INSIGHT ENGINEERING CO.

TCEQ WPAP & SCS APPLICATION

For

Ramendu Duplex at Round Rock

Project Site Location:
210 Logan Road,
704 & 712 Mandell Street
Round Rock, TX 78664

Applicant:
Marshall Hussain / Amar Gulhane
Ramendu Duplex at Round Rock LLC
3016 Paseo De Charros
Cedar Park TX-78641

Contact:
IECO Inc.
555 Round Rock W Dr Ste E 216
Round Rock, TX 78681
Ph. 737.226.4777
Firm NO. F - 19777

IECO Project: T19-0006

Prepared By:

Jacob D. Mealey, P.E.

Preparation Date:

September 21, 2020

9/21/2020

STATE OF TEXAS
JACOB D. MEALEY
127442
LICENSED
PROFESSIONAL ENGINEER

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Texas Commission on Environmental Quality

Edwards Aquifer Application Cover Page

Our Review of Your Application

The Edwards Aquifer Program staff conducts an administrative and technical review of all applications. The turnaround time for administrative review can be up to 30 days as outlined in 30 TAC 213.4(e). Generally administrative completeness is determined during the intake meeting or within a few days of receipt. The turnaround time for technical review of an administratively complete Edwards Aquifer application is 90 days as outlined in 30 TAC 213.4(e). Please know that the review and approval time is directly impacted by the quality and completeness of the initial application that is received. In order to conduct a timely review, it is imperative that the information provided in an Edwards Aquifer application include final plans, be accurate, complete, and in compliance with 30 TAC 213.

Administrative Review

1. Edwards Aquifer applications must be deemed administratively complete before a technical review can begin. To be considered administratively complete, the application must contain completed forms and attachments, provide the requested information, and meet all the site plan requirements. The submitted application and plan sheets should be final plans. Please submit one full-size set of plan sheets with the original application, and half-size sets with the additional copies.

   To ensure that all applicable documents are included in the application, the program has developed tools to guide you and web pages to provide all forms, checklists, and guidance. Please visit the below website for assistance: http://www.tceq.texas.gov/field/eapp.

2. This Edwards Aquifer Application Cover Page form (certified by the applicant or agent) must be included in the application and brought to the administrative review meeting.

3. Administrative reviews are scheduled with program staff who will conduct the review. Applicants or their authorized agent should call the appropriate regional office, according to the county in which the project is located, to schedule a review. The average meeting time is one hour.

4. In the meeting, the application is examined for administrative completeness. Deficiencies will be noted by staff and emailed or faxed to the applicant and authorized agent at the end of the meeting, or shortly after. Administrative deficiencies will cause the application to be deemed incomplete and returned.

   An appointment should be made to resubmit the application. The application is re-examined to ensure all deficiencies are resolved. The application will only be deemed administratively complete when all administrative deficiencies are addressed.

5. If an application is received by mail, courier service, or otherwise submitted without a review meeting, the administrative review will be conducted within 30 days. The applicant and agent will be contacted with the results of the administrative review. If the application is found to be administratively incomplete, it can be retrieved from the regional office or returned by regular mail. If returned by mail, the regional office may require arrangements for return shipping.

6. If the geologic assessment was completed before October 1, 2004 and the site contains "possibly sensitive" features, the assessment must be updated in accordance with the *Instructions to Geologists* (TCEQ-0585 Instructions).

Technical Review

1. When an application is deemed administratively complete, the technical review period begins. The regional office will distribute copies of the application to the identified affected city, county, and groundwater conservation district whose jurisdiction includes the subject site. These entities and the public have 30 days to provide comments on the application to the regional office. All comments received are reviewed by TCEQ.

2. A site assessment is usually conducted as part of the technical review, to evaluate the geologic assessment and observe existing site conditions. The site must be accessible to our staff. The site boundaries should be

clearly marked, features identified in the geologic assessment should be flagged, roadways marked and the alignment of the Sewage Collection System and manholes should be staked at the time the application is submitted. If the site is not marked the application may be returned.

3. We evaluate the application for technical completeness and contact the applicant and agent via Notice of Deficiency (NOD) to request additional information and identify technical deficiencies. There are two deficiency response periods available to the applicant. There are 14 days to resolve deficiencies noted in the first NOD. If a second NOD is issued, there is an additional 14 days to resolve deficiencies. If the response to the second notice is not received, is incomplete or inadequate, or provides new information that is incomplete or inadequate, the application must be withdrawn or will be denied. Please note that because the technical review is underway, whether the application is withdrawn or denied **the application fee will be forfeited**.

4. The program has 90 calendar days to complete the technical review of the application. If the application is technically adequate, such that it complies with the Edwards Aquifer rules, and is protective of the Edwards Aquifer during and after construction, an approval letter will be issued. Construction or other regulated activity may not begin until an approval is issued.

Mid-Review Modifications

It is important to have final site plans prior to beginning the permitting process with TCEQ to avoid delays.

Occasionally, circumstances arise where you may have significant design and/or site plan changes after your Edwards Aquifer application has been deemed administratively complete by TCEQ. This is considered a "Mid-Review Modification". Mid-Review Modifications may require redistribution of an application that includes the proposed modifications for public comment.

If you are proposing a Mid-Review Modification, two options are available:

- If the technical review has begun your application can be denied/withdrawn, your fees will be forfeited, and the plan will have to be resubmitted.
- TCEQ can continue the technical review of the application as it was submitted, and a modification application can be submitted at a later time.

If the application is denied/withdrawn, the resubmitted application will be subject to the administrative and technical review processes and will be treated as a new application. The application will be redistributed to the affected jurisdictions.

Please contact the regional office if you have questions. If your project is located in Williamson, Travis, or Hays County, contact TCEQ's Austin Regional Office at 512-339-2929. If your project is in Comal, Bexar, Medina, Uvalde, or Kinney County, contact TCEQ's San Antonio Regional Office at 210-490-3096

Please fill out all required fields below and submit with your application.

1. Regulated Entity Name: Ramendu Duplex at Round Rock						**2. Regulated Entity No.:**			
3. Customer Name: Ramendu Duplex at Round Rock LLC						**4. Customer No.:**			
5. Project Type: **(Please circle/check one)**	New		Modification			Extension		Exception	
6. Plan Type: **(Please circle/check one)**	WPAP	CZP	SCS	UST	AST	EXP	EXT	Technical Clarification	Optional Enhanced Measures
7. Land Use: **(Please circle/check one)**	Residential		Non-residential				**8. Site (acres):**		0.98
9. Application Fee:	$4,650		**10. Permanent BMP(s):**					Contech Jelly Fish Filter	
11. SCS (Linear Ft.):	657		**12. AST/UST (No. Tanks):**					N/A	
13. County:	Williamson		**14. Watershed:**					Lake Creek	

Application Distribution

Instructions: Use the table below to determine the number of applications required. One original and one copy of the application, plus additional copies (as needed) for each affected incorporated city, county, and groundwater conservation district are required. Linear projects or large projects, which cross into multiple jurisdictions, can require additional copies. Refer to the "Texas Groundwater Conservation Districts within the EAPP Boundaries" map found at:

http://www.tceq.texas.gov/assets/public/compliance/field_ops/eapp/EAPP%20GWCD%20map.pdf

For more detailed boundaries, please contact the conservation district directly.

Austin Region			
County:	**Hays**	**Travis**	**Williamson**
Original (1 req.)	__	__	__
Region (1 req.)	__	__	__
County(ies)	__	__	_X_
Groundwater Conservation District(s)	__Edwards Aquifer Authority __Barton Springs/ Edwards Aquifer __Hays Trinity __Plum Creek	__Barton Springs/ Edwards Aquifer	NA
City(ies) Jurisdiction	__Austin __Buda __Dripping Springs __Kyle __Mountain City __San Marcos __Wimberley __Woodcreek	__Austin __Bee Cave __Pflugerville __Rollingwood __Round Rock __Sunset Valley __West Lake Hills	__Austin __Cedar Park __Florence __Georgetown __Jerrell __Leander __Liberty Hill __Pflugerville X__Round Rock

San Antonio Region					
County:	**Bexar**	**Comal**	**Kinney**	**Medina**	**Uvalde**
Original (1 req.)	__	__	__	__	__
Region (1 req.)	__	__	__	__	__
County(ies)	__	__	__	__	__
Groundwater Conservation District(s)	__ Edwards Aquifer Authority __Trinity-Glen Rose	__Edwards Aquifer Authority	__Kinney	__EAA __Medina	__EAA __Uvalde
City(ies) Jurisdiction	__Castle Hills __Fair Oaks Ranch __Helotes __Hill Country Village __Hollywood Park __San Antonio (SAWS) __Shavano Park	__Bulverde __Fair Oaks Ranch __Garden Ridge __New Braunfels __Schertz	NA	__San Antonio ETJ (SAWS)	NA

I certify that to the best of my knowledge, that the application is complete and accurate. This application is hereby submitted to TCEQ for administrative review and technical review. Jacob D. Mealey
Print Name of Customer/Authorized Agent
9-22-2020
Signature of Customer/Authorized Agent Date

FOR TCEQ INTERNAL USE ONLY			
Date(s)Reviewed:		Date Administratively Complete:	
Received From:		Correct Number of Copies:	
Received By:		Distribution Date:	
EAPP File Number:		Complex:	
Admin. Review(s) (No.):		No. AR Rounds:	
Delinquent Fees (Y/N):		Review Time Spent:	
Lat./Long. Verified:		SOS Customer Verification:	
Agent Authorization Complete/Notarized (Y/N):		Fee Check:	Payable to TCEQ (Y/N):
Core Data Form Complete (Y/N):			Signed (Y/N):
Core Data Form Incomplete Nos.:			Less than 90 days old (Y/N):

General Information Form

Texas Commission on Environmental Quality

For Regulated Activities on the Edwards Aquifer Recharge and Transition Zones and Relating to 30 TAC §213.4(b) & §213.5(b)(2)(A), (B) Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **General Information Form** is hereby submitted for TCEQ review. The application was prepared by:

Print Name of Customer/Agent: Jacob D. Mealey, P.E.

Date: 8/20/20

Signature of Customer/Agent:

Project Information

1. Regulated Entity Name: Ramendu Duplex at Round Rock
2. County: Williamson
3. Stream Basin: Lake Creek
4. Groundwater Conservation District (If applicable): N/A
5. Edwards Aquifer Zone:

   ☒ Recharge Zone
   ☐ Transition Zone

6. Plan Type:

   ☒ WPAP
   ☒ SCS
   ☐ Modification
   ☐ AST
   ☐ UST
   ☐ Exception Request

7. Customer (Applicant):

Contact Person: Marshall Hussain / Amar Gulhane
Entity: Ramendu Duplex at Round Rock LLC
Mailing Address: 3016 Paseo De Charros
City, State: Cedar Park, Texas Zip: 78641
Telephone: 512-698-5161 FAX: _____
Email Address: amargulhane@gmail.com

8. Agent/Representative (If any):

Contact Person: Jacob D. Mealey, P.E.
Entity: IECO Inc.
Mailing Address: 555 Round Rock W Dr Ste 216
City, State: Round Rock, TX Zip: 78641
Telephone: 737-226-4777 FAX: _____
Email Address: Jacob@IECOeng.com

9. Project Location:

☒ The project site is located inside the city limits of Round Rock.
☐ The project site is located outside the city limits but inside the ETJ (extra-territorial jurisdiction) of _____.
☐ The project site is not located within any city's limits or ETJ.

10. ☒ The location of the project site is described below. The description provides sufficient detail and clarity so that the TCEQ's Regional staff can easily locate the project and site boundaries for a field investigation.

North of W Logan Street, West of Mandell Street

11. ☒ **Attachment A – Road Map**. A road map showing directions to and the location of the project site is attached. The project location and site boundaries are clearly shown on the map.

12. ☒ **Attachment B - USGS / Edwards Recharge Zone Map**. A copy of the official 7 ½ minute USGS Quadrangle Map (Scale: 1" = 2000') of the Edwards Recharge Zone is attached. The map(s) clearly show:

☒ Project site boundaries.
☒ USGS Quadrangle Name(s).
☒ Boundaries of the Recharge Zone (and Transition Zone, if applicable).
☒ Drainage path from the project site to the boundary of the Recharge Zone.

13. ☒ **The TCEQ must be able to inspect the project site or the application will be returned**. Sufficient survey staking is provided on the project to allow TCEQ regional staff to locate the boundaries and alignment of the regulated activities and the geologic or manmade features noted in the Geologic Assessment.

☒ Survey staking will be completed by this date: 5-1-2021

14. ☒ **Attachment C – Project Description**. Attached at the end of this form is a detailed narrative description of the proposed project. The project description is consistent throughout the application and contains, at a minimum, the following details:

- ☒ Area of the site
- ☒ Offsite areas
- ☒ Impervious cover
- ☒ Permanent BMP(s)
- ☒ Proposed site use
- ☒ Site history
- ☒ Previous development
- ☒ Area(s) to be demolished

15. Existing project site conditions are noted below:

- ☐ Existing commercial site
- ☐ Existing industrial site
- ☐ Existing residential site
- ☐ Existing paved and/or unpaved roads
- ☐ Undeveloped (Cleared)
- ☒ Undeveloped (Undisturbed/Uncleared)
- ☐ Other: _____

Prohibited Activities

16. ☒ I am aware that the following activities are prohibited on the Recharge Zone and are not proposed for this project:

(1) Waste disposal wells regulated under 30 TAC Chapter 331 of this title (relating to Underground Injection Control);

(2) New feedlot/concentrated animal feeding operations, as defined in 30 TAC §213.3;

(3) Land disposal of Class I wastes, as defined in 30 TAC §335.1;

(4) The use of sewage holding tanks as parts of organized collection systems; and

(5) New municipal solid waste landfill facilities required to meet and comply with Type I standards which are defined in §330.41(b), (c), and (d) of this title (relating to Types of Municipal Solid Waste Facilities).

(6) New municipal and industrial wastewater discharges into or adjacent to water in the state that would create additional pollutant loading.

17. ☐ I am aware that the following activities are prohibited on the Transition Zone and are not proposed for this project:

(1) Waste disposal wells regulated under 30 TAC Chapter 331 (relating to Underground Injection Control);

(2) Land disposal of Class I wastes, as defined in 30 TAC §335.1; and

(3) New municipal solid waste landfill facilities required to meet and comply with Type I standards which are defined in §330.41 (b), (c), and (d) of this title.

Administrative Information

18. The fee for the plan(s) is based on:

- ☒ For a Water Pollution Abatement Plan or Modification, the total acreage of the site where regulated activities will occur.
- ☒ For an Organized Sewage Collection System Plan or Modification, the total linear footage of all collection system lines.
- ☐ For a UST Facility Plan or Modification or an AST Facility Plan or Modification, the total number of tanks or piping systems.
- ☐ A request for an exception to any substantive portion of the regulations related to the protection of water quality.
- ☐ A request for an extension to a previously approved plan.

19. ☒ Application fees are due and payable at the time the application is filed. If the correct fee is not submitted, the TCEQ is not required to consider the application until the correct fee is submitted. Both the fee and the Edwards Aquifer Fee Form have been sent to the Commission's:

- ☐ TCEQ cashier
- ☒ Austin Regional Office (for projects in Hays, Travis, and Williamson Counties)
- ☐ San Antonio Regional Office (for projects in Bexar, Comal, Kinney, Medina, and Uvalde Counties)

20. ☒ Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.

21. ☒ No person shall commence any regulated activity until the Edwards Aquifer Protection Plan(s) for the activity has been filed with and approved by the Executive Director.

General Information Form

ATTACHMENT A

TCEQ WPAP & SCS APPLICATION

Ramendu Duplex at Round Rock

Williamson County, Texas

ROAD MAP

IECO
CIVIL ENGINEERING & LAND PLANNING
555 Round Rock W Dr Ste E 216
Round Rock, TX 78691
Ph. 737.226.4777
Info@insightengineering.net

Road Map

Ramendu Duplex at Round Rock
Round Rock, Texas

SCALE: NTS	DATE: 8/7/20	JOB #: T19-0006
BY: RJK		

General Information Form
ATTACHMENT B

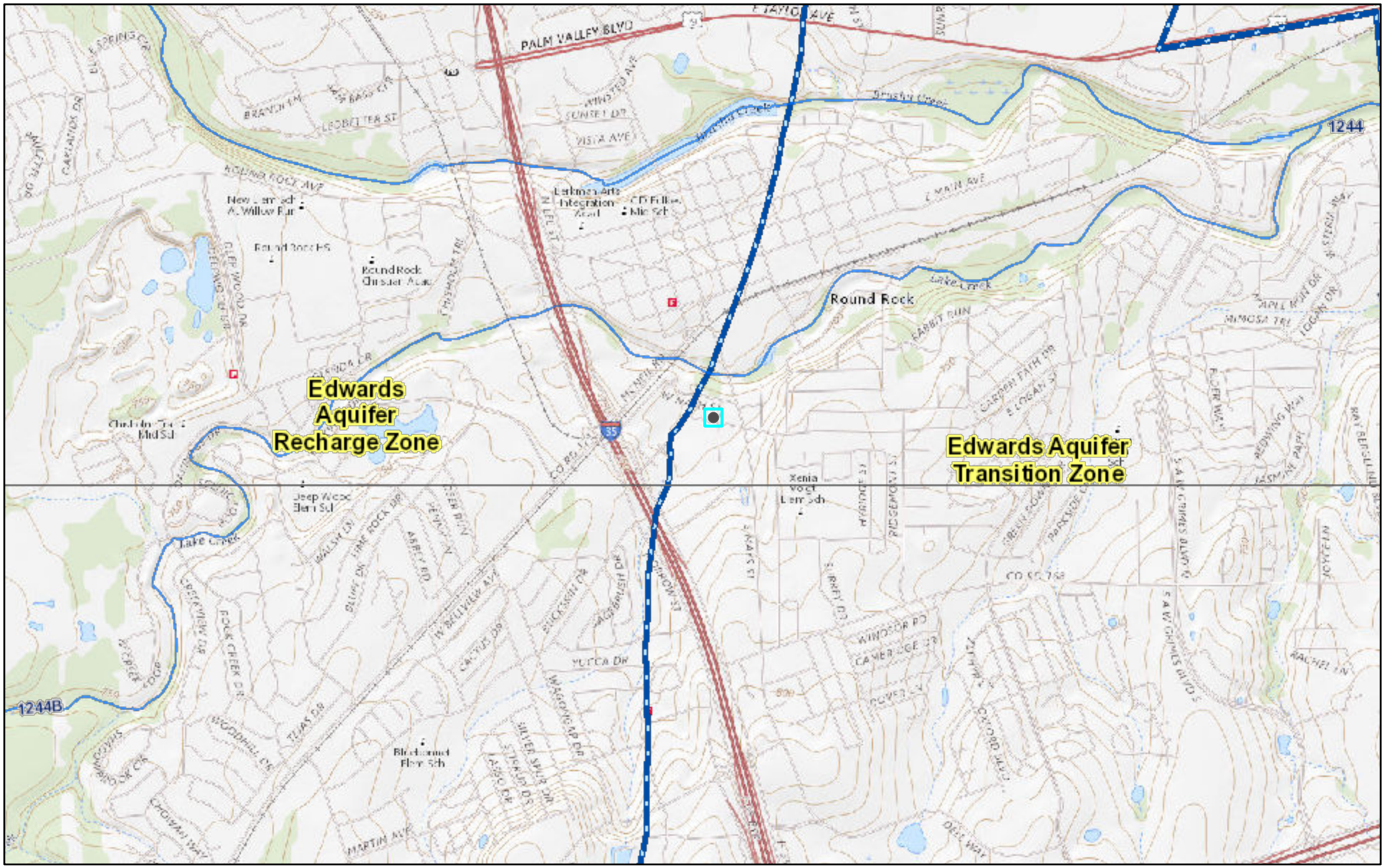
TCEQ WPAP & SCS APPLICATION

Ramendu Duplex at Round Rock

Williamson County, Texas

USGS/EDWARDS AUQUIFER RECHARGE ZONE MAP

Edwards Aquifer Map



8/5/2020, 1:36:26 PM

USGS Quad: Round Rock

1:28,000

0 1,000 2,000 4,000 ft

0 330 660 1,320 m

Segments (Streams)

Edwards Aquifer Boundary central line

Edwards Aquifer Label

TX Counties

Edwards Aquifer Boundary

7.5 Minute Quad Grid

TCEQ, USGS The National Map: National Boundaries Dataset, 3DEP

Web AppBuilder for ArcGIS

TCEQ | USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset;

General Information Form
ATTACHMENT C

TCEQ WPAP & SCS APPLICATION

Ramendu Duplex at Round Rock

Williamson County, Texas

Project Description:

- Site Area
- The project site consists of 2.77 acres. The total limit of clearing (LOC) is 2.42 Acres. The site is currently undeveloped and contains a concrete pad, impervious steps/path and a rock wall.
- Offsite Area
    - The off-site area that will be flowing onto the site is 0.55 Acres.
- Onsite Impervious Area
    - The existing impervious to be removed is 3,500 SF (0.08 acres).
    - The proposed impervious area is 46,610 SF (1.07 acres).
- Permanent BMPs
    - A Jellyfish Filter system will be used.
- Proposed Site Use
    - The development project will include ten duplexes with associated utilities.
- Site History/Previous Development
    - The site has been primarily undeveloped with some stone and concrete pads/walkways, steps, and walls. The remaining existing cover consists of well-kept lawn and trees ranging in size.
- Areas to be demolished
    - The existing concrete pad, paths and rock wall will be demolished.

Geologic Assessment

Texas Commission on Environmental Quality

For Regulated Activities on The Edwards Aquifer Recharge/transition Zones and Relating to 30 TAC §213.5(b)(3), Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. My signature certifies that I am qualified as a geologist as defined by 30 TAC Chapter 213.

Print Name of Geologist: Douglas McGookey, P.G. **Telephone:** (210) 694-4545

Date: September 29, 2020 **Fax:** (210) 694-4577

Representing: Medina Consulting Co., Inc. TBPG No.50118

Signature of Geologist:

Regulated Entity Name: Ramendu Duplex at Round Rock

STATE OF TEXAS
Douglas A. McGookey
Geologist
License Number 366
LICENSED
PROFESSIONAL GEOSCIENTIST

10-1-2020

Project Information

1. Date(s) Geologic Assessment was performed: September 24, 2020
2. Type of Project:

   ☒ WPAP ☐ AST
   ☒ SCS ☐ UST
3. Location of Project:

   ☒ Recharge Zone
   ☒ Transition Zone
   ☐ Contributing Zone within the Transition Zone

4. ☒ **Attachment A - Geologic Assessment Table**. Completed Geologic Assessment Table (Form TCEQ-0585-Table) is attached.

5. ☒ Soil cover on the project site is summarized in the table below and uses the SCS Hydrologic Soil Groups* (Urban Hydrology for Small Watersheds, Technical Release No. 55, Appendix A, Soil Conservation Service, 1986). If there is more than one soil type on the project site, show each soil type on the site Geologic Map or a separate soils map.

Table 1 - Soil Units, Infiltration Characteristics and Thickness

Soil Name	Group*	Thickness(feet)
Houston Black clay, 1-3% slopes	D	over 6.7

** Soil Group Definitions (Abbreviated)*

A. Soils having a high infiltration rate when thoroughly wetted.
B. Soils having a moderate infiltration rate when thoroughly wetted.
C. Soils having a slow infiltration rate when thoroughly wetted.
D. Soils having a very slow infiltration rate when thoroughly wetted.

6. ☒ **Attachment B – Stratigraphic Column**. A stratigraphic column showing formations, members, and thicknesses is attached. The outcropping unit, if present, should be at the top of the stratigraphic column. Otherwise, the uppermost unit should be at the top of the stratigraphic column.

7. ☒ **Attachment C – Site Geology**. A narrative description of the site-specific geology including any features identified in the Geologic Assessment Table, a discussion of the potential for fluid movement to the Edwards Aquifer, stratigraphy, structure(s), and karst characteristics is attached.

8. ☒ **Attachment D – Site Geologic Map(s)**. The Site Geologic Map must be the same scale as the applicant's Site Plan. The minimum scale is 1”: 400'

   Applicant's Site Plan Scale: 1" = 30'
   Site Geologic Map Scale: 1" = 30'
   Site Soils Map Scale (if more than 1 soil type): 1" = NA

9. Method of collecting positional data:

   ☒ Global Positioning System (GPS) technology.
   ☐ Other method(s). Please describe method of data collection: _____

10. ☒ The project site and boundaries are clearly shown and labeled on the Site Geologic Map.

11. ☒ Surface geologic units are shown and labeled on the Site Geologic Map.

12. ☐ Geologic or manmade features were discovered on the project site during the field investigation. They are shown and labeled on the Site Geologic Map and are described in the attached Geologic Assessment Table.

    ☒ Geologic or manmade features were not discovered on the project site during the field investigation.

13. ☒ The Recharge Zone boundary is shown and labeled, if appropriate.

14. All known wells (test holes, water, oil, unplugged, capped and/or abandoned, etc.): If applicable, the information must agree with Item No. 20 of the WPAP Application Section.

    ☐ There are_____(#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply.)
    - ☐ The wells are not in use and have been properly abandoned.
    - ☐ The wells are not in use and will be properly abandoned.
    - ☐ The wells are in use and comply with 16 TAC Chapter 76.

    ☒ There are no wells or test holes of any kind known to exist on the project site.

Administrative Information

15. ☒ Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.

Attachment A
Geologic Assessment Table

GEOLOGIC ASSESSMENT TABLE			PROJECT NAME: Ramendu Duplex at Round Rock																	
LOCATION			FEATURE CHARACTERISTICS												EVALUATION			PHYSICAL SETTING		
1A	1B*	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DOM	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		0,10						<40	≥40	<1.6	≥1.6	
			No geologic features observed, No manmade features that may reach bedrock observed																	

* DATUM: WGS 84

2A TYPE	TYPE	28 POINTS
C	Cave	30
SC	Solution cavity	20
SF	Solution-enlarged fracture(s)	20
F	Fault	20
O	Other natural bedrock features	5
MB	Manmade feature in bedrock	30
SW	Swallow hole	30
SH	Sinkhole	20
CD	Non-karst closed depression	5
Z	Zone, clustered or aligned features	30

8A INFILLING	
N	None, exposed rock
C	Coarse – cobbles, breakdown, sand, gravel
O	Loose or soft mud or soil, organics, leaves, dark colors
F	Fines, compacted clay-rich sediment, soil profile, gray or red colors
V	Vegetation. Give details in narrative description
FS	Flowstone, cements, cave deposits
X	Other materials

12 TOPOGRAPHY
Cliff, Hilltop, Hillside, Drainage, Floodplain, Streambed

I have read, I understood, and I have followed the Texas Commission on Environmental Quality's *Instructions to Geologists*. The information presented here complies with that document and is a true representation of the conditions observed in the field. My signature certifies that I am qualified as a geologist as defined.

STATE OF TEXAS
Douglas A. McGookey
Geologist
License Number 368
LICENSED
PROFESSIONAL GEOSCIENTIST

Douglas McGookey, P.G. Date September 29, 2020

10-1-2020

Sheet 1 of 1

TCEQ-0585-Table (Rev. 10-01-04)

Attachment B
Stratigraphic Column

STRATIGRAPHIC COLUMN
Ramendu Duplex at Round Rock

Time Period (Epoch)	Hydrologic Subdivision	Group	Formation/ Member	Hydrologic Function	Thickness (ft)	Lithology	Cavern Development	Porosity/ Permeability type
Erosional Surface								
Quaternary	Terrace Deposits		Qt	CU	10-15*	Clay with limestone fragments*	None observed*	NA - hydrologic soil group D
Late Cretaceous	Edwards Aquifer	Washita	Georgetown (Kgt)	CU and AQ (hydraulically connected in some place to Ked)	~83	Buff and gray to light-gray, marly or argillaceous, chalky to hard and crystalline limestone w/ some fossils	Little to none	very low porosity and permeability
Early Cretaceous	Edwards Aquifer	Fredericksburg	Edwards (Ked)	AQ	138-160	Massive, vuggy limestone with bands of chert nodules and rudistid bistromes	Very few to extensive	Vuggy where exposed; microscopic to megascopic; secondary porosity: faults, fractures, karst features
Early Cretaceous	Lower Confining Units	Fredericksburg	Comanche Peak (Kcp)	CU	65	White, irregularly-bedded, nodular limestone interbedded with marl; abundant large gastropods & pelecypods throughout	Little to none	Considerable jointing; less permeable than the Edwards Fm
Early Cretaceous	Lower Confining Units	Fredericksburg	Walnut (Kw)	CU	70-80	Limestone: yellowish tan, thinly bedded, marl	None	Absent of karst modification, is less permeable than the Edwards; typically yields little to no water to wells

Notes: AQ = Aquifer
CU = Confining Unit

Sources:
*MLA Geotechnical Report, 2020
Housh, 2007
Collins, 2005
Jones, 2003

Mapped surficial geology

STATE OF TEXAS
Douglas A. McGookey
Geologist
License Number 368
LICENSED
PROFESSIONAL GEOSCIENTIST

10-1-2020

Attachment C
Site Geology

GEOLOGY NARRATIVE

Narrative of Site Soils

The site lies mostly in the transition zone and partly in the recharge zone of the Edwards Aquifer. The attached figures show the location of the site, floodplain, topography, and geologic units.

Soil Unit: The project site lies on Houston Black clay, 1-3% slopes (HoB). The following paragraph describes the soil unit and is taken (partially quoted) from the *Soil Survey of Williamson County, Texas* (USDA, issued 1983) and the Web Soil Service map unit descriptions.

HoB: The Houston Black series consists of deep, moderately well-drained, clayey soils that formed in marine silty clays and shales. In a representative profile, the layers are clay and are 70 to 80 inches thick. Houston Black soils have a runoff class of very high, and the available water capacity is high (about 9.6 inches). The capacity of the most limiting layer to transmit water (K_{sat}) is very low to moderately low (0.00 to 0.06 in/hr).

Narrative of Site Geology

Literature Review: Figure 4 shows geology of the area from the Geologic Map Database of Texas (Stoeser, et al., 2005; based on the Barnes 1992 Geologic Map of Texas). On this older map, the site is mapped mostly in Paluxy Sand and Glen Rose Limestone, undivided (Kpgr). A thin section on the east of the property is mapped in Austin Chalk (Kau). No faults are mapped on or near the site.

In Figure 6 and attachment D (the site-specific geology map (Collins, 2005)), the site is mapped in Quaternary Terrace deposits (Qt). The MLA Geotechnical report (2020) includes boring logs that indicate that the Georgetown Formation is 10 to 15 feet below the ground surface. Three boreholes were completed across the site (attached after Figure 7) and the boring logs state that the 10 to 15 feet of surface clay includes limestone fragments. No faults are mapped in or near the site. The descriptions following were taken from the Collins (2005) map and Housh (2007).

Qt: Terrace deposits - Made up of gravel, sand, silt, and clay along streams and rivers. The thickness is not recorded on the map.

Kgt: The Georgetown Formation is made up of limestone, argillaceous limestone, and marl. The thickness is not recorded on the map. The Georgetown Formation in Williamson County has been zoned “on the basis of lithology and selected guide fossils for each member. In the Round Rock area, Member A consists of 23 feet of thick-bedded nodular limestone; Member B consists of 25 feet of interbedded chalky, argillaceous limestone and light gray to buff shale; Member C is a 5

foot Texigryphaea washitaensis (Hill) agglomerate; Member D consists of 10 feet of interbedded, thin, chalky limestone and light gray marl; and Member E consists of 20 feet of light gray, hard, crystalline, thin-bedded limestone (Atchison, 1954).” “The aggregate thickness of the Georgetown formation is around 83 feet in the Round Rock area” (Housh, 2007).

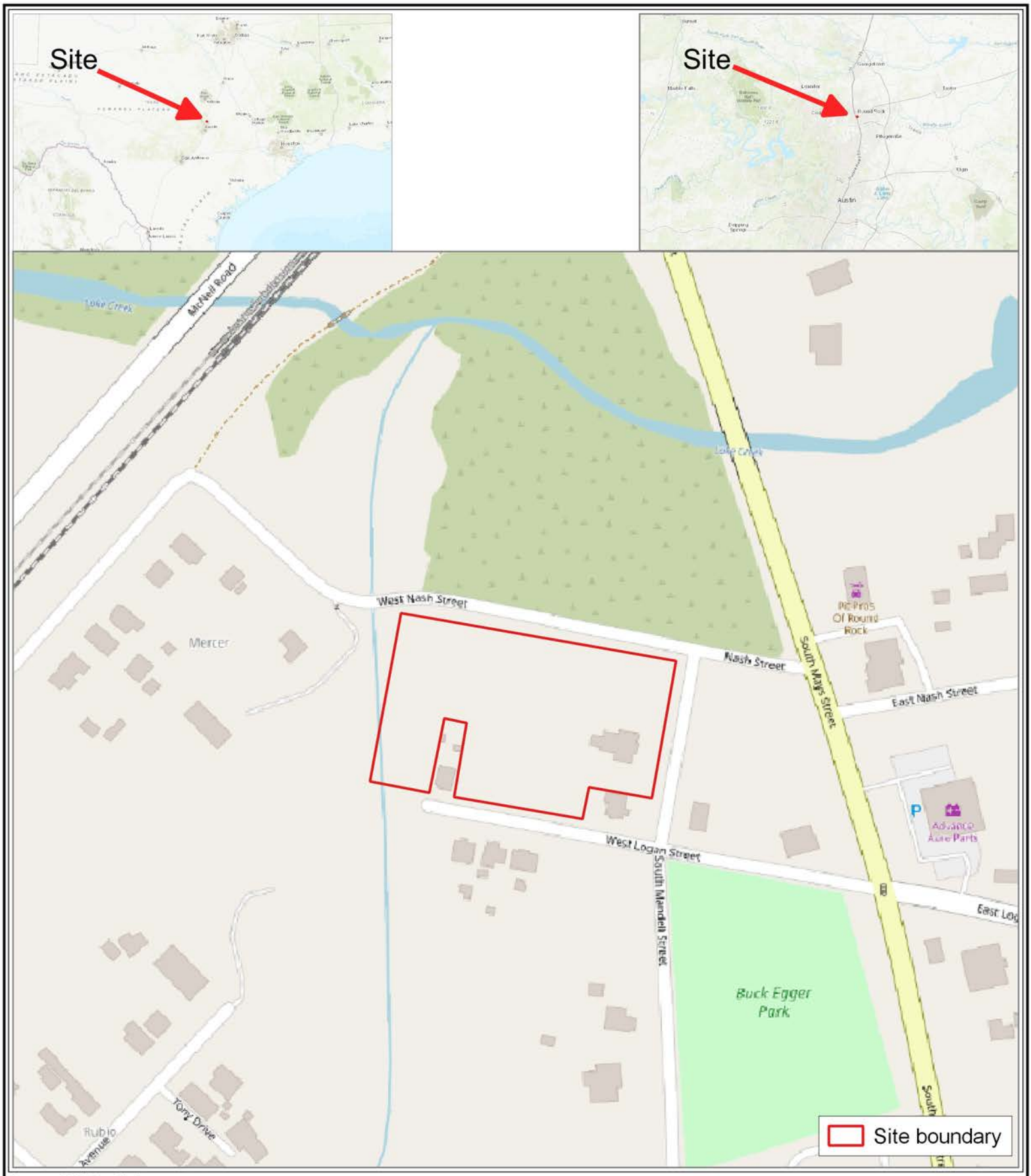
Observations: The site lies on land that is well-vegetated and mostly open with scattered groups of trees. The site is somewhat level on the eastern part and slopes downward on the western side. The surface of the site is uneven (i.e., “lumpy and bumpy”). The soil is covered with grasses, forbs, weeds, trees, some leaf litter, rocks (pebble- to boulder-sized), a few surfacing cobbles and boulders that are part of the soil profile, stone walls around some of the perimeter and at a former small park area (Photographs 1 to 5). There are also scattered, small piles of mostly construction demolition debris (Photographs 6 to 8). The vegetation, both alive and died-back, is so thick that soil is not visible in most places. Near the southeast corner and the middle of the east boundary of the site are abandoned/non-maintained asphalt pavements that are heavily cracked with vegetation growing through them (Photograph 9). To the west of, and somewhat parallel to, the site is a concrete drainage that appears to replace the stream shown on the Collins (2005) map in Figure 6 (Photograph 10).

No water wells were observed at the site or listed in the Texas Water Development Board website (neither on nor within 150 feet of the site). No faults were observed at the site (i.e., no cracks, disruptions, or layer discontinuations visible on the ground surface).

There were no sensitive manmade or geologic features identified on the site. There are a utility pole and a manhole near the western end of the site, but as the clay soil is at least 10 to 15 feet deep, these are not manmade features that reach close to bedrock (and so are not listed in the Geologic Assessment Table in Attachment A).

If features are discovered during construction, work should stop, and the Texas Commission on Environmental Quality (TCEQ) notified so that the feature can be evaluated.

Figures



Source: OSM Standard

Medina Consulting Company, Inc.

Figure 1: Project Area Location
Ramendu Duplex at Round Rock
Geologic Assessment
Round Rock, Williamspn County, Texas

N

Author: Dawne M. Butler 9/23/2020

175 0 175 Feet

1:2500

Source: Mapbox Satellite Streets v9

Medina Consulting Company, Inc.

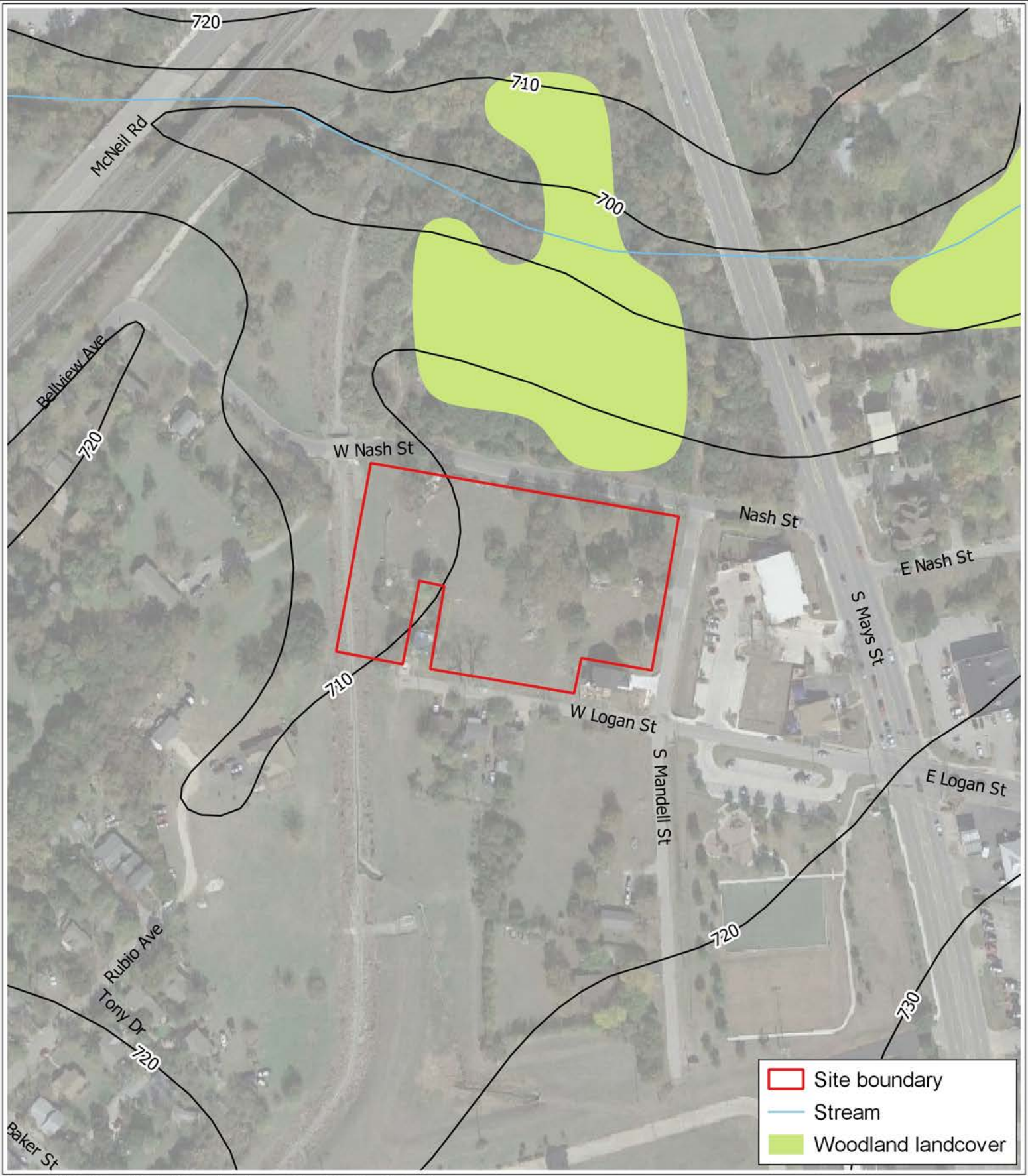
Figure 2: Site and Vicinity
Ramendu Duplex at Round Rock
Geologic Assessment
Round Rock, Williamson County, Texas

N

Author: Dawne M. Butler 9/23/2020

150 0 150 ft

1:2250



Sources: USGS Round Rock, TX quadrangle vector file, 2019; Google Satellite

Medina Consulting Company, Inc.

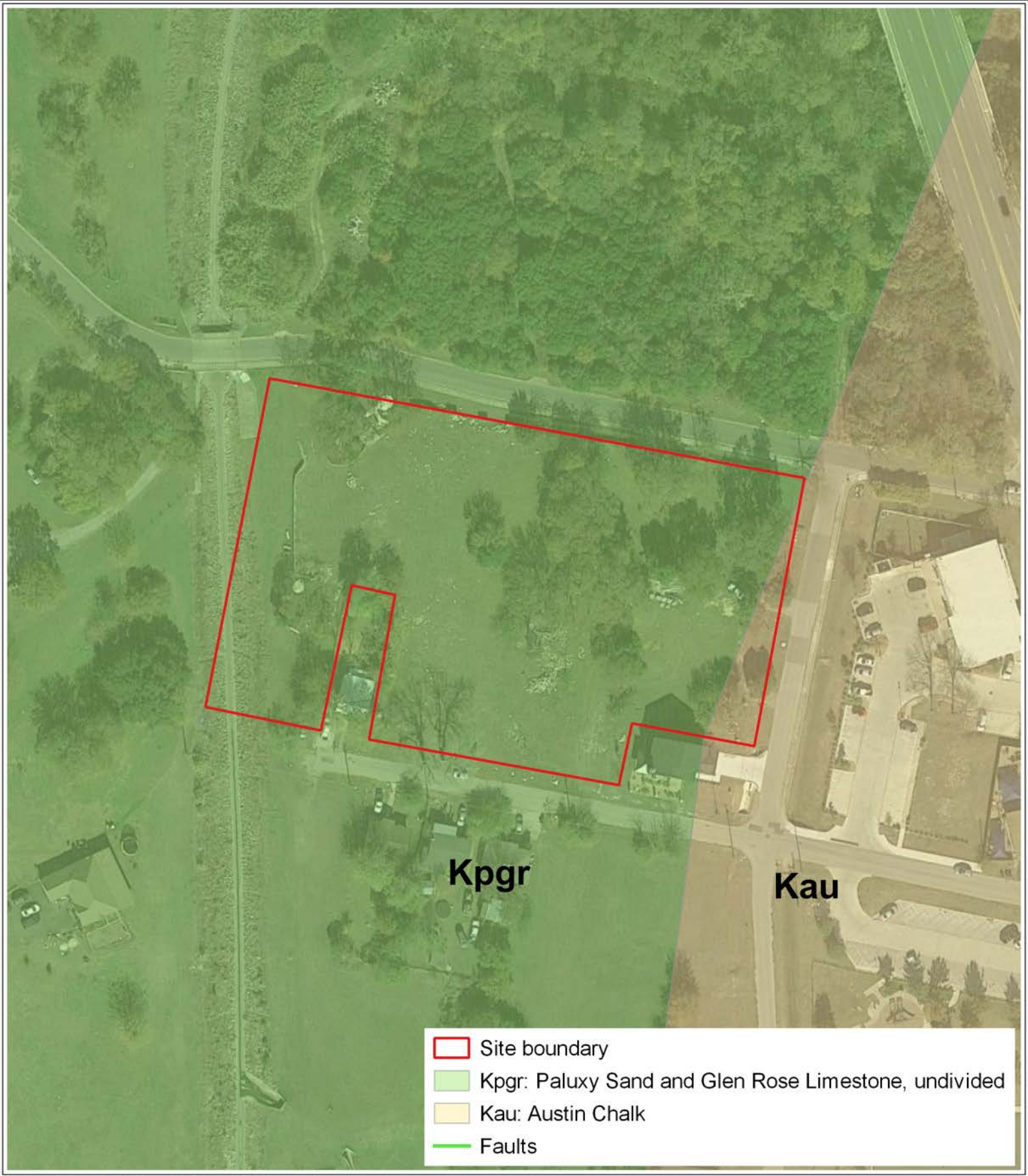
Figure 3: Site Topography
Ramendu Duplex at Round Rock
Geologic Assessment
Round Rock, Williamson County, Texas

N

Author: Dawne M. Butler 9/23/2020

150 0 150 ft

1:2250



Sources: Storser, 2005 (from 1992 map); Google Satellite

Medina Consulting Company, Inc.

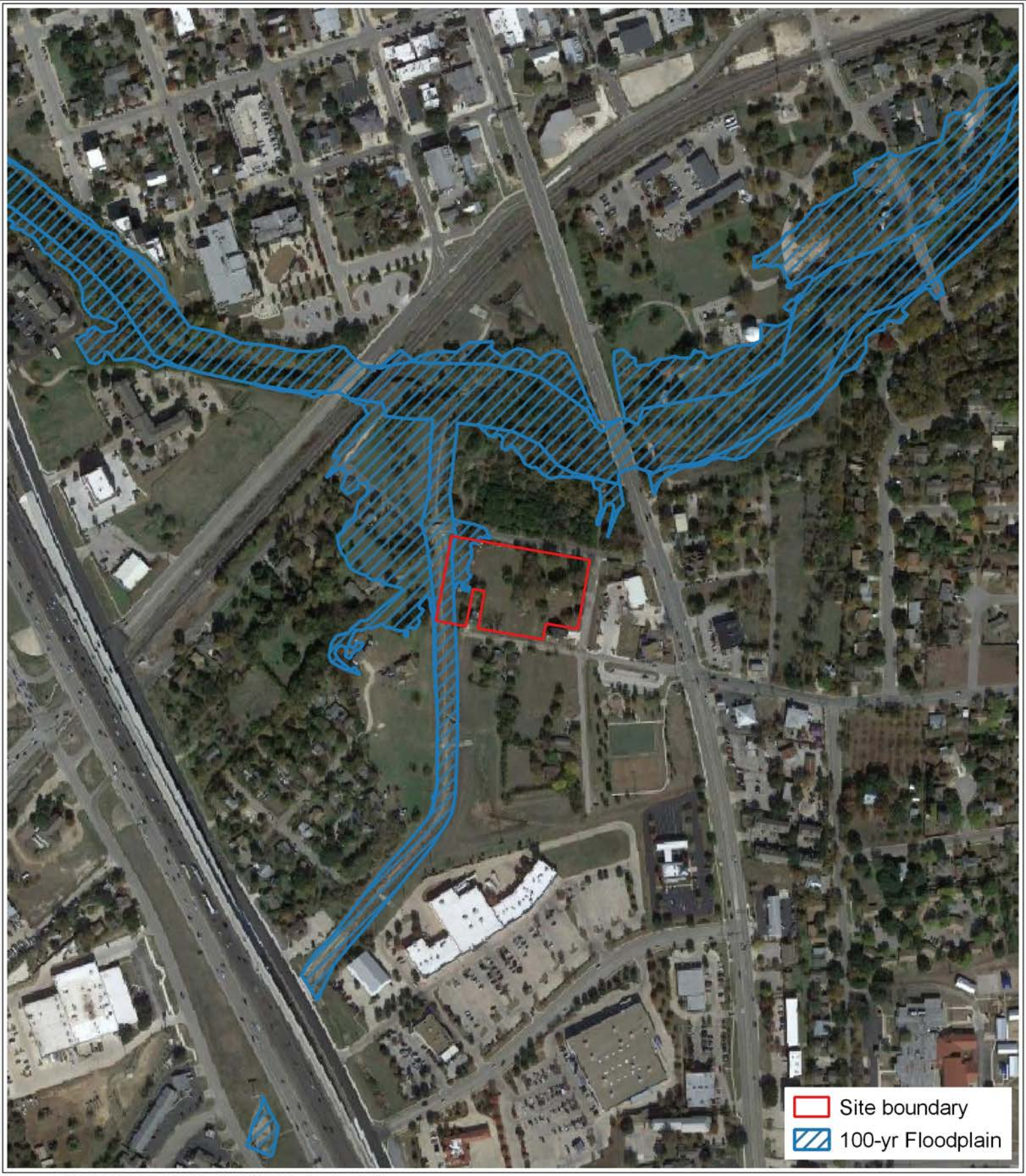
Figure 4: Project Area Old Map Geology
Ramendu Duplex at Round Rock
Geologic Assessment
Round Rock, Williamson County, Texas

N

Author: Dawne M. Butler 9/23/2020

100 0 100 ft

1:1500



Sources: FEMA NFHL Data 48491C, eff. 12/20/2019; Google Satellite

Medina Consulting Company, Inc.

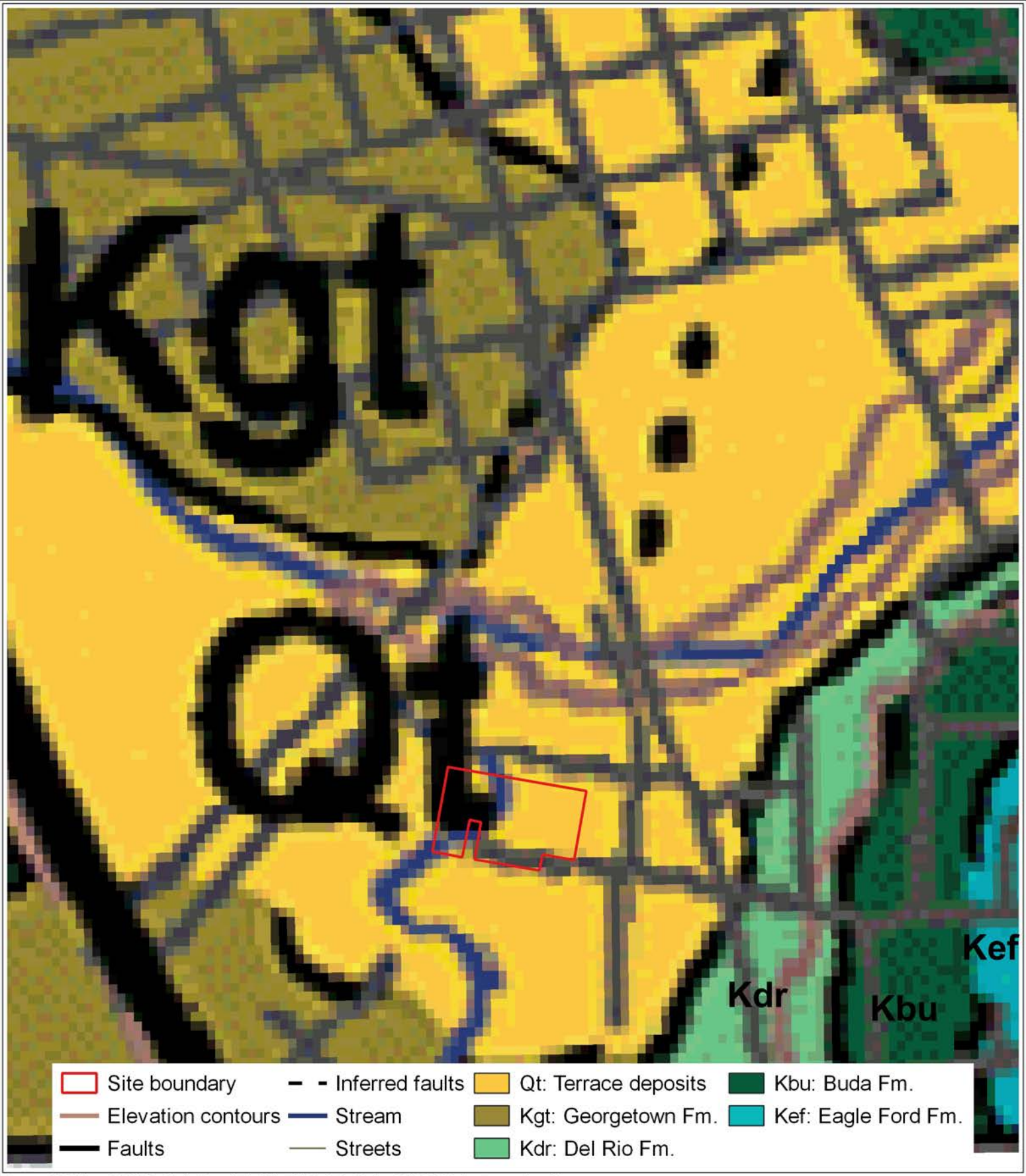
Figure 5: FEMA Flood Zone Map
Ramendu Duplex at Round Rock
Geologic Assessment
Round Rock, Williamson County, Texas

N

Author: Dawne M. Butler 9/27/2020

350 0 350 ft

1:5000



Source: E.Collins, 2005 (Geologic Map of the West Half of the Taylor, TX, 30x60 minute quadrangle)

Medina Consulting Company, Inc.

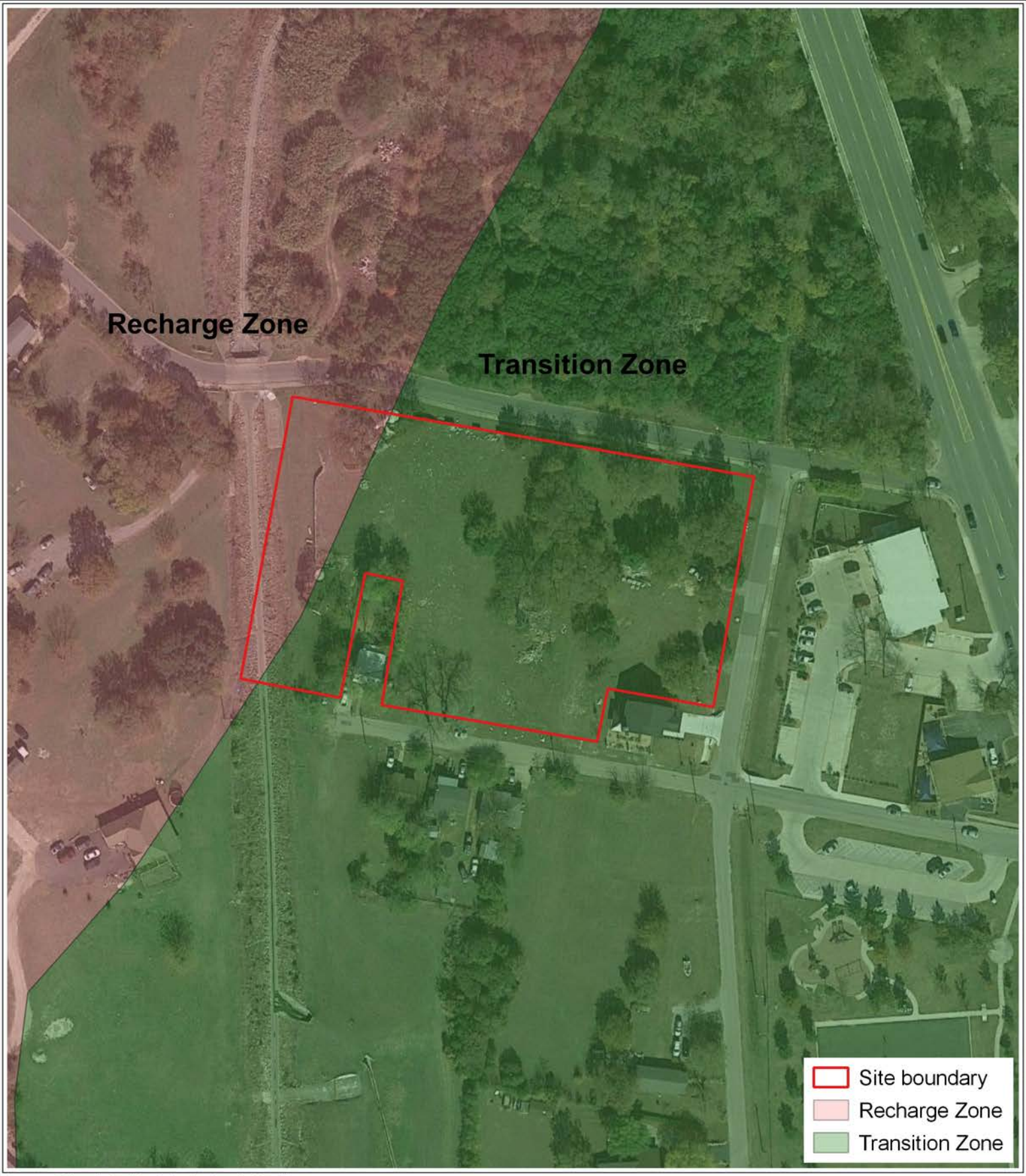
Figure 6: Project Area 2005 Map Geology
Ramendu Duplex at Round Rock
Geologic Assessment
Round Rock, Williamson County, Texas

N

Author: Dawne M. Butler 9/27/2020

350 0 350 ft

1:5000



Sources: Edwards Aquifer Authority, Google Satellite

Medina Consulting Company, Inc.

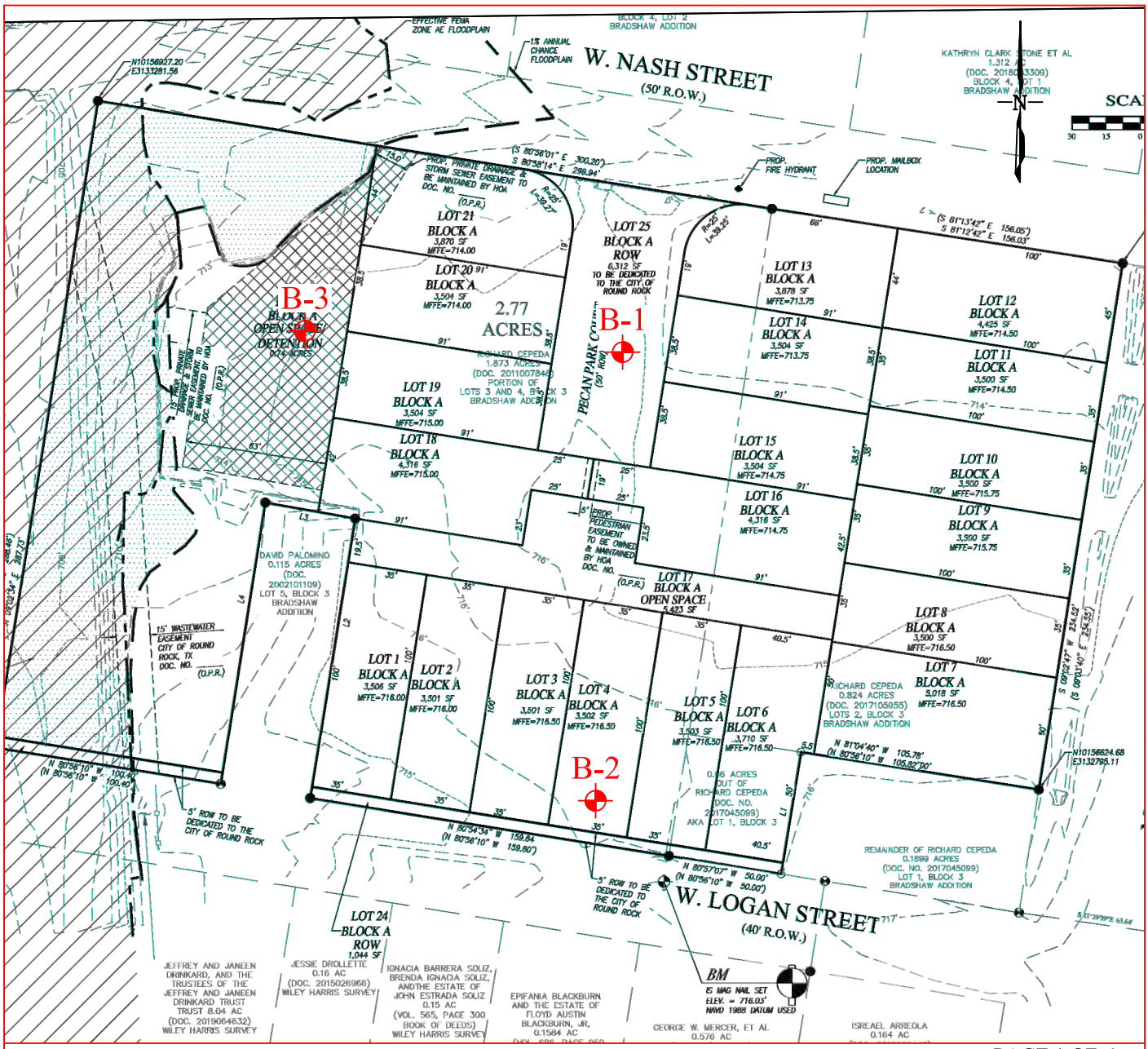
Figure 7: Edwards Aquifer Zone Map
Ramendu Duplex at Round Rock
Geologic Assessment
Round Rock, Williamson County, Texas

N

Author: Dawne M. Butler 9/27/2020

100 0 100 ft

1:1500



SCALE = N.T.S.

PAGE 1 OF 1

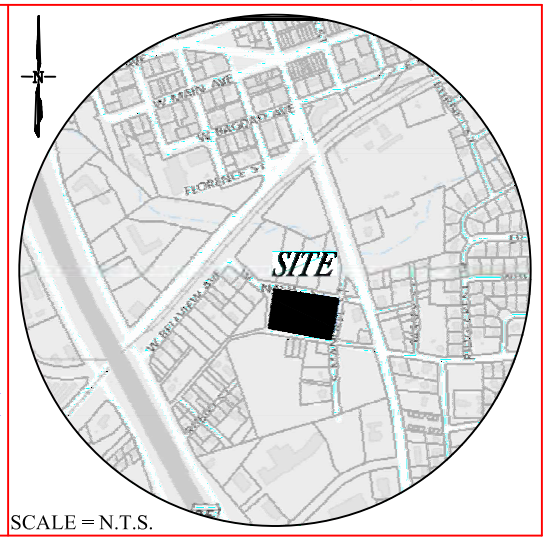
PLAN OF BORINGS

704 Mandell Street - Ramendu Duplex
Round Rock, Texas
Job. No.: 20106100.052
Client: Ramendu

LEGEND

B-#	Boring Number
⌖	Approx. Boring Location

VICINITY MAP



SCALE = N.T.S.

