- A. REVEGETATE LOT AND PARKWAYS
- B. LANDSCAPE CONTRACTOR SHALL REVEGETATE ALL AREAS RESERVED FOR LANDSCAPE VEGETATIVE COVERS.
- C. REMOVE EROSION CONTROL DEVICES WHEN GROUND COVER ESTABLISHED.

B.M.P. MAINTENANCE SCHEDULE

TEMPORARY STONE CONSTRUCTION ENTRANCE/EXIT:

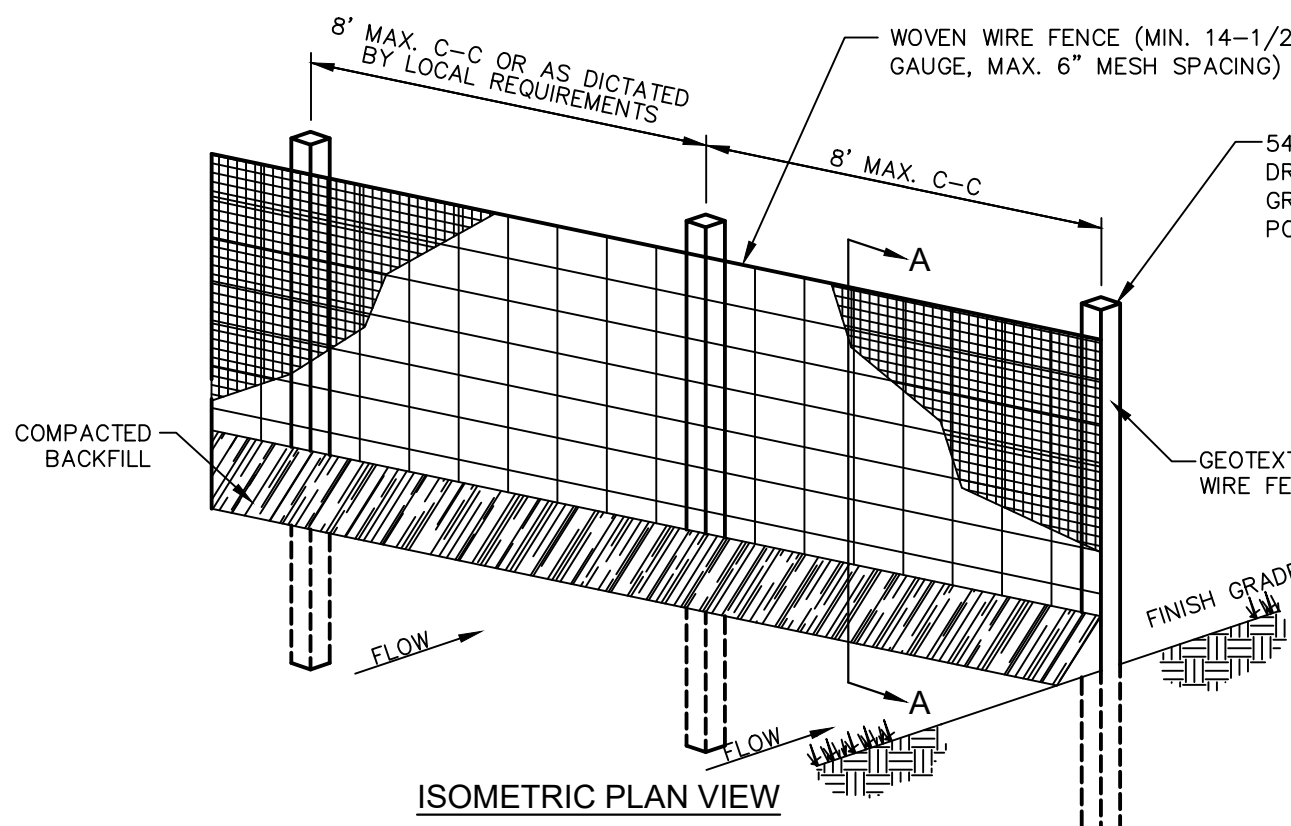
INSPECTIONS SHALL BE MADE WEEKLY AND AFTER RAIN STORM EVENTS TO ENSURE THAT THE FACILITY IS FUNCTIONING PROPERLY. AGGREGATE PAD SHALL BE WASHED DOWN OR REPLACED WHEN SEDIMENT OR MUD HAS CLOGGED THE VOID SPACES BETWEEN THE STONES OR MUD IS BEING TRACKED ONTO THE PUBLIC ROADWAY. RUNOFF FROM WASH DOWN OPERATION SHALL BE FILTERED THROUGH ANOTHER B.M.P. PRIOR TO DRAINING OFF-SITE.

SILT FENCE:

INSPECTIONS SHALL BE MADE WEEKLY AND AFTER RAIN STORM EVENTS. SEDIMENT SHALL BE REMOVED FROM BEHIND THE FENCE WHEN THE DEPTH OF SEDIMENT HAS BUILT UP TO ONE-THIRD THE HEIGHT OF THE FENCE ABOVE GRADE. FENCE SHALL BE INSPECTED FOR GAPS AT BASE. INSPECT SUPPORTING POSTS AND FILTER FABRIC. REPLACE IF REQUIRED.

INLET PROTECTION:

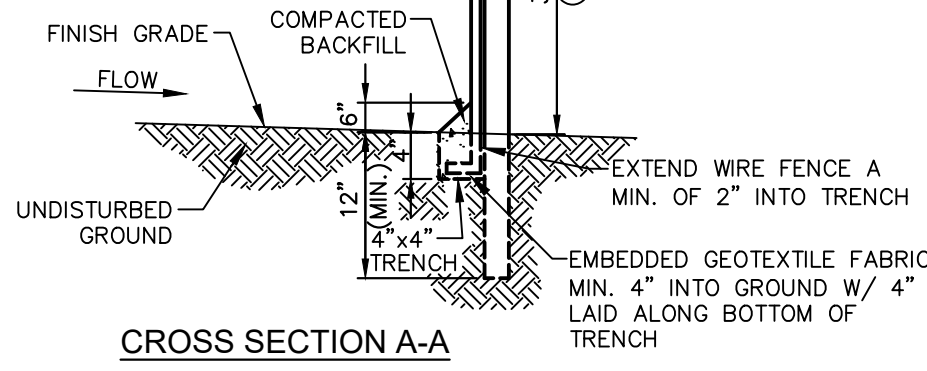
INSPECTIONS SHALL BE MADE WEEKLY AND AFTER RAIN STORM EVENTS TO ENSURE THAT THE DEVICE IS FUNCTIONING PROPERLY. SEDIMENT SHALL BE REMOVED FROM THE STORAGE AREA WHEN SEDIMENT DEPTH HAS BUILT UP TO ONE-HALF THE DESIGN DEPTH. IF DE-WATERING OF THE STORAGE VOLUME IS NOT OCCURRING, CLEAN OR REPLACE THE FILTER STONE SURROUNDING THE INLET. CLEAN THE STONE SURFACE THE FIRST FEW TIMES BY RAKING. REPEATED SEDIMENT BUILD-UP WILL REQUIRE FILTER STONE REPLACEMENT.



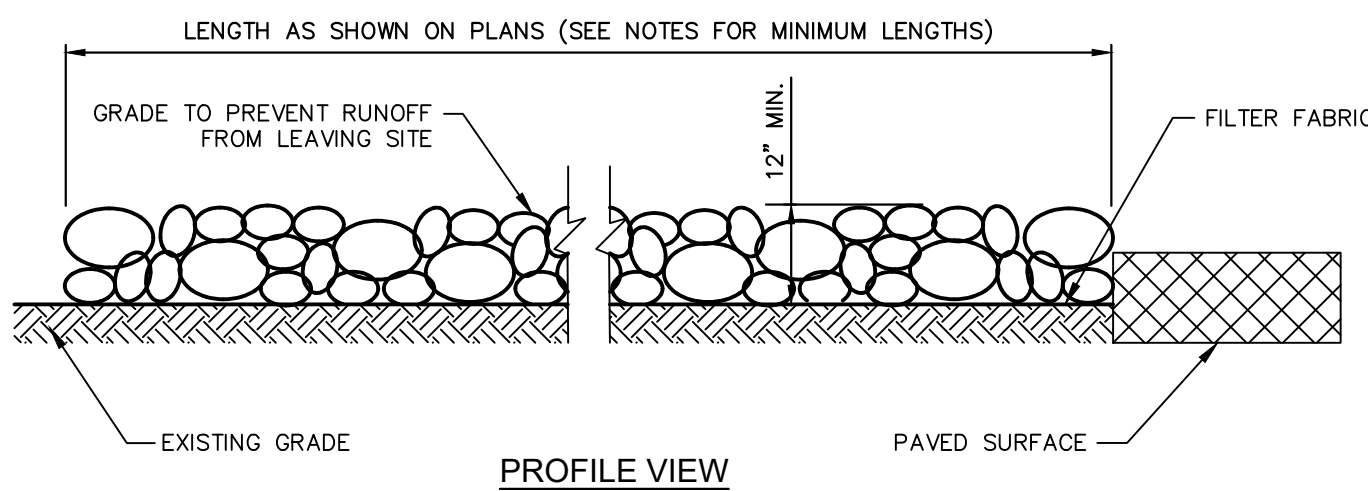
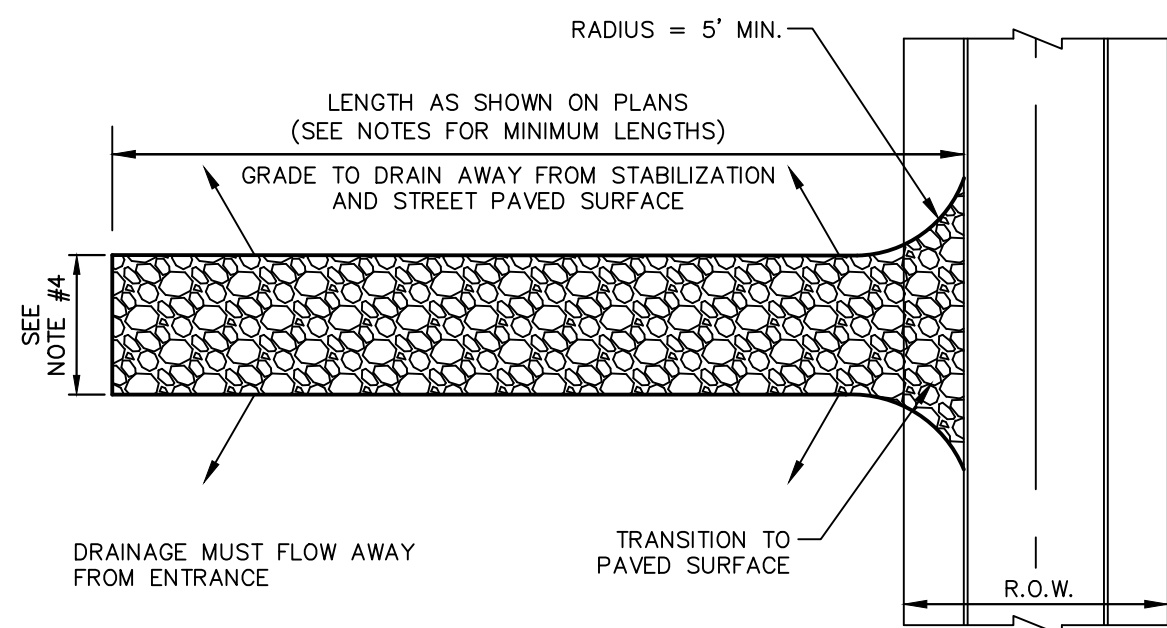
- NOTE:
1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES.
 2. GEOTEXTILE TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24\"
 3. WHEN TWO SECTIONS OF GEOTEXTILE ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED.
 4. MAINTENANCE SHALL BE PERFORMED AS NOTED IN THE EROSION CONTROL PLAN.
 5. COLLECTED MATERIAL SHALL BE REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.
 6. ALL SILT FENCE SHALL INCLUDE WIRE SUPPORT UNLESS INDICATED OTHERWISE

SILT FENCE DETAIL (SF)

N.T.S.



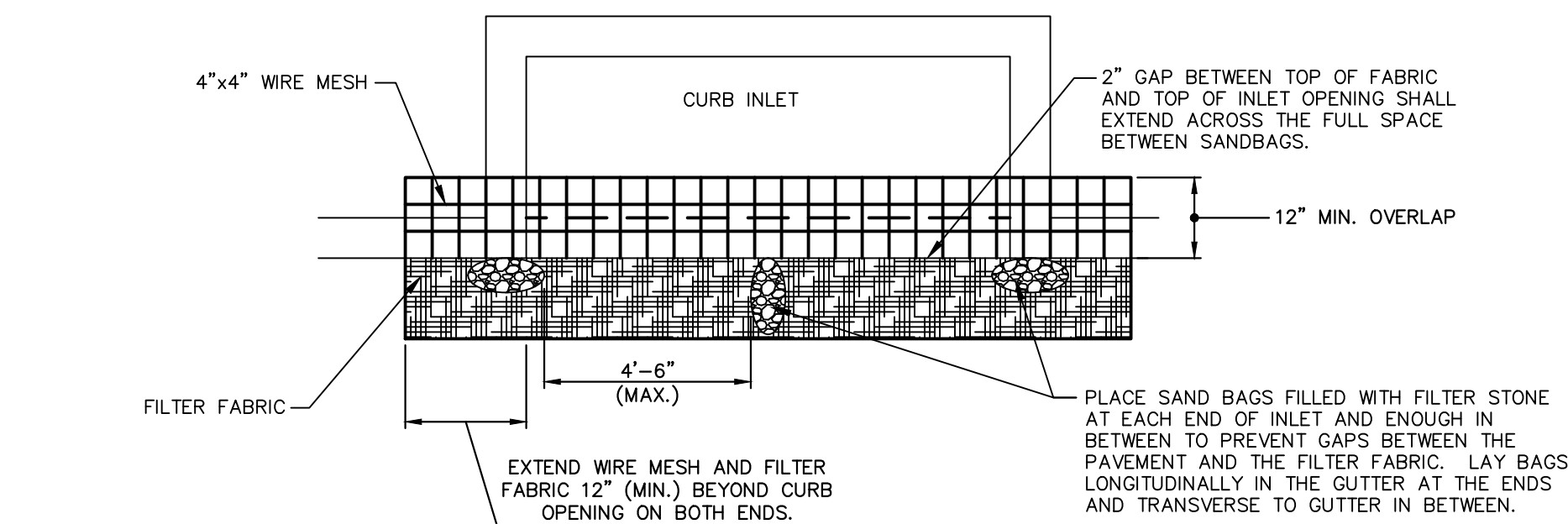
- POSTS: STEEL EITHER T OR U TYPE.
FENCE: WOVEN WIRE, 14-1/2 GA.
6\"
- FABRIC: 1. AMOCO 1188
2. BELTECH 810
3. MIRAFI 130X
4. LING GIF 190
5. SI 915 SC



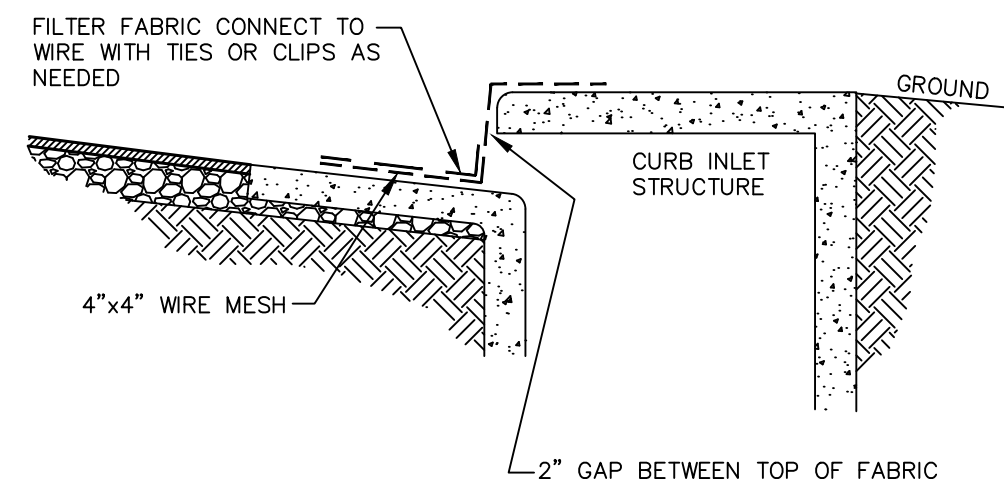
STABILIZED CONSTRUCTION ENTRANCE DETAIL (CE)

N.T.S.

- NOTES:
1. STONE SHALL BE 4 TO 6 INCH DIAMETER CRUSHED ROCK, NO CRUSHED PORTLAND CEMENT CONCRETE ALLOWED.
 2. LENGTH SHALL BE SHOWN ON PLANS, WITH A MINIMUM LENGTH OF 30 FEET FOR LOTS WHICH ARE LESS THAN 150 FEET FROM EDGE OF PAVEMENT. THE MINIMUM DEPTH IN ALL OTHER CASES SHALL BE 50 FEET.
 3. STONE LAYER THICKNESS SHALL NOT BE LESS THAN 12\"
 4. THE WIDTH SHALL BE NO LESS THAN THE FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS. INCHES.
 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.



PLAN VIEW

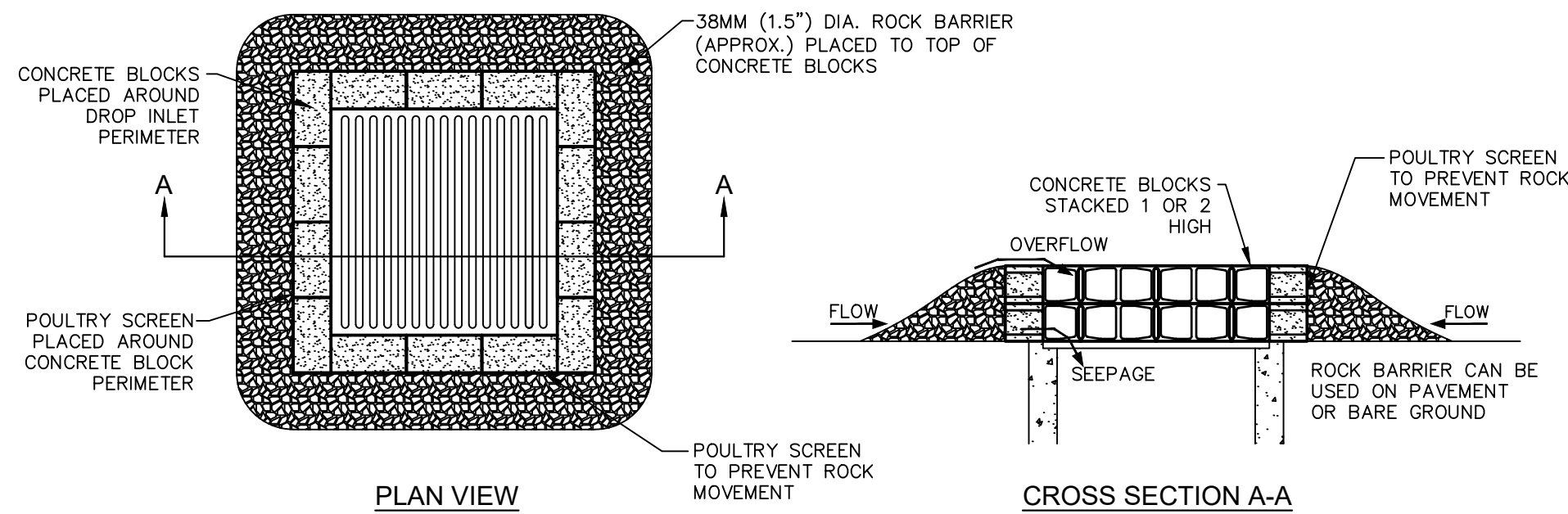


CROSS SECTION

NOTE:
VERTICAL PANEL BARRICADES TO BE PLACED WHEN LOCATED ON AN ACTIVE STREET.

CURB INLET PROTECTION DETAIL (IP)

N.T.S.



GRATE INLET PROTECTION DETAIL (IP)

N.T.S.

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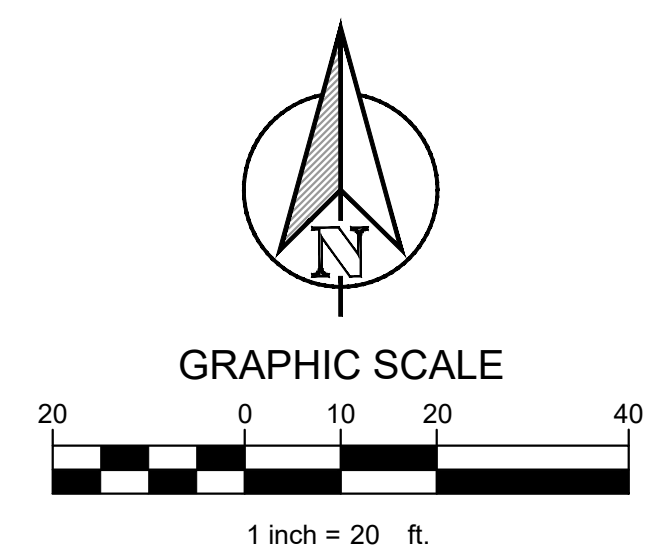
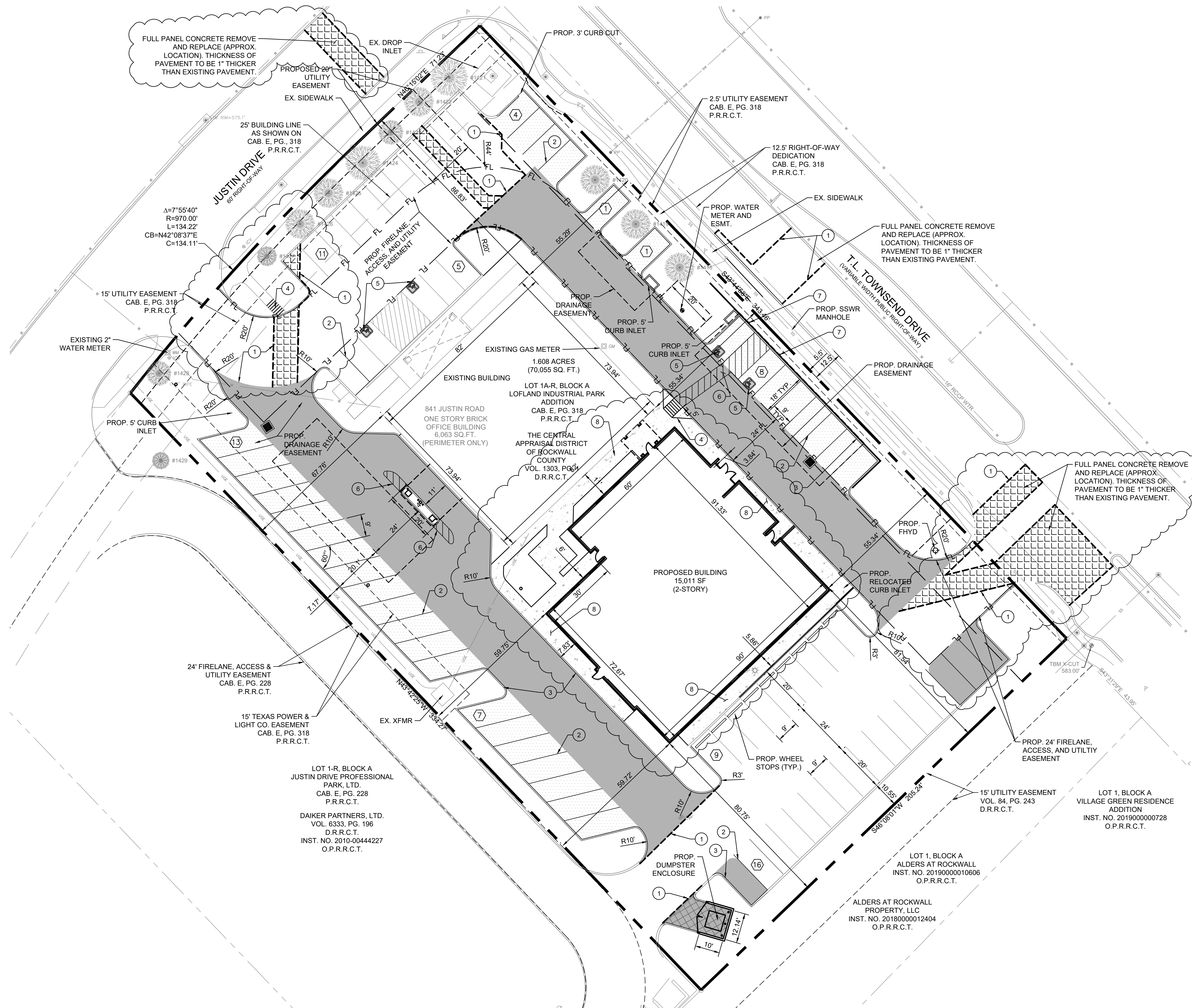
No.	DATE	REVISION	BY

EROSION CONTROL DETAILS

DESIGN: CWP
DRAWN: CWP/SD
CHECKED: CLC
DATE: 5/6/2021

SHEET
C-6

PLOTTED BY: CLAY CRISTY
 PLOT DATE: 9/22/2021 4:47 PM
 LOCATION: Z:\PROJECTS\PROJECTS\2020-136 ROAD ROCKWALL\CADD\SHEETS\CIVIL PLANS\C-7 DIMENSION CONTROL PLAN.DWG
 LAST SAVED: 7/29/2021 10:28 AM



LEGEND	
	STANDARD DUTY CONCRETE PAVEMENT, SEE DETAIL SHEET C-18
	HEAVY DUTY CONCRETE PAVEMENT, SEE DETAIL SHEET C-18
	DUMPSTER AREA CONCRETE PAVEMENT, SEE DETAIL SHEET C-18
	PROPOSED CONCRETE SIDEWALK, SEE DETAIL SHEET C-18
	PAVEMENT TO BE REMOVED AND REPLACED
	PROPOSED CONCRETE CURB AND GUTTER
	PARKING COUNT
	FULL-DEPTH SAWCUT
	PROPOSED FIRE LANE STRIPPING

CONSTRUCTION SCHEDULE	
1	SAW CUT FULL DEPTH EXISTING PAVEMENT
2	4" PARKING STALL STRIPING COLOR: WHITE (TYP)
3	CURB & GUTTER, SEE DETAIL SHEET C-18
4	PROPOSED PEDESTRIAN RAMP, SEE DETAIL SHEET C-18
5	HANDICAP SYMBOL
6	PAVEMENT STRIPING
7	HANDICAP SIGN
8	PROPOSED SIDEWALK, SEE DETAIL SHEET C-18

- NOTES:
- ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
 - REFER TO ARCHITECTURAL PLANS FOR BUILDING DIMENSIONS AND EXACT DOOR LOCATIONS.
 - REFER TO ARCHITECTURAL PLANS FOR FENCE AND GATE DETAILS.

TBM #1 - ELEV. 563.00
 10" X 10" CUT SET ON CONCRETE CURB INLET LOCATED WITHIN T.L. TOWNSEND DRIVE (VARIABLE WIDTH RIGHT-OF-WAY), APPROXIMATELY 3' EAST AND 0' SOUTH FROM A SANITARY SEWER MANHOLE LOCATED NEAR THE EASTERNMOST CORNER OF THE SUBJECT PROPERTY.

 TBM #2 - ELEV. 575.63
 10" X 10" CUT SET ON CONCRETE CURB INLET LOCATED WITHIN JUSTIN DRIVE (60 FOOT PUBLIC RIGHT-OF-WAY), LOCATED APPROXIMATELY 143' WEST AND 96' SOUTH OF A STORM SEWER MANHOLE LOCATED ON A CONCRETE CURB INLET ALONG THE SOUTHEAST SIDE OF SAID JUSTIN ROAD.

 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.

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ROCKWALL, TX 75087

No.	DATE	REVISION		BY
		GRADE AND UTILITIES		

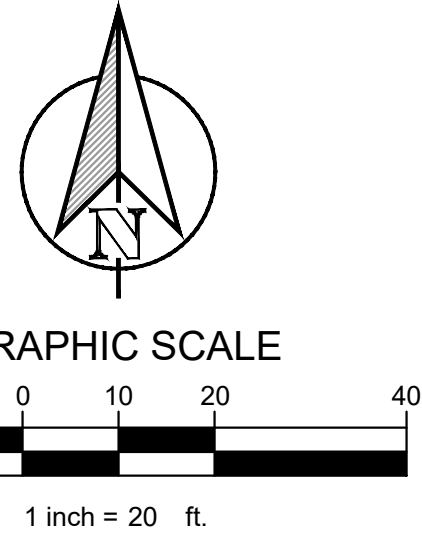
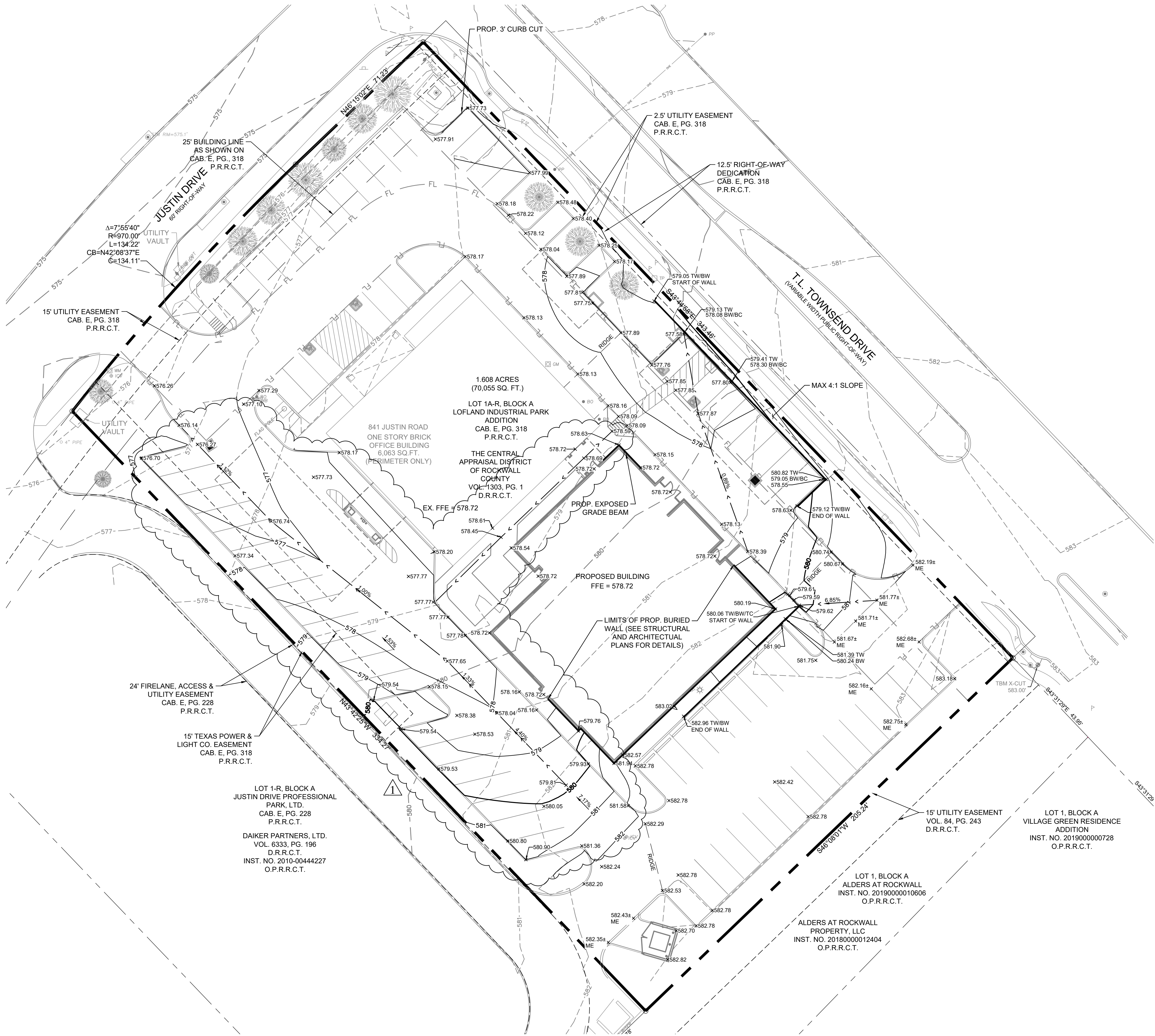
DIMENSION CONTROL PLAN

 SHEET
C-7

DESIGN: CWP
 DRAWN: CWP/SD
 CHECKED: CLC
 DATE: 7/29/2021

File No: 2020-136

PLOTTED BY: CLAY CRISTY
 PLOT DATE: 9/22/2025 4:47 PM
 LOCATION: 74 PROJECTS\PROJECTS\2020-136 ROAD ROCKWALL\CADD\SHEETS\CIVIL PLANS\C-8 GRADING PLAN.DWG
 LAST SAVED: 12/7/2021 4:25 PM



LEGEND	
---	EXISTING CONTOUR
---	PROPOSED CONTOUR
---	PROPOSED RIDGE
---	PROPOSED FLOW PATH
x699.50	PROPOSED GRADE (TOP OF PAVEMENT)
ME	MATCH EXISTING
TW	TOP OF WALL
BW	BOTTOM OF WALL
TC	TOP OF CURB

- NOTES:**
- ALL SPOT ELEVATIONS ARE TO TOP OF PAVING UNLESS OTHERWISE NOTED.
 - EXISTING UTILITIES WERE OBTAINED FROM RECORD DRAWINGS. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF EXISTING UTILITIES AND NOTIFY THE ENGINEER FOR ANY DISCREPANCIES WITH THIS PLAN.
 - MAXIMUM SLOPE IN LANDSCAPE AREAS ARE NOT TO EXCEED 4:1; MIN EARTH GRADE IS 1%; MIN PAVING GRADE IS 0.5%.
 - ALL CURB HEIGHTS ARE 6-INCHES UNLESS NOTED OTHERWISE.
 - REFER TO GEOTECHNICAL REPORT FOR REQUIREMENTS REGARDING FILL COMPACTION AND MOISTURE CONTENT.
 - REF. STRUCTURAL PLANS, SPECIFICATIONS, AND GEOTECHNICAL REPORT FOR ALL BUILDING PAD PREPARATION CRITERIA.
 - THE CONTRACTOR SHALL CONSTRUCT ALL BARRIER FREE RAMPS PER CITY OF ROCKWALL AND ADA STANDARDS.
 - GRADING FOR ALL SIDEWALKS AND ACCESSIBLE ROUTES INCLUDING CROSSING DRIVEWAYS SHALL CONFORM TO ADA STANDARDS. SLOPES SHALL NOT EXCEED 5% LONGITUDINAL SLOPE OR 2% CROSS SLOPE. SIDEWALK ACCESS TO EXTERNAL BUILDING DOORS SHALL BE ADA COMPLIANT. CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY IF ADA CRITERIA CANNOT BE MET AT ANY LOCATION.
 - GRADING OF ALL HANDICAPPED SPACES AND ROUTES IS TO CONFORM TO LOCAL, STATE, AND FEDERAL GUIDELINES.
 - CONTRACTOR SHALL ADJUST EXISTING VALVES, MANHOLE RIMS, ETC. AS NECESSARY TO MATCH FINISHED GRADE.
 - CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE AWAY FROM EXISTING & PROPOSED BUILDINGS.

TBM #1 - ELEV. 583.00
 AN "X" CUT SET ON CONCRETE CURB INLET LOCATED WITHIN T.L. TOWNSEND DRIVE (VARIABLE WIDTH) RIGHT-OF-WAY, APPROXIMATELY 3' EAST AND 0' SOUTH FROM A SANITARY SEWER MANHOLE LOCATED NEAR THE EASTERNMOST CORNER OF THE SUBJECT PROPERTY.

TBM #2 - ELEV. 575.83
 AND "X" CUT SET ON CONCRETE LOCATED WITHIN JUSTIN DRIVE (60 FOOT PUBLIC RIGHT-OF-WAY), LOCATED APPROXIMATELY 143' WEST AND 96' SOUTH OF A STORM SEWER MANHOLE LOCATED ON A CONCRETE CURB INLET ALONG THE SOUTHEAST SIDE OF SAID JUSTIN ROAD.

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.



ROCKWALL CAD
814 JUSTIN ROAD
ROCKWALL, TX 75087

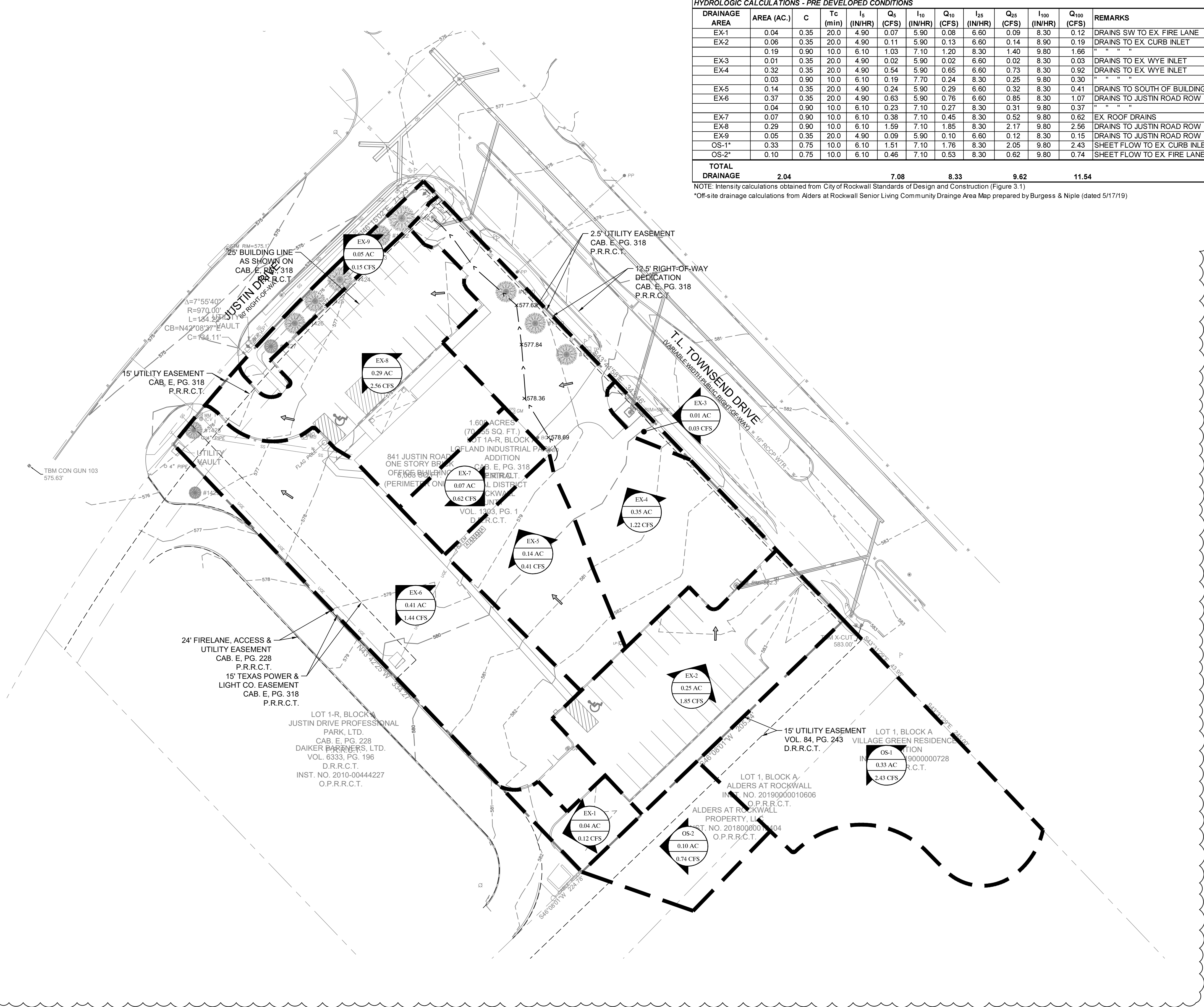
No.	DATE	REVISION		BY
		GRADING AND UTILITIES		

GRADING PLAN

DESIGN: CWP
 DRAWN: CWP/SD
 CHECKED: CLC
 DATE: 5/6/2021

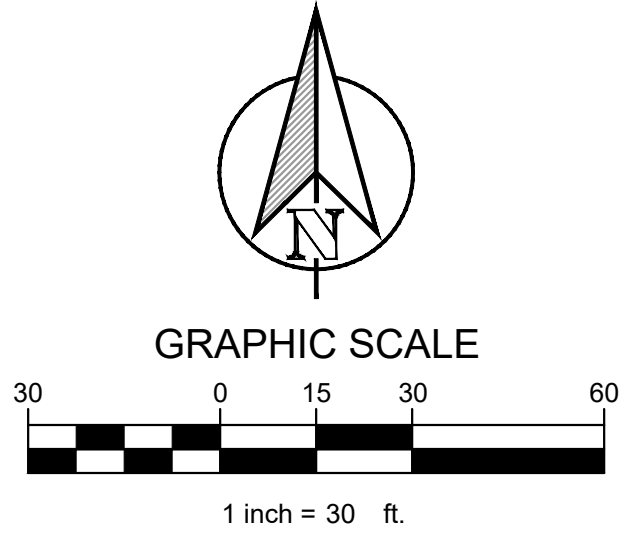
SHEET
C-8

PLOTTED BY: CLAY CRISTY
PLOT DATE: 9/22/2025 4:47 PM
LOCATION: Z:\PROJECTS\PROJECTS\2020-136 ROAD ROCKWALL\CADD\SHEETS\CIVIL PLANS\C-9 EXISTING DRAINAGE AREA MAP.DWG
LAST SAVED: 7/29/2021 10:32 AM



HYDROLOGIC CALCULATIONS - PRE DEVELOPED CONDITIONS												
DRAINAGE AREA	AREA (AC.)	C	Tc (min)	I ₂ (IN/HR)	Q ₂ (CFS)	I ₁₀ (IN/HR)	Q ₁₀ (CFS)	I ₂₅ (IN/HR)	Q ₂₅ (CFS)	I ₁₀₀ (IN/HR)	Q ₁₀₀ (CFS)	REMARKS
EX-1	0.04	0.35	20.0	4.90	0.07	5.90	0.08	6.60	0.09	8.30	0.12	DRAINS SW TO EX FIRE LANE
EX-2	0.06	0.35	20.0	4.90	0.11	5.90	0.13	6.60	0.14	8.90	0.19	DRAINS TO EX CURB INLET
	0.19	0.90	10.0	6.10	1.03	7.10	1.20	8.30	1.40	9.80	1.66	" " " "
EX-3	0.01	0.35	20.0	4.90	0.02	5.90	0.02	6.60	0.02	8.30	0.03	DRAINS TO EX WYE INLET
EX-4	0.32	0.35	20.0	4.90	0.54	5.90	0.65	6.60	0.73	8.30	0.92	DRAINS TO EX WYE INLET
	0.03	0.90	10.0	6.10	0.19	7.70	0.24	8.30	0.25	9.80	0.30	" " " "
EX-5	0.14	0.35	20.0	4.90	0.24	5.90	0.29	6.60	0.32	8.30	0.41	DRAINS TO SOUTH OF BUILDING
EX-6	0.37	0.35	20.0	4.90	0.63	5.90	0.76	6.60	0.85	8.30	1.07	DRAINS TO JUSTIN ROAD ROW
	0.04	0.90	10.0	6.10	0.23	7.10	0.27	8.30	0.31	9.80	0.37	" " " "
EX-7	0.07	0.90	10.0	6.10	0.38	7.10	0.45	8.30	0.52	9.80	0.62	EX ROOF DRAINS
EX-8	0.29	0.90	10.0	6.10	1.59	7.10	1.85	8.30	2.17	9.80	2.56	DRAINS TO JUSTIN ROAD ROW
EX-9	0.05	0.35	20.0	4.90	0.09	5.90	0.10	6.60	0.12	8.30	0.15	DRAINS TO JUSTIN ROAD ROW
OS-1*	0.33	0.75	10.0	6.10	1.51	7.10	1.76	8.30	2.05	9.80	2.43	SHEET FLOW TO EX CURB INLET
OS-2*	0.10	0.75	10.0	6.10	0.46	7.10	0.53	8.30	0.62	9.80	0.74	SHEET FLOW TO EX FIRE LANE
TOTAL DRAINAGE	2.04				7.08		8.33		9.62		11.54	

NOTE: Intensity calculations obtained from City of Rockwall Standards of Design and Construction (Figure 3.1)
*Off-site drainage calculations from Alders at Rockwall Senior Living Community Drainage Area Map prepared by Burgess & Niple (dated 5/17/19)



LEGEND	
	DRAINAGE AREA LABEL
	DRAINAGE AREA (AC)
	FLOW QUANTITY (CFS)
	DIRECTION OF FLOW
	DRAINAGE AREA BOUNDARY

FLOODPLAIN NOTE
ACCORDING TO MAP NO. 48397C0040L, DATED 09/26/2008 OF THE NATIONAL FLOOD INSURANCE PROGRAM MAP: FLOOD INSURANCE RATE MAP OF ROCKWALL COUNTY, TEXAS, FEDERAL EMERGENCY MANAGEMENT AGENCY, FEDERAL INSURANCE ADMINISTRATION, THIS PROPERTY IS WITHIN ZONE "X" (AREAS DETERMINED TO BE OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN). IF THIS SITE IS NOT WITHIN AN IDENTIFIED SPECIAL FLOOD HAZARD AREA, THIS FLOOD STATEMENT DOES NOT IMPLY THAT THE PROPERTY AND/OR THE STRUCTURES THEREON WILL BE FREE FROM FLOODING OR FLOOD DAMAGE. ON RARE OCCASIONS, GREATER FLOODS CAN AND WILL OCCUR AND FLOOD HEIGHTS MAY BE INCREASED BY MAN-MADE OR NATURAL CAUSES. THIS FLOOD STATEMENT SHALL NOT CREATE LIABILITY ON THE PART OF THE SURVEYOR.

TEXAS FIRM #14189

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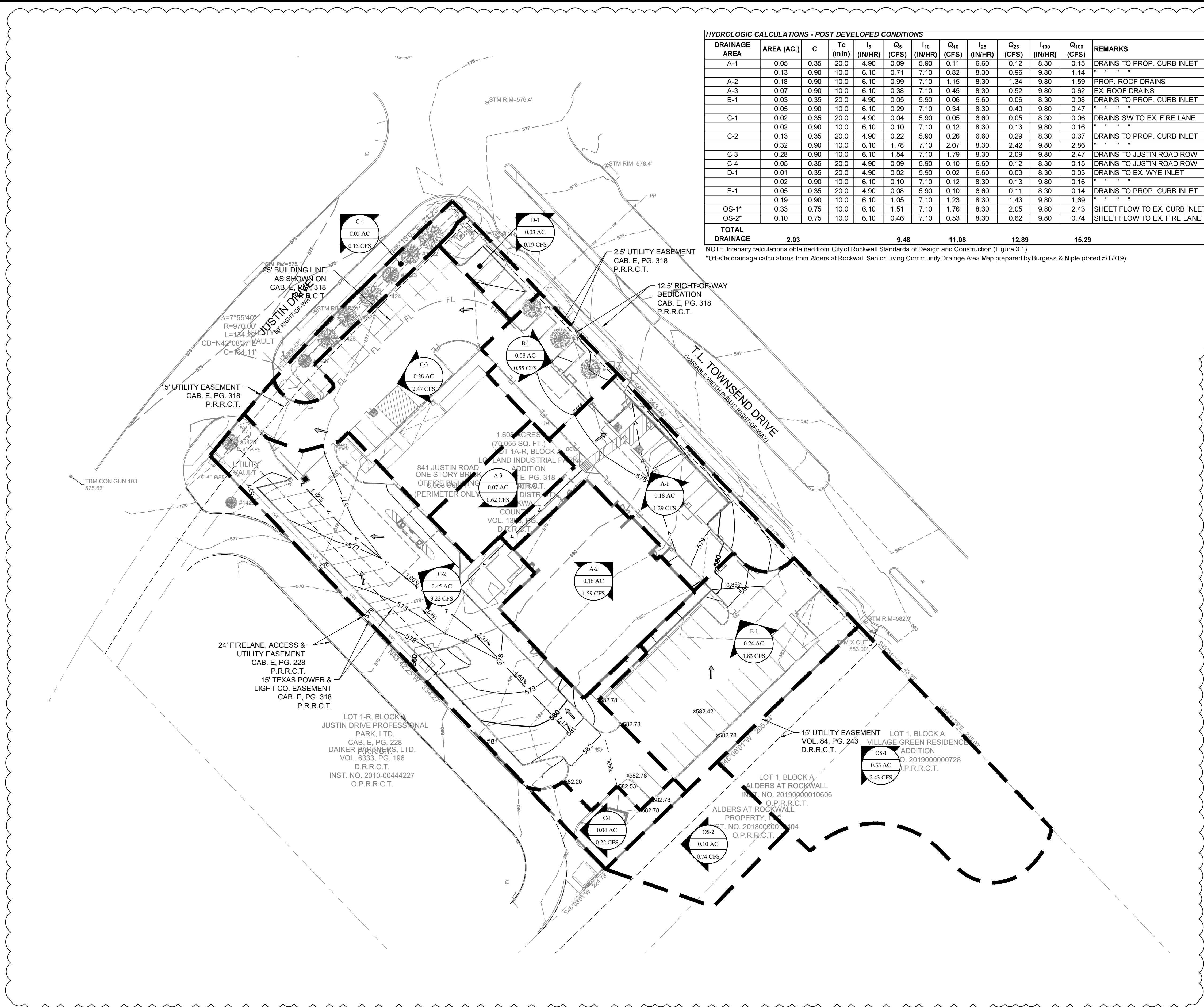
REVISION		BY
No.	DATE	

EXISTING DRAINAGE AREA MAP

DESIGN:	CWP
DRAWN:	CWP/SD
CHECKED:	CLC
DATE:	5/6/2021

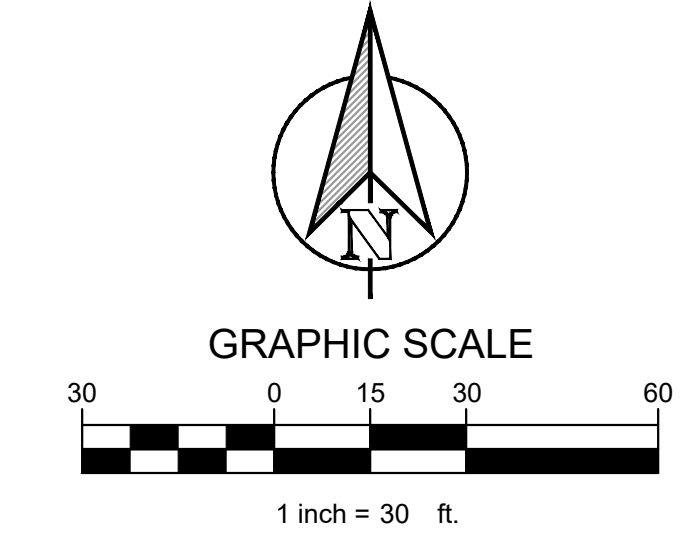
SHEET
C-9

PLOTTED BY: CLAY CRISTY
PLOT DATE: 9/22/2025 4:47 PM
LOCATION: Z:\PROJECTS\PROJECTS\2020-136 ROAD ROCKWALL\CADD\SHEETS\CIVIL PLANS\C-10 PROPOSED DRAINAGE AREA MAP.DWG
LAST SAVED: 7/29/2021 10:33 AM



HYDROLOGIC CALCULATIONS - POST DEVELOPED CONDITIONS												
DRAINAGE AREA	AREA (AC.)	C	Tc (min)	I _s (IN/HR)	Q _s (CFS)	I ₁₀ (IN/HR)	Q ₁₀ (CFS)	I ₂₅ (IN/HR)	Q ₂₅ (CFS)	I ₁₀₀ (IN/HR)	Q ₁₀₀ (CFS)	REMARKS
A-1	0.05	0.35	20.0	4.90	0.09	5.90	0.11	6.60	0.12	8.30	0.15	DRAINS TO PROP. CURB INLET
	0.13	0.90	10.0	6.10	0.71	7.10	0.82	8.30	0.96	9.80	1.14	" " " "
A-2	0.18	0.90	10.0	6.10	0.99	7.10	1.15	8.30	1.34	9.80	1.59	PROP. ROOF DRAINS
A-3	0.07	0.90	10.0	6.10	0.38	7.10	0.45	8.30	0.52	9.80	0.62	EX. ROOF DRAINS
B-1	0.03	0.35	20.0	4.90	0.05	5.90	0.06	6.60	0.06	8.30	0.08	DRAINS TO PROP. CURB INLET
	0.05	0.90	10.0	6.10	0.29	7.10	0.34	8.30	0.40	9.80	0.47	" " " "
C-1	0.02	0.35	20.0	4.90	0.04	5.90	0.05	6.60	0.05	8.30	0.06	DRAINS SW TO EX. FIRE LANE
	0.02	0.90	10.0	6.10	0.10	7.10	0.12	8.30	0.13	9.80	0.16	" " " "
C-2	0.13	0.35	20.0	4.90	0.22	5.90	0.26	6.60	0.29	8.30	0.37	DRAINS TO PROP. CURB INLET
	0.32	0.90	10.0	6.10	1.78	7.10	2.07	8.30	2.42	9.80	2.86	" " " "
C-3	0.28	0.90	10.0	6.10	1.54	7.10	1.79	8.30	2.09	9.80	2.47	DRAINS TO JUSTIN ROAD ROW
C-4	0.05	0.35	20.0	4.90	0.09	5.90	0.10	6.60	0.12	8.30	0.15	DRAINS TO JUSTIN ROAD ROW
D-1	0.01	0.35	20.0	4.90	0.02	5.90	0.02	6.60	0.03	8.30	0.03	DRAINS TO EX. WYE INLET
	0.02	0.90	10.0	6.10	0.10	7.10	0.12	8.30	0.13	9.80	0.16	" " " "
E-1	0.05	0.35	20.0	4.90	0.08	5.90	0.10	6.60	0.11	8.30	0.14	DRAINS TO PROP. CURB INLET
	0.19	0.90	10.0	6.10	1.05	7.10	1.23	8.30	1.43	9.80	1.69	" " " "
OS-1*	0.33	0.75	10.0	6.10	1.51	7.10	1.76	8.30	2.05	9.80	2.43	SHEET FLOW TO EX. CURB INLET
OS-2*	0.10	0.75	10.0	6.10	0.46	7.10	0.53	8.30	0.62	9.80	0.74	SHEET FLOW TO EX. FIRE LANE
TOTAL DRAINAGE	2.03				9.48		11.06		12.89		15.29	

NOTE: Intensity calculations obtained from City of Rockwall Standards of Design and Construction (Figure 3.1)
*Off-site drainage calculations from Alders at Rockwall Senior Living Community Drainage Area Map prepared by Burgess & Niple (dated 5/17/19)



LEGEND	
	DRAINAGE AREA LABEL
	DRAINAGE AREA (AC)
	FLOW QUANTITY (CFS)
	DIRECTION OF FLOW
	DRAINAGE AREA BOUNDARY

FLOODPLAIN NOTE
ACCORDING TO MAP NO. 48397C0040L, DATED 09/26/2008 OF THE NATIONAL FLOOD INSURANCE PROGRAM MAP, FLOOD INSURANCE RATE MAP OF ROCKWALL COUNTY, TEXAS, FEDERAL EMERGENCY MANAGEMENT AGENCY, FEDERAL INSURANCE ADMINISTRATION, THIS PROPERTY IS WITHIN ZONE "X" (AREAS DETERMINED TO BE OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN). IF THIS SITE IS NOT WITHIN AN IDENTIFIED SPECIAL FLOOD HAZARD AREA, THIS FLOOD STATEMENT DOES NOT IMPLY THAT THE PROPERTY AND/OR THE STRUCTURES THEREON WILL BE FREE FROM FLOODING OR FLOOD DAMAGE. ON RARE OCCASIONS, GREATER FLOODS CAN AND WILL OCCUR AND FLOOD HEIGHTS MAY BE INCREASED BY MAN-MADE OR NATURAL CAUSES. THIS FLOOD STATEMENT SHALL NOT CREATE LIABILITY ON THE PART OF THE SURVEYOR.

TEXAS FIRM #14189

CLAY MOORE
ENGINEERING

1903 CENTRAL DR. SUITE #405
ROCKWALL, TX 75087
PHONE 972.261.0072
WWW.CLAYMOOREENR.COM

STATE OF TEXAS
CLAY CRISTY
109800
PROFESSIONAL ENGINEER
9/22/2025

ROCKWALL CAD
814 JUSTIN ROAD
ROCKWALL, TX 75087

No.	DATE	REVISION	BY

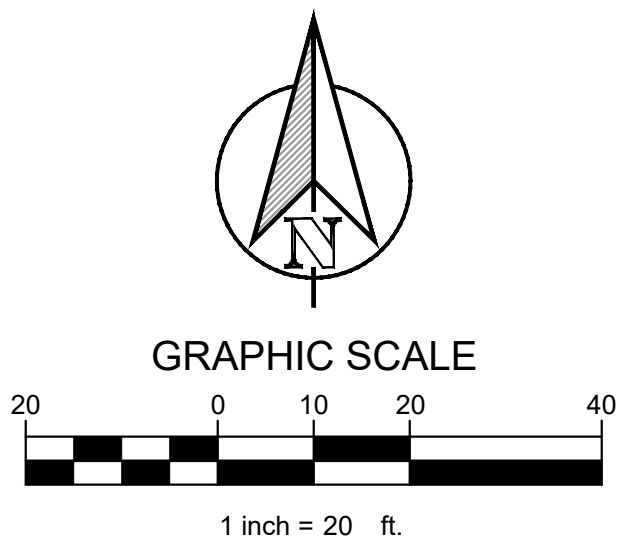
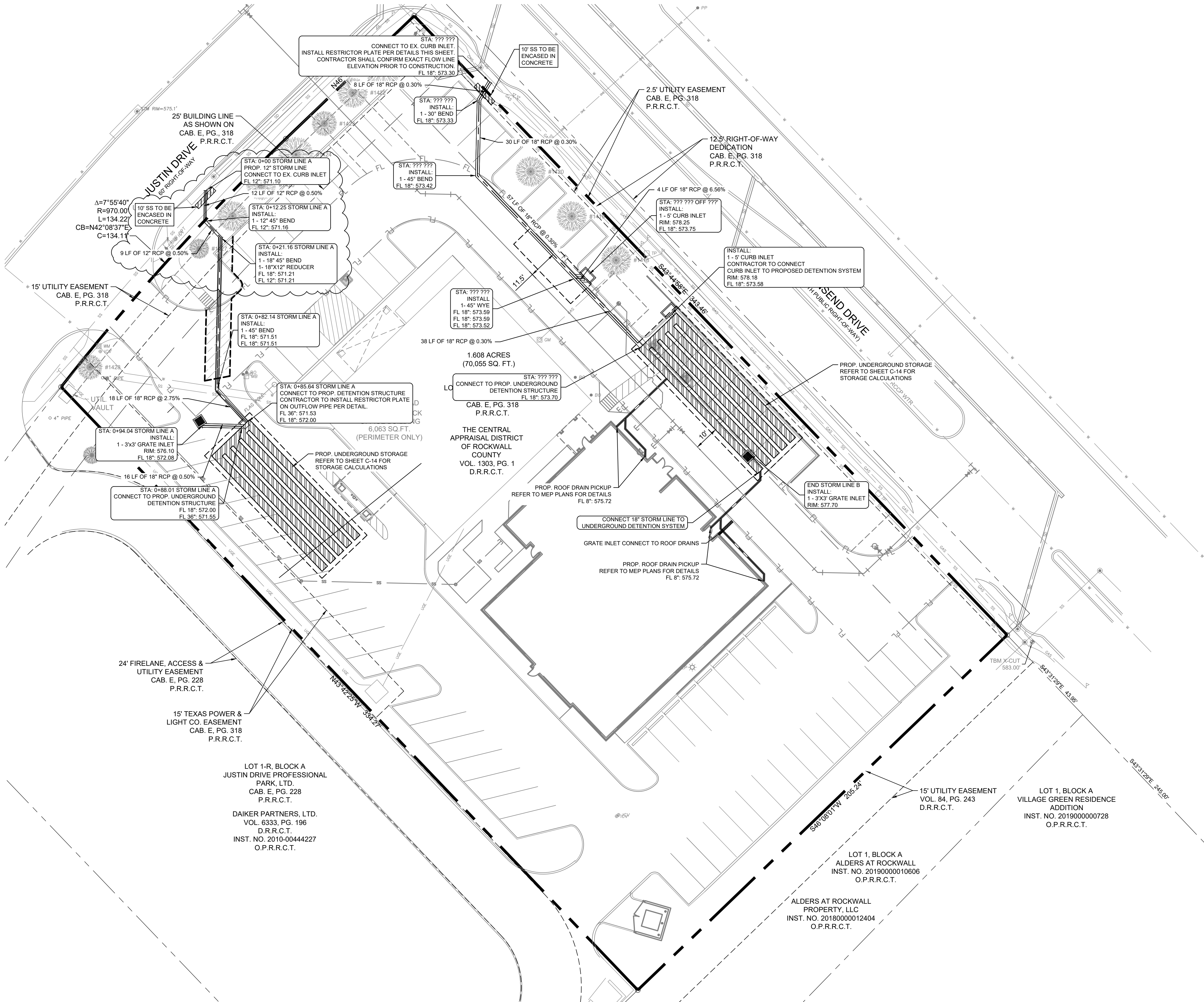
PROPOSED DRAINAGE AREA MAP

DESIGN: CWP
DRAWN: CWP/SD
CHECKED: CLC
DATE: 9/22/2021

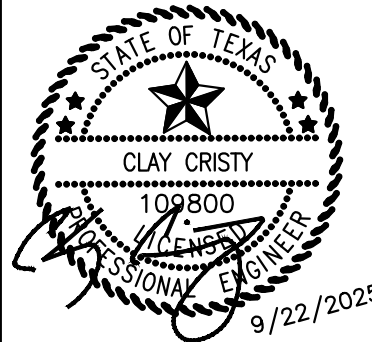
SHEET
C-10

File No: 2020-136

PLOTTED BY: CLAY CRISTY
PLOT DATE: 9/22/2025 4:47 PM
LOCATION: Z:\PROJECTS\PROJECTS\2020-136 ROAD ROCKWALL\CADD\SHEETS\CIVIL PLANS\C-12 STORM DRAIN PROFILES.DWG
LAST SAVED: 9/22/2025 4:45 PM



LEGEND	
	PROPOSED STORM DRAIN
	EXISTING STORM DRAIN
	PROPOSED CURB INLET
	PROPOSED UNDERGROUND DETENTION
	PROPOSED CONCRETE PAVEMENT REMOVE AND REPLACE



ROCKWALL CAD
814 JUSTIN ROAD
ROCKWALL, TX 75087

No.	DATE	REVISION	BY

STORM DRAIN PLAN

TBM #1 - ELEV. 583.00
AN "X" CUT SET ON CONCRETE CURB INLET LOCATED WITHIN T.L. TOWNSEND DRIVE (VARIABLE WIDTH) RIGHT-OF-WAY, APPROXIMATELY 3' EAST AND 0' SOUTH FROM A SANITARY SEWER MANHOLE LOCATED NEAR THE EASTERNMOST CORNER OF THE SUBJECT PROPERTY.

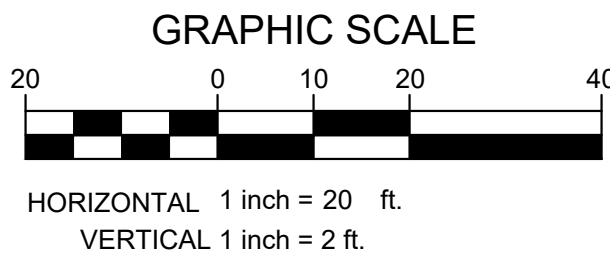
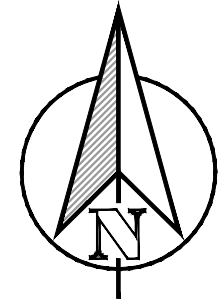
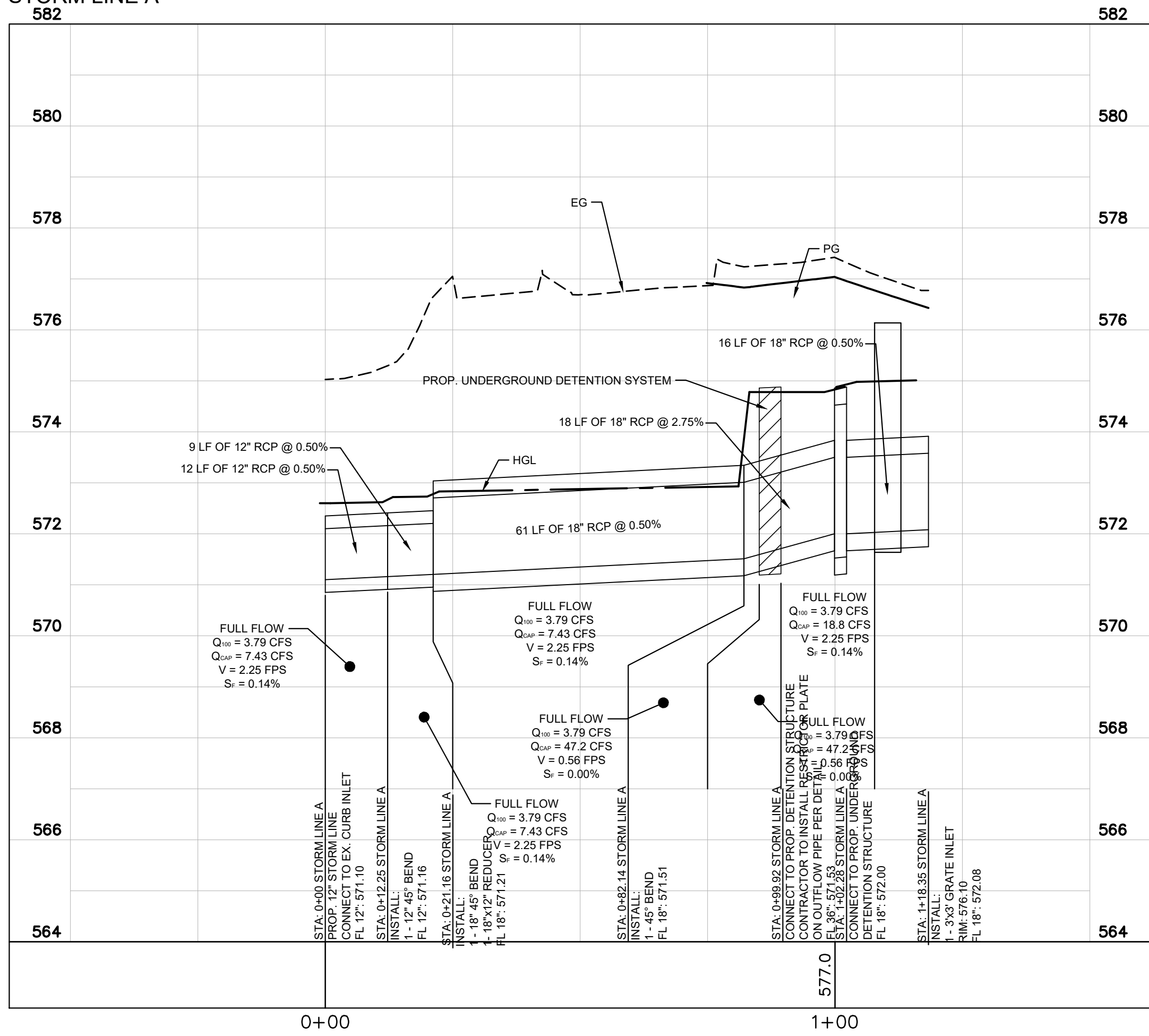
TBM #2 - ELEV. 575.63
AND "X" CUT SET ON CONCRETE LOCATED WITHIN JUSTIN DRIVE (60 FOOT PUBLIC RIGHT-OF-WAY), LOCATED APPROXIMATELY 143' WEST AND 96' SOUTH OF A STORM SEWER MANHOLE LOCATED ON A CONCRETE CURB INLET ALONG THE SOUTHEAST SIDE OF SAID JUSTIN ROAD.

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.

DESIGN:	CWP
DRAWN:	CWP/SD
CHECKED:	CLC
DATE:	9/22/2025
SHEET	
C-11	
File No:	2020-136

PLOTTED BY: CLAY CRISTY
 PLOT DATE: 9/22/2025 5:08 PM
 LOCATION: Z:\PROJECTS\PROJECTS\2020-136 ROAD ROCKWALL\CADD\SHEETS\CIVIL PLANS\C-12 STORM DRAIN PROFILES.DWG
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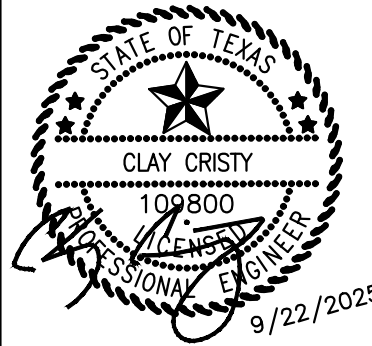
STORM LINE A



TBM #1 - ELEV: 563.00
 18" X 18" CUT SET ON CONCRETE CURB INLET LOCATED WITHIN T.L. TOWNSEND DRIVE (VARIABLE WIDTH) RIGHT-OF-WAY, APPROXIMATELY 3' EAST AND 0' SOUTH FROM A SANITARY SEWER MANHOLE LOCATED NEAR THE EASTERNMOST CORNER OF THE SUBJECT PROPERTY.

TBM #2 - ELEV: 575.63
 18" X 18" CUT SET ON CONCRETE LOCATED WITHIN JUSTIN DRIVE (60 FOOT PUBLIC RIGHT-OF-WAY), LOCATED APPROXIMATELY 143' WEST AND 96' SOUTH OF A STORM SEWER MANHOLE LOCATED ON A CONCRETE CURB INLET ALONG THE SOUTHEAST SIDE OF SAID JUSTIN ROAD.

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.



ROCKWALL CAD
 814 JUSTIN ROAD
 ROCKWALL, TX 75087

No.	DATE	REVISION	BY

STORM DRAIN PROFILES

DESIGN:	CWP
DRAWN:	CWP/SD
CHECKED:	CLC
DATE:	9/22/2025

SHEET
 C-12

PLOTTED BY: CLAY CRISTY
 PLOT DATE: 9/22/2025 4:47 PM
 LOCATION: Z:\PROJECTS\PROJECTS\2020-136 ROAD ROCKWALL\CADD\SHEETS\CIVIL PLANS\C-16 DETENTION POND C CALCULATIONS.DWG
 LAST SAVED: 10/12/2022 1:56 PM

LINE	STA.		INCREMENTAL AREA	CUMULATIVE AREA	RUNOFF COEFFICIENT	INCREMENTAL CA	CUMULATIVE CA	INLET TIME	FLOW TIME IN PIPE	TIME OF CONCENTRATION	INTENSITY	DIST	100 YR STORM DRAIN CALCULATIONS										ROUGH- NESS n	PIPE SLOPE So	PIPE CAPACITY Q _{cap}																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
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LINE B	0+00.00	45° WYE		0.08			0.07		0.52	14.61			0.71	18		1.5		1.77	0.375	0.013	0.30%	5.75	0.40	3.26	0.123	0.67	0.23	1.50	2.17	0.00%	0.00			574.69		573.19	
	0+12.40	30° BEND	0.00	0.08	0.90	0.00	0.07	10.00	0.52	14.09	9.80	12.40	0.71	18		1.5		1.77	0.375	0.013	0.30%	5.75	0.40	3.26	0.123	0.67	0.23	1.50	2.17	0.00%	0.00	0.35	0.10	574.79	574.69	573.23	573.23
	0+28.37	45° BEND	0.00	0.08	0.90	0.00	0.07	10.00	4.03		9.80	96.62	0.71	18		1.5		1.77	0.375	0.013	0.30%	5.75	0.40	3.26	0.123	0.67	0.23	1.50	2.17	0.00%	0.00	0.35	0.10	574.90	574.80	573.39	573.23
	0+80.52	DETENTION STRUCTURE	0.00	0.08	0.90	0.00	0.07	10.00	3.37		9.80	80.65	0.71	18		1.5		1.77	0.375	0.013	0.30%	5.75	0.40	3.26	0.123	0.67	0.23	1.50	2.17	0.00%	0.00	0.35	0.10	576.39	574.90	573.39	573.23
	1+09.02	DETENTION STRUCTURE	0.00	0.08	0.90	0.00	0.07	10.00	0.24	10.06	9.80	28.50	0.71	36		3		7.07	0.750	0.013	0.30%	36.53	0.10	5.17	0.019	0.38	0.09	0.27	1.94	0.00%	0.00	0.35	0.10	576.49	576.39	573.39	573.52
	1+10.52	5' CURB INLET	0.08	0.08	0.90	0.07	0.07	10.00	0.06	10.00	9.80	1.50	0.71	18		1.5		1.77	0.375	0.013	0.30%	5.75	0.40	3.26	0.123	0.67	0.23	1.50	2.17	0.00%	0.00	1.25	0.10	576.59	576.49	573.39	573.39

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TEXAS FIRM #14189

 PHONE 817.261.0372
 WWW.CLAYMOOREENR.COM


 9/22/2025

ROCKWALL CAD
 814 JUSTIN ROAD
 ROCKWALL, TX 75087

STORM DRAIN HGL CALCULATIONS

DESIGN: CWP
 DRAWN: CWP/SD
 CHECKED: CLC
 DATE: 12/17/2021
 SHEET
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CLAY CRISTY
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PLOT DATE:
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DETENTION POND AREAS A & B

Drainage / Detention Calculations

Modified Rational Method

Required Total Storage Volume	2,032 cubic-feet 0.047 acre-feet
Provided Total Storage Volume	2,675 cubic-feet 0.061 acre-feet

Onsite Existing Conditions

Area	0.33 acres	Impervious area delta (Overall Area "A")
Time (Tc)	20 minutes	
C value	0.35	
I-100yr	8.30 in/hr	
Q100yr (T)	0.96 cfs	
Q100yr (T)	0.00 cfs	Onsite Existing Flow
Q100yr (T)	0.00 cfs	Area Passing through Pond (Area E-1)
Q100yr (T)	0.00 cfs	Areas that are Bypassing Pond
Q100yr (T)	0.96 cfs	Allowable Release Rate
Q100yr (T)	0.96 cfs	Proposed Release Rate

Onsite Proposed Conditions

Area	0.28 acres	Impervious area delta (Overall area "A")
Time (Tc)	10 minutes	
C value	0.90	
I-100yr	9.80 in/hr	
Q100yr	2.44 cfs	
Q100yr	2.44 cfs	Developed Runoff

Runoff per Storm Event - Developed

Time (min.)	I-100yr	C value	Area (ac)	Runoff (cfs)
10	9.80	0.90	0.28	2.44
15	9.00	0.90	0.28	2.24
20	8.30	0.90	0.28	2.07
30	6.90	0.90	0.28	1.72
35	6.35	0.90	0.28	1.58
40	5.80	0.90	0.28	1.45
50	5.00	0.90	0.28	1.25
60	4.50	0.90	0.28	1.12
70	4.00	0.90	0.28	1.00
80	3.70	0.90	0.28	0.92
90	3.50	0.90	0.28	0.87
100	3.40	0.90	0.28	0.85
110	3.20	0.90	0.28	0.80

Inflow per Storm Event

Storm Event	Runoff	Inflow (ft³/s)
10	2.44	1,466
15	2.24	2,019
20	2.07	2,483
30	1.72	3,096
35	1.58	3,324
40	1.45	3,470
50	1.25	3,740
60	1.12	4,039
70	1.00	4,188
80	0.92	4,428
90	0.87	4,712
100	0.85	5,086
110	0.80	5,265

Max Allowable Outflow per Storm Event

Storm	Time	Release	Outflow (ft³/s)
10	20	0.96	575
15	25	0.96	719
20	30	0.96	863
30	40	0.96	1,150
35	45	0.96	1,294
40	50	0.96	1,438
50	60	0.96	1,726
60	70	0.96	2,013
70	80	0.96	2,301
80	90	0.96	2,588
90	100	0.96	2,876
100	110	0.96	3,164
110	120	0.96	3,451

Detention Volume Required

Storm	Inflow	Outflow	Storage (ft³)	Storage (acre-ft)
10	1,466	575	891	0.020
15	2,019	719	1,300	0.030
20	2,483	863	1,620	0.037
30	3,096	1,150	1,946	0.045
35	3,324	1,294	2,030	0.047
40	3,470	1,438	2,032	0.047
50	3,740	1,726	2,014	0.046
60	4,039	2,013	2,025	0.046
70	4,188	2,301	1,887	0.043
80	4,428	2,588	1,839	0.042
90	4,712	2,876	1,836	0.042
100	5,086	3,164	1,922	0.044
110	5,265	3,451	1,814	0.042

Drainage / Detention Calculations

Modified Rational Method

Required Total Storage Volume	1,651 cubic-feet 0.038 acre-feet
Provided Total Storage Volume	2,675 cubic-feet 0.061 acre-feet

Onsite Existing Conditions

Area	0.33 acres	Impervious area delta (Overall Area "A")
Time (Tc)	20 minutes	
C value	0.35	
I-25yr	6.60 in/hr	
Q25yr (T)	0.76 cfs	
Q25yr (T)	cfs	Onsite Existing Flow
Q25yr (T)	0.00 cfs	Area Passing through Pond (Area E-1)
Q25yr (T)	0.00 cfs	Areas that are Bypassing Pond
Q25yr (T)	0.76 cfs	Allowable Release Rate
Q25yr (T)	0.76 cfs	Proposed Release Rate

Onsite Proposed Conditions

Area	0.28 acres	Impervious area delta (Overall area "A")
Time (Tc)	10 minutes	
C value	0.90	
I-25yr	8.30 in/hr	
Q25yr	2.07 cfs	
Q25yr	2.07 cfs	Developed Runoff

Runoff per Storm Event - Developed

Time (min.)	I-25yr	C value	Area (ac)	Runoff (cfs)
10	8.30	0.90	0.28	2.07
15	7.50	0.90	0.28	1.87
20	6.60	0.90	0.28	1.65
30	5.50	0.90	0.28	1.37
35	5.05	0.90	0.28	1.26
40	4.60	0.90	0.28	1.15
50	4.00	0.90	0.28	1.00
60	3.50	0.90	0.28	0.87
70	3.30	0.90	0.28	0.82
80	3.10	0.90	0.28	0.77
90	2.90	0.90	0.28	0.72
100	2.70	0.90	0.28	0.67
110	2.50	0.90	0.28	0.62

Inflow per Storm Event

Storm Event	Runoff	Inflow (ft³/s)
10	2.07	1,242
15	1.87	1,683
20	1.65	1,974
30	1.37	2,468
35	1.26	2,644
40	1.15	2,752
50	1.00	2,992
60	0.87	3,141
70	0.82	3,455
80	0.77	3,710
90	0.72	3,904
100	0.67	4,039
110	0.62	4,113

Max Allowable Outflow per Storm Event

Storm	Time	Release	Outflow (ft³/s)
10	20	0.76	457
15	25	0.76	572
20	30	0.76	686
30	40	0.76	915
35	45	0.76	1,029
40	50	0.76	1,143
50	60	0.76	1,372
60	70	0.76	1,601
70	80	0.76	1,830
80	90	0.76	2,058
90	100	0.76	2,287
100	110	0.76	2,516
110	120	0.76	2,744