MLA Geotechnical

"put us to the test"

LOG OF BORING

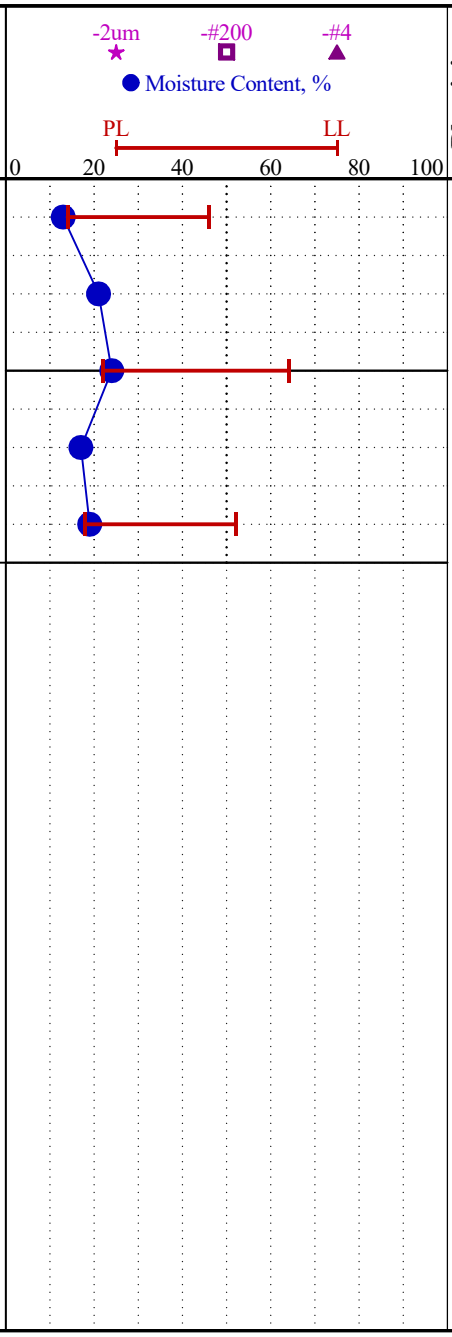
Boring B-1
PAGE 1 OF 1

Job Name: 704 Mandell Street - Ramendu Duplex
Job Location: Round Rock, Texas
Engineer's Job #: 20106100.052
Client: Ramendu

Drill Date: July 6, 2020
Ground Elevation: n/a
Hole Size: 4.5 in.
Notes:

Ground Water Levels:
AT TIME OF DRILLING: ---
AT END OF DRILLING: ---
AFTER DRILLING: ---

DEPTH, ft.	GRAPHIC LOG	MATERIAL DESCRIPTION	GEOLOGY U.S.C.S.	POCKET PEN. (tsf)	Plasticity Index, %
0		FILL, brown and tan, CLAY, with limestone fragments, damp	CL	-	32
				2.0	
5		CLAY, reddish brown, with limestone fragments, damp	CH	3.5	42
		CLAY, yellowish tan, with limestone fragments, damp	CL-CH	-	
			Kgt	-	34
10		Termination Depth: 10.0 feet			
15					
20					
25					
30					



20106100.052 - 704 MANDELL STREET - RAMENDU DUPLEX - LOGS.GPJ 7/20/20

MLA Geotechnical

"put us to the test"

LOG OF BORING

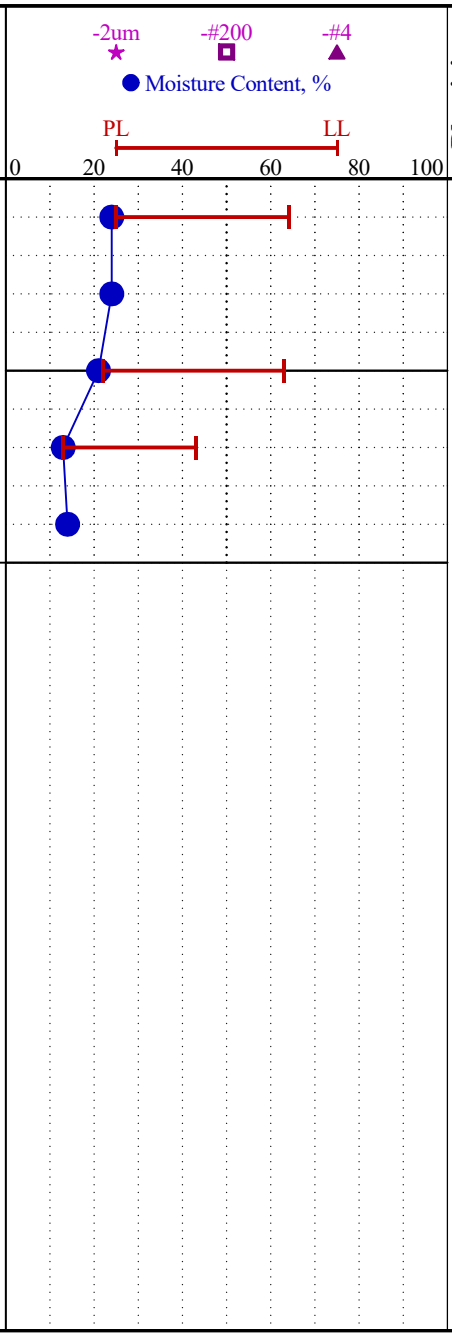
Boring B-2
PAGE 1 OF 1

Job Name: 704 Mandell Street - Ramendu Duplex
Job Location: Round Rock, Texas
Engineer's Job #: 20106100.052
Client: Ramendu

Drill Date: July 6, 2020
Ground Elevation: n/a
Hole Size: 4.5 in.
Notes:

Ground Water Levels:
AT TIME OF DRILLING: ---
AT END OF DRILLING: ---
AFTER DRILLING: ---

DEPTH, ft.	GRAPHIC LOG	MATERIAL DESCRIPTION	GEOLOGY U.S.C.S.	POCKET PEN. (tsf)	Plasticity Index, %
0		FILL, dark brown, CLAY, with limestone fragments, damp	CH	3.5	39
				3.5	
5		CLAY, reddish brown, with limestone fragments, damp	CH	4.0	41
		CLAY, yellowish tan, with limestone fragments, damp	CL	-	30
			Kgt	-	
10		Termination Depth: 10.0 feet			
15					
20					
25					
30					



20106100.052 - 704 MANDELL STREET - RAMENDU DUPLEX - LOGS.GPJ 7/20/20

MLA Geotechnical

"put us to the test"

LOG OF BORING

Job Name: 704 Mandell Street - Ramendu Duplex
Job Location: Round Rock, Texas
Engineer's Job #: 20106100.052
Client: Ramendu

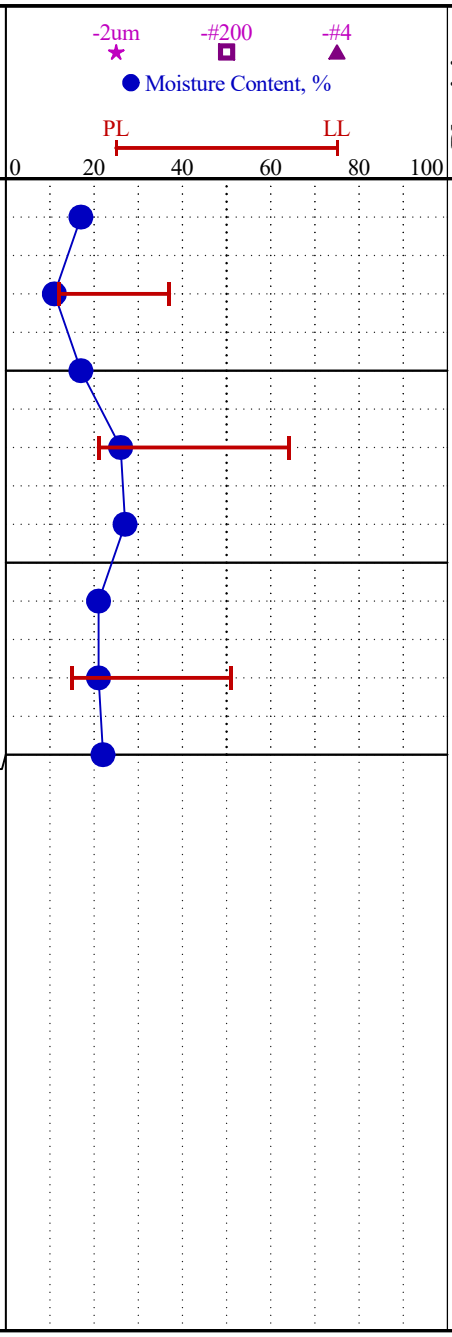
Boring B-3
PAGE 1 OF 1

Drill Date: July 6, 2020
Hole Size: 4.5 in.
Ground Elevation: n/a

Ground Water Levels:
AT TIME OF DRILLING: ---
AT END OF DRILLING: ---
AFTER DRILLING: ---

Notes:

DEPTH, ft.	GRAPHIC LOG	MATERIAL DESCRIPTION	GEOLOGY U.S.C.S.	POCKET PEN. (tsf)	Plasticity Index, %
0		FILL, brown and tan, CLAY, with limestone fragments, damp	CL	-	
				-	25
5		CLAY, dark brown, with limestone fragments, damp	CH	-	
				2.0	43
				2.0	
10		CLAY, yellowish tan, with limestone fragments, damp	CL-CH	-	
				-	36
15			Kgt	-	
		Termination Depth: 15.0 feet			
20					
25					
30					



20106100.052 - 704 MANDELL STREET - RAMENDU DUPLEX - LOGS.GPJ 7/20/20

Photographs

Photograph 1 - South-southwestward view of site interior (from west of the middle of the northern boundary)

Photograph 2 - Another south-southwestward view of site interior (from west of the northeast site corner)

Photograph 3 - View of one of the typical surfacing boulders that are part of the soil profile

Photograph 4 - West-northwestward view of a perimeter rock wall (north of the southeast site corner)

Photograph 5 - Southward view of the former park near the northwest site corner

Photograph 6 - Westward view in, and of, the interior (including some of the construction demolition debris)

Photograph 7 - North-northeast view towards the interior (from near the middle of the southern site boundary); includes more construction demolition debris

Photograph 8 - East-southeastward view in, and of, the interior (including more of the construction demolition debris)

Photograph 9 - A view of part of the crumbling asphalt north and inside of the southeast site corner

Photograph 10 - Southward view of part of the concrete drainage within the site (from north of the southwest site corner)

REFERENCES

Collins, E., West Half of the Taylor, Texas, 30x60 minute Quadrangle: Central Texas Urban Corridor, Encompassing Round Rock, Georgetown, Salado, Briggs, Liberty Hill, and Leander, Miscellaneous Map No.43, 2005.

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Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture, Web Soil Survey, Available online at https://websoilsurvey.nrcs.usda.gov/, Accessed September 2020.

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Texas Commission on Environmental Quality (TCEQ), *Instructions to Geologists for Geologic Assessments on the Edwards Aquifer Recharge Zone*, TCEQ-0585-Instructions, 2004, https://www.tceq.texas.gov/assets/public/compliance/field_ops/eapp/F-0585_geologic_assessment_instructions.pdf, accessed June 2013.

United States Department of Agriculture, Soil Conservation Service (USDA SCS), *Soil Survey of Williamson County, Texas*, issued January 1983.

Attachment D
Site Geologic Map

Sources: E.Collins, 2005; USDA Web Soil Survey, 2019; Google Satellite Hybrid

Medina Consulting Company, Inc.

Attachment D - West: Project Area Features, Soil, & Geology
Ramendu Duplex at Round Rock
Geologic Assessment
Round Rock, Williamson County, Texas

Author: Dawne M. Butler 9/27/2020

30 0 30 ft

1:360

Sources: E.Collins, 2005; USDA Web Soil Survey, 2019; Google Satellite Hybrid

Medina Consulting Company, Inc.

Attachment D - East: Project Area Features, Soil, & Geology
Ramendu Duplex at Round Rock
Geologic Assessment
Round Rock, Williamson County, Texas

Author: Dawne M. Butler 9/27/2020

30 0 30 ft

1:360

Water Pollution Abatement Plan Application

Texas Commission on Environmental Quality

for Regulated Activities on the Edwards Aquifer Recharge Zone and Relating to 30 TAC §213.5(b), Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **Water Pollution Abatement Plan Application Form** is hereby submitted for TCEQ review and Executive Director approval. The form was prepared by:

Print Name of Customer/Agent: Jacob D. Mealey P.E.

Date: 9/21/20

Signature of Customer/Agent:

_____

Regulated Entity Name: Ramendu Duplex at Round Rock

Regulated Entity Information

1. The type of project is:

   ☐ Residential: Number of Lots:_____
   ☒ Residential: Number of Living Unit Equivalents:35
   ☐ Commercial
   ☐ Industrial
   ☐ Other:_____

2. Total site acreage (size of property):2.77

3. Estimated projected population:20

4. The amount and type of impervious cover expected after construction are shown below:

Table 1 - Impervious Cover Table

Impervious Cover of Proposed Project	Sq. Ft.	Sq. Ft./Acre	Acres
Structures/Rooftops	25,000	÷ 43,560 =	0.57
Parking	13,000	÷ 43,560 =	0.30
Other paved surfaces	10,985	÷ 43,560 =	0.25
Total Impervious Cover	48,985	÷ 43,560 =	1.13

Total Impervious Cover 1.13 **÷ Total Acreage** 2.77 **X 100 =** 40.79**% Impervious Cover**

5. ☒ **Attachment A - Factors Affecting Surface Water Quality**. A detailed description of all factors that could affect surface water and groundwater quality that addresses ultimate land use is attached.

6. ☒ Only inert materials as defined by 30 TAC §330.2 will be used as fill material.

For Road Projects Only

Complete questions 7 - 12 if this application is exclusively for a road project.

7. Type of project:

   ☐ TXDOT road project.
   ☐ County road or roads built to county specifications.
   ☐ City thoroughfare or roads to be dedicated to a municipality.
   ☐ Street or road providing access to private driveways.

8. Type of pavement or road surface to be used:

   ☐ Concrete
   ☐ Asphaltic concrete pavement
   ☐ Other: _____

9. Length of Right of Way (R.O.W.): _____ feet.

   Width of R.O.W.: _____ feet.
   L x W = _____ Ft^2 ÷ 43,560 Ft^2/Acre = _____ acres.

10. Length of pavement area: _____ feet.

    Width of pavement area: _____ feet.
    L x W = _____ Ft^2 ÷ 43,560 Ft^2/Acre = _____ acres.
    Pavement area _____ acres ÷ R.O.W. area _____ acres x 100 = _____% impervious cover.

11. ☐ A rest stop will be included in this project.

    ☐ A rest stop will not be included in this project.

12. ☐ Maintenance and repair of existing roadways that do not require approval from the TCEQ Executive Director. Modifications to existing roadways such as widening roads/adding shoulders totaling more than one-half (1/2) the width of one (1) existing lane require prior approval from the TCEQ.

Stormwater to be generated by the Proposed Project

13. ☒ **Attachment B - Volume and Character of Stormwater**. A detailed description of the volume (quantity) and character (quality) of the stormwater runoff which is expected to occur from the proposed project is attached. The estimates of stormwater runoff quality and quantity are based on the area and type of impervious cover. Include the runoff coefficient of the site for both pre-construction and post-construction conditions.

Wastewater to be generated by the Proposed Project

14. The character and volume of wastewater is shown below:

100% Domestic	9,800 Gallons/day
_____% Industrial	_____ Gallons/day
_____% Commingled	_____ Gallons/day
TOTAL gallons/day 9,800	

15. Wastewater will be disposed of by:

☐ On-Site Sewage Facility (OSSF/Septic Tank):

☐ **Attachment C - Suitability Letter from Authorized Agent**. An on-site sewage facility will be used to treat and dispose of the wastewater from this site. The appropriate licensing authority's (authorized agent) written approval is attached. It states that the land is suitable for the use of private sewage facilities and will meet or exceed the requirements for on-site sewage facilities as specified under 30 TAC Chapter 285 relating to On-site Sewage Facilities.

☐ Each lot in this project/development is at least one (1) acre (43,560 square feet) in size. The system will be designed by a licensed professional engineer or registered sanitarian and installed by a licensed installer in compliance with 30 TAC Chapter 285.

☒ Sewage Collection System (Sewer Lines):

☐ Private service laterals from the wastewater generating facilities will be connected to an existing SCS.

☒ Private service laterals from the wastewater generating facilities will be connected to a proposed SCS.

☐ The SCS was previously submitted on_____.

☒ The SCS was submitted with this application.

☐ The SCS will be submitted at a later date. The owner is aware that the SCS may not be installed prior to Executive Director approval.

☒ The sewage collection system will convey the wastewater to the Brushy Creek Regional WWTP East (name) Treatment Plant. The treatment facility is:

☒ Existing.
☐ Proposed.

16. ☒ All private service laterals will be inspected as required in 30 TAC §213.5.

Site Plan Requirements

Items 17 – 28 must be included on the Site Plan.

17. ☒ The Site Plan must have a minimum scale of 1" = 400'.

Site Plan Scale: 1" = 20'.

18. 100-year floodplain boundaries:

☒ Some part(s) of the project site is located within the 100-year floodplain. The floodplain is shown and labeled.
☐ No part of the project site is located within the 100-year floodplain.
The 100-year floodplain boundaries are based on the following specific (including date of material) sources(s): _____

19. ☒ The layout of the development is shown with existing and finished contours at appropriate, but not greater than ten-foot contour intervals. Lots, recreation centers, buildings, roads, open space, etc. are shown on the plan.

☐ The layout of the development is shown with existing contours at appropriate, but not greater than ten-foot intervals. Finished topographic contours will not differ from the existing topographic configuration and are not shown. Lots, recreation centers, buildings, roads, open space, etc. are shown on the site plan.

20. All known wells (oil, water, unplugged, capped and/or abandoned, test holes, etc.):

☐ There are _____ (#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply)

☐ The wells are not in use and have been properly abandoned.
☐ The wells are not in use and will be properly abandoned.
☐ The wells are in use and comply with 16 TAC §76.

☒ There are no wells or test holes of any kind known to exist on the project site.

21. Geologic or manmade features which are on the site:

☐ All sensitive geologic or manmade features identified in the Geologic Assessment are shown and labeled.
☒ No sensitive geologic or manmade features were identified in the Geologic Assessment.
☐ **Attachment D - Exception to the Required Geologic Assessment**. A request and justification for an exception to a portion of the Geologic Assessment is attached.

22. ☒ The drainage patterns and approximate slopes anticipated after major grading activities.

23. ☒ Areas of soil disturbance and areas which will not be disturbed.

24. ☒ Locations of major structural and nonstructural controls. These are the temporary and permanent best management practices.

25. ☒ Locations where soil stabilization practices are expected to occur.

26. ☐ Surface waters (including wetlands).

    ☒ N/A

27. ☐ Locations where stormwater discharges to surface water or sensitive features are to occur.

    ☒ There will be no discharges to surface water or sensitive features.

28. ☒ Legal boundaries of the site are shown.

Administrative Information

29. ☒ Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.

30. ☒ Any modification of this WPAP will require Executive Director approval, prior to construction, and may require submission of a revised application, with appropriate fees.

Water Pollution Abatement Plan Application
ATTACHMENT A

TCEQ WPAP & SCS APPLICATION

Ramendu Duplex at Round Rock

Williamson County, Texas

Factors Affecting Water Quality:

During Construction
Non-Stormwater Discharges: The Following non-stormwater discharges may occur from the site during the construction period.

- Utility water line flushing during the initial line testing must use uncontaminated water that is not hyerchlorinated.
- Pavement wash water (where no spills or leaks of toxic or hazardous materials have occurred)
- Groundwater (from dewatering of excavation) must be uncontaminated.
- Water used to wash vehicles or control dust must be accomplished using potable water without detergents.

All non-stormwater discharge will be directed to the temporary Erosion Sedimentation Controls (Best Management Practices) to remove any suspended solids contained therein.
Stormwater during construction will remove loose material and transport it downstream.

Post Construction
Non-stormwater discharges after construction has been completed which can affect water quality include:

- Fertilizers and pesticides
- Household chemicals
- Pet waste
- Used oil
- Car washing
- Mulching
- Sediment

Post construction stormwater discharges typically transport sediment in the form of dirt and dust accumulated on the streets and other impervious flatwork, rooftops, and sediment from erosion of grassy areas. That material will be transported through the grass-lined swale, where most of the pollutants will be removed.

Water Pollution Abatement Plan Application
ATTACHMENT B

TCEQ WPAP & SCS APPLICATION

Ramendu Duplex at Round Rock

Williamson County, Texas

Volume and Character of Stormwater:

The Existing and developed hydrological models were created in HEC-HMS, version 4.4.1. Type III SCS storm was applied to the meteorological models for the 2, 10, 25 and 100-year storm events. The model was run over a 24-hour period with a computational time interval of 5 minutes. See below for specific model input data.

Storm Event	2-YR	10-YR	25-YR	100-YR
Precipitation Depth (in)	4.10	6.48	8.32	11.70

Land Use & Curve Numbers

The onsite soils are classified as hydraulic soil group D, as per the USDA Web Soil Survey. The soil map and data have been included in Appendix B. The curve numbers were determined from the National Resources Conservation Service TR-55: Urban Hydrology for Small Watersheds based on the hydrologic soil group and aerial maps. See table below.

Cover Type	Hydrologic Condition	Hydrologic Soil Group	Curve Number
Impervious		D	98
Gravel		D	91
Grassland	Fair	D	84
Lawn	Good	D	80
Woods	Fair	D	79
Brush	Fair	D	77

Time of Concentration

The time of concentration calculations were generated using SCS methodology provided by the National Resources Conservation Service TR-55: Urban Hydrology for Small Watersheds for sheet, shallow concentrated, and channel flow. A maximum of 100 feet was used for sheet flow calculations.

Temporary Stormwater Section

Texas Commission on Environmental Quality

for Regulated Activities on the Edwards Aquifer Recharge Zone and Relating to 30 TAC §213.5(b)(4)(A), (B), (D)(I) and (G); Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **Temporary Stormwater Section** is hereby submitted for TCEQ review and executive director approval. The application was prepared by:

Print Name of Customer/Agent: Jacob D. Mealey, P.E.

Date: 9/21/2020

Signature of Customer/Agent:

_____

Regulated Entity Name: Ramendu Duplex at Round Rock

Project Information

Potential Sources of Contamination

Examples: Fuel storage and use, chemical storage and use, use of asphaltic products, construction vehicles tracking onto public roads, and existing solid waste.

1. Fuels for construction equipment and hazardous substances which will be used during construction:

   ☐ The following fuels and/or hazardous substances will be stored on the site: _____

   These fuels and/or hazardous substances will be stored in:

   ☐ Aboveground storage tanks with a cumulative storage capacity of less than 250 gallons will be stored on the site for less than one (1) year.

- ☐ Aboveground storage tanks with a cumulative storage capacity between 250 gallons and 499 gallons will be stored on the site for less than one (1) year.
- ☐ Aboveground storage tanks with a cumulative storage capacity of 500 gallons or more will be stored on the site. An Aboveground Storage Tank Facility Plan application must be submitted to the appropriate regional office of the TCEQ prior to moving the tanks onto the project.

☒ Fuels and hazardous substances will not be stored on the site.

2. ☒ **Attachment A - Spill Response Actions**. A site specific description of the measures to be taken to contain any spill of hydrocarbons or hazardous substances is attached.
3. ☐ Temporary aboveground storage tank systems of 250 gallons or more cumulative storage capacity must be located a minimum horizontal distance of 150 feet from any domestic, industrial, irrigation, or public water supply well, or other sensitive feature.
4. ☒ **Attachment B - Potential Sources of Contamination**. A description of any activities or processes which may be a potential source of contamination affecting surface water quality is attached.

Sequence of Construction

5. ☒ **Attachment C - Sequence of Major Activities**. A description of the sequence of major activities which will disturb soils for major portions of the site (grubbing, excavation, grading, utilities, and infrastructure installation) is attached.
   - ☒ For each activity described, an estimate (in acres) of the total area of the site to be disturbed by each activity is given.
   - ☒ For each activity described, include a description of appropriate temporary control measures and the general timing (or sequence) during the construction process that the measures will be implemented.
6. ☒ Name the receiving water(s) at or near the site which will be disturbed or which will receive discharges from disturbed areas of the project: Lake Creek

Temporary Best Management Practices (TBMPs)

Erosion control examples: tree protection, interceptor swales, level spreaders, outlet stabilization, blankets or matting, mulch, and sod. Sediment control examples: stabilized construction exit, silt fence, filter dikes, rock berms, buffer strips, sediment traps, and sediment basins. Please refer to the Technical Guidance Manual for guidelines and specifications. All structural BMPs must be shown on the site plan.

7. ☒ **Attachment D – Temporary Best Management Practices and Measures**. TBMPs and measures will prevent pollution of surface water, groundwater, and stormwater. The construction-phase BMPs for erosion and sediment controls have been designed to retain sediment on site to the extent practicable. The following information is attached:

- ☒ A description of how BMPs and measures will prevent pollution of surface water, groundwater or stormwater that originates upgradient from the site and flows across the site.
- ☒ A description of how BMPs and measures will prevent pollution of surface water or groundwater that originates on-site or flows off site, including pollution caused by contaminated stormwater runoff from the site.
- ☒ A description of how BMPs and measures will prevent pollutants from entering surface streams, sensitive features, or the aquifer.
- ☒ A description of how, to the maximum extent practicable, BMPs and measures will maintain flow to naturally-occurring sensitive features identified in either the geologic assessment, TCEQ inspections, or during excavation, blasting, or construction.

8. ☒ The temporary sealing of a naturally-occurring sensitive feature which accepts recharge to the Edwards Aquifer as a temporary pollution abatement measure during active construction should be avoided.

   - ☐ **Attachment E - Request to Temporarily Seal a Feature**. A request to temporarily seal a feature is attached. The request includes justification as to why no reasonable and practicable alternative exists for each feature.
   - ☒ There will be no temporary sealing of naturally-occurring sensitive features on the site.

9. ☒ **Attachment F - Structural Practices**. A description of the structural practices that will be used to divert flows away from exposed soils, to store flows, or to otherwise limit runoff discharge of pollutants from exposed areas of the site is attached. Placement of structural practices in floodplains has been avoided.

10. ☐ **Attachment G - Drainage Area Map**. A drainage area map supporting the following requirements is attached:

    - ☐ For areas that will have more than 10 acres within a common drainage area disturbed at one time, a sediment basin will be provided.
    - ☐ For areas that will have more than 10 acres within a common drainage area disturbed at one time, a smaller sediment basin and/or sediment trap(s) will be used.
    - ☐ For areas that will have more than 10 acres within a common drainage area disturbed at one time, a sediment basin or other equivalent controls are not attainable, but other TBMPs and measures will be used in combination to protect down slope and side slope boundaries of the construction area.
    - ☐ There are no areas greater than 10 acres within a common drainage area that will be disturbed at one time. A smaller sediment basin and/or sediment trap(s) will be used in combination with other erosion and sediment controls within each disturbed drainage area.

☒ There are no areas greater than 10 acres within a common drainage area that will be disturbed at one time. Erosion and sediment controls other than sediment basins or sediment traps within each disturbed drainage area will be used.

11. ☐ **Attachment H - Temporary Sediment Pond(s) Plans and Calculations**. Temporary sediment pond or basin construction plans and design calculations for a proposed temporary BMP or measure have been prepared by or under the direct supervision of a Texas Licensed Professional Engineer. All construction plans and design information must be signed, sealed, and dated by the Texas Licensed Professional Engineer. Construction plans for the proposed temporary BMPs and measures are attached.

☒ N/A

12. ☒ **Attachment I - Inspection and Maintenance for BMPs.** A plan for the inspection of each temporary BMP(s) and measure(s) and for their timely maintenance, repairs, and, if necessary, retrofit is attached. A description of the documentation procedures, recordkeeping practices, and inspection frequency are included in the plan and are specific to the site and/or BMP.

13. ☒ All control measures must be properly selected, installed, and maintained in accordance with the manufacturer's specifications and good engineering practices. If periodic inspections by the applicant or the executive director, or other information indicate a control has been used inappropriately, or incorrectly, the applicant must replace or modify the control for site situations.

14. ☒ If sediment escapes the construction site, off-site accumulations of sediment must be removed at a frequency sufficient to minimize offsite impacts to water quality (e.g., fugitive sediment in street being washed into surface streams or sensitive features by the next rain).

15. ☒ Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been reduced by 50%. A permanent stake will be provided that can indicate when the sediment occupies 50% of the basin volume.

16. ☒ Litter, construction debris, and construction chemicals exposed to stormwater shall be prevented from becoming a pollutant source for stormwater discharges (e.g., screening outfalls, picked up daily).

Soil Stabilization Practices

Examples: establishment of temporary vegetation, establishment of permanent vegetation, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, or preservation of mature vegetation.

17. ☒ **Attachment J - Schedule of Interim and Permanent Soil Stabilization Practices**. A schedule of the interim and permanent soil stabilization practices for the site is attached.

18. ☒ Records must be kept at the site of the dates when major grading activities occur, the dates when construction activities temporarily or permanently cease on a portion of the site, and the dates when stabilization measures are initiated.

19. ☒ Stabilization practices must be initiated as soon as practicable where construction activities have temporarily or permanently ceased.

Administrative Information

20. ☒ All structural controls will be inspected and maintained according to the submitted and approved operation and maintenance plan for the project.

21. ☒ If any geologic or manmade features, such as caves, faults, sinkholes, etc., are discovered, all regulated activities near the feature will be immediately suspended. The appropriate TCEQ Regional Office shall be immediately notified. Regulated activities must cease and not continue until the TCEQ has reviewed and approved the methods proposed to protect the aquifer from any adverse impacts.

22. ☒ Silt fences, diversion berms, and other temporary erosion and sediment controls will be constructed and maintained as appropriate to prevent pollutants from entering sensitive features discovered during construction.

Temporary Stormwater Section
ATTACHMENT A

TCEQ WPAP & SCS APPLICATION

Ramendu Duplex at Round Rock

Williamson County, Texas

Volume and Character of Stormwater:

Spill Response Actions:

1. Contains the spill
2. Immediately stake of area.
3. Notify Hazardous Material team (if necessary); notify TCEQ:
   (512)339-29-29 or Emergency # 1-800-832-8224
4. Take necessary steps to clean up, i.e. notify remediation contractor if large spill, or small spills will be cleaned by the construction contractor.

All site personal will be made aware of the manufactures' recommended methods for spill cleanup, and the location of the information and cleanup supplies.

Spills will be reported according to the Reportable Quantity, attached on the following page.

Materials and equipment necessary for spill cleanup will be kept onsite in an accessible location known to site personnel.

All spills will be cleaned up immediately upon discovery. Any spill of hydrocarbons or hazardous substances greater than 25 gallons will require notification to the fire department's hazardous materials team and TCEQ. As with all spills, an effort shall be made to prevent material from entering surface streams and storm drains by using rock or earth berms to contain the material.

Type of Spill	Discharge Location	Reportable Quantity	Rule, Statute, or Responsile Agency
Hazardous Substance	Onto land	"Final RQ" in Table 302.4 in 40 CFR 302.4	30 TAC 327
	Into water	"Final RQ" or 100 lbs, whichever is **less**	
Any oil	Costal waters	As required by Texas Gernal Land Office	Texas General Land Office
Crude oil, oil that is neither a petroleum product nor used oil	Onto land	210 gallons (five barrels)	30 TAC 327
	directly into water	Enough to create a sheen	
Petroleum product, used oil	Onto land, from exempt PST facility	210 gallons (five barrels)	30 TAC 327
	Onto land, or into land from a non-exempt PST facility	25 gallons	
	directly into water	Enough to create a sheen	
Associated with the exploration, developemnt and production of oil, gas or geothermal resources	Under the jurstiction of the Railroad Commission of Texas	as rquired by the Railroad Commission of Texas	Railroad Commission of Texas
Industrial solid waste or other substances	Into water	100 lbs	30 TAC 327
From petroleum storage tanks, underground or aboveground	Into water	Enough to create a sheen	30 TAC 334
	Onto land	25 gallons or equal to the RQ under 40 CFR 302	30 TAC 327
Other substances that may be useful or valuable and are not ordinarily considered to be waste, but will cause pollution of dischaged into water in the state	Into water	100 lbs	30 TAC 327

1.4.16 Spill Prevention and Control

The objective of this section is to describe measures to prevent or reduce the discharge of pollutants to drainage systems or watercourses from leaks and spills by reducing the chance for spills, stopping the source of spills, containing and cleaning up spills, properly disposing of spill materials, and training employees.

The following steps will help reduce the stormwater impacts of leaks and spills:

Education

(1) Be aware that different materials pollute in different amounts. Make sure that each employee knows what a “significant spill” is for each material they use, and what is the appropriate response for “significant” and “insignificant” spills. Employees should also be aware of when spill must be reported to the TCEQ. Information available in 30 TAC 327.4 and 40 CFR 302.4.

(2) Educate employees and subcontractors on potential dangers to humans and the environment from spills and leaks.

(3) Hold regular meetings to discuss and reinforce appropriate disposal procedures (incorporate into regular safety meetings).

(4) Establish a continuing education program to indoctrinate new employees.

(5) Have contractor's superintendent or representative oversee and enforce proper spill prevention and control measures.

General Measures

(1) To the extent that the work can be accomplished safely, spills of oil, petroleum products, substances listed under 40 CFR parts 110,117, and 302, and sanitary and septic wastes should be contained and cleaned up immediately.

(2) Store hazardous materials and wastes in covered containers and protect from vandalism.

(3) Place a stockpile of spill cleanup materials where it will be readily accessible.

(4) Train employees in spill prevention and cleanup.

(5) Designate responsible individuals to oversee and enforce control measures.

(6) Spills should be covered and protected from stormwater run-on during rainfall to the extent that it doesn't compromise clean-up activities.

(7) Do not bury or wash spills with water.

(8) Store and dispose of used clean up materials, contaminated materials, and recovered spill material that is no longer suitable for the intended purpose in conformance with the provisions in applicable BMPs.

(9) Do not allow water used for cleaning and decontamination to enter storm drains or watercourses. Collect and dispose of contaminated water in accordance with applicable regulations.

(10) Contain water overflow or minor water spillage and do not allow it to discharge into drainage facilities or watercourses.

(11) Place Material Safety Data Sheets (MSDS), as well as proper storage, cleanup, and spill reporting instructions for hazardous materials stored or used on the project site in an open, conspicuous, and accessible location.

(12) Keep waste storage areas clean, well-organized, and equipped with ample cleanup supplies as appropriate for the materials being stored. Perimeter controls, containment structures, covers, and liners should be repaired or replaced as needed to maintain proper function.

Cleanup

(1) Clean up leaks and spills immediately.

(2) Use a rag for small spills on paved surfaces, a damp mop for general cleanup, and absorbent material for larger spills. If the spilled material is hazardous, then the used cleanup materials are also hazardous and must be disposed of as hazardous waste.

(3) Never hose down or bury dry material spills. Clean up as much of the material as possible and dispose of properly. See the waste management BMPs in this section for specific information.

Minor Spills

(1) Minor spills typically involve small quantities of oil, gasoline, paint, etc. which can be controlled by the first responder at the discovery of the spill.

(2) Use absorbent materials on small spills rather than hosing down or burying the spill.

(3) Absorbent materials should be promptly removed and disposed of properly.

(4) Follow the practice below for a minor spill:

(5) Contain the spread of the spill.

(6) Recover spilled materials.

(7) Clean the contaminated area and properly dispose of contaminated materials.

Semi-Significant Spills

Semi-significant spills still can be controlled by the first responder along with the aid of other personnel such as laborers and the foreman, etc. This response may require the cessation of all other activities.

Spills should be cleaned up immediately:

(1) Contain spread of the spill.

(2) Notify the project foreman immediately

(3) If the spill occurs on paved or impermeable surfaces, clean up using "dry" methods (absorbent materials, cat litter and/or rags). Contain the spill by encircling with absorbent materials and do not let the spill spread widely.

(4) If the spill occurs in dirt areas, immediately contain the spill by constructing an earthen dike. Dig up and properly dispose of contaminated soil.

(5) If the spill occurs during rain, cover spill with tarps or other material to prevent contaminating runoff.

Significant/Hazardous Spills

For significant or hazardous spills that are in reportable quantities:

(1) Notify the TCEQ by telephone as soon as possible and within 24 hours at 512- 339-2929 (Austin) or 210-490-3096 (San Antonio) between 8 AM and 5 PM. After hours, contact the Environmental Release Hotline at 1-800-832-8224. It is the contractor's responsibility to have all emergency phone numbers at the construction site.

(2) For spills of federal reportable quantities, in conformance with the requirements in 40 CFR parts 110,119, and 302, the contractor should notify the National Response Center at (800) 424-8802.

(3) Notification should first be made by telephone and followed up with a written report.

(4) The services of a spills contractor or a Haz-Mat team should be obtained immediately. Construction personnel should not attempt to clean up until the appropriate and qualified staffs have arrived at the job site.

(5) Other agencies which may need to be consulted include, but are not limited to, the City Police

Department, County Sheriff Office, Fire Departments, etc.

More information on spill rules and appropriate responses is available on the TCEQ website at: http://www.tnrcc.state.tx.us/enforcement/emergency_response.html

Vehicle and Equipment Maintenance

(1) If maintenance must occur onsite, use a designated area and a secondary containment, located away from drainage courses, to prevent the run on of stormwater and the runoff of spills.

(2) Regularly inspect onsite vehicles and equipment for leaks and repair immediately

(3) Check incoming vehicles and equipment (including delivery trucks, and employee and subcontractor vehicles) for leaking oil and fluids. Do not allow leaking vehicles or equipment onsite.

(4) Always use secondary containment, such as a drain pan or drop cloth, to catch spills or leaks when removing or changing fluids.

(5) Place drip pans or absorbent materials under paving equipment when not in use.

(6) Use absorbent materials on small spills rather than hosing down or burying the spill. Remove the absorbent materials promptly and dispose of properly.

(7) Promptly transfer used fluids to the proper waste or recycling drums. Don't leave full drip pans or other open containers lying around.

(8) Oil filters disposed of in trashcans or dumpsters can leak oil and pollute stormwater. Place the oil filter in a funnel over a waste oil-recycling drum to drain excess oil before disposal. Oil filters can also be recycled. Ask the oil supplier or recycler about recycling oil filters.

(9) Store cracked batteries in a non-leaking secondary container. Do this with all cracked batteries even if you think all the acid has drained out. If you drop a battery, treat it as if it is cracked. Put it into the containment area until you are sure it is not leaking.

Vehicle and Equipment Fueling

(1) If fueling must occur on site, use designated areas, located away from drainage courses, to prevent the runon of stormwater and the runoff of spills.

(2) Discourage "topping off" of fuel tanks.

(3) Always use secondary containment, such as a drain pan, when fueling to catch spills/ leaks.

ATTACHMENT B

TCEQ WPAP & SCS APPLICATION

Ramendu Duplex at Round Rock

Williamson County, Texas

Potential Sources of Contamination:

- Gasoline, Diesel, and Hydraulic Fluid from construction equipment
- Asphalt products
- Constuction materials
- Trash and debris
- Paint
- Concrete
- Gypsum from sheet rock
- Sediment

All materials shall be hauled in a manner consistent with the manufacturer's recommendations. Disposal of waste material shall be in conformance with all state and local laws.

Temporary Stormwater Section
ATTACHMENT C

TCEQ WPAP & SCS APPLICATION

Ramendu Duplex at Round Rock

Williamson County, Texas

Sequence of Major Activities:

1. Install and maintain Erosion Control and Tree Protection per the Approved Plans and specifications prior to any clearing and grubbing, grading, excavating, etc... Notify Construction Inspection Division when installed.

2. Prior to beginning construction, the owner or his representative shall hold a Pre-Construction Conference between TCEQ, Williamson County, Contractor, and any other affected parties. Notify TCEQ at least 48 hours prior to the time of the conference and 48 hours prior to beginning construction. Prior to Pre-Construction Conference.

3. Hold Pre-Construction Conference with contractor, TCEQ, EV Inspector, Engineer, and owner or his representative.

4. Rough grade roadway.
(Estimate of disturbed area = 0.26 ac)

5. Begin installation of storm sewer. Upon completion, restore as much disturbed areas as possible, particularly channels and large open areas. (Estimate of disturbed area 0.74 ac)

6. Regrade streets to subgrade (Estimate of disturbed area = 0.26 ac)

7. Ensure that all underground utility crossings are completed. Lay first course base material on all streets. (0.26 ac)

9. Place concrete for common area 4' sidewalk. (Estimate of disturbed area < 0.05 ac)

10. Lay final base course on all streets. (0.26 ac)

11. Lay asphalt. (0.26 ac)

12. Clean site and revegetate all disturbed area according to the plans and specifications. Stabilization measures should include seeding and/or mulching.

13. Complete permanent erosion control and restoration of site vegetation.

14. Project Engineer to provide a written concurrence letter, and scheduling final inspection with EV Inspector, prior to the removal of erosion controls.

15. Remove and dispose of temporary erosion/sedimentation control measures.

16. Complete any necessary final dress up of areas disturbed by Item 15.

17. Conduct a final inspection and complete all punch list items.

Clearing and grubbing under a development permit, solely for the purpose of surveying and soil exploration, shall be a hand-cutting or blade-up operation.

Temporary Stormwater Section
ATTACHMENT D

TCEQ WPAP & SCS APPLICATION

Ramendu Duplex at Round Rock

Williamson County, Texas

Temporary Best Management Practices and Measures:

Install temporary erosion control measures, stabilized construction entrance, concrete washout area, inlet protection, and tree protection according to the plans and specifications prior to any clearing and grubbing, grading, excavating, etc. Upgradient stormwaters during construction crossing disturbed areas will be filtered utilizing standard Best Management Practices, such as erosion logs and silt fences, prior to leaving the site. The silt fences will be placed along down gradient areas of the site to prevent any sediment from entering storm sewers or surface streams.

Geological features on this site are located outside of the Limits of Construction and no stormwater from the disturbed areas will drain to the geological features.

Temporary Stormwater Section
ATTACHMENT F

TCEQ WPAP & SCS APPLICATION

Ramendu Duplex at Round Rock

Williamson County, Texas

Structural Practices:

There are no areas 10 acres or greater being disturbed at one time; therefore, temporary erosion and sedimentation control will be done by silt fence.

Temporary Stormwater Section
ATTACHMENT G

TCEQ WPAP & SCS APPLICATION

Ramendu Duplex at Round Rock

Williamson County, Texas

Drainage Area Map:

An overall drainage area map is included within the plan set submitted with this application.

Temporary Stormwater Section
ATTACHMENT I

TCEQ WPAP & SCS APPLICATION

Ramendu Duplex at Round Rock

Williamson County, Texas

Inspection and Maintenance for Best Management Practices:

The Best Management Practices installed during construction will be maintained in accordance with the requirements of the EPA's NPDES/TPDES storm water pollution prevention program (SWPPP). The following maintenance procedures shall be followed until permanent stabilization is complete.

Silt Fence

a. Inspect weekly or after each rainfall event and repair or replacement shall be made promptly as needed.
b. Silt Fence shall be removed when the site is completely stabilized so as to not block or impede storm flow or drainage.
c. Accumulated silt shall be removed when it reaches a depth of 6 inches. The Silt shall be disposed of on an approved site and in such a manner that will not contribute to additional siltation.

Fiber Rolls

a. Inspect prior to forecast rain, daily during extended rain events, after rain events, and weekly.
b. Repair of replace split, torn, unraveling, or slumping fiber rolls.
c. If the fiber roll is used as a sediment capture device, or as an erosion control device to maintain sheet flows, sediment that accumulates behind the role shall be periodically removed tin order to maintain its effectiveness. Sediment shall be removed when the accumulation reaches one-half the designated sediment storage depth, usually one-half the distance between the top of the fiber roll and the adjacent ground surface. Sediment removed during maintenance may be incorporated into earthwork on the site or disposed of at an appropriate location.

Stabilized Construction Entrance

a. The entrance shall be maintained in a condition that will prevent tracking or flowing of sediment onto a public roadway. This may require periodic top dressing with additional stone as conditions demand, as well as repair and clean out of any devices used to trap sediment.
b. Entrance must be properly graded to incorporate a drain swale or similar measure to prevent runoff from leaving the construction site.

Temporary Stormwater Section
ATTACHMENT J

TCEQ WPAP & SCS APPLICATION

Ramendu Duplex at Round Rock

Williamson County, Texas

Schedule of Interim and Permanent Soil Stabilization Practices:

Soil Stabilization for all disturbed areas shall be accomplished by hydraulic planting. Following is an outline to accomplish the required stabilization.

1. Preparing Seed Bed. After the designated areas have been rough graded to the lines, grades and typical sections indicated in the Drawings or as provided for in other items of this contract and for any other soil area disturbed by the construction, a suitable seedbed shall be prepared. The seedbed shall consist of a minimum of either 4 inches (100 millimeters) of approved topsoil or 4 inches (100 millimeters) of approved salvaged topsoil, cultivated and rolled sufficiently to enhance the soil to a state of good health, when the soil particles on the surface are small enough and lie closely enough together to prevent the seed from being covered too deeply for optimum germination. The optimum depth for seeding shall be 114 inch (6 millimeters). Water shall be gently applied as required to prepare the seedbed prior to the planting operation either by broadcast seeding or hydraulic planting. Bare soils should be seeded or otherwise stabilized within 14 calendar days after final grading or where construction activity has temporarily ceased for more than 21 days. Seeding shall be performed in accordance with the requirements hereinafter described.

2. Watering. All watering shall comply with Chisholm Trail Subdivision Rules and Regulations. Broadcast seeded areas shall immediately be watered with a minimum of 5 gallons of water per square yard (22.5 liters of water per square meter) or as needed and in the marmer and quantity as directed by the Engineer or designated representative. Hydraulic seeded areas and native grass seeded areas shall be watered commencing after the tackifier has dried with a minimum of 5 gallons of water per square yard (22.5 liters of water per square meter) or as needed to keep the seedbed in a wet condition favorable for the growth of grass. Watering applications shall constantly maintain the seedbed in a wet condition favorable for the growth of grass. Watering shall continue until the grass is uniformly 1 1/2 inches (40 mm) in height and accepted by the Engineer or designated representative. Watering can be postponed immediately after a 1/2 inch (12.5 mm) or greater rainfall on the site but shall be resumed before the soil dries out.

3. Hydraulic Planting. The seedbed shall be prepared as specified above and hydraulic planting equipment, which is capable of placing all materials in a single operation, shall be used.

March 1 to September 15

Hydraulic planting mixture and minimum rate of application pounds per 1000 square feet (kilograms per 100 square meters):

Planting Mixture			
Hulled Bermuda Seed	Fiber Mulch		
(PLS=0.83)	Cellulose	Wood	Soil Tackifer
1 lbs/1000 ft2 (0.5 kgs/100 m2)	45.9 Lbs/1000 ft2 (22.5 kgs/100m2)		1.4 lbs/1000 ft2 (0.7 kgs/100 m2)
		57.4 lbs/1000 ft2 (28.01 kgs/100 m2)	1.5 lbs/1000 ft2 (0.75 kgs/100 m2)

September 15 to March 1

Add 1.5 pounds per 1000 square feet (0.75 kgs/ 100 m@) of cool season cover crop (see table 1) to above mixture. The fertilizer shall conform to City of Austin Standard Specification Item No. 606S, "Fertilizer".

Table 1 : Cool Season Cover Crop			
Common Name	Botanical Name	Application rates	
		Lbs/1000 feet2	Kg/ 100 meter2
Wheat	Triticum aestivum	0.5	0.25
Oats	Avena sativa	0.5	0.25
Cereal Rye Gain	Secale cereal	0.5	0.25
Total Cool Season Cover Crop Seeding Rate		1.5	0.75
Total Cool Season Seeding Rate (Grass Wildflowers, & Cover Crop)		4.5	2.25

Permanent Stormwater Section

Texas Commission on Environmental Quality

for Regulated Activities on the Edwards Aquifer Recharge Zone and Relating to 30 TAC §213.5(b)(4)(C), (D)(Ii), (E), and (5), Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **Permanent Stormwater Section** is hereby submitted for TCEQ review and executive director approval. The application was prepared by:

Print Name of Customer/Agent: Jacob D. Mealey, P.E.

Date: 9/21/2020

Signature of Customer/Agent

_____

Regulated Entity Name: Ramendu Duplex at Round Rock

Permanent Best Management Practices (BMPs)

Permanent best management practices and measures that will be used during and after construction is completed.

1. ☒ Permanent BMPs and measures must be implemented to control the discharge of pollution from regulated activities after the completion of construction.

   ☐ N/A

2. ☐ These practices and measures have been designed, and will be constructed, operated, and maintained to insure that 80% of the incremental increase in the annual mass loading of total suspended solids (TSS) from the site caused by the regulated activity is removed. These quantities have been calculated in accordance with technical guidance prepared or accepted by the executive director.

   ☐ The TCEQ Technical Guidance Manual (TGM) was used to design permanent BMPs and measures for this site.

- ☐ A technical guidance other than the TCEQ TGM was used to design permanent BMPs and measures for this site. The complete citation for the technical guidance that was used is: _____

☐ N/A

3. ☒ Owners must insure that permanent BMPs and measures are constructed and function as designed. A Texas Licensed Professional Engineer must certify in writing that the permanent BMPs or measures were constructed as designed. The certification letter must be submitted to the appropriate regional office within 30 days of site completion.

   ☐ N/A

4. Where a site is used for low density single-family residential development and has 20 % or less impervious cover, other permanent BMPs are not required. This exemption from permanent BMPs must be recorded in the county deed records, with a notice that if the percent impervious cover increases above 20% or land use changes, the exemption for the whole site as described in the property boundaries required by 30 TAC §213.4(g) (relating to Application Processing and Approval), may no longer apply and the property owner must notify the appropriate regional office of these changes.

   - ☐ The site will be used for low density single-family residential development and has 20% or less impervious cover.
   - ☐ The site will be used for low density single-family residential development but has more than 20% impervious cover.
   - ☒ The site will not be used for low density single-family residential development.

5. The executive director may waive the requirement for other permanent BMPs for multi-family residential developments, schools, or small business sites where 20% or less impervious cover is used at the site. This exemption from permanent BMPs must be recorded in the county deed records, with a notice that if the percent impervious cover increases above 20% or land use changes, the exemption for the whole site as described in the property boundaries required by 30 TAC §213.4(g) (relating to Application Processing and Approval), may no longer apply and the property owner must notify the appropriate regional office of these changes.

   - ☐ **Attachment A - 20% or Less Impervious Cover Waiver**. The site will be used for multi-family residential developments, schools, or small business sites and has 20% or less impervious cover. A request to waive the requirements for other permanent BMPs and measures is attached.
   - ☒ The site will be used for multi-family residential developments, schools, or small business sites but has more than 20% impervious cover.
   - ☐ The site will not be used for multi-family residential developments, schools, or small business sites.

6. ☒ **Attachment B - BMPs for Upgradient Stormwater**.

☐ A description of the BMPs and measures that will be used to prevent pollution of surface water, groundwater, or stormwater that originates upgradient from the site and flows across the site is attached.

☒ No surface water, groundwater or stormwater originates upgradient from the site and flows across the site, and an explanation is attached.

☐ Permanent BMPs or measures are not required to prevent pollution of surface water, groundwater, or stormwater that originates upgradient from the site and flows across the site, and an explanation is attached.

7. ☒ **Attachment C - BMPs for On-site Stormwater**.

☒ A description of the BMPs and measures that will be used to prevent pollution of surface water or groundwater that originates on-site or flows off the site, including pollution caused by contaminated stormwater runoff from the site is attached.

☐ Permanent BMPs or measures are not required to prevent pollution of surface water or groundwater that originates on-site or flows off the site, including pollution caused by contaminated stormwater runoff, and an explanation is attached.

8. ☐ **Attachment D - BMPs for Surface Streams**. A description of the BMPs and measures that prevent pollutants from entering surface streams, sensitive features, or the aquifer is attached. Each feature identified in the Geologic Assessment as sensitive has been addressed.

☒ N/A

9. ☒ The applicant understands that to the extent practicable, BMPs and measures must maintain flow to naturally occurring sensitive features identified in either the geologic assessment, executive director review, or during excavation, blasting, or construction.

☒ The permanent sealing of or diversion of flow from a naturally-occurring sensitive feature that accepts recharge to the Edwards Aquifer as a permanent pollution abatement measure has not been proposed.

☐ **Attachment E - Request to Seal Features**. A request to seal a naturally-occurring sensitive feature, that includes, for each feature, a justification as to why no reasonable and practicable alternative exists, is attached.

10. ☒ **Attachment F - Construction Plans**. All construction plans and design calculations for the proposed permanent BMP(s) and measures have been prepared by or under the direct supervision of a Texas Licensed Professional Engineer, and are signed, sealed, and dated. The plans are attached and, if applicable include:

☒ Design calculations (TSS removal calculations)

☒ TCEQ construction notes

☒ All geologic features

☒ All proposed structural BMP(s) plans and specifications

☐ N/A

11. ☐ **Attachment G - Inspection, Maintenance, Repair and Retrofit Plan**. A plan for the inspection, maintenance, repairs, and, if necessary, retrofit of the permanent BMPs and measures is attached. The plan includes all of the following:

    ☐ Prepared and certified by the engineer designing the permanent BMPs and measures
    ☐ Signed by the owner or responsible party
    ☐ Procedures for documenting inspections, maintenance, repairs, and, if necessary retrofit
    ☐ A discussion of record keeping procedures

    ☐ N/A

12. ☐ **Attachment H - Pilot-Scale Field Testing Plan**. Pilot studies for BMPs that are not recognized by the Executive Director require prior approval from the TCEQ. A plan for pilot-scale field testing is attached.

    ☒ N/A

13. ☐ **Attachment I -Measures for Minimizing Surface Stream Contamination**. A description of the measures that will be used to avoid or minimize surface stream contamination and changes in the way in which water enters a stream as a result of the construction and development is attached. The measures address increased stream flashing, the creation of stronger flows and in-stream velocities, and other in-stream effects caused by the regulated activity, which increase erosion that results in water quality degradation.

    ☒ N/A

Responsibility for Maintenance of Permanent BMP(s)

Responsibility for maintenance of best management practices and measures after construction is complete.

14. ☒ The applicant is responsible for maintaining the permanent BMPs after construction until such time as the maintenance obligation is either assumed in writing by another entity having ownership or control of the property (such as without limitation, an owner's association, a new property owner or lessee, a district, or municipality) or the ownership of the property is transferred to the entity. Such entity shall then be responsible for maintenance until another entity assumes such obligations in writing or ownership is transferred.

    ☐ N/A

15. ☒ A copy of the transfer of responsibility must be filed with the executive director at the appropriate regional office within 30 days of the transfer if the site is for use as a multiple single-family residential development, a multi-family residential development, or a non-residential development such as commercial, industrial, institutional, schools, and other sites where regulated activities occur.

    ☐ N/A

Permanent Stormwater Section
ATTACHMENT B

TCEQ WPAP & SCS APPLICATION

Ramendu Duplex at Round Rock

Williamson County, Texas

Best Manangement Practices for Upgradient Stormwater:

Upgradient stormwater will be captured though a storm drain system along Mandell Street and be conveyed north across W Nash Street to an existing drainage swale.

Permanent Stormwater Section
ATTACHMENT C

TCEQ WPAP & SCS APPLICATION

Ramendu Duplex at Round Rock

Williamson County, Texas

Best Manangement Practices for On-site Stormwater:

Stormwater runoff from the site will sheet flow across lawns and be captured by a detention system and treated by Jellyfish filters downstream of detention. The proposed Jellyfish Filters shall provide TSS removal for the site.

TCEQ project and drainage area maps are provided in the included construction plans. TCEQ TSS removal calculations are provided in Appendix A of this application. TCEQ WPAP & SCS approval letters are provided in Appendix B.

Permanent Stormwater Section
ATTACHMENT D

TCEQ WPAP & SCS APPLICATION

Ramendu Duplex at Round Rock

Williamson County, Texas

Best Manangement Practices for Surface Stream Stormwater:

Stormwater runoff will continue its natural drainage path by sheet flowing across lawns and be captured by a detention system. The detention system then discharges to a filter the existing stormwater system to flow to Lake Creek.

No Geological features are located on this site and no stormwater from the improved area will drain to a geological feature.

Permanent Stormwater Section
ATTACHMENT F

TCEQ WPAP & SCS APPLICATION

Ramendu Duplex at Round Rock

Williamson County, Texas

Construction Plans:

Construction Plans for the erosion and sedimentation control measures proposed with this development are included at the end of this report.

Permanent Stormwater Section
ATTACHMENT G

TCEQ WPAP & SCS APPLICATION

Ramendu Duplex at Round Rock

Williamson County, Texas

Inspection, Maintenance, Repair, and Retrofit Plan:

Maintenance Guidelines for Detention Pond

- Inspections. Inspections should take place a minimum of twice a year. One inspection should take place during wet weather to determine if the basin is meeting the target detention time of 12 hours and a drawdown time of no more than 48 hours. The remaining inspections should occur between storm events so that manual operation of the valve and controller can be verified. The level sensor in the basin should be inspected and any debris or sediment in the area should be removed. The outlet structure and the trash screen should be inspected for signs of clogging. Debris and sediment should be removed from the orifice and outlet(s) as described in previous sections. Debris obstructing the valve should be removed. During each inspection, erosion areas inside and downstream of this BMP should be identified and repaired/revegetated immediately.

- Mowing. The basin, basin side-slopes, and embankment of the basin must be mowed to prevent woody growth and control weeds. A mulching mower should be used, or the grass clippings should be caught and removed. Mowing should take place at least twice a year, or more frequently if vegetation exceeds 18 inches in height. More frequent mowing to maintain aesthetic appeal may be necessary in landscaped areas.

- Litter and Debris Removal. Litter and debris removal should take place at least twice a year, as part of the periodic mowing operations and inspections. Debris and litter should be removed from the surface of the basin. Particular attention should be paid to floatable debris around the outlet structure. The outlet should be checked for possible clogging or obstructions and any debris removed.

- Erosion control. The basin side slopes and embankment all may periodically suffer from slumping and erosion. To correct these problems, corrective action, such as regrading and revegetation, may be necessary. Correction of erosion control should take place whenever required based on the periodic inspections.

- Nuisance Control. Standing water or soggy conditions may occur in the basin. Some standing water may occur after a storm event since the valve may close with 2 to 3 inches of water in the basin. Some flow into the basin may also occur between storms due to spring flow and residential water use that enters the storm sewer system. Twice a year, the facility should be evaluated in terms of nuisance control (insects, weeds, odors, algae, etc.).

- Structural Repairs and Replacement. With each inspection, any damage to structural elements of the basin (pipes, concrete drainage structures, retaining walls, etc.) should be identified and repaired immediately. An example of this type of repair cart include patching of cracked concrete, sealing of voids, removal of vegetation from cracks and joints. The various inlet/outlet structures in a basin will eventually deteriorate and must be replaced.

• Sediment Removal A properly designed batch detention basin will accumulate quantities o1 sediment over time. The accumulated sediment can detract from the appearance of the facility and reduce the pollutant removal performance of the facility. The sediment also tends to accumulate near the outlet structure and can interfere with the level sensor operation. Sediment shall be removed from the basin at least every 5 years, when sediment depth exceeds 6 inches, when the sediment interferes with the level sensor or when the basin does not drain within 48 hours. Gare should be taken not to compromise the basin lining during maintenance.

Maintenance Guidelines for "Jellyfish Filters"

The proposed "Jellyfish Filters" must be maintained in effective operating condition. This should be accomplished through planned and documented inspections and maintenance, all of which is the sole responsibility of the property owner. If through inspections or other means, as soon as the permittee determines that the "Jellyfish Filters" are not operating effectively, then the property owner shall perform maintenance as necessary to maintain continued effectiveness.

Post-construction maintenance is generally considered as either routine or non-routine as described below. Additional language is also provided regarding maintenance requirements during construction. This plan is designed to comply with TCEQ Technical Guidelines for permanent structural BMPs and with the manufacturer recommendations for "Jellyfish Filters" as presented in the Owner's Manual, which is attached hereto in its entirety.

Routine Maintenance

- Routine Inspections — The "Jellyfish Filters" shall be inspected by professionally trained individuals with experience in stormwater maintenance provided by the property owner at least twice a year and recommended quarterly during the first year of operation. Inspection frequency in subsequent years is based on the inspection and maintenance plan developed in the first year of operation. Minimum frequency should be once a year. Routine inspections should check for the following items:
  - Inspect the Maintenance Access Wall (MAW) for floatable pollutants such as trash, debris, and oil sheen.
  - Measure oil and sediment depth by lowering a sediment probe through the MAW opening until contact is made with the floor of the structure. Retrieve the probe, record sediment depth, and presences of any oil layers and repeat in multiple locations within the MAW opening. Sediment depth of 12 inches or greater indicates maintenance is required.
  - Inspect cartridge lids, MAW, cartridge deck and backwash pool weir for missing parts, cracks, or damaged components. If damaged, repair is required.
  - Erosion areas downstream must be identified and repaired.
  - Dry Weather Inspections — inspect the cartridge deck for standing water.
  - Wet Weather Inspections — observe the rate and movement of water in the unit. Note the depth of water above deck elevation within the MAW.
  - Inspections shall be documented on the attached form, provided with he "Jellyfish Filter" Owner's Manual.
- Maintenance Requirements - required maintenance for Jellyfish Filter units is based on the most recent inspection, historical maintenance records, or the specific water quality management plan; whichever is more frequent, but at least annually. In general, maintenance requires some combination of the following:

- Sediment removal within 3 years of the most recent sediment cleaning.
- Floatable trash, debris, and oil must be removed.
- Filter cartridges rinsed and re-installed as required by the most recent inspection results, or within 12 months of the most recent filter rinsing, whichever occurs first.
- It is recommended that tentacles in the filter cartridge should remain in service no longer than 5 years, but this can vary depending on site conditions.

- Maintenance Procedure
  - Perform Inspection Procedure prior to maintenance activity.
  - Remove all water, sediment, oil and grease, and debris that has accumulated within the unit.
  - The "Jellyfish Filters" are inspected and maintained by professional vacuum cleaning service providers with experience in the maintenance of underground tanks, sewers and catch basins.
  - Filter cartridges should be tested for adequate flow rate, every 12 months and cleaned and re-commissioned, or replaced if necessary. A manual backflush must be performed on a single drain down cartridge using a Jellyfish Cartridge Backflush Pipe (described in the Jellyfish Filter Owner's Manual).
  - The cartridge cleaning procedure is performed by removing the cartridge from the cartridge deck and externally rinsing the filtration tentacles using a low-pressure water sprayer.
  - Sediment is subsequently removed from the lower chamber by standard vacuum service
  - Grass areas in and around the "Jellyfish Filters" must be mowed to limit vegetation height to 18 inches. More frequent mowing to maintain aesthetic appeal may be necessary in landscaped areas.
- Disposal Procedures — Disposal requirements for recovered pollutants and spent filtration tentacles may vary depending on local guidelines. In most areas the sediment and spent filtration tentacles, once dewatered, can be disposed of in a sanitary landfill. It is not anticipated that the sediment would be classified as hazardous waste. Petroleum-based pollutants captured by the "Jellyfish Filters", such as oil and fuels, should be removed and disposed of by a licensed waste management company.

<u>Non-routine Maintenance</u>

- Non-routine Maintenance — The "Jellyfish Filters" shall be drained and inspected for those routine items noted above in the routine maintenance section, as well as for non-routine events such as chemical spills or sudden malfunction of the "Jellyfish* Filters":
  - In the event of an oil, fuel or chemical spill, the unit should be cleaned out immediately after.
  - In the event of other malfunctions, an inspection such as the routine inspection should be performed along with the required maintenance.
  - If the tentacles or any other piece of the "Jellyfish Filters" are found to be damaged during inspection, the parts should be replaced.
  - Sediment should be removed for depths reaching 12 inches or greater upon inspection.

- Replace filter cartridge if rinsing does not remove accumulated sediment form the tentacles, or if tentacles are damaged or missing.
- Damaged or missing cartridge deck components must be repaired or replaced as indicated by results of the most recent inspection.

<u>During Construction</u>

- During construction, temporary erosion and sedimentation controls shall be installed and maintained according to the SWPPP.
- The ”Jellyfish Filters" shall be installed without the filter cartridges in place. Cartridges are installed once construction is complete and the site is stabilized.
- Post-construction inspection is required prior to putting the "Jellyfish Filters” into service.

<u>Documentation</u>

- The ”Jellyfish Filters" Inspection and Maintenance Log should be filled in after any inspection or maintenance. The log should include the date/time and major findings observed during the inspection and the maintenance that occurred. Comments should be added to the Inspection and Maintenance Log to identify any non-compliance with the function and operation of the ”Jellyfish Filters”.
- A sample Inspection and Maintenance Log is described in the Jellyfish Filter Owner’s Manual. Actions taken as a result of inspections must be described the Inspection and Maintenance Log.
- Standard business legal practices shall dictate the duration for which records should be kept regarding the “Jellyfish Filters” and their inspections/maintenance.

I, Amar Gulhane, owner of Ramendu Duplex at Round Rock LLC understand that it is the sole responsibility of the property owner to inspect, maintain, and repair the proposed Detention Pond and "Jellyfish Filter" according to the criteria established in this plan in order to maintain compliance with TCEQ standards for stormwater discharge over the Edwards Aquifer Recharge Zone.

Ultimately, these facilities will be owned, operated and maintained by the HOA. Until the ownership of facilities is transferred to HOA, Ramendu Duplex at Round Rock LLC.

Signature: _____ Date: 09/22/2020

Amar Gulhane
Ramendu Duplex at Round Rock LLC.

BMP Design Firm Information:

IECO Inc.
Mr. Jacob D. Mealey, P.E.
555 Round Rock W Dr Ste E 216
Round Rock, TX 78681
Ph. 737.226.4777
Firm NO. F - 19777

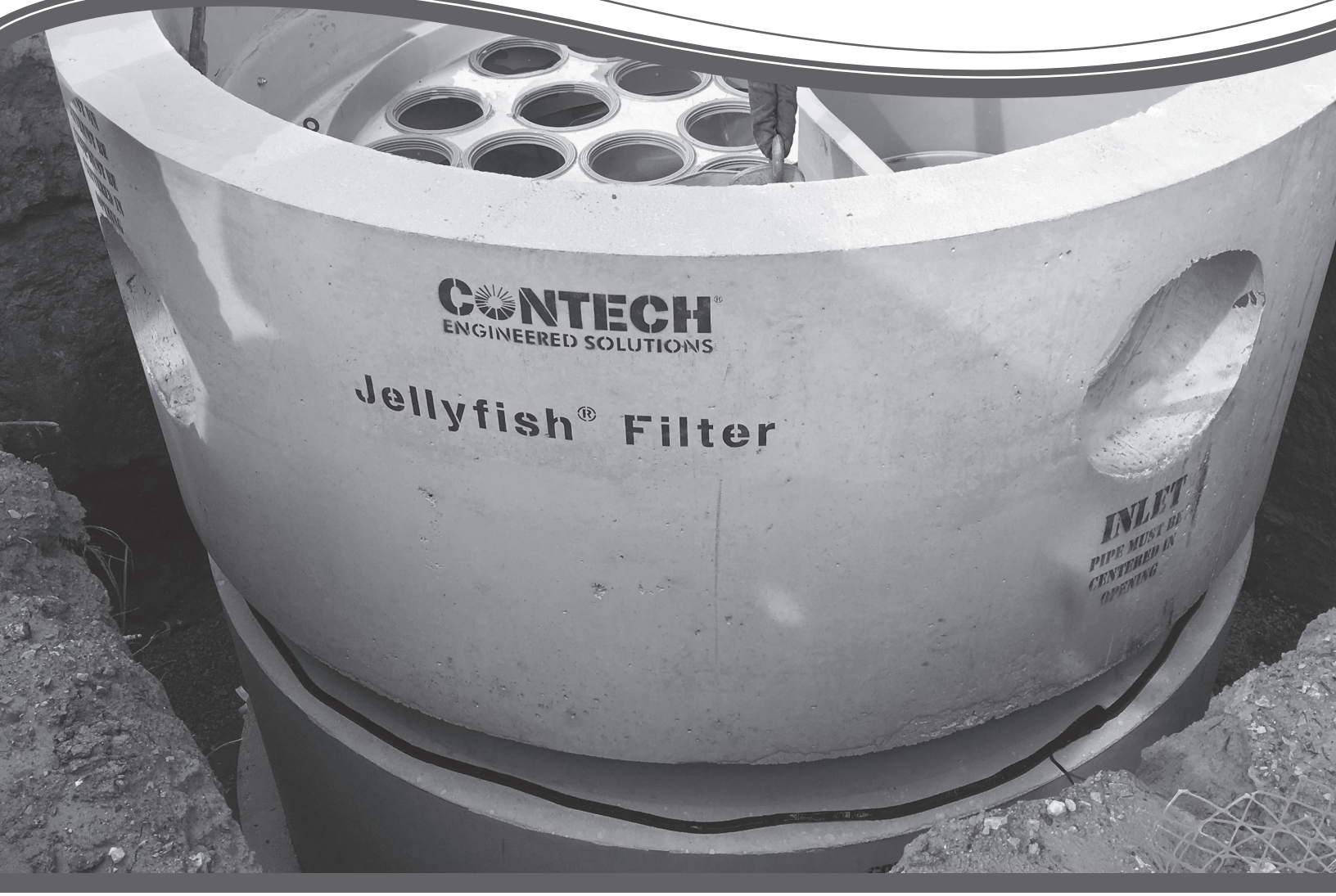
The above Inspection, Maintenance, Repair and Retrofit Plan has been prepared by undersigned Engineer, and I hereby certify that the above Plan conforms with the minimum requirements of the TCEQ Technical Guidance on Best Management Practices, RG-348.

_____ 8/10/2020
Jacob D. Mealey, P.E. Date

STATE OF TEXAS
JACOB D. MEALEY
127442
LICENSED
PROFESSIONAL ENGINEER

CONTECH®
ENGINEERED SOLUTIONS

Jellyfish® Filter
Owner's Manual



Jellyfish® Filter

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THANK YOU FOR PURCHASING THE JELLYFISH® FILTER!

Contech Engineered Solutions would like to thank you for selecting the Jellyfish Filter to meet your project's stormwater treatment needs. With proper inspection and maintenance, the Jellyfish Filter is designed to deliver ongoing, high levels of stormwater pollutant removal.