Detention Volume Required

Storm	Inflow	Outflow	Storage (ft³)	Storage (acre-ft)
10	1,242	457	784	0.018
15	1,683	572	1,111	0.026
20	1,974	686	1,288	0.030
30	2,468	915	1,553	0.036
35	2,644	1,029	1,615	0.037
40	2,752	1,143	1,609	0.037
50	2,992	1,372	1,619	0.037
60	3,141	1,601	1,540	0.035
70	3,455	1,830	1,626	0.037
80	3,710	2,058	1,651	0.038
90	3,904	2,287	1,617	0.037
100	4,039	2,516	1,523	0.035
110	4,113	2,744	1,369	0.031

Drainage / Detention Calculations

Modified Rational Method

Required Total Storage Volume	1,391 cubic-feet 0.032 acre-feet
Provided Total Storage Volume	2,675 cubic-feet 0.061 acre-feet

Onsite Existing Conditions

Area	0.33 acres	Impervious area delta (Overall Area "A")
Time (Tc)	20 minutes	
C value	0.35	
I-10yr	5.90 in/hr	
Q10yr (T)	0.68 cfs	
Q10yr (T)	cfs	Onsite Existing Flow
Q10yr (T)	0.00 cfs	Area Passing through Pond (Area E-1)
Q10yr (T)	0.00 cfs	Areas that are Bypassing Pond
Q10yr (T)	0.68 cfs	Allowable Release Rate
Q10yr (T)	0.68 cfs	Proposed Release Rate

Onsite Proposed Conditions

Area	0.28 acres	Impervious area delta (Overall area "A")
Time (Tc)	10 minutes	
C value	0.90	
I-10yr	7.10 in/hr	
Q10yr	1.77 cfs	
Q10yr	1.77 cfs	Developed Runoff

Runoff per Storm Event - Developed

Time (min.)	I-10yr	C value	Area (ac)	Runoff (cfs)
10	7.10	0.90	0.28	1.77
15	6.50	0.90	0.28	1.62
20	5.90	0.90	0.28	1.47
30	4.80	0.90	0.28	1.20
35	4.40	0.90	0.28	1.10
40	4.00	0.90	0.28	1.00
50	3.50	0.90	0.28	0.87
60	3.00	0.90	0.28	0.75
70	2.80	0.90	0.28	0.70
80	2.60	0.90	0.28	0.65
90	2.50	0.90	0.28	0.62
100	2.40	0.90	0.28	0.60
110	2.30	0.90	0.28	0.57

Inflow per Storm Event

Storm Event	Runoff	Inflow (ft³/s)
10	1.77	1,062
15	1.62	1,458
20	1.47	1,765
30	1.20	2,154
35	1.10	2,304
40	1.00	2,393
50	0.87	2,618
60	0.75	2,692
70	0.70	2,932
80	0.65	3,111
90	0.62	3,366
100	0.60	3,590
110	0.57	3,784

Max Allowable Outflow per Storm Event

Storm	Time	Release	Outflow (ft³/s)
10	20	0.68	409
15	25	0.68	511
20	30	0.68	613
30	40	0.68	818
35	45	0.68	920
40	50	0.68	1,022
50	60	0.68	1,227
60	70	0.68	1,431
70	80	0.68	1,635
80	90	0.68	1,840
90	100	0.68	2,044
100	110	0.68	2,249
110	120	0.68	2,453

Detention Volume Required

Storm	Inflow	Outflow	Storage (ft³)	Storage (acre-ft)
10	1,062	409	653	0.015
15	1,458	511	947	0.022
20	1,765	613	1,152	0.026
30	2,154	818	1,336	0.031
35	2,304	920	1,384	0.032
40	2,393	1,022	1,371	0.031
50	2,618	1,227	1,391	0.032
60	2,692	1,431	1,261	0.029
70	2,932	1,635	1,296	0.030
80	3,111	1,840	1,271	0.029
90	3,366	2,044	1,321	0.030
100	3,590	2,249	1,341	0.031
110	3,784	2,453	1,331	0.031

Drainage / Detention Calculations

Modified Rational Method

Required Total Storage Volume	689 cubic-feet 0.016 acre-feet
Provided Total Storage Volume	2,675 cubic-feet 0.061 acre-feet

Onsite Existing Conditions

Area	0.33 acres	Impervious area delta (Overall Area "A")
Time (Tc)	20 minutes	
C value	0.35	
I-5yr	8.30 in/hr	
Q5yr (T)	0.96 cfs	
Q5yr (T)	0.00 cfs	Onsite Existing Flow
Q5yr (T)	0.00 cfs	Area Passing through Pond (Area E-1)
Q5yr (T)	0.00 cfs	Areas that are Bypassing Pond
Q5yr (T)	0.96 cfs	Allowable Release Rate
Q5yr (T)	0.96 cfs	Proposed Release Rate

Onsite Proposed Conditions

Area	0.28 acres	Impervious area delta (Overall area "A")
Time (Tc)	10 minutes	
C value	0.90	
I-5yr	6.10 in/hr	
Q5yr	1.52 cfs	
Q5yr	1.52 cfs	Developed Runoff

Runoff per Storm Event - Developed

Time (min.)	I-5yr	C value	Area (ac)	Runoff (cfs)
10	6.10	0.90	0.28	1.52
15	5.50	0.90	0.28	1.37
20	4.90	0.90	0.28	1.22
30	4.10	0.90	0.28	1.02
35	3.75	0.90	0.28	0.93
40	3.40	0.90	0.28	0.85
50	2.80	0.90	0.28	0.70
60	2.60	0.90	0.28	0.65
70	2.40	0.90	0.28	0.60
80	2.30	0.90	0.28	0.57
90	2.10	0.90	0.28	0.52
100	1.90	0.90	0.28	0.47
110	1.80	0.90	0.28	0.45

Inflow per Storm Event

Storm Event	Runoff	Inflow (ft³/s)
10	1.52	912
15	1.37	1,234
20	1.22	1,466
30	1.02	1,840
35	0.93	1,963
40	0.85	2,034
50	0.70	2,094
60	0.65	2,333
70	0.60	2,513
80	0.57	2,752
90	0.52	2,827
100	0.47	2,842
110	0.45	2,962

PLOTTED BY: CLAY CRISTY
 PLOT DATE: 9/22/2025 4:47 PM
 LOCATION: Z:\PROJECTS\PROJECTS\2020-136 ROAD ROCKWALL\CADD\SHEETS\CIVIL PLANS\C-16 DETENTION POND C CALCULATIONS.DWG
 LAST SAVED: 10/12/2022 1:56 PM

DETENTION POND C

Drainage / Detention Calculations
Modified Rational Method

Required Total Storage Volume	2,246 cubic-feet
	0.052 acre-feet
Provided Total Storage Volume	2,262 cubic-feet
	0.052 acre-feet

Onsite Existing Conditions		Impervious area delta (Overall Area "C")
Area	0.26 acres	
Time (Tc)	20 minutes	
C value	0.35	
I-100yr	8.30 in/hr	
Q100yr (T)	0.74 cfs	Onsite Existing Flow
Q100yr (T)	0.00 cfs	Offsite Drainage Areas
Q100yr (T)	0.00 cfs	Areas that are Bypassing Pond
Q100yr (T)	0.74 cfs	Allowable Release Rate
Q100yr (T)	0.74 cfs	Proposed Release Rate

Onsite Proposed Conditions		Impervious area delta (Overall area "C")
Area	0.26 acres	
Time (Tc)	10 minutes	
C value	0.90	
I-100yr	9.80 in/hr	
Q100yr	2.26 cfs	Developed Runoff

Runoff per Storm Event - Developed				
Time (min.)	I-100yr	C value	Area (ac)	Runoff (cfs)
10	9.80	0.90	0.26	2.26
15	9.00	0.90	0.26	2.07
20	8.30	0.90	0.26	1.91
30	6.90	0.90	0.26	1.59
35	6.35	0.90	0.26	1.46
40	5.80	0.90	0.26	1.34
50	5.00	0.90	0.26	1.15
60	4.50	0.90	0.26	1.04
70	4.00	0.90	0.26	0.92
80	3.70	0.90	0.26	0.85
90	3.50	0.90	0.26	0.81
100	3.40	0.90	0.26	0.78
110	3.20	0.90	0.26	0.74

Inflow per Storm Event			
Storm Event	Runoff	Inflow (ft³/s)	
10	2.26	1,355	
15	2.07	1,866	
20	1.91	2,295	
30	1.59	2,862	
35	1.46	3,072	
40	1.34	3,207	
50	1.15	3,456	
60	1.04	3,732	
70	0.92	3,871	
80	0.85	4,092	
90	0.81	4,355	
100	0.78	4,700	
110	0.74	4,866	

Max Allowable Outflow per Storm Event				
Storm	Time	Release	Outflow (ft³/s)	
10	20	0.74	446	
15	25	0.74	558	
20	30	0.74	669	
30	40	0.74	892	
35	45	0.74	1,004	
40	50	0.74	1,116	
50	60	0.74	1,339	
60	70	0.74	1,562	
70	80	0.74	1,785	
80	90	0.74	2,008	
90	100	0.74	2,231	
100	110	0.74	2,454	
110	120	0.74	2,677	

Detention Volume Required				
Storm	Inflow	Outflow	Storage (ft³)	Storage (acre-ft)
10	1,355	446	909	0.021
15	1,866	558	1,308	0.030
20	2,295	669	1,625	0.037
30	2,862	892	1,969	0.045
35	3,072	1,004	2,068	0.047
40	3,207	1,116	2,092	0.048
50	3,456	1,339	2,117	0.049
60	3,732	1,562	2,171	0.050
70	3,871	1,785	2,086	0.048
80	4,092	2,008	2,084	0.048
90	4,355	2,231	2,124	0.049
100	4,700	2,454	2,246	0.052
110	4,866	2,677	2,189	0.050

Drainage / Detention Calculations
Modified Rational Method

Required Total Storage Volume	1,834 cubic-feet
	0.042 acre-feet
Provided Total Storage Volume	2,262 cubic-feet
	0.052 acre-feet

Onsite Existing Conditions		Impervious area delta (Overall Area "C")
Area	0.26 acres	
Time (Tc)	20 minutes	
C value	0.35	
I-25yr	6.60 in/hr	
Q25yr (T)	0.59 cfs	Onsite Existing Flow
Q25yr (T)	0.00 cfs	Offsite Drainage Areas
Q25yr (T)	0.00 cfs	Areas that are Bypassing Pond
Q25yr (T)	0.59 cfs	Allowable Release Rate
Q25yr (T)	0.59 cfs	Proposed Release Rate

Onsite Proposed Conditions		Impervious area delta (Overall area "C")
Area	0.26 acres	
Time (Tc)	10 minutes	
C value	0.90	
I-25yr	8.30 in/hr	
Q25yr	1.91 cfs	Developed Runoff

Runoff per Storm Event - Developed				
Time (min.)	I-25yr	C value	Area (ac)	Runoff (cfs)
10	8.30	0.90	0.26	1.91
15	7.50	0.90	0.26	1.73
20	6.60	0.90	0.26	1.52
30	5.50	0.90	0.26	1.27
35	5.05	0.90	0.26	1.16
40	4.60	0.90	0.26	1.06
50	4.00	0.90	0.26	0.92
60	3.50	0.90	0.26	0.81
70	3.30	0.90	0.26	0.76
80	3.10	0.90	0.26	0.71
90	2.90	0.90	0.26	0.67
100	2.70	0.90	0.26	0.62
110	2.50	0.90	0.26	0.58

Inflow per Storm Event			
Storm Event	Runoff	Inflow (ft³/s)	
10	1.91	1,147	
15	1.73	1,555	
20	1.52	1,825	
30	1.27	2,281	
35	1.16	2,443	
40	1.06	2,544	
50	0.92	2,765	
60	0.81	2,903	
70	0.76	3,193	
80	0.71	3,428	
90	0.67	3,608	
100	0.62	3,732	
110	0.58	3,802	

Max Allowable Outflow per Storm Event				
Storm	Time	Release	Outflow (ft³/s)	
10	20	0.59	355	
15	25	0.59	444	
20	30	0.59	532	
30	40	0.59	710	
35	45	0.59	798	
40	50	0.59	887	
50	60	0.59	1,064	
60	70	0.59	1,242	
70	80	0.59	1,419	
80	90	0.59	1,597	
90	100	0.59	1,774	
100	110	0.59	1,951	
110	120	0.59	2,129	

Detention Volume Required				
Storm	Inflow	Outflow	Storage (ft³)	Storage (acre-ft)
10	1,147	355	793	0.018
15	1,555	444	1,112	0.026
20	1,825	532	1,293	0.030
30	2,281	710	1,571	0.036
35	2,443	798	1,645	0.038
40	2,544	887	1,657	0.038
50	2,765	1,064	1,700	0.039
60	2,903	1,242	1,661	0.038
70	3,193	1,419	1,774	0.041
80	3,428	1,597	1,832	0.042
90	3,608	1,774	1,834	0.042
100	3,732	1,951	1,781	0.041
110	3,802	2,129	1,673	0.038

Drainage / Detention Calculations
Modified Rational Method

Required Total Storage Volume	1,594 cubic-feet
	0.037 acre-feet
Provided Total Storage Volume	2,262 cubic-feet
	0.052 acre-feet

Onsite Existing Conditions		Impervious area delta (Overall Area "C")
Area	0.26 acres	
Time (Tc)	20 minutes	
C value	0.35	
I-10yr	5.90 in/hr	
Q10yr (T)	0.53 cfs	Onsite Existing Flow
Q10yr (T)	0.00 cfs	Offsite Drainage Areas
Q10yr (T)	0.00 cfs	Areas that are Bypassing Pond
Q10yr (T)	0.53 cfs	Allowable Release Rate
Q10yr (T)	0.53 cfs	Proposed Release Rate

Onsite Proposed Conditions		Impervious area delta (Overall area "C")
Area	0.26 acres	
Time (Tc)	10 minutes	
C value	0.90	
I-10yr	7.10 in/hr	
Q10yr	1.64 cfs	Developed Runoff

Runoff per Storm Event - Developed				
Time (min.)	I-10yr	C value	Area (ac)	Runoff (cfs)
10	7.10	0.90	0.26	1.64
15	6.50	0.90	0.26	1.50
20	5.90	0.90	0.26	1.36
30	4.80	0.90	0.26	1.11
35	4.40	0.90	0.26	1.01
40	4.00	0.90	0.26	0.92
50	3.50	0.90	0.26	0.81
60	3.00	0.90	0.26	0.69
70	2.80	0.90	0.26	0.65
80	2.60	0.90	0.26	0.60
90	2.50	0.90	0.26	0.58
100	2.40	0.90	0.26	0.55
110	2.30	0.90	0.26	0.53

Inflow per Storm Event			
Storm Event	Runoff	Inflow (ft³/s)	
10	1.64	982	
15	1.50	1,348	
20	1.36	1,631	
30	1.11	1,991	
35	1.01	2,129	
40	0.92	2,212	
50	0.81	2,419	
60	0.69	2,488	
70	0.65	2,710	
80	0.60	2,875	
90	0.58	3,110	
100	0.55	3,318	
110	0.53	3,497	

Max Allowable Outflow per Storm Event				
Storm	Time	Release	Outflow (ft³/s)	
10	20	0.53	317	
15	25	0.53	396	
20	30	0.53	476	
30	40	0.53	634	
35	45	0.53	714	
40	50	0.53	793	
50	60	0.53	952	
60	70	0.53	1,110	
70	80	0.53	1,269	
80	90	0.53	1,427	
90	100	0.53	1,586	
100	110	0.53	1,745	
110	120	0.53	1,903	

Detention Volume Required				
Storm	Inflow	Outflow	Storage (ft³)	Storage (acre-ft)
10	982	317	664	0.015
15	1,348	396	951	0.022
20	1,631	476	1,155	0.027
30	1,991	634	1,356	0.031
35	2,129	714	1,415	0.032
40	2,212	793	1,419	0.033
50	2,419	952	1,468	0.034
60	2,488	1,110	1,378	0.032
70	2,710	1,269	1,441	0.033
80	2,875	1,427	1,448	0.033
90	3,110	1,586	1,524	0.035
100	3,318	1,745	1,573	0.036
110	3,497	1,903	1,594	0.037

Drainage / Detention Calculations
Modified Rational Method

Required Total Storage Volume	1,358 cubic-feet
	0.031 acre-feet
Provided Total Storage Volume	2,262 cubic-feet
	0.052 acre-feet

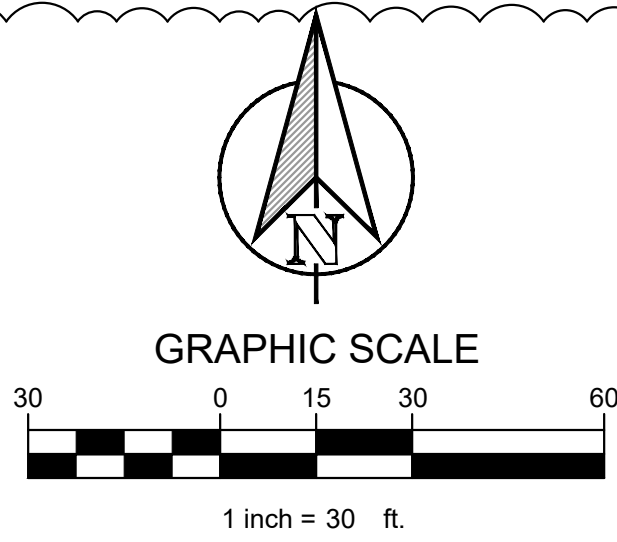
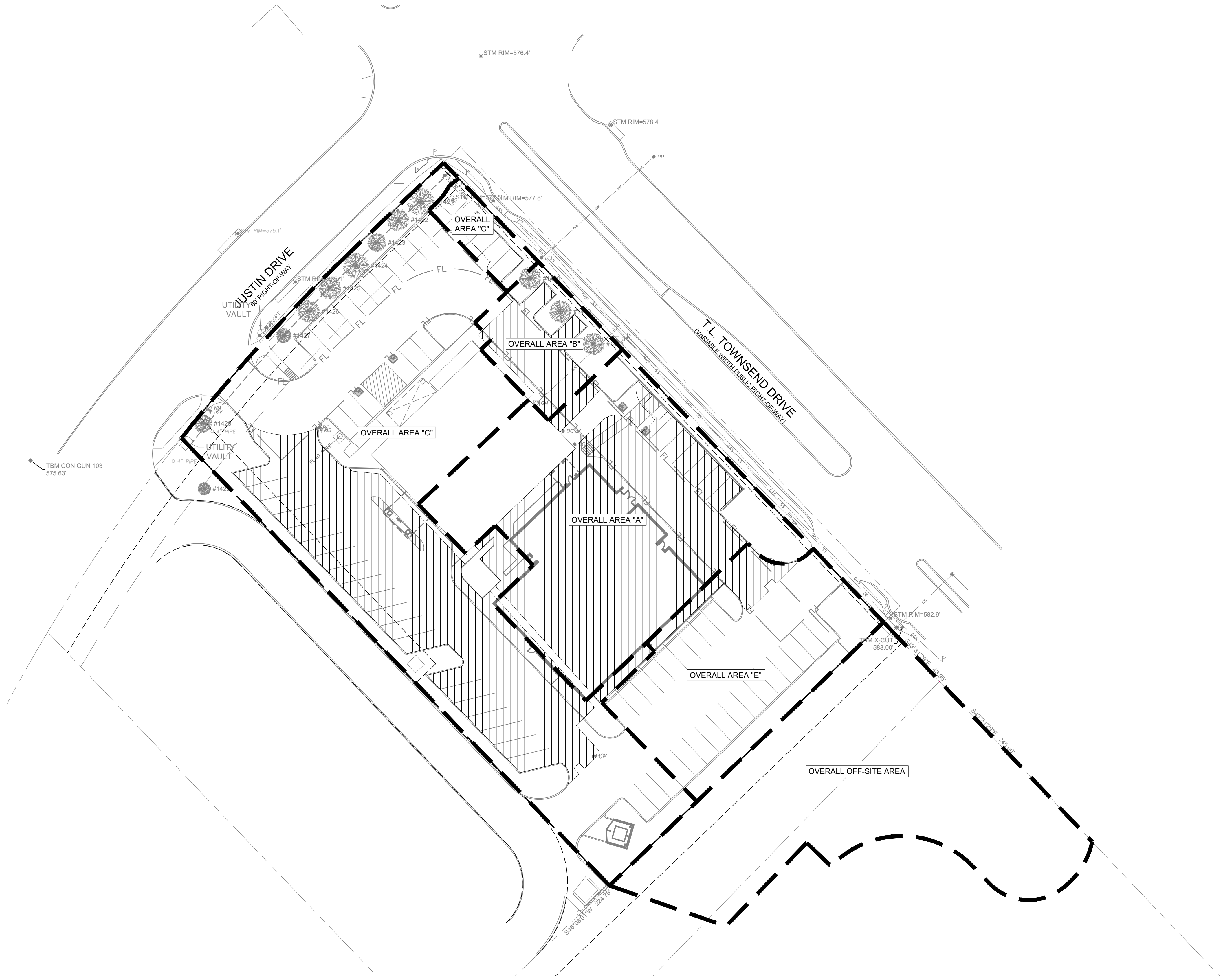
Onsite Existing Conditions		Impervious area delta (Overall Area "C")
Area	0.26 acres	
Time (Tc)	20 minutes	
C value	0.35	
I-5yr	4.90 in/hr	
Q5yr (T)	0.44 cfs	Onsite Existing Flow
Q5yr (T)	0.00 cfs	Offsite Drainage Areas
Q5yr (T)	0.00 cfs	Areas that are Bypassing Pond
Q5yr (T)	0.44 cfs	Allowable Release Rate
Q5yr (T)	0.44 cfs	Proposed Release Rate

Onsite Proposed Conditions		Impervious area delta (Overall area "C")
Area	0.26 acres	
Time (Tc)	10 minutes	
C value	0.90	
I-5yr	6.10 in/hr	
Q5yr	1.41 cfs	Developed Runoff

Runoff per Storm Event - Developed				
Time (min.)	I-5yr	C value	Area (ac)	Runoff (cfs)
10	6.10	0.90	0.26	1.41
15	5.50	0.90	0.26	1.27
20	4.90	0.90	0.26	1.13
30	4.10	0.90	0.26	0.94
35	3.75	0.90	0.26	0.86
40	3.40	0.90	0.26	0.78
50	2.80	0.90	0.26	0.65
60	2.60	0.90	0.26	0.60
70	2.40	0.90	0.26	0.55
80	2.30	0.90	0.26	0.53
90	2.10	0.90	0.26	0.48
100	1.90	0.90	0.26	0.44
110	1.80	0.90	0.26	0.41

Inflow per Storm Event		
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PLOTTED BY: CLAY CRISTY
 PLOT DATE: 9/22/2025 4:47 PM
 LOCATION: Z:\PROJECTS\PROJECTS\2020-136 ROAD ROCKWALL\CADD\SHEETS\CIVIL PLANS\C-17 IMPERVIOUS AREA DELTA CALCULATIONS.DWG
 LAST SAVED: 7/29/2021 2:45 PM



LEGEND	
	PROPOSED (+Δ) IMPERVIOUS AREA
	PROPOSED DRAINAGE AREA

PROPOSED IMPERVIOUS AREA TABLE	
OVERALL AREA	IMP. AREA
A	+0.28 AC
B	+0.05 AC
C	+0.26 AC
D	0 AC
E	0 AC

TBM #1 - ELEV. 563.00
 18" X 18" CUT SET ON CONCRETE CURB INLET LOCATED WITHIN T.L. TOWNSEND DRIVE (VARIABLE WIDTH RIGHT-OF-WAY, APPROXIMATELY 3' EAST AND 0' SOUTH FROM A SANITARY SEWER MANHOLE LOCATED NEAR THE EASTERMOST CORNER OF THE SUBJECT PROPERTY.

TBM #2 - ELEV. 575.63
 18" X 18" CUT SET ON CONCRETE LOCATED WITHIN JUSTIN DRIVE (60 FOOT PUBLIC RIGHT-OF-WAY), LOCATED APPROXIMATELY 143' WEST AND 96' SOUTH OF A STORM SEWER MANHOLE LOCATED ON A CONCRETE CURB INLET ALONG THE SOUTHEAST SIDE OF SAID JUSTIN ROAD.

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.

TEXAS FIRM #14199
CLAY MOORE
ENGINEERING
 1903 CENTRAL DR. SUITE #403
 ROCKWALL, TX 75087
 PHONE 972.261.0072
 WWW.CLAYMOOREENR.COM

STATE OF TEXAS
 CLAY CRISTY
 109800
 PROFESSIONAL ENGINEER
 9/22/2025

ROCKWALL CAD
 814 JUSTIN ROAD
 ROCKWALL, TX 75087

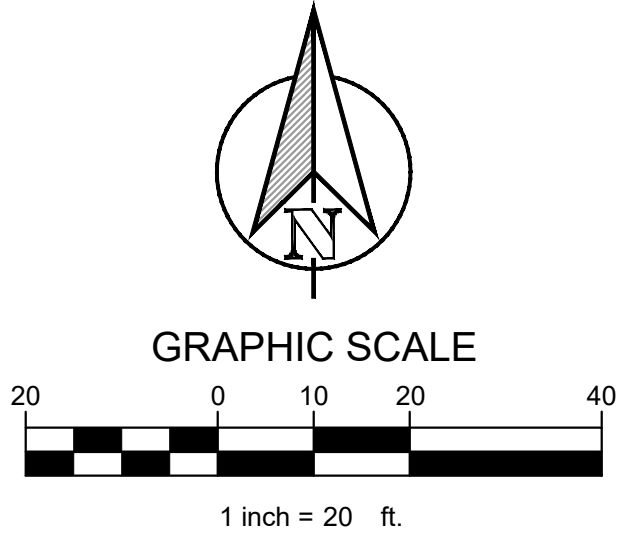
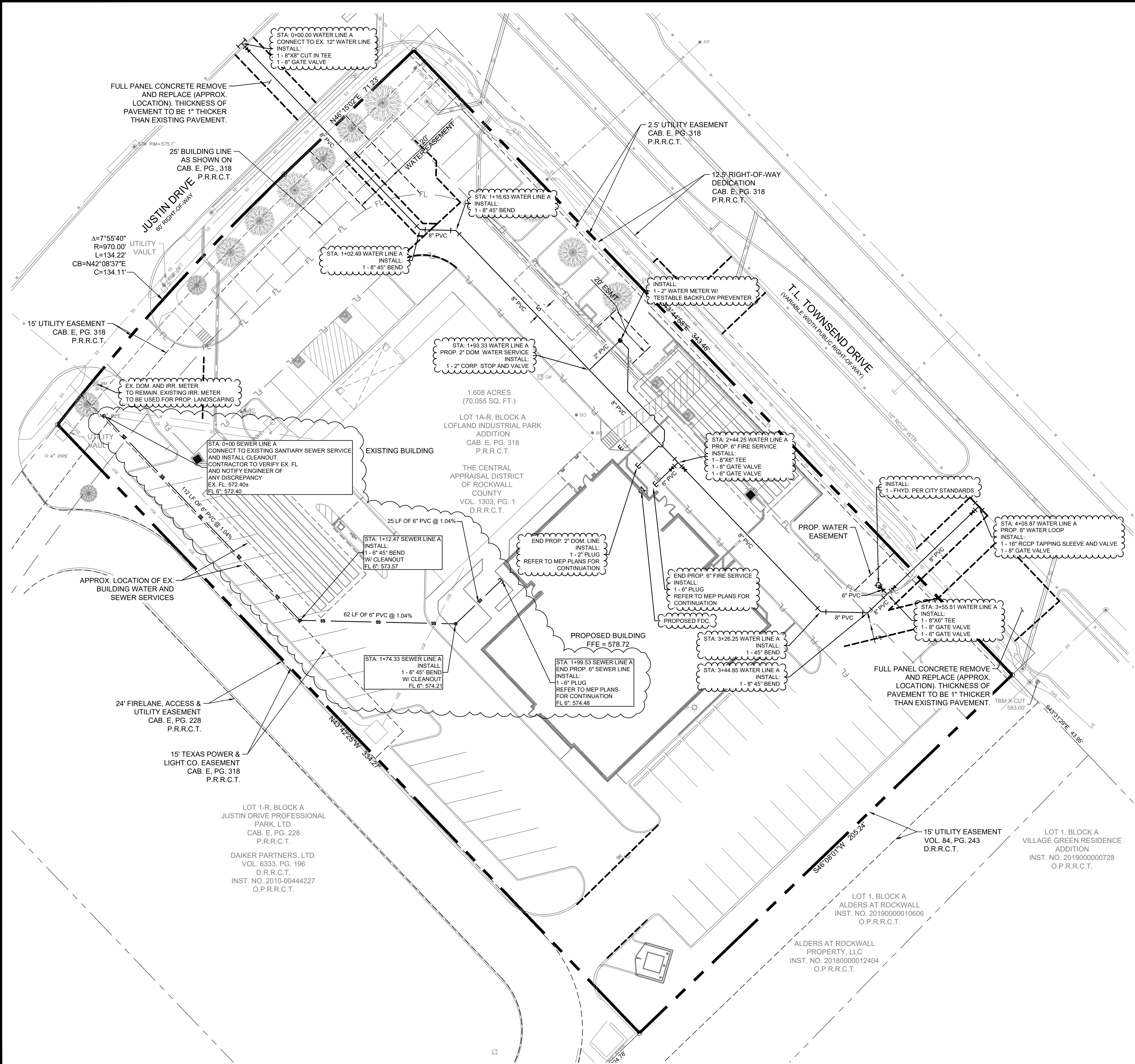
No.	DATE	REVISION	BY

IMPERVIOUS AREA DELTA
 CALCULATIONS

DESIGN:	CWP
DRAWN:	CWP/SD
CHECKED:	CLC
DATE:	7/29/2021

SHEET
 C-16.01

PLOTTED BY: CLAY CRISTY
 PLOT DATE: 9/22/2023 4:47 PM
 LOCATION: 71 PROJECTS\PROJECTS\2020-136 ROAD ROCKWALL\CADD\SHEETS\CIVIL PLANS\C-17 UTILITY PLAN.DWG
 LAST SAVED: 12/16/2021 3:11 PM



LEGEND	
	EXISTING FIRE HYDRANT ASSEMBLY
	PROPOSED FIRE HYDRANT ASSEMBLY
	EXISTING WATER MAIN
	PROPOSED WATER LINE AND GATE VALVE
	EXISTING SANITARY SEWER AND MANHOLE
	PROPOSED SANITARY SEWER LINE

- NOTES:**
- CONTRACTOR SHALL COORDINATE WITH FRANCHISE UTILITY COMPANIES AND IRRIGATION PLANS TO DETERMINE QUANTITY, SIZE, AND LOCATION FOR ALL CONDUIT AND SLEEVING REQUIRED TO SERVE BUILDING AND SITE. ALL CONDUIT AND SLEEVES SHALL BE INSTALLED PRIOR TO SUBGRADE PREPARATION AND PAVING.
- FRANCHISE UTILITY NOTES:**
- THE GAS, ELECTRIC AND TELEPHONE INFORMATION SHOWN ON THIS PLAN IS BASED UPON THE LATEST INFORMATION AVAILABLE FROM THE RESPECTIVE FRANCHISE UTILITY COMPANIES. IT IS INTENDED FOR PURPOSES OF GENERAL BIDDING AND BASIC CLARITY. SPECIFIC JOB SITE CONDITIONS SHALL BE FIELD VERIFIED PER NOTES 2 THROUGH 4 BELOW. THE FRANCHISE UTILITY CONTRACTOR ASSUMES ALL RESPONSIBILITY FOR SAID FIELD CONDITIONS AND ASSOCIATED REVISIONS REQUIRED BY THE RESPECTIVE UTILITY COMPANIES INVOLVED.
 - THE FRANCHISE UTILITY CONTRACTOR SHALL CONTACT THE RESPECTIVE FRANCHISE UTILITY COMPANIES, VERIFY ALL REQUIREMENTS AND EQUIPMENT, AND FURNISH AND INSTALL, INCLUDING BUT NOT LIMITED TO, ALL METERS, TRANSFORMERS, CONDUIT, CONCRETE PADS, TRENCHING, AND BACKFILL NECESSARY FOR PROPER INSTALLATION. FRANCHISE UTILITY CONTRACTOR SHALL ALSO PAY ALL FEES AND CHARGES INCURRED AND COORDINATE WITH OTHER FRANCHISE UTILITY COMPANIES.
 - THE FRANCHISE UTILITY CONTRACTOR SHALL FIELD VERIFY, IN THE PRESENCE OF THE RESPECTIVE UTILITY COMPANY REPRESENTATIVES, THE LOCATION OF ALL EXISTING AND PROPOSED UTILITY SERVICES AND EQUIPMENT. THE FRANCHISE UTILITY CONTRACTOR SHALL INCLUDE IN HIS BID SUFFICIENT FUNDS TO COVER ALL COSTS REQUIRED BY UTILITY COMPANIES TO PROVIDE NEW SERVICES AND/OR UPGRADE EXISTING SERVICES. NO ALLOWANCES WILL BE MADE FOR FRANCHISE UTILITY CONTRACTOR'S UNFAMILIARITY WITH THE EXISTING CONDITION, REQUIREMENTS OF THE NEW CONDITIONS, AND/OR FAILURE TO COORDINATE INSTALLATION.
 - CONTRACTOR SHALL VERIFY THAT METER AND TRANSFORMER LOCATIONS SHOWN MEET DESIGN CRITERIA BY FRANCHISE UTILITY COMPANIES FOR, BUT NOT LIMITED TO, THE OFFSET DISTANCE FROM FACE OF BUILDING.

UTILITY LOCATION NOTE:
 THE LOCATION OF EXISTING UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE AND BASED ON EXISTING PLANS AND DATA FURNISHED BY UTILITY COMPANIES. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES THAT MAY CONFLICT WITH CONSTRUCTION. CALL 1-800-344-8377 TWO WORKING DAYS PRIOR TO CONSTRUCTION FOR ON-SITE LOCATIONS. ANY DAMAGE TO EXISTING UTILITIES SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE, AT NO ADDITIONAL COST.

TBM #1 - ELEV. 563.00
 AN "X" CUT SET ON CONCRETE CURB INLET LOCATED WITHIN T.L. TOWNSEND DRIVE (VARIABLE WIDTH) RIGHT-OF-WAY, APPROXIMATELY 3' EAST AND 0' SOUTH FROM A SANITARY SEWER MANHOLE LOCATED NEAR THE EASTERNMOST CORNER OF THE SUBJECT PROPERTY.

TBM #2 - ELEV. 575.63
 AND "X" CUT SET ON CONCRETE LOCATED WITHIN JUSTIN DRIVE (60 FOOT PUBLIC RIGHT-OF-WAY), LOCATED APPROXIMATELY 143' WEST AND 96' SOUTH OF A STORM SEWER MANHOLE LOCATED ON A CONCRETE CURB INLET ALONG THE SOUTHEAST SIDE OF SAID JUSTIN ROAD.

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.

TEXAS FIRM #14189
CLAY MOORE ENGINEERING
 1903 CENTRAL DR. SUITE #405
 ROCKWALL, TX 75087
 PHONE 972.261.0072
 WWW.CLAYMOOREENR.COM

STATE OF TEXAS
 CLAY CRISTY
 100800
 PROFESSIONAL ENGINEER
 9/22/2023

ROCKWALL CAD
814 JUSTIN ROAD
ROCKWALL, TX 75087

No.	DATE	REVISION	BY

UTILITY PLAN

SHEET
C-17

DESIGN: CWP
 DRAWN: CWP/SD
 CHECKED: CLC
 DATE: 12/16/2021

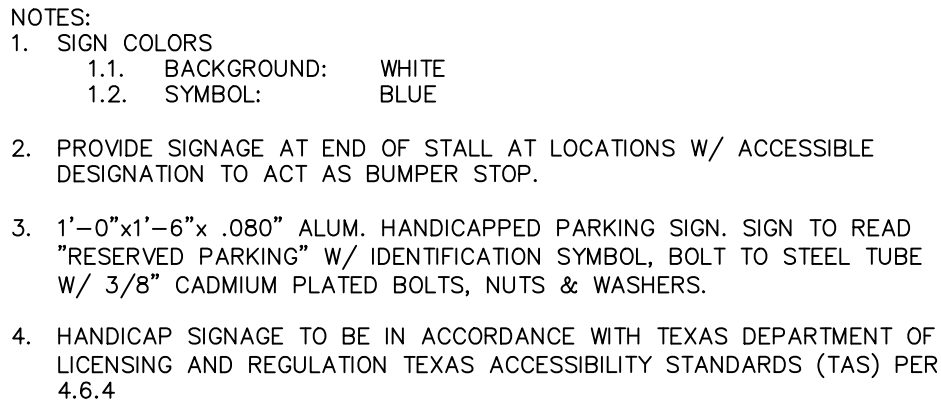
File No: 2020-136

PLOTTED BY: CLAY CRISTY
 PLOT DATE: 9/22/2025 4: 47 PM
 LOCATION: Z: \PROJECTS\PROJECT
 LAST SAVED: 7/29/2021 11: 37 AM

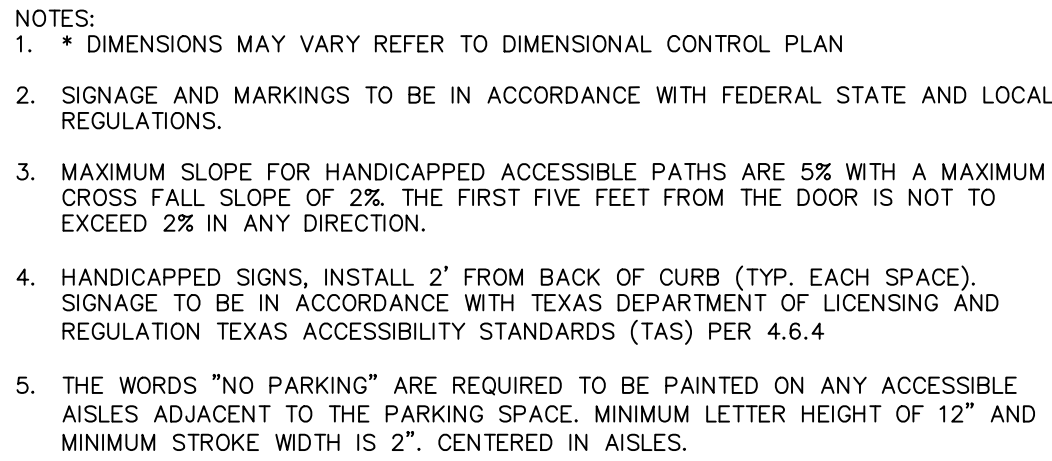


1. REFER TO GEOTECHNICAL REPORT NO. 21.032 PREPARED BY HOOPER GROUP, INC. (DATED 02/18/21) FOR ALL SUBGRADE SPECIFICATIONS AND REQUIREMENTS.
2. FOR PREPARATION OF PAVEMENT SUBGRADE, FILL PLACED BELOW FINISHED SUBGRADE ELEVATION IN FILL AREAS IN ALL AREAS TO BE PAVED SHALL BE COMPACTED TO THE RANGE OF 92 TO 98 PERCENT OF ASTM D698 (STANDARD PROCTOR) MAXIMUM DENSITY AT A MOISTURE CONTENT AT LEAST 3% ABOVE OPTIMUM.
3. CONCRETE SHALL HAVE A MINIMUM 3,600 PSI COMPRESSIVE STRENGTH FOR FAVOR, DUTY AND DUMPFSTER AREA, AND 3,600 PSI FOR STANDARD DUTY AT 28 DAYS. JOINTS IN CONCRETE PAVING SHALL BE FORMED AT A MAXIMUM OF 15 FEET. CONCRETE SHALL INCLUDE AIR ENTRAINMENT OF 5.0±0.1 PERCENT. ALL OTHER JOINT SPACING SHALL BE INSTALLED PER PROJECT SPECIFICATIONS.
4. JOINTS IN CONCRETE PAVEMENT SHALL NOT EXCEED 15 FOOT SPACING.