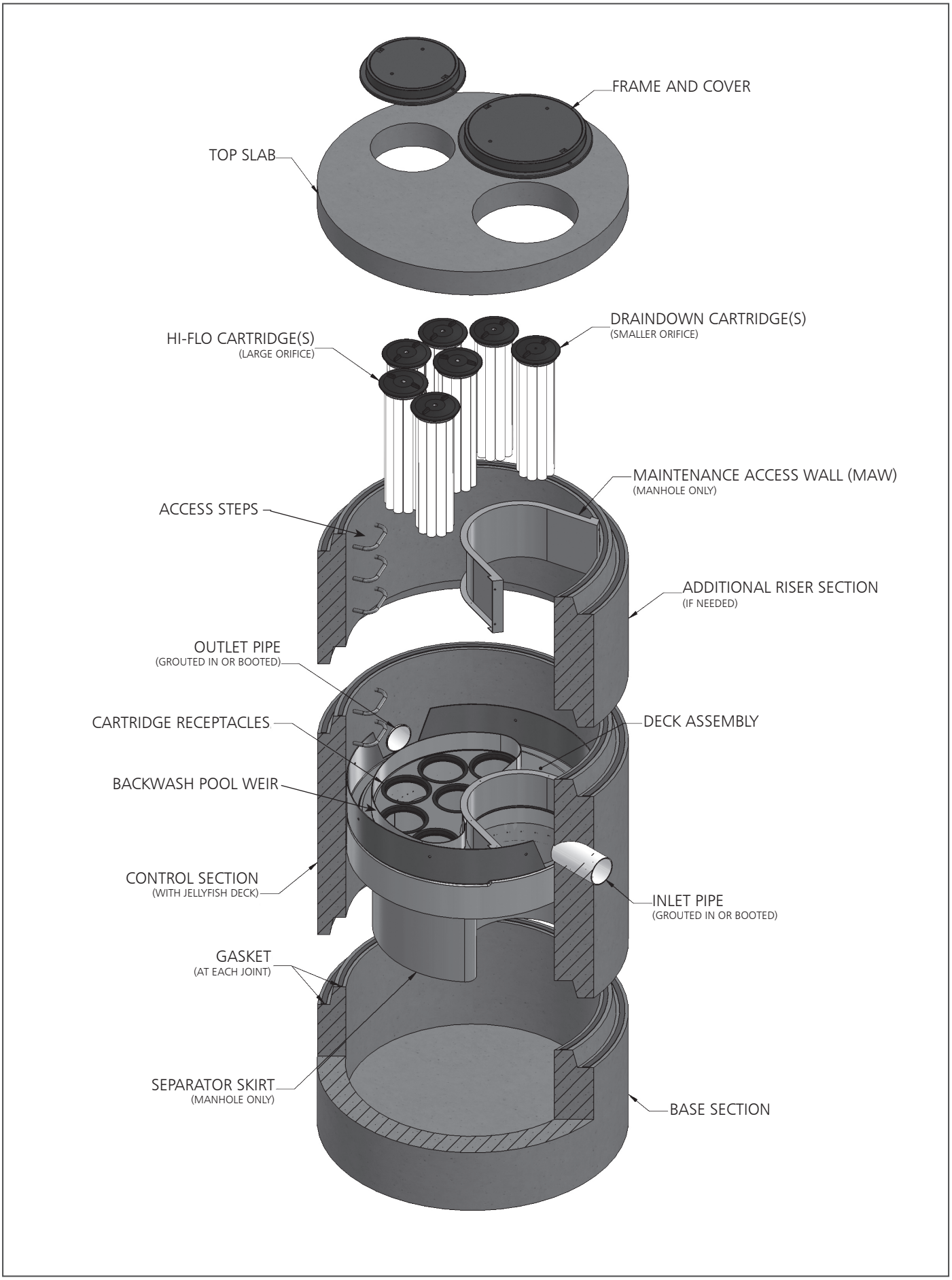
If you have any questions, please feel free to call us or e-mail us:

Contech Engineered Solutions
9025 Centre Pointe Drive, Suite 400 | West Chester, OH 45069
513-645-7000 | 800-338-1122
www.ContechES.com
info@conteches.com

Jellyfish Filter Patents

The Jellyfish Filter is protected by one or more of the following patents:

U.S. Patent Nos. 8,123,935; 8,287,726; 8,221,618
Australia Patent Nos. 2008, 286, 748
Canadian Patent Nos. 2,696,482;
Japanese Patent No. 5,646,681
Korean Patent Nos. 10-1287539; 10-1400257
New Zealand Patent Nos. 583,461; 604,227
South African Patent No. 2010,01068
*other patents pending


FRAME AND COVER
TOP SLAB
DRAINDOWN CARTRIDGE(S)
(SMALLER ORIFICE)
HI-FLO CARTRIDGE(S)
(LARGE ORIFICE)
MAINTENANCE ACCESS WALL (MAW)
(MANHOLE ONLY)
ACCESS STEPS
ADDITIONAL RISER SECTION
(IF NEEDED)
OUTLET PIPE
(GROUTED IN OR BOOTED)
CARTRIDGE RECEPTACLES
DECK ASSEMBLY
BACKWASH POOL WEIR
CONTROL SECTION
(WITH JELLYFISH DECK)
INLET PIPE
(GROUTED IN OR BOOTED)
GASKET
(AT EACH JOINT)
SEPARATOR SKIRT
(MANHOLE ONLY)
BASE SECTION

WARNINGS / CAUTION

1. FALL PROTECTION may be required.
2. WATCH YOUR STEP if standing on the Jellyfish Filter Deck at any time; Great care and safety must be taken while walking or maneuvering on the Jellyfish Filter Deck. Attentive care must be taken while standing on the Jellyfish Filter Deck at all times to prevent stepping onto a lid, into or through a cartridge hole or slipping on the deck.
3. The Jellyfish Filter Deck can be SLIPPERY WHEN WET.
4. If the Top Slab, Covers or Hatches have not yet been installed, or are removed for any reason, great care must be taken to NOT DROP ANYTHING ONTO THE JELLYFISH FILTER DECK. The Jellyfish Filter Deck and Cartridge Receptacle Rings can be damaged under high impact loads.This type of activity voids all warranties. All damaged items to be replaced at owner's expense.
5. Maximum deck load 2 persons, total weight 450 lbs.

Safety Notice

Jobsite safety is a topic and practice addressed comprehensively by others. The inclusions here are intended to be reminders to whole areas of Safety Practice that are the responsibility of the Owner(s), Manager(s) and Contractor(s). OSHA and Canadian OSH, and Federal, State/Provincial, and Local Jurisdiction Safety Standards apply on any given site or project. The knowledge and applicability of those responsibilities is the Contractor's responsibility and outside the scope of Contech Engineered Solutions.

Confined Space Entry

Secure all equipment and perform all training to meet applicable local and OSHA regulations regarding confined space entry. It is the Contractor's or entry personnel's responsibility to proceed safely at all times.

Personal Safety Equipment

Contractor is responsible to provide and wear appropriate personal protection equipment as needed including, but not limited to safety boots, hard hat, reflective vest, protective eyewear, gloves and fall protection equipment as necessary. Make sure all equipment is staffed with trained and/or certified personnel, and all equipment is checked for proper operation and safety features prior to use.

- Fall protection equipment
- Eye protection
- Safety boots
- Ear protection
- Gloves
- Ventilation and respiratory protection
- Hard hat
- Maintenance and protection of traffic plan

Chapter 1

1.0 – Owner Specific Jellyfish Filter Product Information

Below you will find a reference page that can be filled out according to your Jellyfish Filter specification to help you easily inspect, maintain and order parts for your system.

Owner Name:	
Phone Number:	
Site Address:	
Site GPS Coordinates/unit location:	
Unit Location Description:	
Jellyfish Filter Model No.:	
Contech Projetct & Sequence Number	
No. of Hi-Flo Cartridges	
No. of Cartridges:	
Length of Draindown Cartridges:	
No. of Blank Cartridge Lids:	
Bypass Configuration (Online/Offline):	

Notes:

Chapter 2

2.0 – Jellyfish Filter System Operations and Functions

The Jellyfish Filter is an engineered stormwater quality treatment technology that removes a high level and wide variety of stormwater pollutants. Each Jellyfish Filter cartridge consists of eleven membrane - encased filter elements ("filtration tentacles") attached to a cartridge head plate. The filtration tentacles provide a large filtration surface area, resulting in high flow and high pollutant removal capacity.

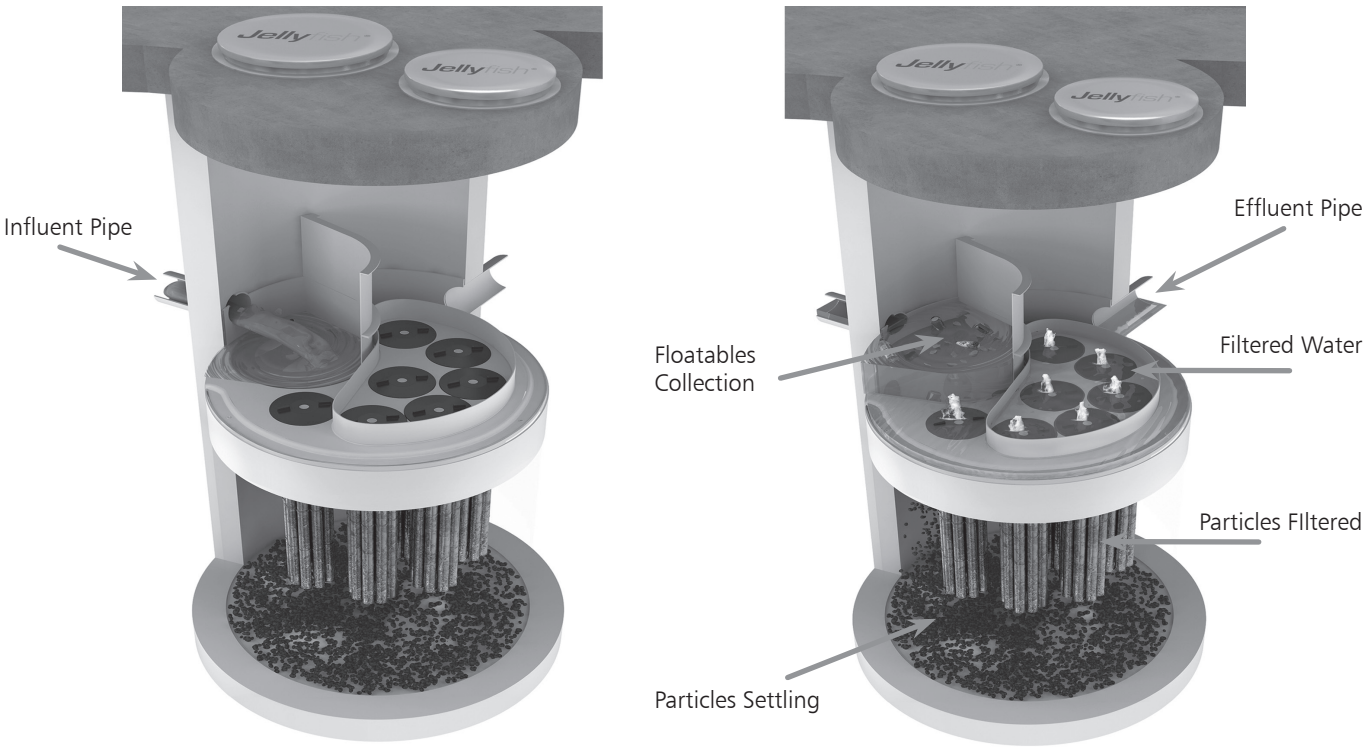
The Jellyfish Filter functions are depicted in Figure 1 below.

FIGURE 1

Jellyfish Filter Treatment Functions

Membrane Filtration

Section View with Maintenance Access Wall (MAW) Cutaway



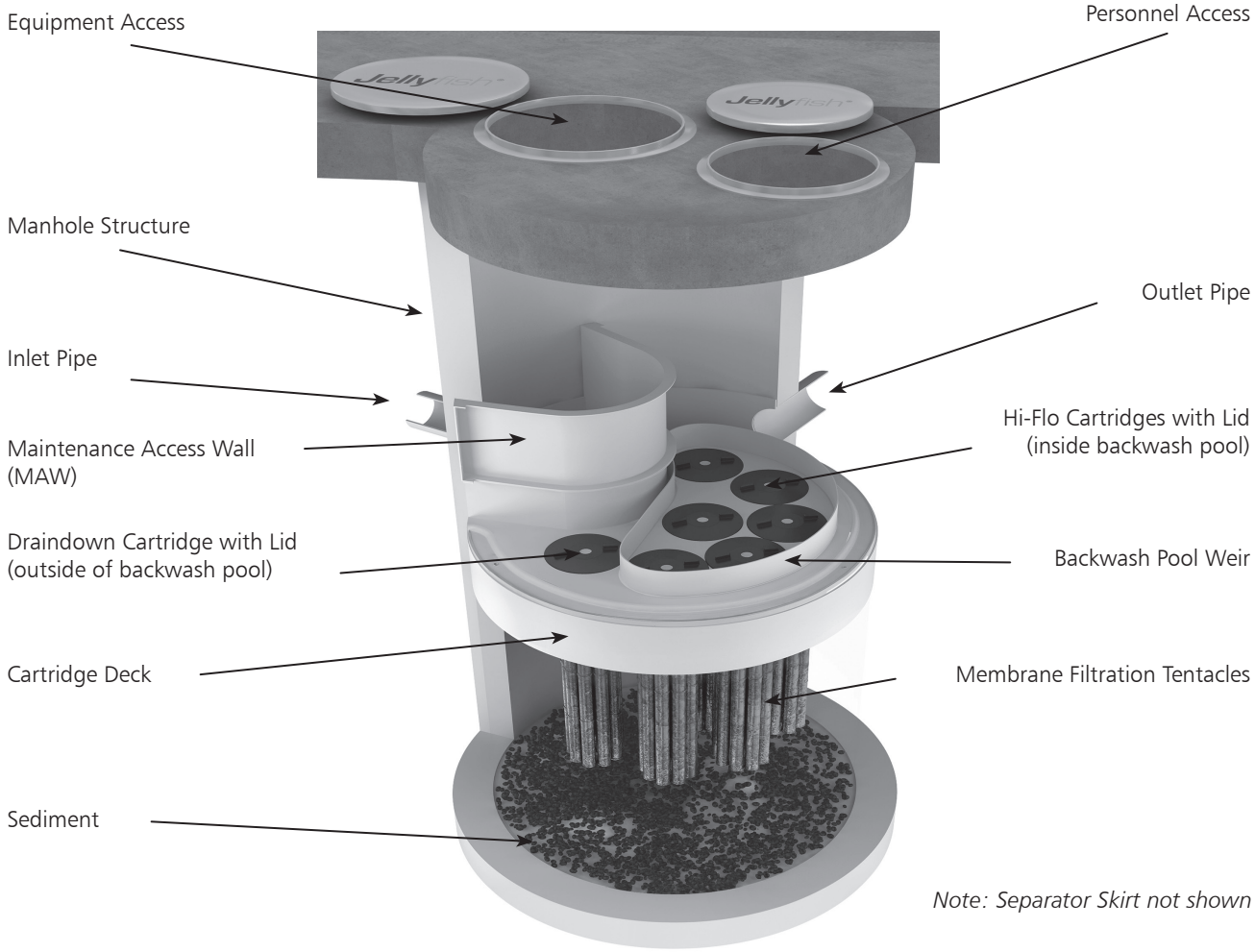
Jellyfish Filter cartridges are backwashed after each peak storm event, which removes accumulated sediment from the membranes. This backwash process extends the service life of the cartridges and increases the time between maintenance events.

For additional details on the operation and pollutant capabilities of the Jellyfish Filter please refer to additional details on our website at www.ContechES.com.

2.1 – Components and Cartridges

The Jellyfish Filter and components are depicted in Figure 2 below.

FIGURE 2 **Jellyfish Filter Components**



Tentacles are available in various lengths as depicted in Table 1 below.

Table 1 – Cartridge Lengths / Weights and Cartridge Lid Orifice Diameters

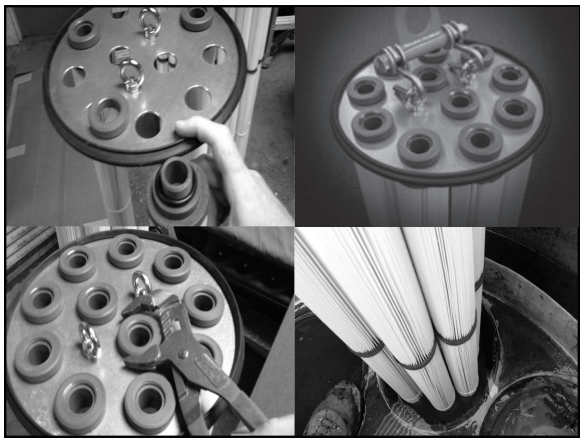
Cartridge Lengths	Dry Weight	Hi-Flo Orifice Diameter	Draindown Orifice Diameter
15 inches (381 mm)	10 lbs (4.5 kg)	35 mm	20 mm
27 inches (686 mm)	14.5 lbs (6.6 kg)	45 mm	25 mm
40 inches (1,016 mm)	19.5 lbs (8.9 kg)	55 mm	30 mm
54 inches (1,372 mm)	25 lbs (11.4 kg)	70 mm	35 mm

2.2 – Jellyfish Membrane Filtration Cartridge Assembly

The Jellyfish Filter utilizes multiple membrane filtration cartridges. Each cartridge consists of removable cylindrical filtration "tentacles" attached to a cartridge head plate. Each filtration tentacle has a threaded pipe nipple and o-ring. To attach, insert the top pipe nipples with the o-ring through the head plate holes and secure with locking nuts. Hex nuts to be hand tightened and checked with a wrench as shown below.

2.3 – Jellyfish Membrane Filtration Cartridge Installation

- Cartridge installation will be performed by trained individuals and coordinated with the installing site Contractor. Flow diversion devices are required to be in place until the site is stabilized (final paving and landscaping in place). Failure to address this step completely will reduce the time between required maintenance.
- Descend to the cartridge deck (see Safety Notice and page 3).
- Refer to Contech's submittal drawings to determine proper quantity and placement of Hi-Flo, Draindown and Blank cartridges with appropriate lids. Lower the Jellyfish membrane filtration cartridges into the cartridge receptacles within the cartridge deck. It is possible that not all cartridge receptacles will be filled with a filter cartridge. In that case, a blank headplate and blank cartridge lid (no orifice) would be installed.



Cartridge Assembly

Do not force the tentacles down into the cartridge receptacle, as this may damage the membranes. Apply downward pressure on the cartridge head plate to seat the lubricated rim gasket (thick circular gasket surrounding the circumference of the head plate) into the cartridge receptacle. (See Figure 3 for details on approved lubricants for use with rim gasket.)

- Examine the cartridge lids to differentiate lids with a small orifice, a large orifice, and no orifice.
  - Lids with a small orifice are to be inserted into the Draindown cartridge receptacles, outside of the backwash pool weir.
  - Lids with a large orifice are to be inserted into the Hi-Flo cartridge receptacles within the backwash pool weir.
  - Lids with no orifice (blank cartridge lids) and a blank headplate are to be inserted into unoccupied cartridge receptacles.
- To install a cartridge lid, align both cartridge lid male threads with the cartridge receptacle female threads before rotating approximately 1/3 of a full rotation until fimrly seated. Use of an approved rim gasket lubricant may faciliate installation.

3.0 Inspection and Maintenance Overview

The primary purpose of the Jellyfish® Filter is to capture and remove pollutants from stormwater runoff. As with any filtration system, these pollutants must be removed to maintain the filter's maximum treatment performance. Regular inspection and maintenance are required to insure proper functioning of the system.

Maintenance frequencies and requirements are site specific and vary depending on pollutant loading. Additional maintenance activities may be required in the event of non-storm event runoff, such as base-flow or seasonal flow, an upstream chemical spill or due to excessive sediment loading from site erosion or extreme runoff events. It is a good practice to inspect the system after major storm events.

Inspection activities are typically conducted from surface observations and include:

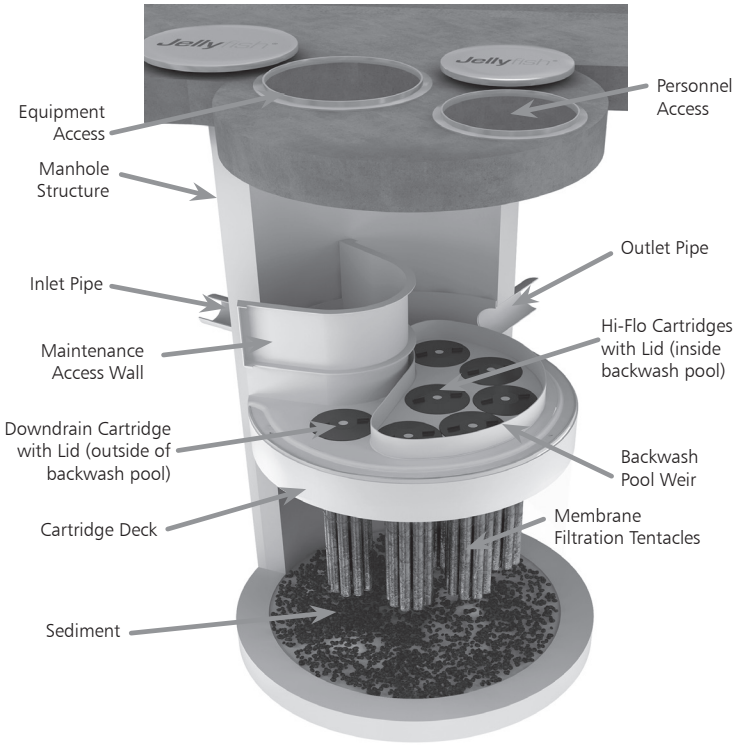
- Observe if standing water is present
- Observe if there is any physical damage to the deck or cartridge lids
- Observe the amount of debris in the Maintenance Access Wall (MAW) or inlet bay for vault systems

Maintenance activities include:

- Removal of oil, floatable trash and debris
- Removal of collected sediments
- Rinsing and re-installing the filter cartridges
- Replace filter cartridge tentacles, as needed

4.0 Inspection Timing

Inspection of the Jellyfish Filter is key in determining the maintenance requirements for, and to develop a history of, the site's pollutant loading characteristics. In general, inspections should be performed at the times indicated below; ***or per the approved project stormwater quality documents (if applicable), whichever is more frequent***.



Note: Separator Skirt not shown

1. A minimum of quarterly inspections during the first year of operation to assess the sediment and floatable pollutant accumulation, and to ensure proper functioning of the system.
2. Inspection frequency in subsequent years is based on the inspection and maintenance plan developed in the first year of operation. Minimum frequency should be once per year.
3. Inspection is recommended after each major storm event.
4. Inspection is required immediately after an upstream oil, fuel or other chemical spill.

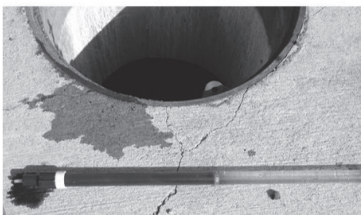
5.0 Inspection Procedure

The following procedure is recommended when performing inspections:

1. Provide traffic control measures as necessary.
2. Inspect the MAW or inlet bay for floatable pollutants such as trash, debris, and oil sheen.
3. Measure oil and sediment depth in several locations, by lowering a sediment probe until contact is made with the floor of the structure. Record sediment depth, and presences of any oil layers.
4. Inspect cartridge lids. Missing or damaged cartridge lids to be replaced.
5. Inspect the MAW (where appropriate), cartridge deck and receptacles, and backwash pool weir, for damaged or broken components.

5.1 Dry weather inspections

- Inspect the cartridge deck for standing water, and/or sediment on the deck.
- No standing water under normal operating conditions.
- Standing water inside the backwash pool, but not outside the backwash pool indicates, that the filter cartridges need to be rinsed.



Inspection Utilizing Sediment Probe

- Standing water outside the backwash pool is not anticipated and may indicate a backwater condition caused by high water elevation in the receiving water body, or possibly a blockage in downstream infrastructure.
- Any appreciable sediment (≥1/16") accumulated on the deck surface should be removed.

5.2 Wet weather inspections

- Observe the rate and movement of water in the unit. Note the depth of water above deck elevation within the MAW or inlet bay.
- Less than 6 inches, flow should be exiting the cartridge lids of each of the draindown cartridges (i.e. cartridges located outside the backwash pool).
- Greater than 6 inches, flow should be exiting the cartridge lids of each of the draindown cartridges and each of the hi-flo cartridges (i.e. cartridges located inside the backwash pool), and water should be overflowing the backwash pool weir.
- 18 inches or greater and relatively little flow is exiting the cartridge lids and outlet pipe, this condition indicates that the filter cartridges need to be rinsed.

6.0 Maintenance Requirements

Required maintenance for the Jellyfish Filter is based upon results of the most recent inspection, historical maintenance records, or the site specific water quality management plan; whichever is more frequent. In general, maintenance requires some combination of the following:

1. Sediment removal for depths reaching 12 inches or greater, or within 3 years of the most recent sediment cleaning, whichever occurs sooner.
2. Floatable trash, debris, and oil removal.
3. Deck cleaned and free from sediment.
4. Filter cartridges rinsed and re-installed as required by the most recent inspection results, or within 12 months of the most recent filter rinsing, whichever occurs sooner.
5. Replace tentacles if rinsing does not restore adequate hydraulic capacity, remove accumulated sediment, or if damaged or missing. It is recommended that tentacles should remain in service no longer than 5 years before replacement.
6. Damaged or missing cartridge deck components must be repaired or replaced as indicated by results of the most recent inspection.
7. The unit must be cleaned out and filter cartridges inspected immediately after an upstream oil, fuel, or chemical spill. Filter cartridge tentacles should be replaced if damaged or compromised by the spill.

7.0 Maintenance Procedure

The following procedures are recommended when maintaining the Jellyfish Filter:

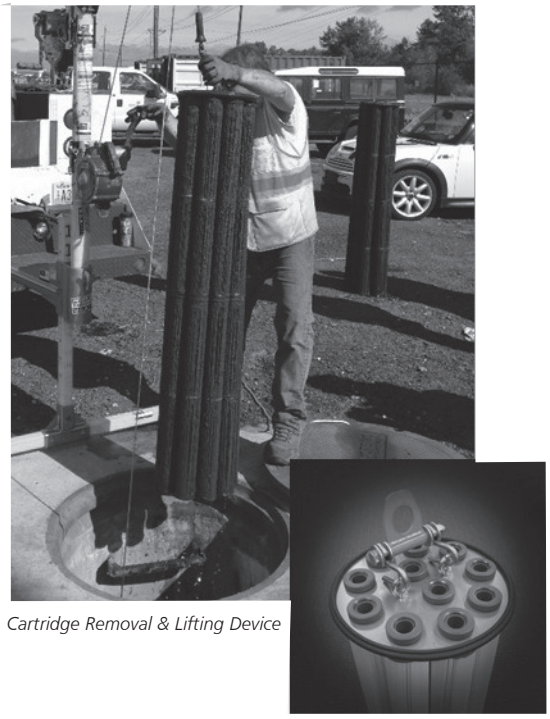
1. Provide traffic control measures as necessary.
2. Open all covers and hatches. Use ventilation equipment as required, according to confined space entry procedures. *Caution: Dropping objects onto the cartridge deck may cause damage*.
3. Perform Inspection Procedure prior to maintenance activity.
4. To access the cartridge deck for filter cartridge service, descend into the structure and step directly onto the deck. Caution: Do not step onto the maintenance access wall (MAW) or backwash pool weir, as damage may result. Note that the cartridge deck may be slippery.
5. Maximum weight of maintenance crew and equipment on the cartridge deck not to exceed 450 lbs.

7.1 Filter Cartridge Removal

1. Remove a cartridge lid.
2. Remove cartridges from the deck using the lifting loops in the cartridge head plate. Rope or a lifting device (available from Contech) should be used. ***Caution: Should a snag occur, do not force the cartridge upward as damage to the tentacles may result. Wet cartridges typically weigh between 100 and 125 lbs***.
3. Replace and secure the cartridge lid on the exposed empty receptacle as a safety precaution. Contech does not recommend exposing more than one empty cartridge receptacle at a time.

7.2 Filter Cartridge Rinsing

1. Remove all 11 tentacles from the cartridge head plate. Take care not to lose or damage the O-ring seal as well as the plastic threaded nut and connector.



Cartridge Removal & Lifting Device

2. Position tentacles in a container (or over the MAW), with the threaded connector (open end) facing down, so rinse water is flushed through the membrane and captured in the container.
3. Using the Jellyfish rinse tool (available from Contech) or a low-pressure garden hose sprayer, direct water spray onto the tentacle membrane, sweeping from top to bottom along the length of the tentacle. Rinse until all sediment is removed from the membrane. ***Caution: Do not use a high pressure sprayer or focused stream of water on the membrane. Excessive water pressure may damage the membrane***.

4. Collected rinse water is typically removed by vacuum hose.
5. Reassemble cartridges as detailed later in this document. Reuse O-rings and nuts, ensuring proper placement on each tentacle.

7.3 Sediment and Flotables Extraction

1. Perform vacuum cleaning of the Jellyfish Filter only after filter cartridges have been removed from the system. Access the lower chamber for vacuum cleaning only through the maintenance access wall (MAW) opening. Be careful not to damage the flexible plastic separator skirt that is attached to the underside of the deck on manhole systems. Do not lower the vacuum wand through a cartridge receptacle, as damage to the receptacle will result.
2. Vacuum floatable trash, debris, and oil, from the MAW opening or inlet bay. Alternatively, floatable solids may be removed by a net or skimmer.

Rinsing Cartridge with Contech Rinse Tool

3. Pressure wash cartridge deck and receptacles to remove all sediment and debris. Sediment should be rinsed into the sump area. Take care not to flush rinse water into the outlet pipe.
4. Remove water from the sump area. Vacuum or pump equipment should only be introduced through the MAW or inlet bay.
5. Remove the sediment from the bottom of the unit through the MAW or inlet bay opening.

Vacuuming Sump Through MAW

6. For larger diameter Jellyfish Filter manholes (≥8-ft) and some vaults complete sediment removal may be facilitated by removing a cartridge lid from an empty receptacle and inserting a jetting wand (not a vacuum wand) through the receptacle. Use the sprayer to rinse loosened sediment toward the vacuum hose in the MAW opening, being careful not to damage the receptacle.

7.4 Filter Cartridge Reinstallation and Replacement

1. Cartridges should be installed after the deck has been cleaned. It is important that the receptacle surfaces be free from grit and debris.
2. Remove cartridge lid from deck and carefully lower the filter cartridge into the receptacle until head plate gasket is seated squarely in receptacle. ***Caution: Do not force the cartridge downward; damage may occur.***
3. Replace the cartridge lid and check to see that both male threads are properly seated before rotating approximately 1/3 of a full rotation until firmly seated. Use of an approved rim gasket lubricant may facilitate installation. See next page for additional details.
4. If rinsing is ineffective in removing sediment from the tentacles, or if tentacles are damaged, provisions must be made to replace the spent or damaged tentacles with new tentacles. Contact Contech to order replacement tentacles.

7.5 Chemical Spills

Caution: If a chemical spill has been captured, do not attempt maintenance. Immediately contact the local hazard response agency and contact Contech.

7.6 Material Disposal

The accumulated sediment found in stormwater treatment and conveyance systems must be handled and disposed of in accordance with regulatory protocols. It is possible for sediments to contain measurable concentrations of heavy metals and organic chemicals (such as pesticides and petroleum products). Areas with the greatest potential for high pollutant loading include industrial areas and heavily traveled roads. Sediments and water must be disposed of in accordance with all applicable waste disposal regulations. When scheduling maintenance, consideration must be made for the disposal of solid and liquid wastes. This typically requires coordination with a local landfill for solid waste disposal. For liquid waste disposal a number of options are available including a municipal vacuum truck decant facility, local waste water treatment plant or on-site treatment and discharge.

Jellyfish Filter Components & Filter Cartridge Assembly and Installation

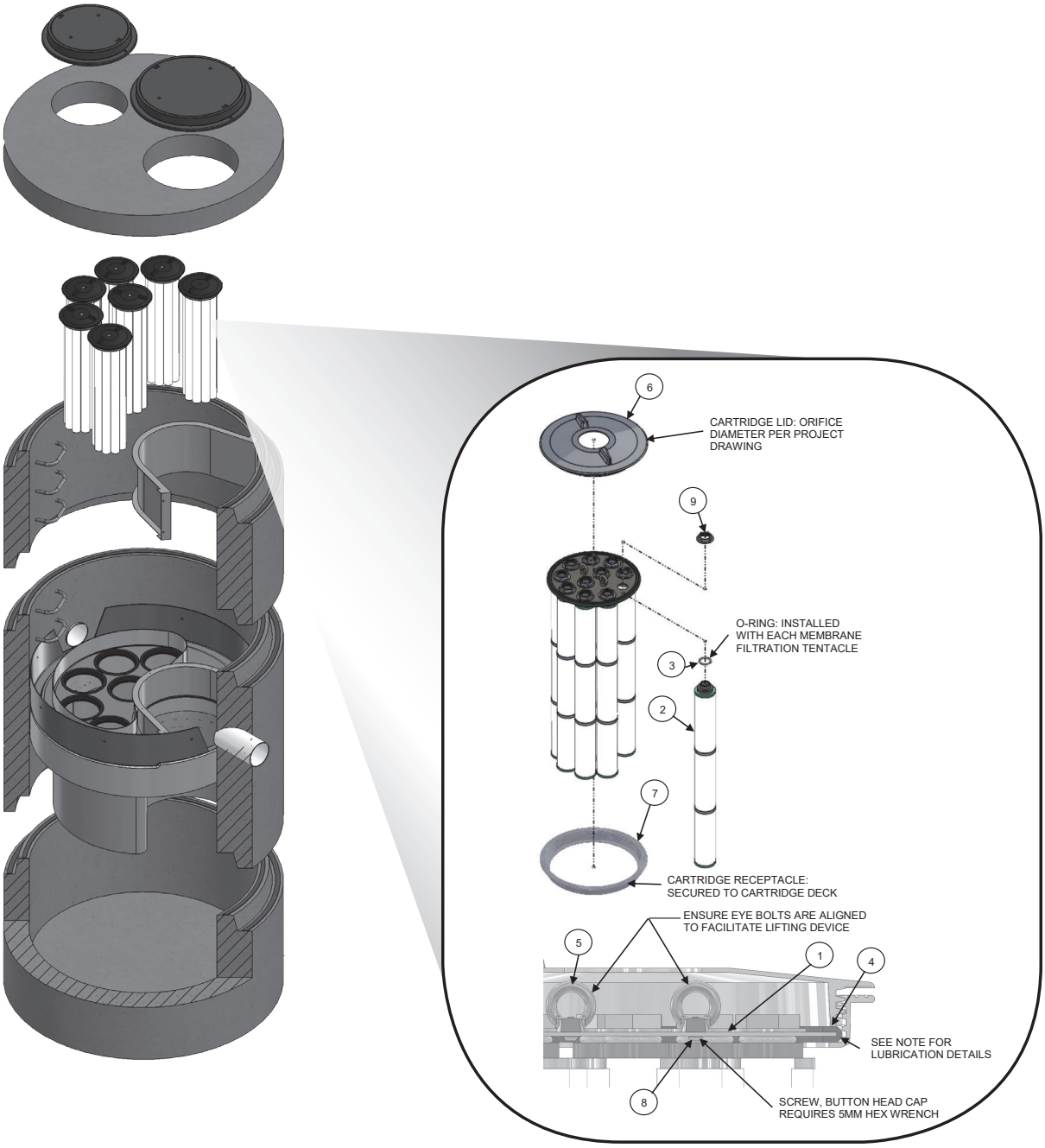


TABLE 1: BOM

ITEM NO.	DESCRIPTION
1	JF HEAD PLATE
2	JF TENTACLE
3	JF O-RING
4	JF HEAD PLATE GASKET
5	JF CARTRIDGE EYELET
6	JF 14IN COVER
7	JF RECEPTACLE
8	BUTTON HEAD CAP SCREW M6X14MM SS
9	JF CARTRIDGE NUT

TABLE 2: APPROVED GASKET LUBRICANTS

PART NO.	MFR	DESCRIPTION
78713	LA-CO	LUBRI-JOINT
40501	HERCULES	DUCK BUTTER
30600	OATEY	PIPE LUBRICANT
PSLUBXL1Q	PROSELECT	PIPE JOINT LUBRICANT

NOTES:

Head Plate Gasket Installation:
Install Head Plate Gasket (Item 4) onto the Head Plate (Item 1) and liberally apply a lubricant from Table 2: Approved Gasket Lubricants onto the gasket where it contacts the Receptacle (Item 7) and Cartridge Lid (Item 6). Follow Lubricant manufacturer's instructions.

Lid Assembly:
Rotate Cartridge Lid counter-clockwise until both male threads drop down and properly seat. Then rotate Cartridge Lid clock-wise approximately one-third of a full rotation until Cartridge Lid is firmly secured, creating a watertight seal.

Jellyfish Filter Inspection and Maintenance Log

Owner: _____ Jellyfish Model No.:_____

Location: _____ GPS Coordinates: _____

Land Use: Commercial:_____ Industrial: _____ Service Station:_____

Road/Highway:____ Airport: _____ Residential: _____ Parking Lot:_____

Date/Time:					
Inspector:					
Maintenance Contractor:					
Visible Oil Present: (Y/N)					
Oil Quantity Removed					
Floatable Debris Present: (Y/N)					
Floatable Debris removed: (Y/N)					
Water Depth in Backwash Pool					
Cartridges externally rinsed/re-commissioned: (Y/N)					
New tentacles put on Cartridges: (Y/N)					
Sediment Depth Measured: (Y/N)					
Sediment Depth (inches or mm):					
Sediment Removed: (Y/N)					
Cartridge Lids intact: (Y/N)					
Observed Damage:					
Comments:					

Permanent Stormwater Section
ATTACHMENT I

TCEQ WPAP & SCS APPLICATION

Ramendu Duplex at Round Rock

Williamson County, Texas

Measures for Minimizing Surface Stream Contamination:

The development minimizes surface stream contamination by maintaining the naturally occurring sheet flow across the site. Drainage from this development will be directed towards a detention system which will reduce the developed flow rated to predeveloped flow rates. There are no surface streams within this site.

Organized Sewage Collection System Application

Texas Commission on Environmental Quality

For Regulated Activities on the Edwards Aquifer Recharge Zone and Relating to 30 TAC §213.5(c), Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

Regulated Entity Name: Ramendu Duplex at Round Rock

1. ☒ **Attachment A – SCS Engineering Design Report**. This Engineering Design Report is provided to fulfill the requirements of 30 TAC Chapter 217, including 217.10 of Subchapter A, §§217.51 – 217.70 of Subchapter C, and Subchapter D as applicable, and is required to be submitted with this SCS Application Form.

Customer Information

2. The entity and contact person responsible for providing the required engineering certification of testing for this sewage collection system upon completion (including private service connections) and every five years thereafter to the appropriate TCEQ region office pursuant to 30 TAC §213.5(c) is:

   Contact Person: Amar Gulhane
   Entity: Ramendu Duplex at Round Rock LLC
   Mailing Address: 3016 Paseo De Charros
   City, State: Cedar Park, TX Zip: 78641
   Telephone: _____ Fax: _____
   Email Address: _____
   The appropriate regional office must be informed of any changes in this information within 30 days of the change.

3. The engineer responsible for the design of this sewage collection system is:

   Contact Person: Jacob D. Mealey, P.E.
   Texas Licensed Professional Engineer's Number: 127442
   Entity: IECO inc.
   Mailing Address: 555 Round Rock W Dr STE E 216
   City, State:Round Rock, TX Zip: 78681
   Telephone:737-226-4777 Fax:_____
   Email Address:Jacob@IECOeng.com

Project Information

4. Anticipated type of development to be served (estimated future population to be served, plus adequate allowance for institutional and commercial flows):

   ☐ Residential: Number of single-family lots: _____
   ☒ Multi-family: Number of residential units: 20
   ☐ Commercial
   ☐ Industrial
   ☐ Off-site system (not associated with any development)
   ☐ Other: _____

5. The character and volume of wastewater is shown below:

   100% Domestic — 5,600 gallons/day
   _____% Industrial — _____ gallons/day
   _____% Commingled — _____ gallons/day
   Total gallons/day: 5,600

6. Existing and anticipated infiltration/inflow is 2,078 gallons/day. This will be addressed by: SDR 26 PVC with gasketed joints.

7. A Water Pollution Abatement Plan (WPAP) is required for construction of any associated commercial, industrial or residential project located on the Recharge Zone.

   ☐ The WPAP application for this development was approved by letter dated _____. A copy of the approval letter is attached.
   ☐ The WPAP application for this development was submitted to the TCEQ on _____, but has not been approved.
   ☒ A WPAP application is required for an associated project, but it has not been submitted.
   ☐ There is no associated project requiring a WPAP application.

8. Pipe description:

Table 1 - Pipe Description

Pipe Diameter(Inches)	*Linear Feet (1)*	*Pipe Material (2)*	*Specifications (3)*
8	369	SDR 26 PVC	ASTM D3034
6	288	SDR 26 PVC	ASTM D3034

Total Linear Feet: 657

(1) Linear feet - Include stub-outs and double service connections. Do not include private service laterals.
(2) Pipe Material - If PVC, state SDR value.
(3) Specifications - ASTM / ANSI / AWWA specification and class numbers should be included.

9. The sewage collection system will convey the wastewater to the Brushy Creek East (name) Treatment Plant. The treatment facility is:

   ☒ Existing
   ☐ Proposed

10. All components of this sewage collection system will comply with:

    ☒ The City of Round Rock standard specifications.
    ☐ Other. Specifications are attached.

11. ☒ No force main(s) and/or lift station(s) are associated with this sewage collection system.

    ☐ A force main(s) and/or lift station(s) is associated with this sewage collection system and the **Lift Station/Force Main System Application** form (TCEQ-0624) is included with this application.

Alignment

12. ☒ There are no deviations from uniform grade in this sewage collection system without manholes and with open cut construction.

13. ☒ There are no deviations from straight alignment in this sewage collection system without manholes.

    ☐ **Attachment B - Justification and Calculations for Deviation in Straight Alignment without Manholes**. A justification for deviations from straight alignment in this sewage collection system without manholes with documentation from pipe manufacturer allowing pipe curvature is attached.

    ☐ For curved sewer lines, all curved sewer line notes (TCEQ-0596) are included on the construction plans for the wastewater collection system.

Manholes and Cleanouts

14. ☒ Manholes or clean-outs exist at the end of each sewer line(s). These locations are listed below: (Please attach additional sheet if necessary)

Table 2 - Manholes and Cleanouts

Line	*Shown on Sheet*	*Station*	*Manhole or Clean-out?*
A	C7.2 Of C8.4	0+00.00	Manhole
B	C7.2 Of C8.4	2+42.87	Manhole
C	C7.2 Of C8.4	3+69.00	Manhole
	Of		
	Of		
	Of		
	Of		

Line	*Shown on Sheet*	*Station*	*Manhole or Clean-out?*
	Of		
	Of		
	Of		

15. ☒ Manholes are installed at all Points of Curvature and Points of Termination of a sewer line.

16. ☒ The maximum spacing between manholes on this project for each pipe diameter is no greater than:

Pipe Diameter (inches)	Max. Manhole Spacing (feet)
6 - 15	500
16 - 30	800
36 - 48	1000
≥54	2000

☐ **Attachment C – Justification for Variance from Maximum Manhole Spacing**. The maximum spacing between manholes on this project (for each pipe diameter used) is greater than listed in the table above. A justification for any variance from the maximum spacing is attached, and must include a letter from the entity which will operate and maintain the system stating that it has the capability to maintain lines with manhole spacing greater than the allowed spacing.

17. ☐ All manholes will be monolithic, cast-in-place concrete.

☒ The use of pre-cast manholes is requested for this project. The manufacturer's specifications and construction drawings, showing the method of sealing the joints, are attached.

Site Plan Requirements

Items 18 - 25 must be included on the Site Plan.

18. ☒ The Site Plan must have a minimum scale of 1" = 400'.

Site Plan Scale: 1" = 30'.

19. ☒ The Site Plan must include the sewage collection system general layout, including manholes with station numbers, and sewer pipe stub outs (if any). Site plan must be overlain by topographic contour lines, using a contour interval of not greater than ten feet and showing the area within both the five-year floodplain and the 100-year floodplain of any drainage way.

20. Lateral stub-outs:

☒ The location of all lateral stub-outs are shown and labeled.
☐ No lateral stub-outs will be installed during the construction of this sewer collection system.

21. Location of existing and proposed water lines:

☐ The entire water distribution system for this project is shown and labeled.
☒ If not shown on the Site Plan, a Utility Plan is provided showing the entire water and sewer systems.
☐ There will be no water lines associated with this project.

22. 100-year floodplain:

☒ After construction is complete, no part of this project will be in or cross a 100-year floodplain, either naturally occurring or manmade. (Do not include streets or concrete-lined channels constructed above of sewer lines.)
☐ After construction is complete, all sections located within the 100-year floodplain will have water-tight manholes. These locations are listed in the table below and are shown and labeled on the Site Plan. (Do not include streets or concrete-lined channels constructed above sewer lines.)

Table 3 - 100-Year Floodplain

Line	***Sheet***	***Station***
	of	to
	of	to
	of	to
	of	to

23. 5-year floodplain:

☒ After construction is complete, no part of this project will be in or cross a 5-year floodplain, either naturally occurring or man-made. (Do not include streets or concrete-lined channels constructed above sewer lines.)
☒ After construction is complete, all sections located within the 5-year floodplain will be encased in concrete or capped with concrete. These locations are listed in the table below and are shown and labeled on the Site Plan. (Do not include streets or concrete-lined channels constructed above sewer lines.)

Table 4 - 5-Year Floodplain

Line	***Sheet***	***Station***
	of	to
	of	to
	of	to
	of	to

24. ☒ Legal boundaries of the site are shown.

25. ☒ The ***final plans and technical specifications*** are submitted for the TCEQ's review. Each sheet of the construction plans and specifications are dated, signed, and sealed by the Texas Licensed Professional Engineer responsible for the design on each sheet.

Items 26 - 33 must be included on the Plan and Profile sheets.

26. ☒ All existing or proposed water line crossings and any parallel water lines within 9 feet of sewer lines are listed in the table below. These lines must have the type of pressure rated pipe to be installed shown on the plan and profile sheets. Any request for a variance from the required pressure rated piping at crossings must include a variance approval from 30 TAC Chapter 290.

☐ There will be no water line crossings.
☐ There will be no water lines within 9 feet of proposed sewer lines.

Table 5 - Water Line Crossings

Line	*Station or Closest Point*	*Crossing or Parallel*	*Horizontal Separation Distance*	*Vertical Separation Distance*
A	2+62.74	Crossing		1.65'

27. Vented Manholes:

☒ **No part** of this sewer line is within the 100-year floodplain and vented manholes are not required by 30 TAC Chapter 217.
☐ **A portion** of this sewer line is within the 100-year floodplain and vented manholes will be provided at less than 1500 foot intervals. These water-tight manholes are listed in the table below and labeled on the appropriate profile sheets.
☐ **A portion** of this sewer line is within the 100-year floodplain and an alternative means of venting shall be provided at less than 1500 feet intervals. A description of the alternative means is described on the following page.
☐ **A portion** of this sewer line is within the 100-year floodplain; however, there is no interval longer than 1500 feet located within. No vented manholes will be used.

Table 6 - Vented Manholes

Line	*Manhole*	*Station*	*Sheet*

Line	*Manhole*	*Station*	*Sheet*

28. Drop manholes:

☒ There are no drop manholes associated with this project.
☐ Sewer lines which enter new or existing manholes or "manhole structures" higher than 24 inches above the manhole invert are listed in the table below and labeled on the appropriate profile sheets. These lines meet the requirements of 30 TAC §217.55(l)(2)(H).

Table 7 - Drop Manholes

Line	*Manhole*	*Station*	*Sheet*

29. Sewer line stub-outs (For proposed extensions):

☒ The placement and markings of all sewer line stub-outs are shown and labeled.
☐ No sewer line stub-outs are to be installed during the construction of this sewage collection system.

30. Lateral stub-outs (For proposed private service connections):

☒ The placement and markings of all lateral stub-outs are shown and labeled.
☐ No lateral stub-outs are to be installed during the construction of this sewage collection system.

31. Minimum flow velocity (From Appendix A)

☒ Assuming pipes are flowing full; all slopes are designed to produce flows equal to or greater than 2.0 feet per second for this system/line.

32. Maximum flow velocity/slopes (From Appendix A)

☐ Assuming pipes are flowing full, all slopes are designed to produce maximum flows of less than or equal to 10 feet per second for this system/line.
☐ **Attachment D – Calculations for Slopes for Flows Greater Than 10.0 Feet per Second.** Assuming pipes are flowing full, some slopes produce flows which are greater than 10 feet per second. These locations are listed in the table below. Calculations are attached.

Table 8 - Flows Greater Than 10 Feet per Second

Line	*Profile Sheet*	*Station to Station*	*FPS*	*% Slope*	*Erosion/Shock Protection*

33. Assuming pipes are flowing full, where flows are ≥ 10 feet per second, the provisions noted below have been made to protect against pipe displacement by erosion and/or shock under 30 TAC §217.53(l)(2)(B).

☐ Concrete encasement shown on appropriate Plan and Profile sheets for the locations listed in the table above.
☐ Steel-reinforced, anchored concrete baffles/retards placed every 50 feet shown on appropriate Plan and Profile sheets for the locations listed in the table above.
☒ N/A

Administrative Information

34. ☒ The final plans and technical specifications are submitted for TCEQ review. Each sheet of the construction plans and specifications are dated, signed, and sealed by the Texas Licensed Professional Engineer responsible for the design on each sheet.

35. ☒ Standard details are shown on the detail sheets, which are dated, signed, and sealed by the Texas Licensed Professional Engineer, as listed in the table below:

Table 9 - Standard Details

Standard Details	*Shown on Sheet*
Lateral stub-out marking **[Required]**	C8.1 of C8.4
Manhole, showing inverts comply with 30 TAC §217.55(l)(2) **[Required]**	C8.1 of C8.4
Alternate method of joining lateral to existing SCS line for potential future connections **[Required]**	C8.1 of C8.4
Typical trench cross-sections **[Required]**	C8.1 of C8.4
Bolted manholes **[Required]**	C8.1 of C8.4
Sewer Service lateral standard details **[Required]**	C8.1 of C8.4
Clean-out at end of line **[Required, if used]**	N/A of C8.4
Baffles or concrete encasement for shock/erosion protection **[Required, if flow velocity of any section of pipe >10 fps]**	N/A of C8.4
Detail showing Wastewater Line/Water Line Crossing **[Required, if crossings are proposed]**	C7.2 of C8.4
Mandrel detail or specifications showing compliance with 30 TAC §217.57(b) and (c) **[Required, if Flexible Pipe is used]**	N/A of C8.4

Standard Details	*Shown on Sheet*
Drop manholes **[Required, if a pipe entering a manhole is more than 24 inches above manhole invert]**	N/A of C8.4

36. ☒ All organized sewage collection system general construction notes (TCEQ-0596) are included on the construction plans for this sewage collection system.

37. ☒ All proposed sewer lines will be sufficiently surveyed/staked to allow an assessment prior to TCEQ executive director approval. If the alignments of the proposed sewer lines are not walkable on that date, the application will be deemed incomplete and returned.

    ☐ Survey staking was completed on this date: _____

38. ☒ Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.

39. ☒ Any modification of this SCS application will require TCEQ approval, prior to construction, and may require submission of a revised application, with appropriate fees.

Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **Organized Sewage Collection System Application** is hereby submitted for TCEQ review and executive director approval. The system was designed in accordance with the requirements of 30 TAC §213.5(c) and 30 TAC §217 and prepared by:

Print Name of Licensed Professional Engineer: Jacob D. Mealey

Date: 9/21/2020

Place engineer's seal here:

Signature of Licensed Professional Engineer:

Appendix A-Flow Velocity Table

Flow Velocity (Flowing Full) All gravity sewer lines on the Edwards Aquifer Recharge Zone shall be designed and constructed with hydraulic slopes sufficient to give a velocity when flowing full of not less than 2.0 feet per second, and not greater than 10 feet per second. The grades shown in the following table are based on Manning's formula and an n factor of 0.013 and shall be the minimum and maximum acceptable slopes unless provisions are made otherwise.

Table 10 - Slope Velocity

Pipe Diameter(Inches)	*% Slope required for minimum flow velocity of 2.0 fps*	*% Slope which produces flow velocity of 10.0 fps*
6	0.50	12.35
8	0.33	8.40
10	0.25	6.23
12	0.20	4.88
15	0.15	3.62
18	0.11	2.83
21	0.09	2.30
24	0.08	1.93
27	0.06	1.65
30	0.055	1.43
33	0.05	1.26
36	0.045	1.12
39	0.04	1.01
>39	*	*

**For lines larger than 39 inches in diameter, the slope may be determined by Manning's formula (as shown below) to maintain a minimum velocity greater than 2.0 feet per second when flowing full and a maximum velocity less than 10 feet per second when flowing full.*

$$v = \frac{1.49}{n} \times R_h^{0.67} \times \sqrt{S}$$

Figure 1 - Manning's Formula

Where:

v = velocity (ft/sec)
n = Manning's roughness coefficient (0.013)
Rh = hydraulic radius (ft)
S = slope (ft/ft)

INSIGHT ENGINEERING CO.

SCS Engineering Design Report

For

Ramendu Duplex at Round Rock

Project Site Location:
210 Logan Road,
704 & 712 Mandell Street
Round Rock, TX 78664

Applicant:
Marshall Hussain / Amar Gulhane
Ramendu Duplex at Round Rock LLC
3016 Paseo De Charros
Cedar Park TX-78641

Contact:
IECO Inc.
555 Round Rock W Dr Ste E 216
Round Rock, TX 78681
Ph. 737.226.4777
Firm NO. F - 19777

IECO Project: T19-0010

Prepared By:

Jacob D. Mealey, P.E.

Preparation Date:

September 21, 2020

9/21/2020

STATE OF TEXAS
JACOB D. MEALEY
127442
LICENSED
PROFESSIONAL ENGINEER

555 Round Rock W Dr Ste E 216♦Round Rock, TX 78681
P: 737.226.4777♦ info@insightengineering.net

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2.0 Description of Proposed System **2**

3.0 Pipe Deflection Calculations **3**

4.0 System Design **3**

1.0 Overview

The proposed project ***Ramendu at Round Rock*** is located at 210 West Logan Road and 704, 712 Mandell Street, Round Rock TX 78664. More generally the site is located within the Wiley Harris Survey Abstract No. 298 within Williamson County. The development project will include ten duplexes for a total of 20 units. The project includes 126 linear feet of roadway, 350 linear feet of 8" SDR 26 PVC ASTM D3034 wastewater main line and 194 linear feet of 6" SDR 26 PVC ASTM D3034 of wastewater serve line.

The proposed wastewater line will flow into an existing SCS approved gravity system to an Austin wastewater treatment plant. Flow was calculated using the City of Round Rocks design criteria for residential single-family units using 245 gallons per day.

2.0 Description of Proposed System

All the gravity mains within the project are PVC SDR-26 PVC pipe. The construction plans consist of the following:

Linear Feet	Pipe Material	National Standard Specification for Pipe
	PVC SDR-18 PVC	AWWA C900
	PVC SDR-26 PVC	ASMT D3034

The pipes are designed with a slope that will provide a velocity of at least 2 feet per second, as calculated using Manning's equation with an "n" value of 0.013. Additionally, the collection system is designed to ensure that, with pipes flowing full, the velocities will be less than 10 feet per second.

Pipe Diameter: 8" Min. Slope: 0.34% Max Slope: 8.3%

Refer to the Calculations later in this report for the flow and deflection analysis.

3.0 Pipe Deflection Calculations

6”, 8” & 12” SDR 26 ASTM D3034 – 6ft-16ft Depth Bury

Given 6”, 8” & 12” SDR 26 PVC ASTM D3034 Pipe

H = 6 ft (Depth of Bury)

γ = 120 lbs/cf (Backfill Soil Unit Weight)

D_L= 1.0 (Deflection Lag Factor)

K = 0.085 (Bedding Constant)

W’ = 16,000 lb Moving Wheel Load (Live Load)

PS = 144 psi (Pipe Stiffness for PVC SDR 26)

E^1= 3,000 psi (Soil Modulus for Limestone)

PIPE DEFLECTION, %
(2 Trucks Passing Live Load)

Including a 16000 Lb MOVING Wheel Load
Effective Length of Wheel Load: 3.00 Ft

DLF = 1.00 K = 0.085 PS = 144 psi E' = 3000 psi

Prism Load, Wp, Condition Backfill Weight = 120 Lb / Ft ^ 3

	Outside Diameters, ins.			
Depth, Ft	6.275	8.400	12.500	15.300
6.00	0.32 %	0.32 %	0.32 %	0.32 %
8.00	0.35 %	0.35 %	0.35 %	0.35 %
10.00	0.40 %	0.40 %	0.40 %	0.40 %
12.00	0.46 %	0.46 %	0.46 %	0.46 %
14.00	0.52 %	0.52 %	0.52 %	0.52 %
16.00	0.58 %	0.58 %	0.58 %	0.58 %
18.00	0.65 %	0.65 %	0.65 %	0.65 %

Deflection = 0.58% < 2.0% ok

6” & 8” SDR 18 PVC AWWA C900 Pipe

Given 6” and 8” SDR 18 PVC AWWA C900 Pipe

H = 3 ft (Min. Depth of Bury)

γ = 120 lbs/cf (Backfill Soil Unit Weight)

D_L= 1.0 (Deflection Lag Factor)

K = 0.085 (Bedding Constant)

W’ = 16,000 lb Moving Wheel Load (Live Load)

PS = 455 psi (Pipe Stiffness for PVC SDR 18)

E^1= 3,000 psi (Soil Modulus for Limestone)

PIPE DEFLECTION, %
(2 Trucks Passing Live Load)

Including a 16000 Lb MOVING Wheel Load
Effective Length of Wheel Load: 3.00 Ft

DLF = 1.00 K = 0.085 PS = 455 psi E' = 3000 psi

Prism Load, Wp, Condition Backfill Weight = 120 Lb / Ft ^ 3

	Outside Diameters, ins.	
Depth, Ft	6.900	9.050
3.00	0.35 %	0.35 %
5.00	0.26 %	0.26 %
7.00	0.27 %	0.27 %
9.00	0.31 %	0.31 %
11.00	0.35 %	0.35 %
13.00	0.40 %	0.40 %
15.00	0.45 %	0.45 %

Deflection = 0.55% < 2.0% ok

4.0 System Design

I&I Area = 0.98 ac

Inflow & Infiltration (I&I)
I&I = 1000gpd/ac x (I&I Area) ac/1440 = 0.68 gpm

Peak Dry Weather Flow (PDWF)
Qpd = [(18+(0.0206 × F) 0.5)/(4+(0.0206 × F) 0.5)] × F
where: F = 70 gal./person/day × population/1440

Population = 3 x 11 LUE = 33 people

Based on 3 people per LUE

F = 70 gal./person/day × 33/1440 = 1.60

Qpd = [(18+(0.0206 × 1.60) 0.5)/(4+(0.0206 × 1.60) 0.5)] × 1.60

Qpd = 7.20 gpm

Peak Wet Weather Flow (PWWF)

PWWF= Qpd + I&I

PWWF = 7.88 gpm

Pipe Capacity:

7.88 gpm / (448.8 gpm/cfs) = 0.018 cfs

Full Flow of 8” pipe at 0.5% (assuming n = 0.013) = 0.79 cfs

0.018 cfs / 0.79 cfs = 2.2 % pipe capacity

Appendix A

TCEQ WPAP & SCS APPLICATION

Ramendu Duplex at Round Rocke

Williamson County, Texas

BMP TSS Removal Worksheet

Contech Jellyfish Filter

Contech Engineered Solutions Calculations for Texas Commission on Environmental Quality
TSS Removal Calculations

Project Name: **Ramendu at Round Rock**
Date Prepared: **9/21/2020**

1. The Required Load Reduction for the total project:

Calculations from RG-348
Pages 3-27 to 3-30

Page 3-29 Equation 3.3: $L_M = 27.2(A_N \times P)$

$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 80% of increased load
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	**Williamson**	
Total project area included in plan * =	**2.57**	acres
Predevelopment impervious area within the limits of the plan * =	**0.16**	acres
Total post-development impervious area within the limits of the plan* =	**0.98**	acres
Total post-development impervious cover fraction * =	**0.38**	
P =	**32**	inches
$L_{M\ TOTAL\ PROJECT}$ =	**714**	lbs.
Number of drainage basins / outfalls areas leaving the plan area =	**1**	

2. Drainage Basin Parameters (This information should be provided for each basin):

Drainage Basin/Outfall Area No. =	**1**	
Total drainage basin/outfall area =	**2.17**	acres
Predevelopment impervious area within drainage basin/outfall area =	**0.00**	acres
Post-development impervious area within drainage basin/outfall area =	**0.98**	acres
Post-development impervious fraction within drainage basin/outfall area =	**0.45**	
$L_{M\ THIS\ BASIN}$ =	**853**	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	**JF**	abbreviation
Removal efficiency =	**86**	percent

4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the selected BMP Type.

RG-348 Page 3-33 Equation 3.7:
$LR = (\text{BMP efficiency}) \times P \times (A_I \times 34.6 + A_P \times 0.54)$

A_C = Total On-Site drainage area in the BMP catchment area
A_I = Impervious area proposed in the BMP catchment area
A_P = Pervious area remaining in the BMP catchment area
L_R = TSS Load removed from this catchment area by the proposed BMP

A_C =	**2.17**	acres
A_I =	**0.98**	acres
A_P =	**1.19**	acres
L_R =	**951**	lbs.

5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall area

Desired $L_{M\ THIS\ BASIN}$ =	**714**	lbs.
F =	**0.75**	

6. Calculate Treated Flow required by the BMP Type for this drainage basin / outfall area.

Offsite area draining to BMP =	**0.00**	acres
Offsite impervious cover draining to BMP =	**0.00**	acres

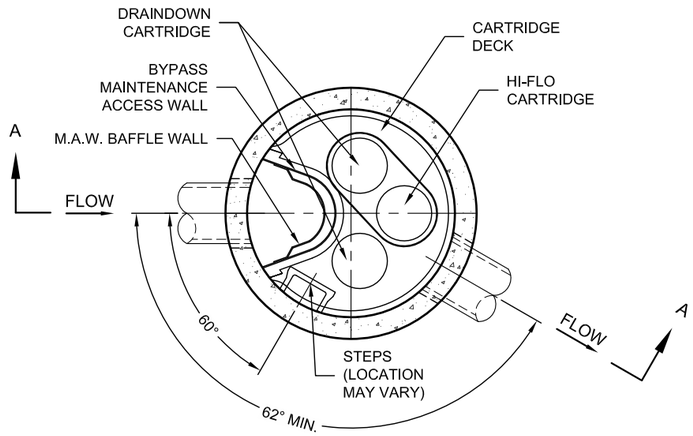
Calculations from RG-348
Pages Section 3.2.22

Rainfall Intensity =	**0.46**	inches per hour
Effective Area =	**0.92**	acres
Cartridge Length =	**54**	inches
Peak Treatment Flow Required =	**0.43**	cubic feet per second

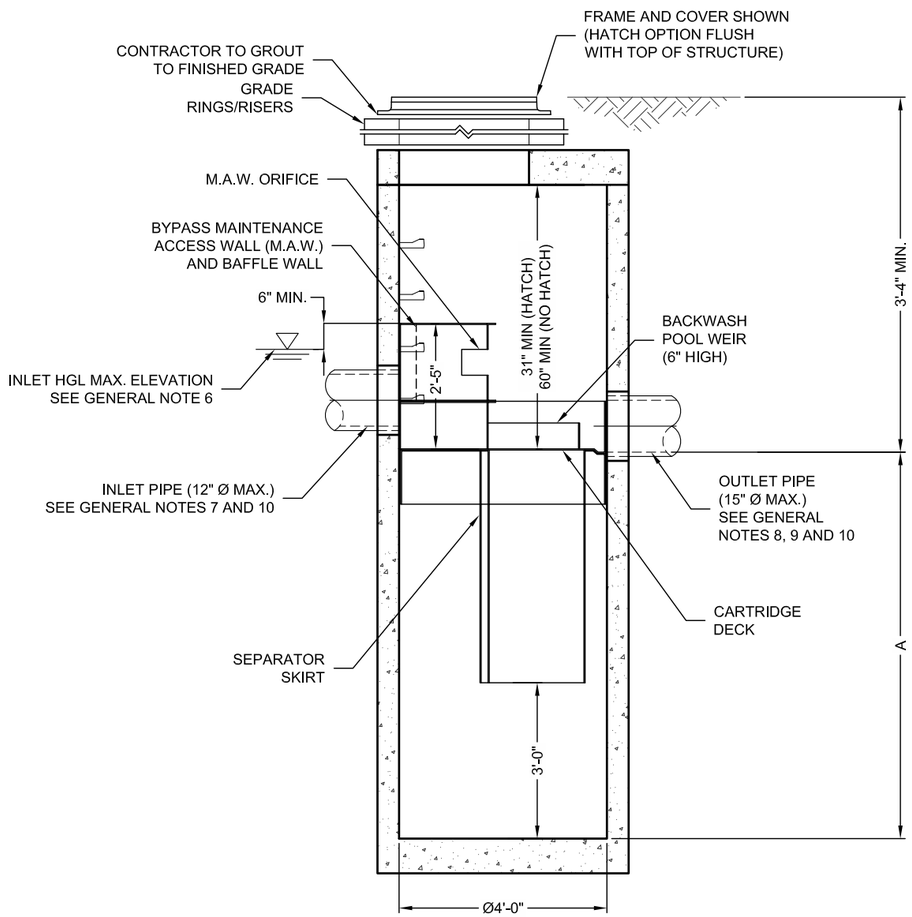
7. Jellyfish
Designed as Required in RG-348
Section 3.2.22

Flow Through Jellyfish Size

Jellyfish Size for Flow-Based Configuration =	**JF4-2-1**	
Jellyfish Treatment Flow Rate =	**0.45**	cfs



PLAN VIEW



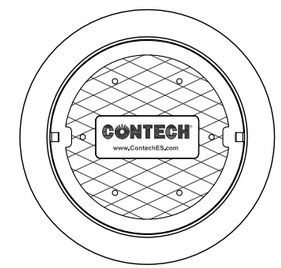
SECTION A-A

JELLYFISH DESIGN NOTES

JELLYFISH TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE SELECTION AND THE NUMBER OF CARTRIDGES. THE STANDARD MANHOLE STYLE IS SHOWN. Ø48" MANHOLE JELLYFISH PEAK TREATMENT CAPACITY IS 0.45 CFS, AND MAXIMUM BYPASS CAPACITY IS 2.50 CFS. IF THE SITE CONDITIONS EXCEED TOTAL CAPACITY, AN UPSTREAM BYPASS STRUCTURE IS REQUIRED.

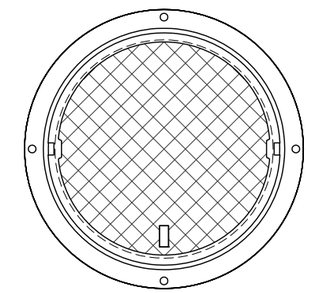
CARTRIDGE SELECTION

CARTRIDGE DEPTH	54"	40"	27"	15"
OUTLET INVERT TO STRUCTURE INVERT (A)	7'-5"	6'-3"	5'-2"	4'-2"
FLOW RATE HIGH-FLO / DRAINDOWN (cfs) (per cart)	0.18 / 0.09	0.13 / 0.065	0.09 / 0.045	0.05 / 0.025
MAX. CARTS HIGH-FLO/DRAINDOWN	2 / 1			
MAX. BYPASS (cfs)	2.5			
MAX. TREATMENT (cfs)	0.45	0.33	0.22	0.12
MAX. TREATMENT AND BYPASS (cfs) (TOTAL CAPACITY)	2.95	2.83	2.72	2.62



FRAME AND COVER

(DIAMETER VARIES)
N.T.S.



HATCH

(Ø36" CAST INTO SLAB)
N.T.S.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	*
WATER QUALITY FLOW RATE (cfs)	*
BYPASS FLOW RATE (cfs)	*
PEAK FLOW RATE (cfs)	*
RETURN PERIOD OF PEAK FLOW (yrs)	*
# OF CARTRIDGES REQUIRED (HF / DD)	*/*
CARTRIDGE SIZE	*

PIPE DATA:	I.E.	MAT'L	DIA	SLOPE %	HGL
INLET #1	*	*	*	*	*
INLET #2	*	*	*	*	*
OUTLET	*	*	*	*	*

SEE GENERAL NOTES 6-10 FOR INLET AND OUTLET HYDRAULIC AND SIZING REQUIREMENTS.

RIM ELEVATION	*

ANTI-FLOTATION BALLAST	WIDTH	HEIGHT
	*	*

NOTES/SPECIAL REQUIREMENTS:

* PER ENGINEER OF RECORD

GENERAL NOTES:

1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS REPRESENTATIVE. www.ContechES.com
3. JELLYFISH WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. STRUCTURE SHALL MEET AASHTO HS-20 OR PER APPROVING JURISDICTION REQUIREMENTS, WHICHEVER IS MORE STRINGENT, ASSUMING EARTH COVER OF 0' - 3', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 LOAD RATING AND BE CAST WITH THE CONTECH LOGO.
5. STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-478 AND AASHTO LOAD FACTOR DESIGN METHOD.
6. INLET HGL NOT TO EXCEED 6" BELOW THE TOP OF THE M.A.W. DURING THE PEAK DESIGN STORM, OR 10-YEAR STORM (WHICHEVER IS GREATER).
7. INLET PIPE INVERT ELEVATION VARIES FROM 0" TO 6" MAXIMUM ABOVE THE OUTLET PIPE INVERT.
8. OUTLET PIPE INVERT IS EQUAL TO THE CARTRIDGE DECK ELEVATION.
9. THE OUTLET PIPE DIAMETER FOR NEW INSTALLATIONS IS TO BE ONE PIPE SIZE LARGER THAN THE INLET PIPE AT EQUAL OR GREATER SLOPE.
10. THE DIFFERENCE IN THE INLET AND OUTLET PIPE ELEVATIONS FOR RETROFIT INSTALLATIONS TO EXISTING STORM DRAIN PIPES SHALL BE EQUAL TO THE SLOPE OVER THE DIAMETER OF THE MANHOLE; NOT THE EXCEED 6" IN VERTICAL DIFFERENTIAL BETWEEN INLET AND OUTLET PIPES.
11. NO PRODUCT SUBSTITUTIONS SHALL BE ACCEPTED UNLESS SUBMITTED 10 DAYS PRIOR TO PROJECT BID DATE, OR AS DIRECTED BY THE ENGINEER OF RECORD.