SCALE: NONE



N.T.S.



N.T.S.



N.T.S.



N.T.S.



- ADDITIONAL SIGN REQUIRED ON "VAN ACCESSIBLE" SPACES- SEE SITE PLAN FOR LOCATION
- TOWING SIGN REQUIRED AT ALL ACCESSIBLE PARKING SPACES

NOTES:

1. A SIGN IDENTIFYING THE CONSEQUENCES OF PARKING ILLEGALLY IN A PAVED ACCESSIBLE PARKING SPACE MUST AT A MINIMUM:

- 1.1. STATE "VIOLATORS SUBJECT TO FINE AND TOWING" IN A LETTER HEIGHT OF AT LEAST 1 INCH;
- 1.2. BE MOUNTED ON A POLE, POST, WALL OR FREESTANDING BOARD;
- 1.3. BE NO MORE THAN EIGHT (8) INCHES BELOW A SIGN REQUIRED BY TEXAS ACCESSIBILITY STANDARDS, 506.6;
- 1.4. AND BE INSTALLED SO THAT THE BOTTOM EDGE OF THE SIGN IS NO LOWER THAN 48 INCHES AND NO HIGHER THAN 80 INCHES ABOVE GROUND LEVEL.

N.T.S.

ROCKWALL CAD
814 JUSTIN ROAD
ROCKWALL, TX 75087

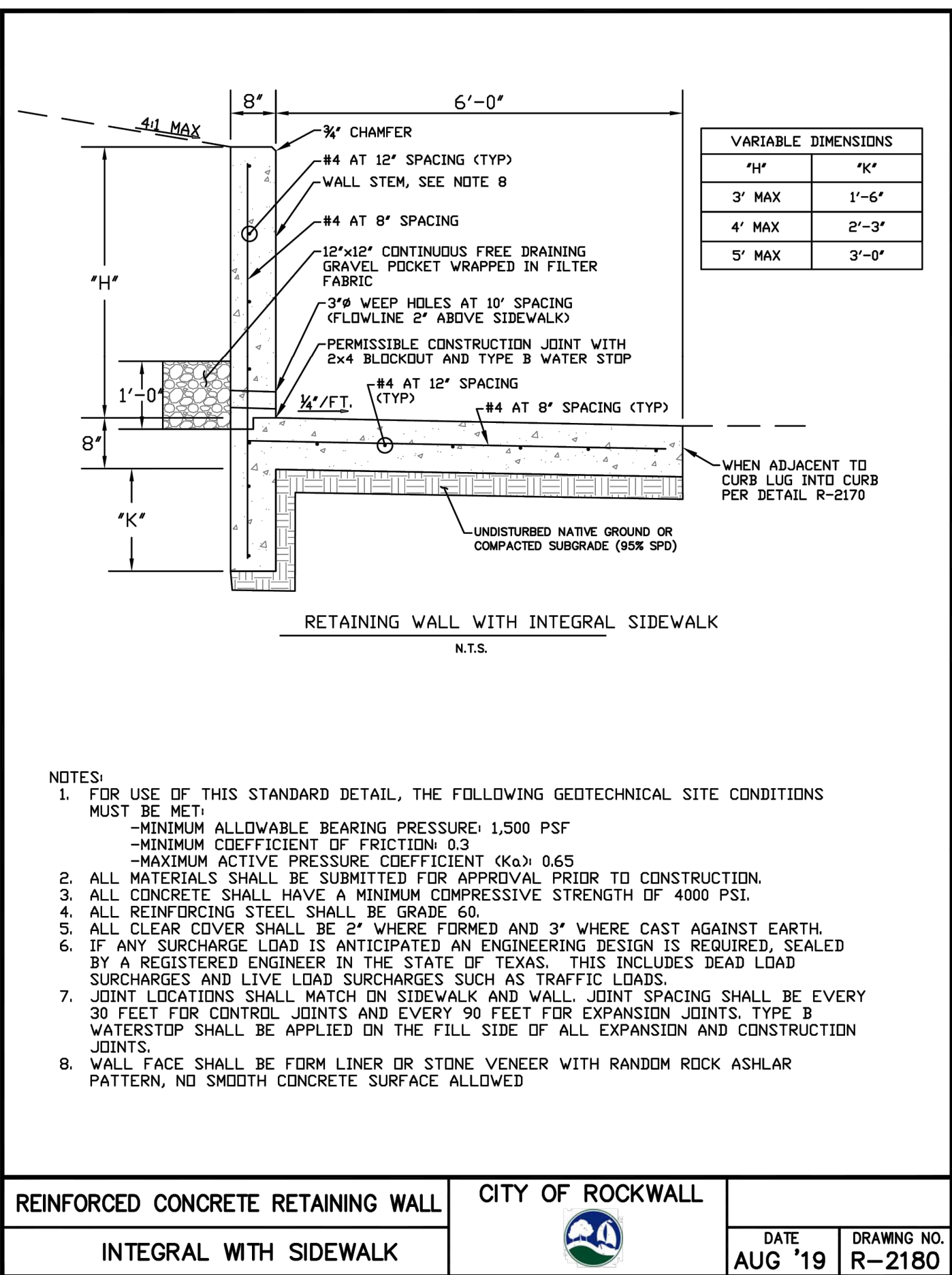
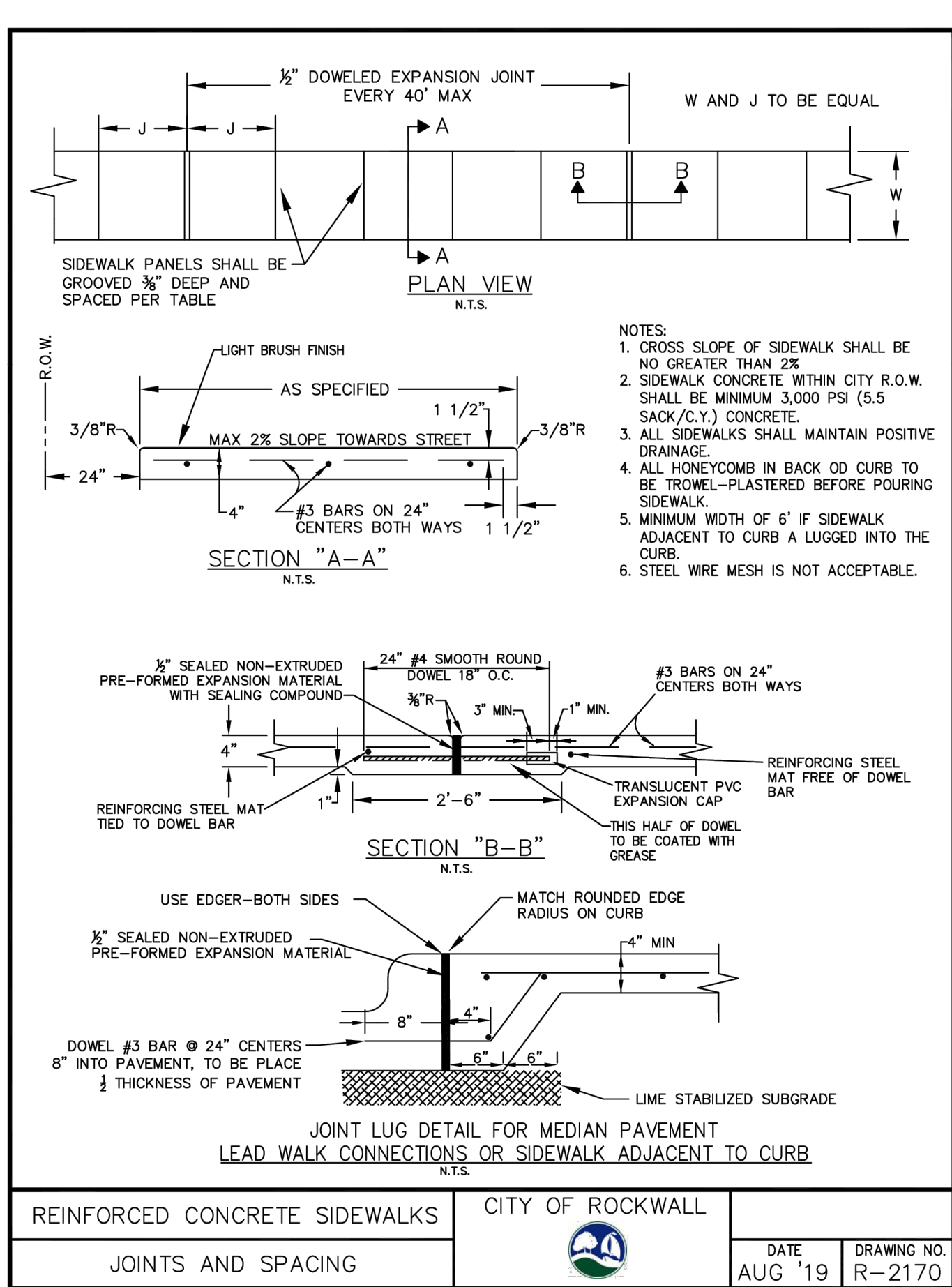
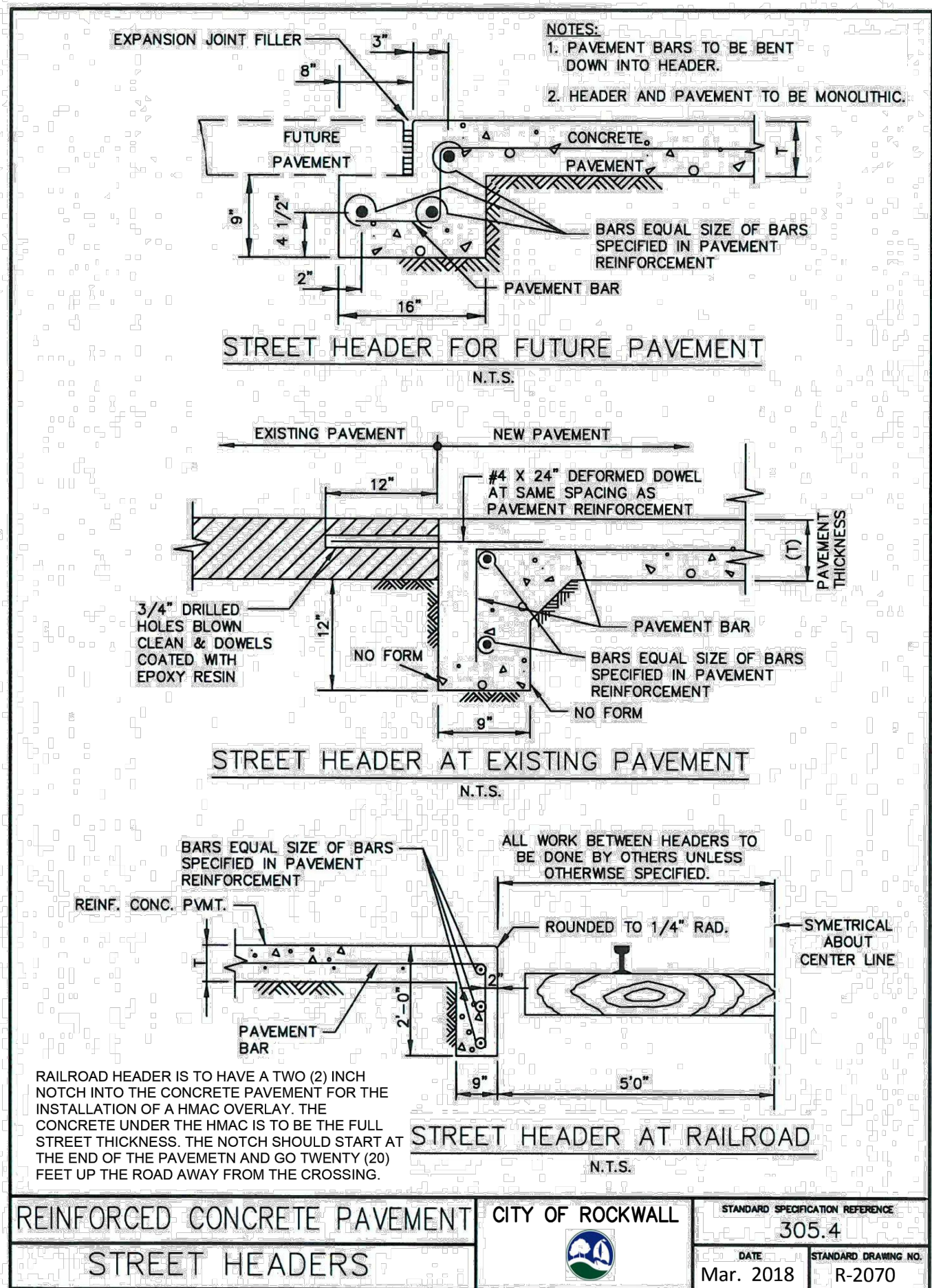
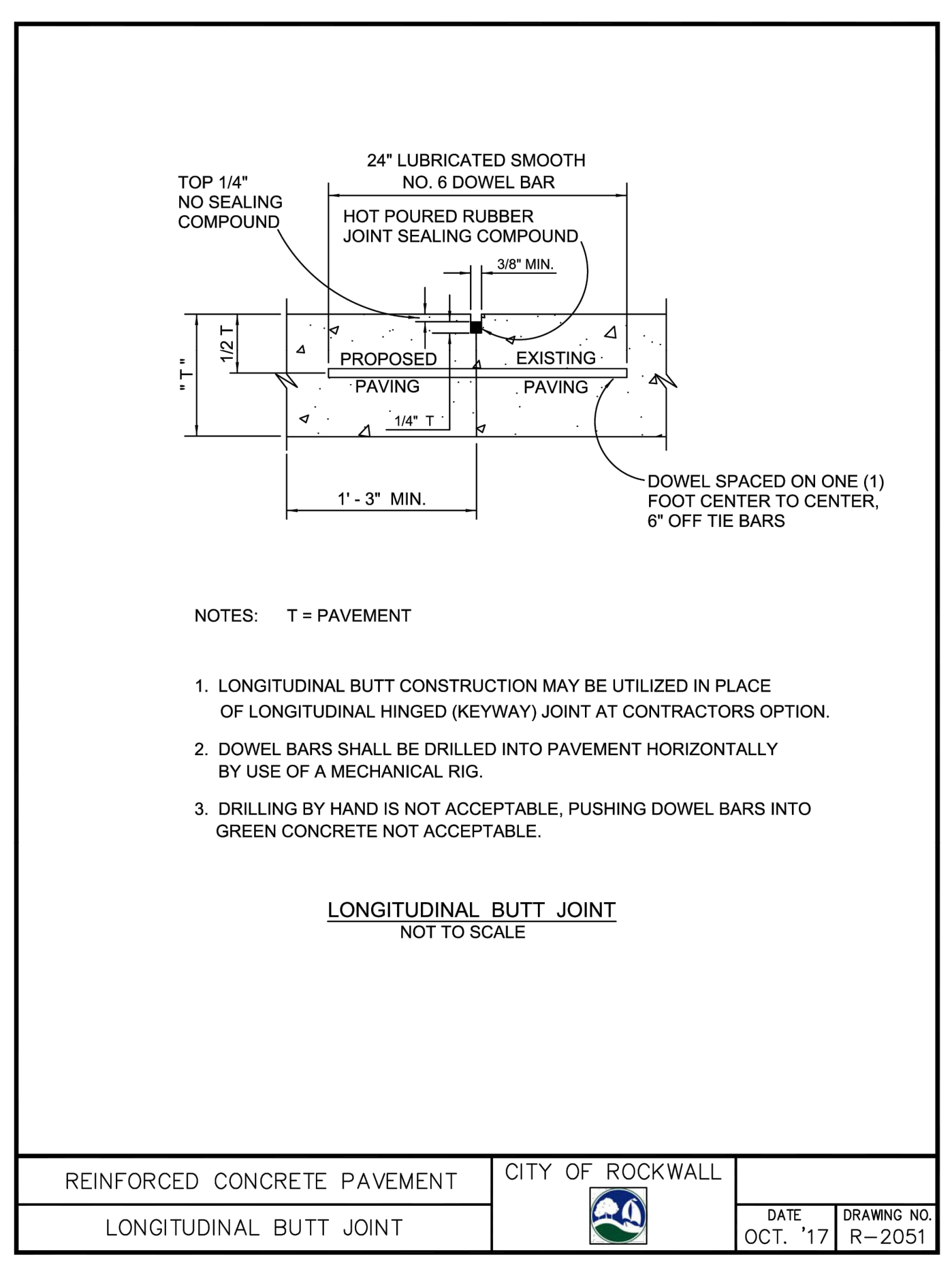
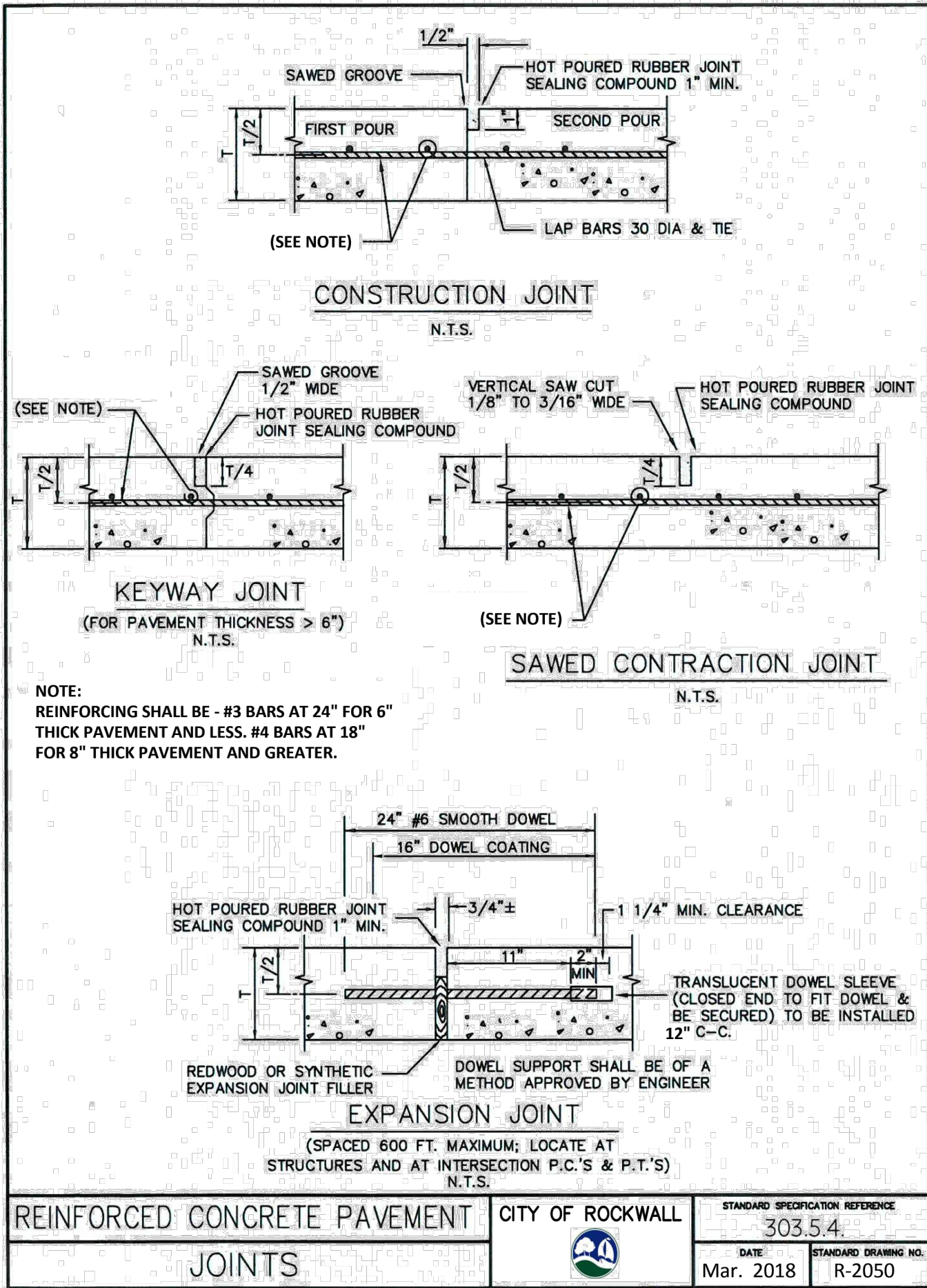
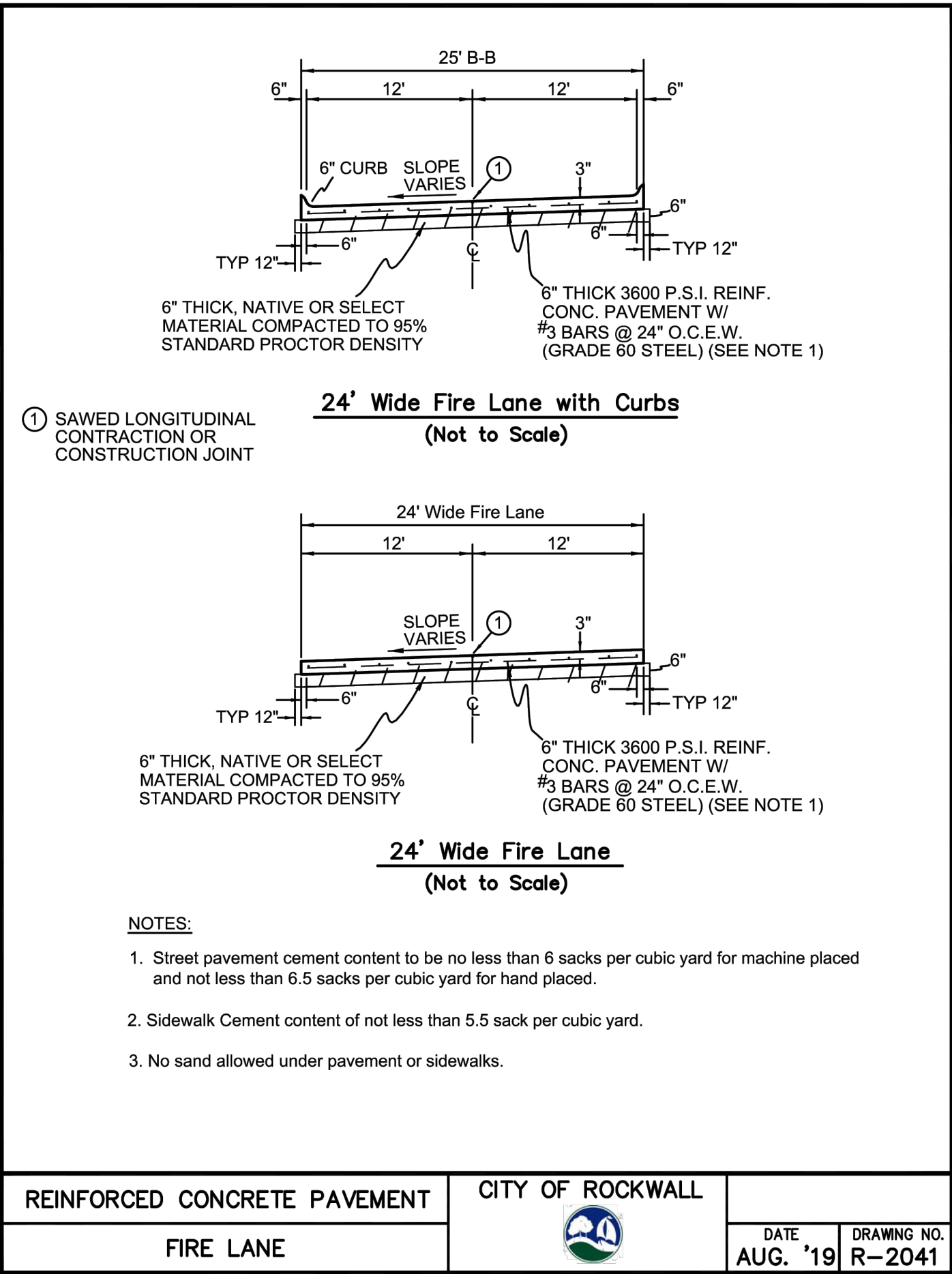
No.	DATE	GRADING AND UTILITIES	BY

PRIVATE CONSTRUCTION DETAILS

DESIGN:	CWP
DRAWN:	CWP/SD
CHECKED:	CLCC
DATE:	7/29/2021

SHEET
C-18

PLOTTED BY: CLAY CRISTY
 PLOT DATE: 9/22/2025 4:47 PM
 LOCATION: Z:\PROJECTS\PROJECTS\2020-136 ROAD ROCKWALL\CADD\SHEETS\CIVIL PLANS\C-19 CITY CONSTRUCTION DETAILS.DWG
 LAST SAVED: 7/29/2021 11:37 AM



PROJECT SUMMARY

CALCULATION DETAILS

- LOADING = HS20 & HS25
- APPROX. LINEAR FOOTAGE = 344 lf.

STORAGE SUMMARY

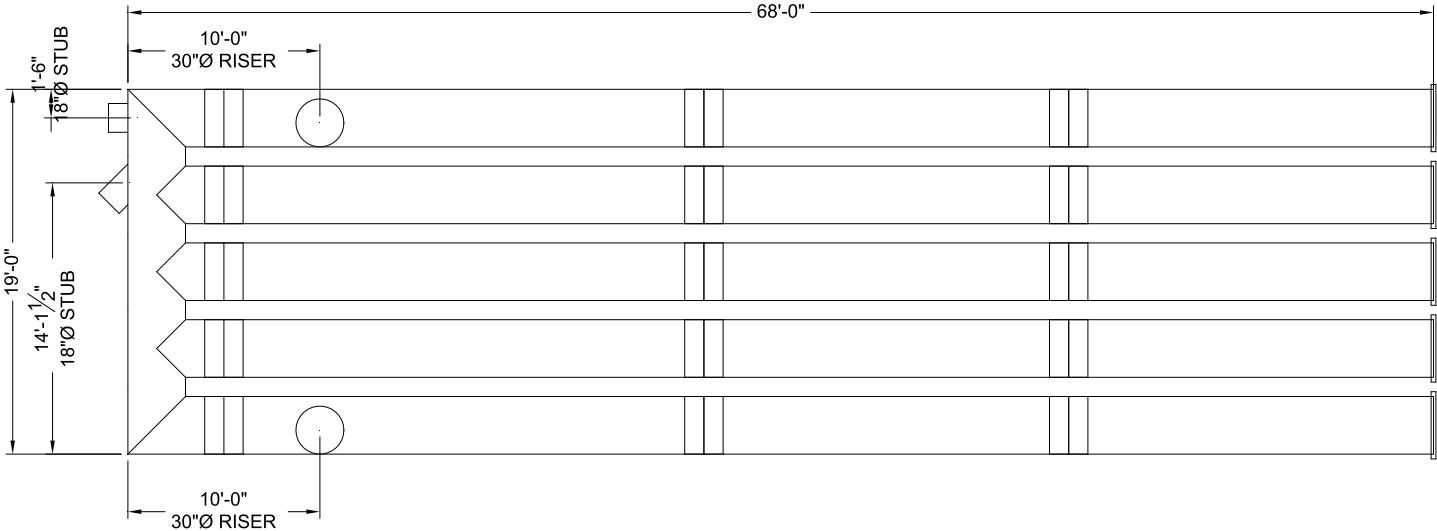
- STORAGE VOLUME REQUIRED = 2,430 cf.
- PIPE STORAGE VOLUME = 2,432 cf.
- BACKFILL STORAGE VOLUME = 0 cf.
- TOTAL STORAGE PROVIDED = 2,493 cf.

PIPE DETAILS

- DIAMETER = 36 IN.
- CORRUGATION = 2 2/3x1/2
- GAGE = 16
- COATING = ALT2
- WALL TYPE = Solid
- BARRELL SPACING = 12 IN.

BACKFILL DETAILS

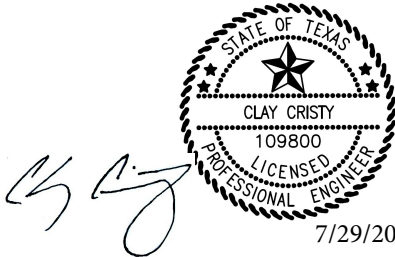
- WIDTH AT ENDS = 0 IN.
- ABOVE PIPE = 0 IN.
- WIDTH AT SIDES = 0 IN.
- BELOW PIPE = 0 IN.



NOTES

- ALL RISER AND STUB DIMENSIONS ARE TO CENTERLINE. ALL ELEVATIONS, DIMENSIONS, AND LOCATIONS OF RISERS AND INLETS, SHALL BE VERIFIED BY THE ENGINEER OF RECORD PRIOR TO RELEASING FOR FABRICATION.
- ALL FITTINGS AND REINFORCEMENT COMPLY WITH ASTM A998.
- ALL RISERS AND STUBS ARE 2 2/3" x 1/2" CORRUGATION AND 16 GAGE UNLESS OTHERWISE NOTED.
- RISERS TO BE FIELD TRIMMED TO GRADE.
- QUANTITY OF PIPE SHOWN DOES NOT PROVIDE EXTRA PIPE FOR CONNECTING THE SYSTEM TO EXISTING PIPE OR DRAINAGE STRUCTURES. OUR SYSTEM AS DETAILED PROVIDES NOMINAL INLET AND/OR OUTLET PIPE STUB FOR CONNECTION TO EXISTING DRAINAGE FACILITIES. IF ADDITIONAL PIPE IS NEEDED IT IS THE RESPONSIBILITY OF THE CONTRACTOR.
- BAND TYPE TO BE DETERMINED UPON FINAL DESIGN.
- THE PROJECT SUMMARY IS REFLECTIVE OF THE DYODS DESIGN, QUANTITIES ARE APPROX. AND SHOULD BE VERIFIED UPON FINAL DESIGN AND APPROVAL. FOR EXAMPLE, TOTAL EXCAVATION DOES NOT CONSIDER ALL VARIABLES SUCH AS SHORING AND ONLY ACCOUNTS FOR MATERIAL WITHIN THE ESTIMATED EXCAVATION FOOTPRINT.
- THESE DRAWINGS ARE FOR CONCEPTUAL PURPOSES AND DO NOT REFLECT ANY LOCAL PREFERENCES OR REGULATIONS. PLEASE CONTACT YOUR LOCAL CONTECH REP FOR MODIFICATIONS.

ASSEMBLY
SCALE: 1" = 10'



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DATE	REVISION DESCRIPTION	BY

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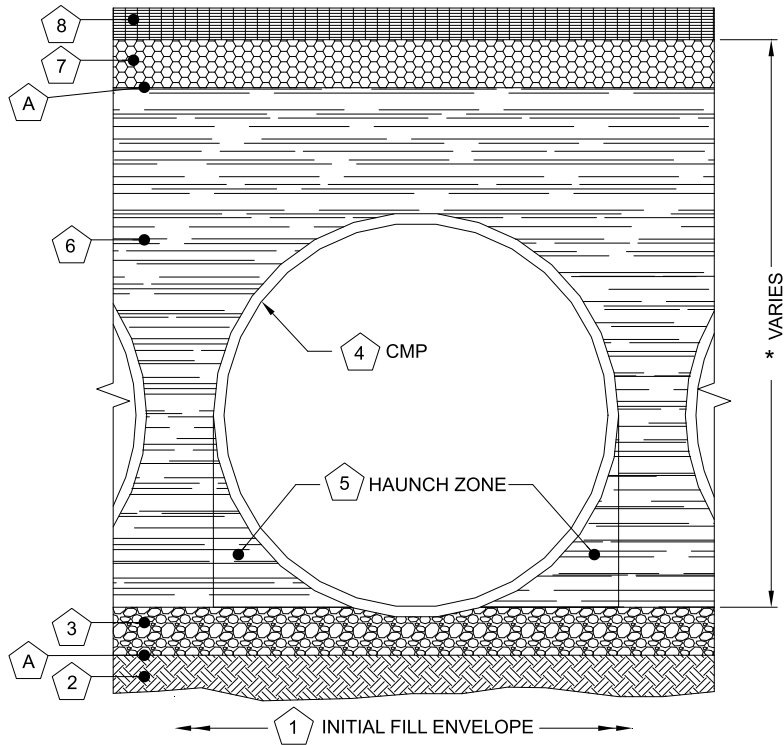
CONTECH

CMP DETENTION SYSTEMS

CONTECH
DYODS
DRAWING

DYO7911 Rockwall CAD
A
Rockwall, TX
DETENTION SYSTEM

PROJECT No.: 4927	SEQ. No.: 7911	DATE: 5/20/2021
DESIGNED: DYO	DRAWN: DYO	
CHECKED: DYO	APPROVED: DYO	
SHEET NO.: D1		



DETENTION SYSTEMS - CMP DETENTION / CMP DRAINAGE			
Material Location	Description	Material Designation	Designation
8	Rigid or Flexible Pavement (if applicable)		
7	Road Base (if applicable)		
A	Geotextile Layer	Non-Woven Geotextile	CONTECH C-40 or C-45
6	Backfill	Well graded granular material which may contain small amounts of silt or clay.	AASHTO M 145- A-1, A-2, A-3
3	Bedding Stone	Well graded granular bedding material w/maximum particle size of 3"	AASHTO M43 - 3,357,4,467, 5, 56, 57
A	Geotextile Layer	Non-Woven Geotextile	CONTECH C-40 or C-45
* Note: Backfill using controlled low-strength material (CLSM, "flash fill" or "flowable fill") when the spacing between the pipes will not allow for placement and adequate compaction of the backfill.			

1 MINIMUM WIDTH DEPENDS ON SITE CONDITIONS AND ENGINEERING JUDGEMENT

FOUNDATION/BEDDING PREPARATION

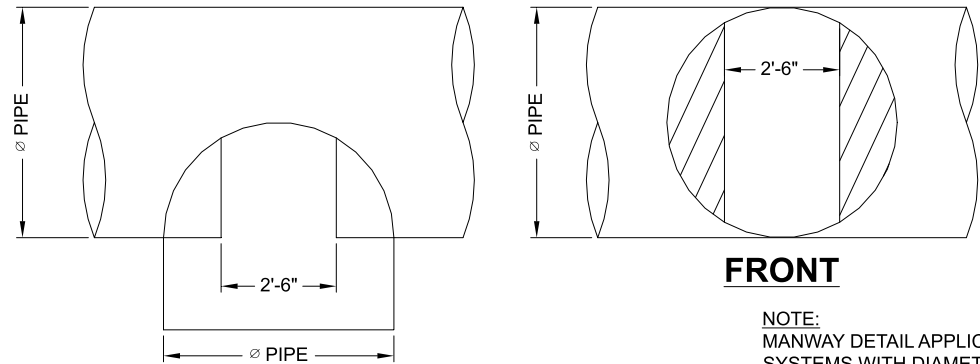
2 PRIOR TO PLACING THE BEDDING, THE FOUNDATION MUST BE CONSTRUCTED TO A UNIFORM AND STABLE GRADE. IN THE EVENT THAT UNSUITABLE FOUNDATION MATERIALS ARE ENCOUNTERED DURING EXCAVATION, THEY SHALL BE REMOVED AND BROUGHT BACK TO THE GRADE WITH A FILL MATERIAL AS APPROVED BY THE ENGINEER.

5 HAUNCH ZONE MATERIAL SHALL BE PLACED AND UNIFORMLY COMPACTED WITHOUT SOFT SPOTS.

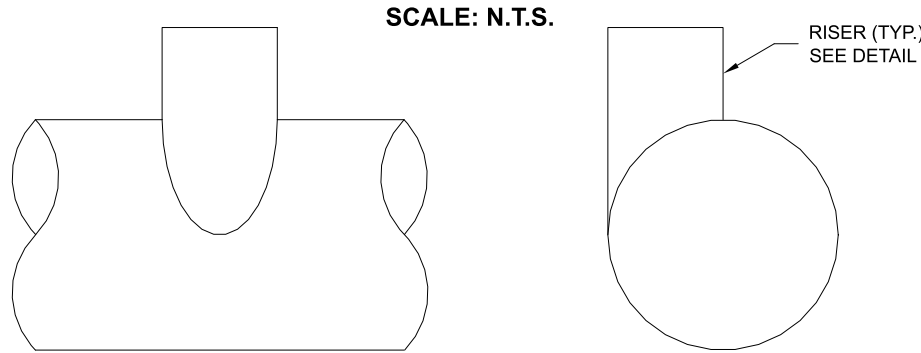
BACKFILL

WHEN PLACING THE FIRST LIFTS OF BACKFILL IT IS IMPORTANT TO MAKE SURE THAT THE BACKFILL IS PROPERLY COMPACTED UNDER AND AROUND THE PIPE HAUNCHES. BACKFILL SHALL BE PLACED SUCH THAT THERE IS NO MORE THAN A TWO LIFT (16") DIFFERENTIAL BETWEEN ANY OF THE PIPES AT ANY TIME DURING THE BACKFILL PROCESS. THE BACKFILL SHALL BE ADVANCED ALONG THE LENGTH OF THE DETENTION SYSTEM AT THE SAME RATE TO AVOID DIFFERENTIAL LOADING ON THE PIPE.

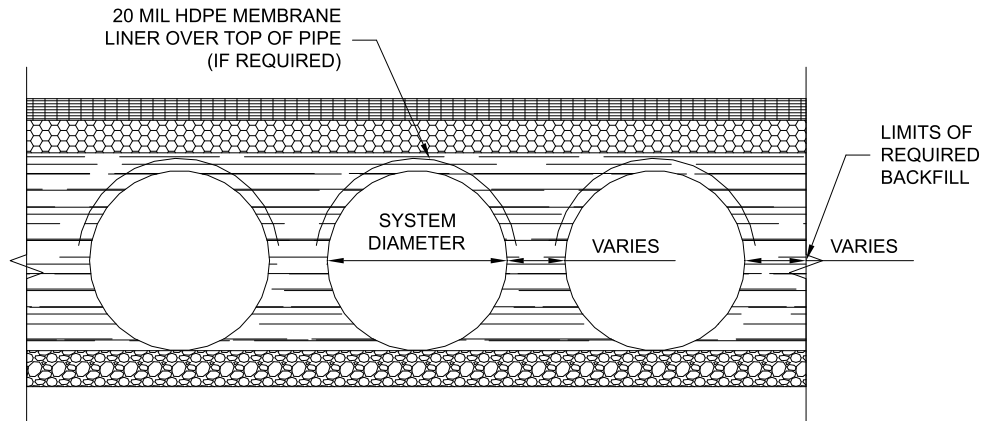
OTHER ALTERNATE BACKFILL MATERIAL MAY BE ALLOWED DEPENDING ON SITE SPECIFIC CONDITIONS, AS APPROVED BY SITE ENGINEER.



TYPICAL MANWAY DETAIL



TYPICAL RISER DETAIL



TYPICAL SECTION VIEW

NOTE: IF SALTING AGENTS FOR SNOW AND ICE REMOVAL ARE USED ON OR NEAR THE PROJECT, AN HDPE MEMBRANE LINER IS RECOMMENDED WITH THE SYSTEM. THE IMPERMEABLE LINER IS INTENDED TO HELP PROTECT THE SYSTEM FROM THE POTENTIAL ADVERSE EFFECTS THAT MAY RESULT FROM A CHANGE IN THE SURROUNDING ENVIRONMENT OVER A PERIOD OF TIME. PLEASE REFER TO THE CORRUGATED METAL PIPE DETENTION DESIGN GUIDE FOR ADDITIONAL INFORMATION.

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STATE OF TEXAS
CLAY CRISTY
109800
PROFESSIONAL ENGINEER
7/29/2021

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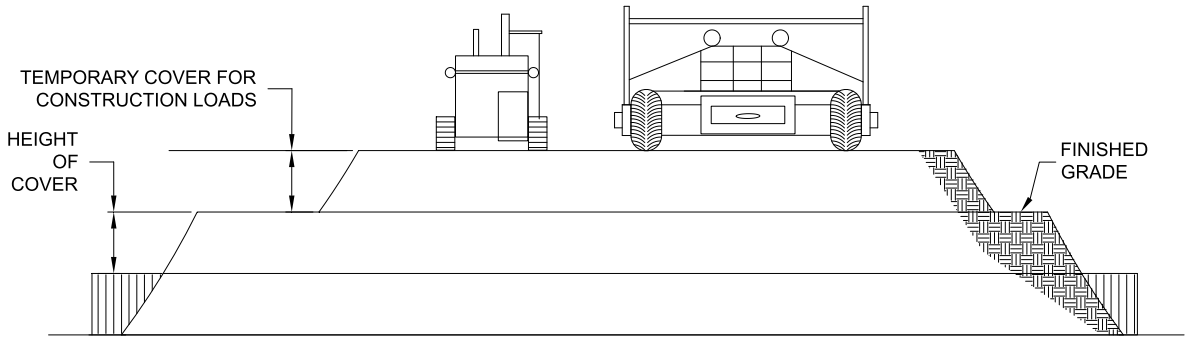
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CONTECH
CMP DETENTION SYSTEMS
CONTECH
DYODS
DRAWING

DYO7911 Rockwall CAD
A
Rockwall, TX
DETENTION SYSTEM

PROJECT No.: 4927	SEQ. No.: 7911	DATE: 5/20/2021
DESIGNED: DYO	DRAWN: DYO	
CHECKED: DYO	APPROVED: DYO	
SHEET NO.: D2		

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CONSTRUCTION LOADS

FOR TEMPORARY CONSTRUCTION VEHICLE LOADS, AN EXTRA AMOUNT OF COMPACTED COVER MAY BE REQUIRED OVER THE TOP OF THE PIPE. THE HEIGHT-OF-COVER SHALL MEET THE MINIMUM REQUIREMENTS SHOWN IN THE TABLE BELOW. THE USE OF HEAVY CONSTRUCTION EQUIPMENT NECESSITATES GREATER PROTECTION FOR THE PIPE THAN FINISHED GRADE COVER MINIMUMS FOR NORMAL HIGHWAY TRAFFIC.

PIPE SPAN, INCHES	AXLE LOADS (kips)			
	18-50	50-75	75-110	110-150
MINIMUM COVER (FT)				
12-42	2.0	2.5	3.0	3.0
48-72	3.0	3.0	3.5	4.0
78-120	3.0	3.5	4.0	4.0
126-144	3.5	4.0	4.5	4.5

*MINIMUM COVER MAY VARY, DEPENDING ON LOCAL CONDITIONS. THE CONTRACTOR MUST PROVIDE THE ADDITIONAL COVER REQUIRED TO AVOID DAMAGE TO THE PIPE. MINIMUM COVER IS MEASURED FROM THE TOP OF THE PIPE TO THE TOP OF THE MAINTAINED CONSTRUCTION ROADWAY SURFACE.

CONSTRUCTION LOADING DIAGRAM

SCALE: N.T.S.

SPECIFICATION FOR DESIGNED DETENTION SYSTEM:

SCOPE

THIS SPECIFICATION COVERS THE MANUFACTURE AND INSTALLATION OF THE DESIGNED DETENTION SYSTEM DETAILED IN THE PROJECT PLANS.

MATERIAL

THE MATERIAL SHALL CONFORM TO THE APPLICABLE REQUIREMENTS LISTED BELOW:

ALUMINIZED TYPE 2 STEEL COILS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M-274 OR ASTM A-92.

THE GALVANIZED STEEL COILS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M-218 OR ASTM A-929.

THE POLYMER COATED STEEL COILS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M-246 OR ASTM A-742.

THE ALUMINUM COILS SHALL CONFORM TO THE APPLICABLE OF AASHTO M-197 OR ASTM B-744.

CONSTRUCTION LOADS

CONSTRUCTION LOADS MAY BE HIGHER THAN FINAL LOADS. FOLLOW THE MANUFACTURER'S OR NCSPA GUIDELINES.

NOTE:

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DATE	REVISION DESCRIPTION	BY

PIPE

THE PIPE SHALL BE MANUFACTURED IN ACCORDANCE TO THE APPLICABLE REQUIREMENTS LISTED BELOW:

ALUMINIZED TYPE 2: AASHTO M-36 OR ASTM A-760

GALVANIZED: AASHTO M-36 OR ASTM A-760

POLYMER COATED: AASHTO M-245 OR ASTM A-762

ALUMINUM: AASHTO M-196 OR ASTM B-745

APPLICABLE

HANDLING AND ASSEMBLY

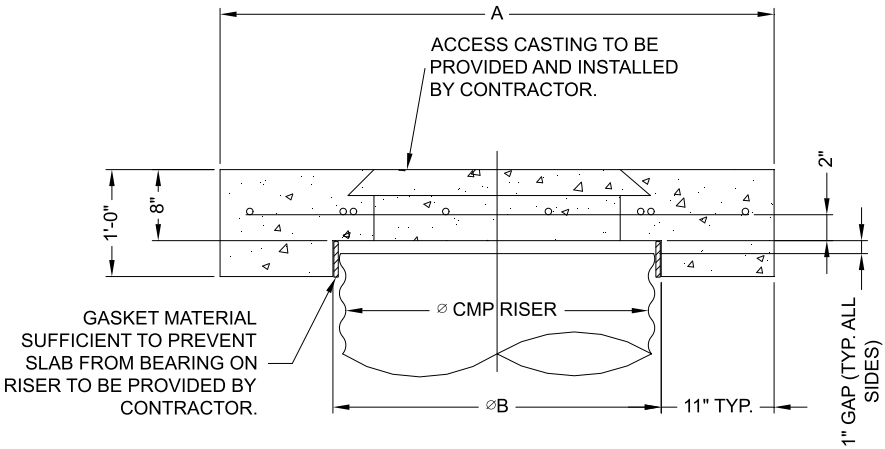
SHALL BE IN ACCORDANCE WITH NCSP'S (NATIONAL CORRUGATED STEEL PIPE ASSOCIATION) FOR ALUMINIZED TYPE 2, GALVANIZED OR POLYMER COATED STEEL. SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS FOR ALUMINUM PIPE.

REQUIREMENTS

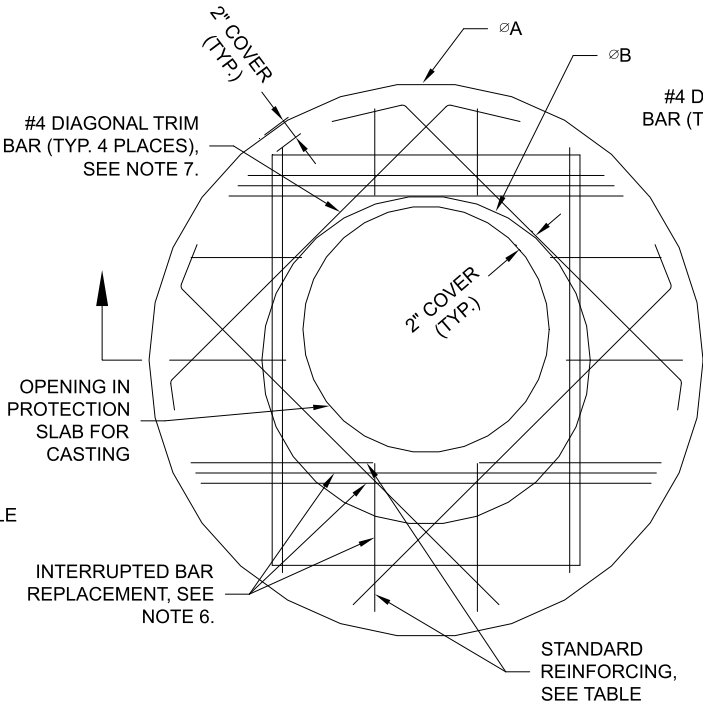
INSTALLATION

SHALL BE IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SECTION 26, DIVISION II DIVISION II OR ASTM A-798 (FOR ALUMINIZED TYPE 2, GALVANIZED OR POLYMER COATED STEEL) OR ASTM B-788 (FOR ALUMINUM PIPE) AND IN CONFORMANCE WITH THE PROJECT PLANS AND SPECIFICATIONS. IF THERE ARE ANY INCONSISTENCIES OR CONFLICTS THE CONTRACTOR SHOULD DISCUSS AND RESOLVE WITH THE SITE ENGINEER.

IT IS ALWAYS THE RESPONSIBILITY OF THE CONTRACTOR TO FOLLOW OSHA GUIDELINES FOR SAFE PRACTICES.



SECTION VIEW



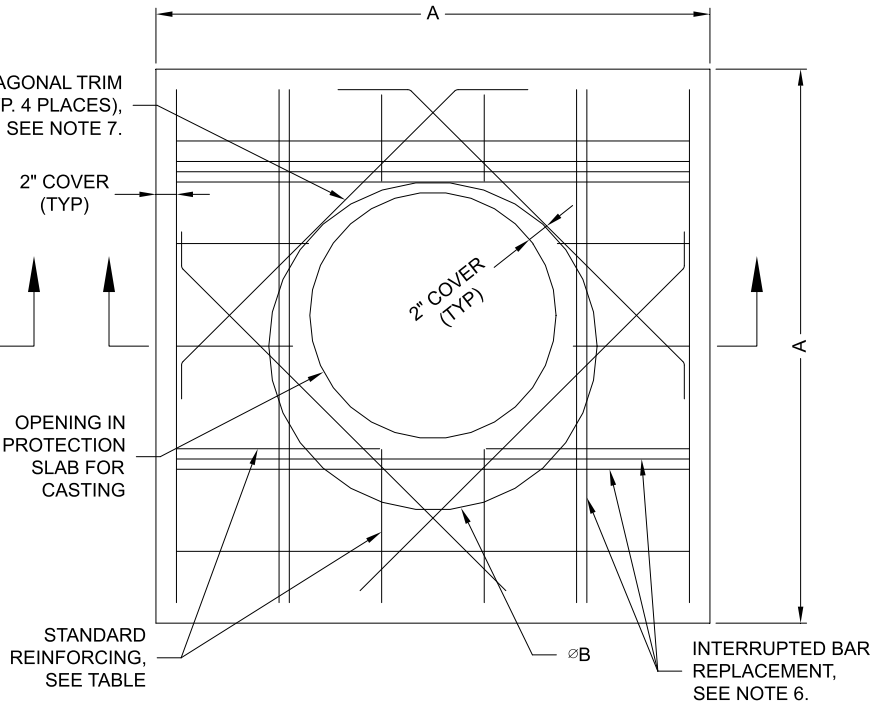
ROUND OPTION PLAN VIEW

NOTES:

- DESIGN IN ACCORDANCE WITH AASHTO, 17th EDITION.
- DESIGN LOAD HS25.
- EARTH COVER = 1' MAX.
- CONCRETE STRENGTH = 3,500 psi
- REINFORCING STEEL = ASTM A615, GRADE 60.
- PROVIDE ADDITIONAL REINFORCING AROUND OPENINGS EQUAL TO THE BARS INTERRUPTED, HALF EACH SIDE. ADDITIONAL BARS TO BE IN THE SAME PLANE.

REINFORCING TABLE				
Ø CMP RISER	A	Ø B	REINFORCING	**BEARING PRESSURE (PSF)
24"	Ø 4' 4'X4'	26"	#5 @ 12" OCEW #5 @ 12" OCEW	2,410 1,780
30"	Ø 4'-6" 4'-6" X 4'-6"	32"	#5 @ 12" OCEW #5 @ 12" OCEW	2,120 1,530
36"	Ø 5' X 5'	38"	#5 @ 10" OCEW #5 @ 10" OCEW	1,890 1,350
42"	Ø 5'-6" 5'-6" X 5'-6"	44"	#5 @ 10" OCEW #5 @ 9" OCEW	1,720 1,210
48"	Ø 6' X 6'	50"	#5 @ 9" OCEW #5 @ 8" OCEW	1,600 1,100

** ASSUMED SOIL BEARING CAPACITY



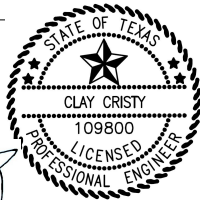
SQUARE OPTION PLAN VIEW

- TRIM OPENING WITH DIAGONAL #4 BARS, EXTEND BARS A MINIMUM OF 12" BEYOND OPENING, BEND BARS AS REQUIRED TO MAINTAIN BAR COVER.
- PROTECTION SLAB AND ALL MATERIALS TO BE PROVIDED AND INSTALLED BY CONTRACTOR.
- DETAIL DESIGN BY DELTA ENGINEERING, BINGHAMTON, NY.

MANHOLE CAP DETAIL

SCALE: N.T.S.

DYO7911 Rockwall CAD
A
Rockwall, TX
DETENTION SYSTEM



PROJECT No.: 4927	SEQ. No.: 7911	DATE: 5/20/2021
DESIGNED: DYO	DRAWN: DYO	
CHECKED: DYO	APPROVED: DYO	
SHEET NO.: D3		7/29/2021

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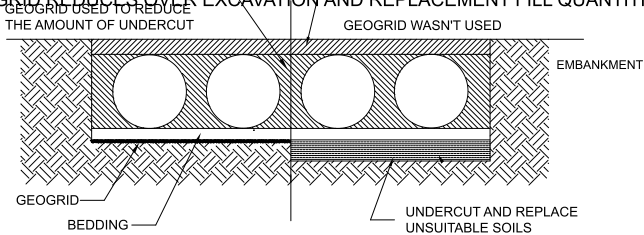
CMP DETENTION INSTALLATION GUIDE

PROPER INSTALLATION OF A FLEXIBLE UNDERGROUND DETENTION SYSTEM WILL ENSURE LONG-TERM PERFORMANCE. THE CONFIGURATION OF THESE SYSTEMS OFTEN REQUIRES SPECIAL CONSTRUCTION PRACTICES THAT DIFFER FROM CONVENTIONAL FLEXIBLE PIPE CONSTRUCTION. CONTECH ENGINEERED SOLUTIONS STRONGLY SUGGESTS SCHEDULING A PRE-CONSTRUCTION MEETING WITH YOUR LOCAL SALES ENGINEER TO DETERMINE IF ADDITIONAL MEASURES, NOT COVERED IN THIS GUIDE, ARE APPROPRIATE FOR YOUR SITE.

FOUNDATION

CONSTRUCT A FOUNDATION THAT CAN SUPPORT THE DESIGN LOADING APPLIED BY THE PIPE AND ADJACENT BACKFILL WEIGHT AS WELL AS MAINTAIN ITS INTEGRITY DURING CONSTRUCTION.

IF SOFT OR UNSUITABLE SOILS ARE ENCOUNTERED, REMOVE THE POOR SOILS DOWN TO A SUITABLE DEPTH AND THEN BUILD UP TO THE APPROPRIATE ELEVATION WITH A COMPETENT BACKFILL MATERIAL. THE STRUCTURAL FILL MATERIAL GRADATION SHOULD NOT ALLOW THE MIGRATION OF FINES, WHICH CAN CAUSE SETTLEMENT OF THE DETENTION SYSTEM OR PAVEMENT ABOVE. IF THE STRUCTURAL FILL MATERIAL IS NOT COMPATIBLE WITH THE UNDERLYING SOILS AN ENGINEERING FABRIC SHOULD BE USED AS A SEPARATOR. IN SOME CASES, USING A STIFF REINFORCING GEOGRID REDUCES OVER EXCAVATION AND REPLACEMENT FILL QUANTITIES.

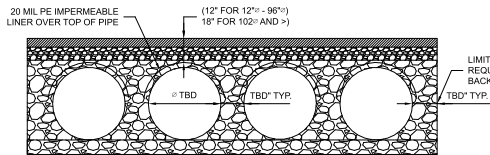


GRADE THE FOUNDATION SUBGRADE TO A UNIFORM OR SLIGHTLY SLOPING GRADE. IF THE SUBGRADE IS CLAY OR RELATIVELY NON-POROUS AND THE CONSTRUCTION SEQUENCE WILL LAST FOR AN EXTENDED PERIOD OF TIME, IT IS BEST TO SLOPE THE GRADE TO ONE END OF THE SYSTEM. THIS WILL ALLOW EXCESS WATER TO DRAIN QUICKLY, PREVENTING SATURATION OF THE SUBGRADE.

GEOMEMBRANE BARRIER

A SITE'S RESISTIVITY MAY CHANGE OVER TIME WHEN VARIOUS TYPES OF SALTING AGENTS ARE USED, SUCH AS ROAD SALTS FOR DEICING AGENTS. IF SALTING AGENTS ARE USED ON OR NEAR THE PROJECT SITE, A GEOMEMBRANE BARRIER IS RECOMMENDED WITH THE SYSTEM. THE GEOMEMBRANE LINER IS INTENDED TO HELP PROTECT THE SYSTEM FROM THE POTENTIAL ADVERSE EFFECTS THAT MAY RESULT FROM THE USE OF SUCH AGENTS INCLUDING PREMATURE CORROSION AND REDUCED ACTUAL FLOW RATES.

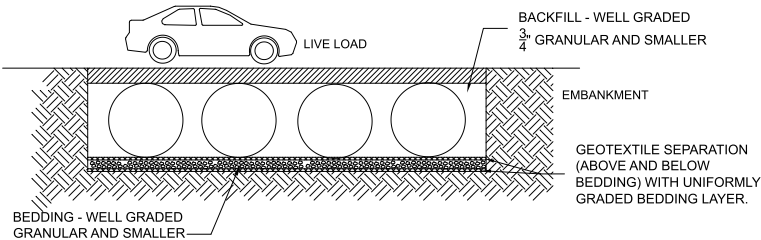
THE PROJECT'S ENGINEER OF RECORD IS TO EVALUATE WHETHER SALTING AGENTS WILL BE USED ON OR NEAR THE PROJECT SITE, AND USE HIS/HER BEST JUDGEMENT TO DETERMINE IF ANY ADDITIONAL PROTECTIVE MEASURES ARE REQUIRED. BELOW IS A TYPICAL DETAIL SHOWING THE PLACEMENT OF A GEOMEMBRANE BARRIER FOR PROJECTS WHERE SALTING AGENTS ARE USED ON OR NEAR THE PROJECT SITE.



IN-SITU TRENCH WALL

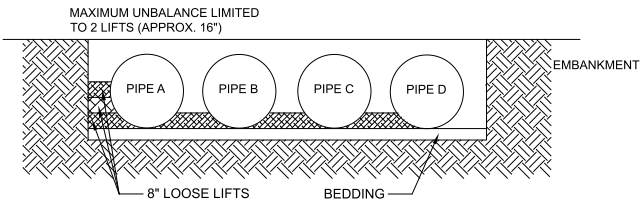
IF EXCAVATION IS REQUIRED, THE TRENCH WALL NEEDS TO BE CAPABLE OF SUPPORTING THE LOAD THAT THE PIPE SHEDS AS THE SYSTEM IS LOADED. IF SOILS ARE NOT CAPABLE OF SUPPORTING THESE LOADS, THE PIPE CAN DEFLECT. PERFORM A SIMPLE SOIL PRESSURE CHECK USING THE APPLIED LOADS TO DETERMINE THE LIMITS OF EXCAVATION BEYOND THE SPRING LINE OF THE OUTER MOST PIPES.

IN MOST CASES THE REQUIREMENTS FOR A SAFE WORK ENVIRONMENT AND PROPER BACKFILL PLACEMENT AND COMPACTION TAKE CARE OF THIS CONCERN.



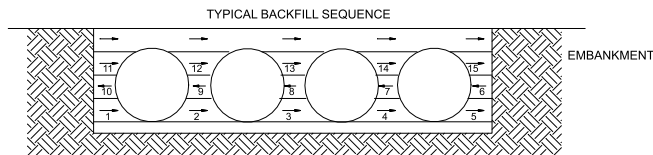
BACKFILL PLACEMENT

MATERIAL SHALL BE WORKED INTO THE PIPE HAUNCHES BY MEANS OF SHOVEL-SLICING, RODDING, AIR TAMPER, VIBRATORY ROD, OR OTHER EFFECTIVE METHODS.

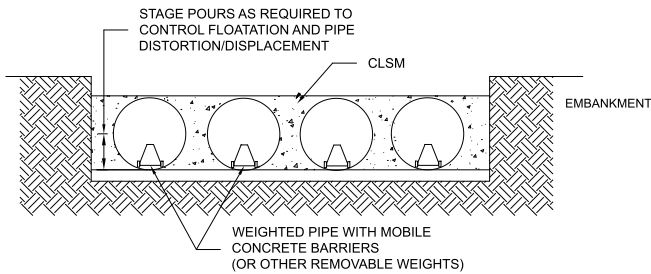


IF AASHTO T99 PROCEDURES ARE DETERMINED INFEASIBLE BY THE GEOTECHNICAL ENGINEER OF RECORD, COMPACTION IS CONSIDERED ADEQUATE WHEN NO FURTHER YIELDING OF THE MATERIAL IS OBSERVED UNDER THE COMPACTOR, OR UNDER FOOT, AND THE GEOTECHNICAL ENGINEER OF RECORD (OR REPRESENTATIVE THEREOF) IS SATISFIED WITH THE LEVEL OF COMPACTION.

FOR LARGE SYSTEMS, CONVEYOR SYSTEMS, BACKHOES WITH LONG REACHES OR DRAGLINES WITH STONE BUCKETS MAY BE USED TO PLACE BACKFILL. ONCE MINIMUM COVER FOR CONSTRUCTION LOADING ACROSS THE ENTIRE WIDTH OF THE SYSTEM IS REACHED, ADVANCE THE EQUIPMENT TO THE END OF THE RECENTLY PLACED FILL, AND BEGIN THE SEQUENCE AGAIN UNTIL THE SYSTEM IS COMPLETELY BACKFILLED. THIS TYPE OF CONSTRUCTION SEQUENCE PROVIDES ROOM FOR STOCKPILED BACKFILL DIRECTLY BEHIND THE BACKHOE, AS WELL AS THE MOVEMENT OF CONSTRUCTION TRAFFIC. MATERIAL STOCKPILES ON TOP OF THE BACKFILLED DETENTION SYSTEM SHOULD BE LIMITED TO 8- TO 10- FEET HIGH AND MUST PROVIDE BALANCED LOADING ACROSS ALL BARRELS. TO DETERMINE THE PROPER COVER OVER THE PIPES TO ALLOW THE MOVEMENT OF CONSTRUCTION EQUIPMENT SEE TABLE 1, OR CONTACT YOUR LOCAL CONTECH SALES ENGINEER.



WHEN FLOWABLE FILL IS USED, YOU MUST PREVENT PIPE FLOATATION. TYPICALLY, SMALL LIFTS ARE PLACED BETWEEN THE PIPES AND THEN ALLOWED TO SET-UP PRIOR TO THE PLACEMENT OF THE NEXT LIFT. THE ALLOWABLE THICKNESS OF THE CLSM LIFT IS A FUNCTION OF A PROPER BALANCE BETWEEN THE UPLIFT FORCE OF THE CLSM, THE OPPOSING WEIGHT OF THE PIPE, AND THE EFFECT OF OTHER RESTRAINING MEASURES. THE PIPE CAN CARRY LIMITED FLUID PRESSURE WITHOUT PIPE DISTORTION OR DISPLACEMENT, WHICH ALSO AFFECTS THE CLSM LIFT THICKNESS. YOUR LOCAL CONTECH SALES ENGINEER CAN HELP DETERMINE THE PROPER LIFT THICKNESS.

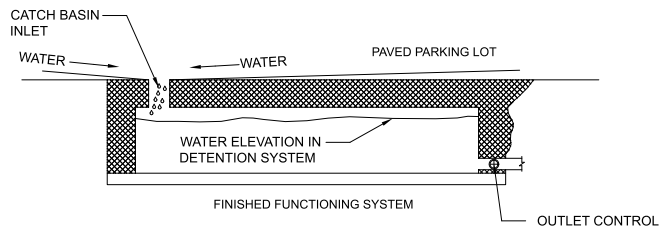


CONSTRUCTION LOADING

TYPICALLY, THE MINIMUM COVER SPECIFIED FOR A PROJECT ASSUMES H-20 LIVE LOAD. BECAUSE CONSTRUCTION LOADS OFTEN EXCEED DESIGN LIVE LOADS, INCREASED TEMPORARY MINIMUM COVER REQUIREMENTS ARE NECESSARY. SINCE CONSTRUCTION EQUIPMENT VARIES FROM JOB TO JOB, IT IS BEST TO ADDRESS EQUIPMENT SPECIFIC MINIMUM COVER REQUIREMENTS WITH YOUR LOCAL CONTECH SALES ENGINEER DURING YOUR PRE-CONSTRUCTION MEETING.

ADDITIONAL CONSIDERATIONS

BECAUSE MOST SYSTEMS ARE CONSTRUCTED BELOW-GRADE, RAINFALL CAN RAPIDLY FILL THE EXCAVATION; POTENTIALLY CAUSING FLOATATION AND MOVEMENT OF THE PREVIOUSLY PLACED PIPES. TO HELP MITIGATE POTENTIAL PROBLEMS, IT IS BEST TO START THE INSTALLATION AT THE DOWNSTREAM END WITH THE OUTLET ALREADY CONSTRUCTED TO ALLOW A ROUTE FOR THE WATER TO ESCAPE. TEMPORARY DIVERSION MEASURES MAY BE REQUIRED FOR HIGH FLOWS DUE TO THE RESTRICTED NATURE OF THE OUTLET PIPE.



CMP DETENTION SYSTEM INSPECTION AND MAINTENANCE

UNDERGROUND STORMWATER DETENTION AND INFILTRATION SYSTEMS MUST BE INSPECTED AND MAINTAINED AT REGULAR INTERVALS FOR PURPOSES OF PERFORMANCE AND LONGEVITY.

INSPECTION

INSPECTION IS THE KEY TO EFFECTIVE MAINTENANCE OF CMP DETENTION SYSTEMS AND IS EASILY PERFORMED. CONTECH RECOMMENDS ONGOING, ANNUAL INSPECTIONS. SITES WITH HIGH TRASH LOAD OR SMALL OUTLET CONTROL ORIFICES MAY NEED MORE FREQUENT INSPECTIONS. THE RATE AT WHICH THE SYSTEM COLLECTS POLLUTANTS WILL DEPEND MORE ON SITE SPECIFIC ACTIVITIES RATHER THAN THE SIZE OR CONFIGURATION OF THE SYSTEM.

INSPECTIONS SHOULD BE PERFORMED MORE OFTEN IN EQUIPMENT WASHDOWN AREAS, IN CLIMATES WHERE SANDING AND/OR SALTING OPERATIONS TAKE PLACE, AND IN OTHER VARIOUS INSTANCES IN WHICH ONE WOULD EXPECT HIGHER ACCUMULATIONS OF SEDIMENT OR ABRASIVE/ CORROSIVE CONDITIONS. A RECORD OF EACH INSPECTION IS TO BE MAINTAINED FOR THE LIFE OF THE SYSTEM

MAINTENANCE

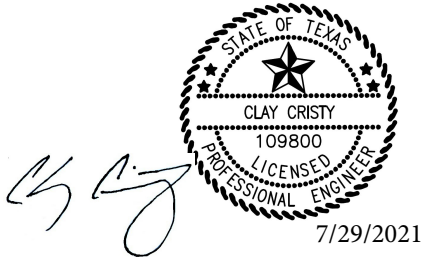
CMP DETENTION SYSTEMS SHOULD BE CLEANED WHEN AN INSPECTION REVEALS ACCUMULATED SEDIMENT OR TRASH IS CLOGGING THE DISCHARGE ORIFICE.

ACCUMULATED SEDIMENT AND TRASH CAN TYPICALLY BE EVACUATED THROUGH THE MANHOLE OVER THE OUTLET ORIFICE. IF MAINTENANCE IS NOT PERFORMED AS RECOMMENDED, SEDIMENT AND TRASH MAY ACCUMULATE IN FRONT OF THE OUTLET ORIFICE. MANHOLE COVERS SHOULD BE SECURELY SEATED FOLLOWING CLEANING ACTIVITIES. CONTECH SUGGESTS THAT ALL SYSTEMS BE DESIGNED WITH AN ACCESS/INSPECTION MANHOLE SITUATED AT OR NEAR THE INLET AND THE OUTLET ORIFICE. SHOULD IT BE NECESSARY TO GET INSIDE THE SYSTEM TO PERFORM MAINTENANCE ACTIVITIES, ALL APPROPRIATE PRECAUTIONS REGARDING CONFINED SPACE ENTRY AND OSHA REGULATIONS SHOULD BE FOLLOWED.

ANNUAL INSPECTIONS ARE BEST PRACTICE FOR ALL UNDERGROUND SYSTEMS. DURING THIS INSPECTION, IF EVIDENCE OF SALTING/DE-ICING AGENTS IS OBSERVED WITHIN THE SYSTEM, IT IS BEST PRACTICE FOR THE SYSTEM TO BE RINSED, INCLUDING ABOVE THE SPRING LINE SOON AFTER THE SPRING THAW AS PART OF THE MAINTENANCE PROGRAM FOR THE SYSTEM.

MAINTAINING AN UNDERGROUND DETENTION OR INFILTRATION SYSTEM IS EASIEST WHEN THERE IS NO FLOW ENTERING THE SYSTEM. FOR THIS REASON, IT IS A GOOD IDEA TO SCHEDULE THE CLEANOUT DURING DRY WEATHER.

THE FOREGOING INSPECTION AND MAINTENANCE EFFORTS HELP ENSURE UNDERGROUND PIPE SYSTEMS USED FOR STORMWATER STORAGE CONTINUE TO FUNCTION AS INTENDED BY IDENTIFYING RECOMMENDED REGULAR INSPECTION AND MAINTENANCE PRACTICES. INSPECTION AND MAINTENANCE RELATED TO THE STRUCTURAL INTEGRITY OF THE PIPE OR THE SOUNDNESS OF PIPE JOINT CONNECTIONS IS BEYOND THE SCOPE OF THIS GUIDE.



7/29/2021

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CONTECH®
CMP DETENTION SYSTEMS

CONTECH
DYODS
DRAWING

DYO7911 Rockwall CAD
A
Rockwall, TX
DETENTION SYSTEM

PROJECT No.: 4927	SEQ. No.: 7911	DATE: 5/20/2021
DESIGNED: DYO	DRAWN: DYO	
CHECKED: DYO	APPROVED: DYO	
SHEET NO.: <div style="text-align: center; font-size: 2em;">D4</div>		

PROJECT SUMMARY

CALCULATION DETAILS

- LOADING = HS20 & HS25
- APPROX. LINEAR FOOTAGE = 59 lf.

STORAGE SUMMARY

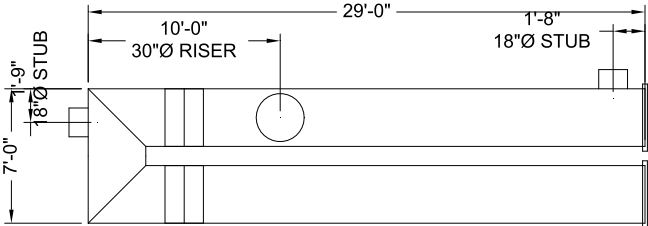
- STORAGE VOLUME REQUIRED = 404 cf.
- PIPE STORAGE VOLUME = 417 cf.
- BACKFILL STORAGE VOLUME = 0 cf.
- TOTAL STORAGE PROVIDED = 442 cf.

PIPE DETAILS

- DIAMETER = 36 IN.
- CORRUGATION = 2 2/3x1/2
- GAGE = 16
- COATING = ALT2
- WALL TYPE = Solid
- BARRELL SPACING = 12 IN.

BACKFILL DETAILS

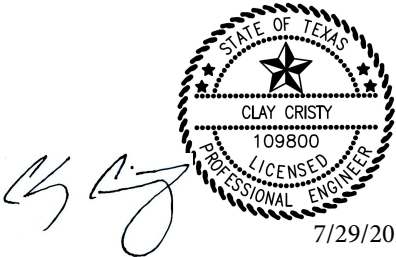
- WIDTH AT ENDS = 0 IN.
- ABOVE PIPE = 0 IN.
- WIDTH AT SIDES = 0 IN.
- BELOW PIPE = 0 IN.



NOTES

- ALL RISER AND STUB DIMENSIONS ARE TO CENTERLINE. ALL ELEVATIONS, DIMENSIONS, AND LOCATIONS OF RISERS AND INLETS, SHALL BE VERIFIED BY THE ENGINEER OF RECORD PRIOR TO RELEASING FOR FABRICATION.
- ALL FITTINGS AND REINFORCEMENT COMPLY WITH ASTM A998.
- ALL RISERS AND STUBS ARE 2 2/3" x 1/2" CORRUGATION AND 16 GAGE UNLESS OTHERWISE NOTED.
- RISERS TO BE FIELD TRIMMED TO GRADE.
- QUANTITY OF PIPE SHOWN DOES NOT PROVIDE EXTRA PIPE FOR CONNECTING THE SYSTEM TO EXISTING PIPE OR DRAINAGE STRUCTURES. OUR SYSTEM AS DETAILED PROVIDES NOMINAL INLET AND/OR OUTLET PIPE STUB FOR CONNECTION TO EXISTING DRAINAGE FACILITIES. IF ADDITIONAL PIPE IS NEEDED IT IS THE RESPONSIBILITY OF THE CONTRACTOR.
- BAND TYPE TO BE DETERMINED UPON FINAL DESIGN.
- THE PROJECT SUMMARY IS REFLECTIVE OF THE DYODS DESIGN, QUANTITIES ARE APPROX. AND SHOULD BE VERIFIED UPON FINAL DESIGN AND APPROVAL. FOR EXAMPLE, TOTAL EXCAVATION DOES NOT CONSIDER ALL VARIABLES SUCH AS SHORING AND ONLY ACCOUNTS FOR MATERIAL WITHIN THE ESTIMATED EXCAVATION FOOTPRINT.
- THESE DRAWINGS ARE FOR CONCEPTUAL PURPOSES AND DO NOT REFLECT ANY LOCAL PREFERENCES OR REGULATIONS. PLEASE CONTACT YOUR LOCAL CONTECH REP FOR MODIFICATIONS.

ASSEMBLY
SCALE: 1" = 10'



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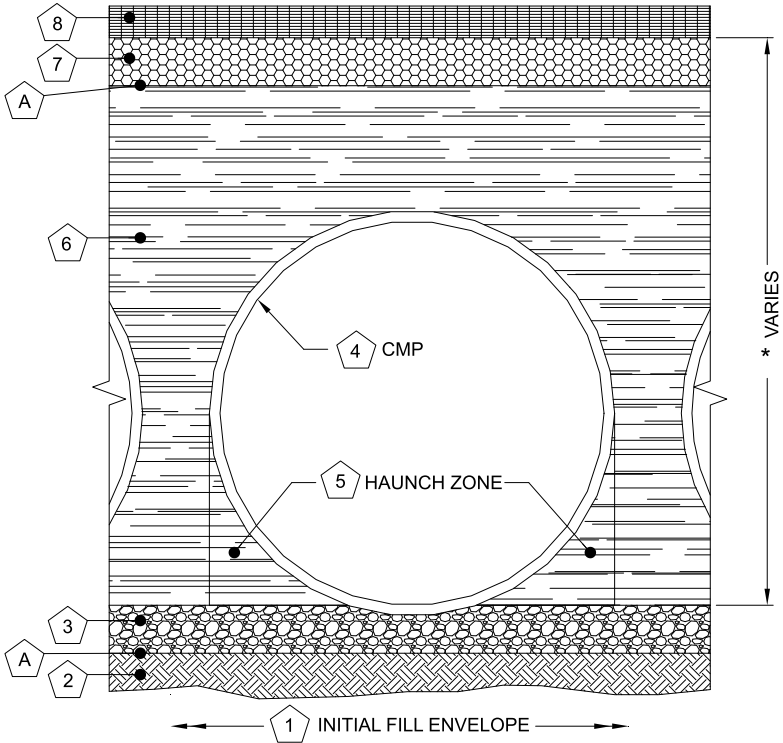


CMP DETENTION SYSTEMS

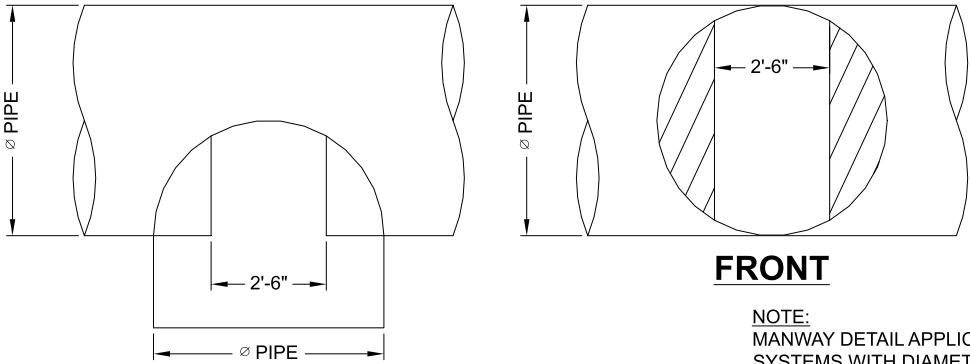
CONTECH
DYODS
DRAWING

DY07912 Rockwall CAD
B
Rockwall, TX
DETENTION SYSTEM

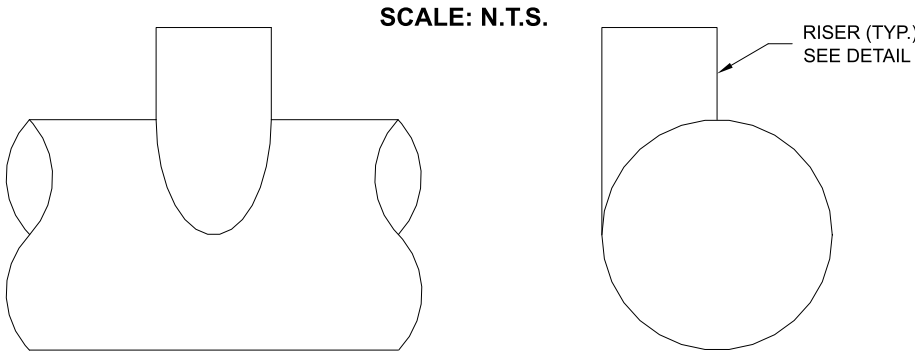
PROJECT No.: 4927	SEQ. No.: 7912	DATE: 5/20/2021
DESIGNED: DYO		DRAWN: DYO
CHECKED: DYO		APPROVED: DYO
SHEET NO.: D1		



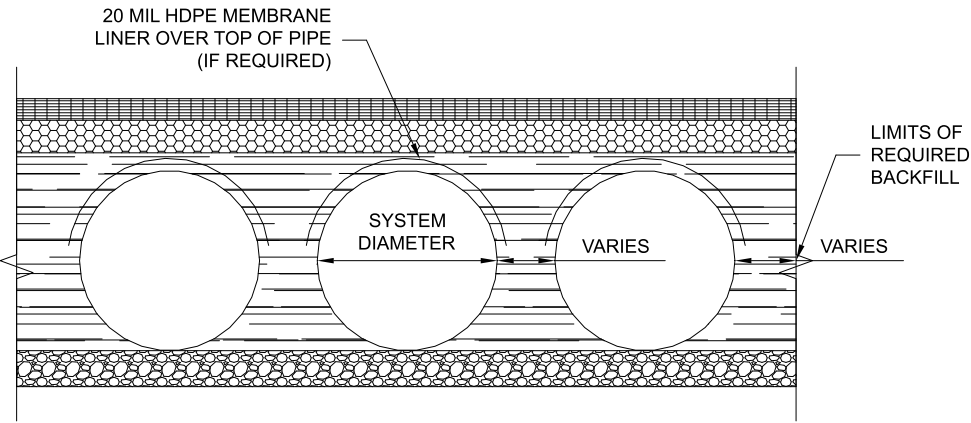
DETENTION SYSTEMS - CMP DETENTION / CMP DRAINAGE			
Material Location	Description	Material Designation	Designation
8	Rigid or Flexible Pavement (if applicable)		
7	Road Base (if applicable)		
A	Geotextile Layer	Non-Woven Geotextile	CONTECH C-40 or C-45
6	Backfill	Well graded granular material which may contain small amounts of silt or clay.	AASHTO M 145- A-1, A-2, A-3
	Bedding Stone	Well graded granular bedding material w/maximum particle size of 3"	AASHTO M43 - 3,357,4,467, 5, 56, 57
			Engineer to determine if bedding is required. Pipe may be placed on the trench bottom of a relatively loose, native suitable well graded & granular material. For Arch pipes it is recommended to be shaped to a relatively flat bottom or fine-grade the foundation to a slight v-shape. Unsuitable material should be over-excavated and re-placed with a 4"-6" layer of well graded & granular stone per the material designation. See AASHTO 26.3.8.1 / 26.5.3 Bedding info.
A	Geotextile Layer	Non-Woven Geotextile	CONTECH C-40 or C-45
* Note: Backfill using controlled low-strength material (CLSM, "flash fill" or "flowable fill") when the spacing between the pipes will not allow for placement and adequate compaction of the backfill.			