INSTALLATION NOTES

A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STRUCTURE (LIFTING CLUTCHES PROVIDED)
C. CONTRACTOR WILL INSTALL AND LEVEL THE STRUCTURE, SEALING THE JOINTS, LINE ENTRY AND EXIT POINTS (NON-SHRINK GROUT WITH APPROVED WATERSTOP OR FLEXIBLE BOOT)
D. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.
E. CARTRIDGE INSTALLATION, BY CONTECH, SHALL OCCUR ONLY AFTER SITE HAS BEEN STABILIZED AND THE JELLYFISH UNIT IS CLEAN AND FREE OF DEBRIS. CONTACT CONTECH TO COORDINATE CARTRIDGE INSTALLATION WITH SITE STABILIZATION AT (866) 740-3318.

Jellyfish® Filter

THIS PRODUCT MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING U.S. PATENT NO. 8,287,726, 8,221,618 & US 8,123,935; OTHER INTERNATIONAL PATENTS PENDING

CONTECH® ENGINEERED SOLUTIONS LLC
www.ContechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

JELLYFISH JF4
STANDARD DETAIL
ONLINE CONFIGURATION

I:\COMMON\CAD\TREATMENT\13 JELLYFISH FILTER\40 STANDARD DRAWINGS\ONLINE\DWG\JF4-DTL.DWG 6/26/2015 4:13 PM

Agent Authorization Form
For Required Signature
Edwards Aquifer Protection Program
Relating to 30 TAC Chapter 213
Effective June 1, 1999

I AMAR GULHANE,
Print Name

MANAGER,
Title - Owner/President/Other

of RAMENDU DUPLEX AT ROUND ROCK LLC,
Corporation/Partnership/Entity Name

have authorized JACOB D. MEALEY
Print Name of Agent/Engineer

of IECO INC
Print Name of Firm

to represent and act on the behalf of the above named Corporation, Partnership, or Entity for the purpose of preparing and submitting this plan application to the Texas Commission on Environmental Quality (TCEQ) for the review and approval consideration of regulated activities.

I also understand that:

1. The applicant is responsible for compliance with 30 Texas Administrative Code Chapter 213 and any condition of the TCEQ's approval letter. The TCEQ is authorized to assess administrative penalties of up to $10,000 per day per violation.

2. For those submitting an application who are not the property owner, but who have the right to control and possess the property, additional authorization is required from the owner.

3. Application fees are due and payable at the time the application is submitted. The application fee must be sent to the TCEQ cashier or to the appropriate regional office. The application will not be considered until the correct fee is received by the commission.

4. A notarized copy of the Agent Authorization Form must be provided for the person preparing the application, and this form must accompany the completed application.

5. No person shall commence any regulated activity on the Edwards Aquifer Recharge Zone, Contributing Zone or Transition Zone until the appropriate application for the activity has been filed with and approved by the Executive Director.

SIGNATURE PAGE:

Applicant's Signature

8/12/2020
Date

THE STATE OF Texas §

County of Cedar Park §

BEFORE ME, the undersigned authority, on this day personally appeared AMAR GULHANE known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that (s)he executed same for the purpose and consideration therein expressed.

GIVEN under my hand and seal of office on this 12 day of August, 2020.

SETH HALEN HENTMAN
Notary Public, State of Texas
Comm. Expires 06-26-2024
Notary ID 132540295

NOTARY PUBLIC

Seth Hentman
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 06-26-2024

Application Fee Form

Texas Commission on Environmental Quality

Name of Proposed Regulated Entity: Ramendu Duplex at Round Rock LLC

Regulated Entity Location: 210 Logan Road, 704 & 712 Mandell Street, Round Rock, TX 78664

Name of Customer: Amar Gulhane

Contact Person: Jacob D. Mealey Phone: 737-226-4777

Customer Reference Number (if issued):CN _____

Regulated Entity Reference Number (if issued):RN _____

Austin Regional Office (3373)

☐ Hays ☐ Travis ☒ Williamson

San Antonio Regional Office (3362)

☐ Bexar ☐ Medina ☐ Uvalde

☐ Comal ☐ Kinney

Application fees must be paid by check, certified check, or money order, payable to the **Texas Commission on Environmental Quality**. Your canceled check will serve as your receipt. **This form must be submitted with your fee payment**. This payment is being submitted to:

☐ Austin Regional Office

☒ Mailed to: TCEQ - Cashier
Revenues Section
Mail Code 214
P.O. Box 13088
Austin, TX 78711-3088

☐ San Antonio Regional Office

☐ Overnight Delivery to: TCEQ - Cashier
12100 Park 35 Circle
Building A, 3rd Floor
Austin, TX 78753
(512)239-0357

Site Location (Check All That Apply):

☒ Recharge Zone ☐ Contributing Zone ☐ Transition Zone

Type of Plan	***Size***	***Fee Due***
Water Pollution Abatement Plan, Contributing Zone Plan: One Single Family Residential Dwelling	Acres	$
Water Pollution Abatement Plan, Contributing Zone Plan: Multiple Single Family Residential and Parks	Acres	$
Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential	2.77 Acres	$ 4000
Sewage Collection System	657 L.F.	$ 650
Lift Stations without sewer lines	Acres	$
Underground or Aboveground Storage Tank Facility	Tanks	$
Piping System(s)(only)	Each	$
Exception	Each	$
Extension of Time	Each	$

Signature: _____ Date: 9/21/2020

Application Fee Schedule

Texas Commission on Environmental Quality

Edwards Aquifer Protection Program 30 TAC Chapter 213 (effective 05/01/2008)

Water Pollution Abatement Plans and Modifications

Contributing Zone Plans and Modifications

Project	*Project Area in Acres*	*Fee*
One Single Family Residential Dwelling	< 5	$650
Multiple Single Family Residential and Parks	< 5 5 < 10 10 < 40 40 < 100 100 < 500 ≥ 500	$1,500 $3,000 $4,000 $6,500 $8,000 $10,000
Non-residential (Commercial, industrial, institutional, multi-family residential, schools, and other sites where regulated activities will occur)	< 1 1 < 5 5 < 10 10 < 40 40 < 100 ≥ 100	$3,000 $4,000 $5,000 $6,500 $8,000 $10,000

Organized Sewage Collection Systems and Modifications

Project	*Cost per Linear Foot*	*Minimum Fee-Maximum Fee*
Sewage Collection Systems	$0.50	$650 - $6,500

Underground and Aboveground Storage Tank System Facility Plans and Modifications

Project	*Cost per Tank or Piping System*	*Minimum Fee-Maximum Fee*
Underground and Aboveground Storage Tank Facility	$650	$650 - $6,500

Exception Requests

Project	*Fee*
Exception Request	$500

Extension of Time Requests

Project	*Fee*
Extension of Time Request	$150

TCEQ Use Only

TCEQ Core Data Form

For detailed instructions regarding completion of this form, please read the Core Data Form Instructions or call 512-239-5175.

SECTION I: General Information

1. Reason for Submission (*If other is checked please describe in space provided.*)

☒ New Permit, Registration or Authorization (*Core Data Form should be submitted with the program application.*)

☐ Renewal (*Core Data Form should be submitted with the renewal form*) ☐ Other

2. Customer Reference Number *(if issued)*	Follow this link to search for CN or RN numbers in Central Registry**	3. Regulated Entity Reference Number *(if issued)*
CN		RN

SECTION II: Customer Information

4. General Customer Information | **5. Effective Date for Customer Information Updates** (mm/dd/yyyy)

☒ New Customer ☐ Update to Customer Information ☐ Change in Regulated Entity Ownership
☐ Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)

The Customer Name submitted here may be updated automatically based on what is current and active with the Texas Secretary of State (SOS) or Texas Comptroller of Public Accounts (CPA).

6. Customer Legal Name (*If an individual, print last name first: eg: Doe, John*) *If new Customer, enter previous Customer below:*

Ramendu Duplex at Round Rock LLC

7. TX SOS/CPA Filing Number	8. TX State Tax ID (11 digits)	9. Federal Tax ID (9 digits)	10. DUNS Number *(if applicable)*

11. Type of Customer: ☒ Corporation ☐ Individual Partnership: ☐ General ☐ Limited
Government: ☐ City ☐ County ☐ Federal ☐ State ☐ Other ☐ Sole Proprietorship ☐ Other:

12. Number of Employees
☒ 0-20 ☐ 21-100 ☐ 101-250 ☐ 251-500 ☐ 501 and higher

13. Independently Owned and Operated?
☒ **Yes** ☐ **No**

14. Customer Role (Proposed or Actual) – *as it relates to the Regulated Entity listed on this form. Please check one of the following*

☐ Owner ☐ Operator ☒ Owner & Operator
☐ Occupational Licensee ☐ Responsible Party ☐ Voluntary Cleanup Applicant ☐ Other:

15. Mailing Address:							
	3016 Paseo De Charros						
	City	Cedar Park	State	TX	ZIP	78641	ZIP + 4

16. Country Mailing Information *(if outside USA)*	17. E-Mail Address *(if applicable)*
	amargulhane@gmail.com

18. Telephone Number	19. Extension or Code	20. Fax Number *(if applicable)*
(512) 698-5161		( ) -

SECTION III: Regulated Entity Information

21. General Regulated Entity Information (*If 'New Regulated Entity" is selected below this form should be accompanied by a permit application*)

☒ New Regulated Entity ☐ Update to Regulated Entity Name ☐ Update to Regulated Entity Information

The Regulated Entity Name submitted may be updated in order to meet TCEQ Agency Data Standards (removal of organizational endings such as Inc, LP, or LLC).

22. Regulated Entity Name (*Enter name of the site where the regulated action is taking place.*)

Ramendu Duplex at Round Rock

23. Street Address of the Regulated Entity: ***(No PO Boxes)***	210 Logan Road, 704 & 712 Mandell Street							
	City	Round Rock	**State**	TX	**ZIP**	78664	**ZIP + 4**	
24. County	Williamson							

Enter Physical Location Description if no street address is provided.

25. Description to Physical Location:	North of W Logan St, East of Mandell St.				
26. Nearest City			**State**	**Nearest ZIP Code**	
Round Rock			TX	78664	
27. Latitude (N) In Decimal:	30.50333333		**28. Longitude (W) In Decimal:**	97.67833333	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
30	30	11.79	97	40	42.17

29. Primary SIC Code (4 digits)	**30. Secondary SIC Code** (4 digits)	**31. Primary NAICS Code** (5 or 6 digits)	**32. Secondary NAICS Code** (5 or 6 digits)

33. What is the Primary Business of this entity? *(Do not repeat the SIC or NAICS description.)*

Ramendu Duplex at Round Rock LLC

34. Mailing Address:	**3016 Paseo De Charros**							
	City	**Cedar Park**	**State**	**TX**	**ZIP**	**78641**	**ZIP + 4**	
35. E-Mail Address:								

36. Telephone Number	**37. Extension or Code**	**38. Fax Number** ***(if applicable)***
(512) 698-5161		**( ) -**

39. TCEQ Programs and ID Numbers Check all Programs and write in the permits/registration numbers that will be affected by the updates submitted on this form. See the Core Data Form instructions for additional guidance.

☐ Dam Safety	☐ Districts	☒ Edwards Aquifer	☐ Emissions Inventory Air	☐ Industrial Hazardous Waste
☐ Municipal Solid Waste	☐ New Source Review Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS
☐ Sludge	☒ Storm Water	☐ Title V Air	☐ Tires	☐ Used Oil
☐ Voluntary Cleanup	☐ Waste Water	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:

SECTION IV: Preparer Information

40. Name:	Jacob D. Mealey	**41. Title:**	Project Engineer

42. Telephone Number	**43. Ext./Code**	**44. Fax Number**	**45. E-Mail Address**
(737) 226-4777		( ) -	Jacob@IECOeng.com

SECTION V: Authorized Signature

46. By my signature below, I certify, to the best of my knowledge, that the information provided in this form is true and complete, and that I have signature authority to submit this form on behalf of the entity specified in Section II, Field 6 and/or as required for the updates to the ID numbers identified in field 39.

Company:	IECO Inc.	**Job Title:**	Project Engineer

Name *(In Print):*	Jacob D Mealey	**Phone:**	**(** 737 **)** 226- **4777**
Signature:		**Date:**	9-22-2020

REVISIONS					
NUMBER DESCRIPTION	REVISE (R) ADD (A) VIOD (V) SHEET No's	TOTAL # SHEETS IN PLAN SET	CITY OF ROUND ROCK APPROVAL SIGNATURE	CITY OF ROUND ROCK APPROVAL–DATE	DATE IMAGED

RAMENDU DUPLEX AT ROUND ROCK PRELIMINARY PLAT
ROUND ROCK, WILLIAMSON COUNTY, TEXAS

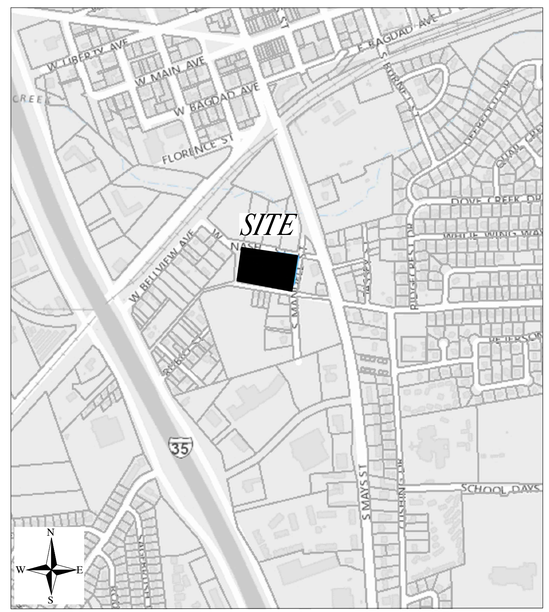
RAMENDU DUPLEX AT ROUND ROCK

SUBDIVISION IMPROVEMENTS
STREET AND DRAINAGE
WATER AND WASTEWATER

CORR PERMIT #SIP2004-0001

210 LOGAN STREET,
704 MANDELL STREET
ROUND ROCK, TX 78664

ONSITE IMPERVIOUS COVER		
	EXISTING	NEW
BUILDING FOOTPRINT (WITHIN LIMITS OF LOT ONLY), SF	0	25,000
PRIVATE SIDEWALK (WITHIN LIMITS OF LOT ONLY), SF	2,250	21,610
TOTAL (SF)	2,250	46,610
TOTAL AREA OF DISTURBANCE (AC.)		2.29



VICINITY MAP
N.T.S.

WATER POLLUTION ABATEMENT PLAN AND ORGANIZED SEWAGE COLLECTION SYSTEM PLAN APPROVED BY TCEQ ON XX/XX/2020
30TEXAS ADMINISTRATIVE CODE (TAC) CHAPTER 213 AD CHAPTER 217 EDWARDS AQUIFER PROTECTION PROGRAM ID NO. XXXXXXXX

SHEET LIST TABLE	
Sheet Number	Sheet Title
C1.0	COVER SHEET
C1.1	PRELIMINARY PLAT
C2.0	GENERAL NOTES
C3.0	AREA PLAN
C4.0	DEMO PLAN AND ESC PLAN
C5.0	SITE PLAN
C6.0	GRADING PLAN
C6.1	PECAN PARK CT PLAN AND PROFILE
C7.1	EXISTING CONDITIONS BASIN MAP
C7.2	DEVELOPED CONDITIONS BASIN MAP
C8.0	DRAINAGE PLAN
C8.1	STORM A AND B PLAN AND PROFILE
C8.2	STORM C PLAN AND PROFILE
C8.3	LOGAN ST PLAN AND PROFILE
C8.4	MANDELL ST PLAN AND PROFILE
C8.5	DETENTION POND PLAN AND PROFILE
C8.6	DETENTION POND DETAILS
C9.0	UTILITY PLAN
C9.1	WATER PROFILE
C9.2	WASTEWATER PROFILE
C10.0	TRAFFIC CONTROL PLAN
C11.0	EROSION CONTROL DETAILS
C11.1	WASTEWATER DETAILS
C11.2	WATER DETAILS
C11.3	STORM DETAILS
C11.4	STREET DETAILS (1 OF 2)
C11.5	STREET DETAILS (2 OF 2)
L1	LANDSCAPE PLAN
L2	LANDSCAPE NOTES AND DETAILS
S1	SURVEY

NOTES:

1. THIS PROJECT IS PROPOSING AN EXTENDED DETENTION SYSTEM ON-SITE.
2. ALL RESPONSIBILITY FOR ADEQUACY OF THESE PLANS REMAINS WITH THE ENGINEER WHO PREPARED THEM. IN ACCEPTING THESE PLANS, THE CITY OF ROUND ROCK MUST RELY UPON THE ADEQUACY OF THE WORK OF THE DESIGN ENGINEER.
3. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR IT'S REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE ASSOCIATED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
4. THESE PLANS HAVE BEEN PREPARED BASED ON THE SURVEY TOPOGRAPHY PROVIDED BY THE SURVEYOR. THE ENGINEER OF RECORD SHALL BE NOTIFIED IF ANY DISCREPANCIES BETWEEN THE APPROVED ENGINEERING PLAN SET AND FIELD OBSERVATIONS ARE FOUND DURING CONSTRUCTION.

MUNICIPAL CONTACT LIST:

CITY OF ROUND ROCK

PLANNING AND DEVELOPMENT SERVICES
301 W. BAGDAD AVE., SUITE 210
ROUND ROCK, TX 78664
CONTACT: BRADLEY DUSHKIN
TEL: 512-671-2728
TEL: 512-281-3286

ENGINEERING DEPARTMENT
301 W. BAGDAD AVE., SUITE 210
ROUND ROCK, TX 78664
CONTACT: SYDNEE BEST
TEL: 512-671-2728
TEL: 512-281-3286

ELECTRIC COMPANY
ONCOR TEL: 1-866-797-4839

TELEPHONE COMPANY
AT&T TEL: 1-800-331-0500

Texas811
Know what's below. Call before you dig.

ACCEPTED FOR CONSTRUCTION:

CITY OF ROUND ROCK, TEXAS DATE

PLANNING AND DEVELOPMENT SERVICES

RECORDED FINAL PLAT DOC. NO. _____

STATE OF TEXAS

COUNTY OF WILLIAMSON

I, JACOB D. HEARBY, PE # 127442 DO HEREBY CERTIFY THAT THE PUBLIC WORKS AND DRAINAGE IMPROVEMENTS DESCRIBED HEREIN HAVE BEEN DESIGNED IN COMPLIANCE WITH THE SUBDIVISION AND BUILDING REGULATION ORDINANCE AND STORM WATER DRAINAGE POLICY ADOPTED BY THE CITY OF ROUND ROCK, TEXAS.

SUBMITTED BY:

STATE OF TEXAS
JACOB D. MEALEY
127442
LICENSED
PROFESSIONAL ENGINEER

09/22/2020

IECO Inc.
Jacob D. Mealey, P.E. # 127442
Vice President

BM
IS MAG NAIL SET
ELEV. = 716.03'

DATUM:
NAVD88
GEOID 2016

BENCHMARK: CITY OF ROUND ROCK BRASS DISC AT CURB AT WEST END CURB INLET EXPANSION JOINT AT NORTHEAST CORNER OF MAYS STREET AND LOGAN STREET.
ELEV. = 726.76
NAVD88

ENGINEER / CONTACT

IECO, INC
FIRM REG# F-19777
555 ROUND ROCK W DR STE E216
ROUND ROCK, TX 78681
CONTACT: JACOB D. MEALEY, PE
PH: (737) 226-4777
EMAIL: INFO@INSIGHTENGINEERING.NET

SURVEYOR

ALL STAR LAND SURVEYINC
9020 ANDERSON MILL ROAD
AUSTIN, TX 78729
CONTACT: EDDIE RUMSEY
PHONE: (512) 249-8149
FAX: (512) 331-5217
TBPLS FIRM # 10135000

OWNERS / APPLICANT

RAMENDU DUPLEX AT ROUND ROCK LLC
3016 PASEO DE CHARROS
CEDAR PARK, TX 78641
CONTACT: MARSHALL HUSSAIN
PHONE: (512) 698-1976
EMAIL: MARSHALL1@GMAIL.COM

LEGAL DESCRIPTION

2.77 ACRES OF LAND OUT OF THE WILEY HARRIS SURVEY, ABSTRACT NUMBER 298, WILLIAMSON COUNTY, TEXAS, CONSISTING OF THREE TRACTS CONVEYED TO THAT CERTAIN RICHARD CEPEDA, BEING 1.873 ACRES, RECORDED IN DOCUMENT NUMBER 2010078846, 0.824 ACRES RECORDED IN DOCUMENT 2017105955, AND A PORTION OF A 0.1899 ACRE TRACT RECORDED IN DOCUMENT NUMBER 2017045099, ALL OF THE OFFICIAL PUBLIC RECORDS, WILLIAMSON COUNTY, TEXAS.

IECO
IECO, INC
555 ROUND ROCK W DR STE E 216
ROUND ROCK, TX 78681
1 (737)-226-4777
INFO@INSIGHTENGINEERING.NET

SITE ADDRESS: 210 LOGAN ROAD, 704 MANDELL STREET ROUND ROCK, TX 78664

TAX ACCOUNT NO.'S: R058893, R053078

PERMIT NO: SIP2004-0001

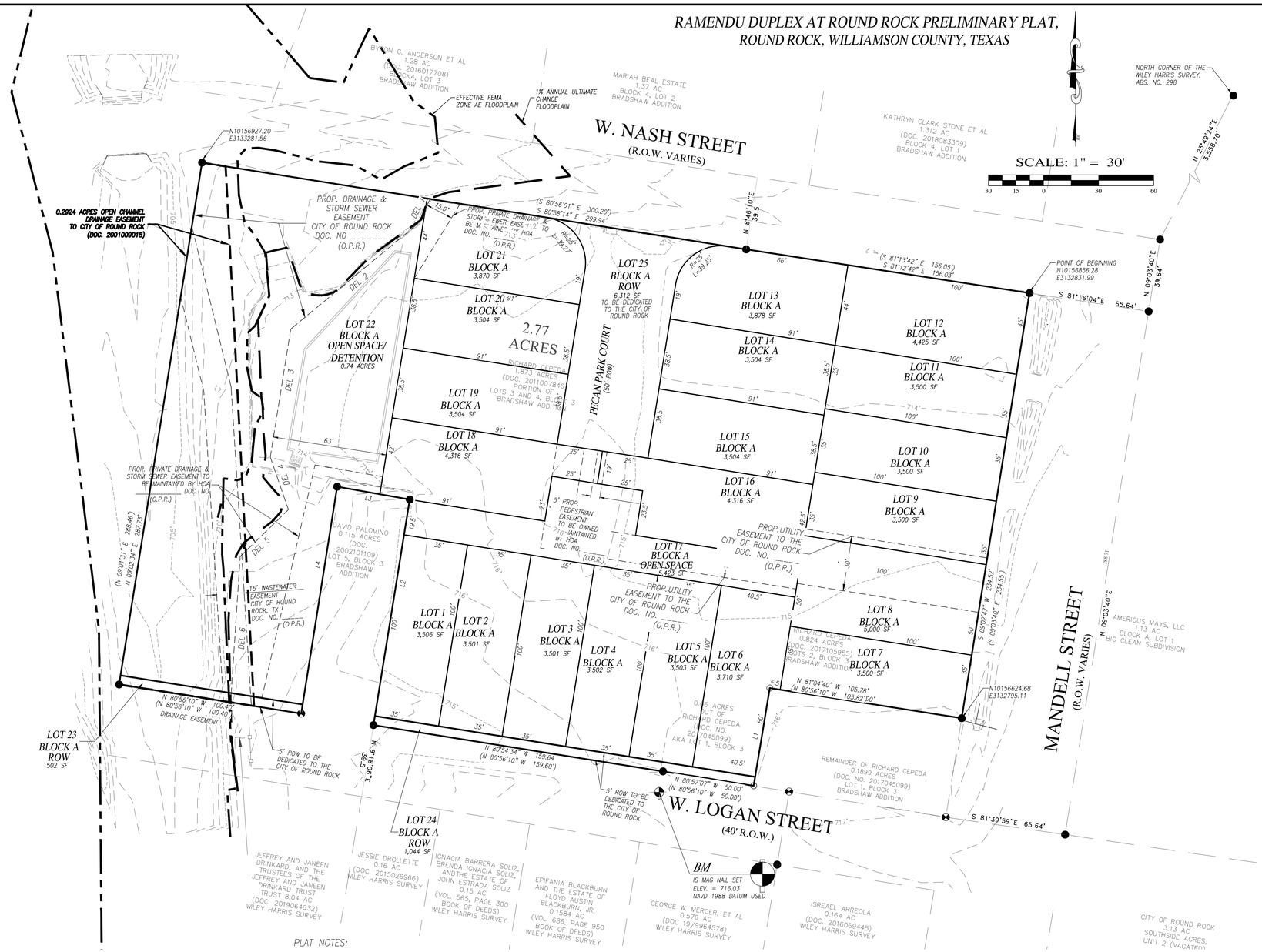
RAMENDU DUPLEX AT ROUND ROCK

DWG FILENAME	DESIGNED BY:	DATE:	SCALE:	JOB NO.:
T190006-FINAL.DWG	JRC	01-31-2020	N.T.S.	T19-0006

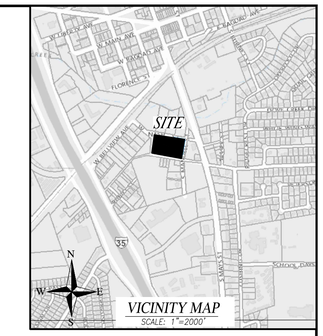
COVER SHEET

SHEET C1.0

RAMENDU DUPLEX AT ROUND ROCK PRELIMINARY PLAT,
ROUND ROCK, WILLIAMSON COUNTY, TEXAS



LOT DATA TABLE			
LOT #	BLOCK	AREA	DESCRIPTION
1	A	3,506 SF	TWO-FAMILY
2	A	3,501 SF	TWO-FAMILY
3	A	3,501 SF	TWO-FAMILY
4	A	3,502 SF	TWO-FAMILY
5	A	3,503 SF	TWO-FAMILY
6	A	3,710 SF	TWO-FAMILY
7	A	3,500 SF	TWO-FAMILY
8	A	5,000 SF	TWO-FAMILY
9	A	3,500 SF	TWO-FAMILY
10	A	3,500 SF	TWO-FAMILY
11	A	3,500 SF	TWO-FAMILY
12	A	4,425 SF	TWO-FAMILY
13	A	3,878 SF	TWO-FAMILY
14	A	3,504 SF	TWO-FAMILY
15	A	3,504 SF	TWO-FAMILY
16	A	4,316 SF	TWO-FAMILY
17	A	5,423 SF	OPEN SPACE
18	A	4,316 SF	TWO-FAMILY
19	A	3,504 SF	TWO-FAMILY
20	A	3,504 SF	TWO-FAMILY
21	A	3,870 SF	TWO-FAMILY
22	A	32,253 SF	OPEN SPACE/DETENTION
23	A	502 SF	R.O.W. DEDICATION
24	A	1,044 SF	R.O.W. DEDICATION
25	A	6,312 SF	R.O.W. DEDICATION



NOTES:

1. DATE OF PLANNING AND ZONING COMMISSION REVIEW: JUNE 17, 2020.
2. LOTS 17 AND 22 WILL BE OWNED AND MAINTAINED BY H.O.A.

LINE TABLE		
LINE	BEARING	LENGTH
L1	S 09°22'00" W	53.94'
(L1)	(S 09°03'40" W)	(53.87')
L2	N 09°08'29" E	124.49'
(L2)	(N 09°08'29" E)	(125.00')
L3	N 80°05'55" W	40.17'
(L3)	(N 79°55'53" W)	(40.00')
L4	S 08°59'15" W	125.05'
(L4)	(S 09°00'06" W)	(125.05')

LEGEND

- BENCHMARK
- 1/2-INCH IRON ROD FOUND
- 1/2-INCH IRON PIPE SET "ALL STAR 5729"
- CALCULATED POINT
- ( ) RECORD INFORMATION
- LOT LINE
- 717' EX. CONTOUR
- AE FEMA FLOODPLAIN
- PROP. CITY OF ROUND ROCK DRAINAGE AND STORM SEWER EASEMENT
- PROP. PRIVATE DRAINAGE EASEMENT
- EFFECTIVE FEMA ZONE AE FLOODPLAIN
- 1% ANNUAL ULTIMATE CHANCE FLOODPLAIN
- EXISTING DRAINAGE EASEMENT (DOC 2001009018)
- PROP. DRAINAGE EASEMENT

BM
IS MAG NAIL SET
ELEV. = 716.03'

DATUM:
NAVD88
GEOID 2016

BENCHMARK: CITY OF ROUND ROCK BRASS DISC AT CURB AT WEST END CURB INLET EXPANSION JOINT AT NORTHEAST CORNER OF MAYS STREET AND LOGAN STREET.
ELEV. = 726.76
NAVD88

ENGINEER / CONTACT

IECO, INC
FIRM REG# F-19777
P.O. BOX 2088
PFLUGERVILLE, TX 78691
CONTACT: JACOB D. MEALEY, PE
PH: (737) 226-4777
EMAIL: INFO@INSIGHTENGINEERING.NET

SURVEYOR

ALL STAR LAND SURVEYING
9020 ANDERSON MILL ROAD
AUSTIN, TX 78729
CONTACT: EDDIE RUMSEY
PHONE: (512) 249-8149
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CONTACT: MARSHALL HUSSAIN
PHONE: (512) 698-1976
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LEGAL DESCRIPTION

2.77 ACRES OF LAND OUT OF THE WILEY HARRIS SURVEY, ABSTRACT NUMBER 298, WILLIAMSON COUNTY, TEXAS, CONSISTING OF THREE TRACTS CONVEYED TO THAT CERTAIN RICHARD CEPEDA, BEING 1.873 ACRES, RECORDED IN DOCUMENT NUMBER 2010078846, 0.824 ACRES RECORDED IN DOCUMENT 2017105955, AND A PORTION OF A 0.1899 ACRE TRACT RECORDED IN DOCUMENT NUMBER 2017045099, ALL OF THE OFFICIAL PUBLIC RECORDS, WILLIAMSON COUNTY, TEXAS.

PROP. DRAINAGE EASEMENT LINE TABLE		
Line #	Length	Direction
DEL 1	15.31'	S26° 40' 36.55"W
DEL 2	89.82'	S50° 20' 36.67"W
DEL 3	70.67'	S09° 03' 40.46"W
DEL 4	30.25'	S19° 00' 57.79"E
DEL 5	36.64'	S45° 44' 59.22"W
DEL 6	79.58'	S03° 45' 35.55"W

PLAT NOTES:

1. A PORTION OF THIS TRACT IS ENCROACHED BY THE ULTIMATE 1% ANNUAL CHANCE FLOODPLAIN."; AND "NO FENCES, STRUCTURES, STORAGE, OR FILL SHALL BE PLACED WITHIN THE LIMITS OF THE ULTIMATE 1% ANNUAL CHANCE FLOODPLAIN; UNLESS APPROVED BY THE CITY ENGINEER. FILL MAY ONLY BE PERMITTED BY THE CITY ENGINEER AFTER APPROVAL OF THE PROPER ANALYSIS."
2. A PORTION OF THIS TRACT IS ENCROACHED BY SPECIAL FLOOD HAZARD AREAS INUNDATED BY THE 1% ANNUAL CHANCE FLOOD AS IDENTIFIED BY THE U.S. FEDERAL EMERGENCY MANAGEMENT AGENCY BOUNDARY MAP (FLOOD INSURANCE RATE MAP) COMMUNITY PANEL NUMBER 48491C0493F, EFFECTIVE DATE 12/20/2019, FOR WILLIAMSON COUNTY, TEXAS. THE 1% ANNUAL CHANCE FLOODPLAIN AND THE AE FEMA ZONE FLOODPLAIN HAS BEEN BASED ON APPROVED FLOODPLAIN STUDY FLOOD 1807-0001 PREPARED BY KIMLEY-HORN AND ASSOCIATES, INC. DATED 6-18-2019 FLOOD1807-0001.
3. BUILDING SETBACKS SHALL BE IN ACCORDANCE WITH PART III, ZONING AND DEVELOPMENT CODE, CHAPTER 2, ZONING DISTRICTS AND USE REGULATIONS, CITY OF ROUND ROCK, TEXAS, 2018, AS AMENDED.
4. SIDEWALKS SHALL BE CONSTRUCTED IN ACCORDANCE WITH PART III, ZONING AND DEVELOPMENT CODE, SECTION 6-26, CITY OF ROUND ROCK, TEXAS, 2018, AS AMENDED."
5. SUBDIVISION WALLS SHALL BE LOCATED AND CONSTRUCTED IN ACCORDANCE WITH PART III, ZONING AND DEVELOPMENT CODE, SECTION 4-30, CITY OF ROUND ROCK, TEXAS, 2018, AS AMENDED."
6. A TEN FOOT (10') PUE AND SIDEWALK EASEMENT ABUTTING AND ALONG THE STREET SIDE PROPERTY LINE IS HEREBY CONVEYED FOR ALL STREET SIDE PROPERTY LOTS SHOWN HEREON."
7. NO OBSTRUCTIONS, INCLUDING BUT NOT LIMITED TO FENCING OF STORAGE SHALL BE PERMITTED IN ANY DRAINAGE EASEMENT SHOWN HEREON.

SUBMITTAL DATE: JUNE 3, 2020
COMMISSION REVIEW: JUNE 17, 2020

SITE DATA
AREA BREAKDOWN

NUMBER OF BLOCKS: 1

LINEAR FEET OF NEW STREETS: 150'

NUMBER OF LOTS BY TYPE:
20 DEVELOPMENT LOTS
1 OPEN SPACE
1 OPEN SPACE/DETENTION
3 R.O.W.

ACREAGE BY LOT TYPE

SITE ACREAGE:	2.64 AC.
OPEN SPACES:	0.13 AC.
OPEN SPACE/DETENTION	0.74 AC
ROW DEDICATION:	0.18 AC.
DEVELOPMENT:	1.59 AC.
CONNECTIVITY INDEX:	1.0

REV.	REVISION DESCRIPTION	DATE

STATE OF TEXAS
JACOB D. MEALEY
127442
LICENSED
PROFESSIONAL ENGINEER
09/22/2020

IECO

IECO, INC
555 ROUND ROCK W DR STE E 216
ROUND ROCK, TX 78681
1 (737)-226-4777
INFO@INSIGHTENGINEERING.NET

SITE ADDRESS: 210 LOGAN ROAD, 704 MANDELL STREET ROUND ROCK, TX 78664

TAX ACCOUNT NO.'S: R058893, R053078

PERMIT NO: PP2004,001

RAMENDU DUPLEX AT ROUND ROCK

DWG FILENAME	DESIGNED BY:	DATE:	SCALE:	JOB NO.:
T190006-FINAL.DWG	JRC	01-31-2020	1"=30'	T19-0006

PRELIMINARY PLAT

SHEET C1.1

RAMENDU DUPLEX AT ROUND ROCK PRELIMINARY PLAT
ROUND ROCK, WILLIAMSON COUNTY, TEXAS

GENERAL NOTES:

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF ROUND ROCK STANDARD SPECIFICATIONS MANUAL.
2. ANY EXISTING UTILITIES, PAVEMENT, CURBS, SIDEWALKS, STRUCTURES, TREES, ETC., NOT PLANNED FOR DESTRUCTION OR REMOVAL THAT ARE DAMAGED OR REMOVED SHALL BE REPAIRED OR REPLACED AT HIS EXPENSE.
3. THE CONTRACTOR SHALL VERIFY ALL DEPTHS AND LOCATIONS OF EXISTING UTILITIES PRIOR TO ANY CONSTRUCTION. ANY DISCREPANCIES WITH THE CONSTRUCTION PLANS FOUND IN THE FIELD SHALL BE BROUGHT IMMEDIATELY TO THE ATTENTION OF THE ENGINEER WHO SHALL BE RESPONSIBLE FOR REVISING THE PLANS ARE APPROPRIATE.
4. MANHOLE FRAMES, COVERS, VALVES, CLEANOUTS, ETC. SHALL BE RAISED TO FINISHED GRADE PRIOR TO FINAL PAVING CONSTRUCTION.
5. THE CONTRACTOR SHALL GIVE THE CITY OF ROUND ROCK 48 HOURS NOTICE BEFORE BEGINNING EACH PHASE OF CONSTRUCTION. TELEPHONE 218-5555 (ENGINEERING AND DEVELOPMENT SERVICES DEPARTMENT).
6. ALL AREAS DISTURBED OR EXPOSED DURING CONSTRUCTION SHALL BE REVEGETATED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. REVEGETATION OF ALL DISTURBED OR EXPOSED AREAS SHALL CONSIST OF SODDING OR SEEDING, AT THE CONTRACTOR'S OPTION. HOWEVER, THE TYPE OF REVEGETATION MUST EQUAL OR EXCEED THE TYPE OF VEGETATION PRESENT BEFORE CONSTRUCTION.
7. PRIOR TO ANY CONSTRUCTION, THE ENGINEER SHALL CONVENE A PRECONSTRUCTION CONFERENCE BETWEEN THE CITY OF ROUND ROCK, HIMSELF, THE CONTRACTOR, OTHER UTILITY COMPANIES, ANY AFFECTED PARTIES AND ANY OTHER ENTITY THE CITY OR ENGINEER MAY REQUIRE.
8. THE CONTRACTOR AND THE ENGINEER SHALL KEEP ACCURATE RECORDS OF ALL CONSTRUCTION THAT DEVIATES FROM THE PLANS. THE ENGINEER SHALL FURNISH THE CITY OF ROUND ROCK ACCURATE "AS-BUILT" DRAWINGS FOLLOWING COMPLETION OF ALL CONSTRUCTION. THESE "AS-BUILT" DRAWINGS SHALL MEET WITH THE SATISFACTION OF THE ENGINEERING AND DEVELOPMENT SERVICES DEPARTMENT PRIOR TO FINAL ACCEPTANCE.
9. THE ROUND ROCK CITY COUNCIL SHALL NOT BE PETITIONED FOR ACCEPTANCE UNTIL ALL NECESSARY EASEMENT DOCUMENTS HAVE BEEN SIGNED AND RECORDED.
10. WHEN CONSTRUCTION IS BEING CARRIED OUT WITHIN EASEMENTS, THE CONTRACTOR SHALL CONFINE HIS WORK TO WITHIN THE PERMANENT AND ANY TEMPORARY EASEMENTS. PRIOR TO FINAL ACCEPTANCE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL TRASH AND DEBRIS WITHIN THE PERMANENT AND TEMPORARY EASEMENTS. CLEAN-UP SHALL BE TO THE SATISFACTION OF THE CITY ENGINEER.
11. PRIOR TO ANY CONSTRUCTION, THE CONTRACTOR SHALL APPLY FOR AND SECURE ALL PROPER PERMITS FROM THE APPROPRIATE AUTHORITIES.
12. AVAILABLE BENCHMARKS (CITY OF ROUND ROCK DATUM) THAT MAY BE UTILIZED FOR THE CONSTRUCTION OF THIS PROJECT ARE DESCRIBED AS FOLLOWS:

BENCHMARK USED:
MAG NAIL SET ON NORTH SIDE OF W LOGAN ST NAVD88 (GEIOD 03) ELEVATION = 716.03

TRENCH SAFETY NOTES:

1. IN ACCORDANCE WITH THE LAWS OF THE STATE OF TEXAS AND THE U. S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, ALL TRENCHES OVER 5 FEET IN DEPTH IN EITHER HARD AND COMPACT OR SOFT AND UNSTABLE SOIL SHALL BE SLOPED, SHORED, SHEETED, BRACED OR OTHERWISE SUPPORTED. FURTHERMORE, ALL TRENCHES LESS THAN 5 FEET IN DEPTH SHALL ALSO BE EFFECTIVELY PROTECTED WHEN HAZARDOUS GROUND MOVEMENT MAY BE EXPECTED. TRENCH SAFETY SYSTEMS TO BE UTILIZED FOR THIS PROJECT.
2. IN ACCORDANCE WITH THE U. S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, WHEN PERSONS ARE IN TRENCHES 4-FEET DEEP OR MORE, ADEQUATE MEANS OF EXIT, SUCH AS A LADDER OR STEPS, MUST BE PROVIDED AND LOCATED SO AS TO REQUIRE NO MORE THAN 25 FEET OF LATERAL TRAVEL.
3. IF TRENCH SAFETY SYSTEM DETAILS WERE NOT PROVIDED IN THE PLANS BECAUSE TRENCHES WERE ANTICIPATED TO BE LESS THAN 5 FEET IN DEPTH AND DURING CONSTRUCTION IT IS FOUND THAT TRENCHES ARE IN FACT 5 FEET OR MORE IN DEPTH OR TRENCHES LESS THAN 5 FEET IN DEPTH ARE IN AN AREA WHERE HAZARDOUS GROUND MOVEMENT IS EXPECTED, ALL CONSTRUCTION SHALL CEASE, THE TRENCHED AREA SHALL BE BARRICADED AND THE ENGINEER NOTIFIED IMMEDIATELY. CONSTRUCTION SHALL NOT RESUME UNTIL APPROPRIATE TRENCH SAFETY SYSTEM DETAILS, AS DESIGNED BY A PROFESSIONAL ENGINEER, ARE RETAINED AND COPIES SUBMITTED TO THE CITY OF ROUND ROCK.

STREET AND DRAINAGE NOTES:

1. ALL TESTING SHALL BE DONE BY AN INDEPENDENT LABORATORY AT THE OWNER'S EXPENSE. ANY RETESTING SHALL BE PAID FOR BY THE CONTRACTOR. A CITY INSPECTOR SHALL BE PRESENT DURING ALL TESTS. TESTING SHALL BE COORDINATED WITH THE CITY INSPECTOR AND HE SHALL BE GIVEN A MINIMUM OF 24 HOURS NOTICE PRIOR TO ANY TESTING. TELEPHONE 218-5555 (INSPECTIONS).
2. BACKFILL BEHIND THE CURB SHALL BE COMPACTED TO OBTAIN A MINIMUM OF 95% MAXIMUM DENSITY TO WITHIN 3" OF TOP OF CURB. MATERIAL USED SHALL BE PRIMARILY GRANULAR WITH NO ROCKS LARGER THAN 6" IN THE GREATEST DIMENSION. THE REMAINING 3" SHALL BE CLEAN TOPSOIL FREE FROM ALL CLODS AND SUITABLE FOR SUSTAINING PLANT LIFE.
3. DEPTH OF COVER FOR ALL CROSSINGS UNDER PAVEMENT INCLUDING GAS, ELECTRIC, TELEPHONE, CABLE TV, WATER SERVICES, ETC., SHALL BE A MINIMUM OF 30" BELOW SUBGRADE.
4. STREET RIGHTS-OF-WAY SHALL BE GRADED AT A SLOPE OF 1/4" PER FOOT TOWARD THE CURB UNLESS OTHERWISE INDICATED. HOWEVER, IN NO CASE SHALL THE WIDTH OF RIGHT-OF-WAY AT 1/4" PER FOOT SLOPE BE LESS THAN 10 FEET UNLESS A SPECIFIC REQUEST FOR AN ALTERNATE GRADING SCHEME IS MADE TO AND ACCEPTED BY THE CITY OF ROUND ROCK ENGINEERING AND DEVELOPMENT SERVICES DEPARTMENT.
5. BARRICADES BUILT TO CITY OF ROUND ROCK STANDARDS SHALL BE CONSTRUCTED ON ALL DEAD-END STREETS AND AS NECESSARY DURING CONSTRUCTION TO MAINTAIN JOB AND PUBLIC SAFETY.
6. ALL R.C.P. SHALL BE MINIMUM CLASS III.
7. THE SUBGRADE MATERIAL FOR THE STREETS SHOWN HEREIN WAS TESTED BY MLA GEOTECHNICAL AND THE PAVING SECTIONS DESIGNED IN ACCORDANCE WITH THE CURRENT CITY OF ROUND ROCK DESIGN CRITERIA. THE PAVING SECTIONS ARE TO BE CONSTRUCTED AS FOLLOWS:

STREET	STATION	ROW WIDTH	FLEXIBLE BASE THICKNESS	HVAC THICKNESS (TYPE "D")	LIME STABILIZATION THICKNESS	TENSAR TX5 GEOGRID
ROAD-A	10+00.00 – 1+77.00	50'	10"	1.5"	10"	N/A

THE GEOTECHNICAL ENGINEER SHALL INSPECT THE SUBGRADE FOR COMPLIANCE WITH THE DESIGN ASSUMPTIONS MADE DURING PREPARATION OF THE SOILS REPORT. ANY ADJUSTMENTS THAT ARE REQUIRED SHALL BE MADE THROUGH REVISION OF THE CONSTRUCTION PLANS.

8. WHERE PI'S ARE OVER 20, SUBGRADES MUST BE STABILIZED UTILIZING A METHOD ACCEPTABLE TO THE CITY ENGINEER. THE GEOTECHNICAL ENGINEER SHALL RECOMMEND AN APPROPRIATE SUBGRADE STABILIZATION IF SULFATES ARE DETERMINED TO BE PRESENT.

WATER AND WASTEWATER NOTES:

1. PIPE MATERIAL FOR WATER MAINS SHALL BE PVC (AWWA C-900, MIN. CLASS 200), OR DUCTILE IRON (AWWA C-100, MIN. CLASS 200). WATER SERVICES (2" OR LESS) SHALL BE POLYETHYLENE TUBING (BLACK, 200 PSI, DR 9).
2. PIPE MATERIAL FOR PRESSURE WASTEWATER MAINS SHALL BE PVC (AWWA C-900, MIN. CLASS 150), OR DUCTILE IRON (AWWA C-100, MIN. CLASS 200). PIPE MATERIAL FOR GRAVITY WASTEWATER MAINS SHALL BE PVC (ASTM D2241 OR D3034, MAX. DR-26), DUCTILE IRON (AWWA C-100, MIN. CLASS 200).
3. UNLESS OTHERWISE ACCEPTED BY THE CITY ENGINEER, DEPTH OF COVER FOR ALL LINES OUT OF THE PAVEMENT SHALL BE 42" MIN., AND DEPTH OF COVER FOR ALL LINES UNDER PAVEMENT SHALL BE A MIN. OF 30" BELOW SUBGRADE.
4. ALL FIRE HYDRANT LEADS SHALL BE DUCTILE IRON PIPE (AWWA C-100, MIN. CLASS 200).
5. ALL IRON PIPE AND FITTINGS SHALL BE WRAPPED WITH MINIMUM 8-MIL POLYETHYLENE AND SEALED WITH DUCT TAPE OR EQUAL ACCEPTED BY THE CITY ENGINEER.
6. THE CONTRACTOR SHALL CONTACT THE CITY INSPECTOR AT 218-5555 TO COORDINATE UTILITY TIE-INS AND NOTIFY HIM AT LEAST 48 HOURS PRIOR TO CONNECTING TO EXISTING LINES.
7. ALL MANHOLES SHALL BE CONCRETE WITH CAST IRON RING AND COVER. ALL MANHOLES LOCATED OUTSIDE OF THE PAVEMENT SHALL HAVE BOLTED COVERS. TAPPING OF FIBERGLASS MANHOLES SHALL NOT BE ALLOWED.
8. THE CONTRACTOR MUST OBTAIN A BULK WATER PERMIT OR PURCHASE AND INSTALL A WATER METER FOR ALL WATER USED DURING CONSTRUCTION. A COPY OF THIS PERMIT MUST BE CARRIED AT ALL TIMES BY ALL WHO USE WATER.
9. LINE FLUSHING OR ANY ACTIVITY USING A LARGE QUANTITY OF WATER MUST BE SCHEDULED WITH THE WATER & WASTEWATER SUPERINTENDENT, TELEPHONE 218-5555.
10. THE CONTRACTOR, AT HIS EXPENSE, SHALL PERFORM STERILIZATION OF ALL POTABLE WATER LINES CONSTRUCTED AND SHALL PROVIDE ALL EQUIPMENT (INCLUDING TEST GAUGES), SUPPLIES (INCLUDING CONCENTRATED CHLORINE DISINFECTING MATERIAL), AND NECESSARY LABOR REQUIRED FOR THE STERILIZATION PROCEDURE. THE STERILIZATION PROCEDURE SHALL BE MONITORED BY CITY OF ROUND ROCK PERSONNEL. WATER SAMPLES WILL BE COLLECTED BY THE CITY OF ROUND ROCK TO VERIFY EACH TREATED LINE HAS ATTAINED AN INITIAL CHLORINE CONCENTRATION OF 50 PPM. WHERE MEANS OF FLUSHING IS NECESSARY, THE CONTRACTOR, AT HIS EXPENSE, SHALL PROVIDE FLUSHING DEVICES AND REMOVE SAID DEVICES PRIOR TO FINAL ACCEPTANCE BY THE CITY OF ROUND ROCK.
11. SAMPLING TAPS SHALL BE BROUGHT UP TO 3 FEET ABOVE GRADE AND SHALL BE EASILY ACCESSIBLE FOR CITY PERSONNEL. AT THE CONTRACTOR'S REQUEST, AND IN HIS PRESENCE, SAMPLES FOR BACTERIOLOGICAL TESTING WILL BE COLLECTED BY THE CITY OF ROUND ROCK NOT LESS THAN 24 HOURS AFTER THE TREATED LINE HAS BEEN FLUSHED OF THE CONCENTRATED CHLORINE SOLUTION AND CHARGED WITH WATER APPROVED BY THE CITY. THE CONTRACTOR SHALL SUPPLY A CHECK OR MONEY ORDER, PAYABLE TO THE CITY OF ROUND ROCK, TO COVER HE FEE CHARGED FOR TESTING EACH WATER SAMPLE. CITY OF ROUND ROCK FEE AMOUNTS AY BE OBTAINED BY CALLING THE ENGINEERING AND DEVELOPMENT SERVICES DEPARTMENT AT 218-5555.
12. THE CONTRACTOR, AT HIS EXPENSE, SHALL PERFORM QUALITY TESTING FOR ALL WASTEWATER PIPE INSTALLED AND PRESSURE PIPE HYDROSTATIC TESTING OF ALL WATERLINES CONSTRUCTED AND SHALL PROVIDE ALL EQUIPMENT (INCLUDING PUMPS AND GAUGES), SUPPLIES AND LABOR NECESSARY TO PERFORM THE TESTS. QUALITY AND PRESSURE TESTING SHALL BE MONITORED BY CITY OF ROUND ROCK PERSONNEL.
13. THE CONTRACTOR SHALL COORDINATE TESTING WITH THE CITY OF INSPECTOR AND PROVIDE NO LESS THAN 24 HOURS NOTICE PRIOR TO PERFORMING STERILIZATION, QUALITY TESTING OR PRESSURE TESTING.
14. THE CONTRACTOR SHALL NOT OPEN OR CLOSE ANY VALVES UNLESS AUTHORIZED BY THE CITY OF ROUND ROCK.
15. ALL VALVE BOXES AND COVERS SHALL BE CAST IRON.
16. ALL WATER SERVICE, WASTEWATER SERVICE AND VALVE LOCATIONS SHALL BE APPROPRIATELY MARKED AS FOLLOWS:

WATER SERVICE — "W" ON TOP OF CURB
WASTEWATER SERVICE — "S" ON TOP OF CURB
VALVE — "V" ON FACE OF CURB

TOOLS FOR MARKING THE CURB SHALL BE PROVIDED BY THE CONTRACTOR. OTHER APPROPRIATE MEANS OF MARKING SERVICE AND VALVE LOCATIONS SHALL BE PROVIDED IN AREAS WITHOUT CURBS. SUCH MEANS OF MARKING SHALL BE AS SPECIFIED BY THE ENGINEER AND ACCEPTED BY THE CITY OF ROUND ROCK.

17. CONTACT CITY OF ROUND ROCK ENGINEERING AND DEVELOPMENT SERVICES DEPARTMENT AT 218-5555 FOR ASSISTANCE IN OBTAINING EXISTING WATER AND WASTEWATER LOCATIONS.
18. THE CITY OF ROUND ROCK FIRE DEPARTMENT SHALL BE NOTIFIED 48 HOURS PRIOR TO TESTING OF ANY BUILDING SPRINKLER PIPING IN ORDER THAT THE FIRE DEPARTMENT MAY MONITOR SUCH TESTING.
19. SAND, AS DESCRIBED IN SPECIFICATION ITEM 510 PIPE, SHALL NOT BE USED AS BEDDING FOR WATER AND WASTEWATER LINES. ACCEPTABLE BEDDING MATERIALS ARE PIPE BEDDING STONE, PEA GRAVEL AND IN LIEU OF SAND, A NATURALLY OCCURRING OR MANUFACTURED STONE MATERIAL CONFORMING TO ASTM C33 FOR STONE QUALITY AND MEETING THE FOLLOWING GRADATION SPECIFICATION:

SIEVE SIZE	PERCENT RETAINED BY WEIGHT
1/2"	0
3/8"	0-2
#4	40-85
#10	95-100

20. THE CONTRACTOR IS HEREBY NOTIFIED THAT CONNECTING TO, SHUTTING DOWN, OR TERMINATING EXISTING UTILITY LINES MAY HAVE TO OCCUR AT OFF-PEAK HOURS. SUCH HOURS ARE USUALLY OUTSIDE NORMAL WORKING HOURS AND POSSIBLY BETWEEN 12 A.M. AND 6 A.M.
21. ALL WASTEWATER CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) REGULATIONS, 30 TAC CHAPTER 213 AND 317, AS APPLICABLE. WHENEVER TCEQ AND CITY OF ROUND ROCK SPECIFICATIONS CONFLICT, THE MORE STRINGENT SHALL APPLY.

TRAFFIC MARKING NOTES:

1. ANY METHODS, STREET MARKINGS AND SIGNAGE NECESSARY FOR WARNING MOTORISTS, WARNING PEDESTRIANS OR DIVERTING TRAFFIC DURING CONSTRUCTION SHALL CONFORM TO THE TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, LATEST EDITION.
2. ALL PAVEMENT MARKINGS, MARKERS, PAINT, TRAFFIC BUTTONS, TRAFFIC CONTROLS AND SIGNS SHALL BE INSTALLED IN ACCORDANCE WITH THE TEXAS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS AND BRIDGES AND, THE TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, LATEST EDITIONS.

EROSION AND SEDIMENTATION CONTROL NOTES:

1. EROSION CONTROL MEASURES, SITE WORK AND RESTORATION WORK SHALL BE IN ACCORDANCE WITH THE CITY OF ROUND ROCK EROSION AND SEDIMENTATION CONTROL ORDINANCE.
2. ALL SLOPES SHALL BE SODDED OR SEEDED WITH APPROVED GRASS, GRASS MIXTURES OR GROUND COVER SUITABLE TO THE AREA AND SEASON IN WHICH THEY ARE APPLIED.
3. SILT FENCES, ROCK BERMS, SEDIMENTATION BASINS AND SIMILARLY RECOGNIZED TECHNIQUES AND MATERIALS SHALL BE EMPLOYED DURING CONSTRUCTION TO PREVENT POINT SOURCE SEDIMENTATION LOADING OF DOWNSTREAM FACILITIES. SUCH INSTALLATION SHALL BE REGULARLY INSPECTED BY THE CITY OF ROUND ROCK FOR EFFECTIVENESS. ADDITIONAL MEASURES MAY BE REQUIRED IF, IN THE OPINION OF THE CITY ENGINEER, THEY ARE WARRANTED.
4. ALL TEMPORARY EROSION CONTROL MEASURES SHALL NOT BE REMOVED UNTIL FINAL INSPECTION AND APPROVAL OF THE PROJECT BY THE ENGINEER. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN ALL TEMPORARY EROSION CONTROL STRUCTURES AND TO REMOVE EACH STRUCTURE AS APPROVED BY THE ENGINEER.
5. ALL MUD, DIRT, ROCKS, DEBRIS, ETC., SPILLED, TRACKED OR OTHERWISE DEPOSITED ON EXISTING PAVED STREETS, DRIVES AND AREAS USED BY THE PUBLIC SHALL BE CLEANED UP IMMEDIATELY.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
WATER POLLUTION ABATEMENT PLAN
GENERAL CONSTRUCTION NOTES

1. A WRITTEN NOTICE OF CONSTRUCTION MUST BE SUBMITTED TO THE TCEQ REGIONAL OFFICE AT LEAST 48 HOURS PRIOR TO THE START OF ANY REGULATED ACTIVITIES. THIS NOTICE MUST INCLUDE:
   - THE NAME OF THE APPROVED PROJECT;
   - THE ACTIVITY START DATE; AND
   - THE CONTACT INFORMATION OF THE PRIME CONTRACTOR.
2. ALL CONTRACTORS CONDUCTING REGULATED ACTIVITIES ASSOCIATED WITH THIS PROJECT MUST BE PROVIDED WITH COMPLETE COPIES OF THE APPROVED WATER POLLUTION ABATEMENT PLAN (WPAP) AND THE TCEQ LETTER INDICATING THE SPECIFIC CONDITIONS OF ITS APPROVAL. DURING THE COURSE OF THESE REGULATED ACTIVITIES, THE CONTRACTORS ARE REQUIRED TO KEEP ON-SITE COPIES OF THE APPROVED PLAN AND APPROVAL LETTER.
3. IF ANY SENSITIVE FEATURE(S) (CAVES, SOLUTION CAVITY, SINK HOLE, ETC.) IS DISCOVERED DURING CONSTRUCTION, ALL REGULATED ACTIVITIES NEAR THE SENSITIVE FEATURE MUST BE SUSPENDED IMMEDIATELY. THE APPROPRIATE TCEQ REGIONAL OFFICE MUST BE IMMEDIATELY NOTIFIED OF ANY SENSITIVE FEATURES ENCOUNTERED DURING CONSTRUCTION. CONSTRUCTION ACTIVITIES MAY NOT BE RESUMED UNTIL THE TCEQ HAS REVIEWED AND APPROVED THE APPROPRIATE PROTECTIVE MEASURES IN ORDER TO PROTECT ANY SENSITIVE FEATURE AND THE EDWARDS AQUIFER FROM POTENTIALLY ADVERSE IMPACTS TO WATER QUALITY.
4. NO TEMPORARY OR PERMANENT HAZARDOUS SUBSTANCE STORAGE TANK SHALL BE INSTALLED WITHIN 150 FEET OF A WATER SUPPLY SOURCE, DISTRIBUTION SYSTEM, WELL, OR SENSITIVE FEATURE.
5. PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITY, ALL TEMPORARY EROSION AND SEDIMENTATION (E&S) CONTROL MEASURES MUST BE PROPERLY INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE APPROVED PLANS AND MANUFACTURERS SPECIFICATIONS. IF INSPECTIONS INDICATE A CONTROL HAS BEEN USED INAPPROPRIATELY, OR INCORRECTLY, THE APPLICANT MUST REPLACE OR MODIFY THE CONTROL FOR SITE SITUATIONS. THESE CONTROLS MUST REMAIN IN PLACE UNTIL THE DISTURBED AREAS HAVE BEEN PERMANENTLY STABILIZED.
6. ANY SEDIMENT THAT ESCAPES THE CONSTRUCTION SITE MUST BE COLLECTED AND PROPERLY DISPOSED OF BEFORE THE NEXT RAIN EVENT TO ENSURE IT IS NOT WASHED INTO SURFACE STREAMS, SENSITIVE FEATURES, ETC.
7. SEDIMENT MUST BE REMOVED FROM THE SEDIMENT TRAPS OR SEDIMENTATION BASINS NOT LATER THAN WHEN IT OCCUPIES 50% OF THE BASIN'S DESIGN CAPACITY.
8. LITTER, CONSTRUCTION DEBRIS, AND CONSTRUCTION CHEMICALS EXPOSED TO STORM WATER SHALL BE PREVENTED FROM BEING DISCHARGED OFFSITE.
9. ALL SPOILS (EXCAVATED MATERIAL) GENERATED FROM THE PROJECT SITE MUST BE STORED ON-SITE WITH PROPER E&S CONTROLS. FOR STORAGE OR DISPOSAL OF SPOILS AT ANOTHER SITE ON THE EDWARDS AQUIFER RECHARGE ZONE, THE OWNER OF THE SITE MUST RECEIVE APPROVAL OF A WATER POLLUTION ABATEMENT PLAN FOR THE PLACEMENT OF FILL MATERIAL OR MASS GRADING PRIOR TO THE PLACEMENT OF SPOILS AT THE OTHER SITE.
10. IF PORTIONS OF THE SITE WILL HAVE A TEMPORARY OR PERMANENT CEASE IN CONSTRUCTION ACTIVITY LASTING LONGER THAN 14 DAYS, SOIL STABILIZATION IN THOSE AREAS SHALL BE INITIATED AS SOON AS POSSIBLE PRIOR TO THE 14TH DAY OF INACTIVITY. IF ACTIVITY WILL RESUME PRIOR TO THE 21ST DAY, STABILIZATION MEASURES ARE NOT REQUIRED. IF DROUGHT CONDITIONS OR INCLEMENT WEATHER PREVENT ACTION BY THE 14TH DAY, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS POSSIBLE.
11. THE FOLLOWING RECORDS SHALL BE MAINTAINED AND MADE AVAILABLE TO THE TCEQ UPON REQUEST:
   - THE DATES WHEN MAJOR GRADING ACTIVITIES OCCUR;
   - THE DATES WHEN CONSTRUCTION ACTIVITIES TEMPORARILY OR PERMANENTLY CEASE ON A PORTION OF THE SITE; AND
   - THE DATES WHEN STABILIZATION MEASURES ARE INITIATED.
12. THE HOLDER OF ANY APPROVED EDWARD AQUIFER PROTECTION PLAN MUST NOTIFY THE APPROPRIATE REGIONAL OFFICE IN WRITING AND OBTAIN APPROVAL FROM THE EXECUTIVE DIRECTOR PRIOR TO INITIATING ANY OF THE FOLLOWING:

A. ANY PHYSICAL OR OPERATIONAL MODIFICATION OF ANY WATER POLLUTION ABATEMENT STRUCTURE(S), INCLUDING BUT NOT LIMITED TO PONDS, DAMS, BERMS, SEWAGE TREATMENT PLANTS, AND DIVERSIONARY STRUCTURES;

B. ANY CHANGE IN THE NATURE OR CHARACTER OF THE REGULATED ACTIVITY FROM THAT WHICH WAS ORIGINALLY APPROVED OR A CHANGE WHICH WOULD SIGNIFICANTLY IMPACT THE ABILITY OF THE PLAN TO PREVENT POLLUTION OF THE EDWARDS AQUIFER;

C. ANY DEVELOPMENT OF LAND PREVIOUSLY IDENTIFIED AS UNDEVELOPED IN THE ORIGINAL WATER POLLUTION ABATEMENT PLAN

AUSTIN REGIONAL OFFICE
12100 PARK 35 CIRCLE, BUILDING A
AUSTIN, TEXAS 78753-1808
PHONE (512) 339-2929
FAX (512) 339-3795

UTILITY PLACEMENT WITHIN CORR CONTROLLED AREA
GENERAL NOTES SHEET

1. UTILITY LINE IS A PUBLIC OR PRIVATE POWER, COMMUNICATION, TELEVISION, GAS, FIBER OPTIC AND IRRIGATION (DRY OR PRESSURE) LINE, CABLE, CONDUIT, PIPE OR TUBING.
2. UTILITY CLUSTER IS ANY NUMBER AND MIX OF DIRECT BURIED "DRY" UTILITY LINES IN A VERTICAL, HORIZONTAL OR BUNDLE CONFIGURATION.
3. ENCASEMENT IS ANY NUMBER OF CONDUITS, CASING PIPES (CONCRETE, PVC, CONDUIT BANK, WELDED STEEL, ETC.), AND/OR PROTECTIVE ARMOR BEDDING (CONCRETE, FLOWABLE FILL, ETC.)
4. ALL TRENCH SAFETY SHALL COMPLY WITH APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS.
5. UTILITY WORK SITE IS THE LOCATION WHERE A UTILITY IS MAINTAINED, REPAIRED AND/OR INSTALLED.
6. A COPY OF THE PERMIT IS REQUIRED ON THE UTILITY WORK SITE IN/ON CORR OWNED/LEASED PROPERTY, ROW, CORR EASEMENT OR PUE IMPACTING VEHICLE/PEDESTRIAN TRAFFIC, SAFETY OR CAUSES LIABILITY (TEMPORARY/LONG TERM). THIS EXCLUDES UNACCEPTED SUBDIVISIONS, CIP, STATE OR FEDERAL CONTROLLED PROPERTY, PRIVATELY CONTROLLED EASEMENTS & PRIVATELY OWNED PROPERTY.
7. VARIANCE FROM THESE STANDARDS IS ONLY ALLOWED, IF DETAILED PLANS HAVE WRITTEN APPROVAL BY THE CORR BEFORE CONSTRUCTION STARTS.
8. PUBLIC AREA EXCAVATION MUST BE BARRICADED WITH APPROVED VEHICLE AND PEDESTRIAN TRAFFIC CONTROL DEVICES BEFORE CONSTRUCTION STARTS.
9. INACTIVE (NO PERSONNEL PRESENT) EXCAVATION OUTSIDE OF AN EXISTING PAVEMENT, LEFT OPEN OVERNIGHT, MUST HAVE PEDESTRIAN FENCING & PLATING.
10. INACTIVE EXCAVATION MAY NOT REMAIN OPEN OVER A WEEKEND OR HOLIDAY WITHOUT PRIOR WRITTEN APPROVAL FROM THE CORR AND SAFE GUARDS.
11. TOTAL TRENCH WIDTH SHALL BE THE SUM OF THE OUTSIDE DIMENSION (OD) OF THE UTILITY CLUSTER OR ENCASEMENT PLUS A MINIMUM OF 2" IF THE OD IS LESS THAN 6 1/2", PLUS 6" IF THE OD IS BETWEEN 6 1/2" & 18", PLUS 12" IF THE OD IS MORE THAN 18" WITH A MAXIMUM OF 24".
12. FOR A UTILITY WORK SITE IN AN AREA THAT IS SCHEDULED FOR FUTURE PAVEMENT, SEE: ASPHALT PAVED AREA TRENCH (APAT) (DU-03) DETAIL.
13. FOR A UTILITY WORK SITE IN AN AREA THAT HAS EXISTING PAVEMENT, SEE: PROP. PAVEMENT AREA TRENCH (PPAT) (DU-04) DETAIL.
14. FOR A CROSSING OF A CORR OWNED UTILITY, SEE: UTILITY CROSSING INSTALLATION (UC) (DU-05) DETAIL.
15. REQUIRED ENCASEMENT MAY BE SCHEDULE 40 PVC, EXCEPT GAS, WHICH MUST BE SCHEDULE 40 WELDED JOINT STEEL OR SCHEDULE 80 PVC. OTHER TYPES OF ENCASEMENT REQUIRE CORR WRITTEN APPROVAL.
16. ALL ELECTRICAL CONDUCTIVE LINES (OVER 60 VOLTS) MUST BE ENCASED.
17. ALL UTILITY LINES MUST BE ENCASED UNDER EXISTING AND PROP. PAVEMENT, CROSSING ABOVE CORR LINES AND UNDER PROTECTED TREES.
18. WASHED SAND BEDDING MUST BE USED IN THE INSTALLATION WHEN WITHIN 10' OF A CORR OWNED UTILITY LINE, EXCEPT IN EXISTING PAVEMENT.
19. REQUIRED WASHED SAND BEDDING IN A TRENCH WITH SIDE WALL CLEARANCE LESS THAN 3" IS SMALL GRAIN (MAXIMUM 1/16") AND IN A TRENCH WITH SIDE WALL CLEARANCE MORE THAN 3" IS LARGE GRAIN (MAXIMUM 3/16"). BEDDING MUST BE CONSOLIDATED TO MINIMIZE AIR VOIDS.
20. ALL OF THE AREA(S) DISTURBED DIRECTLY BY, INDIRECTLY BY OR BECAUSE OF THE UTILITY WORK, WILL BE INCLUDED IN THE CLEAN UP.
21. CLEAN UP INCLUDES DRESS-OUT, EROSION CONTROL MAINTENANCE/REMOVAL, RESTORATION, DEBRIS REMOVAL/DISPOSAL & PAVEMENT SWEEPING/WASHING.
22. RESTORATION AS A MINIMUM, SHALL INCLUDE, FERTILIZER:
   - A) ANY LAWN LIKE AREAS – SOLID SODDING WITH GRASS LIKE EXISTING OR APPROVED BETTER.
   - B) GRADES 5% OR LESS – HYDRO-MULCHED.
   - C) GRADES ABOVE 5% UP TO 10% – MATTED AND HYDRO-MULCHED.
   - D) GRADES ABOVE 10% UP TO 25% – SOLID SODDING WITH GRASS LIKE EXISTING OR APPROVED BETTER.
   - E) GRADES ABOVE 25% – DETAIL PLANS AND CORR WRITTEN APPROVAL REQUIRED.