TYPICAL MANWAY DETAIL



TYPICAL RISER DETAIL



TYPICAL SECTION VIEW

LINER OVER ROWS
SCALE: N.T.S.

NOTE: IF SALTING AGENTS FOR SNOW AND ICE REMOVAL ARE USED ON OR NEAR THE PROJECT, AN HDPE MEMBRANE LINER IS RECOMMENDED WITH THE SYSTEM. THE IMPERMEABLE LINER IS INTENDED TO HELP PROTECT THE SYSTEM FROM THE POTENTIAL ADVERSE EFFECTS THAT MAY RESULT FROM A CHANGE IN THE SURROUNDING ENVIRONMENT OVER A PERIOD OF TIME. PLEASE REFER TO THE CORRUGATED METAL PIPE DETENTION DESIGN GUIDE FOR ADDITIONAL INFORMATION.

1 MINIMUM WIDTH DEPENDS ON SITE CONDITIONS AND ENGINEERING JUDGEMENT

FOUNDATION/BEDDING PREPARATION

2 PRIOR TO PLACING THE BEDDING, THE FOUNDATION MUST BE CONSTRUCTED TO A UNIFORM AND STABLE GRADE. IN THE EVENT THAT UNSUITABLE FOUNDATION MATERIALS ARE ENCOUNTERED DURING EXCAVATION, THEY SHALL BE REMOVED AND BROUGHT BACK TO THE GRADE WITH A FILL MATERIAL AS APPROVED BY THE ENGINEER.

5 HAUNCH ZONE MATERIAL SHALL BE PLACED AND UNIFORMLY COMPACTED WITHOUT SOFT SPOTS.

BACKFILL

WHEN PLACING THE FIRST LIFTS OF BACKFILL IT IS IMPORTANT TO MAKE SURE THAT THE BACKFILL IS PROPERLY COMPACTED UNDER AND AROUND THE PIPE HAUNCHES. BACKFILL SHALL BE PLACED SUCH THAT THERE IS NO MORE THAN A TWO LIFT (16") DIFFERENTIAL BETWEEN ANY OF THE PIPES AT ANY TIME DURING THE BACKFILL PROCESS. THE BACKFILL SHALL BE ADVANCED ALONG THE LENGTH OF THE DETENTION SYSTEM AT THE SAME RATE TO AVOID DIFFERENTIAL LOADING ON THE PIPE.

OTHER ALTERNATE BACKFILL MATERIAL MAY BE ALLOWED DEPENDING ON SITE SPECIFIC CONDITIONS, AS APPROVED BY SITE ENGINEER.

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Rockwall, TX
DETENTION SYSTEM

PROJECT No.: 4927	SEQ. No.: 7912	DATE: 5/20/2021
DESIGNED: DYO	DRAWN: DYO	
CHECKED: DYO	APPROVED: DYO	
SHEET NO.: D2		

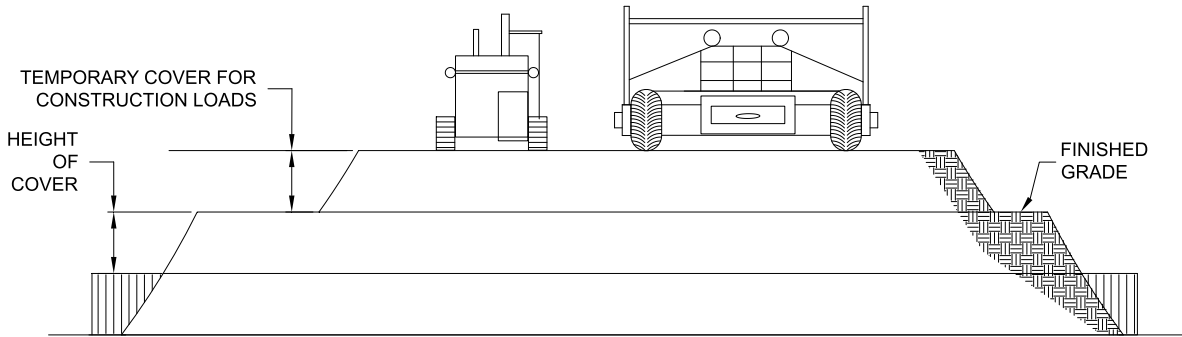
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CLAY CRISTY
109800
LICENSED PROFESSIONAL ENGINEER
7/29/2021

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CONSTRUCTION LOADS

FOR TEMPORARY CONSTRUCTION VEHICLE LOADS, AN EXTRA AMOUNT OF COMPACTED COVER MAY BE REQUIRED OVER THE TOP OF THE PIPE. THE HEIGHT-OF-COVER SHALL MEET THE MINIMUM REQUIREMENTS SHOWN IN THE TABLE BELOW. THE USE OF HEAVY CONSTRUCTION EQUIPMENT NECESSITATES GREATER PROTECTION FOR THE PIPE THAN FINISHED GRADE COVER MINIMUMS FOR NORMAL HIGHWAY TRAFFIC.

PIPE SPAN, INCHES	AXLE LOADS (kips)			
	18-50	50-75	75-110	110-150
MINIMUM COVER (FT)				
12-42	2.0	2.5	3.0	3.0
48-72	3.0	3.0	3.5	4.0
78-120	3.0	3.5	4.0	4.0
126-144	3.5	4.0	4.5	4.5

*MINIMUM COVER MAY VARY, DEPENDING ON LOCAL CONDITIONS. THE CONTRACTOR MUST PROVIDE THE ADDITIONAL COVER REQUIRED TO AVOID DAMAGE TO THE PIPE. MINIMUM COVER IS MEASURED FROM THE TOP OF THE PIPE TO THE TOP OF THE MAINTAINED CONSTRUCTION ROADWAY SURFACE.

CONSTRUCTION LOADING DIAGRAM

SCALE: N.T.S.

SPECIFICATION FOR DESIGNED DETENTION SYSTEM:

SCOPE

THIS SPECIFICATION COVERS THE MANUFACTURE AND INSTALLATION OF THE DESIGNED DETENTION SYSTEM DETAILED IN THE PROJECT PLANS.

MATERIAL

THE MATERIAL SHALL CONFORM TO THE APPLICABLE REQUIREMENTS LISTED BELOW:

ALUMINIZED TYPE 2 STEEL COILS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M-274 OR ASTM A-92.

THE GALVANIZED STEEL COILS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M-218 OR ASTM A-929.

THE POLYMER COATED STEEL COILS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M-246 OR ASTM A-742.

THE ALUMINUM COILS SHALL CONFORM TO THE APPLICABLE OF AASHTO M-197 OR ASTM B-744.

CONSTRUCTION LOADS

CONSTRUCTION LOADS MAY BE HIGHER THAN FINAL LOADS. FOLLOW THE MANUFACTURER'S OR NCSPA GUIDELINES.

NOTE:

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PIPE

THE PIPE SHALL BE MANUFACTURED IN ACCORDANCE TO THE APPLICABLE REQUIREMENTS LISTED BELOW:

ALUMINIZED TYPE 2: AASHTO M-36 OR ASTM A-760

GALVANIZED: AASHTO M-36 OR ASTM A-760

POLYMER COATED: AASHTO M-245 OR ASTM A-762

ALUMINUM: AASHTO M-196 OR ASTM B-745

APPLICABLE

HANDLING AND ASSEMBLY

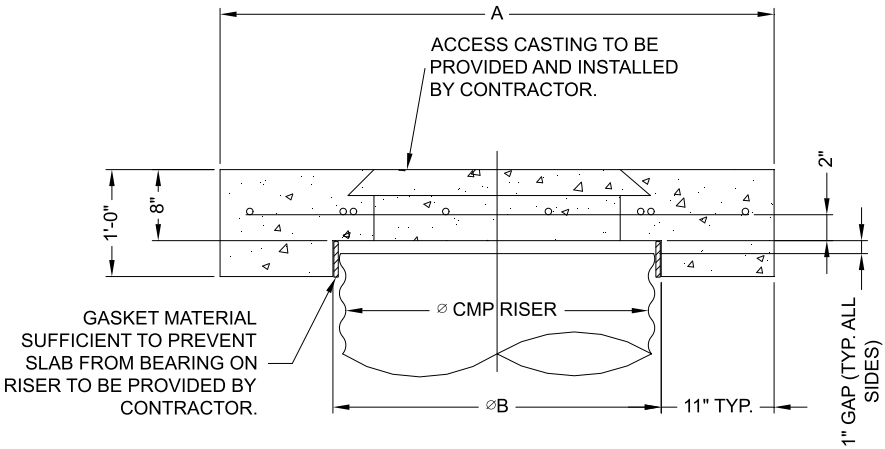
SHALL BE IN ACCORDANCE WITH NCSP'S (NATIONAL CORRUGATED STEEL PIPE ASSOCIATION) FOR ALUMINIZED TYPE 2, GALVANIZED OR POLYMER COATED STEEL. SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS FOR ALUMINUM PIPE.

REQUIREMENTS

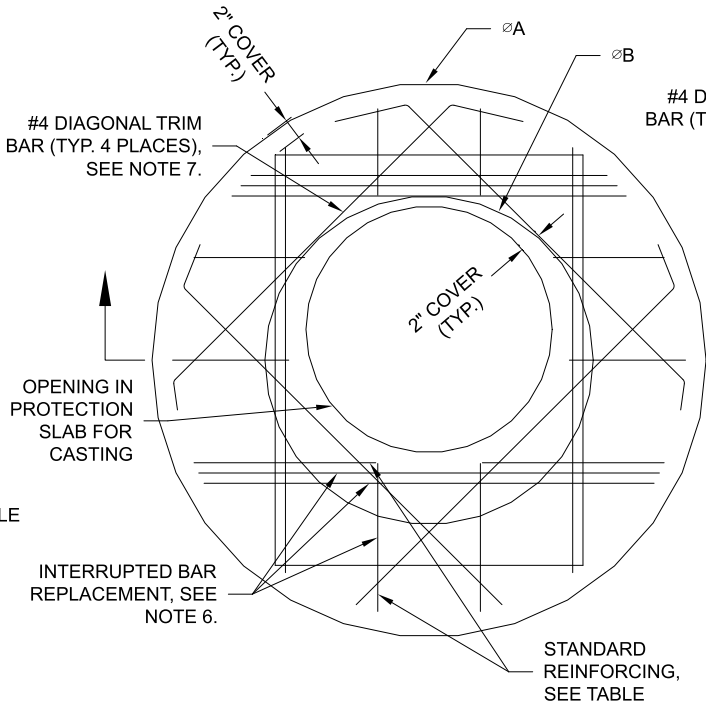
INSTALLATION

SHALL BE IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SECTION 26, DIVISION II DIVISION II OR ASTM A-798 (FOR ALUMINIZED TYPE 2, GALVANIZED OR POLYMER COATED STEEL) OR ASTM B-788 (FOR ALUMINUM PIPE) AND IN CONFORMANCE WITH THE PROJECT PLANS AND SPECIFICATIONS. IF THERE ARE ANY INCONSISTENCIES OR CONFLICTS THE CONTRACTOR SHOULD DISCUSS AND RESOLVE WITH THE SITE ENGINEER.

IT IS ALWAYS THE RESPONSIBILITY OF THE CONTRACTOR TO FOLLOW OSHA GUIDELINES FOR SAFE PRACTICES.



SECTION VIEW



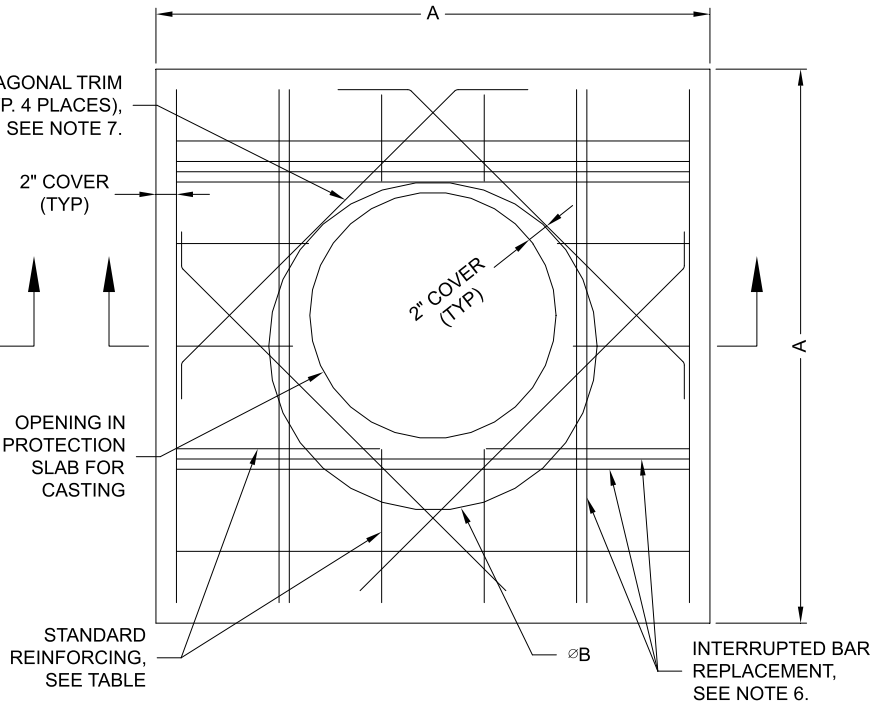
ROUND OPTION PLAN VIEW

NOTES:

- DESIGN IN ACCORDANCE WITH AASHTO, 17th EDITION.
- DESIGN LOAD HS25.
- EARTH COVER = 1' MAX.
- CONCRETE STRENGTH = 3,500 psi
- REINFORCING STEEL = ASTM A615, GRADE 60.
- PROVIDE ADDITIONAL REINFORCING AROUND OPENINGS EQUAL TO THE BARS INTERRUPTED, HALF EACH SIDE. ADDITIONAL BARS TO BE IN THE SAME PLANE.

REINFORCING TABLE				
Ø CMP RISER	A	Ø B	REINFORCING	**BEARING PRESSURE (PSF)
24"	Ø 4' 4'X4'	26"	#5 @ 12" OCEW #5 @ 12" OCEW	2,410 1,780
30"	Ø 4'-6" 4'-6" X 4'-6"	32"	#5 @ 12" OCEW #5 @ 12" OCEW	2,120 1,530
36"	Ø 5' X 5'	38"	#5 @ 10" OCEW #5 @ 10" OCEW	1,890 1,350
42"	Ø 5'-6" 5'-6" X 5'-6"	44"	#5 @ 10" OCEW #5 @ 9" OCEW	1,720 1,210
48"	Ø 6' X 6'	50"	#5 @ 9" OCEW #5 @ 8" OCEW	1,600 1,100

** ASSUMED SOIL BEARING CAPACITY

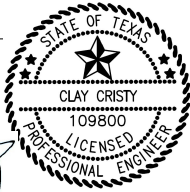


SQUARE OPTION PLAN VIEW

- TRIM OPENING WITH DIAGONAL #4 BARS, EXTEND BARS A MINIMUM OF 12" BEYOND OPENING, BEND BARS AS REQUIRED TO MAINTAIN BAR COVER.
- PROTECTION SLAB AND ALL MATERIALS TO BE PROVIDED AND INSTALLED BY CONTRACTOR.
- DETAIL DESIGN BY DELTA ENGINEERING, BINGHAMTON, NY.

MANHOLE CAP DETAIL

SCALE: N.T.S.



DY07912 Rockwall CAD
B
Rockwall, TX
DETENTION SYSTEM

PROJECT No.: 4927	SEQ. No.: 7912	DATE: 5/20/2021
DESIGNED: DYO	DRAWN: DYO	
CHECKED: DYO	APPROVED: DYO	
SHEET NO.:		D3

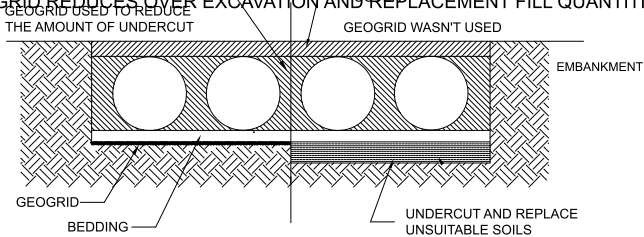
CMP DETENTION INSTALLATION GUIDE

PROPER INSTALLATION OF A FLEXIBLE UNDERGROUND DETENTION SYSTEM WILL ENSURE LONG-TERM PERFORMANCE. THE CONFIGURATION OF THESE SYSTEMS OFTEN REQUIRES SPECIAL CONSTRUCTION PRACTICES THAT DIFFER FROM CONVENTIONAL FLEXIBLE PIPE CONSTRUCTION. CONTECH ENGINEERED SOLUTIONS STRONGLY SUGGESTS SCHEDULING A PRE-CONSTRUCTION MEETING WITH YOUR LOCAL SALES ENGINEER TO DETERMINE IF ADDITIONAL MEASURES, NOT COVERED IN THIS GUIDE, ARE APPROPRIATE FOR YOUR SITE.

FOUNDATION

CONSTRUCT A FOUNDATION THAT CAN SUPPORT THE DESIGN LOADING APPLIED BY THE PIPE AND ADJACENT BACKFILL WEIGHT AS WELL AS MAINTAIN ITS INTEGRITY DURING CONSTRUCTION.

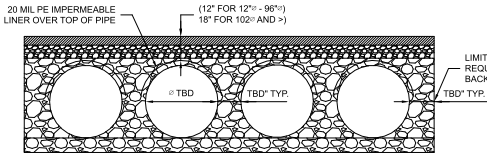
IF SOFT OR UNSUITABLE SOILS ARE ENCOUNTERED, REMOVE THE POOR SOILS DOWN TO A SUITABLE DEPTH AND THEN BUILD UP TO THE APPROPRIATE ELEVATION WITH A COMPETENT BACKFILL MATERIAL. THE STRUCTURAL FILL MATERIAL GRADATION SHOULD NOT ALLOW THE MIGRATION OF FINES, WHICH CAN CAUSE SETTLEMENT OF THE DETENTION SYSTEM OR PAVEMENT ABOVE. IF THE STRUCTURAL FILL MATERIAL IS NOT COMPATIBLE WITH THE UNDERLYING SOILS AN ENGINEERING FABRIC SHOULD BE USED AS A SEPARATOR. IN SOME CASES, USING A STIFF REINFORCING GEOGRID REDUCES OVER EXCAVATION AND REPLACEMENT FILL QUANTITIES.



GRADE THE FOUNDATION SUBGRADE TO A UNIFORM OR SLIGHTLY SLOPING GRADE. IF THE SUBGRADE IS CLAY OR RELATIVELY NON-POROUS AND THE CONSTRUCTION SEQUENCE WILL LAST FOR AN EXTENDED PERIOD OF TIME, IT IS BEST TO SLOPE THE GRADE TO ONE END OF THE SYSTEM. THIS WILL ALLOW EXCESS WATER TO DRAIN QUICKLY, PREVENTING SATURATION OF THE SUBGRADE.

GEOMEMBRANE BARRIER

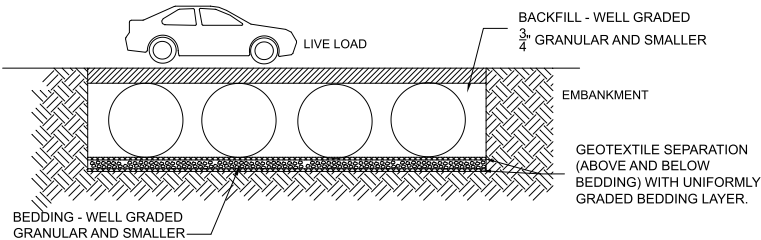
A SITE'S RESISTIVITY MAY CHANGE OVER TIME WHEN VARIOUS TYPES OF SALTING AGENTS ARE USED, SUCH AS ROAD SALTS FOR DEICING AGENTS. IF SALTING AGENTS ARE USED ON OR NEAR THE PROJECT SITE, A GEOMEMBRANE BARRIER IS RECOMMENDED WITH THE SYSTEM. THE GEOMEMBRANE LINER IS INTENDED TO HELP PROTECT THE SYSTEM FROM THE POTENTIAL ADVERSE EFFECTS THAT MAY RESULT FROM THE USE OF SUCH AGENTS INCLUDING PREMATURE CORROSION AND REDUCED ACTUAL SERVICE LIFE. THE PROJECT'S ENGINEER OF RECORD IS TO EVALUATE WHETHER SALTING AGENTS WILL BE USED ON OR NEAR THE PROJECT SITE, AND USE HIS/HER BEST JUDGEMENT TO DETERMINE IF ANY ADDITIONAL PROTECTIVE MEASURES ARE REQUIRED. BELOW IS A TYPICAL DETAIL SHOWING THE PLACEMENT OF A GEOMEMBRANE BARRIER FOR PROJECTS WHERE SALTING AGENTS ARE USED ON OR NEAR THE PROJECT SITE.



IN-SITU TRENCH WALL

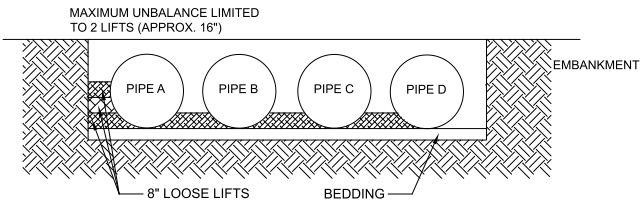
IF EXCAVATION IS REQUIRED, THE TRENCH WALL NEEDS TO BE CAPABLE OF SUPPORTING THE LOAD THAT THE PIPE SHEDS AS THE SYSTEM IS LOADED. IF SOILS ARE NOT CAPABLE OF SUPPORTING THESE LOADS, THE PIPE CAN DEFLECT. PERFORM A SIMPLE SOIL PRESSURE CHECK USING THE APPLIED LOADS TO DETERMINE THE LIMITS OF EXCAVATION BEYOND THE SPRING LINE OF THE OUTER MOST PIPES.

IN MOST CASES THE REQUIREMENTS FOR A SAFE WORK ENVIRONMENT AND PROPER BACKFILL PLACEMENT AND COMPACTION TAKE CARE OF THIS CONCERN.



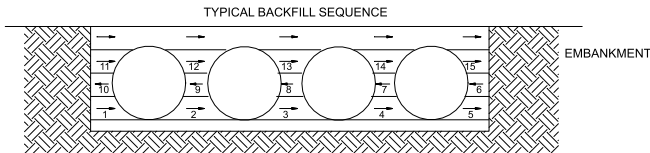
BACKFILL PLACEMENT

MATERIAL SHALL BE WORKED INTO THE PIPE HAUNCHES BY MEANS OF SHOVEL-SLICING, RODDING, AIR TAMPER, VIBRATORY ROD, OR OTHER EFFECTIVE METHODS.

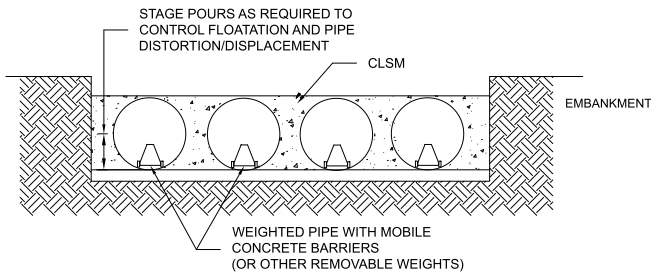


IF AASHTO T99 PROCEDURES ARE DETERMINED INFEASIBLE BY THE GEOTECHNICAL ENGINEER OF RECORD, COMPACTION IS CONSIDERED ADEQUATE WHEN NO FURTHER YIELDING OF THE MATERIAL IS OBSERVED UNDER THE COMPACTOR, OR UNDER FOOT, AND THE GEOTECHNICAL ENGINEER OF RECORD (OR REPRESENTATIVE THEREOF) IS SATISFIED WITH THE LEVEL OF COMPACTION.

FOR LARGE SYSTEMS, CONVEYOR SYSTEMS, BACKHOES WITH LONG REACHES OR DRAGLINES WITH STONE BUCKETS MAY BE USED TO PLACE BACKFILL. ONCE MINIMUM COVER FOR CONSTRUCTION LOADING ACROSS THE ENTIRE WIDTH OF THE SYSTEM IS REACHED, ADVANCE THE EQUIPMENT TO THE END OF THE RECENTLY PLACED FILL, AND BEGIN THE SEQUENCE AGAIN UNTIL THE SYSTEM IS COMPLETELY BACKFILLED. THIS TYPE OF CONSTRUCTION SEQUENCE PROVIDES ROOM FOR STOCKPILED BACKFILL DIRECTLY BEHIND THE BACKHOE, AS WELL AS THE MOVEMENT OF CONSTRUCTION TRAFFIC. MATERIAL STOCKPILES ON TOP OF THE BACKFILLED DETENTION SYSTEM SHOULD BE LIMITED TO 8- TO 10- FEET HIGH AND MUST PROVIDE BALANCED LOADING ACROSS ALL BARRELS. TO DETERMINE THE PROPER COVER OVER THE PIPES TO ALLOW THE MOVEMENT OF CONSTRUCTION EQUIPMENT SEE TABLE 1, OR CONTACT YOUR LOCAL CONTECH SALES ENGINEER.



WHEN FLOWABLE FILL IS USED, YOU MUST PREVENT PIPE FLOATATION. TYPICALLY, SMALL LIFTS ARE PLACED BETWEEN THE PIPES AND THEN ALLOWED TO SET-UP PRIOR TO THE PLACEMENT OF THE NEXT LIFT. THE ALLOWABLE THICKNESS OF THE CLSM LIFT IS A FUNCTION OF A PROPER BALANCE BETWEEN THE UPLIFT FORCE OF THE CLSM, THE OPPOSING WEIGHT OF THE PIPE, AND THE EFFECT OF OTHER RESTRAINING MEASURES. THE PIPE CAN CARRY LIMITED FLUID PRESSURE WITHOUT PIPE DISTORTION OR DISPLACEMENT, WHICH ALSO AFFECTS THE CLSM LIFT THICKNESS. YOUR LOCAL CONTECH SALES ENGINEER CAN HELP DETERMINE THE PROPER LIFT THICKNESS.

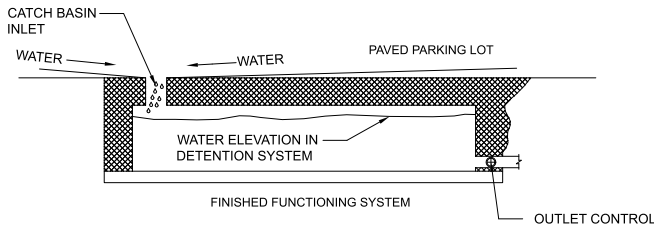


CONSTRUCTION LOADING

TYPICALLY, THE MINIMUM COVER SPECIFIED FOR A PROJECT ASSUMES H-20 LIVE LOAD. BECAUSE CONSTRUCTION LOADS OFTEN EXCEED DESIGN LIVE LOADS, INCREASED TEMPORARY MINIMUM COVER REQUIREMENTS ARE NECESSARY. SINCE CONSTRUCTION EQUIPMENT VARIES FROM JOB TO JOB, IT IS BEST TO ADDRESS EQUIPMENT SPECIFIC MINIMUM COVER REQUIREMENTS WITH YOUR LOCAL CONTECH SALES ENGINEER DURING YOUR PRE-CONSTRUCTION MEETING.

ADDITIONAL CONSIDERATIONS

BECAUSE MOST SYSTEMS ARE CONSTRUCTED BELOW-GRADE, RAINFALL CAN RAPIDLY FILL THE EXCAVATION; POTENTIALLY CAUSING FLOATATION AND MOVEMENT OF THE PREVIOUSLY PLACED PIPES. TO HELP MITIGATE POTENTIAL PROBLEMS, IT IS BEST TO START THE INSTALLATION AT THE DOWNSTREAM END WITH THE OUTLET ALREADY CONSTRUCTED TO ALLOW A ROUTE FOR THE WATER TO ESCAPE. TEMPORARY DIVERSION MEASURES MAY BE REQUIRED FOR HIGH FLOWS DUE TO THE RESTRICTED NATURE OF THE OUTLET PIPE.



CMP DETENTION SYSTEM INSPECTION AND MAINTENANCE

UNDERGROUND STORMWATER DETENTION AND INFILTRATION SYSTEMS MUST BE INSPECTED AND MAINTAINED AT REGULAR INTERVALS FOR PURPOSES OF PERFORMANCE AND LONGEVITY.

INSPECTION

INSPECTION IS THE KEY TO EFFECTIVE MAINTENANCE OF CMP DETENTION SYSTEMS AND IS EASILY PERFORMED. CONTECH RECOMMENDS ONGOING, ANNUAL INSPECTIONS. SITES WITH HIGH TRASH LOAD OR SMALL OUTLET CONTROL ORIFICES MAY NEED MORE FREQUENT INSPECTIONS. THE RATE AT WHICH THE SYSTEM COLLECTS POLLUTANTS WILL DEPEND MORE ON SITE SPECIFIC ACTIVITIES RATHER THAN THE SIZE OR CONFIGURATION OF THE SYSTEM.

INSPECTIONS SHOULD BE PERFORMED MORE OFTEN IN EQUIPMENT WASHDOWN AREAS, IN CLIMATES WHERE SANDING AND/OR SALTING OPERATIONS TAKE PLACE, AND IN OTHER VARIOUS INSTANCES IN WHICH ONE WOULD EXPECT HIGHER ACCUMULATIONS OF SEDIMENT OR ABRASIVE/ CORROSIVE CONDITIONS. A RECORD OF EACH INSPECTION IS TO BE MAINTAINED FOR THE LIFE OF THE SYSTEM

MAINTENANCE

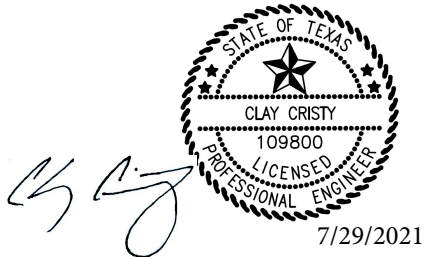
CMP DETENTION SYSTEMS SHOULD BE CLEANED WHEN AN INSPECTION REVEALS ACCUMULATED SEDIMENT OR TRASH IS CLOGGING THE DISCHARGE ORIFICE.

ACCUMULATED SEDIMENT AND TRASH CAN TYPICALLY BE EVACUATED THROUGH THE MANHOLE OVER THE OUTLET ORIFICE. IF MAINTENANCE IS NOT PERFORMED AS RECOMMENDED, SEDIMENT AND TRASH MAY ACCUMULATE IN FRONT OF THE OUTLET ORIFICE. MANHOLE COVERS SHOULD BE SECURELY SEATED FOLLOWING CLEANING ACTIVITIES. CONTECH SUGGESTS THAT ALL SYSTEMS BE DESIGNED WITH AN ACCESS/INSPECTION MANHOLE SITUATED AT OR NEAR THE INLET AND THE OUTLET ORIFICE. SHOULD IT BE NECESSARY TO GET INSIDE THE SYSTEM TO PERFORM MAINTENANCE ACTIVITIES, ALL APPROPRIATE PRECAUTIONS REGARDING CONFINED SPACE ENTRY AND OSHA REGULATIONS SHOULD BE FOLLOWED.

ANNUAL INSPECTIONS ARE BEST PRACTICE FOR ALL UNDERGROUND SYSTEMS. DURING THIS INSPECTION, IF EVIDENCE OF SALTING/DE-ICING AGENTS IS OBSERVED WITHIN THE SYSTEM, IT IS BEST PRACTICE FOR THE SYSTEM TO BE RINSED, INCLUDING ABOVE THE SPRING LINE SOON AFTER THE SPRING THAW AS PART OF THE MAINTENANCE PROGRAM FOR THE SYSTEM.

MAINTAINING AN UNDERGROUND DETENTION OR INFILTRATION SYSTEM IS EASIEST WHEN THERE IS NO FLOW ENTERING THE SYSTEM. FOR THIS REASON, IT IS A GOOD IDEA TO SCHEDULE THE CLEANOUT DURING DRY WEATHER.

THE FOREGOING INSPECTION AND MAINTENANCE EFFORTS HELP ENSURE UNDERGROUND PIPE SYSTEMS USED FOR STORMWATER STORAGE CONTINUE TO FUNCTION AS INTENDED BY IDENTIFYING RECOMMENDED REGULAR INSPECTION AND MAINTENANCE PRACTICES. INSPECTION AND MAINTENANCE RELATED TO THE STRUCTURAL INTEGRITY OF THE PIPE OR THE SOUNDNESS OF PIPE JOINT CONNECTIONS IS BEYOND THE SCOPE OF THIS GUIDE.




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800-338-1122 513-645-7000 513-645-7993 FAX



CMP DETENTION SYSTEMS

CONTECH
DYODS
DRAWING

DYO7912 Rockwall CAD B Rockwall, TX DETENTION SYSTEM			
PROJECT No.: 4927	SEQ. No.: 7912	DATE: 5/20/2021	
DESIGNED: DYO		DRAWN: DYO	
CHECKED: DYO		APPROVED: DYO	
SHEET NO.:		D4	

PROJECT SUMMARY

CALCULATION DETAILS

- LOADING = HS20 & HS25
- APPROX. LINEAR FOOTAGE = 318 lf.

STORAGE SUMMARY

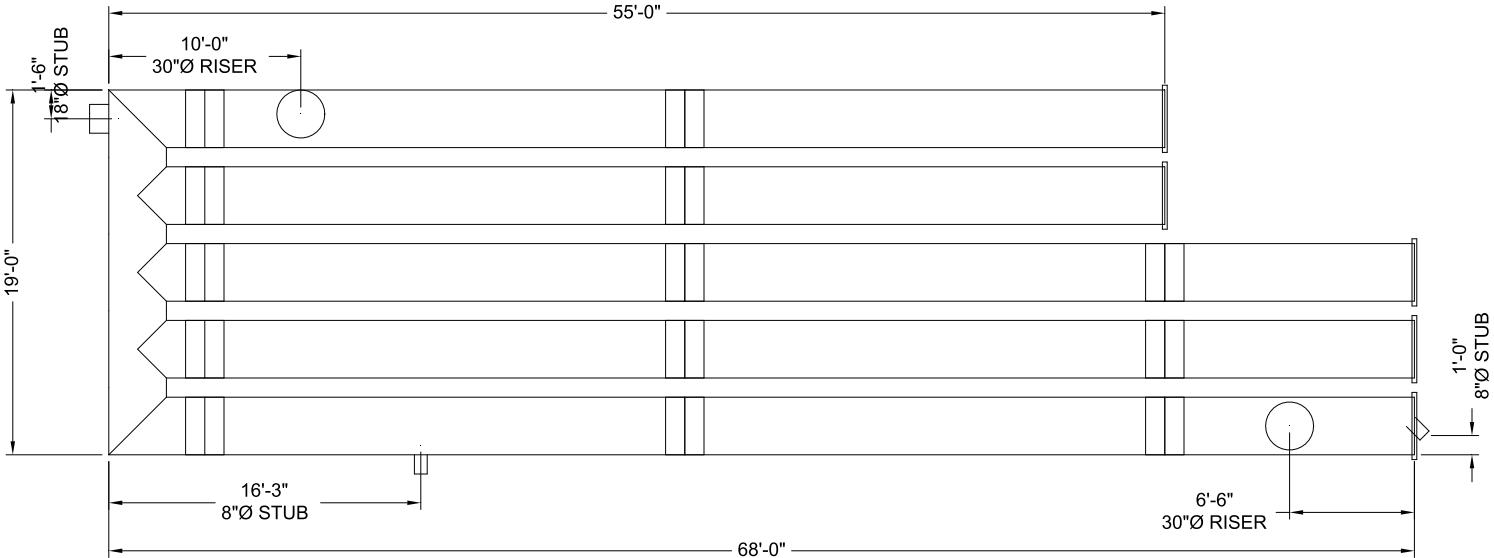
- STORAGE VOLUME REQUIRED = 2,246 cf.
- PIPE STORAGE VOLUME = 2,248 cf.
- BACKFILL STORAGE VOLUME = 0 cf.
- TOTAL STORAGE PROVIDED = 2,285 cf.

PIPE DETAILS

- DIAMETER = 36 IN.
- CORRUGATION = 2 2/3x1/2
- GAGE = 16
- COATING = ALT2
- WALL TYPE = Solid
- BARRELL SPACING = 12 IN.

BACKFILL DETAILS

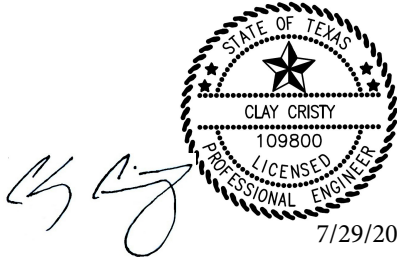
- WIDTH AT ENDS = 0 IN.
- ABOVE PIPE = 0 IN.
- WIDTH AT SIDES = 0 IN.
- BELOW PIPE = 0 IN.



NOTES

- ALL RISER AND STUB DIMENSIONS ARE TO CENTERLINE. ALL ELEVATIONS, DIMENSIONS, AND LOCATIONS OF RISERS AND INLETS, SHALL BE VERIFIED BY THE ENGINEER OF RECORD PRIOR TO RELEASING FOR FABRICATION.
- ALL FITTINGS AND REINFORCEMENT COMPLY WITH ASTM A998.
- ALL RISERS AND STUBS ARE 2 2/3" x 1/2" CORRUGATION AND 16 GAGE UNLESS OTHERWISE NOTED.
- RISERS TO BE FIELD TRIMMED TO GRADE.
- QUANTITY OF PIPE SHOWN DOES NOT PROVIDE EXTRA PIPE FOR CONNECTING THE SYSTEM TO EXISTING PIPE OR DRAINAGE STRUCTURES. OUR SYSTEM AS DETAILED PROVIDES NOMINAL INLET AND/OR OUTLET PIPE STUB FOR CONNECTION TO EXISTING DRAINAGE FACILITIES. IF ADDITIONAL PIPE IS NEEDED IT IS THE RESPONSIBILITY OF THE CONTRACTOR.
- BAND TYPE TO BE DETERMINED UPON FINAL DESIGN.
- THE PROJECT SUMMARY IS REFLECTIVE OF THE DYODS DESIGN, QUANTITIES ARE APPROX. AND SHOULD BE VERIFIED UPON FINAL DESIGN AND APPROVAL. FOR EXAMPLE, TOTAL EXCAVATION DOES NOT CONSIDER ALL VARIABLES SUCH AS SHORING AND ONLY ACCOUNTS FOR MATERIAL WITHIN THE ESTIMATED EXCAVATION FOOTPRINT.
- THESE DRAWINGS ARE FOR CONCEPTUAL PURPOSES AND DO NOT REFLECT ANY LOCAL PREFERENCES OR REGULATIONS. PLEASE CONTACT YOUR LOCAL CONTECH REP FOR MODIFICATIONS.