LEGEND FOR DU SHEETS	
PVC	POLYVINYL CHLORIDE PIPE OR CONDUIT
OD	OUTSIDE DIAMETER
GALS	UNITED STATES GALLONS – UNIT OF VOLUME
LBS	UNITED STATES POUNDS – UNIT OF WEIGHT
CORR	CITY OF ROUND ROCK
PUE	PUBLIC UTILITY EASEMENT
SY	UNITED STATES SQUARE YARDS – UNIT OF AREA
"	UNITED STATES INCH OR INCHES – UNIT OF LENGTH
'	UNITED STATES FOOT OR FEET – UNIT OF LENGTH
ETC	ABBREVIATION FOR ET CETERA, IN HENCE TO BE "AND SO FORTH"
ROW	RIGHT OF WAY OR RIGHTS OF WAY
LAB	ABBREVIATION FOR LABORATORY
°	UNITED STATES DEGREE – UNIT OF ANGLE
TV	TELEVISION

RECORD SIGNED COPY ON FILE AT PUBLIC WORKS
APPROVED
02-10-06
DATE
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL.

CITY OF ROUND ROCK
DRY UTILITY DETAILS GENERAL NOTES SHEET
DRAWING NO: DU-01

1 / C2.0 — DRY UTILITY DETAILS GENERAL NOTES SHEET
NOT TO SCALE

WATER			
PIPE SIZE	TYPE	LENGTH (LF)	VOL (GAL)
8"	C900	651	

WASTEWATER			
PIPE SIZE	TYPE	LENGTH (LF)	VOL (GAL)
8-INCH	SDR26	350	
6-INCH	SDR26	194	

STORM SEWER		
PIPE SIZE	TYPE	LENGTH (LF)
18-INCH	RCP III	77
24-INCH	RCP III	506
4-INCH	SCH 80	79

STORM SEWER MANHOLES	
SIZE	QTY
4-FT	1
5-FT	
6-FT	
7-FT	

INLETS	
SIZE	QTY
10-FT	4

CONCRETE VALLEY GUTTERS	
TOTAL	
110	LF

HNAC	
TOTAL	
711	SY

CURB AND GUTTER	
TOTAL	
743	LF

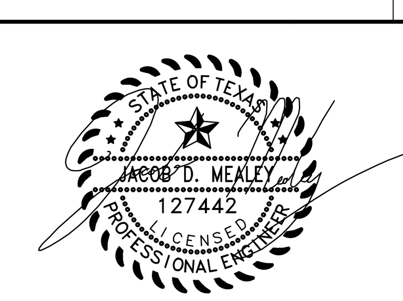
WASTEWATER MANHOLES	
SIZE	QTY
4-FT	4
5-FT	
6-FT	

SIDEWALK	
TOTAL	LF
4-FT	785
5-FT	

VALVES	
SIZE	TOTAL
8-INCH	5

FIRE HYDRANTS	
TOTAL	BRAND
1	

REV.	REVISION DESCRIPTION	DATE



09/22/2020

BM
IS MAG NAIL SET
ELEV. = 716.03'

DATUM:
NAVD88
GEOID 2016

BENCHMARK: CITY OF ROUND ROCK BRASS DISC AT CURB AT WEST END CURB INLET EXPANSION JOINT AT NORTHEAST CORNER OF MAYS STREET AND LOGAN STREET.
ELEV. = 726.76
NAVD88

ENGINEER / CONTACT
IECO, INC
FIRM REG# F-19777
P.O. BOX 2088
PFLUGERVILLE, TX 78691
CONTACT: JACOB D. MEALEY, PE
PH: (737) 226-4777
EMAIL: INFO@INSIGHTENGINEERING.NET

SURVEYOR
ALL STAR LAND SURVEYING
9020 ANDERSON MILL ROAD
AUSTIN, TX 78729
CONTACT: EDDIE RUMSEY
PHONE: (512) 249-8149
FAX: (512) 331-5217
TBPLS FIRM # 10135000

OWNERS / APPLICANT
RAMENDU DUPLEX AT ROUND ROCK LLC
3016 PASEO DE CHARROS
CEDAR PARK, TX 78641
CONTACT: MARSHALL HUSSAIN
PHONE: (512) 698-1976
EMAIL: MARSHALL1@GMAIL.COM

LEGAL DESCRIPTION
2.77 ACRES OF LAND OUT OF THE WILEY HARRIS SURVEY, ABSTRACT NUMBER 298, WILLIAMSON COUNTY, TEXAS, CONSISTING OF THREE TRACTS CONVEYED TO THAT CERTAIN RICHARD CEPEDA, BEING 1.873 ACRES, RECORDED IN DOCUMENT NUMBER 2010078846, 0.824 ACRES RECORDED IN DOCUMENT 2017105955, AND A PORTION OF A 0.1899 ACRE TRACT RECORDED IN DOCUMENT NUMBER 2017045099, ALL OF THE OFFICIAL PUBLIC RECORDS, WILLIAMSON COUNTY, TEXAS.

IECO, INC
555 ROUND ROCK W DR STE E 216
ROUND ROCK, TX 78681
1 (737)-226-4777
INFO@INSIGHTENGINEERING.NET

SITE ADDRESS: 210 LOGAN ROAD, 704 MANDELL STREET, ROUND ROCK, TX 78664

TAX ACCOUNT NO.'S: R058893, R053078

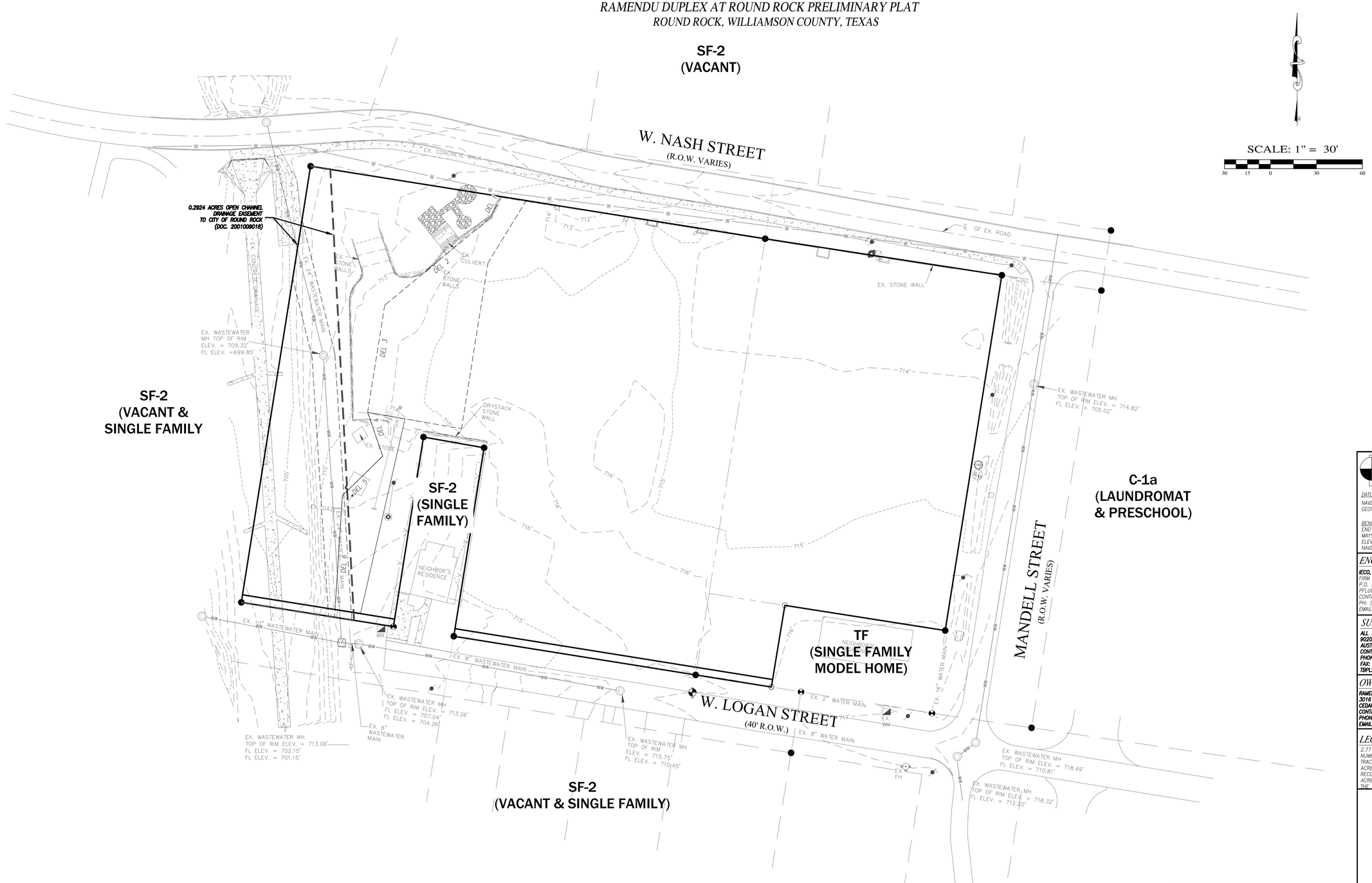
PERMIT NO: SIP2004-0001

RAMENDU DUPLEX AT ROUND ROCK

DWG FILENAME	DESIGNED BY:	DATE:	SCALE:	JOB NO.:
T190006-FINAL.DWG	JRC	01-31-2020	N.T.S.	T19-0006

GENERAL NOTES — SHEET C2.0

RAMENDU DUPLEX AT ROUND ROCK PRELIMINARY PLAT
ROUND ROCK, WILLIAMSON COUNTY, TEXAS



BM
IS MAG NAIL SET
ELEV. = 716.03'

DATUM:
NAVD88
GEOID 2016

BENCHMARK: CITY OF ROUND ROCK BRASS DISC AT CURB AT WEST END CURB INLET EXPANSION JOINT AT NORTHEAST CORNER OF MAYS STREET AND LOGAN STREET.
ELEV. = 726.76
NAVD88

ENGINEER / CONTACT

IECO, INC
FIRM REG# F-19777
P.O. BOX 2088
PFLUGERVILLE, TX 78691
CONTACT: JACOB D. MEALEY, PE
PH: (737) 226-4777
EMAIL: INFO@INSIGHTENGINEERING.NET

SURVEYOR

ALL STAR LAND SURVEYING
9020 ANDERSON MILL ROAD
AUSTIN, TX 78729
CONTACT: EDDIE RUMSEY
PHONE: (512) 249-8149
FAX: (512) 331-5217
TBPLS FIRM # 10135000

OWNERS / APPLICANT

RAMENDU DUPLEX AT ROUND ROCK LLC
3016 PASEO DE CHARROS
CEDAR PARK, TX 78641
CONTACT: MARSHALL HUSSAIN
PHONE: (512) 698-1976
EMAIL: MARSHALL1@GMAIL.COM

LEGAL DESCRIPTION

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IECO, INC
555 ROUND ROCK W DR STE E 216
ROUND ROCK, TX 78681
1 (737)-226-4777
INFO@INSIGHTENGINEERING.NET

REV.	REVISION DESCRIPTION	DATE

STATE OF TEXAS
JACOB D. MEALEY
127442
LICENSED
PROFESSIONAL ENGINEER
09/22/2020

SITE ADDRESS: 210 LOGAN ROAD, 704 MANDELL STREET, ROUND ROCK, TX 78664

TAX ACCOUNT NO.'S: R058893, R053078

PERMIT NO: SIP2004,0001

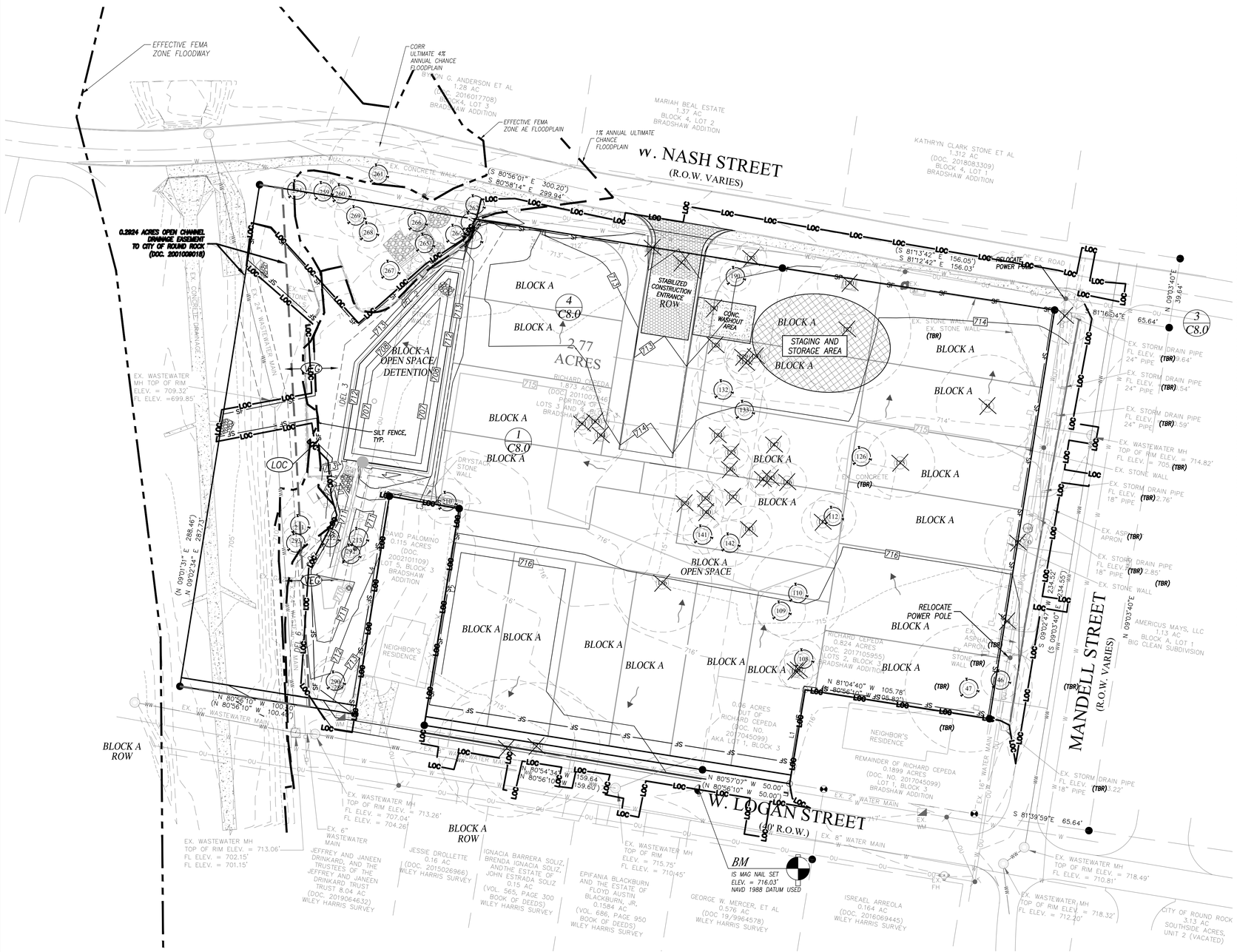
RAMENDU DUPLEX AT ROUND ROCK

DWG FILENAME	DESIGNED BY:	DATE:	SCALE:	JOB NO.:
T190006-FINAL.DWG	JRC	01-31-2020	1"=30'	T19-0006

AREA PLAN

SHEET
C3.0

RAMENDU DUPLEX AT ROUND ROCK PRELIMINARY PLAT
ROUND ROCK, WILLIAMSON COUNTY, TEXAS



SCALE: 1" = 30'

30 15 0 30 60

TREE LIST:

#, TYPE, SIZE
17, PECAN 15"
46, PECAN 10"
47, ELM 20" 17"
48, LIGUSTRUM 8" 7" 7" 7"
73, PECAN 28"
92, PECAN 18"
106, HACKBERRY 9"
107, HACKBERRY 10"
108, HACKBERRY 10"
109, PECAN 13"
110, LIGUSTRUM 11" 10" 10" 9"
111, ELM 11"
112, HACKBERRY 12"
125, PECAN 19"
126, LIGUSTRUM 9" 8"
127, PECAN 33"
128, PECAN 10"
129, PECAN 9"
130, PECAN 17"
131, PECAN 10"
132, PECAN 17"
133, PECAN 12"
134, PECAN 12"
135, PECAN 9"
136, PECAN 12"
137, PECAN 12"
138, PECAN 9"
139, PECAN 17"
140, PECAN 9"
141, PECAN 10"
142, PECAN 12"
143, PECAN 12"
144, PECAN 8"
145, PECAN 11"
146, PECAN 10"
147, PECAN 8"
156, ELM 27"
170, ELM 17"
175, PECAN 8"
185, SPANISH OAK 8"
190, PECAN 8"
191, PECAN 9"
192, PECAN 8"
213, PECAN 8" 5"
259, PECAN 8"
260, PECAN 8"
261, LIVE OAK 28"
262, PECAN 11"
263, PECAN 8"
264, PECAN 16"
265, PECAN 10"
266, PECAN 9"
267, PECAN 10"
268, PECAN 8"
269, PECAN 11"
273, COTTONWOOD 35"
274, COTTONWOOD 38"
289, HACKBERRY 15"
290, HACKBERRY 10" 5"

NOTES:

1. TREE RELOCATION MUST BE COORDINATED WITH PLANNING AND DEVELOPMENT SERVICES FORESTRY REVIEWER.
2. STREET TO REMAIN OPERATIONAL TO TRAFFIC UNLESS PERMISSION FOR CLOSURE IS OBTAINED FROM THE REVIEW AND APPROVAL OF TRAFFIC CONTROL PLAN WILL BE REQUIRED PRIOR TO ANY PERMITTED STREET CLOSURE.
3. ANY DIRT, MUD, ROCK DEBRIS, ETC. THAT IS SPILLED, TRACKED, OR OTHERWISE DISPOSED ON ANY EXISTING OR PAVED STREET SHALL BE CLEANED UP IMMEDIATELY.
4. ALL DISTURBED AREAS SHALL BE REVEGETATED.

SEQUENCE OF CONSTRUCTION

1. OBTAIN ALL NECESSARY PERMITS & APPROVALS.
2. CONTACT THE SEDIMENT AND EROSION CONTROL INSPECTOR TO SET UP A PRELIMINARY CONSTRUCTION MEETING 48 HOURS PRIOR TO ANY LAND DISTURBANCE.
3. CLEAR AND DEMOLISH AREAS ONLY NECESSARY TO INSTALL PHASE 1 EROSION CONTROL MEASURES.
4. INSTALL STABILIZED CONSTRUCTION ENTRANCE PERIMETER SILT FENCING.
5. COMMENCE REMAINING DEMOLITION, GRADING AND UTILITY AND STORM DRAIN INSTALLATION. MAINTAIN ALL EROSION CONTROL MEASURES UNTIL THE SITE IS PERMANENTLY STABILIZED. TEMPORARY STABILIZE ALL DISTURBED AREAS WHERE WORK HAS CEASED FOR 14 DAYS OR MORE.
6. PROVIDE INLET PROTECTION BEFORE INLETS START RECEIVING RUN-OFF.
7. ESTABLISH BUILDING PAD AND COMMENCE ESTABLISH BUILDING PAD AND COMMENCE BUILDING ERECTION.
8. INSTALL LANDSCAPING AND PERMANENTLY STABILIZE ALL DISTURBED AREAS.
9. FINISH BUILDING CONSTRUCTION.
10. CALL CITY OF ROUND ROCK FOR INSPECTION.
11. CLEAN OUT STORM DRAIN SYSTEM AND REMOVE REMAINING EROSION CONTROL MEASURES UPON APPROVAL BY THE CITY.
12. FOR TREE PROTECTION SEE DETAIL ON SHEET C8

E.S.C. LEGEND

- SF — SILT FENCE — 1 / C8.0
- (147) — TREES TO BE SAVED — 2 / C8.0
- (147) — TREES TO BE REMOVED
- IP — IP — INLET PROTECTION — 3 / C8.0
- TEMPORARY CONSTRUCTION ENTRANCE — 4 / C8.0
- LIMITS OF CONSTRUCTION
- LOC — LIMITS OF CONSTRUCTION
- VEG — VEGETATION
- MU — MULCH &/OR STRAW MATTING
- FLOW ARROW (EX.)

BM

IS MAG NAIL SET
ELEV. = 716.03'

DATUM:
NAVD88
GEOID 2016

BENCHMARK: CITY OF ROUND ROCK BRASS DISC AT CURB AT WEST END CURB INLET EXPANSION JOINT AT NORTHEAST CORNER OF MAYS STREET AND LOGAN STREET.
ELEV. = 726.76
NAVD88

ENGINEER / CONTACT

IECO, INC
FIRM REG# F-19777
P.O. BOX 2088
PFLUGERVILLE, TX 78691
CONTACT: JACOB D. MEALEY, PE
PH: (737) 226-4777
EMAIL: INFO@INSIGHTENGINEERING.NET

SURVEYOR

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AUSTIN, TX 78729
CONTACT: EDDIE RUMSEY
PHONE: (512) 249-8149
FAX: (512) 331-5217
TBPLS FIRM # 10135000

OWNERS / APPLICANT

RAMENDU DUPLEX AT ROUND ROCK LLC
3016 PASEO DE CHARROS
CEDAR PARK, TX 78641
CONTACT: MARSHALL HUSSAIN
PHONE: (512) 698-1976
EMAIL: MARSHALL1@GMAIL.COM

LEGAL DESCRIPTION

2.77 ACRES OF LAND OUT OF THE WILEY HARRIS SURVEY, ABSTRACT NUMBER 298, WILLIAMSON COUNTY, TEXAS, CONSISTING OF THREE TRACTS CONVEYED TO THAT CERTAIN RICHARD CEPEDA, BEING 1.873 ACRES, RECORDED IN DOCUMENT NUMBER 2010078846, 0.824 ACRES RECORDED IN DOCUMENT 2017105955, AND A PORTION OF A 0.1899 ACRE TRACT RECORDED IN DOCUMENT NUMBER 2017045099, ALL OF THE OFFICIAL PUBLIC RECORDS, WILLIAMSON COUNTY, TEXAS.

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ROUND ROCK, TX 78681
1 (737)-226-4777
INFO@INSIGHTENGINEERING.NET

REV.	REVISION DESCRIPTION	DATE

SITE ADDRESS: 210 LOGAN ROAD, 704 MANDELL STREET, ROUND ROCK, TX 78664

TAX ACCOUNT NO.'S: R058893, R053078

PERMIT NO: SIP2004-0001

STATE OF TEXAS — JACOB D. MEALEY — 127442 — LICENSED PROFESSIONAL ENGINEER

09/22/2020

NOTE: CITY INFRASTRUCTURE, INCLUDING ALL STREET IMPROVEMENTS, PAVERS, SIDEWALK, PAVEMENT, CURB & GUTTER, STORM WATER INFRASTRUCTURE, STRIPING, LANDSCAPING, ETC., TO BE PROTECTED THROUGHOUT DURATION OF CONSTRUCTION. ANY DAMAGES WILL BE REPAIRED TO ORIGINAL CONDITION AT OWNER/CONTRACTOR'S EXPENSE.

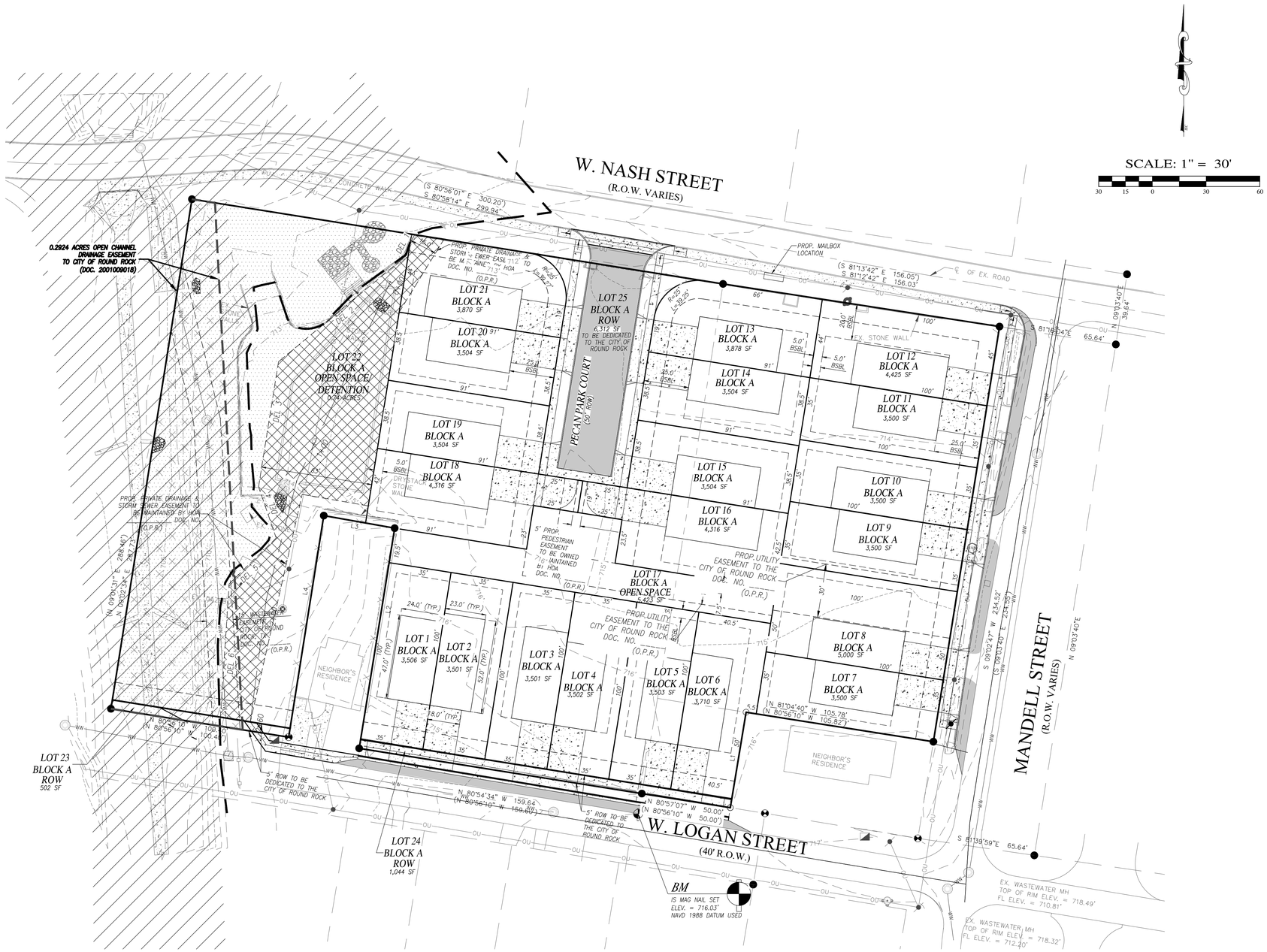
RAMENDU DUPLEX AT ROUND ROCK

DWG FILENAME	DESIGNED BY:	DATE:	SCALE:	JOB NO.:
T190006-FINAL.DWG	JRC	01-31-2020	1"=30'	T19-0006

DEMOLITION AND EROSION & SEDIMENTATION CONTROL PLAN

SHEET C4.0

RAMENDU DUPLEX AT ROUND ROCK PRELIMINARY PLAT
ROUND ROCK, WILLIAMSON COUNTY, TEXAS



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JACOB D. MEALEY
127442
LICENSED
PROFESSIONAL ENGINEER
09/22/2020

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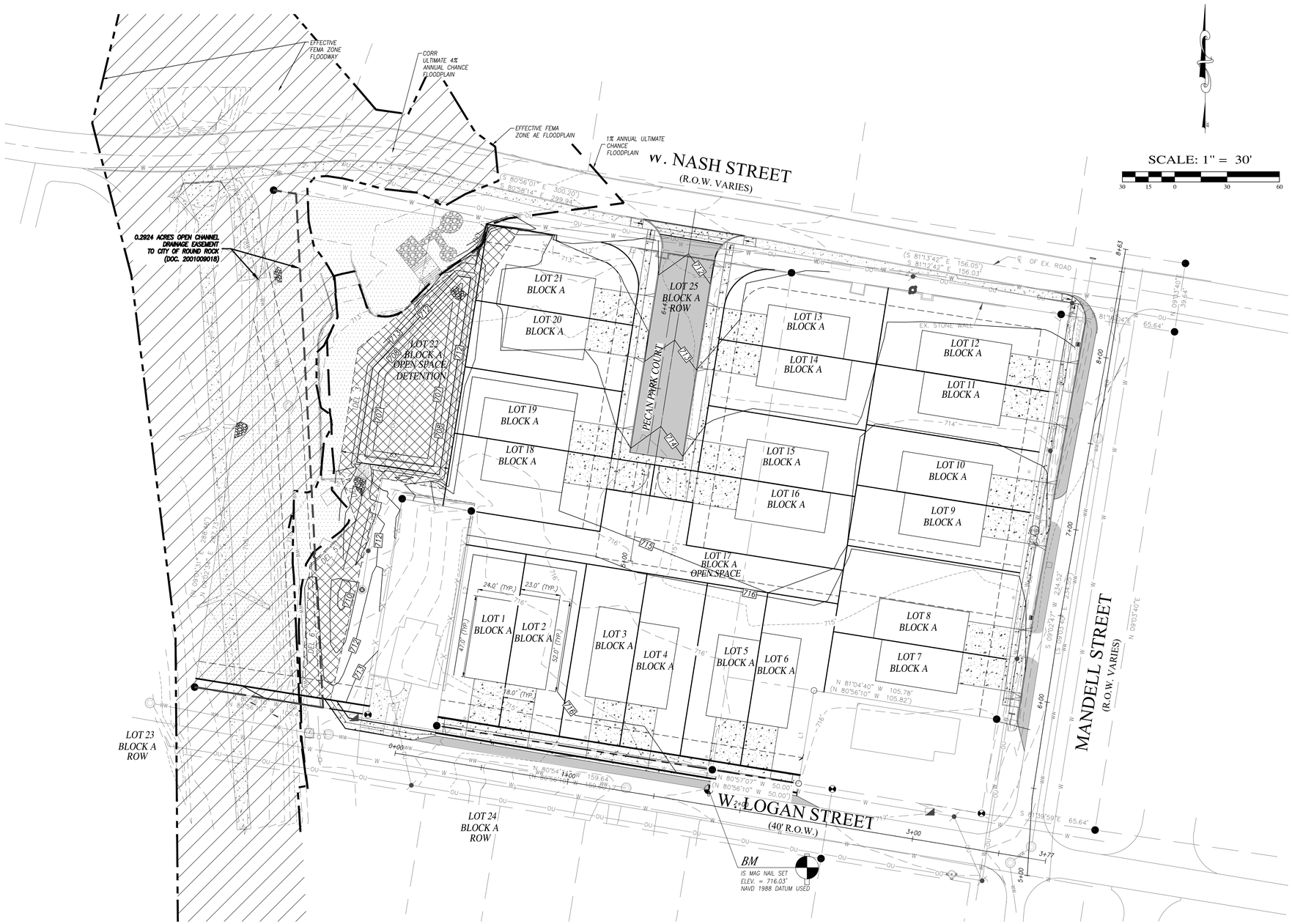
SITE PLAN

SHEET C5.0

RAMENDU DUPLEX AT ROUND ROCK PRELIMINARY PLAT
ROUND ROCK, WILLIAMSON COUNTY, TEXAS



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SOIL TYPE
HOUSTON BLACK CLAY

GRADING QUANTITIES:
CUT: 2547 Cu.Yds.
FILL: 1474 Cu.Yds.

(GRADING QUANTITIES WERE CALCULATED USING THE LAND DEVELOPMENT DESKTOP COMPOSITE METHOD. CALCULATIONS DO NOT ACCOUNT FOR SOIL SWELLING AND SHRINKAGE.)

NOTE:
1. EXCESS CUT MAY BE SPREAD ON SITE.
2. ALL BACKFILL OF EXISTING TREE WELL SHALL DONE TO OBTAIN A MINIMUM OF 95% COMPACTION MAXIMUM DENSITY TO THE BOTTOM OF BASE MATERIAL IN SIDEWALK OR PAVED AREAS. MATERIAL USED SHALL BE PRIMARILY GRANULAR WITH NO ROCKS LARGER THAT 6" IN THE GREATEST DIMENSION.

REV.	REVISION DESCRIPTION	DATE

STATE OF TEXAS
JACOB D. MEALEY
127442
LICENSED
PROFESSIONAL ENGINEER
09/22/2020

BM
IS MAG NAIL SET
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DATUM:
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PERMIT NO: SIP2004-0001

RAMENDU DUPLEX AT ROUND ROCK

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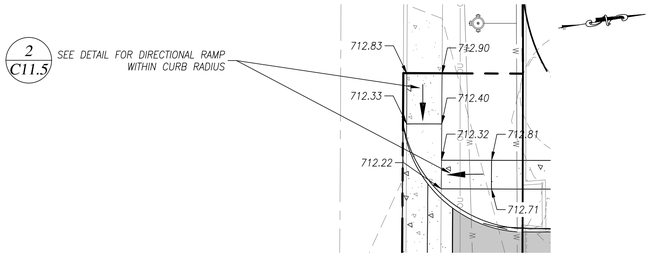
T190006-FINAL.DWG	JRC	01-31-2020	1"=30'	T19-0006

GRADING PLAN

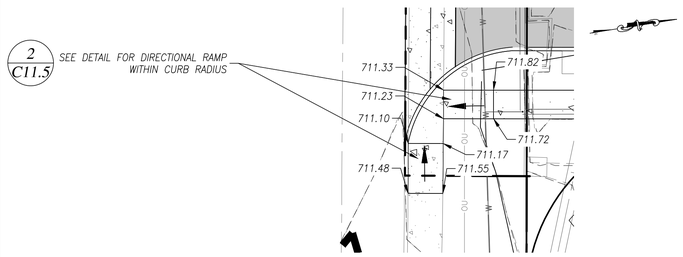
SHEET C6.0

RAMENDU DUPLEX AT ROUND ROCK PRELIMINARY PLAT
ROUND ROCK, WILLIAMSON COUNTY, TEXAS



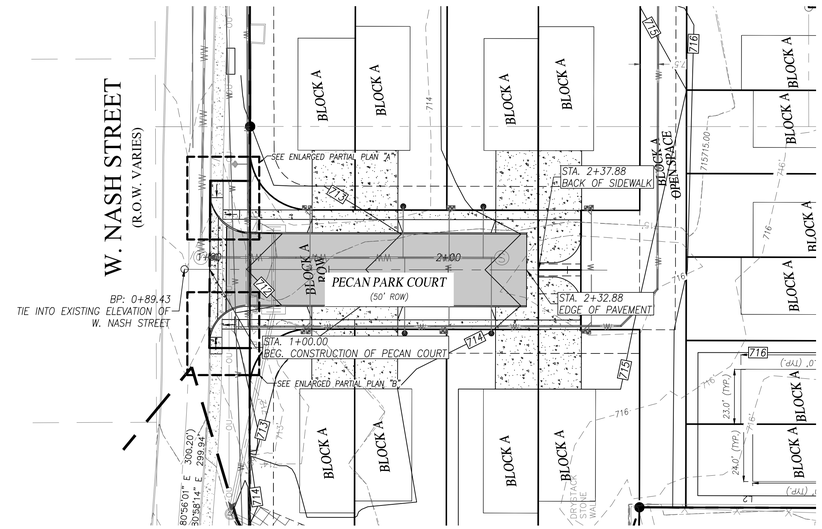
ENLARGED PARTIAL PLAN " A"

SCALE: 1"=10'



ENLARGED PARTIAL PLAN " B"

SCALE: 1"=10'



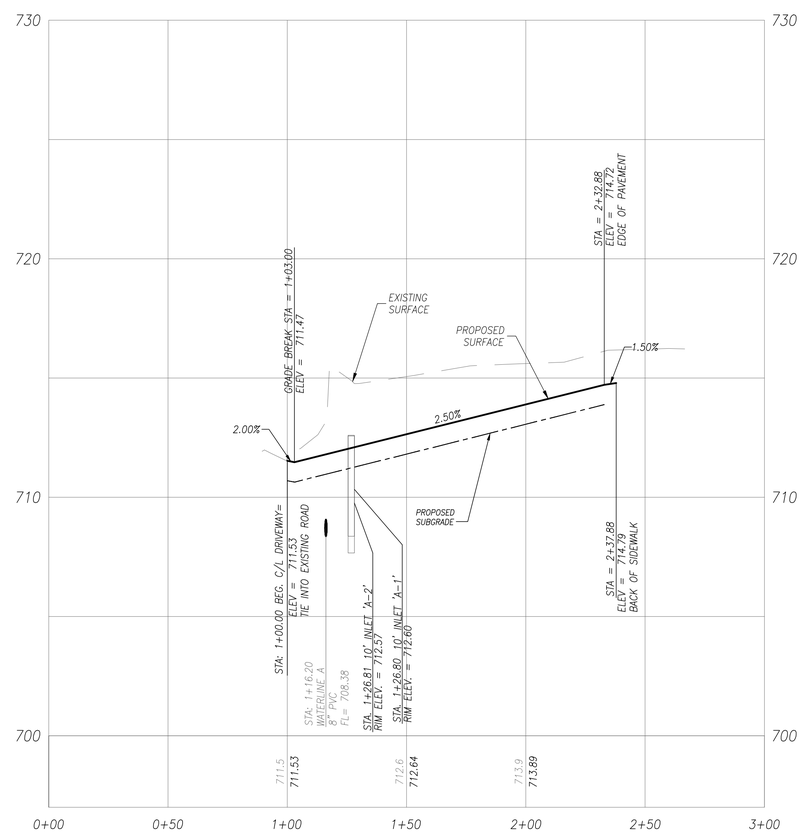
PECAN PARK COURT PLAN

SCALE: 1"=30' HORIZ, 1"=3' VERT

SCALE: 1" = 30'

30 15 0 30 60

DESIGN SPEED 10 MPH



PECAN PARK COURT PROFILE

SCALE: 1"=30' HORIZ, 1"=3' VERT

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NOTE:

SAW CUT, REMOVE MIN. 1FT OF EXISTING PAVEMENT OR MIN. 1FT PAST EDGE OF UNSATISFACTORY PAVEMENT, WHICHEVER IS GREATER.

REV.	REVISION DESCRIPTION	DATE

STATE OF TEXAS
JACOB D. MEALEY
127442
LICENSED
PROFESSIONAL ENGINEER

09/22/2020

BM

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ELEV. = 716.03'

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TAX ACCOUNT NO.'S: R058893, R053078

PERMIT NO: SIP2004-0001

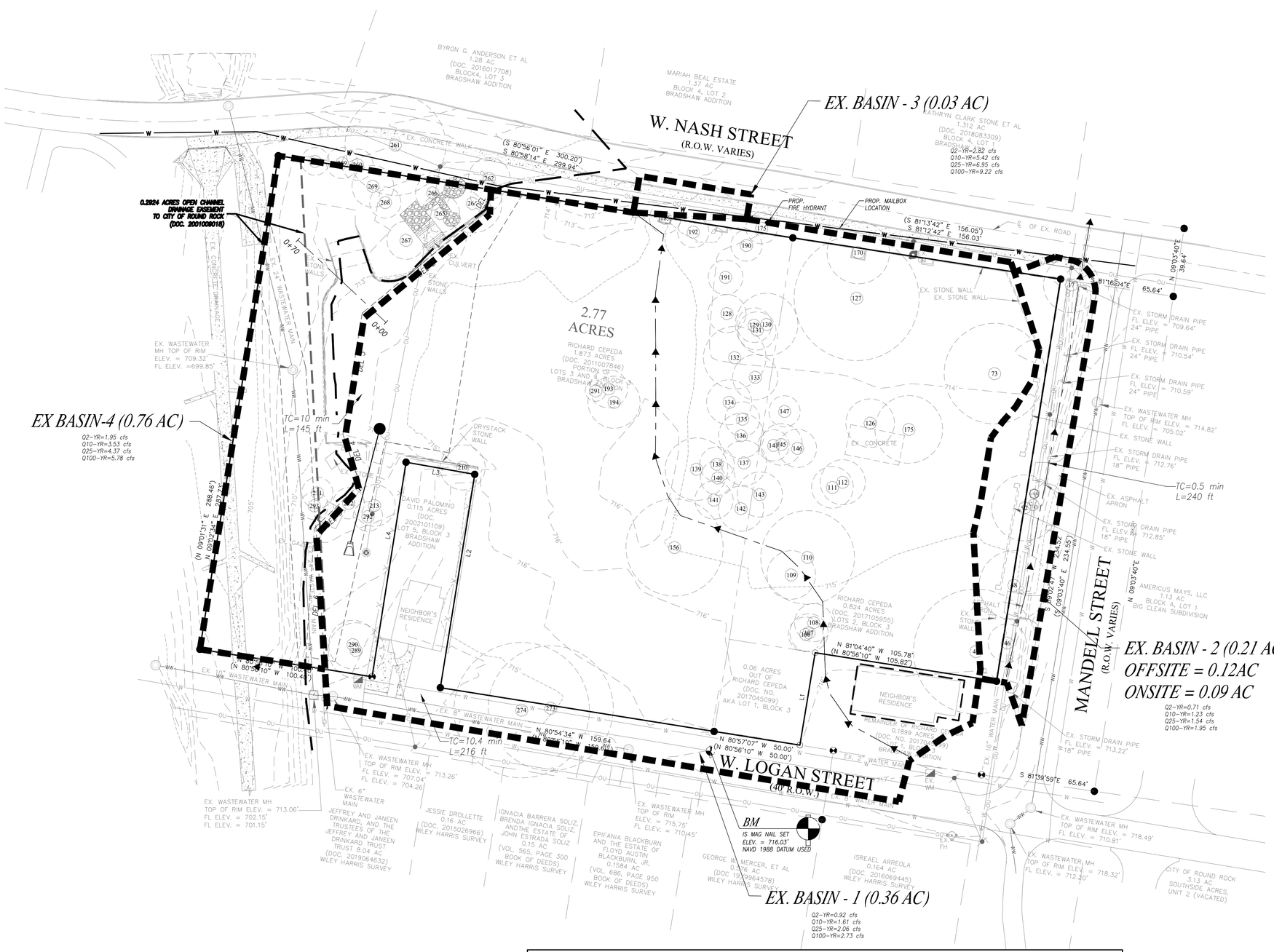
RAMENDU DUPLEX AT ROUND ROCK

DWG FILENAME	DESIGNED BY:	DATE:	SCALE:	JOB NO.:
T190006-FINAL.DWG	JRC	01-31-2020	1"=30'	T19-0006

PECAN PARK CT. PLAN & PROFILE

SHEET C6.1

RAMENDU DUPLEX AT ROUND ROCK PRELIMINARY PLAT
ROUND ROCK, WILLIAMSON COUNTY, TEXAS



Existing Sub-Basin 1

Total Area = 2.58 Acres

Onsite = 2.18 Acres

Onsite Impervious Areas:

Ex Concrete Pad	*553 SF (0.01 Acres)*
Ex Wall	*895 SF (0.02) Acres*
Total Ex Onsite Impervious	*1,448 SF (0.03 Acres)*

***Pervious Areas** = 2.15 Acres*

Offsite = 0.40 Acres
Offsite Impervious Areas:

Ex Driveway	*533 SF (0.01 Acres)*
Ex Road	*3,587 SF (0.08 Acres)*
Ex Roof	*2,820 SF (0.07 Acres)*
Total Ex Offsite Impervious	*6,940 SF (0.16 Acres)*

***Offsite Pervious Areas** = 0.24 Acres*

Total Impervious = 8,388 SF (0.19 Acres)
Total Pervious = 2.39 Acres

Weighted CN = 98x0.07 + 84x0.87 + 91x0.03 + 79x0.03 = 85
(Imp) (Grassland) (Gravel/Rocks) (Woods)

Existing Sub-Basin 2

Total Area = 0.21 Acres

Onsite = 0.09 Acres
Onsite Impervious Areas:

Ex Driveway	*1,597 SF (0.04 Acres)*
Ex Wall	*455 SF (0.01 Acres*
Total Ex Impervious	*2,052 SF (0.05 Acres)*

***Pervious Areas** = 0.04 Acres*

Offsite = 0.12 Acres (entire offsite is pervious)

Weighted CN = 98x0.24 + 84x0.64 + 91x0.03 + 79x0.09 = 87
(Imp) (Grassland) (Gravel/Rocks) (Woods)

Existing Sub-Basin 3

Total Area = 0.03 Acres

Impervious Areas:

Ex Sidewalk	*350 SF (0.01 Acres)*
Total Ex Impervious	*350 SF (0.01 Acres)*

***Pervious Areas** = 0.02 Acres*

Weighted CN = 98x0.33 + 84x0.67 = 88
(Imp) (Grassland)

Existing Sub-Basin 4

Total Area = 0.48 Acres
Existing Impervious = 2,250 SF (0.05 Acres)
Pervious Areas = 0.43 Acres

Weighted CN = 98x0.10 + 84x0.75 + 91x0.06 + 79x0.09 = 85
(Imp) (Grassland) (Gravel/Rocks) (Woods)

SCALE: 1" = 30'

30 15 0 30 60

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DATUM:
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RAMENDU DUPLEX AT ROUND ROCK

DWG FILENAME	DESIGNED BY:	DATE:	SCALE:	JOB NO.:
T190006-FINAL.DWG	JRC	01-31-2020	N.T.S.	T19-0006

EXISTING CONDITIONS BASIN MAP — SHEET *C7.1*

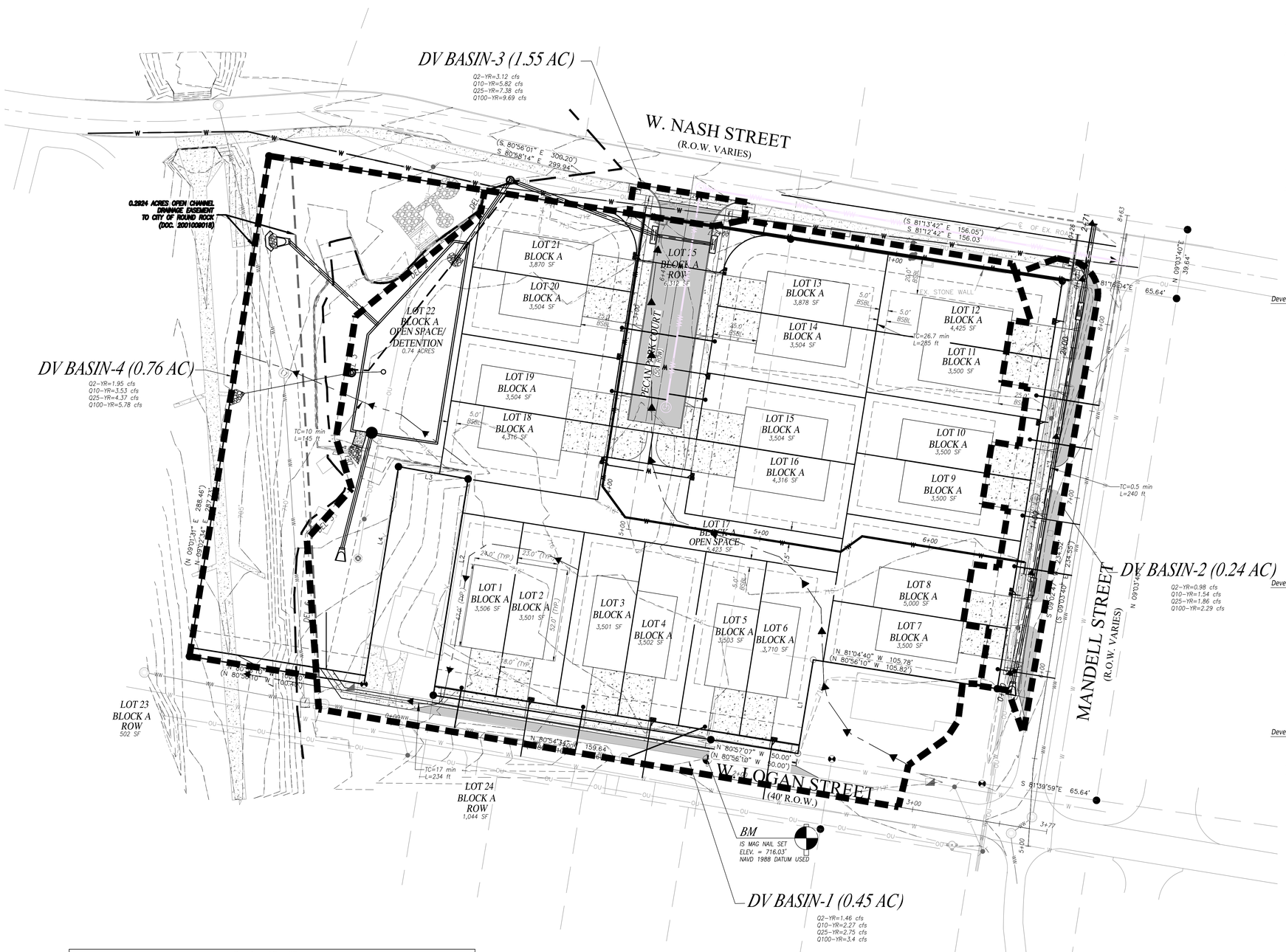
Existing Conditions

Hydrologic Parameters						HEC-HMS Results			
Basin	Area (ac)	Area (sq mi)	Impervious Cover (sf)	Impervious Cover (%)	Lag Time (min)	2 YR (cfs)	10 YR (cfs)	25 YR (cfs)	100 YR (cfs)
EX-1	2.58	0.00403125	8,388	7%	7.15	7.8	13.5	17.4	23.9
EX-2	0.21	0.000328125	2,052	22%	3	0.9	1.5	1.9	2.6
EX-3	0.03	0.000046875	350	27%	3	0.1	0.2	0.3	0.4
EX-4	0.48	0.00075	2,250	11%	3	1.9	3.3	4.2	5.7
Total Run-off						10.7	18.5	23.8	32.6

Ramendu Duplex at Round Rock - Existing Conditions

SUB-WATER-SHED	SHEET FLOW					SHALLOW CONCENTRATED FLOW				CHANNEL/PIPE FLOW					TIME OF CONC.	LAG TIME
NAME	Length Ft	Manning's "n"	Slope Ft/Ft	2-Year 24-HR RF In	Travel Time Min.	Length Ft	Slope Ft/Ft	Channel Type Unpaved or Paved	Travel Time Min.	Length Ft	Slope Ft/Ft	Channel Type Channel or Pipe	Vel. Ft/Sec	Travel Time Min.	Min.	Min.
EX1	191	0.1	0.015	4.01	11.91	0	0.02	Unpaved	0	0	0	Channel	0.00	0	11.91	7.15
EX2	0	0	0.02	4.01	0.00	0	0.02	Unpaved	0	250	1.5	Channel	4.52	0.921829	5.00	3.00
EX3	25	0.02	0.02	4.01	0.58	0	0.02	Unpaved	0	0	0	Channel	0.00	0	5.00	3.00
EX4	48	0.1	0.1	4.01	1.85	0	0.02	Unpaved	0	0	0	Channel	0.00	0	5.00	3.00

RAMENDU DUPLEX AT ROUND ROCK PRELIMINARY PLAT
ROUND ROCK, WILLIAMSON COUNTY, TEXAS



Developed Sub-Basin 1

Total Area= 2.57 Acres

Onsite = 2.17 Acres
Onsite Impervious Areas:

*Roof**	*25,000 SF (0.57 Acres)*
Driveways	*9,100 SF (0.21 Acres)*
Sidewalk	*1,210 SF (0.03 Acres)*
Road	*7,400 SF (0.17 Acres)*
Total Impervious	*42,710 SF (0.98 Acres)*

**Roof area was calculated at 2,500 SF per duplex.*

***Onsite Pervious Areas** = 1.19 Acres*

Offsite = 0.40 Acres
Offsite Impervious Areas:

Ex Driveway	*533 SF (0.01 Acres)*
Ex Road	*3,587 SF (0.08 Acres)*
Ex Roof	*2,820 SF (0.07 Acres)*
Total Ex Offsite Impervious	*6,940 SF (0.16 Acres)*

***Offsite Pervious Areas** = 0.24 Acres*

Total Impervious = 49,650 SF (1.14 Acres)
Total Pervious = 1.43 Acres

Weighted CN = 98x0.44 + 80x0.54 + 79x0.02 = 88
(Imp) (Lawn) (Woods)

Developed Sub-Basin 2

Total Area= 0.24 Acres

Onsite = 0.12 Acres
Onsite Impervious Areas:

Driveways	*= 3,900 SF (0.09 Acres)*
Total Onsite Impervious	*= 3,900 SF (0.09 Acres)*

***Onsite Pervious Areas** = 0.03 Acres*

Offsite = 0.12 Acres
Offsite Impervious Areas:

Sidewalk	*= 575 SF (0.01 Acres)*
Road	*= 1,800 SF (0.04 Acres)*
Total Offsite Impervious	*= 2,375 SF (0.05 Acres)*

***Pervious Areas** = 0.07 Acres*

Total Impervious = 6,275 SF (0.14 Acres)
Total Pervious = 0.10 Acres

Weighted CN = 98x0.58 + 80x0.42 = 90
(Imp) (Lawn)

Developed Sub-Basin 3

Total Area = 0.03 Acres

Impervious Areas:

Sidewalk	*= 426 SF (0.01 Acres)*
Road	*= 310 SF (0.01 Acres)*
Total Impervious	*= 736 SF (0.02 Acres)*

***Pervious Areas** = 0.01 Acres*

Weighted CN = 98x0.58 + 80x0.42 = 90
(Imp) (Lawn)

Developed Sub-Basin 4

Total Area = 0.48 Acres
Existing Impervious = 2,250 SF (0.05 Acres)
Pervious Areas = 0.43 Acres

Weighted CN = 98x0.10 + 84x0.75 + 91x0.06 + 79x0.09 = 85
(Imp) (Grassland) (Gravel/Rocks) (Woods)

SCALE: 1" = 30'

30 15 0 30 60

BM
IS MAG NAIL SET
ELEV. = 716.03'

DATUM:
NAVD88
GEOID 2016

BENCHMARK: CITY OF ROUND ROCK BRASS DISC AT CURB AT WEST END CURB INLET EXPANSION JOINT AT NORTHEAST CORNER OF MAYS STREET AND LOGAN STREET.
ELEV. = 726.76
NAVD88

ENGINEER / CONTACT

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FIRM REG# F-19777
P.O. BOX 2088
PFLUGERVILLE, TX 78691
CONTACT: JACOB D. MEALEY, PE
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SURVEYOR

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TBPLS FIRM # 10135000

OWNERS / APPLICANT

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CEDAR PARK, TX 78641
CONTACT: MARSHALL HUSSAIN
PHONE: (512) 698-1976
EMAIL: MARSHALL1@GMAIL.COM

LEGAL DESCRIPTION

2.77 ACRES OF LAND OUT OF THE WILEY HARRIS SURVEY, ABSTRACT NUMBER 298, WILLIAMSON COUNTY, TEXAS, CONSISTING OF THREE TRACTS CONVEYED TO THAT CERTAIN RICHARD CEPEDA, BEING 1.873 ACRES, RECORDED IN DOCUMENT NUMBER 2010078846, 0.824 ACRES RECORDED IN DOCUMENT 2017105955, AND A PORTION OF A 0.1899 ACRE TRACT RECORDED IN DOCUMENT NUMBER 2017045099, ALL OF THE OFFICIAL PUBLIC RECORDS, WILLIAMSON COUNTY, TEXAS.

IECO, INC
555 ROUND ROCK W DR STE E 216
ROUND ROCK, TX 78681
1 (737)-226-4777
INFO@INSIGHTENGINEERING.NET

REV.	REVISION DESCRIPTION	DATE

STATE OF TEXAS
JACOB D. MEALEY
127442
LICENSED PROFESSIONAL ENGINEER

09/22/2020

SITE ADDRESS: *210 LOGAN ROAD, 704 MANDELL STREET ROUND ROCK, TX 78664*

TAX ACCOUNT NO.'S: *R058893, R053078*

PERMIT NO: SIP2004-0001

RAMENDU DUPLEX AT ROUND ROCK

DWG FILENAME	DESIGNED BY:	DATE:	SCALE:	JOB NO.:
T190006-FINAL.DWG	JRC	01-31-2020	N.T.S.	T19-0006

DEVELOPED CONDITIONS BASIN MAP — SHEET *C7.2*

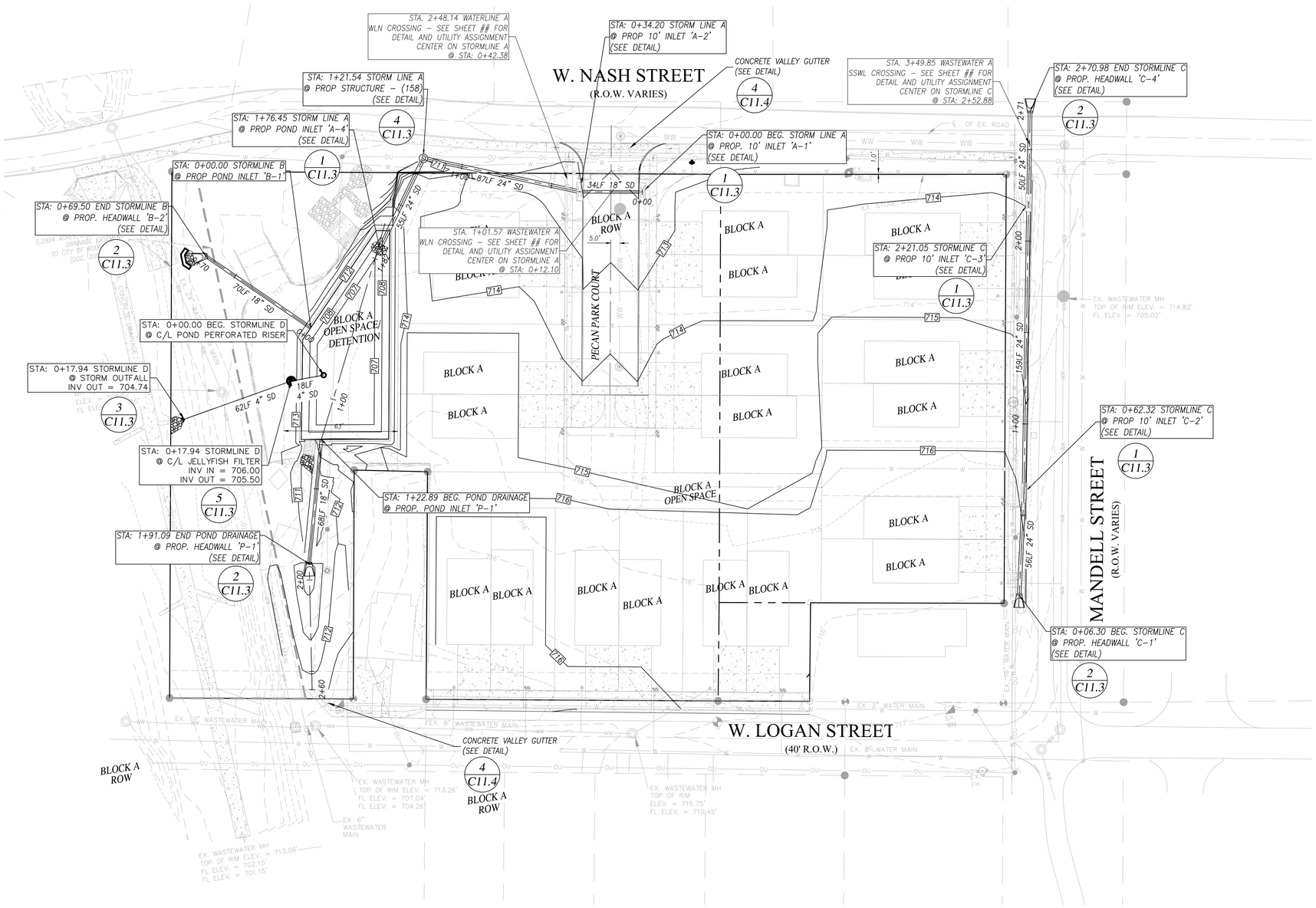
Developed Conditions

	Hydrologic Parameters					HEC-HMS Results			
Basin	Area (ac)	Area (sq mi)	Impervious Cover (sf)	Impervious Cover (%)	Lag Time (min)	2 YR (cfs)	10 YR (cfs)	25 YR (cfs)	100 YR (cfs)
DV-1	2.57	0.004015625	49,650	44%	5.8	9.8	15.3	19	25.4
DV-2	0.24	0.000375	6,275	60%	3	1.2	1.8	2.3	3
DV-3	0.03	0.000046875	736	56%	3	0.2	0.2	0.3	0.4
DV-4	0.48	0.00075	2,250	11%	3	1.9	3.3	4.2	5.7
Total Run-off						13.1	20.6	25.8	34.5
Total Run-off Utilizing Pond						8.1	15.9	22.2	30.1

Ramendu Duplex at Round Rock - Developed Conditions

SUB-WATER-SHED	SHEET FLOW					SHALLOW CONCENTRATED FLOW				CHANNEL/PIPE FLOW					TIME OF CONC.	LAG TIME
NAME	Length Ft	Manning's "n"	Slope Ft/Ft	2-Year 24-HR RF In	Travel Time Min.	Length Ft	Slope Ft/Ft	Channel Type Unpaved or Paved	Travel Time Min.	Length Ft	Slope Ft/Ft	Channel Type Channel or Pipe	Vel. Ft/Sec	Travel Time Min.	Min.	Min.
DV1	106	0.1	0.01	4.01	8.75	60	0.02	Paved	0.347845	166	0.005	Channel	4.79	0.577592	9.67	5.80
DV2	0	0	0.015	4.01	0.00	0	0.005	Paved	0	250	1.5	Channel	4.52	0.921829	5.00	3.00
DV3	25	0.1	0.02	4.01	2.09	0	0.005	Paved	0	0	0	Channel	0.00	0	5.00	3.00
DV4	48	0.1	0.1	4.01	1.85	0	0.005	Paved	0	0	0	Channel	0.00	0	5.00	3.00

RAMENDU DUPLEX AT ROUND ROCK PRELIMINARY PLAT
ROUND ROCK, WILLIAMSON COUNTY, TEXAS



SCALE: 1" = 30'

UTILITY LEGEND

- PROP. CURB INLET
- PROP. FIRE HYDRANT
- PROP. POWER POLE
- PROP. MANHOLE
- PROP. CLEAN OUT
- PROP. WATERLINE
- PROP. WASTEWATER LINE
- PROP. STORM DRAINAGE LINE
- PROPERTY LINE
- EX. WATERLINE
- EX. FIRE HYDRANT
- EX. WATER METER
- EX. CLEANOUT
- EX. WASTE WATER MANHOLE
- EX. UTILITY POLE/GUY ANCHOR
- EX. WASTEWATER LINE
- EX. OVERHEAD UTILITY
- EX. GAS METER
- EX. GAS WARNING SIGN

CITY OF ROUND ROCK UTILITY NOTES

1. ALL NON-CITY INFRASTRUCTURE INCLUDING GAS, ELECTRIC, CABLE AND TELECOMMUNICATIONS SHALL TRAVERSE UNDERNEATH CITY INFRASTRUCTURE. THIS INCLUDES, BUT IS NOT LIMITED TO WATER LINES, WASTEWATER LINES AND STORM SEWER, WITH A MINIMUM OUTSIDE TO OUTSIDE CLEARANCE OF 18".
2. ALL PIPE FITTINGS SHALL BE JOINT-RESTRAINED.
3. ALL FITTINGS SHALL HAVE THRUST BLOCKING PER CORR WT-25.
4. ALL MANHOLES SHALL BE COATED AND VACUUM TESTED.
5. MANHOLES OUTSIDE OF PAVEMENT SHALL HAVE BOLTED COVERS.
6. ALL VALVES SHOWN ARE _____ BRAND ALL VALVES SHOWN ARE _____ BRAND
7. ALL FIRE SERVICE LEADS SHALL BE DUCTILE IRON ALL FIRE SERVICE LEADS SHALL BE DUCTILE IRON.
8. ALL PVC WATER MAINS SHALL BE CONSTRUCTED OF C-900 DR-14 EXCEPT AT WATER AND WASTEWATER CROSSING PER TCEQ REQUIREMENTS
9. ALL WASTEWATER LINES ARE TO BE CONSTRUCTED OF SDR 26 EXCEPT AT WATER AND WASTEWATER CROSSINGS PER TCEQ REQUIREMENTS.
10. THE A 3-FOOT CLEAR SPACE SHALL BE MAINTAINED AROUND THE CIRCUMFERENCE OF FIRE HYDRANTS EXCEPT AS OTHERWISE REQUIRED OR APPROVED.
11. CORE EXISTING MANHOLE, INSERT GASKET, AND PROVIDE PRECP GROUT SEAL INSIDE AND OUT, OR APPROVED EQUAL.

NOTE: CITY INFRASTRUCTURE, INCLUDING ALL STREET IMPROVEMENTS, PAVERS, SIDEWALK, PAVEMENT, CURB & GUTTER, STORM WATER INFRASTRUCTURE, STRIPING, LANDSCAPING, ETC., TO BE PROTECTED THROUGHOUT DURATION OF CONSTRUCTION. ANY DAMAGES WILL BE REPAIRED TO ORIGINAL CONDITION AT OWNER/CONTRACTOR'S EXPENSE.

REV.	REVISION DESCRIPTION	DATE

STATE OF TEXAS
JACOB D. MEALEY
127442
LICENSED PROFESSIONAL ENGINEER
09/22/2020

BM
IS MAG NAIL SET
ELEV. = 716.03'

DATUM:
NAVD88
GEOID 2016

BENCHMARK: CITY OF ROUND ROCK BRASS DISC AT CURB AT WEST END CURB INLET EXPANSION JOINT AT NORTHEAST CORNER OF MAYS STREET AND LOGAN STREET.
ELEV. = 726.76
NAVD88

ENGINEER / CONTACT

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LEGAL DESCRIPTION
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SITE ADDRESS: 210 LOGAN ROAD, 704 MANDELL STREET, ROUND ROCK, TX 78664

TAX ACCOUNT NO.'S: R058893, R053078

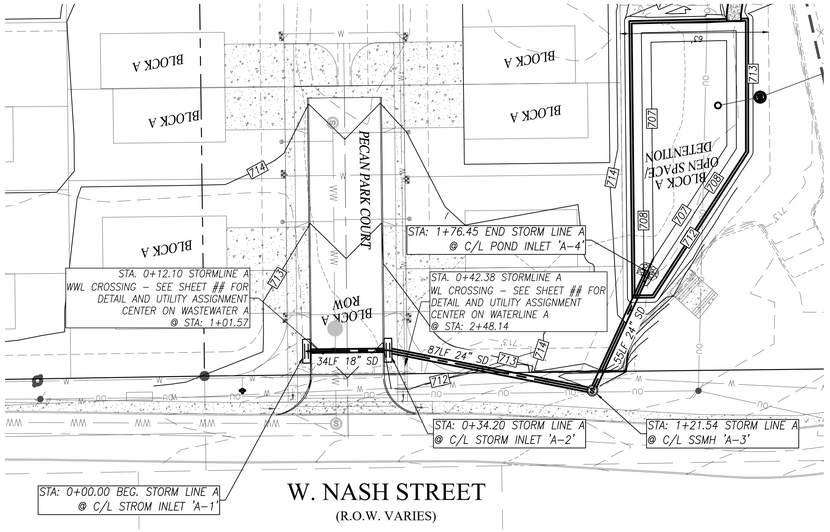
PERMIT NO: SIP2004-0001

RAMENDU DUPLEX AT ROUND ROCK

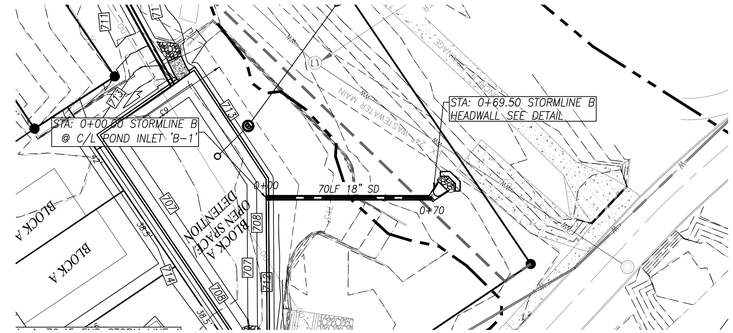
DWG FILENAME	DESIGNED BY:	DATE:	SCALE:	JOB NO.:
T190006-FINAL.DWG	JRC	01-31-2020	1"=30'	T19-0006

DRAINAGE PLAN — SHEET C8.0

RAMENDU DUPLEX AT ROUND ROCK PRELIMINARY PLAT
ROUND ROCK, WILLIAMSON COUNTY, TEXAS



SCALE: 1" = 30'



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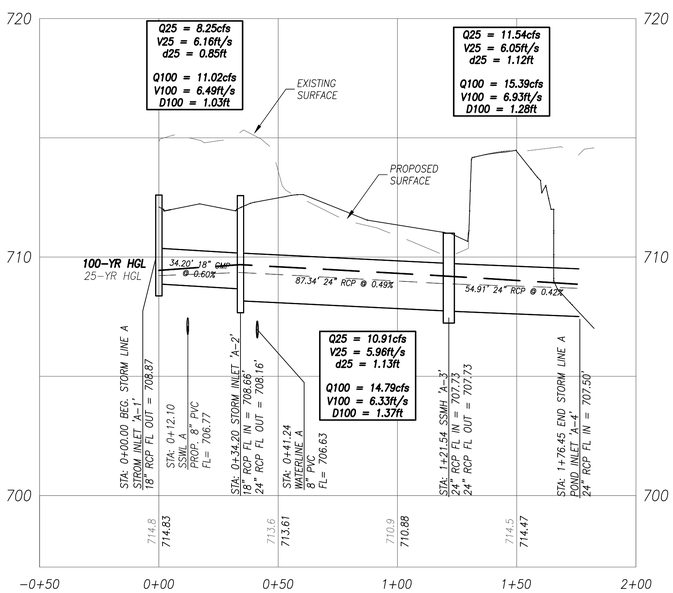
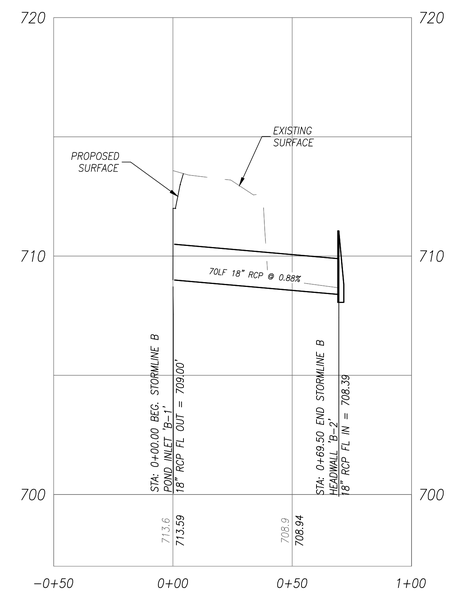


STORMLINE A PROFILE



STORMLINE B PROFILE

UTILITY LEGEND

- PROP. CURB INLET
- PROP. FIRE HYDRANT
- PROP. POWER POLE
- PROP. MANHOLE
- PROP. CLEAN OUT
- PROP. WATERLINE
- PROP. WASTEWATER LINE
- PROP. STORM DRAINAGE LINE
- PROPERTY LINE
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- EX. GAS WARNING SIGN

NOTE: CITY INFRASTRUCTURE, INCLUDING ALL STREET IMPROVEMENTS, PAVERS, SIDEWALK, PAVEMENT, CURB & GUTTER, STORM WATER INFRASTRUCTURE, STRIPING, LANDSCAPING, ETC., TO BE PROTECTED THROUGHOUT DURATION OF CONSTRUCTION. ANY DAMAGES WILL BE REPAIRED TO ORIGINAL CONDITION AT OWNER/CONTRACTOR'S EXPENSE.

REV.	REVISION DESCRIPTION	DATE

STATE OF TEXAS
JACOB D. MEALEY
127442
LICENSED PROFESSIONAL ENGINEER
09/22/2020

BM
IS MAG NAIL SET
ELEV. = 716.03'

DATUM:
NAVD88
GEOID 2016

BENCHMARK: CITY OF ROUND ROCK BRASS DISC AT CURB AT WEST END CURB INLET EXPANSION JOINT AT NORTHEAST CORNER OF MAYS STREET AND LOGAN STREET.
ELEV. = 726.76
NAVD88

ENGINEER / CONTACT

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CONTACT: EDDIE RUMSEY
PHONE: (512) 249–8149
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TBPLS FIRM # 10135000

OWNERS / APPLICANT

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3016 PASEO DE CHARROS
CEDAR PARK, TX 78641
CONTACT: DR. MARSHALL HUSSAIN
PHONE: (512) 698–1976
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LEGAL DESCRIPTION

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SITE ADDRESS: 210 LOGAN ROAD, 704 MANDELL STREET ROUND ROCK, TX 78664

TAX ACCOUNT NO.'S: R058893, R053078

PERMIT NO: SIP2004-0001

RAMENDU DUPLEX AT ROUND ROCK

DWG FILENAME	DESIGNED BY:	DATE:	SCALE:	JOB NO.:
T190006–FINAL.DWG	JRC	01–31–2020	1"=30'	T19-0006

STORMLINE A AND B PLAN AND PROFILE

SHEET C8.1

RAMENDU DUPLEX AT ROUND ROCK PRELIMINARY PLAT
ROUND ROCK, WILLIAMSON COUNTY, TEXAS

SCALE: 1" = 30'

30 15 0 30 60

UTILITY LEGEND

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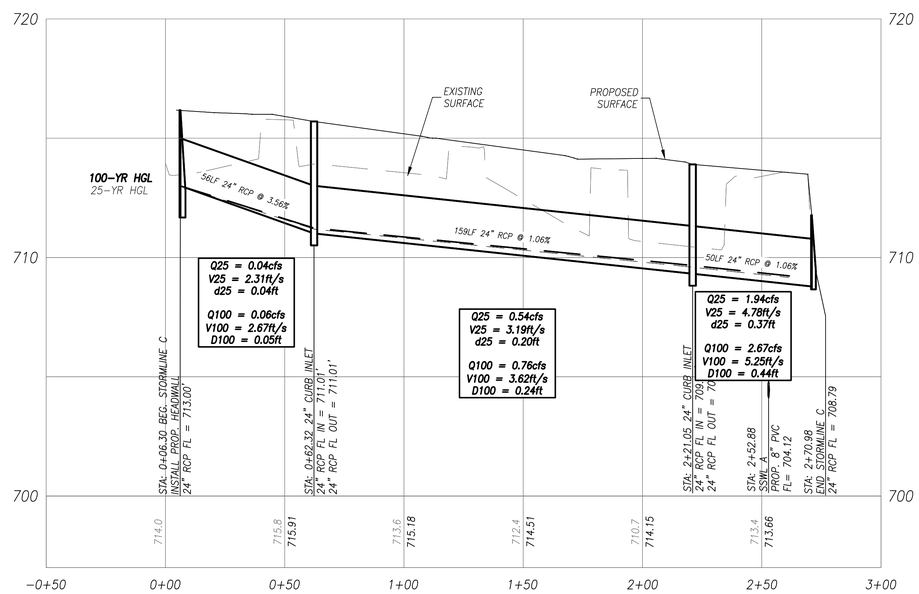

STORMLINE C PROFILE

NOTE: CITY INFRASTRUCTURE, INCLUDING ALL STREET IMPROVEMENTS, PAVERS, SIDEWALK, PAVEMENT, CURB & GUTTER, STORM WATER INFRASTRUCTURE, STRIPING, LANDSCAPING, ETC., TO BE PROTECTED THROUGHOUT DURATION OF CONSTRUCTION. ANY DAMAGES WILL BE REPAIRED TO ORIGINAL CONDITION AT OWNER/CONTRACTOR'S EXPENSE.

REV.	REVISION DESCRIPTION	DATE

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JACOB D. MEALEY
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09/22/2020

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ROUND ROCK, TX 78664

TAX ACCOUNT NO.'S: R058893, R053078

PERMIT NO: SIP2004-0001

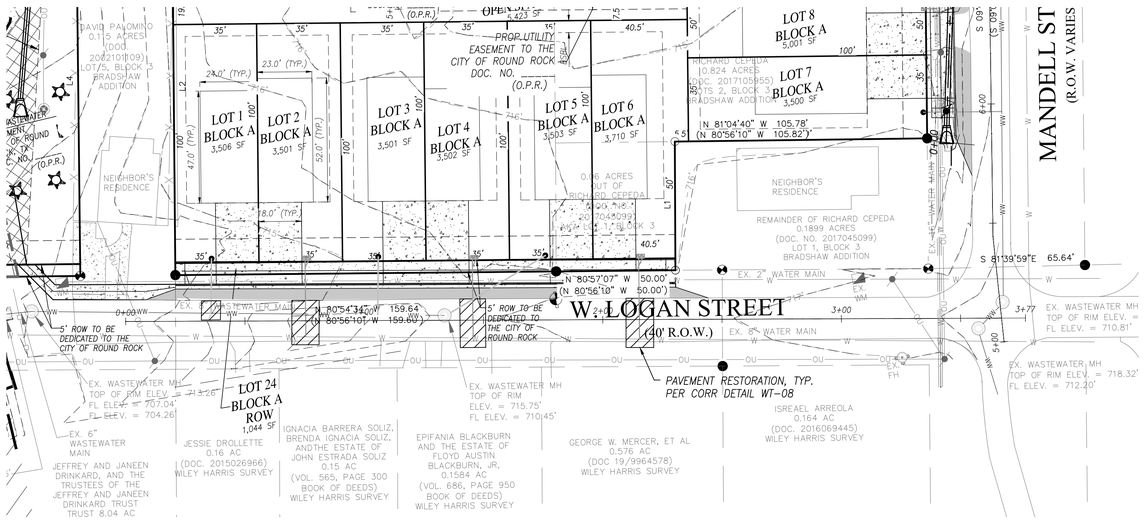
RAMENDU DUPLEX AT ROUND ROCK

DWG FILENAME	DESIGNED BY:	DATE:	SCALE:	JOB NO.:
T190006–FINAL.DWG	JRC	01–31–2020	1"=30'	T19-0006

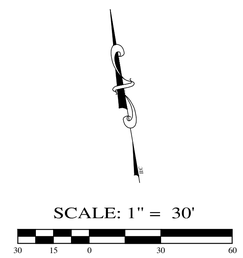
STORMLINE C
PLAN AND PROFILE

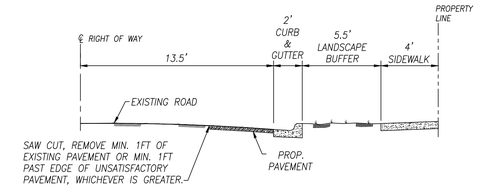
SHEET C8.2

RAMENDU DUPLEX AT ROUND ROCK PRELIMINARY PLAT
ROUND ROCK, WILLIAMSON COUNTY, TEXAS

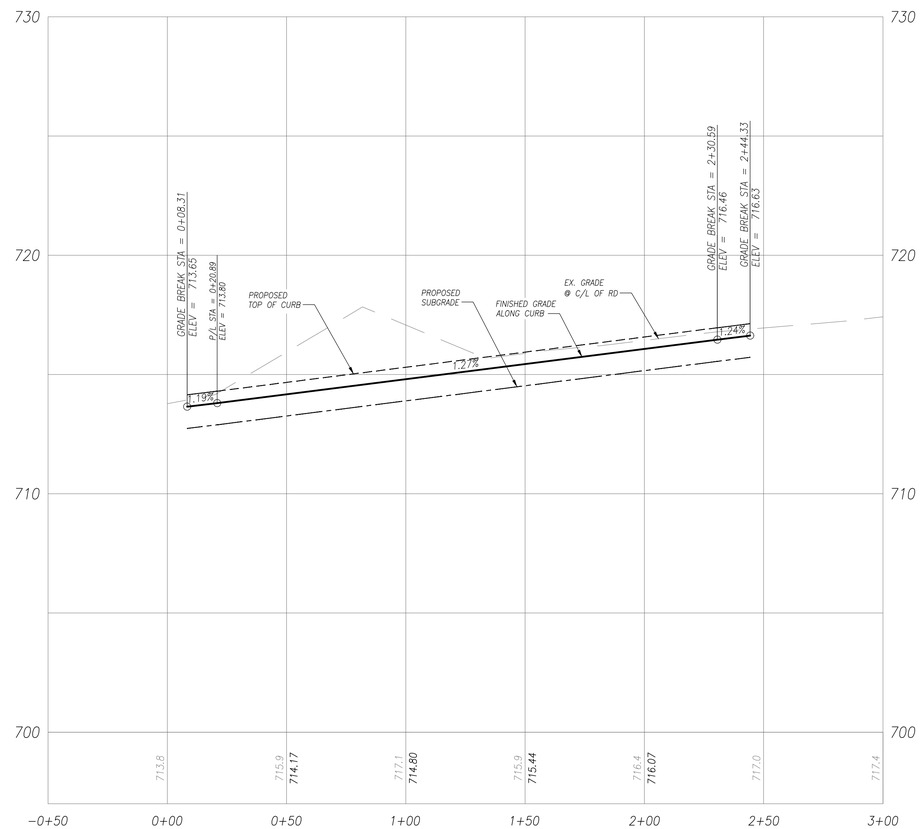


LOGAN STREET PLAN
SCALE: 1"=30' HORIZ, 1"=3' VERT





LOGAN STREET CROSS SECTION
NOT TO SCALE



LOGAN STREET PROFILE
SCALE: 1"=30' HORIZ, 1"=3' VERT

NOTE: CITY INFRASTRUCTURE, INCLUDING ALL STREET IMPROVEMENTS, PAVERS, SIDEWALK, PAVEMENT, CURB & GUTTER, STORM WATER INFRASTRUCTURE, STRIPING, LANDSCAPING, ETC., TO BE PROTECTED THROUGHOUT DURATION OF CONSTRUCTION. ANY DAMAGES WILL BE REPAIRED TO ORIGINAL CONDITION AT OWNER/CONTRACTOR'S EXPENSE.

REV.	REVISION DESCRIPTION	DATE

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LICENSED
PROFESSIONAL ENGINEER
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ELEV. = 716.03'

DATUM:
NAVD88
GEOID 2016

BENCHMARK: CITY OF ROUND ROCK BRASS DISC AT CURB AT WEST END CURB INLET EXPANSION JOINT AT NORTHEAST CORNER OF MAY'S STREET AND LOGAN STREET.
ELEV. = 726.76
NAVD88

ENGINEER / CONTACT

IECO, INC
FIRM REG# F-19777
P.O. BOX 2088
PFLUGERVILLE, TX 78691
CONTACT: JACOB D. MEALEY, PE
PH: (737) 226-4777
EMAIL: INFO@INSIGHTENGINEERING.NET

SURVEYOR
ALL STAR LAND SURVEYING
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AUSTIN, TX 78729
CONTACT: EDDIE RUMSEY
PHONE: (512) 249-8149
FAX: (512) 331-5217
TBPLS FIRM # 10135000

OWNERS / APPLICANT
RAMENDU DUPLEX AT ROUND ROCK LLC
3016 PASEO DE CHARROS
CEDAR PARK, TX 78641
CONTACT: MARSHALL HUSSAIN
PHONE: (512) 698-1976
EMAIL: MARSHALL1@GMAIL.COM

LEGAL DESCRIPTION
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ROUND ROCK, TX 78681
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INFO@INSIGHTENGINEERING.NET

SITE ADDRESS: 210 LOGAN ROAD, 704 MANDELL STREET, ROUND ROCK, TX 78664

TAX ACCOUNT NO.'S: R058893, R053078

PERMIT NO: SIP2004-0001

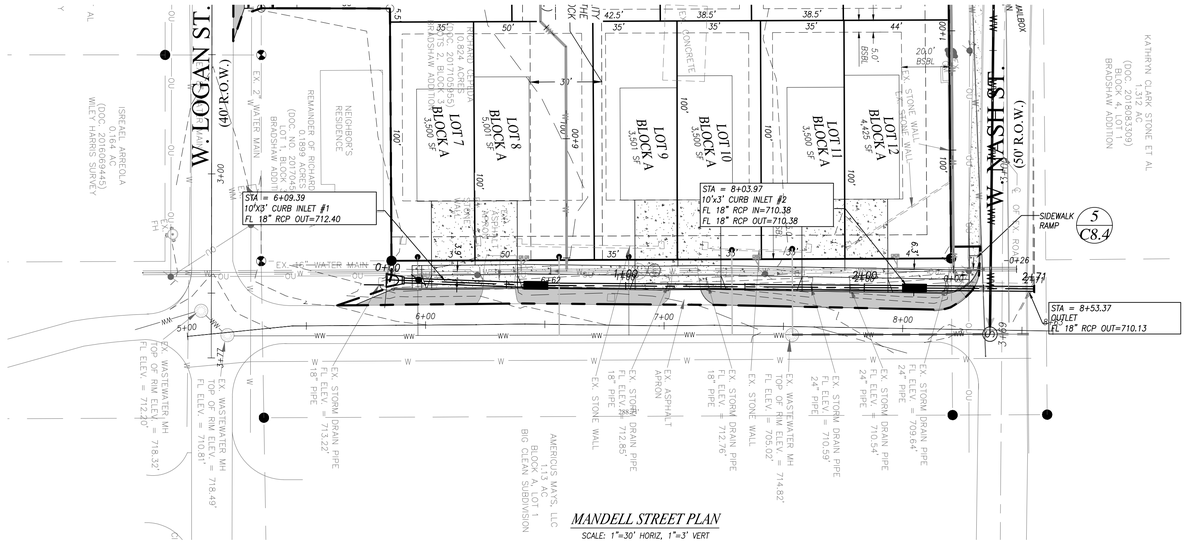
RAMENDU DUPLEX AT ROUND ROCK

DWG FILENAME	DESIGNED BY:	DATE:	SCALE:	JOB NO.:
T190006-FINAL.DWG	JRC	01-31-2020	1"=30'	T19-0006

LOGAN ST PLAN AND PROFILE

SHEET C8.3

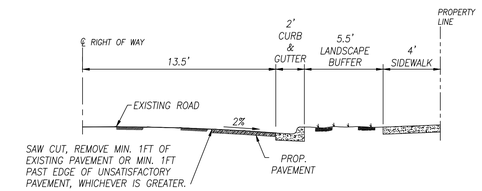
RAMENDU DUPLEX AT ROUND ROCK PRELIMINARY PLAT
ROUND ROCK, WILLIAMSON COUNTY, TEXAS



MANDELL STREET PLAN

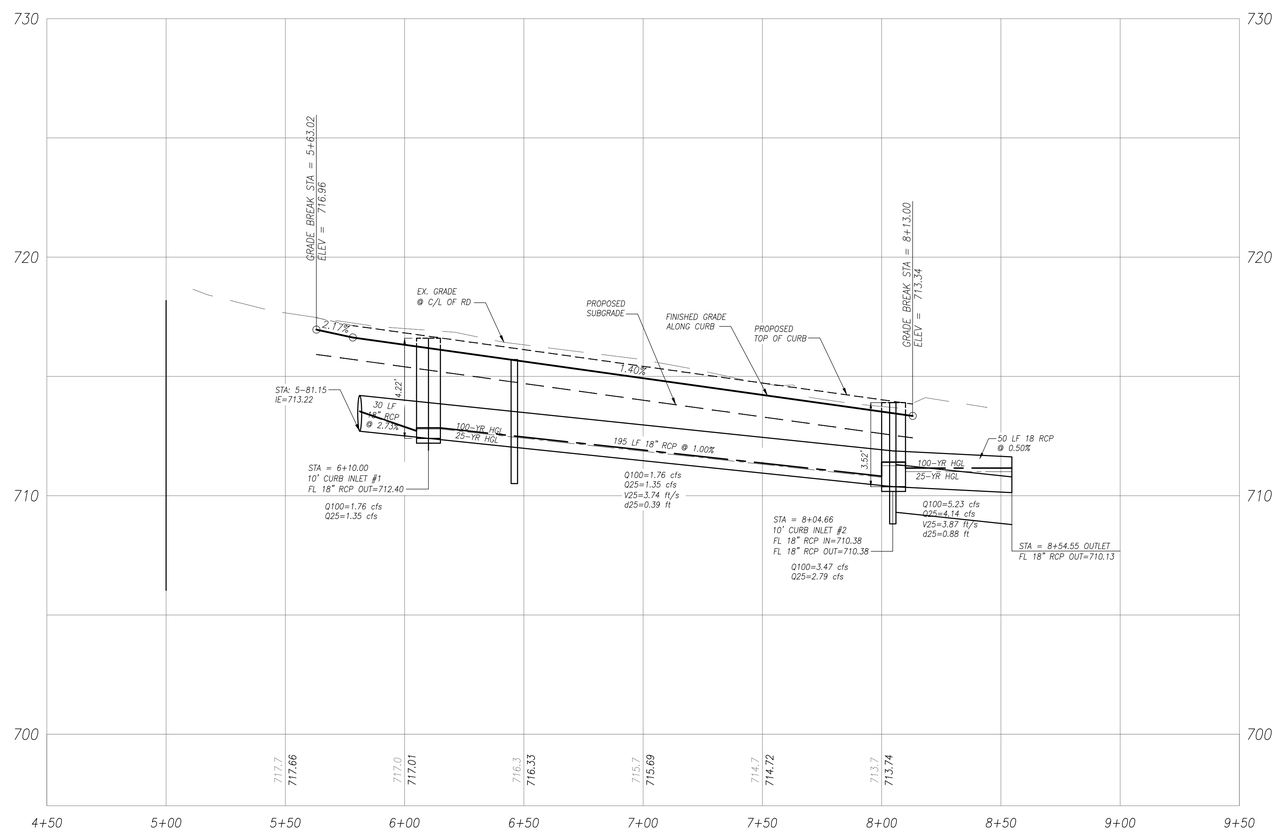
SCALE: 1"=30' HORIZ, 1"=3' VERT

DESIGN SPEED 25 MPH



MANDELL STREET CROSS SECTION

NOT TO SCALE



MANDELL STREET PROFILE

SCALE: 1"=30' HORIZ, 1"=3' VERT

NOTE: CITY INFRASTRUCTURE, INCLUDING ALL STREET IMPROVEMENTS, PAVERS, SIDEWALK, PAVEMENT, CURB & GUTTER, STORM WATER INFRASTRUCTURE, STRIPING, LANDSCAPING, ETC., TO BE PROTECTED THROUGHOUT DURATION OF CONSTRUCTION. ANY DAMAGES WILL BE REPAIRED TO ORIGINAL CONDITION AT OWNER/CONTRACTOR'S EXPENSE.

REV.	REVISION DESCRIPTION	DATE

STATE OF TEXAS
JACOB D. MEALEY
127442
LICENSED
PROFESSIONAL ENGINEER

09/22/2020

BM

IS MAG NAIL SET
ELEV. = 716.03'

DATUM:
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RAMENDU DUPLEX AT ROUND ROCK

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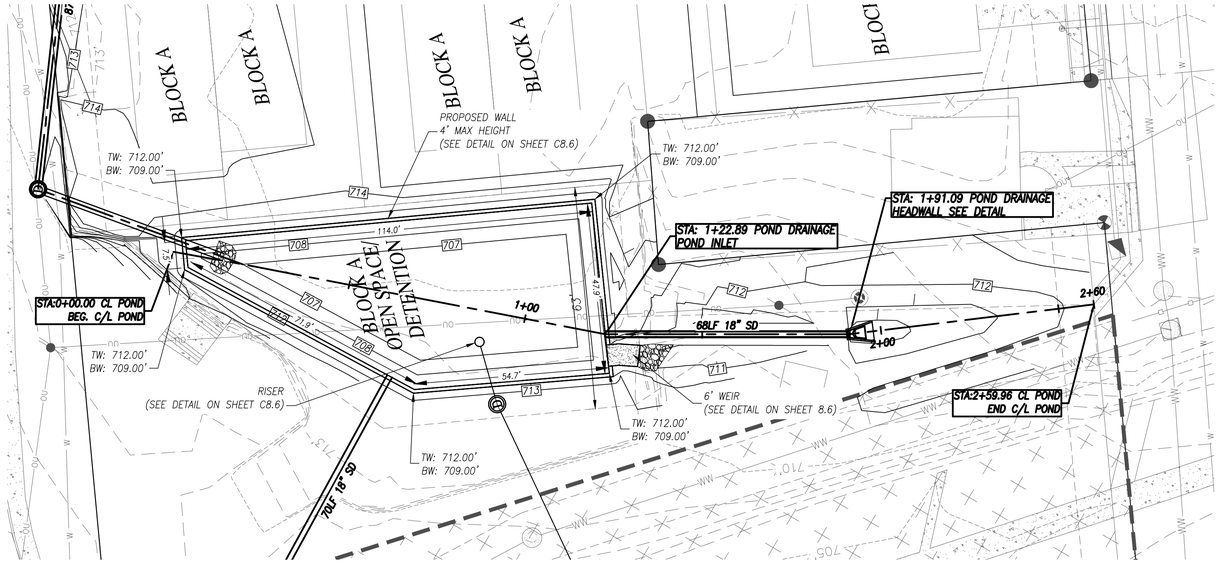
MANDELL ST. PLAN & PROFILE

SHEET C8.4

RAMENDU DUPLEX AT ROUND ROCK PRELIMINARY PLAT
ROUND ROCK, WILLIAMSON COUNTY, TEXAS



SCALE: 1" = 30'

30 15 0 30 60

UTILITY LEGEND

- PROP. CURB INLET
- PROP. FIRE HYDRANT
- PROP. POWER POLE
- PROP. MANHOLE
- PROP. CLEAN OUT
- PROP. WATERLINE
- PROP. WASTEWATER LINE
- PROP. STORM DRAINAGE LINE
- PROPERTY LINE
- EX. WATERLINE
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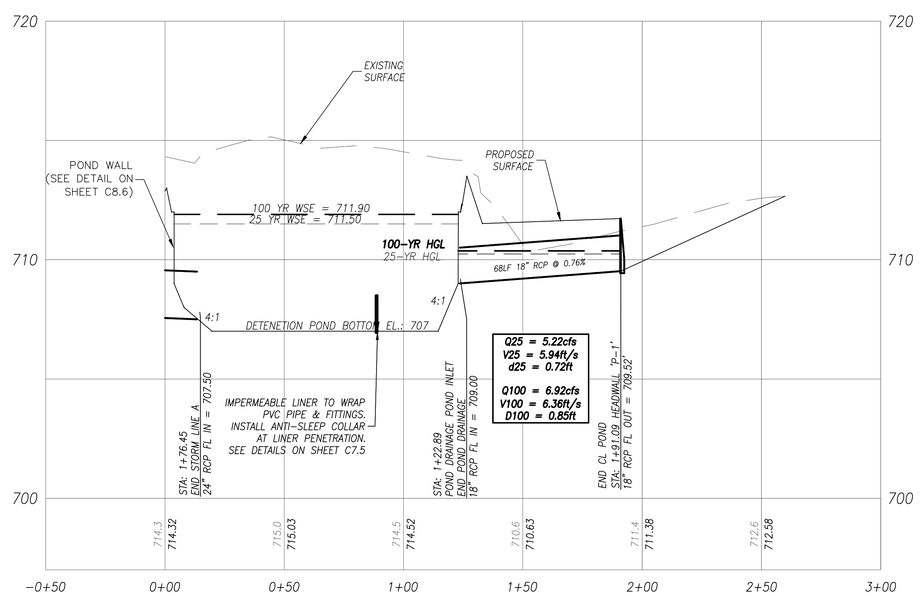

CL POND PROFILE

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LICENSED PROFESSIONAL ENGINEER
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RAMENDU DUPLEX AT ROUND ROCK

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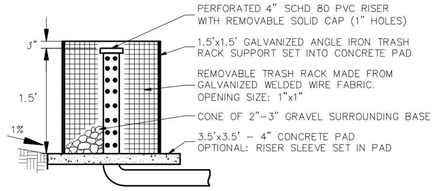
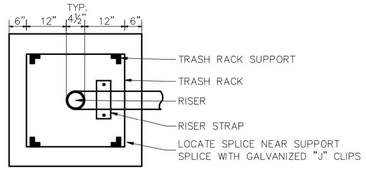
DETENTION PLAN

SHEET C8.5

RAMENDU DUPLEX AT ROUND ROCK PRELIMINARY PLAT

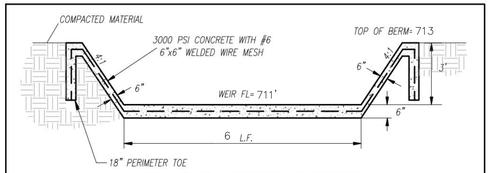


SIDE VIEW OF RISER



TOP VIEW OF RISER (SQUARE DESIGN)
TYPICAL RISER DESIGN FOR PONDS WITH EARTHEN BERMS

OUTFLOW RISER DETAIL
N.T.S.



30 L.F. WEIR DETAIL
N.T.S.

Contech Engineered Solutions Calculations for Texas Commission on Environmental Quality TSS Removal Calculations

Project Name: Ramendu at Round Rock
Date Prepared: 9/21/2020

1. The Required Load Reduction for the total project:

Calculations from RG-348 Page 3-29 Equation 3.3: $L_M = 27.2(A_N \times P)$
Pages 3-27 to 3-30

$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 80% of increased load
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	Williamson	
Total project area included in plan * =	2.77	acres
Predevelopment impervious area within the limits of the plan * =	0.16	acres
Total post-development impervious area within the limits of the plan* =	0.98	acres
Total post-development impervious cover fraction * =	0.38	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	714	lbs.
Number of drainage basins / outfalls areas leaving the plan area =	1	

2. Drainage Basin Parameters (This information should be provided for each basin):

Drainage Basin/Outfall Area No. = 1

Total drainage basin/outfall area =	2.17	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	0.98	acres
Post-development impervious fraction within drainage basin/outfall area =	0.45	
$L_{M\ THIS\ BASIN}$ =	853	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	JF	abbreviation
Removal efficiency =	86	percent

4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the selected BMP Type.

RG-348 Page 3-33 Equation 3.7:
LR = (BMP efficiency) x P x (A_I x 34.6 + A_P x 0.54)

A_C = Total On-Site drainage area in the BMP catchment area
A_I = Impervious area proposed in the BMP catchment area
A_P = Pervious area remaining in the BMP catchment area
L_R = TSS Load removed from this catchment area by the proposed BMP

A_C =	2.17	acres
A_I =	0.98	acres
A_P =	1.19	acres
L_R =	951	lbs.

5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall area

Desired $L_{M\ THIS\ BASIN}$ =	714	lbs.
F =	0.75	

6. Calculate Treated Flow required by the BMP Type for this drainage basin / outfall area.

Offsite area draining to BMP =	0.00	acres
Offsite impervious cover draining to BMP =	0.00	acres

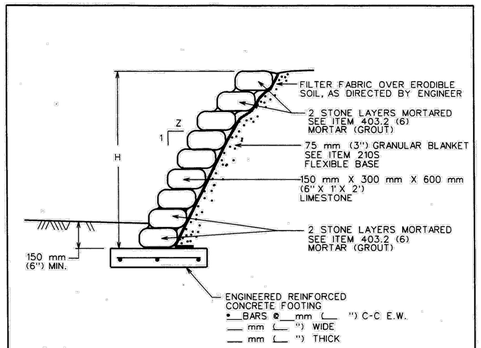
Calculations from RG-348
Pages Section 3.2.22

Rainfall Intensity =	0.46	inches per hour
Effective Area =	0.92	acres
Cartridge Length =	24	inches
Peak Treatment Flow Required =	0.43	cubic feet per second

7. Jellyfish
Designed as Required in RG-348
Section 3.2.22

Flow Through Jellyfish Size

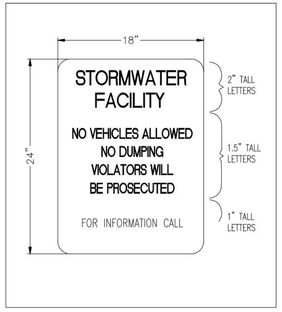
Jellyfish Size for Flow-Based Configuration =	JF4-2-1	
Jellyfish Treatment Flow Rate =	0.45	cfs



THIS STANDARD APPLIES ONLY UNDER THE FOLLOWING CONDITIONS:
A. H AND Z ARE SPECIFIED ON THE DRAWING.
B. GROUNDWATER IS NO HIGHER THAN THE BOTTOM OF THE FOOTING.
C. THE MATERIAL BELOW THE FOOTING IS FIRM AND STABLE.
D. THE MATERIAL BEHIND THE WALL HAS A LEVEL SURFACE.
E. THE MATERIAL IN FRONT OF THE WALL HAS A SLOPE NO STEEPER THAN 4 HORIZONTAL TO 1 VERTICAL.
F. THE FACE OF THE WALL IS NO STEEPER THAN 1 HORIZONTAL TO 2 VERTICAL.
G. SURCHARGE LOADS BEHIND THE WALL ARE NO CLOSER THAN DISTANCE H FROM THE TOP OF WALL.

NOTES:
1. DESIGN AND CONSTRUCTION OF ROCK WALL SHALL CONFORM TO THE REQUIREMENTS OF CITY CODE 16-7-2, PLACEMENT OF FENCES IN STREET CORNER AREAS, AND THE CITY OF AUSTIN TRANSPORTATION CRITERIA MANUAL FOR MINIMIM SIGHT DISTANCE.
2. CONCRETE SHALL CONFORM TO ITEM 403S, "CONCRETE FOR STRUCTURES".

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	DRY STACK ROCK WALL FOR SLOPE PROTECTION	
Bill Herdman 3/12/06 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 623S-1



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STATE OF TEXAS
JACOB D. MEALEY
127442
LICENSED
PROFESSIONAL ENGINEER
09/22/2020

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DETENTION POND DETAILS

SHEET C8.6

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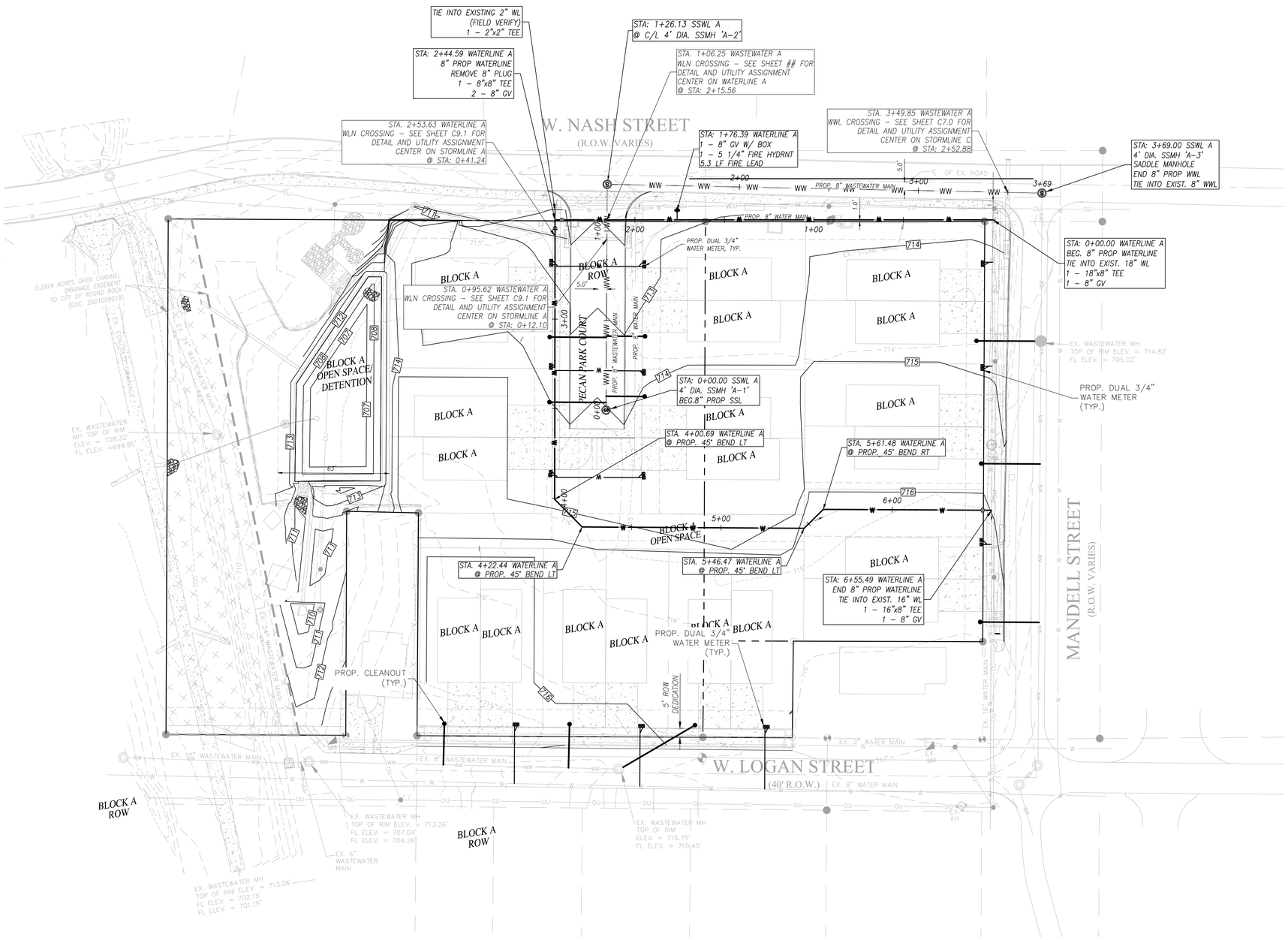
ROUND ROCK, WILLIAMSON COUNTY, TEXAS



UTILITY LEGEND

- PROP. CURB INLET
- PROP. FIRE HYDRANT
- PROP. POWER POLE
- PROP. MANHOLE
- PROP. CLEAN OUT
- PROP. WATERLINE
- PROP. WASTEWATER LINE
- PROP. STORM DRAINAGE LINE
- PROPERTY LINE
- EX. WATERLINE
- EX. FIRE HYDRANT
- EX. WATER METER
- EX. CLEANOUT
- EX. WASTE WATER MANHOLE
- EX. UTILITY POLE/GUY ANCHOR
- EX. WASTEWATER LINE
- EX. OVERHEAD UTILITY
- EX. GAS METER
- EX. GAS WARNING SIGN

CITY OF ROUND ROCK UTILITY NOTES

1. ALL NON-CITY INFRASTRUCTURE INCLUDING GAS, ELECTRIC, CABLE AND TELECOMMUNICATIONS SHALL TRAVERSE UNDERNEATH CITY INFRASTRUCTURE. THIS INCLUDES, BUT IS NOT LIMITED TO WATER LINES, WASTEWATER LINES AND STORM SEWER, WITH A MINIMUM OUTSIDE TO OUTSIDE CLEARANCE OF 18".
2. ALL PIPE FITTINGS SHALL BE JOINT-RESTRAINED.
3. ALL FITTINGS SHALL HAVE THRUST BLOCKING PER CORR WT-25.
4. ALL MANHOLES SHALL BE COATED AND VACUUM TESTED.
5. MANHOLES OUTSIDE OF PAVEMENT SHALL HAVE BOLTED COVERS.
6. ALL VALVES SHOWN ARE _____ BRAND ALL VALVES SHOWN ARE _____ BRAND
7. ALL FIRE SERVICE LEADS SHALL BE DUCTILE IRON ALL FIRE SERVICE LEADS SHALL BE DUCTILE IRON.
8. ALL PVC WATER MAINS SHALL BE CONSTRUCTED OF C-900 DR-14 EXCEPT AT WATER AND WASTEWATER CROSSING PER TCEQ REQUIREMENTS
9. ALL WASTEWATER LINES ARE TO BE CONSTRUCTED OF SDR 26 EXCEPT AT WATER AND WASTEWATER CROSSINGS PER TCEQ REQUIREMENTS.
10. THE A 3-FOOT CLEAR SPACE SHALL BE MAINTAINED AROUND THE CIRCUMFERENCE OF FIRE HYDRANTS EXCEPT AS OTHERWISE REQUIRED OR APPROVED.
11. CORE EXISTING MANHOLE, INSERT GASKET, AND PROVIDE PRECP GROUT SEAL INSIDE AND OUT, OR APPROVED EQUAL.

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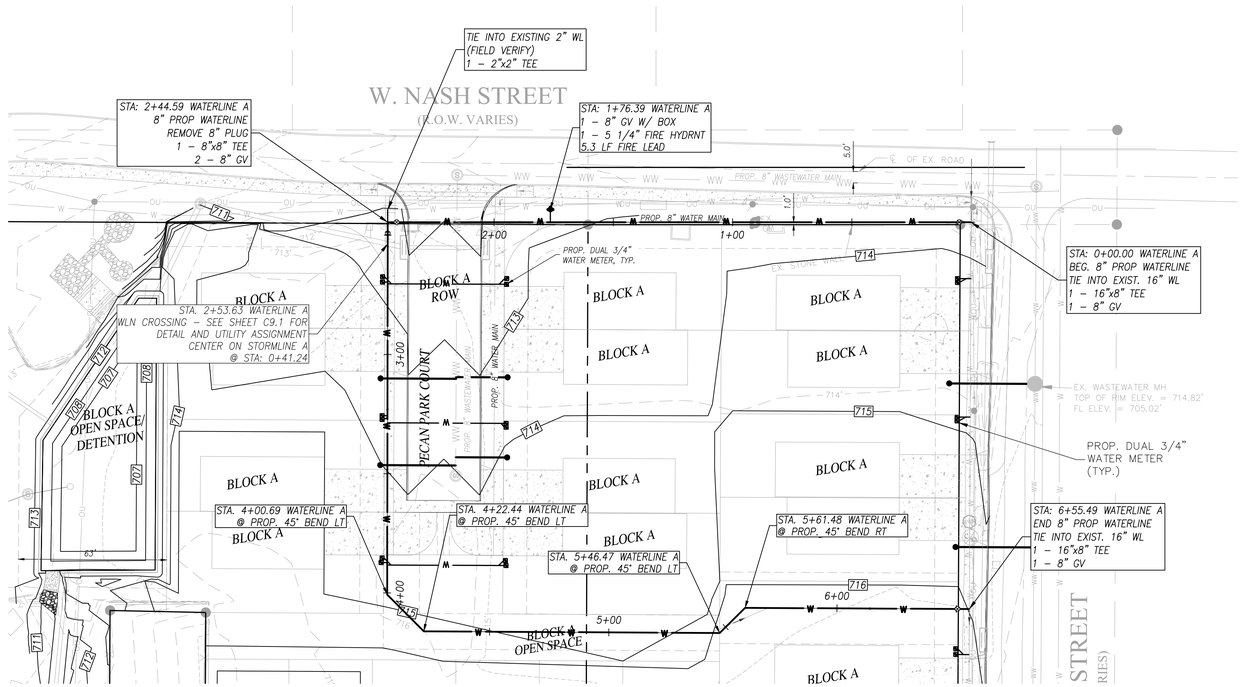
SHEET C9.0

RAMENDU DUPLEX AT ROUND ROCK PRELIMINARY PLAT
ROUND ROCK, WILLIAMSON COUNTY, TEXAS



SCALE: 1" = 30'

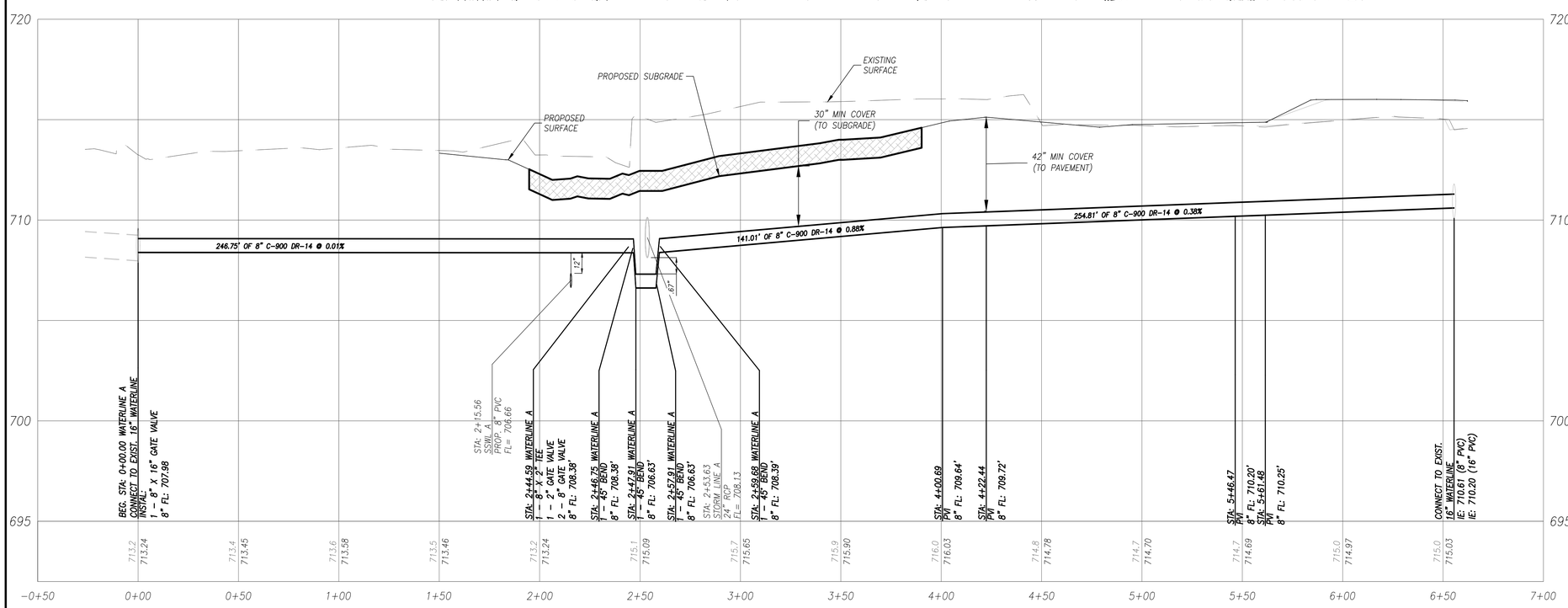
30 15 0 30 60

UTILITY LEGEND

- PROP. CURB INLET
- PROP. FIRE HYDRANT
- PROP. POWER POLE
- PROP. MANHOLE
- PROP. CLEAN OUT
- PROP. WATERLINE
- PROP. WASTEWATER LINE
- PROP. STORM DRAINAGE LINE
- PROPERTY LINE
- W — EX. WATERLINE
- EX. FIRE HYDRANT
- EX. WATER METER
- EX. CLEANOUT
- EX. WASTE WATER MANHOLE
- EX. UTILITY POLE/GUY ANCHOR
- SS — EX. WASTEWATER LINE
- OU — EX. OVERHEAD UTILITY
- EX. GAS METER
- EX. GAS WARNING SIGN

CITY OF ROUND ROCK UTILITY NOTES

1. ALL NON-CITY INFRASTRUCTURE INCLUDING GAS, ELECTRIC, CABLE AND TELECOMMUNICATIONS SHALL TRAVERSE UNDERNEATH CITY INFRASTRUCTURE. THIS INCLUDES, BUT IS NOT LIMITED TO WATER LINES, WASTEWATER LINES AND STORM SEWER, WITH A MINIMUM OUTSIDE TO OUTSIDE CLEARANCE OF 18".
2. ALL PIPE FITTINGS SHALL BE JOINT-RESTRAINED.
3. ALL FITTINGS SHALL HAVE THRUST BLOCKING PER CORR WT-25.
4. ALL MANHOLES SHALL BE COATED AND VACUUM TESTED.
5. MANHOLES OUTSIDE OF PAVEMENT SHALL HAVE BOLTED COVERS.
6. ALL VALVES SHOWN ARE _____ BRAND ALL VALVES SHOWN ARE _____ BRAND
7. ALL FIRE SERVICE LEADS SHALL BE DUCTILE IRON ALL FIRE SERVICE LEADS SHALL BE DUCTILE IRON.
8. ALL PVC WATER MAINS SHALL BE CONSTRUCTED OF C-900 DR-14 EXCEPT AT WATER AND WASTEWATER CROSSING PER TCEQ REQUIREMENTS
9. ALL WASTEWATER LINES ARE TO BE CONSTRUCTED OF SDR 26 EXCEPT AT WATER AND WASTEWATER CROSSINGS PER TCEQ REQUIREMENTS.
10. THE A 3-FOOT CLEAR SPACE SHALL BE MAINTAINED AROUND THE CIRCUMFERENCE OF FIRE HYDRANTS EXCEPT AS OTHERWISE REQUIRED OR APPROVED.
11. CORE EXISTING MANHOLE, INSERT GASKET, AND PROVIDE PRECP GROUT SEAL INSIDE AND OUT, OR APPROVED EQUAL.



WATERLINE A PROFILE

NOTE: CITY INFRASTRUCTURE, INCLUDING ALL STREET IMPROVEMENTS, PAVERS, SIDEWALK, PAVEMENT, CURB & GUTTER, STORM WATER INFRASTRUCTURE, STRIPING, LANDSCAPING, ETC., TO BE PROTECTED THROUGHOUT DURATION OF CONSTRUCTION. ANY DAMAGES WILL BE REPAIRED TO ORIGINAL CONDITION AT OWNER/CONTRACTOR'S EXPENSE.

REV.	REVISION DESCRIPTION	DATE

STATE OF TEXAS
JACOB D. MEALEY
127442
LICENSED PROFESSIONAL ENGINEER
09/22/2020

BM
IS MAG NAIL SET
ELEV. = 716.03'

DATUM:
NAVD88
GEOID 2016

BENCHMARK: CITY OF ROUND ROCK BRASS DISC AT CURB AT WEST END CURB INLET EXPANSION JOINT AT NORTHEAST CORNER OF MAYS STREET AND LOGAN STREET.
ELEV. = 726.76
NAVD88

ENGINEER / CONTACT

IECO, INC
FIRM REG# F-19777
P.O. BOX 2088
PFLUGERVILLE, TX 78691
CONTACT: JACOB D. MEALEY, PE
PH: (737) 226-4777
EMAIL: INFO@INSIGHTENGINEERING.NET

SURVEYOR

ALL STAR LAND SURVEYING
9020 ANDERSON MILL ROAD
AUSTIN, TX 78729
CONTACT: EDDIE RUMSEY
PHONE: (512) 249-8149
FAX: (512) 331-5217
TBPLS FIRM # 10135000

OWNERS / APPLICANT

RAMENDU DUPLEX AT ROUND ROCK LLC
3016 PASEO DE CHARROS
CEDAR PARK, TX 78641
CONTACT: MARSHALL HUSSAIN
PHONE: (512) 698-1976
EMAIL: MARSHALL1@GMAIL.COM

LEGAL DESCRIPTION

2.77 ACRES OF LAND OUT OF THE WILEY HARRIS SURVEY, ABSTRACT NUMBER 298, WILLIAMSON COUNTY, TEXAS, CONSISTING OF THREE TRACTS CONVEYED TO THAT CERTAIN RICHARD CEPEDA, BEING 1.873 ACRES, RECORDED IN DOCUMENT NUMBER 2010078846, 0.824 ACRES RECORDED IN DOCUMENT 2017105955, AND A PORTION OF A 0.1899 ACRE TRACT RECORDED IN DOCUMENT NUMBER 2017045099, ALL OF THE OFFICIAL PUBLIC RECORDS, WILLIAMSON COUNTY, TEXAS.

IECO

IECO, INC
555 ROUND ROCK W DR STE E 216
ROUND ROCK, TX 78681
1 (737)-226-4777
INFO@INSIGHTENGINEERING.NET

SITE ADDRESS: 210 LOGAN ROAD, 704 MANDELL STREET ROUND ROCK, TX 78664

TAX ACCOUNT NO.'S: R058893, R053078

PERMIT NO: SIP2004-0001

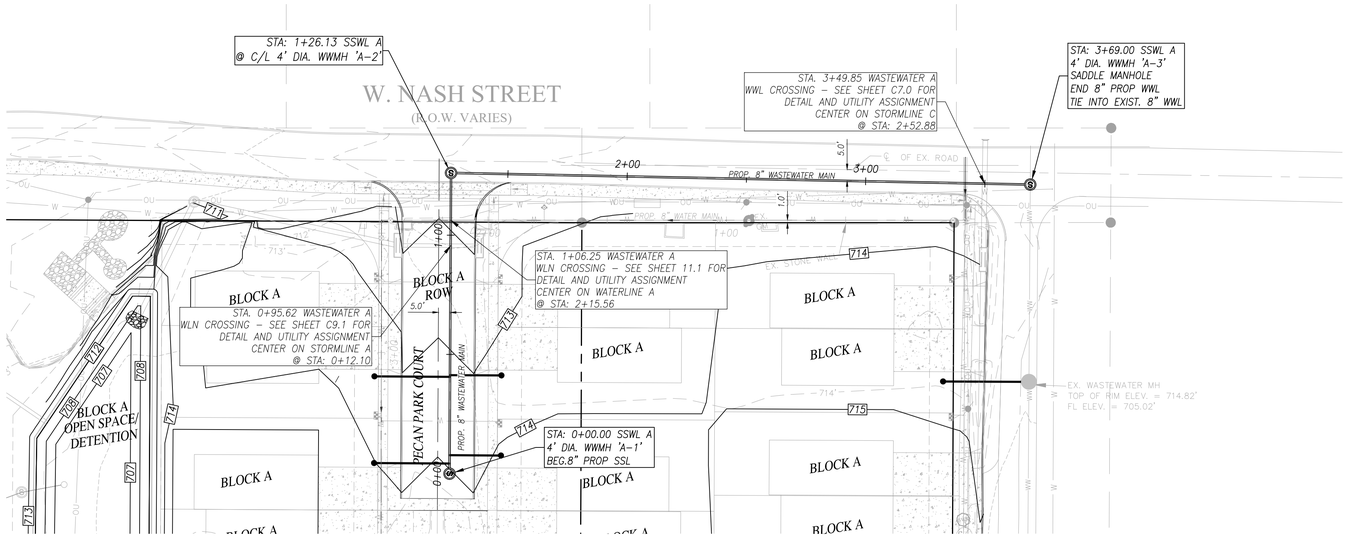
RAMENDU DUPLEX AT ROUND ROCK

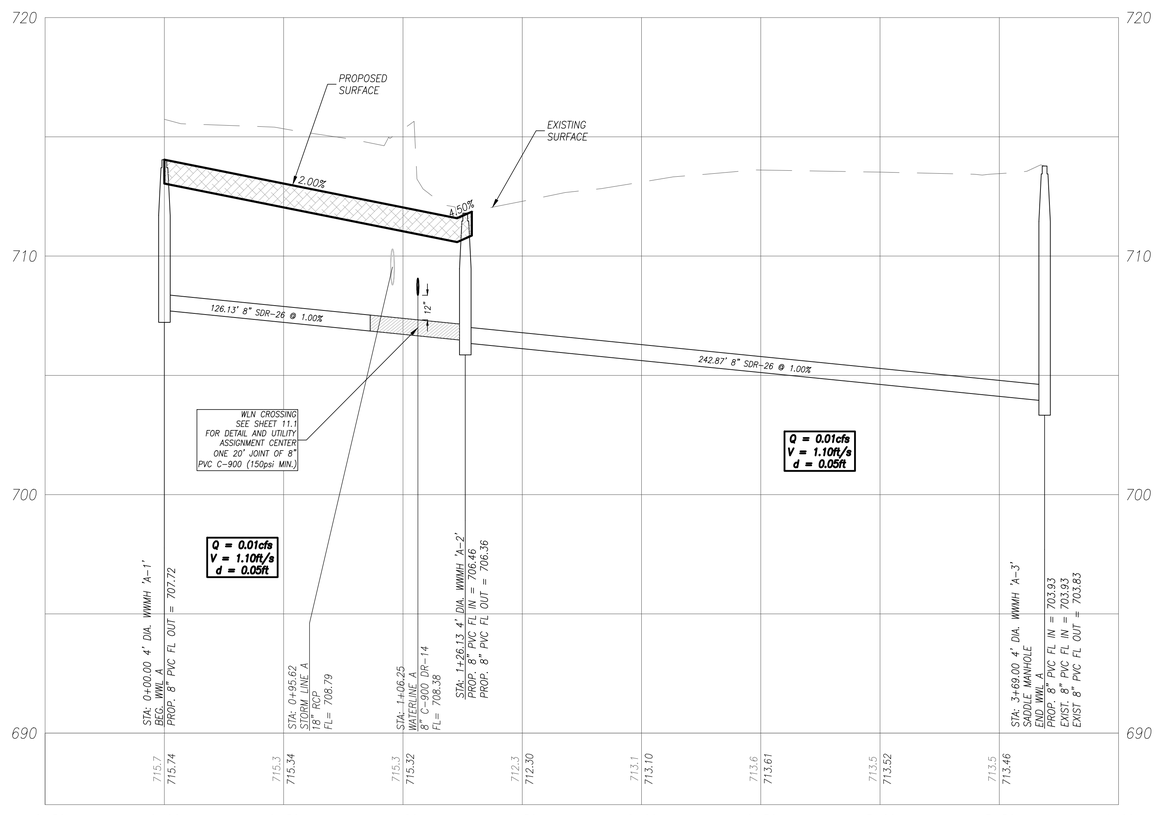
DWG FILENAME	DESIGNED BY:	DATE:	SCALE:	JOB NO.:
T190006-FINAL.DWG	JRC	01-31-2020	1"=30'	T19-0006

WATERLINE PLAN AND PROFILE

SHEET C9.1

RAMENDU DUPLEX AT ROUND ROCK PRELIMINARY PLAT
ROUND ROCK, WILLIAMSON COUNTY, TEXAS





WASTEWATER A PROFILE

SCALE: 1" = 30'

30 15 0 30 60

UTILITY LEGEND

- PROP. CURB INLET
- PROP. FIRE HYDRANT
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- PROP. MANHOLE
- PROP. CLEAN OUT
- PROP. WATERLINE
- PROP. WASTEWATER LINE
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- PROPERTY LINE
- EX. WATERLINE
- EX. FIRE HYDRANT
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- EX. UTILITY POLE/GUY ANCHOR
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REV.	REVISION DESCRIPTION	DATE

STATE OF TEXAS
JACOB D. MEALEY
127442
LICENSED
PROFESSIONAL ENGINEER
09/22/2020

NOTE: CITY INFRASTRUCTURE, INCLUDING ALL STREET IMPROVEMENTS, PAVERS, SIDEWALK, PAVEMENT, CURB & GUTTER, STORM WATER INFRASTRUCTURE, STRIPING, LANDSCAPING, ETC., TO BE PROTECTED THROUGHOUT DURATION OF CONSTRUCTION. ANY DAMAGES WILL BE REPAIRED TO ORIGINAL CONDITION AT OWNER/CONTRACTOR'S EXPENSE.

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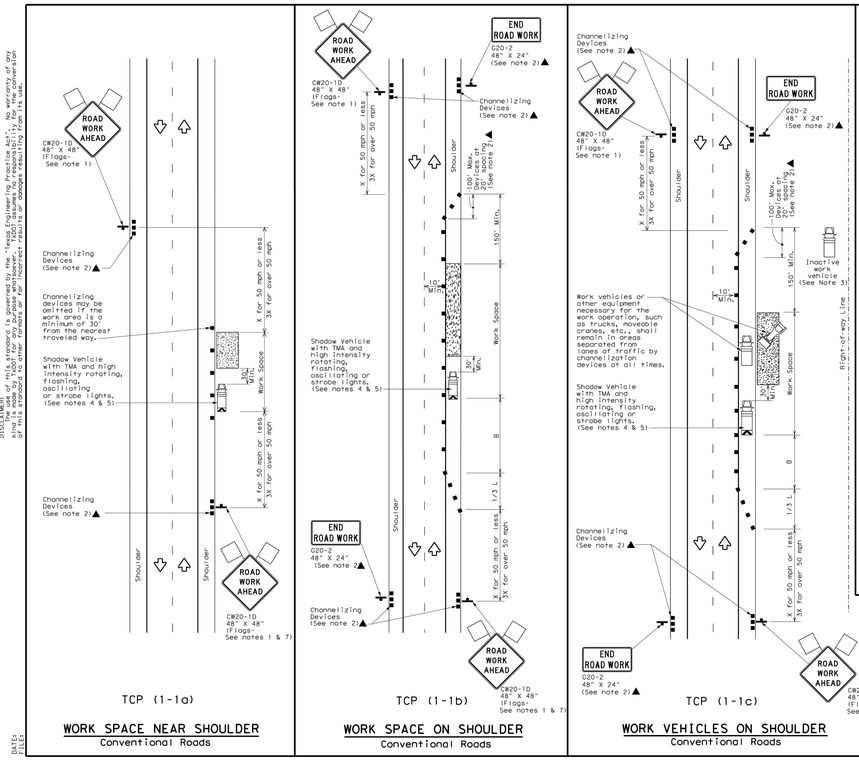
RAMENDU DUPLEX AT ROUND ROCK

DWG FILENAME	DESIGNED BY:	DATE:	SCALE:	JOB NO.:
T190006-FINAL.DWG	JRC	01-31-2020	1"=30'	T19-0006

WASTEWATER
PLAN AND PROFILE

SHEET C9.2

RAMENDU DUPLEX AT ROUND ROCK PRELIMINARY PLAT
ROUND ROCK, WILLIAMSON COUNTY, TEXAS



TCP (1-1a)

WORK SPACE NEAR SHOULDER
Conventional Roads

TCP (1-1b)

WORK SPACE ON SHOULDER
Conventional Roads

TCP (1-1c)

WORK VEHICLES ON SHOULDER
Conventional Roads

DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT shall not be liable for any damages resulting from its use of this standard to other formats or for incorrect results or damages resulting from its use.

DATE:
FILE:

LEGEND

	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board	M	Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths * * 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices On a Taper	On a Tangent	Minimum "X" Sign Spacing Distance	Suggested Longitudinal Buffer Space "B"
30	L = WS²/60	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L = WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75		750'	825'	900'	75'	150'	900'	540'

* Conventional Roads Only
** Taper lengths have been rounded off.
L=Length of Taper(FT) W=Width of Offset(FT) S=Posted Speed(MPH)

TYPICAL USAGE

MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓		

GENERAL NOTES

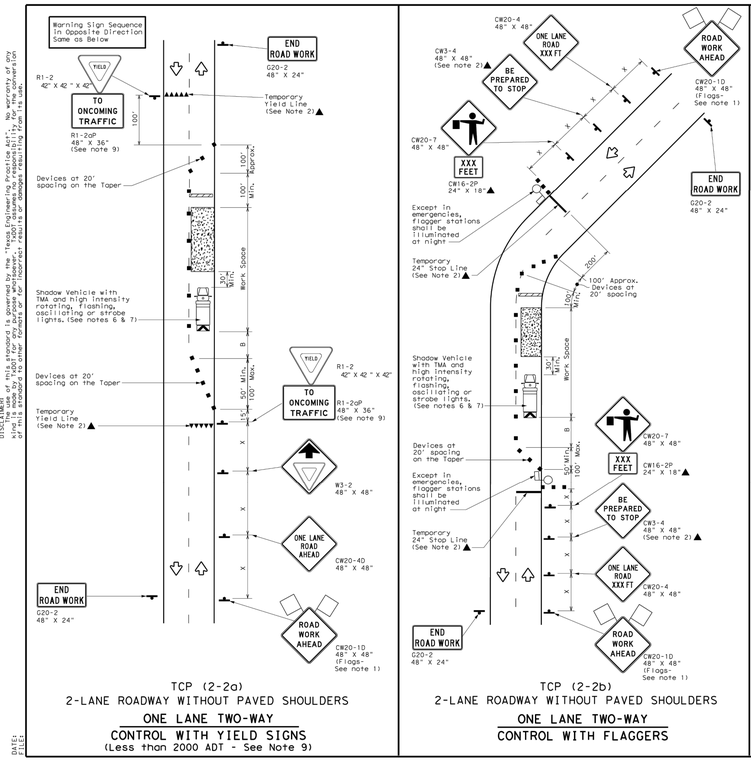
1. Flags attached to signs where shown are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. Inactive work vehicles or other equipment should be parked near the right-of-way line and not parked on the paved shoulder.
4. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
5. Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect wider work spaces.
6. See TCP(5-1)for shoulder work on divided highways, expressways and freeways.
7. CW21-5 "SHOULDER WORK" signs may be used in place of CW20-1D "ROAD WORK AHEAD" signs for shoulder work on conventional roadways.

Texas Department of Transportation — Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
CONVENTIONAL ROAD SHOULDER WORK

TCP(1-1)-18

FILE: tcp(1-1-18).dgn | DN: TxDOT | CK: TxDOT | DW: TxDOT | CK: TxDOT
©TxDOT December 1985 | CONT | SECT | JOB | HIGHWAY
REVISIONS 2-94 4-98 | 8-95 2-12 | 1-97 2-18
DIST | COUNTY | SHEET NO.



TCP (2-2a)
2-LANE ROADWAY WITHOUT PAVED SHOULDERS
ONE LANE TWO-WAY
CONTROL WITH YIELD SIGNS
(Less than 2000 ADT - See Note 9)

TCP (2-2b)
2-LANE ROADWAY WITHOUT PAVED SHOULDERS
ONE LANE TWO-WAY
CONTROL WITH FLAGGERS

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DATE:
FILE:

LEGEND

	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board	M	Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths * * 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices On a Taper	On a Tangent	Minimum "X" Sign Spacing Distance	Suggested Longitudinal Buffer Space "B"	Stopping Sight Distance
30	L = WS²/60	150'	165'	180'	30'	60'	120'	90'	200'
35		205'	225'	245'	35'	70'	160'	120'	250'
40		265'	295'	320'	40'	80'	240'	155'	305'
45	L = WS	450'	495'	540'	45'	90'	320'	195'	360'
50		500'	550'	600'	50'	100'	400'	240'	425'
55		550'	605'	660'	55'	110'	500'	295'	495'
60		600'	660'	720'	60'	120'	600'	350'	570'
65		650'	715'	780'	65'	130'	700'	410'	645'
70		700'	770'	840'	70'	140'	800'	475'	730'
75		750'	825'	900'	75'	150'	900'	540'	820'

* Conventional Roads Only
** Taper lengths have been rounded off.
L=Length of Taper(FT) W=Width of Offset(FT) S=Posted Speed(MPH)

TYPICAL USAGE

MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓	✓	

GENERAL NOTES

1. Flags attached to signs where shown, are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. The CW3-4 "BE PREPARED TO STOP" sign may be installed after the CW20-4 "ONE LANE ROAD XXX FT" sign, but proper sign spacing shall be maintained.
4. Flaggers should use two-way radios or other methods of communication to control traffic.
5. Length of work space should be based on the ability of flaggers to communicate.
6. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
7. Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect a wider work space.

TCP (2-2a)

8. The R1-2 "YIELD" sign traffic control may be used on projects with approaches that have adequate sight distance. For projects in urban areas, work space should be no longer than one half city block. In rural areas, roadways with less than 2000 ADT, work space should be no longer than 400 feet.
9. The R1-2aP "YIELD TO ONCOMING TRAFFIC" sign shall be placed on a support at a 7 foot minimum mounting height.

TCP (2-2b)

10. Channelizing devices on the center line may be omitted when a pilot car is leading traffic and approved by the Engineer.
11. If the work space is located near a horizontal or vertical curve, the buffer distances should be increased in order to maintain stopping sight distance to the flagger and a queue of stopped vehicles. (See table above).
12. Flaggers should use 24" STOP/SLOW paddles to control traffic. Flags should be limited to emergency situations.