ASSEMBLY
SCALE: 1" = 10'



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CONTECH

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9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069

800-338-1122 513-645-7000 513-645-7993 FAX

CONTECH

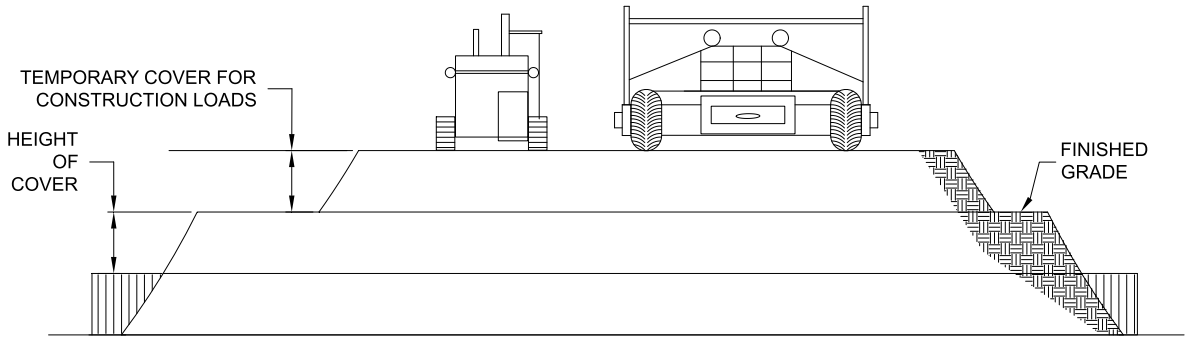
CMP DETENTION SYSTEMS

CONTECH
DYODS
DRAWING

DYO7913 Rockwall CAD
C
Rockwall, TX
DETENTION SYSTEM

PROJECT No.: 4927	SEQ. No.: 7913	DATE: 5/20/2021
DESIGNED: DYO	DRAWN: DYO	
CHECKED: DYO	APPROVED: DYO	
SHEET NO.: D1		

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CONSTRUCTION LOADS

FOR TEMPORARY CONSTRUCTION VEHICLE LOADS, AN EXTRA AMOUNT OF COMPACTED COVER MAY BE REQUIRED OVER THE TOP OF THE PIPE. THE HEIGHT-OF-COVER SHALL MEET THE MINIMUM REQUIREMENTS SHOWN IN THE TABLE BELOW. THE USE OF HEAVY CONSTRUCTION EQUIPMENT NECESSITATES GREATER PROTECTION FOR THE PIPE THAN FINISHED GRADE COVER MINIMUMS FOR NORMAL HIGHWAY TRAFFIC.

PIPE SPAN, INCHES	AXLE LOADS (kips)			
	18-50	50-75	75-110	110-150
MINIMUM COVER (FT)				
12-42	2.0	2.5	3.0	3.0
48-72	3.0	3.0	3.5	4.0
78-120	3.0	3.5	4.0	4.0
126-144	3.5	4.0	4.5	4.5

*MINIMUM COVER MAY VARY, DEPENDING ON LOCAL CONDITIONS. THE CONTRACTOR MUST PROVIDE THE ADDITIONAL COVER REQUIRED TO AVOID DAMAGE TO THE PIPE. MINIMUM COVER IS MEASURED FROM THE TOP OF THE PIPE TO THE TOP OF THE MAINTAINED CONSTRUCTION ROADWAY SURFACE.

CONSTRUCTION LOADING DIAGRAM

SCALE: N.T.S.

SPECIFICATION FOR DESIGNED DETENTION SYSTEM:

SCOPE

THIS SPECIFICATION COVERS THE MANUFACTURE AND INSTALLATION OF THE DESIGNED DETENTION SYSTEM DETAILED IN THE PROJECT PLANS.

MATERIAL

THE MATERIAL SHALL CONFORM TO THE APPLICABLE REQUIREMENTS LISTED BELOW:

ALUMINIZED TYPE 2 STEEL COILS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M-274 OR ASTM A-92.

THE GALVANIZED STEEL COILS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M-218 OR ASTM A-929.

THE POLYMER COATED STEEL COILS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M-246 OR ASTM A-742.

THE ALUMINUM COILS SHALL CONFORM TO THE APPLICABLE OF AASHTO M-197 OR ASTM B-744.

CONSTRUCTION LOADS

CONSTRUCTION LOADS MAY BE HIGHER THAN FINAL LOADS. FOLLOW THE MANUFACTURER'S OR NCSPA GUIDELINES.

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DATE	REVISION DESCRIPTION	BY

PIPE

THE PIPE SHALL BE MANUFACTURED IN ACCORDANCE TO THE APPLICABLE REQUIREMENTS LISTED BELOW:

ALUMINIZED TYPE 2: AASHTO M-36 OR ASTM A-760

GALVANIZED: AASHTO M-36 OR ASTM A-760

POLYMER COATED: AASHTO M-245 OR ASTM A-762

ALUMINUM: AASHTO M-196 OR ASTM B-745

APPLICABLE

HANDLING AND ASSEMBLY

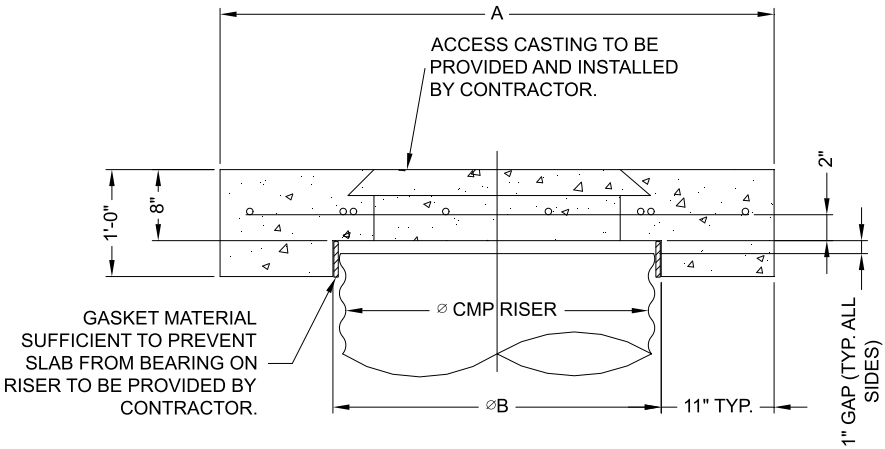
SHALL BE IN ACCORDANCE WITH NCSP'S (NATIONAL CORRUGATED STEEL PIPE ASSOCIATION) FOR ALUMINIZED TYPE 2, GALVANIZED OR POLYMER COATED STEEL. SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS FOR ALUMINUM PIPE.

REQUIREMENTS

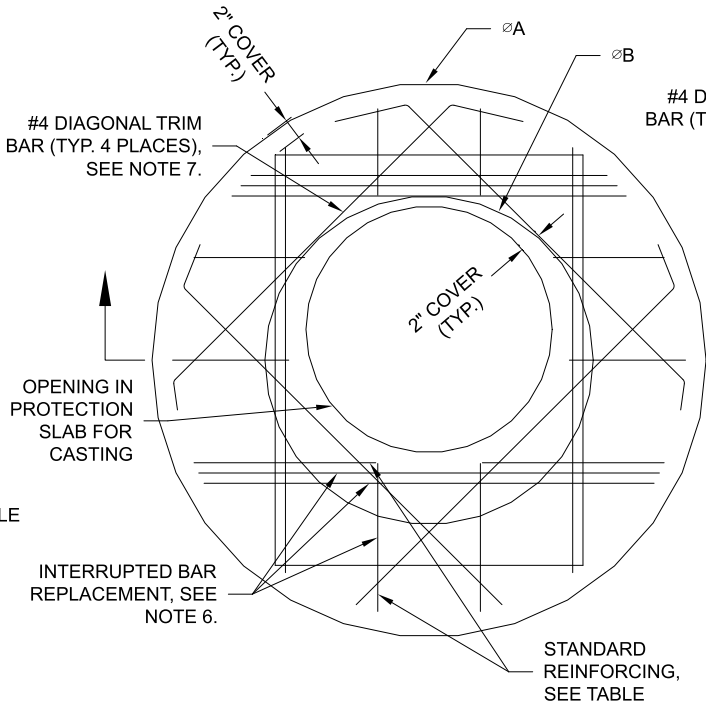
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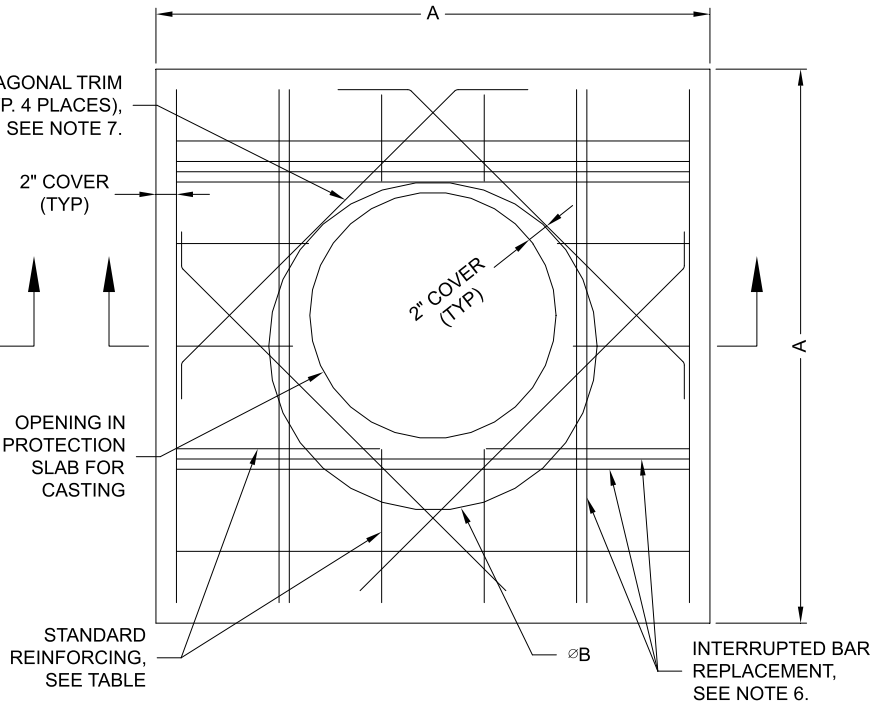
ROUND OPTION PLAN VIEW

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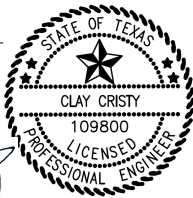


SQUARE OPTION PLAN VIEW

- TRIM OPENING WITH DIAGONAL #4 BARS, EXTEND BARS A MINIMUM OF 12" BEYOND OPENING, BEND BARS AS REQUIRED TO MAINTAIN BAR COVER.
- PROTECTION SLAB AND ALL MATERIALS TO BE PROVIDED AND INSTALLED BY CONTRACTOR.
- DETAIL DESIGN BY DELTA ENGINEERING, BINGHAMTON, NY.

MANHOLE CAP DETAIL

SCALE: N.T.S.



DY07913 Rockwall CAD
C
Rockwall, TX
DETENTION SYSTEM

PROJECT No.: 4927	SEQ. No.: 7913	DATE: 5/20/2021
DESIGNED: DYO	DRAWN: DYO	
CHECKED: DYO	APPROVED: DYO	
SHEET NO.:	D3	

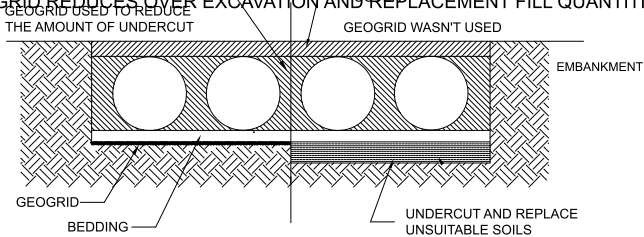
CMP DETENTION INSTALLATION GUIDE

PROPER INSTALLATION OF A FLEXIBLE UNDERGROUND DETENTION SYSTEM WILL ENSURE LONG-TERM PERFORMANCE. THE CONFIGURATION OF THESE SYSTEMS OFTEN REQUIRES SPECIAL CONSTRUCTION PRACTICES THAT DIFFER FROM CONVENTIONAL FLEXIBLE PIPE CONSTRUCTION. CONTECH ENGINEERED SOLUTIONS STRONGLY SUGGESTS SCHEDULING A PRE-CONSTRUCTION MEETING WITH YOUR LOCAL SALES ENGINEER TO DETERMINE IF ADDITIONAL MEASURES, NOT COVERED IN THIS GUIDE, ARE APPROPRIATE FOR YOUR SITE.

FOUNDATION

CONSTRUCT A FOUNDATION THAT CAN SUPPORT THE DESIGN LOADING APPLIED BY THE PIPE AND ADJACENT BACKFILL WEIGHT AS WELL AS MAINTAIN ITS INTEGRITY DURING CONSTRUCTION.

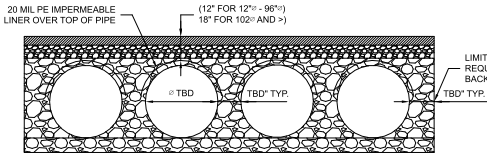
IF SOFT OR UNSUITABLE SOILS ARE ENCOUNTERED, REMOVE THE POOR SOILS DOWN TO A SUITABLE DEPTH AND THEN BUILD UP TO THE APPROPRIATE ELEVATION WITH A COMPETENT BACKFILL MATERIAL. THE STRUCTURAL FILL MATERIAL GRADATION SHOULD NOT ALLOW THE MIGRATION OF FINES, WHICH CAN CAUSE SETTLEMENT OF THE DETENTION SYSTEM OR PAVEMENT ABOVE. IF THE STRUCTURAL FILL MATERIAL IS NOT COMPATIBLE WITH THE UNDERLYING SOILS AN ENGINEERING FABRIC SHOULD BE USED AS A SEPARATOR. IN SOME CASES, USING A STIFF REINFORCING GEOGRID REDUCES OVER EXCAVATION AND REPLACEMENT FILL QUANTITIES.



GRADE THE FOUNDATION SUBGRADE TO A UNIFORM OR SLIGHTLY SLOPING GRADE. IF THE SUBGRADE IS CLAY OR RELATIVELY NON-POROUS AND THE CONSTRUCTION SEQUENCE WILL LAST FOR AN EXTENDED PERIOD OF TIME, IT IS BEST TO SLOPE THE GRADE TO ONE END OF THE SYSTEM. THIS WILL ALLOW EXCESS WATER TO DRAIN QUICKLY, PREVENTING SATURATION OF THE SUBGRADE.

GEOMEMBRANE BARRIER

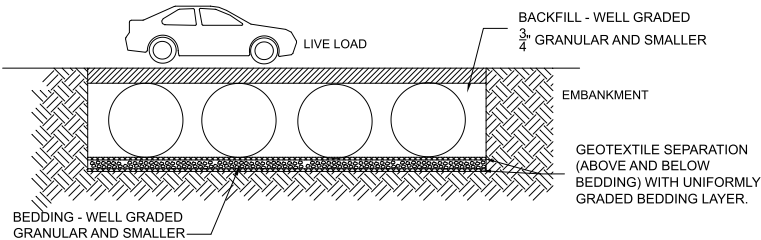
A SITE'S RESISTIVITY MAY CHANGE OVER TIME WHEN VARIOUS TYPES OF SALTING AGENTS ARE USED, SUCH AS ROAD SALTS FOR DEICING AGENTS. IF SALTING AGENTS ARE USED ON OR NEAR THE PROJECT SITE, A GEOMEMBRANE BARRIER IS RECOMMENDED WITH THE SYSTEM. THE GEOMEMBRANE LINER IS INTENDED TO HELP PROTECT THE SYSTEM FROM THE POTENTIAL ADVERSE EFFECTS THAT MAY RESULT FROM THE USE OF SUCH AGENTS INCLUDING PREMATURE CORROSION AND REDUCED ACTUAL SERVICE LIFE. THE PROJECT'S ENGINEER OF RECORD IS TO EVALUATE WHETHER SALTING AGENTS WILL BE USED ON OR NEAR THE PROJECT SITE, AND USE HIS/HER BEST JUDGEMENT TO DETERMINE IF ANY ADDITIONAL PROTECTIVE MEASURES ARE REQUIRED. BELOW IS A TYPICAL DETAIL SHOWING THE PLACEMENT OF A GEOMEMBRANE BARRIER FOR PROJECTS WHERE SALTING AGENTS ARE USED ON OR NEAR THE PROJECT SITE.



IN-SITU TRENCH WALL

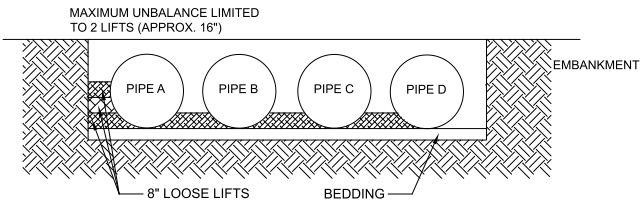
IF EXCAVATION IS REQUIRED, THE TRENCH WALL NEEDS TO BE CAPABLE OF SUPPORTING THE LOAD THAT THE PIPE SHEDS AS THE SYSTEM IS LOADED. IF SOILS ARE NOT CAPABLE OF SUPPORTING THESE LOADS, THE PIPE CAN DEFLECT. PERFORM A SIMPLE SOIL PRESSURE CHECK USING THE APPLIED LOADS TO DETERMINE THE LIMITS OF EXCAVATION BEYOND THE SPRING LINE OF THE OUTER MOST PIPES.

IN MOST CASES THE REQUIREMENTS FOR A SAFE WORK ENVIRONMENT AND PROPER BACKFILL PLACEMENT AND COMPACTION TAKE CARE OF THIS CONCERN.



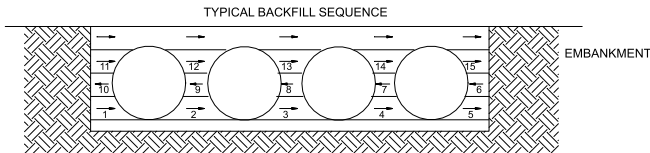
BACKFILL PLACEMENT

MATERIAL SHALL BE WORKED INTO THE PIPE HAUNCHES BY MEANS OF SHOVEL-SLICING, RODDING, AIR TAMPER, VIBRATORY ROD, OR OTHER EFFECTIVE METHODS.

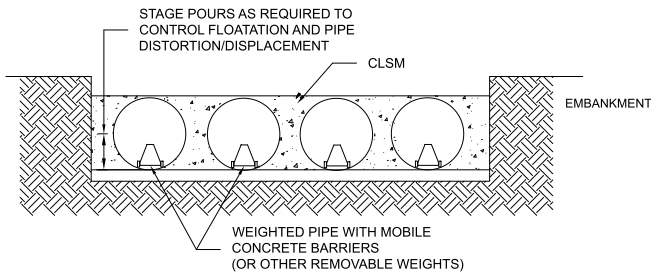


IF AASHTO T99 PROCEDURES ARE DETERMINED INFEASIBLE BY THE GEOTECHNICAL ENGINEER OF RECORD, COMPACTION IS CONSIDERED ADEQUATE WHEN NO FURTHER YIELDING OF THE MATERIAL IS OBSERVED UNDER THE COMPACTOR, OR UNDER FOOT, AND THE GEOTECHNICAL ENGINEER OF RECORD (OR REPRESENTATIVE THEREOF) IS SATISFIED WITH THE LEVEL OF COMPACTION.

FOR LARGE SYSTEMS, CONVEYOR SYSTEMS, BACKHOES WITH LONG REACHES OR DRAGLINES WITH STONE BUCKETS MAY BE USED TO PLACE BACKFILL. ONCE MINIMUM COVER FOR CONSTRUCTION LOADING ACROSS THE ENTIRE WIDTH OF THE SYSTEM IS REACHED, ADVANCE THE EQUIPMENT TO THE END OF THE RECENTLY PLACED FILL, AND BEGIN THE SEQUENCE AGAIN UNTIL THE SYSTEM IS COMPLETELY BACKFILLED. THIS TYPE OF CONSTRUCTION SEQUENCE PROVIDES ROOM FOR STOCKPILED BACKFILL DIRECTLY BEHIND THE BACKHOE, AS WELL AS THE MOVEMENT OF CONSTRUCTION TRAFFIC. MATERIAL STOCKPILES ON TOP OF THE BACKFILLED DETENTION SYSTEM SHOULD BE LIMITED TO 8- TO 10- FEET HIGH AND MUST PROVIDE BALANCED LOADING ACROSS ALL BARRELS. TO DETERMINE THE PROPER COVER OVER THE PIPES TO ALLOW THE MOVEMENT OF CONSTRUCTION EQUIPMENT SEE TABLE 1, OR CONTACT YOUR LOCAL CONTECH SALES ENGINEER.



WHEN FLOWABLE FILL IS USED, YOU MUST PREVENT PIPE FLOATATION. TYPICALLY, SMALL LIFTS ARE PLACED BETWEEN THE PIPES AND THEN ALLOWED TO SET-UP PRIOR TO THE PLACEMENT OF THE NEXT LIFT. THE ALLOWABLE THICKNESS OF THE CLSM LIFT IS A FUNCTION OF A PROPER BALANCE BETWEEN THE UPLIFT FORCE OF THE CLSM, THE OPPOSING WEIGHT OF THE PIPE, AND THE EFFECT OF OTHER RESTRAINING MEASURES. THE PIPE CAN CARRY LIMITED FLUID PRESSURE WITHOUT PIPE DISTORTION OR DISPLACEMENT, WHICH ALSO AFFECTS THE CLSM LIFT THICKNESS. YOUR LOCAL CONTECH SALES ENGINEER CAN HELP DETERMINE THE PROPER LIFT THICKNESS.

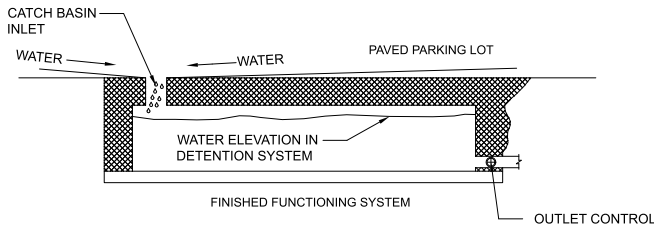


CONSTRUCTION LOADING

TYPICALLY, THE MINIMUM COVER SPECIFIED FOR A PROJECT ASSUMES H-20 LIVE LOAD. BECAUSE CONSTRUCTION LOADS OFTEN EXCEED DESIGN LIVE LOADS, INCREASED TEMPORARY MINIMUM COVER REQUIREMENTS ARE NECESSARY. SINCE CONSTRUCTION EQUIPMENT VARIES FROM JOB TO JOB, IT IS BEST TO ADDRESS EQUIPMENT SPECIFIC MINIMUM COVER REQUIREMENTS WITH YOUR LOCAL CONTECH SALES ENGINEER DURING YOUR PRE-CONSTRUCTION MEETING.

ADDITIONAL CONSIDERATIONS

BECAUSE MOST SYSTEMS ARE CONSTRUCTED BELOW-GRADE, RAINFALL CAN RAPIDLY FILL THE EXCAVATION; POTENTIALLY CAUSING FLOATATION AND MOVEMENT OF THE PREVIOUSLY PLACED PIPES. TO HELP MITIGATE POTENTIAL PROBLEMS, IT IS BEST TO START THE INSTALLATION AT THE DOWNSTREAM END WITH THE OUTLET ALREADY CONSTRUCTED TO ALLOW A ROUTE FOR THE WATER TO ESCAPE. TEMPORARY DIVERSION MEASURES MAY BE REQUIRED FOR HIGH FLOWS DUE TO THE RESTRICTED NATURE OF THE OUTLET PIPE.



CMP DETENTION SYSTEM INSPECTION AND MAINTENANCE

UNDERGROUND STORMWATER DETENTION AND INFILTRATION SYSTEMS MUST BE INSPECTED AND MAINTAINED AT REGULAR INTERVALS FOR PURPOSES OF PERFORMANCE AND LONGEVITY.

INSPECTION

INSPECTION IS THE KEY TO EFFECTIVE MAINTENANCE OF CMP DETENTION SYSTEMS AND IS EASILY PERFORMED. CONTECH RECOMMENDS ONGOING, ANNUAL INSPECTIONS. SITES WITH HIGH TRASH LOAD OR SMALL OUTLET CONTROL ORIFICES MAY NEED MORE FREQUENT INSPECTIONS. THE RATE AT WHICH THE SYSTEM COLLECTS POLLUTANTS WILL DEPEND MORE ON SITE SPECIFIC ACTIVITIES RATHER THAN THE SIZE OR CONFIGURATION OF THE SYSTEM.

INSPECTIONS SHOULD BE PERFORMED MORE OFTEN IN EQUIPMENT WASHDOWN AREAS, IN CLIMATES WHERE SANDING AND/OR SALTING OPERATIONS TAKE PLACE, AND IN OTHER VARIOUS INSTANCES IN WHICH ONE WOULD EXPECT HIGHER ACCUMULATIONS OF SEDIMENT OR ABRASIVE/ CORROSIVE CONDITIONS. A RECORD OF EACH INSPECTION IS TO BE MAINTAINED FOR THE LIFE OF THE SYSTEM

MAINTENANCE

CMP DETENTION SYSTEMS SHOULD BE CLEANED WHEN AN INSPECTION REVEALS ACCUMULATED SEDIMENT OR TRASH IS CLOGGING THE DISCHARGE ORIFICE.

ACCUMULATED SEDIMENT AND TRASH CAN TYPICALLY BE EVACUATED THROUGH THE MANHOLE OVER THE OUTLET ORIFICE. IF MAINTENANCE IS NOT PERFORMED AS RECOMMENDED, SEDIMENT AND TRASH MAY ACCUMULATE IN FRONT OF THE OUTLET ORIFICE. MANHOLE COVERS SHOULD BE SECURELY SEATED FOLLOWING CLEANING ACTIVITIES. CONTECH SUGGESTS THAT ALL SYSTEMS BE DESIGNED WITH AN ACCESS/INSPECTION MANHOLE SITUATED AT OR NEAR THE INLET AND THE OUTLET ORIFICE. SHOULD IT BE NECESSARY TO GET INSIDE THE SYSTEM TO PERFORM MAINTENANCE ACTIVITIES, ALL APPROPRIATE PRECAUTIONS REGARDING CONFINED SPACE ENTRY AND OSHA REGULATIONS SHOULD BE FOLLOWED.

ANNUAL INSPECTIONS ARE BEST PRACTICE FOR ALL UNDERGROUND SYSTEMS. DURING THIS INSPECTION, IF EVIDENCE OF SALTING/DE-ICING AGENTS IS OBSERVED WITHIN THE SYSTEM, IT IS BEST PRACTICE FOR THE SYSTEM TO BE RINSED, INCLUDING ABOVE THE SPRING LINE SOON AFTER THE SPRING THAW AS PART OF THE MAINTENANCE PROGRAM FOR THE SYSTEM.

MAINTAINING AN UNDERGROUND DETENTION OR INFILTRATION SYSTEM IS EASIEST WHEN THERE IS NO FLOW ENTERING THE SYSTEM. FOR THIS REASON, IT IS A GOOD IDEA TO SCHEDULE THE CLEANOUT DURING DRY WEATHER.

THE FOREGOING INSPECTION AND MAINTENANCE EFFORTS HELP ENSURE UNDERGROUND PIPE SYSTEMS USED FOR STORMWATER STORAGE CONTINUE TO FUNCTION AS INTENDED BY IDENTIFYING RECOMMENDED REGULAR INSPECTION AND MAINTENANCE PRACTICES. INSPECTION AND MAINTENANCE RELATED TO THE STRUCTURAL INTEGRITY OF THE PIPE OR THE SOUNDNESS OF PIPE JOINT CONNECTIONS IS BEYOND THE SCOPE OF THIS GUIDE.

STATE OF TEXAS
CLAY CRISTY
109800
LICENSED PROFESSIONAL ENGINEER
7/29/2021

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DATE	REVISION DESCRIPTION	BY	

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ENGINEERED SOLUTIONS LLC

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CONTECH

CMP DETENTION SYSTEMS

CONTECH

DYODS

DRAWING

DY07913 Rockwall CAD

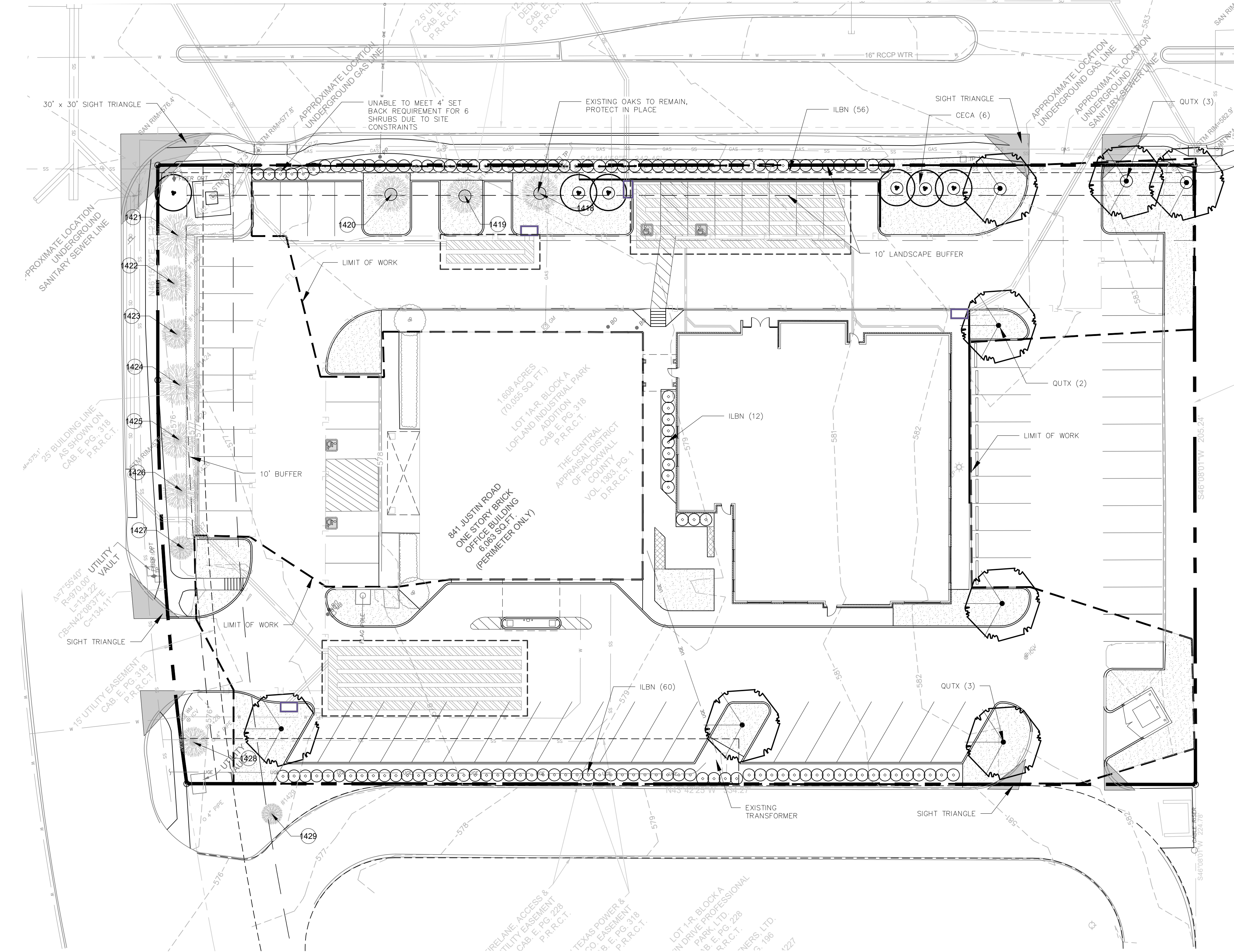
C

Rockwall, TX

DETENTION SYSTEM

PROJECT No.: 4927	SEQ. No.: 7913	DATE: 5/20/2021
DESIGNED: DYO		DRAWN: DYO
CHECKED: DYO		APPROVED: DYO
SHEET NO.: D4		

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 PLOT DATE: 5/10/2021 12:57 PM
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 LAST SAVED: 5/10/2021 12:56 PM



EXISTING TREE LEGEND

TREE NO.	COMMON NAME	DBH	REMARKS
1418	OAK	12"	PROTECT IN PLACE
1419	OAK	12"	PROTECT IN PLACE
1420	OAK	12"	PROTECT IN PLACE
1421	OAK	15"	PROTECT IN PLACE
1422	OAK	12"	PROTECT IN PLACE
1423	OAK	10"	PROTECT IN PLACE
1424	OAK	14"	PROTECT IN PLACE
1425	OAK	12"	PROTECT IN PLACE
1426	OAK	12"	PROTECT IN PLACE
1427	OAK	8"	PROTECT IN PLACE
1428	OAK	10"	PROTECT IN PLACE
1429	OAK	7"	OFF SITE

PLANTING LEGEND

SYMBOL	BOTANIC NAME	COMMON NAME	MIN. SIZE	SPACING	QUANTITY	REMARKS
TREES						
CECA	Cercis canadensis 'Texana'	Texas Redbud	2" cal., 8'-10' high	per plan	6	Accent Tree
QUTX	Quercus texana	Texas Red Oak	4" cal., 16'-18' high	per plan	8	Canopy Tree

NOTE: ALL TREES SHALL BE CONTAINER-GROWN, CONTAINER SIZE AS APPROPRIATE FOR THE CALIPER SPECIFIED. SEE SPECIFICATIONS FOR PROPER ROOT QUALITY.

SHRUBS

ILBN	Ilex cornuta 'Burfordii 'Nana'	Dwarf Burford Holly	5 Gallon	per plan	128	Evergreen Screening Shrub
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TURF AND GROUND COVER

	Cynodon 'Tifway 419'	Tifway Hybrid Bermuda Grass	Sod	---	---	
	Ruellia brittoniana 'Katie'	Dwarf Katie Ruellia	1 Gallon	12" O.C.	---	

LANDSCAPE STANDARDS

- 05.01 LANDSCAPE BUFFERS - NON-RESIDENTIAL
REQ. ABUTTING A PUBLIC RIGHT-OF-WAY:
- 10' WIDE LANDSCAPE BUFFER W/ GROUND COVER, BERM, AND SHRUBBERY 30" HIGH + 1 CANOPY TREE & 1 ACCENT TREE PER 50 LIN. FEET OF FRONTAGE
GROUND COVER, SHRUBS, 6 OAKS, 6 REDBUDS
- PROVIDED 10' BUFFER - T.L. TOWNSEND DR.:
- 05.02 LANDSCAPE SCREENING
REQ. HEADLIGHT SCREENING
- HEAD-IN PARKING ADJ. TO STREET SHALL INCORP. MIN. 2' BERM W/ MATURE EVERGREEN SHRUBS ALONG ENTIRE PARKING AREAS
EVERGREEN HOLLY SHRUBS PROVIDED IN FRONT OF PARKING SPACES LOCATED ALONG STREET FRONTAGES
- PROVIDED SCREENING
- 05.03 LANDSCAPE REQUIREMENTS - COMMERCIAL (C) DISTRICT
TOTAL SITE AREA FOR NEW DEVELOPMENT: 38,486 SF
LANDSCAPE AREA REQUIRED (20%): 7,697 SF
LANDSCAPE AREA PROVIDED: 13,616 SF (35% OF ENTIRE SITE AREA)
- LOCATION OF LANDSCAPING:
- MIN. 50% OF REQ. LANDSCAPING SHALL BE LOCATED IN THE FRONT OF & ALONG THE SIDE OF BUILDINGS W/ STREET FRONTAGE.
- MIN. SIZE OF AREAS
- ALL REQ. LANDSCAPING SHALL BE NO LESS THAN 5' WIDE AND A MIN. OF 25 SF IN AREA
- DETENTION BASINS
- NONE PROPOSED
- PARKING LOT LANDSCAPING
- MIN. 5% OR 200 SF OF LANDSCAPING, WHICHEVER IS GREATER, IN THE INTERIOR OF THE PARKING LOT AREA.
- PROPOSED PARKING AREA:
REQ. PARKING LOT LANDSCAPING:
PROPOSED PARKING LOT LANDSCAPING:
- 32,111 SF (ENTIRE SITE)
1,806 SF (ENTIRE SITE)
23,610 SF / 11% (ENTIRE SITE)
REQ. PARKING SPACES MUST BE WITHIN 80' OF A CANOPY TREE TRUNK
- NO TREES TO BE PLANTED WITHIN 5' OF A CITY UTILITY.
 - ALL RIGHTS-OF WAY DISTURBED DURING CONSTRUCTION SHALL BE SODDED.
 - ALL SHRUBS OR TREES PLANTED ADJACENT TO 18' PARKING SPACES SHALL BE PLANTED 4' FROM THE BACK OF CURB.

ROOT BARRIERS

THE CONTRACTOR SHALL INSTALL ROOT BARRIERS NEAR ALL NEWLY-PLANTED TREES THAT ARE LOCATED WITHIN FIVE (5) FEET OF PAVING OR CURBS. ROOT BARRIERS SHALL BE "CENTURY" OR "DEEP-ROOT" 24" DEEP PANELS (OR EQUAL). BARRIERS SHALL BE LOCATED IMMEDIATELY ADJACENT TO HARDSCAPE. INSTALL PANELS PER MANUFACTURER'S RECOMMENDATIONS. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR USE ROOT BARRIERS OF A TYPE THAT COMPLETELY ENCIRCLE THE ROOTBALL.

MULCHES

AFTER ALL PLANTING IS COMPLETE, CONTRACTOR SHALL INSTALL 3" THICK LAYER OF 1-1/2" SHREDDED WOOD MULCH, NATURAL (UNDYED), IN ALL PLANTING AREAS (EXCEPT FOR TURF AND SEEDED AREAS). CONTRACTOR SHALL SUBMIT SAMPLES OF ALL MULCHES TO LANDSCAPE ARCHITECT AND OWNER FOR APPROVAL PRIOR TO CONSTRUCTION. ABSOLUTELY NO EXPOSED GROUND SHALL BE LEFT SHOWING ANYWHERE ON THE PROJECT AFTER MULCH HAS BEEN INSTALLED (SUBJECT TO THE CONDITIONS AND REQUIREMENTS OF THE "GENERAL GRADING AND PLANTING NOTES" AND SPECIFICATIONS).