Texas Department of Transportation — Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
ONE-LANE TWO-WAY
TRAFFIC CONTROL

TCP(2-2)-18

FILE: tcp(2-2-18).dgn | DN: TxDOT | CK: TxDOT | DW: TxDOT | CK: TxDOT
©TxDOT December 1985 | CONT | SECT | JOB | HIGHWAY
REVISIONS 8-95 3-03 | 1-97 2-12 | 4-98 2-18
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REV.	REVISION DESCRIPTION	DATE

STATE OF TEXAS — JACOB D. MEALEY — 127442 — LICENSED PROFESSIONAL ENGINEER
09/22/2020

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TAX ACCOUNT NO.'S: R058893, R053078

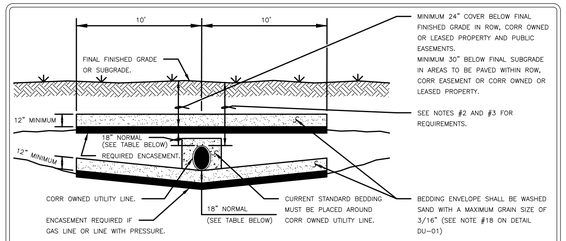
PERMIT NO: SIP2004-0001

RAMENDU DUPLEX AT ROUND ROCK

DWG FILENAME	DESIGNED BY:	DATE:	SCALE:	JOB NO.:
T190006-FINAL.DWG	JRC	01-31-2020	N.T.S.	T19-0006

TRAFFIC CONTROL PLAN — SHEET C10.0

RAMENDU DUPLEX AT ROUND ROCK PRELIMINARY PLAT
ROUND ROCK, WILLIAMSON COUNTY, TEXAS



NOTE: NORMALLY, CROSSINGS GO UNDER CORR OWNED LINES WITH LESS THAN 60" OF COVER.

UTILITY MINIMUM CLEARANCE TABLE

	CORR OWNED LINE SIZE	CROSSING (AS NEAR 90° AS POSSIBLE)	PARALLEL ROUTES
POTABLE WATERLINES	LESS THAN ~ 6"	12"	36"
	6" ~ 36"	18"	48"
	LARGER	24"	72"
RECYCLE AND WASTEWATER LINES	LESS THAN ~ 6"	12"	36"
	6" ~ 36"	18"	48"
	LARGER	24"	60"
STORM WATER LINES	LESS THAN ~ 18"	12"	24"
	18" ~ 60"	18"	36"
	LARGER	24"	60"

FOR ADDITIONAL GENERAL NOTES, SEE DETAIL DU-01

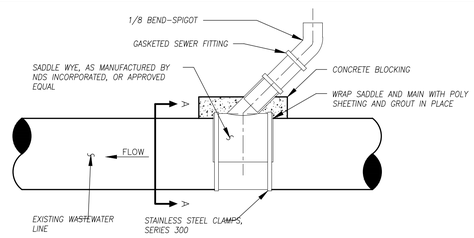
NOTES:

1. ALL TRENCH SAFETY SHALL COMPLY WITH APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS.
2. AN ENCASED (SEE NOTE #7) UTILITY LINE/CLUSTER WITH SAND BEDDING, WILL BE ALLOWED TO CROSS OVER A CORR OWNED UTILITY LINE THAT HAS 60" OF COVER OR MORE, PROVIDED THERE IS COMPLIANCE WITH THE CLEARANCE, INSTALLATION AND COVER FROM FINAL SURFACE GRADE SHOWN ON THIS DETAIL. CLEARANCE STANDARDS CAN BE FOUND IN THE UTILITY MINIMUM CLEARANCE TABLE SHOWN ON THIS SHEET AND MINIMUM COVER IS SHOWN ON THE DETAIL SKETCH FOR EACH TYPE OF TRENCH (IN UNPAVED AREAS, IN EXISTING PAVEMENT AND IN AREAS WHERE PAVEMENT IS PROP.).
3. IF THE CORR LINE IS LARGE (36"+ POTABLE WATERLINE, RECYCLE LINE OR WASTEWATER LINE, 60"+ STORM WATER LINE) AND/OR HAS LESS THAN 60" OF COVER WITH SPECIAL SITE CONDITIONS, DETAILED PLANS WITH WRITTEN JUSTIFICATION FOR CROSSING OVER A PROP. OR EXISTING CORR OWNED LINE, MUST BE SUBMITTED FOR APPROVAL A MINIMUM OF 10 DAYS BEFORE PROP. INSTALLATION.
4. NO ENCASEMENT (SAND BEDDING ONLY) IS REQUIRED WHERE THE UTILITY CROSSES UNDER THE CORR OWNED UTILITY LINE, EXCEPT FOR A GAS LINE, OR LINE WITH PRESSURE, WHICH MUST BE ENCASED. CLEARANCE STANDARDS COMPLIANCE REQUIRED.
5. WHERE THERE IS KNOWN GROUND WATER, PLANS MUST BE SUBMITTED, THAT SHOW AN ACCEPTABLE CONTROL OF THE WET CONDITION.
6. ENCASEMENT IN THESE CROSSINGS, MUST BE SCH. 40 STEEL OR SCH. 80 PVC OR GREATER IN ADDITION TO THE CONDUIT ON ELECTRICAL LINES WITH MORE THAN 120V TO GROUND, ALL GAS LINES, ALL FIBER OPTIC CABLES AND ALL TELEPHONE CABLES WITH MORE THAN 100 PRS.

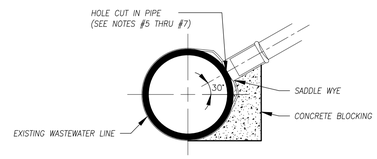
RECORD SIGNED COPY ON FILE AT PUBLIC WORKS
APPROVED
07-11-06
DATE
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL.

CITY OF ROUND ROCK
UTILITY CROSSING INSTALLATION (UC) DETAIL
DRAWING NO: DU-05

1 C11.1 UTILITY CROSSING INSTALLATION (UC) DETAIL
NOT TO SCALE



PLAN VIEW



SECTION "A-A"

NOTES:

1. FLEXIBLE SADDLE TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.
2. EXCAVATE AROUND EXISTING WASTEWATER PIPE, EXPOSING SUFFICIENT ROOM FOR STAINLESS STEEL CLAMPS.
3. THOROUGHLY CLEAN AND DRY THE MATING SURFACE.
4. MARK THE SIZE OF THE HOLE TO BE CUT USING THE SADDLE ITSELF AS A TEMPLATE.
5. SAW OUT THE SECTION OF THE PIPE WHERE THE SADDLE WILL BE LOCATED, WITH A SABER OR KEY HOLE SAW. PIPE COUPONS SHALL BE REMOVED FROM EXISTING MAIN AND DISCARDED. PIPE CUTTINGS IN EXCESS OF 1" IN DIAMETER SHALL NOT BE LEFT IN EXISTING MAIN.
6. ENSURE SADDLE FITS HOLE PROPERLY.
7. PLACE GASKET SKIRT AND SADDLE OVER OPENING AND TIGHTEN BAND CLAMPS EVENLY UNTIL SADDLE IS FIRMLY ATTACHED TO THE PIPE. APPLY PRESSURE ON THE SADDLE AGAINST THE PIPE WHILE TIGHTENING THE CLAMPS AS INDICATED ABOVE. DO NOT OVER TIGHTEN AND DO NOT STRIP THREAD.
8. SERVICE PIPE SHALL BE INSERTED FULLY TO CONTACT SEAT FORMED IN FITTING.
9. REPLACE THE BEDDING AND BACKFILL IN ACCORDANCE WITH THE TRENCH EMBEDMENT DETAIL.

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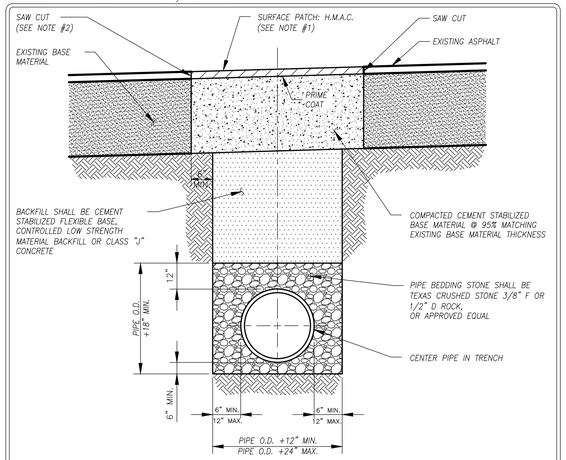
CITY OF ROUND ROCK
WASTEWATER LATERAL CONNECTION TO EXISTING WASTEWATER MAIN DETAIL
DRAWING NO: WW-16

2 C11.1 WASTEWATER LATERAL CONNECTION TO EX. WATER MAIN DETAIL
NOT TO SCALE



NOTES:

1. H.M.A.C. THICKNESS SHALL MATCH EXISTING ASPHALT THICKNESS AND NO LESS THAN 2".
2. THE CONTRACTOR SHALL SAW CUT, REMOVE AND REPLACE EXISTING PAVEMENT AND FLEXIBLE BASE A MINIMUM OF 6" BEYOND EITHER THE EDGE OF THE WASTEWATER LINE TRENCH OR THE POINT WHERE EXISTING PAVEMENT IS DAMAGED DUE TO TRENCHING OPERATIONS, WHICHEVER IS GREATER. FINISHED PATCH SHALL BE NEAT AND UNIFORM.
3. INSTALLATION OF BACKFILL, SAW CUTTING AND REMOVAL OF EXISTING PAVEMENT AND SURFACE PATCH SHALL NOT BE PAID FOR SEPARATELY. COSTS FOR THESE ITEMS SHALL BE INCLUDED IN UNIT PRICE BID FOR WASTEWATER PIPE.
4. THE CONTRACTOR SHALL PROVIDE STEEL PLATES TO SPAN THE TRENCH AS NECESSARY OR TO ALLOW BACKFILL TO CURE. SUCH PLATES SHALL BE SUITABLE FOR VEHICLE PASSAGE OVER THE TRENCH AND SHALL BE SATISFACTORILY ANCHORED IN PLACE. COSTS FOR THIS ITEM SHALL BE INCLUDED IN UNIT PRICE BID FOR WASTEWATER PIPE.
5. ALL TRENCHING AND TRENCH SAFETY SHALL COMPLY WITH APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS.

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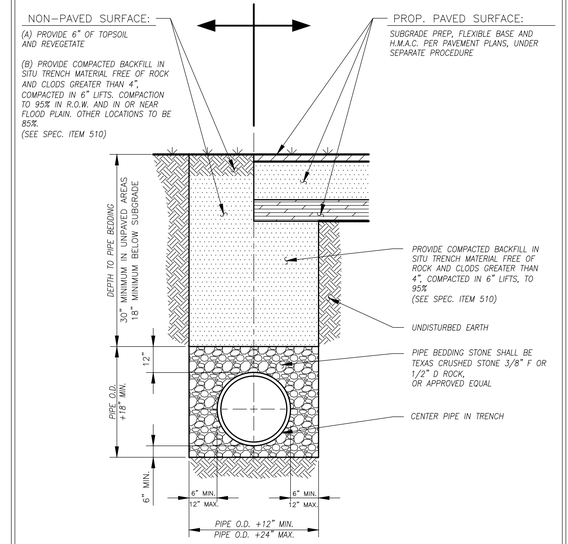
CITY OF ROUND ROCK
WASTEWATER LINE BEDDING AND SURFACE REPAIR DETAIL (EXISTING PAVED SURFACE)
DRAWING NO: WW-17

3 C11.1 WASTE LINE BEDDING AND SURFACE REPAIR DETAIL
(EXISTING PAVED SURFACE)
NOT TO SCALE



NOTE:

ALL TRENCHING AND TRENCH SAFETY SHALL COMPLY WITH APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS.

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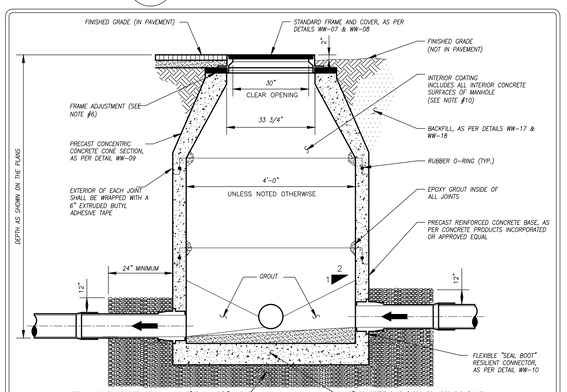
CITY OF ROUND ROCK
WASTEWATER LINE BEDDING AND SURFACE REPAIR DETAIL (NON-PAVED & PROP. PAVED SURFACE)
DRAWING NO: WW-18

4 C11.1 WASTE LINE BEDDING AND SURFACE REPAIR DETAIL
(NON-PAVED & PROP. PAVED SURFACE)
NOT TO SCALE



NOTES:

1. IF DROP IS SIX INCHES (6") TO TWO FEET (2'-0"), CONSTRUCTION OF DROP SHALL PROVIDE AN OVERSIZED INVERT TO EXTEND UNDER THE DROP CONNECTION.
2. SEE CONSTRUCTION PLANS FOR MANHOLE SIZE, LOCATION, CONFIGURATION, TYPE OF TOP SECTION, VENTING REQUIREMENTS, PIPE SIZES AND TYPES.
3. MANHOLES SHALL BE PRECAST A.S.T.M. C478 BELL AND SPIGOT WITH "O" RING JOINTS.
4. MANHOLES TO BE DESIGNED TO RESIST LATERAL AND VERTICAL SOIL FORCES RESULTING FROM MANHOLE DEPTH. ADDITIONALLY, MANHOLES LOCATED IN PAVEMENT TO BE DESIGNED FOR H20 TRAFFIC LOADING.
5. ALL MANHOLE COVERS SHALL BE BOLTED AND GASKETED, WHEN MANHOLES ARE LOCATED OUTSIDE OF PAVEMENT.
6. FRAME ADJUSTMENT HEIGHT SHALL CONSIST OF FIVE INCHES (5") MINIMUM TO EIGHTEEN INCHES (18") MAXIMUM. GRADE RINGS SHALL BE GROUTED WITH A NON-SHRINK GROUT INSIDE AND OUTSIDE. HDPE GRADE RINGS, MAY NOT BE USED.
7. FOR MANHOLES TO BE VENTED, SEE DETAILS WW-05 AND WW-06.
8. A FLOW CHANNEL SHALL BE CONSTRUCTED INSIDE MANHOLE TO DIRECT INFLUENT INTO THE FLOW STREAM. ALL P.V.C. PIPE SHALL BE REMOVED FROM INVERT.
9. BASE SECTION SHALL BE DESIGNED FOR H20 LOADING, PLUS EARTH LOAD AT 130 PCF.
10. ENTIRE INTERIOR CONCRETE SURFACES OF WASTEWATER MANHOLES TO BE COATED WITH RAVEN 405, SPRAYWALL, OR APPROVED EQUAL, (WITH A UNIFORM THICKNESS OF 124 MILS AND A MINIMUM THICKNESS OF 100 MILS, APPLIED AFTER MANHOLE HAS PASSED THE VACUUM TEST). FOR REHABILITATING MANHOLES 1/2" MINIMUM THICKNESS CALCIUM ALUMINATE CEMENTITIOUS COATING AND OTHER INTERIOR SURFACES MAY BE COATED IF RECOMMENDED BY COATING MANUFACTURER. (IN LIEU OF INTERIOR COATINGS NEW PRECAST MANHOLES CONTAINING CONSHIELD WILL BE ACCEPTED PROVIDING THE MANUFACTURER STENCILS "CONSHIELD" ON THE INSIDE AND OUTSIDE OF ALL MANHOLE SECTIONS.)

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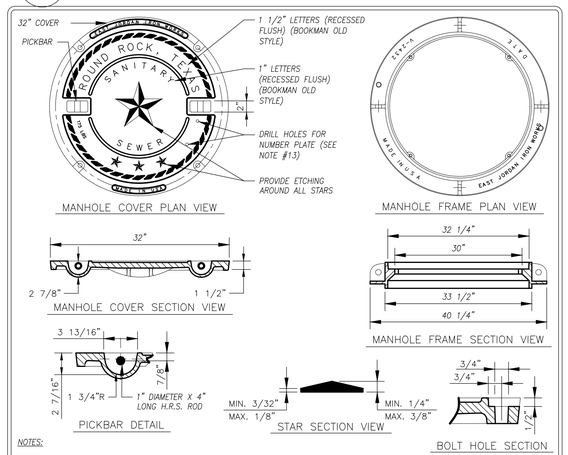
CITY OF ROUND ROCK
PRECAST CONCRETE WASTEWATER MANHOLE DETAIL
DRAWING NO: WW-01

5 C11.1 PRECAST CONCRETE WASTEWATER MANHOLE DETAIL
NOT TO SCALE



NOTES:

1. COVER AND FRAME SHALL COMPLY WITH STANDARD SPECIFICATIONS FOR DRAINAGE, SEWER, UTILITY AND RELATED CASTINGS: AASHTO DESIGNATION M306-04.
2. MANHOLE COVER SHALL BE MODEL NUMBER: V-2432-3 (PRODUCT NUMBER: 42432033), AS MANUFACTURED BY EAST JORDAN IRON WORKS INCORPORATED, OR APPROVED EQUAL.
3. MANHOLE FRAME SHALL BE MODEL NUMBER: V-2432 (PRODUCT NUMBER: 42432010), AS MANUFACTURED BY EAST JORDAN IRON WORKS INCORPORATED, OR APPROVED EQUAL.
4. MANHOLE COVER AND FRAME ASSEMBLY, IF ORDERED AS A SET, SHALL BE MODEL NUMBER: V-2432 (PRODUCT NUMBER: 42432073), AS MANUFACTURED BY EAST JORDAN IRON WORKS INCORPORATED, OR APPROVED EQUAL.
5. ALL CORNERS AND EDGES SHALL HAVE A 1/16" MINIMUM AND 1/8" MAXIMUM RADIUS.
6. MANHOLE COVERS SHALL BE CAST WITH TWO 1" DIAMETER STEEL PICKBARS.
7. MANHOLE COVER WEIGHT SHALL BE 175 LBS. FOR DUCTILE IRON. WEIGHT SHALL BE CAST ON BOTH TOP AND BOTTOM OF COVER.
8. MANUFACTURER SHALL CERTIFY THAT EACH MANHOLE COVER MEETS HS-20 LOADING.
9. FILLETS SHALL BE 1/4" RADIUS UNLESS OTHERWISE SPECIFIED.
10. MANUFACTURER SHALL REMOVE EXCESS IRON AND MACHINE FINISH SEATING SURFACES TO NOTED DIMENSIONS.
11. COVER SHALL BE DIPPED IN A WATER-BASED ASPHALTIC COATING, PRIOR TO SHIPMENT FROM FOUNDRY.
12. BOLTS SHALL BE 5/8"-11NC X 2" LONG HEX STAINLESS STEEL WITH WASHER.
13. MANUFACTURER SHALL DRILL 2-3/16" X 1/2" DEEP HOLES FOR A MANHOLE NUMBER PLATE TO BE PROVIDED BY THE CITY OF ROUND ROCK. THE TOP HOLE SHALL BE DRILLED 1" O.C. FROM THE BOTTOM OF THE PICKBAR AND THE BOTTOM HOLE SHALL BE DRILLED 4" O.C. FROM THE TOP HOLE.

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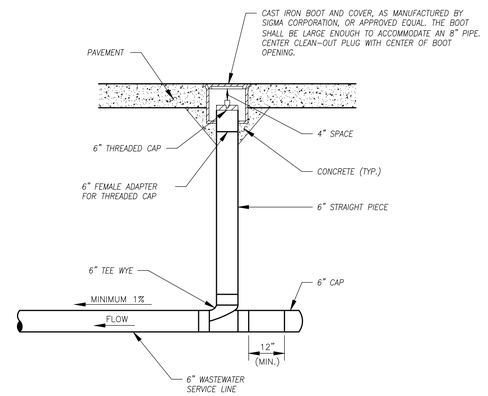
CITY OF ROUND ROCK
BOLTED WASTEWATER MANHOLE COVER AND FRAME DETAIL
DRAWING NO: WW-07

6 C11.1 BOLTED WASTEWATER MANHOLE COVER AND FRAME DETAIL
NOT TO SCALE



NOTES:

1. ALL PIPE TO BE SDR 26.
2. ALL FITTINGS TO BE SDR 35 SOLVENT WELD FITTINGS.

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CITY OF ROUND ROCK
WASTEWATER SERVICE CLEAN-OUT DETAIL (PAVED SURFACE)
DRAWING NO: WW-13

7 C11.1 WASTEWATER SERVICE CLEAN-OUT DETAIL
(PAVED SURFACE)
NOT TO SCALE

BM
IS MAG NAIL SET
ELEV. = 716.03'

DATUM:
NAVD88
GEOID 2016

BENCHMARK: CITY OF ROUND ROCK BRASS DISC AT CURB AT WEST END CURB INLET EXPANSION JOINT AT NORTHEAST CORNER OF MAY'S STREET AND LOGAN STREET.
ELEV. = 726.76
NAVD88

LEGAL DESCRIPTION

2.77 ACRES OF LAND OUT OF THE WILEY HARRIS SURVEY, ABSTRACT NUMBER 298, WILLIAMSON COUNTY, TEXAS, CONSISTING OF THREE TRACTS CONVEYED TO THAT CERTAIN RICHARD CEPEDA, BEING 1.873 ACRES, RECORDED IN DOCUMENT NUMBER 2010078846, 0.824 ACRES RECORDED IN DOCUMENT 2017105955, AND A PORTION OF A 0.1899 ACRE TRACT RECORDED IN DOCUMENT NUMBER 2017045099, ALL OF THE OFFICIAL PUBLIC RECORDS, WILLIAMSON COUNTY, TEXAS.

REV.	REVISION DESCRIPTION	DATE

STATE OF TEXAS
JACOB D. MEALEY
127442
LICENSED PROFESSIONAL ENGINEER
09/22/2020

ENGINEER / CONTACT

IECO, INC
FIRM REG# F-19777
P.O. BOX 2088
PFLUGERVILLE, TX 78691
CONTACT: JACOB D. MEALEY, PE
PH: (737) 226-4777
EMAIL: INFO@INSIGHTENGINEERING.NET

SURVEYOR

ALL STAR LAND SURVEYING
9020 ANDERSON MILL ROAD
AUSTIN, TX 78729
CONTACT: EDDIE RUMSEY
PHONE: (512) 249-8149
FAX: (512) 331-5217
TBPLS FIRM # 10135000

OWNERS / APPLICANT

RAMENDU DUPLEX AT ROUND ROCK LLC
3016 PASEO DE CHARROS
CEDAR PARK, TX 78641
CONTACT: MARSHALL HUSSAIN
PHONE: (512) 698-1976
EMAIL: MARSHALL1@GMAIL.COM

IECO, INC
555 ROUND ROCK W DR STE E 216
ROUND ROCK, TX 78681
1 (737)-226-4777
INFO@INSIGHTENGINEERING.NET

SITE ADDRESS: 210 LOGAN ROAD, 704 MANDELL STREET ROUND ROCK, TX 78664

TAX ACCOUNT NO.'S: R058893, R053078

PERMIT NO: SIP2004-0001

RAMENDU DUPLEX AT ROUND ROCK

DWG FILENAME	DESIGNED BY:	DATE:	SCALE:	JOB NO.:
T190006-FINAL.DWG	JRC	01-31-2020	N.T.S.	T19-0006

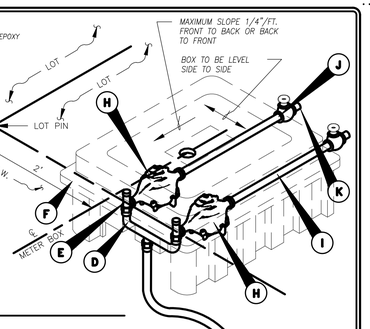
WASTEWATER DETAILS

SHEET C11.1

RAMENDU DUPLEX AT ROUND ROCK PRELIMINARY PLAT
ROUND ROCK, WILLIAMSON COUNTY, TEXAS

MATERIAL LIST:

A. SERVICE SADDLE REQUIRED. SERVICE SADDLE TO BE EPOXY COATED WITH DUAL STAINLESS STEEL BANDS
B. 1 1/2" CORPORATION STOP (TYPICAL) – SERVICE PIPE OUTLET. (SEE NOTE #2)
C. 1 1/2" SERVICE PIPE (TYPICAL).
D. BRANCH CONNECTION: 1 1/2" OR 2" SERVICE PIPE INLET AND 2 3/4" MALE I.P.T. OUTLETS 7 1/2" O.C. (SEE NOTE #2)
E. 3/4" LOCKING ANGLE METER STOP; FEMALE I.P.T. INLET AND SWIVEL COUPLING NUT OUTLET.
F. PLASTIC RECTANGULAR METER BOX. (SEE TABLE BELOW)
G. PIPE CASING WHERE APPLICABLE. (AS PER DETAIL WT-01)
H. WATER METERS, CENTERED IN BOX. (SEE TABLE BELOW)
I. WATER METER COUPLING; MALE I.P.T. X SWIVEL COUPLING NUT.
• LENGTH OF PIPE TO BE DETERMINED BY CONTRACTOR.
• EXTEND PIPE TO 4"-6" OUTSIDE OF METER BOX.
J. BRONZE GATE VALVE: NON-RISING STEM (1/4" OR 1") FEMALE I.P.T. (PROPERTY OWNERS CUT-OFF OUTSIDE METER BOX IN SEPARATE VALVE CAN WITH LID AS PER CITY OF ROUND ROCK STANDARDS).
K. 3/4" OR 1" PIPE MEETING CITY OF ROUND ROCK PLUMBING CODE REQUIREMENTS.

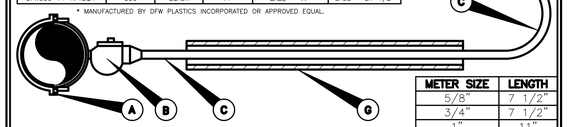


NOTES:

1. SERVICE PIPE SHALL BE COPPER TUBE SIZE. IT MAY BE 150 P.S.I. ANNEALED SEAMLESS TYPE "K" COPPER TUBING OR 200 P.S.I. BLACK COLORED POLYETHYLENE HAVING A DIMENSION RATIO OF 9 (DR9).
2. ALL STAINLESS STEEL INSERTS THAT COME WITH COMPRESSION FITTINGS SHALL NOT BE USED ON ANY CONNECTIONS.
3. SERVICE SADDLES SHALL BE WRAPPED COMPLETELY WITH 8 MIL. POLYETHYLENE FILM.
4. TOP OF BOXES SHALL BE 1" ABOVE FINISHED GRADE.
5. PIPING AND TUBING SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 510.3 OF THE STANDARD SPECIFICATIONS. SPECIAL ATTENTION IS CALLED TO "PIPE BEDDING ENVELOPE" AND "BACKFILLING", SECTIONS 510.3 (14) AND 510.3 (25), RESPECTIVELY.
6. AXIS OF METER ASSEMBLY (LINE THROUGH METER STOP, METER, PIPING AND OWNERS CUTOFF) SHALL BE 10" BELOW TOP OF BOX.
7. SLOTS PROVIDED IN METER BOX TO ACCOMODATE PIPING INTO AND OUT OF BOX, SHALL NOT BE MODIFIED.
8. BRANCH CONNECTION AND BOTH ANGLE METER STOPS MUST BE INSTALLED PRIOR TO FIRST METER INSTALLATION EVEN THOUGH THE SECOND PROPERTY MAY NOT BE READY FOR SERVICE.
9. LOCATION OF METER BOXES SHALL BE SUBJECT TO THE APPROVAL OF THE C.O.R.R.

PART NUMBER	SERIES	COLOR	HEIGHT	WIDTH	LENGTH
DFW38C-14-BODY*	38C	BLACK	14"	TOP = 20-1/2"	TOP = 21-1/2"
DFW38C-AF1EQA-LID*	38C	BLACK	2"	LID = 17"	LID = 18"
DFW38C-14-AF1EQA*	38C	BLACK	14"	BASE = 17"	BASE = 21-1/2"

* MANUFACTURED BY DFW PLASTICS INCORPORATED OR APPROVED EQUAL.



METER SIZE	LENGTH
5/8"	7 1/2"
3/4"	7 1/2"
1"	11"

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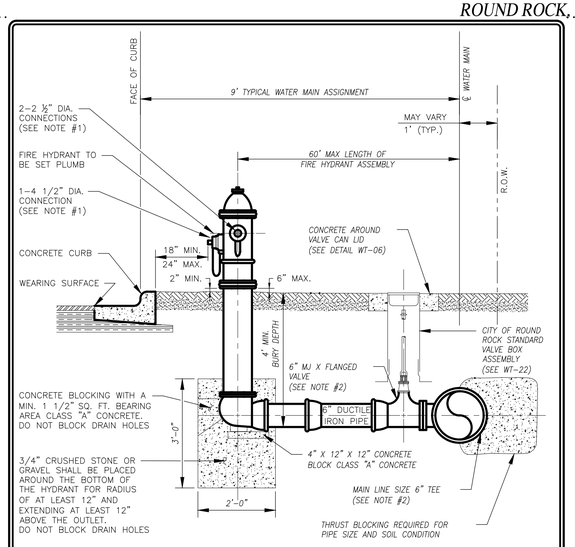
CITY OF ROUND ROCK — DRAWING NO: WT-04

DUAL 5/8", 3/4" OR 1" WATER METERS DETAIL

ROUND ROCK TEXAS — UTILITIES AND ENVIRONMENTAL SERVICES

1 / C11.2 DUAL 5/8", 3/4" OR 1" WATER METER DETAIL
NOT TO SCALE



NOTES:

1. THREADS ON OUTLET NOZZLES SHALL BE NATIONAL STANDARD THREAD.
2. TEE MAY HAVE FLANGED OUTLET FOR MJ X FLANGED GATE VALVE OR, ANCHOR (SWIVEL) TEE MAY BE USED WITH MJ X MJ GATE VALVE.
3. A BLUE REFLECTIVE DELINEATOR OF TYPE APPROVED BY THE ENGINEER SHALL BE PLACED 2 TO 3 FEET OFFSET FROM THE CENTERLINE OF PAVED STREETS OR PAVED ACCESS WAYS, ON THE SIDE OF AND IN LINE WITH ALL NEWLY INSTALLED FIRE HYDRANTS.
4. PIPE, VALVE, TEE AND HYDRANT BARREL SHALL BE WRAPPED IN 8 MM POLY.
5. FIRE HYDRANT LEADS SHALL NOT CONTAIN ANY HORIZONTAL OR VERTICAL BENDS EXCEPT FOR WHAT IS SHOWN IN THE DETAIL.
6. FIRE HYDRANT LEAD AND ASSEMBLY SHALL BE RESTRAINED AND THRUST BLOCKED.

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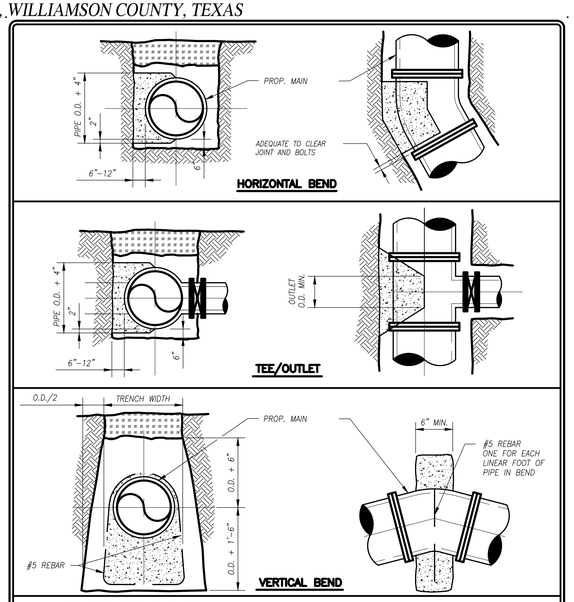
CITY OF ROUND ROCK — DRAWING NO: WT-05

FIRE HYDRANT ASSEMBLY DETAIL

ROUND ROCK TEXAS — UTILITIES AND ENVIRONMENTAL SERVICES

2 / C11.2 FIRE HYDRANT ASSEMBLY DETAIL
NOT TO SCALE



THRUST BLOCK DESIGN AS FOLLOWS:

A. PRESSURE OF 150 P.S.I. (ACTUAL IF HIGHER) + 50% SURGE ALLOWANCE
B. MAXIMUM SOIL BEARING:
C. ALL PIPE & FITTING TO BE WRAPPED WITH 40 PLASTIC MIL.

SOIL TYPE	PRESSURE
LIMESTONE	4000 LBS./SQ. FT.
UNDISTURBED SOIL, CALICHE	2000 LBS./SQ. FT.
LOOSE OR SPONGY SOIL	1500 LBS./SQ. FT.

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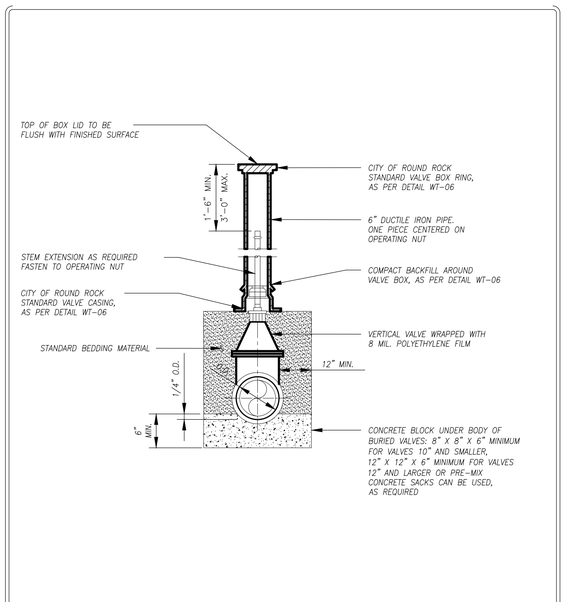
CITY OF ROUND ROCK — DRAWING NO: WT-25

THRUST BLOCK DETAIL

ROUND ROCK TEXAS — UTILITIES AND ENVIRONMENTAL SERVICES

3 / C11.2 THRUST BLOCK DETAIL
NOT TO SCALE



NOTES:

1. ALL VALVES AND VALVE CANS SHALL BE ACCESSIBLE FOR OPERATION ONCE THE NEW WATERLINE IS PUT INTO SERVICE. BURYING LINE VALVES IS PROHIBITED.
2. ALL VALVE LOCATIONS SHALL BE APPROPRIATELY MARKED "V" ON FACE OF CURB.

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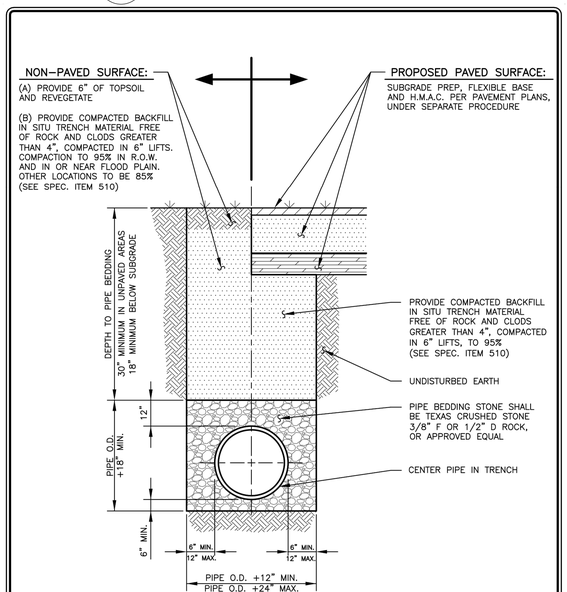
CITY OF ROUND ROCK — DRAWING NO: WT-11

VERTICAL VALVE INSTALLATION DETAIL

ROUND ROCK TEXAS — UTILITIES AND ENVIRONMENTAL SERVICES

4 / C11.2 VERTICAL VALVE INSTALLATION DETAIL
NOT TO SCALE



NOTE:

1. ALL TRENCHING AND TRENCH SAFETY SHALL COMPLY WITH APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS.

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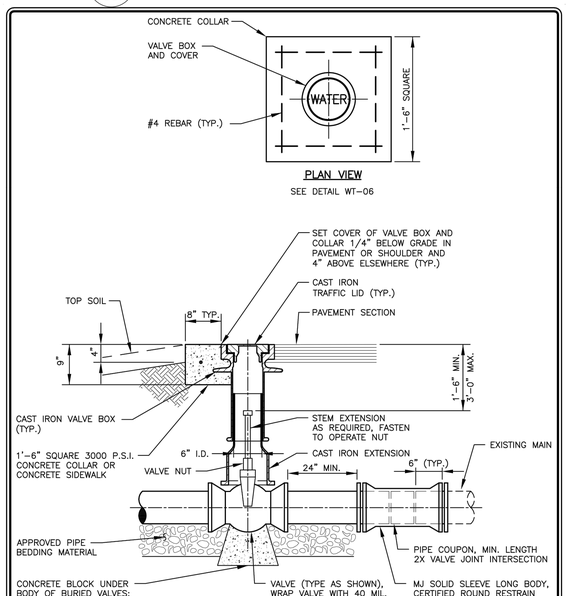
CITY OF ROUND ROCK — DRAWING NO: WT-08

WATERLINE BEDDING AND SURFACE REPAIR DETAIL (NON-PAVED & PROPOSED PAVED SURFACE)

ROUND ROCK TEXAS — UTILITIES AND ENVIRONMENTAL SERVICES

5 / C11.2 WATER BEDDING AND SURFACE DETAIL
NOT TO SCALE



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CITY OF ROUND ROCK — DRAWING NO: WT-22

GATE VALVE DETAIL

ROUND ROCK TEXAS — UTILITIES AND ENVIRONMENTAL SERVICES

6 / C11.2 GATE VALVE DETAIL
NOT TO SCALE

REV.	REVISION DESCRIPTION	DATE

STATE OF TEXAS — JACOB D. MEALEY — 127442 — LICENSED — PROFESSIONAL ENGINEER
09/22/2020

BM
IS MAG NAIL SET
ELEV. = 716.03'

DATUM:
NAVD88
GEOID 2016

BENCHMARK: CITY OF ROUND ROCK BRASS DISC AT CURB AT WEST END CURB INLET EXPANSION JOINT AT NORTHEAST CORNER OF MAYS STREET AND LOGAN STREET.
ELEV. = 726.76
NAVD88

ENGINEER / CONTACT

IECO, INC
FIRM REG# F-19777
P.O. BOX 2088
PFLUGERVILLE, TX 78691
CONTACT: JACOB D. MEALEY, PE
PH: (737) 226-4777
EMAIL: INFO@INSIGHTENGINEERING.NET

SURVEYOR

ALL STAR LAND SURVEYING
9020 ANDERSON MILL ROAD
AUSTIN, TX 78729
CONTACT: EDDIE RUMSEY
PHONE: (512) 249-8149
FAX: (512) 331-5217
TBPLS FIRM # 10135000

OWNERS / APPLICANT

RAMENDU DUPLEX AT ROUND ROCK LLC
3016 PASEO DE CHARROS
CEDAR PARK, TX 78641
CONTACT: MARSHALL HUSSAIN
PHONE: (512) 698-1976
EMAIL: MARSHALL10@GMAIL.COM

LEGAL DESCRIPTION

2.77 ACRES OF LAND OUT OF THE WILEY HARRIS SURVEY, ABSTRACT NUMBER 298, WILLIAMSON COUNTY, TEXAS, CONSISTING OF THREE TRACTS CONVEYED TO THAT CERTAIN RICHARD CEPEDA, BEING 1.873 ACRES, RECORDED IN DOCUMENT NUMBER 2010078846, 0.824 ACRES RECORDED IN DOCUMENT 2017105955, AND A PORTION OF A 0.1899 ACRE TRACT RECORDED IN DOCUMENT NUMBER 2017045099, ALL OF THE OFFICIAL PUBLIC RECORDS, WILLIAMSON COUNTY, TEXAS.

IECO, INC
555 ROUND ROCK W DR STE E 216
ROUND ROCK, TX 78681
1 (737)-226-4777
INFO@INSIGHTENGINEERING.NET

SITE ADDRESS: 210 LOGAN ROAD, 704 MANDELL STREET, ROUND ROCK, TX 78664

TAX ACCOUNT NO.'S: R058893, R053078

PERMIT NO: SIP2004-0001

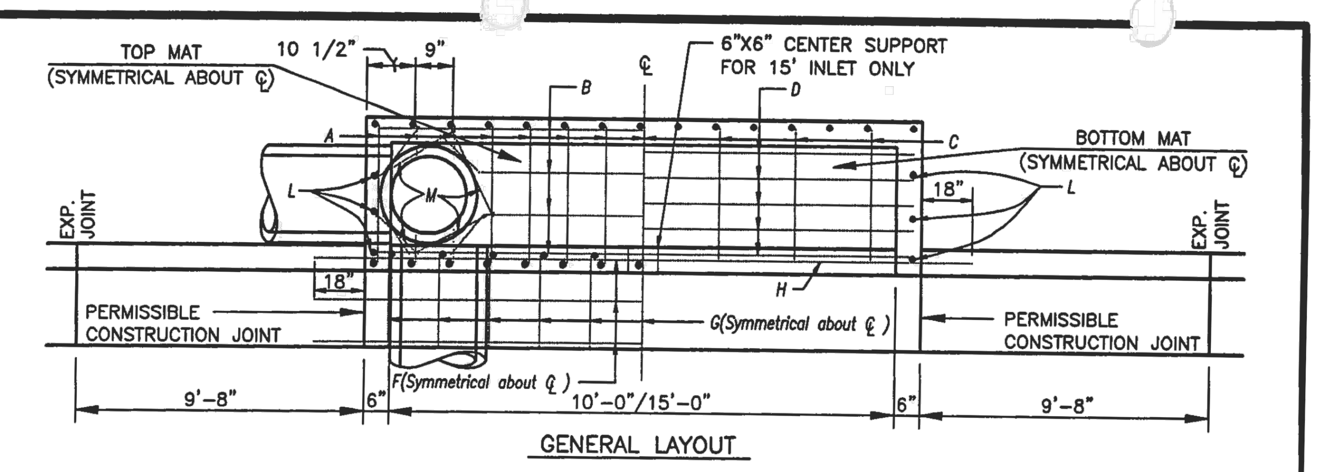
RAMENDU DUPLEX AT ROUND ROCK

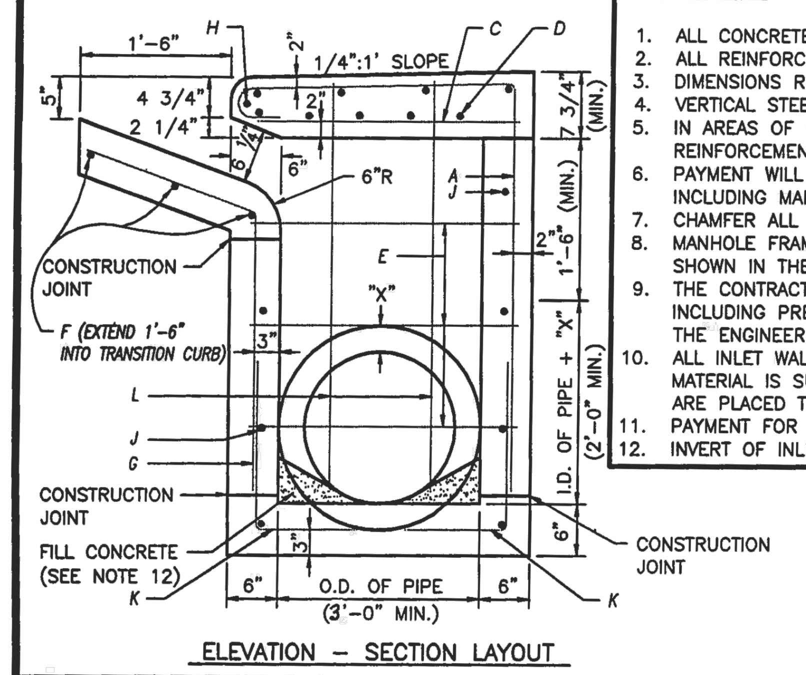
DWG FILENAME	DESIGNED BY:	DATE:	SCALE:	JOB NO.:
T190006-FINAL.DWG	JRC	01-31-2020	N.T.S.	T19-0006

WATER DETAILS — SHEET C11.2

RAMENDU DUPLEX AT ROUND ROCK PRELIMINARY PLAT
ROUND ROCK, WILLIAMSON COUNTY, TEXAS

REINFORCING STEEL SCHEDULE		
BARS	SIZE	SPACING
A	5	9"
B	4	10"
C	4	18"
D	6	6"
E	4	12"
F	4	10"
G	4	9"
H	6	–
J	4	12"
K	4	9"
L	4	12"
M	5	–



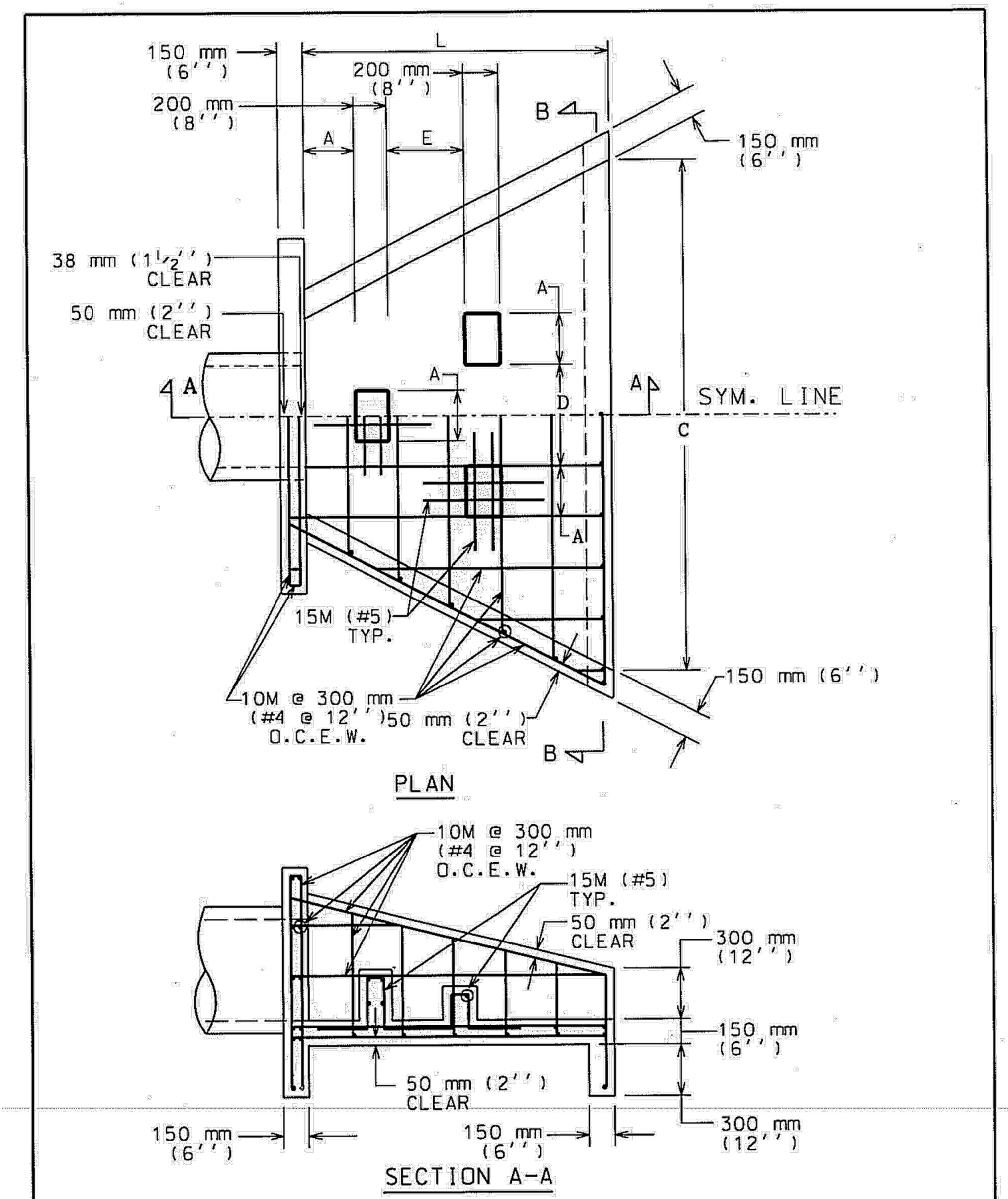


NOTES:

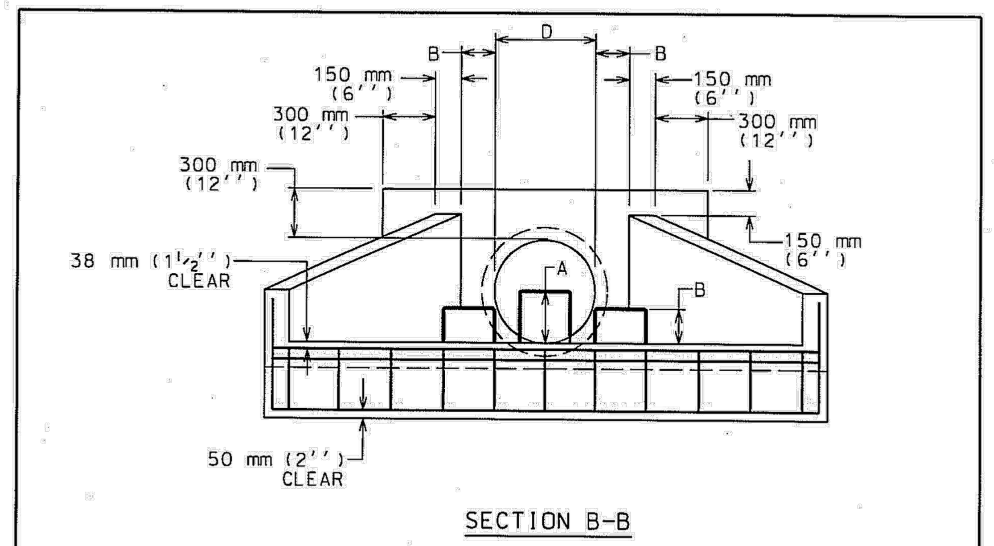
1. ALL CONCRETE SHALL BE CLASS "A".
2. ALL REINFORCING STEEL SHALL BE GRADE 60.
3. DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTERS OF BARS.
4. VERTICAL STEEL MAY BE SPLICED (15" MIN. LAP) IN THE LOWER ONE–HALF OF ALL INLET WALLS.
5. IN AREAS OF CONFLICT BETWEEN REINFORCING STEEL, PIPES AND MANHOLE FRAME THE REINFORCEMENT SHALL BE BENT OR ADJUSTED TO CLEAR AS DIRECTED BY THE ENGINEER.
6. PAYMENT WILL BE MADE FOR EACH INLET OF THE TYPE SPECIFIED, COMPLETE IN PLACE INCLUDING MANHOLE FRAME AND COVER.
7. CHAMFER ALL EXPOSED EDGES 3/4".
8. MANHOLE FRAME AND COVERS SHALL BE FURNISHED WITH THE CAST–ON EYES AND CHAIN AS SHOWN IN THE CAST–ON EYE AND COVER CHAIN DETAILS.
9. THE CONTRACTOR MAY PROPOSE ALTERNATE PROCEDURES FOR THE CONSTRUCTION OF INLETS, INCLUDING PRECAST UNITS. PLANS FOR SUCH PROPOSED ALTERNATES SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL BEFORE CONSTRUCTION.
10. ALL INLET WALLS SHALL BE FORMED EXCEPT WHERE THE NATURE OF THE SURROUNDING MATERIAL IS SUCH THAT IT CAN BE TRIMMED TO A SMOOTH VERTICAL FACE. WHEN INLET WALLS ARE PLACED TO NEAT EXCAVATION LINES, THE WALL THICKNESS SHALL NOT EXCEED 10 INCHES.
11. PAYMENT FOR INLETS AT THE CONTRACT PRICE SHALL INCLUDE THE TRANSITION CURB.
12. INVERT OF INLET SHALL BE SLOPED 1:20 WITH FILL CONCRETE.

City of Round Rock
Scale: N.T.S. | Approved | Date | Drawn by: BO/JRS
STANDARD 10' AND 15' CURB INLET DETAIL | DETAIL NO.
INL10_15.DWG

1 / C11.3 — TYPICAL DETAILS FOR CURB INLET
NOT TO SCALE



CITY OF AUSTIN
DEPARTMENT OF WATERSHED PROTECTION AND DEVELOPMENT REVIEW
8/20/07 ADOPTED
STANDARD HEADWALL AND ENERGY DISSIPATORS
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
STANDARD NO. 508S–13 1 OF 2



NOTES:

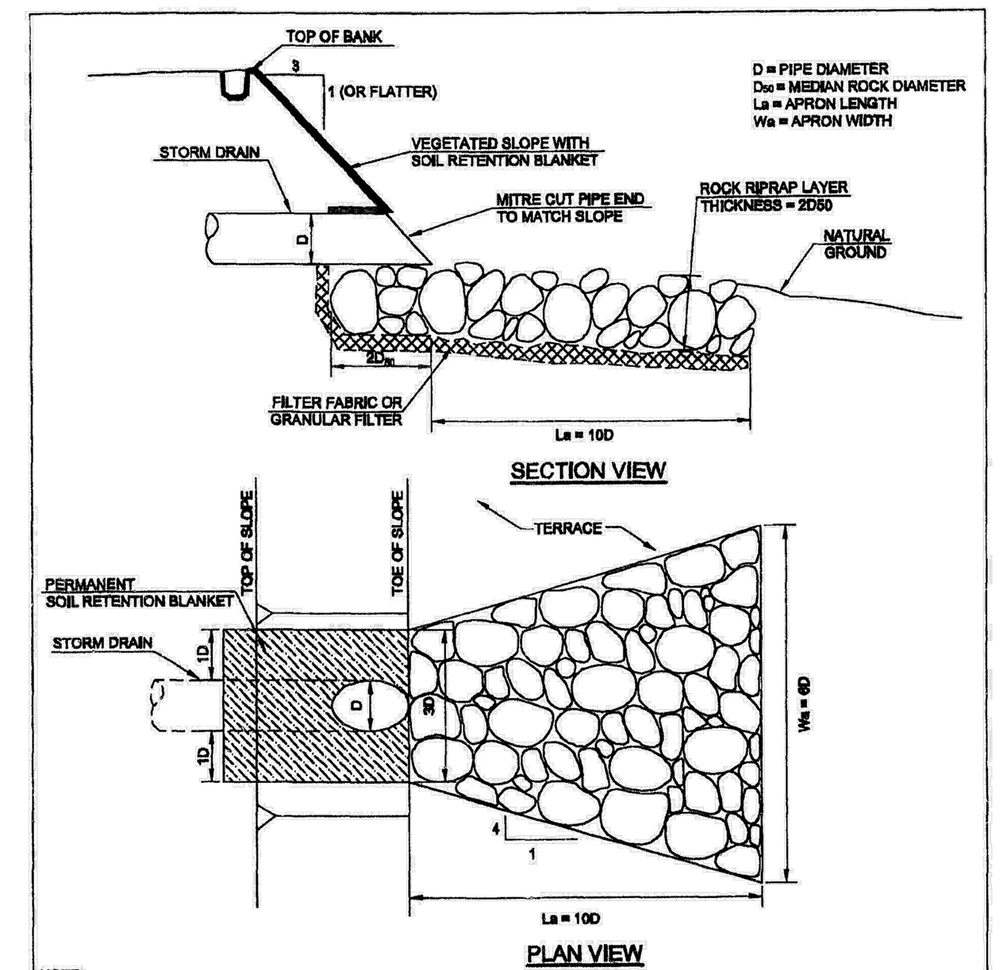
1. ALL CONCRETE SHALL BE TYPE "C" AS PER SPEC. 403S. CONCRETE FOR STURCTURES.
2. CHAMFER ALL EXTERNAL VISIBLE CORNERS.
3. DISSIPATOR BLOCKS REQUIRED ON DISCHARGE HEADWALLS ONLY.

D	457 mm (18'')	533 mm (21'')	610 mm (24'')	685 mm (27'')	765 mm (30'')	838 mm (33'')	914 mm (36'')	1.067 m (42'')	1.219 m (48'')	1.372 m (54'')	1.524 m (60'')
A	225 mm (9'')	250 mm (10'')	300 mm (12'')	350 mm (14'')	375 mm (15'')	400 mm (16'')	450 mm (18'')	525 mm (21'')	600 mm (24'')	675 mm (27'')	750 mm (30'')
B	150 mm (6'')	175 mm (7'')	200 mm (8'')	225 mm (9'')	250 mm (10'')	275 mm (11'')	300 mm (12'')	350 mm (14'')	400 mm (16'')	450 mm (18'')	500 mm (20'')
C	2.29 m (90'')	2.67 m (105'')	3.05 m (120'')	343 m (135'')	3.81 m (150'')	4.19 m (165'')	4.57 m (180'')	5.33 m (210'')	6.10 m (240'')	6.86 m (270'')	7.62 m (300'')
L	1.37 m (54'')	1.60 m (63'')	1.83 m (72'')	2.06 m (81'')	2.29 m (90'')	2.51 m (99'')	2.74 m (108'')	3.20 m (126'')	3.66 m (144'')	4.11 m (162'')	4.57 m (180'')
E	300 mm (12'')	350 mm (14'')	400 mm (16'')	450 mm (18'')	500 mm (20'')	550 mm (22'')	600 mm (24'')	700 mm (28'')	800m (32'')	900 mm (36'')	1000 mm (40'')

DIMENSIONS IN MILLIMETERS, METERS AND (INCHES).
DISCHARGE VELOCITIES GREATER THAN 3 METERS/SECOND (10 fps) REQUIRE ROCK OUTLET PROTECTION.

CITY OF AUSTIN
DEPARTMENT OF WATERSHED PROTECTION AND DEVELOPMENT REVIEW
8/20/07 ADOPTED
STANDARD HEADWALL AND ENERGY DISSIPATORS
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
STANDARD NO. 508S–13 2 OF 2

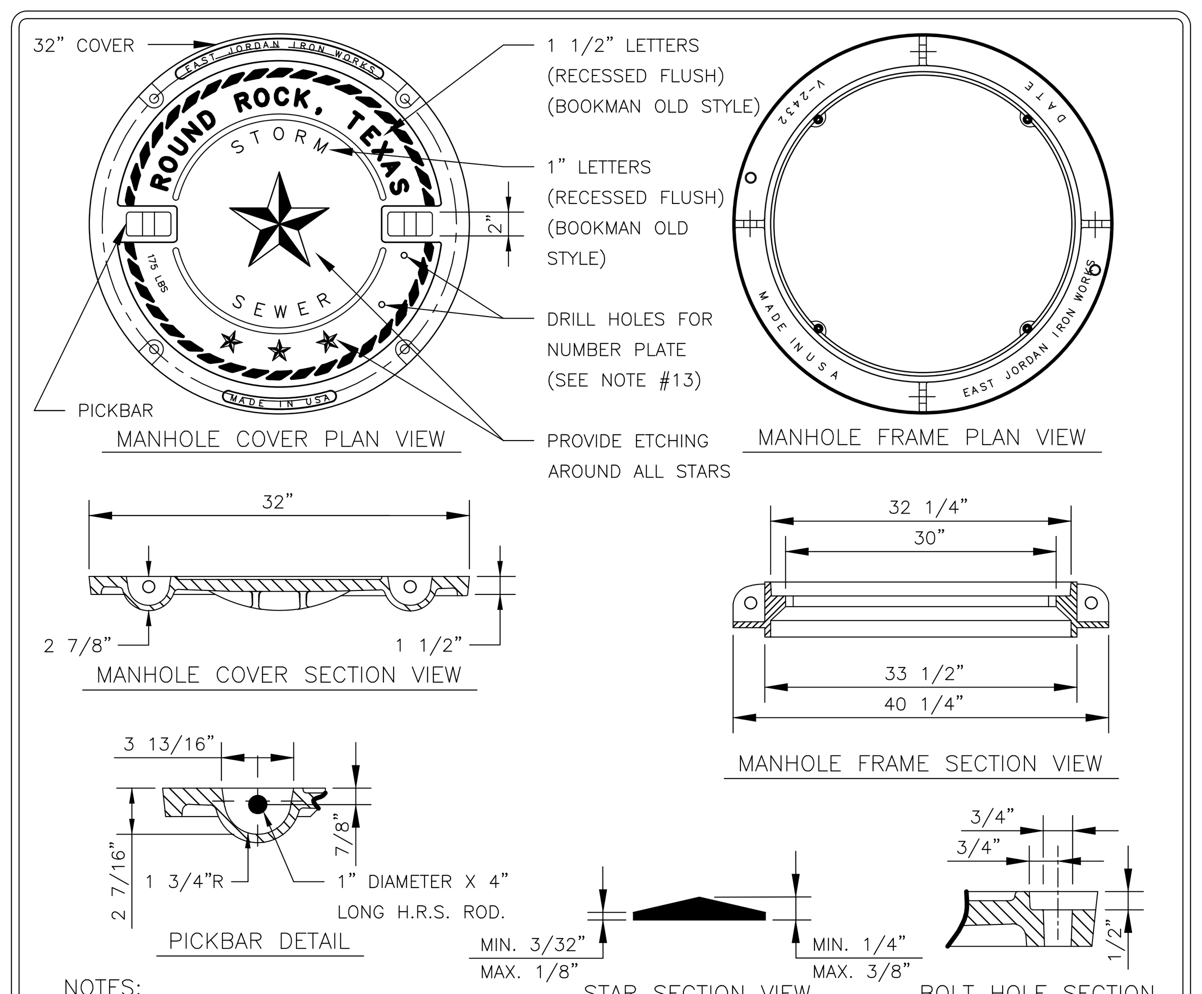
2 / C11.3 — STANDARD HEADWALL DETAIL
NOT TO SCALE



NOTE:
1. ROCK RIPRAP SHALL BE SOUND MATERIAL AND GRADED PER REQUIREMENTS SPECIFIED IN STANDARD SPECIFICATION ITEM NO. 591S.
2. ROCK SIZE (D_{50}) AND GRADATION SHALL BE STABLE FOR THE DESIGN HYDRAULIC CONDITIONS AND IN ACCORDANCE WITH THE ECM 1.4.6.D PERMANENT STRUCTURAL PRACTICES, STONE RIPRAP OR OTHER ENGINEERING STANDARD OF PRACTICE FOR SIZING ROCK RIPRAP. ROCK RIPRAP D_{50} AND FILTER TYPE SHALL BE NOTED ON PLANS.
3. GEOTEXTILE FILTER FABRIC SHALL MEET THE REQUIREMENTS SPECIFIED IN STANDARD SPECIFICATION ITEM NO. 620S.
4. AGGREGATE FOR GRANULAR FILTER SHALL MEET THE REQUIREMENTS SPECIFIED IN STANDARD SPECIFICATION ITEM NO. 403, AGGREGATE SIZE CLASSIFICATION/GRADE, NUMBER OF LAYERS AND LAYER THICKNESS SHOULD BE NOTED ON THE PLANS.

CITY OF AUSTIN
WATERSHED PROTECTION DEPARTMENT
9/1/2011 ADOPTED
STORMDRAIN OUTFALL PROTECTION PIPE DISCHARGE ON TERRACE/UPLANDS
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
STANDARD NO. 508S-17

3 / C11.3 — STORM OUTFALL DETAIL
NOT TO SCALE

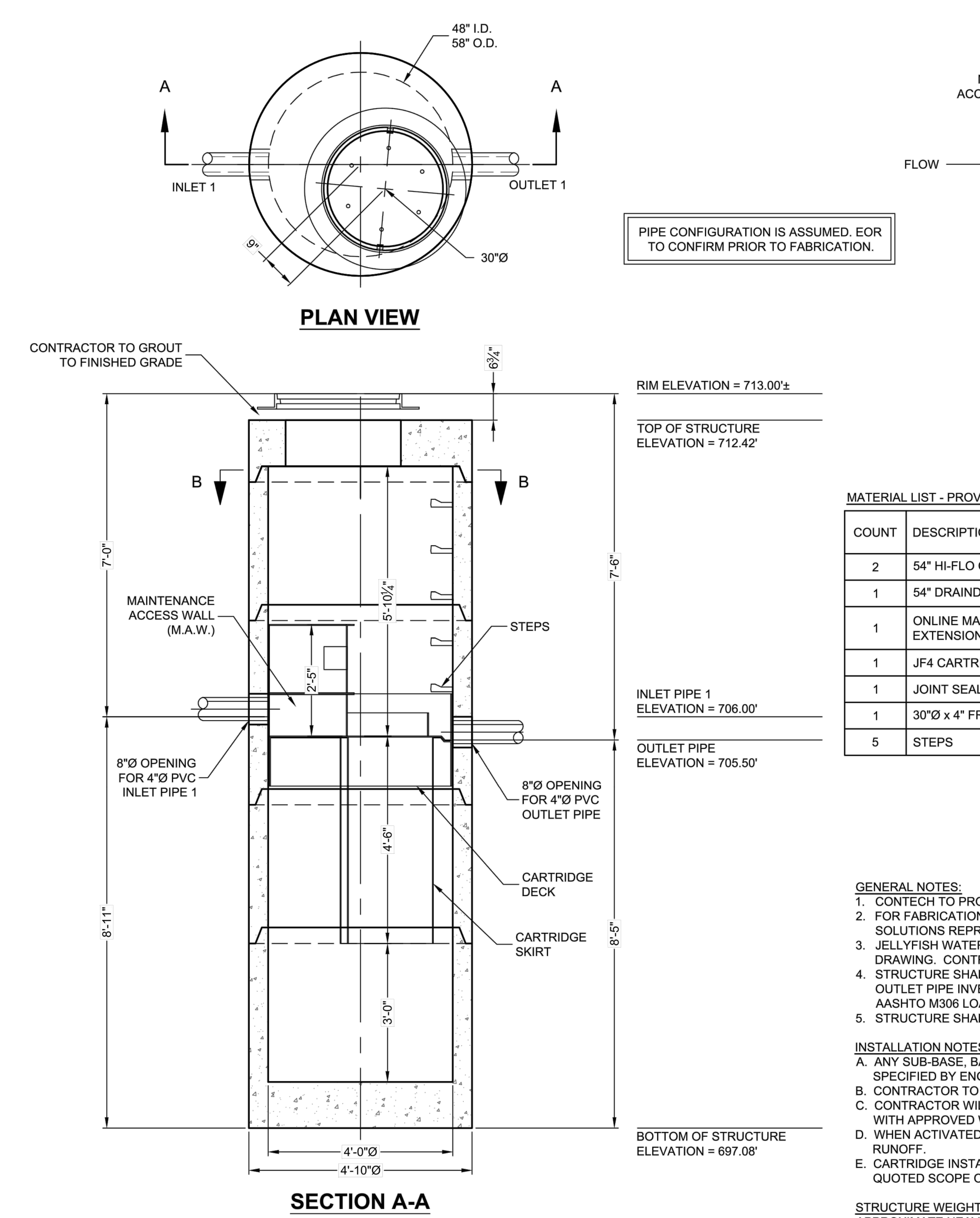


NOTES:
1. COVER AND FRAME SHALL COMPLY WITH STANDARD SPECIFICATIONS FOR DRAINAGE, SEWER, UTILITY AND RELATED CASTINGS: AASHTO DESIGNATION M306–04.
2. MANHOLE COVER SHALL BE MODEL NUMBER: V–2432–3 (PRODUCT NUMBER: 42432032), AS MANUFACTURED BY EAST JORDAN IRON WORKS, INCORPORATED, OR APPROVED EQUAL.
3. MANHOLE FRAME SHALL BE MODEL NUMBER: V–2432 (PRODUCT NUMBER: 42432010), AS MANUFACTURED BY EAST JORDAN IRON WORKS, INCORPORATED, OR APPROVED EQUAL.
4. MANHOLE COVER AND FRAME ASSEMBLY, IF ORDERED AS A SET, SHALL BE MODEL NUMBER: V–2432 (PRODUCT NUMBER: 42432072), AS MANUFACTURED BY EAST JORDAN IRON WORKS, INCORPORATED, OR APPROVED EQUAL.
5. ALL CORNERS AND EDGES SHALL HAVE A 1/16" MINIMUM AND 1/8" MAXIMUM RADIUS.
6. MANHOLE COVERS SHALL BE CAST WITH TWO 1" DIAMETER STEEL PICKBARS.
7. MANHOLE COVER WEIGHT SHALL BE 175 LBS. FOR DUCTILE IRON. WEIGHT SHALL BE CAST ON BOTH TOP AND BOTTOM OF COVER.
8. MANUFACTURER SHALL CERTIFY THAT EACH MANHOLE COVER MEETS HS–20 LOADING.
9. FILLETS SHALL BE 1/4" RADIUS UNLESS OTHERWISE SPECIFIED.
10. MANUFACTURER SHALL REMOVE EXCESS IRON AND MACHINE FINISH SEATING SURFACES TO NOTED DIMENSIONS.
11. COVER SHALL BE DIPPED IN A WATER–BASED ASPHALTIC COATING, PRIOR TO SHIPMENT FROM FOUNDRY.
12. BOLTS SHALL BE 5/8"–11NC X 2" LONG HEX STAINLESS STEEL WITH WASHER.
13. MANUFACTURER SHALL DRILL 2–3/16"X1/2" DEEP HOLES FOR A MANHOLE NUMBER PLATE TO BE PROVIDED BY THE CITY OF ROUND ROCK. THE TOP HOLE SHALL BE DRILLED 1" O.C. FROM THE BOTTOM OF THE PICKBAR AND THE BOTTOM HOLE SHALL BE DRILLED 4" O.C. FROM THE TOP HOLE.

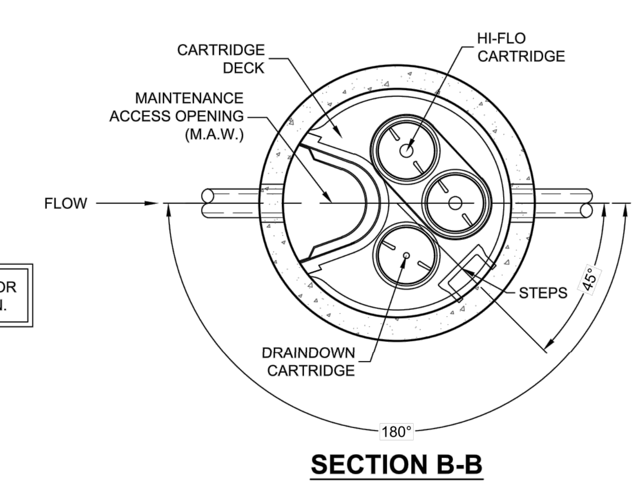
RECORD SIGNED COPY ON FILE AT PUBLIC WORKS
APPROVED
08–09–05
DATE
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL.
CITY OF ROUND ROCK
BOLTED STORM SEWER MANHOLE COVER AND FRAME DETAIL
DRAWING NO: DR–05
ROUND ROCK, TEXAS — PURPOSE. PASSION. PROSPERITY.

4 / C11.3 — BOLTED STORM SEWER MANHOLE COVER AND FRAME DETAIL
NOT TO SCALE

I:\MERLIN\PROJECT\ACTIVE\658000\658820\658820-10-JELLYFISH\DRAWINGS\658820-10-JF4-CONFA8.DWG 9/29/2020 12:46 PM



PIPE CONFIGURATION IS ASSUMED. EOR TO CONFIRM PRIOR TO FABRICATION.



MATERIAL LIST - PROVIDED BY CONTECH

COUNT	DESCRIPTION	INSTALLED BY
2	54" HI-FLO CARTRIDGE (70 mm ORIFICE)	CONTECH
1	54" DRAINDOWN CARTRIDGE (35 mm ORIFICE)	CONTECH
1	ONLINE MAINTENANCE ACCESS WALL (M.A.W.) EXTENSION W/ BAFFLE	CONTECH
1	JF4 CARTRIDGE DECK WITH 54" SEPARATION SKIRT	CONTECH
1	JOINT SEALANT	CONTRACTOR
1	30"Ø x 4" FRAME & COVER, EJ#41600484	CONTRACTOR
5	STEPS	CONTECH

SITE DESIGN DATA

WATER QUALITY FLOW RATE	0.43 CFS
PEAK FLOW RATE	1.05 CFS
RETURN PERIOD OF PEAK FLOW	100YRS

GENERAL NOTES:
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS REPRESENTATIVE. WWW.ContechES.COM
3. JELLYFISH WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. STRUCTURE SHALL MEET AASHTO HS-20, ASSUMING EARTH COVER OF 0' - 1', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 LOAD RATING AND BE CAST WITH THE CONTECH LOGO.
5. STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-478 AND AASHTO LOAD FACTOR DESIGN METHOD.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STRUCTURE
C. CONTRACTOR WILL INSTALL AND LEVEL THE STRUCTURE, SEALING THE JOINTS, LINE ENTRY AND EXIT POINTS (NON-SHRINK GROUT WITH APPROVED WATERSTOP OR FLEXIBLE BOOT)
D. WHEN ACTIVATED PRIOR TO SITE STABILIZATION, CONTRACTOR TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.
E. CARTRIDGE INSTALLATION, BY CONTECH, SHALL OCCUR ACCORDING TO THE PROVISIONS IN THE ACTIVATION CHECKLIST AND THE QUOTED SCOPE OF WORK. CONTACT CONTECH TO COORDINATE CARTRIDGE INSTALLATION AT (866) 740-3318.

STRUCTURE WEIGHT
APPROXIMATE HEAVIEST PICK OF 5 PIECES = 6000 LBS.

CONTECH CONTRACT DRAWING

SLY
LAYOUT 1A

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If discrepancies between the supplied information upon which the drawing is based and actual field conditions are encountered as site work progresses, these discrepancies must be reported to CONTECH immediately for re-evaluation of the design. CONTECH accepts no liability for designs based on missing, incomplete or inaccurate information supplied by others.

MARK	DATE	REVISION DESCRIPTION	BY

JF4-2-1 (54")- 658820-10
RAMENDU AT ROUND ROCK
ROUND ROCK, TX
FOR SYSTEM:

CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com
11835 NE Glenn Widing Drive, Portland, OR 97220
800-548-4667 503-240-3393 800-561-1271 FAX
Jellyfish Filter

DATE: 09/29/20
DESIGNED: ERE | DRAWN: ERE
CHECKED: ASB | APPROVED: ERE
PROJECT No.: 658820 | SEQUENCE No.: 10
SHEET: 1 OF 1

5 / C11.3 — JELLYFISH FILTER DETAIL
NOT TO SCALE

REV.	REVISION DESCRIPTION	DATE

09/22/2020

BM
IS MAG NAIL SET
ELEV. = 716.03'

DATUM:
NAVD88
GEOID 2016

BENCHMARK: CITY OF ROUND ROCK BRASS DISC AT CURB AT WEST END CURB INLET EXPANSION JOINT AT NORTHEAST CORNER OF MAYS STREET AND LOGAN STREET.
ELEV. = 726.76
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1 (737)-226-4777
INFO@INSIGHTENGINEERING.NET

SITE ADDRESS: 210 LOGAN ROAD, 704 MANDELL STREET, ROUND ROCK, TX 78664
TAX ACCOUNT NO.'S: R058893, R053078

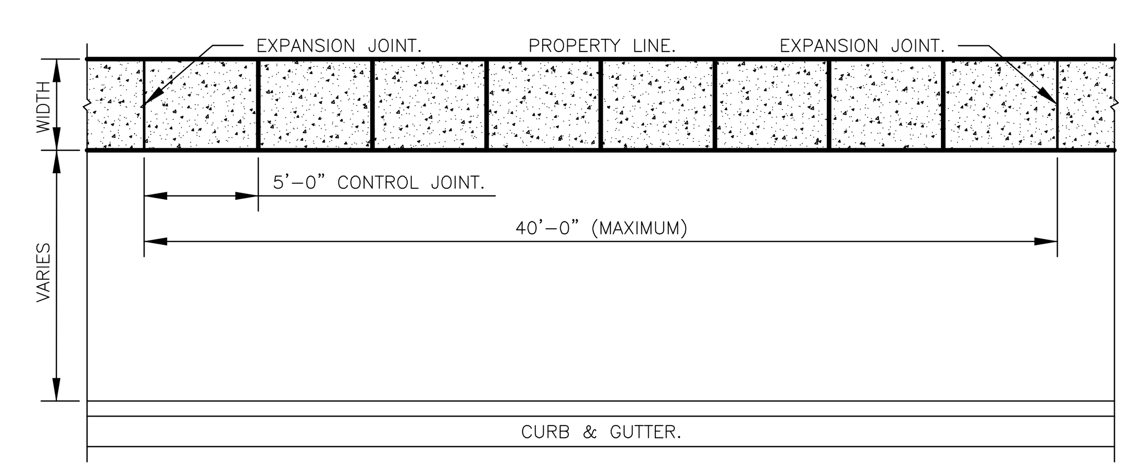
PERMIT NO: SIP2004-0001

RAMENDU DUPLEX AT ROUND ROCK

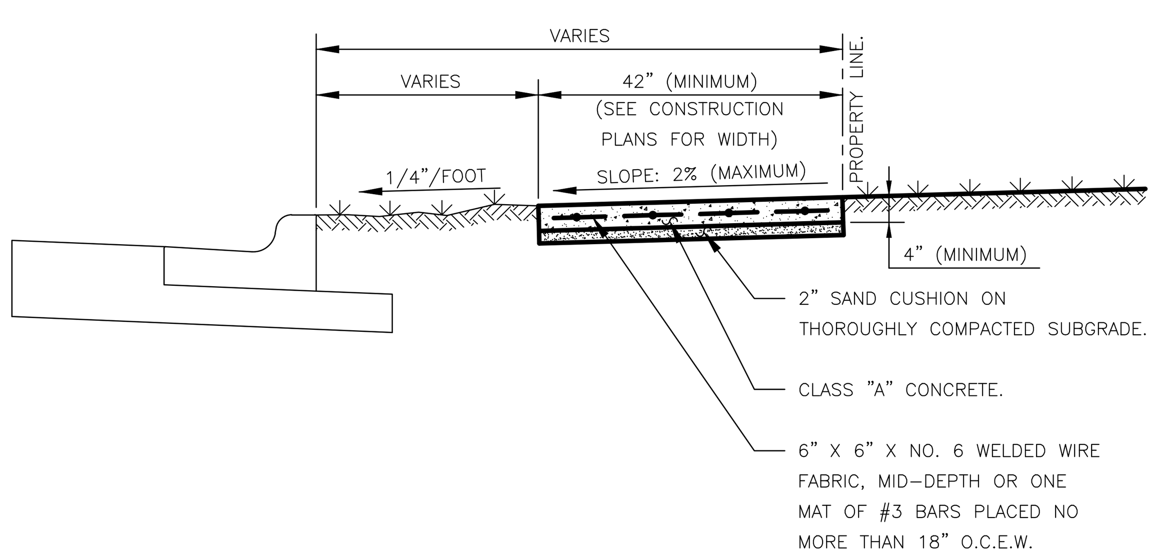
DWG FILENAME	DESIGNED BY:	DATE:	SCALE:	JOB NO.:
T190006–FINAL.DWG	JRC	01–31–2020	N.T.S.	T19-0006

STORM DETAILS — SHEET C11.3

RAMENDU DUPLEX AT ROUND ROCK
ROUND ROCK, WILLIAMSON COUNTY, TEXAS



PLAN

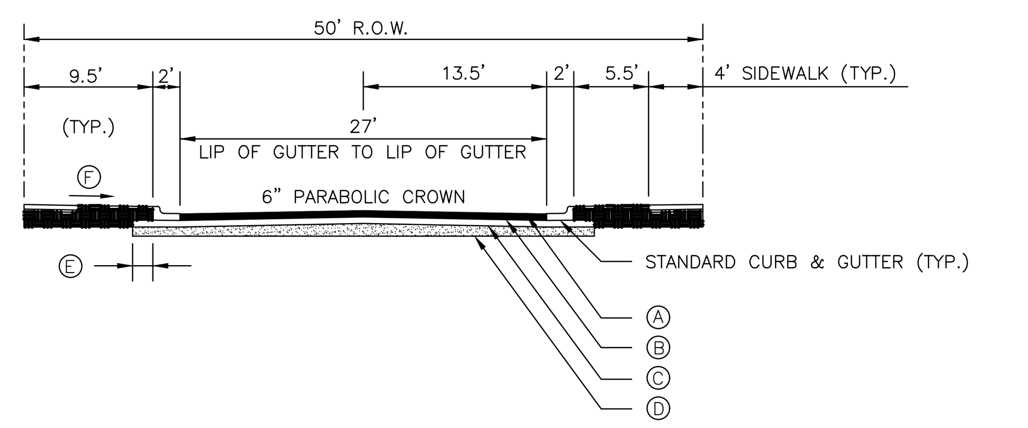


SECTION

RECORD SIGNED COPY ON FILE AT PUBLIC WORKS	CITY OF ROUND ROCK	DRAWING NO: ST-01
APPROVED 07-11-06 DATE	SIDEWALK DETAIL	ROUND ROCK, TEXAS PURPOSE. PASSION. PROSPERITY.
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL.		

1 / C11.4 **SIDEWALK DETAIL**
NOT TO SCALE

LOCAL RESIDENTIAL

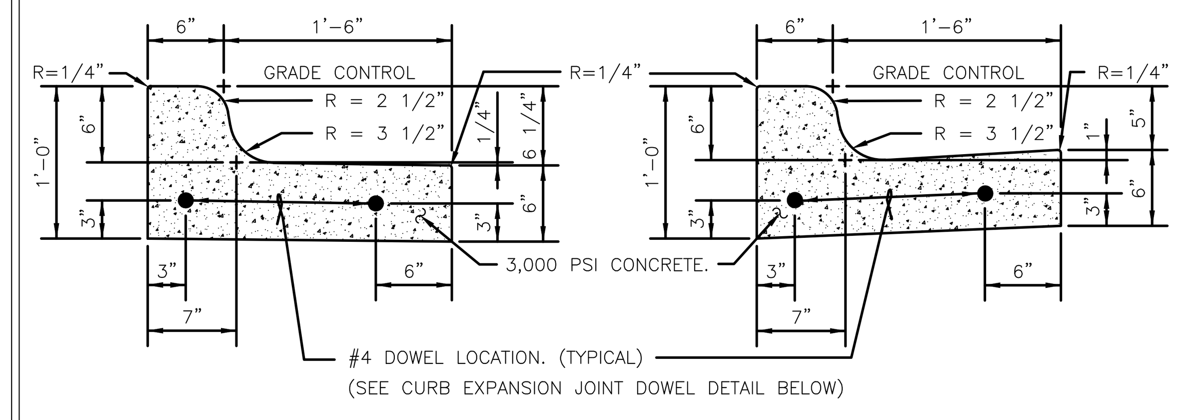


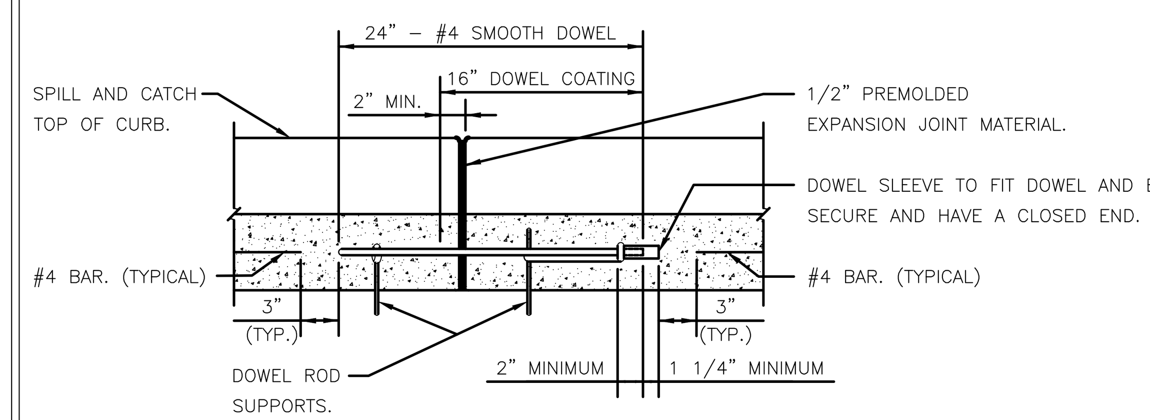
CONSTRUCTION INDEX:

- (A) HOT MIX ASPHALTIC CONCRETE.
- (B) PRIME COAT.
- (C) FLEXIBLE BASE.
- (D) COMPACTED SUBGRADE. (LIME STABILIZED WHEN REQUIRED)
- (E) BASE COURSE TO EXTEND 18 INCHES MINIMUM FOR SOILS WITH PI OF 20 OR LESS, 3 FEET FOR ALL OTHER SOILS.
- (F) 2% TYPICAL UNLESS OTHERWISE INDICATED ON THE GRADING PLAN.
- (G) ALL UNPAVED AREAS WITHIN THE LIMITS OF CONSTRUCTION, SHALL BE SODDED OR SEEDED AS INDICATED.
- (H) FOR MINIMUM PAVEMENT SECTION, SEE GEOTECHNICAL ENGINEER'S RECOMMENDATION, BASED ON THE DACS TRANSPORTATION CRITERIA MANUAL (SECTION 3.2.1.)

RECORD SIGNED COPY ON FILE AT PUBLIC WORKS	CITY OF ROUND ROCK	DRAWING NO: ST-10A
APPROVED 02-10-06 DATE	LOCAL STREET SECTION	ROUND ROCK, TEXAS PURPOSE. PASSION. PROSPERITY.
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL.		

2 / C11.4 **LOCAL STREET SECTION**
NOT TO SCALE





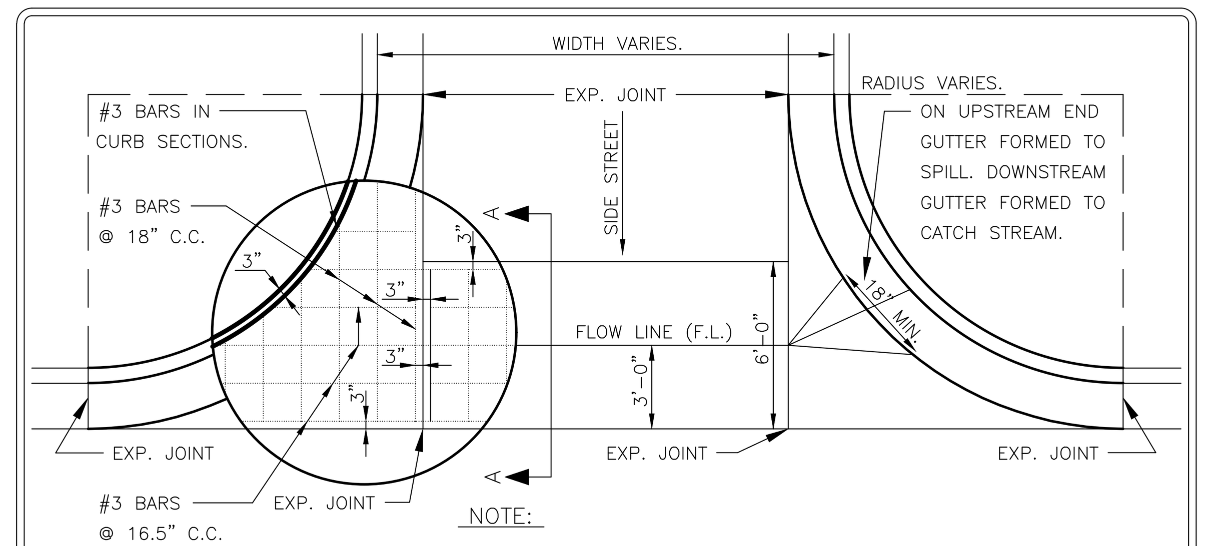
CURB EXPANSION JOINT DOWEL DETAIL

NOTES:

1. ALL WORK AND MATERIAL SHALL CONFORM TO ASTM A615, A615M, C309 AND D1752. BROOM FINISH EXPOSED SURFACE.
2. CONTROL JOINT SPACING SHALL NOT EXCEED 10'-0'.
3. EXPANSION JOINTS AS PER STANDARD ASTM D-1752.
4. EXPANSION JOINT INTERVALS NOT TO EXCEED 40'-0" FOR ALL CURBS AND CONSTRUCTION METHODS.
5. ALL CURBS SHALL HAVE A MINIMUM OF 4" OF COMPACTED FLEXIBLE BASE BETWEEN BOTTOM OF CURB AND TOP SUBGRADE THAT SHALL EXTEND A MINIMUM OF 18" BEHIND BACK OF CURB. TOTAL DEPTH OF FLEXIBLE BASE UNDER AND BEHIND CURB SHALL BE: (TOTAL DEPTH OF FLEXIBLE BASE) LESS (6-INCHES).
6. ALL CURBS SHALL CONFORM TO THESE DETAILS INDEPENDENT OF THE CONSTRUCTION METHODS USED.

RECORD SIGNED COPY ON FILE AT PUBLIC WORKS	CITY OF ROUND ROCK	DRAWING NO: ST-05
APPROVED 08-21-03 DATE	SPILL AND CATCH CURB DETAIL (WITH CURB EXPANSION JOINT DOWEL DETAIL)	CITY OF ROUND ROCK TEXAS
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL.		

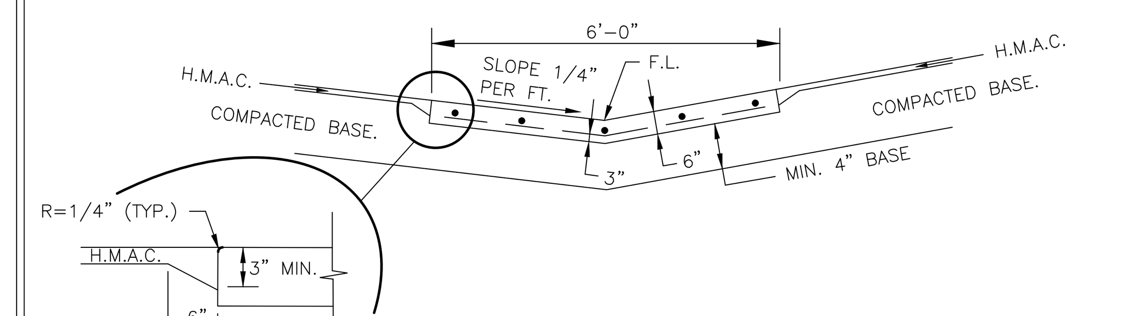
3 / C11.4 **SPILL AND CATCH CURB DETAIL**
(WITH CURB EXPANSION JOINT DOWEL DETAIL)
NOT TO SCALE



NOTE:

ALTERNATE #3 BARS TO BE CONTINUOUS ACROSS EXPANSION JOINT. BREAK BOND 6" ON EACH SIDE OF EXPANSION JOINT.

PLAN



SECTION A–A

NOTES:

1. MATERIALS AND CONSTRUCTION METHODS SHALL CONFORM TO THE CITY OF AUSTIN STANDARD SPECIFICATIONS.
2. CONCRETE SHALL BE CLASS "A".
3. MONOLITHIC CURB & GUTTER SHALL BE MEASURED BY PLAN SQUARE FEET AND PAID AS VALLEY GUTTER.
4. THE UPSTREAM CURB MID POINT MUST BE AT OR LOWER THAN THE BEGINNING P.C. AND .5% (MIN.) HIGHER THAN THE OPPOSING MID POINT.
5. ALLOWABLE CONSTRUCTION JOINT AT ℄ WHEN TRAFFIC FLOW MUST BE MAINTAINED, CONSTRUCTED AS A CONTROL JOINT. PROVIDE EXPANSION JOINT @ ℄ FOR WIDTHS GREATER THAN 40 FEET.
6. ALL EXPANSION JOINTS SHALL BE CONSTRUCTED WITH 1/2" PREMOLDED EXPANSION JOINT MATERIAL AND DOWELS AND CAPS (SEE STANDARD CURB DOWEL DETAIL).

RECORD SIGNED COPY ON FILE AT PUBLIC WORKS	CITY OF ROUND ROCK	DRAWING NO: ST-06
APPROVED 08-21-03 DATE	CONCRETE VALLEY GUTTER DETAIL	CITY OF ROUND ROCK TEXAS
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL.		

4 / C11.4 **CONCRETE VALLEY GUTTER DETAIL**
NOT TO SCALE

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

GENERAL NOTES

CURB RAMPS

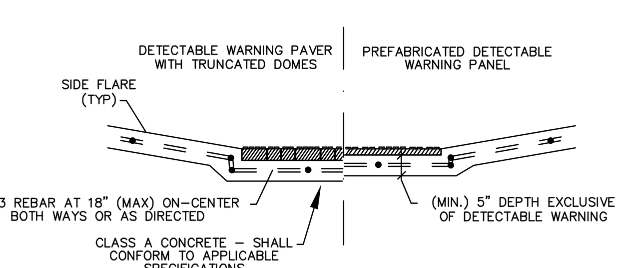
1. Install a curb ramp or blended transition at each pedestrian street crossing.
2. All slopes shown are maximum allowable. Cross slopes of 1.5% and lesser running should be used. Adjust curb ramp length or grade of approach sidewalks as directed.
3. Maximum allowable cross slope on sidewalk and curb ramp surfaces is 2%.
4. The minimum sidewalk width is 5'. Where the sidewalk is adjacent to the back of curb, a 6' sidewalk width is desirable. Where a 5' sidewalk cannot be provided due to site constraints, sidewalk width may be reduced to 4' for short distances. 5'x 5' passing areas at intervals not to exceed 200' are required.
5. Turning Spaces shall be 5'x 5' minimum. Cross slope shall be maximum 2%.
6. Clear space at the bottom of curb ramps shall be a minimum of 4'x 4' wholly contained within the crosswalk and wholly outside the parallel vehicular travel path.
7. Provide flared sides where the pedestrian circulation path crosses the curb ramp. Flared sides shall be sloped at 10% maximum, measured parallel to the curb. Returned curbs may be used only where pedestrians would not normally walk across the ramp, either because the adjacent surface is planted, substantially obstructed, or otherwise protected.
8. Additional information on curb ramp location, design, light reflective value and texture may be found in the latest draft of the PROP. Guidelines for Pedestrian Facilities in the Public Right of Way (PROWAG) as published by the U.S. Architectural and Transportation Barriers Compliance Board (Access Board).
9. To serve as a pedestrian refuge area, the median should be a minimum of 6' wide, measured from back of curbs. Medians should be designed to provide accessible passage over or through them.
10. Small channelization islands, which do not provide a minimum 5'x 5' landing at the top of curb ramps, shall be cut through level with the surface of the street.
11. Crosswalk dimensions, crosswalk markings and stop bar locations shall be as shown elsewhere in the plans. At intersections where crosswalk markings are not required, curb ramps shall align with theoretical crosswalks unless otherwise directed.
12. Provide curb ramps to connect the pedestrian access route at each pedestrian street crossing. Handrails are not required on curb ramps.
13. Curb ramps and landings shall be constructed and paid for in accordance with Item 531 "Sidewalks".
14. Place concrete at a minimum depth of 5" for ramps, flares and landings, unless otherwise directed.
15. Furnish and install No. 3 reinforcing steel bars at 18" o.c. both ways, unless otherwise directed.
16. Provide a smooth transition where the curb ramps connect to the street.
17. Curbs shown on sheet 1 within the limits of payment are considered part of the curb ramp for payment, whether it is concrete curb, gutter, or combined curb and gutter.
18. Existing features that comply with applicable standards may remain in place unless otherwise shown on the plans.

DETECTABLE WARNING MATERIAL

19. Curb ramps must contain a detectable warning surface that consists of raised truncated domes complying with PROWAG. The surface must contrast visually with adjoining surfaces, including side flares. Furnish and install an approved cast-in-place dark brown or dark red detectable warning surface material adjacent to uncolored concrete, unless specified elsewhere in the plans.
20. Detectable Warning Materials must meet TxDOT Departmental Materials Specification DMS 4350 and be listed on the Material Producer List. Install products in accordance with manufacturer's specifications.
21. Detectable warning surfaces must be firm, stable and slip resistant.
22. Detectable warning surfaces shall be a minimum of 24 inches in depth in the direction of pedestrian travel, and extend the full width of the curb ramp or landing where the pedestrian access route enters the street.
23. Detectable warning surfaces shall be located so that the edge nearest the curb line is at the back of curb and neither end of that edge is greater than 5 feet from the back of curb. Detectable warning surfaces may be curved along the corner radius.
24. Shaded areas on Sheet 1 of 4 indicate the approximate location for the detectable warning surface for each curb ramp type.

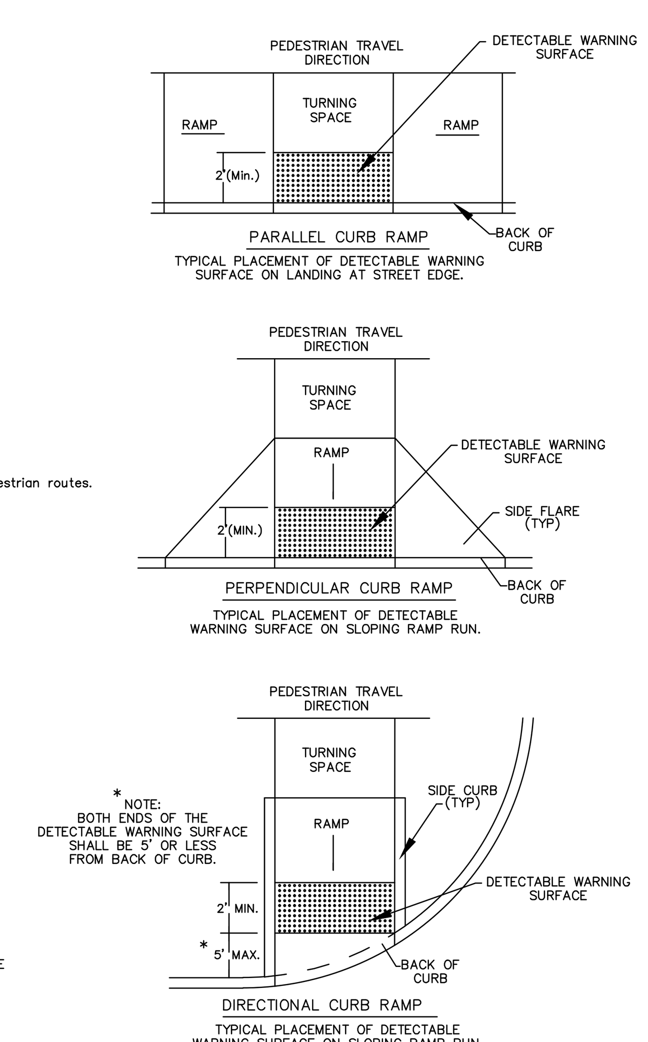
SIDEWALKS

27. Provide clear ground space at operable parts, including pedestrian push buttons. Operable parts shall be placed within unobstructed reach range specified in PROWAG section R406.
28. Place traffic signal or illumination poles, ground boxes, controller boxes, signs, drainage facilities and other items so as not to obstruct the pedestrian access route or clear ground space.
29. Street grades and cross slopes shall be as shown elsewhere in the plans.
30. Changes in level greater than 1/4 inch are not permitted.
31. The least possible grade should be used to maximize accessibility. The running slope of sidewalks and crosswalks within the public right of way may follow the grade of the parallel roadway. Where a continuous grade greater than five percent (5%) must be provided, handrails may be desirable to improve accessibility. Handrails may also be needed to protect pedestrians from potentially hazardous conditions. If provided, handrails shall comply with PROWAG R409.
32. Handrail extensions shall not protrude into the usable landing area or into intersecting pedestrian routes.
33. Driveways and turnouts shall be constructed and paid for in accordance with Item "Intersections, Driveways and Turnouts". Sidewalks shall be constructed and paid for in accordance with Item, "Sidewalks".
34. Sidewalk details are shown elsewhere in the plans.



SECTION VIEW DETAIL
CURB RAMP AT DETECTIBLE WARNINGS

DETECTABLE WARNING SURFACE DETAILS



SHEET 2 OF 4

Texas Department of Transportation				Design Division Standard
PEDESTRIAN FACILITIES CURB RAMPS PED-18				
FILE: ped18	DN: TxDOT	DW: VP	CK: KM	CK: PK &JG
© TxDOT: MARCH,2002	CONT	SECT	JOB	HIGHWAY
REVISIONS REVISED 08,2005 REVISED 06,2012 REVISED 01,2018	DIST		COUNTY	SHEET NO.

DATE:
FILE:

5 / C11.4 **SIDEWALK RAMP DETAIL**
NOT TO SCALE

BM
IS MAG NAIL SET
ELEV. = 716.03'

DATUM:
NAVD88
GEOID 2016

BENCHMARK: CITY OF ROUND ROCK BRASS DISC AT CURB AT WEST END CURB INLET EXPANSION JOINT AT NORTHEAST CORNER OF MAYS STREET AND LOGAN STREET.
ELEV. = 726.76
NAVD88

LEGAL DESCRIPTION

2.77 ACRES OF LAND OUT OF THE WILEY HARRIS SURVEY, ABSTRACT NUMBER 298, WILLIAMSON COUNTY, TEXAS, CONSISTING OF THREE TRACTS CONVEYED TO THAT CERTAIN RICHARD CEPEDA, BEING 1.873 ACRES, RECORDED IN DOCUMENT NUMBER 2010078846, 0.824 ACRES RECORDED IN DOCUMENT 2017105955, AND A PORTION OF A 0.1899 ACRE TRACT RECORDED IN DOCUMENT NUMBER 2017045099, ALL OF THE OFFICIAL PUBLIC RECORDS, WILLIAMSON COUNTY, TEXAS.

REV.	REVISION DESCRIPTION	DATE

STATE OF TEXAS
JACOB D. MEALEY
127442
LICENSED
PROFESSIONAL ENGINEER
09/22/2020

ENGINEER / CONTACT

IECO, INC
FIRM REG# F-19777
P.O. BOX 2088
PFLUGERVILLE, TX 78691
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EMAIL: INFO@INSIGHTENGINEERING.NET

SURVEYOR

ALL STAR LAND SURVEYING
9020 ANDERSON MILL ROAD
AUSTIN, TX 78729
CONTACT: EDDIE RUMSEY
PHONE: (512) 249-8149
FAX: (512) 331-5217
TBPLS FIRM # 10135000

OWNERS / APPLICANT

RAMENDU DUPLEX AT ROUND ROCK LLC
3016 PASEO DE CHARROS
CEDAR PARK, TX 78641
CONTACT: MARSHALL HUSSAIN
PHONE: (512) 698-1976
EMAIL: MARSHALL1@GMAIL.COM

IECO, INC
555 ROUND ROCK W DR STE E 216
ROUND ROCK, TX 78681
1 (737)-226-4777
INFO@INSIGHTENGINEERING.NET

SITE ADDRESS: 210 LOGAN ROAD, 704 MANDELL STREET ROUND ROCK, TX 78664

TAX ACCOUNT NO.'S: R058893, R053078

PERMIT NO: SIP2004-0001

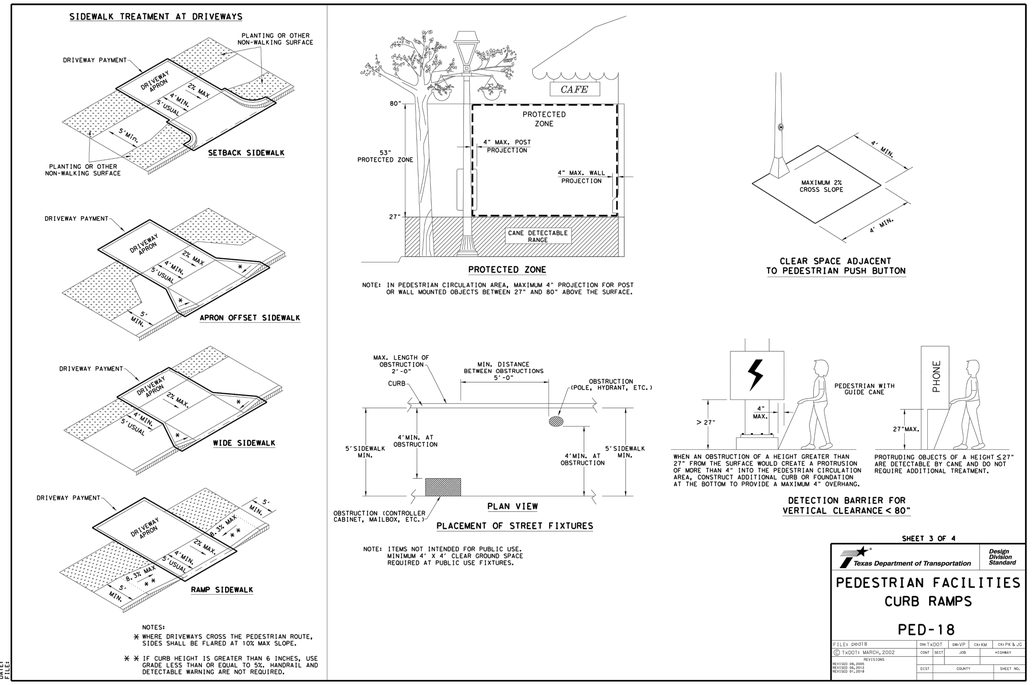
RAMENDU DUPLEX AT ROUND ROCK

DWG FILENAME	DESIGNED BY:	DATE:	SCALE:	JOB NO.:
T190006-FINAL.DWG	JRC	01-31-2020	N.T.S.	T19-0006

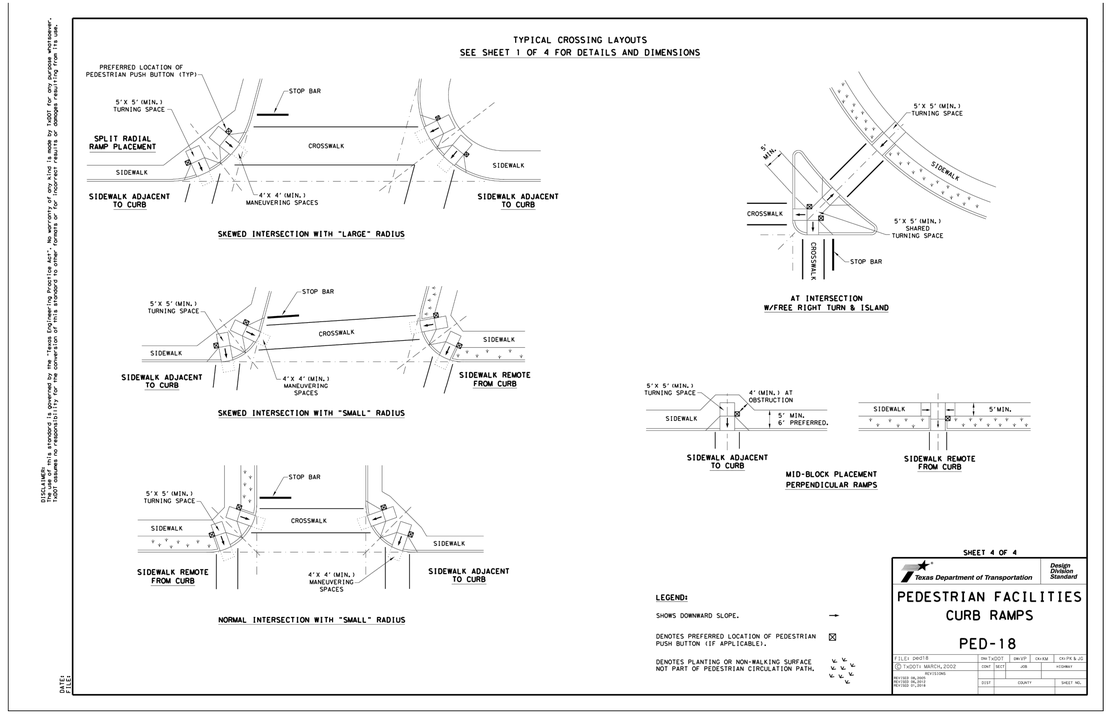
STREET DETAILS (1 OF 2)

SHEET C11.4

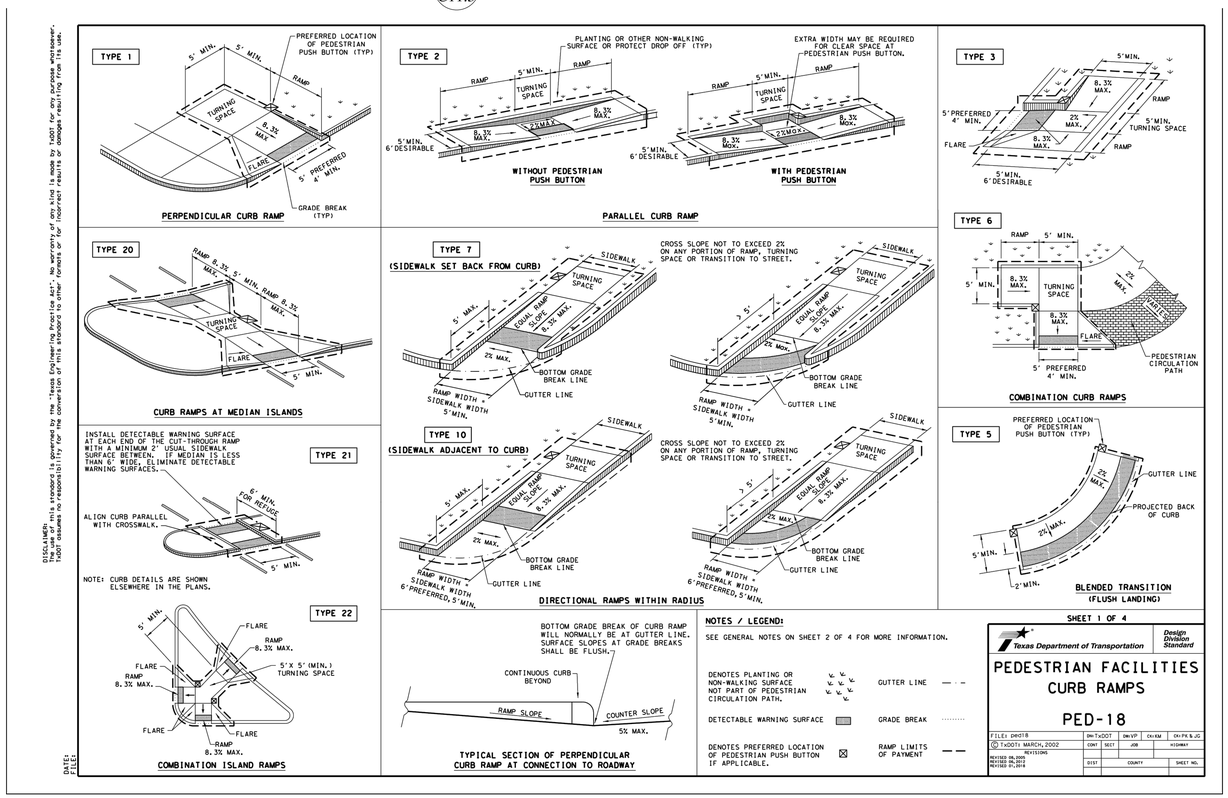
RAMENDU DUPLEX AT ROUND ROCK



1 C11.5 SIDEWALK RAMP DETAIL
NOT TO SCALE



2 C11.5 SIDEWALK RAMP DETAIL
NOT TO SCALE



3 C11.5 SIDEWALK RAMP DETAIL
NOT TO SCALE

ENGINEER / CONTACT

IECO, INC
FIRM REG# F-19777
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BM

IS MAG NAIL SET
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DATUM:
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LEGAL DESCRIPTION

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REV.	REVISION DESCRIPTION	DATE

IECO, INC
555 ROUND ROCK W DR STE E 216
ROUND ROCK, TX 78681
1 (737)-226-4777
INFO@INSIGHTENGINEERING.NET

SITE ADDRESS: 210 LOGAN ROAD, 704 MANDELL STREET ROUND ROCK, TX 78664

TAX ACCOUNT NO.'S: R058893, R053078

PERMIT NO: SIP2004-0001

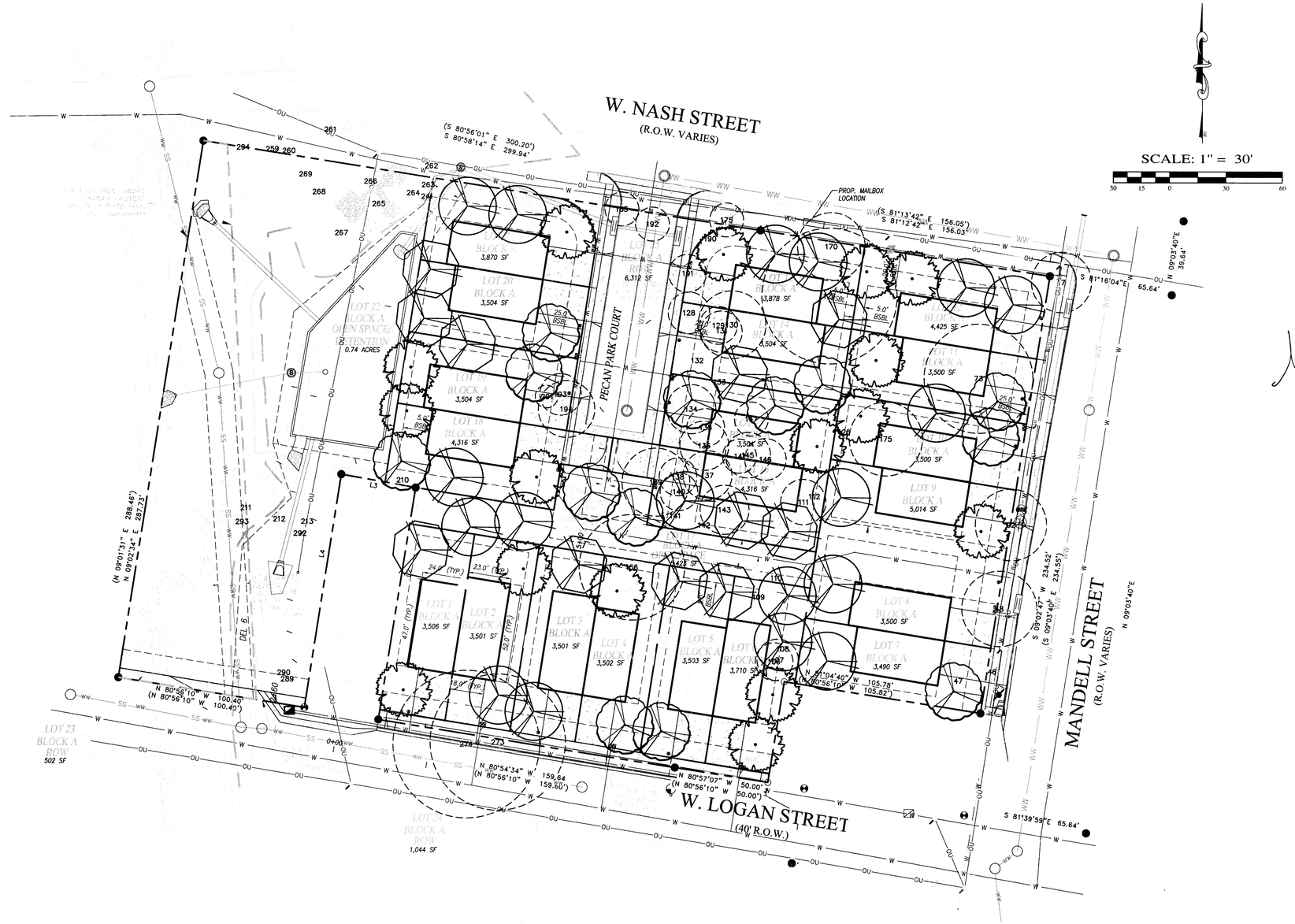
STATE OF TEXAS
JACOB D. MEALEY
127442
LICENSED PROFESSIONAL ENGINEER
09/22/2020

RAMENDU DUPLEX AT ROUND ROCK

DWG FILENAME	DESIGNED BY:	DATE:	SCALE:	JOB NO.:
T190006-FINAL.DWG	JRC	01-31-2020	N.T.S.	T19-0006

STREET DETAILS (2 OF 2)

SHEET C11.5



PLANT LIST

SYMBOL	QUANTITY	DESCRIPTION
	11	BUR OAK – Quercus macrocarpa 4" cal., 95 gal., container grown, 12'–13' ht., 5' sprd., dark green, full, single straight trunk
	13	SHUMARD OAK – Quercus shumardii 4" cal., 95 gal. container, 13'–14' ht., 5' sprd., dark green, full, single straight trunk
	16	LIVE OAK – Quercus virginiana 4" cal., 95 gal., container grown, 10'–11' ht., 4' sprd., dark green, full, single straight trunk
	18	CEDAR ELM – Ulmus crassifolia 4.5" cal., B & B, 13'–14' ht., 5' sprd., dark green, full, single straight trunk

EXISTING PROTECTED TREE LIST

KEY	TREE #	SIZE–SPECIES
REM–100	47	36.0" Elm
REM–100	73	29.0" Pecan
RET	125	20.0" Pecan
REM–100	127	32.5" Pecan
REM–100	156	28.0" Elm
REM–100	273	36.0" Cottonwood
REM–100	274	39.0" Cottonwood

LEGEND RET = Retained
REM–100 = Removed, 100% Mitigation

EXISTING PROTECTED TREE CALCULATIONS

EXISTING TREE SUMMARY

Total Protected Trees	=	220.50"
Total Removed Trees	=	200.50"
Tree Removal Allowed w/o Mitigation (220.5" x 0.30)	=	66.15"
Total Subject to Mitigation	=	154.35"
Total Required Mitigation (154.35" of removed 20"–Monarch x 2)	=	308.70"

PROVIDED MITIGATION

ON–SITE REPLACEMENT		
18 Cedar Elm @ 4.5"	=	81.0"
16 Live Oak @ 4.0"	=	64.0"
13 Shumard Oak @ 4.0"	=	52.0"
11 Bur Oak @ 4.0"	=	44.0"
Sub Total	=	241.0"
TREE FUND PAYMENT		
$10,155.00 Payment (67.7" @ $150.00/inch)	=	67.7"
Sub Total	=	67.7"
TOTAL	=	308.7"

MHB Landscape Architect
544 military drive - canyon lake, texas 78133
ph. (512) 448-0137
mhbla@gvtc.com

MARK H. BROWN
LICENSED LANDSCAPE ARCHITECT
STATE OF TEXAS
1264
10.8.20

RAMENDU DUPLEX AT ROUND ROCK
210 LOGAN STREET
ROUND ROCK, TEXAS

EXISTING TREE REMOVAL MITIGATION PLAN

SHEET
L1
OF 2

GENERAL NOTES

1. Contractor shall be familiar with all existing site conditions and underground utilities, pipes and structures. Contractor shall take sole responsibility of any cost incurred due to bodily injury and/or damage of Owner's property or said utilities. Contractor is responsible for contacting utility companies before excavation. Contractor shall hand dig planting pits and beds and hand rake lawn areas as required.

   Locate and verify condition of utilities prior to any excavation. Extreme care shall be exercised in excavating and working near existing utilities.

2. Any conflicting information shall be brought to the attention of the Landscape Architect or the Landscape Architect and Owner shall assume the Contractor has incorporated the costliest item.

3. Do not willfully proceed with construction as designed when unknown obstructions and/or grade differences exist that my have not been known during design. Such conditions shall be immediately brought to the attention of the Landscape Architect. The Contractor shall assume full responsibility for all necessary revisions due to failure to give such notification.

4. Contractor shall exercise caution when working around existing structures and pavements. Repair of damage to existing structures and pavements incurred as a result of the Contractor's work shall be the financial responsibility of the Contractor.

5. Contractor shall be responsible for all coordination with his subcontractors to accomplish his scope of work. Contractor shall coordinate construction with other trades working on the site simultaneously.

6. Contractor is responsible for locating and protecting existing irrigation and landscape on site from any damage. Contractor shall notify Landscape Architect of any conflicts immediately.

7. Contractor shall notify Owner and Landscape Architect 48 hours prior to commencement of work to coordinate project inspection schedules.

8. The Contractor shall be responsible for field verification of existing conditions, and shall perform field measurements prior to fabrication and/or purchase of any material and shall contact the Landscape Architect should existing conditions be different form the design drawings for this project. Conflicts arising due to lack of coordination shall be the responsibility and the expense of the Contractor.

9. Any required changes to the drawings resulting from the acceptance of Contractor's alternates and/or substitutions are the responsibility of the Contractor and shall be submitted to the Landscape Architect and the Owner for approval.

10. The Contractor shall coordinate storing of materials, parking of vehicles and restrictions of work with the Owner. Under no circumstances shall any contractor store materials or park vehicles under the canopy of existing trees.

11. Contractor shall comply with all applicable ordinances and local codes. Required permits shall be obtained by the Contractor.

12. Contractor shall provide unit prices based on quantities on documents. Field conditions may revise actual location, increasing or decreasing the extent of work bid. Changes to the extent of work resulting in an increase will be based on unit prices and performed subject to the approval of the Landscape Architect and the Owner in the form of a change order.

    Unit prices shall not only include the cost of the item but also all labor, equipment, and other materials (i.e. backfill mix, mulch, steel edging, etc.) to install the item completely per the drawings.

13. All construction covered by these contract documents shall be in conformance with the latest edition of all applicable city and OSHA codes and standards including, but not limited to the Uniform Building Code, enacted by the International Conference of Building Officials, most recent edition, and amendments as adopted by the local government.

14. The Contractor shall provide all labor, materials and supervision necessary to accomplish the work as shown and noted on the drawings unless otherwise specified.

15. Contractors and subcontractors are responsible for removal of trash and repair of hazardous conditions (tools, open holes, etc.) on a daily basis by the end of work day.

16. Upon completion of construction and prior to final approval, Contractor shall thoroughly clean up the project site of all trash, scrap, brick pieces, mortar and litter, etc. Repair all damage to finish grade including tailings from excavations, wheel ruts, etc., caused by construction.

PLANTING NOTES

1. Contractor is responsible for verification of all plant quantities based on the drawings and actual actual field conditions. Plant quantities have been provided for estimating purposes only.

2. Contractor shall supply nursery-grown trees (except for ball & burlap as approved by the Landscape Architect), shrubs, and ground covers of species, type and size as specified in the Plant List.

3. All plants shall be legibly labeled true to specified size and variety in accordance with Standardized Plant Names, American Joint Committee on Horticulture. Sizes must be in accordance with the American Association of Nurseryman Standards.

4. Irrigation system installation to be complete prior to the installation of any plant material.

5. Contractor is responsible for maintaining positive drainage in all shrub and turf planting areas.

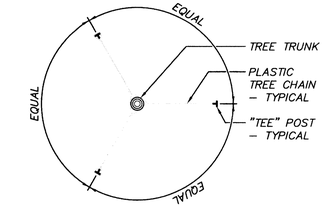
6. Contractor to remove all clods, rocks, concrete, trash and any other debris prior to installation of soil mix or plant material.

7. Remove all tags, ribbons and wires from all newly installed plant material upon Owner's authorization.

8. Contractor to replace all materials which are dead, unhealthy, or unsightly (as determined by the Owner) with the cost of replacement to be at the Contractor's expense. Replacement material to be in accordance with the drawings and shall be warranted per the guarantee requirements stated herein.

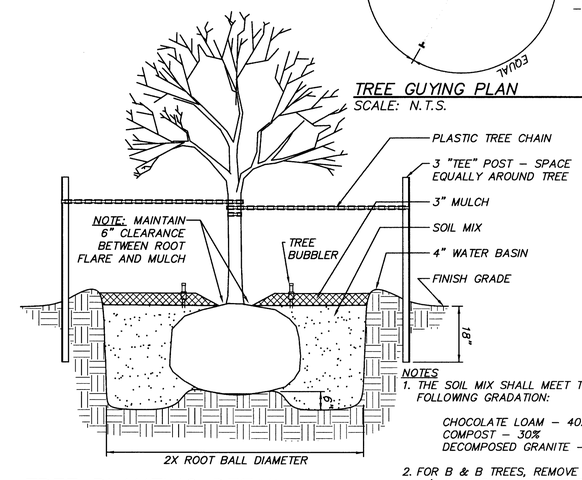
9. All plant material to be guaranteed to remain alive and in healthy vigorous condition for a period of one year after acceptance by the Owner.

10. Warranty shall not include damage or loss of plants due to acts of God, acts of vandalism or negligence on the part of the Owner.



TREE GUYING PLAN

SCALE: N.T.S.



NOTES
1. THE SOIL MIX SHALL MEET THE FOLLOWING GRADATION:

   CHOCOLATE LOAM – 40%
   COMPOST – 30%
   DECOMPOSED GRANITE – 30%

2. FOR B & B TREES, REMOVE TOP 1/2 OF BURLAP PRIOR TO BACKFILL

TREE PLANTING DETAIL

SCALE: N.T.S.

AUTOMATIC IRRIGATION SYSTEM

All required landscape areas shall be irrigated by an underground automatic system that may include a drip irrigation system. This system shall adhere to manufacturer specifications and the rules and regulations established by TCEQ or successor agency. In addition, an irrigation system must be designed by a landscape architect or irrigator licensed by the state. An irrigation system shall comply with the following:

a. Sprinkler head spacing shall be designed for head-to-head coverage and adjusted for prevailing winds. The system shall promote minimum runoff and minimum overspray onto non-irrigated areas (i.e., paving, walkway, buildings).

b. Sprinkler heads shall have matched precipitation rates within each control valve circuit.

c. Adjustable flow controls shall be required on circuit remote control valves. Pressure regulation components shall be required where static pressure exceeds manufacturer's recommended operating range.

d. Valves and circuits shall be separated based on water use requirements, so that turf areas can be watered separately from shrubs, trees and groundcover areas. A minimum of one bubbler each shall be provided for all large and medium size trees.

e. Serviceable check valves shall be required where elevation differential may cause low head drainage adjacent to paving areas.

f. All automatic irrigation systems shall be equipped with an electronic controller capable of dual or multiple programming. Controller(s) shall have multiple cycle start capacity and a flexible calendar program, including the capability of being set to water every five days.

g. All automatic irrigation systems shall be equipped with a rain and freeze sensor shut-off device.

MAINTENANCE NOTES

a. All required landscaping, irrigation systems, fences, walls, berms, vegetation and other landscape components shall be maintained by the owner or agent in a healthy, safe and operating condition.

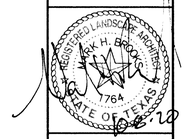
b. Maintenance practices shall consist of all regular and normal maintenance operations of landscaping including, but not limited to, weeding, irrigation, fertilizing, pruning, mowing and litter pick-up. Plant material that exhibits severe levels of insect or pest infestation, disease and/or damage, shall be appropriately treated, and all dead plant material shall be removed and replaced with living plant material where required according to the city approved plan for the site.

c. Street right-of-way between a property line and curb or street pavement adjoining the property shall be maintained by the adjacent landowner.

d. It shall be the responsibility of the owner to maintain and properly irrigate all landscaping required by this section. Failure to replace dead or diseased plant material within 30 days of written notification by the city shall constitute a violation of the zoning ordinance.

e. It shall be unlawful for any person to damage required landscaping through tree topping, over pruning or chemical poisoning. It shall be an affirmative defense that a maintenance/pruning plan was approved by the zoning administrator and that the work was performed in compliance with said approved plan. In the event that required landscaping has been so severely damaged due to tree topping, over pruning or chemical poisoning that it has died, the developer/owner shall replace the landscaping within 45 days of written notice from the city.

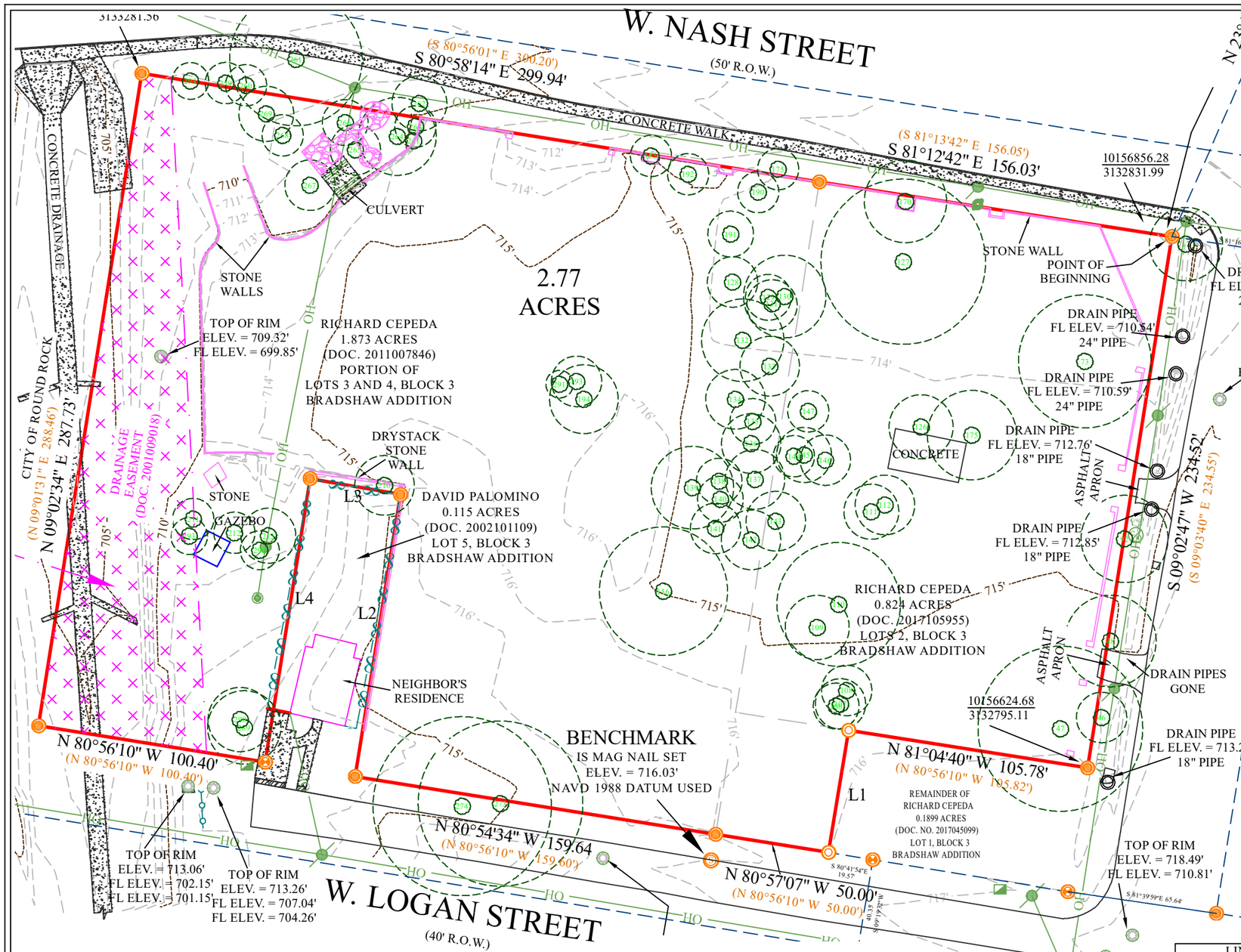
M-B Landscape Architect
544 military drive - canyon lake, texas 78133
ph. (512) 448-0137
mbbla@gvtc.com



RAMENDU DUPLEX AT ROUND ROCK
210 LOGAN STREET
ROUND ROCK, TEXAS

EXISTING TREE
REMOVAL MITIGATION
DETAILS AND NOTES

L2
OF 2



LEGAL DESCRIPTION

BEING 2.77 ACRES OF LAND OUT OF THE WILEY HARRIS SURVEY, ABSTRACT NUMBER 298, WILLIAMSON COUNTY, TEXAS, CONSISTING OF THREE TRACTS CONVEYED TO THAT CERTAIN RICHARD CEPEDA, BEING A PORTION OF THAT CERTAIN 0.1899 ACRE TRACT RECORDED IN DOCUMENT NUMBER 2017045099, ALL OF THAT CERTAIN 1.873 ACRES RECORDED IN DOCUMENT NUMBER 2010078846 AND ALL OF THAT CERTAIN 0.824 ACRES RECORDED IN DOCUMENT NUMBER 2017105955, ALL OF THE OFFICIAL PUBLIC RECORDS, WILLIAMSON COUNTY, TEXAS, SAID 2.77 ACRES OF LAND TO BE MORE PARTICULARLY DESCRIBED BY METES AND BOUNDS IN EXHIBIT "A", ATTACHED HERETO AND MADE A PART HEREOF.

TOPOGRAPGIC AND TREE SURVEY

LEGEND

- 1/2" ROD FOUND
- 1/2" ROD W/CAP SET "ALLSTAR 5729"
- MAG NAIL SET
- ( ) RECORD INFORMATION
- UTILITY POLE
- OH OVERHEAD UTILITY LINE(S)
- MANHOLE
- GAS WARNING SIGN
- CLEAN OUT
- TREE
- P.O.B. POINT OF BEGINNING

CITY OF
AT WEST
AT NOR

ELEVA

NOTICE
BEFORE DESIGN BEGINS ON THE SUBJECT PROPERTY THE OWNER SHOULD CHECK THE LOCAL GOVERNING AUTHORITIES ABOUT BUILDING SETBACKS AND OTHER BUILDING REQUIREMENTS.

BEARING BASIS:
BEARINGS ARE GRID NORTH BASED ON THE TEXAS COORDINATE SYSTEM CENTRAL TEXAS ZONE (4203) NAD83 HARN HORIZONTAL CONTROL.

LINE TABLE

LINE	BEARING	LENGTH
L1	S 09°22'00" W	53.94'
(L1)	(S 09°03'40" W)	(53.87')
L2	N 09°08'25" E	124.46'
(L2)	(N 09°08'25" E)	(125.00')
L3	N 80°05'35" W	40.17'
(L3)	(N 79°57'54" W)	(40.00')
L4	S 08°59'15" W	125.05'
(L4)	(S 09°00'06" W)	(125.05')

N
NW NE
W SCALE 1" = 50' E
SW SE
S

0 50 100

STATE OF TEXAS REGISTERED EDWARD RUMSEY 5729 PROFESSIONAL LAND SURVEYOR

TO THE LIEN HOLDER AND / OR OWNERS OF THE PREMISES SURVEYED I DO HEREBY CERTIFY THAT THIS SURVEY WAS THIS DAY MADE ON THE GROUND UNDER MY SUPERVISION AND TO THE BEST OF MY KNOWLEDGE OF THE PROPERTY LEGALLY DESCRIBED HEREON CERTIFIED ONLY TO BUILDING LINES AND EASEMENTS AS PER PLAT. THIS SURVEY WAS PERFORMED WITHOUT THE BENEFIT OF AN ABSTRACT OF TITLE.

SURVEY DATE:	FEBRUARY 27, 2020	FIELDED BY:	EDWARD RUMSEY	02/25/2020
TITLE CO.:	-	CALC. BY:	EDWARD RUMSEY	02/26/2020
G.F. NO.:	-	DRAWN BY:	SEAN SUTTON	02/27/2020
JOB NO.:	A0201820 - A0113220	UPDATE BY:	-	-
		RPLS CHECK:	EDWARD RUMSEY	02/27/2020

F.I.R.M. MAP INFORMATION

THIS PROPERTY DOES LIE WITHIN THE 100 YEAR FLOOD-PLAIN, AND HAS A ZONE "AE" RATING AS SHOWN ON THE FLOOD INSURANCE RATE MAPS
F.I.R.M. MAP NO. 48491C0493F
PANEL: 0493F
DATED: 12/20/2019

THIS CERTIFICATION IS FOR INSURANCE PURPOSES ONLY AND IS NOT A GUARANTEE THAT THIS PROPERTY WILL OR WILL NOT FLOOD. CONTACT YOUR LOCAL FLOOD PLAIN ADMINISTRATOR FOR THE CURRENT STATUS OF THIS TRACT.

ALLSTAR Land Surveying
9020 ANDERSON MILL RD
AUSTIN, TEXAS 78729
(512) 249-8149 PHONE
(512) 331-5217 FAX
TBPLS FIRM NO. 10135000