GENERAL GRADING AND PLANTING NOTES

- BY SUBMITTING A PROPOSAL FOR THE LANDSCAPE PLANTING SCOPE OF WORK, THE CONTRACTOR CONFIRMS THAT HE HAS READ, AND WILL COMPLY WITH, THE ASSOCIATED NOTES, SPECIFICATIONS, AND DETAILS WITH THIS PROJECT.
- THE GENERAL CONTRACTOR IS RESPONSIBLE FOR REMOVING ALL EXISTING VEGETATION (EXCEPT WHERE NOTED TO REMAIN).
- IN THE CONTEXT OF THESE PLANS, NOTES, AND SPECIFICATIONS, "FINISH GRADE" REFERS TO THE FINAL ELEVATION OF THE SOIL SURFACE (NOT TOP OF MULCH) AS INDICATED ON THE GRADING PLANS.
 - BEFORE STARTING WORK, THE LANDSCAPE CONTRACTOR SHALL VERIFY THAT THE ROUGH GRADES OF ALL LANDSCAPE AREAS ARE WITHIN +/-0.1' OF FINISH GRADE. SEE SPECIFICATIONS FOR MORE DETAILED INSTRUCTION ON TURF AREA AND PLANTING BED PREPARATION.
 - CONSTRUCT AND MAINTAIN FINISH GRADES AS SHOWN ON GRADING PLANS, AND CONSTRUCT AND MAINTAIN SLOPES AS RECOMMENDED BY THE GEOTECHNICAL REPORT. ALL LANDSCAPE AREAS SHALL HAVE POSITIVE DRAINAGE AWAY FROM STRUCTURES AT THE MINIMUM SLOPE SPECIFIED IN THE REPORT AND ON THE GRADING PLANS, AND AREAS OF POTENTIAL PONDING SHALL BE REGRADED TO BLEND IN WITH THE SURROUNDING GRADES AND ELIMINATE PONDING POTENTIAL.
 - THE LANDSCAPE CONTRACTOR SHALL DETERMINE WHETHER OR NOT THE EXPORT OF ANY SOIL WILL BE NEEDED, TAKING INTO ACCOUNT THE ROUGH GRADE PROVIDED, THE AMOUNT OF SOIL AMENDMENTS TO BE ADDED (BASED ON A SOIL TEST, PER SPECIFICATIONS), AND THE FINISH GRADES TO BE ESTABLISHED.
 - ENSURE THAT THE FINISH GRADE IN SHRUB AREAS IMMEDIATELY ADJACENT TO WALKS AND OTHER WALKING SURFACES, AFTER INSTALLING SOIL AMENDMENTS, IS 3" BELOW THE ADJACENT FINISH SURFACE, IN ORDER TO ALLOW FOR PROPER MULCH DEPTH. TAPER THE SOIL SURFACE TO MEET FINISH GRADE, AS SPECIFIED ON THE GRADING PLANS, AT APPROXIMATELY 18" AWAY FROM THE WALKS.
 - ENSURE THAT THE FINISH GRADE IN TURF AREAS IMMEDIATELY ADJACENT TO WALKS AND OTHER WALKING SURFACES, AFTER INSTALLING SOIL AMENDMENTS, IS 1" BELOW THE FINISH SURFACE OF THE WALKS. TAPER THE SOIL SURFACE TO MEET FINISH GRADE, AS SPECIFIED ON THE GRADING PLANS, AT APPROXIMATELY 18" AWAY FROM THE WALKS.
 - SHOULD ANY CONFLICTS AND/OR DISCREPANCIES ARISE BETWEEN THE GRADING PLANS, GEOTECHNICAL REPORT, THESE NOTES AND PLANS, AND ACTUAL CONDITIONS, THE CONTRACTOR SHALL IMMEDIATELY BRING SUCH ITEMS TO THE ATTENTION OF THE LANDSCAPE ARCHITECT, GENERAL CONTRACTOR, AND OWNER.
- ALL PLANT LOCATIONS ARE DIAGRAMMATIC. ACTUAL LOCATIONS SHALL BE VERIFIED WITH THE LANDSCAPE ARCHITECT OR DESIGNER PRIOR TO PLANTING. THE LANDSCAPE CONTRACTOR SHALL ENSURE THAT ALL REQUIREMENTS OF THE PERMITTING AUTHORITY ARE MET (I.E., MINIMUM PLANT QUANTITIES, PLANTING METHODS, TREE PROTECTION METHODS, ETC.).
 - THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR DETERMINING PLANT QUANTITIES. PLANT QUANTITIES SHOWN ON LEGENDS AND CALLOUTS ARE FOR GENERAL INFORMATION ONLY. IN THE EVENT OF A DISCREPANCY BETWEEN THE PLAN AND THE PLANT LEGEND, THE PLANT QUANTITY AS SHOWN ON THE PLAN (FOR INDIVIDUAL SYMBOLS) OR CALLOUT (FOR GROUNDCOVER PATTERNS) SHALL TAKE PRECEDENCE.
 - NO SUBSTITUTIONS OF PLANT MATERIALS SHALL BE ALLOWED WITHOUT THE WRITTEN PERMISSION OF THE LANDSCAPE ARCHITECT. IF SOME OF THE PLANTS ARE NOT AVAILABLE, THE LANDSCAPE CONTRACTOR SHALL NOTIFY THE LANDSCAPE ARCHITECT IN WRITING (VIA PROPER CHANNELS).
 - THE CONTRACTOR SHALL, AT A MINIMUM, PROVIDE REPRESENTATIVE PHOTOS OF ALL PLANTS PROPOSED FOR THE PROJECT. THE CONTRACTOR SHALL ALLOW THE LANDSCAPE ARCHITECT AND THE OWNER/OWNER'S REPRESENTATIVE TO INSPECT, AND APPROVE OR REJECT, ALL PLANTS DELIVERED TO THE JOBSITE. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS FOR SUBMITTALS.
- THE CONTRACTOR SHALL MAINTAIN THE LANDSCAPE IN A HEALTHY CONDITION FOR 90 DAYS AFTER ACCEPTANCE BY THE OWNER. REFER TO SPECIFICATIONS FOR CONDITIONS OF ACCEPTANCE FOR THE START OF THE MAINTENANCE PERIOD, AND FOR FINAL ACCEPTANCE AT THE END OF THE MAINTENANCE PERIOD.
- SEE SPECIFICATIONS AND DETAILS FOR FURTHER REQUIREMENTS.

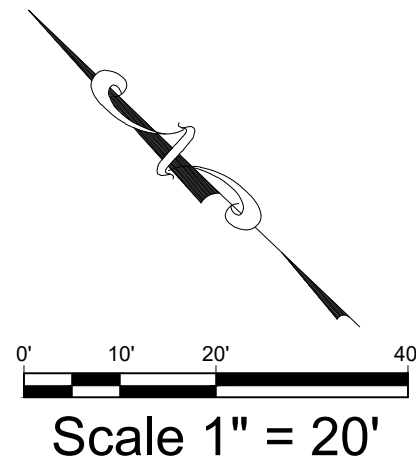
IRRIGATION CONCEPT

- AN AUTOMATIC IRRIGATION SYSTEM SHALL BE INSTALLED AND OPERATIONAL BY THE TIME OF FINAL INSPECTION. THE ENTIRE IRRIGATION SYSTEM SHALL BE INSTALLED BY A LICENSED AND QUALIFIED IRRIGATION CONTRACTOR.
- THE IRRIGATION SYSTEM WILL OPERATE ON POTABLE WATER, AND THE SYSTEM WILL HAVE APPROPRIATE BACKFLOW PREVENTION DEVICES INSTALLED TO PREVENT CONTAMINATION OF THE POTABLE SOURCE.
- ALL NON-TURF PLANTED AREAS SHALL BE DRIP IRRIGATED. SODDED AND SEEDDED AREAS SHALL BE IRRIGATED WITH SPRAY OR ROTOR HEADS AT 100% HEAD-TO-HEAD COVERAGE.
- ALL PLANTS SHARING SIMILAR HYDROZONE CHARACTERISTICS SHALL BE PLACED ON A VALVE DEDICATED TO PROVIDE THE NECESSARY WATER REQUIREMENTS SPECIFIC TO THAT HYDROZONE.
- THE IRRIGATION SYSTEM SHALL BE DESIGNED AND INSTALLED, TO THE MAXIMUM EXTENT POSSIBLE, TO CONSERVE WATER BY USING THE FOLLOWING DEVICES AND SYSTEMS: MATCHED PRECIPITATION RATE TECHNOLOGY ON ROTOR AND SPRAY HEADS (WHEREVER POSSIBLE), RAIN SENSORS, AND MULTI-PROGRAM COMPUTERIZED IRRIGATION CONTROLLERS FEATURING SENSORY INPUT CAPABILITIES.

APPROVED:
I HEREBY CERTIFY THAT THE ABOVE AND FOREGOING SITE PLAN FOR A DEVELOPMENT IN THE CITY OF ROCKWALL, TEXAS, WAS APPROVED BY THE PLANNING & ZONING COMMISSION OF THE CITY OF ROCKWALL ON THE _____ DAY OF _____, _____.

WITNESS OUR HANDS, THIS _____ DAY OF _____, _____.

DIRECTOR OF PLANNING & ZONING



This drawing has been revised to show those changes during the construction process reported by the contractor to ClayMoore Engineering, Inc. and considered to be significant. This drawing is not guaranteed to be "As Built" but is based on the information made available.

By: Date: 09/22/2025



ROCKWALL CAD
841 JUSTIN ROAD
ROCKWALL, TX 75087

NO.	DATE	REVISION	BY

LANDSCAPE PLAN

CASE #: SP2021-001

OWNER:
CENTRAL APPRAISAL DISTRICT OF ROCKWALL
841 JUSTIN ROAD
ROCKWALL, TX 75087
PH: 972-771-2034

APPLICANT:
CLAYMOORE ENGINEERING, INC.
1903 CENTRAL DRIVE, SUITE #406
BEDFORD, TX 76021
PH: 817.281.0572

CONTACT NAME: CLAY CRISTY

LEGAL DESCRIPTION:
LOT 1A-R, BLOCK A, LOFLAND INDUSTRIAL
PARK ADDITION

CITY:
ROCKWALL

STATE:
TEXAS

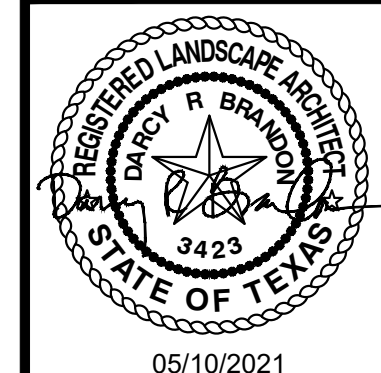
COUNTY:
ROCKWALL

SURVEY:
B.J.T. LEWIS

ABSTRACT NO.
255

SHEET
LP-1
File No: #

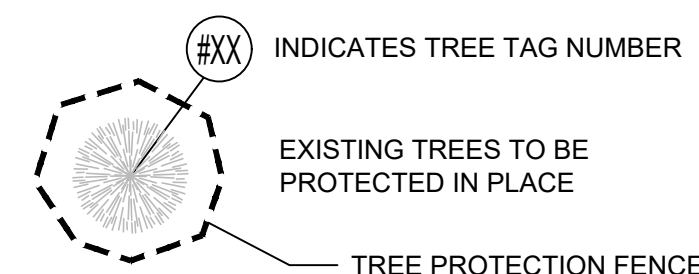
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DRAWN: DB
CHECKED: RM
DATE: 01/15/2021



ROCKWALL CAD
841 JUSTIN ROAD
ROCKWALL, TX 75087

EXISTING TREE LEGEND			
TREE NO.	COMMON NAME	DBH	REMARKS
1418	OAK	12"	PROTECT IN PLACE
1419	OAK	12"	PROTECT IN PLACE
1420	OAK	12"	PROTECT IN PLACE
1421	OAK	15"	PROTECT IN PLACE
1422	OAK	12"	PROTECT IN PLACE
1423	OAK	10"	PROTECT IN PLACE
1424	OAK	14"	PROTECT IN PLACE
1425	OAK	12"	PROTECT IN PLACE
1426	OAK	12"	PROTECT IN PLACE
1427	OAK	8"	PROTECT IN PLACE
1428	OAK	10"	PROTECT IN PLACE
1429	OAK	7"	OFF SITE

LEGEND



NOTE: ALL TREE TRIMMING MUST BE APPROVED BY THE OWNER AND LOCAL JURISDICTION PRIOR TO COMMENCEMENT OF WORK. ALL TREE TRIMMING MUST BE DONE BY AN ISA CERTIFIED ARBORIST IN ACCORDANCE WITH LOCAL TREE PRESERVATION ORDINANCE.

NOTE: TREE PROTECTION FOR ANY PRESERVED OR
RELOCATED TREES MUST BE PROVIDED PER DETAILS AND
SPECIFICATIONS ON SHEET TD-2. THESE MUST BE UP PRIOR
TO THE COMMENCEMENT OF ANY WORK AND MAINTAINED
THROUGHOUT CONSTRUCTION.

DIRECTOR OF PLANNING & ZONING

This drawing has been revised to show those changes during the construction process reported by the contractor to ClayMoore Engineering, Inc. and considered to be significant. This drawing is not guaranteed to be "As Built" but is based on the information made available.

By:  Date: 09/22/2025

SITE DATA SUMMARY															TOTAL IMPERVIOUS		TOTAL PERVIOUS			
LOT	ZONING	PROPOSED USE	LOT SIZE (ACRES)	LOT SIZE (SQ. FT.)	BLOG. AREA (SQ. FT.)	BLOG. HGT. (FT.)	# OF STORES	LOT COVERAGE (REQ. / PROV.)	FLR AREA RATIO (REQ. / PROV.)	PARKING (REQ. / PROV.)	HANDICAP SP. (REQ. / PROV.)	(SQ. FT.)	(%)	(SQ. FT.)	(%)					
1A-B	C	OFFICE	1.61	70,055	22,170	35'-2"	2	60% MAX	33.2%	1.4 MAX	0.30	OFFICE (1 PER 300 SQ. FT.)	72	70	5	3	60,800	87%	9,255	13%

CASE # : SP2021-001

OWNER:
CENTRAL APPRAISAL DISTRICT OF ROCKWALL
841 JUSTIN ROAD
ROCKWALL, TX 75087
PH: 972-771-2034

CLAYMOORE ENGINEERING, INC.
1903 CENTRAL DRIVE, SUITE #406
BEDFORD, TX 76021
PH: 817.281.0572

CONTACT NAME: CLAY CRISTY

LEGAL DESCRIPTION:

LOT 1A-R, BLOCK A, LOFLAND INDUSTRIAL
PARK ADDITION

CITY: ROCKWALL STATE: TEXA

COUNTY	SURVEY:	ABSTRACT NO.
ROCKWALL	B.J.T. LEWIS	255

DESIGN:	
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DESIGN:	
DRAWN:	

CHECKED:	R
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DATE:	01/15/20
SHEET	

SHEET

TD-1

File No:

PLOTTED BY: DARCY BRANDON
 5/10/2021 11:07 AM
 LOCATION: C:\USERS\DARCY\DOCUMENTS\DBLA\PROJECTS\2021\EDG\ROAD - ROCKWALL TX\ROAD ROCKWALL_TD_2021-05-10.DWG
 LAST SAVED: 5/10/2021 11:06 AM

TREE PROTECTION SPECIFICATIONS

MATERIALS

- FABRIC: 4 FOOT HIGH ORANGE PLASTIC FENCING AS SHOWN ON THE PLANS AND SHALL BE WOVEN WITH 2 INCH MESH OPENINGS SUCH THAT IN A VERTICAL DIMENSION OF 23 INCHES ALONG THE DIAGONALS OF THE OPENINGS THERE SHALL BE AT LEAST 7" MESHES.
- POSTS: POSTS SHALL BE A MINIMUM OF 72 INCHES LONG AND STEEL "T" SHAPED WITH A MINIMUM WEIGHT OF 1.3 POUNDS PER LINEAR FOOT.
- TIE WIRE: WIRE FOR ATTACHING THE FABRIC TO THE T-POSTS SHALL BE NOT LESS THAN NO. 12 GAUGE GALVANIZED WIRE.
- USED MATERIALS: PREVIOUSLY-USED MATERIALS, MEETING THE ABOVE REQUIREMENTS AND WHEN APPROVED BY THE OWNER, MAY BE USED.

CONSTRUCTION METHODS

- ALL TREES AND SHRUBS SHOWN TO REMAIN WITHIN THE PROXIMITY OF THE CONSTRUCTION SITE SHALL BE PROTECTED PRIOR TO BEGINNING ANY DEVELOPMENT ACTIVITY.
- EMPLOY THE SERVICES OF AN ISA (INTERNATIONAL SOCIETY OF ARBORICULTURE) CERTIFIED ARBORIST AND OBTAIN ALL REQUIRED PERMITS TO PRUNE THE EXISTING TREES FOR CLEANING, RAISING AND THINNING, AS MAY BE REQUIRED.
- PROTECTIVE FENCING SHALL BE ERECTED OUTSIDE THE CRITICAL ROOT ZONE (CRZ, EQUAL TO 1' FROM THE TRUNK FOR EVERY 1" OF DBH) AT LOCATIONS SHOWN IN THE PLANS OR AS DIRECTED BY THE LANDSCAPE CONSULTANT AND/OR CITY ARBORIST, AND IN ACCORDANCE WITH THE DETAILS SHOWN ON THE PLANS. FENCING SHALL BE MAINTAINED AND REPAIRED BY THE CONTRACTOR DURING SITE CONSTRUCTION. TREES IN CLOSE PROXIMITY SHALL BE FENCED TOGETHER, RATHER THAN INDIVIDUALLY.
- PROTECTIVE FENCE LOCATIONS IN CLOSE PROXIMITY TO STREET INTERSECTIONS OR DRIVES SHALL ADHERE TO THE APPLICABLE JURISDICTION'S SIGHT DISTANCE CRITERIA.
- THE PROTECTIVE FENCING SHALL BE ERECTED BEFORE SITE WORK COMMENCES AND SHALL REMAIN IN PLACE DURING THE ENTIRE CONSTRUCTION PHASE.
- THE INSTALLATION POSTS SHALL BE PLACED EVERY 6 FEET ON CENTER AND EMBEDDED TO 18 INCHES DEEP. MESH FABRIC SHALL BE ATTACHED TO THE INSTALLATION POSTS BY THE USE OF SUFFICIENT WIRE TIES TO SECURELY FASTEN THE FABRIC TO THE T-POSTS TO HOLD THE FABRIC IN A STABLE AND UPRIGHT POSITION.
- WITHIN THE CRZ:
 - DO NOT CLEAR, FILL OR GRADE IN THE CRZ OF ANY TREE.
 - DO NOT STORE, STOCKPILE OR DUMP ANY JOB MATERIAL, SOIL OR RUBBISH UNDER THE SPREAD OF THE TREE BRANCHES.
 - DO NOT PARK OR STORE ANY EQUIPMENT OR SUPPLIES UNDER THE TREE CANOPY.
 - DO NOT SET UP ANY CONSTRUCTION OPERATIONS UNDER THE TREE CANOPY (SUCH AS PIPE CUTTING AND THREADING, MORTAR MIXING, PAINTING OR LUMBER CUTTING).
 - DO NOT NAIL OR ATTACH TEMPORARY SIGNS METERS, SWITCHES, WIRES, BRACING OR ANY OTHER ITEM TO THE TREES.
 - DO NOT PERMIT RUNOFF FROM WASTE MATERIALS INCLUDING SOLVENTS, CONCRETE WASHOUTS, ASPHALT TACK COATS (MC-30 OIL), ETC. TO ENTER THE CRZ. BARRIERS ARE TO BE PROVIDED TO PREVENT SUCH RUNOFF SUBSTANCES FROM ENTERING THE CRZ WHENEVER POSSIBLE, INCLUDING IN AN AREA WHERE RAIN OR SURFACE WATER COULD CARRY SUCH MATERIALS TO THE ROOT SYSTEM OF THE TREE.
- ROUTE UNDERGROUND UTILITIES TO AVOID THE CRZ. IF DIGGING IS UNAVOIDABLE, BORE UNDER THE ROOTS, OR HAND DIG TO AVOID SEVERING THEM.

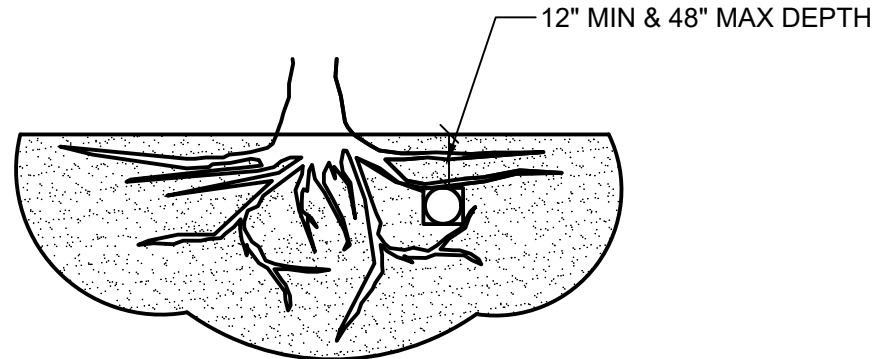
TREE PROTECTION GENERAL NOTES

- PRIOR TO THE LAND CLEARING STAGE OF DEVELOPMENT, THE CONTRACTOR SHALL CLEARLY MARK ALL PROTECTED TREES FOR WHICH A TREE REMOVAL PERMIT HAS NOT BEEN ISSUED AND SHALL ERECT BARRIERS FOR THE PROTECTION OF THE TREES ACCORDING TO THE FOLLOWING:
 - AROUND AN AREA AT OR GREATER THAN A SIX-FOOT RADIUS OF ALL SPECIES OF MANGROVES AND PROTECTED CABBAGE PALMS;
 - AROUND AN AREA AT OR GREATER THAN THE FULL DRIPLINE OF ALL PROTECTED NATIVE PINES;
 - AROUND AN AREA AT OR GREATER THAN TWO-THIRDS OF THE DRIPLINE OF ALL OTHER PROTECTED SPECIES.
- NO PERSON SHALL ATTACH ANY SIGN, NOTICE OR OTHER OBJECT TO ANY PROTECTED TREE OR FASTEN ANY WIRES, CABLES, NAILS OR SCREWS TO ANY PROTECTED TREE IN ANY MANNER THAT COULD PROVE HARMFUL TO THE PROTECTED TREE, EXCEPT AS NECESSARY IN CONJUNCTION WITH ACTIVITIES IN THE PUBLIC INTEREST.
- DURING THE CONSTRUCTION STAGE OF DEVELOPMENT, THE CONTRACTOR SHALL NOT CAUSE OR PERMIT THE CLEANING OF EQUIPMENT OR MATERIAL WITHIN THE OUTSIDE PERIMETER OF THE CROWN (DRIPLINE) OR ON THE NEARBY GROUND OF ANY TREE OR GROUP OF TREES WHICH IS TO BE PRESERVED. WITHIN THE OUTSIDE PERIMETER OF THE CROWN (DRIPLINE) OF ANY TREE OR ON NEARBY GROUND, THE CONTRACTOR SHALL NOT CAUSE OR PERMIT STORAGE OF BUILDING MATERIAL AND/OR EQUIPMENT, OR DISPOSAL OF WASTE MATERIAL SUCH AS PAINTS, OIL, SOLVENTS, ASPHALT, CONCRETE, MORTAR OR ANY OTHER MATERIAL HARMFUL TO THE LIFE OF THE TREE.
- NO PERSON SHALL PERMIT ANY UNNECESSARY FIRE OR BURNING WITHIN 30 FEET OF THE DRIPLINE OF A PROTECTED TREE.
- ANY LANDSCAPING ACTIVITIES WITHIN THE BARRIER AREA SHALL BE ACCOMPLISHED WITH HAND LABOR.
- PRIOR TO ISSUING A CERTIFICATE OF OCCUPANCY OR COMPLIANCE FOR ANY DEVELOPMENT, BUILDING OR STRUCTURE, ALL TREES DESIGNATED TO BE PRESERVED THAT WERE DESTROYED DURING CONSTRUCTION SHALL BE REPLACED BY THE CONTRACTOR WITH TREES OF EQUIVALENT DIAMETER AT BREAST HEIGHT TREE CALIPER AND OF THE SAME SPECIES AS SPECIFIED BY THE CITY ADMINISTRATOR, BEFORE OCCUPANCY OR USE, UNLESS APPROVAL FOR THEIR REMOVAL HAS BEEN GRANTED UNDER PERMIT.
- THE CITY ADMINISTRATOR MAY CONDUCT PERIODIC INSPECTIONS OF THE SITE DURING LAND CLEARANCE AND CONSTRUCTION.
- IF, IN THE OPINION OF THE CITY ADMINISTRATOR, DEVELOPMENT ACTIVITIES WILL SO SEVERELY STRESS SLASH PINES OR ANY OTHER PROTECTED TREE SUCH THAT THEY ARE MADE SUSCEPTIBLE TO INSECT ATTACK, PREVENTATIVE SPRAYING OF THESE TREES BY THE CONTRACTOR MAY BE REQUIRED.

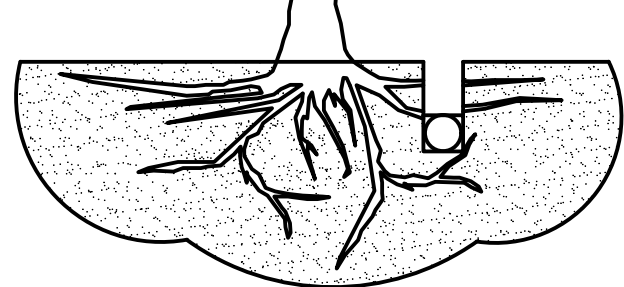
- WHERE EXCAVATION IN THE VICINITY OF TREES MUST OCCUR, SUCH AS FOR IRRIGATION INSTALLATION, PROCEED WITH CAUTION, AND USING HAND TOOLS ONLY.
- THE CONTRACTOR SHALL NOT CUT ROOTS LARGER THAN ONE INCH IN DIAMETER WHEN EXCAVATION OCCURS NEAR EXISTING TREES. ALL ROOTS LARGER THAN ONE INCH IN DIAMETER ARE TO BE CUT CLEANLY. FOR OAKS ONLY, ALL WOUNDS SHALL BE PAINTED WITH WOUND SEALER WITHIN 30 MINUTES
- REMOVE ALL TREES, SHRUBS OR BUSHES TO BE CLEARED FROM PROTECTED ROOT ZONE AREAS BY HAND.
- TREES DAMAGED OR KILLED DUE TO CONTRACTOR'S NEGLIGENCE DURING CONSTRUCTION SHALL BE MITIGATED AT THE CONTRACTOR'S EXPENSE AND TO THE PROJECT OWNER'S AND LOCAL JURISDICTION'S SATISFACTION.
- ANY TREE REMOVAL SHALL BE APPROVED BY THE OWNER AND LOCAL JURISDICTION PRIOR TO ITS REMOVAL, AND THE CONTRACTOR SHALL HAVE ALL REQUIRED PERMITS FOR SUCH ACTIVITIES.
- COVER EXPOSED ROOTS AT THE END OF EACH DAY WITH SOIL, MULCH OR WET BURLAP.
- IN CRITICAL ROOT ZONE AREAS THAT CANNOT BE PROTECTED DURING CONSTRUCTION AND WHERE HEAVY TRAFFIC IS ANTICIPATED, COVER THE SOIL WITH EIGHT INCHES OF ORGANIC MULCH TO MINIMIZE SOIL COMPACTION. THIS EIGHT INCH DEPTH OF MULCH SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.
- WATER ALL TREES IMPACTED BY CONSTRUCTION ACTIVITIES, DEEPLY ONCE A WEEK DURING PERIODS OF HOT DRY WEATHER. SPRAY TREE CROWNS WITH WATER PERIODICALLY TO REDUCE DUST ACCUMULATION ON THE LEAVES.
- WHEN INSTALLING CONCRETE ADJACENT TO THE ROOT ZONE OF A TREE, USE A PLASTIC VAPOR BARRIER BEHIND THE CONCRETE TO PROHIBIT LEACHING OF LIME INTO THE SOIL.
- CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL TREE PROTECTION FENCING WHEN ALL THREATS TO THE EXISTING TREES FROM CONSTRUCTION-RELATED ACTIVITIES HAVE BEEN REMOVED.

TREES THAT ARE MARKED TO BE PRESERVED ON A SITE PLAN AND FOR WHICH UTILITIES MUST PASS THROUGH THEIR ROOT PROTECTION ZONES MAY REQUIRE TUNNELING AS OPPOSED TO OPEN TRENCHES. THE DECISION TO TUNNEL WILL BE DETERMINED ON A CASE BY CASE BASIS BY THE ENGINEER.

TUNNELS SHALL BE DUG THROUGH THE ROOT PROTECTION ZONE IN ORDER TO MINIMIZE ROOT DAMAGE.



TUNNEL TO MINIMIZE ROOT DAMAGE (TOP) AS OPPOSED TO SURFACE-DUG TRENCHES IN ROOT PROTECTION ZONE WHEN THE 5' MINIMUM DISTANCE FROM TRUNK CAN NOT BE ACHIEVED.

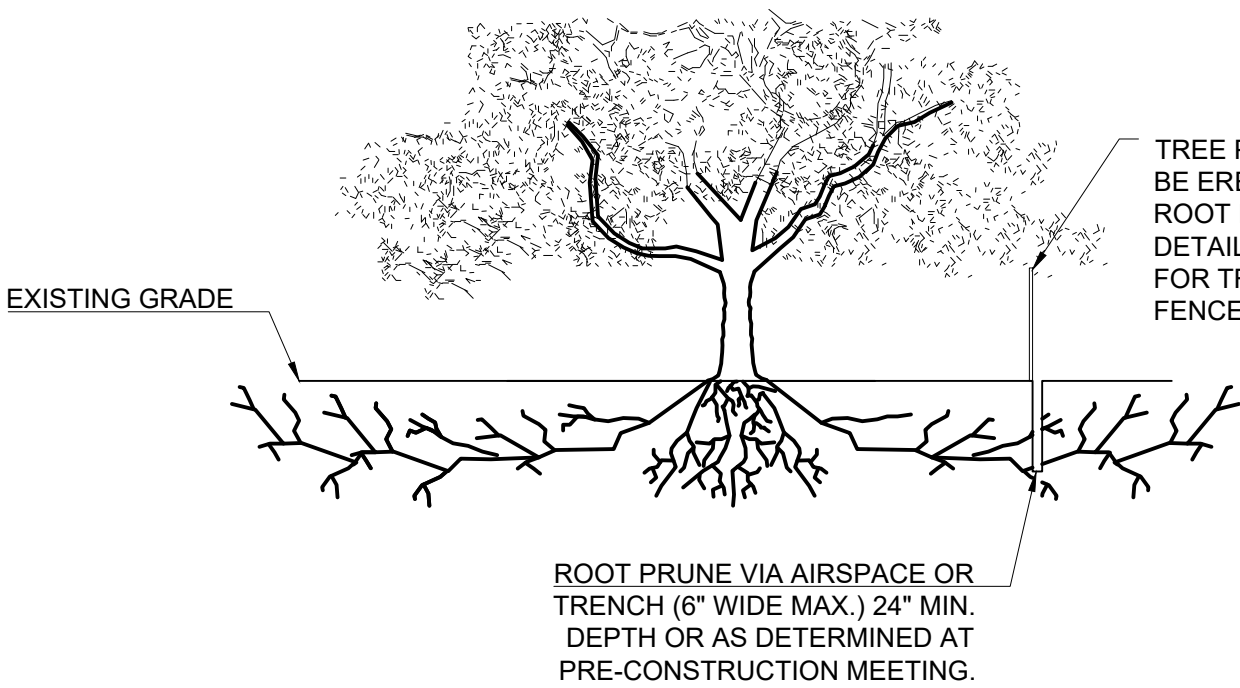


BORING THROUGH ROOT PROTECTION ZONE

SCALE: NOT TO SCALE

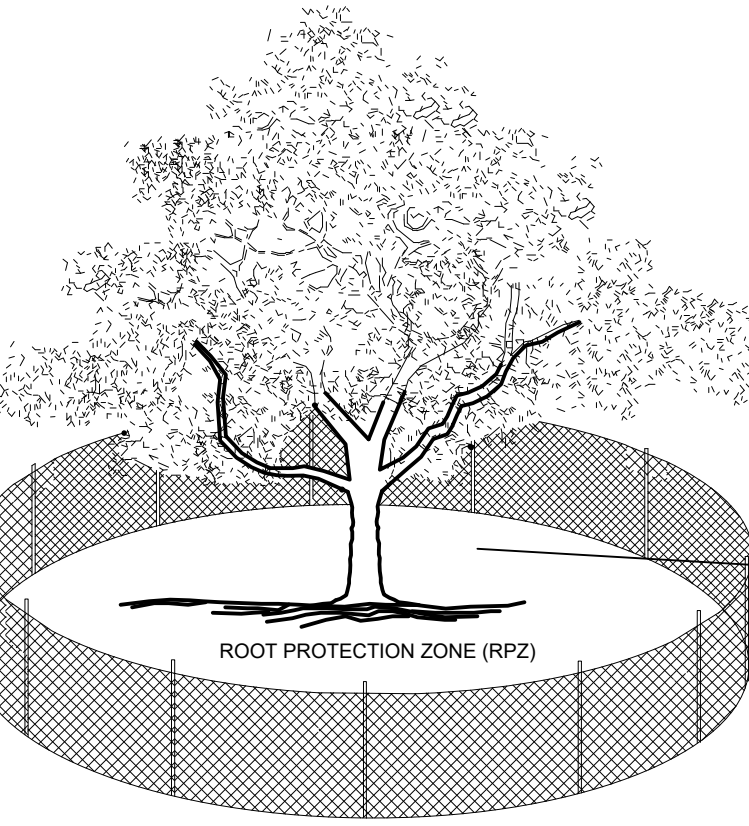
NOTES

- RETENTION AREAS WILL BE SET AS PART OF THE REVIEW PROCESS AND PRE-CONSTRUCTION MEETING.
- BOUNDARIES OF RETENTION AREAS MUST BE STAKED AT THE PRE-CONSTRUCTION MEETING AND FLAGGED PRIOR TO ROOT PRUNING.
- EXACT LOCATION OF ROOT PRUNING SHALL BE DETERMINED IN THE FIELD IN COORDINATION WITH THE FORESTRY INSPECTOR.
- TRENCH SHOULD BE IMMEDIATELY BACKFILLED WITH EXCAVATED SOIL OR OTHER ORGANIC SOIL AS SPECIFIED PER PLAN OR BY THE FORESTRY INSPECTOR.
- ROOTS SHALL BE CLEANLY CUT USING VIBRATORY KNIFE OR OTHER ACCEPTABLE EQUIPMENT. ROOT PRUNING METHODS AND MEANS MUST BE IN ACCORDANCE WITH ANSI STANDARD A3000.
- ALL PRUNING MUST BE EXECUTED AT LOD SHOWN ON PLANS OR AS AUTHORIZED IN WRITING BY THE FORESTRY INSPECTOR.
- SUPPLEMENTAL WATERING MAY BE REQUIRED FOR ROOT PRUNED TREES THROUGHOUT THE GROWING SEASON DURING CONSTRUCTION AND SUBSEQUENT WARRANTY AND MAINTENANCE PERIOD.



ROOT PRUNING DETAIL

SCALE: NOT TO SCALE

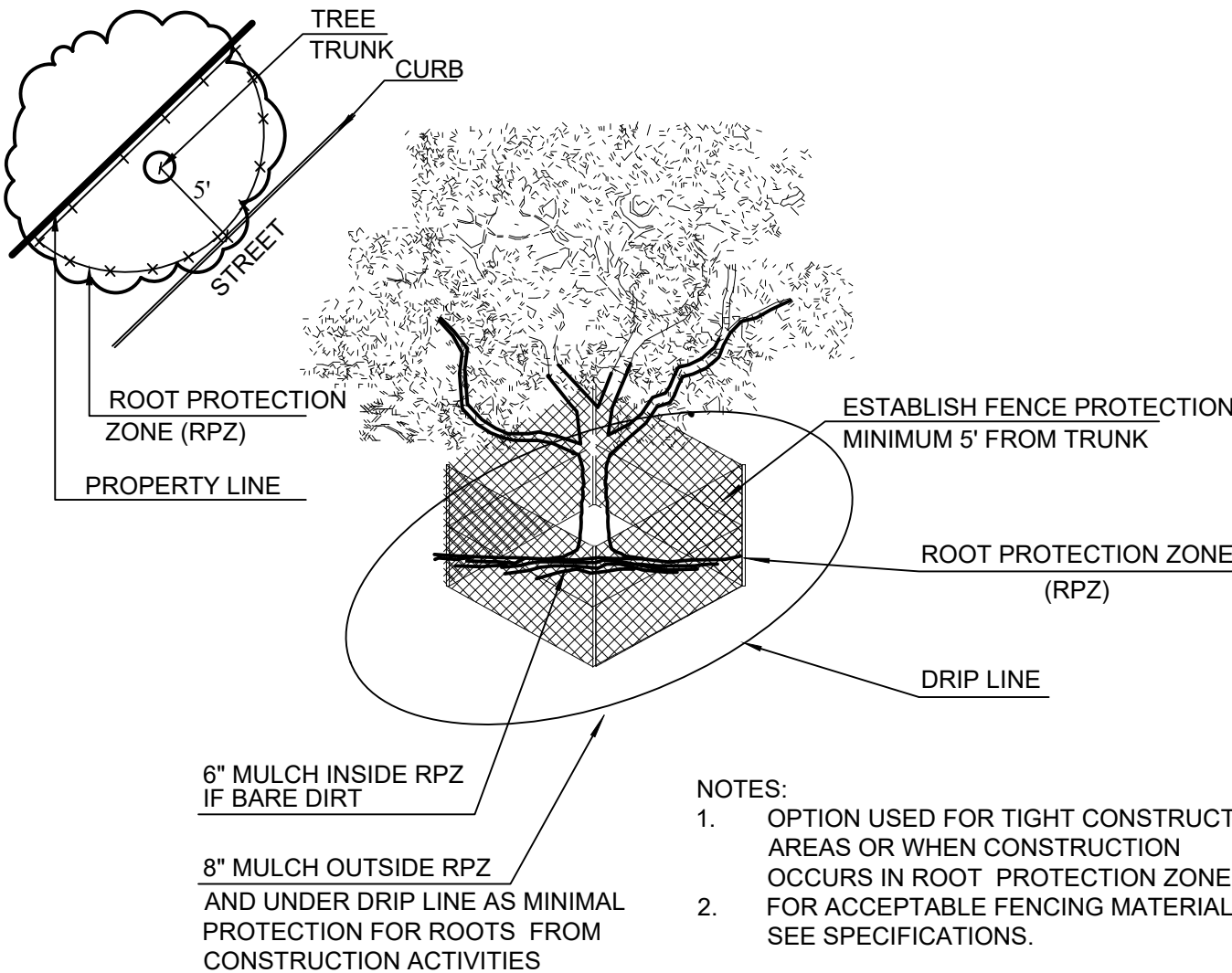


NOTES:

- THE FENCING LOCATION SHOWN ABOVE IS DIAGRAMATIC ONLY AND WILL CONFORM TO THE DRIP LINE AND BE LIMITED TO PROJECT BOUNDARY. WHERE MULTIPLE ADJACENT TREES WILL BE ENCLOSED BY FENCING, THE FENCING SHALL BE CONTINUOUS AROUND ALL TREES. FOR ACCEPTABLE FENCING MATERIALS SEE SPECIFICATIONS.

TREE PROTECTION FENCE

SCALE: NOT TO SCALE



TREE PROTECTION FENCE - TIGHT CONSTRUCTION

SCALE: NOT TO SCALE

CASE # : SP2021-001

OWNER:
 CENTRAL APPRAISAL DISTRICT OF ROCKWALL
 841 JUSTIN ROAD
 ROCKWALL, TX 75087
 PH: 972-771-2034

APPLICANT:
 CLAYMOORE ENGINEERING, INC.
 1903 CENTRAL DRIVE, SUITE #406
 BEDFORD, TX 76021
 PH: 817.281.0572

CONTACT NAME: CLAY CRISTY

LEGAL DESCRIPTION:

LOT 1A-R, BLOCK A, LOFLAND INDUSTRIAL PARK ADDITION

CITY:

ROCKWALL

STATE:

TEXAS

COUNTY

ROCKWALL

SURVEY:

B.J.T. LEWIS

ABSTRACT NO.

255

This drawing has been revised to show those changes during the construction process reported by the contractor to ClayMoore Engineering, Inc. and considered to be significant. This drawing is not guaranteed to be "As Built" but is based on the information made available.

By: *CSG* Date: 09/22/2025

APPROVED:

I HEREBY CERTIFY THAT THE ABOVE AND FOREGOING SITE PLAN FOR A DEVELOPMENT IN THE CITY OF ROCKWALL, TEXAS, WAS APPROVED BY THE PLANNING & ZONING COMMISSION OF THE CITY OF ROCKWALL ON THE ____ DAY OF ____, ____

WITNESS OUR HANDS, THIS ____ DAY OF ____, ____

DIRECTOR OF PLANNING & ZONING

TEXAS FIRM #14199

EVERGREEN
 DESIGN GROUP

(800) 680-6630
 15455 Dallas Pkwy., Ste 600
 Addison, TX 75001
 www.EvergreenDesignGroup.com

CLAYMOORE
 ENGINEERING

1903 CENTRAL DR., SUITE #406
 BEDFORD, TX 76021
 PHONE: 817.281.0572
 WWW.CLAYMOOREENGINEERING.COM



05/10/2021

ROCKWALL CAD
 841 JUSTIN ROAD
 ROCKWALL, TX 75087

NO.	DATE	REVISION	BY

TREE DISPOSITION
 SPECS & DETAILS

DESIGN: DB
 DRAWN: DB
 CHECKED: RM
 DATE: 01/15/2021

SHEET

TD-2

File No: #